VUOTOTECNICA
VACUUM SOLUTIONS

A FUTURE AS INNOVATORS

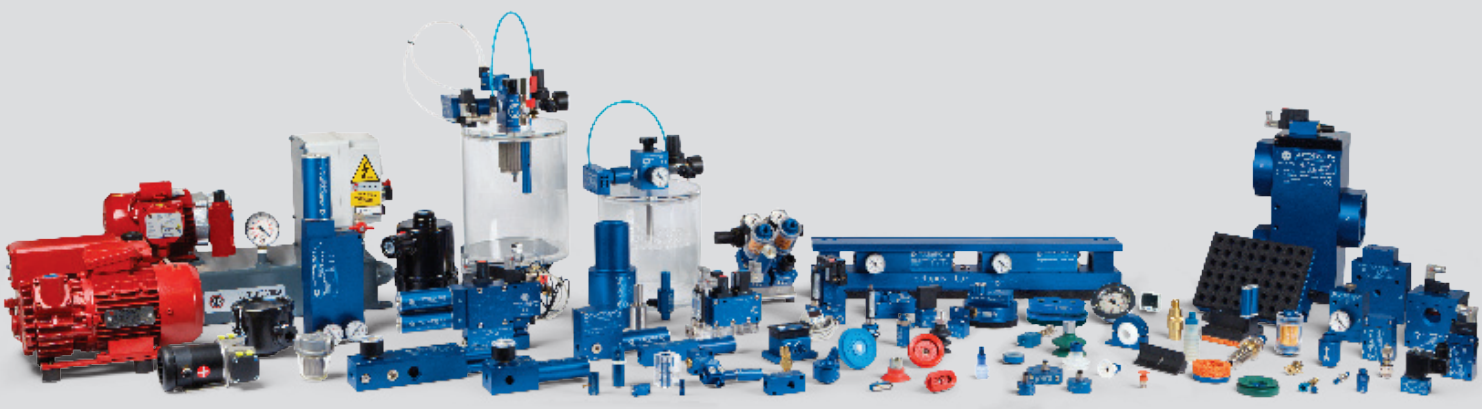
For fifty years, we have been transforming vacuum technology into value for industry.

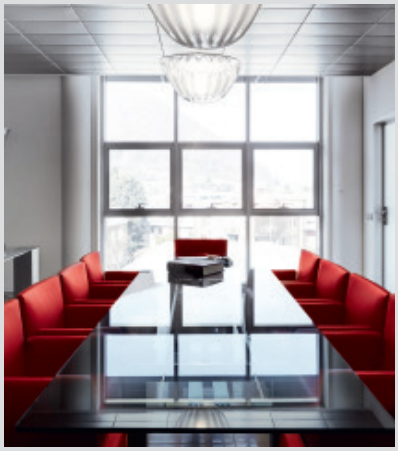
Vuototecnica has been designing and manufacturing vacuum generation and management solutions since 1975, becoming an international benchmark in industrial automation. In half a century of activity, we have seen the technologies, markets and production languages evolve. But one thing has never changed: our desire to innovate by listening to our customers' needs.

Vacuum is a simple concept, yet one that is rich in technical challenges. At Vuototecnica, we translate it into gripping, handling and control systems that operate every day across a wide range of sectors: glass, wood, marble, ceramics, metal, packaging, food, automotive, plastics, pharmaceuticals, graphics and many more. Vacuum cups, vacuum cup holders, vacuum pumps and generators, valves, vacuum switches, Octopus systems and special solutions work in synergy to improve production safety, efficiency and flexibility.

Listening, designing, and creating: this is our way of innovating. Our mission is not only to supply components, but to build solutions. Each product is the result of a direct dialogue with those who use our systems, the analysis of real applications, and the desire to simplify even the most complex processes. At Vuototecnica, quality, versatility and customisation are tangible values, rooted in our corporate culture and our team's daily activities.

We are celebrating 50 years of business with our eyes firmly fixed on the future. We will continue to invest in research, people and technologies to deliver increasingly smart, connected and sustainable systems. Because for us, vacuum doesn't signify emptiness, but rather space for new opportunities: an open field in which we can give shape to our customers' ideas.





OVER FIFTY YEARS OF EXPERIENCE SERVING CUSTOMERS

Vuototecnica was founded in July of 1975 thanks to the intuition of Giuliano Bosi, who designed and patented an innovative solenoid valve capable of meeting the most complex industrial needs. This was the start of an entrepreneurial journey that would demand creativity, technical rigour and international vision. The first solenoid valve models, from the DDN series, are still in production today, providing tangible proof of the solidity and reliability of the solutions developed from the outset.

From its early years, the company chose a clear path: specialisation in vacuum technologies and a constant focus on innovation. From vacuum solenoid valves, the range quickly expanded to include more complex systems, including automatic mechanisms, special applications, vacuum cup loaders and unloaders, degassers for polyurethane foams, vacuum lifters and transfer devices. Each new product was created with a precise objective: to simplify the users' work, reduce machine downtime, and increase safety and productivity.

The commitment to technological research soon led to the development of solutions that were unique on the market. By the end of the 1980s, vacuum reducers and self-closing valves had been designed, products that were unknown in the sector at the time and were capable of easily solving problems previously addressed with more complex and costly systems. This demonstrates how field experience, combined with strong design capabilities, can generate tangible innovation.

Today, Vuototecnica offers its customers know-how gained from fifty years of real-world applications, supported by a specialised technical team and a network of qualified partners. We not only offer components, but genuine design support, from the study phase through to system commissioning, with constant attention to long-term reliability.

THE HEADQUARTERS AND RESEARCH LABS: WHERE SOLUTIONS ARE BORN

The headquarters in Beverate di Brivio is the technological heart of Vuototecnica. Here, technical offices, research and development laboratories, production departments and training areas coexist. These are modern, well-equipped environments, designed to foster continuous dialogue between designers, technicians, production teams and customers.

At our laboratories, we conduct daily tests of new applications and solutions on Cartesian axis gantries and anthropomorphic robots, recreating conditions as close as possible to real-life operations. This enables us to optimise the systems prior to installation and to develop customised configurations for every type of requirement, from handling heavy and irregular objects to managing flexible packaging and high-frequency applications.

Training plays a central role. In our dedicated classrooms, we organise technical courses and demonstration sessions for designers, maintenance technicians, system integrators and line operators. Tools such as the Vacuum Training Box – a trolley-sized case containing the main vacuum components – make the technology tangible, enabling a clearer understanding of our products' operating principles and application potential.

PRODUCTION: A CONSTANTLY EVOLVING PRODUCT RANGE

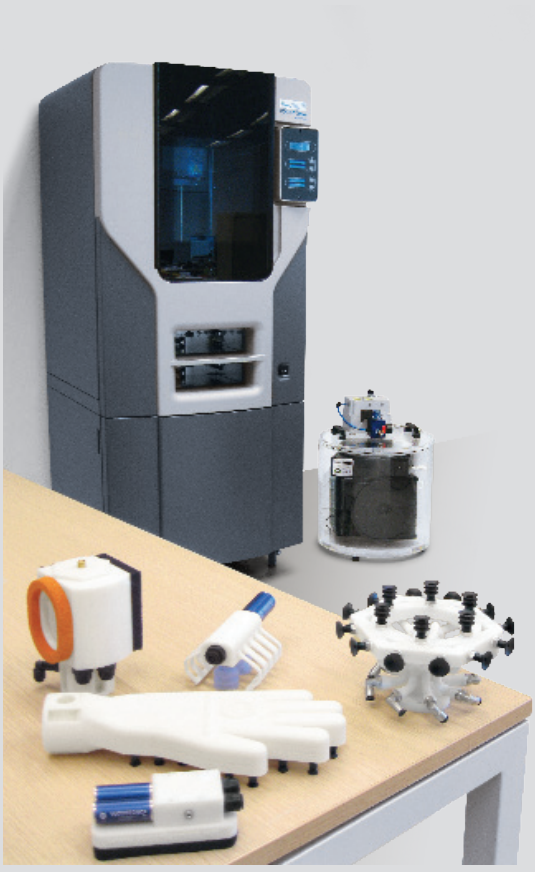
From solenoid valves and lifting vacuum cups to today's complete vacuum solutions, Vuototecnica's production range has evolved in line with – and often ahead of – the needs of industry. Today, our catalogue includes:

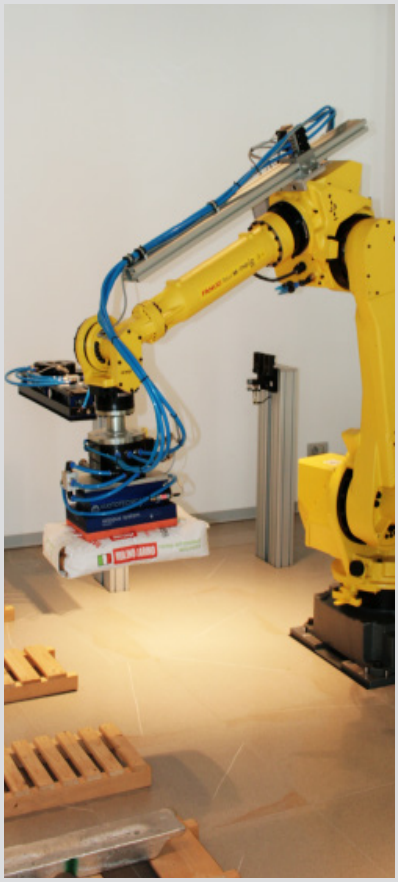
- vacuum cups;
- vacuum cup holders, with or without automatic mechanisms;
- vacuum measurement, control and regulation instruments;
- suction filters, fittings and pipes;
- diaphragm and rotary vane vacuum pumps, lubricated and dry;
- electric or pneumatic vacuum pumps;
- pneumatic vacuum generators with single or multi-stage ejectors;
- Octopus vacuum gripping systems.

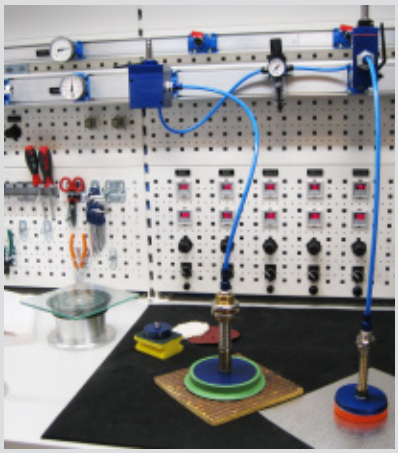
To complete the offering:

- pneumatic suction and blowing pumps for the graphics industry;
- vacuum cylinders;
- degassers for resins and composite fibres;
- vacuum testing equipment;
- suction units for water or dense liquids, with siphon filters or storage tanks;

This extensive range allows us to design integrated solutions that are fully compatible and consistent with one another, ensuring high standards of efficiency and reliability.







Discover what's new

In recent years, our production has been enriched with products designed to best respond to the latest automation needs:

VACUPREDATOR vacuum cups
Designed to safely grip difficult and irregular packages – bags, sacks and flexible paper or plastic containers – containing powders, granules, bulk products or liquids. Ideal for modern packaging, where variability in shape is the norm.

SV series vacuum cups (STAR VACUUM)
Designed for the deformation-free handling of flat and flexible objects, such as cardboard interlayers or thin metal sheets. They allow for fast, effective and gentle gripping, with particular attention to the quality of the handled product.

VM series VACUMANAGER units
Genuine integrated electro-pneumatic circuits for the power supply and management of single-stage and multi-stage vacuum generators. They combine multiple functions in a single unit, simplifying the system, reducing wiring and optimising consumption.

RVP series lubricated rotary vane vacuum pumps
A new generation of pumps with an updated design and excellent technical characteristics, developed for continuous and heavy-duty operation. Their key strengths are their reliability, simplified maintenance and consistent performance over time.

2" and 3" gas vacuum reducers
Developed to integrate seamlessly with the Vuototecnica solenoid valves of the same size, they reflect the company's philosophy of supplying proportionate and consistent components, simplifying system design.

2" and 3" servo-piloted 3-way vacuum valves and solenoid valves
Ideal for high flow rates with low power consumption. They ensure reliable vacuum management even for the most demanding applications.

Single-stage vacuum generators with FVG 8 and 12 ejector
Designed for very high-frequency pick-and-place applications, based on the Venturi principle and equipped with a pneumatic ejector. Ideal for fast, repetitive cycles typical of modern automated lines.

TPR hose fittings (RMTPR)
Manufactured from solid aluminium, extremely robust and guaranteeing a perfect vacuum seal. An often "invisible" component, yet one that is essential to a system's overall reliability.

MSVE single-stage and multi-function vacuum generators
Compact electro-pneumatic systems with integrated energy-saving features. They reduce compressed air consumption and improve overall energy efficiency, in line with the latest sustainability requirements.

Vacuum Training Box
A trolley-style educational case containing the main vacuum components, designed as a training and teaching tool. A true portable laboratory for technicians, trainers and schools.

What makes Vuototecnica's offering unique is its completeness. From the vacuum pump to the latest vacuum cup, down to the smallest fitting, every component is designed to integrate into a coherent and reliable system, ready to be incorporated into the customers' production processes.

A GLOBAL OUTLOOK

Since its foundation, Vuototecnica has chosen to remain close to its customers, first in Italy and then worldwide. In Italy, we have built an extensive sales network of distributors and retailers. Since 2012, the national territory has been organised into areas entrusted to qualified partners, who not only promote the products but also provide technical advice and direct support during the selection, installation and maintenance phases.

As early as the mid-1980s, the company began looking beyond the national borders, first across Europe and then gradually expanding its global presence. Today, we operate through exclusive distributors in numerous countries, and collaborate with local partners with specific expertise in their respective markets and applications.

Vuototecnica solutions are used by major industrial companies in the United States, Canada, Australia, Singapore, South Korea, Turkey, Israel, the United Arab Emirates, Egypt, China and many other countries. This international scope enables us to address new applications, diverse regulations and increasingly complex technological challenges on a daily basis, fuelling a virtuous cycle of experience and innovation.

THE VUOTOTECNICA CATALOGUE... A GOLD MINE OF VACUUM TECHNOLOGY SOLUTIONS!

This general catalogue is the synthesis of fifty years of experience in vacuum technology. It's much more than a mere product directory. It's a true working tool designed for designers, manufacturers, integrators and maintenance technicians. Each section guides the reader from the selection of product families to specific technical details, with clear data sheets, performance information and application guidelines.

Translated into five languages and constantly updated with the latest developments, the catalogue consists of over 900 pages, and can be regarded as an "encyclopaedia of vacuum technology" for industry. Leafing through it, readers can build a complete journey, from understanding the operating principles to the most advanced configurations, supported by real world application examples.

In addition to presenting the entire Vuototecnica range, this tool is also intended to be a source of inspiration. When properly understood and managed, vacuum technology can open up new perspectives, making lines more flexible, speeding up format changes, reducing waste, and increasing process safety and repeatability. This is where the catalogue becomes more than just a document: it's a guide for those who seek to innovate.

As we celebrate the milestone of our 50th anniversary, this catalogue represents both a point of arrival and a new beginning. It tells a story of intuition, research, passion and collaboration with customers, and above all, it is designed as a solid foundation upon which to build the future.

Vuototecnica looks ahead, ready to write the next chapters of this story, together with those who choose vacuum technology every day as their ally in industrial automation.

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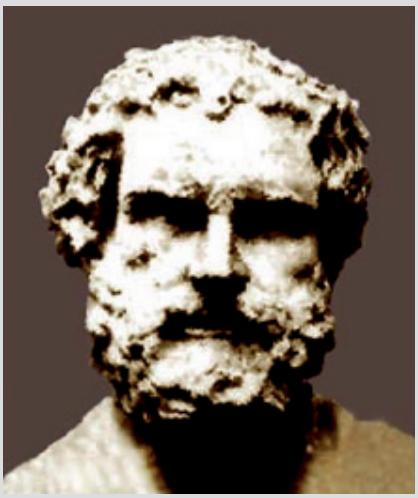
History of the concept of a vacuum

The question of the existence of vacuums and the very definition of the concept of vacuums has interested the most brilliant philosophical and scientific minds in the world since antiquity.



Democritus (5th century BC)

Aristotle (384 BC - 322 BC)

ANCIENT GREECE

The universe of Democritus was composed of eternal and immutable entities, which he referred to as atoms (that is, indivisible). To justify the natural processes and the becoming of reality, he attributed to Atoms movement and, with them, a vacuum; that is, the space within which movement is exercised. Within Democritus's vacuum, each atom moves in a straight uniform motion, until the next collision with other atoms.

Thus, for Democritus, the primary realities were atoms and vacuums. The conception of the Aristotelian dynamics was quite different: for Aristotle, the cause of the movement of bodies was not in the body itself, but in the medium. Once thrown, a projectile would continue in motion because it is pushed by the air, which continuously rushes to occupy the vacuum left by the projectile as it passes. A body would therefore always be subject to a force during motion and its speed would be directly proportional to it and inversely proportional to the resistance of the medium.

It follows that, in vacuums, resistance would be null and the speed of the body would become infinite, or rather the body would have the gift of ubiquity. Hence the Aristotelian conviction of the impossibility of vacuums: "Nature abhors a vacuum".

The Aristotelian world system

HELLENISTIC AGE

The Alexandrian mechanics studied the usefulness of the compressibility of air (Pneumatics by Philo of Byzantium, 250 BC).

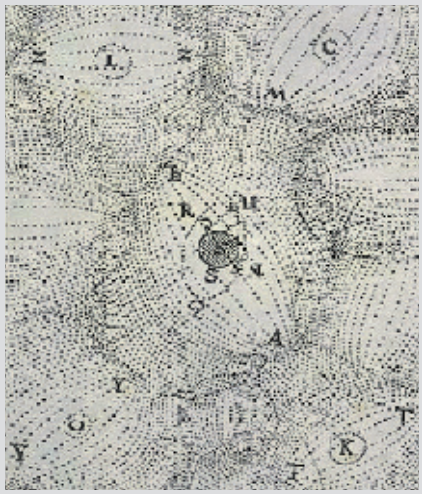
They took a middle position between the supporters and the critics of the theory of the existence of vacuums. For the Alexandrians, vacuums in large volumes were not possible, but only vacuums disseminated between one particle and another (the Latins then called it vacuum intermixtum) and in this way were able to easily explain the compressibility and elasticity properties of air.

MIDDLE AGES

In the fifth century, Giovanni Filopono criticised the Aristotelian theory of vacuums and laid the foundations for what was revived as the theory of impetus in the thirteenth and fourteenth centuries.
According to Filipono, the motion of the projectile is due to the action of a "kinetic incorporeal force," which is impressed on the projectile at the time of launching (prefiguring what we now call momentum), and the resistance of the medium is reduced to a simple additional component. Movement in the vacuum thus becomes possible.
Around the tenth or eleventh century, the diatribe against vacuums interested Arab scholars and commentators, who contributed to the development of the theory of impetus. In particular, Avicenna took up the ideas of Giovanni Filipono, adding something important to them: according to Avicenna, the force impressed at the beginning of movement in vacuums would never be consumed and motion would go on forever.
On the other hand, the famous Aristotelian commentator Averroes (12th century), opposed this theory, claiming that it is everyone's experience that motion always takes place through a medium and that resorting to a hypothetical incorporeal force would mean looking for the cause of things not in reality but in an imaginary abstract world.
Starting from the first half of the 13th century, the discussions that animated the Arab world moved back to the West, involving some of the greatest minds of the time (from Albertus Magnus to Thomas Aquinas).
The deepening of the ideas of Filipono and Avempace eventually led to the systematic elaboration of the theory of impetus, one of the most important fruits of the so-called "Parisian school of physics".

MODERN AGE

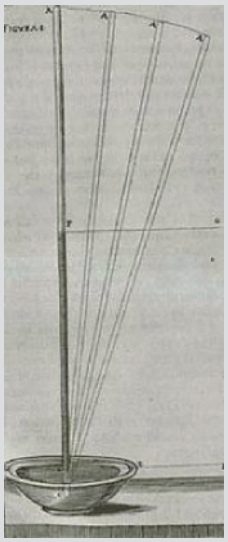
René Descartes (1596-1650)



Cartesian vortexes
R. Descartes, Principia Philosopiae (Principles of Philosophy) (1644)

In 1644, Descartes published his “Principia Philosopiae,” in which he also sustained the non-existence of vacuums. The fact that air has a mass and is therefore subject to terrestrial gravitational attraction was recognised in that same year, when Italian physicist and disciple of Galileo, Evangelista Torricelli (1608-1647), described the famous experiment of the full glass tube of mercury with an open end placed inside a basin, also filled with mercury, that he executed the previous year. Until that time, the Aristotelian theory of “horror vacui” (Latin for “fear of the vacuum”) remained in vogue. Torricelli realised that the force that held the column of mercury inside the glass tube was not due to the “horror vacui”, but to the weight of the air that weighed on the mercury contained in the basin underneath. In the same way, the water that rises in the tube from which the air is sucked in does not fill the vacuum that nature fears, but because it is pushed by the

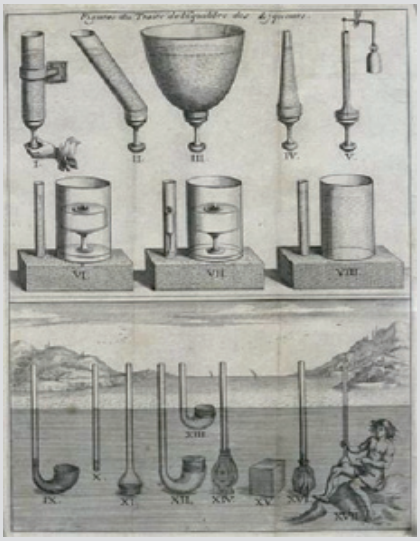
Evangelista Torricelli on the title page of "Academic lectures by Evangelista Torricelli" (Florence 1715)



"This experience fell to Torricelli, its first inventor, who argued that quicksilver and any other fluid at certain heights could be sustained by the external natural pressure of air". Saggi di naturali esperienze fatte nell'Accademia del Cimento, Firenze (Essays of Natural Experiments: Made in the Academie Del Cimento, Florence) (1666)

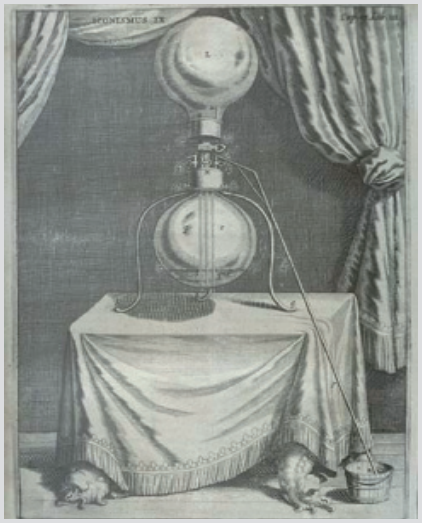
pressure of the air that acts on the water contained in the well.
Torricelli, however, did not only propose a new hypothesis to explain the phenomenon he had observed, but he also suggested an experiment that could validate or negate his idea.
The experiment consisted in measuring the height of the mercury inside the glass tube in the high mountain regions.
If it was true that it was the air pressing on the mercury contained in the basin that raised the air present in the glass tube, decreasing the weight of the overlying air should also decrease the level of mercury inside the glass tube.
The experiment was carried out for the first time in 1648, according to the Galilean experimental method, by the French mathematician Blaise Pascal (1623 - 1662) and confirmed the prediction of the Italian physicist. In that same year, Pascal published a paper on the subject in which he confirmed Torricelli's experience. The following year, he provided the first features of the Altimetric law of pressure variation with altitude, proposing using it for measuring the height of mountains.
Around 1650, Otto von Guericke (1602 - 1686) invented his famous vacuum pump, amazing Europe with his public experiments. His experience of the Magdeburg hemispheres (1654), in which two pairs of horses were unable to separate two juxtaposed metal hemispheres inside which a vacuum had been made, was renowned.

Blaise Pascal (1623 - 1662)



Tables on the effects of air pressure
Blaise Pascal, Traitez de l'equilibre des liqueurs, et de la pesanteur de la masse de l'air,
Paris (1663)

Otto von Guericke (1602 - 1686)
Otto von Guericke, Experimenta Nova (ut vocantur) Magdeburgica De Vacuo Spatio, Amsterdam (1672)

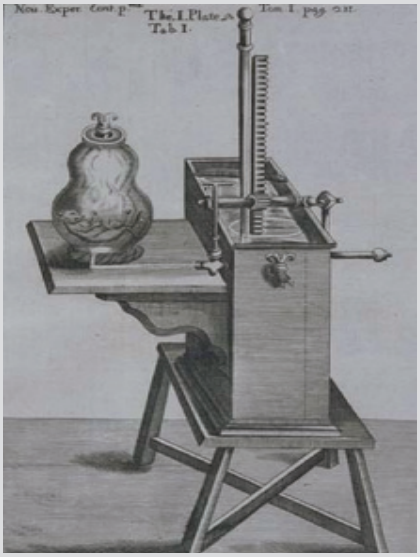


Pneumatic pump by Otto von Guericke
Otto von Guericke, Esperimenta Nova (ut vocantur) Magdeburgica De Vacuo Spatio, Amsterdam (1672)

Esperienza degli emisferi di Magdeburgo (Experience of the Magdeburg hemispheres) (1654)
Gaspar Schott, Meccanica hydraulico-pneumatica (Hydraulic-pneumatic mechanics), Würzburg (1657)

In another experiment conducted in the same year, twenty people could not hold back a piston that would recede if connected to a chamber in which a vacuum had been made: this is the first example of a cylinder and piston engine.
Robert Boyle (1627 - 1691) perfected von Guericke's vacuum pump and performed new experiments, which he described in a paper in 1660. Boyle was the first to demonstrate that it was impossible to hear the sound of a bell inside an evacuated bell jar.
Similar experiences and values presented other experiences, such as that of smoke which does not rise but instead descends in vacuums, and that of water that boils at room temperature in a vacuum. A few years later, Boyle experimentally defined the gas law that bears his name and established inverse proportionality between the volume and pressure of a gas due to isothermal transformations.
Christian Huygens and Robert Hooke (1635 - 1702) also worked on the vacuum pump.
In those years, observations on the variations in atmospheric pressure continued: in 1660, von Guericke observed the fluctuation in his large water barometer and a sudden fall allowed him to foresee the arrival of a storm in advance.
In 1686, astronomer Edmond Halley succeeded in presenting a reliable formula for

Robert Boyle (1627 - 1691)



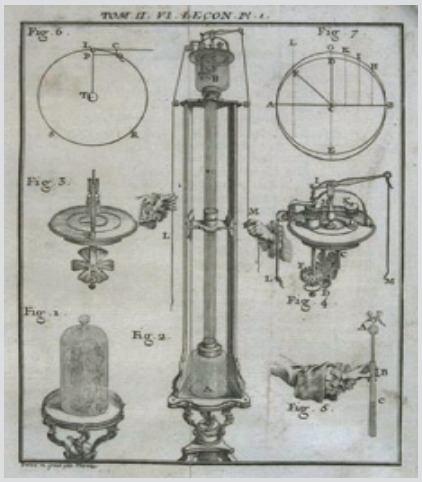
Boyle's pneumatic pump in operation
Robert Boyle, New experiments Physico-Mechanicall, Touching the spring of the Air and its Effect, Oxford (1660)

Sound in a vacuum
Robert Boyle, New experiments Physico-Mechanicall, Touching the spring of the Air and its Effect, Oxford (1660)

Robert Hooke (1635 - 1702)

Torricellian experiment
Gaspar Schott, Technica curiosa,sive, Mirabilia artis, Würzburg (1664)

Galileo Galilei (1564 - 1642)



Apparato sperimentale per la caduta dei gravi nel vuoto (Experimental apparatus for masses falling in a vacuum)
Gjean Antoine Nollet, Leçons de physique expèrimentale, Paris (1743 - 1748)

determining altitude based on the pressure variation.
In 1680, Huygens proposed using a vacuum to obtain energy from atmospheric pressure.
In 1687, Denis Papin, who had assisted him in the experiments, was the first to make a machine that uses steam to move a piston.
Thanks to the development of tools to easily produce a vacuum, an ingenious experimental apparatus was built at the end of the seventeenth century This tool finally allowed us to demonstrate the accuracy of Galileo's statement (the bodies of any matter, weight and volume, all fall at the same rate within a vacuum).
A feather and a gold coin were simultaneously dropped in a glass tube evacuated by a pump: despite their different weight, the two bodies reached the base of the tube at the same time.
In 1705, English physicist Francis Hawksbee consolidated Boyle's discovery that sound did not propagate in vacuums and later, in 1709, he created the first two-cylinder vacuum pump.
In 1738, Daniel Bernoulli published an important treatise on hydrodynamics in which, among other things, he advanced some fundamental hypotheses that would be taken up in the nineteenth century in the so-called kinetic theory of gases.

CONTEMPORARY AGE

The development of physical sciences led to the strict definition of gas laws. The need for vacuum production equipment (vacuum pumps) and measurement equipment (vacuum gauges) gave a strong boost to technical research.
Towards the mid-nineteenth century, the introduction of new types of pumps made it possible to obtain high degrees of vacuum and to study, for example, the phenomena of gas ionisation in conditions of extreme rarefaction.
The study of cathode rays, produced in vacuum tubes, made it possible to lay the foundations for determining the relationship between the electron mass and charge. In those same years, the kinetic theory of gases was stated.
In the early twentieth century, different types of vacuum gauges were developed which allowed for the measurement of pressures up to 10^{-1} Pa. In 1909, the first ionisation vacuum gauge was also built, which could measure up to 10^{-6} Pa.
After the Second World War, further improvements were made to ionisation vacuum metres and it is now possible to measure extreme degrees of vacuum, even above 10^{-12} Pa.

INTRODUCTION TO VACUUMS

- BASIC PRINCIPLES OF PHYSICS
  - What is a vacuum?

The term **"vacuum"** refers to the physical situation that occurs in an environment where the gas pressure is lower than the atmospheric pressure.

NEGATIVE PRESSURE AND POSITIVE PRESSURE

Positive pressures are defined as all those with values higher than atmospheric pressure; negative is defined as all those with lower values. To simplify, let's look at the diagram below:

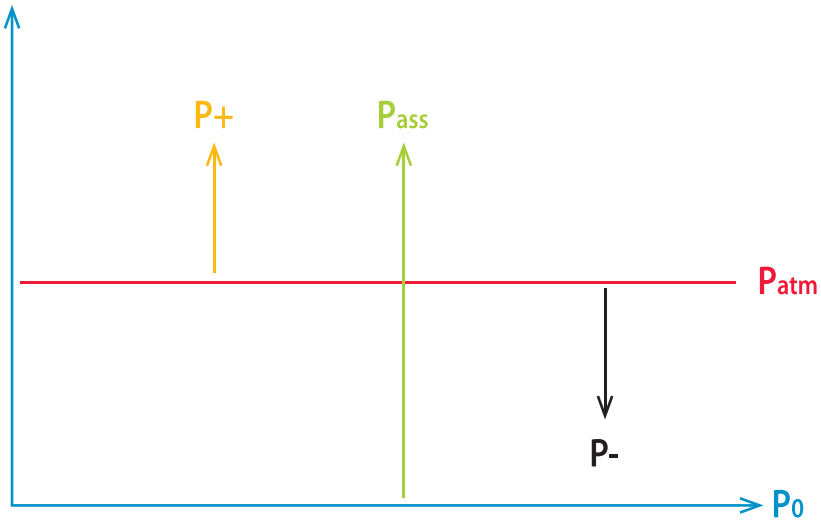
Patm = Atmospheric pressure

P_0 = Zero pressure, absolute vacuum

P+ = Relative positive pressure

P_{ass} = Absolute pressure

P- = Relative negative pressure



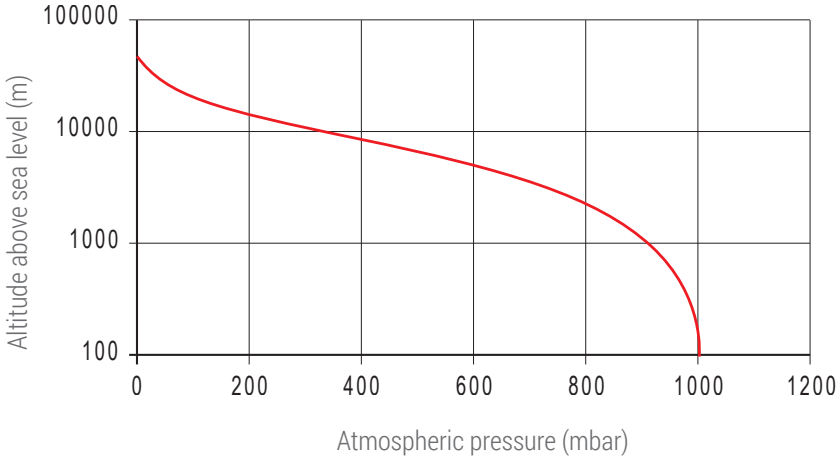
Since pressure dimensionally represents a force per unit area, its unit of measure is the **pascal** (symbol Pa), which represents the pressure that occurs when the force of a **newton** (symbol N) is exerted on the surface unit, measured **square metres** (symbol m^2).

Therefore:
pascal = newton/$metre^2$ ==> Pa = N/m^2

The unit of measurement of pressure, adopted by the International System SI, is the pascal (symbol Pa).

In practice, through, alternative units of measurement are also used such as **millibars** (mbar), equal to 100 Pa, and **Torr** or **mmHg**, which is equal to 133.322 Pa. The latter is a unit that is not consistent with the International System SI, but is tolerated for measuring blood pressure.

Atmospheric pressure, measured in mbar, decreases as the altitude measured in m changes, as better specified in the diagram below.



MEASURING PRESSURE

The instruments commonly used for measuring positive pressure are called **pressure gauges**, while those intended for measuring negative pressure are called **vacuum gauges or vacuum metres**.

Comparison of pressure values measured at sea level with the same values measured at different altitudes

mmHg	mbar	Altitude m	-60 KPa	-75 KPa	-85 KPa	-90 KPa	-99 KPa
760	1013.25	0	60.0	75.0	85.0	90.0	99.0
750	999.9	111	58.7	73.7	83.7	88.7	97.7
740	986.6	200	57.3	72.3	82.3	87.3	96.3
730	973.3	275	56.0	71.0	81.0	86.0	95.0
720	959.9	467	54.7	69.7	79.7	84.7	93.7
710	946.6	545	53.3	68.3	78.3	83.3	92.3
700	933.3	655	52.0	67.0	77.0	82.0	91.0
690	919.9	778	50.7	65.7	75.7	80.7	89.7
671	894.6	1000	48.1	63.1	73.1	78.1	87.1
593	790.6	2000	37.7	52.7	62.7	67.7	76.7

LEVELS OF VACUUM

Depending on the pressure, slightly or much lower than the atmospheric pressure (that is 101325 Pa), the phenomena that occur can be very different, as the means to obtain and measure that pressure can be very different.
Usually different levels of vacuum are distinguished and given a specific name in relation to the various sub-atmospheric pressure ranges, as indicated in the following table:

- Rough vacuum, RV: from 10^5 to 10^2 Pa
- Medium vacuum, MV: from 10^2 to 10^{-1} Pa
- High vacuum, HV: from 10^{-1} to 10^{-5} Pa
- Ultra-high vacuum, UHV: from 10^{-5} to 10^{-9} Pa
- Extremely-high vacuum, EHV: < 10^{-9} Pa

The highest level of vacuum reached on earth differs considerably from the absolute vacuum value, which remains a purely theoretical value.

There is a minimal presence of atoms even in space and therefore in the absence of atmosphere.

In industry, much more simply, vacuums are divided into three application areas, which depend on the level of vacuum required.

- **Rough vacuum:** Usually used in all those applications where a high intake air flow and a level of vacuum lower than - 20 Kpa is required

- **Industrial vacuum:** "Industrial vacuums" are intended as a level of vacuum between - 20 and - 99.9 KPa. This range covers most applications.

- **Process vacuum:** Vacuums exceeding - 99.9 KPa

U-shaped
Mercury vacuum gauge

McLeod
Mercury vacuum gauge

Bourdon spring
vacuum gauge

Digital
Pirani vacuum metre

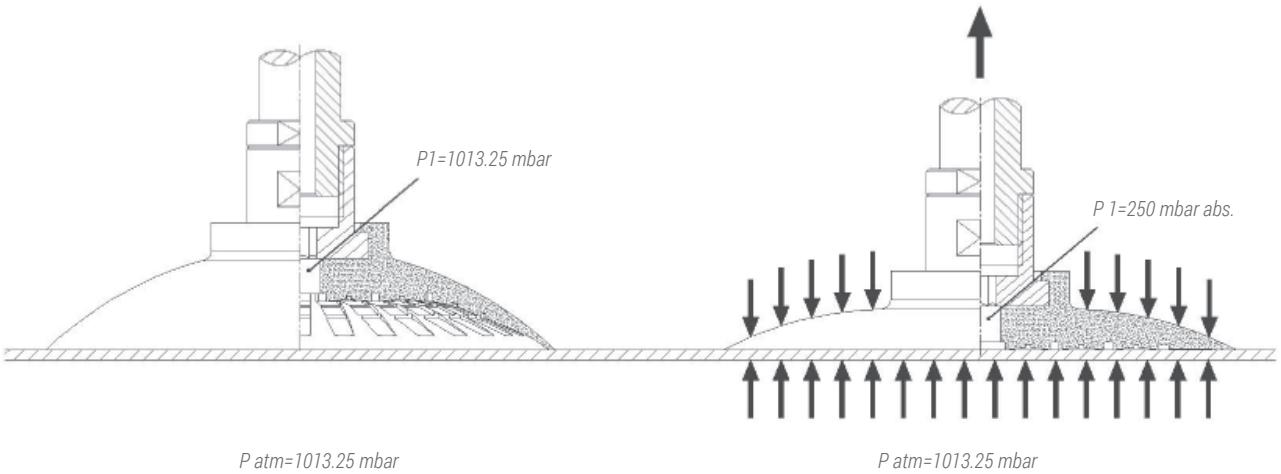
MAIN CHARACTERISTICS OF VACUUMS

If we take, for example, a bell jar and insert a lit candle, a bell and a glass of water inside it, we will notice that, as we create the vacuum, the candle will slowly go out, the sound of the bell will fade until it disappears and the water, contained in the glass, will begin to freeze when the degree of vacuum falls below 6.1 mbar absolute.
At the same time, the atmospheric pressure, acting on the whole surface of the bell jar and also on the underside of the support surface, will compress it on the latter with a force that is directly proportional to the level of vacuum reached inside it.

The candle blowing out shows that no life is possible in the absence of air.
This characteristics is used in the food industry for food packaging: vacuums in fact preserve food from spores, bacteria and moulds.
The bell phenomenon shows that sound waves are not transmitted in a vacuum and therefore this characteristic can be exploited in industry to improve sound insulation.
The water contained in the glass tends to cool down because its boiling temperature varies with the surrounding pressure, until it freezes to below 6 mbar absolute.
Also this characteristic of vacuums, for example, has been used in the field of fruit and vegetable refrigeration. Finally, the force exerted by the atmospheric pressure on the vacuum chamber is the same force that is used by vacuum cups for vacuum handling.

OPERATING PRINCIPLE OF VACUUM CUPS

When a vacuum forms inside a vacuum cup, the atmospheric pressure that surrounds it exerts a force on it that makes it adhere to the surface on which it rests.
This force, which is exercised in a uniform and opposite way between the vacuum cup and the external surface of the object on which it rests, is higher the greater the level of vacuum reached within it.



$\Delta P = Patm - P_1$

Where:
ΔP = Pressure differential expressed in mbar
Patm = Atmospheric pressure = 1013 mbar at sea level
P_1 = Absolute pressure reached inside the vacuum cup expressed in mbar

From the table inserted in the **technical memo**, relating to the pressure unit of measurement conversion factors, we note that it is necessary to develop the following formula to transform the mbar into Kg/cm^2,:

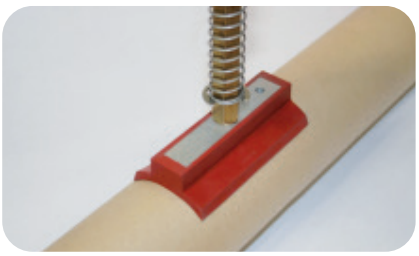
$Kg/cm^2 = mbar \times 1.02 \times 10^{-3}$

If we want to calculate, for example, the force exerted by the atmospheric pressure on a vacuum cup inside which a level of vacuum was created of 250 mbar abs (-75 KPa), we would proceed as follows:

$\Delta P = Patm - P_1 = 1013 - 250 = 763 \text{ mbar}$

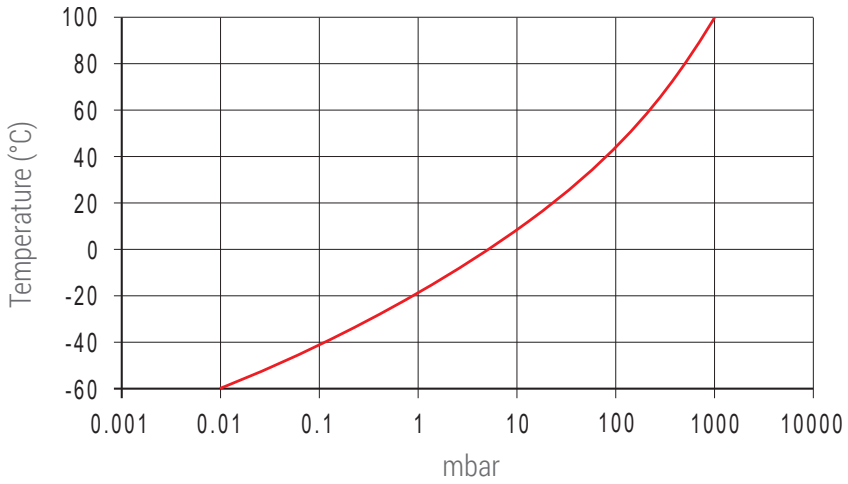
$763 \text{ mbar} \times 1.02 \times 10^{-3} = 0.778 \text{ Kg/cm}^2$

From the formulas above, it is easy to deduce that, for the same ΔP, the greater the gripping surface of the vacuum cup, the greater the force exerted on it by atmospheric pressure.
To detach the vacuum cup from the gripping surface, you will need to exert a force on it that is equal and opposite to that exerted by atmospheric pressure: in the vacuum handling or gripping sector, a part of this force is used, obtainable by dividing the whole contrary force for a factor of safety that can vary from 2 to 4, depending on the conditions of the load to be gripped.



BOILING TEMPERATURE OF WATER AT VARYING ABSOLUTE PRESSURES

The boiling temperature of the water varies with the surrounding pressure and therefore, also depending on the altitude. The diagram below shows the relationship between absolute pressure in mbar and temperature in °C.



COOLING FRUIT AND VEGETABLE PRODUCTS, WITH THE USE OF VACUUMS: example

ROBERT BOYLE'S LAW OF GAS:

+volume	-pressure
-volume	+pressure

Working principle

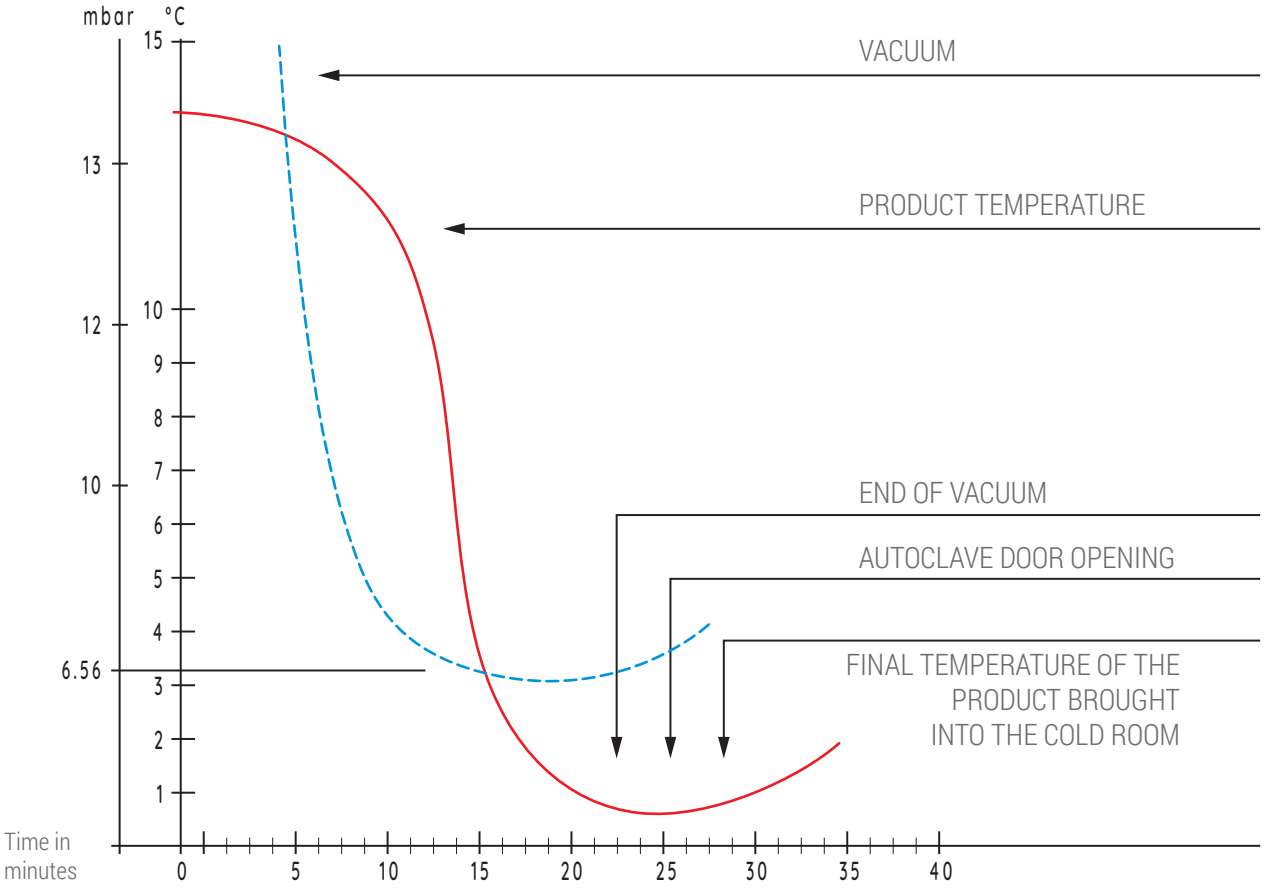
For rapid and uniform cooling, the treated products must have a high surface/volume ratio (kale, cabbage, lettuce, etc.).
Cooling is based on the relationship between water temperature and vapour pressure.
When the level of vacuum is increased, the water evaporates at an increasingly lower temperature, removing heat from the product.

Properties of water and water vapour at various pressures

Absolute pressure		Boiling point	Evaporation heat	Vapour volume
mbar	mmHg	°C 2)	cal/Kg 1)	m^3/Kg
1013.25	760	100	533	1.6
482.6	362	80	545	3
68.0	51	38	569	20
20.0	15	22	577	49
13.3	10	11	583	96
6.6	5	5	588	185
6.1	4.6	0	589	204
5.3	4.0	-1.9		
4.6	3.5	-3		
4.1	3.1	-5		
3.3	2.5	-7		
2.6	2.0	-9.7		

1) Heat required to turn water into vapour without changing temperatures
2) Sublimation point of ice at pressures lower than 4.6 mm Hg / 6.1 mbar

Vacuum and temperature values detected during the process



The quantity of water evaporated represents about 1% for every 5-6 °C that the temperature is lowered.
The vacuum is obtained with a high vacuum pump and the vapour developed is condensed on a refrigerating coil. The level of vacuum and the temperature must be detected by programmable precision instruments with direct reading to obtain the ideal cooling cycle based on the product.
The temperature value must be detected by an auxiliary safety device, which will have the function of protecting the product from the risk of frost.
These are just some of the features of vacuums commonly used in industry.

PUMP AND VACUUM GENERATOR FLOW RATE AND RELATIVE UNIT OF MEASUREMENT

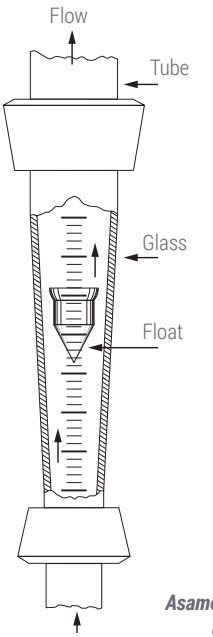
The volumetric quantity of fluid sucked in by the pump or vacuum generator, in the unit of time, is called the flow rate.
Definition: **Q, q, = V/t** (volume/time)
In the International System SI, the flow rate is measured in **m^3/s**.
Current multiples of use are: **l/min, l/s, m^3/h**.

FLOW RATE UNIT OF MEASUREMENT CONVERSION FACTORS

		= m^3/h	= m^3/min	= l/h	= l/min	= cfm
m^3/h	x	1	0.016	10^3	16.6	0.588
m^3/min	x	60	1	$6x10^4$	10^3	3.53x10
l/h	x	10^{-3}	$1.66x10^{-5}$	1	0.016	$5.88x10^{-4}$
l/min	x	$60x10^{-3}$	10^{-3}	60	1	$3.53x10^{-2}$
cfm	x	1.699	$2.83x10^{-2}$	1699.0	28.314	1

MEASURING FLOW RATE

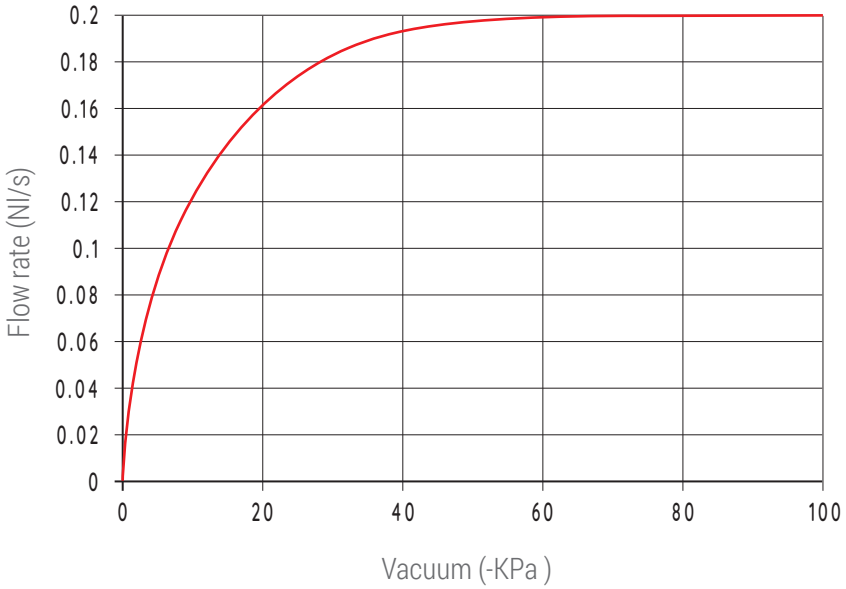
The instruments commonly used for measuring the flow rate are called flowmeters.
Based on the same operating principle, asameters are very precise laboratory instruments, which take their name from the company that produces them: the ASA company.
Flowmeters and asameters are variable area meters for fluids based on the Bernoulli principle.
Asameters consist of a glass tube and a body called a float.
The tube is tapered inside and calibrated with very tight tolerances. Inside the tube is a suitably shaped float with a diameter slightly smaller than the minimum diameter of the tube.
If we run a fluid with ascending motion through the system, the float moves into the tube and stops at a certain height corresponding to a well-defined flow.
A scale engraved on the glass tube lets you read this flow rate at the point where the float stops.



Asameter operating diagram

Flow loss

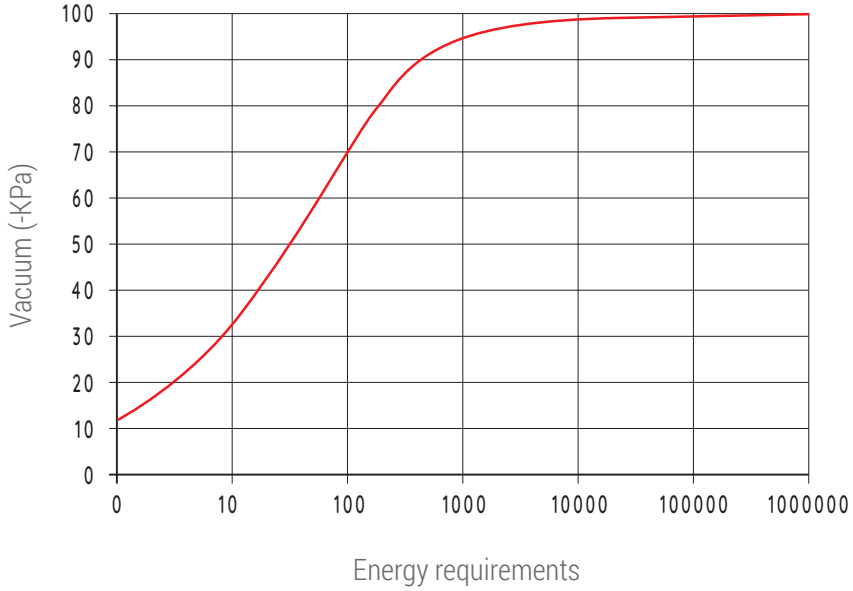
The diagram shows the flow loss value through a 1 mm^2 cross-section hole at different levels of vacuum, measured in Nl/s (Normal litres per second, the unit of measurement of the flow rate referring to the normal atmospheric pressure level of the sea).



To obtain the total loss, simply multiply the flow rate value indicated in the diagram, in correspondence with the available level of vacuum, for the total loss section.

Energy requirements based on vacuum produced

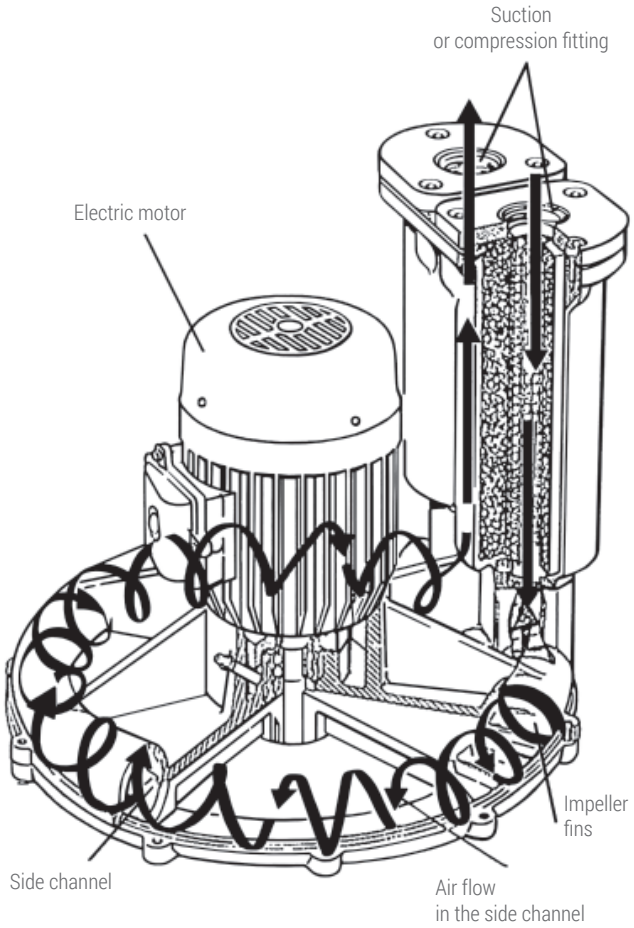
The diagram shows the increase in energy requirements as the level of vacuum increases.
As can be seen, the energy demand drastically increases above -90 Kpa; for this reason, it is advisable to stay below this value.
(Law by Robert Boyle 1627-1691)



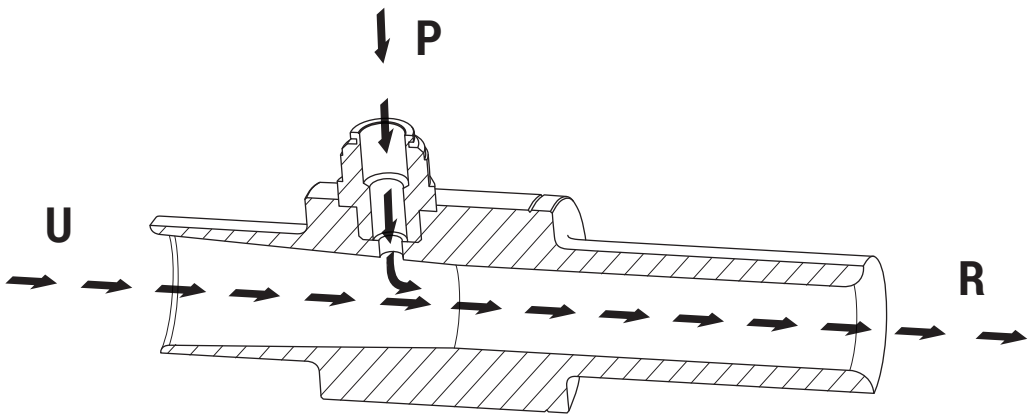
THE MAIN VACUUM GENERATORS

In industry, much more simply, vacuums are divided into three application areas, which depend on the level of vacuum required.

- **Rough vacuum:** Used in all those applications where a high intake air flow and a level of vacuum lower than - 20 KPa is required.
  In this application area, impeller-type electromechanical pumps are usually used, such as **centrifugal fans and side channel blowers, pneumatic and similar flow generators**.
  Screen printing on fabrics, for example, is one of the typical applications that require a low level of vacuum.



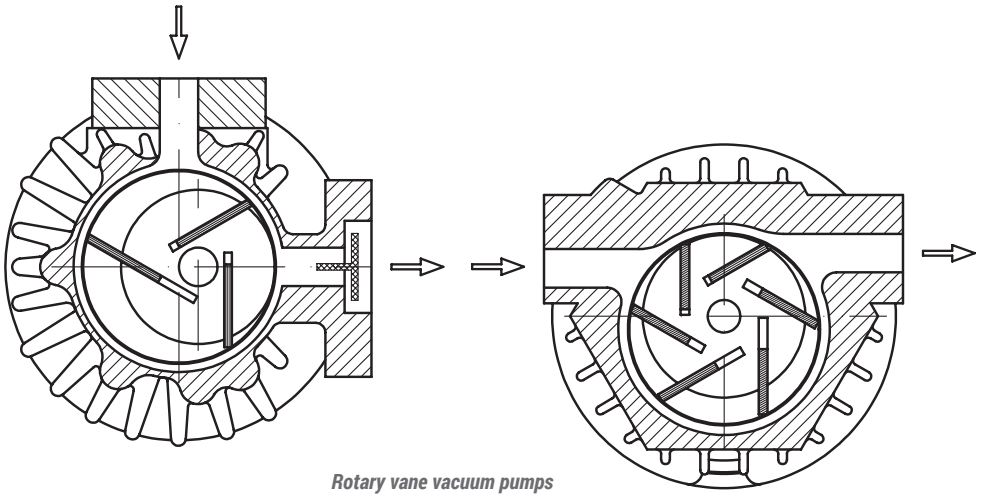
Side channel blower



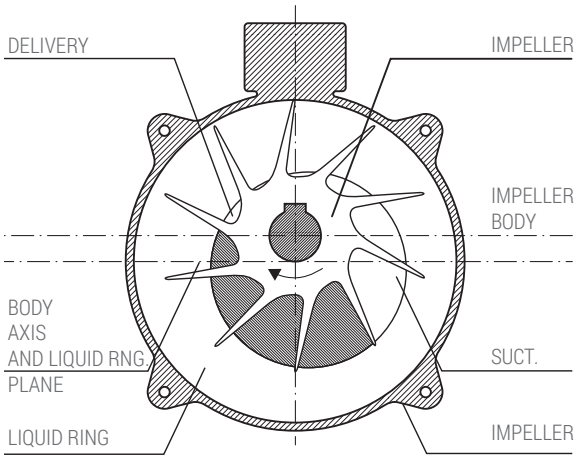
P = COMPRESSED AIR CONNECTION
R = AIR EXHAUST
U = VACUUM CONNECTION

Pneumatic vacuum generator

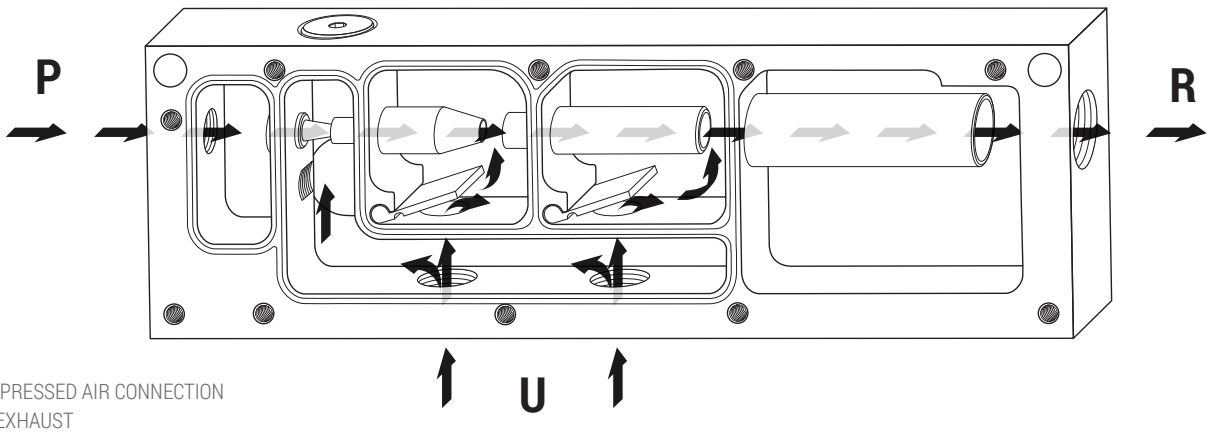
- **Industrial vacuum:** "Industrial vacuums" are intended as a level of vacuum between --20 KPa and -99.9 KPa. This range covers most applications.
  Industrial vacuums are mainly produced by rotary vane, liquid ring, piston, lobe, etc. vacuum pumps, all driven by electric or petrol or hydraulic motors, and vacuum generators based on the Venturi principle, powered by compressed air. Industrial vacuums are used from handling with vacuum cups to thermoforming, from vacuum clamping to vacuum packaging, etc.



Rotary vane vacuum pumps



Liquid ring vacuum pumps

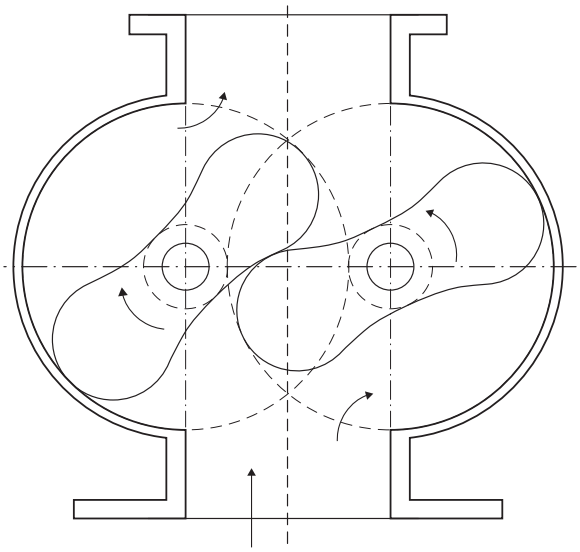


P = COMPRESSED AIR CONNECTION
R = AIR EXHAUST
U = VACUUM CONNECTION

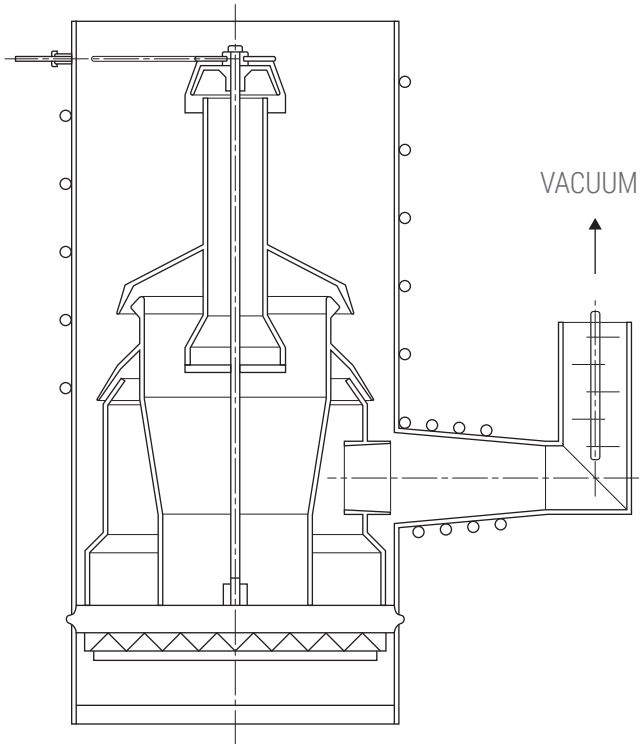
Multi-stage pneumatic vacuum generator

- **Process vacuum:** Vacuums exceeding -99.9 KPa.
The main generators of this level of vacuum are **two-stage rotary vane pumps, eccentric rotor pumps, Roots pumping units, turbomolecular pumps, diffusion pumps, cryogenic pumps, etc.**

The most common applications are freeze-drying, metallisation and vacuum heat treatments. Those of a scientific nature, however, include spatial simulations.



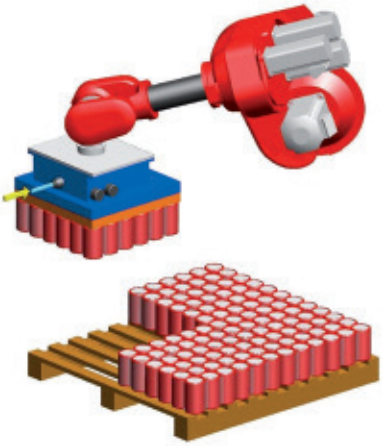
Roots pump



Diffusion pump

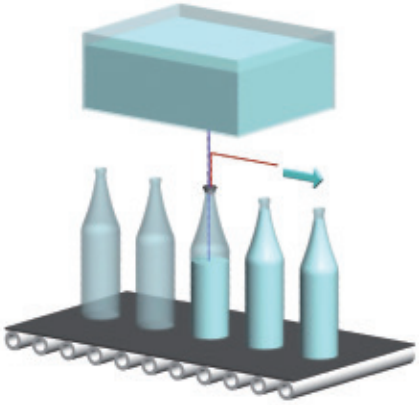
SOME EXAMPLES OF INDUSTRIAL VACUUM APPLICATION, TODAY

Vacuum cup handling of sheet metal, glass, marble, wood, etc.



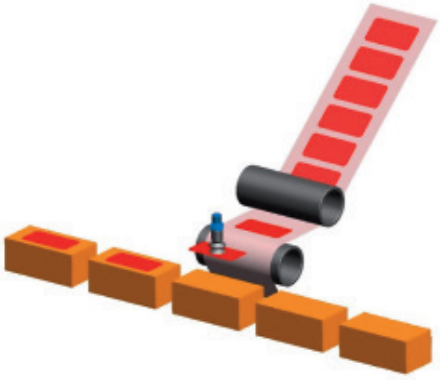
OCTOPUS vacuum gripping systems

Transfer of powders, granulates, liquids, etc.

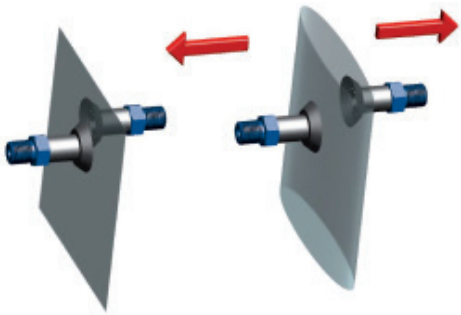


Filling at constant volume

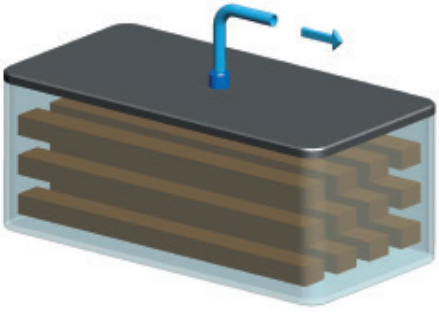
Egg handling with vacuum cups



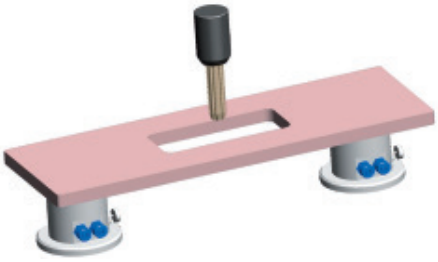
Labelling - vacuum cup gripping



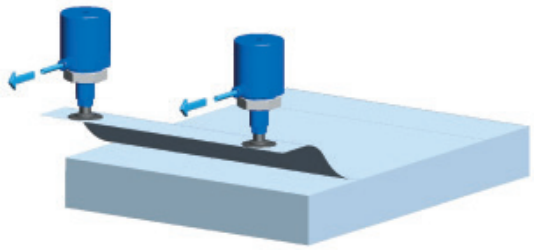
Bag opening with vacuum cups in the Packaging sector



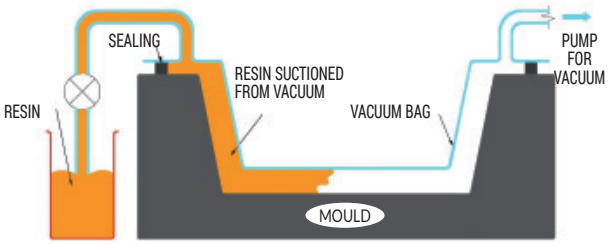
Vacuum impregnation



Vacuum clamping for machining centres

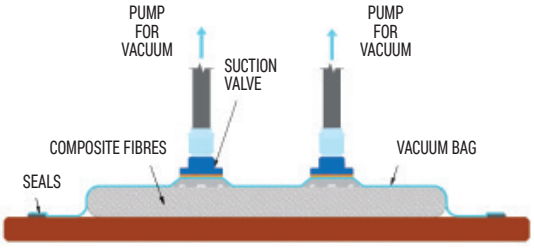


Vacuum cylinders to moving sheets



Vacuum moulding with resin infusion

Vacuum packaging



Vacuum pressing

Typographic sector

The vacuum-aided handling and clamping sector is undoubtedly the one most gratifying to us and the one in which we have developed our greatest expertise, in our over forty years of activity.
The description of **vacuum cups**, indispensable tools for vacuum handling, **design notes**, recommendations for **choosing the best pumps and accessories** and the **technical memo** will aid even the least experienced sector designers in safely sizing handling vacuum equipment.

EVALUATION OF LIFTING FORCES - CALCULATION EXAMPLES

For a correct dimensioning of a vacuum cup handler, it is firstly important to know and assess the features of the load to be handled.

- Nature
- Dimensions and shape
- Mass
- Roughness and unevenness of the gripping surface
- Permeability

If we take, for example, a steel sheet with the following dimensions:

- Length 4.0 m
- Width 1.8 m
- Thickness 3.0 mm

The formula for calculating the mass is as follows:

$$m = A \times B \times C \times p_s$$

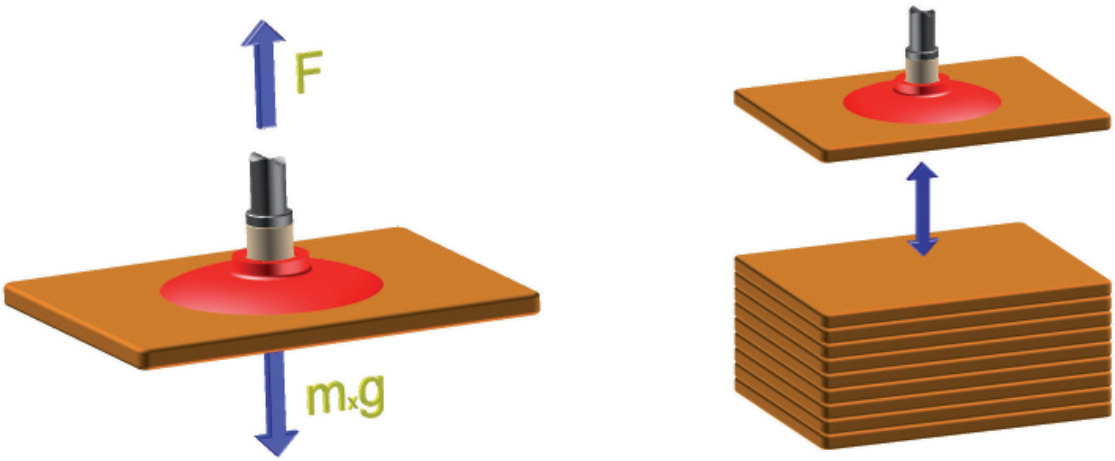
Where:
m = Mass (kg)
A = Length (m)
B = Width (m)
C = Thickness (m)
P_s = Specific weight (for steel = 7860 Kg/m^3)

We will therefore have:

$m = 4 \times 1.8 \times 0.003 \times 7860 = 169.77$ Kg

Once the mass has been determined, the force of the vacuum cups required for move it is calculated by evaluating its direction and the position of the vacuum cups with respect to the load, without disregarding the acceleration or deceleration forces acting on the moving load and the friction that develops between the vacuum cups and the gripping surface.
The most common cases are:

1st case - Horizontal vacuum cups, vertical force.



The vacuum cups rest horizontally on the load to be lifted.

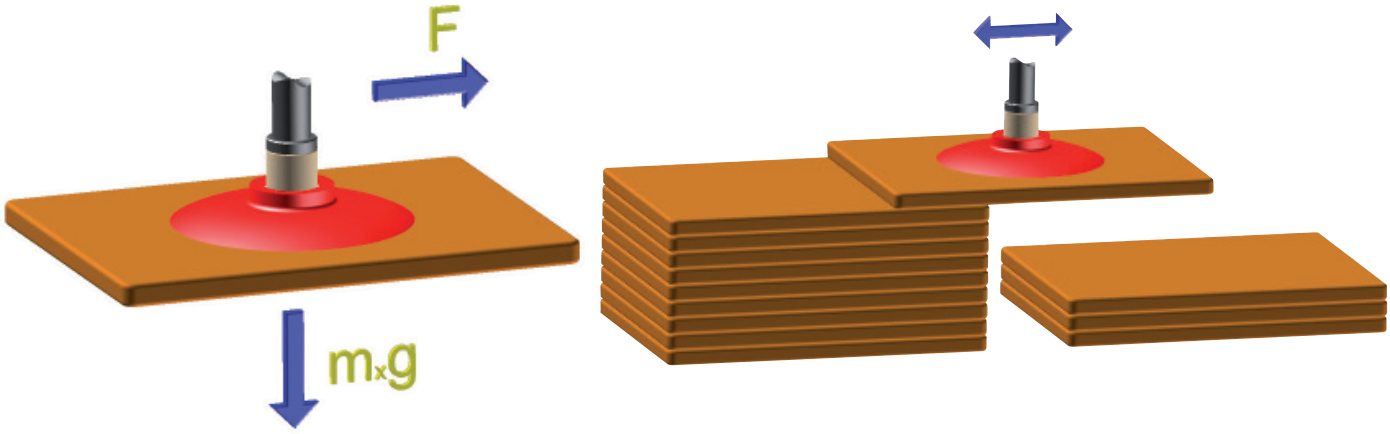
In this case, the force of the vacuum cups required to move our steel sheet is calculated according to the following formula:

$$F = m \times (g + a) \times \eta$$

Where:
F = Force of the vacuum cups (N)
m = Mass (Kg)
g = Force of terrestrial gravity (9.81 m/s^2)
a = Acceleration or deceleration (5 m/s^2, for this case)
η = Factor of safety (minimum 2 for our example; for materials with rough, irregular and permeable surfaces, the value to be considered can vary from 2.5 to 3)

F = 169.77 x (9.81 + 5) x 2 = 5028.58 N

2nd case - Horizontal vacuum cups, horizontal force.



The vacuum cups rest horizontally on the load to be lifted laterally.
In this second case, the force of the vacuum cups required to move our steel sheet laterally is calculated according to the following formula:

F = m x (g + a/μ) x η

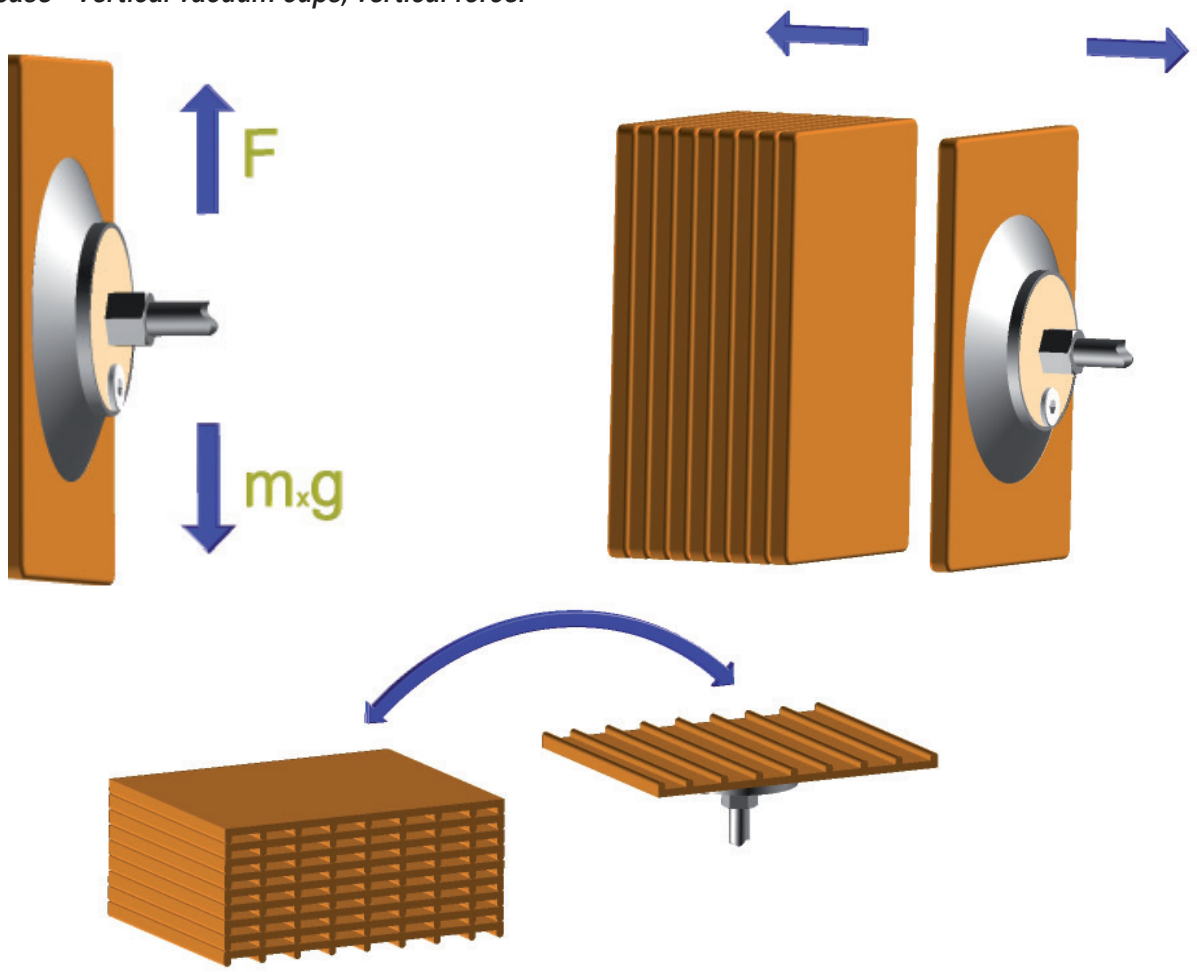
Where:
F = Force of the vacuum cups (N)
m = Mass (Kg)
g = Force of terrestrial gravity (9.81 m/s^2)
a = Acceleration or deceleration (5 m/s^2, in this case)
μ = Coefficient of friction = 0.1 for oiled surfaces
= 0.2 - 0.3 for wet surfaces
= 0.5 for wood, glass, metal and marble
= 0.6 for rough surfaces
η = Factor of safety (minimum 2 for our example)

Note: *The coefficients of friction indicated are purely indicative. During the design phase, the values relating to the materials of the loads to be handled must be checked carefully.*

Inserting the values indicated in the formula, we have:

F = 169.77 x (9.81 + 5/0.5) x 2 = 6726.28 N

3rd case - Vertical vacuum cups, vertical force.



The vacuum cups rest vertically on the load to be moved vertically.
In this third case, the force of the vacuum cups required to move our steel sheet vertically is calculated according to the following formula:

$F = (m/\mu) \times (g + a) \times \eta$

Where:
F = Force of the vacuum cups (N)
m = Mass (Kg)
μ = Coefficient of friction (0.5 in this case)
g = Force of terrestrial gravity (9.81 m/s^2)
a = Acceleration or deceleration (5 m/s^2, in this case)
η = Factor of safety (2 for our example)

Developing our formula, we have:

$F = (169.77/0.5) \times (9.81 + 5) \times 2 = 10057.17\ N$

As you can see, the third example is always the one that requires the greatest force and, therefore, the utmost attention is recommended during the design phase for all the factors required.

TECHNICAL DATA RELATED TO THE VACUUM CUPS IN THE CATALOGUE

For practical reasons and to simplify the choice of vacuum cups, all the lifting force values, shown in the table, are expressed in Kg and calculated based on the following formula:

$$F = \frac{S \times P}{\eta}$$

Where:
F = Lifting force expressed in Kg
S = Vacuum cup gripping surface, expressed in cm^2
P = Force exerted by atmospheric pressure, depending on the level of vacuum, expressed in Kg/cm^2
η = Factor of safety

FACTOR OF SAFETY

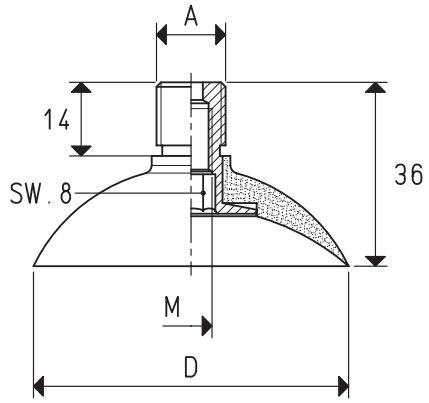
Our vacuum cups have been designed to theoretically suspend a load equal to three times the force value indicated in the tables.

The values shown were obtained by considering:
P = 0.75 Kg/cm^2: value developed from a level of vacuum of approximately 250 mbar abs. (-75 KPa).
η = 3: factor of safety, valid when the gripping surface of the vacuum cups is horizontal, the surface is smooth and impermeable and the acceleration or deceleration of the moving load is less than 10 m/s^2.

If we consider, for example, a vacuum cup ø 60 mm (item 08 60 10) whose gripping surface S is 28.26 cm^2, we will obtain the following by developing the formula shown above:

$$F = \frac{28.26 \times 0.75}{3} = Kg\ 7.06$$

which is the value shown in the table, next to the item of the vacuum cup used as an example.



VACUUM CUPS WITH SUPPORT

Item	Force Kg	A Ø	D Ø	M Ø	Vacuum cup item	Support item	Weight g
08 60 10 *	7.06	G1/4"	60	M8	01 60 10	00 08 22	20.8
08 60 11 *	7.06	G1/8"	60	--	01 60 10	00 08 44	20.0

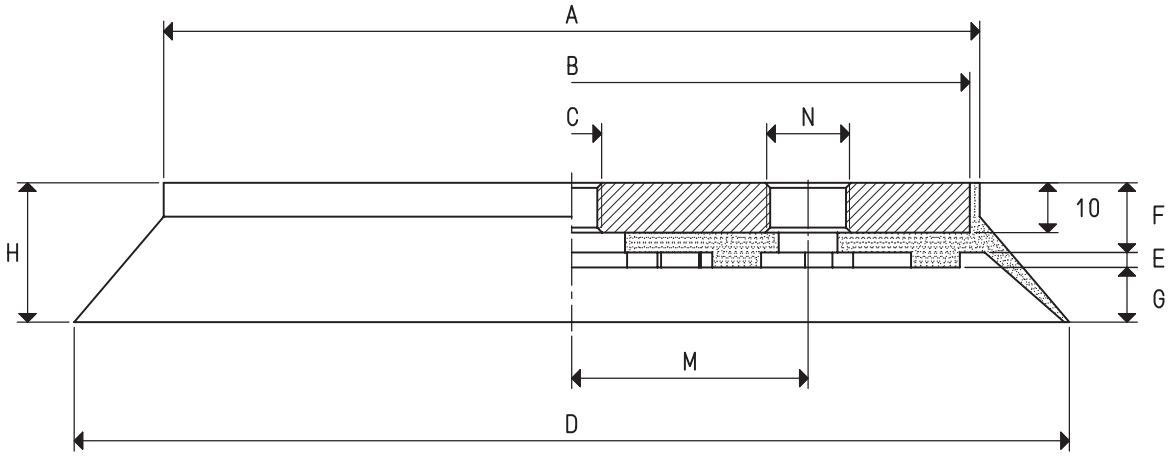
* Complete the code indicating the compound: A= oil-resistant rubber; N= para rubber; S= silicone

CHOOSING THE DIAMETER AND NUMBER OF VACUUM CUPS TO BE USED WITH A LEVEL OF VACUUM HIGHER THAN -75 KPA

As the weight of the object to be handled is known, the number of vacuum cups to be used and their diameter will be determined with the help of the tables relating to the vacuum cups and at the discretion of the designer, depending on the application.

Example: *Suppose we have to lift an oil drum weighing 140 kg with a single vacuum cup and with a level of vacuum available greater than -75 KPa. From the tables relating to the vacuum cups, we find that those with Ø 300 mm (item 08 300 10) are suitable for solving our problem, since their lifting force is 176.6 kg and therefore higher than the required weight of 140 kg.*

If, on the other hand, the load to be lifted is a steel plate, the weight of which is also 140 kg, it will no longer be possible to use a single vacuum cup, since the sheet would flex, but we will need to use at least 4 vacuum cups or, better yet 6, if we want to keep the sheet perfectly taut.



VACUUM CUPS WITH VULCANISED SUPPORT

Item	Force Kg	A Ø	B Ø	C Ø	D Ø	E	F	G	H	M	N Ø	Material support	Weight Kg
08 110 15 M8 *	23.7	74	70	M8	110	2	14	10	26	26.0	G1/4"	steel	0.35
08 110 15 *	23.7	74	70	M12	110	2	14	10	26	26.0	G1/4"	steel	0.33
08 115 15 *	45.0	115	110	M12	150	2	14	10	26	40.0	G3/8"	steel	0.83
08 200 10 *	78.5	164	160	M12	200	3	14	11	28	47.5	G3/8"	steel	1.75
08 250 10 *	122.6	214	210	M12	250	3	14	11	28	72.5	G3/8"	steel	3.00
08 300 10 *	176.6	266	260	M16	300	5	15	11	31	89.0	G1/2"	steel	4.70
08 350 10 *	240.4	316	310	M16	350	5	15	11	31	89.0	G1/2"	steel	6.60

* Complete the code indicating the compound: A= oil-resistant rubber; N= para rubber; S= silicone

If you want to use 4 vacuum cups, you will have to choose with a Ø 150 mm (item 08 150 10, 08 150 36, 08 150 74,08 150 15, etc.), each having a lifting force of 45 kg, so together they are able to lift a maximum load of 180 kg.
If you instead want to use 6 vacuum cups, their diameter can be reduced to 110 mm (item 08 110 10, 08 110 24, 08 110 58, 08 110 15, etc.), with a lifting force of 23.7 kg each, so together they are able to lift a maximum load of 142.2 kg.

CHOOSING THE DIAMETER OF THE VACUUM CUPS TO BE USED AT DIFFERENT LEVELS OF VACUUM

In the event that the value of the vacuum differs from that used for calculation of the forces, you can determine the diameter of the vacuum cups (and consequently their gripping surface) by solving the following equation:

$$D = 113 \times \sqrt{\frac{m \times \eta}{P \times n}}$$

Where:
D = Diameter of the vacuum cup, expressed in mm
m = Mass of the load to be lifted, expressed in Kg
P = Level of vacuum, expressed in -KPa
η = Factor of safety, never less than **2**
n = Number of vacuum cups to use

If we take the example described above, relating to the 140 kg sheet, considering the use of 6 vacuum cups at a level of vacuum of -60 KPa and a factor of safety 3, we will obtain:

$$D = 113 \times \sqrt{\frac{140 \times 3}{60 \times 6}} = 122 \text{ mm}$$

6 vacuum cups with a diameter equal to or greater than 122 mm will be therefore be required to solve our problem.

LIFTING WITH VACUUM CUPS OVER SEA LEVEL

With higher altitude, atmospheric pressure decreases according to the values shown in the table below. To detect the level of vacuum, the vacuum gauge is normally calibrated to the atmospheric pressure present at sea level, which is 1013.25 mbar.

BAROMETRIC PRESSURE			VALUES OF THE VACUUM GAUGE AT 1013.25 mbar				
mmHg	mbar	Altitude m	-60 KPa	-75 KPa	- 85 KPa	-90 KPa	-99 KPa
760	1013.25	0	60.0	75.0	85.0	90.0	99.0
750	999.9	111	58.7	73.7	83.7	88.7	97.7
740	986.6	200	57.3	72.3	82.3	87.3	96.3
730	973.3	275	56.0	71.0	81.0	86.0	95.0
720	959.9	467	54.7	69.7	79.7	84.7	93.7
710	946.6	545	53.3	68.3	78.3	83.3	92.3
700	933.3	655	52.0	67.0	77.0	82.0	91.0
690	919.9	778	50.7	65.7	75.7	80.7	89.7
671	894.6	1000	48.1	63.1	73.1	78.1	87.1
593	790.6	2000	37.7	52.7	62.7	67.7	76.7

Developing the formula previously described:

$$\Delta P = Patm - P_1$$

And again considering a level of vacuum equal to 250 mbar abs. (-75 KPa) inside the vacuum cup, the force exerted by the atmospheric pressure on the vacuum cup, at an altitude of 1000 metres above sea level, will be:

$$\Delta P = 894.6 - 250 = 644.6 \text{ mbar}$$

Equal to:

$$644.6 \text{ mbar} \times 1.02 \times 10\text{-}3 = 0.657 \text{ Kg/cm}^2$$

As can be seen, from a force of 0.778 Kg/cm^2 available at sea level, we have gone to 0.657 Kg/cm^2 at 1000 metres of altitude. This confirms that, with decreasing atmospheric pressure, the available force also decreases.
Therefore, in the design phase, always consider the altitude of the place where the vacuum cup lifting system will be installed.

SPECIAL CASES OF LIFTING

In all those cases where:
- The gripping surface of the vacuum cups is vertical
- The acceleration and deceleration of the load to be handled is greater than 10 m/s^2
- The gripping surface is very rough or uneven
- The load to be supported is permeable

The factor of safety value must be increased according to each of these. Our technicians are at your disposal to define this value.

ENERGY REQUIREMENTS AT DIFFERENT LEVELS OF VACUUM

As we have seen in the previous chapters, when we create a vacuum inside a vacuum cup resting on a surface, the atmospheric pressure that surrounds it acts on it more forcefully the greater the level of vacuum reached.
The lifting force is directly proportional to the gripping surface and the level of vacuum. If the level of vacuum changes from 60% to 90%, the lifting force increases 1.5 times, while the required energy increases 10 times according to Boyle's law.
To reduce energy consumption, it is preferable to limit the level of vacuum and, where possible, increase the gripping surface of the vacuum cup.

CHOOSING THE VACUUM CUP SHAPE

Vacuum cups are available in various conformations, each of which is able to meet the various needs that are encountered in the design phase, in the movement and handling of objects and loads of the most disparate forms. They can be chosen according to different characteristics, listed below:

Cupped vacuum cups

These are the most common vacuum cups, used in all industry sectors for the handling of plastic objects, cardboard boxes, wood panels, thin sheets of metal or glass, etc., with very low weight and even rough or irregular surfaces.
They are available in different diameters starting from 4 mm and up to 100 mm.
They are not recommended for vertical handling of heavy objects.

Bellows vacuum cups

The particular shape of these bellows cups allows them to quickly crumple up when in contact with the surface of the load to be lifted and in presence of a vacuum. This quick movement prevents the load below from remaining stuck to the surfaces or load underneath. Thanks to this particular feature, these bellows cups are recommended for handling paper and cardboard sheets, thin metal sheets, wooden panels, glass sheets etc. Thanks to their great flexibility, they can also be used to compensate flatness errors or for gripping on inclined surfaces. They are not suitable for vertical handling of heavy loads.

Flat, round and rectangular vacuum cups

Vacuum cups suitable for vertical or horizontal movement of large loads such as marble or granite slabs.

Vacupredator vacuum cups

For the gripping of bags, packs and flexible containers in paper or plastic, containing powders, granulated products, loose or liquid products. These new vacuum cups have been designed and manufactured to safely grip even the most difficult and irregular packages.

Foam rubber vacuum cups

These vacuum cups are suitable for handling and gripping loads with raw or very rough surfaces such as sawn, bush-hammered or flamed marble, textured, non-slip or profiled metal sheets, striped Plexiglass, raw cement manufactures, garden tiles with fret, etc.

Maxigrip vacuum cups

Vacuum cups with a high coefficient of friction, suitable for use in the handling in all directions of oiled sheets, marble and wet glass, slabs and, in general, loads subject to high acceleration and deceleration during movement. Especially recommended for the AUTOMOTIVE sector. Available in various sizes, in round and elliptical flat and round and elliptical bellows.

Circular rim cups

These cups have been designed to meet the need of lifting objects with a central hole. Their very thin lip allows them to grip very rough surfaces, such as grinding wheels and discs. They are particularly recommended for CDs, perforated discs, toothed wheels, pulleys and other similar objects.

Elliptical flat vacuum cups

These are recessed on moulders in order to hold a side of the cardboard box during the moulding process by means of traditional cups on the opposite side. Once assembled with their support, however, they can be used for handling boxes, plastic objects or anything with a limited gripping surface.

Special vacuum cups

These cups have been designed to solve many of the gripping and handling problems we have encountered in over forty years of activity. They differ from all the other cups for the variety of their shapes. They are suited for gripping CDs, labels, bags, paper or plastic sheets, stickers, chocolates, cardboard, tiles, small metal objects, plastic objects, etc.

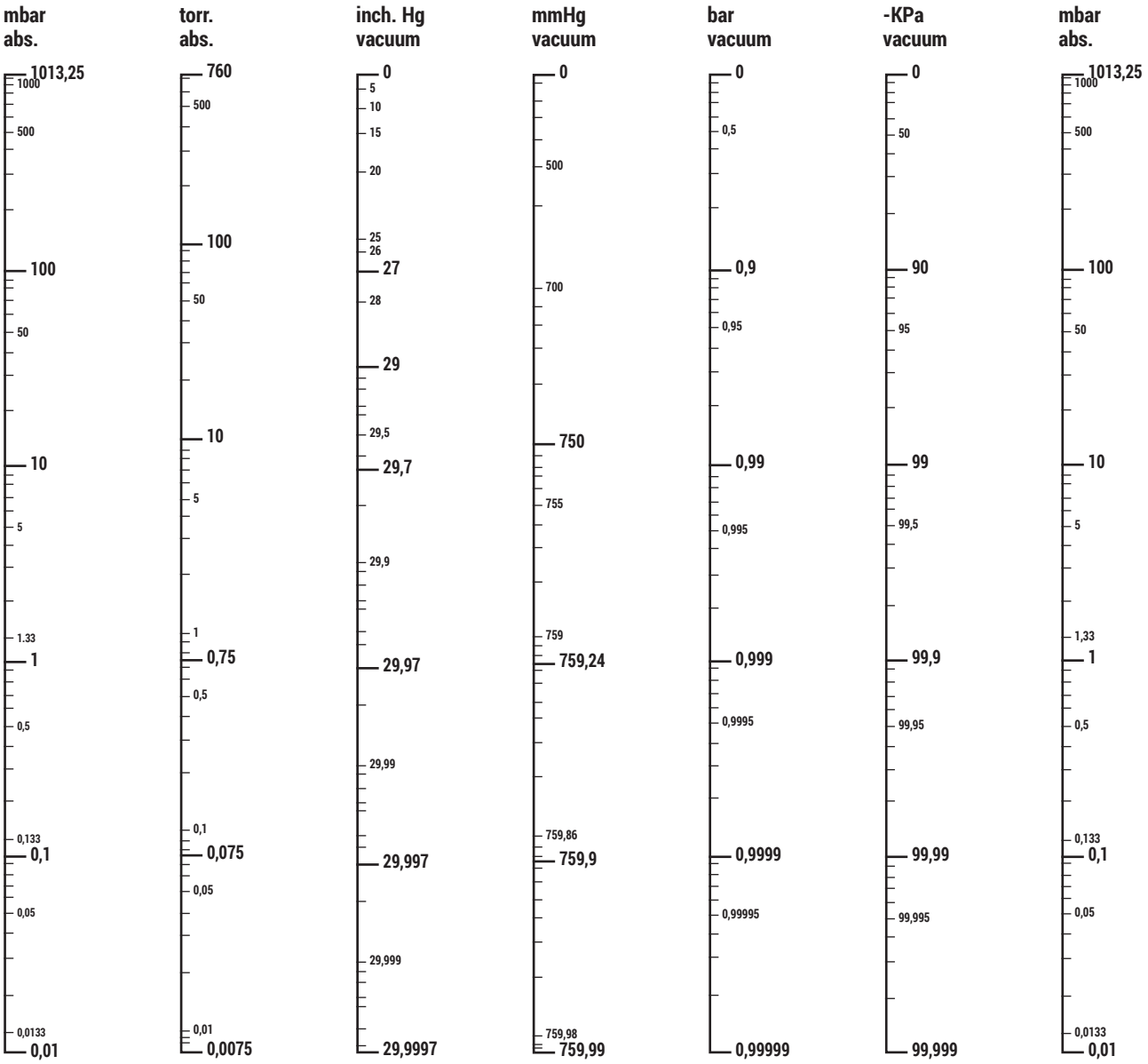
Further information is available on the catalogue pages relative to the vacuum cups listed.

CHOOSING THE VACUUM CUP COMPOUND

The vacuum cup compounds are chosen with the aid of the technical tables, according to the individual applications and after having carefully evaluated:

- The weight and dimensions of the load
- The intensity and severity of work cycles
- The roughness of the surface of the load to be lifted and its temperature
- The presence of oils, solvents, chemicals or other corrosive elements on the gripping surface
- If the work environment is outdoors, in contact with atmospheric agents or indoors, in the presence of high or low temperatures
- If the product to be handled is food, so the vacuum cups must comply with certain standards
- If absolutely no marks or prints must be left on the gripping surface
- If electrostatic charges must be dissipated from the gripping surface

VACUUM UNIT OF MEASUREMENT CONVERSION TABLE



ABSOLUTE PRESSURE UNIT OF MEASUREMENT CONVERSION FACTORS

		= mbar	= bar	= torr	= inch. Hg	= psi (lbf/in^2)	= atm	= Kg/cm^2 (at)	= mm H_2O	= m H_2O	= Pa (N/m^2)
mbar	**x**	1	10^{-3}	0,75	2,95x 10^{-2}	14,5 x 10^{-3}	9,87 x 10^{-4}	1,02 x 10^{-3}	10,2	1,02 x 10^{-2}	100,0
bar	**x**	1000,0	1	750,0	29,53	14,6	0,987	1,02	10197,0	10,19	100000
torr	**x**	1,33	1,33 x 10^{-3}	1	3,94 x 10^{-2}	1,93 x 10^{-2}	1,316 x 10^{-3}	1,359 x 10^{-3}	13,59	1,359 x 10^{-3}	133,32
inch. Hg	**x**	33,9	33,9 x 10^{-3}	25,4	1	0,491	3,34 x 10^{-2}	3,45 x 10^{-2}	345,0	0,345	3386,0
psi (lbf/in^2)	**x**	68,9	6,89 x 10^{-2}	51,7	2,04	1	6,8 x 10^{-2}	7,03 x 10^{-2}	703	0,703	6897
atm	**x**	1013,25	1,013	760,0	30,0	14,696	1	1,033	10332	10,332	101325,0
Kg/cm^2 (at)	**x**	981	0,981	735,6	28,96	14,2	0,968	1	10000	10	98067,0
mm H_2O	**x**	9,81 x 10^{-2}	9,81 x 10^{-5}	7,35 x 10^{-2}	2,89 x 10^{-3}	1,42 x 10^{-3}	9,67 x 10^{-5}	10^{-4}	1	10^{-3}	9,8067
m H_2O	**x**	98,067	9,81 x 10^{-2}	73,5	2,89	1,42	9,67 x 10^{-2}	10	10000	1	9806,7
Pa (N/m^2)	**x**	0,01	10^{-5}	7,5 x 10^{-3}	2,95 x 10^{-4}	1,45 x 10^{-4}	9,87 x 10^{-6}	1,02 x 10^{-5}	0,102	1,02 x 10^{-4}	1

Example: To transform 10 mbar in Torr = 10 x 0.75 = 7.5 Torr

GENERAL CHARACTERISTICS OF RUBBER COMPOUNDS

TRADE NAME	INTERN. CODE	VT CODE	POSITIVE CHARACTERISTICS	NEGATIVE CHARACTERISTICS	COLOUR	TEMPERATURE OF USE	HARDNESS	CHEMICAL RESISTANCE	FOOD STANDARDS	USE
NITRILE OR OIL-RESISTANT RUBBER	NBR	A	Highly resistant to oil, heat and ageing. Low permanent deformation and low gas permeability.	Limited ozone resistance, if untreated. Low dielectric strength, Low resilience.	Black	From -40 to + 130°C	60 - 70 Sh.A	Resistance to mineral oils, hydrocarbons, water, vapour, gas and vegetable oils.	Not recommended	The excellent mechanical characteristics of this compound allow the vacuum cups to withstand heavy-duty work such as tears, crushing, bumps, etc. They are suitable for gripping metal plates, glass and loads with a smooth surface.
BENZ RUBBER	HNBR	B	Excellent resistance to wear, ageing, chlorine-containing oils, grease and petrol. Low permanent deformation. Does not leave marks on the gripping surfaces of the vacuum cups.	Low dielectric strength, Low resilience.	Black Red	From -40 to + 170°C	60 - 75 Sh.A	Resistance to chlorine-containing mineral oils, hydrocarbons, water, vapour, gas and vegetable oils.	Not recommended	The vacuum cups produced with this compound are able to withstand heavy-duty work such as tears, crushing, bumps, etc. They are suitable for gripping metal plates, glass and loads with a smooth surface. Especially recommended for the AUTOMOTIVE sector.
BIOND NON-MARKING RUBBER	----	BA	Biond compound with good elastic yield and resistance to wear, cutting and tearing. Has the property of not leaving stains, marks or prints on the gripping surfaces.	Poor resistance to oils and heat.	Light blue	From -30 to + 80°C	45 - 60 Sh.A	Fair resistance to sea water, acids and medium concentration alkalis.	Not recommended	Vacuum cups produced with this compound are suitable for gripping marble, wood, glass, metal sheets, etc., without leaving marks or prints on the gripping surfaces.
ANTI-STATIC NITRILE RUBBER	NBR-AS	AS	Highly resistant to oil, heat and ageing. Low permanent deformation. Highly conductive and anti-static compound.	Limited ozone resistance if untreated. Low resilience.	Black	From -40 to + 130°C	60 - 70 Sh.A	Excellent resistance to mineral oils, hydrocarbons, water, vapour, gas and vegetable oils.	Not recommended	In addition to the normal use of the NBR compound, the vacuum cups made with this compound can be used in all those cases where it is necessary to dissipate electrostatic charges accumulated on the gripping surfaces.
PARA RUBBER	NR	N	Excellent elastic yield and resistance to wear, cutting and tearing. Exceptional elongation at break.	Poor resistance to oils and heat.	Black	From -70 to + 80°C	45 - 50 Sh.A	Fair resistance to sea water, acids and medium concentration alkalis.	Not recommended	The flexibility of the compound allows these vacuum cups to grip on rough and irregular surfaces. They are suitable for wood, cardboard, marble, bricks, glass and plastic.
SYNTHETIC PARA RUBBER	IR	N	Good elasticity, excellent fatigue resistance, good mechanical properties, better purity than NR.	Poor resistance to UV rays, ozone and oxidising agents in general, poor resistance to mineral oils.	Black	From -50 to + 90°C	35-45 Sh.A	Good resistance to seawater and diluted acids, alcohols, saline solutions.	Not recommended	The flexibility of the compound allows these vacuum cups to grip on rough and irregular surfaces. They are suitable for wood, cardboard, marble, bricks, glass and plastic.

TRADE NAME	INTERN. CODE	VT CODE	POSITIVE CHARACTERISTICS	NEGATIVE CHARACTERISTICS	COLOUR	TEMPERATURE OF USE	HARDNESS	CHEMICAL RESISTANCE	FOOD STANDARDS	USE
NATURAL RUBBER	NR	NG	The same compound described above, untreated.	Poor resistance to ageing, oils and heat.	Yellow	From -50 to + 70°C	40 - 45 Sh.A	As NR described above.	Not recommended	The higher flexibility of the compound allows these vacuum cups to grip on very rough and irregular surfaces. The vacuum cups made with this compound are recommended for gripping paper, cardboard, plastic, plastic film for packaging, etc.
GERANIUM FOAM RUBBER	NR	OF	Excellent elastic yield and resistance to tearing. Exceptional elongation at break.	Poor resistance to ageing, oils and heat.	Orange	From -40 to + 80°C	25 - 30 Sh.A	Fair resistance to sea water, acids and medium concentration alkalis.	Not recommended	The softness of the foam rubber makes it possible to create vacuum cups for gripping loads with raw or very rough surfaces.
SILICONE	VMQ	S	Perfect performance at high and low temperatures. Conductive compound.	Modest mechanical properties. Can leave marks on the gripping surfaces of vacuum cups.	Neutral White Red	From -50 to +300°C	40 - 45 Sh.A	Excellent resistance to chlorinates, solvents, ozone, oxygen and U.V.	It is possible to produce vacuum cups according to FDA, BGA, TSCA, etc. food standards.	Silicone vacuum cups are used in the food and electronics industry, in packaging and in all those cases where the contact surface has very high or very low temperatures.
ANTI-STATIC SILICONE	VMQ-AS	SAS	Perfect performance at low and high temperatures. Highly conductive and anti-static compound.	Modest mechanical properties. Can leave marks on the gripping surfaces of vacuum cups.	Black	From -50 to + 200°C	40 - 45 Sh.A	Similar to VMQ silicone compound.	Compound not recommended for food use.	Anti-static silicone vacuum cups are used in the electronics, the recording industry and in all those cases where it is necessary to dissipate electrostatic charges from the gripping surface.
STABILISED SILICONE	VMQ-SS	SS	Perfect performance at high and low temperatures. Conductive and non-marking compound. Does not leave marks or prints on the gripping surfaces.	Modest mechanical properties.	Neutral White	From -50 to + 300°C	40 - 45 Sh.A	Similar to VMQ silicone compound.	It is possible to produce vacuum cups for food use.	The stabilised silicone vacuum cups are widely used in the ceramic industry and in all those cases where, in addition to withstanding high temperatures, marks or prints must not be left on the gripping surfaces.
MAGNETIC SILICONE	----	SMG	Perfect performance at high and low temperatures. Highly conductive, magnetically detectable compound.	Modest mechanical properties. Can leave marks on the gripping surfaces of vacuum cups if not stabilised.	Black	From -50 to + 250°C	45 - 50 Sh.A	Excellent resistance to chlorinates, solvents, ozone, oxygen and U.V.	The chemical composition of the compound contains exclusively substances authorised by regulation FDA CFR 21: 177-2600 " METAL DETECTABLE COMPOUND - HEAT CONDUCTIVITY COMPOUND "	Magnetic silicone vacuum cups are used in the food industry and have the characteristic of being easily detectable by metal detectors used for food protection in case of breakage or accidental detachment.

TRADE NAME	INTERN. CODE	VT CODE	POSITIVE CHARACTERISTICS	NEGATIVE CHARACTERISTICS	COLOUR	TEMPERATURE OF USE	HARDNESS	CHEMICAL RESISTANCE	FOOD STANDARDS	USE
VITON®	FKM	V	Excellent resistance to chemical deterioration; perfect for lubricants and heat. Good compression performance and elastic yield. Does not leave marks.	Poor resistance to alkalis and ketones.	Green Brown	From -20 to + 300°C	50 - 60 Sh.A	Excellent resistance to sunlight, flame and high temperatures, to aromatic and aliphatic hydrocarbons, to chemical agents and chlorinated solvents.	Not recommended	This compound is used to produce vacuum cups that are highly qualified for the mechanical, oil, chemical, pharmaceutical, aeronautical and nuclear industries.
VULKOLLAN® POLYURE-THANE	AU-EU	PU	Very high resistance to abrasion, traction, bending and oils. Does not leave marks.	Poor resistance to water, alkalis and acids.	Ivory Blue	From -30 to + 100°C	60 - 70 Sh.A	Excellent resistance to petroleum products.	Not recommended	Suitable for producing vacuum cups subjected to heavy-duty, intense and continuous use.
DUTRAL®	EPDM	EPDM	Excellent resistance to heat, atmospheric agents and ageing. Excellent resistance to low temperatures.	Poor elasticity.	Black	From -60 to + 150°C	50 - 70 Sh.A	Good resistance to aggressive chemicals and oxygen.	Not recommended	EPDM vacuum cups are recommended for machines operating outdoors, in contact with atmospheric agents and sea water. Excellent performance in contact with printing inks and solvents.
NEOPRENE®	CR	NE	Fair resistance to oils. Excellent resistance to ozone, sea water and ageing. Good resistance to cutting, abrasion and combustion.	Poor elastic yield. Risk of permanent deformation over time.	Black	From -20 to + 120°C	50 - 70 Sh.A	Excellent resistance to petroleum products, sunlight, atmospheric agents, ozone and flames.	Not recommended	Vacuum cups made with this compound are used in the electrical industry and on handling systems that operate outside, in contact with atmospheric agents.
NEOPRENE® FOAM RUBBER	CR	NF	Fair resistance to oils. Excellent resistance to ozone, sea water and ageing. Good resistance to cutting, abrasion and combustion.	Poor elasticity. Tendency to deform over time.	Black	From -20 to + 80°C	30 - 35 Sh.A	Excellent resistance to oil products, sunlight, atmospheric agents, and ozone.	Not recommended	The softness that characterises this foam rubber allows for the use of vacuum cups for gripping coarse or very rough surfaces operating outside in contact with atmospheric agents.
EXTRA SOFT FOAM RUBBER	EPDM	SB	Excellent resistance to heat, atmospheric agents, low temperatures and ageing.	Low resistance to oils and modest mechanical properties.	Black	From -40 to + 130°C	8 ÷ 10 Sh.A	Good resistance to aggressive chemicals and oxygen.	Not recommended	The softness of this rubber foam makes it suitable for use on grip surfaces for loads with coarse or very rough surfaces.

TO ORDER VACUUM CUPS

When ordering, it is possible to add the Vuototecnica code related to the desired compound for the item of the vacuum cup you have chosen. This code can be found in the attached tables in the column **"VT CODE"**. If, for example, we want to order a traditional vacuum cup Ø 85 mm in oil-resistant rubber, at the end of the item 01 85 10, which defines the shape of the vacuum cup, we simply add the letter "A", relative to the oil-resistant rubber, which can be found in the technical table of the compounds. The code thus obtained, 01 85 10 A, defines both the shape of the vacuum cup and the compound with which it is made. This code does not need any other description.
To order the same vacuum cup in silicone, simply replace the letter "A" with the letter "S" relative to silicone and you will get code 01 85 10 S. All vacuum cups can be ordered by following this criterion.

VACUUM CUPS IN STOCK

The vacuum cups generally available in stock, are made of:

- Oil-resistant rubber "A"
- Benz oil-resistant rubber "B"
- Para rubber "N"
- Silicone "S"

Vacuum cups made with different compounds, unless available in stock, are supplied only upon order and in minimum quantities, to be defined according to their size.

CHOOSING VACUUM CUP HOLDERS

Our vacuum cup holders are divided into three large ranges:
- **Mini vacuum cup holders**
- **Basic vacuum cup holders**
- **Special vacuum cup holders**

These are in turn sub-divided according to their characteristics (with plunger valve, anti-rotation, with magnetic sensor, with built-in shut-off valve, articulated, with double springing, etc.). The choice is left to the designer and will be made on the basis of the load and the degree of automation of the handler to be made.
Further information is available on the catalogue pages relative to the vacuum cups.

CHOOSING A PUMP OR VACUUM GENERATOR

The calculation of the flow rate of the pump or vacuum generator is quite complex, since it requires the calculation of all the negative volumes (air to be emptied contained in the vacuum cups, in the manifolds, in the pipes, up to the vacuum generator or to the shut-off valve of the vacuum), a careful analysis of the load to be handled (permeability, roughness, irregularity of the gripping surface, etc.), the evaluation of the required setting times and the vacuum values to be worked. To speed up calculation, we decided to create a handbook indicating the flow rates required by the vacuum cups according to their diameter and that helps size the pump or the vacuum generator based on their number, with fair approximation and safely. Two categories of materials have been taken as a parameter: one impermeable (sheet metal and glass) and the other slightly porous and permeable (wood and cardboard). The choice of the flow rate of the vacuum cups will be based on the nature of the material to be handled, more similar to the parameter materials. The values indicated in the table are valid when:

- The level of vacuum available is no less than -75 Kpa
- The number of cycles per minute is less than 10
- The gripping surface is not particularly rough
- Permeability remains within acceptable values, such as the materials taken as examples

VACUUM CUP DIAMETER	MATERIAL TO BE GRIPPED	
	Steel sheet and glass	Wood and cardboard
mm	m^3/h	m^3/h
4 ÷ 10	0,15	0,30
11 ÷ 20	0,30	0,60
21 ÷ 35	0,50	1,00
36 ÷ 50	1,00	2,00
51 ÷ 85	1,50	3,00
86 ÷ 110	2,00	4,00
111 ÷ 200	2,50	5,00
201 ÷ 300	3,00	6,00
301 ÷ 360	4,00	8,00

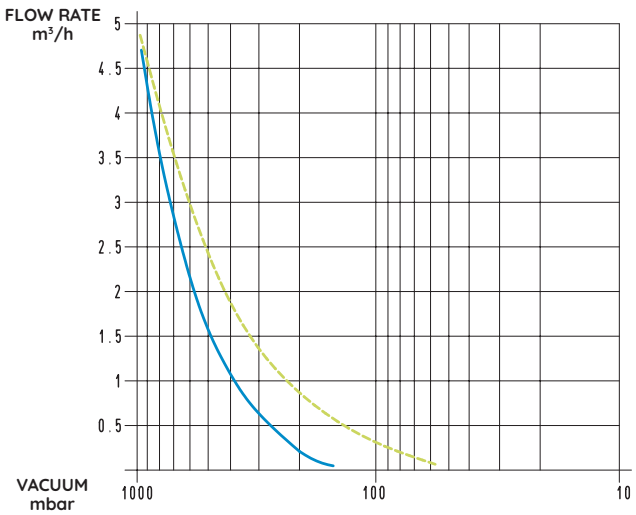
Example:
Marble slab 2500 x 1200 x 50 mm Mass 420 kg

6 vacuum cups Ø 200 mm are required to handle the slab.
From the table, we can see that for gripping impermeable materials such as marble, the Ø 200 mm vacuum cups require 2.5 m^3/h; therefore, as there are 6 vacuum cups, the flow rate of the necessary vacuum pump will be:

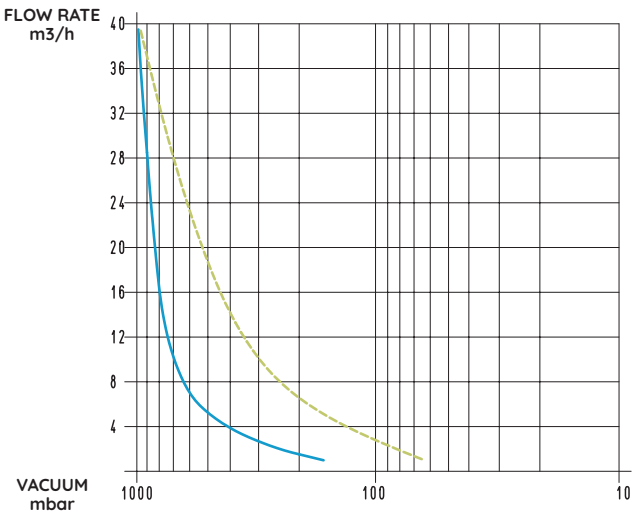
6 x 2.5 = 15 m^3/h

Note: *The values shown in the table refer to the flow rate of rotary vane vacuum pumps. When vacuum generators based on the Venturi principle are used, the value of the flow rates shown is doubled due to their lower suction efficiency.*

COMPARISON BETWEEN PUMP item VTL5 AND VACUUM GENERATOR item 15 03 10
VTL 5 — Curve relative to the flow rate (referring to the suction pressure)
15 03 10 — Curve relative to the flow rate (referring to the suction pressure)



COMPARISON BETWEEN PUMP item RVP 40 AND VACUUM GENERATOR item PVP 40 M
RVP 40 — Curve relative to the flow rate (referring to the suction pressure)
PVP 40 M — Curve relative to the flow rate (referring to the suction pressure)



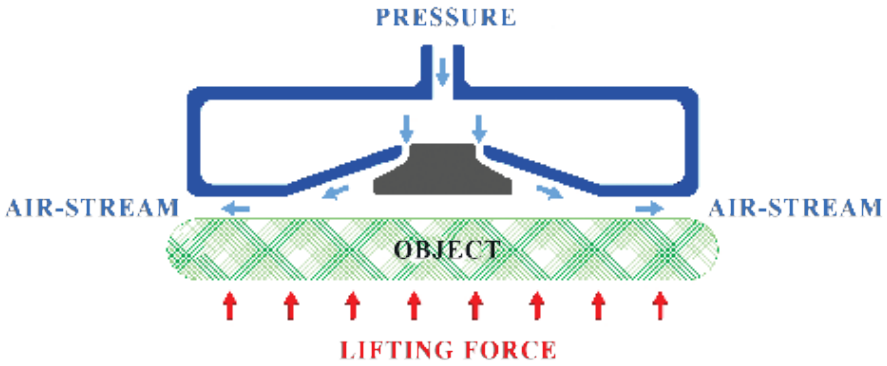
Therefore, for the same marble slab in the example shown above, the vacuum generator must be calculated as follows:

6 x 5 = 30 m^3/h

CHOOSING CHECK VALVES, FILTERS, HOSES, SOLENOID VALVES AND DISTRIBUTORS

All the accessories indicated in the title, necessary for construction of the system, must be chosen based on the suction connection of the pump or vacuum generator. If, for example, the suction connection of the pump or the generator is G 1/2", the check valve, the suction filter, the hose, the vacuum interception solenoid valve and the distributor must have all G 1/2" connections. Vacuum cup hoses, on the other hand, are already defined by the fitting installed on the vacuum cup holders or proportionate to their support.

VACUUM CUPS BASED ON BERNOULLI'S THEOREM



There are numerous applications of Bernoulli's theorem: this theorem explains how air suction occurs in common gas burners, it accounts for the operation of instruments such as the Venturi tube or the Pitot tube, used for measuring the speed of fluids.
It is possible to explain many phenomena with this theorem, such as the lifting of a plane's wing or of a light disc in front of a tube end from which air flows out quickly.
This last phenomenon, seemingly paradoxical, can be explained as follows: the air flowing between the disc with which the duct ends and the sustained disc moves at a certain speed **v** and the pressure that reigns in this hollow space has a certain value P_1.
As the air flows away from the centre of the hollow space, its speed decreases, finally reducing to stillness at a greater or lesser distance, in an area where atmospheric pressure obviously reigns P_0.
The air below the sustained disc is subjected to this same pressure P_0.
In these conditions, disregarding the height **h** and indicating the density of the fluid with **ρ** and the acceleration of gravity with **g**, the expression relative to the Bernoulli theorem is written:

$$\frac{P_1}{\rho} + \frac{v^2}{g} = \frac{P_0}{\rho}$$

which clearly shows that $P_1 < P_0$.

This explains the subsistence of the disc, which is sucked from the hollow space with a force that overcomes the thrust exerted on it by the air that flows from the tube, in addition to the weight of the disc.
This phenomenon is exploited for manufacturing vacuum gripping systems (vacuum cups) and handling, with no contact, fragile objects, such as semiconductor plates, silica discs, solar cells, precious metal foils, films and whatever needs to be handled with the greatest care.
Our cups based on Bernoulli's principle are made with anodised aluminium, with stainless steel centre thrust disc.
The silicone rubber pins, located on the cup gripping plane, prevent transverse movements of the gripped object.

Further information on the vacuum accessories listed above can be found by consulting the catalogue on the pages relating to each of them.

TECHNICAL MEMO

Unit of mass - Fundamental ***SI*** unit= ***Kilogram*** = ***Kg***
(Avoid saying "weight" as the weight is the force deriving from the product of the mass due to the acceleration of local gravity).

Unit of acceleration (length / time^2)
SI derived unit = ***metre per second squared = m/s^2***

Unit of force = (mass x acceleration)
(The weight of a body is that particular force deriving from the product of its mass due to the acceleration of local gravity)
SI derived unit = ***newton = N = Kg · m/s^2***
Other units:
Kilopond or kilogram-force = ***1 Kp = 1 Kgf = 9.81 N***

Unit of pressure and tension (force / area)
SI derived unit= ***pascal = 1 Pa = 1 N/m^2***
(The pascal is a very small unit of measurement. In practice, we prefer to refer to the Megapascal or Kilopascal)

Megapascal 1 Mpa = 10^6 Pa = 1 MN/m^2 = 1 N/mm^2
Kilopascal 1 Kpa = 10^3 Pa = 1 KN/m^2

IP: DEGREE OF PROTECTION OF ENCLOSURES

The degrees of protection are expressed by two figures preceded by the abbreviation IP (International Protection). The first digit indicates the protection against solids, the second digit the protection against liquids.

PROTECTION AGAINST SOLID BODIES		PROTECTION AGAINST LIQUIDS	
1	Protection against bodies larger than 52.5 mm. Protection against accidental contact.	**1**	Protection against vertically dripping water.
2	Protection against bodies larger than 12.5 mm. Protection against finger contact.	**2**	Protection against water drops with max inclination of 15°.
3	Protection against bodies larger than 2.5 mm. Protection against tool contact.	**3**	Rain protection, against water falling as a spray at any angle up to 60°
4	Protection against bodies larger than 1 mm. Protection against the ingress of cables.	**4**	Protection against water splashing from any direction.
5	Protection against the ingress of dust; a quantity that does not interfere with the satisfactory operation of the equipment is tolerated.	**5**	Protection against water spraying from any direction.
6	Total protection against the ingress of dust.	**6**	Protection against waves or powerful water jets.
		7	Protection against temporary immersion effects.
		8	Protection against immersion effects for an indefinite amount of time.

Derived from standards CEI 70-1 / IEC 144 / IEC 529 / UTE C 20-010 / DIN 40050

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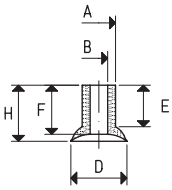
3D drawings are available on **vuototecnica.net**

VACUUM CUPS WITH SUPPORTS

These traditional cup-shaped vacuum cups are suited for gripping and handling small objects with flat, slightly concave or convex surfaces.
This range of widely used cups has diameters ranging from 4 to 9 mm and are normally available in standard compounds: para rubber N, oil-resistant rubber A and silicone S.
They can be cold fitted with no adhesive onto a nickel-plated brass support.
The support has been specially shaped to perfectly fit with the vacuum cup and is equipped with a male threaded pin to facilitate fastening to the automation.
These cups are extremely easy to replace; simply request the cup indicated in the table in the desired compound when requesting the spare part.
Cups in special compounds, listed on pg. 31, and supports in different materials can be provided upon request in minimum quantities to be defined in the order.

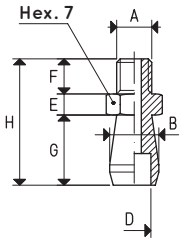
VACUUM CUPS

Item	Force Kg	Compounds available	Volume mm^3	A Ø	B Ø	D Ø	E	F	H
01 04 10 *	0.03	(A)(N)(S)	16	3	1.5	4	6.0	7.0	7.5
01 05 10 *	0.05	(A)(N)(S)	23	3	1.5	5	6.0	7.0	8.0
01 06 10 *	0.07	(A)(N)(S)	26	3	1.5	6	6.0	7.0	8.0
01 07 07 *	0.10	(A)(S)	40	5	2.0	7	6.0	6.0	7.0
01 08 10 *	0.12	(A)(N)(S)	66	5	2.5	8	6.0	7.0	8.0
01 09 07 S	0.15	(S)	56	5	2.0	9	5.5	6.0	7.0



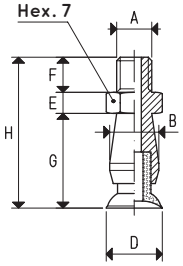
SUPPORTS

Item	A Ø	B Ø	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 01	M5	7	2.90	3	5	10	18	brass	01 04 10	4
									01 05 10	
									01 06 10	
00 08 02	M5	7	4.75	3	5	10	18	brass	01 07 07	4
									01 08 10	
									01 09 07 S	



VACUUM CUP WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	B Ø	D Ø	E	F	G	H	Vacuum cup item	Support item	Weight g
08 04 10 *	0.03	(A)(N)(S)	M5	7	4	3	5	13.0	21.0	01 04 10	00 08 01	4
08 05 10 *	0.05	(A)(N)(S)	M5	7	5	3	5	13.5	21.5	01 05 10	00 08 01	4
08 06 10 *	0.07	(A)(N)(S)	M5	7	6	3	5	13.5	21.5	01 06 10	00 08 01	4
08 07 07 *	0.10	(A)(S)	M5	7	7	3	5	13.5	21.5	01 07 07	00 08 02	4
08 08 10 *	0.12	(A)(N)(S)	M5	7	8	3	5	13.5	21.5	01 08 10	00 08 02	4
08 09 07 S	0.15	(S)	M5	7	9	3	5	12.5	20.5	01 09 07	00 08 02	4



* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

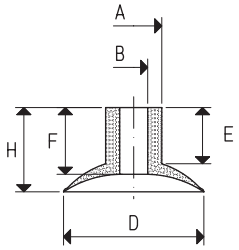
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

VACUUM CUPS WITH SUPPORTS

These traditional cup-shaped vacuum cups are suited for gripping and handling objects with flat, slightly concave or convex surfaces.
This range of widely used cups has diameters ranging from 10 to 45 mm and are normally available in standard compounds: para rubber N, oil-resistant rubber A and silicone S.
They can be cold fitted with no adhesive onto a nickel-plated brass or anodised aluminium support.
The support has been specially shaped to perfectly fit with the vacuum cup and is equipped with a male threaded pin to facilitate fastening to the automation.
These cups are extremely easy to replace; simply request the cup indicated in the table in the desired compound when requesting the spare part.
Cups in special compounds, listed on pg. 31, and supports in different materials can be provided upon request in minimum quantities to be defined in the order.

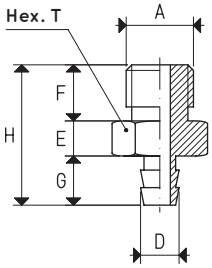
VACUUM CUPS

Item	Force Kg	Compounds available	Volume mm³	A Ø	B Ø	D Ø	E	F	H
01 10 10 *	0.19	A N S	227	7	4.0	10	8.5	8.5	11.0
01 12 10 *	0.28	A N S	254	8	4.0	12	8.0	9.0	11.0
01 15 10 *	0.44	A N S	364	8	4.0	15	8.0	9.5	12.0
01 18 10 *	0.63	A N S	502	8	4.0	18	8.0	9.5	12.0
01 20 10 *	0.78	A N S	536	8	4.0	20	8.0	9.5	12.0
01 22 10 *	0.95	A N S	723	8	4.0	22	8.0	10.0	13.0
01 25 15 *	1.23	A N S	1628	12	6.0	25	10.0	11.5	16.0
01 30 15 *	1.76	A N S	2055	12	6.0	30	10.0	12.5	17.0
01 35 15 *	2.40	A N S	3292	15	10.0	35	10.0	11.5	16.0
01 40 15 *	3.14	A N S	4740	15	10.0	40	10.0	12.5	18.0
01 45 15 *	3.98	A N S	8553	15	10.0	45	10.0	14.5	23.0



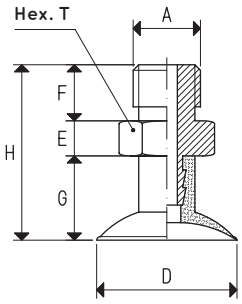
SUPPORTS

Item	A Ø	D Ø	E	F	G	H	T	Support material	For vacuum cup item	Weight g
00 08 03	G1/8"	5.5	5	8	7.0	20.0	12	brass	01 10 10	9
									01 12 10	
									01 15 10	
									01 18 10	
									01 20 10	
									01 22 10	
00 08 05	G1/8"	7.5	5	8	9.5	22.5	12	brass	01 25 15	10
									01 30 15	
00 08 20	G1/4"	12.0	8	14	10.0	32.0	17	aluminium	01 35 15	11
									01 40 15	
									01 45 15	



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	D Ø	E	F	G	H	T	Vacuum cup item	Support item	Weight g
08 10 10 *	0.19	A N S	G1/8"	10	5	8	11	24	12	01 10 10	00 08 03	9.0
08 12 10 *	0.28	A N S	G1/8"	12	5	8	11	24	12	01 12 10	00 08 03	9.6
08 15 10 *	0.44	A N S	G1/8"	15	5	8	12	25	12	01 15 10	00 08 03	9.7
08 18 10 *	0.63	A N S	G1/8"	18	5	8	12	25	12	01 18 10	00 08 03	9.7
08 20 10 *	0.78	A N S	G1/8"	20	5	8	12	25	12	01 20 10	00 08 03	9.8
08 22 10 *	0.95	A N S	G1/8"	22	5	8	13	26	12	01 22 10	00 08 03	10.2
08 25 15 *	1.23	A N S	G1/8"	25	5	8	16	29	12	01 25 15	00 08 05	12.0
08 30 15 *	1.76	A N S	G1/8"	30	5	8	17	30	12	01 30 15	00 08 05	12.7
08 35 15 *	2.40	A N S	G1/4"	35	8	14	16	38	17	01 35 15	00 08 20	13.6
08 40 15 *	3.14	A N S	G1/4"	40	8	14	18	40	17	01 40 15	00 08 20	14.1
08 45 15 *	3.98	A N S	G1/4"	45	8	14	23	45	17	01 45 15	00 08 20	17.6



* Complete the code indicating the compound: A = oil-resistant rubber; N = para rubber; S = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

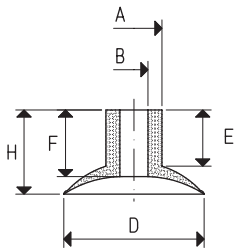
Adapters for GAS - NPT threading available on page 1.134

VACUUM CUPS WITH SUPPORTS

These traditional cup-shaped vacuum cups are suited for gripping and handling objects with flat, slightly concave or convex surfaces.
This range of widely used cups has diameters ranging from 10 to 45 mm and are normally available in standard compounds: para rubber N, oil-resistant rubber A and silicone S.
They can be cold fitted with no adhesive onto a nickel-plated brass or anodised aluminium support.
The support has been specially shaped to perfectly fit with the vacuum cup and is equipped with a female threaded pin to facilitate fastening to the automation.
These cups are extremely easy to replace; simply request the cup indicated in the table in the desired compound when requesting the spare part.
Cups in special compounds, listed on pg. 31, and supports in different materials can be provided upon request in minimum quantities to be defined in the order.

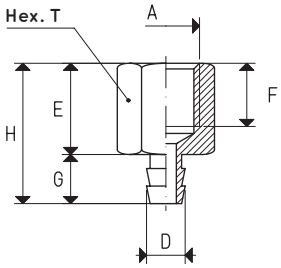
VACUUM CUPS

Item	Force Kg	Compounds available	Volume mm³	A Ø	B Ø	D Ø	E	F	H
01 10 10 *	0.19	A N S	227	7	4.0	10	8.5	8.5	11.0
01 12 10 *	0.28	A N S	254	8	4.0	12	8.0	9.0	11.0
01 15 10 *	0.44	A N S	364	8	4.0	15	8.0	9.5	12.0
01 18 10 *	0.63	A N S	502	8	4.0	18	8.0	9.5	12.0
01 20 10 *	0.78	A N S	536	8	4.0	20	8.0	9.5	12.0
01 22 10 *	0.95	A N S	723	8	4.0	22	8.0	10.0	13.0
01 25 15 *	1.23	A N S	1628	12	6.0	25	10.0	11.5	16.0
01 30 15 *	1.76	A N S	2055	12	6.0	30	10.0	12.5	17.0
01 35 15 *	2.40	A N S	3292	15	10.0	35	10.0	11.5	16.0
01 40 15 *	3.14	A N S	4740	15	10.0	40	10.0	12.5	18.0
01 45 15 *	3.98	A N S	8553	15	10.0	45	10.0	14.5	23.0



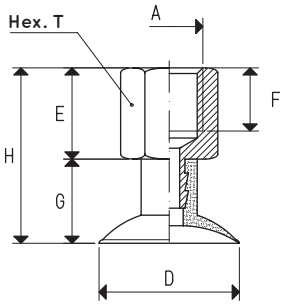
SUPPORTS

Item	A Ø	D Ø	E	F	G	H	T	Support material	For vacuum cup item	Weight g
00 08 04	G1/8"	5.5	13	10	7.0	20.0	12	brass	01 10 10	8.1
									01 12 10	
									01 15 10	
									01 18 10	
									01 20 10	
									01 22 10	
00 08 14	G1/8"	7.5	13	10	9.5	22.5	12	brass	01 25 15	9.8
									01 30 15	
00 08 21	G1/4"	12.0	17	13	10.0	27.0	17	aluminium	01 35 15	9.3
									01 40 15	
									01 45 15	



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	D Ø	E	F	G	H	T	Vacuum cup item	Support item	Weight g
08 10 25 *	0.19	A N S	G1/8"	10	13	10	11	24	12	01 10 10	00 08 04	8.1
08 12 25 *	0.28	A N S	G1/8"	12	13	10	11	24	12	01 12 10	00 08 04	8.7
08 15 25 *	0.44	A N S	G1/8"	15	13	10	12	25	12	01 15 10	00 08 04	8.8
08 18 25 *	0.63	A N S	G1/8"	18	13	10	12	25	12	01 18 10	00 08 04	8.8
08 20 25 *	0.78	A N S	G1/8"	20	13	10	12	25	12	01 20 10	00 08 04	9.3
08 22 25 *	0.95	A N S	G1/8"	22	13	10	13	26	12	01 22 10	00 08 04	9.3
08 25 25 *	1.23	A N S	G1/8"	25	13	10	16	29	12	01 25 15	00 08 14	11.8
08 30 25 *	1.76	A N S	G1/8"	30	13	10	17	30	12	01 30 15	00 08 14	12.5
08 35 25 *	2.40	A N S	G1/4"	35	17	13	16	33	17	01 35 15	00 08 21	11.9
08 40 25 *	3.14	A N S	G1/4"	40	17	13	18	35	17	01 40 15	00 08 21	12.4
08 45 25 *	3.98	A N S	G1/4"	45	17	13	23	40	17	01 45 15	00 08 21	15.9



* Complete the code indicating the compound: A = oil-resistant rubber; N = para rubber; S = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

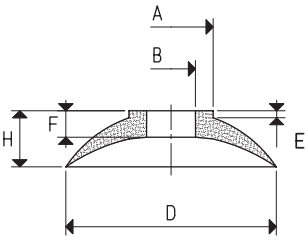
Adapters for GAS - NPT threading available on page 1.134

VACUUM CUPS WITH SUPPORTS

These traditional cup-shaped vacuum cups are suited for gripping and handling objects with flat, slightly concave or convex surfaces.
This range of widely used cups has diameters ranging from 25 to 35 mm and are normally available in standard compounds: para rubber N, oil-resistant rubber A and silicone S.
They can be cold fitted with no adhesive onto a nickel-plated brass support.
The support has been specially shaped to perfectly fit with the vacuum cup and is equipped with a male threaded pin to facilitate fastening to the automation.
These cups are extremely easy to replace; simply request the cup indicated in the table in the desired compound when requesting the spare part.
Cups in special compounds, listed on pg. 31, and supports in different materials can be provided upon request in minimum quantities to be defined in the order.

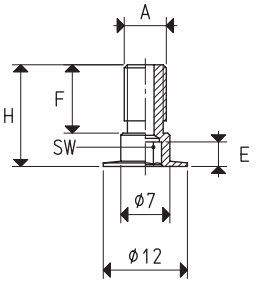
VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	D Ø	E	F	H
01 25 10 *	1.23	A N S	1.4	12	6	25	2	3.5	8
01 30 10 *	1.76	A N S	1.8	12	6	30	1	3.5	8
01 35 10 *	2.40	A N S	2.4	12	6	35	1	3.5	8



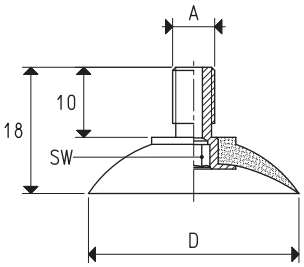
SUPPORTS

Item	A Ø	E	F	H	SW	Support material	For vacuum cup item	Weight g
00 08 08	M6	3.5	10	14.5	3	brass	01 25 10	2.7
							01 30 10	
							01 35 10	
00 08 60	G1/8"	4.0	10	14.5	4	brass	01 25 10	5.6
							01 30 10	
							01 35 10	



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	SW	D Ø	Vacuum cup item	Support item	Weight g
08 25 10 *	1.23	A N S	M6	3	25	01 25 10	00 08 08	3.9
08 25 11 *	1.23	A N S	G1/8"	4	25	01 25 10	00 08 60	6.8
08 30 10 *	1.76	A N S	M6	3	30	01 30 10	00 08 08	4.6
08 30 11 *	1.76	A N S	G1/8"	4	30	01 30 10	00 08 60	7.5
08 35 10 *	2.40	A N S	M6	3	35	01 35 10	00 08 08	5.1
08 35 11 *	2.40	A N S	G1/8"	4	35	01 35 10	00 08 60	8.0



* Complete the code indicating the compound: A = oil-resistant rubber; N = para rubber; S = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

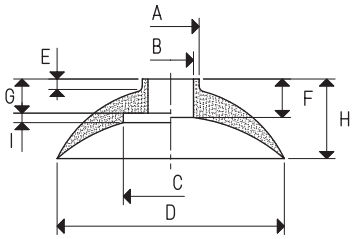
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

VACUUM CUPS WITH SUPPORTS

These traditional cup-shaped vacuum cups are suited for gripping and handling objects with flat, slightly concave or convex surfaces.
This range of widely used cups has diameters ranging from 45 to 60 mm and are normally available in standard compounds: para rubber N, oil-resistant rubber A and silicone S.
They can be cold fitted with no adhesive onto an anodised aluminium support.
The support has been specially shaped to perfectly fit with the vacuum cup and is equipped with a male threaded pin to facilitate fastening to the automation.
Moreover, those with 1/4" threading have a M8 threaded hole for any necessary insertion of a grub screw with calibrated hole (see pg. 1.135), having the function of reducing the quantity of air to be suctioned.
These cups are extremely easy to replace; simply request the cup indicated in the table in the desired compound when requesting the spare part.
Cups in special compounds, listed on pg. 31, and supports in different materials can be provided upon request in minimum quantities to be defined in the order.

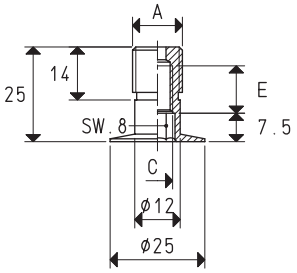
VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	E	F	G	H	I
01 45 10 *	3.98	A N S	8.1	15	10	--	45	5	9.5	--	18	--
01 60 10 *	7.06	A N S	18.2	15	10	25	60	4	--	10	22	2.5



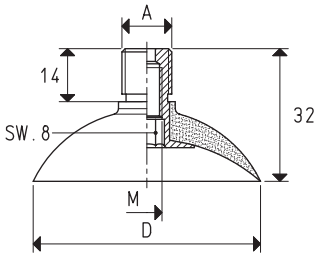
SUPPORTS

Item	A Ø	E	C Ø	Support material	For vacuum cup item	Weight g
00 08 22	G1/4"	10	M8	aluminium	01 45 10	5.9
					01 60 10	
00 08 44	G1/8"	--	--	aluminium	01 45 10	5.1
					01 60 10	
00 08 313	M6	--	--	brass	01 45 10	3.3
					01 60 10	
00 08 314	M8	--	--	aluminium	01 45 10	4.3
					01 60 10	
00 08 92	M10	--	--	aluminium	01 45 10	5.2
					01 60 10	



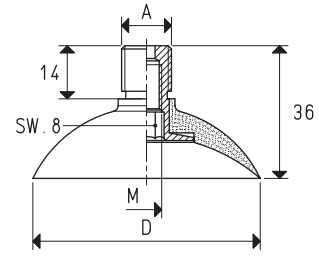
VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	D Ø	M Ø	Vacuum cup item	Support item	Weight g
08 45 10 *	3.98	A N S	G1/4"	45	M8	01 45 10	00 08 22	12.6
08 45 11 *	3.98	A N S	G1/8"	45	--	01 45 10	00 08 44	11.8
08 45 12 *	3.98	A N S	M6	45	--	01 45 10	00 08 313	10.0
08 45 13 *	3.98	A N S	M8	45	--	01 45 10	00 08 314	11.0
08 45 14 *	3.98	A N S	M10	45	--	01 45 10	00 08 92	11.9



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	D Ø	M Ø	Vacuum cup item	Support item	Weight g
08 60 10 *	7.06	A N S	G1/4"	60	M8	01 60 10	00 08 22	20.8
08 60 11 *	7.06	A N S	G1/8"	60	--	01 60 10	00 08 44	20.0
08 60 12 *	7.06	A N S	M6	60	--	01 60 10	00 08 313	18.2
08 60 13 *	7.06	A N S	M8	60	--	01 60 10	00 08 314	19.2
08 60 14 *	7.06	A N S	M10	60	--	01 60 10	00 08 92	20.1



* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

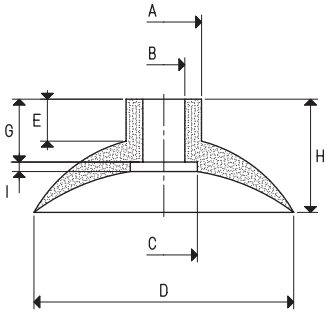
Adapters for GAS - NPT threading available on page 1.134

VACUUM CUPS WITH SUPPORTS

These traditional cup-shaped vacuum cups are suited for gripping and handling objects with flat, slightly concave or convex surfaces.
These widely used vacuum cups have a diameter of 85 mm and are normally available in standard compounds: para rubber N, oil-resistant rubber A and silicone S.
They can be cold fitted with no adhesive onto an anodised aluminium support.
The support has been specially shaped to perfectly fit with the vacuum cup and is equipped with a male threaded pin to facilitate fastening to the automation. Moreover, they have a M8 threaded hole for any necessary insertion of a grub screw with calibrated hole (see pg. 1.135), having the function of reducing the quantity of air to be suctioned.
These cups are extremely easy to replace; simply request the cup indicated in the table in the desired compound when requesting the spare part.
Cups in special compounds, listed on pg. 31, and supports in different materials can be provided upon request in minimum quantities to be defined in the order.

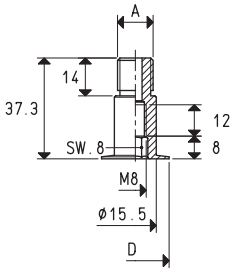
VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	E	G	H	I
01 85 10 *	14.18	(A)(N)(S)	54.8	25	15	25	85	16	23	41	4.0



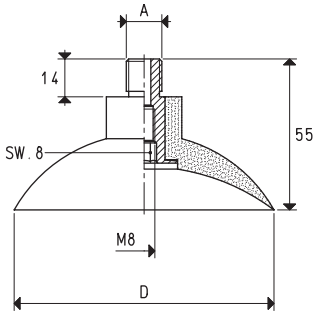
SUPPORTS

Item	A Ø	D Ø	Support material	For vacuum cup item	Weight g
00 08 28	G1/4"	25	aluminium	01 85 10	13.4
00 08 136	G1/8"	25	aluminium	01 85 10	9.2
00 08 91	M10x1,25	25	aluminium	01 85 10	38.4



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	D Ø	Vacuum cup item	Support item	Weight g
08 85 10 *	14.18	(A)(N)(S)	G1/4"	85	01 85 10	00 08 28	49.3
08 85 12 *	14.18	(A)(N)(S)	G1/8"	85	01 85 10	00 08 136	45.1
08 85 13 *	14.18	(A)(N)(S)	M10x1,25	85	01 85 10	00 08 91	73.4



* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

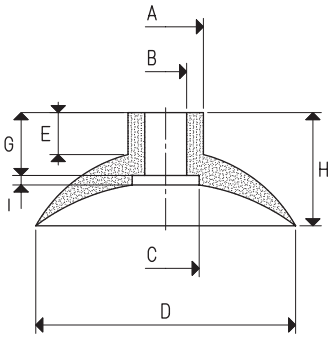
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

VACUUM CUPS WITH SUPPORTS

These traditional cup-shaped vacuum cups are suited for gripping and handling objects with flat, slightly concave or convex surfaces.
These widely used vacuum cups have a diameter of 85 mm and are normally available in standard compounds: para rubber N, oil-resistant rubber A and silicone S.
They can be cold fitted with no adhesive onto an anodised aluminium support.
The support has been specially shaped to perfectly fit with the vacuum cup and is equipped with a female threaded pin to facilitate fastening to the automation.
These cups are extremely easy to replace; simply request the cup indicated in the table in the desired compound when requesting the spare part.
Cups in special compounds, listed on pg. 31, and supports in different materials can be provided upon request in minimum quantities to be defined in the order.

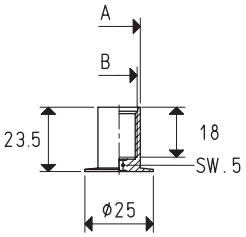
VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	F	G	H	I
01 85 10 *	14.18	(A)(N)(S)	54.8	25	15	25	85	16	23	41	4.0



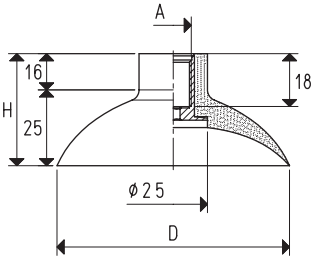
SUPPORTS

Item	A Ø	B Ø	Support material	For Vacuum cup item	Weight g
00 08 29	15.5	M12	aluminium	01 85 10	6.6
00 08 46	15.5	G1/4"	aluminium	01 85 10	6.5



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	D Ø	H	Vacuum cup item	Support item	Weight g
08 85 25 *	14.18	(A)(N)(S)	G1/4"	85	41	01 85 10	00 08 46	42.4
08 85 26 *	14.18	(A)(N)(S)	M12	85	41	01 85 10	00 08 29	42.5



* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

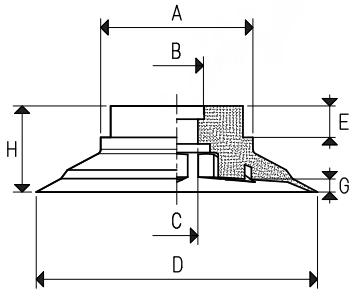
Adapters for GAS - NPT threading available on page 1.134

STAR VACUUM CUPS WITH MALE SUPPORTS

The SV series of vacuum cups (STAR VACUUM) has been developed for handling flat and flexible objects such as cardboard layering pads or thin metal sheets without deformation, by virtue of the rubber reinforcement sectors inside these vacuum cups, which characterise their star-shaped bearing surface.
They represent the perfect combination of a soft, flexible grip lip for the best surface adaptation and a bearing surface designed to ensure maximum stability and rigidity of the piece to be handled vertically or horizontally.
The vacuum cups can be fitted with a male or female threaded metal fixing support in anodised aluminium.

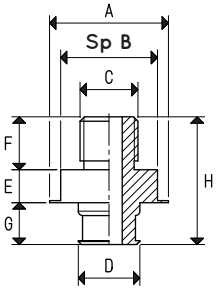
VACUUM CUPS

Item	Force Kg	Compounds available	A Ø	B Ø	C Ø	D Ø	E	G	H	Weight g
SV 20 SR *	0.95	(A) (N) (S)	14.2	6.0	5.0	22	4.5	1.0	8.0	1.4
SV 25 SR *	1.43	(A) (N) (S)	14.5	6.0	5.0	27	4.0	1.75	8.5	1.6
SV 30 SR *	2.00	(A) (N) (S)	16.0	6.0	5.0	32	4.0	1.75	10.3	2.3
SV 40 SR *	3.62	(A) (N) (S)	23.0	8.25	6.35	43	4.8	2.25	13.0	5.0
SV 50 SR *	5.51	(A) (N) (S)	32.0	12.25	10.5	53	7.5	2.70	16.5	11.0



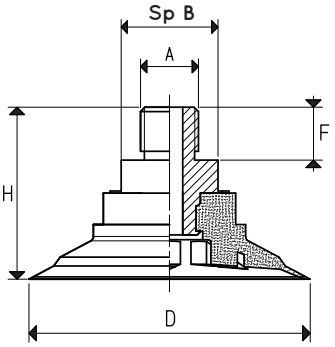
MALE SUPPORTS

Item	A Ø	B	C Ø	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 133	14.5	13	G1/8"	8.5	5.5	8	5.0	18.5	aluminium	SV 20 SR	3.5
										SV 25 SR	
										SV 30 SR	
00 08 135	20.0	17	G1/4"	10.0	7.5	12	7.5	27.0	aluminium	SV 40 SR	9.5
00 08 142	27.0	22	G1/4"	14.0	7.5	12	9.5	29.0	aluminium	SV 50 SR	15.7



VACUUM CUPS WITH MALE SUPPORT

Item	Force Kg	Compounds available	A Ø	B	D Ø	F	H	Vacuum cup item	Support item	Weight g
SV 20 *	0.95	(A) (N) (S)	G1/8"	13	22	8	21.5	SV 20 SR	00 08 133	4.9
SV 25 *	1.43	(A) (N) (S)	G1/8"	13	27	8	22.0	SV 25 SR	00 08 133	5.1
SV 30 *	2.00	(A) (N) (S)	G1/8"	13	32	8	23.8	SV 30 SR	00 08 133	5.8
SV 40 *	3.62	(A) (N) (S)	G1/4"	17	43	12	32.5	SV 40 SR	00 08 135	14.5
SV 50 *	5.51	(A) (N) (S)	G1/4"	22	53	12	36.0	SV 50 SR	00 08 142	24.7



* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

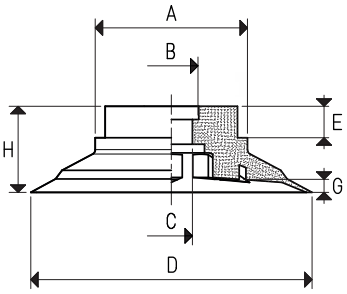
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

STAR VACUUM CUPS WITH FEMALE SUPPORTS

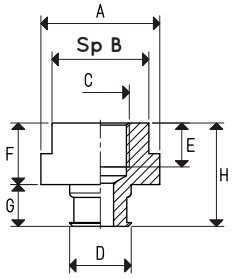
VACUUM CUPS

Item	Force Kg	Compounds available	A Ø	B Ø	C Ø	D Ø	E	G	H	Weight g
SV 20 SR *	0.95	(A) (N) (S)	14.2	6.0	5.0	22	4.5	1.00	8.0	1.4
SV 25 SR *	1.43	(A) (N) (S)	14.5	6.0	5.0	27	4.0	1.75	8.5	1.6
SV 30 SR *	2.00	(A) (N) (S)	16.0	6.0	5.0	32	4.0	1.75	10.3	2.3
SV 40 SR *	3.62	(A) (N) (S)	23.0	8.25	6.35	43	4.8	2.25	13.0	5.0
SV 50 SR *	5.51	(A) (N) (S)	32.0	12.25	10.5	53	7.5	2.70	16.5	11.0



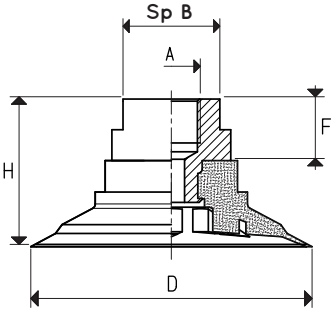
FEMALE SUPPORTS

Item	A Ø	B	C Ø	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 132	14.5	13	G1/8"	8.5	8	12	5.0	17.0	aluminium	SV 20 SR	3.8
										SV 25 SR	
										SV 30 SR	
00 08 134	20.0	17	G1/4"	10.0	10	14	7.5	21.5	aluminium	SV 40 SR	8.3
00 08 141	27.0	22	G1/4"	14.0	10	14	9.5	23.5	aluminium	SV 50 SR	19.7



VACUUM CUPS WITH FEMALE SUPPORT

Item	Force Kg	Compounds available	A Ø	B	D Ø	F	H	Vacuum cup item	Support item	Weight g
SV 20 F *	0.95	(A) (N) (S)	G1/8"	13	22	12	20.0	SV 20 SR	00 08 132	5.2
SV 25 F *	1.43	(A) (N) (S)	G1/8"	13	27	12	20.5	SV 25 SR	00 08 132	5.4
SV 30 F *	2.00	(A) (N) (S)	G1/8"	13	32	12	22.3	SV 30 SR	00 08 132	6.1
SV 40 F *	3.62	(A) (N) (S)	G1/4"	17	43	14	27.0	SV 40 SR	00 08 134	13.3
SV 50 F *	5.51	(A) (N) (S)	G1/4"	22	53	14	30.5	SV 50 SR	00 08 141	30.7



* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

MAXIGRIP CUPS - ROUND FLAT AND BELLOWS VACUUM CUPS

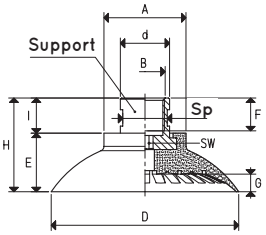
These vacuum cups have been created as an alternative to the ordinary cups used in the robot-automotive field. They offer an excellent solution to gripping and handling problems that could arise on vacuum-driven handlers in every industry sector.
They can be both round and oval, flat and bellows-type, and equipped with support. The extremely flexible outside lip, which can be associated with the typical features of the bellows cups, helps them adapt on flat, concave and convex surfaces with no risk of deforming or breaking even the thinnest objects to be handled.
The innovative design of the inside of the cups, which facilitates the drainage of oil and water, ensures a high friction coefficient with the gripping surface and, in particular, a unique grip on oil-covered metal sheets or wet glass or marble sheets. This particular feature guarantees a firm grip and, therefore, accurate placement of the load to be handled.
MAXIGRIP standard vacuum cups are made with our exclusive BENZ compound:
- Hardness 60-75°Sh.
- Working temperature between -40 and +170°C
- Stain-resistant
- Excellent resistance to abrasion, water and to oils containing chlorine.

Their support is vulcanised onto the cup. A wide range of accessories, such as adapters, couplers and articulated joints, allows them to be installed on any vacuum-driven handler.
Suction cups with NPT threading can be provided upon specific request and in minimum quantities to be defined in the order.
These cups can also be provided in the special compounds listed on pg. 31, thanks to their universality of use.

VACUUM CUPS WITH VULCANISED SUPPORT

Item	Force Kg	Compounds available	Volume cm³	A Ø	B Ø	Sp	D Ø	d Ø	E	F	G	H	I	SW	Support material	Weight g
VRP 40 A*	3.14	B N S	3.7	26	G1/4"	15	40	17	16	14	4.0	31	15	6	aluminium	33.6
VRP 50 A*	4.90	B N S	7.4	30	G3/8"	19	50	21	18	14	5.0	33	15	6	aluminium	49.3
VRP 60 A*	7.06	B N S	13.9	30	G3/8"	19	60	21	21	14	6.0	36	15	6	aluminium	55.3
VRP 80 A*	12.56	B N S	29.6	35	G3/8"	19	80	21	25	14	7.5	40	15	6	aluminium	74.9
VRP 100 A*	19.62	B N S	51.6	35	G3/8"	19	100	21	25	14	9.5	40	15	6	aluminium	80.7
VRP 125 A*	30.66	B N S	96.5	35	G3/8"	19	125	21	33	14	12.5	48	15	6	aluminium	139.6

Note: Can be supplied with NPT threading for minimum quantities of 100 pieces per item. Ordering example: VRP 80 A NPT *

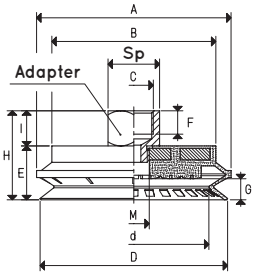


VERSION VRP .. ..

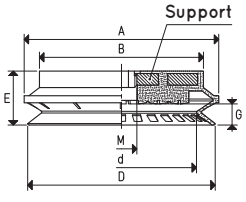
BELLOWS VACUUM CUPS WITH VULCANISED SUPPORT

Item	Force Kg	Compounds available	Volume cm³	A Ø	B Ø	C Ø	Sp	D Ø	d Ø	E	F	G	H	I	M Ø	Support material	Adapter material	Weight g
VRS 40*	3.14	B N S	9.7	43	30	G1/4"	17	40	24	21.0	10	7.0	35.0	14	G1/8"	steel	aluminium	56.3
VRS 50*	4.90	B N S	15.6	53	40	G3/8"	22	50	34	21.0	10	7.0	36.0	15	G1/4"	steel	aluminium	77.6
VRS 60*	7.06	B N S	22.8	63	50	G3/8"	22	60	44	21.0	10	7.0	36.0	15	G1/4"	steel	aluminium	107.9
VRS 80*	12.56	B N S	47.3	83	70	G3/8"	22	80	64	23.0	10	9.0	38.0	15	G1/4"	steel	aluminium	205.9
VRS 100*	19.62	B N S	104.2	103	80	G3/8"	22	100	79	29.0	10	13.0	44.0	15	G1/4"	steel	aluminium	269.0
VRS 125*	30.66	B N S	202.5	128	105	G3/8"	22	125	100	32.5	10	16.5	47.5	15	G1/4"	steel	aluminium	464.2

Note: Add the letters SR to the article to order a suction cup supplied without an adapter (Example: VRS 80 SR *).
Can be supplied with NPT threading for minimum quantities of 100 pieces per item. Ordering example: VRS 80 NPT *



VERSION VRS .. ..



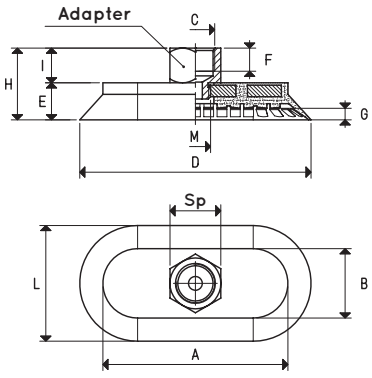
VERSION VRS .. SR

* Complete the code indicating the compound: B = BENZ rubber; N = para rubber; S = silicone

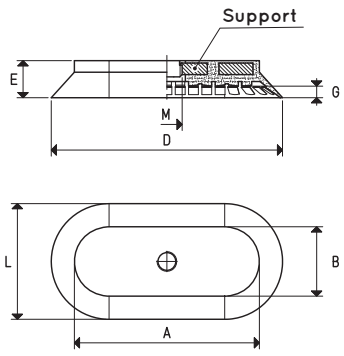
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134



VERSION VEP .. ..

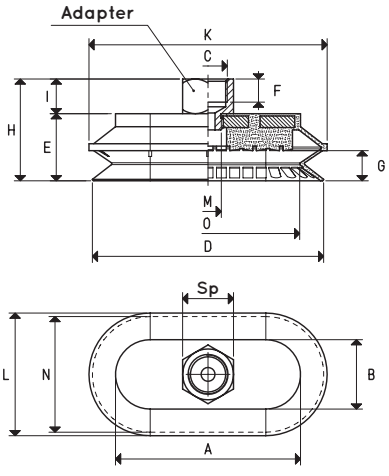


VERSION VEP .. .. SR

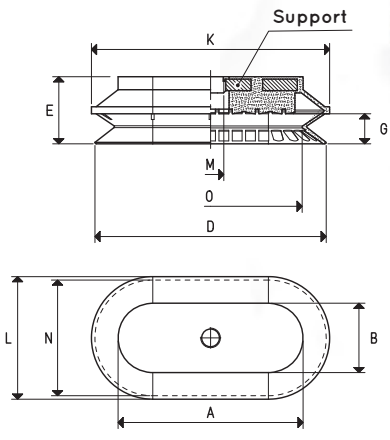
ELLIPTICAL VACUUM CUPS WITH VULCANISED SUPPORT

Item	Force Kg	Compounds available	Volume cm³	A	B	C Ø	Sp	D	E	F	G	H	I	L	M Ø	Support material	Adapter material	Weight g
VEP 30 60 *	4.01	(B)(N)(S)	4.5	47	17	G1/4"	17	60	13	10	3	27	14	30	G1/8"	steel	aluminium	42.6
VEP 30 90 *	6.26	(B)(N)(S)	7.0	77	17	G1/4"	17	90	13	10	3	27	14	30	G1/8"	steel	aluminium	63.5
VEP 40 80 *	7.14	(B)(N)(S)	13.2	70	30	G1/4"	17	80	14	10	4	28	14	40	G1/8"	steel	aluminium	68.0
VEP 50 100 *	11.15	(B)(N)(S)	15.0	80	30	G3/8"	22	100	16	10	5	31	15	50	G1/4"	steel	aluminium	110.0
VEP 60 120 *	16.06	(B)(N)(S)	32.1	95	35	G3/8"	22	120	18	10	6	33	15	60	G1/4"	steel	aluminium	156.1
VEP 70 140 *	21.86	(B)(N)(S)	53.5	110	40	G3/8"	22	140	19	10	7	34	15	70	G1/4"	steel	aluminium	199.4

Note: Add the letters SR to the article to order a suction cup supplied without an adapter (Example: VEP 40 80 SR *).
Height "C" available with NPT threading. Ordering example: VEP 40 80 NPT *



VERSION VES .. ..



VERSION VES .. .. SR

BELLOWS ELLIPTICAL VACUUM CUPS WITH VULCANISED SUPPORT

Item	Force Kg	Compounds available	Volume cm³	A	B	C Ø	Sp	D	E	F	G	H	K	I	L	M Ø	N	O	Support material	Adapter material	Weight g
VES 30 60 *	4.01	(B)(N)(S)	12.6	50	20	G1/4"	17	60	21	10	7.0	35	63	14	33	G1/8"	30	44.5	steel	aluminium	49.5
VES 40 80 *	7.14	(B)(N)(S)	24.8	70	30	G1/4"	17	80	23	10	9.0	37	83	14	43	G1/8"	40	64.0	steel	aluminium	91.9
VES 50 100 *	11.15	(B)(N)(S)	57.6	80	30	G3/8"	22	100	29	10	13.0	44	103	15	53	G1/4"	50	79.0	steel	aluminium	125.3
VES 70 140 *	21.86	(B)(N)(S)	122.8	110	40	G3/8"	22	140	33	10	16.5	48	143	15	73	G1/4"	70	109.0	steel	aluminium	227.8

Note: Add the letters SR to the article to order a suction cup supplied without an adapter (Example: VES 40 80 SR *).
Height "C" available with NPT threading. Ordering example: VES 40 80 NPT *

* Complete the code indicating the compound: (B) = BENZ rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

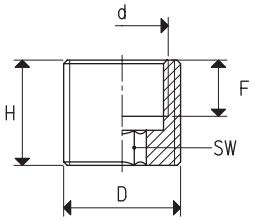
Adapters for GAS - NPT threading available on page 1.134

ADAPTERS FOR MAXIGRIP VACUUM CUPS

These standard accessories provide various MAXIGRIP CUP assembly options.
The galvanised steel adapters transform the female standard support thread connections into male and the gas ones into metric.
The internal hexagonal housing allows for an easy screwing on the supports.

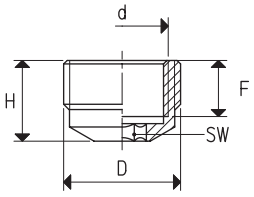
MF ADAPTER FOR VRP VACUUM CUPS

Item	D Ø	d Ø	F	H	SW	Weight g
00 08 215	G3/8"	G1/4"	8	14	6	11.5



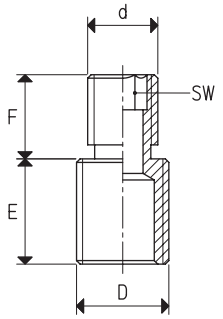
MF ADAPTER FOR VRS - VEP - VES VACUUM CUPS

Item	D Ø	d Ø	F	H	SW	Weight g
00 08 216	G3/8"	G1/4"	8	11.5	6	6.0



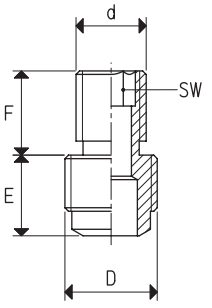
MM ADAPTER FOR VRP VACUUM CUPS

Item	D Ø	d Ø	E	F	SW	Weight g
00 08 217	G1/4"	G1/4"	15	10	6	16.7
00 08 218	G1/4"	M10 x 1.5	15	12	6	10.2
00 08 219	G1/4"	M14 x 1.5	15	12	6	16.0
00 08 220	G3/8"	G1/4"	14	10	6	18.4
00 08 221	G3/8"	M10 x 1.5	14	12	6	16.3
00 08 222	G3/8"	M14 x 1.5	14	12	6	22.5



MM ADAPTER FOR VRS - VEP - VES VACUUM CUPS

Item	D Ø	d Ø	E	F	SW	Weight g
00 08 223	G1/4"	G1/4"	11.5	10	6	13.9
00 08 224	G1/4"	M10 x 1.5	13.0	12	6	10.1
00 08 225	G1/4"	M14 x 1.5	13.0	12	6	15.8
00 08 226	G3/8"	G1/4"	10.5	11	6	16.6
00 08 227	G3/8"	M10 x 1.5	10.5	13	6	14.2
00 08 228	G3/8"	M14 x 1.5	10.5	13	6	20.2

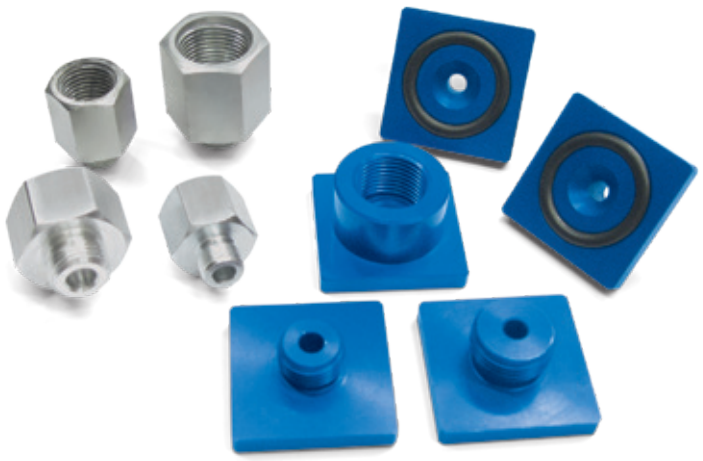


Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

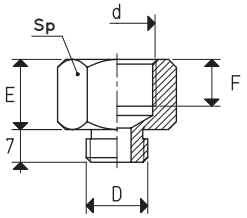
ACCESSORIES FOR MAXIGRIP VACUUM CUPS

The accessories shown on this page are suitable for the previously described MAXIGRIP CUPS.
MF adapters are suitable for increasing female connections of 1/8 "and 1/4" gas threaded connection vacuum cups to a larger size, still female, of 1/4" or 3/8" with gas or NPT threading, upon request.
Those that are galvanised steel and with gas threading and those with NPT threading are made of aluminium.
AQ adapters with square flange and male or female threaded connections made of anodised aluminium are suitable for robotic gripping systems to allow for quick installation of vacuum cups on the special profiles, used in the AUTOMOTIVE sector. The built-in seal guarantees perfect vacuum seal.



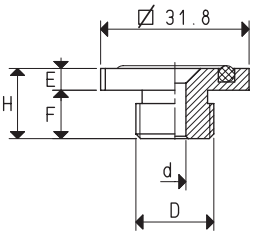
MF ADAPTER FOR VRP-VRS-VEP-VES VACUUM CUPS

Item	E	F	D Ø	d Ø	Sp	Adapter material	Weight g
00 08 207	14	10	G1/8"	G1/4"	17	aluminium	17.6
00 08 208	15	10	G1/4"	G3/8"	22	aluminium	31.0
00 08 329	17	12	G1/8"	1/4" NPT	17	steel	17.6
00 08 328	22	16	G1/4"	3/8" NPT	22	steel	31.0



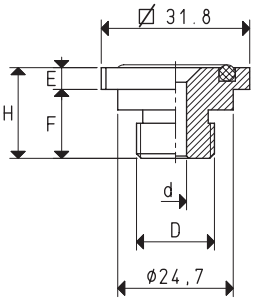
SQUARE ADAPTER FOR VRP-VRS-VEP-VES VACUUM CUPS

Item	H	E	F	D Ø	d Ø	Material	Weight g	O-ring spare part item
AQ 32 1/8"	13	4.6	8.4	G1/8"	5	aluminium	11.8	00 08 214
AQ 32 1/4"	13	4.6	8.4	G1/4"	5	aluminium	13.2	00 08 214
AQ 32 3/8"	13	4.6	8.4	G3/8"	5	aluminium	15.6	00 08 214
AQ 32 1/2"	13	4.6	8.4	G1/2"	5	aluminium	17.2	00 08 214



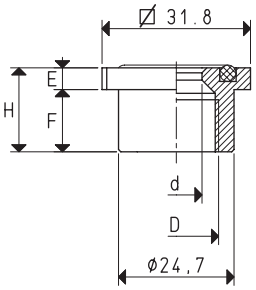
SQUARE ADAPTER FOR VRP-VRS-VEP-VES VACUUM CUPS

Item	H	E	F	D Ø	d Ø	Material	Weight g	O-ring spare part item
AQS 32 1/8"	16.1	4.6	11.5	G1/8"	5	aluminium	12.2	00 08 214
AQS 32 1/4"	20.0	4.6	15.4	G1/4"	5	aluminium	13.6	00 08 214
AQS 32 3/8"	20.0	4.6	15.4	G3/8"	5	aluminium	16.2	00 08 214
AQS 32 1/2"	20.0	4.6	15.4	G1/2"	5	aluminium	17.8	00 08 214



SQUARE ADAPTER FOR VRP-VRS-VEP-VES VACUUM CUPS

Item	H	E	F	D Ø	d Ø	Material	Weight g	O-ring spare part item
AQ 32 1/4" F	17.9	4.6	13.3	G1/4"	11	aluminium	15.2	00 08 214
AQ 32 3/8" F	17.9	4.6	13.3	G3/8"	11	aluminium	14.1	00 08 214



Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

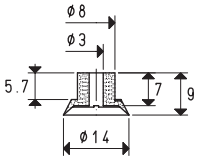
Adapters for GAS - NPT threading available on page 1.134

SUCTION CUPS FOR HANDLING PLASTIC FILMS, FLOW PACKS AND THE PACKAGING SECTOR

This series of vacuum cups is specifically designed for handling thin, lightweight and delicate objects, such as plastic or paper bags.
The especially thin lip allows the vacuum cup to easily adapt to changes in the shape of the material to be picked up or opened, ensuring effective adhesion even on surfaces that are not perfectly regular.
The internal cleats perform a fundamental function: they distribute the vacuum evenly across the entire surface of the vacuum cup, thus preventing very thin materials from being deformed or sucked directly into the central hole.
To ensure the best performance when gripping plastic or paper products, we recommend using the Para compound, known for its excellent adhesion properties and gentleness on the material being handled.

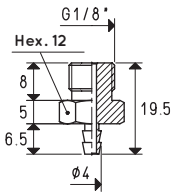
VACUUM CUP

Vacuum cup item	Force Kg	Compounds available	Volume cm^3
01 14 09 *	0.38	(A) (N) (S)	220



SUPPORTS

Item	Support material	Vacuum cup item	Weight g
00 08 239	brass	01 14 09	8.0
00 08 240	brass	01 14 09	7.0



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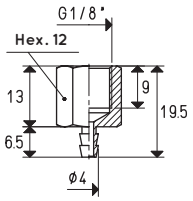
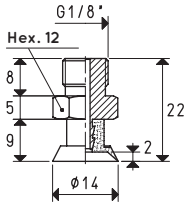


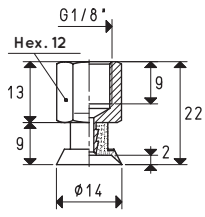
00 08 240

VACUUM CUP WITH SUPPORT

Item	Force Kg	Compounds available	Vacuum cup item	Support item	Weight g
08 14 09 *	0.39	(A) (N) (S)	01 14 09	00 08 239	8.3
08 14 09 F *	0.39	(A) (N) (S)	01 14 09	00 08 240	7.3



08 14 09 *



08 14 09 F *

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

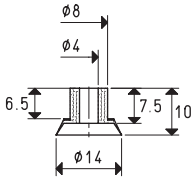
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

SUCTION CUPS FOR HANDLING PLASTIC FILMS, FLOW PACKS AND THE PACKAGING SECTOR

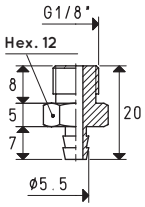
VACUUM CUP

Vacuum cup item	Force Kg	Compounds available	Volume cm^3
01 14 10 *	0.38	(S) (NG)	301

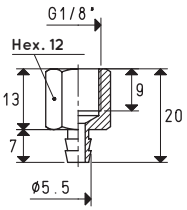


SUPPORTS

Item	Support material	Vacuum cup item	Weight g
00 08 03	brass	01 14 10	9.0
00 08 04	brass	01 14 10	8.1



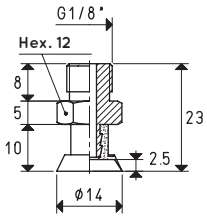
00 08 03



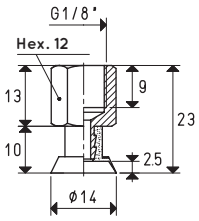
00 08 04

VACUUM CUP WITH SUPPORT

Item	Force Kg	Compounds available	Vacuum cup item	Support item	Weight g
08 14 10 *	0.39	(S) (NG)	01 14 10	00 08 03	9.4
08 14 10 F *	0.39	(S) (NG)	01 14 10	00 08 04	8.5



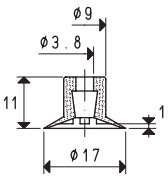
08 14 10



08 14 10 F

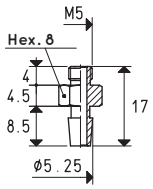
VACUUM CUP

Vacuum cup item	Force Kg	Compounds available	Volume cm^3
01 17 12 *	0.60	(A) (N) (S)	213

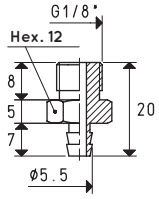


SUPPORTS

Item	Support material	Vacuum cup item	Weight g
00 08 06	AVP	01 17 12	2.6
00 08 03	brass	01 17 12	9.0



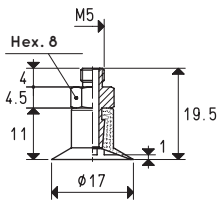
00 08 06



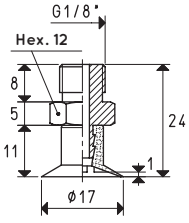
00 08 03

VACUUM CUP WITH SUPPORT

Item	Force Kg	Compounds available	Vacuum cup item	Support item	Weight g
08 17 12 *	0.60	(A) (N) (S)	01 17 12	00 08 06	3.3
08 17 13 *	0.60	(A) (N) (S)	01 17 12	00 08 03	9.7



08 17 12



08 17 13

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone, (NG) = yellow rubber

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

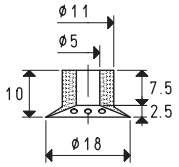
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

SUCTION CUPS FOR HANDLING PLASTIC FILMS, FLOW PACKS AND THE PACKAGING SECTOR

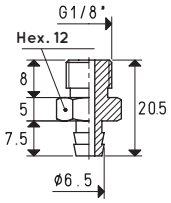
VACUUM CUP

Vacuum cup item	Force Kg	Compounds available	Volume cm^3
01 18 12 *	0.63	A N S	459

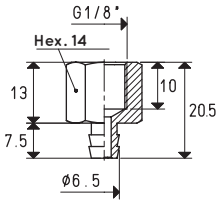


SUPPORTS

Item	Support material	Vacuum cup item	Weight g
00 08 67	brass	01 18 12	11.4
00 08 64	brass	01 18 12	13.9



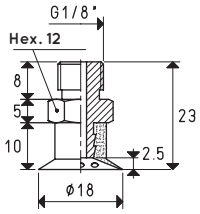
00 08 67



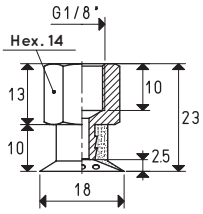
00 08 64

VACUUM CUP WITH SUPPORT

Item	Force Kg	Compounds available	Vacuum cup item	Support item	Weight g
08 18 12 *	0.63	A N S	01 18 12	00 08 67	12.2
08 18 12 F *	0.63	A N S	01 18 12	00 08 64	14.7



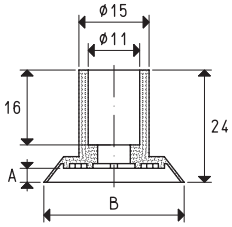
08 18 12



08 18 12 F

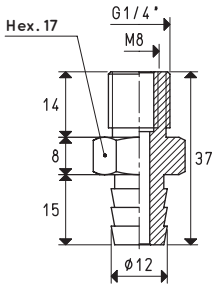
VACUUM CUPS

Vacuum cup item	Force Kg	Compounds available	A	B	Volume cm^3
01 27 24 *	1.43	A N S	3.0	27	2.0
01 30 24 *	1.76	A N S	3.0	30	2.2
01 30 24 L *	1.76	N S	1.5	30	1.8



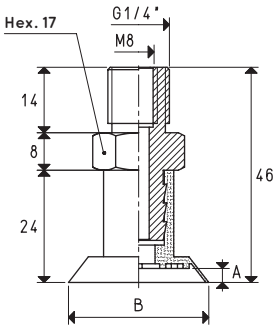
SUPPORT

Item	Support material	Vacuum cup item	Weight g
00 08 15	aluminium	01 27 24	12.1
		01 30 24	12.1
		01 30 24 L	12.1



VACUUM CUP WITH SUPPORT

Item	Force Kg	Compounds available	A	B	Vacuum cup item	Support item	Weight g
08 27 24 *	1.43	A N S	3.0	27	01 27 24	00 08 15	15.1
08 30 24 *	1.76	A N S	3.0	30	01 30 24	00 08 15	15.2
08 30 24 L *	1.76	N S	1.5	30	01 30 24 L	00 08 15	15.5



* Complete the code indicating the compound: A = oil-resistant rubber; N = para rubber; S = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

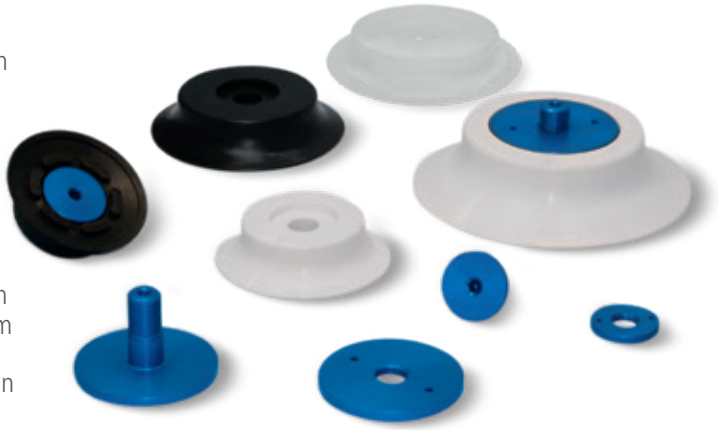
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

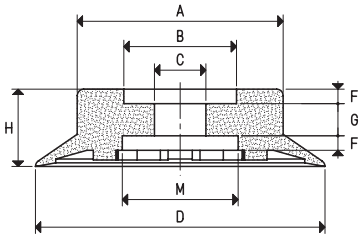
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

ROUND FLAT VACUUM CUPS WITH SUPPORTS

The cups described on this page have been designed to solve most of the gripping problems that can arise handling wooden or plastic panels, thin glass or marble sheets, fragile metal sheets, ceramic or baked clay tiles, etc.
Their low, strong and slightly tilted lip does not swipe on the loading surface during the gripping phase.
The cleats on the inside of these cups, along with reducing the volume of air to be sucked, create a perfect supporting surface which prevents any gripping surface deformation as well as vertically lifted loads from slipping. These cups can be cold fitted with no adhesives onto their anodised aluminium support and locked by the ring nut. These cups are extremely easy to replace; simply request the cup indicated in the table in the desired compound when requesting the spare part.





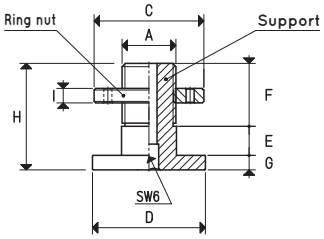
VACUUM CUPS

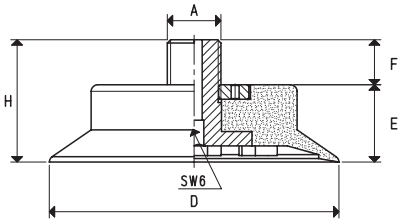
Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	F	G	H	M Ø
01 76 24 *	11.33	(A) (N) (S)	15.8	54	35	16	76	4.5	10	24	36
01 90 24 *	15.89	(A) (N) (S)	19.5	64	35	16	90	4.5	10	24	36
01 110 24 *	23.74	(A) (N) (S)	27.2	79	35	16	110	4.5	10	24	36
01 150 36 *	45.00	(A) (N) (S)	75.8	98	70	16	150	6.0	17	36	70

SUPPORTS

Item	A Ø	C Ø	D Ø	E	F	G	H	I	Support/ring nut material	For vacuum cup item	Weight g
00 08 108	G1/4"	34	35	9	19.5	4.5	33.0	4.5	aluminium	01 76 24	31.2
										01 90 24	
										01 110 24	
00 08 110	G3/8"	34	35	9	19.5	4.5	33.0	4.5	aluminium	01 76 24	33.7
										01 90 24	
										01 110 24	
00 08 112	G3/8"	69	69	15	22.0	5.5	42.5	6.0	aluminium	01 150 36	132.1

Note: the ring nut is provided automatically when the support is ordered with its own item





VACUUM CUP WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	D Ø	E	F	H	Vacuum cup item	Support item	Weight g
08 76 24 1/4" *	11.33	(A) (N) (S)	G1/4"	76	24	14	38	01 76 24	00 08 108	83.1
08 90 24 1/4" *	15.89	(A) (N) (S)	G1/4"	90	24	14	38	01 90 24	00 08 108	112.0
08 110 24 1/4" *	23.74	(A) (N) (S)	G1/4"	110	24	14	38	01 110 24	00 08 108	168.2
08 76 24 3/8" *	11.33	(A) (N) (S)	G3/8"	76	24	14	38	01 76 24	00 08 110	85.6
08 90 24 3/8" *	15.89	(A) (N) (S)	G3/8"	90	24	14	38	01 90 24	00 08 110	114.5
08 110 24 3/8" *	23.74	(A) (N) (S)	G3/8"	110	24	14	38	01 110 24	00 08 110	170.7
08 150 36 *	45.00	(A) (N) (S)	G3/8"	150	36	14	50	01 150 36	00 08 112	436.5

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

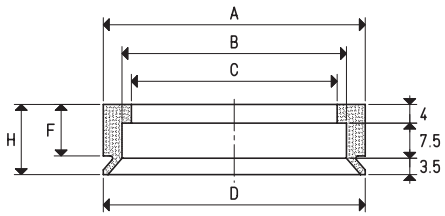
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

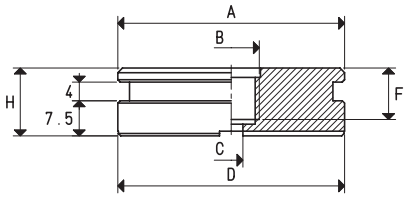
ROUND FLAT VACUUM CUP WITH SUPPORT

The cups described on this page have been designed for gripping soft drink cans. They can obviously be also used for gripping other objects with flat smooth or slightly rough surfaces.
The shape of its lip allows a firm grip of the surface of the load to be handled, eliminating any oscillation and reducing the air volume contained within, thus allowing quicker grip and release.
These cups can be cold fitted with no adhesives onto their anodised aluminium support equipped with a threaded hole in the centre to allow their fastening to the automation.
This cup is extremely easy to replace; simply request the cup indicated in the table in the desired compound when requesting the spare part.



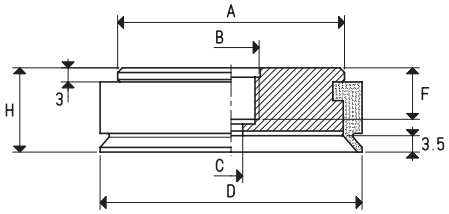
VACUUM CUP

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	F	H
01 56 15 *	6.15	(A)(S)	7.1	56	48	44	56	11	15



SUPPORT

Item	A Ø	B Ø	C Ø	D Ø	F	H	Support material	For vacuum cup item	Weight g
00 08 83	48.5	M12	5	48.5	11	14.5	aluminium	01 56 15	67.4



VACUUM CUP WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	B Ø	C Ø	D Ø	F	H	Vacuum cup item	Support item	Weight g
08 56 15 *	6.15	(A)(S)	48.5	M12	5	56	11	18	01 56 15	00 08 83	78

* Complete the code indicating the compound: (A) = oil-resistant rubber; (S) = silicone

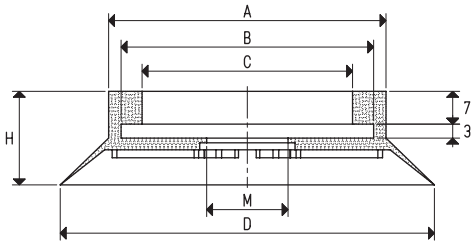
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

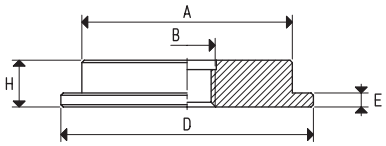
ROUND FLAT VACUUM CUP WITH SUPPORTS

These cups feature a particularly thin and soft lip, which allows it to grip very rough surfaces. Its supporting surface with cleats guarantees a firm grip on the load to be handled. These cups have been specially designed for gripping ceramic tiles with smooth, rough and non-slip surfaces, although, due to their features, they can also be used for handling glass, marble and cement objects.
These cups can be cold fitted with no adhesives onto their anodised aluminium support equipped with a threaded hole in the centre to allow their fastening to the automation. This cup is extremely easy to replace; simply request the cup indicated in the table in the desired compound when requesting the spare part.



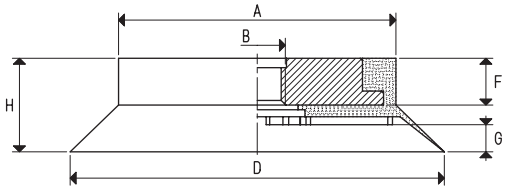
VACUUM CUP

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	H	M Ø
01 80 20 *	12.56	(A)(N)(S)	27.2	58	54	45	80	20	17



SUPPORTS

Item	A Ø	B Ø	D Ø	E	H	Support material	For vacuum cup item	Weight g
00 08 126	45	M12	54	3	10	aluminium	01 80 20	45.5
00 08 465	45	G1/4"	54	3	10	aluminium	01 80 20	41.5
00 08 193	45	G3/8"	54	3	10	aluminium	01 80 20	41.5
00 08 143	45	G1/2"	54	3	10	aluminium	01 80 20	41.5



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	B Ø	D Ø	F	G	H	Vacuum cup item	Support item	Weight g
08 80 20 *	12.56	(A)(N)(S)	58	M12	80	10	6	20	01 80 20	00 08 126	70.7
08 80 20 1/4" *	12.56	(A)(N)(S)	58	G1/4"	80	10	6	20	01 80 20	00 08 465	66.7
08 80 20 3/8" *	12.56	(A)(N)(S)	58	G3/8"	80	10	6	20	01 80 20	00 08 193	66.7
08 80 20 1/2" *	12.56	(A)(N)(S)	58	G1/2"	80	10	6	20	01 80 20	00 08 143	66.7

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

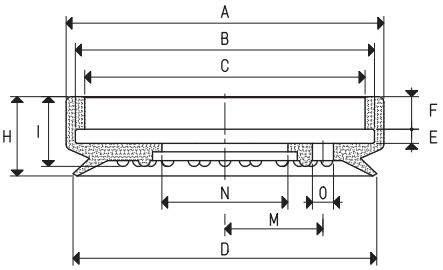
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

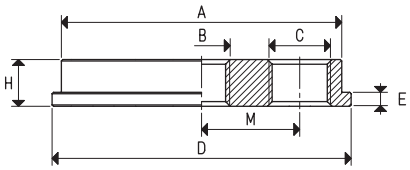
ROUND FLAT VACUUM CUPS WITH SUPPORTS

These cups have been designed in particular for handling metal sheets, glass, wooden panels, machined marble and granite and other similar materials.
The shape of their lips allows a firm grip of the surface of the load to be handled, eliminating any oscillation and significantly reducing the air volume contained within, thus allowing quicker grip and release. These cups are provided with cleats which, besides avoiding the load to bend in correspondence of the gripping point, also have the purpose of increasing the friction surface with the vertically lifted load, preventing it from slipping. They are normally available in the three standard compounds but can be supplied in special compounds listed on pg. 31 and in a minimum amount to be defined in the order, upon request.
These cups can be cold fitted with no adhesives onto their anodised aluminium support equipped with a threaded hole in the centre to allow its fastening to the automation and, upon request, can be supplied with a side hole with gas threading for the suction fitting.
These cups are extremely easy to replace; simply request the cup indicated in the table in the desired compound when requesting the spare part.



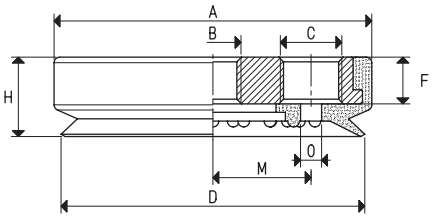
VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	E	F	H	I	M	N Ø	O Ø
01 65 15 *	8.29	A N S	9.1	68	63	59	65	3	7	17	15	--	27	--
01 65 16 *	8.29	A N S	9.1	68	63	59	65	3	7	17	15	21	27	4.5



SUPPORTS

Item	A Ø	B Ø	C Ø	D Ø	E	H	M	For vacuum cup item	Support material	Weight g
00 08 32	60	M12	--	64	3	10	--	01 65 15	aluminium	80.6
00 08 424	60	G1/4"	--	64	3	10	--	01 65 15	aluminium	80.6
00 02 36	60	M8	G1/4"	64	3	10	21	01 65 16	aluminium	78.1
00 06 13	60	M12	G1/4"	64	3	10	21	01 65 16	aluminium	77.1



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	B Ø	C Ø	D Ø	F	H	M	O Ø	Vacuum cup item	Support item	Weight g
08 65 15 *	8.29	A N S	69	M12	--	65	10	17	--	--	01 65 15	00 08 32	102.0
08 65 15 1/4" *	8.29	A N S	69	G1/4"	--	65	10	17	--	--	01 65 15	00 08 424	102.0
08 65 16 *	8.29	A N S	69	M8	G1/4"	65	10	17	21	4.5	01 65 16	00 02 36	100.0
08 65 17 *	8.29	A N S	69	M12	G1/4"	65	10	17	21	4.5	01 65 16	00 06 13	98.5

* Complete the code indicating the compound: A = oil-resistant rubber; N = para rubber; S = silicone

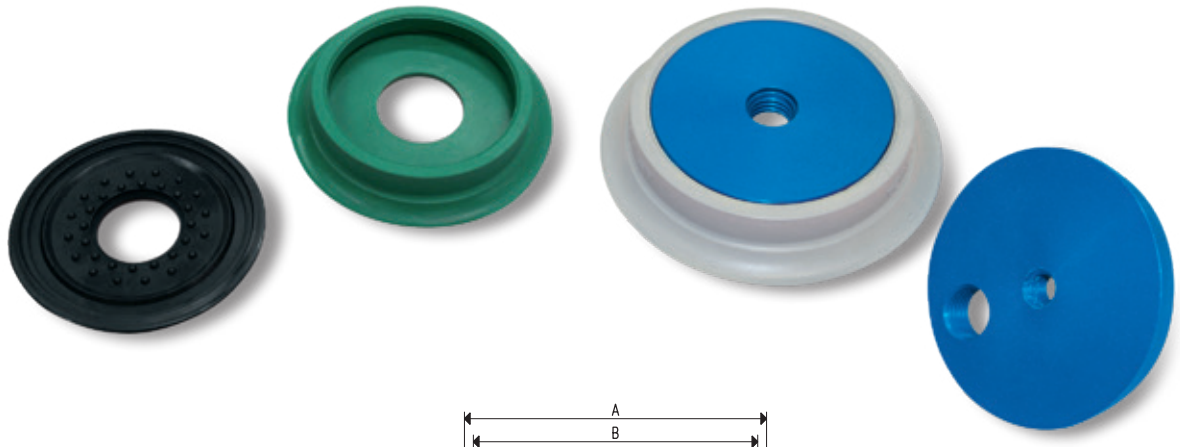
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

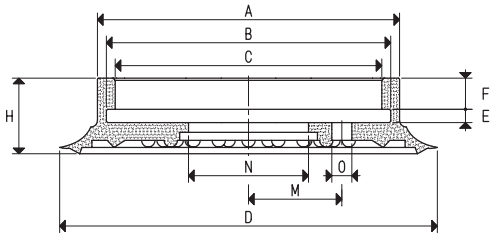
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

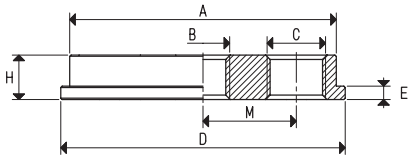
ROUND FLAT VACUUM CUPS WITH SUPPORTS





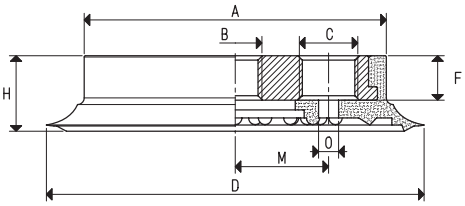
VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	E	F	H	M	N Ø	O Ø
01 85 15 *	14.18	(A)(N)(S)	13.0	68	63	59	85	3	7	17	--	27	--
01 85 16 *	14.18	(A)(N)(S)	13.0	68	63	59	85	3	7	17	21	27	4.5



SUPPORTS

Item	A Ø	B Ø	C Ø	D Ø	E	H	M	For vacuum cup item	Support material	Weight g
00 08 32	60	M12	--	64	3	10	--	01 85 15	aluminium	80.6
00 08 234	60	G1/2"	--	64	3	10	--	01 85 15	aluminium	78.3
00 08 424	60	G1/4"	--	64	3	10	--	01 85 15	aluminium	80.6
00 08 233	60	G3/4"	--	64	3	10	--	01 85 15	aluminium	77.3
00 02 36	60	M8	G1/4"	64	3	10	21	01 85 16	aluminium	78.1
00 06 13	60	M12	G1/4"	64	3	10	21	01 85 16	aluminium	77.1



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	B Ø	C Ø	D Ø	F	H	M	O Ø	Vacuum cup item	Support item	Weight g
08 85 15 *	14.18	(A)(N)(S)	69	M12	--	85	10	17	--	--	01 85 15	00 08 32	110.3
08 85 15 1/2" *	14.18	(A)(N)(S)	69	G1/2"	--	85	10	17	--	--	01 85 15	00 08 234	108.0
08 85 15 1/4" *	14.18	(A)(N)(S)	69	G1/4"	--	85	10	17	--	--	01 85 15	00 08 424	107.0
08 85 15 3/4" *	14.18	(A)(N)(S)	69	G3/4"	--	85	10	17	--	--	01 85 15	00 08 233	107.0
08 85 16 *	14.18	(A)(N)(S)	69	M8	G1/4"	85	10	17	21	4.5	01 85 16	00 02 36	107.7
08 85 17 *	14.18	(A)(N)(S)	69	M12	G1/4"	85	10	17	21	4.5	01 85 16	00 06 13	106.7

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

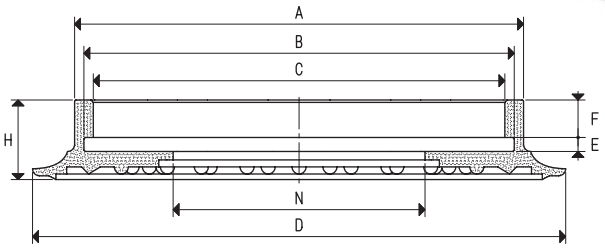
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

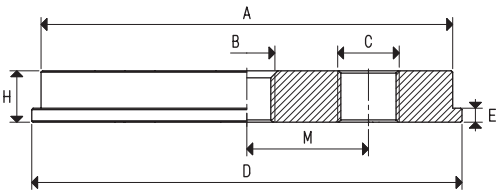
Adapters for GAS - NPT threading available on page 1.134

ROUND FLAT VACUUM CUP WITH SUPPORTS



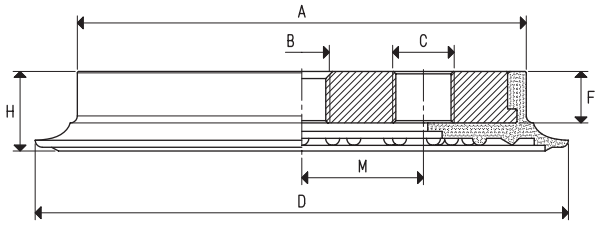
VACUUM CUP

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	E	F	H	N Ø
01 110 10 *	23.74	(A)(N)(S)	24.9	96	91	87	114	3	8	17	54



SUPPORTS

Item	A Ø	B Ø	C Ø	D Ø	E	H	M	For vacuum cup item	Support material	Weight g
00 08 33	88	M12	--	92	3	11	--	01 110 10	aluminium	188.9
00 02 37	88	M8	G1/4"	92	3	11	26	01 110 10	aluminium	188.8
00 06 14	88	M12	G1/4"	92	3	11	26	01 110 10	aluminium	185.8
00 08 123	88	G3/8"	--	92	3	11	--	01 110 10	aluminium	186.1



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	B Ø	C Ø	D Ø	F	H	M	Vacuum cup item	Support item	Weight g
08 110 10 *	23.74	(A)(N)(S)	97	M12	--	114	11	17	--	01 110 10	00 08 33	233.2
08 110 11 *	23.74	(A)(N)(S)	97	M8	G1/4"	114	11	17	26	01 110 10	00 02 37	233.1
08 110 12 *	23.74	(A)(N)(S)	97	M12	G1/4"	114	11	17	26	01 110 10	00 06 14	230.1
08 110 13 *	23.74	(A)(N)(S)	97	G3/8"	--	114	11	17	--	01 110 10	00 08 123	230.4

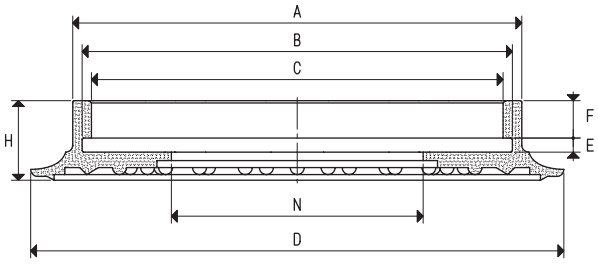
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

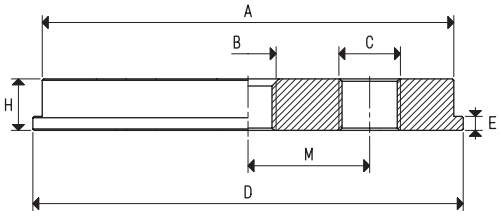
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

ROUND FLAT VACUUM CUP WITH SUPPORTS



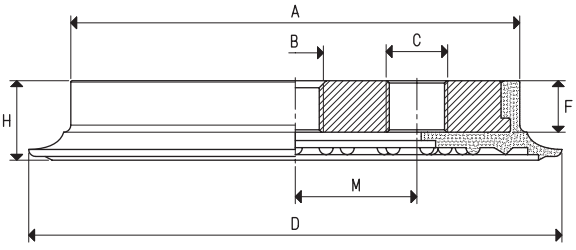
VACUUM CUP

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	E	F	H	N Ø
01 150 10 *	45.00	(A)(N)(S)	75.7	133	125	118	154	4	11	23	64



SUPPORTS

Item	A Ø	B Ø	C Ø	D Ø	E	H	M	For vacuum cup item	Support material	Weight g
00 08 35	120	M12	--	127	4	15	--	01 150 10	aluminium	471.3
00 08 107	120	M12	G3/8"	127	4	15	30	01 150 10	aluminium	476.9
00 08 119	120	G3/8"	--	127	4	15	--	01 150 10	aluminium	478.9
00 08 145	120	G3/8"	G3/8"	127	4	15	27	01 150 10	aluminium	471.9
00 06 15	120	M12	G1/4"	127	4	15	30	01 150 10	aluminium	476.3



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	B Ø	C Ø	D Ø	F	H	M	Vacuum cup item	Support item	Weight g
08 150 10 *	45.00	(A)(N)(S)	135	M12	--	154	15	23	--	01 150 10	00 08 35	583.3
08 150 12 *	45.00	(A)(N)(S)	135	M12	G3/8"	154	15	23	30	01 150 10	00 08 107	588.9
08 150 13 *	45.00	(A)(N)(S)	135	G3/8"	--	154	15	23	--	01 150 10	00 08 119	590.9
08 150 14 *	45.00	(A)(N)(S)	135	G3/8"	G3/8"	154	15	23	27	01 150 10	00 08 145	583.9
08 150 16 *	45.00	(A)(N)(S)	135	M12	G1/4"	154	15	23	30	01 150 10	00 06 15	588.3

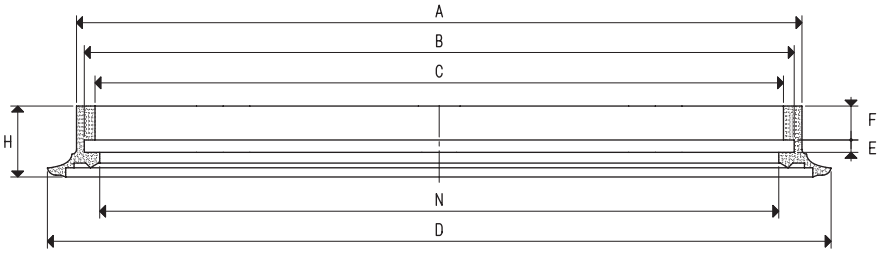
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

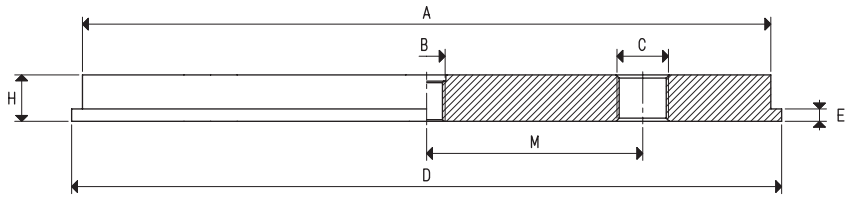
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

ROUND FLAT VACUUM CUP WITH SUPPORT



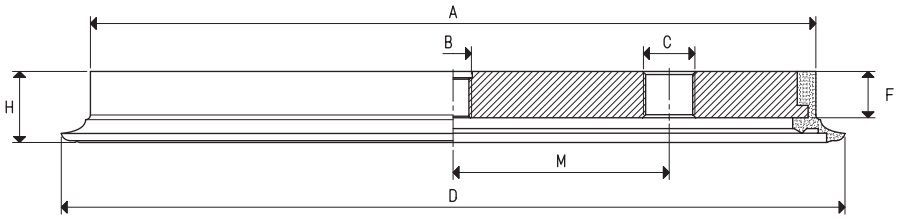
VACUUM CUP

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	E	F	H	N Ø
01 250 20 *	122.60	(A) (N)	200.0	235	227	220	254	4	11	23	220



SUPPORT

Item	A Ø	B Ø	C Ø	D Ø	E	H	M	For vacuum cup item	Support material	Weight Kg
00 08 115	223	M12	G3/8"	230	4	15	70	01 250 20	aluminium	1.65



VACUUM CUP WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	B Ø	C Ø	D Ø	F	H	M	Vacuum cup item	Support item	Weight Kg
08 250 20 *	122.60	(A) (N)	237	M12	G3/8"	254	15	23	70	01 250 20	00 08 115	1.78

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber

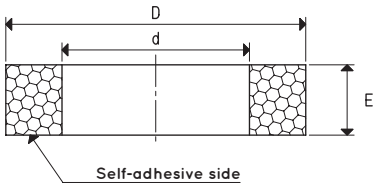
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

ROUND FLAT FOAM RUBBER VACUUM CUPS WITH SUPPORTS

These foam rubber cups are made with a special compound called GERANIUM, with a density that allows them to grip even uneven and very rough surfaces maintaining their elasticity also after many working cycles. They are provided with self-adhesive side for a quick fixing to their support. This series of cups has been designed for handling loads with raw or very rough surfaces (sawn, bush-hammered or flamed marble, textured, non-slip or profiled metal sheets, striped Plexiglass, raw cement manufactures, garden tiles with fret, etc.) and in all those cases in which traditional cups cannot be used.
In case of lubricated gripping surfaces, we recommend using NF neoprene foam rubber.
The working temperature range is between -40°C and +80°C for OF GERANIUM foam rubber and between -20°C and +80°C for NF neoprene.
Their supports are made with anodised aluminium and are provided with a threaded hole in the centre for fastening them to the automation. The larger ones, on the other hand, have a side threaded hole for vacuum connection.
For the spare part, all you have to do is request the self-adhesive foam rubber cup indicated in the table in the required compound.

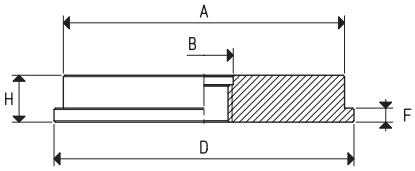


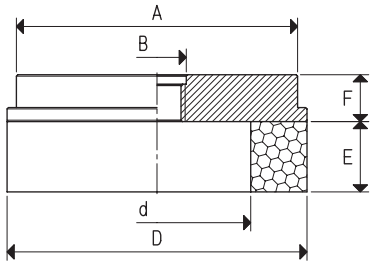
VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm^3	D Ø	d Ø	E
01 42 15 *	0.78	OF NF	4.7	40	20	15
01 64 15 *	3.14	OF NF	18.8	64	40	15
01 92 15 *	8.5	OF NF	48.2	92	64	15

SUPPORTS

Item	A Ø	B Ø	D Ø	F	H	Support material	For vacuum cup item	Weight g
00 08 147	40	M12	40	--	10	aluminium	01 42 15	32.8
00 08 118	40	G1/4"	40	--	10	aluminium	01 42 15	32.8
00 08 32	60	M12	64	3	10	aluminium	01 64 15	80.6
00 08 424	60	G1/4"	64	3	10	aluminium	01 64 15	80.6
00 08 33	88	M12	92	3	11	aluminium	01 92 15	188.9
00 08 123	88	G3/8"	92	3	11	aluminium	01 92 15	186.1





VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	B Ø	D Ø	d Ø	E	F	Vacuum cup item	Support item	Weight g
08 42 15 *	0.78	OF NF	40	M12	40	20	15	10	01 42 15	00 08 147	35.6
08 42 15 1/4" *	0.78	OF NF	40	G1/4"	40	20	15	10	01 42 15	00 08 118	35.6
08 64 15 *	3.14	OF NF	60	M12	64	40	15	10	01 64 15	00 08 32	86.5
08 64 15 1/4" *	3.14	OF NF	60	G1/4"	64	40	15	10	01 64 15	00 08 424	86.5
08 92 15 *	8.5	OF NF	88	M12	92	64	15	11	01 92 15	00 08 33	199.1
08 92 15 3/8" *	8.5	OF NF	88	G3/8"	92	64	15	11	01 92 15	00 08 123	196.3

* Complete the code indicating the compound: OF = geranium foam rubber; NF = neoprene foam rubber

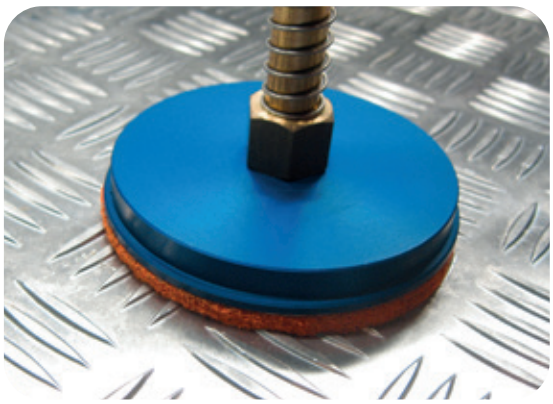
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

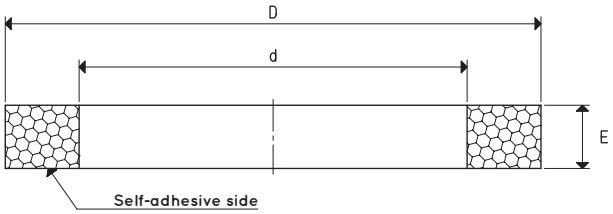
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

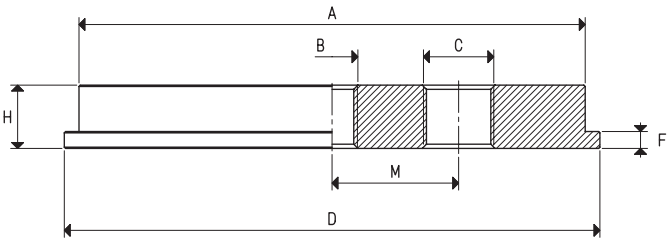
ROUND FLAT FOAM RUBBER VACUUM CUPS WITH SUPPORTS





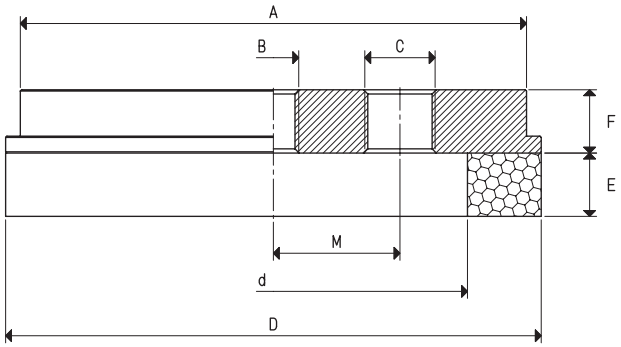
VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm^3	D Ø	d Ø	E
01 127 15 *	16,61	OF NF	99.6	127	92	15
01 180 15 *	38.50	OF NF	230.7	180	140	15
01 220 15 *	63.60	OF NF	381.5	220	180	15



SUPPORT

Item	A Ø	B Ø	C Ø	D Ø	F	H	M	Support material	For vacuum cup item	Weight Kg
00 08 107	120	M12	G3/8"	127	4	15	30	aluminium	01 127 15	0.48
00 08 58	160	M12	G3/8"	180	5	12	60	aluminium	01 180 15	0.74



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	B Ø	C Ø	D Ø	d Ø	E	F	M	Vacuum cup item	Support item	Weight Kg
08 127 15 *	17.5	OF NF	120	M12	G3/8"	127	92	15	15	30	01 127 15	00 08 107	0.49
08 180 15 *	38.5	OF NF	160	M12	G3/8"	180	140	15	12	60	01 180 15	00 08 58	0.78

* Complete the code indicating the compound: OF = geranium foam rubber; NF = neoprene foam rubber

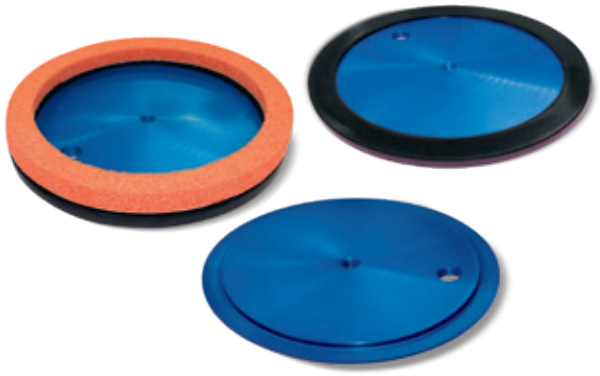
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

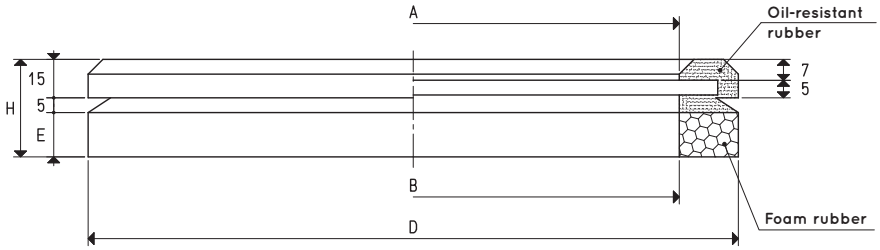
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

ROUND FLAT FOAM RUBBER VACUUM CUPS WITH SUPPORT

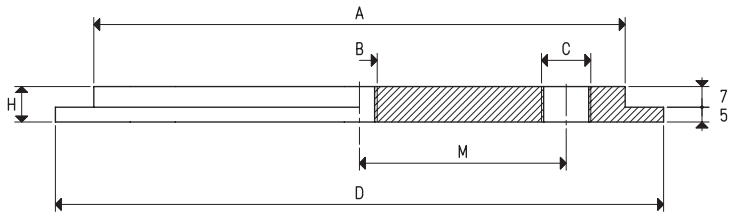
The detail that sets these cups apart from the previously described cups is its lip, made of nitrile rubber, combined with foam rubber in the GERANIUM compound or neoprene compound. This shape allows for gripping on very rough or even grooved surfaces. They are especially suitable for gripping and handling cement objects with surfaces finished with fret, marble and bush-hammered or flamed granites.
The working temperature range is between -40°C and +80°C for OF GERANIUM foam rubber and between -20°C and +80°C for NF neoprene.
The support is made with anodised aluminium and is provided with a threaded hole in the centre for fastening them to the automation, and a side threaded hole for vacuum connection. The cup is cold fitted on it without the use of adhesives. To replace, simply request the single vacuum cup indicated in the table in the desired compound.





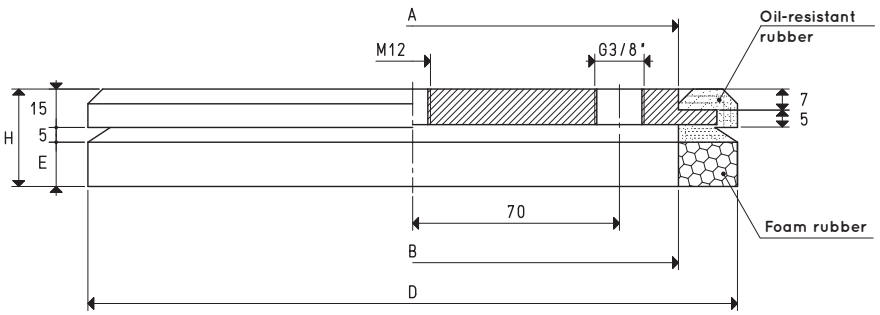
VACUUM CUPS

Item	Force Kg	Compound	Volume cm^3	A Ø	B Ø	D Ø	E	H
01 220 10 OF	63.6	(A) + (OF)	585.0	180	180	220	15	35
01 220 10 NF	63.6	(A) + (NF)	585.0	180	180	220	15	35
01 220 10 A	63.6	(A)	203.4	180	180	220	---	20



SUPPORT

Item	A Ø	B Ø	C Ø	D Ø	H	M	Support material	For vacuum cup item	Weight Kg
00 08 37	180	M12	G3/8"	206	12	70	aluminium	01 220 10	0.95



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compound	A Ø	B Ø	D Ø	E	H	Vacuum cup item	Support item	Weight Kg
08 220 10 OF	63.6	(A) + (OF)	180	180	220	15	35	01 220 10 OF	00 08 37	0.98
08 220 10 NF	63.6	(A) + (NF)	180	180	220	15	35	01 220 10 NF	00 08 37	0.97
08 220 10 A	63.6	(A)	180	180	220	---	20	01 220 10 A	00 08 37	0.96

Compound: (A) + (OF) = oil-resistant rubber + geranium foam rubber; (A) + (NF) = oil-resistant rubber + neoprene foam rubber; (A) oil-resistant rubber

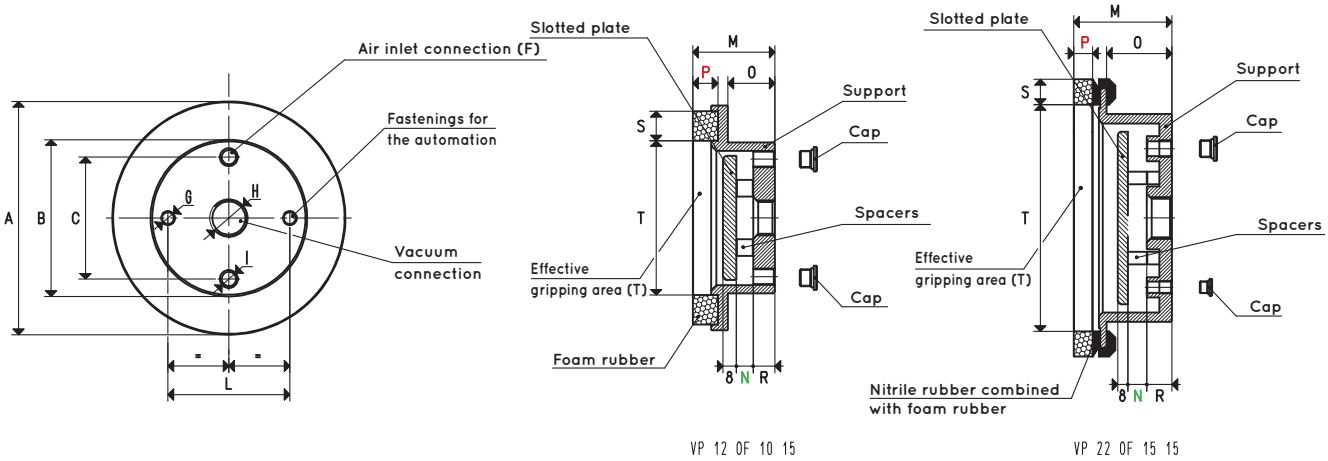
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

VACUPREDATOR VACUUM CUPS FOR GRIPPING BAGS, PACKS AND FLEXIBLE CONTAINERS

For the gripping of bags, packs and flexible containers in paper or plastic, containing powders, granulated products, loose or liquid products. These new vacuum cups have been designed and manufactured to safely grip even the most difficult and irregular packages. Made of anodised aluminium and equipped with a slotted plate inside them to allow flexible containers to perfectly adapt to the cup, as well as a special foam rubber seal which, following the inevitable creases that form on flexible containers during gripping, prevents perimeter vacuum losses.
They are especially suitable for gripping flow packs, flexible containers for intravenous therapy, bags of sweets or other similar products, plastic bags of granulated products, of cement, sugar or flour, etc.
The lifting force was calculated considering a level of vacuum of at least -75 Kpa, the total surface enclosed within the seal and a factor of safety 3.



VP 12 OF 10 15

VP 22 OF 15 15

ROUND VACUPREDATOR VACUUM CUPS

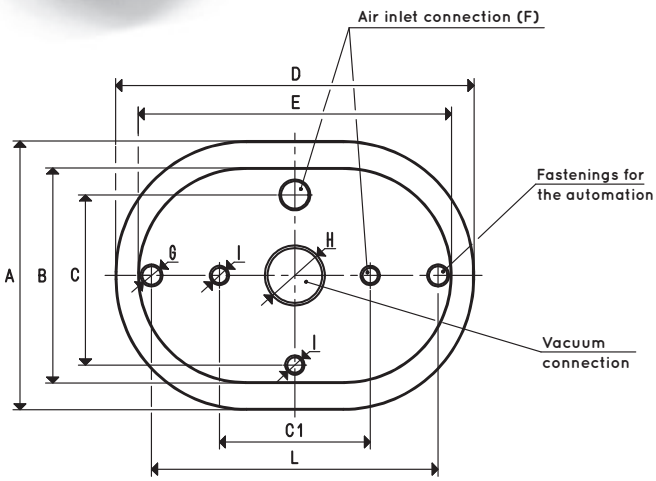
Item	Force Kg	A Ø	B Ø	C	F Ø	G Ø	H Ø	I Ø	L	M	N	O	P	R	S	T Ø	Weight Kg
VP 12 OF 10 15	17.5	134	89	70	G1/8"	M8	G1/2"	G1/8"	70	49	10	28	15	13	17.5	92	0.54
VP 22 OF 15 15	63.6	220	165	110	G1/4"	M12	G1"	G1/8"	120	78	15	52	15	20	20.0	180	1.55

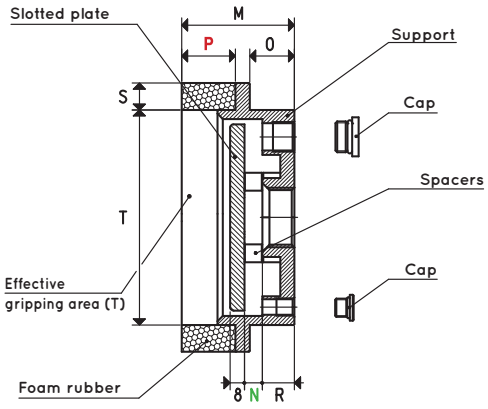
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

VACUPREDATOR VACUUM CUPS FOR GRIPPING BAGS, PACKS AND FLEXIBLE CONTAINERS





ELLIPTICAL VACUPREDATOR VACUUM CUPS

Item	Force Kg	A	B	C	C1	D	E	F Ø	G Ø	H Ø	I Ø	L	M	N	O	P	R	S	T	Weight Kg
VP 06 12 OF 10 15	9.4	60	40	---	---	120	111	---	M8	G3/8"	---	100	49	10	29	15	14	10	40 x 100	0.36
VP 09 16 OF 10 30	17.9	90	60	---	80	160	145	G1/4"	M8	G1/2"	G1/8"	130	63	10	25	30	18	15	60 x 130	0.63
VP 09 21 OF 10 30	27.4	95	60	---	80	210	185	G1/4"	M12	G1/2"	G1/8"	160	63	10	25	30	18	15	65 x 180	0.80
VP 15 20 OF 10 30	43.8	150	120	95	---	200	175	G3/8"	M12	G1"	G1/8"	155	63	10	25	30	18	15	120 x 170	1.10
VP 20 30 OF 15 30	82.5	200	150	115	---	300	250	G3/8"	M12	G2"	G1/8"	200	78	15	40	30	20	25	150 x 250	2.24
VP 30 40 OF 15 30	174.4	300	250	160	---	400	350	G3/8"	M12	G2"	G1/8"	300	78	15	40	30	20	30	240 x 340	3.85

CODING EXAMPLE:

VP 06 12 OF 10 15

Model:
Vacu Predator

Dimensions:
06 12 (60 x 120 mm)
09 16 (90 x 160 mm)
09 21 (95 x 210 mm)
15 20 (150 x 200 mm)
20 30 (200 x 300 mm)
30 40 (300 x 400 mm)
12 (ø 134 mm)
22 (ø 220 mm)

Foam rubber (P) height:
for VP0612-VP0916-VP0921-VP12-VP22
15-20-25-30 mm

for VP1520-VP2030-VP3040
20-25-30-40 mm

Spacer (N) height:
5 mm
10 mm
15 mm

Type of Foam
Rubber compound:
OF: ORANGE FOAM
SB: EXTRA SOFT
NF: NEOPRENE

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

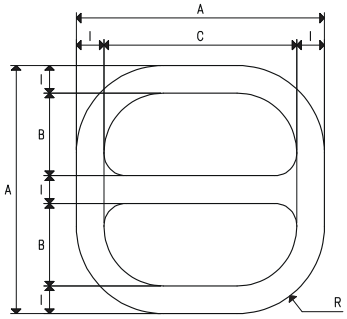
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

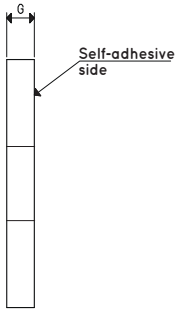
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

VMG134 SUCTION CUP FOR STRUCTURED TILES

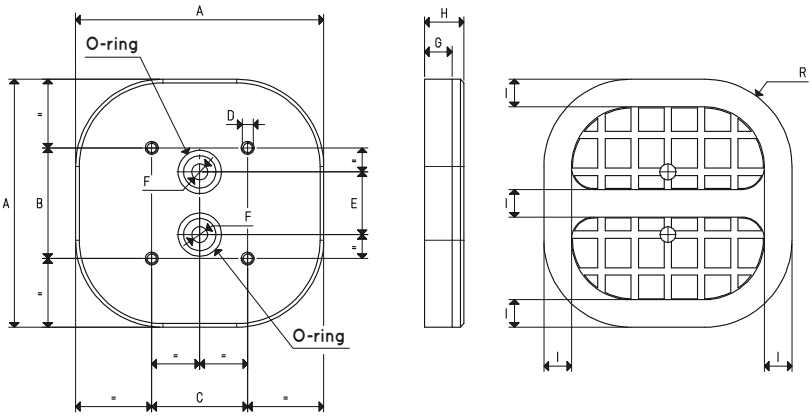
The VMG134 vacuum cup is specifically designed for use on automatic sorting machines dedicated to handling textured tiles. Its shape and the material used allow for a secure grip even on uneven, rough or raised surfaces, where traditional vacuum cups are not effective.
Made of high-density foam rubber, the VMG134 maintains its elasticity even after numerous work cycles, ensuring consistent performance over time. It is available in three different compounds, each suitable for specific thermal conditions: the EPDM rubber (SB) version is resistant to temperatures between -40 °C and +130 °C, the Geranium foam rubber (OF) works between -40 °C and +80 °C, while the neoprene (NF) is suitable for temperatures between -20 °C and +80 °C.
One side of the vacuum cup is self-adhesive, allowing for quick and secure attachment to the support.
The vacuum cup support is made of anodised Anticorodal, a material that ensures strength and corrosion resistance.
It has four holes for attachment to the automatic machine and two vacuum connections, which allow for gripping and even partial movement of the piece.
Both connections are sealed with NBR O-rings, ensuring optimal system sealing.
For maintenance, simply replace the self-adhesive foam rubber only, requesting it in the desired compound based on operating conditions.
The VMG134 vacuum cup is therefore an effective, durable and versatile solution for all applications where the surface of the material to be handled does not allow the use of conventional vacuum cups.





VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm^3	A	B	C	G	I	R	Support item	Weight Kg
01 134 134 *	20.84	SB OF NF	125.04	134.5	44.75	104.5	15	15	47	00 08 479	



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A	B	C	D Ø	E	F Ø	R	I	G	H	Vacuum cup item	Support item	Weight Kg
VMG 134 *	20.84	SB OF NF	134.5	60	52	M6	34	8.5	47	15	15	21.5	01 134 134 *	00 08 479	

* Complete the code indicating the compound: SB = extra soft foam rubber; OF = geranium foam rubber; NF = neoprene foam rubber

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

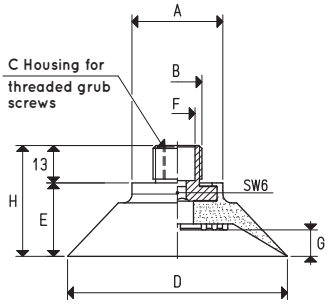
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

VACUUM CUPS WITH VULCANISED SUPPORT

These cups are specially designed for gripping moulded or drawn sheet metal and are largely used in the automotive sector.
Their ground lip allows an immediate gripping of the load even at the slightest resting pressure and ensures perfect vacuum seal.
These cups are produced in a special compound called BENZ, able to withstand the chlorine usually contained in the oils used for moulding and drawing the steel sheets.
The galvanised steel support is is vulcanised onto the cup.
The cups can be provided upon request in minimum
quantities in para rubber, in silicone or in special compounds, listed on pg. 31.

VACUUM CUPS WITH MALE VULCANISED SUPPORT

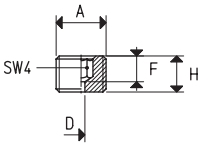
Item	Force Kg	Compounds available	Volume cm³	A Ø	B Ø	C Ø	D Ø	E	F Ø	G	H	Weight g
08 50 40 *	4.90	B N S	10.3	31	G3/8"	--	50	16.0	12	6.5	29.0	38.5
08 50 40 GR B	4.90	B	10.3	31	G3/8"	G1/8"	50	16.0	--	6.5	29.0	38.5
08 75 40 *	11.04	B N S	29.3	31	G3/8"	--	75	25.0	12	9.0	38.0	57.9
08 75 40 GR B	11.04	B	29.3	31	G3/8"	G1/8"	75	25.0	--	9.0	38.0	57.9
08 100 40 *	19.62	B N S	42.6	32	G3/8"	--	100	26.0	12	9.0	39.0	78.3
08 100 50 *	19.62	B S	70.6	32	G3/8"	--	100	30.5	12	15.0	43.5	74.8
08 50 40 1/4" B	4.90	B	10.3	31	G1/4"	--	50	16.0	--	6.5	29.0	37.4
08 75 40 1/4" B	11.04	B	29.3	31	G1/4"	--	75	25.0	--	9.0	38.0	57.6
08 100 40 1/4" B	19.62	B	42.6	32	G1/4"	--	100	26.0	--	9.0	39.0	76.8
08 50 40 M10 B	4.90	B	10.3	31	M10	--	50	16.0	--	6.5	29.0	32.7
08 100 50 M10 B	19.62	B	70.6	32	M10	--	100	30.5	--	15.0	43.5	70.2
08 75 40 M14 B	11.04	B	29.3	31	M14 x 1.5	--	75	25.0	--	9.0	38.0	54.9
08 100 50 M14 B	19.62	B	70.6	32	M14 x 1.5	--	100	30.5	--	15.0	43.5	74.9



THREADED GRUB SCREWS WITH CALIBRATED HOLE

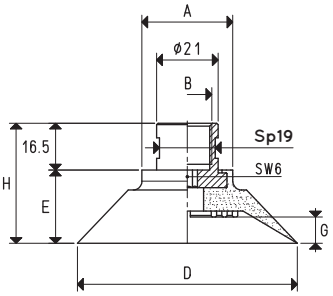
Item	A Ø	D Ø	F	H	Grub screw material	Weight g
00 08 164	G1/8"	1.2	5	7	brass	3.0
00 08 165	G1/8"	1.5	5	10	brass	3.0
00 08 334	G1/8"	3.0	4	7	brass	4.0

Threaded grub screws with calibrated hole, for vacuum cups with extension GR.



VACUUM CUPS WITH FEMALE VULCANISED SUPPORT

Item	Force Kg	Compounds available	Volume cm³	A Ø	B Ø	D Ø	E	G	H	Weight g
08 50 40 F B	4.90	B	10.3	31	G3/8"	50	16.0	6.5	32.5	49.5
08 75 40 F B	11.04	B	29.3	31	G3/8"	75	25.0	9.0	41.5	68.3
08 75 40 F S	11.04	S	29.3	31	G3/8"	75	25.0	9.0	41.5	68.3
08 100 40 F B	19.62	B	42.6	32	G3/8"	100	26.0	9.0	42.5	89.3
08 100 40 F S	19.62	S	42.6	32	G3/8"	100	26.0	9.0	42.5	89.3
08 100 50 F B	19.62	B	70.6	32	G3/8"	100	30.5	15.0	47.0	88.8



* Complete the code indicating the compound: B = BENZ rubber; N = para rubber; S = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

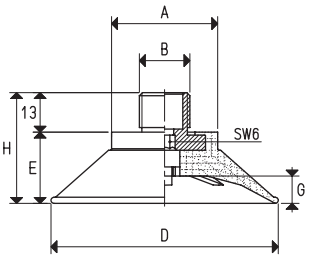
Adapters for GAS - NPT threading available on page 1.134

VACUUM CUPS WITH VULCANISED SUPPORT

These vacuum cups are very similar to those described on the previous page: they differ only for their round lip and their internal cleats.
These features allow them to be used even in the most heavy-duty conditions.
The field of use is the same.
They are also made with BENZ compound and the galvanised steel support is vulcanised onto the cup.
Also these cups can be provided upon request in minimum quantities and in other special compounds, listed on pg. 31, to be defined in the order.

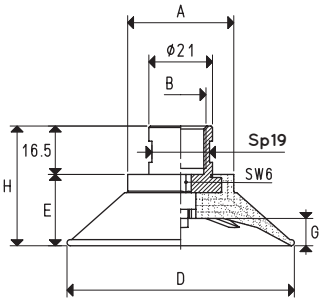
VACUUM CUPS WITH MALE VULCANISED SUPPORT

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	D Ø	E	G	H	Support material	Weight g
08 50 99 B	4.90	B	10.3	30	G3/8"	50	23.5	9	36.5	steel	43.2
08 75 99 B	11.04	B	29.3	35	G3/8"	75	23.5	9	36.5	steel	59.2
08 100 99 B	19.62	B	42.6	35	G3/8"	100	40.0	12	53.0	steel	113.2
08 100 99 N	19.62	N	42.6	35	G3/8"	100	40.0	12	53.0	steel	113.2
08 50 99 1/4" B	4.90	B	10.3	30	G1/4"	50	23.5	9	36.5	steel	39.4
08 75 99 1/4" B	11.04	B	29.3	35	G1/4"	75	23.5	9	36.5	steel	55.2
08 100 99 1/4" B	19.62	B	42.6	35	G1/4"	100	40.0	12	53.0	steel	109.2



VACUUM CUPS WITH FEMALE VULCANISED SUPPORT

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	D Ø	E	G	H	Support material	Weight g
08 50 99 F S	4.90	S	10.3	31	G3/8"	50	23.5	9	40.0	steel	55.6
08 75 99 F B	11.04	B	29.3	35	G3/8"	75	23.5	9	40.0	steel	70.5
08 75 99 F S	11.04	S	29.3	35	G3/8"	75	23.5	9	40.0	steel	70.5
08 100 99 F B	19.62	B	42.6	35	G3/8"	100	40.0	12	56.5	steel	118.8



* Complete the code indicating the compound: (B) = BENZ rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

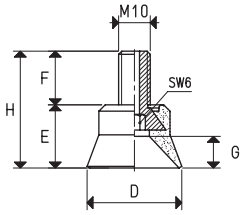
Adapters for GAS - NPT threading available on page 1.134

VACUUM CUPS WITH VULCANISED SUPPORT

This range of rather sturdy and deep cups is designed to handle bodywork parts and components in moulded steel sheet.
These cups are produced with a special compound called BENZ, which can withstand heavy-duty work and the chlorine usually contained in the oil used for moulding and drawing of steel sheets.
The galvanised steel support is vulcanised onto the cup. Galvanised steel adapters are also available in order to modify the suction connection from M10 to gas threading.
Cups in other special compounds, listed on pg. 31 can be provided upon request in minimum quantities to be defined in the order.

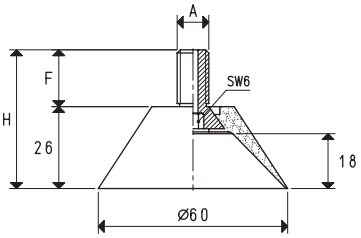
VACUUM CUPS WITH VULCANISED SUPPORT

Item	Force Kg	Compound	Volume cm^3	D Ø	E	F	G	H	Support material	Weight g
08 30 38 B	1.80	(B)	3.1	30	20	17	10	37	steel	20.8
08 40 41 B	3.20	(B)	6.4	40	23	18	12	41	steel	24.9
08 40 41 N	3.20	(N)	6.4	40	23	18	12	41	steel	24.9



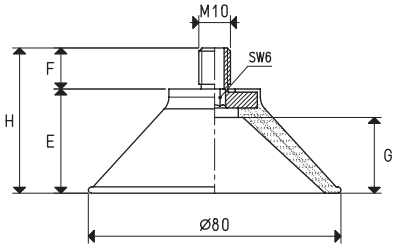
VACUUM CUPS WITH VULCANISED SUPPORT

Item	Force Kg	Compound	Volume cm^3	A Ø	F	H	Support material	Weight g
08 60 45 B	7.10	(B)	25.9	M10	18	44	steel	29.5
08 60 45 1/4" B	7.10	(B)	25.9	G1/4"	10	44	steel	29.5



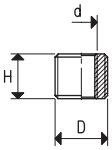
VACUUM CUPS WITH VULCANISED SUPPORT

Item	Force Kg	Compound	Volume cm^3	E	F	G	H	Support material	Weight g
08 80 50 B	12.60	(B)	41.2	33	12.5	26	51	steel	58.0



ADAPTERS

Item	D Ø	d Ø	H	Support material	Weight g
00 08 130	G1/4"	M10	14	steel	4.9
00 08 131	G3/8"	M10	14	steel	12.8



Compound: (B) = BENZ rubber; (N) = para rubber

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

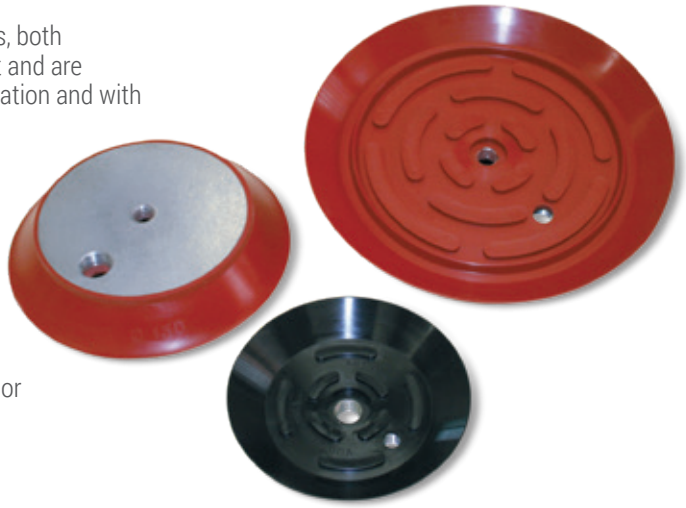
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

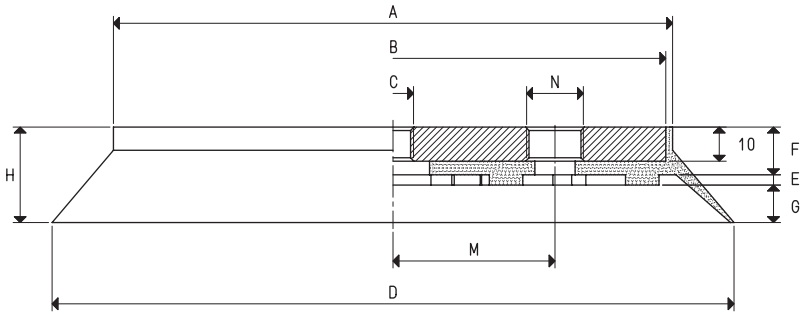
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

FLAT ROUND VACUUM CUPS WITH VULCANISED SUPPORT

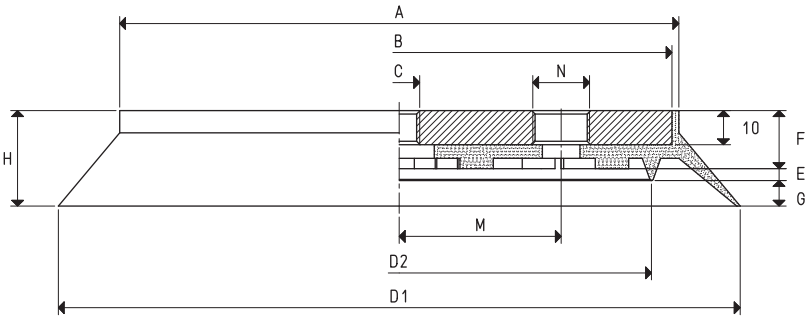
These cups have been designed for lifting and handling heavy loads, both vertically and horizontally. They are vulcanised onto a steel support and are provided with a central threaded hole for its fastening to the automation and with a side threaded hole for vacuum connection.
These cups have a labyrinth graved face made with the same compound as the cup, which allows gripping even the thinnest and most fragile glass and marble sheets, with no bending in the gripping area. The shape of its lip and the choice of the compound with which they are made ensure a firm grip on uneven and corrugated surfaces.
The 08 .. 40 series, along with sharing the same features, has an internal vertical lip which allows them to grip extremely rough surfaces, such as embossed or profiled metal sheets, sawn marble or granite, wooden boards, precast cement, etc.





VACUUM CUPS WITH VULCANISED SUPPORT

Item	Force Kg	Compounds available	Volume cm³	A Ø	B Ø	C Ø	D Ø	E	F	G	H	M	N Ø	Support material	Weight Kg
08 110 15 *	23.7	A N S	78.5	74	70	M12	110	2	14	10	26	26.0	G1/4"	steel	0.33
08 150 15 *	45.0	A N S	158.9	115	110	M12	150	2	14	10	26	40.0	G3/8"	steel	0.83
08 200 10 *	78.5	A N S	341.9	164	160	M12	200	3	14	11	28	47.5	G3/8"	steel	1.75
08 250 10 *	122.6	A N S	540.1	214	210	M12	250	3	14	11	28	72.5	G3/8"	steel	3.00
08 300 10 *	176.6	A N S	871.8	266	260	M16	300	5	15	11	31	89.0	G1/2"	steel	4.70
08 350 10 *	240.4	A N	1210.1	316	310	M16	350	5	15	11	31	89.0	G1/2"	steel	6.60



VACUUM CUPS WITH VULCANISED SUPPORT

Item	Force Ø D1 Kg	Force Ø D2 Kg	Compounds available	Volume cm³	A Ø	B Ø	C Ø	D1 Ø	D2 Ø	E	F	G	H	M	N Ø	Support material	Weight Kg
08 110 40 M8*	23.7	9.07	A N S	77.7	74	70	M8	110	68	3	16	7	26	26.0	G1/4"	steel	0.36
08 110 40 *	23.7	9.07	A N S	77.7	74	70	M12	110	68	3	16	7	26	26.0	G1/4"	steel	0.34
08 150 40 *	45.0	21.60	A N S	156.0	115	110	M12	150	105	3	16	7	26	40.0	G3/8"	steel	0.85
08 200 40 *	78.5	42.90	A N S	334.6	164	160	M12	200	148	3	17	8	28	47.5	G3/8"	steel	1.70
08 250 40 *	122.6	75.30	A N S	546.2	214	210	M12	250	196	3	17	8	28	72.5	G3/8"	steel	3.00
08 300 40 *	176.6	120.70	A N S	874.4	266	260	M16	300	248	3	18	10	31	89.0	G1/2"	steel	4.60
08 350 40 *	240.4	174.20	A N	1219.4	316	310	M16	350	298	3	18	10	31	89.0	G1/2"	steel	6.50

* Complete the code indicating the compound: A = oil-resistant rubber; N = para rubber; S = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

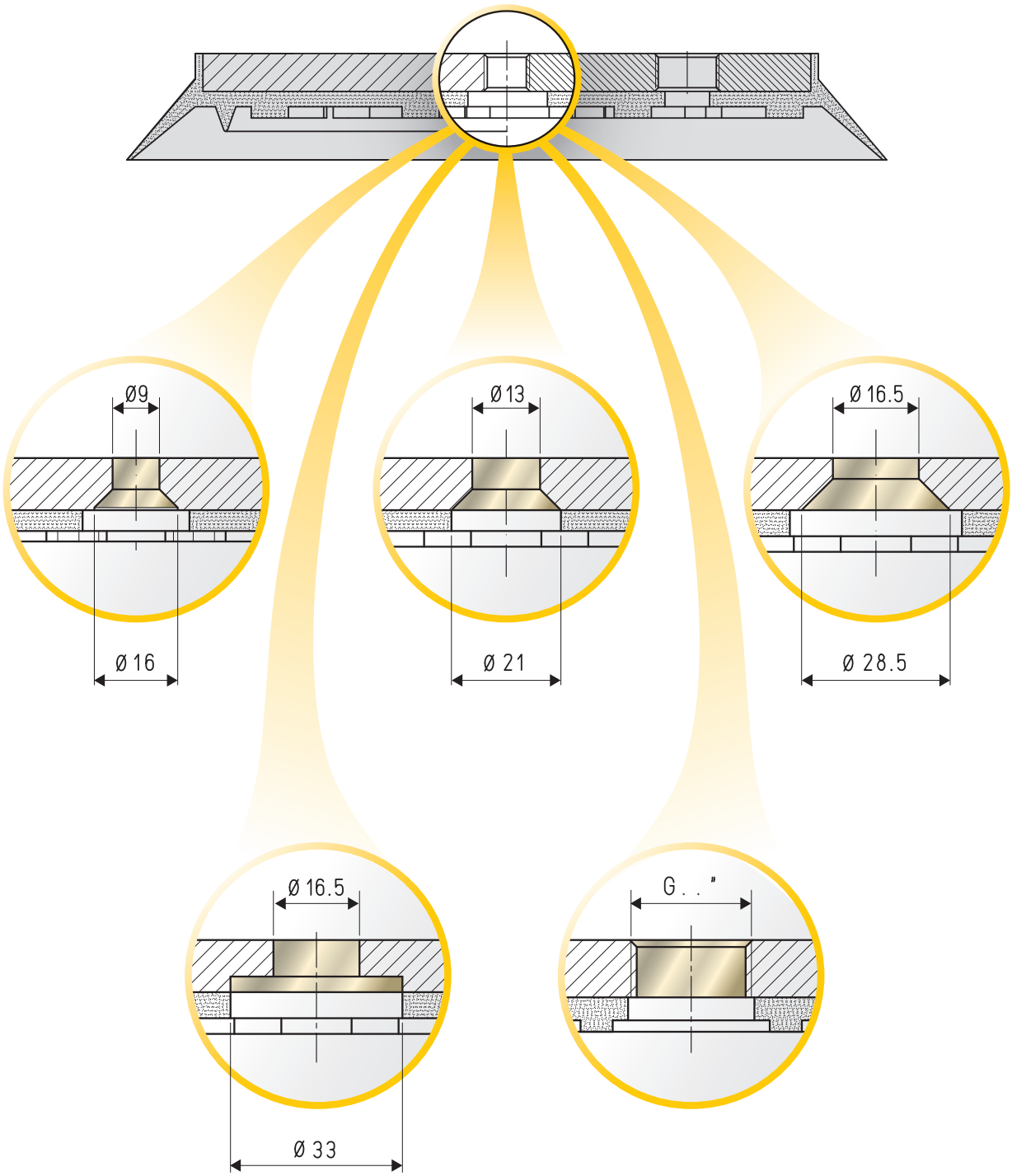
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

FLAT ROUND VACUUM CUPS WITH VULCANISED SUPPORT

Vacuum cups Art . 08 . . 15, 08 . . 10 and 08 . . 40 can be supplied
with modified supports as shown in the examples,
upon specific request and in minimum quantities to be defined in the order.

Below are some examples of modifications:



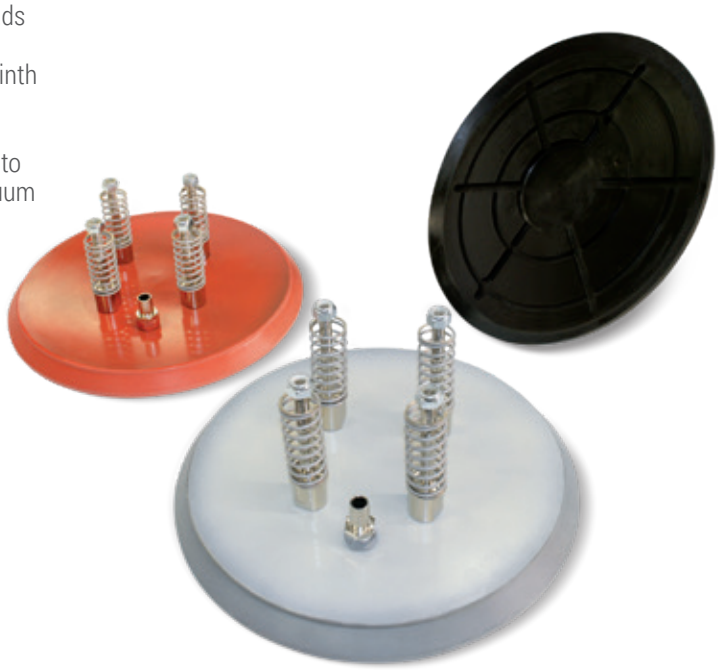
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

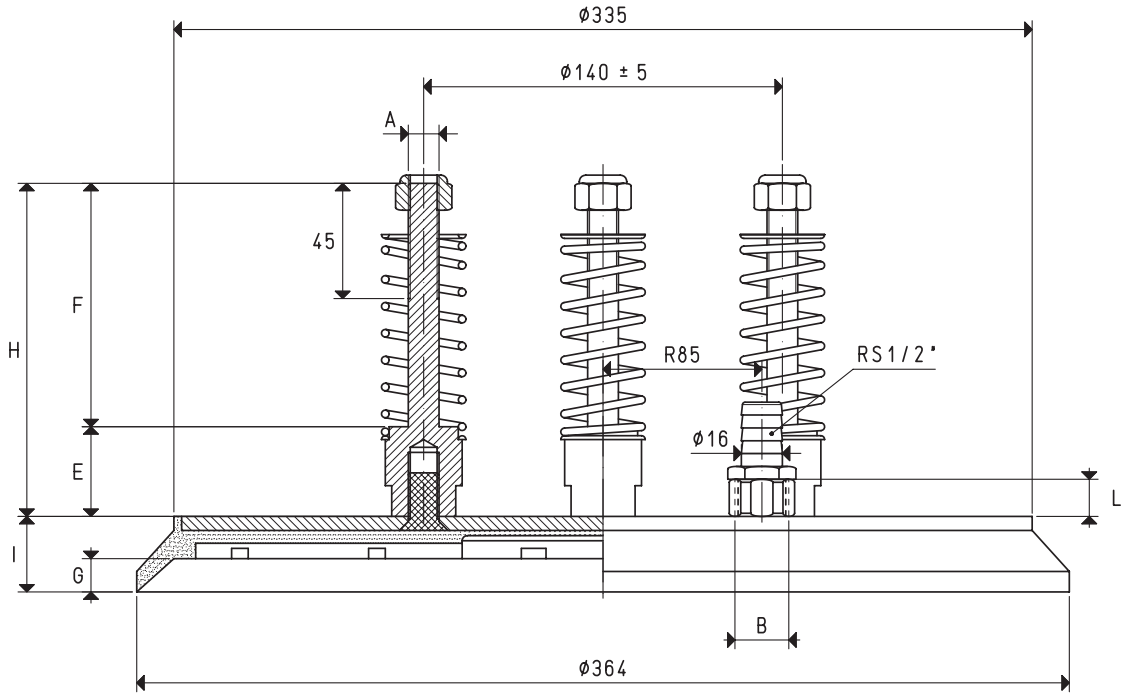
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

FLAT ROUND VACUUM CUP WITH VULCANISED SUPPORT

These cups are recommended for handling very heavy loads both vertically and horizontally.
They are vulcanised onto a steel support and have a labyrinth graved face made in the same compound as the cup.
The support is provided with four steel pins with as many self-locking nuts for guiding the cups and fastening them to the automation, as well as with a threaded sleeve for vacuum connection.
Moreover, these cups are provided with four springs to cushion its impact with the load to be lifted. These cups are available in the three standard compounds.





VACUUM CUP WITH VULCANISED SUPPORT

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	E	F	G	H	I	L	Support material	Weight Kg
08 360 10 *	254.3	(A)(N)(S)	1397.5	M12	G1/2"	35	95	13	130	29	16	steel	4.75

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

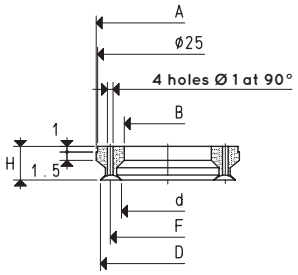
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

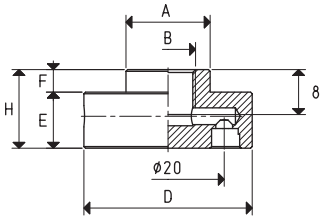
CIRCULAR RIM VACUUM CUPS WITH SUPPORTS

These cups have been designed to meet the need of lifting objects with a central hole.
Their very thin lip allows them to grip very rough surfaces, such as grinding wheels and discs.
They are particularly recommended for handling CDs, perforated discs, toothed wheels, pulleys and other similar objects.
Their supports are made with anodised aluminium and are provided with a threaded hole in the centre to allow suction, as well as its fastening to the automation.
The cups are cold fitted onto them without any adhesives.
To guarantee maximum flexibility, the cups for gripping grinding discs are made with para rubber N, while those for handling CDs are made with silicone S. Cups in special compounds, listed on pg. 31, can be provided upon request in minimum quantities to be defined in the order.
To replace, simply request the single vacuum cup indicated in the table in the desired compound.



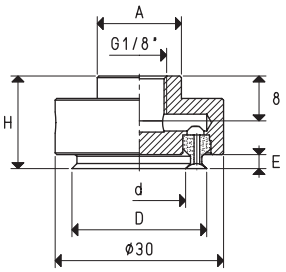
VACUUM CUP

Item	Force Kg	Compound available	Volume cm^3	A Ø	B Ø	D Ø	d Ø	F Ø	H
01 24 06 S	0.6	(S)	1.3	25.5	15.5	24	16.5	20	6



SUPPORT

Item	A Ø	B Ø	D Ø	E	F	H	Support material	For vacuum cup item	Weight g
00 08 232	15	G1/8"	30	10	4	14	aluminium	01 24 06	16.7



VACUUM CUP WITH SUPPORT

Item	Force Kg	Compound available	A Ø	D Ø	d Ø	E	H	Vacuum cup item	Support item	Weight g
08 24 06 S	0.6	(S)	15	24	16.5	2.5	16.5	01 24 06 S	00 08 232	18.1

Compound: (S) = silicone

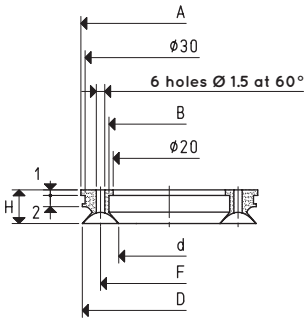
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

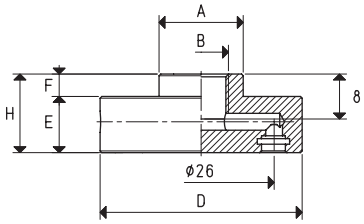
Adapters for GAS - NPT threading available on page 1.134

CIRCULAR RIM VACUUM CUP WITH SUPPORT



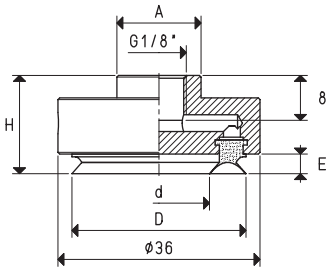
VACUUM CUP

Item	Force Kg	Compound available	Volume cm^3	A Ø	B Ø	D Ø	d Ø	F Ø	H
01 31 06 S	1.25	(S)	2.0	31.5	21.5	31	18	24.5	6



SUPPORT

Item	A Ø	B Ø	D Ø	E	F	H	Support material	For vacuum cup item	Weight g
00 08 231	15	G1/8"	36	10	4	14	aluminium	01 31 06	24.9



VACUUM CUP WITH SUPPORT

Item	Force Kg	Compound available	A Ø	D Ø	d Ø	E	H	Vacuum cup item	Support item	Weight g
08 31 06 S	1.25	(S)	15	31	18	3.6	17.6	01 31 06 S	00 08 231	26.6

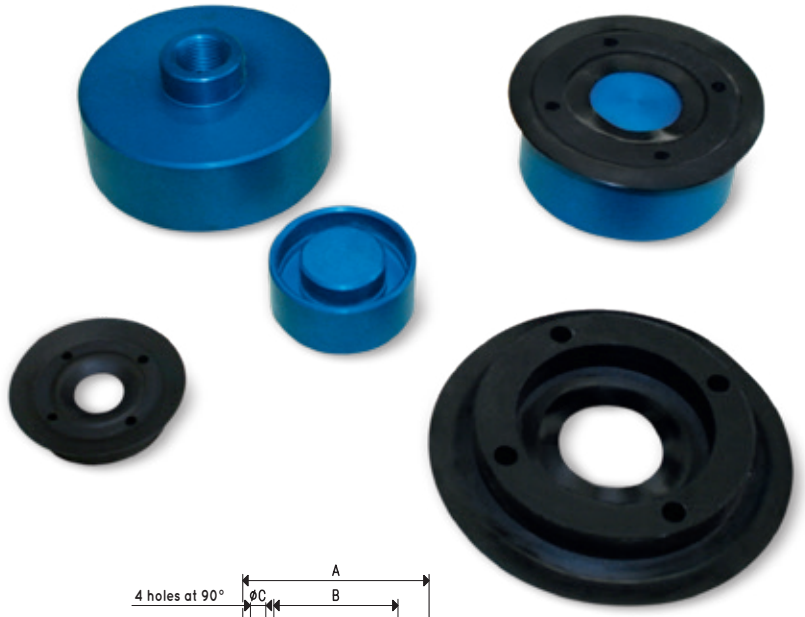
Compound: (S) = silicone

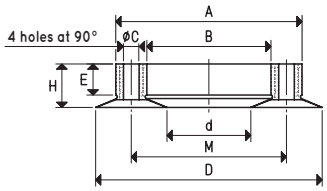
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

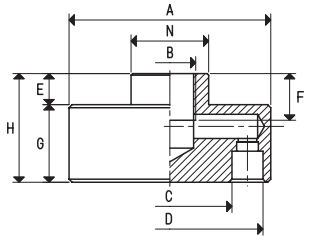
CIRCULAR RIM VACUUM CUPS WITH SUPPORTS





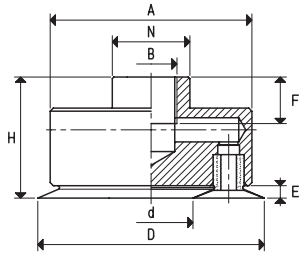
VACUUM CUPS

Item	Force Kg	Compound available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	d Ø	E	H	M Ø
01 46 13 N	3.87	N	4.7	35	23	3	46	12	8.5	12.5	29
01 73 14 N	9.02	N	16.6	60	40	5	73	27	10.0	14.0	50
01 95 14 N	16.28	N	27.0	71	51	6	95	27	10.0	14.5	61



SUPPORTS

Item	A Ø	B Ø	C Ø	D Ø	E	F	G	H	N Ø	Support material	For vacuum cup item	Weight g
00 08 68	40	M12	23	35	7	10	18	25	20	aluminium	01 46 13	47.2
00 08 72	65	G3/8"	40	60	10	15	25	35	25	aluminium	01 73 14	169.1
00 08 73	76	G3/8"	51	71	10	15	27	37	25	aluminium	01 95 14	266.0



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compound available	A Ø	B Ø	D Ø	d Ø	E	F	H	N Ø	Vacuum cup item	Support item	Weight g
08 46 13 N	3.87	N	40	M12	46	12	4.5	10	29.5	20	01 46 13 N	00 08 68	53.1
08 73 14 N	9.02	N	65	G3/8"	73	27	4.0	15	39.0	25	01 73 14 N	00 08 72	189.4
08 95 14 N	16.28	N	76	G3/8"	95	27	5.5	15	42.5	25	01 95 14 N	00 08 73	292.9

Compound: N = para rubber

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

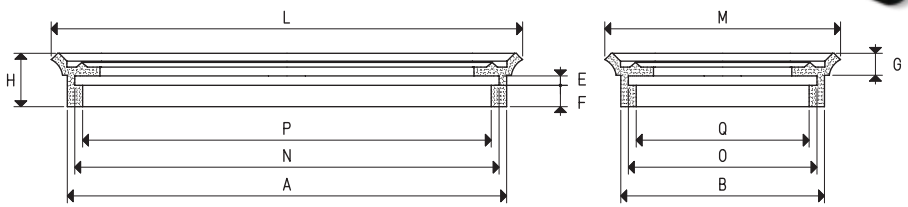
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

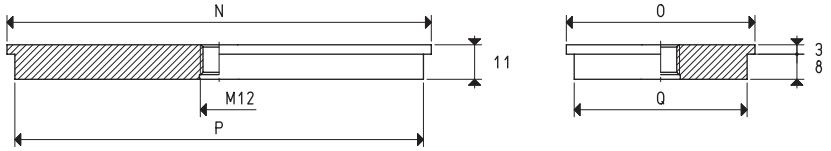
RECTANGULAR FLAT VACUUM CUPS WITH SUPPORTS

These cups are recommended for working surfaces for clamping wooden panels, marble, granite, ceramic, glass and other similar surfaces. They are naturally also used to handle these same materials. Their vertical and low lip allows for a firm grip on the surface to be clamped or handled, eliminating any oscillations and considerably reduces the air volume contained within, thus ensuring quicker gripping and release.
They are normally available in the three standard compounds but, upon request and for minimum amounts defined in the order, can be ordered in special compounds, listed on pg. 31. These cups can be cold fitted with no adhesives onto their anodised aluminium support equipped with a threaded hole in the centre to facilitate their fastening to the automation.
Larger supports are provided with two threaded holes equidistant from the centre, to allow for any necessary insertion of guiding anti-rotation pins. These cups are extremely easy to replace; simply request the cup indicated in the table in the desired compound when requesting the spare part.



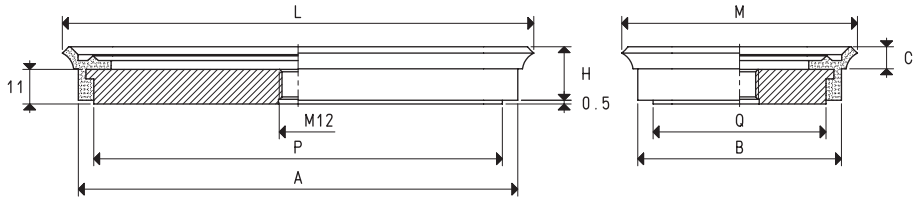
VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm^3	A	B	E	F	G	H	L	M	N	O	P	Q
01 40 75 *	6.7	A N S	9.2	64	29	3	7.5	6.5	16.0	75	40	59	24	54	19
01 120 90 *	24.0	A N S	42.9	107	78	3	7.5	7.5	17.5	117	87	102	73	97	68
01 150 65 A	21.5	A	36.6	137	52	3	7.5	7.5	16.5	147	62	132	47	127	42
01 150 75 *	25.0	A N S	43.5	137	62	3	7.5	7.5	16.5	147	72	132	57	127	52



SUPPORTS

Item	N	O	P	Q	Support material	For vacuum cup item	Weight g
00 08 31	60	25	55	20	aluminium	01 40 75	34.1
00 08 34	107	75	102	70	aluminium	01 120 90	215.5
00 08 144	135	50	130	45	aluminium	01 150 65	176.1
00 08 59	135	60	130	55	aluminium	01 150 75	218.4



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A	B	C	H	L	M	P	Q	Vacuum cup item	Support item	Weight g
08 40 75 *	6.7	A N S	66	31	6.5	16.0	76	41	55	20	01 40 75	00 08 31	49.7
08 120 90 *	24.0	A N S	112	80	7.5	17.5	120	90	102	70	01 120 90	00 08 34	254.3
08 150 65 A	21.5	A	140	55	7.5	16.5	150	65	130	45	01 150 65	00 08 144	217.3
08 150 75 *	25.0	A N S	140	65	7.5	16.5	150	75	130	55	01 150 75	00 08 59	259.6

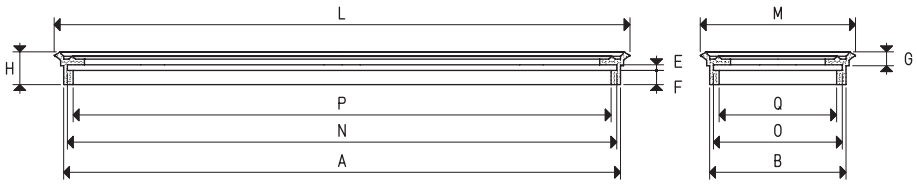
* Complete the code indicating the compound: A = oil-resistant rubber; N = para rubber; S = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

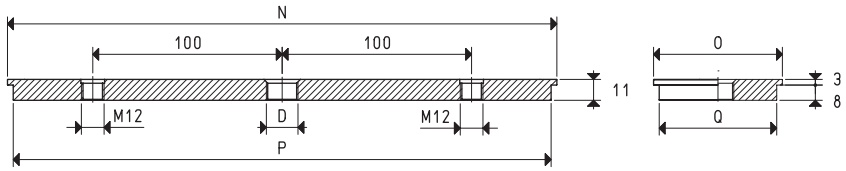
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

RECTANGULAR FLAT VACUUM CUPS WITH SUPPORTS



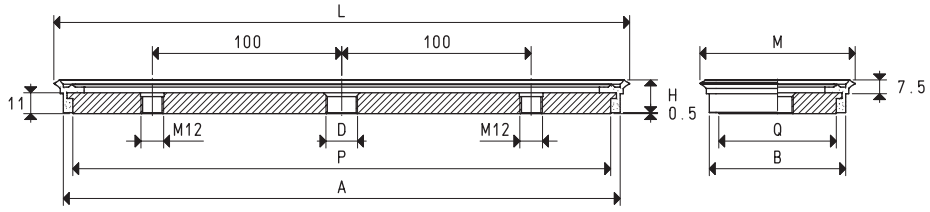
VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm^3	A	B	E	F	G	H	L	M	N	O	P	Q
01 300 80 *	60.0	(A)(N)(S)	117.6	288	68	3	7.5	7.5	17.5	297	77	284	64	278	58
01 300 150 *	113.0	(A)(N)(S)	268.5	288	138	3	7.5	7.5	17.5	297	147	284	134	278	128



SUPPORTS

Item	D Ø	N	O	P	Q	Support material	For vacuum cup item	Weight Kg
00 08 116	G3/8"	290	68	284	62	aluminium	01 300 80	0.53
00 08 117	G1/2"	290	140	284	134	aluminium	01 300 150	1.13



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A	B	D Ø	H	L	M	P	Q	Vacuum cup item	Support item	Weight Kg
08 300 80 *	60.0	(A)(N)(S)	290	70	G3/8"	17.5	300	80	284	62	01 300 80	00 08 116	0.61
08 300 150 *	113.0	(A)(N)(S)	290	140	G1/2"	17.5	300	150	284	134	01 300 150	00 08 117	1.22

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

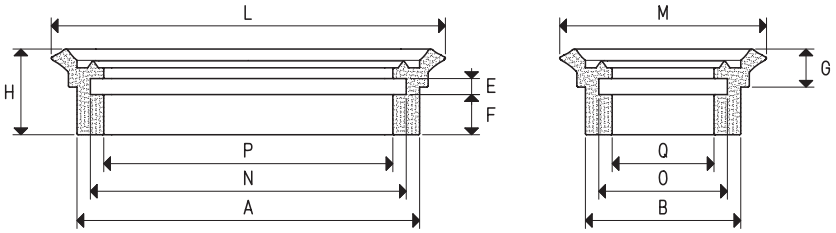
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

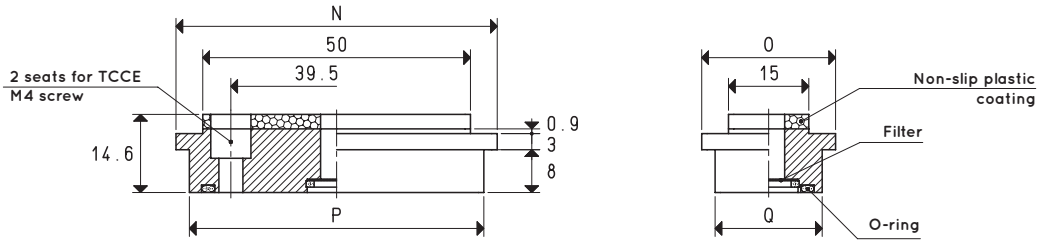
RECTANGULAR FLAT VACUUM CUPS WITH ANTI-SLIP SUPPORT

These cups share the same technical and mechanical features with the ones described above, but their support has a special non-slip plastic coating that make them particularly suited for clamping glass and smooth marble.
A built-in stainless steel mesh filter in the suction hole and an O-ring seal at the base of their support are the other special features of these cups.
They are also provided with two or for housings for TCCE screws, according to their size, for fixing them to the work surface.



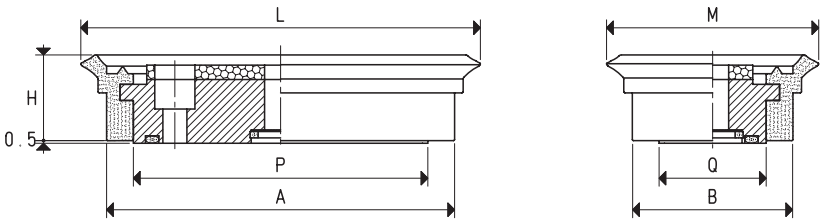
VACUUM CUP

Item	Force Kg	Compounds available	Volume cm^3	A	B	E	F	G	H	L	M	N	O	P	Q
01 40 75 *	6.7	(A)(N)(S)	9.2	64	29	3	7.5	6.5	16.0	75	40	59	24	54	19



SUPPORT

Item	N	O	P	Q	Support material	For vacuum cup item	Weight g
00 08 184	60	25	55	20	aluminium	01 40 75	38.7



VACUUM CUP WITH SUPPORT

Item	Force Kg	Compounds available	A	B	H	L	M	P	Q	Vacuum cup item	Support item	Weight g
08 40 75 M1 *	6.7	(A)(N)(S)	66	31	16.0	76	41	55	20	01 40 75	00 08 184	53.5

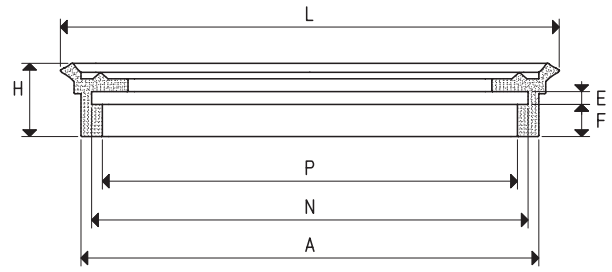
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

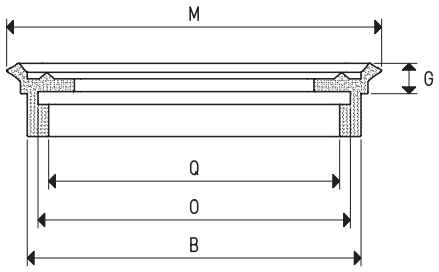
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

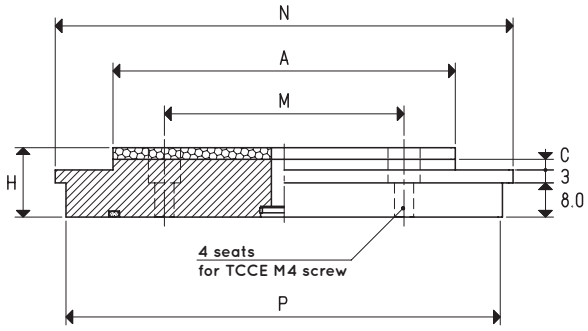
RECTANGULAR FLAT VACUUM CUPS WITH ANTI-SLIP SUPPORT

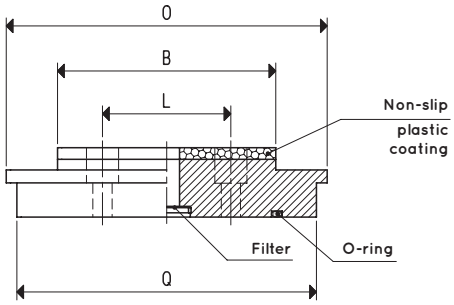




VACUUM CUPS

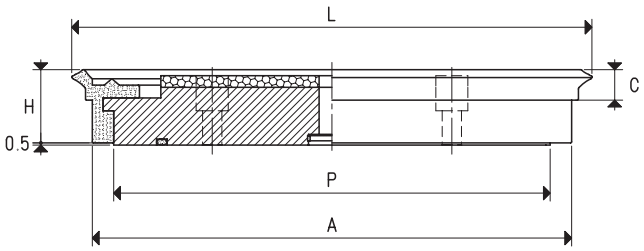
Item	Force Kg	Compounds available	Volume cm^3	A	B	E	F	G	H	L	M	N	O	P	Q
01 120 90 *	24.0	(A)(N)(S)	42.9	107	78	3	7.5	7.5	17.5	117	87	102	73	97	68
01 150 75 *	25.0	(A)(N)(S)	36.6	137	62	3	7.5	7.5	16.5	147	72	132	57	127	52

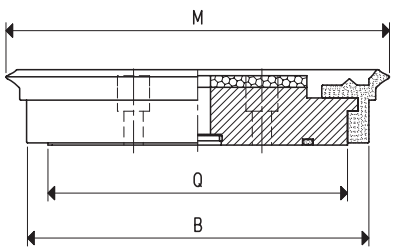




SUPPORTS

Item	A	B	C	H	L	M	N	O	P	Q	Support material	For vacuum cup item	Weight g
00 08 256	82	50	2.5	16.2	30	56	107	75	102	70	aluminium	01 120 90	244.5
00 08 257	110	35	2.3	16.4	20	92	135	60	130	55	aluminium	01 150 75	247.9





VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A	B	C	H	L	M	P	Q	Vacuum cup item	Support item	Weight g
08 120 90 M1 *	24.0	(A)(N)(S)	112	80	7.5	17.5	120	90	102	70	01 120 90	00 08 256	283.3
08 150 75 M1 *	25.0	(A)(N)(S)	140	65	7.5	16.5	150	75	130	55	01 150 75	00 08 257	289.1

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

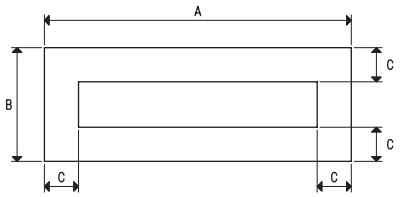
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

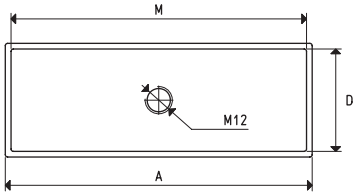
RECTANGULAR FLAT FOAM RUBBER VACUUM CUPS WITH SUPPORTS

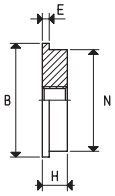
These foam rubber cups are made with a special compound called GERANIUM, with code OF, with a density that allows them to grip even uneven and very rough surfaces maintaining their elasticity also after many working cycles.
They are provided with self-adhesive side for a quick fixing to their support. This series of cups has been designed for handling loads with raw or very rough surfaces (sawn, bush-hammered or flamed marble, textured, non-slip or profiled metal sheets, striped Plexiglass, raw cement manufactures, garden tiles with fret, etc.) and in all those cases in which traditional cups cannot be used.
In case of lubricated gripping surfaces, we recommend using NF neoprene foam rubber.
The working temperature range is between -40°C and +80°C for OF GERANIUM foam rubber and between -20°C and +80°C for NF neoprene.
Their supports are made with anodised aluminium and are provided with a threaded hole in the centre for fastening them to the automation. The larger ones, on the other hand, are provided with two threaded holes equidistant from the centre for any necessary insertion of guiding anti-rotation pins.
For the spare part, all you have to do is request the self-adhesive foam rubber cup indicated in the table in the required compound.



VACUUM CUPS

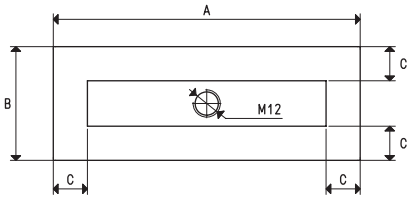
Item	Force Kg	Compounds available	Volume cm^3	A	B	C	E
01 107 75 *	9.0	OF NF	55.6	107	75	15	15
01 135 50 *	6.0	OF NF	34.0	135	50	15	15
01 135 60 *	8.0	OF NF	50.0	135	60	15	15

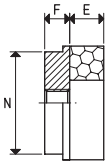




SUPPORTS

Item	A	B	D	E	H	M	N	Support material	For vacuum cup item	Weight g
00 08 34	107	75	70	3	11	102	70	aluminium	01 107 75	215.5
00 08 144	135	50	45	3	11	130	45	aluminium	01 135 50	176.1
00 08 59	135	60	55	3	11	130	55	aluminium	01 135 60	218.4





VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A	B	C	E	F	N	Vacuum cup item	Support item	Weight g
08 107 75 *	9	OF NF	107	75	15	15	11	70	01 107 75	00 08 34	229.5
08 135 50 *	6	OF NF	135	50	15	15	11	45	01 135 50	00 08 144	190.6
08 135 60 *	8	OF NF	135	60	15	15	11	55	01 135 60	00 08 59	233.0

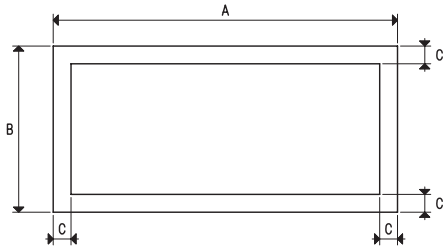
* Complete the code indicating the compound: OF = geranium foam rubber; NF = neoprene foam rubber

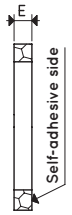
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

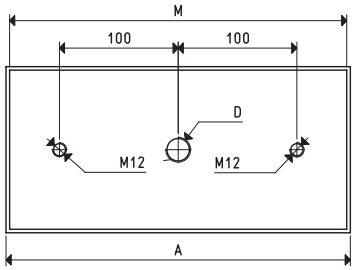
RECTANGULAR FLAT FOAM RUBBER VACUUM CUPS WITH SUPPORTS

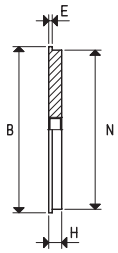




VACUUM CUPS

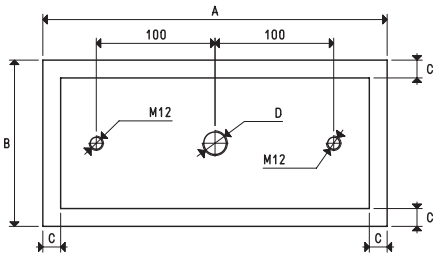
Item	Force Kg	Compounds available	Volume cm^3	A	B	C	E
01 290 68 *	25	OF NF	152.6	290	68	15	15
01 290 140 *	72	OF NF	434.5	290	140	15	15

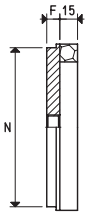




SUPPORTS

Item	A	B	D Ø	E	H	M	N	Support material	For vacuum cup item	Weight Kg
00 08 116	290	68	G3/8"	3	11	284	62	aluminium	01 290 68	0.53
00 08 117	290	140	G1/2"	3	11	284	134	aluminium	01 290 140	1.13





VACUUM CUPS WITH SUPPORT

Item	Force Kg		A	B	C	D Ø	F	N	Vacuum cup item	Support item	Weight Kg
08 290 68 *	25	OF NF	290	68	15	G3/8"	11	62	01 290 68	00 08 116	0.56
08 290 140 *	72	OF NF	290	140	15	G1/2"	11	134	01 290 140	00 08 117	1.15

* Complete the code indicating the compound: OF = geranium foam rubber; NF = neoprene foam rubber

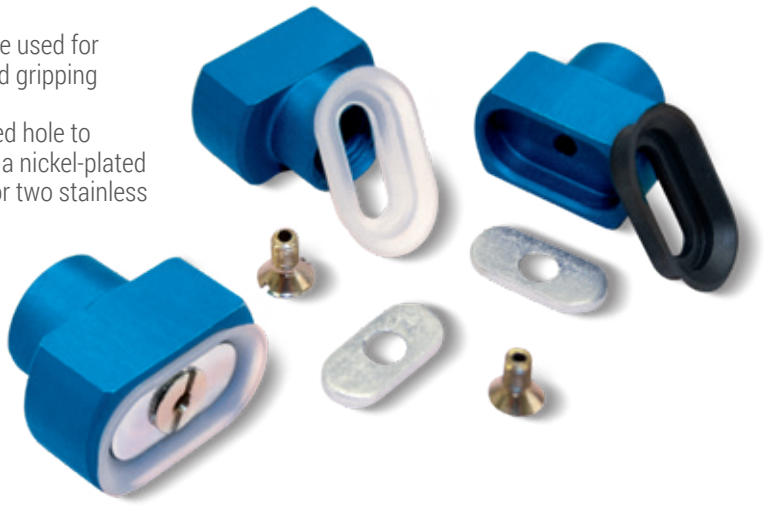
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

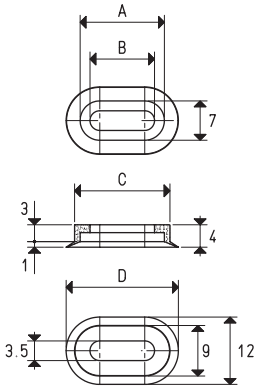
ELLIPTICAL FLAT VACUUM CUPS WITH SUPPORTS

These oval cups are recessed on moulders in order to hold a side of the cardboard box during the moulding process by means of traditional cups on the opposite side.
Once assembled with their support, however, they can be used for handling boxes, plastic objects or anything with a limited gripping surface.
Their anodised aluminium support has a central threaded hole to fasten it to the automation. They are also provided with a nickel-plated brass plate to hold the cup in its housing and with one or two stainless steel screws for fixing them.
To replace, simply request the single vacuum cup indicated in the table in the desired compound.



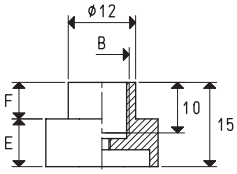
VACUUM CUP

Item	Force Kg	Compounds available	Volume cm^3	A	B	C	D
01 12 20 A	0.52	(A)	0.3	15	11.5	17	20



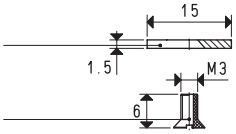
SUPPORT

Item	B Ø	E	F	Support material	For vacuum cup item	Weight g
00 08 70	G1/8"	8.5	6.5	aluminium	01 12 20	5.4

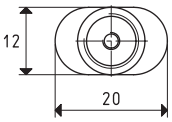


fixing plate item **00 08 97**

perforated TSP M3x5 screw item **00 08 103**

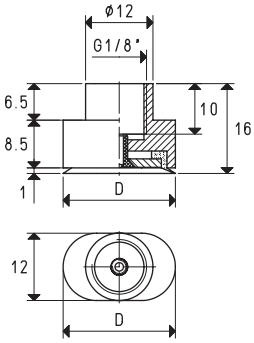


Note: Supplied automatically also with the fixing plate and the perforated TSP screw when ordering item **00 08 70**



VACUUM CUP WITH SUPPORT

Item	Force Kg	Compounds available	D	Vacuum cup item	Support item	Weight g
08 12 20 A	0.52	(A)	20	01 12 20	00 08 70	5.8



Compound: (A) = oil-resistant rubber

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

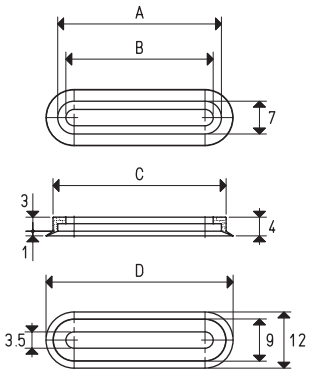
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

ELLIPTICAL FLAT VACUUM CUPS WITH SUPPORTS

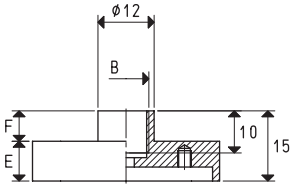
VACUUM CUP

Item	Force Kg	Compounds available	Volume cm^3	A	B	C	D
01 12 30 *	0.82	(A) (N) (S)	0.5	25	21.5	27	30
01 12 40 *	1.12	(A) (N) (S)	0.7	35	31.5	37	40
01 12 50 *	1.57	(A) (N) (S)	1.0	50	46.5	52	55



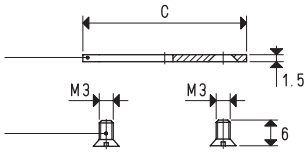
SUPPORTS

Item	A	B Ø	C	E	F	Support material	For vacuum cup item	Weight g
00 08 71	30	G1/8"	25	8.5	6.5	aluminium	01 12 30	7.8
00 08 75	40	G1/8"	35	8.5	6.5	aluminium	01 12 40	11.4
00 08 76	55	G1/8"	50	8.5	6.5	aluminium	01 12 50	15.5

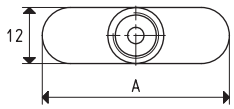


fixing plate item **00 08 98** for supp. **00 08 71**
item **00 08 99** for supp. **00 08 75**
item **00 08 100** for supp. **00 08 76**

2 TSP screws M3x5 item **00 08 102**

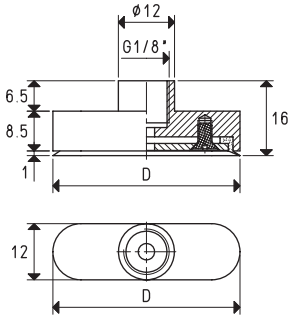


Note: Supplied automatically also with the fixing plate and the perforated TSP screw when ordering the item relative to the support



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	D	Vacuum cup item	Support item	Weight g
08 12 30 *	0.82	(A) (N) (S)	30	01 12 30	00 08 71	8.3
08 12 40 *	1.12	(A) (N) (S)	40	01 12 40	00 08 75	12.0
08 12 50 *	1.57	(A) (N) (S)	55	01 12 50	00 08 76	16.2



* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

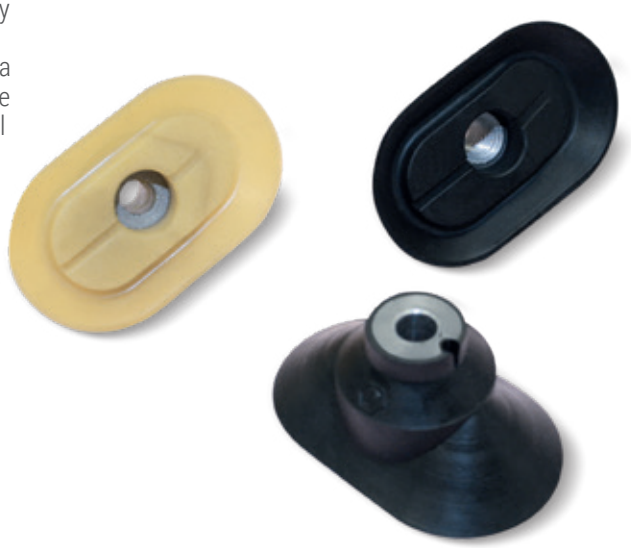
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

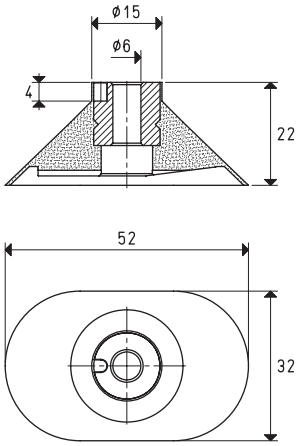
ELLIPTICAL VACUUM CUPS WITH VULCANISED SUPPORT

The cups described on this page have been designed for handling X-ray sheets in hospital or other electrostatically charged films.
Their original shape allows them to pick up one sheet at a time without deforming or crumpling the gripping surface and without leaving stains or prints, thanks to the special compound with which they are made. Their aluminium supports are vulcanised onto the cups. One with a smooth hole for fixing the cup to the machine with an Allen screw, with the housing on the inside and one with a threaded hole. A side slot on the support prevents the cup from rotating. These cups are recommended for gripping and handling magnetic sheets, plastic sheets, thin rubber sheets, laminated cardboard, etc.



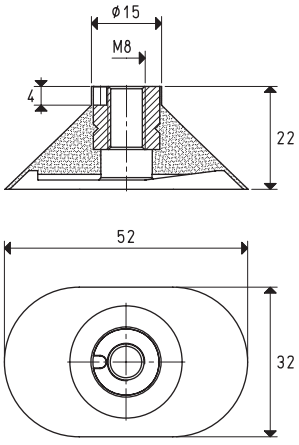
VACUUM CUP WITH VULCANISED SUPPORT

Item	Force Kg	Compound available	Volume cm^3	Support material	Weight g
08 32 52 A	3.00	(A)	3.1	aluminium	12.1



VACUUM CUP WITH VULCANISED SUPPORT

Item	Force Kg	Compound available	Volume cm^3	Support material	Weight g
08 32 99 A	3.00	(A)	3.1	aluminium	11.9



Compound: (A) = oil-resistant rubber

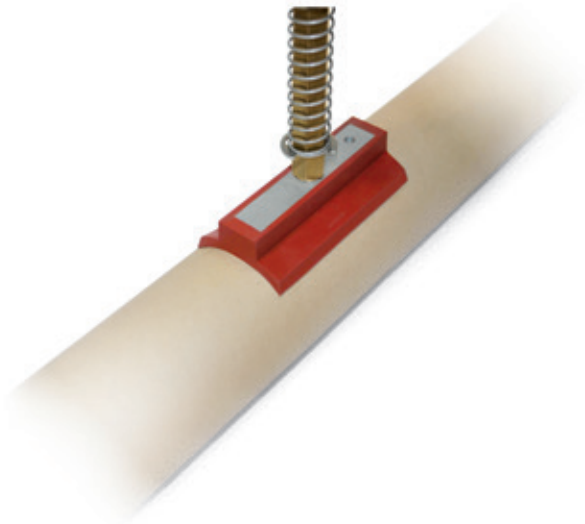
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

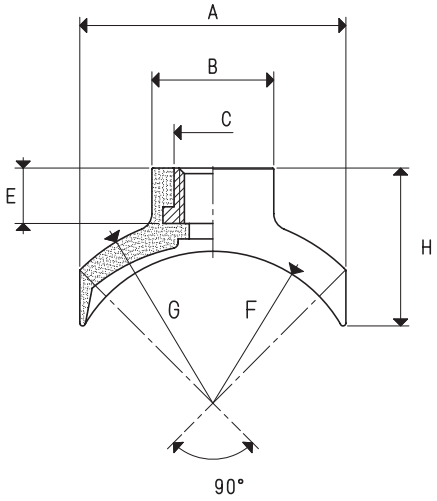
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

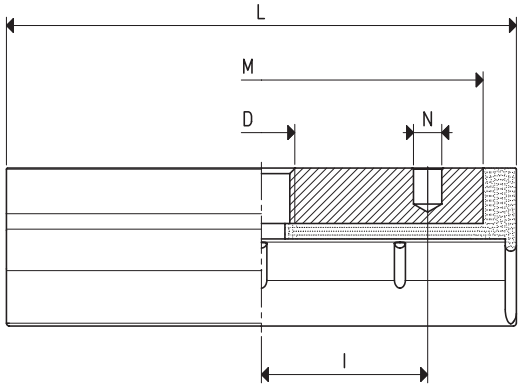
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

CONCAVE VACUUM CUPS WITH VULCANISED SUPPORT

These cups have been designed for gripping and handling cylindrical objects, such as pipes, bottles, round profiles, etc. Their aluminium support is vulcanised onto the cup and it is provided with a central threaded hole to ease its fastening to the automation and with a side hole for insertion of an anti-rotation guide pin.
These cups can be provided in the three standard compounds: oil-resistant rubber A, para rubber N and silicone S.







CONCAVE VACUUM CUPS WITH VULCANISED SUPPORT

Item	Force Kg	Compounds available	Volume cm^3	gripping Ø min	gripping Ø max	A	B	C	D Ø	E	F	G	H	I	L	M	N Ø	Support material	Weight g
08 30 60 *	3.5	(A)(N)(S)	2.1	30	45	26	15	10	M8	8	16	19	20.0	20	60	50	4.1	aluminium	20.3
08 40 90 *	8.6	(A)(N)(S)	5.5	50	80	40	20	14	M12	10	23	28	25.0	30	92	80	5.1	aluminium	54.8
08 50 90 *	10.5	(A)(N)(S)	11.1	60	95	48	22	14	M12	10	28	34	28.5	30	92	80	5.1	aluminium	62.5

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

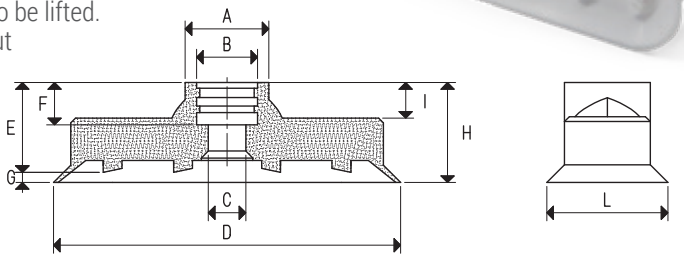
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

FLAT AND BELLOWS ELLIPTICAL VACUUM CUPS WITH SUPPORTS

Complete range of flat elliptical vacuum cups, normally used for gripping, handling and clamping cardboard cases and boxes, wood shingles, small ceramic or brick tiles, iron or stainless steel profiles, sheets and anything else present on long, narrow gripping surfaces.
Instead, bellows elliptical vacuum cups, in addition to having the same function as the flat cups described above, are able to adapt to the gripping plane, even if not perfectly perpendicular to the axis of the vacuum cup, and can recover evident unevenness of the loads to be lifted.
They are normally available in the three standard compounds but can be supplied in special compounds listed on pg. 31 and in a minimum amount to be defined in the order, upon request.
Both items can be supplied with or without automation fastening support. Upon request, special non-rotating vacuum cup holders on which to assemble them are able to prevent their rotation during use.



3D drawings are available on **vuototecnica.net**

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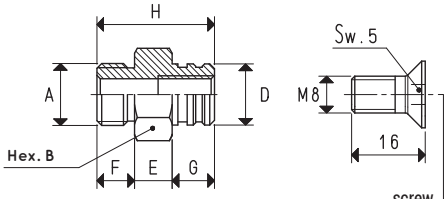
VACUUM CUPS

Item	Force Kg	Compounds available	A Ø	B Ø	C Ø	D	E	F	G	H	I	L	Volume cm^3
VOP 08 24 SR *	0.44	A N S	12.2	7.3	2.5	24	11.2	5.5	0.8	12.0	6.7	8.0	0.191
VOP 10 30 SR *	0.69	A N S	12.2	7.3	4.5	30	11.3	5.5	0.7	12.0	7.0	10.0	0.214
VOP 12 36 SR *	0.98	A N S	12.0	7.3	5.0	36	12.1	5.5	0.9	13.0	6.4	12.0	0.498
VOP 15 45 SR *	1.56	A N S	16.4	13.0	4.0	45	20.1	8.8	1.9	22.0	14,3	15.0	1.203
VOP 20 60 SR *	2.73	A N S	18.0	13.0	8.0	60	20.0	9.0	1.5	21.5	10.0	20.0	2.026
VOP 25 75 SR *	4.30	A N S	17.8	13.0	8.0	75	19.1	9.0	2.2	21.3	7.6	25.0	5.026
VOP 28 85 SR *	5.53	A N S	18.6	13.0	8.0	85	18.9	9.7	2.8	21.7	8.7	28.0	6.761
VOP 35 100 SR *	8.09	A N S	18.8	13.0	8.0	100	18.9	9.7	3.3	22.2	8.7	35.0	11.989

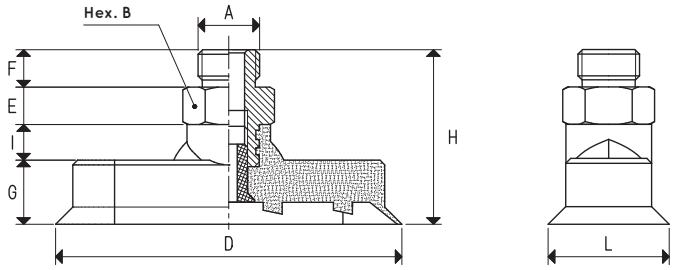
MALE SUPPORTS

Item	A Ø	B	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 344	G1/8"	14	7.3	7	7	5.5	19.5	aluminium	VOP 08 24 SR	18.5
									VOP 10 30 SR	
									VOP 12 36 SR	
00 08 346	G1/4"	17	13.0	8	8	9.0	25.0	aluminium	VOP 15 45 SR	25.0
00 08 404	G1/4"	17	13.0	8	8	9.0	25.0	aluminium	VOP 20 60 SR	29.8
									VOP 25 75 SR	
00 08 402	G1/4"	17	13.0	8	8	9.0	25.0	aluminium	VOP 28 85 SR	30.7
									VOP 35 100 SR	



screw
item **00 08 347** for supp.**00 08 402**
item **00 08 348** for supp.**00 08 404**

Note: Supplied automatically also with the screw when ordering the item relative to the support



VACUUM CUPS WITH MALE SUPPORT

Item	Force Kg	Compounds available	A Ø	B	D	E	F	G	H	I	L	Vacuum cup item	Support item	Weight g
VOP 08 24 *	0.44	A N S	G1/8"	14	24	7	7	5.3	26.0	6.7	8.0	VOP 08 24 SR	00 08 344	19.7
VOP 10 30 *	0.69	A N S	G1/8"	14	30	7	7	5.0	26.0	7.0	10.0	VOP 10 30 SR	00 08 344	19.8
VOP 12 36 *	0.98	A N S	G1/8"	14	36	7	7	6.6	27.0	6.4	12.0	VOP 12 36 SR	00 08 344	20.6
VOP 15 45 *	1.56	A N S	G1/4"	17	45	8	8	7.7	38.0	14.3	15.0	VOP 15 45 SR	00 08 346	29.2
VOP 20 60 *	2.73	A N S	G1/4"	17	60	8	8	11.5	37.5	10.0	20.0	VOP 20 60 SR	00 08 404	38.3
VOP 25 75 *	4.30	A N S	G1/4"	17	75	8	8	13.7	37.3	7.6	25.0	VOP 25 75 SR	00 08 404	43.5
VOP 28 85 *	5.53	A N S	G1/4"	17	85	8	8	13.0	37.7	8.7	28.0	VOP 28 85 SR	00 08 402	50.7
VOP 35 100 *	8.09	A N S	G1/4"	17	100	8	8	13.5	38.2	8.7	35.0	VOP 35 100 SR	00 08 402	62.7

* Complete the code indicating the compound: A = oil-resistant rubber; N = para rubber; S = silicone

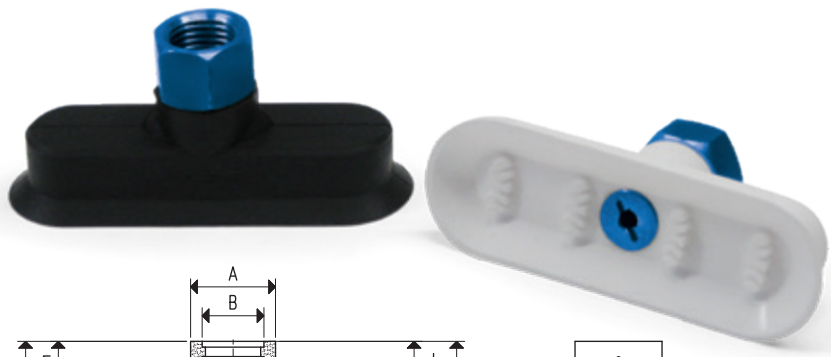
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

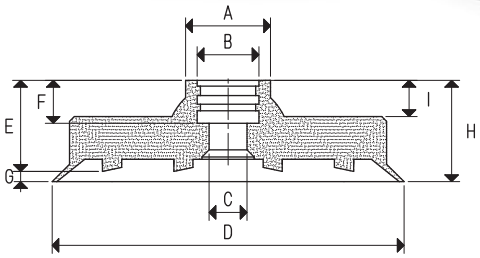
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

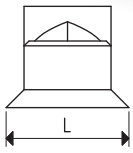
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

ELLIPTICAL FLAT VACUUM CUPS WITH FEMALE SUPPORTS





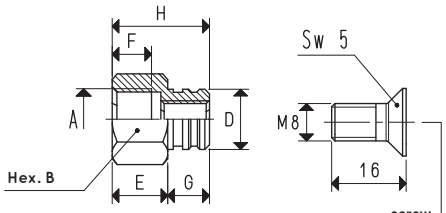


VACUUM CUPS

Item	Force Kg	Compounds available	A Ø	B Ø	C Ø	D	E	F	G	H	I	L	Volume cm^3
VOP 08 24 SR *	0.44	(A) (N) (S)	12.2	7.3	2.5	24	11.2	5.5	0.8	12.0	6.7	8.0	0.191
VOP 10 30 SR *	0.69	(A) (N) (S)	12.2	7.3	4.5	30	11.3	5.5	0.7	12.0	7.0	10.0	0.214
VOP 12 36 SR *	0.98	(A) (N) (S)	12.0	7.3	5.0	36	12.1	5.5	0.9	13.0	6.4	12.0	0.498
VOP 15 45 SR *	1.56	(A) (N) (S)	16.4	13.0	4.0	45	20.1	8.8	1.9	22.0	14.3	15.0	1.203
VOP 20 60 SR *	2.73	(A) (N) (S)	18.0	13.0	8.0	60	20.0	9.0	1.5	21.5	10.0	20.0	2.026
VOP 25 75 SR *	4.30	(A) (N) (S)	17.8	13.0	8.0	75	19.1	9.0	2.2	21.3	7.6	25.0	5.026
VOP 28 85 SR *	5.53	(A) (N) (S)	18.6	13.0	8.0	85	18.9	9.7	2.8	21.7	8.7	28.0	6.761
VOP 35 100 SR *	8.09	(A) (N) (S)	18.8	13.0	8.0	100	18.9	9.7	3.3	22.2	8.7	35.0	11.989

FEMALE SUPPORTS

Item	A Ø	B	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 343	G1/8"	14	7.3	10	8.0	5.5	15.5	aluminium	VOP 08 24 SR	16.8
									VOP 10 30 SR	
									VOP 12 36 SR	
00 08 345	G1/4"	17	13.0	12	8.5	9.0	21.0	aluminium	VOP 15 45 SR	19.9
00 08 405	G1/4"	17	13.0	12	8.5	9.0	21.0	aluminium	VOP 20 60 SR	24.7
									VOP 25 75 SR	
00 08 403	G1/4"	17	13.0	12	8.5	9.0	21.0	aluminium	VOP 28 85 SR	25.6
									VOP 35 100 SR	

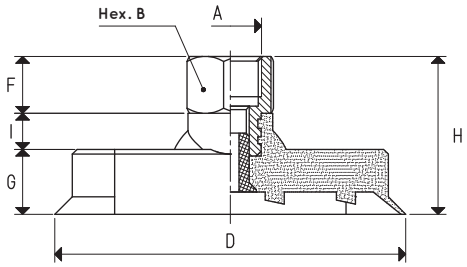


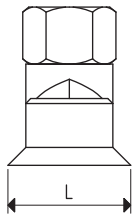
screw

item **00 08 347** for supp.**00 08 403**

item **00 08 348** for supp.**00 08 405**

Note: Supplied automatically also with the screw when ordering the item relative to the support





VACUUM CUPS WITH FEMALE SUPPORT

Item	Force Kg	Compounds available	A Ø	B	D	F	G	H	I	L	Vacuum cup item	Support item	Weight g
VOP 08 24 F *	0.44	(A) (N) (S)	G1/8"	14	24	10	5.3	22.0	6.7	8.0	VOP 08 24 SR	00 08 343	18.0
VOP 10 30 F *	0.69	(A) (N) (S)	G1/8"	14	30	10	5.0	22.0	7.0	10.0	VOP 10 30 SR	00 08 343	18.1
VOP 12 36 F *	0.98	(A) (N) (S)	G1/8"	14	36	10	6.6	23.0	6.4	12.0	VOP 12 36 SR	00 08 343	18.9
VOP 15 45 F *	1.56	(A) (N) (S)	G1/4"	17	45	12	7.7	24.0	14.3	15.0	VOP 15 45 SR	00 08 345	23.9
VOP 20 60 F *	2.73	(A) (N) (S)	G1/4"	17	60	12	11.5	33.5	10.0	20.0	VOP 20 60 SR	00 08 405	33.2
VOP 25 75 F *	4.30	(A) (N) (S)	G1/4"	17	75	12	13.7	33.3	7.6	25.0	VOP 25 75 SR	00 08 405	38.4
VOP 28 85 F *	5.53	(A) (N) (S)	G1/4"	17	85	12	13.0	33.7	8.7	28.0	VOP 28 85 SR	00 08 403	45.6
VOP 35 100 F *	8.09	(A) (N) (S)	G1/4"	17	100	12	13.5	34.2	8.7	35.0	VOP 35 100 SR	00 08 403	57.6

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

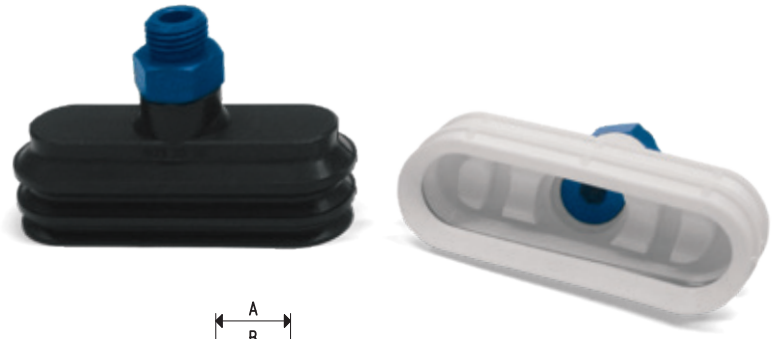
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

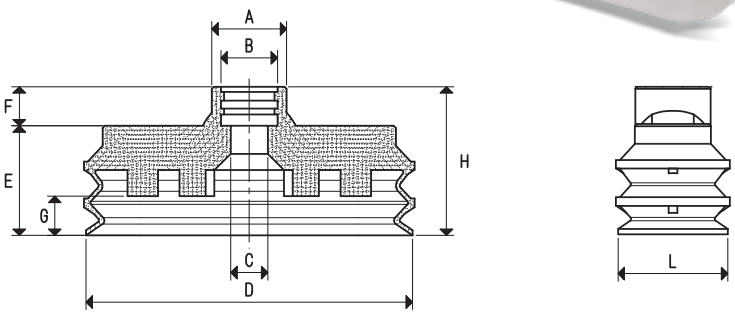
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

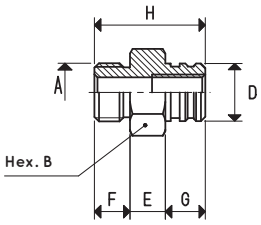
ELLIPTICAL BELLOWS VACUUM CUPS WITH MALE SUPPORTS

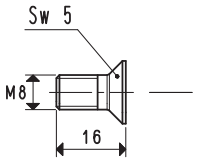




VACUUM CUPS

Item	Force Kg	Compounds available	A Ø	B Ø	C Ø	D	E	F	G bellows stroke	H	L	Volume cm^3
VOS 08 25 *	0.51	(A) (N) (S)	10.0	7.3	1.3	25.0	12.4	6.0	3.0	18.4	8.0	0.852
VOS 15 45 *	1.56	(A) (N) (S)	17.2	13.0	4.0	45.0	18.6	10.0	6.5	28.6	15.0	4.978
VOS 25 75 *	4.30	(A) (N) (S)	17.2	13.0	9.0	75.0	25.2	9.0	8.5	34.2	25.0	23.083



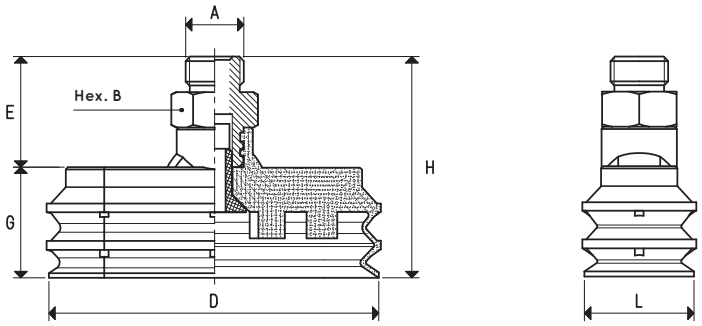


screw
item **00 08 347** for supp.**00 08 402**

Note: Supplied automatically also with the screw when ordering the item relative to the support

MALE SUPPORTS

Item	A Ø	B	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 344	G1/8"	14	7.3	7	7	5.5	19.5	aluminium	VOS 08 25	18.5
00 08 346	G1/4"	17	13.0	8	8	9.0	25.0	aluminium	VOS 15 45	25.0
00 08 402	G1/4"	17	13.0	8	8	9.0	25.0	aluminium	VOS 25 75	30.7



VACUUM CUPS WITH MALE SUPPORT

Item	Force Kg	Compounds available	A Ø	B	D	E	G	H	L	Vacuum cup item	Support item	Weight g
VOS 08 25 M *	0.51	(A) (N) (S)	G1/8"	14	25.0	20.0	12.4	32.4	8.0	VOS 08 25	00 08 344	20.0
VOS 15 45 M *	1.56	(A) (N) (S)	G1/4"	17	45.0	26.0	18.6	44.6	15.0	VOS 15 45	00 08 346	31.4
VOS 25 75 M *	4.30	(A) (N) (S)	G1/4"	17	75.0	25.0	25.2	50.2	25.0	VOS 25 75	00 08 402	47.3

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

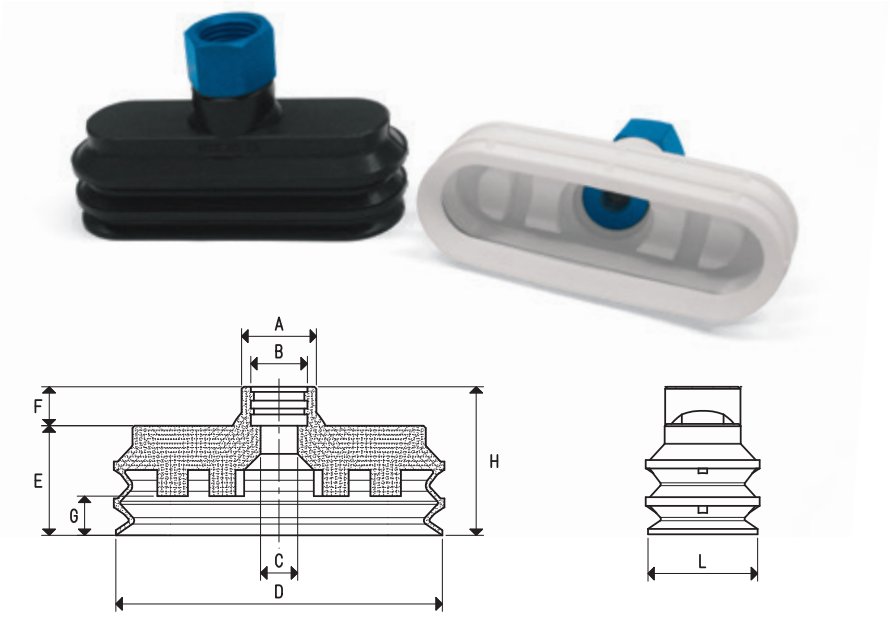
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

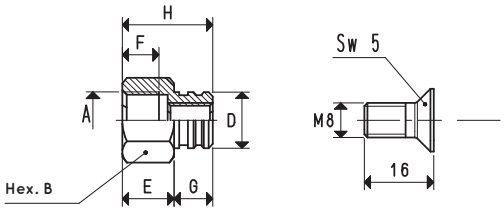
Adapters for GAS - NPT threading available on page 1.134

ELLIPTICAL BELLOWS VACUUM CUPS WITH FEMALE SUPPORTS



VACUUM CUPS

Item	Force Kg	Compounds available	A Ø	B Ø	C Ø	D	E	F	G bellows stroke	H	L	Volume cm^3
VOS 08 25 *	0.51	(A) (N) (S)	10.0	7.3	1.3	25.0	12.4	6.0	3.0	18.4	8.0	0.852
VOS 15 45 *	1.56	(A) (N) (S)	17.2	13.0	4.0	45.0	18.6	10.0	6.5	28.6	15.0	4.978
VOS 25 75 *	4.30	(A) (N) (S)	17.2	13.0	9.0	75.0	25.2	9.0	8.5	34.2	25.0	23.083

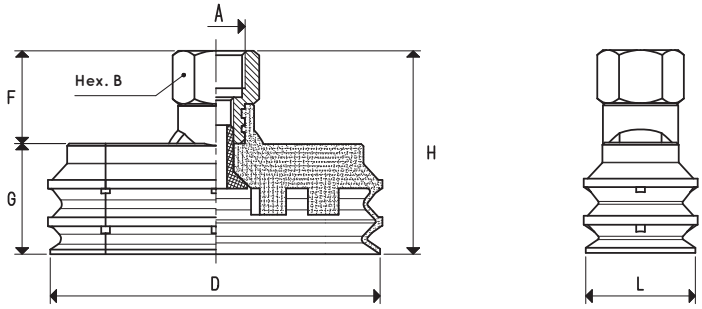


screw
item **00 08 347** for supp.**00 08 403**

Note: Supplied automatically also with the screw when ordering the item relative to the support

FEMALE SUPPORTS

Item	A Ø	B	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 343	G1/8"	14	7.3	10	8.0	5.5	15.5	aluminium	VOS 08 25	16.8
00 08 345	G1/4"	17	13.0	12	8.5	9.0	21.0	aluminium	VOS 15 45	19.9
00 08 403	G1/4"	17	13.0	12	8.5	9.0	21.0	aluminium	VOS 25 75	25.6



VACUUM CUPS WITH FEMALE SUPPORT

Item	Force Kg		A Ø	B	D	F	G	H	L	Vacuum cup item	Support item	Weight g
VOS 08 25 F *	0.51	(A) (N) (S)	G1/8"	14	25.0	16.0	12.4	28.4	8.0	VOS 08 25	00 08 343	18.3
VOS 15 45 F *	1.56	(A) (N) (S)	G1/4"	17	45.0	22.0	18.6	40.6	15.0	VOS 15 45	00 08 345	26.3
VOS 25 75 F *	4.30	(A) (N) (S)	G1/4"	17	75.0	21.0	25.2	46.2	25.0	VOS 25 75	00 08 403	42.2

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

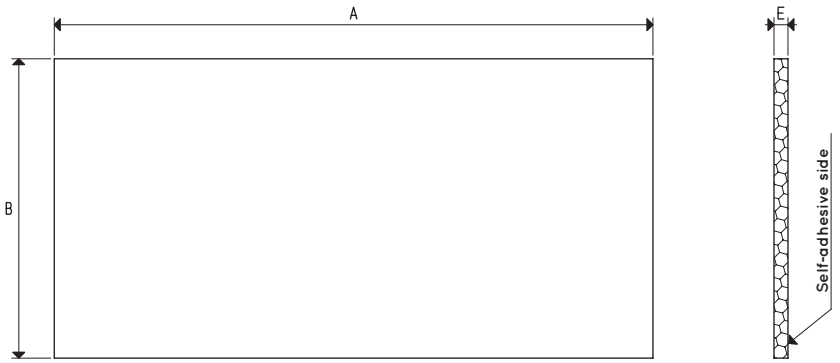
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

OF FOAM RUBBER SHEETS AND STRIPS

The foam rubber used for our cups can be provided in sheets or strips of the sizes indicated in the table.
Both the OF foam rubber strips and the sheets have a self-adhesive side which allows a quick and easy fixing to the metal support.
These sheets and strips can be used to make cups of every shape and to handle loads with raw or very rough surfaces. They can be supplied in different sizes and density upon request and in quantities to be defined in the order.
The working temperature ranges from -40°C to +80°C.
Excellent compressive and breaking strength, with elongation up to 350%. Poor resistance to oils, ozone and flame.
NOTE: OF foam rubber is obtained by the expansion of a natural rubber, subjected to leavening through a chemical-thermal treatment.
Surface porosity with the same density, therefore, can vary, not compromising its effectiveness.

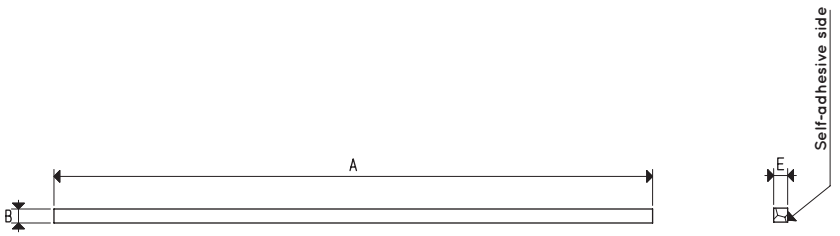


OF FOAM RUBBER SHEETS

Item	A	B	E
LGS 10 OF	2050 ÷ 1950	920 ÷ 880	10 ± 1.50
LGS 15 OF	2050 ÷ 1950	920 ÷ 880	15 ± 1.60
LGS 20 OF	2050 ÷ 1950	920 ÷ 880	20 ± 1.90
LGS 25 OF	2050 ÷ 1950	920 ÷ 880	25 ± 1.90
LGS 30 OF	2050 ÷ 1950	920 ÷ 880	30 ± 2.00
LGS 40 OF	2050 ÷ 1950	920 ÷ 880	40 ± 2.50
LGS 45 OF	2050 ÷ 1950	920 ÷ 880	45 ± 2.50

Note: The minimum size available is half a sheet.

Note: Considering the nature of OF rubber foam, the size of slabs in the table may vary, even beyond tolerances.



OF FOAM RUBBER STRIPS

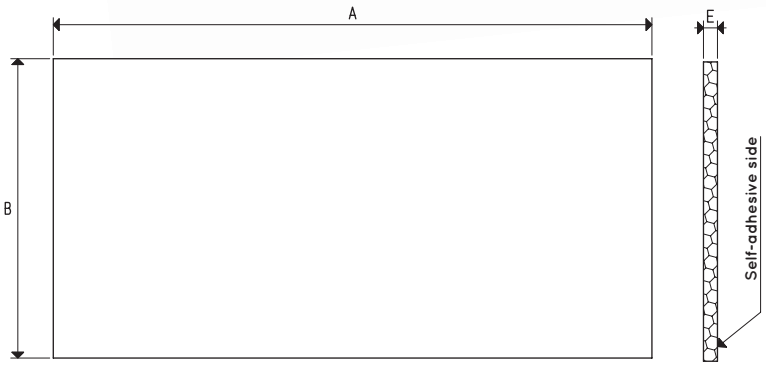
Item	A	B	E
SGS 10 10 OF	2050 ÷ 1950	10 ± 1.50	10 ± 0,50
SGS 15 10 OF	2050 ÷ 1950	15 ± 1.60	10 ± 0,50
SGS 20 10 OF	2050 ÷ 1950	20 ± 1.90	10 ± 0,50
SGS 20 15 OF	2050 ÷ 1950	20 ± 1.90	15 ± 0,75

Note: Considering the nature of OF rubber foam, the size of strips in the table may vary.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SB EXTRA SOFT FOAM RUBBER SHEETS

Specifically designed for the production of OCTOPUS system gripping surface. This black foam rubber has an open cellular structure and is made of EPDM rubber.
SB extra soft foam rubber sheets have a self-adhesive side for quick, easy fixing to metal supports.
The temperature of use ranges from -40°C to + 130°C and it offers excellent resistance to heat, atmospheric agents, low temperatures and ageing.
The low density and softness of this foam rubber allows gripping surfaces to adapt to any kind of surface.



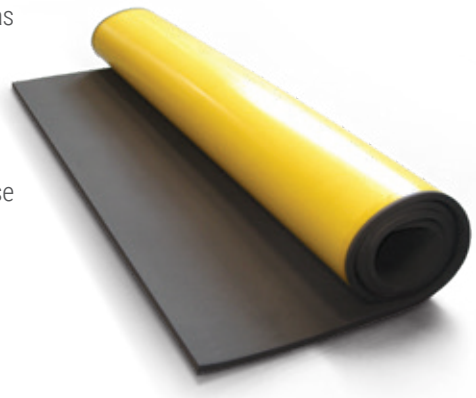
SB EXTRA SOFT FOAM RUBBER SHEETS

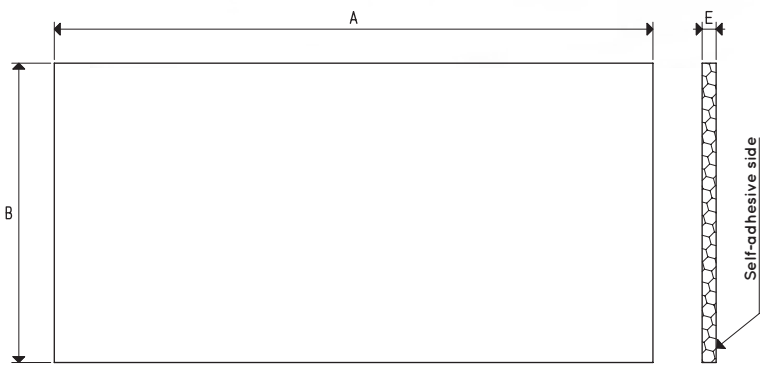
Item	A	B	E
LGS 10 SB	2050 ÷ 1950	920 ÷ 880	10 ± 1.50
LGS 15 SB	2050 ÷ 1950	920 ÷ 880	15 ± 1.60
LGS 20 SB	2050 ÷ 1950	920 ÷ 880	20 ± 1.90
LGS 30 SB	2050 ÷ 1950	920 ÷ 880	30 ± 2.00
LGS 40 SB	2050 ÷ 1950	920 ÷ 880	40 ± 2.50

Note: The minimum size available, half a sheet.

NF NEOPRENE FOAM RUBBER SHEETS

This type of foam rubber made with Neoprene rubber is black in colour and has a closed cellular structure, allowing it to offer greater compressive strength at the cost of less elasticity and a tendency to deform over time.
NF Neoprene foam rubber sheets have a self-adhesive side for quick, easy fixing to metal supports. Excellent resistance to oil products, sunlight, atmospheric agents, and ozone. Not recommended for food use.
This type of foam rubber allows for the use of vacuum cups for gripping coarse or very rough surfaces operating outside in contact with atmospheric agents.
The working temperature ranges for the foam are from -40°C to +100 °C.





NF NEOPRENE FOAM RUBBER SHEETS

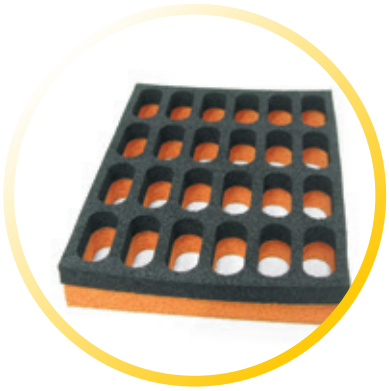
Item	A	B	E
LGS 10 NF	2050 ÷ 1950	920 ÷ 880	10 ± 1.50
LGS 15 NF	2050 ÷ 1950	920 ÷ 880	15 ± 1.60
LGS 20 NF	2050 ÷ 1950	920 ÷ 880	20 ± 1.90
LGS 30 NF	2050 ÷ 1950	920 ÷ 880	30 ± 2.00
LGS 40 NF	2050 ÷ 1950	920 ÷ 880	40 ± 2.50

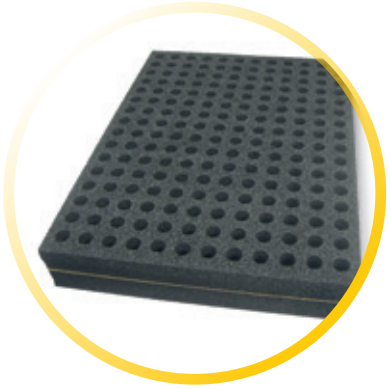
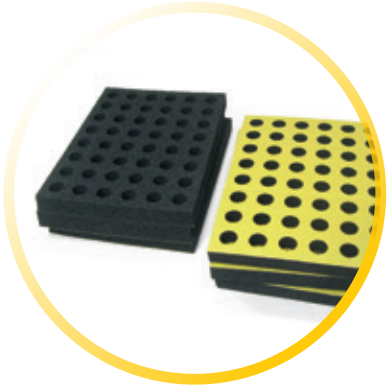
Note: The minimum size available, half a sheet.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL FOAM RUBBER SHEETS

Custom special cuts available upon request and subject to minimum order quantities.



Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

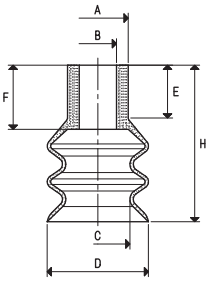
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

BELLOWS CUPS WITH SUPPORTS FOR GRIPPING FLOW PACKS

Thanks to their specific conformation and flexibility, the vacuum cups illustrated and described on this page are especially suitable for installation on automatic, high production machines in the packaging sector, and for the gripping and handling of flow packs.
The suction cups are available with FDA certification for food-grade use and can be cold-mounted onto their dedicated supports without the use of adhesives.
Upon request, these cups can be provided upon request in minimum quantities and in other special compounds, listed on pg. 31, to be defined in the order.

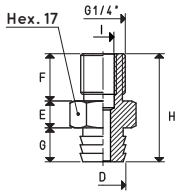
VACUUM CUPS

Item	Force Kg	Compound available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	E	F	H	Bellows stroke mm
01 20 30 S	0.78	(S)	3.0	13.0	8	12	20	10	11.5	30	11
01 30 45 S	1.76	(S)	11.4	18.0	11	19	30	16	19.0	45	20
01 40 55 S	3.14	(S)	30.0	26.0	15	23	40	18	20.0	58	25
01 50 65 S	4.90	(S)	60.2	32.5	20	28	50	19	21.0	68	30



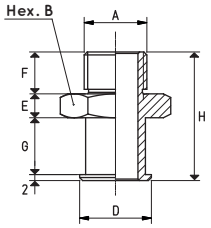
SUPPORTS

Item	D Ø	E	F	G	H	I	Support material	For vacuum cup item	Weight g
00 08 18	9.5	8	14	10	32	M8	aluminium	01 20 30	10.3
00 08 127	13.5	8	14	15	37	--	aluminium	01 30 45	11.5



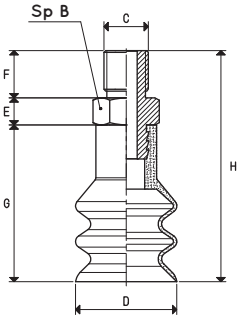
SUPPORTS

Item	A Ø	B	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 474	G3/8"	26	19	8	10	18	38	aluminium	01 40 55	18
00 08 475	G1/2"	32	24	8	14	19	43	aluminium	01 50 65	22



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compound available	B	C Ø	D Ø	E	F	G	H	Vacuum cup item	Support item	Weight g
08 20 30 S	0.78	(S)	17	G1/4"	20	8	14	30	52	01 20 30	00 08 18	12.5
08 30 45 S	1.76	(S)	17	G1/4"	30	8	14	45	67	01 30 45	00 08 127	18.4
08 40 55 S	3.14	(S)	26	G3/8"	40	8	10	58	76	01 40 55	00 08 474	34.5
08 50 65 S	4.90	(S)	32	G1/2"	50	8	14	68	90	01 50 65	00 08 475	52.2



Compound: (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

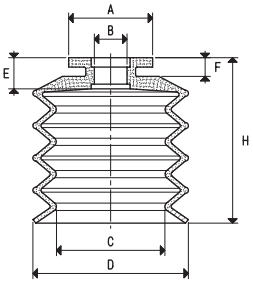
Adapters for GAS - NPT threading available on page 1.134

BELLOWS VACUUM CUPS WITH MALE AND FEMALE SUPPORTS

The bellows cups described on these pages have been specially designed for handling baked goods, such as biscuits, bread, pizza, etc., as well as plastic or paper bags containing chocolates, sweets, pasta, flour, powder, etc.
Thanks to their great flexibility, they can also be used to compensate flatness errors or for gripping on inclined surfaces.
Their anodised aluminium supports are provided with a threaded male or female central pin to allow suction and to fasten it to the automation.
The vacuum cups can be fitted on them without the aid of adhesives.
To replace, simply request the single vacuum cup indicated in the table in the desired compound.

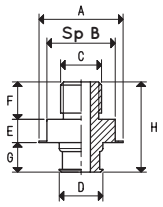
VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	E	F	H	Bellows stroke mm
01 20 23 *	0.78	(A)(N)(S)	3.4	14.5	5.0	14	20	5	4	23	16
01 30 32 *	1.76	(A)(N)(S)	11.4	20.0	6.5	21	30	7	5	32	22
01 40 42 *	3.14	(A)(N)(S)	33.0	20.0	6.5	28	40	7	5	42	32
01 50 53 *	4.90	(A)(N)(S)	53.3	27.0	10.5	35	50	10	6	53	32



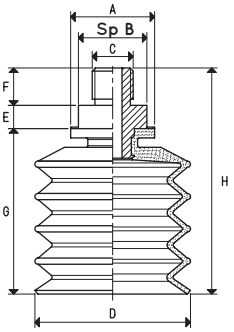
MALE SUPPORTS

Item	A Ø	B	C Ø	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 133	14.5	13	G1/8"	8.5	5.5	8	5.0	18.5	aluminium	01 20 23	3.5
00 08 135	20.0	17	G1/4"	10.0	7.5	12	7.5	27.0	aluminium	01 30 32	9.5
										01 40 42	
00 08 142	27.0	22	G1/4"	14.0	7.5	12	9.5	29.0	aluminium	01 50 53	15.7



VACUUM CUPS WITH MALE SUPPORT

Item	Force Kg	Compounds available	A Ø	B	C Ø	D Ø	E	F	G	H	Vacuum cup item	Support item	Weight g
08 20 23 *	0.78	(A)(N)(S)	14.5	13	G1/8"	20	5.5	8	23	36.5	01 20 23	00 08 133	5.3
08 30 32 *	1.76	(A)(N)(S)	20.0	17	G1/4"	30	7.5	12	32	51.5	01 30 32	00 08 135	15.1
08 40 42 *	3.14	(A)(N)(S)	20.0	17	G1/4"	40	7.5	12	42	61.5	01 40 42	00 08 135	21.1
08 50 53 *	4.90	(A)(N)(S)	27.0	22	G1/4"	50	7.5	12	53	72.5	01 50 53	00 08 142	40.1



VACUUM CUP ACCESSORIES

STAINLESS STEEL DISC FILTERS

Item	D Ø	For vacuum cup item
00 08 295	17	01 20 23
00 08 293	27	01 30 32
00 08 279	35	01 40 42
00 08 489	44	01 50 53

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

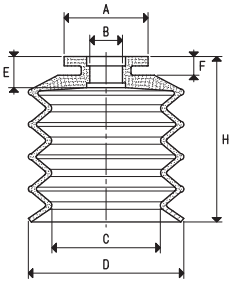
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

BELLOWS VACUUM CUPS WITH FEMALE SUPPORTS

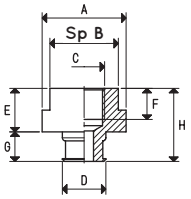
VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	E	F	H	Bellows stroke mm
01 20 23 *	0.78	(A) (N) (S)	3.4	14.5	5.0	14	20	5	4	23	16
01 30 32 *	1.76	(A) (N) (S)	11.4	20.0	6.5	21	30	7	5	32	22
01 40 42 *	3.14	(A) (N) (S)	33.0	20.0	6.5	28	40	7	5	42	32
01 50 53 *	4.90	(A) (N) (S)	53.3	27.0	10.5	35	50	10	6	53	32



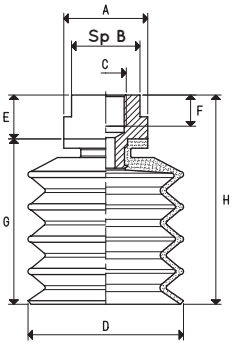
FEMALE SUPPORTS

Item	A Ø	B	C Ø	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 132	14.5	13	G1/8"	8.5	12	8	5.0	17.0	aluminium	01 20 23	3.8
00 08 134	20.0	17	G1/4"	10.0	14	10	7.5	21.5	aluminium	01 30 32	8.3
										01 40 42	
00 08 141	27.0	22	G1/4"	14.0	14	10	9.5	23.5	aluminium	01 50 53	19.7



VACUUM CUPS WITH FEMALE SUPPORT

Item	Force Kg	Compounds available	A Ø	B	C Ø	D Ø	E	F	G	H	Vacuum cup item	Support item	Weight g
08 20 23 F *	0.78	(A) (N) (S)	14.5	13	G1/8"	20	12	8	23	35	01 20 23	00 08 132	5.6
08 30 32 F *	1.76	(A) (N) (S)	20.0	17	G1/4"	30	14	10	32	46	01 30 32	00 08 134	13.9
08 40 42 F *	3.14	(A) (N) (S)	20.0	17	G1/4"	40	14	10	42	56	01 40 42	00 08 134	19.9
08 50 53 F *	4.90	(A) (N) (S)	27.0	22	G1/4"	50	14	10	53	67	01 50 53	00 08 141	44.1



VACUUM CUP ACCESSORIES

STAINLESS STEEL DISC FILTERS

Item	D Ø	For vacuum cup item
00 08 295	17	01 20 23
00 08 293	27	01 30 32
00 08 279	35	01 40 42
00 08 489	44	01 50 53

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

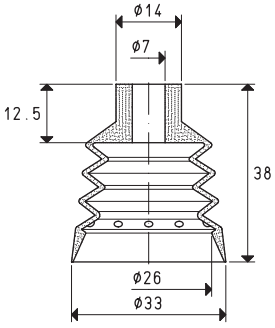
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

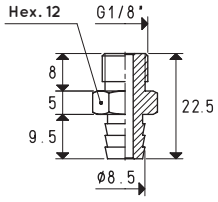
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

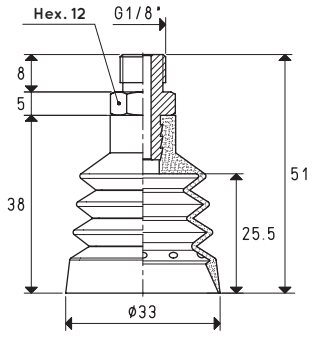
Adapters for GAS - NPT threading available on page 1.134

SUCTION CUPS FOR EGG HANDLING

The bellows vacuum cups illustrated on this page and on the next have been specially designed to adapt to the shape of eggs.
The thin lip ensures maximum adaptability and a delicate grip on eggs, minimising the risk of cracks or breakage. The bellows compensate for differences in height or position of the eggs and ensure stability during handling, preventing damage.
They are available in Silicone or Para, which guarantee excellent adhesion even on smooth surfaces. They are widely used in automatic and semi-automatic packaging lines thanks to their reliability.







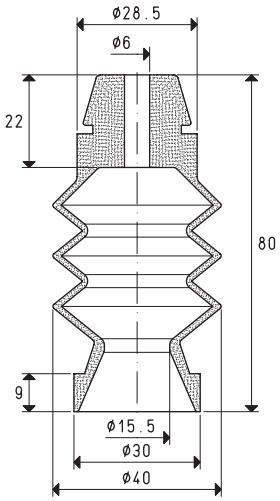
Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 33 50 *	2.13	(N) (S)	9	12.0	00 08 82	brass	11.2	08 33 50 *	18.8

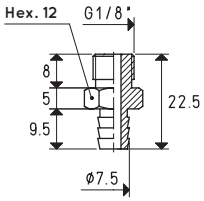
* Complete the code indicating the compound: (N) = para rubber; (S) = silicone

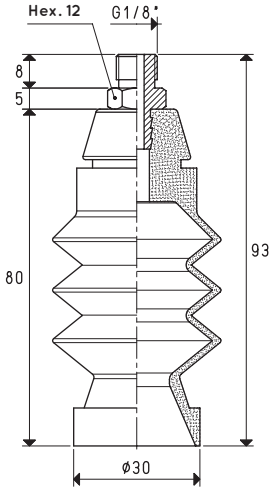
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

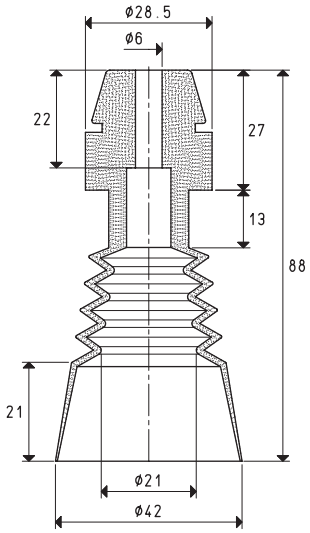


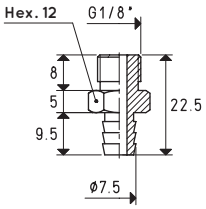


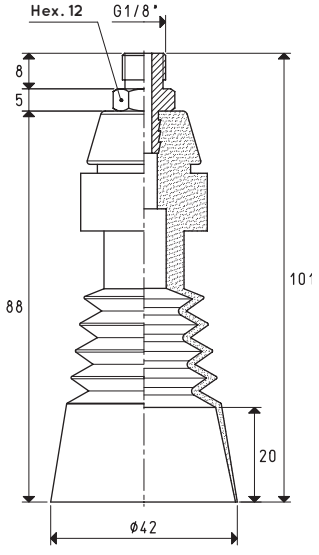


Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 40 80 *	1.76	(N)(S)	32	32.4	00 08 05	brass	10.0	08 40 80 *	38.7

Note: By adding the letter F to the item code, the suction cup is supplied with a female fitting (Example: 08 40 80 F *).







Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 42 90 N	3.00	(N)	13	34.6	00 08 05	brass	10.0	08 42 90 N	34.5

Note: By adding the letter F to the item code, the suction cup is supplied with a female fitting (Example: 08 42 90 F *).

* Complete the code indicating the compound: (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

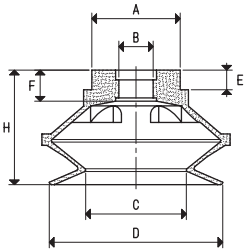
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

REINFORCED BELLOWS VACUUM CUPS WITH MALE AND FEMALE SUPPORTS

The particular shape of these bellows cups allows them to quickly crumple up when in contact with the surface of the load to be lifted and in presence of a vacuum. This quick movement prevents the load below from remaining stuck to the surfaces or load underneath.
Thanks to this particular feature, these bellows cups are recommended for handling paper and cardboard sheets, thin metal sheets, wooden panels, glass sheets etc.
Thanks to their great flexibility, they can also be used to compensate flatness errors or for gripping on inclined surfaces. Their anodised aluminium supports are provided with a threaded male or female central pin to allow suction and to fasten it to the automation. The vacuum cups can be fitted on them without the aid of adhesives.
To replace, simply request the single vacuum cup indicated in the table in the desired compound.

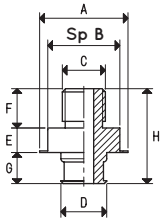
VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	E	F	H	Bellows stroke mm
01 22 19 *	0.95	(A) (N) (S)	2.5	14.5	5.0	11.0	22	4	5.5	19	10
01 34 26 *	2.26	(A) (N) (S)	8.0	14.5	5.0	17.0	34	4	5.5	26	12
01 43 28 *	3.62	(A) (N) (S)	15.3	20.0	6.5	21.5	43	4	7.0	28	14
01 53 35 *	5.51	(A) (N) (S)	30.5	27.0	10.5	30.5	53	6	9.5	35	16



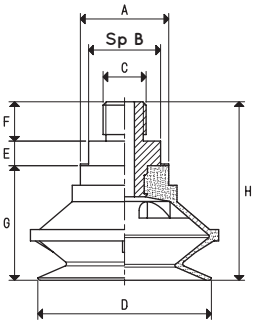
MALE SUPPORTS

Item	A Ø	B	C Ø	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 133	14.5	13	G1/8"	8.5	5.5	8	5.0	18.5	aluminium	01 22 19	3.5
										01 34 26	
00 08 135	20.0	17	G1/4"	10.0	7.5	12	7.5	27.0	aluminium	01 43 28	9.5
00 08 142	27.0	22	G1/4"	14.0	7.5	12	9.5	29.0	aluminium	01 53 35	15.7



VACUUM CUPS WITH MALE SUPPORT

Item	Force Kg	Compounds available	A Ø	B	C Ø	D Ø	E	F	G	H	Vacuum cup item	Support item	Weight g
08 22 19 *	0.95	(A) (N) (S)	14.5	13	G1/8"	22	5.5	8	19	32.5	01 22 19	00 08 133	6.2
08 34 26 *	2.26	(A) (N) (S)	14.5	13	G1/8"	34	5.5	8	26	39.5	01 34 26	00 08 133	15.2
08 43 28 *	3.62	(A) (N) (S)	20.0	17	G1/4"	43	7.5	12	28	47.5	01 43 28	00 08 135	18.5
08 53 35 *	5.51	(A) (N) (S)	27.0	22	G1/4"	53	7.5	12	35	54.5	01 53 35	00 08 142	33.3



* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

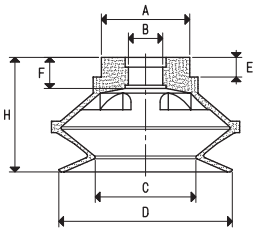
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

REINFORCED BELLOWS VACUUM CUPS WITH FEMALE SUPPORTS

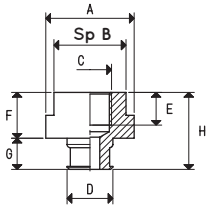
VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	E	F	H	Bellows stroke mm
01 22 19 *	0.95	(A) (N) (S)	2.5	14.5	5.0	11.0	22	4	5.5	19	10
01 34 26 *	2.26	(A) (N) (S)	8.0	14.5	5.0	17.0	34	4	5.5	26	12
01 43 28 *	3.62	(A) (N) (S)	15.3	20.0	6.5	21.5	43	4	7.0	28	14
01 53 35 *	5.51	(A) (N) (S)	30.5	27.0	10.5	30.5	53	6	9.5	35	16



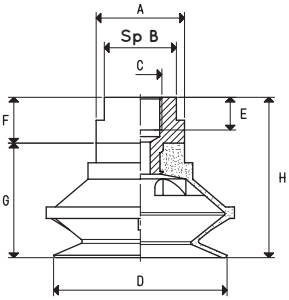
FEMALE SUPPORTS

Item	A Ø	B	C Ø	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 132	14.5	13	G1/8"	8.5	8	12	5.0	17.0	aluminium	01 22 19	3.8
										01 34 26	
00 08 134	20.0	17	G1/4"	10.0	10	14	7.5	21.5	aluminium	01 43 28	8.3
00 08 141	27.0	22	G1/4"	14.0	10	14	9.5	23.5	aluminium	01 53 35	19.7



VACUUM CUPS WITH FEMALE SUPPORT

Item	Force Kg	Compounds available	A Ø	B	C Ø	D Ø	E	F	G	H	Vacuum cup item	Support item	Weight g
08 22 19 F *	0.95	(A) (N) (S)	14.5	13	G1/8"	22	8	12	19	31	01 22 19	00 08 132	6.5
08 34 26 F *	2.26	(A) (N) (S)	14.5	13	G1/8"	34	8	12	26	38	01 34 26	00 08 132	9.5
08 43 28 F *	3.62	(A) (N) (S)	20.0	17	G1/4"	43	10	14	28	42	01 43 28	00 08 134	17.3
08 53 35 F *	5.51	(A) (N) (S)	27.0	22	G1/4"	53	10	14	35	49	01 53 35	00 08 141	37.3



* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

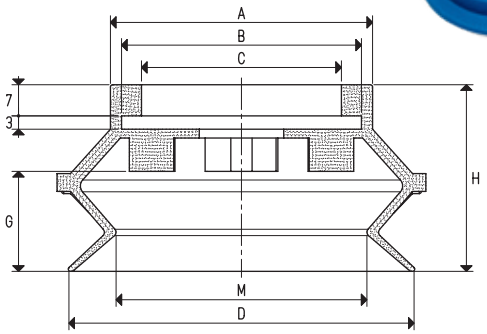
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

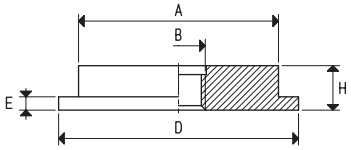
REINFORCED BELLOWS VACUUM CUPS WITH SUPPORTS

The cups described on these pages share the same features with the previously described bellows cups, only these have larger dimensions that allow them to lift much heavier loads; moreover, their anodised aluminium supports also have a central threaded hole for their fastening to the automation. The larger ones also have an additional side hole for vacuum connection. The difference is that these supports are provided with a disc instead of with a pin. These cups can be cold fitted onto their supports without any adhesives.
To replace, simply request the single vacuum cup indicated in the table in the desired compound.



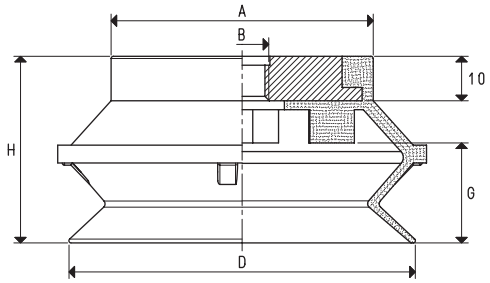
VACUUM CUP

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	G	H	M Ø	Bellows stroke mm
01 75 42 *	11.93	(A) (N) (S)	89.4	59	54	45	78	22.5	42	56	22.5



SUPPORTS

Item	A Ø	B Ø	D Ø	E	H	Support material	For vacuum cup item	Weight g
00 08 126	45	M12	54	3	10	aluminium	01 75 42	45.5
00 08 465	45	G1/4"	54	3	10	aluminium	01 75 42	41.5
00 08 193	45	G3/8"	54	3	10	aluminium	01 75 42	41.5
00 08 143	45	G1/2"	54	3	10	aluminium	01 75 42	41.5



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	B Ø	D Ø	G	H	Vacuum cup item	Support item	Weight g
08 75 42 *	11.93	(A) (N) (S)	59	M12	78	22.5	42	01 75 42	00 08 126	94.8
08 75 42 1/4" *	11.93	(A) (N) (S)	59	G1/4"	78	22.5	42	01 75 42	00 08 465	90.8
08 75 42 3/8" *	11.93	(A) (N) (S)	59	G3/8"	78	22.5	42	01 75 42	00 08 193	90.8
08 75 42 1/2" *	11.93	(A) (N) (S)	59	G1/2"	78	22.5	42	01 75 42	00 08 143	90.8

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

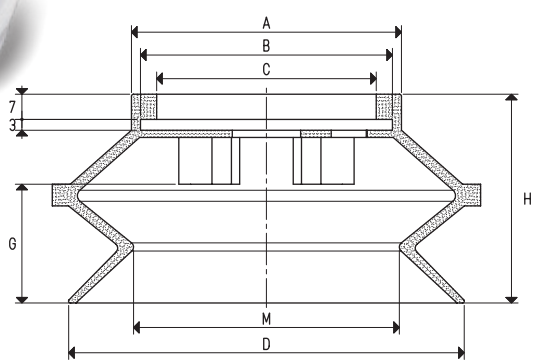
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

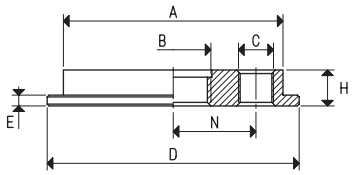
Adapters for GAS - NPT threading available on page 1.134

REINFORCED BELLOWS VACUUM CUPS WITH SUPPORTS



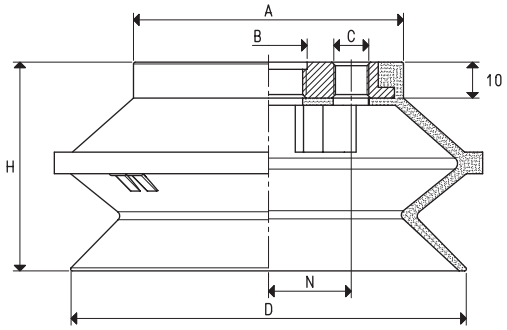
VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	G	H	M Ø	Bellows stroke mm
01 110 58 *	23.70	(A) (N) (S)	281.9	75	70	61	110	33	58	74	33
01 150 74 *	45.00	(A) (N) (S)	726.1	112	107	98	150	49	74	103	49



SUPPORTS

Item	A Ø	B Ø	C Ø	D Ø	E	N	H	Support material	For vacuum cup item	Weight g
00 08 162	61	G1/2"	G1/8"	70	3	23	10	aluminium	01 110 58	78.9
00 08 163	98	G1/2"	G1/8"	107	3	35	10	aluminium	01 150 74	211.8



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	B Ø	C Ø	D Ø	H	N	Vacuum cup item	Support item	Weight g
08 110 58 *	23.70	(A) (N) (S)	75	G1/2"	G1/8"	110	58	23	01 110 58	00 08 162	190.7
08 150 74 *	45.00	(A) (N) (S)	112	G1/2"	G1/8"	150	74	35	01 150 74	00 08 163	458.7

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

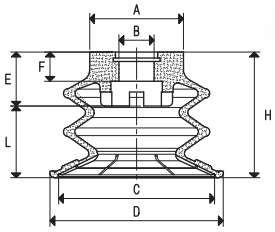
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

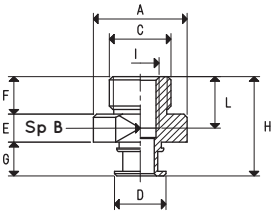
VACUUM CUPS WITH TWO BELLOWS FOR HEAVY-DUTY PACKAGING

Specifically designed vacuum cups for tripping and handling particularly heavy boxes and cardboard packaging in general.
Their thick, sturdy lip absorbs tears and sudden accelerations, typical of robotised movements. The double bellows enables improved adaptability to the gripping surface, even if not perfectly perpendicular to the axis of the vacuum cup, and can recover evident unevenness of the loads to be lifted.
The supports, all made of anodised aluminium, are equipped with a male or female central threaded pin to allow suctioning and clamping to the automation.
The vacuum cups can be fitted on them without the aid of adhesives.
To replace, simply request the single vacuum cup indicated in the table in the desired compound.



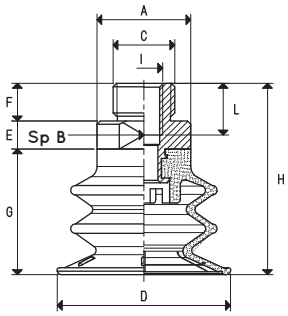
VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	E	F	H	L	Bellows stroke mm
01 35 27 *	2.26	(A) (N) (S)	7.3	20	7.5	34	37	11.5	6.2	27	15.5	13
01 52 40 *	5.31	(A) (N) (S)	25.2	27	11.5	52	55	16.0	8.2	39	23.0	20



MALE SUPPORTS

Item	A Ø	B	C Ø	D Ø	E	F	G	H	I	L	Support material	For vacuum cup item	Weight g
00 08 394	20	17	G1/8"	11	6.0	8	7.2	21.2	M5	8	aluminium	01 35 27	6.2
00 08 395	27	20	G1/8"	15	7.5	8	9.2	24.7	M5	8	aluminium	01 52 40	13.2
00 08 366	20	17	G1/4"	11	6.0	8	7.2	21.2	M8	11	aluminium	01 35 27	6.2
00 08 364	27	20	G1/4"	15	7.5	8	9.2	24.7	M8	11	aluminium	01 52 40	13.2



VACUUM CUPS WITH MALE SUPPORT

Item	Force Kg	Compounds available	A Ø	B	C Ø	D Ø	E	F	G	H	I	L	Vacuum cup item	Support item	Weight g
08 35 27 1/8 *	2.26	(A) (N) (S)	20	17	G1/8"	37	6.0	8	27	41.0	M5	8	01 35 27	00 08 394	13.0
08 52 40 1/8 *	5.31	(A) (N) (S)	27	20	G1/8"	55	7.5	8	39	54.5	M5	8	01 52 40	00 08 395	34.5
08 35 27 *	2.26	(A) (N) (S)	20	17	G1/4"	37	6.0	8	27	41.0	M8	11	01 35 27	00 08 366	12.9
08 52 40 *	5.31	(A) (N) (S)	27	20	G1/4"	55	7.5	8	39	54.5	M8	11	01 52 40	00 08 364	34.3

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

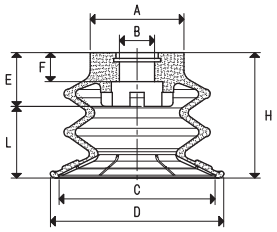
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

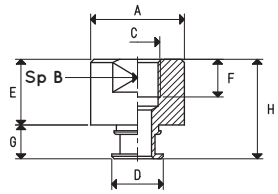
Adapters for GAS - NPT threading available on page 1.134

VACUUM CUPS WITH TWO BELLOWS WITH FEMALE SUPPORTS



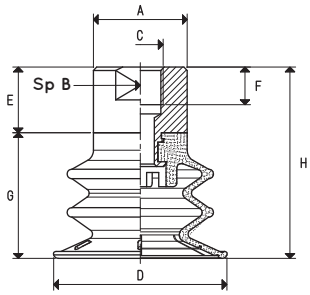
VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	E	F	H	L	Bellows stroke mm
01 35 27 *	2.26	(A) (N) (S)	7.3	20	7.5	34	37	11.5	6.2	27	15.5	13
01 52 40 *	5.31	(A) (N) (S)	25.2	27	11.5	52	55	16.0	8.2	39	23.0	20



FEMALE SUPPORTS

Item	A Ø	B	C Ø	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 396	20	17	G1/8"	11	14	8	7.2	21.2	aluminium	01 35 27	9.7
00 08 397	27	20	G1/8"	15	14	8	9.2	23.2	aluminium	01 52 40	20.0
00 08 392	20	17	G1/4"	11	14	10	7.2	21.2	aluminium	01 35 27	7.8
00 08 393	27	20	G1/4"	15	14	10	9.2	23.2	aluminium	01 52 40	18.1



VACUUM CUPS WITH FEMALE SUPPORT

Item	Force Kg	Compounds available	A Ø	B	C Ø	D Ø	E	F	G	H	Vacuum cup item	Support item	Weight g
08 35 27 1/8 F *	2.26	(A) (N) (S)	20	17	G1/8"	37	14	8	27	41	01 35 27	00 08 396	16.5
08 52 40 1/8 F *	5.31	(A) (N) (S)	27	20	G1/8"	55	14	8	39	53	01 52 40	00 08 397	41.3
08 35 27 F *	2.26	(A) (N) (S)	20	17	G1/4"	37	14	10	27	41	01 35 27	00 08 392	14.6
08 52 40 F *	5.31	(A) (N) (S)	27	20	G1/4"	55	14	10	39	53	01 52 40	00 08 393	39.4

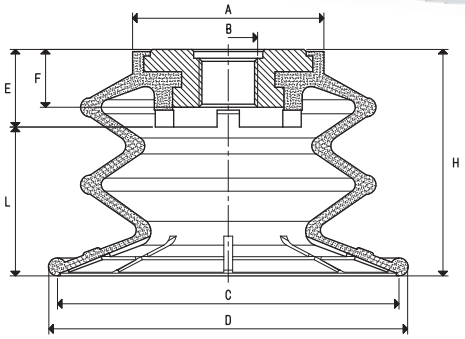
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

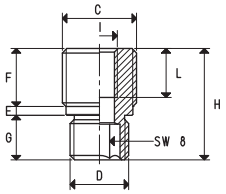
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

VACUUM CUPS WITH TWO BELLOWS WITH MALE SUPPORTS



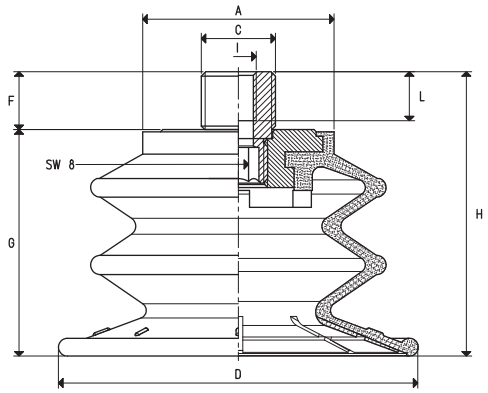
VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	E	F	H	L	Bellows stroke mm
08 75 43 SR *	11.19	(A) (N) (S)	74.3	43.0	G1/4"	75.5	80.5	17.5	13.7	50	32.5	28
08 110 73 SR *	24.17	(A) (N) (S)	250.6	63.5	G3/8"	113.4	119.0	25.5	19.4	75	49.5	40



MALE SUPPORTS

Item	B	C Ø	D Ø	E	F	G	H	I	L	Support material	For vacuum cup item	Weight g
00 08 373	8	G1/4"	G1/4"	2	10	10	22	M8	11	aluminium	08 75 43 SR	4.1
00 08 372	8	G3/8"	G1/4"	2	13	10	25	M8	11	aluminium	08 75 43 SR	7.4
00 08 376	8	G3/8"	G3/8"	3	13	15.5	31.5	M8	11	aluminium	08 110 73 SR	14.1
00 08 375	8	G1/2"	G3/8"	3	13	15.5	31.5	M8	11	aluminium	08 110 73 SR	15.5



VACUUM CUPS WITH MALE SUPPORT

Item	Force Kg	Compounds available	A Ø	B	C Ø	D Ø	F	G	H	I	L	Vacuum cup item	Support item	Weight g
08 75 43 M *	11.19	(A) (N) (S)	43.0	8	G1/4"	80.5	10	50	60	M8	11	08 75 43 SR	00 08 373	75.0
08 75 43 3/8 M *	11.19	(A) (N) (S)	43.0	8	G3/8"	80.5	13	50	63	M8	11	08 75 43 SR	00 08 372	78.3
08 110 73 M *	24.17	(A) (N) (S)	63.5	8	G3/8"	119.0	13	75	88	M8	11	08 110 73 SR	00 08 376	220.3
08 110 73 1/2 M *	24.17	(A) (N) (S)	63.5	8	G1/2"	119.0	13	75	88	M8	11	08 110 73 SR	00 08 375	221.7

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

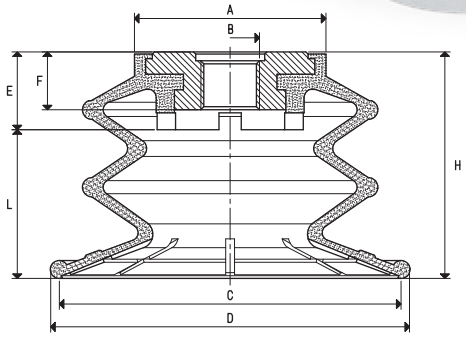
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

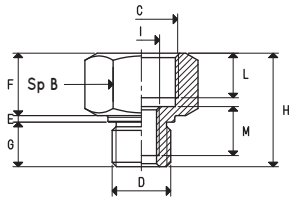
Adapters for GAS - NPT threading available on page 1.134

VACUUM CUPS WITH TWO BELLOWS WITH FEMALE SUPPORTS



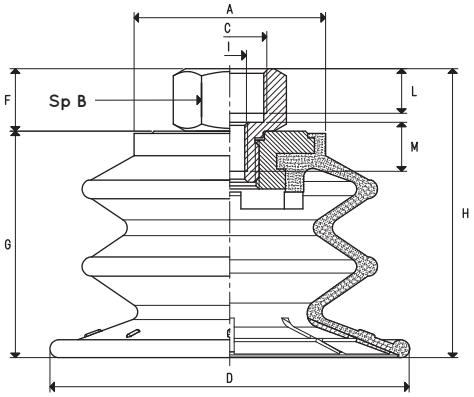
VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	E	F	H	L	Bellows stroke mm
08 75 43 SR *	11.19	(A) (N) (S)	74.3	43.0	G1/4"	75.5	80.5	17.5	13.7	50	32.5	28
08 110 73 SR *	24.17	(A) (N) (S)	250.6	63.5	G3/8"	113.4	119.0	25.5	19.4	75	49.5	40



FEMALE SUPPORTS

Item	B	C Ø	D Ø	E	F	G	H	I	L	M	Support material	For vacuum cup item	Weight g
00 08 374	22	G3/8"	G1/4"	1.5	14	10.0	25.5	M8	10	11	aluminium	08 75 43 SR	12.0
00 08 377	23	G1/2"	G3/8"	3.0	17	15.5	35.5	M8	13	11	aluminium	08 110 73 SR	17.8



VACUUM CUPS WITH FEMALE SUPPORT

Item	Force Kg	Compounds available	A Ø	B	C Ø	D Ø	F	G	H	I	L	M	Vacuum cup item	Support item	Weight g
08 75 43 3/8 *	11.19	(A) (N) (S)	43.0	22	G3/8"	80.5	14	50	64	M8	10	11	08 75 43 SR	00 08 374	82.9
08 110 73 1/2 *	24.17	(A) (N) (S)	63.5	23	G1/2"	119.0	17	75	92	M8	13	11	08 75 43 SR	00 08 377	224.0

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

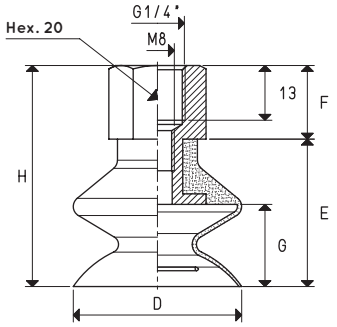
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

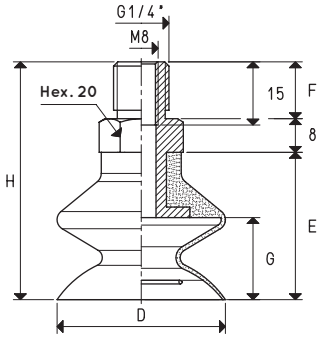
VACUUM CUPS WITH ONE BELLOW WITH VULCANISED SUPPORT

The cups described on this page, unlike the previous ones, are vulcanised onto an aluminium hexagonal support with a male or female threaded connector, inside of which there is an M8 threaded hole for the possible insertion of a calibrated grub screw (see page 1.135).
The main feature of these bellows cups is that they quickly crumple up during the grip, thus lifting the load for a few centimetres, independently of the movements of the lifting frame; this quick movement avoids that the load beneath, remains stuck to the lifted one.
Due to this feature, they are particularly suited for handling thin metal sheets, glass sheets, chipboard or compressed wood panels, laminated plastic etc.
Thanks to their great flexibility, they can also be used to compensate flatness errors or for gripping on inclined surfaces.
The cups are provided in standard compounds and, upon request, can be provided in minimum quantities and in other special compounds, listed on pg. 31, to be defined in the order.



VACUUM CUPS WITH ONE BELLOWS WITH WITH VULCANISED FEMALE SUPPORT

Item	Force Kg	Compounds available	Volume cm^3	D Ø	E	F	G	H	Bellows stroke mm	Support material	Weight g
08 40 30 *	3.14	(A)(N)(S)	16.2	40	35	17	18	52	12	aluminium	32.4
08 50 30 *	4.90	(A)(N)(S)	27.9	50	37	17	20	54	13	aluminium	40.9
08 60 30 *	7.06	(A)(N)(S)	46.8	60	39	17	21	56	14	aluminium	53.6
08 85 30 *	14.08	(A)(N)(S)	107.2	85	50	17	31	67	21	aluminium	122.0



VACUUM CUPS WITH ONE BELLOWS WITH WITH VULCANISED MALE SUPPORT

Item	Force Kg	Compounds available	D Ø	E	F	G	H	Support material	Weight g
08 40 30 M *	3.14	(A)(N)(S)	40	35	13.5	18	56.5	aluminium	29.1
08 50 30 M *	4.90	(A)(N)(S)	50	37	13.5	20	58.5	aluminium	39.0
08 60 30 M *	7.06	(A)(S)	60	39	13.5	21	60.5	aluminium	51.2
08 85 30 M *	14.08	(A)(S)	85	50	13.5	31	71.5	aluminium	115.0

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

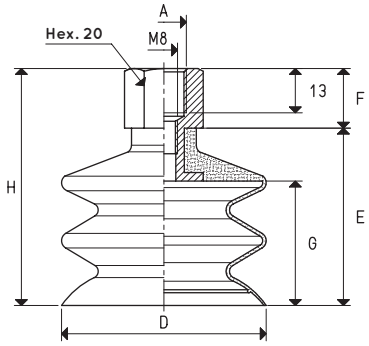
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

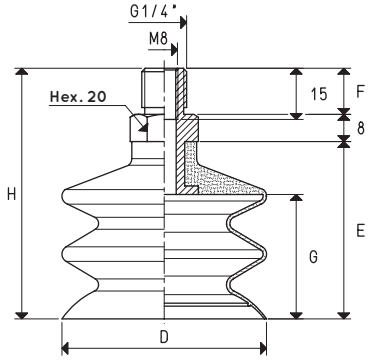
VACUUM CUPS WITH TWO BELLOWS WITH VULCANISED SUPPORT

These cups are the same as the ones described in the previous page, only with an additional bellows. The technical features and availability are the same.



VACUUM CUPS WITH TWO BELLOWS WITH FEMALE VULCANISED SUPPORT

Item	Force Kg	Compounds available	Volume cm^3	A Ø	D Ø	E	F	G	H	Bellows stroke mm	Support material	Weight g
08 40 60 *	3.14	(A) (N) (S)	23.6	G1/4"	40	52	17	35	69	20	aluminium	39.6
08 50 50 *	4.90	(A) (N) (S)	41.6	G1/4"	50	55	17	38	72	24	aluminium	49.6
08 60 50 *	7.06	(A) (N) (S)	63.0	G1/4"	60	58	17	41	75	25	aluminium	72.4
08 60 50 M12 *	7.06	(A) (N)	63.0	M12	60	58	17	41	75	25	aluminium	73.0
08 85 50 *	14.08	(A) (N) (S)	175.6	G1/4"	85	78	17	58	95	38	aluminium	168.0
08 85 50 M12 *	14.08	(A) (N)	175.6	M12	85	78	17	58	95	38	aluminium	169.0



VACUUM CUPS WITH TWO BELLOWS WITH MALE VULCANISED SUPPORT

Item	Force Kg	Compounds available	D Ø	E	F	G	H	Support material	Weight g
08 40 60 M *	3.14	(A) (S)	40	52	13.5	35	73.5	aluminium	35.5
08 50 50 M *	4.90	(A) (S)	50	55	13.5	38	76.5	aluminium	49.3
08 60 50 M *	7.06	(A) (S)	60	58	13.5	41	79.5	aluminium	66.0
08 85 50 M *	14.08	(A) (S)	85	78	13.5	58	99.5	aluminium	157.0

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

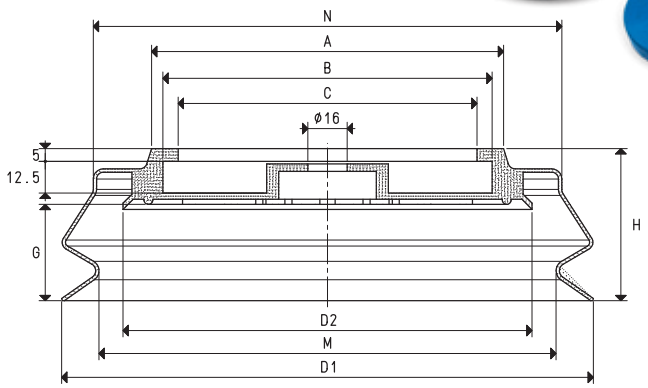
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

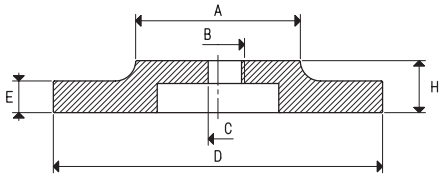
BELLOWS VACUUM CUPS FOR GLASS WITH SUPPORTS

This range of cups has been designed for vertically gripping stocked glass sheets. By laying the cup on the glass surface and opening the vacuum, the sheet will place itself orthogonally to the floor perfectly adhering to the cup internal face. The glass sheet can then be handled in any direction in full safety.
Their aluminium support has a central threaded hole for fastening it to the machine and for the vacuum connection. These cups can be cold fitted onto their supports without any adhesives.



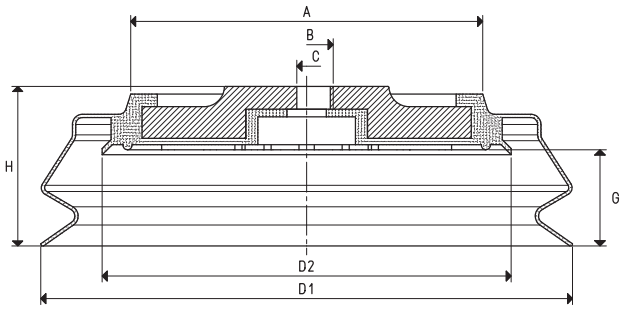
VACUUM CUPS

Item	Force Kg	Compounds available	Volume cm³	A Ø	B Ø	C Ø	D1 Ø	D2 Ø	G	H	M Ø	N Ø	Bellows stroke mm
01 150 55 *	45.00	(A) (N)	471.6	78	70	58	150	102	33	55	120	125	33
01 210 60 *	86.50	(A) (N)	1220.6	138	130	118	210	160	38	61	180	185	38



SUPPORTS

Item	A Ø	B Ø	C Ø	D Ø	E	H	Support material	For vacuum cup item	Weight g
00 08 280	35	G1/2"	--	70	12.5	22.5	aluminium	01 150 55	120
00 08 281	65	G1/2"	--	130	12.5	23.5	aluminium	01 210 60	465
00 08 286	35	---	8	70	12.5	22.5	aluminium	01 150 55	125
00 08 287	65	---	8	130	12.5	23.5	aluminium	01 210 60	470



VACUUM CUPS WITH SUPPORT

Item	Force Kg	Compounds available	A Ø	B Ø	C Ø	D1 Ø	D2 Ø	G	H	Vacuum cup item	Support item	Weight g
08 150 55 *	45.00	(A) (N)	78	G1/2"	--	150	102	33	60	01 150 55	00 08 280	245
08 210 60 *	86.50	(A) (N)	138	G1/2"	--	210	160	38	67	01 210 60	00 08 281	650
08 150 56 *	45.00	(A) (N)	78	---	8	150	102	33	60	01 150 55	00 08 286	250
08 210 61 *	86.50	(A) (N)	138	---	8	210	160	38	67	01 210 60	00 08 287	655

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

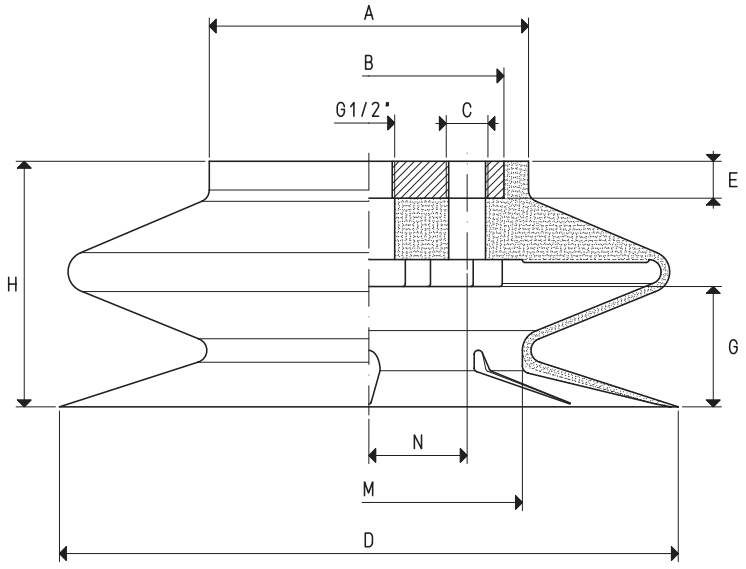
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

BELLOWS VACUUM CUPS WITH VULCANISED SUPPORT

The main feature of these bellows cups is that they quickly crumple up during the grip, thus lifting the load for a few centimetres, independently of the movements of the lifting frame; this quick movement avoids that the load beneath, remains stuck to the lifted one.
Due to this feature, they are particularly suited for handling thin metal sheets, glass sheets, chipboard or compressed wood panels, laminated plastic etc.
Thanks to their great flexibility, they can also be used to compensate flatness errors or for gripping on inclined surfaces. These bellows cups are vulcanised onto a galvanised steel support or aluminium support and are provided with a central threaded hole for its fastening to the automatism and with a side threaded hole for vacuum connection or vacuum degree detection.
This range of cups is available in the three standard compounds.



BELLOWS VACUUM CUPS WITH VULCANISED SUPPORT

Item	Force Kg	Compounds available	Volume cm^3	A Ø	B Ø	C Ø	D Ø	E	G	H	M Ø	N	Bellows stroke mm	Support material	Weight Kg
08 110 30 *	23.7	(A)(S)	103.2	78	65	G1/8"	110	10	23	45	55	23	20	steel	0.35
08 150 30 *	45.0	(A)(S)	323.3	78	65	G1/8"	150	10	33	60	75	23	31	steel	0.49
08 180 30 *	63.5	(A)(N)(S)	503.0	94	80	G1/8"	180	10	33	70	84	30	31	steel	0.81
08 250 30 *	122.6	(A)(N)(S)	1528.3	130	100	G3/8"	250	15	49	100	125	35	45	aluminium	1.54

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

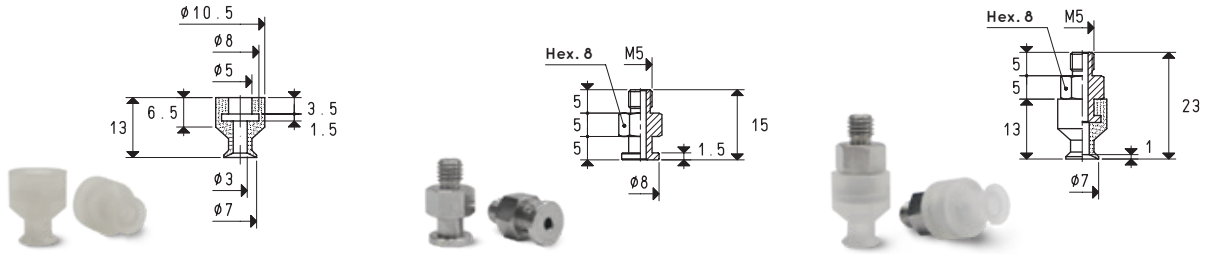
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

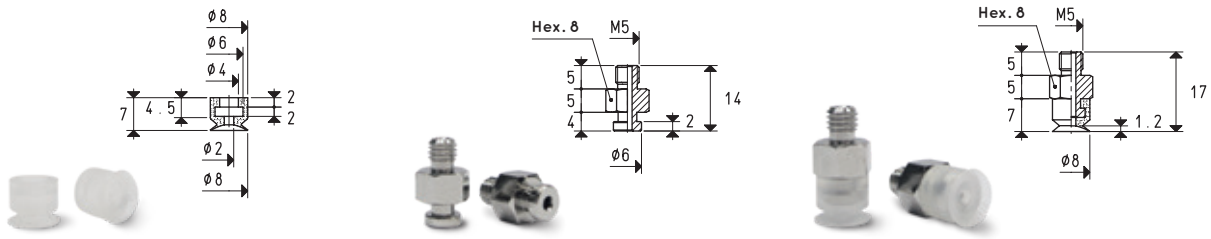
Adapters for GAS - NPT threading available on page 1.134

SPECIAL VACUUM CUPS WITH SUPPORTS

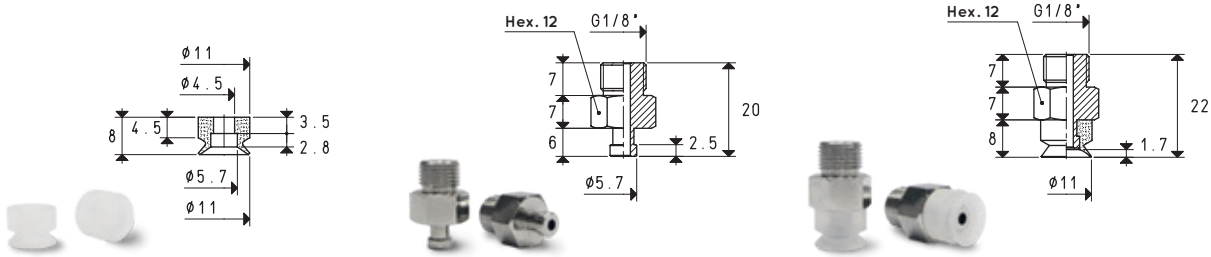
The cups shown on this page and on the next have been designed to solve many of the gripping and handling problems we have encountered in over thirty years of activity. They differ from all the other cups for the variety of their shapes.
They are suited for gripping CDs, labels, bags, paper or plastic sheets, stickers, chocolates, cardboard, tiles, small metal objects, plastic objects, etc.
Their nickel-plated brass or anodised aluminium supports are provided with a threaded male or female pin to enable suction and to fasten them to the automation.
These cups can be manually assembled onto their supports with no adhesives, simply by pressing them in. They are provided in standard compounds and, upon request, can be provided in minimum quantities and in other special compounds, listed on pg. 31, to be defined in the order.



Vacuum cup item	Force Kg	Compounds available	Volume mm³	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 07 13 S	0.10	(S)	19	00 08 236	brass	3	08 07 13 S	3.6



Vacuum cup item	Force Kg	Compounds available	Volume mm³	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 08 07 S	0.13	(S)	31	00 08 237	brass	3	08 08 07 S	3.1



Vacuum cup item	Force Kg	Compound available	Volume mm³	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 11 08 S	0.24	(S)	95	00 08 238	brass	7	08 11 08 S	7.6

Compound: (S) = silicone

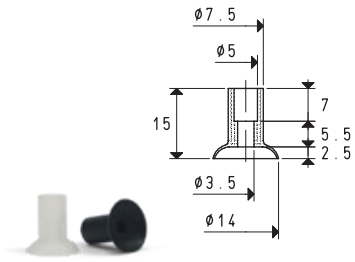
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

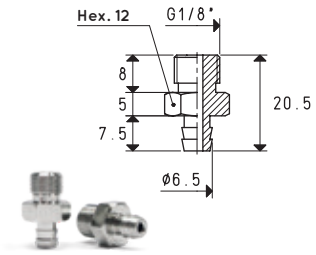
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

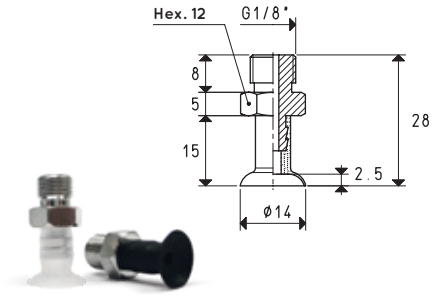
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

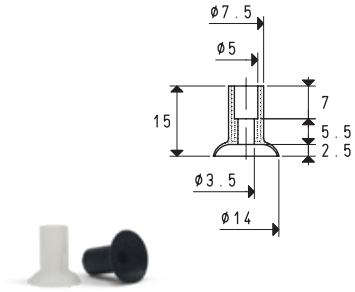
SPECIAL VACUUM CUPS WITH SUPPORTS

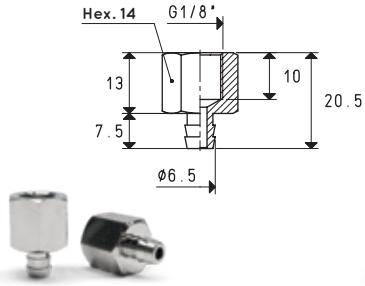


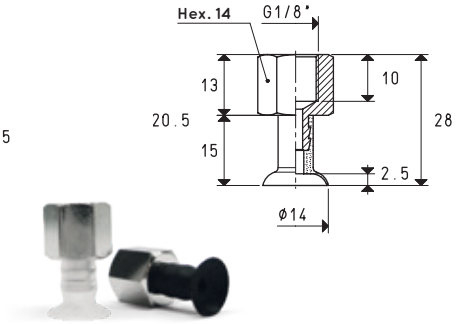




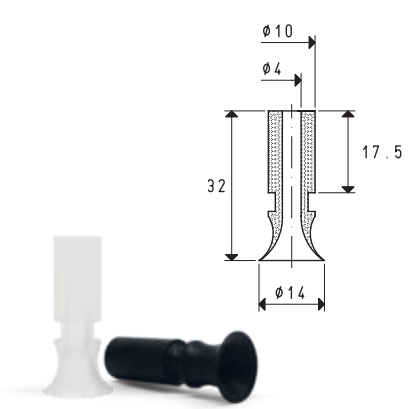
Vacuum cup item	Force Kg	Compounds available	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 14 15 *	0.38	(A)(S)	270	00 08 67	brass	11.4	08 14 15 *	11.9

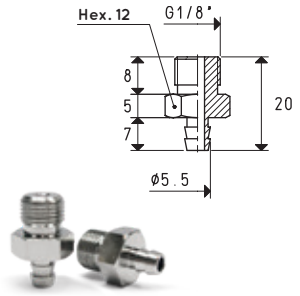






Vacuum cup item	Force Kg	Compounds available	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 14 15 *	0.38	(A)(S)	270	00 08 64	brass	13.9	08 14 15 F *	14.4





Vacuum cup item	Force Kg	Compounds available	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 14 32 *	0.38	(N)(S)	397	00 08 03	brass	9.0	08 14 32 *	10.9

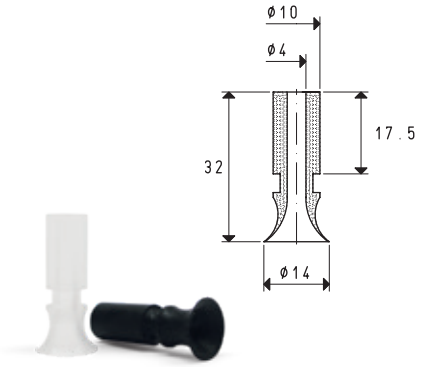
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

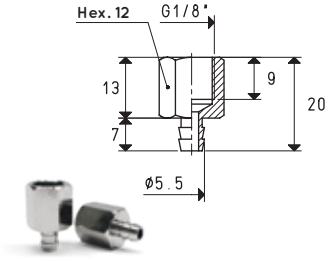
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

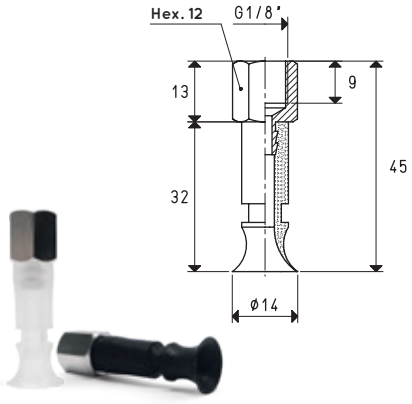
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

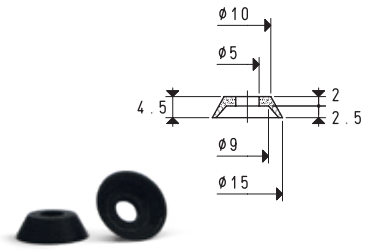
SPECIAL VACUUM CUPS WITH SUPPORTS

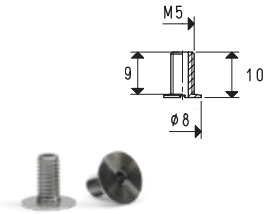


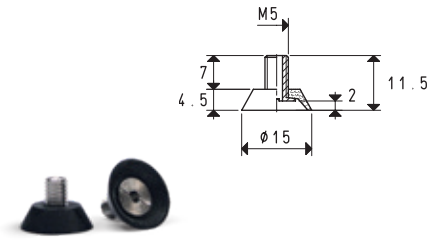




Vacuum cup item	Force Kg	Compounds available	Volume mm³	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 14 32 *	0.38	(N)(S)	397	00 08 04	brass	8.1	08 14 32 F *	10.0

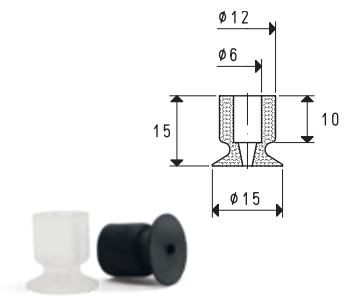


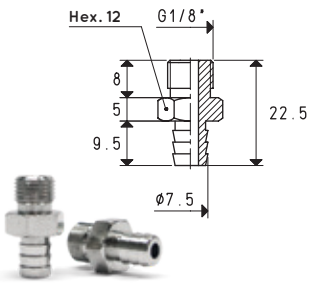


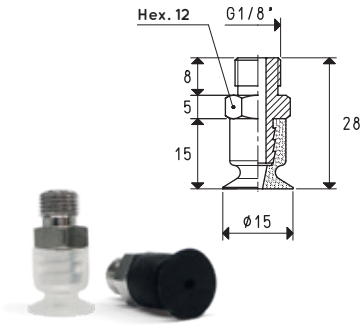


Vacuum cup item	Force Kg	Compounds available	Volume mm³	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 15 04 N	0.44	(N)	250	00 08 241	brass	1.5	08 15 04 N	1.7

Compound: (N) = para rubber







Vacuum cup item	Force Kg	Compounds available	Volume mm³	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 15 15 *	0.03	(A)(N)(S)	14	00 08 05	brass	10.4	08 15 15 *	11.7

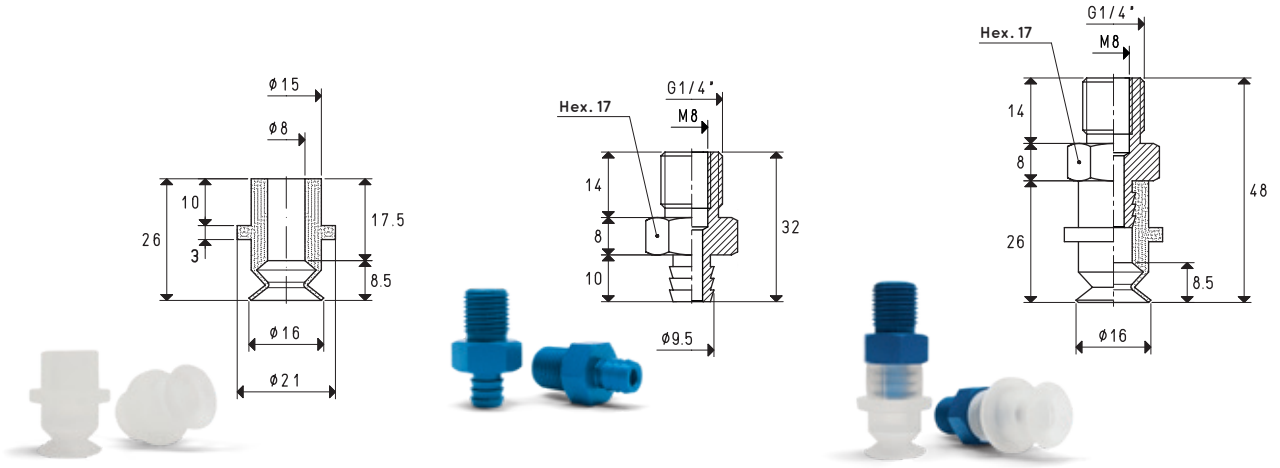
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

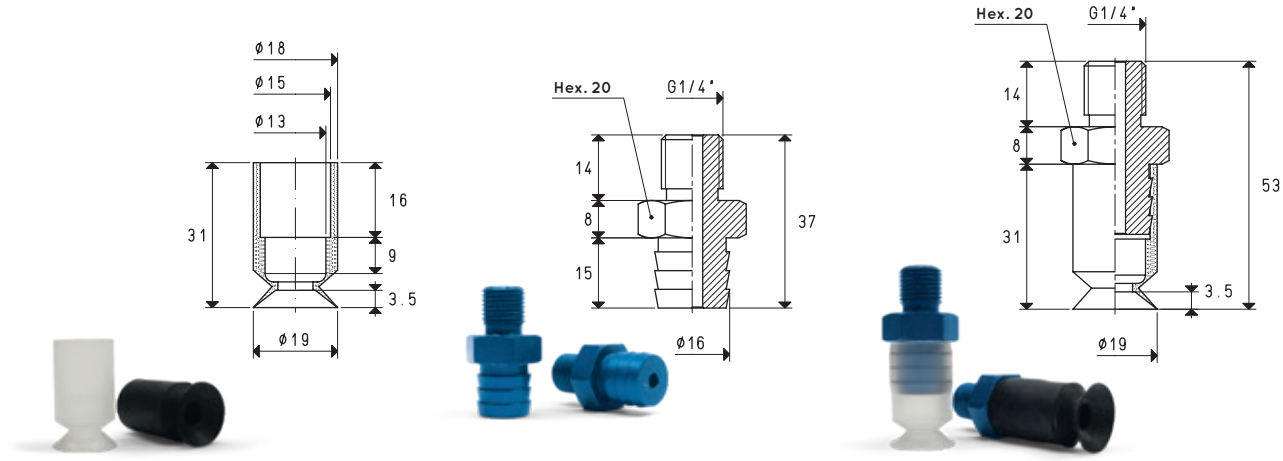
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 16 26 S	0.50	(S)	7	293	00 08 18	aluminium	10.3	08 16 26 S	13.7

Compound: (S) = silicone



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 19 31 *	0.70	(N)(S)	5	532	00 08 09	aluminium	18.1	08 19 31 *	20.9

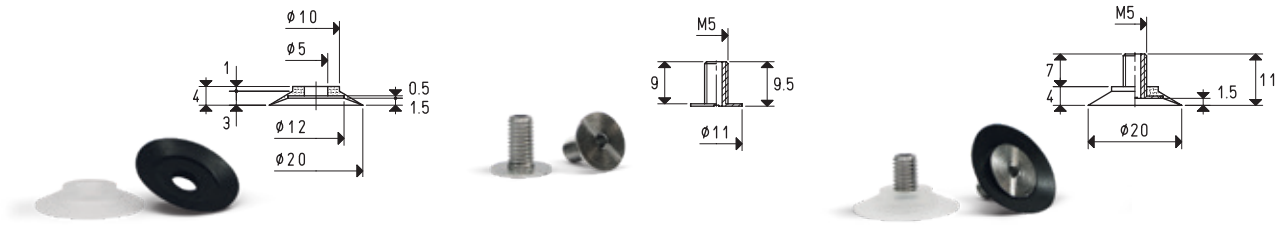
* Complete the code indicating the compound: (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

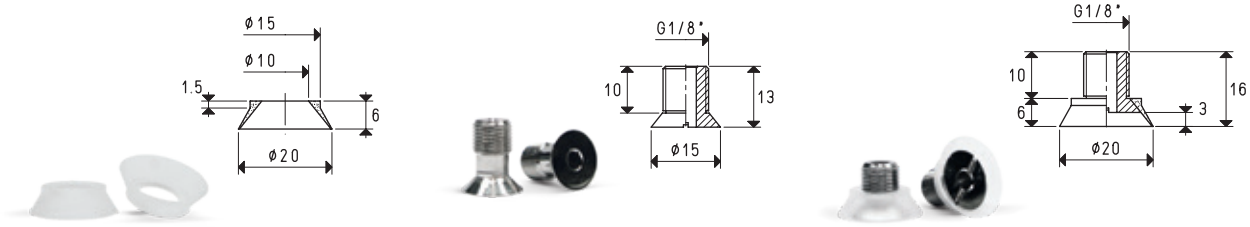
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

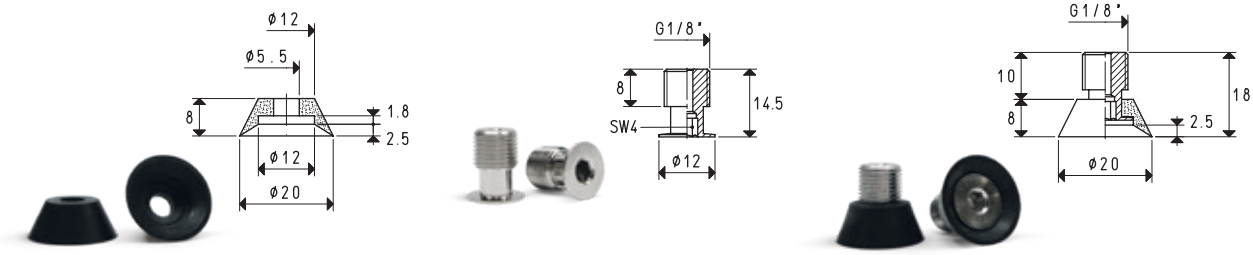
SPECIAL VACUUM CUPS WITH SUPPORTS



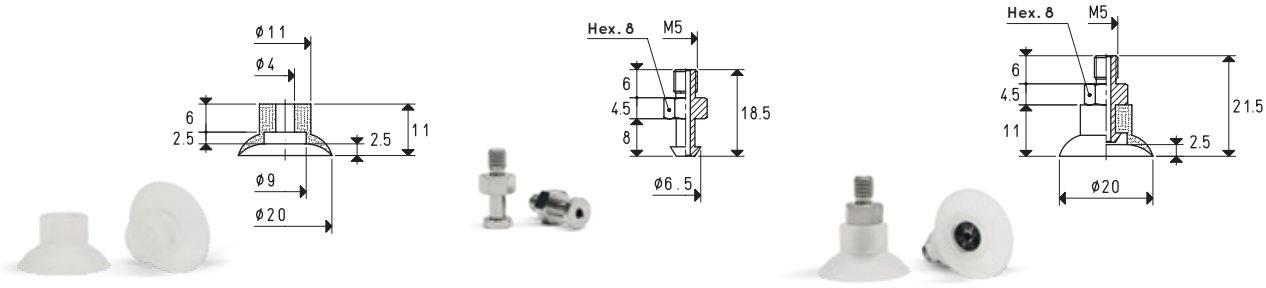
Vacuum cup item	Force Kg	Compounds available	Volume mm³	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 20 04 *	0.78	(A)(S)	365	00 08 242	brass	1.8	08 20 04 *	2.0



Vacuum cup item	Force Kg	Compound available	Volume mm³	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 20 06 *	0.78	(A)(S)	1068	00 08 243	brass	6.0	08 20 06 *	6.3



Vacuum cup item	Force Kg	Compounds available	Volume mm³	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 20 08 *	0.78	(N)(NG)	804	00 08 60	brass	5.6	08 20 08 *	6.4



Vacuum cup item	Force Kg	Compound available	Volume mm³	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 20 11 S	0.78	(S)	784	00 08 245	brass	2.7	08 20 11 S	3.7

Compound: (S) = silicone

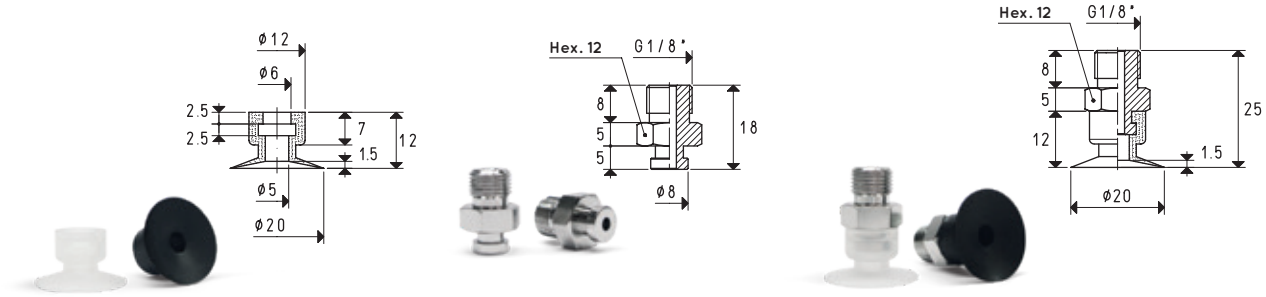
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone; (NG)= yellow rubber

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

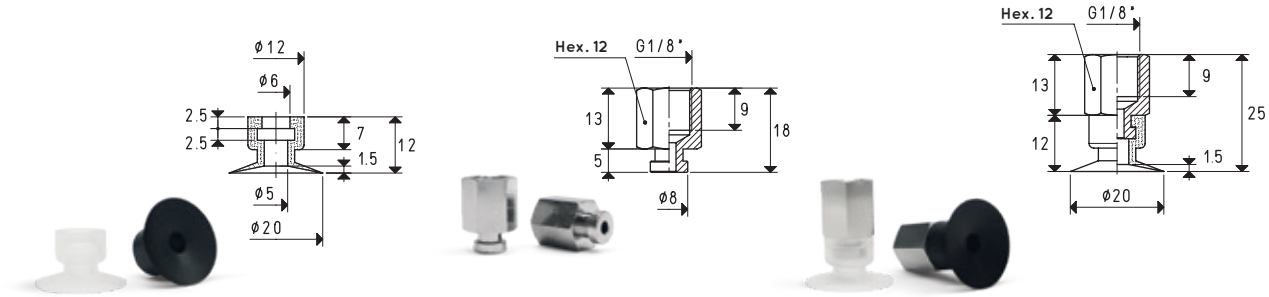
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

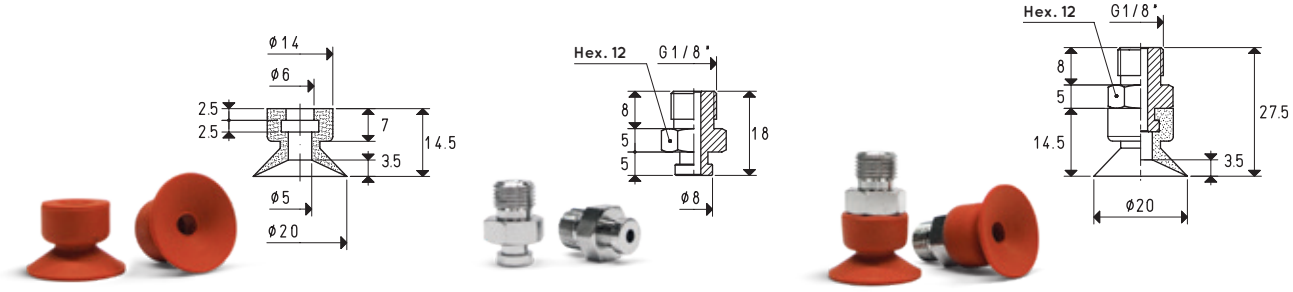
SPECIAL VACUUM CUPS WITH SUPPORTS



Vacuum cup item	Force Kg	Compounds available	Volume mm³	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 20 12 *	0.78	(A) (N) (S)	314	00 08 146	brass	9.8	08 20 12 *	10.7

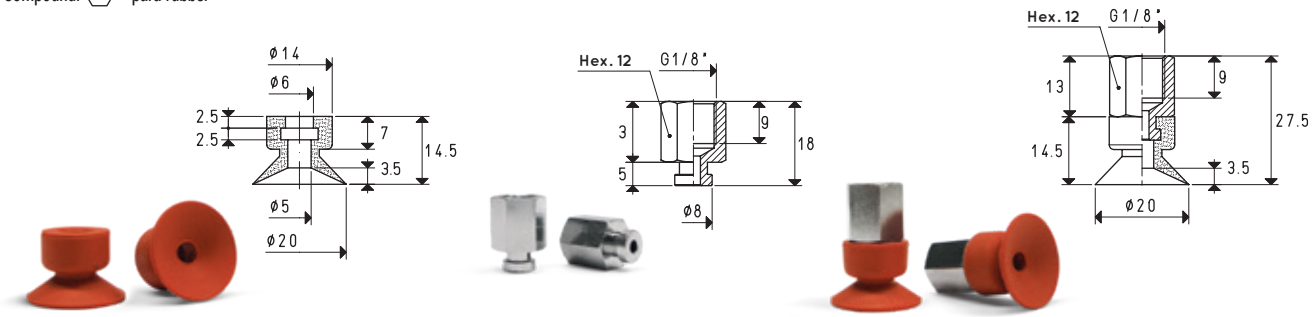


Vacuum cup item	Force Kg	Compounds available	Volume mm³	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 20 12 *	0.78	(A) (N) (S)	314	00 08 155	brass	9.1	08 20 12 F *	10.0



Vacuum cup item	Force Kg	Compound available	Volume mm³	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 20 14 N	0.78	(N)	589	00 08 146	brass	9.8	08 20 14 N	11.3

Compound: (N) = para rubber



Vacuum cup item	Force Kg	Compound available	Volume mm³	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 20 14 N	0.78	(N)	589	00 08 155	brass	9.1	08 20 14 F N	10.6

Compound: (N) = para rubber

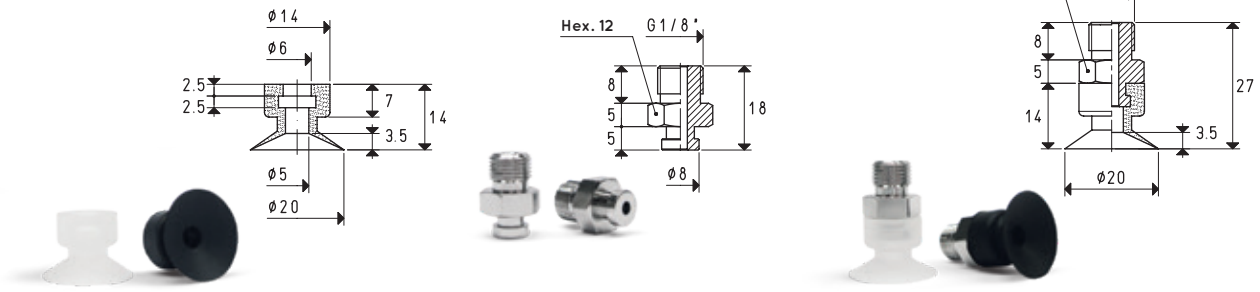
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

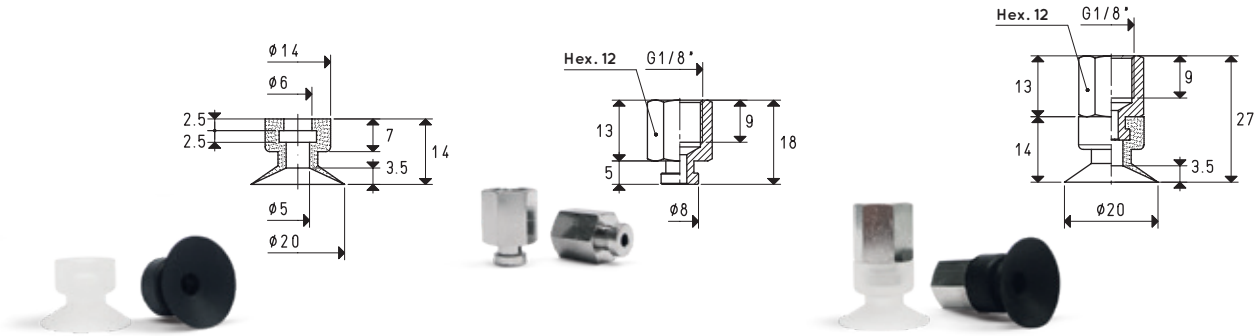
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

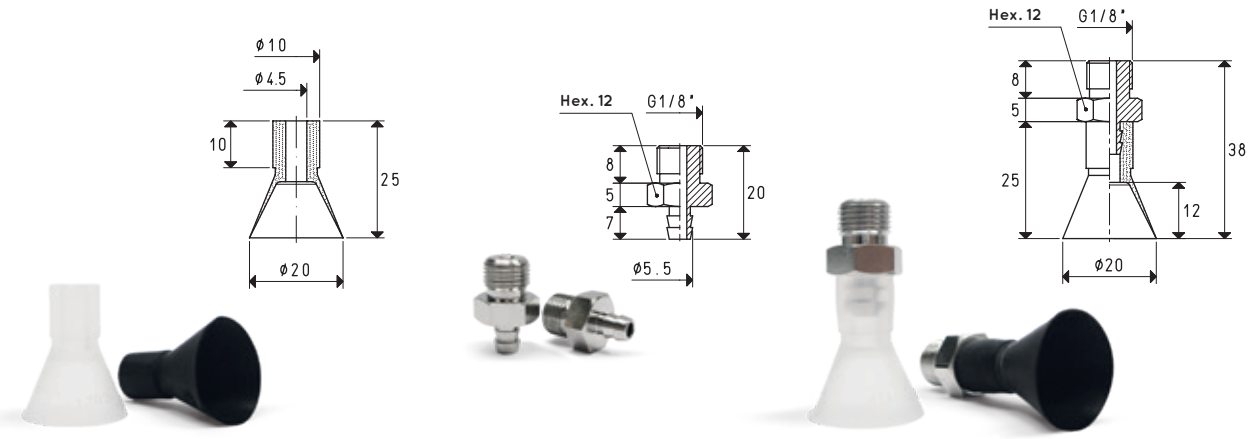
SPECIAL VACUUM CUPS WITH SUPPORTS



Vacuum cup item	Force Kg	Compounds available	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 20 15 *	0.78	(A)(N)(S)	599	00 08 146	brass	9.8	08 20 15 *	11.0



Vacuum cup item	Force Kg	Compounds available	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 20 15 *	0.78	(A)(N)(S)	599	00 08 155	brass	9.1	08 20 15 F *	10.3



Vacuum cup item	Force Kg	Compounds available	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 20 24 *	0.78	(N)(S)	1.9	00 08 03	brass	9.0	08 20 24 *	10.2

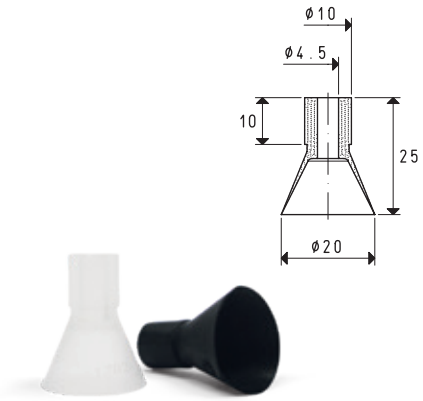
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

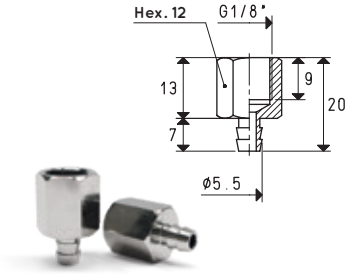
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

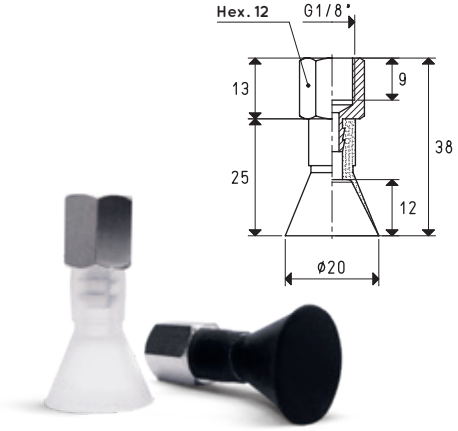
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

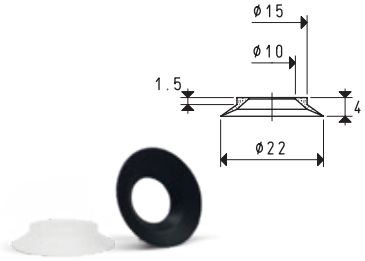
SPECIAL VACUUM CUPS WITH SUPPORTS

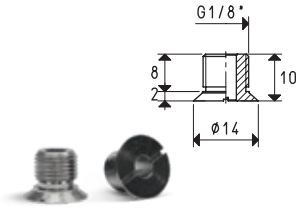


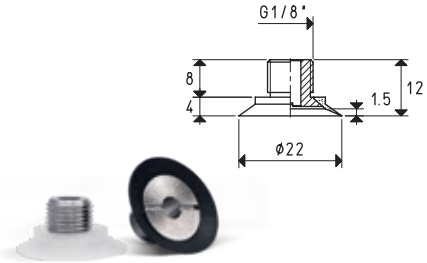




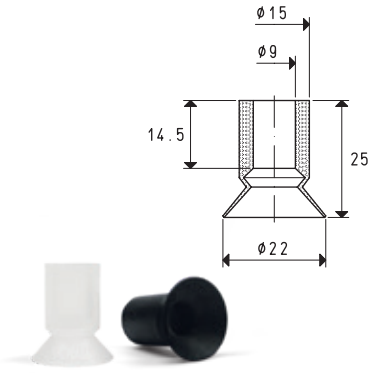
Vacuum cup item	Force Kg	Compounds available	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 20 24 *	0.78	(N)(S)	1.9	00 08 04	brass	8.1	08 20 24 F *	9.3

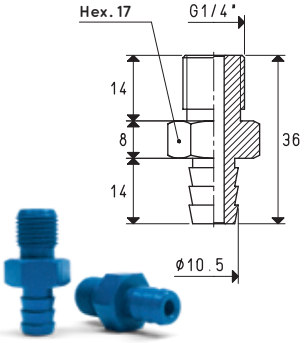


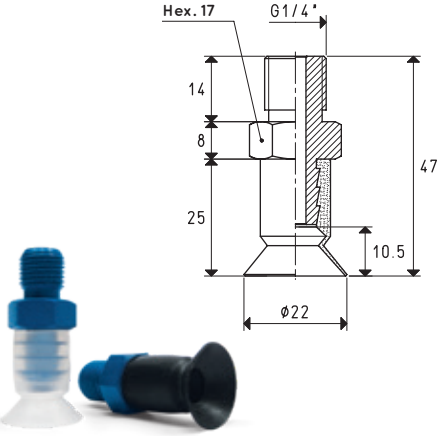




Vacuum cup item	Force Kg	Compounds available	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 22 06 *	0.95	(N)(S)	681	00 08 246	brass	5.0	08 22 06 *	5.3







Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 22 24 *	0.95	(A)(N)(S)	7	1.3	00 08 10	aluminium	11.0	08 22 24 *	13.6

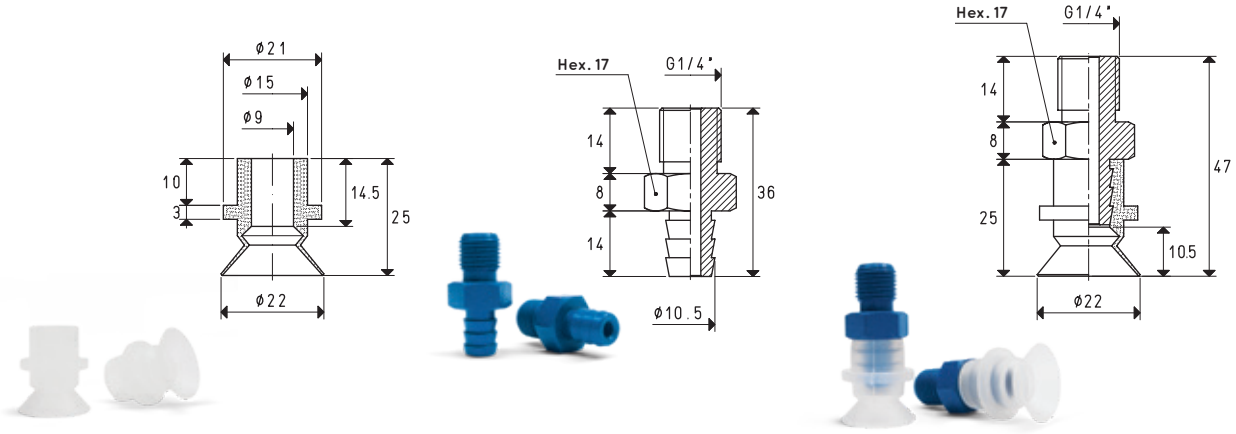
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

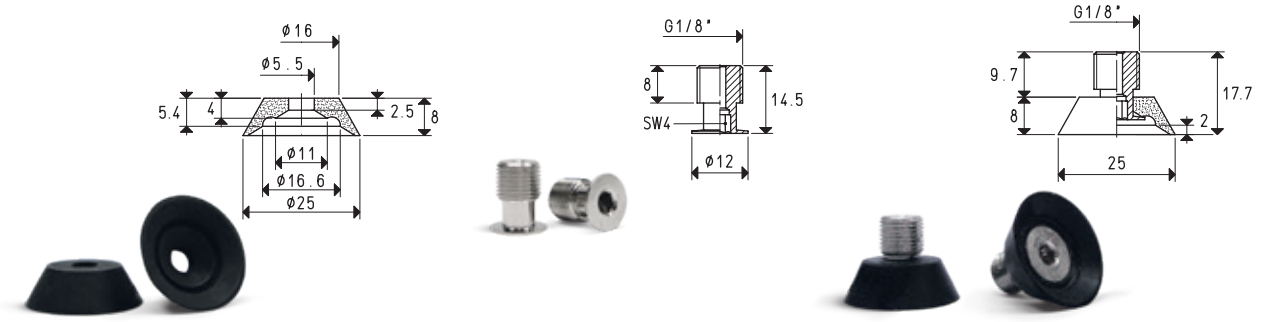
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

SPECIAL VACUUM CUPS WITH SUPPORTS



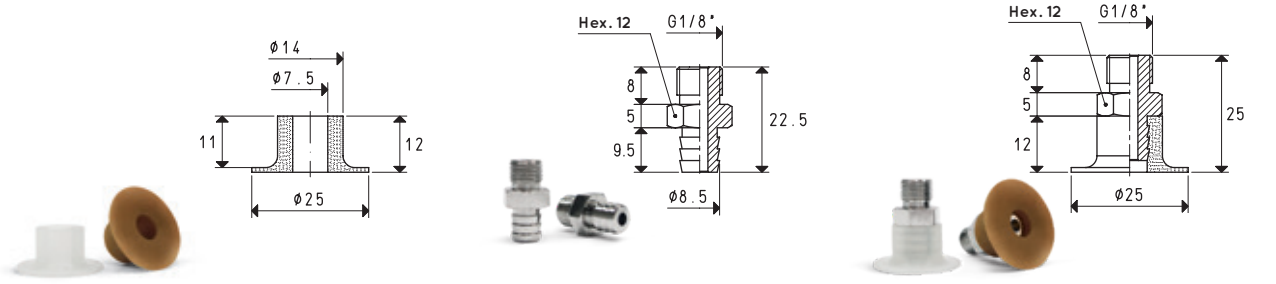
Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 22 99 S	0.95	(S)	7	1.7	00 08 10	aluminium	11.0	08 22 99 S	13.8

Compound: (S) = silicone



Vacuum cup item	Force Kg	Compounds available	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 25 08 A	1.23	(A)	1.1	00 08 60	brass	5.6	08 25 08 A	7.4

Compound: (A) = oil-resistant rubber



Vacuum cup item	Force Kg	Compounds available	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 25 12 *	0.11	(S) (NG)	125	00 08 82	brass	11.2	08 25 12 *	12.7

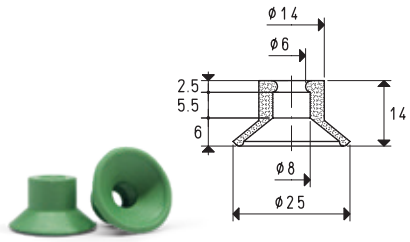
* Complete the code indicating the compound: (A) = oil-resistant rubber; (S) = silicone; (NG) = yellow rubber

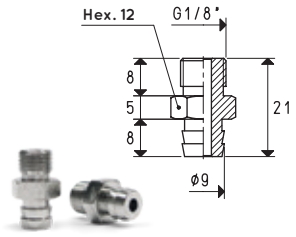
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

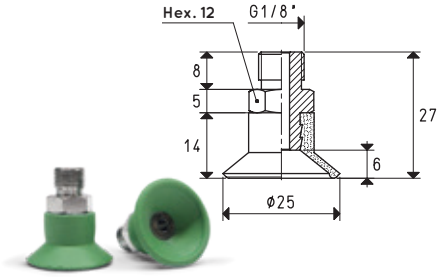
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

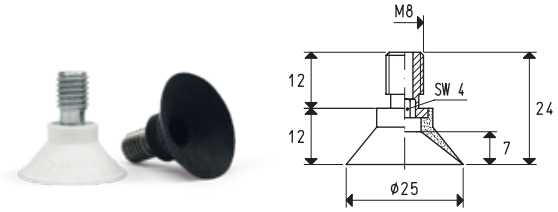




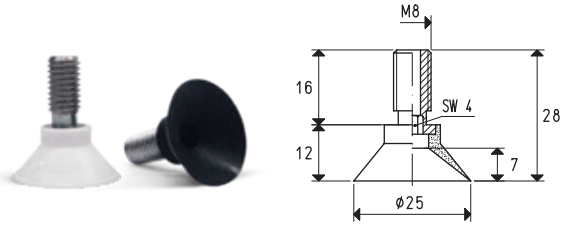


Vacuum cup item	Force Kg	Compound available	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 25 14 N	1.23	(N)	1.1	00 08 101	brass	10.8	08 25 14 N	12.6

Compound: (N) = para rubber



Vacuum cup with vulcanised support Item	Force Kg	Compounds available	Volume cm^3	Support material	Weight g
08 25 22 *	1.23	(N)(S)	1.6	steel	5.0



Vacuum cup with vulcanised support Item	Force Kg	Compounds available	Volume cm^3	Support material	Weight g
08 25 27 *	1.23	(N)(S)	1.6	steel	5.2

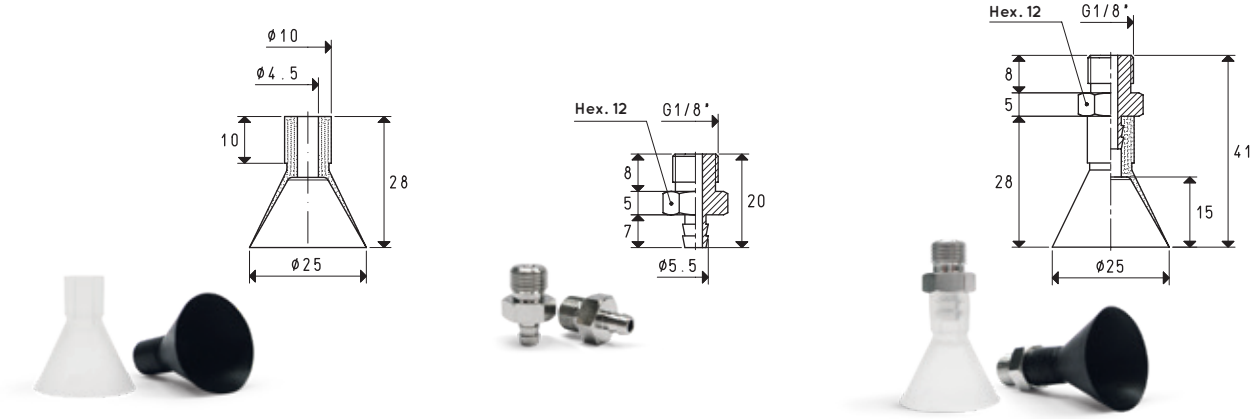
* Complete the code indicating the compound: (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

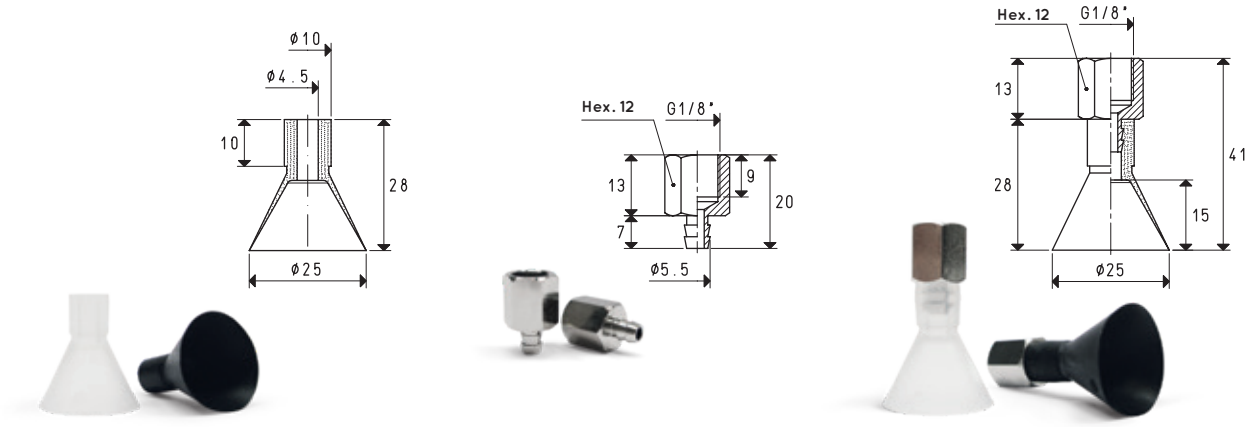
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

SPECIAL VACUUM CUPS WITH SUPPORTS



Vacuum cup item	Force Kg	Compounds available	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 25 28 *	1.23	(A) (N) (S)	3.4	00 08 03	brass	9.0	08 25 28 *	10.7



Vacuum cup item	Force Kg	Compounds available	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 25 28 *	1.23	(A) (N) (S)	3.4	00 08 04	brass	8.1	08 25 28 F *	9.8

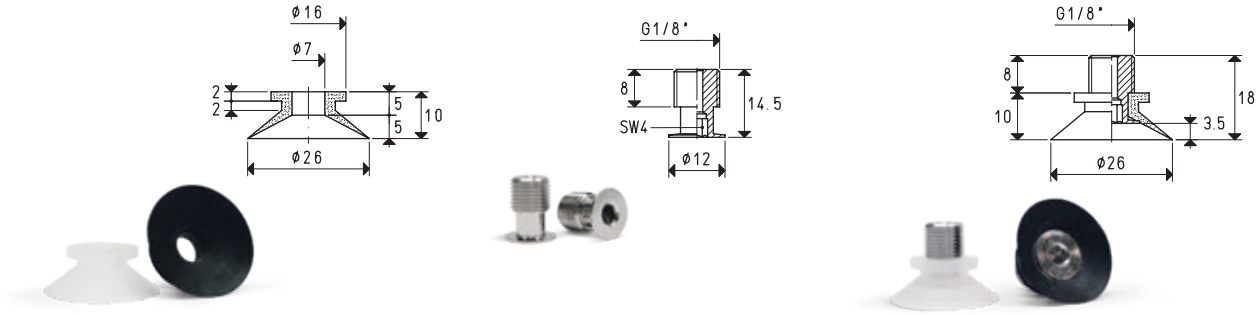
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

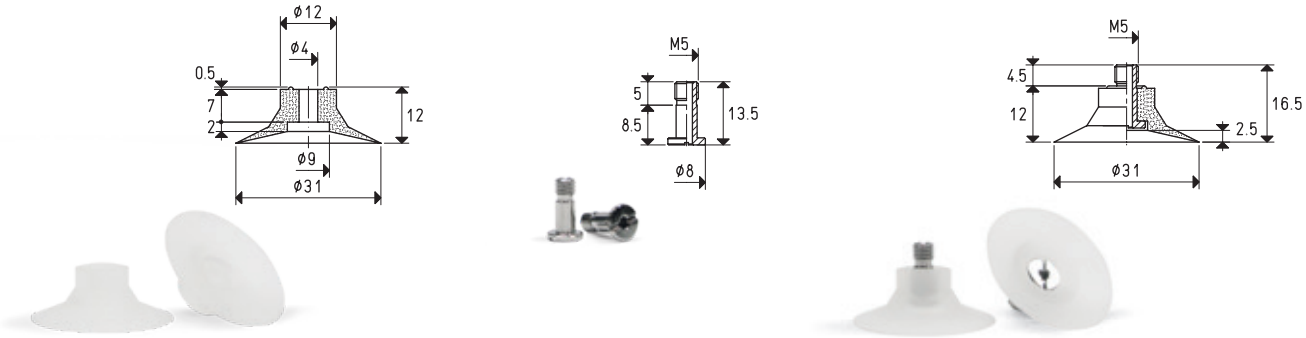
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

SPECIAL VACUUM CUPS WITH SUPPORTS



Vacuum cup item	Force Kg	Compounds available	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 26 10 *	1.33	(N) (S) (NG)	1.1	00 08 60	brass	5.6	08 26 10 *	6.5



Vacuum cup item	Force Kg	Compound available	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 31 12 S	1.89	(S)	991	00 08 249	brass	1.8	08 31 12 S	3.4

Compound: (S) = silicone

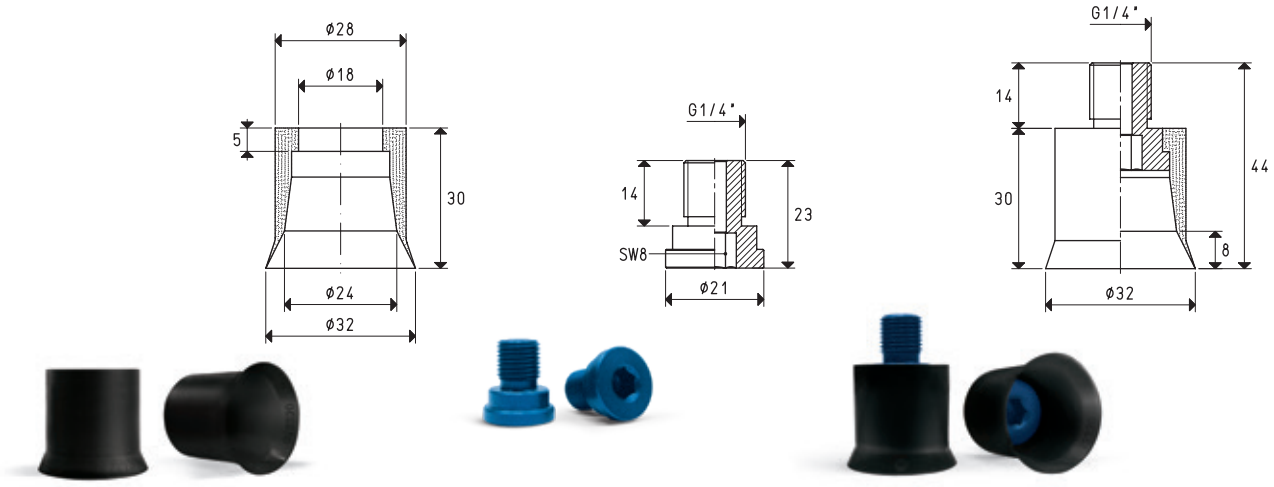
* Complete the code indicating the compound: (N) = para rubber; (S) = silicone; (NG) = yellow rubber

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

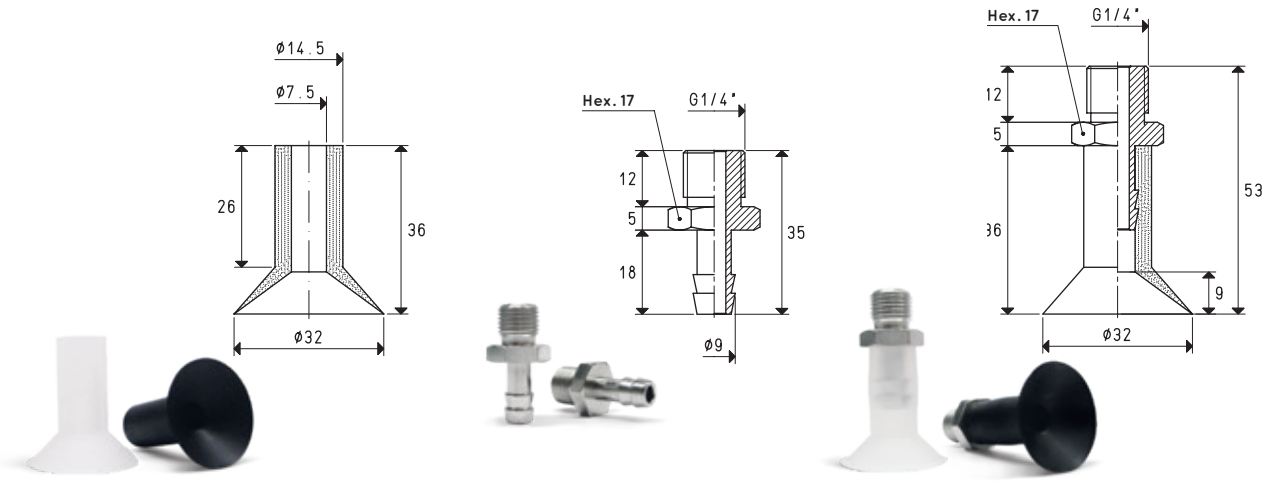
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

SPECIAL VACUUM CUPS WITH SUPPORTS



Vacuum cup item	Force Kg	Compounds available	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 32 30 *	2.00	(A)(S)	11.4	00 08 250	aluminium	8.6	08 32 30 *	14.5



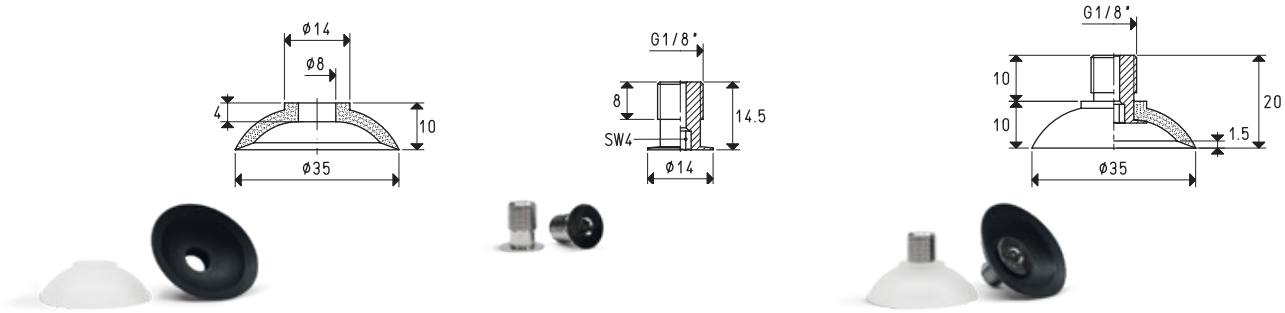
Vacuum cup item	Force Kg	Compounds available	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 32 36 *	2.00	(A)(N)(S)	3.4	00 08 19	brass	22.7	08 32 36 *	27.8

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

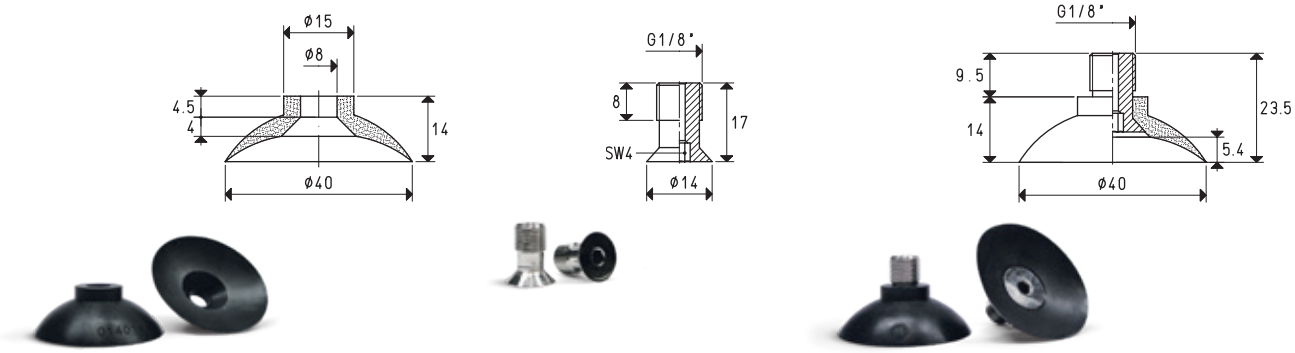
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

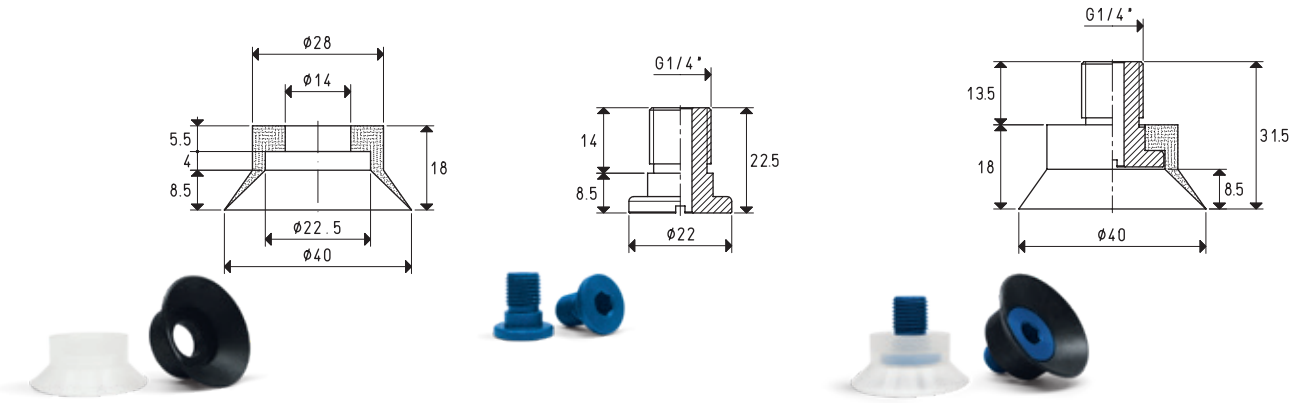


Vacuum cup item	Force Kg	Compounds available	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 35 12 *	2.40	(A)(N)(S)	2.9	00 08 244	brass	5.9	08 35 12 *	8.8



Vacuum cup item	Force Kg	Compounds available	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 40 14 A	3.14	(A)	4.8	00 08 247	brass	8.4	08 40 14 A	12.7

Compound: (A) = oil-resistant rubber



Vacuum cup item	Force Kg	Compounds available	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 40 18 *	3.14	(A)(N)(S)	8.2	00 08 81	aluminium	8.8	08 40 18 *	15.0

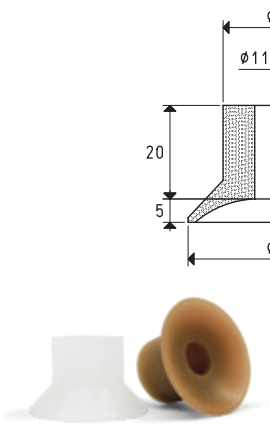
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

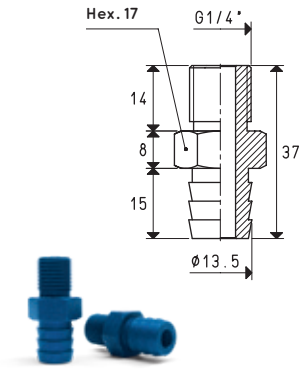
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

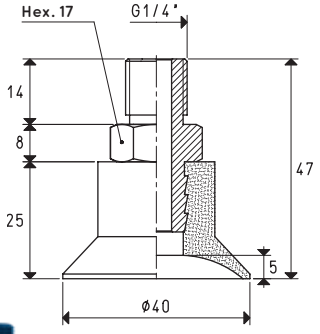
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

SPECIAL VACUUM CUPS WITH SUPPORTS

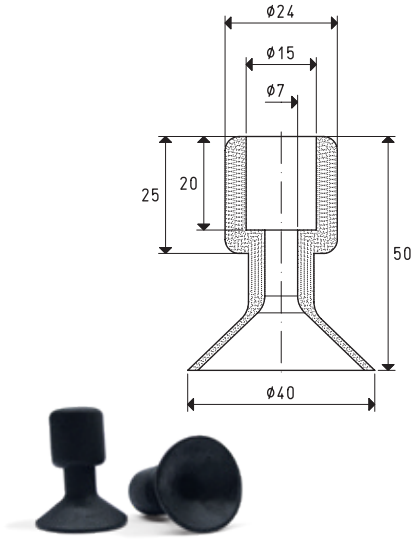


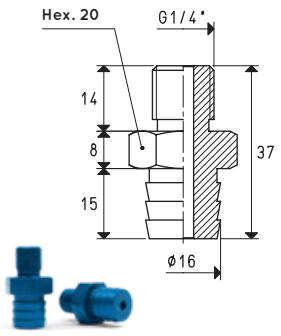


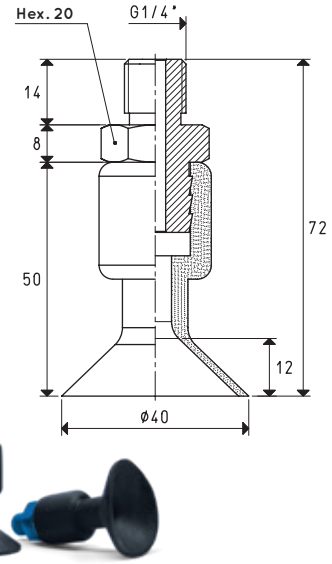


Vacuum cup item	Force Kg	Compounds available	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 40 25 *	3.14	(S) (NG)	3.4	00 08 127	aluminium	11.5	08 40 24 *	21.0

* Complete the code indicating the compound: A= oil-resistant rubber; S= silicone; NG= yellow rubber







Vacuum cup item	Force Kg	Compounds available	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 40 70 A	3.14	(A)	6.3	00 08 09	aluminium	18.1	08 40 70 A	32.0

Compound: (A) = oil-resistant rubber

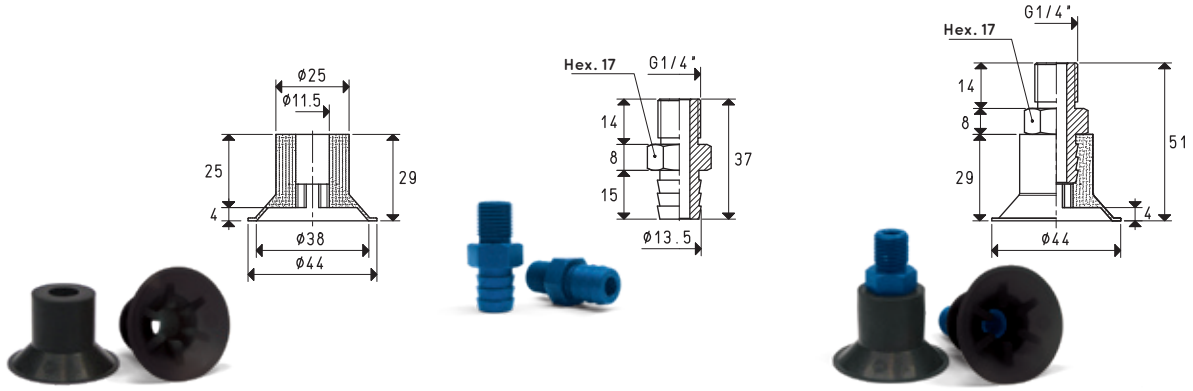
* Complete the code indicating the compound: (A) = oil-resistant rubber; (S) = silicone; (NG) = yellow rubber

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

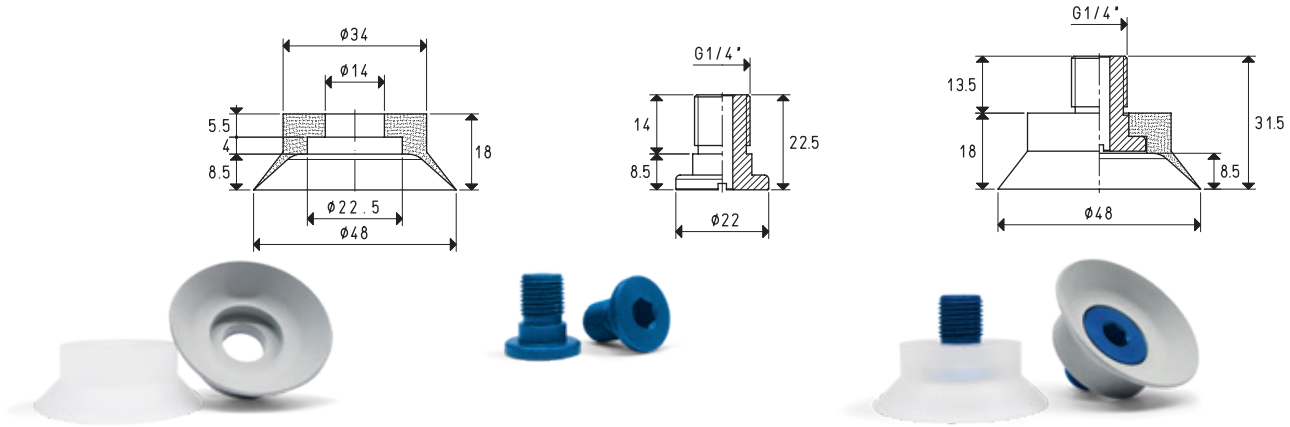
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

SPECIAL VACUUM CUPS WITH SUPPORTS



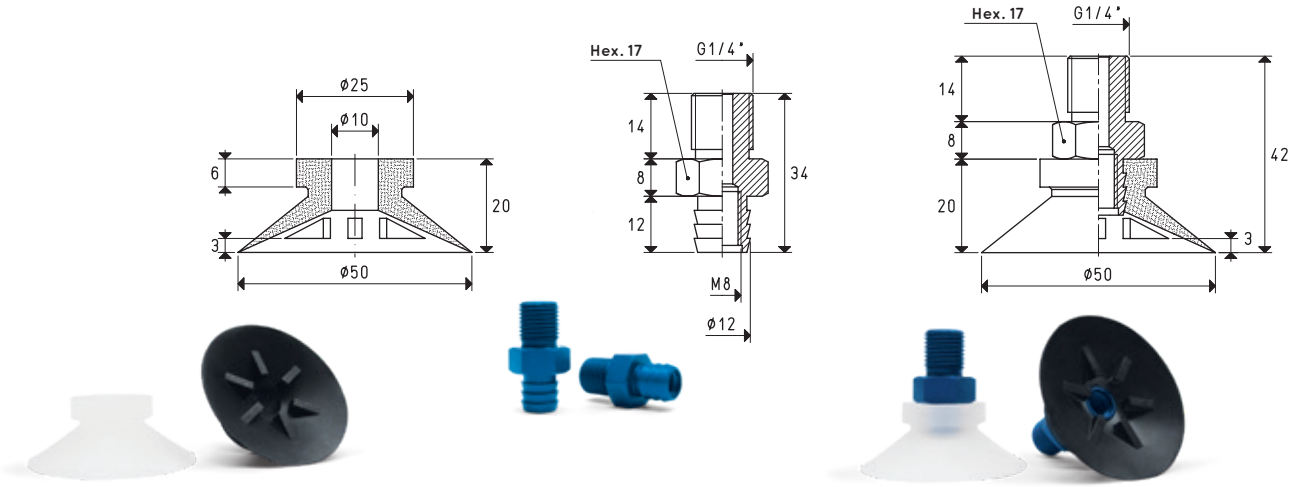
Vacuum cup item	Force Kg	Compounds available	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 44 30 N	3.80	(N)	6.7	00 08 127	aluminium	11.5	08 44 30 N	22.8

Compound: (N) = para rubber



Vacuum cup item	Force Kg	Compounds available	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 48 18 *	4.52	(N)(S)	11.6	00 08 81	aluminium	8.8	08 48 18 *	17.5

* Complete the code indicating the compound: N= para rubber; S= silicone



Vacuum cup item	Force Kg	Compounds available	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 50 20 *	4.90	(A)(N)(S)(NG)	7.0	00 08 24	aluminium	10.3	08 50 20 *	20.3

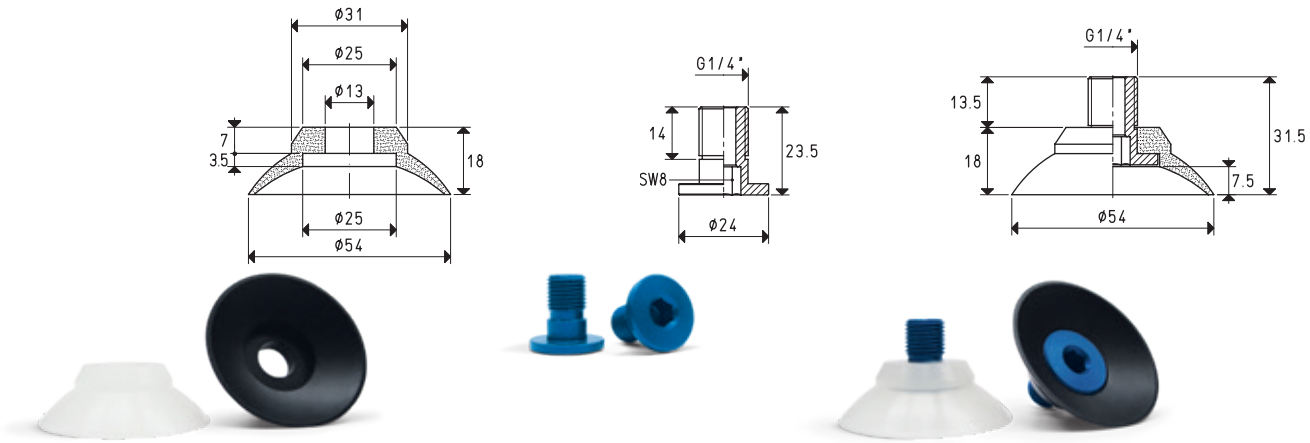
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone; (NG) = yellow rubber

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

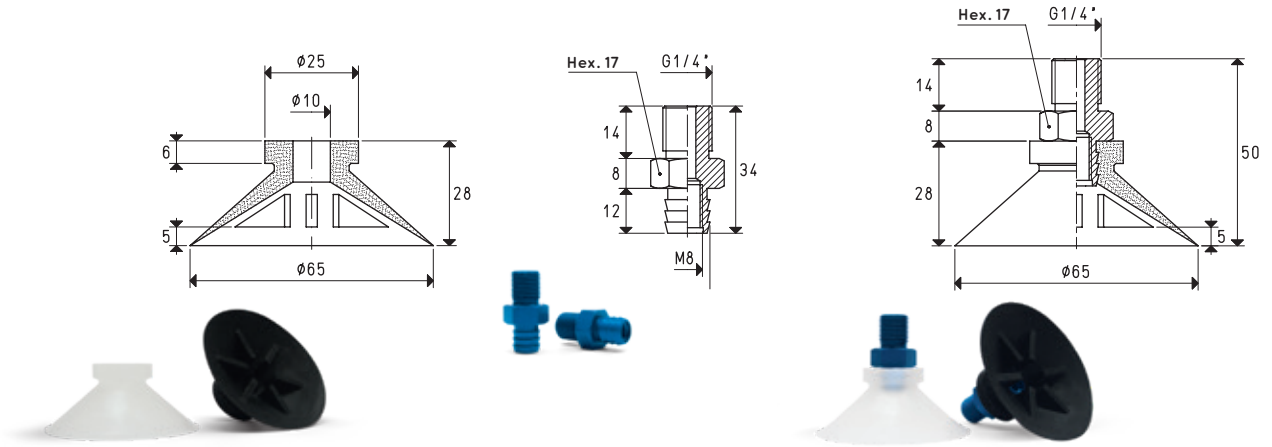
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

SPECIAL VACUUM CUPS WITH SUPPORTS



Vacuum cup item	Force Kg	Compounds available	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 54 18 *	5.72	(A)(N)(S)	11.4	00 08 248	aluminium	5.8	08 54 18 *	16.4



Vacuum cup item	Force Kg	Compounds available	Volume cm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 65 28 *	8.20	(A)(N)(S)(NG)	21.0	00 08 24	aluminium	10.3	08 65 28 *	26.0

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone; (NG) = yellow rubber

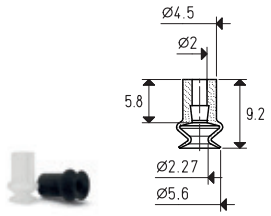
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

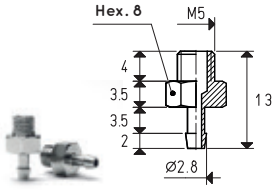
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

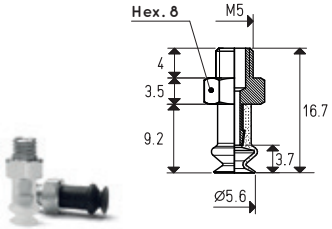
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

SPECIAL BELLOWS CUPS WITH SUPPORTS

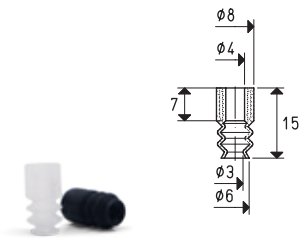
These bellows cups crumple up when in contact with surface to be gripped and in presence of a vacuum, thus creating a quick lifting movement independently from the automation. This rapid movement prevents the load beneath from remaining stuck to the lifted one. Thanks to their great flexibility, they can also be used to compensate flatness errors or for gripping on inclined surfaces.
The cups shown on this page are the ideal solution for our customers; in fact, they have been designed for handling biscuits, stickers, crackers, sheets, labels, small metal and plastic objects, cardboard, paper and plastic bags, delicate products, chocolate and regular eggs, laminated plastic, etc.
Their nickel-plated brass or anodised aluminium supports are provided with a threaded male or female pin to enable suction and to fasten them to the automation.
These cups can be manually assembled onto their supports without any adhesives, simply by pressing them in. They are provided in standard compounds and, upon request, can be provided in minimum quantities and in other special compounds, listed on pg. 31, to be defined in the order.

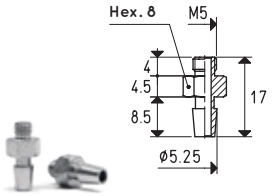


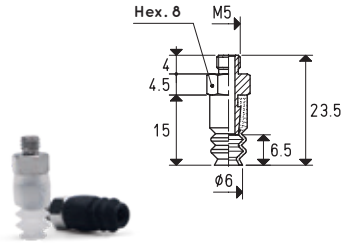




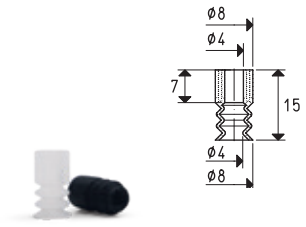
Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 05 09 *	0.06	(A)(N)(S)	3	95	00 08 487	brass	2.2	08 05 09 *	2.3

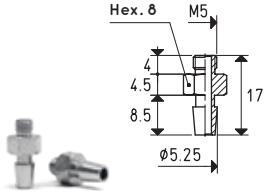


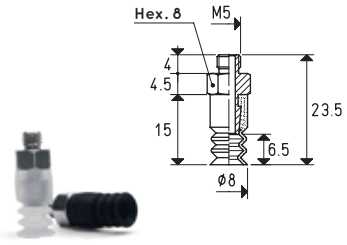




Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 06 50 *	0.07	(A)(N)(S)	5	135	00 08 06	AVP	2.6	08 06 50 *	3.0







Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 08 50 *	0.12	(A)(N)(S)	5	155	00 08 06	AVP	2.6	08 08 50 *	3.1

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

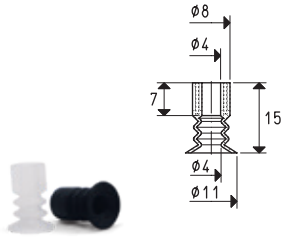
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

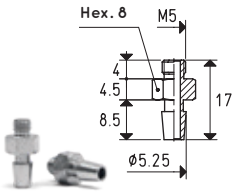
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

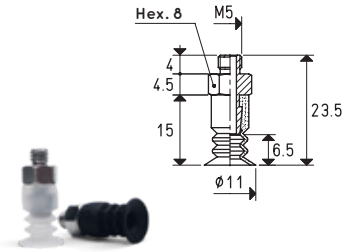
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

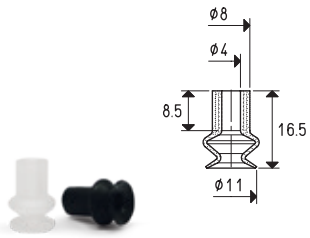
SPECIAL BELLOWS CUPS WITH SUPPORTS

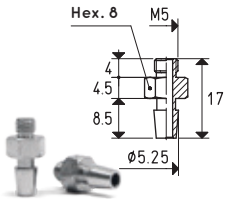


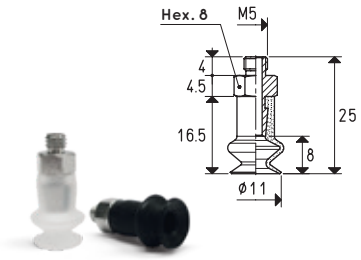




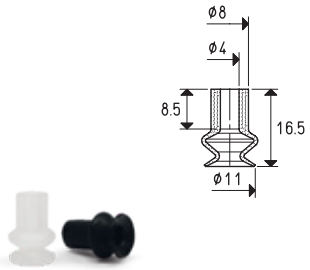
Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 11 50 *	0.23	(A)(N)(S)	6	178	00 08 06	AVP	2.6	08 11 50 *	3.2

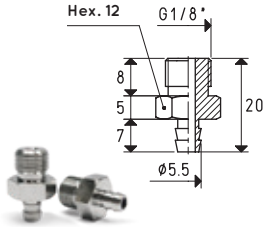


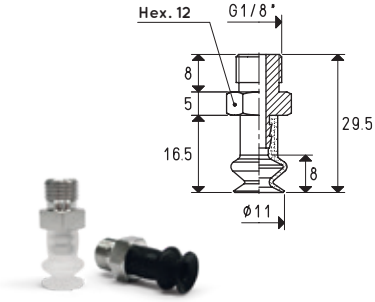




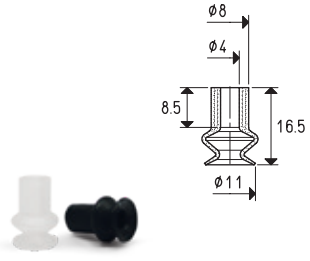
Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 11 16 *	0.23	(A)(N)(S)	6	319	00 08 06	AVP	2.6	08 11 16 *	3.3

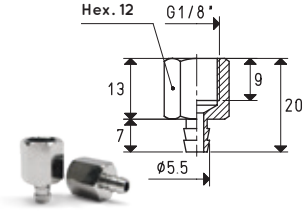


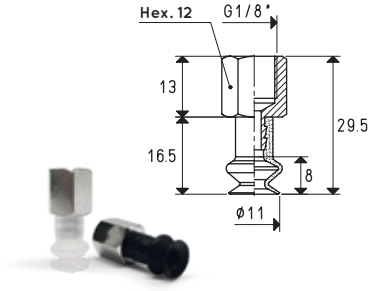




Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 11 16 *	0.23	(A)(N)(S)	6	319	00 08 03	brass	9.0	08 11 17 *	9.7







Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 11 16 *	0.23	(A)(N)(S)	6	319	00 08 04	brass	8.1	08 11 17 F *	8.8

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

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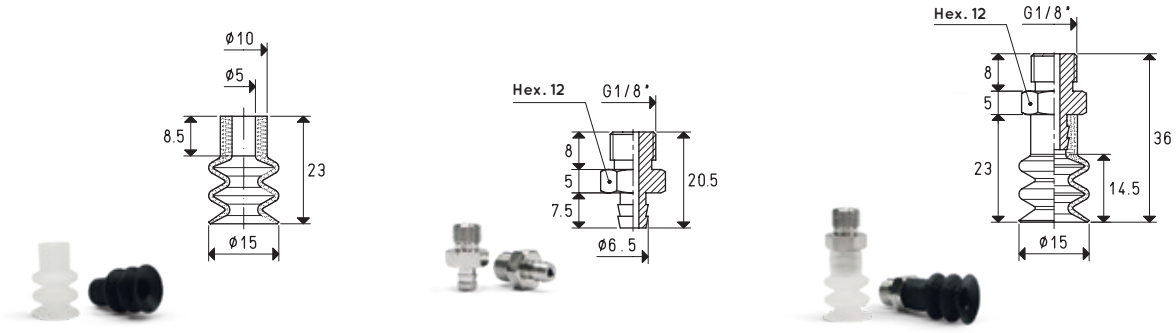
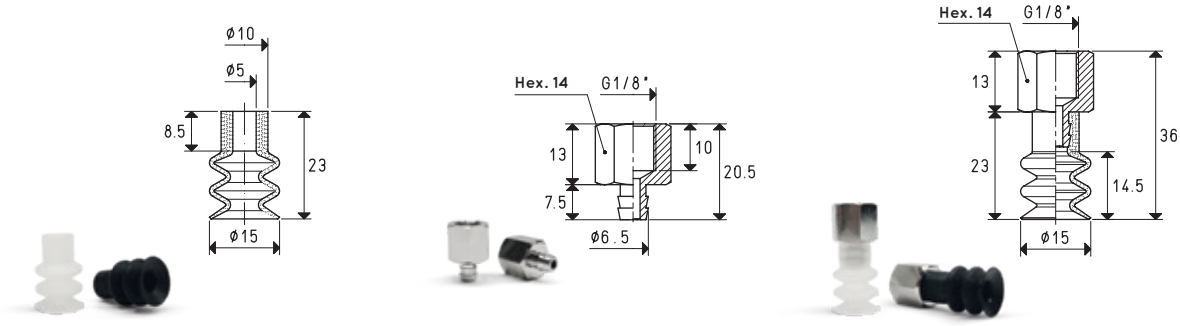
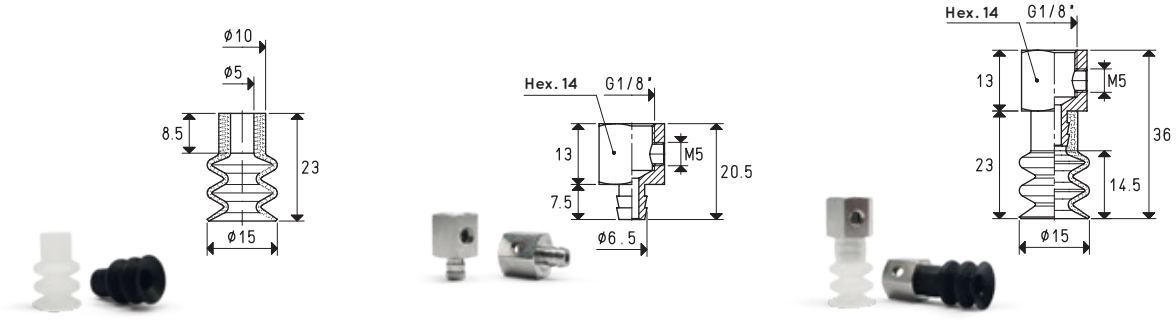
SPECIAL BELLOWS CUPS WITH SUPPORTS



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 15 23 *	0.44	(A)(N)(S)	10	952	00 08 67	AVP	11.4	08 15 23 *	12.7



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 15 23 *	0.44	(A)(N)(S)	10	952	00 08 64	AVP	13.9	08 15 23 F *	15.2



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 15 23 *	0.44	(A)(N)(S)	10	952	00 08 65	AVP	13.7	08 15 24 F *	15.0

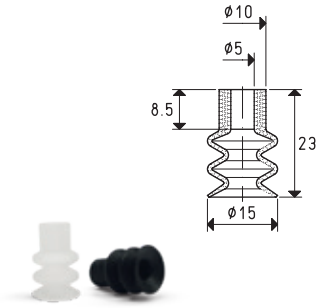
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

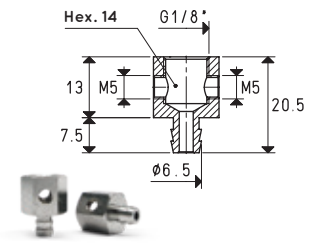
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

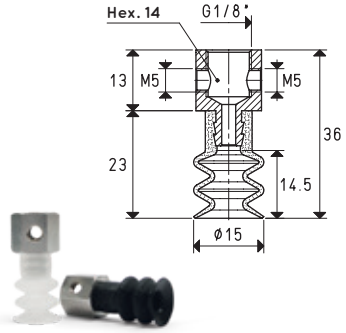
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

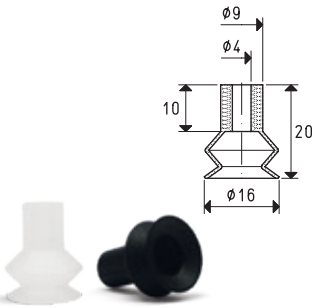
SPECIAL BELLOWS CUPS WITH SUPPORTS

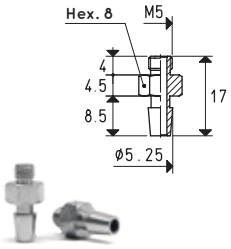


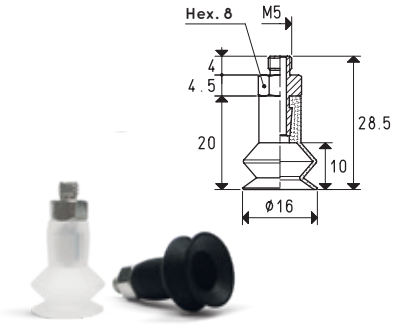




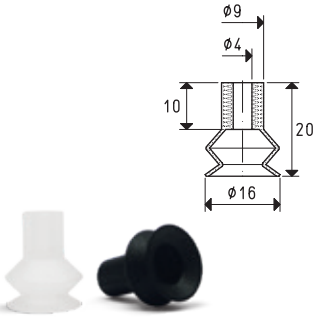
Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 15 23 *	0.44	(A)(N)(S)	10	952	00 08 66	OT58	13.5	08 15 26 F *	14.8

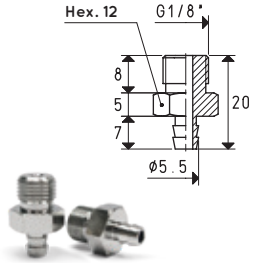


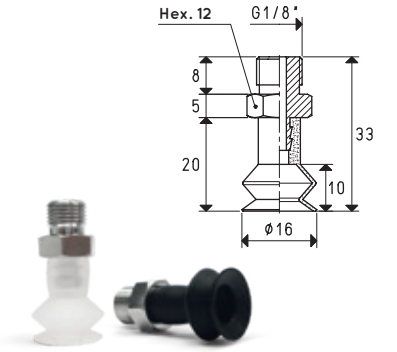




Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 16 20 *	0.50	(A)(N)(S)	7	970	00 08 06	AVP	2.6	08 16 20 *	3.6







Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 16 20 *	0.50	(A)(N)(S)	7	970	00 08 03	brass	9.0	08 16 21 *	10.0

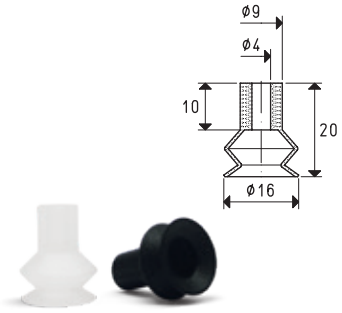
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

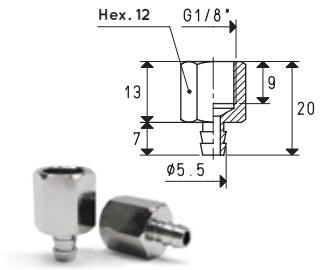
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

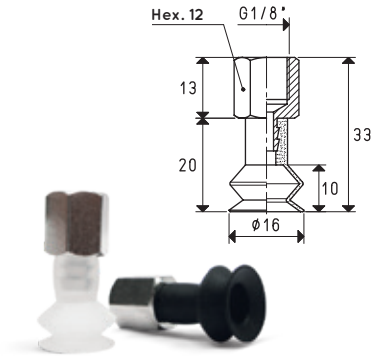
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

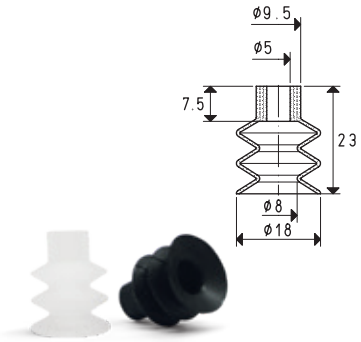
SPECIAL BELLOWS CUPS WITH SUPPORTS

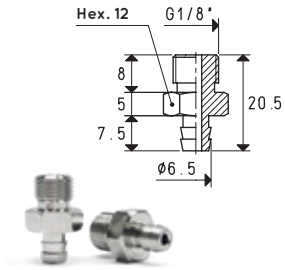


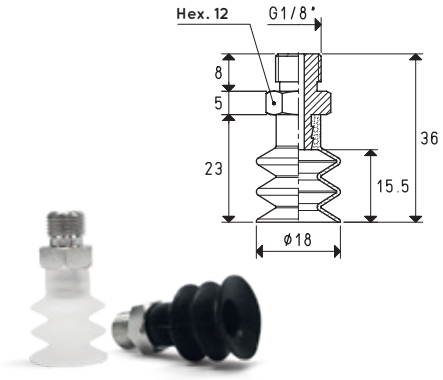




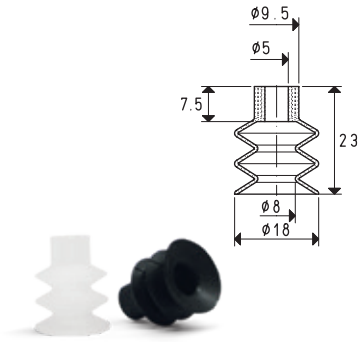
Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 16 20 *	0.50	(A)(N)(S)	8	970	00 08 04	AVP	8.1	08 16 21 F *	9.1

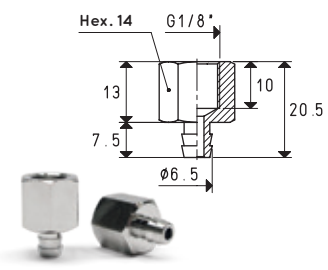


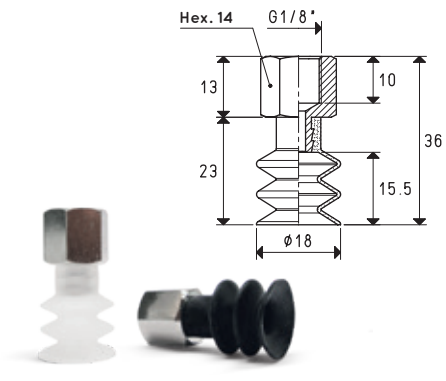




Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 18 23 *	0.63	(A)(N)(S)	11	1.8	00 08 67	AVP	11.4	08 18 23 *	12.9







Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 18 23 *	0.63	(A)(N)(S)	11	1.8	00 08 64	AVP	13.9	08 18 23 F *	15.4

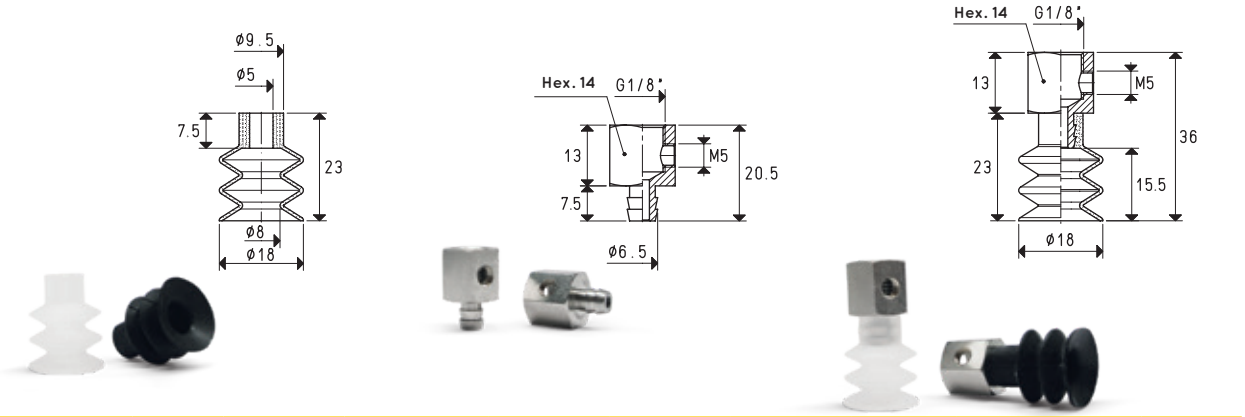
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

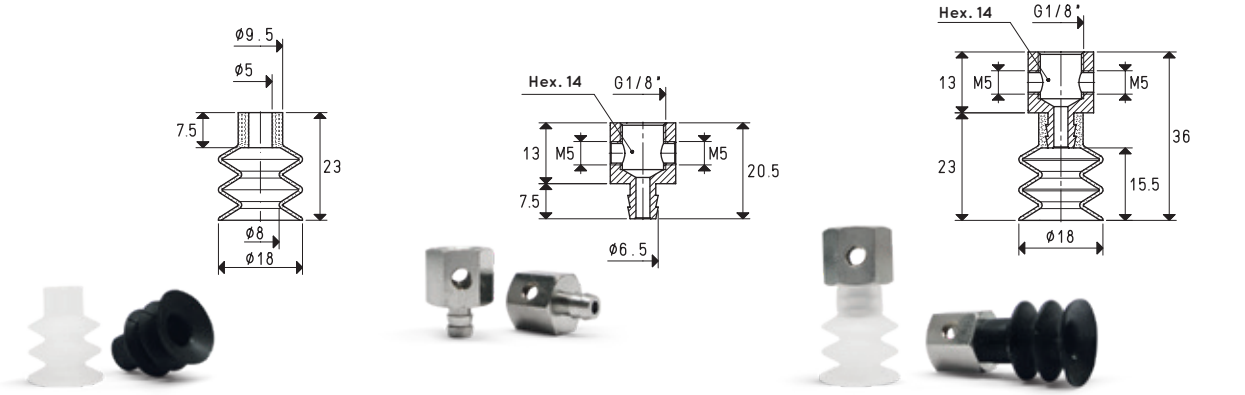
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

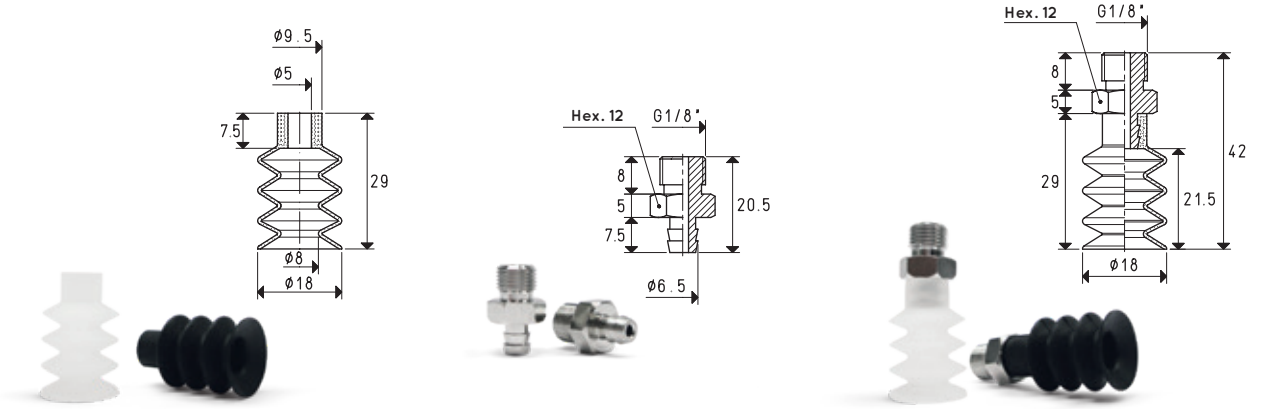
SPECIAL BELLOWS CUPS WITH SUPPORTS



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 18 23 *	0.63	(A)(N)(S)	11	1.8	00 08 65	brass	13.7	08 18 24 F *	15.2



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 18 23 *	0.63	(A)(N)(S)	11	1.8	00 08 66	OT58	13.5	08 18 26 F *	15.0



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 18 29 *	0.63	(A)(N)(S)	15	2.5	00 08 67	brass	11.4	08 18 29 *	13.2

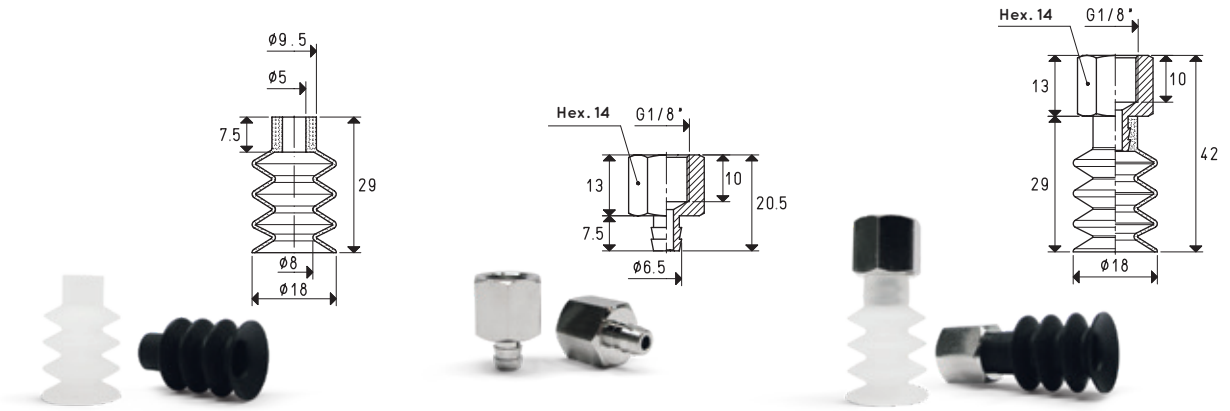
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

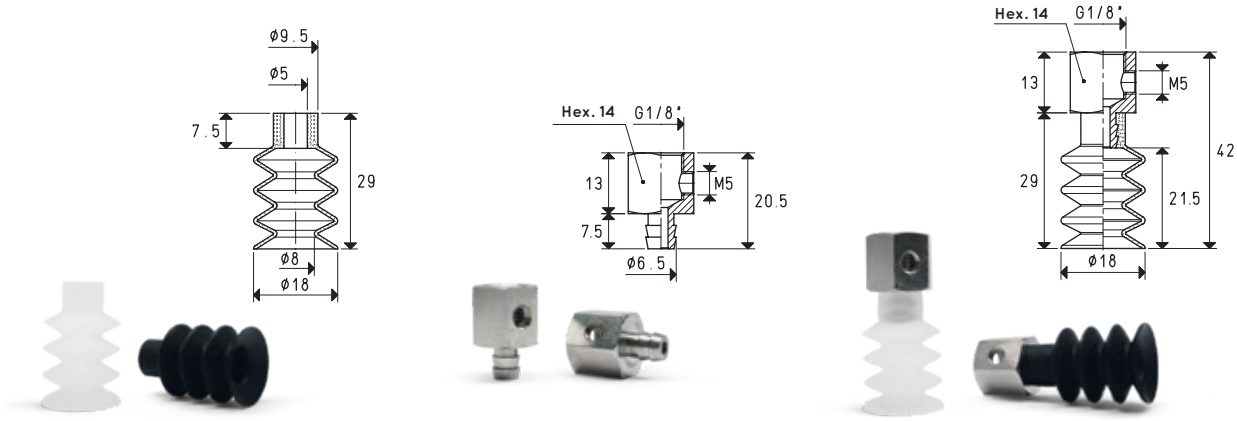
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

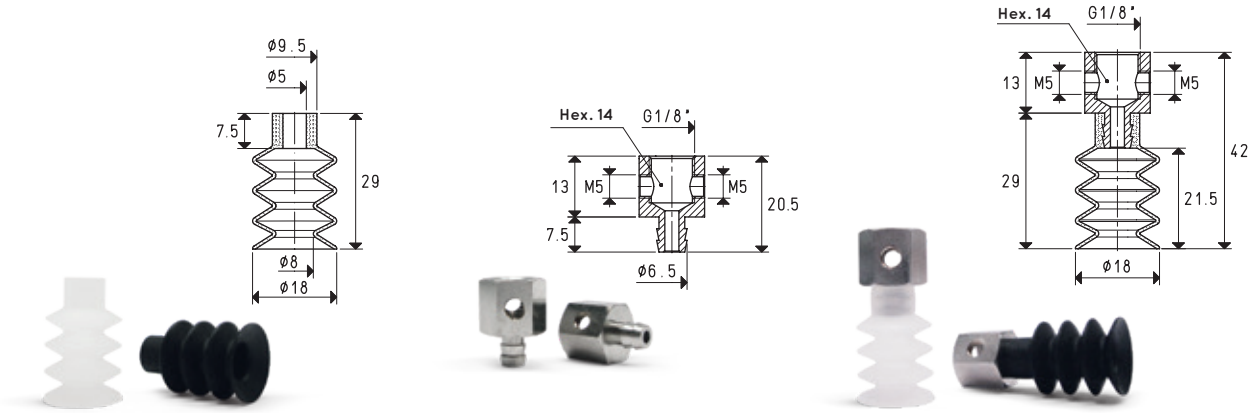
SPECIAL BELLOWS CUPS WITH SUPPORTS



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 18 29 *	0.63	(A)(N)(S)	15	2.5	00 08 64	AVP	13.9	08 18 29 F *	15.7



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 18 29 *	0.63	(A)(N)(S)	15	2.5	00 08 65	AVP	13.7	08 18 30 F *	15.5



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 18 29 *	0.63	(A)(N)(S)	15	2.5	00 08 66	OT58	13.5	08 18 31 F *	15.3

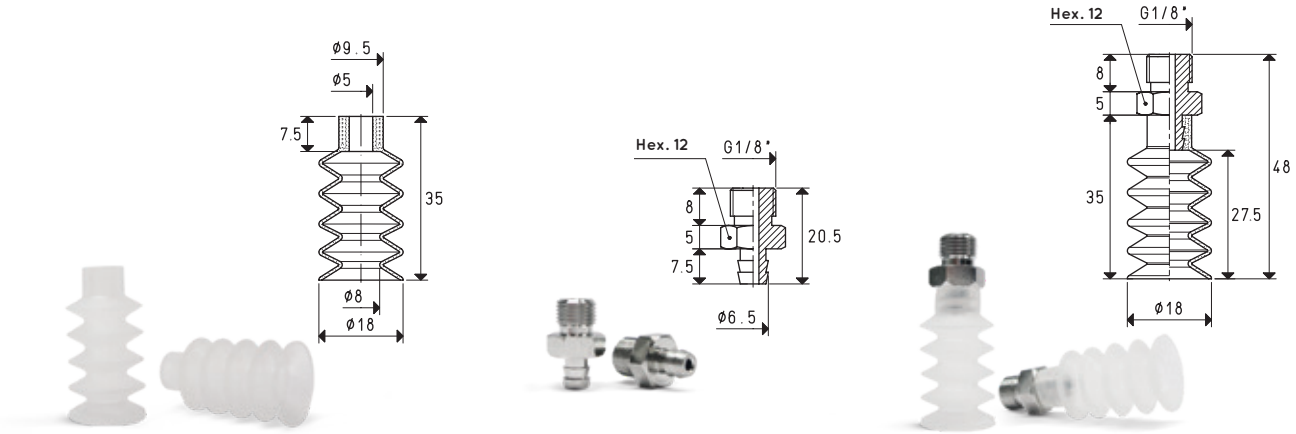
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

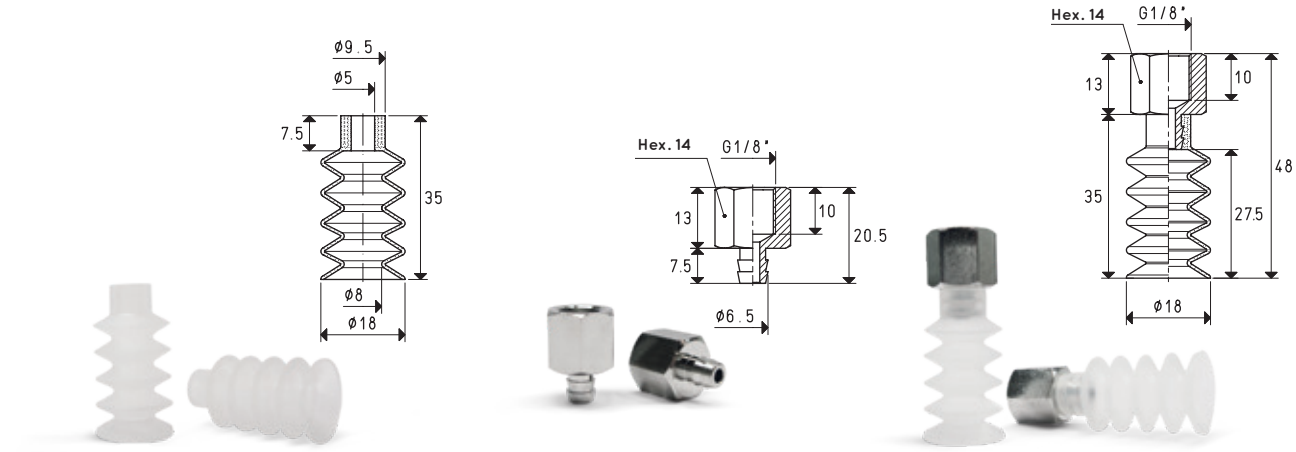
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

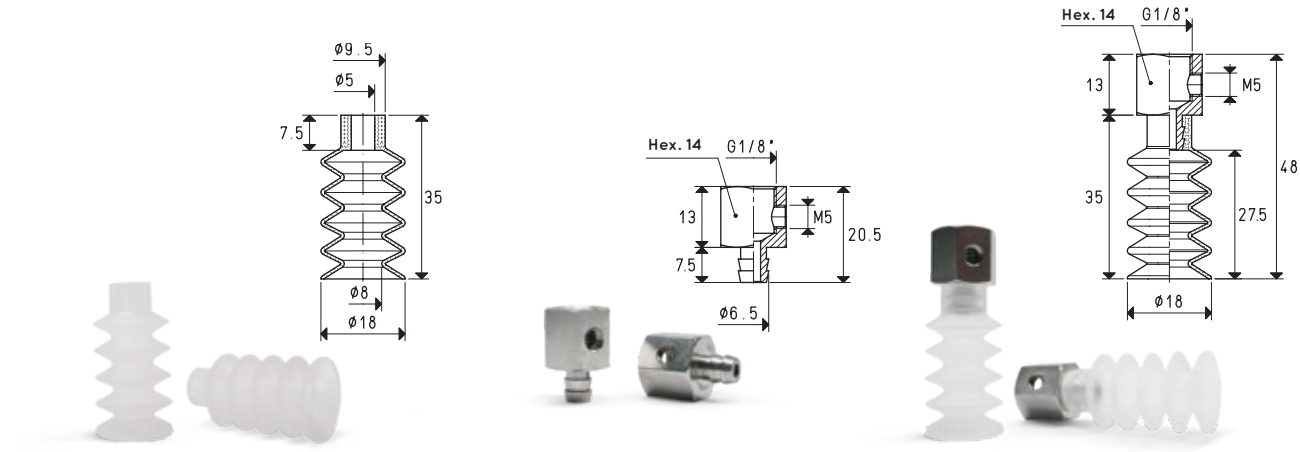
SPECIAL BELLOWS CUPS WITH SUPPORTS



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 18 35 S	0.63	(S)	18	3.1	00 08 67	brass	11.4	08 18 35 S	13.7



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 18 35 S	0.63	(S)	18	3.1	00 08 64	brass	13.9	08 18 35 F S	16.2



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 18 35 S	0.63	(S)	18	3.1	00 08 65	brass	13.7	08 18 36 F S	16.0

Compound: (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

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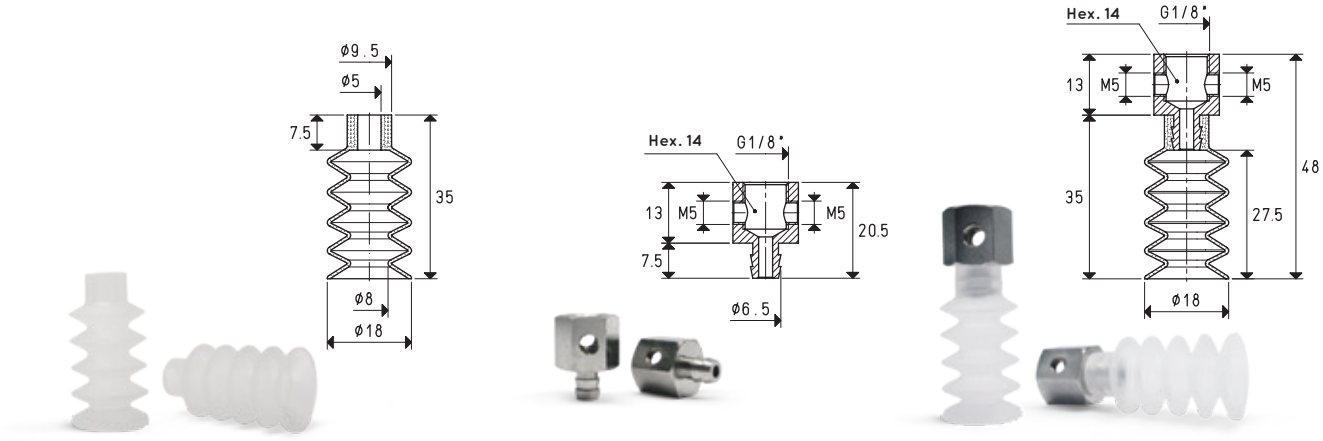
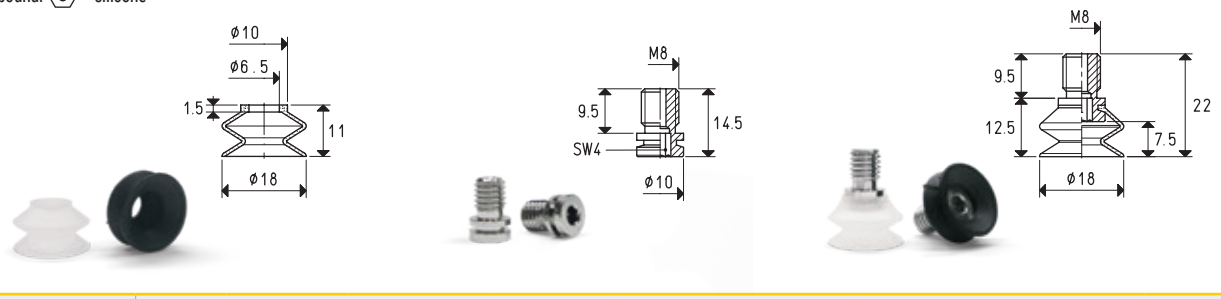
SPECIAL BELLOWS CUPS WITH SUPPORTS

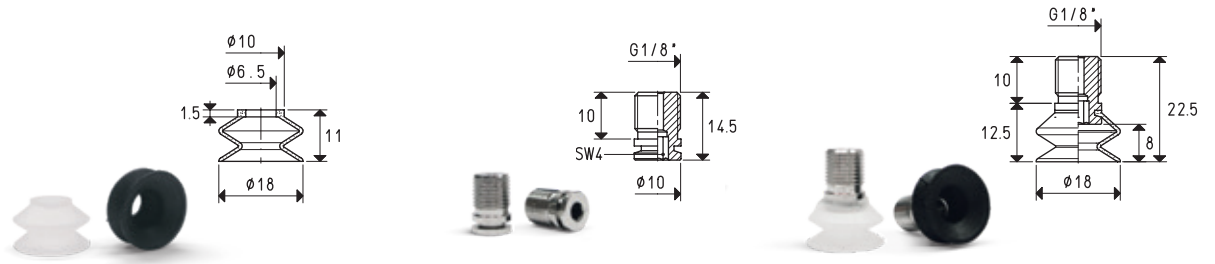


Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 18 35 S	0.63	(S)	18	3.1	00 08 66	OT58	13.5	08 18 37 F S	15.8

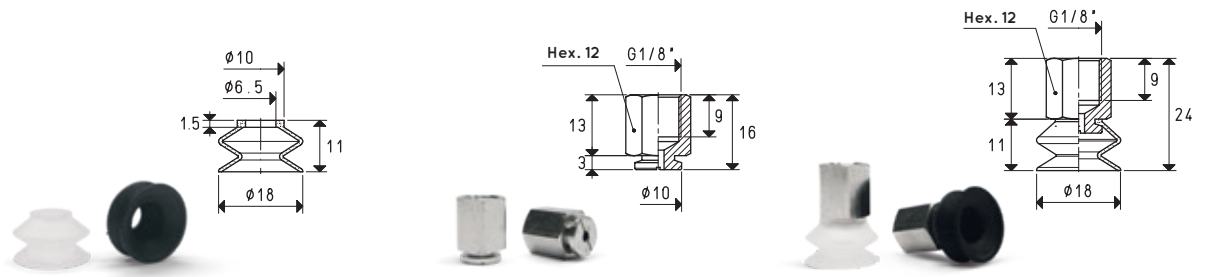
Compound: (S) = silicone



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 18 50 *	0.63	(A)(N)(S)	5.5	1.1	00 08 07	OT58	4.8	08 18 50 *	5.5



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 18 50 *	0.63	(A)(N)(S)	5.5	1.1	00 08 61	OT58	6.5	08 18 51 *	7.2



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 18 50 *	0.63	(A)(N)(S)	5.5	1.1	00 08 62	OT58	9.4	08 18 52 *	10.1

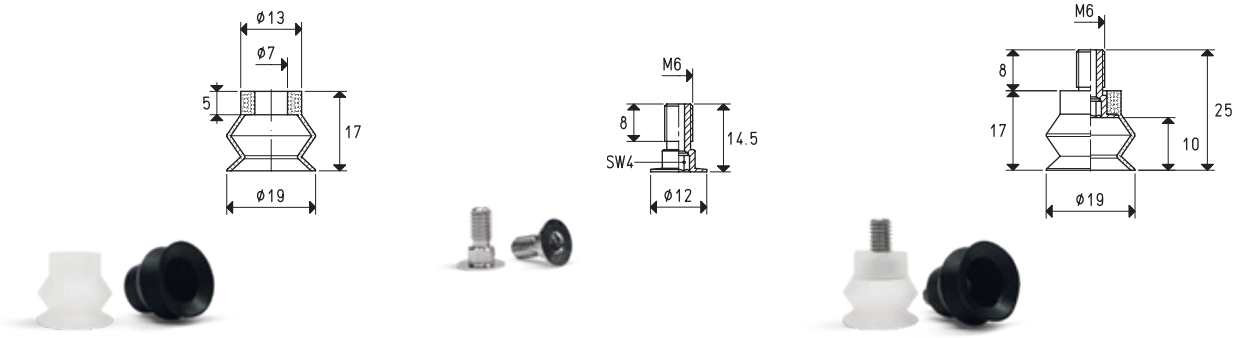
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

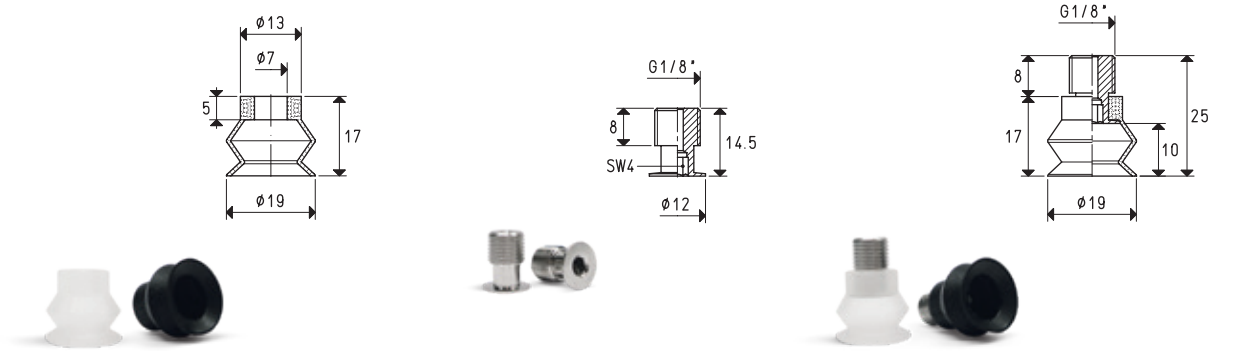
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

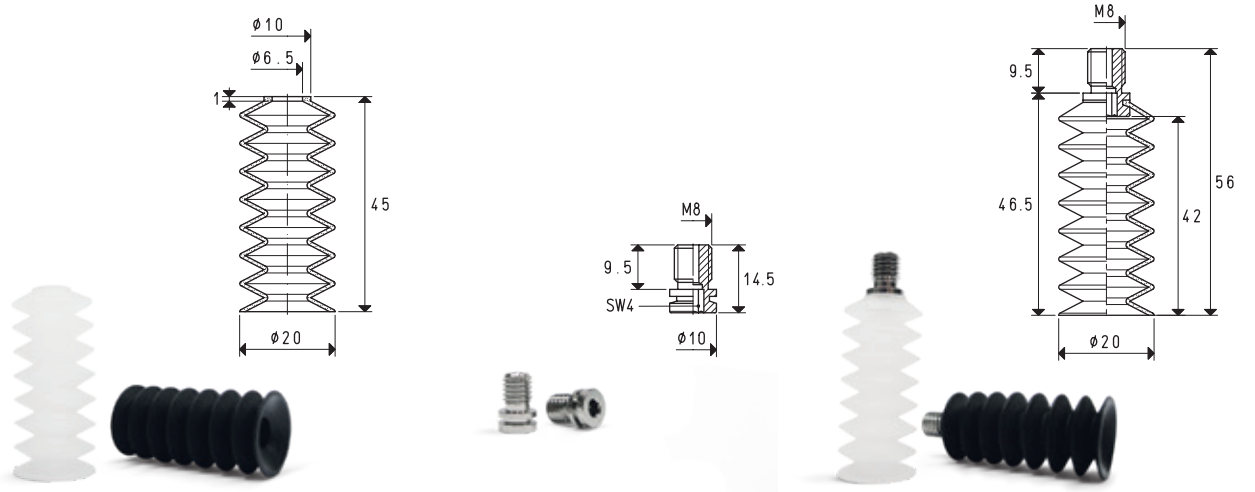
SPECIAL BELLOWS CUPS WITH SUPPORTS



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 19 17 *	0.70	(A)(N)(S)	8	1.9	00 08 08	brass	2.7	08 19 17 *	4.0



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 19 17 *	0.70	(A)(N)(S)	8	1.9	00 08 60	brass	5.6	08 19 18*	6.9



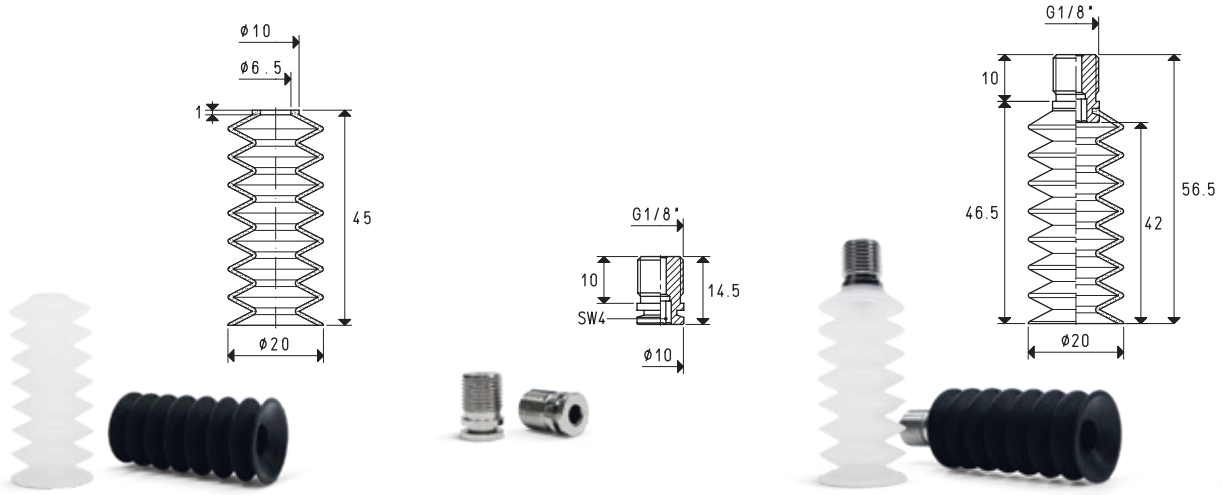
Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 20 60 *	0.78	(A)(N)(S)	28	5.4	00 08 07	OT58	4.8	08 20 60 *	9.0

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

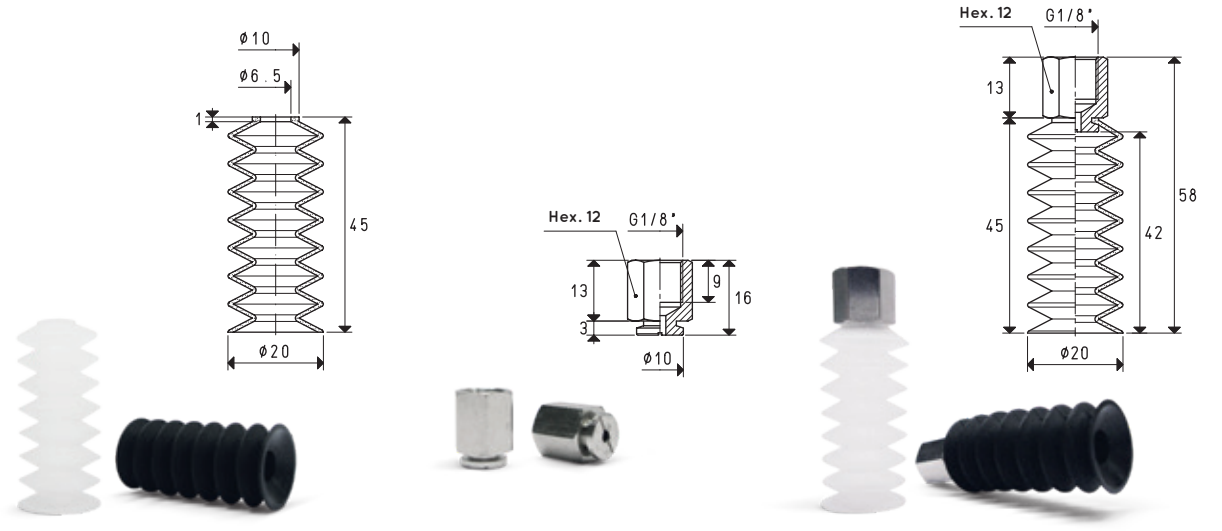
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 20 60 *	0.78	(A)(N)(S)	28	5.4	00 08 61	OT58	6.5	08 20 61 *	10.7



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 20 60 *	0.78	(A)(N)(S)	28	5.4	00 08 62	OT58	4.4	08 20 62 *	8.6

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

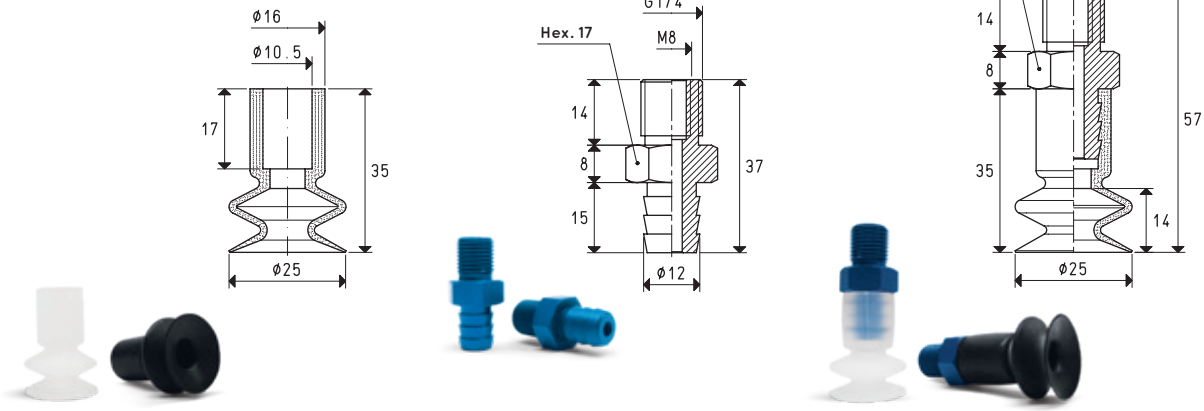
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

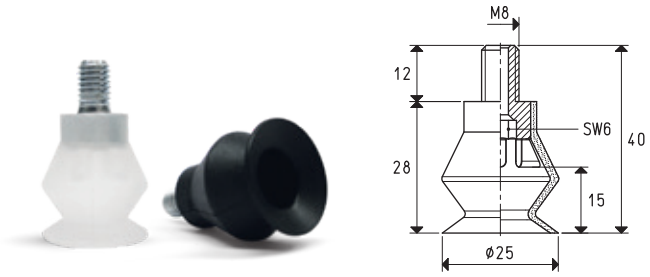
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

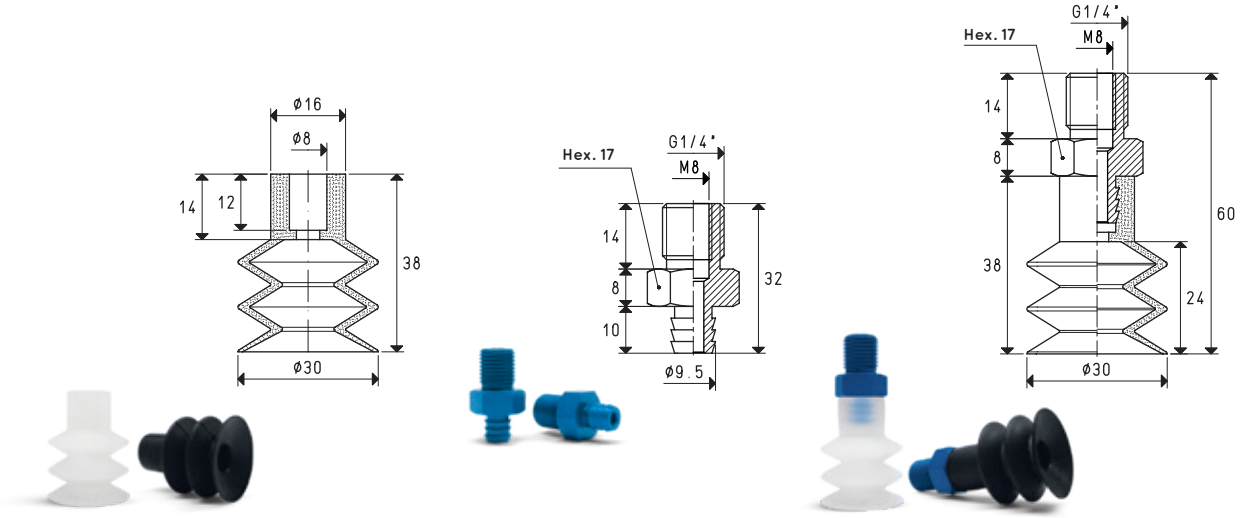
SPECIAL BELLOWS CUPS WITH SUPPORTS



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 25 35 *	1.23	(A)(N)(S)	10	2.5	00 08 15	aluminium	12.3	08 25 35 *	17.3



Vacuum cup with vulcanised support Item	Force Kg	Compounds available	Bellows stroke mm	Volume cm^3	Support material	Weight g
08 25 40 *	1.23	(A)(N)(S)	9	4.1	steel	13.0



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 30 50 *	1.76	(A)(N)(S)	14	6.5	00 08 18	aluminium	10.3	08 30 50 *	17.9

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

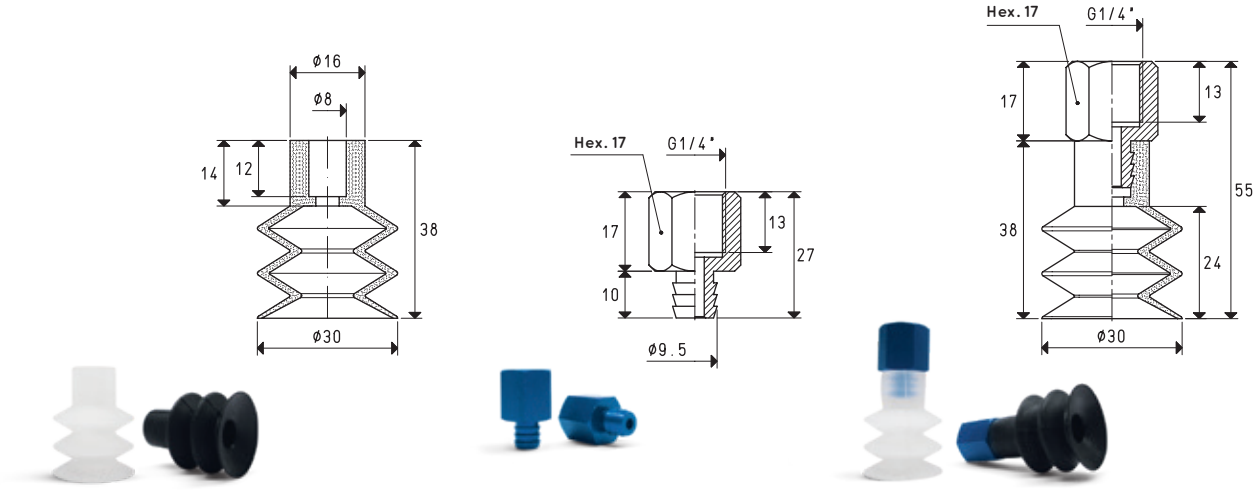
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

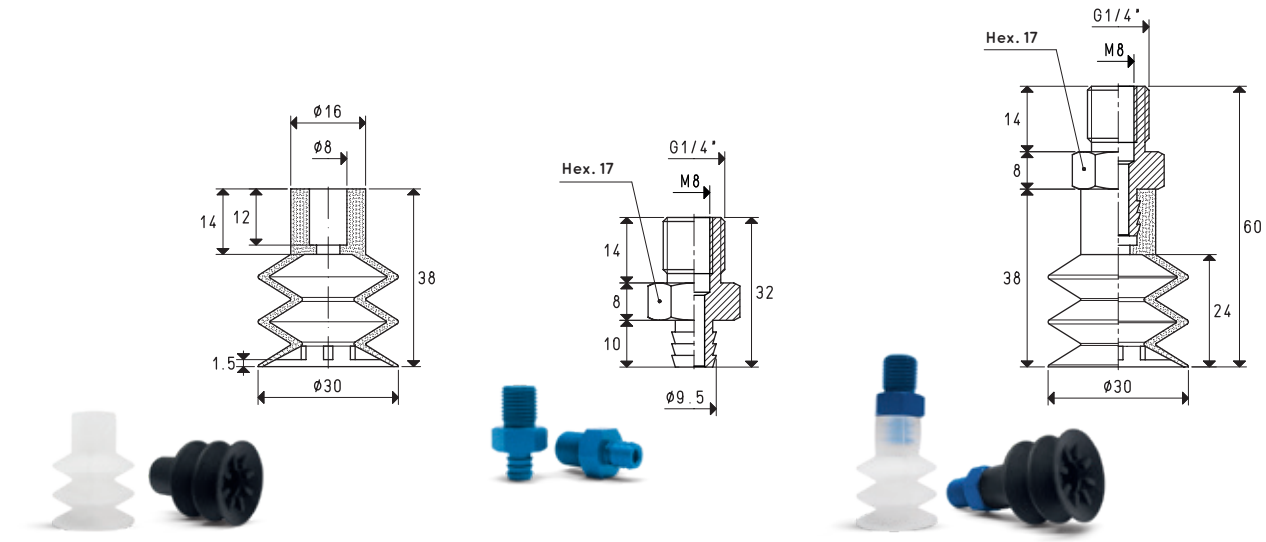
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

SPECIAL BELLOWS CUPS WITH SUPPORTS



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 30 50 *	1.76	(A)(N)(S)	14	6.5	00 08 50	aluminium	8.5	08 30 50 F *	16.1



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 30 99 *	1.76	(A)(N)(S)	14	6.5	00 08 18	aluminium	10.3	08 30 99 *	18.5

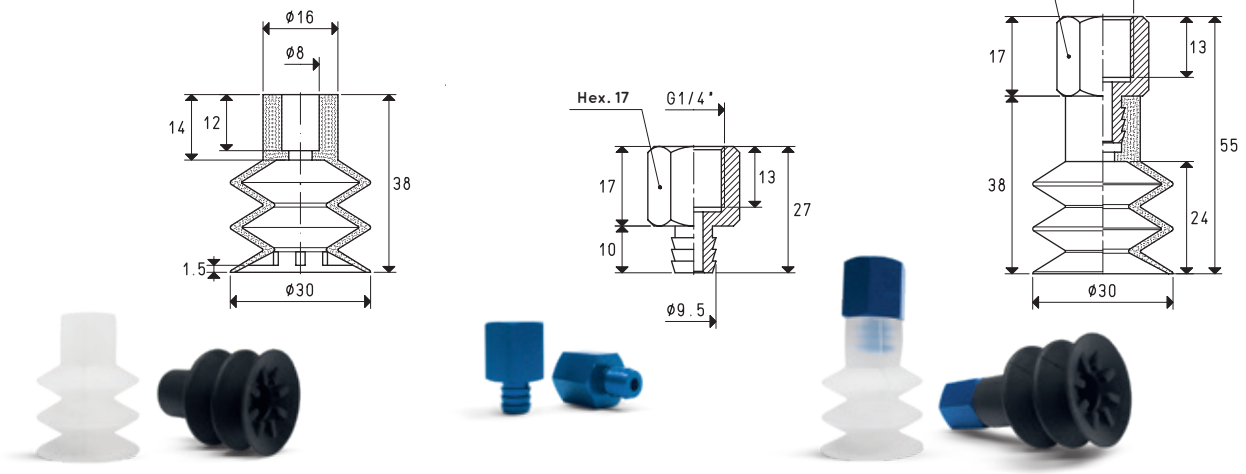
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

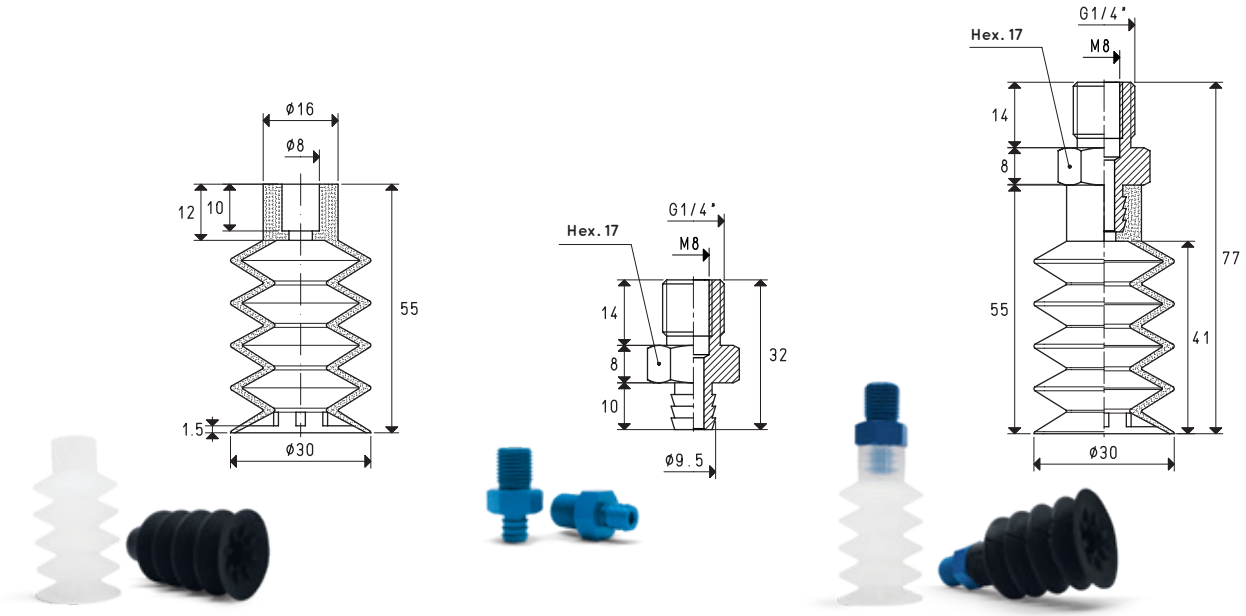
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

SPECIAL BELLOWS CUPS WITH SUPPORTS



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 30 99 *	1.76	(A)(N)(S)	14	6.5	00 08 50	aluminium	8.5	08 30 99 F *	16.7



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 30 55 *	1.76	(N)(S)	24	10.6	00 08 18	aluminium	10.3	08 30 55 *	23.1

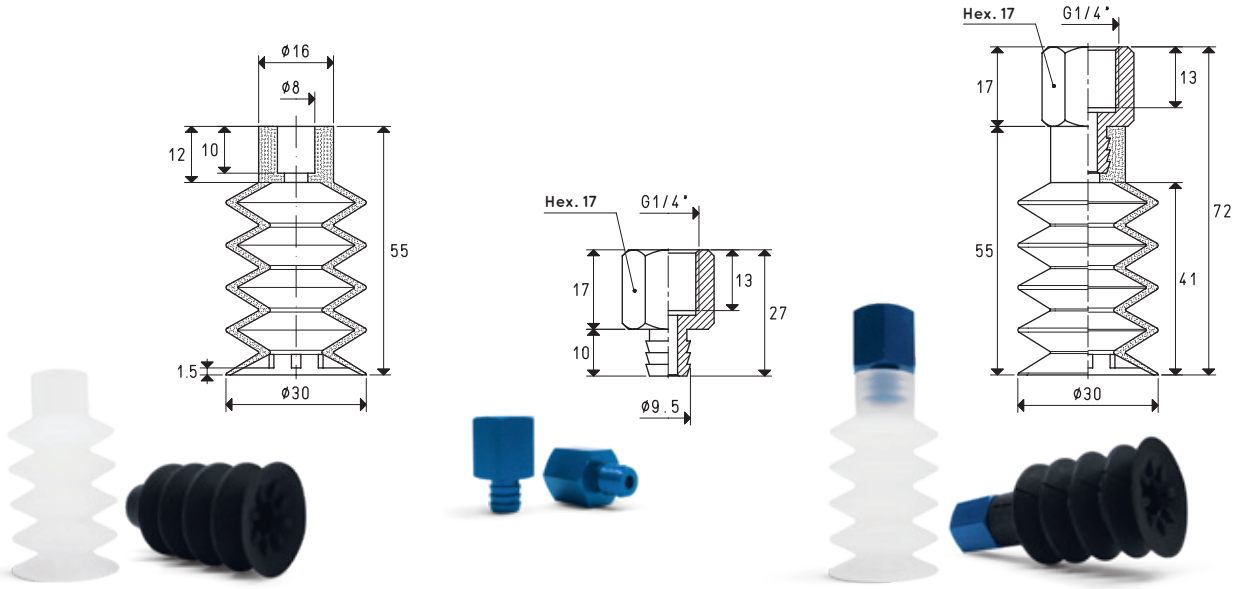
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

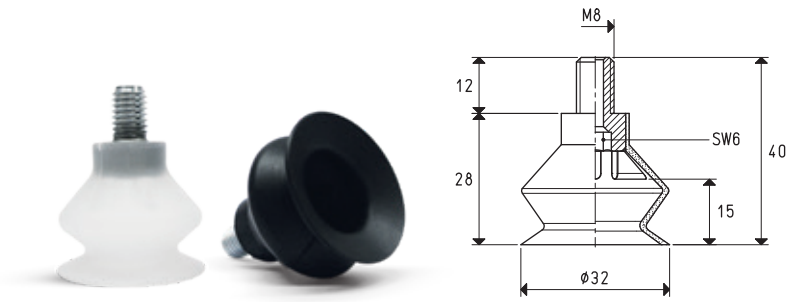
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

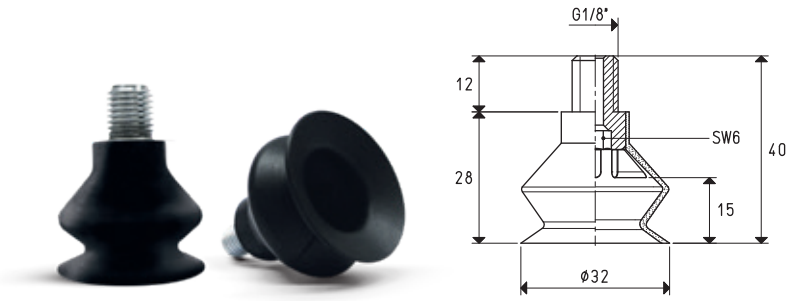
SPECIAL BELLOWS CUPS WITH SUPPORTS



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 30 55 *	1.76	(N)(S)	24	10.6	00 08 50	aluminium	8.5	08 30 55 F *	21.3



Vacuum cup with vulcanised support Item	Force Kg	Compounds available	Bellows stroke mm	Volume cm^3	Support material	Weight g
08 32 40 *	2.00	(A)(N)(S)	10	6.9	steel	14.0



Vacuum cup with vulcanised support Item	Force Kg	Compounds available	Bellows stroke mm	Volume cm^3	Support material	Weight g
08 32 41 A	2.00	(A)	10	6.9	steel	14.1

Compound: (A) = oil-resistant rubber

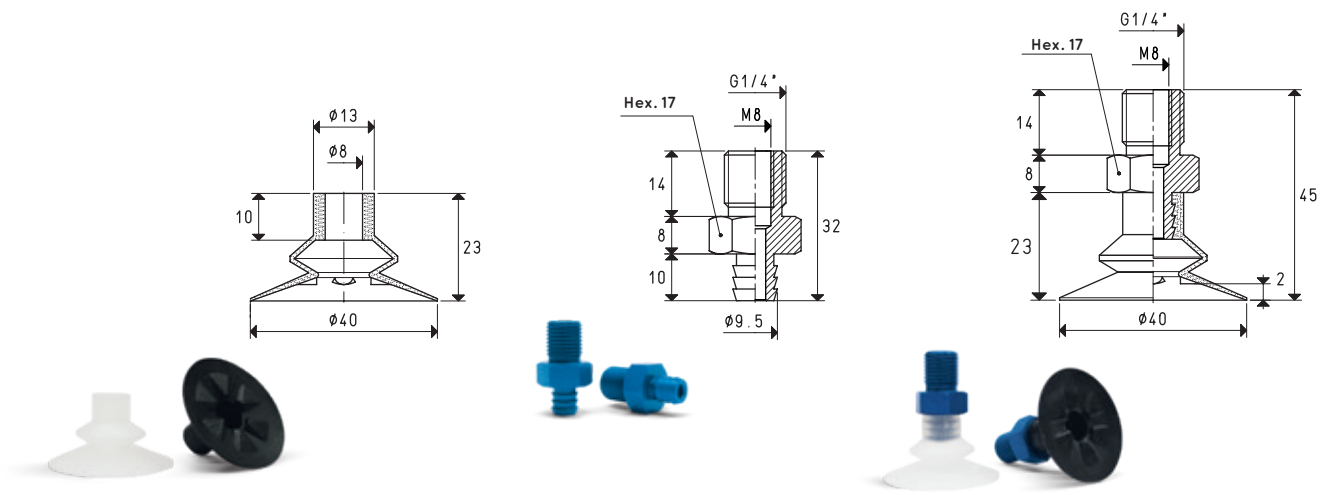
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

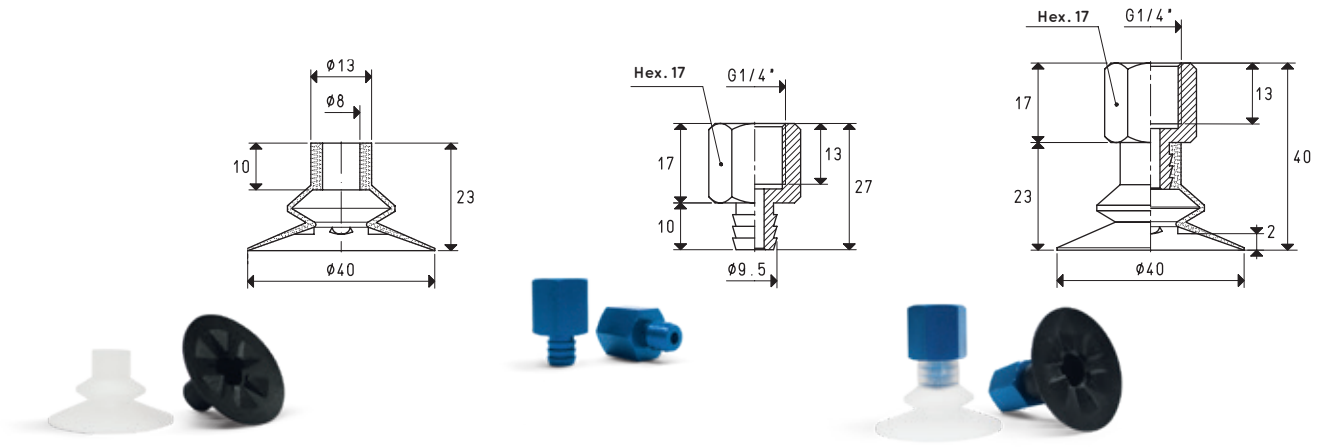
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

SPECIAL BELLOWS CUPS WITH SUPPORTS



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 40 50 *	2.40	(A)(N)(S)	7	4.3	00 08 18	aluminium	10.3	08 40 50 *	14.9



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 40 50 *	2.40	(A)(N)(S)	7	4.3	00 08 50	aluminium	8.5	08 40 50 F *	13.1

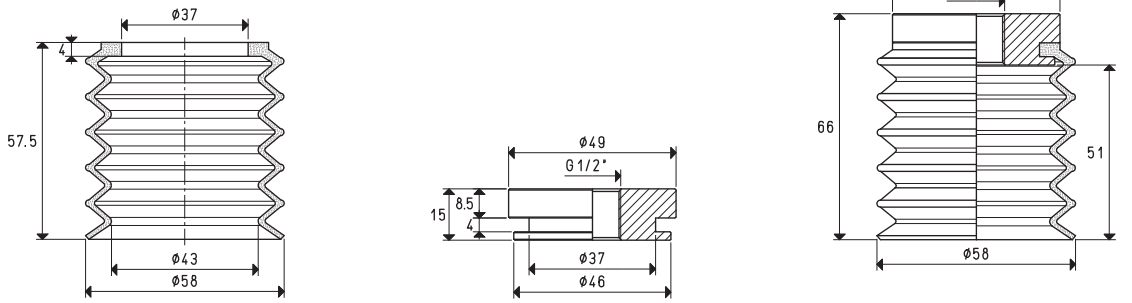
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

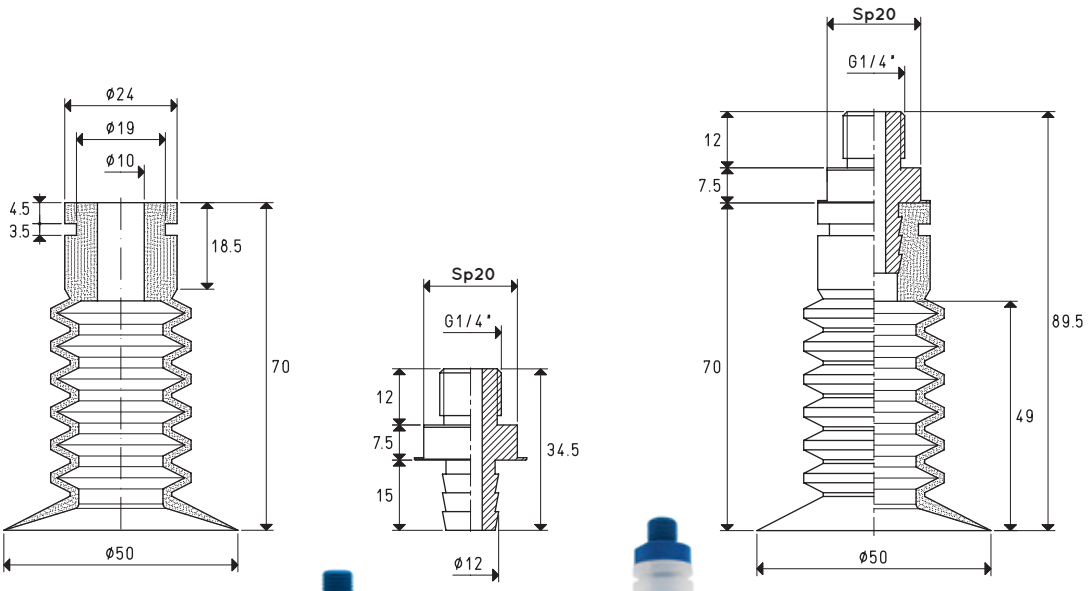
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

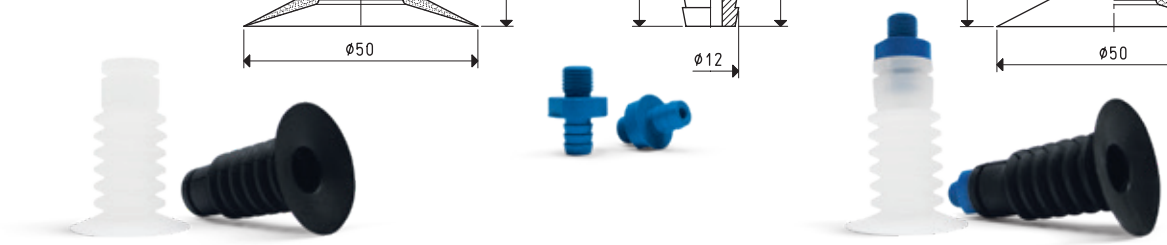
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

SPECIAL BELLOWS CUPS WITH SUPPORTS



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 50 60 *	6.60	(A) (S)	30	92.1	00 08 466	aluminium	56	08 50 60 *	82





Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 50 70 *	4.90	(A) (N) (S)	28	32.2	00 08 148	aluminium	14.5	08 50 70 *	36.8

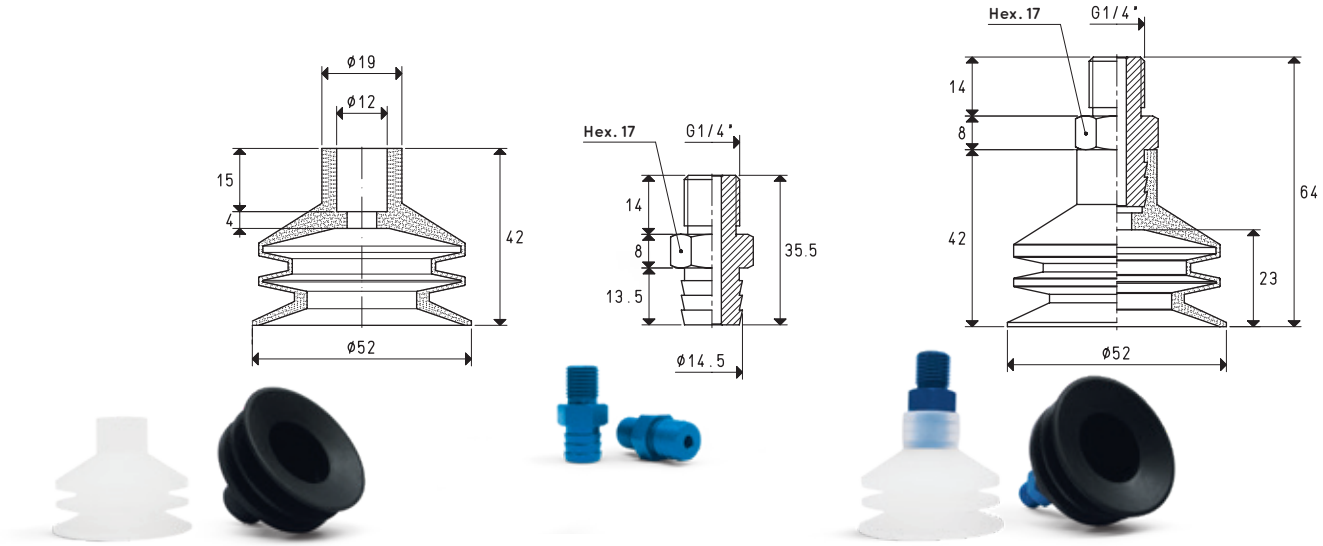
* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

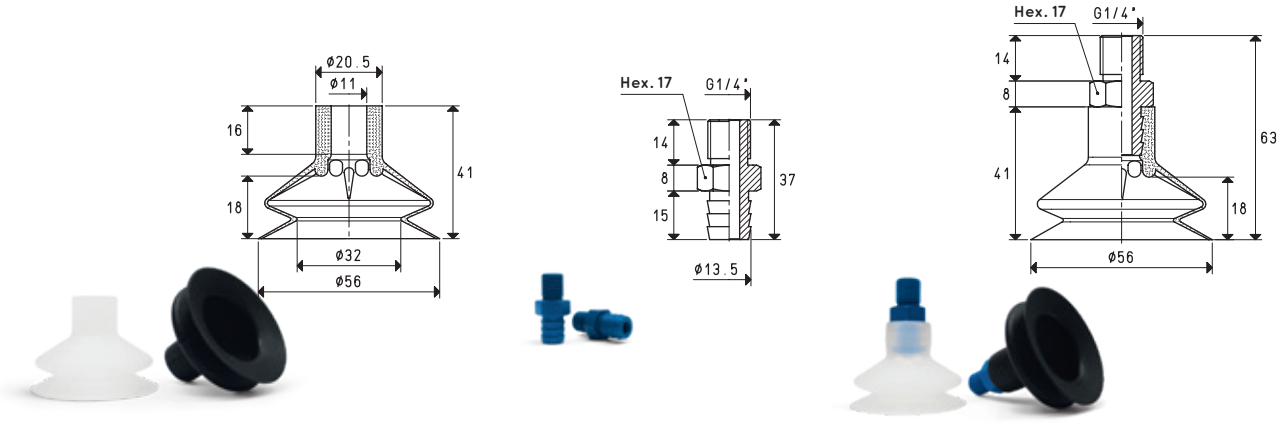
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

SPECIAL BELLOWS CUPS WITH SUPPORTS



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 52 50 *	5.30	(A)(N)(S)	13	22.7	00 08 26	aluminium	13.5	08 52 50 *	38.2



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 56 30 *	6.15	(A)(N)(S)	18	28.0	00 08 127	aluminium	11.5	08 56 30 *	28.5

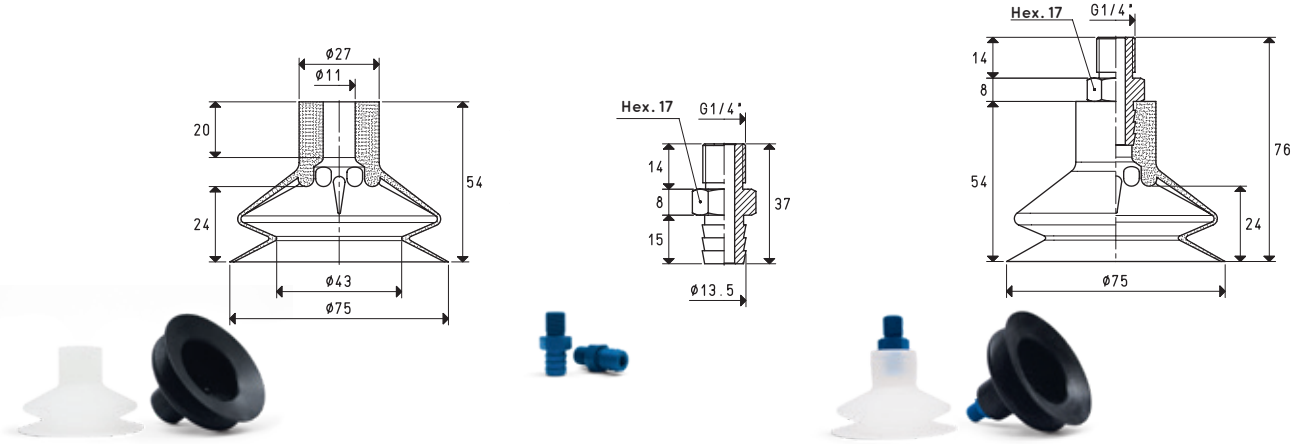
* Complete the code indicating the compound: (A) = oil-resistant rubber; (S) = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

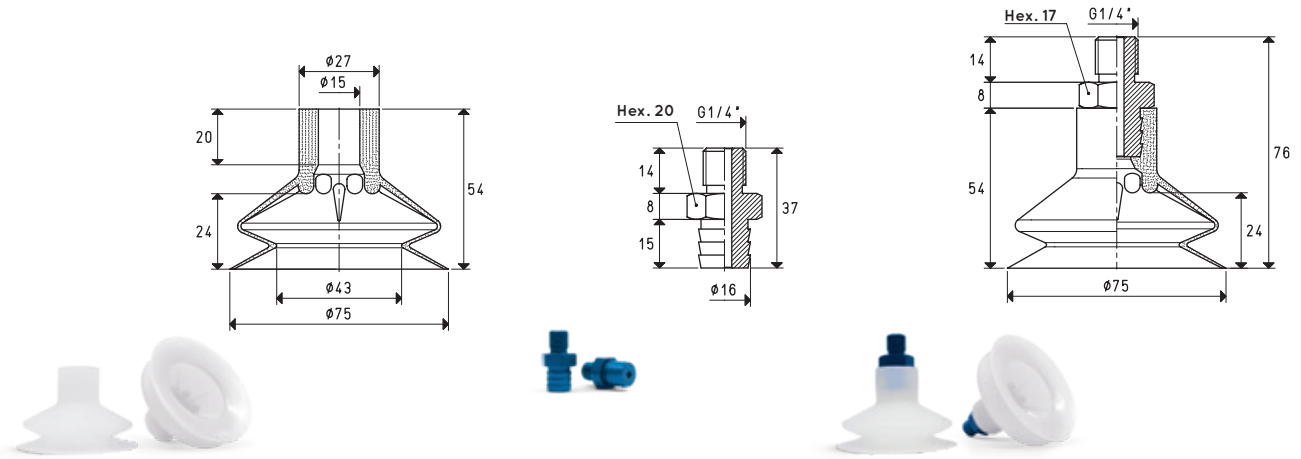
The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

SPECIAL BELLOWS CUPS WITH SUPPORTS

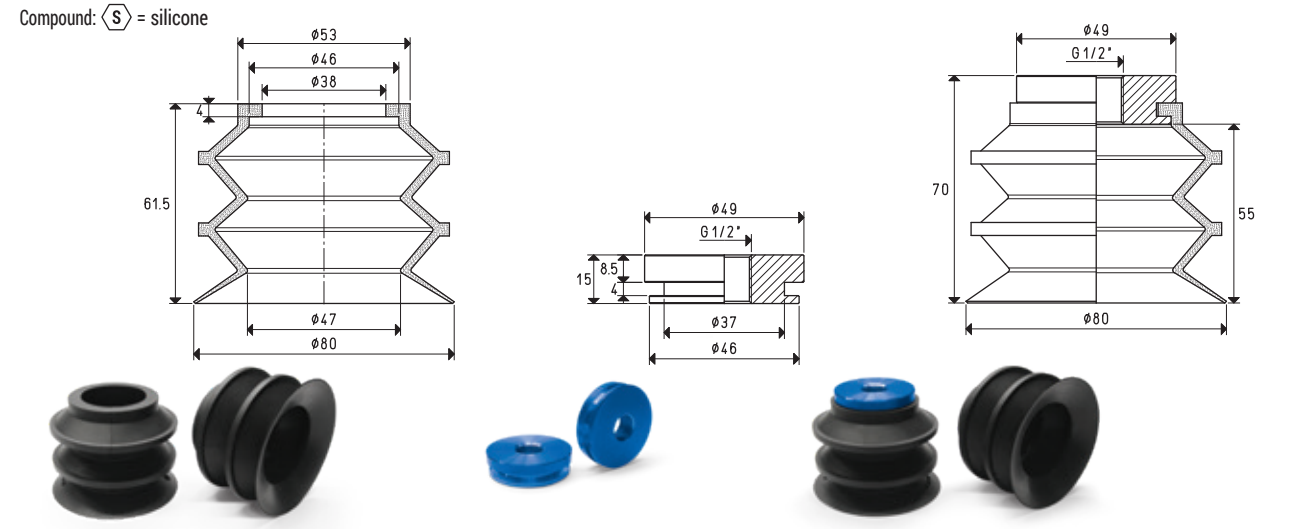


Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 75 30 *	11.04	(A)(N)(S)	24	62.9	00 08 127	aluminium	11.5	08 75 30 *	48.1



Vacuum cup item	Force Kg	Compound available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 75 31 S	11.04	(S)	24	63.1	00 08 09	aluminium	18.1	08 75 31 S	54.7

Compound: (S) = silicone



Vacuum cup item	Force Kg	Compounds available	Bellows stroke mm	Volume mm^3	Support item	Support material	Weight g	Vacuum cup with support item	Weight g
01 80 60 *	12.56	(A)(S)	37	145.9	00 08 466	aluminium	56	08 80 60 *	106

* Complete the code indicating the compound: (A) = oil-resistant rubber; (N) = para rubber; (S) = silicone

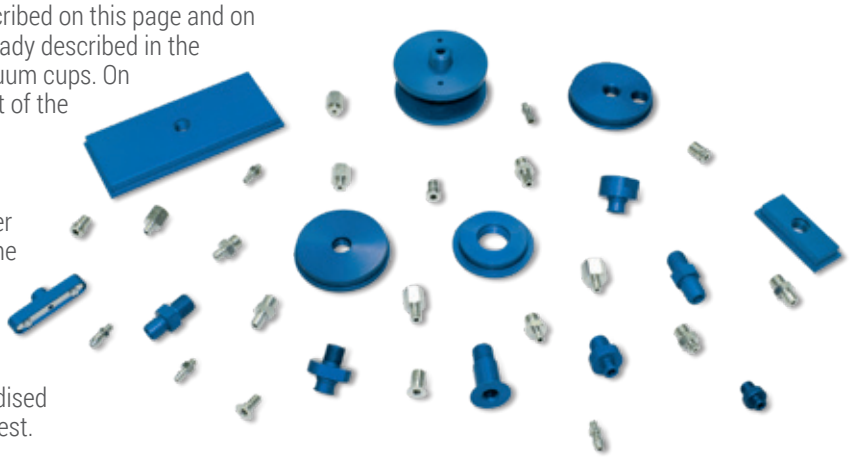
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

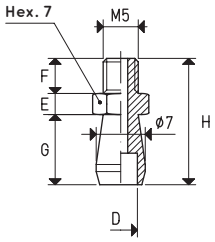
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

SUPPORTS FOR VACUUM CUPS

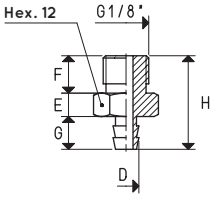
The supports and accessories shown and described on this page and on the following pages are the same as those already described in the previous pages, alongside their respective vacuum cups. On these pages, the customer can also find the list of the vacuum cups for which each support is suited.
They are specially shaped to perfectly adhere to the internal profile of the cups and they are provided with a male or female axial pin in order to allow suction, as well as to fasten them to the automation.
These cups can be manually assembled onto their supports without any adhesives, simply by pressing them in.
They are made with nickel-plated brass or anodised aluminium or with special materials upon request.



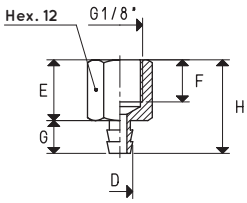
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 01	2.90	3	5	10	18	brass	01 04 10	4.0
							01 05 10	
							01 06 10	
00 08 02	4.75	3	5	10	18	brass	01 08 10	4.0
							01 09 07	



Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 03	5.5	5	8	7	20	brass	01 10 10	9.0
							01 11 16	
							01 12 10	
							01 14 10	
							01 14 32	
							01 15 10	
							01 16 20	
							01 17 12	
							01 18 10	
							01 20 10	
							01 20 24	
							01 22 10	
							01 25 28	



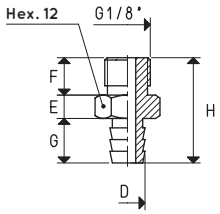
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 04	5.5	13	9	7	20	brass	01 10 10	8.1
							01 11 16	
							01 12 10	
							01 14 10	
							01 14 32	
							01 15 10	
							01 16 20	
							01 17 12	
							01 18 10	
							01 20 10	
							01 20 24	
							01 22 10	
							01 25 28	



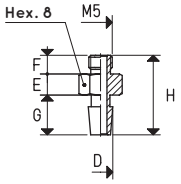
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

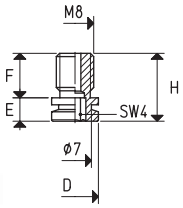
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 05	7.5	5	8	9.5	22.5	brass	01 15 15	10.0
							01 25 15	
							01 30 15	
							01 40 80	
							01 42 90	



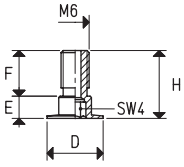
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 06	5.25	4.5	4	8.5	17	AVP	01 06 50	2.6
							01 08 50	
							01 11 50	
							01 11 16	
							01 16 20	
							01 17 12	



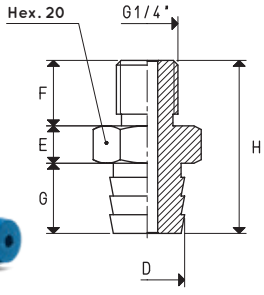
Item	D Ø	E	F	H	Support material	For vacuum cup item	Weight g
00 08 07	10	5	9.5	14.5	OT58	01 18 50	4.8
						01 20 60	



Item	D Ø	E	F	H	Support material	For vacuum cup item	Weight g
00 08 08	12	4.5	10	14.5	brass	01 19 17	2.7
						01 25 10	
						01 30 10	
						01 35 10	



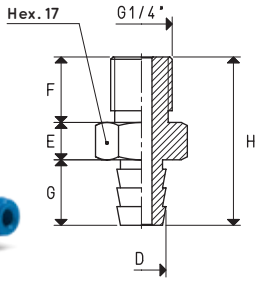
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 09	16	8	14	15	37	aluminium	01 19 31	18.1
							01 40 70	
							01 75 31	



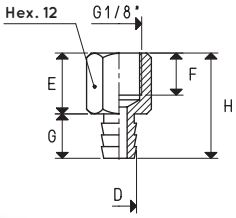
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

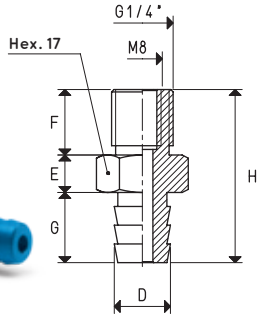
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 10	10.5	8	14	14	36	aluminium	01 22 24	11.0
							01 22 45	
							01 22 99	



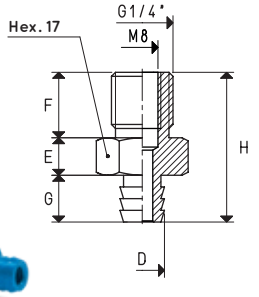
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 14	7.5	13	9	9.5	22.5	brass	01 25 15	9.8
							01 30 15	
							01 40 80	
							01 42 90	



Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 15	12	8	14	15	37	aluminium	01 25 35	12.3
							01 27 24	
							01 30 24	



Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 18	9.5	8	14	10	32	aluminium	01 16 26	10.3
							01 20 30	
							01 30 50	
							01 30 55	
							01 30 99	
							01 40 50	

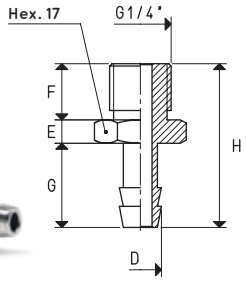


Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

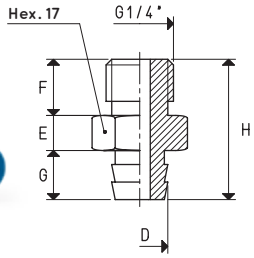
Adapters for GAS - NPT threading available on page 1.134

SUPPORTS FOR VACUUM CUPS

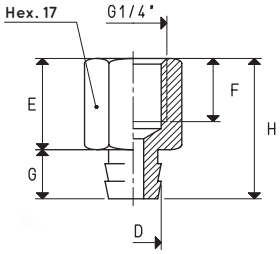
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 19	9	5	12	18	35	brass	01 32 36	22.7



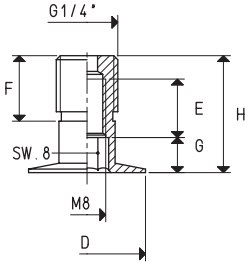
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 20	12	8	14	10	32	aluminium	01 35 15	11.0
							01 40 15	
							01 45 15	



Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 21	12	17	13	10	27	aluminium	01 35 15	9.3
							01 40 15	
							01 45 15	



Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 22	25	10	14	7.5	25	aluminium	01 45 10	5.9
							01 60 10	

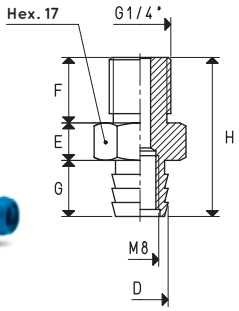


Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

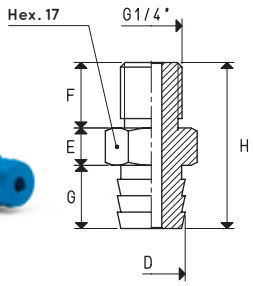
inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6}$ = $\frac{\text{Kg}}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

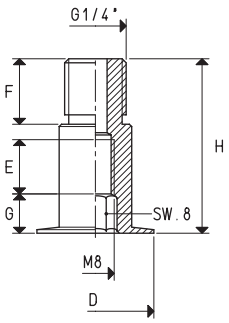
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 24	12	8	14	12	34	aluminium	01 50 20	10.3
							01 65 28	



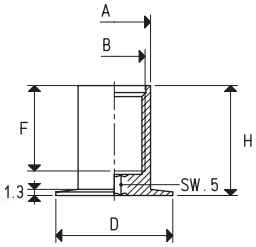
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 26	14.5	8	14	13.5	35.5	aluminium	01 52 50	13.5



Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 28	25	12	14	8	37.3	aluminium	01 85 10	13.4

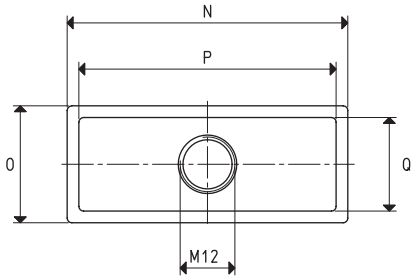


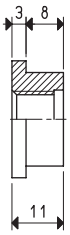
Item	A Ø	B Ø	D Ø	F	H	Support material	For vacuum cup item	Weight g
00 08 29	15.5	M12	25	18	23.5	aluminium	01 85 10	6.6



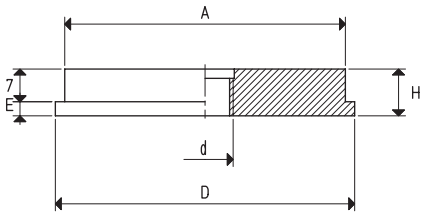
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

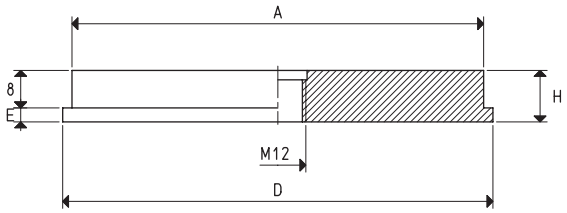




Item	N	O	P	Q	Support material	For vacuum cup item	Weight g
00 08 31	60	25	55	20	aluminium	01 40 75	34.1



Item	A Ø	d Ø	D Ø	E	H	Support material	For vacuum cup item	Weight g
00 08 32	60	M12	64	3	10	aluminium	01 64 15	80.6
							01 65 15	
							01 85 15	
00 08 424	60	G1/4"	64	3	10	aluminium	01 64 15	80.6
							01 65 15	
							01 85 15	

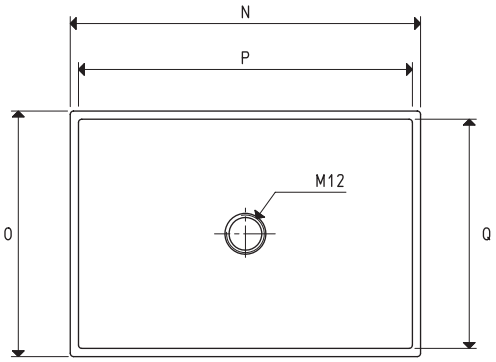


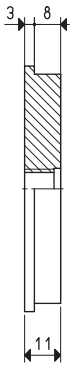
Item	A Ø	D Ø	E	H	Support material	For vacuum cup item	Weight g
00 08 33	88	92	3	11	aluminium	01 92 15	188.9
						01 110 10	

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

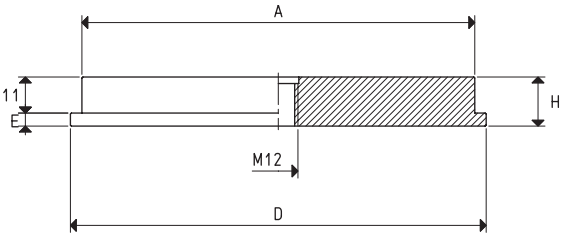
Adapters for GAS - NPT threading available on page 1.134

SUPPORTS FOR VACUUM CUPS

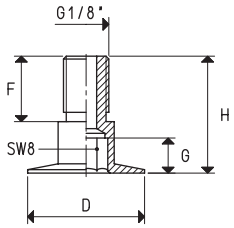




Item	N	O	P	Q	Support material	For vacuum cup item	Weight g
00 08 34	107	75	102	70	aluminium	01 107 75	215.5
						01 120 90	



Item	A Ø	D Ø	E	H	Support material	For vacuum cup item	Weight g
00 08 35	120	127	4	15	aluminium	01 150 10	471.3



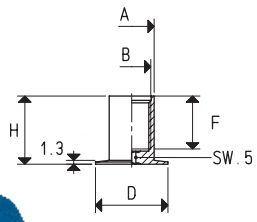
Item	D Ø	F	G	H	Support material	For vacuum cup item	Weight g
00 08 44	25	14	7.5	25	aluminium	01 45 10	5.1
						01 60 10	

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

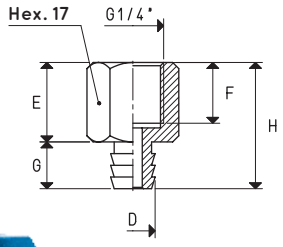
Adapters for GAS - NPT threading available on page 1.134

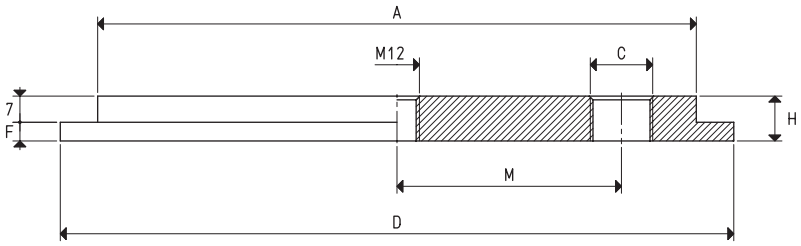
SUPPORTS FOR VACUUM CUPS

Item	A Ø	B Ø	D Ø	F	H	Support material	For vacuum cup item	Weight g
00 08 46	15.5	G1/4"	25	18	23.5	aluminium	01 85 10	6.5

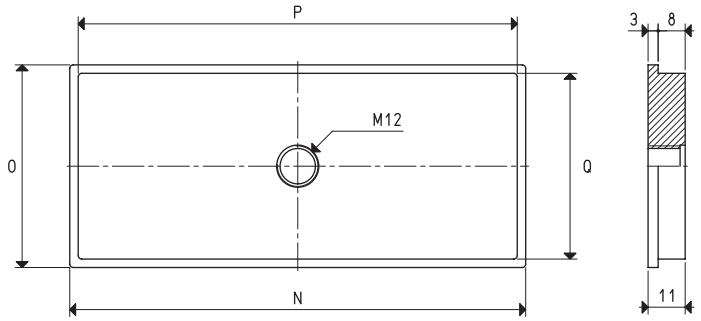


Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 50	9.5	17	13	10	27	aluminium	01 16 26	8.5
							01 30 50	
							01 30 55	
							01 30 99	
							01 40 50	





Item	A Ø	C Ø	D Ø	F	H	M	Support material	For vacuum cup item	Weight g
00 08 58	160	G3/8"	180	5	12	60	aluminium	01 180 15	740.0



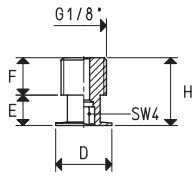
Item	N	O	P	Q	Support material	For vacuum cup item	Weight g
00 08 59	135	60	130	55	aluminium	01 135 60	218.4
						01 150 75	

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

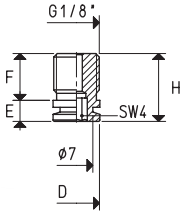
inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

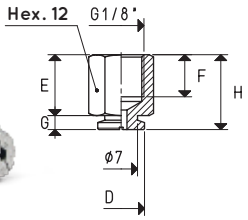
Item	D Ø	E	F	H	Support material	For vacuum cup item	Weight g
00 08 60	12	6.5	8	14.5	brass	01 19 17	5.6
						01 20 08	
						01 20 60	
						01 25 08	
						01 25 10	
						01 26 10	
						01 30 10	
						01 35 10	



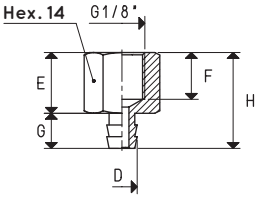
Item	D Ø	E	F	H	Support material	For vacuum cup item	Weight g
00 08 61	10	4.5	10	14.5	OT58	01 18 50	6.5
						01 20 60	



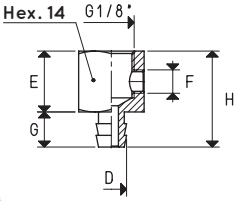
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 62	10	13	9	3	16	OT58	01 18 50	9.4
							01 20 60	



Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 64	6.5	13	10	7.5	20.5	brass	01 14 15	13.9
							01 15 23	
							01 18 12	
							01 18 23	
							01 18 29	
							01 18 35	



Item	D Ø	E	F Ø	G	H	Support material	For vacuum cup item	Weight g
00 08 65	6.5	13	M5	7.5	20.5	brass	01 14 15	13.7
							01 15 23	
							01 18 12	
							01 18 23	
							01 18 29	
							01 18 35	

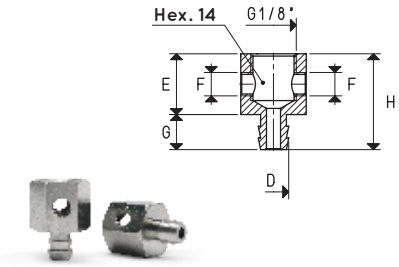


Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

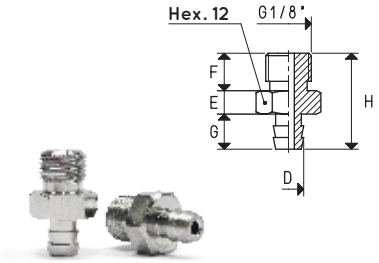
inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

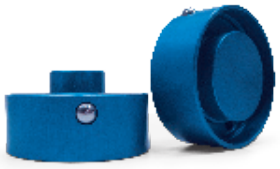
Adapters for GAS - NPT threading available on page 1.134

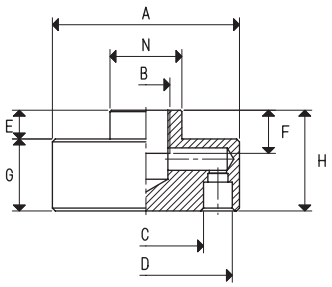
Item	D Ø	E	F Ø	G	H	Support material	For vacuum cup item	Weight g
00 08 66	6.5	13	M5	7.5	20.5	OT58	01 14 15	13.5
							01 15 23	
							01 18 12	
							01 18 23	
							01 18 29	
							01 18 35	



Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 67	6.5	5	8	7.5	20.5	brass	01 14 15	11.4
							01 15 23	
							01 18 12	
							01 18 23	
							01 18 29	
							01 18 35	

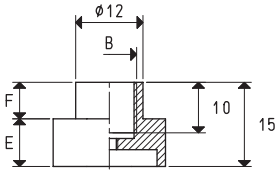


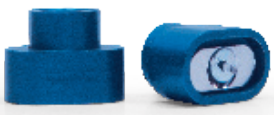




Item	A Ø	B Ø	C Ø	D Ø	E	F	G	H	N Ø	Support material	For vacuum cup item	Weight g
00 08 68	40	M12	23	35	7	10	18	25	20	aluminium	01 46 13	47.2
00 08 72	65	G3/8"	40	60	10	15	25	35	25	aluminium	01 73 14	169.1
00 08 73	76	G3/8"	51	71	10	15	27	37	25	aluminium	01 95 14	266.0

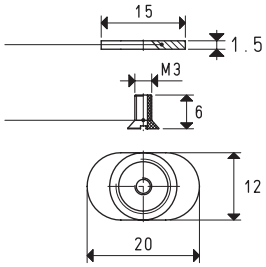
Item	B Ø	E	F	Support material	For vacuum cup item	Weight g
00 08 70	G1/8"	8.5	6.5	aluminium	01 12 20	5.4





Fixing plate item **00 08 97**

perforated TSP M3x5 screw item **00 08 103**



Note: Supplied automatically also with the fixing plate and the perforated TSP screw when ordering item **00 08 70**

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

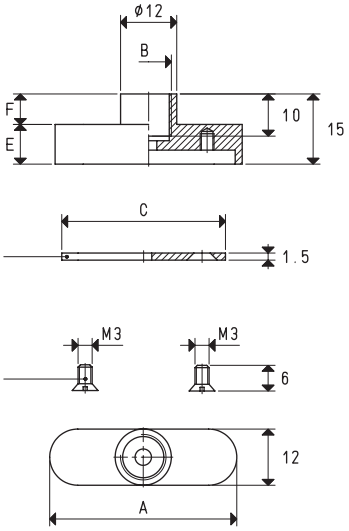
SUPPORTS FOR VACUUM CUPS

Item	A	B Ø	C	E	F	Support material	For vacuum cup item	Weight g
00 08 71	30	G1/8"	25	8.5	6.5	aluminium	01 12 30	7.8
00 08 75	40	G1/8"	35	8.5	6.5	aluminium	01 12 40	11.4
00 08 76	55	G1/8"	50	8.5	6.5	aluminium	01 12 50	15.5

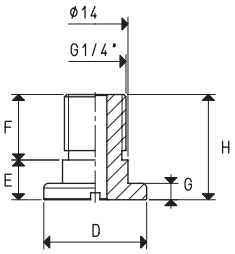
Fixing plate item **00 08 98** for supp. **00 08 71**
item **00 08 99** for supp. **00 08 75**
item **00 08 100** for supp. **00 08 76**

2 TSP screws M3x5 item **00 08 102**

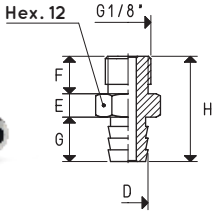
Note: Supplied automatically also with the fixing plate and the TSP screws when ordering the item relative to the support



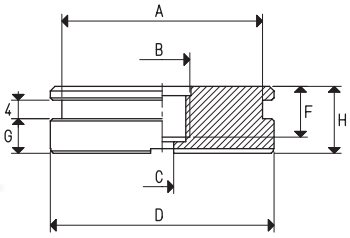
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 81	22	8.5	14	3.5	22.5	aluminium	01 40 18	8.8
							01 48 18	
							01 54 18	



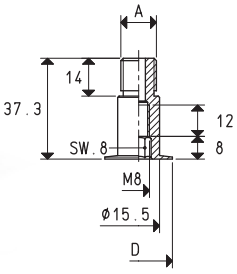
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 82	8.5	5	8	9.5	22.5	brass	01 25 12	11.2
							01 33 50	



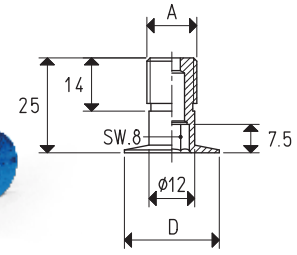
Item	A Ø	B Ø	C Ø	D Ø	F	G	H	Support material	For vacuum cup item	Weight g
00 08 83	43.5	M12	5	48.5	11	7.5	14.5	aluminium	01 56 15	67.4
00 08 466	46.0	G1/2"	G1/2"	49.0	12	8.5	15.0	aluminium	01 50 60	50.0
									01 80 60	



Item	A Ø	D Ø	Support material	For vacuum cup item	Weight g
00 08 91	M10x1,25	25	aluminium	01 85 10	38.4



Item	A Ø	D Ø	Support material	For vacuum cup item	Weight g
00 08 92	M10	25	aluminium	01 45 10	5.2
				01 60 10	



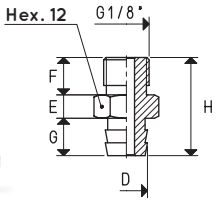
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

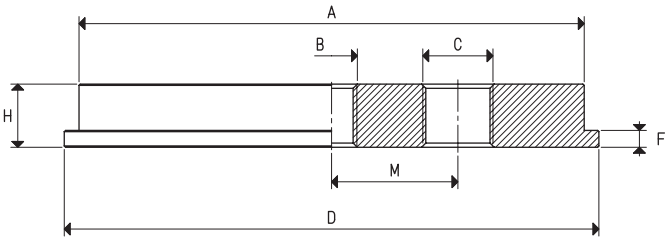
inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

SUPPORTS FOR VACUUM CUPS

Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 101	9	5	8	8	21	brass	01 25 14	10.8

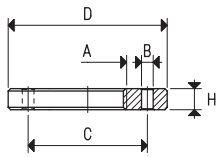




Item	A Ø	B Ø	C Ø	D Ø	F	H	M	Support material	For vacuum cup item	Weight g
00 08 107	120	M12	G3/8"	127	4	15	30	aluminium	01 127 15 01 150 10	476.9

RING NUT

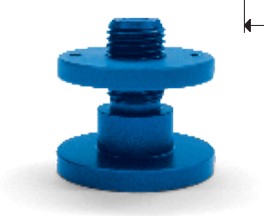
Item	A Ø	B Ø	C Ø	D Ø	H	Ring nut material	For support item	Weight g
00 08 109	G1/4"	2.5	25.5	34	4.5	aluminium	00 08 108	9.8
00 08 111	G3/8"	2.5	25.5	34	4.5	aluminium	00 08 110	8.7
00 08 113	G3/8"	4.0	45.0	69	6.0	aluminium	00 08 112	58.2

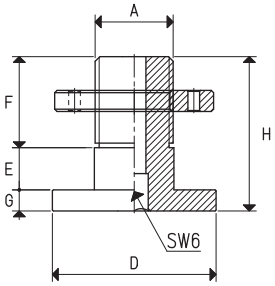


SUPPORT

Item	A Ø	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 108	G1/4"	35	9	19.5	4.5	33.0	aluminium	01 76 24 01 90 24 01 110 24	21.4
00 08 110	G3/8"	35	9	19.5	4.5	33.0	aluminium	01 76 24 01 90 24 01 110 24	25.0
00 08 112	G3/8"	69	15	22.0	5.5	42.5	aluminium	01 150 36	73.9

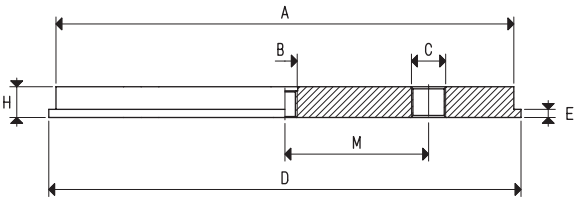
Note: The ring nut is provided automatically when the support is ordered with its own item



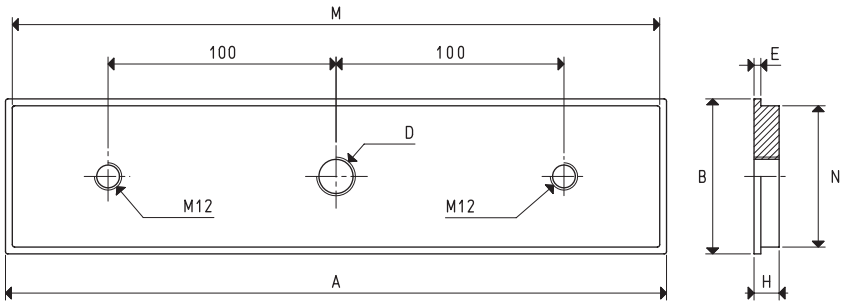


Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

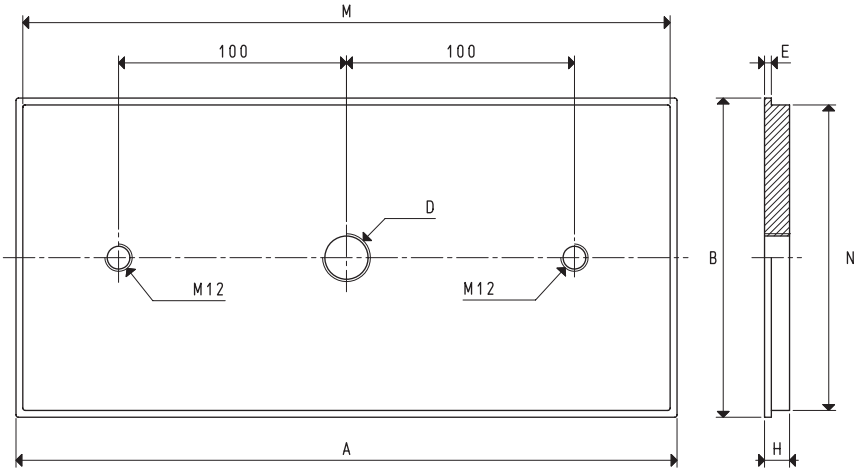
Adapters for GAS - NPT threading available on page 1.134



Item	A Ø	B Ø	C Ø	D Ø	E	H	M	Support material	For vacuum cup item	Weight Kg
00 08 115	223	M12	G3/8"	230	5	15	70	aluminium	01 250 20	1.65



Item	A	B	D Ø	E	H	M	N	Support material	For vacuum cup item	Weight Kg
00 08 116	290	68	G3/8"	3	11	284	62	aluminium	01 290 68	0.53
									01 300 80	

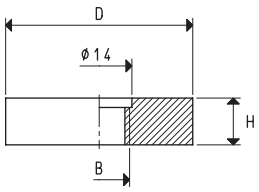


Item	A	B	D Ø	E	H	M	N	Support material	For vacuum cup item	Weight Kg
00 08 117	290	140	G1/2"	3	11	284	134	aluminium	01 290 140	1.13
									01 300 150	

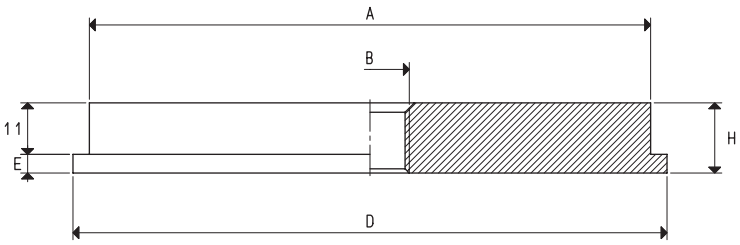
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

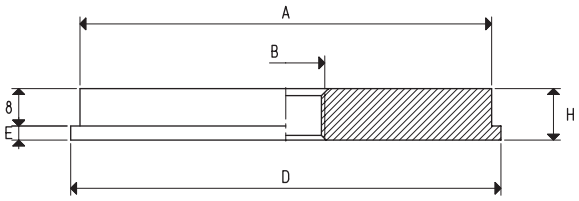
SUPPORTS FOR VACUUM CUPS



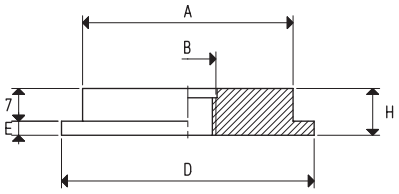
Item	B Ø	D Ø	H	Support material	For vacuum cup item	Weight g
00 08 118	G1/4"	40	10	aluminium	01 42 15	32.1



Item	A Ø	B Ø	D Ø	E	H	Support material	For vacuum cup item	Weight g
00 08 119	120	G3/8"	127	4	15	aluminium	01 150 10	478.9



Item	A Ø	B Ø	D Ø	E	H	Support material	For vacuum cup item	Weight g
00 08 123	88	G3/8"	92	3	11	aluminium	01 110 10	186.1
							01 92 15	

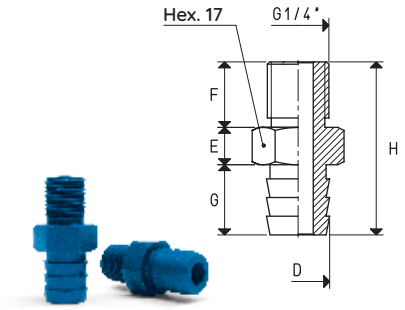


Item	A Ø	B Ø	D Ø	E	H	Support material	For vacuum cup item	Weight g
00 08 126	45	M12	54	3	10	aluminium	01 75 42	45.5
							01 80 20	
00 08 465	45	G1/4"	54	3	10	aluminium	01 75 42	45.5
							01 80 20	
00 08 193	45	G3/8"	54	3	10	aluminium	01 75 42	45.5
							01 80 20	
00 08 143	45	G1/2"	54	3	10	aluminium	01 75 42	45.5
							01 80 20	

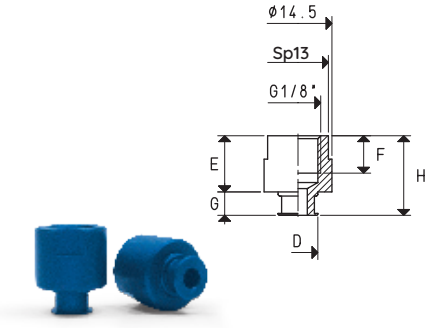
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

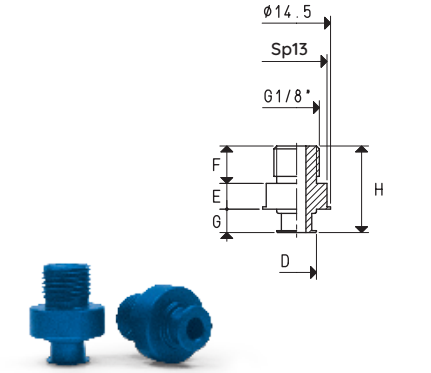
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 127	13.5	8	14	15	37	aluminium	01 30 45	11.5
							01 40 25	
							01 44 30	
							01 56 30	
							01 75 30	



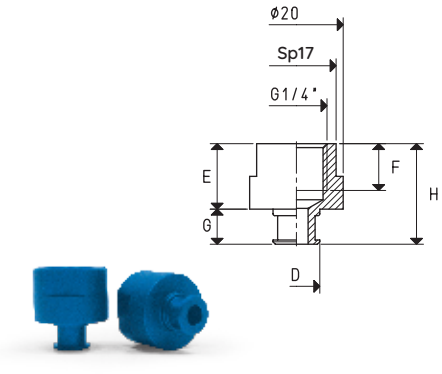
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 132	8.5	12	8	5	17	aluminium	01 20 23	3.8
							01 22 19	
							01 34 26	
							SV 20 SR	
							SV 25 SR	
							SV 30 SR	



Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 133	8.5	5.5	8	5	18.5	aluminium	01 20 23	3.5
							01 22 19	
							01 34 26	
							SV 20 SR	
							SV 25 SR	
							SV 30 SR	



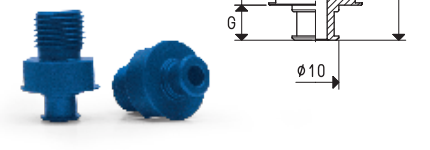
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 134	10	14	10	7.5	21.5	aluminium	01 30 32	8.3
							01 40 42	
							01 43 28	
							SV 40 SR	

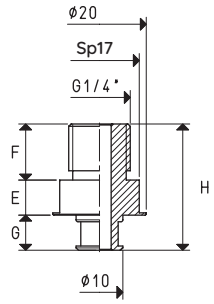


Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

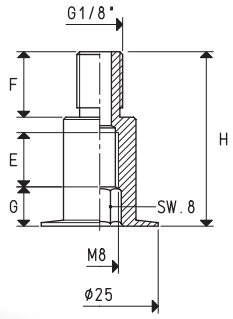
Adapters for GAS - NPT threading available on page 1.134

Item	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 135	7.5	12	7.5	27	aluminium	01 30 32	9.5
						01 40 42	
						01 43 28	
						SV 40 SR	

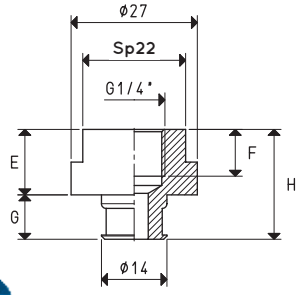




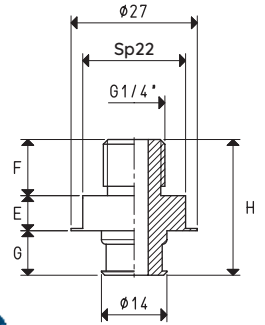
Item	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 136	12	14	8	37.3	aluminium	01 85 10	9.2



Item	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 141	14	10	9.5	23.5	aluminium	01 50 53	19.7
						01 53 35	
						SV 50 SR	



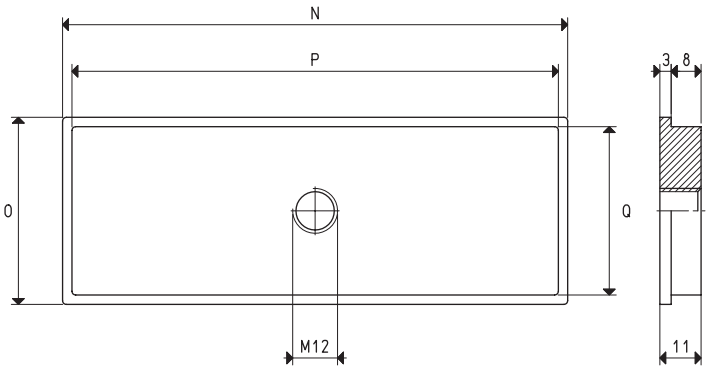
Item	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 142	7.5	12	9.5	29	aluminium	01 50 53	15.7
						01 53 35	
						SV 50 SR	



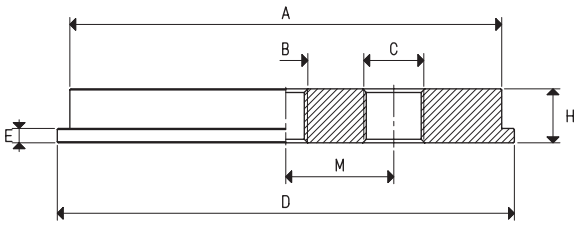
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

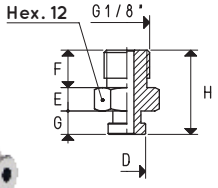
Adapters for GAS - NPT threading available on page 1.134



Item	N	O	P	Q	Support material	For vacuum cup item	Weight g
00 08 144	135	50	130	45	aluminium	01 135 50	176.1
						01 150 65	



Item	A Ø	B Ø	C Ø	D Ø	E	H	M	Support material	For vacuum cup item	Weight g
00 08 145	120	G3/8"	G3/8"	127	4	15	27	aluminium	01 150 10	471.9

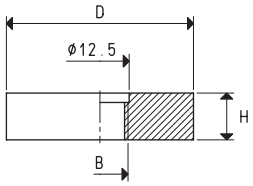


Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 146	8	5	8	5	18	brass	01 20 12	9.8
							01 20 14	
							01 20 15	

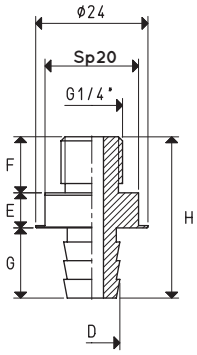
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

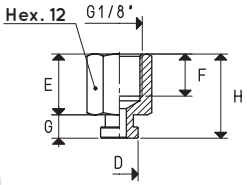
Item	B Ø	D Ø	H	Support material	For vacuum cup item	Weight g
00 08 147	M12	40	10	aluminium	01 42 15	32.8

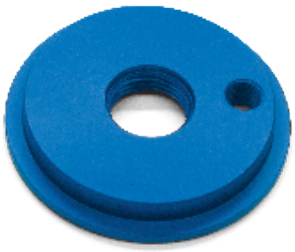


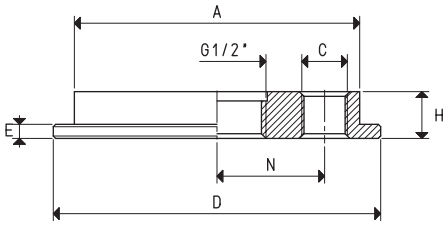
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 148	12	7.5	12	15	34.5	aluminium	01 50 70	14.5



Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 155	8	13	9	5	18	brass	01 20 12	9.1
							01 20 14	
							01 20 15	





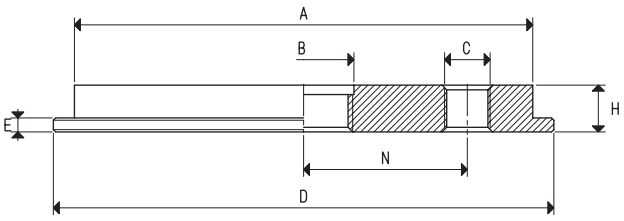


Item	A Ø	C Ø	D Ø	E	N	H	Support material	For vacuum cup item	Weight g
00 08 162	61	G1/8"	70	3	23	10	aluminium	01 110 58	78.9

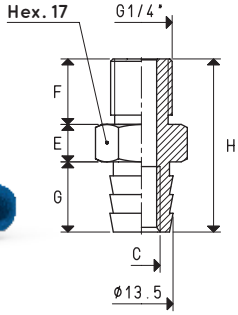
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

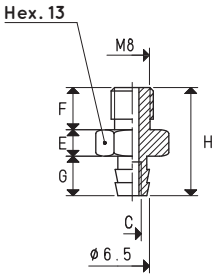
SUPPORTS FOR VACUUM CUPS



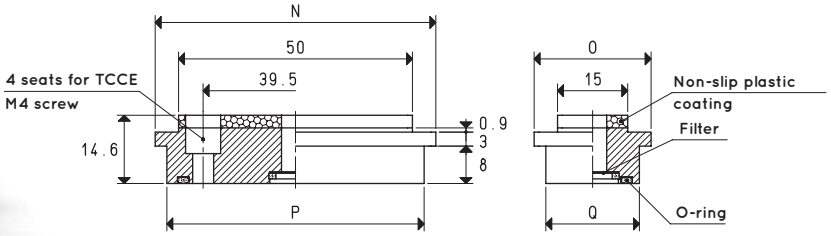
Item	A Ø	B Ø	C Ø	D Ø	E	N	H	Support material	For vacuum cup item	Weight g
00 08 163	98	G1/2"	G1/8"	107	3	35	10	aluminium	01 150 74	211.8



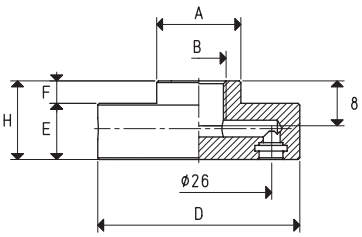
Item	C Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 172	M8	8	14	15	37	aluminium	01 30 45	15.2
							01 40 25	
							01 44 30	
							01 56 30	
							01 75 30	



Item	C Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 173	5.5	5	8	7.5	20.5	aluminium	01 15 23	8.7
							01 18 23	
							01 18 29	
							01 18 35	



Item	N	O	P	Q	Support material	For vacuum cup item	Weight g
00 08 184	60	25	55	20	aluminium	01 40 75	38.7

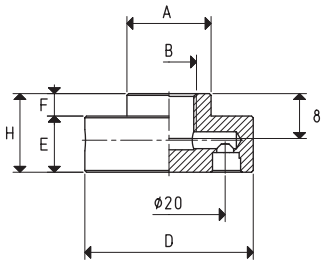


Item	A Ø	B Ø	D Ø	E	F	H	Support material	For vacuum cup item	Weight g
00 08 231	15	G1/8"	36	10	4	14	aluminium	01 31 06	24.9

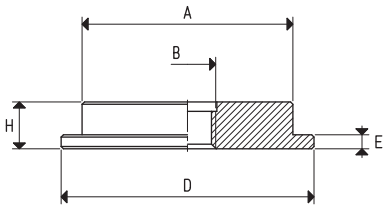
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

SUPPORTS FOR VACUUM CUPS

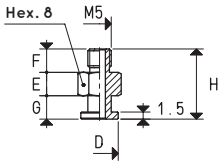


Item	A Ø	B Ø	D Ø	E	F	H	Support material	For vacuum cup item	Weight g
00 08 232	15	G1/8"	30	10	4	14	aluminium	01 24 06	16.7

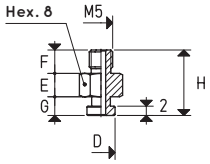


Item	A Ø	B Ø	D Ø	E	H	Support material	For vacuum cup item	Weight g
00 08 233	60	G3/4"	64	3	10	aluminium	01 85 15	77.3
00 08 234	60	G1/2"	64	3	10	aluminium	01 85 15	78.3

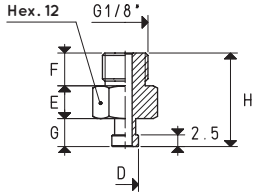
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 236	8	5	5	5	15	brass	01 07 13	3.0



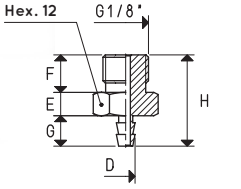
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 237	6	5	5	4	14	brass	01 08 07	3.0



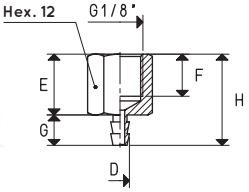
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 238	5.7	7	7	6	20	brass	01 11 08	7.0



Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 239	4	5	8	6.5	19.5	brass	01 14 09	8.0



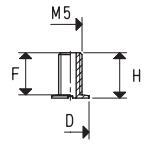
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 240	4	13	9	6.5	19.5	brass	01 14 09	7.0



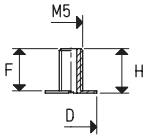
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

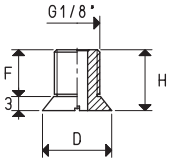
Item	D Ø	F	H	Support material	For vacuum cup item	Weight g
00 08 241	8	9	10	brass	01 15 04	1.5



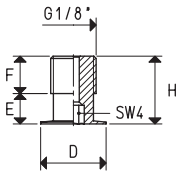
Item	D Ø	F	H	Support material	For vacuum cup item	Weight g
00 08 242	11	9	9.5	brass	01 20 04	1.8



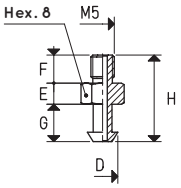
Item	D Ø	F	H	Support material	For vacuum cup item	Weight g
00 08 243	15	10	13	brass	01 20 06	6.0



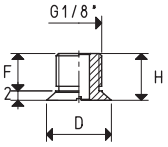
Item	D Ø	E	F	H	Support material	For vacuum cup item	Weight g
00 08 244	14	6.5	8	14.5	brass	01 35 12	5.9



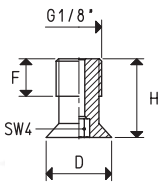
Item	D Ø	E	F	G	H	Support material	For vacuum cup item	g
00 08 245	6.5	4.5	6	8	18.5	brass	01 20 11	2.7



Item	D Ø	F	H	Support material	For vacuum cup item	Weight g
00 08 246	14	8	10	brass	01 22 06	5.0



Item	D Ø	F	H	Support material	For vacuum cup item	Weight g
00 08 247	14	8	17	brass	01 40 14	8.4



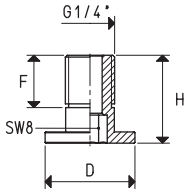
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

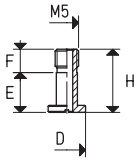
Adapters for GAS - NPT threading available on page 1.134

SUPPORTS FOR VACUUM CUPS

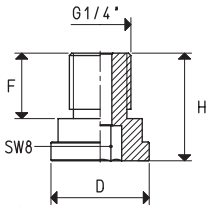
Item	D Ø	F	H	Support material	For vacuum cup item	Weight g
00 08 248	24	14	23.5	aluminium	01 54 18	5.8

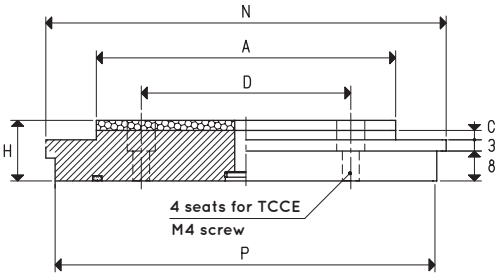


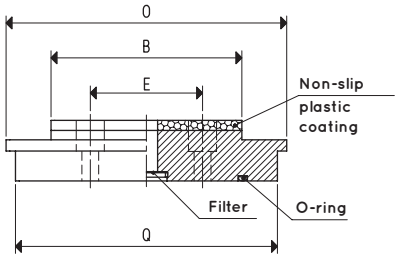
Item	D Ø	E	F	H	Support material	For vacuum cup item	Weight g
00 08 249	8	8.5	5	13.5	brass	01 31 12 S	1.8



Item	D Ø	F	H	Support material	For vacuum cup item	Weight g
00 08 250	21	14	23	aluminium	01 32 30	8.6



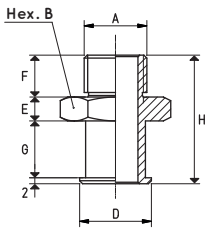




Item	A	B	C	D	E	H	N	O	P	Q	Support material	For vacuum cup item	Weight g
00 08 256	80	51	2.5	56	39	16.6	107	75	102	70	aluminium	01 120 90	244.5
00 08 257	110	35	2.3	92	20	16.4	135	60	130	55	aluminium	01 150 75	247.9

SUPPORTS

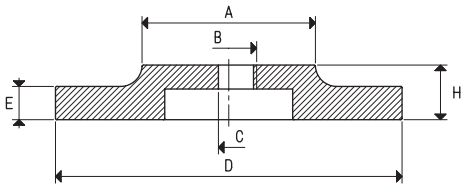
Item	A Ø	B	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 474	G3/8"	26	19	8	10	18	38	aluminium	01 40 55	18
00 08 475	G1/2"	32	24	8	14	19	43	aluminium	01 50 65	22



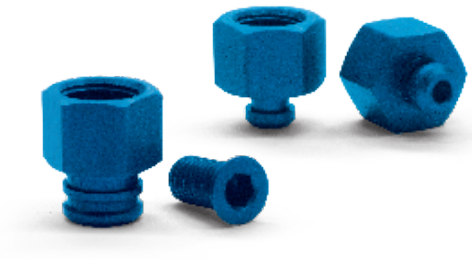
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

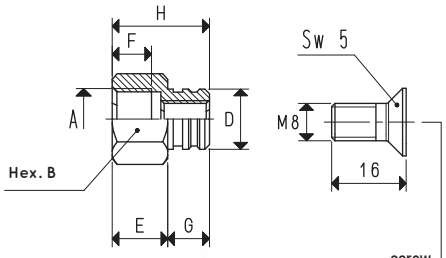
SUPPORTS FOR VACUUM CUPS



Item	A Ø	B Ø	C Ø	D Ø	E	H	Support material	For vacuum cup item	Weight g
00 08 280	35	G1/2"	--	70	12.5	22.5	aluminium	01 150 55	120
00 08 281	65	G1/2"	--	130	12.5	23.5	aluminium	01 210 60	465
00 08 286	35	--	8	70	12.5	22.5	aluminium	01 150 55	125
00 08 287	65	--	8	130	12.5	23.5	aluminium	01 210 60	470

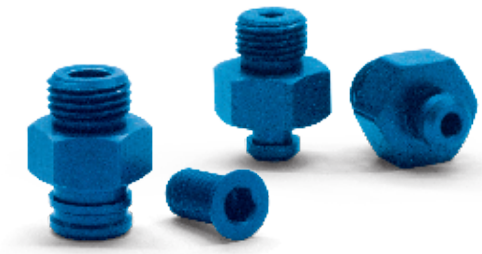


Item	A Ø	B	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 343	G1/8"	14	7.3	10	8.0	5.5	15.5	aluminium	VOP 08 24 SR	16.8
									VOP 10 30 SR	
									VOP 12 36 SR	
00 08 345	G1/4"	17	13.0	12	8.5	9.0	21.0	aluminium	VOP 15 45 SR	19.9
00 08 405	G1/4"	17	13.0	12	8.5	9.0	21.0	aluminium	VOP 20 60 SR	24.7
									VOP 25 75 SR	
00 08 403	G1/4"	17	13.0	12	8.5	9.0	21.0	aluminium	VOP 28 85 SR	25.6
									VOP 35 100 SR	

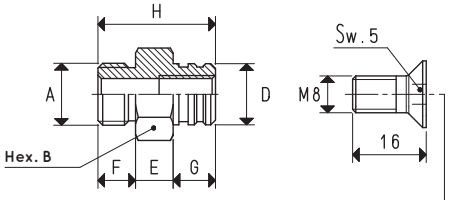


screw
item **00 08 347** for supp.**00 08 403**
item **00 08 348** for supp.**00 08 405**

Note: Supplied automatically also with the screw when ordering the item relative to the support



Item	A Ø	B	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 344	G1/8"	14	7.3	7	7	5.5	19.5	aluminium	VOP 08 24 SR	18.5
									VOP 10 30 SR	
									VOP 12 36 SR	
00 08 346	G1/4"	17	13.0	8	8	9.0	25.0	aluminium	VOP 15 45 SR	25.0
00 08 404	G1/4"	17	13.0	8	8	9.0	25.0	aluminium	VOP 20 60 SR	29.8
									VOP 25 75 SR	
00 08 402	G1/4"	17	13.0	8	8	9.0	25.0	aluminium	VOP 28 85 SR	30.7
									VOP 35 100 SR	

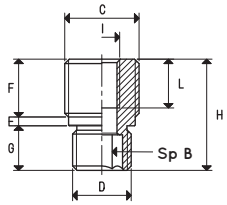


screw
item **00 08 347** for supp.**00 08 402**
item **00 08 348** for supp.**00 08 404**

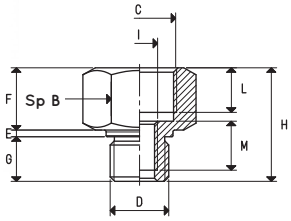
Note: Supplied automatically also with the screw when ordering the item relative to the support

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

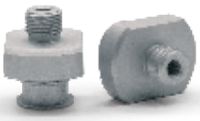
Adapters for GAS - NPT threading available on page 1.134

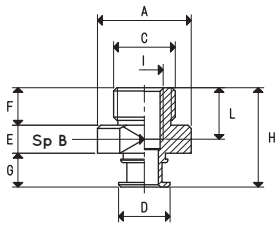


Item	B	C Ø	D Ø	E	F	G	H	I	L	Support material	For vacuum cup item	Weight g
00 08 373	8	G1/4"	G1/4"	2	10	10.0	22.0	M8	11	aluminium	08 75 43 SR	4.1
00 08 372	8	G3/8"	G1/4"	2	13	10.0	25.0	M8	11	aluminium	08 75 43 SR	7.4
00 08 376	8	G3/8"	G3/8"	3	13	15.5	31.5	M8	11	aluminium	08 110 73 SR	14.1
00 08 375	8	G1/2"	G3/8"	3	13	15.5	31.5	M8	11	aluminium	08 110 73 SR	15.5

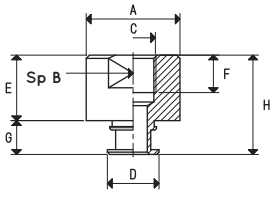


Item	B	C Ø	D Ø	E	F	G	H	I	L	M	Support material	For vacuum cup item	Weight g
00 08 374	22	G3/8"	G1/4"	1.5	14	10.0	25.0	M8	10	11	aluminium	08 75 43 SR	12.0
00 08 377	23	G1/2"	G3/8"	3.0	17	15.5	35.5	M8	13	11	aluminium	08 110 73 SR	17.8





Item	A Ø	B	C Ø	D Ø	E	F	G	H	I	L	Support material	For vacuum cup item	Weight g
00 08 394	20	17	G1/8"	11	6.0	8	7.2	21.2	M5	8	aluminium	01 35 27	6.2
00 08 395	27	20	G1/8"	15	7.5	8	9.2	24.7	M5	8	aluminium	01 52 40	13.2
00 08 366	20	17	G1/4"	11	6.0	8	7.2	21.2	M8	11	aluminium	01 35 27	6.1
00 08 364	27	20	G1/4"	15	7.5	8	9.2	24.7	M8	11	aluminium	01 52 40	13.0



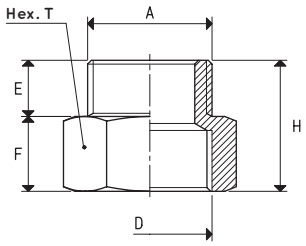
Item	A Ø	B	C Ø	D Ø	E	F	G	H	Support material	For vacuum cup item	Weight g
00 08 396	20	17	G1/8"	11	14	8	7.2	21.2	aluminium	01 35 27	9.7
00 08 397	27	20	G1/8"	15	14	8	9.2	23.2	aluminium	01 52 40	20.0
00 08 392	20	17	G1/4"	11	14	10	7.2	21.2	aluminium	01 35 27	7.8
00 08 393	27	20	G1/4"	15	14	10	9.2	23.2	aluminium	01 52 40	18.1

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

GAS - NPT ADAPTERS

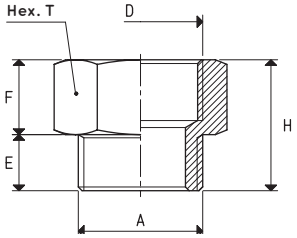
These adapters allow using NPT threaded fittings on vacuum components with NPT threading, such as vacuum components like vacuum cup supports, valves and solenoid valves, filters etc. with gas threading.



FEMALE GAS - MALE NPT ADAPTER

Item	A Ø	D Ø	E	F	H	T
00 08 259	1/8" NPT	G1/8"	10	12	22	14
00 08 260	1/4" NPT	G1/4"	12	17	29	19
00 08 261	3/8" NPT	G3/8"	16	18	34	22
00 08 262	1/2" NPT	G1/2"	17	19	36	27
00 08 263	3/4" NPT	G3/4"	19	20	39	32
00 08 264	1" NPT	G1"	22	20	42	41
00 08 265	1" 1/4 NPT	G1" 1/4	23	23	46	50
00 08 266	1" 1/2 NPT	G1" 1/2	23	23	46	60
00 08 267	2" NPT	G2"	25	24	49	70

Note: All adapters are manufactured per minimum batch sizes and with cost evaluated upon final balance.



MALE GAS - FEMALE NPT ADAPTER

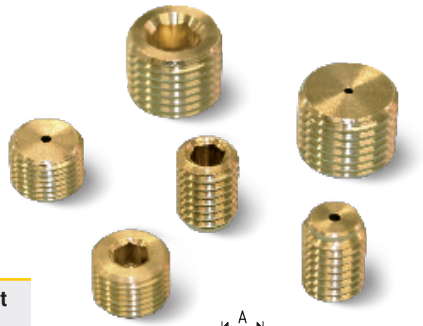
Item	A Ø	D Ø	E	F	H	T
00 08 268	G1/8"	1/8" NPT	10	15	25	14
00 08 269	G1/4"	1/4" NPT	11	17	28	19
00 08 270	G3/8"	3/8" NPT	12	22	34	22
00 08 271	G1/2"	1/2" NPT	14	23	37	27
00 08 272	G3/4"	3/4" NPT	14	24	38	32
00 08 273	G1"	1" NPT	17	28	45	41
00 08 274	G1" 1/4	1" 1/4 NPT	18	28	46	50
00 08 275	G1" 1/2	1" 1/2 NPT	19	29	48	60
00 08 276	G2"	2" NPT	20	31	51	70

Note: All adapters are manufactured per minimum batch sizes and with cost evaluated upon final balance.

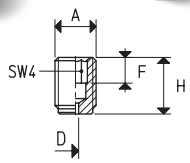
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

THREADED GRUB SCREWS WITH CALIBRATED HOLE

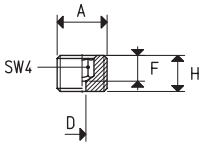
These threaded grub screws with calibrated hole are used to reduce the cup suction section, thus reducing vacuum losses in case the cup fails to grip. They are made of brass and can be inserted in all the cup supports set for this application.



Item	A Ø	D Ø	F	H	Grub screw material	Weight g
00 08 122	M8	0.9	5	11	brass	2.5
00 08 121	M8	1.2	5	11	brass	2.4
00 08 120	M8	1.5	5	11	brass	2.3



Item	A Ø	D Ø	F	H	Grub screw material	Weight g
00 08 164	G1/8"	1.2	5	7	brass	3.0
00 08 165	G1/8"	1.5	5	7	brass	3.0
00 08 176	G1/4"	1.2	5	10	brass	4.0
00 08 334	G1/8"	3.0	4	7	brass	4.0

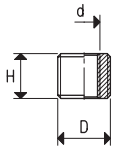


ADAPTERS

These standard accessories offer the user different assembly options.
The galvanised steel or brass adapters screwed onto the standard vacuum cup support connections can vary the threads from gas to metric or vice-versa, from male to female or vice-versa, in addition of course to increasing or decreasing the size of their threaded diameter.

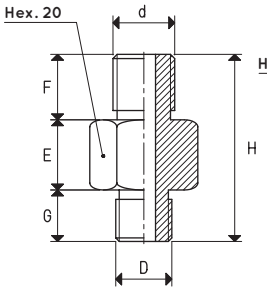
MF ADAPTER

Item	D Ø	d Ø	H	Support material	Weight g
00 08 130	G1/4"	M10	14	steel	4.0
00 08 131	G3/8"	M10	14	steel	12.0
00 08 230	G3/8"	G1/4"	14	steel	6.0
00 08 254	1/4" NPT	M10	14	steel	3.9
00 08 255	3/8" NPT	M10	14	steel	11.9
00 08 258	3/8" NPT	G1/4"	14	steel	5.9

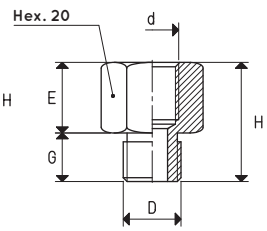


MM AND MF ADAPTER

Item	D Ø	d Ø	E	F	G	H	Adapter material	Weight g
00 08 129	M12	G1/4"	15	14	11	40	brass	58.0
00 08 296	M12	G3/8"	18	--	10	28	brass	34.0
00 08 297	G1/4"	M12	16	--	11	27	brass	40.0



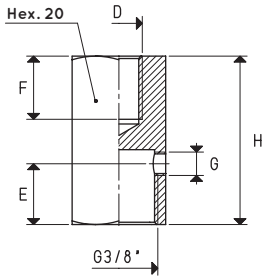
Item 00 08 129



Item 00 08 296
Item 00 08 297

FF ADAPTER FOR JOINT COUPLINGS GS

Item	D Ø	E	F	G Ø	H	Adapter material	Weight g
00 08 54	M10	13	13.5	M5	36	brass	72
00 08 251	M8	16	15.0	G1/8"	48	brass	102
00 08 252	M12	16	15.0	G1/8"	48	brass	90



Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

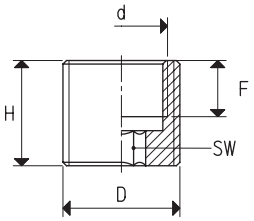
inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

VACUUM CUP ADAPTERS

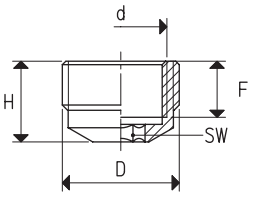
MF ADAPTER

Item	D Ø	d Ø	F	H	SW	Weight g
00 08 215	G3/8"	G1/4"	8	14	6	11.5



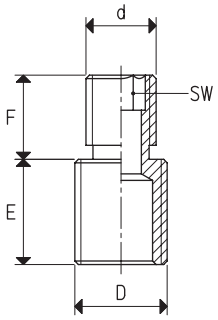
MF ADAPTER

Item	D Ø	d Ø	F	H	SW	Weight g
00 08 216	G3/8"	G1/4"	8	11.5	6	6.0



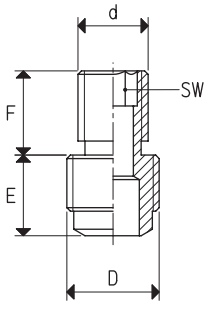
MM ADAPTER

Item	D Ø	d Ø	E	F	SW	Weight g
00 08 217	G1/4"	G1/4"	15	10	6	16.7
00 08 218	G1/4"	M10 x 1.5	15	12	6	10.2
00 08 219	G1/4"	M14 x 1.5	15	12	6	16.0
00 08 220	G3/8"	G1/4"	14	10	6	18.4
00 08 221	G3/8"	M10 x 1.5	14	12	6	16.3
00 08 222	G3/8"	M14 x 1.5	14	12	6	22.5



MM ADAPTER

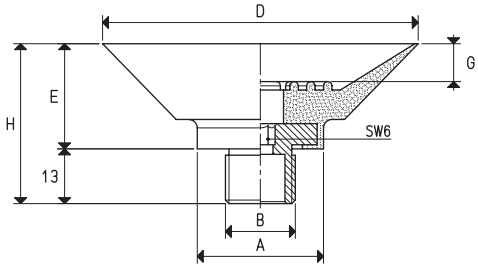
Item	D Ø	d Ø	E	F	SW	Weight g
00 08 223	G1/4"	G1/4"	11.5	10	6	13.9
00 08 224	G1/4"	M10 x 1.5	13.0	12	6	10.1
00 08 225	G1/4"	M14 x 1.5	13.0	12	6	15.8
00 08 226	G3/8"	G1/4"	10.5	11	6	16.6
00 08 227	G3/8"	M10 x 1.5	10.5	13	6	14.2
00 08 228	G3/8"	M14 x 1.5	10.5	13	6	20.2



Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SELF-LOCKING VACUUM CUPS WITH TRACTION RELEASE

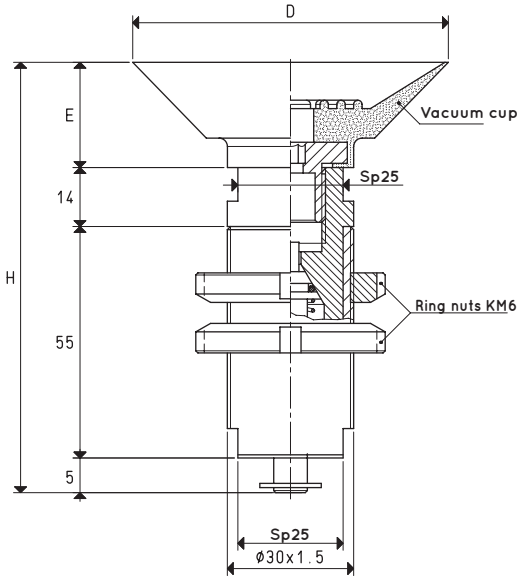
These cups do not require a connection to any vacuum source, since the object onto which they are laid on evacuates the air inside them. A built-in non-return valve prevents the air from entering again, thus maintaining the vacuum.
To release the piece, simply lift it a few millimetres, thus opening the non-return valve, which restores the atmospheric pressure inside the cup, by letting the air in.
Since possible losses cannot be recovered, these cups a recommended only for holding objects with smooth and impermeable surfaces, such as glass, polished sheets, and other similar objects. They are particularly suited for glass carrying trolleys feeding trolleys for robotic systems.
They are made with nickel-plated brass with a steel drive bush, which can be provided in the anti-rotation version upon request.



3D drawings are available on **vuototecnica.net**

VACUUM CUPS WITH FEMALE VULCANISED SUPPORT, SPARE PART

Item	Compounds available	Volume cm³	A Ø	B Ø	D Ø	E	G	H	Support material	Weight g
08 50 40 *	B N S	9.8	31	G3/8"	50	16.0	6.5	29.0	steel	38.5
08 75 40 *	B N S	27.8	31	G3/8"	75	25.0	9.0	38.0	steel	57.9
08 100 40 *	B N S	41.3	32	G3/8"	100	26.0	9.0	39.0	steel	78.3
08 100 50 *	B S	70.3	32	G3/8"	100	30.5	15.0	43.5	steel	74.8



SELF-LOCKING VACUUM CUPS WITH TRACTION RELEASE

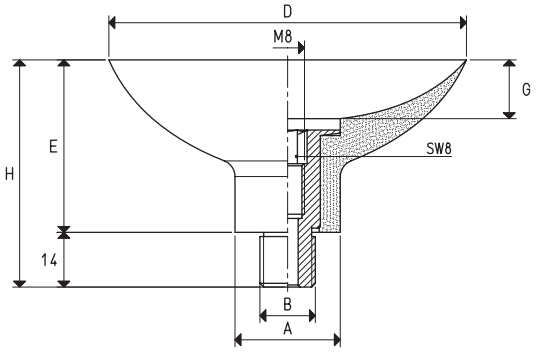
Item	Force -10 kPa Kg	Compounds available	D Ø	E	H	Vacuum cup item	Weight g
17 50 40 *	1.90	B N S	50	16	90	08 50 40	436
17 75 40 *	4.42	B N S	75	25	99	08 75 40	458
17 100 40 *	7.85	B N S	100	26	100	08 100 40	474
17 100 50 *	7.85	B S	100	30	104	08 100 50	473

Note: The suction cup force shown in the table is calculated at a hypothetical vacuum value of -10 kPa.

* Complete the code indicating the compound: (B) = BENZ rubber; (N) = para rubber; (S) = silicone
Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

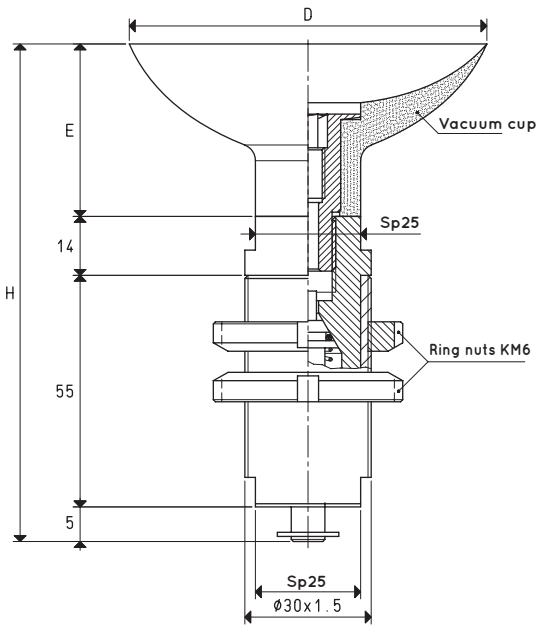
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SELF-LOCKING VACUUM CUPS WITH TRACTION RELEASE



VACUUM CUPS WITH SUPPORT, SPARE PART

Item	Compounds available	Volume cm³	A Ø	B Ø	D Ø	E	G	H	Vacuum cup item	Support item	Support material	Weight g
08 60 10 *	A N S	16.1	15	G1/4"	60	22	9.5	36	01 60 10	00 08 22	aluminium	20.8
08 85 10 *	A N S	48.8	25	G1/4"	85	41	14.0	55	01 85 10	00 08 28	aluminium	49.3



SELF-LOCKING VACUUM CUPS WITH TRACTION RELEASE

Item	Force -10 kPa Kg	Compounds available	D Ø	E	H	Vacuum cup item	Weight g
17 60 10 *	2.9	A N S	60	22	96	08 60 10	415
17 85 10 *	5.7	A N S	85	41	115	08 85 10	444

Note: The suction cup force shown in the table is calculated at a hypothetical vacuum value of -10 kPa.

* Complete the code indicating the compound: A = oil-resistant rubber; N = para rubber; S = silicone

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

CLAMPING SUCTION CUPS

Our clamping suction cups, entirely designed and manufactured in Italy, are true mobile vacuum systems ideal for securely fixing workpieces during mechanical or industrial processing. Thanks to the use of a vacuum, these devices guarantee a stable, precise and non-invasive grip.
The systems are particularly suitable for materials with irregular shapes and smooth surfaces such as marble, glass, metals (ferrous and non-ferrous) and plastic. The suction cups can be easily installed on CNC machining centres. They are especially designed for all those cases where the use of a magnetic plane is not possible. Our product line includes various types of products.

Series 23 SUPPORTS WITH RETRACTABLE STRIKING PIN:
Designed to allow quick centring and positioning of the load to be clamped. The striking pin is activated by vacuum during the retraction phase.

Series 05 BUILT-IN VACUUM CUPS WITH BALL VALVE:
Specially designed to make vacuum-operated work surfaces. The gripping surface is delimited by a silicone O-ring seal or a flat suction cup.

Series 16 ROUND AND RECTANGULAR VACUUM CUPS WITH SELF-LOCKING SUPPORT:
Consisting of a flat suction cup fitted cold onto the top of the support and silicone O-rings on the bottom.

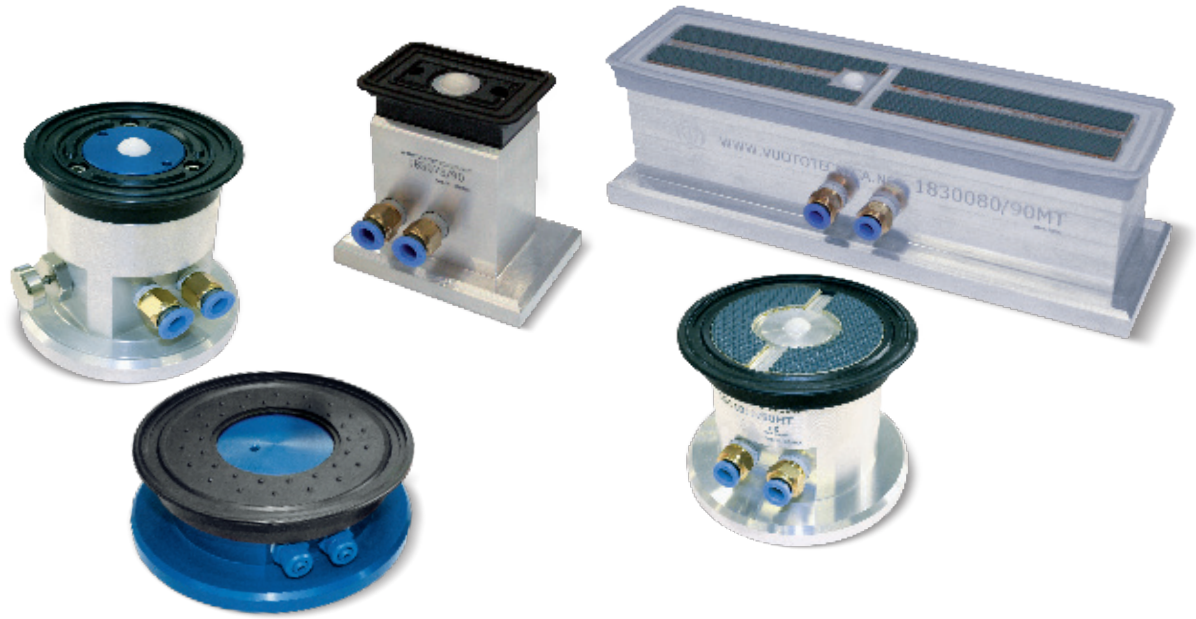
Series 18 ROUND AND RECTANGULAR VACUUM CUPS WITH BALL SHUTTER AND SELF-LOCKING SUPPORT, FOR GLASS:
These consist of a flat suction cup fitted cold onto the top of the support and silicone O-rings on the bottom. Equipped with a ball shutter, these ensure that the vacuum is activated only upon contact with the workpiece to be held.

Series 18 ROUND AND RECTANGULAR VACUUM CUPS WITH BALL SHUTTER AND SELF-LOCKING SUPPORT AND NON-SLIP PLASTIC COATING:
Same as the previous version, with the addition of a non-slip plastic mat, ideal for clamping glass and smooth marble.

Series 21 ROUND AND RECTANGULAR VACUUM CUPS WITH BALL SHUTTER, SELF-LOCKING SUPPORT AND RELEASE BUTTON, FOR GLASS:
These have the same characteristics as the 18 series but are equipped with a release button, which allows the support to be positioned or moved even when the vacuum is already activated.

Series 28 ROUND AND RECTANGULAR VACUUM CUPS WITH BALL SHUTTER:
All clamping supports in the 18 series versions can be manufactured without a self-locking system. They are therefore suitable for mechanical clamping on reference surfaces using T-slots.

To meet the increasingly demanding requirements of glass processing machine manufacturers, we have developed a line of high-precision suction cups with a guaranteed height tolerance of ±0.05 mm. Standard flat suction cups are available in three different compounds: NBR, Para and Silicone.
The lower perimeter seal is delimited by an O-ring made exclusively of silicone.
All suction cups, both with self-locking support and mechanical clamping, are manufactured to maintain a constant gripping height, allowing them to be used in combination with different shaped and sized models.
Upon request, we also manufacture supports with non-standard heights to adapt to particularly complex or specialised CNC machining operations.
Please refer to the following pages for more details on the technical specifications of models.
For the best choice of clamping system for your application, our Technical Department is available to provide advice and personalised support.
Note: sales may be subject to minimum purchase quantities, depending on the type requested.



Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

CLAMPING SUCTION CUPS

To meet the increasingly demanding requirements of glass processing machine manufacturers, we have developed a line of high-precision suction cups with a guaranteed height tolerance of ±0.05 mm.

Standard flat suction cups are available in three different compounds: NBR, Para and Silicone.

The lower perimeter seal is delimited by an O-ring made exclusively of silicone.

All suction cups, both with self-locking support and mechanical clamping, are manufactured to maintain a constant gripping height, allowing them to be used in combination with different shaped and sized models.

Technical data sheets

Upon request, we also manufacture supports with non-standard heights to adapt to particularly complex or specialised CNC machining operations.

Please refer to the following pages for more details on the technical specifications of models.

For the best choice of clamping system for your application, our Technical Department is available to provide advice and personalised support.

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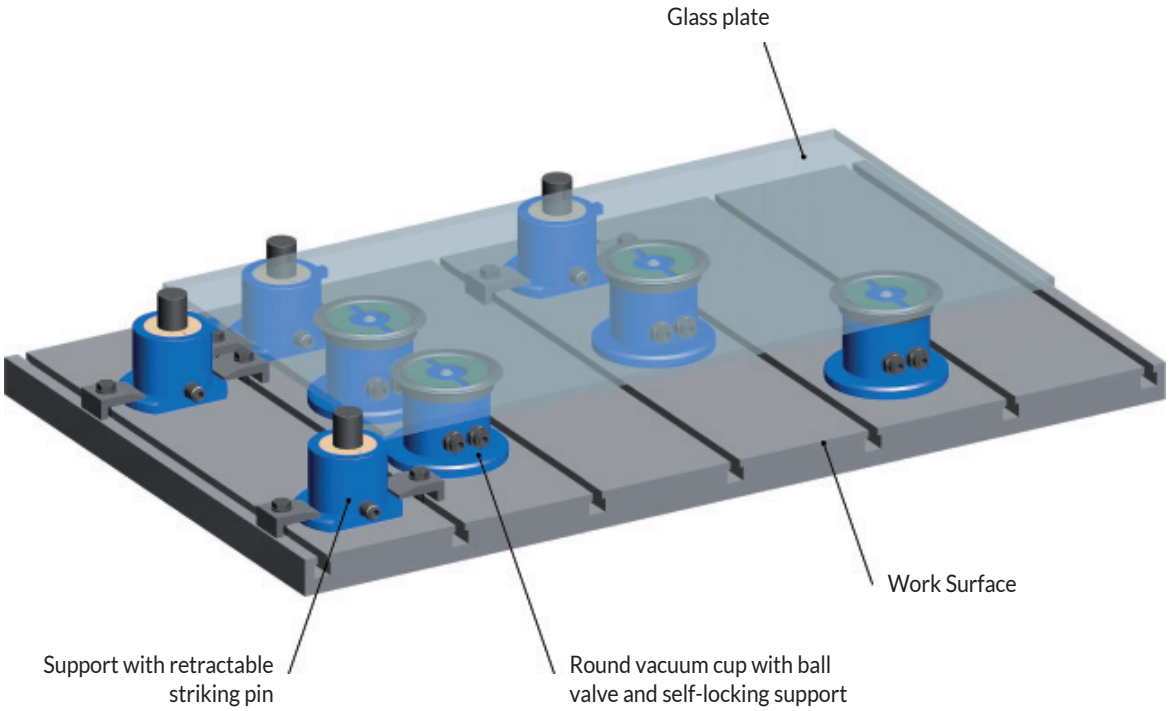


Series 23 SUPPORTS WITH RETRACTABLE STRIKING PIN

These supports with retractable striking pins have been designed to allow a quick centring of the load to be clamped to the machine work surface via the cups.
The striking pin is solidly connected to a piston and it is activated by the vacuum while retracting and while remaining in its housing and also by a stainless steel spring while coming out.
These supports are mechanically fixed to the work surface.
The striking pin is made of plastic material, while the support is made of anodised aluminium.
They are supplied standard with a quick coupling for vacuum connection.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Series 05 BUILT-IN VACUUM CUPS WITH BALL VALVE

The main feature of these cups is that they open, and therefore they produce a vacuum, only when the load to be handled activates the sealing ball.
In this version, the gripping surface is limited by a silicone O-ring which guarantees the vacuum seal.
They have been specially designed for vacuum beds and they are fully made with anodised aluminium.

Series 05 BUILT-IN VACUUM CUPS WITH BALL VALVE

The main feature of the these cups is the same as described above; they differ only in the seal which, in these, consists of the flat vacuum cups listed in the table.
They are especially designed for the glass industry vacuum and in all those cases where the use of a magnetic plane is not possible.
They are made of anodised aluminium but can be manufactured with other metals upon request.

Series 05 SPECIAL BUILT-IN VACUUM CUPS WITH BALL VALVE

Their main feature is that they open suction and therefore they produce a vacuum, only when the load to be handled activates the sealing ball.
Especially designed for the vacuum operated beds of woodworking machines, they differ from the previously described ones because of the high precision of their cylindrical support, which is ground to size, and because of their square closing block, which prevents the cup from rotating and enables connection to vacuum.
The cold fitted cups are the flat ones listed in the table, in the various compounds.
The support of these cups is made of anodised aluminium, while the closing block is made of brass.

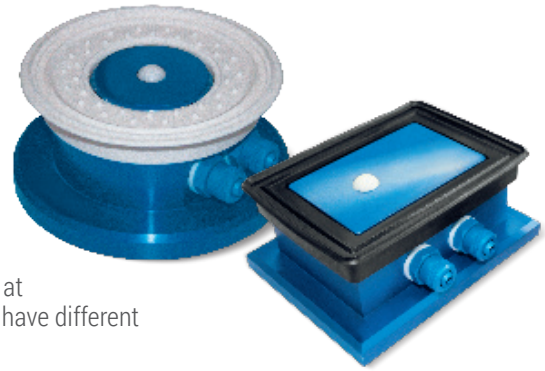
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Series 16 ROUND AND RECTANGULAR VACUUM CUPS WITH SELF-LOCKING SUPPORT

These cups represent a true mobile clamping system. They are composed of:
- A sturdy anodised aluminium support with a wide surface at the base limited by a seal whose purpose is to fix it to the bearing surface;
- A standard circular flat cup which is cold fitted onto the upper part of the support for gripping the load;
- Two quick couplings for vacuum connection.

The detection of vacuum for gripping and releasing the support from the bearing surface and gripping and releasing the load can be made via three-way vacuum valves or solenoid valves.
All cups with self-locking support of this and other ranges with the gripping plane at the same height can be used simultaneously, even if they are of different types or have different sizes.

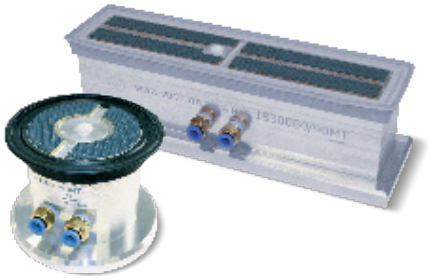
Series 18 ROUND AND RECTANGULAR VACUUM CUPS WITH BALL SHUTTER AND SELF-LOCKING SUPPORT



These cups represent a true mobile clamping system. They are composed of:
- A sturdy anodised aluminium support with a wide surface at the base limited by a seal whose purpose is to fix it to the bearing surface;
- A standard circular flat cup which is cold fitted onto the upper part of the support for gripping the load;
- A ball valve that opens up creating vacuum, only when activated by the load to be gripped;
- Two quick couplings for vacuum connection.

The detection of vacuum, for gripping and releasing the support, can be made via three-way vacuum valves or solenoid valves.
All cups with self-locking support of this and other ranges with the gripping plane at the same height can be used simultaneously, even if they are of different types or have different sizes.

Series 18 ROUND AND RECTANGULAR VACUUM CUPS WITH BALL SHUTTER AND SELF-LOCKING SUPPORT AND NON-SLIP PLASTIC COATING



These cups represent a true mobile clamping system.
They are composed of:
- A sturdy aluminium support with a wide surface at the base limited by a seal whose purpose is to fix it to the bearing surface;
- A standard circular flat cup which is cold fitted onto the upper part of the support for gripping the load;
- A ball valve that opens up creating vacuum, only when activated by the load to be gripped;
- Two quick couplings for vacuum connection.

The gripping plane of these cups is covered with a special non-slip plastic coating, which is particularly suited for clamping glass and smooth marble.
The detection of vacuum, for gripping and releasing the support, can be made via three-way vacuum valves or solenoid valves.
All cups with self-locking support of this and other ranges with the gripping plane at the same height can be used simultaneously, even if they are of different types or have different sizes.
Note: Available with support for mechanical fixing with code 28, instead of 18.

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Series 18 SERIES ROUND VACUUM CUPS WITH BALL VALVE AND HIGH SELF-LOCKING SUPPORT, FOR GLASS

Glass machinery manufacturers require increasingly accurate and safe clamping machines. This has led us to the creation of this series of cups.
The specially designed shape of this cup guarantees a firm grip. The other main feature is the utmost precision in the height, whose nominal size has a tolerance of only five hundredths of millimetre.
They are composed of:
- A sturdy aluminium support with a wide surface at the base limited by a seal whose purpose is to fix it to the bearing surface;
- A standard round flat cup which is cold-assembled onto the upper part of the support for gripping the load;
- A ball valve that opens up creating vacuum, only when activated by the load to be gripped;
- Two quick couplings for vacuum connection.

The detection of vacuum, for gripping and releasing the support from the bearing surface and for gripping and release of glass can be made via three-way vacuum valves or solenoid valves.

Series 21 ROUND VACUUM CUPS WITH BALL SHUTTER, SELF-LOCKING SUPPORT AND RELEASE BUTTON, FOR GLASS

Glass machinery manufacturers require increasingly accurate and safe clamping machines. This has led us to the creation of this series of cups.
The specially designed shape of this cup guarantees a firm grip. The other main feature is the utmost precision in the height, whose nominal size has a tolerance of only five hundredths of millimetre.
They are composed of:
- A sturdy anodised aluminium support with a wide surface at the base limited by a seal whose purpose is to fix it to the bearing surface;
- A standard round flat cup which is cold-assembled onto the upper part of the support for gripping the load;
- A ball valve that opens up creating vacuum, only when activated by the load to be gripped;
- A release button that allows placing the support even with the vacuum inserted;
- Two quick couplings for vacuum connection.

The detection of vacuum, for gripping and releasing the support from the bearing surface and for gripping and release of glass can be made via three-way vacuum valves or solenoid valves.

Series 21 ROUND AND RECTANGULAR VACUUM CUPS WITH BALL SHUTTER, SELF-LOCKING SUPPORT AND RELEASE BUTTON

These cups represent a true mobile clamping system.
They are composed of:
- A sturdy anodised aluminium support with a wide surface at the base limited by a seal whose purpose is to fix it to the bearing surface;
- A standard circular flat cup which is cold fitted onto the upper part of the support for gripping the load;
- A ball valve that opens up creating vacuum, only when activated by the load to be gripped;
- A release button that allows placing the support even with the vacuum inserted;
- Two quick couplings for vacuum connection.

The detection of vacuum for gripping and releasing the support from the bearing surface and gripping and releasing the load can be made via three-way vacuum valves or solenoid valves.
All cups with self-locking support of this and other ranges with the gripping plane at the same height can be used simultaneously, even if they are of different types or have different sizes.

Note: Cups in special compounds, listed on page 31 can be provided upon specific request in minimum quantities to be defined in the order.

The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

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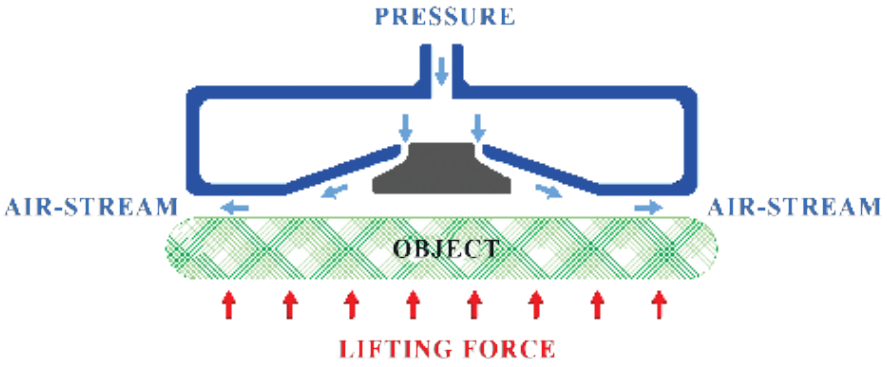
VACUUM CUPS BASED ON BERNOULLI'S THEOREM

Bernoulli's theorem explains many phenomena, such as the lifting of a plane's wing or of a light disc in front of a tube end from which air flows out quickly.
This apparently paradoxical phenomenon is exploited for manufacturing vacuum gripping systems (vacuum cups) and handling, with no contact, fragile objects, such as semiconductor plates, silica discs, solar cells, precious metal foils, films and whatever needs to be handled with the greatest care.
Our cups based on Bernoulli's principle are made with anodised aluminium, with stainless steel centre thrust disc.
The antistatic silicone spacers, located on the cup gripping plane, prevent transverse movements of the gripped object.
The compressed air supply connections can be axial and radial and the quick coupler for the flexible pipe is included in the package.
The unused holes are closed with brass threaded caps.
On the rear part of the cup there are 3 or 4 threaded holes for fitting it to the automation.



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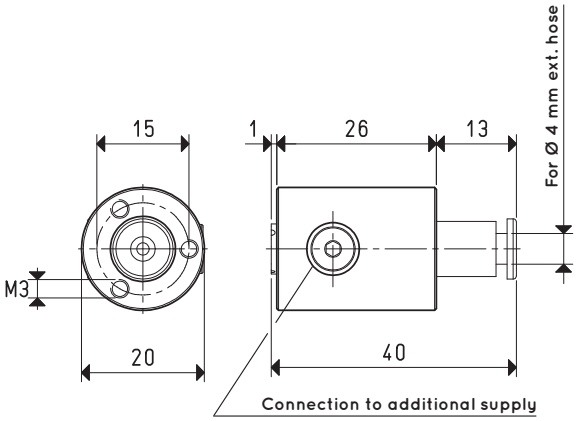
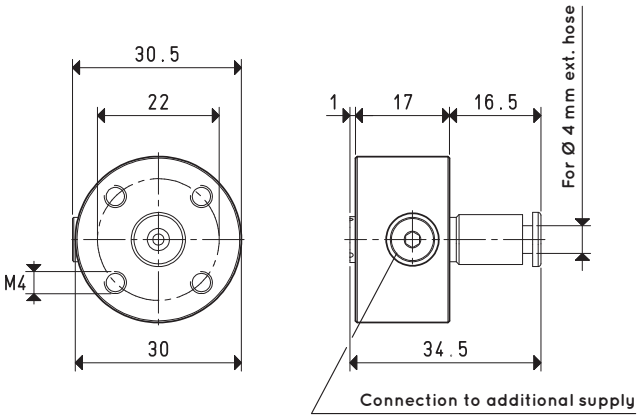
VACUUM CUPS BASED ON BERNOULLI'S THEOREM



Item	Max force g	Transverse force g	Operating pressure bar	Consumption of air Nl/s	Level of noise dB(A)	Weight g
BEC 20	220	145	5	2.3	66	21

Accessories and spare parts upon request		BEC 20
Spare rubber pad spacer	item	00 BEC 10
Fitting	item	00 BEC 13
Vacuum Cup Holders	item	20 80 04



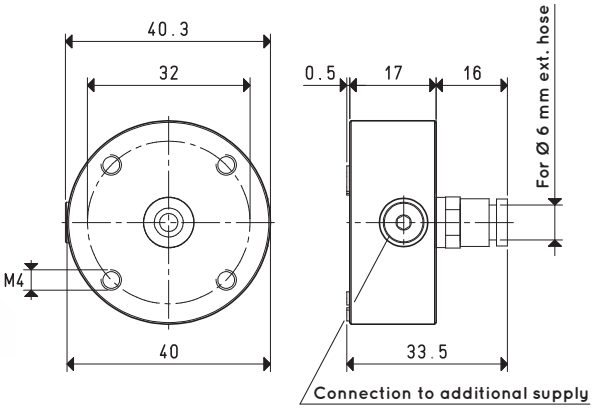
Item	Max force g	Transverse force g	Operating pressure bar	Consumption of air Nl/s	Level of noise dB(A)	Weight g
BEC 30	380	250	5	2.5	72	31

Accessories and spare parts upon request		BEC 30
Spare rubber pad spacer	item	00 BEC 10
Fitting	item	00 BEC 13
Vacuum Cup Holders	item	20 80 04

Note: BEC vacuum cups must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.
For BEC to function correctly, we do not recommend the use of chemical sealants for the pneumatic supply, as they could dissolve with the compressed air, causing clogging, reducing performance and thus compromising functioning of the BEC vacuum cups.
To ensure a sealed connection, it is essential to use compression fittings, quick coupling fittings or other fittings specifically designed for compressed air, which guarantee airtightness thanks to their sealing gasket.

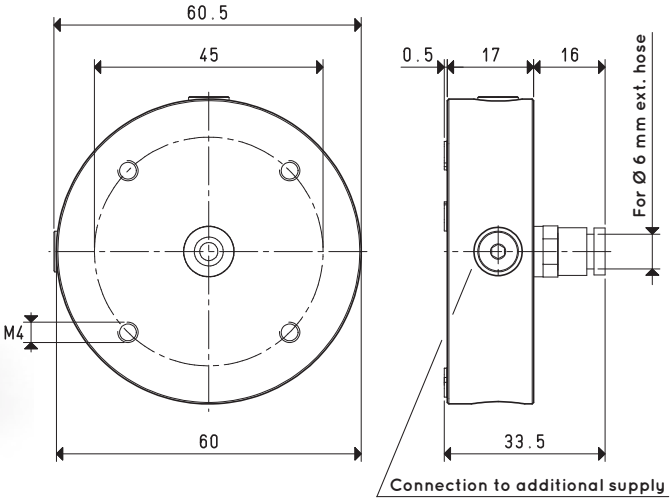
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

VACUUM CUPS BASED ON BERNOULLI'S THEOREM



Item	Max force g	Transverse force g	Operating pressure bar	Consumption of air Nl/s	Level of noise dB(A)	Weight g
BEC 40	680	450	5	3.0	74	51

Accessories and spare parts upon request		BEC 40
Spare rubber pad spacer	item	00 BEC 09
Fitting	item	00 BEC 14
Vacuum Cup Holders	item	20 10 38 M



Item	Max force g	Transverse force g	Operating pressure bar	Consumption of air Nl/s	Level of noise dB(A)	Weight g
BEC 60	900	600	5	4.4	75	121

Accessories and spare parts upon request		BEC 60
Spare rubber pad spacer	item	00 BEC 09
Fitting	item	00 BEC 14
Vacuum Cup Holders	item	20 10 38 M

Note: BEC vacuum cups must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.
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To ensure a sealed connection, it is essential to use compression fittings, quick coupling fittings or other fittings specifically designed for compressed air, which guarantee airtightness thanks to their sealing gasket.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Spare rubber pad spacer

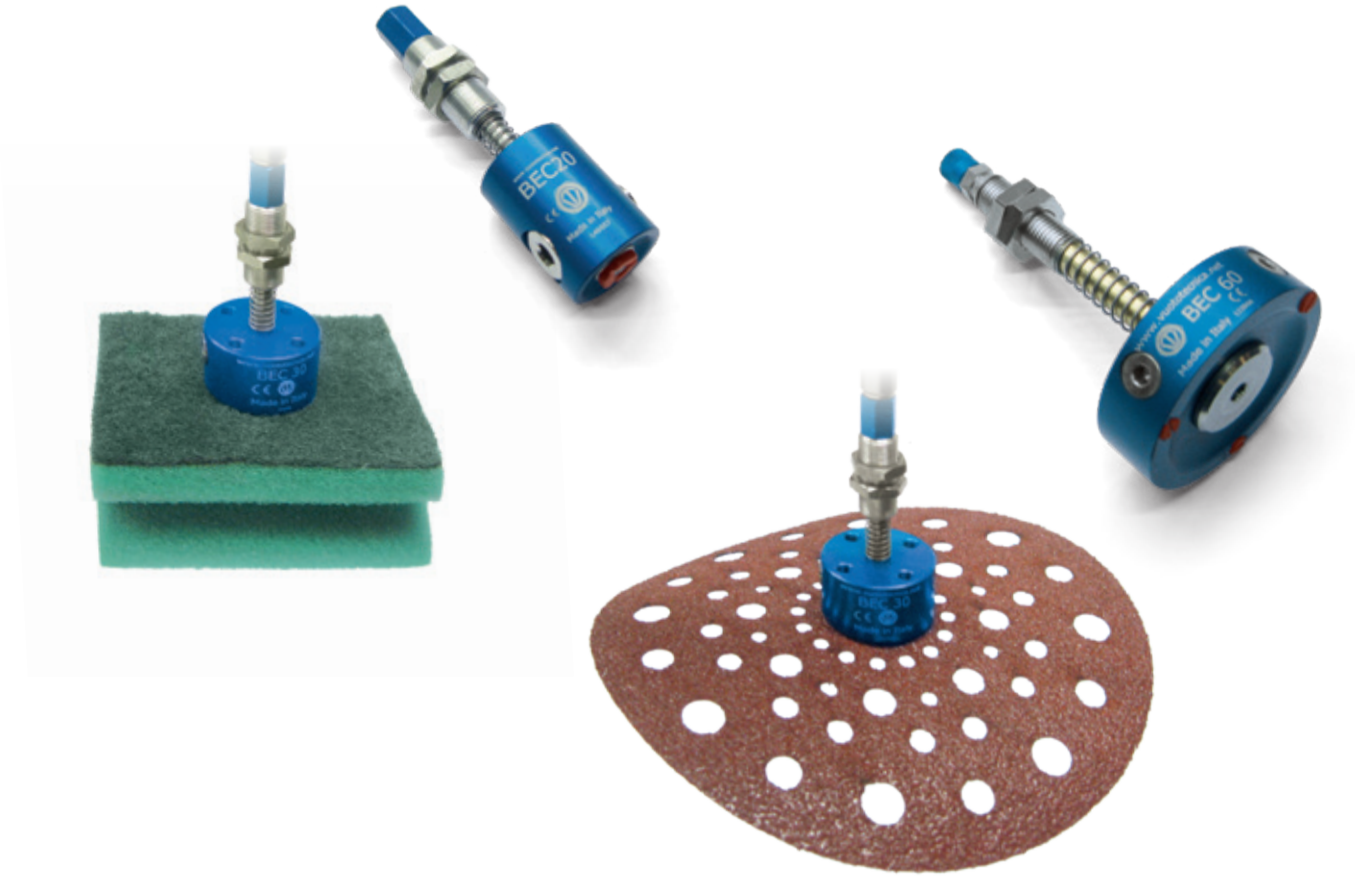
Item	Description	For vacuum cup
00 BEC 09	Red silicone hexagonal spacer	BEC 40 - BEC 60
00 BEC 10	Red silicone hexagonal spacer	BEC 20 - BEC 30

Fitting

Item	Description	For vacuum cup
00 BEC 13	Straight quick coupling, M5 male, for Ø4 tube	BEC 20 - BEC 30
00 BEC 14	Quick coupling, G 1/8", for Ø6 tube	BEC 40 - BEC 60

Vacuum Cup Holders

Item	Description	For vacuum cup
20 80 04	Micro cup holders M5 male	BEC 20 - BEC 30
20 10 38 M	Mini vacuum cup holders with G 1/8" male connection	BEC 40 - BEC 60



3D drawings are available on **vuototecnica.net**

VACUUM CUP QUESTIONNAIRE

For a correct dimensioning of a vacuum cup handler, it is important to know and assess the features of the load to be handled.
For this reason, please fill in the following form and send it back to us via e-mail or fax.
This way, we will be able to suggest you the best cups to solve your problem.
A drawing of the product to be handled or the product itself would allow us to offer the best solution.
E-mail: tecnico@vuototecnica.net
Fax: +39 039 5320015

Company

.....

Address

.....

Post code / City ***Country***

....

Contact person:

.....

Telephone ***Fax***

....

E-mail

.....

1) *In what industry sector are the vacuum cups utilised?*

- ☐ *Plastic*
- ☐ *CD/DVD*
- ☐ *Electronics*
- ☐ *Food*
- ☐ *Packaging*
- ☐ *Glass/Solar*
- ☐ *Graphic arts*
- ☐ *Bottling*
- ☐ *Woodworking*
- ☐ *Marble/Stone*
- ☐ *Medical/Pharmaceutical*
- ☐ *Other sectors* .....
- ☐ *Cosmetics*
- ☐ *Automotive*
- ☐ *Ceramics/Porcelain*

2) *With what material is the product to be handled made?*

- ☐ *Plastic*
- ☐ *Steel sheet*
- ☐ *Glass*
- ☐ *Marble/Granite*
- ☐ *Wood*
- ☐ *Rubber*
- ☐ *Paper/Cardboard*
- ☐ *Other*.....

3) *What is the surface of the product to be gripped like?*

- ☐ *Dry*
- ☐ *Corrugated*
- ☐ *Moist*
- ☐ *Flaky*
- ☐ *Smooth*
- ☐ *Porous*
- ☐ *Rough*
- ☐ *Textured*
- ☐ *Creased*
- ☐ *Bush-hammered*

4) *On the gripping surface there may be substances such as:*

- ☐ *Powder*
- ☐ *Water*
- ☐ *Oil*
- ☐ *Solvents*
- ☐ *Other* .....

5) *What shape is the product to be handled?*

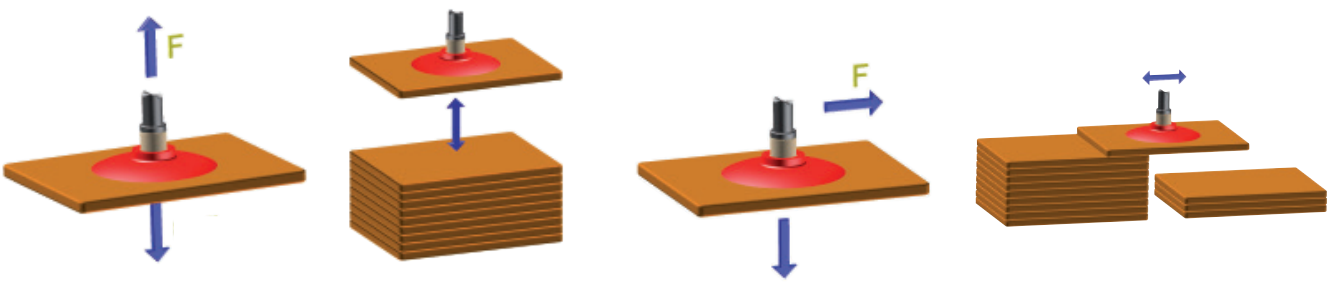
- ☐ *Square*
- ☐ *Irregular*
- ☐ *Rectangular*
- ☐ *Other* .....
- ☐ *Triangular*
- ☐ *Round*

6) *What dimensions and weight is it?*

- ☐ *Length mm* .....
- ☐ *Width mm* .....
- ☐ *Thickness mm*.....
- ☐ *Weight Kg*.....

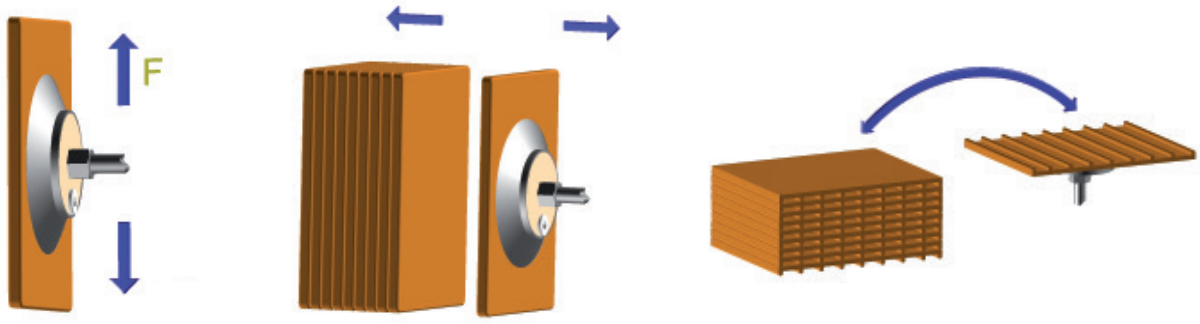
7) *Which position must the vacuum cups have with respect to the lifting force?*

- ☐ *Horizontal vacuum cups, vertical force*
- ☐ *Horizontal vacuum cups, horizontal force*



VACUUM CUP QUESTIONNAIRE

☐ *Vertical vacuum cups, vertical force* ☐ *Overturning*



3D drawings are available on **vuototecnica.net**

1

8) What is the temperature of the object to be lifted?

From -.....°C to + ...°C ☐ *For a short time °C .....* ☐ *Continuously °C .....*

9) Other technical data

☐ *Gripping time sec .....* ☐ *Cycle time sec .....* ☐ *Acceleration m/s²* .....

10) At which height above sea level is the vacuum cup handler to be installed?

☐ *m .....*

11) By what means would you like to generate the vacuum?

☐ *Electric vacuum pump (dry or lubricated)* ☐ *Side channel blower*
☐ *Single-stage pneumatic vacuum generator* ☐ *Multi-stage*

12) System with vacuum cups already operating

☐ *Manufacturer.....* ☐ *Country.....*

13) Models of vacuum cups previously applied

☐ *Manufacturer .....* ☐ *Code .....*

14) Estimated annual quantity and requested delivery time

☐ *Approximately #.....* *pieces* ☐ *Fixed period .....*

15) Gripping tests and samples

We can perform free tests for gripping and handling on samples of products supplied by you. Alternatively, you can request samples of vacuum cups to perform your own tests.

16) Contact

☐ *Do you wish to be called back?* *Yes* ☐ *No* ☐
☐ *Are you interested in a visit?* *Yes* ☐ *No* ☐ *If yes, what date/time? .....*

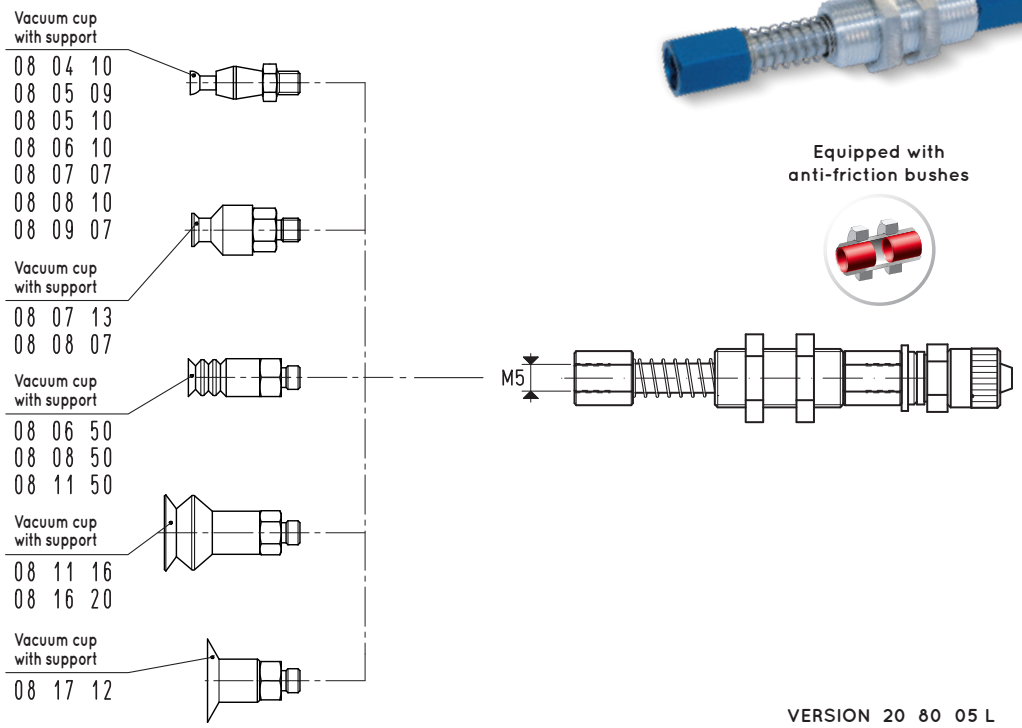
VACUUM CUP HOLDERS

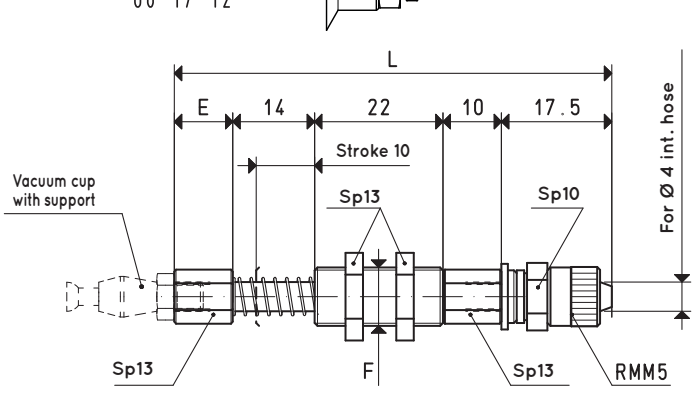
MICRO VACUUM CUP HOLDERS	PG. 2.02 ÷ 2.03
ANTI-ROTATION VACUUM CUP HOLDERS WITH BUILT-IN SPRING AND FEMALE CONNECTOR	PG. 2.04
ANTI-ROTATION VACUUM CUP HOLDERS WITH BUILT-IN SPRING AND MALE CONNECTOR	PG. 2.05
MINI VACUUM CUP HOLDERS	PG. 2.06 ÷ 2.19
MINI VACUUM CUP HOLDERS WITH MALE AND FEMALE THREADED CONNECTORS	PG. 2.20 ÷ 2.21
MINI VACUUM CUP HOLDERS WITH BUILT-IN SPRING	PG. 2.21
MINI VACUUM CUP HOLDERS WITH COMPACT STROKE	PG. 2.22 ÷ 2.24
MINI VACUUM CUP HOLDERS WITH BUILT-IN BUSH	PG. 2.25 ÷ 2.26
MINI VACUUM CUP HOLDERS WITH BUILT-IN BUSH, WITH MALE AND FEMALE THREADED CONNECTORS	PG. 2.27
MINI VACUUM CUP HOLDERS WITH PLUNGER VALVE	PG. 2.28 ÷ 2.32
MINI VACUUM CUP HOLDERS WITH PLUNGER VALVE AND BUILT-IN BUSH	PG. 2.33 ÷ 2.35
MINI VACUUM CUP HOLDERS WITH NO SPRINGING	PG. 2.36 ÷ 2.38
MINI VACUUM CUP HOLDERS WITH BUILT-IN SHUT-OFF VALVE	PG. 2.39
MINI ANTI-ROTATION VACUUM CUP HOLDERS	PG. 2.40 ÷ 2.42
MINI VACUUM CUP MOUNT WITH MAGNETIC SWITCH	PG. 2.43
MINI VACUUM CUP HOLDERS FIX	PG. 2.44
BASIC VACUUM CUP HOLDERS	PG. 2.45 ÷ 2.66
BASIC VACUUM CUP HOLDERS WITH MALE AND FEMALE THREADED CONNECTORS	PG. 2.67 ÷ 2.70
BASIC VACUUM CUP HOLDERS WITH PLUNGER VALVE	PG. 2.71 ÷ 2.77
BASIC VACUUM CUP HOLDERS WITH NO SPRINGING	PG. 2.78 ÷ 2.85
BASIC VACUUM CUP HOLDERS WITH BUILT-IN SHUT-OFF VALVE	PG. 2.86
BASIC ARTICULATED VACUUM CUP HOLDERS	PG. 2.87 ÷ 2.90
BASIC ANTI-ROTATION VACUUM CUP HOLDERS	PG. 2.91 ÷ 2.92
BASIC VACUUM CUP HOLDERS FIX	PG. 2.93
SPECIAL VACUUM CUP HOLDERS	PG. 2.94 ÷ 2.111
SPECIAL VACUUM CUP HOLDERS WITH MALE AND FEMALE THREADED CONNECTORS	PG. 2.112 ÷ 2.113
SPECIAL VACUUM CUP HOLDERS WITH PLUNGER VALVE	PG. 2.114 ÷ 2.118
SPECIAL VACUUM CUP HOLDERS WITH PUSH VALVE	PG. 2.119 ÷ 2.120
SPECIAL VACUUM CUP HOLDERS WITH BUILT-IN SHUT-OFF VALVE	PG. 2.121
SPECIAL ARTICULATED VACUUM CUP HOLDERS	PG. 2.122 ÷ 2.128
SPECIAL VACUUM CUP HOLDERS WITH BUILT-IN JOINT	PG. 2.129 ÷ 2.130
SPECIAL ARTICULATED VACUUM CUP HOLDERS WITH COMPACT STROKE	PG. 2.131 ÷ 2.133
ANTI-ROTATION VACUUM CUP HOLDERS WITH BUILT-IN SPRING AND FEMALE CONNECTOR	PG. 2.134
ANTI-ROTATION VACUUM CUP HOLDERS WITH BUILT-IN SPRING AND MALE CONNECTOR	PG. 2.135
SPECIAL STAINLESS STEEL ANTI-ROTATION VACUUM CUP HOLDERS	PG. 2.135
SPECIAL ANTI-ROTATION VACUUM CUP HOLDERS WITH MALE THREADED CONNECTOR	PG. 2.137 ÷ 2.138
SPECIAL ANTI-ROTATION VACUUM CUP HOLDERS WITH SPHERICAL SWIVEL SUPPORT	PG. 2.139 ÷ 2.140
SPECIAL VACUUM CUP HOLDERS WITH DOUBLE SPRINGING	PG. 2.141 ÷ 2.149
SPECIAL ARTICULATED VACUUM CUP HOLDERS WITH DOUBLE SPRINGING	PG. 2.150 ÷ 2.156
SPECIAL VACUUM CUP HOLDERS FIX WITH MALE AND FEMALE THREADED CONNECTORS	PG. 2.157
SPHERICAL ARTICULATED JOINTS	PG. 2.158
SPHERICAL ARTICULATED JOINTS WITH AXIAL VACUUM CONNECTION	PG. 2.159
POSITIONABLE SPHERICAL ARTICULATED JOINTS WITH AXIAL VACUUM CONNECTION	PG. 2.160
VACUUM CUP HOLDER FIXING SUPPORTS	PG. 2.161 ÷ 2.163

MICRO VACUUM CUP HOLDERS

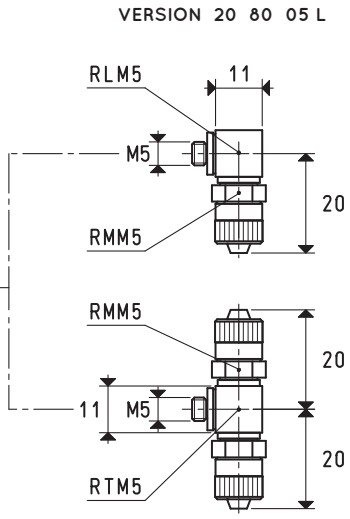
The vacuum cup holders illustrated on these pages are extremely compact in size, allowing for a significant reduction in weight and bulk, as well as the use of very small vacuum cups.
Suitable for Pick & Place and handling machines for unloading plastic objects from mould presses.
Available in different versions, with or without coupling.

Suitable for all vacuum cups with male M5 support.
They are composed of:
- Stainless steel stems and spring;
- Anti-friction bushes built in the threaded sleeve ensuring a perfect sliding of the stem and durability.





VERSION 20 80 05



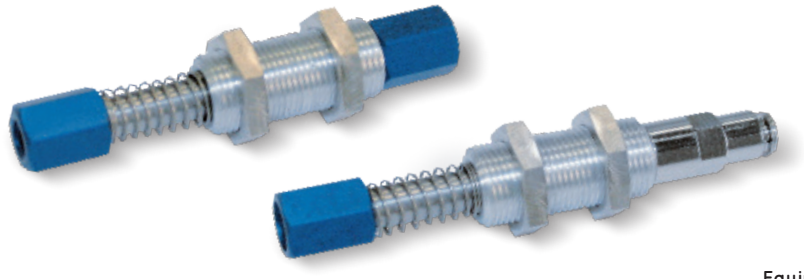
VERSION 20 80 05 T

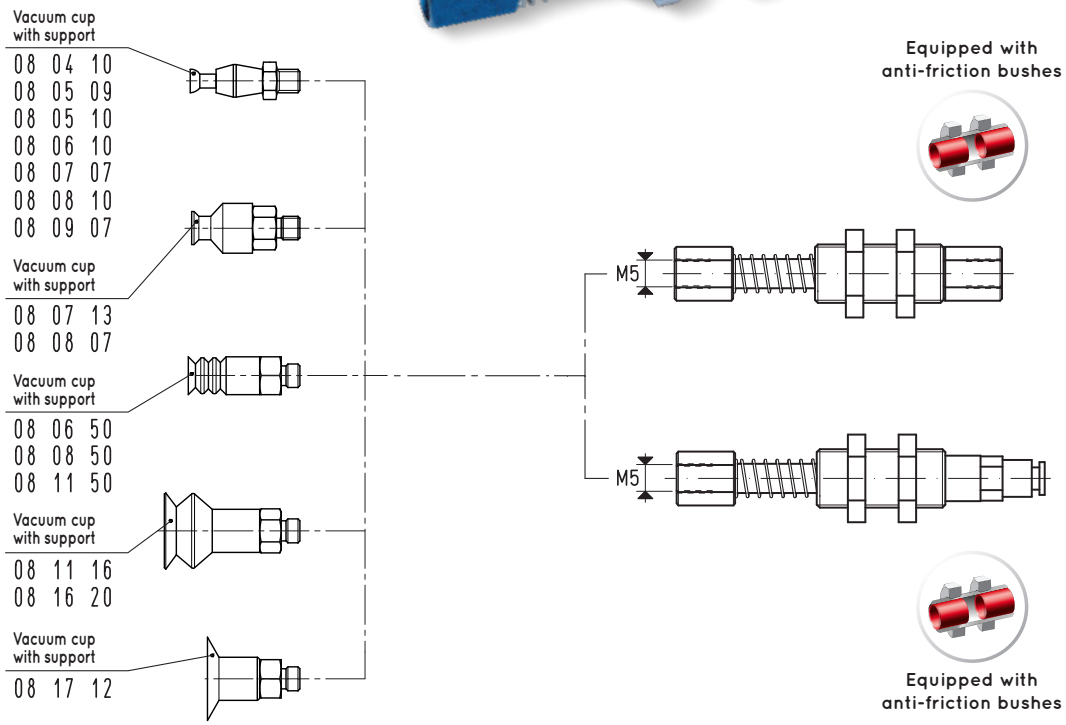
VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

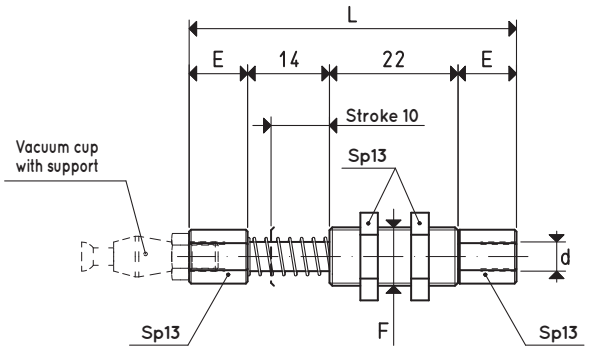
Item	Spring thrust force N	d Ø	E	F Ø	L	Weight g
20 80 05	1.66	M5	10	M10 x 0.75	73.5	16
	For vacuum cup item					
	08 04 10 - 08 05 10 - 08 06 10 - 08 08 07 - 08 08 10 - 08 09 07					
	08 07 07 - 08 07 13					
	08 06 50 - 08 08 50 - 08 11 50					
	08 05 09 - 08 11 16 - 08 16 20					
	08 17 12					

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L or T fittings, add the letter L or T to the code.

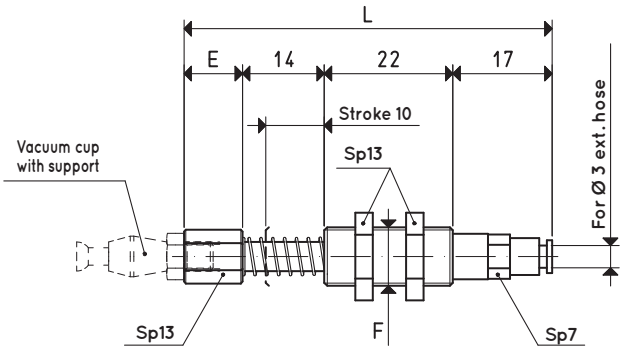
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$







VERSION 20 80 05 SR



VERSION 20 80 05 RR

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 2 X 3

Item	Spring thrust force N	d Ø	E	F Ø	L	Weight g
20 80 05 SR	1.66	M5	10	M10 x 0.75	56	10
20 80 05 RR	1.66	M5	10	M10 x 0.75	63	12
	For vacuum cup item					
	08 04 10 - 08 05 09 - 0805 10 - 08 06 10 - 08 08 07 - 08 08 10 - 08 09 07					
	08 07 07 - 08 07 13 -					
	08 06 50 - 08 08 50 - 08 11 50					
	08 11 16 - 08 16 20					
	08 17 12					

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups and supports are not integral parts of the cup holders and, therefore, must be ordered separately

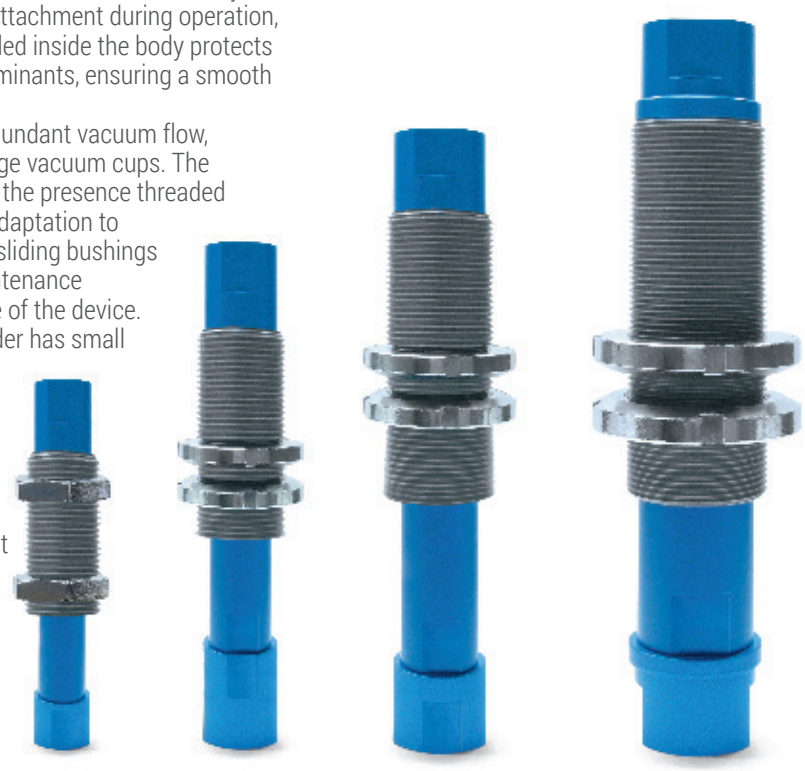
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

ANTI-ROTATION VACUUM CUP HOLDERS WITH BUILT-IN SPRING AND FEMALE CONNECTOR

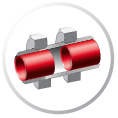
Anti-rotation vacuum cup holders with built-in spring are aluminium components designed to ensure high performance in gripping and handling systems. The aluminium structure offers lightness and strength, while the anti-rotation system prevents unwanted rotation of the vacuum cup or attachment during operation, ensuring precision and stability. The spring embedded inside the body protects the elastic mechanism from impact, dirt and contaminants, ensuring a smooth and consistent response.

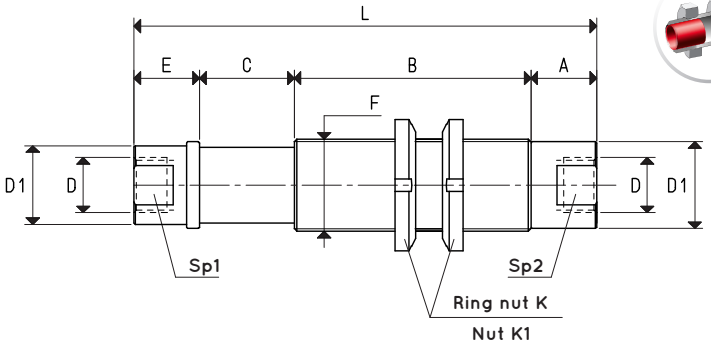
The large inner passage cross-section allows for abundant vacuum flow, promoting rapid grip and release cycles even on large vacuum cups. The mounting adjustment is particularly wide thanks to the presence threaded bushing, which allows for precise positioning and adaptation to different distances and configurations. The plastic sliding bushings ensure smooth, quiet movement with reduced maintenance requirements, contributing to the long operating life of the device. Despite its advanced features, the vacuum cup holder has small overall dimensions, making it easy to integrate even in confined spaces or in applications where compact components are required. The system is equipped with two lock nuts, which ensure secure and stable fastening during mounting. The male and female threaded connections allow for quick, easy connection to the system, adapting to different mechanical configurations.

All these features make the vacuum cup holder ideal for use in robotics, Pick & Place systems, industrial automation and all applications where precision, reliability and ease of adjustment are required.



Equipped with anti-friction bushes





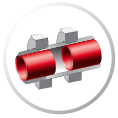
Art.	A	B	(C) Actual spring stroke mm	Spring thrust force N (1)	Sp1	Sp2	D Ø	D1 Ø	E	F Ø	K	K1	L	Through hole Ø	Weight g
VCH 18 F 20	18	38.5	20	9.0	12	12	G1/8"	14	12	M16x1	---	19	88.5	5	36
VCH 18 F 35	18	58.5	35	9.5	12	12	G1/8"	14	12	M16x1	---	19	123.5	5	46
VCH 14 F 25	22	50	25	11.0	16	16	G1/4"	18	25	M20x1	KM4	---	122	7	70
VCH 14 F 50	22	82.5	50	11.4	16	16	G1/4"	18	25	M20x1	KM4	---	179.5	7	100
VCH 38 F 40	19	71	40	16.5	21	21	G3/8"	23	19	M25x1.5	KM5	---	149	10	174
VCH 38 F 80	19	121	80	17.0	21	21	G3/8"	23	19	M25x1.5	KM5	---	240	10	250
VCH 12 F 36	25	90	36	20.7	26	26	G1/2"	30	19	M35x1.5	KM7	---	176	15	372

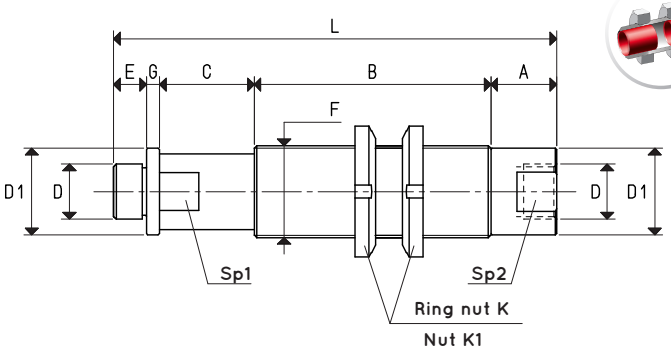
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

ANTI-ROTATION VACUUM CUP HOLDERS WITH BUILT-IN SPRING AND MALE CONNECTOR

Equipped with anti-friction bushes





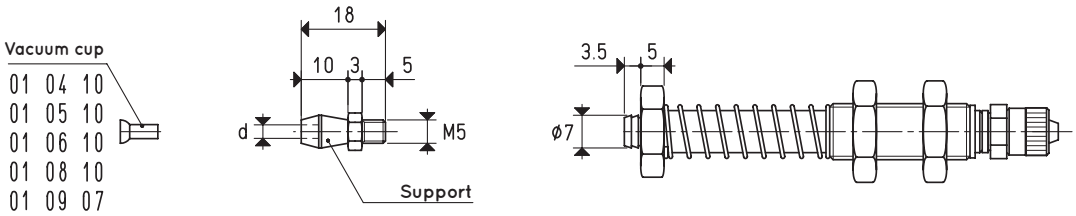
Art.	A	B	(C) Actual spring stroke mm	Spring thrust force N (1)	Sp1	Sp2	D Ø	D1 Ø	E	F Ø	G	K	K1	L	Through hole Ø	Weight g
VCH 18 M 20	18	38.5	20	9.0	12	12	G1/8"	14	12	M16x1	2	---	19	88.5	5	36
VCH 18 M 35	18	58.5	35	9.5	12	12	G1/8"	14	12	M16x1	2	---	19	123.5	5	46
VCH 14 M 25	22	50	25	11.0	16	16	G1/4"	18	25	M20x1	16	KM4	---	127	7	70
VCH 14 M 50	22	82.5	50	11.4	16	16	G1/4"	18	25	M20x1	16	KM4	---	184.5	7	100
VCH 38 M 40	19	71	40	16.5	21	21	G3/8"	23	19	M25x1.5	5	KM5	---	150	10	174
VCH 38 M 80	19	121	80	17.0	21	21	G3/8"	23	19	M25x1.5	5	KM5	---	240	10	250
VCH 12 M 36	25	90	36	20.7	26	26	G1/2"	33	19	M35x1.5	5	KM7	---	176	15	369

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

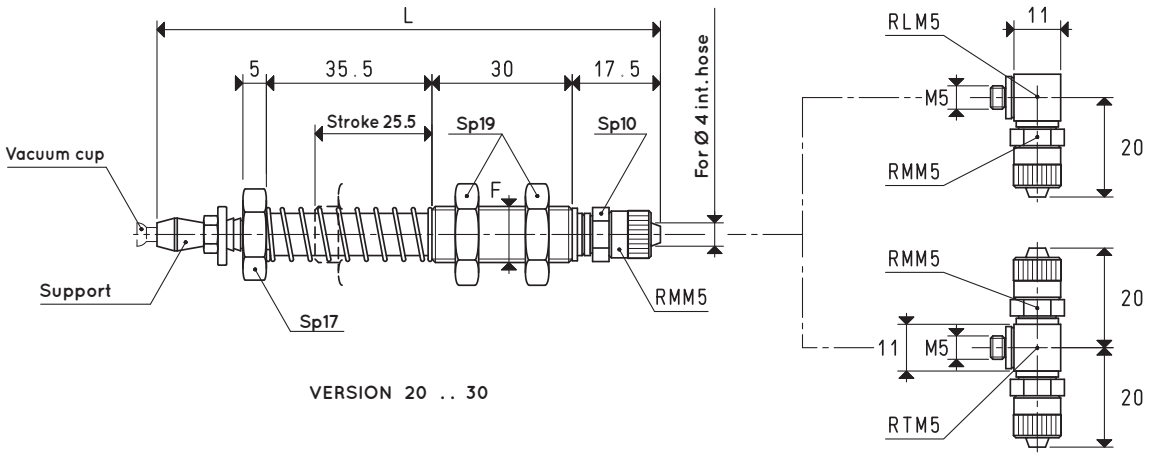
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

MINI VACUUM CUP HOLDERS

The main feature of the cup holders described on these pages is their reduced size, which results in a reduced weight and bulk. They allow use of even very small cups, guaranteeing, given the same diameter, the same performance as the larger series.
They are composed of:
- A brass stem for fastening the cup;
- A threaded sleeve equipped with nuts, for mounting the vacuum up holder on the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.



VERSION 20 .. 30 L



VERSION 20 .. 30

VERSION 20 .. 30 T

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	Spring thrust force N	d Ø	F Ø	L	Support included item	Weight g
20 04 30	8.82	2.90	M12 x 1.25	104.5	00 08 01	70
			For vacuum cup item			
			01 04 10 - 01 05 10 - 01 06 10			
20 08 30	8.82	4.75	M12 x 1.25	105.0	00 08 02	70
			For vacuum cup item			
			01 08 10 - 01 09 07			

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L or T fittings, add the letter L or T to the code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

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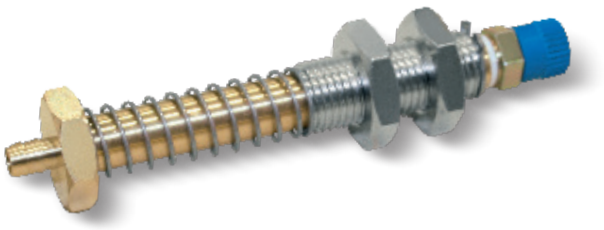
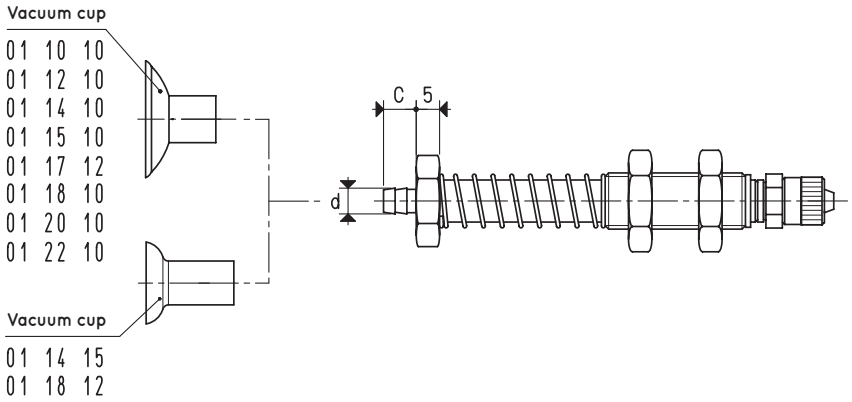
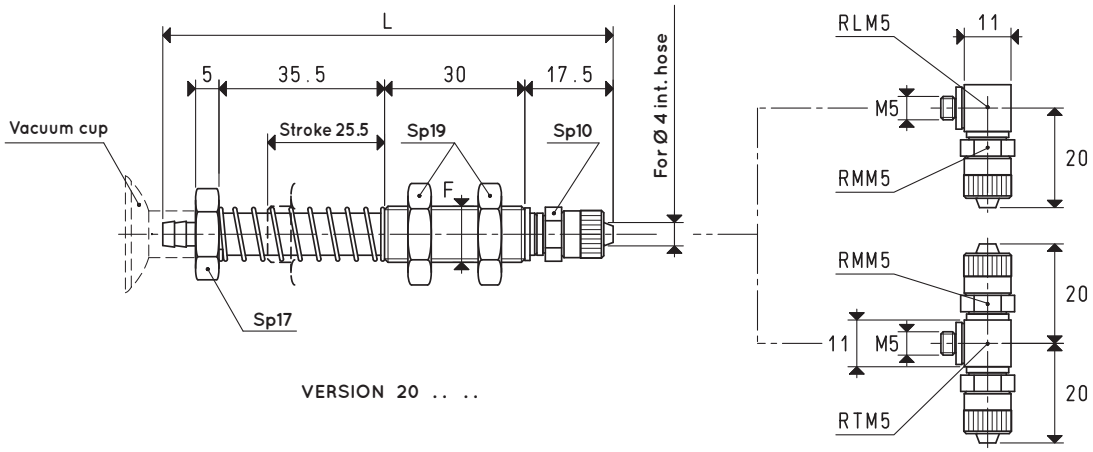
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.





VERSION 20 L



VERSION 20 . . . .

VERSION 20 . . . . T

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	Spring thrust force N	C	d Ø	F Ø	L	Weight g
20 10 30	8.82	7.0	5.5	M12 x 1.25	95.0	60.0
	For vacuum cup item					
	01 10 10 - 01 12 10 - 01 14 10 - 01 15 10 - 01 17 12 - 01 18 10 - 01 20 10 - 01 22 10					
20 14 15	8.82	7.5	6.5	M12 x 1.25	95.5	59.5
	For vacuum cup item					
	01 14 15 - 01 18 12					

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L or T fittings, add the letter L or T to the code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

MINI VACUUM CUP HOLDERS

The main feature of the cup holders described on these pages is their reduced size, which results in a reduced weight and bulk. They allow use of even very small cups, guaranteeing, given the same diameter, the same performance as the larger series.
They are composed of:
- A brass stem for fastening the cup;
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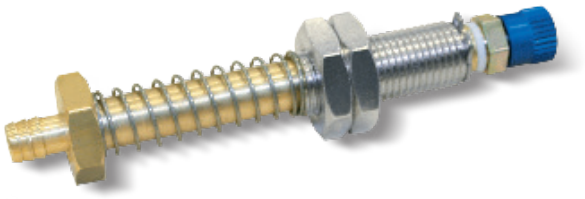
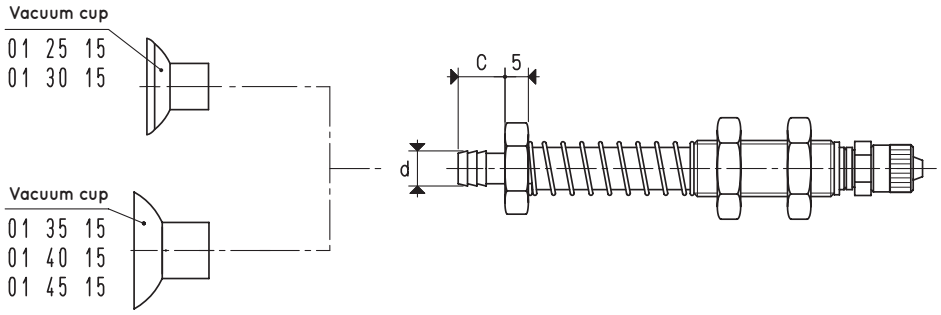
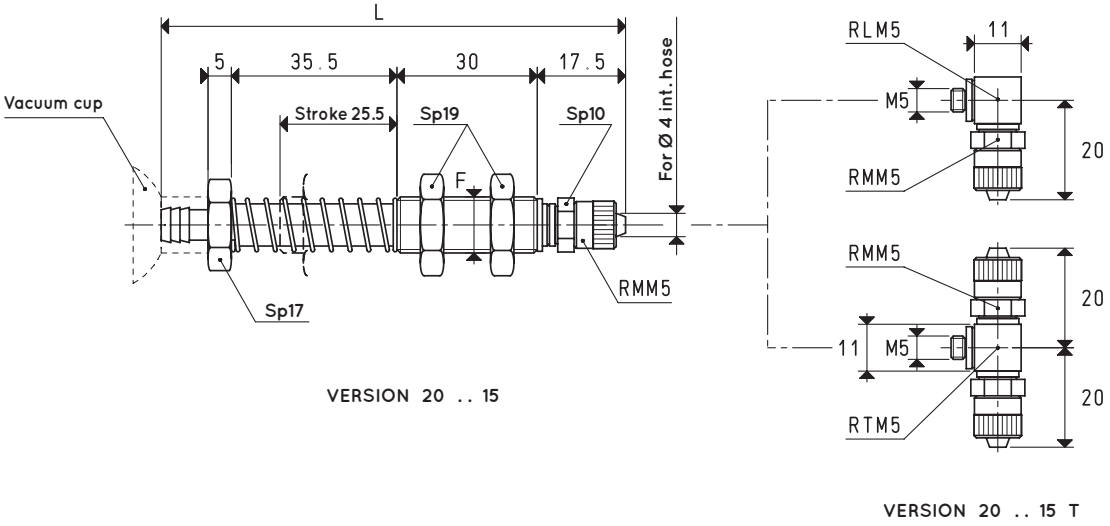
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.





VERSION 20 .. 15 L



VERSION 20 .. 15

VERSION 20 .. 15 T

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	Spring thrust force N	C	d Ø	F Ø	L	Weight g
20 25 15	8.82	10	7.5	M12 x 1.25	98	74.0
	For vacuum cup item					
	01 25 15 - 01 30 15					
20 35 15	8.82	10	12.0	M12 x 1.25	98	74.4
	For vacuum cup item					
	01 35 15 - 01 40 15 - 01 45 15					

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L or T fittings, add the letter L or T to the code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

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They are composed of:
- A brass stem for fastening the cup;
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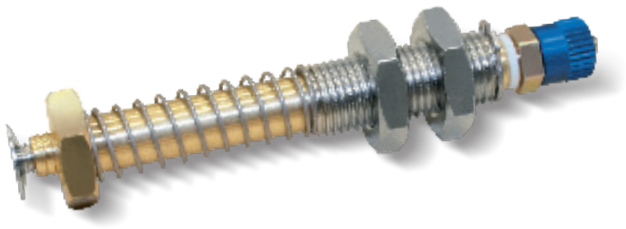
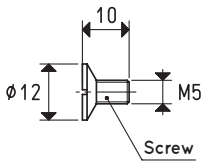
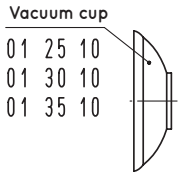
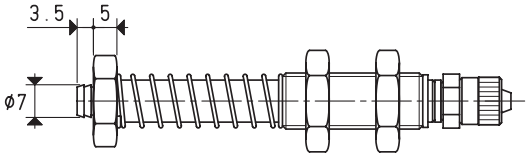
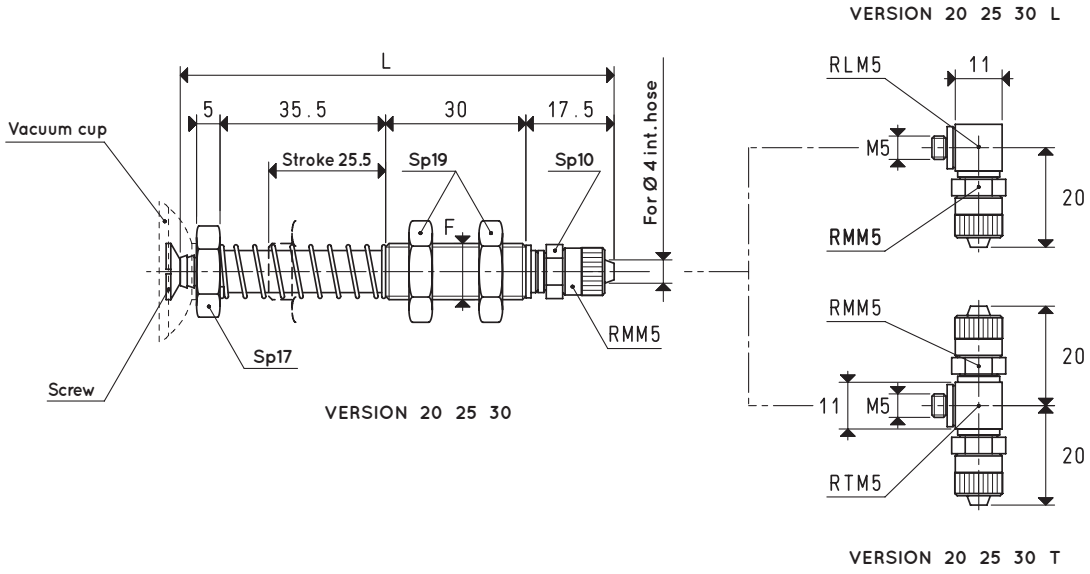
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.











VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

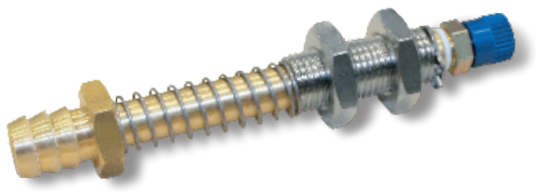
Item	Spring thrust force N	F Ø	L	Screw included item	Weight g
20 25 30	8.82	M12 x 1.25	91.5	00 20 12	74
			For vacuum cup item		
			01 25 10 - 01 30 10 - 01 35 10		

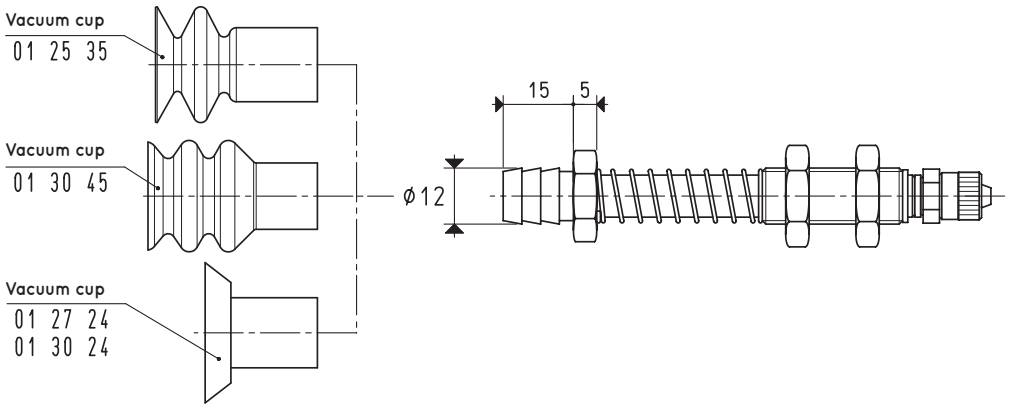
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L or T fittings, add the letter L or T to the code.

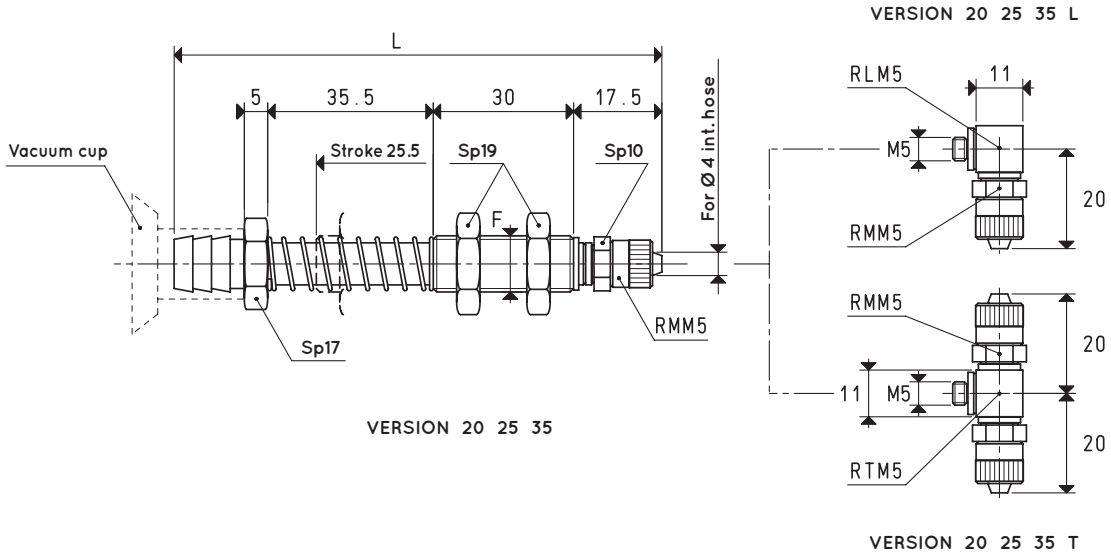
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

MINI VACUUM CUP HOLDERS

The main feature of the cup holders described on these pages is their reduced size, which results in a reduced weight and bulk. They allow use of even very small cups, guaranteeing, given the same diameter, the same performance as the larger series.
They are composed of:
- A brass stem for fastening the cup;
- A threaded sleeve equipped with nuts, for mounting the vacuum up holder on the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.







VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	Spring thrust force N	F Ø	L	Weight g
20 25 35	8.82	M12 x 1.25	103	66.7
		For vacuum cup item		
		01 25 35		
		01 30 45		
		01 27 24 - 01 30 24		

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
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To order vacuum cup holders with L or T fittings, add the letter L or T to the code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

MINI VACUUM CUP HOLDERS

The main feature of the cup holders described on these pages is their reduced size, which results in a reduced weight and bulk. They allow use of even very small cups, guaranteeing, given the same diameter, the same performance as the larger series.
They are composed of:
- A brass stem for fastening the cup;
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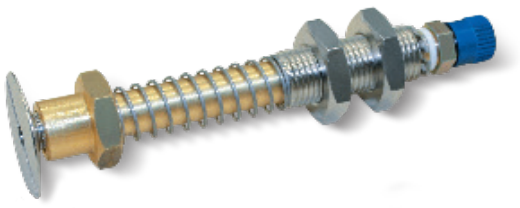
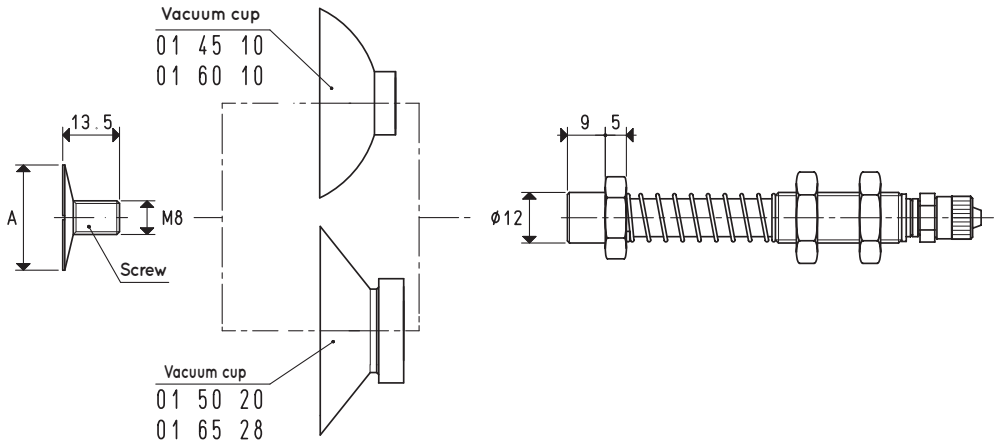
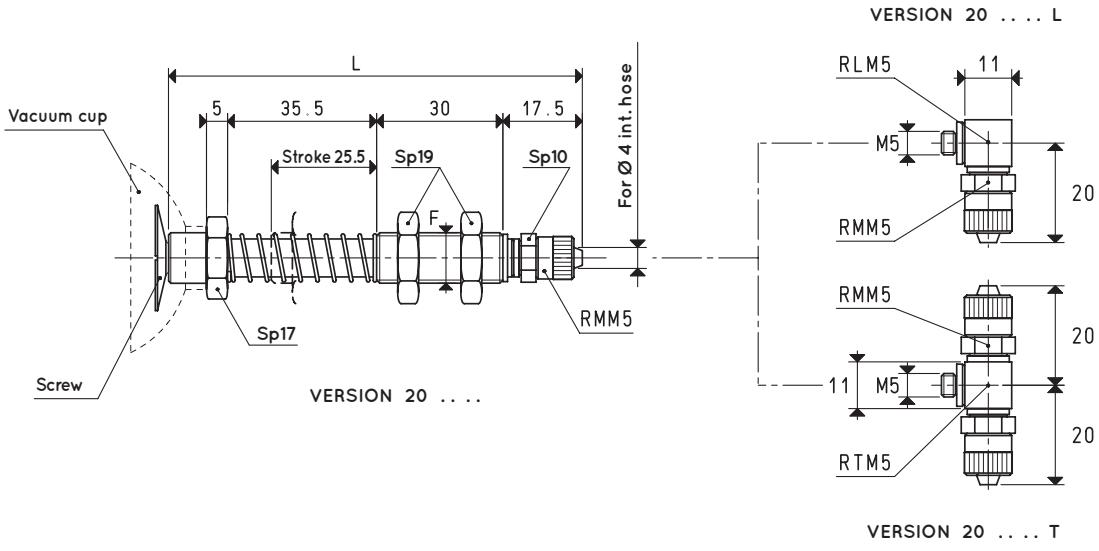
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.







VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	Spring thrust force N	A Ø	F Ø	L	Screw included item	Weight g
20 45 30	8.82	12	M12 x 1.25	97	00 20 13	68.2
			For vacuum cup item			
			01 45 10 - 01 60 10			
20 50 20	8.82	15	M12 x 1.25	97	00 20 14	69.7
			For vacuum cup item			
			01 50 20 - 01 65 28			

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3D drawings are available on **vuototecnica.net**

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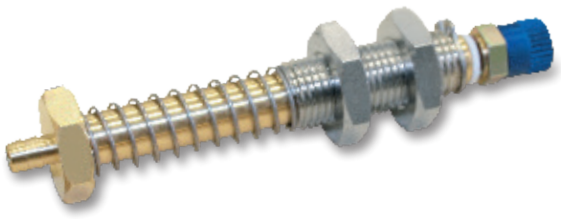

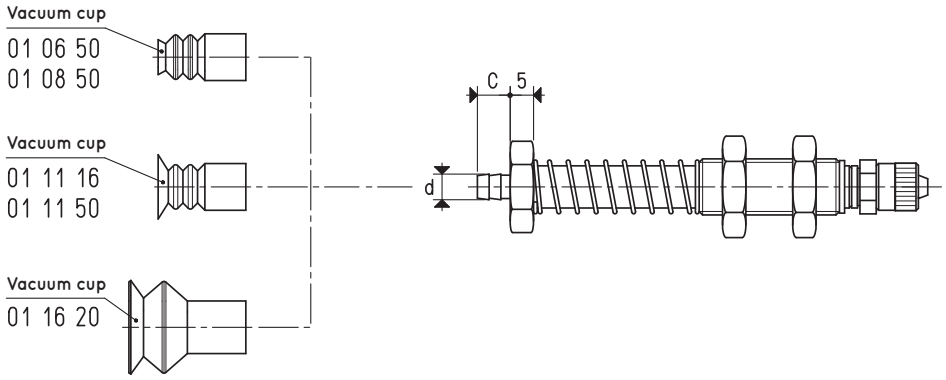

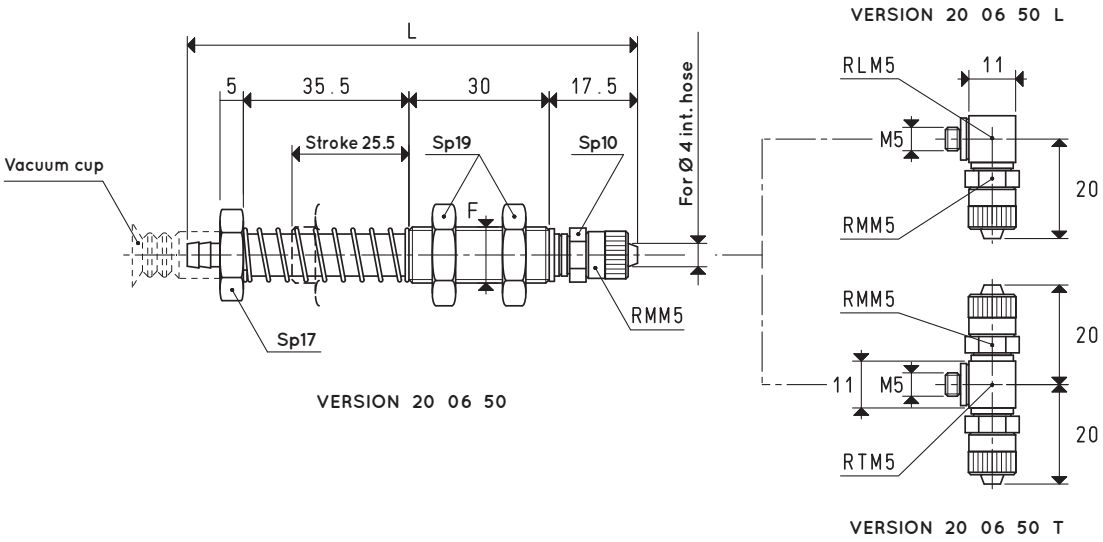

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	Spring thrust force N	C	d Ø	F Ø	L	Weight g
20 06 50	8.82	7	5.5	M12 x 1.25	95	67.8
			For vacuum cup item			
			01 06 50 - 01 08 50			
			01 11 16 - 01 11 50			
			01 16 20			

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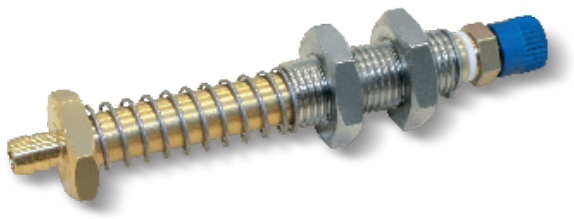

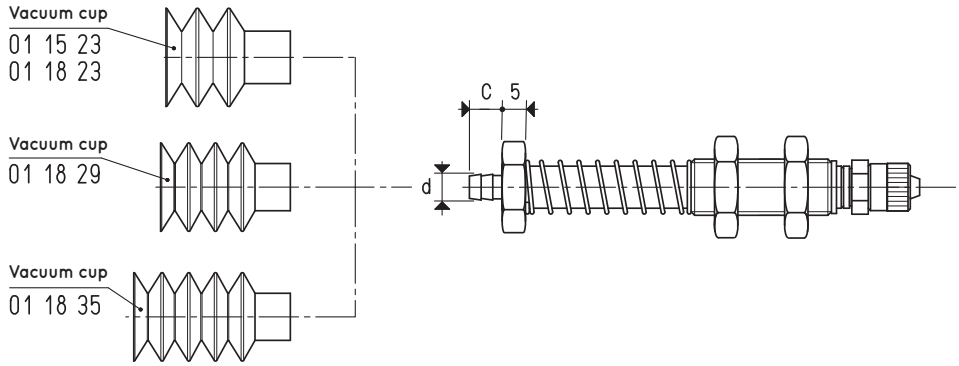

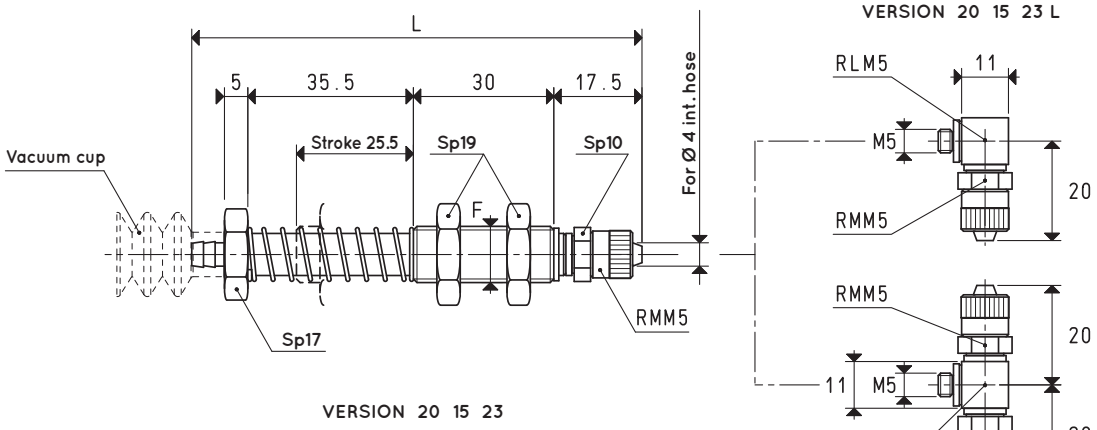

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	Spring thrust force N	C	d Ø	F Ø	L	Weight g
20 15 23	8.82	7.5	6.5	M12 x 1.25	95.5	59.4
			For vacuum cup item			
			01 15 23 - 01 18 23			
			01 18 29			
			01 18 35			

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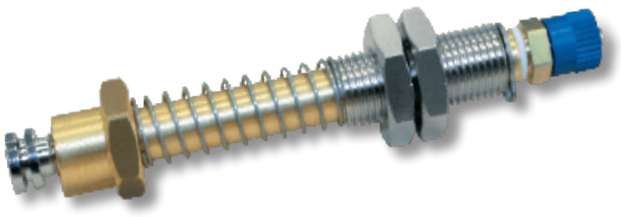
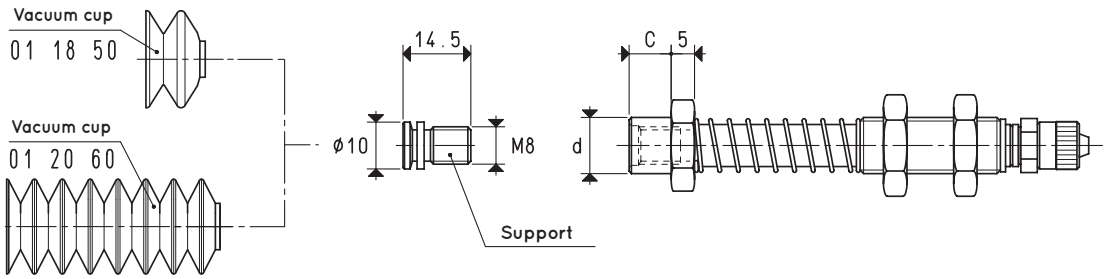
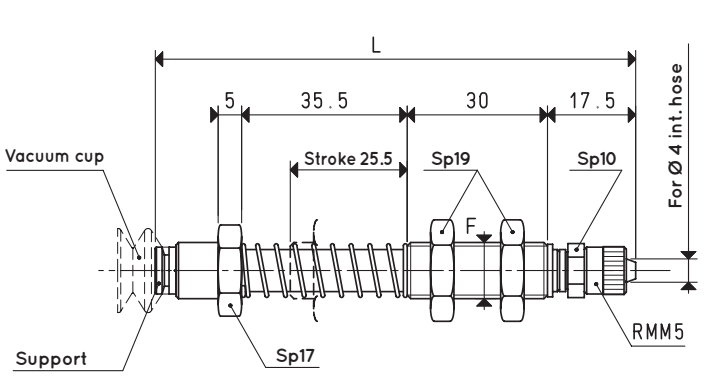
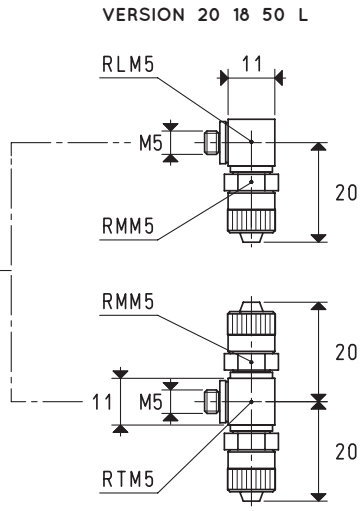






VERSION 20 18 50



VERSION 20 18 50 T

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	Spring thrust force N	C	d Ø	F Ø	L	Support included item	Weight g
20 18 50	8.82	9	12	M12 x 1.25	97	00 08 07	77.2
				For vacuum cup item			
				01 18 50			
				01 20 60			

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
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Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

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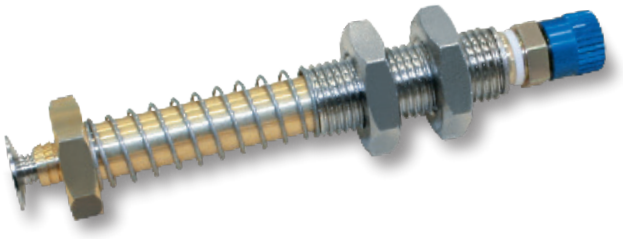
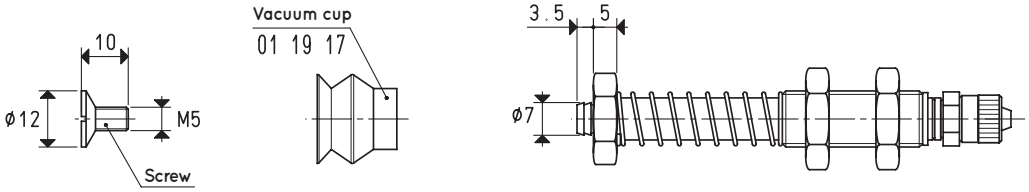
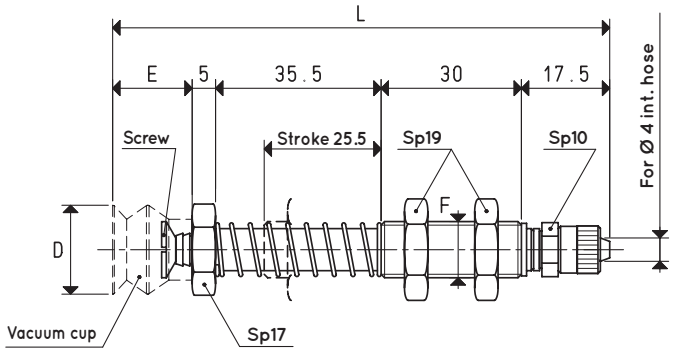
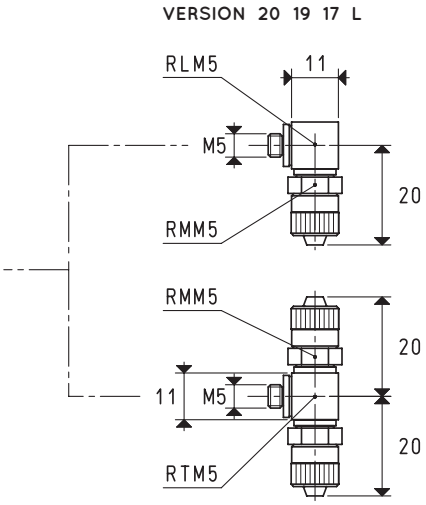






VERSION 20 19 17



VERSION 20 19 17 T

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	Spring thrust force N	D Ø	E	F Ø	L	For vacuum cup item	Screw included item	Weight g
20 19 17	8.82	19	17	M12 x 1.25	105	01 19 17	00 20 12	72.6

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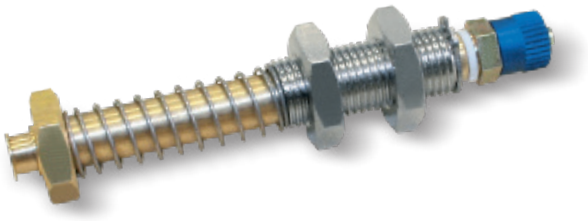
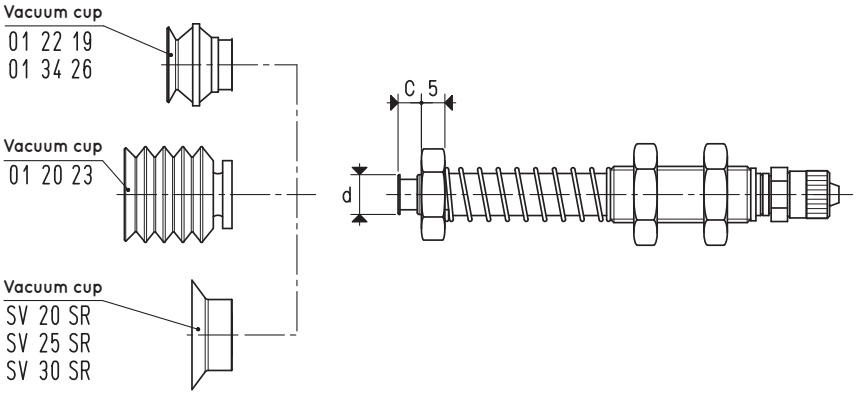
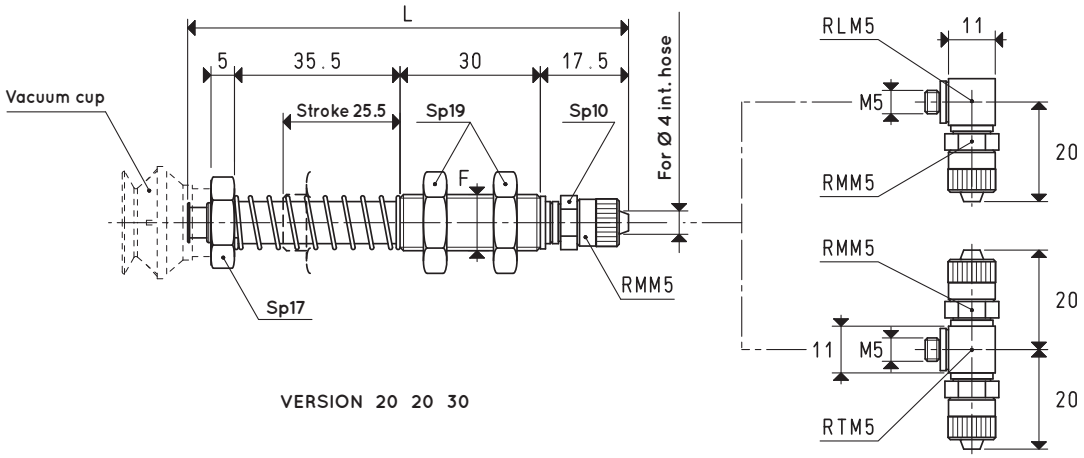




VERSION 20 20 30 L



VERSION 20 20 30

VERSION 20 20 30 T

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	Spring thrust force N	C	d Ø	F Ø	L	Weight g
20 20 23	8.82	5	8.5	M12 x 1.25	93	73.2
	For vacuum cup item					
	01 22 19 - 01 34 26					
	01 20 23					
	SV 20 SR - SV 25 SR - SV 30 SR					

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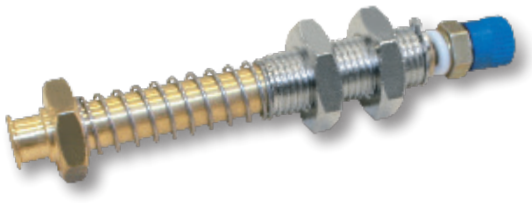
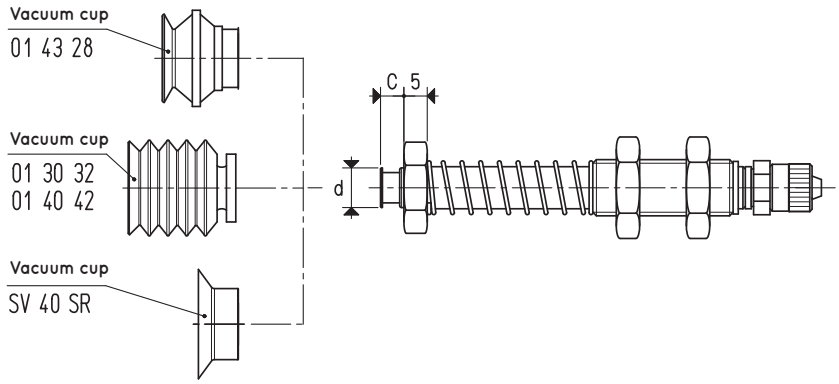
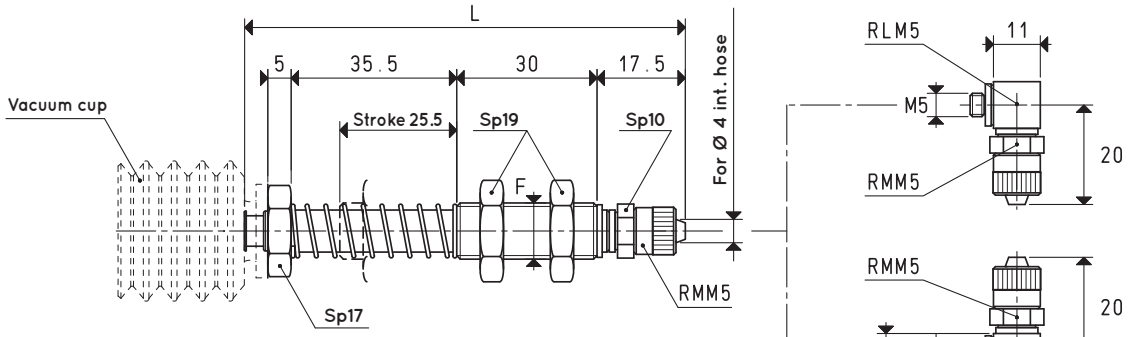




VERSION 20 30 32 L



VERSION 20 30 32

VERSION 20 30 32 T

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	Spring thrust force N	C	d Ø	F Ø	L	Weight g
20 30 32	8.82	7.5	10	M12 x 1.25	95.5	74
			For vacuum cup item			
			01 43 28			
			01 30 32 - 01 40 42			
			SV 40 SR			

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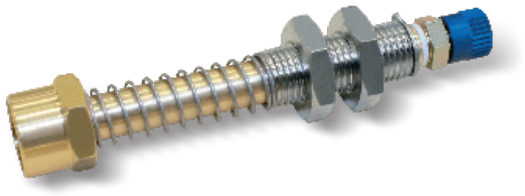
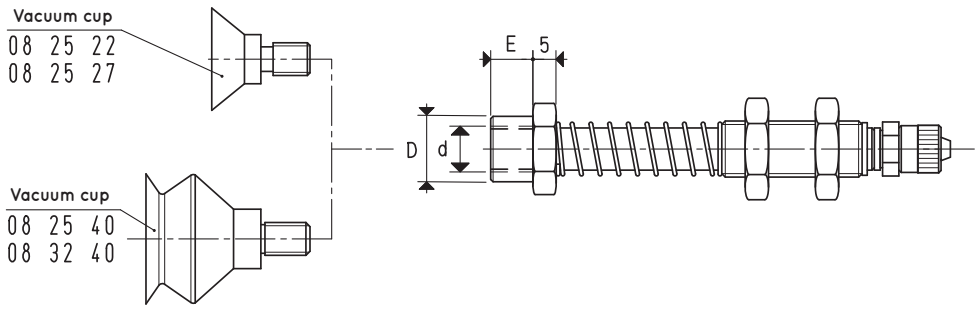
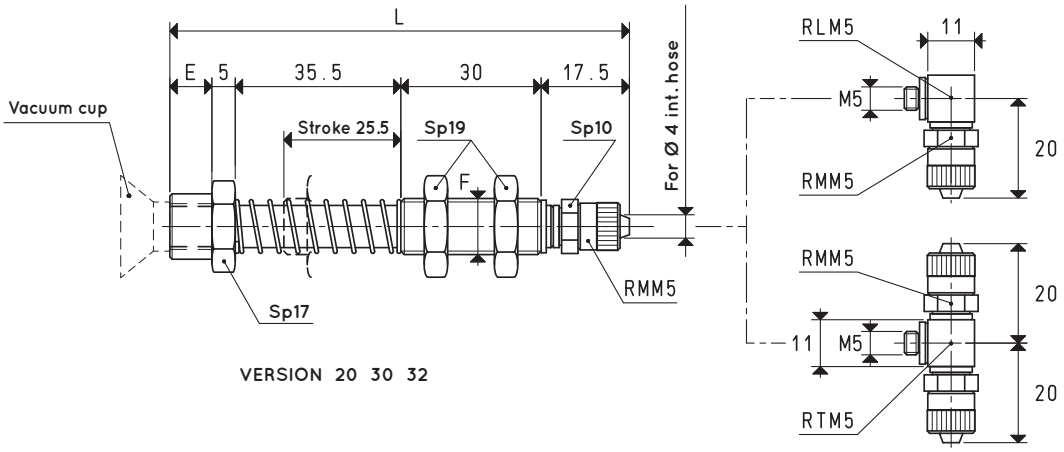




VERSION 20 30 32 L



VERSION 20 30 32

VERSION 20 30 32 T

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	Spring thrust force N	d Ø	D Ø	E	F Ø	L	Weight g
20 07 35	8.82	M8	12.0	9	M12 x 1.25	97	76
			For vacuum cup item				
			08 25 22 - 08 25 27				
			08 25 40 - 08 32 40				

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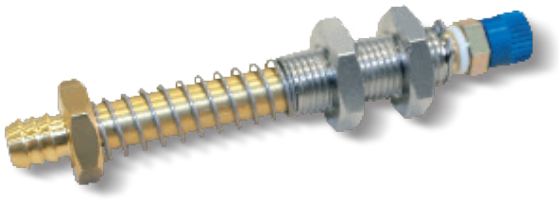

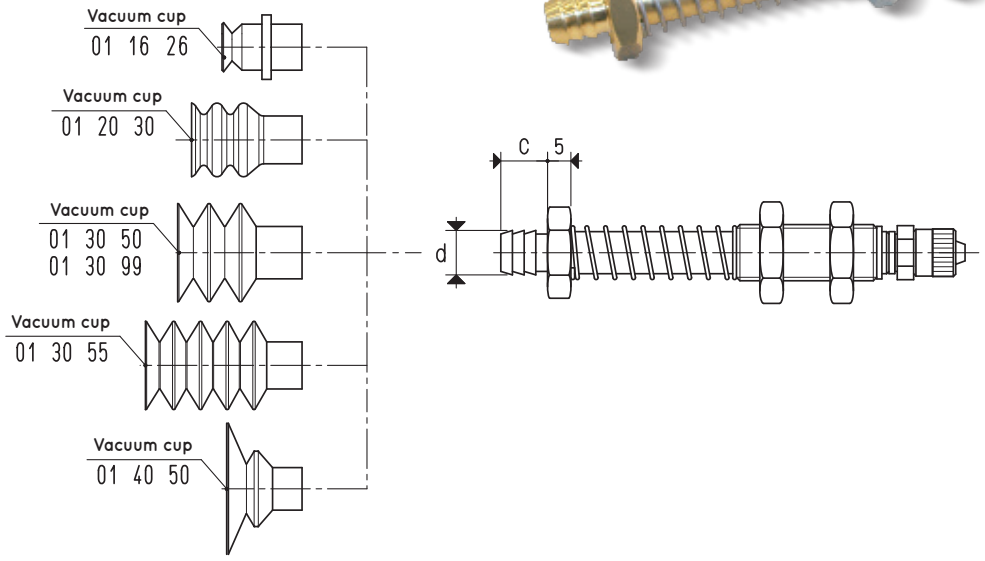

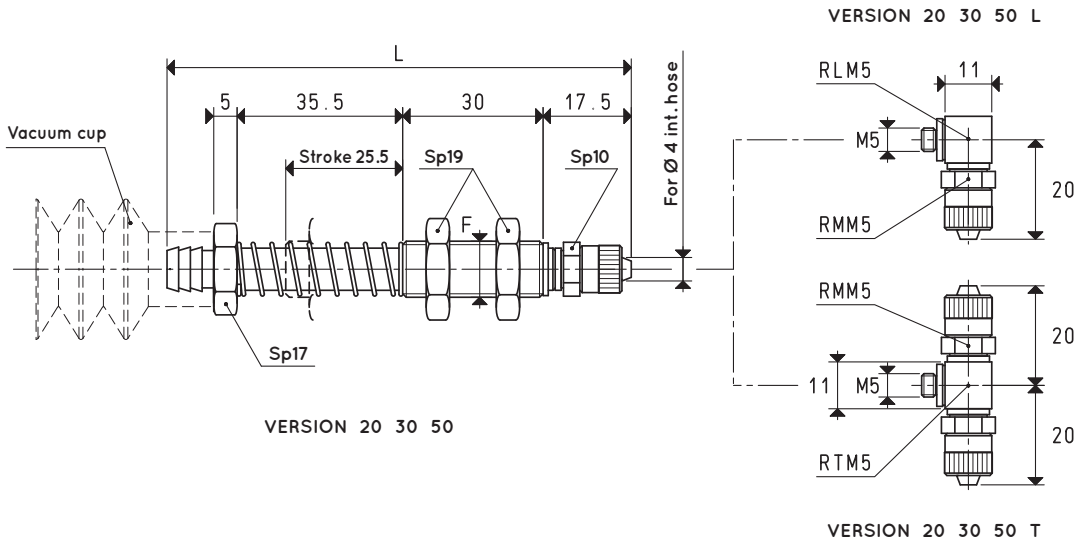

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	Spring thrust force N	C	d Ø	F Ø	L	Weight g
20 30 50	8.82	10	9.5	M12 x 1.25	98	71.3
			For vacuum cup item			
			01 16 26			
			01 20 30			
			01 30 50 - 01 30 99			
			01 30 55			
			01 40 50			

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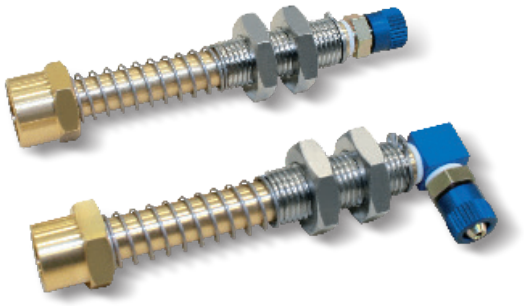
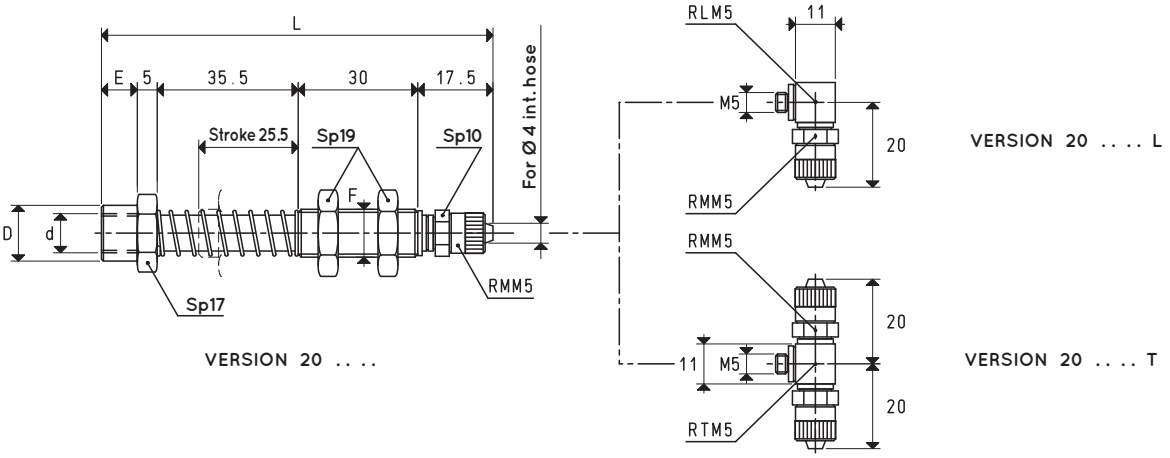
MINI VACUUM CUP HOLDERS WITH MALE AND FEMALE THREADED CONNECTORS

The vacuum cup holders shown on this page have a shorter stroke and their special design that allow for further bulk and weight reduction in the overall dimensions and weight of these vacuum cups compared to normal mini vacuum cup holders. They are composed of:

- A brass stem equipped with 1/8" and 1/4" gas threaded connections for attaching the vacuum cup;
- A threaded sleeve equipped with nuts, for mounting the vacuum up holder on the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.





VERSION 20 . . . .

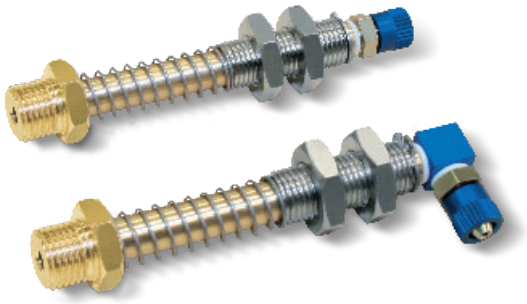
VERSION 20 . . . L

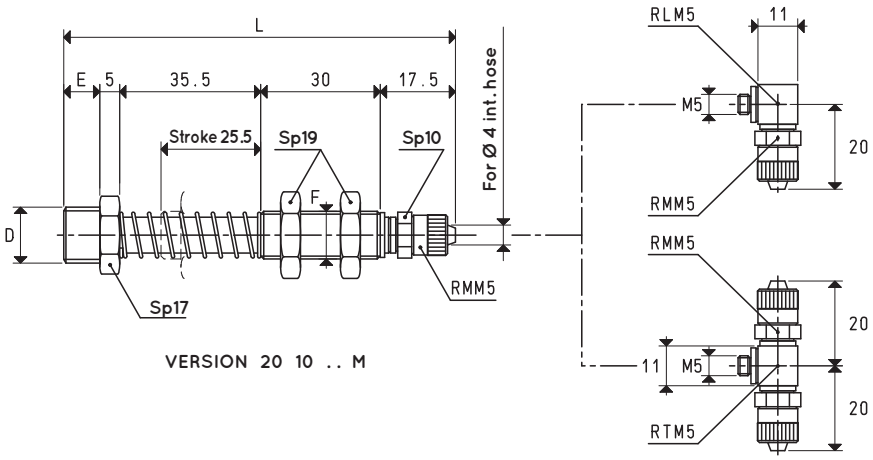
VERSION 20 . . . T

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	Spring thrust force N	d Ø	D Ø	E	F Ø	L	Weight g
20 06 35	8.82	M5	7.0	3.5	M12 x 1.25	91.5	74
20 07 35	8.82	M8	12.0	9	M12 x 1.25	97	76
20 10 38	8.82	G1/8"	14.0	9	M12 x 1.25	97	78
20 10 48	8.82	G1/4"	16.5	9	M12 x 1.25	97	78

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
To order vacuum cup holders with L or T fittings, add the letter L or T to the code.





VERSION 20 10 . . M

VERSION 20 10 . . M L

VERSION 20 10 . . M T

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

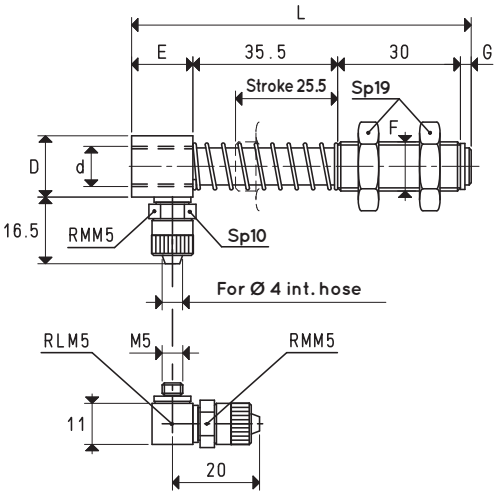
Item	Spring thrust force N	D Ø	E	F Ø	L	Weight g
20 10 38 M	8.82	G1/8"	8	M12 x 1.25	96	78
20 10 48 M	8.82	G1/4"	10	M12 x 1.25	98	76
20 10 58 M	8.82	G3/8"	10	M12 x 1.25	98	76

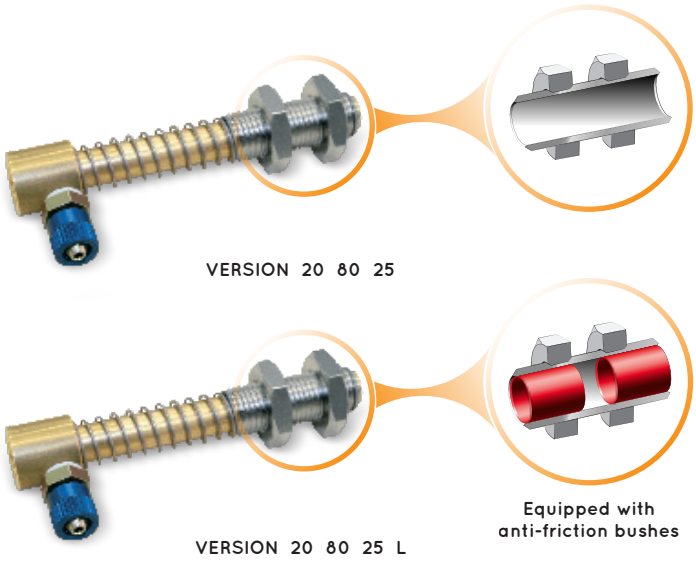
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
To order vacuum cup holders with L or T fittings, add the letter L or T to the code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

MINI VACUUM CUP HOLDERS WITH FEMALE THREADED CONNECTORS

The Mini Vacuum Cup Holders in the 20 80 25 B series differ from the standard 20 80 25 model in that they feature two technopolymer anti-friction bushes inserted into the M12x1.25 threaded sleeve.
These bushes ensure excellent sliding without the need for additional lubrication and maintain their performance even in dirty environments.



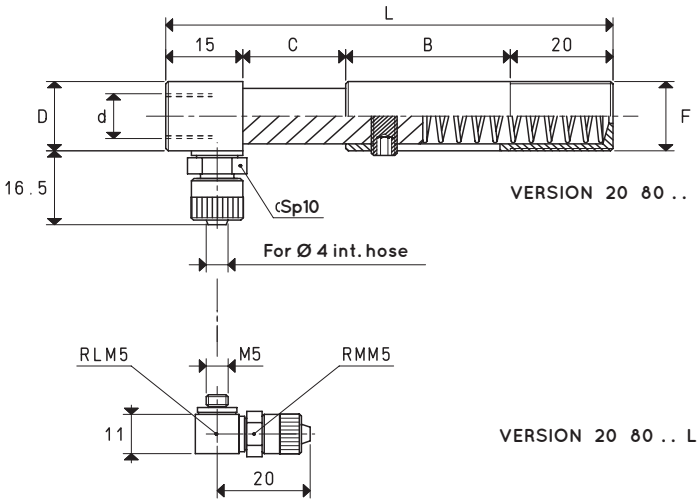


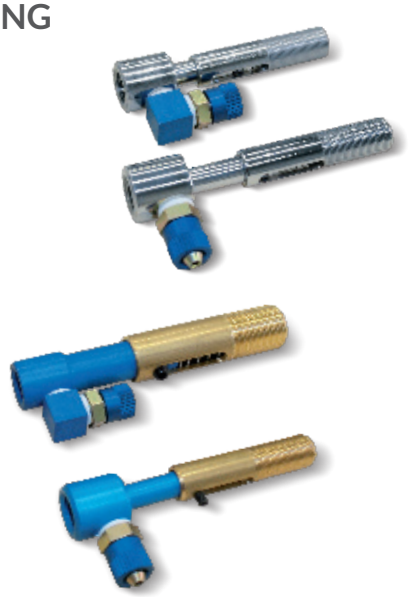
VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	Spring thrust force N	d Ø	D Ø	E	F Ø	G	L	Weight g
20 80 25 B	8.82	G1/8"	15	15	M12 x 1.25	7.5	83.5	82
20 80 25	8.82	G1/8"	15	15	M12 x 1.25	3.0	83.5	82

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
To order vacuum cup holders with L fittings, add the letter L to the code.

MINI VACUUM CUP HOLDERS WITH BUILT-IN SPRING





VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	B	C stroke	Spring thrust force N	d Ø	D Ø	F Ø	L	Weight g
20 80 15	22	15	3.92	G1/8"	15	M10 x 0.75	72	26
20 80 20	32	20	6.80	G1/8"	15	M15 x 1.00	87	42

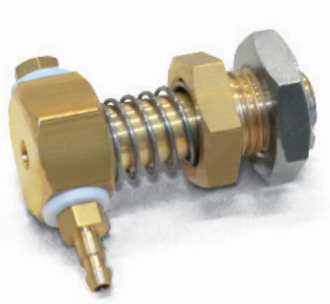
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
To order chrome-plated iron, add the letters FC to the item.
To order vacuum cup holders with L fittings, add the letter L to the code.

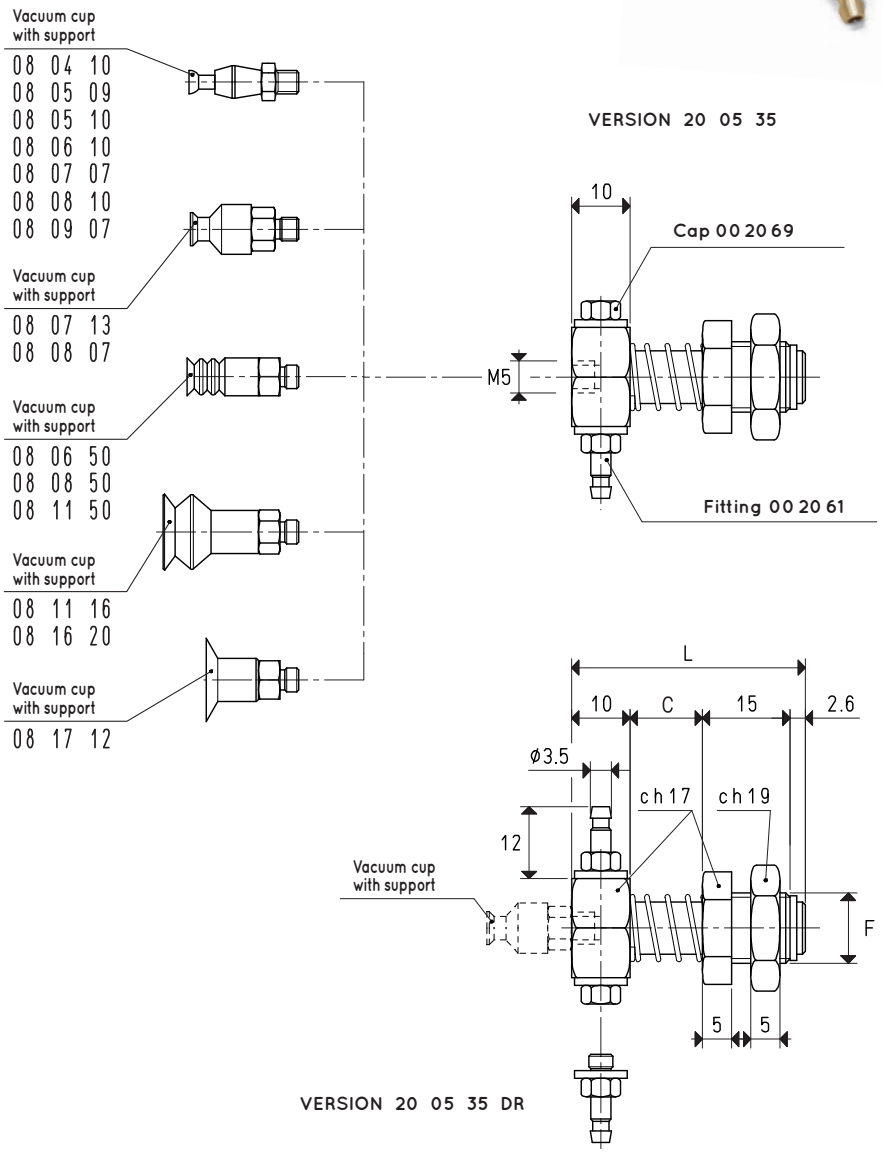
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

MINI VACUUM CUP HOLDERS WITH COMPACT STROKE

The vacuum cup holders shown on this page have a shorter stroke and their special design that allow for further bulk and weight reduction in the overall dimensions and weight of these vacuum cups compared to normal mini vacuum cup holders. They are composed of:

- A brass stem for fastening the cup;
- A threaded sleeve equipped with nuts, for mounting the vacuum up holder on the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose, consisting of one small hose connector as standard or two on request, radial They are particularly suited for small cups to be manually assembled with diameters ranging between 10 and 30 mm.





VACUUM CUP HOLDERS WITH STRAIGHT COUPLER FOR PLASTIC HOSE

Item	C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Weight g
20 05 35	12.4	9	9.80	M12 x 1.25	40	53.6
	For vacuum cup item					
	08 04 10 - 08 05 10 - 08 06 10 - 08 08 07 - 08 08 10 - 08 09 07					
	08 07 07 - 08 07 13					
	08 06 50 - 08 08 50 - 08 11 50					
	08 05 09 - 08 11 16 - 08 16 20					
	08 17 12					

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cups with 2 fittings item 00 20 61 fittings, add the letters DR to code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

MINI VACUUM CUP HOLDERS WITH COMPACT STROKE

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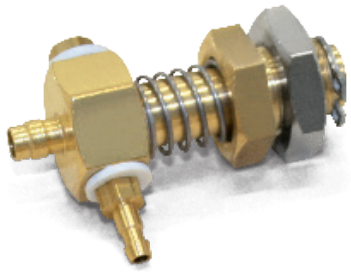
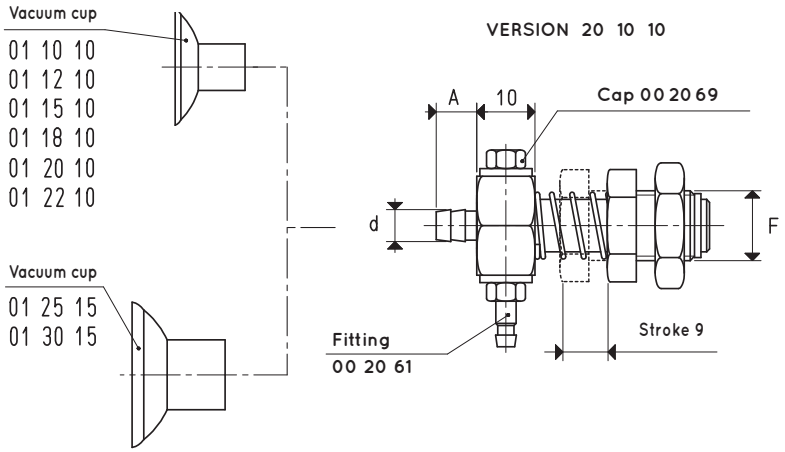
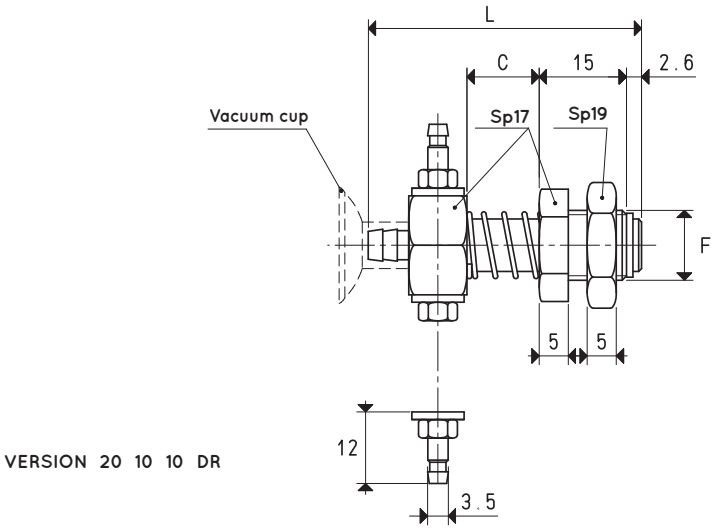
- A quick coupling for connection with the suction hose, consisting of one small hose connector as standard or two on request, radial They are particularly suited for small cups to be manually assembled with diameters ranging between 10 and 30 mm.







VACUUM CUP HOLDERS WITH STRAIGHT COUPLER FOR PLASTIC HOSE

Item	C	Actual spring stroke mm	Spring thrust force N	A	d Ø	F Ø	L	Weight g
20 10 10	12.4	9	9.80	5.5	7	M12 x 1.25	47	53.0
	For vacuum cup item							
	01 10 10 - 01 12 10 - 01 15 10 - 01 18 10 - 01 20 10 - 01 22 10							
20 25 10	12.4	9	9.80	7.5	9.5	M12 x 1.25	49.5	55.0
	For vacuum cup item							
	01 25 15 - 01 30 15							

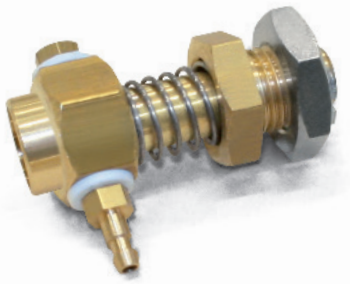
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cups with 2 fittings item 00 20 61 fittings, add the letters DR to code.

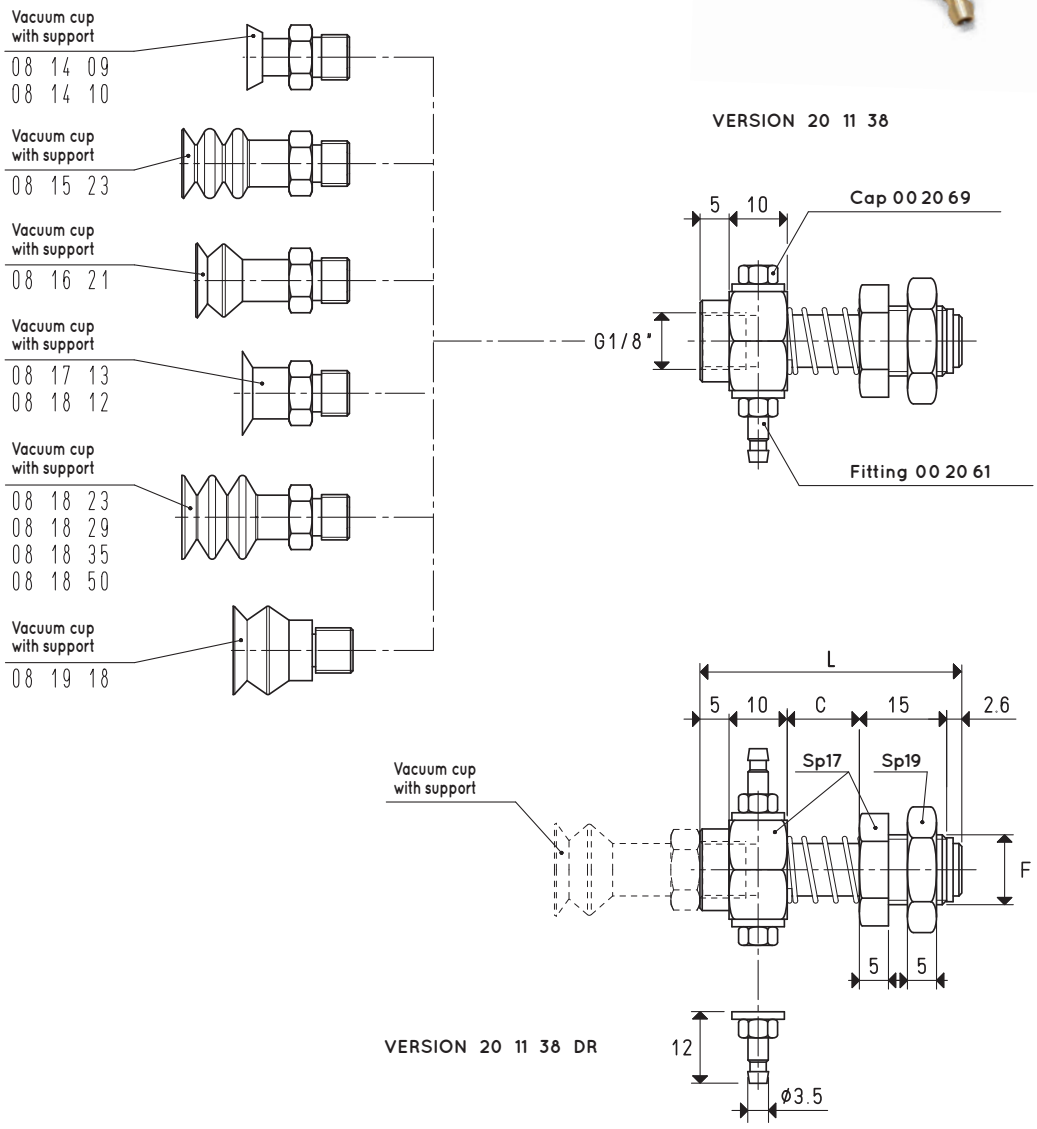
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

MINI VACUUM CUP HOLDERS WITH COMPACT STROKE

The vacuum cup holders shown on this page have a shorter stroke and their special design that allow for further bulk and weight reduction in the overall dimensions and weight of these vacuum cups compared to normal mini vacuum cup holders. They are composed of:

- A brass stem for fastening the cup;
- A threaded sleeve equipped with nuts, for mounting the vacuum up holder on the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose, consisting of one small hose connector as standard or two on request, radial They are particularly suited for small cups to be manually assembled with diameters ranging between 10 and 30 mm.





VACUUM CUP HOLDERS WITH STRAIGHT COUPLER FOR PLASTIC HOSE

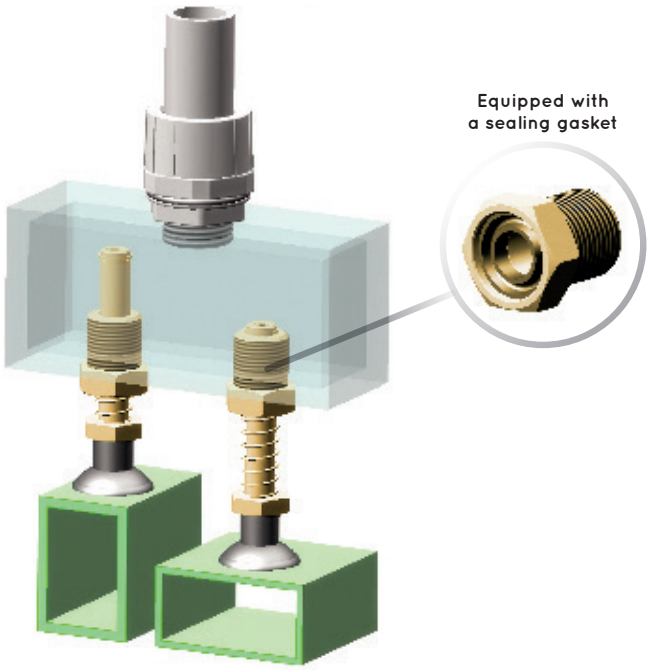
Item	C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Weight g
20 11 38	12.4	9	9.80	M12 x 1.25	45	53.6
			For vacuum cup item			
			08 14 09 - 08 14 10			
			08 15 23			
			08 16 21			
			08 17 13 - 08 18 12			
			08 18 23 - 08 18 29 - 08 18 35 - 08 18 50			
			08 19 18			

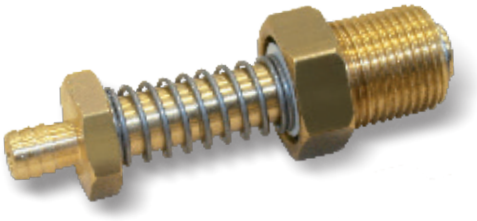
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cups with 2 fittings item 00 20 61 fittings, add the letters DR to code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

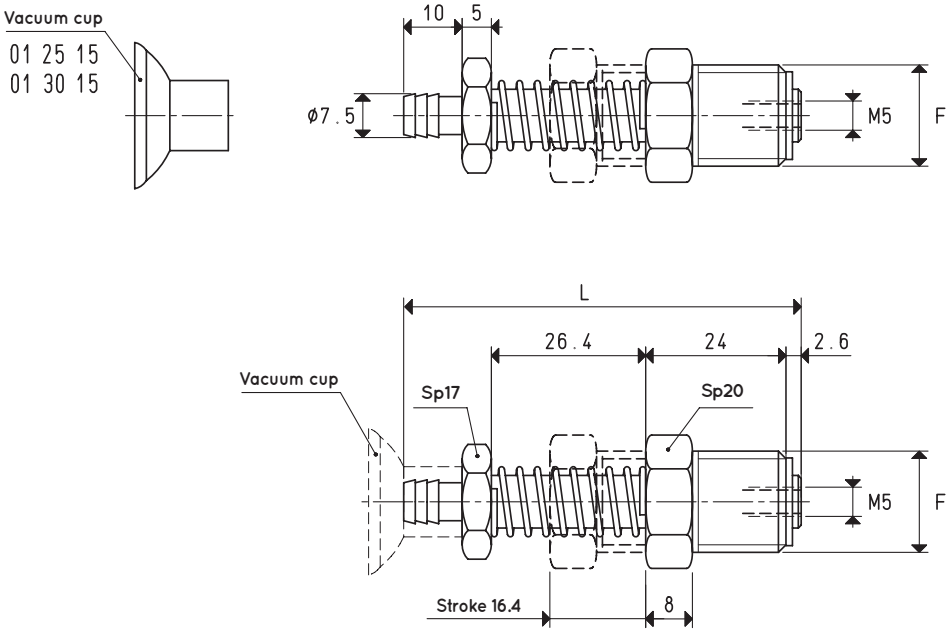
MINI VACUUM CUP HOLDERS WITH BUILT-IN BUSH

The vacuum cup holders shown on this page have a special design that allows them to be assembled directly onto a vacuum manifold, significantly reducing the need for pipes and fittings.
The hexagonal threaded bush for cup holder assembly with the vacuum manifold is equipped with a seal and has the task of driving and holding the brass stem for fixing the vacuum cup.
They are composed of:
- A brass stem for fastening the cup;
- A G3/8" hexagonal threaded bush equipped with a seal;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted.





VERSION 20 25 11



Item	Spring thrust force N	F Ø	L	Weight g
20 25 11	18.63	G3/8"	68	68.0
		For vacuum cup item		
		01 25 15 - 01 30 15		

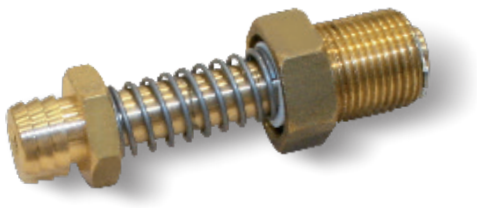
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

MINI VACUUM CUP HOLDERS WITH BUILT-IN BUSH

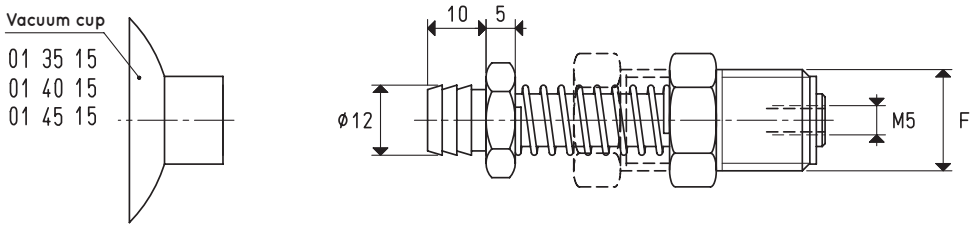
The vacuum cup holders shown on this page have a special design that allows them to be assembled directly onto a vacuum manifold, significantly reducing the need for pipes and fittings. The hexagonal threaded bush for cup holder assembly with the vacuum manifold is equipped with a seal and has the task of driving and holding the brass stem for fixing the vacuum cup. They are composed of:

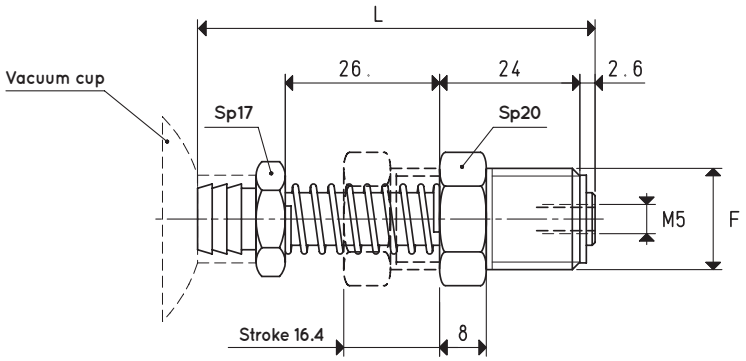
- A brass stem for fastening the cup;
- A G3/8" hexagonal threaded bush equipped with a seal;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted.



Equipped with a sealing gasket

VERSION 20 35 11





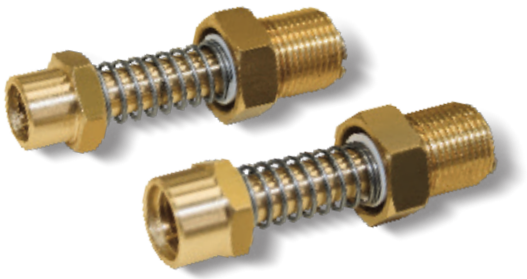
Item	Spring thrust force N	F Ø	L	Weight g
20 35 11	18.63	G3/8"	68	74.5
	For vacuum cup item			
	01 35 15 - 01 40 15 - 01 45 15			

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

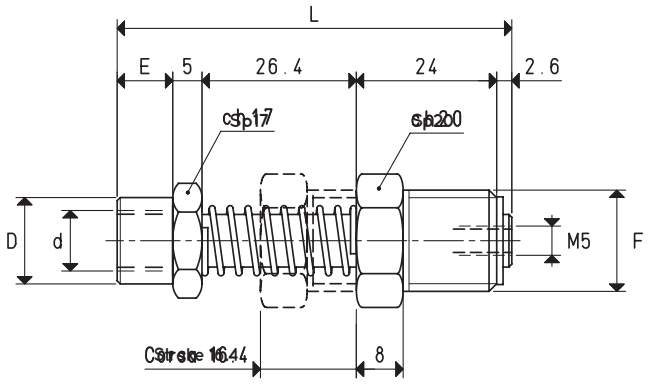
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

VACUUM CUP HOLDERS WITH BUILT-IN BUSH, WITH FEMALE THREADED CONNECTOR

The vacuum cup holders shown on this page have a special design that allows them to be assembled directly onto a vacuum manifold, significantly reducing the need for pipes and fittings.
The hexagonal threaded bush for cup holder assembly with the vacuum manifold is equipped with a seal and has the task of driving and holding the brass stem for fixing the vacuum cup.
They are composed of:
- A brass stem for fastening the cup;
- A G3/8" hexagonal threaded bush equipped with a seal;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted.



VERSION 20 .. 11

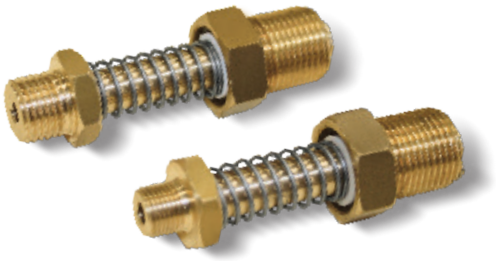


Equipped with a sealing gasket

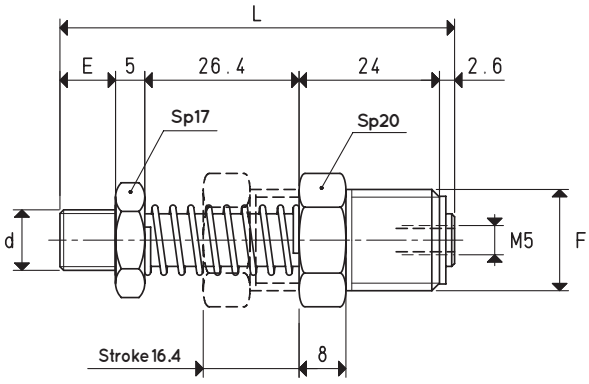
Item	Spring thrust force N	d Ø	D Ø	E	F Ø	L	Weight g
20 08 11	18.63	G1/8"	14.0	9	G3/8"	67	74
20 10 11	18.63	G1/4"	16.5	9	G3/8"	67	73

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.

VACUUM CUP HOLDERS WITH BUILT-IN BUSH, WITH MALE THREADED CONNECTOR



VERSION 20 .. 11 M



Equipped with a sealing gasket

Item	Spring thrust force N	d Ø	E	F Ø	L	Weight g
20 08 11 M	18.63	G1/8"	8	G3/8"	66	75
20 10 11 M	18.63	G1/4"	10	G3/8"	68	74

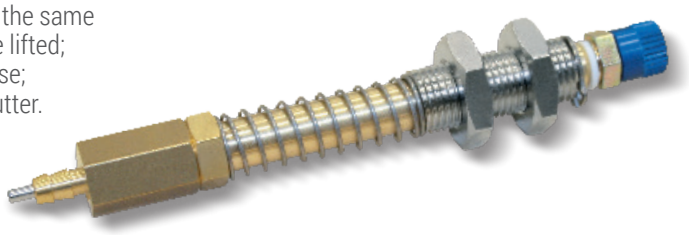
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.

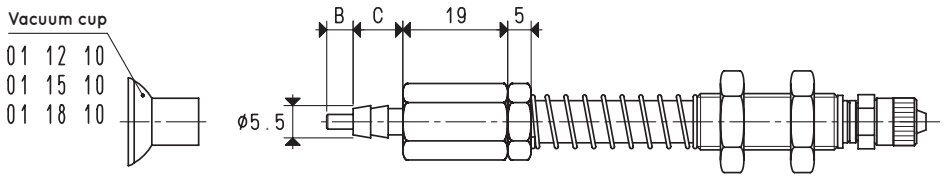
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

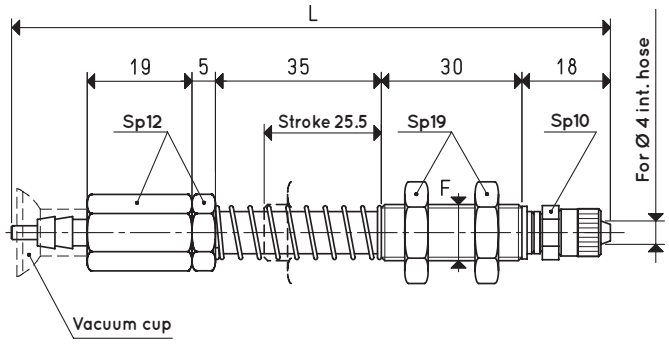
Adapters for GAS - NPT threading available on page 1.134

MINI VACUUM CUP HOLDERS WITH PLUNGER VALVE

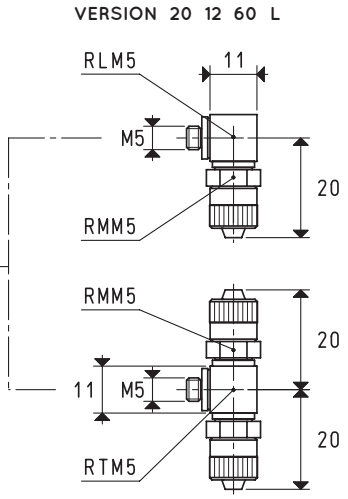
They share the same mechanical features at the other mini vacuum cup holders.
Their distinctive feature is the plunger valve solidly connected to a conical spear valve, which activates suction, and therefore creates vacuum, only when the cup comes into contact with the load to be lifted.
They are composed of:
- A brass stem for fastening the cup;
- A threaded sleeve equipped with nuts, for mounting the vacuum up holder on the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- A solidly connected plunger valve with a conical shutter.







VERSION 20 12 60



VERSION 20 12 60 L

VERSION 20 12 60 T

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	Spring thrust force N	B	C	F Ø	L	Weight g
20 12 60	8.82	4.5	8.5	M12 x 1.25	120	78.0
	For vacuum cup item					
	01 12 10 - 01 15 10 - 01 18 10					

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L or T fittings, add the letter L or T to the code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

MINI VACUUM CUP HOLDERS WITH PLUNGER VALVE

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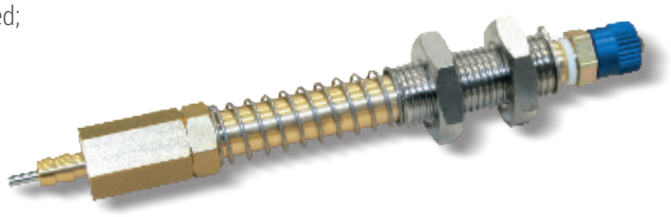
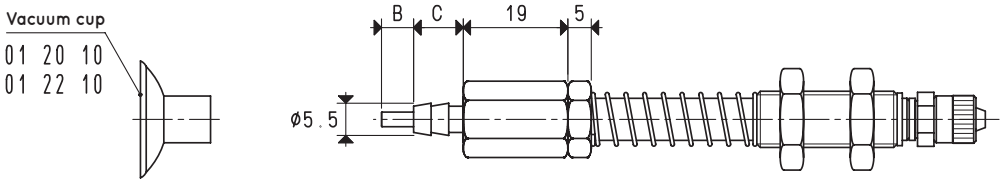
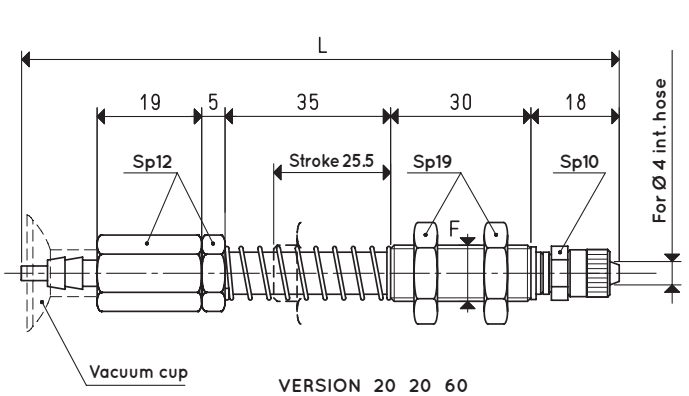
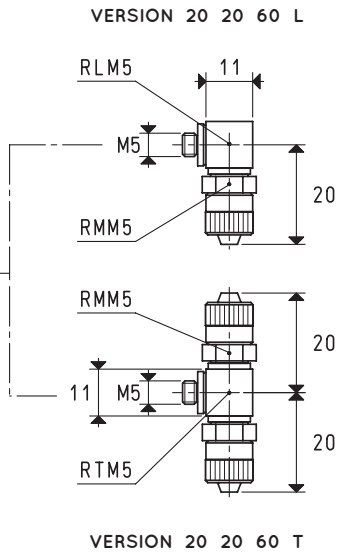
They are composed of:
- A brass stem for fastening the cup;
- A threaded sleeve equipped with nuts, for mounting the vacuum up holder on the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- A solidly connected plunger valve with a conical shutter.









VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

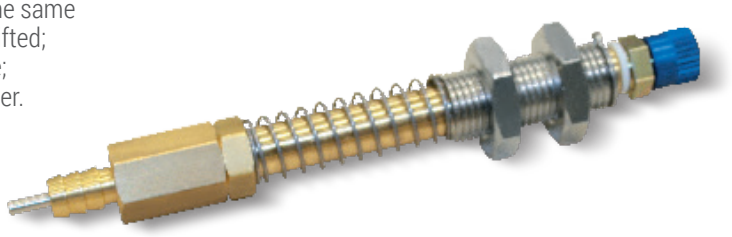
Item	Spring thrust force N	B	C	F Ø	L	Weight g
20 20 60	8.82	5.5	8.5	M12 x 1.25	121	79.6
			For vacuum cup item			
			01 20 10 - 01 22 10			

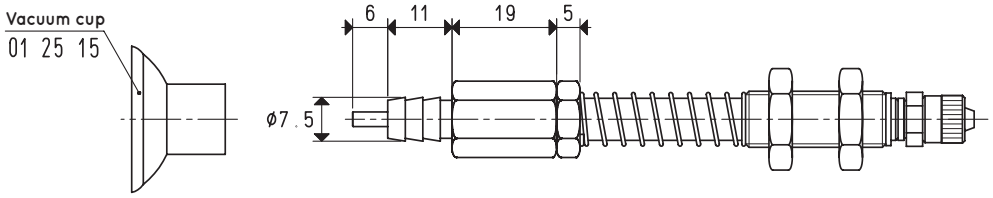
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L or T fittings, add the letter L or T to the code.

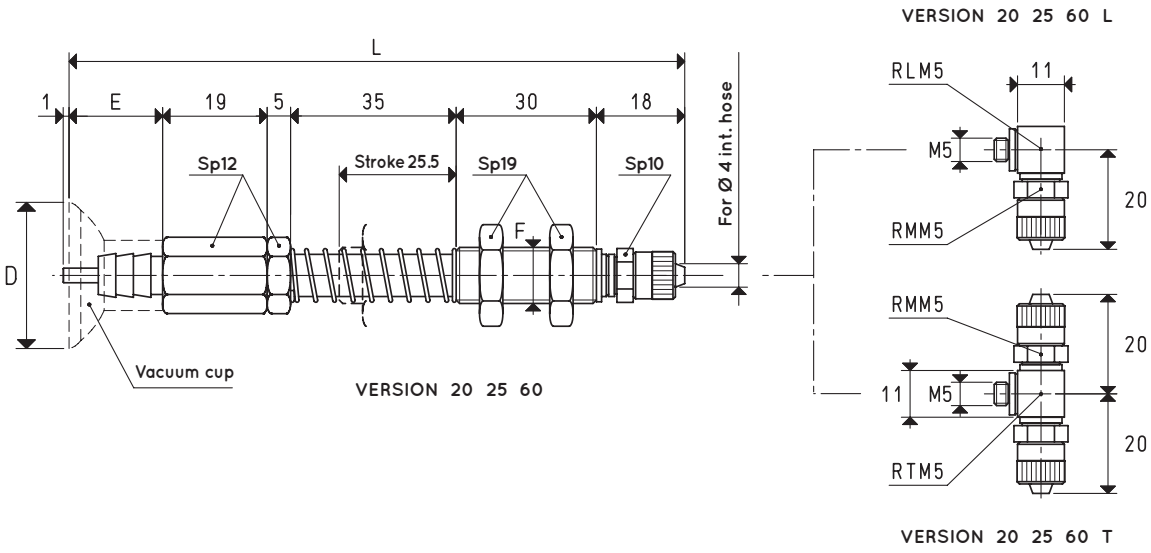
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

MINI VACUUM CUP HOLDERS WITH PLUNGER VALVE

They share the same mechanical features at the other mini vacuum cup holders.
Their distinctive feature is the plunger valve solidly connected to a conical spear valve, which activates suction, and therefore creates vacuum, only when the cup comes into contact with the load to be lifted.
They are composed of:
- A brass stem for fastening the cup;
- A threaded sleeve equipped with nuts, for mounting the vacuum up holder on the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- A solidly connected plunger valve with a conical shutter.







VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	Spring thrust force N	D Ø	E	F Ø	L	For vacuum cup item	Weight g
20 25 60	8.82	25	16	M12 x 1.25	124	01 25 15	83.4

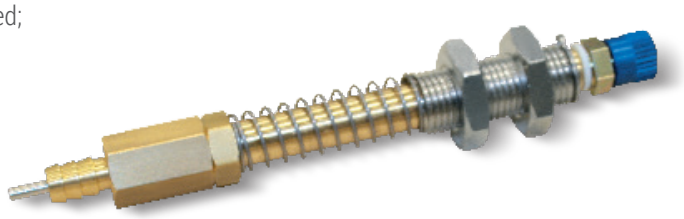
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L or T fittings, add the letter L or T to the code.

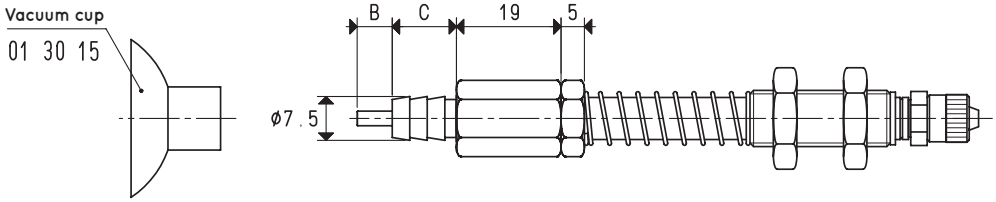
Note: The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

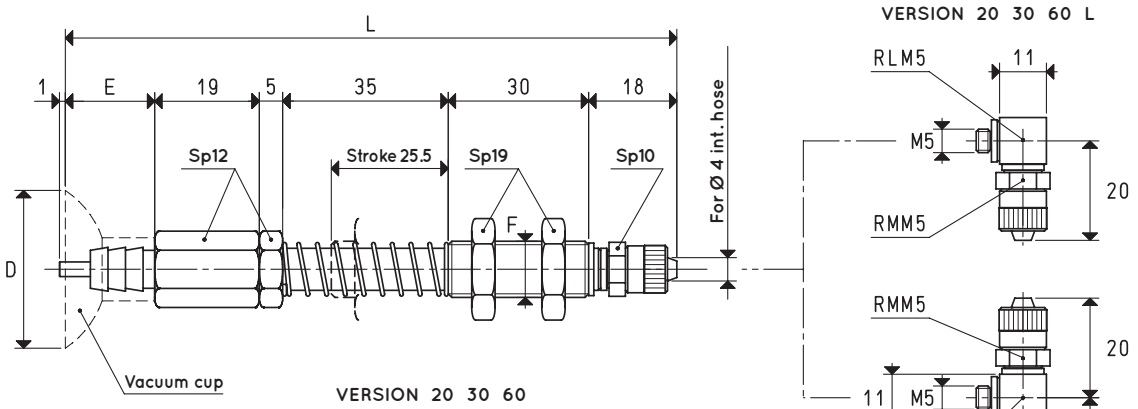
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

MINI VACUUM CUP HOLDERS WITH PLUNGER VALVE

They share the same mechanical features at the other mini vacuum cup holders.
Their distinctive feature is the plunger valve solidly connected to a conical spear valve, which activates suction, and therefore creates vacuum, only when the cup comes into contact with the load to be lifted.
They are composed of:
- A brass stem for fastening the cup;
- A threaded sleeve equipped with nuts, for mounting the vacuum up holder on the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- A solidly connected plunger valve with a conical shutter.







VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	Spring thrust force N	B	C	D Ø	E	F Ø	L	For vacuum cup item	Weight g
20 30 60	8.82	7	11	30	17	M12 x 1.25	125	01 30 15	84.0

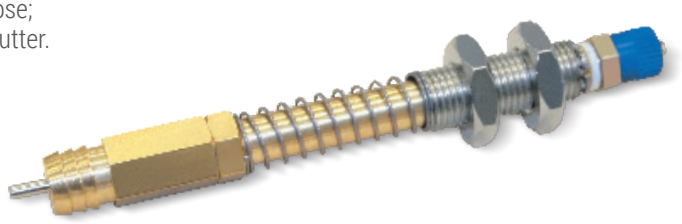
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L or T fittings, add the letter L or T to the code.

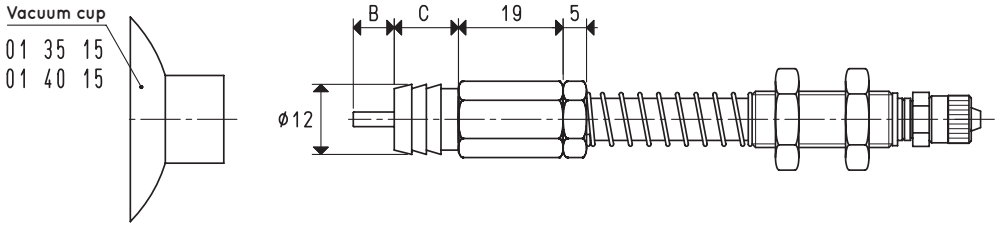
Note: The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

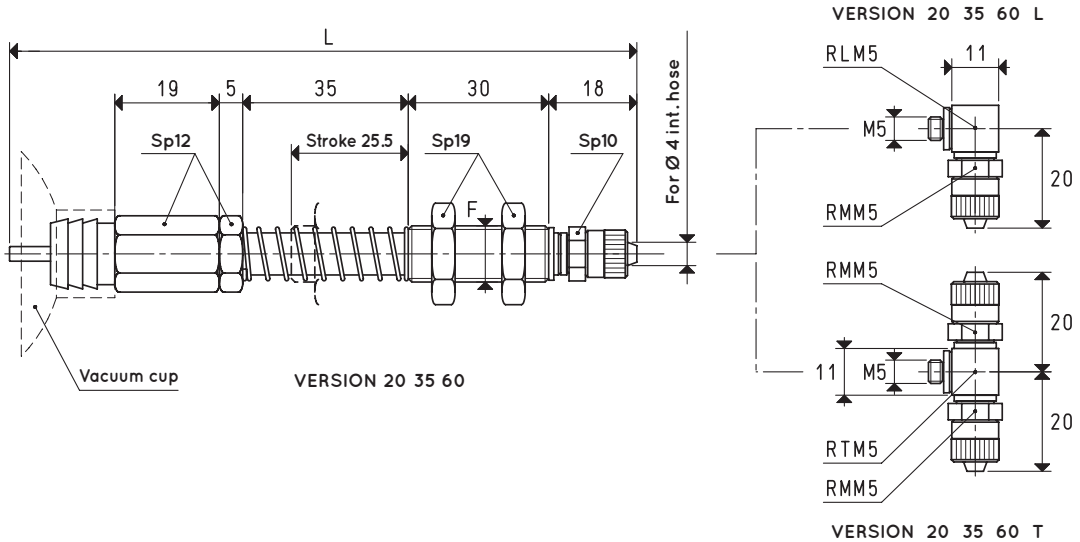
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

MINI VACUUM CUP HOLDERS WITH PLUNGER VALVE

They share the same mechanical features at the other mini vacuum cup holders.
Their distinctive feature is the plunger valve solidly connected to a conical spear valve, which activates suction, and therefore creates vacuum, only when the cup comes into contact with the load to be lifted.
They are composed of:
- A brass stem for fastening the cup;
- A threaded sleeve equipped with nuts, for mounting the vacuum up holder on the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- A solidly connected plunger valve with a conical shutter.







VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

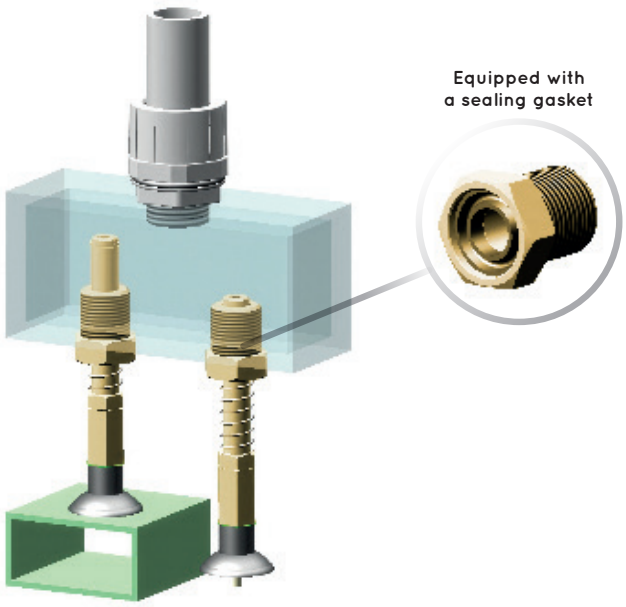
Item	Spring thrust force N	B	C	F Ø	L	Weight g
20 35 60	8.82	7	11	M12 x 1.25	125	88.0
	For vacuum cup item					
	01 35 15 - 01 40 15					

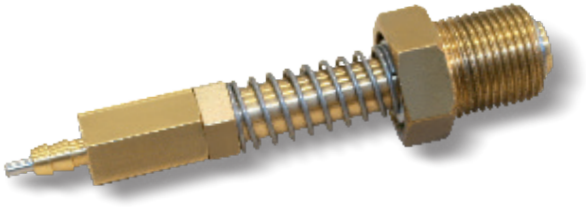
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L or T fittings, add the letter L or T to the code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

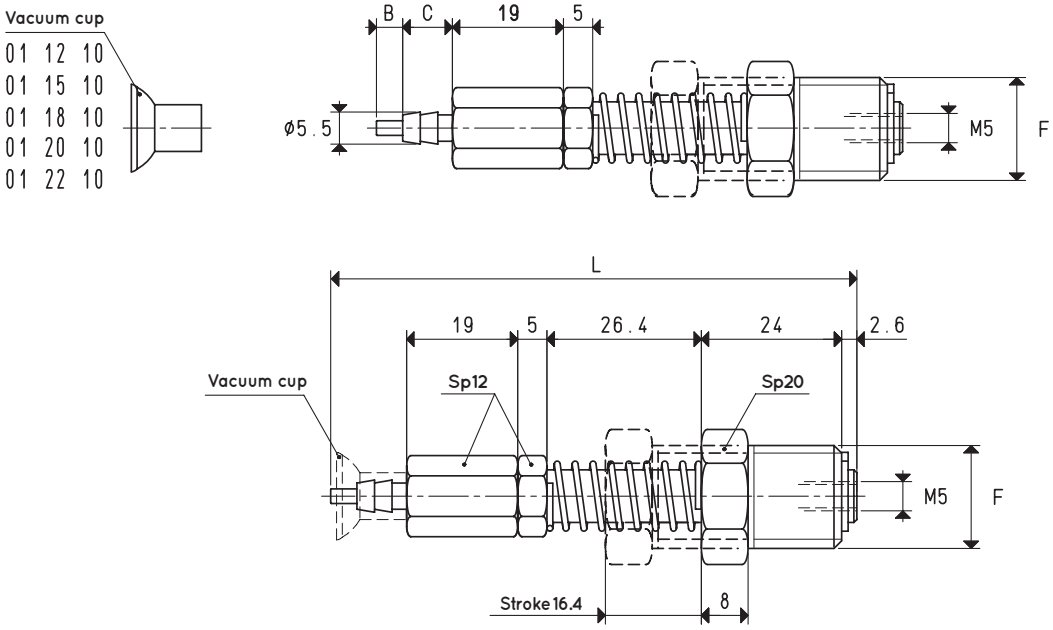
MINI VACUUM CUP HOLDERS WITH PLUNGER VALVE AND BUILT-IN BUSH

The vacuum cup holders shown on this page and the following pages are characterised by their very compact size. They feature a hexagonal threaded bush, which allows them to be assembled directly to the vacuum manifold, with considerable savings in terms of pipes and fittings.
They are composed of:
- A brass stem for fastening the cup;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- A plunger valve solidly connected to a conical spear valve, which activates suction and therefore creates a vacuum, only when the cup is in contact with the load to be lifted;
- The hexagonal threaded bush for cup holder assembly with the vacuum manifold is equipped with a seal and has the task of driving and holding the brass stem for fixing the vacuum cup.





VERSION 20 12 65



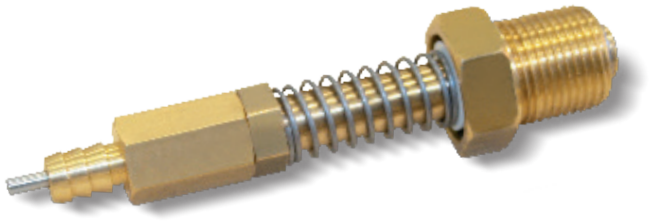
Item	Spring thrust force N	B	C	F Ø	L	Weight g
20 12 65	18.63	4.5	8.5	G3/8"	90	75.9
	For vacuum cup item					
	01 12 10 - 01 15 10 - 01 18 10 - 01 20 10 - 01 22 10					

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

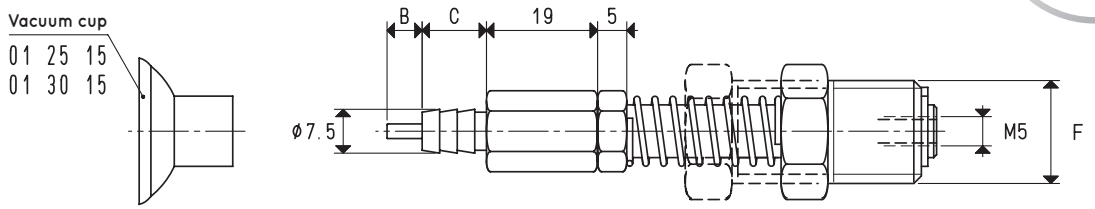
MINI VACUUM CUP HOLDERS WITH PLUNGER VALVE AND BUILT-IN BUSH

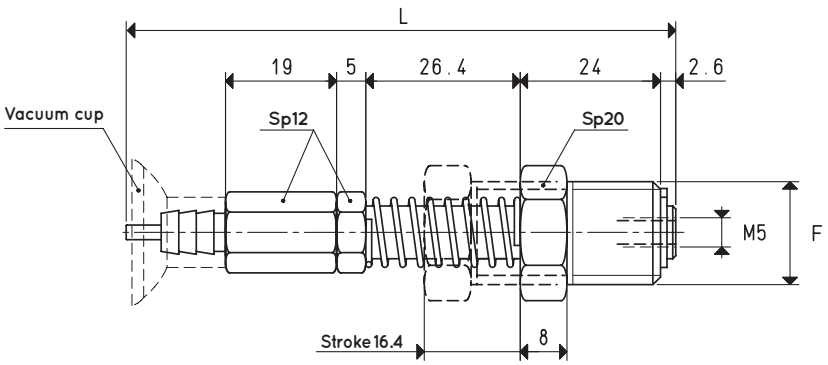
The vacuum cup holders shown on this page and the following pages are characterised by their very compact size. They feature a hexagonal threaded bush, which allows them to be assembled directly to the vacuum manifold, with considerable savings in terms of pipes and fittings.
They are composed of:
- A brass stem for fastening the cup;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- A plunger valve solidly connected to a conical spear valve, which activates suction and therefore creates a vacuum, only when the cup is in contact with the load to be lifted;
- The hexagonal threaded bush for cup holder assembly with the vacuum manifold is equipped with a seal and has the task of driving and holding the brass stem for fixing the vacuum cup.



Equipped with a sealing gasket

VERSION 20 25 65





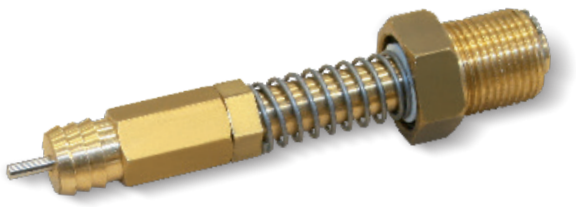
Item	Spring thrust force N	B	C	F Ø	L	Weight g
20 25 65	18.63	6	11	G3/8"	94	79.3
	For vacuum cup item					
	01 25 15 - 01 30 15					

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

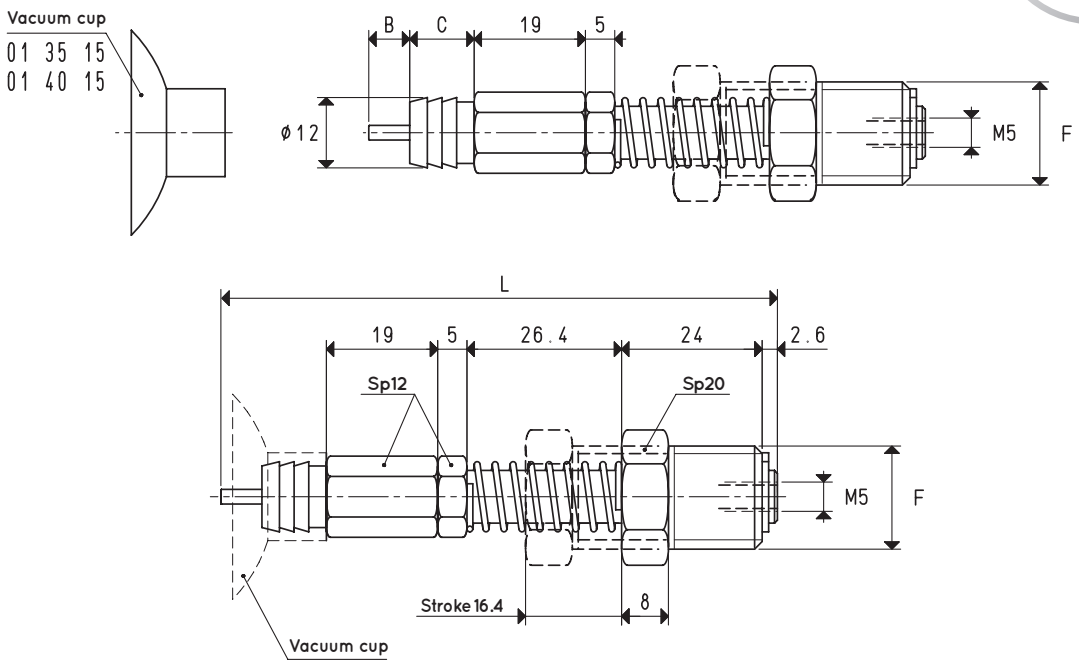
MINI VACUUM CUP HOLDERS WITH PLUNGER VALVE AND BUILT-IN BUSH

The vacuum cup holders shown on this page and the following pages are characterised by their very compact size. They feature a hexagonal threaded bush, which allows them to be assembled directly to the vacuum manifold, with considerable savings in terms of pipes and fittings.
They are composed of:
- A brass stem for fastening the cup;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- A plunger valve solidly connected to a conical spear valve, which activates suction and therefore creates a vacuum, only when the cup is in contact with the load to be lifted;
- The hexagonal threaded bush for cup holder assembly with the vacuum manifold is equipped with a seal and has the task of driving and holding the brass stem for fixing the vacuum cup.



Equipped with a sealing gasket

VERSION 20 35 65



Item	Spring thrust force N	B	C	F Ø	L	Weight g
20 35 65	18.63	7	11	G3/8"	95	80.2
	For vacuum cup item					
	01 35 15 - 01 40 15					

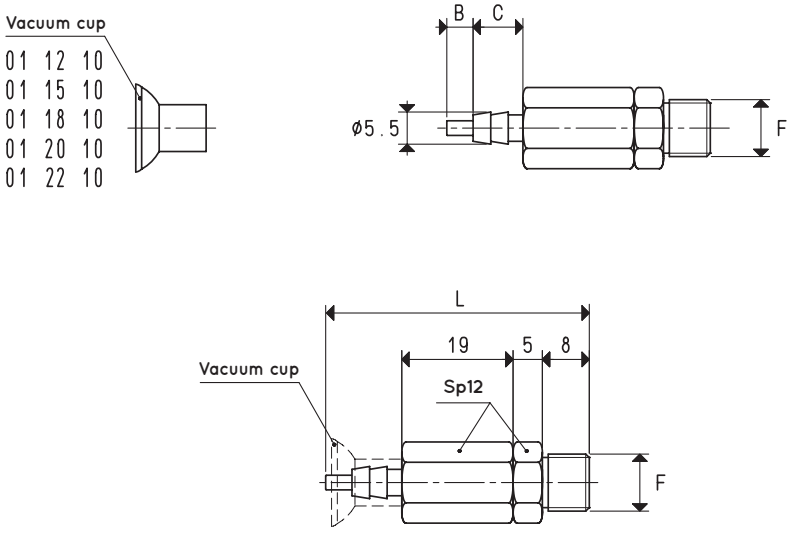
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

MINI VACUUM CUP HOLDERS WITH PLUNGER VALVE WITH NO SPRINGING

They have the same function as the mini vacuum cup holders with plunger valve but, for further bulk reduction, the cushioning spring, the threaded pipe with nuts for fixing to the automation and the quick coupler have been removed.
This type of cup holder is to be directly assembled to the vacuum manifold. To allow quick assembly, its end is provided with a threaded male shank.
They are composed of:
- A brass stem for fastening the cup;
- A plunger valve solidly connected to a conical spear valve, which activates suction and therefore creates a vacuum, only when the cup is in contact with the load to be lifted.

VERSION 20 12 61



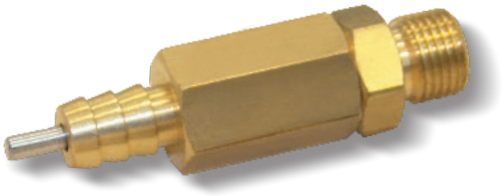
Item	B	C	F Ø	L	Weight g
20 12 61	4.5	8.5	G1/8"	45	24.0
	For vacuum cup item				
	01 12 10 - 01 15 10 - 01 18 10 - 01 20 10 - 01 22 10				

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

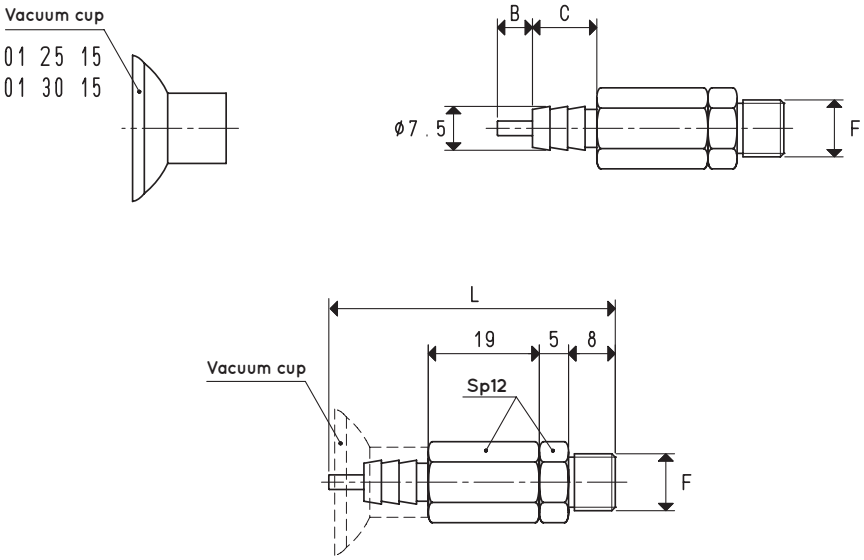
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

MINI VACUUM CUP HOLDERS WITH NO SPRINGING

They have the same function as the mini vacuum cup holders with plunger valve but, for further bulk reduction, the cushioning spring, the threaded pipe with nuts for fixing to the automation and the quick coupler have been removed.
This type of cup holder is to be directly assembled to the vacuum manifold. To allow quick assembly, its end is provided with a threaded male shank.
They are composed of:
- A brass stem for fastening the cup;
- A plunger valve solidly connected to a conical spear valve, which activates suction and therefore creates a vacuum, only when the cup is in contact with the load to be lifted.



VERSION 20 25 61



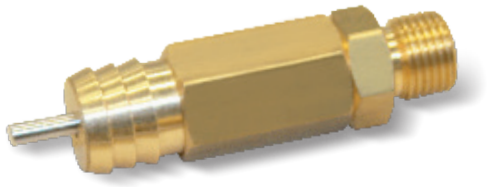
Item	B	C	F Ø	L	Weight g
20 25 61	6	11	G1/8"	49	24.0
			For vacuum cup item		
			01 25 15 - 01 30 15		

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

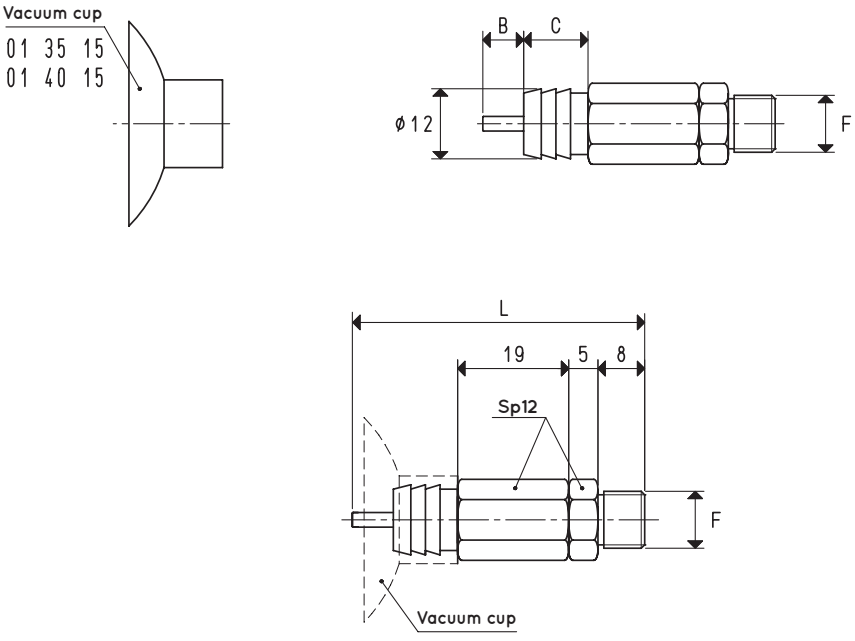
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

MINI VACUUM CUP HOLDERS WITH NO SPRINGING

They have the same function as the mini vacuum cup holders with plunger valve but, for further bulk reduction, the cushioning spring, the threaded pipe with nuts for fixing to the automation and the quick coupler have been removed.
This type of cup holder is to be directly assembled to the vacuum manifold. To allow quick assembly, its end is provided with a threaded male shank.
They are composed of:
- A brass stem for fastening the cup;
- A plunger valve solidly connected to a conical spear valve, which activates suction and therefore creates a vacuum, only when the cup is in contact with the load to be lifted.



VERSION 20 35 61



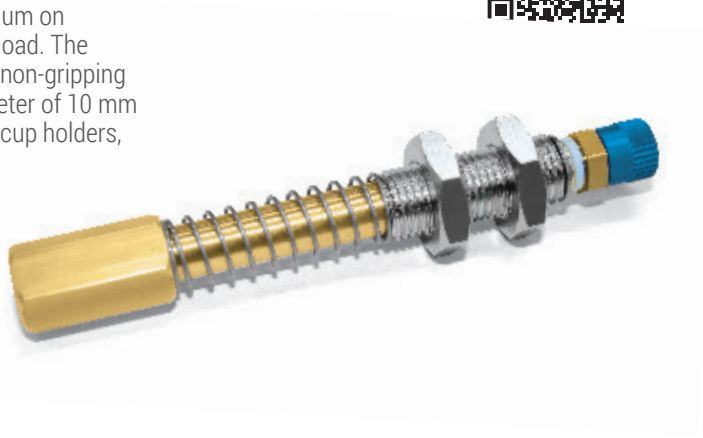
Item	B	C	F Ø	L	Weight g
20 35 61	7	11	G1/8"	50	32.0
			For vacuum cup item		
			01 35 15 - 01 40 15		

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

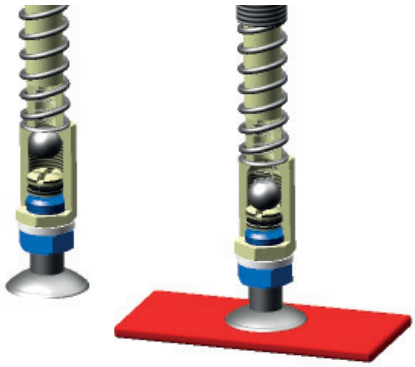
MINI VACUUM CUP HOLDERS WITH BUILT-IN SHUT-OFF VALVE

In addition to having all the other features of the mini vacuum cup holders, these also have a built-in shut-off valve. The function of the shut-off valve is to automatically close suction when the cup is not in contact with the surface of the load to be handled or in case of a faulty grip or of considerable transpiration, thus preventing the reduction of the level of vacuum on the remaining cups of the system that are regularly gripping a load. The advantage of this is that the placement or the exclusion of the non-gripping cups is no longer binding. Vacuum cups with a minimum diameter of 10 mm and maximum diameter of 50 mm can be assembled on these cup holders, provided they have a 1/8 "male threaded gas support.
They are composed of:
- A brass stem for fastening the cup;
- A threaded sleeve equipped with nuts, for mounting the vacuum up holder on the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- A shut-off valve.

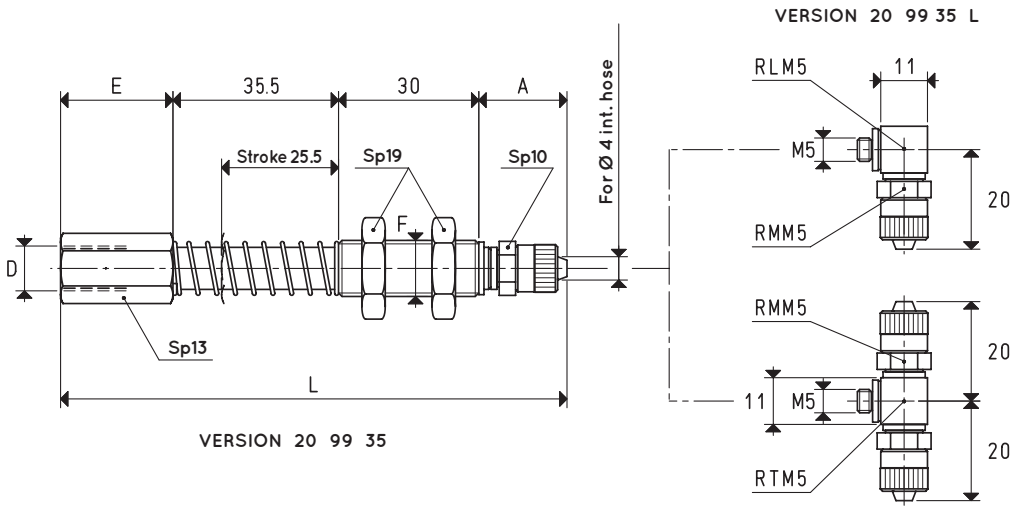


3D drawings are available on **vuototecnica.net**

VACUUM ON OBJECT NOT GRIPPED VALVE CLOSED



VACUUM ON OBJECT GRIPPED VALVE OPEN



VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

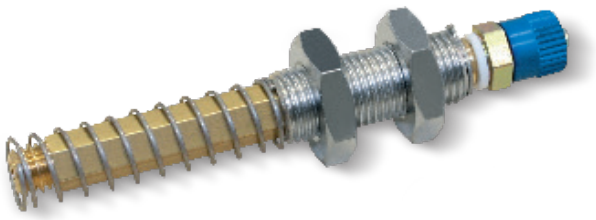
Item	Minimum trigger m^3/h	Minimum a level of vacuum mbar	Spring thrust force N	A	D Ø	E	F Ø	L	Weight g
20 99 35	1.5	-250	8.82	17.5	G1/8"	24	M12 x 1.25	107	84

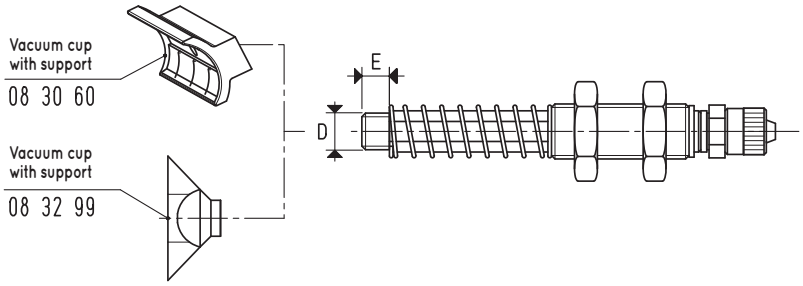
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L or T fittings, add the letter L or T to the code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

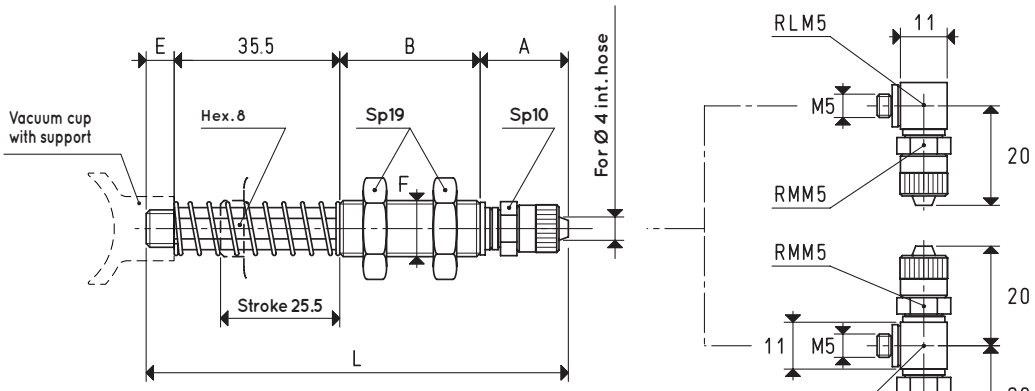
MINI ANTI-ROTATION VACUUM CUP HOLDERS

The technical features are the same as for the mini vacuum cup holders, with their distinctive features being their brass stem with hexagonal cross-section and the steel drive bushwith hexagonal hole. This prevents the stem from rotating on its axis, and, as a result, also the cup and its support from rotating. They are suited for cups with male or female support with diameters ranging from 10 mm to 60 mm, but they have been specially designed for the installation of rectangular, concave and elliptical cups.
They are composed of:
- A brass stem with a hexagonal cross-section;
- A threaded sleeve equipped with nuts, for mounting the vacuum up holder on the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.





VERSION 20 95 08 L



VERSION 20 95 08

VERSION 20 95 08 T

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

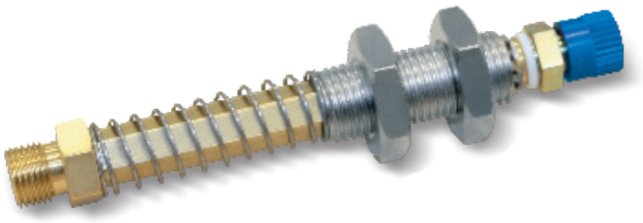
Item	Spring thrust force N	A	B	D Ø	E	F Ø	L	Weight g
20 95 08	8.82	17.5	30	M8	6	M12 x 1.25	89	58
				For vacuum cup item				
				08 30 60				
				08 32 99				

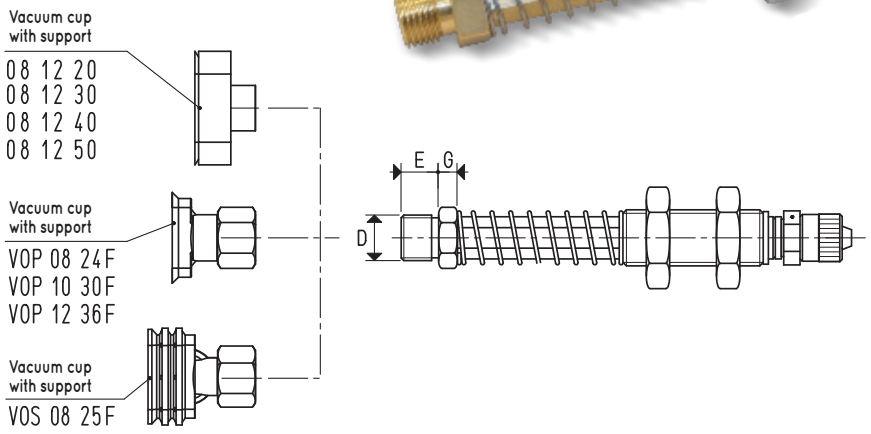
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L or T fittings, add the letter L or T to the code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

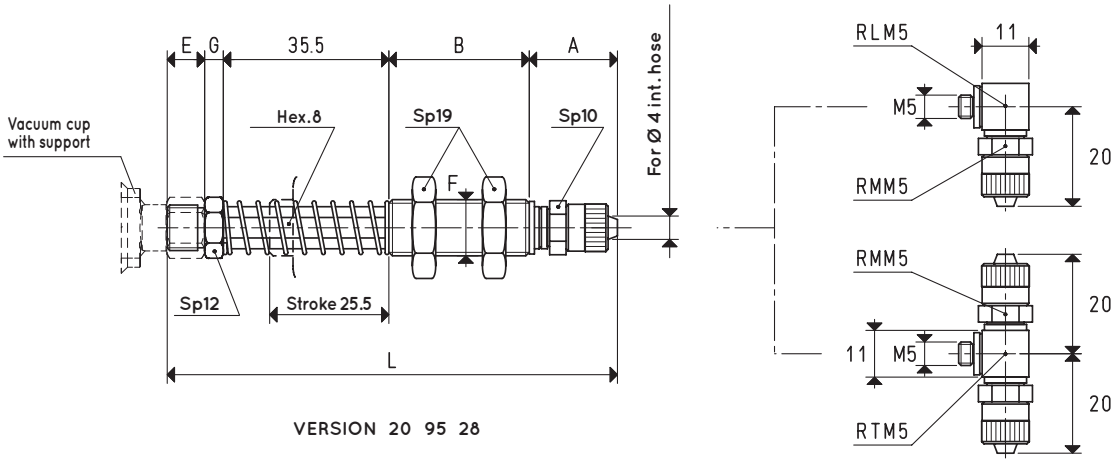
MINI ANTI-ROTATION VACUUM CUP HOLDERS

The technical features are the same as for the mini vacuum cup holders, with their distinctive features being their brass stem with hexagonal cross-section and the steel drive bushwith hexagonal hole. This prevents the stem from rotating on its axis, and, as a result, also the cup and its support from rotating. They are suited for cups with male or female support with diameters ranging from 10 mm to 60 mm, but they have been specially designed for the installation of rectangular, concave and elliptical cups.
They are composed of:
- A brass stem with a hexagonal cross-section;
- A threaded sleeve equipped with nuts, for mounting the vacuum up holder on the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.





VERSION 20 95 28 L



VERSION 20 95 28

VERSION 20 95 28 T

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

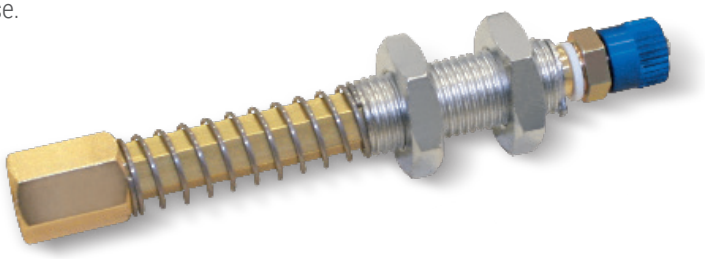
Item	Spring thrust force N	A	B	D Ø	E	F Ø	G	L	Weight g
20 95 28	8.82	17.5	30	G1/8"	8	M12 x 1.25	5	96	60
	For vacuum cup item								
	08 12 20 - 08 12 30 - 08 12 40 - 08 12 50								
	VOP 08 24 F - VOP 10 30 F - VOP 12 36 F								
	VOS 08 25 F								

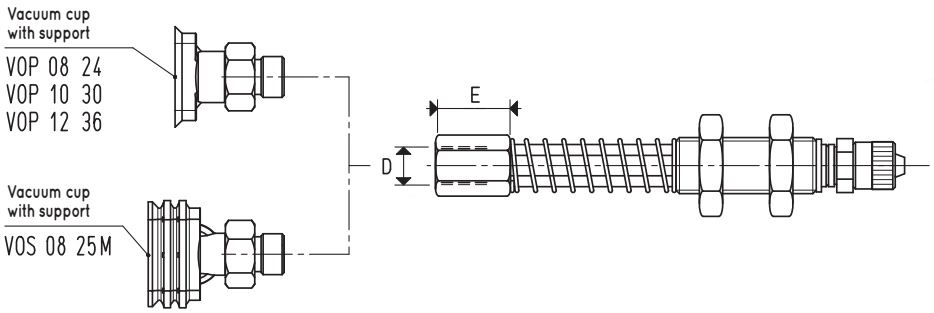
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L or T fittings, add the letter L or T to the code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

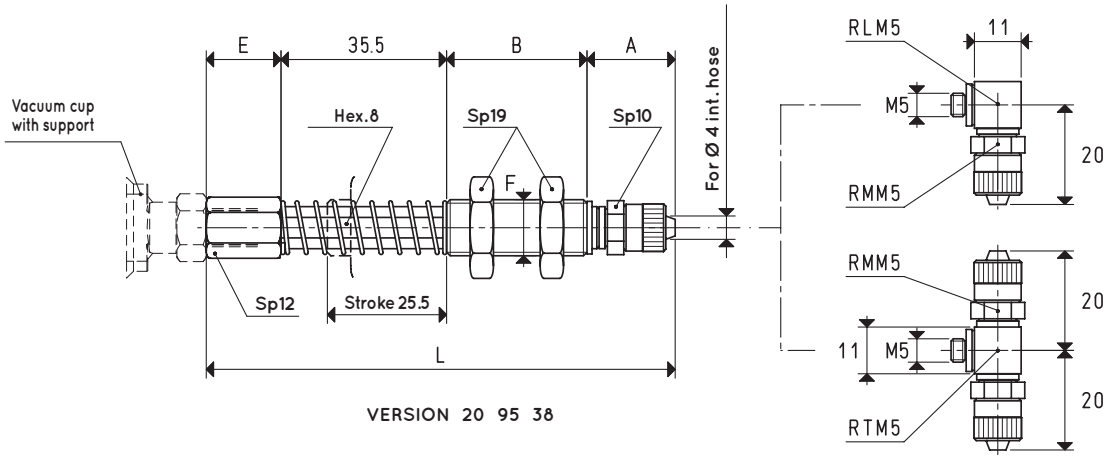
MINI ANTI-ROTATION VACUUM CUP HOLDERS

The technical features are the same as for the mini vacuum cup holders, with their distinctive features being their brass stem with hexagonal cross-section and the steel drive bushwith hexagonal hole. This prevents the stem from rotating on its axis, and, as a result, also the cup and its support from rotating. They are suited for cups with male or female support with diameters ranging from 10 mm to 60 mm, but they have been specially designed for the installation of rectangular, concave and elliptical cups.
They are composed of:
- A brass stem with a hexagonal cross-section;
- A threaded sleeve equipped with nuts, for mounting the vacuum up holder on the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.





VERSION 20 95 38 L



VERSION 20 95 38

VERSION 20 95 38 T

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	Spring thrust force N	A	B	D Ø	E	F Ø	L	Weight g
20 95 38	8.82	17.5	30	G1/8"	16	M12 x 1.25	99	68
	For vacuum cup item							
	VOP 08 24 - VOP 10 30 - VOP 12 36							
	VOS 08 25 M							

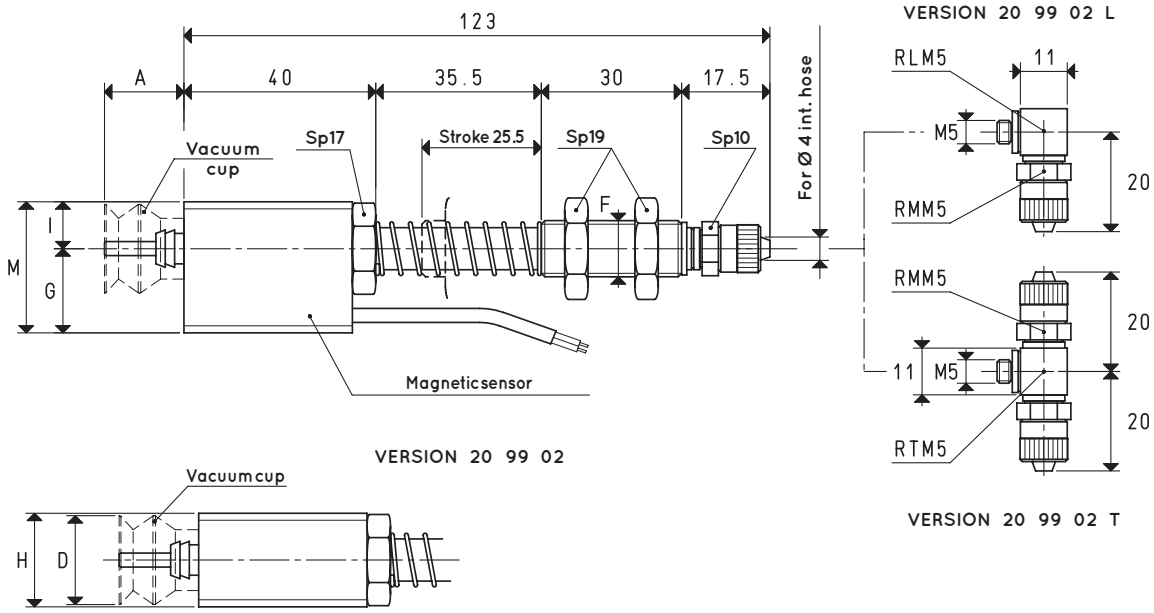
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L or T fittings, add the letter L or T to the code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

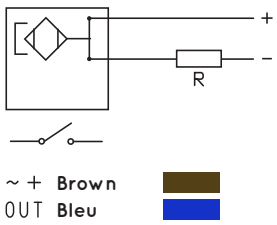
MINI VACUUM CUP MOUNT WITH MAGNETIC SWITCH

These cup holders share the same technical features at the other mini vacuum cup holders.
They are equipped with a magnetic sensor built into the cup holders to provide an electric signal to the machine every time the vacuum cup performs gripping.
This is the reason why they are recommended to be used on piece counter handlers, boxing machines and in all those cases in which the presence of the gripped object is to be guaranteed. These cup holders have been designed for gripping chocolate, snacks, croissants and similar products and they are currently made in the version represented on this page.
They are composed of:

- A brass stem for fastening the cup;
- A threaded sleeve equipped with nuts, for mounting the vacuum up holder on the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- A magnetic sensor equipped with a 3-metre connection cable;
- An anodised aluminium body to protect the magnetic sensor.



Characteristics and electrical specifications	20 99 02	20 99 03
Contact type	open	
Nominal voltage	3-130 VDC-VAC	
Voltage drop @ 10mA	0.1 V	
Max current	500 mA	
Max power	10 W	
Extra voltage protection	no	
Polarity reversal protection	yes	
Temperature	- 20 + 70°	
Protection rating IP 67	IP 67	



VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	Force Kg	Spring thrust force N	A	D Ø	F Ø	G	H	I	M	For vacuum cup item	Weight g
20 99 02	0.70	8.82	17	19	M12 x 1.25	18	20	10	28	01 19 17	163.3
20 99 03	1.23	8.82	16	25	M12 x 1.25	18	20	10	28	01 25 15	161.3
	1.76	8.82	17	30	M12 x 1.25	18	20	10	28	01 30 15	162.0

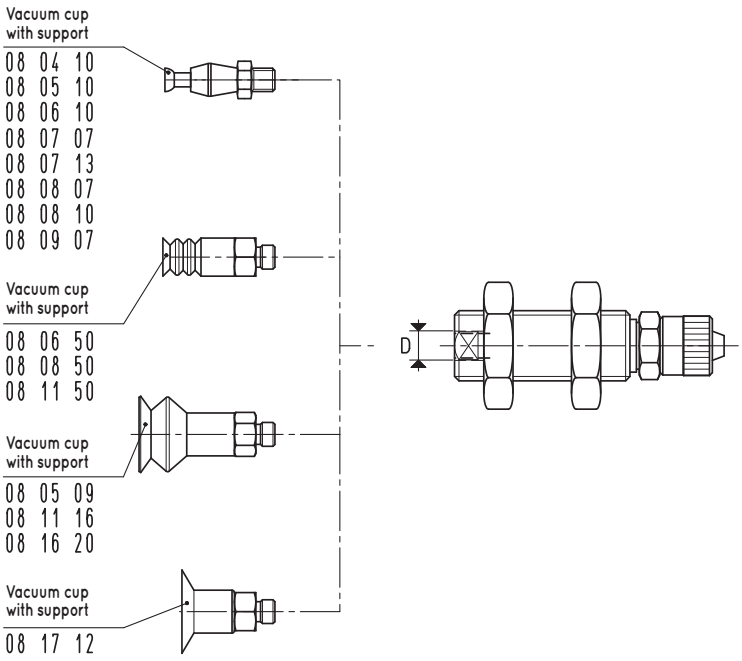
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L or T fittings, add the letter L or T to the code.

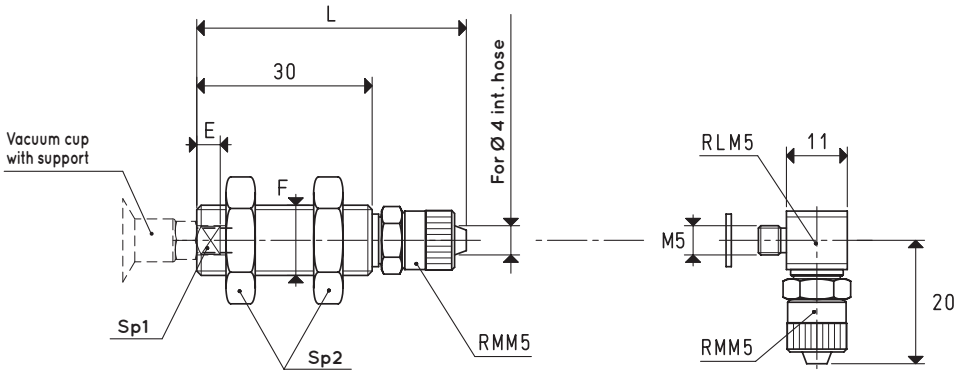
Note: The force of the vacuum cups indicated in the table represents 1/3 of the value of the theoretical force calculated at a level of vacuum of -75 KPa and a factor of safety 3.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

MINI VACUUM CUP HOLDERS FIX

Fix vacuum cup holders have been designed to adjust the height of the vacuum cups with support thanks to the threading along the entire length of the threaded bush. The ends are female threaded for mounting the vacuum cup with support and the connector.
They are composed of:
- A threaded bush equipped with nuts, for mounting the vacuum up holder on the automation;
- A quick coupling for connection with the suction hose.





VERSION 20 70 05

VERSION 20 70 05 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

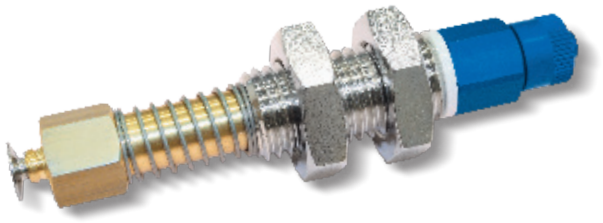
Item	D Ø	E	F Ø	Sp1	Sp2	L	Weight g
20 70 01	M5	6	G1/8"	12	19	46	19
20 70 05	M5	6	M12 x 1.25	8	12	46	45
	For vacuum cup item						
	08 04 10 - 0805 10 - 08 06 10 - 08 07 07 - 08 07 13 - 08 08 07 - 08 08 10 - 08 09 07						
	08 06 50 - 08 08 50 - 08 11 50						
	08 05 09 - 08 11 16 - 08 16 20						
	08 17 12						

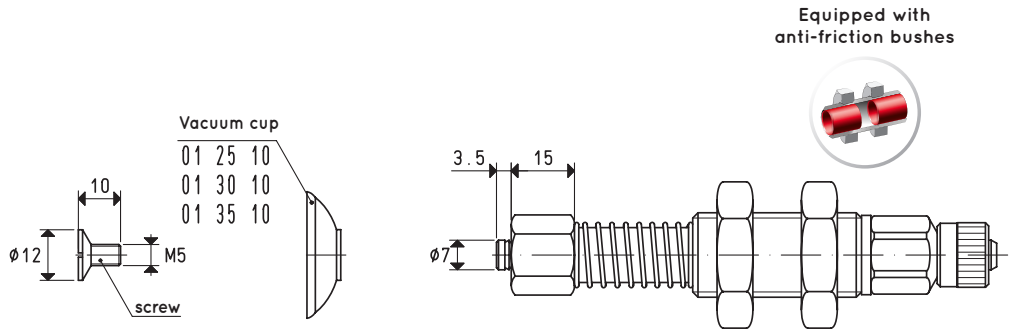
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L or T fittings, add the letter L or T to the code.

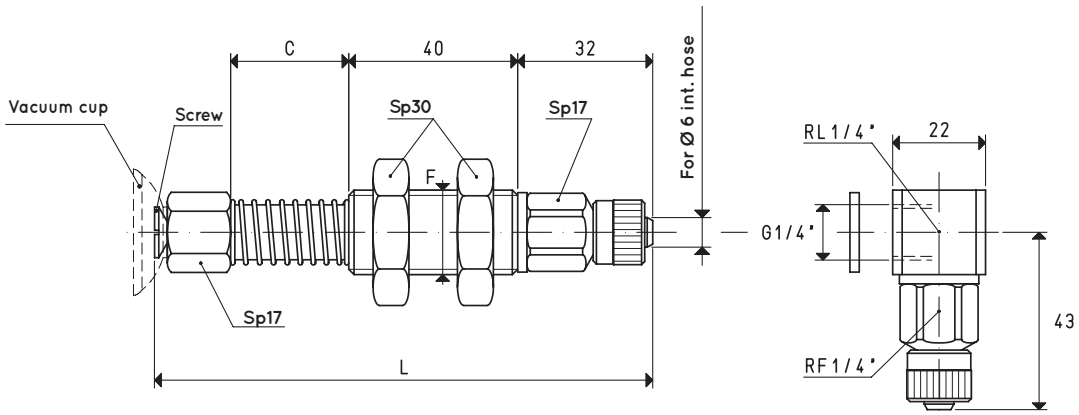
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS

These basic cup holders are built in a simple and rational way, guaranteeing maximum sturdiness and duration.
They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.







VERSION 02 25 10

VERSION 02 25 10 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

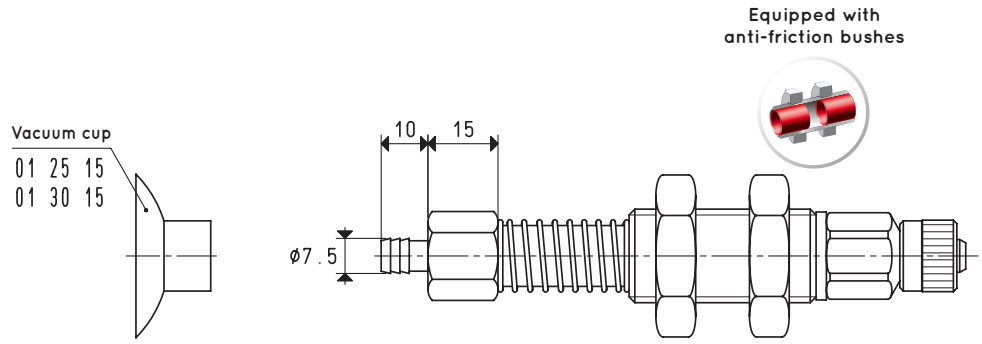
Item	*C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Screw included item	Weight g
02 25 10	28	16	10.78	M20	120	00 20 12	212.0
	65	49	29.41	M20	157	00 20 12	252.0
	95	74	23.53	M20	187	00 20 12	278.0
	For vacuum cup item						
	01 25 10 - 01 30 10 - 01 35 10						

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

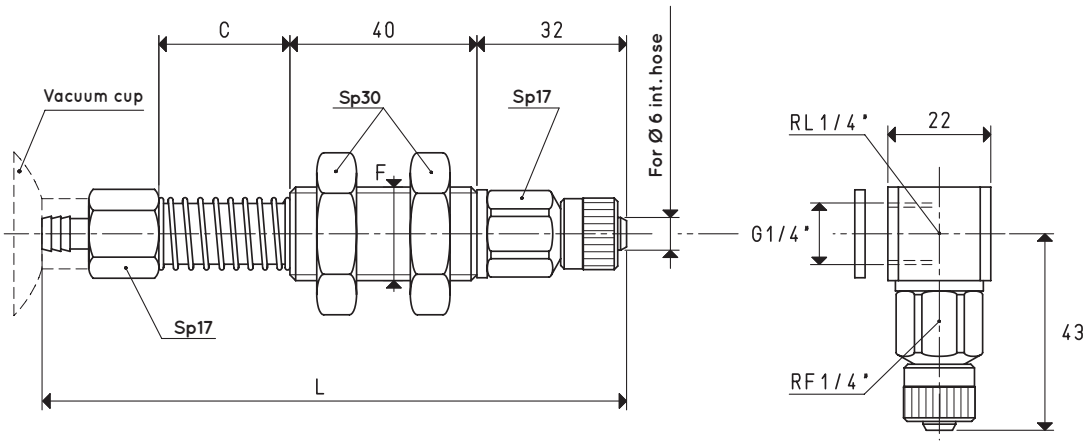
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS

These basic cup holders are built in a simple and rational way, guaranteeing maximum sturdiness and duration. They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.



VERSION 02 25 15



VERSION 02 25 15 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

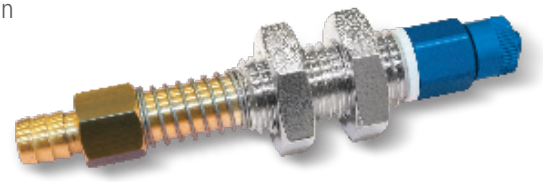
Item	*C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Weight g
02 25 15	28	16	10.78	M20	125	214.0
	65	49	29.41	M20	162	268.0
	95	74	23.53	M20	192	284.0
			For vacuum cup item			
			01 25 15 - 01 30 15			

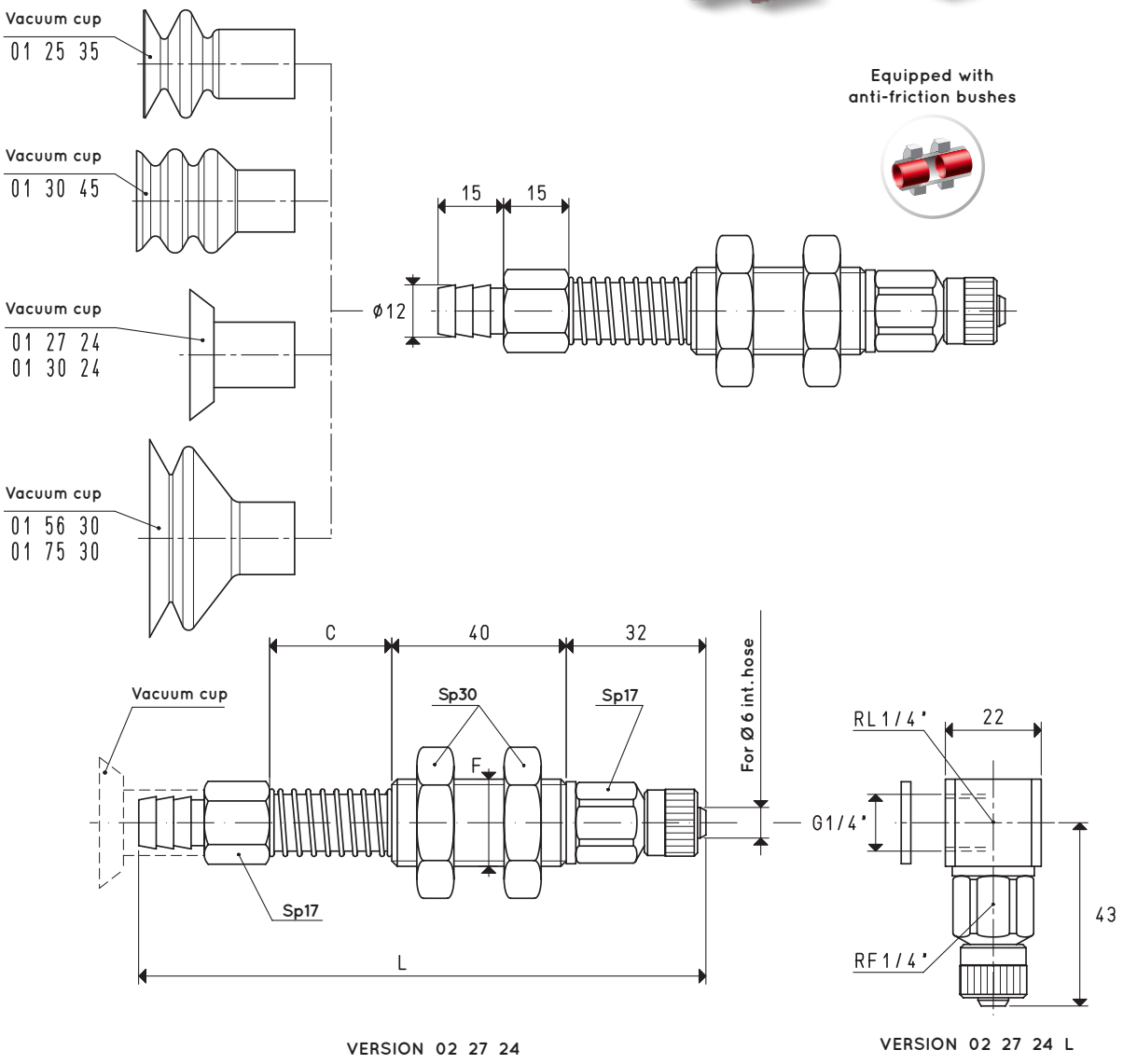
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS

These basic cup holders are built in a simple and rational way, guaranteeing maximum sturdiness and duration. They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.





VERSION 02 27 24

VERSION 02 27 24 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

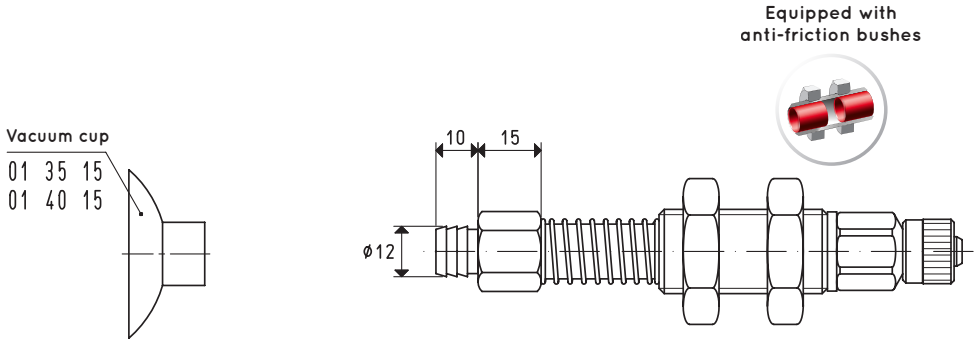
Item	*C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Weight g
02 27 24	28	16	10.78	M20	130	203.5
	65	65	29.41	M20	167	215.5
	95	95	23.53	M20	197	274.7
	For vacuum cup item					
	01 25 35					
	01 30 45					
	01 27 24 - 01 30 24					
	01 56 30 - 01 75 30					

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

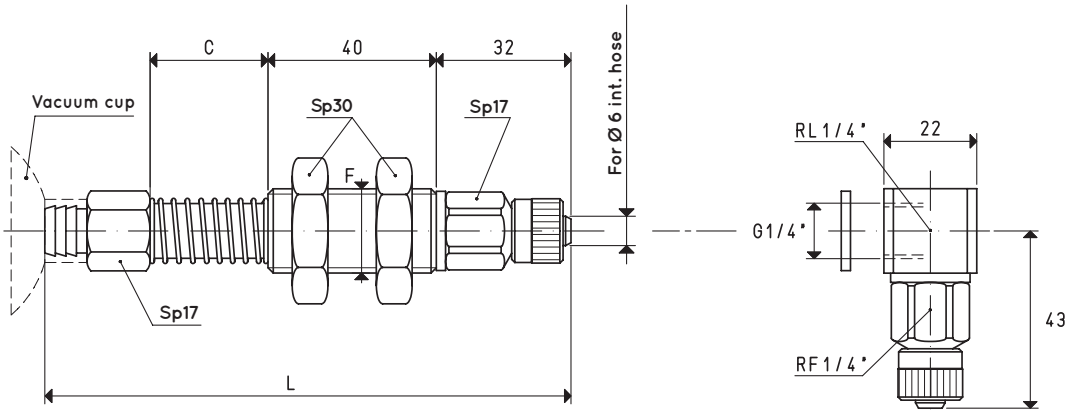
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS

These basic cup holders are built in a simple and rational way, guaranteeing maximum sturdiness and duration.
They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.



VERSION 02 35 15



VERSION 02 35 15 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

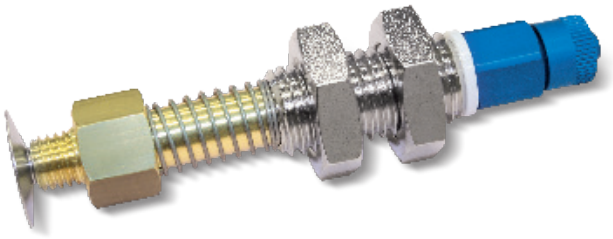
Item	*C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Weight g
02 35 15	28	16	10.78	M20	125	219.0
	65	49	29.41	M20	162	264.0
	95	74	23.53	M20	192	291.0
			For vacuum cup item			
			01 35 15 - 01 40 15			

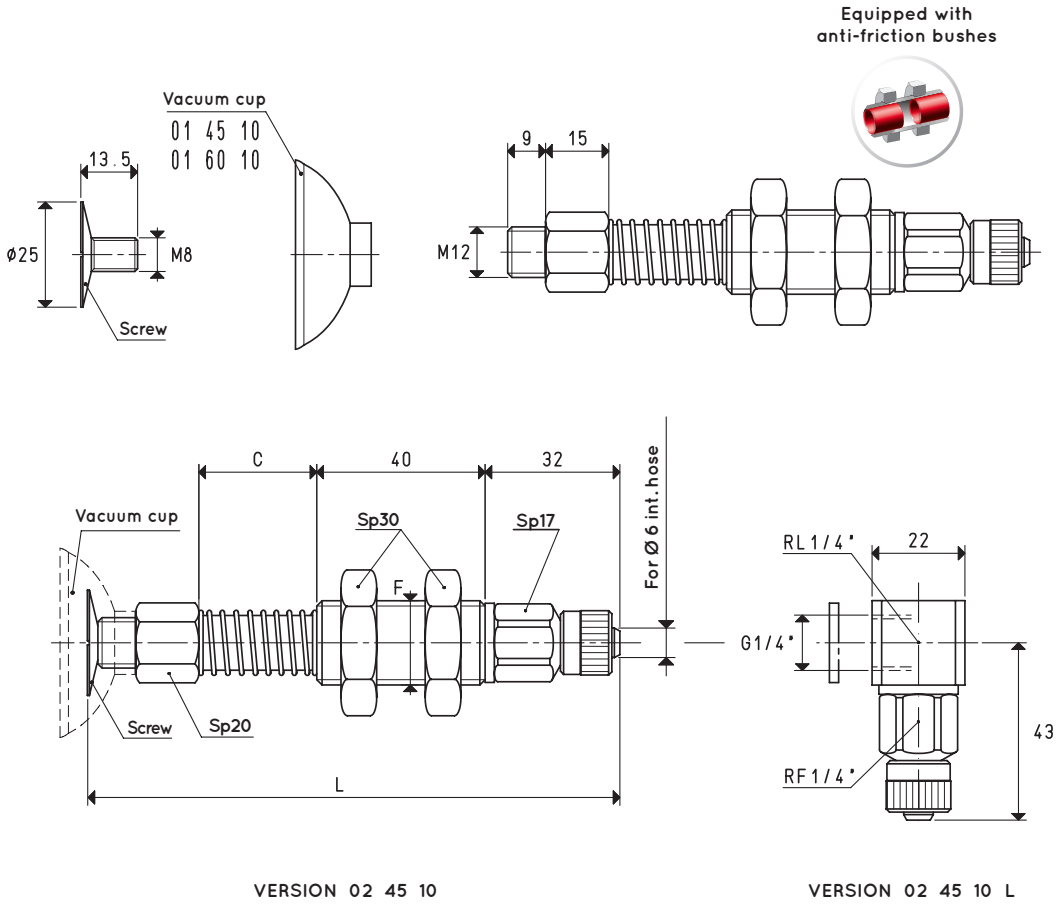
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS

These basic cup holders are built in a simple and rational way, guaranteeing maximum sturdiness and duration.
They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.





VERSION 02 45 10

VERSION 02 45 10 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

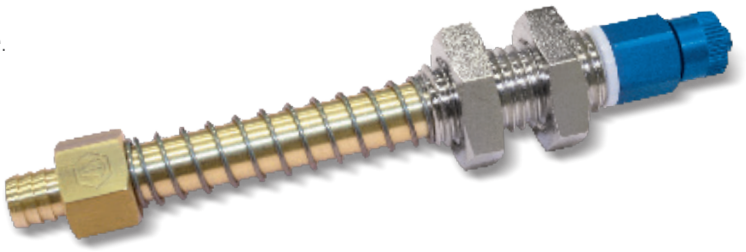
Item	*C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Screw included item	Weight g
02 45 10	28	16	10.78	M20	124	00 20 13	215.1
	65	49	29.41	M20	161	00 20 13	262.4
	95	74	23.53	M20	191	00 20 13	337.3
	For vacuum cup item						
	01 45 10 - 01 60 10						

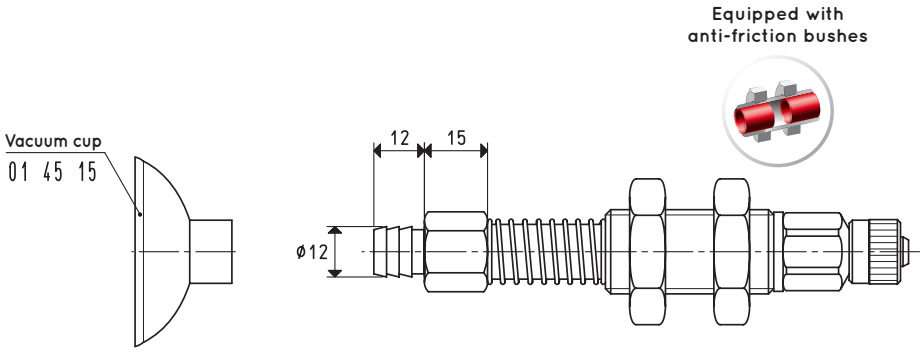
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

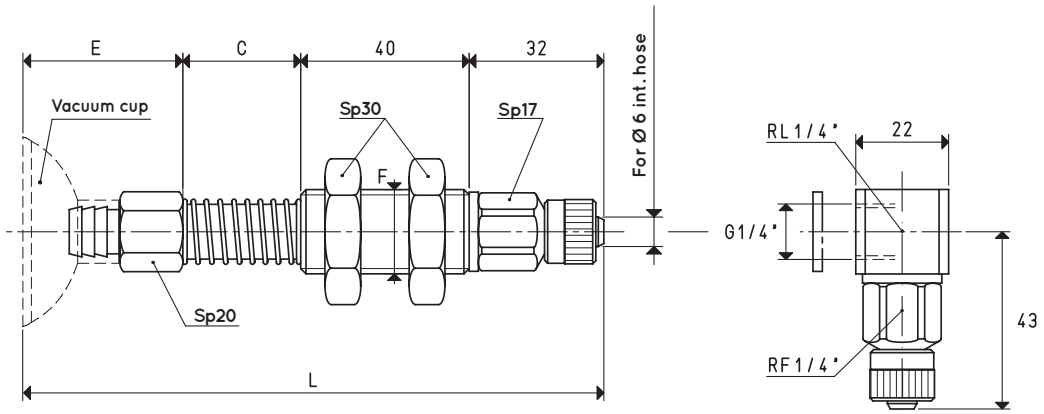
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS

These basic cup holders are built in a simple and rational way, guaranteeing maximum sturdiness and duration. They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.







VERSION 02 45 15

VERSION 02 45 15 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	E	F Ø	L	For vacuum cup item	Weight g
02 45 15	28	16	10.78	45	38	M20	138	01 45 15	218.0
	65	49	29.41	45	38	M20	175	01 45 15	266.0
	95	74	23.53	45	38	M20	205	01 45 15	289.0

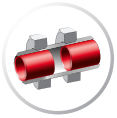
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

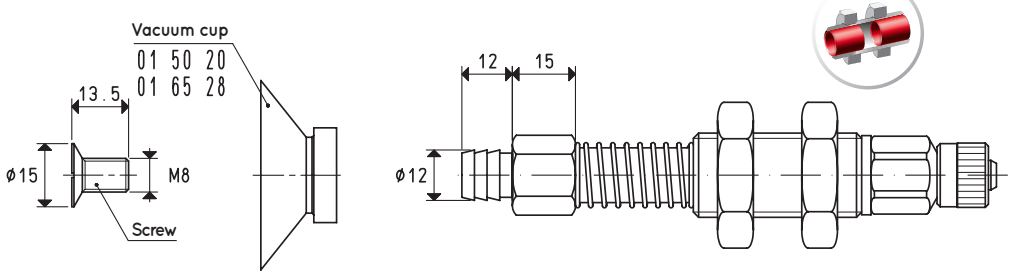
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

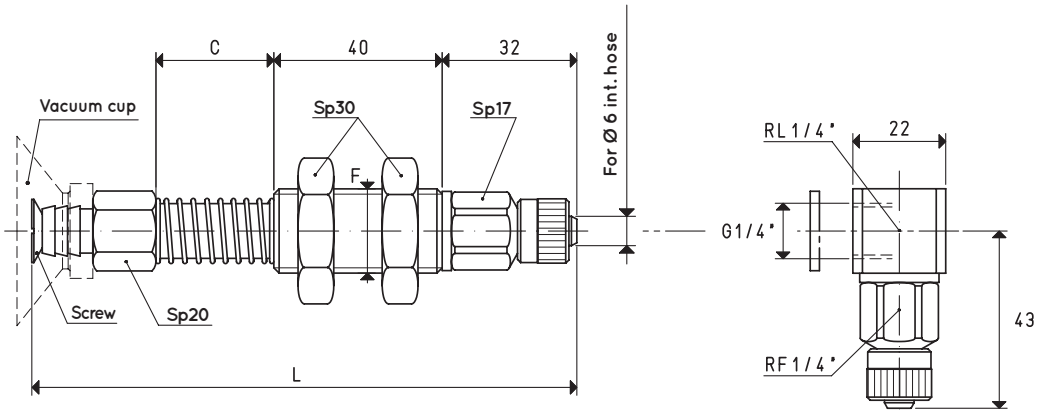
BASIC VACUUM CUP HOLDERS

These basic cup holders are built in a simple and rational way, guaranteeing maximum sturdiness and duration.
They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.

Equipped with anti-friction bushes







VERSION 02 50 20

VERSION 02 50 20 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

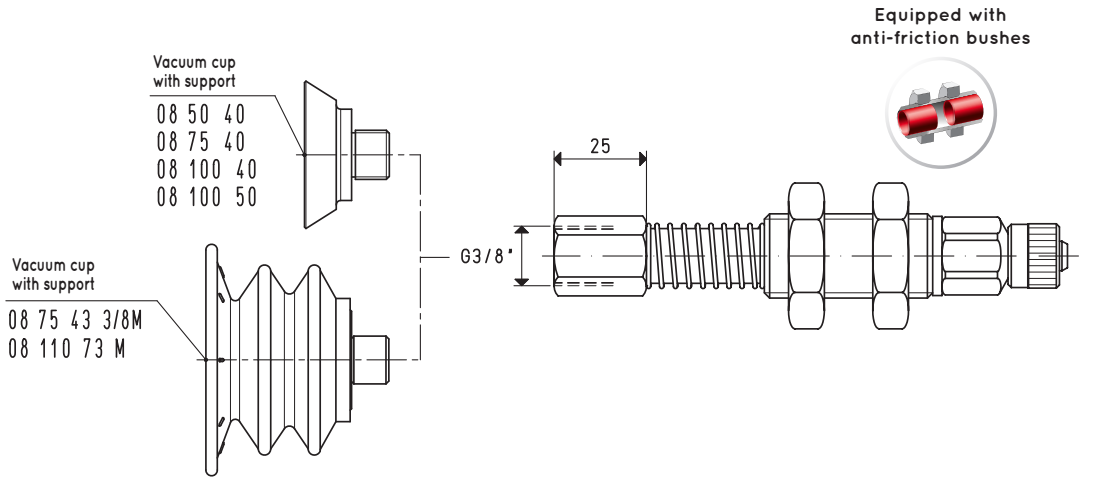
Item	*C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Screw included item	Weight g
02 50 20	28	16	10.78	M20	127	00 20 14	213.0
	65	49	29.41	M20	164	00 20 14	267.0
	95	74	23.53	M20	194	00 20 14	290.0
			For vacuum cup item				
			01 50 20 - 01 65 28				

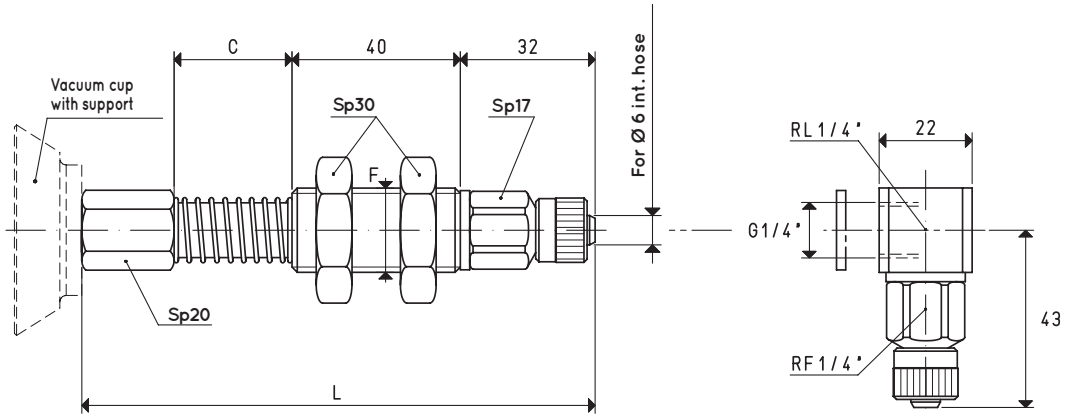
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS

These basic cup holders are built in a simple and rational way, guaranteeing maximum sturdiness and duration.
They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.





VERSION 02 12 ..

VERSION 02 12 .. L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

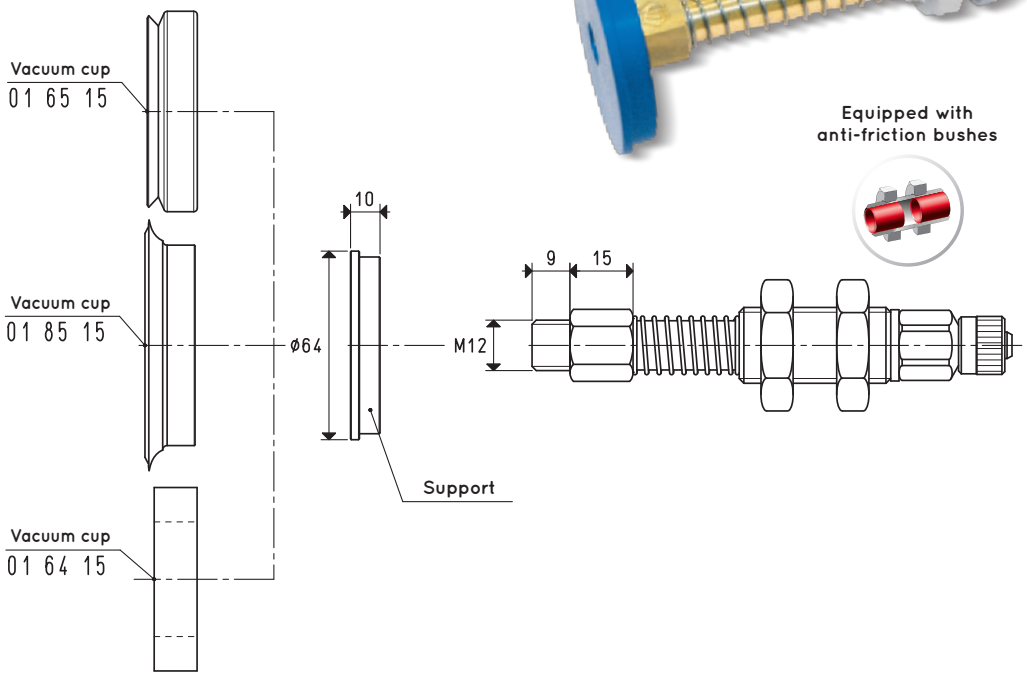
Item	*C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Weight g
02 12 28	28	16	10.78	M20	125	220.0
02 12 65	65	65	29.41	M20	162	250.0
02 12 95	95	95	23.53	M20	192	282.0
	For vacuum cup item					
	08 50 40 - 08 75 40 - 08 100 40 - 08 100 50					
	08 75 43 3/8 M - 08 110 73 M					

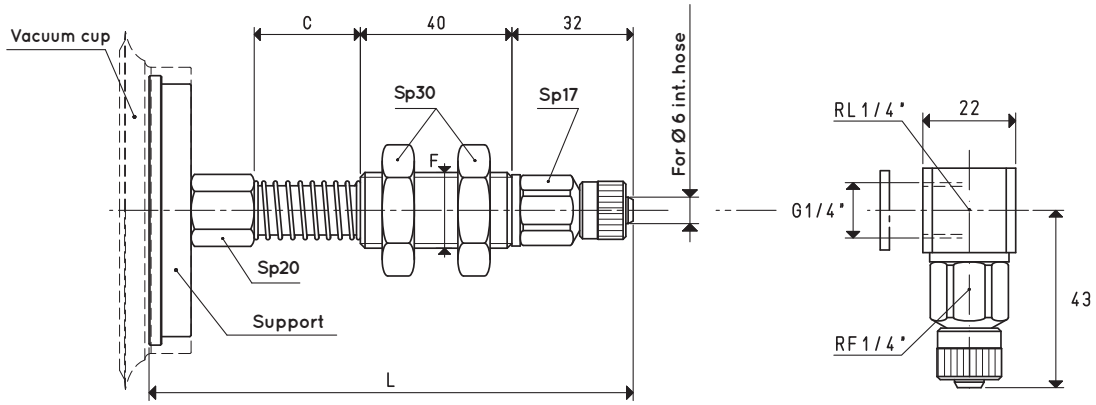
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS

These basic cup holders are built in a simple and rational way, guaranteeing maximum sturdiness and duration. They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.





VERSION 02 65 15

VERSION 02 65 15 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

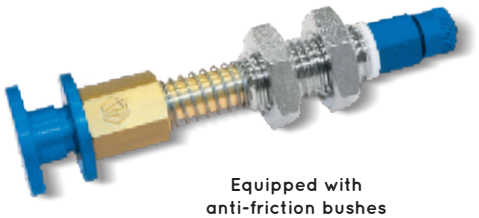
Item	*C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Support included item	Weight g
02 65 15	28	16	10.78	M20	124	00 08 32	324.7
	65	65	29.41	M20	161	00 08 32	363.0
	95	95	23.53	M20	191	00 08 32	389.0
			For vacuum cup item				
			01 65 15				
			01 85 15				
			01 64 15				

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

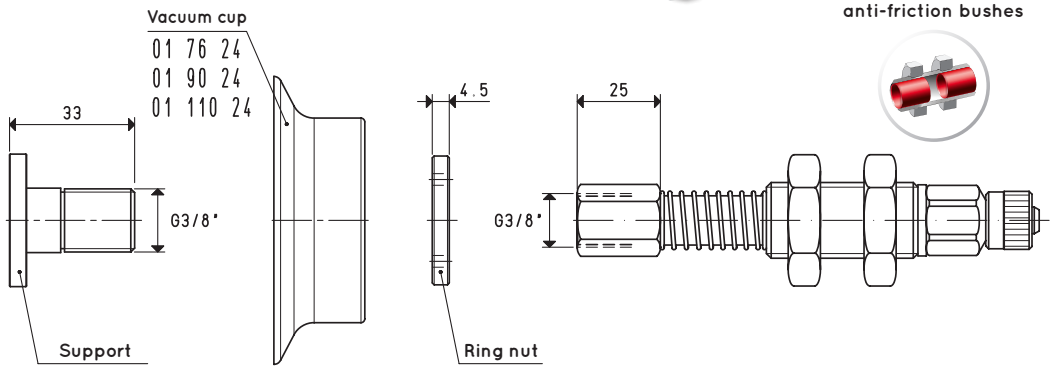
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

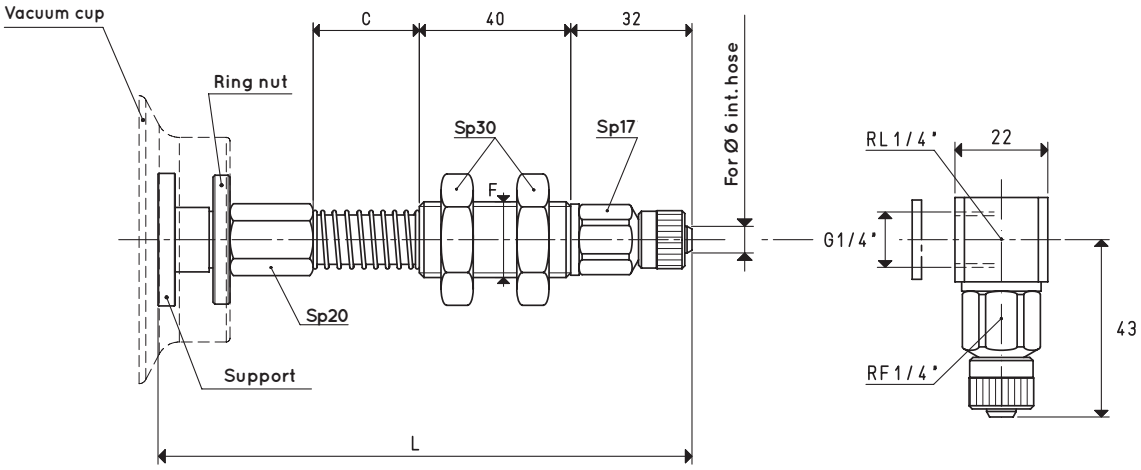
BASIC VACUUM CUP HOLDERS

These basic cup holders are built in a simple and rational way, guaranteeing maximum sturdiness and duration. They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.



Equipped with anti-friction bushes





VERSION 02 76 24

VERSION 02 76 24 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

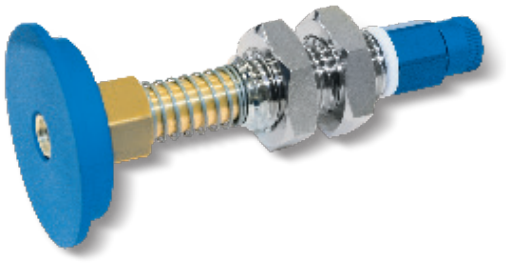
Item	*C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Support included item	Ring nut included item	Weight g
02 76 24	28	16	10.78	M20	125	00 08 110	00 08 111	248.6
	65	49	29.41	M20	162	00 08 110	00 08 111	288.6
	95	74	23.53	M20	192	00 08 110	00 08 111	311.6
	For vacuum cup item							
	01 76 24 - 01 90 24 - 01 110 24							

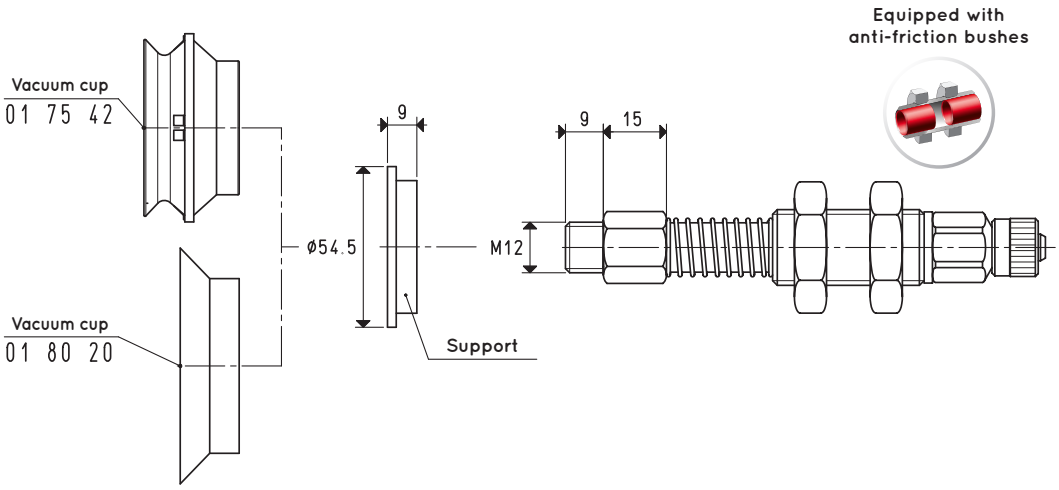
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

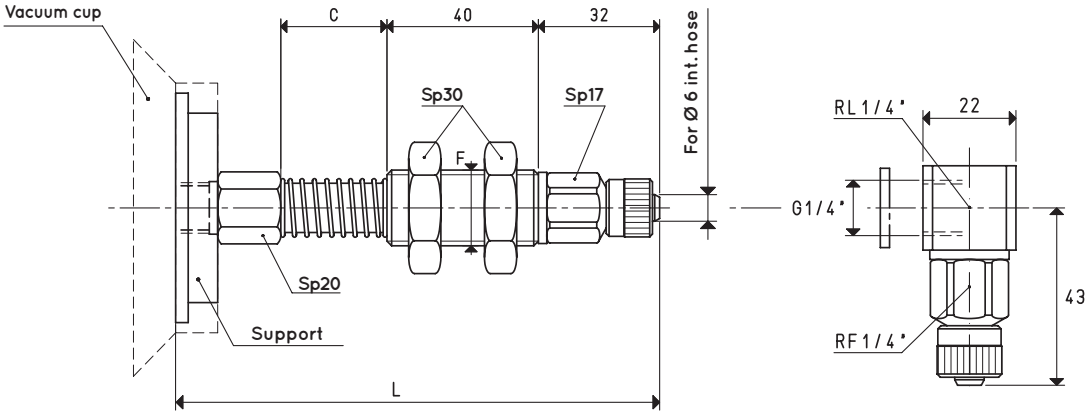
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS

These basic cup holders are built in a simple and rational way, guaranteeing maximum sturdiness and duration.
They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.







VERSION 02 80 20

VERSION 02 80 20 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

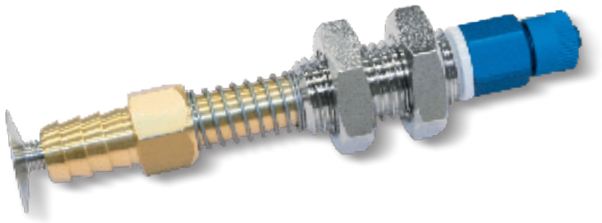
Item	*C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Support included item	Weight g
02 80 20	28	16	10.78	M20	124	00 08 126	247.1
	65	65	29.41	M20	161	00 08 126	285.0
	95	95	23.53	M20	191	00 08 126	312.5
			For vacuum cup item				
			01 75 42				
			01 80 20				

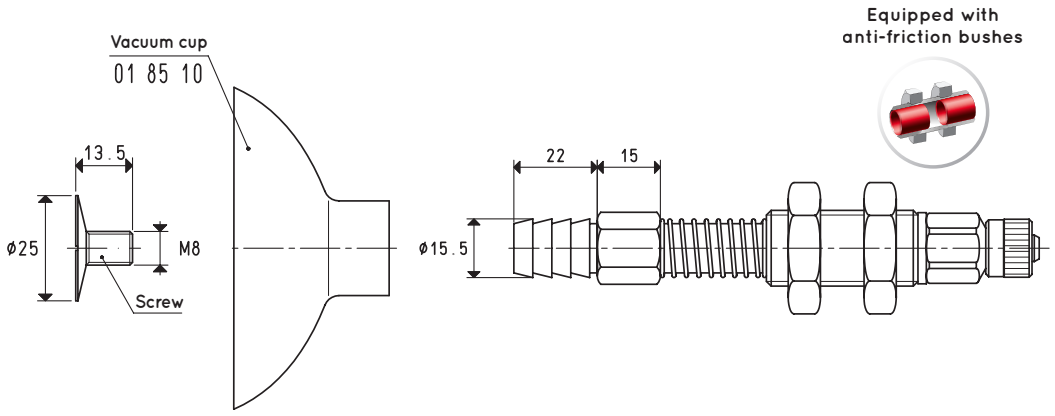
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

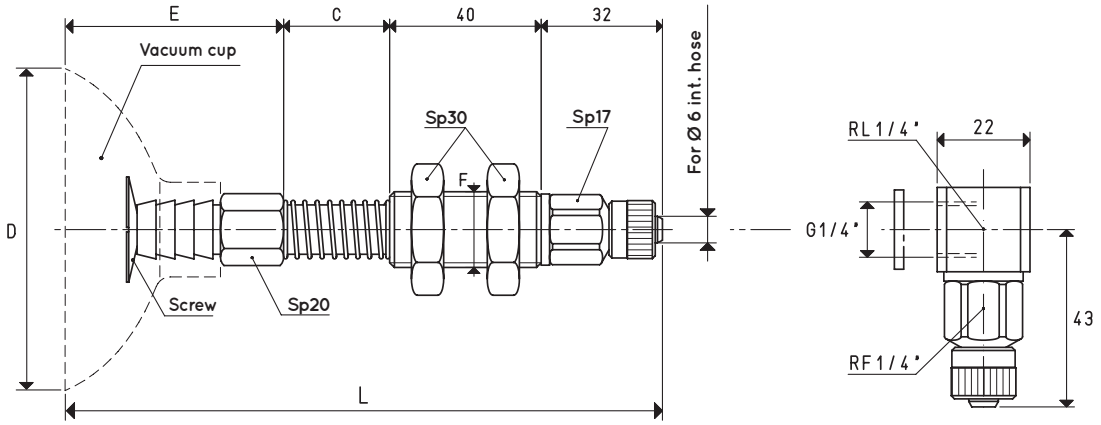
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS

These basic cup holders are built in a simple and rational way, guaranteeing maximum sturdiness and duration.
They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.







VERSION 02 85 10

VERSION 02 85 10 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

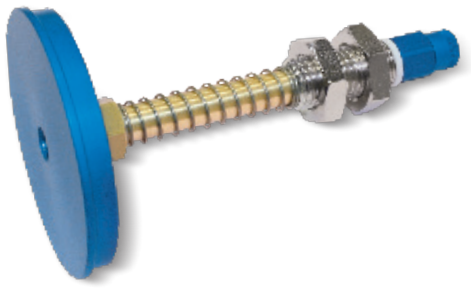
Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	E	F Ø	L	For vacuum cup item	Screw included item	Weight g
02 85 10	28	16	10.78	85	56	M20	156	01 85 10	00 20 13	281.1
	65	49	29.41	85	56	M20	193	01 85 10	00 20 13	312.0
	95	74	23.53	85	56	M20	223	01 85 10	00 20 13	334.0

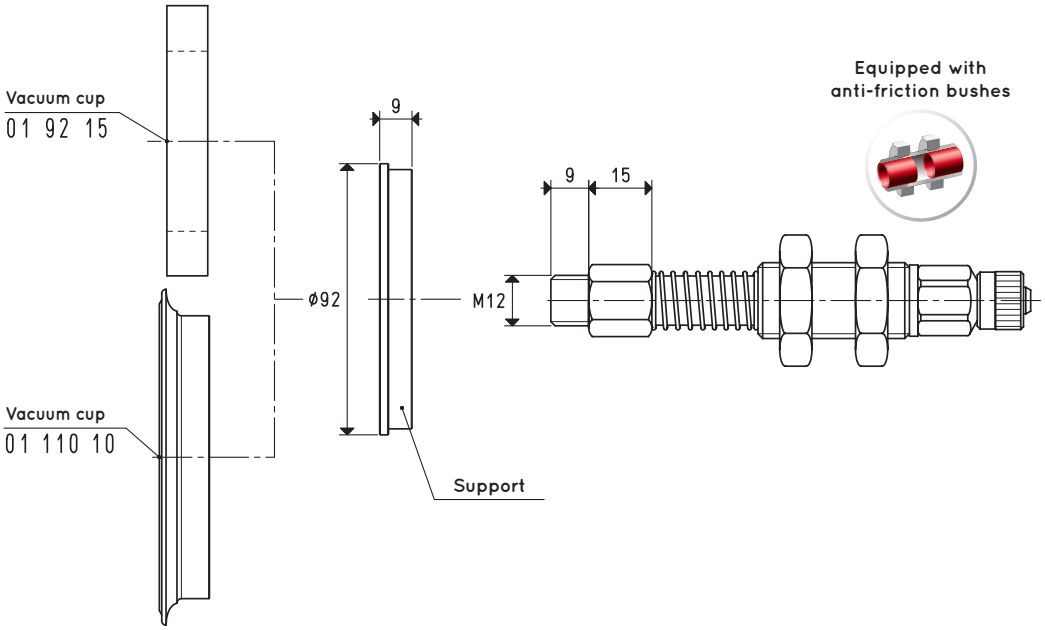
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

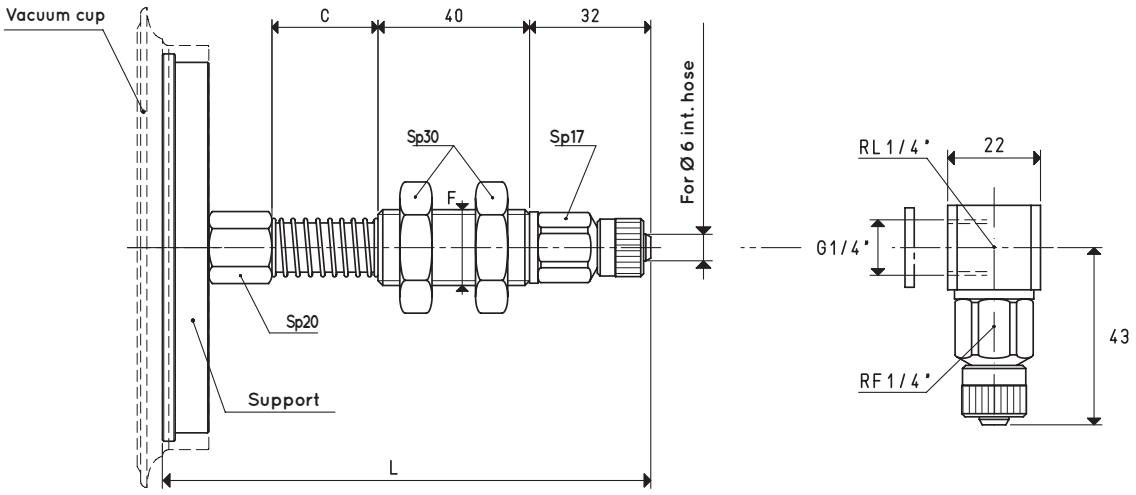
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS

These basic cup holders are built in a simple and rational way, guaranteeing maximum sturdiness and duration. They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.







VERSION 02 110 10

VERSION 02 110 10 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

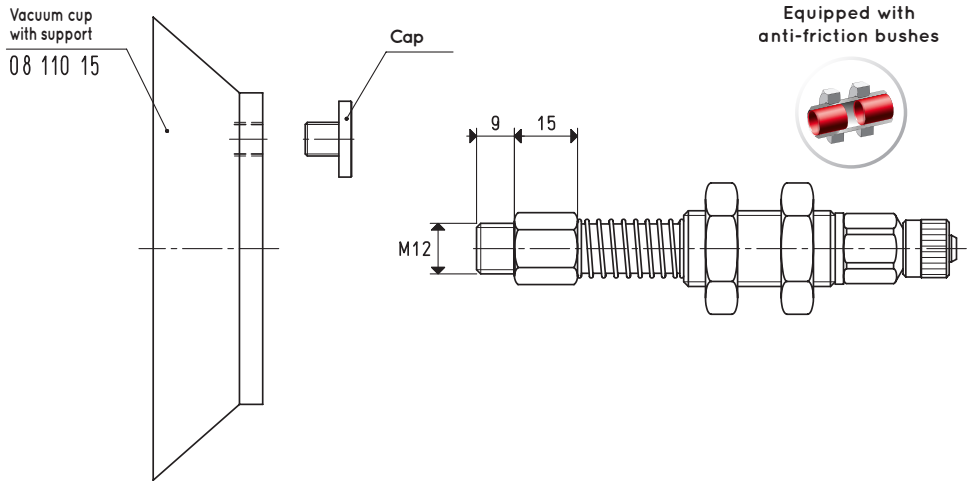
Item	*C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Support included item	Weight g
02 110 10	28	16	10.78	M20	124	00 08 33	416.0
	65	65	29.41	M20	161	00 08 33	454.0
	95	95	23.53	M20	191	00 08 33	481.0
			For vacuum cup item				
			01 92 15				
			01 110 10				

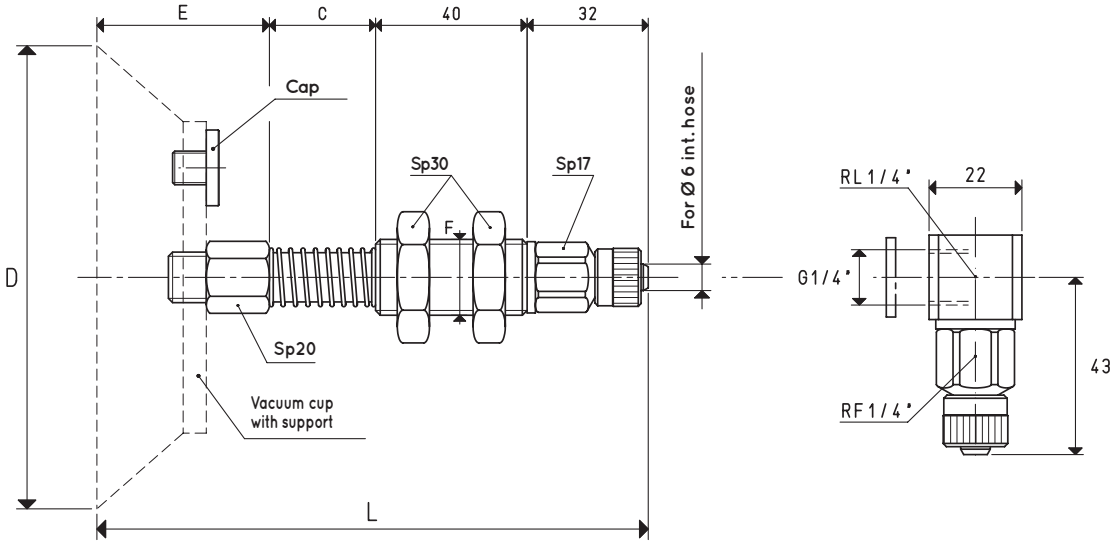
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS

These basic cup holders are built in a simple and rational way, guaranteeing maximum sturdiness and duration. They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.





VERSION 02 110 15

VERSION 02 110 15 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

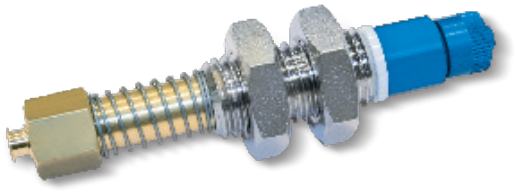
Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	E	F Ø	L	For vacuum cup item	Cap included item	Weight g
02 110 15	28	16	10.78	110	41	M20	141	08 110 15	00 11 06	531
	65	65	29.41	110	41	M20	172	08 110 15	00 11 06	578
	95	95	23.53	110	41	M20	208	08 110 15	00 11 06	596

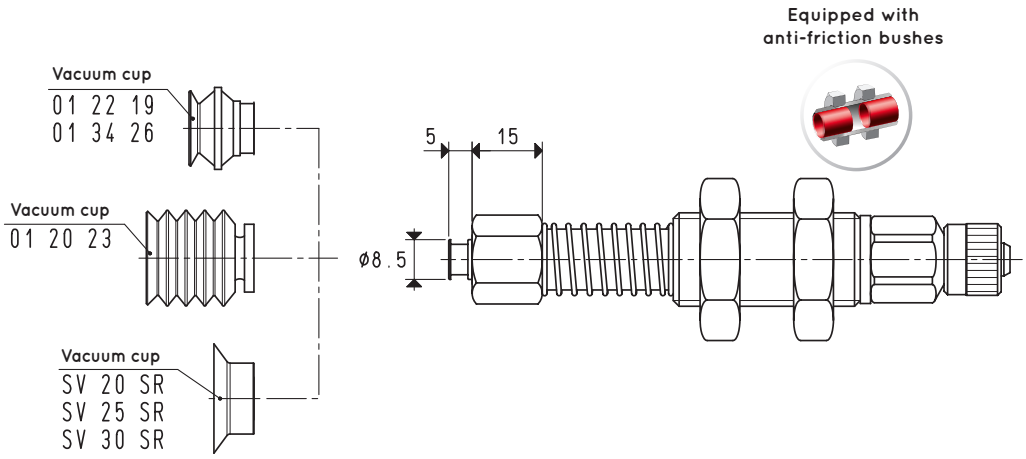
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

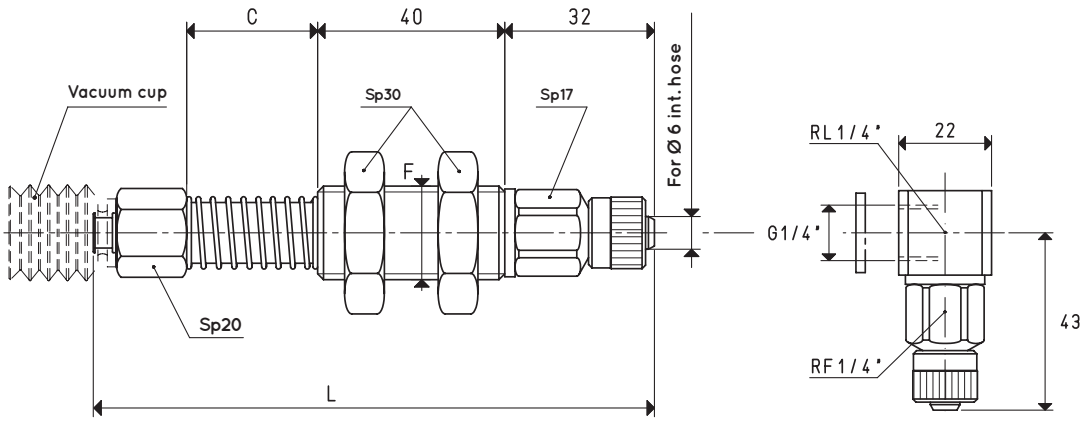
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS

These basic cup holders are built in a simple and rational way, guaranteeing maximum sturdiness and duration.
They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.







VERSION 02 20 23

VERSION 02 20 23 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

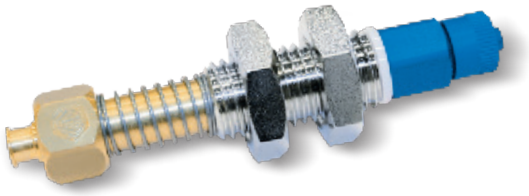
Item	*C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Weight g
02 20 23	28	16	10.78	M20	120	211.1
	65	65	29.41	M20	157	254.1
	95	95	23.53	M20	187	281.1
			For vacuum cup item			
			01 22 19 - 01 34 26			
			01 20 23			
			SV 20 SR - SV 25 SR - SV 30 SR			

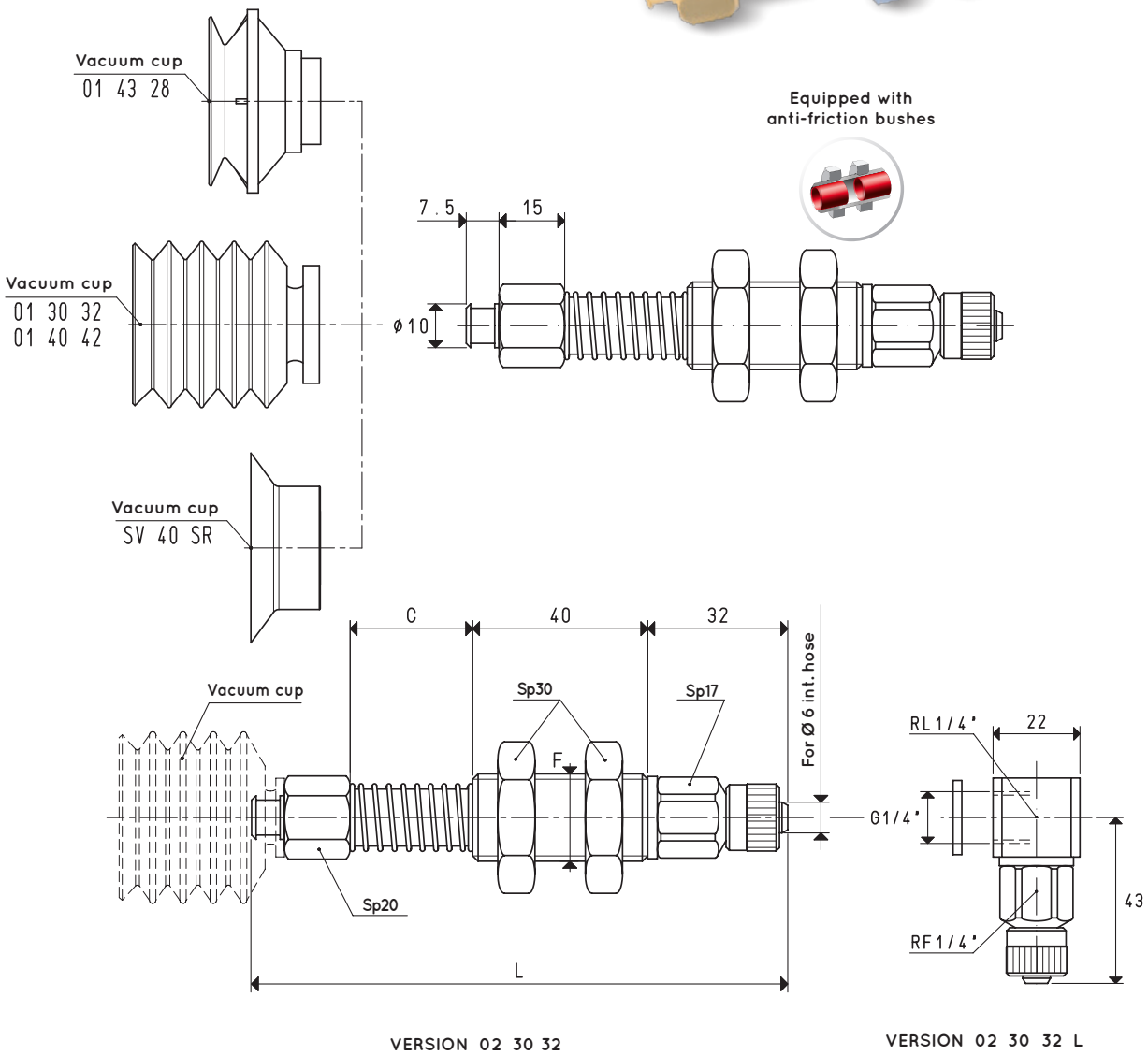
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS

These basic cup holders are built in a simple and rational way, guaranteeing maximum sturdiness and duration. They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.





VERSION 02 30 32

VERSION 02 30 32 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

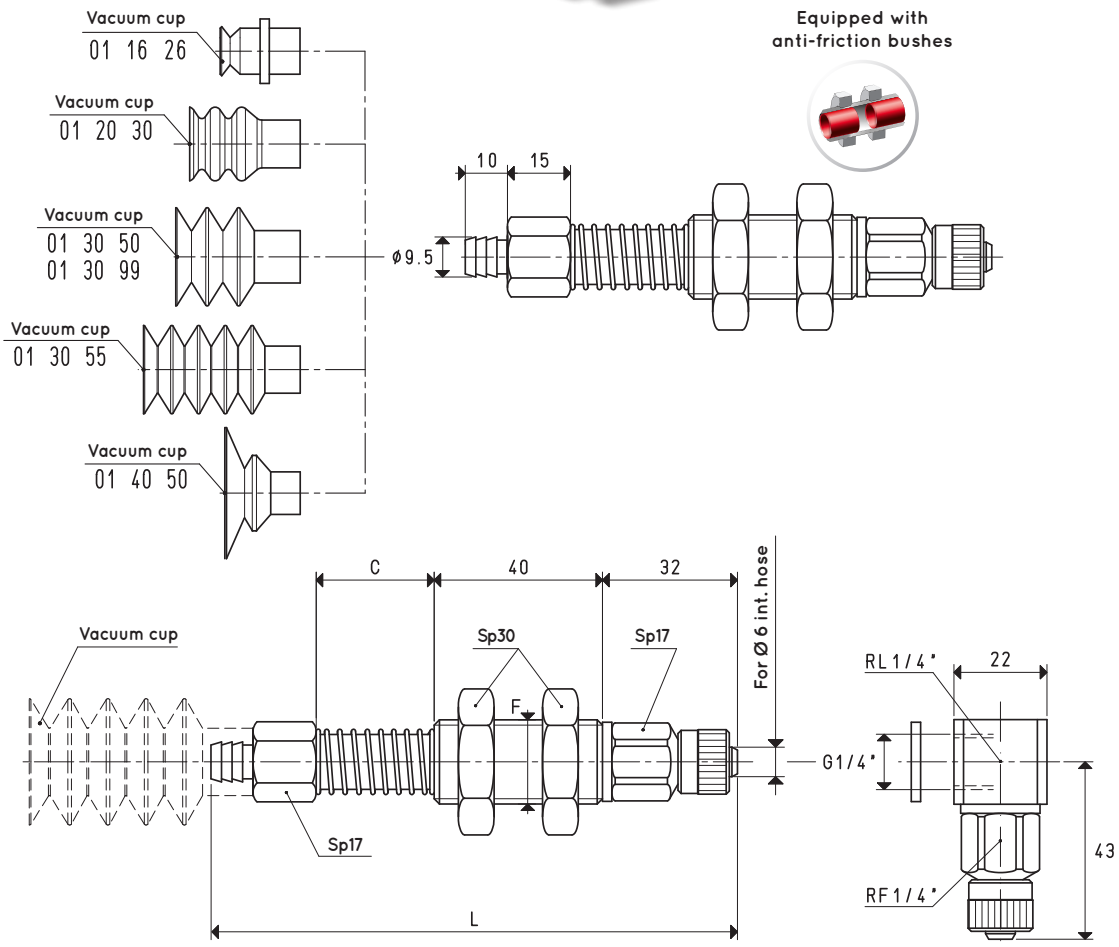
Item	*C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Weight g
02 30 32	28	16	10.78	M20	122.5	241.0
	65	65	29.41	M20	159.5	259.0
	95	95	23.53	M20	189.5	289.0
			For vacuum cup item			
			01 43 28			
			01 30 32 - 01 40 42			
			SV 40 SR			

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS

These basic cup holders are built in a simple and rational way, guaranteeing maximum sturdiness and duration. They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.



VERSION 02 30 50

VERSION 02 30 50 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

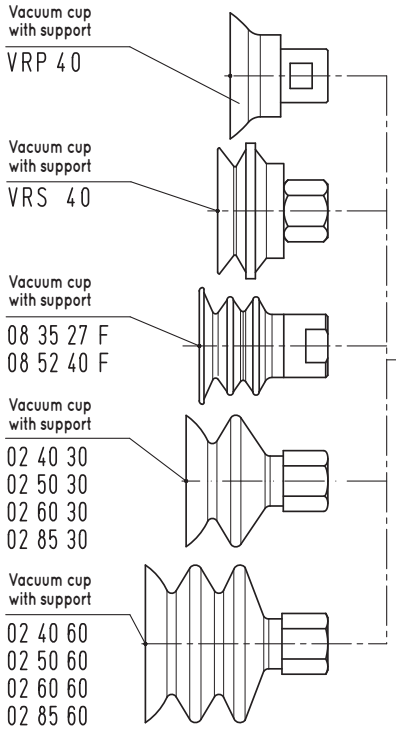
Item	*C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Weight g
02 30 50	28	16	10.78	M20	125	211.3
	65	65	29.41	M20	162	248.3
	95	95	23.53	M20	192	275.3
			For vacuum cup item			
			01 16 26			
			01 20 30			
			01 30 50 - 01 30 99			
			01 30 55			
			01 40 50			

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

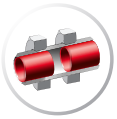
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

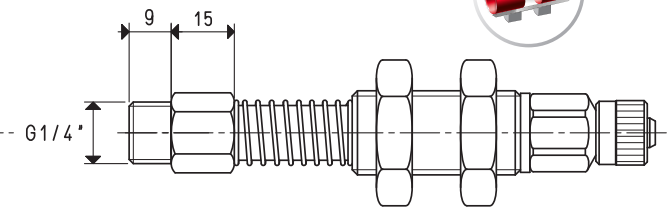
BASIC VACUUM CUP HOLDERS

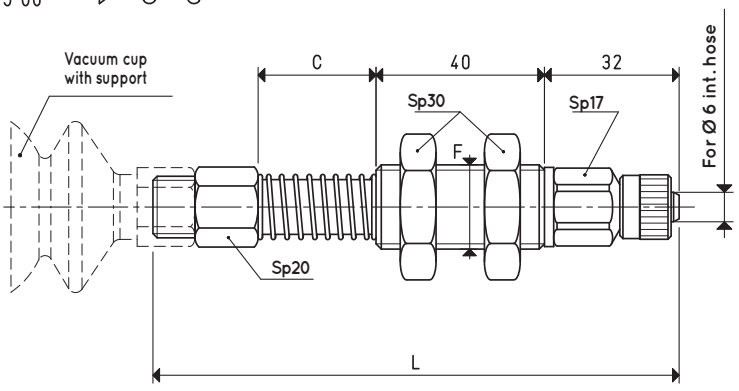
These basic cup holders are built in a simple and rational way, guaranteeing maximum sturdiness and duration. They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.



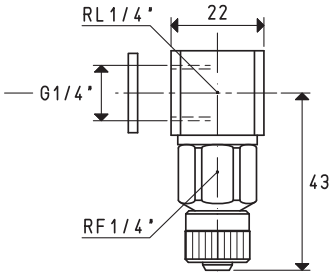
Equipped with anti-friction bushes







VERSION 02 10 .. M



VERSION 02 10 .. M L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Weight g
02 10 28 M	28	16	10.78	M20	124	254.0
02 10 65 M	65	65	29.41	M20	161	264.0
02 10 95 M	95	95	23.53	M20	191	320.0
			For vacuum cup item			
			VRP 40			
			VRS 40			
			08 35 27 F - 08 52 40 F			
			08 40 30 - 08 50 30 - 08 60 30 - 08 85 30			
			08 40 60 - 08 50 60 - 08 60 60 - 08 85 60			

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS

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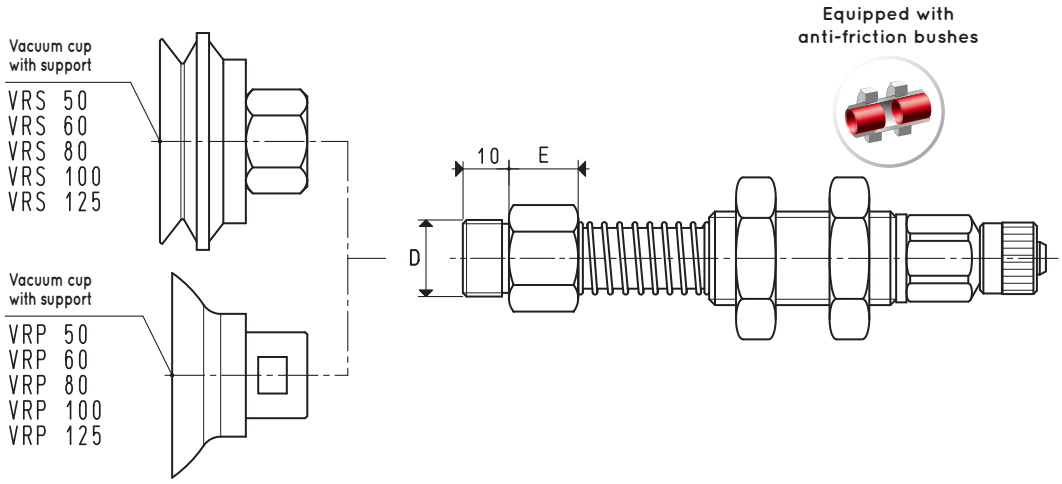
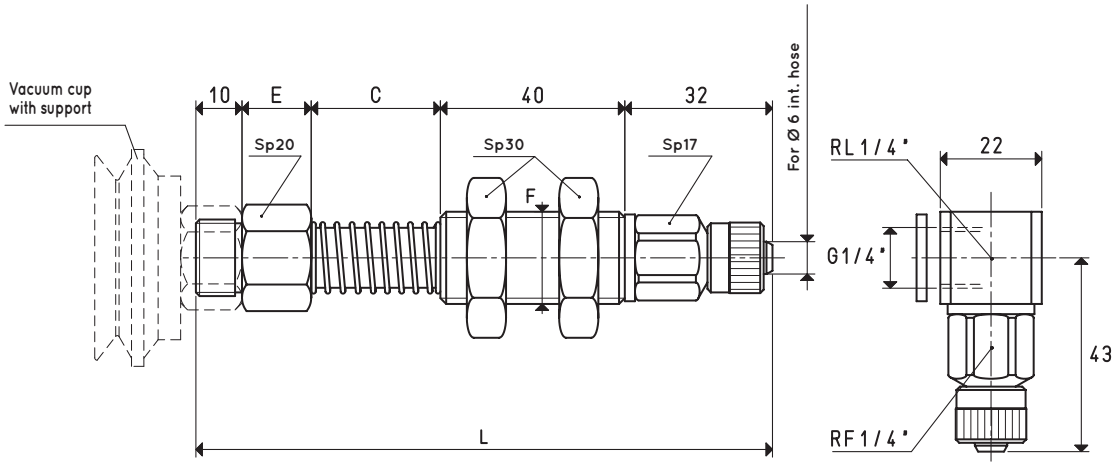
- A quick coupling for connection with the suction hose.





VERSION 02 12 .. M

VERSION 02 12 .. M L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	E	F Ø	L	Weight g
02 12 28 M	28	16	10.78	G3/8"	15	M20	125	237
02 12 65 M	65	65	29.41	G3/8"	15	M20	162	274
02 12 95 M	95	95	25.53	G3/8"	15	M20	192	303
	For vacuum cup item							
	VRS 50 - VRS 60 - VRS 80 - VRS 100 - VRS 125							
	VRP 50 - VRP 60 - VRP 80 - VRP 100 - VRP 125							

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS

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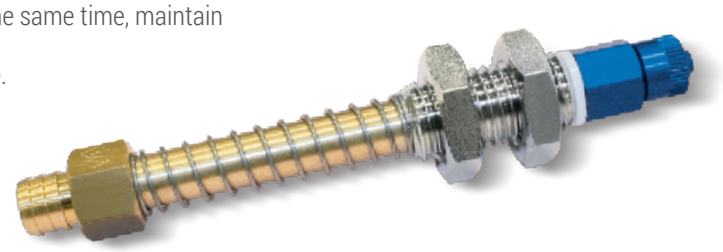
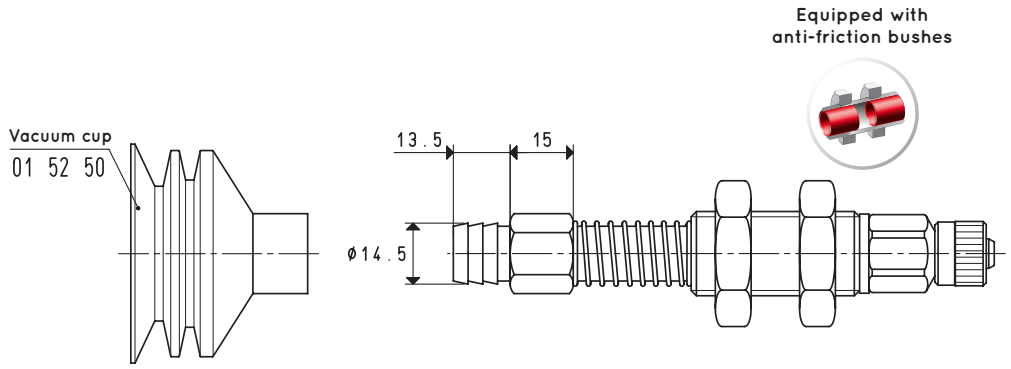
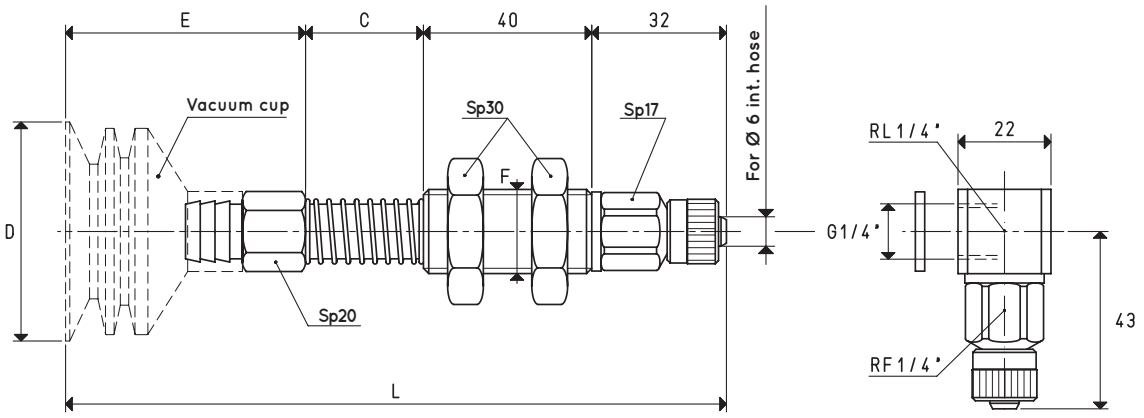
- A quick coupling for connection with the suction hose.







VERSION 02 52 50

VERSION 02 52 50 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	E	F Ø	L	For vacuum cup item	Weight g
02 52 50	28	16	10.78	52	57	M20	170	01 52 50	235.2
	65	49	29.41	52	57	M20	207	01 52 50	285.2
	95	74	23.53	52	57	M20	237	01 52 50	312.2

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS

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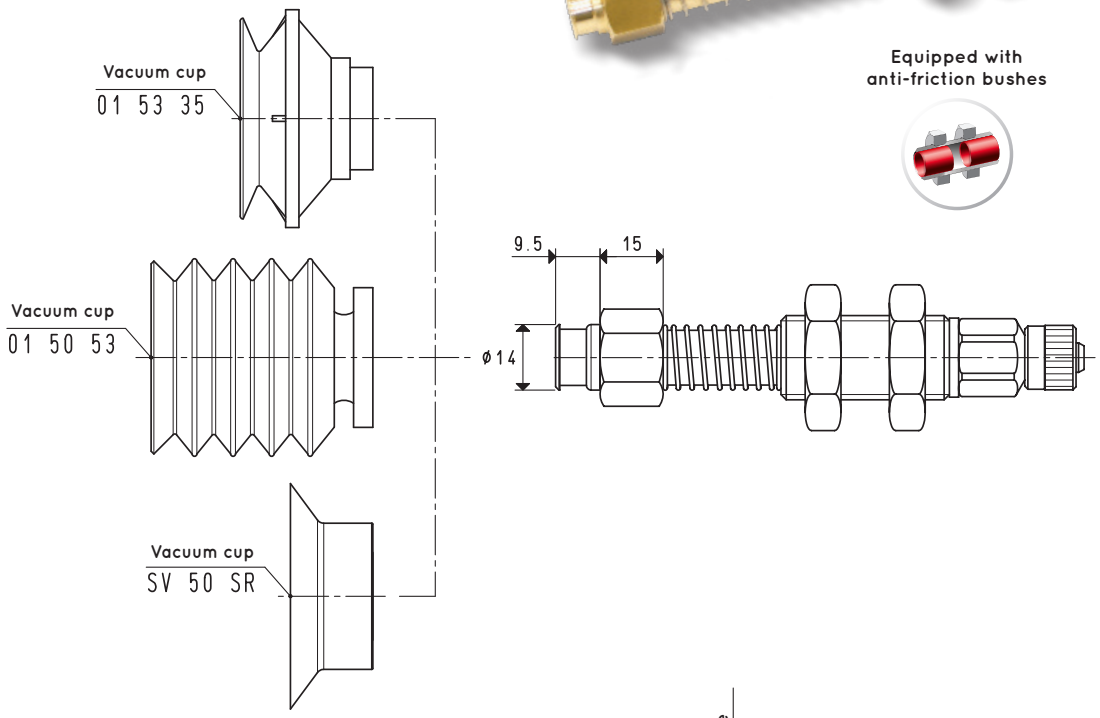
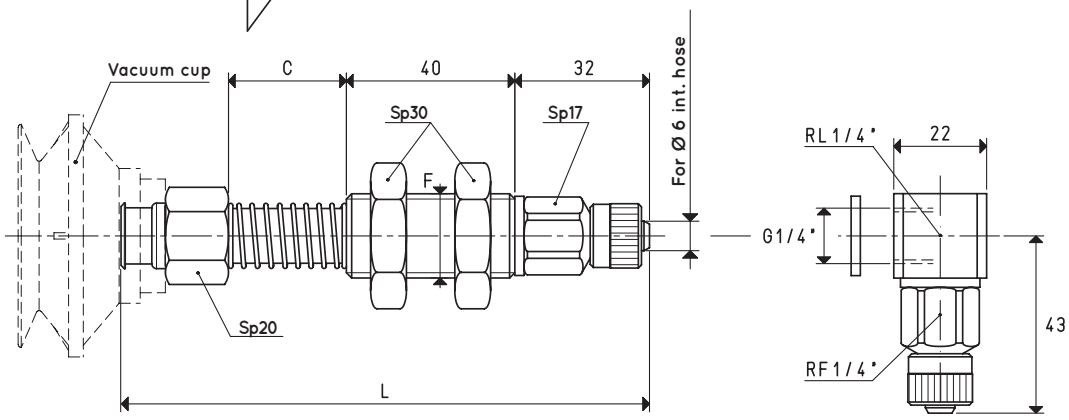
- A quick coupling for connection with the suction hose.





VERSION 02 53 35

VERSION 02 53 35 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

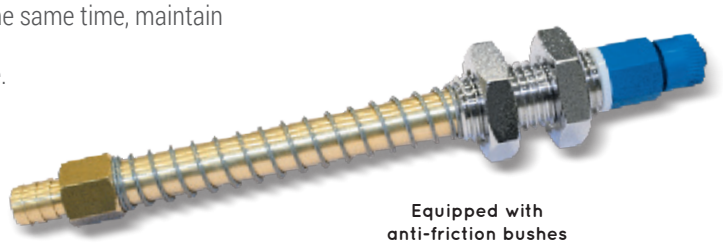
Item	*C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Weight g
02 53 35	28	16	10.78	M20	124.5	221.6
	65	65	29.41	M20	161.5	258.6
	95	95	23.53	M20	191.5	285.6
			For vacuum cup item			
			01 53 35			
			01 50 53			
			SV 50 SR			

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

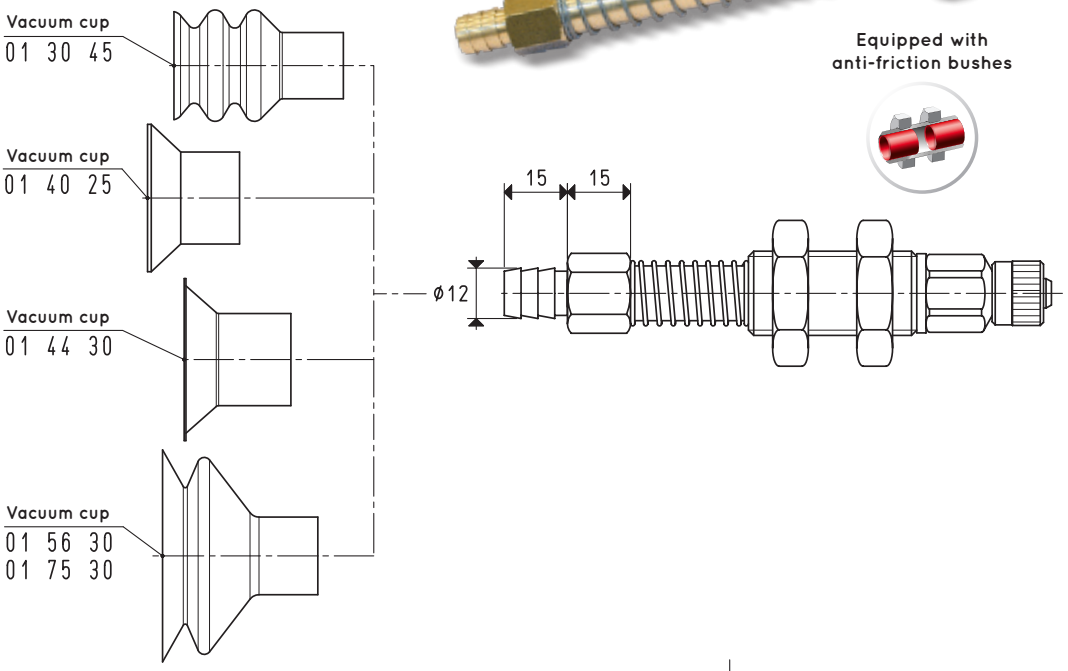
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

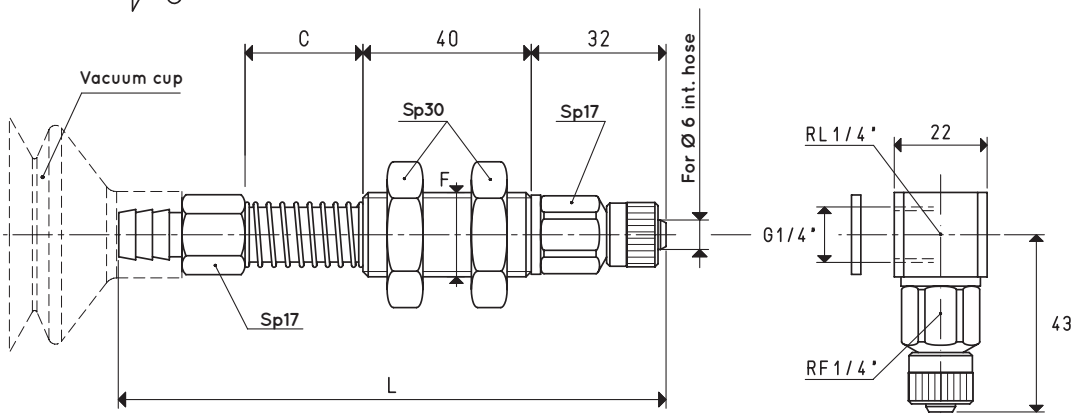
BASIC VACUUM CUP HOLDERS

These basic cup holders are built in a simple and rational way, guaranteeing maximum sturdiness and duration. They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.



Equipped with anti-friction bushes





VERSION 02 56 30

VERSION 02 56 30 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

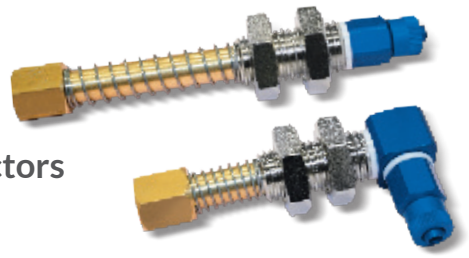
Item	*C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Weight g
02 56 30	28	16	10.78	M20	130	218.4
	65	65	29.41	M20	167	225.4
	95	95	23.53	M20	197	246.4
			For vacuum cup item			
			01 30 45			
			01 40 25			
			01 44 30			
			01 56 30 - 01 75 30			

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

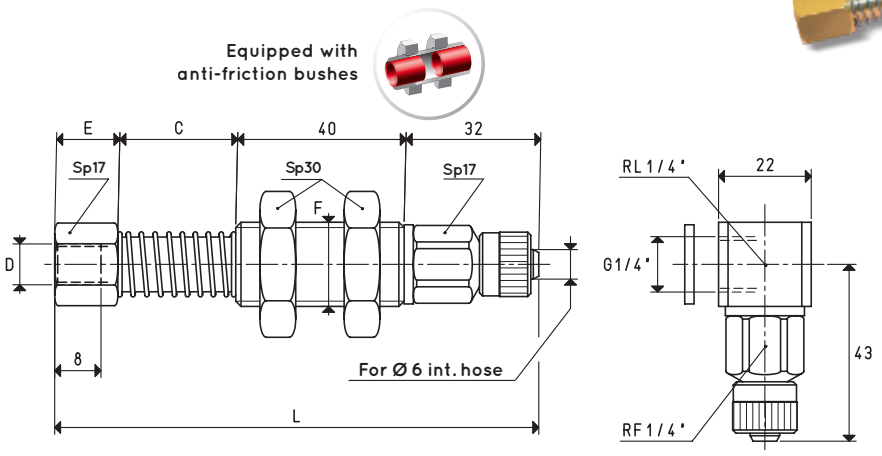
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS WITH MALE AND FEMALE THREADED CONNECTORS

These basic vacuum cup holders also have the same characteristics and offer the same performance as those previously described. Their distinctive feature is the brass stem with a threaded male or female end for fixing the cup.
The cups to be assembled onto these vacuum cup holders must be equipped with the suited threaded support.



Basic vacuum cup holders with female threaded connectors



VERSION 02 08 ..

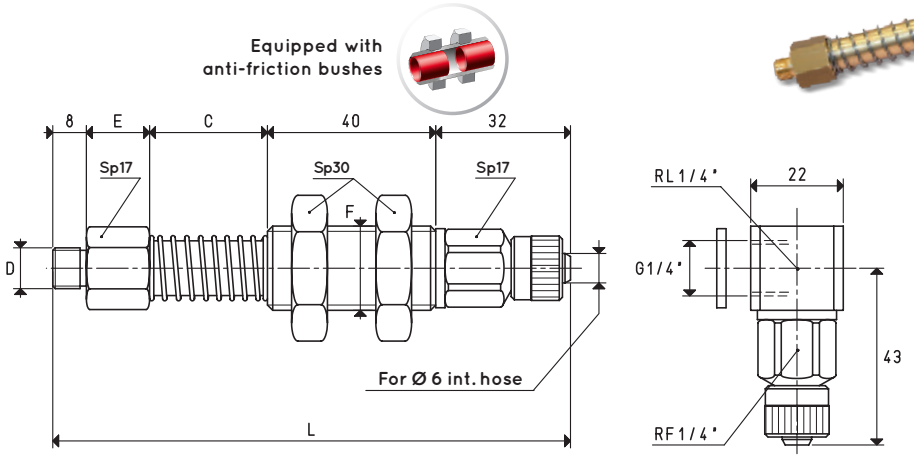
VERSION 02 08 .. L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	E	F Ø	L	Weight g
02 08 28	28	16	10.78	G1/8"	15	M20	115	207
02 08 65	65	49	29.41	G1/8"	15	M20	152	243
02 08 95	95	74	23.53	G1/8"	15	M20	182	272

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
To order vacuum cup holders with L fittings, add the letter L to the code.

Basic vacuum cup holders with male threaded connectors



VERSION 02 08 .. M

VERSION 02 08 .. M L

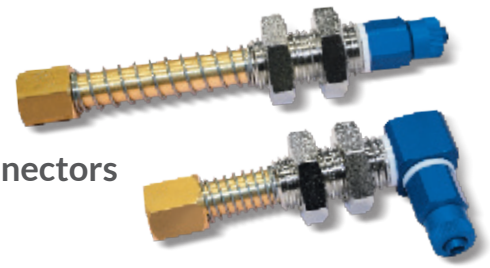
VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	E	F Ø	L	Weight g
02 08 28 M	28	16	10.78	G1/8"	15	M20	123	216
02 08 65 M	65	49	29.41	G1/8"	15	M20	160	252
02 08 95 M	95	74	23.53	G1/8"	15	M20	190	282

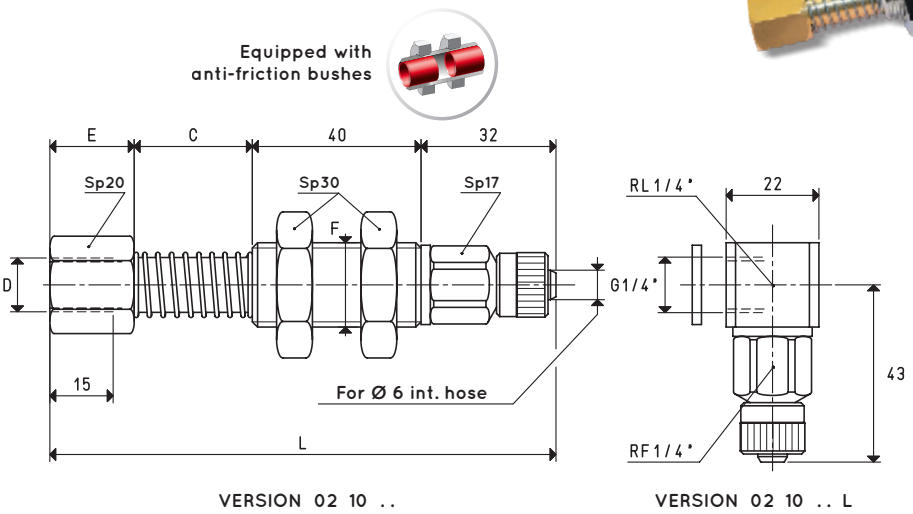
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
To order vacuum cup holders with L fittings, add the letter L to the code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS WITH MALE AND FEMALE THREADED CONNECTORS



Basic vacuum cup holders with female threaded connectors



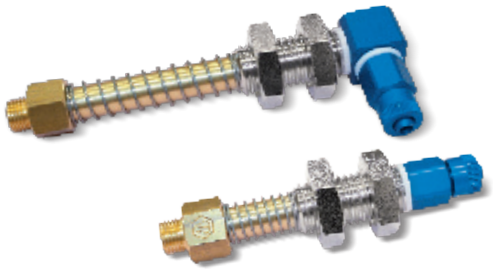
VERSION 02 10 ..

VERSION 02 10 .. L

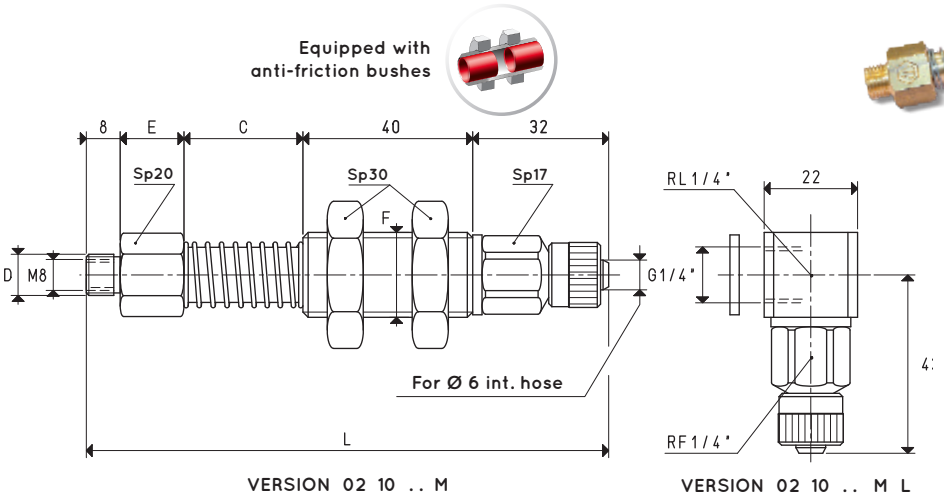
VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	E	F Ø	L	Weight g
02 10 28	28	16	10.78	G1/4"	20	M20	120	224
02 10 65	65	49	29.41	G1/4"	20	M20	157	262
02 10 95	95	74	23.53	G1/4"	20	M20	187	289

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
To order vacuum cup holders with L fittings, add the letter L to the code.



Basic vacuum cup holders with male threaded connectors



VERSION 02 10 .. M

VERSION 02 10 .. M L

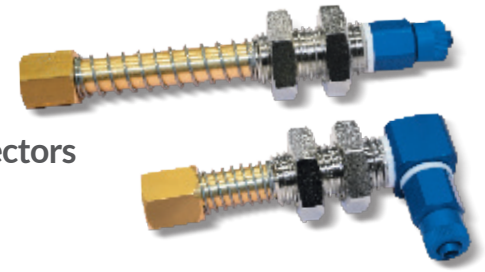
VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	E	F Ø	L	Weight g
02 10 28 M	28	16	10.78	G1/4"	15	M20	124	225
02 10 65 M	65	49	29.41	G1/4"	15	M20	161	266
02 10 95 M	95	74	23.53	G1/4"	15	M20	191	295

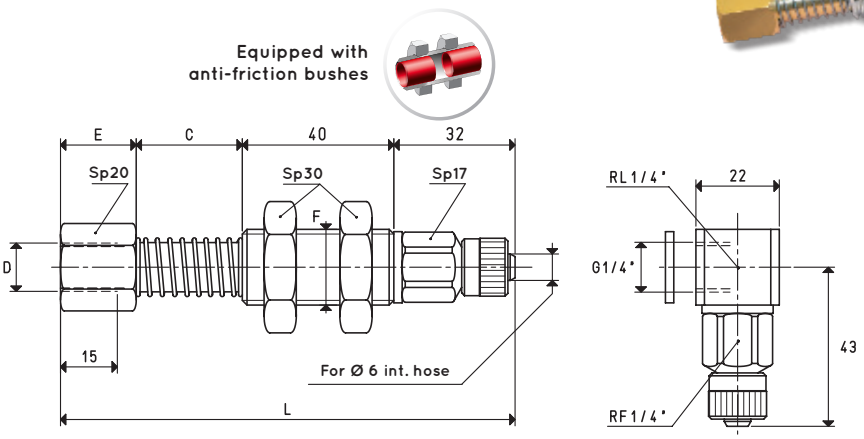
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
To order vacuum cup holders with L fittings, add the letter L to the code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS WITH MALE AND FEMALE THREADED CONNECTORS



Basic vacuum cup holders with female threaded connectors



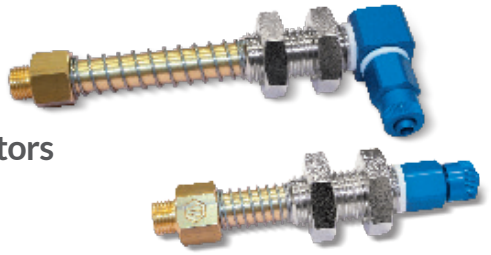
VERSION 02 11 ..

VERSION 02 11 .. L

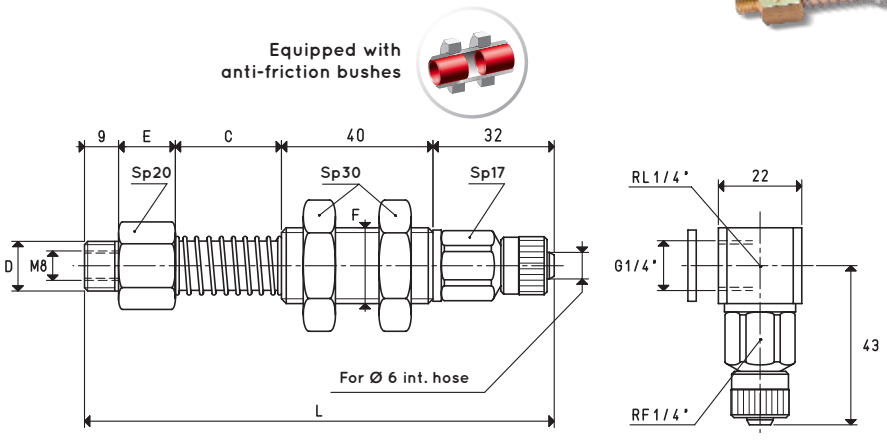
VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	E	F Ø	L	Weight g
02 11 28	28	16	10.78	M12	20	M20	120	226
02 11 65	65	49	29.41	M12	20	M20	157	264
02 11 95	95	74	23.53	M12	20	M20	187	291

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
To order vacuum cup holders with L fittings, add the letter L to the code.



Basic vacuum cup holders with male threaded connectors



VERSION 02 11 .. M

VERSION 02 11 .. M L

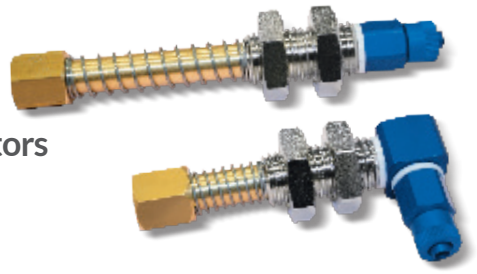
VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	E	F Ø	L	Weight g
02 11 28 M	28	16	10.78	M12	15	M20	124	223
02 11 65 M	65	49	29.41	M12	15	M20	161	264
02 11 95 M	95	74	23.53	M12	15	M20	191	293

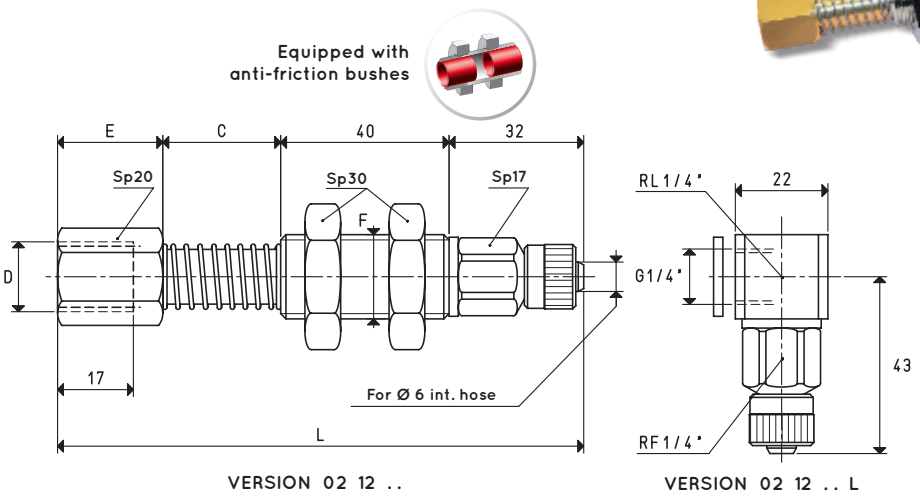
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
To order vacuum cup holders with L fittings, add the letter L to the code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS WITH MALE AND FEMALE THREADED CONNECTORS



Basic vacuum cup holders with female threaded connectors



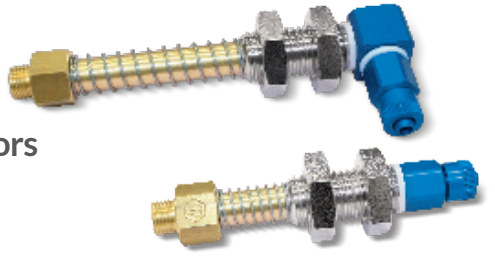
VERSION 02 12 ..

VERSION 02 12 .. L

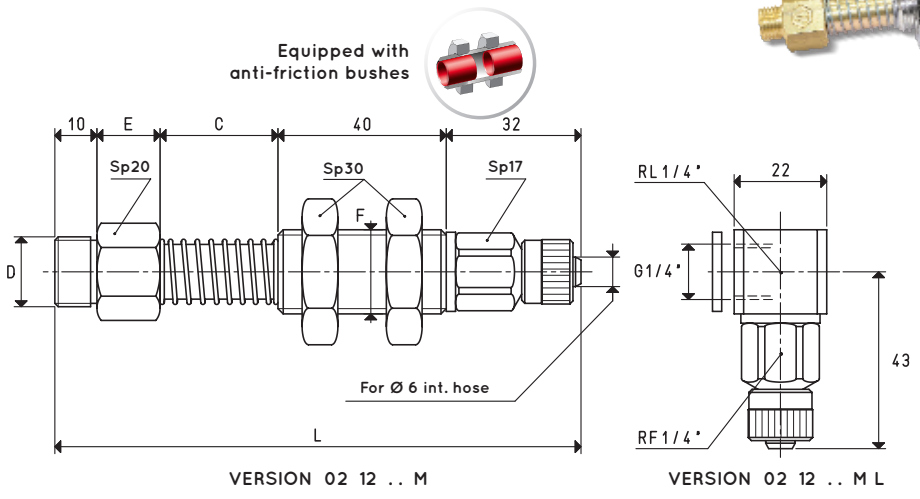
VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	E	F Ø	L	Weight g
02 12 28	28	16	10.78	G3/8"	25	M20	125	220
02 12 65	65	49	29.41	G3/8"	25	M20	162	259
02 12 95	95	74	23.53	G3/8"	25	M20	192	285

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
To order vacuum cup holders with L fittings, add the letter L to the code.



Basic vacuum cup holders with male threaded connectors



VERSION 02 12 .. M

VERSION 02 12 .. M L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

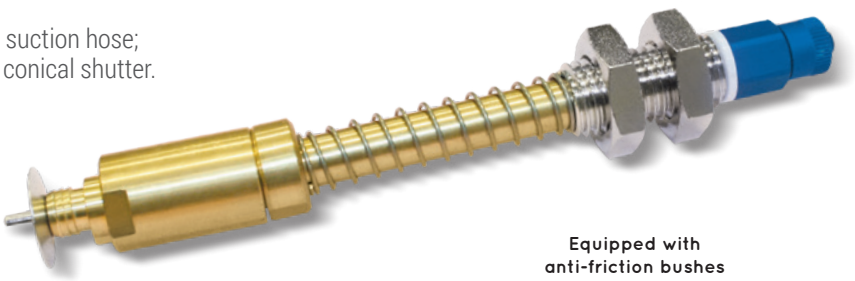
Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	E	F Ø	L	Weight g
02 12 28 M	28	16	10.78	G3/8"	15	M20	125	237
02 12 65 M	65	49	29.41	G3/8"	15	M20	162	274
02 12 95 M	95	74	23.53	G3/8"	15	M20	192	303

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
To order vacuum cup holders with L fittings, add the letter L to the code.

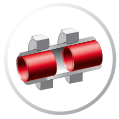
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

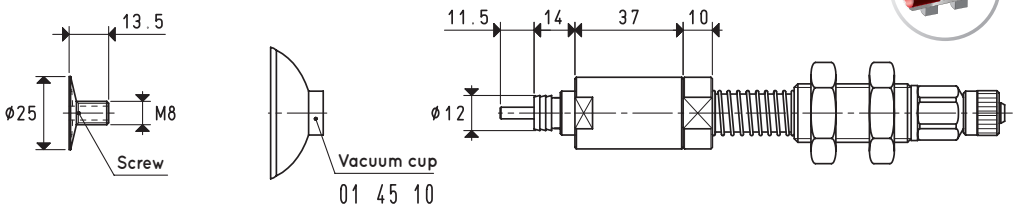
BASIC VACUUM CUP HOLDERS WITH PLUNGER VALVE

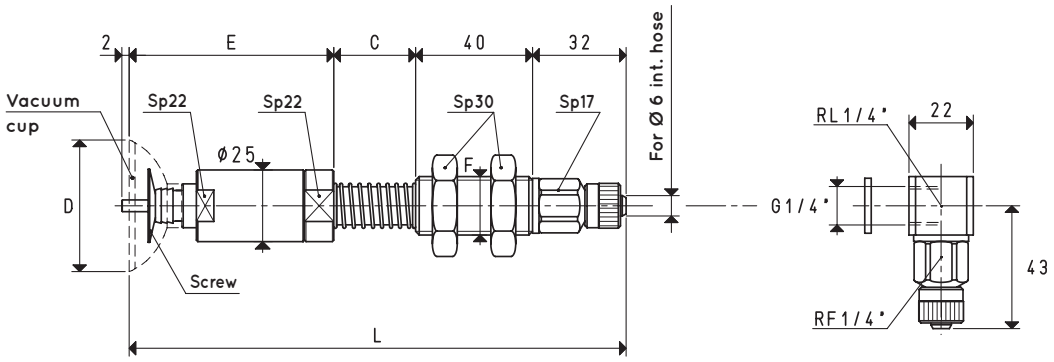
They share the same mechanical features as basic vacuum cup holders. Their distinctive feature is the plunger valve solidly connected to a conical spear valve, which activates suction, and therefore creates vacuum, only when the cup comes into contact with the load to be lifted.
They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- A solidly connected plunger valve with a conical shutter.



Equipped with anti-friction bushes







VERSION 03 45 10

VERSION 03 45 10 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

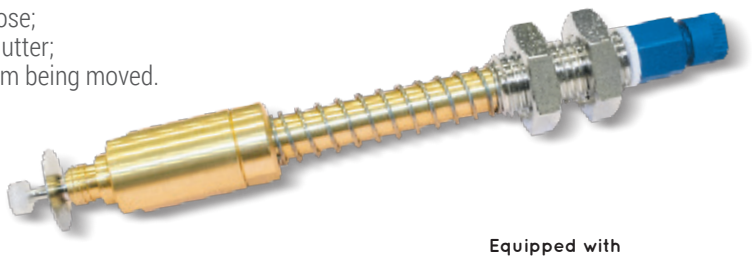
Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	E	F Ø	L	For vacuum cup item	Screw included item	Weight g
03 45 10	28	16	10.78	45	70	M20	170	01 45 10	00 20 13	344.7
	65	49	29.41	45	70	M20	207	01 45 10	00 20 13	381.7
	95	74	23.53	45	70	M20	237	01 45 10	00 20 13	415.7

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

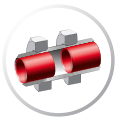
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

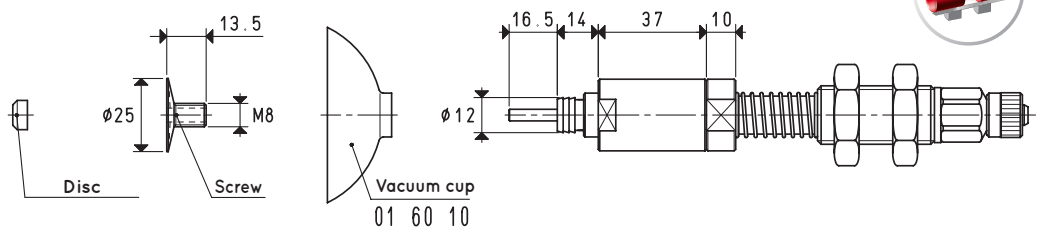
BASIC VACUUM CUP HOLDERS WITH PLUNGER VALVE

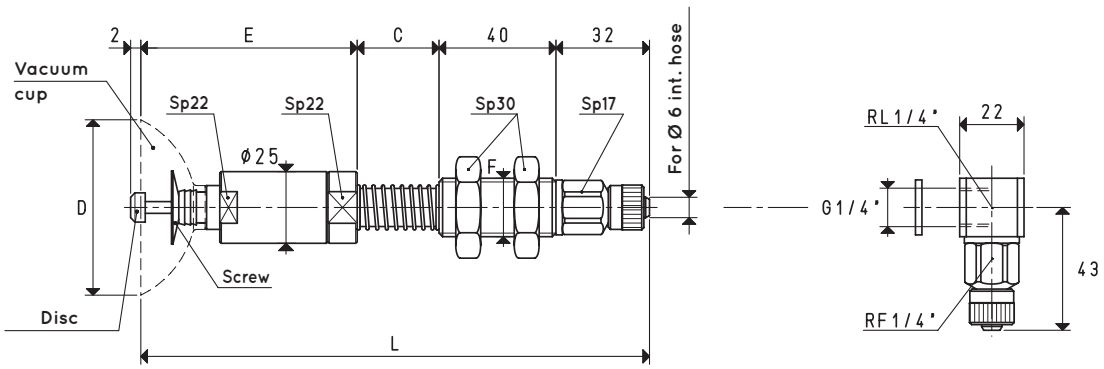
They share the same mechanical features as basic vacuum cup holders. Their distinctive feature is the plunger valve solidly connected to a conical spear valve, which activates suction, and therefore creates vacuum, only when the cup comes into contact with the load to be lifted.
They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- A solidly connected plunger valve with a conical shutter;
- A nylon disc, useful for preventing marks on the item being moved.



Equipped with anti-friction bushes







VERSION 03 60 10

VERSION 03 60 10 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

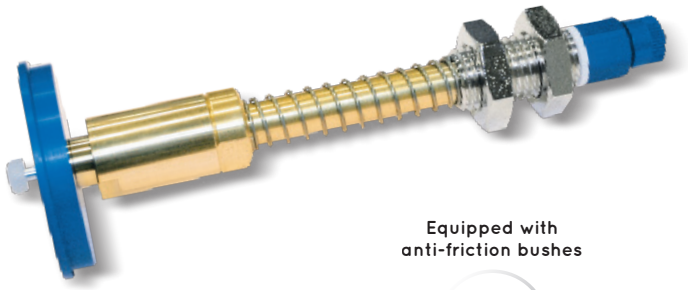
Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	E	F Ø	L	For vacuum cup item	Screw included item	Disc included item	Weight g
03 60 10	28	16	10.78	60	74	M20	172	01 60 10	00 20 13	00 03 22	353.7
	65	49	29.41	60	74	M20	209	01 60 10	00 20 13	00 03 22	391.7
	95	74	23.53	60	74	M20	239	01 60 10	00 20 13	00 03 22	424.7

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

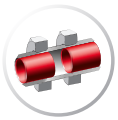
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

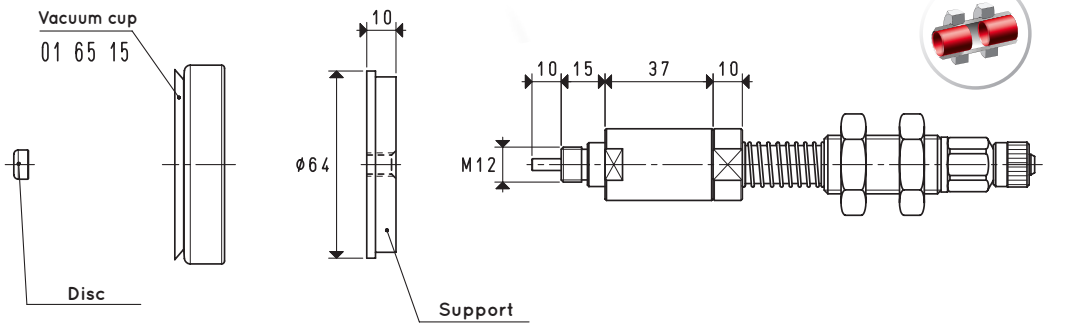
BASIC VACUUM CUP HOLDERS WITH PLUNGER VALVE

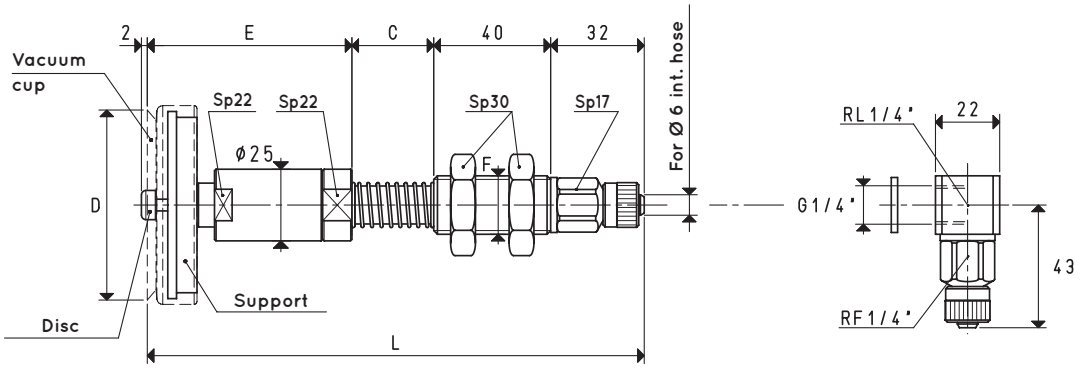
They share the same mechanical features as basic vacuum cup holders. Their distinctive feature is the plunger valve solidly connected to a conical spear valve, which activates suction, and therefore creates vacuum, only when the cup comes into contact with the load to be lifted.
They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- A solidly connected plunger valve with a conical shutter;
- A nylon disc, useful for preventing marks on the item being moved.



Equipped with anti-friction bushes







VERSION 03 65 15

VERSION 03 65 15 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	E	F Ø	L	For vacuum cup item	Support included item	Disc included item	Weight g
03 65 15	28	16	10.78	65	70	M20	170	01 65 15	00 08 32	00 03 22	438.0
	65	49	29.41	65	70	M20	207	01 65 15	00 08 32	00 03 22	476.0
	95	74	23.53	65	70	M20	237	01 65 15	00 08 32	00 03 22	509.0

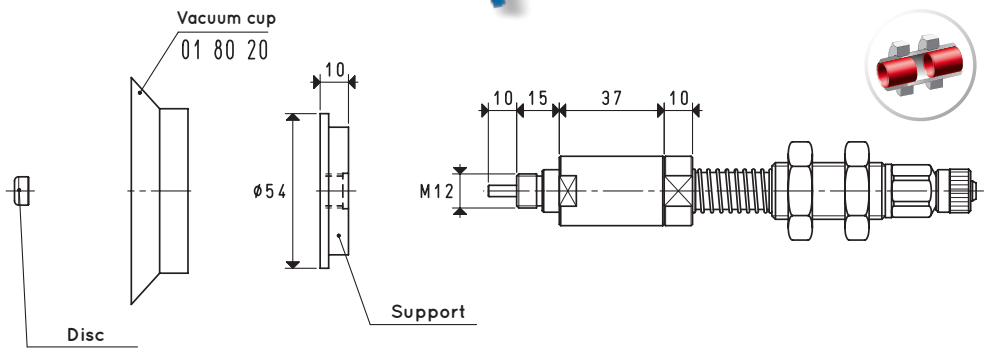
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

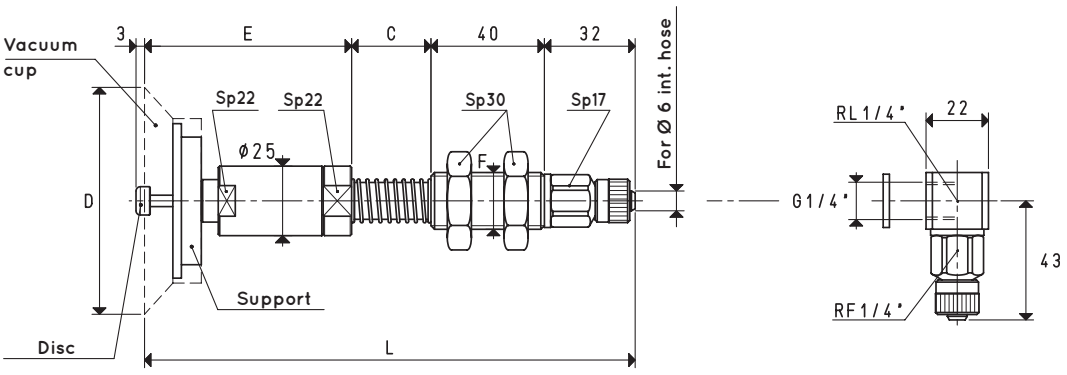
BASIC VACUUM CUP HOLDERS WITH PLUNGER VALVE

They share the same mechanical features as basic vacuum cup holders. Their distinctive feature is the plunger valve solidly connected to a conical spear valve, which activates suction, and therefore creates vacuum, only when the cup comes into contact with the load to be lifted.
They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- A solidly connected plunger valve with a conical shutter;
- A nylon disc, useful for preventing marks on the item being moved.

Equipped with anti-friction bushes



VERSION 03 80 20



VERSION 03 80 20 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	E	F Ø	L	For vacuum cup item	Support included item	Disc included item	Weight g
03 80 20	28	16	10.78	80	73	M20	173	01 80 20	00 08 126	00 03 22	407.0
	65	49	29.41	80	73	M20	210	01 80 20	00 08 126	00 03 22	445.0
	95	74	23.53	80	73	M20	240	01 80 20	00 08 126	00 03 22	478.0

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS WITH PLUNGER VALVE

They share the same mechanical features as basic vacuum cup holders. Their distinctive feature is the plunger valve solidly connected to a conical spear valve, which activates suction, and therefore creates vacuum, only when the cup comes into contact with the load to be lifted.
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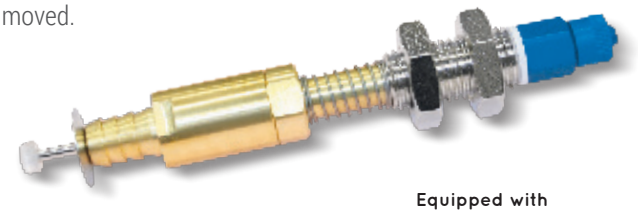
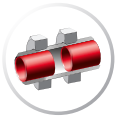
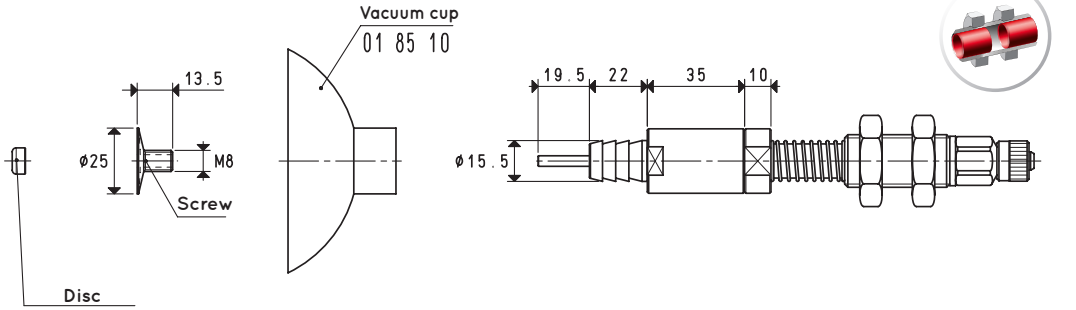
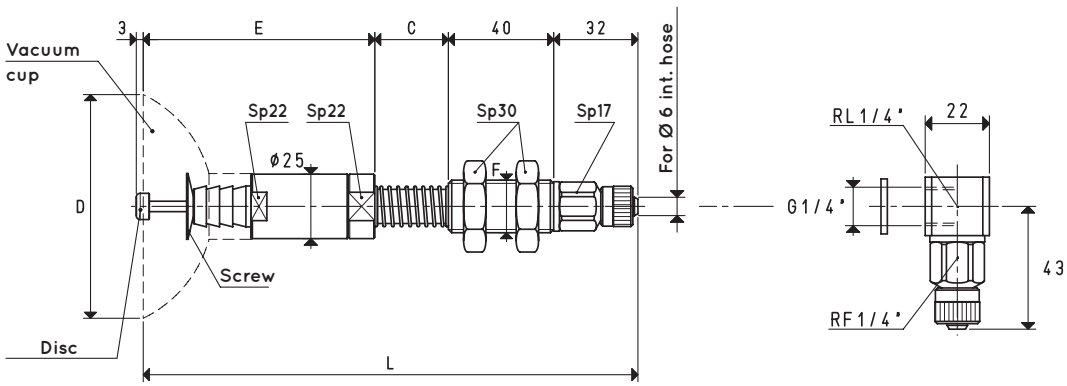
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- A solidly connected plunger valve with a conical shutter;
- A nylon disc, useful for preventing marks on the item being moved.



Equipped with anti-friction bushes







VERSION 03 85 10

VERSION 03 85 10 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

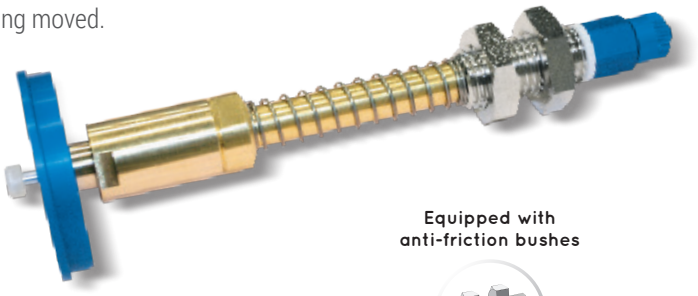
Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	E	F Ø	L	For vacuum cup item	Screw included item	Disc included item	Weight g
03 85 10	28	16	10.78	85	92	M20	192	01 85 10	00 20 13	00 03 22	385.1
	65	49	29.41	85	92	M20	229	01 85 10	00 20 13	00 03 22	427.1
	95	74	23.53	85	92	M20	259	01 85 10	00 20 13	00 03 22	448.1

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

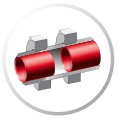
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

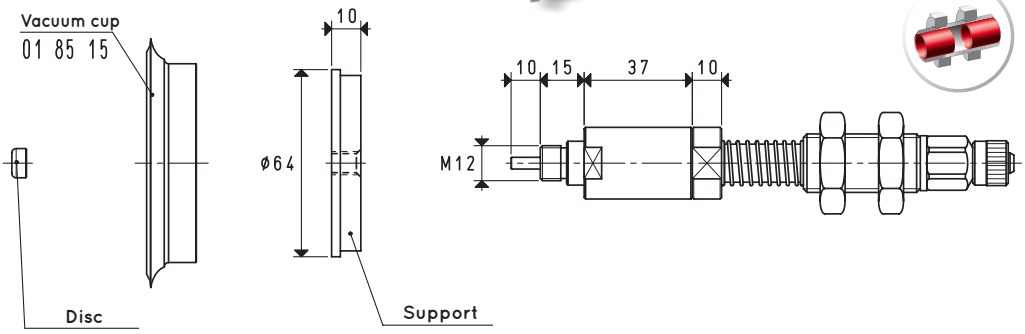
BASIC VACUUM CUP HOLDERS WITH PLUNGER VALVE

They share the same mechanical features as basic vacuum cup holders. Their distinctive feature is the plunger valve solidly connected to a conical spear valve, which activates suction, and therefore creates vacuum, only when the cup comes into contact with the load to be lifted.
They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- A solidly connected plunger valve with a conical shutter;
- A nylon disc, useful for preventing marks on the item being moved.

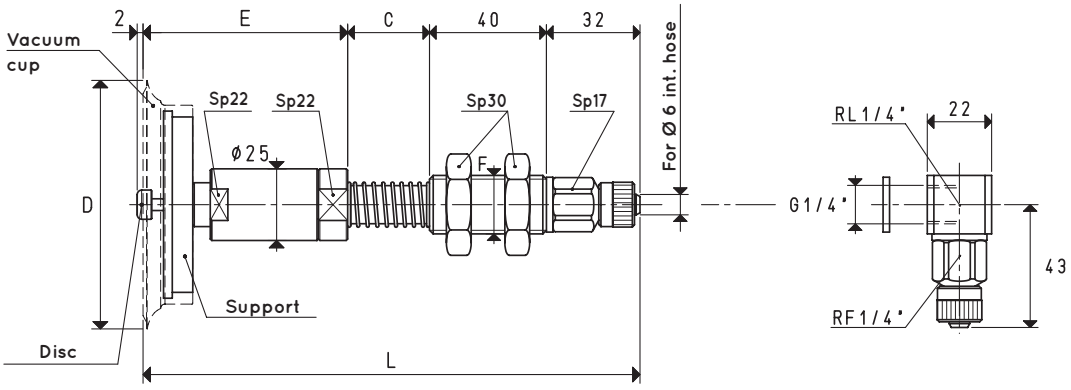


Equipped with anti-friction bushes





VERSION 03 85 15



VERSION 03 85 15 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

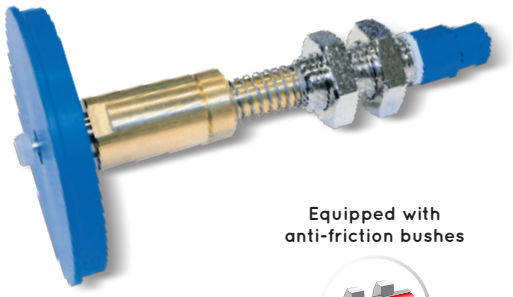
Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	E	F Ø	L	For vacuum cup item	Support included item	Disc included item	Weight g
03 85 15	28	16	10.78	85	70	M20	170	01 85 15	00 08 32	00 03 22	448.0
	65	49	29.41	85	70	M20	207	01 85 15	00 08 32	00 03 22	486.0
	95	74	23.53	85	70	M20	237	01 85 15	00 08 32	00 03 22	519.0

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

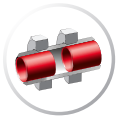
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

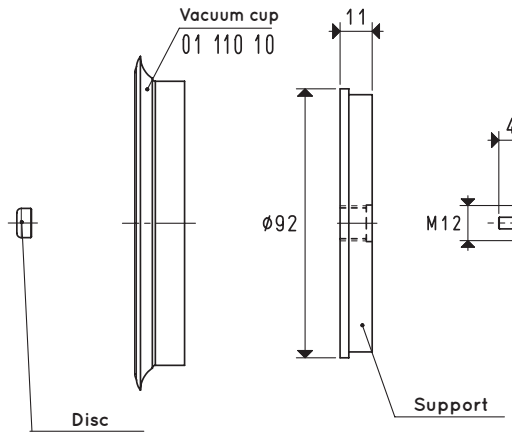
BASIC VACUUM CUP HOLDERS WITH PLUNGER VALVE

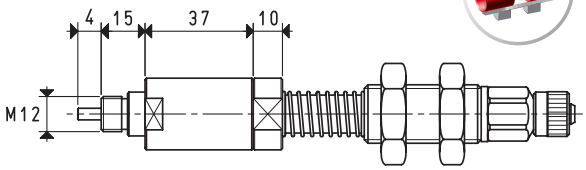
They share the same mechanical features as basic vacuum cup holders. Their distinctive feature is the plunger valve solidly connected to a conical spear valve, which activates suction, and therefore creates vacuum, only when the cup comes into contact with the load to be lifted.
They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- A solidly connected plunger valve with a conical shutter;
- A nylon disc, useful for preventing marks on the item being moved.

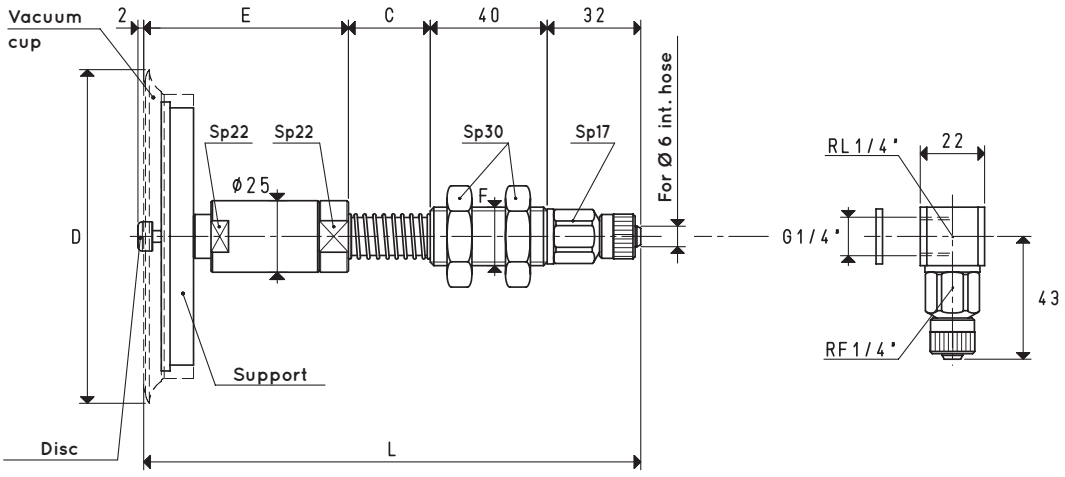


Equipped with anti-friction bushes









VERSION 03 110 10

VERSION 03 110 10 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

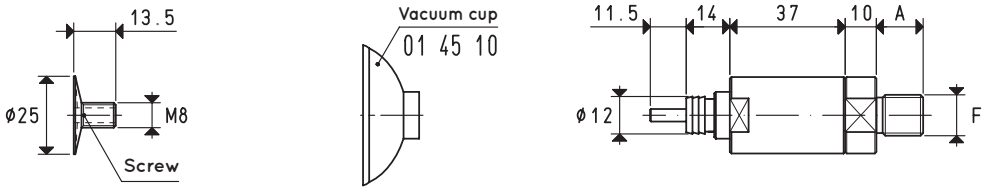
Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	E	F Ø	L	For vacuum cup item	Support included item	Disc included item	Weight g
03 110 10	28	16	10.78	114	70	M20	170	01 110 10	00 08 33	00 03 22	574.0
	65	49	29.41	114	70	M20	207	01 110 10	00 08 33	00 03 22	605.0
	95	74	23.53	114	70	M20	237	01 110 10	00 08 33	00 03 22	639.0

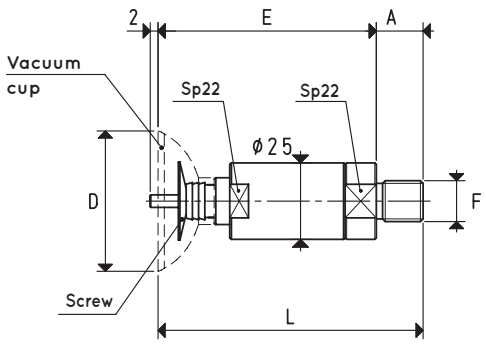
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS WITH NO SPRINGING

They have the same function as basic vacuum cup holders with plunger valve but are designed to be used where compensation is not necessary, so they do not have a cushioning spring, threaded pipe with nuts for fixing to the automation, or quick coupler.
This type of cup holder is to be directly assembled to the vacuum manifold. To allow quick assembly, its end is provided with a threaded male shank.
They are composed of:
- A brass stem for fastening the cup;
- A solidly connected plunger valve with a conical shutter.





VERSION 03 45 11

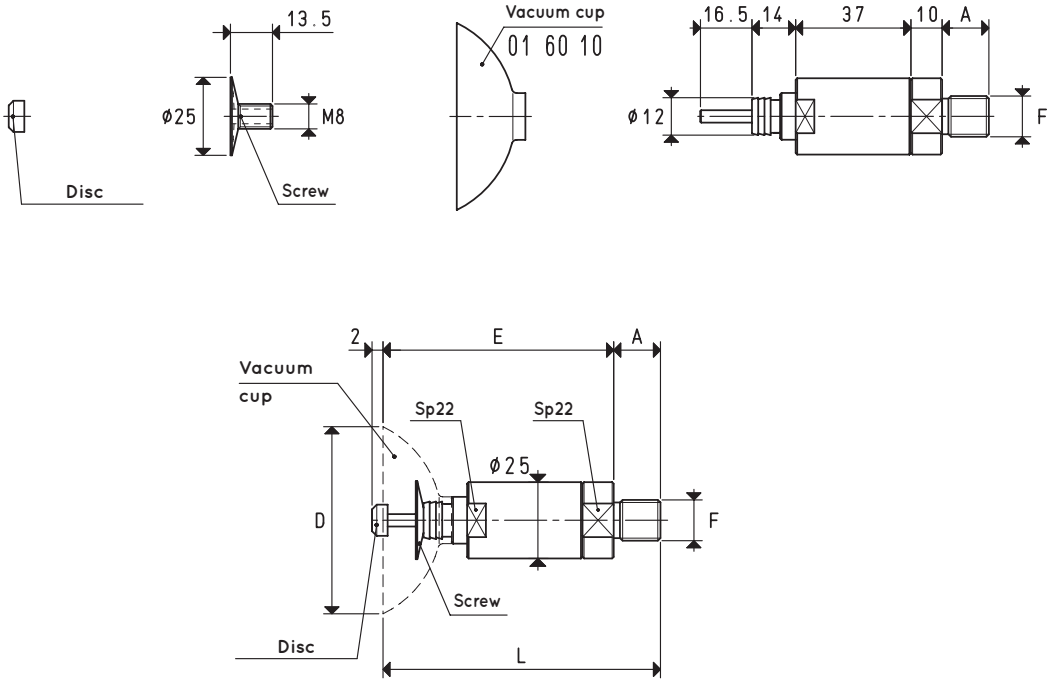
Item	A	D Ø	E	F Ø	L	For vacuum cup item	Screw included item	Weight g
03 45 11	15	45	70	G1/4"	85	01 45 10	00 20 13	174.7

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS WITH NO SPRINGING

They have the same function as basic vacuum cup holders with plunger valve but are designed to be used where compensation is not necessary, so they do not have a cushioning spring, threaded pipe with nuts for fixing to the automation, or quick coupler.
This type of cup holder is to be directly assembled to the vacuum manifold. To allow quick assembly, its end is provided with a threaded male shank.
They are composed of:
- A brass stem for fastening the cup;
- A solidly connected plunger valve with a conical shutter;
- A nylon disc, useful for preventing marks on the item being moved.



VERSION 03 60 11

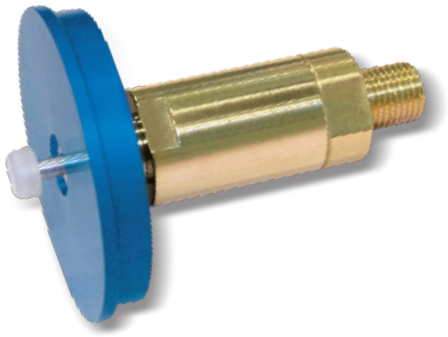
Item	A	D Ø	E	F Ø	L	For vacuum cup item	Screw included item	Disc included item	Weight g
03 60 11	15	60	72	G1/4"	87	01 60 10	00 20 13	00 03 22	191.9

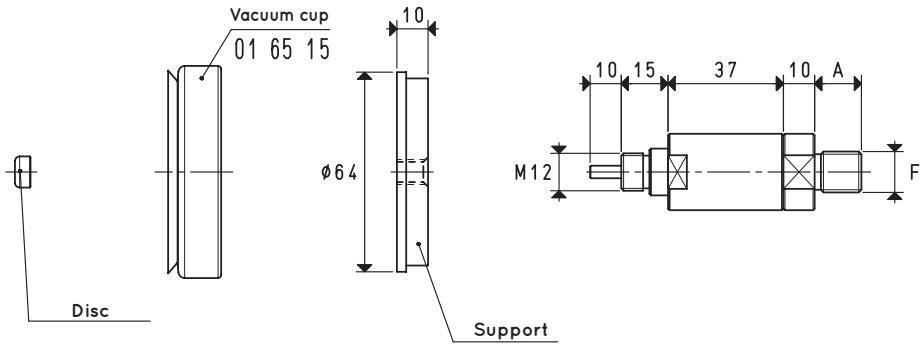
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

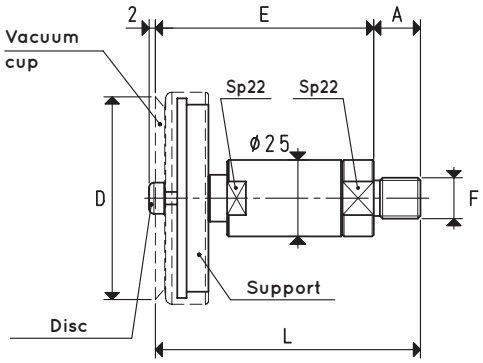
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS WITH NO SPRINGING

They have the same function as basic vacuum cup holders with plunger valve but are designed to be used where compensation is not necessary, so they do not have a cushioning spring, threaded pipe with nuts for fixing to the automation, or quick coupler.
This type of cup holder is to be directly assembled to the vacuum manifold. To allow quick assembly, its end is provided with a threaded male shank.
They are composed of:
- A brass stem for fastening the cup;
- A solidly connected plunger valve with a conical shutter;
- A nylon disc, useful for preventing marks on the item being moved.







VERSION 03 65 16

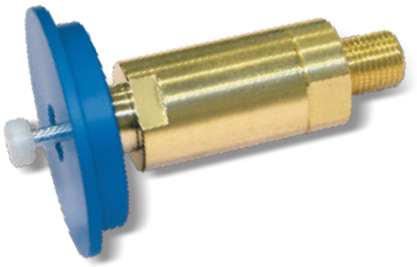
Item	A	D Ø	E	F Ø	L	For vacuum cup item	Support included item	Disc included item	Weight g
03 65 16	15	65	70	G1/4"	85	01 65 15	00 08 32	00 03 22	287.4

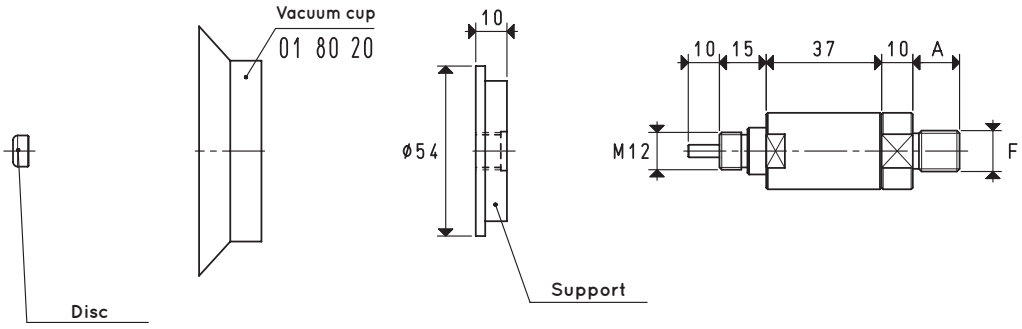
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

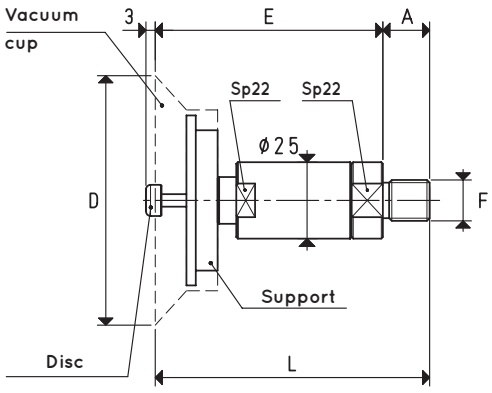
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS WITH NO SPRINGING

They have the same function as basic vacuum cup holders with plunger valve but are designed to be used where compensation is not necessary, so they do not have a cushioning spring, threaded pipe with nuts for fixing to the automation, or quick coupler.
This type of cup holder is to be directly assembled to the vacuum manifold. To allow quick assembly, its end is provided with a threaded male shank.
They are composed of:
- A brass stem for fastening the cup;
- A solidly connected plunger valve with a conical shutter;
- A nylon disc, useful for preventing marks on the item being moved.







VERSION 03 80 21

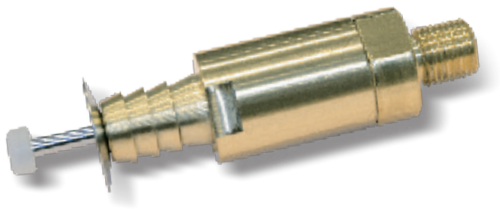
Item	A	D Ø	E	F Ø	L	For vacuum cup item	Support included item	Disc included item	Weight g
03 80 21	15	80	73	G1/4"	88	01 80 20	00 08 126	00 03 22	260.2

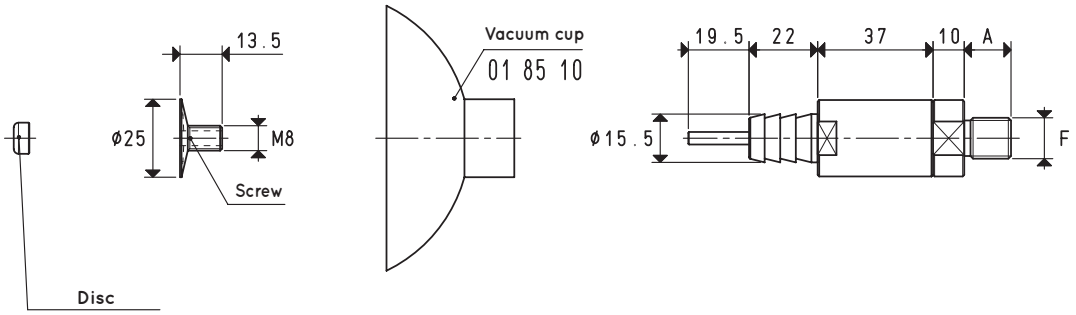
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

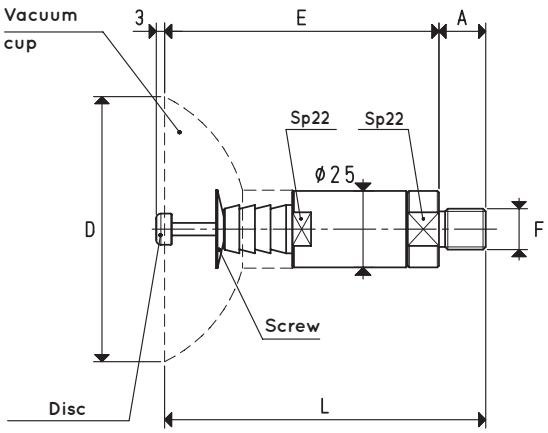
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS WITH NO SPRINGING

They have the same function as basic vacuum cup holders with plunger valve but are designed to be used where compensation is not necessary, so they do not have a cushioning spring, threaded pipe with nuts for fixing to the automation, or quick coupler.
This type of cup holder is to be directly assembled to the vacuum manifold. To allow quick assembly, its end is provided with a threaded male shank.
They are composed of:
- A brass stem for fastening the cup;
- A solidly connected plunger valve with a conical shutter;
- A nylon disc, useful for preventing marks on the item being moved.







VERSION 03 85 11

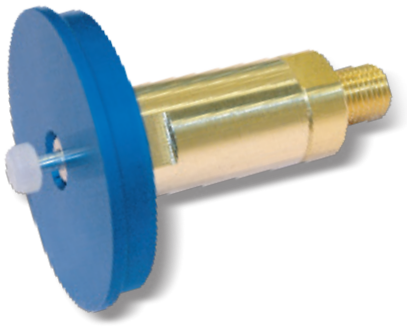
Item	A	D Ø	E	F Ø	L	For vacuum cup item	Screw included item	Disc included item	Weight g
03 85 11	15	85	92	G1/4"	107	01 85 10	00 20 13	00 03 22	247.9

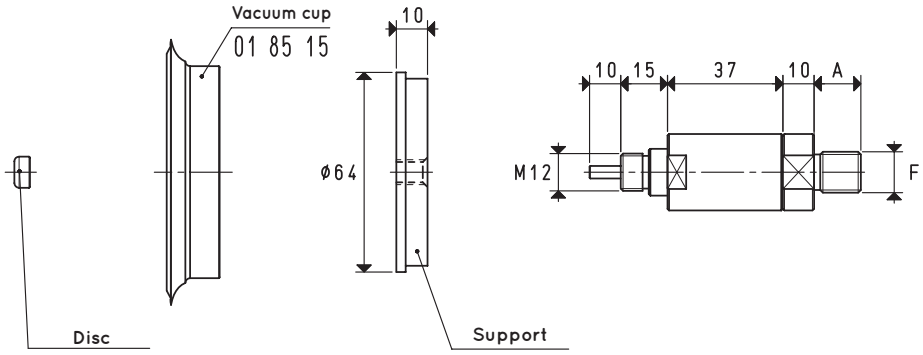
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

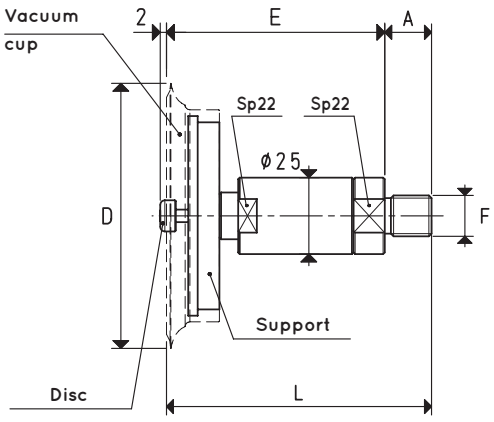
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS WITH NO SPRINGING

They have the same function as basic vacuum cup holders with plunger valve but are designed to be used where compensation is not necessary, so they do not have a cushioning spring, threaded pipe with nuts for fixing to the automation, or quick coupler.
This type of cup holder is to be directly assembled to the vacuum manifold. To allow quick assembly, its end is provided with a threaded male shank.
They are composed of:
- A brass stem for fastening the cup;
- A solidly connected plunger valve with a conical shutter;
- A nylon disc, useful for preventing marks on the item being moved.







VERSION 03 85 16

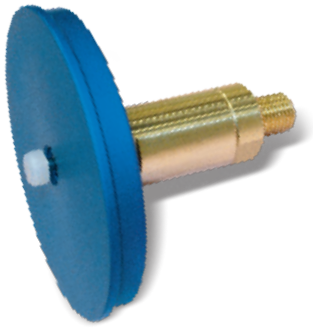
Item	A	D Ø	E	F Ø	L	For vacuum cup item	Support included item	Disc included item	Weight g
03 85 16	15	85	70	G1/4"	85	01 85 15	00 08 32	00 03 22	302.7

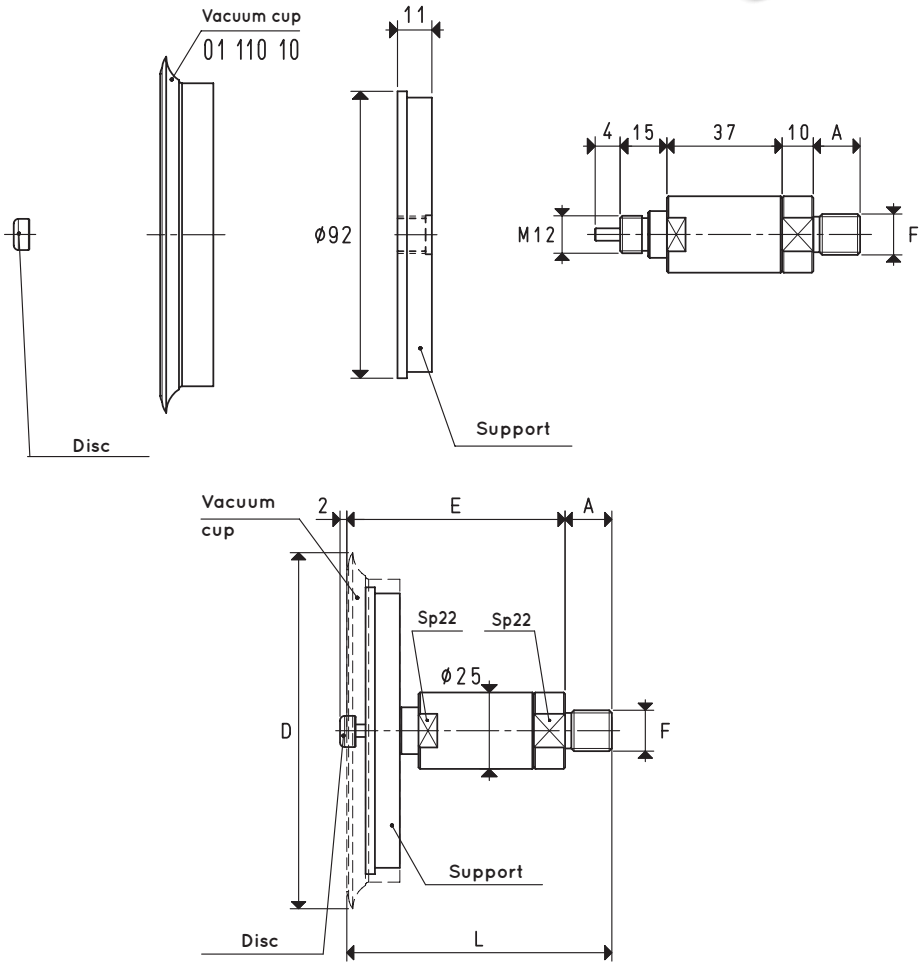
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS WITH NO SPRINGING

They have the same function as basic vacuum cup holders with plunger valve but are designed to be used where compensation is not necessary, so they do not have a cushioning spring, threaded pipe with nuts for fixing to the automation, or quick coupler.
This type of cup holder is to be directly assembled to the vacuum manifold. To allow quick assembly, its end is provided with a threaded male shank.
They are composed of:
- A brass stem for fastening the cup;
- A solidly connected plunger valve with a conical shutter;
- A nylon disc, useful for preventing marks on the item being moved.





VERSION 03 110 11

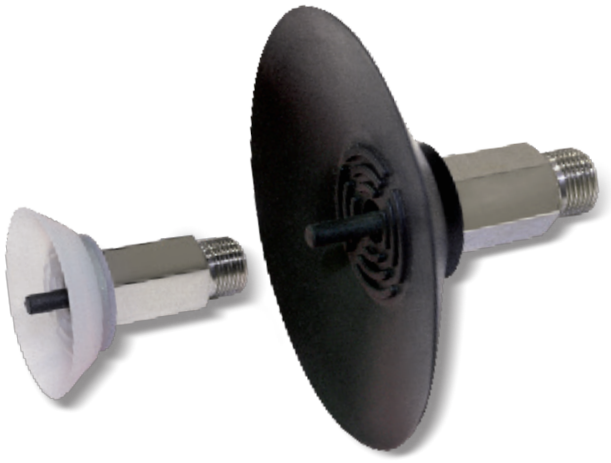
Item	A	D Ø	E	F Ø	L	For vacuum cup item	Support included item	Disc included item	Weight g
03 110 11	15	114	70	G1/4"	85	01 110 10	00 08 33	00 03 22	441.3

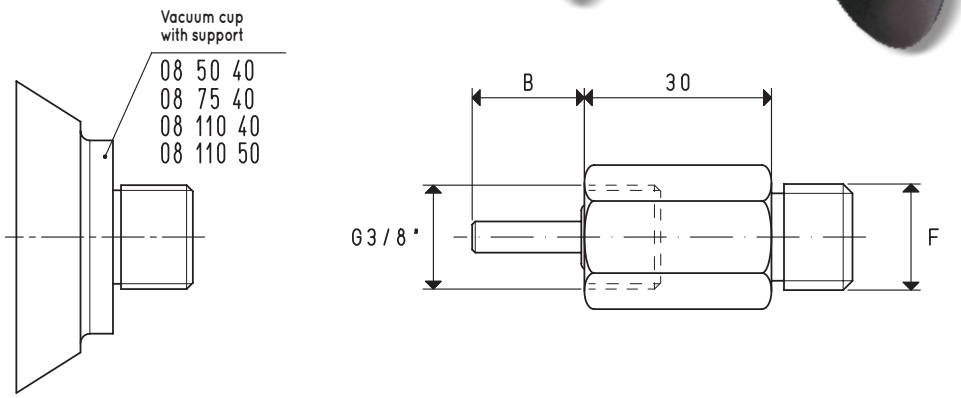
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

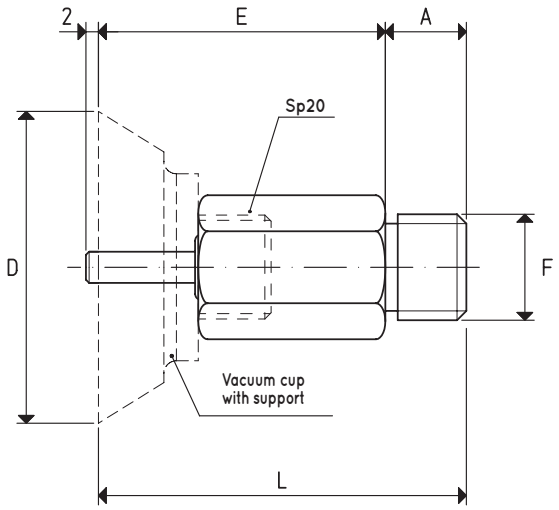
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS WITH NO SPRINGING

They have the same function as basic vacuum cup holders with plunger valve but are designed to be used where compensation is not necessary, so they do not have a cushioning spring, threaded pipe with nuts for fixing to the automation, or quick coupler.
This type of cup holder is to be directly assembled to the vacuum manifold. To allow quick assembly, its end is provided with a threaded male shank.
They are composed of:
- A hexagonal nickel-plated brass stem for fastening the vacuum cup;
- A nylon plunger valve equipped with an NBR seal.







VERSION 03 50 41

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	A	B	D Ø	E	F Ø	L	Weight g
03 50 41	13	18.0	50	46.0	G3/8"	61	100.6
	For vacuum cup item						
	08 50 40 - 08 75 40 - 08 100 40 - 08 100 50						

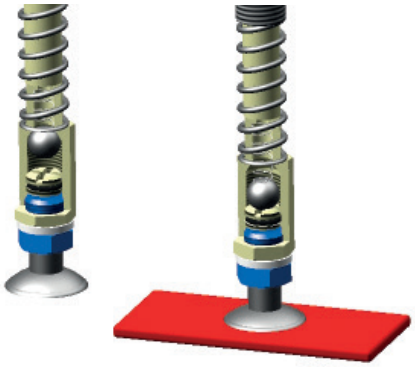
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

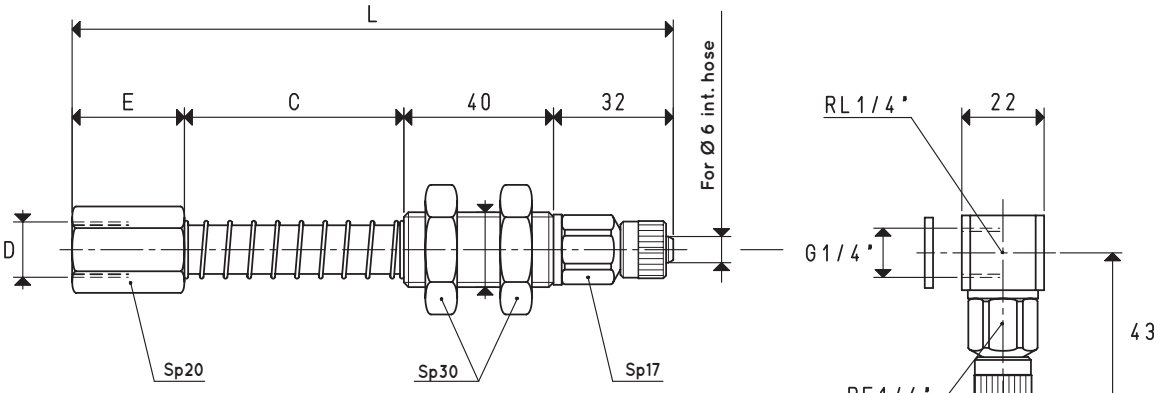
BASIC VACUUM CUP HOLDERS WITH BUILT-IN SHUT-OFF VALVE

Along with all the other features they share with the other basic vacuum cup holders, , these have a built-in shut-off valve. The function of the shut-off valve is to automatically close suction when the cup is not in contact with the surface of the load to be handled or in case of a faulty grip or of considerable transpiration, thus preventing the reduction of the level of vacuum on the remaining cups of the system that are regularly gripping a load. The advantage of this is that the placement or the exclusion of the non-gripping cups is no longer binding. Vacuum cups with a minimum diameter of 10 mm and maximum diameter of 50 mm can be assembled on these cup holders, provided they have a 1/8 "male threaded gas support.
They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- A shut-off valve.

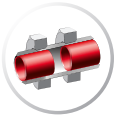
VACUUM ON OBJECT NOT GRIPPED VALVE CLOSED



VACUUM ON OBJECT GRIPPED VALVE OPEN



Equipped with anti-friction bushes



VERSION 02 99 . .

VERSION 02 99 . . L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

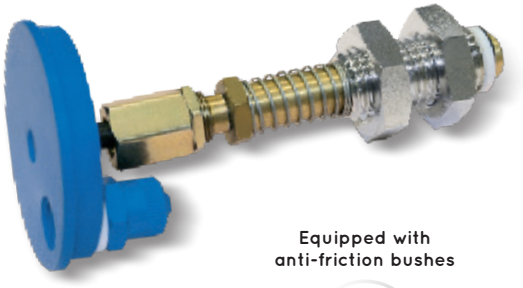
Item	Portata minima di innesco m^3/h	Grado di vuoto minimo mbar	C	Actual spring stroke mm	Forza di spinta della molla N	D Ø	E	F Ø	L	Weight g
02 99 28	4	-250	28	16	10.78	G1/4"	30	M20	130	256
02 99 65	4	-250	65	49	29.41	G1/4"	30	M20	167	301
02 99 95	4	-250	95	74	23.53	G1/4"	30	M20	197	333

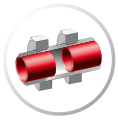
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.

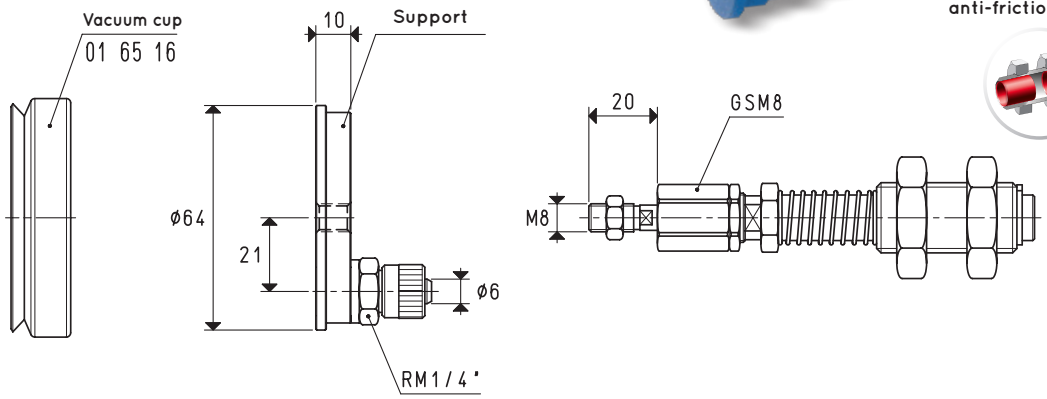
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

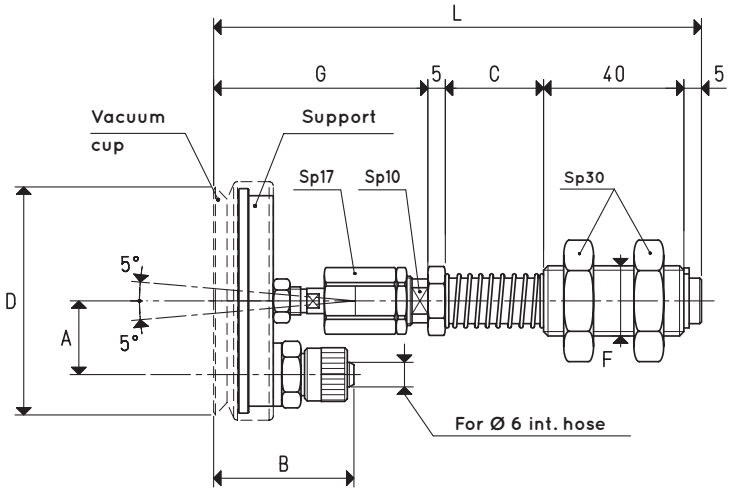
BASIC ARTICULATED VACUUM CUP HOLDERS

The technical and mechanical features are the same as for the basic vacuum cup holders. Their distinctive feature is their articulated joint in hardened steel, which allows the flat cups installed on these cup holders to adapt themselves to the loads to be lifted with slightly tilted surfaces, as well as to compensate possible verticality errors that can arise between the cup holder and the automation fixing support.
They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- An articulated joint in galvanised steel.









VERSION 02 65 20

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

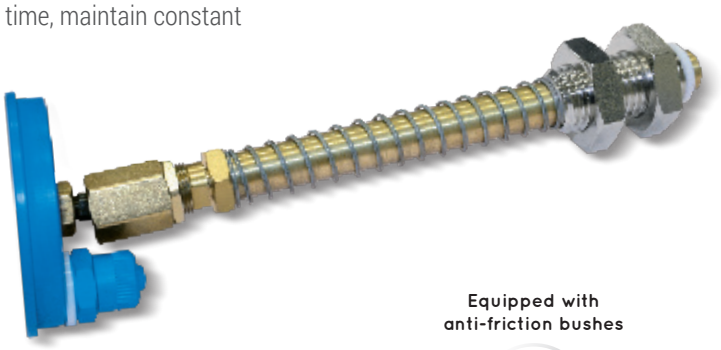
Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	F Ø	G	L	For vacuum cup item	Support included item	Weight g
02 65 20	28	16	10.78	21	37	65	M20	52	130	01 65 16	00 02 36	362.4
	65	49	29.41	21	37	65	M20	52	167	01 65 16	00 02 36	411.4
	95	74	23.53	21	37	65	M20	52	197	01 65 16	00 02 36	441.4

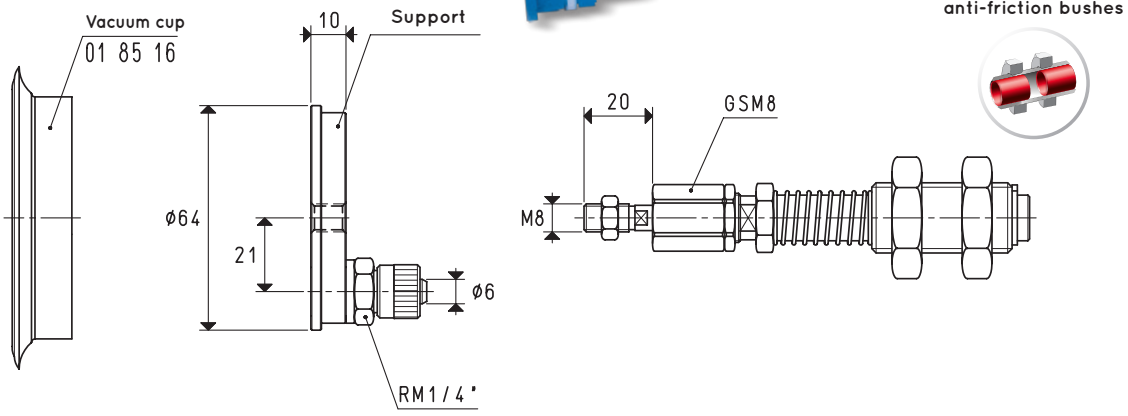
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 65 mm and 95 mm

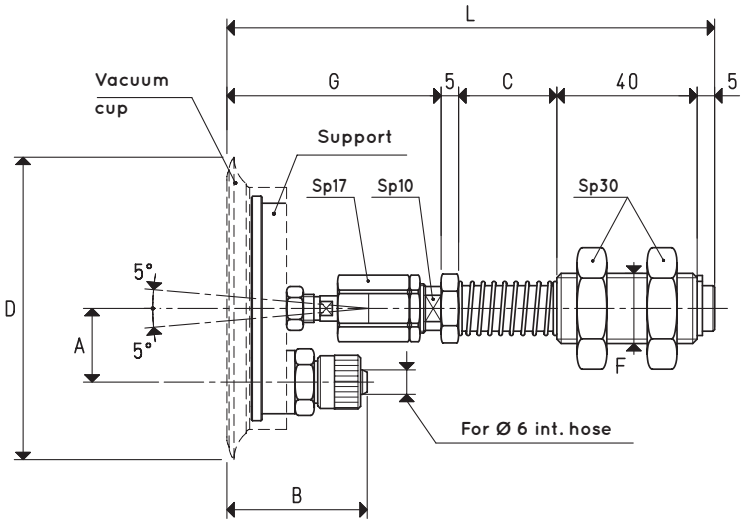
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC ARTICULATED VACUUM CUP HOLDERS

The technical and mechanical features are the same as for the basic vacuum cup holders. Their distinctive feature is their articulated joint in hardened steel, which allows the flat cups installed on these cup holders to adapt themselves to the loads to be lifted with slightly tilted surfaces, as well as to compensate possible verticality errors that can arise between the cup holder and the automation fixing support.
They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- An articulated joint in galvanised steel.







VERSION 02 85 20

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

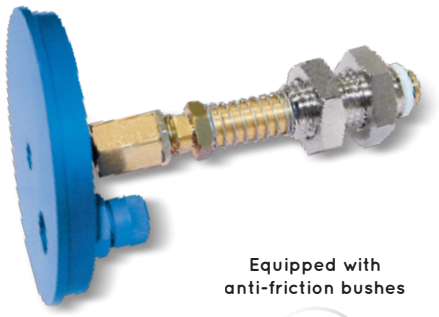
Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	F Ø	G	L	For vacuum cup item	Support included item	Weight g
02 85 20	28	16	10.78	21	37	85	M20	52	130	01 85 16	00 02 36	378.7
	65	49	29.41	21	37	85	M20	52	167	01 85 16	00 02 36	427.7
	95	74	23.53	21	37	85	M20	52	197	01 85 16	00 02 36	457.7

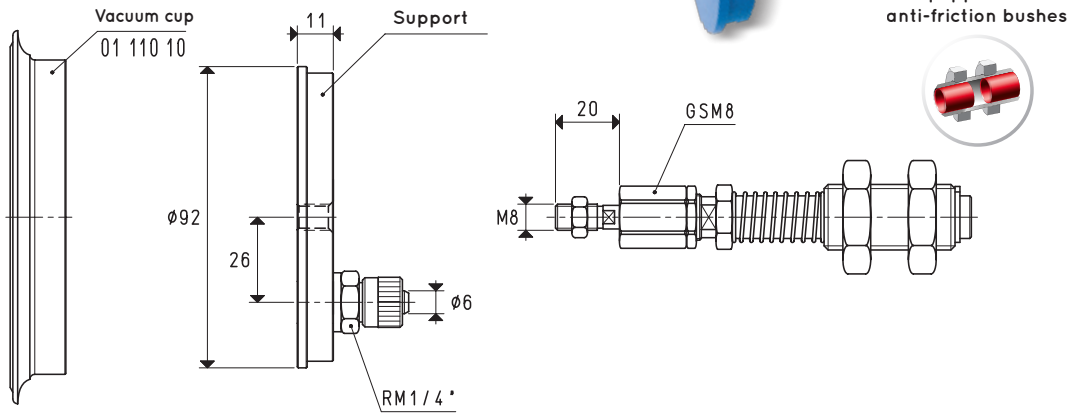
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 65 mm and 95 mm

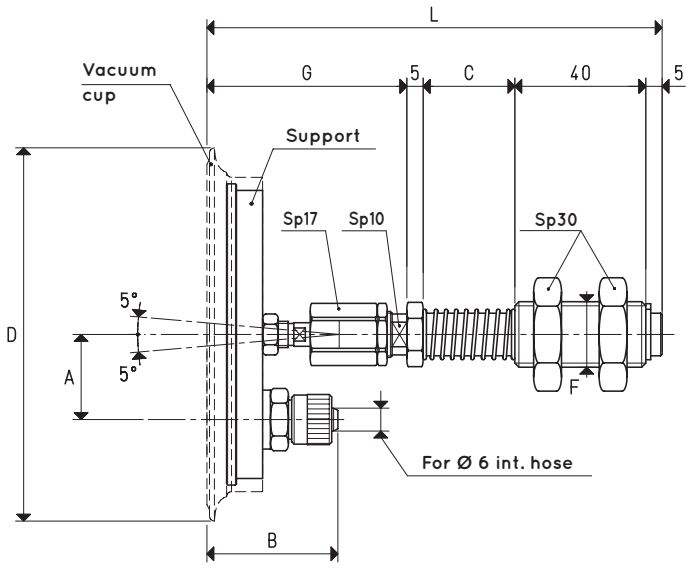
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC ARTICULATED VACUUM CUP HOLDERS

The technical and mechanical features are the same as for the basic vacuum cup holders. Their distinctive feature is their articulated joint in hardened steel, which allows the flat cups installed on these cup holders to adapt themselves to the loads to be lifted with slightly tilted surfaces, as well as to compensate possible verticality errors that can arise between the cup holder and the automation fixing support.
They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- An articulated joint in galvanised steel.







VERSION 02 110 20

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

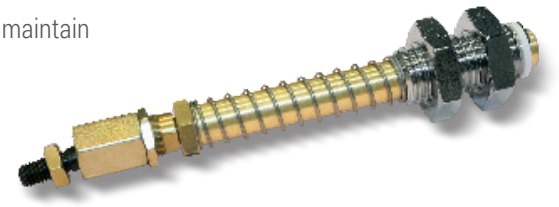
Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	F Ø	G	L	For vacuum cup item	Support included item	Weight g
02 110 20	28	16	10.78	26	37	114	M20	52	130	01 110 10	00 02 37	497.1
	65	49	29.41	26	37	114	M20	52	167	01 110 10	00 02 37	544.1
	95	74	23.53	26	37	114	M20	52	197	01 110 10	00 02 37	271.1

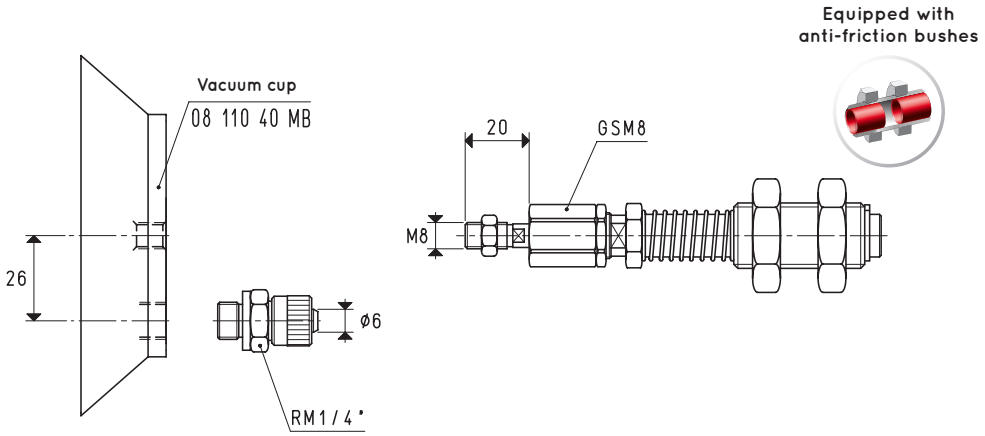
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 65 mm and 95 mm

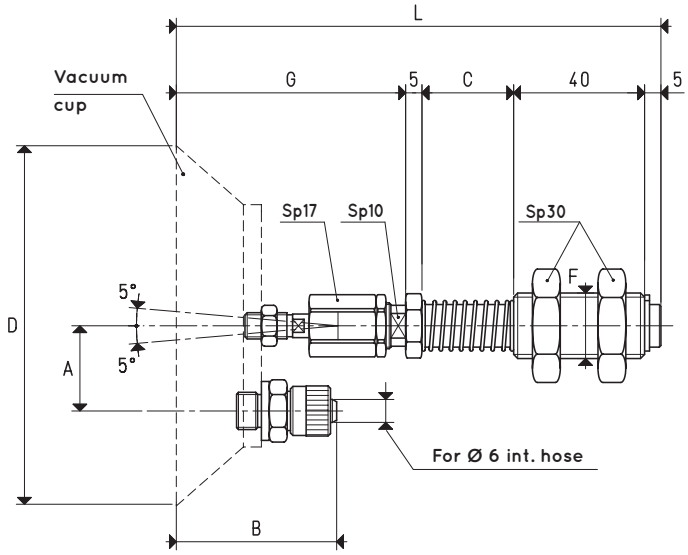
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC ARTICULATED VACUUM CUP HOLDERS

The technical and mechanical features are the same as for the basic vacuum cup holders. Their distinctive feature is their articulated joint in hardened steel, which allows the flat cups installed on these cup holders to adapt themselves to the loads to be lifted with slightly tilted surfaces, as well as to compensate possible verticality errors that can arise between the cup holder and the automation fixing support.
They are composed of:
- A brass stem for fastening the cup;
- A nickel-plated steel threaded sleeve equipped with anti-friction bushes for quick assembly of the cup to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose;
- An articulated joint in galvanised steel.







VERSION 02 110 22

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

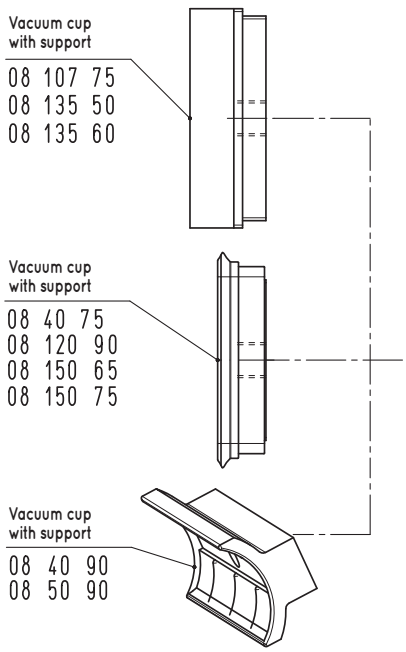
Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	F Ø	G	L	For vacuum cup item	Weight g
02 110 22	28	16	10.78	26	46	110	M20	61	139	08 110 40 M8	243
	65	49	29.41	26	46	110	M20	61	176	08 110 40 M8	294
	95	74	23.53	26	46	110	M20	61	206	08 110 40 M8	323

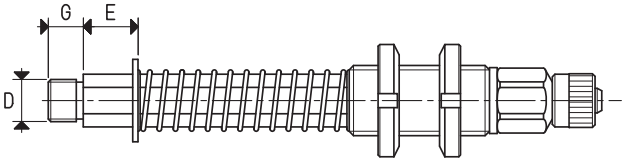
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 65 mm and 95 mm

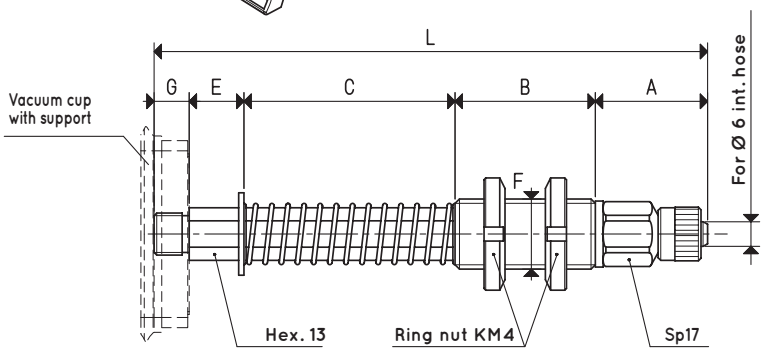
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC ANTI-ROTATION VACUUM CUP HOLDERS

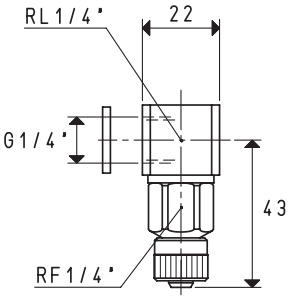
The technical features are the same as for the basic vacuum cup holders, with their distinctive features being their brass stem with hexagonal section and the steel drive bush with hexagonal hole. This prevents the stem from rotating on its axis, and, as a result, also the cup and its support from rotating.
They are suited for cups with male or female support with diameters ranging from 45 mm to 110 mm, but they have been specially designed for the installation of rectangular, concave and elliptical cups.They are composed of:
- A brass stem with a hexagonal cross-section;
- An externally threaded sleeve with an internal hexagonal cross-section, equipped with ring nuts for mounting the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.







VERSION 02 95 . .



VERSION 02 95 . . L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

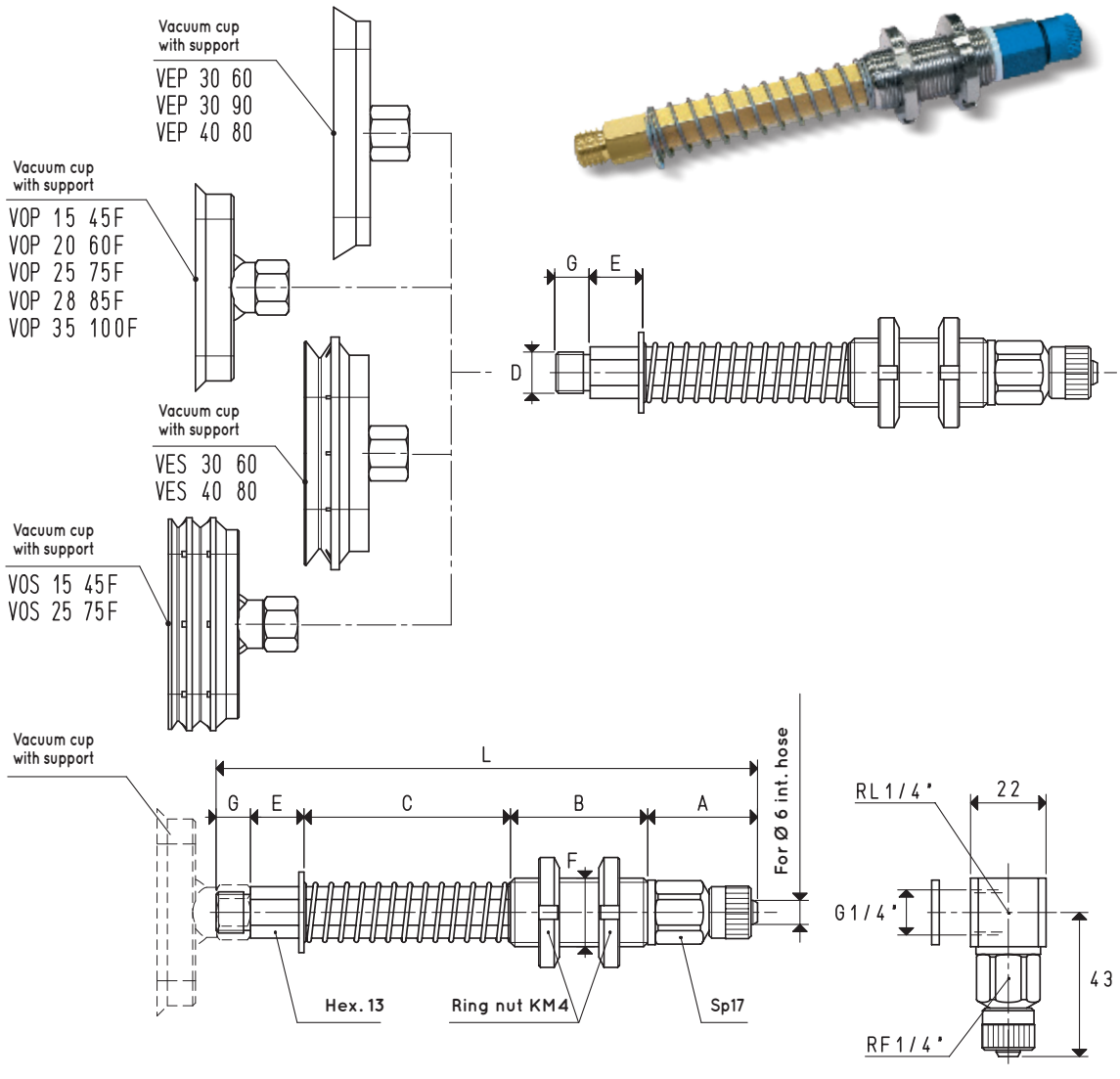
Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	E	F Ø	G	L	Weight g
02 95 28	28	16	21.57	32	40	M12	15	M20 x 1	10	125	180
02 95 65	65	65	22.55	32	40	M12	15	M20 x 1	10	162	225
02 95 95	95	95	24.51	32	40	M12	15	M20 x 1	10	192	246
	For vacuum cup item										
	08 107 75 - 08 135 50 - 08 135 60										
	08 40 75 - 08 120 90 - 08 150 65 - 08 150 75										
	08 40 90 - 08 50 90										

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC ANTI-ROTATION VACUUM CUP HOLDERS

The technical features are the same as for the basic vacuum cup holders, with their distinctive features being their brass stem with hexagonal section and the steel drive bush with hexagonal hole. This prevents the stem from rotating on its axis, and, as a result, also the cup and its support from rotating.
They are suited for cups with male or female support with diameters ranging from 45 mm to 110 mm, but they have been specially designed for the installation of rectangular, concave and elliptical cups.They are composed of:
- A brass stem with a hexagonal cross-section;
- An externally threaded sleeve with an internal hexagonal cross-section, equipped with ring nuts for mounting the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.



VERSION 02 95 . .

VERSION 02 95 . . L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

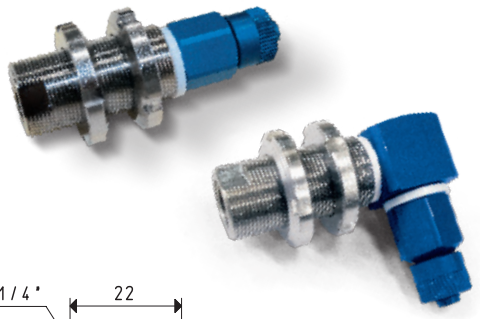
Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	E	F Ø	G	L	Weight g
02 95 28 1/4"	28	16	21.57	32	40	G1/4"	15	M20 x 1	10	125	181
02 95 65 1/4"	65	65	22.55	32	40	G1/4"	15	M20 x 1	10	162	226
02 95 95 1/4"	95	95	24.51	32	40	G1/4"	15	M20 x 1	10	192	247
	For vacuum cup item										
	VEP 30 60 - VEP 30 90 - VEP 40 80										
	VOP 15 45 F - VOP 20 60 F - VOP 25 75 F - VOP 28 85 F - VOP 35 100 F										
	VES 30 60 - VES 40 80										
	VOS 15 45 F - VOS 25 75 F										

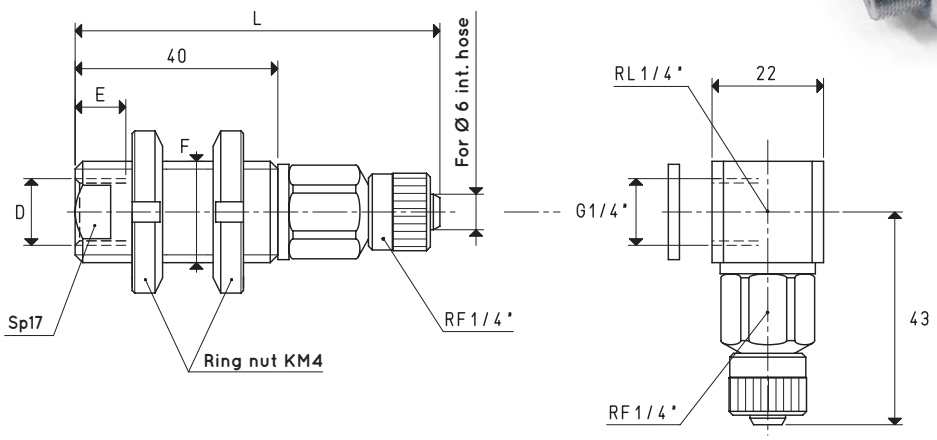
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 65 mm and 95 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BASIC VACUUM CUP HOLDERS FIX

Fix vacuum cup holders have been designed to adjust the height of the vacuum cups with support thanks to the threading along the entire length of the threaded bush. The ends are female threaded for mounting the vacuum cup with support and the connector. They are composed of:
- A threaded bush equipped with nuts, for mounting the vacuum up holder on the automation;
- A quick coupling for connection with the suction hose.



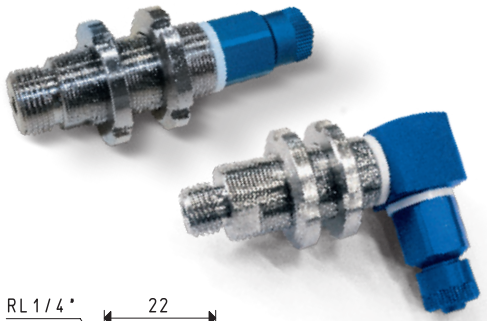


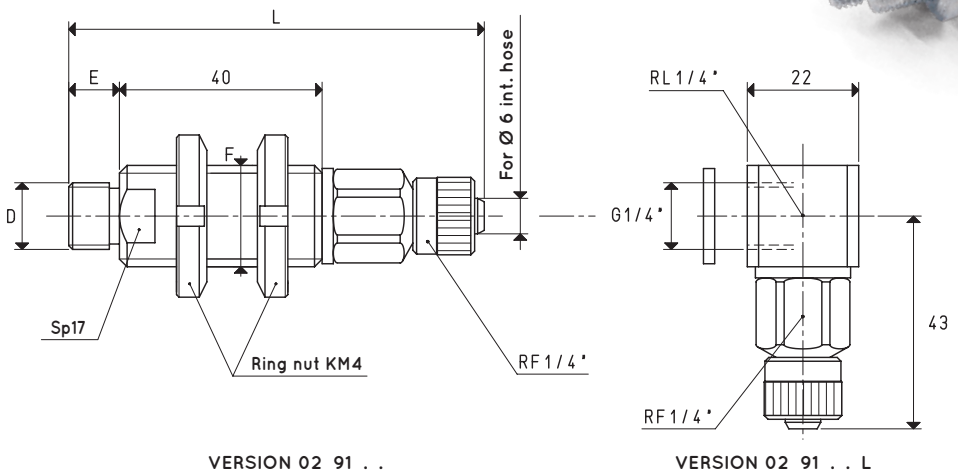
VERSION 02 91 01 — VERSION 02 91 01 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	D Ø	E	F Ø	L	Weight g
02 91 01	G1/4"	10	M20 x 1	74	162

Note: To order vacuum cup holders with L fittings, add the letter L to the code.





VERSION 02 91 . . — VERSION 02 91 . . L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	D Ø	E	F Ø	L	Weight g
02 91 05	G1/4"	10	M20 x 1	84	170
02 91 06	G3/8"	10	M20 x 1	84	174

Note: To order vacuum cup holders with L fittings, add the letter L to the code.

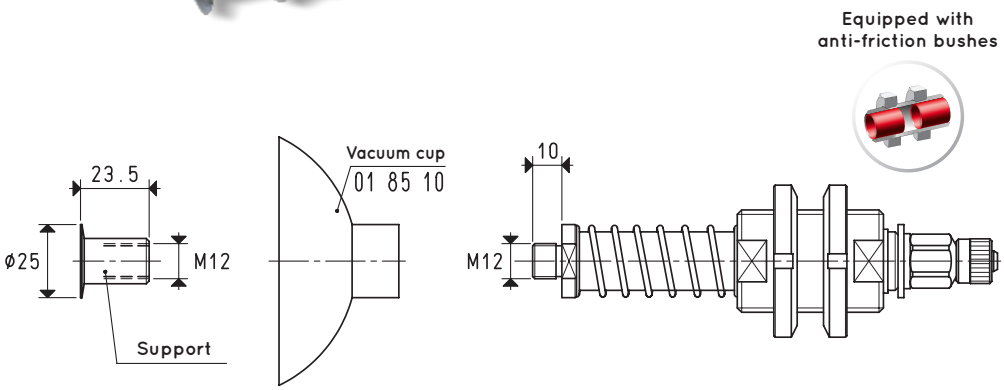
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

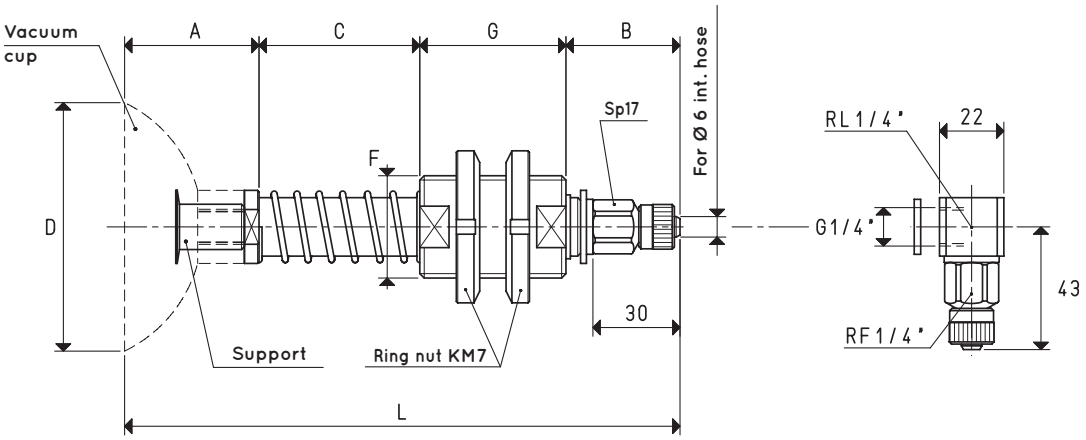
Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**

SPECIAL VACUUM CUP HOLDERS

These special vacuum cup holders have been designed to lift and handle heavy loads and to withstand heavy-duty and continuous workloads in dusty or damp environments.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction; bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose.





VERSION 06 85 10

VERSION 06 85 10 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	F Ø	G	L	For vacuum cup item	Support included item	Weight g
06 85 10	55	37	70.63	46	39	85	M35 x 1.5	50	190	01 85 10	00 08 29	696.1
	110	84	35.31	46	39	85	M35 x 1.5	50	245	01 85 10	00 08 29	818.1

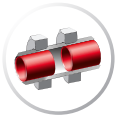
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

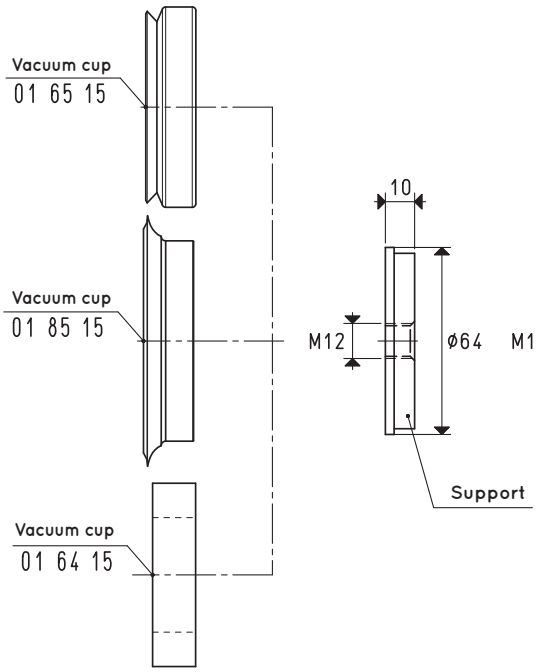
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

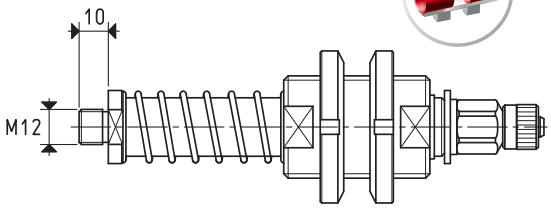
SPECIAL VACUUM CUP HOLDERS

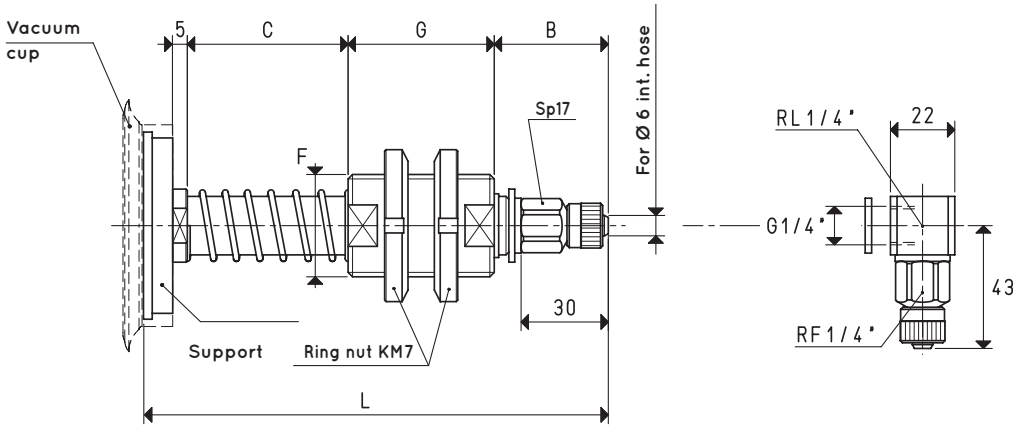
These special vacuum cup holders have been designed to lift and handle heavy loads and to withstand heavy-duty and continuous workloads in dusty or damp environments.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction; bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose.

Equipped with anti-friction bushes









VERSION 06 85 15 VERSION 06 85 15 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

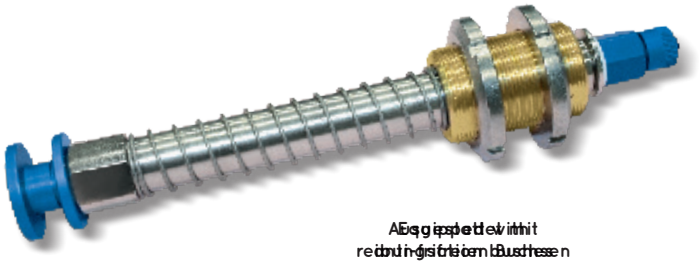
Item	*C	Actual spring stroke mm	Spring thrust force N	B	F Ø	G	L	Support included item	Weight g
06 85 15	55	37	70.63	39	M35 x 1.5	50	158	00 08 32	743.9
	110	84	35.31	39	M35 x 1.5	50	213	00 08 32	863.9
				For vacuum cup item					
				01 65 15					
				01 85 15					
				01 64 15					

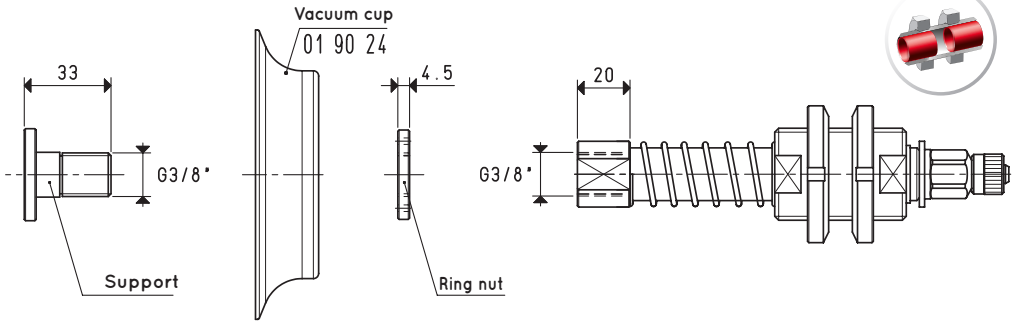
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

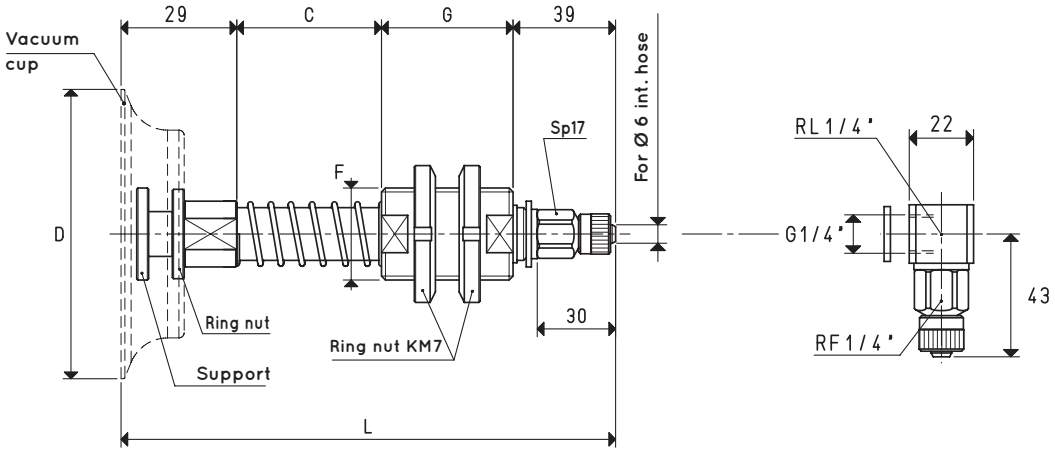
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS

These special vacuum cup holders have been designed to lift and handle heavy loads and to withstand heavy-duty and continuous workloads in dusty or damp environments.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction; bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose.







VERSION 06 90 24

VERSION 06 90 24 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

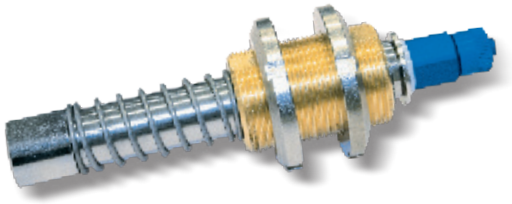
Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	F Ø	G	L	For vacuum cup item	Support included item	Ring included item	Weight g
06 90 24	55	37	70.63	90	M35 x 1.5	50	173	01 90 24	00 08 110	00 08 111	745.8
	110	84	35.31	90	M35 x 1.5	50	228	01 90 24	00 08 110	00 08 111	814.8

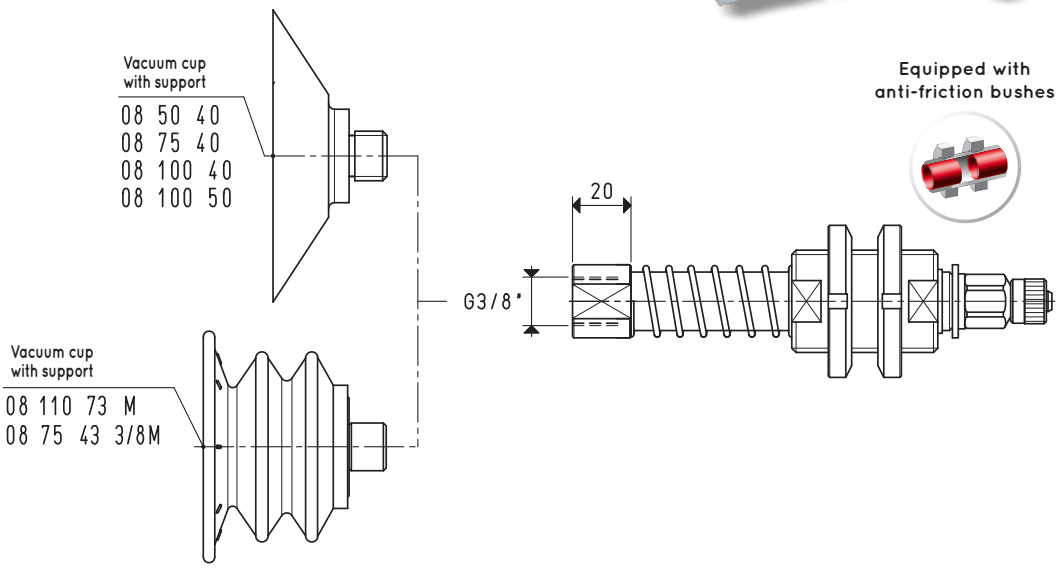
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

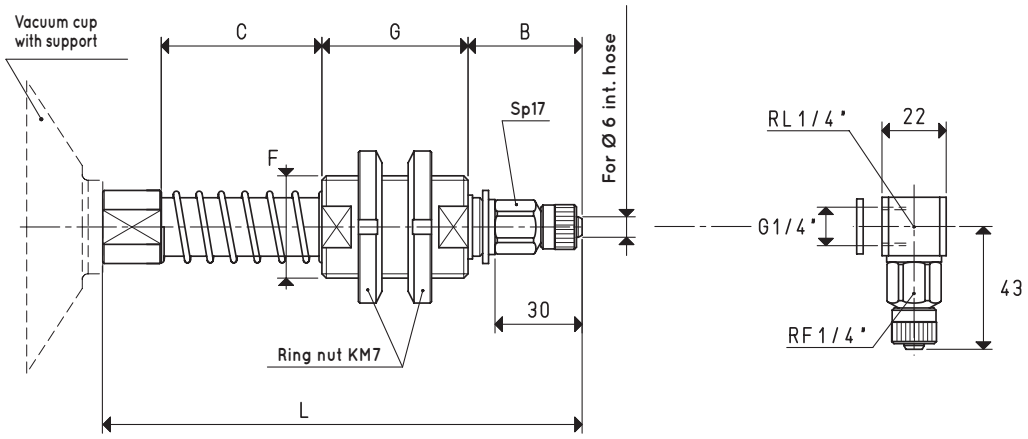
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS

These special vacuum cup holders have been designed to lift and handle heavy loads and to withstand heavy-duty and continuous workloads in dusty or damp environments.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction; bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose.







VERSION 06 100 40 — VERSION 06 100 40 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	B	F Ø	G	L	Weight g
06 100 40	55	37	70.63	39	M35 x 1.5	50	164	660.7
	110	84	35.31	39	M35 x 1.5	50	219	782.7
	For vacuum cup item							
	08 50 40 - 08 75 40 - 08 100 40 - 08 100 50							
	08 110 73 M - 08 75 43 3/8 M							

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

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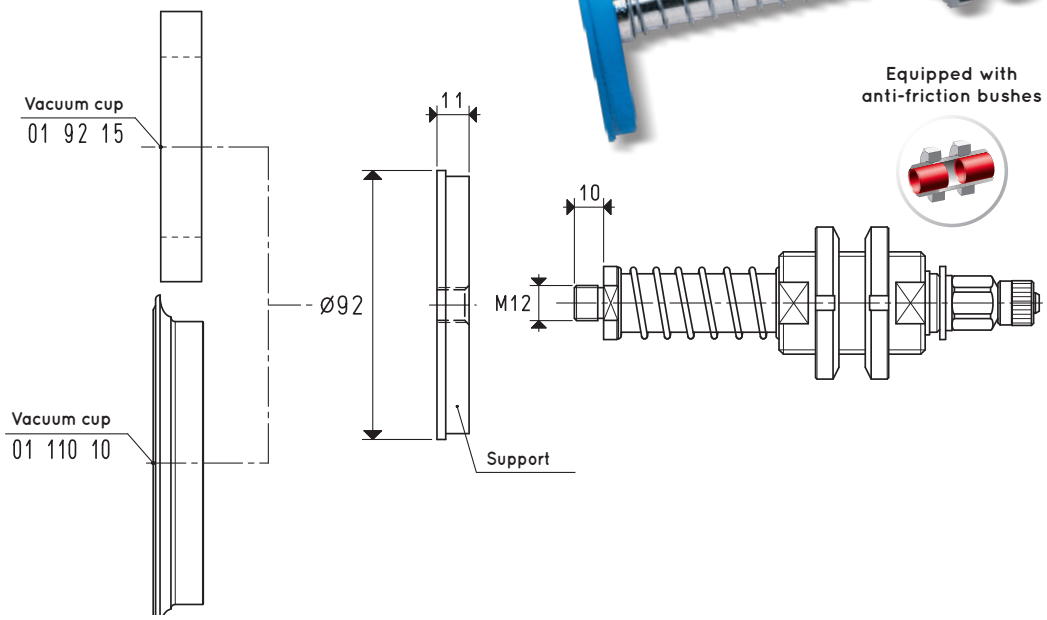
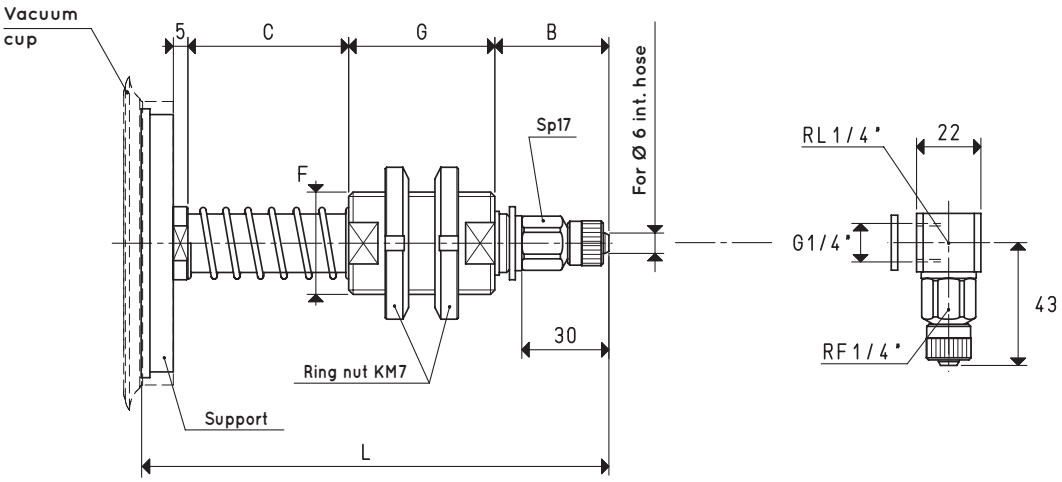
- A safety washer;
- A quick coupling for connection with the suction hose.



VERSION 06 110 10



VERSION 06 110 10 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	B	F Ø	G	L	Support included item	Weight g
06 100 10	55	37	70.63	39	M35 x 1.5	50	157	00 08 33	869.3
	110	84	35.31	39	M35 x 1.5	50	212	00 08 33	991.3
				For vacuum cup item					
				01 92 15					
				01 110 10					

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

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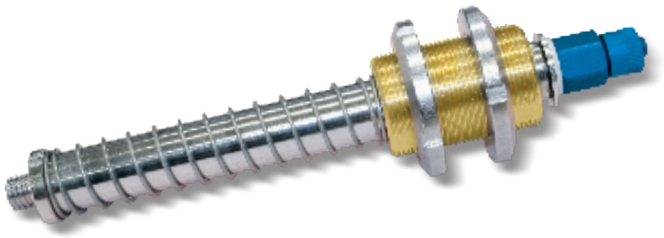
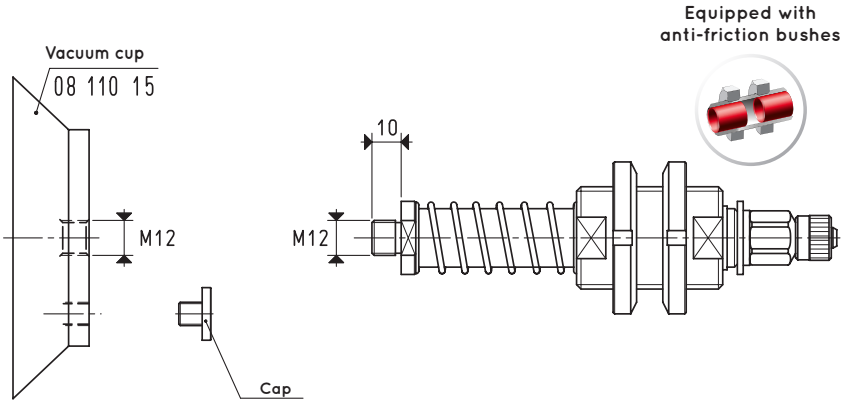
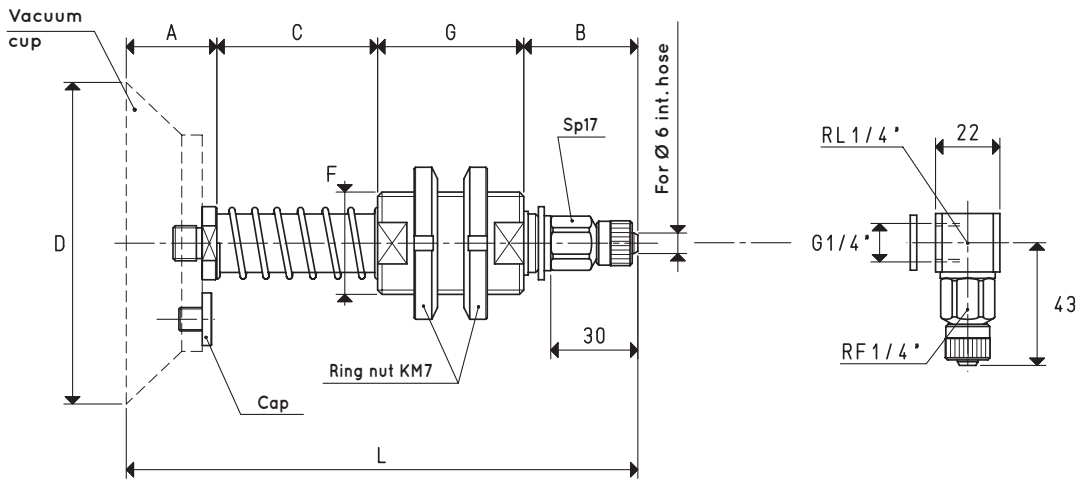
- A safety washer;
- A quick coupling for connection with the suction hose.







VERSION 06 110 15 — VERSION 06 110 15 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	F Ø	G	L	For vacuum cup item	Cap included item	Weight g
06 110 15	55	37	70.63	31	39	110	M35 x 1.5	50	175	08 110 15	00 11 06	630
	110	84	35.31	31	39	110	M35 x 1.5	50	230	08 110 15	00 11 06	750

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

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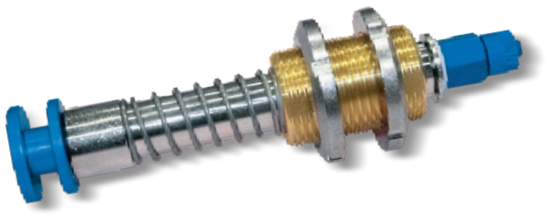
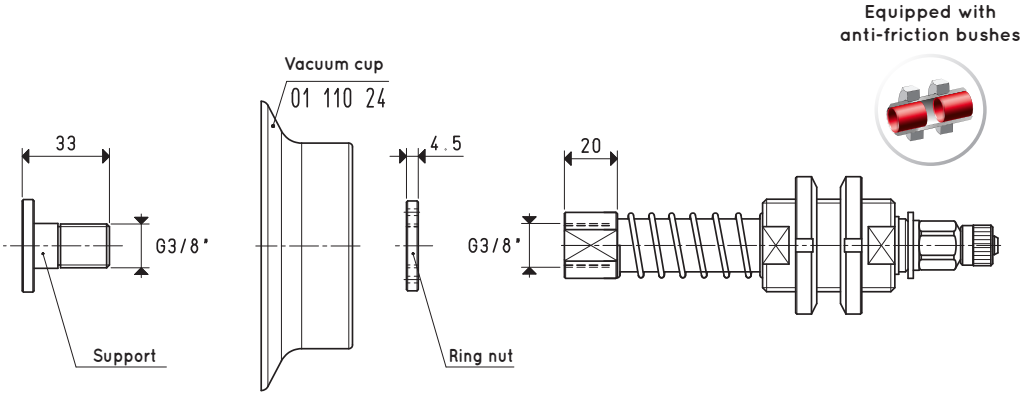
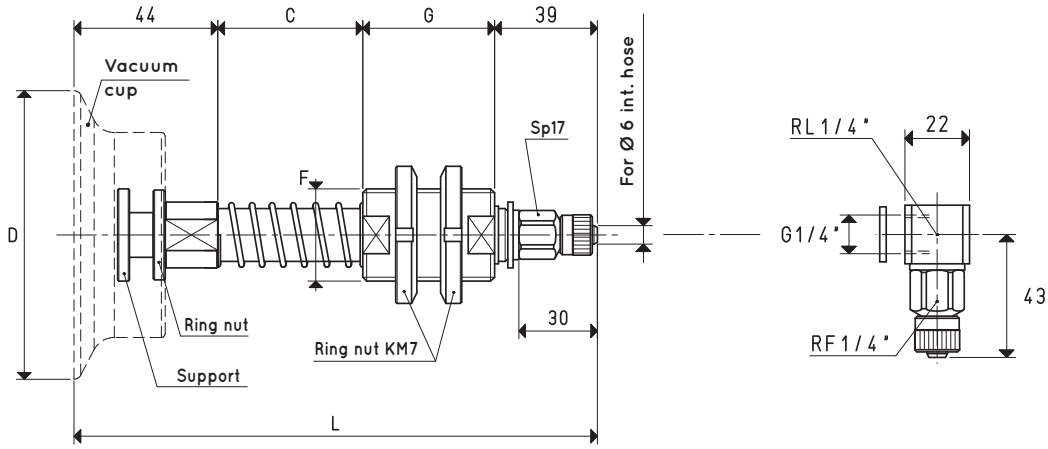
- A safety washer;
- A quick coupling for connection with the suction hose.







VERSION 06 110 24

VERSION 06 110 24 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	F Ø	G	L	For vacuum cup item	Support included item	Ring included item	Weight Kg
06 110 24	55	37	70.63	110	M35 x 1.5	50	188	01 110 24	00 08 110	00 08 111	0.934
	110	84	35.31	110	M35 x 1.5	50	243	01 110 24	00 08 110	00 08 111	1.050

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

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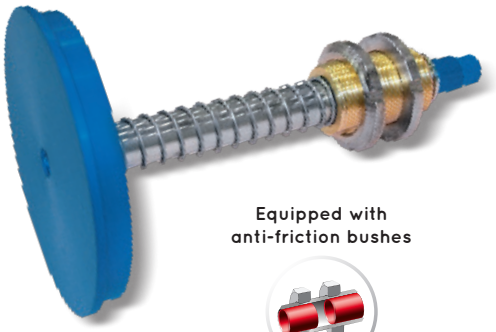
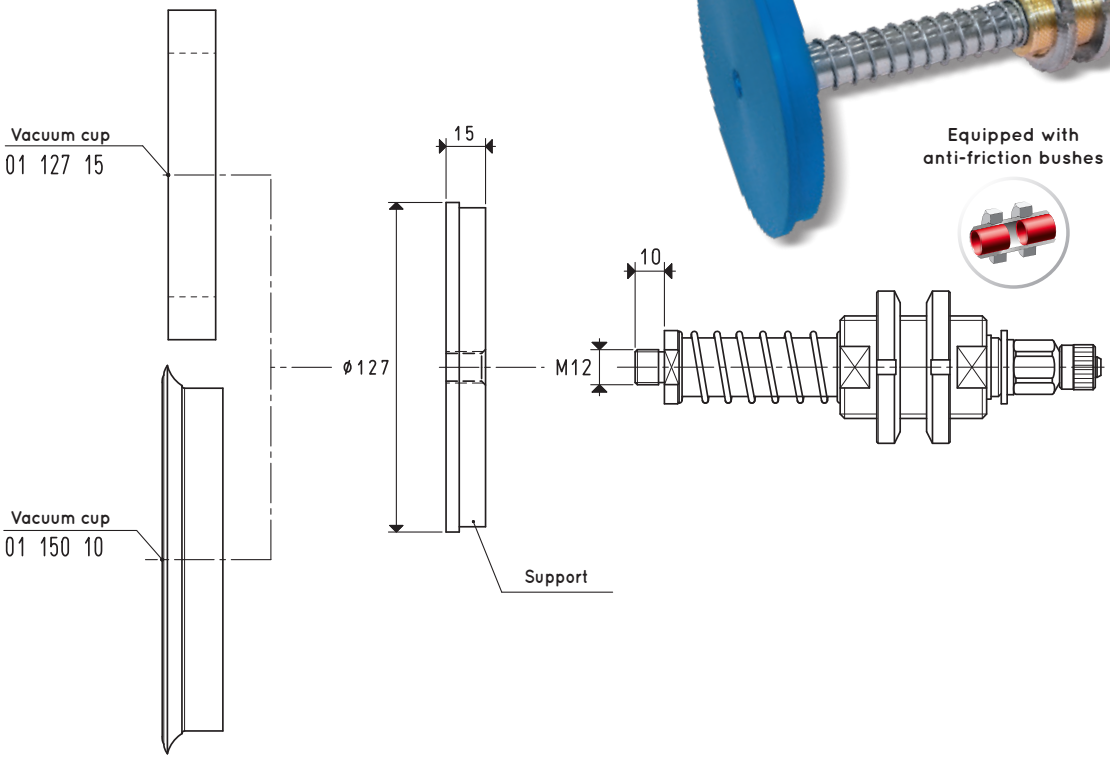
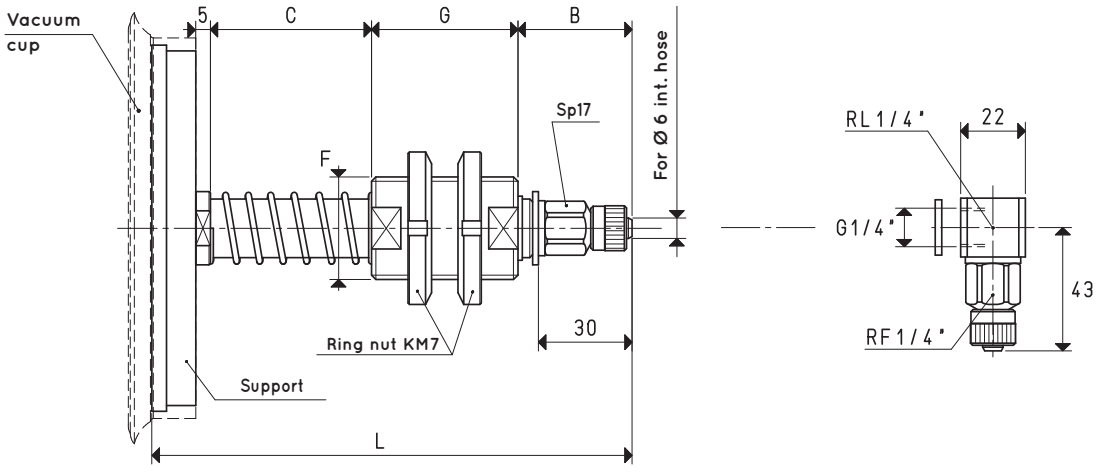


Equipped with anti-friction bushes





VERSION 06 150 10

VERSION 06 150 10 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	B	F Ø	G	L	Support included item	Weight Kg
06 150 10	55	37	70.63	39	M35 x 1.5	50	159	00 08 35	1.22
	110	84	35.31	39	M35 x 1.5	50	214	00 08 35	1.33
				For vacuum cup item					
				01 127 15					
				01 150 10					

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
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Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

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- A safety washer;
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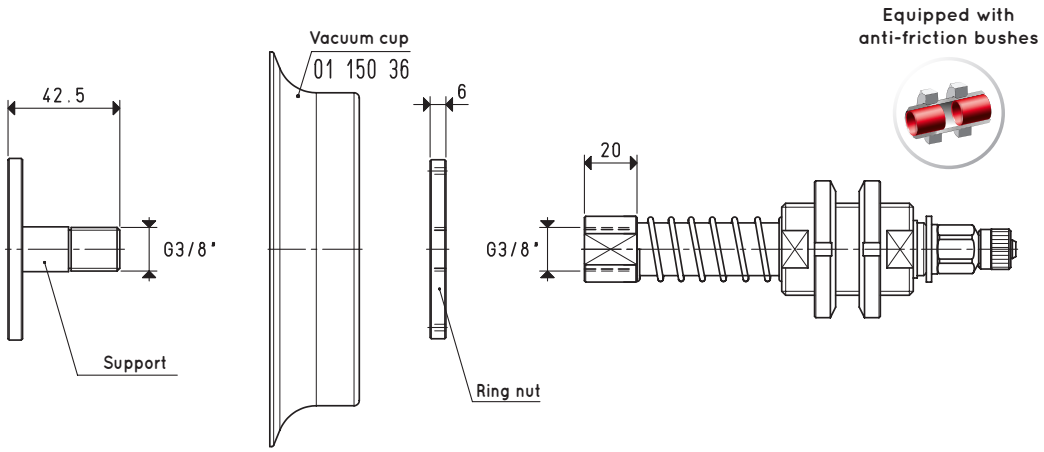

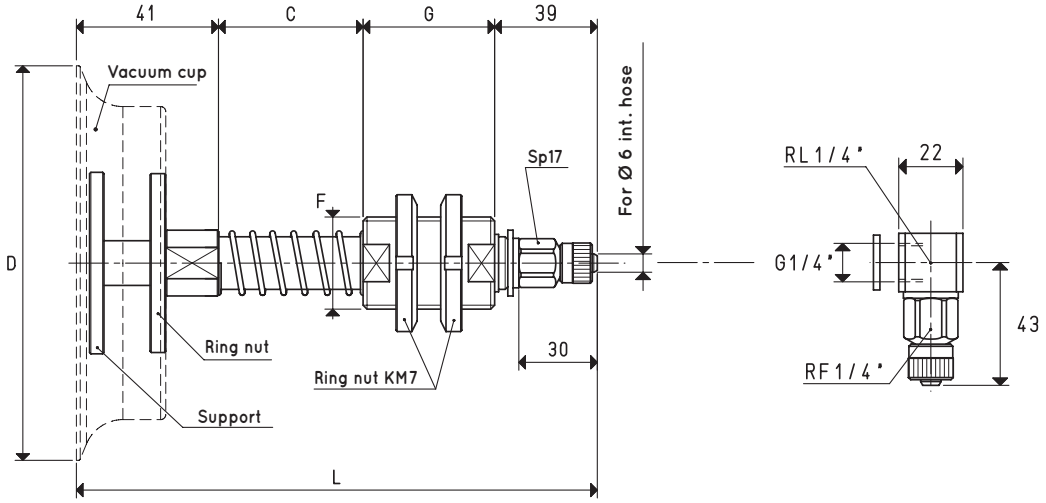

VERSION 06 150 36

VERSION 06 150 36 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	F Ø	G	L	For vacuum cup item	Support included item	Ring included item	Weight Kg
06 150 36	55	37	70.63	150	M35 x 1.5	50	185	01 150 36	00 08 112	00 08 113	1.08
	110	84	35.31	150	M35 x 1.5	50	240	01 150 36	00 08 112	00 08 113	1.22

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
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To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

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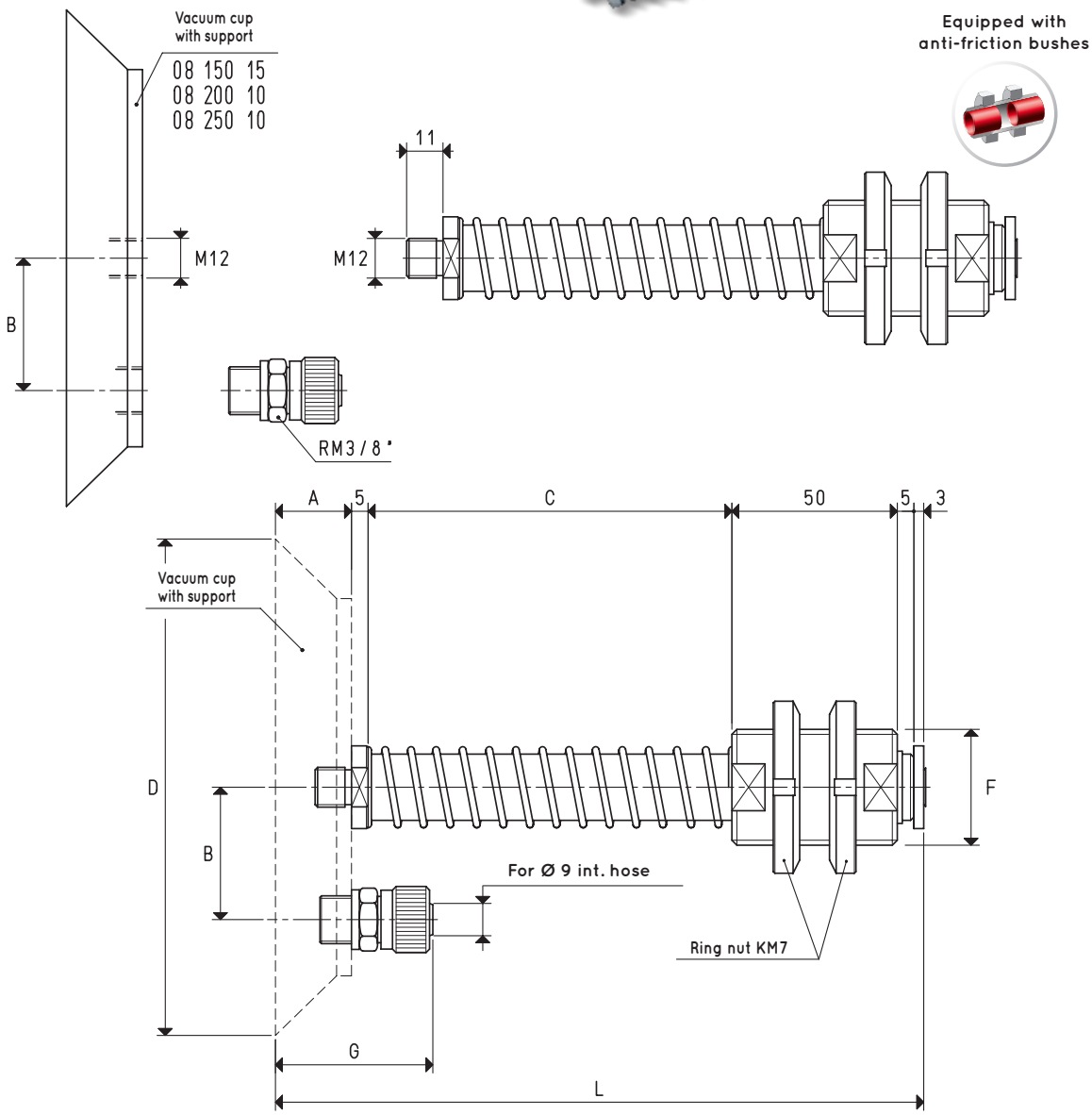

VERSION 06 ... ..

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	F Ø	G	L	For vacuum cup item	Weight g
06 150 15	55	37	70.63	26	40.0	150	M35 x 1.5	50	144	08 150 15	680
	110	84	35.31	26	40.0	150	M35 x 1.5	50	199	08 150 15	810
06 200 10	55	37	70.63	28	47.5	200	M35 x 1.5	52	146	08 200 10	670
	110	84	35.31	28	47.5	200	M35 x 1.5	52	201	08 200 10	790
06 250 10	55	37	70.63	28	72.5	250	M35 x 1.5	52	146	08 250 10	680
	110	84	35.31	28	72.5	250	M35 x 1.5	52	201	08 250 10	800

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
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Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

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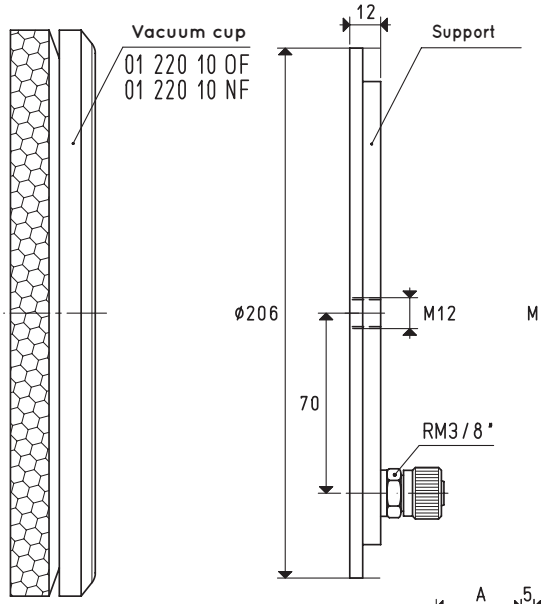
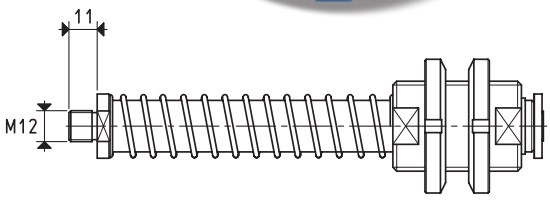
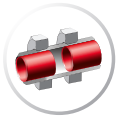
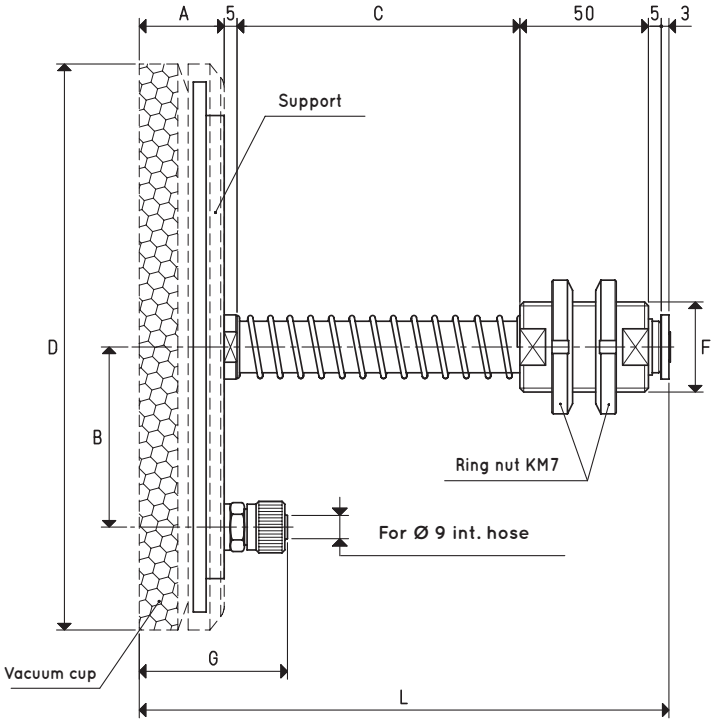






Equipped with anti-friction bushes



VERSION 06 220 10 . .

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	F Ø	G	L	For vacuum cup item	Support included item	Weight g
06 220 10 OF	55	37	70.63	35	70	220	M35 x 1.5	61	153	01 220 10 OF	00 08 37	870
	110	84	35.31	35	70	220	M35 x 1.5	61	208	01 220 10 OF	00 08 37	990
06 220 10 NF	55	37	70.63	35	70	220	M35 x 1.5	61	153	01 220 10 NF	00 08 37	860
	110	84	35.31	35	70	220	M35 x 1.5	61	208	01 220 10 NF	00 08 37	980

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
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* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

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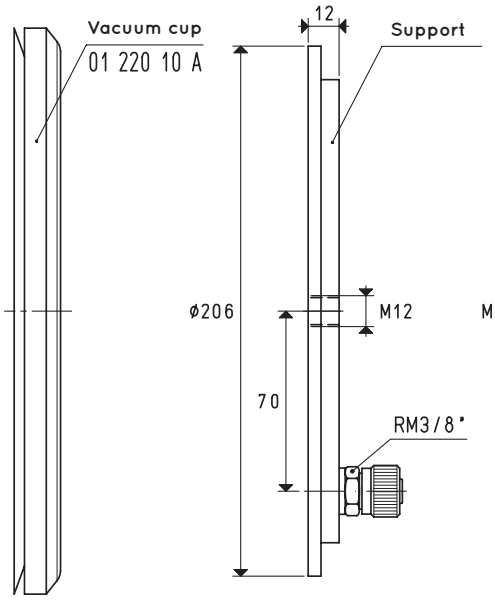
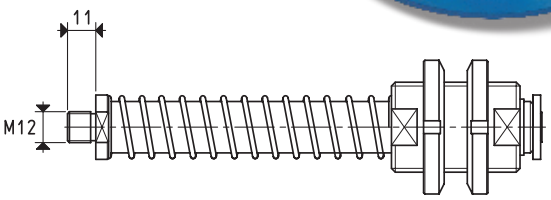
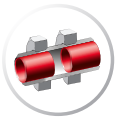
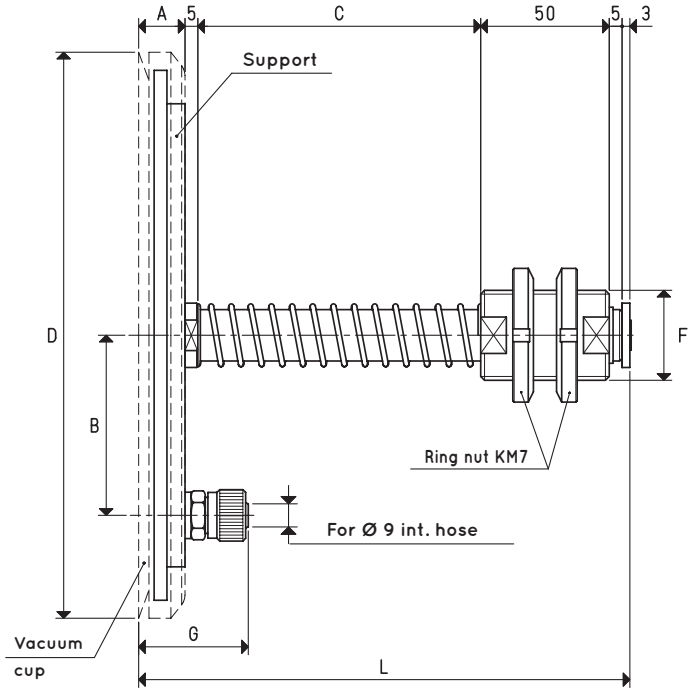






Equipped with anti-friction bushes



VERSION 06 220 10 A

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

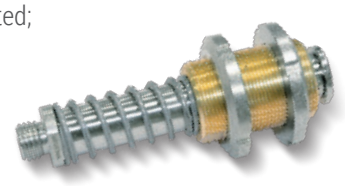
Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	F Ø	G	L	For vacuum cup item	Support included item	Weight g
06 220 10 A	55	37	70.63	20	70	220	M35 x 1.5	44	138	01 220 10 A	00 08 37	810
	110	84	35.31	20	70	220	M35 x 1.5	44	193	01 220 10 A	00 08 37	940

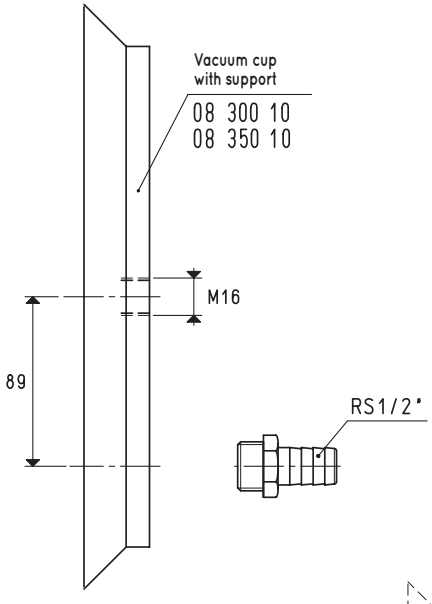
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

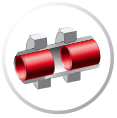
SPECIAL VACUUM CUP HOLDERS

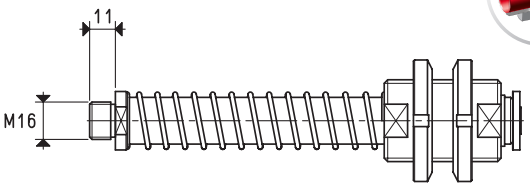
These special vacuum cup holders have been designed to lift and handle heavy loads and to withstand heavy-duty and continuous workloads in dusty or damp environments. They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction; bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose.

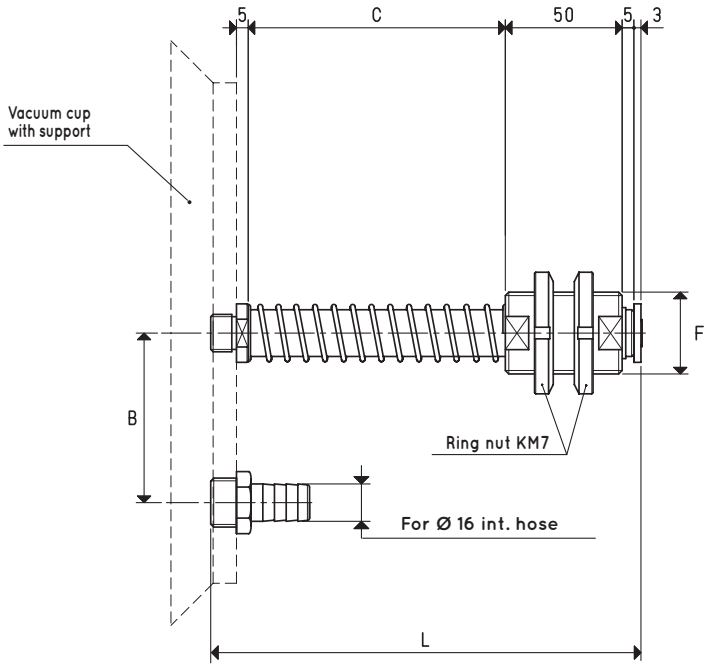




Equipped with anti-friction bushes







VERSION 06 300 10

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

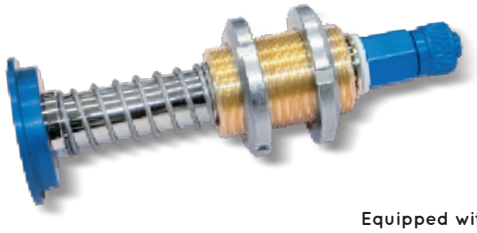
Item	*C	Actual spring stroke mm	Spring thrust force N	B	F Ø	L	Weight Kg
06 300 10	55	37	70.63	89	M35 x 1.5	129	0.860
	110	84	35.31	89	M35 x 1.5	184	2.730
06 350 10	55	37	138.32	89	M35 x 1.5	129	0.860
	110	84	81,42	89	M35 x 1.5	184	2.730
			For vacuum cup item				
			08 300 10				
			08 350 10				

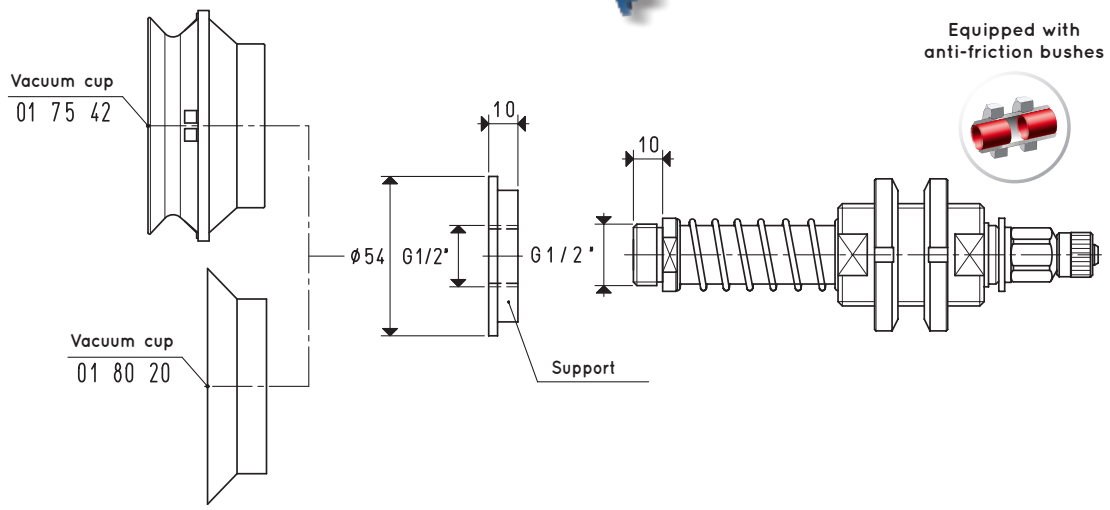
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

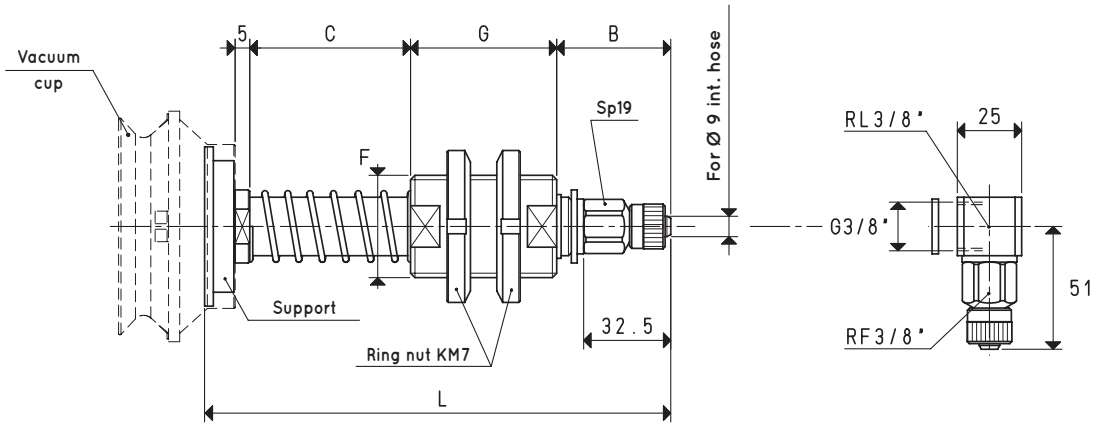
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS

These special vacuum cup holders have been designed to lift and handle heavy loads and to withstand heavy-duty and continuous workloads in dusty or damp environments. They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction; bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose.







VERSION 06 . . . .

VERSION 06 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

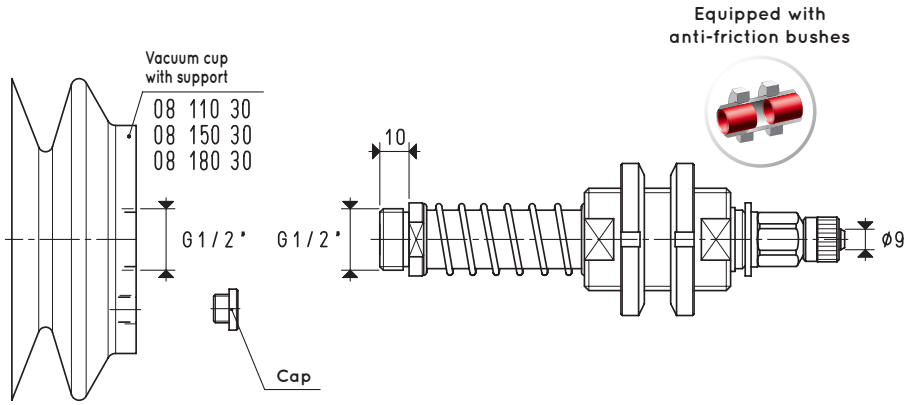
Item	*C	Actual spring stroke mm	Spring thrust force N	B	F Ø	G	L	Support included item	Weight Kg
06 75 42	55	37	70.63	45	M35 x 1.5	50	165	00 08 143	0.72
	110	84	35.31	45	M35 x 1.5	50	220	00 08 143	0.82
				For vacuum cup item					
				01 75 42					
				01 80 20					

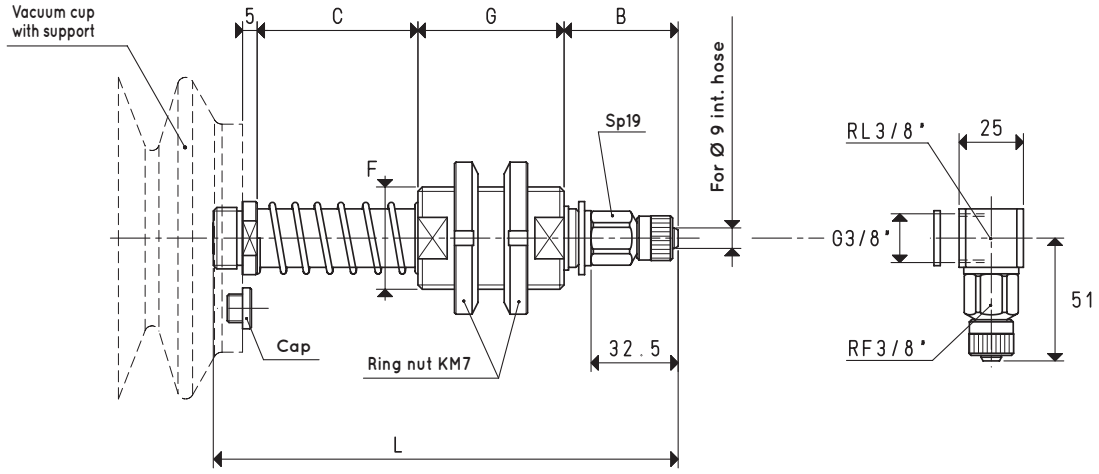
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS

These special vacuum cup holders have been designed to lift and handle heavy loads and to withstand heavy-duty and continuous workloads in dusty or damp environments.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction; bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose.





VERSION 06 . . . 30

VERSION 06 . . . 30 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

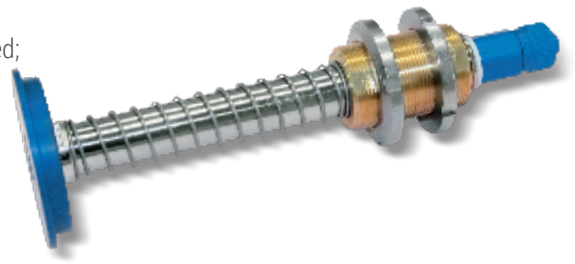
Item	*C	Actual spring stroke mm	Spring thrust force N	B	F Ø	G	L	Cap included item	Weight Kg
06 110 30	55	37	70.63	45	M35 x 1.5	50	165	00 11 44	0.62
	110	84	35.31	45	M35 x 1.5	50	220	00 11 44	0.73
				For vacuum cup item					
				08 110 30					
				08 150 30					
				08 180 30					

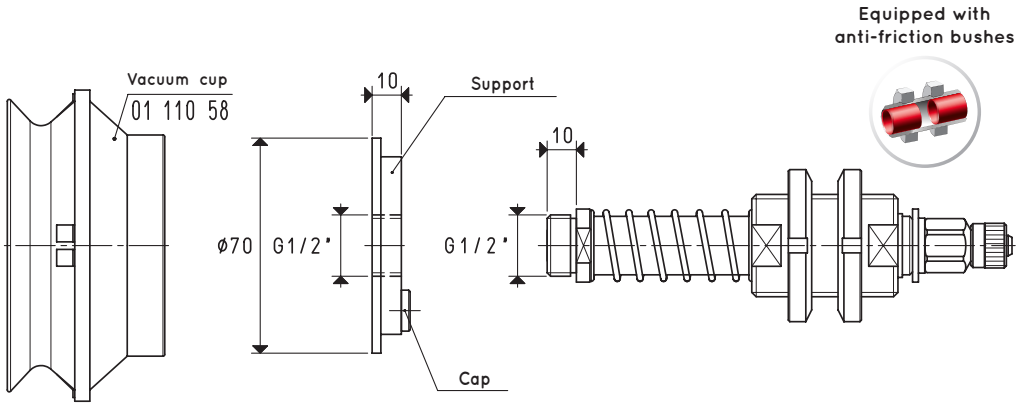
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

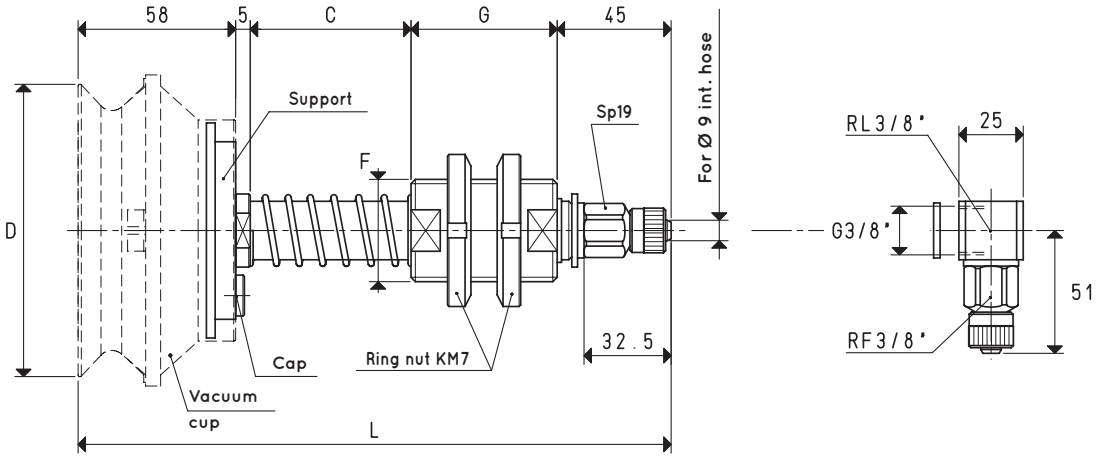
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS

These special vacuum cup holders have been designed to lift and handle heavy loads and to withstand heavy-duty and continuous workloads in dusty or damp environments.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction; bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose.







VERSION 06 110 58

VERSION 06 110 58 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

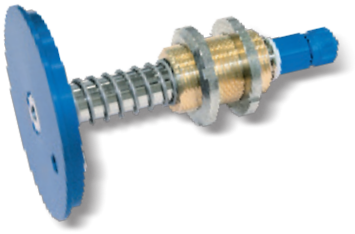
Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	F Ø	G	L	For vacuum cup item	Support included item	Cap included item	Weight Kg
06 110 58	55	37	70.63	110	M35 x 1.5	50	213	01 110 58	00 08 162	00 11 44	0.81
	110	84	35.31	110	M35 x 1.5	50	268	01 110 58	00 08 162	00 11 44	0.92

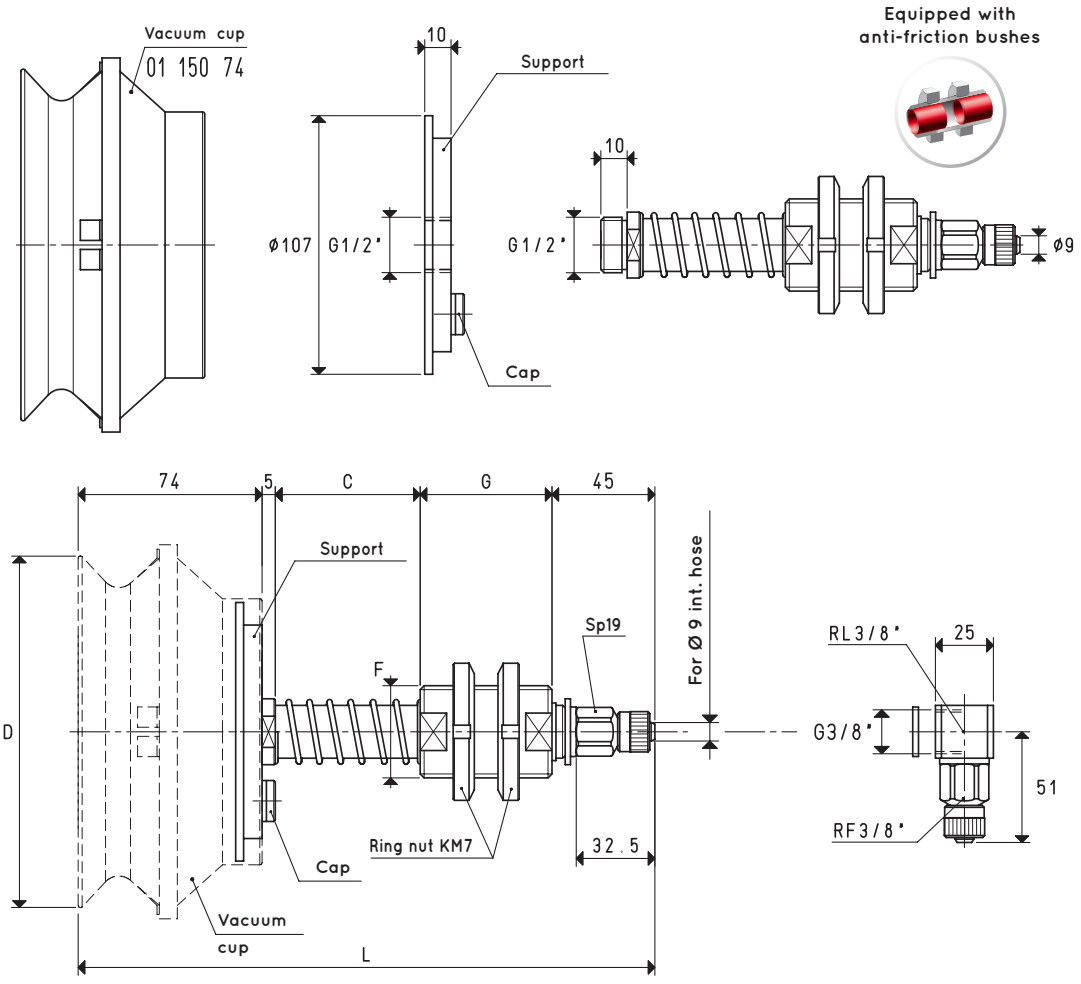
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS

These special vacuum cup holders have been designed to lift and handle heavy loads and to withstand heavy-duty and continuous workloads in dusty or damp environments.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction; bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose.





VERSION 06 150 74

VERSION 06 150 74 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

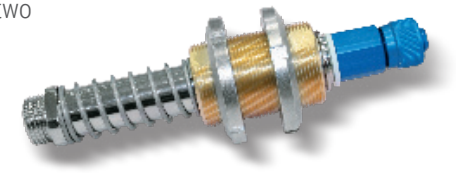
Item	*C	Actual spring stroke mm	Spring thrust force N	D Ø	F Ø	G	L	For vacuum cup item	Support included item	Cap included item	Weight Kg
06 150 74	55	37	70.63	150	M35 x 1.5	50	229	01 150 74	00 08 163	00 11 44	1.10
	110	84	35.31	150	M35 x 1.5	50	284	01 150 74	00 08 163	00 11 44	1.19

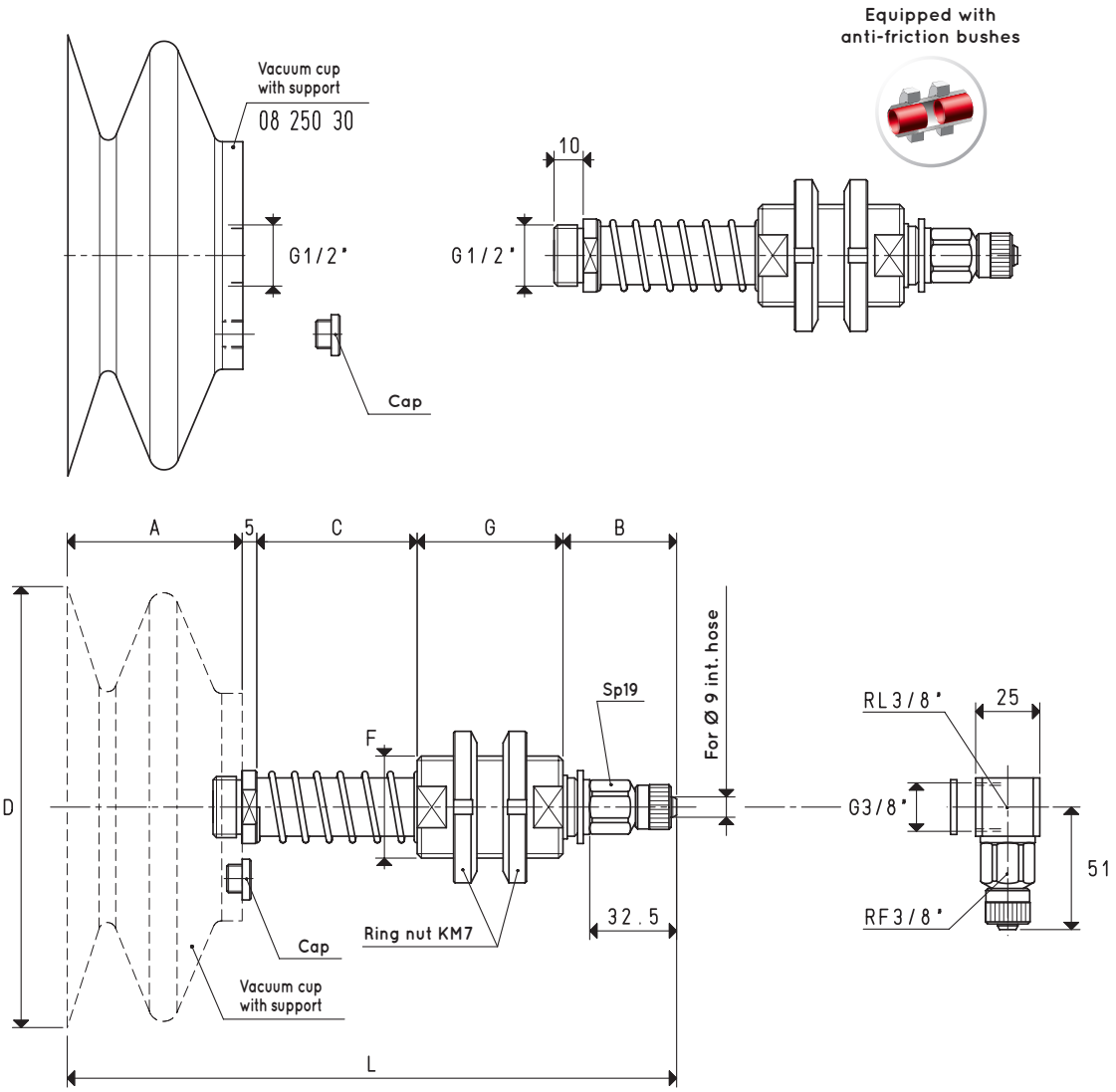
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS

These special vacuum cup holders have been designed to lift and handle heavy loads and to withstand heavy-duty and continuous workloads in dusty or damp environments.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction; bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose.





VERSION 06 250 30 VERSION 06 250 30 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

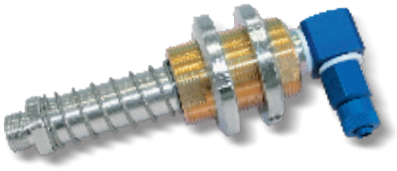
Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	F Ø	G	L	For vacuum cup item	Cap included item	Weight Kg
06 250 30	55	37	70.63	100	45	250	M35 x 1.5	50	255	08 250 30	00 18 33	0.66
	110	84	35.31	100	45	250	M35 x 1.5	50	310	08 250 30	00 18 33	0.77

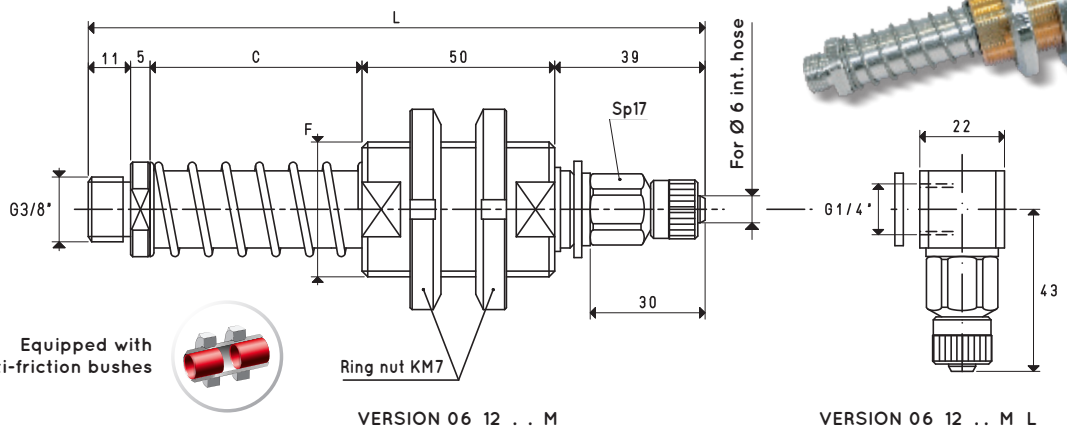
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS WITH MALE AND FEMALE THREADED CONNECTORS

Special vacuum cup holders with male threaded connectors





VERSION 06 12 . . M

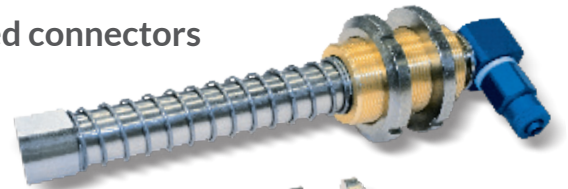
VERSION 06 12 . . M L

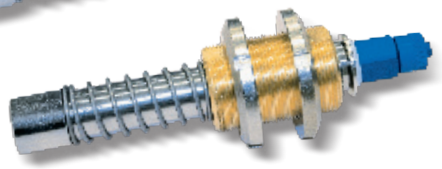
VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

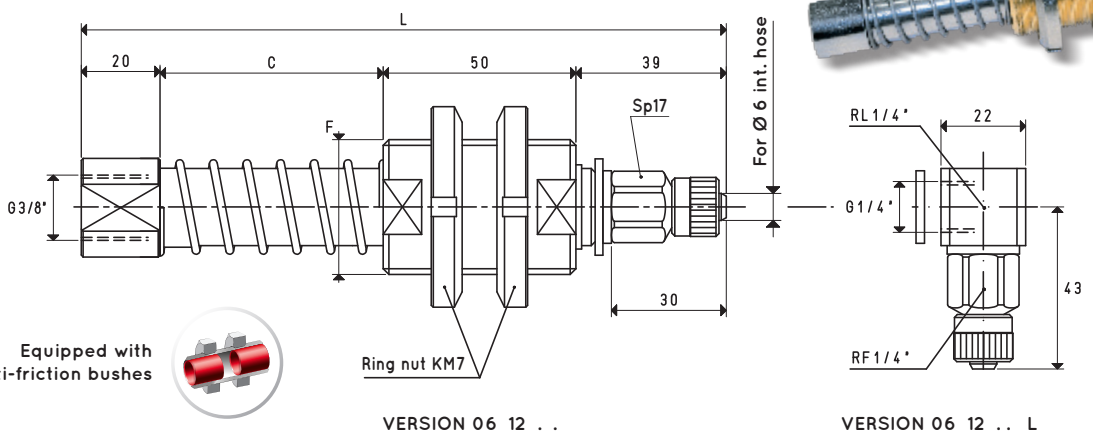
Item	*C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Weight Kg
06 12 55 M	55	37	70.63	M35 x 1.5	160	0.63
06 12 110 M	110	84	35.31	M35 x 1.5	215	0.77

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
To order vacuum cup holders with L fittings, add the letter L to the code.

Special vacuum cup holders with female threaded connectors







VERSION 06 12 . .

VERSION 06 12 . . L

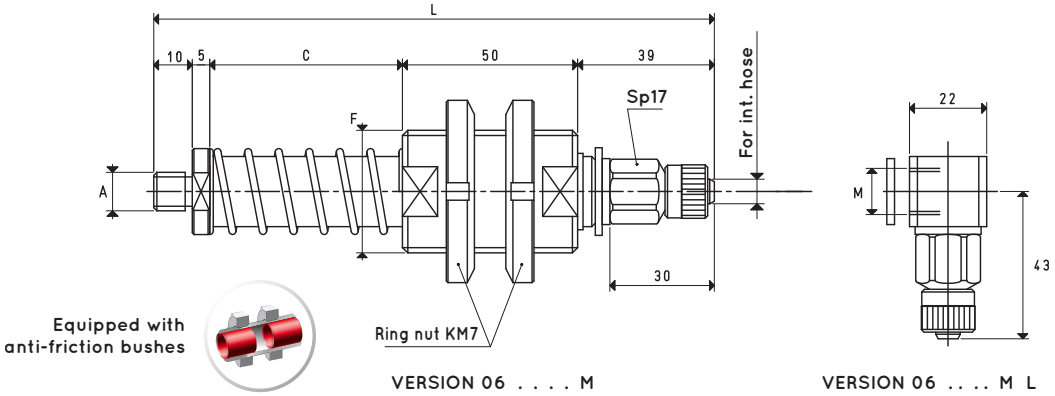
VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Weight Kg
06 12 55	55	37	70.63	M35 x 1.5	164	0.62
06 12 110	110	84	35.31	M35 x 1.5	219	0.75

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
To order vacuum cup holders with L fittings, add the letter L to the code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

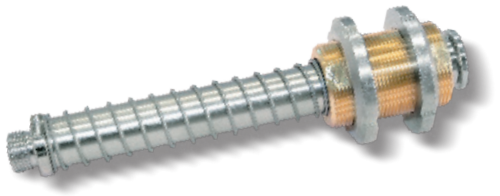
SPECIAL VACUUM CUP HOLDERS WITH MALE THREADED CONNECTORS

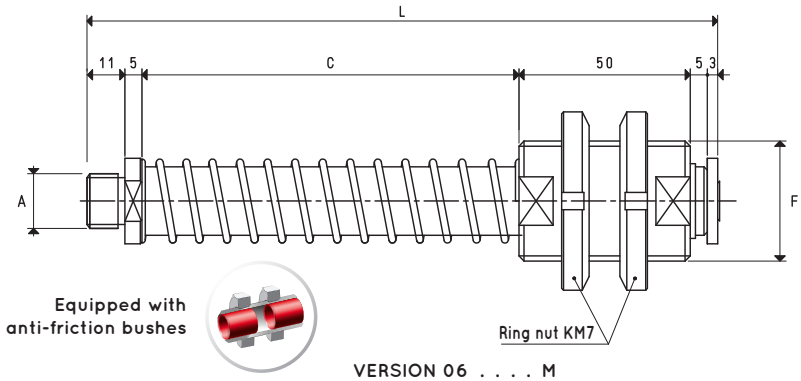


VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	A	F Ø	L	M	Int. hose Ø	Weight Kg
06 11 55 M	55	37	70.63	M12	M35 x 1.5	159	G1/4"	6	0.63
06 11 110 M	110	84	35.31	M12	M35 x 1.5	214	G1/4"	6	0.77
06 13 55 M	55	37	70.63	G1/2"	M35 x 1.5	159	G3/8"	9	0.63
06 13 110 M	110	84	35.31	G1/2"	M35 x 1.5	214	G3/8"	9	0.77

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
To order vacuum cup holders with L fittings, add the letter L to the code.





VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	A	F Ø	L	Weight Kg
06 14 55 M	55	37	70.63	M16	M35 x 1.5	129	0.52
06 14 110 M	110	84	35.31	M16	M35 x 1.5	184	0.65
06 15 55 M	55	37	70.63	M12	M35 x 1.5	129	0.52
06 15 110 M	110	84	35.31	M12	M35 x 1.5	184	0.65

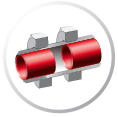
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cup holder is not equipped with an axial vacuum passage.

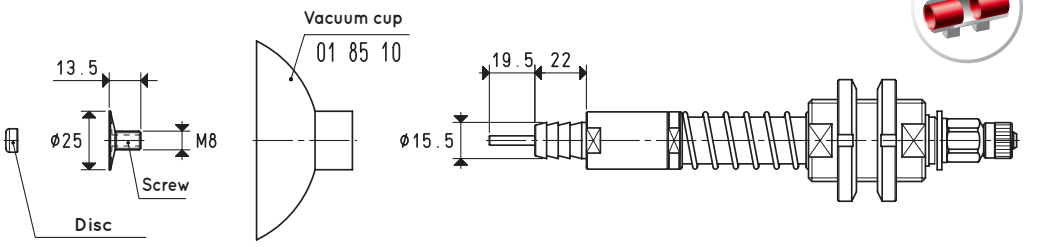
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS WITH PLUNGER VALVE

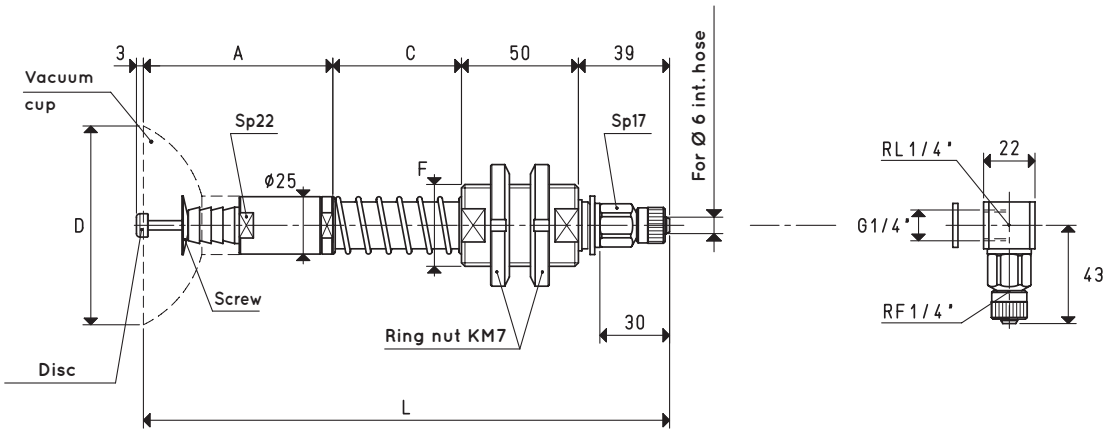
They share the same mechanical features as basic vacuum cup holders. Their distinctive feature is the plunger valve solidly connected to a conical spear valve, which activates suction, and therefore creates vacuum, only when the cup comes into contact with the load to be lifted.
With these cup holders, it is no longer necessary to install cocks on the suction hoses; for this reason, they are recommended in all those cases in which there is a chance that not all the cups come into contact with the load to be lifted (because of an uneven or incomplete load).
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose;
- A solidly connected plunger valve with a conical shutte.

Equipped with anti-friction bushes





VERSION 06 85 20



VERSION 06 85 20 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	A	D Ø	F Ø	L	For vacuum cup item	Screw included item	Cap included item	Weight Kg
06 85 20	55	37	70.63	81	85	M35 x 1.5	225	01 85 10	00 20 13	00 03 22	0.80
	110	84	35.31	81	85	M35 x 1.5	280	01 85 10	00 20 13	00 03 22	0.92

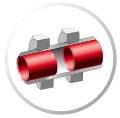
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

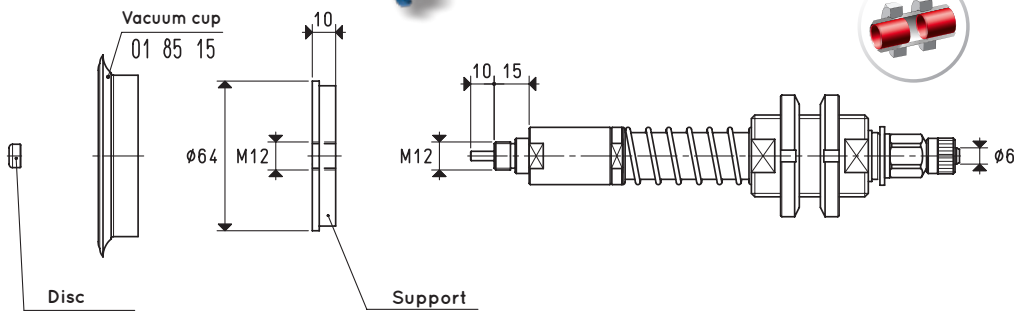
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

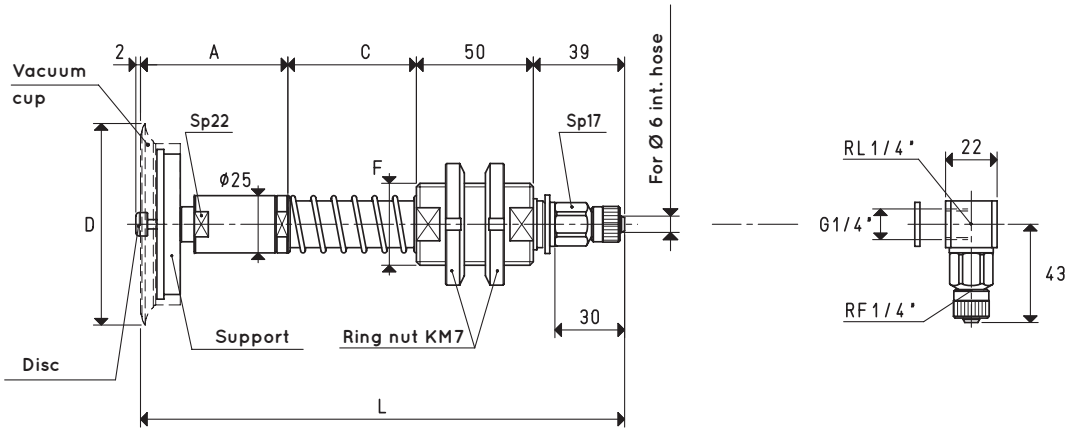
SPECIAL VACUUM CUP HOLDERS WITH PLUNGER VALVE

They share the same mechanical features as basic vacuum cup holders. Their distinctive feature is the plunger valve solidly connected to a conical spear valve, which activates suction, and therefore creates vacuum, only when the cup comes into contact with the load to be lifted. With these cup holders, it is no longer necessary to install cocks on the suction hoses; for this reason, they are recommended in all those cases in which there is a chance that not all the cups come into contact with the load to be lifted (because of an uneven or incomplete load).
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose;
- A solidly connected plunger valve with a conical shutte.

Equipped with anti-friction bushes







VERSION 06 85 22

VERSION 06 85 22 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	A	D Ø	F Ø	L	For vacuum cup item	Support included item	Cap included item	Weight Kg
06 85 22	55	37	70.63	65	85	M35 x 1.5	209	01 85 15	00 08 32	00 03 22	0.79
	110	84	35.31	65	85	M35 x 1.5	264	01 85 15	00 08 32	00 03 22	0.81

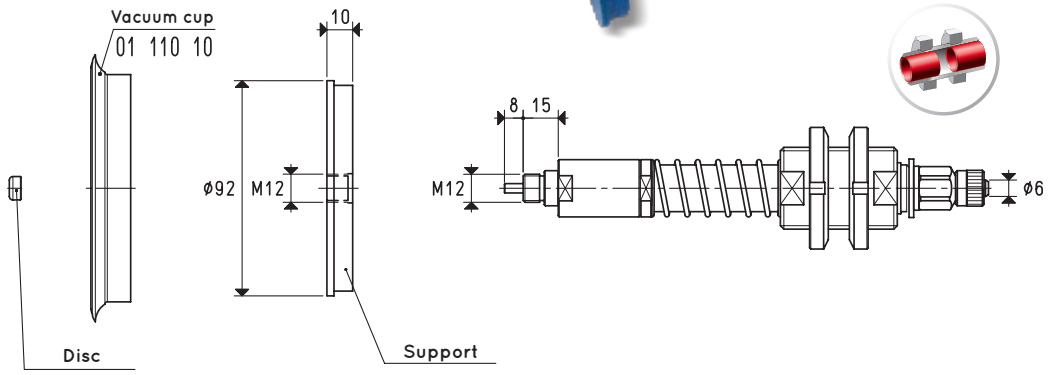
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

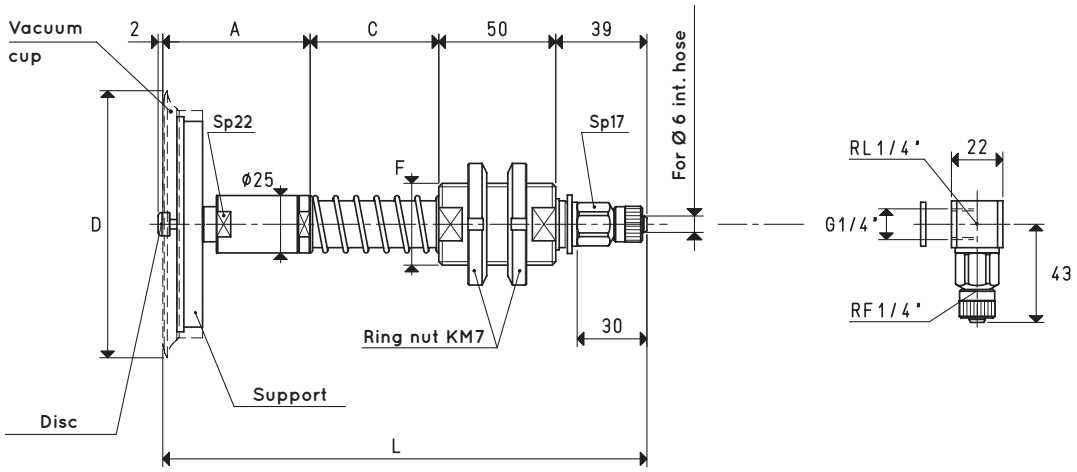
SPECIAL VACUUM CUP HOLDERS WITH PLUNGER VALVE

They share the same mechanical features as basic vacuum cup holders. Their distinctive feature is the plunger valve solidly connected to a conical spear valve, which activates suction, and therefore creates vacuum, only when the cup comes into contact with the load to be lifted. With these cup holders, it is no longer necessary to install cocks on the suction hoses; for this reason, they are recommended in all those cases in which there is a chance that not all the cups come into contact with the load to be lifted (because of an uneven or incomplete load).
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose;
- A solidly connected plunger valve with a conical shutte.

Equipped with anti-friction bushes



VERSION 06 110 20



VERSION 06 110 20 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

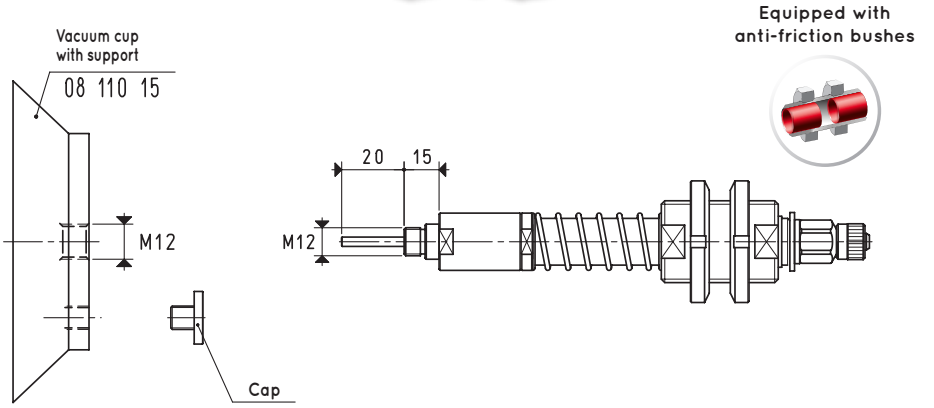
Item	*C	Actual spring stroke mm	Spring thrust force N	A	D Ø	F Ø	L	For vacuum cup item	Support included item	Cap included item	Weight Kg
06 110 20	55	37	70.63	65	114	M35 x 1.5	209	01 110 10	00 08 33	00 03 22	0.98
	110	84	35.31	65	114	M35 x 1.5	264	01 110 10	00 08 33	00 03 22	1.10

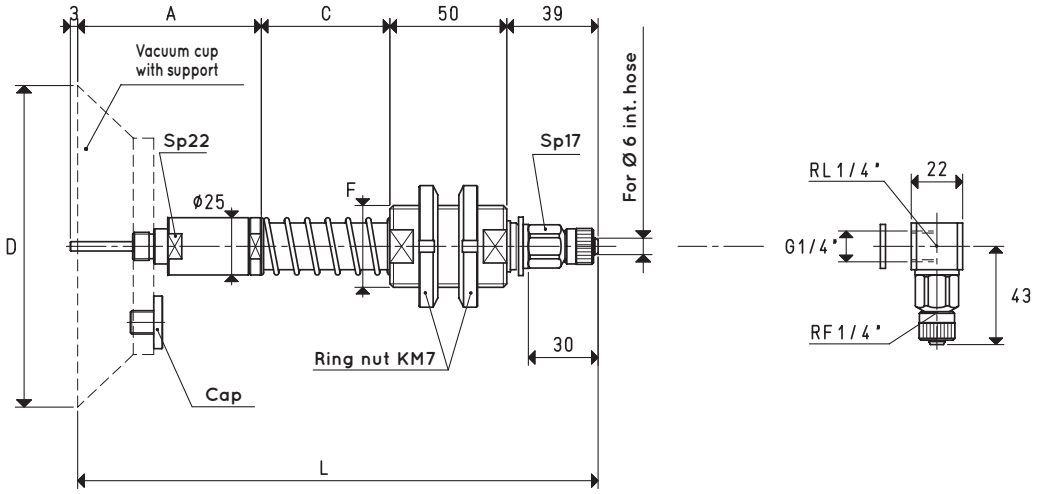
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS WITH PLUNGER VALVE

They share the same mechanical features as basic vacuum cup holders. Their distinctive feature is the plunger valve solidly connected to a conical spear valve, which activates suction, and therefore creates vacuum, only when the cup comes into contact with the load to be lifted. With these cup holders, it is no longer necessary to install cocks on the suction hoses; for this reason, they are recommended in all those cases in which there is a chance that not all the cups come into contact with the load to be lifted (because of an uneven or incomplete load).
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose;
- A solidly connected plunger valve with a conical shutte.





VERSION 06 110 22

VERSION 06 110 22 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

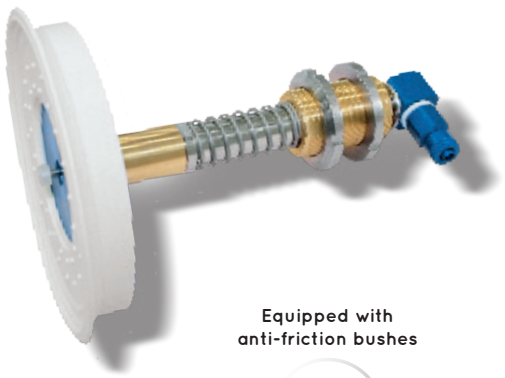
Item	*C	Actual spring stroke mm	Spring thrust force N	A	D Ø	F Ø	L	For vacuum cup item	Cap included item	Weight Kg
06 110 22	55	37	70.63	74	110	M35 x 1.5	218	08 110 15	00 11 06	1.13
	110	84	35.31	74	110	M35 x 1.5	273	08 110 15	00 11 06	1.21

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

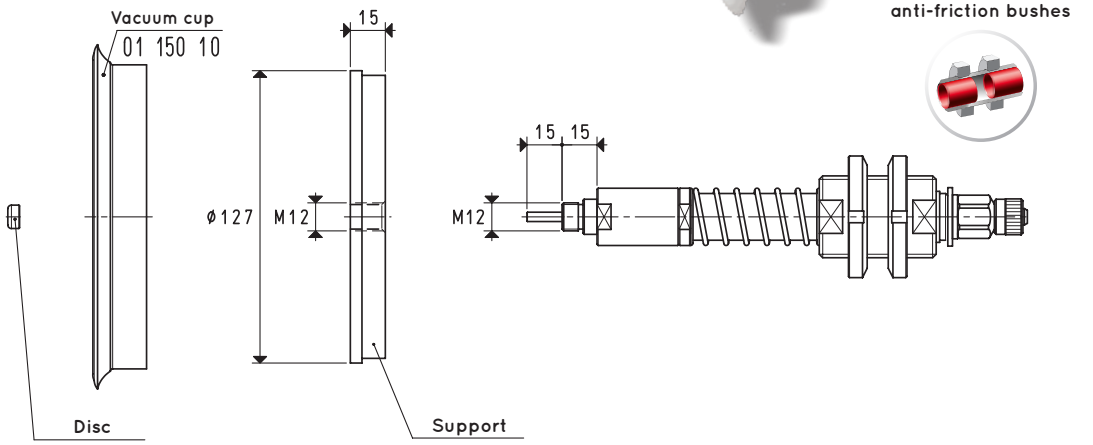
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS WITH PLUNGER VALVE

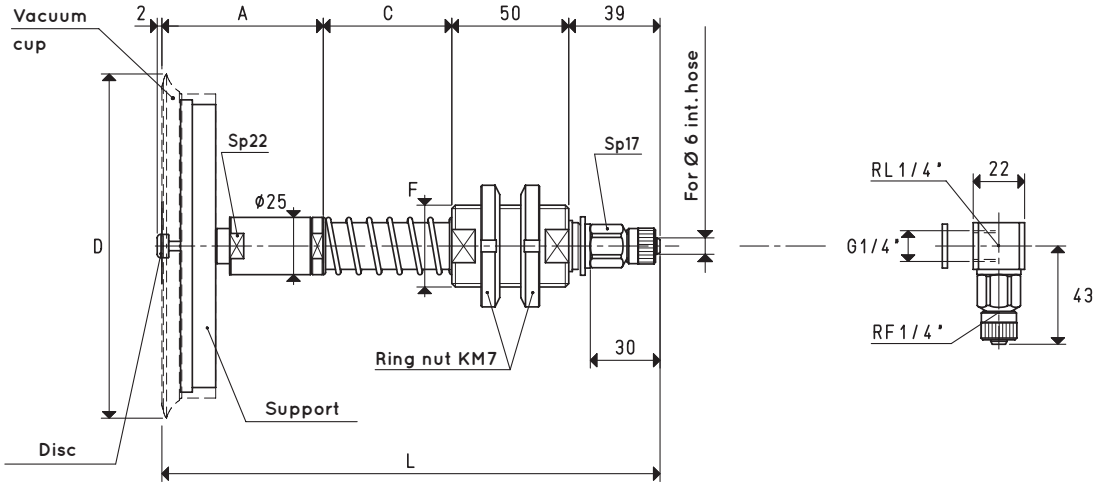
They share the same mechanical features as basic vacuum cup holders. Their distinctive feature is the plunger valve solidly connected to a conical spear valve, which activates suction, and therefore creates vacuum, only when the cup comes into contact with the load to be lifted. With these cup holders, it is no longer necessary to install cocks on the suction hoses; for this reason, they are recommended in all those cases in which there is a chance that not all the cups come into contact with the load to be lifted (because of an uneven or incomplete load).
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose;
- A solidly connected plunger valve with a conical shutte.



Equipped with anti-friction bushes



VERSION 06 150 20



VERSION 06 150 20 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	A	D Ø	F Ø	L	For vacuum cup item	Support included item	Cap included item	Weight g
06 150 20	55	37	70.63	71	154	M35 x 1.5	215	01 150 10	00 08 35	00 03 22	600
	110	84	35.31	71	154	M35 x 1.5	270	01 150 10	00 08 35	00 03 22	690

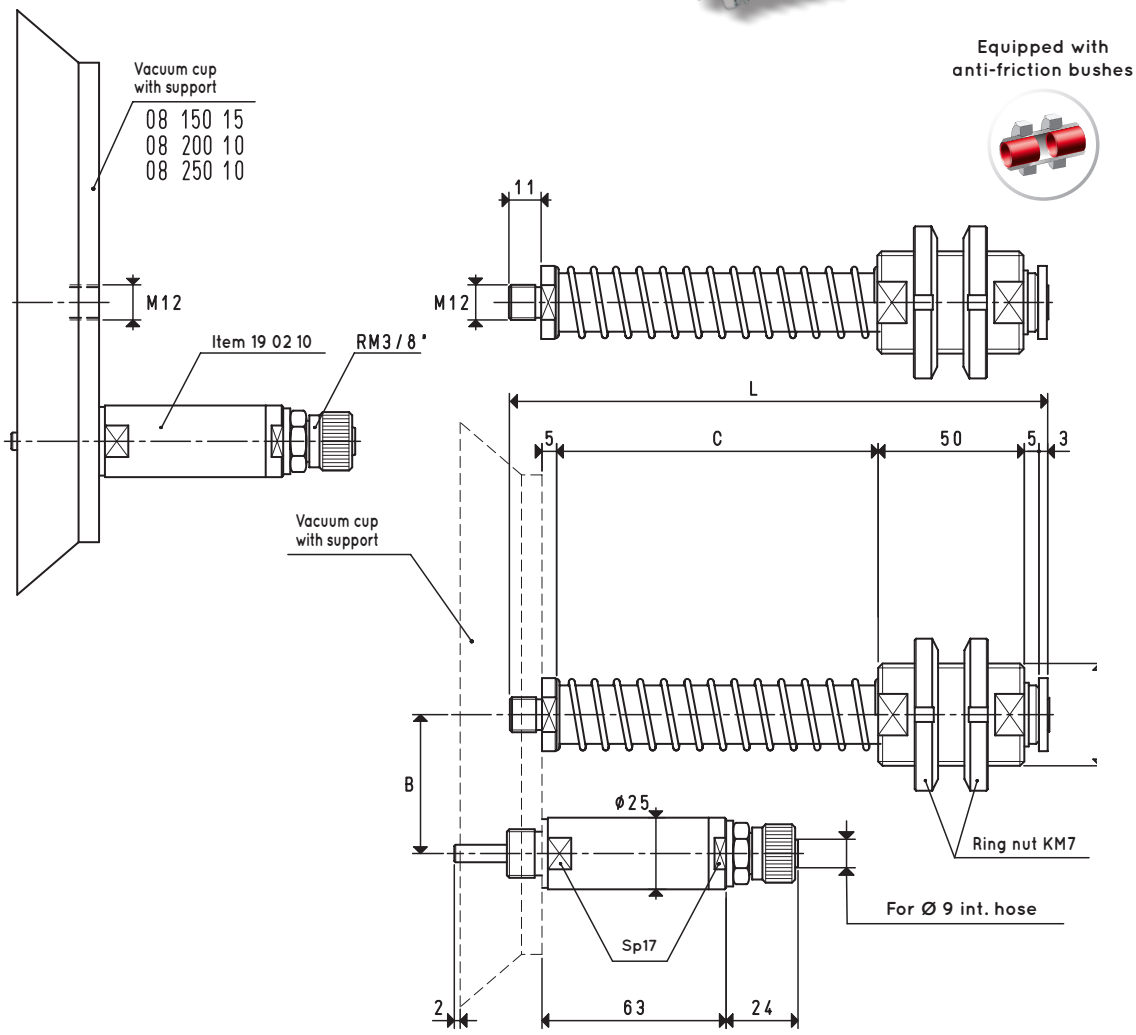
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS WITH PUSH VALVE

They share the same technical and mechanical features at the special vacuum cup holders. Their distinctive feature is the push valve on the cup support, which activates suction, and therefore creates vacuum, only when the cup is in contact with the load to be lifted.
With these cup holders, it is no longer necessary to install cocks on the suction hoses; for this reason, they are recommended in all those cases in which there is a chance that not all the cups come into contact with the load to be lifted (because of an uneven or incomplete load).
The same push valve can also be applied with no modification to the special articulated cup holders. They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose;
- A plunger valve.

Equipped with anti-friction bushes



VERSION 06 ... ..

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 9 X 12

Item	*C	Actual spring stroke mm	Spring thrust force N	F Ø	L	Weight Kg
06 150 22	55	37	70.63	M35 x 1.5	129	0.82
	110	84	35.31	M35 x 1.5	184	0.97
			For vacuum cup item			
			08 150 15			
			08 200 10			
			08 250 10			

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

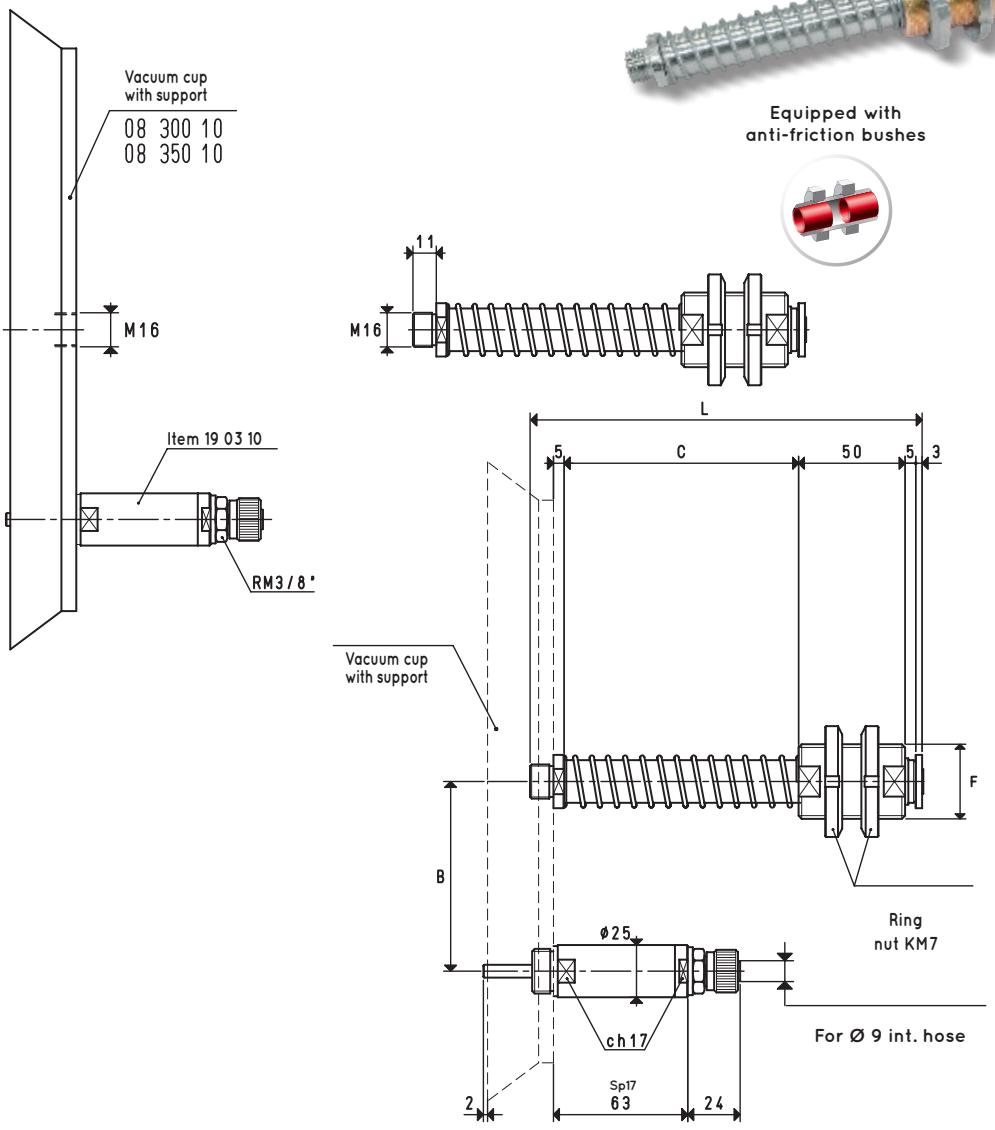
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS WITH PUSH VALVE

They share the same technical and mechanical features at the special vacuum cup holders. Their distinctive feature is the push valve on the cup support, which activates suction, and therefore creates vacuum, only when the cup is in contact with the load to be lifted. With these cup holders, it is no longer necessary to install cocks on the suction hoses; for this reason, they are recommended in all those cases in which there is a chance that not all the cups come into contact with the load to be lifted (because of an uneven or incomplete load). The same push valve can also be applied with no modification to the special articulated cup holders.

They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose;
- A plunger valve.

Equipped with anti-friction bushes



VERSION 06 ... 20

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 9 X 12

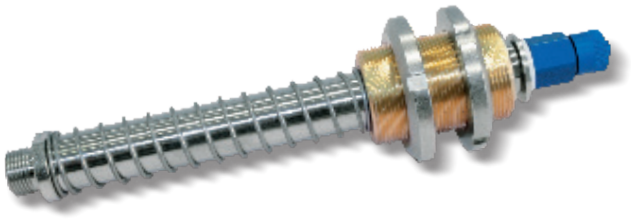
Item	*C	Actual spring stroke mm	Spring thrust force N	B	F Ø	L	Weight Kg
06 300 20	55	37	70.63	89	M35 x 1.5	120	0.86
	110	84	35.31	89	M35 x 1.5	175	0.98
06 350 20	55	37	138.32	89	M35 x 1.5	120	0.86
	110	84	81,42	89	M35 x 1.5	175	0.98
	For vacuum cup item						
	08 300 10						
	08 350 10						

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

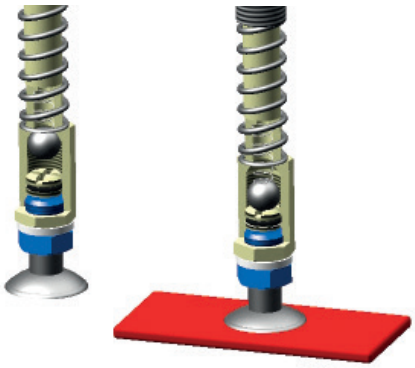
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS WITH BUILT-IN SHUT-OFF VALVE

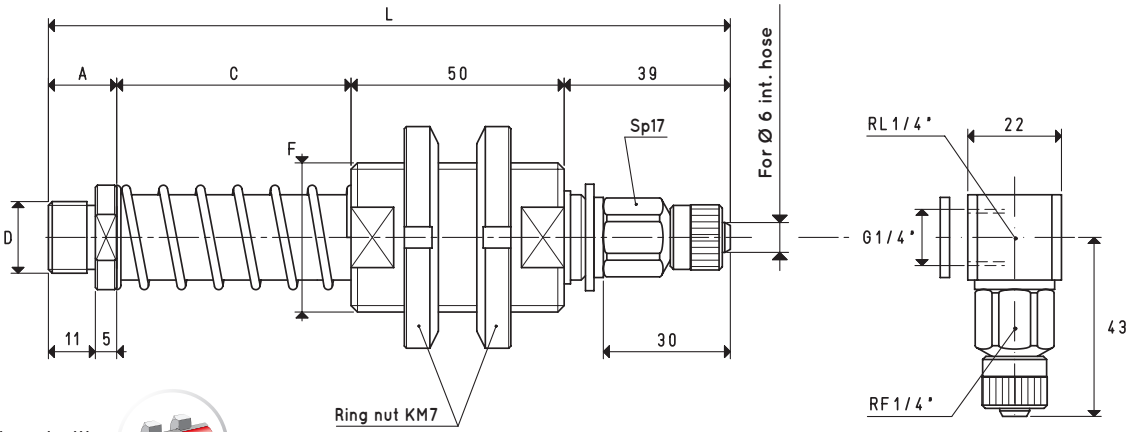
Along with all the other features they share with the other special vacuum cup holders, , these have a built-in shut-off valve. The purpose of the shut-off valve is to automatically close suction when the cup is not in contact with the surface of the load to be handled or in case of a faulty grip or of considerable transpiration.
This thus prevents the reduction of the level of vacuum on the remaining cups of the system which are regularly handling the load. The clear advantage of this system is that the positioning or the exclusion of the non-gripping cups are no longer binding.
Cups with diameters between 85 mm and 150 mm can be assembled onto these cup holders, as long as they are provided with a threaded 3/8" gas female support.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose;
- A shut-off valve.



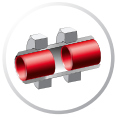
VACUUM ON OBJECT NOT GRIPPED VALVE CLOSED



VACUUM ON OBJECT GRIPPED VALVE OPEN



Equipped with anti-friction bushes



VERSION 06 ... ..

VERSION 06 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	Portata minima di innesco m³/h	Grado di vuoto minimo mbar	C	Actual spring stroke mm	Forza di spinta della molla N	A	D Ø	F Ø	L	Weight g
06 99 55	4	-250	28	16	70.63	16	G3/8"	M35 x 1.5	160	0.63
06 99 110	4	-250	65	49	35.31	16	G3/8"	M35 x 1.5	215	0.77

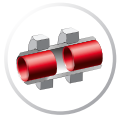
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.

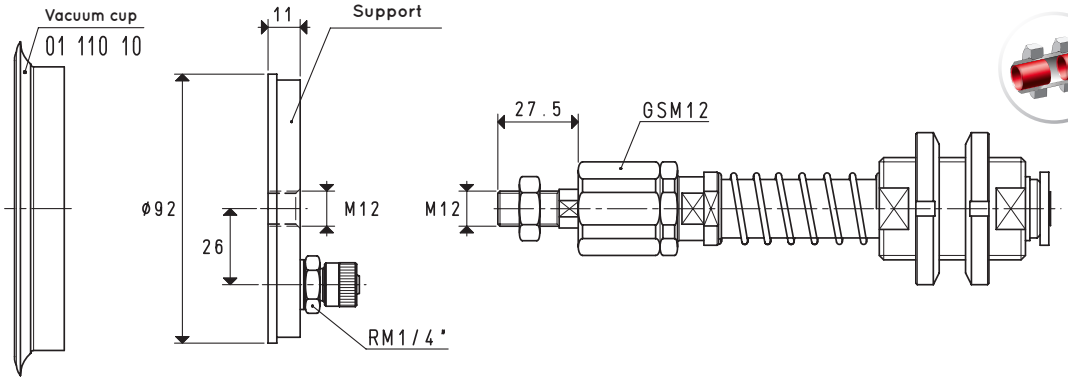
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

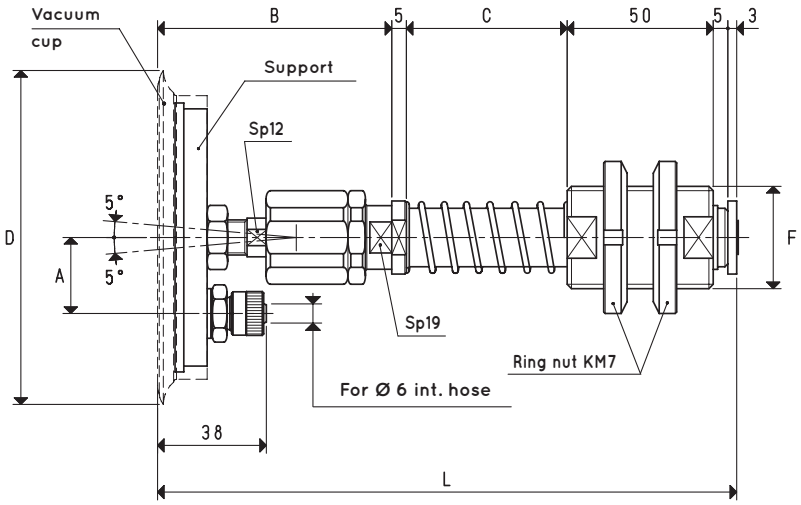
SPECIAL ARTICULATED VACUUM CUP HOLDERS

The distinctive feature of these cup holders is their articulated joint in hardened steel, which allows the flat cups installed on these cup holders to adapt themselves to the loads to be lifted even if not completely parallel with the cup plane, as well as to compensate possible verticality errors that can arise between the cup holder and the automation fixing support. Their technical and mechanical features are the same as the other previously described special vacuum cup holders.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose;
- An articulated joint in galvanised steel.

Equipped with anti-friction bushes







VERSION 06 110 12

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	F Ø	L	For vacuum cup item	Support included item	Weight kg
06 110 12	55	37	70.63	26	77	114	M35 x 1.5	195	01 110 10	00 06 14	1.10
	110	84	35.31	26	77	114	M35 x 1.5	250	01 110 10	00 06 14	1.26

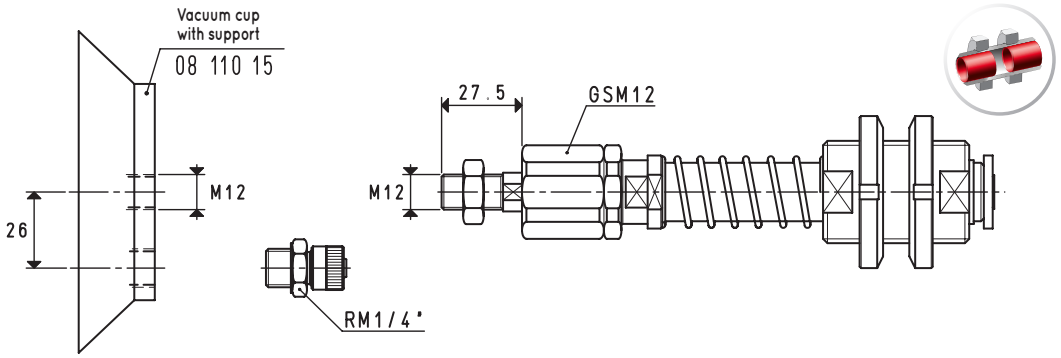
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

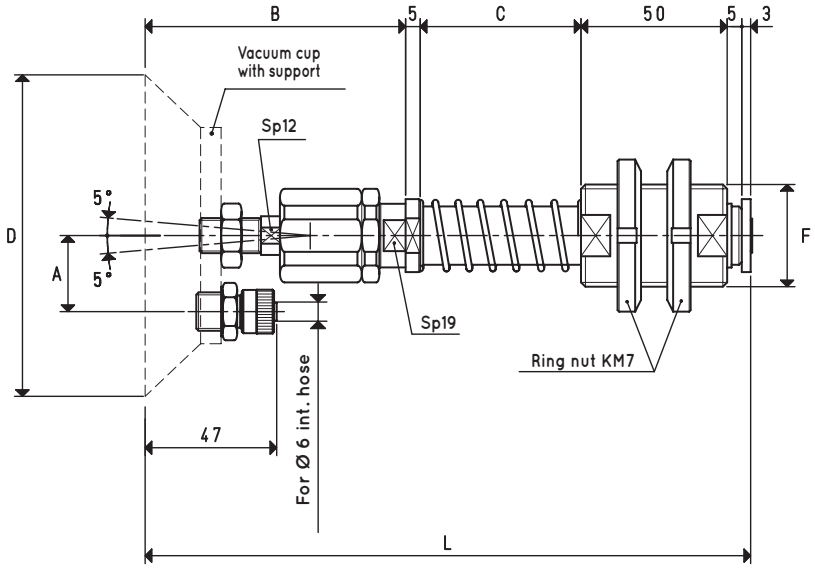
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL ARTICULATED VACUUM CUP HOLDERS

The distinctive feature of these cup holders is their articulated joint in hardened steel, which allows the flat cups installed on these cup holders to adapt themselves to the loads to be lifted even if not completely parallel with the cup plane, as well as to compensate possible verticality errors that can arise between the cup holder and the automation fixing support. Their technical and mechanical features are the same as the other previously described special vacuum cup holders.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose;
- An articulated joint in galvanised steel.

Equipped with anti-friction bushes





VERSION 06 110 17

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

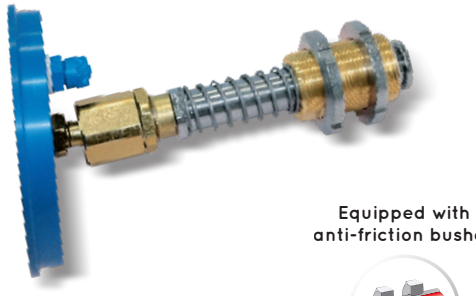
Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	F Ø	L	For vacuum cup item	Weight kg
06 110 17	55	37	70.63	26	86	110	M35 x 1.5	204	08 110 15	0.890
	110	84	35.31	26	86	114	M35 x 1.5	259	01 110 10	1.010

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

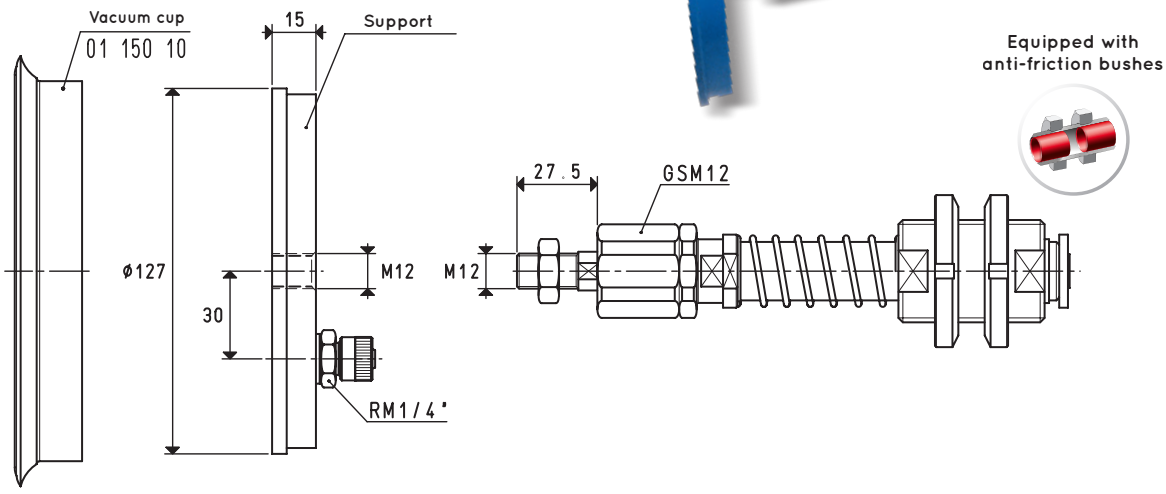
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

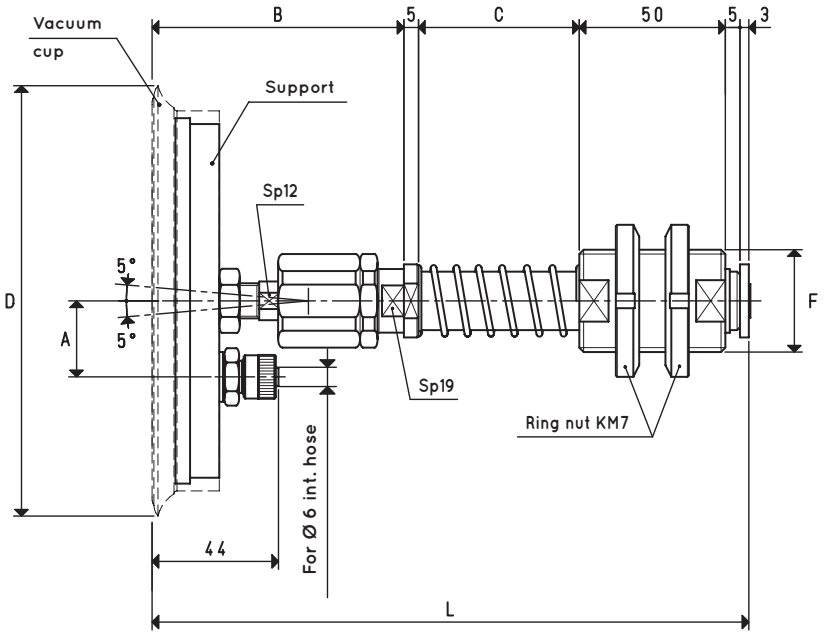
SPECIAL ARTICULATED VACUUM CUP HOLDERS

The distinctive feature of these cup holders is their articulated joint in hardened steel, which allows the flat cups installed on these cup holders to adapt themselves to the loads to be lifted even if not completely parallel with the cup plane, as well as to compensate possible verticality errors that can arise between the cup holder and the automation fixing support. Their technical and mechanical features are the same as the other previously described special vacuum cup holders.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose;
- An articulated joint in galvanised steel.



Equipped with anti-friction bushes





VERSION 06 150 12

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	F Ø	L	For vacuum cup item	Support included item	Weight kg
06 150 12	55	37	70.63	30	83	154	M35 x 1.5	201	01 150 10	00 06 15	1.451
	110	84	35.31	30	83	154	M35 x 1.5	256	01 150 10	00 06 15	1.464

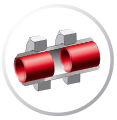
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

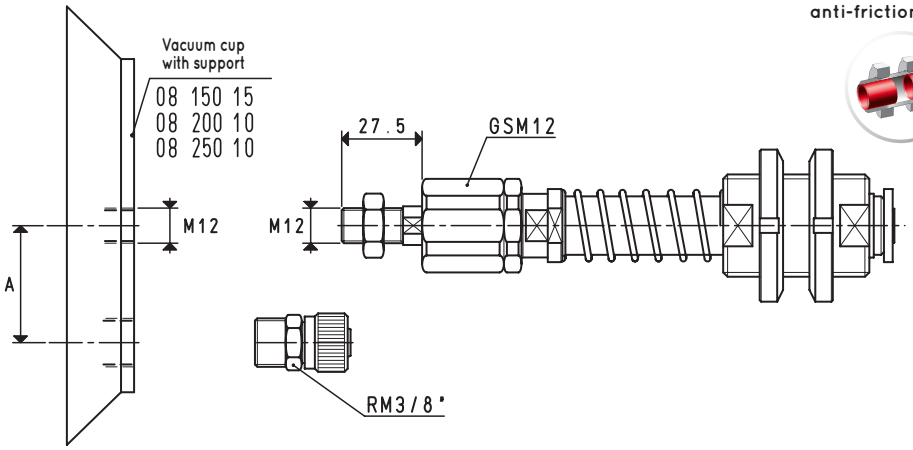
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

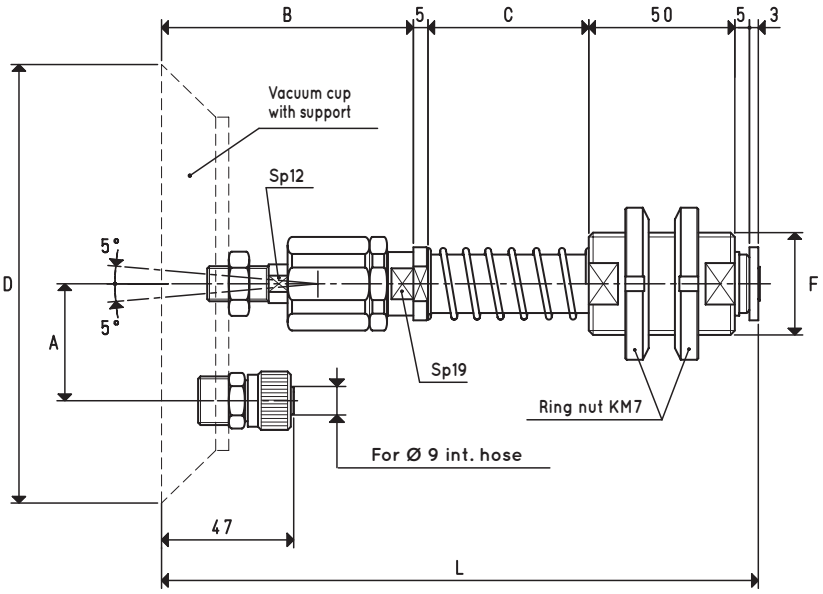
SPECIAL ARTICULATED VACUUM CUP HOLDERS

The distinctive feature of these cup holders is their articulated joint in hardened steel, which allows the flat cups installed on these cup holders to adapt themselves to the loads to be lifted even if not completely parallel with the cup plane, as well as to compensate possible verticality errors that can arise between the cup holder and the automation fixing support. Their technical and mechanical features are the same as the other previously described special vacuum cup holders.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose;
- An articulated joint in galvanised steel.

Equipped with anti-friction bushes







VERSION 06 . . . . .

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 9 X 12

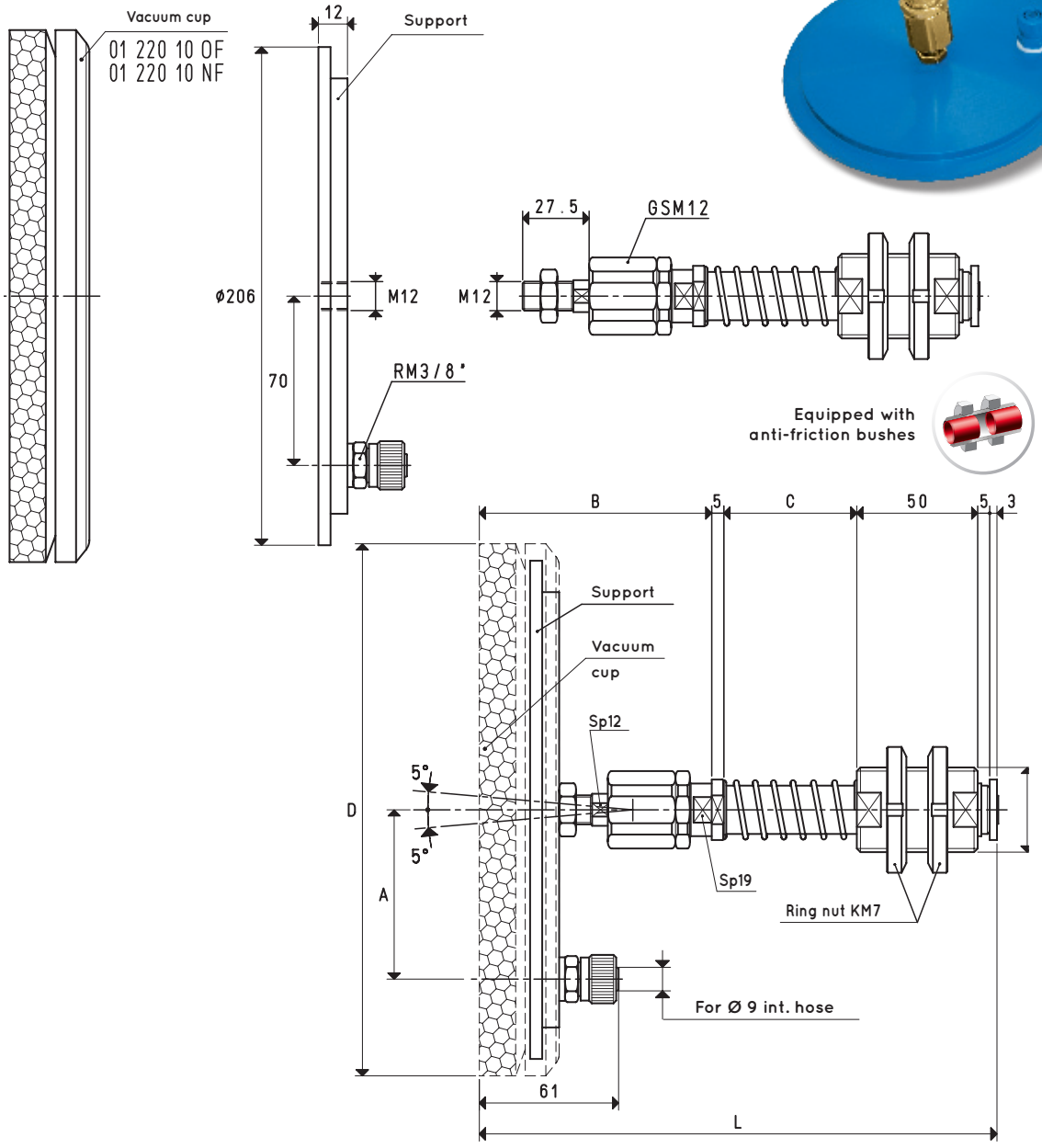
Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	F Ø	L	For vacuum cup item	Weight kg
06 150 17	55	37	70.63	40.0	86	150	M35 x 1.5	204	08 150 15	0.90
	110	84	35.31	40.0	86	150	M35 x 1.5	259	08 150 15	0.91
06 200 12	55	37	70.63	47.5	88	200	M35 x 1.5	206	08 200 10	0.88
	110	84	35.31	47.5	88	200	M35 x 1.5	259	08 200 10	0.89
06 250 12	55	37	70.63	72.5	88	250	M35 x 1.5	206	08 250 10	0.89
	110	84	35.31	72.5	88	250	M35 x 1.5	259	08 250 10	1.00

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL ARTICULATED VACUUM CUP HOLDERS

The distinctive feature of these cup holders is their articulated joint in hardened steel, which allows the flat cups installed on these cup holders to adapt themselves to the loads to be lifted even if not completely parallel with the cup plane, as well as to compensate possible verticality errors that can arise between the cup holder and the automation fixing support. Their technical and mechanical features are the same as the other previously described special vacuum cup holders.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose;
- An articulated joint in galvanised steel.



VERSION 06 220 12 . .

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 9 X 12

Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	F Ø	L	For vacuum cup item	Support included item	Weight kg
06 220 12 OF	55	37	70.63	70	97	220	M35 x 1.5	215	01 220 10 OF	00 08 37	2.08
	110	84	35.31	70	97	220	M35 x 1.5	270	01 220 10 OF	00 08 37	2.21
06 220 12 NF	55	37	70.63	70	97	220	M35 x 1.5	215	01 220 10 NF	00 08 37	2.07
	110	84	35.31	70	97	220	M35 x 1.5	270	01 220 10 NF	00 08 37	2.20

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

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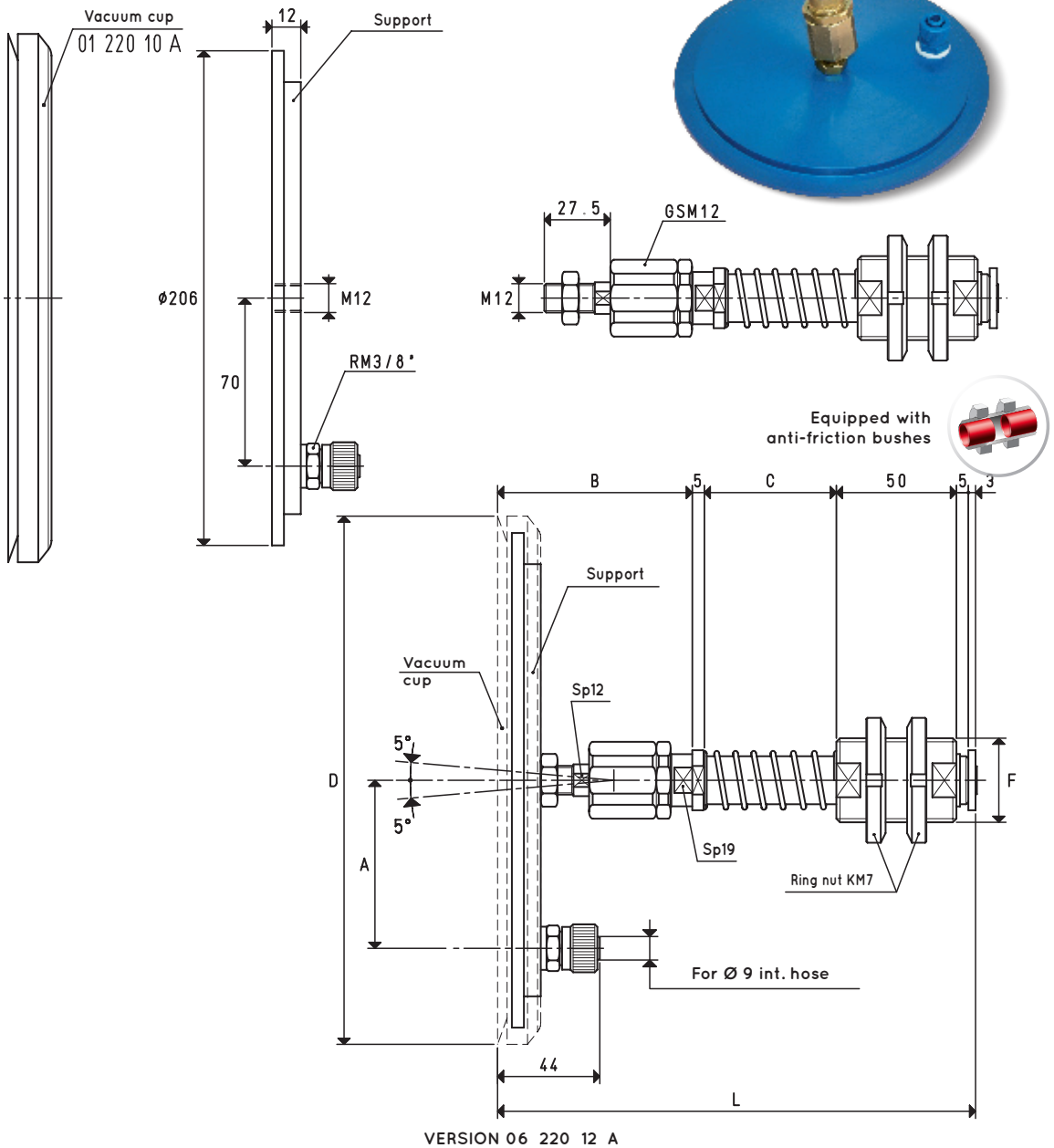
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A quick coupling for connection with the suction hose;
- An articulated joint in galvanised steel.



VERSION 06 220 12 A

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 9 X 12

Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	F Ø	L	For vacuum cup item	Support included item	Weight kg
06 220 12 A	55	37	70.63	70	80	220	M35 x 1.5	198	01 220 10 A	00 08 37	2.02
	110	84	35.31	70	80	220	M35 x 1.5	253	01 220 10 A	00 08 37	2.15

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL ARTICULATED VACUUM CUP HOLDERS

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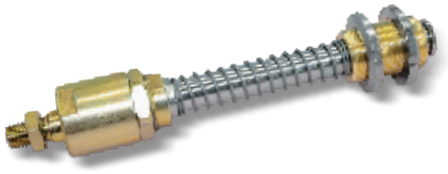
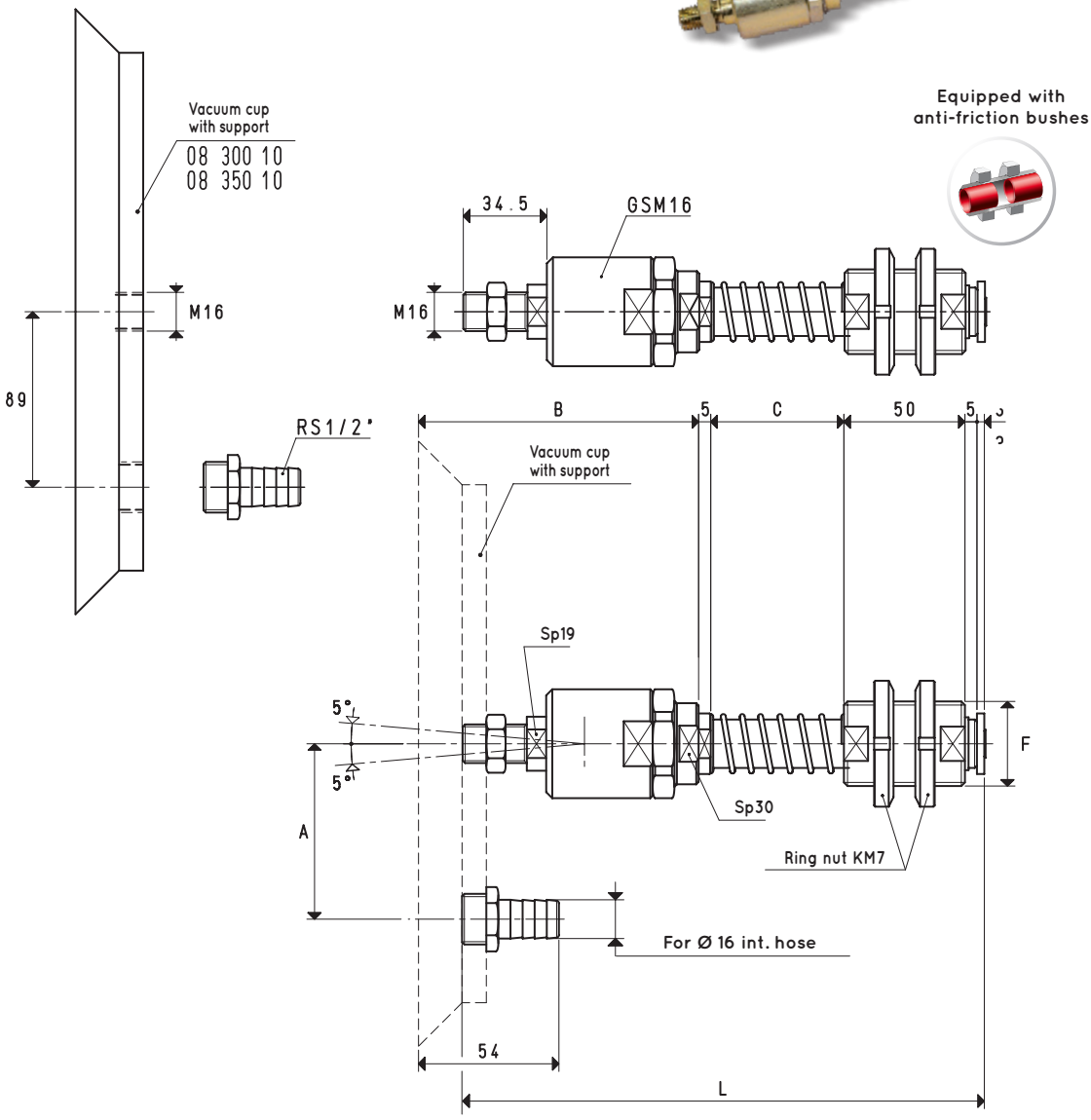
They are composed of:

- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup with the load to be lifted;
- A safety washer;
- A hose connector, for connection with the suction hose;
- An articulated joint in galvanised steel.





VERSION 06 ... 12

VACUUM CUP HOLDERS WITH HOSE-END FITTING FOR PLASTIC HOSE Ø 16 X 18

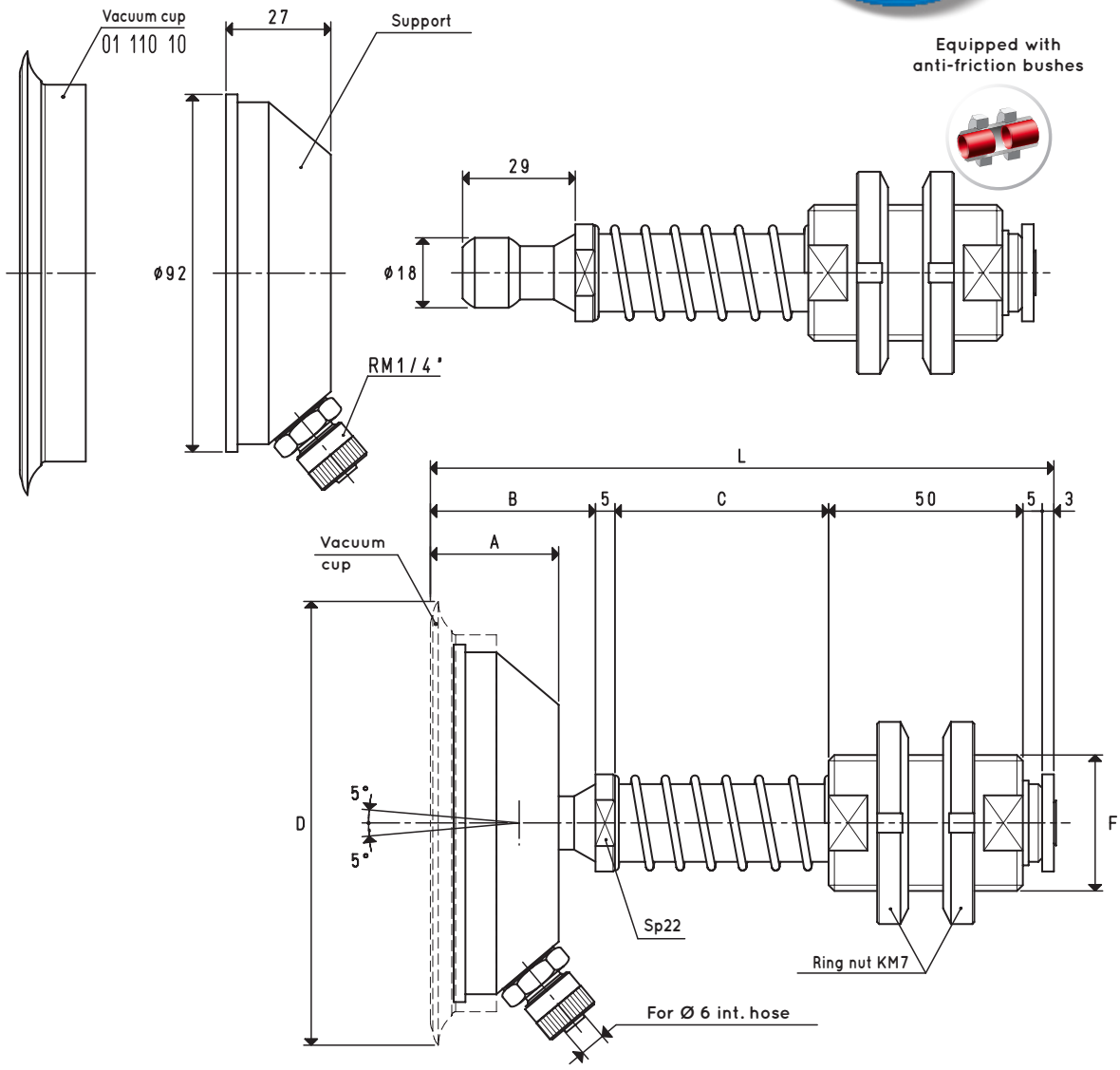
Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	F Ø	L	Weight Kg
06 300 12	55	37	70.63	89	115	M35 x 1.5	233	1.39
	110	84	35.31	89	115	M35 x 1.5	288	1.51
06 350 12	55	37	138.32	89	115	M35 x 1.5	233	1.39
	110	84	81.42	89	115	M35 x 1.5	288	1.51
			For vacuum cup item					
			08 300 10					
			08 350 10					

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS WITH BUILT-IN JOINT

These special articulated vacuum cup holders have an articulated joint housed in the cup support. This has allowed a reduction of the overall dimensions without affecting performance.
They are composed of:
- A nickel-plated steel stem with articulated joint
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation
- A spring to cushion the impact of the cup with the load to be lifted
- A safety washer
- A quick coupling for connection with the suction hose
- An aluminium support for mounting the vacuum cup, equipped with a vacuum connection



VERSION 06 110 32

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	F Ø	L	For vacuum cup item	Support included item	Weight kg
06 110 32	55	37	70.63	33	42.5	114	M35 x 1.5	160.5	01 110 10	00 06 62	1.107
	110	84	35.31	33	42.5	114	M35 x 1.5	220.5	01 110 10	00 06 62	1.084

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

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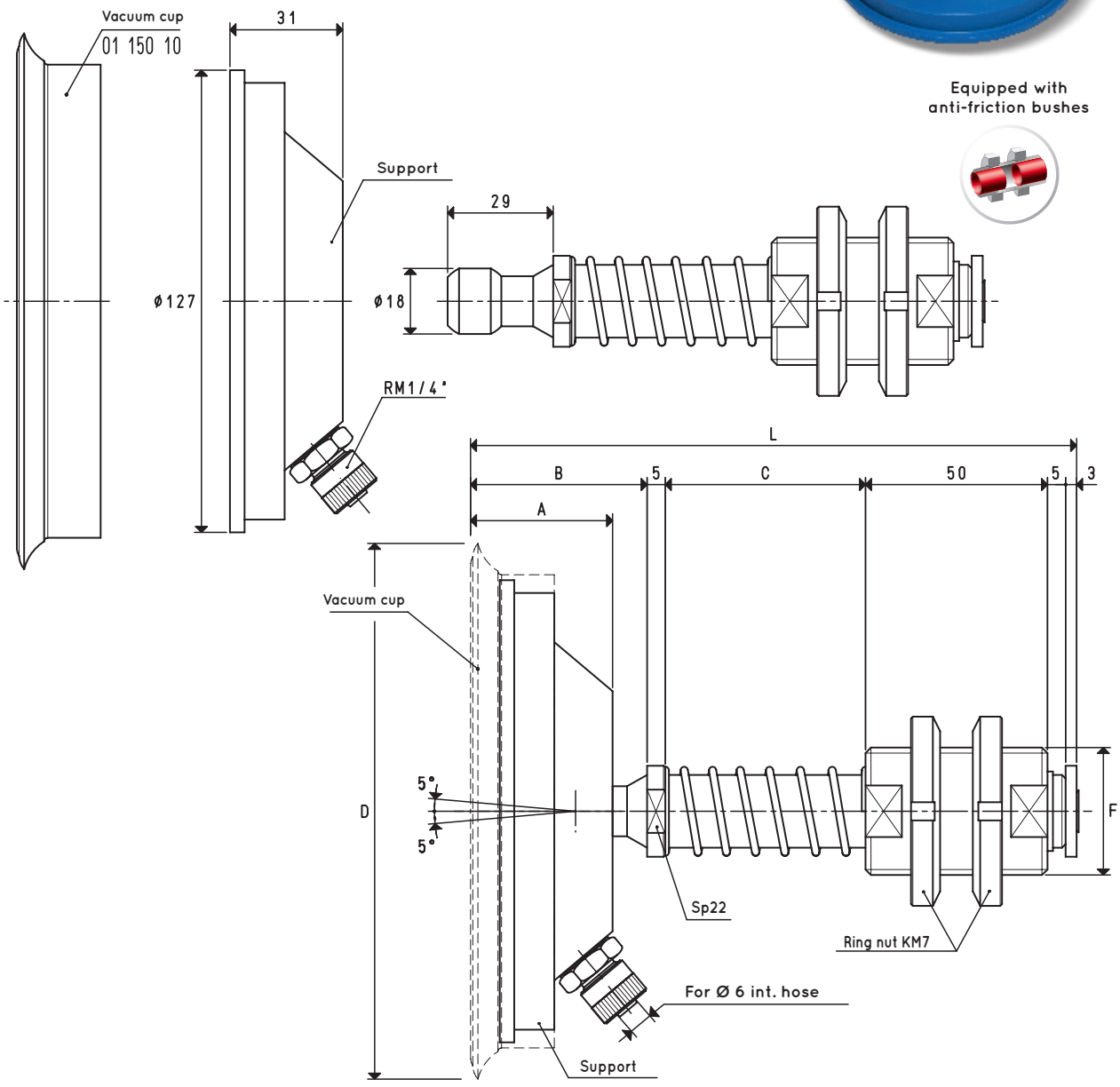
They are composed of:
- A nickel-plated steel stem with articulated joint
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation
- A spring to cushion the impact of the cup with the load to be lifted
- A safety washer
- A quick coupling for connection with the suction hose
- An aluminium support for mounting the vacuum cup, equipped with a vacuum connection

Equipped with anti-friction bushes



VERSION 06 150 32

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	F Ø	L	For vacuum cup item	Support included item	Weight kg
06 150 32	55	37	70.63	39	48.5	154	M35 x 1.5	166.5	01 150 10	00 06 49	1.52
	110	84	35.31	39	48.5	154	M35 x 1.5	221.5	01 150 10	00 06 49	1.65

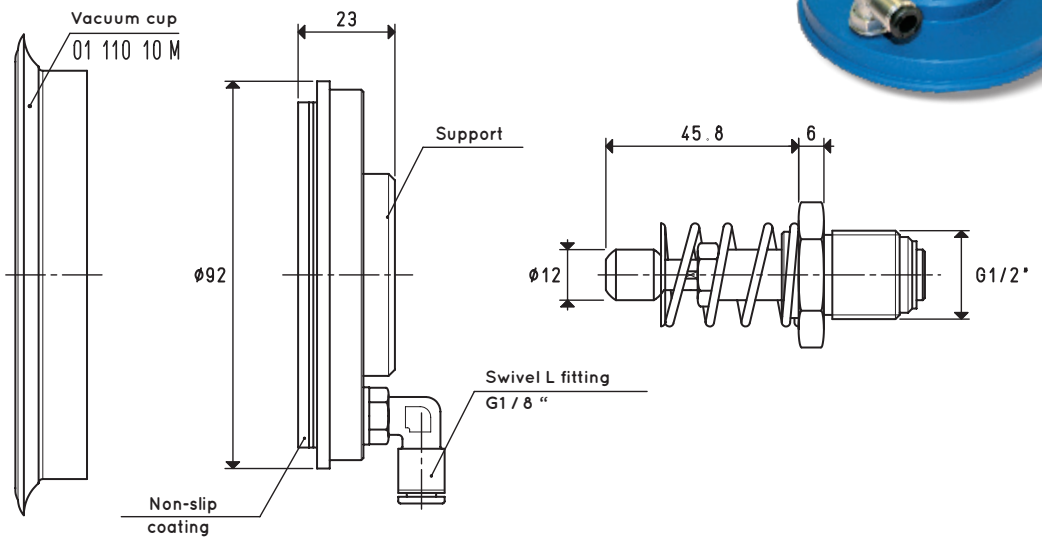
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

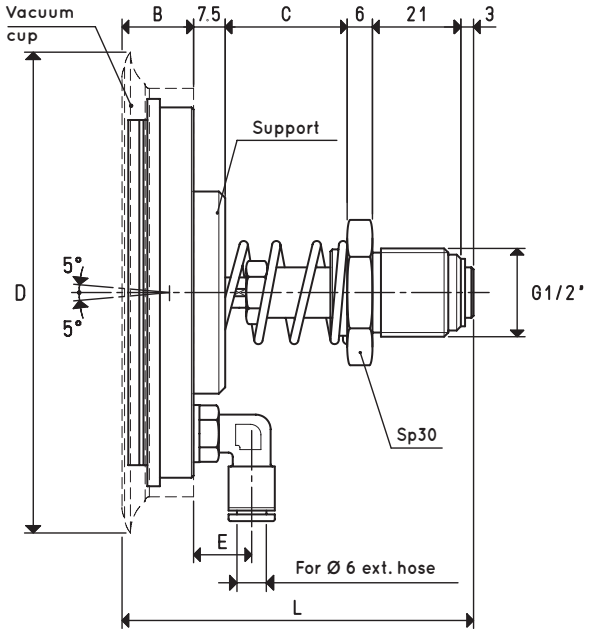
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL ARTICULATED VACUUM CUP HOLDERS WITH COMPACT STROKE

Marble and glass slabs are handled using vacuum cups that move them between horizontal and vertical positions. To reduce the lever arm and slippage during rotation, special articulated vacuum cup holders with reduced springing have been developed.
These retain the same technical characteristics as the previous models, but with much smaller dimensions thanks to the integration of the articulated joint in the vacuum cup support, the reduction of the steel stem and the modification of the brass bush in order to allow it to be screwed directly onto the automation.
Finally, a non-slip plastic coating attached to the support prevents the lifted load from slipping.

They are composed of:
- A steel stem with a spherical part;
- A threaded brass bush for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A 90° swivel quick coupling for connection with the suction hose;
- An aluminium support for mounting the vacuum cup, equipped with a spherical seat and vacuum connection;
- Non-slip plastic coating.





VERSION 06 110 42

VACUUM CUP HOLDERS WITH L QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

Item	*C	Actual spring stroke mm	Spring thrust force N	B	D Ø	E Ø	L	For vacuum cup item	Support included item	Weight kg
06 110 42	29	13	39.24	17	114	13	83.5	01 110 10 M	00 06 59	0.49

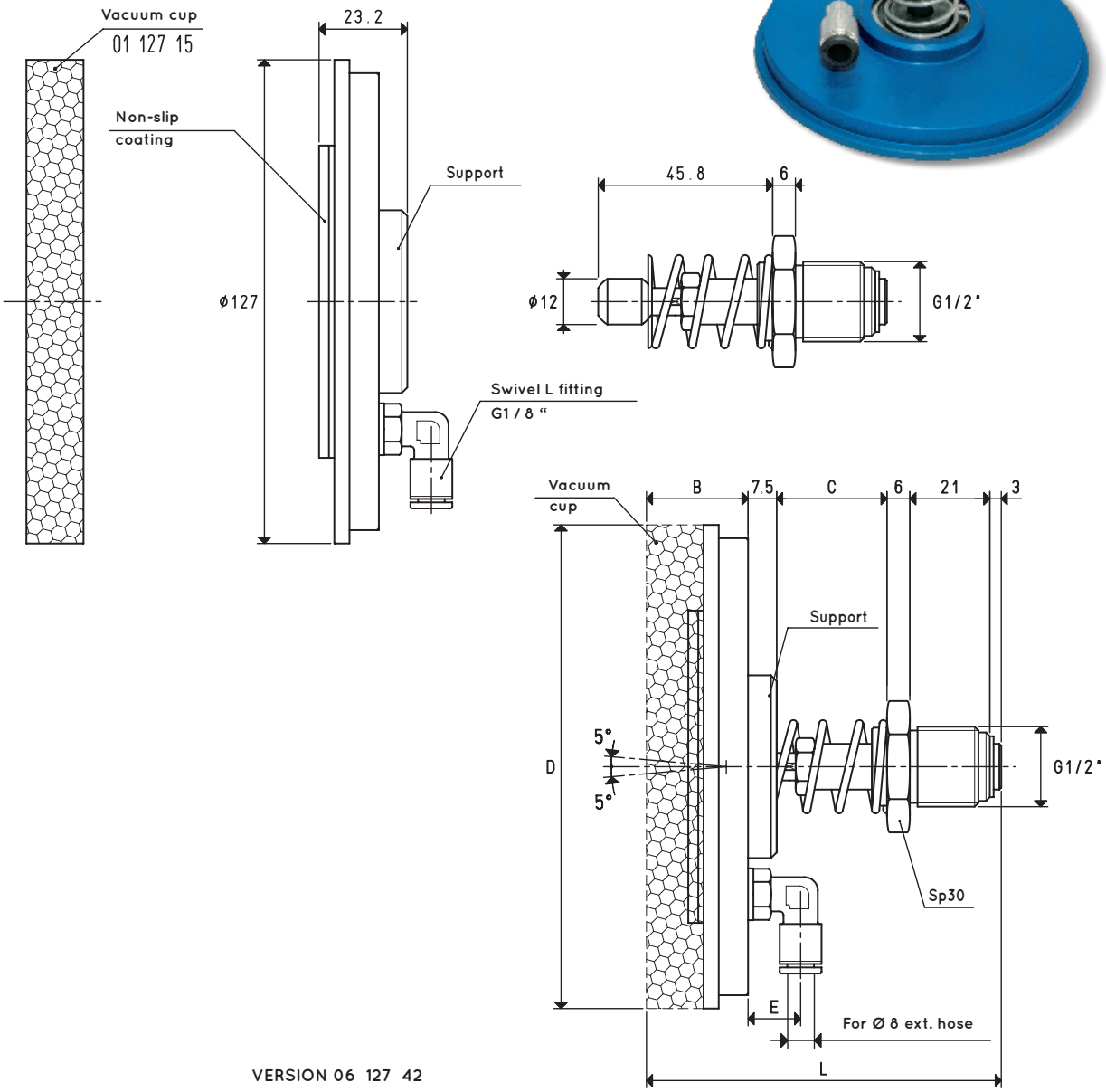
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL ARTICULATED VACUUM CUP HOLDERS WITH COMPACT STROKE

Marble and glass slabs are handled using vacuum cups that move them between horizontal and vertical positions. To reduce the lever arm and slippage during rotation, special articulated vacuum cup holders with reduced springing have been developed.
These retain the same technical characteristics as the previous models, but with much smaller dimensions thanks to the integration of the articulated joint in the vacuum cup support, the reduction of the steel stem and the modification of the brass bush in order to allow it to be screwed directly onto the automation.
Finally, a non-slip plastic coating attached to the support prevents the lifted load from slipping.

They are composed of:
- A steel stem with a spherical part;
- A threaded brass bush for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A 90° swivel quick coupling for connection with the suction hose;
- An aluminium support for mounting the vacuum cup, equipped with a spherical seat and vacuum connection;
- Non-slip plastic coating.



VERSION 06 127 42

VACUUM CUP HOLDERS WITH L QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N	B	D Ø	E Ø	L	For vacuum cup item	Support included item	Weight kg
06 127 42	29	13	39.24	26.7	127	13.5	93.2	01 127 15	00 06 61	0.76

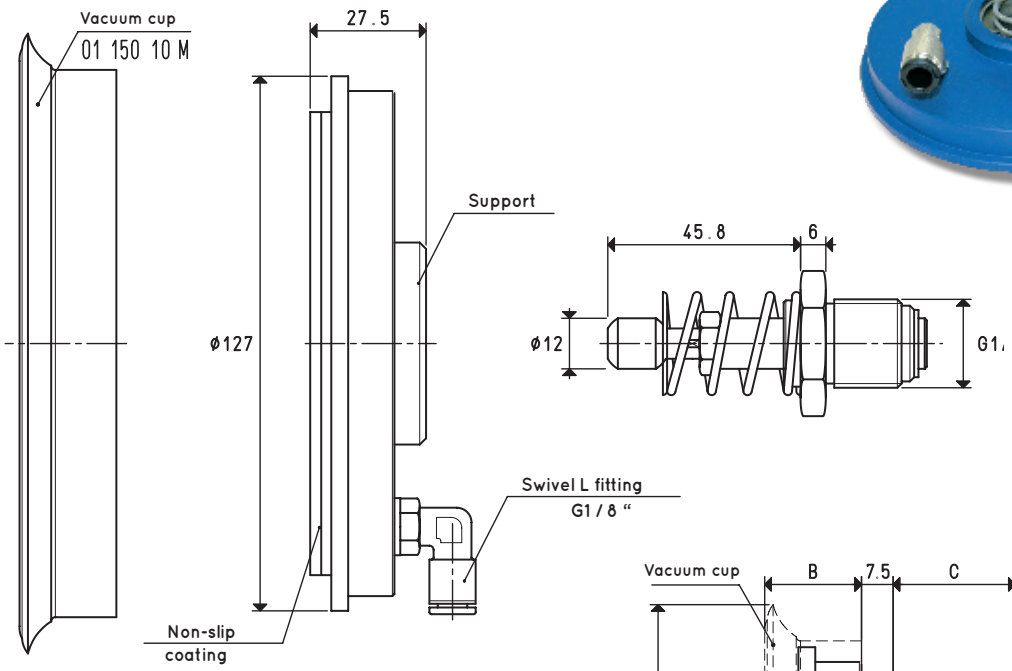
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

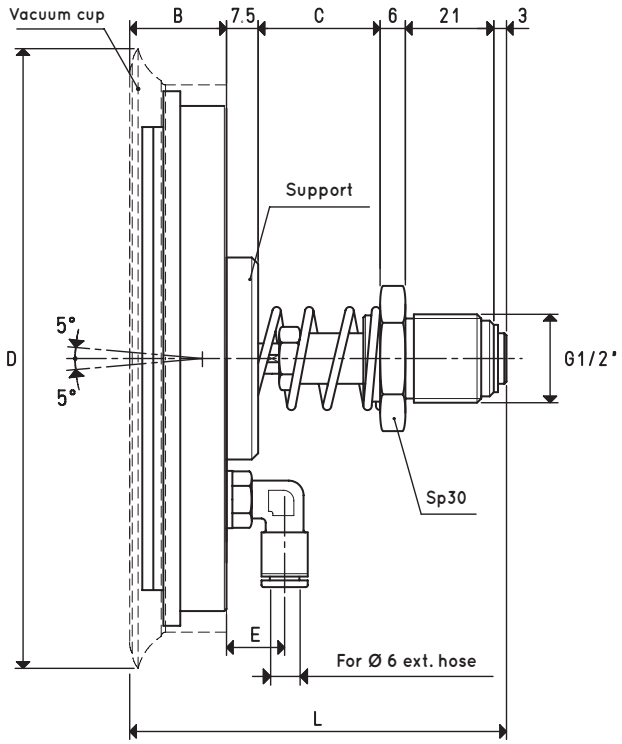
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL ARTICULATED VACUUM CUP HOLDERS WITH COMPACT STROKE

Marble and glass slabs are handled using vacuum cups that move them between horizontal and vertical positions. To reduce the lever arm and slippage during rotation, special articulated vacuum cup holders with reduced springing have been developed.
These retain the same technical characteristics as the previous models, but with much smaller dimensions thanks to the integration of the articulated joint in the vacuum cup support, the reduction of the steel stem and the modification of the brass bush in order to allow it to be screwed directly onto the automation.
Finally, a non-slip plastic coating attached to the support prevents the lifted load from slipping.

They are composed of:
- A steel stem with a spherical part;
- A threaded brass bush for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A 90° swivel quick coupling for connection with the suction hose;
- An aluminium support for mounting the vacuum cup, equipped with a spherical seat and vacuum connection;
- Non-slip plastic coating.





VERSION 06 150 42

VACUUM CUP HOLDERS WITH L QUICK COUPLER FOR PLASTIC HOSE Ø 4 X 6

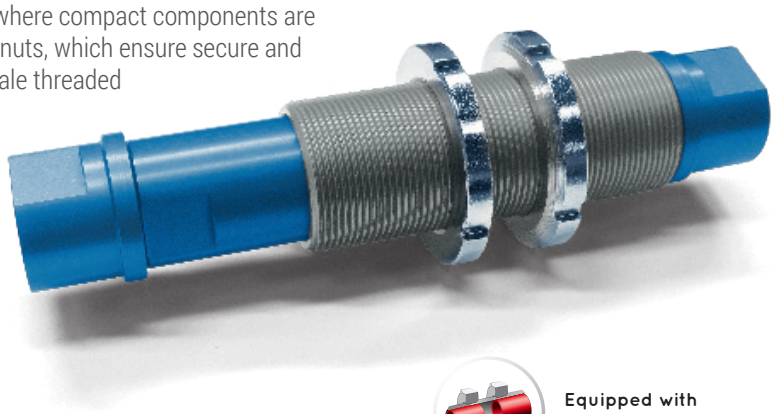
Item	*C	Actual spring stroke mm	Spring thrust force N	B	D Ø	E Ø	L	For vacuum cup item	Support included item	Weight kg
06 150 42	29	13	39.24	23	154	13	89.5	01 150 10 M	00 06 60	0.94

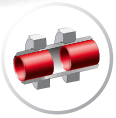
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

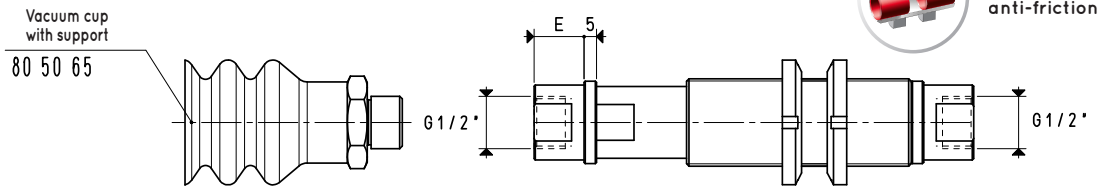
ANTI-ROTATION VACUUM CUP HOLDERS WITH BUILT-IN SPRING AND FEMALE CONNECTOR

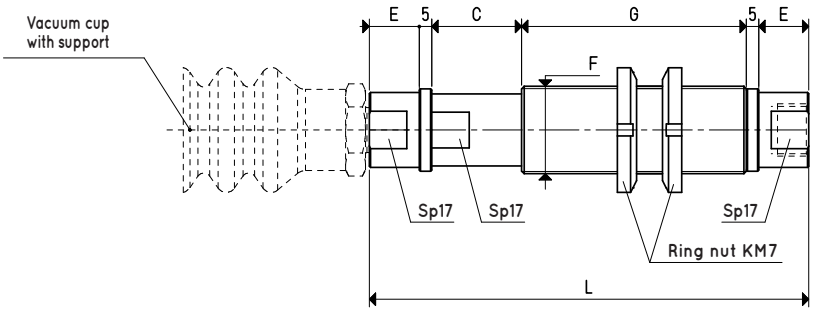
Anti-rotation vacuum cup holders with built-in spring are aluminium components designed to ensure high performance in gripping and handling systems. The aluminium structure offers lightness and strength, while the anti-rotation system prevents unwanted rotation of the vacuum cup or attachment during operation, ensuring precision and stability. The spring embedded inside the body protects the elastic mechanism from impact, dirt and contaminants, ensuring a smooth and consistent response.
The large inner passage cross-section allows for abundant vacuum flow, promoting rapid grip and release cycles even on large vacuum cups. The mounting adjustment is particularly wide thanks to the presence of a 90 mm-long threaded bushing, which allows for precise positioning and adaptation to different distances and configurations. The plastic sliding bushings ensure smooth, quiet movement with reduced maintenance requirements, contributing to the long operating life of the device.
Despite its advanced features, the vacuum cup holder has small overall dimensions, making it easy to integrate even in confined spaces or in applications where compact components are required. The system is equipped with two KM7 lock nuts, which ensure secure and stable fastening during mounting. The male and female threaded connections allow for quick, easy connection to the system, adapting to different mechanical configurations.
All these features make the vacuum cup holder ideal for use in robotics, Pick & Place systems, industrial automation and all applications where precision, reliability and ease of adjustment are required.





Equipped with anti-friction bushes





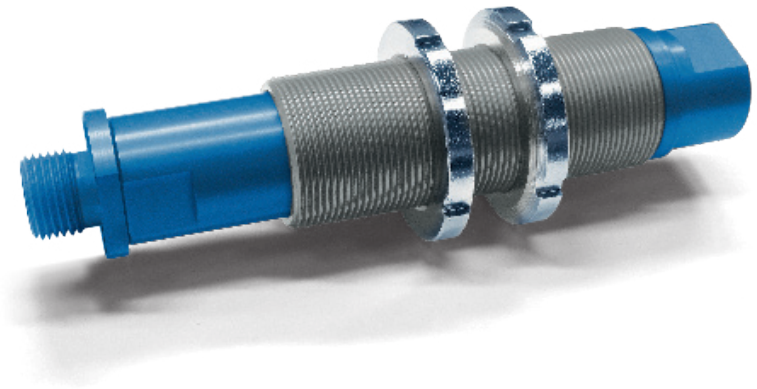
ANTI-ROTATION VACUUM CUP HOLDERS WITH BUILT-IN SPRING AND FEMALE CONNECTOR

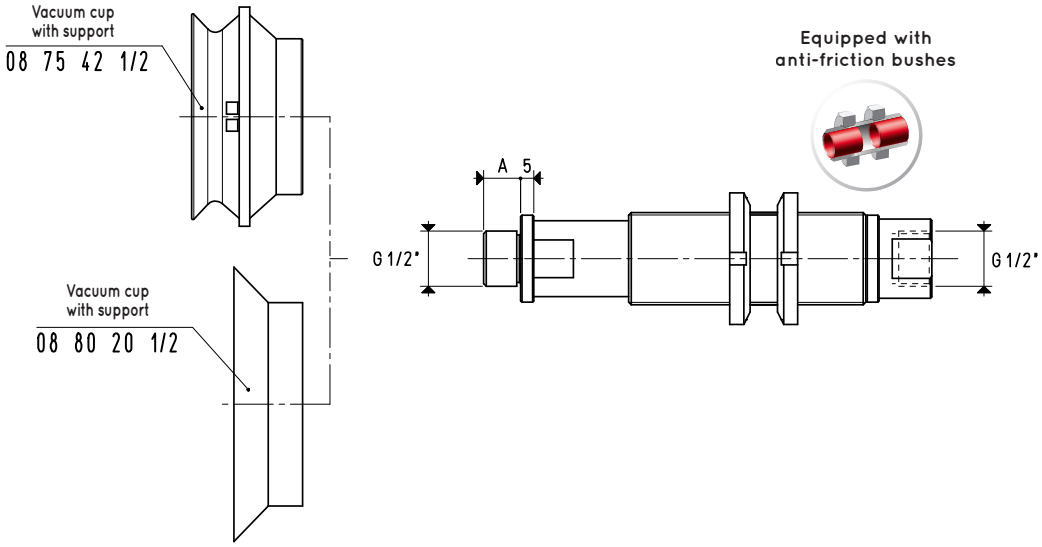
Item	*C	Actual spring stroke mm	Spring thrust force N (1)	E	F Ø	G	L	Through hole Ø	Weight Kg
VCH 12 F 36	36	36	20.7	20	M35 x 1.5	90	176	15	0.372
				For vacuum cup item					
				08 50 65					

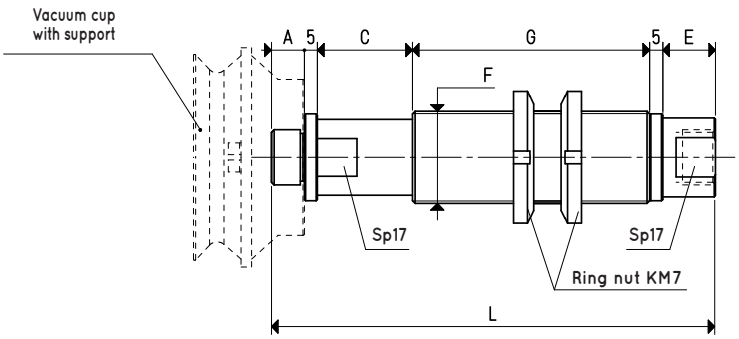
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

ANTI-ROTATION VACUUM CUP HOLDERS WITH BUILT-IN SPRING AND MALE CONNECTOR







ANTI-ROTATION VACUUM CUP HOLDERS WITH BUILT-IN SPRING AND MALE CONNECTOR

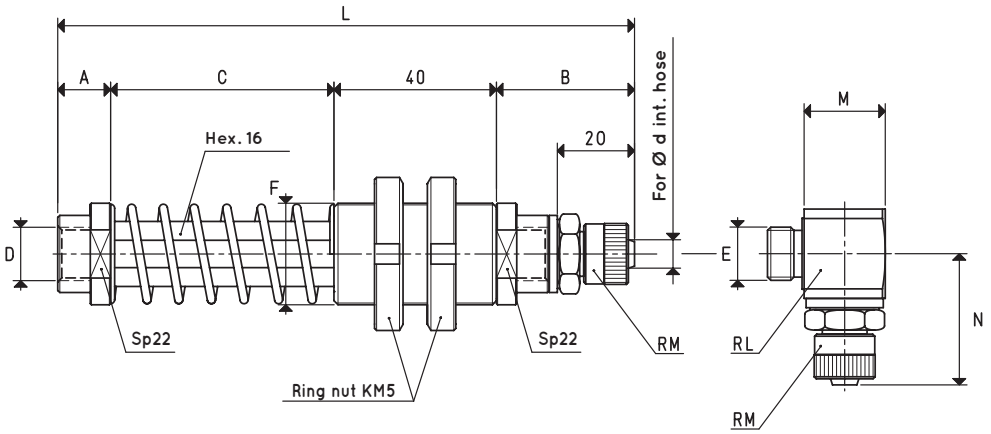
Item	*C	Actual spring stroke mm	Spring thrust force N (1)	A	F Ø	G	L	Through hole Ø	Weight Kg
VCH 12 M 36	36	36	20.7	15	20 M35 x 1.5		90	171	15	0.369
					For vacuum cup item				
					08 75 42 1/2"				
					08 80 20 1/2"				

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL STAINLESS STEEL ANTI-ROTATION VACUUM CUP HOLDERS

Designed for the robot-automotive sector, these cup holders offer ideal solutions to various handling problems that arise in all industrial sectors.
In addition the characteristics of the previously described special vacuum cup holders, their distinctive features are their brass stem with hexagonal cross-section and the steel drive bush, also with hexagonal hole. This structure prevents the stem and, as a result, the cup assembled onto it from rotating on its axis.
The drive bush is equipped with two fine thread ring nuts to guarantee an accurate fastening of the cup holder to the automation. Moreover, the two ends of the stem, also in stainless steel, are threaded male or female and interchangeable. The straight quick coupler for the connection to the suction hose is screwed to one end, while the cup with support is assembled onto the other end.
They are suited for cups with a diameter between 40 mm and 200 mm, although they are especially useful for the assembly of rectangular or elliptical vacuum cups.
They are composed of:
- A stainless steel stem with hexagonal cross-section;
- A threaded brass bush with an internal hexagonal cross-section, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.



VERSION 06 . . . . .

VERSION 06 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE

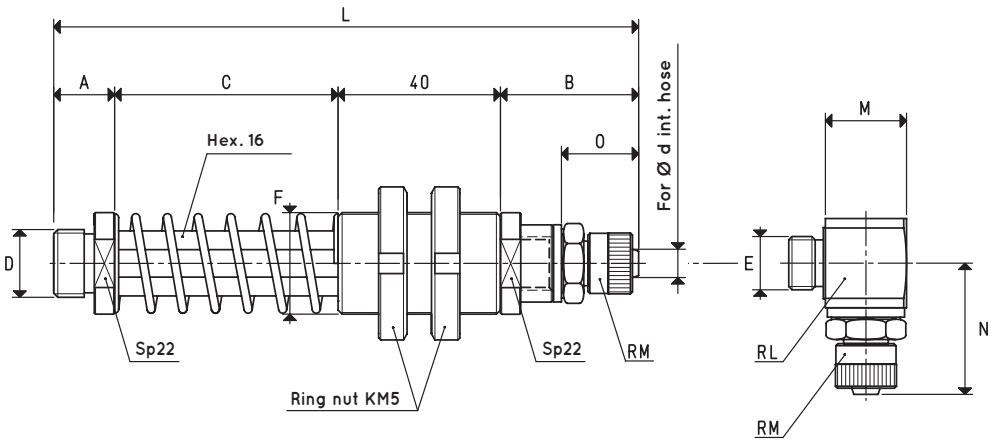
Item	C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	d Ø	E Ø	F Ø	L	M	N	O	RL	RM	Weight g
06 55 80	55	37	35.31	13	34	G1/4"	6	G1/4"	M25 x 1.5	142	21.0	32.0	18.5	G1/4"	G1/4"	318
06 55 81	55	37	35.31	15	40	G3/8"	9	G3/8"	M25 x 1.5	150	21.5	35.5	22.0	G3/8"	G3/8"	330
06 55 82	55	37	35.31	15	34	G3/8"	6	G1/4"	M25 x 1.5	144	21.0	32.0	18.5	G1/4"	G1/4"	320
06 110 80	110	84	70.63	13	34	G1/4"	6	G1/4"	M25 x 1.5	197	21.0	32.0	18.5	G1/4"	G1/4"	386
06 110 81	110	84	70.63	15	40	G3/8"	9	G3/8"	M25 x 1.5	205	21.5	35.5	22.0	G3/8"	G3/8"	398
06 110 82	110	84	70.63	15	34	G3/8"	6	G1/4"	M25 x 1.5	199	21.0	32.0	18.5	G1/4"	G1/4"	388

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
To order vacuum cup holders with L fittings, add the letter L to the code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

SPECIAL ANTI-ROTATION VACUUM CUP HOLDERS WITH MALE THREADED CONNECTOR

Designed for the robot-automotive sector, these cup holders offer ideal solutions to various handling problems that arise in all industrial sectors.
In addition the characteristics of the previously described special vacuum cup holders, their distinctive features are their brass stem with hexagonal cross-section and the steel drive bush, also with hexagonal hole. This structure prevents the stem and, as a result, the cup assembled onto it from rotating on its axis.
The drive bush is equipped with two fine thread ring nuts to guarantee an accurate fastening of the cup holder to the automation. Moreover, the two ends of the stem, also in stainless steel, are threaded male or female and interchangeable. The straight quick coupler for the connection to the suction hose is screwed to one end, while the cup with support is assembled onto the other end.
They are suited for cups with a diameter between 40 mm and 200 mm, although they are especially useful for the assembly of rectangular or elliptical vacuum cups.
They are composed of:
- A stainless steel stem with hexagonal cross-section;
- A threaded brass bush with an internal hexagonal cross-section, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.



VERSION 06 . . . . .

VERSION 06 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE

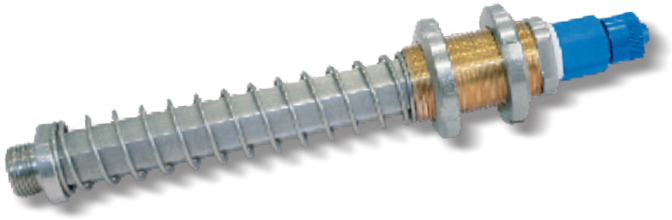
Item	C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	d Ø	E Ø	F Ø	L	M	N	O	RL	RM	Weight g
06 55 90	55	37	35.31	15	34	G1/4"	6	G1/4"	M25 x 1.5	144	21.0	32.0	18.5	G1/4"	G1/4"	314
06 55 91	55	37	35.31	15	34	G3/8"	6	G1/4"	M25 x 1.5	144	21.0	32.0	18.5	G1/4"	G1/4"	320
06 55 92	55	37	35.31	15	40	G3/8"	9	G3/8"	M25 x 1.5	150	21.5	35.5	22.0	G3/8"	G3/8"	330
06 55 93	55	37	35.31	15	40	G1/2"	9	G3/8"	M25 x 1.5	150	21.5	35.5	22.0	G3/8"	G3/8"	332
06 55 94	55	37	35.31	15	34	M12	6	G1/4"	M25 x 1.5	144	21.0	32.0	18.5	G1/4"	G1/4"	318
06 55 95	55	37	35.31	15	40	M12	9	G3/8"	M25 x 1.5	150	21.5	35.5	22.0	G3/8"	G3/8"	328
06 55 96	55	37	35.31	15	40	M16	9	G3/8"	M25 x 1.5	150	21.5	35.5	22.0	G3/8"	G3/8"	330
06 110 90	110	84	70.63	15	34	G1/4"	6	G1/4"	M25 x 1.5	199	21.0	32.0	18.5	G1/4"	G1/4"	374
06 110 91	110	84	70.63	15	34	G3/8"	6	G1/4"	M25 x 1.5	199	21.0	32.0	18.5	G1/4"	G1/4"	380
06 110 92	110	84	70.63	15	40	G3/8"	9	G3/8"	M25 x 1.5	205	21.5	35.5	22.0	G3/8"	G3/8"	390
06 110 93	110	84	70.63	15	40	G1/2"	9	G3/8"	M25 x 1.5	205	21.5	35.5	22.0	G3/8"	G3/8"	392
06 110 94	110	84	70.63	15	34	M12	6	G1/4"	M25 x 1.5	199	21.0	32.0	18.5	G1/4"	G1/4"	378
06 110 95	110	84	70.63	15	40	M12	9	G3/8"	M25 x 1.5	205	21.5	35.5	22.0	G3/8"	G3/8"	388
06 110 96	110	84	70.63	15	40	M16	6	G3/8"	M25 x 1.5	205	21.5	35.5	22.0	G3/8"	G3/8"	390

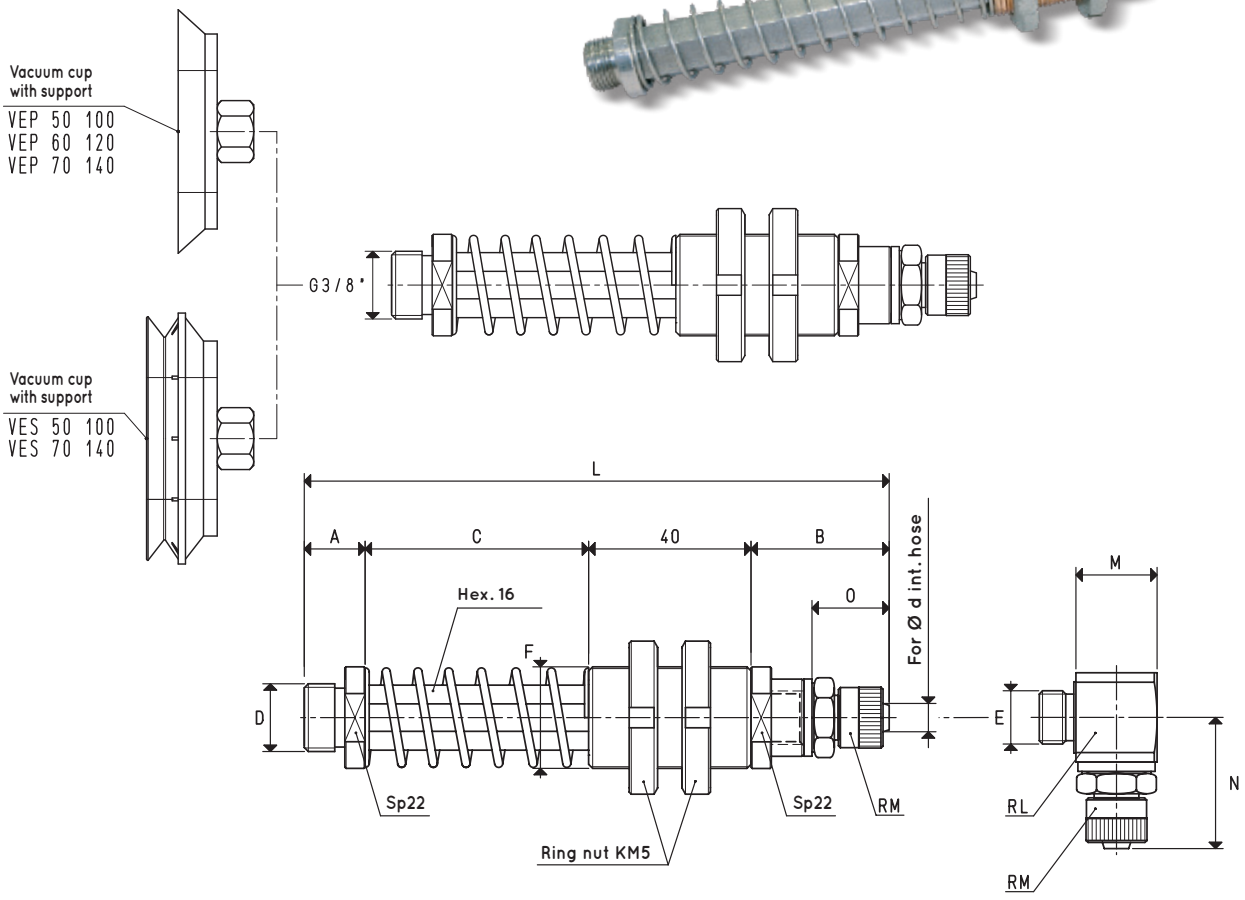
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
To order vacuum cup holders with L fittings, add the letter L to the code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL ANTI-ROTATION VACUUM CUP HOLDERS WITH MALE THREADED CONNECTOR

Designed for the robot-automotive sector, these cup holders offer ideal solutions to various handling problems that arise in all industrial sectors.
In addition the characteristics of the previously described special vacuum cup holders, their distinctive features are their brass stem with hexagonal cross-section and the steel drive bush, also with hexagonal hole. This structure prevents the stem and, as a result, the cup assembled onto it from rotating on its axis.
The drive bush is equipped with two fine thread ring nuts to guarantee an accurate fastening of the cup holder to the automation. Moreover, the two ends of the stem, also in stainless steel, are threaded male or female and interchangeable. The straight quick coupler for the connection to the suction hose is screwed to one end, while the cup with support is assembled onto the other end.
They are suited for cups with a diameter between 40 mm and 200 mm, although they are especially useful for the assembly of rectangular or elliptical vacuum cups.
They are composed of:
- A stainless steel stem with hexagonal cross-section;
- A threaded brass bush with an internal hexagonal cross-section, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.





VERSION 06 ... ..

VERSION 06 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE

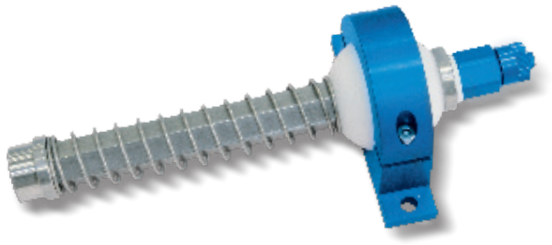
Item	C	Actual spring stroke mm	Spring thrust force N	A	B	D Ø	d Ø	E Ø	F Ø	L	M	N	O	RL	RM	Weight g
06 55 91	55	37	35.31	15	34	G3/8"	6	G1/4"	M25 x 1.5	144	21.0	32.0	18.5	G1/4"	G1/4"	320
06 110 91	110	84	70.63	15	34	G3/8"	6	G1/4"	M25 x 1.5	199	21.0	32.0	18.5	G1/4"	G1/4"	380
06 55 92	55	37	35.31	15	40	G3/8"	9	G3/8"	M25 x 1.5	150	21.5	35.5	22.0	G3/8"	G3/8"	330
06 110 92	110	84	70.63	15	40	G3/8"	9	G3/8"	M25 x 1.5	205	21.5	35.5	22.0	G3/8"	G3/8"	390
	For vacuum cup item															
	VEP 50 100 - VEP 60 120 - VEP 70 140 - VES 50 100 - VES 70 140															

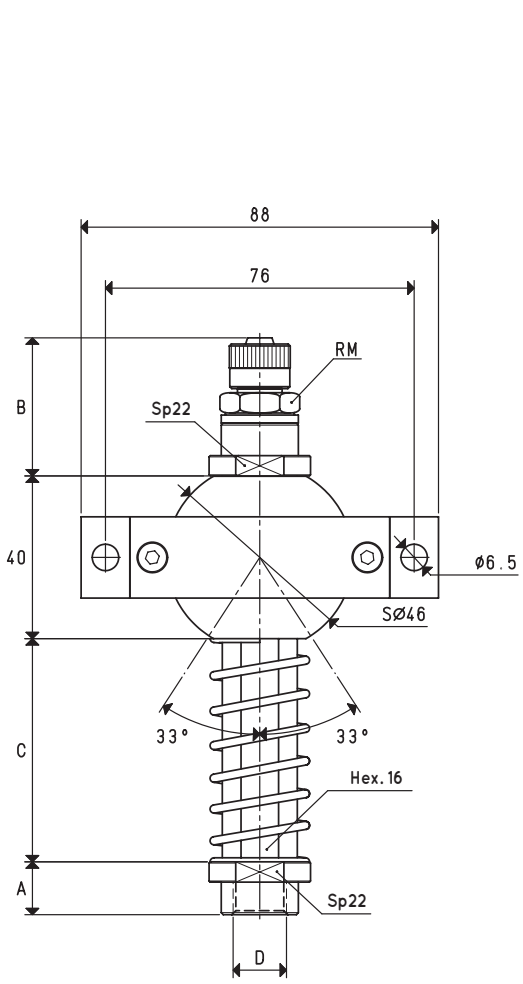
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
To order vacuum cup holders with L fittings, add the letter L to the code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

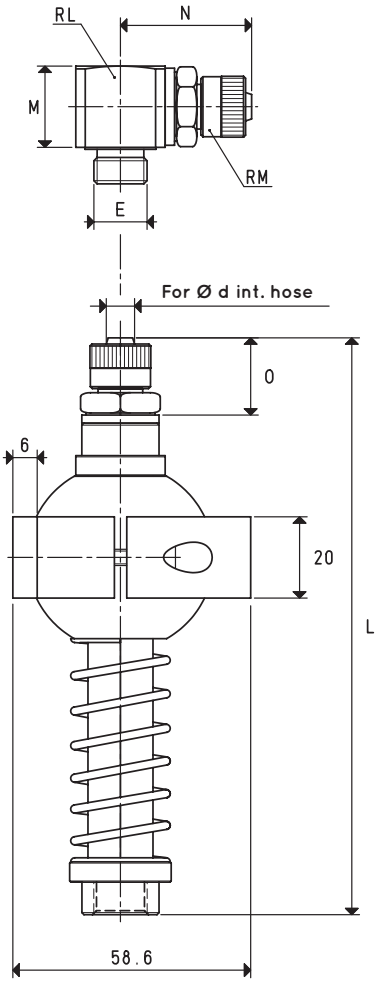
SPECIAL ANTI-ROTATION VACUUM CUP HOLDERS WITH SPHERICAL SWIVEL SUPPORT

In addition the characteristics of the previously described special anti-rotation vacuum cups, these cup holders are provided with a nylon spherical swivel support which allows to place and keep the cup in the desired place.
Their fixing support is made with aluminium and is composed of two parts that, screwed together, allow to block the spherical joint, thus keeping the vacuum cup holder in place.
They are suited for cups with a diameter between 40 mm and 200 mm, although they are especially useful for the assembly of rectangular or elliptical vacuum cups.
They are composed of:
- A stainless steel stem with hexagonal cross-section;
- An adjustable nylon ball joint with an internal hexagonal cross-section;
- An aluminium support for fastening to the automation;
- A spring to cushion the impact of the cup and to, at the same time, maintain constant pressure with the load to be lifted;
- A quick coupling for connection with the suction hose.





VERSION 06 . . . . .



VERSION 06 L

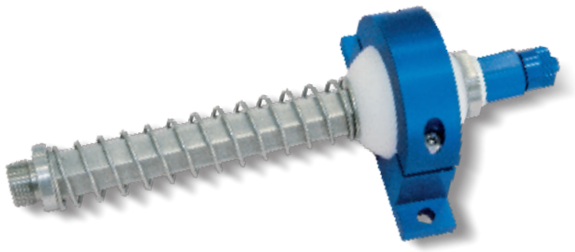
VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE

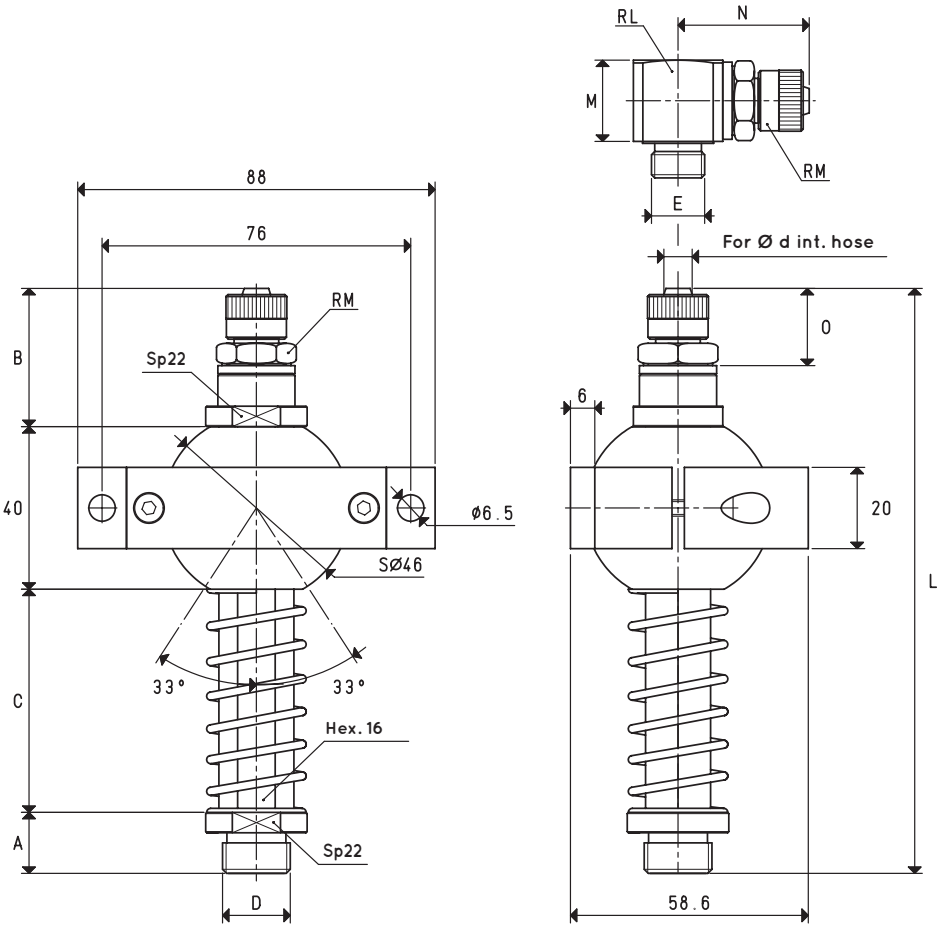
Item	C	Actual spring stroke mm	Spring thrust force N (1)	A	B	D Ø	d Ø	E Ø	L	M	N	O	RL	RM	Weight g
06 55 100	55	37	35.31	13	34	G1/4"	6	G1/4"	142	21.0	32.0	18.5	G1/4"	G1/4"	338
06 55 101	55	37	35.31	15	40	G3/8"	9	G3/8"	150	21.5	35.5	22.0	G3/8"	G3/8"	350
06 55 102	55	37	35.31	15	34	G3/8"	6	G1/4"	144	21.0	32.0	18.5	G1/4"	G1/4"	340
06 110 100	110	84	70.63	13	34	G1/4"	6	G1/4"	197	21.0	32.0	18.5	G1/4"	G1/4"	406
06 110 101	110	84	70.63	15	40	G3/8"	9	G3/8"	205	21.5	35.5	22.0	G3/8"	G3/8"	418
06 110 102	110	84	70.63	15	34	G3/8"	6	G1/4"	199	21.0	32.0	18.5	G1/4"	G1/4"	408

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
To order vacuum cup holders with L fittings, add the letter L to the code.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL ANTI-ROTATION VACUUM CUP HOLDERS WITH SPHERICAL SWIVEL SUPPORT





VERSION 06 . . . . .

VERSION 06 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE

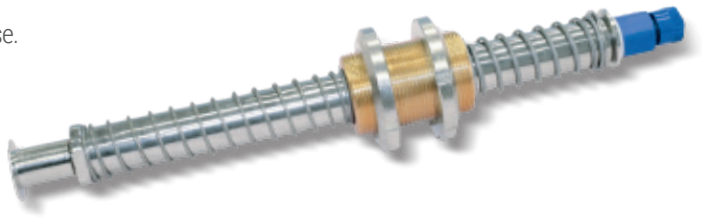
Item	A	Actual spring stroke mm	Spring thrust force N (1)	B	C	D Ø	d Ø	E Ø	L	M	N	O	RL	RM	Weight g
06 55 110	55	37	35.31	15	34	G1/4"	6	G1/4"	144	21.0	32.0	18.5	G1/4"	G1/4"	334
06 55 111	55	37	35.31	15	34	G3/8"	6	G1/4"	144	21.0	32.0	18.5	G1/4"	G1/4"	340
06 55 112	55	37	35.31	15	40	G3/8"	9	G3/8"	150	21.5	35.5	22.0	G3/8"	G3/8"	350
06 55 113	55	37	35.31	15	40	G1/2"	9	G3/8"	150	21.5	35.5	22.0	G3/8"	G3/8"	352
06 55 114	55	37	35.31	15	34	M12	6	G1/4"	144	21.0	32.0	18.5	G1/4"	G1/4"	338
06 55 115	55	37	35.31	15	40	M12	9	G3/8"	150	21.5	35.5	22.0	G3/8"	G3/8"	348
06 55 116	55	37	35.31	15	40	M16	9	G3/8"	150	21.5	35.5	22.0	G3/8"	G3/8"	350
06 110 110	110	84	70.63	15	34	G1/4"	6	G1/4"	199	21.0	32.0	18.5	G1/4"	G1/4"	394
06 110 111	110	84	70.63	15	34	G3/8"	6	G1/4"	199	21.0	32.0	18.5	G1/4"	G1/4"	400
06 110 112	110	84	70.63	15	40	G3/8"	9	G3/8"	205	21.5	35.5	22.0	G3/8"	G3/8"	410
06 110 113	110	84	70.63	15	40	G1/2"	9	G3/8"	205	21.5	35.5	22.0	G3/8"	G3/8"	412
06 110 114	110	84	70.63	15	34	M12	6	G1/4"	199	21.0	32.0	18.5	G1/4"	G1/4"	398
06 110 115	110	84	70.63	15	40	M12	9	G3/8"	205	21.5	35.5	22.0	G3/8"	G3/8"	408
06 110 116	110	84	70.63	15	40	M16	9	G3/8"	205	21.5	35.5	22.0	G3/8"	G3/8"	410

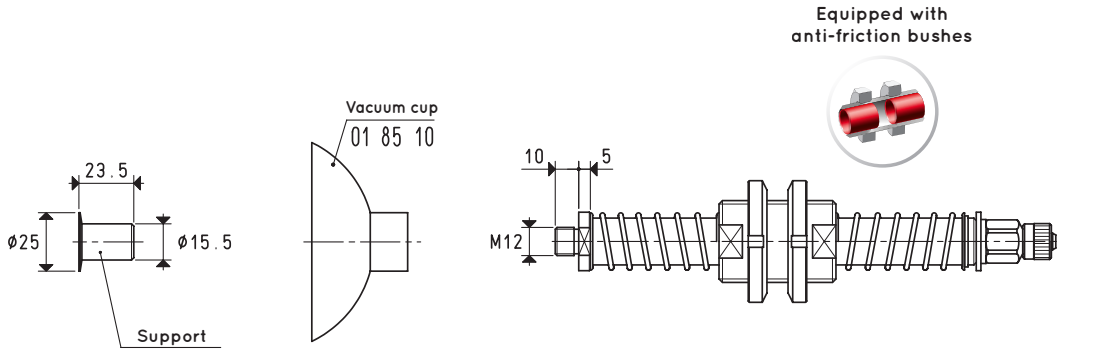
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
To order vacuum cup holders with L fittings, add the letter L to the code.

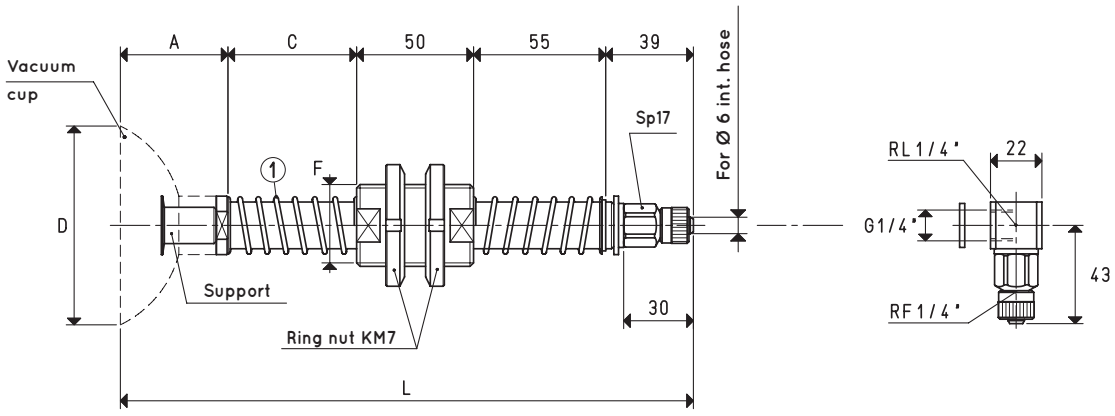
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS WITH DOUBLE SPRINGING

All the special vacuum cup holders previously described can also be provided in the double springing version. In this configuration, the cup holder fixing bush is located between two springs: the lower one cushions the impact of the cup with the load to be lifted during the approach phase, while the upper one absorbs the impact of the bush with the cup holder end and ensures gradual loading of the vacuum cup during the lifting phase. The use of this solution is especially recommended when the load to be handled is very heavy, rough or not perfectly flat.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- Two springs designed to reduce and distribute impact: one serves to cushion the impact of the vacuum cup with the load to be lifted, the other to cushion the impact of the bush against the end of the vacuum cup holder;
- A safety washer;
- A quick coupling for connection with the suction hose.







VERSION 06 85 13 VERSION 06 85 13 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

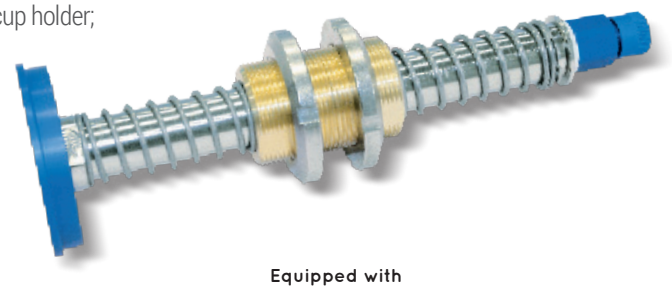
Item	*C	Actual spring stroke mm	Spring thrust force N (1)	A	D Ø	F Ø	L	For vacuum cup item	Support included item	Weight Kg
06 85 13	55	37	70.63	46	85	M35 x 1.5	245	01 85 10	00 08 29	0.83
	110	84	35.31	46	85	M35 x 1.5	300	01 85 10	00 08 29	0.96

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

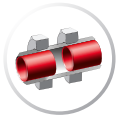
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

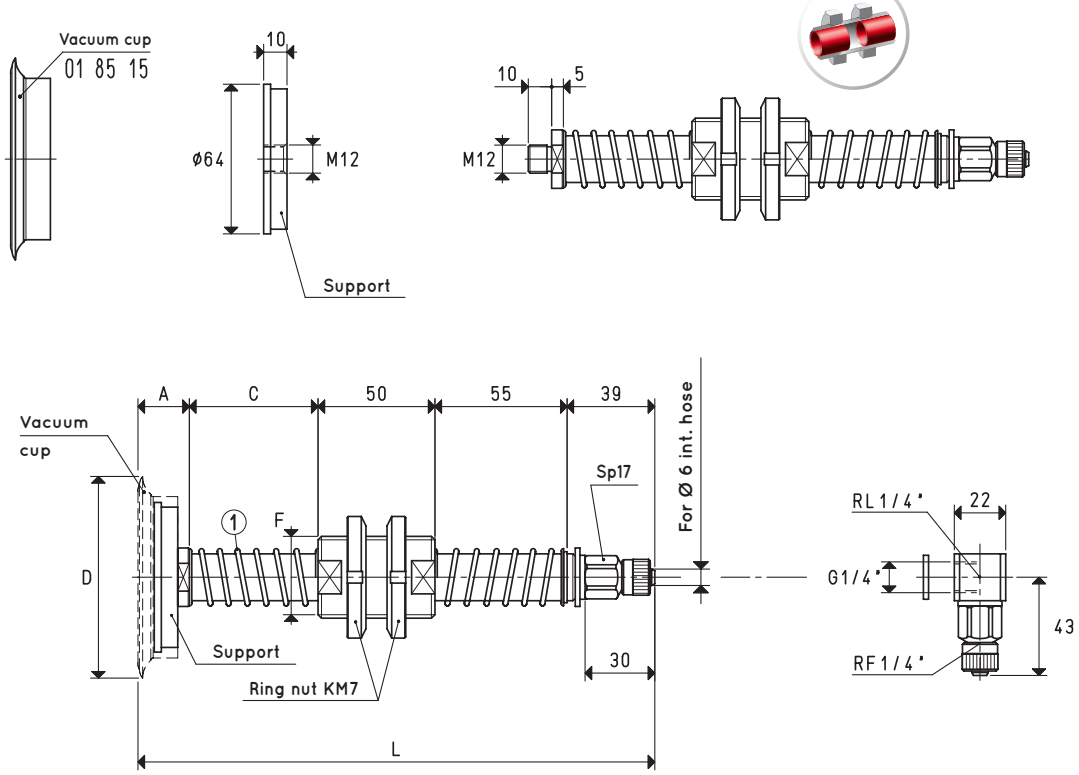
SPECIAL VACUUM CUP HOLDERS WITH DOUBLE SPRINGING

All the special vacuum cup holders previously described can also be provided in the double springing version. In this configuration, the cup holder fixing bush is located between two springs: the lower one cushions the impact of the cup with the load to be lifted during the approach phase, while the upper one absorbs the impact of the bush with the cup holder end and ensures gradual loading of the vacuum cup during the lifting phase. The use of this solution is especially recommended when the load to be handled is very heavy, rough or not perfectly flat.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- Two springs designed to reduce and distribute impact: one serves to cushion the impact of the vacuum cup with the load to be lifted, the other to cushion the impact of the bush against the end of the vacuum cup holder;
- A safety washer;
- A quick coupling for connection with the suction hose.



Equipped with anti-friction bushes





VERSION 06 85 17

VERSION 06 85 17 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

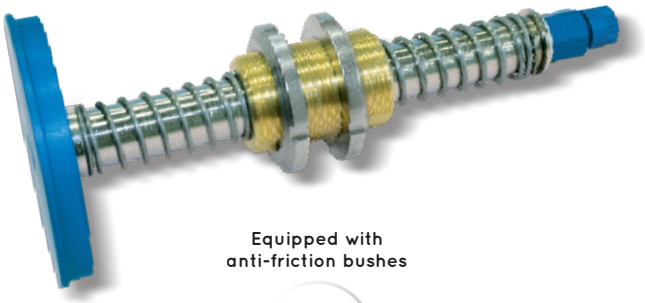
Item	*C	Actual spring stroke mm	Spring thrust force N (1)	A	D Ø	F Ø	L	For vacuum cup item	Support included item	Weight Kg
06 85 17	55	37	70.63	22	85	M35 x 1.5	221	01 85 15	00 08 32	0.87
	110	84	35.31	22	85	M35 x 1.5	276	01 85 15	00 08 32	1.01

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

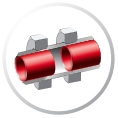
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

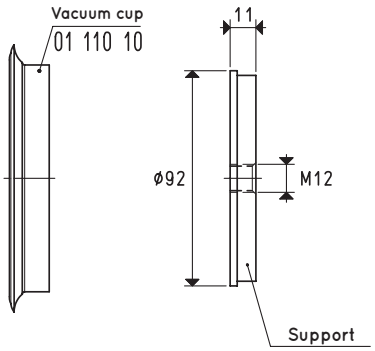
SPECIAL VACUUM CUP HOLDERS WITH DOUBLE SPRINGING

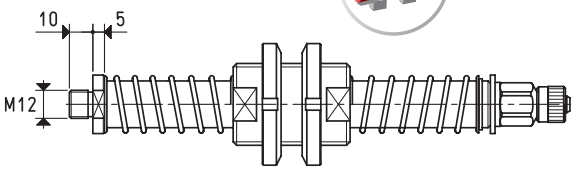
All the special vacuum cup holders previously described can also be provided in the double springing version. In this configuration, the cup holder fixing bush is located between two springs: the lower one cushions the impact of the cup with the load to be lifted during the approach phase, while the upper one absorbs the impact of the bush with the cup holder end and ensures gradual loading of the vacuum cup during the lifting phase. The use of this solution is especially recommended when the load to be handled is very heavy, rough or not perfectly flat.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- Two springs designed to reduce and distribute impact: one serves to cushion the impact of the vacuum cup with the load to be lifted, the other to cushion the impact of the bush against the end of the vacuum cup holder;
- A safety washer;
- A quick coupling for connection with the suction hose.

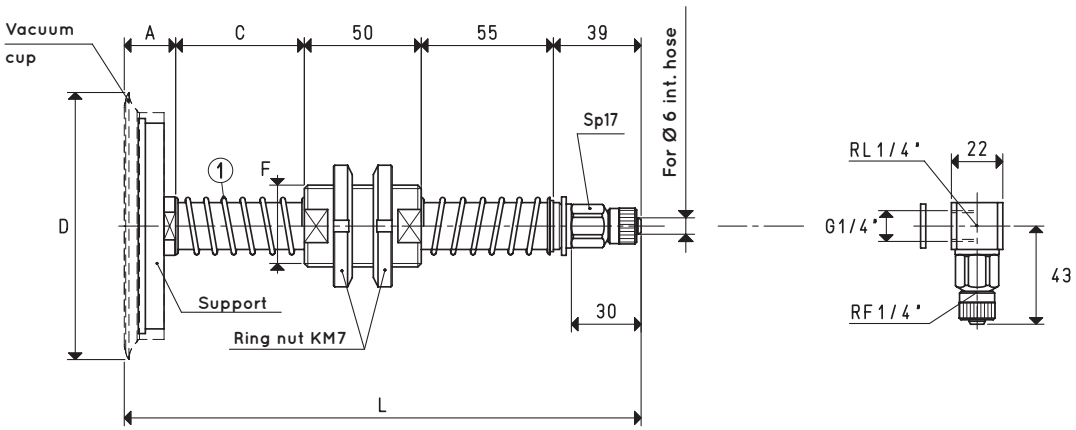


Equipped with anti-friction bushes









VERSION 06 110 13

VERSION 06 110 13 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

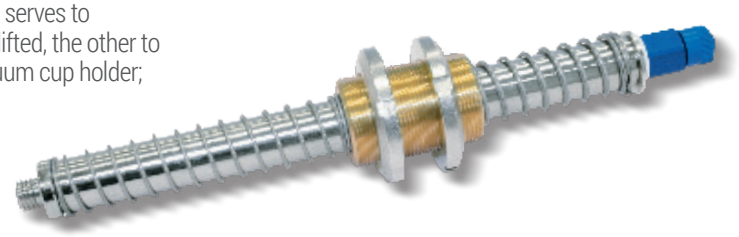
Item	*C	Actual spring stroke mm	Spring thrust force N (1)	A	D Ø	F Ø	L	For vacuum cup item	Support included item	Weight Kg
06 110 13	55	37	70.63	22	114	M35 x 1.5	221	01 110 10	00 08 33	1.01
	110	84	35.31	22	114	M35 x 1.5	276	01 110 10	00 08 33	1.14

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

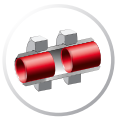
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

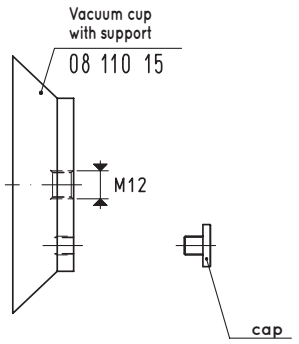
SPECIAL VACUUM CUP HOLDERS WITH DOUBLE SPRINGING

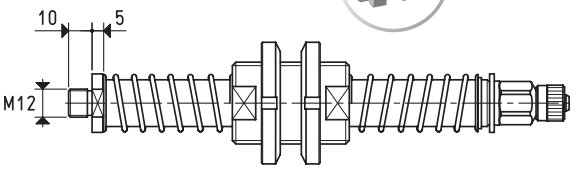
All the special vacuum cup holders previously described can also be provided in the double springing version. In this configuration, the cup holder fixing bush is located between two springs: the lower one cushions the impact of the cup with the load to be lifted during the approach phase, while the upper one absorbs the impact of the bush with the cup holder end and ensures gradual loading of the vacuum cup during the lifting phase. The use of this solution is especially recommended when the load to be handled is very heavy, rough or not perfectly flat.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- Two springs designed to reduce and distribute impact: one serves to cushion the impact of the vacuum cup with the load to be lifted, the other to cushion the impact of the bush against the end of the vacuum cup holder;
- A safety washer;
- A quick coupling for connection with the suction hose.

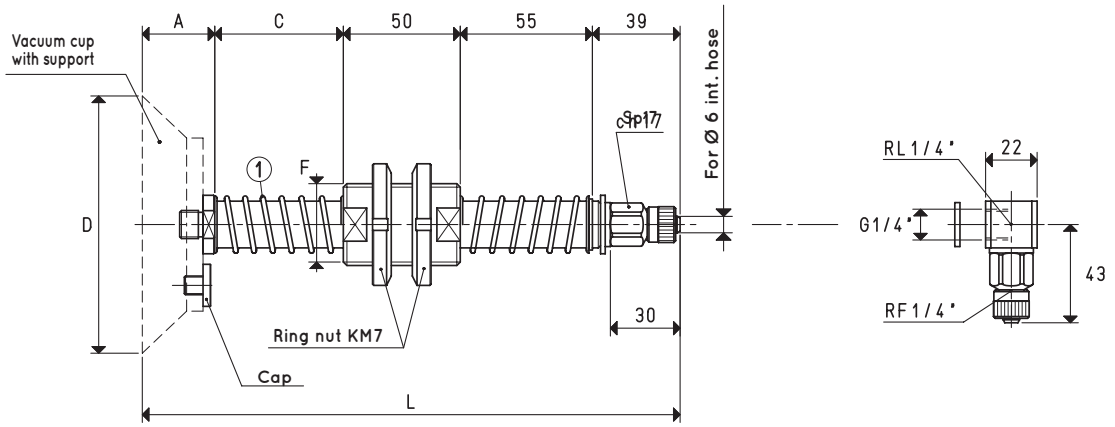


Equipped with anti-friction bushes









VERSION 06 110 16

VERSION 06 110 16 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N (1)	A	D Ø	F Ø	L	For vacuum cup item	Cap included item	Weight Kg
06 110 16	55	37	70.63	31	110	M35 x 1.5	230	08 110 15	00 11 06	0.77
	110	84	35.31	31	110	M35 x 1.5	285	08 110 15	00 11 06	0.90

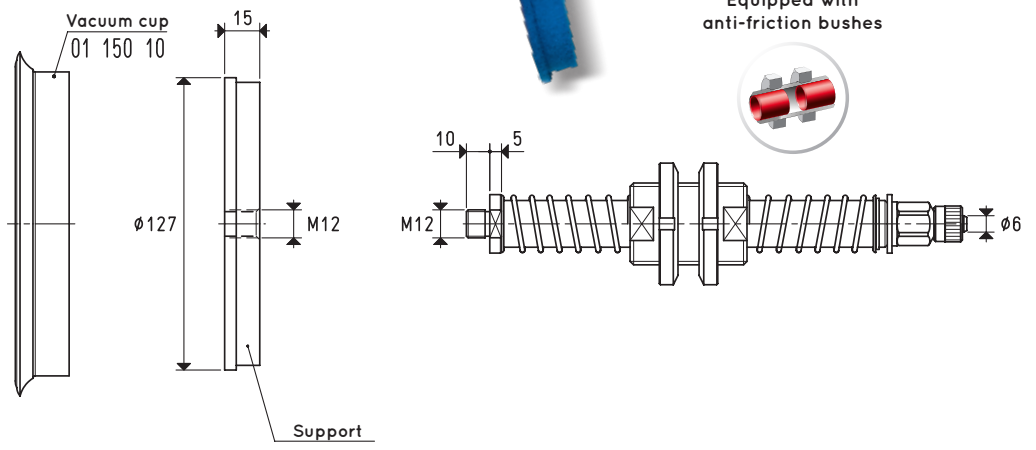
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

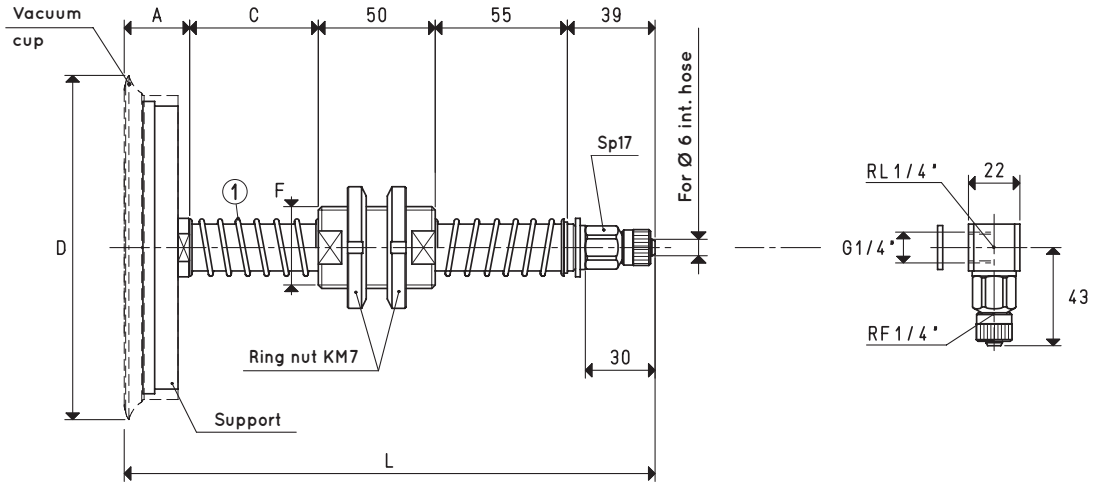
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS WITH DOUBLE SPRINGING

All the special vacuum cup holders previously described can also be provided in the double springing version. In this configuration, the cup holder fixing bush is located between two springs: the lower one cushions the impact of the cup with the load to be lifted during the approach phase, while the upper one absorbs the impact of the bush with the cup holder end and ensures gradual loading of the vacuum cup during the lifting phase. The use of this solution is especially recommended when the load to be handled is very heavy, rough or not perfectly flat.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- Two springs designed to reduce and distribute impact: one serves to cushion the impact of the vacuum cup with the load to be lifted, the other to cushion the impact of the bush against the end of the vacuum cup holder;
- A safety washer;
- A quick coupling for connection with the suction hose.

Equipped with anti-friction bushes





VERSION 06 150 13

VERSION 06 150 13 L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

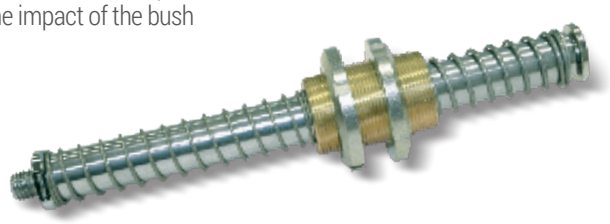
Item	*C	Actual spring stroke mm	Spring thrust force N (1)	A	D Ø	F Ø	L	For vacuum cup item	Support included item	Weight Kg
06 150 13	55	37	70.63	28	154	M35 x 1.5	227	01 150 10	00 08 35	1.35
	110	84	35.31	28	154	M35 x 1.5	282	01 150 10	00 08 35	1.46

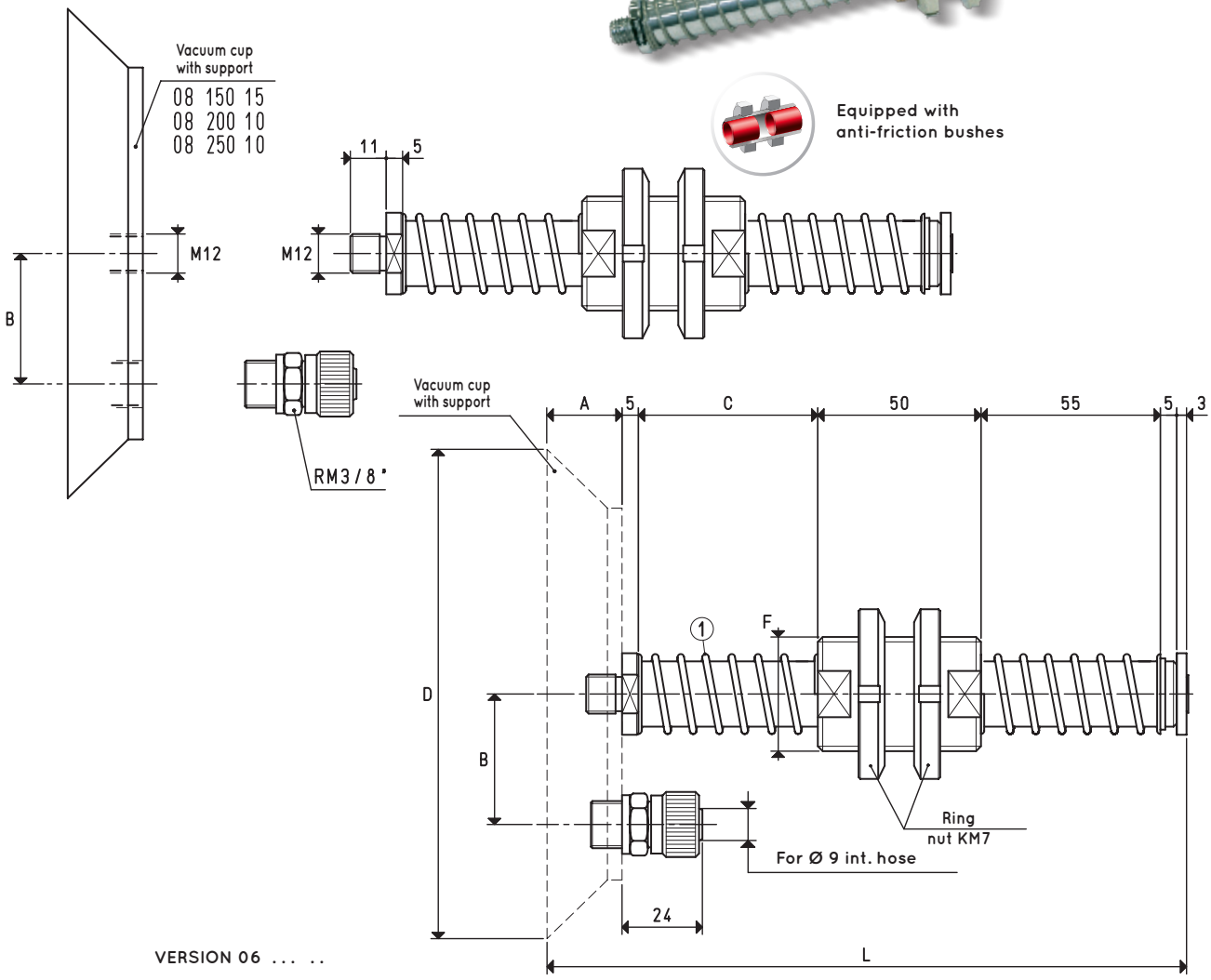
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
To order vacuum cup holders with L fittings, add the letter L to the code.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS WITH DOUBLE SPRINGING

All the special vacuum cup holders previously described can also be provided in the double springing version. In this configuration, the cup holder fixing bush is located between two springs: the lower one cushions the impact of the cup with the load to be lifted during the approach phase, while the upper one absorbs the impact of the bush with the cup holder end and ensures gradual loading of the vacuum cup during the lifting phase. The use of this solution is especially recommended when the load to be handled is very heavy, rough or not perfectly flat.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- Two springs designed to reduce and distribute impact: one serves to cushion the impact of the vacuum cup with the load to be lifted, the other to cushion the impact of the bush against the end of the vacuum cup holder;
- A safety washer;
- A quick coupling for connection with the suction hose.





VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 9 X 12

Item	*C	Actual spring stroke mm	Spring thrust force N (1)	A	B	D Ø	F Ø	L	For vacuum cup item	Weight kg
06 150 18	55	37	70.63	26	40.0	150	M35 x 1.5	199	08 150 15	0.82
	110	84	35.31	26	40.0	150	M35 x 1.5	254	08 150 15	0.96
06 200 13	55	37	70.63	28	47.5	200	M35 x 1.5	201	08 200 10	0.83
	110	84	35.31	28	47.5	200	M35 x 1.5	256	08 200 10	0.98
06 250 13	55	37	70.63	28	72.5	250	M35 x 1.5	201	08 250 10	0.83
	110	84	35.31	28	72.5	250	M35 x 1.5	256	08 250 10	0.97

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

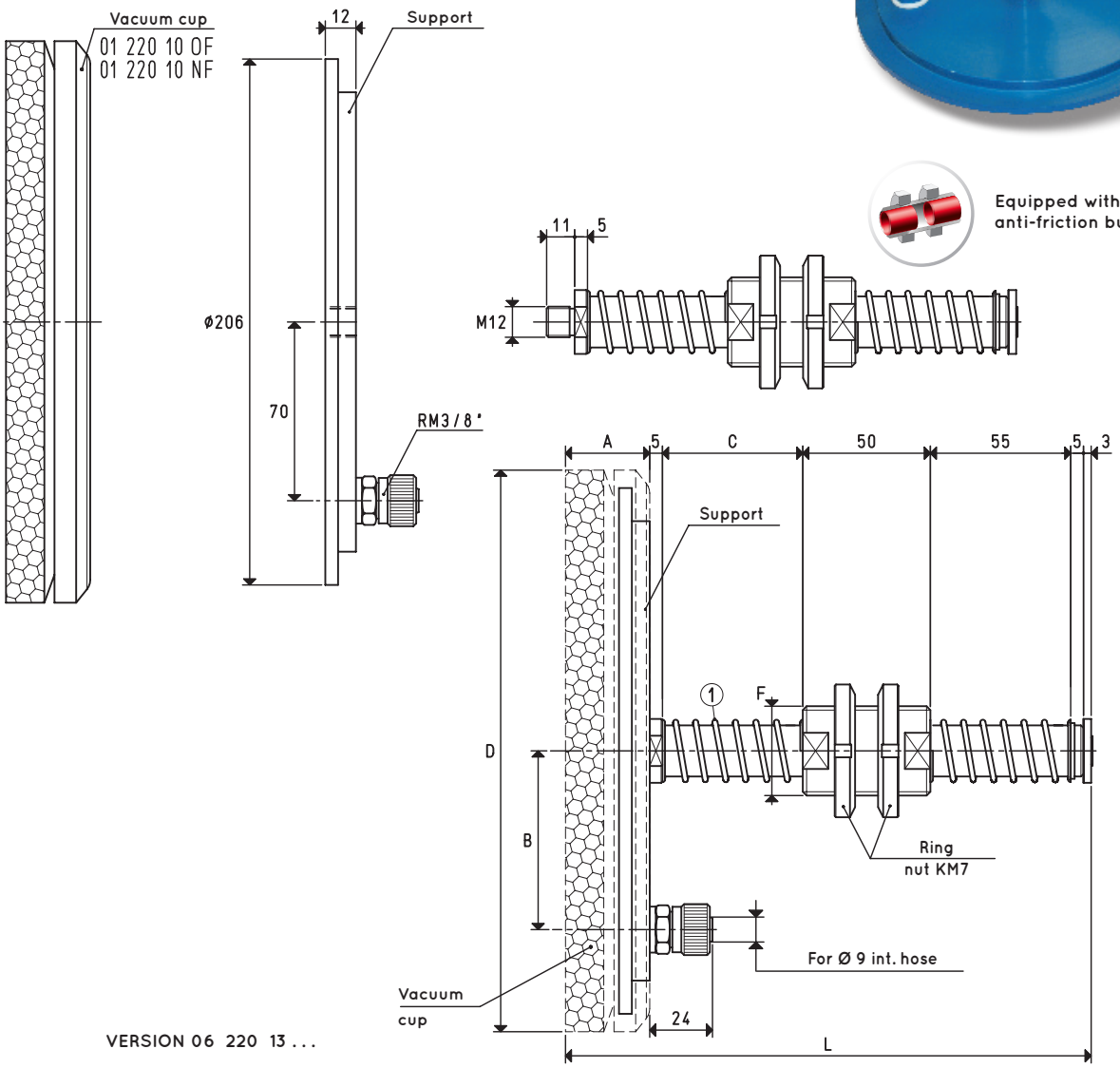
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS WITH DOUBLE SPRINGING

All the special vacuum cup holders previously described can also be provided in the double springing version. In this configuration, the cup holder fixing bush is located between two springs: the lower one cushions the impact of the cup with the load to be lifted during the approach phase, while the upper one absorbs the impact of the bush with the cup holder end and ensures gradual loading of the vacuum cup during the lifting phase. The use of this solution is especially recommended when the load to be handled is very heavy, rough or not perfectly flat. They are composed of:

- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- Two springs designed to reduce and distribute impact: one serves to cushion the impact of the vacuum cup with the load to be lifted, the other to cushion the impact of the bush against the end of the vacuum cup holder;
- A safety washer;
- A quick coupling for connection with the suction hose.

Equipped with anti-friction bushes



VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N (1)	A	B	D Ø	F Ø	L	For vacuum cup item	Support included item	Weight kg
06 220 13 OF	55	37	70.63	35	70	220	M35 x 1.5	208	01 220 10 OF	00 08 37	2.01
	110	84	35.31	35	70	220	M35 x 1.5	263	01 220 10 OF	00 08 37	2.15
06 220 13 NF	55	37	70.63	35	70	220	M35 x 1.5	208	01 220 10 NF	00 08 37	2.00
	110	84	35.31	35	70	220	M35 x 1.5	263	01 220 10 NF	00 08 37	2.14

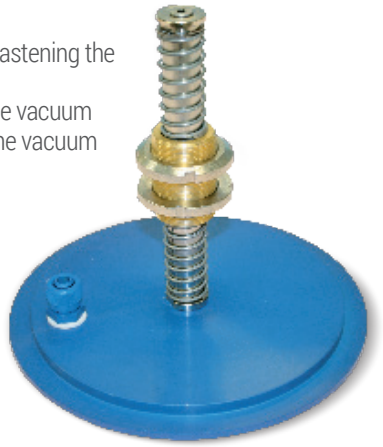
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

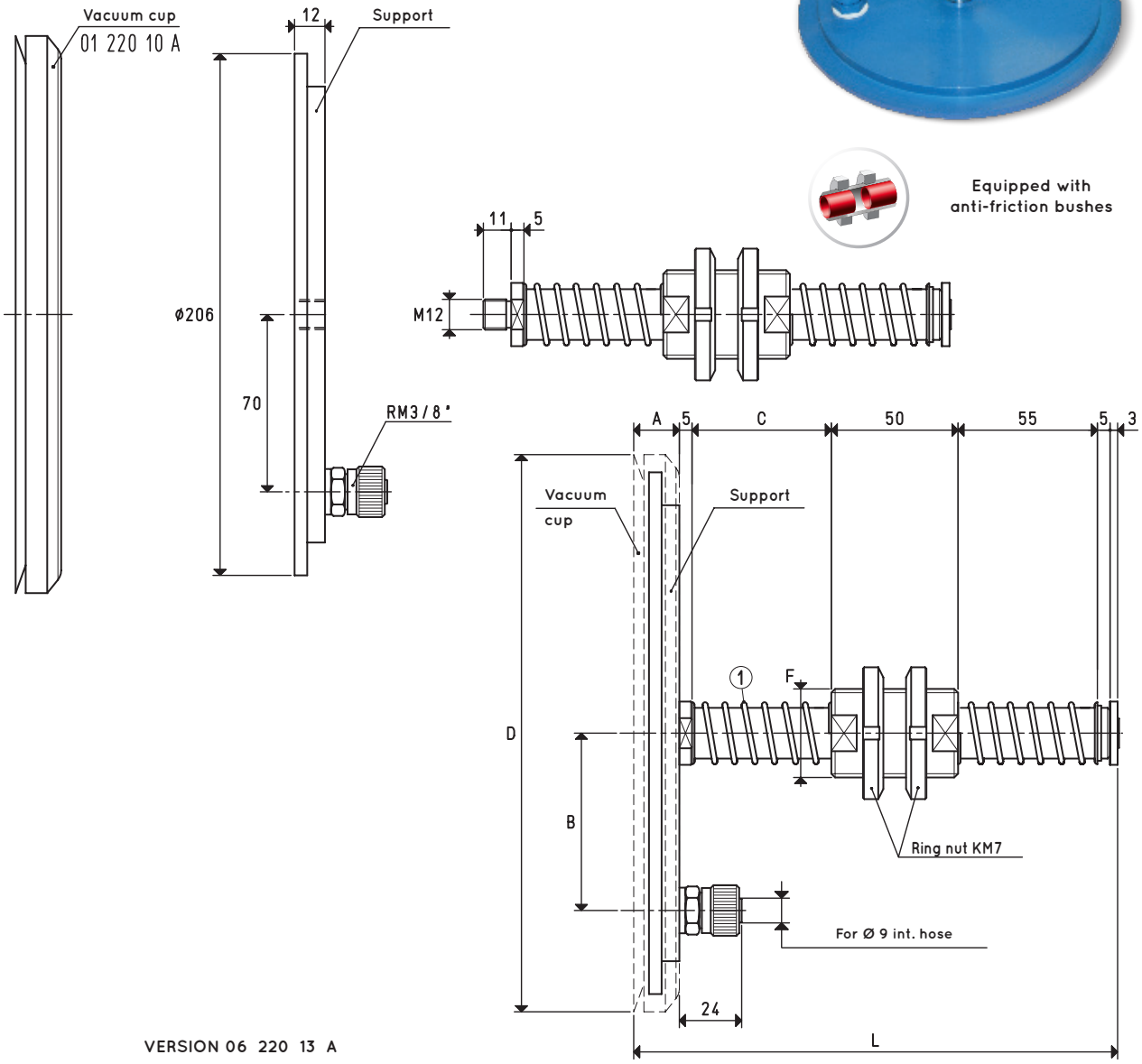
SPECIAL VACUUM CUP HOLDERS WITH DOUBLE SPRINGING

All the special vacuum cup holders previously described can also be provided in the double springing version. In this configuration, the cup holder fixing bush is located between two springs: the lower one cushions the impact of the cup with the load to be lifted during the approach phase, while the upper one absorbs the impact of the bush with the cup holder end and ensures gradual loading of the vacuum cup during the lifting phase. The use of this solution is especially recommended when the load to be handled is very heavy, rough or not perfectly flat. They are composed of:

- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- Two springs designed to reduce and distribute impact: one serves to cushion the impact of the vacuum cup with the load to be lifted, the other to cushion the impact of the bush against the end of the vacuum cup holder;
- A safety washer;
- A quick coupling for connection with the suction hose.



Equipped with anti-friction bushes



VERSION 06 220 13 A

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N (1)	A	B	D Ø	F Ø	L	For vacuum cup item	Support included item	Weight kg
06 220 13 A	55	37	70.63	20	70	220	M35 x 1.5	193	01 220 10 A	00 08 37	1.96
	110	84	35.31	20	70	220	M35 x 1.5	248	01 220 10 A	00 08 37	2.09

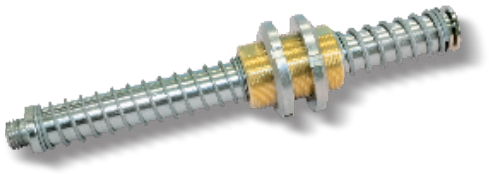
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

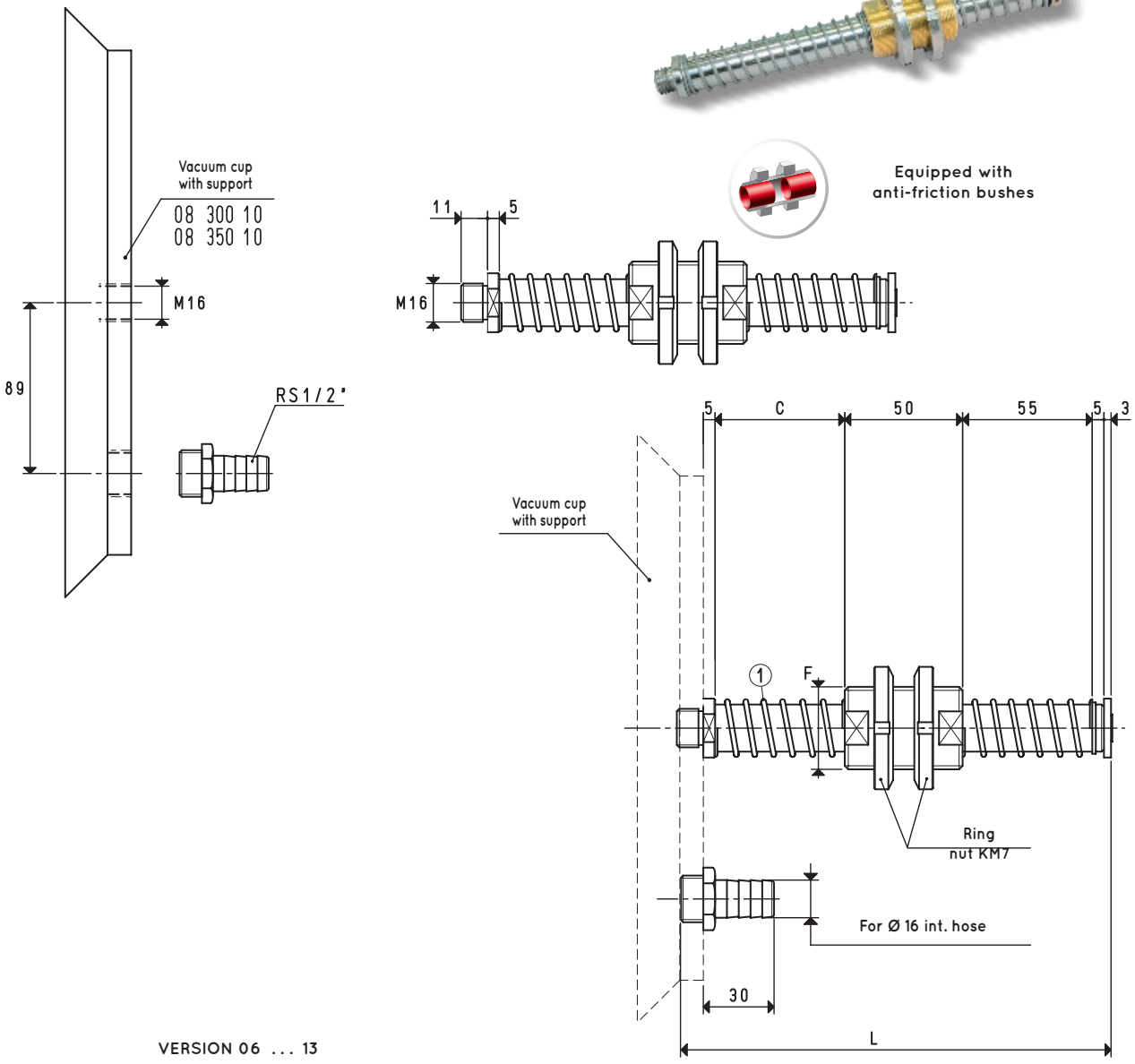
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS WITH DOUBLE SPRINGING

All the special vacuum cup holders previously described can also be provided in the double springing version. In this configuration, the cup holder fixing bush is located between two springs: the lower one cushions the impact of the cup with the load to be lifted during the approach phase, while the upper one absorbs the impact of the bush with the cup holder end and ensures gradual loading of the vacuum cup during the lifting phase. The use of this solution is especially recommended when the load to be handled is very heavy, rough or not perfectly flat.

They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- Two springs designed to reduce and distribute impact: one serves to cushion the impact of the vacuum cup with the load to be lifted, the other to cushion the impact of the bush against the end of the vacuum cup holder;
- A safety washer;
- A hose connector for connection with the suction hose.





VERSION 06 ... 13

VACUUM CUP HOLDERS WITH HOSE-END FITTING FOR PLASTIC HOSE Ø 16 X 18

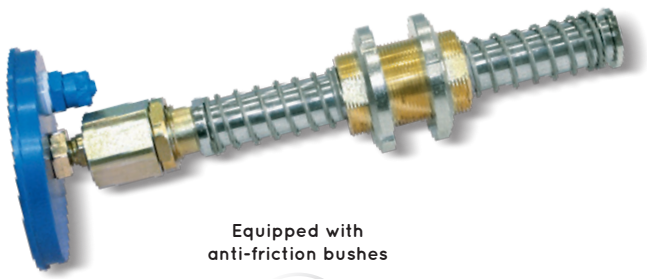
Item	*C	Actual spring stroke mm	Spring thrust force N (1)	F Ø	L	Weight Kg
06 300 13	55	37	70.63	M35 x 1.5	204	0.870
	110	84	35.31	M35 x 1.5	259	0.940
	For vacuum cup item					
	08 300 10					
	08 350 10					

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

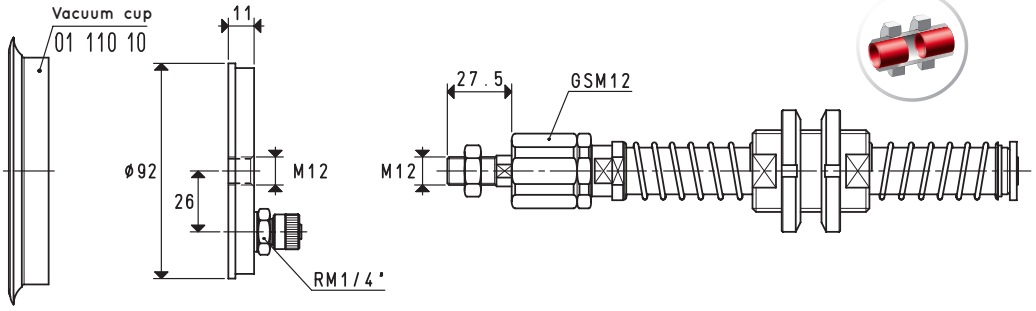
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

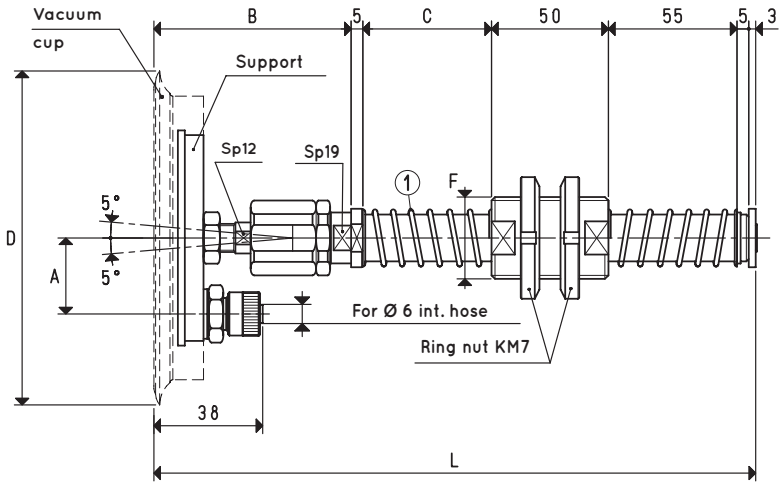
SPECIAL ARTICULATED VACUUM CUP HOLDERS WITH DOUBLE SPRINGING

The distinctive feature of these cup holders is their articulated joint in hardened steel, which allows the flat cups installed on these cup holders to adapt themselves to the loads to be lifted even if not completely parallel with the cup plane, as well as to compensate possible verticality errors that can arise between the cup holder and the automation fixing support.
The cup holder fixing bush is located between two springs: the lower one cushions the impact of the cup with the load to be lifted during the approach phase, while the upper one cushions the impact of the bush with the cup holder end and gradually loads the cup during the lifting phase.
These cup holders are especially recommended when the load to be lifted is very heavy, rough or not perfectly flat.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- Two springs designed to reduce and distribute impact: one serves to cushion the impact of the vacuum cup with the load to be lifted, the other to cushion the impact of the bush against the end of the vacuum cup holder;
- A safety washer;
- A quick coupling for connection with the suction hose;
- An articulated joint in galvanised steel.



Equipped with anti-friction bushes





VERSION 06 110 14

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

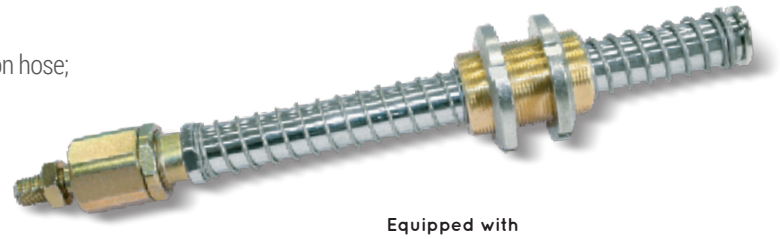
Item	*C	Actual spring stroke mm	Spring thrust force N (1)	A	B	D Ø	F Ø	L	For vacuum cup item	Support included item	Weight kg
06 110 14	55	37	70.63	26	77	114	M35 x 1.5	250	01 110 10	00 06 14	1.24
	110	84	35.31	26	77	114	M35 x 1.5	305	01 110 10	00 06 14	1.34

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

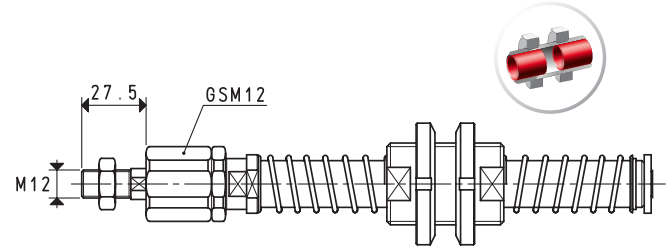
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

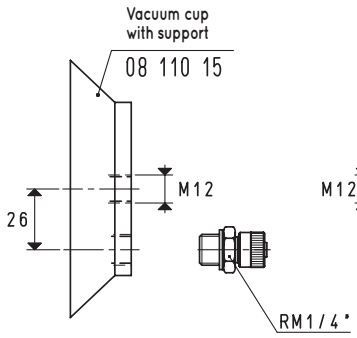
SPECIAL ARTICULATED VACUUM CUP HOLDERS WITH DOUBLE SPRINGING

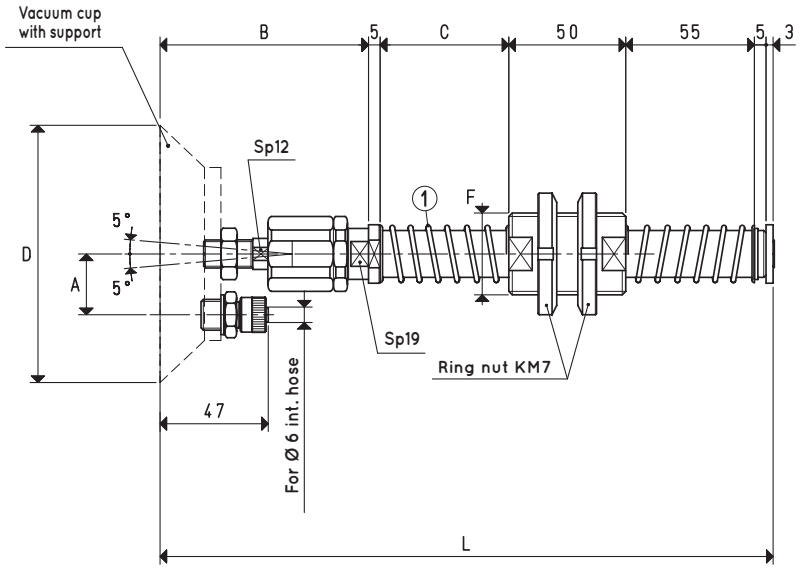
The distinctive feature of these cup holders is their articulated joint in hardened steel, which allows the flat cups installed on these cup holders to adapt themselves to the loads to be lifted even if not completely parallel with the cup plane, as well as to compensate possible verticality errors that can arise between the cup holder and the automation fixing support.
The cup holder fixing bush is located between two springs: the lower one cushions the impact of the cup with the load to be lifted during the approach phase, while the upper one cushions the impact of the bush with the cup holder end and gradually loads the cup during the lifting phase.
These cup holders are especially recommended when the load to be lifted is very heavy, rough or not perfectly flat.
They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- Two springs designed to reduce and distribute impact: one serves to cushion the impact of the vacuum cup with the load to be lifted, the other to cushion the impact of the bush against the end of the vacuum cup holder;
- A safety washer;
- A quick coupling for connection with the suction hose;
- An articulated joint in galvanised steel.



Equipped with anti-friction bushes







VERSION 06 110 18

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N (1)	A	B	D Ø	F Ø	L	For vacuum cup item	Weight kg
06 110 18	55	37	70.63	26	86	110	M35 x 1.5	259	08 110 15	1.01
	110	84	35.31	26	86	110	M35 x 1.5	314	08 110 15	1.11

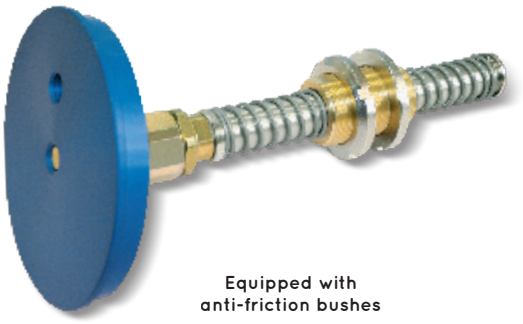
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

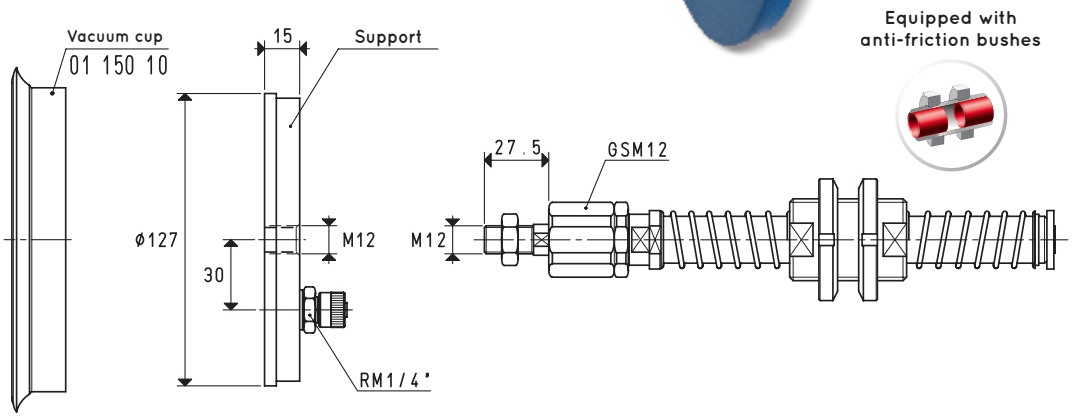
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

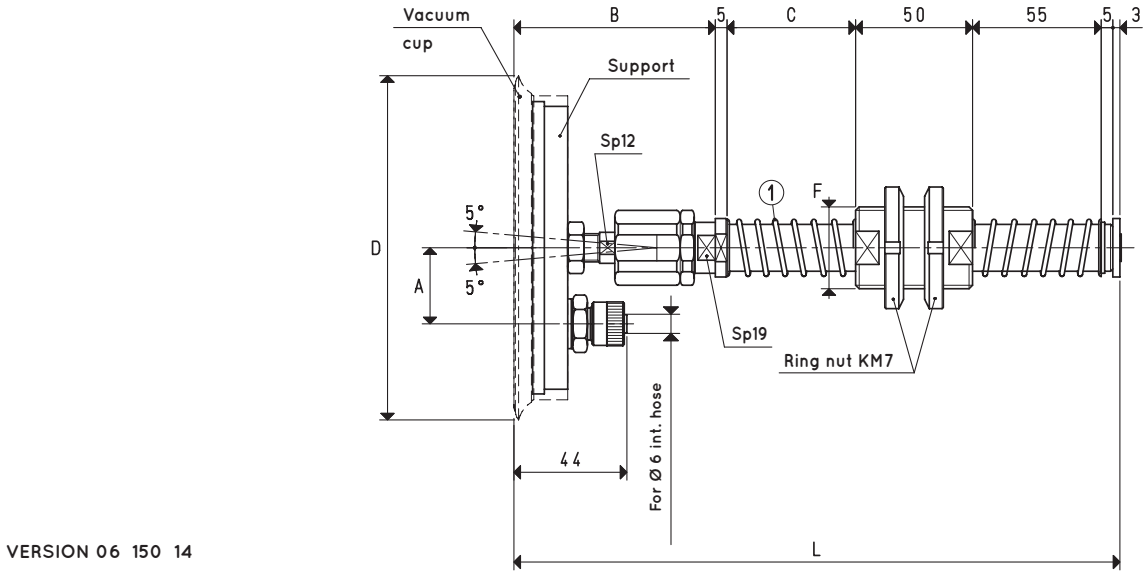
SPECIAL ARTICULATED VACUUM CUP HOLDERS WITH DOUBLE SPRINGING

The distinctive feature of these cup holders is their articulated joint in hardened steel, which allows the flat cups installed on these cup holders to adapt themselves to the loads to be lifted even if not completely parallel with the cup plane, as well as to compensate possible verticality errors that can arise between the cup holder and the automation fixing support.
The cup holder fixing bush is located between two springs: the lower one cushions the impact of the cup with the load to be lifted during the approach phase, while the upper one cushions the impact of the bush with the cup holder end and gradually loads the cup during the lifting phase.
These cup holders are especially recommended when the load to be lifted is very heavy, rough or not perfectly flat.

They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- Two springs designed to reduce and distribute impact: one serves to cushion the impact of the vacuum cup with the load to be lifted, the other to cushion the impact of the bush against the end of the vacuum cup holder;
- A safety washer;
- A quick coupling for connection with the suction hose;
- An articulated joint in galvanised steel.







VERSION 06 150 14

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 6 X 8

Item	*C	Actual spring stroke mm	Spring thrust force N (1)	A	B	D Ø	F Ø	L	For vacuum cup item	Support included item	Weight kg
06 150 14	55	37	70.63	30	83	154	M35 x 1.5	256	01 150 10	00 06 15	1.06
	110	84	35.31	30	83	154	M35 x 1.5	311	01 150 10	00 06 15	1.16

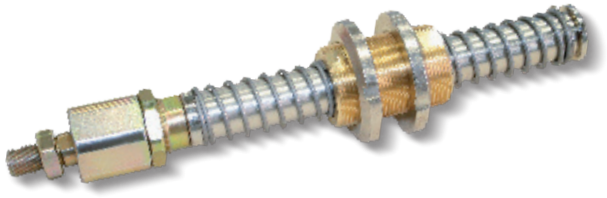
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

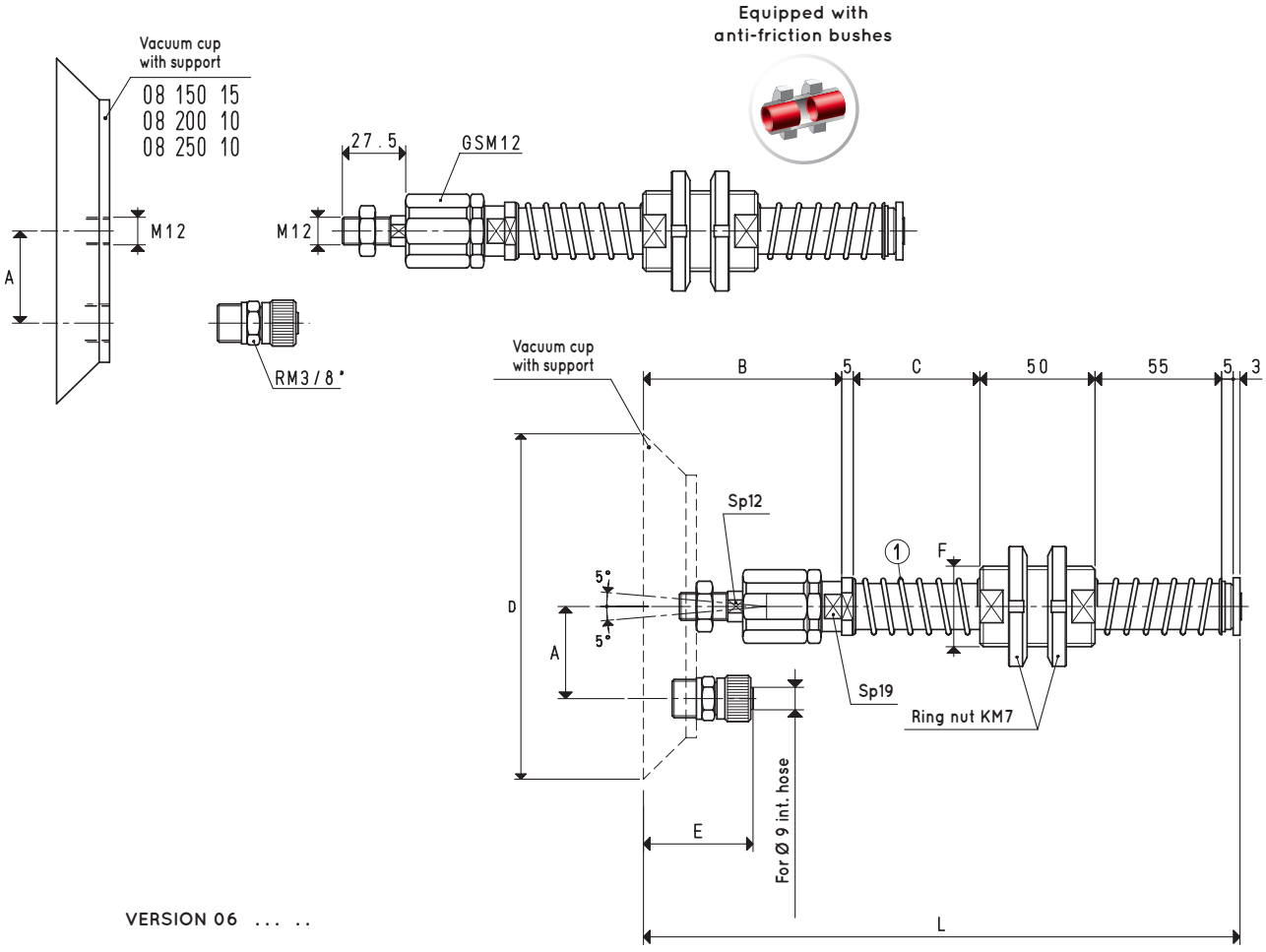
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL ARTICULATED VACUUM CUP HOLDERS WITH DOUBLE SPRINGING

The distinctive feature of these cup holders is their articulated joint in hardened steel, which allows the flat cups installed on these cup holders to adapt themselves to the loads to be lifted even if not completely parallel with the cup plane, as well as to compensate possible verticality errors that can arise between the cup holder and the automation fixing support.
The cup holder fixing bush is located between two springs: the lower one cushions the impact of the cup with the load to be lifted during the approach phase, while the upper one cushions the impact of the bush with the cup holder end and gradually loads the cup during the lifting phase.
These cup holders are especially recommended when the load to be lifted is very heavy, rough or not perfectly flat.

They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- Two springs designed to reduce and distribute impact: one serves to cushion the impact of the vacuum cup with the load to be lifted, the other to cushion the impact of the bush against the end of the vacuum cup holder;
- A safety washer;
- A quick coupling for connection with the suction hose;
- An articulated joint in galvanised steel.





VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 9 X 12

Item	*C	Actual spring stroke mm	Spring thrust force N (1)	A	B	D Ø	E	F Ø	L	For vacuum cup item	Weight kg
06 150 19	55	37	70.63	40.0	86	150	50	M35 x 1.5	259	08 150 15	1.03
	110	84	35.31	40.0	86	150	50	M35 x 1.5	314	08 150 15	1.14
06 200 14	55	37	70.63	47.5	88	200	52	M35 x 1.5	261	08 200 10	1.04
	110	84	35.31	47.5	88	200	52	M35 x 1.5	316	08 200 10	1.14
06 250 14	55	37	70.63	72.5	88	250	52	M35 x 1.5	261	08 250 10	1.03
	110	84	35.31	72.5	88	250	52	M35 x 1.5	316	08 250 10	1.14

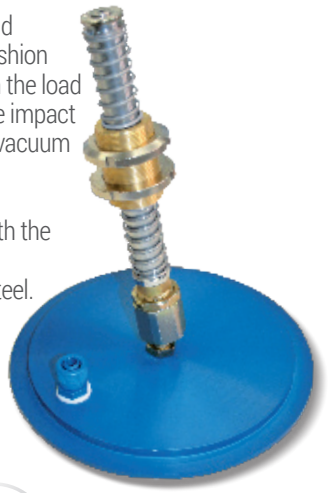
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

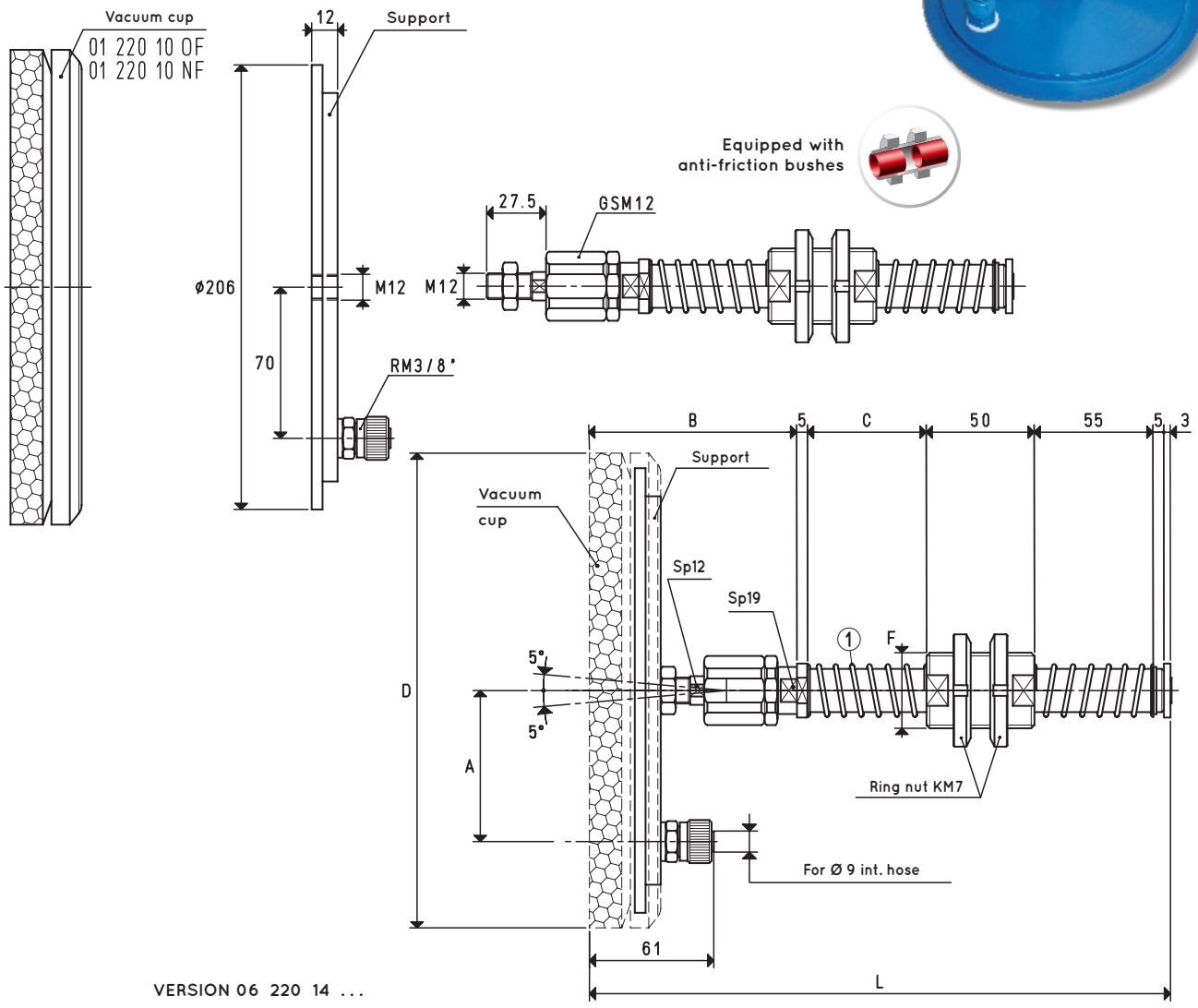
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL ARTICULATED VACUUM CUP HOLDERS WITH DOUBLE SPRINGING

The distinctive feature of these cup holders is their articulated joint in hardened steel, which allows the flat cups installed on these cup holders to adapt themselves to the loads to be lifted even if not completely parallel with the cup plane, as well as to compensate possible verticality errors that can arise between the cup holder and the automation fixing support.
The cup holder fixing bush is located between two springs: the lower one cushions the impact of the cup with the load to be lifted during the approach phase, while the upper one cushions the impact of the bush with the cup holder end and gradually loads the cup during the lifting phase.
These cup holders are especially recommended when the load to be lifted is very heavy, rough or not perfectly flat.

They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- Two springs designed to reduce and distribute impact: one serves to cushion the impact of the vacuum cup with the load to be lifted, the other to cushion the impact of the bush against the end of the vacuum cup holder;
- A safety washer;
- A quick coupling for connection with the suction hose;
- An articulated joint in galvanised steel.





VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 9 X 12

Item	*C	Actual spring stroke mm	Spring thrust force N (1)	A	B	D Ø	F Ø	L	For vacuum cup item	Support included item	Weight kg
06 220 14 OF	55	37	70.63	70	97	220	M35 x 1.5	270	01 220 10 OF	00 08 37	2.22
	110	84	35.31	70	97	220	M35 x 1.5	325	01 220 10 OF	00 08 37	2.32
06 220 14 NF	55	37	70.63	70	97	220	M35 x 1.5	270	01 220 10 NF	00 08 37	2.21
	110	84	35.31	70	97	220	M35 x 1.5	325	01 220 10 NF	00 08 37	2.31

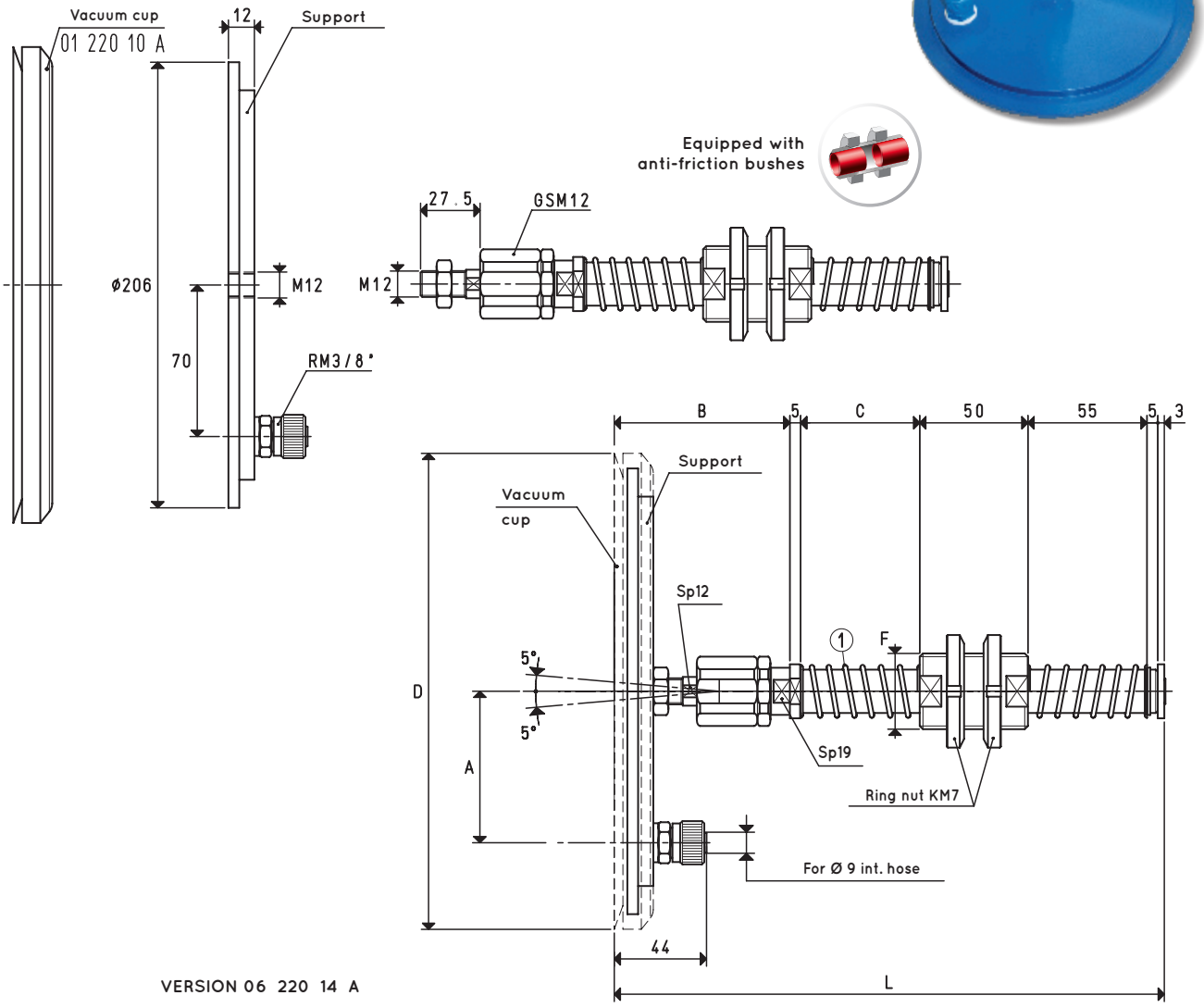
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL ARTICULATED VACUUM CUP HOLDERS WITH DOUBLE SPRINGING

The distinctive feature of these cup holders is their articulated joint in hardened steel, which allows the flat cups installed on these cup holders to adapt themselves to the loads to be lifted even if not completely parallel with the cup plane, as well as to compensate possible verticality errors that can arise between the cup holder and the automation fixing support.
The cup holder fixing bush is located between two springs: the lower one cushions the impact of the cup with the load to be lifted during the approach phase, while the upper one cushions the impact of the bush with the cup holder end and gradually loads the cup during the lifting phase.
These cup holders are especially recommended when the load to be lifted is very heavy, rough or not perfectly flat.

They are composed of:
- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- Two springs designed to reduce and distribute impact: one serves to cushion the impact of the vacuum cup with the load to be lifted, the other to cushion the impact of the bush against the end of the vacuum cup holder;
- A safety washer;
- A quick coupling for connection with the suction hose;
- An articulated joint in galvanised steel.



VERSION 06 220 14 A

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE Ø 9 X 12

Item	*C	Actual spring stroke mm	Spring thrust force N (1)	A	B	D Ø	F Ø	L	For vacuum cup item	Support included item	Weight kg
06 220 14 A	55	37	70.63	70	80	220	M35 x 1.5	253	01 220 10 A	00 08 37	2.14
	110	84	35.31	70	80	220	M35 x 1.5	308	01 220 10 A	00 08 37	2.24

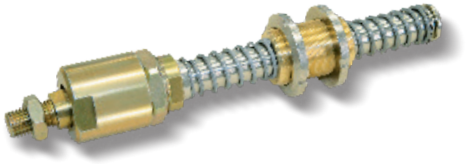
Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

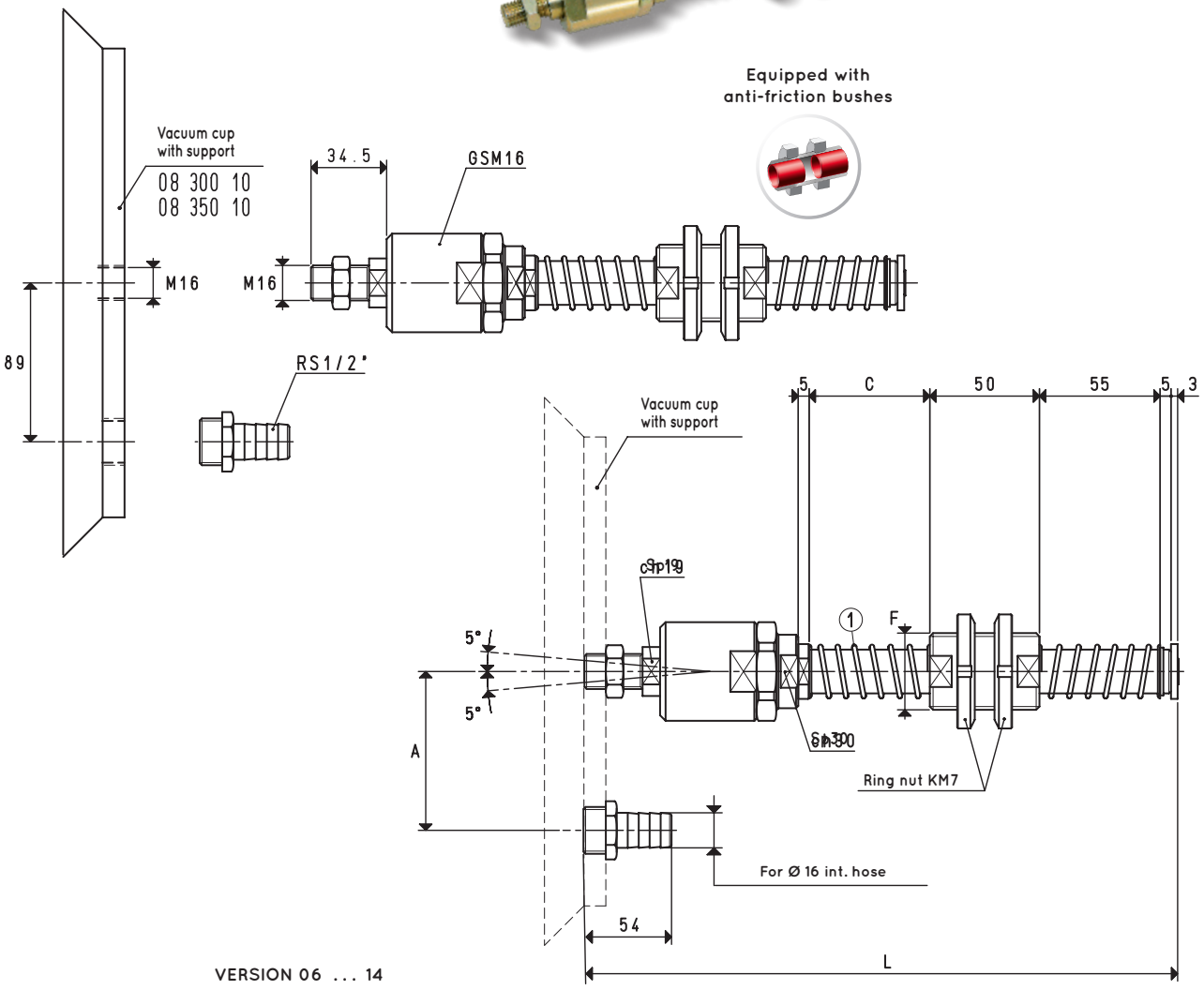
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL ARTICULATED VACUUM CUP HOLDERS WITH DOUBLE SPRINGING

The distinctive feature of these cup holders is their articulated joint in hardened steel, which allows the flat cups installed on these cup holders to adapt themselves to the loads to be lifted even if not completely parallel with the cup plane, as well as to compensate possible verticality errors that can arise between the cup holder and the automation fixing support. The cup holder fixing bush is located between two springs: the lower one cushions the impact of the cup with the load to be lifted during the approach phase, while the upper one cushions the impact of the bush with the cup holder end and gradually loads the cup during the lifting phase. These cup holders are especially recommended when the load to be lifted is very heavy, rough or not perfectly flat. They are composed of:

- A nickel-plated steel stem for fastening the vacuum cup;
- A threaded brass bush, equipped with two anti-friction bushings, fitted with two ring nuts for fastening the vacuum cup holder to the automation;
- Two springs designed to reduce and distribute impact: one serves to cushion the impact of the vacuum cup with the load to be lifted, the other to cushion the impact of the bush against the end of the vacuum cup holder;
- A safety washer;
- A hose connector for connection with the suction hose;
- An articulated joint in galvanised steel.





VACUUM CUP HOLDERS WITH HOSE-END FITTING FOR PLASTIC HOSE Ø 16 X 18

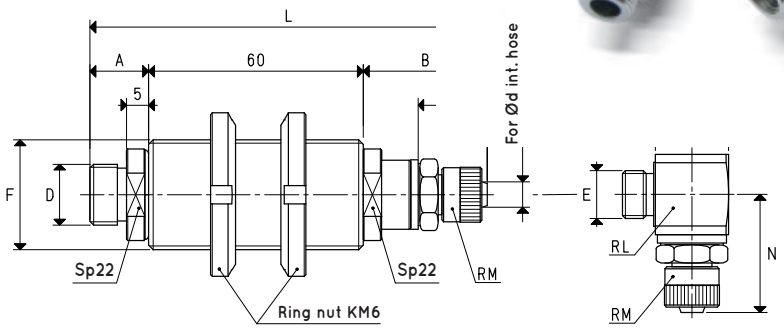
Item	*C	Actual spring stroke mm	Spring thrust force N (1)	A	F Ø	L	Weight Kg
06 300 14	55	37	70.63	89	M35 x 1.5	257	1.54
	110	84	35.31	89	M35 x 1.5	312	1.93
			For vacuum cup item				
			08 300 10				
			08 350 10				

Note: The vacuum cup holder's lifting force depends directly on the vacuum cup model applied to it.
The vacuum cups are not integral parts of the cup holders and, therefore, must be ordered separately.
* Also available with height C of 110 mm

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL VACUUM CUP HOLDERS FIX WITH MALE AND FEMALE THREADED CONNECTORS

Fix vacuum cup holders have been designed to adjust the height of the vacuum cups with support thanks to the threading along the entire length of the threaded bush. The ends are threaded for mounting the vacuum cup with support and the connector.
They are composed of:
- A threaded bush equipped with two ring nuts, for mounting the vacuum up holder on the automation;
- A quick coupling for connection with the suction hose.

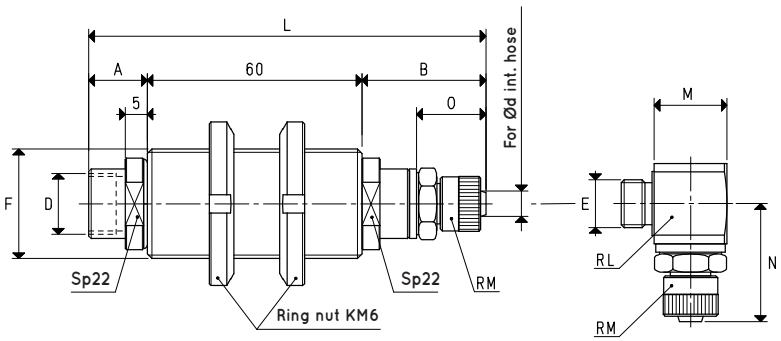


VERSION 06 70 .. VERSION 06 70 .. L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE

Item	A	B	D Ø	d Ø	E Ø	F Ø	L	M	N	O	RL	RM	Weight g
06 70 90	15	34	G1/4"	6	G1/4"	M30 x 1.5	109	21.0	32.0	18.5	1/4"	1/4"	430
06 70 91	15	34	G3/8"	6	G1/4"	M30 x 1.5	109	21.0	32.0	18.5	1/4"	1/4"	430
06 70 92	15	40	G3/8"	9	G3/8"	M30 x 1.5	115	21.5	35.5	22.0	3/8"	3/8"	430
06 70 93	15	40	G1/2"	9	G3/8"	M30 x 1.5	115	21.5	35.5	22.0	3/8"	3/8"	435
06 70 94	15	34	M12	6	G1/4"	M30 x 1.5	109	21.0	32.0	18.5	1/4"	1/4"	430
06 70 95	15	40	M12	9	G3/8"	M30 x 1.5	115	21.5	35.5	22.0	3/8"	3/8"	430
06 70 96	15	40	M16	9	G3/8"	M30 x 1.5	115	21.5	35.5	22.0	3/8"	3/8"	435

Note: To order vacuum cup holders with L fittings, add the letter L to the code.



VERSION 06 70 .. VERSION 06 70 .. L

VACUUM CUP HOLDERS WITH STRAIGHT QUICK COUPLER FOR PLASTIC HOSE

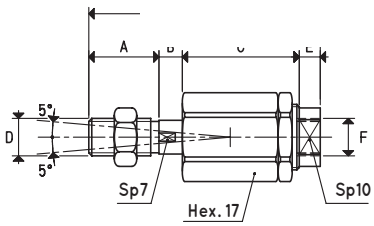
Item	A	B	D Ø	d Ø	E Ø	F Ø	L	M	N	O	RL	RM	Weight g
06 70 80	13	34	G1/4"	6	G1/4"	M30 x 1.5	107	21.0	32.0	18.5	1/4"	1/4"	435
06 70 81	15	40	G3/8"	9	G3/8"	M30 x 1.5	115	21.5	35.5	22.0	3/8"	3/8"	435
06 70 82	15	34	G3/8"	6	G1/4"	M30 x 1.5	107	21.0	32.0	18.5	1/4"	1/4"	435

Note: To order vacuum cup holders with L fittings, add the letter L to the code.

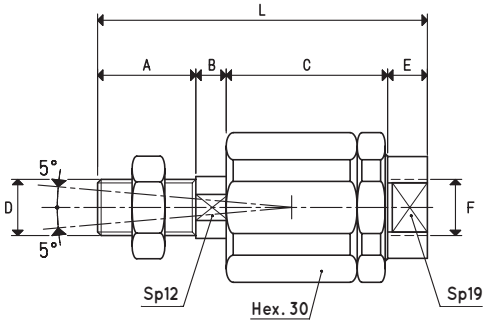
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPHERICAL ARTICULATED JOINTS

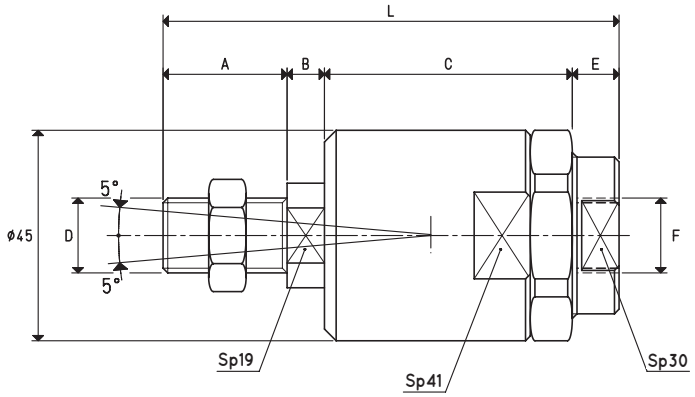
The spherical swivel joints we manufacture are made of galvanized AVP steel.
Assembled to the cup holders, they compensate offsets, orthogonality and flatness errors that often arise between the cups and the surface of the load to be lifted.



Item	A	B	C	D Ø	E	F Ø	L	Weight g
GSM8	15	5	25	M8	4.5	M8	49.5	55



Item	A	B	C	D Ø	E	F Ø	L	Weight g
GSM12	21	6.5	34.5	M12	8.5	M12	70.5	220

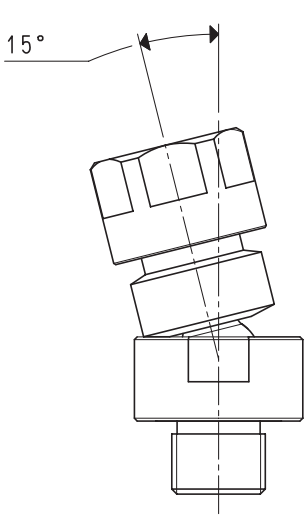


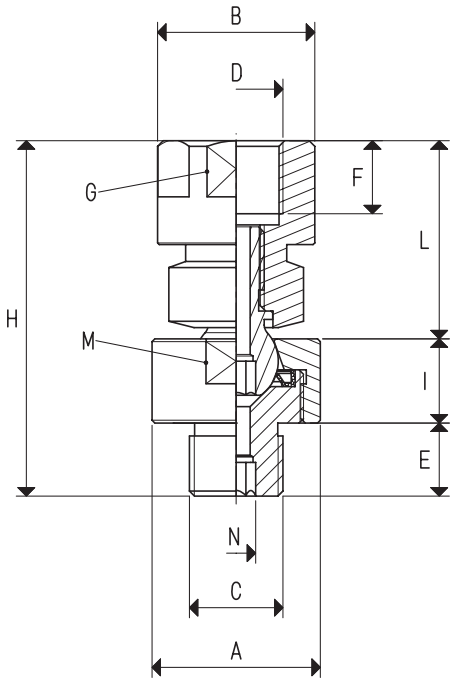
Item	A	B	C	D Ø	E	F Ø	L	Weight g
GSM16	26.5	8	53	M16	10	M16	97.5	670

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BALL JOINT COUPLINGS WITH AXIAL VACUUM CONNECTION

This series of couplings was designed to be installed on suckers with support, especially those that are flat or that have little lip, in order to allow them to easily adapt to the gripping surface of the load to be picked up, even if not perfectly parallel to the plane of the sucker itself or to compensate for any perpendicularity errors that often occur between the sucker holder and the fixing support of the automation.
The vacuum connection is axial and the hold is guaranteed by a special seal,always in contact with the ball joint.
The sucker installed on them is free to rotate 360° degrees on its axis and to tilt up to 15°.
The couplings are made entirely of brass, except for the ball pin and its retention nut which are made of stainless steel.
They can be fastened to the sucker using either the female or male threaded connection.





BALL JOINT COUPLINGS WITH AXIAL VACUUM CONNECTION

Item	A Ø	B Ø	C Ø	D Ø	E	F	G hex	H	I	L	M wr.	N hex	Material	Max load admissible Kg	Weight g
GSL 1/8"	20	12	G1/8"	G1/8"	8.5	8	11	43.0	12	22.5	18	4	brass/stainless steel	10.5	40
GSL 1/4"	20	16	G1/4"	G1/4"	10.0	8	15	44.6	12	22.6	18	4	brass/stainless steel	19.6	56
GSL 3/8"	30	28	G3/8"	G3/8"	13.0	13	26	63.3	15	35.3	28	6	brass/stainless steel	33.4	206
GSL 1/2"	30	28	G1/2"	G1/2"	17.0	15	26	72.3	15	40.3	28	6	brass/stainless steel	51.5	232

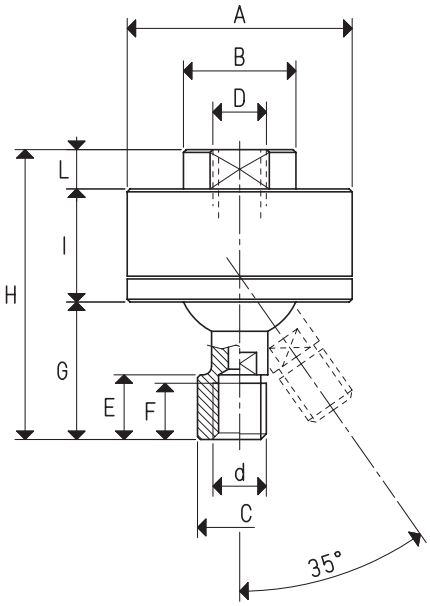
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**

POSITIONABLE BALL JOINT COUPLINGS WITH AXIAL VACUUM CONNECTION

The positionable ball joints couplings in anodised aluminium allow the installed vacuum cups to be rotated 360° and to be tilted by up to 35° in order to properly position them with respect to the gripping surface on the object to be handled, while at the same time ensuring a perfect grip and proper suction through the joint itself.



POSITIONABLE BALL JOINT COUPLINGS WITH AXIAL VACUUM CONNECTION

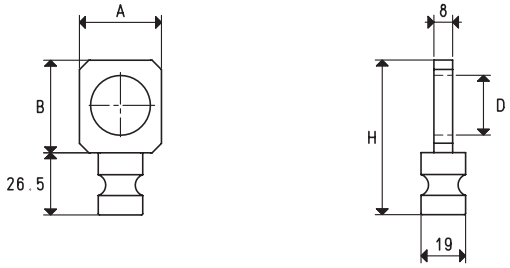
Item	A Ø	B Ø	C Ø	D Ø	d Ø	E	F	G	H	I	L	Material	Max load admissible Kg	Weight g
GSV 1/8"	40	20	--	G1/8"	G1/8"	11.5	10	24.5	51.5	20	7	aluminium	18.24	77.6
GSV 1/4"	45	25	--	G1/4"	G1/4"	14.5	12	28.5	60.5	25	7	aluminium	23.54	126.7
GSV 3/8"	50	30	--	G3/8"	G3/8"	14.0	12	34.5	69.5	25	10	aluminium	33.91	171.2
GSVF 1/8"	40	20	15	G1/8"	G1/8"	11.5	10	24.5	51.5	20	7	aluminium	18.24	80.4
GSVF 1/4"	45	25	20	G1/4"	G1/4"	14.5	12	28.5	60.5	25	7	aluminium	23.54	129.2
GSVF 3/8"	50	30	21	G3/8"	G3/8"	17.0	12	34.5	69.5	25	10	aluminium	33.91	167.6

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

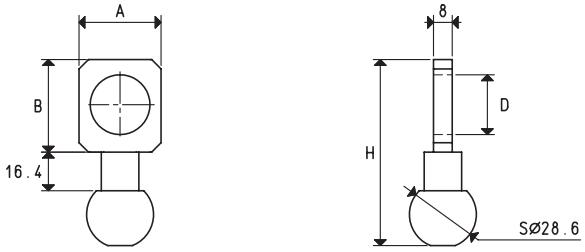
VACUUM CUP HOLDER FIXING SUPPORTS

The first two supports shown in this page are made with stainless steel and are suited for fastening the cup holder to the machine by means of a slotted cylindrical pin or a spherical pin housed in the automation. The third support, on the other hand, is made with aluminium and it is composed of two parts that, screwed together, block the spherical joint, allowing to keep the cup holder in the desired position.



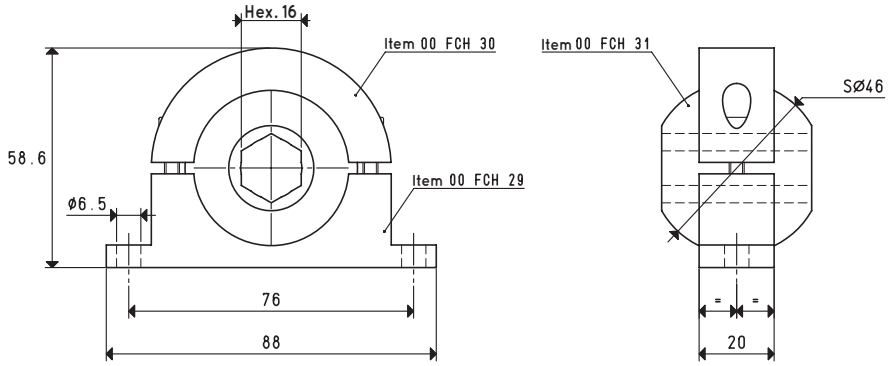
SUPPORTS WITH SLOTTED CYLINDRICAL PIN

Item	A	B	D Ø	H	By vacuum cup holders	Weight g
00 FCH 10	35	39.5	25.5	79.5	special anti-rotation	102
00 FCH 11	30	33.5	20.5	73.5	basic	90



SUPPORTS WITH SPHERICAL PIN

Item	A	B	D Ø	H	By vacuum cup holders	Weight g
00 FCH 20	35	39.5	25.5	79.5	special anti-rotation	168
00 FCH 21	30	33.5	20.5	73.5	basic	154



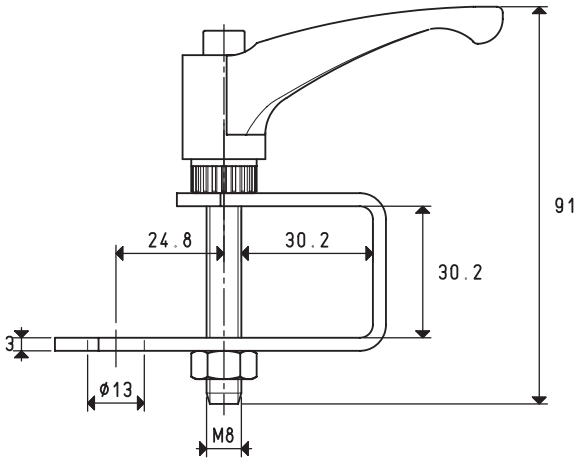
SUPPORTS WITH BUILT-IN BALL JOINT COUPLING

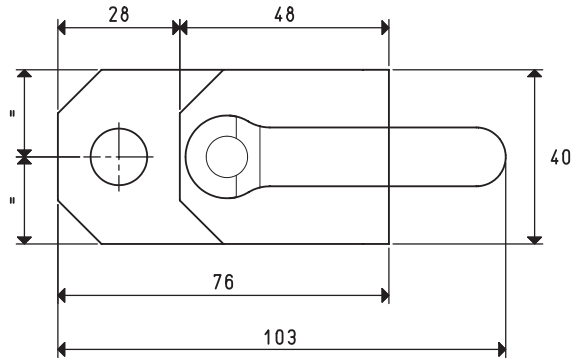
Item	By vacuum cup holders	Weight g
FCH 16	special anti-rotation	156

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

VACUUM CUP HOLDER FIXING SUPPORTS

The supports described in the following in these pages are made with galvanised sheet steel and they are used to fasten the various types of cup holders to the automation, generally made up of a square tube frame. The screw or the handle with which they are equipped quickly block the support in position.



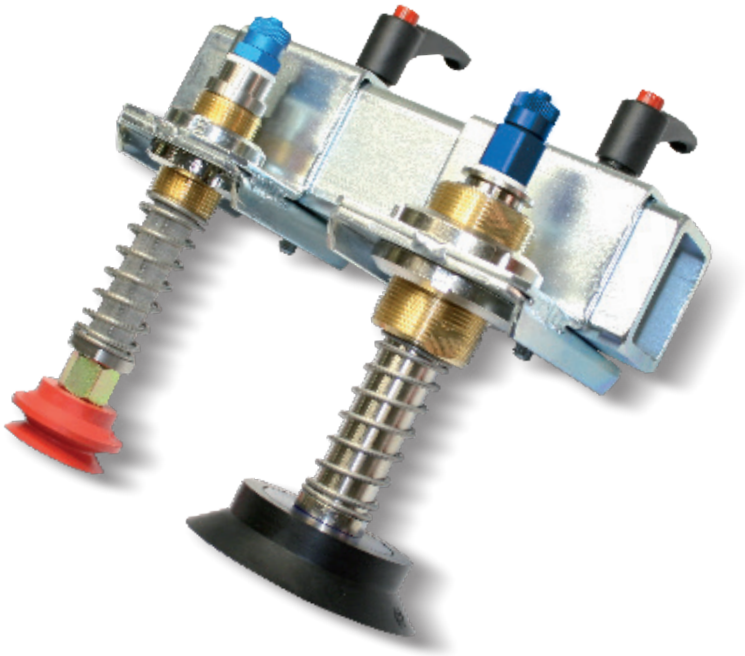


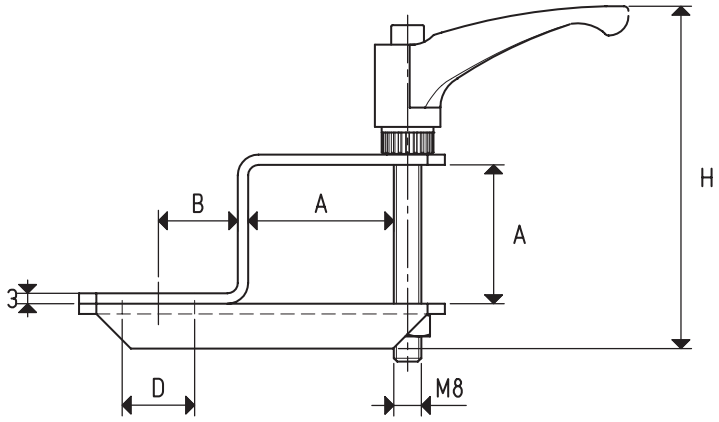
SUPPORT FOR TUBE ⧄ 30

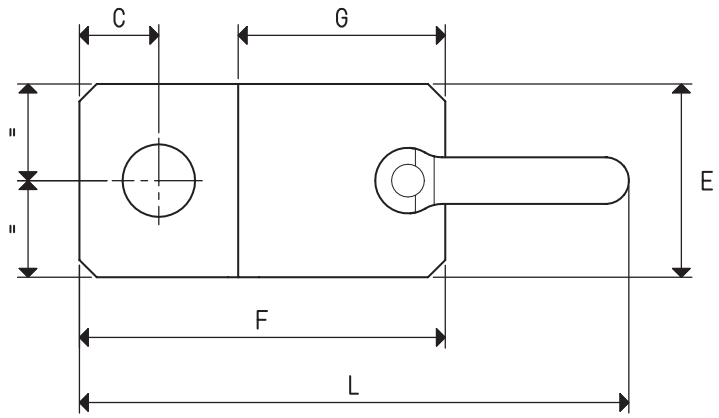
Item	Tube cross-sect. ⧄	By vacuum cup holders	Weight g
SFP 01	30	mini	160

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

VACUUM CUP HOLDER FIXING SUPPORTS







SUPPORTS FOR TUBES ⍁ 40-50

Item	Tube cross-sect. ⍁	A	B	C	D Ø	E	F	G	H	L	By vacuum cup holders	Weight g
SFP 02	40	40.2	23	23	21	56	106	60	99	159	basic	350
SFP 03	40	40.2	23	23	25	56	106	60	99	159	special anti-rotation	338
SFP 04	40	40.2	30	30	36	70	120	60	99	173	special	438
SFP 05	50	50.2	23	23	21	56	116	70	109	169	basic	370
SFP 06	50	50.2	23	23	25	56	116	70	109	169	special anti-rotation	377
SFP 07	50	50.2	30	30	36	70	130	70	109	183	special	490

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

VACUUM MEASUREMENT, CONTROL AND ADJUSTMENT INSTRUMENTS

VACUUM AND PRESSURE UNIT CONVERSION TABLES	PG. 3.00
VACUUM AND PRESSURE GAUGES	PG. 3.01 ÷ 3.04
VACUUM GAUGE WITH STEEL PUNCH	PG. 3.05
MINI PNEUMATIC VACUUM SWITCHES	PG. 3.06
MINI ELECTROMECHANICAL VACUUM SWITCH	PG. 3.07
MICRO DIGITAL VACUUM SWITCHES	PG. 3.08 ÷ 3.09
ANALOGUE VACUUM SWITCH	PG. 3.10 ÷ 3.11
DIGITAL IO-Link VACUUM AND PRESSURE SWITCHES	PG. 3.12 ÷ 3.13
DIGITAL VACUUM SWITCHES	PG. 3.14 ÷ 3.15
DIGITAL VACUUM AND PRESSURE SWITCHES	PG. 3.16 ÷ 3.17
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SEALING KIT FOR VACUUM REGULATORS	PG. 3.30

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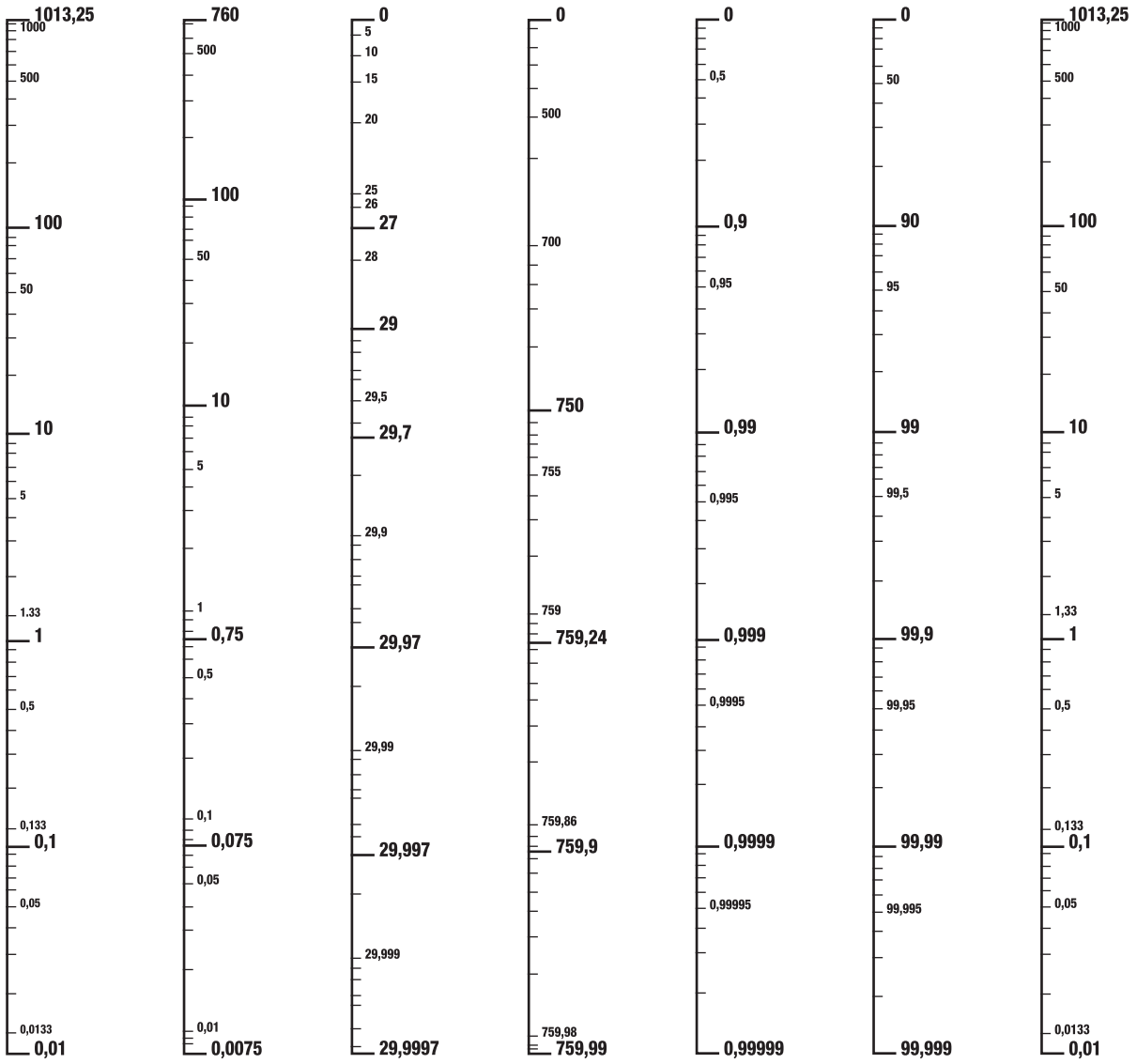
VACUUM AND PRESSURE UNIT CONVERSION TABLES



PRESSURE MEASUREMENT UNIT CONVERSION FACTORS (ABSOLUTE VALUES)

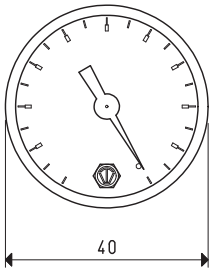
PRESSURE MEASUREMENT UNIT CONVERSION FACTORS (ABSOLUTE VALUES)

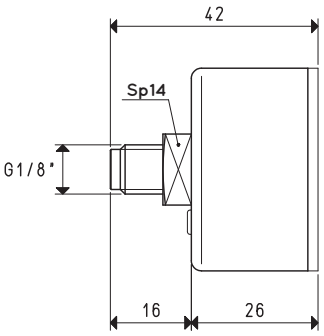
		= mbar	= bar	= torr	= inch. Hg	= psi (lbf/in²)	= atm	= Kg/cm² (at)	= mm H_2O	= m H_2O	= Pa (N/m²)
mbar	**x**	1	10^{-3}	0,75	2,95x 10^{-2}	14,5 x 10^{-3}	9,87 x 10^{-4}	1,02 x 10^{-3}	10,2	1,02 x 10^{-2}	100,0
bar	**x**	1000,0	1	750,0	29,53	14,6	0,987	1,02	10197,0	10,19	100000
torr	**x**	1,33	1,33 x 10^{-3}	1	3,94 x 10^{-2}	1,93 x 10^{-2}	1,316 x 10^{-3}	1,359 x 10^{-3}	13,59	1,359 x 10^{-3}	133,32
inch. Hg	**x**	33,9	33,9 x 10^{-3}	25,4	1	0,491	3,34 x 10^{-2}	3,45 x 10^{-2}	345,0	0,345	3386,0
psi (lbf/in²)	**x**	68,9	6,89 x 10^{-2}	51,7	2,04	1	6,8 x 10^{-2}	7,03 x 10^{-2}	703	0,703	6897
atm	**x**	1013,25	1,013	760,0	30,0	14,696	1	1,033	10332	10,332	101325,0
Kg/cm² (at)	**x**	981	0,981	735,6	28,96	14,2	0,968	1	10000	10	98067,0
mm H^2O	**x**	9,81 x 10^{-2}	9,81 x 10^{-5}	7,35 x 10^{-2}	2,89 x 10^{-3}	1,42 x 10^{-3}	9,67 x 10^{-5}	10^{-4}	1	10^{-3}	9,8067
m H^2O	**x**	98,067	9,81 x 10^{-2}	73,5	2,89	1,42	9,67 x 10^{-2}	10	10000	1	9806,7
Pa (N/m²)	**x**	0,01	10-5	7,5 x 10^{-3}	2,95 x 10^{-4}	1,45 x 10^{-4}	9,87 x 10^{-6}	1,02 x 10^{-5}	0,102	1,02 x 10^{-4}	1

Example: To transform 10 mbar in Torr = 10 x 0.75 = 7.5 Torr

VACUUM AND PRESSURE GAUGES

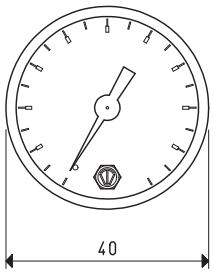
The measurement method of our vacuum gauges is based on the principle of the Bourdon spring (Eugène Bourdon, France, 1808 – 1884).
It is made using section tubes in special copper alloy, one end is welded to the threaded pin of the vacuum-pressure gauge, thus forming a single body with it, while the other closed end is free. As the vacuum or the pressure inside increases, it tends to shift from the initial position (Bourdon effect). The movement of the free end of the spring determines the vacuum-pressure measurement.
For easier reading, this movement is amplified by means of a connection lever and transmitted to the pointer.
Everything is contained in a sturdy case made from different materials according to the function of models, fastened onto a threaded fitting for connection to the system. The face and index are visible thanks to a clear plastic protective disc. They are available in various versions, with radial or coaxial connectors, with built-in or external flange, dry or glycerine filled. With the exception of the Ø 40 mm vacuum gauges, all other models have a double scale dial.
All the vacuum and pressure gauges we will describe on these pages are made in compliance with all the safety standards and measurement units in force in the European Union.

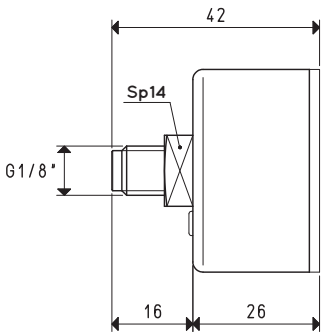




VACUUM GAUGE

Item	Scale kPa	Admissable scale error	Temperature of use	Notes	Case material	Weight g
09 03 15	0 ÷ -100	2.5%	-10 °C ÷ +50 °C	dry	Black plastic	52





PRESSURE GAUGES

Item	Scale bar		Admissable scale error	Temperature of use	Notes	Case material	Weight g
09 03 20	0 ÷ 1.6	0 ÷ 23 psi	2.5%	-10 °C ÷ +50 °C	dry	Black plastic	54
09 03 25	0 ÷ 10	0 ÷ 1.0 MPa	2.5%	-10 °C ÷ +50 °C	dry	Black plastic	54

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

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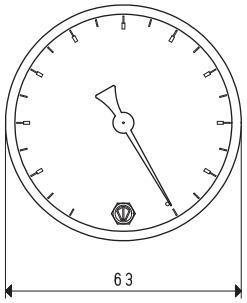
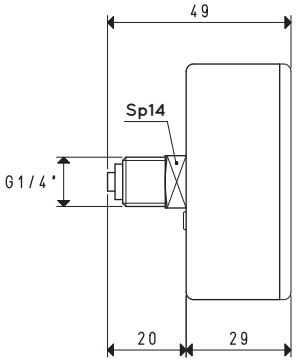
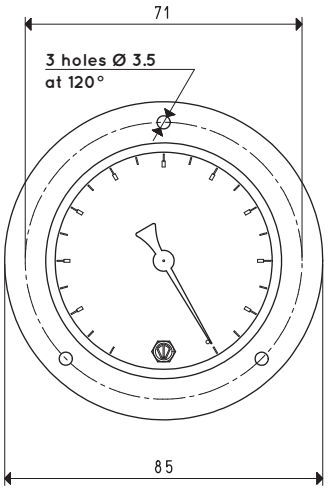
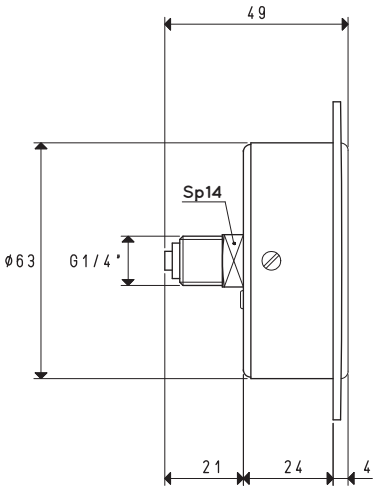




VACUUM GAUGE

Item	Scale mbar	Scale kPa	Admissable scale error	Temperature of use	Notes	Case material	Weight g
09 03 10	-1000 ÷ 0	-100 ÷ 0	2.5%	-10 °C ÷ +50 °C	dry	black plastic	134



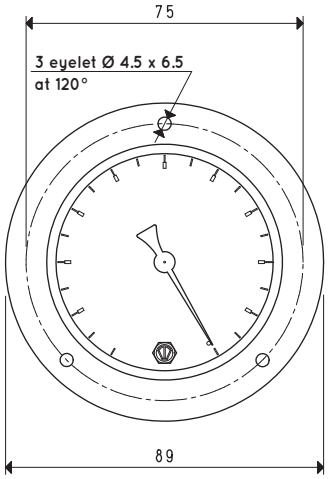


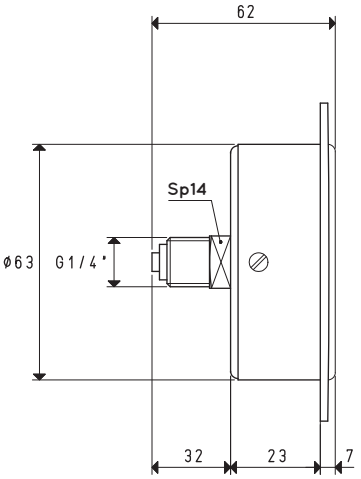
VACUUM GAUGE

Item	Scale mbar	Scale kPa	Admissable scale error	Temperature of use	Notes	Case material	Flange material	Weight g
09 01 10	-1000 ÷ 0	-100 ÷ 0	2.5%	-10 °C ÷ +50 °C	dry	black plastic	chrome-plated steel	162

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

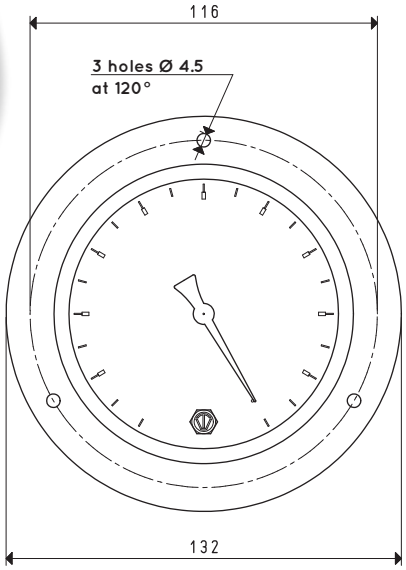
Adapters for GAS - NPT threading available on page 1.134

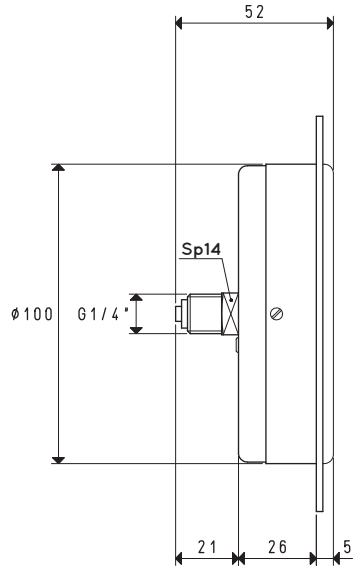




VACUUM GAUGE

Item	Scale mbar	Scale kPa	Admissable scale error	Temperature of use	Notes	Case material	Flange material	Weight g
09 01 16	-1000 ÷ 0	-100 ÷ 0	1.6%	-10 °C ÷ +50 °C	in glycerine bath	Die-cast brass	chrome-plated steel	348





VACUUM GAUGE

Item	Scale mbar	Scale kPa	Admissable scale error	Temperature of use	Notes	Case and flange material	Weight g
09 02 10	-1000 ÷ 0	-100 ÷ 0	1%	-10 °C ÷ +50 °C	dry	black steel	346

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

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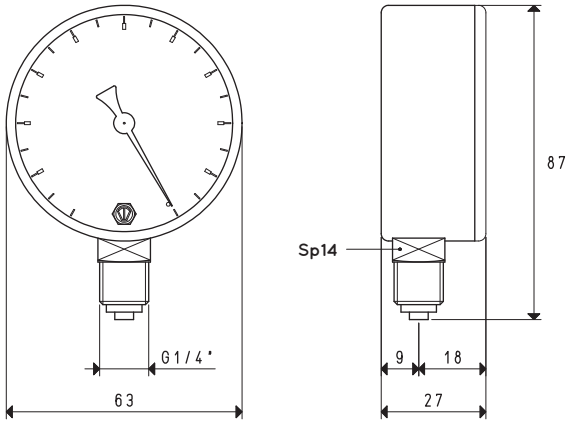
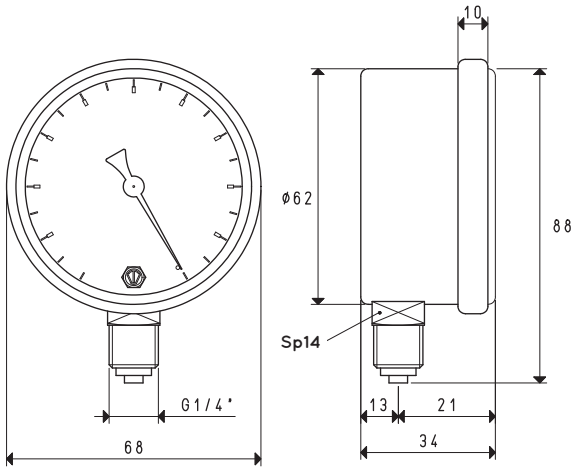


VACUUM GAUGE

Item	Scale mbar	Scale kPa	Admissable scale error	Temperature of use	Notes	Case material	Weight g
09 05 10	-1000 ÷ 0	-100 ÷ 0	2.5%	-10 °C ÷ +50 °C	dry	black plastic	136



VACUUM GAUGE

Item	Scale mbar	Scale kPa	Admissable scale error	Temperature of use	Notes	Case material	Weight g
09 05 16	-1000 ÷ 0	-100 ÷ 0	1.6%	-10 °C ÷ +50 °C	in glycerine bath	stainless steel	218

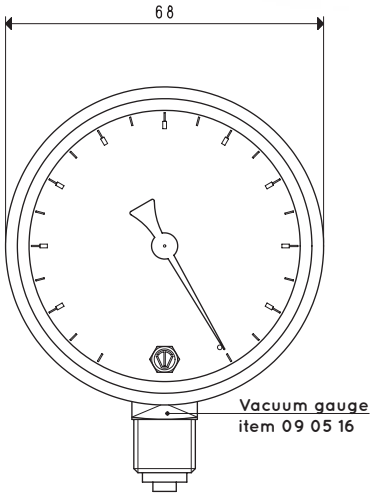
Note: On request, vacuum gauges art. 09 05 16 can be supplied with calibration certificate.

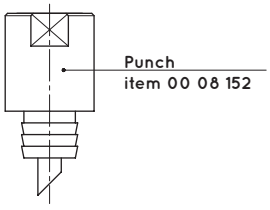
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

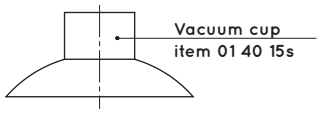
Adapters for GAS - NPT threading available on page 1.134

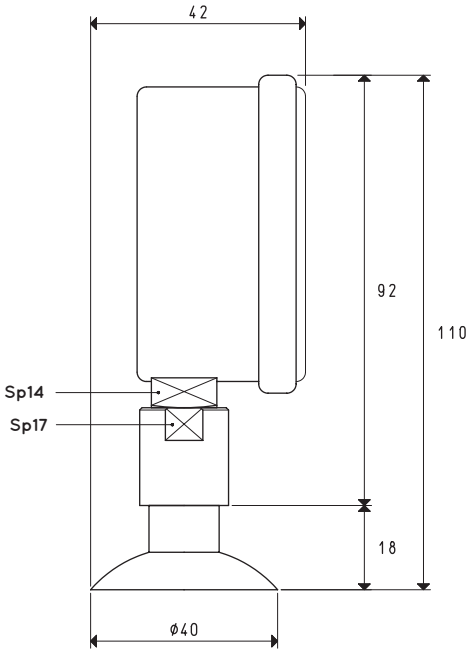
VACUUM GAUGE WITH STEEL PUNCH

This vacuum gauge with punch has been designed to allow the immediate detection of the level of vacuum inside tin cans and food containers in general. The glycerine bath vacuum gauge item 09 05 16 used for this application (features described on the previous page) is provided with a hardened steel punch to easily perforate the containers and with a vacuum cup in silicone compound to guarantee vacuum seal after perforation.
It is available in the standard version, which is the one shown on this page, but can be provided in other versions upon request.









VACUUM GAUGE

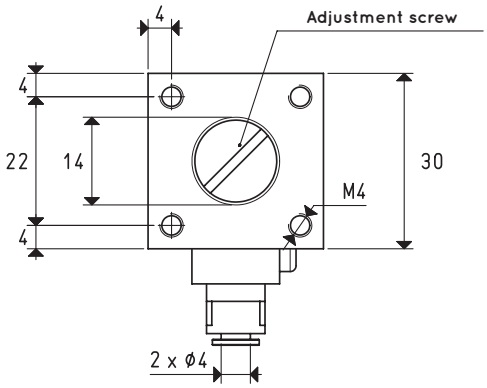
Item	Scale mbar	Scale kPa	Admissable scale error	Temperature of use	Notes	Case material	Weight g
09 05 99	-1000 ÷ 0	-100 ÷ 0	1.6%	-10 °C ÷ +50 °C	in glycerine bath	stainless steel	250

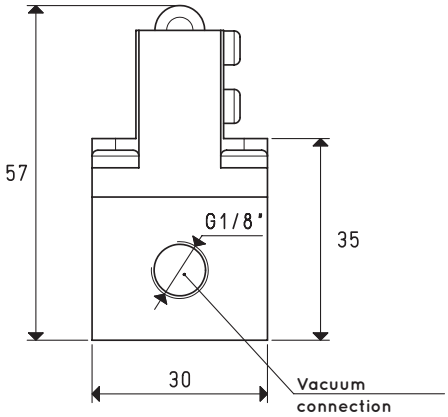
Note: On request, vacuum gauges art. 09 05 99 can be supplied with calibration certificate.

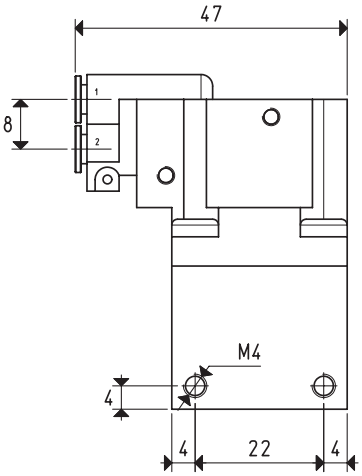
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

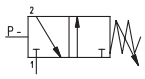
MINI PNEUMATIC VACUUM SWITCHES

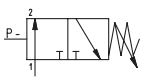
These extremely compact vacuum switches give or remove a pneumatic signal, depending on the model, when a certain adjustable level of vacuum is reached.
The pressure differential existing between the set maximum value and that of the signal recovery at rest is not adjustable.
They are particularly suited for controlling vacuum generators and for activating pneumatic valves.











Item		12 01 30	12 02 30
Measuring range	mbar abs.	-95 ÷ -7 kPa -950 ÷ -70 mbar	-96 ÷ -7 kPa -960 ÷ -100 mbar
Fixed differential	mbar	-18 ÷ -15 kPa -180 ÷ -150 mbar	-8 ÷ -5 kPa -80 ÷ -50 mbar
Repeatability	mbar	±0.5 kPa ±5 mbar	±0.5 kPa ±5 mbar
Signal at rest		NC	NO
Supply pressure	bar	2 ÷ 8	2 ÷ 8
Max flow rate of the microvalve at 6 bar	Nl / s	1.2	1.2
Operating temperature	°C	-10 ÷ +60	-10 ÷ +60
Weight	g	105	105

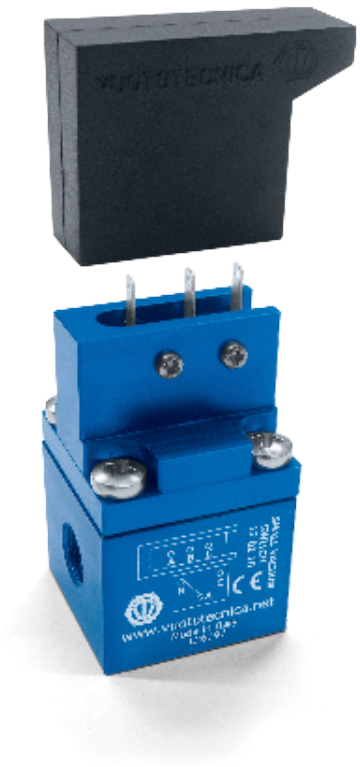
Spare parts		12 01 30	12 02 30
Pneumatic microvalve	item	00 12 17	00 12 18
Membrane	item	00 12 06	00 12 06

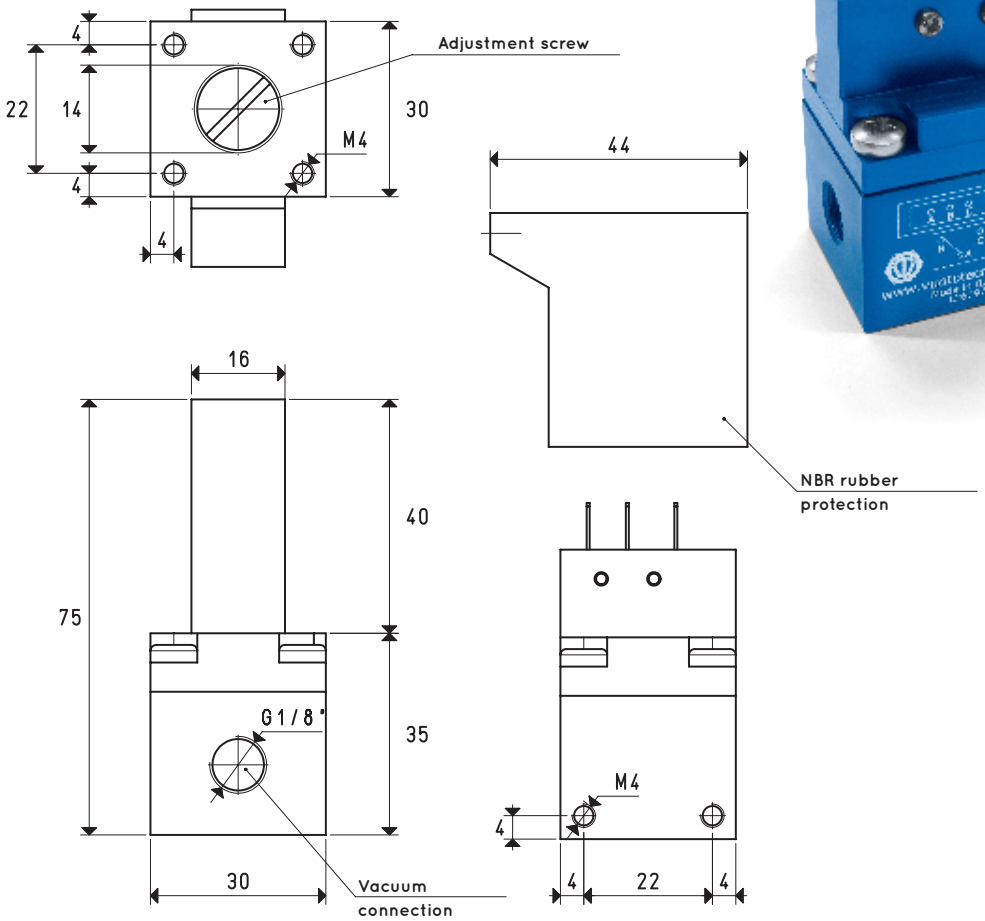
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

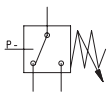
Adapters for GAS - NPT threading available on page 1.134

MINI ELECTROMECHANICAL VACUUM SWITCH

This extremely compact vacuum switch gives an electric signal when a certain adjustable level of vacuum is reached.
The pressure differential existing between the set maximum value and the value of reset of the rest signal is 50- 60 mbar and it is not adjustable.
They are particularly suited when an electrical signal is needed when a certain level of vacuum is reached, for safety, for starting a cycle, for checking the cup grip, etc.







Item		12 02 10
Measuring range	mbar abs.	-99 ÷ -7 kPa -990 ÷ -70 mbar
Fixed differential	mbar abs.	-5 ÷ -6 kPa -50 ÷ -60 mbar
Repeatability	mbar	±0.15 kPa ±1.5 mbar
Maximum overpressure	bar	5
Contacts		one in commutation
Flow rate of contacts	A	10.1 at 24 VAC-VDC
Electrical connections		Type 110 fast-on terminals
Operating temperature	°C	-25 ÷ +80
Protection		IP 55
Weight	g	102

Spare parts		12 02 10
Microswitch	item	00 12 12
Membrane	item	00 12 06
NBR rubber protection	item	00 12 07

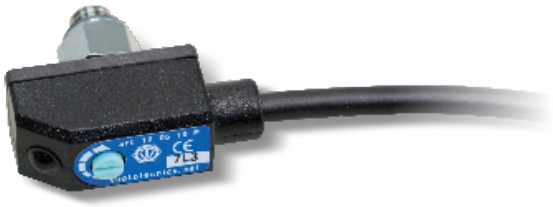
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

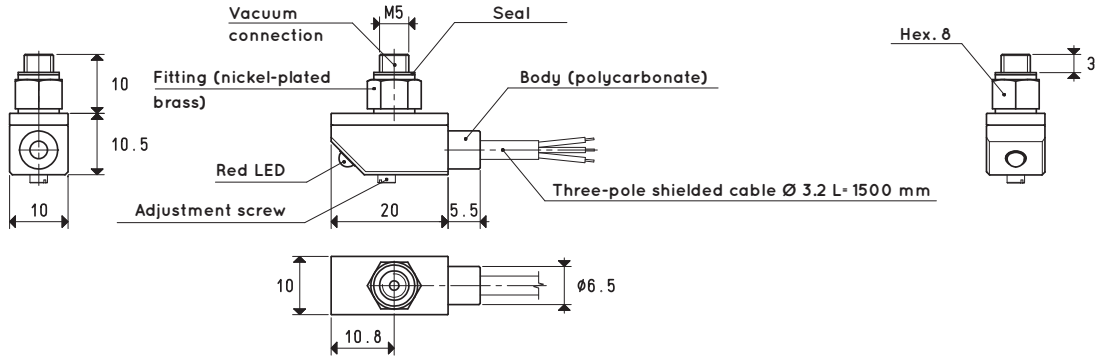
3D drawings are available on **vuototecnica.net**

MICRO DIGITAL VACUUM SWITCHES

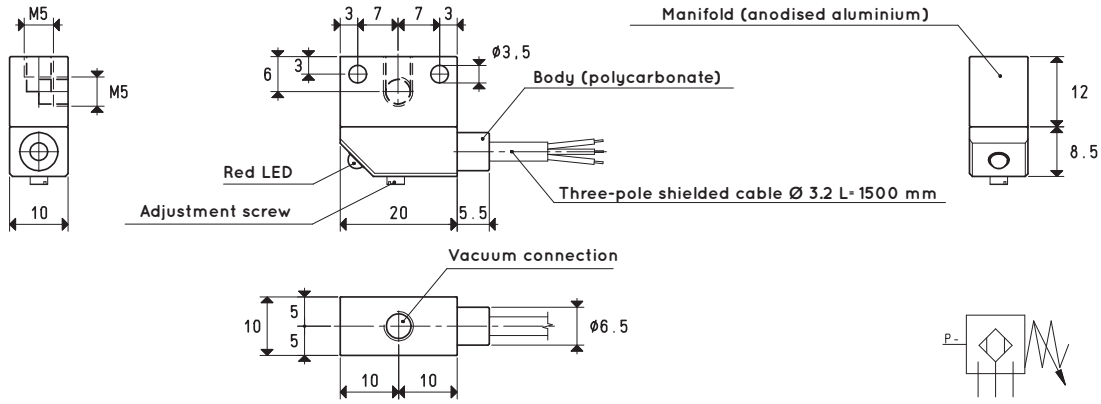
If accurately calibrated and compensated for temperatures, these small devices are able to give very precise digital signals to the set maximum measuring value. The switching point, which is within the scale value, can be easily programmed by means of an adjustment screw located on the upper part of the device.
A red LED near the screw indicates the digital output signal commutation status.
The pressure differential (hysteresis) between the set maximum value and the value of reset of the rest signal is 2% of the set value and cannot be adjusted.
They are composed of a polycarbonate enclosure, which includes the sensor and the electric circuit, and of a coupler or a small aluminium manifold with the vacuum connections.
Item 12 05 10 can also be rotated freely to place the display in the desired position, without having to unscrew it from the vacuum connection. The vacuum connection can be carried out via male or female M5 connectors, while the electrical connection is made via a three-connector cable with which they are equipped. Mini digital vacuum switches are suited for controlling dry air and non-corrosive gasses. They are recommended in all those cases that require a signal when a certain level of vacuum is reached, for safety, for starting a cycle, for checking the cup grip, etc.



Item 12 05 10 *



Item 12 05 11 *



* Complete the code indicating the electrical type of the output: P = PNP; N = NPN

Cable colour	Delivery
brown	positive pole ⊕
black	output signal
blue	negative pole ⊖

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

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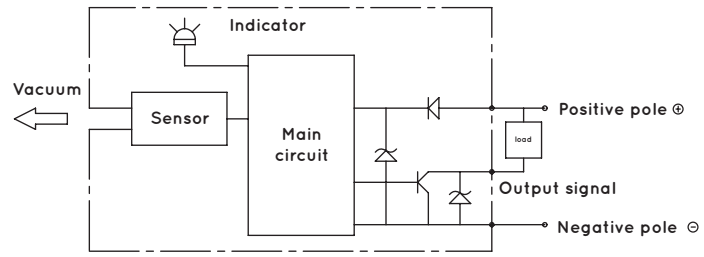
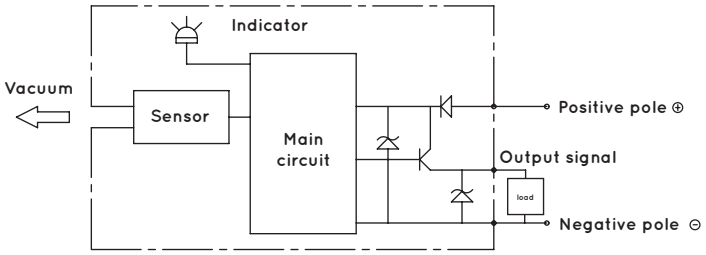
INTERNAL ELECTRICAL DIAGRAMS

NPN open contact

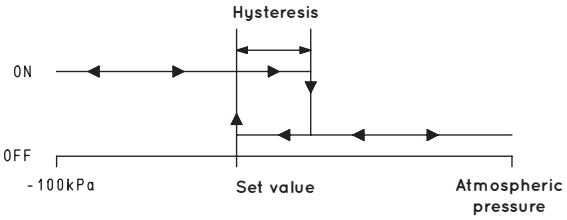


PNP open contact



OUTPUT CONTACT DIAGRAM

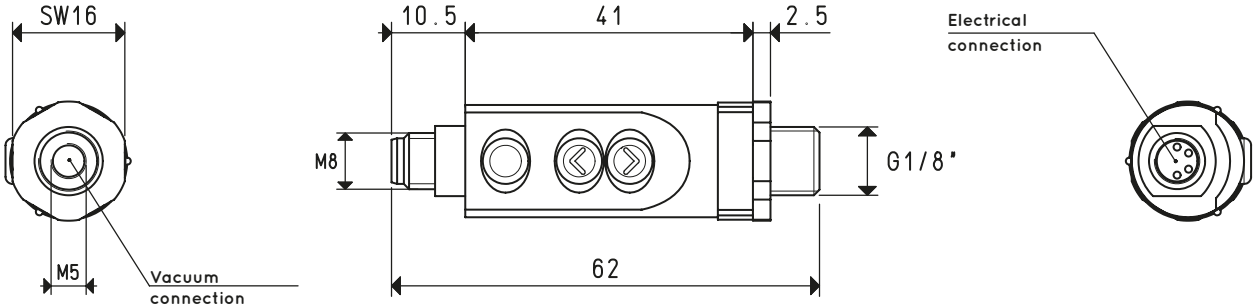
The LED lights up at the pre-set pressure and switches off at the pre-set pressure minus the hysteresis

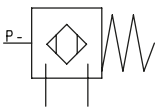


Characteristics and electrical specifications	Item 12 05 10 P Item 12 05 11 P		Item 12 05 10 N Item 12 05 11 N
Measuring range		-100 ÷ 0 kPa 0 to 1.00 bar 0 mbar	
Maximum overpressure		2 bar	
Operating voltage		10.8 - 30 VDC (Protection against polarity inversion)	
Electrical absorption		≤20 mA	
Commutation outputs	1 digital PNP, NO	Maximum commutation current 80 mA	1 digital NPN, NO
Reaction time		≤1 ms	
Commutation frequency		1000Hz	
Hysteresis		Not adjustable, 2% of the maximum set value	
Repeatability		±2% of the measuring range	
Commutation indicator		Red LED	
Insulation resistance		100 MΩ	
Test voltage		500 VAC, 1 min	
Degree of protection		IP 40	
Environmental operating conditions			
Installation position		Any	
Controllable fluids		Dry air and non-corrosive gas	
Operating temperature		-10 - +60 °C	
Storage temperature		-20 - +70 °C	
Interference emission		In compliance with EN 55011, Group 1, Class B	
Resistance to interference		In compliance with EN 61326 – 1	
Characteristics and mechanical specifications			
Container material		Polycarbonate PC	
Connection material		Nickel-plated brass and aluminium	
Weight (without cable)		About 5g	
Electrical connection		Three-conductor cable, 1.5 m long	
Connection to the fluid		M5 male or female threading	

ANALOGUE VACUUM SWITCH

These compact and extremely light switches come enclosed in a sturdy ABS casing; these features allow their installation on the machine and close to the application. If accurately calibrated, these analogue switches provide very precise measurements values.
The adjustment range is from 0 to -1 bar and can be interfaced with external logics via an analogue output from 1 to 5 Volts and a digital PNP output, configurable via Teach-In.
The switching point, as well as the hysteresis from 0 to 100% of the set value, can be easily programmed via push buttons located on the control panel; the two two-colour LEDs on the control panel signal the commutation status and the error code, if any.
These devices can be rotated freely to place the display in the desired position, without having to unscrew them from the vacuum connection.
The vacuum connection is dual threaded: male G 1/8" or female M5. The electrical connection is an M8 4-pin threaded plug and upon request the connection cable is available in PUR, with an axial or radial connector.
These vacuum switches are suited for measuring and controlling dry air and non-corrosive gasses.
They are recommended in all those cases that require a measurement and commutation to be installed on safety or energy-saving devices, on systems for optimising the work cycle time and in circuit level of vacuum adjustment circuits.



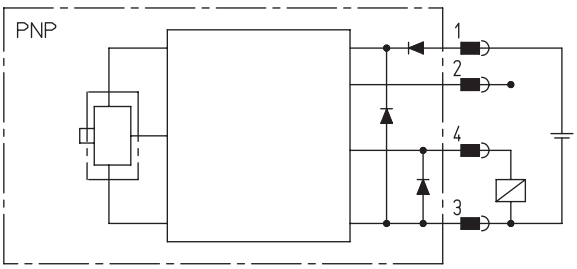


Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

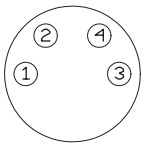
Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**

WIRING DIAGRAM



Connections
1. V+
2. analogue output
3. V-
4. commutation output



Cable colours
Pin1 = brown
Pin2 = white
Pin3 = blue
Pin4 = black

Characteristics and electrical specifications	**Item 12 07 10** Vacuum switch
Measuring range	-100 ÷ 0 kPa -1000 ÷ 0 mbar
Maximum overpressure	5 bar
Operating voltage	10.8 - 30 VDC (Protection against polarity inversion)
Electrical absorption	≤30 mA
Commutation output	1 digital PNP, NO or NC programmable, maximum commutation current 250 mA
Analogue output	1 - 5 V; impedance load ≥500 Ω
Output tolerance	±1%
Offset	1 V - 0.1 Volt
Reaction time	≤2.5 ms
Commutation frequency	400Hz
Hysteresis	Adjustable from 0 to 100% of the maximum set value
Repeatability	±0.2% of the measuring range
Error code signal	Two-colour LED
Insulation resistance	100 MΩ to 500 VDC
Test voltage	1000 VAC, 1 min
Degree of protection	IP 65
Environmental operating conditions	
Installation position	Any
Measurable fluids	Non-corrosive gas and dry air
Operating temperature	0 - +50 °C
Storage temperature	-20 - +80 °C
Interference emission	In compliance with DIN EN 50081 - 1
Resistance to interference	In compliance with DIN EN 50082 - 2
Characteristics and mechanical specifications	
Container material	ABS plastic - PC
Connection material	Nickel-plated brass
Weight	19 g
Electrical connection	With M8 - 4 pin coupler
Connection to the fluid	Male G 1/8" or female M5 threading
Accessories	
Electrical connection cable	With axial connector, 5 m - PUR M8 x 1x 0.25 mm - Item 00 12 20
Electrical connection cable	With radial connector, 5 m - PUR M8 x 1x 0.25 mm - Item 00 12 21
Wall fixing kit	Support with o-ring and screws - Item 00 12 22

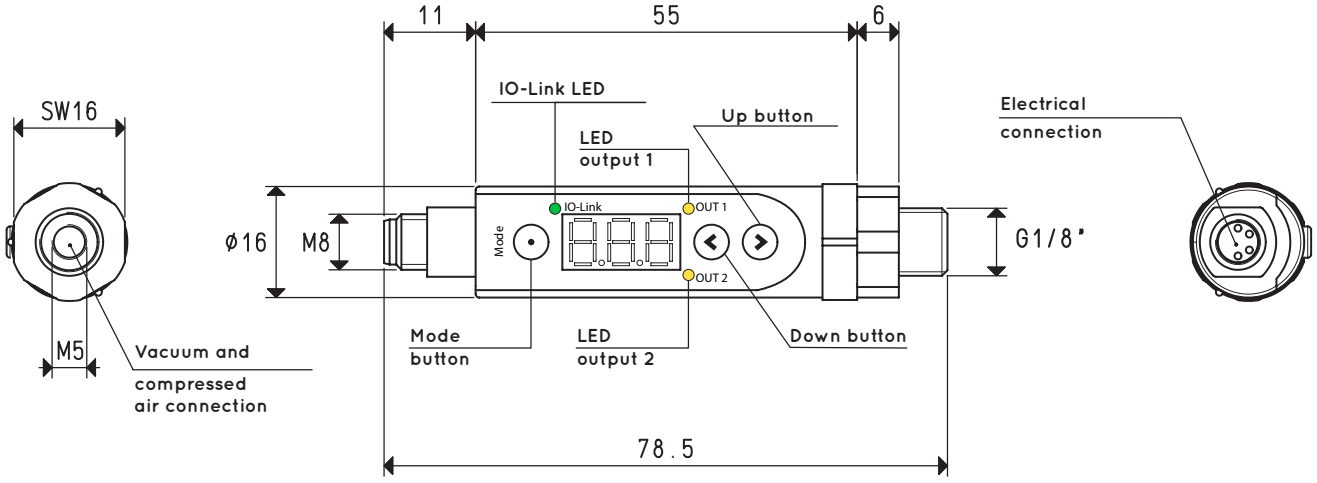
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

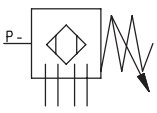
Adapters for GAS - NPT threading available on page 1.134

DIGITAL IO-Link VACUUM AND PRESSURE SWITCHES

- **Physical characteristics:** Robust ABS housing, compact and lightweight; mountable on machinery and near the point of use.
- **Precision and display:** Calibrated and temperature-compensated; integrated display shows values, making an external vacuum gauge unnecessary.
- **Signal indication:** Two LEDs indicate the status of the two independent digital output signals.
- **Programming:** Switching points and hysteresis (0–100% of set value) programmable via buttons. Also configurable: threshold comparison, NO/NC contacts, unit selection, parameter lock, and display inversion.
- **Display rotation:** Free rotation to orient the display without disconnecting pneumatic connections.
- **Connections:** Pneumatic with double-threaded G 1/8 inch male or M5 female; electrical M8 4-pin (PUR cable with axial or radial connector available on request).
- **Applications:** Measurement and control of dry air and non-corrosive gases; ideal for safety signals, cycle start, vacuum suction cup control, and optimizing energy consumption of vacuum generators.
- **IO-Link:** IO-Link version distinguishable from the standard model by the logo and the "IO-Link" inscription on the housing. Enables bidirectional digital communication, remote parameterization, and advanced diagnostics, turning the sensor into an intelligent device for Industry 4.0.

IO-Link Ready!





Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

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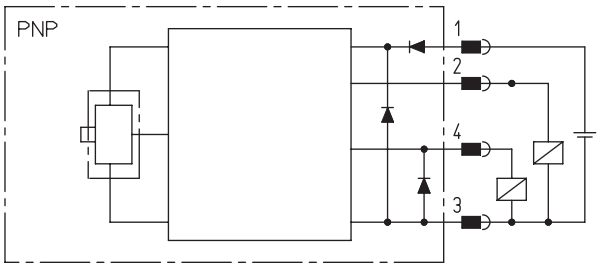
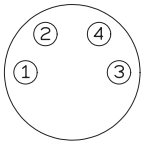
WIRING DIAGRAM



Connections
1. Ub+
2. Control output / diagnostics
3. Ub- (Gnd)
4. Control output / IO-Link



Cable colours
Pin1 = brown
Pin2 = white
Pin3 = blue
Pin4 = black

Characteristics and electrical specifications	Item 12 10 10 Vacuum switch	Item 12 25 11 Pressure switch
Measuring range	-100 ÷ 0 kPa -1000 ÷ 0 mbar	0 ÷10 bar
Maximum overpressure	5 bar	16 bar
Minimum detectable values	0.01 bar	0.01 bar
	1 kPa	--
	0.2 Psi	--
Operating voltage	10.8 - 30 VDC (Protection against polarity inversion)	
Electrical absorption	<15 mA / <3 mA energy saving mode	
Commutation output	2 digital PNP, NO or NC programmable, maximum commutation current 250 mA	
Display tolerance	≤ ±2% F.S.	
Reaction time	≤2.8 ms	
Commutation frequency	200Hz	
Hysteresis	Adjustable from 0 to 100% of the maximum set value	
Repeatability	±0.2% of the measuring range	
Display	3-digit, 7-segment LED	
Insulation resistance	100 MΩ to 500 VDC	
Test voltage	1000 VAC, 1 min	
Degree of protection	IP 65	
Environmental operating conditions		
Installation position	Any	
Measurable fluids	Non-corrosive gas and dry air	
Operating temperature	0 - +50 °C	
Storage temperature	-20 - +80 °C	
Interference emission	In compliance with DIN EN 50081 - 1	
Resistance to interference	In compliance with DIN EN 50082 - 2	
Characteristics and mechanical specifications		
Container material	ABS plastic - PC	
Connection material	Nickel-plated brass	
Weight	20 g	
Electrical connection	With M8-4 pin coupler	
Connection to the fluid	Male G 1/8" or female M5 threading	
Accessories		
Electrical connection cable	With axial connector, 5 m - PUR M8 x 1x 0.25 mm - Item 00 12 20	
Electrical connection cable	With radial connector, 5 m - PUR M8 x 1x 0.25 mm - Item 00 12 21	
Wall fixing kit	Support with o-ring and screws - Item 00 12 22	

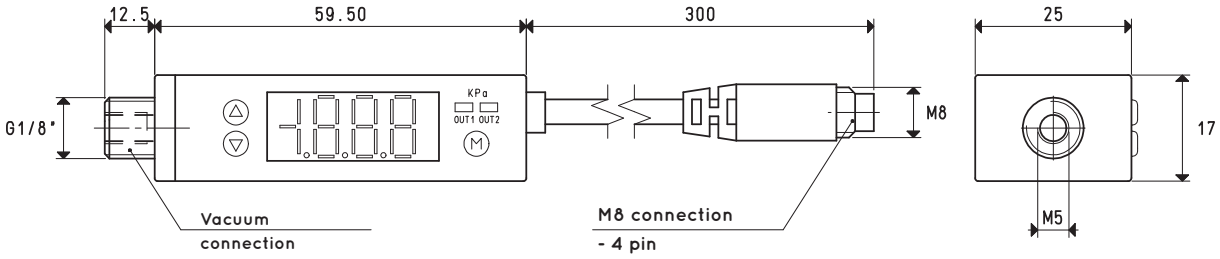
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

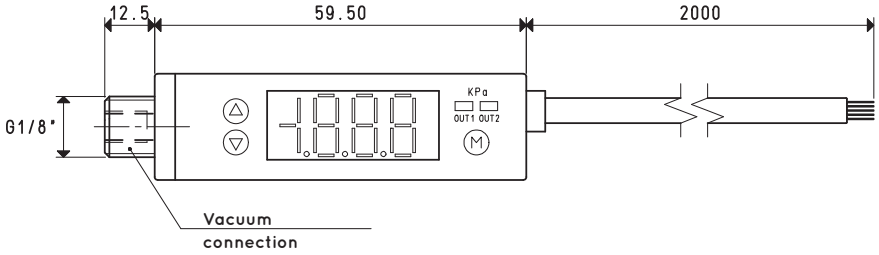
DIGITAL VACUUM SWITCHES

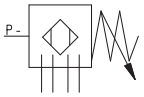
Changes the shape of these digital vacuum switches with respect to those previously described, from cylindrical to parallelepiped. However, the container in which they are enclosed remains in ABS and is also especially compact and extremely light to allow for its installation on board automatisms and near use. These carefully calibrated devices are able to provide very accurate measurement values. The detected values are shown on the display, making it unnecessary to use a vacuum gauge. The panel includes two LED indicators, one green and one red, which indicate the switching status of the two digital output signals. The switching outputs are completely independent. The switching points within the scale values, including hysteresis from 0 to 100% of the set value, are easily programmable via the buttons located on the control panel. Other additional functions can be configured, such as the comparisons between values, NO and NC contacts, the choice of the units of measure, the blocking of functions and programmed values, etc. The vacuum connection can be made by means of a G 1/8" male or M5 female double threading connection.
Electrical connection for item 12 30 10 is push-in with a M8-4 pin threaded jack. A connection cable can be provided in PUR upon request with corresponding axial or radial connector.
Instead, item 12 30 10 A already has an integrated PUR, 2-metre long connection cable. The adjustment range of vacuum switch 12 30 10 is from 0 to -1 bar, with two digital PNP outputs that can be set by means of Teach-in. The adjustment range of item 12 30 10 A, while it is also between 0 and -1 bar, can instead be interfaced with external logics via a 1 to 5 volt analogue output and two digital PNP outputs.
This series of digital vacuum switches is suitable for measuring and control of dry air and non-corrosive gases. These are recommended in all cases where maximum and minimum value signalling is required, set for safety reasons, in order to start a work cycle, to control vacuum cup gripping, and so on. In addition, with the hysteresis function, it is possible to manage the compressed air supply to the vacuum generators, allowing for considerable energy savings.

Item 12 30 10



Item 12 30 10 A





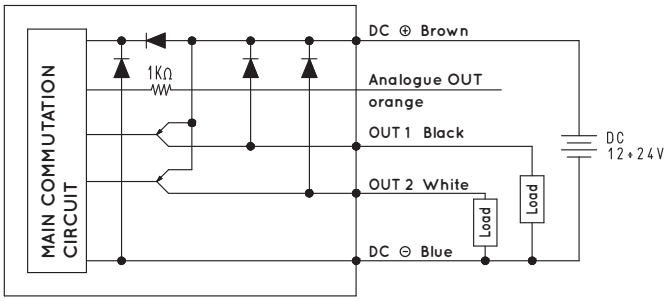
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**

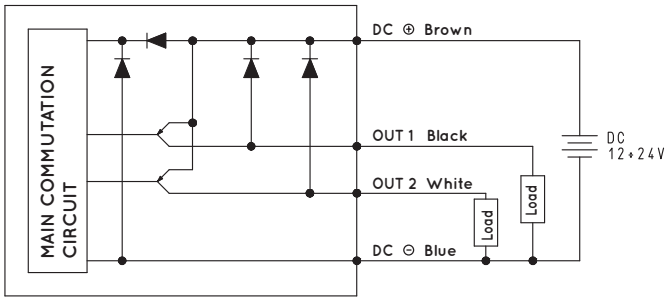
WIRING DIAGRAMS

PNP



Item 12 30 10 A

PNP

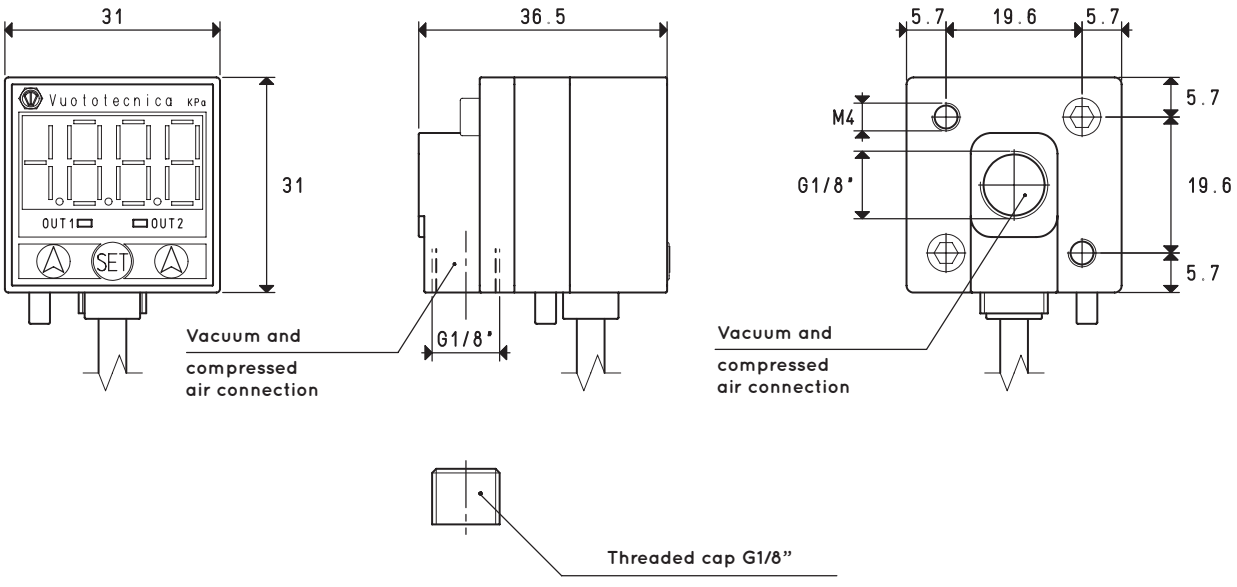


Item 12 30 10

Characteristics and electrical specifications	Item 12 30 10 A Vacuum switch	Item 12 30 10 Vacuum switch
Measuring range	-100 ÷ 0 kPa -1000 ÷ 0 mbar	
Maximum overpressure	3 bar	
Minimum detectable values	0.1 kPa	
	0.001 Kgf/cm^2	
	0.001 bar	
	0.01 psi	
	0.1 InHg	
	1 mmHg	
	0.1 mmH_2O	
Operating voltage	12 - 24 VDC ±10% (Protection against polarity inversion)	
Electrical absorption	≤60 mA	
Digital output	2 PNP, maximum commutation current 100 mA	
Analogue output	1 analogue, 1 + 5 V ±2% F.S.	--
Display tolerance	≤ ±2% F.S. ±1 digit	
Reaction time	≤2.5 ms	
Hysteresis	Adjustable	
Repeatability	±0.2% ±1 digit of the measuring range	
Display	LED at 3 1/2 digit, 7 segments, OUT 1 green OUT 2 red	
Insulation resistance	50 MΩ to 500 VDC	
Test voltage	1000 VAC, 1 min	
Degree of protection	IP 40	
Environmental operating conditions		
Installation position	Any	
Measurable fluids	Non-corrosive gas and dry air	
Operating temperature	0 - +50 °C	
Storage temperature	-20 - +60 °C	
Interference emission	In compliance with EN 55011, Group 1, class B	
Resistance to interference	In compliance with EN 61326 – 1	
Characteristics and mechanical specifications		
Container material	ABS plastic - PC	
Connection material	Nickel-plated brass	
Weight	65 g, including electrical cable	35 g, including electrical cable
Electrical connection	--	With M8-4 pin coupler
Electrical connection cable	5-wire 2m cable	4-wire 0.3 m cable
Connection to the fluid	Male G 1/8" or female M5 threading	
Accessories		
Electrical connection cable	With axial connector, 5 m - PUR M8 x 1x 0.25 mm - Item 00 12 20 only for item. 12 30 10	
Electrical connection cable	With radial connector, 5 m - PUR M8 x 1x 0.25 mm - Item 00 12 21 only for item. 12 30 10	
Wall fixing kit	Support with o-ring and screws - Item 00 12 22	

DIGITAL VACUUM AND PRESSURE SWITCHES

These compact and extremely light switches come enclosed in a sturdy ABS casing; these features allow their installation on the machine and close to the application.
These digital switches are accurately calibrated and compensated for temperatures and therefore are able to give very precise measurements values. The detected values are shown on the display, making it unnecessary to use a vacuum gauge. The two LEDs, one red and one green, built-in the control panel, indicate the commutation status of the two digital output signals.
The two commutation outputs are completely independent.
The switching points within the scale values, including hysteresis, are easily programmable via the buttons located on the control panel.
Additional functions are also programmable, such as comparison between two values, NO and NC contacts, choice of the unit of measurement, programmed value and function blocking, etc.
The vacuum or the pressure connections can be carried out via a dual connection with female G 1/8" thread, while the electrical connection is carried out through the 4-conductor cable with which they are equipped. These switches are suited for measuring and controlling dry air and non-corrosive gas.
They are recommended in all those cases that require a signal when a certain level of vacuum is reached set for safety, for starting a cycle, for checking the cup grip, etc. Moreover, the hysteresis function allows managing the vacuum generator compressed air supply, allowing considerable energy saving.



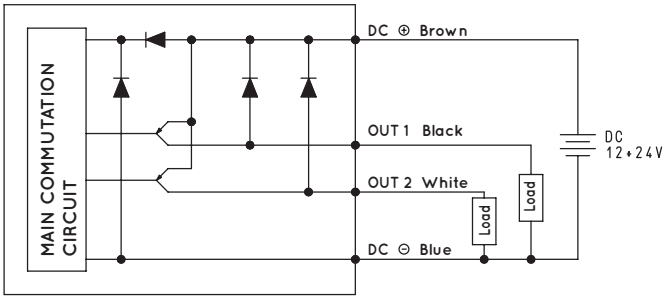
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

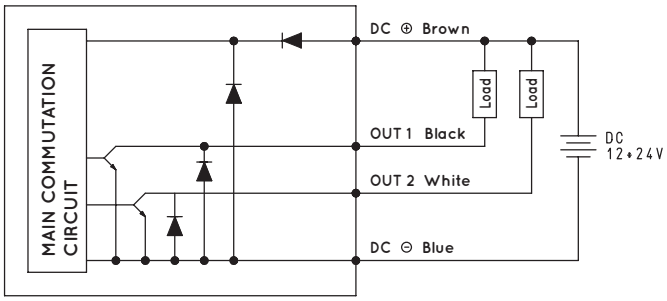
3D drawings are available on **vuototecnica.net**

WIRING DIAGRAMS

PNP



NPN

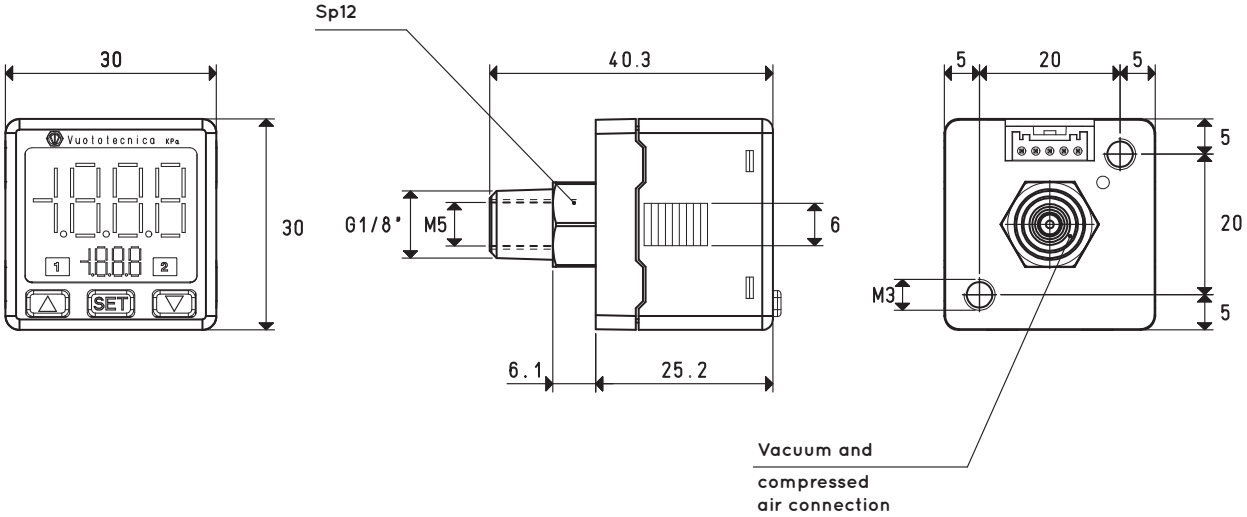


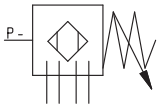
Characteristics and electrical specifications	Item 12 20 10 P Vacuum switch	Item 12 35 10 P Pressure switch
Measuring range	-100 ÷ 0 kPa -1000 ÷ 0 mbar	0 ÷ 10 bar
Maximum overpressure	5 bar	15 bar
Minimum detectable values	1 mbar	10 mbar
	0.1 kPa	0.001 MPa
	0.001 Kgf/cm^2	0.01 Kgf/cm^2
	0.001 bar	0.01 bar
	0.01 psi	0.1 psi
	0.1 InHg	--
	1 mmHg	--
	10 mmH_2O	--
Operating voltage	12 - 24 VDC ±10% (Protection against polarity inversion)	
Electrical absorption	≤55 mA	
Commutation output	2 digital PNP, NO or NC, maximum commutation current 80 mA	
Display tolerance	≤ ±2% F.S. ±1 digit	
Reaction time	≤2.5 ms	
Hysteresis	Adjustable	
Repeatability	±0.2% of the measuring range	
Display	LED at 3 1/2 digit, 7 segments, OUT 1 green OUT 2 red	
Insulation resistance	50 MΩ to 500 VDC	
Test voltage	1000 VAC, 1 min	
Degree of protection	IP 40	
Environmental operating conditions		
Installation position	Any	
Measurable fluids	Non-corrosive gas and dry air	
Operating temperature	0 - +50 °C	
Storage temperature	-20 - +60 °C	
Interference emission	In compliance with EN 55011, Group 1, class B	
Resistance to interference	In compliance with EN 61326 – 1	
Characteristics and mechanical specifications		
Container material	ABS plastic - PC	
Connection material	Nickel-plated brass	
Weight	105 g, including electrical cable	
Electrical connection	With 4-conductor wire cable length 2 m	
Connection to the fluid	Female G 1/8" threading	
Accessories		
Fixing kit	wall - Item 00 12 30	
	table - Item 00 12 31	
	panel - Item 00 12 32	

Note: Add the letter N after the item (for example 12 20 10 N) for NPN and non PNP commutation output.

DIGITAL VACUUM AND PRESSURE SWITCHES WITH TWO-COLOUR DISPLAY

These devices are also enclosed within a robust ABS container. They are carefully calibrated and at compensated temperature, ensuring high-precision measurement values. Detected values are viewed on the main two-colour (red and green) display and programmable by the user to set different conditions. Setting values are easily viewable on a secondary display within the command panel. Two luminous indicators pertaining to outlets 1 and 2 indicate the switching status of both digital and the analogue output signals.
The switching outputs are completely independent.
The switching points within the scale values, including hysteresis, are easily programmable via the buttons located on the control panel. Additional functions are also programmable, such as comparison between two values, NO and NC contacts, choice of measurement unit, programmed value and function blocking, etc. The connection to the vacuum may be established by means of a male G 1/8" or female M5 double threading connection. It is possible to establish an electric connection by means of a removable, rapid installation data cable, supplied as standard.
Digital vacuum and pressure switches are suitable for measuring and controlling dry air and non-corrosive gases. They are recommended in all those cases that require a signal when a certain level of vacuum is reached set for safety, for starting a cycle, for checking the cup grip, etc. Moreover, the hysteresis function allows managing the vacuum generator compressed air supply, allowing considerable energy saving.





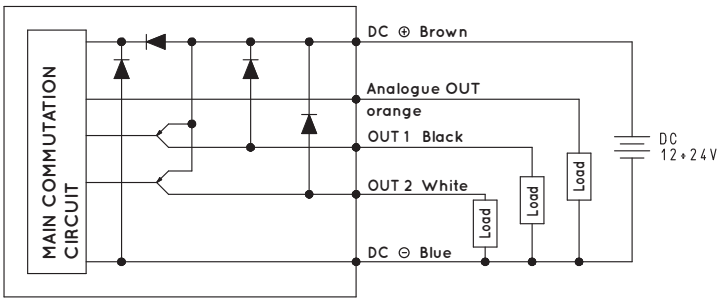
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on vuototecnica.net

WIRING DIAGRAMS

PNP

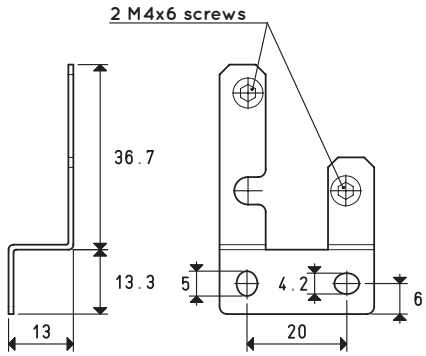


Characteristics and electrical specifications	Item 12 40 10 Vacuum switch	Item 12 40 12 Vacuum switch	Item 12 40 20 Vacuum Switch - Pressure Switch
Measuring range	-100 ÷ 0 kPa -1000 ÷ 0 mbar	-100 ÷ 0 kPa -1000 ÷ 0 mbar	-1 ÷ 10 bar
Maximum overpressure	3 bar	3 bar	15 bar
Minimum detectable values	0.1 KPa	0.1 KPa	1 KPa
	1 mbar	1 mbar	10 mbar
	0.001 Kgf/cm^2	0.001 Kgf/cm^2	0.01 Kgf/cm^2
	0.001 bar	0.001 bar	0.01 bar
	0.01 psi	0.01 psi	0.1 psi
	0.1 inHg	0.1 inHg	--
	1 mmHg	1 mmHg	--
	10 mmH_2O	10 mmH_2O	--
Operating voltage	12 - 24 VDC ±10% (Protection against polarity inversion)		
Electrical absorption	≤40 mA		
Digital output	2 PNP, maximum commutation current 125 mA		
Analogue output	4 - 20 mA ±2.5% F.S.	1 ÷ 5 V ±2,5% F.S.	4 - 20 mA ±2.5% F.S.
Display tolerance	≤ ±2% F.S. ±1 digit		
Reaction time	≤ 2.5 ms		
Hysteresis	Adjustable		
Repeatability	±0.2% F.S. ±1 digit of the measuring range		
Display	7 segments, main two-colour (red - green) display, secondary display (orange)		
Insulation resistance	50 MΩ to 500 VDC		
Test voltage	1000 VAC, 1 min		
Degree of protection	IP 40		
Environmental operating conditions			
Installation position	Any		
Measurable fluids	Non-corrosive gas and dry air		
Operating temperature	0 - +50 °C		
Storage temperature	-20 - +60 °C		
Interference emission	In compliance with EN 55011, Group 1, class B		
Resistance to interference	In compliance with EN 61326 – 1		
Characteristics and mechanical specifications			
Container material	ABS plastic - PC		
Connection material	Nickel-plated brass		
Weight	80 g, including electrical cable		
Electrical connection	4-wire 2 m cable		
Connection to the fluid	Male G 1/8" or female M5 threading		
Accessories			
Fixing kit	wall - Item 00 12 40		
	table - Item 00 12 41		
	panel - Item 00 12 42		
	panel + protection - Item 00 12 43		

ACCESSORIES FOR ANALOGUE AND DIGITAL VACUUM AND PRESSURE SWITCHES ITEM 12 20 10P and 12 35 10P

FIXING KIT

Wall Item 00 12 30



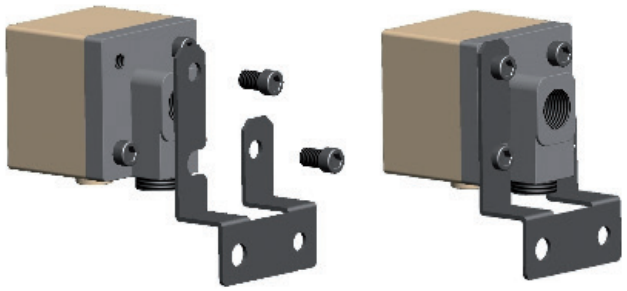
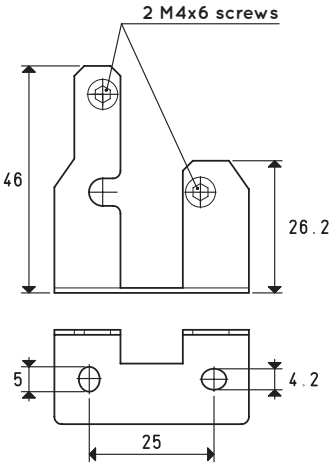
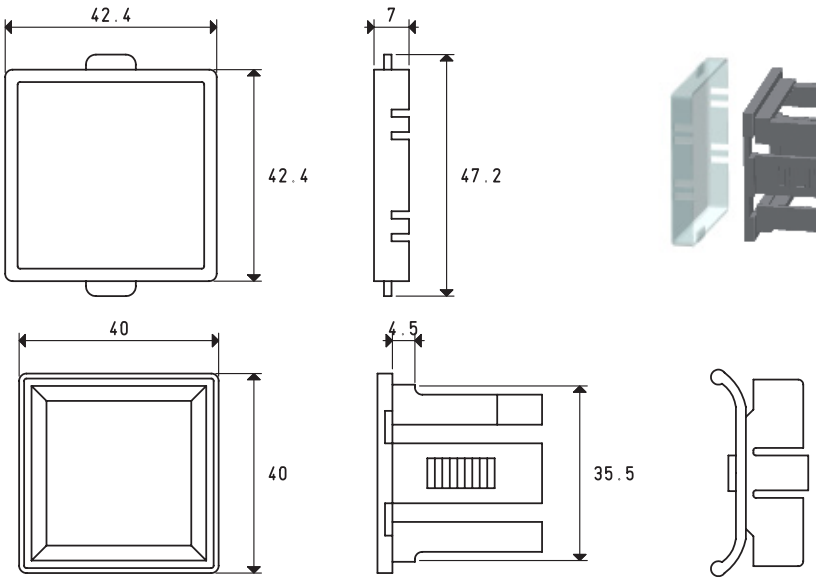
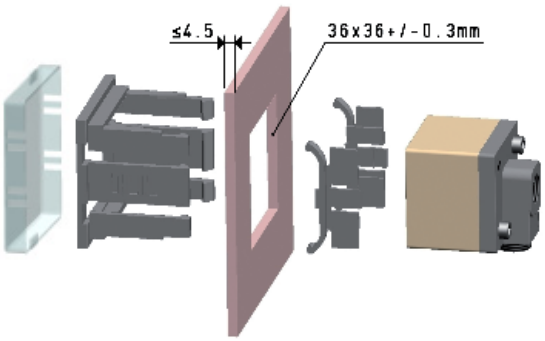


Table Item 00 12 31



Panel Item 00 12 32



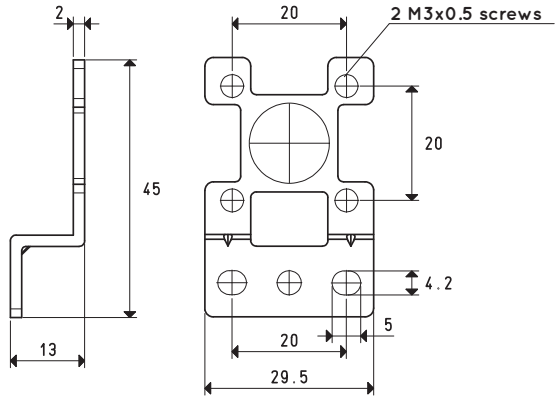


Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

ACCESSORIES FOR ANALOGUE AND DIGITAL VACUUM AND PRESSURE SWITCHES ITEM 12 40 10, 12 40 12 and 12 40 20

FIXING KIT

Wall Item 00 12 40



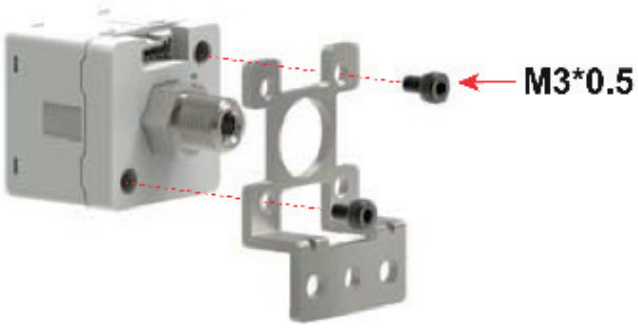
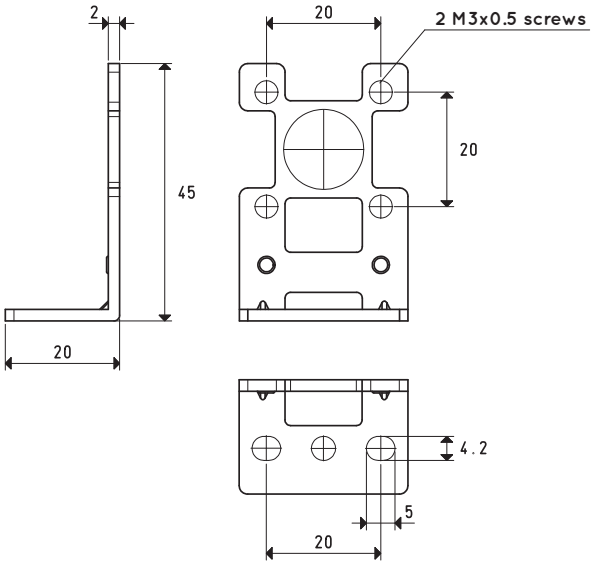
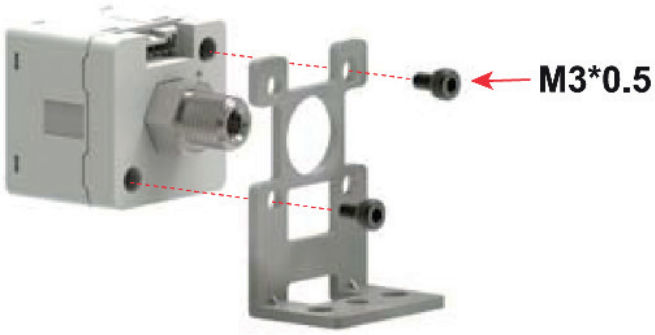
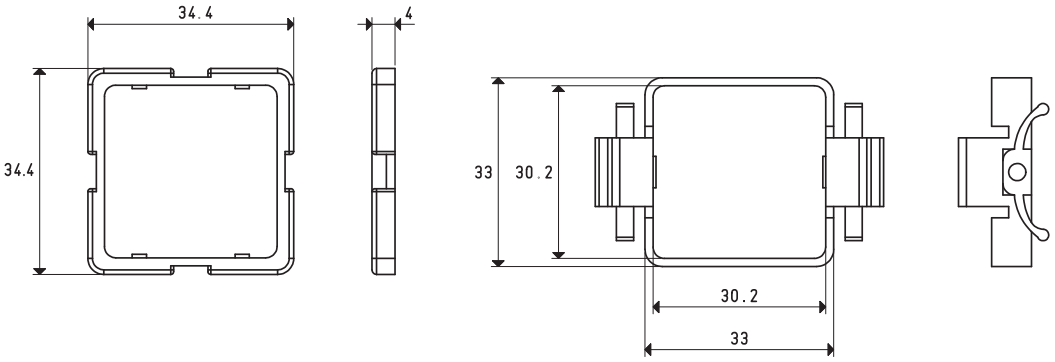


Table Item 00 12 41

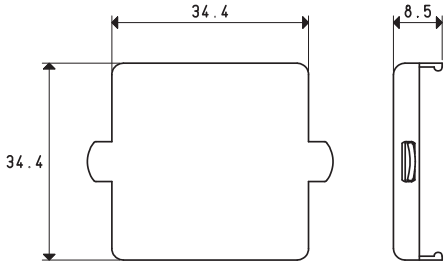


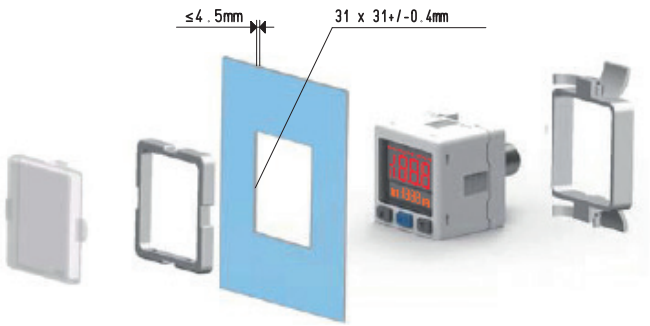


Panel Item 00 12 42



Panel plus protection Item 00 12 43





Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

ACCESSORIES FOR ANALOGUE AND DIGITAL VACUUM AND PRESSURE SWITCHES

Cable with axial connector

Item	Description
00 12 20	Electrical connection cable with M8 - 4 pin axial connector for digital vacuum and pressure switches Cable length 5 m

Cable with radial connector

Item	Description
00 12 21	Electrical connection cable with M8 - 4 pin radial connector for digital vacuum and pressure switches Cable length 5 m

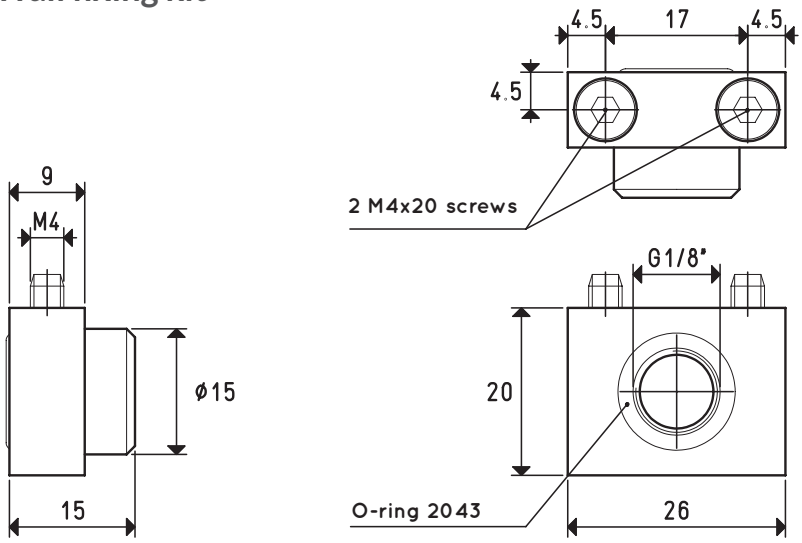
Cable with connector M8 - 4 pin

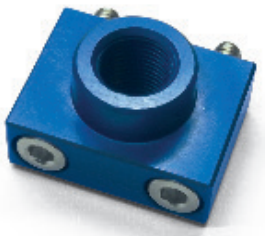
Item	Description
00 12 48	Electrical connection cable with M8 – 4-pin radial connector for digital vacuum and pressure switches Cable length 0.3 m

Cable with connector M12 - 4 pin

Item	Description
00 12 49	Electrical connection cable with M12 – 4-pin radial connector for digital vacuum and pressure switches Cable length 0.3 m

Wall fixing kit





Item	Description
00 12 22	Wall-fixing kit for digital vacuum and pressure switches

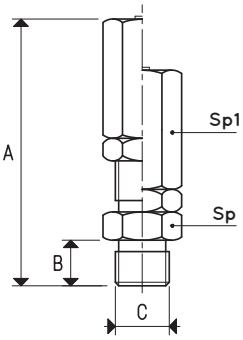
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

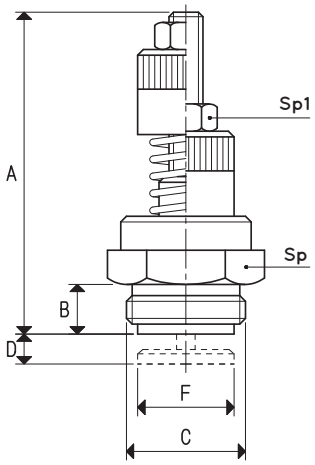
Adapters for GAS - NPT threading available on page 1.134

VACUUM ADJUSTMENT VALVES

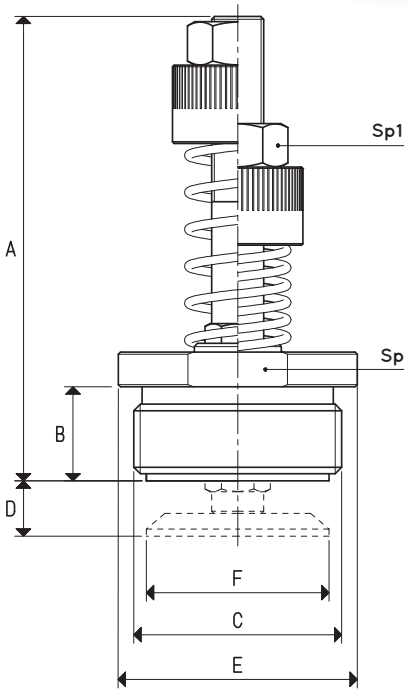
When these valves reach a certain pre-calibrated vacuum degree, they introduce atmospheric air into the circuit to prevent the increase of the set value and to keep it constant.
They can be used as regulators only on circuits having only one vacuum pump and only one use (or more uses but all working at the same vacuum degree).
In most cases, they are used as safety valves on non-commissioned tanks or containers at high levels of vacuum and on vacuum cup lifting systems.
The level of vacuum is adjusted by rotating the knurled bush in both directions. The fine thread with which the valve is provided ensures a very accurate calibration.
The temperature values within which the valves can operate go from -20 °C to +200 °C.



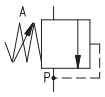
Item 04 01 10



Item 04 02 10
04 03 10
04 04 10



Item 04 05 10



Item	Vacuum adj. mbar abs.	A	B	C Ø	D	E Ø	F Ø	Sp	Sp1	Material	Sealing gasket	Max flow rate of the pump m³/h	Weight g
04 01 10	670 ÷ 1	45	8	G1/8"	-	-	-	12	12	nickel-plated brass	FKM	4	30
04 01 10 INOX	670 ÷ 1	45	8	G1/8"	-	-	-	12	12	stainless steel	FKM	4	30
04 02 10	670 ÷ 1	57	9	G1/2"	5	-	17	24	10	nickel-plated brass	FKM	20	78
04 02 10 INOX	670 ÷ 1	57	9	G1/2"	5	-	17	24	10	stainless steel	FKM	20	78
04 03 10	670 ÷ 1	60	11	G3/4"	5	-	23	30	17	nickel-plated brass	FKM	60	150
04 03 10 INOX	670 ÷ 1	60	11	G3/4"	5	-	23	30	17	stainless steel	FKM	60	150
04 04 10	670 ÷ 1	65	14.5	G1"	7	-	29	35	17	nickel-plated brass	FKM	100	212
04 04 10 INOX	670 ÷ 1	65	14.5	G1"	7	-	29	35	17	stainless steel	FKM	100	212
04 05 10	670 ÷ 1	104	22	G1" 1/2	15	55	42	50	20	nickel-plated brass	FKM	250	490
04 05 10 INOX	670 ÷ 1	104	22	G1" 1/2	15	55	42	50	20	stainless steel	FKM	250	490

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

VACUUM REGULATORS

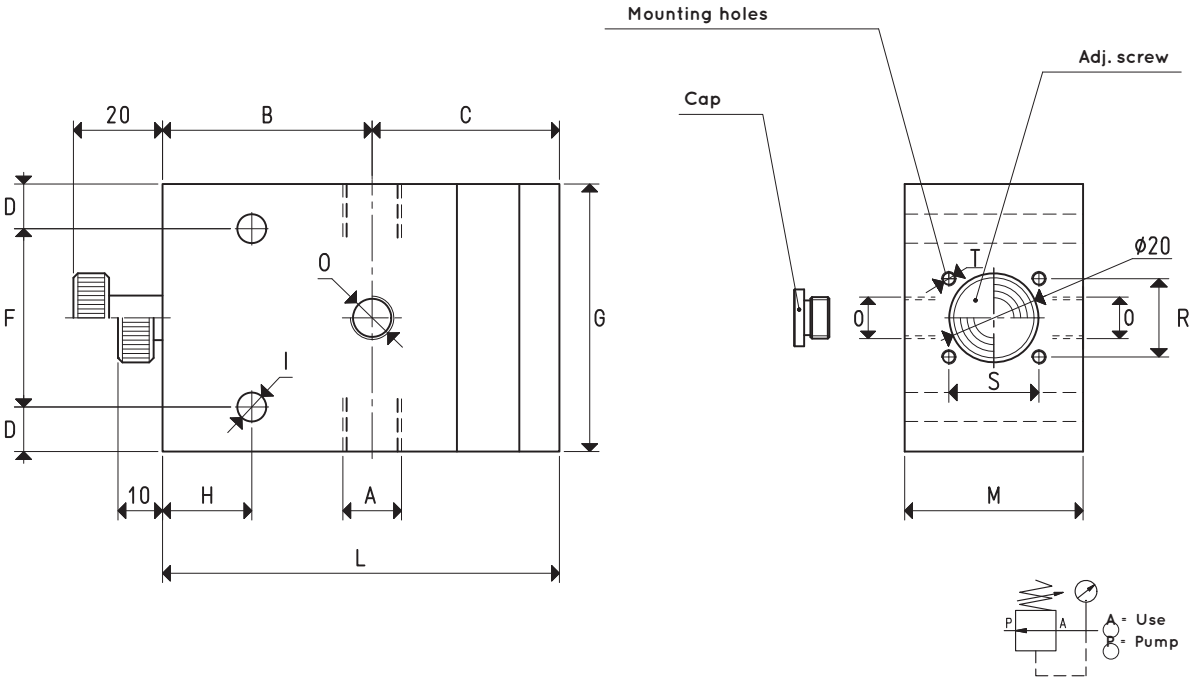
These devices control the level of vacuum, maintaining it constant at the pre-set value (secondary vacuum), regardless of the network's flow rate and the fluctuations in vacuum level (primary vacuum).
They operate by membrane-piston and exploit the pressure differential between the secondary vacuum and the atmospheric pressure.
Unlike the vacuum control valves, reducers do not release air into the circuit, thereby allowing for the creation more grip points taken at different degrees of vacuum, from a single vacuum source.
The level of vacuum is adjusted manually by turning the knurled thumb screw clockwise to increase it, and counter clockwise to decrease it.

Technical features

- Operation: membrane-piston regulator.
- Adjustable operating pressure: from 800 to 1 mbar abs.
- Flow rate : from 2 to 160 m^3/h.
- Room temperature: from -10 to +80 °C.
- Installation position: any.

Usage

The best use of vacuum reducers is in centralised plants where, regardless of the plant's level of vacuum, each outlet can be adjusted within that value. Moreover, they are necessary whenever the working vacuum must be lower than the primary vacuum.



Item	A Ø	Max capac. m^3/h	B	C	D	F	G	H	I Ø	L	M	O Ø	R	S	T	Weight Kg
11 01 10	G1/4"	6	47	42.0	10	40	60	20	6.5	89.0	40	G1/8"	28	24	M4	0.60
11 02 10	G3/8"	10	47	42.0	10	40	60	20	6.5	89.0	40	G1/8"	28	24	M4	0.58
11 03 10	G1/2"	20	53	52.0	15	55	85	25	8.5	105.0	50	G1/4"	38	34	M5	1.15
11 04 10	G3/4"	40	55	55.5	15	70	100	30	8.5	110.5	50	G1/4"	38	34	M5	1.39
11 05 10	G1"	80	60	58.0	15	90	120	30	8.5	118.0	60	G1/4"	38	34	M5	2.08
11 06 10	G1" 1/2	160	54	77.5	15	130	160	20	8.5	131.5	99	G1/4"	50	50	M6	5.49

Accessories and Parts		11 01 10	11 02 10	11 03 10	11 04 10	11 05 10	11 06 10
Sealing kit	item	00 11 113	00 11 114	00 11 115	00 11 116	00 11 117	00 11 118
Vacuum gauge	item	09 03 15	09 03 15	09 03 10	09 03 10	09 03 10	09 03 10
Vacuum switch	item	12 40 10	12 40 10	12 40 10	12 40 10	12 40 10	12 40 10

Note: The vacuum gauges and vacuum switches are not integral parts of the regulators and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

REGULATORS FOR ROUGH VACUUM LEVELS

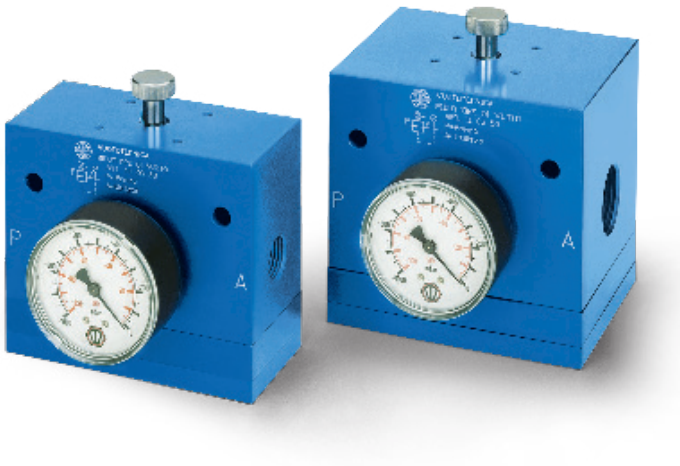
The regulators on this page are based on the same operation principle as the ones described in the previous page and have the same function. The only difference is that in these ones the minimum adjustable level of vacuum is close to the atmospheric pressure value.
The level of vacuum is adjusted manually by turning the knurled thumb screw clockwise to increase it, and counter clockwise to decrease it.

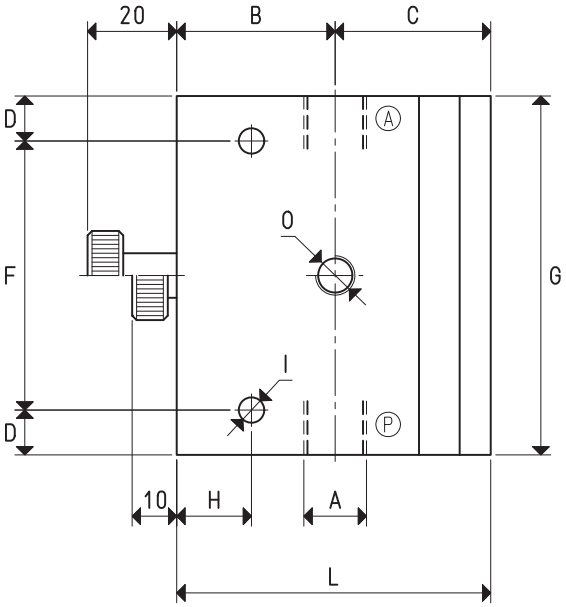
Technical features

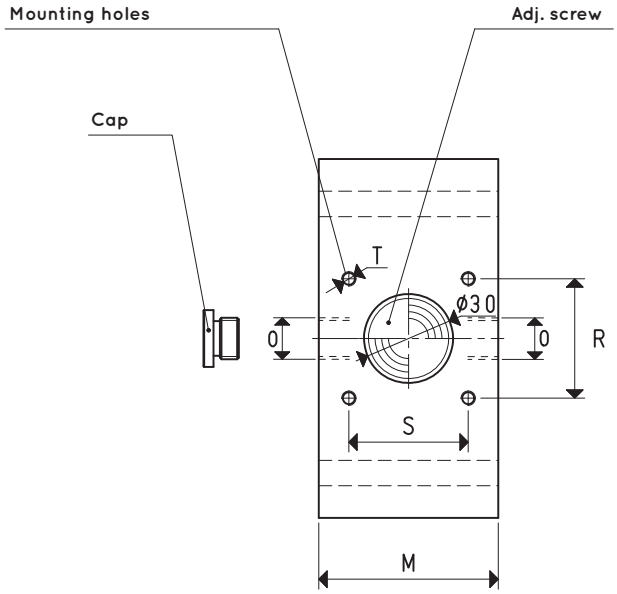
- Operation: membrane-piston regulator.
- Adjustable operating pressure: from 980 to 1 mbar abs.
- Flow rate: from 20 to 160 m³/h.
- Room temperature: from -10 to +80 °C.
- Installation position: any.

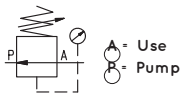
Usage

These regulators are used as the previously described ones, but they offer the additional advantage of regulating even levels of vacuum close to the atmospheric pressure.









Item	A Ø	Max capac. m³/h	B	C	D	F	G	H	I Ø	L	M	O Ø	R	S	T	Weight Kg
11 03 50	G1/2"	20	53	52.0	15	90	120	25	8.5	105.0	60	G1/4"	38	34	M4	2.07
11 05 50	G1"	80	60	58.0	15	90	120	30	8.5	118.0	100	G1/4"	38	34	M5	3.74
11 06 50	G1" 1/2	160	54	77.5	15	130	160	20	8.5	131.5	99	G1/4"	50	50	M6	5.54

Accessories and Parts		11 03 50	11 05 50	11 06 50
Sealing kit	item	00 11 119	00 11 120	00 11 121
Vacuum gauge	item	09 03 10	09 03 10	09 03 10
Vacuum switch	item	12 40 10	12 40 10	12 40 10

Note: The vacuum gauges and vacuum switches are not integral parts of the regulators and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

VACUUM REGULATORS WITH PNEUMATIC ADJUSTMENT

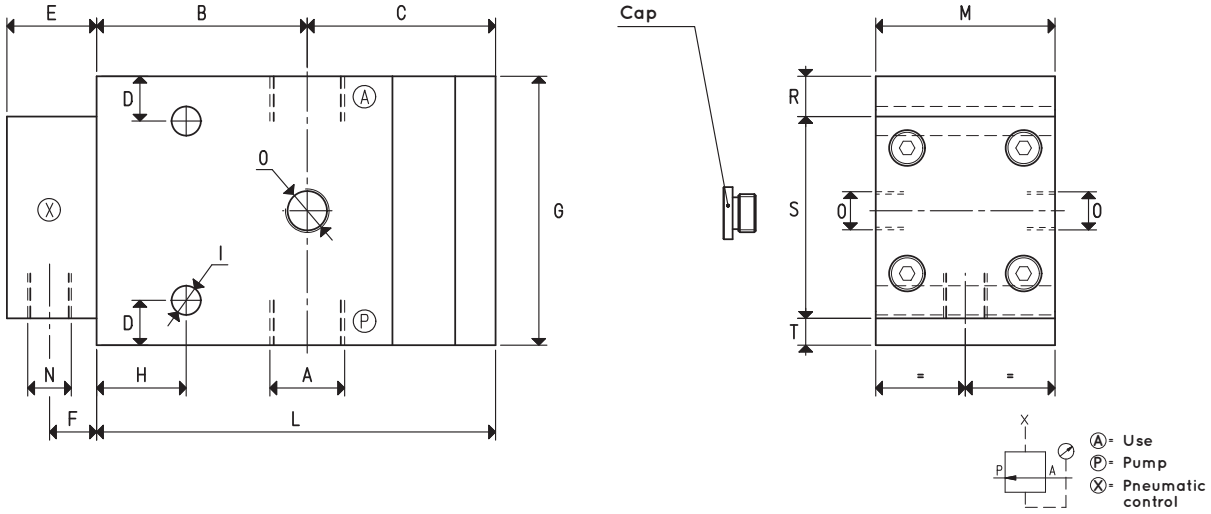
Vacuum regulators with pneumatic adjustment differ from the previous ones for the way they adjust the level of vacuum; in fact, instead of acting manually on the adjustment screw, it is necessary to act on the pneumatic cylinder compressed air supply: the higher the pressure, and the higher the level of vacuum and vice-versa.
Vacuum regulators are used to adjust the pre-set level of vacuum and keep it constant (secondary vacuum), regardless of the pump vacuum level or the vacuum level (primary vacuum).
Unlike the vacuum adjusting valves, regulators do not introduce atmospheric air into the circuit, thus producing more gripping points with different vacuum values,
from only one vacuum source.
Their operating principle is based on the contrasting action between a pneumatic cylinder with short stroke and a fluctuating piston driven by the pressure differential existing between the secondary vacuum and the atmospheric pressure.

Technical features

- Operation: membrane-piston regulator.
- Supply pressure: from 0 to 3 bar for regulators item 11 .. 30;
  from 0 to 5 bar for regulators item 11 .. 80.
- Adjustable working pressure: from 800 to 1 mbar abs. for regulators item 11 .. 30;
  from 980 to 1 mbar abs. for regulators item 11 .. 80.
- Flow rate: from 2 to 160 m³/h.
- Room temperature: from -10 to +80 °C.
- Installation position: any.

Usage

Vacuum regulators are mainly used on centralised plants where, regardless of the plant level of vacuum, each grip can be adjusted within that value. Moreover, they are necessary whenever the working vacuum must be lower than the primary vacuum and kept constant. Vacuum regulators with pneumatic adjustment can be installed away from the control point, since it is sufficient to have a pressure regulator on the control panel to act on them.



Item	A Ø	Max capac. m³/h	B	C	D	E	F	G	H	I Ø	L	M	N Ø	O Ø	R	S	T	Weight Kg
11 01 30	G1/4"	6	47	42.0	10	20	10.5	60	20	6.5	89.0	40	G1/8"	G1/8"	9.0	45	6.0	0.71
11 02 30	G3/8"	10	47	42.0	10	20	10.5	60	20	6.5	89.0	40	G1/8"	G1/8"	9.0	45	6.0	0.69
11 03 30	G1/2"	20	53	52.0	15	22	16.5	85	25	8.5	105.0	50	G1/8"	G1/4"	16.5	58	10.5	1.32
11 04 30	G3/4"	40	55	55.5	15	26	16.5	100	30	8.5	110.5	50	G1/8"	G1/4"	24.0	58	18.0	1.94
11 05 30	G1"	80	60	58.0	15	26	16.5	120	30	8.5	118.0	60	G1/8"	G1/4"	34.0	58	28.0	2.35
11 06 30	G1" 1/2	160	54	77.5	15	30	19.5	160	20	8.5	131.5	99	G1/4"	G1/4"	37.5	80	42.5	5.56
11 03 80	G1/2"	20	53	52.0	15	26	16.5	120	25	8.5	105.0	60	G1/8"	G1/4"	34.0	58	28.0	2.28
11 05 80	G1"	80	60	58.0	15	26	16.5	120	30	8.5	118.0	100	G1/8"	G1/4"	34.0	58	28.0	3.96
11 06 80	G1" 1/2	160	54	77.5	15	30	19.5	160	20	8.5	131.5	99	G1/4"	G1/4"	37.5	80	42.5	5.60

Accessories and Parts		11 01 30	11 02 30	11 03 30	11 04 30	11 05 30	11 06 30	11 03 80	11 05 80	11 06 80
Sealing kit	item	00 11 122	00 11 123	00 11 124	00 11 125	00 11 126	00 11 127	00 11 128	00 11 129	00 11 130
Vacuum gauge	item	09 03 15	09 03 15	09 03 10	09 03 10	09 03 10	09 03 10	09 03 10	09 03 10	09 03 10
Vacuum switch	item	12 40 10	12 40 10	12 40 10	12 40 10	12 40 10	12 40 10	12 40 10	12 40 10	12 40 10

Note: The vacuum gauges and vacuum switches are not integral parts of the regulators and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

VACUUM REGULATORS

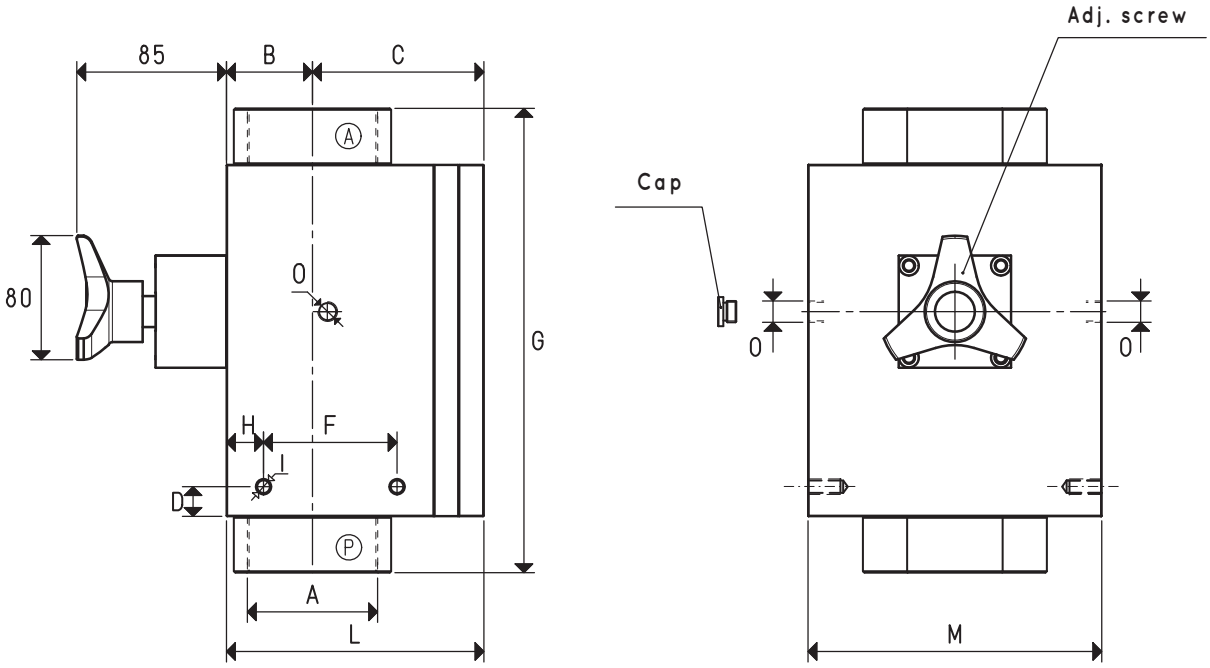
These devices control the level of vacuum, maintaining it constant at the pre-set value (secondary vacuum), regardless of the network's flow rate and the fluctuations in vacuum level (primary vacuum).
They operate by membrane-piston and exploit the pressure differential between the secondary vacuum and the atmospheric pressure.
Unlike the vacuum control valves, reducers do not release air into the circuit, thereby allowing for the creation more grip points taken at different degrees of vacuum, from a single vacuum source.
The level of vacuum is adjusted manually by turning the adjustment knob clockwise to increase it, and counter clockwise to decrease it.

Technical features

- Operation: membrane-piston regulator.
- Adjustable operating pressure: from 800 to 1 mbar abs.
- Flow rate : from 390 to 750 m³/h.
- Room temperature: from -10 to +80 °C.
- Installation position: any.

Usage

The best use of vacuum reducers is in centralised plants where, regardless of the plant's level of vacuum, each outlet can be adjusted within that value. Moreover, they are necessary whenever the working vacuum must be lower than the primary vacuum.



Item	A Ø	Max capac. m³/h	B	C	D	F	G	H	I Ø	L	M	O Ø	Weight Kg
11 08 11	G2"	390	45	96.5	20	60	218	25	M8 x 15	141.5	128	G1/4"	7.2
11 09 11	G3"	750	58	115.5	20	90	313	25	M10 x 25	173.5	198	G1/4"	18.1

Accessories and Parts		11 08 11	11 09 11
Sealing kit	item	00 11 187	00 11 188
Vacuum gauge	item	09 03 10	09 03 10
Vacuum switch	item	12 40 10	12 40 10

Note: The vacuum gauges and vacuum switches are not integral parts of the regulators and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

VACUUM REGULATORS WITH PNEUMATIC ADJUSTMENT

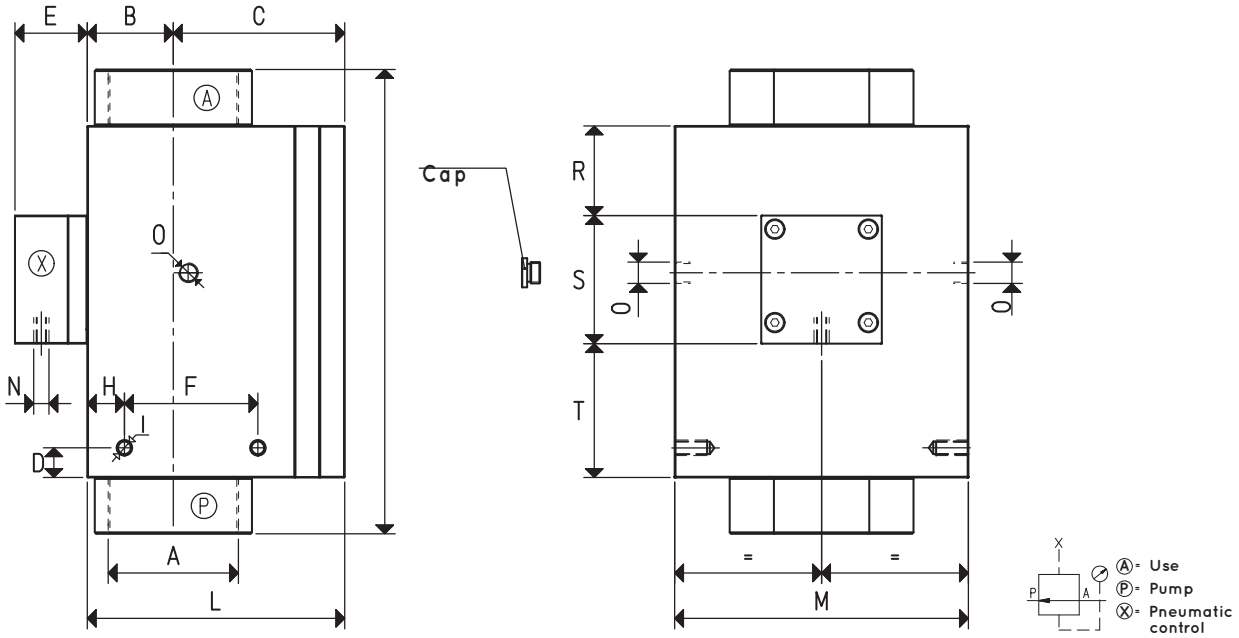
Vacuum regulators with pneumatic adjustment differ from the previous ones for the way they adjust the level of vacuum; in fact, instead of acting manually on the adjustment screw, it is necessary to act on the pneumatic cylinder compressed air supply: the higher the pressure, and the higher the level of vacuum and vice-versa.
Vacuum regulators are used to adjust the pre-set level of vacuum and keep it constant (secondary vacuum), regardless of the pump vacuum level or the vacuum level (primary vacuum).
Unlike the vacuum adjusting valves, regulators do not introduce atmospheric air into the circuit, thus producing more gripping points with different vacuum values, from only one vacuum source.
Their operating principle is based on the contrasting action between a pneumatic cylinder with short stroke and a fluctuating piston driven by the pressure differential existing between the secondary vacuum and the atmospheric pressure.

Technical features

- Operation: membrane-piston regulator.
- Supply pressure: from 0 to 5 bar for regulators item 11 .. 31.
- Adjustable working pressure:
  from 800 to 1 mbar abs. for regulators item 11 .. 31.
- Flow rate: from 370 to 750 m³/h.
- Room temperature: from -10 to +80 °C.
- Installation position: any.

Usage

Vacuum regulators are mainly used on centralised plants where, regardless of the plant level of vacuum, each grip can be adjusted within that value.
Moreover, they are necessary whenever the working vacuum must be lower than the primary vacuum and kept constant. Vacuum regulators with pneumatic adjustment can be installed away from the control point, since it is sufficient to have a pressure regulator on the control panel to act on them.



Item	A Ø	Max capac. m³/h	B	C	D	E	F	G	H	I Ø	L	M	N Ø	O Ø	R	S	T	Weight Kg
11 08 31	G2"	390	45	96.5	20	43	60	218	25	M8 x 15	141.5	128	G1/8"	G1/4"	62.5	70	85.5	7.0
11 09 31	G3"	750	58	115.5	20	48	90	313	25	M10 x 25	173.5	198	G1/8"	G1/4"	97.0	85	131.0	18.0

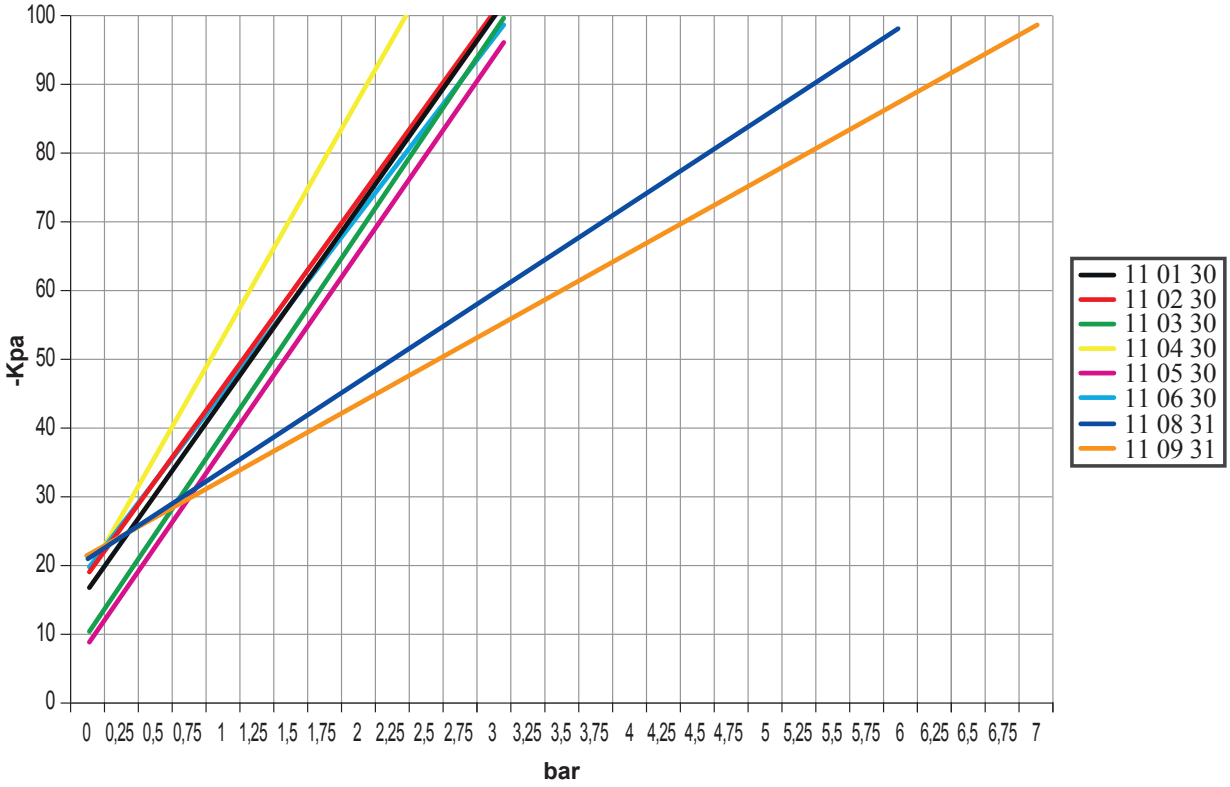
Accessories and Parts		11 08 31	11 09 31
Sealing kit	item	00 11 187	00 11 188
Vacuum gauge	item	09 03 10	09 03 10
Vacuum switch	item	12 40 10	12 40 10

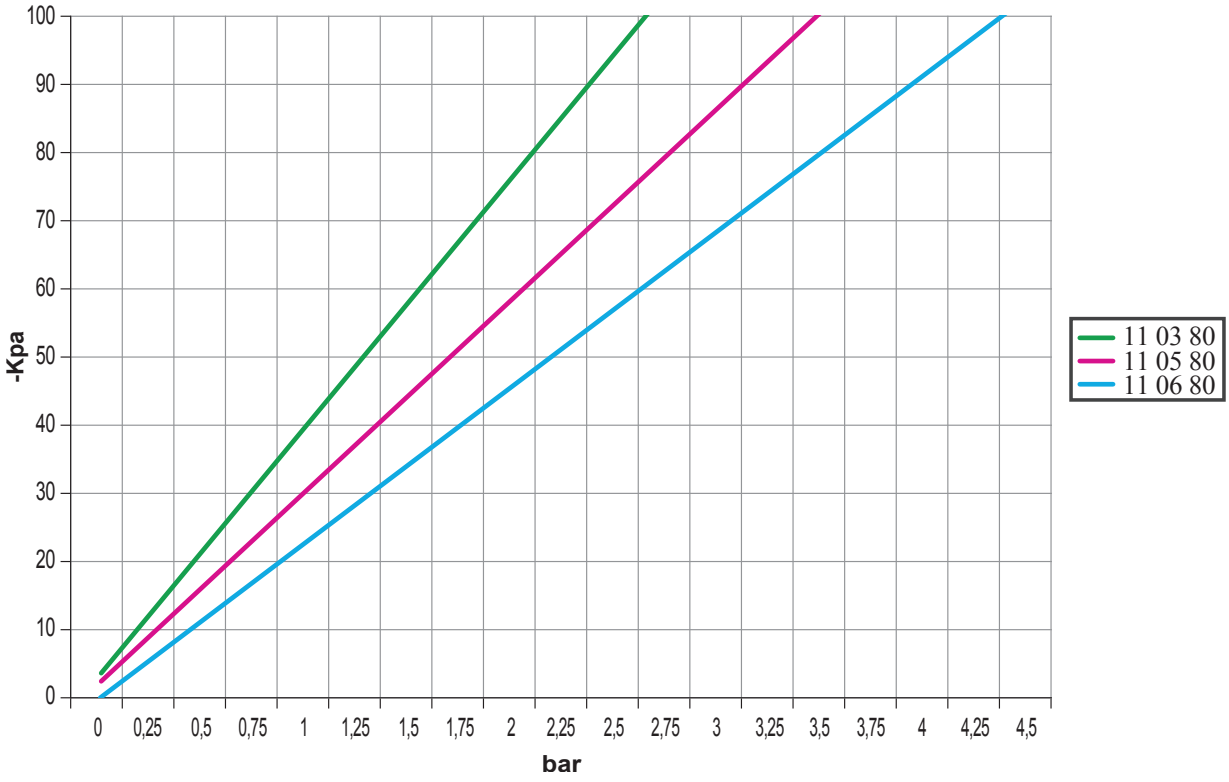
Note: The vacuum gauges and vacuum switches are not integral parts of the regulators and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

DIAGRAMS REFERRING TO THE LEVEL OF VACUUM ACCORDING TO THE SERVO-CONTROL SUPPLY PRESSURE





Note: The values shown in the tables are purely indicative as they depend on atmospheric pressure, the flow rate of the vacuum source and the quality of the compressed air supply

SEALING KIT FOR VACUUM REDUCERS

Sealing kits are composed of a membrane, shutters and standard O-rings installed on our compressed air and vacuum 3-way valves and solenoid valves.
In presence of very hot fluids or corrosive fluids, we can supply sealing kits in special compounds. Please contact our technical department.

Item	**Vacuum regulator** item
00 11 113	11 01 10
00 11 114	11 02 10
00 11 115	11 03 10
00 11 116	11 04 10
00 11 117	11 05 10
00 11 118	11 06 10
00 11 119	11 03 50
00 11 120	11 05 50
00 11 121	11 06 50
00 11 122	11 01 30
00 11 123	11 02 30
00 11 124	11 03 30
00 11 125	11 04 30
00 11 126	11 05 30
00 11 127	11 06 30
00 11 128	11 03 80
00 11 129	11 05 80
00 11 130	11 06 80
00 11 187	11 08 11 - 11 08 31
00 11 188	11 09 11 - 11 09 31

VACUUM VALVES AND SOLENOID VALVES

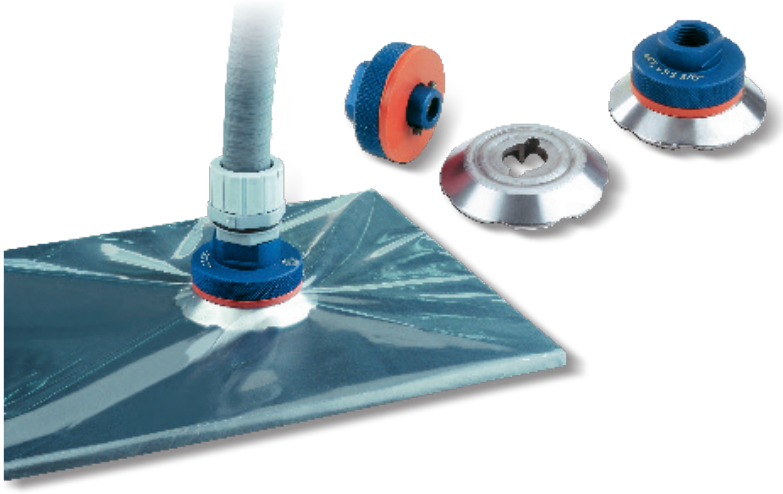
SUCTION VALVES FOR VACUUM PRESS BAGS	PG.	4.01
SUCTION VALVES FOR RESIN INFUSION MOULDS	PG.	4.02
PLUNGER VALVES	PG.	4.03
MECHANICALLY OPERATED VALVES	PG.	4.04
VALVES WITH BALL SHUTTER	PG.	4.05
SHUT-OFF VALVES	PG.	4.06 ÷ 4.07
CHECK VALVES	PG.	4.08
MEMBRANE CHECK VALVES	PG.	4.09
MANUAL 2-WAY MINIATURE VACUUM VALVES	PG.	4.09
MANUAL 2-WAY VACUUM VALVES	PG.	4.10
MANUAL 3-WAY VACUUM VALVES	PG.	4.11
SERVO-CONTROLLED 3-WAY VACUUM VALVES	PG.	4.12 ÷ 4.16
3-WAY VACUUM SOLENOID PILOT VALVES	PG.	4.17 ÷ 4.18
2-WAY VACUUM SOLENOID PILOT VALVES	PG.	4.19 ÷ 4.20
DIRECT DRIVE 2-WAY VACUUM SOLENOID VALVES	PG.	4.21
DIRECT DRIVE 2-WAY VACUUM SOLENOID VALVES	PAG.	4.22 ÷ 4.25
SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES	PG.	4.26 ÷ 4.31
SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH 2 ELECTRIC COILS	PG.	4.32 ÷ 4.37
DIRECT DRIVE 3-WAY VACUUM SOLENOID VALVES	PG.	4.38 ÷ 4.40
SOLENOID VALVE ACCESSORIES AND SPARE PARTS:		
- ELECTRIC COILS	PG.	4.41 ÷ 4.42
- CONNECTORS	PG.	4.43 ÷ 4.44
- VALVE AND SOLENOID VALVE PILOT SEALING AND MEMBRANE KIT	PG.	4.45
SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH LOW ABSORPTION ELECTRIC COIL	PG.	4.46 ÷ 4.51
SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH BISTABLE IMPULSE SOLENOID PILOT VALVE AND WITH LOW ABSORPTION ELECTRIC COIL	PG.	4.52 ÷ 4.57
DIRECT DRIVE 3-WAY VACUUM SOLENOID VALVES WITH LOW ABSORPTION ELECTRIC COIL	PG.	4.58 ÷ 4.59
DIRECT DRIVE 3-WAY VACUUM SOLENOID VALVES WITH BISTABLE IMPULSE SOLENOID PILOT VALVE AND WITH LOW ABSORPTION ELECTRIC COIL	PG.	4.60 ÷ 4.61
SOLENOID VALVES - SPECIAL PRODUCTS UPON REQUEST		
MULTI-FUNCTION MODULES WITH BUILT-IN VACUUM SOLENOID VALVES	PG.	4.62 ÷ 4.63
SOLENOID VALVE ACCESSORIES AND SPARE PARTS WITH LOW ABSORPTION ELECTRIC COIL:		
- SOLENOID PILOT VALVES WITH BUILT-IN LOW ABSORPTION ELECTRIC COIL	PG.	4.64
- BISTABLE IMPULSE SOLENOID PILOT VALVES AND WITH BUILT-IN ELECTRIC COIL	PG.	4.65
- SOLENOID PILOT VALVES WITH INTERFACE VALVE	PG.	4.65
- CONNECTORS	PG.	4.66
- SOLENOID VALVE SEALING KIT WITH LOW ABSORPTION ELECTRIC COILS	PG.	4.67
- SOLENOID VALVE PILOT MEMBRANE WITH LOW ABSORPTION ELECTRIC COILS	PG.	4.67

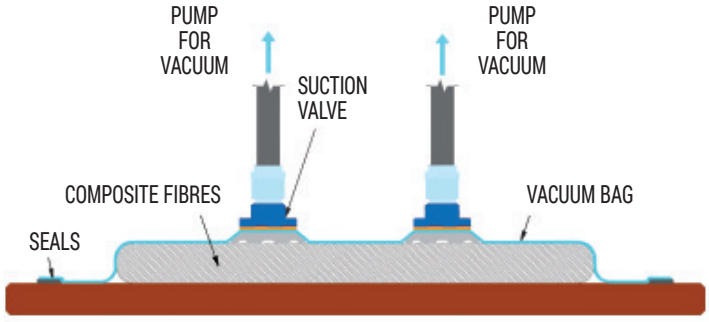
3D drawings are available on **vuototecnica.net**

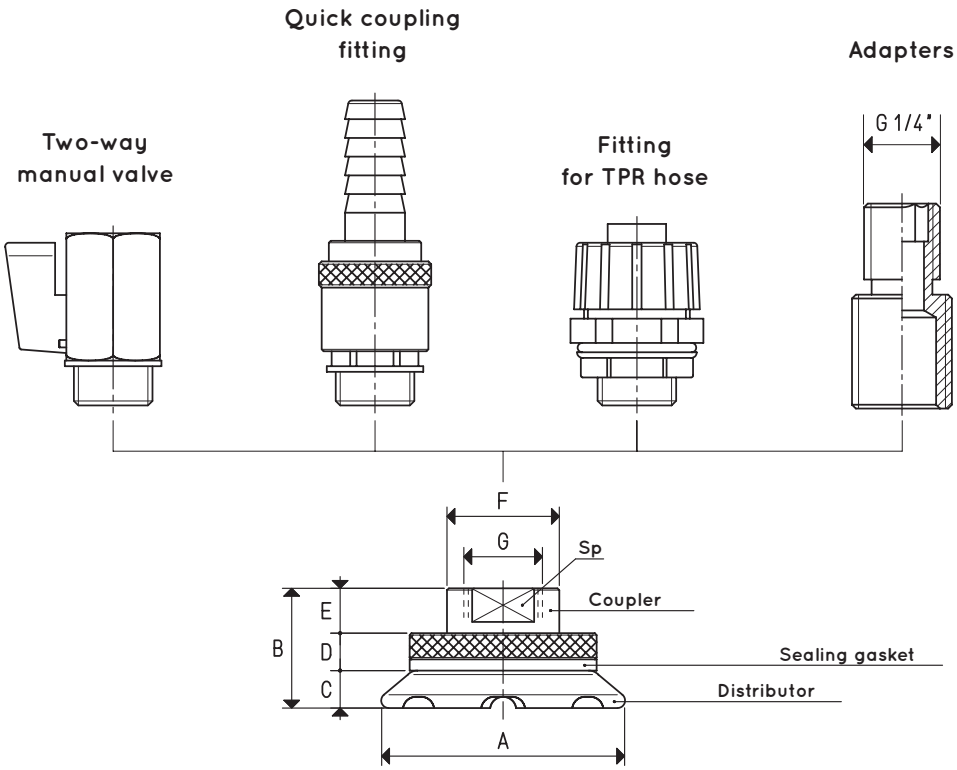
3D drawings are available on **vuototecnica.net**

SUCTION VALVES FOR VACUUM PRESS BAGS

The suction valves described on this page have been designed for a quick vacuum connection on press bags for composite fibre products.
These valves are composed of a steel distributor, to be inserted inside the bag, equipped with a cam housing suitable for the quick coupler for the vacuum connection.
The latter is made with reeded and anodised aluminium and is easily coupled with the distributor by simply rotating it on its axis by 90°, once it has been inserted.
A silicone seal, to be placed between the two elements and the press bag, guarantees a perfect vacuum seal. Manual two-way valves, quick couplers or simply flexible pipe fittings can be assembled onto these valves.
They are currently available in the two versions indicated in the table, but can be provided in different sizes and shapes upon request for a minimum amount.
Maximum temperature of use: 220°







Item	Maximum flow rate recommended m³/h	Hole to be made in bag Ø	Two-way manual valve item	Quick coupler fitting item	Fitting for TPR hose item	Adapters item	Weight g	A Ø	B	C	D	E	F Ø	G Ø	Sp
VSS 3/8"	10	16	13 02 11	RR3/8"	RTPR3/8"	0008220	178	60	32	10	13	9	24	G3/8"	19
VSS 1/2"	20	19	13 03 11	RR1/2"	RTPR1/2"		218	65	35	10	13	12	30	G1/2"	25

Note: The two-way valves and fittings are not integral parts of the suction valves and, therefore, must be ordered separately.

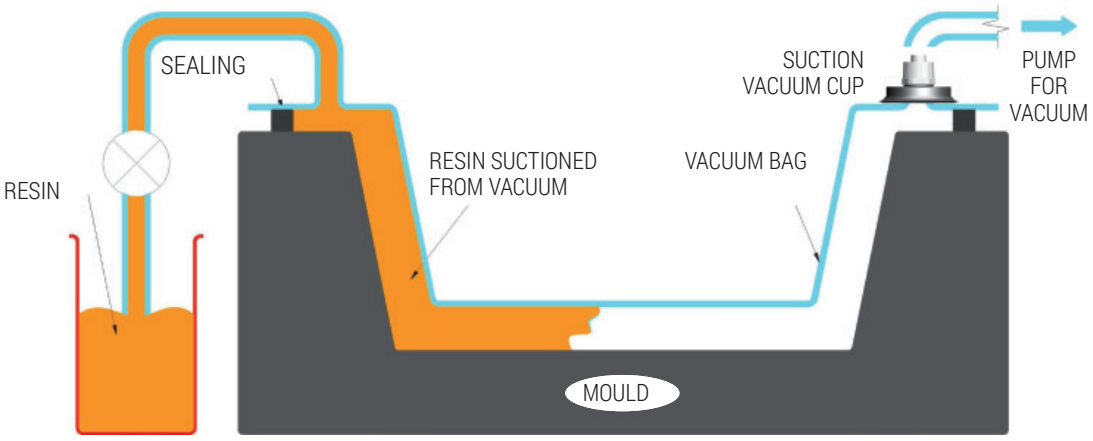
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

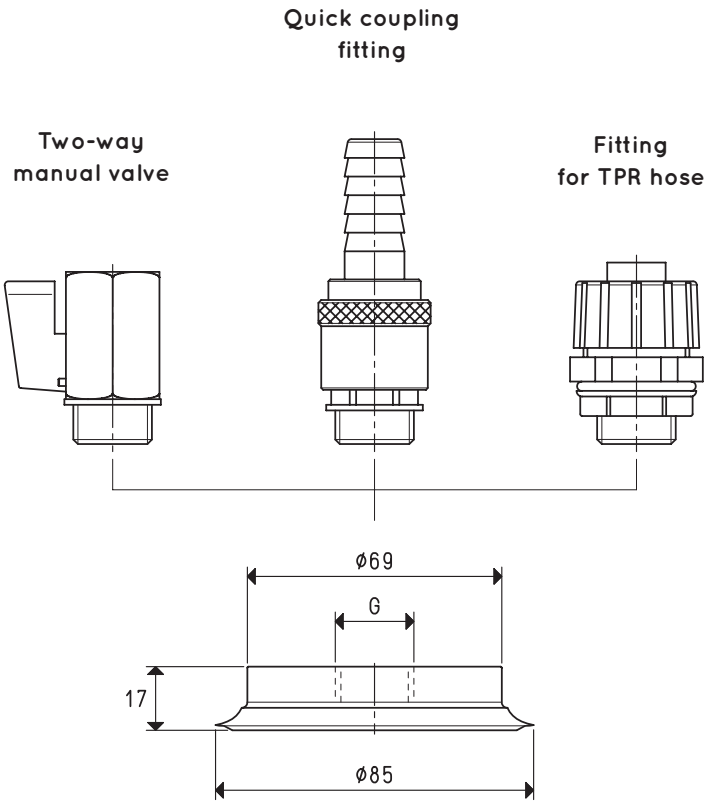
Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**

SUCTION VALVES FOR RESIN INFUSION MOULDS

Once laid on the resin infusion mould connections, these suction valves allow a quick vacuum connection and guarantee a perfect seal.
They are made with silicone rubber, while their support is made with anodised aluminium. Manual two-way valves, quick couplers or simply flexible pipe fittings can be assembled onto these valves.
They are available in the two versions shown below, but can be supplied in different sizes and shapes upon request.





Item	Maximum flow rate recommended m³/h	Two-way manual valve item	Quick coupler fitting item	Fitting for TPR hose item	Weight g	G Ø
08 85 15 1/2" S	20	13 03 11	RR1/2"	RTPR1/2"	108	G1/2"
08 85 15 3/4" S	40	13 03 11	RR3/4"	RTPR3/4"	103	G3/4"

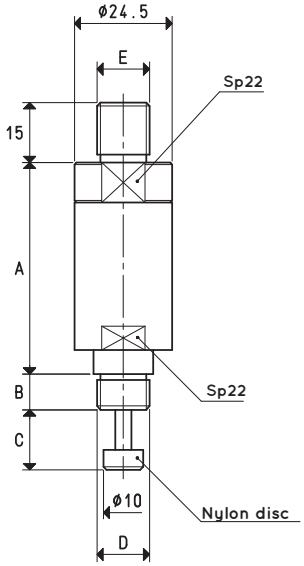
Note: The two-way valves and fittings are not integral parts of the suction valves and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

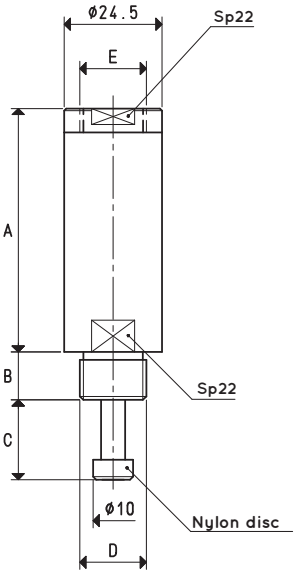
Adapters for GAS - NPT threading available on page 1.134

PLUNGER VALVES

Plunger valves are composed of a natural colour or chrome-plated cylindrical brass body, depending on the items, of a steel plunger with a conical valve, a thrust spring, a nylon disc whose task is to thrust the spring onto a larger contact surface, thus avoiding unsightly prints on the load to be gripped.
Connected to vacuum, they are normally closed.
They activate suction, thus creating a vacuum, only when the plunger is in contact with the gripping surface.
They are also available in various versions, all suitable for our vacuum cups.



Item	A	B	C	D Ø	E Ø	Weight g	Vacuum cup item
19 01 10	53	9	15.0	G1/4"	G1/4"	160	08 150 16
19 01 11	53	9	16.0	M12	G1/4"	166	08 80 20
19 01 12	53	9	22.0	M12	G1/4"	152	08 127 15



Item	A	B	C	D Ø	E Ø	Weight g	Vacuum cup item
19 02 10	61.5	12	22.0	G3/8"	G3/8"	164	08 150 15
							08 200 10
							08 250 10
19 03 10	61.0	10	22.5	G1/2"	G3/8"	172	08 300 10
							08 350 10
19 04 10	68.5	11	42.0	G1/2"	G3/8"	182	08 360 10

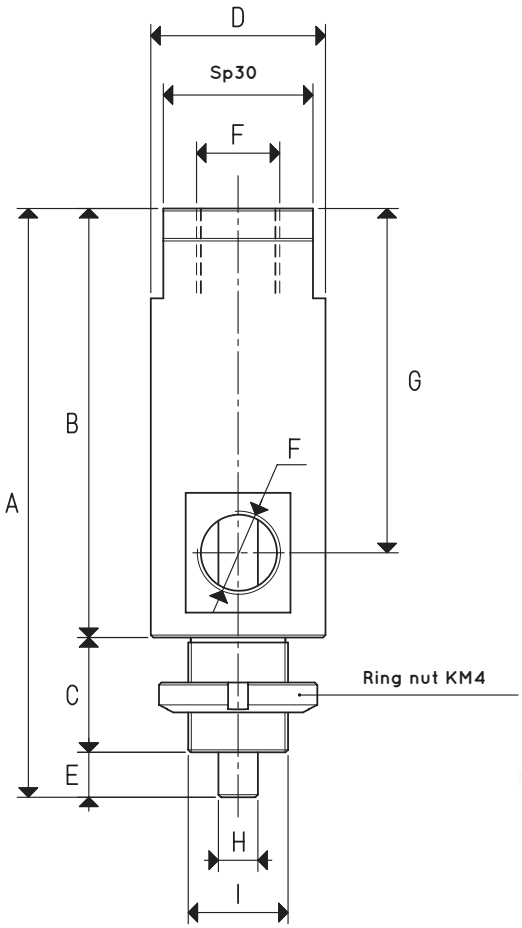
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

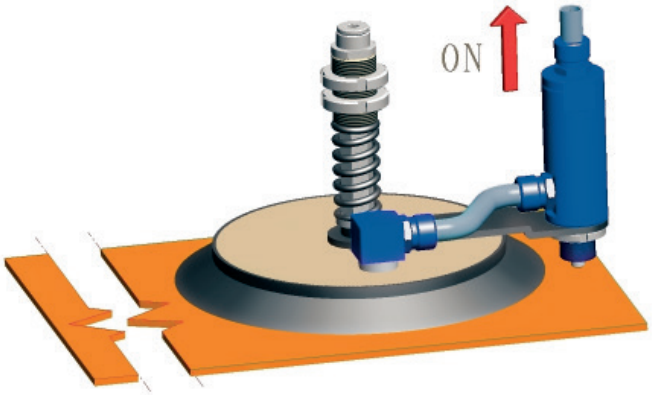
Adapters for GAS - NPT threading available on page 1.134

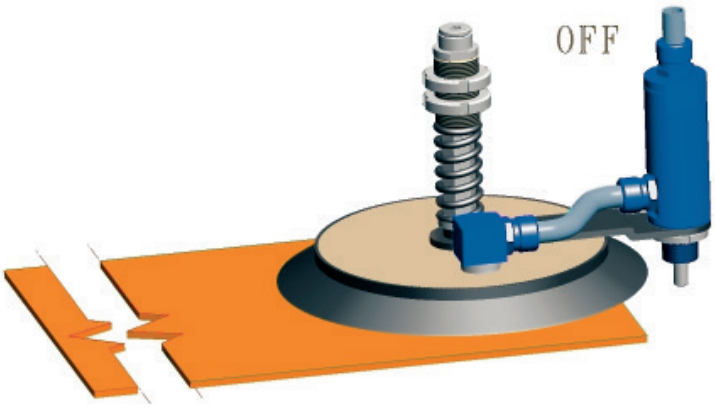
3D drawings are available on **vuototecnica.net**

MECHANICALLY OPERATED VALVES

These valves are composed of an anodised aluminium body, a steel pin solidly connected to a conical shutter and of a thrust spring.
Connected to vacuum, they are normally closed.
They activate suction, thus creating a vacuum, only when the pin is activated by the cams or any other mechanical device.
They can be used as an alternative to plunger valves when these cannot be assembled onto the vacuum cups.







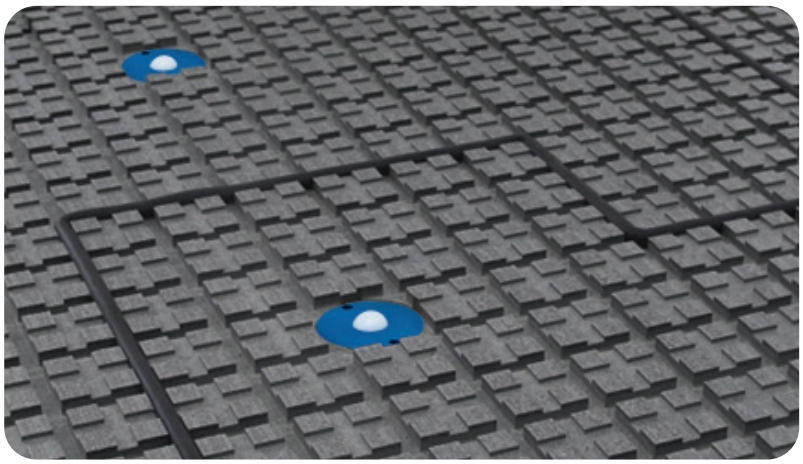
Item	A	B	C	D Ø	E	F Ø	G	H Ø	I Ø	Weight g
19 02 30	112	80	23	35	9	G3/8"	63	8	M20 x 1	252

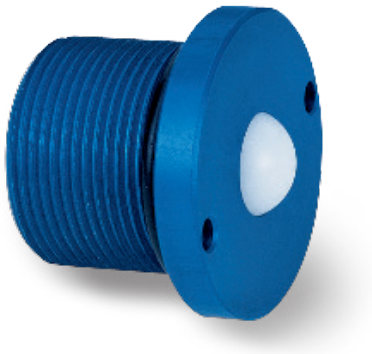
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

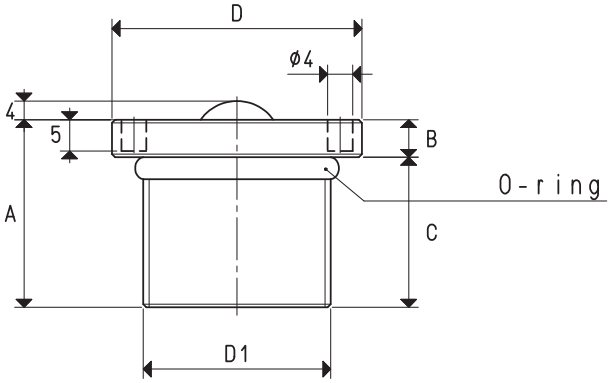
VALVES WITH BALL SHUTTER

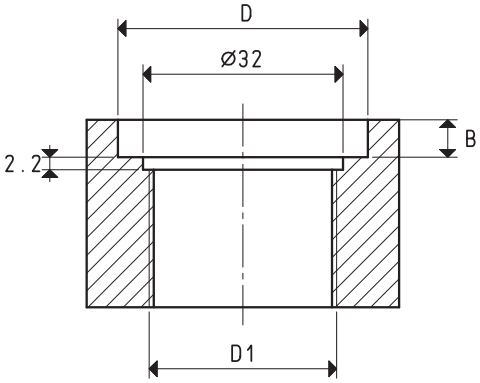
Valves with ball shutters activate suction, creating vacuum in the cups on which they are applied, only when the load to be held activates the sealing shutter.
They are made of an anodised aluminium body, a nylon ball shutter, a calibrated thrust spring and a threaded brass closing plug.
When properly calibrated, they guarantee a perfect vacuum seal.
They are recommended for making vacuum operated clamping surfaces.
They can be supplied in different sizes and shapes upon request and for a minimum quantity to be defined in the order.

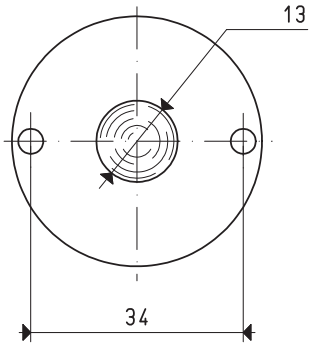




CONSTRUCTION OF SEAT FOR VALVE INSERTION





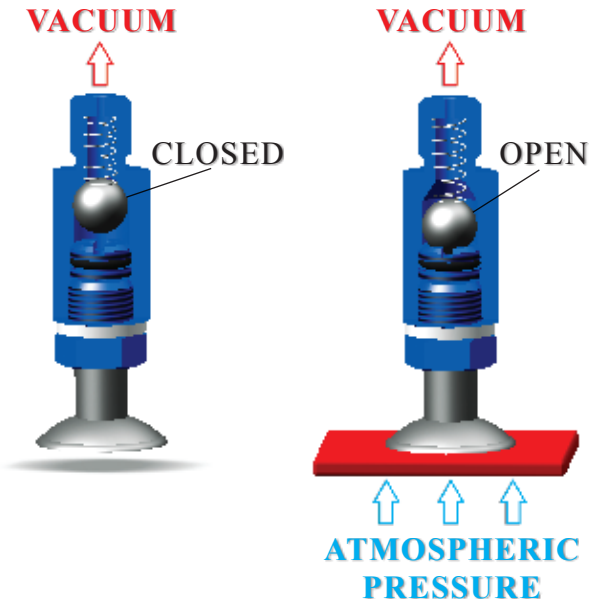


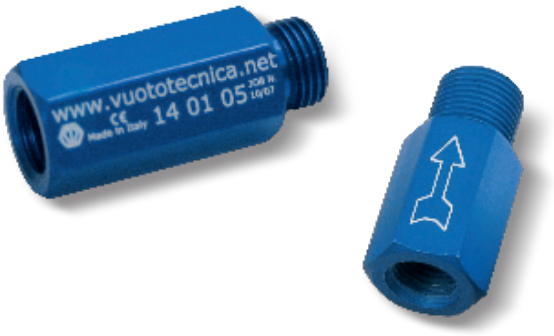
Item	A	B	C	D Ø	D1 Ø	Actuating force Kg	Weight g
22 01 10	30	6	24	40	M30 x 1.5	2.30	70

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

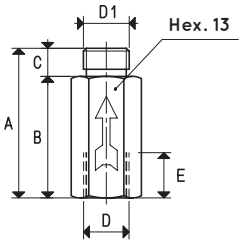
SHUT-OFF VALVES

These are special one-way valves that, when properly calibrated, allow a certain quantity of fluid to go through; afterwards, if the fluid continues to go through, they automatically close.
These shut-off valves have been specially designed to be applied on the cups and, in case of lack of objects to be gripped, of defective grips or leaks, they automatically deactivate suction, thus preventing any reduction of the level of vacuum on the other gripping cups.
They are provided calibrated and commissioned, ready to be installed. They are made with anodised aluminium and can be supplied in different shapes and sizes upon request and for a minimum quantity to be defined in the order.

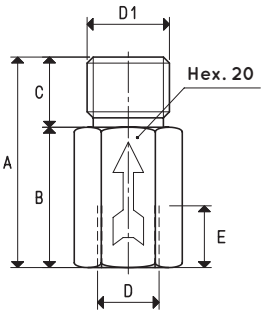




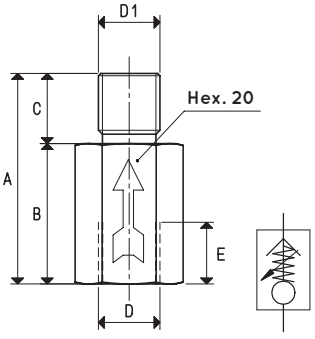
Item	Minimum trigger flow m³/h	Minimum level of vacuum mbar	A	B	C	D Ø	D1 Ø	E	Weight g
14 01 05	1.5	-250	32	26	6	G1/8"	G1/8"	8	8



Item	Minimum trigger flow m³/h	Minimum level of vacuum mbar	A	B	C	D Ø	D1 Ø	E	Weight g
14 01 10	4	-250	45	30	15	G1/4"	G3/8"	14	28



Item	Minimum trigger flow m³/h	Minimum level of vacuum mbar	A	B	C	D Ø	D1 Ø	E	Weight g
14 01 15	4	-250	45	30	15	G1/4"	G1/4"	14	29

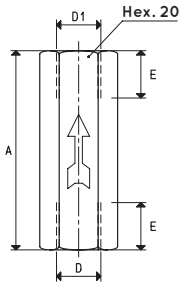


Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

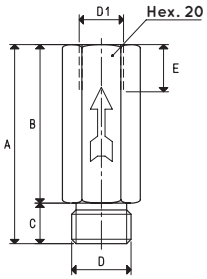
Adapters for GAS - NPT threading available on page 1.134

SHUT-OFF VALVES

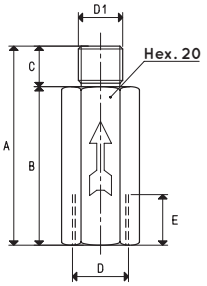
Item	Minimum trigger flow m^3/h	Minimum level of vacuum mbar	A	D Ø	D1 Ø	E	Weight g
14 02 10	4	-250	59	G1/4"	G1/4"	14	42



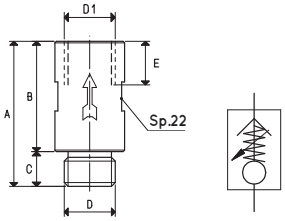
Item	Minimum trigger flow m^3/h	Minimum level of vacuum mbar	A	B	C	D Ø	D1 Ø	E	Weight g
14 03 10	4	-250	59	47	12	G3/8"	G1/4"	14	36



Item	Minimum trigger flow m^3/h	Minimum level of vacuum mbar	A	B	C	D Ø	D1 Ø	E	Weight g
14 05 10	4	-250	59	47	12	G3/8"	G1/4"	14	34



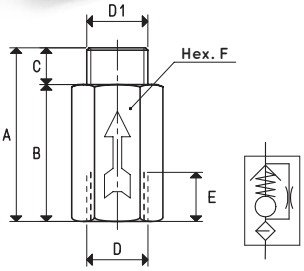
Item	Minimum trigger flow m^3/h	Minimum level of vacuum mbar	A	B	C	D Ø	D1 Ø	E	Weight g
14 06 10	4	-250	59	46	12	G3/8"	G3/8"	14	38



SHUT-OFF VALVES WITH CONTROLLED LOSS

These are based on the same operating principle as the previously described shut-off valves. They differ only in the sealing shutter which, even when completely closed, allows the vacuum source a minimum of suction.
This feature helps pick up the vacuum cup that has not gripped the object, for example, due to early activation of the suction, to recreate the vacuum inside it and then to grip without having to repeat the work cycle. If, on the other hand, the vacuum cup does not grip because there is no object to be gripped, the valve does not prevent the lowering of the level of vacuum on the remaining vacuum cups, but the small size of the loss is easily controllable and therefore, recoverable.
Fully made with anodised aluminium.

Item	Loss max Nl/min	Minimum trigger flow m^3/h	Minimum level of vacuum mbar	A	B	C	D Ø	D1 Ø	E	F	Weight g
14 01 11	7.5	1	-250	36.0	29.5	6.5	G1/8"	G1/8"	10	13	8
14 02 11	7.5	1	-250	37.5	29.5	8.0	G1/4"	G1/4"	15	17	16
14 03 11	24.0	3	-250	42.0	32.5	9.5	G3/8"	G3/8"	17	22	28



Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

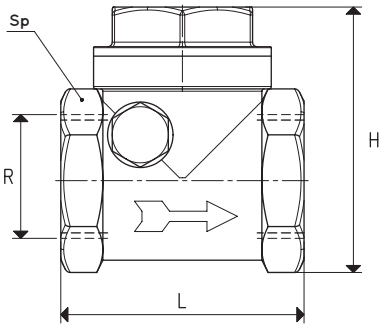
Adapters for GAS - NPT threading available on page 1.134

CHECK VALVES

These one-way valves are made with bronze and brass with a seal in NBR nitrile rubber or, upon request, in FKM, only for series 10 ... 11.
To ensure a practical assembly they are available in two versions: horizontal and vertical.
Fitted on the vacuum pump suction inlet, as soon as the latter stop, these valves prevent the air from returning in the plant (piping, tanks, autoclaves, vacuum gripping systems, vacuum cups, etc.), guaranteeing a perfect seal and preventing the oil from returning into the pump stator, which would cause considerable damages.
Therefore, check valves are mandatory on all vacuum pumps with lubrication that do not have them built-in.

HORIZONTAL

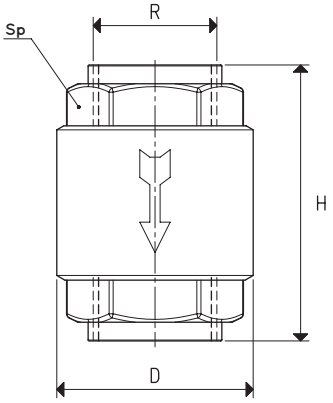
Item	R Ø	Sp	H	L	Weight Kg
10 02 10	G3/8"	27	49	43	0.19
10 03 10	G1/2"	27	49	43	0.17
10 04 10	G3/4"	34	58	52	0.27
10 05 10	G1"	42	66	62	0.43
10 06 10	G1" 1/4	50	75	72	0.59
10 07 10	G1" 1/2	57	86	80	0.79
10 08 10	G2"	69	99	94	1.08



VERTICAL

Item	R Ø	Sp	D Ø	H	Weight Kg
10 01 11	G1/4"	21	28	47	0.10
10 02 11	G3/8"	25	35	59	0.17
10 03 11	G1/2"	26	35	58	0.12
10 04 11	G3/4"	33	42	65	0.28
10 05 11	G1"	40	48	74	0.42
10 06 11	G1" 1/4	50	61	82	0.64
10 07 11	G1" 1/2	55	71	92	0.87
10 08 11	G2"	70	87	100	2.70

Note: To order valves with seals in FKM, add the letter V to the item (example: 10 02 11 V)



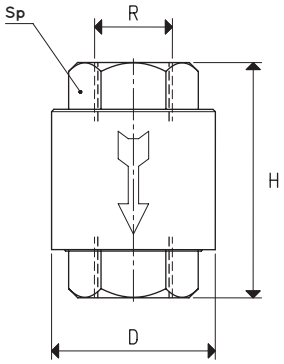
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

MEMBRANE CHECK VALVES

These valves have the same features of the previously described check valves, but they are made with anodised aluminium, which makes them particularly light.
The seal is guaranteed by an EPDM membrane instead of the metal shutter with NBR seal.
Thanks to these features and their modern design, they are recommended for pneumatic vacuum generators and, of course, on vacuum pumps.

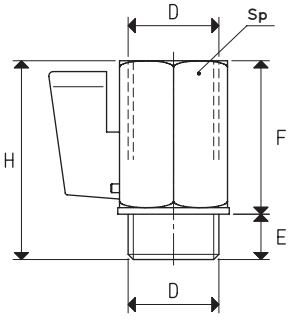
Item	R Ø	Sp	D Ø	H	Weight g
10 01 15	G1/4"	20	30	42	46
10 02 15	G3/8"	24	35	50	74
10 03 15	G1/2"	24	37	55	86
10 04 15	G3/4"	33	42	64	110
10 05 15	G1"	40	49	74	162



MANUAL 2-WAY MINIATURE VACUUM VALVES

These small manual valves are suited for intercepting vacuum on vacuum cup holders and any small utilities on which solenoid valves cannot be installed.
They feature a hexagonal nickel-plated brass body, a chrome-plated brass ball shutter and a seal in plastic material to guarantee a perfect seal.
A lever on the ball shutter, manually rotated 90°, allows for valve opening or closing with no effort.

Item	D Ø	Mouth Ø	Sp	E	F	H	Weight g
13 01 11	G1/4"	8	21	7	32	39	80
13 02 11	G3/8"	8	21	10	30	40	74
13 03 11	G1/2"	10	25	12	33	45	110

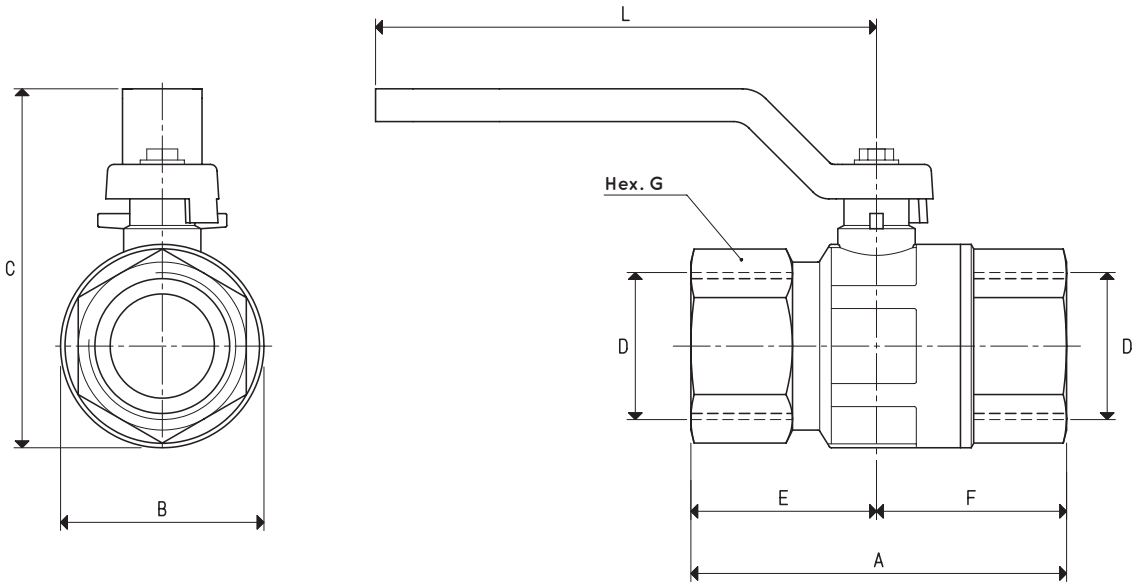


Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

MANUAL 2-WAY AND 3-WAY VACUUM VALVES

These manual valves are used for intercepting vacuum in all those plants where solenoid valves cannot be installed.
They feature a die-cast nickel-plated brass body, a chromed brass ball shutter and Teflon® seals to guarantee perfect seal even at high temperatures.
A lever on the ball shutter, manually rotated 90°, allows opening or closing the valve precisely and with no effort.

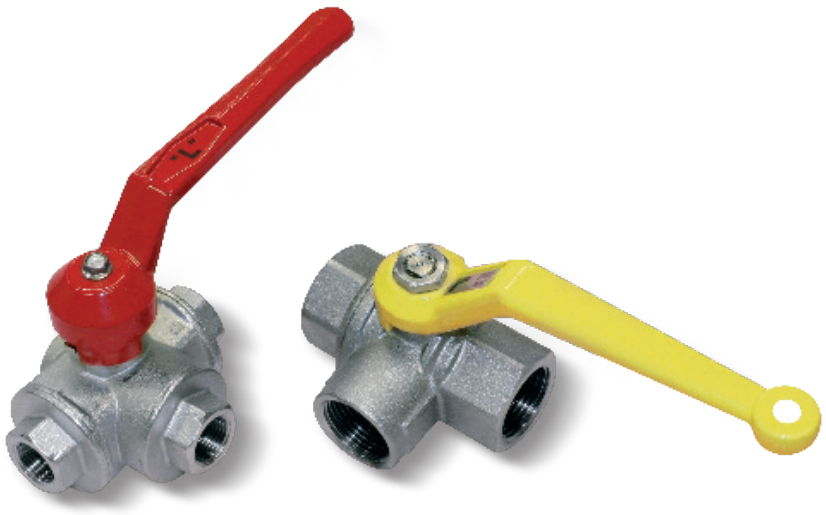


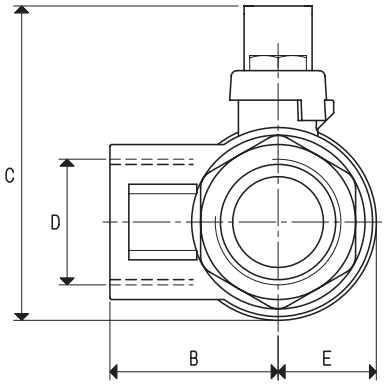
2-WAY MANUAL VALVES

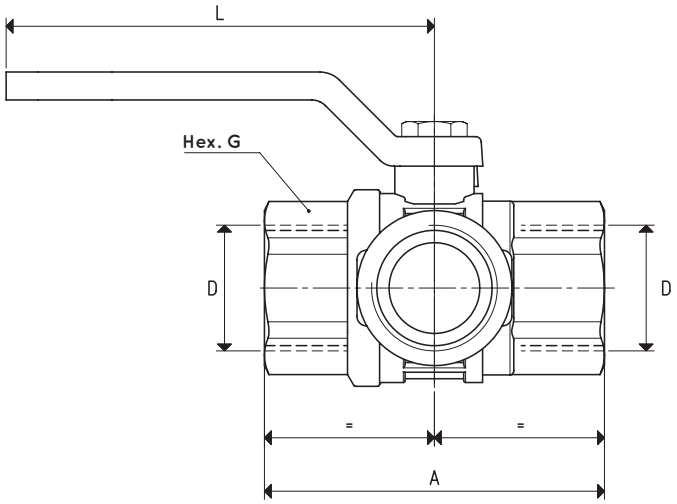
Item	A	B	C	D Ø	Mouth Ø	E	F	G	L	Weight Kg
13 01 10	49	23	48	G1/4"	10	24	25	18	80	0.13
13 02 10	52	23	56	G3/8"	10	23	29	20	80	0.13
13 03 10	61	30	63	G1/2"	15	30	31	25	88	0.21
13 04 10	68	36	72	G3/4"	20	33	35	31	114	0.32
13 05 10	85	44	80	G1"	25	42	43	38	113	0.47
13 06 10	99	57	105	G1" 1/4	32	50	49	47	137	0.74
13 07 10	109	70	126	G1" 1/2	40	55	54	54	156	1.26
13 08 10	130	83	135	G2"	50	62	68	66	156	1.77
13 09 10	168	140	210	G3"	75	84	84	99	246	7.09

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134







3-WAY MANUAL VALVES

Item	A	B	C	D Ø	Mouth Ø	E	G	L	Weight Kg
13 01 15	77	37.5	87	G1/4"	10	17.5	22	109	0.16
13 02 15	81	39.5	94	G3/8"	10	19.5	22	109	0.19
13 03 15	81	39.5	94	G1/2"	15	19.5	29	109	0.30
13 04 15	76	39.0	81	G3/4"	20	19.0	32	130	0.49
13 05 15	90	45.0	91	G1"	25	24.0	41	130	0.85
13 06 15	118	56.0	134	G1" 1/4	32	32.0	50	170	1.76
13 07 15	114	62.0	138	G1" 1/2	40	39.0	55	150	2.45

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

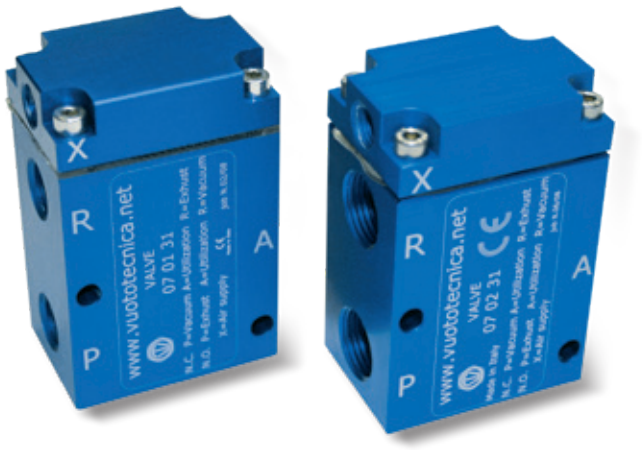
Adapters for GAS - NPT threading available on page 1.134

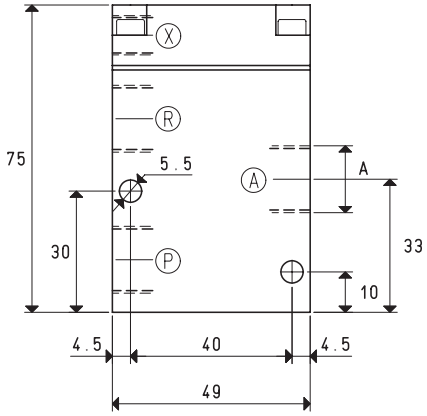
SERVO-CONTROLLED 3-WAY VACUUM VALVES

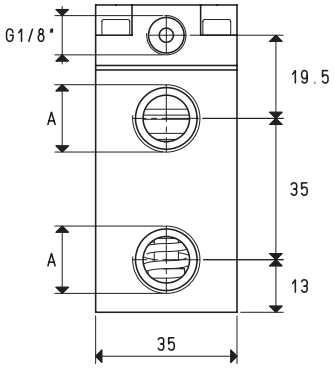
These two-position, three-way valves feature pneumatically activated conical shutters.
They can be used normally either closed or open.
They are recommended in all the cases that require a quick exchange between the vacuum pump suction and the air inlet into the circuit for a quick restoration of the atmospheric pressure.
They are composed of an anodised aluminium body, two HNBR shutters assembled onto a stainless steel stem, a membrane for servo-control made with special compounds and a thrust spring for the shutter return.
These valves allow reducing frictions and internal dynamic stresses to the minimum. The result being a high response speed and a guarantee of long lasting duration.

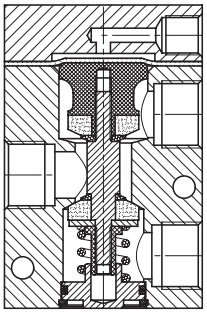
Technical features

Operating pressure: from 0.5 to 3000 absolute mbar
Servo-control pressure (X): see table
Temperature of suctioned fluid: from -5 to +60°C









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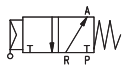
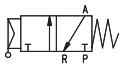


Ⓧ= Pneumatic control
Ⓟ= Pump
Ⓐ= Use
Ⓡ= Discharge

NO



Ⓧ= Pneumatic control
Ⓟ= Discharge
Ⓐ= Use
Ⓡ= Pump

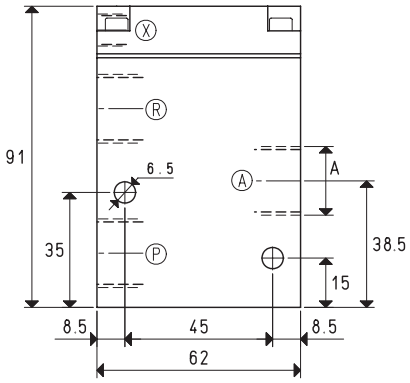
Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at control (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 01 31	G1/4"	6	1000	0.5	5	10	8.5	56.8	4 ÷ 7	0.32
07 02 31	G3/8"	10	1000	0.5	5	10	11.5	103.8	4 ÷ 7	0.31

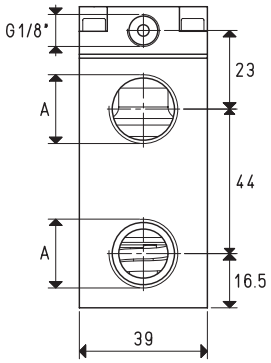
Spare parts		07 01 31	07 02 31
Solenoid valve sealing kit with pilot membranes	item	00 07 267	00 07 267
Pilot membranes for solenoid valves	item	00 07 229	00 07 229

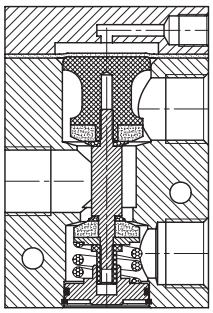
Note: Valve pneumatic control power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134







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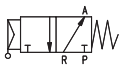
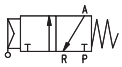


Ⓧ= Pneumatic control
Ⓟ= Pump
Ⓐ= Use
Ⓡ= Discharge

NO



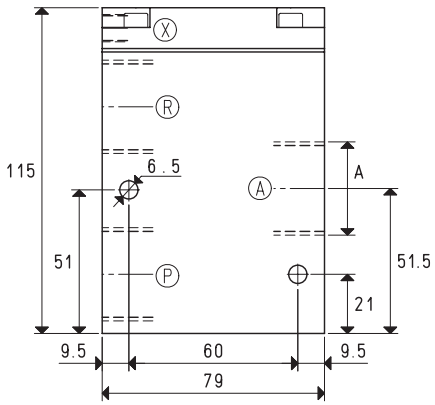
Ⓧ= Pneumatic control
Ⓟ= Discharge
Ⓐ= Use
Ⓡ= Pump

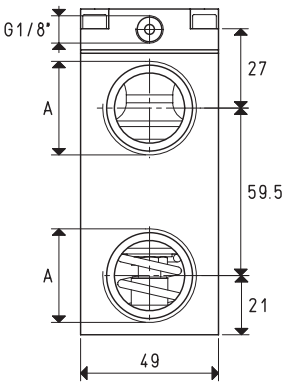
Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at control (X)	Weight
	Ø	m³/h	min	max	energ.	de-en.	Ø	mm²	*bar	Kg
07 03 31	G1/2"	20	1000	0.5	6	15	15.0	176	6 ÷ 8	0.490

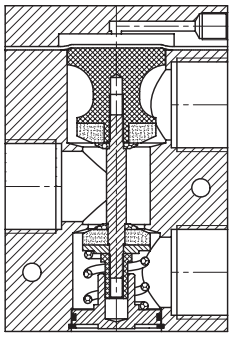
Spare parts		07 03 31
Solenoid valve sealing kit with pilot membranes	item	00 07 268
Pilot membranes for solenoid valves	item	00 07 230

* Add the letters LP to the item for pneumatic control pressures 4 - 6 bar.

Note: Valve pneumatic control power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.







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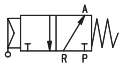
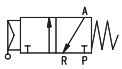


Ⓧ= Pneumatic control
Ⓟ= Pump
Ⓐ= Use
Ⓡ= Discharge

NO



Ⓧ= Pneumatic control
Ⓟ= Discharge
Ⓐ= Use
Ⓡ= Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at control (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 04 31	G3/4"	40	1000	0.5	7	16	20	314	6 ÷ 8	1.060
07 05 31	G1"	90	1000	0.5	7	16	25	490	6 ÷ 8	0.964

Spare parts		07 04 31	07 05 31
Solenoid valve sealing kit with pilot membranes	item	00 07 269	00 07 269
Pilot membranes for solenoid valves	item	00 07 231	00 07 231

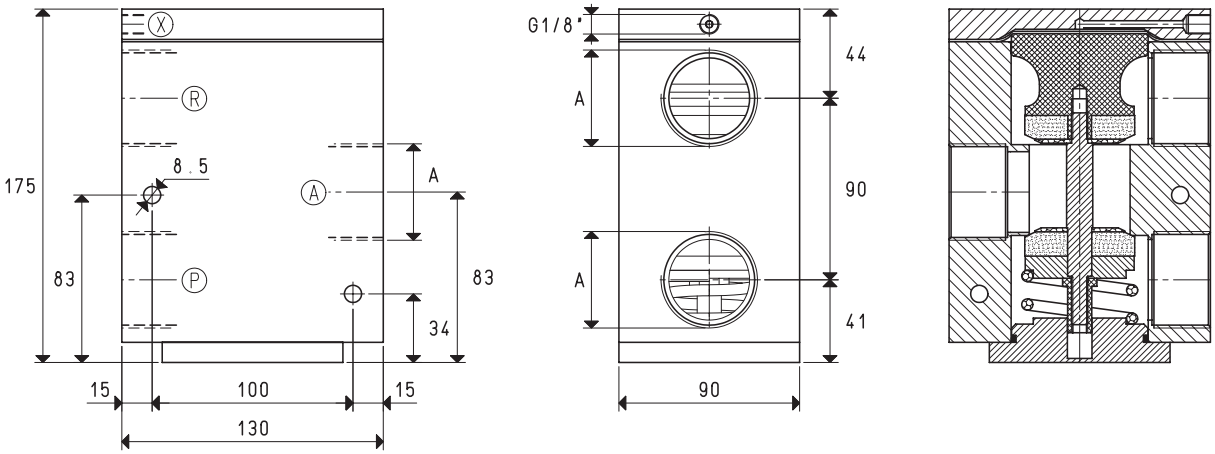
* Add the letters LP to the item for pneumatic control pressures 4 - 6 bar.

Note: Valve pneumatic control power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**



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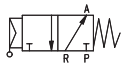
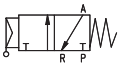


Ⓧ= Pneumatic control
Ⓟ= Pump
Ⓐ= Use
Ⓡ= Discharge

NO



Ⓧ= Pneumatic control
Ⓟ= Discharge
Ⓐ= Use
Ⓡ= Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at control (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 06 31	G1" 1/2	230	1000	0.5	65	30	40	1256	6 ÷ 8	4.456

Spare parts		07 06 31
Solenoid valve sealing kit with pilot membranes	item	00 07 270
Pilot membranes for solenoid valves	item	00 07 232

* Add the letters LP to the item for pneumatic control pressures 4 - 6 bar.

Note: Valve pneumatic control power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES, FOR LARGE FLOW RATES

Strengthened by our constant desire for research and innovation and our experience, acquired over more than forty years of operations in the vacuum sector, we have made these new valves using absolutely innovative technologies, to guarantee exceptionally low intervention times, almost negligible pressure drops, and minimal dimensions compared to the large connections with which they are equipped. Furthermore, we have obtained them from aluminium block to eliminate even the slightest chance of loss due to transpiration, as perhaps could occur with a fusion.

This new series of solenoid valves for vacuums are three-way, two-position and are composed of:

- An anodised aluminium body set with attachment connections;
- Two conical HNBR shutters fitted on the aluminium pistons, pneumatically powered with spring return.

The composition of these valves, especially the original Teflon® slide system that the pistons have been equipped with, help minimise friction and internal dynamic stress, deriving high response speed and ensuring enduring operation.

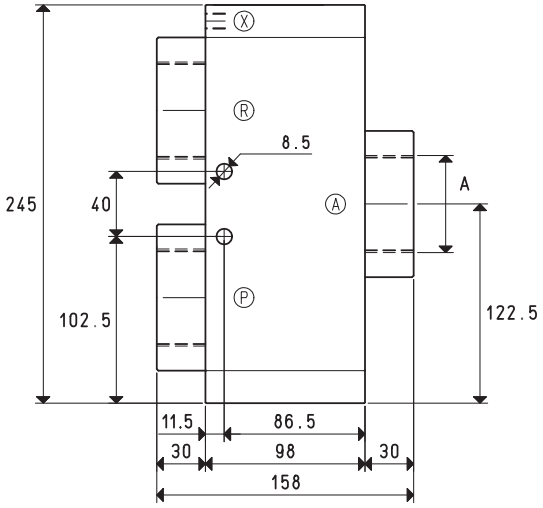
They can be used normally either closed or open.

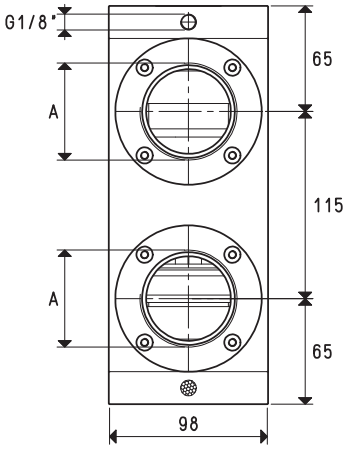
The three-way valves are used for vacuum interception on power supply units and suction palletisers, vacuum thermoformers, vacuum packaging units, robots, feeders, bag opening units and in all those cases where rapid exchange between pump suction for vacuums and air supply into the circuit is necessary for quick restoration of atmospheric pressure.

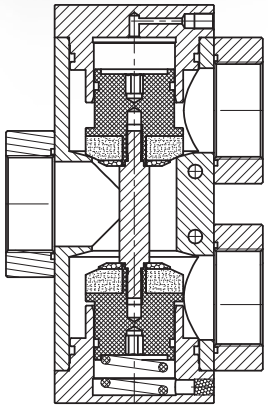
Technical features

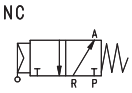
Operating pressure: from 0.5 to 1000 absolute mbar
Servo-control pressure (X): from 4 to 8 bar
Temperature of suctioned fluid: from – 5 to + 60°C

3D drawings are available on **vuototecnica.net**

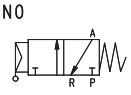








Ⓧ= Pneumatic control
Ⓟ= Pump
Ⓐ= Use
Ⓡ= Discharge



Ⓧ= Pneumatic control
Ⓟ= Discharge
Ⓐ= Use
Ⓡ= Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at control (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 08 31	G2"	390	1000	0.5	110	70	52	2123	4 ÷ 8	5.5

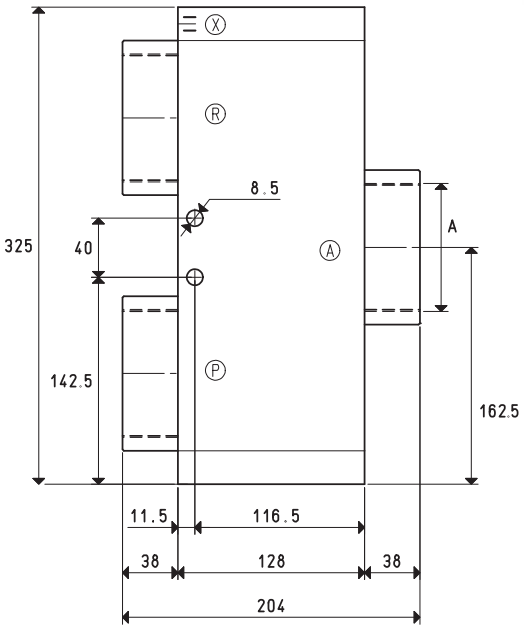
Spare parts		07 08 31
Solenoid valve sealing kit	item	00 07 380

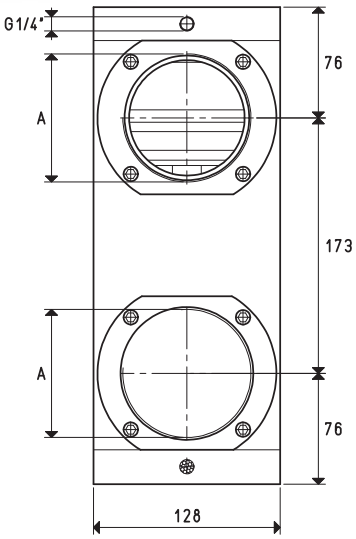
Note: Valve pneumatic control power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

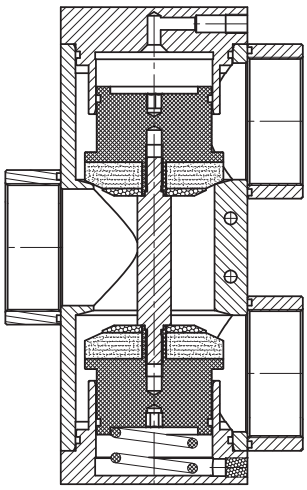
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES, FOR LARGE FLOW RATES







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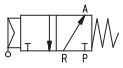
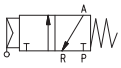


Ⓧ= Pneumatic control
Ⓟ= Pump
Ⓐ= Use
Ⓡ= Discharge

NO



Ⓧ= Pneumatic control
Ⓟ= Discharge
Ⓐ= Use
Ⓡ= Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at control (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 09 31	G3"	750	1000	0.5	132	84	80	5024	4 ÷ 8	11.4

Spare parts		07 09 31
Solenoid valve sealing kit	item	00 07 384

Note: Valve pneumatic control power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

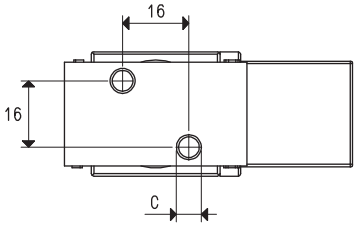
Adapters for GAS - NPT threading available on page 1.134

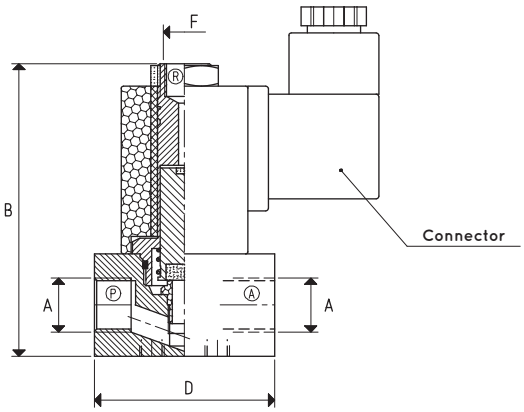
2-WAY AND 3-WAY VACUUM SOLENOID PILOT VALVES

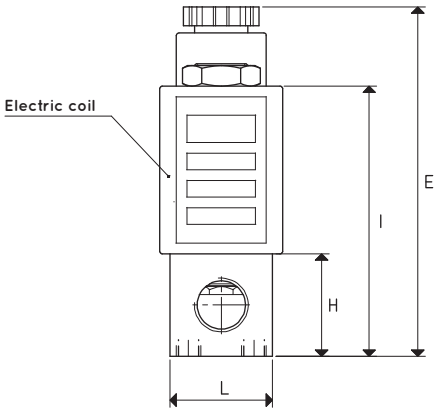
These direct-drive valves have been specially designed for vacuum and are normally closed.
They are composed of an anodised aluminium body, where the connections and the passage mouths are located, and of an actuator which is activated by an electric coil.
The solenoid pilot valve shutter in NBR nitrile rubber or HNBR is an integral part of the actuator mobile core.
Both the mouths of the two-way solenoid pilot valves have the same size, while those of the three-way ones have a 3mm outlet diameter, obtained through the tube.
The very low reaction time allows carrying out a very high number of cycles per minute.
The standard electric coil is fully plasticised with synthetic resin, tight execution, insulation class F (up to 155°C) compliant with EN 60664 standards, with 6.3 mm three-terminal electrical connections in compliance with EN 175301-803. Protection degree IP 54; IP 65 with connector inserted.
Tolerance permitted on the nominal voltage value: ±10%.
Maximum absorption: 20 V.A. with AC and 18 W with DC.
8 V.A. with AC and 6.5 W with DC. (07 0016 - 07 00 20)
The electric coil can be rotated 360°.
The connector can be rotated 180° on the coil and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.

Technical features

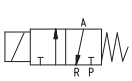
Operating pressure: from 1 to 1500 absolute mbar
Temperature of suctioned fluid: from -5 to +60°C







3 / 2 NC



Ⓟ= Pump
Ⓐ= Use
Ⓡ= Discharge

3-WAY SOLENOID PILOT VALVES

Item	A	B	C	D	E	F	H	I	L	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Weight
	Ø									m³/h	min	max	energ.	de-energ.	Ø	mm²	g
07 00 16	G1/8"	58.5	M4	36	72	M5	19.5	53	22.5	2.6	1000	0.5	16	27	4	12.56	140
07 01 16	G1/4"	73	M6	44	86	G1/8"	25	67	25	4	1000	0.5	15	8	6	28.3	248

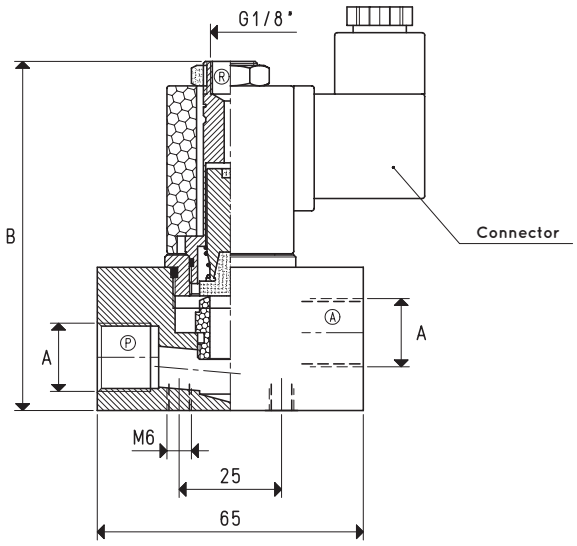
Note: The coil and the connector are not integral parts of the solenoid pilot valve and, therefore, must be ordered separately (See accessories for solenoid valves).

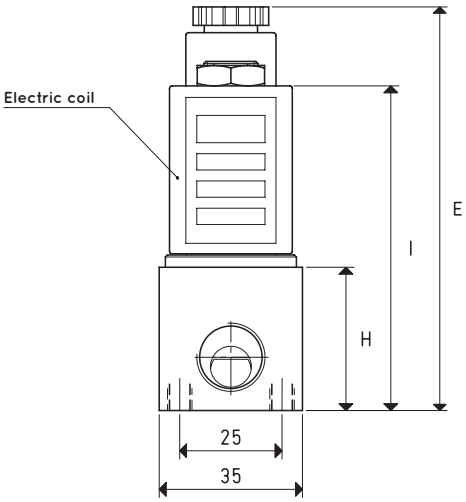
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

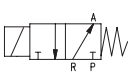
3D drawings are available on **vuototecnica.net**

3-WAY VACUUM SOLENOID PILOT VALVES





3/2 NC



Ⓟ= Pump
Ⓐ= Use
Ⓡ= Discharge

3-WAY SOLENOID PILOT VALVES

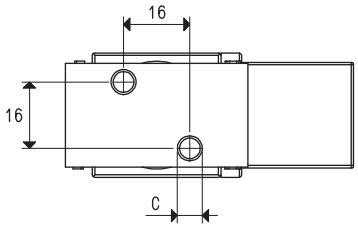
Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	B	E	H	I	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²					g
07 02 16	G3/8"	8	1000	0.5	22	10	10	78.5	85	98	35	79	392
07 03 16	G1/2"	10	1000	0.5	28	10	12	113.0	85	98	35	79	377

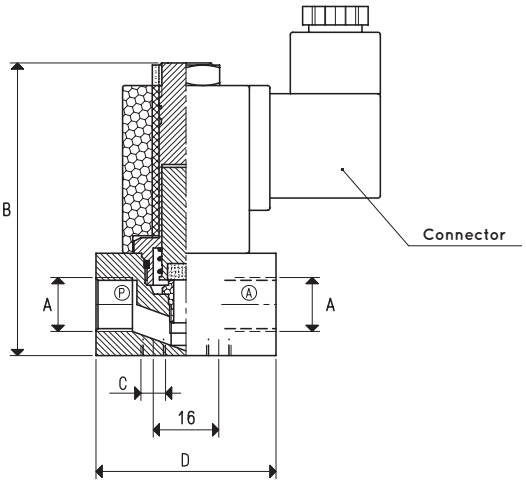
Note: The coil and the connector are not integral parts of the solenoid pilot valve and, therefore, must be ordered separately (See accessories for solenoid valves).

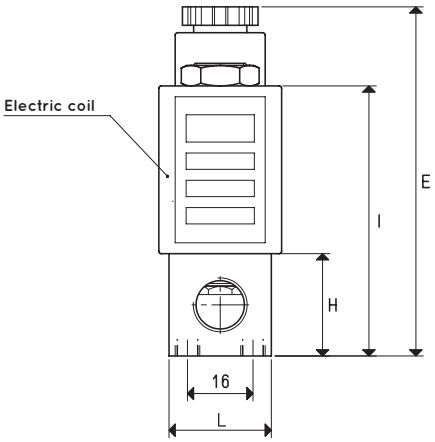
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**







2 / 2 NC

2-WAY SOLENOID PILOT VALVES

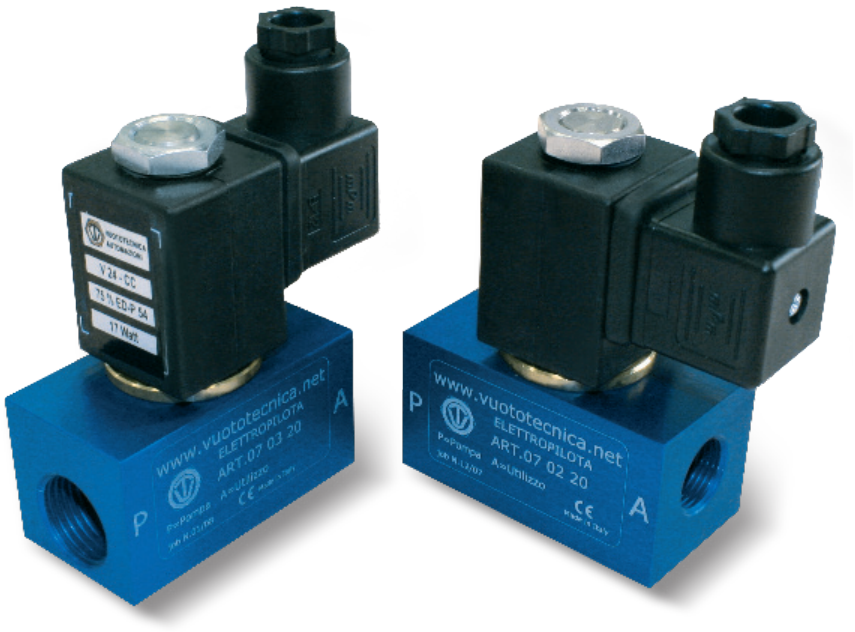
Item	A	B	C	D	E	H	I	L	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Weight
	Ø								m^3/h	min	max	energ.	de-energ.	Ø	mm^2	g
07 00 20	G1/8"	58.5	M4	36	72	19.5	53	22.5	2.6	1000	0.5	16	27	4	12.86	145
07 01 20	G1/4"	73	M6	44	86	25	67	25	4	1000	0.5	15	8	6	28.3	244

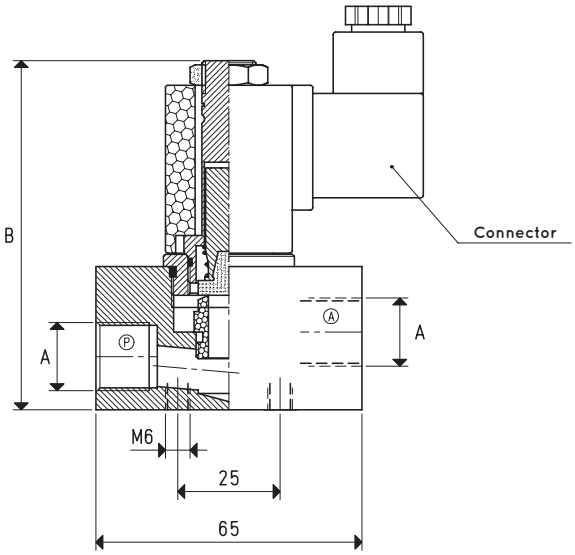
Note: The coil and the connector are not integral parts of the solenoid pilot valve and, therefore, must be ordered separately (See accessories for solenoid valves).

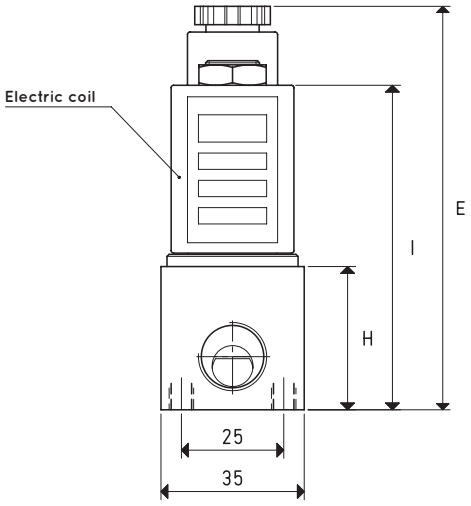
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

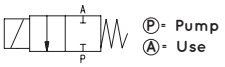
2-WAY VACUUM SOLENOID PILOT VALVES







2 / 2 NC



2-WAY SOLENOID PILOT VALVES

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	B	E	H	I	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²					g
07 02 20	G3/8"	8	1000	0.5	22	10	10	78.5	85	98	35	79	384
07 03 20	G1/2"	10	1000	0.5	28	10	12	113.0	85	98	35	79	372

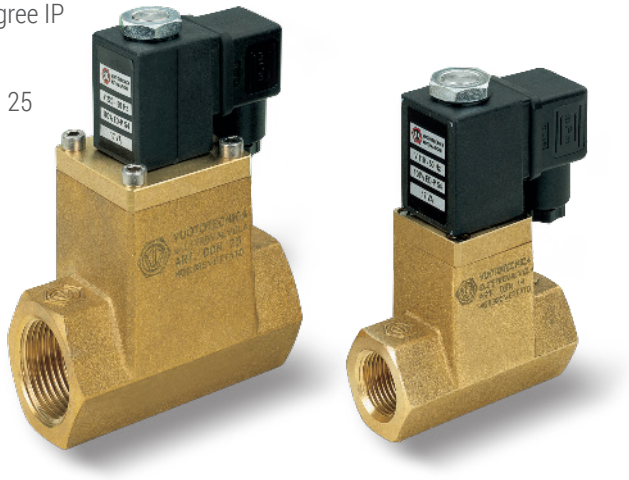
Note: The coil and the connector are not integral parts of the solenoid pilot valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

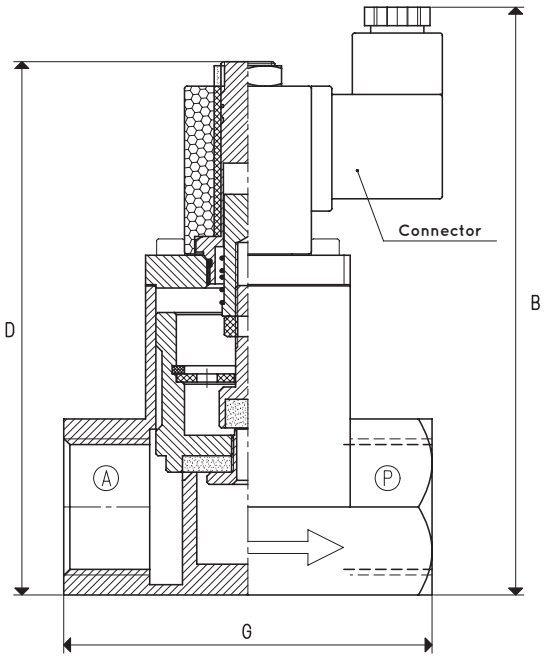
Adapters for GAS - NPT threading available on page 1.134

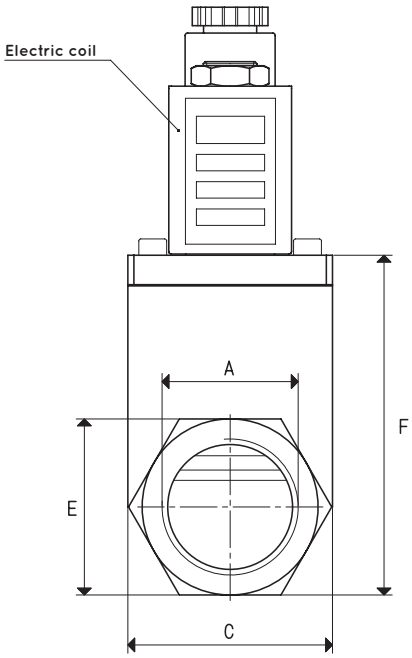
DIRECT DRIVE 2-WAY VACUUM SOLENOID VALVES

These state of the art solenoid valves feature minimal overall dimensions and high volumetric efficiency and high response speed at any level of vacuum. They are the result of an attentive choice of materials, state of the art constructive techniques and of the in-depth knowledge of our technicians. This series of solenoid valves is patented.
The DDN solenoid valves are direct drive, two-way, two-position valves with direct drive, double shutter and they are normally closed.
They are composed of hot pressed brass body where the connections are located, an internal mechanism with double shutter and of an actuator activated by an electric coil.
The standard electric coil is fully plasticised with synthetic resin, tight execution, insulation class F (up to 155°C) compliant with EN 60664 standards, with 6.3 mm three-terminal electrical connections in compliance with EN 175301-803. Protection degree IP 54; IP 65 with connector inserted.
Tolerance permitted on the nominal voltage value: ±10%.
Maximum absorption: 20 V.A. with AC and 18 W with DC. (except for DDN 25 which cannot be activated with DC).
The electric coil can be rotated 360°. The connector can be rotated 180° on the coil and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.
For proper operation, the installation of the solenoid valve is not recommended upside down.
DDN solenoid valves are particularly indicated for degassers, autoclaves, vacuum thermo-welders and in all applications where suction has to be controlled separately from the air inlet into circuit.

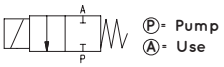


Technical features
Operating pressure: from 0.5 to 1500 absolute mbar
Temperature of suctioned fluid: from -5 to +60°C





2 / 2 NC



Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	B	C	D	E	F	G	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²							Kg
DDN 14	G1/2"	20	1000	0.5	30	15	14	154	127	35	110	30	63	75	0.83
DDN 25	G1"	90	1000	0.5	55	33	25	490	142	50	128	43	82	90	1.56

Note: The coil and the connector are not integral parts of the solenoid pilot valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

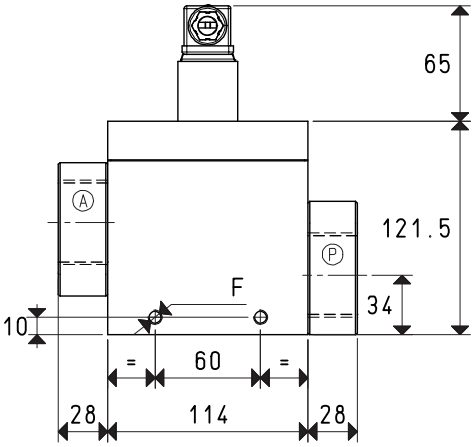
3D drawings are available on **vuototecnica.net**

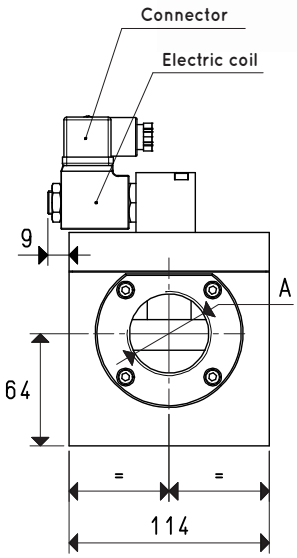
DIRECT DRIVE 2-WAY VACUUM SOLENOID VALVES

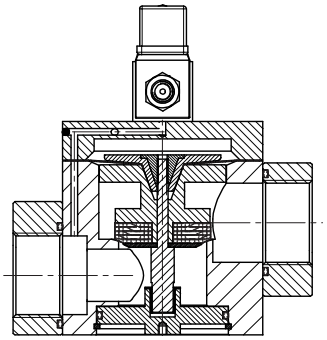
These direct drive two-way, two-position vacuum solenoid valves in the new series feature a conical shutter servo-controlled by the vacuum.
They are normally closed, but they can be supplied normally open upon request.
They are composed of an anodised aluminium body where the connections are located, a conical silicone shutter assembled onto a stainless steel stem and a membrane in a special rubberised and coated compound.
An actuator activated by an electric coil manages the vacuum at the servo-control. The operating principle of these solenoid valves is based on the pressure differential between the vacuum pump or generator and the pressure of the suctioned air. By addressing this "differential pressure" to the servo-control via the actuator, the shutter can be controlled without compressed air or springs.
Due to their operating principle, they are not recommended on plants with rough vacuum levels (below 850 absolute mbar, equal to 15% vacuum).
The lack of springs, frictions and internal dynamic stresses favours a high response speed and guarantees long lasting operation of the solenoid valve.
The standard electric coil is fully plasticised with synthetic resin, tight execution, insulation class F (up to 155°C) compliant with EN 60664 standards, with 6.3 mm three-terminal electrical connections in compliance with EN 175301-803 (ex-DIN 43650).
Protection degree IP 54, IP 65 with connector inserted.
Tolerance permitted on the nominal voltage value: ± 10%.
Maximum absorption: 20 V.A. with AC and 18 W with DC.
The electric coil can be rotated 360°. The connector can be rotated 180° on the coil and can be supplied, upon request, with LED light, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.
This series of solenoid valves can be used on vacuum systems without compressed air and in all applications where suction has to be controlled separately from the air inlet into circuit, such as degasifiers, autoclaves, vacuum thermo-welders, etc. The solenoid valve must be always chosen according to the flow rate and, therefore, to the vacuum pump or generator suction connection.

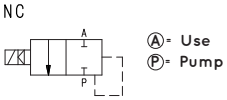
Technical features

Operating pressure: from 0.5 to 850 absolute mbar
Temperature of suctioned fluid: from – 5 to + 60°C









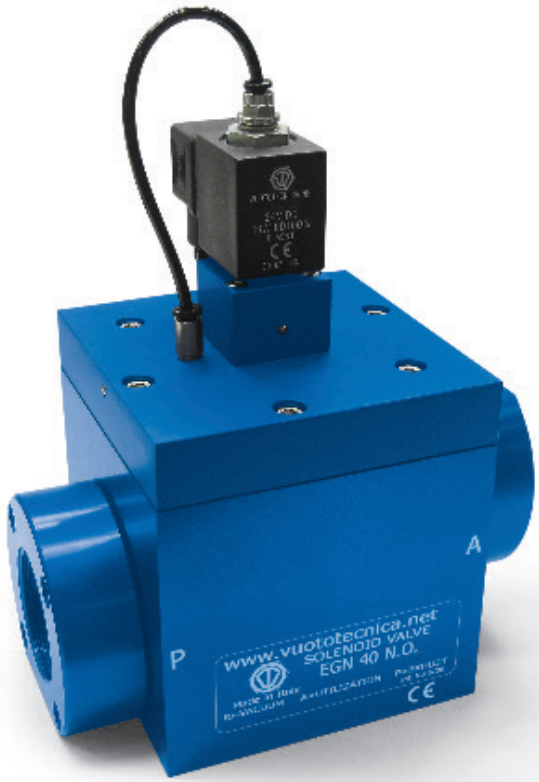
Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	F	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	Ø	Kg
EGN 40 NC	G1" 1/2	230	850	0.5	75	50	40	1256	M8	4.07

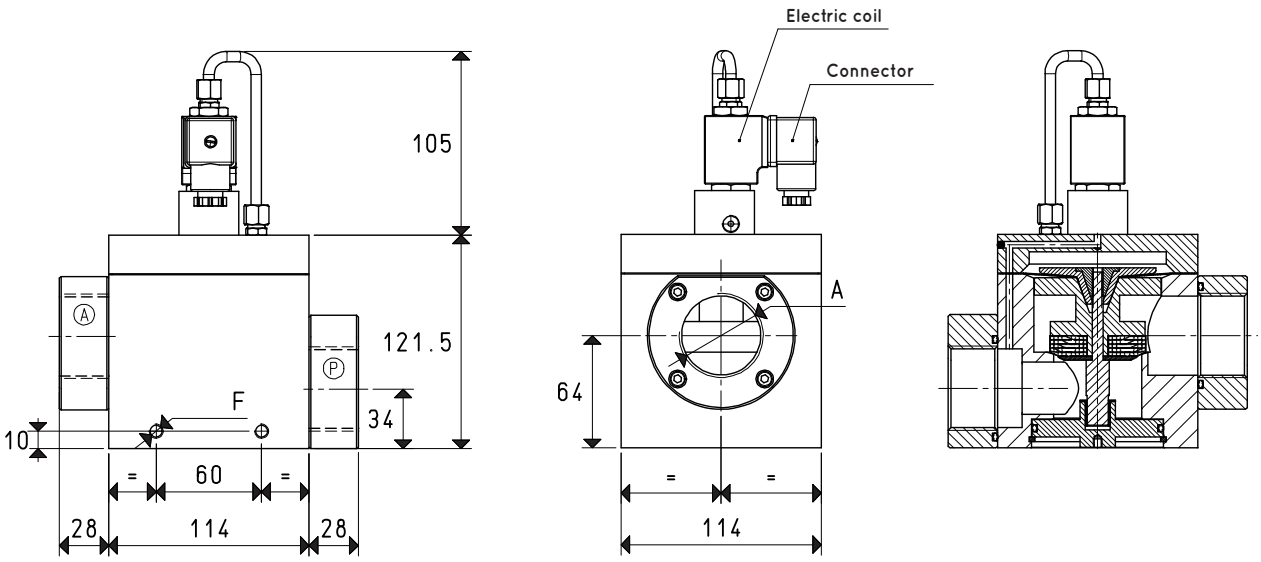
Spare parts		EGN 40 NC
Solenoid valve sealing kit	item	00 07 400

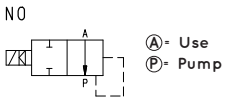
Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134







Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	F	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	Ø	Kg
EGN 40 NO	G1" 1/2	230	850	0.5	70	60	40	1256	M8	4.07

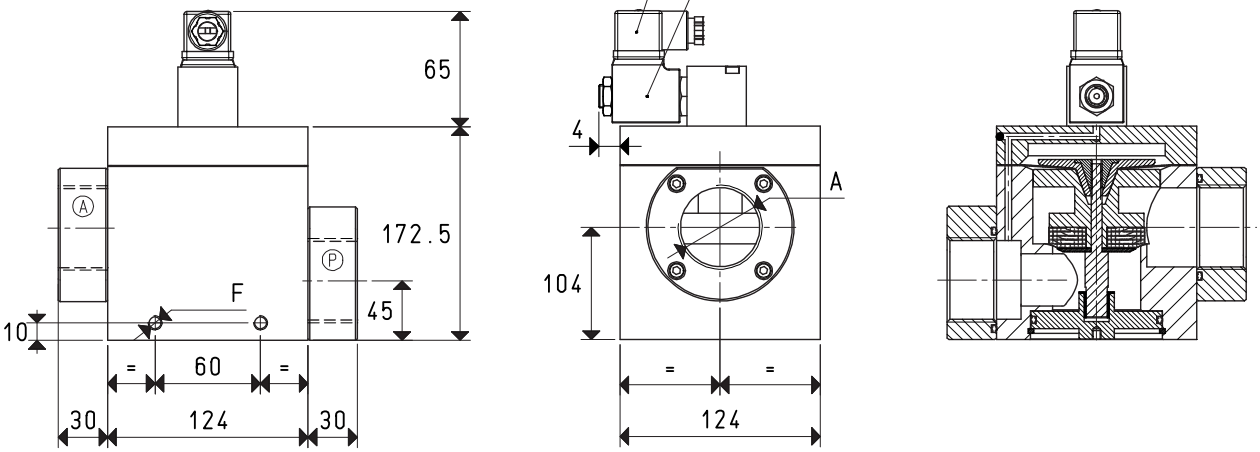
Spare parts		EGN 40 NO
Solenoid valve sealing kit	item	00 07 400

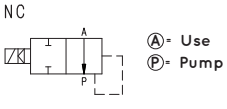
Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**



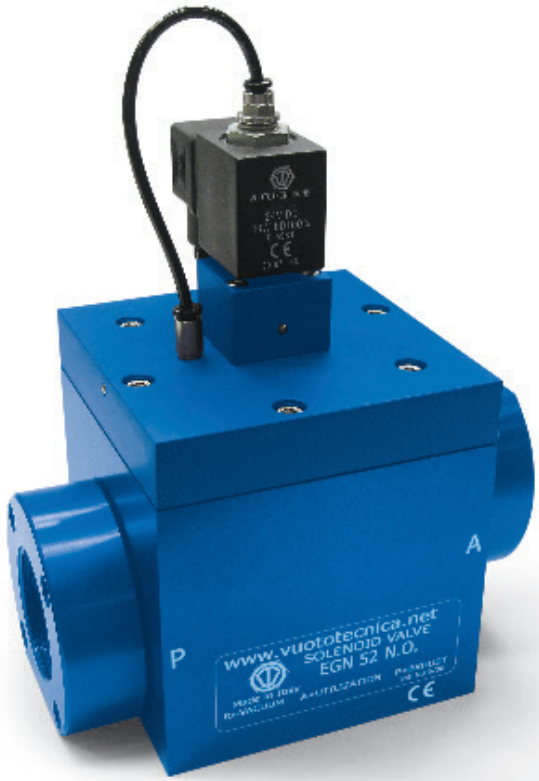


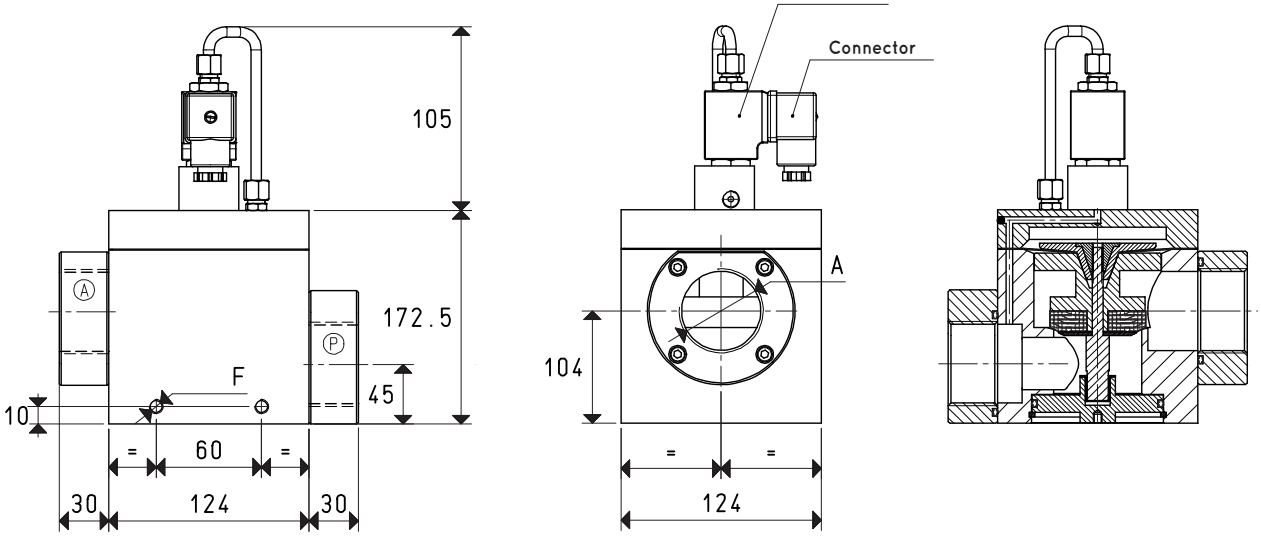
Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	F	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	Ø	Kg
EGN 52 NC	G2"	390	850	0.5	75	50	52	2123	M8	6.70

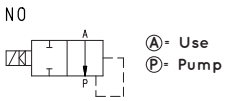
Spare parts		EGN 52 NC
Solenoid valve sealing kit	item	00 07 420

Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134







Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	F	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	Ø	Kg
EGN 52 NO	G2"	390	850	0.5	70	60	52	2123	M8	6.70

Spare parts		EGN 52 NO
Solenoid valve sealing kit	item	00 07 420

Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

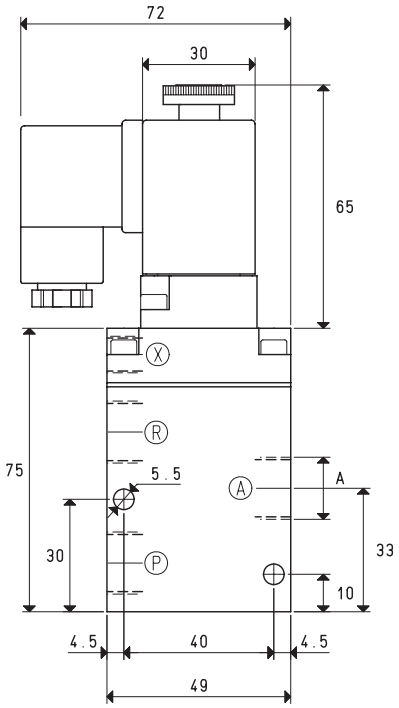
Adapters for GAS - NPT threading available on page 1.134

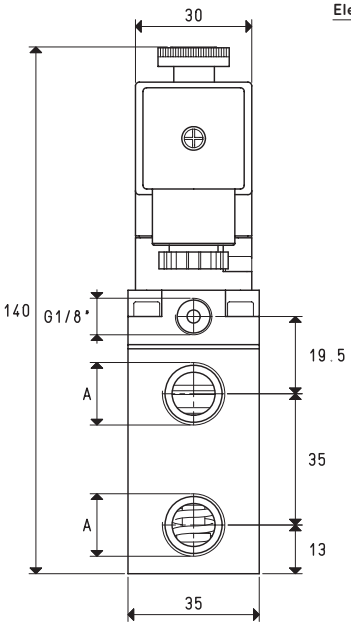
SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES

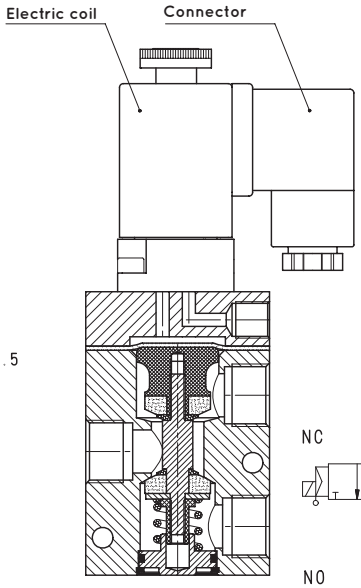
The three-way vacuum solenoid valves in this series are two-position valves with pneumatically servo-controlled conical shutters.
They can be used normally either closed or open.
They are composed of an anodised aluminium body, two HNBR shutters assembled onto a stainless steel stem, a membrane for servo-control made with special compounds and a thrust spring for the shutter return; an actuator activated by an electric coil managed the compressed air supply.
These valves allow reducing frictions and internal dynamic stresses to the minimum.
The result being a high response speed and a guarantee of long lasting duration.
The standard electric coil is fully plasticised with synthetic resin, tight execution, insulation class F (up to 155°C) compliant with EN 60664 standards, with 6.3 mm three-terminal electrical connections in compliance with EN 175301-803.
Protection degree IP 54; IP 65 with connector inserted.
Tolerance permitted on the nominal voltage value: ±10%.
Maximum absorption: 20 V.A. with AC and 18 W with DC.
The electric coil can be rotated 360°. The connector can be rotated 180° on the coil and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.
The three-way vacuum solenoid valves are used for vacuum interception on power supply units and suction palletisers, robots, feeders, bag opening units and in all those cases where rapid exchange between pump suction for vacuums and air supply into the circuit is necessary for quick restoration of atmospheric pressure.

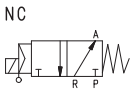
Technical features

Operating pressure: from 0.5 to 3000 absolute mbar
Servo-control pressure (X): see table
Temperature of suctioned fluid: from -5 to +60°C

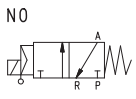








Ⓧ = Servo-controlled
Ⓟ = Pump
Ⓐ = Use
Ⓡ = Discharge



Ⓧ = Servo-controlled
Ⓟ = Discharge
Ⓐ = Use
Ⓡ = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 01 11	G1/4"	6	1000	0.5	16	27	8.5	56.8	4 ÷ 7	0.56
07 02 11	G3/8"	10	1000	0.5	16	27	11.5	103.8	4 ÷ 7	0.54

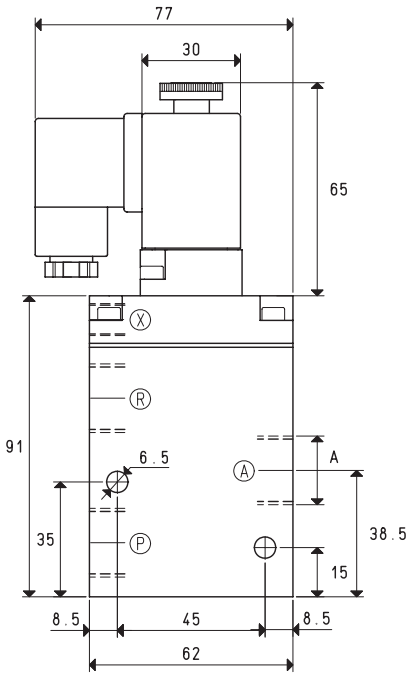
Spare parts		07 01 11	07 02 11
Solenoid valve sealing kit with pilot membranes	item	00 07 271	00 07 271
Pilot membranes for solenoid valves	item	00 07 229	00 07 229

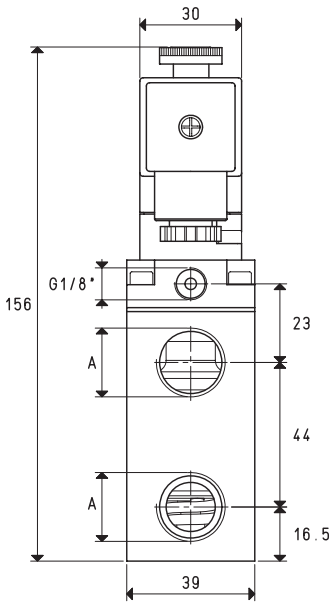
Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

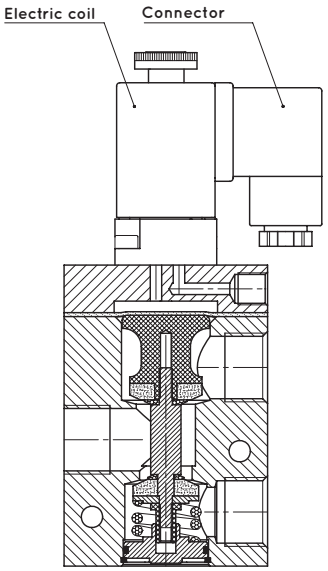
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

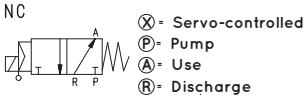
Adapters for GAS - NPT threading available on page 1.134

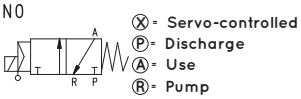
3D drawings are available on **vuototecnica.net**











Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m^3/h	min	max	energ.	de-energ.	Ø	mm^2	*bar	Kg
07 03 11	G1/2"	20	1000	0.5	16	40	15.0	176	6 ÷ 8	0.73

Spare parts		07 03 11
Solenoid valve sealing kit with pilot membranes	item	00 07 272
Pilot membranes for solenoid valves	item	00 07 230

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

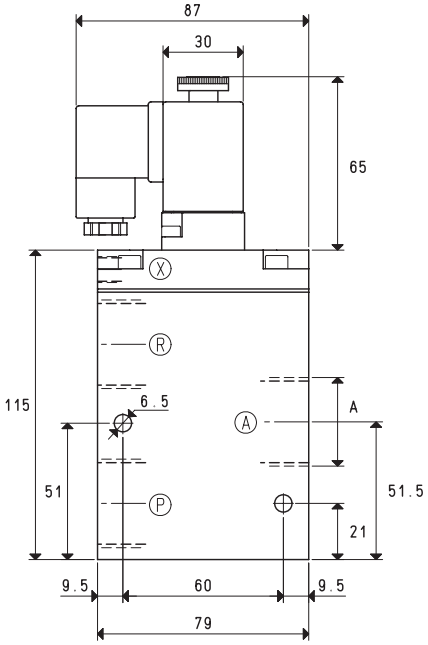
Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

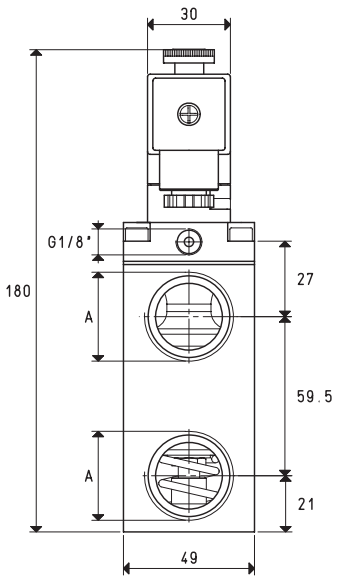
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

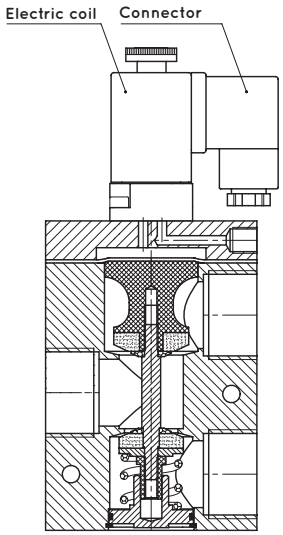
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES







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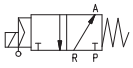
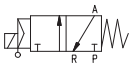


Ⓧ = Servo-controlled
Ⓟ = Pump
Ⓐ = Use
Ⓡ = Discharge

NO



Ⓧ = Servo-controlled
Ⓟ = Discharge
Ⓐ = Use
Ⓡ = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 04 11	G3/4"	40	1000	0.5	16	40	20	314	6 ÷ 8	1.25
07 05 11	G1"	90	1000	0.5	18	42	25	490	6 ÷ 8	1.16

Spare parts		07 04 11	07 05 11
Solenoid valve sealing kit with pilot membranes	item	00 07 273	00 07 273
Pilot membranes for solenoid valves	item	00 07 231	00 07 231

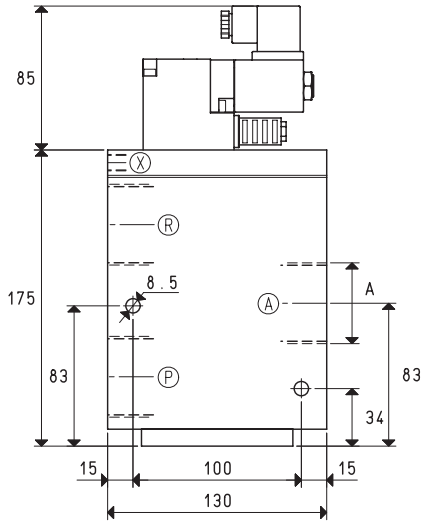
* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

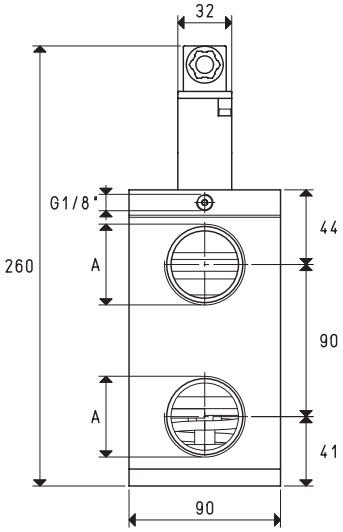
Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

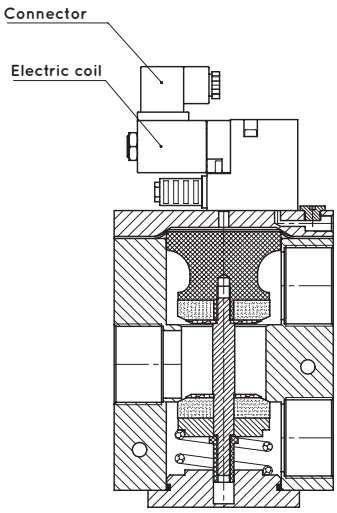
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES







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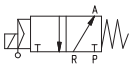
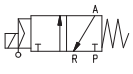


Ⓧ = Servo-controlled
Ⓟ = Pump
Ⓐ = Use
Ⓡ = Discharge

NO



Ⓧ = Servo-controlled
Ⓟ = Discharge
Ⓐ = Use
Ⓡ = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 06 11	G1" 1/2	230	1000	0.5	60	38	40	1256	6 ÷ 8	4.79

Spare parts		07 06 11
Solenoid valve sealing kit with pilot membranes	item	00 07 274
Pilot membranes for solenoid valves	item	00 07 232

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3-WAY VACUUM SOLENOID VALVES, PILOT-OPERATED FOR LARGE CAPACITIES

Strengthened by our constant desire for research and innovation and our experience, acquired over more than forty years of operations in the vacuum sector, we have made these new solenoid valves using absolutely innovative technologies, to guarantee exceptionally low intervention times, almost negligible pressure drops, and minimal dimensions compared to the large connections with which they are equipped.

Furthermore, we have obtained them from aluminium block to eliminate even the slightest chance of loss due to transpiration, as perhaps could occur with a fusion.

This new series of solenoid valves for vacuums are three-way, two-position and are composed of:

- An anodised aluminium body set with attachment connections;
- Two conical HNBR shutters fitted on the aluminium pistons, pneumatically powered with spring return;
- An actuator, powered by an electrical coil to manage compressed air supply.

The composition of these valves, especially the original Teflon® slide system that the pistons have been equipped with, help minimise friction and internal dynamic stress, deriving high response speed and ensuring enduring operation.

They can be used normally either closed or open.

The standard electric coil of the actuator is fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard EN 60664, with 6.3 mm three-terminal electrical connections for connectors in compliance with EN 175301-803.

Degree of protection IP 54; IP 65 with connector inserted.

Tolerance permitted on the nominal voltage value: ± 10%.

Maximum absorption: 20 VA in AC and 18 W in DC.

The electric coil can be rotated 360°. The connector can be rotated 180° on the coil and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.

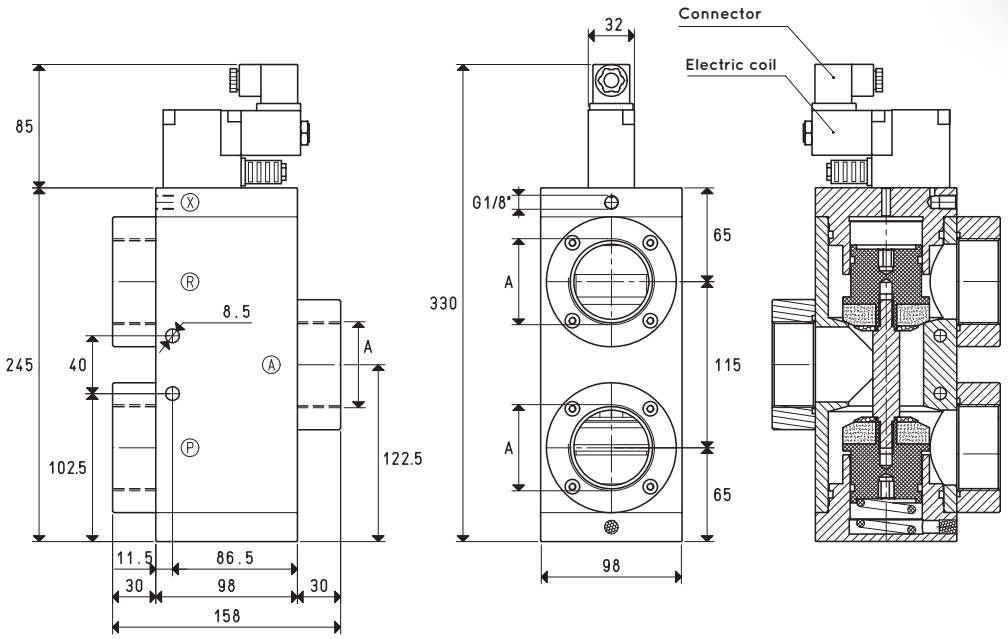
The three-way solenoid valves are used for vacuum interception on power supply units and suction palletisers, vacuum thermoformers, vacuum packaging units, robots, feeders, bag opening units and in all those cases where rapid exchange between pump suction for vacuums and air supply into the circuit is necessary for quick restoration of atmospheric pressure.

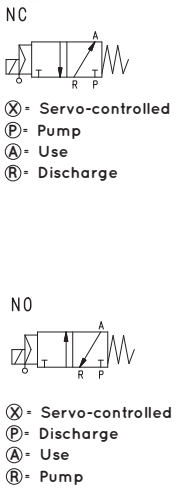
Technical features

Operating pressure: from 0.5 to 1000 absolute mbar

Servo-control pressure (X): from 4 to 8 bar

Temperature of suctioned fluid: from – 5 to + 60°C





Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 08 11	G2"	390	1000	0.5	78	50	52	2123	4 ÷ 8	5.87

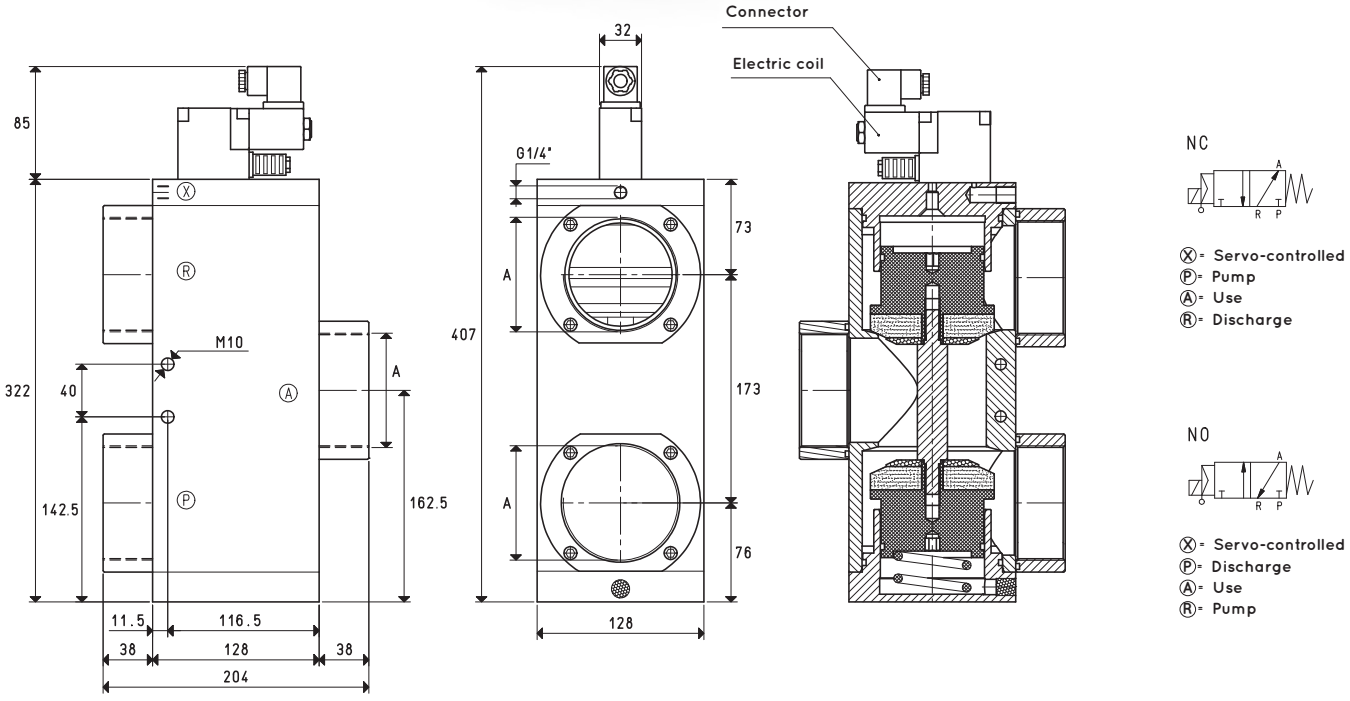
Spare parts		07 08 11
Solenoid valve sealing kit	item	00 07 372

Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3-WAY VACUUM SOLENOID VALVES, PILOT-OPERATED FOR LARGE CAPACITIES



Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 09 11	G3"	750	1000	0.5	132	84	80	5024	4 ÷ 8	11.8

Spare parts		07 09 11
Solenoid valve sealing kit	item	00 07 382

Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

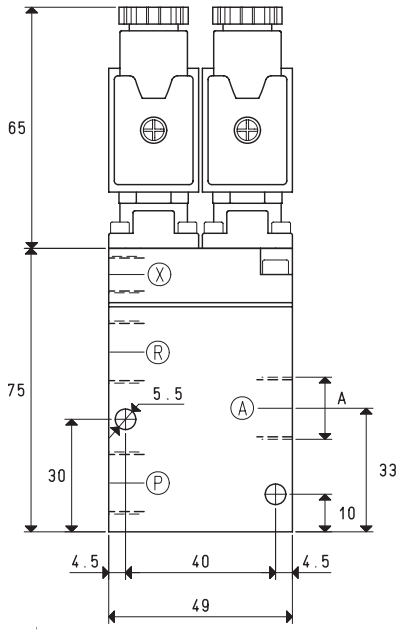
Adapters for GAS - NPT threading available on page 1.134

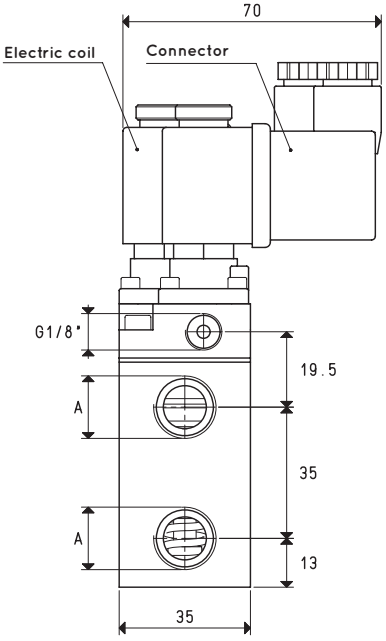
SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH TWO ELECTRIC COILS

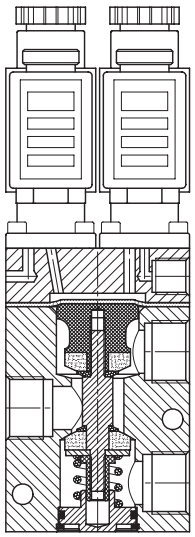
These solenoid valves have the same function and the same structure as the previously described three-way valves.
Even their structure is the same, but their distinctive features are the two coils that with a simple electric impulse exchange the shutter positions and keep them in this position till the next impulse even in absence of compressed air at the servo control and of electric current.
This is the reason why their use is especially recommended in all those cases requiring maximum connection security at the vacuum source, even in the absence of electrical and pneumatic power supply.
The standard electric coils are fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard EN 60664, with 6.3 mm three-terminal electrical connections for connectors
in compliance with EN 175301-803.
Protection degree IP 54; IP 65 with connector inserted.
Tolerance permitted on the nominal voltage value: ±10%.
Maximum absorption: 8 - 20 V.A. with AC and 6.5 - 18 W with DC.
The electric coils can be rotated 180°. The connectors can be rotated 180° on the coils and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.

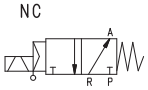
Technical features

Operating pressure: from 0.5 to 3000 absolute mbar
Servo-control pressure (X): see table
Temperature of suctioned fluid: from -5 to +60°C

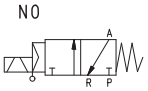








Ⓧ = Servo-controlled
Ⓟ = Pump
Ⓐ = Use
Ⓡ = Discharge



Ⓧ = Servo-controlled
Ⓟ = Discharge
Ⓐ = Use
Ⓡ = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 01 51	G1/4"	6	1000	0.5	16	27	8.5	56.8	4 ÷ 7	0.59
07 02 51	G3/8"	10	1000	0.5	16	27	11.5	103.8	4 ÷ 7	0.58

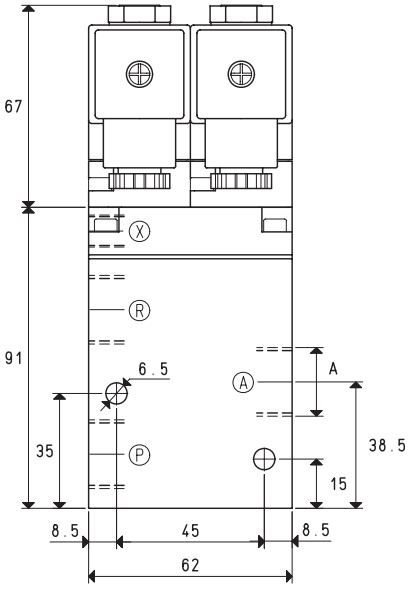
Spare parts		07 01 51	07 02 51
Solenoid valve sealing kit with pilot membranes	item	00 07 275	00 07 275
Pilot membranes for solenoid valves	item	00 07 229	00 07 229

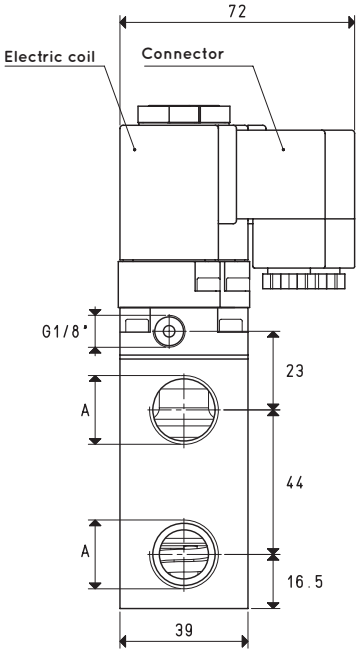
Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

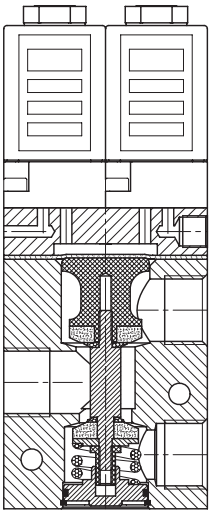
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

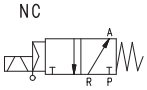
Adapters for GAS - NPT threading available on page 1.134

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH TWO ELECTRIC COILS

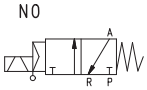








Ⓧ = Servo-controlled
Ⓟ = Pump
Ⓐ = Use
Ⓡ = Discharge



Ⓧ = Servo-controlled
Ⓟ = Discharge
Ⓐ = Use
Ⓡ = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 03 51	G1/2"	20	1000	0.5	16	40	15.0	176	6 ÷ 8	0.97

Spare parts		07 03 51
Solenoid valve sealing kit with pilot membranes	item	00 07 276
Pilot membranes for solenoid valves	item	00 07 230

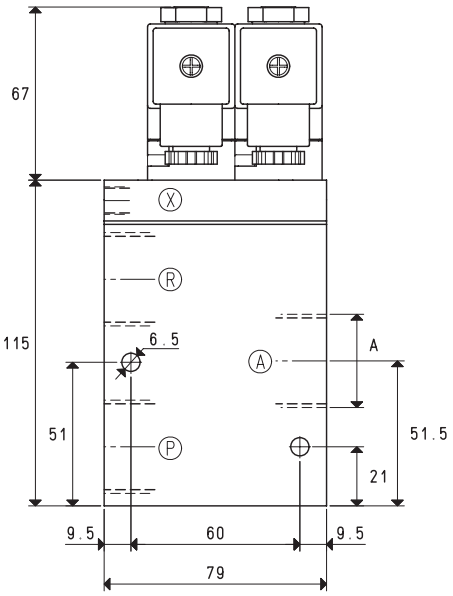
* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

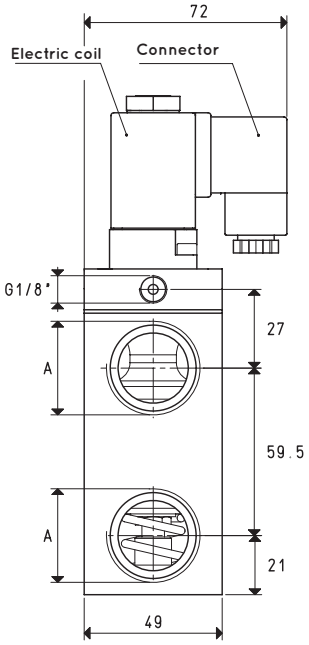
Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

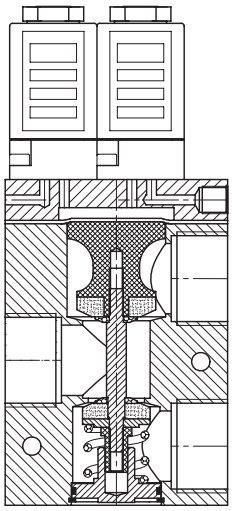
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

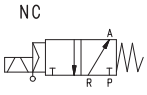
Adapters for GAS - NPT threading available on page 1.134

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH TWO ELECTRIC COILS









Ⓧ = Servo-controlled
Ⓟ = Pump
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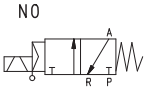
Ⓡ = Discharge



Ⓧ = Servo-controlled
Ⓟ = Discharge
Ⓐ = Use
Ⓡ = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m^3/h	min	max	energ.	de-energ.	Ø	mm^2	*bar	Kg
07 04 51	G3/4"	40	1000	0.5	16	40	20	314	6 ÷ 8	1.51
07 05 51	G1"	90	1000	0.5	18	42	25	490	6 ÷ 8	1.41

Spare parts		07 04 51	07 05 51
Solenoid valve sealing kit with pilot membranes	item	00 07 277	00 07 277
Pilot membranes for solenoid valves	item	00 07 231	00 07 231

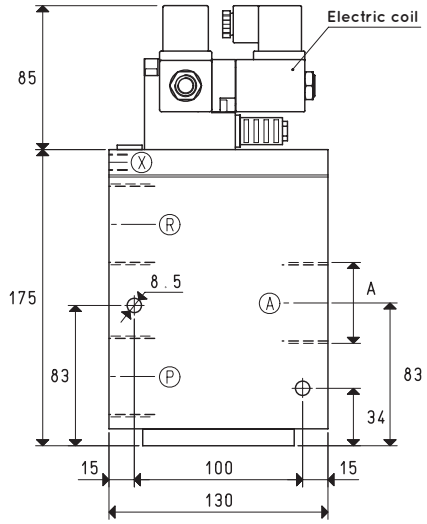
* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

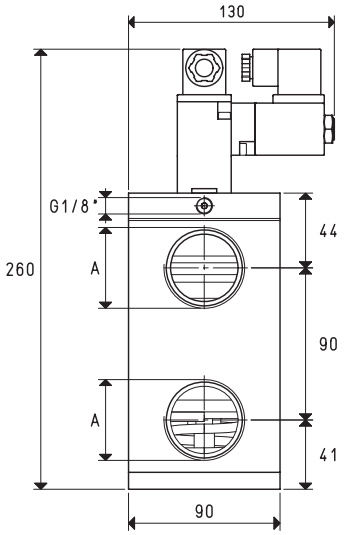
Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

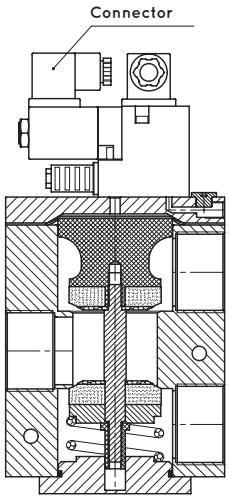
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

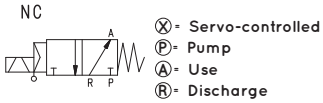
Adapters for GAS - NPT threading available on page 1.134

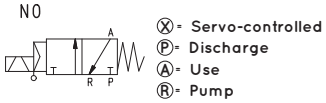
SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH TWO ELECTRIC COILS











Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 06 51	G1" 1/2	230	1000	0.5	60	38	40	1256	6 ÷ 8	5.24

Spare parts		07 06 51
Solenoid valve sealing kit with pilot membranes	item	00 07 278
Pilot membranes for solenoid valves	item	00 07 232

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

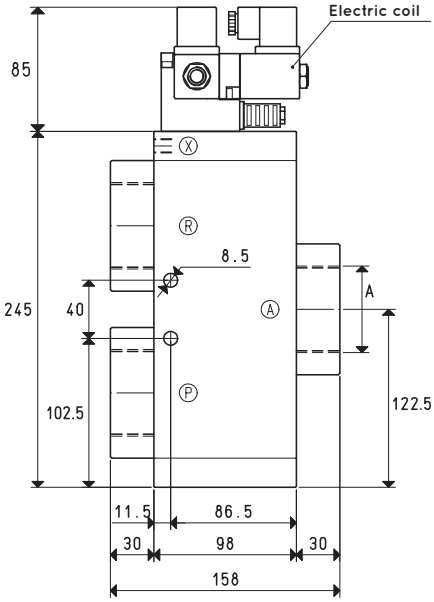
Adapters for GAS - NPT threading available on page 1.134

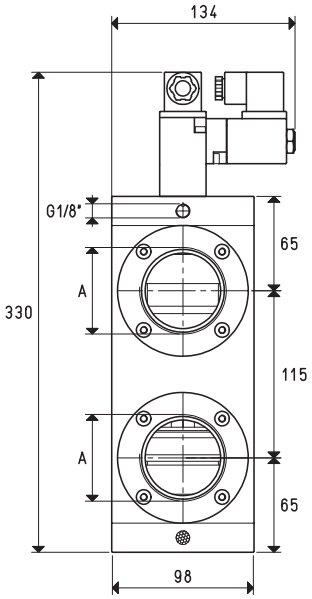
SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH TWO ELECTRIC COILS, FOR LARGE CAPACITIES

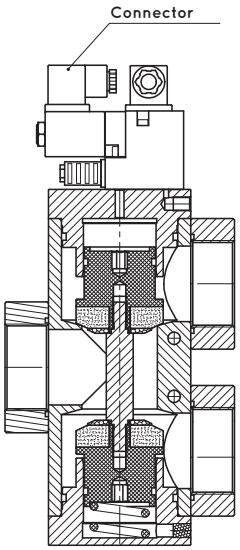
The innovative construction technology of these solenoid valves and their conformation are the same as those previously described. What differentiates them are the two simple electrical impulse coils that exchange the shutter positions and keep them in position until the next impulse even in absence of compressed air at the servo control and of electric current. This is the reason why their use is especially recommended in all those cases requiring maximum connection security at the vacuum source, even in the absence of electrical and pneumatic power supply.
The standard electric coils of the actuator are fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard EN 60664, with 6.3 mm three-terminal electrical connections
for connectors in compliance with EN 175301-803.
Degree of protection IP 54; IP 65 with connector inserted.
Tolerance permitted on the nominal voltage value: ±10%.
Maximum absorption: 20 VA in AC and 18 W in DC.
The electric coils can be rotated 180°, as well as the connectors, which can be supplied upon request with LED lights, with an anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.

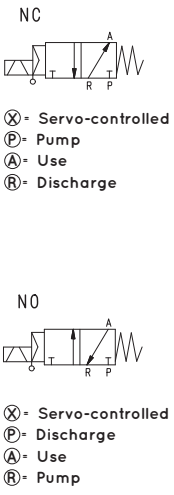
Technical features

Operating pressure: from 0.5 to 1000 absolute mbar
Servo-control pressure (X): from 4 to 8 bar
Temperature of suctioned fluid: from – 5 to + 60°C









Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 08 51	G2"	390	1000	0.5	78	50	52	2123	4 ÷ 8	6.0

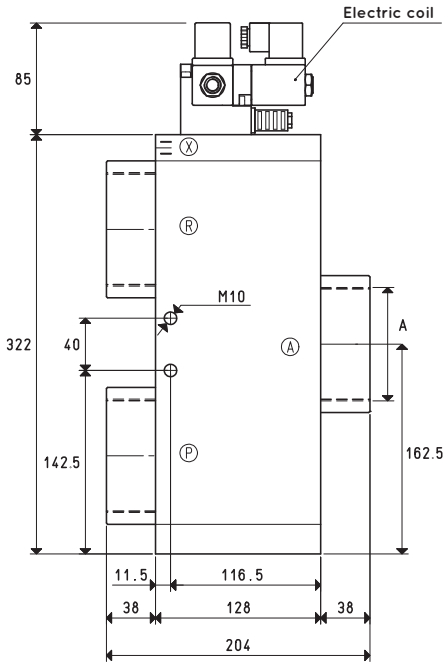
Spare parts		07 08 51
Solenoid valve sealing kit	item	00 07 381

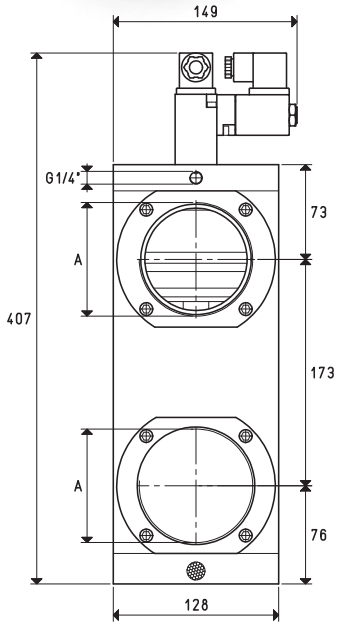
Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

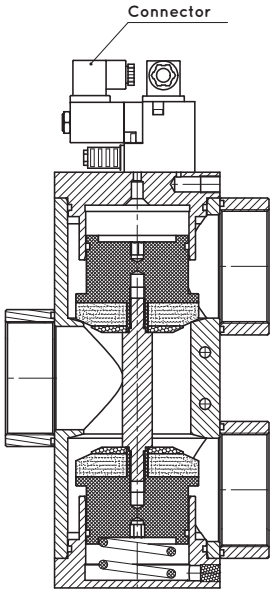
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

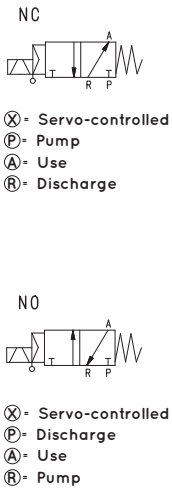
Adapters for GAS - NPT threading available on page 1.134

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH TWO ELECTRIC COILS, FOR LARGE CAPACITIES









Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 09 51	G3"	750	1000	0.5	132	84	80	5024	4 ÷ 8	11.8

Spare parts		07 09 51
Solenoid valve sealing kit	item	00 07 385

Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

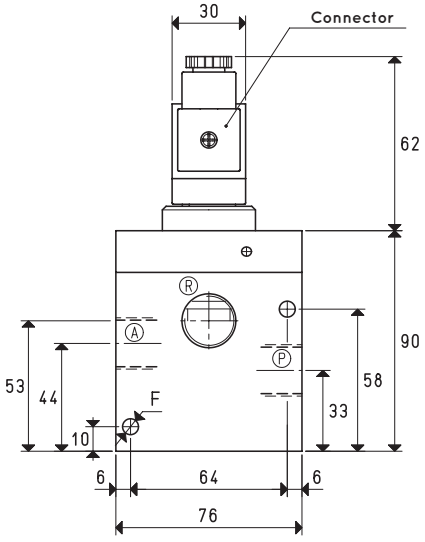
Adapters for GAS - NPT threading available on page 1.134

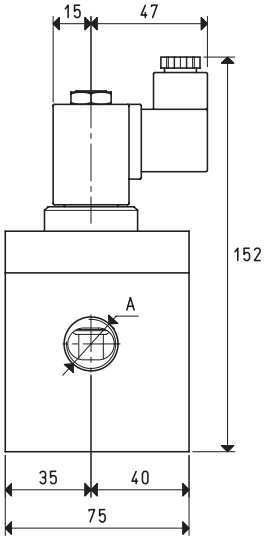
DIRECT DRIVE 3-WAY VACUUM SOLENOID VALVES

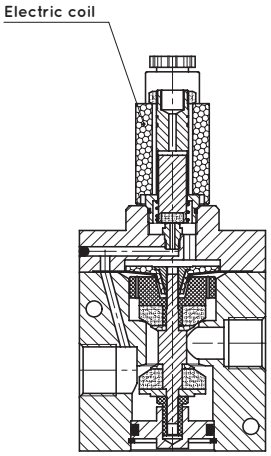
These direct drive three-way, two-position vacuum solenoid valves feature conical shutters servo-controlled by the vacuum.
They are normally closed as standard, but they can be supplied normally open upon request.
They are composed of an anodised aluminium body where the connections are located, two silicone shutters assembled onto a stainless steel stem and a membrane in special reinforced compound. An actuator activated by an electric coil manages the vacuum at the servo-control. The operating principle of these solenoid valves is based on the pressure differential between the vacuum pump or generator and the pressure of the suctioned air. By addressing this "differential pressure" to the servo-control via the actuator, the shutters can be controlled without compressed air or springs.
Due to their operating principle, they are not recommended on plants with rough vacuum levels (below 850 absolute mbar, equal to 15 % vacuum).
The lack of springs, frictions and internal dynamic stresses favours a high response speed and guarantees long lasting operation.
The standard electric coil is fully plasticised with synthetic resin, tight execution, insulation class F (up to 155°C) compliant with EN 60664 standards, with 6.3 mm three-terminal electrical connections in compliance with EN 175301-803. Protection degree IP 54; IP 65 with connector inserted.
Tolerance permitted on the nominal voltage value: ±10%.
Maximum absorption: 20 V.A. with AC and 18 W with DC.
The electric coil can be rotated 360°. The connector can be rotated 180° on the coil and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.
The solenoid valves in this series, along with the uses described for the 07 .. 11 series, can be used on plants with no compressed air.
The solenoid valve must be always chosen according to the flow rate and, therefore, to the vacuum pump or generator suction connection.

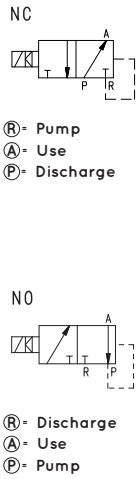
Technical features

Operating pressure: from 0.5 to 850 absolute mbar
Temperature of suctioned fluid: from -5 to +60°C









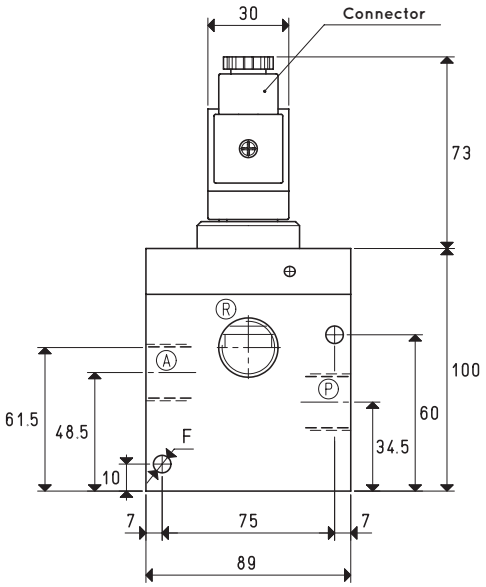
Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	F	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	Ø	Kg
07 03 40 NC	G1/2"	20	850	0.5	30	15	15	176	6.5	1.53
07 03 40 NO					20	18				
07 04 40 NC	G3/4"	40	850	0.5	30	15	20	314	6.5	1.50
07 04 40 NO					20	18				

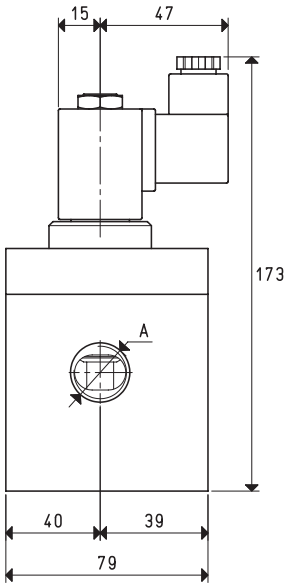
Spare parts		07 03 40 NC	07 03 40 NO	07 04 40 NC	07 04 40 NO
Solenoid valve sealing kit with pilot membranes	item	00 07 279	00 07 279	00 07 279	00 07 279
Pilot membranes for solenoid valves	item	00 07 104	00 07 104	00 07 104	00 07 104

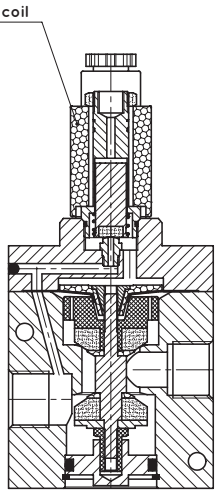
Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

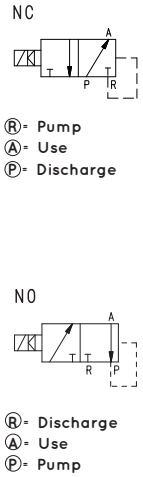
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134









Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	F	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	Ø	Kg
07 05 40 NC	G1"	90	850	0.5	38	18	25	490	6.5	1.91
07 05 40 NO					25	20				

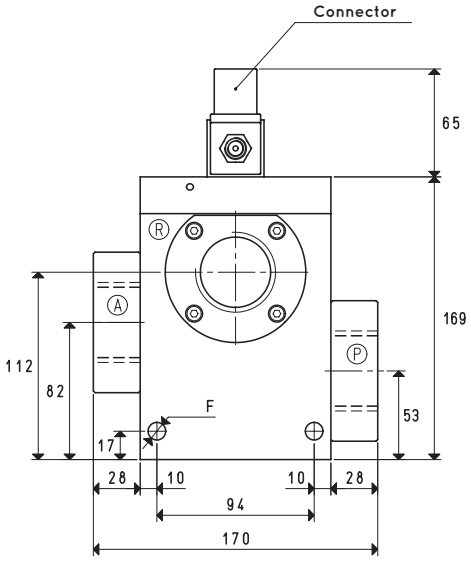
Spare parts		07 05 40 NC	07 05 40 NO
Solenoid valve sealing kit with pilot membranes	item	00 07 280	00 07 280
Pilot membranes for solenoid valves	item	00 07 105	00 07 105

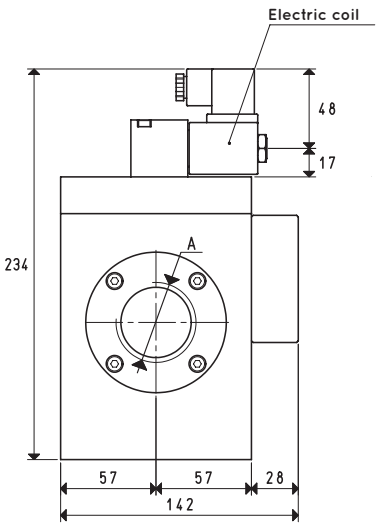
Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

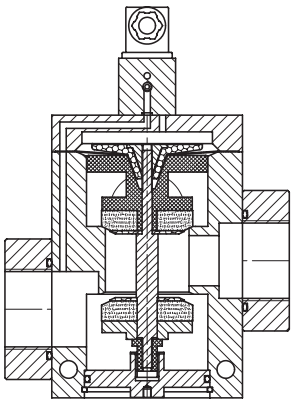
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

DIRECT DRIVE 3-WAY VACUUM SOLENOID VALVES







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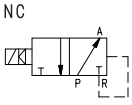
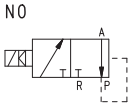


Ⓡ= Pump
Ⓐ= Use
Ⓟ= Discharge

NO



Ⓡ= Discharge
Ⓐ= Use
Ⓟ= Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	F	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	Ø	Kg
07 06 40 NC	G1" 1/2	230	850	0.5	75	50	40	1256	10.5	5.90
07 06 40 NO					70	60				

Spare parts		07 06 40 NC	07 06 40 NO
Solenoid valve sealing kit	item	00 07 281	00 07 281
Pilot membranes for solenoid valves	item	00 07 177	00 07 177

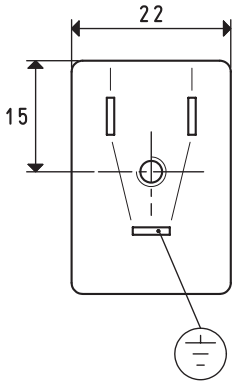
Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

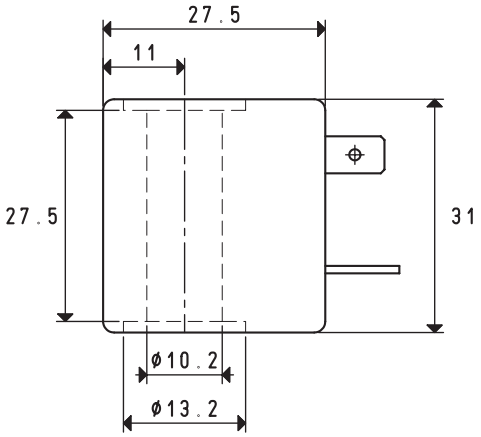
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

SOLENOID VALVE ACCESSORIES AND SPARE PARTS
ELECTRIC COILS

Electric coils are windings of copper wire on nylon coils fully plasticised in synthetic resin which activate the electromagnetic actuators with which the solenoid valves are provided. Crossed by an electric current, these coils generate a magnetic field which activates the mobile core inside the actuators; the mobile core features a built-in or fixed shutter which cause the valve commutation by opening and closing their mouths.
The standard electric coils are fully plasticised with synthetic resin, tight execution, insulation class F (up to 155°C) compliant with EN 60664 standards, with 6.3 mm 3-terminal electrical connections in compliance with EN 175301-803.
Protection degree: IP 54; IP 65 with connector inserted.
Tolerance permitted on the nominal voltage value: ±10%.
Tolerance permitted on the frequency value: ±5%
Room temperature: from -10 to +45°C
Fluid temperature: from -10 to +95°C
Electric absorption: 8 - 20 V.A. with AC and 6.5 - 18 W with DC.
The electric coils can be rotated 360°.



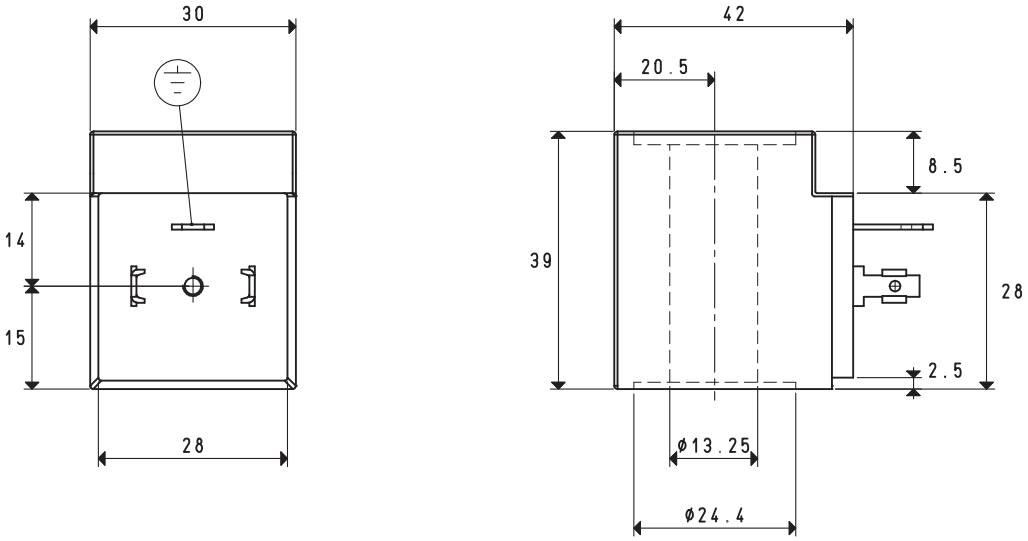


DIRECT AND ALTERNATING CURRENT COILS

Item	Service ED	Absorption	Rated voltage	Weight g	For solenoid valves item
00 07 172	100%	6,5 W	V24 DC	54	07 00 16 - 07 00 20 - 07 01 51 - 07 02 51
00 07 173	100%	8 V.A.	V24 / 50 - 60Hz	54	07 00 16 - 07 00 20 - 07 01 51 - 07 02 51

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SOLENOID VALVE ACCESSORIES AND SPARE PARTS
ELECTRIC COILS



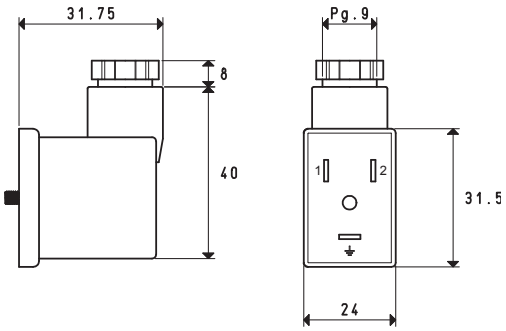
DIRECT AND ALTERNATING CURRENT COILS

Item	Service ED	Absorption	Rated voltage	Weight g
00 07 03 N	100%	18 W	V12 DC	100
00 07 04 N	100%	18 W	V24 DC	100
00 07 06 N	100%	18 W	V110 DC	100
	For solenoid valves item			
	07 01 11 - 07 02 11 - 07 03 11 - 07 04 11 - 07 05 11 - 07 06 11 - 07 08 11 - 07 09 11			
	07 01 16 - 07 02 16 - 07 03 16			
	07 01 20 - 07 02 20 - 07 03 20			
	07 03 40 - 07 04 40 - 07 05 40 - 07 06 40			
	07 03 51 - 07 04 51 - 07 05 51 - 07 06 51 - 07 08 51 - 07 09 51			
	DDN 14 - EGN 40 - EGN52			
00 07 256 N	100%	20 V.A.	V24/50 - 60 Hz	100
00 07 258 N	100%	20 V.A.	V110/50 - 60 Hz	100
00 07 259 N	100%	20 V.A.	V230/50 - 60 Hz	100
	For solenoid valves item			
	07 01 11 - 07 02 11 - 07 03 11 - 07 04 11 - 07 05 11 - 07 06 11 - 07 08 11 - 07 09 11			
	07 01 16 - 07 02 16 - 07 03 16			
	07 01 20 - 07 02 20 - 07 03 20			
	07 03 40 - 07 04 40 - 07 05 40 - 07 06 40			
	07 03 51 - 07 04 51 - 07 05 51 - 07 06 51 - 07 08 51 - 07 09 51			
	DDN 14 - DDN 25 - EGN 40 - EGN52			

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

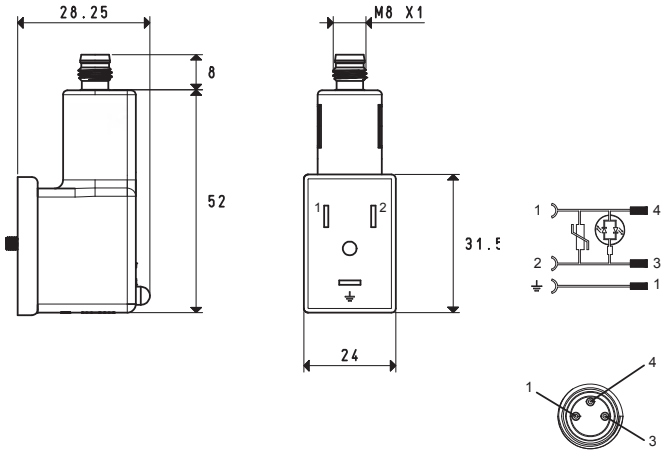
SOLENOID VALVE ACCESSORIES AND SPARE PARTS
CONNECTORS

Connectors are fundamental for bringing electric current to the solenoid valve coils.
They are available in the simple plug version installed as standard and, upon request, with LEDs to signal the presence of voltage, with anti-interference circuits, protection devices against overvoltage and polarity reversal.
When correctly installed, all connectors provide full protection against water jets, according to EN 60529 standards (protection class IP 65).
Moreover, they meet EN 60664 standards, working voltage up to 250 V, overvoltage category II, Degree of use 3, regarding insulation class.
In all contacts, a snap joint between contact holders and the external protection guarantees a safe locking and easy assembly. Safe locking is essential for guaranteeing the operator full protection when handling the connector. The contact holder can be easily extracted from its casing simply using a screwdriver. This operation also allows orienting the earthing contact in the desired direction.



WIRING CONNECTORS FOR COILS

Art.	Voltage	Nominal flow rate of contacts A	Connection	Form	Cable gland	Temperature in operation °C	Material	Weight g	Notes
00 07 174	max 250V	max 16	2P+T	B	PG 9	-40 ÷ +60	Black plastic	18	Standard
00 07 260	V24DC - 24V/50 - 60Hz	max 16	2P+T	B	PG 9	-40 ÷ +60	Transparent plastic	18	With yellow LED
	For coils item								
	00 07 172 - 00 07 173								

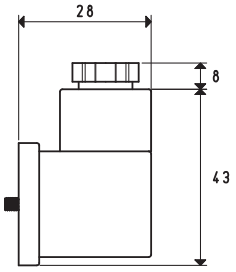


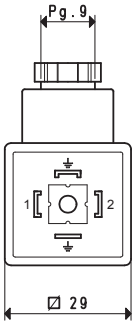
M8 3 PIN CONNECTORS FOR COILS

Art.	Voltage	Nominal flow rate of contacts A	Connection	Form	Connector	Temperature in operation °C	Material	Weight g	Notes
00 07 423	V24DC - 24V/50 - 60Hz	max 4	2P+T	B	M8 3 pin	-40 ÷ +60	Black plastic	20	With red LED and VDR
	For coils item								
	00 07 172 - 00 07 173								

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

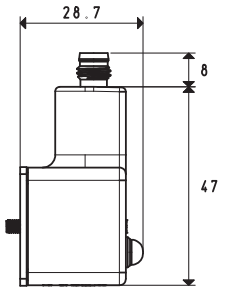
SOLENOID VALVE ACCESSORIES AND SPARE PARTS
CONNECTORS

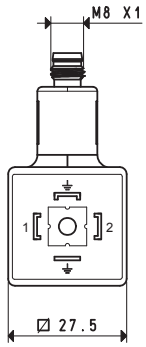


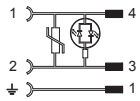


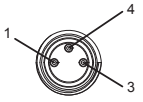
WIRING CONNECTORS FOR COILS

Art.	Voltage	Nominal flow rate of contacts A	Connection	Form	Cable gland	Temperature in operation °C	Material	Weight g	Notes
00 07 63	max 250V	max 16	2P+T	A	PG 9	-40 ÷ +90	Black plastic	24	Standard
00 07 101	V24DC - 24V/50 - 60Hz	max 16	2P+T	A	PG 9	-40 ÷ +90	Transparent plastic	24	With yellow LED
00 07 186	V24DC - 24V/50 - 60Hz	max 16	2P+T	A	PG 9	-40 ÷ +90	Transparent plastic	24	With red LED and VDR
00 07 221	V24DC - 24V/50 - 60Hz	max 16	2P+T	A	PG 9	-40 ÷ +90	Transparent plastic	24	With red LED
00 07 222	V230DC - 230V/50 - 60Hz	max 16	2P+T	A	PG 9	-40 ÷ +90	Transparent plastic	24	With yellow LED and VDR
	For coils item								
	00 07 03 N - 00 07 04 N - 00 07 06 N								
	00 07 256 N - 00 07 258 N - 00 07 259 N								









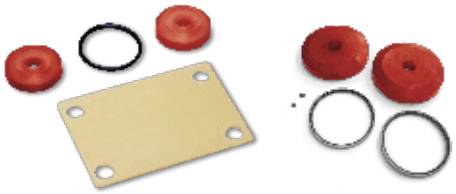
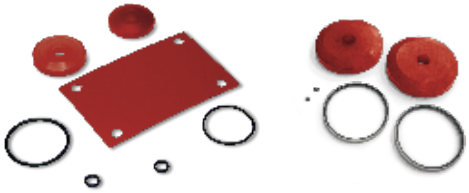
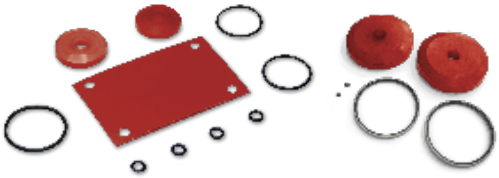
M8 3 PIN CONNECTORS FOR COILS

Art.	Voltage	Nominal flow rate of contacts A	Connection	Form	Connector	Temperature in operation °C	Material	Weight g	Notes
00 07 422	V24DC - 24V/50 - 60Hz	max 4	2P+T	A	M8 3 pin	-40 ÷ +60	Black plastic	26	With yellow LED and VDR
	For coils item								
	00 07 03 N - 00 07 04 N - 00 07 06 N								
	00 07 256 N - 00 07 258 N - 00 07 259 N								

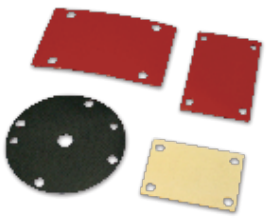
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SOLENOID VALVE ACCESSORIES AND SPARE PARTS
VACUUM VALVE AND SOLENOID VALVE SEALING KIT

Sealing kits are composed of a membrane, shutters and standard O-rings installed on our compressed air and vacuum three-way valves and solenoid valves.
In presence of very hot fluids or corrosive fluids, we can supply sealing kits in special compounds.
Please contact our technical department.

Complete kit for valves: 	07 01 31 e 07 02 31	item 00 07 267
	07 03 31	item 00 07 268
	07 03 31 LP	item 00 07 287
	07 04 31 e 07 05 31	item 00 07 269
	07 04 31 LP e 07 05 31 LP	item 00 07 288
	07 06 31	item 00 07 270
	07 06 31 LP	item 00 07 289
	07 08 31	item 00 07 380
	07 09 31	item 00 07 384
Complete kit for solenoid valves: 	07 01 11 e 07 02 11	item 00 07 271
	07 03 11	item 00 07 272
	07 03 11 LP	item 00 07 290
	07 04 11 e 07 05 11	item 00 07 273
	07 04 11 LP e 07 05 11 LP	item 00 07 291
	07 06 11	item 00 07 274
	07 06 11 LP	item 00 07 292
	07 08 11	item 00 07 372
	07 09 11	item 00 07 382
Complete kit for solenoid valves: 	07 01 51 e 07 02 51	item 00 07 275
	07 03 51	item 00 07 276
	07 03 51 LP	item 00 07 293
	07 04 51 e 07 05 51	item 00 07 277
	07 04 51 LP e 07 05 51 LP	item 00 07 294
	07 06 51	item 00 07 278
	07 06 51 LP	item 00 07 295
	07 08 51	item 00 07 381
	07 09 51	item 00 07 385
Complete kit for solenoid valves:	07 03 40 e 07 04 40	item 00 07 279
	07 05 40	item 00 07 280
	07 06 40	item 00 07 281
	EGN 40	item 00 07 400
	EGN 52	item 00 07 420

PILOT MEMBRANES FOR VACUUM VALVES AND SOLENOID VALVES



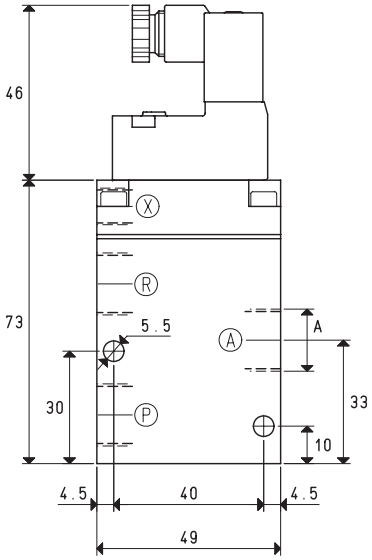
Item	For valves item	Connections	Material	Colour	Dimensions mm
00 07 104	07 03 40 - 07 04 40	G1/2" - G3/4"	Fabric NBR	Black	Ø 65
00 07 105	07 05 40	G1"	Fabric NBR	Black	Ø 76
00 07 177	07 06 40	G1" 1/2	Fabric NBR	Black	Ø 110
00 07 229	07 01 11 - 07 01 31 - 07 01 51	G1/4" - G3/8"	Vulkollan®	Beige	49 x 35
	07 02 11 - 07 02 31 - 07 02 51				
00 07 230	07 03 11 - 07 03 31 - 07 03 51	G1/2"	Urepan® 65	Grey - orange	62 x 39
00 07 296	07 03 11 LP - 07 03 31 LP - 07 03 51 LP	G1/2"	Vulkollan®	Beige	62 x 39
00 07 231	07 04 11 - 07 04 31 - 07 04 51	G3/4" - G1"	Urepan® 65	Grey - orange	79 x 49
	07 05 11 - 07 05 31 - 07 05 51				
00 07 297	07 04 11 LP - 07 04 31 LP - 07 04 51 LP	G3/4" - G1"	Vulkollan®	Beige	79 x 49
	07 05 11 LP - 07 05 31 LP - 07 05 51 LP				
00 07 232	07 06 11 - 07 06 31 - 07 06 51	G1"1/2	Urepan® 65	Grey - orange	129 x 89
00 07 298	07 06 11 LP - 07 06 31 LP - 07 06 51 LP	G1"1/2	Vulkollan®	Beige	129 x 89

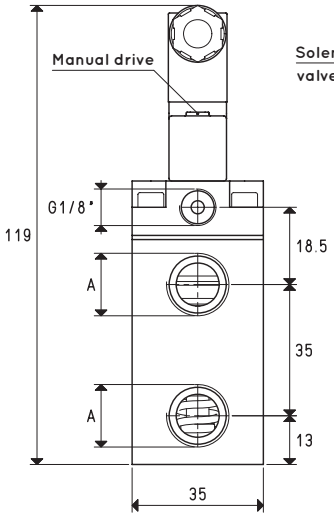
SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH LOW ABSORPTION ELECTRIC COIL

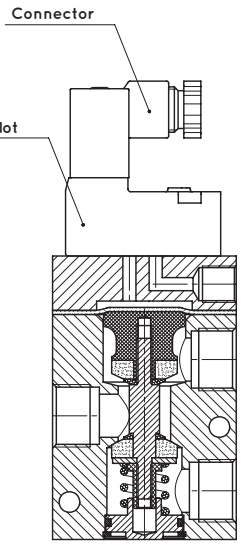
The three-way vacuum solenoid valves in this series are two-position valves with pneumatically servo-controlled conical shutters.
They can be used normally either closed or open.
They are composed of an anodised aluminium body, two HNBR shutters assembled onto a stainless steel stem, a membrane for servo-control made with special compounds and a thrust spring for the shutter return; a solenoid pilot valve activated by a built-in electric coil managed the compressed air supply.
These valves allow reducing frictions and internal dynamic stresses to the minimum. The result being a high response speed and a guarantee of long lasting duration.
The electric coils of the solenoid pilot valve are fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard EN 60664, with 3 mm two-terminal electrical connections for connectors in compliance with EN 175301-803 - C.
Protection degree IP 54; IP 65 with connector inserted.
Available for voltages 12-24V/50-60Hz and 12-24VDC.
Tolerance permitted on the nominal voltage value: ±10%.
Maximum electric power: 2 W.
The connector can be rotated 180° on the coil and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.
A push-button device, built-in the solenoid pilot valve, allows manually opening and closing the solenoid valve.
The 3-way vacuum solenoid valves are used for vacuum interception on power supply units and suction palletisers, robots, feeders, bag opening units and in all those cases where rapid exchange between pump suction for vacuums and air supply into the circuit is necessary for quick restoration of atmospheric pressure.

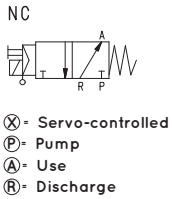
Technical features

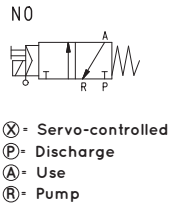
Operating pressure: from 0.5 to 3000 absolute mbar
Servo-control pressure (X): see table
Temperature of suctioned fluid: from -5 to +60°C











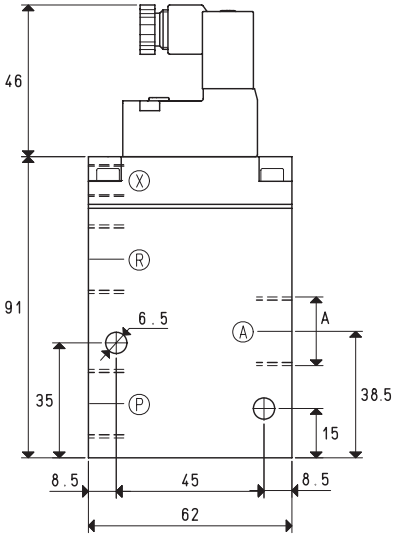
Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 01 13	G1/4"	6	1000	0.5	16	27	8.5	56.8	4 ÷ 7	0.44
07 02 13	G3/8"	10	1000	0.5	16	27	11.5	103.8	4 ÷ 7	0.43

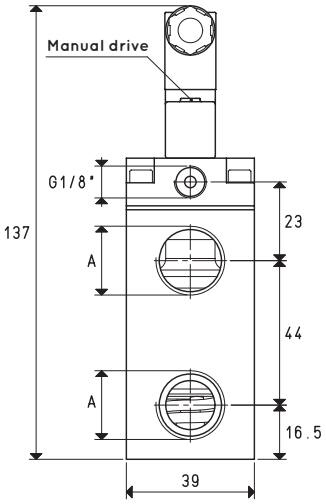
Spare parts		07 01 13	07 02 13
Solenoid valve sealing kit with pilot membranes	item	00 07 271	00 07 271
Pilot membranes for solenoid valves	item	00 07 229	00 07 229

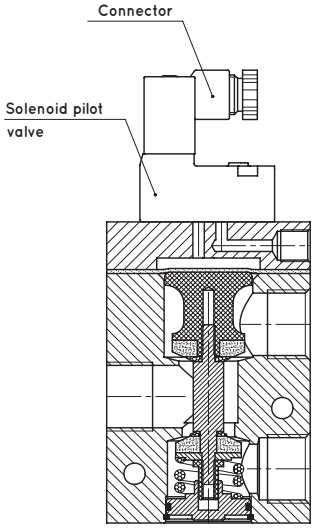
Note: Specify the voltage of the electric coil when ordering. (Example: 07 01 13 V24-CC)
The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

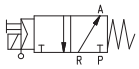
SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH LOW ABSORPTION ELECTRIC COIL





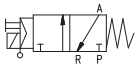


NC



Ⓧ= Servo-controlled
Ⓟ= Pump
Ⓐ= Use
Ⓡ= Discharge

NO



Ⓧ= Servo-controlled
Ⓟ= Discharge
Ⓐ= Use
Ⓡ= Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 03 13	G1/2"	20	1000	0.5	16	40	15.0	176	6 ÷ 7	0.52

Spare parts		07 03 13
Solenoid valve sealing kit with pilot membranes	item	00 07 272
Pilot membranes for solenoid valves	item	00 07 230

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

Note: Specify the voltage of the electric coil when ordering. (Example: 07 03 13 V24-CC)

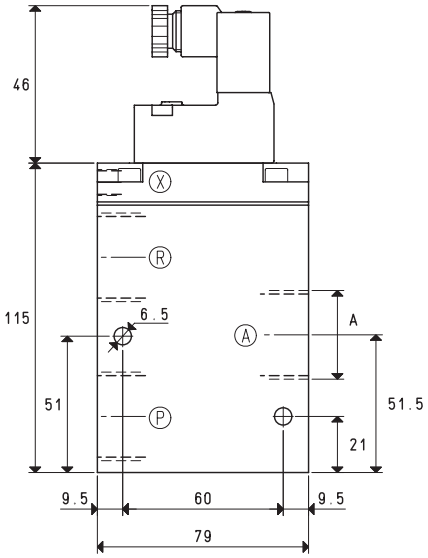
The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

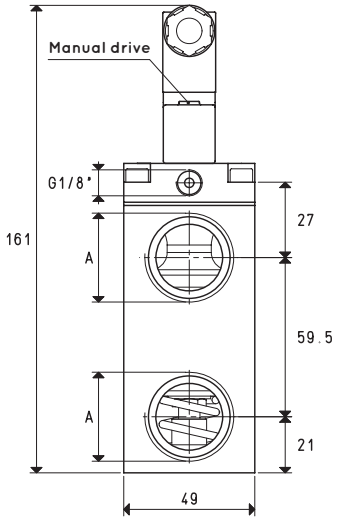
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

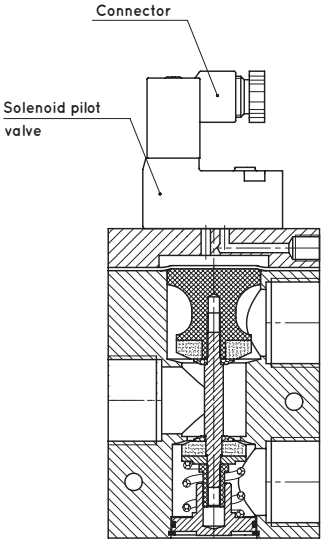
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

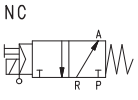
Adapters for GAS - NPT threading available on page 1.134

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH LOW ABSORPTION ELECTRIC COIL

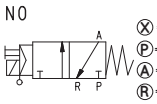








Ⓧ = Servo-controlled
Ⓟ = Pump
Ⓐ = Use
Ⓡ = Discharge



Ⓧ = Servo-controlled
Ⓟ = Discharge
Ⓐ = Use
Ⓡ = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 04 13	G3/4"	40	1000	0.5	16	40	20	314	6 ÷ 7	1.00
07 05 13	G1"	90	1000	0.5	18	42	25	490	6 ÷ 7	0.94

Spare parts		07 04 13	07 05 13
Solenoid valve sealing kit with pilot membranes	item	00 07 273	00 07 273
Pilot membranes for solenoid valves	item	00 07 231	00 07 231

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

Note: Specify the voltage of the electric coil when ordering. (Example: 07 04 13 V24-CC)

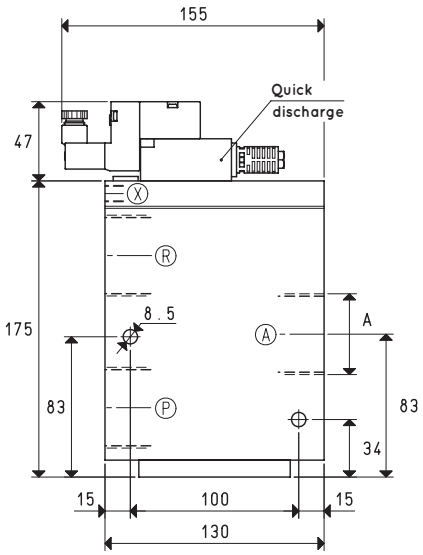
The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

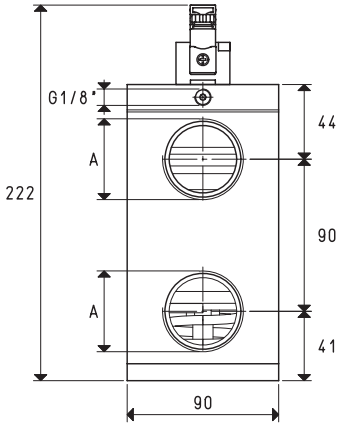
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

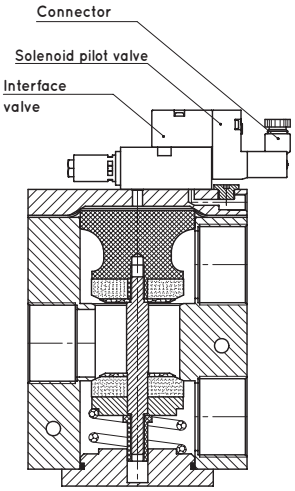
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH LOW ABSORPTION ELECTRIC COIL







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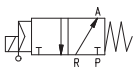
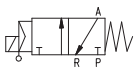


Ⓧ = Servo-controlled
Ⓟ = Pump
Ⓐ = Use
Ⓡ = Discharge

NO



Ⓧ = Servo-controlled
Ⓟ = Discharge
Ⓐ = Use
Ⓡ = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 06 13	G1"1/2	230	1000	0.5	60	38	40	1256	6 ÷ 8	4.50

Spare parts		07 06 13
Solenoid valve sealing kit with pilot membranes	item	00 07 274
Pilot membranes for solenoid valves	item	00 07 232

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

Note: Specify the voltage of the electric coil when ordering. (Example: 07 06 13 V24-CC)

The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

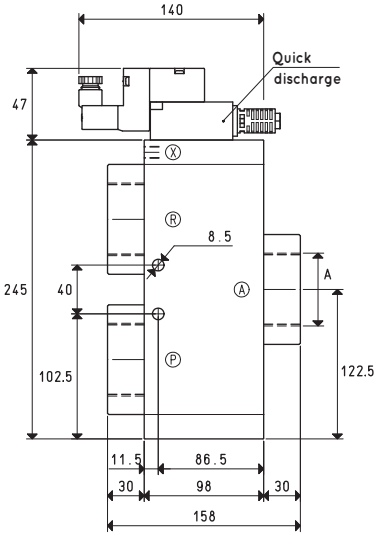
3-WAY VACUUM SOLENOID VALVES, PILOT-OPERATED FOR LARGE CAPACITIES WITH LOW ABSORPTION ELECTRIC COIL

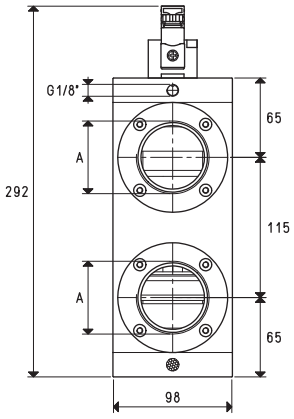
The growing demand by automatic machine manufacturers in the packaging sector and the lack of high-speed three-way vacuum solenoid valves on the market for capacities above 200 m³/h have led us to design and implement this new series of solenoid valves that are able to meet these needs.
Strengthened by our constant desire for research and innovation and our experience, acquired over more than forty years of operations in the vacuum sector, we have made these new solenoid valves using absolutely innovative technologies, to guarantee exceptionally low intervention times, almost negligible pressure drops, and minimal dimensions compared to the large connections and minimum electrical absorption for their powering with which they are equipped.
Furthermore, we have obtained them from aluminium block to eliminate even the slightest chance of loss due to transpiration, as perhaps could occur with a fusion.
This new series of solenoid valves for vacuums are three-way, two-position and are composed of:
- An anodised aluminium body set with attachment connections;
- Two conical HNBR shutters fitted on the aluminium pistons, pneumatically powered with spring return;
- A solenoid pilot valve powered by a low absorption fitted electrical coil which managed compressed air supply.

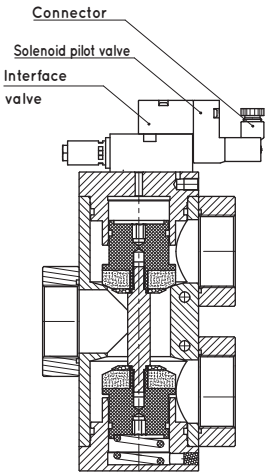
The composition of these valves, especially the original Teflon® slide system that the pistons have been equipped with, help minimise friction and internal dynamic stress, deriving high response speed and ensuring enduring operation.
They can be used normally either closed or open.
The electric coils of the solenoid pilot valve are fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard EN 60664, with 3 mm two-terminal electrical connections for connectors in compliance with EN 175301-803. Degree of protection IP 54; IP 65 with connector inserted.
Available for voltages 12-24V/50-60Hz and 12-24VDC.
Tolerance permitted on the nominal voltage value: ± 10%.
Maximum electric power: 2 W.
The connector can be rotated 180° on the coil and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.
A push-button device, built-in the solenoid pilot valve, allows manually opening and closing the solenoid valve.
The three-way solenoid valves are used for vacuum interception on power supply units and suction palletisers, vacuum thermoformers, vacuum packaging units, robots, feeders, bag opening units and in all those cases where rapid exchange between pump suction for vacuums and air supply into the circuit is necessary for quick restoration of atmospheric pressure.

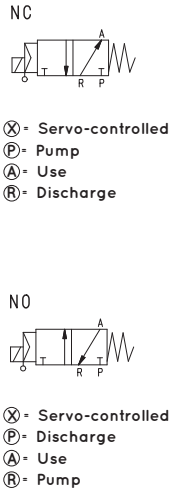
Technical features

Working pressure: from 0.5 to 1000 absolute mbar
Servo-control pressure (X): from 4 to 8 bar
Suctioned fluid temperature: from – 5 to + 60°C









Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 08 13	G2"	390	1000	0.5	78	50	52	2123	4 ÷ 8	5.87

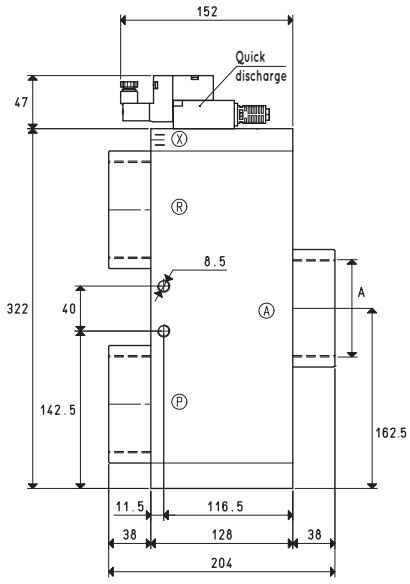
Spare parts		07 08 13
Solenoid valve sealing kit	item	00 07 379

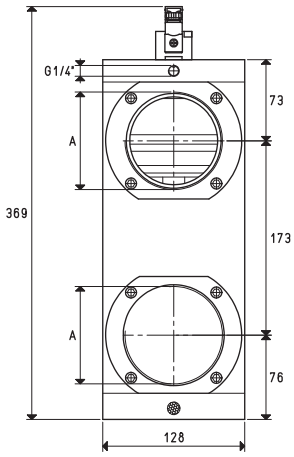
Note: Specify the voltage of the electric coil when ordering. (Example: 07 08 13 V24-CC)
The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

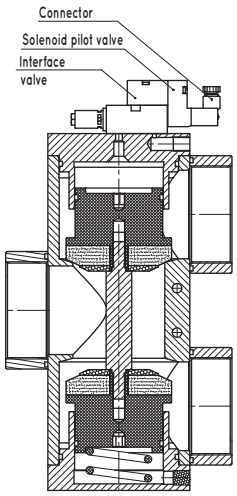
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3-WAY VACUUM SOLENOID VALVES, PILOT-OPERATED FOR LARGE CAPACITIES WITH LOW ABSORPTION ELECTRIC COIL







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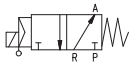
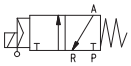


Ⓧ = Servo-controlled
Ⓟ = Pump
Ⓐ = Use
Ⓡ = Discharge

NO



Ⓧ = Servo-controlled
Ⓟ = Discharge
Ⓐ = Use
Ⓡ = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 09 13	G3"	750	1000	0.5	132	84	80	5024	4 ÷ 8	11.80

Spare parts		07 09 13
Solenoid valve sealing kit	item	00 07 383

Note: Specify the voltage of the electric coil when ordering. (Example: 07 09 13 V24-CC)
The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

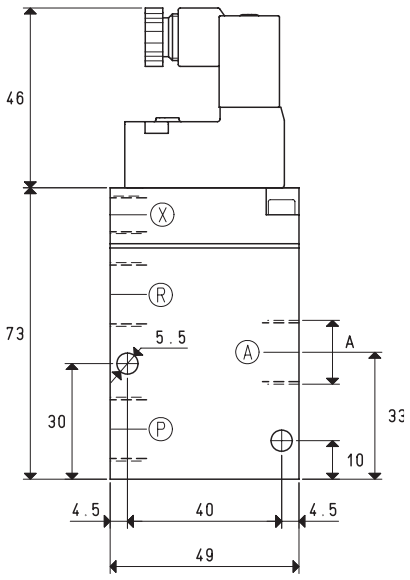
Adapters for GAS - NPT threading available on page 1.134

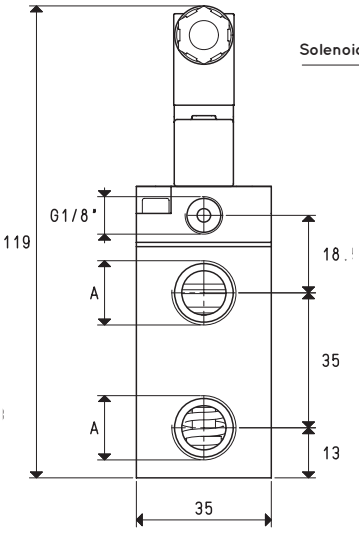
SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH BISTABLE IMPULSE SOLENOID PILOT VALVE AND WITH LOW ABSORPTION ELECTRIC COIL

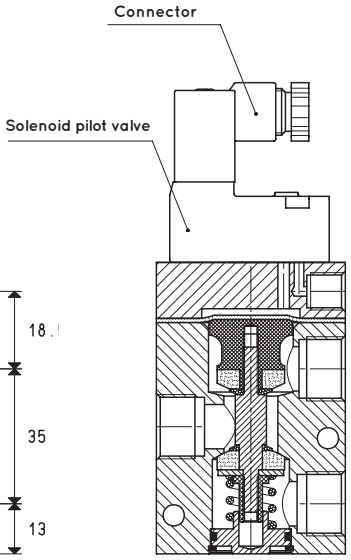
These solenoid valves have the same function and the same structure as the previously described three-way valves.
Even their structure is the same; what differentiates them are the bistable impulse solenoid pilot valve powered by a low absorption fitted electrical coil which, with a simple electrical impulse, exchanges the shutter positions and keeps them there even in absence of electricity, until it receives a new impulse of opposite polarity. For this reason, they can only be supplied with direct current electric coils.
Their use is especially recommended in all those cases requiring maximum connection security at the vacuum source, even in the absence of electrical power supply.
The electric coils of the solenoid pilot valve are fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard EN 60664, with 3 mm two-terminal electrical connections for connectors in compliance with EN 175301-803 - C. Protection degree IP 54; IP 65 with connector inserted. Available for voltages 12-24VDC.
Tolerance permitted on the nominal voltage value: ±10%.
Maximum electric power: 1 W.
The connector can be rotated 180° on the coil and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.
The push-button device for their manual activation cannot be installed on these solenoid valves.

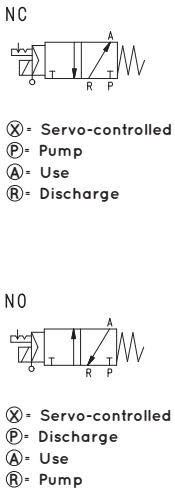
Technical features

Operating pressure: from 0.5 to 3000 absolute mbar
Servo-control pressure (X): see table
Temperature of suctioned fluid: from -5 to +60°C









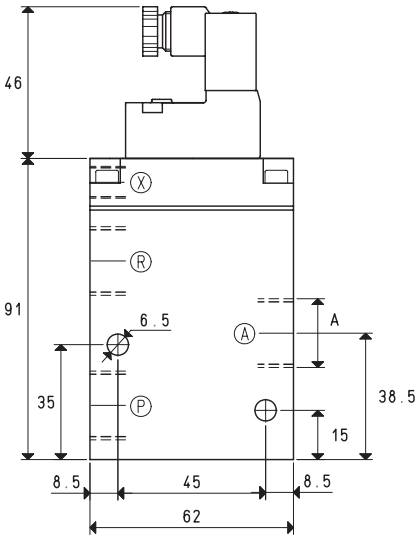
Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 01 53	G1/4"	6	1000	0.5	16	27	8.5	56.8	4 ÷ 7	0.44
07 02 53	G3/8"	10	1000	0.5	16	27	11.5	103.8	4 ÷ 7	0.43

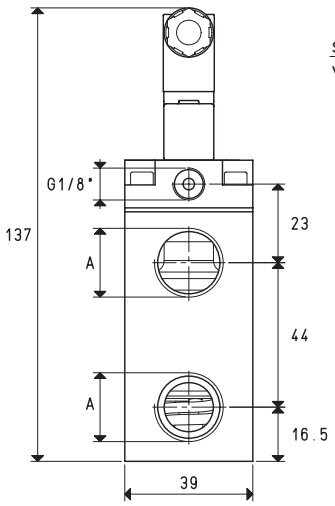
Spare parts		07 01 53	07 02 53
Solenoid valve sealing kit with pilot membranes	item	00 07 275	00 07 275
Pilot membranes for solenoid valves	item	00 07 229	00 07 229

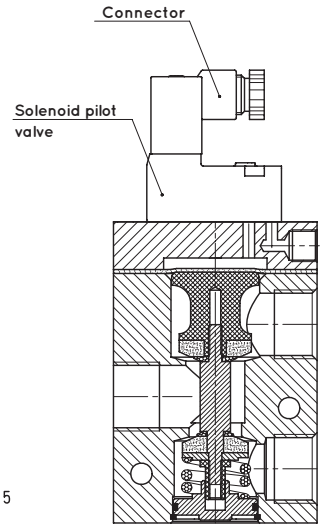
Note: Specify the voltage of the electric coil when ordering. (Example: 07 01 53 V24-CC)
The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH BISTABLE IMPULSE SOLENOID PILOT VALVE AND WITH LOW ABSORPTION ELECTRIC COIL







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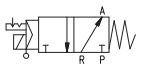
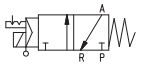


Ⓧ = Servo-controlled
Ⓟ = Pump
Ⓐ = Use
Ⓡ = Discharge

NO



Ⓧ = Servo-controlled
Ⓟ = Discharge
Ⓐ = Use
Ⓡ = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 03 53	G1/2"	20	1000	0.5	16	40	15.0	176	6 ÷ 7	0.52

Spare parts		07 03 53
Solenoid valve sealing kit with pilot membranes	item	00 07 276
Pilot membranes for solenoid valves	item	00 07 230

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

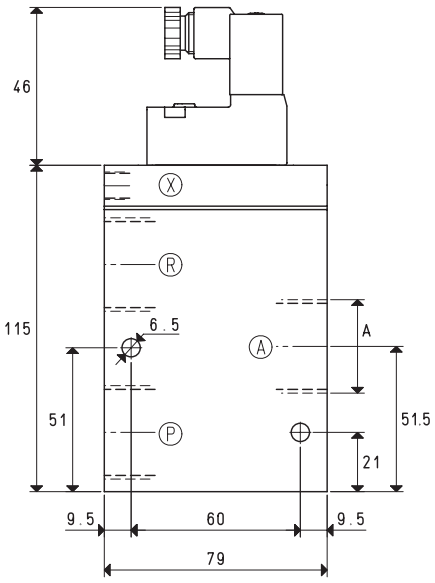
Note: Specify the voltage of the electric coil when ordering. (Example: 07 03 53 V24-CC)

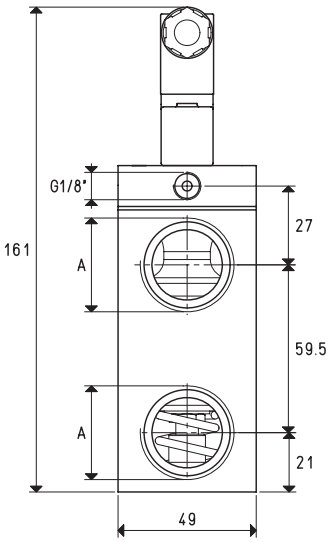
The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

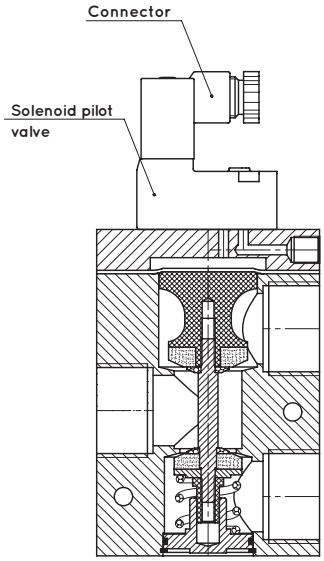
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH BISTABLE IMPULSE SOLENOID PILOT VALVE AND WITH LOW ABSORPTION ELECTRIC COIL







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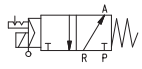
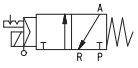


Ⓧ = Servo-controlled
Ⓟ = Pump
Ⓐ = Use
Ⓡ = Discharge

NO



Ⓧ = Servo-controlled
Ⓟ = Discharge
Ⓐ = Use
Ⓡ = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 04 53	G3/4"	40	1000	0.5	16	40	20	314	6 ÷ 7	1.00
07 05 53	G1"	90	1000	0.5	18	42	25	490	6 ÷ 7	0.94

Spare parts		07 04 53	07 05 53
Solenoid valve sealing kit with pilot membranes	item	00 07 277	00 07 277
Pilot membranes for solenoid valves	item	00 07 231	00 07 231

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

Note: Specify the voltage of the electric coil when ordering. (Example: 07 04 53 V24-CC)

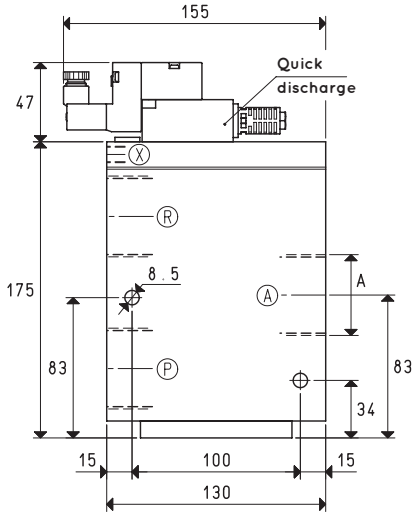
The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

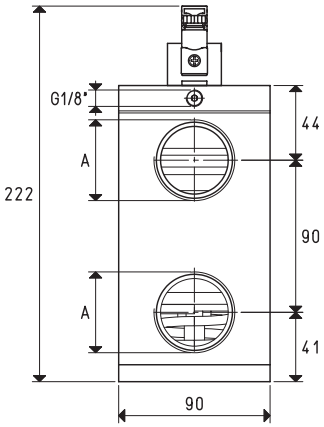
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

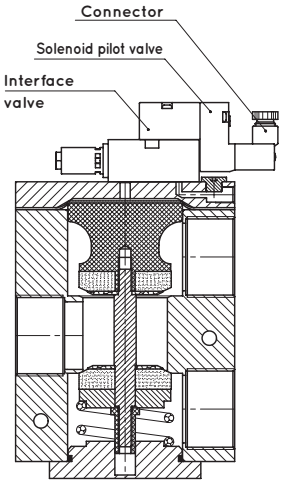
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH BISTABLE IMPULSE SOLENOID PILOT VALVE AND WITH LOW ABSORPTION ELECTRIC COIL







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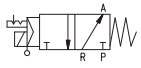
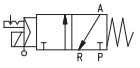


Ⓧ = Servo-controlled
Ⓟ = Pump
Ⓐ = Use
Ⓡ = Discharge

NO



Ⓧ = Servo-controlled
Ⓟ = Discharge
Ⓐ = Use
Ⓡ = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 06 53	G1"1/2	230	1000	0.5	60	38	40	1256	6 ÷ 8	4.50

Spare parts		07 06 53
Solenoid valve sealing kit with pilot membranes	item	00 07 278
Pilot membranes for solenoid valves	item	00 07 232

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

Note: Specify the voltage of the electric coil when ordering. (Example: 07 06 53 V24-CC)

The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

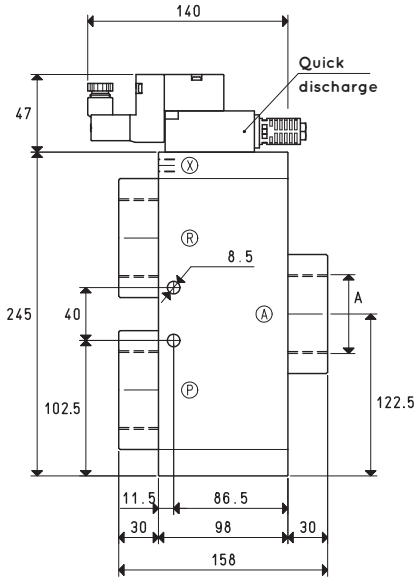
Adapters for GAS - NPT threading available on page 1.134

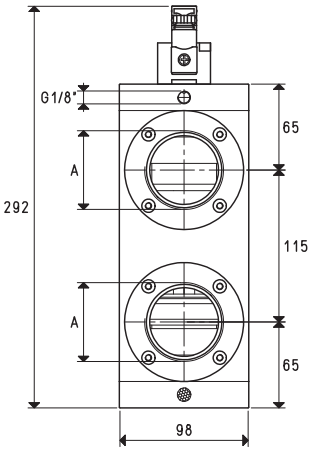
SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH BISTABLE IMPULSE SOLENOID PILOT VALVE AND WITH LOW ABSORPTION ELECTRIC COIL FOR LARGE CAPACITIES

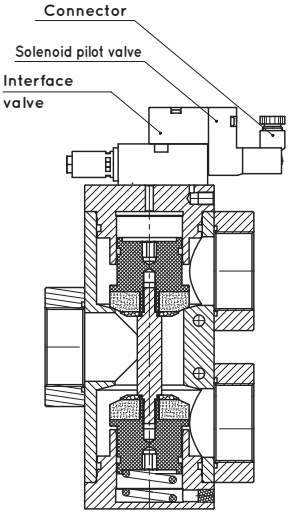
The innovative construction technology of these solenoid valves and their conformation are the same as those previously described. What differentiates them are the bistable impulse pilot valve powered by a low absorption fitted electrical coil which, with a simple electrical impulse, exchanges the shutter positions and keeps them there even in absence of electricity, until it receives a new impulse of opposite polarity. For this reason, they can only be supplied with direct current electric coils. This is the reason why their use is recommended in all those cases requiring maximum connection security at the vacuum source, even in the absence of an electrical power supply.
The electric coil of the pilot valve is fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard EN 60664, with 3 mm two-terminal electrical connections for micro connectors in compliance with EN 175301-803 – C.
Degree of protection IP 54; IP 65 with connector inserted.
Available for voltages 12 – 24VDC.
Tolerance permitted on the nominal voltage value: ± 10%.
Maximum electric power: 1W.
The connector can be rotated 180° on the coil and can be supplied upon request with LED lights, with anti-interference circuit and/or with protection devices against overvoltage. The push-button device for their manual activation cannot be installed on these solenoid valves.

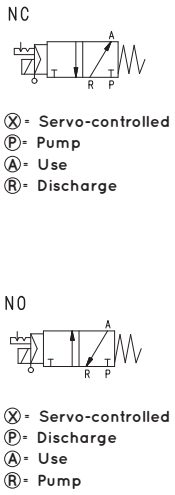
Technical features

Operating pressure: from 0.5 to 1000 absolute mbar
Servo-control pressure (X): from 4 to 8 bar
Temperature of suctioned fluid: from – 5 to + 60°C









Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 08 53	G2"	390	1000	0.5	78	50	52	2123	4 ÷ 8	5.87

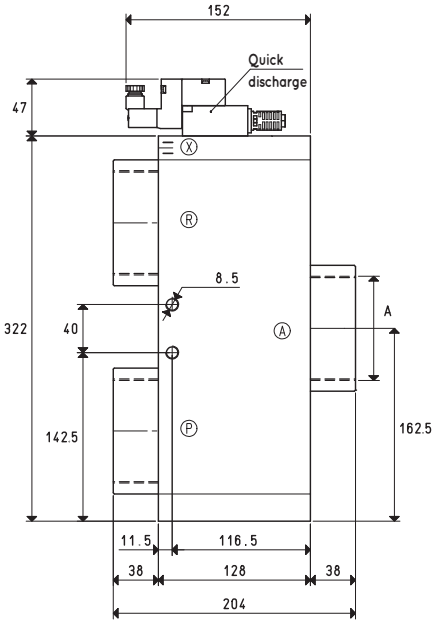
Spare parts		07 08 53
Solenoid valve sealing kit	item	00 07 379

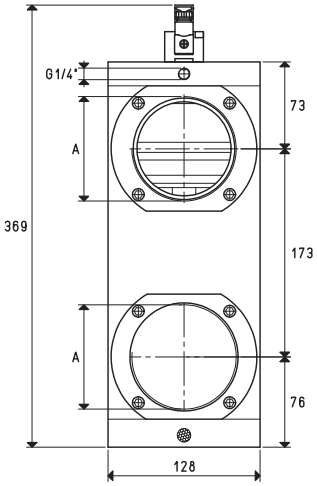
Note: Specify the voltage of the electric coil when ordering. (Example: 07 08 53 V24-CC)
The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

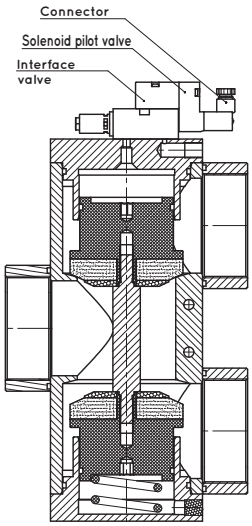
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

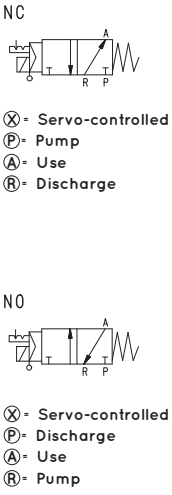
Adapters for GAS - NPT threading available on page 1.134

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH BISTABLE IMPULSE SOLENOID PILOT VALVE AND WITH LOW ABSORPTION ELECTRIC COIL FOR LARGE CAPACITIES









Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled (X)	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 09 53	G3"	750	1000	0.5	132	84	80	5024	4 ÷ 8	11.80

Spare parts		07 09 53
Solenoid valve sealing kit	item	00 07 383

Note: Specify the voltage of the electric coil when ordering. (Example: 07 09 53 V24-CC)
The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

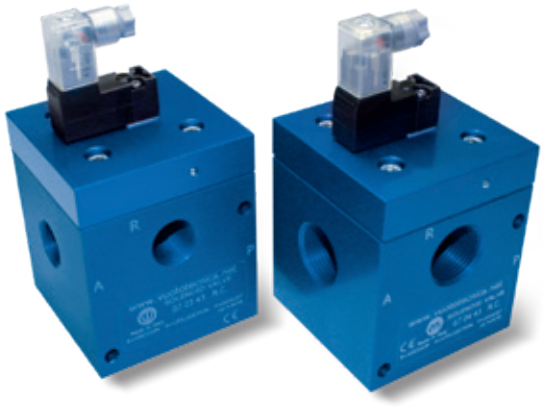
Adapters for GAS - NPT threading available on page 1.134

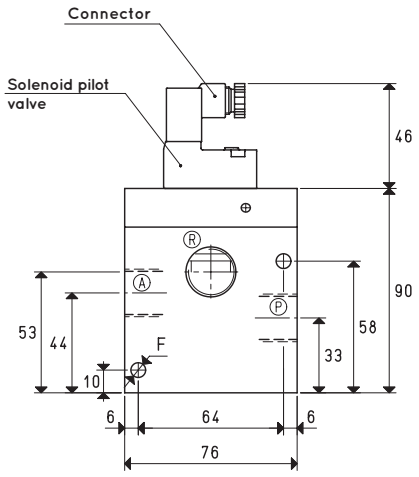
DIRECT DRIVE 3-WAY VACUUM SOLENOID VALVES WITH LOW ABSORPTION ELECTRIC COIL

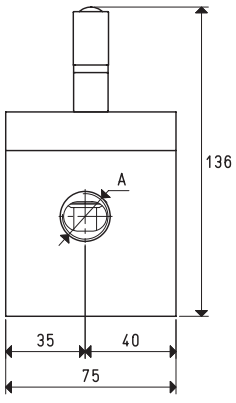
These direct drive three-way, two-position vacuum solenoid valves feature conical shutters servo-controlled by the vacuum.
They are normally closed as standard, but they can be supplied normally open upon request.
They are composed of an anodised aluminium body where the connections are located, two silicone shutters assembled onto a stainless steel stem and a membrane in special reinforced compound. A solenoid pilot valve activated by a built-in electric coil manages the vacuum at the servo-control. The operating principle of these solenoid valves is based on the pressure differential between the vacuum pump or generator and the pressure of the suctioned air.
By addressing this "differential pressure" to the servo-control via the solenoid pilot valve, the shutters can be controlled without compressed air or springs.
Due to their operating principle stated above, they are not recommended on plants with rough vacuum levels (below 850 absolute mbar, equal to 15 % vacuum).
The lack of springs, frictions and internal dynamic stresses favours a high response speed and guarantees long lasting operation.
The electric coils of the solenoid pilot valve are fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard EN 60664, with 3 mm two-terminal electrical connections for connectors in compliance with EN 175301-803 - C.
Protection degree IP 54; IP 65 with connector inserted.
Available for voltages 12-24V/50-60Hz and 12-24VDC.
Tolerance permitted on the nominal voltage value: ±10%.
Maximum electric power: 2 W.
The connector can be rotated 180° on the coil and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal. A push-button device, built-in the solenoid pilot valve, allows manually opening and closing the solenoid valve.
The solenoid valves in this series, along with the uses described for the 07 .. 11 series, can be used on plants with no compressed air.
The solenoid valve must be always chosen according to the flow rate and, therefore, to the vacuum pump or generator suction connection.

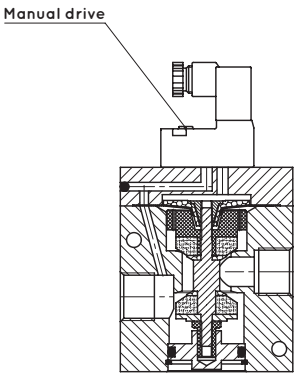
Technical features

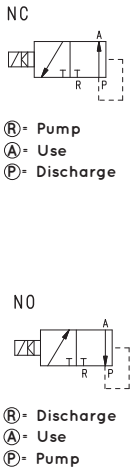
Operating pressure: from 0.5 to 850 absolute mbar
Temperature of suctioned fluid: from -5 to +60°C











Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	F	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	Ø	Kg
07 03 43 NC	G1/2"	20	850	0.5	33	17	15	176	6.5	1.35
07 03 43 NO					22	20				
07 04 43 NC	G3/4"	40	850	0.5	33	17	20	314	6.5	1.30
07 04 43 NO					22	20				

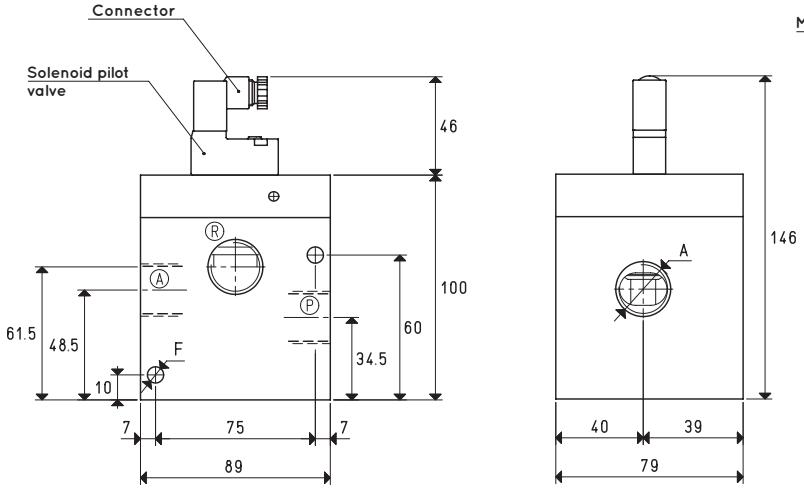
Spare parts		07 03 43 NC	07 03 43 NO	07 04 43 NC	07 04 43 NO
Solenoid valve sealing kit with pilot membranes	item	00 07 279	00 07 279	00 07 279	00 07 279
Pilot membranes for solenoid valves	item	00 07 104	00 07 104	00 07 104	00 07 104

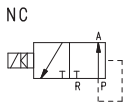
Note: Specify the voltage of the electric coil when ordering. (Example: 07 03 43 NC V24-CC)
The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

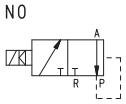
Adapters for GAS - NPT threading available on page 1.134

DIRECT DRIVE 3-WAY VACUUM SOLENOID VALVES WITH LOW ABSORPTION ELECTRIC COIL





Ⓡ= Pump
Ⓐ= Use
Ⓟ= Discharge



Ⓡ= Discharge
Ⓐ= Use
Ⓟ= Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	F	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	Ø	Kg
07 05 43 NC	G1"	90	850	0.5	42	20	25	490	6.5	1.65
07 05 43 NO					28	22				

Spare parts		07 05 43 NC	07 05 43 NO
Solenoid valve sealing kit with pilot membranes	item	00 07 280	00 07 280
Pilot membranes for solenoid valves	item	00 07 105	00 07 105

Note: Specify the voltage of the electric coil when ordering. (Example: 07 05 43 NC V24-CC)

The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

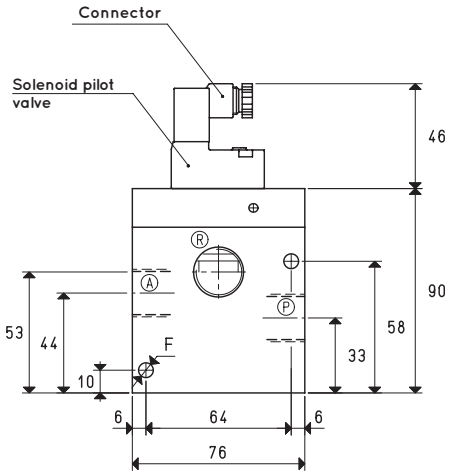
Adapters for GAS - NPT threading available on page 1.134

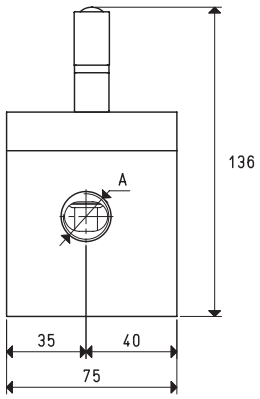
DIRECT DRIVE 3-WAY VACUUM SOLENOID VALVES WITH BISTABLE IMPULSE SOLENOID PILOT VALVE AND WITH LOW ABSORPTION ELECTRIC COIL

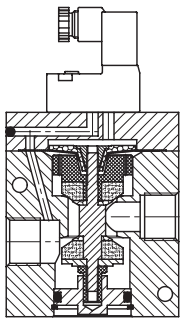
These solenoid valves have the same function and the same structure as the previously described three-way valves.
Even their structure is the same; what differentiates them are the bistable impulse pilot valve powered by a low absorption fitted electrical coil which, with a simple electrical impulse, exchanges the shutter positions and keeps them there even in absence of electricity, until it receives a new impulse of opposite polarity. For this reason, they can only be supplied with direct current electric coils.
Their use is especially recommended in all those cases requiring maximum connection security at the vacuum source, even in the absence of electrical power supply.
The electric coils of the solenoid pilot valve are fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard EN 60664, with 3 mm two-terminal electrical connections for connectors in compliance with EN 175301-803 - C.
Protection degree IP 54; IP 65 with connector inserted.
Available for voltages 12-24VDC.
Tolerance permitted on the nominal voltage value: ±10%.
Maximum electric power: 1 W.
The connector can be rotated 180° on the coil and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.
The push-button device for their manual activation cannot be installed on these solenoid valves.

Technical features

Operating pressure: from 0.5 to 850 absolute mbar
Temperature of suctioned fluid: from -5 to +60°C







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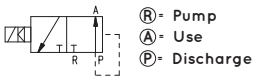
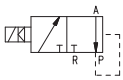


Ⓡ= Pump
Ⓐ= Use
Ⓟ= Discharge

NO



Ⓡ= Discharge
Ⓐ= Use
Ⓟ= Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	F	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	Ø	Kg
07 03 63 NC	G1/2"	20	850	0.5	33	17	15	176	6.5	1.35
07 03 63 NO					22	20				
07 04 63 NC	G3/4"	40	850	0.5	33	17	20	314	6.5	1.30
07 04 63 NO					22	20				

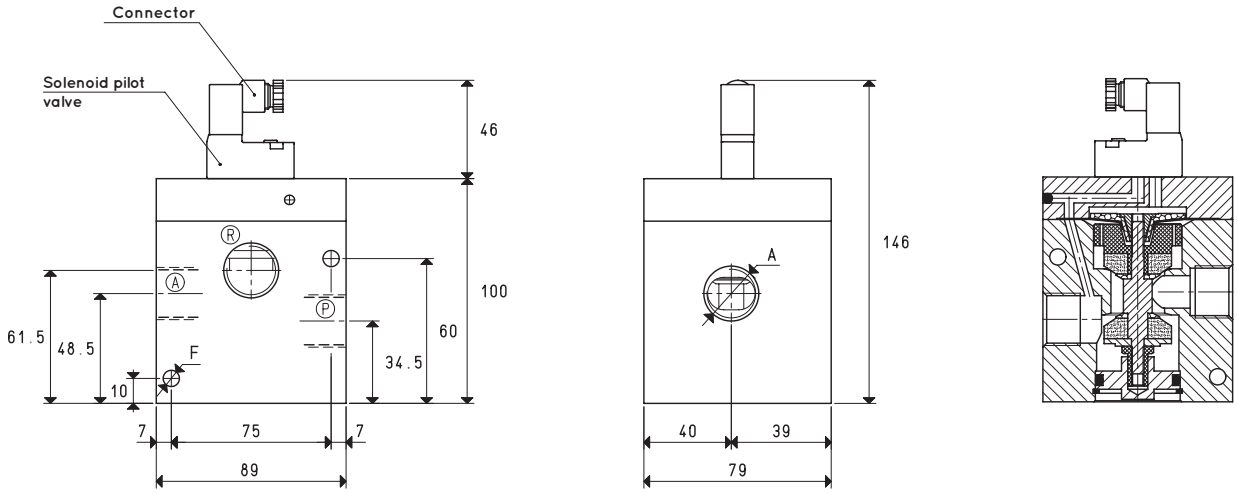
Spare parts		07 03 63 NC	07 03 63 NO	07 04 63 NC	07 04 63 NO
Solenoid valve sealing kit with pilot membranes	item	00 07 279	00 07 279	00 07 279	00 07 279
Pilot membranes for solenoid valves	item	00 07 104	00 07 104	00 07 104	00 07 104

Note: Specify the voltage of the electric coil when ordering. (Example: 07 03 63 NC V24-CC)
The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

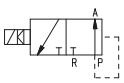
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

DIRECT DRIVE 3-WAY VACUUM SOLENOID VALVES WITH BISTABLE IMPULSE SOLENOID PILOT VALVE AND WITH LOW ABSORPTION ELECTRIC COIL

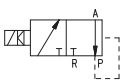


NC



Ⓡ= Pump
Ⓐ= Use
Ⓟ= Discharge

NO



Ⓡ= Discharge
Ⓐ= Use
Ⓟ= Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	F	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	Ø	Kg
07 05 63 NC	G1"	90	850	0.5	42	20	25	490	6.5	1.65
07 05 63 NO					28	22				

Spare parts		07 05 63 NC	07 05 63 NO
Solenoid valve sealing kit with pilot membranes	item	00 07 280	00 07 280
Pilot membranes for solenoid valves	item	00 07 105	00 07 105

Note: Specify the voltage of the electric coil when ordering. (Example: 07 05 63 NC V24-CC)
The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

SOLENOID VALVES - SPECIAL PRODUCTS UPON REQUEST
MULTI-FUNCTION MODULES WITH BUILT-IN VACUUM SOLENOID VALVES

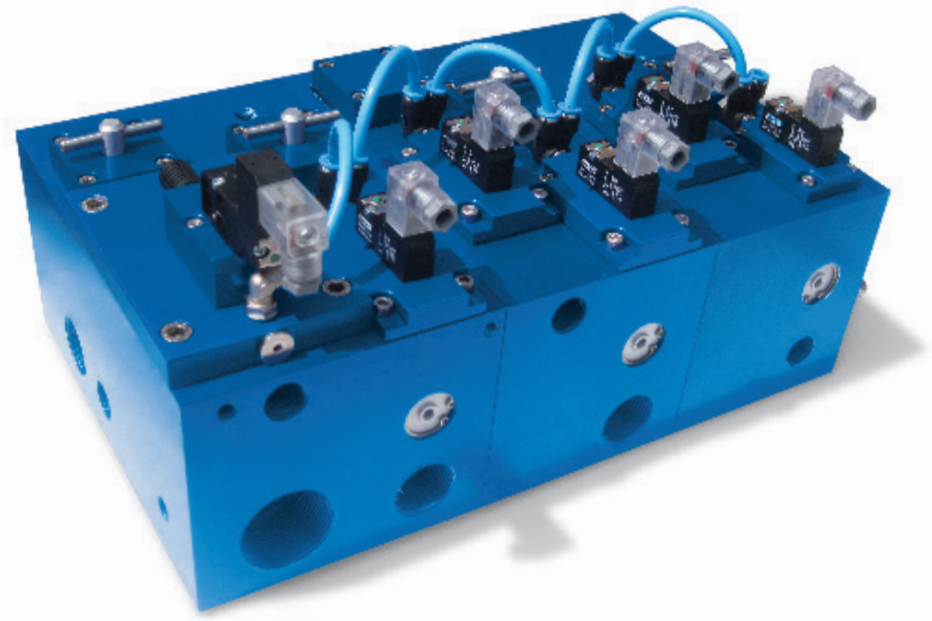
The needs of technical designers in the packaging sector and in the automation sector in general to have more vacuum combined with different functions in the smallest possible space has led us to design and implement this new series of multi-function modules.
Each module has two internal solenoid valves built inside it. Their ducts house the seats for the flow control valves, which can be operated externally by means of special knobs. Various connections made at different points allow for connection of the module to instruments for reading and checking the level of vacuum, such as vacuum gauges, vacuum switches, transducers, etc.
There are three modules currently available:

- **Module A:** The basic module with two integrated 1"1/2 and 1" solenoid valves, two flow regulators and several additional connections;
- **Module B:** With two integrated 1/2 "and 1" solenoid valves and two flow regulators. Can be combined with modules A and C;
- **Module C:** Module with two integrated 1/2" solenoid valves, a flow regulator and an additional connection. Can be combined with module A or B.

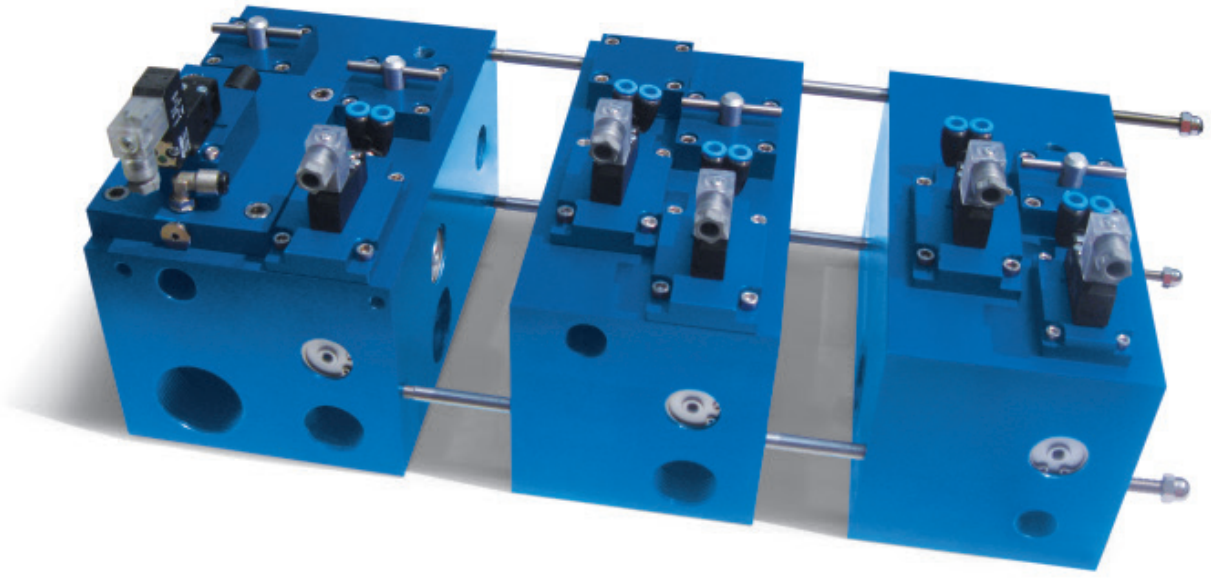
The combination of modules A, B and C, feasible using special stainless steel tie-rods, allows for the application of various functions from a single source of vacuum, as well as allowing for the elimination of numerous pipes and fittings, often causing leaks. The multi-function modules are supplied already tested to a guaranteed final level of vacuum of 0.5 mbar and perfectly sealed.
The technical characteristics are those of the pneumatically actuated three-way vacuum solenoid valves:

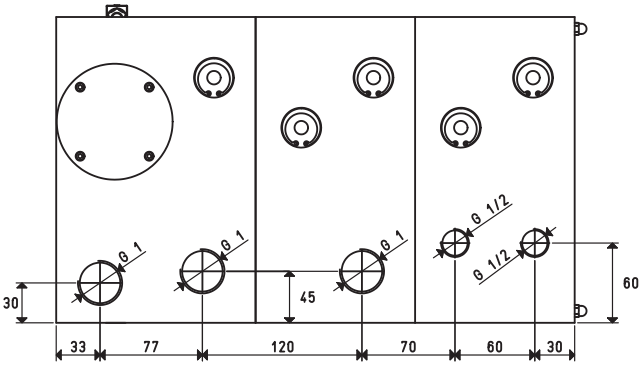
- Servo-control pressure: 6-7 bar; 4-6 bar for version LP, with non-lubricated compressed air, 5 micron filtration, according to standard ISO 8573-1 class 4;
- Operating pressure: from 0.5 to 3000 absolute mbar;
- Electric coils: fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard EN 60664, with 3 mm two-terminal electrical connections for connectors in compliance with EN 175301-803;
- Protection degree IP 54; IP 65 with connector inserted;
- Tolerance permitted on the nominal voltage value: ± 10%;
- Electrical power of the coils: from 1 to 2 W, depending on the electrical voltage;
- Temperature of suctioned fluid: from – 5 to + 60°C.

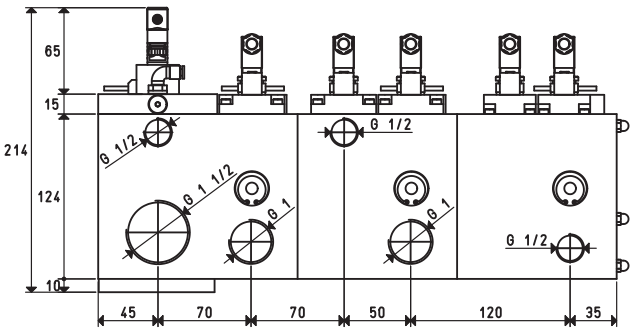
The ideal use of these multi-function modules is on vacuum thermoformers and vacuum thermo-welders, but they are also widely used on packaging and filling machines in the packaging sector and in all those cases where it is necessary to manage the vacuum at different points and times. Upon request, the modules can be customised and implemented with solenoid valves up to 3" gas. Contact our technical department for further information.

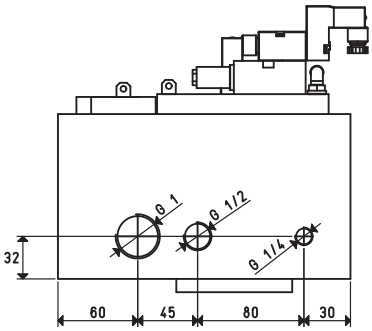


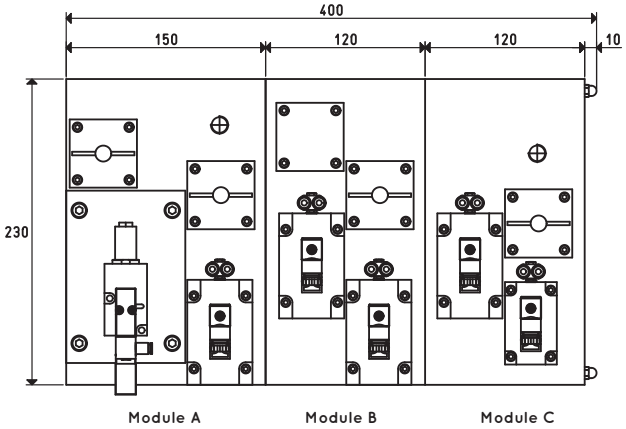
3D drawings are available on **vuototecnica.net**











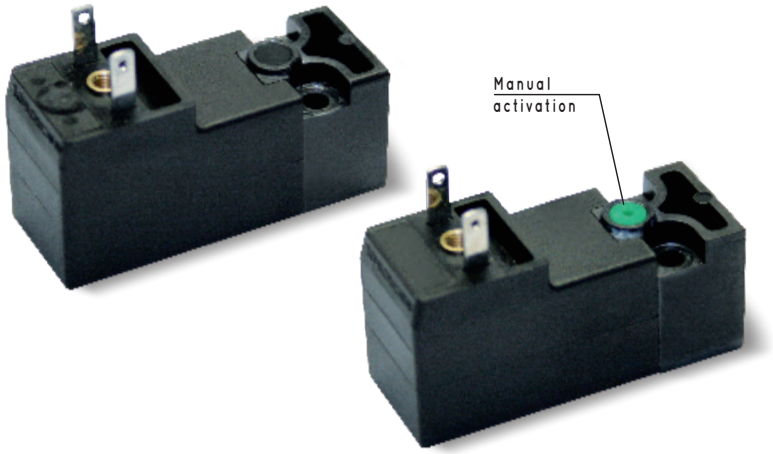
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

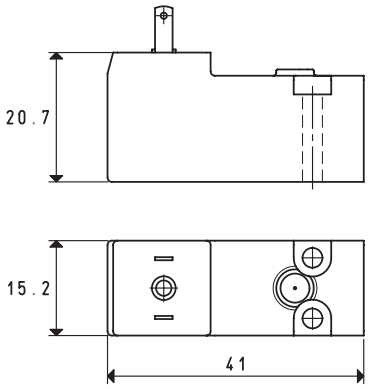
Adapters for GAS - NPT threading available on page 1.134

SOLENOID VALVE ACCESSORIES AND SPARE PARTS WITH LOW ABSORPTION ELECTRIC COIL

SOLENOID PILOT VALVES WITH BUILT-IN LOW ABSORPTION ELECTRICAL COIL

The solenoid valves are small three-way valves, driven by a built-in electric coil, capable of managing compressed air or vacuum, for driving solenoid valves.
The electric coils of the solenoid pilot valves are fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard EN 60664, with 3 mm two-terminal electrical connections for connectors in compliance with EN 175301-803 - C.
Protection degree IP 54; IP 65 with connector inserted.
Tolerance permitted on the nominal voltage value: ±10%
Tolerance permitted on the frequency value: ±5%
Room temperature: from -10 to +45°C
Fluid temperature: from -10 to +95°C
Electrical power: from 1 to 2 W.





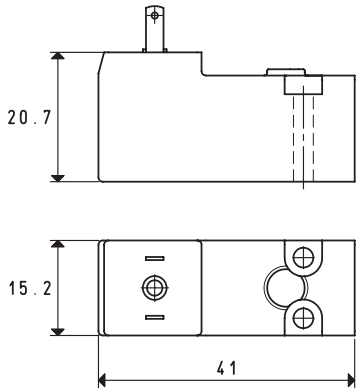
SOLENOID PILOT VALVES WITH BUILT-IN LOW ABSORPTION ELECTRICAL COIL

Item	Service ED	Power W	Electrical voltage Volt	Pressure (bar) min	Pressure (bar) max	Weight g
00 07 301	100%	1	12 / 50 - 60Hz	0	8	32
00 07 302	100%	1	24 / 50 - 60Hz	0	8	32
00 07 303	100%	2	12 / DC	0	8	32
00 07 304	100%	2	24 / DC	0	8	32
	For solenoid valves item					
	07 01 13 - 07 02 13 - 07 03 13 - 07 04 13 - 07 05 13 - 07 06 13 - 07 08 13 - 07 09 13					
	07 03 13 LP - 07 04 13 LP - 07 05 13 LP - 07 06 13 LP					
00 07 305	100%	1	12 / 50 - 60Hz	0	1	32
00 07 306	100%	1	24 / 50 - 60Hz	0	1	32
00 07 307	100%	2	12 / DC	0	1	32
00 07 308	100%	2	24 / DC	0	1	32
	For solenoid valves item					
	07 03 43 - 07 04 43 - 07 05 43					

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SOLENOID VALVE ACCESSORIES AND SPARE PARTS
WITH LOW ABSORPTION ELECTRIC COIL

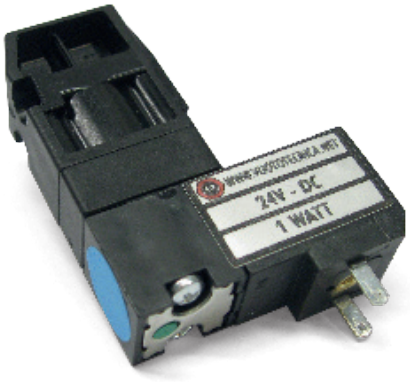
3D drawings are available on **vuototecnica.net**

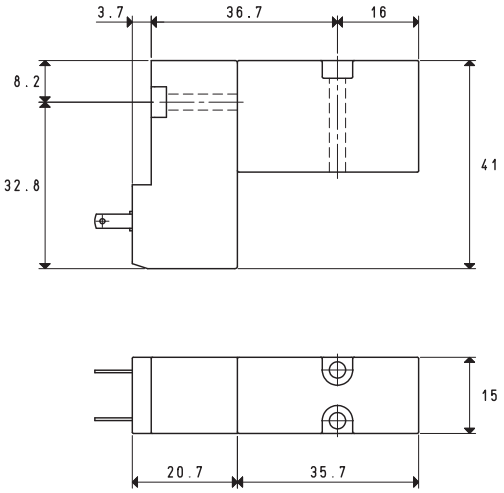


BISTABLE IMPULSE SOLENOID PILOT VALVES WITH BUILT-IN LOW ABSORPTION ELECTRICAL COIL

Item	Service ED	Power W	Electrical voltage Volt	Pressure (bar) min	Pressure (bar) max	Weight g
00 07 309	100%	1	12 / DC	0	8	30
00 07 310	100%	1	24 / DC	0	8	30
	For solenoid valves item					
	07 01 53 - 07 02 53 - 07 03 53 - 07 04 53 - 07 05 53 - 07 06 53 - 07 08 53 - 07 09 53					
	07 03 53 LP - 07 04 53 LP - 07 05 53 LP - 07 06 53 LP					
00 07 311	100%	1	12 / DC	0	1	30
00 07 366	100%	1	24 / DC	0	1	30
	For solenoid valves item					
	07 03 63 - 07 04 63 - 07 05 63					

SOLENOID PILOT VALVES WITH INTERFACE VALVES





SOLENOID PILOT VALVES WITH INTERFACE VALVES

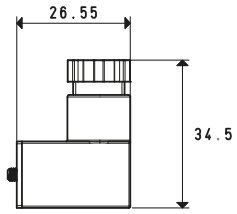
Item	Pressure (bar) min	Pressure (bar) max	Weight g	Electrical voltage Volt	For solenoid valves item
00 15 437	0	8	52	24 / DC	07 06 13 - 07 06 13 LP - 07 08 13 - 07 09 13
00 07 411	0	8	52	24 / DC (bistable)	07 06 53 - 07 06 53 LP - 07 08 53 - 07 09 53
00 07 412	0	8	52	24 / 50 - 60Hz	07 06 13 - 07 06 13 LP - 07 08 13 - 07 09 13

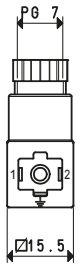
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SOLENOID VALVE ACCESSORIES AND SPARE PARTS WITH LOW ABSORPTION ELECTRIC COIL

CONNECTORS

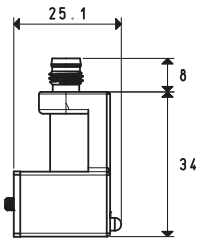
Connectors are essential elements for bringing electricity to solenoid pilot valves with built-in low absorption coil.
They are available in the simple plug version, with a LED for signalling the presence of voltage and, upon request, with anti-interference circuits, with protection against overvoltage and polarity inversion. When correctly installed, all connectors provide full protection against water jets, according to EN 60529 standards (protection class IP 65).
Moreover, they meet EN 60664 standards, working voltage up to 250 V, overvoltage category II, Degree of use 3, regarding insulation class.
In all contacts, a snap joint between contact holders and the external protection guarantees a safe locking and easy assembly.
Safe locking is essential for guaranteeing the operator full protection when handling the connector. The contact holder can be easily extracted from its casing simply using a screwdriver. This operation also allows orienting the earthing contact in the desired direction.

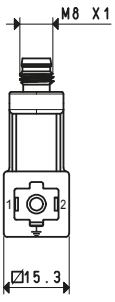


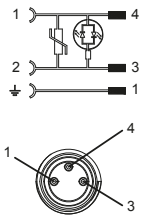


WIRING CONNECTORS FOR COILS

Art.	Voltage	Nominal flow rate of contacts A	Connection	Form	Cable gland	Temperature in operation °C	Material	Weight g	Notes
00 15 157	max 250V	max 10	2P+T	C	PG 7	-40 ÷ +60	Transparent plastic	8	With yellow LED
	For coils item								
	00 07 301 - 00 07 302 - 00 07 303 - 00 07 304 - 00 07 305 - 00 07 306 - 00 07 307 - 00 07 308								
	00 07 309 - 00 07 310 - 00 07 311 - 00 07 366 - 00 07 411 - 00 07 412 - 00 15 437								







M8 3 PIN CONNECTORS FOR COILS

Art.	Voltage	Nominal flow rate of contacts A	Connection	Form	Connector	Temperature in operation °C	Material	Weight g	Notes
00 07 424	V24DC - 24V/50 - 60Hz	max 4	2P+T	C	M8 3 pin	-40 ÷ +60	Black plastic	11	With red LED and VDR
	For coils item								
	00 07 301 - 00 07 302 - 00 07 303 - 00 07 304 - 00 07 305 - 00 07 306 - 00 07 307 - 00 07 308								
	00 07 309 - 00 07 310 - 00 07 311 - 00 07 366 - 00 07 411 - 00 07 412 - 00 15 437								

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

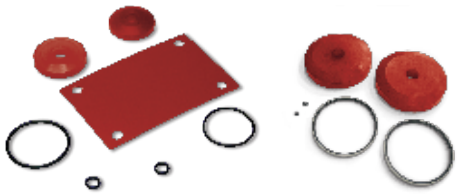
SOLENOID VALVE ACCESSORIES AND SPARE PARTS WITH LOW ABSORPTION ELECTRIC COIL

SOLENOID VALVE SEALING KIT WITH LOW ABSORPTION ELECTRIC COILS

Sealing kits are composed of a membrane, shutters and standard O-rings installed on our compressed air and vacuum three-way solenoid valves.
In presence of very hot fluids or corrosive fluids, we can supply sealing kits in special compounds.
Please contact our technical department.

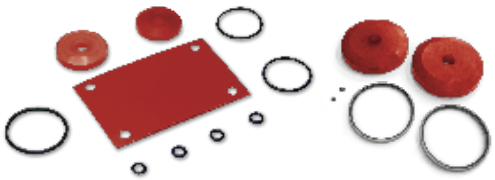
3D drawings are available on **vuototecnica.net**

Complete kit for solenoid valves:



07 01 13 e 07 02 13	item 00 07 271
07 03 13	item 00 07 272
07 03 13 LP	item 00 07 290
07 04 13 e 07 05 13	item 00 07 273
07 04 13 LP e 07 05 13 LP	item 00 07 291
07 06 13	item 00 07 274
07 06 13 LP	item 00 07 292
07 08 13	item 00 07 379
07 09 13	item 00 07 383

Complete kit for solenoid valves:

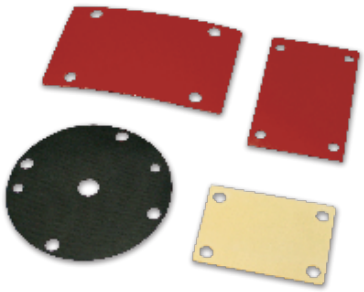


07 01 53 e 07 02 53	item 00 07 275
07 03 53	item 00 07 276
07 03 53 LP	item 00 07 293
07 04 53 e 07 05 53	item 00 07 277
07 04 53 LP e 07 05 53 LP	item 00 07 294
07 06 53	item 00 07 278
07 06 53 LP	item 00 07 295
07 08 53	item 00 07 379
07 09 53	item 00 07 383

Complete kit for solenoid valves:

07 03 43 e 07 04 43	item 00 07 279
07 03 63 e 07 04 63	item 00 07 279
07 05 43 e 07 05 63	item 00 07 280

PILOT MEMBRANES FOR SOLENOID VALVES WITH LOW ABSORPTION ELECTRIC COILS



Item	For valves item	Connections	Material	Colour	Dimensions mm
00 07 104	07 03 43 - 07 04 43	G1/2" - G3/4"	Reinforced NBR	Black	Ø 65
	07 03 63 - 07 04 63				
00 07 105	07 05 43 - 07 05 63	G1"	Reinforced NBR	Black	Ø 76
00 07 229	07 01 13 - 07 01 53	G1/4" - G3/8"	Vulkollan®	Beige	49 x 35
	07 02 13 - 07 02 53				
00 07 230	07 03 13 - 07 03 53	G1/2"	Urepan® 65	Grey - orange	62 x 39
00 07 296	07 03 13 LP - 07 03 53 LP	G1/2"	Vulkollan®	Beige	62 x 39
00 07 231	07 04 13 - 07 04 53	G3/4" - G1"	Urepan® 65	Grey - orange	79 x 49
	07 05 13 - 07 05 53				
00 07 297	07 04 13 LP - 07 04 53 LP	G3/4" - G1	Vulkollan®	Beige	79 x 49
	07 05 13 LP - 07 05 53 LP				
00 07 232	07 06 13 - 07 06 53	G1" 1/2	Urepan® 65	Grey - orange	129 x 89
00 07 298	07 06 13 LP - 07 06 53 LP	G1" 1/2	Vulkollan®	Beige	129 x 89

SUCTION FILTERS

IN-LINE, FCL, FPL and FIL FILTERS	PG. 5.01 ÷ 5.02
IN-LINE, FCL, FPL and FIL FILTERS WITH CARTRIDGE	PG. 5.03
IN-LINE, FCL, FPL and FIL FILTERS	PG. 5.04
IN-LINE, FCL, FPL and FIL FILTERS WITH CARTRIDGE	PG. 5.05
FC SUCTION FILTERS WITH PAPER CARTRIDGE	PG. 5.06 ÷ 5.09
PAPER FILTERING CARTRIDGES FOR FC FILTERS	PG. 5.10 ÷ 5.11
FB SUCTION FILTER WITH METAL CARTRIDGE	PG. 5.12 ÷ 5.17
STAINLESS STEEL MESH FILTERING CARTRIDGES FOR FB FILTERS	PG. 5.18
FO OIL-BATH SUCTION FILTERS	PG. 5.19
STEEL WOOL FILTERING CARTRIDGES FOR FO FILTERS	PG. 5.20
FO LONG OPERATION AUTONOMY OIL-BATH SUCTION FILTERS	PG. 5.21
FP SERIES FILTERING CARTRIDGE CONTAINERS WITH COMPRESSION SEALING	PG. 5.22
FILTERING CARTRIDGES WITH COMPRESSION SEALING	PG. 5.23
FM SERIES QUICK COUPLING FILTERING CARTRIDGE CONTAINERS	PG. 5.24
FK SERIES QUICK COUPLING FILTERING CARTRIDGE CONTAINERS	PG. 5.25
QUICK COUPLING FILTERING CARTRIDGES	PG. 5.26
FS SYPHON SUCTION FILTERS	PG. 5.27
SYPHON FILTER SYSTEM WITH AUTOMATIC BY-PASS FS 50 BP and FS 60 BP	PG. 5.28
SPECIAL FILTERS	PG. 5.29

3D drawings are available on **vuototecnica.net**

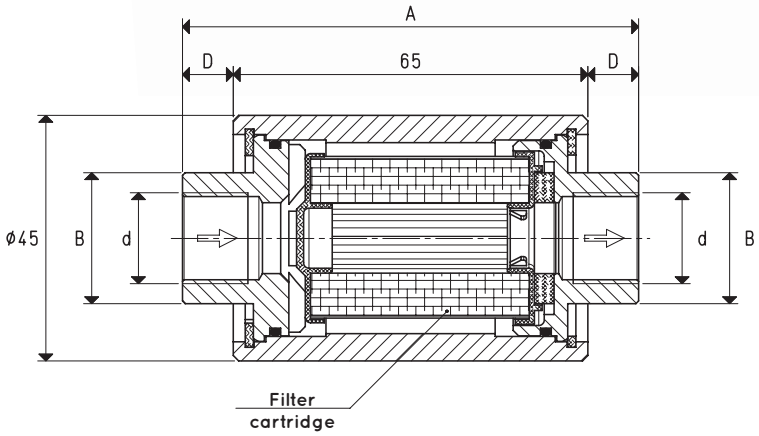
3D drawings are available on **vuototecnica.net**

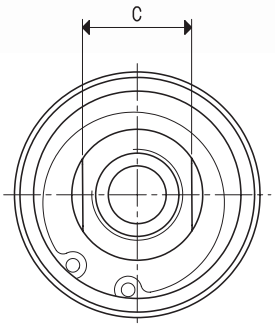
IN-LINE, FCL, FPL and FIL FILTERS

These small in-line filters retain impurities and very fine dust, interfering with the flow rate in a negligible manner. Thanks to their reduced size, they can be directly installed onto vacuum piping, close to the utilities (vacuum cups, vacuum clamping systems, etc.) for a fractionated filtration and a better visual control of all the plant suction points.
They are composed of a cylindrical transparent Plexiglass body closed by two anodised aluminium flanges kept in place by Seeger rings, where all the threaded male or female connections and seals are located. Inside there is a filtering cartridge.
The filters can be inspected by simply removing one of the two flanges. Given the paper filter element, it is not recommended to use these filters (FCL) in the presence of water and oil vapours or condensation.

Technical features

Operating pressure: from 0.5 to 3000 absolute mbar
Fluid temperature: from -20 to +60°C





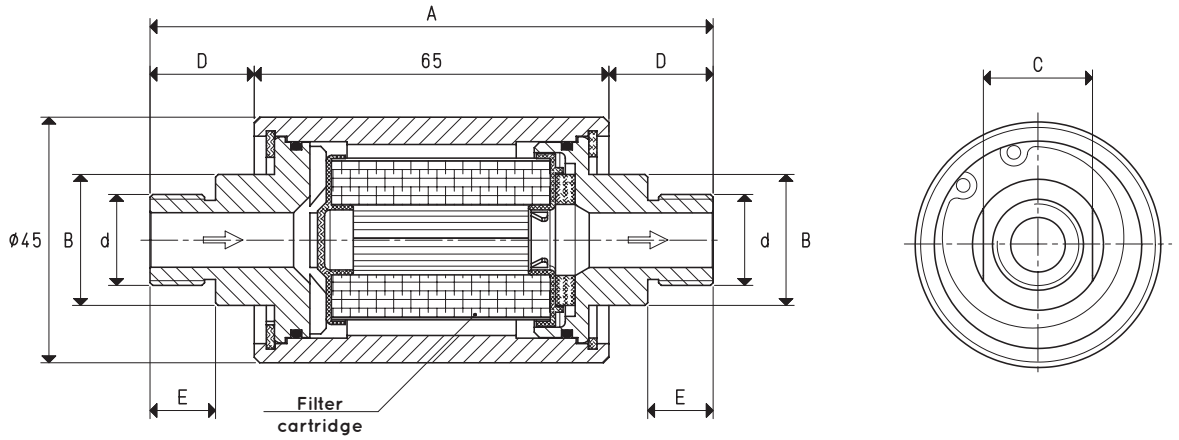
Item	d Ø	A	B Ø	C	D	Flow rate max m^3/h	Cartridge spare part item	Sealing kit spare part item	Weight g
FPL 1	G1/4"	79.2	20.0	17	7.1	7.5	00 FPL 01	00 KIT FL	115
FCL 1	G1/4"	79.2	20.0	17	7.1	7.5	00 FCL 03	00 KIT FL	100
FIL 1	G1/4"	79.2	20.0	17	7.1	7.5	00 FIL 01	00 KIT FL	110
FPL 2	G3/8"	83.6	24.0	20	9.3	20.0	00 FPL 01	00 KIT FL	151
FCL 2	G3/8"	83.6	24.0	20	9.3	20.0	00 FCL 03	00 KIT FL	136
FIL 2	G3/8"	83.6	24.0	20	9.3	20.0	00 FIL 01	00 KIT FL	146
FPL 3	G1/2"	89.6	26.5	24	12.3	25.0	00 FPL 01	00 KIT FL	167
FCL 3	G1/2"	89.6	26.5	24	12.3	25.0	00 FCL 03	00 KIT FL	152
FIL 3	G1/2"	89.6	26.5	24	12.3	25.0	00 FIL 01	00 KIT FL	162

Note: Upon specific request, in minimum quantities to be defined at the time of ordering,
Add the letters AL to the article for filter supply with a cylindrical aluminium body (Example: FPL1AL).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

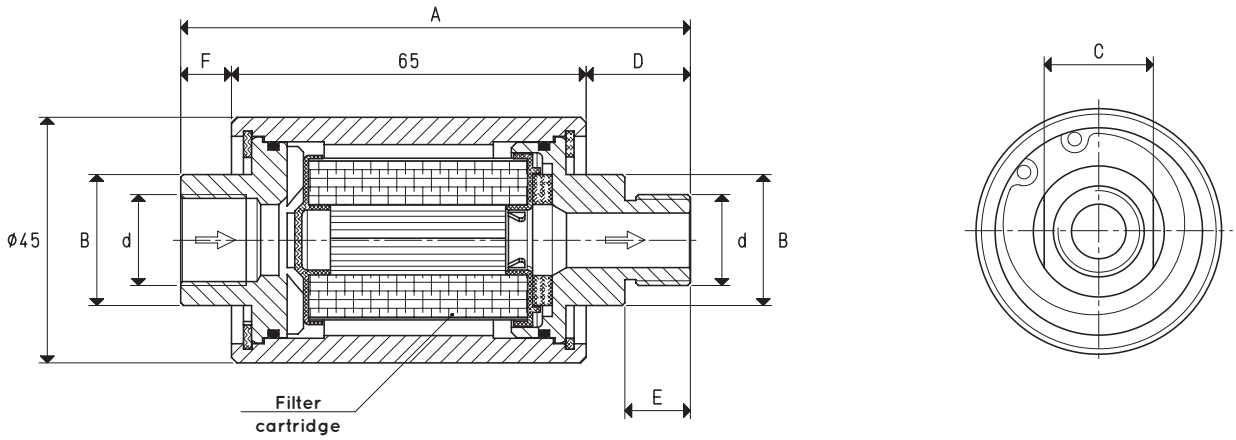
Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**



Item	d Ø	A	B Ø	C	D	E	Flow rate max m³/h	Cartridge spare part item	Sealing kit spare part item	Weight g
FPL 1 M	G1/4"	103.2	20.0	17	19.1	12	7.5	00 FPL 01	00 KIT FL	117
FCL 1 M	G1/4"	103.2	20.0	17	19.1	12	7.5	00 FCL 03	00 KIT FL	102
FIL 1 M	G1/4"	103.2	20.0	17	19.1	12	7.5	00 FIL 01	00 KIT FL	112
FPL 2 M	G3/8"	103.2	24.0	20	19.1	12	20.0	00 FPL 01	00 KIT FL	133
FCL 2 M	G3/8"	103.2	24.0	20	19.1	12	20.0	00 FCL 03	00 KIT FL	118
FIL 2 M	G3/8"	103.2	24.0	20	19.1	12	20.0	00 FIL 01	00 KIT FL	128
FPL 3 M	G1/2"	113.6	26.5	24	24.3	15	25.0	00 FPL 01	00 KIT FL	149
FCL 3 M	G1/2"	113.6	26.5	24	24.3	15	25.0	00 FCL 03	00 KIT FL	134
FIL 3 M	G1/2"	113.6	26.5	24	24.3	15	25.0	00 FIL 01	00 KIT FL	144

Note: Upon specific request, in minimum quantities to be defined at the time of ordering,
Add the letters AL to the article for filter supply with a cylindrical aluminium body (Example: FPL1MAL).



Item	d Ø	A	B Ø	C	D	E	F	Flow rate max m³/h	Cartridge spare part item	Sealing kit spare part item	Weight g
FPL 1 MF	G1/4"	91.2	20.0	17	19.1	12	7.1	7.5	00 FPL 01	00 KIT FL	135
FCL 1 MF	G1/4"	91.2	20.0	17	19.1	12	7.1	7.5	00 FCL 03	00 KIT FL	120
FIL 1 MF	G1/4"	91.2	20.0	17	19.1	12	7.1	7.5	00 FIL 01	00 KIT FL	130
FPL 2 MF	G3/8"	93.4	24.0	20	19.1	12	9.3	20	00 FPL 01	00 KIT FL	131
FCL 2 MF	G3/8"	93.4	24.0	20	19.1	12	9.3	20	00 FCL 03	00 KIT FL	116
FIL 2 MF	G3/8"	93.4	24.0	20	19.1	12	9.3	20	00 FIL 01	00 KIT FL	126
FPL 3 MF	G1/2"	101.6	26.5	24	24.3	15	12.3	25	00 FPL 01	00 KIT FL	147
FCL 3 MF	G1/2"	101.6	26.5	24	24.3	15	12.3	25	00 FCL 03	00 KIT FL	132
FIL 3 MF	G1/2"	101.6	26.5	24	24.3	15	12.3	25	00 FIL 01	00 KIT FL	142

Note: Upon specific request, in minimum quantities to be defined at the time of ordering,
Add the letters AL to the article for filter supply with a cylindrical aluminium body (Example: FPL1MFAL).

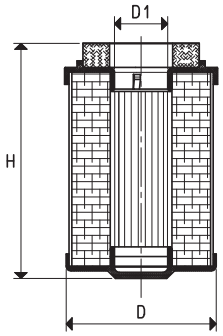
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

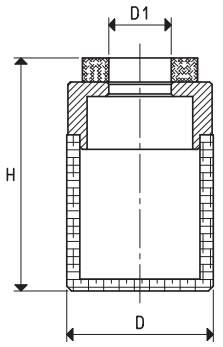
IN-LINE, FCL, FPL and FIL FILTERS WITH CARTRIDGE

The cartridges illustrated and described below are manufactured from different materials, identified with the following codes:
- **00 FCL 03** Pleated paper filtering cartridge with compression sealing;
- **00 FPL 01** Porous polyethylene filtering cartridge with compression sealing;
- **00 FIL 01** AISI 304 stainless steel mesh filtering cartridge with compression sealing.

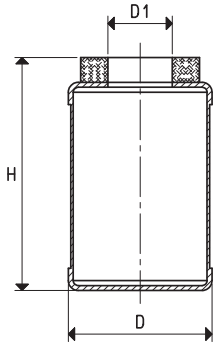
Given the pleated paper filter element, it is not recommended to use these filters in the presence of water and oil vapours or condensation.
The filters can be inspected by simply removing one of the two filter flanges.



Item	For filter item	D Ø	D1 Ø	H	Level of filtration micron
00 FCL 03	FCL 1 - FCL 2 - FCL 3	31	10	47	5 ÷ 7
	FCL 1 M - FCL 2 M - FCL 3 M				
	FCL 1 MF - FCL 2 MF - FCL 3 MF				



Item	For filter item	D Ø	D1 Ø	H	Level of filtration micron
00 FPL 01	FPL 1 - FPL 2 - FPL 3	30.5	10	47	20 ÷ 30
	FPL 1 M - FPL 2 M - FPL 3 M				
	FPL 1 MF - FPL 2 MF - FPL 3 MF				



Item	For filter item	D Ø	D1 Ø	H	Level of filtration micron
00 FIL 01	FIL 1 - FIL 2 - FIL 3	29	10	47	100
	FIL 1 M - FIL 2 M - FIL 3 M				
	FIL 1 MF - FIL 2 MF - FIL 3 MF				

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

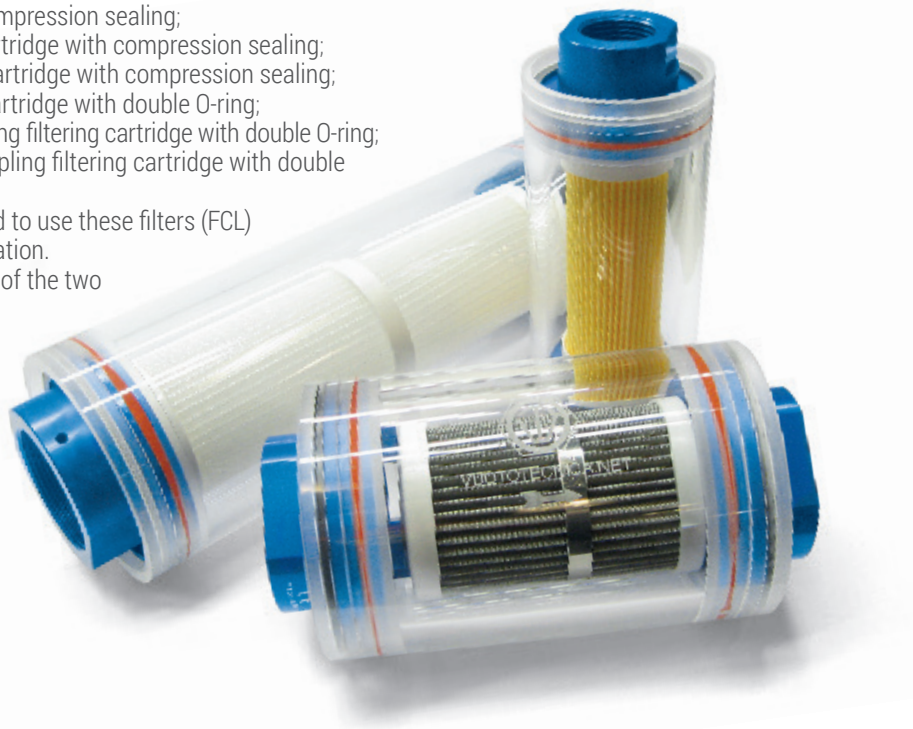
3D drawings are available on **vuototecnica.net**

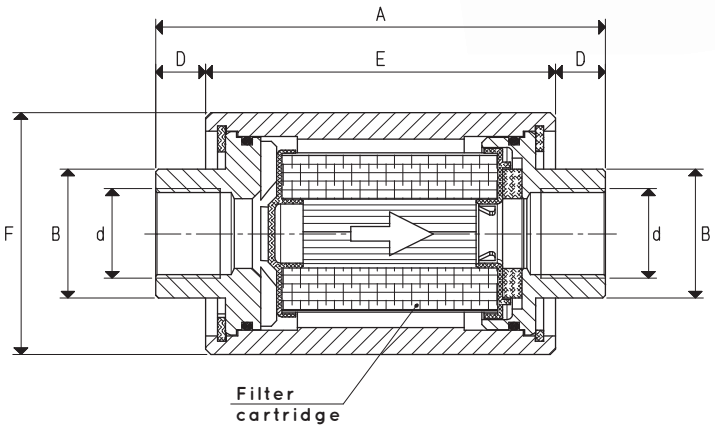
IN-LINE, FCL, FPL and FIL FILTERS

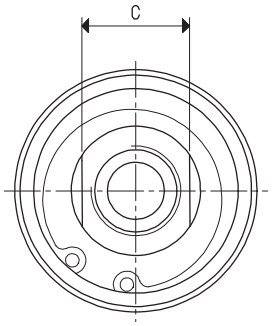
These are large in-line filters, capable of retaining impurities and very fine dust, which negligibly affect the flow rate.
They consist of a cylindrical body made of transparent Plexiglass, closed by two anodised aluminium flanges held in place by Seeger rings, in which the female threaded connections and sealing gaskets are housed; the filter cartridge is enclosed inside.
The filter cartridges shown and described on this page, installed in their own container, are made from various materials, which can be identified with the following abbreviations:
- **SP Series.** Pleated paper filtering cartridge with compression sealing;
- **SS Series.** Pleated polypropylene mesh filtering cartridge with compression sealing;
- **SA Series.** AISI 304 stainless steel mesh filtering cartridge with compression sealing;
- **RP Series.** Pleated paper quick coupling filtering cartridge with double O-ring;
- **RS Series.** Pleated polypropylene mesh quick coupling filtering cartridge with double O-ring;
- **RA Series.** AISI 304 stainless steel mesh quick coupling filtering cartridge with double O-ring.

Given the paper filter element, it is not recommended to use these filters (FCL) in the presence of water and oil vapours or condensation.
The filters can be inspected by simply removing one of the two flanges.

Technical features
Operating pressure:
from 0.5 to 3000 absolute mbar
Fluid temperature: from -20 to +60°C





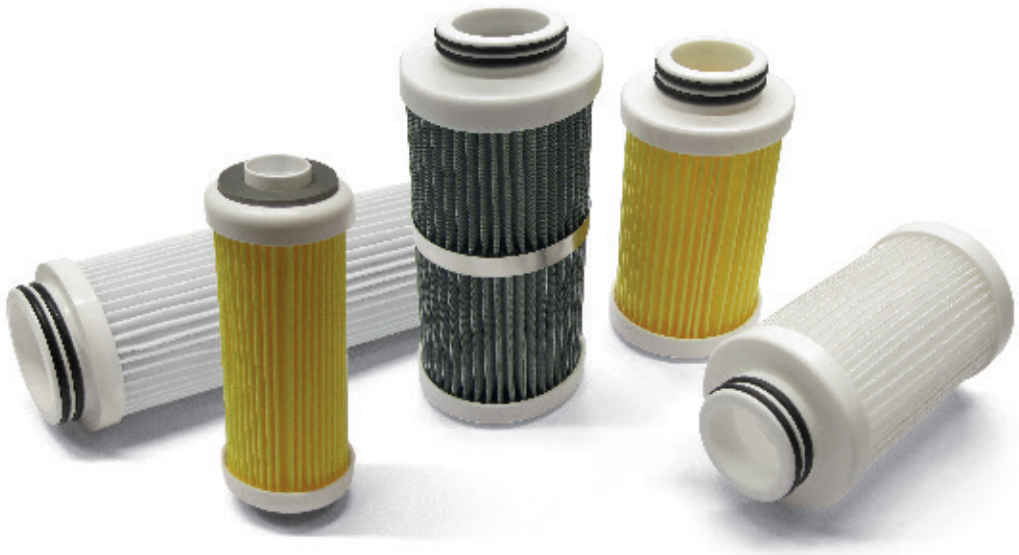


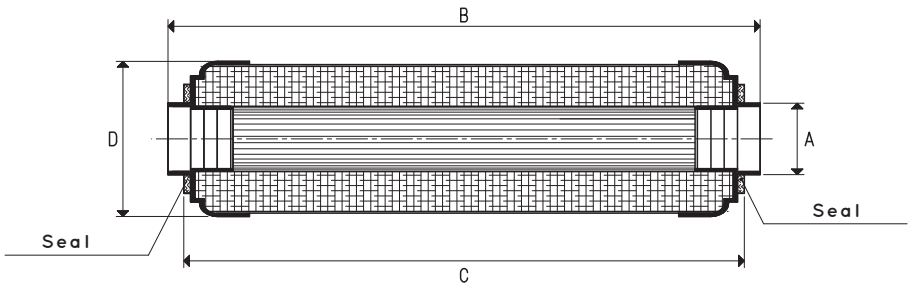
Item	d Ø	A	B Ø	C	D	E	F Ø	Flow rate max m³/h	Cartridge spare part item	Weight g
FPL 4	G3/4"	207	50	44	17	173	80	40	SS/5M	1135
FCL 4	G3/4"	207	50	44	17	173	80	40	SP/5M	1130
FIL 4	G3/4"	207	50	44	17	173	80	40	SA/5M	1160
FPL 5	G1"	207	50	60	17	173	80	70	SS/5M	1125
FCL 5	G1"	207	50	60	17	173	80	70	SP/5M	1120
FIL 5	G1"	207	50	60	17	173	80	70	SA/5M	1150
FPL 6	G1" 1/2	207	70	60	17	173	110	200	RS/5	1300
FCL 6	G1" 1/2	207	70	60	17	173	110	200	RP/5	1290
FIL 6	G1" 1/2	207	70	60	17	173	110	200	RA/5	1350
FPL 7	G2"	332	78	70	17	298	110	300	RS/10/57	1445
FCL 7	G2"	332	78	70	17	298	110	300	RP/10/57	1430
FIL 7	G2"	332	78	70	17	298	110	300	RA/10/57	1500

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

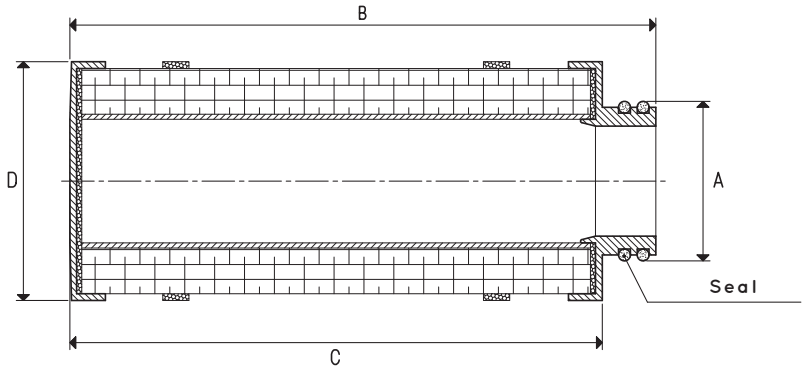
Adapters for GAS - NPT threading available on page 1.134

IN-LINE, FCL, FPL and FIL FILTERS WITH CARTRIDGE





Item	A Ø	B	C	D Ø	Cartridge length	For container item	Level of filtration micron
SP/5M	20	131	122	50	5"	FCL 4 - FCL 5	25
SS/5M	20	131	122	50	5"	FPL 4 - FPL 5	50
SA/5M	20	131	122	50	5"	FIL 4 - FIL 5	50



Item	A Ø	B	C	D Ø	Cartridge length	For container item	Level of filtration micron
RP/5	45	130	115	70	5"	FCL 6	25
RS/5	45	130	115	70	5"	FPL 6	50
RA/5	45	130	115	70	5"	FIL 6	50
RP/10/57	45	250	235	70	10"	FCL 7	25
RS/10/57	45	250	235	70	10"	FPL 7	50
RA/10/57	45	250	235	70	10"	FIL 7	50

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

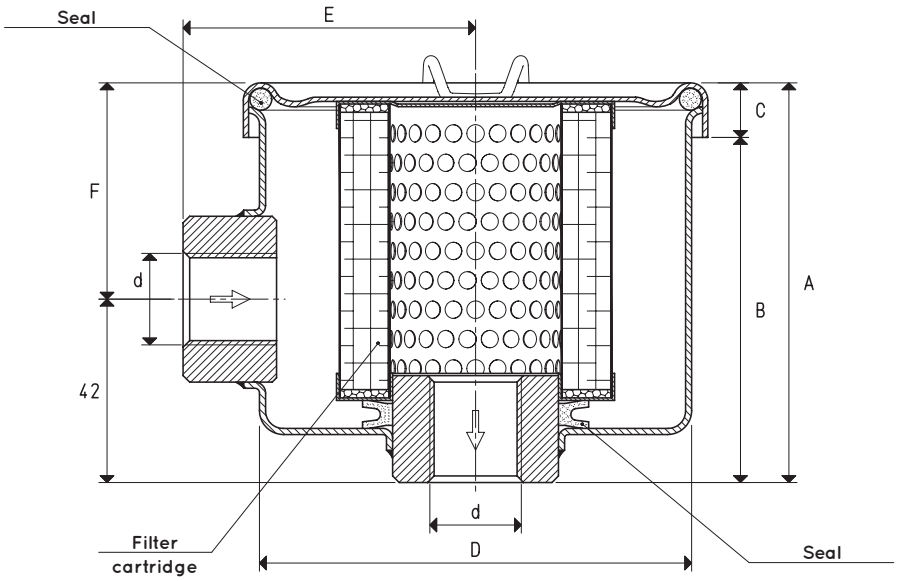
Adapters for GAS - NPT threading available on page 1.134

FC SUCTION FILTERS WITH PAPER CARTRIDGE

These filters have been designed to allow vacuum pumps to operate even in very dusty environments. Installed onto the pump suction inlet, they are able to retain fine and impalpable dust interfering with the flow rate in a negligible manner.
The filtering cartridge is made with a special treated paper with a filtering degree equal to 5 - 7 µ, which is pleated to increase its surface and is contained in a double perforated sheet steel enclosure. The filtering cartridge container as well as the lid are made with sheet steel and varnished with a special anti-oxidation paint.
A seal located between the lid and the container guarantees a perfect vacuum seal between the two elements. The release clamps applied onto the container allow a quick opening of the lid for the filtering cartridge inspection or replacement.
Due to the paper filtering element, these filters are not recommended in presence of water or oil vapours or condensations.

Technical features

Operating pressure: from 0.5 to 2000 absolute mbar
Fluid temperature: from -20 to +60 °C
Level of filtration: 5 - 7 µ

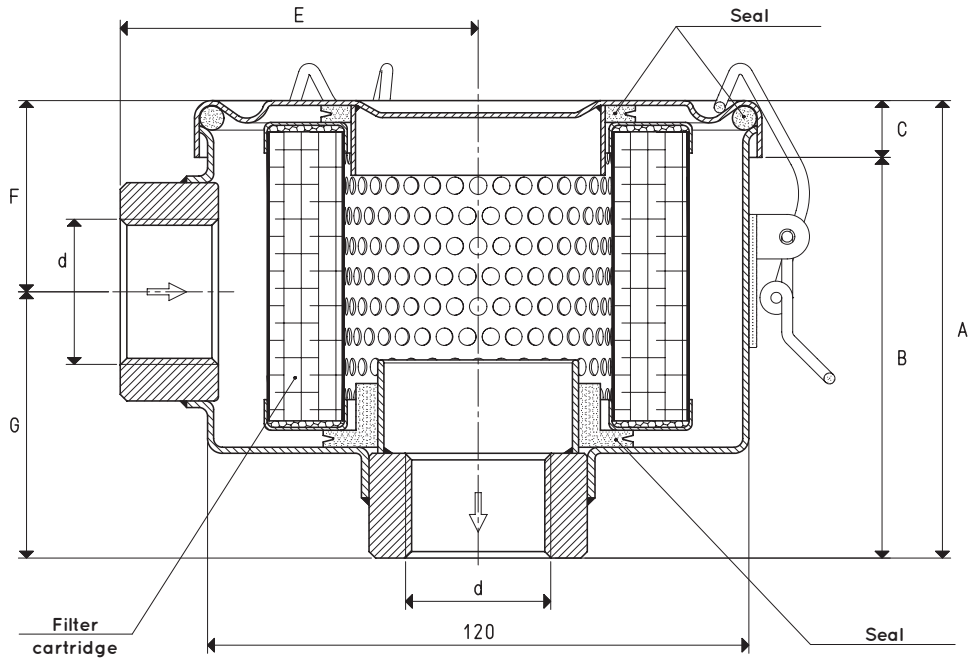


Item	d Ø	A	B	C	D Ø	E	F	Flow rate max m³/h	Cartridge spare part item	Sealing kit spare part item	Weight g
FC 10	G3/8"	79	70	9	72	49	37	25	00 FC 04	00 KIT FC 10	352
FC 20	G1/2"	93	80	13	96	67	51	45	00 FC 08	00 KIT FC 20	774
FC 25	G3/4"	93	80	13	96	67	51	50	00 FC 08	00 KIT FC 25	734

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

FC SUCTION FILTERS WITH PAPER CARTRIDGE

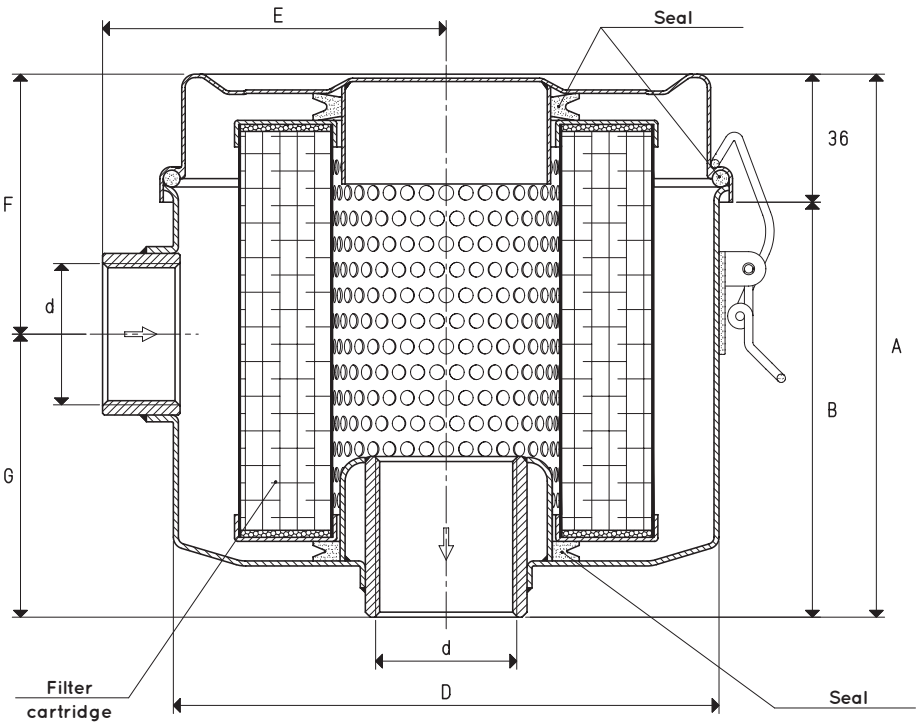


Item	d Ø	A	B	C	E	F	G	Flow rate max m^3/h	Cartridge spare part item	Sealing kit spare part item	Weight Kg
FC 30	G1"	105	92	13	84	41	64	90	00 FC 15	00 KIT FC 30	1.17
FC 35	G1" 1/4	97	84	13	78	46	51	110	00 FC 15	00 KIT FC 35	1.02
FC 38	G1" 1/2	101	88	13	80	45	56	200	00 FC 15	00 KIT FC 38	0.95
FC 55	G2"	170	157	13	81	79	91	320	00 FC 33	00 KIT FC 55	1.29

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**

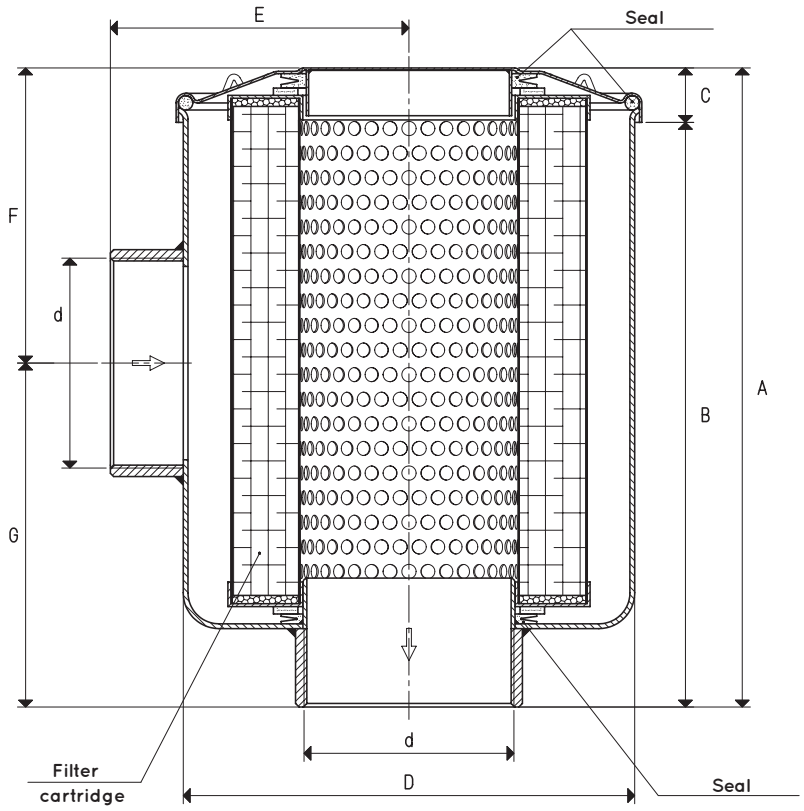


Item	d Ø	A	B	D Ø	E	F	G	Flow rate max m³/h	Cartridge spare part item	Sealing kit spare part item	Weight Kg
FC 40	G1" 1/4	161	125	162	102	77	84	150	00 FC 22	00 KIT FC 40	1.83
FC 50	G1" 1/2	197	161	160	100	85	112	200	00 FC 24	00 KIT FC 50	2.11

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

FC SUCTION FILTERS WITH PAPER CARTRIDGE



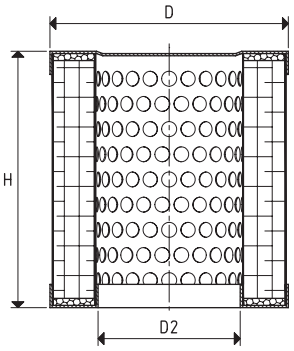
Item	d Ø	A	B	C	D Ø	E	F	G	Flow rate max m³/h	Cartridge spare part item	Sealing kit spare part item	Weight Kg
FC 60	G2"	258	235	23	185	115	126	132	320	00 FC 29	00 KIT FC 60	4.62
FC 80	G3"	270	246	24	185	125	126	144	360	00 FC 29	00 KIT FC 80	3.45
FC 100	G4"	336	311	25	295	166	134	202	540	00 FC 34	00 KIT FC 100	5.56

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

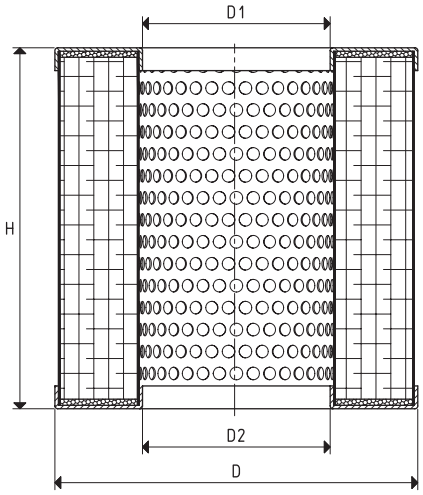
Adapters for GAS - NPT threading available on page 1.134

PAPER FILTERING CARTRIDGES FOR FC FILTERS

The cartridges described on this page are suited for FC suction filters.
They are made with a special treated paper with a filtering degree equal to 5 - 7 µ, which is pleated to increase its surface and is contained in a double perforated sheet steel enclosure.
They are recommended for retaining fine and impalpable dust, but not in presence of water and oil vapours and condensation.



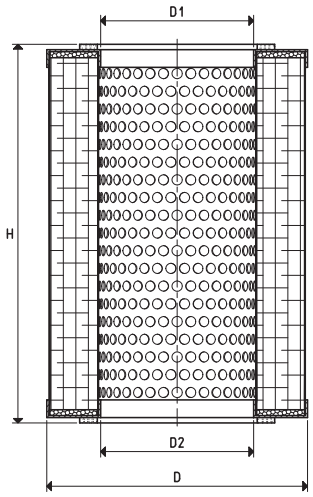
Item	For filter item	D Ø	D2 Ø	H	Level of filtration micron
00 FC 04	FC 10	50	23	59	5 ÷ 7
00 FC 08	FC 20 - FC 25	64	38	69	5 ÷ 7



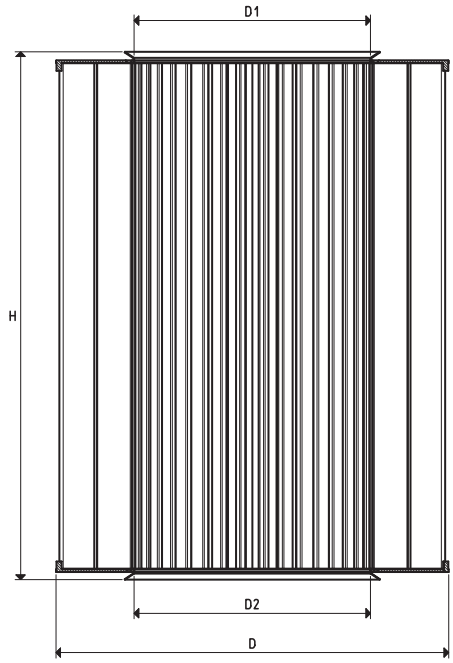
Item	For filter item	D Ø	D1 Ø	D2 Ø	H	Level of filtration micron
00 FC 15	FC 30 - FC 35 - FC 38	98	60	60	70	5 ÷ 7
00 FC 22	FC 40	126	64	64	125	5 ÷ 7
00 FC 24	FC 50	126	64	64	156	5 ÷ 7
00 FC 33	FC 55	98	60	64	140	5 ÷ 7

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

PAPER FILTERING CARTRIDGES FOR FC FILTERS



Item	For filter item	D Ø	D1 Ø	D2 Ø	H	Level of filtration micron
00 FC 29	FC 60 - FC 80	152	89	89	215	5 ÷ 7



Item	For filter item	D Ø	D1 Ø	D2 Ø	H	Level of filtration micron
00 FC 34	FC 100	227	178	178	278	5 ÷ 7

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

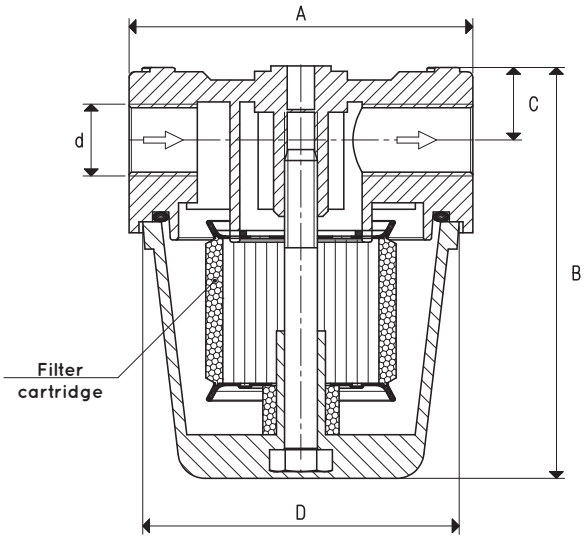
inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

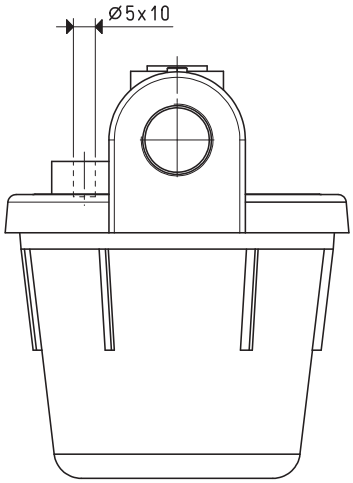
FB SUCTION FILTER WITH METAL CARTRIDGE

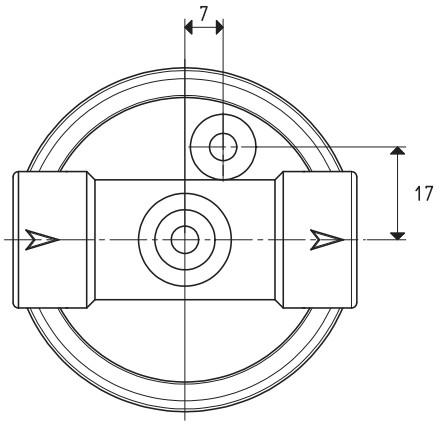
Preventing impurities from reaching the vacuum pump is fundamental to guarantee the correct operation and long duration.
This range of filters, to be placed on the vacuum pump suction inlet or on the plant pipeline, has been designed for this purpose. Their simple and rational structure features threaded connections for the installation and a lid, very easy to open, to allow easily cleaning the filtering cartridge. The lids are made with die-cast aluminium, as are the containers, except for the models FB 5, FB 15 and FB 20 are made of transparent plastic material (cellulose acetate), particularly resistant to impacts.
The end caps are made of electro-galvanized steel, while the standard filter cartridges are made of corrugated stainless-steel mesh, with a filtration rating of 60 µ excluding models FB 28 FB 30, FB 40 and FB 50. Upon specific request and for minimum quantities to be defined at the ordering stage, cartridges with a filtration rating of 100 or 300 µ can be supplied.
The flow rate of these filters ranges from 5 to 300 m^3/h.

Technical features

Operating pressure: from 0.5 to 3000 absolute mbar
Fluid temperature:
from -20 to +90°C for filters with aluminium container,
from -20 to +50°C for filters with containers in transparent plastic material
Level of filtration: 60 µ - 100 µ







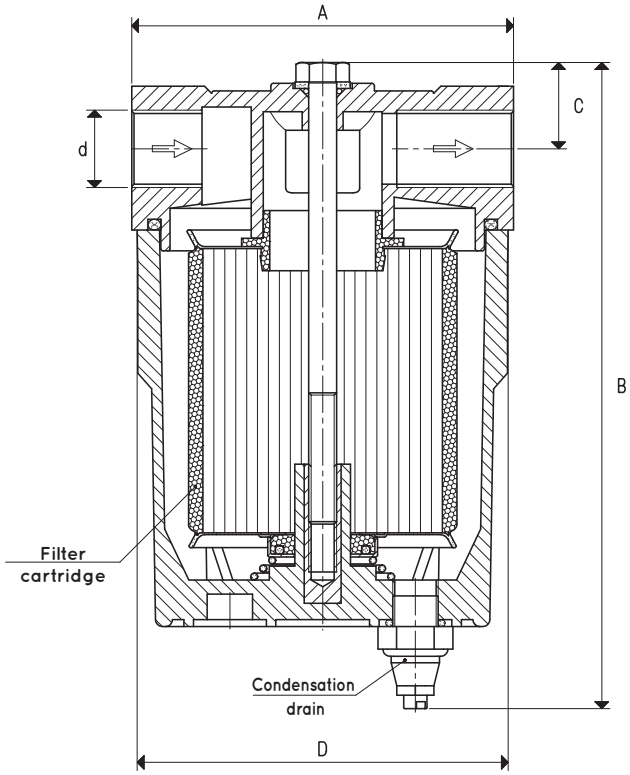
Item	d Ø	A	B	C	D Ø	Flow rate max m^3/h	Cartridge spare part item	Sealing kit spare part item	Weight g
FB 5	G1/4"	63	75.3	12.5	59	5	00 FB 03	00 KIT FB5	140

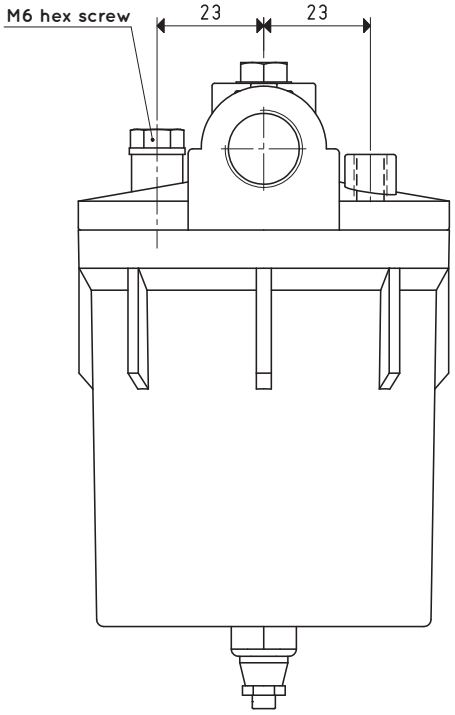
Note: Cartridges with a filtration rating of 300 µ can be provided upon specific request and in minimum quantities to be defined in the order.

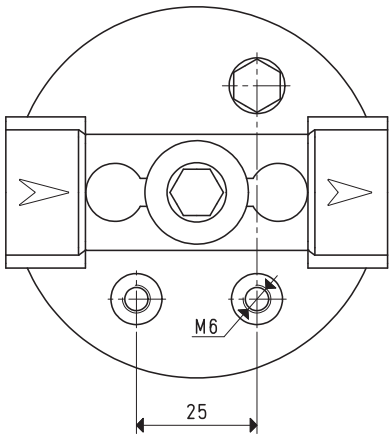
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

FB SUCTION FILTER WITH METAL CARTRIDGE







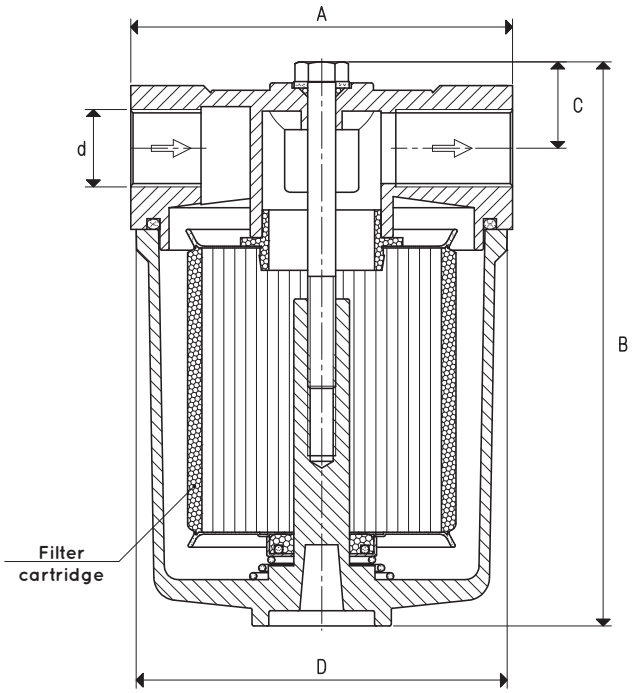
Item	d Ø	A	B	C	D Ø	Flow rate max m³/h	Cartridge spare part item	Sealing kit and small parts item	Weight g
FB 15	G3/8"	81	116	17	79	10	00 FB 22	00 KIT FB20	312
FB 20	G1/2"	81	116	17	79	20	00 FB 22	00 KIT FB20	312

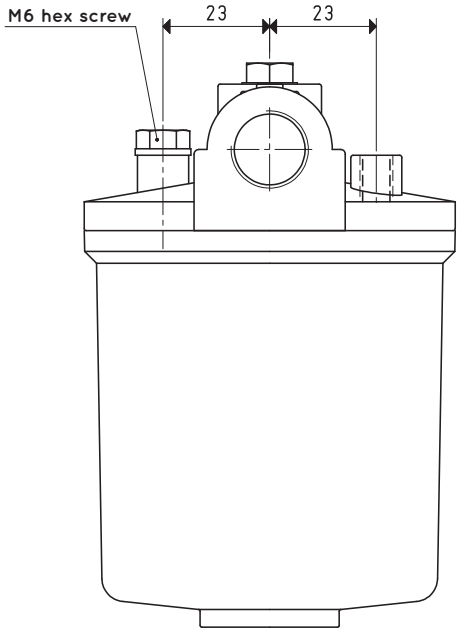
Note: Cartridges with a filtration rating of 100 or 300 µ can be provided upon specific request and in minimum quantities to be defined in the order.

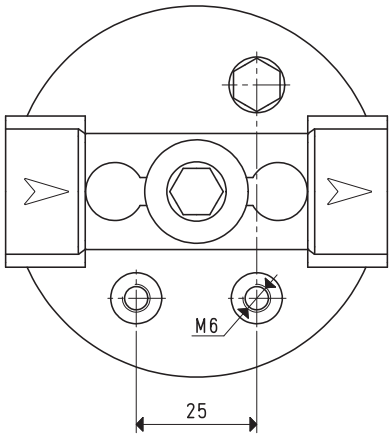
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

FB SUCTION FILTER WITH METAL CARTRIDGE







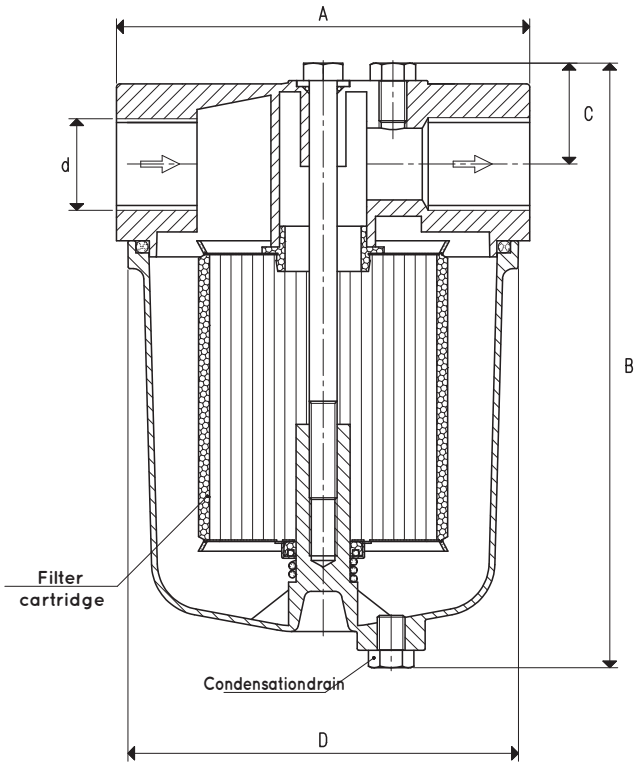
Item	d Ø	A	B	C	D Ø	Flow rate max m^3/h	Cartridge spare part item	Sealing kit and small parts item	Weight g
FB 15 A	G3/8"	81	121	17	79	20	00 FB 22	00 KIT FB20	395
FB 20 A	G1/2"	81	121	17	79	20	00 FB 22	00 KIT FB20	394

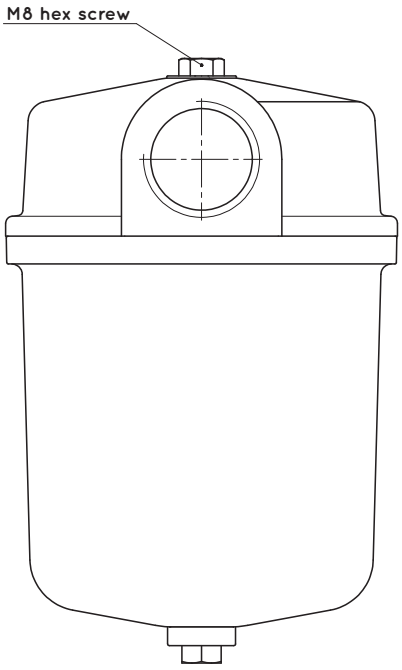
Note: Cartridges with a filtration rating of 100 or 300 µ can be provided upon specific request and in minimum quantities to be defined in the order.

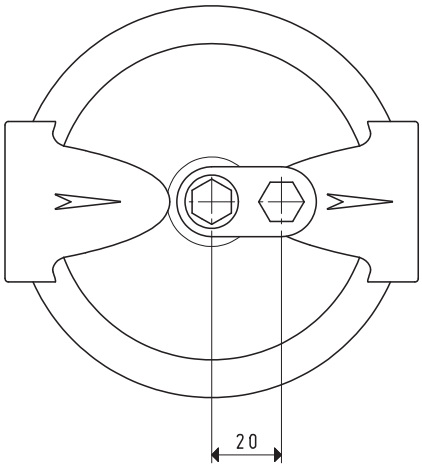
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

FB SUCTION FILTER WITH METAL CARTRIDGE







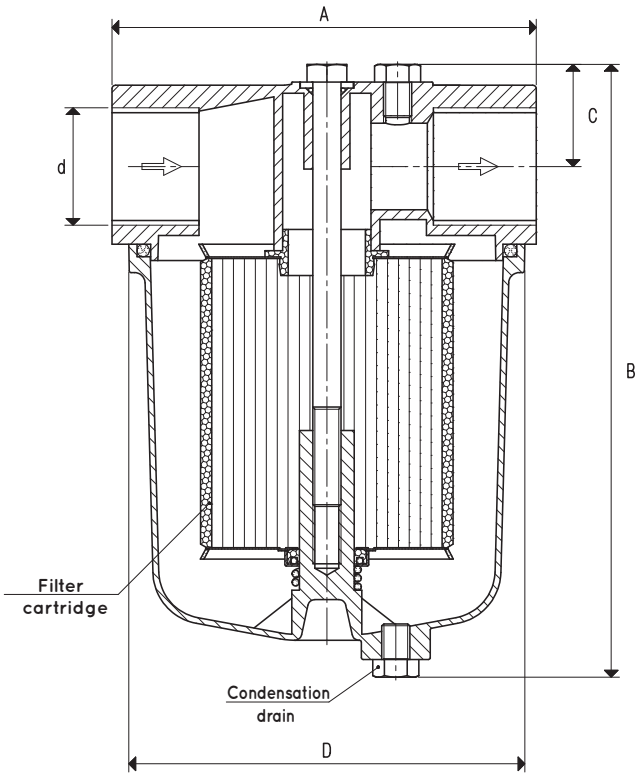
Item	d	A	B	C	D	Flow rate max	Cartridge spare part	Sealing kit and small parts	Weight
	Ø				Ø	m^3/h	item	item	g
FB 28	G3/4"	120	181	31	112	40	00 FB 34	00 KIT FB 30	762

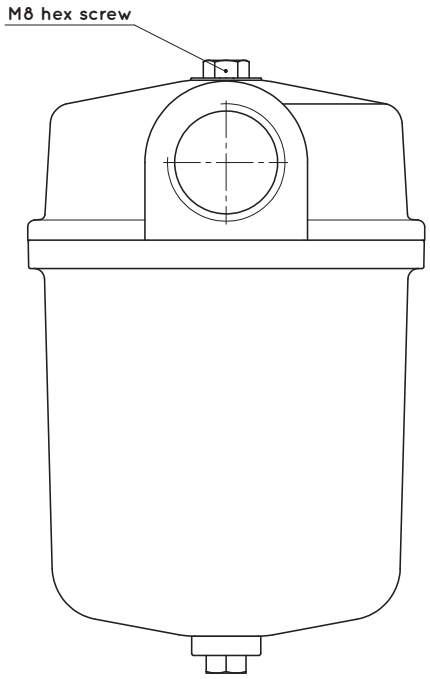
Note: Cartridges with a filtration rating of 300 µ can be provided upon specific request and in minimum quantities to be defined in the order.

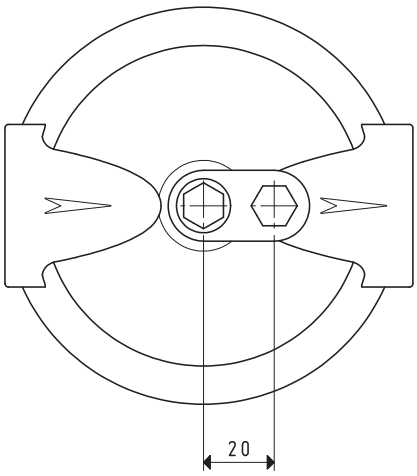
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**







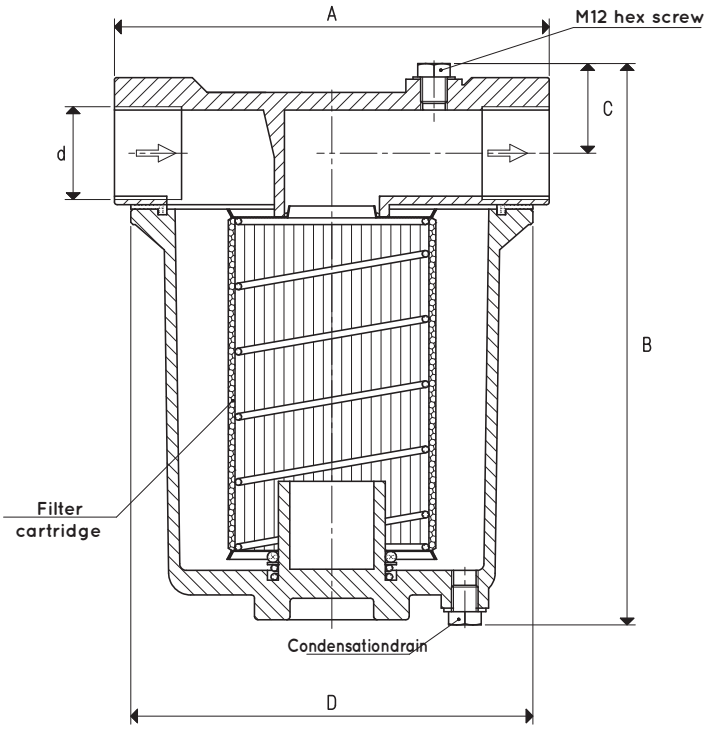
Item	d Ø	A	B	C	D Ø	Flow rate max m^3/h	Cartridge spare part item	Sealing kit and small parts item	Weight g
FB 30	G1"	120	181	31	112	70	00 FB 34	00 KIT FB 30	758

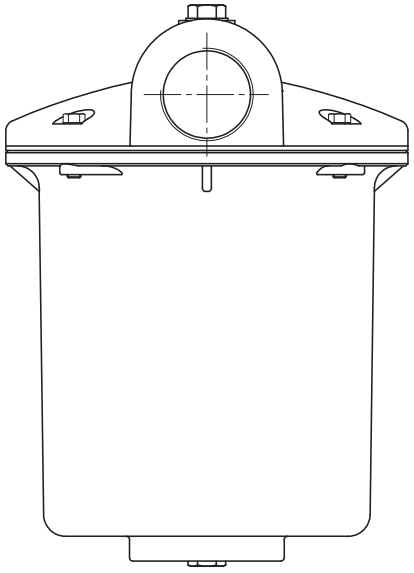
Note: Cartridges with a filtration rating of 300 µ can be provided upon specific request and in minimum quantities to be defined in the order.

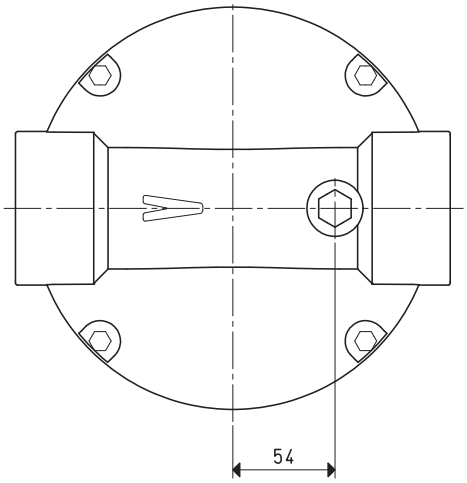
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

FB SUCTION FILTER WITH METAL CARTRIDGE







Item	d Ø	A	B	C	D Ø	Flow rate max m^3/h	Cartridge spare part item	Sealing kit and small parts item	Weight g
FB 40	G1" 1/4	190	255	39	182	150	00 FB 45	00 KIT FB 40	3.06
FB 50	G1" 1/2	190	255	39	182	200	00 FB 45	00 KIT FB 50	2.99

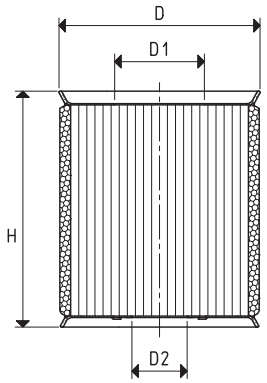
Note: Cartridges with a filtration rating or 300 µ can be provided upon specific request and in minimum quantities to be defined in the order.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

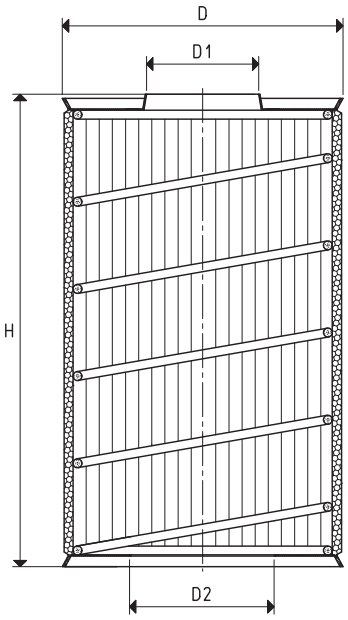
Adapters for GAS - NPT threading available on page 1.134

STAINLESS STEEL MESH FILTERING CARTRIDGES FOR FB FILTERS

The cartridges described on this page are suited for FB suction filters.
The standard ones are made with profiled stainless steel mesh with a filtering degree equal to 60 µ.
Note: Cartridges with a filtration rating of 100 or 300 µ can be provided upon specific request and in minimum quantities to be defined in the order.
They are recommended for retaining impurities even in presence of water and oil vapours or condensations, but not for retaining fine and impalpable dust.



Item	For filter item	D Ø	D1 Ø	D2 Ø	H	Level of filtration micron
00 FB 03	FB 5	35	6	10.0	34	60
00 FB 22	FB 15 - FB 15A - FB 20 - FB 20A	58	16	25.5	67	60
00 FB 34	FB 28 - FB 30	74	16	25.5	87	100



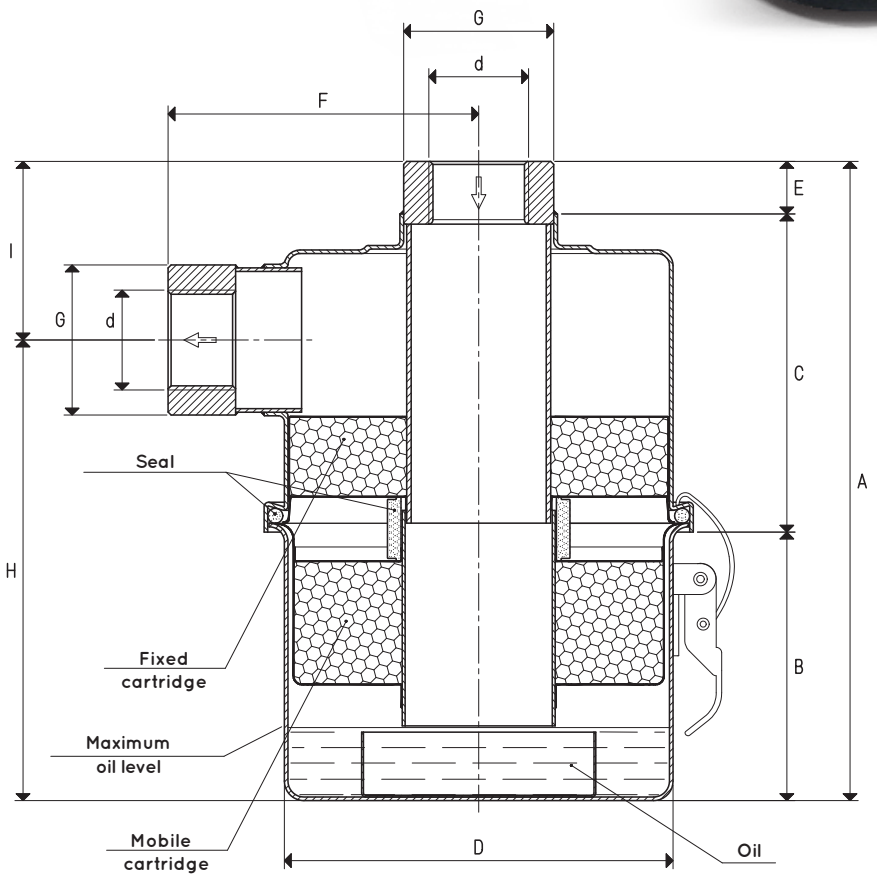
Item	For filter item	D Ø	D1 Ø	D2 Ø	H	Level of filtration micron
00 FB 45	FB 40 - FB 50	95	39	49	160	100

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

FO OIL-BATH SUCTION FILTERS

In presence of a considerable amount of fine or impalpable dust, the traditional suction filter would require a cartridge with a filtering degree so high that, along with reducing its operation autonomy, it would also reduce the vacuum pump suction flow rate.
Oil-bath suction filters have been studied in order to overcome this problem.
The main feature of these filters is the ability to retain the smallest and most impalpable dust particles, without reducing the vacuum pump suction flow rate.
Oil-bath filters are composed of a sheet steel head and container coupled with an interposed seal and clamped by release clamps.
Inside, besides the oil bowl, there are two steel wool filtering cartridges, one of which is detachable and washable, while the other is fixed. The release clamps guarantee easy access for cleaning operations.
They can be used with any kind of oil, even drain oil, as long as it has a minimum viscosity degree. The ideal oil is the same one used for the pump.
Oil-bath suction filters are not recommended for dry vacuum pumps.
They are currently available for capacities up to 300 m^3/h.

Technical features
Operating pressure: from 0.5 to 2000 absolute mbar
Fluid temperature: from -20 to +90 °C
Level of filtration: ≤1 µ



Item	d Ø	A	B	C	D Ø	E	F	G Ø	H	I	Flow rate max m^3/h	Cartridge spare part item	Sealing kit spare part item	Quantity of oil L	Weight Kg
FO 20	G1/2"	205	85	112	106	8	100	40	156	49	30	00 FO 04	00 KIT FO 20	0.2	1.44
FO 30	G1"	210	88	106	129	16	106	50	151	59	90	00 FO 09	00 KIT FO 30	0.3	1.84
FO 50	G1" 1/2	305	110	135	160	60	128	60	199	106	200	00 FO 14	00 KIT FO 50	0.5	2.76
FO 60	G2"	340	140	140	185	60	142	67	217	123	300	00 FO 19	00 KIT FO 60	0.6	3.70

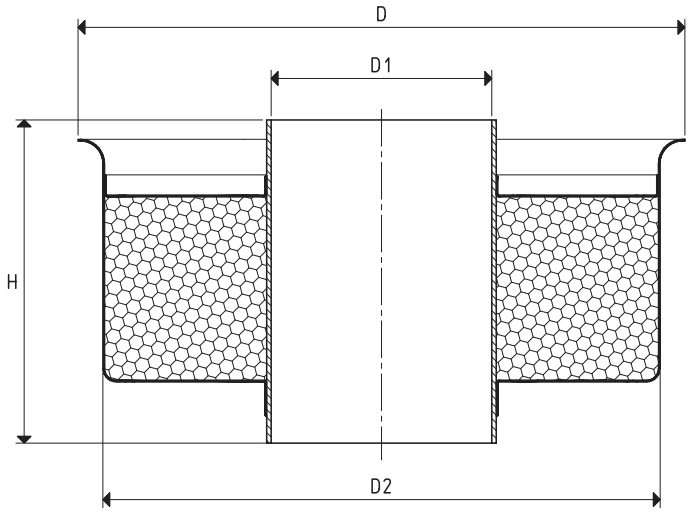
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**

STEEL WOOL FILTERING CARTRIDGES FOR FO FILTERS

The cartridges described on this page are suited for FO oil-bath suction filters.
They are made with pressed steel wool contained in a double perforated sheet steel enclosure. Their function is to retain fine or impalpable dust impregnated with the filter oil.



Item	For filter	D	D1	D2	H	Level of filtration (installed on the filter)
	item	Ø	Ø	Ø		micron
00 FO 04	FO 20	110	40	103	70	≤1
00 FO 09	FO 30	134	49	127	72	≤1
00 FO 14	FO 50	165	58	155	86	≤1
00 FO 19	FO 60	190	66	180	104	≤1

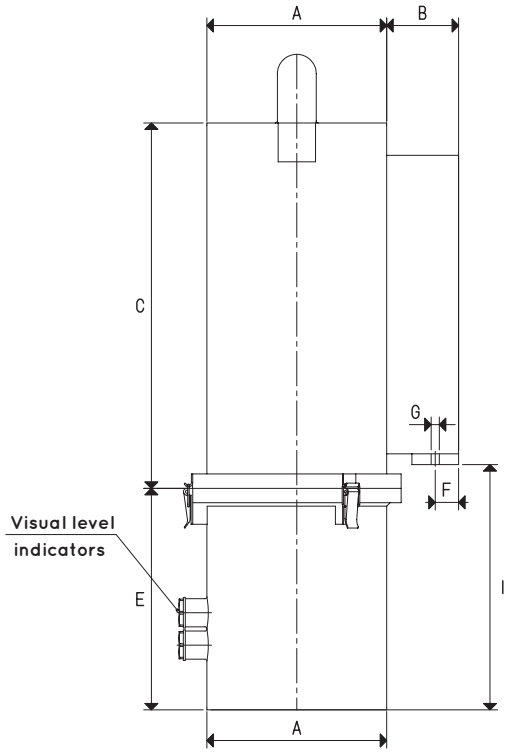
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

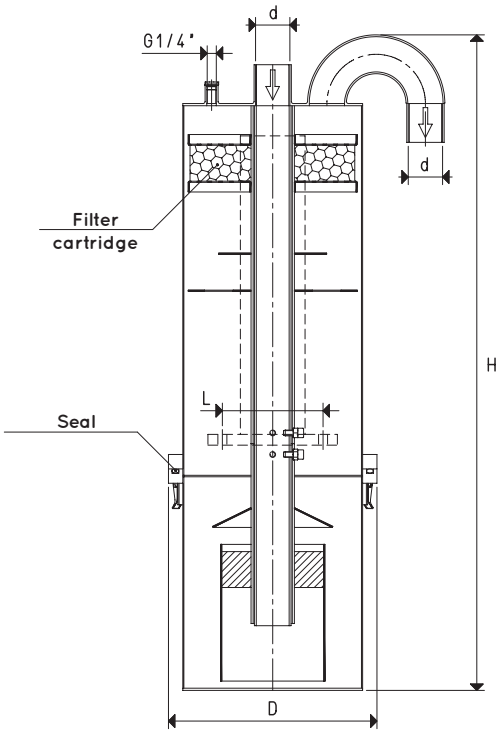
FO LONG OPERATION AUTONOMY OIL-BATH SUCTION FILTERS

In presence of fine or impalpable dust, the traditional suction filter would require a cartridge with a filtering degree so high that, along with reducing its operation autonomy, it would also reduce the vacuum pump suction flow rate.
Oil-bath suction filters have been studied in order to overcome this problem. The main feature of these filters, in addition to their high autonomy, is their ability to retain the finest suctioned impalpable dusts without reducing the suction flow rate of the pump.
Oil-bath filters are composed of a sheet steel head and container coupled with an interposed seal and clamped by release clamps.
Inside, besides the oil bowl, there are two steel wool filtering cartridges, one of which is detachable and washable, while the other is fixed. The release clamps guarantee easy access for cleaning operations.
Two visual indicators allow monitoring of the oil level and the degree of clogging.
They can be used with any kind of oil, even drain oil, as long as it has a minimum viscosity degree. The ideal oil is the same one used for the pump.
Oil-bath suction filters are not recommended for dry vacuum pumps.
They are currently available for 200 and 300 m³/h capacities.

Technical features

Operating pressure: from 0.5 to 2000 absolute mbar
Temperature of fluid: from -20 to +90°C
Level of filtration: ≤1 µ





Item	d	A	B	C	D	E	F	G	H	I	L	Flow rate max	Sealing spare part	Quantity of oil	Weight
	Ø	Ø			Ø			Ø				m³/h	item	L	Kg
FO 160	G1" 1/2	250	100	508	290	308	32.5	12	910	356	140	200	00 FO 30	6.3	27
FO 300	G2"	350	80	508	390	308	32.5	12	920	356	200	300	00 FO 29	12.5	40

Note: Filter cartridges are washable and therefore do not need to be replaced.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

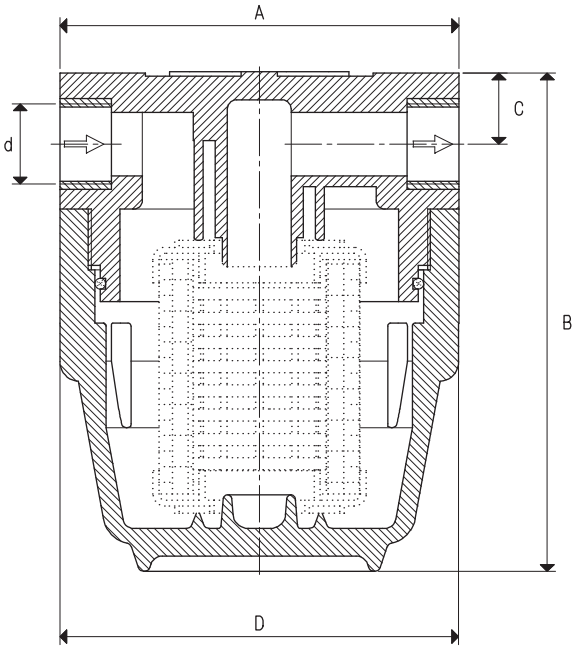
Adapters for GAS - NPT threading available on page 1.134

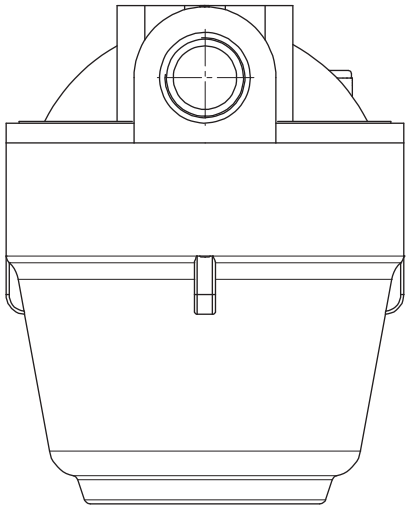
FP SERIES FILTERING CARTRIDGE CONTAINERS WITH COMPRESSION SEALING

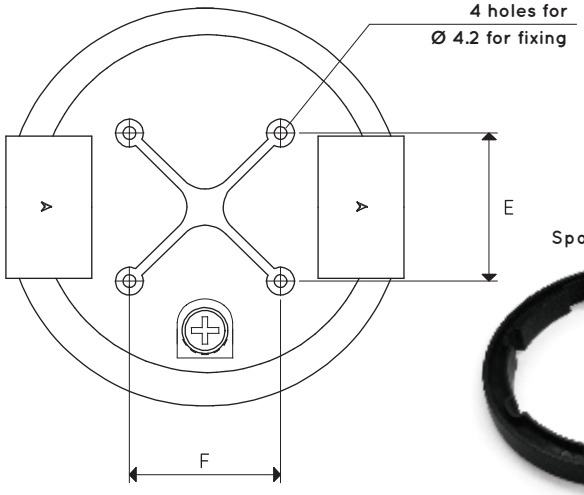
The containers of the FP series are suited for the filtering cartridges with compression sealing and are composed of a transparent plastic container and a blue plastic head screwed together with an interposed seal. The number after the item indicates the length in inches of the necessary filtering cartridge.
The cartridge can be chosen in various materials:
pleated paper, pleated polypropylene mesh and stainless steel mesh AISI 304.
The following pages describe the filtering cartridges with compression sealing, with all the indications regarding dimensions, materials and filtering degree of each one of them.

Technical features

Operating pressure: from 0.5 to 9000 absolute mbar
Temperature of suctioned fluid: from -10 to +45°C







Item	d Ø	A	B	C	D Ø	E	F	Max flow rate m³/h	Cartridge length	For cartridge item	Weight Kg
FP 25/4	G3/4"	130	163	21	130	49	50	70	4"	SP/4 - SS/4 - SA/4	0.84
FP 30/4	G1"	143	169	24	130	50	51	100	4"	SP/4 - SS/4 - SA/4	0.91
FP 25/7	G3/4"	130	250	21	130	49	50	70	7"	SP/7 - SS/7 - SA/7	0.96
FP 30/7	G1"	143	253	24	130	50	51	100	7"	SP/7 - SS/7 - SA/7	1.03
NP	Spanner for tightening the tray										

Note: The filtering cartridge is not an integral part of the filter and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

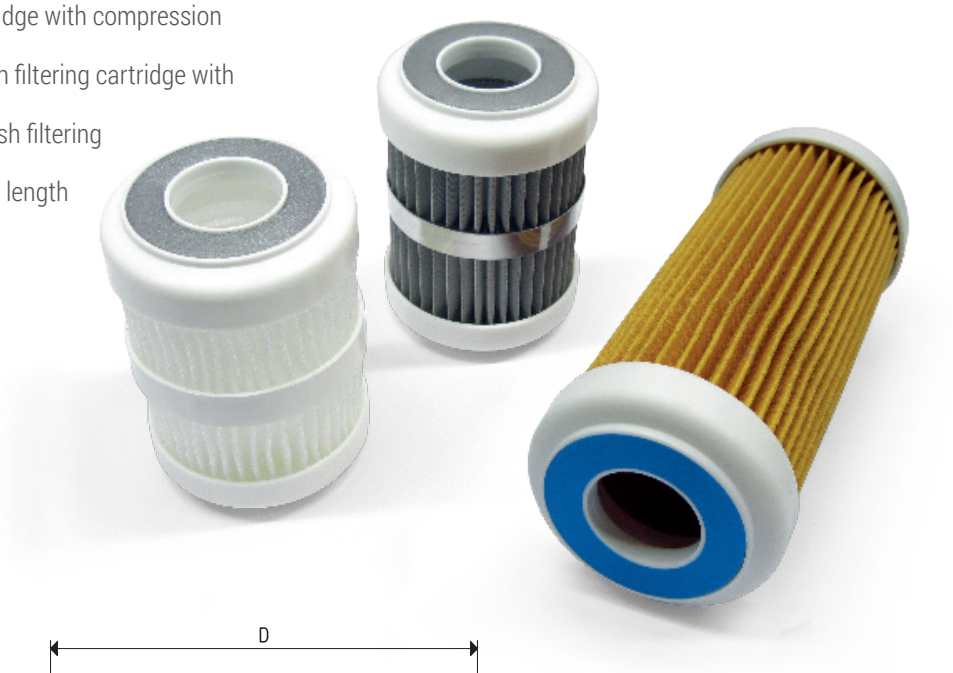
Adapters for GAS - NPT threading available on page 1.134

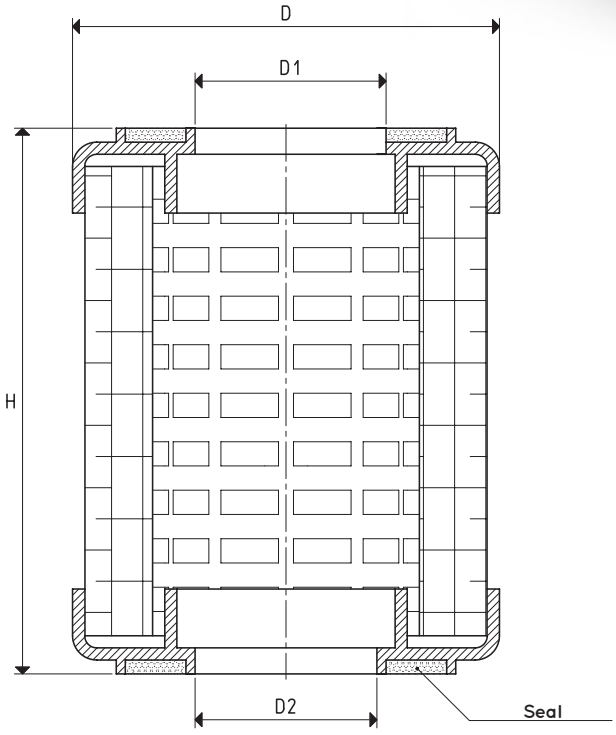
FILTERING CARTRIDGES WITH COMPRESSION SEALING

The filtering cartridges described on this page, once installed on their container, are able to retain the impurities and dust contained in the sucked fluid, interfering with the vacuum pump or generator flow rate in a negligible manner.
They are produced with different materials that can be identified with the following abbreviations:

- **Series SP.** Pleated paper filtering cartridge with compression sealing;
- **Series SS.** Pleated polypropylene mesh filtering cartridge with compression sealing;
- **Series SA.** AISI 304 stainless steel mesh filtering cartridge with compression sealing.

The number after the item indicates the length in inches of the filtering cartridge.





Item	D Ø	D1 Ø	D2 Ø	H	Cartridge length	For container item	Level of filtration micron
SP/4	70	30	30	98	4"	FP 25/4 - FP 30/4	25
SP/7	70	30	30	170	7"	FP 25/7 - FP 30/7	25
SS/4	70	30	30	98	4"	FP 25/4 - FP 30/4	50
SS/7	70	30	30	170	7"	FP 25/7 - FP 30/7	50
SA/4	70	30	30	98	4"	FP 25/4 - FP 30/4	50
SA/7	70	30	30	170	7"	FP 25/7 - FP 30/7	50

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

$\text{inch} = \frac{\text{mm}}{25.4}$; $\text{pounds} = \frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

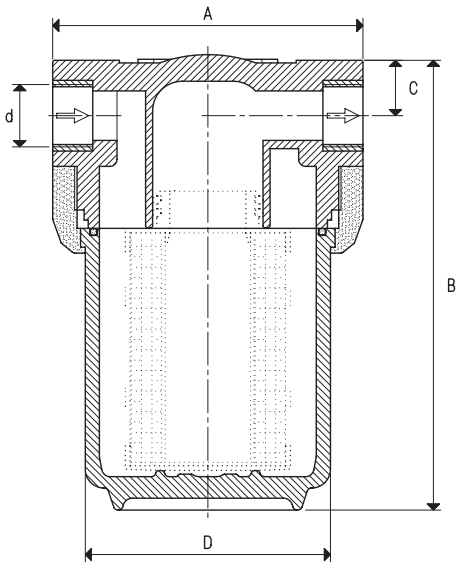
3D drawings are available on **vuototecnica.net**

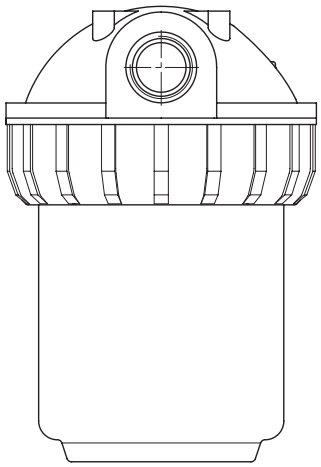
FM SERIES QUICK COUPLING FILTERING CARTRIDGE CONTAINERS

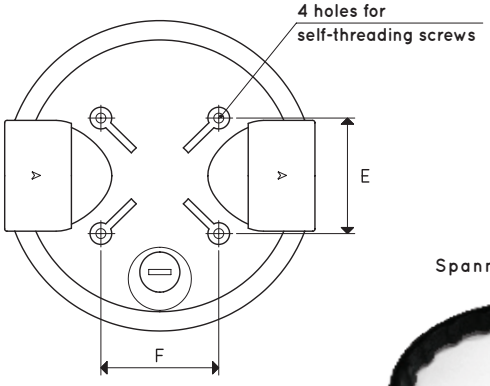
The containers of the FM series are suited for quick coupling filtering cartridges and are composed of a transparent SAN (Styrene-acrylic nitrile) container and a head with a reinforced polypropylene ring nut, coupled together with an interposed seal. The number after the item indicates the length in inches of the necessary filtering cartridge.The cartridge can be chosen in various materials: pleated paper, pleated polypropylene mesh and AISI 304 stainless steel mesh. The quick coupling filtering cartridges are described on page 5.26, with all the indications regarding dimensions, materials and filtering degree of each one of them.

Technical features

Operating pressure: from 0.5 to 9000 absolute mbar
Temperature of suctioned fluid: from -10 to +45°C







Item	d Ø	A	B	C	D Ø	E	F	Max flow rate m³/h	Cartridge length	For cartridge item	Weight Kg
FM 20/7	G1/2"	133	241	18	100	48	49	30	7"	RP/7 - RS/7 - RA/7	0.74
FM 25/7	G3/4"	133	241	21	100	49	50	70	7"	RP/7 - RS/7 - RA/7	0.87
FM 30/7	G1"	145	247	24	100	50	51	100	7"	RP/7 - RS/7 - RA/7	0.89
FM 25/10	G3/4"	133	315	21	100	49	50	70	10"	RP/10 - RS/10 - RA/10	0.86
FM 30/10	G1"	145	321	24	100	50	51	100	10"	RP/10 - RS/10 - RA/10	0.93
FM 40/10	G1" 1/4	145	345	35	100	50	51	160	10"	RP/10/57 - RS/10/57 - RA/10/57	1.08
FM 50/10	G1" 1/2	145	345	35	100	50	51	200	10"	RP/10/57 - RS/10/57 - RA/10/57	1.06
FM 60/10	G2"	145	345	35	100	50	51	300	10"	RP/10/57 - RS/10/57 - RA/10/57	1.08
FM 40/20	G1" 1/4	145	600	35	100	50	51	160	20"	RP/20/57 - RS/20/57 - RA/20/57	1.36
FM 50/20	G1" 1/2	145	600	35	100	50	51	200	20"	RP/20/57 - RS/20/57 - RA/20/57	1.34
FM 60/20	G2"	145	600	35	100	50	51	300	20"	RP/20/57 - RS/20/57 - RA/20/57	1.36
NF	Spanner for tightening the ring nut										

Note: The filtering cartridge is not an integral part of the filter and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

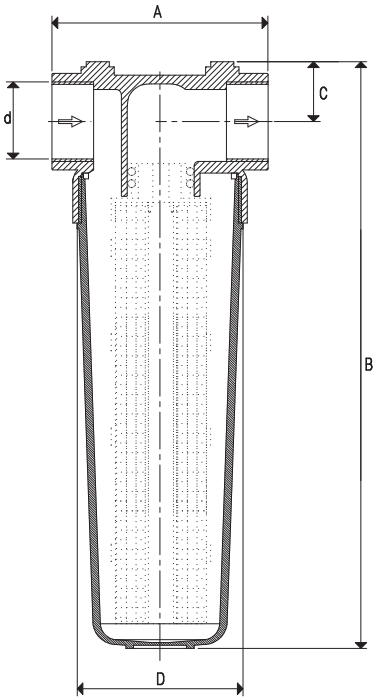
Adapters for GAS - NPT threading available on page 1.134

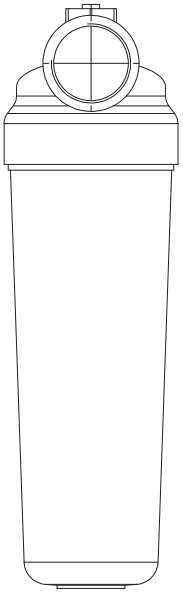
FK SERIES QUICK COUPLING FILTERING CARTRIDGE CONTAINERS

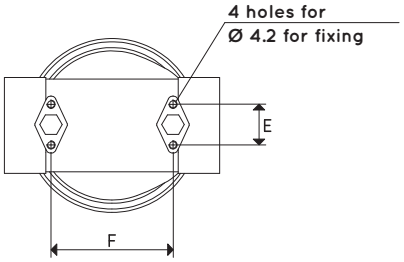
The containers of the FK series are suited for quick coupling filtering cartridges and are composed of a transparent PET (Polyethylene terephthalate) container and a head with a brass ring nut coupled together with an interposed seal.
The number after the item indicates the length in inches of the necessary filtering cartridge.
The cartridge can be chosen in various materials: pleated paper, pleated polypropylene mesh and AISI 304 stainless steel mesh. The quick coupling filtering cartridges are described on page 5.26, with all the indications regarding dimensions, materials and filtering degree of each one of them.

Technical features

Operating pressure: from 0.5 to 9000 absolute mbar
Temperature of suctioned fluid: from -10 to +45°C







Spanner Item NK

Item	d Ø	A	B	C	D Ø	E	F	Max flow rate m³/h	Cartridge length	For cartridge item	Weight Kg
FK 25/7	G3/4"	120	265	24	100	25	75	70	7"	RP/7 - RS/7 - RA/7	1.64
FK 30/7	G1"	120	270	27	100	25	75	100	7"	RP/7 - RS/7 - RA/7	1.88
FK 25/10	G3/4"	130	335	24	100	25	75	70	10"	RP/10 - RS/10 - RA/10	2.12
FK 30/10	G1"	130	335	27	100	25	75	100	10"	RP/10 - RS/10 - RA/10	2.35
FK 50/10	G1" 1/2	130	345	30	100	25	75	200	10"	RP/10/57 - RS/10/57 - RA/10/57	2.58
FK 60/10	G2"	130	350	33	100	25	75	300	10"	RP/10/57 - RS/10/57 - RA/10/57	2.69
FK 30/20	G1"	130	540	27	100	25	75	100	20"	RP/20 - RS/20 - RA/20	2.97
FK 50/20	G1" 1/2	130	600	30	100	25	75	200	20"	RP/20/57 - RS/20/57 - RA/20/57	3.20
FK 60/20	G2"	130	600	33	100	25	75	300	20"	RP/20/57 - RS/20/57 - RA/20/57	3.31
NK	Spanner for tightening the tray										

Note: The filtering cartridge is not an integral part of the filter and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

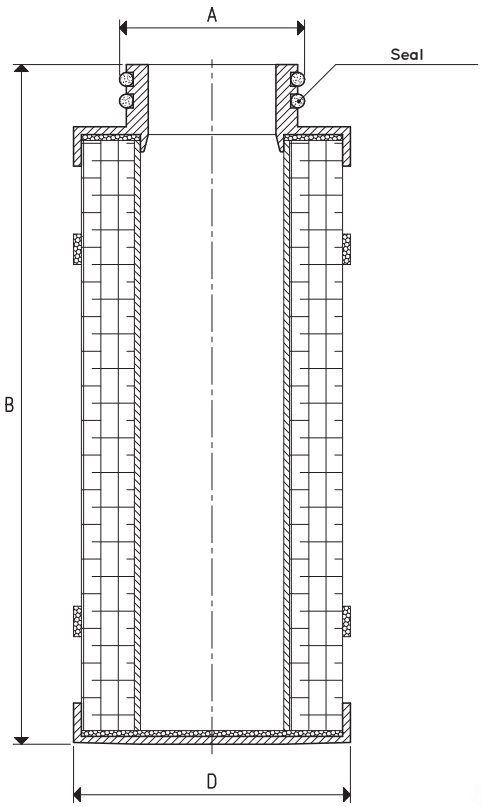
Adapters for GAS - NPT threading available on page 1.134

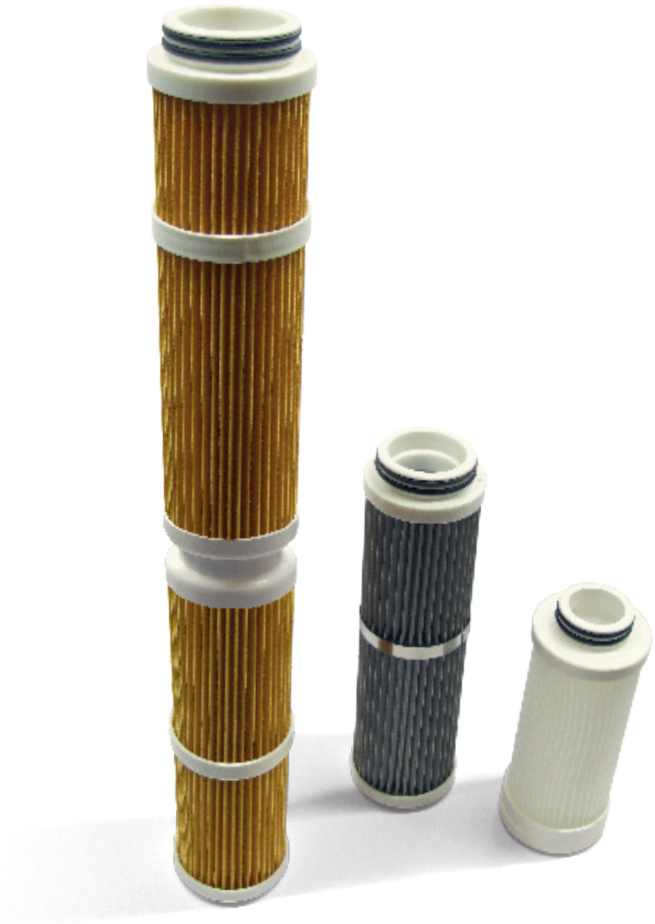
3D drawings are available on **vuototecnica.net**

QUICK COUPLING FILTERING CARTRIDGES

The filtering cartridges described on this page, once installed on their container, are able to retain the impurities and dust contained in the sucked fluid, interfering with the vacuum pump or generator flow rate in a negligible manner.
They are produced with different materials that can be identified with the following abbreviations:
- **Series RP.** Pleated paper quick coupling filtering cartridge with double O-ring;
- **Series RS.** Pleated polypropylene mesh quick coupling filtering cartridge with double O-ring;
- **Series RA.** AISI 304 stainless steel mesh quick coupling filtering cartridge with double O-ring.

The number after the item indicates the length in inches of the filtering cartridge.





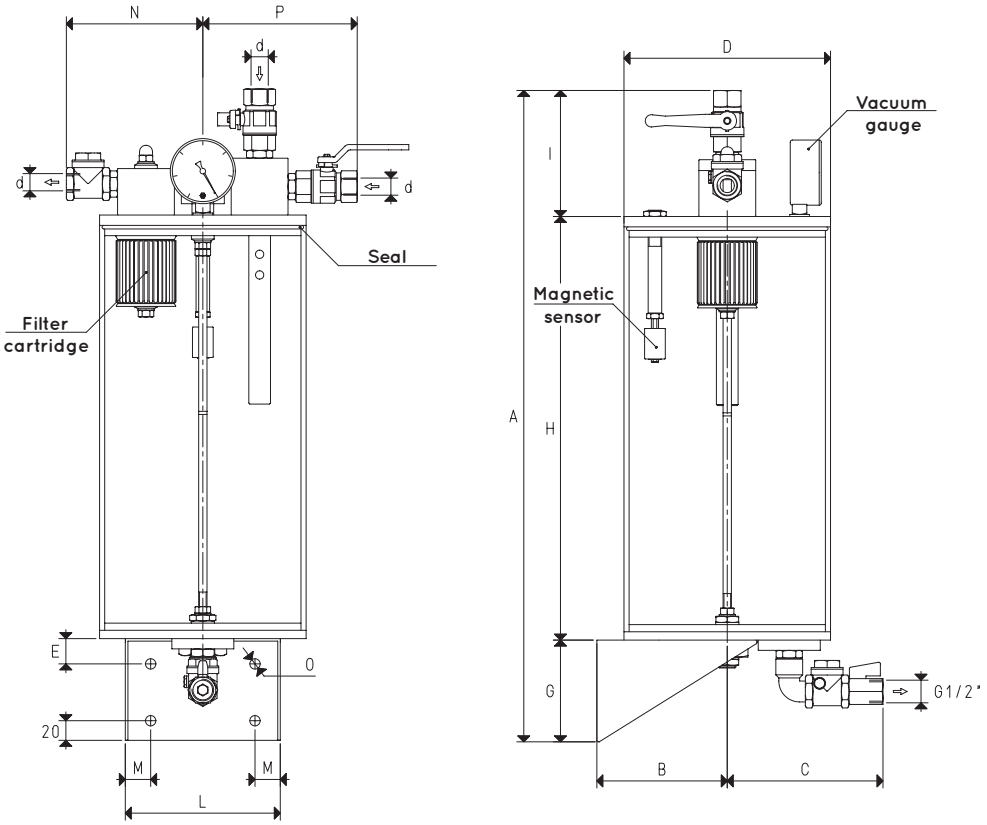
Item	A Ø	B	D Ø	Cartridge length	For container item	Level of filtration micron
RP/7	45	173	70	7"	FM20/7 FM25/7 FM30/7 - FK25/7 FK30/7	25
RP/10	45	250	70	10"	FM25/10 FM30/10 - FK25/10 FK30/10	25
RP/10/57	57	250	70	10"	FM40/10 FM50/10 FM60/10 - FK50/10 FK60/10	25
RP/20	45	505	70	20"	FK30/20	25
RP/20/57	57	505	70	20"	FM40/20 FM50/20 FM60/20 - FK50/20 FK60/20	25
RS/7	45	173	70	7"	FM20/7 FM25/7 FM30/7 - FK25/7 FK30/7	50
RS/10	45	250	70	10"	FM25/10 FM30/10 - FK25/10 FK30/10	50
RS/10/57	57	250	70	10"	FM40/10 FM50/10 FM60/10 - FK50/10 FK60/10	50
RS/20	45	505	70	20"	FK30/20	50
RS/20/57	57	505	70	20"	FM40/20 FM50/20 FM60/20 - FK50/20 FK60/20	50
RA/7	45	173	70	7"	FM20/7 FM25/7 FM30/7 - FK25/7 FK30/7	50
RA/10	45	250	70	10"	FM25/10 FM30/10 - FK25/10 FK30/10	50
RA/10/57	57	250	70	10"	FM40/10 FM50/10 FM60/10 - FK50/10 FK60/10	50
RA/20	45	505	70	20"	FK30/20	50
RA/20/57	57	505	70	20"	FM40/20 FM50/20 FM60/20 - FK50/20 FK60/20	50

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

FS SYPHON SUCTION FILTERS

These filters retain impurities and liquids extracted through vacuum cups or vacuum clamping systems, preventing them from entering into the vacuum pumps.
They are composed of:
- A transparent Plexiglas cylindrical container with an extractable lid to allow inspection and cleaning;
- A check valve located on the suction inlet for preventing the air from returning in the filter when the pump is idle;
- A stainless steel mesh filtering cartridge with a filtering degree equal to 60 µ / 100 µ, also located on the suction inlet to retain dust and solid impurities;
- A two-way manual valve for service vacuum interception;
- A two-way manual valve for restoring the atmospheric pressure inside the filter;
- A radial vacuum gauge the direct reading of the level of vacuum;
- A magnetic level switch that stops the pump when the suctioned liquid exceeds the safety level;
- A rigid pipe connected to the service to convey the air flow and the sucked liquid to the bottom of the container;
- A check valve at the bottom of the filter to automatically drain the sucked liquid and impurities every time the atmospheric pressure is restored inside the filter;
- A cock applied on the aforementioned check valve for manual liquid drainage;
- A sturdy metal bracket for fixing the filter to the wall.

Technical features
Operating pressure: from 0.5 to 1000 absolute mbar
Fluid temperature: from -5 to +50°C
Level of filtration: 60 µ



Item	d	A	B	C	D	E	G	H	I	L	M	N	O	P	Flow rate max	Capacity	Cartridge spare part	Vacuum gauge spare part	Sealing spare part	Weight
	Ø				Ø								Ø		m^3/h	L	item	item	item	Kg
FS 5	G3/8"	461	130	175	200	25	100	250	111	150	25	140	10	136	10	6.0	00 FB 03	09 05 10	00 FS 36	5.5
FS 10	G3/8"	551	130	175	200	25	100	340	111	150	25	140	10	136	10	8.5	00 FB 22	09 05 10	00 FS 36	6.0
FS 20	G1/2"	630	130	175	200	25	100	410	120	150	25	140	10	145	20	10.5	00 FB 22	09 05 10	00 FS 36	6.8
FS 25	G3/4"	750	150	195	240	25	100	510	140	170	30	170	11	180	40	19.5	00 FB 22	09 05 10	00 FS 36	9.1
FS 30	G1"	890	190	225	300	30	120	610	160	200	40	205	11	220	70	38.0	00 FB 34	09 05 10	00 FS 41	19.2
FS 50	G2"	980	190	225	300	30	120	610	250	200	40	250	11	276	300	38.0	00 FB 45	09 05 10	00 FS 41	22.7

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**

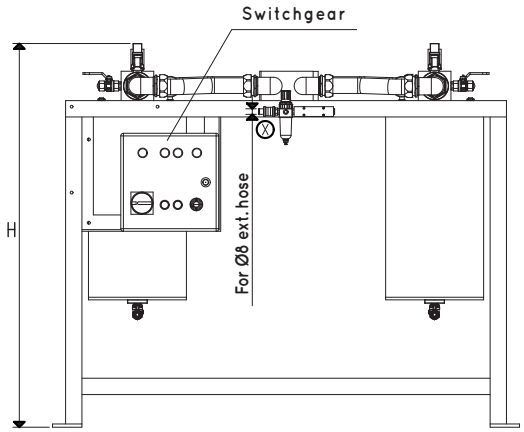
SYPHON FILTER SYSTEMS WITH AUTOMATIC BY-PASS FS 50 BP and FS 60 BP

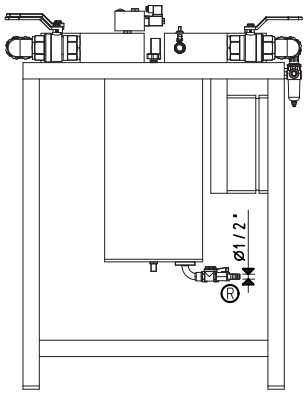
The system, composed of two siphon filters, operates initially with suction through filter 1 and with filter 2 excluded. When the suctioned liquid reaches the float on the level switch, automatically by means of the 1" 1/2 three-way vacuum interception solenoid valve for item FS 50 BP and 2" for item FS 60 BP, an exchange is made and suction passes through filter 2.
The input of atmospheric air into filter 1 via the 1/2" three-way solenoid valve installed on its lid, accumulated liquid is allowed to discharge automatically through the check valve with tap on the bottom of the filter. Once liquid has been discharged, after a pre-set time (this operation can be timed), the solenoid valve returns to its initial position, thus allowing recreation of a vacuum inside the filter through a small flexible hose connected to the main vacuum piping.
With this arrangement, there will not be any decrease in the level of vacuum for use when the suction exchange will be carried out between the two filters. This exchange will take place when the liquid reaches the level switch float on filter 2 and, from that moment, the operations described above will be repeated.
The filter system is composed of:
- 2 Plexiglas siphon filters with aluminium lids and complete with accessories, with a flow rate of 38 L each
- 2 1" 1/2 gas three-way servo-operated vacuum solenoid valves, item 07 06 13 for item FS 50 BP
  and 2" gas servo-operated vacuum solenoid valves, item 07 08 13 for item FS 60 BP
- 2 1/2" gas three-way servo-operated vacuum solenoid valves, item 07 03 13.
- 4 1" 1/2 gas two-way manual valves for vacuum interception, item 13 07 10 for item FS 50 BP
  and 2" gas for vacuum interception, item 13 08 10 for item FS 60 BP
- 2 Manual 1/2" gas two-way valves, for atmospheric air input, item 13 03 10
- 1 Switchgear enclosed in a special watertight metal box, for single phase electrical voltage Volt 230/ 50 Hz
- 1 Coated profile steel frame to mount all above-described components

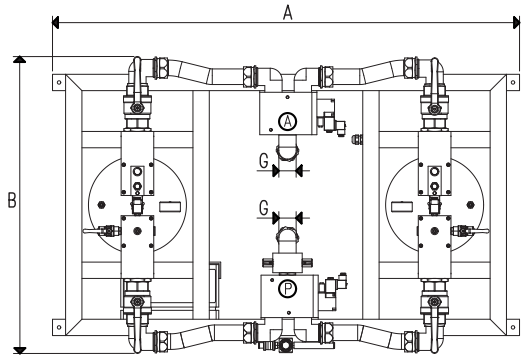
The siphon filter system with automatic by-pass is recommended in all those cases in which there is a strong presence of liquid in suction fluids and where machine shut-down for the discharge of liquids suctioned by traditional siphon filters is not allowed.

Technical features

Operating pressure: from 0.5 to 2000 absolute mbar
Fluid temperature: from -5 to +50°C
Level of filtration: 100 µ





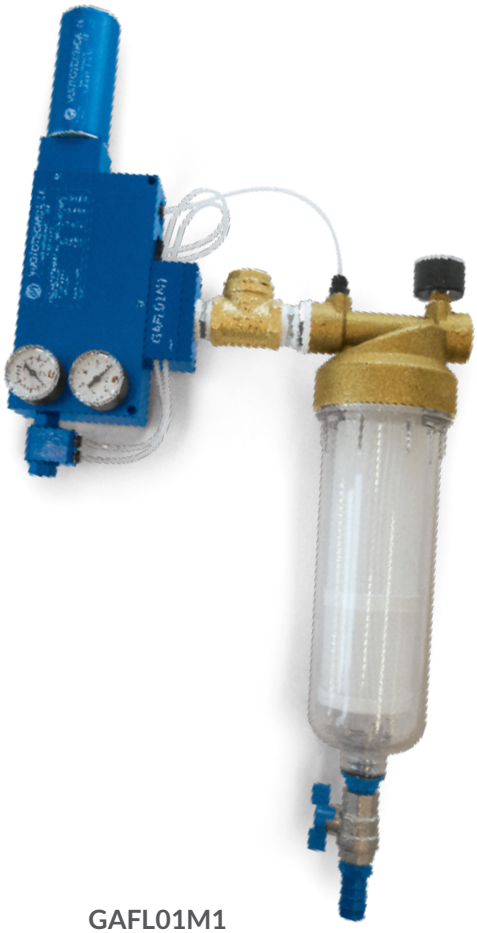


X = Compressed air supply
A = Use
P = Pump
R = Discharge

Item	A	B	G	H	Flow rate max m³/h	Capacity L	Cartridge spare part item	Vacuum gauge spare part item	Sealing spare part item	Weight kg
FS 50 BP	1450	1000	G1" 1/2	1180	200	38 x 2	00 FB 45	09 05 10	00 FS 41	130
FS 60 BP	1450	1050	G2"	1200	300	38 x 2	00 FB 45	09 05 10	00 FS 41	136

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

2FS50BPM1



GAFL01M1

FS50T
(special mounting bracket)

FS5M5

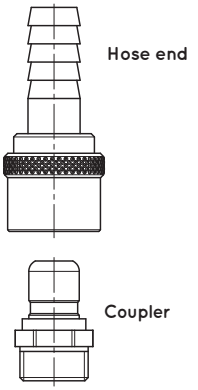
VACUUM FITTINGS AND HOSES

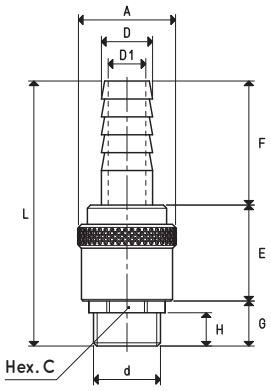
ROTATING QUICK COUPLING FITTINGS	PG.	6.01
FITTINGS, NYLON SEALS AND HOSES	PG.	6.02 ÷ 6.03
COMPRESSED AIR AND VACUUM FLEXIBLE HOSES AND RELATIVE FITTINGS	PG.	6.04
TPR FLEXIBLE HOSE FITTINGS	PG.	6.05
HOSE ENDS	PG.	6.06
ADAPTERS AND CAPS	PG.	6.07 ÷ 6.08
GAS - NPT ADAPTERS	PG.	6.09

3D drawings are available on **vuototecnica.net**

ROTATING QUICK COUPLING FITTINGS

Quick coupling fittings, composed of a jack with hose end connector with male threading, guarantee quick and reliable connection.
It is secured by a ball ring with a thrust spring, while a nitrile rubber seal guarantees a perfect vacuum seal. Their design allows free rotation at low speed and quick coupling or uncoupling by means of the knurled nut. As they are not self-retaining, they ensure a full suction passage, optimising the flow rate of the vacuum pumps.
Made entirely of brass, they are available in different sizes to suit various applications.

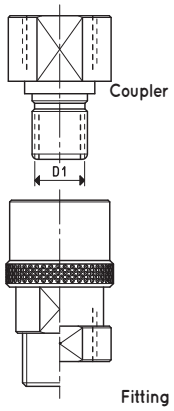


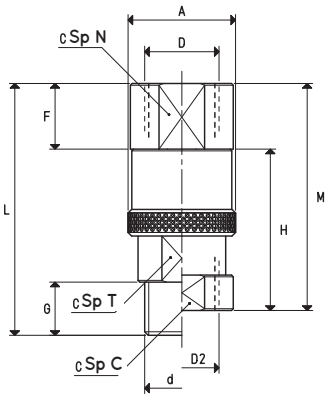


Item	d	A	C	D	D1	E	F	G	H	L	Material	Hose end	Hose end weight	Coupling	Coupling weight
	Ø		Ø	Ø	Ø							item	g	item	g
RR 3/8"	G3/8"	30	21	13	9	29.5	38.5	14	10.5	83.0	brass	00 RR 3/8 02	100	00 RR 3/8 01	38
RR 1/2"	G1/2"	30	21	16	12	30.5	38.5	14	10.5	83.0	brass	00 RR 1/2 02	104	00 RR 1/2 01	34
RR 3/4"	G3/4"	30	26	21	16	29.0	38.5	15	10.5	82.5	brass	00 RR 3/4 02	118	00 RR 3/4 01	50
RR 1"	G1"	38	34	27	22	30.0	39.0	17	12.0	87.0	brass	00 RR 1 02	166	00 RR 1 01	92
RR 1" 1/4	G1" 1/4	68	42	35	26	49.5	49.5	24	13.5	123.0	brass	00 RR 1 1/4 02	568	00 RR 1 1/4 01	210
RR 1" 1/2	G1" 1/2	68	48	40	33	49.0	54.0	25	17.0	128.0	brass	00 RR 1 1/2 02	710	00 RR 1 1/2 01	250

Note: The fittings listed in this table are compatible with the TPR series vacuum hoses, shown on page 6.04.

Max rotation speed - 38 rpm





Item	A	C	D	d	D1	D2	F	G	H	L	M	N	T	Material	Fitting	Fitting weight	Coupling	Coupling weight
	Ø		Ø	Ø	Ø	Ø									item	g	item	g
RRF 3/8"	25.5	--	G3/8"	G3/8"	11	--	19.0	15	--	71.0	--	22	22	brass	00 RRF 3/8 02	77	00 RRF 3/8 01	58
RRF 1/2"	28.5	--	G1/2"	G1/2"	14	--	18.0	15	--	70.0	--	26	24	brass	00 RRF 1/2 02	79	00 RRF 1/2 01	72
RRF 3/4"	33.5	--	G3/4"	G3/4"	18	--	19.0	15	--	71.0	--	30	28	brass	00 RRF 3/4 02	149	00 RRF 3/4 01	132
RRF 1"	42.0	--	G1"	G1"	23	--	22.5	15	--	73.5	--	38	32	brass	00 RRF 1 02	369	00 RRF 1 01	355
RRF 1" 1/2	65.0	--	G1"1/2	G1"1/2	38	--	25.0	24	--	115.0	--	60	55	brass	00 RRF 1 1/2 02	873	00 RRF 1 1/2 01	642
RRFF 3/8"	25.5	22	G3/8"	--	11	G3/8"	20.0	--	42	--	62.0	22	--	brass	00 RRFF 3/8 02	82	00 RRF 3/8 01	58
RRFF 1/2"	28.5	24	G1/2"	--	14	G1/2"	18.0	--	42	--	60.0	26	--	brass	00 RRFF 1/2 02	80	00 RRF 1/2 01	72
RRFF 3/4"	33.5	30	G3/4"	--	18	G3/4"	20.0	--	42	--	62.0	30	--	brass	00 RRFF 3/4 02	199	00 RRF 3/4 01	132
RRFF 1"	42.0	38	G1"	--	23	G1"	22.5	--	56	--	78.5	38	--	brass	00 RRFF 1 02	409	00 RRF 1 01	355
RRFF 1" 1/2	65.0		G1"1/2	--	38	G1"1/2	25.0	--	93	--	121.0	60	--	brass	00 RRFF 1 1/2 02	938	00 RRF 1 1/2 01	642

Note: Add the letter V to the item for fittings supplied with a FKM seal (Example: RRF 1"V).

Max rotation speed - 38 rpm

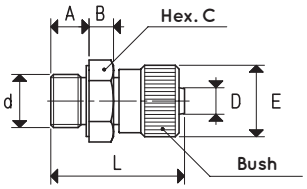
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**

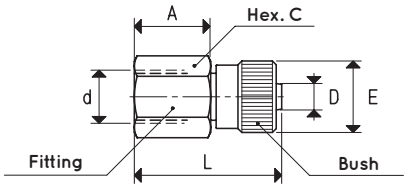
FITTINGS, NYLON SEALS AND HOSES

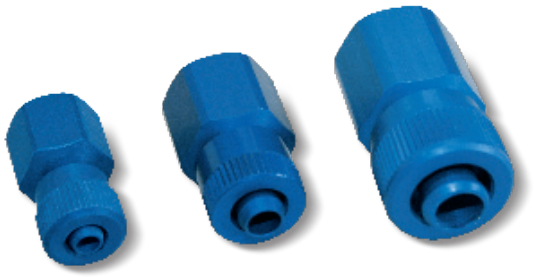
The fittings described on this page are particularly suitable for connecting vacuum cup holders to their manifolds and in all those cases that require a connection to vacuum sources via smooth flexible hoses with internal diameters of 4, 6 and 9 mm, which is the maximum allowed for a vacuum hose with no internal reinforcement.
These are semi-rapid fittings. The hose is fixed by manually screwing the reeded bush with no need for keys.
The threaded connections are male or female, according to the requirements. The range is completed by L and T-type fittings and caps with O-rings.
The fittings are supplied complete with nylon seals.



MALE FITTING

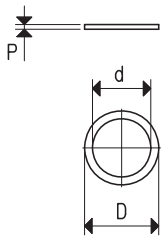
Item	d Ø	A	B	C	D Ø int. hose	E Ø	L	Fitting material	Bush material	Weight g
RM M5	M5	5.0	3.5	10	4	10	19.5	tropicalised iron	anodised aluminium	6
RM 1/8"	G1/8"	7.0	4.5	14	4	13	24.5	anodised aluminium	anodised aluminium	6
RM 1/4"	G1/4"	8.5	5.0	17	6	15	27.0	anodised aluminium	anodised aluminium	10
RM 3/8"	G3/8"	10.5	5.0	19	9	20	32.5	anodised aluminium	anodised aluminium	18





FEMALE FITTING

Item	d Ø	A	C	D Ø int. hose	E Ø	L	Fitting material	Bush material	Weight g
RF 1/8"	G1/8"	14	14	4	13	27.0	anodised aluminium	anodised aluminium	8
RF 1/4"	G1/4"	16	17	6	15	30.0	anodised aluminium	anodised aluminium	12
RF 3/8"	G3/8"	20	19	9	20	32.5	anodised aluminium	anodised aluminium	16



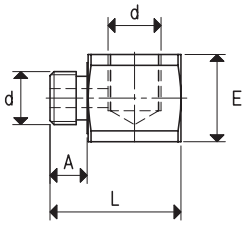
SEALS GN

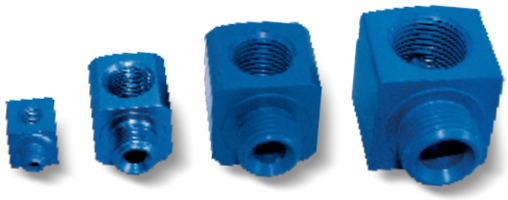
Item	d Ø	D Ø	P	Material	Weight g
GN M5	M5	8.5	1.0	nylon	0.1
GN 1/8"	G1/8"	14.0	1.0	nylon	0.1
GN 1/4"	G1/4"	17.5	1.5	nylon	0.2
GN 3/8"	G3/8"	22.0	1.5	nylon	0.3
GN 1/2"	G1/2"	27.0	1.5	nylon	0.4

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

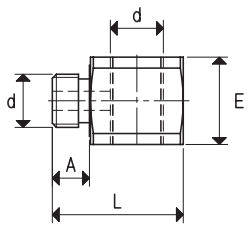
3D drawings are available on **vuototecnica.net**

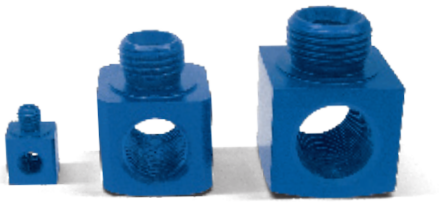




L-FITTING

Item	d Ø	A	E	L	Fitting material	Weight g
RL M5	M5	4.5	10	15.0	anodised aluminium	2
RL 1/8"	G1/8"	7.0	16	24.0	anodised aluminium	10
RL 1/4"	G1/4"	9.0	22	30.0	anodised aluminium	22
RL 3/8"	G3/8"	11.0	25	32.5	anodised aluminium	30

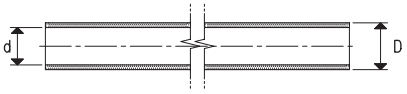




T-FITTING

Item	d Ø	A	E	L	Fitting material	Weight g
RT M5	M5	4.5	10	15.0	anodised aluminium	1
RT 1/8"	G1/8"	7.0	16	24.0	anodised aluminium	9
RT 1/4"	G1/4"	9.0	22	30.0	anodised aluminium	21
RT 3/8"	G3/8"	11.0	25	32.5	anodised aluminium	29

TPL flexible hoses are made with Polyamide 11 of vegetable derivation and are suited for compressed air and vacuum for internal diameters up to 9 mm, as well as for compressed air only. They feature a good flexibility and are lightweight, very low water absorption and excellent mechanical performance. They also feature an excellent resistance to low and high temperatures, chemical agents, pneumatic pressure and ageing. The TPL hoses are connected by the fittings described above.



TPL HOSE

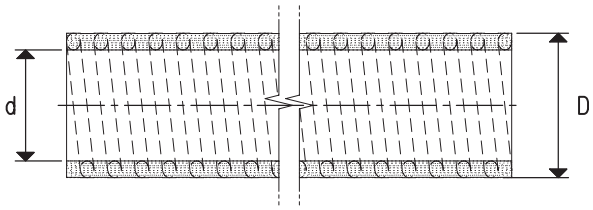
Item	d ±0,5 mm Ø int.	D ±0,5 mm Ø ext.	Bending radius	Operating temperature	Weight per meter g/m	Package m	Material	Standard colour
TPL 2	2.5	4	20	-40° / +70°	8.0	100	polyamide 11	light blue
TPL 4	4.0	6	30	-40° / +70°	19.5	100	polyamide 11	light blue
TPL 6	6.0	8	40	-40° / +70°	20.5	100	polyamide 11	light blue
TPL 8	8.0	10	60	-40° / +70°	24.0	100	polyamide 11	light blue
TPL 9	9.0	12	70	-40° / +70°	28.0	50	polyamide 11	light blue

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

COMPRESSED AIR AND VACUUM FLEXIBLE HOSES AND RELATIVE FITTINGS

Our TPR flexible hoses have been specially designed for vacuum and are composed of a single piece with plastic insulation and self-extinguishing materials, including the hose reinforcement core. Their excellent flexibility ensures minimal bending radius and are very light in relation to their great resistance to crushing.
Their smooth inside allows reducing harmful load losses to the minimum.
The excellent functionality of these flexible hoses is associated with a high resistance to abrasion, to weather agents and most chemical products.
We have created a completely new line of RMTPR fittings for TPR hoses. RTPR fittings from 3/8" to 1" are made of self-extinguishing PVC. RMTPR in anodised aluminium.
The fittings are all extremely sturdy and offer a provide vacuum seal. The use of these fittings eliminates unsightly hose clamps and make the connection much faster and safer. They are available in various sizes, depending on the diameter of the hose to be connected.
Our hoses can be managed in mobile laying/cable chains as long as the specifications regarding the hose bending radius indicated on the table are met.

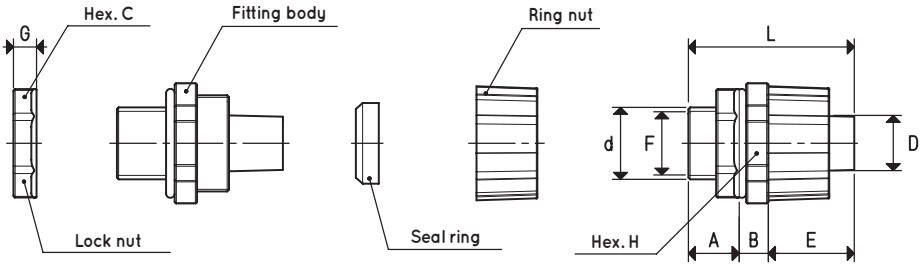


TPR HOSE

Item	d ±0,5 mm Ø int.	D ±0,5 mm Ø ext.	Bending radius	Operating temperature	Weight per meter g/m	Package m	Material	Standard colour
TPR 3/8"	12.3	17.5	60	-10°/+50°	160	30	pvc	grey
TPR 1/2"	16.0	21.2	80	-10°/+50°	195	30	pvc	grey
TPR 3/4"	21.0	26.2	105	-10°/+50°	260	30	pvc	grey
TPR 1"	27.0	33.2	135	-10°/+50°	375	30	pvc	grey
TPR 1" 1/4	35.0	42.4	175	-10°/+50°	550	30	pvc	grey
TPR 1" 1/2	40.0	48.0	200	-10°/+50°	710	30	pvc	grey
TPR 2"	52.0	56.2	260	-10°/+50°	910	30	pvc	grey
TPR 3"	80.0	90.0	400	-10°/+40°	1750	10	pvc	grey

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

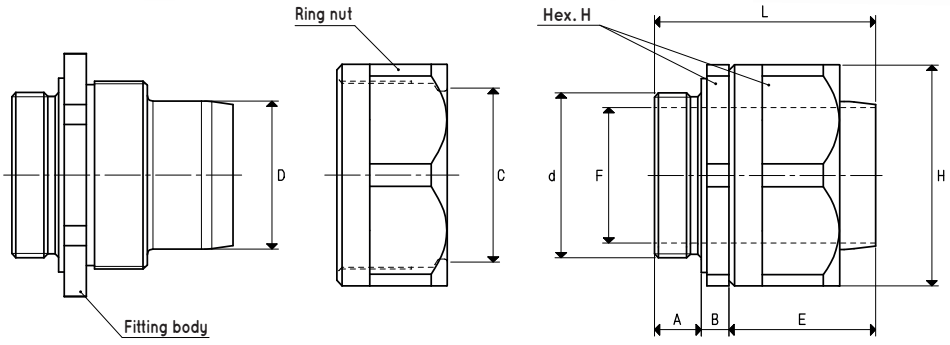
TPR FLEXIBLE HOSE FITTINGS



RTPR FITTINGS

Item	d Ø	A	B	C	D Ø	E	F Ø	G	H	L	Material	For TPR hose	Weight g
RTPR 3/8"	G3/8"	14.5	8.5	26	12.0	23.5	10.5	6	28	46.5	pvc	TPR 3/8"	12
RTPR 1/2"	G1/2"	14.5	9.0	28	15.5	26.5	13.5	7	33	50.0	pvc	TPR 1/2"	18
RTPR 3/4"	G3/4"	14.0	10.5	35	20.8	26.5	18.5	9	38	51.0	pvc	TPR 3/4"	26
RTPR 1"	G1"	16.0	9.0	41	26.5	32.5	24.5	10	44	57.5	pvc	TPR 1"	36

Operating temperature: -10° / +60 °C



RMTPR FITTINGS

Item	d Ø	A	B	C Ø	D Ø	E	F Ø	H	L	Material	For TPR hose	Weight g
RMTPR 1" 1/4	G1" 1/4	13	8	42.7	36.5	33	33	54	54	anodised aluminium	TPR 1" 1/4	360
RMTPR 1" 1/2	G1" 1/2	15	9	48.7	41.8	40	38	62	64	anodised aluminium	TPR 1" 1/2	390
RMTPR 2"	G2"	17	10	60.8	53.5	48	49	80	75	anodised aluminium	TPR 2"	440
RMTPR 3"	G3"	30	14	90.3	80.3	76	73	110	120	anodised aluminium	TPR 3"	1258

Operating temperature: -20° / +60 °C

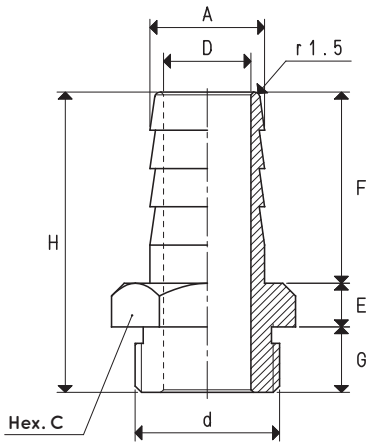
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

HOSE ENDS

Our hose ends are traditional barbed nickel-plated and brass fittings.
They are suited for connecting smooth or reinforced flexible hoses with an internal diameter up to 76 mm.

3D drawings are available on **vuototecnica.net**



Item	d Ø	A Ø	C	D Ø	E	F	G	H
RS 1/4"	G1/4"	9.0	17	5.0	5	18	12	35
RS 3/8"	G3/8"	13.0	19	9.0	5	20	8	33
RS 1/2"	G1/2"	16.0	23	12.0	5	25	10	40
RS 3/4"	G3/4"	21.0	28	16.0	8	35	12	55
RS 1"	G1"	27.0	36	22.0	8	35	12	55
RS 1" 1/4	G1" 1/4	35.0	45	28.0	10	42	15	67
RS 1" 1/2	G1" 1/2	40.0	50	33.0	10	45	15	70
RS 2"	G2"	51.5	70	43.5	8	48	19	75
RS 3"	G3"	76.5	100	66.5	10	60	30	100

Note: The hose end connectors listed in this table are compatible with the TPR series vacuum hoses, shown on page 6.04.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

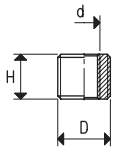
Adapters for GAS - NPT threading available on page 1.134

ADAPTERS AND CAPS

These standard accessories offer the user different assembly options.
The galvanised steel or brass adapters screwed onto the standard vacuum cup support connections can vary the threads from gas to metric or vice-versa, from male to female or vice-versa, in addition of course to increasing or decreasing the size of their threaded diameter.

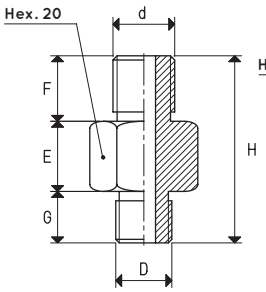
MF ADAPTER

Item	D Ø	d Ø	H	Support material	Weight g
00 08 130	G1/4"	M10	14	steel	4.0
00 08 131	G3/8"	M10	14	steel	12.0
00 08 230	G3/8"	G1/4"	14	steel	6.0
00 08 254	1/4" NPT	M10	14	steel	3.9
00 08 255	3/8" NPT	M10	14	steel	11.9
00 08 258	3/8" NPT	G1/4"	14	steel	5.9

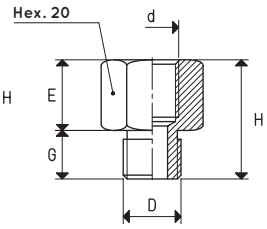


MM AND MF ADAPTER

Item	D Ø	d Ø	E	F	G	H	Adapter material	Weight g
00 08 129	M12	G1/4"	15	14	11	40	brass	58.0
00 08 296	M12	G3/8"	18	--	10	28	brass	34.0
00 08 297	G1/4"	M12	16	--	11	27	brass	40.0



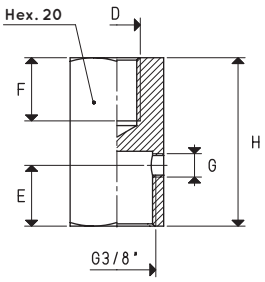
Item 00 08 129

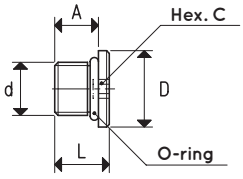


Item 00 08 296
Item 00 08 297

FF ADAPTER FOR JOINT COUPLINGS GS

Item	D Ø	E	F	G Ø	H	Adapter material	Weight g
00 08 54	M10	13	13.5	M5	36	brass	72
00 08 251	M8	16	15.0	G1/8"	48	brass	102
00 08 252	M12	16	15.0	G1/8"	48	brass	90





CAP WITH O-RING

Item	d Ø	A	C	D Ø	L	Fitting material	Weight g
00 15 291	M5	4	2.5	8	6.5	nickel-plated brass	1
00 11 44	G1/8"	7	3.0	15	9.5	nickel-plated brass	6
00 11 06	G1/4"	8	6.0	18	11.0	nickel-plated brass	10
00 18 33	G3/8"	9	8.0	21	12.5	nickel-plated brass	18
00 15 273	G1/2"	11	10.0	26	14.5	nickel-plated brass	21

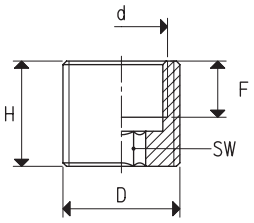
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**

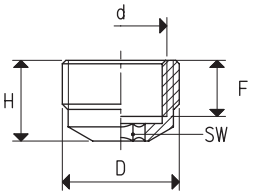
MF ADAPTER

Item	D Ø	d Ø	F	H	SW	Weight g
00 08 215	G3/8"	G1/4"	8	14	6	11.5



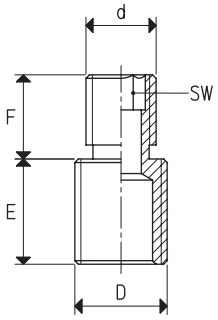
MF ADAPTER

Item	D Ø	d Ø	F	H	SW	Weight g
00 08 216	G3/8"	G1/4"	8	11.5	6	6.0



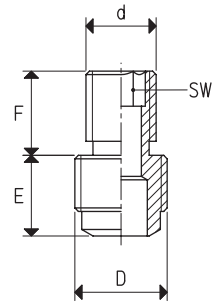
MM ADAPTER

Item	D Ø	d Ø	E	F	SW	Weight g
00 08 217	G1/4"	G1/4"	15	10	6	16.7
00 08 218	G1/4"	M10 x 1.5	15	12	6	10.2
00 08 219	G1/4"	M14 x 1.5	15	12	6	16.0
00 08 220	G3/8"	G1/4"	14	10	6	18.4
00 08 221	G3/8"	M10 x 1.5	14	12	6	16.3
00 08 222	G3/8"	M14 x 1.5	14	12	6	22.5



MM ADAPTER

Item	D Ø	d Ø	E	F	SW	Weight g
00 08 223	G1/4"	G1/4"	11.5	10	6	13.9
00 08 224	G1/4"	M10 x 1.5	13.0	12	6	10.1
00 08 225	G1/4"	M14 x 1.5	13.0	12	6	15.8
00 08 226	G3/8"	G1/4"	10.5	11	6	16.6
00 08 227	G3/8"	M10 x 1.5	10.5	13	6	14.2
00 08 228	G3/8"	M14 x 1.5	10.5	13	6	20.2

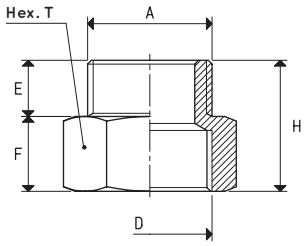


Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

GAS - NPT ADAPTERS

These adapters allow using NPT threaded fittings on vacuum components with NPT threading, such as vacuum components like vacuum cup supports, valves and solenoid valves, filters etc. with gas threading.



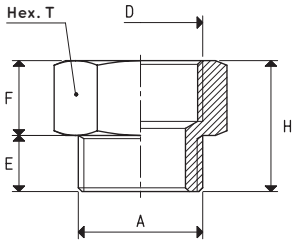
3D drawings are available on **vuototecnica.net**

6

FEMALE GAS - MALE NPT ADAPTER

Item	A Ø	D Ø	E	F	H	T
00 08 259	1/8" NPT	G1/8"	10	12	22	14
00 08 260	1/4" NPT	G1/4"	12	17	29	19
00 08 261	3/8" NPT	G3/8"	16	18	34	22
00 08 262	1/2" NPT	G1/2"	17	19	36	27
00 08 263	3/4" NPT	G3/4"	19	20	39	32
00 08 264	1" NPT	G1"	22	20	42	41
00 08 265	1" 1/4 NPT	G1" 1/4	23	23	46	50
00 08 266	1" 1/2 NPT	G1" 1/2	23	23	46	60
00 08 267	2" NPT	G2"	25	24	49	70

Note: All adapters are manufactured per minimum batch sizes and with cost evaluated upon final balance.



MALE GAS - FEMALE NPT ADAPTER

Item	A Ø	D Ø	E	F	H	T
00 08 268	G1/8"	1/8" NPT	10	15	25	14
00 08 269	G1/4"	1/4" NPT	11	17	28	19
00 08 270	G3/8"	3/8" NPT	12	22	34	22
00 08 271	G1/2"	1/2" NPT	14	23	37	27
00 08 272	G3/4"	3/4" NPT	14	24	38	32
00 08 273	G1"	1" NPT	17	28	45	41
00 08 274	G1" 1/4	1" 1/4 NPT	18	28	46	50
00 08 275	G1" 1/2	1" 1/2 NPT	19	29	48	60
00 08 276	G2"	2" NPT	20	31	51	70

Note: All adapters are manufactured per minimum batch sizes and with cost evaluated upon final balance.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

VACUUM PUMPS AND PUMP SETS

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OIL-BATH VACUUM PUMP RVP 100	PG.	7.42 ÷ 7.43
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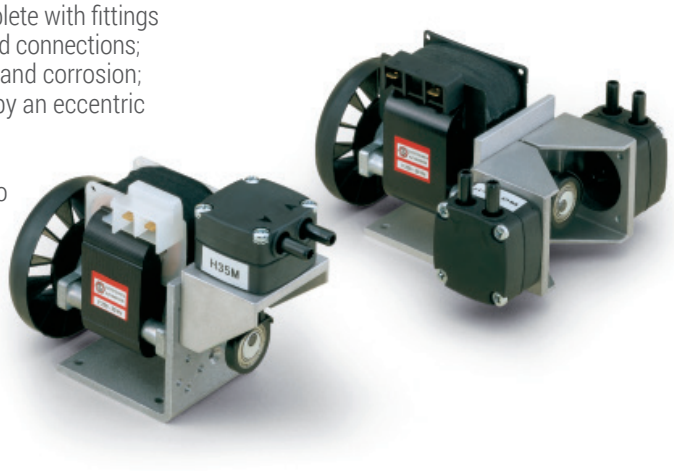
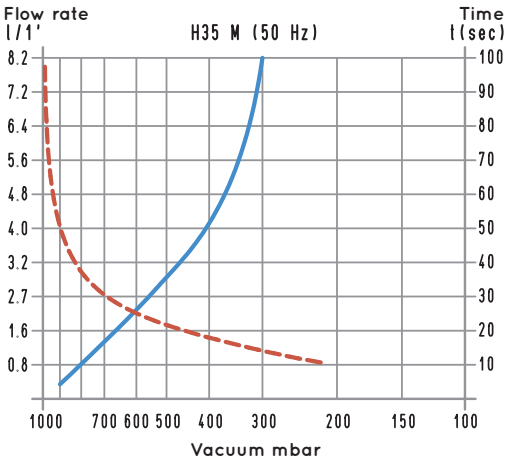
3D drawings are available on **vuototecnica.net**

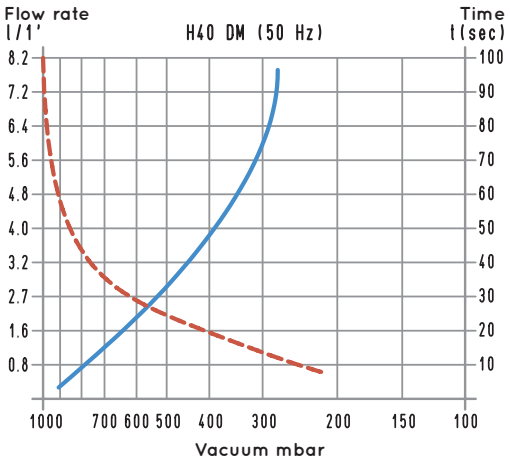
MEMBRANE VACUUM MINI PUMPS

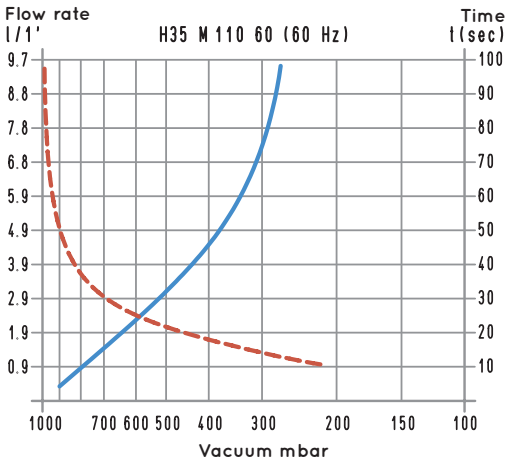
The small pumps described on this page are membrane-type.
They can be used both as vacuum pumps and compressors.
In the latter version they can supply compressed air 100% oil-free up to a maximum 2 bar pressure.
They are composed of:
- An air-cooled single-phase electric motor with protection class IP 00 (assembly execution);
- A pump body made of plastic corrosion-resistant material, complete with fittings at both suction and blowing ports or, upon request, with threaded connections;
- A FKM membrane, fixed to a connecting rod, resistant to wear and corrosion;
- A connecting rod with incorporated long life bearing powered by an eccentric balanced system fitted on the crankshaft;
- An aluminium support, for fastening the pump.

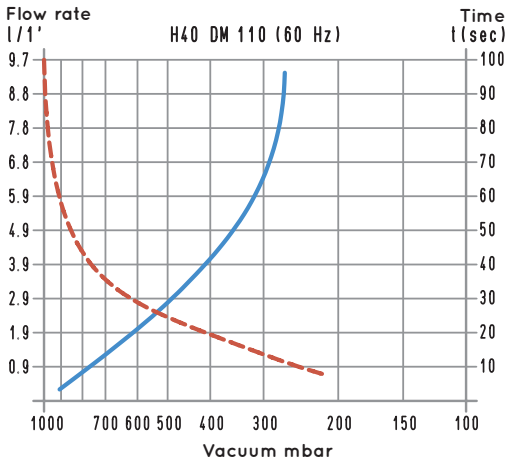
They are available in the versions with single and double head to be used in series or in parallel.
Membrane vacuum mini pumps are very silent (≤ 50dB(A)), they have reduced vibrations and can be installed in any position.
Lubrication-free, they require no maintenance.
Thanks to their minimal overall dimensions and reduced weight, they are particularly indicated for being installed on portable equipment.
They are suited for a discontinuous and non-intense use.











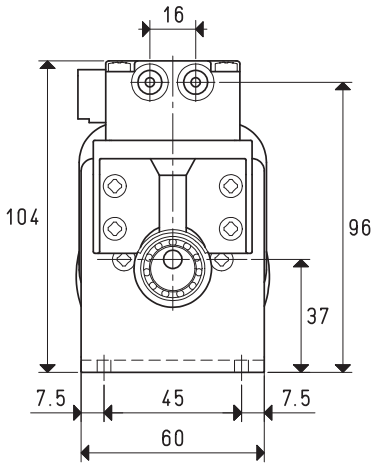
To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{6}$

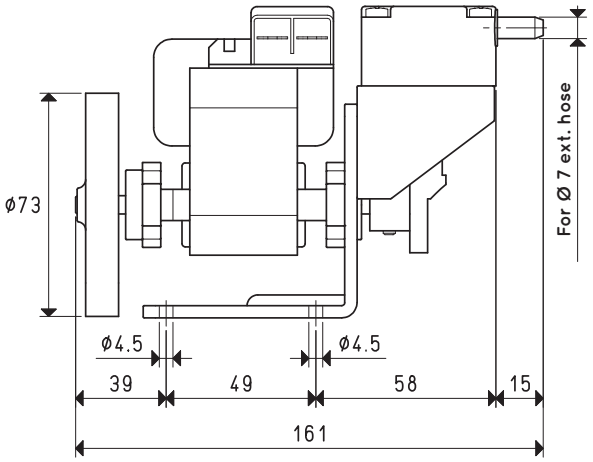
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve relative to the emptying time of a 6-litre volume

V_1 : Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

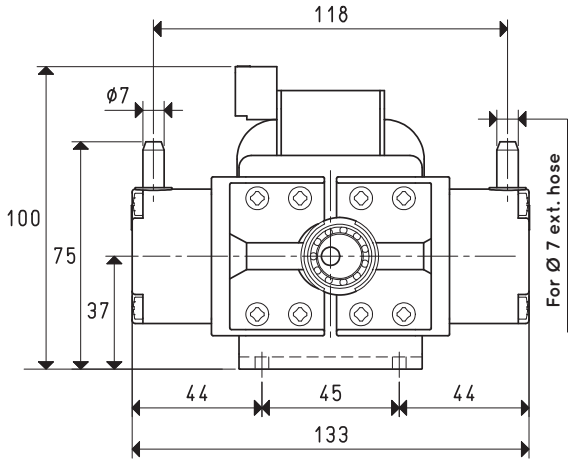
3D drawings are available on **vuototecnica.net**

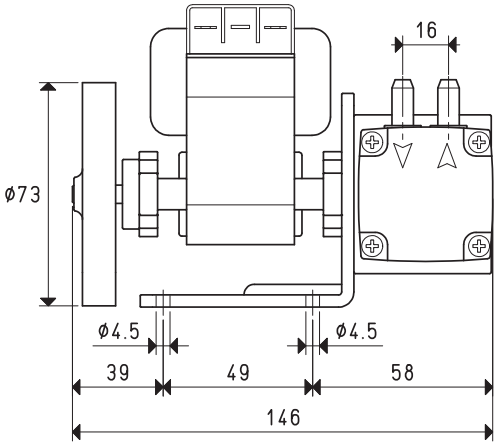
H 35 M - H 35 M 110 60





H 40 DM - H 40 DM 110 60





Item		H 35 M	H 35 M 110 60	H 40 DM	H 40 DM 110 60
Frequency		50Hz	60Hz	50Hz	60Hz
Nominal flow rate:					
Connection in series	l / 1'	8	9,5	8	9,5
Parallel connection	l / 1'	=	=	8 + 8	9,5 + 9,5
Final pressure:					
Connection in series	mbar abs.	200		60	
Parallel connection	mbar abs.	=		200	
Maximum pressure	bar	2		2	
Motor performance 1~	volt	230 VAC	110 VAC	230 VAC	110 VAC
Motor power 1~	watt	60	72	60	72
Rotation speed	g/min $^{-1}$	2800	3300	2800	3300
Noise level	dB(A)	≤ 50		≤ 50	
Max weight	Kg	1.3		1.6	

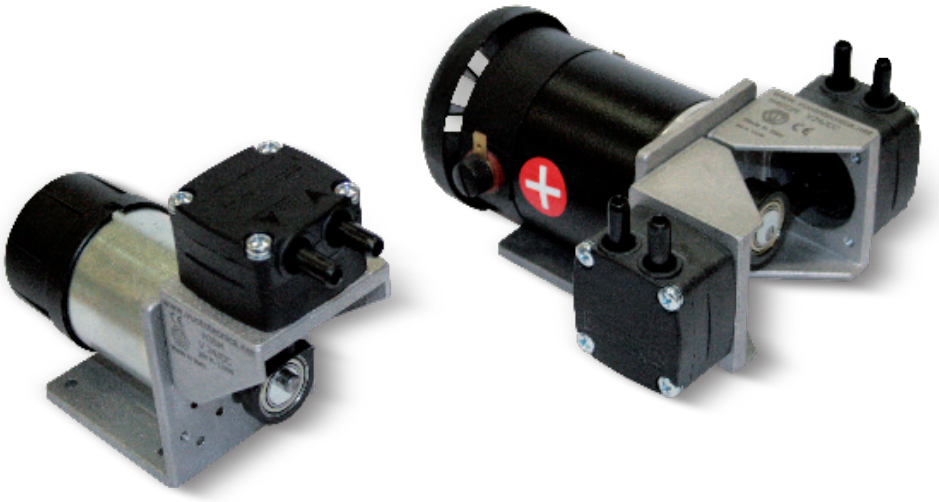
Accessories and Parts		H 35 M	H 35 M 110 60	H 40 DM	H 40 DM 110 60
Membrane	item	00 H35M 15	00 H35M 15	00 H40DM 15	00 H40DM 15
Cover with fittings	item	00 H35M 16	00 H35M 16	00 H40DM 20	00 H40DM 20
Cover without fittings	item	00 H35MF 16	00 H35MF 16	00 H40DMF 20	00 H40DMF 20

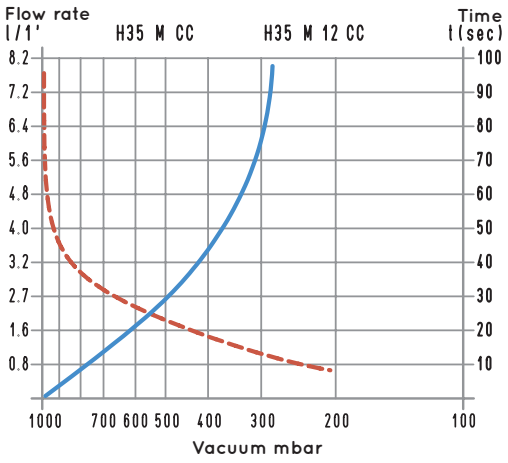
N.B. Add the letter F to the item for a mini pump supplied with G 1/8" threaded suction and blowing connections, without hose fittings. (Example: H40 DM F).

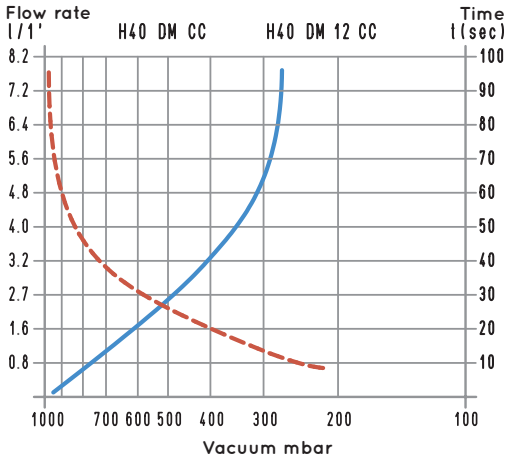
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

MEMBRANE VACUUM MINI PUMPS, WITH DC MOTOR

The mini pumps on this page are the same as described above, with a DC motor rather than an AC.
The performances are also almost the same.







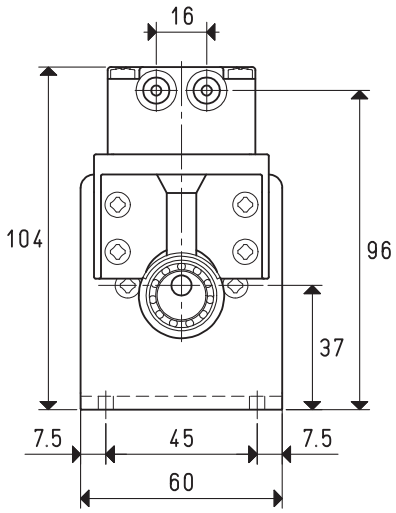
To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{6}$

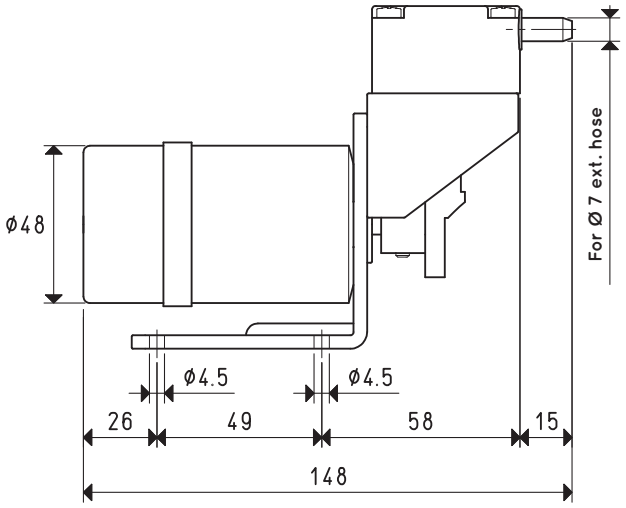
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 6-litre volume

V_1: Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

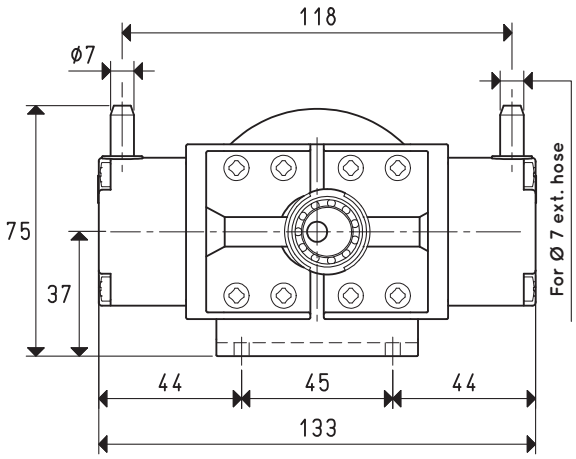
MEMBRANE VACUUM MINI PUMPS, WITH DC MOTOR

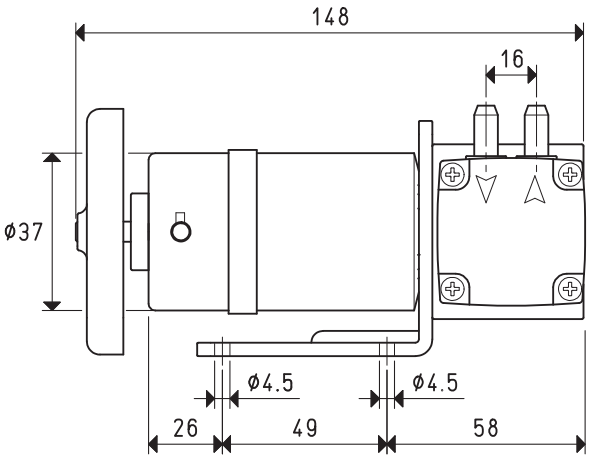
H 35 M CC - H 35 M 12 CC





H 40 DM CC - H 40 DM 12 CC





Item		H 35 M CC	H 35 M 12 CC	H 40 DM CC	H 40 DM 12 CC
Nominal flow rate:					
Connection in series	l / 1'	8.5		8.5	
Parallel connection	l / 1'	=		8.5 + 8.5	
Final pressure:					
Connection in series	mbar abs.	200		60	
Parallel connection	mbar abs.	=		200	
Maximum pressure	bar	2		2	
Motor performance	volt	24 VDC	12 VDC	24 VDC	12 VDC
Motor power	watt	12		22	
Rotation speed	g/min^{-1}	3000		3000	
Noise level	dB(A)	≤ 50		≤ 50	
Max weight	Kg	0.62		1.19	

Accessories and Parts		H 35 M CC	H 35 M 12 CC	H 40 DM CC	H 40 DM 12 CC
Membrane	item	00 H35M 15	00 H35M 15	00 H40DM 15	00 H40DM 15
Cover with fittings	item	00 H35M 16	00 H35M 16	00 H40DM 20	00 H40DM 20
Cover without fittings	item	00 H35MF 16	00 H35MF 16	00 H40DMF 20	00 H40DMF 20

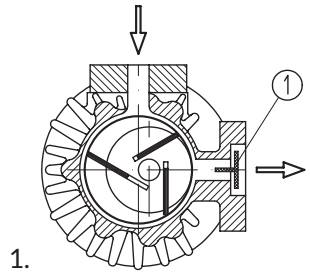
N.B. Add the letter F to the item for a mini pump supplied with G 1/8" threaded suction and blowing connections, without hose fittings. (Example: H35 M F CC).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

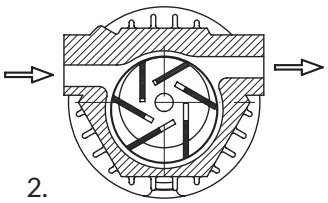
3D drawings are available on **vuototecnica.net**

Working principle

The rotor rotates eccentrically inside a stator and it has grooves in which the vanes move freely and are pushed against the stator inside wall due to the centrifugal force, thus creating as many chambers as the number of vanes. During rotation, the volume of these chambers varies according to their position with respect to the eccentric axis.
The chamber volume increase makes the air inside of them expand, thus creating vacuum (suction phase); the volume reduction, on the other hand, generates air compression (exhaust or delivery phase).
The internal design is the same for both rotating compressors and vacuum pumps. We have created two different sucked air conveying principles for our pumps.
Figure 1 illustrates a system with three rotary blades and discharge valve (1); this system is mainly used in the high vacuum field.
Figure 2 illustrates a system with six rotary blades and therefore with several chambers, which is mainly used in the rough vacuum field.



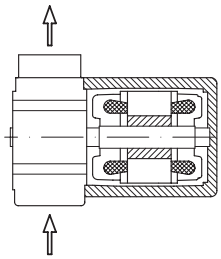
1.



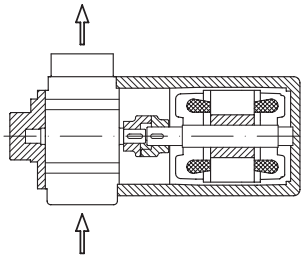
2.

Rotor housing

In smaller and more compact pumps, the rotor is cantilevered on the crankshaft extension (fig.1), while in the versions with high installed power or with frequent start-ups, the rotor is supported by bearings on both sides (fig. 2).
In this case, the pump and the electric motor are two independent units and the two shafts are coupled together by an elastic transmission joint.



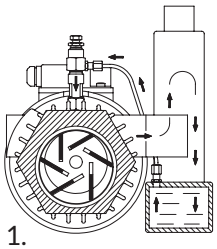
1.



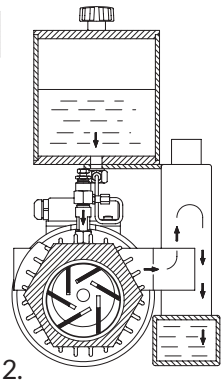
2.

Lubrication system

The main lubrication systems used by us are vacuum with oil recirculation or waste oil for vacuum pumps in the VTL series and an oil bath for pumps in the RVP series.
In oil recirculation lubrication (fig.1), the oil sucked into the working chamber through the adjustable oilers that dose the flow is discharged together with the air sucked into the recovery tank and, through a special filter contained in it, is separated from the air and put back into the cycle.
With disposable oil lubrication (fig.2), the lubrication oil is contained in a special transparent container, controlled by a magnetic level switch, and follows the same route previously described but is collected in the recovery tank without being put back into the cycle. This lubrication system is recommended when there are water condensates, solvent vapours or anything else that can pollute the oil in the intake air.
With oil-bath lubrication (fig.3), the oil is sucked into the working chamber directly from the recovery tank through calibrated pipes that measure the quantity and is held and separated from the air during discharge by special dehydrating microfibre cartridges, contained in the tank itself.
In this lubrication system, the quantity of oil in circulation is significantly higher than that of the two systems described above. This leads to a better seal between the stator and the rotor and lower friction between the rotating and fixed parts, with a resulting increase in the degree of vacuum, less heating and less noise.



1.



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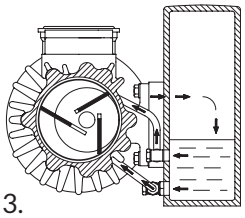


3.

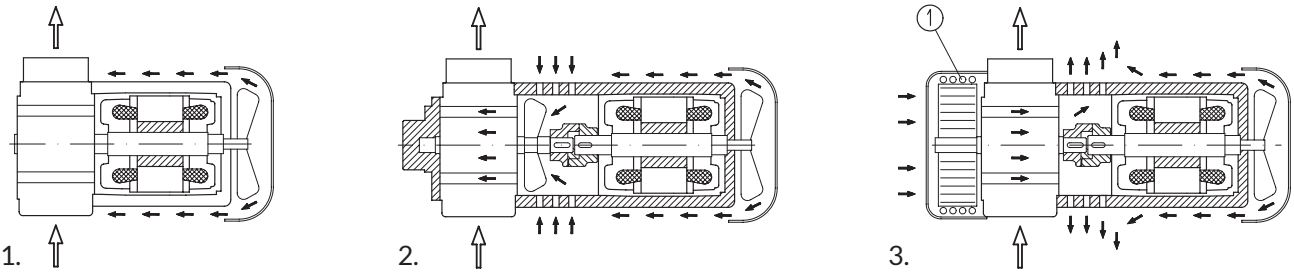
3D drawings are available on **vuototecnica.net**

Dry vacuum pumps

The particular shape of the working chamber and the special graphite with which the blades and closing flanges are made allow these pumps to work without any need for lubrication. Use of these pumps is not recommended when the fluid to be suctioned contains vapours or water or oil condensation.

Cooling

The pump cooling system we use is the surface air type. The heat developed by the vacuum pump is dispersed from the external, specially finned surface by the fan of the electric motor on smaller pumps and by a radial fan keyed on the pump shaft on larger pumps. Pumps with capacities from 100 m^3/h upwards are also equipped with a serpentine radiator (1). In this case, the lubricating oil, passing through the radiator before entering the working chamber, is cooled by the radial fan, which sucks the cooling air through the radiator itself, allowing a further reduction of the heat developed by the pump.



Materials used

The stator and the flanges of the pumps are made of spheroidal cast iron, the transmission shaft and the rotor are made of carbon steel, while the vanes are in carbon fibre or glass for lubricated pumps and in graphite for dry pumps.

Electric motors

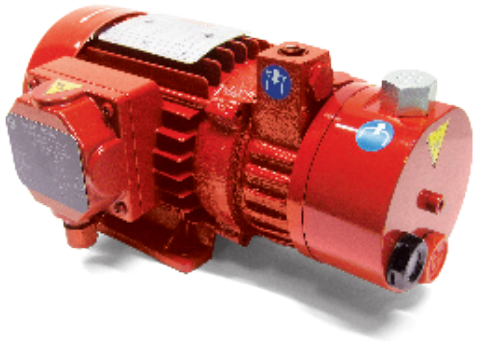
All vacuum pumps with flow rate up to 21 m^3/h can be supplied either with three-phase or single-phase electric motors; for those with higher flow rates, only three-phase.
All the pumps are equipped as standard with multi-voltage electric motors, according to EC regulations. Upon request, they can be supplied with UL-CSA compliant motors or with special voltages and frequencies.
The pumps are driven by an electric motor, in compliance with IEC International Standard 60034 requirements for rotating machines and European Directives for Low Voltage 2014/35/UE, for Electromagnetic Compatibility (EMC) 2014/30/UE, for the limitation of use of hazardous substances RoHS 2011/65/EC and Machine Directive 2006/42/EC for CE marking.
With the exception of electric motors with power lower than 0.75 KW, the efficiency class corresponds to IE3 = Premium Efficiency, with protection degree IP 55, Tolerance of nominal Voltage ± 10% and Class of Insulation F.

Certifications

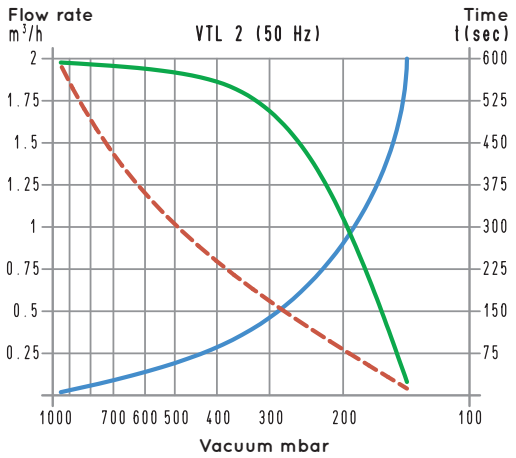
The design and construction of our vacuum pumps comply with European safety directives.
The "CE" mark is in fact reported along with the technical characteristics of the pumps on all the identification plates and the instructions for use and maintenance that accompany them are always provided with a Declaration of Compliance with Machinery Directive 2006/42/EC and subsequent changes.

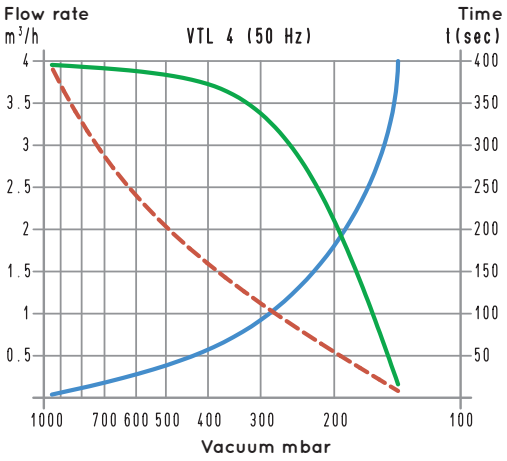
VACUUM PUMPS VTL 2 and 4

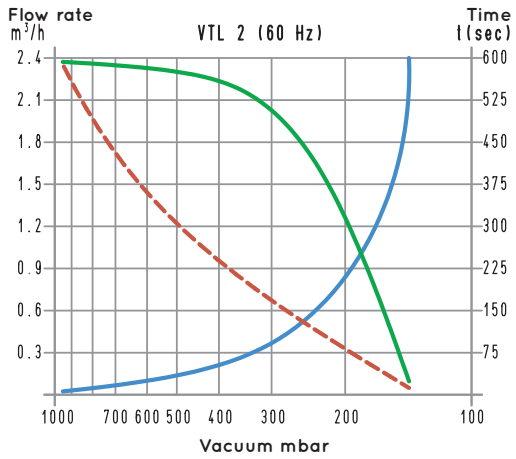
These small vacuum pumps have a suction flow rate of 2 and 4 m^3/h.
They feature a wick lubrication with oil recirculation, while the rotor, which is cantilevered-fitted on the motor shaft, allows reducing the overall dimensions to the minimum.
The motor and the pump are cooled by the motor fan (surface cooling).
The pumps are equipped with a small tank in line with the pump, which contains the lubrication oil as well as a separator filter to prevent oil mists and to reduce noise.
We strongly recommend installing a check valve and a filter on the suction inlet.
Pumps VTL 2 and 4 can also be supplied with single-phase electric motor.

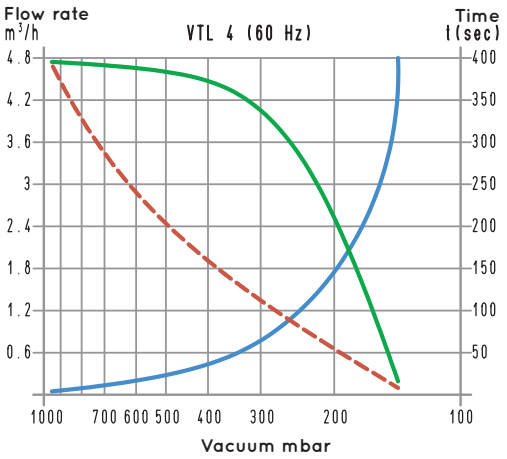


3D drawings are available on **vuototecnica.net**







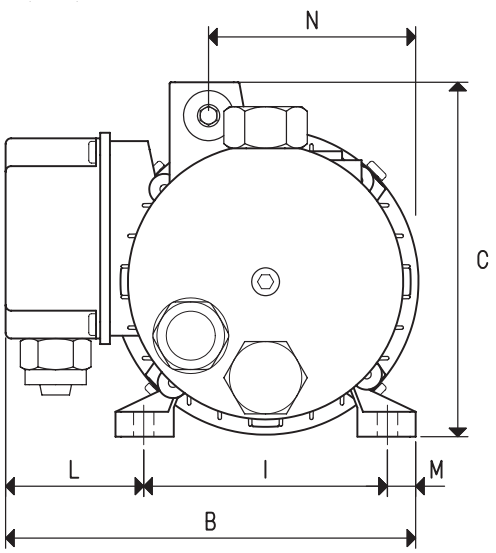


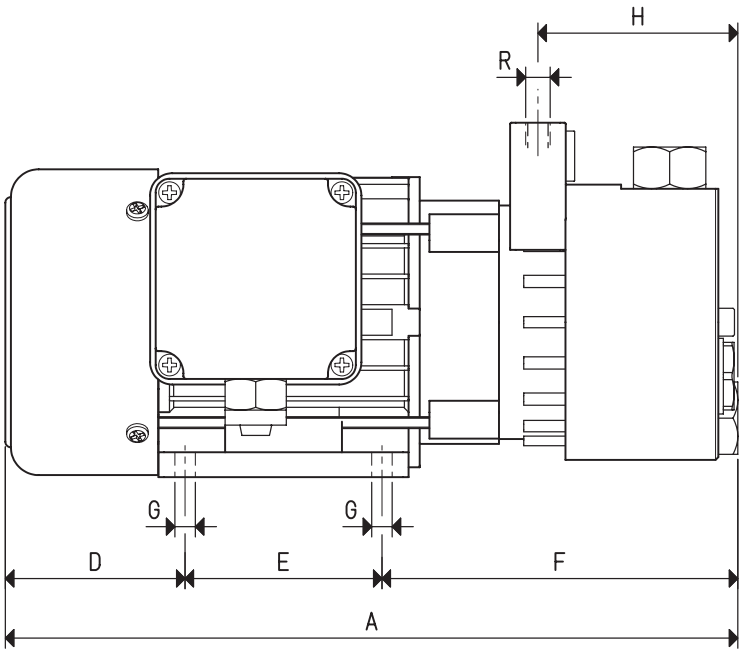
To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1: Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

3D drawings are available on **vuototecnica.net**





Item			VTL 2		VTL 4	
Frequency			50Hz	60Hz	50Hz	60Hz
Flow rate		m^3/h	2.0	2.4	4.0	4.8
Final pressure		mbar abs.	150		150	
Motor performance	**3~**	Volt	230/400±10%	265/460±10%	230/400±10%	265/460±10%
	1~	Volt	230±10%		230±10%	
Motor power	**3~**	Kw	0.12	0.15	0.18	0.21
	1~	Kw	0.12	0.15	0.18	0.21
Motor protection		IP	55		55	
Rotation speed		g/min^{-1}	2700	3245	2760	3300
Motor shape			Special		Special	
Motor size			56		63	
Noise level		dB(A)	62	65	62	65
Max weight	**3~**	Kg	5.7		7.3	
	1~	Kg	6.0		7.5	
A			260		285	
B			145		160	
C			126		132	
D			62		66	
E			71		81	
F			127		139	
G		Ø	6.5		7.5	
H			72		81	
I			90		100	
L			43		48	
M			12		12	
N			76		86	
R		Ø gas	G1/4"		G3/8"	

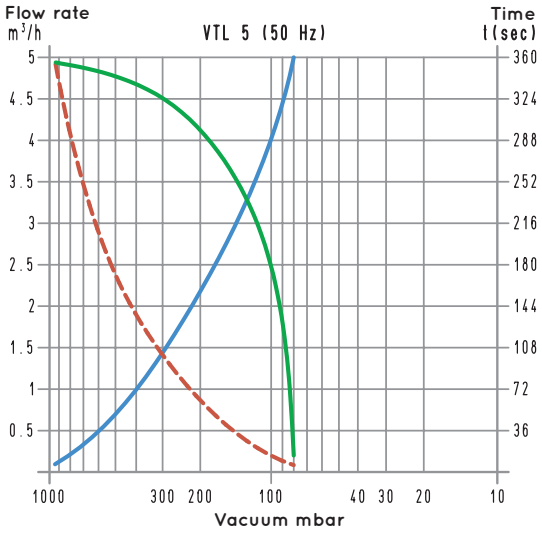
Accessories and Parts		VTL 2	VTL 4
Oil charge	L	0.05	0.05
Lubricating oil	type	ISO 32	ISO 32
Vane	item	00 VTL 02 10 (N°4)	00 VTL 04 10 (N°4)
Sealing kit	item	00 KIT VTL 02	00 KIT VTL 04
Check valve	item	10 01 15	10 02 15
Suction filter	item	FB 5 - FPL 1 - FCL 1 - FIL 1	FB 15 - FC 10 - FPL 2 - FCL 2 - FIL 2

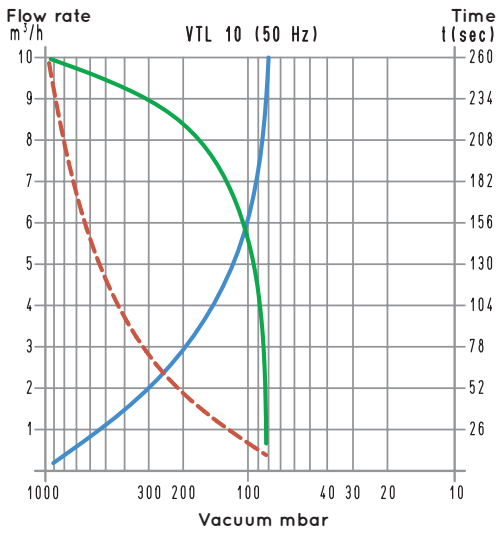
Note: Add the letter M to the item for a pump supplied with a single-phase electric motor (Example: VTL 2 M).

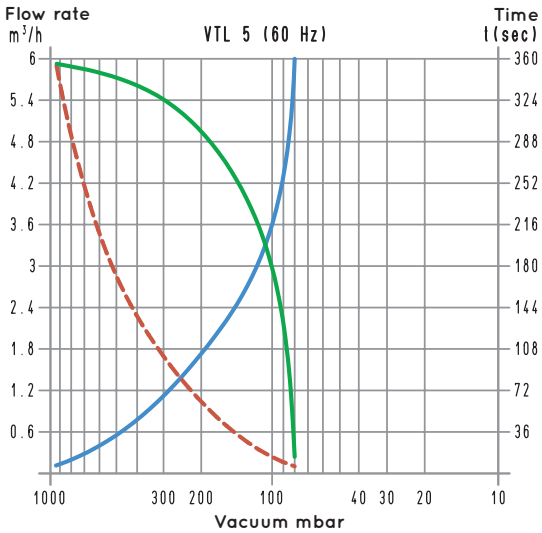
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

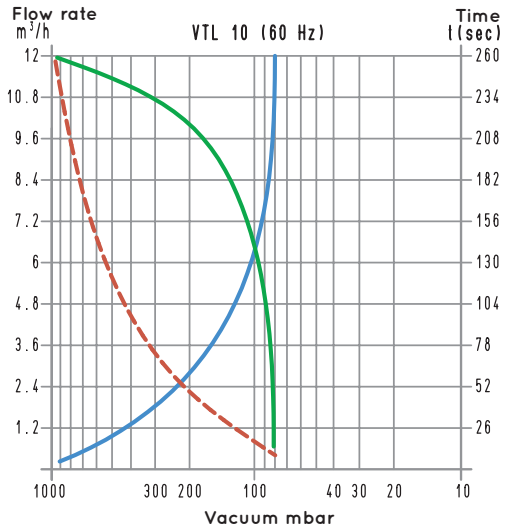
VACUUM PUMPS VTL 5 and 10

These vacuum pumps have a suction flow rate of 5 and 10 m^3.
The vacuum lubrication with oil recirculation can be adjusted via an oiler located in correspondence of the suction inlet.
The rotor is cantilevered-fitted on the motor shaft and, as a result, the overall dimensions are reduced.
The motor and the pump are cooled by the motor fan (surface cooling).
An oil recovery tank is installed on the pump exhaust. This tank contains a separator filter that prevents oil mists and reduces noise.
We strongly recommend installing a check valve and a filter on the suction inlet.
Pumps VTL 5 and 10 can also be supplied with a single-phase electric motor.







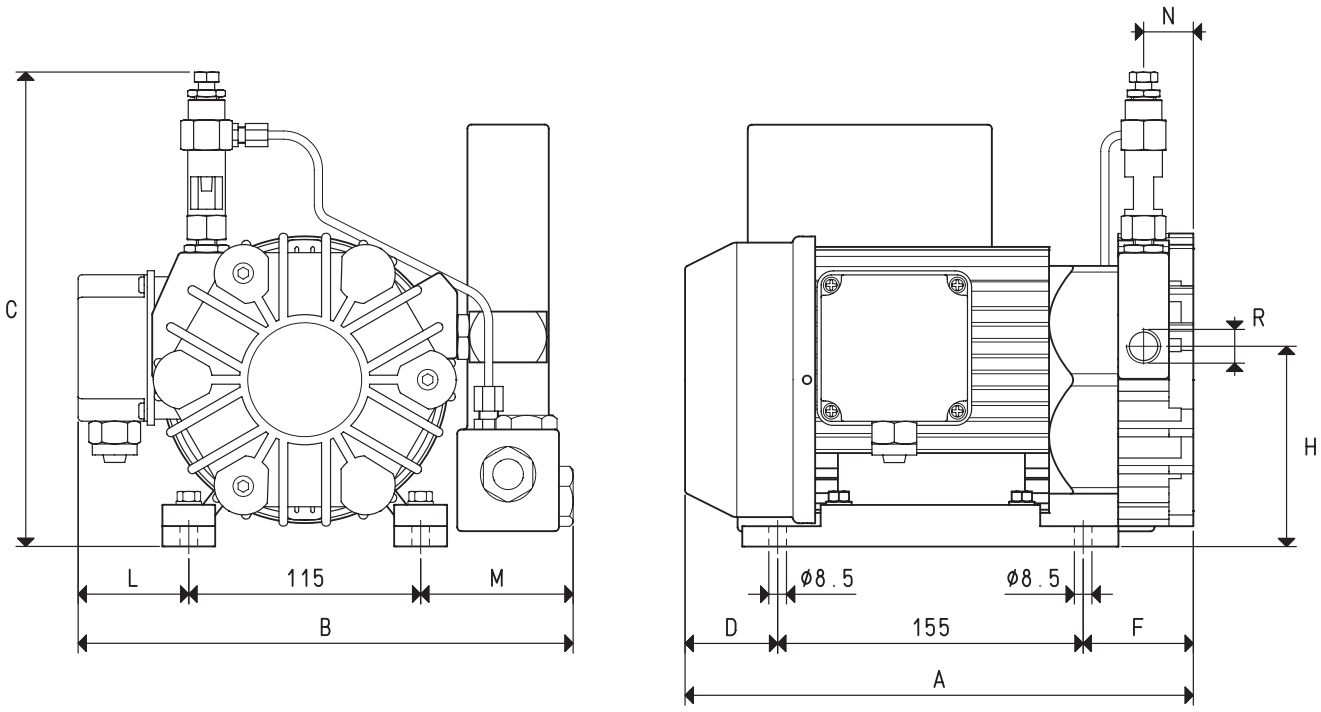


To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1: Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

3D drawings are available on **vuototecnica.net**



Item			VTL 5		VTL 10	
Frequency			50Hz	60Hz	50Hz	60Hz
Flow rate		m^3/h	5.0	6.0	10.0	12.0
Final pressure		mbar abs.	80		80	
Motor performance	**3~**	Volt	230/400±10%	265/460±10%	230/400±10%	265/460±10%
	1~	Volt	230±10%		230±10%	
Motor power	**3~**	Kw	0.25	0.30	0.37	0.40
	1~	Kw	0.25	0.30	0.37	0.40
Motor protection		IP	55		55	
Rotation speed		g/min^{-1}	1450	1680	1450	1680
Motor shape			Special		Special	
Motor size			71		71	
Noise level		dB(A)	62	64	62	64
Max weight	**3~**	Kg	14.5		20.5	
	1~	Kg	15.0		21.0	
A			260		310	
B			245		262	
C			245		245	
D			52		70	
F			53		85	
H			122		122	
L			45		45	
M			85		102	
N			27		52	
R		Ø gas	G3/8"		G1/2"	

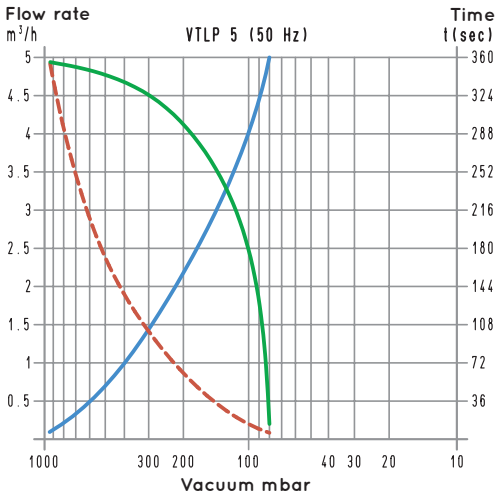
Accessories and Parts		VTL 5	VTL 10
Oil charge	L	0.25	0.40
Lubricating oil	type	ISO 32	ISO 100
Vane	item	00 VTL 05 10 (N°6)	00 VTL 10 10 (N°6)
Sealing kit	item	00 KIT VTL 05	00 KIT VTL 10
Check valve	item	10 02 15	10 03 15
Suction filter	item	FB 15 - FC 10 - FPL 2 - FCL 2 - FIL 2	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3
Adjustable drip oiler	item	00 VTL 00 11	00 VTL 00 11

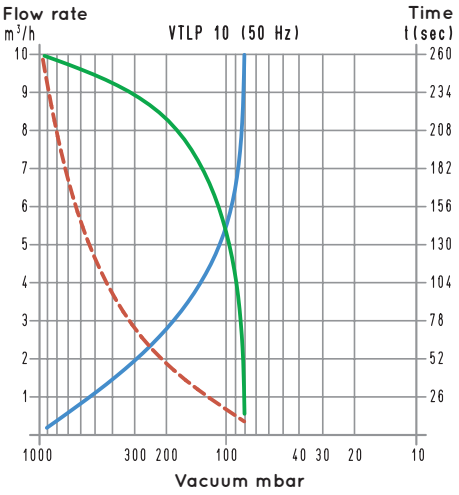
Note: Add the letter M to the item for a pump supplied with a single-phase electric motor (Example: VTL 5 M).

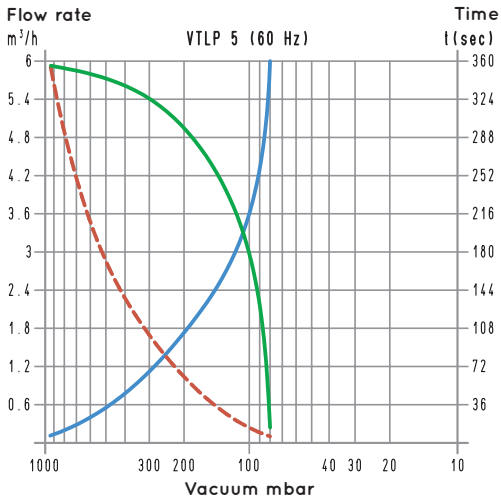
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

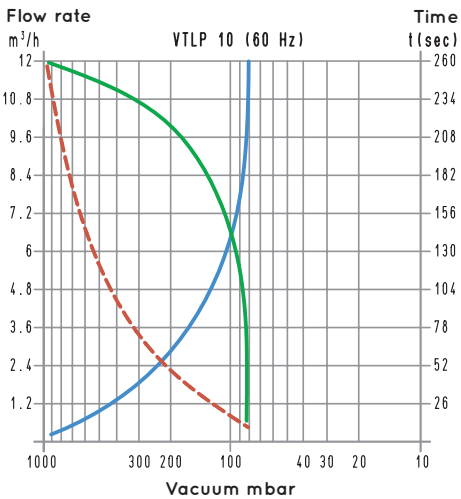
VACUUM PUMPS VTLP 5 and 10 WITH DISPOSABLE LUBRICATION

These vacuum pumps have a suction flow rate of 5 and 10 m^3/h.
The vacuum with disposable oil lubrication is adjusted via two oilers located in correspondence of the support bearings.
The rotor is cantilevered-fitted on the motor shaft and supported by independent bearings housed in the two pump flanges.
The pump and the electric motor are, therefore, two independent units and fixed onto a special support and connected to each other via an elastic transmission joint.
All this allows using standard electric motors, in the shapes and sizes indicated in the table.
The pump is surface cooled. Heat is dispersed from the outer surface, suitably finned, by means of a radial fan placed between motor and pump.
An oil recovery tank is installed on the pump exhaust. This tank contains a separator filter that prevents oil mists and reduces noise.
A safety valve is also installed on the tank for the automatic drainage of the exhaust oil when not regularly drained.
The lubrication oil is contained in a special transparent container, fixed to the pump via its support, and controlled by a magnetic level switch.
In pumps with disposable lubrication, the oil is sucked in the pump through an adjustable drip oilers and drained together with the sucked air in the recovery tank, without being put in circulation again. These pumps are necessary when the air to be sucked contains water condensation, solvent vapours or anything else that could affect oil properties.
We strongly recommend installing a check valve and a filter on the suction inlet.
Also this range of pumps can be supplied with single-phase electric motors.







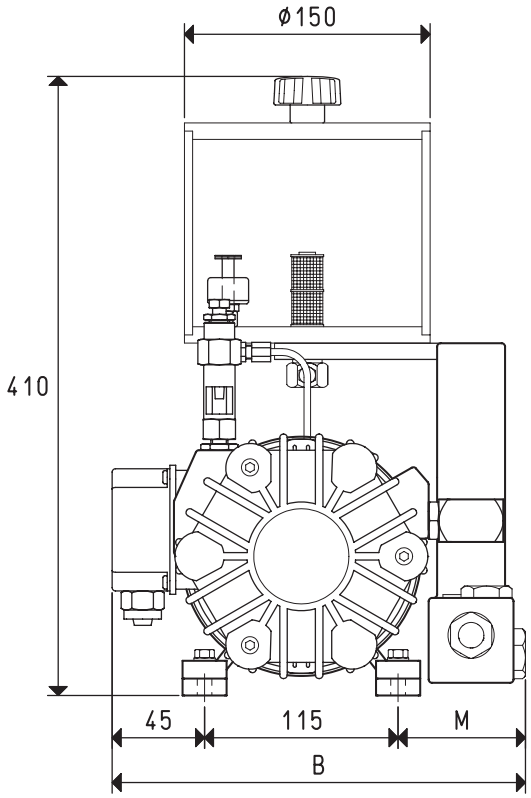


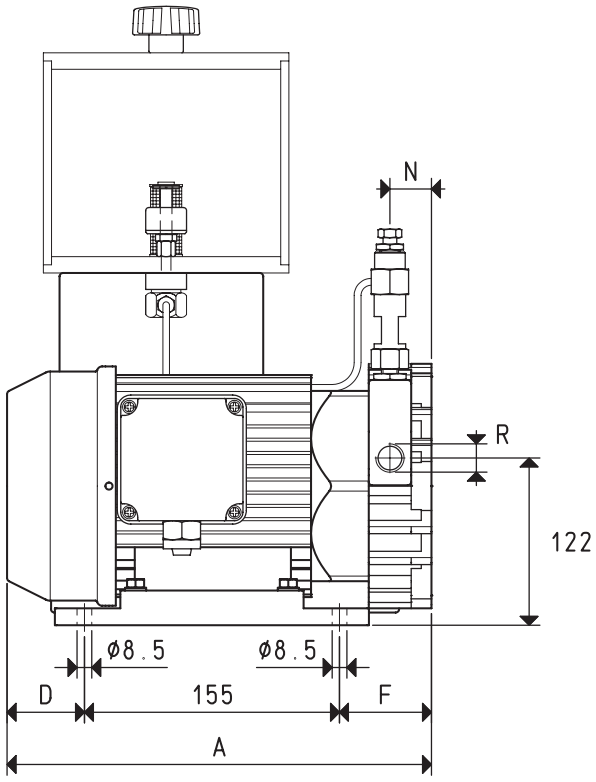
To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1: Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

VACUUM PUMPS VTLP 5 and 10
WITH DISPOSABLE LUBRICATION





Item			VTLP 5		VTLP 10	
Frequency			50Hz	60Hz	50Hz	60Hz
Flow rate		m^3/h	5.0	6.0	10.0	12.0
Final pressure		mbar abs.	80		80	
Motor performance	**3~**	Volt	230/400±10%	265/460±10%	230/400±10%	265/460±10%
	1~	Volt	230±10%		230±10%	
Motor power	**3~**	Kw	0.25	0.30	0.37	0.40
	1~	Kw	0.25	0.30	0.37	0.40
Motor protection		IP	55		55	
Rotation speed		g/min^{-1}	1450	1680	1450	1680
Motor shape			Special		Special	
Motor size			71		71	
Noise level		dB(A)	62	64	62	64
Max weight	**3~**	Kg	15.6		21.6	
	1~	Kg	16.1		22.1	
A			260		310	
B			245		262	
D			52		70	
F			53		85	
M			85		102	
N			27		52	
R		Ø gas	G3/8"		G1/2"	

Accessories and Parts		VTLP 5	VTLP 10
Oil charge	L	1.8	1.8
Lubricating oil	type	ISO 32	ISO 100
Vane	item	00 VTL 05 10 (N°6)	00 VTL 10 10 (N°6)
Sealing kit	item	00 KIT VTL 05	00 KIT VTL 10
Check valve	item	10 02 15	10 03 15
Suction filter	item	FB 15 - FC 10 - FPL 2 - FCL 2 - FIL 2	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3
Oil level switch	item	00 LP VTL 99	00 LP VTL 99
Oil filter	item	00 LP VTL 40	00 LP VTL 40
Adjustable drip oiler	item	00 VTL 00 11	00 VTL 00 11

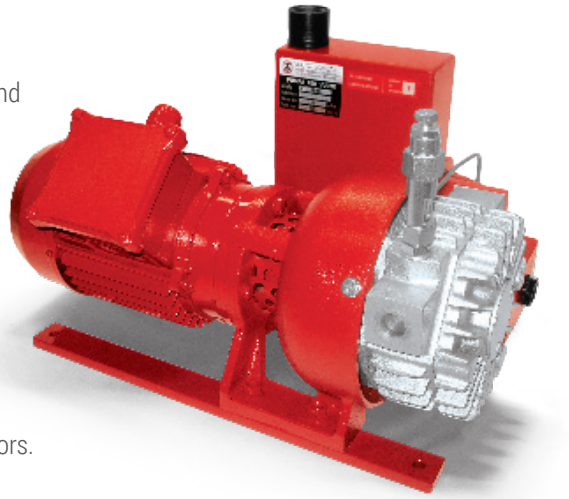
Note: Add the letter M to the item for a pump supplied with a single-phase electric motor (Example: VTLP 5 M).

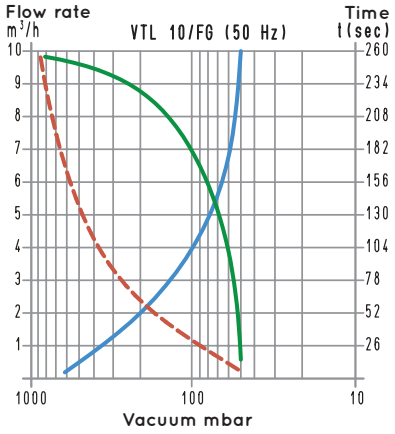
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

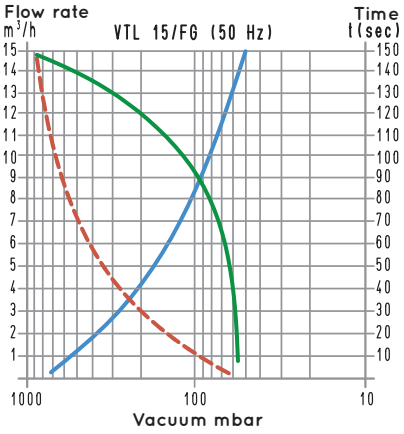
3D drawings are available on **vuototecnica.net**

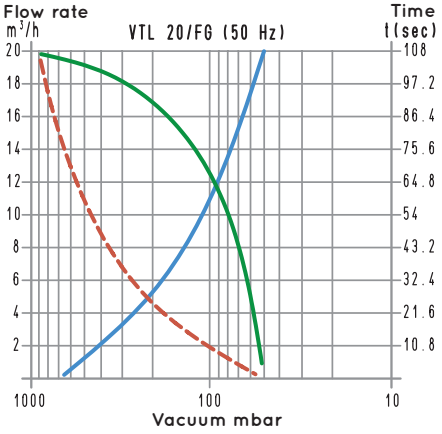
VACUUM PUMPS VTL 10/FG, 15/FG and 20/FG

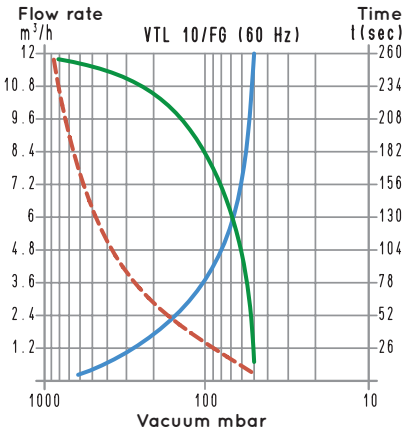
These vacuum pumps have a suction flow rate of 10, 15 and 20 m³/h.
The vacuum lubrication with oil recirculation is adjusted via two oilers located in correspondence of the support bearings.
The rotor is cantilevered-fitted on the motor shaft and supported by independent bearings housed in the two pump flanges.
The pump and the electric motor are, therefore, two independent units and fixed onto a special support and connected to each other via an elastic transmission joint.
All this allows using standard electric motors, in the shapes and sizes indicated in the table.
The pump is surface cooled. Heat is dispersed from the outer surface, suitably finned, by means of a radial fan placed between motor and pump.
An oil recovery tank is installed on the pump exhaust. This tank contains a separator filter that prevents oil mists and reduces noise.
We strongly recommend installing a check valve and a filter on the suction inlet.
Also this range of pumps can be supplied with single-phase electric motors.

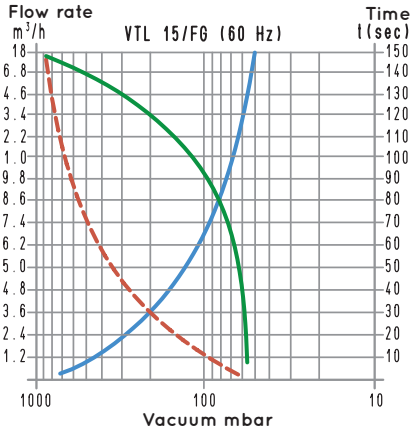


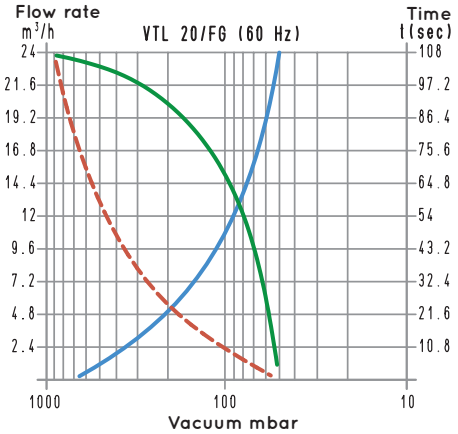










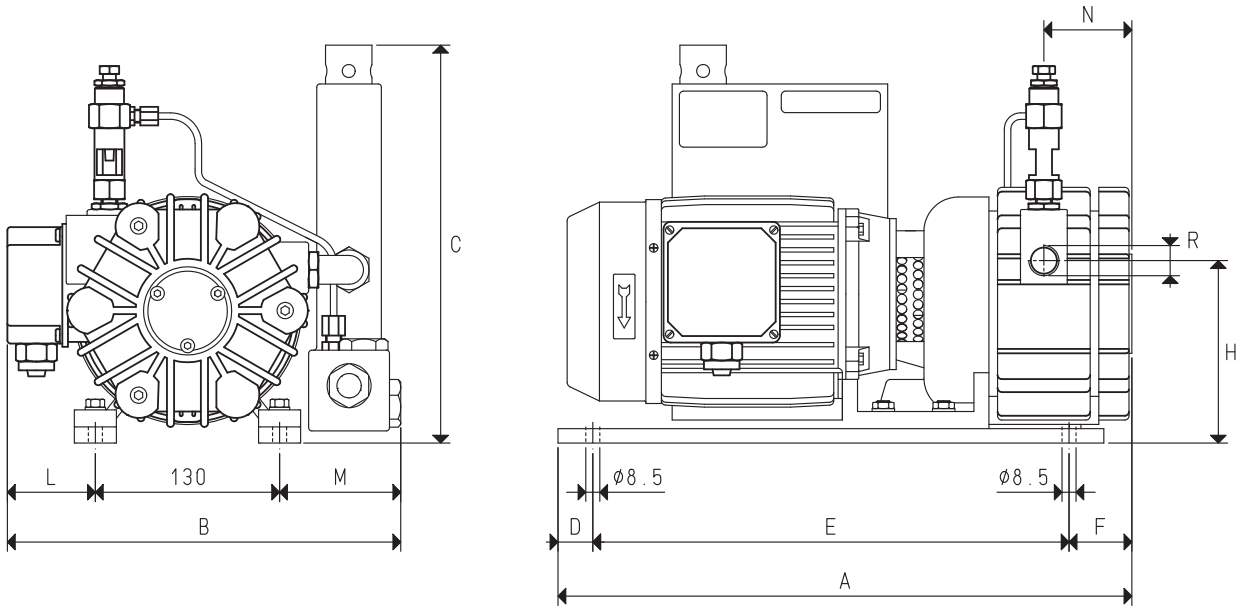


To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1: Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

3D drawings are available on **vuototecnica.net**



Item			VTL 10/FG		VTL 15/FG		VTL 20/FG	
Frequency			50Hz	60Hz	50Hz	60Hz	50Hz	60Hz
Flow rate		m^3/h	10.0	12.0	15.0	18.0	20.0	24.0
Final pressure		mbar abs.	50		50		50	
Motor performance	**3~**	Volt	230/400±10%	265/460±10%	230/400±10%	265/460±10%	230/400±10%	265/460±10%
	1~	Volt	230±10%		230±10%		230±10%	
Motor power	**3~**	Kw	0.55	0.66	0.55	0.66	0.55	0.66
	1~	Kw	0.55	0.66	0.55	0.66	0.55	0.66
Motor protection		IP	55		55		55	
Rotation speed		g/min^{-1}	1450	1680	1450	1680	1450	1680
Motor shape			Special		Special		Special	
Motor size			80		80		80	
Noise level		dB(A)	71	73	74	76	80	82
Max weight	**3~**	Kg	24.0		28.0		31.0	
	1~	Kg	24.5		28.5		31.5	
A			430		450		470	
B			300		300		300	
C			270		270		285	
D			65		65		65	
E			340		340		340	
F			25		45		65	
H			133		133		133	
L			55		55		55	
M			115		115		155	
N			58		68		78	
R		Ø gas	G1/2"		G1/2"		G1/2"	

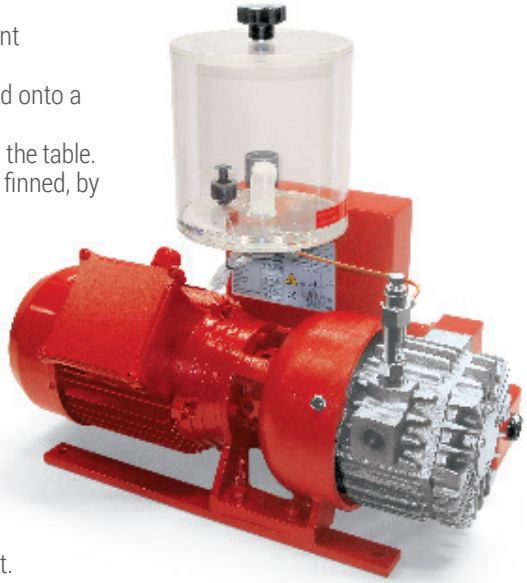
Accessories and Parts		VTL 10/FG	VTL 15/FG	VTL 20/FG
Oil charge	L	0.4	0.5	0.65
Lubricating oil	type	ISO 100	ISO 100	ISO 100
Vane	item	00 VTL 10FG 10 (N°6)	00 VTL 15FG 10 (N°6)	00 VTL 20FG 10 (N°6)
Sealing kit	item	00 KIT VTL 10FG	00 KIT VTL 15FG	00 KIT VTL 20FG
Check valve	item	10 03 15	10 03 15	10 03 15
Suction filter	item	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3
Adjustable drip oiler	item	00 VTL 00 11	00 VTL 00 11	00 VTL 00 11

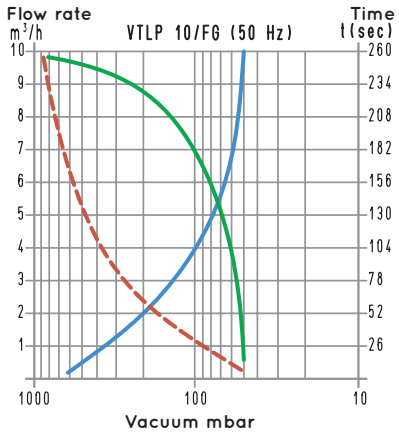
Note: Add the letter M to the item for a pump supplied with a single-phase electric motor (Example: VTL 10/FG M).

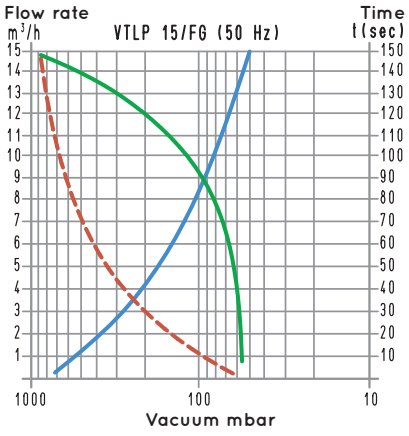
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

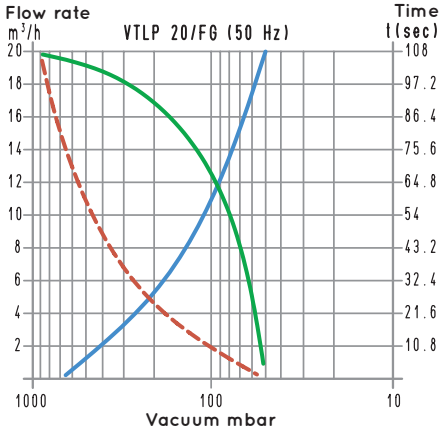
VACUUM PUMPS VTLP 10/FG, 15/FG and 20/FG, WITH DISPOSABLE LUBRICATION

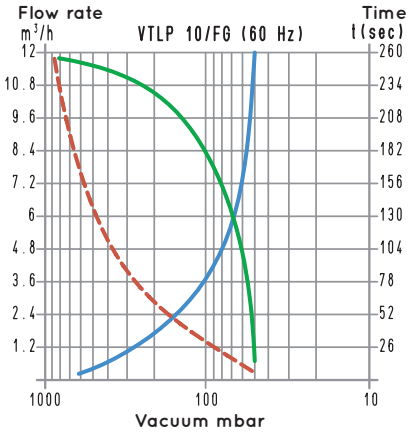
These vacuum pumps have a suction flow rate of 10, 15 and 20 m³/h.
The vacuum with disposable oil lubrication is adjusted via two oilers located in correspondence of the support bearings.
The rotor is cantilevered-fitted on the motor shaft and supported by independent bearings housed in the two pump flanges.
The pump and the electric motor are, therefore, two independent units and fixed onto a special support and connected to each other via an elastic transmission joint.
All this allows using standard electric motors, in the shapes and sizes indicated in the table.
The pump is surface cooled. Heat is dispersed from the outer surface, suitably finned, by means of a radial fan placed between motor and pump.
An oil recovery tank is installed on the pump exhaust. This tank contains a separator filter that prevents oil mists and reduces noise.
A safety valve is also installed on the tank for the automatic drainage of the exhaust oil when not regularly drained.
The lubrication oil is contained in a special transparent container, fixed to the pump via its support, and controlled by a magnetic level switch.
In pumps with disposable lubrication, the oil is sucked in the pump through an adjustable drip oilers and drained together with the sucked air in the recovery tank, without being put in circulation again. These pumps are necessary when the air to be sucked contains water condensation, solvent vapours or anything else that could affect oil properties.
We strongly recommend installing a check valve and a filter on the suction inlet.
Also this range of pumps can be supplied with single-phase electric motors.

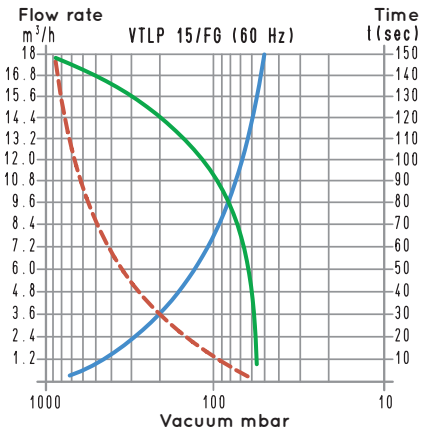


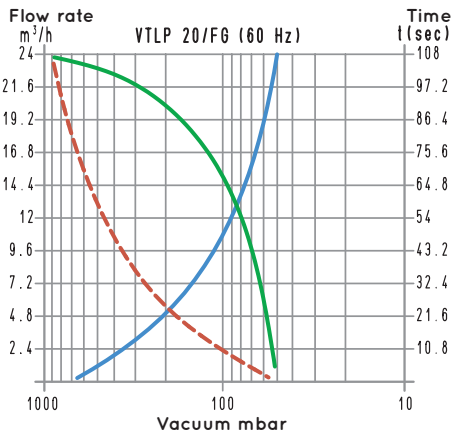










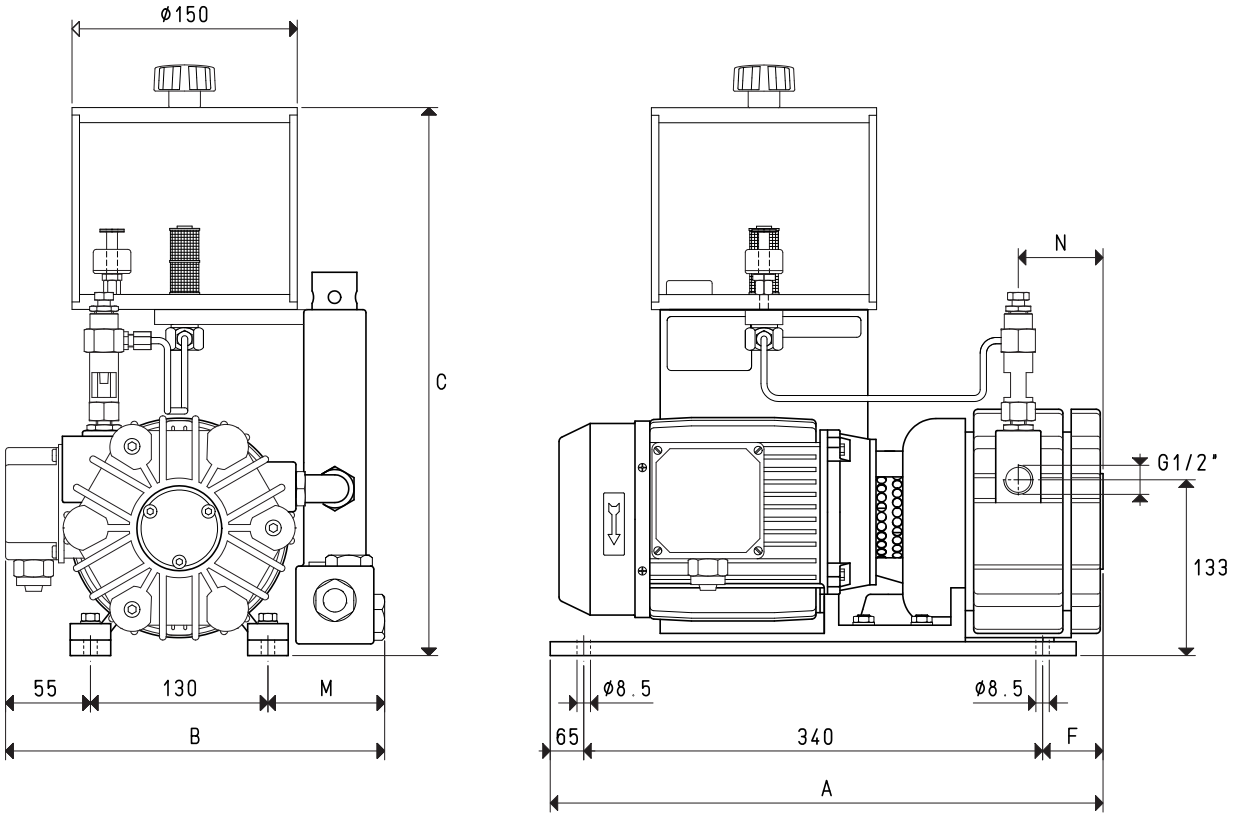


To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1: Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

VACUUM PUMPS VTLP 10/FG, 15/FG and 20/FG, WITH DISPOSABLE LUBRICATION



Item			VTLP 10/FG		VTLP 15/FG		VTLP 20/FG	
Frequency			50Hz	60Hz	50Hz	60Hz	50Hz	60Hz
Flow rate		m^3/h	10.0	12.0	15.0	18.0	20.0	24.0
Final pressure		mbar abs.	50		50		50	
Motor performance	**3~**	Volt	230/400±10%	265/460±10%	230/400±10%	265/460±10%	230/400±10%	265/460±10%
	1~	Volt	230±10%		230±10%		230±10%	
Motor power	**3~**	Kw	0.55	0.66	0.55	0.66	0.55	0.66
	1~	Kw	0.55	0.66	0.55	0.66	0.55	0.66
Motor protection		IP	55		55		55	
Rotation speed		g/min^{-1}	1450	1680	1450	1680	1450	1680
Motor shape			Special		Special		Special	
Motor size			80		80		80	
Noise level		dB(A)	71	73	74	76	80	82
Max weight	**3~**	Kg	24.0		28.0		31.0	
	1~	Kg	24.5		28.5		31.5	
A			430		450		470	
B			300		300		300	
C			445		445		460	
F			25		45		65	
M			115		115		155	
N			58		68		78	

Accessories and Parts		VTLP 10/FG	VTLP 15/FG	VTLP 20/FG
Oil charge	L	1.8	1.8	1.8
Lubricating oil	type	ISO 100	ISO 100	ISO 100
Vane	item	00 VTL 10FG 10 (N°6)	00 VTL 15FG 10 (N°6)	00 VTL 20FG 10 (N°6)
Sealing kit	item	00 KIT VTL 10FG	00 KIT VTL 15FG	00 KIT VTL 20FG
Check valve	item	10 03 15	10 03 15	10 03 15
Suction filter	item	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3
Oil level switch	item	00 LP VTL 99	00 LP VTL 99	00 LP VTL 99
Oil filter	item	00 LP VTL 40	00 LP VTL 40	00 LP VTL 40
Adjustable drip oiler	item	00 VTL 00 11	00 VTL 00 11	00 VTL 00 11

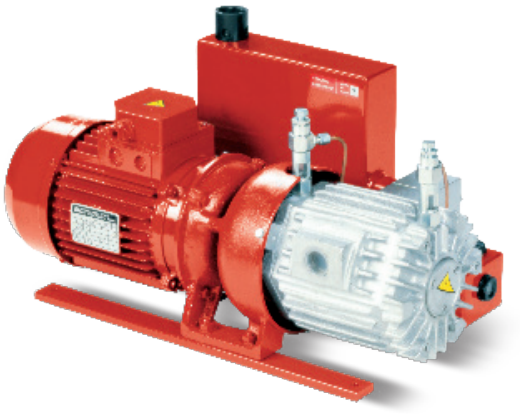
Note: Add the letter M to the item for a pump supplied with a single-phase electric motor (Example: VTLP 10/FG M).

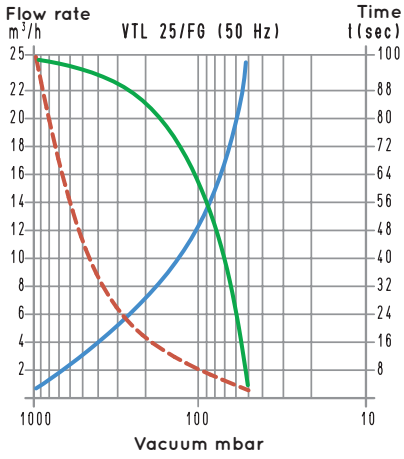
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

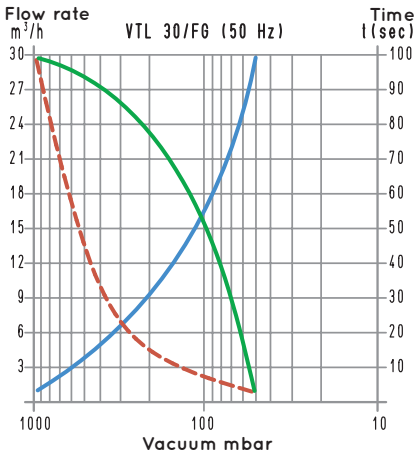
3D drawings are available on **vuototecnica.net**

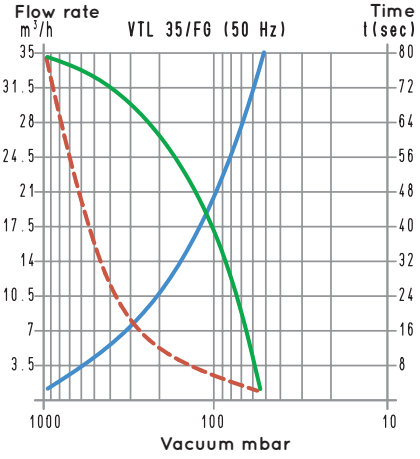
VACUUM PUMPS VTL 25/FG, 30/FG and 35/FG

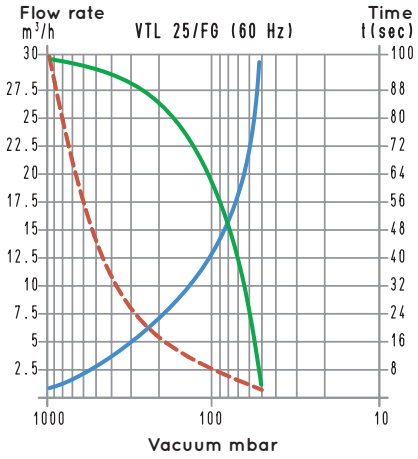
These vacuum pumps have a suction flow rate of 25, 30 and 35 m^3/h.
The vacuum lubrication with oil recirculation is adjusted via two oilers located in correspondence of the support bearings.
The rotor is cantilevered-fitted on the motor shaft and supported by independent bearings housed in the two pump flanges.
The pump and the electric motor are, therefore, two independent units and fixed onto a special support and connected to each other via an elastic transmission joint.
All this allows using standard electric motors, in the shapes and sizes indicated in the table.
The pump is surface cooled. Heat is dispersed from the outer surface, suitably finned, by means of a radial fan placed between motor and pump.
An oil recovery tank is installed on the pump exhaust. This tank contains a separator filter that prevents oil mists and reduces noise.
We strongly recommend installing a check valve and a filter on the suction inlet.
Also this range of pumps can be supplied with single-phase electric motors.

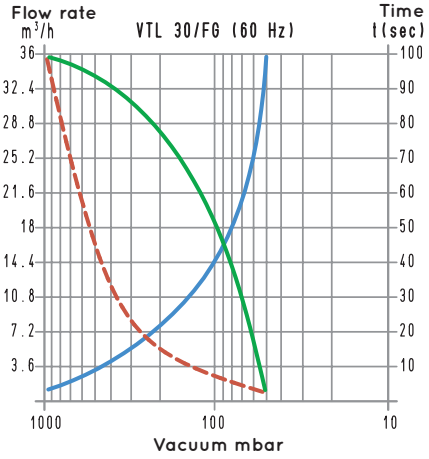


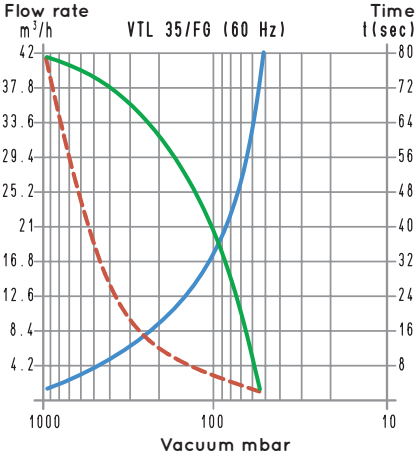










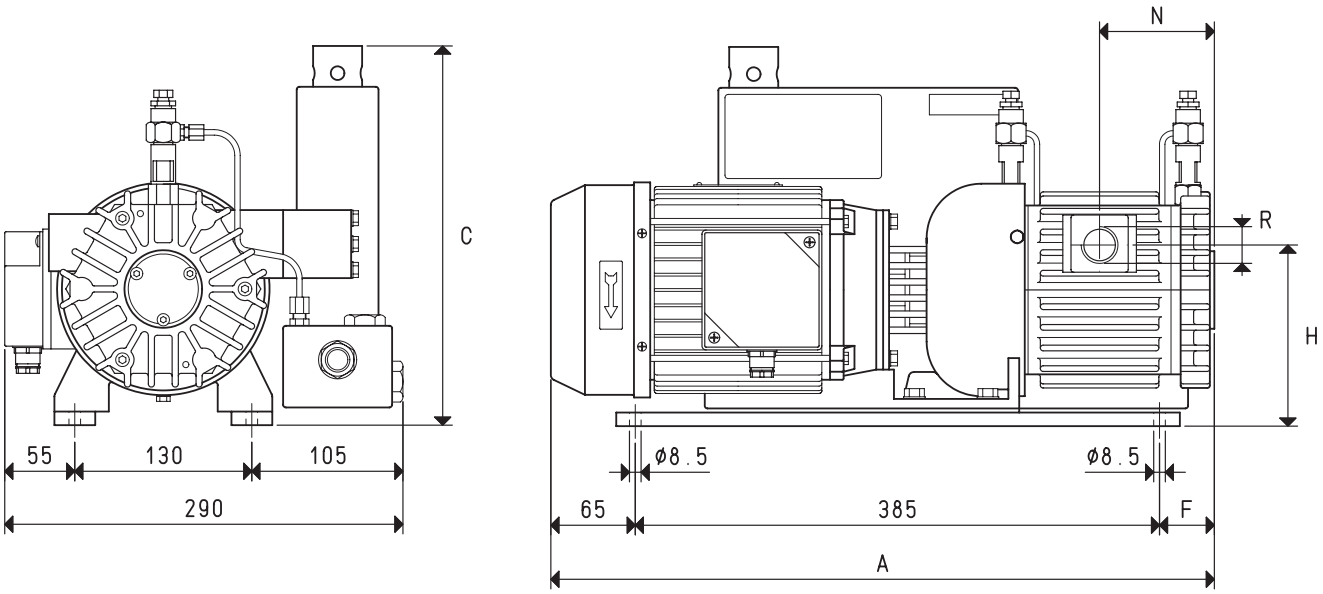


To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1: Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

3D drawings are available on **vuototecnica.net**



Item			VTL 25/FG		VTL 30/FG		VTL 35/FG	
Frequency			50Hz	60Hz	50Hz	60Hz	50Hz	60Hz
Flow rate		m^3/h	25.0	30.0	30.0	36.0	35.0	42.0
Final pressure		mbar abs.	50		50		50	
Motor performance	**3~**	Volt	230/400±10%	265/460±10%	230/400±10%	265/460±10%	230/400±10%	265/460±10%
	1~	Volt	230±10%		230±10%		230±10%	
Motor power	**3~**	Kw	0.75	0.90	0.75	0.90	1.10	1.35
	1~	Kw	0.75		0.75		1.10	
Motor protection		IP	55		55		55	
Rotation speed		g/min^{-1}	1410	1640	1410	1640	1435	1745
Motor shape			B14		B14		B14	
Motor size			80		80		80	
Noise level		dB(A)	64	66	65	67	65	67
Max weight	**3~**	Kg	31.0		35.0		37.0	
	1~	Kg	31.5		35.5		37.5	
A			470		490		510	
C			280		280		280	
F			20		40		60	
H			133		133		133	
N			73		83		93	
R		Ø gas	G3/4"		G3/4"		G3/4"	

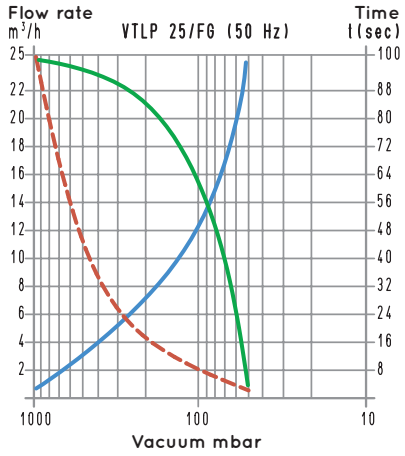
Accessories and Parts		VTL 25/FG	VTL 30/FG	VTL 35/FG
Oil charge	L	0.65	0.85	0.85
Lubricating oil	type	ISO 100	ISO 100	ISO 100
Vane	item	00 VTL 25FG 10 (N°6)	00 VTL 30FG 10 (N°6)	00 VTL 35FG 10 (N°6)
Sealing kit	item	00 KIT VTL 25FG	00 KIT VTL 30FG	00 KIT VTL 35FG
Check valve	item	10 04 15	10 04 15	10 04 15
Suction filter	item	FB 28 - FC 25 - FPL 4- FCL 4- FIL 4	FB 28 - FC 25 - FPL 4- FCL 4- FIL 4	FB 28 - FC 25 - FPL 4- FCL 4- FIL 4
Adjustable drip oiler	item	00 VTL 00 11	00 VTL 00 11	00 VTL 00 11

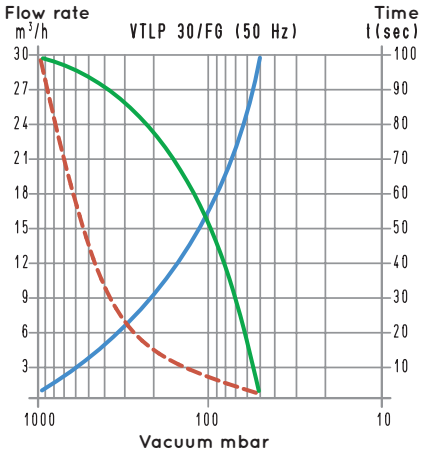
Note: Add the letter M to the item for a pump supplied with a single-phase electric motor (Example: VTL 25/FG M).

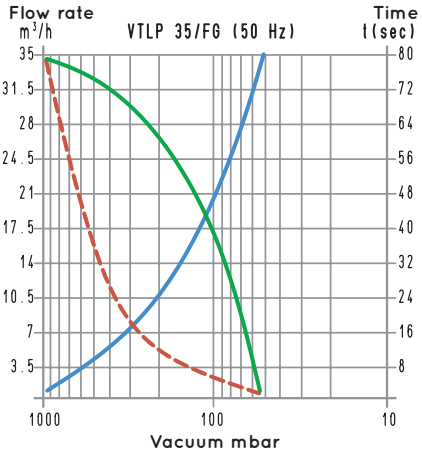
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

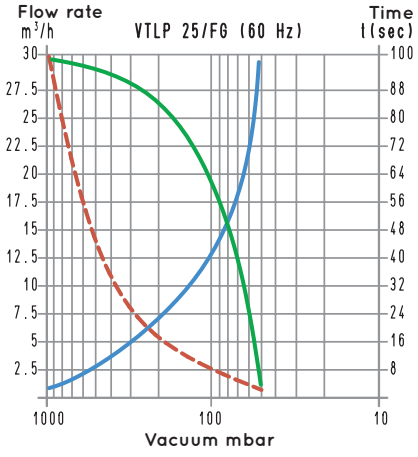
VACUUM PUMPS VTLP 25/FG, 30/FG and 35/FG WITH DISPOSABLE LUBRICATION

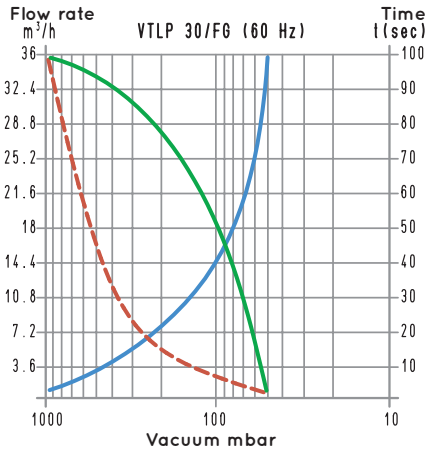
These vacuum pumps have a suction flow rate of 25, 30 and 35 m^3/h.
The vacuum with disposable oil lubrication is adjusted via two oilers located in correspondence of the support bearings.
The rotor is cantilevered-fitted on the motor shaft and supported by independent bearings housed in the two pump flanges.
The pump and the electric motor are, therefore, two independent units and fixed onto a special support and connected to each other via an elastic transmission joint.
All this allows using standard electric motors, in the shapes and sizes indicated in the table.
The pump is surface cooled. Heat is dispersed from the outer surface, suitably finned, by means of a radial fan placed between motor and pump.
An oil recovery tank is installed on the pump exhaust. This tank contains a separator filter that prevents oil mists and reduces noise.
A safety valve is also installed on the tank for the automatic drainage of the exhaust oil when not regularly drained.
The lubrication oil is contained in a special transparent container, fixed to the pump via its support, and controlled by a magnetic level switch.
In pumps with disposable lubrication, the oil is sucked in the pump through an adjustable drip oilers and drained together with the sucked air in the recovery tank, without being put in circulation again. These pumps are necessary when the air to be sucked contains water condensation, solvent vapours or anything else that could affect oil properties.
We strongly recommend installing a check valve and a filter on the suction inlet.
Also this range of pumps can be supplied with single-phase electric motors.

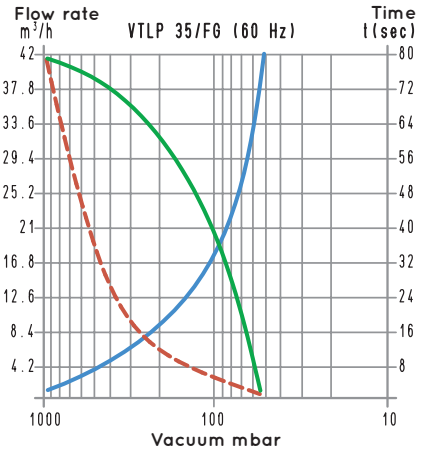










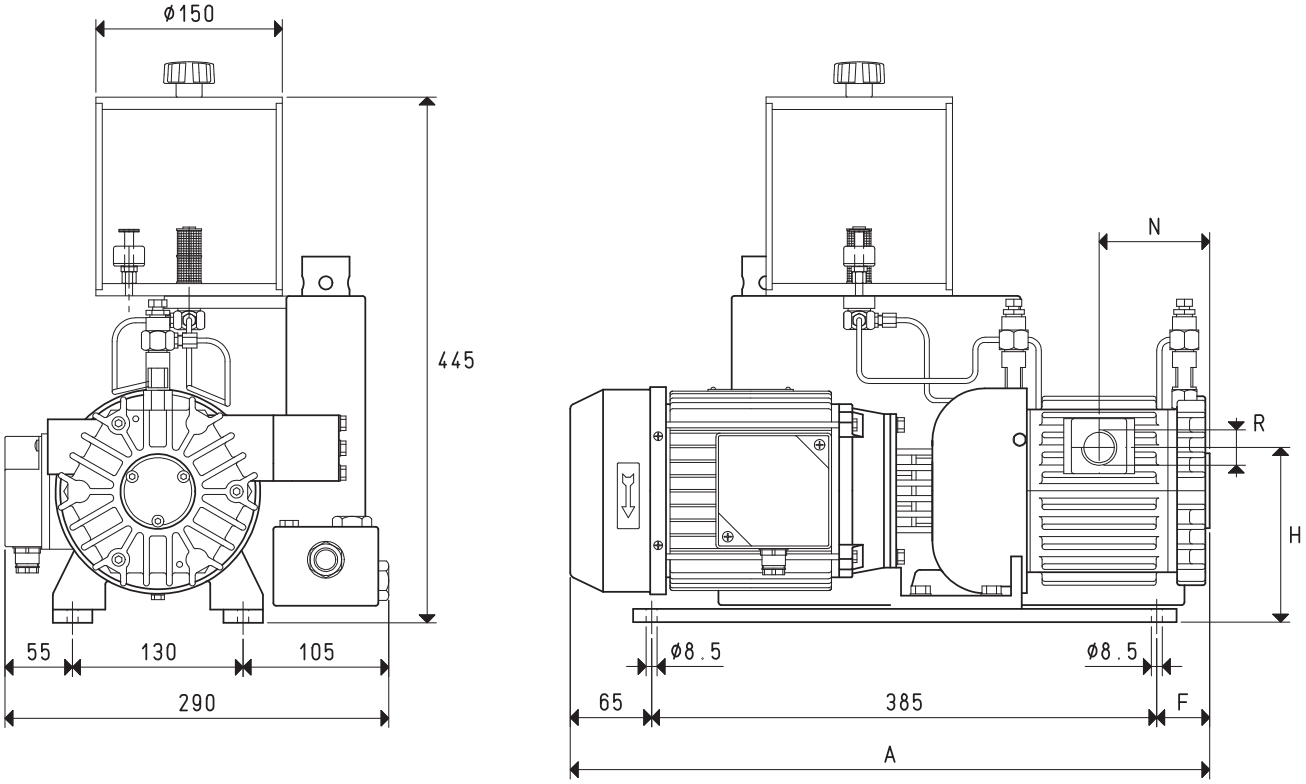


To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1: Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

VACUUM PUMPS VTLP 25/FG, 30/FG and 35/FG WITH DISPOSABLE LUBRICATION



Item			VTLP 25/FG		VTLP 30/FG		VTLP 35/FG	
Frequency			50Hz	60Hz	50Hz	60Hz	50Hz	60Hz
Flow rate		m^3/h	25.0	30.0	30.0	36.0	35.0	42.0
Final pressure		mbar abs.	50		50		50	
Motor performance	**3~**	Volt	230/400±10%	265/460±10%	230/400±10%	265/460±10%	230/400±10%	265/460±10%
	1~	Volt	230±10%		230±10%		230±10%	
Motor power	**3~**	Kw	0.75	0.90	0.75	0.90	1.10	1.35
	1~	Kw	0.75		0.75		1.10	
Motor protection		IP	55		55		55	
Rotation speed		g/min^{-1}	1410	1640	1410	1640	1435	1745
Motor shape			B14		B14		B14	
Motor size			80		80		80	
Noise level		dB(A)	64	66	65	67	65	67
Max weight	**3~**	Kg	32.0		36.0		38.0	
	1~	Kg	32.5		36.5		38.5	
A			470		490		510	
F			20		40		60	
H			133		133		133	
N			73		83		93	
R		Ø gas	G3/4"		G3/4"		G3/4"	

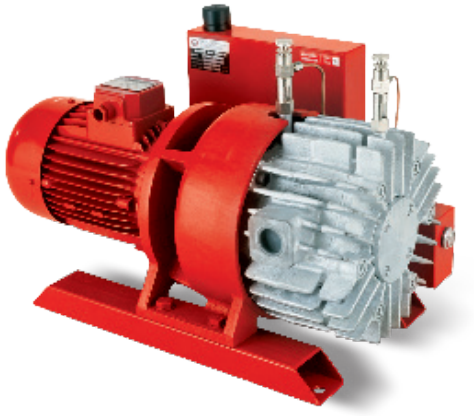
Accessories and Parts		VTLP 25/FG	VTLP 30/FG	VTLP 35/FG
Oil charge	L	1.8	1.8	1.8
Lubricating oil	type	ISO 100	ISO 100	ISO 100
Vane	item	00 VTL 25FG 10 (N°6)	00 VTL 30FG 10 (N°6)	00 VTL 35FG 10 (N°6)
Sealing kit	item	00 KIT VTL 25FG	00 KIT VTL 30FG	00 KIT VTL 35FG
Check valve	item	10 04 15	10 04 15	10 04 15
Suction filter	item	FB 28 - FC 25 - FPL 4- FCL 4- FIL 4	FB 28 - FC 25 - FPL 4- FCL 4- FIL 4	FB 28 - FC 25 - FPL 4- FCL 4- FIL 4
Oil level switch	item	00 LP VTL 99	00 LP VTL 99	00 LP VTL 99
Oil filter	item	00 LP VTL 40	00 LP VTL 40	00 LP VTL 40
Adjustable drip oiler	item	00 VTL 00 11	00 VTL 00 11	00 VTL 00 11

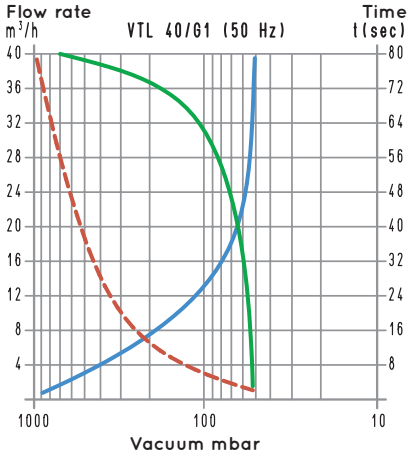
Note: Add the letter M to the item for a pump supplied with a single-phase electric motor (Example: VTLP 25/FG M).

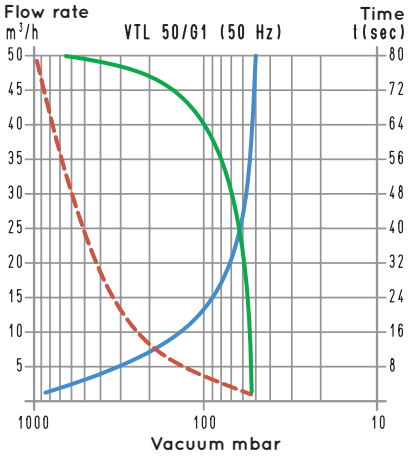
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

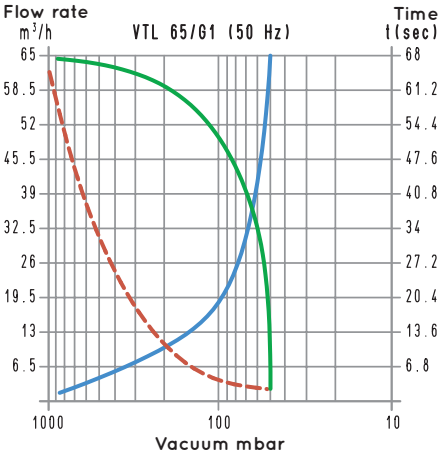
VACUUM PUMPS VTL 40/G1, 50/G1 and 65/G1

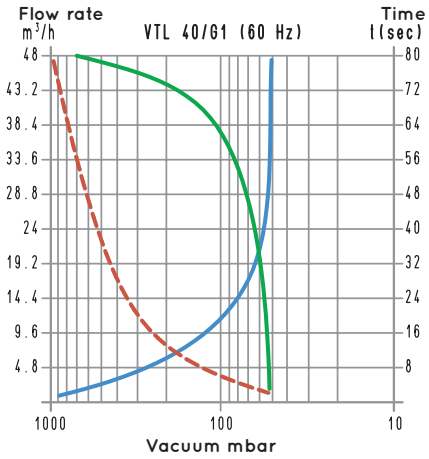
These vacuum pumps have a suction flow rate of 40, 50 and 65 m³/h.
The vacuum lubrication with oil recirculation is adjusted via two oilers located in correspondence of the support bearings.
The rotor is cantilevered-fitted on the motor shaft and supported by independent bearings housed in the two pump flanges.
The pump and the electric motor are, therefore, two independent units and fixed onto a special support and connected to each other via an elastic transmission joint.
All this allows using standard electric motors, in the shapes and sizes indicated in the table.
The pump is surface cooled. Heat is dispersed from the outer surface, suitably finned, by means of a radial fan placed between motor and pump.
An oil recovery tank is installed on the pump exhaust. This tank contains a separator filter that prevents oil mists and reduces noise.
A check valve and a filter must be installed on the suction inlet.
These pumps are supplied with three-phase electric motors only.

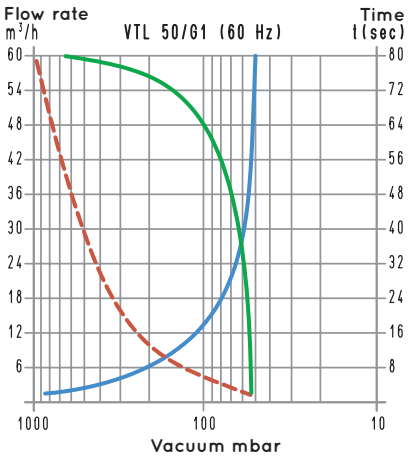


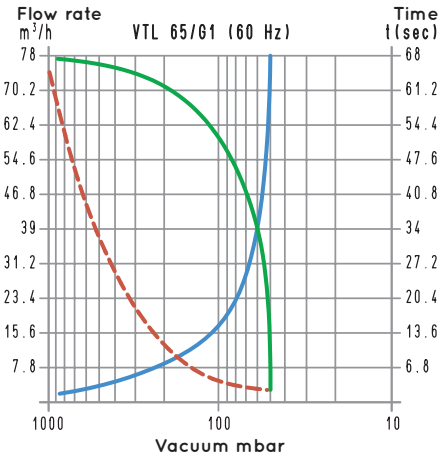










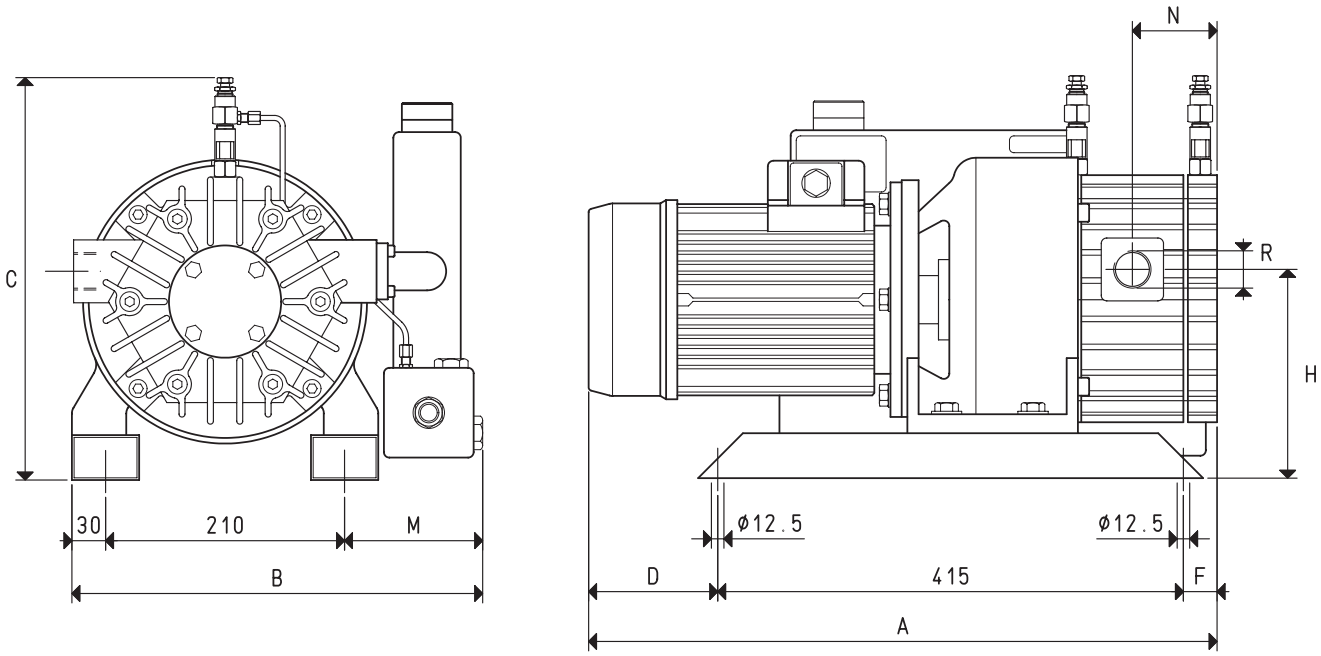


To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1: Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

3D drawings are available on **vuototecnica.net**



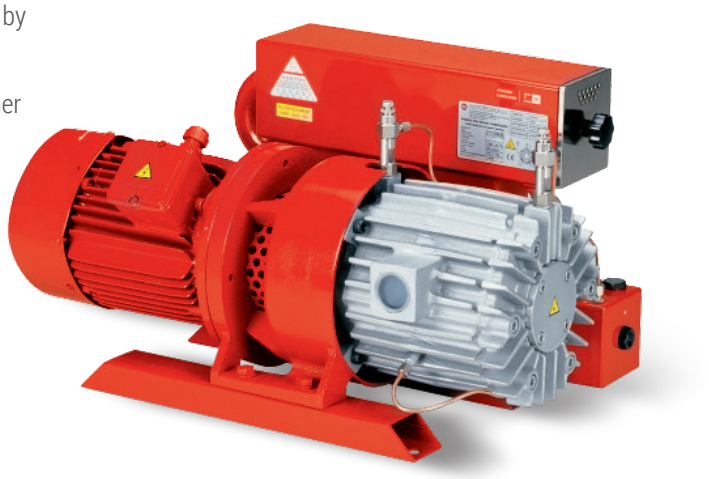
Item		VTL 40/G1		VTL 50/G1		VTL 65/G1	
Frequency		50Hz	60Hz	50Hz	60Hz	50Hz	60Hz
Flow rate	m^3/h	40.0	48.0	50.0	60.0	65.0	78.0
Final pressure	mbar abs.	50		50		50	
Motor performance 3~	volt	230/400±10%	265/460±10%	230/400±10%	265/460±10%	230/400±10%	265/460±10%
Motor power 3~	Kw	1.10	1.35	1.50	1.80	1.50	1.80
Motor protection	IP	55		55		55	
Rotation speed	g/min^{-1}	1440	1750	1440	1750	1440	1750
Motor shape		B5		B5		B5	
Motor size		90		90		90	
Noise level	dB(A)	68	70	68	70	70	72
Max weight 3~	kg	51.0		54.0		71.0	
A		520		560		580	
B		365		365		365	
C		350		350		350	
D		60		115		120	
F		45		30		45	
H		186		186		186	
M		125		125		125	
N		70		80		80	
R	Ø gas	G1″		G1″		G1″	

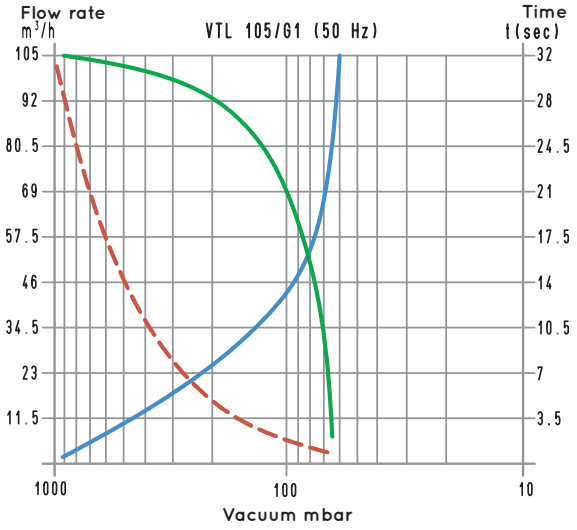
Accessories and Parts		VTL 40/G1	VTL 50/G1	VTL 65/G1
Oil charge	L	0.85	1.00	1.00
Lubricating oil	type	ISO 100	ISO 100	ISO 100
Vane	item	00 VTL 40G1 10 (N°6)	00 VTL 50G1 10 (N°6)	00 VTL 65G1 10 (N°6)
Sealing kit	item	00 KIT VTL 40G1	00 KIT VTL 50G1	00 KIT VTL 65 G1
Check valve	item	10 05 15	10 05 15	10 05 15
Suction filter	item	FB 30 - FC 30 - FPL 5- FCL 5- FIL 5	FB 30 - FC 30 - FPL 5- FCL 5- FIL 5	FB 30 - FC 30 - FPL 5- FCL 5- FIL 5
Adjustable drip oiler	item	00 VTL 00 11	00 VTL 00 11	00 VTL 00 11

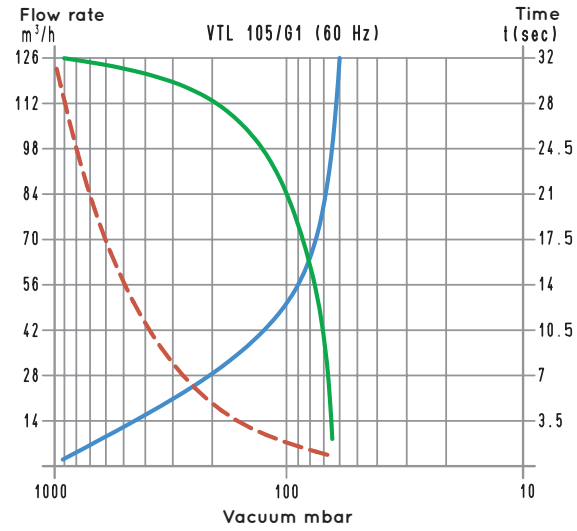
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

VACUUM PUMP VTL 105/G1

These vacuum pumps have a suction flow rate of 105 m³/h.
The vacuum lubrication with oil recirculation is adjusted via two oilers located in correspondence of the support bearings.
The rotor is cantilevered-fitted on the motor shaft and supported by independent bearings housed in the two pump flanges.
The pump and the electric motor are, therefore, two independent units and fixed onto a special support and connected to each other via an elastic transmission joint.
All this allows using standard electric motors, in the shapes and sizes indicated in the table.
The pump is surface cooled. Heat is dispersed from the outer surface, suitably finned, by means of a radial fan placed between motor and pump.
An oil recovery tank is installed on the pump exhaust. This tank contains a separator filter that prevents oil mists and reduces noise.
A check valve and a filter must be installed on the suction inlet.
These pumps are supplied with three-phase electric motors only.





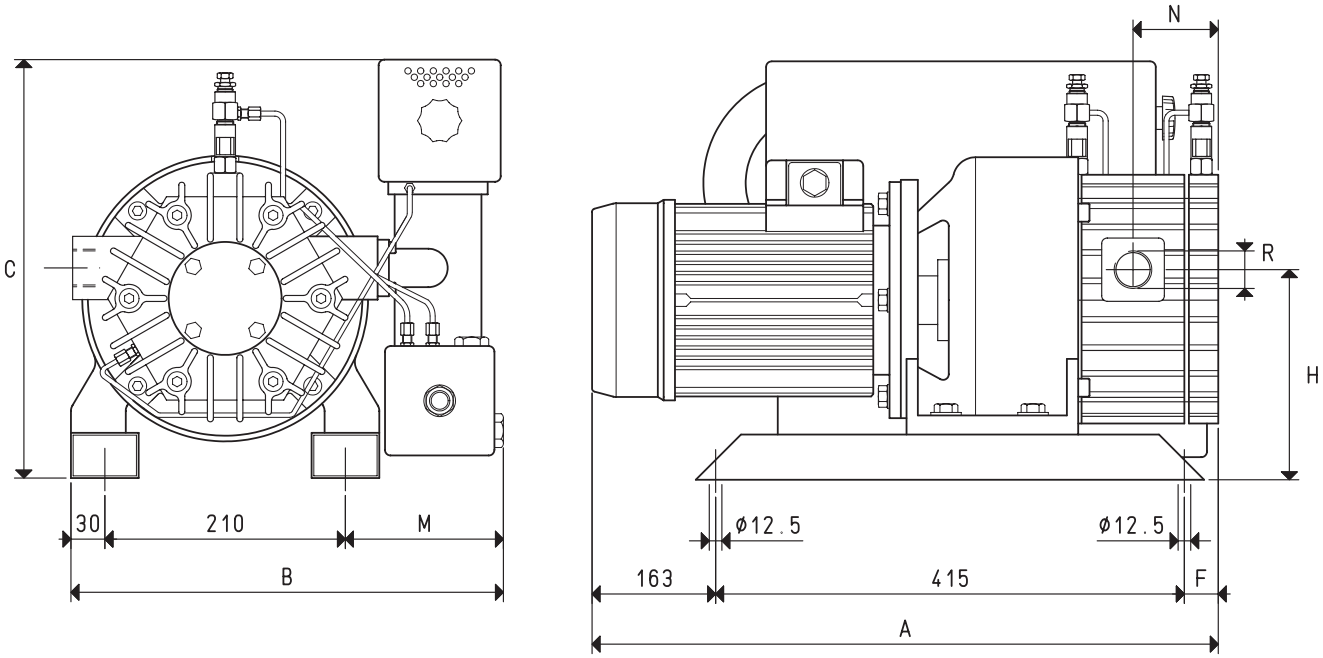


To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1: Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

VACUUM PUMP VTL 105/G1



Item		VTL 105/G1
Frequency		50Hz 60Hz
Flow rate	m^3/h	105.0 126.0
Final pressure	mbar abs.	50
Motor performance 3~	volt	230/400±10% 265/460±10%
Motor power 3~	Kw	3.00 3.60
Motor protection	IP	55
Rotation speed	g/min^{-1}	1440 1700
Motor shape		B5
Motor size		100
Noise level	dB(A)	72 74
Max weight 3~	kg	97.6
A		690
B		400
C		445
F		112
H		186
M		160
N		122
R	Ø gas	G1"1/2

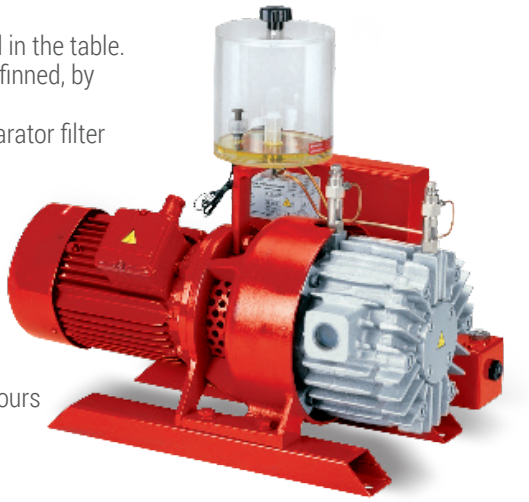
Accessories and Parts		VTL 105/G1
Oil charge	L	2.6
Lubricating oil	type	ISO 150
Deoiling cartridge	item	00 VTL 105G1 29
Vane	item	00 VTL 105G1 10 (N°6)
Sealing kit	item	00 KIT VTL 105G1
Check valve	item	10 07 10
Exhaust filter	item	FB 50 - FC 50 - FPL 6- FCL 6- FIL 6
Adjustable drip oiler	item	00 VTL 00 11

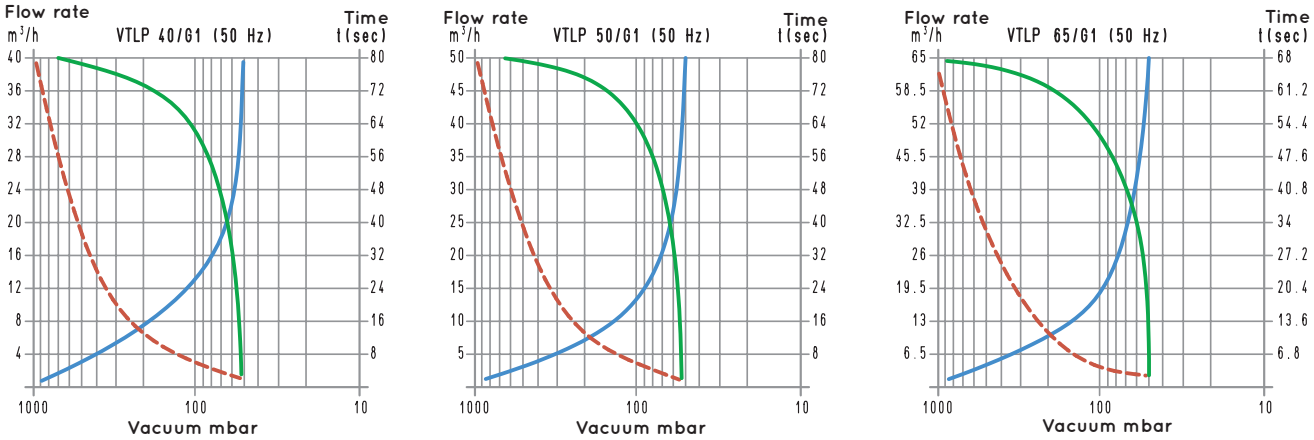
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

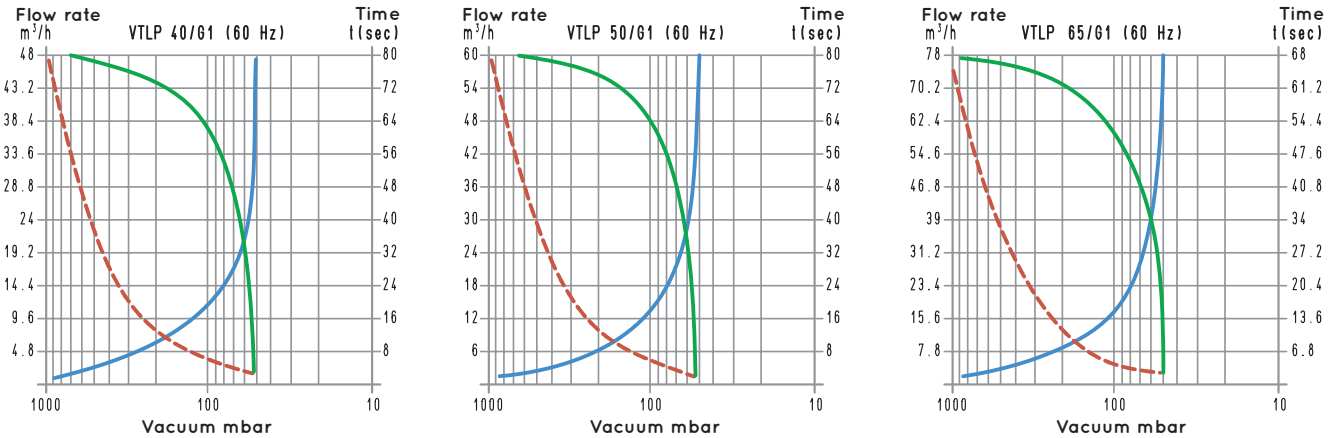
3D drawings are available on **vuototecnica.net**

VACUUM PUMPS VTLP 40/G1, 50/G1 and 65/G1 WITH DISPOSABLE LUBRICATION

These vacuum pumps have a suction flow rate of 40, 50 and 65 m^3/h.
The vacuum with disposable oil lubrication is adjusted via two oilers located in correspondence of the support bearings.
The rotor is cantilevered-fitted on the motor shaft and supported by independent bearings housed in the two pump flanges.
The pump and the electric motor are, therefore, two independent units and fixed onto a special support and connected to each other via an elastic transmission joint.
All this allows using standard electric motors, in the shapes and sizes indicated in the table.
The pump is surface cooled. Heat is dispersed from the outer surface, suitably finned, by means of a radial fan placed between motor and pump.
An oil recovery tank is installed on the pump exhaust. This tank contains a separator filter that prevents oil mists and reduces noise.
A safety valve is also installed on the tank for the automatic drainage of the exhaust oil when not regularly drained.
The lubrication oil is contained in a special transparent container, fixed to the pump via its support, and controlled by a magnetic level switch.
In pumps with disposable lubrication, the oil is sucked in the pump through an adjustable drip oilers and drained together with the sucked air in the recovery tank, without being put in circulation again. These pumps are necessary when the air to be sucked contains water condensation, solvent vapours or anything else that could affect oil properties.
A check valve and a filter must be installed on the pump suction inlet.
These pumps are supplied with three-phase electric motors only.





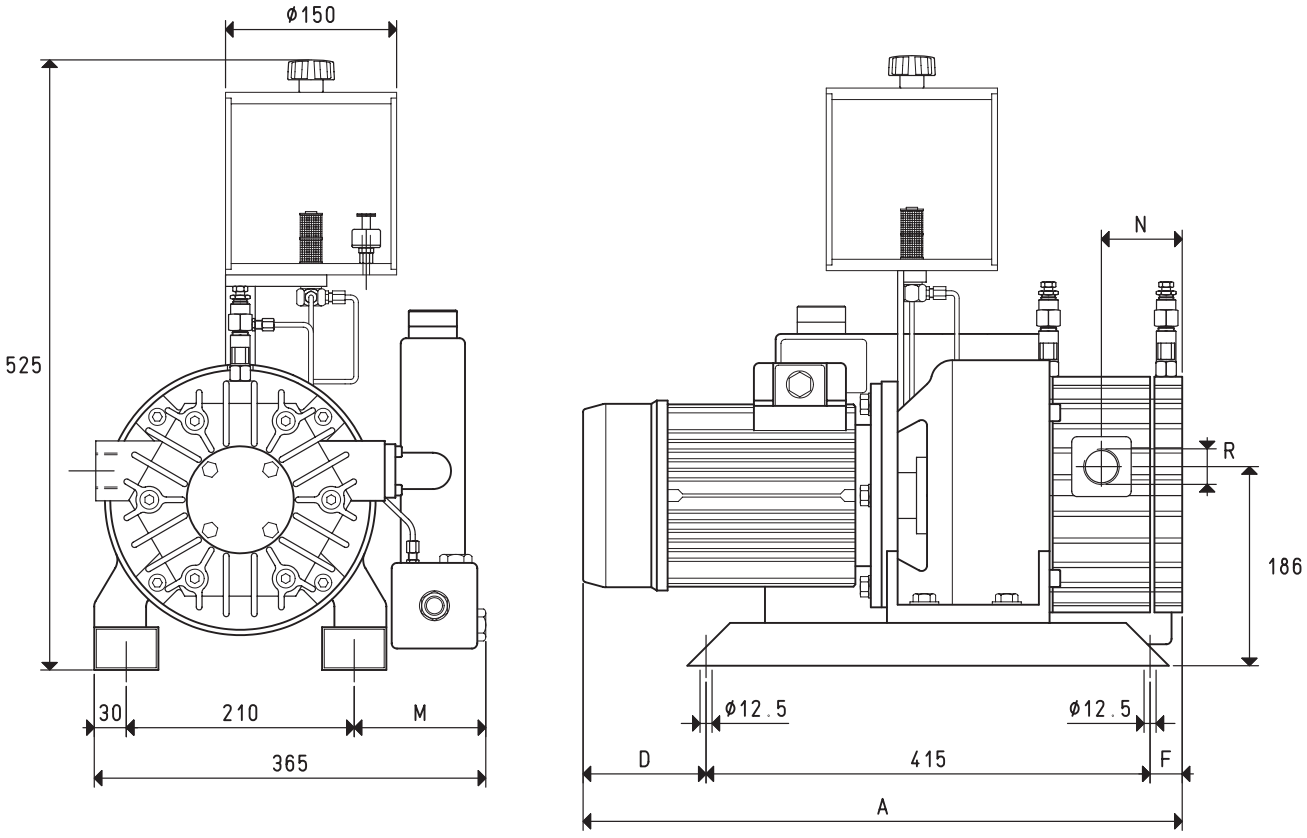


To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1 : Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

VACUUM PUMPS VTLP 40/G1, 50/G1 and 65/G1 WITH DISPOSABLE LUBRICATION



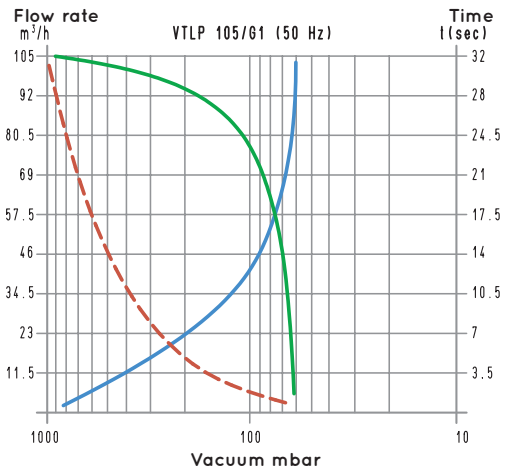
Item		VTLP 40/G1		VTLP 50/G1		VTLP 65/G1	
Frequency		50Hz	60Hz	50Hz	60Hz	50Hz	60Hz
Flow rate	m^3/h	40.0	48.0	50.0	60.0	65.0	78.0
Final pressure	mbar abs.	50		50		50	
Motor performance 3~	volt	230/400±10%	265/460±10%	230/400±10%	265/460±10%	230/400±10%	265/460±10%
Motor power 3~	Kw	1.10	1.35	1.50	1.80	1.50	1.80
Motor protection	IP	55		55		55	
Rotation speed	g/min^{-1}	1440	1750	1440	1750	1440	1750
Motor shape		B5		B5		B5	
Motor size		90		90		90	
Noise level	dB(A)	68	70	68	70	70	72
Max weight 3~	kg	52.5		55.1		72.1	
A		520		560		580	
D		60		115		120	
F		45		30		45	
M		125		125		125	
N		70		80		80	
R	Ø gas	G1"		G1"		G1"	

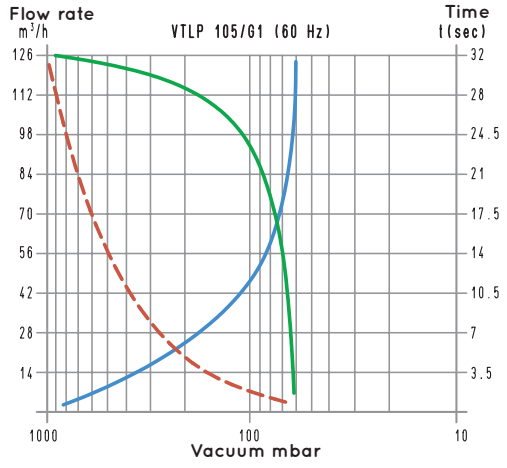
Accessories and Parts		VTLP 40/G1	VTLP 50/G1	VTLP 65/G1
Oil charge	L	1.8	1.8	1.8
Lubricating oil	type	ISO 100	ISO 100	ISO 100
Vane	item	00 VTL 40G1 10 (N°6)	00 VTL 50G1 10 (N°6)	00 VTL 65G1 10 (N°6)
Sealing kit	item	00 KIT VTL 40G1	00 KIT VTL 50G1	00 KIT VTL 65G1
Check valve	item	10 05 15	10 05 15	10 05 15
Suction filter	item	FB 30 - FC 30 - FPL 5- FCL 5- FIL 5	FB 30 - FC 30 - FPL 5- FCL 5- FIL 5	FB 30 - FC 30 - FPL 5- FCL 5- FIL 5
Oil level switch	item	00 LP VTL 99	00 LP VTL 99	00 LP VTL 99
Oil filter	item	00 LP VTL 40	00 LP VTL 40	00 LP VTL 40
Adjustable drip oiler	item	00 VTL 00 11	00 VTL 00 11	00 VTL 00 11

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

VACUUM PUMP VTLP 105/G1, WITH DISPOSABLE LUBRICATION

These vacuum pumps have a suction flow rate of 105 m^3/h.
The vacuum with disposable oil lubrication is adjusted via two oilers located in correspondence of the support bearings.
The rotor is cantilevered-fitted on the motor shaft and supported by independent bearings housed in the two pump flanges.
The pump and the electric motor are, therefore, two independent units and fixed onto a special support and connected to each other via an elastic transmission joint.
All this allows using standard electric motors, in the shapes and sizes indicated in the table.
The pump is surface cooled. Heat is dispersed from the outer surface, suitably finned, by means of a radial fan placed between motor and pump.
An oil recovery tank is installed on the pump exhaust. This tank contains a separator filter that prevents oil mists and reduces noise.
A safety valve is also installed on the tank for the automatic drainage of the exhaust oil when not regularly drained.
The lubrication oil is contained in a special transparent container, fixed to the pump via its support, and controlled by a magnetic level switch.
In pumps with disposable lubrication, the oil is sucked in the pump through an adjustable drip oilers and drained together with the sucked air in the recovery tank, without being put in circulation again. These pumps are necessary when the air to be sucked contains water condensation, solvent vapours or anything else that could affect oil properties.
A check valve and a filter must be installed on the pump suction inlet.
These pumps are supplied with three-phase electric motors only.



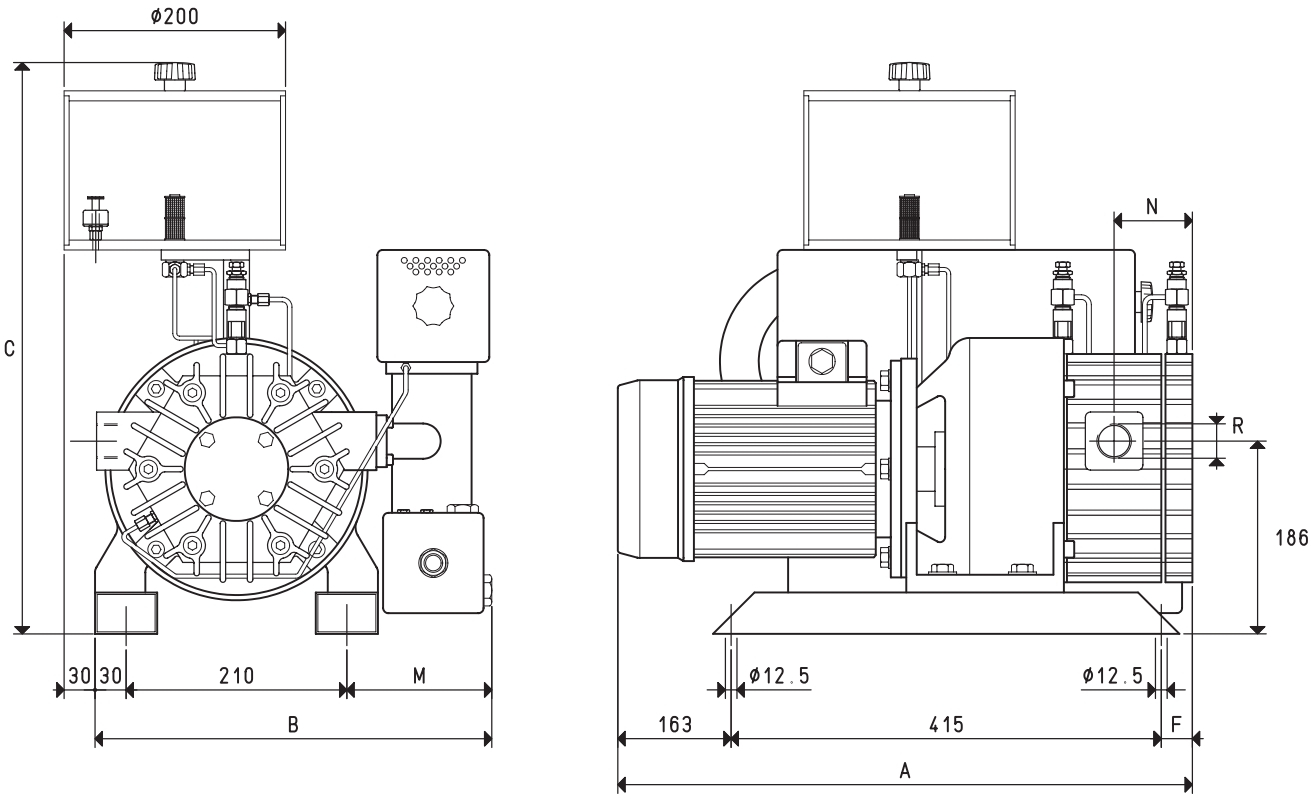


To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1: Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

VACUUM PUMP VTLP 105/G1, WITH DISPOSABLE LUBRICATION



Item		VTLP 105/G1
Frequency		50Hz 60Hz
Flow rate	m^3/h	105.0 126.0
Final pressure	mbar abs.	50
Motor performance 3~	volt	230/400±10% 265/460±10%
Motor power 3~	Kw	3.00 3.60
Motor protection	IP	55
Rotation speed	g/min^{-1}	1440 1700
Motor shape		B5
Motor size		100
Noise level	dB(A)	72 74
Max weight 3~	kg	99.4
A		690
B		430
C		620
F		112
M		160
N		122
R	Ø gas	G1"1/2

Accessories and Parts		VTLP 105/G1
Oil charge	L	3.8
Lubricating oil	type	ISO 150
Deoiling cartridge	item	00 VTL 105G1 29
Vane	item	00 VTL 105 G110 (N°6)
Sealing kit	item	00 KIT VTL 105G1
Check valve	item	10 07 10
Suction filter	item	FB 50 - FC 50 - FPL 6- FCL 6- FIL 6
Oil level switch	item	00 LP VTL 99
Oil filter	item	00 LP VTL 40
Adjustable drip oiler	item	00 VTL 00 11

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

3D drawings are available on **vuototecnica.net**

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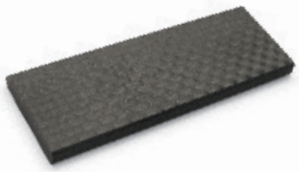
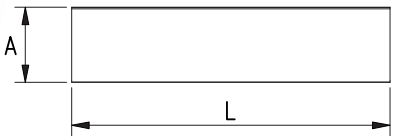
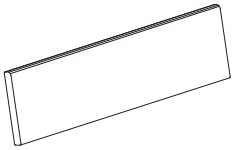
Fibre vane

Item	Quantity	L	A	H	For pump item
00 VTL 02 10	4	20	14	4	VTL 2
00 VTL 04 10	4	34	14	4	VTL 4
00 VTL 05 10	6	25	23	4	VTL 5 - VTLP 5
00 VTL 10 10	6	45	23	4	VTL 10 - VTLP 10
00 VTL 10F 10	6	45	23	4	VTL 10/F - VTLP 10/F
00 VTL 10FG 10	6	45	23	4	VTL 10/FG - VTLP 10/FG
00 VTL 15F 10	6	65	23	4	VTL 15/F - VTLP 15/F
00 VTL 15FG 10	6	65	23	4	VTL 15/FG - VTLP 15/FG
00 VTL 20F 10	6	85	23	4	VTL 20/F - VTLP 20/F
00 VTL 20FG 10	6	85	23	4	VTL 20/FG - VTLP 20/FG
00 VTL 25F 10	6	85	30	4	VTL 25/F - VTLP 25/F
00 VTL 25FG 10	6	85	30	4	VTL 25/FG - VTLP 25/FG
00 VTL 30FG 10	6	105	30	4	VTL 30/FG - VTLP 30/FG
00 VTL 35FG 10	6	125	30	4	VTL 35/FG - VTLP 35/FG
00 VTL 40G1 10	6	70	43	4	VTL 40/G1 - VTLP 40/G1
00 VTL 50G1 10	6	85	43	4	VTL 50/G1 - VTLP 50/G1
00 VTL 65G1 10	6	105	43	4	VTL 65/G1 - VTLP 65/G1
00 VTL 105G1 10	6	170	43	4	VTL 105/G1 - VTLP 105/G1

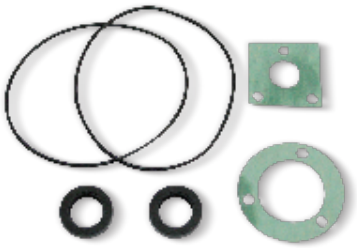






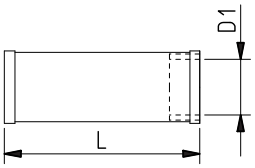
Sealing kit

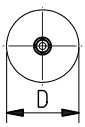
Item	Quantity	For pump item
00 KIT VTL 02	1	VTL 2
00 KIT VTL 04	1	VTL 4
00 KIT VTL 05	1	VTL 5 - VTLP 5
00 KIT VTL 10	1	VTL 10 - VTLP 10
00 KIT VTL 10F	1	VTL 10/F - VTLP 10/F
00 KIT VTL 10FG	1	VTL 10/FG - VTLP 10/FG
00 KIT VTL 15F	1	VTL 15/F - VTLP 15/F
00 KIT VTL 15FG	1	VTL 15/FG - VTLP 15/FG
00 KIT VTL 20F	1	VTL 20/F - VTLP 20/F
00 KIT VTL 20FG	1	VTL 20/FG - VTLP 20/FG
00 KIT VTL 25F	1	VTL 25/F - VTLP 25/F
00 KIT VTL 25FG	1	VTL 25/FG - VTLP 25/FG
00 KIT VTL 30FG	1	VTL 30/FG - VTLP 30/FG
00 KIT VTL 35FG	1	VTL 35/FG - VTLP 35/FG
00 KIT VTL 40G1	1	VTL 40/G1 - VTLP 40/G1
00 KIT VTL 50G1	1	VTL 50/G1 - VTLP 50/G1
00 KIT VTL 65G1	1	VTL 65/G1 - VTLP 65/G1
00 KIT VTL 75G1	1	VTL 75/G1 - VTLP 75/G1
00 KIT VTL 90G1	1	VTL 90/G1 - VTLP 90/G1
00 KIT VTL 105G1	1	VTL 105/G1 - VTLP 105/G1

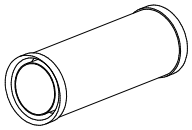


Deoiling cartridges

Item	Quantity	L	D	D1	For pump item
00 VTL 75G1 29	1	377	70	49	VTL 75/G1
00 VTL 90G1 29	1	377	82	42	VTL 90/G1
00 VTL 100G 07	1	377	82	42	VTL 100/G
00 VTL 105G1 29	1	377	82	42	VTL 105/G1







LUBRICATED VACUUM PUMP VTL
ACCESSORIES AND SPARE PARTS

	Item	Quantity	For pump item
Check valves	10 01 15	1	VTL 2
	10 02 15	1	VTL 4
	10 02 15	1	VTL 5 - VTLP 5
	10 03 15	1	VTL 10 - VTLP 10
	10 03 15	1	VTL 10/F - VTLP 10/F
	10 03 15	1	VTL 10/FG - VTLP 10/FG
	10 03 15	1	VTL 15/F - VTLP 15/F
	10 03 15	1	VTL 15/FG - VTLP 15/FG
	10 03 15	1	VTL 20/F - VTLP 20/F
	10 03 15	1	VTL 20/FG - VTLP 20/FG
	10 04 15	1	VTL 25/F - VTLP 25/F
	10 04 15	1	VTL 25/FG - VTLP 25/FG
	10 04 15	1	VTL 30/FG - VTLP 30/FG
	10 04 15	1	VTL 35/FG - VTLP 35/FG
	10 05 15	1	VTL 40/G1 - VTLP 40/G1
	10 05 15	1	VTL 50/G1 - VTLP 50/G1
	10 05 15	1	VTL 65/G1 - VTLP 65/G1
	10 07 10	1	VTL 105/G1 - VTLP 105/G1

	Item	Quantity	For pump item
Suction filters	FB 5 - FPL 1 - FCL 1 - FIL 1	1	VTL 2
	FB 15 - FC 10 - FPL 2 - FCL 2 - FIL 2	1	VTL 4
	FB 15 - FC 10 - FPL 2 - FCL 2 - FIL 2	1	VTL 5 - VTLP 5
	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3	1	VTL 10 - VTLP 10
	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3	1	VTL 10/F - VTLP 10/F
	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3	1	VTL 10/FG - VTLP 10/FG
	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3	1	VTL 15/F - VTLP 15/F
	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3	1	VTL 15/FG - VTLP 15/FG
	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3	1	VTL 20/F - VTLP 20/F
	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3	1	VTL 20/FG - VTLP 20/FG
	FB 28 - FC 25 - FPL 4 - FCL 4 - FIL 4	1	VTL 25/F - VTLP 25/F
	FB 28 - FC 25 - FPL 4 - FCL 4 - FIL 4	1	VTL 25/FG - VTLP 25/FG
	FB 28 - FC 25 - FPL 4 - FCL 4 - FIL 4	1	VTL 30/FG - VTLP 30/FG
	FB 28 - FC 25 - FPL 4 - FCL 4 - FIL 4	1	VTL 35/FG - VTLP 35/FG
	FB 30 - FC 30 - FPL 5 - FCL 5 - FIL 5	1	VTL 40/G1 - VTLP 40/G1
	FB 30 - FC 30 - FPL 5 - FCL 5 - FIL 5	1	VTL 50/G1 - VTLP 50/G1
	FB 30 - FC 30 - FPL 5 - FCL 5 - FIL 5	1	VTL 65/G1 - VTLP 65/G1
	FB 50 - FC 50 - FPL 6 - FCL 6 - FIL 6	1	VTL 105/G1 - VTLP 105/G1

Note: The choice of the most suitable filter, with the correct degree of filtration, must be made according to the specific field of application.
Our technical department is at your disposal to offer advice and guide you in making the best choice.

3D drawings are available on **vuototecnica.net**

	Item	For pump item
Adjustable drip oiler	00 VTL 00 11	VTL - All
	00 VTL 00 11	VTLP - All

	Item	Quantity	For pump item
Oil level switch	00 LP VTL 99	1	VTLP - All

	Item	Quantity	For pump item
Oil filters	00 LP VTL 40	1	VTLP - All

	Item	Quantity
Mineral lubricating oil	ISO 32 - 68 - 100 - 150	1 - 2 - 5 - 10 L packs

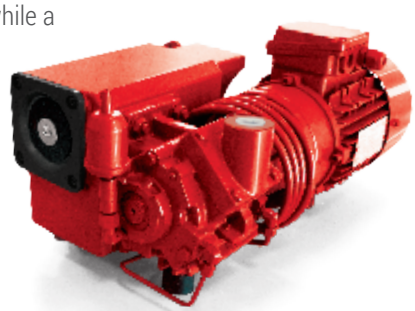
	Item	Quantity
Synthetic lubricating oil	VT OIL 32 - 68 - 100	1 - 2 - 5 - 10 L packs

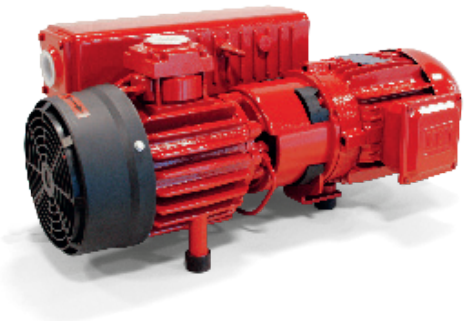
	Item	Quantity
“Non-toxic” synthetic oil for the food industry	VT OIL FI 68 - 100	1 - 2 - 5 - 10 L packs

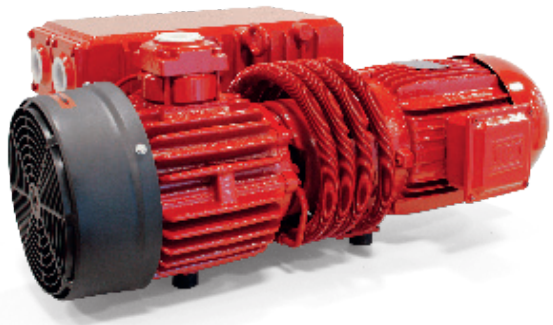
LUBRICATED ROTARY VANE VACUUM PUMPS, RVP SERIES - GENERAL DESCRIPTION

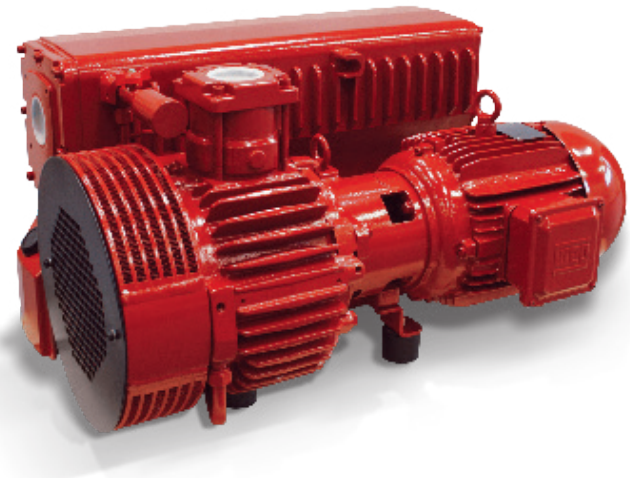
The pumps in this new series are single-stage, rotary vane and with oil-bath lubrication with recycling. The implementation of cutting edge construction techniques and the use of hi-tech, latest generation materials has allowed for the achievement of high standards of quality, performance, duration and low cost of use. The resulting technical features include:
- High pumping speed in the field of absolute pressure between 850 and 0.5 mbar
- Extremely low noise output
- Low operating temperatures
- No pollution
- Low maintenance

The pumps are driven by an electric motor, coupled by means of an elastic transmission joint (not including RVP 15), in compliance with IEC International Standard 60034 requirements for rotating machines and European Directives for Low Voltage 2014/35/UE, for Electromagnetic Compatibility (EMC) 2014/30/UE, for the limitation of use of hazardous substances RoHS 2011/65/CE and Machine Directive 2006/42/EC for CE marking.
With the exception of electric motors with power lower than 0.75 KW, the efficiency class corresponds to IE3 = Premium Efficiency, with protection degree IP 55, Tolerance of nominal Voltage ± 10% and Class of Insulation F.
A centrifuge fan fitted on the pump shaft ensures a suitable air flow for optimal pump body and radiator cooling (forced surface cooling).
A capacious oil recovery tank located on the pump outlet and equipped with microfibre deoiling cartridges has the function of smoke filtering system and silencer. A special built-in ball cock valve allows for the recovery of oil retained by cartridges. The oil filter, except mod. RVP 15 and 21 pumps, are installed as standard on all.
The oil contained in the system lubricates, cools and seals rotating and fixed pump parts.
The check valve on the suction line is an integral part of the pump and is standard while a filter suitable for trapping any suctioned impurities can be supplied upon request.
All pumps except mod. RVP 15 and RVP 21, are supplied standard with a gas ballast valve, which permits high water vapour compatibility. Instead, for mod. RVP 21, the ballast valve can only be installed upon request.
The above described product devices combined with strong, compact construction make RVP series vacuum pumps especially suitable for continuous and heavy-duty use.



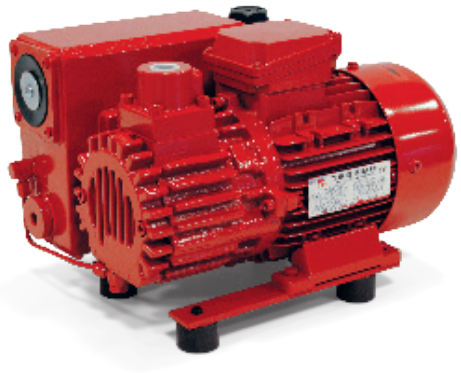


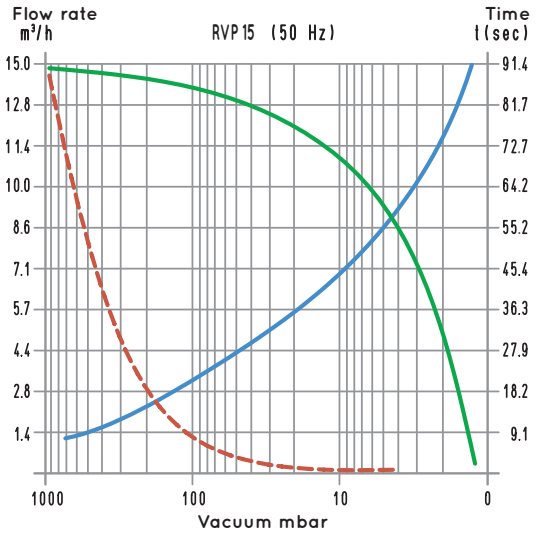


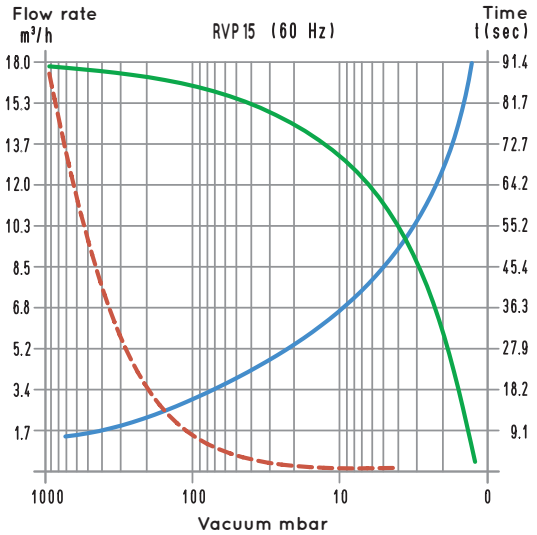


OIL-BATH VACUUM PUMP RVP 15

Pumps with an suction capacity of 15 m^3/h are single-stage, rotary vane and with oil-bath lubrication with recycling. The implementation of cutting edge construction techniques and the use of hi-tech, latest generation materials has allowed for the achievement of high standards of quality, performance, duration and low cost of use.





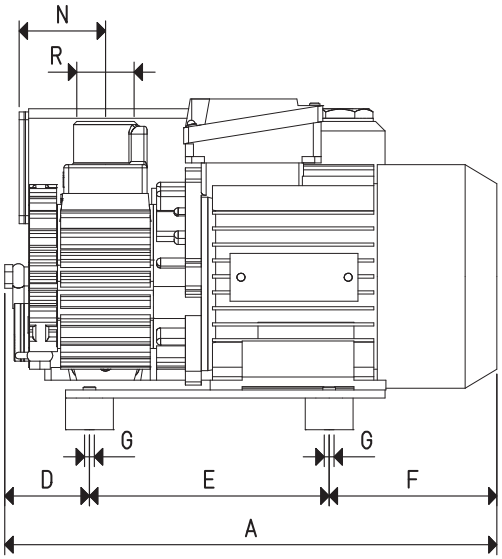


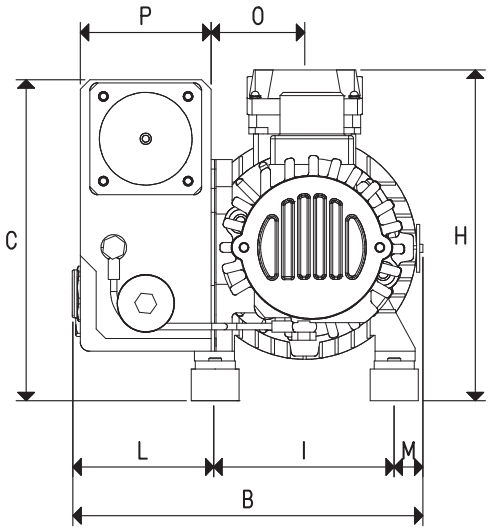
To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1: Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

OIL-BATH VACUUM PUMP RVP 15





Item			RVP 15	
Frequency			50 Hz	60 Hz
Flow rate		m^3/h	15.0	18.0
Final pressure		mbar abs.	2	
Motor performance	**3~**	Volt	230/400 ± 10%	275/480 ± 10%
	1~	Volt	230 ± 10%	275 ± 10%
Motor power	**3~**	Kw	0.55	0.66
	1~	Kw	0.55	0.66
Motor protection		IP	55	
Rotation speed		g/min^{-1}	2700	3240
Motor shape			B14	
Motor size			90	
Noise level		dB(A)	63	64
Max weight	**3~**	Kg	15.0	
	1~	Kg	15.5	
A			308	
B			221	
C			200	
D			53	
E			150	
F			105	
G		Ø	M8	
H			195	
I			112	
L			89	
M			19	
N			54	
O			58	
P			82	
R		Ø gas	G1/2"	

Accessories and Parts		RVP 15
Oil charge	L	0.50
Lubricating oil	type	VT OIL 68
Deoiling cartridge	item	00 RVP 15 05
Vane	item	00 RVP 15 04 (N°3)
Sealing kit	item	00 RVP 15 06
Check valve	item	00 RVP 15 03
Suction filter	item	FC 20 - FPL 3 - FCL 3 - FIL 3

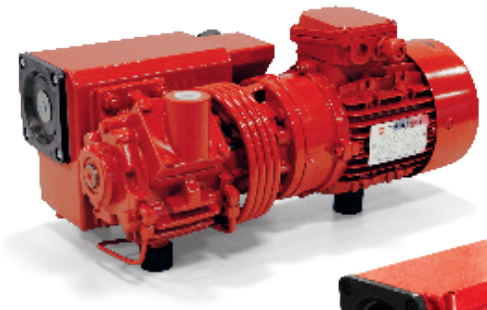
Note: Add the letter M to the item for a pump supplied with a single-phase electric motor (Example: RVP 15 M).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

3D drawings are available on **vuototecnica.net**

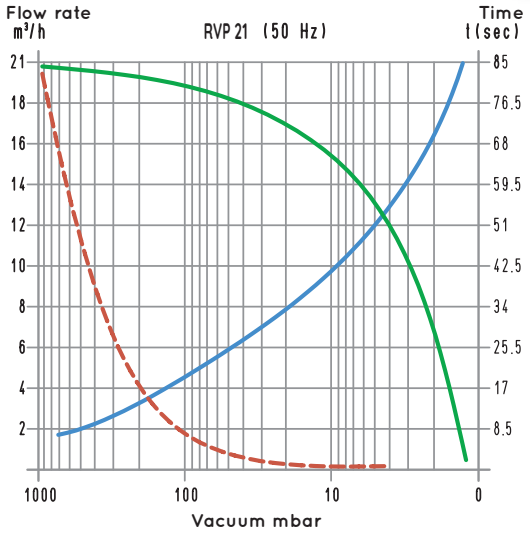
OIL-BATH VACUUM PUMP RVP 21

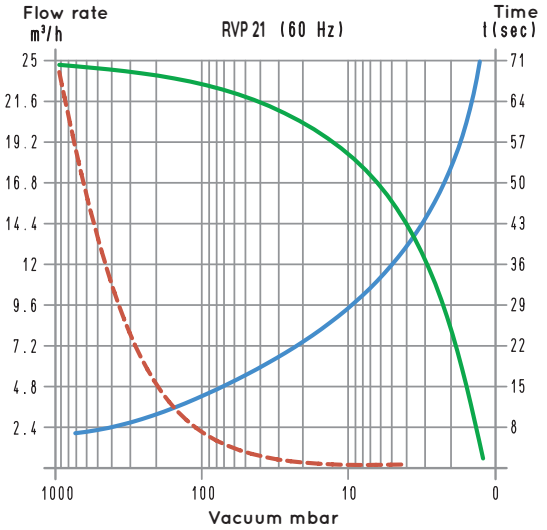
Pumps with an suction capacity of 21 m^3/h are single-stage, rotary vane and with oil-bath lubrication with recycling. The implementation of cutting edge construction techniques and the use of hi-tech, latest generation materials has allowed for the achievement of high standards of quality, performance, duration and low cost of use.



RVP 21

RVP 21 Z



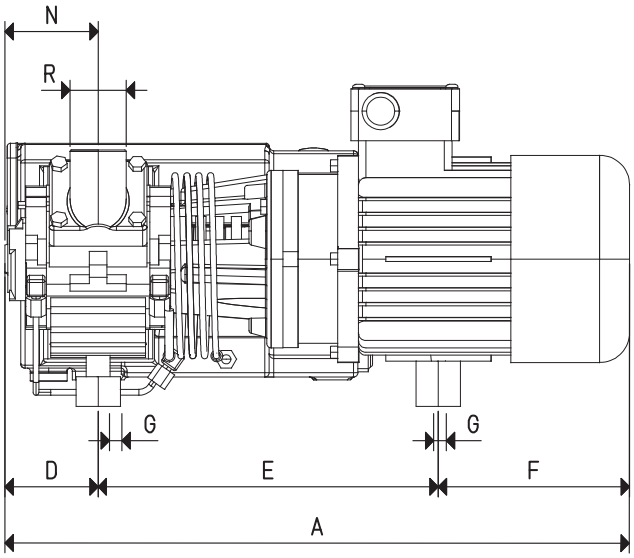


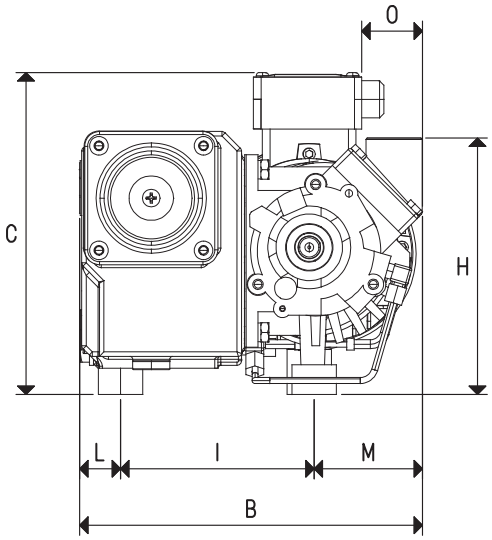
To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1: Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

OIL-BATH VACUUM PUMP RVP 21





Item			RVP 21	
Frequency			50 Hz	60 Hz
Flow rate		m^3/h	21.0	25.0
Final pressure		mbar abs.	1	
H_2O steam quantity permitted (RVP 21 Z)		Kg/h	0.4	
Motor performance	**3~**	Volt	230/400 ± 10%	275/480 ± 10%
	1~	Volt	230 ± 10%	275 ± 10%
Motor power	**3~**	Kw	0.75	0.90
	1~	Kw	0.75	0.90
Motor protection		IP	55	
Rotation speed		g/min^{-1}	2700	3240
Motor shape			B14	
Motor size			90	
Noise level		dB(A)	64	65
Max weight	**3~**	Kg	18.5	
	1~	Kg	19.0	
A			421	
B			232	
C			225	
D			63	
E			230	
F			128	
G		Ø	M8	
H			173	
I			131	
L			28	
M			73	
N			62	
O			41	
R		Ø gas	G1/2"	

Accessories and Parts		RVP 21
Oil charge	L	0.50
Lubricating oil	type	VT OIL 68
Deoiling cartridge	item	00 RVP 21 05
Vane	item	00 RVP 21 04 (N°3)
Sealing kit	item	00 RVP 21 06
Check valve	item	00 RVP 21 03
Suction filter	item	FC 20 - FPL 3 - FCL 3 - FIL 3
Ballast valve	item	00 RVP 21 17

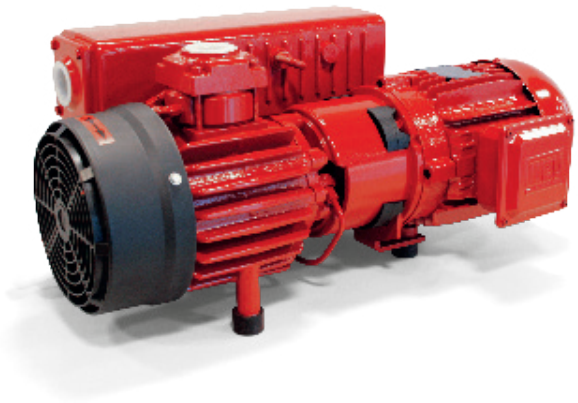
Note: Add the letter M to the item for a pump supplied with a single-phase electric motor (Example: RVP 21 M).
Add the letter Z to the item for a pump supplied with a ballast valve (Example: RVP 21 Z).

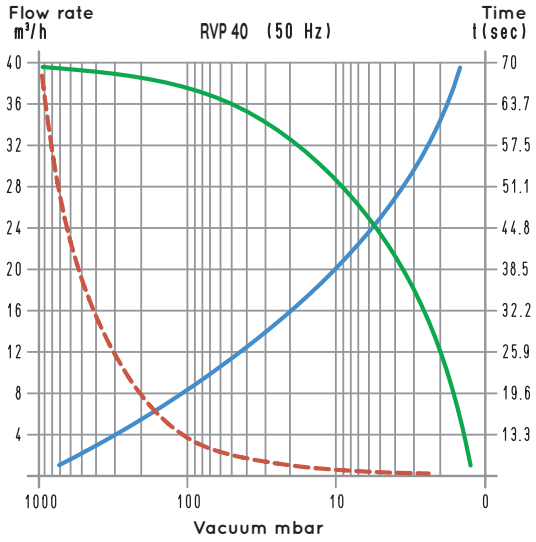
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

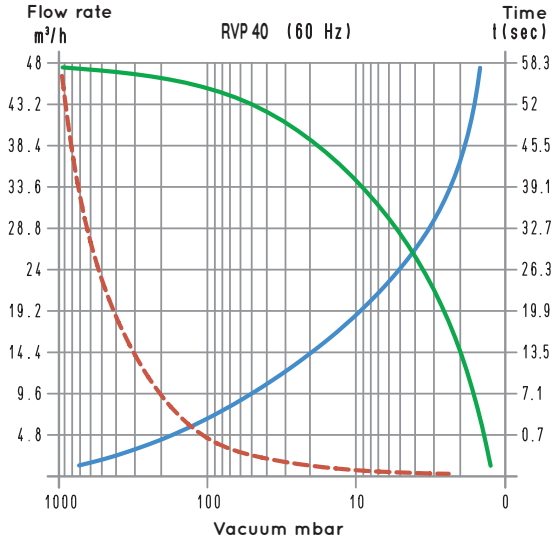
3D drawings are available on **vuototecnica.net**

OIL-BATH VACUUM PUMP RVP 40

Pumps with an suction capacity of 40 m^3/h are single-stage, rotary vane and with oil-bath lubrication with recycling. The implementation of cutting edge construction techniques and the use of hi-tech, latest generation materials has allowed for the achievement of high standards of quality, performance, duration and low cost of use.





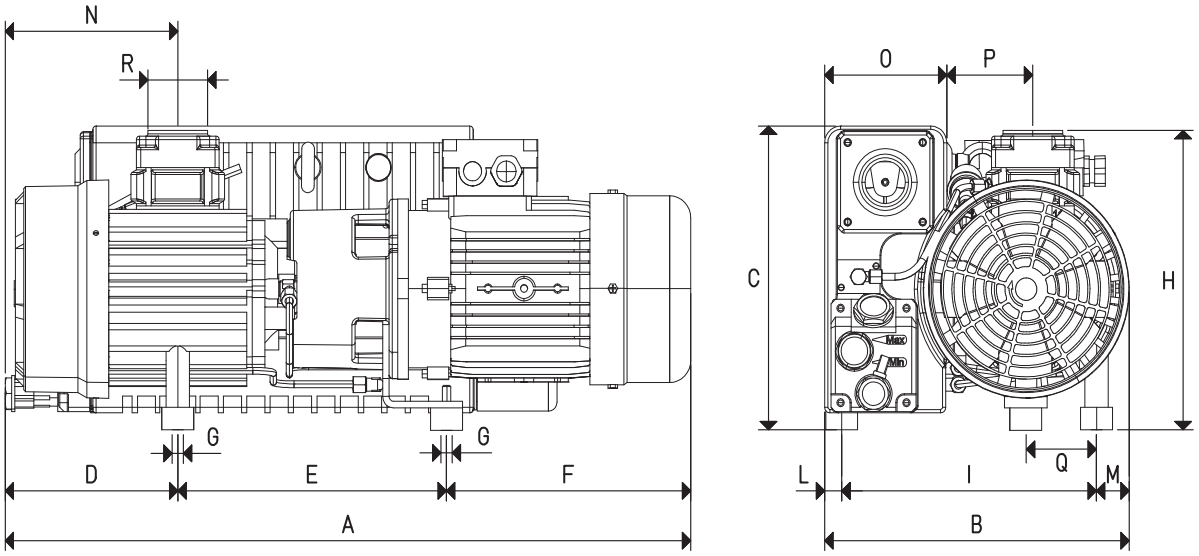


To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1: Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

OIL-BATH VACUUM PUMP RVP 40



Item		RVP 40	
Frequency		50 Hz	60 Hz
Flow rate	m^3/h	40.0	48.0
Final pressure	mbar abs.	0.5	
H_2O steam quantity permitted	Kg/h	0,7	
Motor performance 3~	Volt	230/400 ± 10%	275/480 ± 10%
Motor power 3~	Kw	1.10	1.35
Motor protection	IP	55	
Rotation speed	g/min^{-1}	1450	1740
Motor shape		B14	(flange hole spacing 130 mm)
Motor size		100	
Noise level	dB(A)	64	65
Max weight	Kg	49.0	
A		645	
B		286	
C		266	
D		157	
E		323	
F		225	
G	Ø	M8	
H		260	
I		240	
L		15	
M		31	
N		157	
O		115	
P		80	
Q		66	
R	Ø gas	G1"1/4	

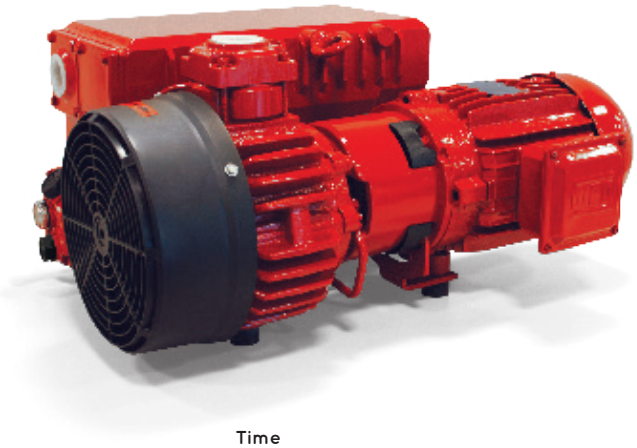
Accessories and Parts		RVP 40
Oil charge	L	1.25
Lubricating oil	type	VT OIL 100
Oil filter	item	00 RVP 40 07
Deoiling cartridge	item	00 RVP 40 05
Vane	item	00 RVP 40 04 (N°3)
Sealing kit	item	00 RVP 40 06
Check valve	item	00 RVP 40 03
Suction filter	item	FC 35 - FPL 6 - FCL 6 - FIL 6
Ballast valve	item	00 RVP 40 17

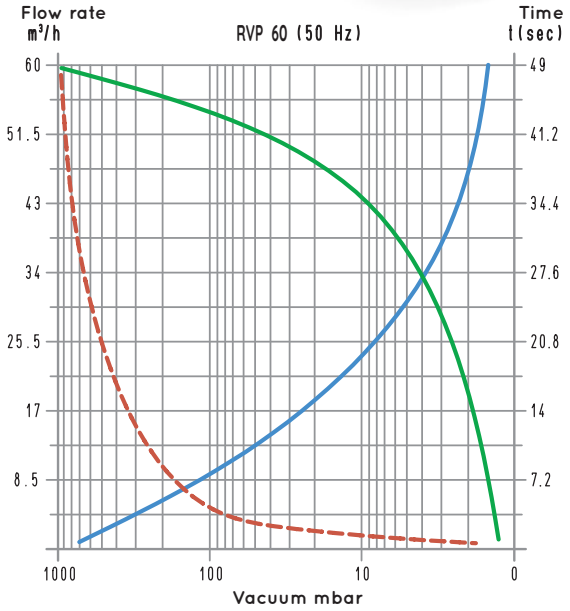
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

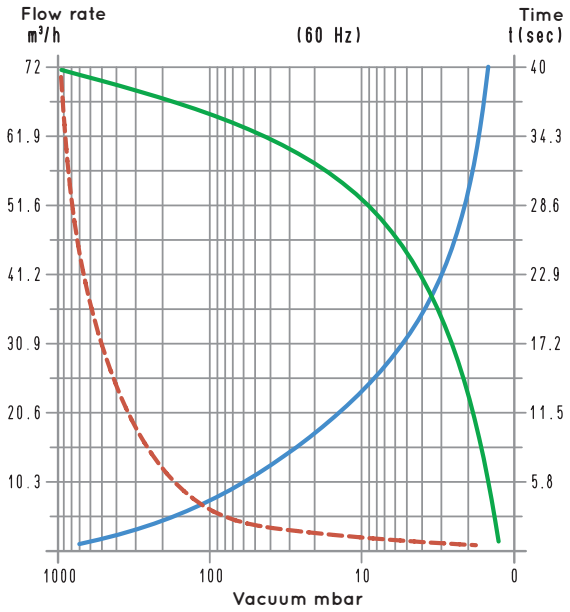
3D drawings are available on **vuototecnica.net**

OIL-BATH VACUUM PUMP RVP 60

Pumps with an suction capacity of 60 m^3/h are single-stage, rotary vane and with oil-bath lubrication with recycling. The implementation of cutting edge construction techniques and the use of hi-tech, latest generation materials has allowed for the achievement of high standards of quality, performance, duration and low cost of use.





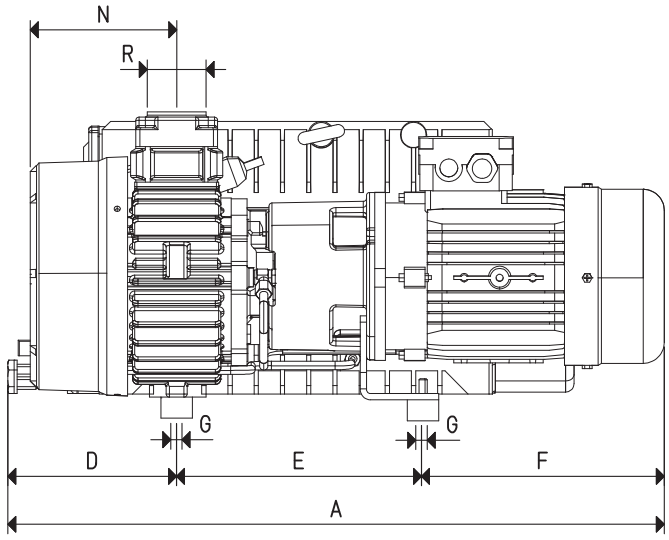


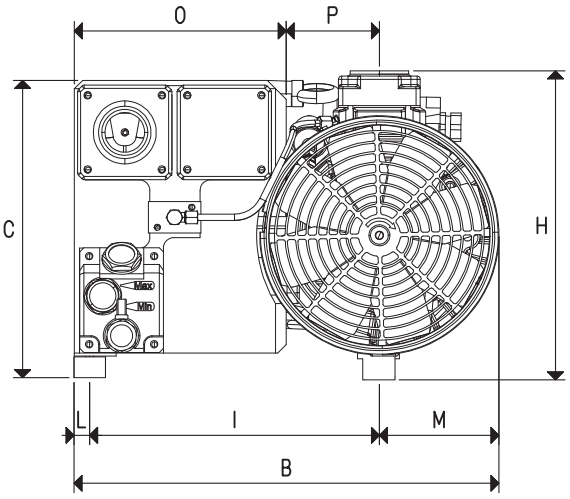
To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1: Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

OIL-BATH VACUUM PUMP RVP 60





Item		RVP 60	
Frequency		50 Hz	60 Hz
Flow rate	m^3/h	60.0	72.0
Final pressure	mbar abs.	0.5	
H_2O steam quantity permitted	Kg/h	1	
Motor performance 3~	Volt	230/400 ± 10%	275/480 ± 10%
Motor power 3~	Kw	1.50	1.80
Motor protection	IP	55	
Rotation speed	g/min^{-1}	1450	1740
Motor shape		B14	(flange hole spacing 130 mm)
Motor size		100	
Noise level	dB(A)	65	66
Max weight	Kg	59.0	
A		615	
B		420	
C		290	
D		148	
E		317	
F		217	
G	Ø	M8	
H		298	
I		276	
L		15	
M		129	
N		140	
O		200	
P		89	
R	Ø gas	G1"1/4	

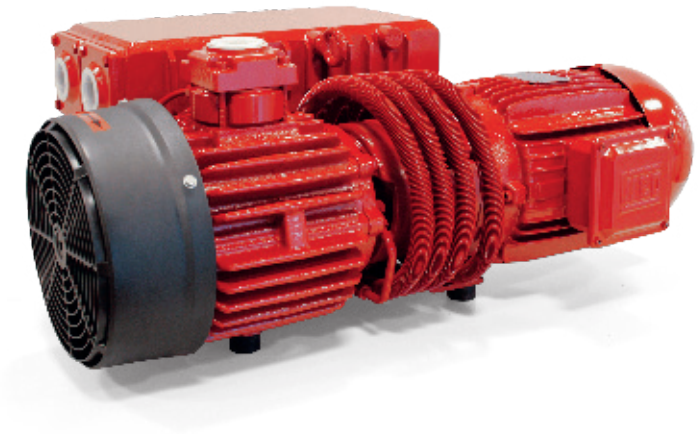
Accessories and Parts		RVP 60
Oil charge	L	2
Lubricating oil	type	VT OIL 100
Oil filter	item	00 RVP 60 07
Deoiling cartridge	item	00 RVP 60 05 (N°2)
Vane	item	00 RVP 60 04 (N°3)
Sealing kit	item	00 RVP 60 06
Check valve	item	00 RVP 60 03
Suction filter	item	FC 35 - FPL 6 - FCL 6 - FIL 6
Ballast valve	item	00 RVP 60 17

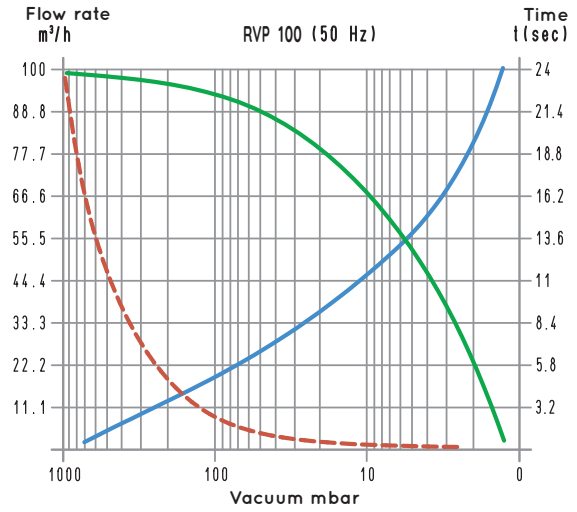
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

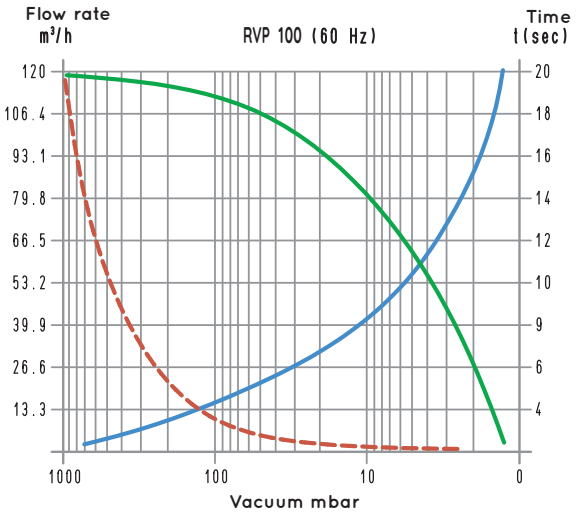
3D drawings are available on **vuototecnica.net**

OIL-BATH VACUUM PUMP RVP 100

Pumps with an suction capacity of 100 m³/h are single-stage, rotary vane and with oil-bath lubrication with recycling. The implementation of cutting edge construction techniques and the use of hi-tech, latest generation materials has allowed for the achievement of high standards of quality, performance, duration and low cost of use.





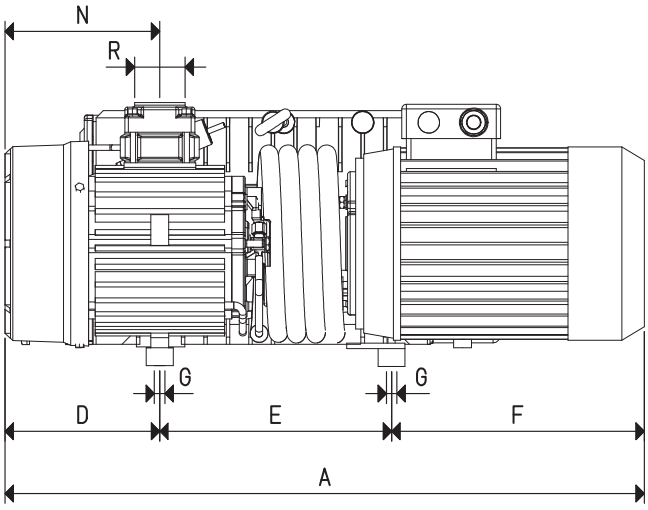


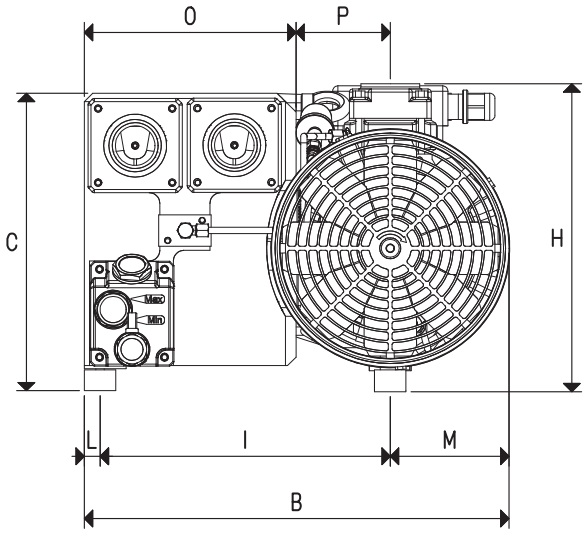
To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1 : Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

OIL-BATH VACUUM PUMP RVP 100





Item		RVP 100	
Frequency		50 Hz	60 Hz
Flow rate	m^3/h	100.0	120.0
Final pressure	mbar abs.	0.5	
H_2O steam quantity permitted	Kg/h	1.5	
Motor performance 3~	Volt	230/400 ± 10%	275/480 ± 10%
Motor power 3~	Kw	2.2	3.0
Motor protection	IP	55	
Rotation speed	g/min^{-1}	1450	1740
Motor shape		B14	(flange hole spacing 130 mm)
Motor size		100	
Noise level	dB(A)	67	69
Max weight	Kg	78.0	
A		710	
B		405	
C		280	
D		175	
E		360	
F		275	
G	Ø	M8	
H		290	
I		277	
L		15	
M		113	
N		170	
O		200	
P		90	
R	Ø gas	G1"1/4	

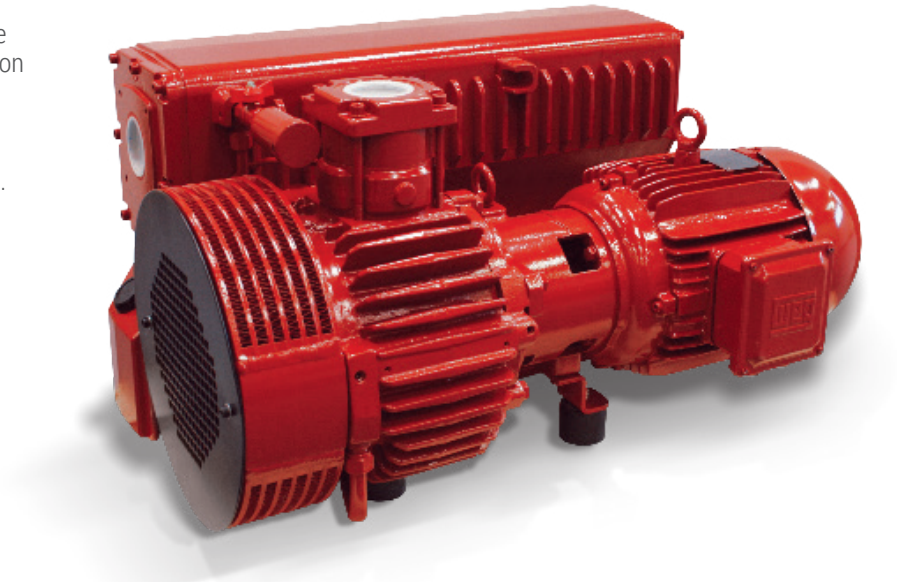
Accessories and Parts		RVP 100
Oil charge	L	2
Lubricating oil	type	VT OIL 100
Oil filter	item	00 RVP 100 07
Deoiling cartridge	item	00 RVP 100 05 (N°2)
Vane	item	00 RVP 100 04 (N°3)
Sealing kit	item	00 RVP 100 06
Check valve	item	00 RVP 100 03
Suction filter	item	FC 35 - FPL 6 - FCL 6 - FIL 6
Ballast valve	item	00 RVP 100 17

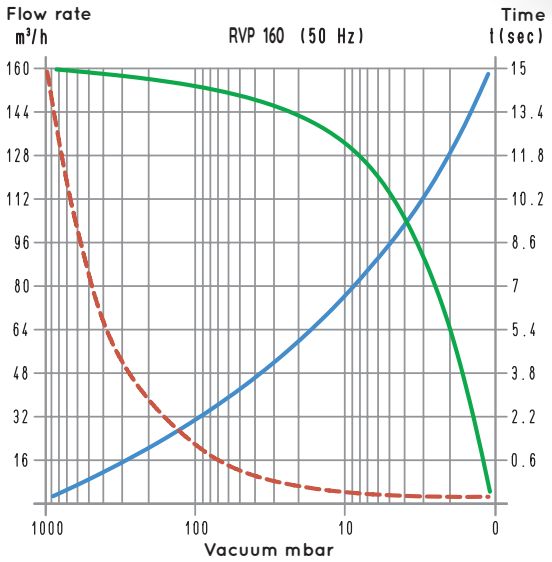
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

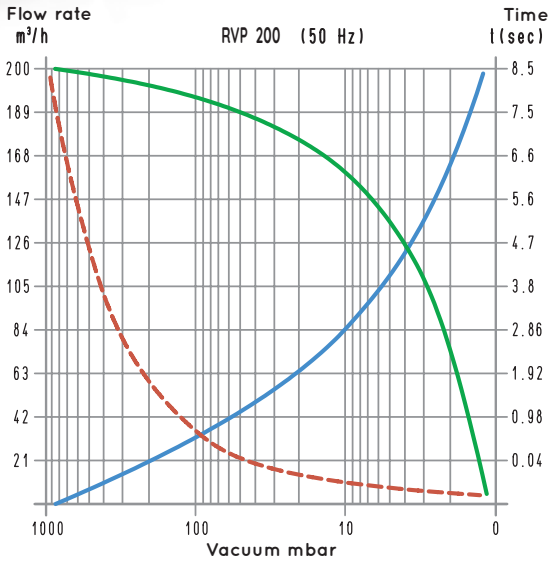
3D drawings are available on **vuototecnica.net**

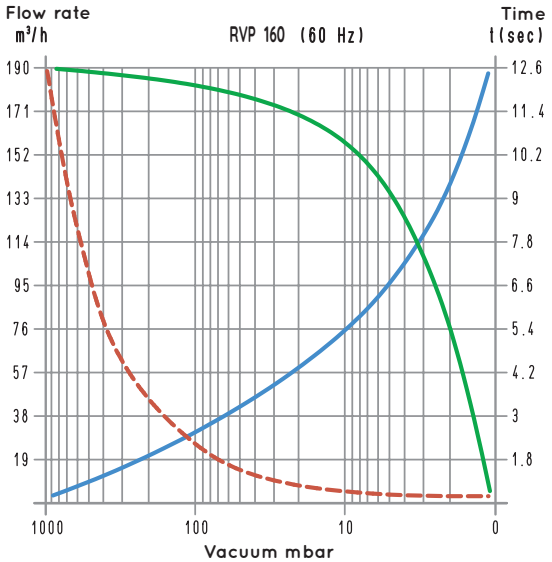
OIL-BATH VACUUM PUMPS RVP 160 and RVP 200

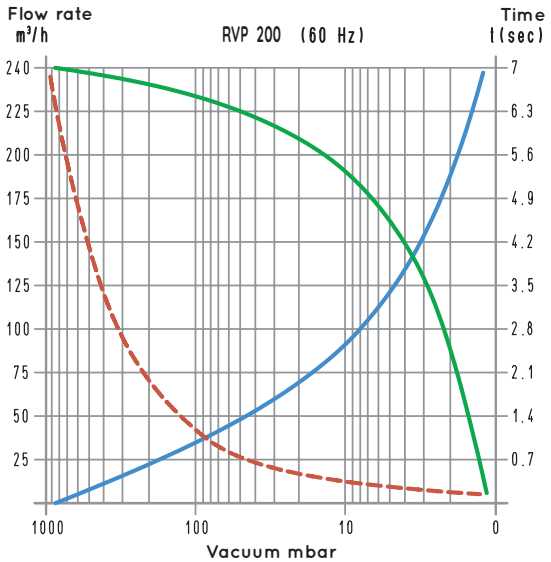
Pumps with an suction capacity of 160 and 200 m³/h are single-stage, rotary vane and with oil-bath lubrication with recycling. The implementation of cutting edge construction techniques and the use of hi-tech, latest generation materials has allowed for the achievement of high standards of quality, performance, duration and low cost of use.









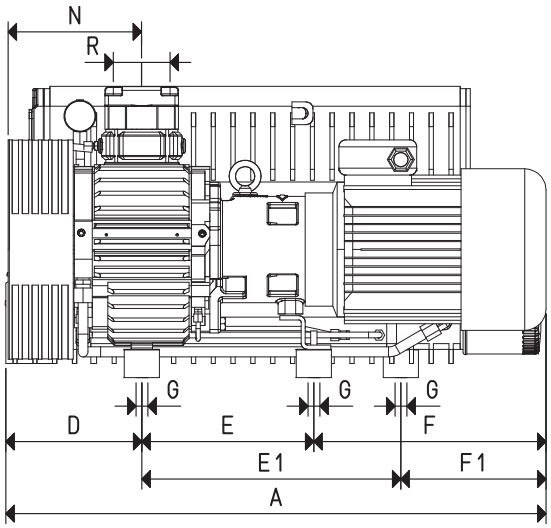


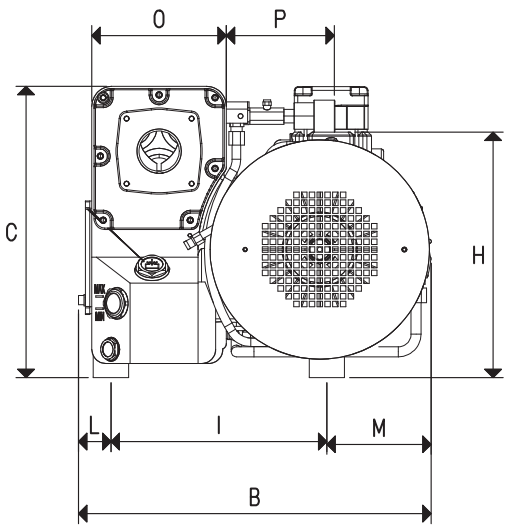
To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1 : Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

OIL-BATH VACUUM PUMPS RVP 160 and RVP 200





Item		RVP 160		RVP 200	
Frequency		50 Hz	60 Hz	50 Hz	60 Hz
Flow rate	m^3/h	160.0	190.0	200.0	240.0
Final pressure	mbar abs.	0.5		0.5	
H_2O steam quantity permitted	Kg/h	2.5		4	
Motor performance 3~	Volt	400/690 ± 10%	480/830 ± 10%	400/690 ± 10%	480/830 ± 10%
Motor power 3~	Kw	4	5.5	4	5.5
Motor protection	IP	55		55	
Rotation speed	g/min^{-1}	1450	1740	1450	1740
Motor shape		B14		B14	
Motor size		112		112	
Noise level	dB(A)	72	73	74	75
Max weight	kg	142.0		145.0	
A		761		761	
B		495		495	
C		411		411	
D		192		192	
E		243		243	
E1		366		366	
F		326		326	
F1		205		205	
G	Ø	M10		M10	
H		310		310	
I		305		305	
L		25		25	
M		165		165	
N		189		189	
O		80		80	
P		65		65	
R	Ø gas	G2"		G2"	

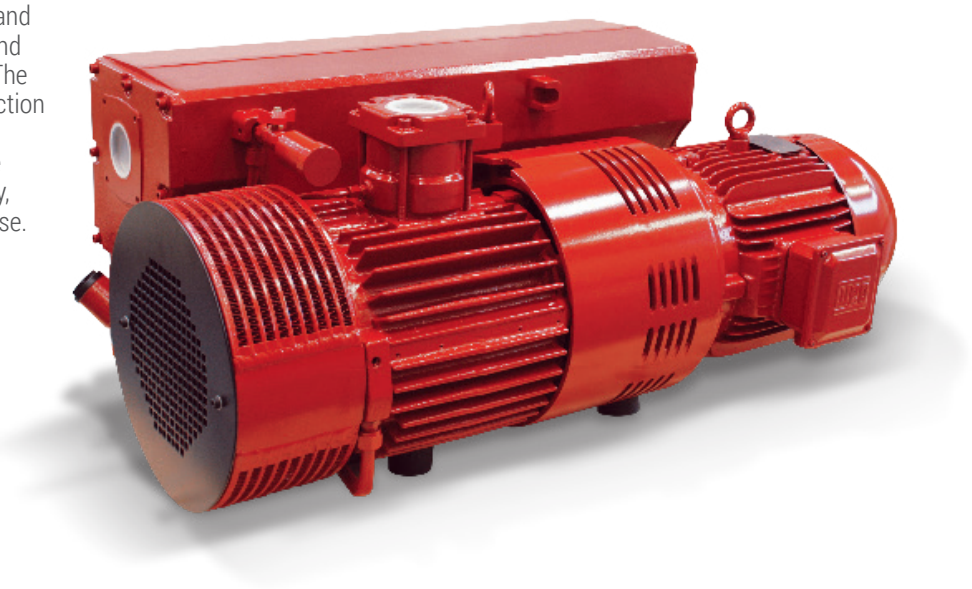
Accessories and Parts		RVP 160	RVP 200
Oil charge	L	8	8
Lubricating oil	type	VT OIL 100	VT OIL 100
Oil filter	item	00 RVP 160 07	00 RVP 200 07
Deoiling cartridge	item	00 RVP 160 05 (N°3)	00 RVP 200 05 (N°3)
Vane	item	00 RVP 160 04 (N°3)	00 RVP 200 04 (N°3)
Sealing kit	item	00 RVP 160 06	00 RVP 200 06
Check valve	item	00 RVP 160 03	00 RVP 200 03
Suction filter	item	FC 60 - FPL 7 - FCL 7 - FIL 7	FC 60 - FPL 7 - FCL 7 - FIL 7
Ballast valve	item	00 RVP 160 17	00 RVP 200 17

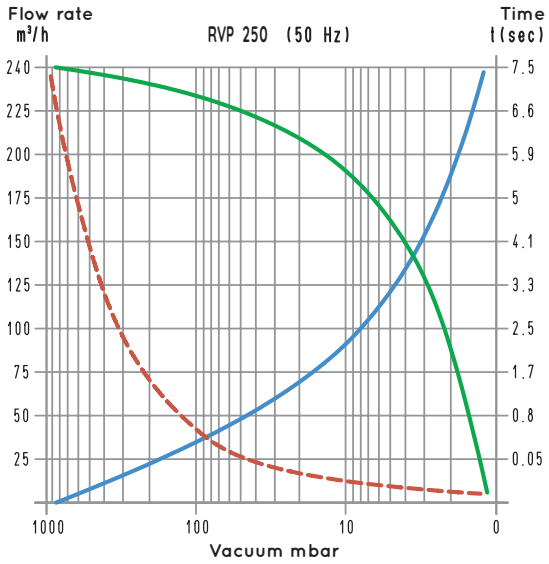
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

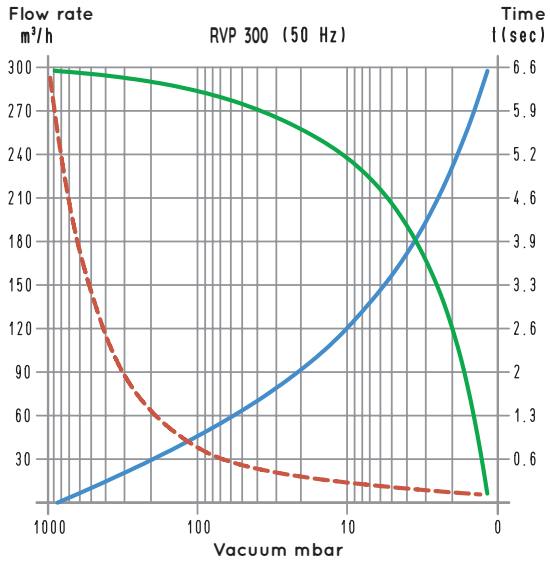
3D drawings are available on **vuototecnica.net**

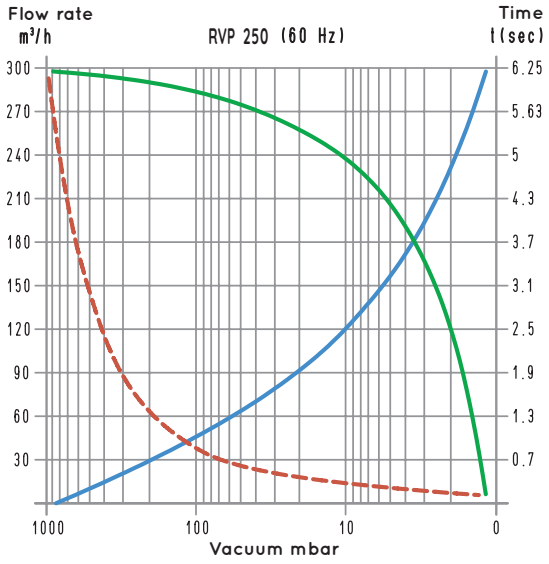
OIL-BATH VACUUM PUMPS RVP 250 and RVP 300

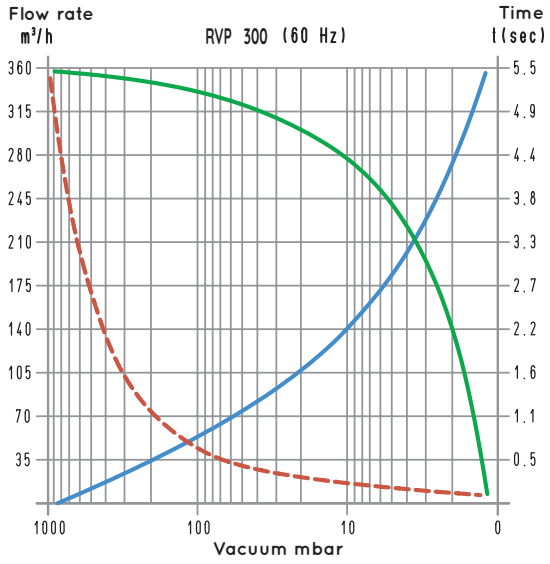
Pumps with an suction capacity of 250 and 300 m³/h are single-stage, rotary vane and with oil-bath lubrication with recycling. The implementation of cutting edge construction techniques and the use of hi-tech, latest generation materials has allowed for the achievement of high standards of quality, performance, duration and low cost of use.







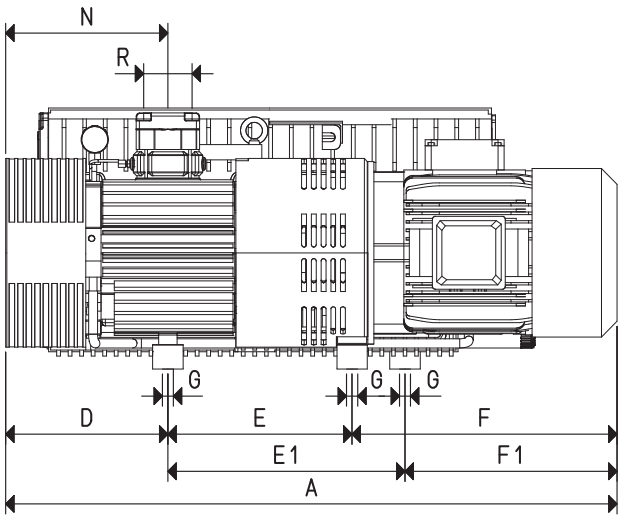


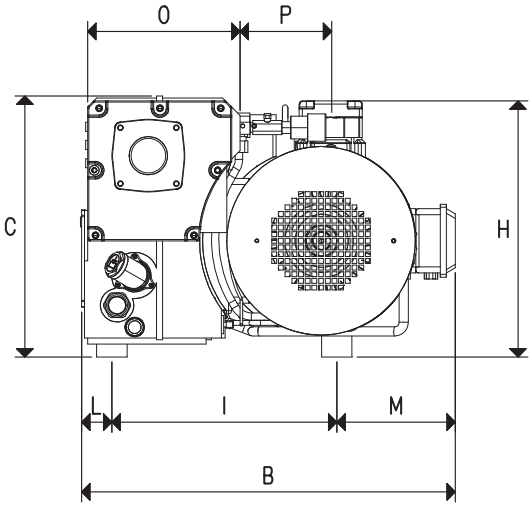


To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1: Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)





3D drawings are available on **vuototecnica.net**

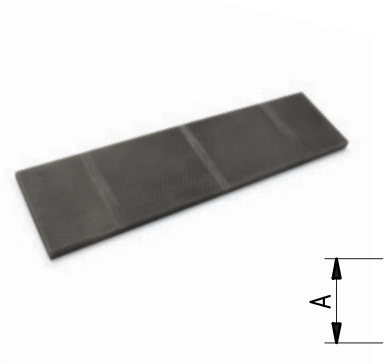
Item		RVP 250		RVP 300	
Frequency		50 Hz	60 Hz	50 Hz	60 Hz
Flow rate	m^3/h	250	300	300	360
Final pressure	mbar abs.	0.5		0.5	
H_2O steam quantity permitted	Kg/h	4		4.5	
Motor performance 3~	Volt	400/690 ± 10%	480/830 ± 10%	400/690 ± 10%	480/830 ± 10%
Motor power 3~	Kw	5.5	7.5	7.5	11
Motor protection	IP	55		55	
Rotation speed	g/min^{-1}	1450	1740	1450	1740
Motor shape		B5		B5	
Motor size		132		132	
Noise level	dB(A)	74	75	75	76
Max weight	Kg	198.0		212.0	
A		975		1010	
B		579		579	
C		411		411	
D		287		287	
E		303		303	
E1		390		390	
F		385		420	
F1		350		350	
G	Ø	M10		M10	
H		421		421	
I		369		369	
L		50		50	
M		185		185	
N		267		267	
O		242		242	
P		150		150	
R	Ø gas	G2"		G2"	

Accessories and Parts		RVP 250	RVP 300
Oil charge	L	10	10
Lubricating oil	type	VT OIL 100	VT OIL 100
Oil filter	item	00 RVP 250 07	00 RVP 300 07
Deoiling cartridge	item	00 RVP 250 05 (N°4)	00 RVP 300 05 (N°4)
Vane	item	00 RVP 250 04 (N°3)	00 RVP 300 04 (N°3)
Sealing kit	item	00 RVP 250 06	00 RVP 300 06
Check valve	item	00 RVP 250 03	00 RVP 300 03
Suction filter	item	FC 60 - FPL 7 - FCL 7 - FIL 7	FC 60 - FPL 7 - FCL 7 - FIL 7
Ballast valve	item	00 RVP 250 17	00 RVP 300 17

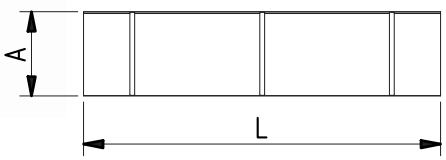
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

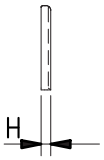
3D drawings are available on **vuototecnica.net**

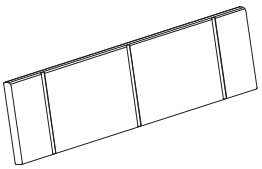
Fibre vane



Item	Quantity	L	A	H	For pump item
00 RVP 15 04	3	60	18	4	RVP 15
00 RVP 21 04	3	70	18	4	RVP 21
00 RVP 40 04	3	140	30	4	RVP 40
00 RVP 60 04	3	100	40	4	RVP 60
00 RVP 100 04	3	160	40	4	RVP 100
00 RVP 160 04	3	140	60	6	RVP 160
00 RVP 200 04	3	140	60	6	RVP 200
00 RVP 250 04	3	220	60	6	RVP 250
00 RVP 300 04	3	220	60	6	RVP 300





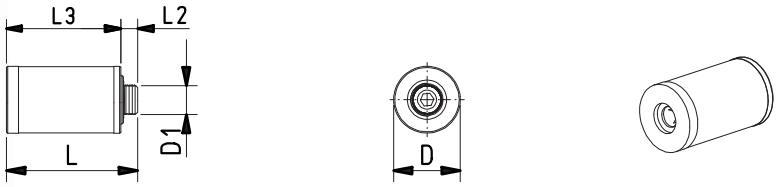


Sealing kit

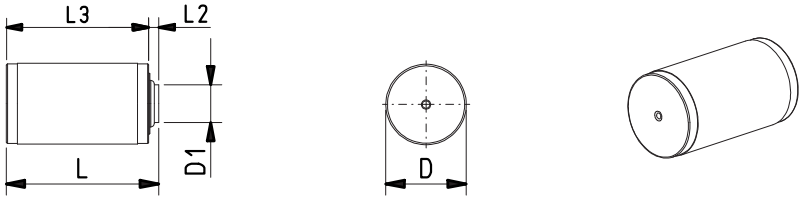
Item	Quantity	For pump item
00 RVP 15 06	1	RVP15
00 RVP 21 06	1	RVP21
00 RVP 40 06	1	RVP40
00 RVP 60 06	1	RVP60
00 RVP 100 06	1	RVP100
00 RVP 160 06	1	RVP160
00 RVP 200 06	1	RVP200
00 RVP 250 06	1	RVP250
00 RVP 300 06	1	RVP300

3D drawings are available on **vuototecnica.net**

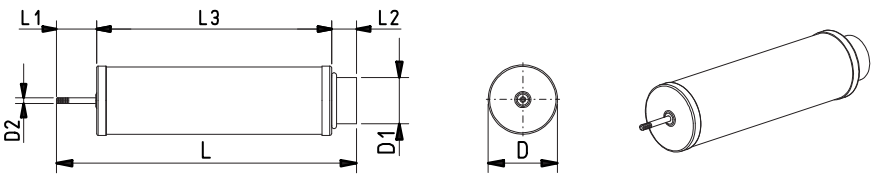
	Item	Quantity	L	L1	L2	L3	D	D1	D2	For pump item
Deoiling cartridge	00 RVP 15 05	1	110	--	12	98	55	M25x2	--	RVP 15



	Item	Quantity	L	L1	L2	L3	D	D1	D2	For pump item
Deoiling cartridge	00 RVP 21 05	1	138	--	8	130	72	35	--	RVP 21



	Item	Quantity	L	L1	L2	L3	D	D1	D2	For pump item
Deoiling cartridges	00 RVP 40 05	1	312	42	26	244	72	48	M6	RVP 40
	00 RVP 60 05	2	312	42	26	244	72	48	M6	RVP 60
	00 RVP 100 05	2	312	42	26	244	72	48	M6	RVP 100
	00 RVP 160 05	3	420	42	26	352	72	48	M6	RVP 160
	00 RVP 200 05	3	420	42	26	352	72	48	M6	RVP 200
	00 RVP 250 05	4	490	42	26	422	72	48	M6	RVP 250
	00 RVP 300 05	4	490	42	26	422	72	48	M6	RVP 300



3D drawings are available on **vuototecnica.net**

Suction filters

Item	Quantity	For pump item
FC 20 - FPL 3 - FCL 3 - FIL 3	1	RVP15
FC 20 - FPL 3 - FCL 3 - FIL 3	1	RVP21
FC 35 - FPL 6 - FCL 6 - FIL 6	1	RVP40
FC 35 - FPL 6 - FCL 6 - FIL 6	1	RVP60
FC 35 - FPL 6 - FCL 6 - FIL 6	1	RVP100
FC 60 - FPL 7 - FCL 7 - FIL 7	1	RVP160
FC 60 - FPL 7 - FCL 7 - FIL 7	1	RVP200
FC 60 - FPL 7 - FCL 7 - FIL 7	1	RVP250
FC 60 - FPL 7 - FCL 7 - FIL 7	1	RVP300

Note: The choice of the most suitable filter, with the correct degree of filtration, must be made according to the specific field of application. Our technical department is at your disposal to offer advice and guide you in making the best choice.

Ballast valve

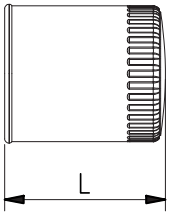
Item	Quantity	For pump item
00 RVP 21 17	1	RVP21
00 RVP 40 17	1	RVP40
00 RVP 60 17	1	RVP60
00 RVP 100 17	1	RVP100
00 RVP 160 17	1	RVP160
00 RVP 200 17	1	RVP200
00 RVP 250 17	1	RVP250
00 RVP 300 17	1	RVP300

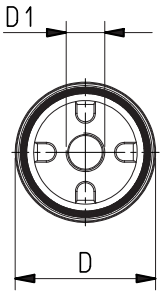
Check valve

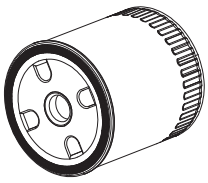
Item	Quantity	For pump item
00 RVP 15 03	1	RVP15
00 RVP 21 03	1	RVP21
00 RVP 40 03	1	RVP40
00 RVP 60 03	1	RVP60
00 RVP 100 03	1	RVP100
00 RVP 160 03	1	RVP160
00 RVP 200 03	1	RVP200
00 RVP 250 03	1	RVP250
00 RVP 300 03	1	RVP300

3D drawings are available on **vuototecnica.net**

	Item	Quantity	L	D	D1	For pump item
Oil filters	00 RVP 40 07	1	75	76	UNF 3/4"-16	RVP 40
	00 RVP 60 07	1	75	76	UNF 3/4"-16	RVP 60
	00 RVP 100 07	1	75	76	UNF 3/4"-16	RVP 100
	00 RVP 160 07	1	93	95	UNF 3/4"-16	RVP 160
	00 RVP 200 07	1	93	95	UNF 3/4"-16	RVP 200
	00 RVP 250 07	1	140	96	UNF 3/4"-16	RVP 250
	00 RVP 300 07	1	140	96	UNF 3/4"-16	RVP 300







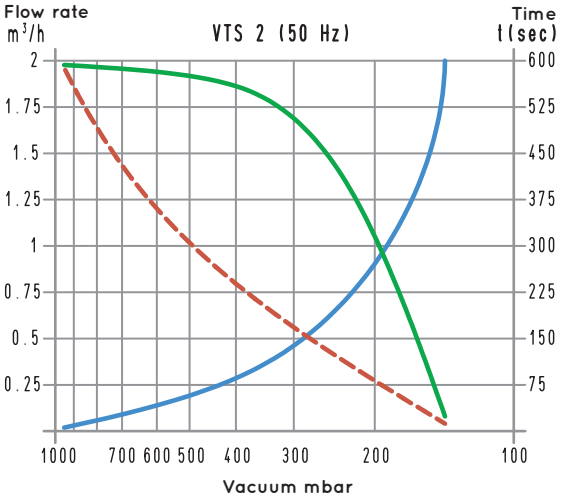
	Item	Quantity
Mineral lubricating oil	ISO 32 - 68 - 100 - 150	1 - 2 - 5 - 10 L packs

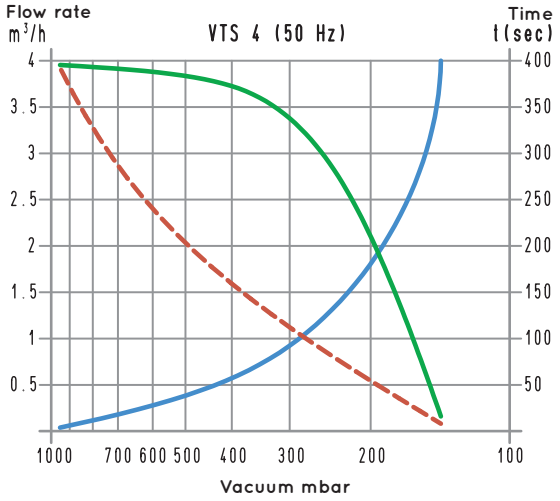
	Item	Quantity
Synthetic lubricating oil	VT OIL 32 - 68 - 100	1 - 2 - 5 - 10 L packs

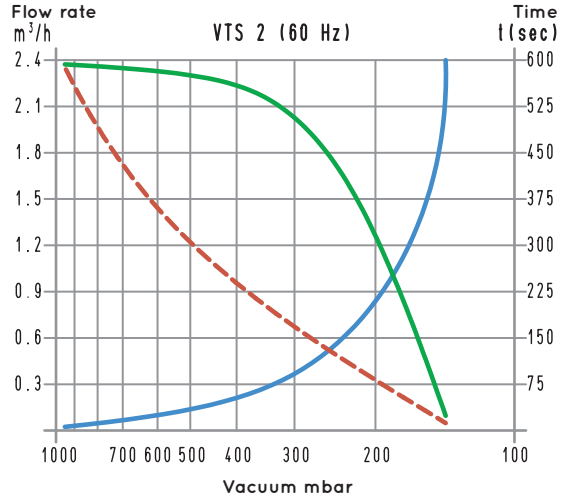
	Item	Quantity
"Non-toxic" synthetic oil for the food industry	VT OIL FI 68 - 100	1 - 2 - 5 - 10 L packs

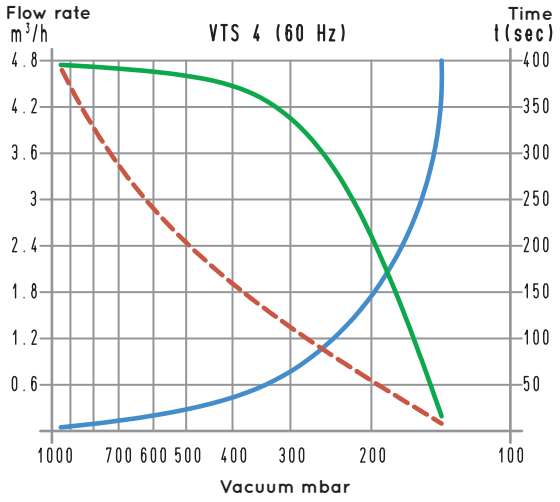
DRY VACUUM PUMPS VTS 2 and 4

These small lubrication-free rotary vane vacuum pumps have a suction flow rate of 2 and 4 m^3/h. The particular shape of the working chamber and the special graphite, with which the locking flanges and vanes are made, allow these pumps to operate with no lubrication.
The rotor is cantilevered-fitted on the motor shaft, thus reducing overall dimensions to the minimum. The motor and the pump are cooled by the motor fan (surface cooling).
A filter that functions as a silencer is installed on the suction inlet. We strongly recommend installing a filter on the suction inlet against possible impurities. These pumps are not recommended when the fluid to be sucked contains water or oil vapours or condensations.
Vacuum pumps VTS 2 and 4 can also be supplied with single-phase electric motor.





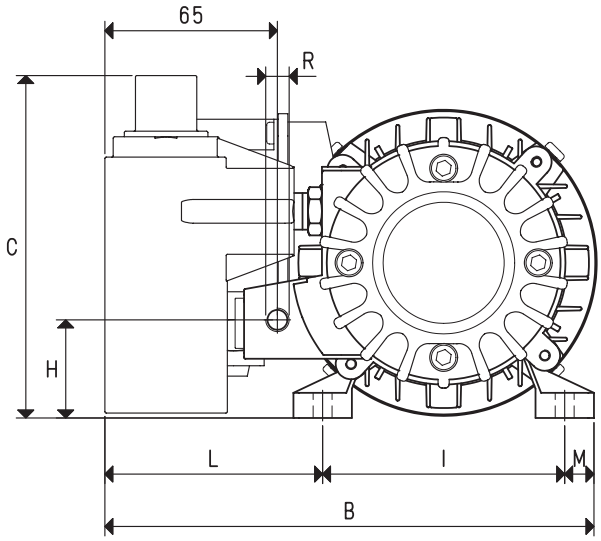


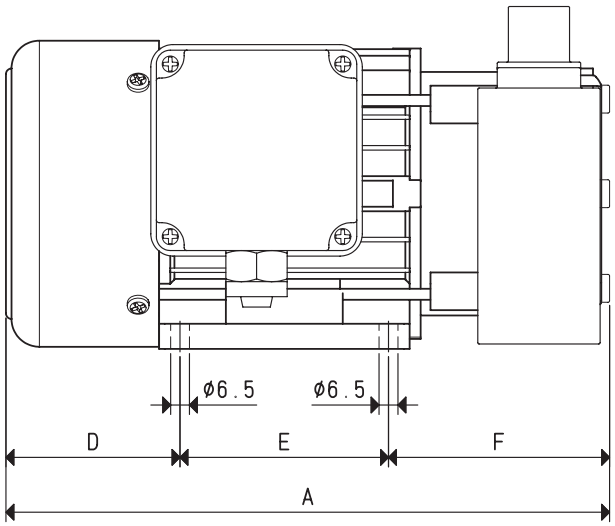


To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1: Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)





Item			VTS 2		VTS 4	
Frequency			50Hz	60Hz	50Hz	60Hz
Flow rate		m^3/h	2.0	2.4	4.0	4.8
Final pressure		mbar abs.	200		150	
Motor performance	**3~**	Volt	230/400±10%	265/460±10%	230/400±10%	265/460±10%
	1~	Volt	230±10%		230±10%	
Motor power	**3~**	Kw	0.12	0.15	0.18	0.21
	1~	Kw	0.12	0.15	0.18	0.21
Motor protection		IP	55		55	
Rotation speed		g/min^{-1}	2800	3300	2800	3300
Motor shape			Special		Special	
Motor size			56		63	
Noise level		dB(A)	64	66	64	66
Max weight	**3~**	Kg	5.3		6.8	
	1~	Kg	5.5		7.0	
A			217		251	
B			180		186	
C			121		131	
D			66		78	
E			71		81	
F			80		92	
H			35		45	
I			90		100	
L			79		73	
M			11		13	
R		Ø gas	G1/4"		G1/4"	

Accessories and Parts		VTS 2	VTS 4
Graphite vane	item	00 VTS 02 10 (N°4)	00 VTS 04 10 (N°4)
Front flange complete with graphite disc	item	00 VTS 02 11	00 VTS 04 11
Rear flange complete with graphite disc	item	00 VTS 02 15	00 VTS 02 15
Sealing kit	item	00 KIT VTS 02	00 KIT VTS 04
Check valve	item	10 01 15	10 01 15
Suction filter	item	FB 5 - FPL 1 - FCL 1 - FIL 1	FB 5 - FPL 1 - FCL 1 - FIL 1

Note: Add the letter M to the item for a pump supplied with a single-phase electric motor (Example: VTS 2 M).

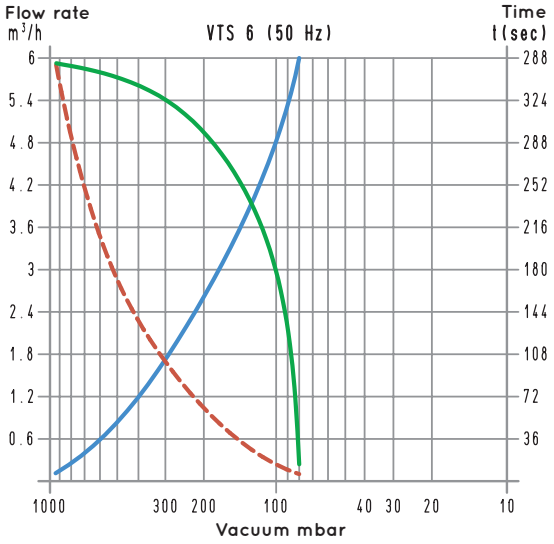
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

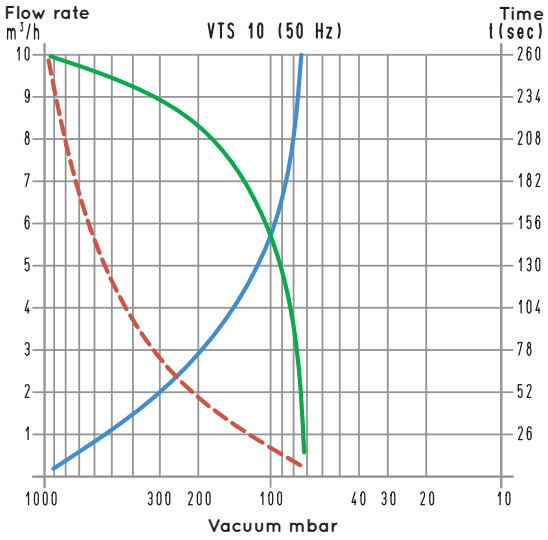
DRY VACUUM PUMPS VTS 6 and 10

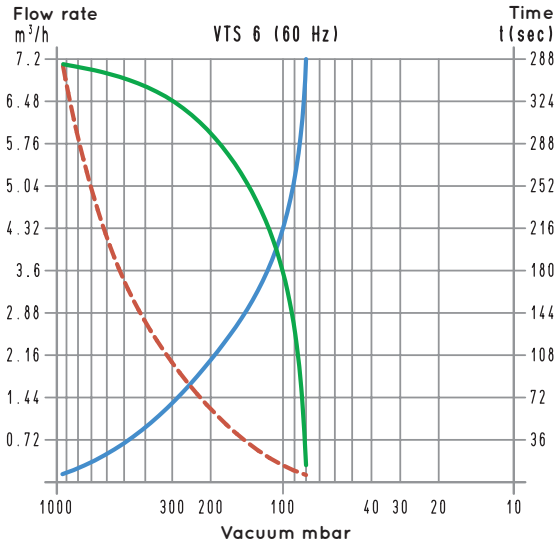
These lubrication-free rotary vane vacuum pumps have a suction flow rate of 6 and 10 m³/h. The particular shape of the working chamber and the special graphite, with which the locking flanges and vanes are made, allow these pumps to operate with no lubrication.
The rotor is cantilevered-fitted on the motor shaft, thus reducing overall dimensions to the minimum. The motor and the pump are cooled by the motor fan (surface cooling).
A filter that functions as a silencer is installed on the suction inlet.
We strongly recommend installing a filter on the suction inlet against possible impurities. These pumps are not recommended when the fluid to be sucked contains water or oil vapours or condensations.
Vacuum pumps VTS 6 and 10 can also be supplied with single-phase electric motor.

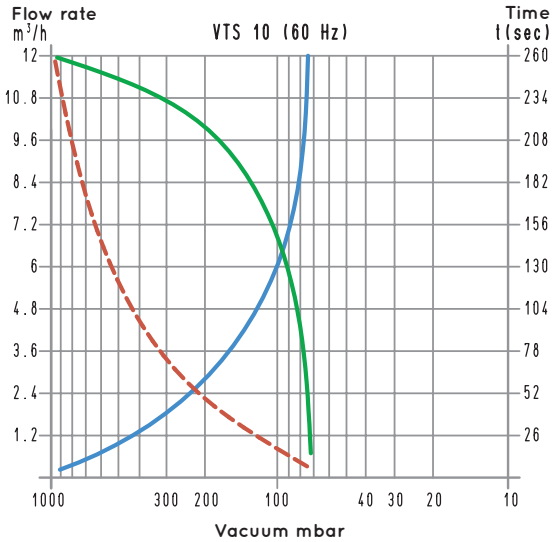
VTS 6

VTS 10







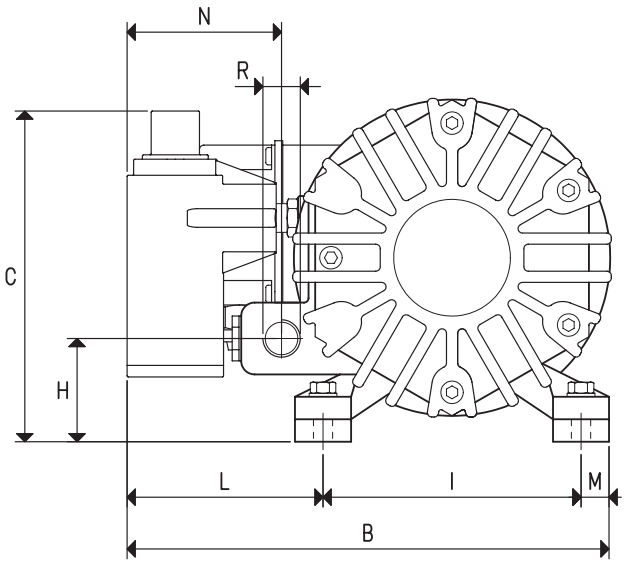


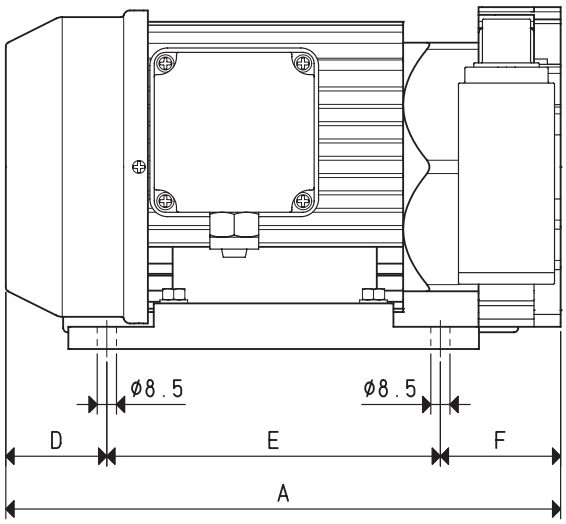
To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1: Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

3D drawings are available on **vuototecnica.net**





Item			VTS 6		VTS 10	
Frequency			50Hz	60Hz	50Hz	60Hz
Flow rate		m^3/h	6.0	7.2	10.0	12.0
Final pressure		mbar abs.	80		80	
Motor performance	**3~**	Volt	230/400±10%	265/460±10%	230/400±10%	265/460±10%
	1~	Volt	230±10%		230±10%	
Motor power	**3~**	Kw	0.25	0.30	0.37	0.40
	1~	Kw	0.25	0.30	0.37	0.40
Motor protection		IP	55		55	
Rotation speed		g/min^{-1}	1400	1680	1400	1680
Motor shape			Special		Special	
Motor size			71		71	
Noise level		dB(A)	64	66	64	66
Max weight	**3~**	Kg	11.8		15.0	
	1~	Kg	12.0		15.2	
A			268		290	
B			210		182	
C			156		156	
D			55		55	
E			155		155	
F			58		88	
H			43		53	
I			115		115	
L			82.5		52.5	
M			12.5		12.5	
N			68		13	
R		Ø gas	G3/8"		G3/8"	

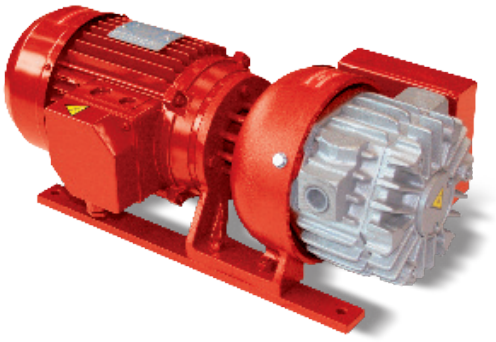
Accessories and Parts		VTS 6	VTS 10
Graphite vane	item	00 VTS 06 10 (N°6)	00 VTS 10 10 (N°6)
Front flange complete with graphite disc	item	00 VTS 06 07	00 VTS 10 11
Rear flange complete with graphite disc	item	00 VTS 06 12	00 VTS 10 20
Sealing kit	item	00 KIT VTS 06	00 KIT VTS 10
Check valve	item	10 02 15	10 02 15
Suction filter	item	FB 15 - FC 10 - FPL 2 - FCL 2 - FIL 2	FB 15 - FC 10 - FPL 2 - FCL 2 - FIL 2

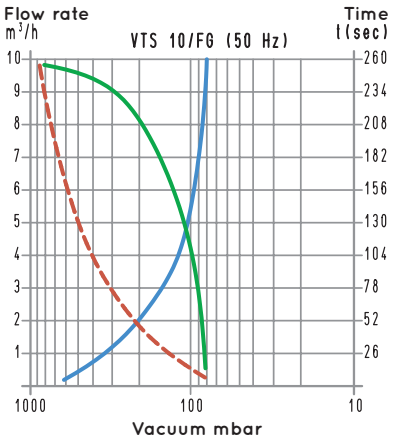
Note: Add the letter M to the item for a pump supplied with a single-phase electric motor (Example: VTS 6 M).

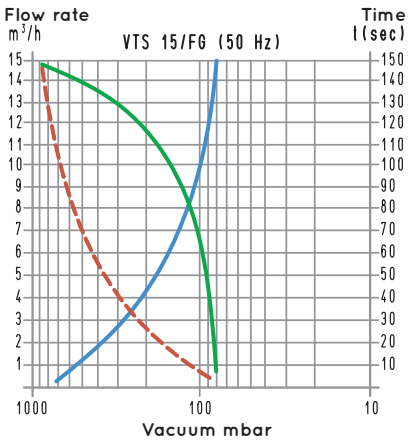
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

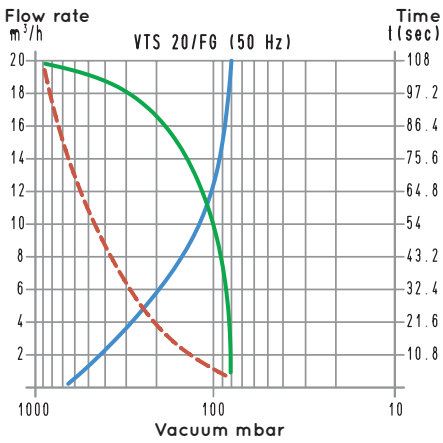
DRY VACUUM PUMPS VTS 10/FG, 15/FG and 20/FG

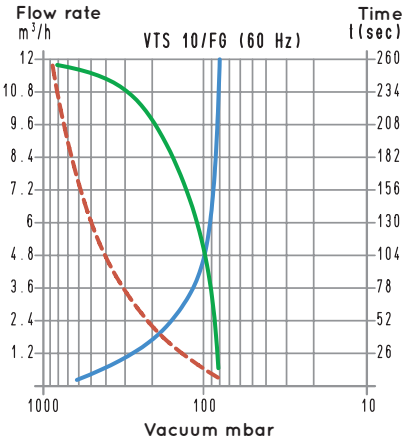
These lubrication-free rotary vane vacuum pumps have a suction flow rate of 10, 15 and 20 m³/h. The particular shape of the working chamber and the special graphite, with which the locking flanges and vanes are made, allow these pumps to operate with no lubrication.
The pump rotor is cantilevered-fitted on the motor shaft and supported by independent bearings housed in the two pump flanges. The pump and the electric motor are, therefore, two independent units and fixed onto a special support and connected to each other via an elastic transmission joint.
All this allows using standard electric motors, in the shapes and sizes indicated in the table.
The pump is surface cooled. Heat is dispersed from the outer surface, suitably finned, by means of a radial fan placed between motor and pump.
A filter that functions as a silencer is installed on the suction inlet. We strongly recommend installing a filter on the suction inlet against possible impurities. These pumps are not recommended when the fluid to be sucked contains water or oil vapours or condensations.
Also this range of pumps can be supplied with single-phase electric motors.

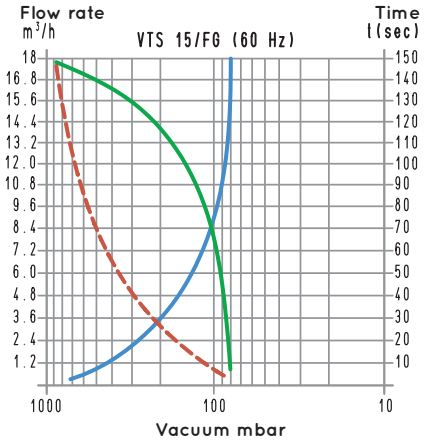


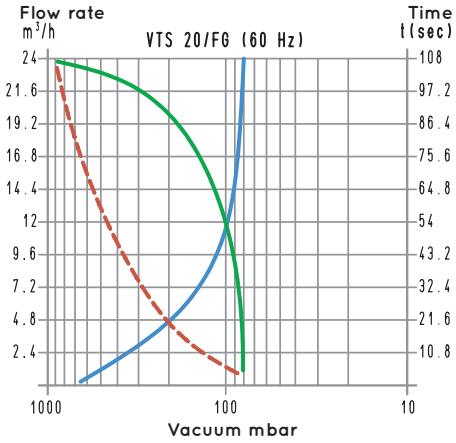










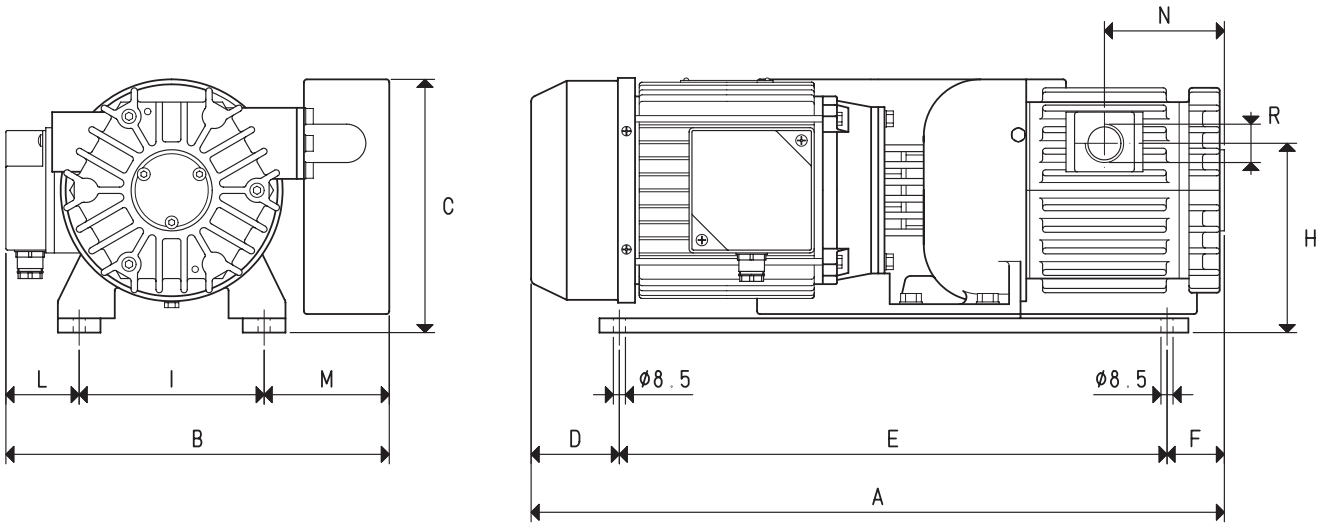


To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

Curve relative to the flow rate (referring to the suction pressure)
Curve relative to the flow rate (referring to a 1013 mbar pressure)
Curve regarding the emptying time of a 100-litre volume

V_1: Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

3D drawings are available on **vuototecnica.net**



Item			VTS 10/FG		VTS 15/FG		VTS 20/FG	
Frequency			50Hz	60Hz	50Hz	60Hz	50Hz	60Hz
Flow rate		m^3/h	10.0	12.0	15.0	18.0	20.0	24.0
Final pressure		mbar abs.	80		80		80	
Motor performance	**3~**	Volt	230/400±10%	265/460±10%	230/400±10%	265/460±10%	230/400±10%	265/460±10%
	1~	Volt	230±10%		230±10%		230±10%	
Motor power	**3~**	Kw	0.35	0.40	0.55	0.66	0.55	0.66
	1~	Kw	0.25	0.30	0.55	0.66	0.55	0.66
Motor protection		IP	55		55		55	
Rotation speed		g/min^{-1}	1400	1680	1400	1680	1400	1680
Motor shape			B14		B14		B14	
Motor size			80		80		80	
Noise level		dB(A)	64	66	65	67	65	67
Max weight	**3~**	Kg	22.0		24.0		27.3	
	1~	Kg	22.4		24.4		27.8	
A			430		450		470	
B			265		265		265	
C			170		170		170	
D			65		65		65	
E			340		340		340	
F			25		45		65	
H			133		133		133	
I			130		130		130	
L			55		55		55	
M			80		80		80	
N			73		83		93	
R		Ø gas	G1/2"		G1/2"		G1/2"	

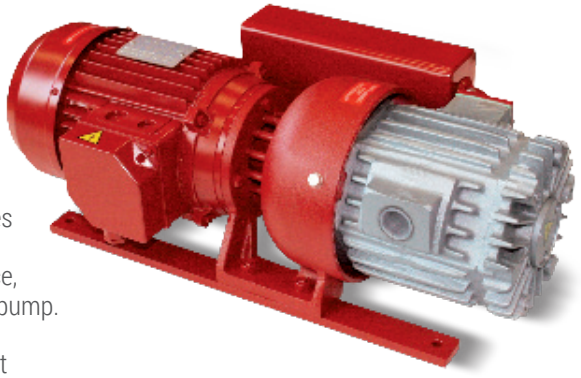
Accessories and Parts		VTS 10/FG	VTS 15/FG	VTS 20/FG
Graphite vane	item	00 VTS 10FG 10 (N°6)	00 VTS 15FG 10 (N°6)	00 VTS 20FG 10 (N°6)
Front flange complete with graphite disc	item	00 VTS 10FG 17	00 VTS 15FG 17	00 VTS 20FG 17
Rear flange complete with graphite disc	item	00 VTS 10FG 26	00 VTS 15FG 26	00 VTS 20FG 26
Sealing kit	item	00 KIT VTS 10FG	00 KIT VTS 15FG	00 KIT VTS 20FG
Check valve	item	10 03 15	10 03 15	10 03 15
Suction filter	item	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3

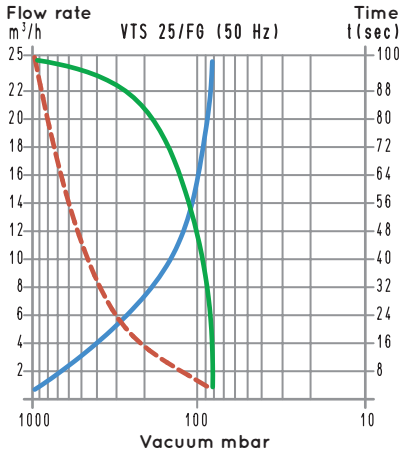
Note: Add the letter M to the item for a pump supplied with a single-phase electric motor (Example: VTS 10/FG M).

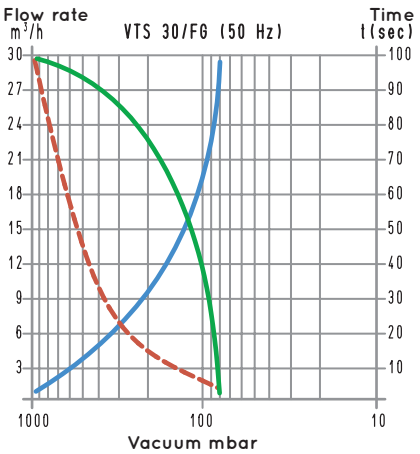
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

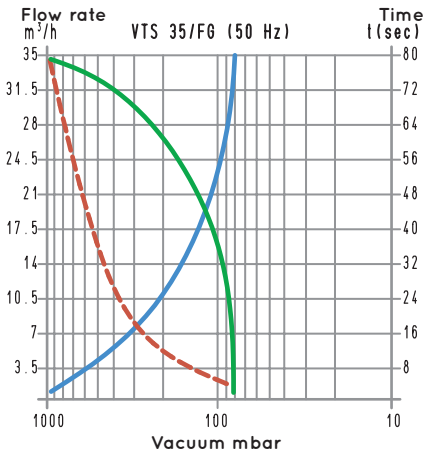
DRY VACUUM PUMPS VTS 25/FG, 30/FG and 35/FG

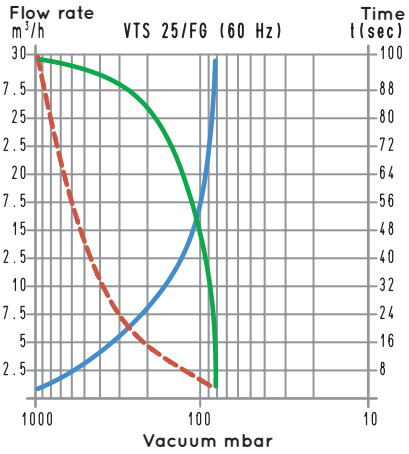
These lubrication-free rotary vane vacuum pumps have a suction flow rate of 25, 30 and 35 m³/h. The particular shape of the working chamber and the special graphite, with which the locking flanges and vanes are made, allow these pumps to operate with no lubrication.
The pump rotor is cantilevered-fitted on the motor shaft and supported by independent bearings housed in the two pump flanges.
The pump and the electric motor are, therefore, two independent units and fixed onto a special support and connected to each other via an elastic transmission joint.
All this allows using standard electric motors, in the shapes and sizes indicated in the table.
The pump is surface cooled. Heat is dispersed from the outer surface, suitably finned, by means of a radial fan placed between motor and pump.
A filter that functions as a silencer is installed on the suction inlet.
We strongly recommend installing a filter on the suction inlet against possible impurities. These pumps are not recommended when the fluid to be sucked contains water or oil vapours or condensations.
Also this range of pumps can be supplied with single-phase electric motors.

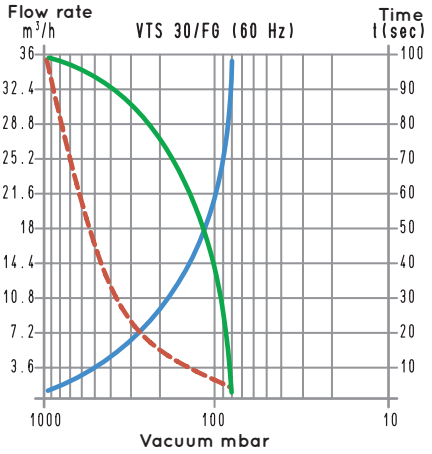


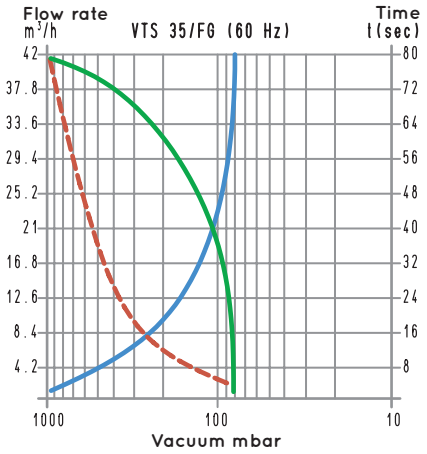












To calculate the emptying time of a volume of V_1, use the following formula: $t_1 = \frac{t \times V_1}{100}$

- Curve relative to the flow rate (referring to the suction pressure)
- Curve relative to the flow rate (referring to a 1013 mbar pressure)
- Curve regarding the emptying time of a 100-litre volume

V_1: Volume to be emptied (l)
t_1 : time to be calculated (sec)
t : time obtained in the table (sec)

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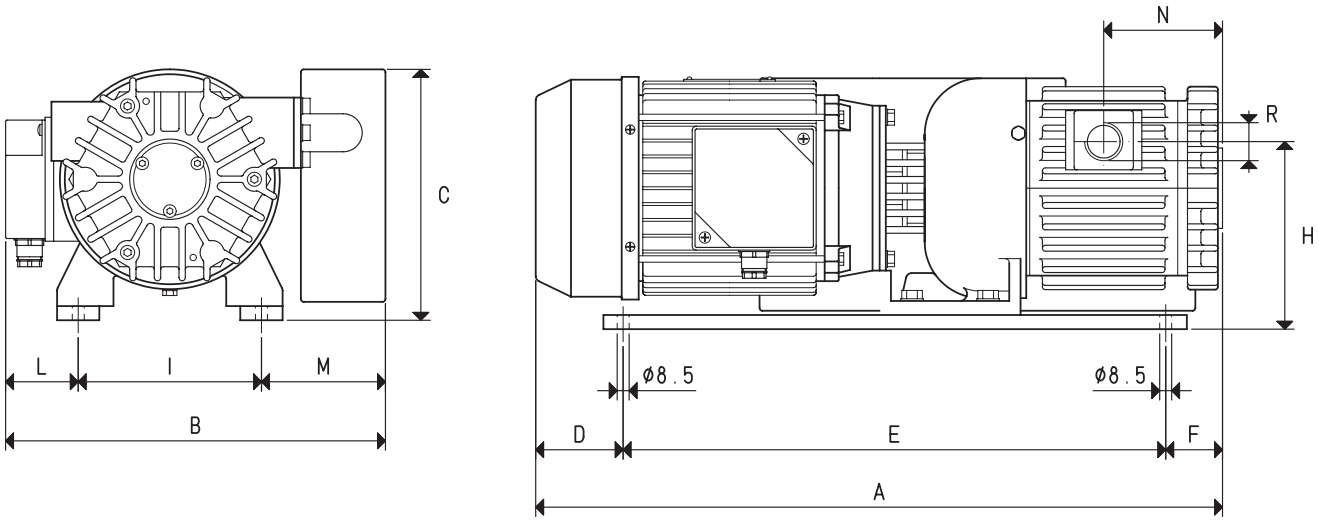

Item			VTS 25/FG		VTS 30/FG		VTS 35/FG	
Frequency			50Hz	60Hz	50Hz	60Hz	50Hz	60Hz
Flow rate		m^3/h	25.0	30.0	30.0	36.0	35.0	42.0
Final pressure		mbar abs.	80		80		80	
Motor performance	**3~**	Volt	230/400±10%	265/460±10%	230/400±10%	265/460±10%	230/400±10%	265/460±10%
	1~	Volt	230±10%		230±10%		230±10%	
Motor power	**3~**	Kw	0.75	0.90	0.75	0.90	1.10	1.35
	1~	Kw	0.75		0.75		1.10	
Motor protection		IP	55		55		55	
Rotation speed		g/min^{-1}	1410	1640	1410	1640	1440	1750
Motor shape			B14		B14		B14	
Motor size			80		80		80	
Noise level		dB(A)	66	68	68	70	70	72
Max weight	**3~**	Kg	29		32		34	
	1~	Kg	29.5		32.5		34.5	
A			470		490		510	
B			265		265		265	
C			170		170		170	
D			65		65		65	
E			385		385		385	
F			20		40		60	
H			133		133		133	
I			130		130		130	
L			55		55		55	
M			80		80		80	
N			73		83		93	
R		Ø gas	G3/4"		G3/4"		G3/4"	

Accessories and Parts		VTS 25/FG	VTS 30/FG	VTS 35/FG
Graphite vane	item	00 VTS 25FG 10 (N°6)	00 VTS 30FG 10 (N°6)	00 VTS 35FG 10 (N°6)
Front flange complete with graphite disc	item	00 VTS 25FG 17	00 VTS 30FG 18	00 VTS 35FG 18
Rear flange complete with graphite disc	item	00 VTS 25FG 26	00 VTS 30FG 27	00 VTS 35FG 27
Sealing kit	item	00 KIT VTS 25FG	00 KIT VTS 30FG	00 KIT VTS 35FG
Check valve	item	10 04 15	10 04 15	10 04 15
Suction filter	item	FB 28 - FC 25 - FPL 4 - FCL 4 - FIL 4	FB 28 - FC 25 - FPL 4 - FCL 4 - FIL 4	FB 28 - FC 25 - FPL 4 - FCL 4 - FIL 4

Note: Add the letter M to the item for a pump supplied with a single-phase electric motor (Example: VTS 25/FG M).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ cfm= m^3/h x 0.588; inch Hg= mbar x 0.0295; psi= bar x 14.6

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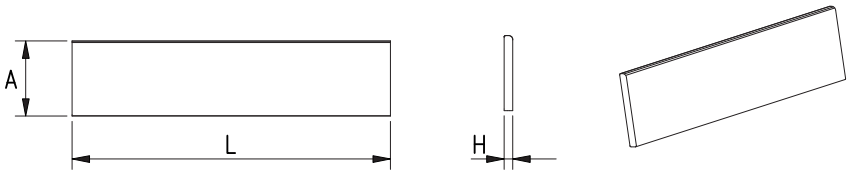
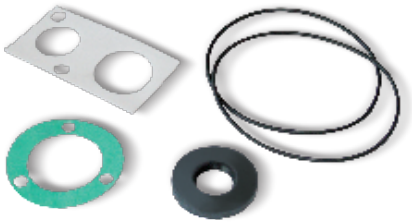
Graphite vanes

Item	Quantity	L	A	H	For pump item
00 VTS 02 10	4	20	14	4	VTS 2
00 VTS 04 10	4	34	14	4	VTS 4
00 VTS 06 10	6	30	23	4	VTS 6
00 VTS 10 10	6	45	23	4	VTS 10
00 VTS 10F 10	6	45	23	4	VTS 10/F
00 VTS 10FG 10	6	85	23	4	VTS 10/FG
00 VTS 15F 10	6	45	23	4	VTS 15/F
00 VTS 15FG 10	6	85	23	4	VTS 15/FG
00 VTS 20F 10	6	65	23	4	VTS 20/F
00 VTS 20FG 10	6	85	30	4	VTS 20/FG
00 VTS 25F 10	6	65	23	4	VTS 25/F
00 VTS 25FG 10	6	85	30	4	VTS 25/FG
00 VTS 30FG 10	6	105	30	4	VTS 30/FG
00 VTS 35FG 10	6	125	30	4	VTS 35/FG



Sealing kit

Item	Quantity	For pump item
00 KIT VTS 02	1	VTS 2
00 KIT VTS 04	1	VTS 4
00 KIT VTS 06	1	VTS 6
00 KIT VTS 10	1	VTS 10
00 KIT VTS 10F	1	VTS 10/F
00 KIT VTS 10FG	1	VTS 10/FG
00 KIT VTS 15F	1	VTS 15/F
00 KIT VTS 15FG	1	VTS 15/FG
00 KIT VTS 20F	1	VTS 20/F
00 KIT VTS 20FG	1	VTS 20/FG
00 KIT VTS 25F	1	VTS 25/F
00 KIT VTS 25FG	1	VTS 25/FG
00 KIT VTS 30FG	1	VTS 30/FG
00 KIT VTS 35FG	1	VTS 35/FG



Check valves

Item	Quantity	For pump item
10 01 15	1	VTS 2
10 01 15	1	VTS 4
10 02 15	1	VTS 6
10 02 15	1	VTS 10
10 03 15	1	VTS 10/F
10 03 15	1	VTS 15/F
10 03 15	1	VTS 20/F
10 03 15	1	VTS 10/FG
10 03 15	1	VTS 15 /FG
10 03 15	1	VTS 20/FG
10 04 15	1	VTS 25/F
10 04 15	1	VTS 25/FG
10 04 15	1	VTS 30/FG
10 04 15	1	VTS 35/FG

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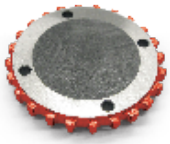
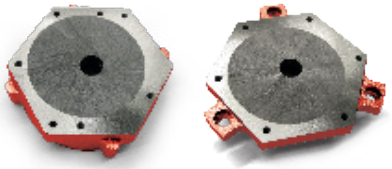
	Item	Quantity	For pump item
Suction filters	FB 5 - FPL 1 - FCL 1 - FIL 1	1	VTS 2
	FB 5 - FPL 1 - FCL 1 - FIL 1	1	VTS 4
	FB 15 - FC 10 - FPL 2 - FCL 2 - FIL 2	1	VTS 6
	FB 15 - FC 10 - FPL 2 - FCL 2 - FIL 2	1	VTS 10
	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3	1	VTS 10/F
	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3	1	VTS 15/F
	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3	1	VTS 20/F
	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3	1	VTS 10/FG
	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3	1	VTS 15/FG
	FB 20 - FC 20 - FPL 3 - FCL 3 - FIL 3	1	VTS 20/FG
	FB 28 - FC 25 - FPL 4 - FCL 4 - FIL 4	1	VTS 25/F
	FB 28 - FC 25 - FPL 4 - FCL 4 - FIL 4	1	VTS 25/FG
	FB 28 - FC 25 - FPL 4 - FCL 4 - FIL 4	1	VTS 30/FG
	FB 28 - FC 25 - FPL 4 - FCL 4 - FIL 4	1	VTS 35/FG

Note: The choice of the most suitable filter, with the correct degree of filtration, must be made according to the specific field of application.
Our technical department is at your disposal to offer advice and guide you in making the best choice.

	Item	Quantity	For pump item
Front flange complete with graphite disc	00 VTS 02 11	1	VTS 2
	00 VTS 04 11	1	VTS 4
Rear flange complete with graphite disc	00 VTS 02 15	1	VTS 2
	00 VTS 02 15	1	VTS 4
Front flange complete with graphite disc	00 VTS 06 07	1	VTS 6
	00 VTS 10 11	1	VTS 10
	00 VTS 10FG 17	1	VTS 10/FG
	00 VTS 15FG 17	1	VTS 15/FG
	00 VTS 20FG 17	1	VTS 20/FG
	00 VTS 25FG 17	1	VTS 25/FG
	00 VTS 30FG 18	1	VTS 30/FG
	00 VTS 35FG 18	1	VTS 35/FG
Rear flange complete with graphite disc	00 VTS 06 12	1	VTS 6
	00 VTS 10 20	1	VTS 10
	00 VTS 10FG 26	1	VTS 10/FG
	00 VTS 15FG 26	1	VTS 15/FG
	00 VTS 20FG 26	1	VTS 20/FG
	00 VTS 25FG 26	1	VTS 25/FG
	00 VTS 30FG 27	1	VTS 30/FG
	00 VTS 35FG 27	1	VTS 35/FG





MINI PUMP SETS - GENERAL DESCRIPTION

Mini pump sets are small independent vacuum-producing units with reduced size.
They are composed of:
- A small welded sheet steel tank with perfect vacuum seal;
- A low-flow rate dry or lubricated rotating vane vacuum pump;
- A mini digital vacuum switch for adjusting the maximum level of vacuum;
- A vacuum gauge for reading the level of vacuum;
- Switchgear enclosed in a special casing;
- A manual valve for vacuum interception;
- A cock for condensation drainage.

The level of vacuum, preset via the digital vacuum switch is automatically maintained in the tank.
Mini pump sets can also be supplied with single-phase or DC electric motors and they are suited for equipping fixed or mobile working units that require vacuum, such as:
- Trolleys with vacuum cups for fixing and transporting glass and crystals;
- Vacuum clamping systems for ski maintenance, marble processing and for polishing copper, pewter or silver objects;
- Hoists with vacuum cups for lifting television sets and household appliances for glass installation in door and window frames, for laying ceramic tiles, for feeding sheet metal into presses, etc.

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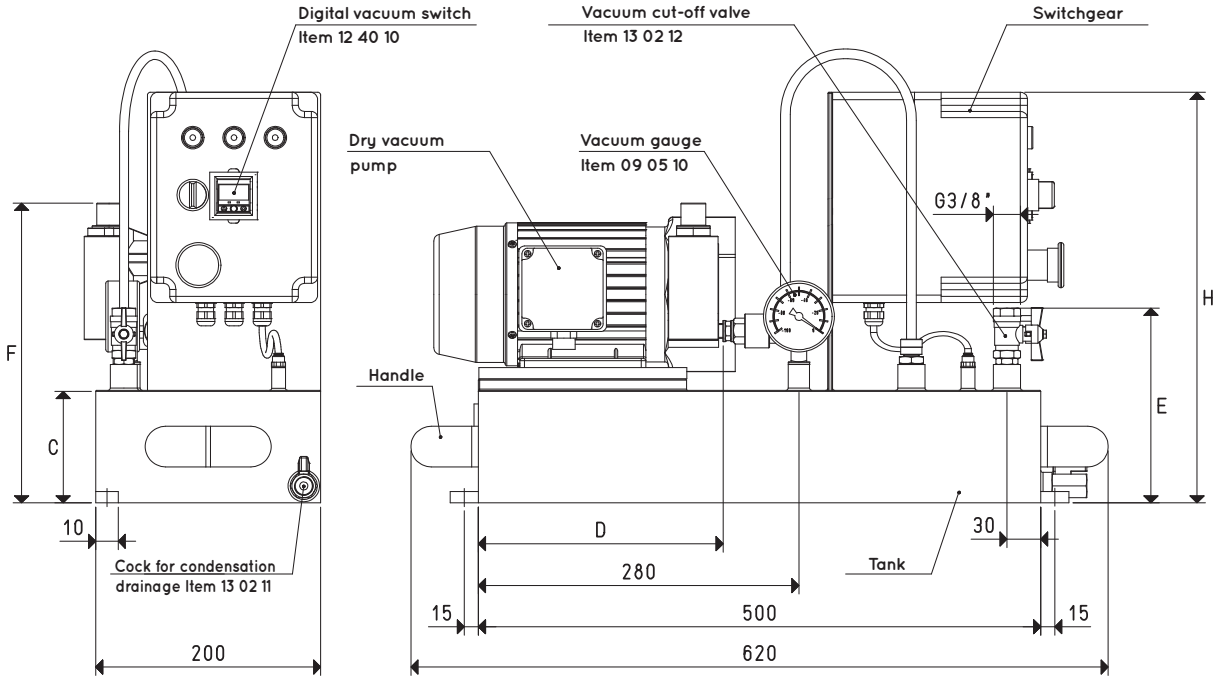
3D drawings are available on **vuototecnica.net**

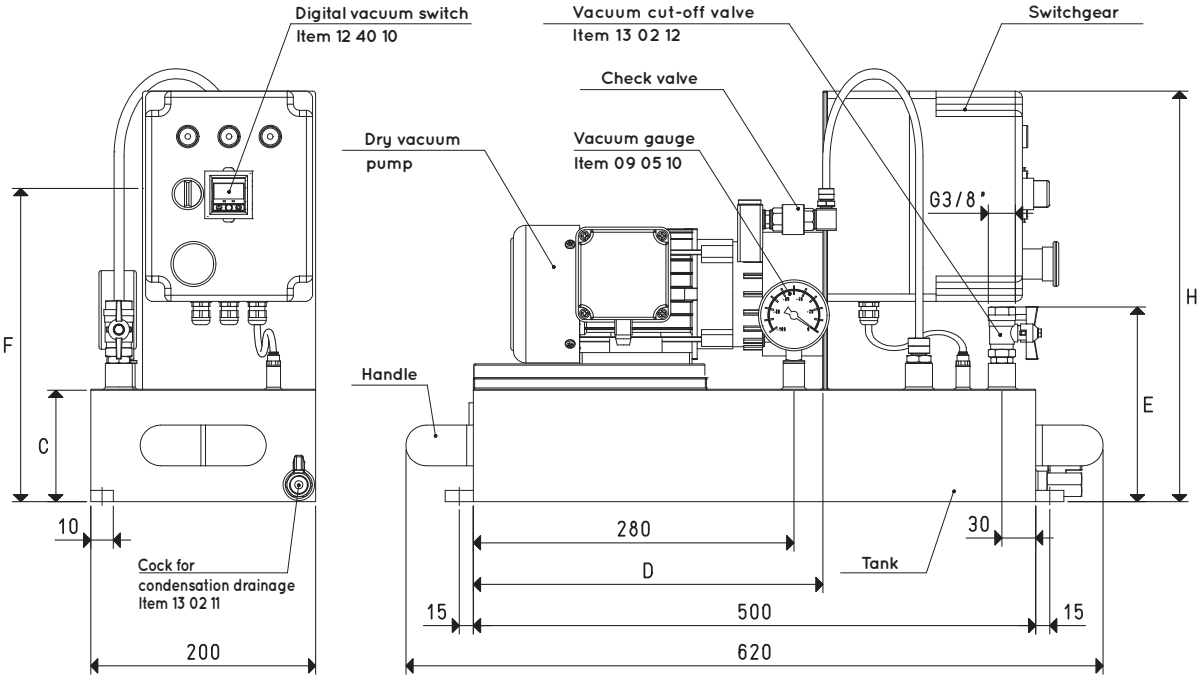


Item	Tank Litres	Pump Mod.	Electric performance Volt	Motor switchgear item	C	D	E	F	H	Weight Kg	Filter accessories item
DO 06V VTS 2	6	VTS 2	3 ~ 230/400-50Hz	DO 06 97V	60	180	135	181	320	14.8	FB 15 / FC 10
DO 06V VTS 2 M	6	VTS 2 M	1 ~ 230-50Hz	DO 06 98V	60	180	135	181	320	15.0	FB 15 / FC 10
DO 06V VTS 4	6	VTS 4	3 ~ 230/400-50Hz	DO 06 97V	60	203	135	191	320	16.3	FB 15 / FC 10
DO 06V VTS 4 M	6	VTS 4 M	1 ~ 230-50Hz	DO 06 98V	60	203	135	191	320	16.5	FB 15 / FC 10
DO 06V VTS 6	6	VTS 6	3 ~ 230/400-50Hz	DO 06 97V	60	270	135	216	320	21.3	FB 15 / FC 10
DO 06V VTS 6 M	6	VTS 6 M	1 ~ 230-50Hz	DO 06 98V	60	270	135	216	320	21.5	FB 15 / FC 10
DO 10V VTS 2	10	VTS 2	3 ~ 230/400-50Hz	DO 06 97V	100	180	175	221	360	19.0	FB 15 / FC 10
DO 10V VTS 2 M	10	VTS 2 M	1 ~ 230-50Hz	DO 06 98V	100	180	175	221	360	19.2	FB 15 / FC 10
DO 10V VTS 4	10	VTS 4	3 ~ 230/400-50Hz	DO 06 97V	100	203	175	231	360	20.5	FB 15 / FC 10
DO 10V VTS 4 M	10	VTS 4 M	1 ~ 230-50Hz	DO 06 98V	100	203	175	231	360	20.7	FB 15 / FC 10
DO 10V VTS 6	10	VTS 6	3 ~ 230/400-50Hz	DO 06 97V	100	270	175	256	360	25.5	FB 15 / FC 10
DO 10V VTS 6 M	10	VTS 6 M	1 ~ 230-50Hz	DO 06 98V	100	270	175	256	360	25.7	FB 15 / FC 10

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**



Item	Tank Litres	Pump Mod.	Electric performance Volt	Motor switchgear item	C	D	E	F	H	Weight Kg	Filter accessories item
DO 06V VTL 2	6	VTL 2	3 ~ 230/400-50Hz	DO 06 97V	60	250	135	198	320	15.2	FB 15 / FC 10
DO 06V VTL 2 M	6	VTL 2 M	1 ~ 230-50Hz	DO 06 98V	60	250	135	198	320	15.5	FB 15 / FC 10
DO 06V VTL 4	6	VTL 4	3 ~ 230/400-50Hz	DO 06 97V	60	280	135	198	320	16.8	FB 15 / FC 10
DO 06V VTL 4 M	6	VTL 4 M	1 ~ 230-50Hz	DO 06 98V	60	280	135	198	320	17.0	FB 15 / FC 10
DO 06V VTL 5	6	VTL 5	3 ~ 230/400-50Hz	DO 06 97V	60	260	135	310	320	24.0	FB 15 / FC 10
DO 06V VTL 5 M	6	VTL 5 M	1 ~ 230-50Hz	DO 06 98V	60	260	135	310	320	24.5	FB 15 / FC 10
DO 10V VTL 2	10	VTL 2	3 ~ 230/400-50Hz	DO 06 97V	100	250	175	238	360	19.4	FB 15 / FC 10
DO 10V VTL 2 M	10	VTL 2 M	1 ~ 230-50Hz	DO 06 98V	100	250	175	238	360	19.7	FB 15 / FC 10
DO 10V VTL 4	10	VTL 4	3 ~ 230/400-50Hz	DO 06 97V	100	280	175	238	360	21.0	FB 15 / FC 10
DO 10V VTL 4 M	10	VTL 4 M	1 ~ 230-50Hz	DO 06 98V	100	280	175	238	360	21.2	FB 15 / FC 10
DO 10V VTL 5	10	VTL 5	3 ~ 230/400-50Hz	DO 06 97V	100	260	175	350	360	28.2	FB 15 / FC 10
DO 10V VTL 5 M	10	VTL 5 M	1 ~ 230-50Hz	DO 06 98V	100	260	175	350	360	28.7	FB 15 / FC 10

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

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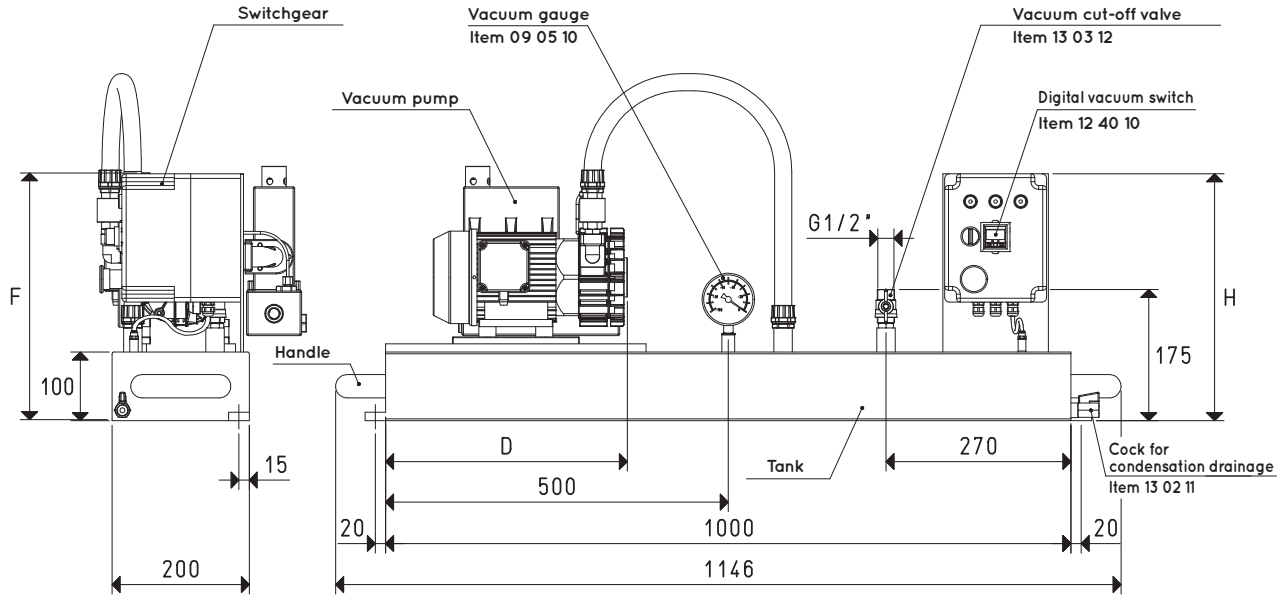

Item	Tank Litres	Pump Mod.	Electric performance Volt	Motor switchgear item	D	F	H	Weight Kg	Filter accessories item
DO 20V VTL 5	20	VTL 5	3 ~ 230/400-50Hz	DO 06 97V	320	345	360	38.5	FB 20 / FC 20
DO 20V VTL 5 M	20	VTL 5 M	1 ~ 230/50Hz	DO 06 98V	320	345	360	39.0	FB 20 / FC 20
DO 20V VTL 10	20	VTL 10	3 ~ 230/400-50Hz	DO 06 97V	352	345	360	44.5	FB 20 / FC 20
DO 20V VTL 10 M	20	VTL 10 M	1 ~ 230-50Hz	DO 06 98V	352	345	360	45.0	FB 20 / FC 20
DO 20V VTL 10/FG	20	VTL 10/FG	3 ~ 230/400-50Hz	DO 06 97V	390	360	360	49.0	FB 20 / FC 20
DO 20V VTL 10/FG M	20	VTL 10/FG M	1 ~ 230-50Hz	DO 06 98V	390	360	360	49.5	FB 20 / FC 20
DO 20V VTL 15/FG	20	VTL 15/FG	3 ~ 230/400-50Hz	DO 06 97V	410	360	360	51.0	FB 20 / FC 20
DO 20V VTL 15/FG M	20	VTL 15/FG M	1 ~ 230-50Hz	DO 06 98V	410	360	360	51.5	FB 20 / FC 20
DO 20V RVP 15	20	RVP 15	3 ~ 230/400-50Hz	DO 06 97V	350	335	360	39.0	FB 20 / FC 20
DO 20V RVP 15 M	20	RVP 15 M	1 ~ 230-50Hz	DO 06 98V	335	335	360	39.5	FB 20 / FC 20
DO 20V VTL 20/FG	20	VTL 20/FG	3 ~ 230/400-50Hz	DO 06 97V	430	360	360	54.0	FB 20 / FC 20
DO 20V VTL 20/FG M	20	VTL 20/FG M	1 ~ 230-50Hz	DO 06 98V	430	360	360	54.5	FB 20 / FC 20
DO 20V RVP 21	20	RVP 21	3 ~ 230/400-50Hz	DO 06 97V	430	315	360	42.5	FB 20 / FC 20
DO 20V RVP 21 M	20	RVP 21 M	1 ~ 230-50Hz	DO 06 98V	430	315	360	43.0	FB 20 / FC 20

Note: All RVP pumps .. are equipped as standard with an FC filter .. suitable for the size of their suction connection.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

HORIZONTAL PUMP SETS - GENERAL DESCRIPTION

As a standard, these pump sets are built with various capacities and they are composed of:
- A horizontal welded sheet steel tank with perfect vacuum seal;
- A rotary vane vacuum pump to be selected according to the required suction flow rate and level of vacuum;
- A digital vacuum switch for adjusting the level of vacuum within which to operate;
- A vacuum gauge for a direct reading of the level of vacuum in the tank;
- A switchgear enclosed in a special plastic casing for tanks from 25 to 50 litres and in a watertight metal casing for tanks of 100 litres upwards;
- A manual valve for vacuum interception;
- A cock for condensation drainage.

The level of vacuum, preset via the digital vacuum switch is automatically maintained in the tank.
The pump operation can be both continuous or automatic.
Pump sets are normally used for handling particularly heavy or valuable loads since, in case of electricity failure, they allow the vacuum cups to maintain the grip for a certain amount of time, according to the tank capacity.
These pump sets are recommended for multi-point applications, to centralise vacuum.
These pump sets offer many advantages in energy consumption, since the pump operates only when required by the machine.

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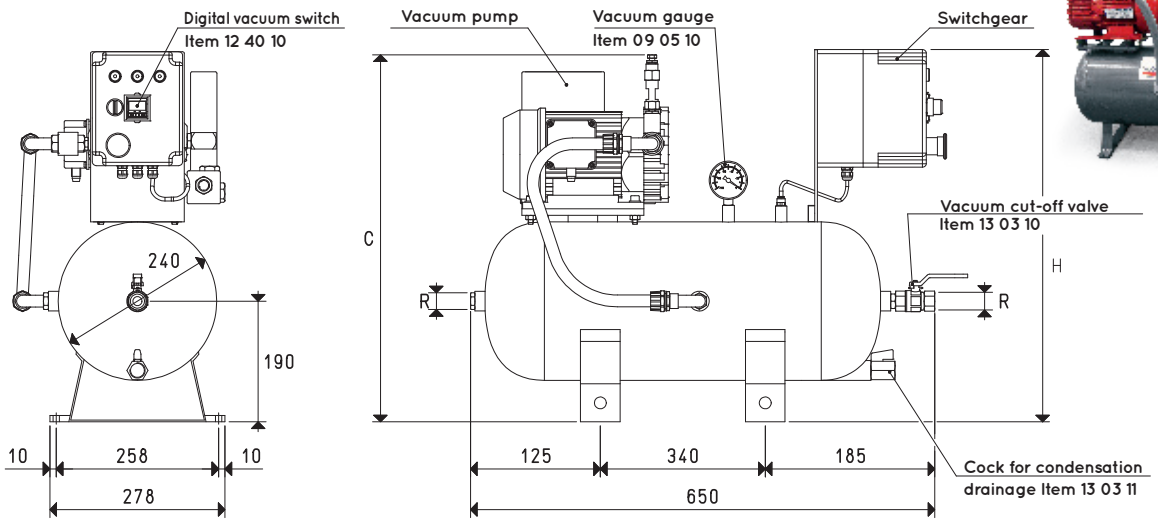
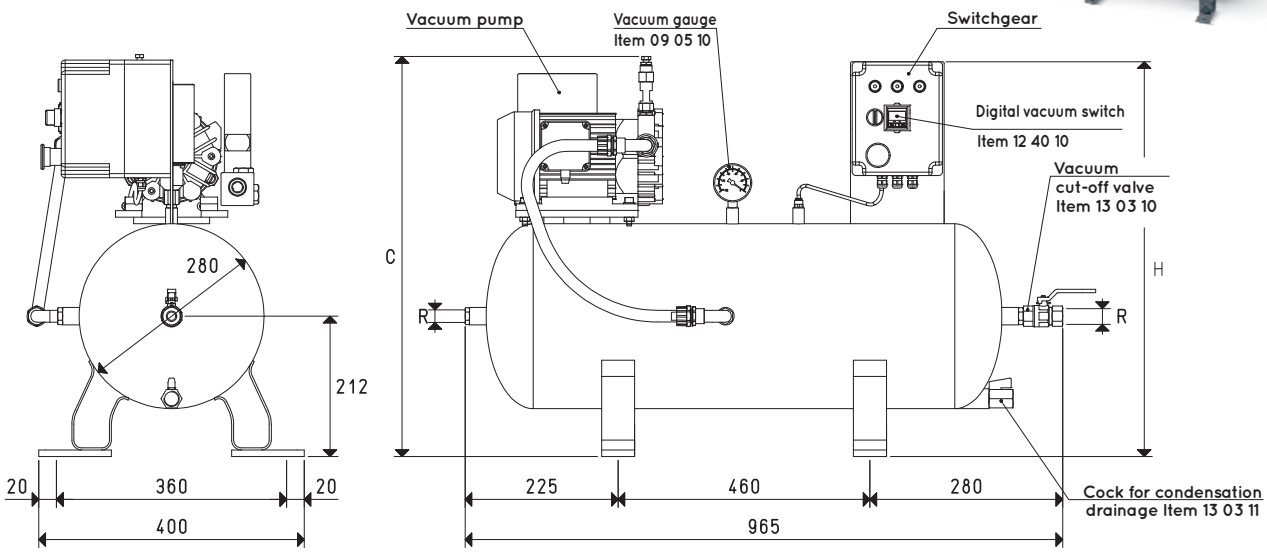
HORIZONTAL PUMP SETS DO 25V ...



Item	Tank Litres	Pump Mod.	Motor performance Volt	Switchgear item	C	H	R Ø	Weight Kg	Filter Accessories item
DO 25V VTL 5	25	VTL 5	3 ~ 230/400-50Hz	DO 06 97V	540	570	G1/2"	33.5	FB 20 / FC 20
DO 25V VTL 5 M	25	VTL 5 M	1 ~ 230/50Hz	DO 06 98V	540	570	G1/2"	34.0	FB 20 / FC 20
DO 25V VTL 10	25	VTL 10	3 ~ 230/400-50Hz	DO 06 97V	540	570	G1/2"	39.5	FB 20 / FC 20
DO 25V VTL 10 M	25	VTL 10 M	1 ~ 230-50Hz	DO 06 98V	540	570	G1/2"	40.0	FB 20 / FC 20
DO 25V RVP 15	25	RVP 15	3 ~ 230/400-50Hz	DO 06 97V	525	570	G1/2"	35.0	FB 20 / FC 20
DO 25V RVP 15 M	25	RVP 15 M	1 ~ 230-50Hz	DO 06 98V	525	570	G1/2"	35.5	FB 20 / FC 20

Note: Add the letters SR to the item for a pump set supplied with sheets for movement (Example: DO 25V VTL 10 SR).
All RVP pumps .. are equipped as standard with an FC filter .. suitable for the size of their suction connection.

HORIZONTAL PUMP SETS DO 50V ...



Item	Tank Litres	Pump Mod.	Motor performance Volt	Switchgear item	C	H	R Ø	Weight Kg	Filter Accessories item
DO 50V VTL 5	50	VTL 5	3 ~ 230/400-50Hz	DO 06 97V	620	612	G1/2"	39.3	FB 20 / FC 20
DO 50V VTL 5 M	50	VTL 5 M	1 ~ 230/50Hz	DO 06 98V	620	612	G1/2"	39.8	FB 20 / FC 20
DO 50V VTL 10	50	VTL 10	3 ~ 230/400-50Hz	DO 06 97V	620	612	G1/2"	45.3	FB 20 / FC 20
DO 50V VTL 10 M	50	VTL 10 M	1 ~ 230-50Hz	DO 06 98V	620	612	G1/2"	45.8	FB 20 / FC 20
DO 50V RVP 15	50	RVP 15	3 ~ 230/400-50Hz	DO 06 97V	680	612	G1/2"	40.8	FB 20 / FC 20
DO 50V RVP 15 M	50	RVP 15 M	1 ~ 230-50Hz	DO 06 98V	680	612	G1/2"	41.3	FB 20 / FC 20

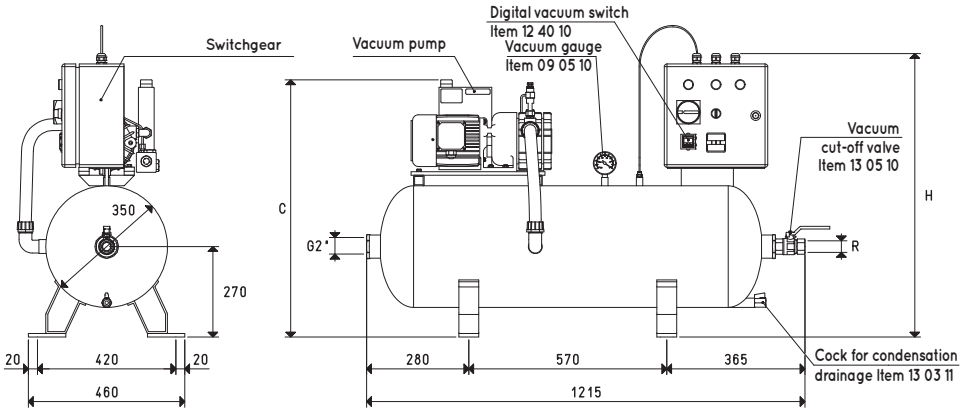
Note: Add the letters SR to the item for a pump set supplied with sheets for movement (Example: DO 50V VTL 10 SR).
All RVP pumps .. are equipped as standard with an FC filter .. suitable for the size of their suction connection.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**

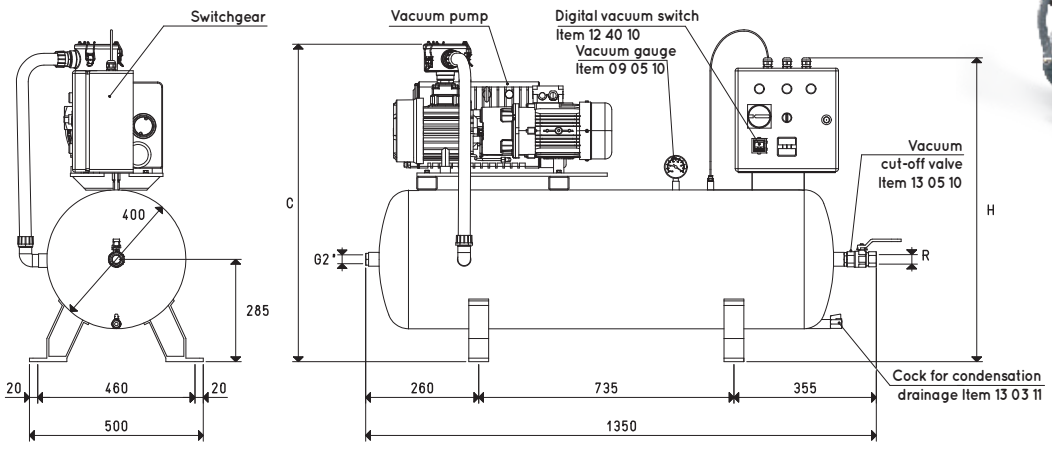
HORIZONTAL PUMP SETS DO 100V ...



Item	Tank Litres	Pump Mod.	Motor performance Volt	Switchgear item	C	H	R Ø	Weight Kg	Filter Accessories item
DO 100V VTL 10/FG	100	VTL 10/FG	3 ~ 230/400-50Hz	DO 100 97V	710	800	G1"	66.7	FB 30 / FC 30
DO 100V VTL 10/FG M	100	VTL 10/FG M	1 ~ 230/50Hz	DO 100 98V	710	800	G1"	68.2	FB 30 / FC 30
DO 100V VTL 15/FG	100	VTL 15/FG	3 ~ 230/400-50Hz	DO 100 97V	710	800	G1"	68.7	FB 30 / FC 30
DO 100V VTL 15/FG M	100	VTL 15/FG M	1 ~ 230-50Hz	DO 100 98V	710	800	G1"	70.2	FB 30 / FC 30
DO 100V RVP 15	100	RVP 15	3 ~ 230/400-50Hz	DO 100 97V	770	800	G1"	56.2	FB 30 / FC 30
DO 100V RVP 15 M	100	RVP 15 M	1 ~ 230-50Hz	DO 100 98V	770	800	G1"	56.7	FB 30 / FC 30
DO 100V VTL 20/FG	100	VTL 20/FG	3 ~ 230/400-50Hz	DO 100 97V	710	800	G1"	71.7	FB 30 / FC 30
DO 100V VTL 20/FG M	100	VTL 20/FG M	1 ~ 230-50Hz	DO 100 98V	710	800	G1"	73.2	FB 30 / FC 30
DO 100V RVP 21	100	RVP 21	3 ~ 230/400-50Hz	DO 100 97V	765	800	G1"	62.2	FB 30 / FC 30
DO 100V RVP 21 M	100	RVP 21 M	1 ~ 230-50Hz	DO 100 98V	765	800	G1"	64.7	FB 30 / FC 30

Note: Add the letters SR to the item for a pump set supplied with sheets for movement (Example: DO 100V VTL 10/F SR).
All RVP pumps .. are equipped as standard with an FC filter .. suitable for the size of their suction connection.

HORIZONTAL PUMP SETS DO 150V ...



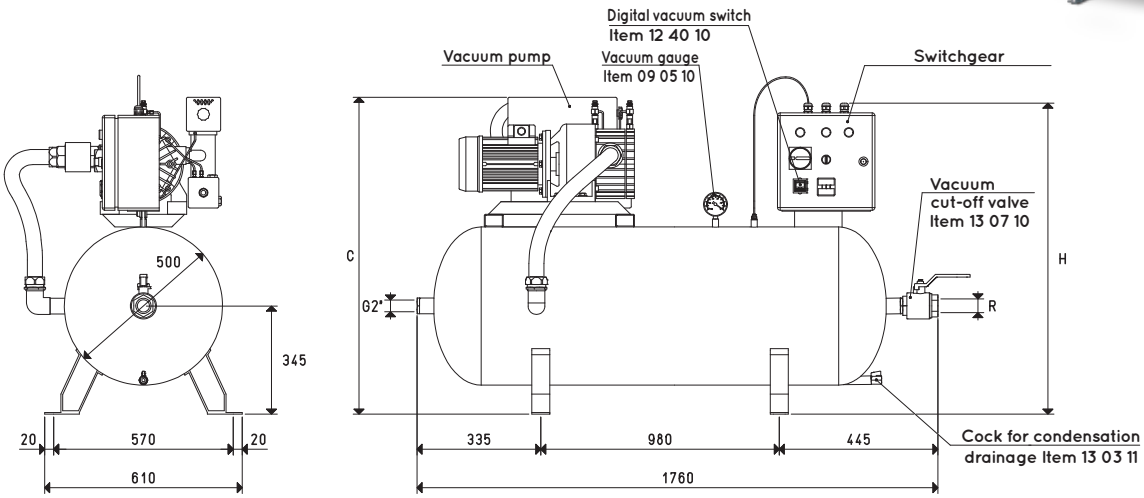
Item	Tank Litres	Pump Mod.	Motor performance Volt	Switchgear item	C	H	R Ø	Weight Kg	Filter Accessories item
DO 150V VTL 25/FG	150	VTL 25/FG	3 ~ 230/400-50Hz	DO 100 97V	805	840	G1"	79.0	FB 30 / FC 30
DO 150V VTL 30/FG	150	VTL 30/FG	3 ~ 230/400-50Hz	DO 100 97V	805	840	G1"	83.0	FB 30 / FC 30
DO 150V VTL 35/FG	150	VTL 35/FG	3 ~ 230/400-50Hz	DO 100 97V	805	840	G1"	85.0	FB 30 / FC 30
DO 150V RVP 40	150	RVP 40	3 ~ 230/400-50Hz	DO 100 97V	938	840	G1"	97.0	FB 30 / FC 30
DO 150V VTL 50/G1	150	VTL 50/G1	3 ~ 230/400-50Hz	DO 100 97V	880	840	G1"	102.0	FB 30 / FC 30
DO 150V RVP 60	150	RVP 60	3 ~ 230/400-50Hz	DO 100 97V	960	840	G1"	107.0	FB 30 / FC 30

Note: Add the letters SR to the item for a pump set supplied with sheets for movement (Example: DO 150V VTL 30/FG SR).
All RVP pumps .. are equipped as standard with an FC filter .. suitable for the size of their suction connection.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

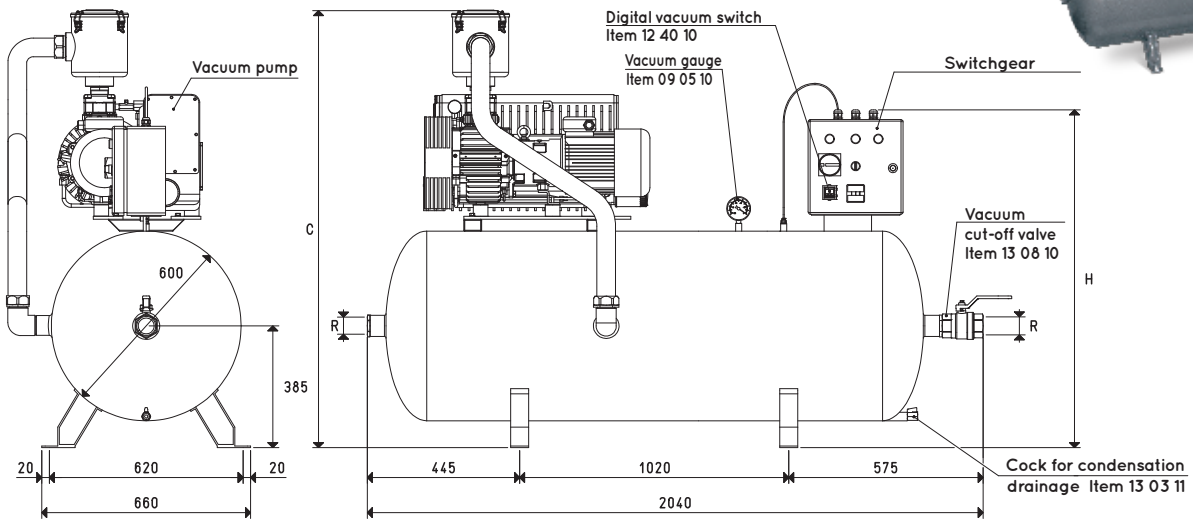
HORIZONTAL PUMP SETS DO 300V ...



Item	Tank Litres	Pump Mod.	Motor performance Volt	Switchgear item	C	H	R Ø	Weight Kg	Filter Accessories item
DO 300V RVP 60	300	RVP 60	3 ~ 230/400-50Hz	DO 100 97V	1040	940	G1"1/2	141.3	FB 50 / FC 50
DO 300V RVP 100	300	RVP 100	3 ~ 230/400-50Hz	DO 100 97V	1040	940	G1"1/2	164.3	FB 50 / FC 50
DO 300V VTL 105/G1	300	VTL 105/G1	3 ~ 230/400-50Hz	DO 100 97V	1080	940	G1"1/2	181.7	FB 50 / FC 50

Note: Add the letters SR to the item for a pump set supplied with sheets for movement (Example: DO 300V RVP 100 SR).
All RVP pumps .. are equipped as standard with an FC filter .. suitable for the size of their suction connection.

HORIZONTAL PUMP SETS DO 500V ...



Item	Tank Litres	Pump Mod.	Motor performance Volt	Switchgear item	C	H	R Ø	Weight Kg	Filter Accessories item
DO 500V RVP 100	500	RVP 100	3 ~ 230/400-50Hz	DO 100 97V	1060	1010	G2"	234.2	FC 60
DO 500V VTL 105/G1	500	VTL 105/G1	3 ~ 230/400-50Hz	DO 100 97V	1180	1010	G2"	249.8	FC 60
DO 500V RVP 160	500	RVP 160	3 ~ 400/690-50Hz	DO 100 97V	1198	1010	G2"	311.8	FC 60
DO 500V RVP 200	500	RVP 200	3 ~ 400/690-50Hz	DO 100 97V	1220	1010	G2"	314.8	FC 60
DO 500V RVP 250	500	RVP 250	3 ~ 400/690-50Hz	DO 100 97V	1220	1010	G2"	365.2	FC 60
DO 500V RVP 300	500	RVP 300	3 ~ 400/690-50Hz	DO 100 97V	1220	1010	G2"	379.2	FC 60

Note: Add the letters SR to the item for a pump set supplied with sheets for movement (Example: DO 500V RVP 200 SR).
All RVP pumps .. are equipped as standard with an FC filter .. suitable for the size of their suction connection.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**

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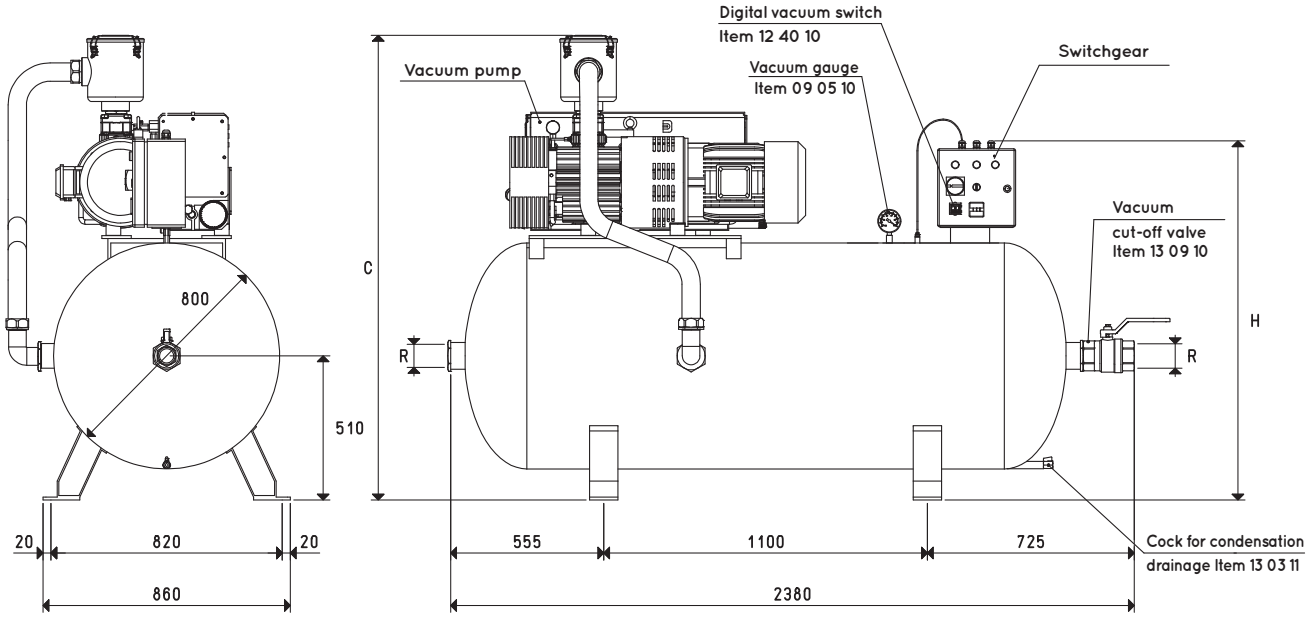


Item	Tank Litres	Pump Mod.	Motor performance Volt	Switchgear item	C	H	R Ø	Weight Kg	Filter Accessories item
DO 1000V RVP 200	1000	RVP 200	3 ~ 400/690-50Hz	DO 100 97V	1615	1250	G3"	443	FC 80
DO 1000V RVP 250	1000	RVP 250	3 ~ 400/690-50Hz	DO 100 97V	1615	1250	G3"	448	FC 80
DO 1000V RVP 300	1000	RVP 300	3 ~ 400/690-50Hz	DO 100 97V	1615	1250	G3"	464	FC 80

Note: Add the letters SR to the item for a pump set supplied with sheets for movement (Example: DO 1000V RVP 300 SR)
All RVP pumps .. are equipped as standard with an FC filter .. suitable for the size of their suction connection.

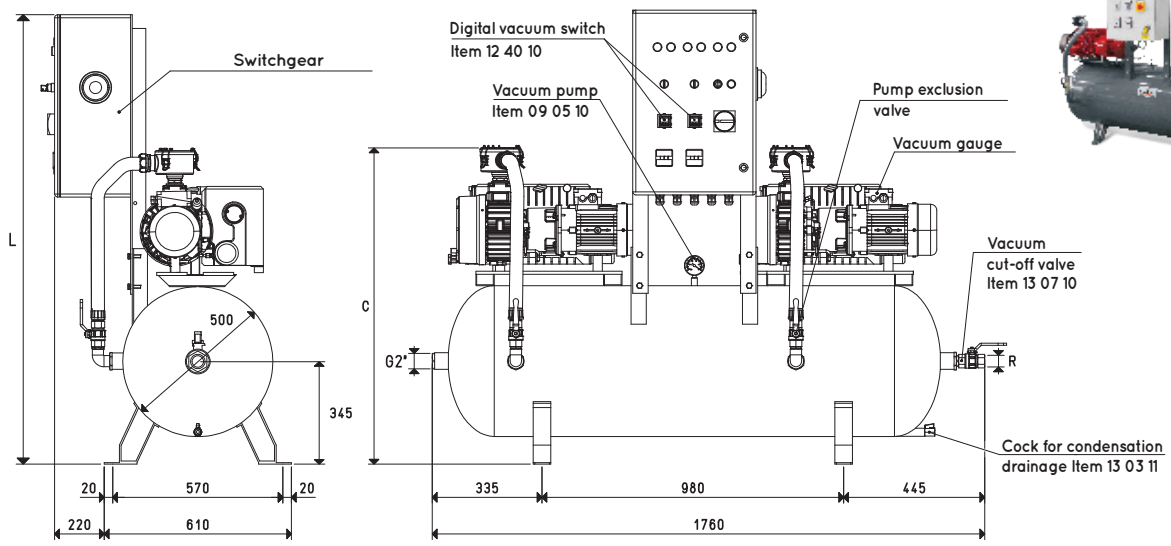
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

HORIZONTAL SAFETY PUMP SETS – GENERAL DESCRIPTION

Safety pump sets have been designed to centralise vacuum in all work environments such as hospitals, laboratories, etc. where vacuum must be guaranteed 24/7.
They are essentially composed of:
- A horizontal welded sheet steel tank with perfect vacuum seal;
- Two rotary vane vacuum pumps to be selected according to the required suction flow rate and level of vacuum;
- A vacuum gauge for a direct reading of the level of vacuum in the tank;
- Two manual valves for vacuum interception, located between the pumps and the tank and one installed on the tank, for the exclusion or connection of the pump set on a user system;
- A cock for condensation drainage;
- A switchgear enclosed in a special watertight metal casing with switches for automatic or manual pump operation, an alarm device with sound and light signal, alarm-test buttons and hour-counter for counting the hours of actual operation of every single pump.

These safety pump sets normally provide for the operation of one pump with subsequent automatic insertion of the second one for larger consumptions and when, for whatever reason, the plant level of vacuum goes under the preset value.
The automatic timed inverter, located on the switchboard, accurately alternates the pump start-up, so that they are both subject to the same mechanical wear.
The switchboard and remote alarm systems operate when the plant level of vacuum is below the set safety value.

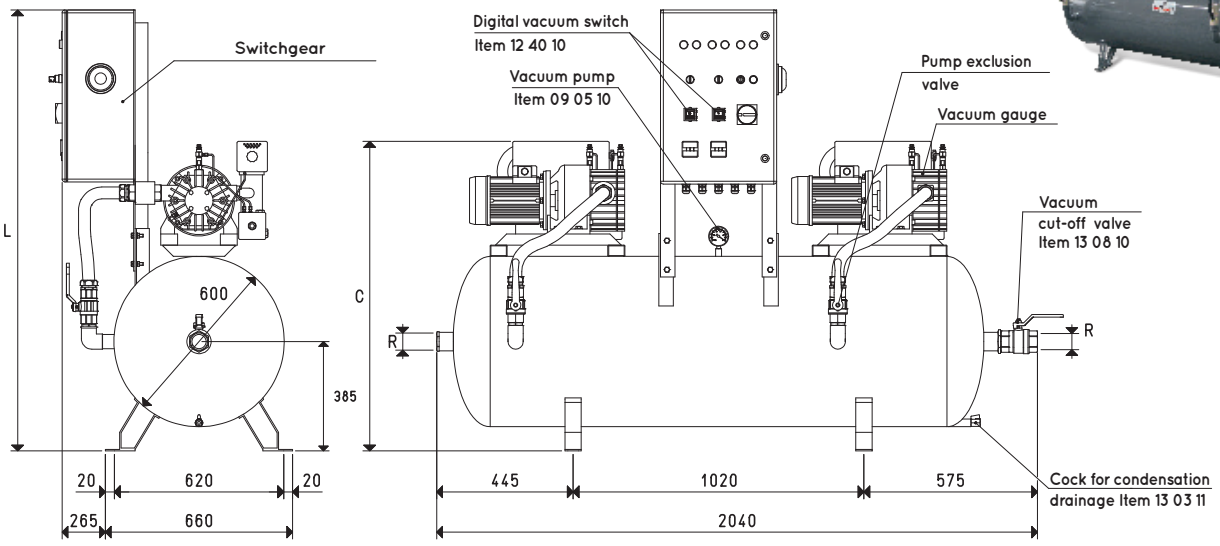
HORIZONTAL SAFETY PUMP SETS DSO 300V ...



Item	Tank Litres	2 Pumps Mod.	Motor performance Volt	Switchgear item	C	L	R Ø	Weight Kg	Filter Accessories item
DSO 300V RVP 40	300	RVP 40	3 ~ 230/400-50Hz	DSO 300 97V	1005	1480	G1"1/2	204.8	FB 50 / FC 50
DSO 300V VTL 50/G1	300	VTL 50/G1	3 ~ 230/400-50Hz	DSO 300 97V	990	1480	G1"1/2	214.8	FB 50 / FC 50
DSO 300V RVP 60	300	RVP 60	3 ~ 230/400-50Hz	DSO 300 97V	1040	1480	G1"1/2	224.8	FB 50 / FC 50
DSO 300V RVP 100	300	RVP 100	3 ~ 230/400-50Hz	DSO 300 97V	1040	1480	G1"1/2	270.8	FB 50 / FC 50
DSO 300V VTL 105/G1	300	VTL 105/G1	3 ~ 230/400-50Hz	DSO 300 97V	1080	1480	G1"1/2	302.0	FB 50 / FC 50

Note: All RVP pumps ... are equipped as standard with an FC filter ... suitable for the size of their suction connection.

HORIZONTAL SAFETY PUMP SETS DSO 500V ...



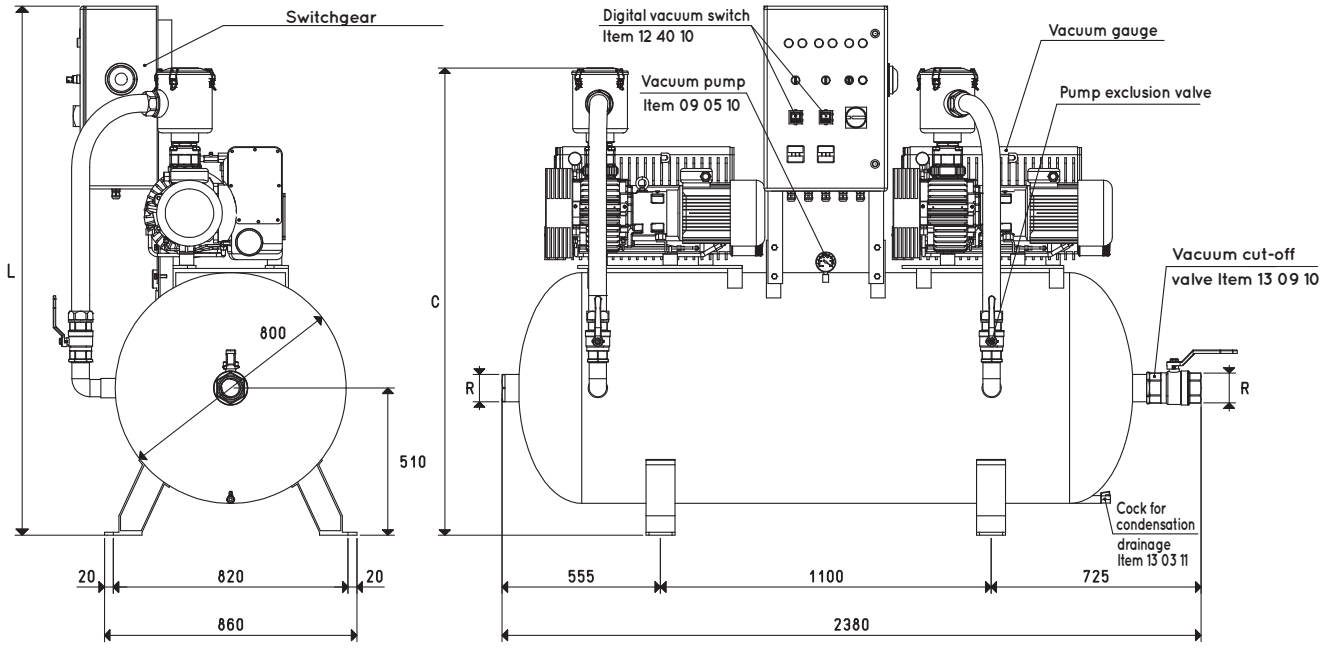
Item	Tank Litres	2 Pumps Mod.	Motor performance Volt	Switchgear item	C	L	R Ø	Weight Kg	Filter Accessories item
DSO 500V VTL 50/G1	500	VTL 50/G1	3 ~ 230/400-50Hz	DSO 300 97V	1090	1510	G2"	287.8	FC 60
DSO 500V RVP 60	500	RVP 60	3 ~ 230/400-50Hz	DSO 300 97V	1130	1510	G2"	297.0	FC 60
DSO 500V RVP 100	500	RVP 100	3 ~ 230/400-50Hz	DSO 300 97V	1130	1510	G2"	343.3	FC 60
DSO 500V VTL 105/G1	500	VTL 105/G1	3 ~ 230/400-50Hz	DSO 300 97V	1180	1510	G2"	375.0	FC 60
DSO 500V RVP 160	500	RVP 160	3 ~ 400/690-50Hz	DSO 300 97V	1430	1510	G2"	475.0	FC 60
DSO 500V RVP 200	500	RVP 200	3 ~ 400/690-50Hz	DSO 300 97V	1430	1510	G2"	481.0	FC 60

Note: All RVP pumps ... are equipped as standard with an FC filter ... suitable for the size of their suction connection.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**



Item	Tank Litres	2 Pumps Mod.	Motor performance Volt	Switchgear item	C	L	R Ø	Weight Kg	Filter Accessories item
DSO 1000V RVP 60	1000	RVP 60	3 ~ 230/400-50Hz	DSO 300 97V	1318	1730	G3"	366.8	FC 80
DSO 1000V RVP 100	1000	RVP 100	3 ~ 230/400-50Hz	DSO 300 97V	1298	1730	G3"	396.8	FC 80
DSO 1000V VTL 105/G1	1000	VTL 105/G1	3 ~ 230/400-50Hz	DSO 300 97V	1430	1730	G3"	432.0	FC 80
DSO 1000V RVP 160	1000	RVP 160	3 ~ 400/690-50Hz	DSO 300 97V	1678	1730	G3"	446.0	FC 80
DSO 1000V RVP 200	1000	RVP 200	3 ~ 400/690-50Hz	DSO 300 97V	1678	1730	G3"	452.0	FC 80
DSO 1000V RVP 250	1000	RVP 250	3 ~ 400/690-50Hz	DSO 300 97V	1639	1730	G3"	545.2	FC 80
DSO 1000V RVP 300	1000	RVP 300	3 ~ 400/690-50Hz	DSO 300 97V	1639	1730	G3"	573.2	FC 80

Note: All RVP pumps ... are equipped as standard with an FC filter ... suitable for the size of their suction connection.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

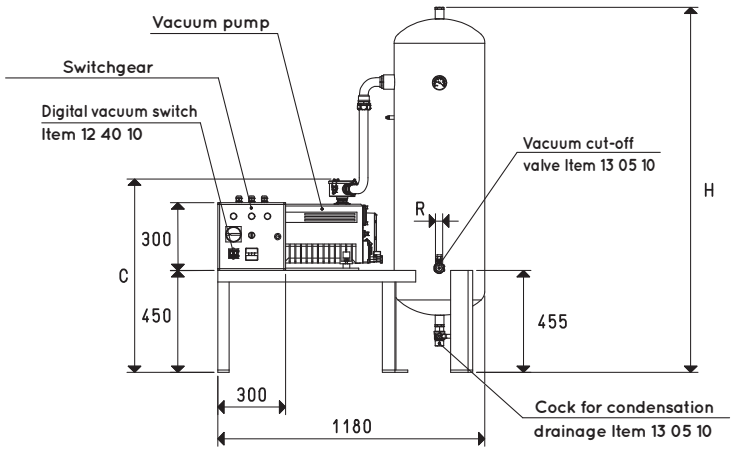
Adapters for GAS - NPT threading available on page 1.134

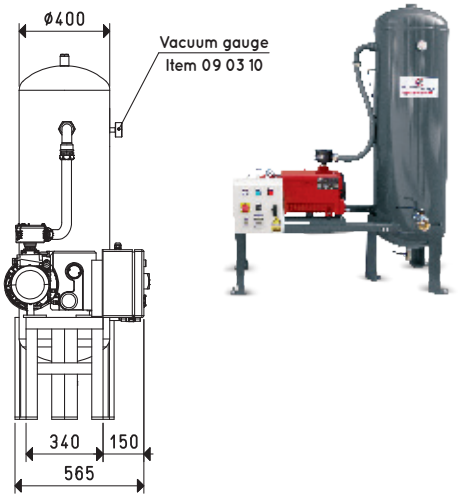
VERTICAL PUMP SETS - GENERAL DESCRIPTION

As a standard, these pump sets are built with various capacities and they are composed of:
- A vertical welded sheet steel tank with perfect vacuum seal;
- A rotary vane vacuum pump to be selected according to the required suction flow rate and level of vacuum;
- A digital vacuum switch for adjusting the level of vacuum within which to operate;
- A vacuum gauge for a direct reading of the level of vacuum in the tank;
- Switchgear enclosed in a special metal watertight casing;
- A manual valve for vacuum interception;
- A cock for condensation drainage.

The level of vacuum, preset via the mini vacuum switch is automatically maintained in the tank. The pump operation can be both continuous or automatic.
The level of vacuum, preset via the mini vacuum switch is automatically maintained in the tank. The pump operation can be both continuous or automatic. These pump sets are normally used for interconnecting several vacuum-operated machines and, for safety reasons, for vacuum handlers since, in case of electricity failure, they allow the vacuum cups to maintain the grip for an amount of time proportional to the tank capacity.
As for energy consumption, in both cases these pump sets offer many advantages, since the pump operates only to restore vacuum in the tank within the preset values and its interventions depend exclusively on the quantity of air that is actually sucked at the service.

VERTICAL PUMP SETS DV 150V ...

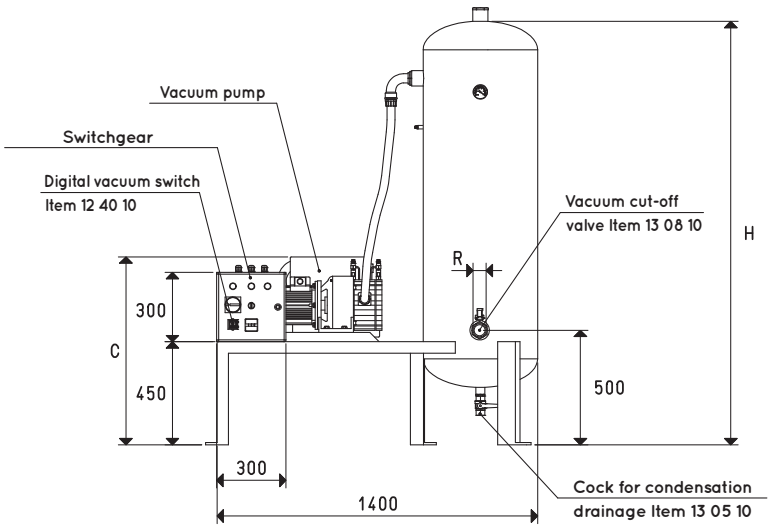


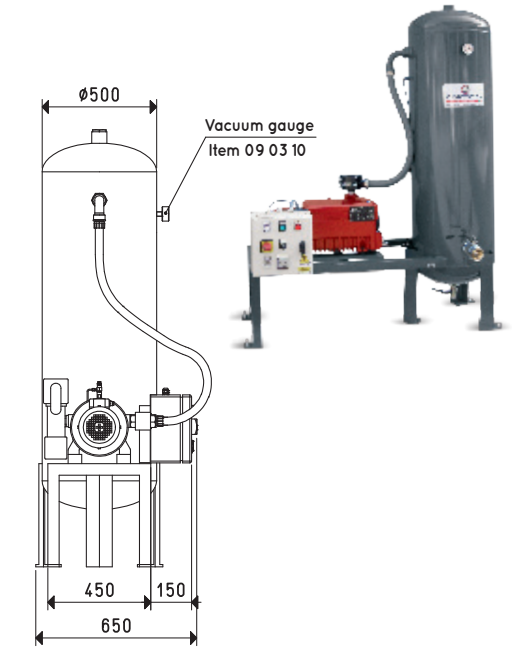


Item	Tank Litres	Pump Mod.	Motor performance Volt	Switchgear item	C	H	R Ø	Weight Kg	Filter Accessories item
DV 150V VTL 25/FG	150	VTL 25/FG	3 ~ 230/400-50Hz	DO 100 97V	730	1600	G1"	103	FB 30 / FC 30
DV 150V VTL 30/FG	150	VTL 30/FG	3 ~ 230/400-50Hz	DO 100 97V	730	1600	G1"	107	FB 30 / FC 30
DV 150V VTL 35/FG	150	VTL 35/FG	3 ~ 230/400-50Hz	DO 100 97V	730	1600	G1"	109	FB 30 / FC 30
DV 150V RVP 40	150	RVP 40	3 ~ 230/400-50Hz	DO 100 97V	816	1600	G1"	120	FB 30 / FC 30
DV 150V VTL 50/G1	150	VTL 50/G1	3 ~ 230/400-50Hz	DO 100 97V	805	1600	G1"	126	FB 30 / FC 30
DV 150V RVP 60	150	RVP 60	3 ~ 230/400-50Hz	DO 100 97V	840	1600	G1"	131	FB 30 / FC 30

Note: All RVP pumps ... are equipped as standard with an FC filter ... suitable for the size of their suction connection.

VERTICAL PUMP SETS DV 300V ...





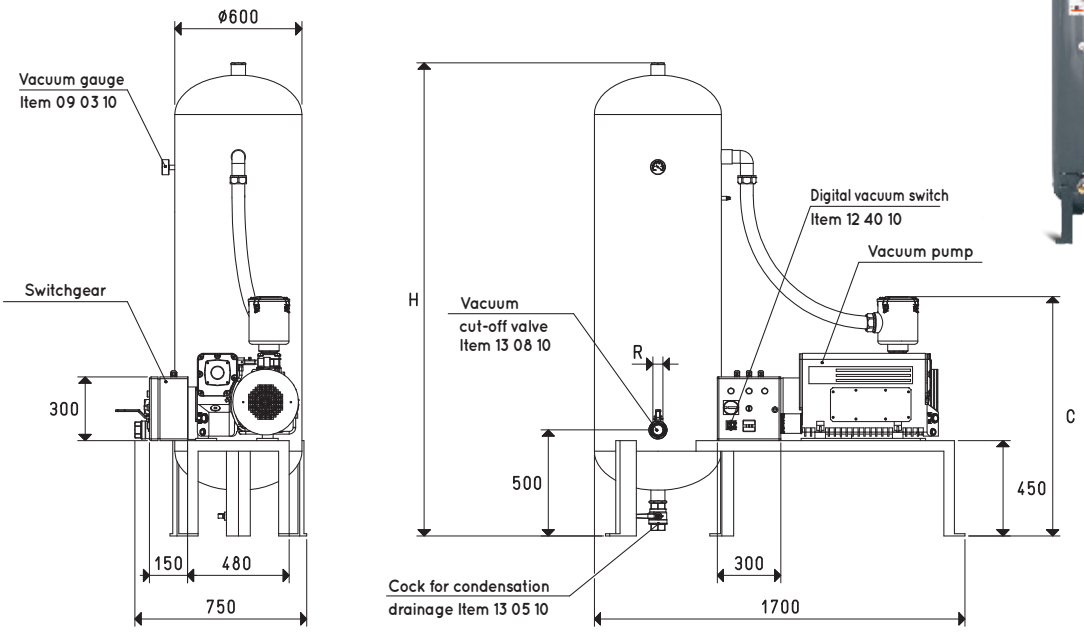
Item	Tank Litres	Pump Mod.	Motor performance Volt	Switchgear item	C	H	R Ø	Weight Kg	Filter Accessories item
DV 300V RVP 40	300	RVP 40	3 ~ 230/400-50Hz	DO 100 97V	974	1890	G2"	143	FC 60
DV 300V VTL 50/G1	300	VTL 50/G1	3 ~ 230/400-50Hz	DO 100 97V	805	1890	G2"	156	FC 60
DV 300V RVP 60	300	RVP 60	3 ~ 230/400-50Hz	DO 100 97V	998	1890	G2"	161	FC 60
DV 300V RVP 100	300	RVP 100	3 ~ 230/400-50Hz	DO 100 97V	988	1890	G2"	179	FC 60
DV 300V VTL 105/G1	300	VTL 105/G1	3 ~ 230/400-50Hz	DO 100 97V	900	1890	G2"	199	FC 60
DV 300V RVP 160	300	RVP 160	3 ~ 400/690-50Hz	DO 100 97V	1019	1890	G2"	206	FC 60
DV 300V RVP 200	300	RVP 200	3 ~ 400/690-50Hz	DO 100 97V	1019	1890	G2"	209	FC 60

Note: All RVP pumps ... are equipped as standard with an FC filter ... suitable for the size of their suction connection.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**

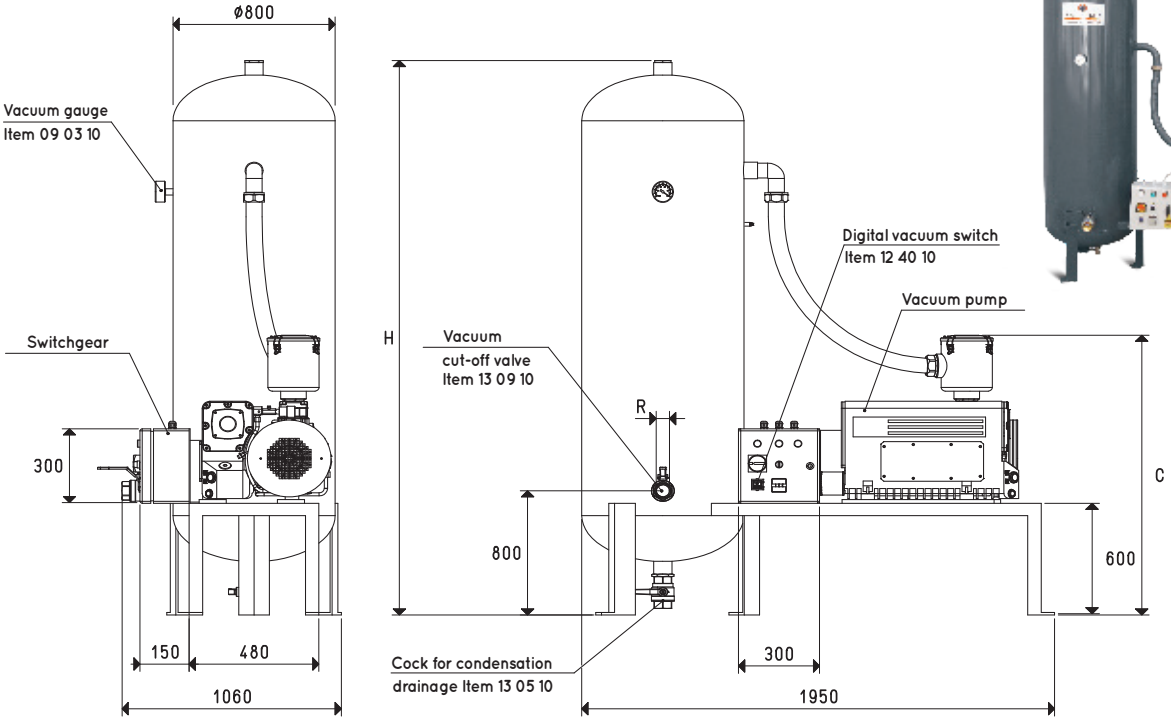
VERTICAL PUMP SETS DV 500V ...



Item	Tank Litres	Pump Mod.	Motor performance Volt	Switchgear item	C	H	R Ø	Weight Kg	Filter Accessories item
DV 500V RVP 160	500	RVP 160	3 ~ 400/690-50Hz	DO 100 97V	1146	2220	G2"	343	FC 60
DV 500V RVP 200	500	RVP 200	3 ~ 400/690-50Hz	DO 100 97V	1146	2220	G2"	346	FC 60
DV 500V RVP 250	500	RVP 250	3 ~ 400/690-50Hz	DO 100 97V	1146	2220	G2"	402	FC 60
DV 500V RVP 300	500	RVP 300	3 ~ 400/690-50Hz	DO 100 97V	1146	2220	G2"	416	FC 60

Note: All RVP pumps ... are equipped as standard with an FC filter ... suitable for the size of their suction connection.

VERTICAL PUMP SETS DV 1000V ...



Item	Tank Litres	Pump Mod.	Motor performance Volt	Switchgear item	C	H	R Ø	Weight Kg	Filter Accessories item
DV 1000V RVP 200	1000	RVP 200	3 ~ 400/690-50Hz	DO 100 97V	1334	2480	G3"	384	FC 80
DV 1000V RVP 250	1000	RVP 250	3 ~ 400/690-50Hz	DO 100 97V	1334	2480	G3"	451	FC 80
DV 1000V RVP 300	1000	RVP 300	3 ~ 400/690-50Hz	DO 100 97V	1334	2480	G3"	465	FC 80

Note: All RVP pumps ... are equipped as standard with an FC filter ... suitable for the size of their suction connection.

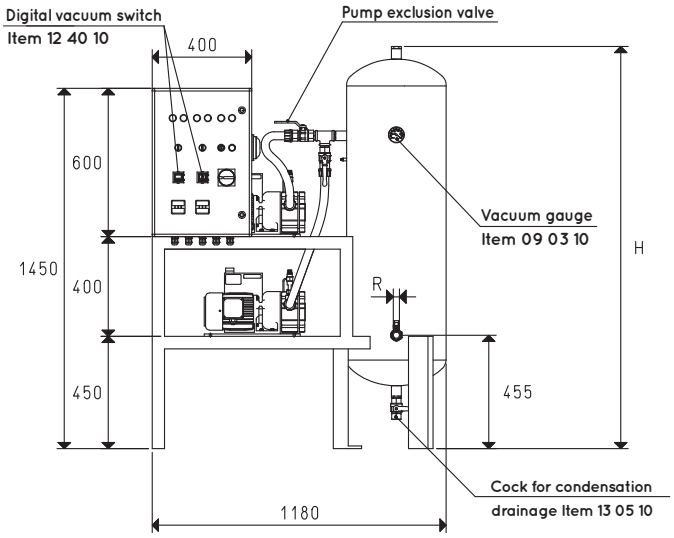
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

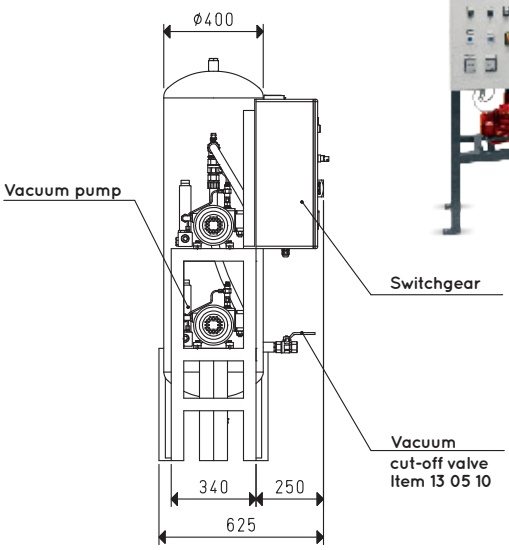
VERTICAL SAFETY PUMP SETS – GENERAL DESCRIPTION

Safety pump sets have been designed to centralise vacuum in all work environments such as hospitals, laboratories, etc. where vacuum must be guaranteed 24/7.
They are essentially composed of:
- A vertical welded sheet steel tank with perfect vacuum seal;
- Two rotary vane vacuum pumps to be selected according to the required suction flow rate and level of vacuum;
- A vacuum gauge for a direct reading of the level of vacuum in the tank;
- Two manual valves for vacuum interception, located between the pumps and the tank and one installed on the tank, for the exclusion or connection of the pump set on a user system;
- A cock for condensation drainage;
- A switchgear enclosed in a special watertight metal casing with switches for automatic or manual pump operation, an alarm device with sound and light signal, alarm-test buttons and hour-counter for counting the hours of actual operation of every single pump.

These safety pump sets normally provide for the operation of one pump with subsequent automatic insertion of the second one for larger consumptions and when, for whatever reason, the plant level of vacuum goes under the preset value.
The automatic timed inverter, located on the switchboard, accurately alternates the pump start-up, so that they are both subject to the same mechanical wear.
The switchboard and remote alarm systems operate when the plant level of vacuum is below the set safety value.

VERTICAL SAFETY PUMP SETS DSV 150V ..

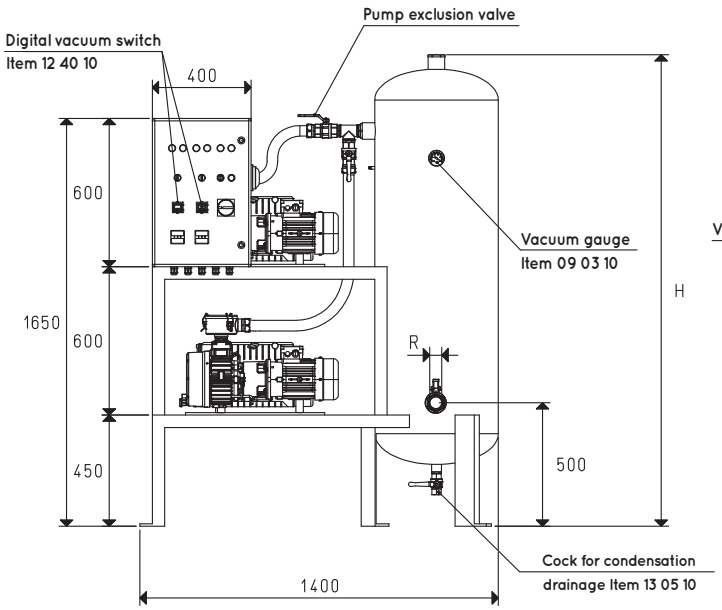


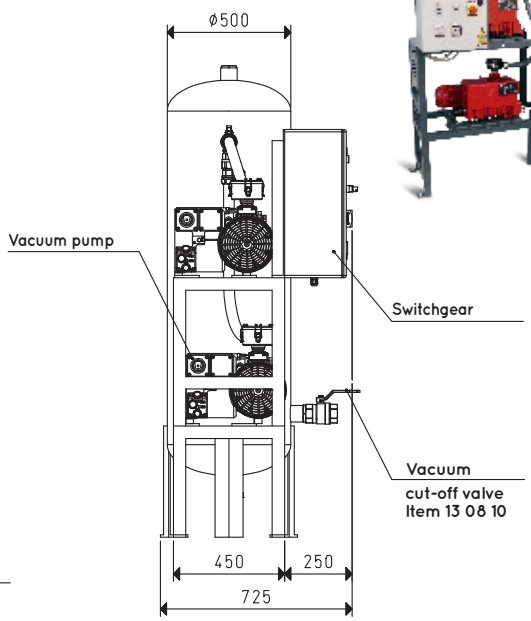


Item	Tank Litres	2 Pumps Mod.	Motor performance Volt	Switchgear item	H	R Ø	Weight Kg	Filter Accessories item
DSV 150V RVP 15	150	RVP 15	3 ~ 230/400-50Hz	DSO 300 97V	1600	G1"	174	FB 30 / FC 30
DSV 150V RVP 21	150	RVP 21	3 ~ 230/400-50Hz	DSO 300 97V	1600	G1"	160	FB 30 / FC 30
DSV 150V VTL 25/FG	150	VTL 25/FG	3 ~ 230/400-50Hz	DSO 300 97V	1600	G1"	168	FB 30 / FC 30
DSV 150V VTL 30/FG	150	VTL 30/FG	3 ~ 230/400-50Hz	DSO 300 97V	1600	G1"	172	FB 30 / FC 30
DSV 150V VTL 35/FG	150	VTL 35/FG	3 ~ 230/400-50Hz	DSO 300 97V	1600	G1"	174	FB 30 / FC 30

Note: All RVP pumps ... are equipped as standard with an FC filter ... suitable for the size of their suction connection.

VERTICAL SAFETY PUMP SETS DSV 300V ..



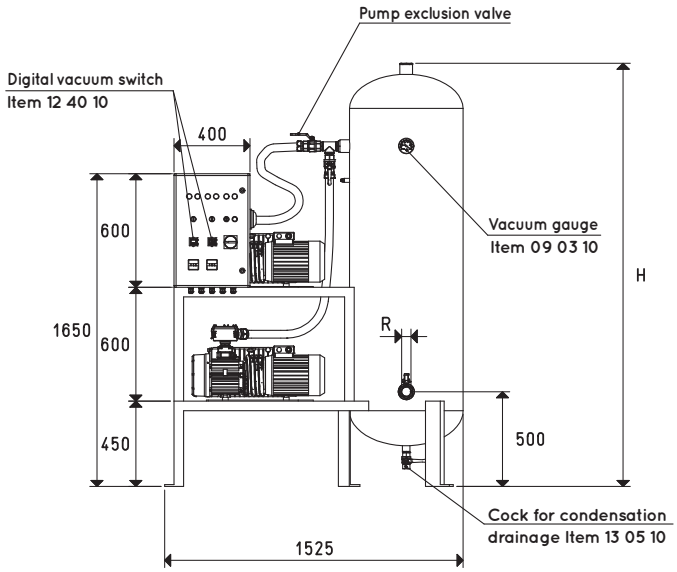


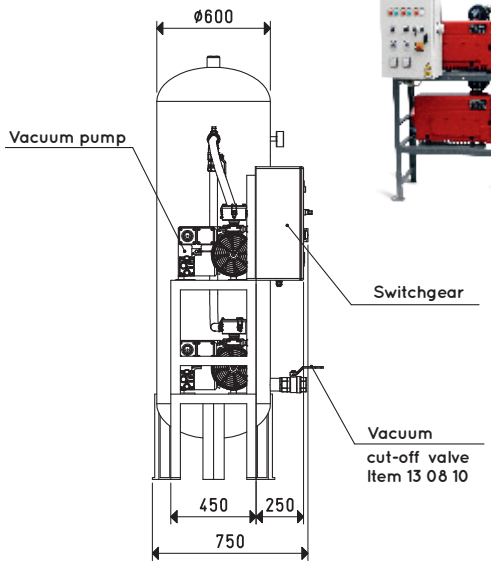
Item	Tank Litres	2 Pumps Mod.	Motor performance Volt	Switchgear item	H	R Ø	Weight Kg	Filter Accessories item
DSV 300V RVP 40	300	RVP 40	3 ~ 230/400-50Hz	DSO 300 97V	1890	G2"	223	FC 60
DSV 300V VTL 50/G1	300	VTL 50/G1	3 ~ 230/400-50Hz	DSO 300 97V	1890	G2"	226	FC 60
DSV 300V RVP 60	300	RVP 60	3 ~ 230/400-50Hz	DSO 300 97V	1890	G2"	237	FC 60
DSV 300V RVP 100	300	RVP 100	3 ~ 230/400-50Hz	DSO 300 97V	1890	G2"	246	FC 60
DSV 300V VTL 105/G1	300	VTL 105/G1	3 ~ 230/400-50Hz	DSO 300 97V	1890	G2"	270	FC 60

Note: All RVP pumps ... are equipped as standard with an FC filter ... suitable for the size of their suction connection.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

VERTICAL SAFETY PUMP SETS DSV 500V ..

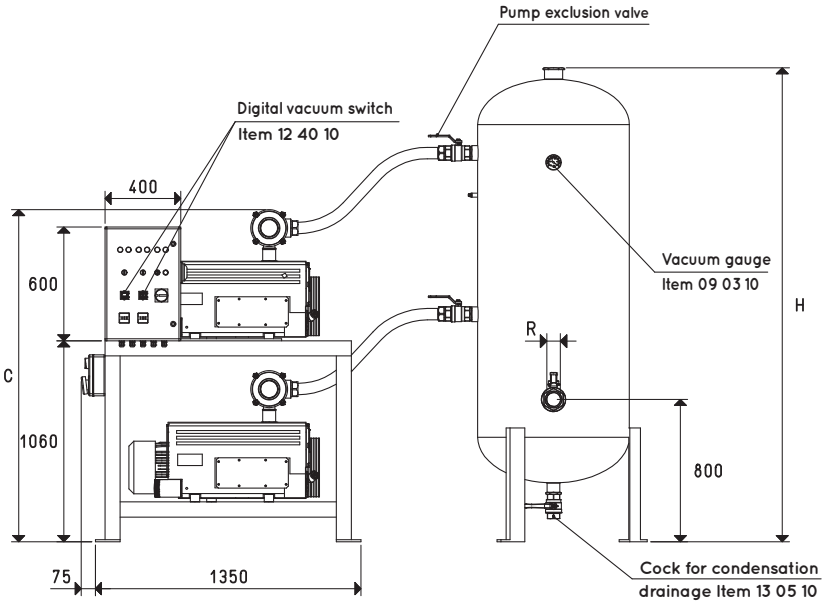


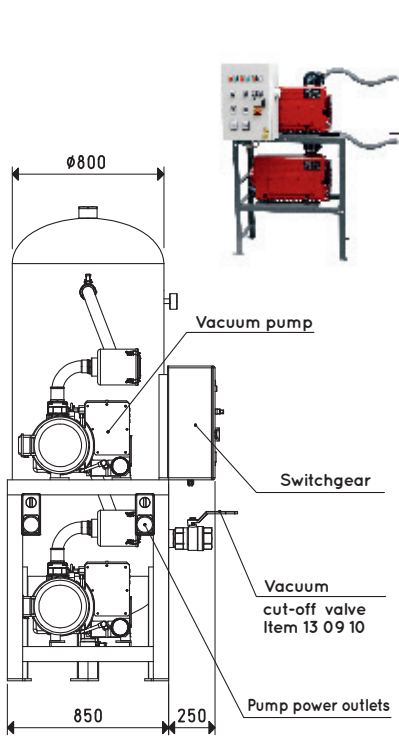


Item	Tank Litres	2 Pumps Mod.	Motor performance Volt	Switchgear item	H	R Ø	Weight Kg	Filter Accessories item
DSV 500V RVP 60	500	RVP 60	3 ~ 230/400-50Hz	DSO 300 97V	2220	G2"	320	FC 60
DSV 500V RVP 100	500	RVP 100	3 ~ 230/400-50Hz	DSO 300 97V	2220	G2"	359	FC 60
DSV 500V VTL 105/G1	500	VTL 105/G1	3 ~ 230/400-50Hz	DSO 300 97V	2220	G2"	396	FC 60
DSV 500V RVP 160	500	RVP 160	3 ~ 400/690-50Hz	DSO 300 97V	2220	G2"	491	FC 60
DSV 500V RVP 200	500	RVP 200	3 ~ 400/690-50Hz	DSO 300 97V	2220	G2"	497	FC 60

Note: All RVP pumps ... are equipped as standard with an FC filter ... suitable for the size of their suction connection.

VERTICAL SAFETY PUMP SETS DSV 1000V ..





Item	Tank Litres	2 Pumps Mod.	Motor performance Volt	Switchgear item	C	H	R Ø	Weight Kg	Filter Accessories item
DSV 1000V RVP 160	1000	RVP 160	3 ~ 400/690-50Hz	DSO 300 97V	1751	2480	G3"	564	FC 80
DSV 1000V RVP 200	1000	RVP 200	3 ~ 400/690-50Hz	DSO 300 97V	1751	2480	G3"	570	FC 80
DSV 1000V RVP 250	1000	RVP 250	3 ~ 400/690-50Hz	DSO 300 97V	1751	2480	G3"	679	FC 80
DSV 1000V RVP 300	1000	RVP 300	3 ~ 400/690-50Hz	DSO 300 97V	1751	2480	G3"	707	FC 80

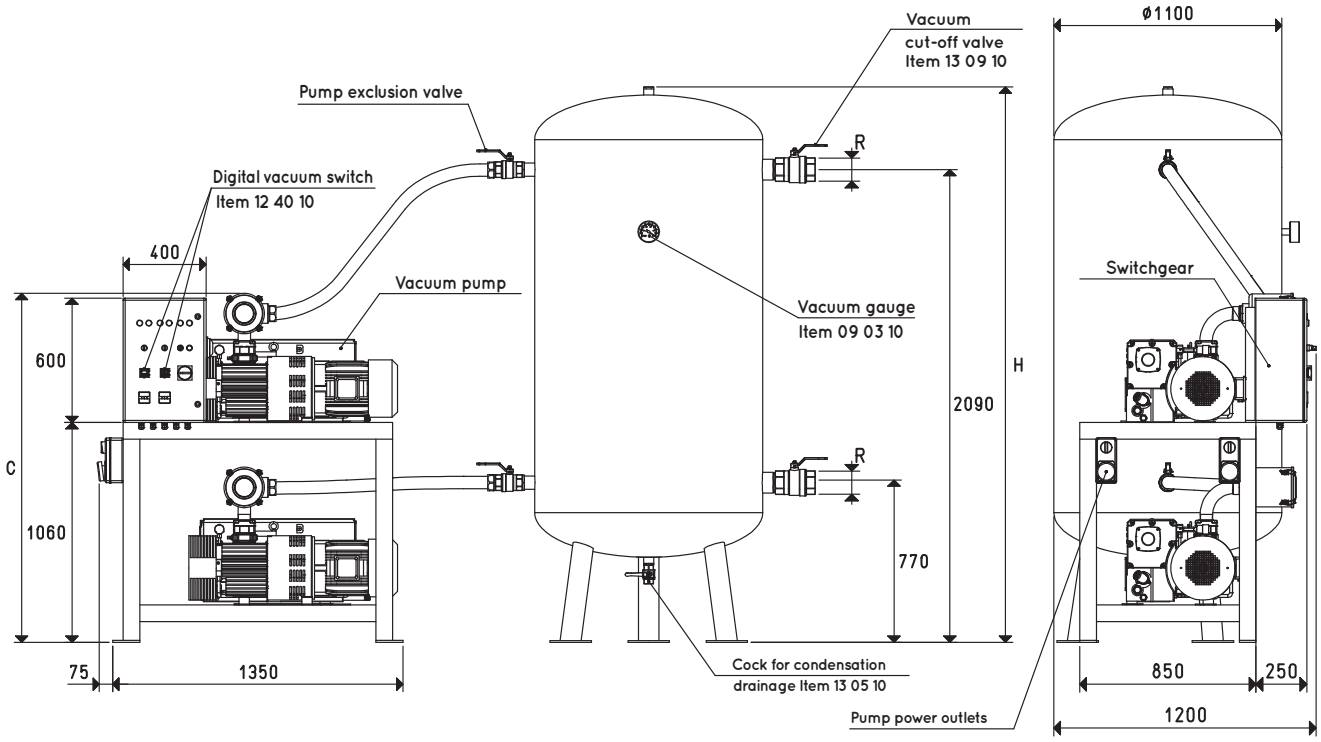
Note: All RVP pumps .. are equipped as standard with an FC filter .. suitable for the size of their suction connection.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**

VERTICAL SAFETY PUMP SETS DSV 2000V ..



Item	Tank Litres	2 Pumps Mod.	Motor performance Volt	Switchgear item	C	H	R Ø	Weight Kg	Filter Accessories item
DSV 2000V RVP 200	2000	RVP 200	3 ~ 400/690-50Hz	DSO 300 97V	1751	2450	G3"	888	FC 80
DSV 2000V RVP 250	2000	RVP 250	3 ~ 400/690-50Hz	DSO 300 97V	1751	2450	G3"	996	FC 80
DSV 2000V RVP 300	2000	RVP 300	3 ~ 400/690-50Hz	DSO 300 97V	1751	2450	G3"	1040	FC 80

Note: All RVP pumps ... are equipped as standard with an FC filter ... suitable for the size of their suction connection.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

DV300VRVP300FS50BP

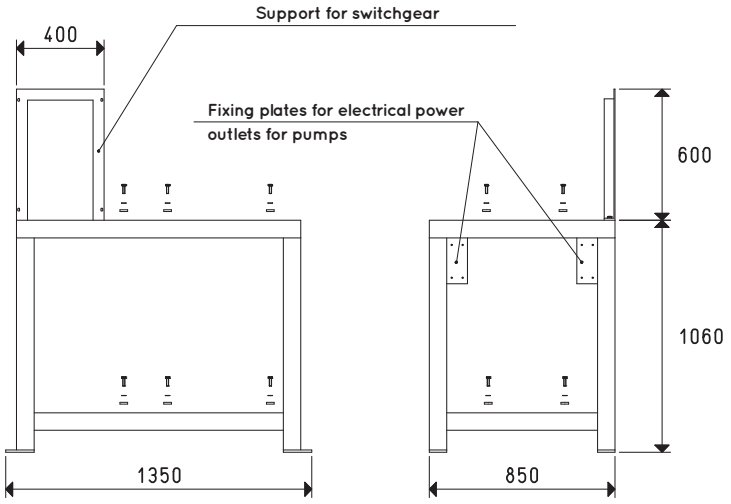
DS3V500VRVP100

DO50VRVP40

DO500RVP200FS

SUPPORT FRAMES FOR TWO VACUUM PUMPS AND SWITCHGEAR

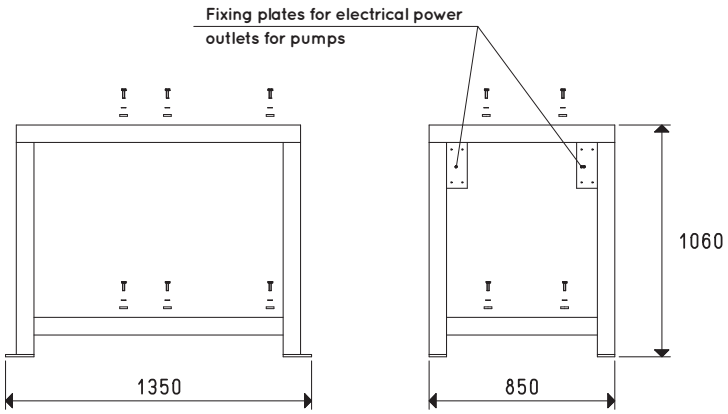
This frame is made with profiled steel and varnished with special weather-resistant paints.
It is suited for assembling two vacuum pumps and their switchgear.

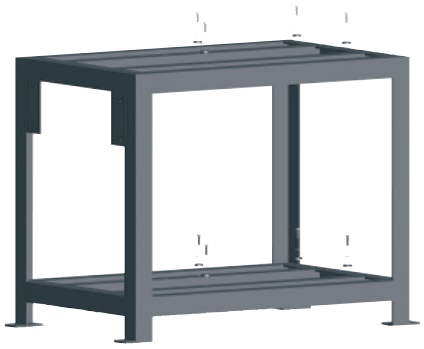


Item	Weight Kg	Fitted for 2 Pumps Mod.	Fitted for switchgear item
00 DSV 16	120	RVP 160 - RVP 200 - RVP 250 - RVP 300	DSO 300 97V

SUPPORT FRAMES FOR TWO VACUUM PUMPS

This frame is made with profiled steel and varnished with special weather-resistant paints.
It is suited for assembling two vacuum pumps.





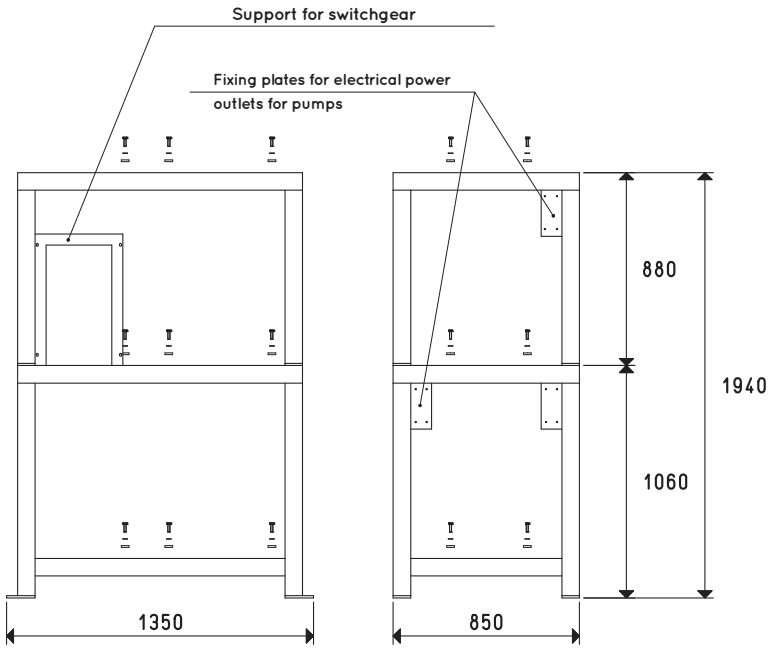
Item	Weight Kg	Fitted for 2 Pumps Mod.
00 DSV 18	117	RVP 160 - RVP 200 - RVP 250 - RVP 300

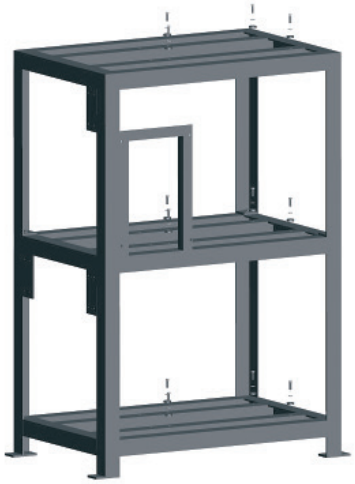
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

3D drawings are available on **vuototecnica.net**

SUPPORT FRAMES FOR THREE VACUUM PUMPS AND SWITCHGEAR

This frame is made with profiled steel and varnished with special weather-resistant paints.
It is suited for assembling three vacuum pumps and their switchgear.

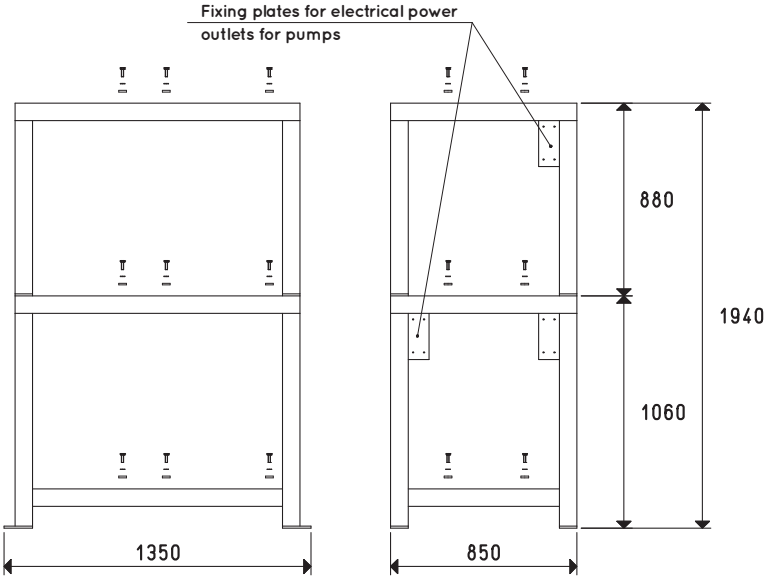


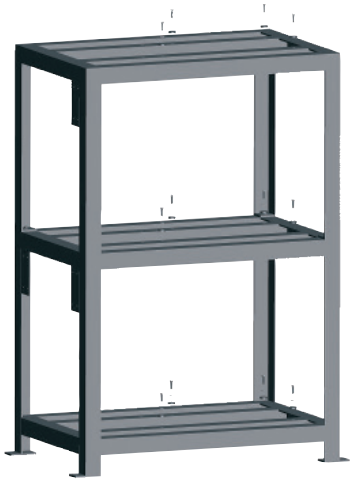


Item	Weight Kg	Fitted for 3 Pumps Mod.	Fitted for switchgear item
00 DSV 20	200	RVP 160 - RVP 200 - RVP 250 - RVP 300	DSO 300 98V

SUPPORT FRAMES FOR THREE VACUUM PUMPS

This frame is made with profiled steel and varnished with special weather-resistant paints.
It is suited for assembling three vacuum pumps.

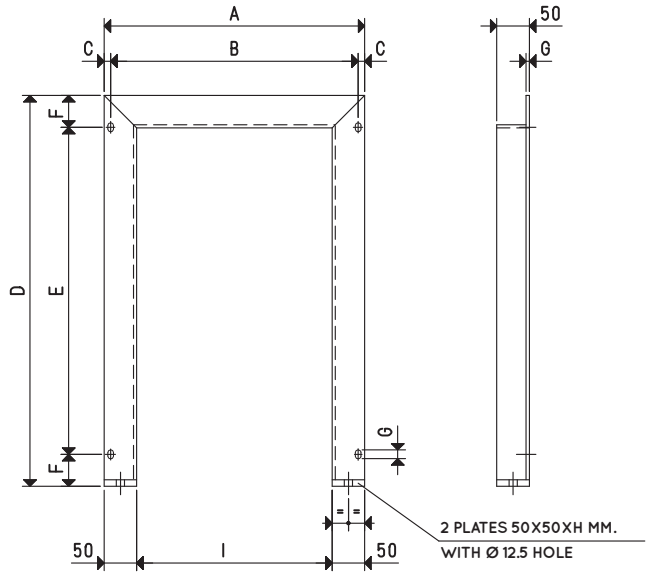




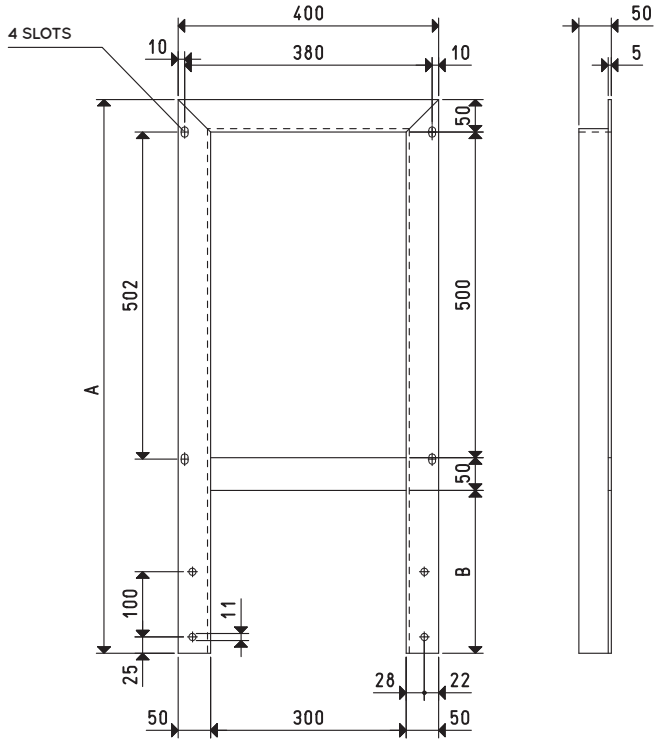
Item	Weight Kg	Fitted for 3 Pumps Mod.
00 DSV 22	197	RVP 160 - RVP 200 - RVP 250 - RVP 300

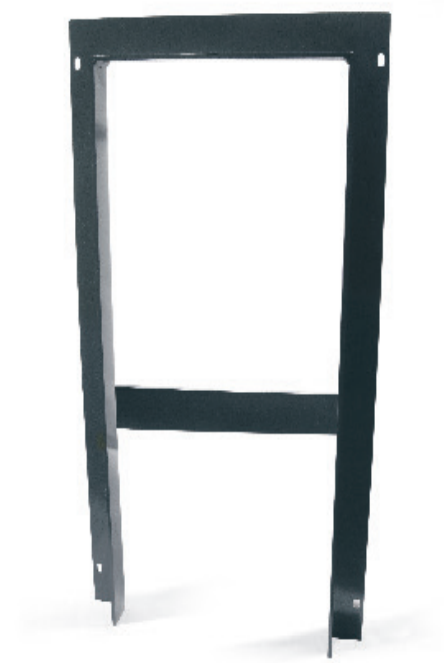
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

3D drawings are available on **vuototecnica.net**



Item	Weight Kg	A	B	C	D	E	F	G	H	I	Fitted for switchgear item
00 DV 16	1.5	300	256	22	300	256	22	3	10	200	DO 100 98V - DO 100 97V
00 DSV 08	5.5	400	380	10	700	502	49	5	10	300	DSO 300 97V
00 DSV 33	7.0	500	480	10	700	602	49	5	10	400	DSO 300 98V - DSV 2000 99V



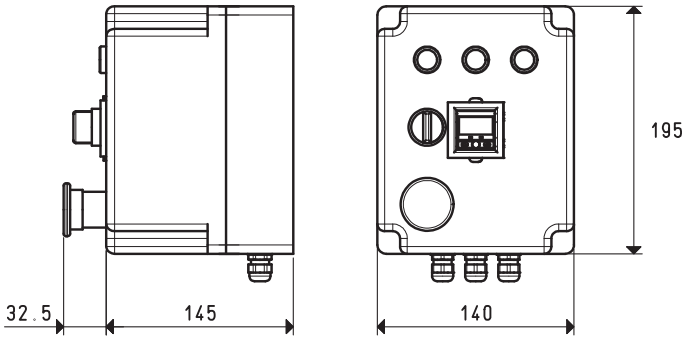


Item	Weight Kg	A	B	Fitted for switchgear item
00 DSO 07	7.5	850	250	DSO 300 97V
00 DSO 08	9.0	920	430	DSO 300 97V

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

MINI PUMP SET SWITCHGEAR

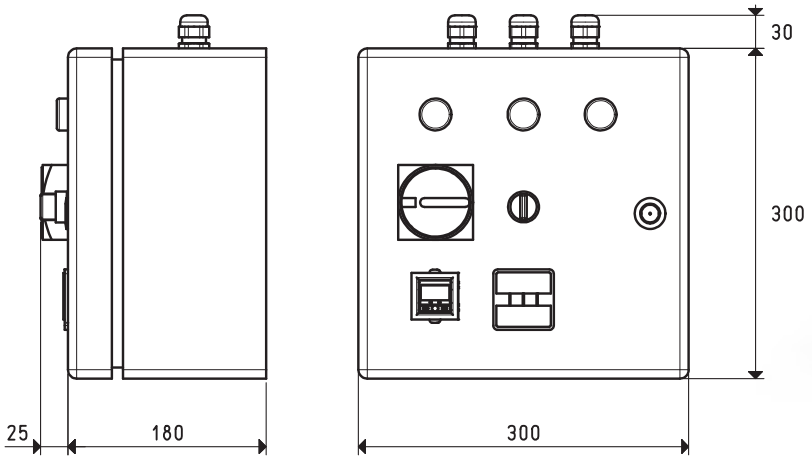
The mini pump set switchgear is enclosed in a special plastic casing. It can automatically manage a vacuum pump with a maximum power of 5.5 KW with AC and can also maintain the level of vacuum in the tank, set with the digital vacuum switch installed on the control panel.
It is equipped with a remote control switch with thermal protection, a fuse, digital vacuum switch, a transformer for low voltage auxiliary command, a selector for automatic or manual pump operation, an emergency button and signalling lamps.



Item	Quantity of pumps No.	Motor performance Volt	Max pump power Kw	Weight Kg
DO 06 98V	1	1 ~ 230-50Hz	5.5	2
DO 06 97V	1	3 ~ 230/400-50Hz	5.5	2

SWITCHGEAR FOR PUMP SETS WITH ONE PUMP

The pump set switchgear is enclosed in a special watertight metal casing and can manage a vacuum pump with a power up to 7.5 KW as well as maintain the level of vacuum in the tank, set with the digital vacuum switch.
It is equipped with a remote control switch with thermal protection, fuses, a transformer for low voltage auxiliary command power supply, a line switch, a changeover switch for the automatic or manual pump operation, an easily-programmable digital vacuum switch suitable for setting and controlling all vacuum functions, an hour-counter for measuring the actual pump operation time and signalling lamps.

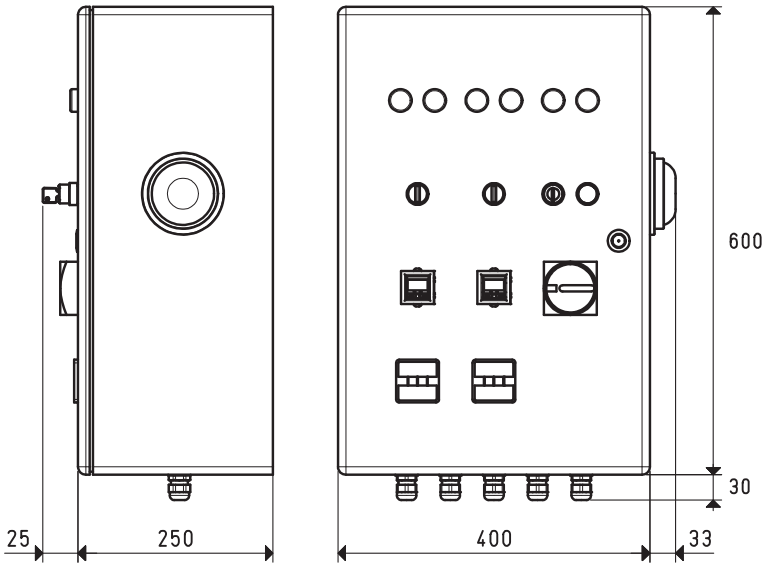


Item	Quantity of pumps No.	Motor performance Volt	Max pump power Kw	Weight Kg
DO 100 98V	1	1 ~ 230-50Hz	7.5	8
DO 100 97V	1	3 ~ 230/400-50Hz	7.5	8

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SWITCHGEAR
FOR SAFETY PUMP SET WITH 2 PUMPS

The pump set switchgear, is enclosed in a special watertight metal casing andautomatically manages two vacuum pumps, each with a power up to 7.5 KW and maintains the level of vacuum in the tank, set with the two easily-programmable digital vacuum switches, suitable for setting and controlling all vacuum functions.
It is equipped with two remote control switches with thermal protection, fuses, a transformer for low voltage auxiliary command power supply, a line switch, a changeover switches for the automatic or manual pump operation, two digital vacuum switches, two hour-counters for measuring the actual pump operation time, an alarm siren with acoustic and lit signalling, a key selector for any necessary exclusion of the siren, test buttons and signalling lamps.
The switchgear is normally provides for the operation of one pump with subsequent automatic insertion of the second one for larger consumptions and when, for whatever reason, the plant level of vacuum goes under the preset value.
The automatic timed inverter precisely alternates priority pump start-up of the services so that they are subjected to equal mechanical wear. The switchboard and remote alarm systems operate when the plant level of vacuum is below the set safety value.



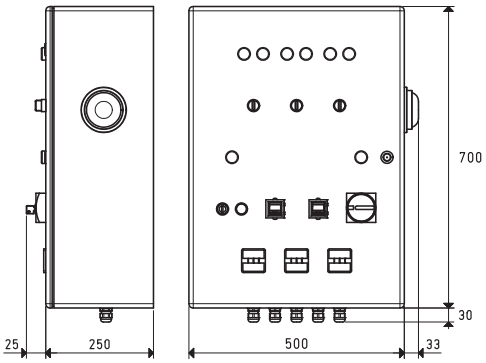
Item	Quantity of pumps No.	Motor performance Volt	Max pump power Kw	Weight Kg
DSO 300 97V	2	3 ~ 230/400-50Hz	7.5 cad.	27

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

3D drawings are available on **vuototecnica.net**

SWITCHGEAR FOR SAFETY PUMP SETS WITH THREE PUMPS

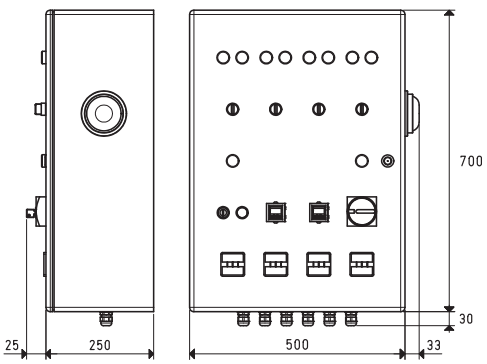
The pump set switchgear, is enclosed in a special watertight metal casing andautomatically manages three vacuum pumps, each with a power up to 7.5 KW and maintains the level of vacuum in the tank, set with the two easily-programmable digital vacuum switches, suitable for setting and controlling all vacuum functions.
It is equipped with three remote control switches with thermal protection, fuses, a transformer for low voltage auxiliary command power supply, a line switch, a changeover switches for the automatic or manual pump operation, three digital vacuum switches, two hour-counters for measuring the actual pump operation time, an alarm siren with acoustic and lit signalling, a key selector for any necessary exclusion of the siren, test buttons and signalling lamps. The switchgear is normally provides for the operation of one pump with subsequent automatic insertion of the other two for larger consumptions and when, for whatever reason, the plant level of vacuum goes under the preset value.
The automatic timed inverter precisely alternates priority pump start-up of the services so that they are subjected to equal mechanical wear.
The switchboard and remote alarm systems operate when the plant level of vacuum is below the set safety value.



Item	Quantity of pumps No.	Motor performance Volt	Max pump power Kw	Weight Kg
DSO 300 98V	3	3 ~ 230/400-50Hz	7.5 cad.	29

SWITCHGEAR FOR SAFETY PUMP SET WITH FOUR PUMPS

The safety pump set switchgear is enclosed in a special watertight metal casing and it automatically manages four vacuum pumps, each with a power up to 7.5 KW, and maintains the level of vacuum in the tank, set with the two easily-programmable digital vacuum switches, suitable for setting and controlling all vacuum functions. It is equipped with four remote control switches with thermal protection, fuses, a transformer for low voltage auxiliary command power supply, a line switch, a changeover switches for the automatic or manual pump operation, two digital vacuum switches, four hour-counters for measuring the actual pump operation time, an alarm siren with acoustic and lit signalling, a key selector for any necessary exclusion of the siren, test buttons and signalling lamps.
These switchgears normally provide for the operation of two pumps and the subsequent automatic insertion of the other two for larger consumptions and when, for whatever reason, the plant level of vacuum goes below the preset value.
The automatic timed inverter precisely alternates priority pump start-up of the services so that they are subjected to equal mechanical wear.
The switchboard and remote alarm systems operate when the plant level of vacuum is below the set safety value.



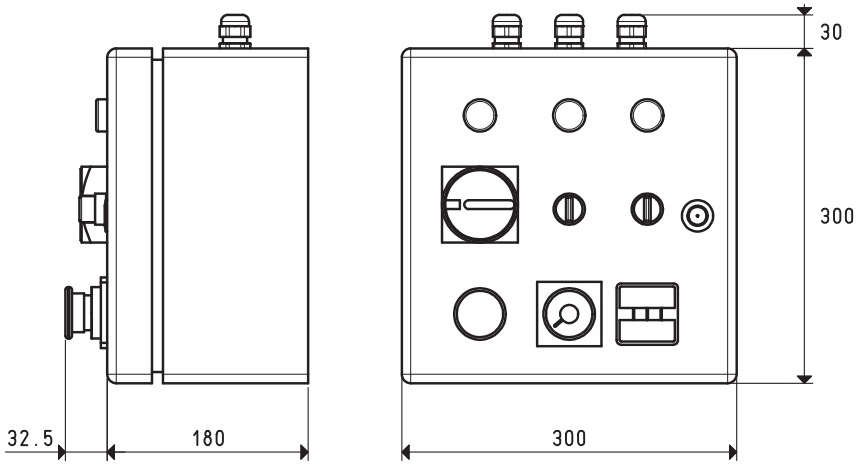
Item	Quantity of pumps No.	Motor performance Volt	Max pump power Kw	Weight Kg
DSV 2000 99V	4	3 ~ 230/400-50Hz	7.5 cad.	29.5

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SWITCHGEAR FOR SINGLE PUMP

The need to use the same vacuum pump in various spots in the work environment,
such as, for example, a shipyard, has led us to creating this mobile switchgear that allows for polarity reversal in presence of current, as well as for time setting pump operation and the automatic start-up restoration in case of accidental black-out.
The switchgear is enclosed in a special watertight metal casing and it is composed of fuses, remote control switches with thermal protection and a transformer for low voltage auxiliary command power supply. The following are instead installed on the casing lid:
- A line switch with indicator light
- A changeover switch for pump start-up with indicator light
- A changeover switch for polarity reversal
- An emergency button
- A timer for setting the duration of pump operation
- An hour-counter for counting the actual pump operation time
- A malfunction warning light.

This switchgear is supplied in special metal watertight casing and can manage pumps with power up to 7.5 Kw.



Item	Quantity of pumps No.	Motor performance Volt	Max pump power Kw	Weight Kg
DO 100 94	1	3 ~ 230/400-50Hz	7.5	8.0

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

3D drawings are available on **vuototecnica.net**

SWITCHGEAR EQUIPPED WITH TOUCH SCREEN OPERATOR PANEL AND PLC FOR PUMP SETS AND SAFETY PUMP SETS WITH TWO OR MORE PUMP

The new electrical equipment consists of a touch screen, which is a special electronic device that is the result of combining a screen and a digitizer that allow the user to interact with a graphical interface using their fingers or specific objects.
The touch screen operator panels installed on our Pump sets are human machine interface systems, or rather devices that allow people to control our equipment very easily.
The electrical panel contains command and control equipment, collects the digital signals coming from the vacuum switch to power the vacuum pumps when necessary and is designed for a single-phase 230 Vac 50 Hz and three-phase 400 Vac 50 Hz power supply with an IP 54 protection rating. Inside is a PLC that manages all the control logics for manual and automatic operation.

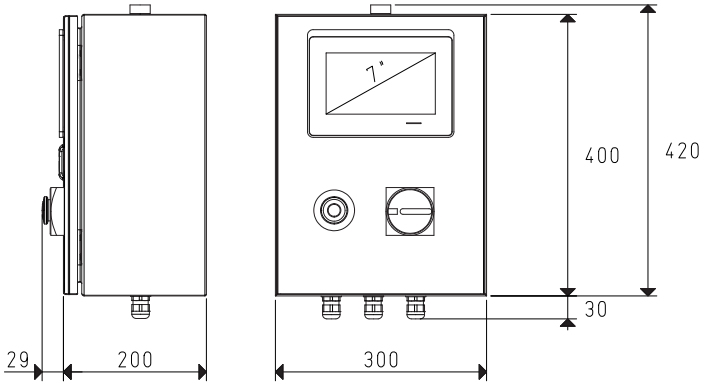
The many advantages:
- New Design;
- Alarm signalling with acoustic-visual siren;
- Easy, intuitive programming;
- System maintenance messages;
- Vacuum level adjustable from panel;
- Pump alarm-maintenance reports;
- Energy-saving display switch-off;
- Translatable into 5 languages.

The pump set is designed to operate vacuum pumps in manual or automatic mode thanks to our precise, reliable digital vacuum switches, which can be easily programmed via the operator panel.
Bright displays with a wide viewing angle provide an excellent overview of the status of the machine as a whole and of all systems thanks to the 7"- 10" touch screen operator panels with graphic interface.
We have included a real-time vacuum trend page with a graph.
Alarm messages indicate the type of alarm that has occurred on the panel for immediate and simplified troubleshooting.
System maintenance messages are displayed during the correct maintenance period.
(Possibility of displaying our products via a Qr code search).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SWITCHGEAR EQUIPPED WITH TOUCH SCREEN OPERATOR PANEL AND PLC FOR PUMP SETS

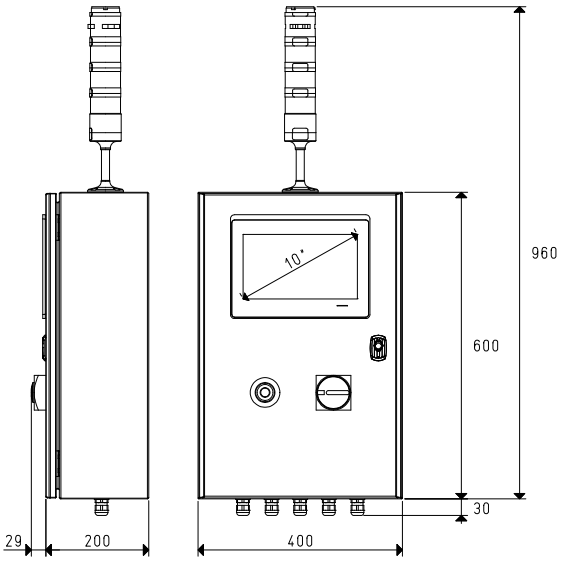
Pump set switchgear with a 7" touch screen operator panel is able to automatically manage a vacuum pump with a maximum power of 7.5 KW in AC and can also maintain the level of vacuum in the tank.All settings are managed by the Operator Panel and PLC. All settings are managed from the Operator Panel and PLC.



Art.	Quantity of pumps No.	Motor performance Volt	Max pump power Kw	Weight Kg
DO 100 98V PLC	1	1 ~ 230-50Hz	7.5	8
DO 100 97V PLC	1	3 ~ 230/400-50Hz	7.5	8

SWITCHGEAR EQUIPPED WITH TOUCH SCREEN OPERATOR PANEL AND PLC FOR SAFETY PUMP SETS WITH 2 PUMPS

Safety pump set switchgear with a 10" touch screen operator panel is able to automatically manage two vacuum pumps with a maximum power of 7.5 KW AC and maintains the level of vacuum in the tank.
All settings are managed from the Operator Panel and PLC.



Art.	Quantity of pumps No.	Motor performance Volt	Max pump power Kw	Weight Kg
DSO 300 97V PLC	2	3 ~ 230/400-50Hz	7.5 cad.	26

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

3D drawings are available on **vuototecnica.net**

VACUUM PUMP QUESTIONNAIRE

For a correct dimensioning and selection of a vacuum pump, it is important to know and assess the use to be made as well as the working environment in which it will operate.
For this reason, we kindly ask you to fill in this form and send it back to us via e-mail or fax.
We will suggest the best vacuum pump to solve your problem.
E-mail: tecnico@vuototecnica.net
Fax: +39 039 5320015

Company

.....

Address

.....

Post code / City ***Country***

....

Contact person:

.....

Telephone ***Fax***

....

E-mail

.....

1) *In which industry sector will the pump be used?*

- ☐ *Plastic*
- ☐ *CD/DVD*
- ☐ *Electronics*
- ☐ *Food*
- ☐ *Packaging*
- ☐ *Glass/Solar*
- ☐ *Graphic arts*
- ☐ *Bottling*
- ☐ *Woodworking*
- ☐ *Marble/Stone*
- ☐ *Medical/Pharmaceutical*
- ☐ *Other sectors* .....
- ☐ *Cosmetics*
- ☐ *Automotive*
- ☐ *Ceramics/Porcelain*

2) *Which service should the vacuum pump be designed for?*

- ☐ *Handling with vacuum cups*
- ☐ *Degassing of silicone or resin mixtures*
- ☐ *Moulding of plastics/rubbers/resins/aluminium*
- ☐ *Emptying containers: Volume/L* ..... *Time required s* ..... *Max vacuum mbar abs.* .....
- ☐ *Other use* .....
- ☐ *Vacuum clamping*
- ☐ *Vacuum packaging*

3) *Where will the vacuum pump be located?*

- ☐ *Inside a plant or mobile unit*
- ☐ *Outside a plant or mobile unit*
- ☐ *Height above sea level of the place where the pump is installed m* .....
- ☐ *Temperature of the work environment: min °C*..... *max °C* ..... *Humidity %.*.....

4) *Type of sucked fluid?*

- ☐ *Dry air*
- ☐ *Moist air*
- ☐ *Air with water*
- ☐ *Air with oil vapours*
- ☐ *Aggressive gases* .....
- ☐ *Air with abrasive dust*
- ☐ *Fluid temperature °C* .....

5) *Required flow rate?*

- ☐ *m^3/h* .....
- ☐ *Nl/min* .....
- ☐ *cfm* .....

6) *Required level of vacuum?*

- ☐ *mbar abs.* .....
- ☐ *mmHg* .....
- ☐ *-KPa* .....

7) *Use of the vacuum pump and related work cycles*

Daily duration: ☐ *8 hours* ..... ☐ *16 hours* ..... ☐ *24 hours* ..... ☐ *Hours?*.....
Number of work cycles/hour ☐ *Intermittency times:* *ON/ s* ..... *OFF/s* .....
Are there strong level of vacuum oscillations in the plant? ☐ *Yes* ☐ *No*
If yes, within what values? *min* ..... *mbar* *max* ..... *mbar*

3D drawings are available on **vuototecnica.net**

8) When the pump stops, does the air return in the vacuum system need to be prevented?

☐ *Yes* ☐ *No*

The seal is ensured by the check valves, whose use is:
- Mandatory, on lubricated vacuum pumps
- Optional, on dry vacuum pumps
Note: Check valves are integrated onto oil-bath vacuum pumps on the RVP series.

9) Vacuum holding time

Does the vacuum need to be maintained for a specific time? (for example, to support a suspended load with vacuum cups, in case of a blackout) ☐ *Yes* ☐ *No*

10) Vacuum tanks

☐ *Required volume L* ..... ☐ *Recommended volume L* ..... ☐ *Available volume L* .....

11) Purchase prospects

☐ *Single request* ..... ☐ *No.* ..... *pumps/year* ☐ *Required delivery:* .....

12) In the event of vacuum pump replacement

☐ *Model used to present:* ..... ☐ *Flow rate m3/h* ..... ☐ *Level of vacuum mbar* .....
☐ *Brand* .....
Electrical power: ☐ *Single-phase* ☐ *Volt 230-50 Hz* ☐ *Other Volt* ..... *Hz* .....
☐ *Three-phase* ☐ *Volt 230/400-50 Hz* ☐ *Other Volt* ..... *Hz* .....

13) Contact

☐ *Do you wish to be called back?* *Yes* ☐ *No* ☐
☐ *Are you interested in a visit?* *Yes* ☐ *No* ☐ *If yes, what date/time?* .....

VACUUM GENERATORS AND PNEUMATIC PUMP SETS

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TABLE REGARDING THE QUANTITY OF AIR SUCKED BY GENERATORS, AT DIFFERENT LEVELS OF VACUUMS

3D drawings are available on **vuototecnica.net**

Generator Item	Supp. press.	Air consumption	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
	bar	Nl/s	0	10	20	30	40	50	60	70	80	-KPa
15 01 10	6	0.9	0.80	0.66	0.61	0.55	0.44	0.29	0.19	0.09	- - -	85
15 01 10 LP	4	1.2	0.83	0.67	0.63	0.56	0.49	0.41	0.34	0.18	0.08	85
15 01 15 LP	4	2.2	1.38	1.22	1.11	1.00	0.90	0.69	0.44	0.30	0.16	85
15 02 10	6	0.9	0.80	0.66	0.61	0.55	0.44	0.29	0.19	0.09	- - -	85
15 02 10 LP	4	1.2	0.83	0.67	0.63	0.56	0.49	0.41	0.34	0.18	0.08	85
15 02 15 LP	4	2.2	1.39	1.22	1.11	1.00	0.90	0.69	0.44	0.30	0.16	85
15 03 10	6	1.6	1.39	1.30	1.15	1.00	0.89	0.77	0.69	0.44	0.04	85
15 04 10	6	1.6	1.39	1.30	1.15	1.00	0.89	0.77	0.69	0.44	0.04	85
15 05 08 SX	3.5	4.3	2.44	2.27	2.11	1.94	1.72	1.46	0.98	0.50	0.04	90
15 05 10 SX	3.5	5.5	3.47	3.24	2.86	2.49	2.22	1.92	1.72	1.20	0.65	90
15 06 08 SX	3.5	4.3	2.44	2.27	2.11	1.94	1.72	1.46	0.98	0.50	0.04	90
15 06 10 SX	3.5	5.5	3.47	3.24	2.86	2.49	2.22	1.92	1.72	1.20	0.65	90
15 07 10 SX	3.5	8.5	5.55	5.00	4.44	4.16	3.83	3.00	1.97	1.56	0.85	90
VG 03	6	0.9	0.80	0.66	0.61	0.55	0.44	0.29	0.19	0.09	- - -	85
VG 03 LP	4	1.2	0.83	0.67	0.63	0.56	0.49	0.41	0.34	0.18	0.08	85
VG 05 LP	4	2.2	1.39	1.22	1.11	1.00	0.90	0.69	0.44	0.30	0.16	85
FVG 3	4	1.2	0.83	0.67	0.63	0.56	0.49	0.41	0.34	0.18	0.08	85
FVG 5	4	2.2	1.39	1.22	1.11	1.00	0.90	0.69	0.44	0.30	0.16	85
FVG 8	3.5	4.3	2.44	2.27	2.11	1.94	1.72	1.46	0.98	0.50	0.04	90
FVG 12	3.5	5.5	3.47	3.24	2.86	2.49	2.22	1.92	1.72	1.20	0.65	90
GV 1	5	0.45	0.27	0.23	0.20	0.17	0.13	0.06	0.05	0.03	- - -	85
GV 2	5	0.45	0.27	0.23	0.20	0.17	0.13	0.06	0.05	0.03	- - -	85
GV 3	5	0.45	0.27	0.23	0.20	0.17	0.13	0.06	0.05	0.03	- - -	85
PVP 05	6	0.5	0.13	0.11	0.10	0.08	0.06	0.03	0.02	0.01	- - -	82
PVP 1	5	0.45	0.27	0.25	0.22	0.18	0.12	0.07	0.06	0.03	- - -	85
PVP 2	6	0.9	0.83	0.70	0.65	0.52	0.37	0.23	0.13	0.07	- - -	85
PVP 2 M	6	0.9	0.83	0.70	0.65	0.52	0.37	0.23	0.13	0.07	- - -	85
PVP 2 MM1	6	0.9	0.83	0.70	0.65	0.52	0.37	0.23	0.13	0.07	- - -	85
PVP 2 MM2	6	0.9	0.83	0.70	0.65	0.52	0.37	0.23	0.13	0.07	- - -	85
PVP 2 MM3	6	0.9	0.83	0.70	0.65	0.52	0.37	0.23	0.13	0.07	- - -	85
PVP 3	6	1.3	1.03	0.82	0.72	0.61	0.41	0.24	0.15	0.08	- - -	85
PVP 7 SX	6	3.2	2.58	2.38	2.19	2.02	1.44	0.97	0.86	0.54	0.05	85
PVP 7 SXLP	3	4.5	2.44	2.25	2.07	1.91	1.42	0.95	0.84	0.52	0.04	88
PVP 14 SX	6	4.8	3.75	3.46	3.19	2.95	2.19	1.47	1.29	0.80	0.07	85
PVP 14 SXLP	3	6.9	3.77	3.48	3.20	2.96	2.20	1.48	1.31	0.82	0.07	88
PVP 18 SX	6	6.4	5.00	4.62	4.25	3.93	2.92	1.97	1.75	1.10	0.10	85
PVP 18 SXLP	3	8.6	4.86	4.48	4.12	3.80	2.82	1.90	1.68	1.05	0.09	88
MSVE 3	4	1.2	0.83	0.67	0.63	0.56	0.49	0.41	0.34	0.18	0.08	85
MSVE 5	4	2.2	1.39	1.22	1.11	1.00	0.90	0.69	0.44	0.30	0.16	85
MSVE 8	3.5	4.3	2.44	2.27	2.11	1.94	1.72	1.46	0.98	0.50	0.04	90
MSVE 12	3.5	5.5	3.47	2.88	2.72	2.50	2.27	1.83	1.16	0.60	0.05	90
MSVE 20	4	8.0	5.55	5.00	4.44	4.16	3.83	3.00	1.97	1.56	0.85	90
AVG 18	6	6.4	4.83	4.58	4.04	3.58	2.72	1.90	1.68	1.07	0.10	85
AVG 25	6	9.6	7.00	6.63	5.86	5.18	3.94	2.76	2.44	1.54	0.15	85
M 3	5	0.8	1.00	0.83	0.61	0.34	0.18	0.12	0.10	0.07	0.03	85
M 7	5	1.4	1.72	1.28	0.89	0.50	0.37	0.27	0.16	0.11	0.05	85
M 10	5	1.9	2.61	2.00	1.55	0.80	0.64	0.50	0.29	0.19	0.09	85
M 14	5	2.5	3.50	2.33	1.72	1.00	0.89	0.67	0.35	0.24	0.11	85
M 18	5	3.6	5.00	3.50	2.78	2.02	1.02	0.75	0.44	0.30	0.14	85
M 3 SSX	5	0.8	1.00	0.83	0.61	0.34	0.18	0.12	0.10	0.07	0.03	85
M 7 SSX	5	1.4	1.72	1.28	0.89	0.50	0.37	0.27	0.16	0.11	0.05	85
M 10 SSX	5	1.9	2.61	2.00	1.55	0.80	0.64	0.50	0.29	0.19	0.09	85
M 14 SSX	5	2.5	3.50	2.33	1.72	1.00	0.89	0.67	0.35	0.24	0.11	85

TABLE REGARDING THE QUANTITY OF AIR SUCKED BY GENERATORS, AT DIFFERENT LEVELS OF VACUUMS

Generator Item	Supp. press.	Air consumption	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
	bar	Nl/s	0	10	20	30	40	50	60	70	80	-KPa
M 18 SSX	5	3.6	5.00	3.50	2.78	2.02	1.02	0.75	0.44	0.30	0.14	85
MVG 3	5	0.8	0.89	0.69	0.41	0.23	0.18	0.12	0.10	0.07	0.03	85
MVG 7	5	1.3	1.83	1.44	1.11	0.63	0.41	0.25	0.16	0.11	0.05	85
MVG 10	5	1.7	2.55	1.85	1.30	0.75	0.64	0.48	0.30	0.20	0.09	85
MVG 14	5	2.1	3.40	2.45	1.84	1.05	0.88	0.61	0.36	0.24	0.11	85
GVMM 3	5	0.8	0.83	0.66	0.38	0.20	0.16	0.11	0.09	0.06	0.02	85
GVMM 7	5	1.3	1.78	1.30	0.98	0.56	0.44	0.29	0.20	0.14	0.06	85
GVMM 10	5	1.7	2.52	2.00	1.66	0.97	0.56	0.40	0.22	0.16	0.07	85
GVMM 14	5	2.1	3.35	2.42	1.84	0.99	0.80	0.58	0.34	0.22	0.10	85
MI 3	5	0.8	0.83	0.66	0.38	0.20	0.16	0.11	0.09	0.06	0.02	85
MI 7	5	1.3	1.78	1.30	0.98	0.56	0.44	0.29	0.20	0.14	0.06	85
MI 10	5	1.7	2.52	2.00	1.66	0.97	0.56	0.40	0.22	0.16	0.07	85
MI 14	5	2.1	3.35	2.42	1.84	0.99	0.80	0.58	0.34	0.22	0.10	85
PVP 12 MX	6	1.5	5.80	4.14	2.76	1.38	0.98	0.78	0.59	0.41	0.23	90
PVP 12 MXLP	3	2.3	5.00	2.27	1.66	1.05	0.88	0.77	0.64	0.42	0.22	86
PVP 25 MX	6	3.0	8.61	6.15	4.10	2.05	1.46	1.17	0.88	0.61	0.35	90
PVP 25 MXLP	3	4.5	9.44	3.77	2.77	1.72	1.58	1.36	1.11	0.72	0.37	86
PVP 40 M	6	3.2	11.6	8.32	5.55	2.77	1.98	1.58	1.19	0.83	0.47	90
PVP 40 MLP	3	4.4	11.4	5.42	3.45	2.19	2.03	1.72	1.34	0.95	0.54	88
PVP 70 M	6	6.6	22.2	15.8	10.5	5.29	3.77	3.02	2.27	1.58	0.90	90
PVP 70 MLP	3	8.9	20.3	9.65	6.15	3.88	3.61	3.05	2.36	1.66	0.94	88
PVP 100 M	6	9.8	30.0	21.4	14.2	7.14	5.10	4.08	3.06	2.14	1.22	90
PVP 100 MLP	3	13.3	26.4	12.5	8.00	5.07	4.70	4.00	3.10	2.20	1.25	88
PVP 140 M	6	13.0	42.2	30.1	20.1	10.0	7.18	5.74	4.31	3.02	1.72	90
PVP 140 MLP	3	17.8	38.3	18.3	11.6	7.37	6.84	5.80	4.50	3.20	1.80	88
PVP 170 M	6	16.3	50.5	36.1	24.0	12.0	8.59	6.87	5.17	3.61	2.06	90
PVP 170 MLP	3	22.2	45.8	21.8	13.8	8.81	8.18	6.94	5.39	3.82	2.16	88
PVP 200 M	6	19.4	55.5	39.6	26.4	13.2	9.44	7.55	5.68	3.97	2.27	90
PVP 200 MLP	3	26.6	52.8	25.2	16.0	10.1	9.44	8.00	6.20	4.40	2.50	88
PVP 250 M	6	24.0	77.7	55.5	37.0	18.5	13.2	10.5	7.90	5.50	3.10	90
PVP 250 MLP	3	33.6	69.4	34.0	23.5	14.0	11.5	9.80	7.60	5.30	3.00	88
PVP 300 M	6	29.0	88.8	63.4	42.3	21.1	15.1	12.0	9.10	6.35	3.63	90
PVP 300 MLP	3	39.3	83.3	41.5	27.5	17.0	14.5	11.4	8.80	6.10	3.40	88
PVP 25 MDX	6	3.2	11.9	8.5	5.7	2.8	2.0	1.6	1.2	0.8	0.5	90
PVP 25 MDXLP	3	4.4	9.7	4.7	3.5	2.2	2.0	1.7	1.4	1.0	0.6	88
PVP 35 MDX	6	4.8	15.8	11.3	7.5	3.8	2.7	2.1	1.6	1.1	0.6	90
PVP 35 MDXLP	3	6.5	13.0	6.2	4.7	3.0	2.7	2.3	1.8	1.3	0.7	88
PVP 50 MDX	6	6.5	18.8	13.5	9.0	4.5	3.2	2.6	1.9	1.4	0.7	90
PVP 50 MDXLP	3	8.6	16.1	7.7	5.8	3.7	3.3	2.8	2.2	1.5	0.8	88
PVP 60 MDX	6	8.2	25.5	18.2	12.2	6.1	4.3	3.5	2.6	1.8	1.0	90
PVP 60 MDXLP	3	11.0	19.3	9.3	7.0	4.4	4.0	3.4	2.7	1.9	1.0	88
PVP 75 MDX	6	9.8	28.6	20.4	13.6	6.8	4.8	3.9	2.9	2.0	1.2	90
PVP 75 MDXLP	3	13.2	22.5	10.8	8.1	5.1	4.6	3.9	3.1	2.2	1.2	88
PVP 150 MD	6	16.0	55.5	39.6	26.5	13.2	9.4	7.5	5.7	4.0	2.3	90
PVP 150 MDLP	3	22.6	47.2	24.5	15.9	10.3	9.3	7.5	4.7	3.2	1.8	88
PVP 300 MD	6	32.0	111.1	79.4	52.9	26.5	19.9	15.1	11.4	7.9	4.5	90
PVP 300 MDLP	3	45.5	94.4	49.0	31.9	20.7	18.6	15.1	9.3	6.5	3.7	88
PVP 450 MD	6	47.8	161.1	115.0	76.7	38.3	27.4	21.9	16.5	11.5	6.6	90
PVP 450 MDLP	3	65.8	138.8	72.7	46.9	30.5	27.4	22.2	13.8	9.6	5.5	88
PVP 600 MD	6	63.2	208.3	148.8	99.2	49.6	35.4	28.3	21.3	14.9	8.5	90
PVP 600 MDLP	3	87.7	186.1	96.7	62.9	40.8	36.8	29.8	18.5	12.9	6.8	88
PVP 750 MD	6	80.0	250.0	180.0	118.8	59.4	42.8	34.2	25.7	18.0	10.2	90
PVP 750 MDLP	3	110.0	222.2	115.5	75.1	48.8	43.9	35.6	22.0	15.4	8.8	88

3D drawings are available on **vuototecnica.net**

TABLE REGARDING VACUUM GENERATOR EVACUATION TIME, AT DIFFERENT LEVELS OF VACUUMS

3D drawings are available on **vuototecnica.net**

Generator Item	Supp. press.	Air consumption	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
	bar	Nl/s	10	20	30	40	50	60	70	80	85	-KPa
15 01 10	6	0.9	139	278	472	727	1171	1628	2720	4928	- - -	85
15 01 10 LP	4	1.2	130	260	510	740	1070	1510	2430	4400	8740	85
15 01 15 LP	4	2.2	70	160	260	410	620	910	1500	2620	4490	85
15 02 10	6	0.9	139	278	472	727	1171	1628	2720	4928	- - -	85
15 02 10 LP	4	1.2	130	260	510	740	1070	1510	2430	4400	8740	85
15 02 15 LP	4	2.2	70	160	260	410	620	910	1500	2620	4490	85
15 03 10	6	1.6	77	154	261	403	649	902	1506	2730	3876	85
15 04 10	6	1.6	77	154	261	403	649	902	1506	2730	3876	85
15 05 08 SX	3.5	4.3	35	75	120	190	290	490	920	1530	2730	90
15 05 10 SX	3.5	5.5	25	54	90	140	220	320	570	980	2012	90
15 06 08 SX	3.5	4.3	35	75	120	190	290	490	920	1530	2730	90
15 06 10 SX	3.5	5.5	25	54	90	140	220	320	570	980	2012	90
15 07 10 SX	3.5	8.5	18	37	62	92	140	210	410	770	1220	90
VG 03	6	0.9	139	278	472	727	1171	1628	2720	4928	- - -	85
VG 03 LP	4	1.2	130	260	510	740	1070	1510	2430	4400	8740	85
VG 05 LP	4	2.2	70	160	260	410	620	910	1500	2620	4490	85
FVG 3	4	1.2	130	260	510	740	1070	1510	2430	4400	8740	85
FVG 5	4	2.2	70	160	260	410	620	910	1500	2620	4490	85
FVG 8	3.5	4.3	35	75	120	190	290	490	920	1530	2730	90
FVG 12	3.5	5.5	25	54	90	140	220	320	570	980	2012	90
90	5	0.45	394	788	1339	2063	3322	4617	7711	13973	19841	85
GV 2	5	0.45	394	788	1339	2063	3322	4617	7711	13973	19841	85
GV 3	5	0.45	394	788	1339	2063	3322	4617	7711	13973	19841	85
PVP 05	6	0.5	786	1572	2678	4126	6644	9210	15420	27870	- - -	82
PVP 1	5	0.45	393	786	1336	2057	3312	4605	7690	13935	19787	85
PVP 2	6	0.9	128	257	438	675	1087	1511	2523	4572	6492	85
PVP 2M	6	0.9	128	257	438	675	1087	1511	2523	4572	6492	85
PVP 2 MM1	6	0.9	128	257	438	675	1087	1511	2523	4572	6492	85
PVP 2 MM2	6	0.9	128	257	438	675	1087	1511	2523	4572	6492	85
PVP 2 MM3	6	0.9	128	257	438	675	1087	1511	2523	4572	6492	85
PVP 3	6	1.3	104	207	353	544	857	1217	2033	3684	5232	85
PVP 7 SX	6	3.2	33	70	115	173	289	492	796	1418	2532	85
PVP 7 SXLP	3	4.5	34	74	121	200	315	487	760	1348	2410	88
PVP 14 SX	6	4.8	23	49	80	120	200	340	550	980	1750	85
PVP 14 SXLP	3	6.9	24	52	85	140	220	340	530	940	1680	88
PVP 18 SX	6	6.4	18	38	62	93	155	264	420	750	1340	85
PVP 18 SXLP	3	8.6	18	39	64	105	165	255	398	706	1260	88
MSVE 3	4	1.2	130	260	510	740	1070	1510	2430	4400	8740	85
MSVE 5	4	2.2	70	160	260	410	620	910	1500	2620	4490	85
MSVE 8	3.5	4.3	35	75	120	190	290	490	920	1530	2730	90
MSVE 12	3.5	5.5	27	57	100	150	230	350	740	1200	2150	90
MSVE 20	4	8.0	18	37	62	92	140	210	410	770	1220	90
AVG 18	6	6.4	22	44	75	115	185	258	430	798	1107	85
AVG 25	6	9.6	15	30	52	80	128	178	297	538	764	85
M 3	5	0.8	106	244	491	969	1642	2398	4004	7128	10122	85
M 7	5	1.4	61	142	285	563	954	1394	2328	4144	5885	85
M 10	5	1.9	40	93	188	371	629	918	1534	2731	3878	85
M 14	5	2.5	30	69	140	276	469	685	1144	2036	2892	85
M 18	5	3.6	21	48	98	193	327	478	799	1423	2020	85
M 3 SSX	5	0.8	106	244	491	969	1642	2398	4004	7128	10122	85
M 7 SSX	5	1.4	61	142	285	563	954	1394	2328	4144	5885	85
M 10 SSX	5	1.9	40	93	188	371	629	918	1534	2731	3878	85
M 14 SSX	5	2.5	30	69	140	276	469	685	1144	2036	2892	85

To calculate the emptying time of a volume **V**, use the following formula: $t_1 = t \times V$

t_1 = time to be calculated (ms)
t = time indicated in the table (ms) in the desired degree of vacuum column (-KPa)
V = Volume to be emptied (L)

TABLE REGARDING VACUUM GENERATOR EVACUATION TIME, AT DIFFERENT LEVELS OF VACUUMS

Generator Item	Supp. press.	Air consumption	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
	bar	Nl/s	10	20	30	40	50	60	70	80	85	-KPa
M 18 SSX	5	3.6	21	48	98	193	327	478	799	1423	2020	85
MVG 3	5	0.8	119	274	552	1088	1845	2694	4499	8009	11373	85
MVG 7	5	1.3	58	133	268	529	897	1310	2188	3895	5531	85
MVG 10	5	1.7	41	95	192	379	642	938	1567	2790	3962	85
MVG 14	5	2.1	31	71	144	284	482	704	1175	2092	2971	85
GVMM 3	5	0.8	128	294	592	1167	1978	2889	4824	8588	12195	85
GVMM 7	5	1.3	59	137	275	543	921	1344	2245	3997	5676	85
GVMM 10	5	1.7	42	97	195	384	651	951	1589	2828	4016	85
GVMM 14	5	2.1	31	72	146	288	489	714	1193	2124	3016	85
MI 3	5	0.8	128	294	592	1167	1978	2889	4824	8588	12195	85
MI 7	5	1.3	59	137	275	543	921	1344	2245	3997	5676	85
MI 10	5	1.7	42	97	195	384	651	951	1589	2828	4016	85
MI 14	5	2.1	31	72	146	288	489	714	1193	2124	3016	85
PVP 12 MX	6	1.5	15	38	85	204	365	559	929	1607	5916	90
PVP 12 MXLP	3	2.3	22	56	120	240	410	650	975	1950	7160	86
PVP 25 MX	6	3.0	10	26	57	137	246	377	626	1083	3986	90
PVP 25 MXLP	3	4.5	16	41	83	165	290	460	690	1380	5070	86
PVP 40 M	6	3.2	7	19	42	101	182	278	462	799	2943	90
PVP 40 MLP	3	4.4	12	28	58	116	158	250	382	764	2820	88
PVP 70 M	6	6.6	4	10	22	53	95	146	242	419	1544	90
PVP 70 MLP	3	8.9	9	21	44	88	120	190	290	580	2150	88
PVP 100 M	6	9.8	3	7	16	39	70	108	179	310	1144	90
PVP 100 MLP	3	13.3	7	16	34	68	93	147	224	448	1650	88
PVP 140 M	6	13.0	2.1	5.3	11.7	28.0	50.2	76.9	127	220	812	90
PVP 140 MLP	3	17.8	3.6	8.4	17.7	35.4	48.3	76.5	116	233	860	88
PVP 170 M	6	16.3	1.7	4.4	9.7	23.4	42.0	64.2	106	184	678	90
PVP 170 MLP	3	22.2	3.0	7.1	14.9	29.9	40.6	64.2	98.0	196	720	88
PVP 200 M	6	19.4	1.6	4.0	8.9	21.3	38.2	58.4	97.0	167	618	90
PVP 200 MLP	3	26.6	2.8	6.5	13.6	27.3	37.2	58.8	89.7	180	665	88
PVP 250 M	6	24.0	1.1	2.9	6.4	15.2	27.3	41.8	69.3	119	442	90
PVP 250 MLP	3	33.6	2.0	4.6	9.6	19.3	26.3	41.5	63.5	127	468	88
PVP 300 M	6	29.0	1.0	2.5	5.5	13.3	23.8	36.5	60.6	104	386	90
PVP 300 MLP	3	39.3	1.7	3.9	8.2	16.4	22.3	35.3	54.0	108	398	88
PVP 25 MDX	6	3.2	7.5	18.8	41.3	99.3	177	271	451	781	2874	90
PVP 25 MDXLP	3	4.4	13.0	33.3	67.2	134	238	376	564	1128	4151	88
PVP 35 MDX	6	4.8	6.5	14.1	31.2	74.9	134	205	340	589	2618	90
PVP 35 MDXLP	3	6.5	9.8	25.2	50.9	101	180	284	427	854	3145	88
PVP 50 MDX	6	6.5	4.7	11.9	26.2	62.8	112	172	285	494	1818	90
PVP 50 MDXLP	3	8.6	7.9	20.3	41.0	82.0	145	229	344	688	2534	88
PVP 60 MDX	6	8.2	3.5	8.8	19.3	46.4	83.0	127	211	365	1343	90
PVP 60 MDXLP	3	11.0	6.6	16.8	34.0	68.0	120	190	285	570	2098	88
PVP 75 MDX	6	9.8	3.1	7.8	17.2	41.4	74.2	113	188	326	1200	90
PVP 75 MDXLP	3	13.2	5.7	14.5	29.2	58.4	103	163	245	490	1805	88
PVP 150 MD	6	16.0	1.6	4.0	8.9	21.3	38.2	58.4	97.0	167	618	90
PVP 150 MDLP	3	22.6	2.9	7.5	15.0	30.1	53.3	84.2	126	252	930	88
PVP 300 MD	6	32.0	0.8	2.0	4.4	10.6	19.1	29.2	48.5	83.9	386	90
PVP 300 MDLP	3	45.5	2.0	5.2	10.5	21.0	37.2	58.7	88.0	176	650	88
PVP 450 MD	6	47.8	0.5	1.4	3.0	7.4	13.2	20.1	33.5	57.9	213	90
PVP 450 MDLP	3	65.8	1.2	3.0	6.2	12.4	22.0	34.7	52.0	104	383	88
PVP 600 MD	6	63.2	0.4	1.0	2.4	5.7	10.2	15.6	25.9	44.8	165	90
PVP 600 MDLP	3	87.7	0.8	2.0	4.1	8.2	14.6	23.1	34.7	69.4	256	88
PVP 750 MD	6	80.0	0.3	0.8	1.8	4.3	7.7	11.8	19.5	33.8	125	90
PVP 750 MDLP	3	110.0	0.5	1.3	2.6	5.2	9.2	14.5	21.7	43.4	160	88

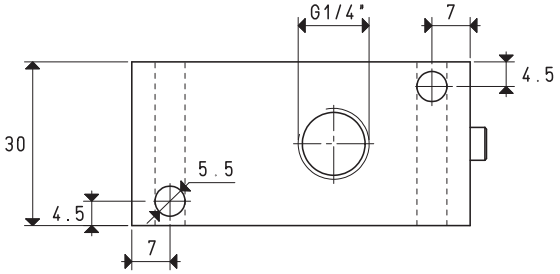
To calculate the emptying time of a volume **V**, use the following formula: $t_1 = t \times V$

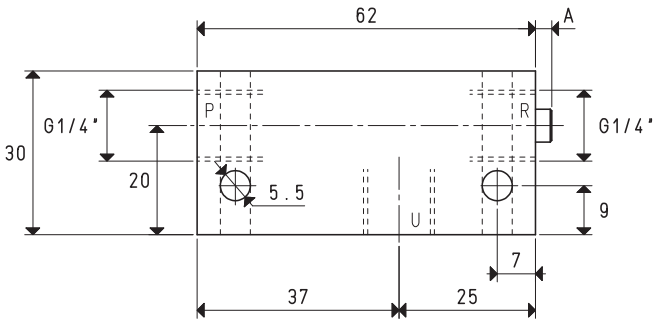
t_1 = time to be calculated (ms)
t = time indicated in the table (ms) in the desired degree of vacuum column (-KPa)
V = Volume to be emptied (L)

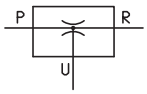
3D drawings are available on **vuototecnica.net**

SINGLE-STAGE VACUUM GENERATORS
15 01 10, 15 01 10 LP, 15 01 15 LP and 15 03 10

Single-stage vacuum generator operation is based on the Venturi principle.
Supplying the generator with compressed air in P, vacuum will be generated at connection U, while both the supply and the sucked air will be released through R.
By interrupting the air supply in P, the vacuum effect in U will also stop.
The optimal air supply pressure is normally 6 bar, but for generators with the letters LP in their item, a pressure lower than 4 bar is sufficient to obtain the best performance.
Upon request, the vacuum generators can be supplied with a high sound suppression silencer installed on the R exhaust connection.
The single-stage vacuum generators are generally used to control vacuum cups, for gripping and handling non-porous objects and equipment with low flow rate requirements.
They are fully made with anodised aluminium, with brass or aluminium ejectors, depending on the items.





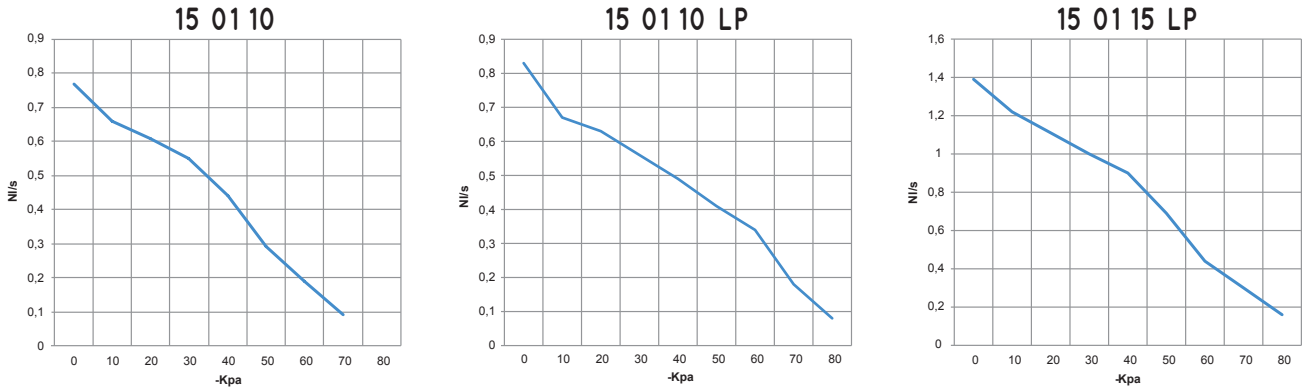


P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		15 01 10			15 01 10 LP			15 01 15 LP		
Intake air flow rate	m^3/h	2.7	2.8	2.9	2.6	2.8	3.0	4.8	4.9	5.0
Maximum level of vacuum	-KPa	55	70	85	43	61	85	40	61	85
Final pressure	mbar abs.	450	300	150	570	390	150	600	390	150
Supply pressure	bar	4	5	6	2	3	4	2	3	4
Optimal supply pressure	bar			6			4			4
Air consumption	Nl/s	0.7	0.8	0.9	0.7	0.9	1.2	1.3	1.7	2.2
Operating temperature	°C			-20 / +80			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			63			62			71
Weight	g			140			130			130
A	mm						3			5

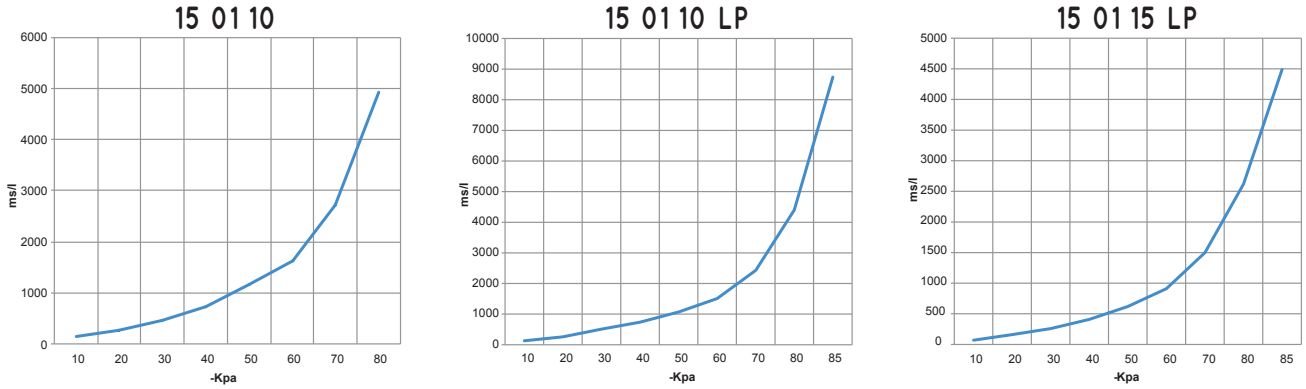
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
15 01 10	6.0	0.9	0.80	0.66	0.61	0.55	0.44	0.29	0.19	0.09	--	85
15 01 10 LP	4.0	1.2	0.83	0.67	0.63	0.56	0.49	0.41	0.34	0.18	0.08	85
15 01 15 LP	4.0	2.2	1.39	1.22	1.11	1.00	0.90	0.69	0.44	0.30	0.16	85

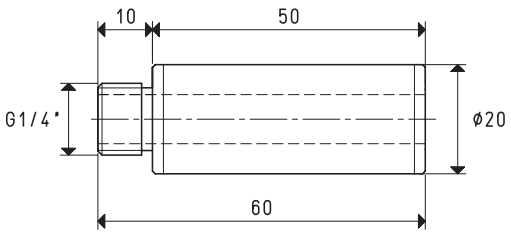
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



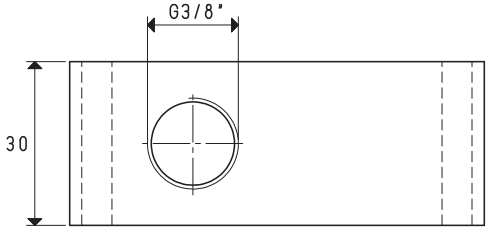
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
15 01 10	6.0	0.9	139	278	472	727	1171	1628	2720	4928	--	85
15 01 10 LP	4.0	1.2	130	260	510	740	1070	1510	2430	4400	8740	85
15 01 15 LP	4.0	2.2	70	160	260	410	620	910	1500	2620	4490	85

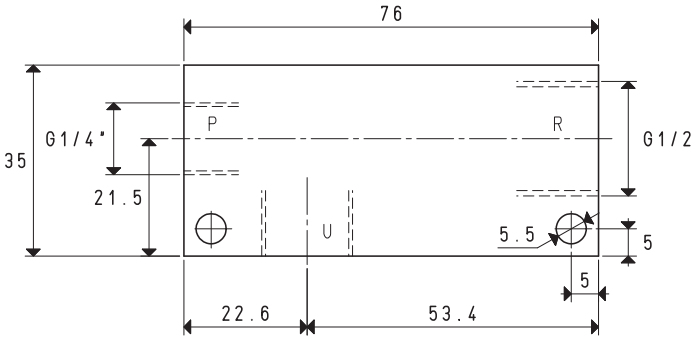
ACCESSORIES UPON REQUEST

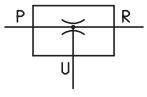
Silencer item SSX 1/4"



SINGLE-STAGE VACUUM GENERATOR 15 03 10







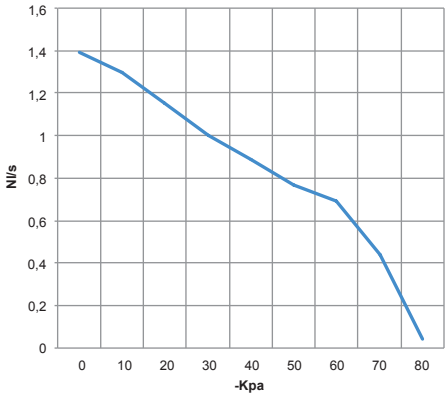
P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		15 03 10		
Intake air flow rate	m^3/h	4.8	5	5
Maximum level of vacuum	-KPa	62	78	85
Final pressure	mbar abs.	380	220	150
Supply pressure	bar	4	5	6
Optimal supply pressure	bar			6
Air consumption	Nl/s	1.1	1.3	1.6
Operating temperature	°C			-20 / +80
Noise level at optimal supply pressure	dB(A)			79
Weight	g			179

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

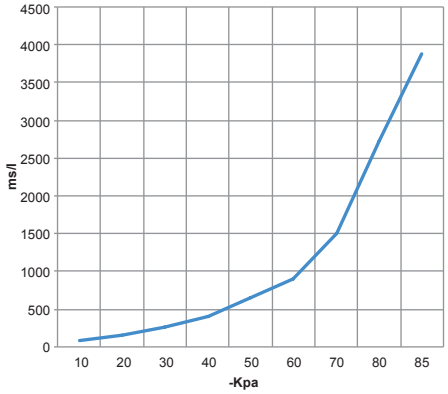
SINGLE-STAGE VACUUM GENERATOR 15 03 10

Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
15 03 10	6.0	1.6	1.39	1.30	1.15	1.00	0.89	0.77	0.69	0.44	0.04	85

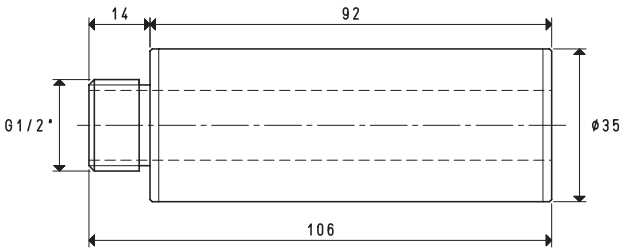
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
15 03 10	6.0	1.6	77	154	261	403	649	902	1506	2730	3876	85

ACCESSORIES UPON REQUEST

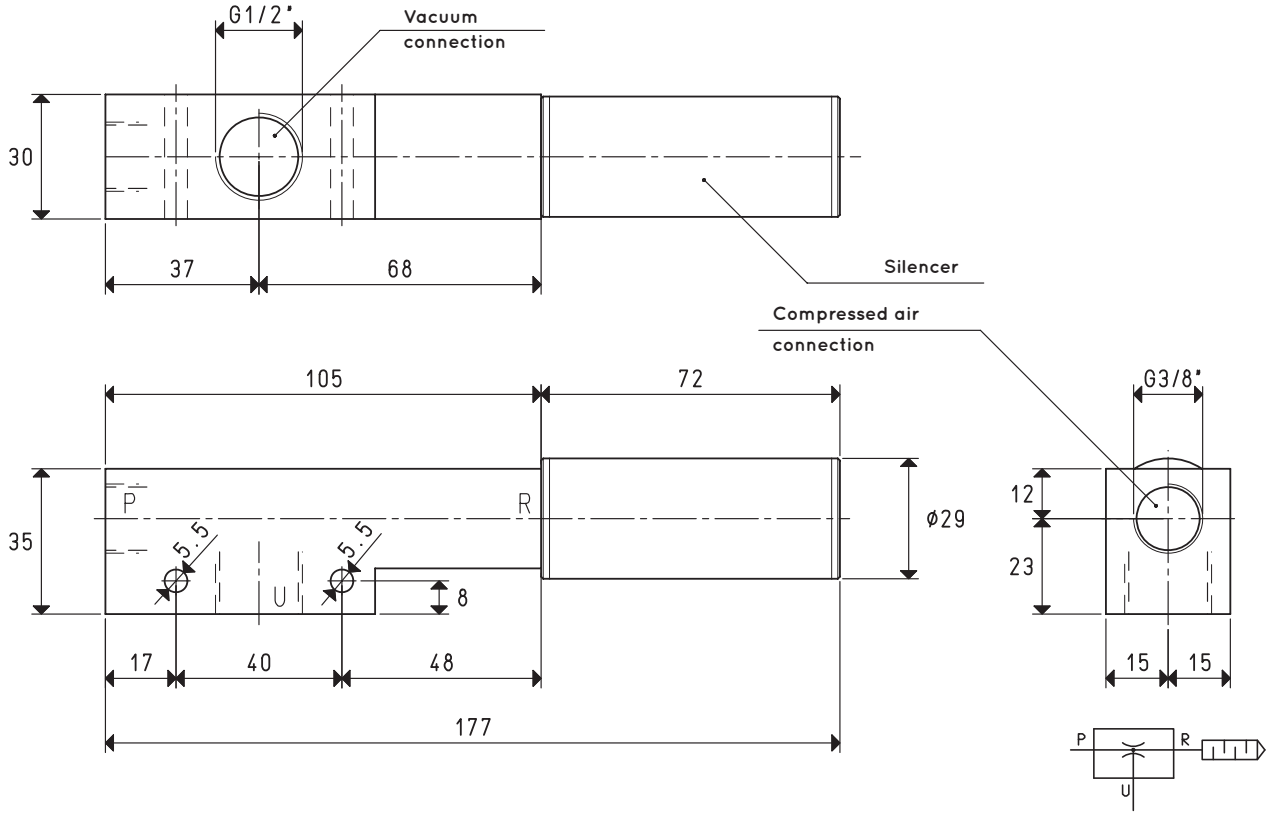
Silencer item SSX 1/2”



3D drawings are available on **vuototecnica.net**

SINGLE-STAGE VACUUM GENERATORS 15 05 08 SX, 15 05 10 SX and 15 07 10 SX

The operation of these single-stage vacuum generators is also based on the Venturi principle. It differs from the generators described above for its increased suction flow rate, lower supply air pressure, lower than 4 bar to obtain the best performance, and for the SSX silencer ... with high acoustic dampening, installed as standard on the R exhaust connection.
They are also used in the automotive sector to control vacuum cups, for the handling and gripping of only slightly porous objects, sheet, wood panel, marble slab and glass and other similar objects.
They are fully made with anodised aluminium.



P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

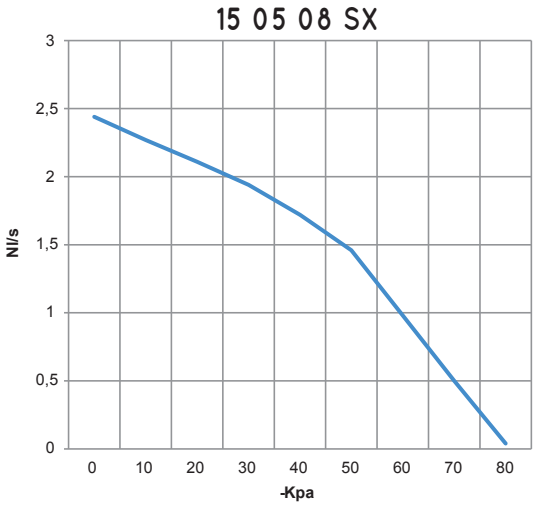
Item		15 05 08 SX			15 05 10 SX		
Intake air flow rate	m^3/h	8.0	8.6	8.8	12.0	12.2	12.5
Maximum level of vacuum	-KPa	40	60	90	40	60	90
Final pressure	mbar abs.	600	400	100	600	400	100
Supply pressure	bar	2	3	3.5	2	3	3.5
Optimal supply pressure	bar			3.5			3.5
Air consumption	Nl/s	2.8	3.8	4.3	3.7	5	5.5
Operating temperature	°C			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			60			63
Weight	g			310			306

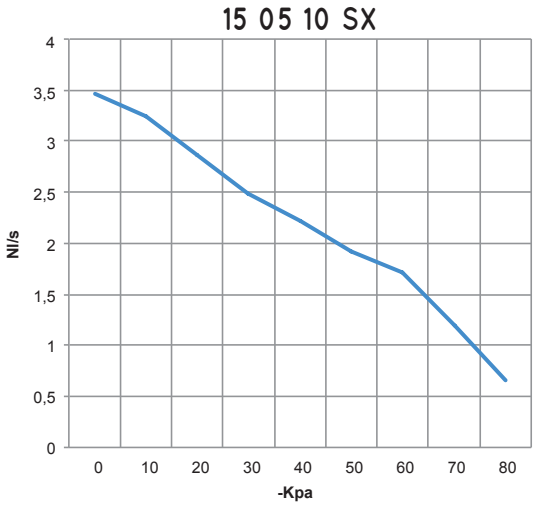
Spare parts		15 05 08 SX	15 05 10 SX
Silencer	item	SSX 3/8"	SSX 3/8"

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

3D drawings are available on vuototecnica.net

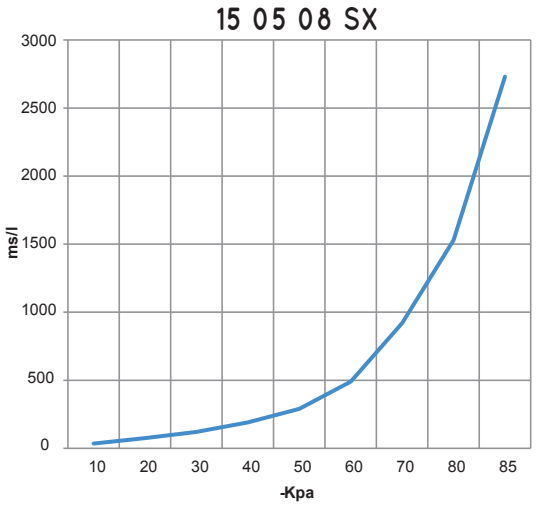
Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure

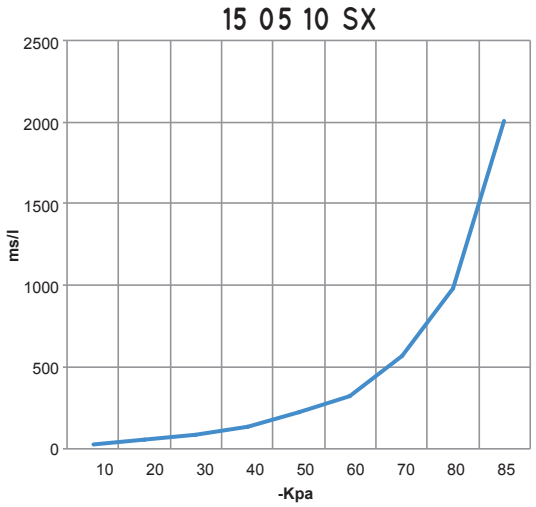




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
15 05 08 SX	3.5	4.3	2.44	2.27	2.11	1.94	1.72	1.46	0.98	0.50	0.04	90
15 05 10 SX	3.5	5.5	3.47	3.24	2.86	2.49	2.22	1.92	1.72	1.20	0.65	90

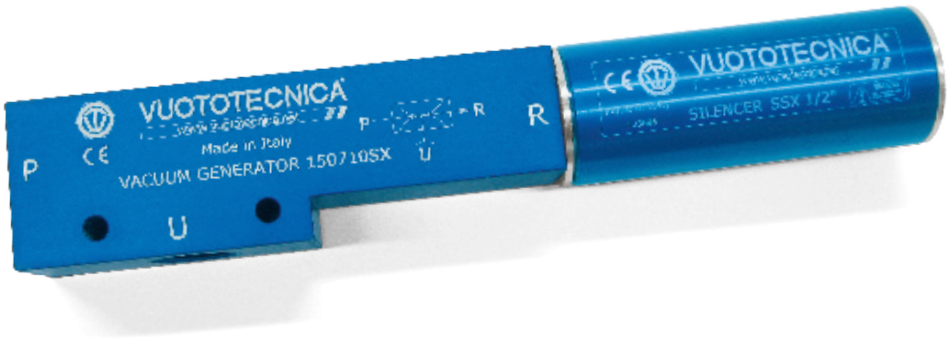
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

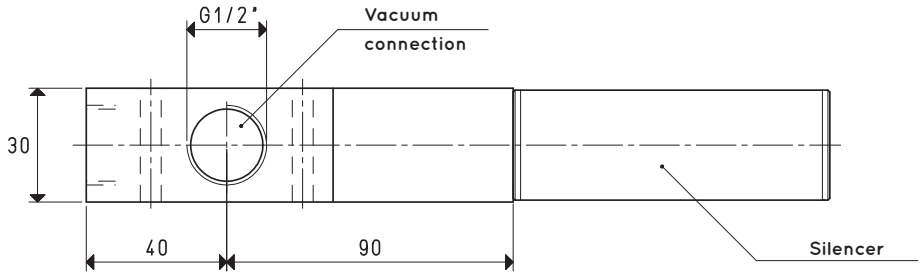


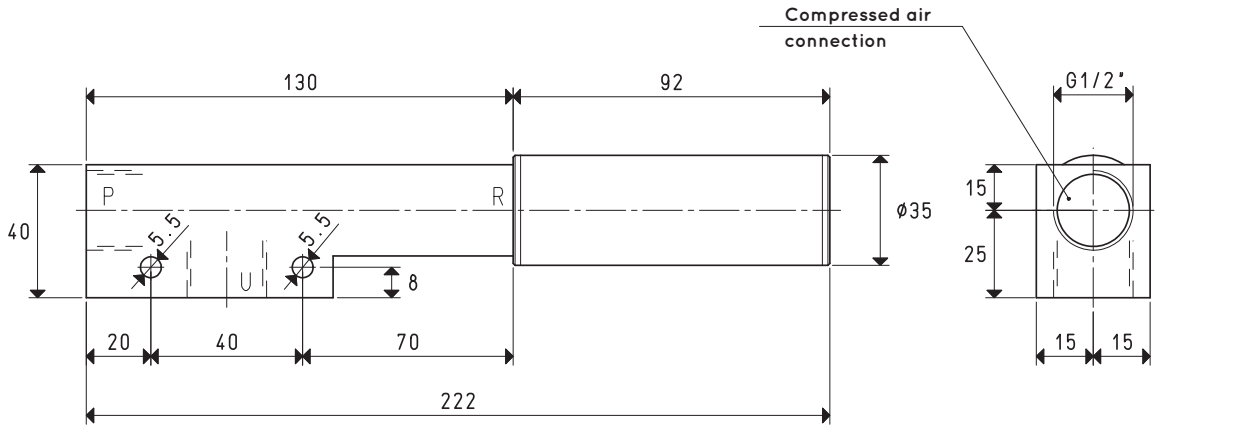


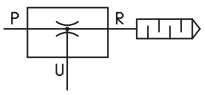
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
15 05 08 SX	3.5	4.3	35	75	120	190	290	490	920	1530	2730	90
15 05 10 SX	3.5	5.5	25	54	90	140	220	320	570	980	2012	90

SINGLE-STAGE VACUUM GENERATOR 15 07 10 SX









P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

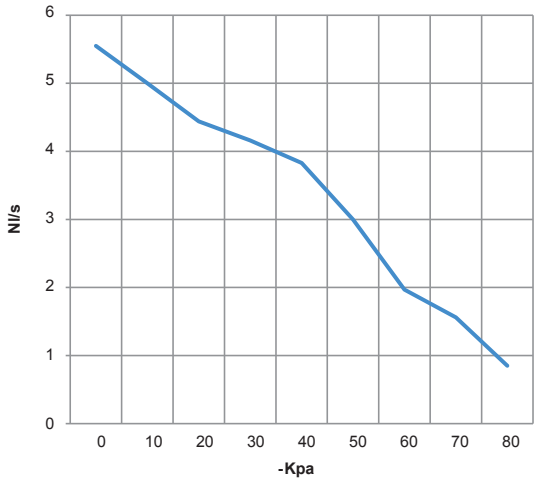
Item		15 07 10 SX		
Intake air flow rate	m^3/h	18	19	20
Maximum level of vacuum	-KPa	40	60	90
Final pressure	mbar abs.	600	400	100
Supply pressure	bar	2	3	3.5
Optimal supply pressure	bar			3.5
Air consumption	Nl/s	6.0	7.7	8.5
Operating temperature	°C			-20 / +80
Noise level at optimal supply pressure	dB(A)			66
Weight	g			355

Spare parts		15 07 10 SX
Silencer	item	SSX 1/2"

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

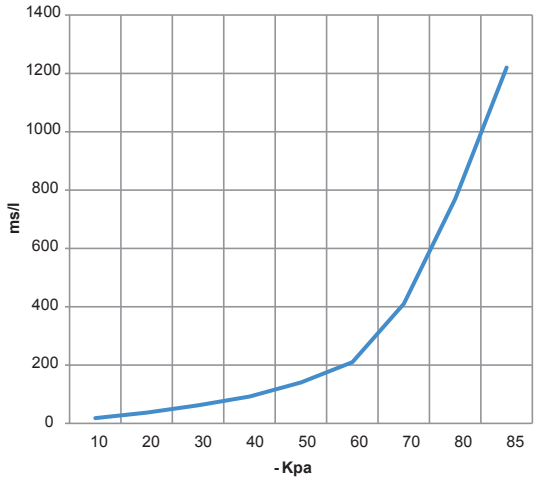
3D drawings are available on **vuototecnica.net**

Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
15 07 10 SX	3.5	8.5	5.55	5.00	4.44	4.16	3.83	3.00	1.97	1.56	0.85	90

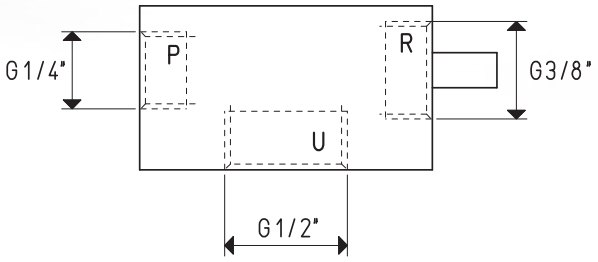
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

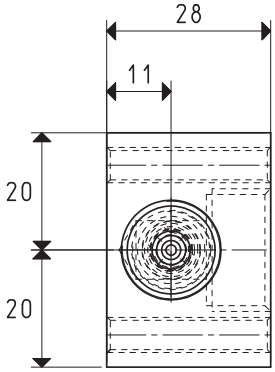


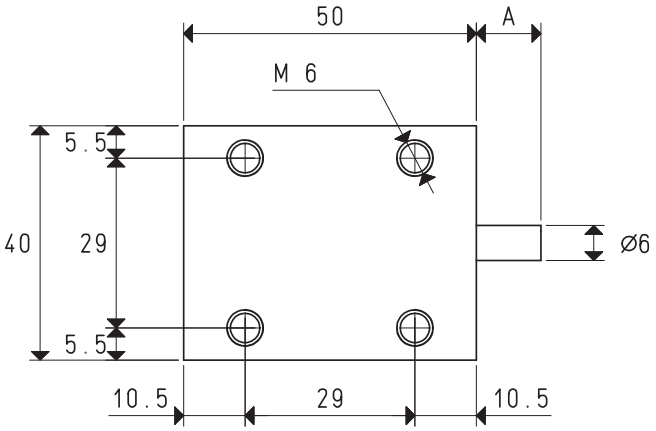
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
15 07 10 SX	3.5	8.5	18	37	62	92	140	210	410	770	1220	90

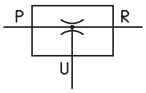
SINGLE-STAGE VACUUM GENERATORS VG 03, VG 03 LP and VG 05 LP

This series of single-stage vacuum generators, also based on the Venturi principle, can be supplied for optimal supply pressures of 4 or 6 bars. Thanks to their shape, they can be installed directly on the user device and used at the most suitable supply pressure, depending on the desired level of vacuum. They have different capacities and can be used in all gripping systems with vacuum cups, for gripping and handling objects that are not very porous and on equipment with limited capacities. They are available upon request with an SSX 3/8 "R high sound suppression silencer, installed on air exhaust R. They are fully made with anodised aluminium, with brass or aluminium ejectors, depending on the items.







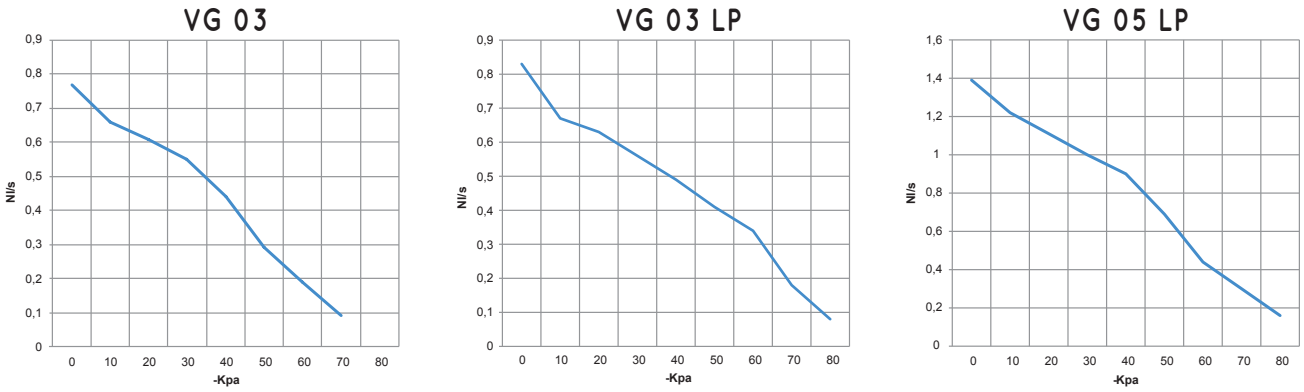


P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		VG 03			VG 03 LP			VG 05 LP		
Intake air flow rate	m^3/h	2.7	2.8	2.9	2.6	2.8	3.0	4.8	4.9	5.0
Maximum level of vacuum	-KPa	55	70	85	43	61	85	40	61	85
Final pressure	mbar abs.	450	300	150	570	390	150	600	390	150
Supply pressure	bar	4	5	6	2	3	4	2	3	4
Optimal supply pressure	bar			6			4			4
Air consumption	Nl/s	0.7	0.8	0.9	0.7	0.9	1.2	1.3	1.7	2.2
Operating temperature	°C			-10 / +80			-10 / +80			-10 / +80
Noise level at optimal supply pressure	dB(A)			63			62			71
Weight	g			134			124			124
A	mm			6			9			11

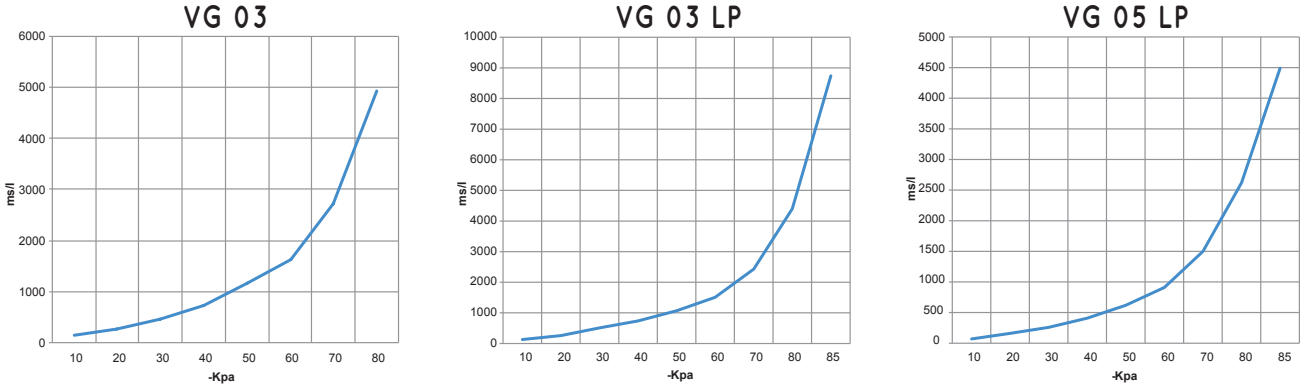
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
VG 03	6.0	0.9	0.80	0.66	0.61	0.55	0.44	0.29	0.19	0.09	--	85
VG 03 LP	4.0	1.2	0.83	0.67	0.63	0.56	0.49	0.41	0.34	0.18	0.08	85
VG 05 LP	4.0	2.2	1.39	1.22	1.11	1.00	0.90	0.69	0.44	0.30	0.16	85

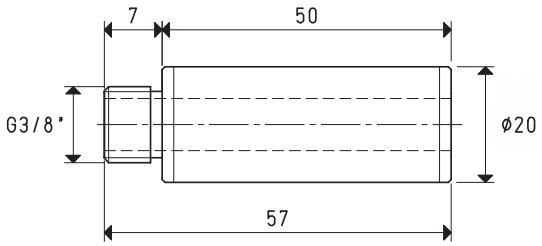
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
VG 03	6.0	0.9	139	278	472	727	1171	1628	2720	4928	--	85
VG 03 LP	4.0	1.2	130	260	510	740	1070	1510	2430	4400	8740	85
VG 05 LP	4.0	2.2	70	160	260	410	620	910	1500	2620	4490	85

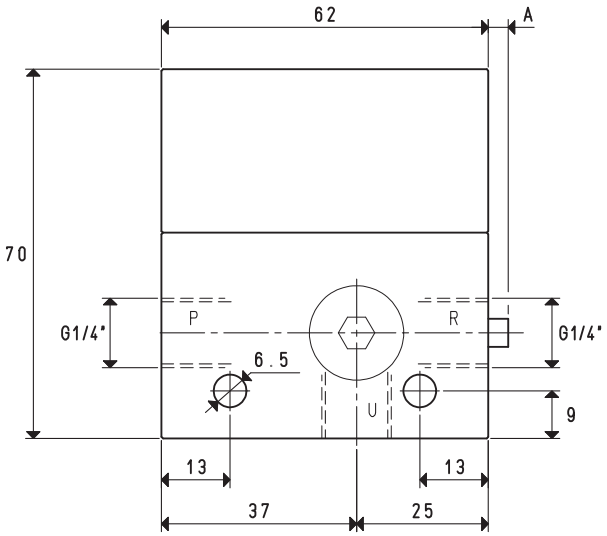
ACCESSORIES UPON REQUEST

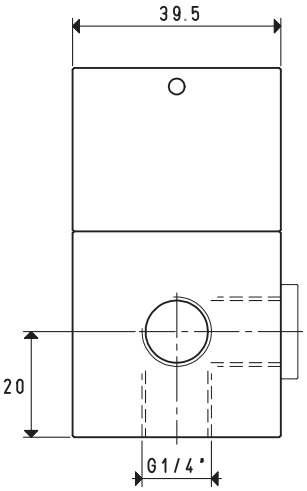
Silencer item SSX 3/8'' R

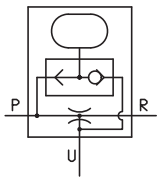


SINGLE-STAGE VACUUM GENERATORS WITH EJECTOR 15 02 10, 15 02 10 LP, 15 02 15 LP and 15 04 10

This single-stage vacuum generator operation is based on the Venturi principle. When the generator is supplied with compressed air in P, the vacuum will be generated at connection U and the supply air with the suctioned air will be discharged in R. During the operating cycle, a chamber inside the generator body will be supplied and, when supply stops in P, the compressed air accumulated in it will be discharged through the U connection, quickly the restoring atmospheric pressure of use.
If when using U, for example, it is connected to a vacuum cup, it will disconnect much faster with this ejector system with respect to the previously described vacuum generators. The optimal air supply pressure is normally 6 bar, but for generators with the letters LP in their item, a pressure lower than 4 bar is sufficient to obtain the best performance.
They are fully made with anodised aluminium, with brass or aluminium ejectors, depending on the items.







P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

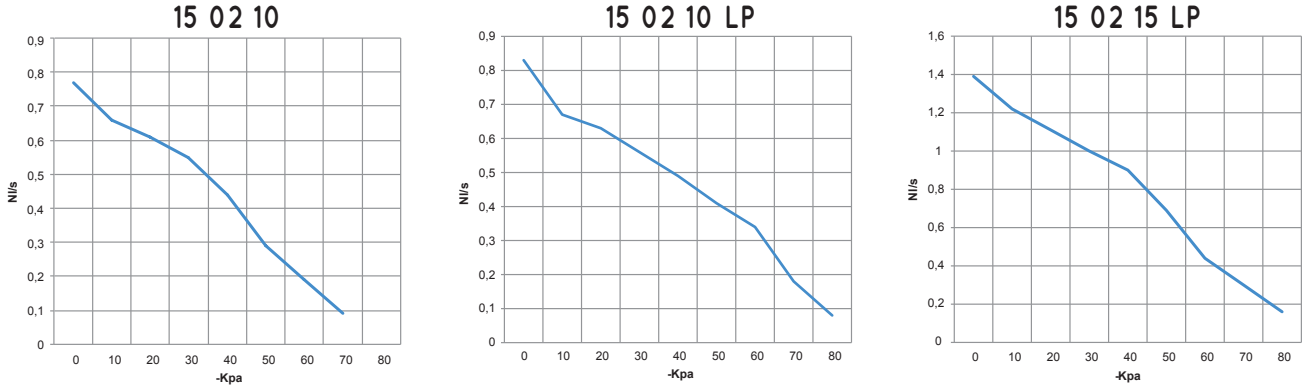
Item		15 02 10			15 02 10 LP			15 02 15 LP		
Intake air flow rate	m^3/h	2.7	2.8	2.9	2.6	2.8	3.0	4.8	4.9	5.0
Maximum level of vacuum	-KPa	55	70	85	43	61	85	40	61	85
Final pressure	mbar abs.	450	300	150	570	390	150	600	390	150
Supply pressure	bar	4	5	6	2	3	4	2	3	4
Optimal supply pressure	bar			6			4			4
Air consumption	Nl/s	0.7	0.8	0.9	0.7	0.9	1.2	1.3	1.7	2.2
Operating temperature	°C			-20 / +80			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			63			63			65
Weight	g			319			320			320
A	mm						3			5

Spare parts		15 02 10	15 02 10 LP	15 02 15 LP
Sealing kit	item	00 15 500	00 15 500	00 15 500

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

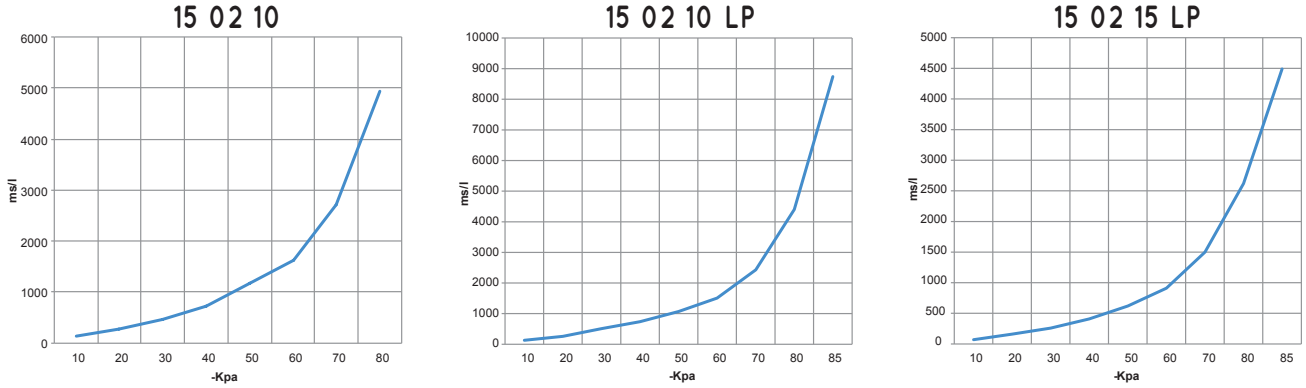
SINGLE-STAGE VACUUM GENERATORS WITH EJECTOR 15 02 10, 15 02 10 LP and 15 02 15 LP

Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
15 02 10	6.0	0.9	0.80	0.66	0.61	0.55	0.44	0.29	0.19	0.09	--	85
15 02 10 LP	4.0	1.2	0.83	0.67	0.63	0.56	0.49	0.41	0.34	0.18	0.08	85
15 02 15 LP	4.0	2.2	1.39	1.22	1.11	1.00	0.90	0.69	0.44	0.30	0.16	85

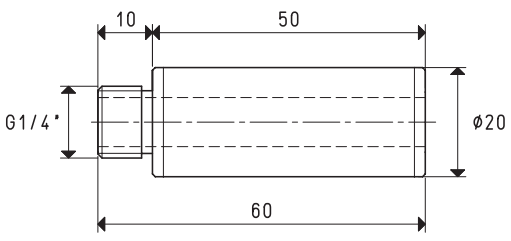
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



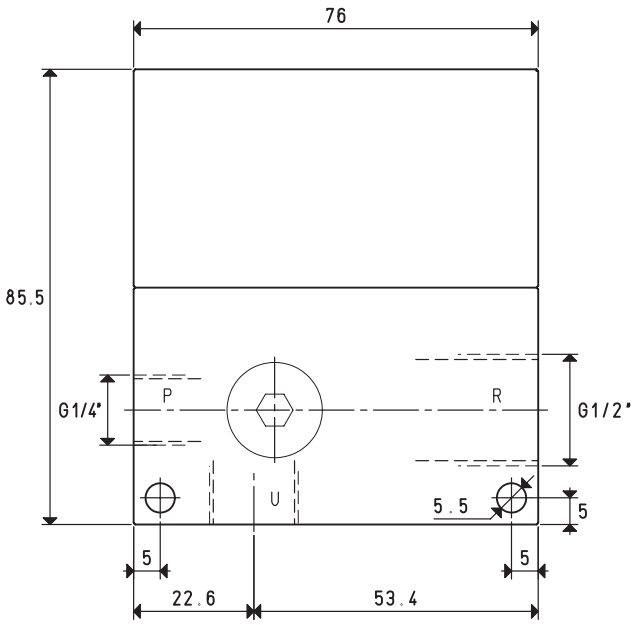
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
15 02 10	6.0	0.9	139	278	472	727	1171	1628	2720	4928	--	85
15 02 10 LP	4.0	1.2	130	260	510	740	1070	1510	2430	4400	8740	85
15 02 15 LP	4.0	2.2	70	160	260	410	620	910	1500	2620	4490	85

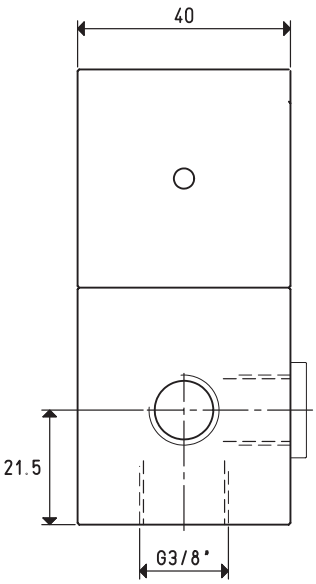
ACCESSORIES UPON REQUEST

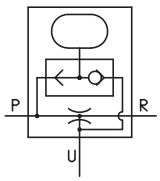
Silencer item SSX 1/4”



SINGLE-STAGE VACUUM GENERATOR WITH EJECTOR 15 04 10







P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

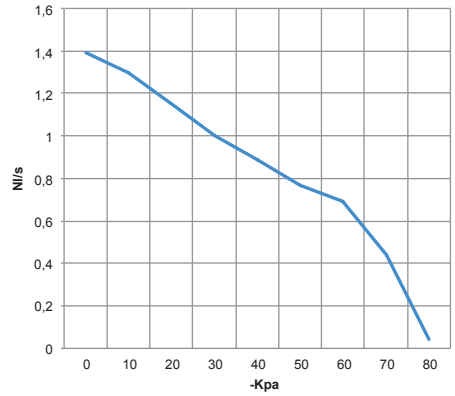
Item		15 04 10		
Intake air flow rate	m^3/h	4.8	5	5
Maximum level of vacuum	-KPa	62	78	85
Final pressure	mbar abs.	380	220	150
Supply pressure	bar	4	5	6
Optimal supply pressure	bar			6
Air consumption	Nl/s	1.1	1.3	1.6
Operating temperature	°C			-20 / +80
Noise level at optimal supply pressure	dB(A)			79
Weight	g			501

Spare parts		15 04 10
Sealing kit	item	00 15 501

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

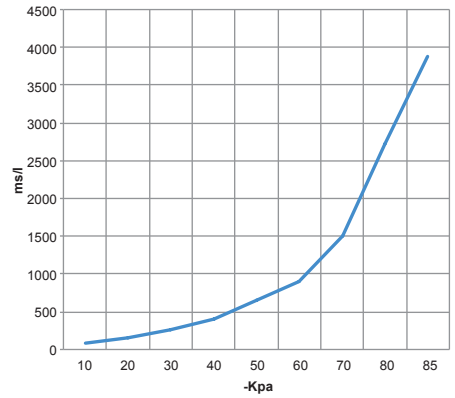
3D drawings are available on **vuototecnica.net**

Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
15 04 10	6.0	1.6	1.39	1.30	1.15	1.00	0.89	0.77	0.69	0.44	0.04	85

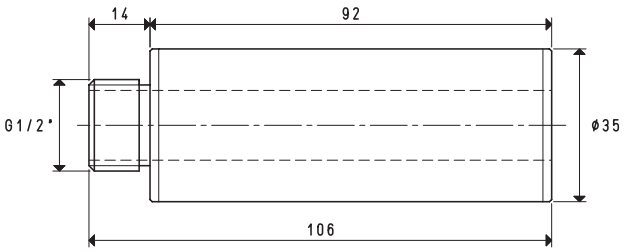
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
15 04 10	6.0	1.6	77	154	261	403	649	902	1506	2730	3876	85

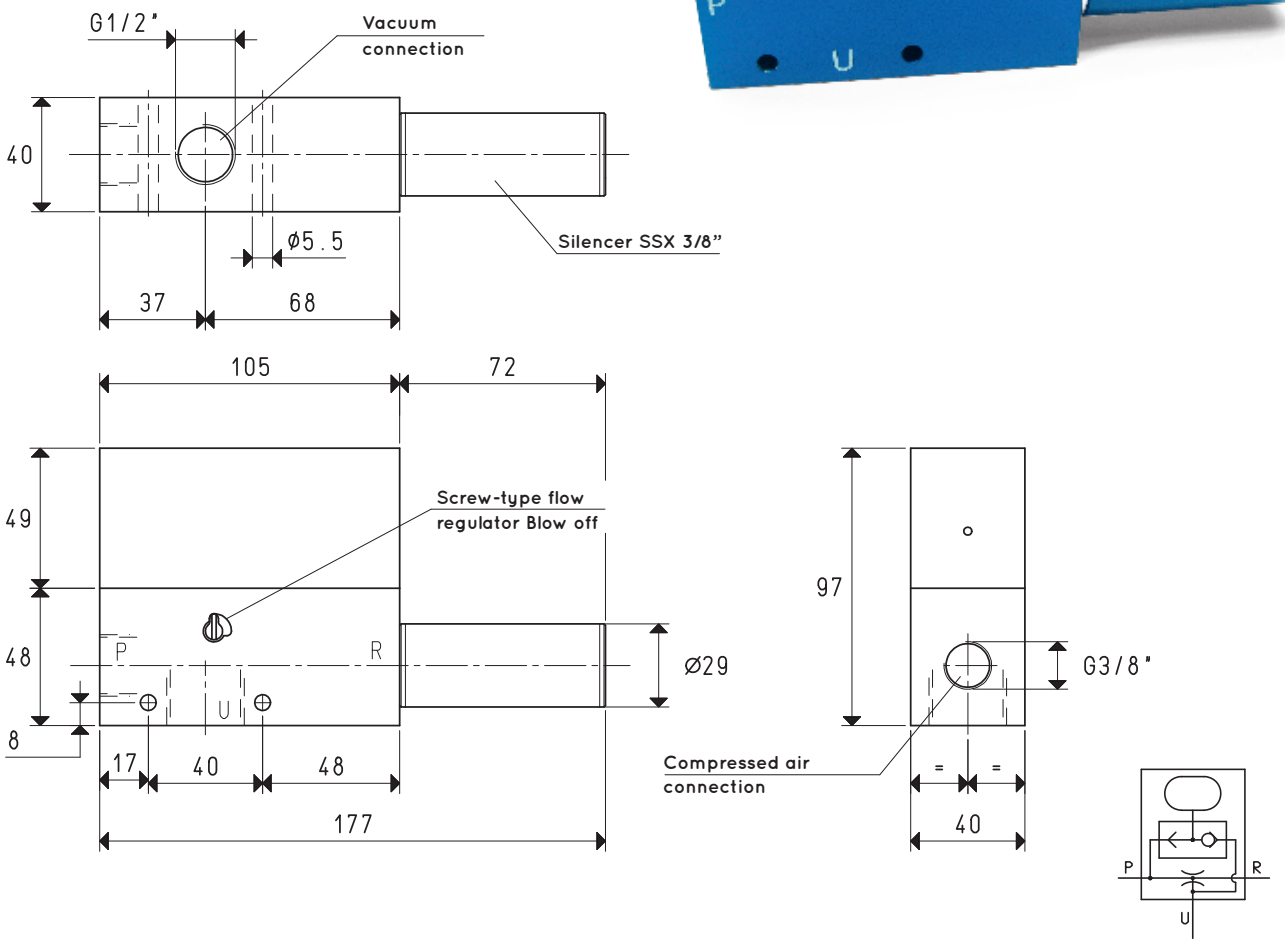
ACCESSORIES UPON REQUEST

Silencer item SSX 1/2”



SINGLE-STAGE VACUUM GENERATOR WITH EJECTOR 15 06 08 SX and 15 06 10 SX

These have the same technical features as 15 05 08 SX and 15 05 10 SX, with the addition of the pneumatic ejector. For the ejection system, air accumulated in a special chamber inside the generator body during the operating cycle is automatically discharged in connection to use U, once supply in P is completed and suitably dosed by means of a screw-type flow regulator, for quick restoration of the atmospheric pressure. Optimal supply pressure is less than 4 bar. A high acoustic dampening silencer, set on exhaust air discharge R, reduces noise to a minimum and is an integral part of the generator. These generators, like the previous ones, are also fully made with anodised aluminium.



P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

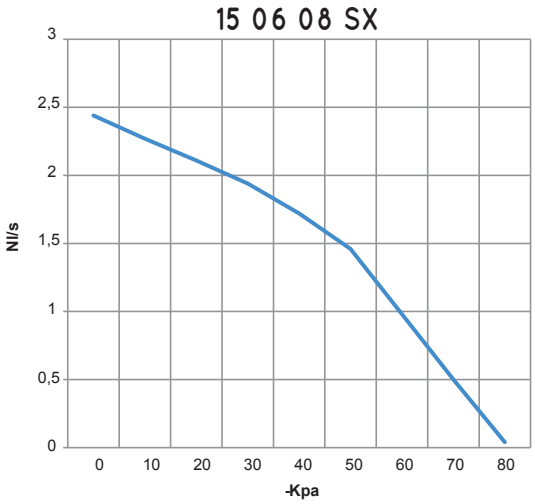
Item		15 06 08 SX			15 06 10 SX		
Intake air flow rate	m^3/h	8.0	8.6	8.8	12.0	12.2	12.5
Maximum level of vacuum	-KPa	40	60	90	40	60	90
Final pressure	mbar abs.	600	400	100	600	400	100
Supply pressure	bar	2	3	3.5	2	3	3.5
Optimal supply pressure	bar			3.5			3.5
Air consumption	Nl/s	2.8	3.8	4.3	3.7	5.0	5.5
Operating temperature	°C			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			60			63
Weight	g			310			306

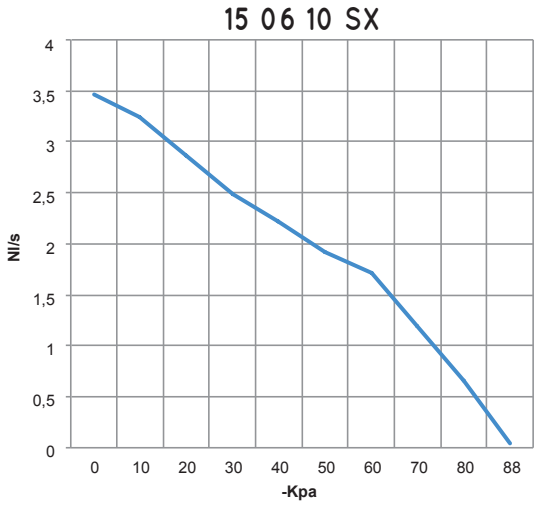
Spare parts		15 06 08 SX	15 06 10 SX
Sealing kit	item	00 15 414	00 15 414
Silencer	item	SSX 3/8"	SSX 3/8"

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

3D drawings are available on **vuototecnica.net**

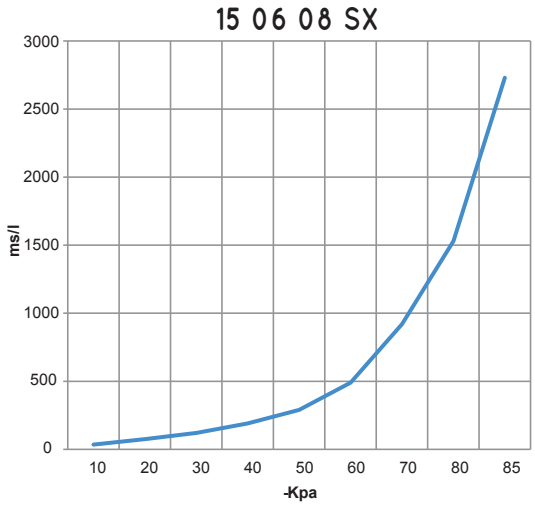
Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure

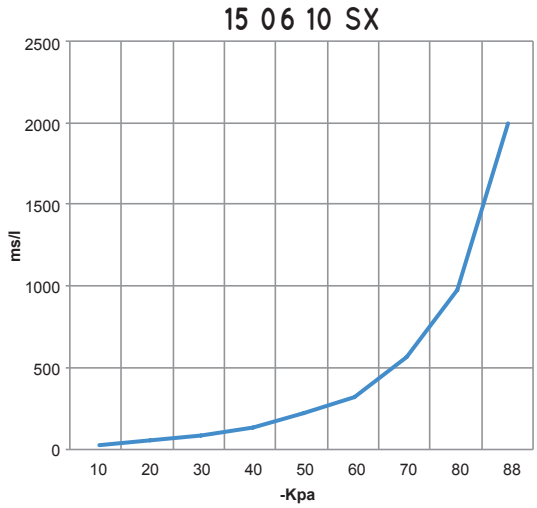




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
15 06 08 SX	3.5	4.3	2.44	2.27	2.11	1.94	1.72	1.46	0.98	0.50	0.04	90
15 06 10 SX	3.5	5.5	3.47	3.24	2.86	2.49	2.22	1.92	1.72	1.20	0.65	90

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

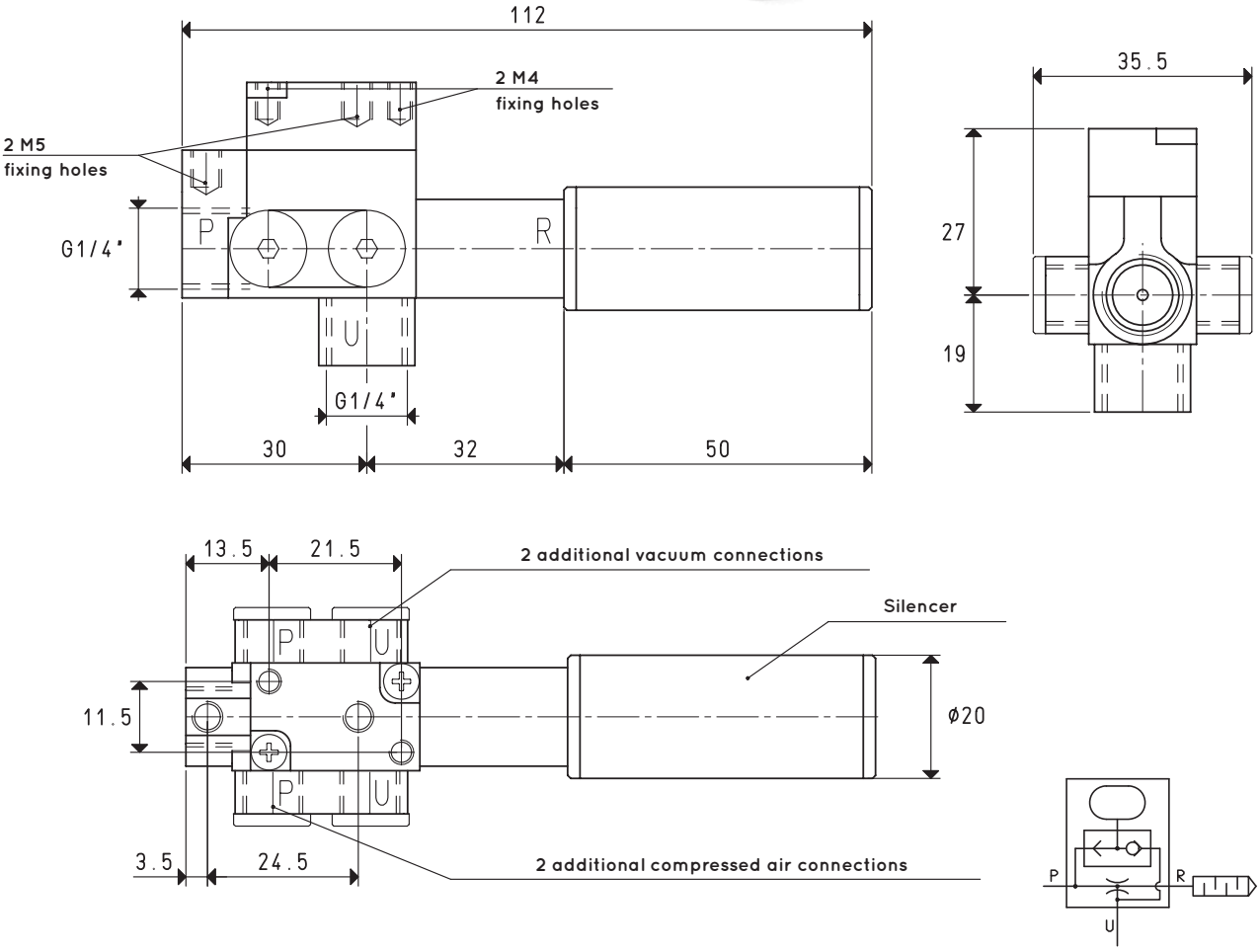




Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
15 06 08 SX	3.5	4.3	35	75	120	190	290	490	920	1530	2730	90
15 06 10 SX	3.5	5.5	25	54	90	140	220	320	570	980	2012	90

SINGLE-STAGE VACUUM GENERATORS WITH EJECTOR FVG 3 and FVG 5

Specifically designed for very high frequency gripping and release applications, these single-stage vacuum generators are based on the Venturi principle and are equipped with a pneumatic ejector to allow maximum speed in restoring the atmospheric pressure of use.
The key features are its considerably reduced weight, supply air pressure of less than 4 bar, low energy consumption, simplicity of installation and low noise level during use, thanks to the high sound dampening silencer installed as standard on the generators. The pneumatic ejector can be deactivated simply by means of a membrane integrated onto the generators. These generators, like the previous ones, are also fully made with anodised aluminium.



P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

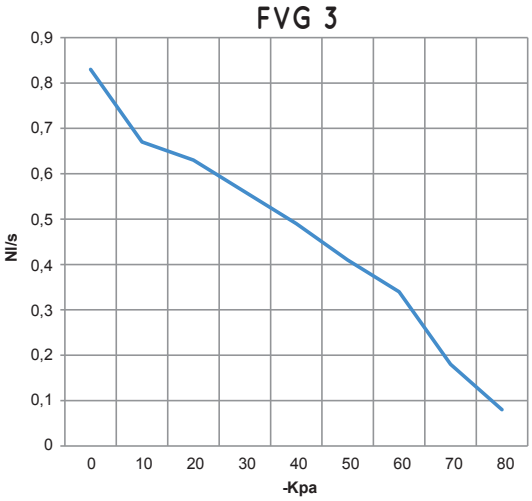
Item		FVG 3			FVG 5		
Intake air flow rate	m^3/h	2.6	2.8	3.0	4.8	4.9	5.0
Maximum level of vacuum	-KPa	43	61	85	40	61	85
Final pressure	mbar abs.	570	390	150	600	390	150
Supply pressure	bar	2	3	4	2	3	4
Optimal supply pressure	bar			4			4
Air consumption	Nl/s	0.7	0.9	1.2	1.3	1.7	2.2
Operating temperature	°C			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			68			74
Weight	g			84			86

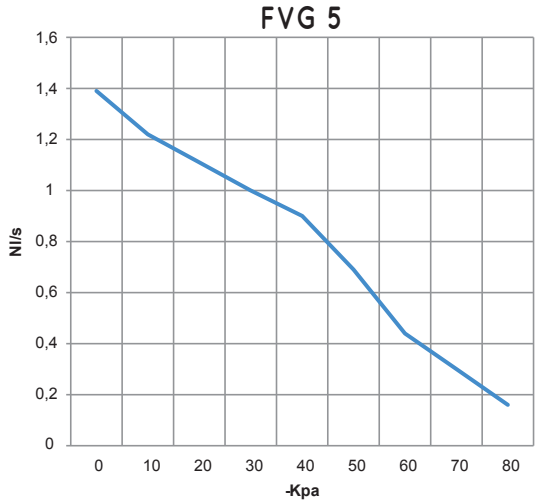
Spare parts		FVG 3	FVG 5
Silencer	item	SSX 1/4"	SSX 1/4"
Sealing kit and reed valves	item	00 15 502	00 15 502

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

3D drawings are available on **vuototecnica.net**

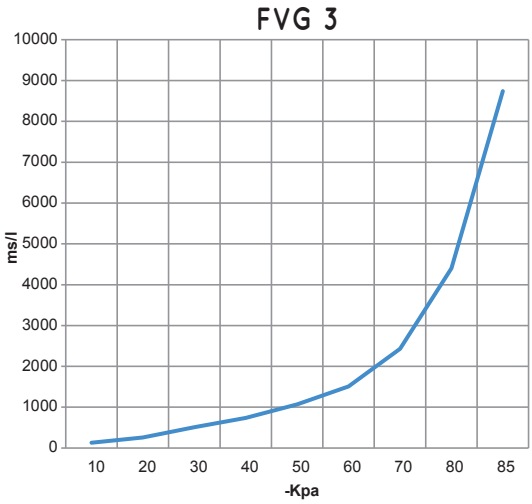
Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure

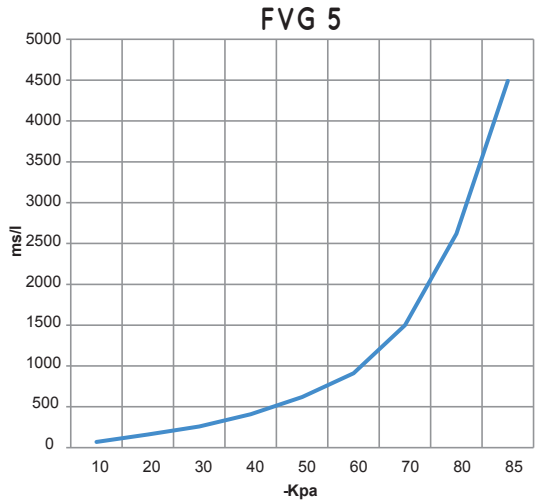




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
FVG 3	4.0	1.2	0.83	0.67	0.63	0.56	0.49	0.41	0.34	0.18	0.08	85
FVG 5	4.0	2.2	1.39	1.22	1.11	1.00	0.90	0.69	0.44	0.30	0.16	85

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

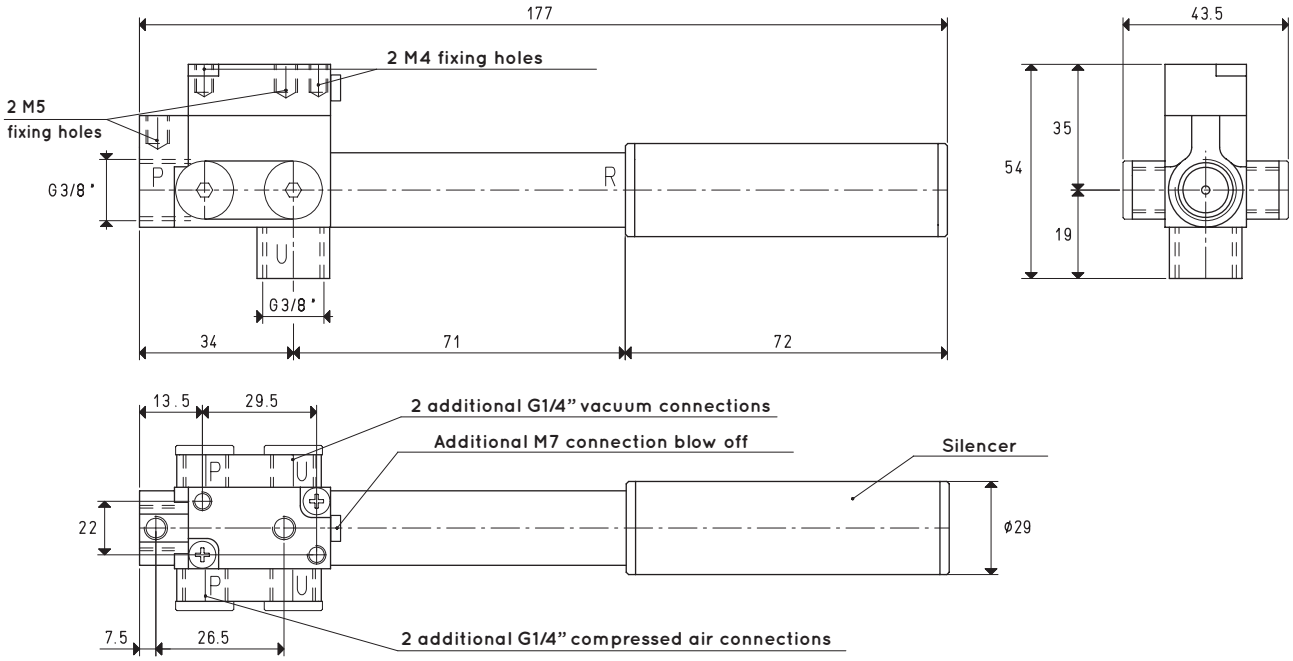




Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
FVG 3	4.0	1.2	130	260	510	740	1070	1510	2430	4400	8740	85
FVG 5	4.0	2.2	70	160	260	410	620	910	1500	2620	4490	85

SINGLE-STAGE VACUUM GENERATORS WITH EJECTOR FVG 8 and FVG 12

Specifically designed for very high frequency gripping and release applications, these single-stage vacuum generators are based on the Venturi principle and are equipped with a pneumatic ejector, which can be implemented on request through the M7 connection on the lid, to allow maximum speed in restoring the atmospheric pressure of use. The key features are its considerably reduced weight, supply compressed air pressure of less than 4 bar, low energy consumption, simplicity of installation and low noise level during use, thanks to the high sound dampening silencer installed as standard on the generators. The pneumatic ejector can be deactivated simply by means of a membrane integrated onto the generators. These generators, like the previous ones, are also fully made with anodised aluminium.



P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

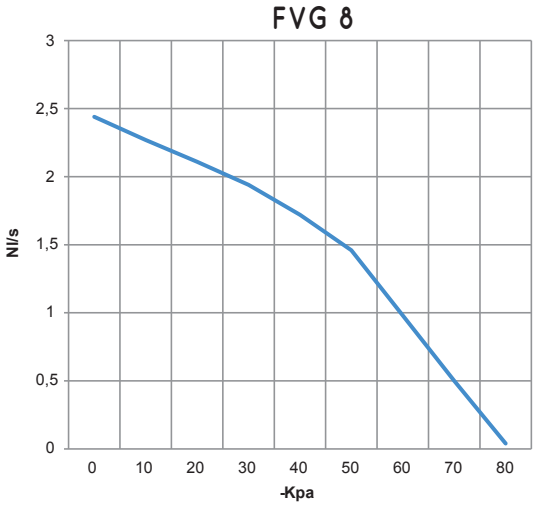
Item		FVG 8			FVG 12		
Intake air flow rate	m^3/h	8.0	8.6	8.8	12.0	12.2	12.5
Maximum level of vacuum	-KPa	40	60	90	40	60	90
Final pressure	mbar abs.	600	400	100	600	400	100
Supply pressure	bar	2	3	3.5	2	3	3.5
Optimal supply pressure	bar			3.5			3.5
Air consumption	Nl/s	2.8	3.8	4.3	3.7	5	5.5
Operating temperature	°C			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			60			63
Weight	g			250			252

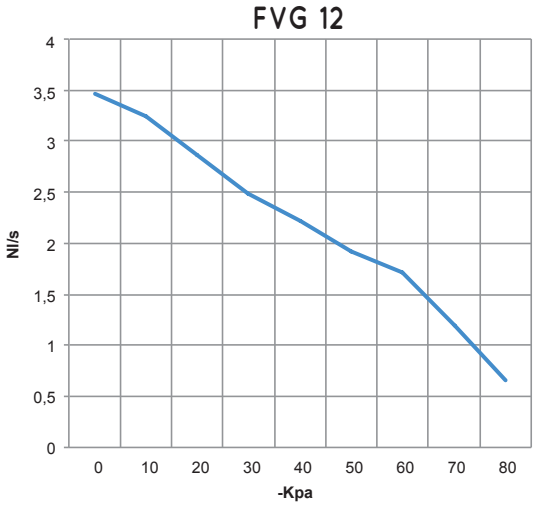
Spare parts		FVG 8	FVG 12
Silencer	item	SSX 3/8"	SSX 3/8"
Sealing kit and reed valves	item	00 15 538	00 15 538

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

3D drawings are available on **vuototecnica.net**

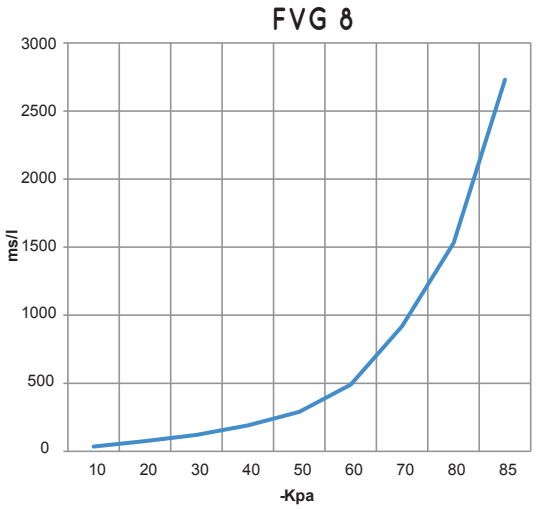
Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure

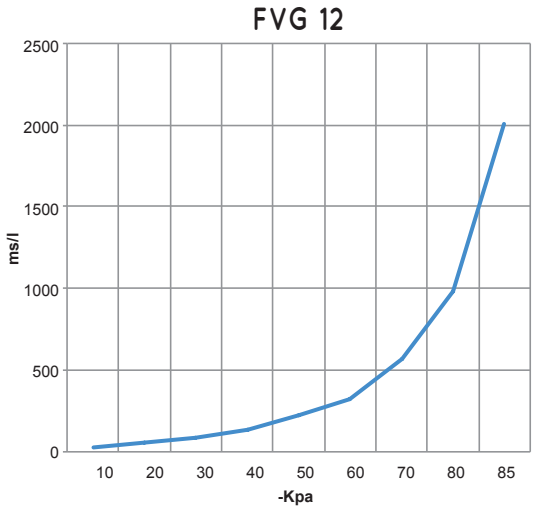




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
FVG 8	3.5	4.3	2.44	2.27	2.11	1.94	1.72	1.46	0.98	0.50	0.04	90
FVG 12	3.5	5.5	3.47	3.24	2.86	2.49	2.22	1.92	1.72	1.20	0.65	90

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

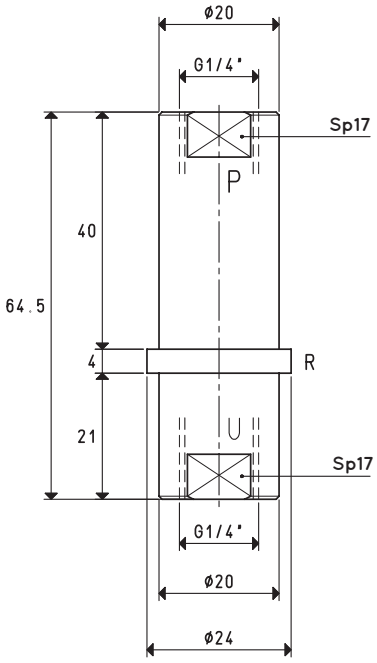


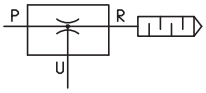


Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
FVG 8	3.5	4.3	35	75	120	190	290	490	920	1530	2730	90
FVG 12	3.5	5.5	25	54	90	140	220	320	570	980	2012	90

IN-LINE SINGLE-STAGE VACUUM GENERATOR PVP 1

This new range of vacuum generators also makes use of the Venturi principle.
Their distinctive feature compared with traditional vacuum generators are the two air and vacuum supply connections located in-line on the same axis, while the exhaust connection of the sucked and exhaust air is orthogonal to them and is located on the generator circumference.
These vacuum generators are easy to disassemble, thus allowing visibility and access to all the components. The advantages of these generators include reduced overall dimensions, easy maintenance and easy assembly to the vacuum cup supports or to the vacuum cup holders.
As a standard, they are equipped with pressed stainless steel suction filter and a special microfibre silencer, which is wrapped around the exhaust connection, making them particularly silent.
They are fully made with anodised aluminium.





P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

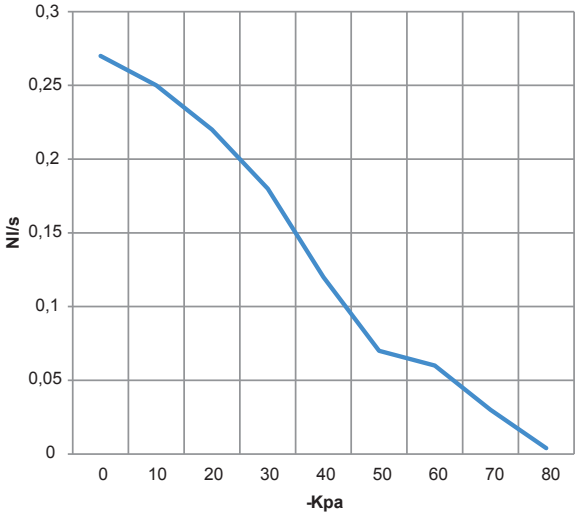
Item		PVP 1		
Intake air flow rate	m^3/h	0.9	1.0	1.0
Maximum level of vacuum	-KPa	60	80	85
Final pressure	mbar abs.	400	200	150
Supply pressure	bar	3	4	5
Optimal supply pressure	bar			5
Air consumption	Nl/s	0.30	0.35	0.45
Operating temperature	°C			-20 / +80
Noise level at optimal supply pressure	dB(A)			62
Weight	g			44

Spare parts		PVP 1
Silencer	item	00 15 114
Suction filter	item	SP 1/4 I

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

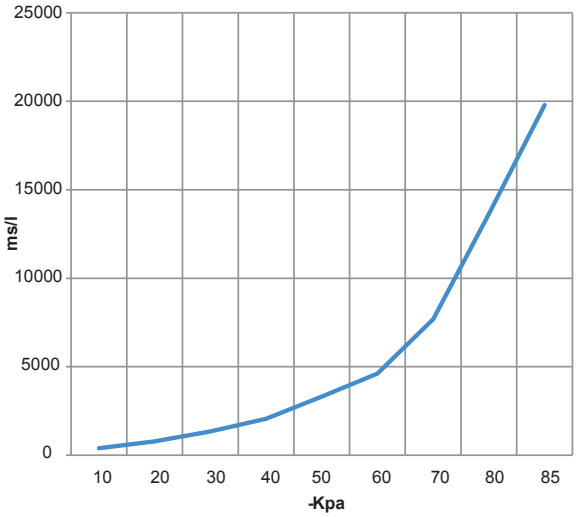
3D drawings are available on **vuototecnica.net**

Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			0	10	20	30	40	50	60	70	80	
PVP 1	5.0	0.45	0.27	0.25	0.22	0.18	0.12	0.07	0.06	0.03	--	85

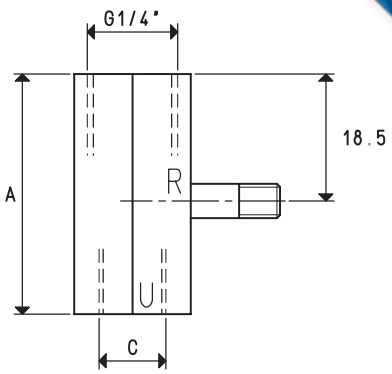
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

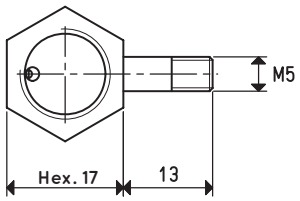


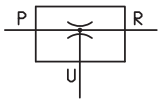
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
PVP 1	5.0	0.45	393	786	1336	2057	3312	4605	7690	13935	19787	85

IN-LINE SINGLE-STAGE VACUUM GENERATORS GV 1, GV 2 and GV 3

These vacuum generators also operate based on the Venturi principle.
The feature that distinguishes them from classic vacuum generators are the two air supply and the vacuum connections, located on the same axis, while the connection relative to the intake-air discharge and exhaust air connections are set orthogonally to them.
The advantages of this configuration are less bulky dimensions, easy assembly, and ease of maintenance. These vacuum generators can be assembled directly onto the vacuum cup supports or on cup holders. They are fully made with anodised aluminium, except the exhaust nozzle which is made with brass.







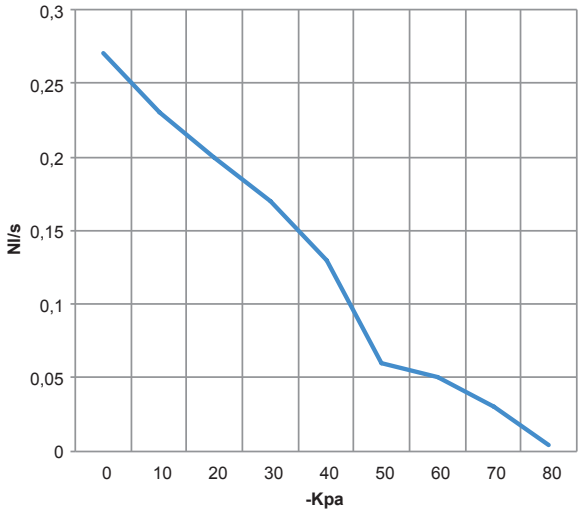
P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		GV1			GV2			GV3		
Intake air flow rate	m^3/h	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Maximum level of vacuum	-KPa	60	75	85	60	75	85	60	75	85
Final pressure	mbar abs.	400	250	150	400	250	150	400	250	150
Supply pressure	bar	3	4	5	3	4	5	3	4	5
Optimal supply pressure	bar			5			5			5
Air consumption	Nl/s	0.30	0.35	0.45	0.30	0.35	0.45	0.30	0.35	0.45
Operating temperature	°C			-20 / +80			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			70			70			70
Weight	g			21			20			19
A				30			35			38
C	Ø			M5			G1/8"			G1/4"

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

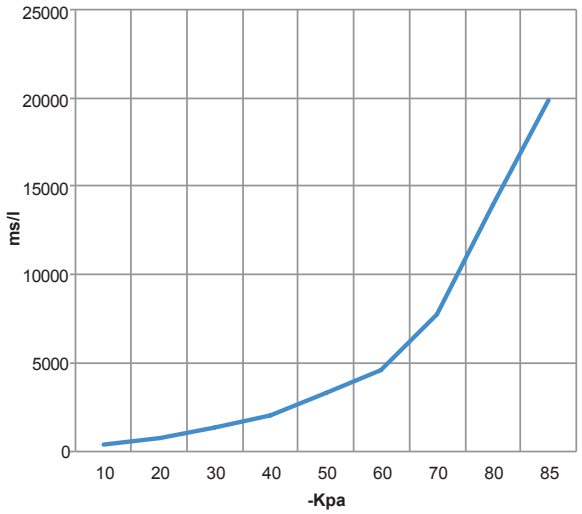
3D drawings are available on **vuototecnica.net**

Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
GV1 - GV2 - GV3	5.0	0.45	0.27	0.23	0.20	0.17	0.13	0.06	0.05	0.03	--	85

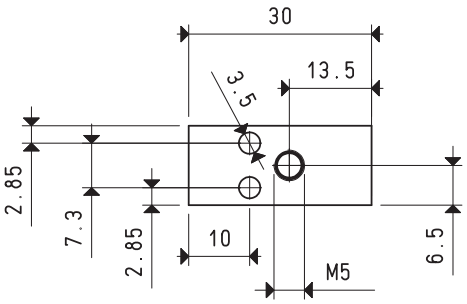
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

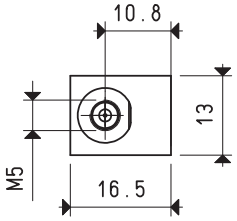


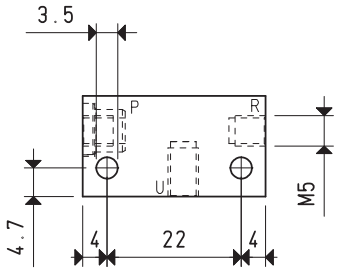
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
GV1 - GV2 - GV3	5.0	0.45	394	788	1339	2063	3322	4617	7711	13973	19841	85

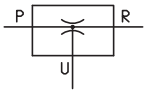
SINGLE-STAGE VACUUM GENERATORS PVP 05, PVP 2 and PVP 3

With their extremely reduced size and high performance, these single-stage vacuum generators operate making use of the Venturi principle.
Supplying the generator with compressed air in P, vacuum will be generated at connection U, while both the supply and the sucked air will be released through R. By interrupting the air supply in P, the vacuum effect in U will also stop.
The vacuum generators described on this page are generally used for interconnecting vacuum cups, for gripping and handling non-porous objects and equipment with low flow rate requirements.
They are made with anodised aluminium, with ejectors in aluminium (PVP05) or in brass (PVP2 - PVP3).
Upon request, they can be supplied with a high sound suppression silencer installed on the R exhaust connection.









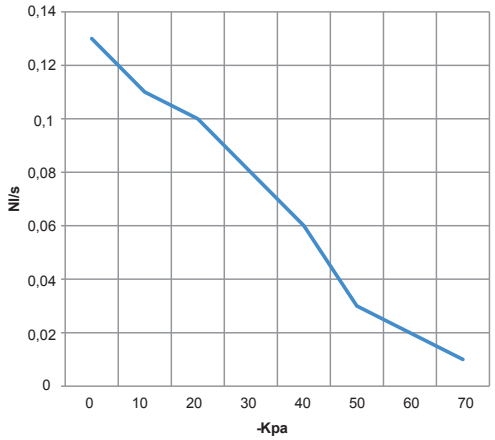
P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		PVP 05					
Intake air flow rate	m^3/h	0.36	0.42	0.42	0.47	0.50	0.50
Maximum level of vacuum	-KPa	22	33	42	48	61	82
Final pressure	mbar abs.	780	670	580	520	390	180
Supply pressure	bar	1	2	3	4	5	6
Optimal supply pressure	bar						6
Air consumption	Nl/s	0.13	0.20	0.27	0.34	0.40	0.50
Operating temperature	°C						-20 / +80
Noise level at optimal supply pressure	dB(A)						70
Weight	g						14

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

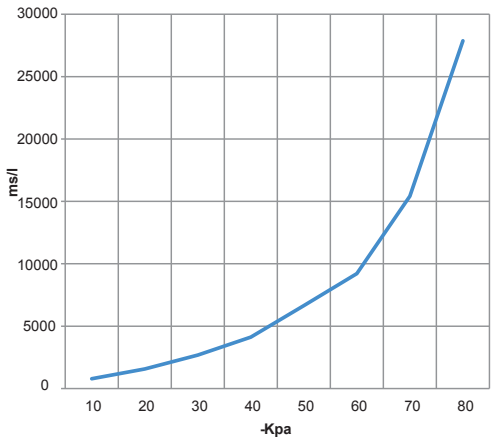
3D drawings are available on **vuototecnica.net**

Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure								Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
PVP 05	6.0	0.5	0.13	0.11	0.10	0.08	0.06	0.03	0.02	0.01	--	82

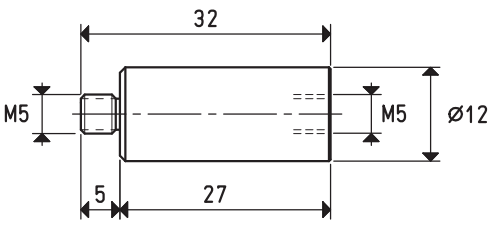
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



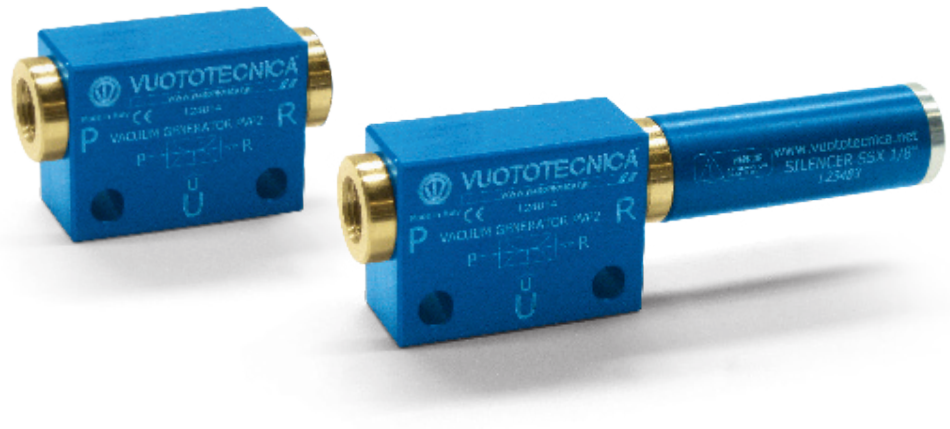
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure								Max vacuum
			10	20	30	40	50	60	70	80	-KPa
PVP 05	6.0	0.5	786	1572	2678	4126	6644	9210	15420	27870	82

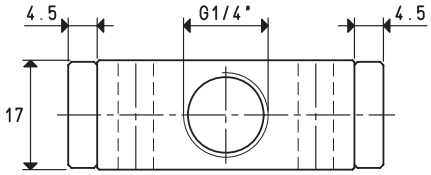
ACCESSORIES UPON REQUEST

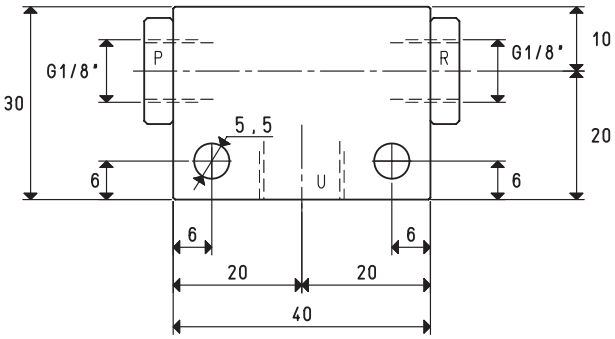
Silencer filter item FB 1

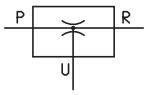


SINGLE-STAGE VACUUM GENERATOR PVP 2









P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

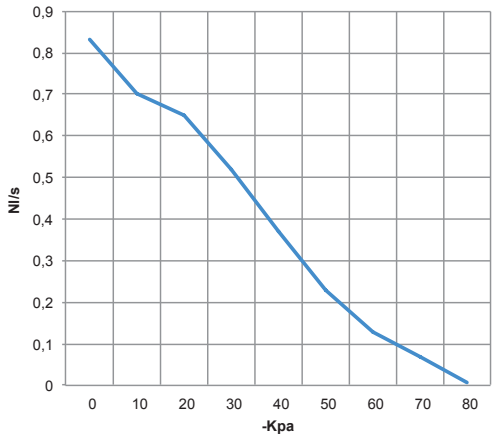
Item		PVP 2		
Intake air flow rate	m^3/h	2.8	2.9	3.0
Maximum level of vacuum	-KPa	60	70	85
Final pressure	mbar abs.	400	300	150
Supply pressure	bar	4	5	6
Optimal supply pressure	bar			6
Air consumption	Nl/s	0.7	0.8	0.9
Operating temperature	°C			-20 / +80
Noise level at optimal supply pressure	dB(A)			78
Weight	g			70

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

SINGLE-STAGE VACUUM GENERATOR PVP 2

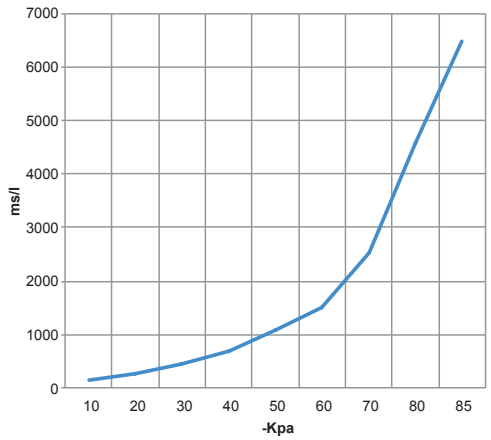
3D drawings are available on **vuototecnica.net**

Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
PVP 2	6.0	0.9	0.83	0.70	0.65	0.52	0.37	0.23	0.13	0.07	--	85

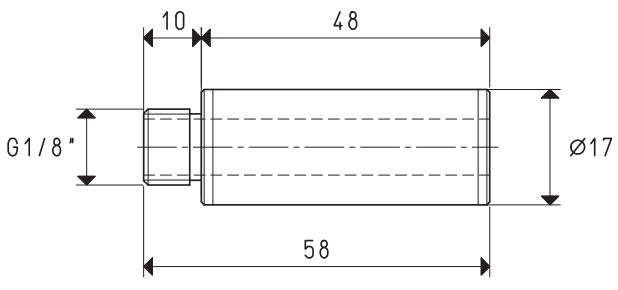
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



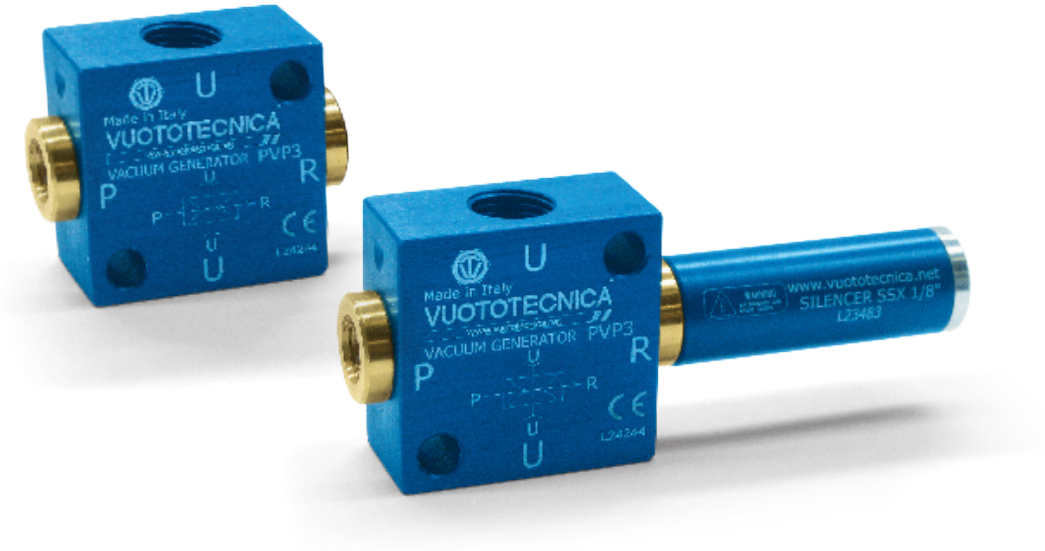
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
PVP 2	6.0	0.9	128	257	438	675	1087	1511	2523	4572	6492	85

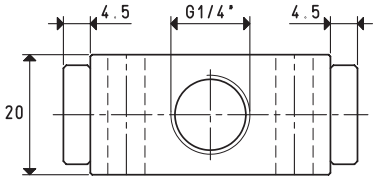
ACCESSORIES UPON REQUEST

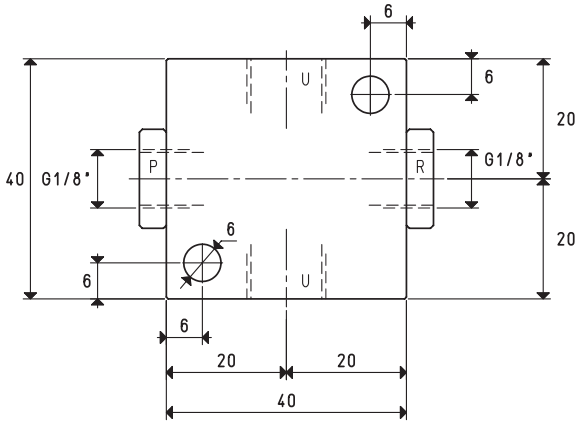
Silencer item SSX 1/8''

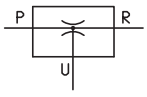


SINGLE-STAGE VACUUM GENERATOR PVP 3









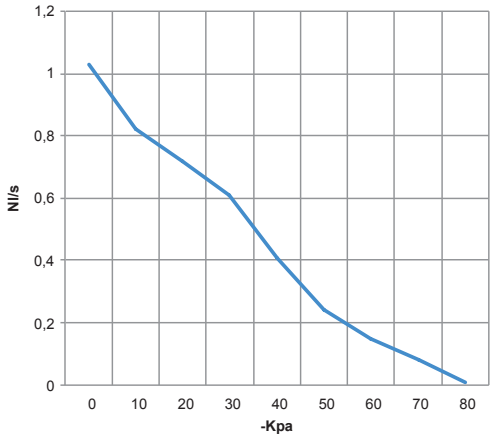
P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		PVP 3		
Intake air flow rate	m^3/h	3.4	3.5	3.7
Maximum level of vacuum	-KPa	60	70	85
Final pressure	mbar abs.	400	300	150
Supply pressure	bar	4	5	6
Optimal supply pressure	bar			6
Air consumption	Nl/s	1.0	1.1	1.3
Operating temperature	°C			-20 / +80
Noise level at optimal supply pressure	dB(A)			80
Weight	g			100

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

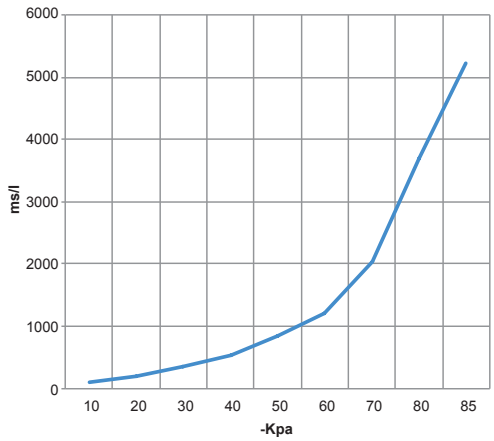
3D drawings are available on **vuototecnica.net**

Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
PVP 3	6.0	1.3	1.03	0.82	0.72	0.61	0.41	0.24	0.15	0.08	--	85

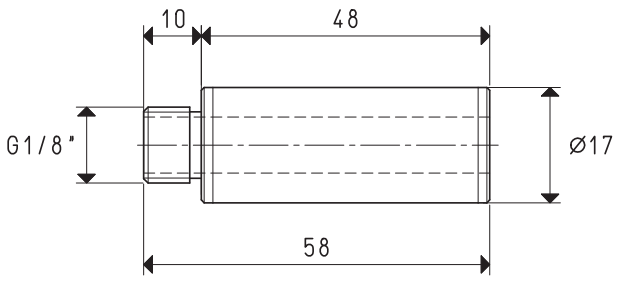
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
PVP 3	6.0	1.3	104	207	353	544	857	1217	2033	3684	5232	85

ACCESSORIES UPON REQUEST

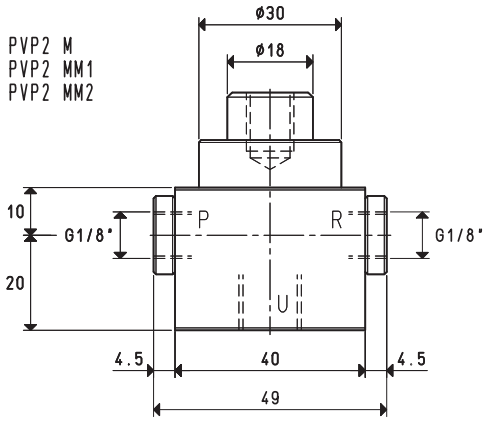
Silencer item SSX 1/8''

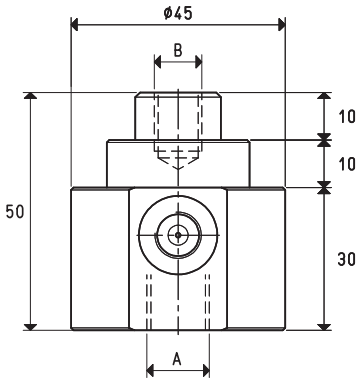


SINGLE-STAGE VACUUM GENERATORS PVP 2 M, PVP 2 MM1, PVP 2 MM2 and PVP 2 MM3

The vacuum generators on this page are based on the same Venturi principle of those previously described and provide the same technical performance. They however differ in their structure.
The vacuum connection U is in fact threaded to allow for assembly of a vacuum cup with male or female support while, on the same axis but on the opposite side, a hole with metric threading allows for the generator to be installed directly on the machine or on the cup holders equipped with springing.
They are fully made with anodised aluminium, with brass ejectors. Equipped with a vacuum cup, these are they are truly self-contained gripping units. They are suited for vacuum cup operated loaders or handlers, for gripping sheet steel, glass slabs, plastic panels and other similar products.
Upon request, they can be supplied with a high sound suppression silencer installed on the R exhaust connection.

Item PVP2 M
PVP2 MM1
PVP2 MM2





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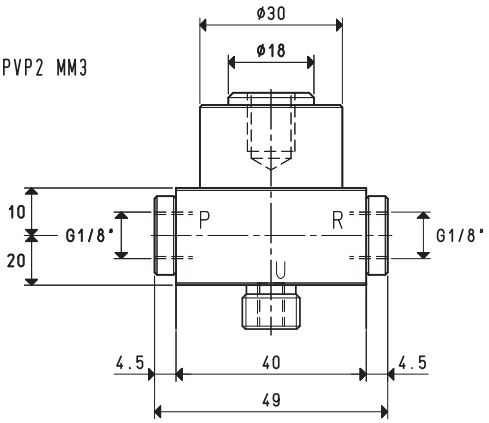
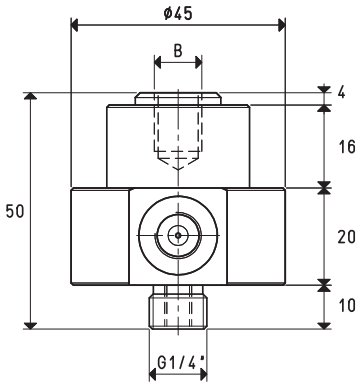
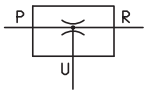






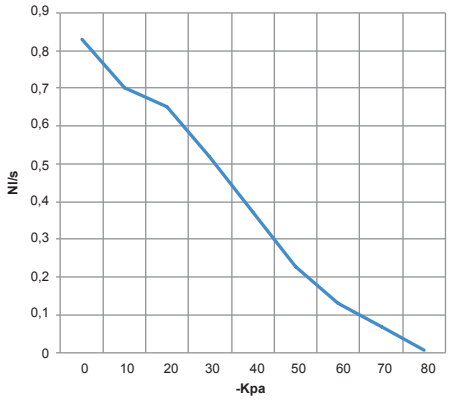
P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		PVP 2 M			PVP 2 MM1			PVP 2 MM2			PVP 2 MM3		
Intake air flow rate	m^3/h	2.8	2.9	3.0	2.9	2.9	3.0	2.8	2.9	3.0	2.8	2.9	3.0
Maximum level of vacuum	-KPa	60	70	85	60	70	85	60	70	85	60	70	85
Final pressure	mbar abs.	400	300	150	400	300	150	400	300	150	400	300	150
Supply pressure	bar	4	5	6	4	5	6	4	5	6	4	5	6
Optimal supply pressure	bar			6			6			6			6
Air consumption	Nl/s	0.7	0.8	0.9	0.7	0.8	0.9	0.7	0.8	0.9	0.7	0.8	0.9
Operating temperature	°C			-20 / +80			-20 / +80			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			78			78			78			78
A				G3/8"			G3/8"			G1/4"			-
B				M10			M12			M10			M10
Weight	g			162			162			162			172

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

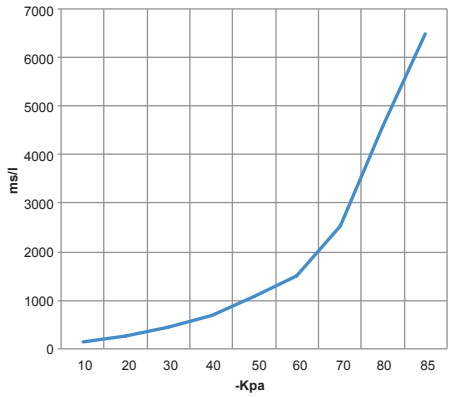
SINGLE-STAGE VACUUM GENERATORS
PVP 2 M, PVP 2 MM1, PVP 2 MM2 and PVP 2 MM3

Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
PVP 2 M	6.0	0,9	0.83	0.70	0.65	0.52	0.37	0.23	0.13	0.07	--	85
PVP 2 MM1	6.0	0,9	0.83	0.70	0.65	0.52	0.37	0.23	0.13	0.07	--	85
PVP 2 MM2	6.0	0,9	0.83	0.70	0.65	0.52	0.37	0.23	0.13	0.07	--	85
PVP 2 MM3	6.0	0,9	0.83	0.70	0.65	0.52	0.37	0.23	0.13	0.07	--	85

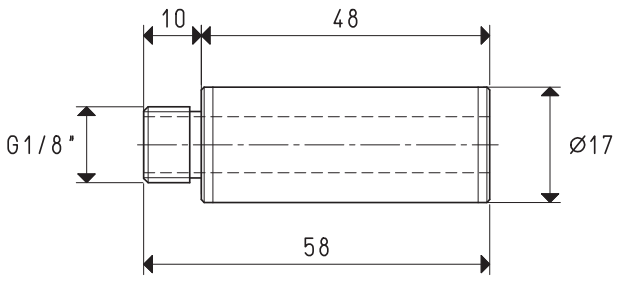
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
PVP 2 M	6.0	0,9	128	257	438	675	1087	1511	2523	4572	6492	85
PVP 2 MM1	6.0	0,9	128	257	438	675	1087	1511	2523	4572	6492	85
PVP 2 MM2	6.0	0,9	128	257	438	675	1087	1511	2523	4572	6492	85
PVP 2 MM3	6.0	0,9	128	257	438	675	1087	1511	2523	4572	6492	85

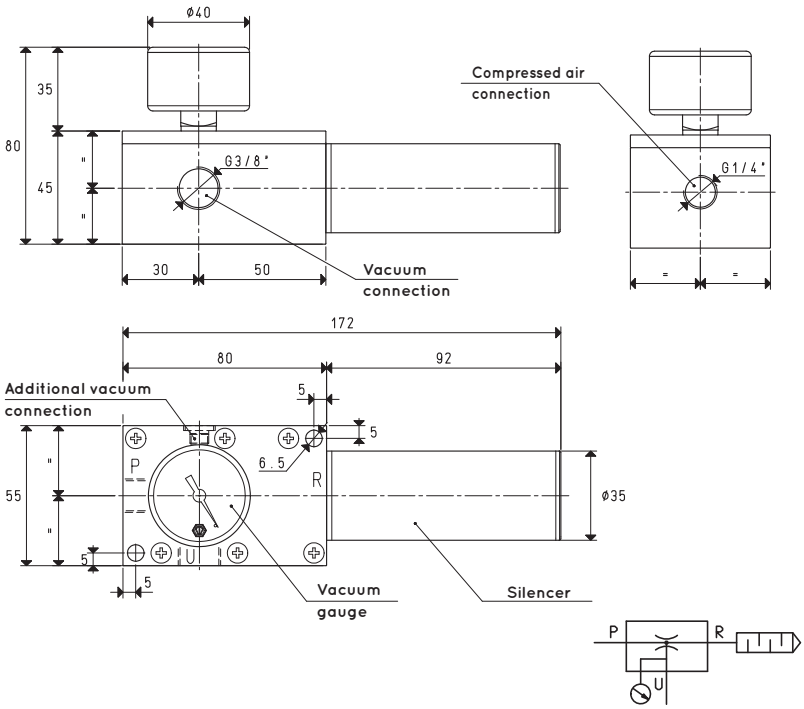
ACCESSORIES UPON REQUEST

Silencer item SSX 1/8”



SINGLE-STAGE VACUUM GENERATORS PVP 7 SX / SXLP, PVP 14 SX / SXLP and PVP 18 SX / SXLP

Vacuum generators PVP ... SX/SXLP, operate making use of the previously described Venturi principle.
A special new generation silencer installed on them makes them very silent and, thanks to its shape, prevents them from becoming clogged, also allowing the suction of saturated fluids of water condensates or oils, mixed with fine or impalpable powders.
They are supplied as standard with a vacuum gauge for reading the level of vacuum. An additional connection on the body of the generator allows the installation of a vacuum switch for signalling the level of vacuum, or of a pneumatic solenoid valve for a quick restoration of the atmospheric pressure of use.
They are fully made with anodised aluminium, with stainless steel ejectors and screws.
These vacuum generators can be used for connecting one or more vacuum cups or equipment with flow rate requirements within the shown values and can operate in particularly dusty or damp environments.
Available with suction rates between 8.3 and 18 m³/h and supply pressure 4-6 bar, for items SX and 1-3 bar for items SXLP.



P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		PVP 7 SX			PVP 14 SX			PVP 18 SX		
Intake air flow rate	m³/h	9.5	9.5	9.3	14.0	14.0	13.5	18.5	18.5	18.0
Maximum level of vacuum	-KPa	60	73	85	60	73	85	60	73	85
Final pressure	mbar abs.	400	270	150	400	270	150	400	270	150
Supply pressure	bar	4	5	6	4	5	6	4	5	6
Optimal supply pressure	bar			6			6			6
Air consumption	Nl/s	2.3	2.7	3.2	3.2	4.0	4.8	4.3	5.4	6.4
Operating temperature	°C			-20 / +80			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			63			65			67
Weight	g			470			480			490

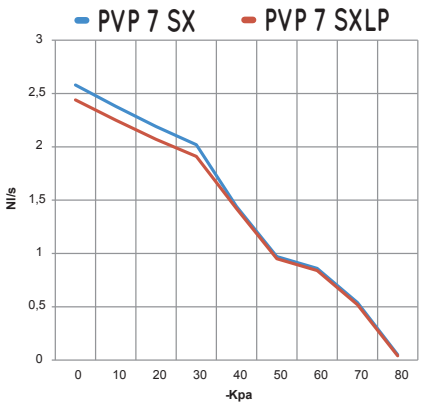
Item		PVP 7 SXLP			PVP 14 SXLP			PVP 18 SXLP		
Intake air flow rate	m³/h	8.3	9.6	8.8	11.7	14.0	13.6	15.0	18.3	17.5
Maximum level of vacuum	-KPa	28	58	88	28	58	88	28	58	88
Final pressure	mbar abs.	720	420	120	720	420	120	720	420	120
Supply pressure	bar	1	2	3	1	2	3	1	2	3
Optimal supply pressure	bar			3			3			3
Air consumption	Nl/s	2.2	3.4	4.5	3.4	5.2	6.9	4.5	6.6	8.6
Operating temperature	°C			-20 / +80			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			67			68			70
Weight	g			470			480			490

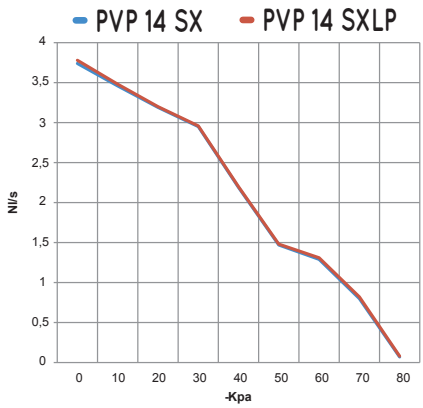
Spare parts		PVP 7 SX / SXLP	PVP 14 SX / SXLP	PVP 18 SX / SXLP
Sealing kit	item	00 15 276	00 15 276	00 15 276
Vacuum gauge	item	09 03 15	09 03 15	09 03 15
Silencer	item	SSX 3/4" R	SSX 3/4" R	SSX 3/4" R

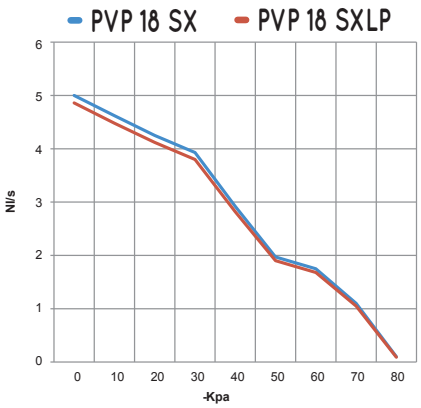
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

SINGLE-STAGE VACUUM GENERATORS PVP 7 SX / SXLP, PVP 14 SX / SXLP and PVP 18 SX / SXLP

Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure

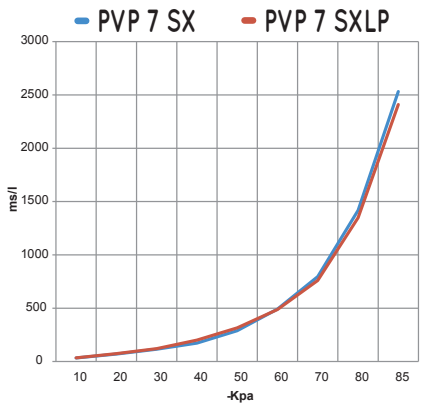


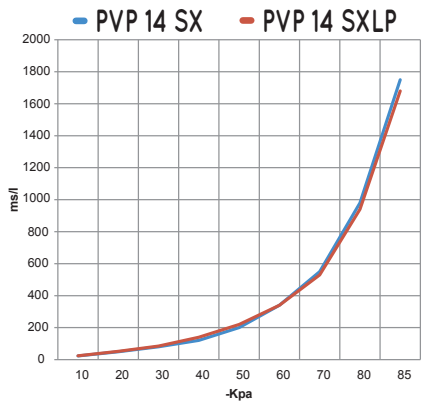


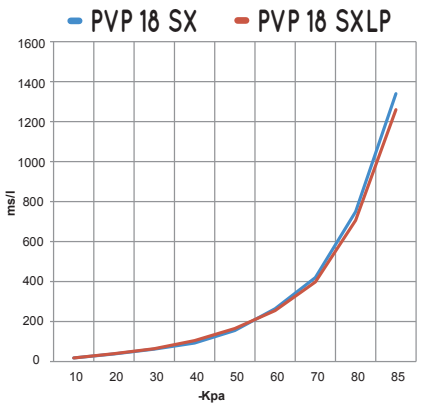


Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
PVP 7 SX	6.0	3.2	2.58	2.38	2.19	2.02	1.44	0.97	0.86	0.54	0.05	85
PVP 14 SX	6.0	4.8	3.75	3.46	3.19	2.95	2.19	1.47	1.29	0.80	0.07	85
PVP 18 SX	6.0	6.4	5.00	4.62	4.25	3.93	2.92	1.97	1.75	1.10	0.10	85
PVP 7 SXLP	3.0	4.5	2.44	2.25	2.07	1.91	1.42	0.95	0.84	0.52	0.04	88
PVP 14 SXLP	3.0	6.9	3.77	3.48	3.20	2.96	2.20	1.48	1.31	0.82	0.07	88
PVP 18 SXLP	3.0	8.6	4.86	4.48	4.12	3.80	2.82	1.90	1.68	1.05	0.09	88

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure





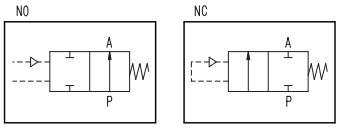


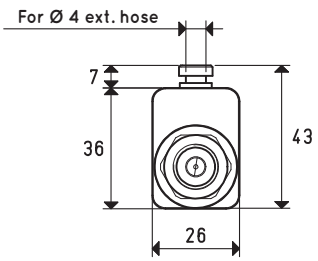
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
PVP 7 SX	6.0	3.2	33	70	115	173	289	492	796	1418	2532	85
PVP 14 SX	6.0	4.8	23	49	80	120	200	340	550	980	1750	85
PVP 18 SX	6.0	6.4	18	38	62	93	155	264	420	750	1340	85
PVP 7 SXLP	3.0	4.5	34	74	121	200	315	487	760	1348	2410	88
PVP 14 SXLP	3.0	6.9	24	52	85	140	220	340	530	940	1680	88
PVP 18 SXLP	3.0	8.6	18	39	64	105	165	255	398	706	1260	88

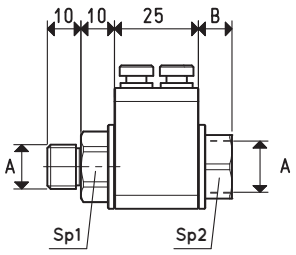
ACCESSORIES FOR SINGLE-STAGE VACUUM GENERATORS

COAXIAL SHUTTER SERVO-CONTROLLED PNEUMATIC VALVES

These coaxial shutter valves, pneumatically driven by a vacuum switch or an alternative source, are able to intercept the compressed air supply to the vacuum generators, with pressures between 1.5 and 7 bar. They must be chosen based on the generator power supply connection and the required air quantity.



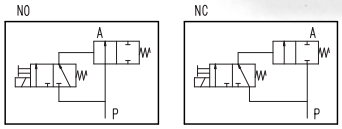


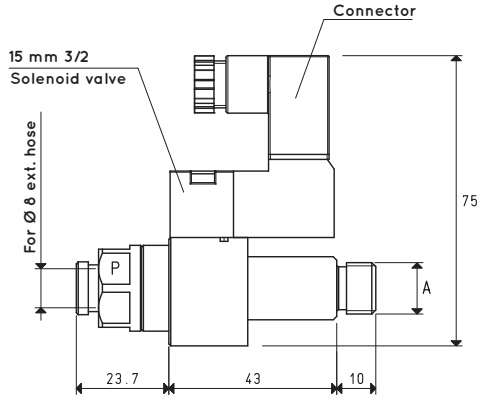


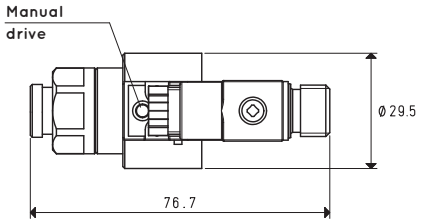
Item	A Ø	B	Sp1	Sp2	Max flow rate at 6 bar l / 1'	For generator item	Weight g
07 00 71	G 1/8"	10	19	19	350	M3/M3SSX ÷ M18/M18SSX	71
07 01 71	G 1/4"	10	19	19	500	PVP 25 ÷ 50 MDX/MDXLP	72
07 02 71	G 3/8"	15	19	19	600	PVP 60 ÷ 75 MDX/MDXLP	70

COAXIAL SHUTTER SERVO-CONTROLLED PNEUMATIC SOLENOID VALVES

The function of these solenoid valves is to intercept the compressed air supply to the vacuum generators. Interception through an original coaxial shutter allows the supply of large quantities of air, thus ensuring greater gripping speed of the vacuum cups. They are composed of an anodised aluminium body with an integrated coaxial shutter, pneumatically operated by a micro solenoid valve with low absorption electric coil, capable of managing operating pressures between 1.5 and 7 bar.
They can be controlled via vacuum switches or simple electrical switches.
Thanks to their compactness, it is also possible to install them directly on the vacuum generators, thus eliminating unnecessary pipes and negative volumes.





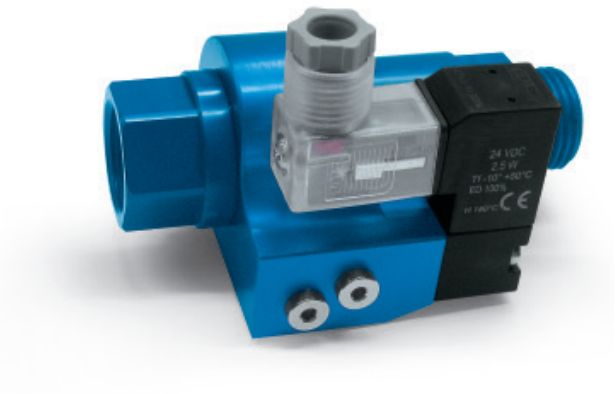


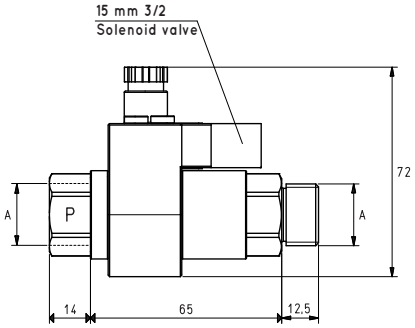
Item	A Ø	Max flow rate at 6 bar l / 1'	Supply pressure bar	Electrical absorption W	Weight g
VPE 00 NC V24CC	G1/8"	350	1.5 ÷ 7	2	110
VPE 00 NO V24CC	G1/8"	350	1.5 ÷ 7	2	110
VPE 01 NC V24CC	G1/4"	500	1.5 ÷ 7	2	100
VPE 01 NO V24CC	G1/4"	500	1.5 ÷ 7	2	100
VPE 02 NC V24CC	G3/8"	600	1.5 ÷ 7	2	100
VPE 02 NO V24CC	G3/8"	600	1.5 ÷ 7	2	100

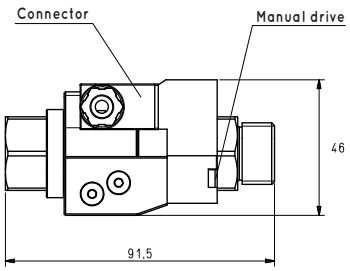
Note: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

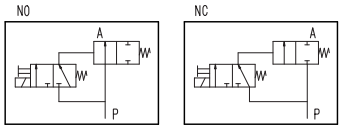
ACCESSORIES FOR SINGLE-STAGE VACUUM GENERATORS

COAXIAL SHUTTER SERVO-CONTROLLED PNEUMATIC SOLENOID VALVES



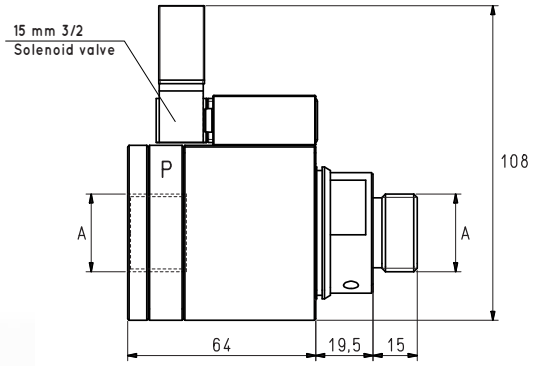


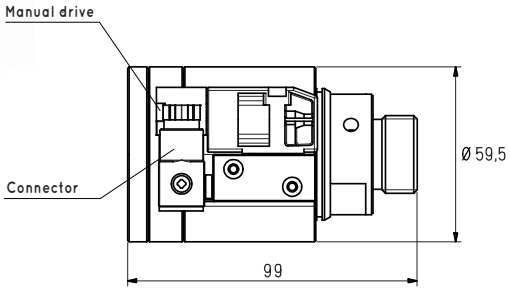


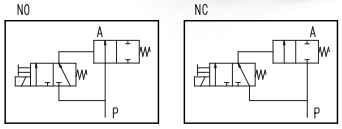


Item	A Ø	Max flow rate at 6 bar l / 1'	Supply pressure bar	Electrical absorption W	Weight g
VPE 03 NC V24CC	G1/2"	2200	1.5 ÷ 7	2	220
VPE 03 NO V24CC	G1/2"	2200	1.5 ÷ 7	2	220

Note: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.





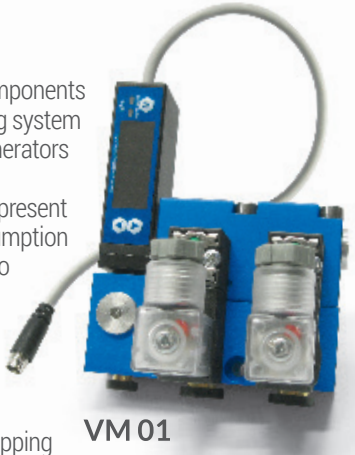


Item	A Ø	Max flow rate at 6 bar l / 1'	Supply pressure bar	Electrical absorption W	Weight g
VPE 04 NC V24CC	G3/4"	7600	1.5 ÷ 7	2	510
VPE 04 NO V24CC	G3/4"	7600	1.5 ÷ 7	2	510

Note: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

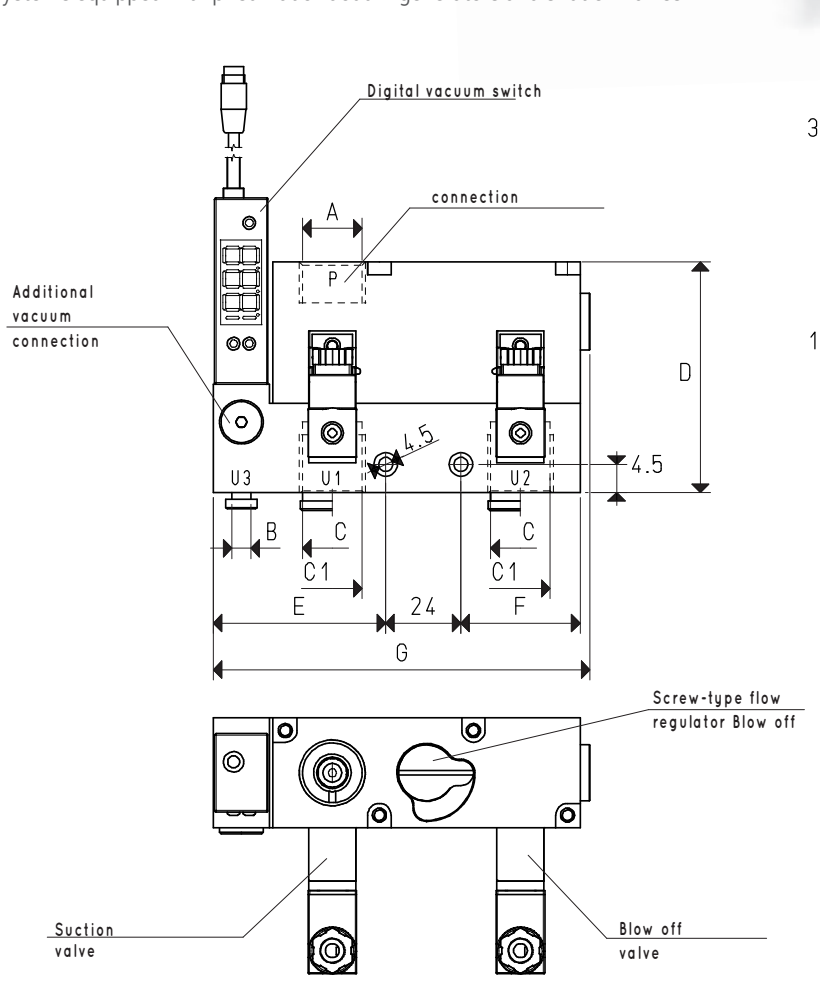
VACUMANAGER VM SERIES POWER SUPPLY UNIT

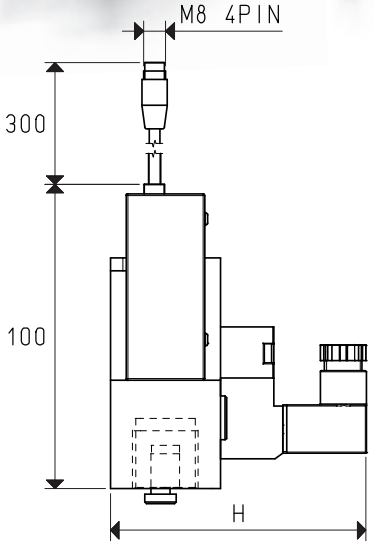
VACUMANAGER VM series units are integrated electro-pneumatic circuits designed to supply and manage single-stage and multi-stage vacuum generators. VM units house the following in an anodised body/distributor machined from billet aluminium:
_ Digital vacuum switch with display (standard), also available on request in a version with IO-Link communication;
_ Compressed air supply valve;
_ Blow off valve;
_ Flow regulator for the blow off valve.
A compact electro-pneumatic control circuit that incorporates all components for the management of vacuum and blow off generation in a handling system equipped with vacuum cups and powered by pneumatic vacuum generators (single-stage or multi-stage).
In combination with the Vuototecnica Energy Saving cables, these represent the best solution in terms of energy efficiency, as they limit the consumption of the compressed air supplying the pneumatic vacuum generators to the time strictly necessary to empty the vacuum cups.
This energy-saving solution is even more valued and appreciated in all vacuum cup handling operations for products with excellent sealing or with micro-porosity (metal sheets, glass, wood or plastic veneered panels, etc.).
Vuototecnica also recommends VM units for handling all Octopus gripping systems equipped with pneumatic vacuum generators and shut-off valves.

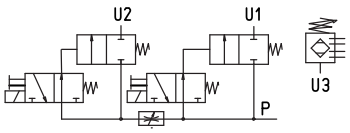


VM 01

VM 01 IO





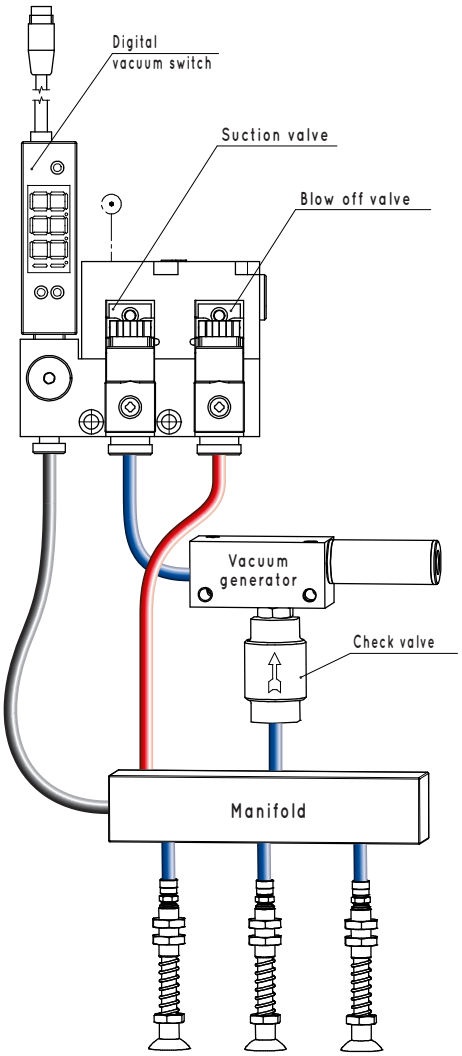


Item	A Ø	B Ø ext. tube	C 1 Ø	C Ø ext. tube	D	E	F	G	H	Vacuum switch	Max flow rate solenoid valve l/1"	Electrical abs. w	Weight g
VM 01	G1/4"	4	---	8	54	22	38	76	72	12 30 10	600 + 600	2	358
VM 03	G1/2"	4	G1/2"	---	69	56	37	120	82	12 30 10	2360 + 2360	2	372
VM 01 IO	G1/4"	4	---	8	54	22	38	76	72	12 10 10 (Io-Link)	600 + 600	2	356
VM 03 IO	G1/2"	4	G1/2"	---	69	56	37	120	82	12 10 10 (Io-Link)	2360 + 2360	2	370

Spare parts		VM 01	VM 01 IO	VM 03	VM 03 IO
Digital vacuum switch	item	12 30 10	12 10 10 (Io-Link)	12 30 10	12 10 10 (Io-Link)
NC supply and blowing solenoid valve	item	00 15 447	00 15 447	00 15 447	00 15 447

Note: To order VACUMANAGER VM series units with NC supply coaxial shutter, use item code VM..NC.
To order VACUMANAGER VM series units with digital vacuum switch, IO-Link, specify the code VM..IO.

APPLICATION EXAMPLE
VACUMANAGER VM SERIES POWER SUPPLY UNIT



Cable set with built-in energy saving device for VACUMANAGER VM series power supply unit

Item	Description
00 15 202	Set of cables with built-in energy saving device for connection to:
	- Digital vacuum switch
	- NO micro supply solenoid valve
	- NC micro ejection solenoid valve
	Cable length - 5 m

Note: The IO-Link signal cannot be handled by the energy-saving cable set.

ACCESSORIES AND SPARE PARTS FOR VACUMANAGER VM SERIES POWER SUPPLY UNIT

Connector

Item	Description
00 15 157	Connector with LED for micro solenoid valves

M8 3 PIN Connector

Item	Description
00 07 424	M8 3 PIN Connector with LED for micro solenoid valves

Cable with axial connector

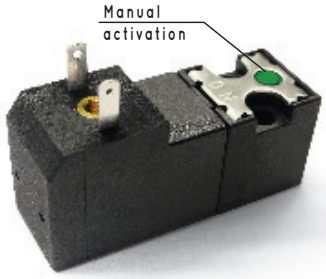
Item	Description
00 12 20	Electrical connection cable with M8 - 4 pin axial connector for digital vacuum switch length 5 m

Cable with radial connector

Item	Description
00 12 21	Electrical connection cable with M8 - 4 pin radial connector for digital vacuum switch length 5 m

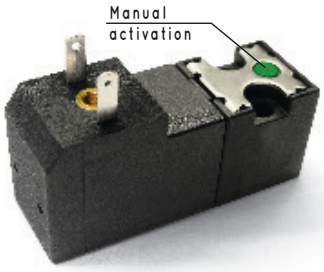
NO micro supply solenoid valve

Item	Description
00 07 304	NO micro solenoid valves with built-in low absorption electrical coil



NC supply and blowing micro solenoid valve

Item	Description
00 15 447	NC micro solenoid valves with built-in low absorption electrical coil

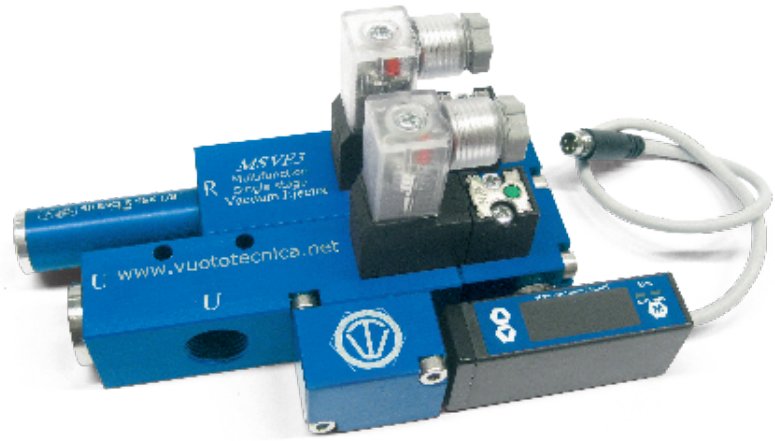


Digital vacuum switch

Item	Description
12 30 10	Digital vacuum switch

SINGLE-STAGE AND MULTI-FUNCTION VACUUM GENERATORS SERIES MSVE - GENERAL DESCRIPTION

The vacuum generators of this new series can fully drive a negative pressure gripping system. By means of coaxial shutters, the original compressed air supply system feeds large quantities of air to both the ejectors and the ejection system, thereby ensuring faster gripping and release of the load. These vacuum generators are equipped with single-stage ejectors, are powered by low pressure (max. 4 bar), and feature an extremely high emptying speed in relation to their suction flow rate. All this allows for increasingly faster high-performance work cycles. Two micro solenoid valves manage the compressed air supply to the vacuum ejector and adjustable discharge blow off. The intensity and duration of the latter are managed through a screw-type flow regulator.
The check valve built into the suction connector maintains the vacuum in the event of a power outage. A digital vacuum switch, equipped with a display and commutation LED, manages the compressed air supply and provides a signal to start a cycle under safety conditions. An anodised aluminium distributor with vacuum connectors has an integrated suction filter that can be easily inspected. By activating the compressed air power micro solenoid valve, the generator creates vacuum for use. As soon as the set maximum value is reached, the digital vacuum switch acts on the electric coil of the micro solenoid valve and stops the air supply, reactivating it when the vacuum falls below the minimum level.
Besides maintaining the vacuum level within set safety values (hysteresis), this modulation allows for considerable compressed air savings. A second signal from the vacuum switch (also adjustable and independent with respect to the first) can be used to start the cycle when the vacuum level reached is suitable for use. Once the work cycle is completed, the micro solenoid valve that supplies compressed air to the generator is deactivated while, at the same time, the ejection solenoid valve is activated for quick restoration of the atmospheric pressure upon use. The MSVE vacuum generators can be installed in any position and are suitable for suction gripping systems, handling metal sheets, glass, marble, ceramics, plastic, cardboard, wood, etc. and, in particular, for the industrial robotics sector, where equipment with excellent performance and limited weight and bulk are increasingly required.



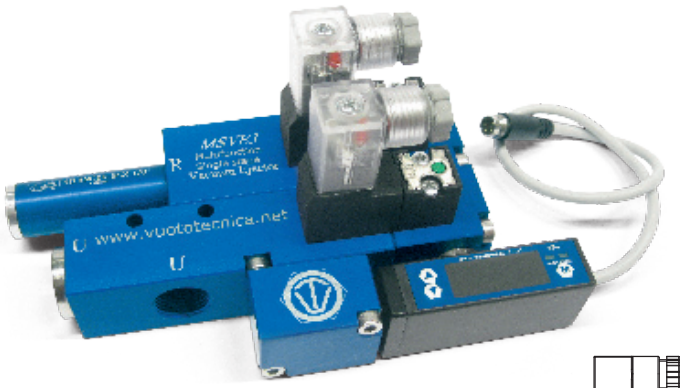
MSVE 3

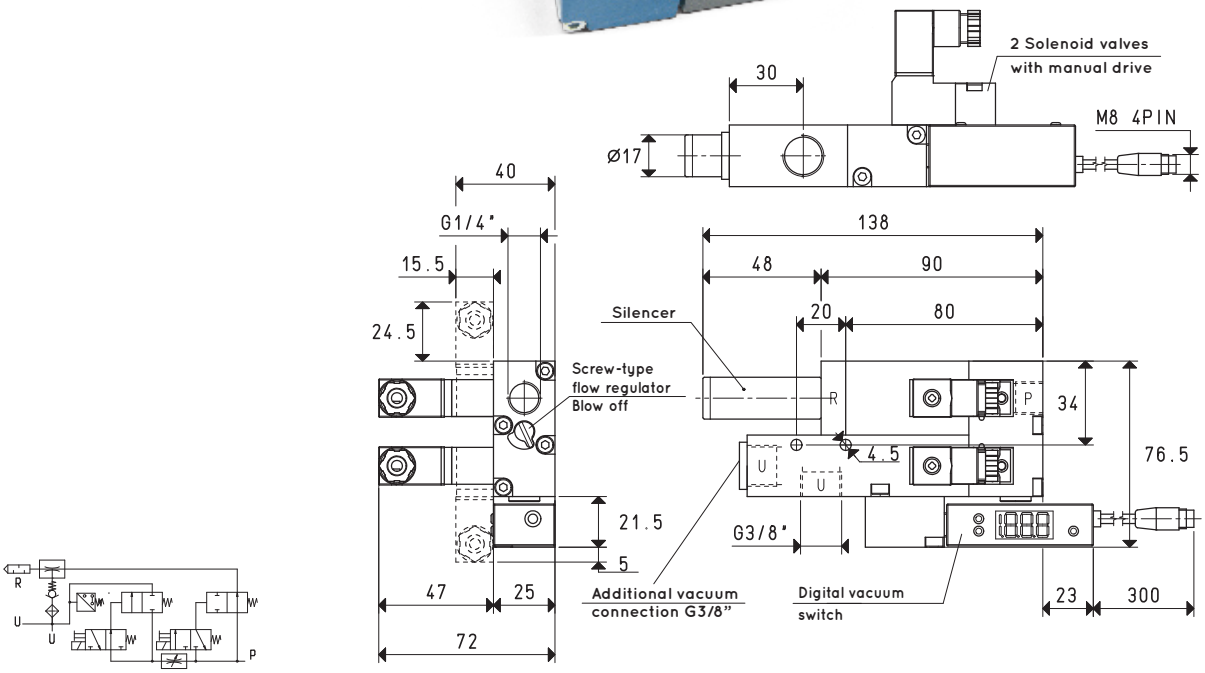
MSVE 5 NC IO

IO-Link Ready!

3D drawings are available on **vuototecnica.net**

SINGLE-STAGE AND MULTI-FUNCTION VACUUM GENERATORS
MSVE 3 and MSVE 5





P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		MSVE 3			MSVE 5		
Intake air flow rate	m^3/h	2.6	2.8	3.0	4.9	5.1	5.1
Maximum level of vacuum	-KPa	40	61	85	40	61	85
Final pressure	mbar abs.	600	390	150	600	390	150
Supply pressure	bar	2	3	4	2	3	4
Air consumption	Nl/s	0.7	0.9	1.2	1.3	1.7	2.2
Max quantity of air blown at 4 bar	l/min			650			650
Internal coaxial shutter position of supply				NO			NO
Supply solenoid valve absorption	W			2.0			2.0
Internal coaxial shutter position of ejection				NC			NC
Ejection solenoid valve absorption	W			2.0			2.0
Supply voltage	V			24DC			24DC
Vacuum switch output				PNP			PNP
Degree of protection	IP			40			40
Temperature of use	°C			-10 / +60			-10 / +60
Noise level at optimal supply pressure	dB(A)			48			44
Weight	g			493			493

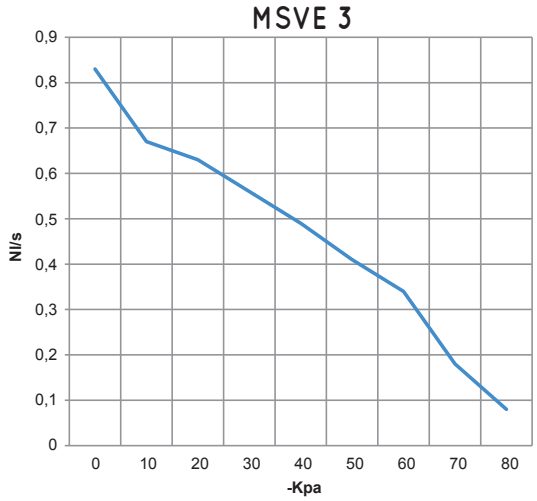
Spare parts		MSVE 3	MSVE 3 IO	MSVE 5	MSVE 5 IO
Sealing kit	item	00 15 503	00 15 503	00 15 503	00 15 503
Digital vacuum switch	item	12 30 10	12 10 10 (IO-Link)	12 30 10	12 10 10 (IO-Link)
NO supply solenoid valve	item	00 07 304	00 07 304	00 07 304	00 07 304
NC supply and blowing solenoid valve	item	00 15 447	00 15 447	00 15 447	00 15 447
Silencer	item	SSX 1/8"	SSX 1/8"	SSX 1/8"	SSX 1/8"

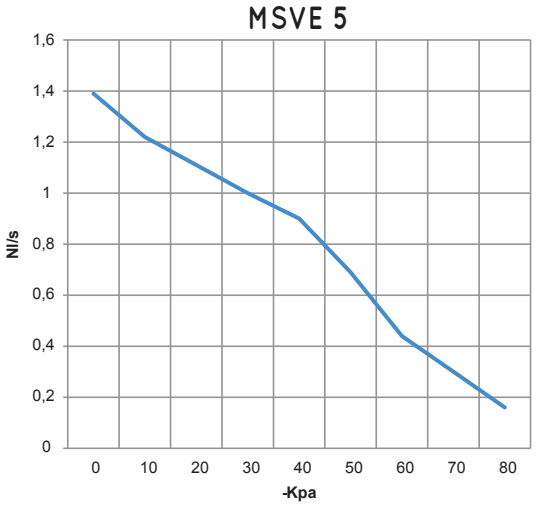
Note: To order a generator with NC supply coaxial shutter, use item code MSVE..NC.
To order a generator with a digital vacuum switch, IO-Link, use article code MSVE..IO
To order a generator without a digital vacuum switch, use item code MSVE..SV.

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

3D drawings are available on **vuototecnica.net**

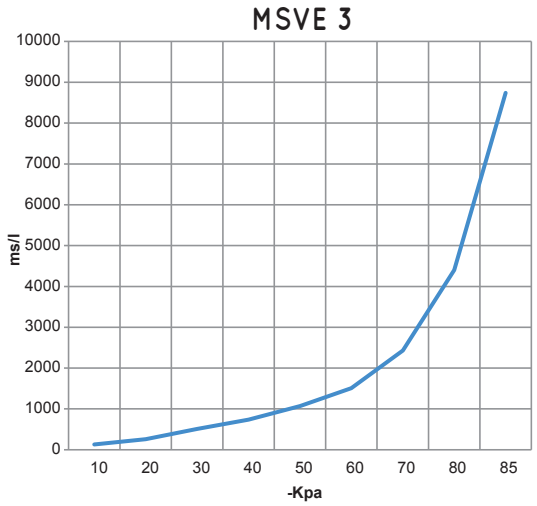
Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure

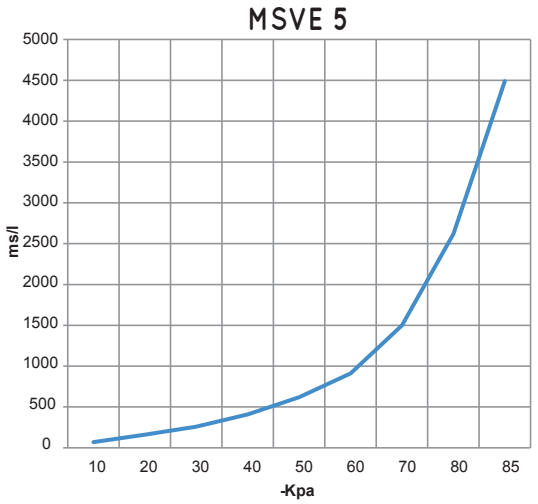




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			0	10	20	30	40	50	60	70	80	
MSVE 3	4.0	1.2	0.83	0.67	0.63	0.56	0.49	0.41	0.34	0.18	0.08	85
MSVE 5	4.0	2.2	1.39	1.22	1.11	1.00	0.90	0.69	0.44	0.30	0.16	85

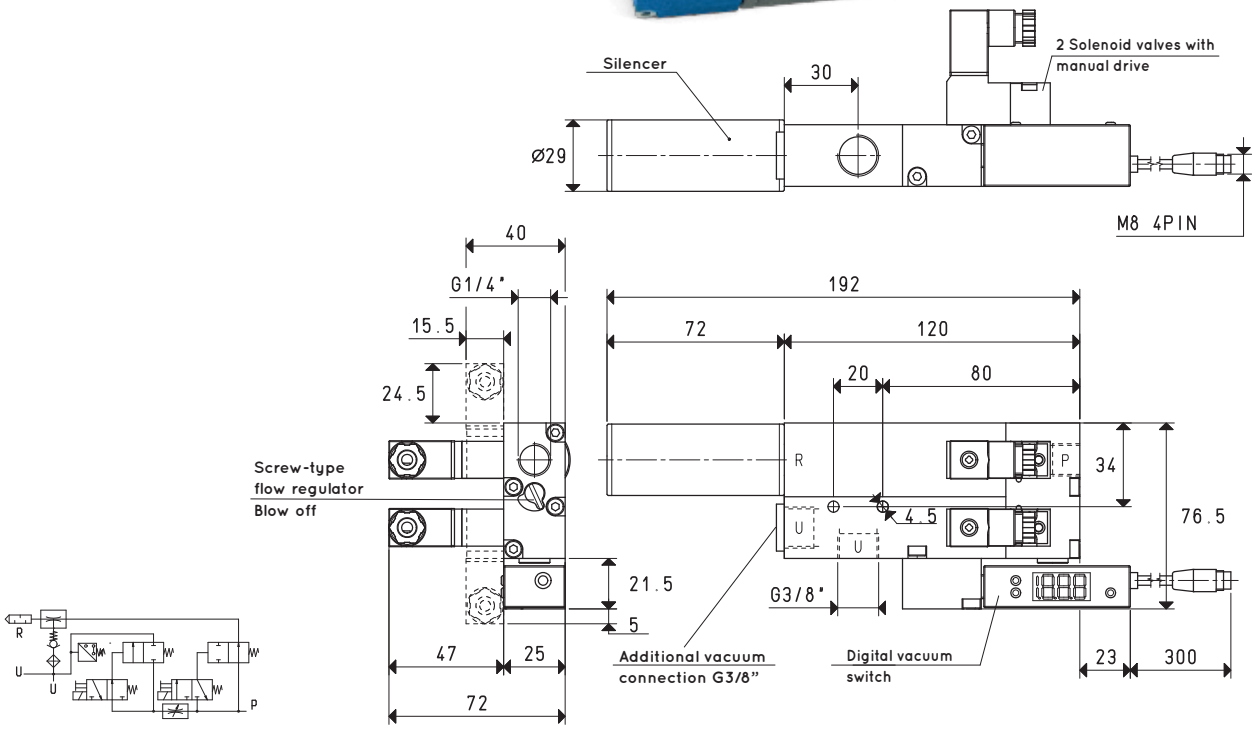
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure





Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
MSVE 3	4.0	1.2	130	260	510	740	1070	1510	2430	4400	8740	85
MSVE 5	4.0	2.2	70	160	260	410	620	910	1500	2620	4490	85

SINGLE-STAGE AND MULTI-FUNCTION VACUUM GENERATORS
MSVE 8 and MSVE 12



P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		MSVE 8			MSVE 12		
Intake air flow rate	m³/h	8.0	8.6	8.8	12.0	12.2	12.5
Maximum level of vacuum	-KPa	40	60	90	40	60	90
Final pressure	mbar abs.	600	400	100	600	400	100
Supply pressure	bar	2	3	3.5	2	3	3.5
Air consumption	Nl/s	2.8	3.8	4.3	3.7	5.0	5.5
Max quantity of air blown at 3.5 bar	l/min			600			600
Internal coaxial shutter position of supply				NO			NO
Supply solenoid valve absorption	W			2.0			2.0
Internal coaxial shutter position of ejection				NC			NC
Ejection solenoid valve absorption	W			2.0			2.0
Supply voltage	V			24DC			24DC
Vacuum switch output				PNP			PNP
Degree of protection	IP			40			40
Temperature of use	°C			-10 / +60			-10 / +60
Noise level at optimal supply pressure	dB(A)			53			50
Weight	g			580			620

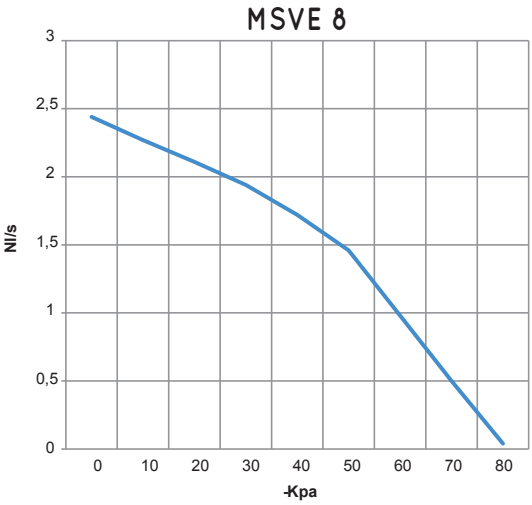
Spare parts		MSVE 8	MSVE 8 IO	MSVE 12	MSVE 12 IO
Sealing kit	item	00 15 504	00 15 504	00 15 504	00 15 504
Digital vacuum switch	item	12 30 10	12 10 10 (IO-Link)	12 30 10	12 10 10 (IO-Link)
NO supply solenoid valve	item	00 07 304	00 07 304	00 07 304	00 07 304
NC supply and blowing solenoid valve	item	00 15 447	00 15 447	00 15 447	00 15 447
Silencer	item	SSX 3/8"	SSX 3/8"	SSX 3/8"	SSX 3/8"

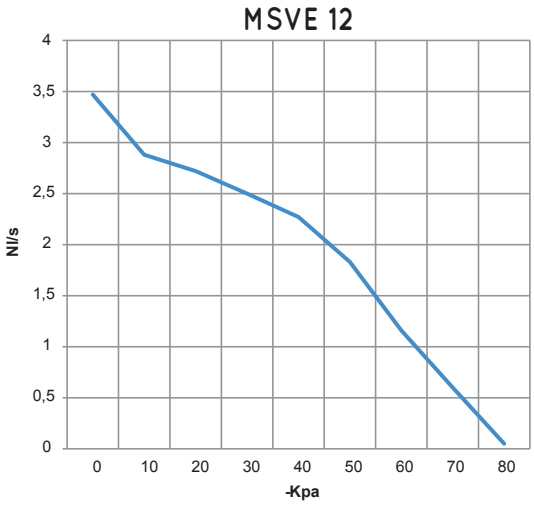
Note: To order a generator with NC supply coaxial shutter, use item code MSVE..NC.
To order a generator with a digital vacuum switch, IO-Link, use article code MSVE..IO
To order a generator without a digital vacuum switch, use item code MSVE..SV.

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

3D drawings are available on **vuototecnica.net**

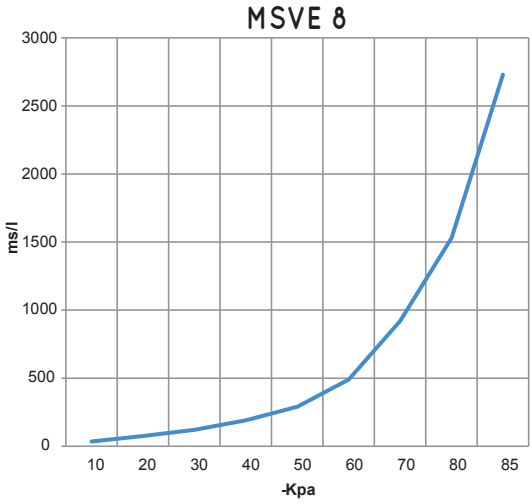
Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure

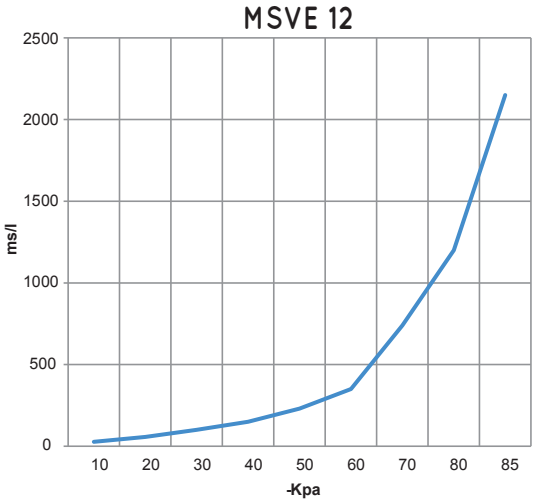




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			0	10	20	30	40	50	60	70	80	
MSVE 8	3.5	4.3	2.44	2.27	2.11	1.94	1.72	1.46	0.98	0.50	0.04	90
MSVE 12	3.5	5.5	3.47	2.88	2.72	2.50	2.27	1.83	1.16	0.60	0.05	90

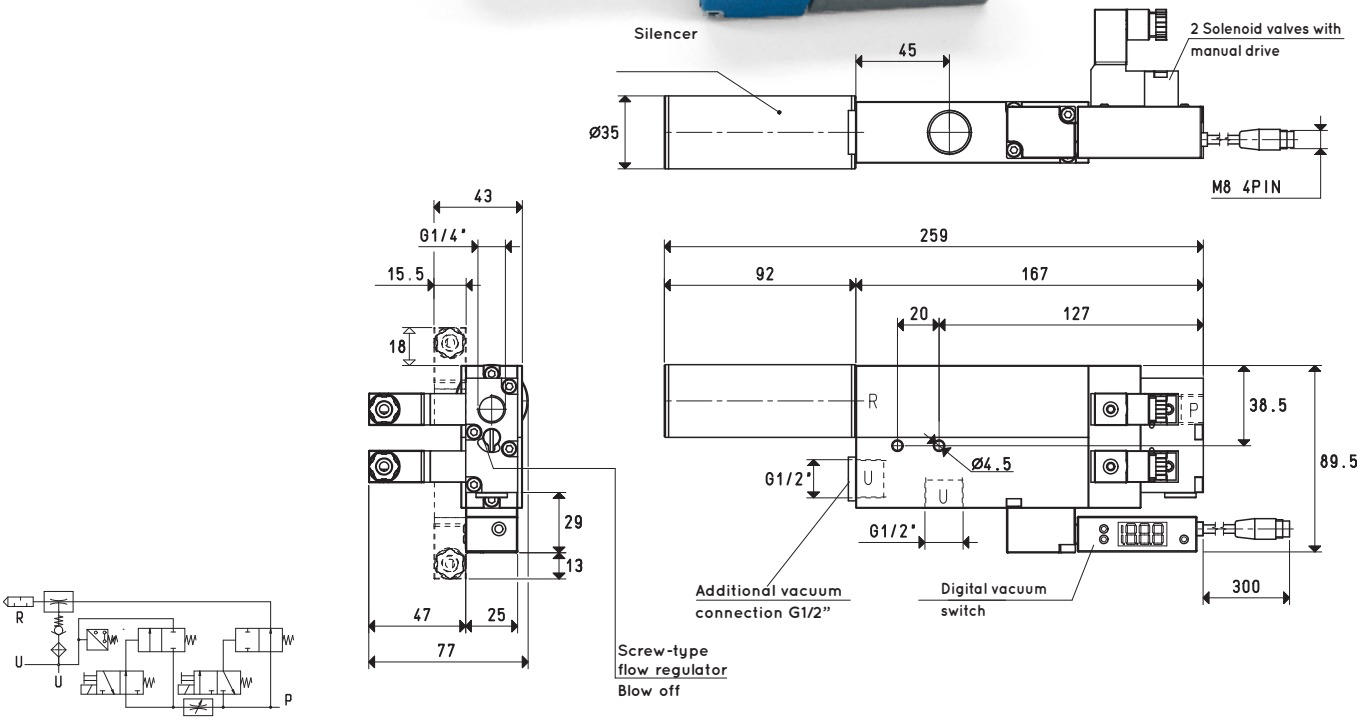
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure





Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
MSVE 8	3.5	4.3	35	75	120	190	290	490	920	1530	2730	90
MSVE 12	3.5	5.5	27	57	100	150	230	350	740	1200	2150	90

SINGLE-STAGE AND MULTI-FUNCTION VACUUM GENERATORS MSVE 20



P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		MSVE 20		
Intake air flow rate	m^3/h	18	19	20
Maximum level of vacuum	-KPa	40	60	90
Final pressure	mbar abs.	600	400	100
Supply pressure	bar	2	3	4
Air consumption	Nl/s	4.9	6.6	8.0
Max quantity of air blown at 4 bar	l/min			650
Internal coaxial shutter position of supply				NO
Supply solenoid valve absorption	W			2.0
Internal coaxial shutter position of ejection				NC
Ejection solenoid valve absorption	W			2.0
Supply voltage	V			24DC
Vacuum switch output				PNP
Degree of protection	IP			40
Temperature of use	°C			-10 / +60
Noise level at optimal supply pressure	dB(A)			70
Weight	kg			1.04

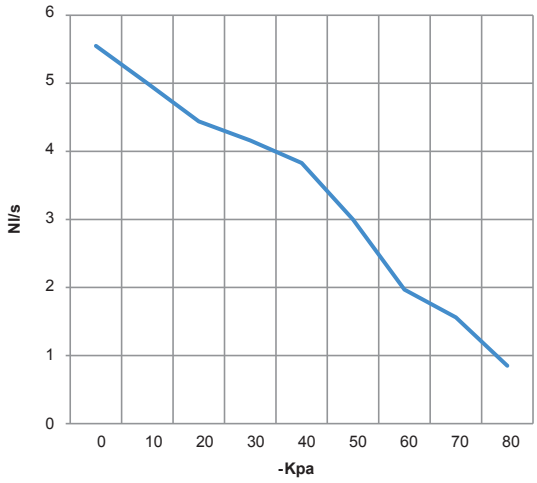
Spare parts		MSVE 20	MSVE 20 IO
Sealing kit	item	00 15 560	00 15 560
Digital vacuum switch	item	12 30 10	12 10 10 (IO-Link)
NO supply solenoid valve	item	00 07 304	00 07 304
NC supply and blowing solenoid valve	item	00 15 447	00 15 447
Silencer	item	SSX 1/2"	SSX 1/2"

Note: To order a generator with NC supply coaxial shutter, use item code MSVE..NC.
To order a generator with a digital vacuum switch, IO-Link, use article code MSVE..IO
To order a generator without a digital vacuum switch, use item code MSVE..SV.

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

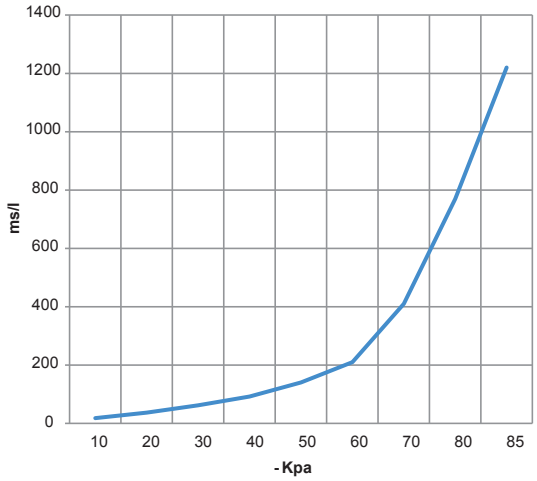
3D drawings are available on **vuototecnica.net**

Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure



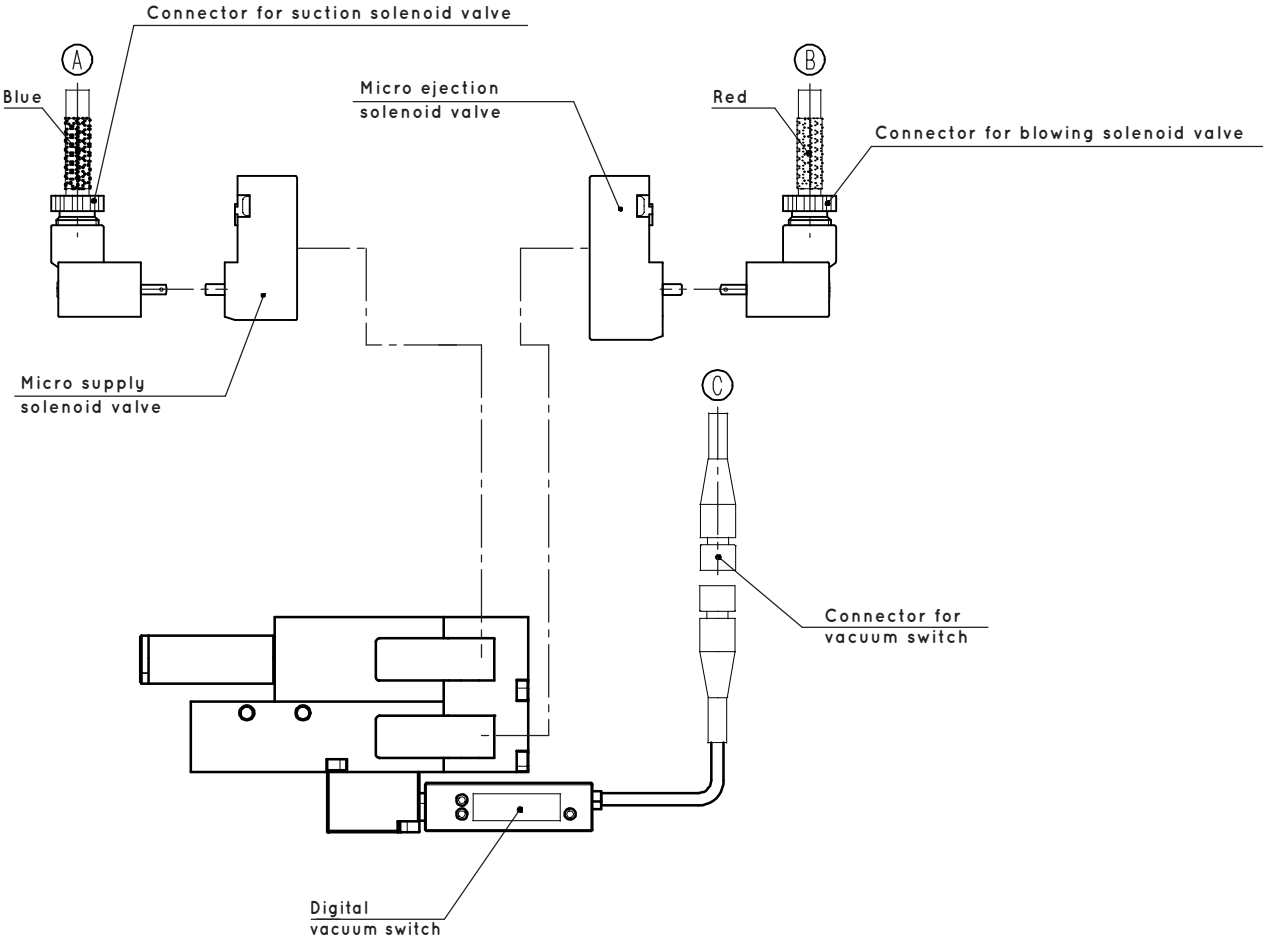
Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
MSVE 20	4	8	5.55	5.00	4.44	4.16	3.83	3.00	1.97	1.56	0.85	90

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
MSVE 20	4	8	18	37	62	92	140	210	410	770	1220	90

ACCESSORIES AND SPARE PARTS FOR SINGLE-STAGE AND MULTI-FUNCTION VACUUM GENERATORS, SERIES MSVE



3D drawings are available on **vuototecnica.net**

Cable set with built-in energy saving device for MSVE.. generator

Item	Description
00 15 202	Set of cables with built-in energy saving device for connection to:
	- Digital vacuum switch
	- NO micro supply solenoid valve
	- NC micro ejection solenoid valve
	Cable length - 5 m

Note: The IO-Link signal cannot be handled by the energy-saving cable set.

Cable set with built-in energy saving device for MSVE..NC generator

Item	Description
00 15 203	Set of cables with built-in energy saving device for connection to:
	- Digital vacuum switch
	- NC micro supply solenoid valve
	- NC micro ejection solenoid valve
	Cable length - 5 m

Note: The IO-Link signal cannot be handled by the energy-saving cable set.

Connector

Item	Description
00 15 157	Form C connector, with LED for the micro-solenoid valves

M8 3 PIN Connector

Item	Description
00 07 424	M8 3 PIN Connector with LED for micro solenoid valves

Cable with axial connector

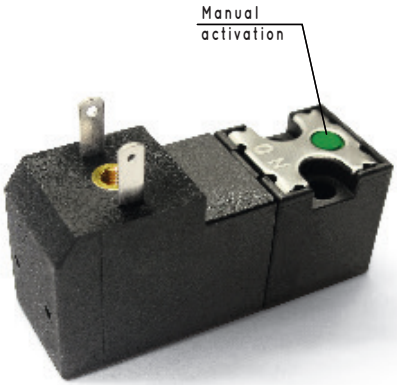
Item	Description
00 12 20	Electrical connection cable with M8 - 4 pin axial connector for digital vacuum switch length 5 m

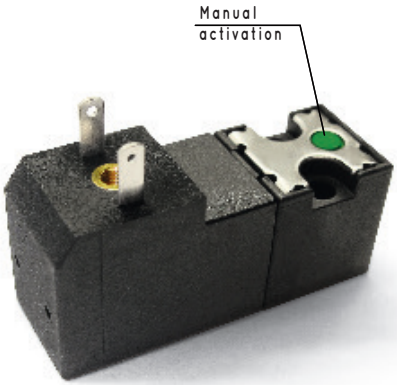
Cable with radial connector

Item	Description
00 12 21	Electrical connection cable with M8 - 4 pin radial connector for digital vacuum switch length 5 m

3D drawings are available on **vuototecnica.net**

Feeding and blowing micro-solenoid valves with low electric coil





	Item Micro supply solenoid valve	Item Micro ejection solenoid valve
MSVE	00 07 304	00 15 447
MSVE NC	00 15 447	00 15 447

SSX Exhaust silencers

Item	By generators item
SSX 1/4"	MSVE 3 - MSVE 5
SSX 3/8"	MSVE 8 - MSVE 12
SSX 1/2"	MSVE 20

Sealing kit

Item	By generators item
00 15 503	MSVE 3 - MSVE 5
00 15 504	MSVE 8 - MSVE 12
00 15 560	MSVE 20

Digital vacuum switch

Item	Description
12 30 10	Digital vacuum switch

SINGLE-STAGE AND MULTI-FUNCTION VACUUM GENERATORS SERIES AVG - GENERAL DESCRIPTION

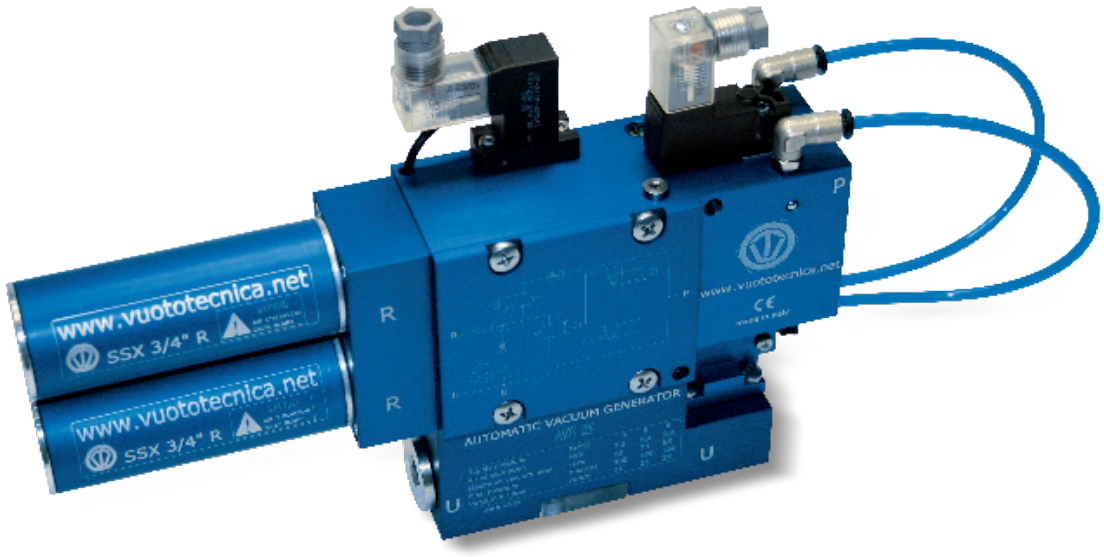
These generators are independent vacuum units capable of driving a vacuum gripping system
They have been specially designed for the AUTOMOTIVE sector and they are equipped with single ejectors that, given the same flow rate as the multi-ejector generators, allow for a quicker grip.
They are provided as standard with a built-in pneumatic energy-saving device.
They are composed of an anodised aluminium mono-block structure, inside of which are installed the ejectors, the servo-controlled slide valve for the compressed air supply and are contained the vacuum chambers as well as the various connections.
The following are instead installed on the outside:
- A bistable impulse solenoid valve for controlling the slide valve;
- A solenoid valve for blowing the ejected compressed air;
- A flow regulator for dosing the ejected compressed air;
- Two silencers for removing noise from the ejected air;
- An aluminium manifold provided with vacuum connections with built-in:
  - A pneumatic vacuum switch for managing the compressed air supply according to the set level of vacuum (energy saving);
  - A check valve for maintaining the vacuum in case of electricity or compressed air failure;
  - A suction filter, easy to inspect through the transparent polycarbonate lid.

OPERATION

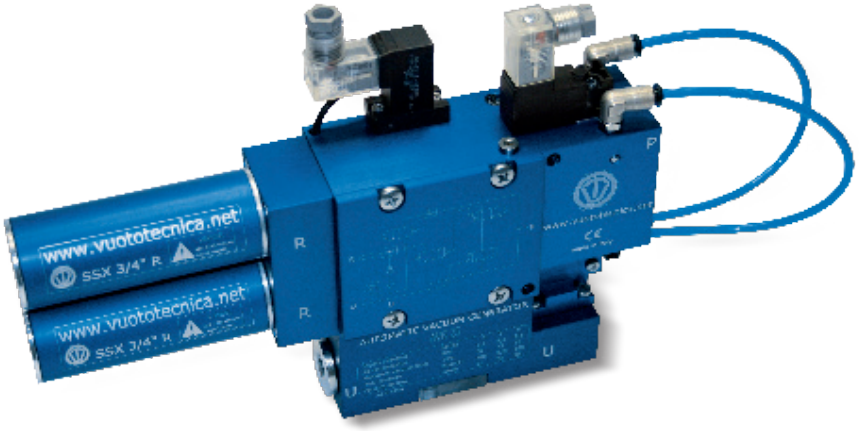
By providing an electric impulse to the two-position solenoid valve, the compressed air supply slide valve will be activated and vacuum will be created at the application. Once the preset maximum value has been reached, the pneumatic vacuum switch acts on the servo-controlled valve and interrupts the compressed air supply, restoring it when the value returns below the minimum value.
Besides maintaining the level of vacuum within preset safety values, this modulation also allows a considerable saving of compressed air and occurs even in the absence of electricity. Once the work cycle is completed, the power supply solenoid valve is deactivated by means of an electrical pulse while, at the same time, the ejection solenoid valve is activated for quick restoration of the atmospheric pressure of use.
AVG vacuum generators are fitted for the installation of a digital vacuum switch. Also these vacuum generators can be installed in any position.

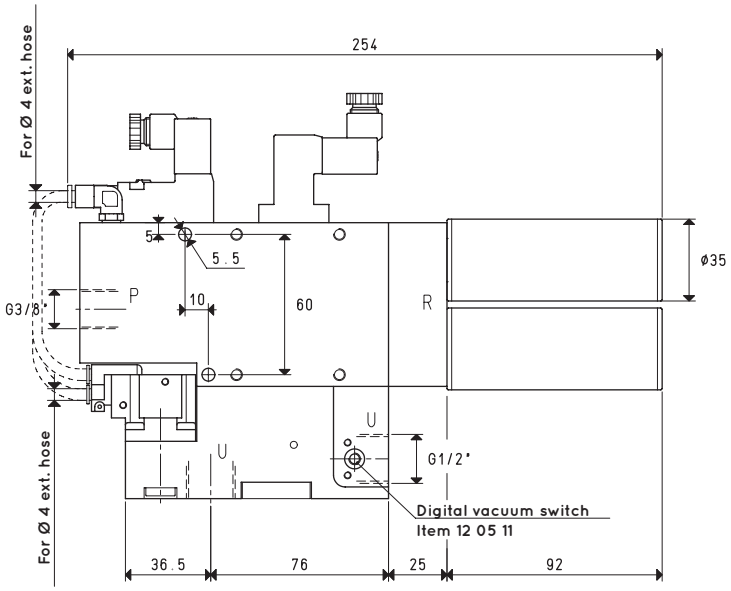
SECTORS OF USE

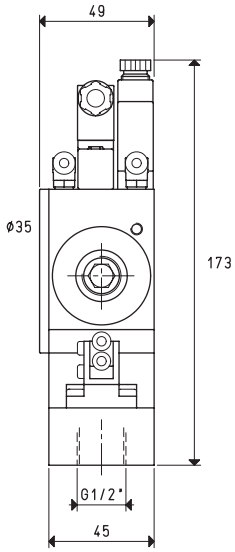
AVG vacuum generators are suitable for suction gripping systems, for the handling of metal sheets, glass, marble, ceramics, plastic, cardboard, wood, etc. and, in particular, for the AUTOMOTIVE sector, where equipment with excellent performance and limited size and weight are increasingly required.

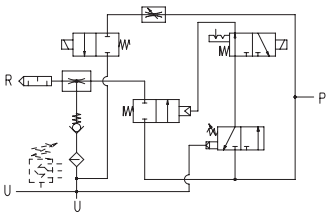


SINGLE-STAGE AND MULTI-FUNCTION VACUUM GENERATORS
AVG 18 and AVG 25









P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

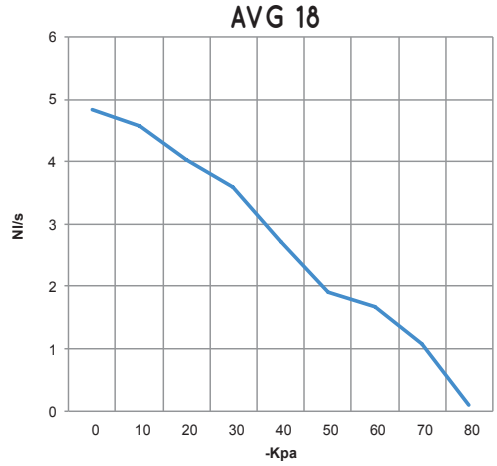
Item		AVG 18			AVG 25		
Intake air flow rate	m^3/h	16.5	17.0	17.4	24.5	25.0	25.2
Maximum level of vacuum	-KPa	60	70	85	60	70	85
Final pressure	mbar abs.	400	300	150	400	300	150
Supply pressure	bar	4	5	6	4	5	6
Optimal supply pressure	bar			6			6
Air consumption	Nl/s	4.3	5.3	6.4	6.5	8.0	9.6
Max quantity of air blown at 6 bar	l/min			140			140
Bistable supply solenoid valve	NO/NC			NO/NC			NO/NC
Electrical absorption	W			1			1
Ejection solenoid valve position	NC			NC			NC
Electrical absorption	W			4			4
Supply voltage	V			24DC			24DC
Degree of protection	IP			65			65
Temperature of use	°C			-10 / +60			-10 / +60
Noise level at optimal supply pressure	dB(A)			63			65
Weight	Kg			1.67			1.67

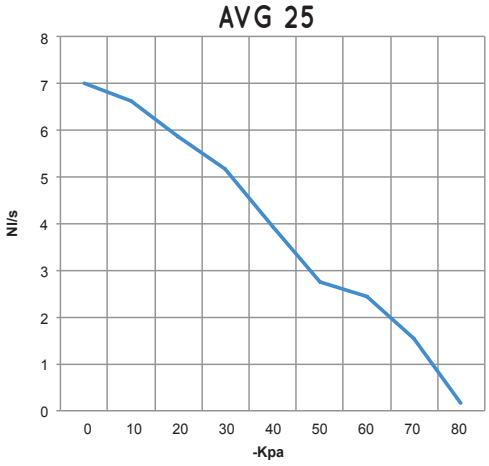
Note: To order a generator with a digital vacuum switch installed, add the letter V to the item code (example: AVG 25 V).

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

SINGLE-STAGE AND MULTI-FUNCTION VACUUM GENERATORS
AVG 18 and AVG 25

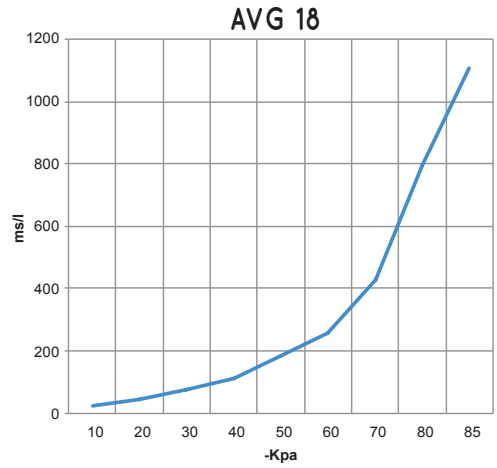
Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure

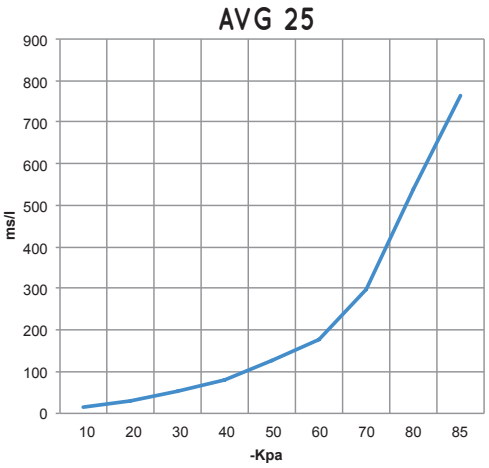




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
AVG 18	6.0	6.4	4.83	4.58	4.04	3.58	2.72	1.90	1.68	1.07	0.10	85
AVG 25	6.0	9.6	7.00	6.63	5.86	5.18	3.94	2.76	2.44	1.54	0.15	85

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure





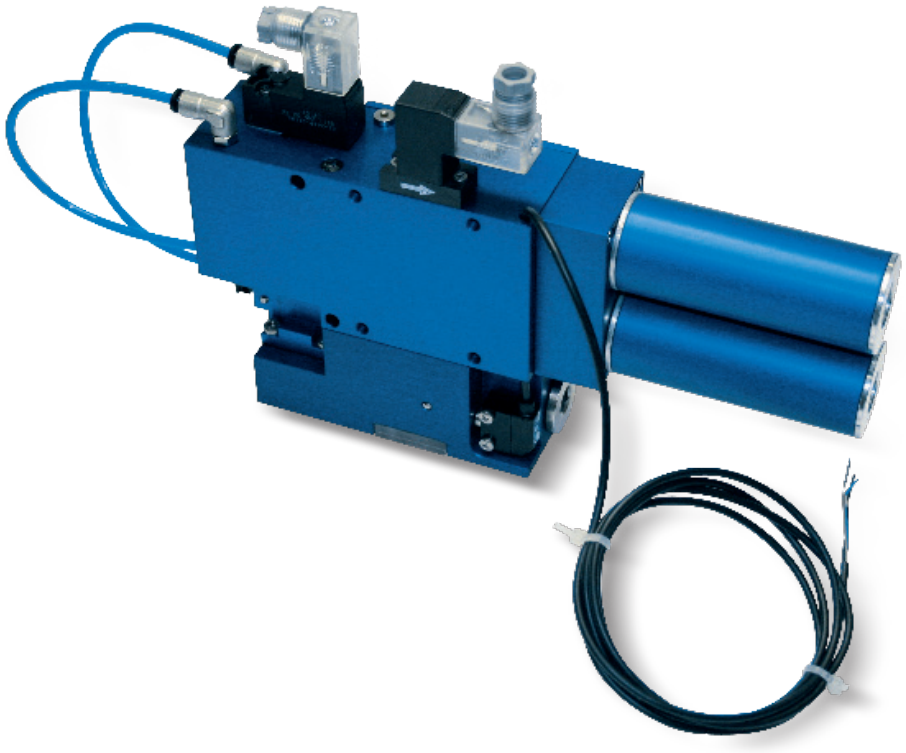
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
AVG 18	6.0	6.4	22	44	75	115	185	258	430	798	1107	85
AVG 25	6.0	9.6	15	30	52	80	128	178	297	538	764	85

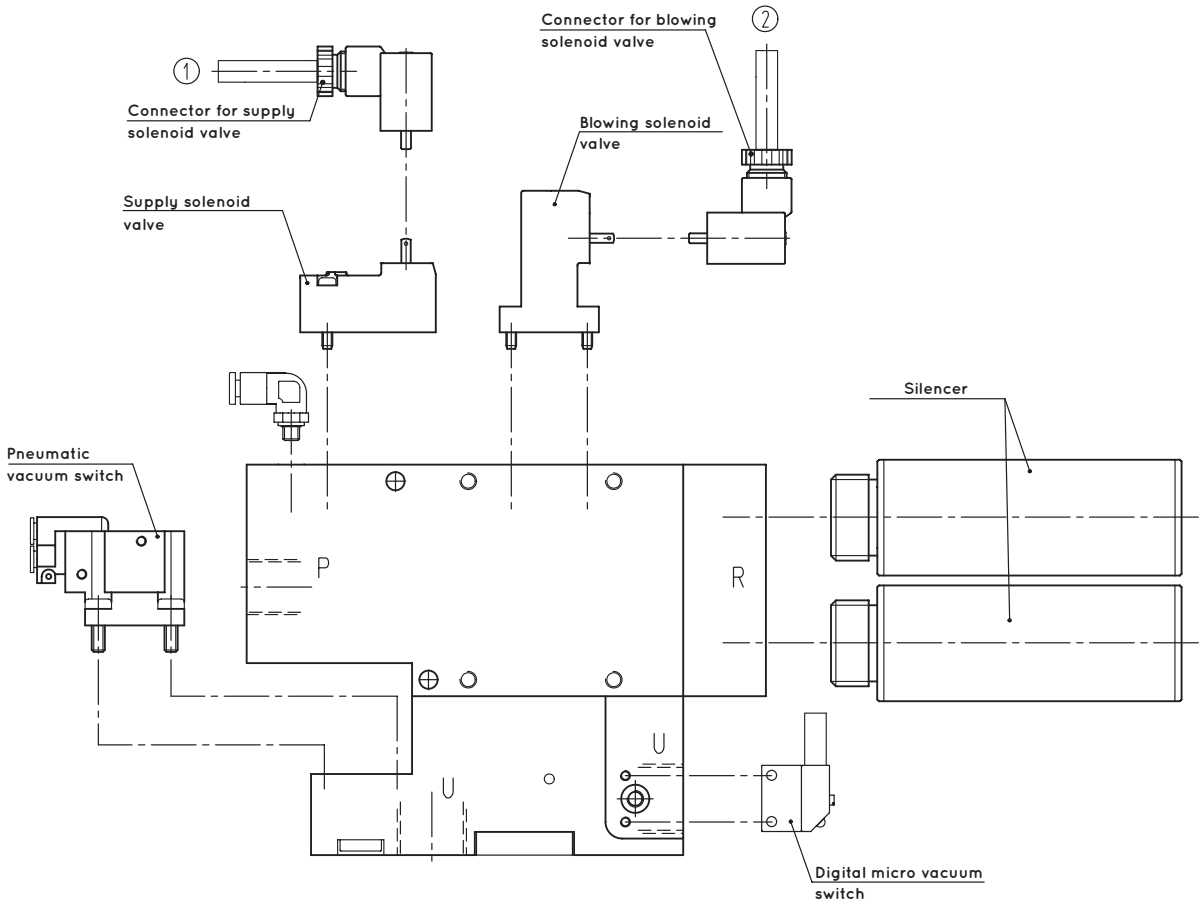
ACCESSORIES AND SPARE PARTS UPON REQUEST

Item		AVG 18	AVG 25
Sealing kit	item	00 KIT AVG 18	00 KIT AVG 25
Exhaust silencers	item	SSX 3/4 R	
Digital micro vacuum switch	item	12 05 11 *	
Bistable supply solenoid valve	item	00 15 297	
NC blowing solenoid valve	item	00 15 175	

* Complete the code indicating the electrical type of the output: P = PNP; N = NPN

ACCESSORIES AND SPARE PARTS FOR SINGLE-STAGE AND MULTI-FUNCTION VACUUM GENERATORS, SERIES AVG





Digital micro vacuum switch

Item	Description
12 05 11 *	Digital micro vacuum switch

* Complete the code indicating the electrical type of the output: P = PNP; N = NPN

Connector

Item	Description
00 15 157	Connector with LED for solenoid valves

M8 3 PIN Connector

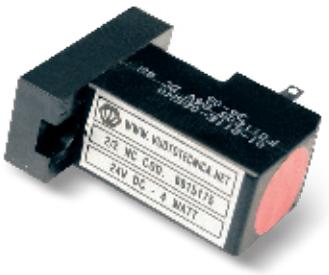
Item	Description
00 07 424	M8 3 PIN Connector with LED for micro solenoid valves

Bistable solenoid valve

Item	Description
00 15 297	Bistable supply solenoid valve

NC solenoid valve

Item	Description
00 15 175	NC blowing solenoid valve

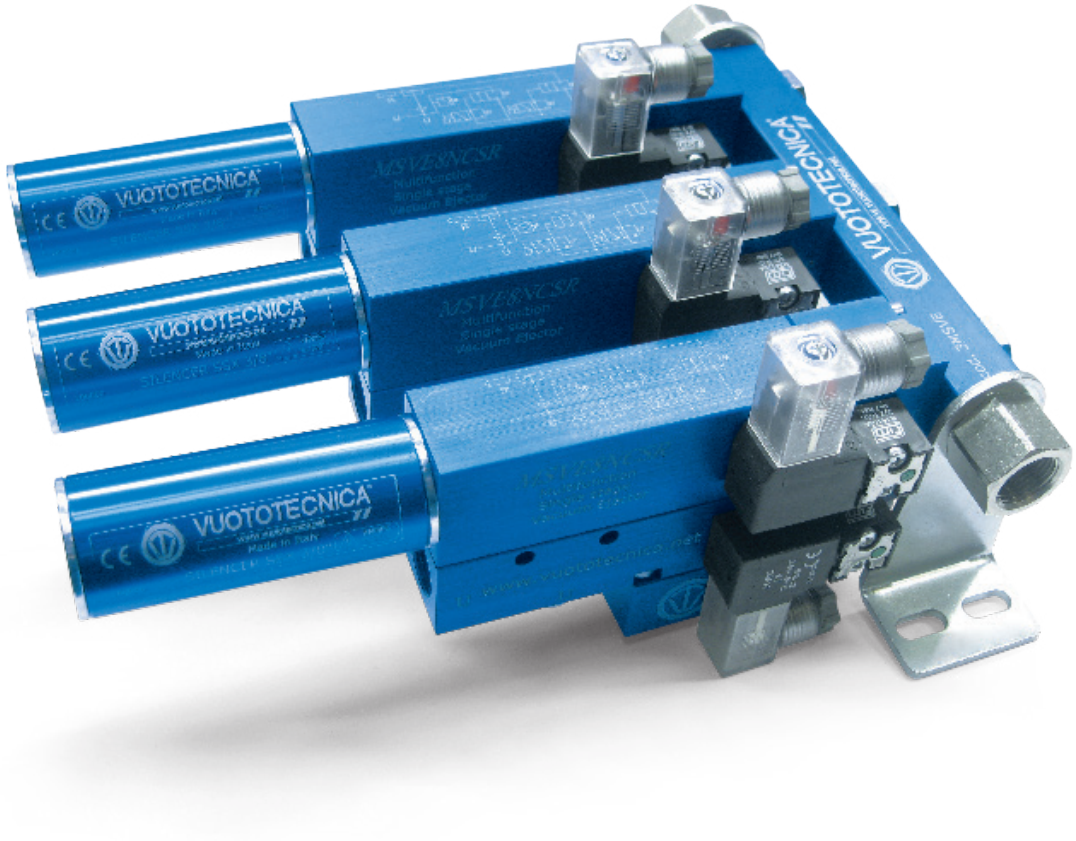


Sealing kit

Item	By generators item
00 KIT AVG 18	AVG 18
00 KIT AVG 25	AVG 25

Silencer

Item	Description
SSX 3/4" R	Exhaust silencer



3MSVE

MULTI-STAGE VACUUM GENERATORS - GENERAL DESCRIPTION

Our multi-stage vacuum generators produce a maximum vacuum of 90%, equal to a final level of vacuum of 100 mbar abs., with different suction capacities. They operate by use of compressed air from 1 to 6 bar.

Working principle

Each ejector is based on the Venturi principle: the supply fluid (compressed air) is led high speed by a convergent pipe into the fluid to be extracted (volume of the air to be sucked). This mixture is then led into two or three divergent pipes, where its kinetic energy is transformed into pressure energy for it to enter in the environment at a higher pressure (atmospheric pressure at the exhaust).

Technical features

The main asset of multi-stage vacuum generators is its ability to exploit the kinetic energy of the supply compressed air via several specially dimensioned in-line ejectors, before releasing it in the atmosphere. This system allows, given the same flow rate, a reduced compressed air consumption compared to the single-stage vacuum generators.

The suction flow rate is indirectly proportional to the differential between the pressure of the fluid to be sucked and the external (atmospheric) pressure.

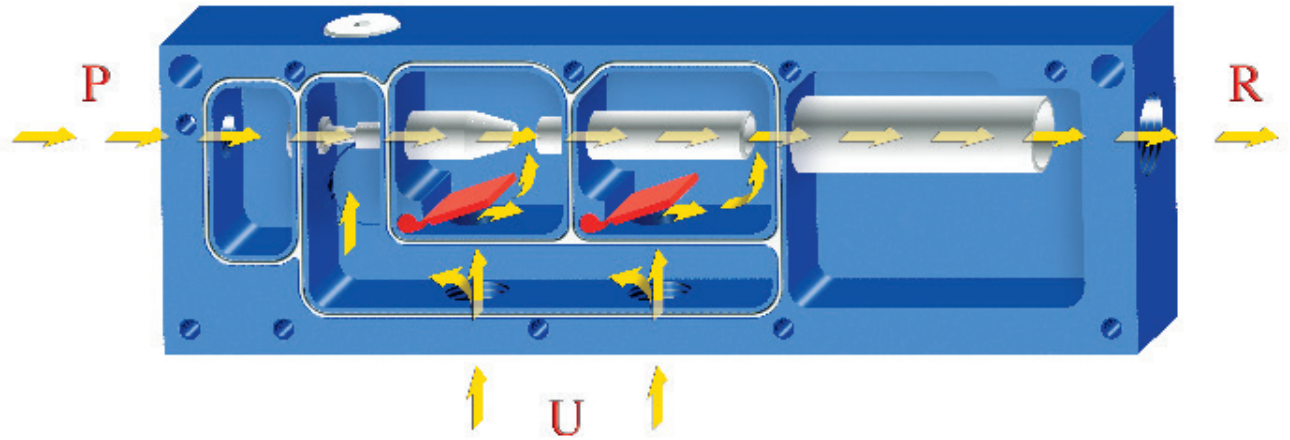
The reduced size and weight make multi-stage vacuum generators compact in relation to their great suction flow rate.

The absence of moving parts make them particularly silent and allow them to be used continuously, without developing heat.

Being supplied exclusively by compressed air, these vacuum generators are explosion-proof and can be used in work environments with temperatures ranging from -20 to +80°C.

They are fully made with stainless materials.

Thanks to all these features, a good filtration of the supply and sucked compressed air is sufficient to make these generators are fully maintenance-free.

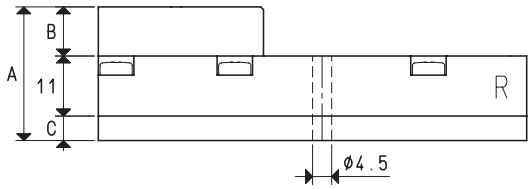


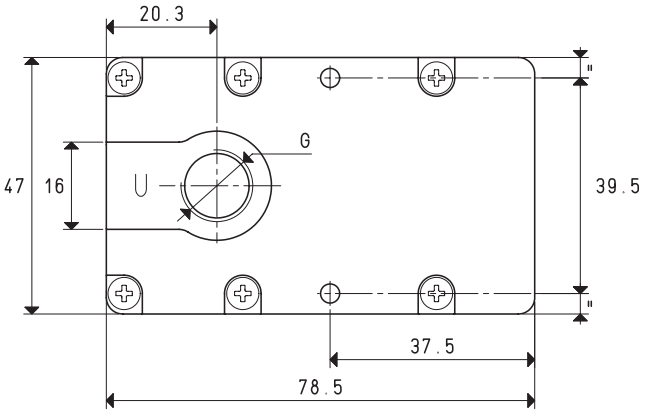
P = Compressed air connection
R = Air exhaust
U = Vacuum connection

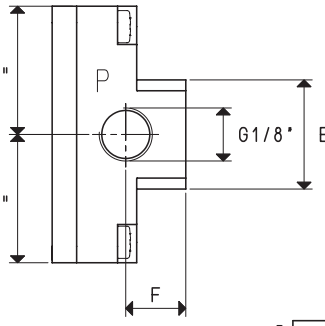
3D drawings are available on **vuototecnica.net**

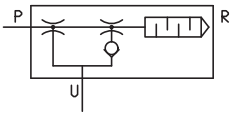
MULTI-STAGE VACUUM GENERATORS SERIES M

These new design vacuum generators feature multiple state of the art ejectors assembled onto small modules. One of their distinctive features is their great suction flow rate compared to their reduced size.
With a compressed air supply of 4 - 5 bar, they can produce a maximum vacuum equal to 85% and a suction flow rate of 3.6 - 18 m³/h, according to the number of modules.
The silencer is built-in.
They are fully made with slightly anodised alloys and can be installed in any position. The multi-stage vacuum generators in this range are suited for interconnecting vacuum cup gripping systems and, in particular, in the industrial robotics sector, which requires equipment with excellent working performance, but with weight and size reduced to the minimum.









P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

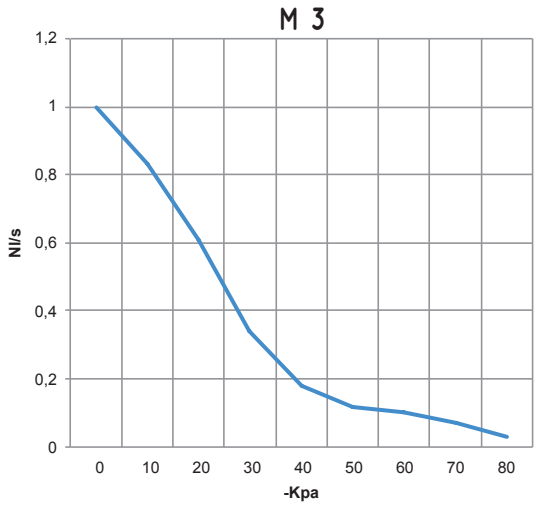
Item		M 3			M 7		
Intake air flow rate	m³/h	3	3.4	3.6	5.4	5.8	6.2
Maximum level of vacuum	-KPa	62	82	85	62	82	85
Final pressure	mbar abs.	380	180	150	380	180	150
Supply pressure	bar	3	4	5	3	4	5
Optimal supply pressure	bar			5			5
Air consumption	Nl/s	0.5	0.7	0.8	0.8	1.2	1.4
Operating temperature	°C			-10 / +80			-10 / +80
Noise level at optimal supply pressure	dB(A)			64			70
Weight	g			109			111
A				24.5			25.5
B				9			10
C				4.5			4.5
E	Ø			20			24
F				11			12
G	Ø			G1/4"			G3/8"

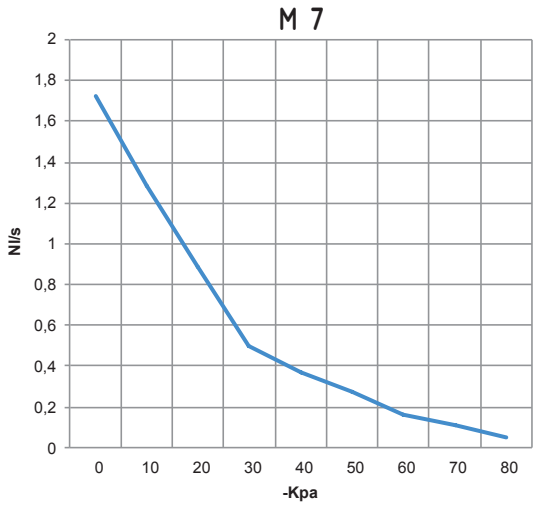
Spare parts		M 3	M 7
Sealing kit and reed valves	item	00 KIT M 3	00 KIT M 7
Exhaust silencer	item	00 15 150	00 15 150

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

3D drawings are available on **vuototecnica.net**

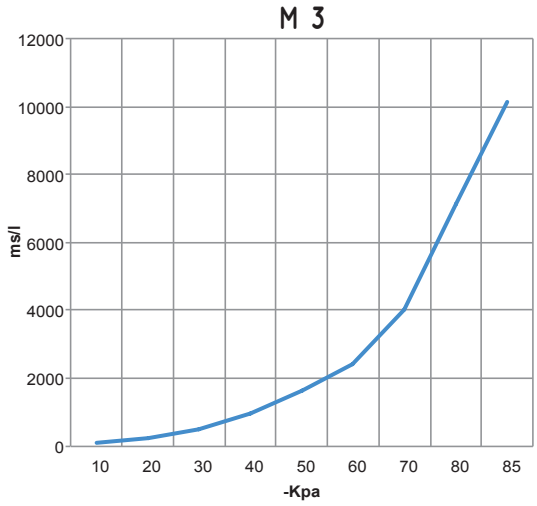
Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure

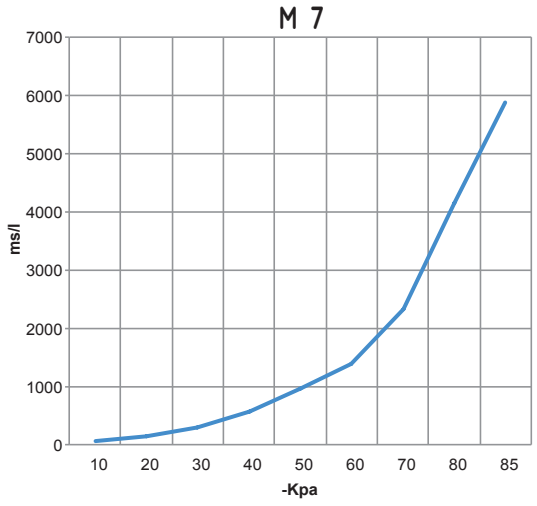




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			0	10	20	30	40	50	60	70	80	
M 3	5.0	0.8	1.00	0.83	0.61	0.34	0.18	0.12	0.10	0.07	0.03	85
M 7	5.0	1.4	1.72	1.28	0.89	0.50	0.37	0.27	0.16	0.11	0.05	85

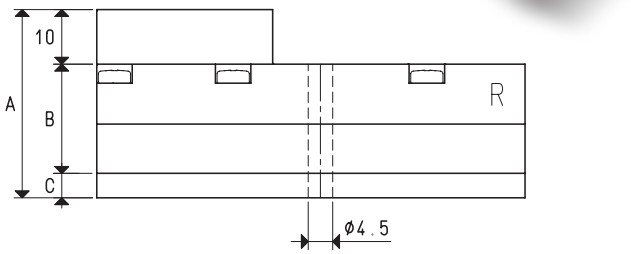
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

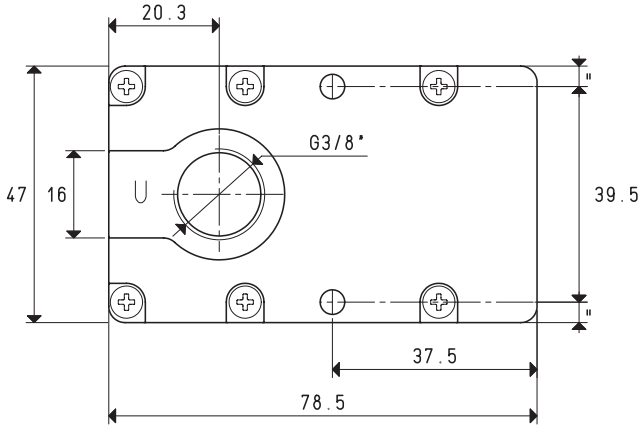


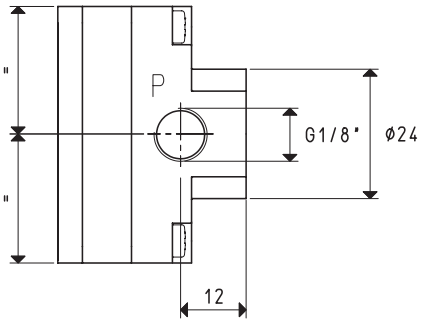


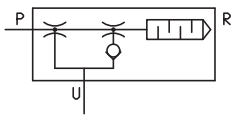
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
M 3	5.0	0.8	106	244	491	969	1642	2398	4004	7128	10122	85
M 7	5.0	1.4	61	142	285	563	954	1394	2328	4144	5885	85

3D drawings are available on **vuototecnica.net**









P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

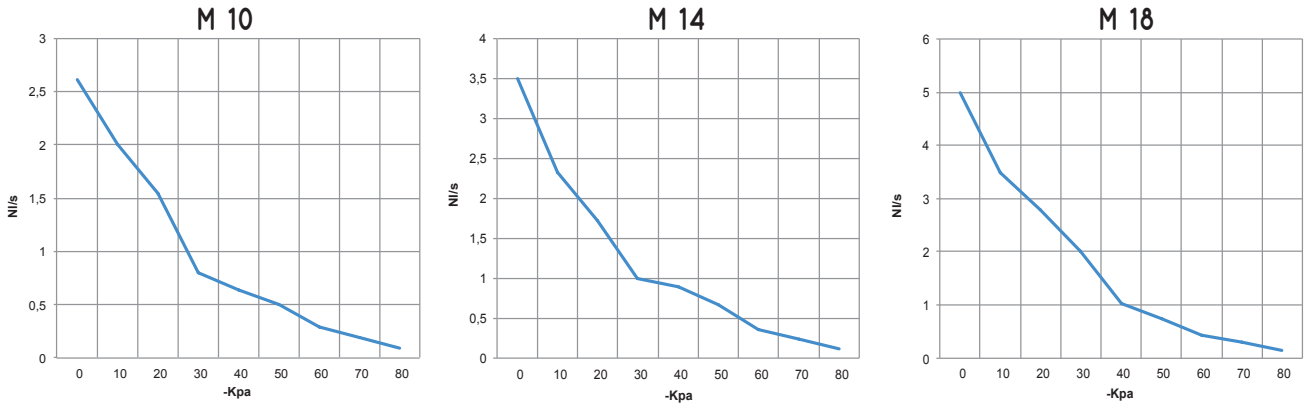
Item		M 10			M 14			M 18		
Intake air flow rate	m^3/h	7.7	8.5	9.4	10.2	11.6	12.6	14.8	16.5	18.0
Maximum level of vacuum	-KPa	62	82	85	62	82	85	62	82	85
Final pressure	mbar abs.	380	180	150	380	180	150	380	180	150
Supply pressure	bar	3	4	5	3	4	5	3	4	5
Optimal supply pressure	bar			5			5			5
Air consumption	Nl/s	1.2	1.6	1.9	1.7	2.1	2.5	2.3	2.9	3.6
Operating temperature	°C			-10 / +80			-10 / +80			-10 / +80
Noise level at optimal supply pressure	dB(A)			72			72			76
Weight	g			144			145			150
A				34.5			34.5			44.5
B				20			20			30
C				4.5			4.5			4.5

Spare parts		M 10	M 14	M 18
Sealing kit and reed valves	item	00 KIT M 10	00 KIT M 14	00 KIT M 18
Exhaust silencer	item	N°2 00 15 150	N°2 00 15 150	N°3 00 15 150

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

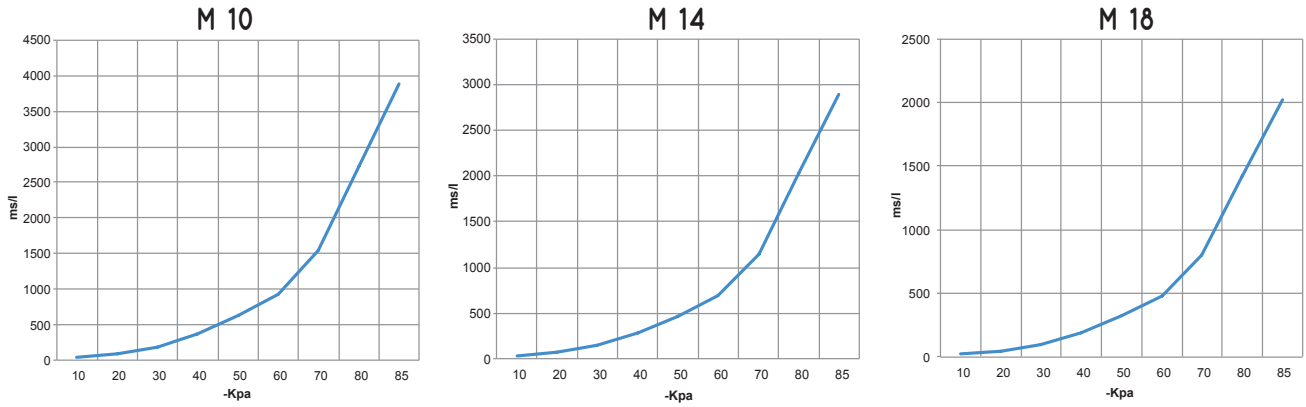
3D drawings are available on **vuototecnica.net**

Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			0	10	20	30	40	50	60	70	80	
M 10	5.0	1.9	2.61	2.00	1.55	0.80	0.64	0.50	0.29	0.19	0.09	85
M 14	5.0	2.5	3.50	2.33	1.72	1.00	0.89	0.67	0.35	0.24	0.11	85
M 18	5.0	3.6	5.00	3.50	2.78	2.02	1.02	0.75	0.44	0.30	0.14	85

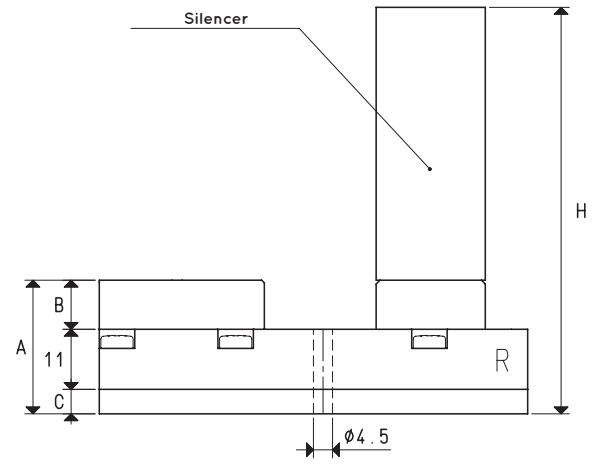
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

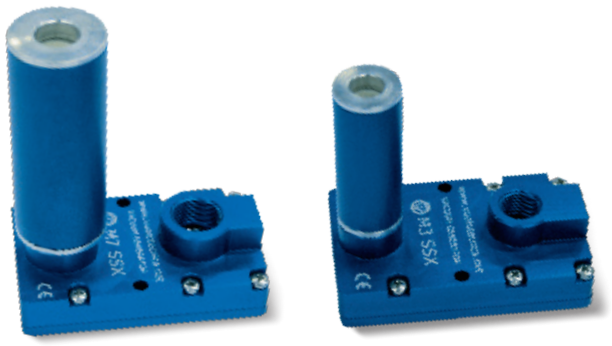


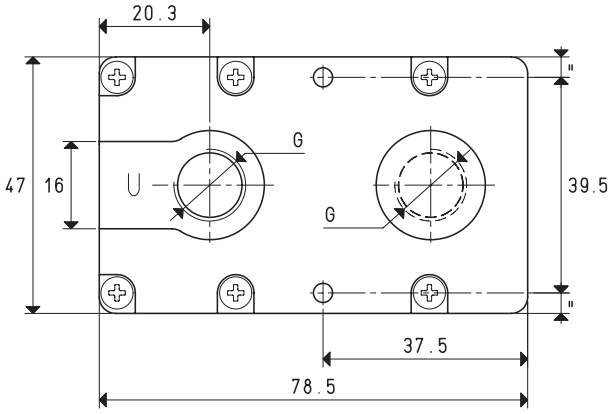
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
M 10	5.0	1.9	40	93	188	371	629	918	1534	2731	3878	85
M 14	5.0	2.5	30	69	140	276	469	685	1144	2036	2892	85
M 18	5.0	3.6	21	48	98	193	327	478	799	1423	2020	85

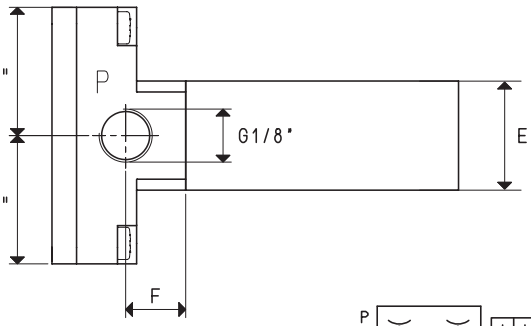
MULTI-STAGE VACUUM GENERATORS SERIES M.. SSX

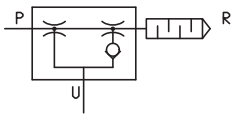
These vacuum generators share the same technical features as the others of the M series described above. Their distinctive feature is their silent operation. In fact, along with the built-in silencer, they also have an external SSX silencer for a further noise reduction.
These generators are particularly recommended in work environments where the noise level must be kept within very low values.











P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

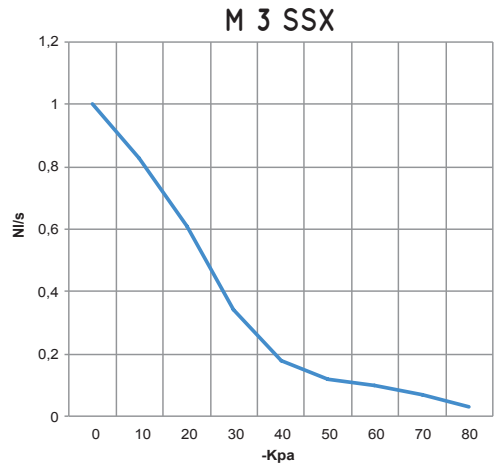
Item		M 3 SSX			M 7 SSX		
Intake air flow rate	m^3/h	3.0	3.4	3.6	5.4	5.8	6.2
Maximum level of vacuum	-KPa	62	82	85	62	82	85
Final pressure	mbar abs.	380	180	150	380	180	150
Supply pressure	bar	3	4	5	3	4	5
Optimal supply pressure	bar			5			5
Air consumption	Nl/s	0.5	0.7	0.8	0.8	1.2	1.4
Operating temperature	°C			-10 / +80			-10 / +80
Noise level at optimal supply pressure	dB(A)			52			58
Weight	g			109			111
A				24.5			25.5
B				9			10
C				4.5			4.5
E	Ø			20			29
F				11			12
G	Ø			G1/4"			G3/8"
H				74.5			97.5

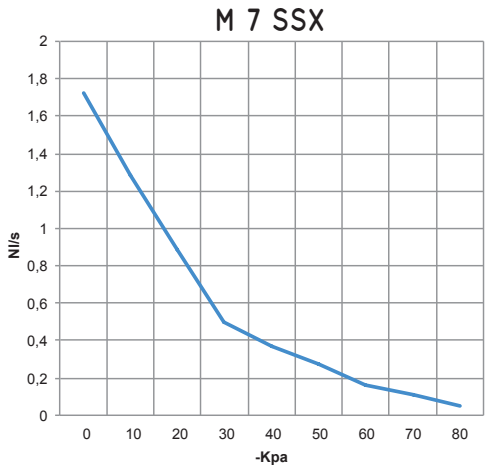
Spare parts		M 3 SSX	M 7 SSX
Silencer	item	SSX 1/4"	SSX 3/8"
Sealing kit and reed valves	item	00 KIT M 3	00 KIT M 7

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

3D drawings are available on vuototecnica.net

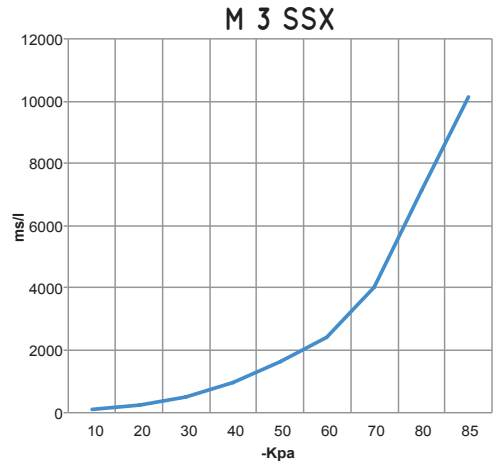
Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure

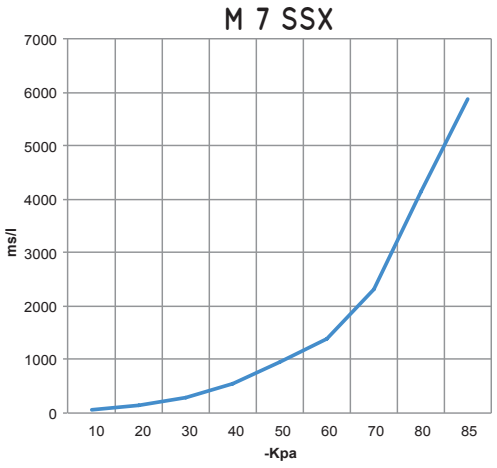




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
M 3 SSX	5.0	0.8	1.00	0.83	0.61	0.34	0.18	0.12	0.10	0.07	0.03	85
M 7 SSX	5.0	1.4	1.72	1.28	0.89	0.50	0.37	0.27	0.16	0.11	0.05	85

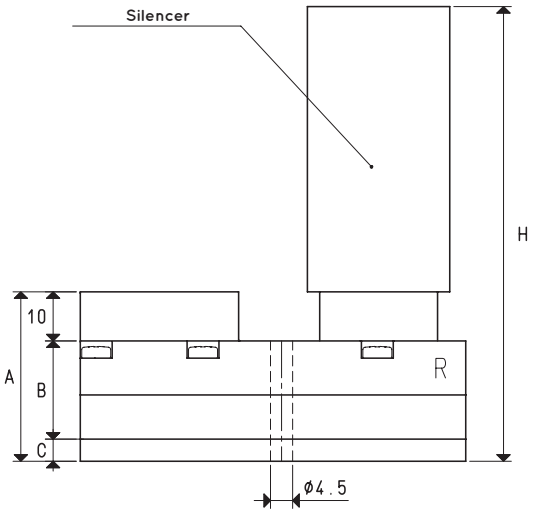
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

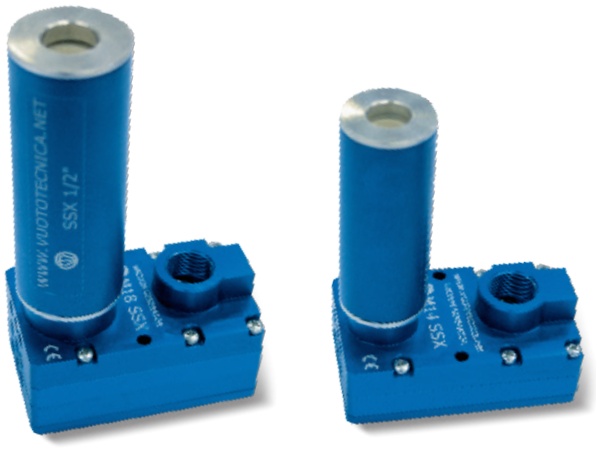


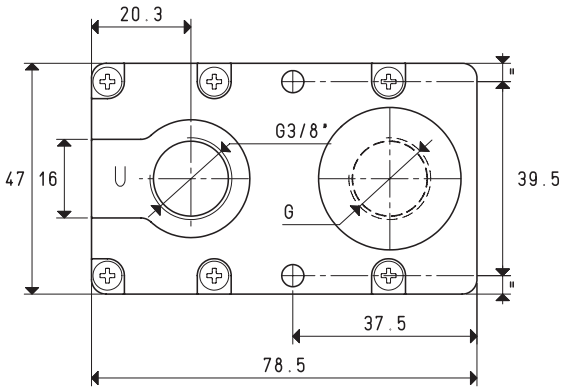


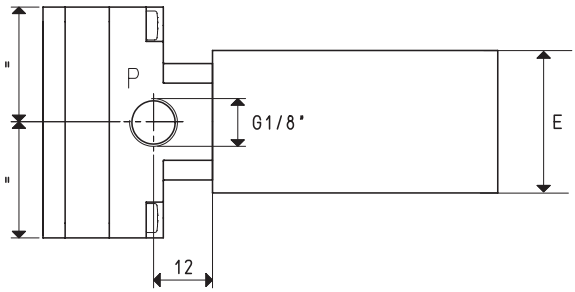
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
M 3 SSX	5.0	0.8	106	244	491	969	1642	2398	4004	7128	10122	85
M 7 SSX	5.0	1.4	61	142	285	563	954	1394	2328	4144	5885	85

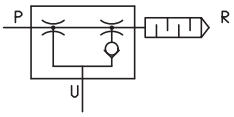
3D drawings are available on **vuototecnica.net**











P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

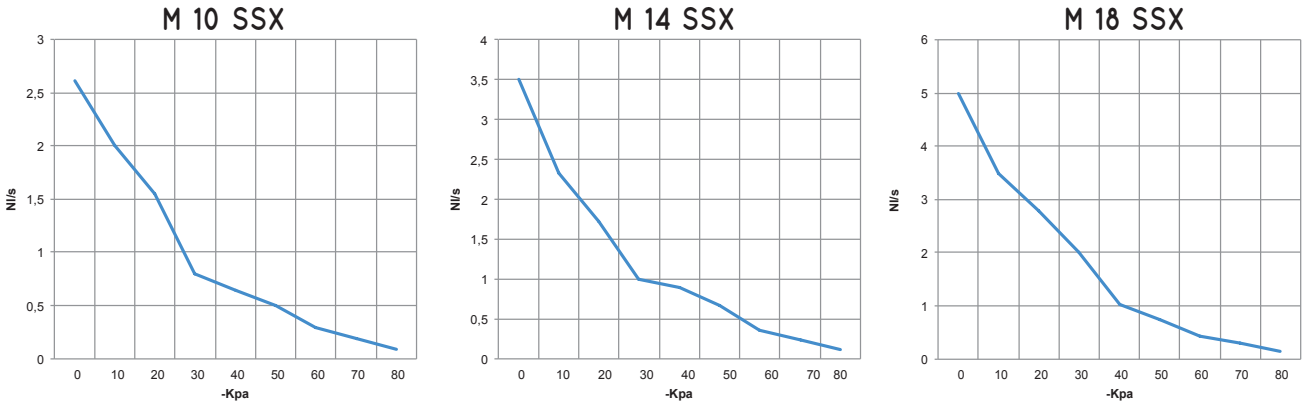
Item		M 10 SSX			M 14 SSX			M 18 SSX		
Intake air flow rate	m^3/h	7.7	8.5	9.4	10.2	11.5	12.6	14.8	16.5	18.0
Maximum level of vacuum	-KPa	62	82	85	62	82	85	62	82	85
Final pressure	mbar abs.	380	180	150	380	180	150	380	180	150
Supply pressure	bar	3	4	5	3	4	5	3	4	5
Optimal supply pressure	bar			5			5			5
Air consumption	Nl/s	1.2	1.6	1.9	1.7	2.1	2.5	2.3	2.9	3.6
Operating temperature	°C			-10 / +80			-10 / +80			-10 / +80
Noise level at optimal supply pressure	dB(A)			60			62			66
Weight	g			144			145			150
A				34.5			34.5			44.5
B				20			20			30
C				4.5			4.5			4.5
E	Ø			29			29			35
G	Ø			G3/8"			G3/8"			G1/2"
H				106.5			106.5			136.5

Spare parts		M 10 SSX	M 14 SSX	M 18 SSX
Silencer	item	SSX 3/8"	SSX 3/8"	SSX 1/2"
Sealing kit and reed valves	item	00 KIT M 10	00 KIT M 14	00 KIT M 18

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

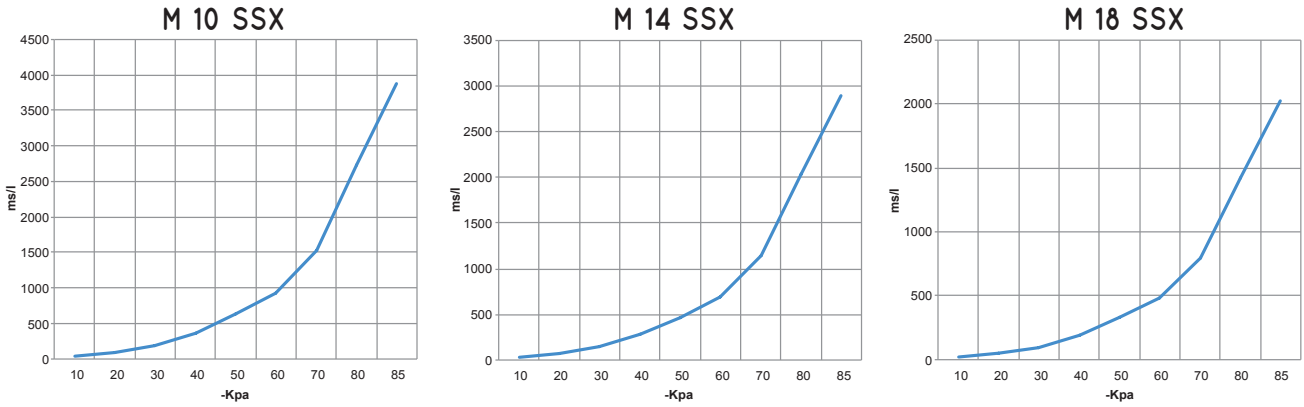
3D drawings are available on **vuototecnica.net**

Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
M 10 SSX	5.0	1.9	2.61	2.00	1.55	0.80	0.64	0.50	0.29	0.19	0.09	85
M 14 SSX	5.0	2.5	3.50	2.33	1.72	1.00	0.89	0.67	0.35	0.24	0.11	85
M 18 SSX	5.0	3.6	5.00	3.50	2.78	2.02	1.02	0.75	0.44	0.30	0.14	85

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
M 10 SSX	5.0	1.9	40	93	188	371	629	918	1534	2731	3878	85
M 14 SSX	5.0	2.5	30	69	140	276	469	685	1144	2036	2892	85
M 18 SSX	5.0	3.6	21	48	98	193	327	478	799	1423	2020	85

3D drawings are available on **vuototecnica.net**

Sealing kit and reed valves

Item	By generators item
00 KIT M 3	M3 - M3 SSX
00 KIT M 7	M7 - M7 SSX
00 KIT M 10	M10 - M10 SSX
00 KIT M 14	M14 - M14 SSX
00 KIT M 18	M18 - M18 SSX

Exhaust silencers SSX

Item	By generators item
SSX 1/4"	M3 SSX
SSX 3/8"	M7 SSX - M10 SSX - M14 SSX
SSX 1/2"	M18 SSX

Sound absorbing material on the exhaust

Item	By generators item	Quantity
00 15 150	M3 - M3 SSX	1 piece
	M7 - M7 SSX	1 piece
	M10 - M10 SSX	2 pieces
	M14 - M14 SSX	2 pieces
	M18 - M18 SSX	3 pieces

MULTI-STAGE AND MULTI-FUNCTION VACUUM GENERATORS SERIES MVG - GENERAL DESCRIPTION

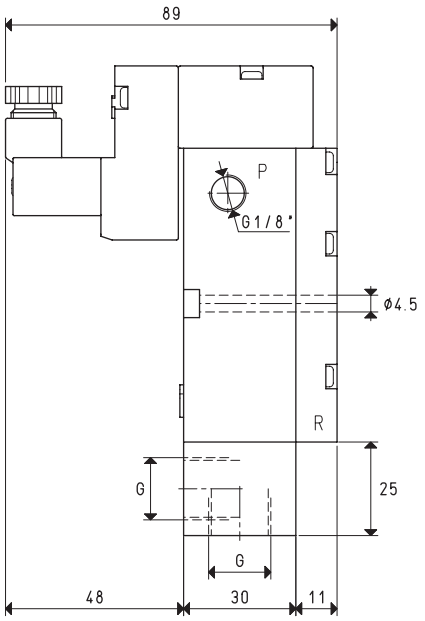
These generators are true independent vacuum units that can control an entire vacuum gripping system. Their distinctive features are their compact size and great suction flow rate.
They are composed of a mono-block anodised aluminium structure onto which are assembled:
- A modular and silenced multi-stage vacuum generator;
- A micro solenoid valve for supplying compressed air to the generator;
- A micro solenoid valve for blowing the exhaust compressed air;
- An adjustable flow regulator for dosing the exhaust air;
- A unidirectional check valve, located on the suction inlet, for maintaining the vacuum in case of electricity failure;
- A digital vacuum switch provided with display and commutation LEDs, for managing the compressed air supply and for signalling the safety cycle start-up;
- An anodised aluminium manifold provided with vacuum connections and a built-in filter easy to inspect.

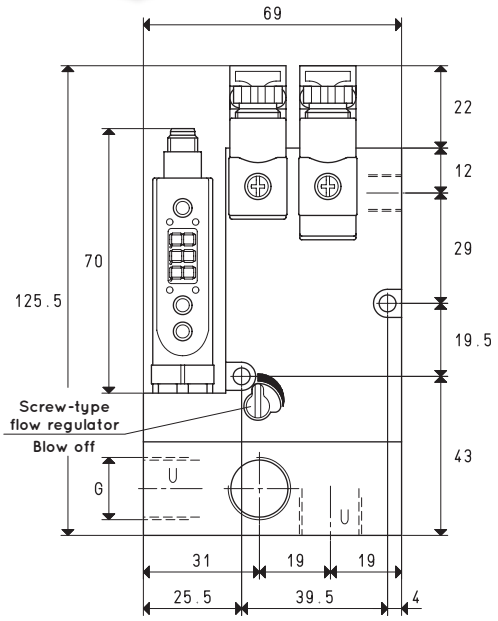
By activating the compressed air power micro solenoid valve, the generator creates vacuum for use. As soon as the preset maximum value is reached, the digital vacuum switch acts on the electric coil of the micro solenoid valve and stops the air supply, reactivating it when the vacuum falls below the minimum level.
Besides maintaining the level of vacuum within set safety values (hysteresis), this modulation allows for considerable compressed air savings.
A second signal from the vacuum switch (also adjustable and independent with respect to the first) can be used to start the cycle when the level of vacuum reached is suitable for use.
Once the work cycle is completed, the micro solenoid valve that supplies air to the generator is deactivated while, at the same time, the ejection solenoid valve is activated for quick restoration of the atmospheric pressure upon use.
The multi-function MVG vacuum generators can be installed in any position and are suitable for suction gripping systems, handling metal sheets, glass, marble, ceramics, plastic, cardboard, wood, etc. and, in particular, for the industrial robotics sector, where equipment with excellent performance but with limited weight and bulk are increasingly required.

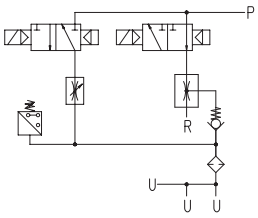
IO-Link Ready!

MULTI-STAGE AND MULTI-FUNCTION VACUUM GENERATORS
MVG 3 and MVG 7

IO-Link Ready!







P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

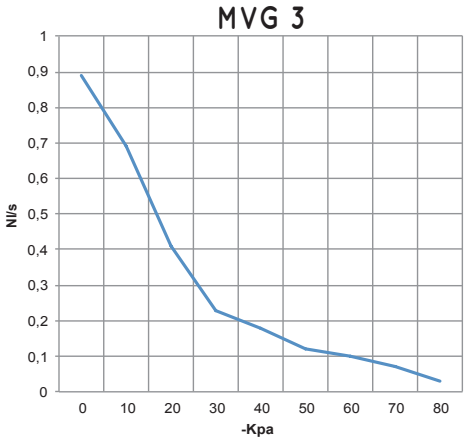
Item		MVG 3			MVG 7		
Intake air flow rate	m^3/h	2.8	3.0	3.2	5.6	6.0	6.6
Maximum level of vacuum	-KPa	50	70	85	50	70	85
Final pressure	mbar abs.	500	300	150	500	300	150
Supply pressure	bar	3	4	5	3	4	5
Optimal supply pressure	bar			5			5
Air consumption	Nl/s	0.5	0.6	0.8	0.8	1.0	1.3
Max quantity of air blown at 5 bar	l/min			205			205
Supply solenoid valve position	NO/NC			NO			NO
Ejection solenoid valve position	NC			NC			NC
Supply voltage	V			24 DC			24 DC
Electrical absorption	W			1 x 2			1 x 2
Vacuum switch output				PNP			PNP
Degree of protection	IP			65			65
Temperature of use	°C			-10 / +60			-10 / +60
Noise level at optimal supply pressure	dB(A)			66			70
Weight	Kg			0.666			0.670
G	Ø			G1/4"			G3/8"

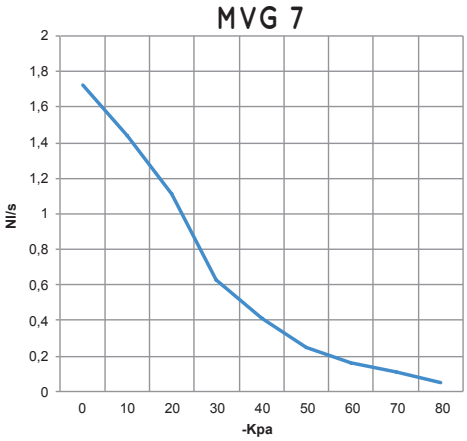
Note: To order a generator with NC supply solenoid valve, indicate item code MVG .. NC.
Without digital vacuum switch, indicate code MVG .. SV.
Without ejection solenoid valve, indicate code MVG .. SC.

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

3D drawings are available on **vuototecnica.net**

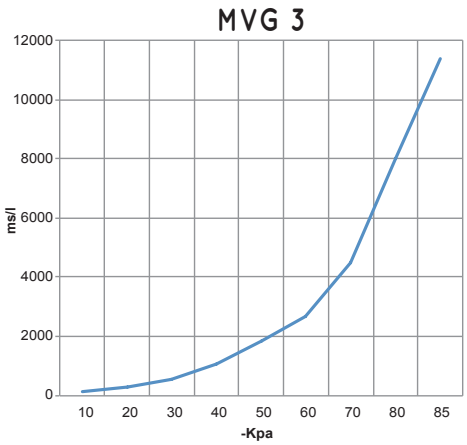
Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure

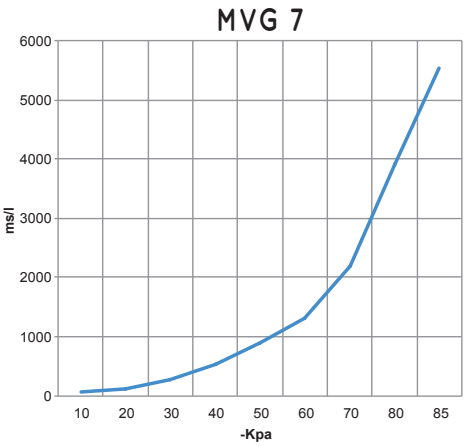




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
MVG 3	5.0	0.8	0.89	0.69	0.41	0.23	0.18	0.12	0.10	0.07	0.03	85
MVG 7	5.0	1.3	1.83	1.44	1.11	0.63	0.41	0.25	0.16	0.11	0.05	85

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure





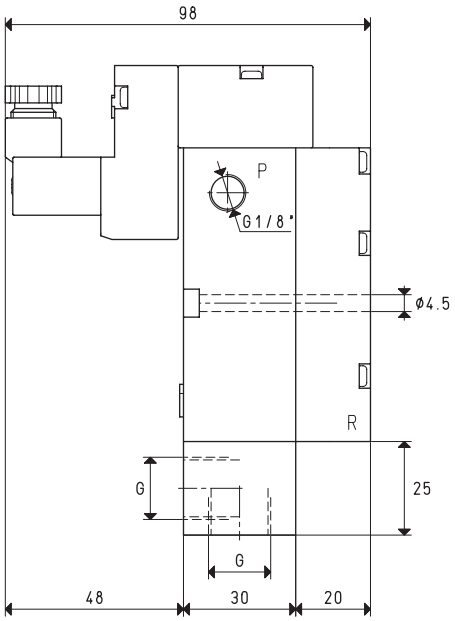
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
MVG 3	5.0	0.8	119	274	552	1088	1845	2694	4499	8009	11373	85
MVG 7	5.0	1.3	58	133	268	529	897	1310	2188	3895	5531	85

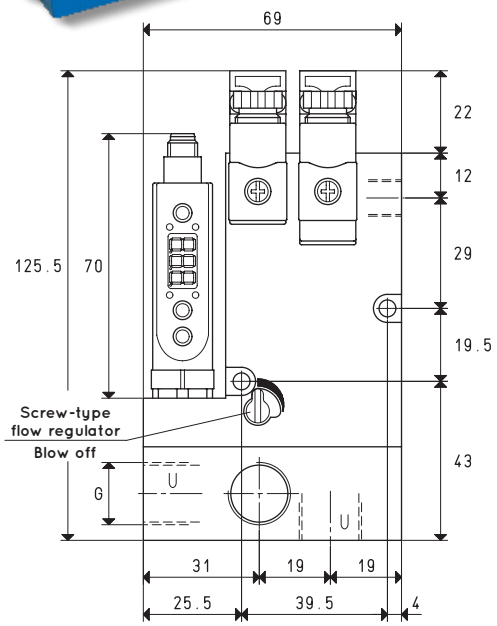
ACCESSORIES AND SPARE PARTS UPON REQUEST

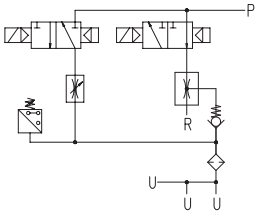
Item		MVG 3	MVG 7
Sealing kit and reed valves	item	00 KIT MVG 3	00 KIT MVG 7
Exhaust silencer	item	00 15 150	
Electrical connection cable with axial connector, for vacuum switch	item	00 12 20	
Electrical connection cable with radial connector, for vacuum switch	item	00 12 21	
Set of electrical connection cables, with built-in NO energy saving device and connectors	item	00 15 202	
Set of electrical connection cables, with built-in NC energy saving device and connectors	item	00 15 203	
Digital vacuum switch	item	12 10 10	
NO supply solenoid valve	item	00 15 436	
NC supply solenoid valve	item	00 15 437	

MULTI-STAGE AND MULTI-FUNCTIONVACUUM GENERATORS
MVG 10 and MVG 14

IO-Link Ready!







P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

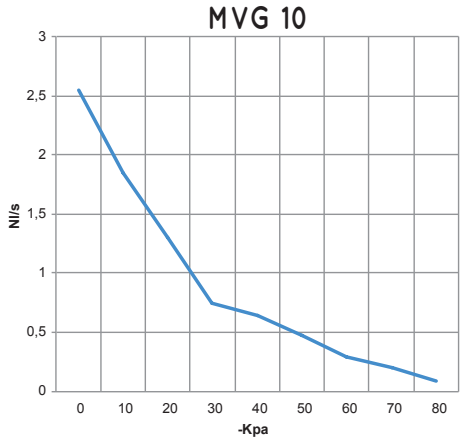
Item		MVG 10			MVG 14		
Intake air flow rate	m^3/h	7.7	8.4	9.2	10.2	11.2	12.2
Maximum level of vacuum	-KPa	50	70	85	50	70	85
Final pressure	mbar abs.	500	300	150	500	300	150
Supply pressure	bar	3	4	5	3	4	5
Optimal supply pressure	bar			5			5
Air consumption	Nl/s	0.9	1.3	1.7	1.3	1.7	2.1
Max quantity of air blown at 5 bar	l/min			205			205
Supply solenoid valve position	NO/NC			NO			NO
Ejection solenoid valve position	NC			NC			NC
Supply voltage	V			24 DC			24 DC
Electrical absorption	W			1 x 2			1 x 2
Vacuum switch output				PNP			PNP
Degree of protection	IP			65			65
Temperature of use	°C			-10 / +60			-10 / +60
Noise level at optimal supply pressure	dB(A)			62			70
Weight	Kg			0.716			0.720
G	Ø			G3/8"			G3/8"

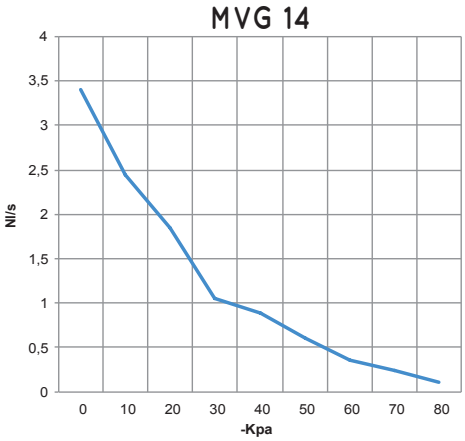
Note: To order a generator with NC supply solenoid valve, indicate item code MVG .. NC.
Without digital vacuum switch, indicate code MVG .. SV.
Without ejection solenoid valve, indicate code MVG .. SC.

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

MULTI-STAGE AND MULTI-FUNCTION VACUUM GENERATORS MVG 10 and MVG 14

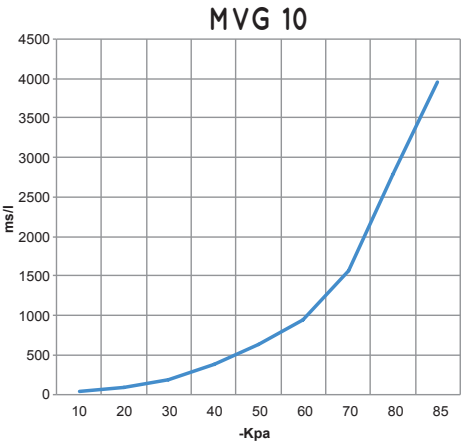
Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure

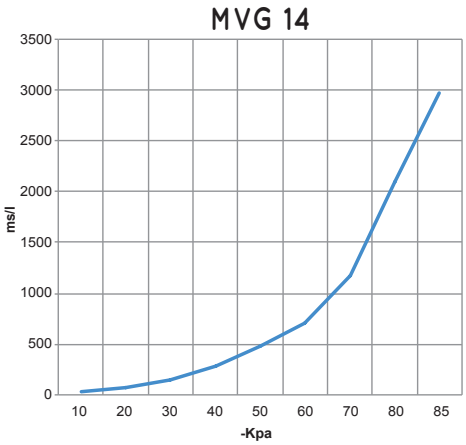




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
MVG 10	5.0	1.7	2.55	1.85	1.30	0.75	0.64	0.48	0.30	0.20	0.09	85
MVG 14	5.0	2.1	3.40	2.45	1.84	1.05	0.88	0.61	0.36	0.24	0.11	85

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure





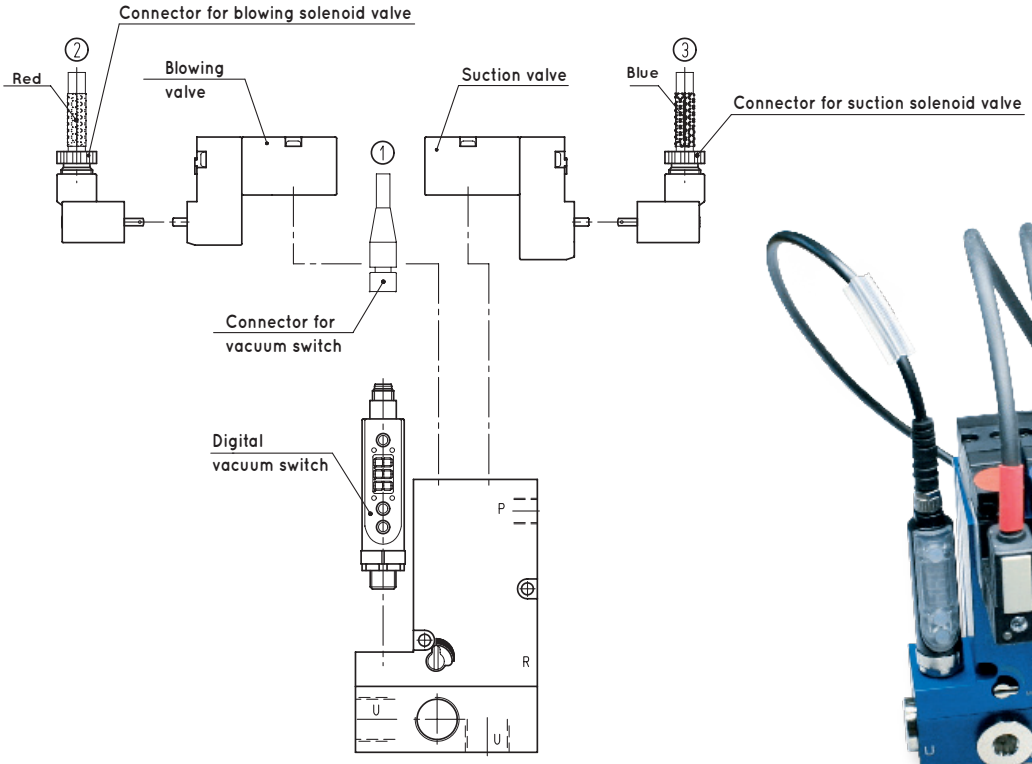
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
MVG 10	5.0	1.7	41	95	192	379	642	938	1567	2790	3962	85
MVG 14	5.0	2.1	31	71	144	284	482	704	1175	2092	2971	85

ACCESSORIES AND SPARE PARTS UPON REQUEST

Item		MVG 10	MVG 14
Sealing kit and reed valves	item	00 KIT MVG 10	00 KIT MVG 14
Exhaust silencer	item	N°2 00 15 150	
Electrical connection cable with axial connector, for vacuum switch	item	00 12 20	
Electrical connection cable with radial connector, for vacuum switch	item	00 12 21	
Set of electrical connection cables, with built-in NO energy saving device and connectors	item	00 15 202	
Set of electrical connection cables, with built-in NC energy saving device and connectors	item	00 15 203	
Digital vacuum switch	item	12 10 10	
NO supply solenoid valve	item	00 15 436	
NC supply solenoid valve	item	00 15 437	

3D drawings are available on **vuototecnica.net**

3D drawings are available on vuototecnica.net



Cable set with built-in energy saving device for MVG.. generator

Item	Description
00 15 202	Set of cables with built-in energy saving device for connection to:
	- Digital vacuum switch
	- NO micro supply solenoid valve
	- NC micro ejection solenoid valve
	Cable length - 5 m

Note: The IO-Link signal cannot be handled by the energy-saving cable set.

Cable set with built-in energy saving device for MVG..NC generator

Item	Description
00 15 203	Set of cables with built-in energy saving device for connection to:
	- Digital vacuum switch
	- NC micro supply solenoid valve
	- NC micro ejection solenoid valve
	Cable length - 5 m

Note: The IO-Link signal cannot be handled by the energy-saving cable set.

Connector

Item	Description
00 15 157	Connector with LED for micro solenoid valves

M8 3 PIN Connector

Item	Description
00 07 424	M8 3 PIN Connector with LED for micro solenoid valves

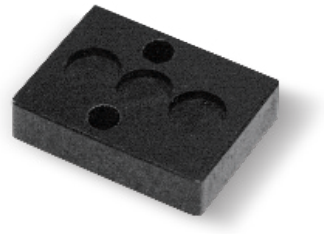
Cable with axial connector

Item	Description
00 12 20	Electrical connection cable with M8 - 4 pin axial connector for digital vacuum switch length 5 m

Cable with radial connector

Item	Description
00 12 21	Electrical connection cable with M8 - 4 pin radial connector for digital vacuum switch length 5 m

Replacement plate for micro blowing solenoid valve

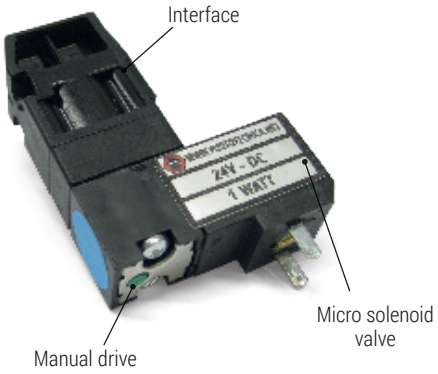


Item	Description
00 15 178	Replacement plate for micro blowing solenoid valve

3D drawings are available on **vuototecnica.net**

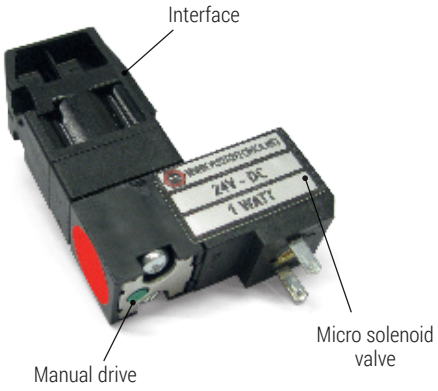
NO micro supply solenoid valve

Item	Description
00 15 436	NO micro solenoid valves with built-in low absorption electrical coil and interface



NC supply and blowing micro solenoid valve

Item	Description
00 15 437	NC micro solenoid valves with built-in low absorption electrical coil and interface



Sealing kit and reed valves

Item	By generators item
00 KIT MVG 3	MVG 3
00 KIT MVG 7	MVG 7
00 KIT MVG 10	MVG 10
00 KIT MVG 14	MVG 14
00 KIT MVG 18	MVG 18

Sound absorbing material on the exhaust

Item	By generators item	Quantity
00 15 150	MVG 3	1 piece
	MVG 7	1 piece
	MVG 10	2 pieces
	MVG 14	2 pieces

Digital vacuum switch

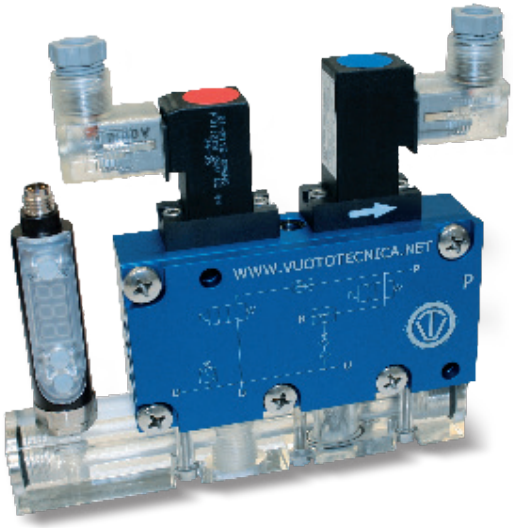
Item	Description
12 10 10	Digital vacuum switch

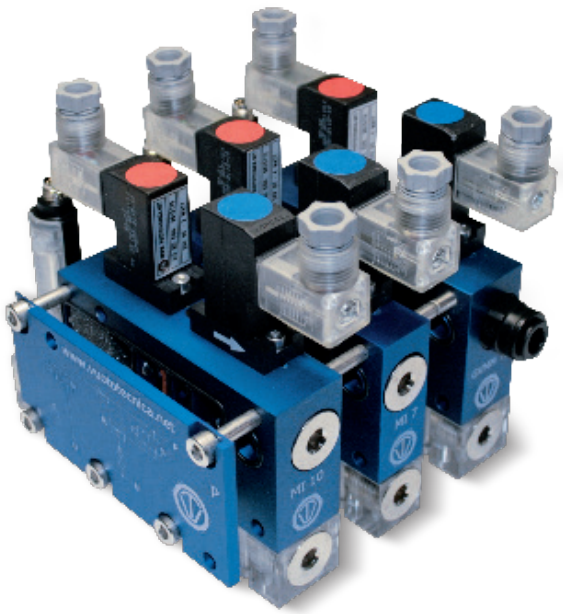
MULTI-STAGE, MULTI-FUNCTION AND MODULAR VACUUM GENERATORS, SERIES GVMM - GENERAL DESCRIPTION

Modular multi-function vacuum generators are true independent vacuum units that offer an entire vacuum control system.
They feature a reduced thickness and weight compared to their suction flow rate and they have been designed to be assembled with screws to one or more intermediate modules MI. The original internal connection system for the compressed air supply allows communication with no need for external manifolds.
This modular system allows increasing the number of independent vacuum units according to the requirements. In fact, you can order a multi-function vacuum generator and the intermediate modules with the desired capacities, already assembled, or you can assemble one or more intermediate modules to the GVMM generator that has already been installed on the machine, without having to make particular modifications. GVMM vacuum generators are composed of an anodised aluminium mono-block with lid, inside of which the silenced multiple ejectors are installed and the vacuum chamber and the compressed air supply connection are contained.
The following are instead installed on the outside:
- A micro solenoid valve for supplying compressed air to the generator;
- A micro solenoid valve for blowing the exhaust compressed air;
- An adjustable flow regulator for dosing the exhaust air;
- A digital vacuum switch provided with display and commutation LEDs, for managing the compressed air supply and for signalling the safety cycle start-up;
- An anodised aluminium or transparent Plexiglass manifold provided with vacuum connections with built-in suction filter, easy to inspect, and a check valve for maintaining the vacuum in case of electricity or compressed air failure.

By activating the compressed air power micro solenoid valve, the generator creates vacuum for use. As soon as the preset maximum value is reached, the digital vacuum switch acts on the electric coil of the micro solenoid valve and stops the air supply, reactivating it when the vacuum falls below the minimum level.
Besides maintaining the level of vacuum within set safety values (hysteresis), this modulation allows for considerable compressed air savings.
A second signal from the vacuum switch (also adjustable and independent with respect to the first) can be used to start the cycle when the level of vacuum reached is suitable for use. Once the work cycle is completed, the micro solenoid valve that supplies air to the generator is deactivated while, at the same time, the ejection solenoid valve is activated for quick restoration of the atmospheric pressure upon use.
GVMM multi-function vacuum generators can be installed in any position and are suited for interconnecting vacuum gripping systems for handling sheet steel, glass, marble, ceramic, plastic, cardboard, wood, etc., and, in particular, for the industrial robotics sector which requires equipment with excellent performance and several independent vacuum units for controlling several applications but with reduced size and weight.

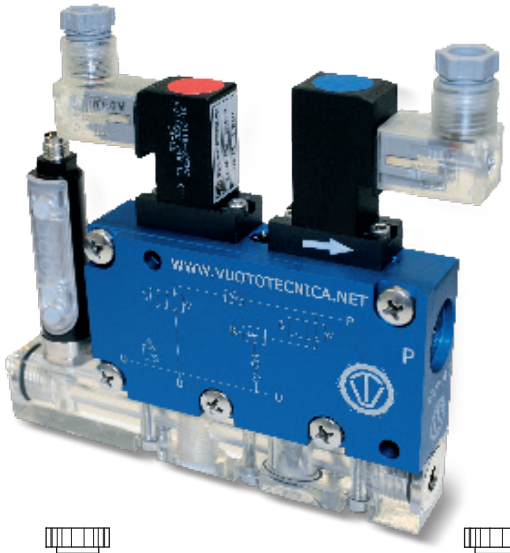
IO-Link Ready!

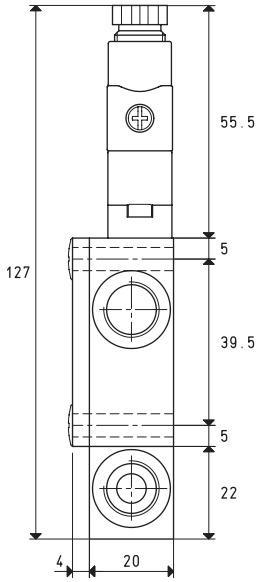


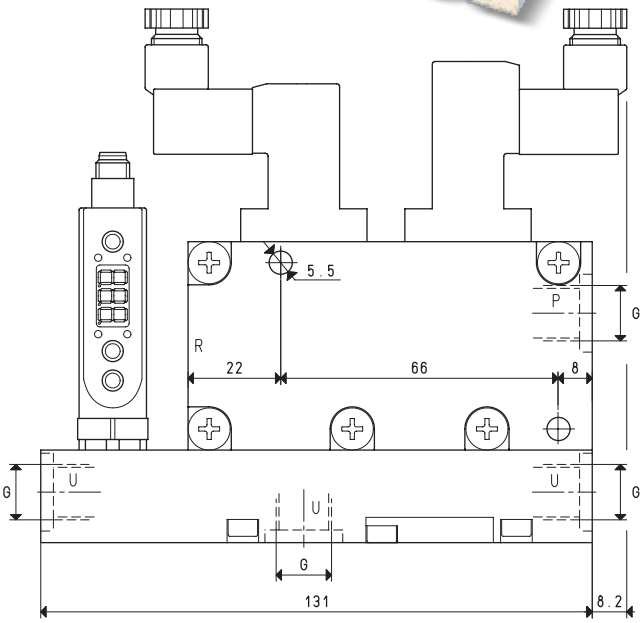


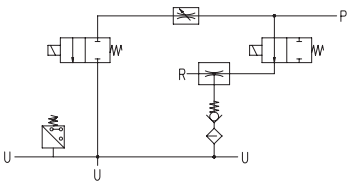
MULTI-STAGE, MULTI-FUNCTION AND MODULAR VACUUM GENERATORS, GVMM 3 and GVMM 7

IO-Link Ready!









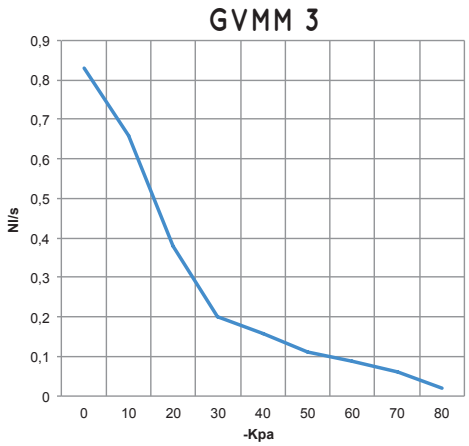
P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

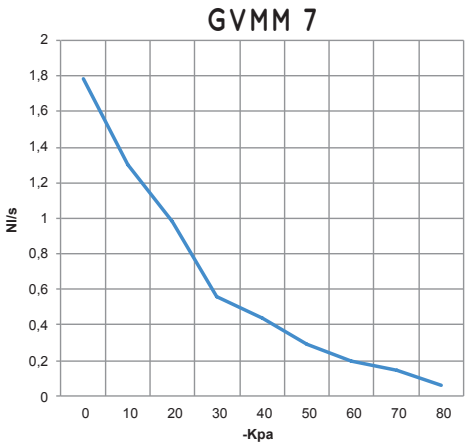
Item		GVMM 3			GVMM 7		
Intake air flow rate	m^3/h	2.6	2.8	3.0	5.5	6.0	6.4
Maximum level of vacuum	-KPa	64	85	85	60	80	85
Final pressure	mbar abs.	360	150	150	400	200	150
Supply pressure	bar	3	4	5	3	4	5
Optimal supply pressure	bar			5			5
Air consumption	Nl/s	0.6	0.7	0.8	0.9	1.1	1.3
Max quantity of air blown at 5 bar	l/min			128			128
Supply solenoid valve position	NO/NC			NO			NO
Electrical absorption	W			2			2
Ejection solenoid valve position	NC			NC			NC
Electrical absorption	W			4			4
Supply voltage	V			24DC			24DC
Vacuum switch output				PNP			PNP
Degree of protection	IP			65			65
Temperature of use	°C			-10 / +60			-10 / +60
Noise level at optimal supply pressure	dB(A)			66			70
Weight	g			420			420
G	Ø			G1/4"			G1/4"

Note: To order a generator without a digital vacuum switch, indicate code GVMM .. SV.
To order a generator with NC supply solenoid valve, indicate code GVMM .. NC.
To order a generator with aluminium manifold, indicate code GVMM .. AL.

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

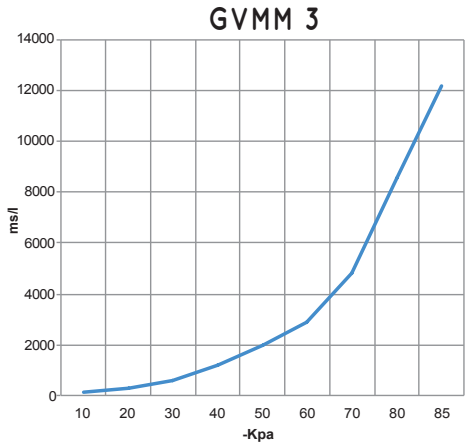
Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure

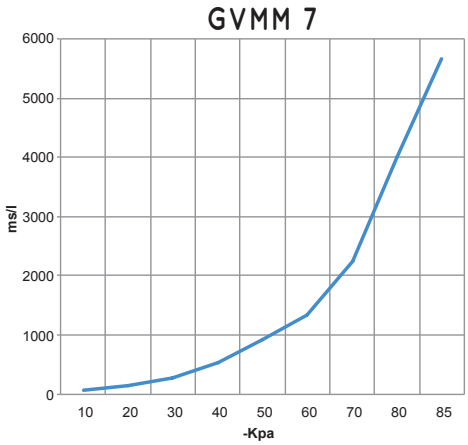




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
GVMM 3	5.0	0.8	0.83	0.66	0.38	0.20	0.16	0.11	0.09	0.06	0.02	85
GVMM 7	5.0	1.3	1.78	1.30	0.98	0.56	0.44	0.29	0.20	0.14	0.06	85

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure





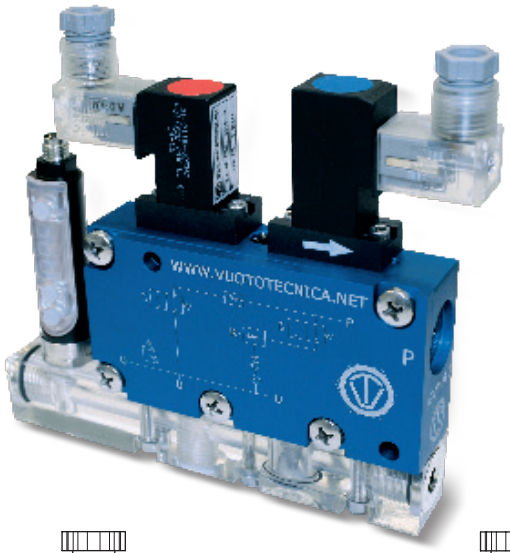
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
GVMM 3	5.0	0.8	128	294	592	1167	1978	2889	4824	8588	12195	85
GVMM 7	5.0	1.3	59	137	275	543	921	1344	2245	3997	5676	85

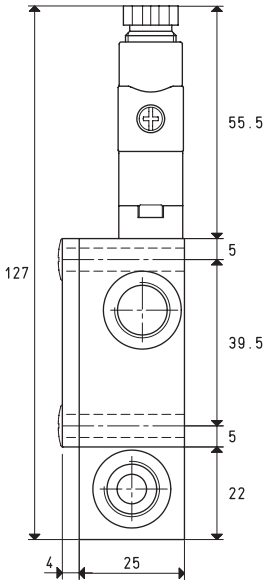
ACCESSORIES AND SPARE PARTS UPON REQUEST

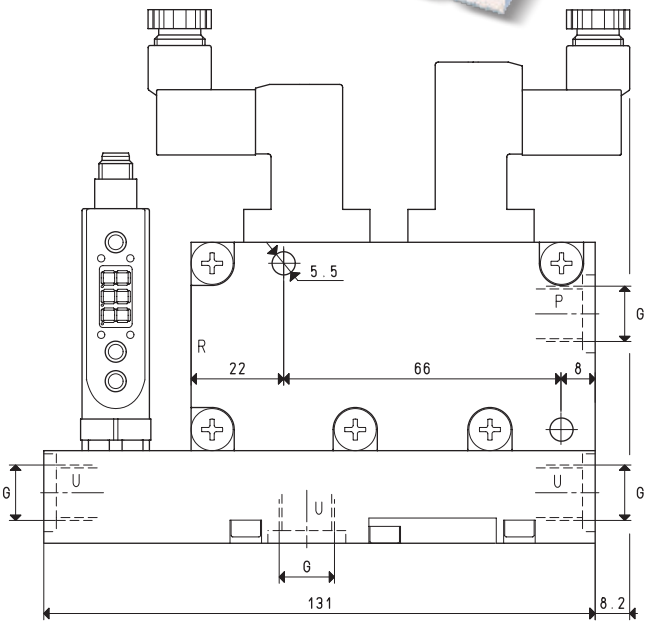
Item		GVMM 3	GVMM 7
Sealing kit and reed valves	item	00 KIT GVMM 3	00 KIT GVMM 7
Exhaust silencer	item	00 15 150	
Electrical connection cable with axial connector, for vacuum switch	item	00 12 20	
Electrical connection cable with radial connector, for vacuum switch	item	00 12 21	
Set of electrical connection cables, with built-in NO energy saving device and connectors	item	00 15 202	
Set of electrical connection cables, with built-in NC energy saving device and connectors	item	00 15 203	
Digital vacuum switch	item	12 10 10	
NO supply solenoid valve	item	00 15 176	
NC supply solenoid valve	item	00 15 175	

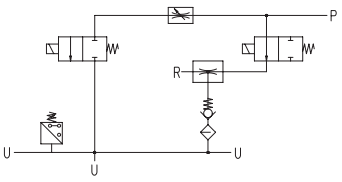
MULTI-STAGE, MULTI-FUNCTION AND MODULAR VACUUM GENERATORS, GVMM 10 and GVMM 14

IO-Link Ready!









P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

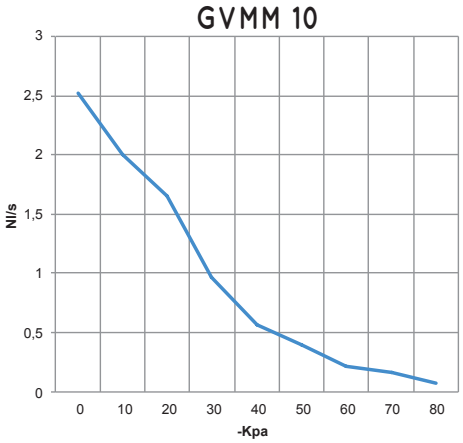
Item		GVMM 10			GVMM 14		
Intake air flow rate	m^3/h	7.5	8.3	9.1	10.1	11.1	12.1
Maximum level of vacuum	-KPa	60	80	85	60	80	85
Final pressure	mbar abs.	400	200	150	400	200	150
Supply pressure	bar	3	4	5	3	4	5
Optimal supply pressure	bar			5			5
Air consumption	Nl/s	1.1	1.4	1.7	1.4	1.7	2.1
Max quantity of air blown at 5 bar	l/min			128			128
Supply solenoid valve position	NO/NC			NO			NO
Electrical absorption	W			2			2
Ejection solenoid valve position	NC			NC			NC
Electrical absorption	W			4			4
Supply voltage	V			24DC			24DC
Vacuum switch output				PNP			PNP
Degree of protection	IP			65			65
Temperature of use	°C			-10 / +60			-10 / +60
Noise level at optimal supply pressure	dB(A)			70			72
Weight	g			460			460
G	Ø			G1/4"			G1/4"

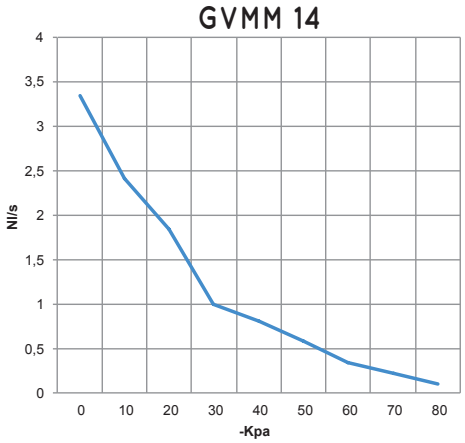
Note: To order a generator without a digital vacuum switch, indicate code GVMM .. SV.
To order a generator with NC supply solenoid valve, indicate code GVMM .. NC.
To order a generator with aluminium manifold, indicate code GVMM .. AL.

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

3D drawings are available on **vuototecnica.net**

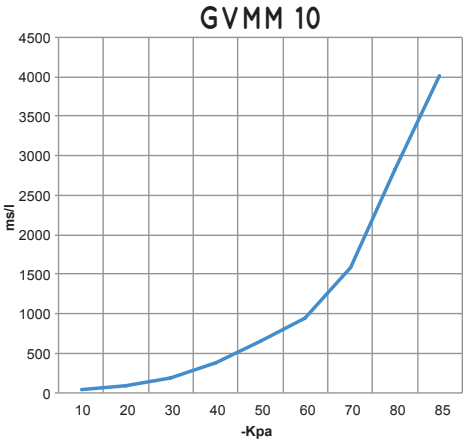
Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure

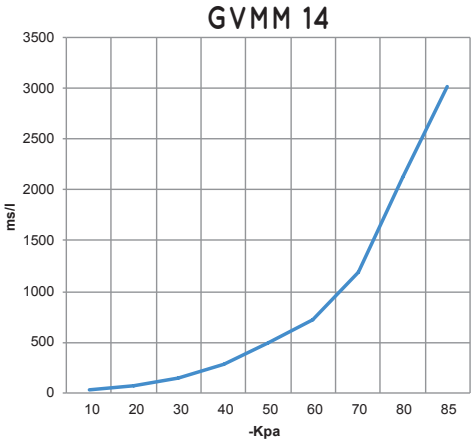




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
GVMM 10	5.0	1.7	2.52	2.00	1.66	0.97	0.56	0.40	0.22	0.16	0.07	85
GVMM 14	5.0	2.1	3.35	2.42	1.84	0.99	0.80	0.58	0.34	0.22	0.10	85

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure





Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
GVMM 10	5.0	1.7	42	97	195	384	651	951	1589	2828	4016	85
GVMM 14	5.0	2.1	31	72	146	288	489	714	1193	2124	3016	85

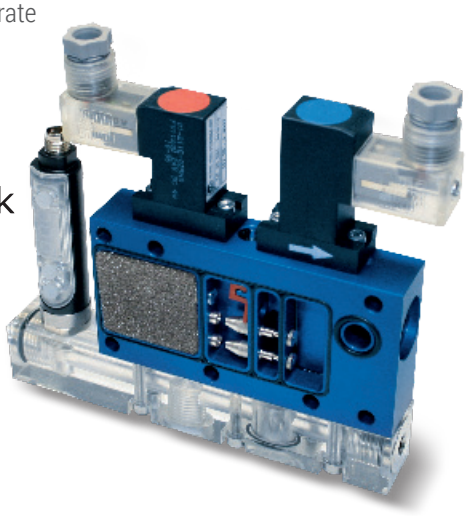
ACCESSORIES AND SPARE PARTS UPON REQUEST

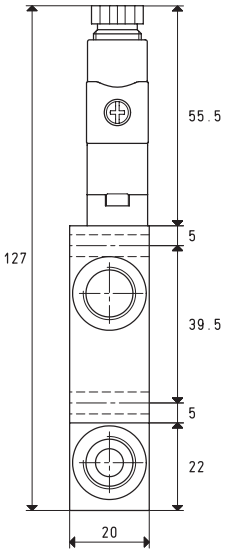
Item		GVMM 10	GVMM 14
Sealing kit and reed valves	item	00 KIT GVMM 10	00 KIT GVMM 14
Exhaust silencer	item	00 15 216	
Electrical connection cable with axial connector, for vacuum switch	item	00 12 20	
Electrical connection cable with radial connector, for vacuum switch	item	00 12 21	
Set of electrical connection cables, with built-in NO energy saving device and connectors	item	00 15 202	
Set of electrical connection cables, with built-in NC energy saving device and connectors	item	00 15 203	
Digital vacuum switch	item	12 10 10	
NO supply solenoid valve	item	00 15 176	
NC supply solenoid valve	item	00 15 175	

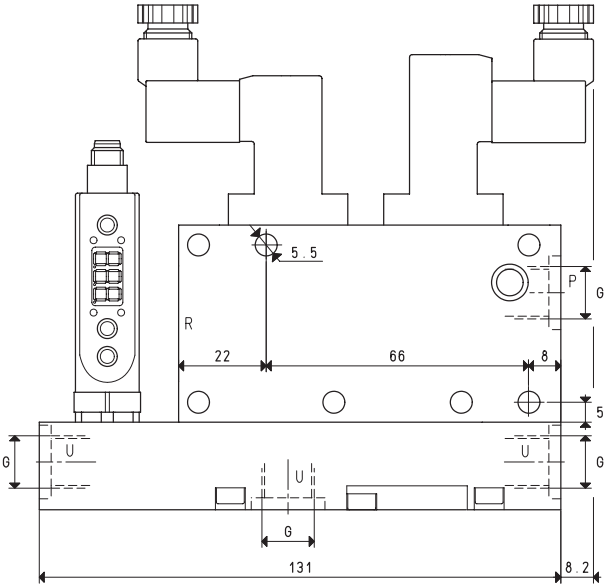
MULTI-STAGE, MULTI-FUNCTION AND MODULAR INTERMEDIATE VACUUM MODULES SERIES MI - GENERAL DESCRIPTION

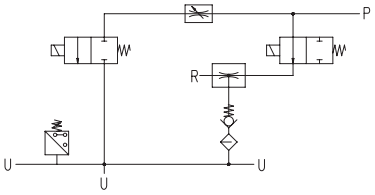
Intermediate modules are non-independent multi-stage and multi-function vacuum generators to be assembled to the generators of the GVMM range.
Their thickness and weight are reduced to the maximum compared to their suction flow rate and they have been designed to be enclosed between the lid and the base of the GVMM vacuum generator and fixed with screws. The internal connections for the compressed air supply allow communication between them and the basic generator, with no need for external manifolds.
This way, each module becomes an independent vacuum unit that can control an entire vacuum system.
They can be ordered in the desired amount and flow rate, either already assembled onto the GVMM multi-function vacuum generator, or separately, to be assembled to the GVMM generator previously installed onto the machine. In this case, we suggest ordering a screw kit suitable for the number of modules to be assembled.
MI intermediate vacuum modules are made up of the same elements that compose GVMM generators, except for the lid. They operate and they are used as the GVMM multi-function vacuum generator onto which they are assembled.

IO-Link Ready!









P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

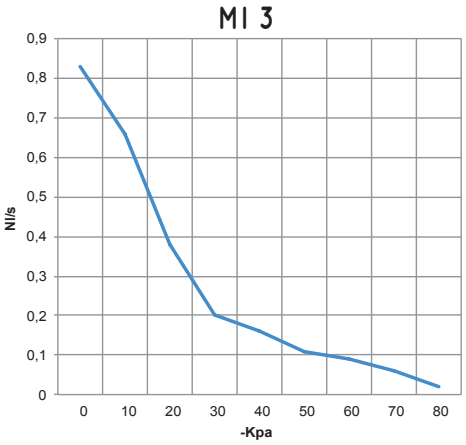
Item		MI 3			MI 7		
Intake air flow rate	m^3/h	2.6	2.8	3.0	5.5	6.0	6.4
Maximum level of vacuum	-KPa	64	85	85	60	80	85
Final pressure	mbar abs.	360	150	150	400	200	150
Supply pressure	bar	3	4	5	3	4	5
Optimal supply pressure	bar			5			5
Air consumption	Nl/s	0.6	0.7	0.8	0.9	1.1	1.3
Max quantity of air blown at 5 bar	l/min			128			128
Supply solenoid valve position	NO/NC			NO			NO
Electrical absorption	W			2			2
Ejection solenoid valve position	NC			NC			NC
Electrical absorption	W			4			4
Supply voltage	V			24DC			24DC
Vacuum switch output				PNP			PNP
Degree of protection	IP			65			65
Temperature of use	°C			-10 / +60			-10 / +60
Noise level at optimal supply pressure	dB(A)			66			70
Weight	g			380			380
G	Ø			G1/4"			G1/4"

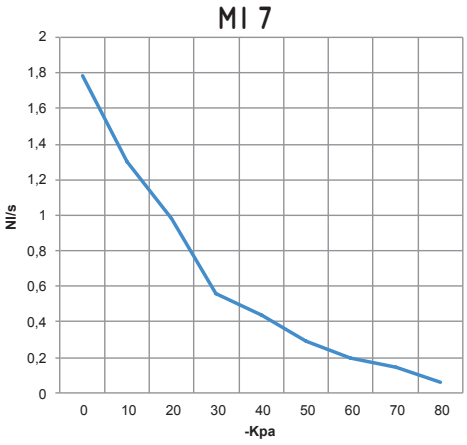
Note: To order a generator without a digital vacuum switch, indicate code MI .. SV.
To order a generator with NC supply solenoid valve, indicate code MI .. NC.
To order a generator with aluminium manifold, indicate code MI .. AL.

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

3D drawings are available on **vuototecnica.net**

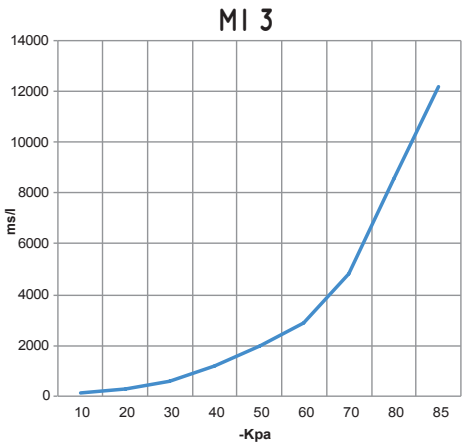
Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure

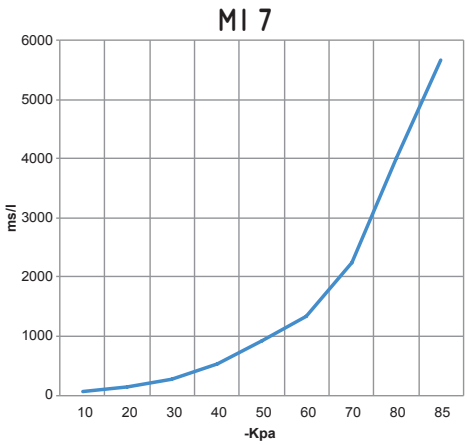




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
MI 3	5.0	0.8	0.83	0.66	0.38	0.20	0.16	0.11	0.09	0.06	0.02	85
MI 7	5.0	1.3	1.78	1.30	0.98	0.56	0.44	0.29	0.20	0.14	0.06	85

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure





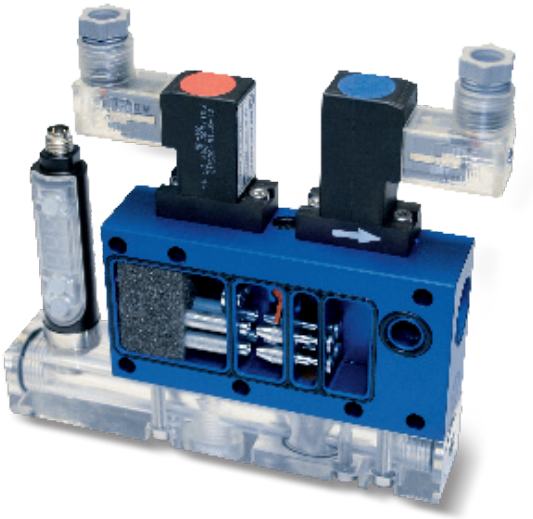
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
MI 3	5.0	0.8	128	294	592	1167	1978	2889	4824	8588	12195	85
MI 7	5.0	1.3	59	137	275	543	921	1344	2245	3997	5676	85

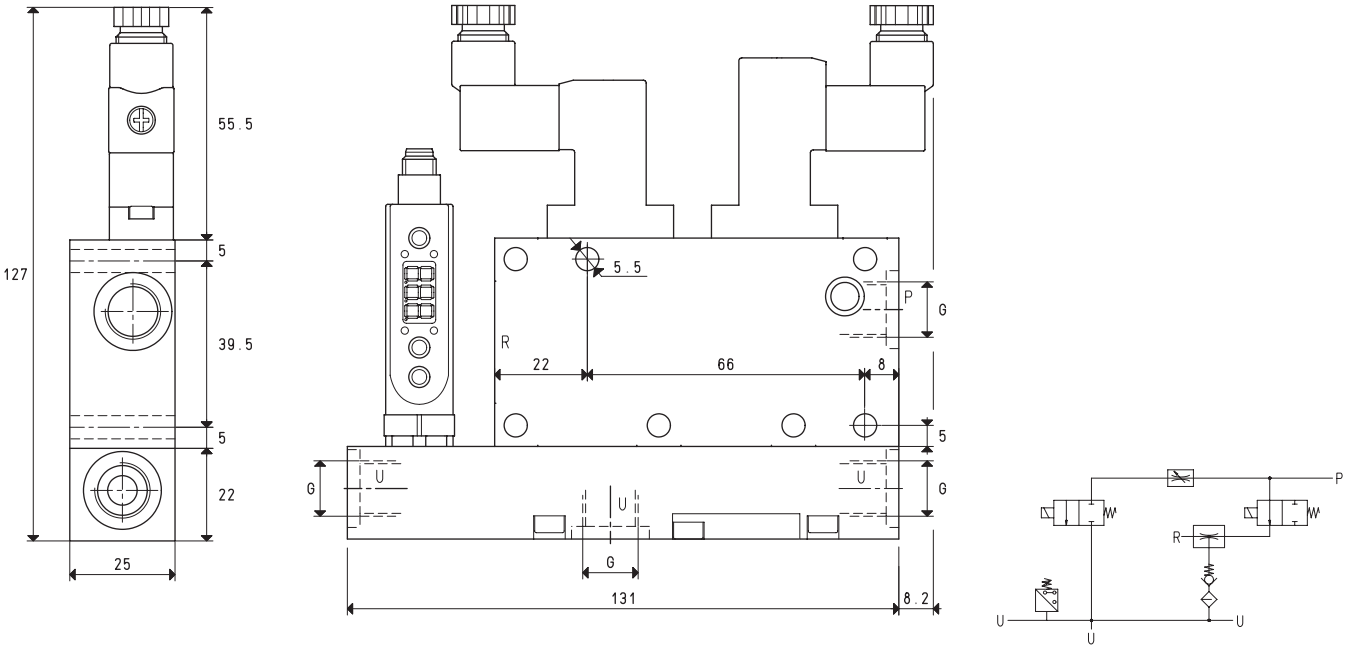
ACCESSORIES AND SPARE PARTS UPON REQUEST

Item		MI 3	MI 7
Sealing kit and reed valves	item	00 KIT MI 3	00 KIT MI 7
Exhaust silencer	item	00 15 150	
Electrical connection cable with axial connector, for vacuum switch	item	00 12 20	
Electrical connection cable with radial connector, for vacuum switch	item	00 12 21	
Set of electrical connection cables, with built-in NO energy saving device and connectors	item	00 15 202	
Set of electrical connection cables, with built-in NC energy saving device and connectors	item	00 15 203	
Digital vacuum switch	item	12 10 10	
NO supply solenoid valve	item	00 15 176	
NC supply solenoid valve	item	00 15 175	

INTERMEDIATE VACUUM MODULES MI 10 and MI 14

IO-Link Ready!





P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

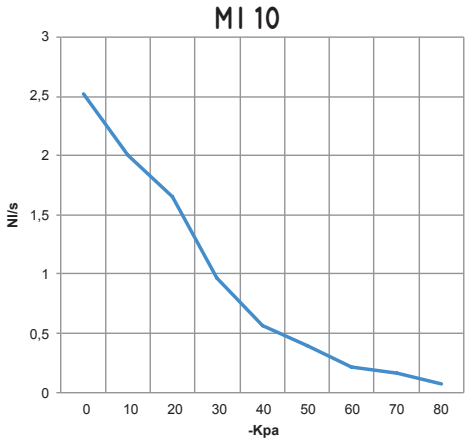
Item		MI 10			MI 14		
Intake air flow rate	m^3/h	7.5	8.3	9.1	10.1	11.1	12.1
Maximum level of vacuum	-KPa	60	80	85	60	80	85
Final pressure	mbar abs.	400	200	150	400	200	150
Optimal final pressure	mbar abs.			150			150
Supply pressure	bar	3	4	5	3	4	5
Air consumption	Nl/s	1.1	1.4	1.7	1.4	1.7	2.1
Max quantity of air blown at 5 bar	l/min			128			128
Supply solenoid valve position	NO/NC			NO			NO
Electrical absorption	W			2			2
Ejection solenoid valve position	NC			NC			NC
Electrical absorption	W			4			4
Supply voltage	V			24DC			24DC
Vacuum switch output				PNP			PNP
Degree of protection	IP			65			65
Temperature of use	°C			-10 / +60			-10 / +60
Noise level at optimal supply pressure	dB(A)			70			72
Weight	g			410			410
G	Ø			G1/4"			G1/4"

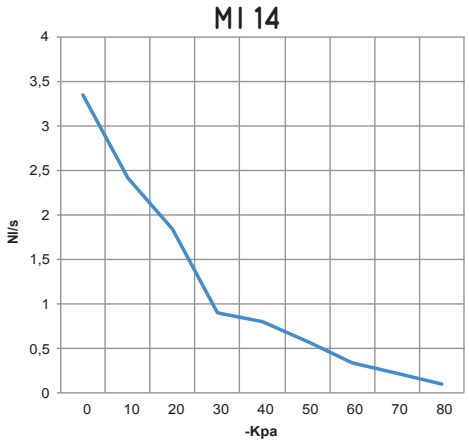
Note: To order a generator without a digital vacuum switch, indicate code MI .. SV.
To order a generator with NC supply solenoid valve, indicate code MI .. NC.
To order a generator with aluminium manifold, indicate code MI .. AL.

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

3D drawings are available on **vuototecnica.net**

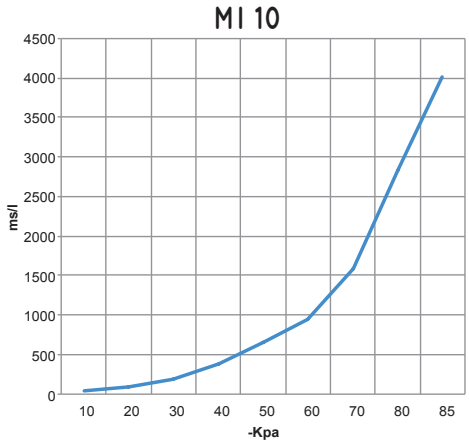
Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure

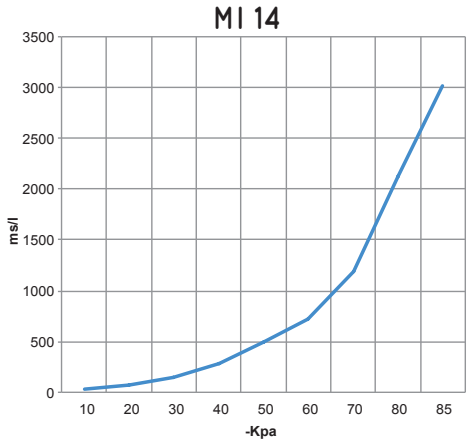




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
MI 10	5.0	1.7	2.52	2.00	1.66	0.97	0.56	0.40	0.22	0.16	0.07	85
MI 14	5.0	2.1	3.35	2.42	1.84	0.99	0.80	0.58	0.34	0.22	0.10	85

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



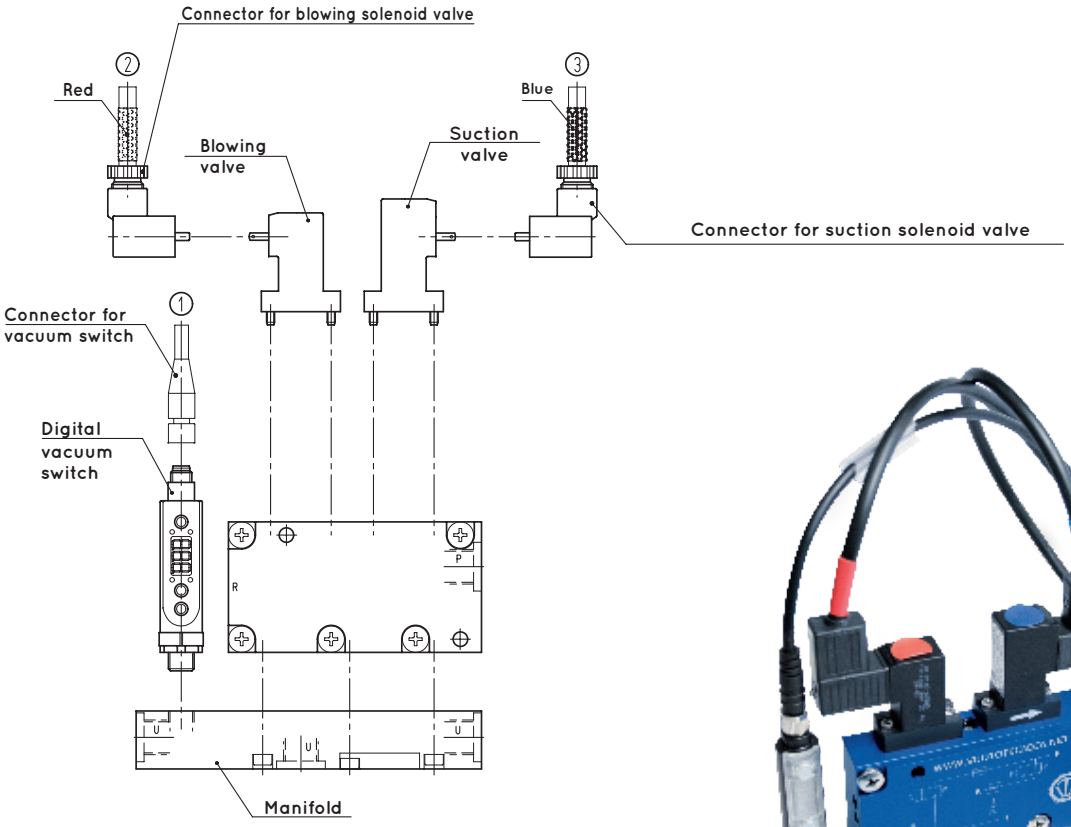


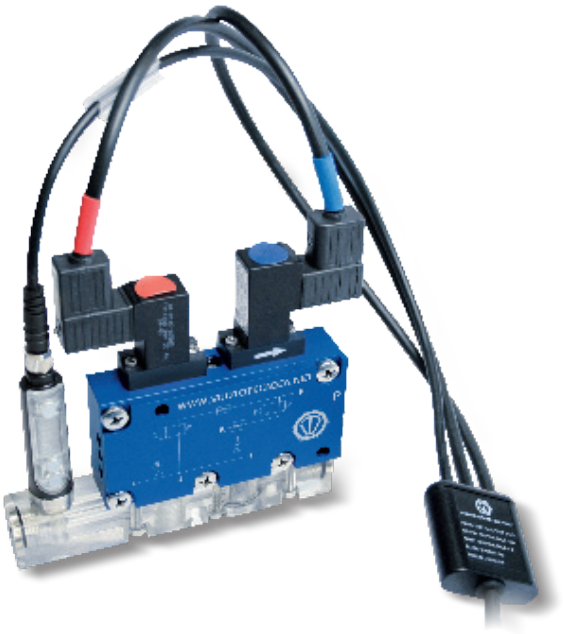
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
MI 10	5.0	1.7	42	97	195	384	651	951	1589	2828	4016	85
MI 14	5.0	2.1	31	72	146	288	489	714	1193	2124	3016	85

ACCESSORIES AND SPARE PARTS UPON REQUEST

Item		MI 10	MI 14
Sealing kit and reed valves	item	00 KIT MI 10	00 KIT MI 14
Exhaust silencer	item	N°2 00 15 150	
Electrical connection cable with axial connector, for vacuum switch	item	00 12 20	
Electrical connection cable with radial connector, for vacuum switch	item	00 12 21	
Set of electrical connection cables, with built-in NO energy saving device and connectors	item	00 15 202	
Set of electrical connection cables, with built-in NC energy saving device and connectors	item	00 15 203	
Digital vacuum switch	item	12 10 10	
NO supply solenoid valve	item	00 15 176	
NC supply solenoid valve	item	00 15 175	

3D drawings are available on vuototecnica.net





Cable set with built-in energy saving device for GVMM.. generator

Item	Description
00 15 202	Set of cables with built-in energy saving device for connection to:
	- Digital vacuum switch
	- NO micro supply solenoid valve
	- NC micro ejection solenoid valve
	- Cable length - 5 m

Note: The IO-Link signal cannot be handled by the energy-saving cable set.

Cable set with built-in energy saving device for GVMM..NC generator

Item	Description
00 15 203	Set of cables with built-in energy saving device for connection to:
	- Digital vacuum switch
	- NC micro supply solenoid valve
	- NC micro ejection solenoid valve
	- Cable length - 5 m

Note: The IO-Link signal cannot be handled by the energy-saving cable set.

Connector

Item	Description
00 15 157	Connector with LED for micro solenoid valves

M8 3 PIN Connector

Item	Description
00 07 424	M8 3 PIN Connector with LED for micro solenoid valves

Cable with axial connector

Item	Description
00 12 20	Electrical connection cable with M8 - 4 pin axial connector for digital vacuum switches length 5 m

Cable with radial connector

Item	Description
00 12 21	Electrical connection cable with M8 - 4 pin radial connector for digital vacuum switches length 5 m

NO micro supply solenoid valve

Item	Description
00 15 176	NO micro supply solenoid valve - h = 43 mm

NC supply and blowing micro solenoid valve

Item	Description
00 15 175	NC supply and blowing micro solenoid valve - h = 37.5 mm

Digital vacuum switch

Item	Description
12 10 10	Digital vacuum switch

ACCESSORIES AND SPARE PARTS FOR VACUUM GENERATORS AND MODULES SERIES GVMM and MI

Sealing kit and reed valves

Item	By generators item
00 KIT MI 3	MI 3
00 KIT MI 7	MI 7
00 KIT MI 10	MI 10
00 KIT MI 14	MI 14
00 KIT MI 18	MI 18

Sound absorbing material on the exhaust

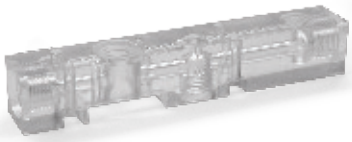
Item	By generators item	Quantity
00 15 150	GVMM 3	1 piece
	GVMM 7	1 piece
	GVMM 10	2 pieces
	GVMM 14	2 pieces

Aluminium manifolds

Item	Description
00 15 174	Aluminium suction manifold for GVMM - MI 3/7
00 15 187	Aluminium suction manifold for GVMM - MI 10/14

Plexiglass manifolds

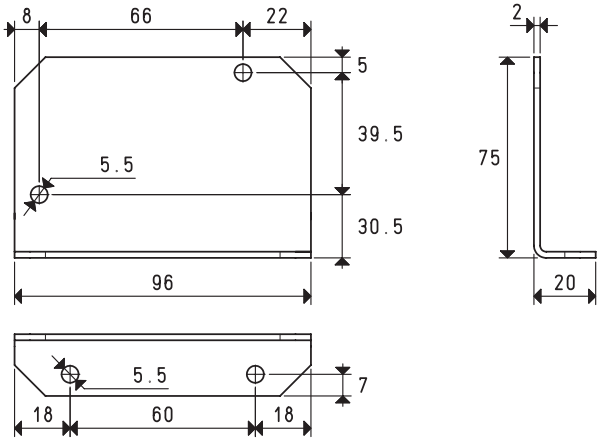
Item	Description
00 15 171	Plexiglass suction manifold for GVMM - MI 3/7
00 15 188	Plexiglass suction manifold for GVMM - MI 10/14



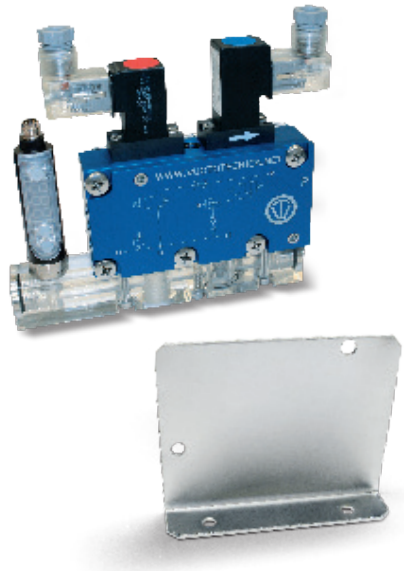
Replacement plate for micro blowing solenoid valve

Item	Description
00 15 332	Replacement plate for micro blowing solenoid valve
00 15 333	Sealing gasket for replacement plate Art. 00 15 332

Support

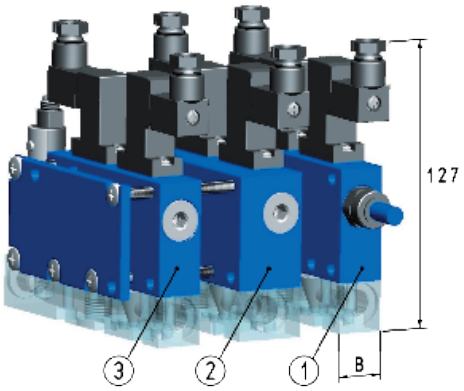


Item	Description
00 15 306	L-shaped fixing support in galvanised steel sheet



MODULAR VACUUM SYSTEMS SET-UP

GVMM multi-function vacuum generators can be assembled with one or more intermediate modules, thus forming a modular vacuum system, featuring a compact shape and reduced size and weight.
As a standard, up to 6 vacuum units can be assembled, but using threaded bars instead allows assembling even more.



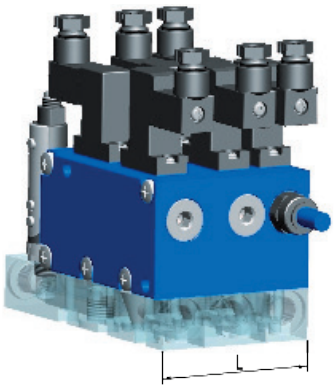
EXAMPLE OF SET-UP 1

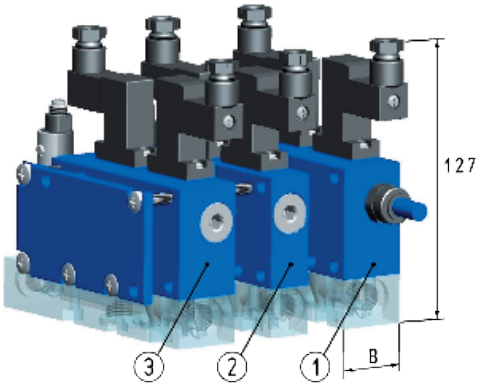
No.	Item	B
1	GVMM 3 - 7	20
2	MI 10 - 14	25
3	MI 3 - 7	20

Total length L= 65

Required screw kit: Item 00 KIT GVMM 02

Ordering example:
1 Generator GVMM 3
1 Intermediate module MI 10
1 Intermediate module MI 3
1 kit of stainless steel screws 00 KIT GVMM 02





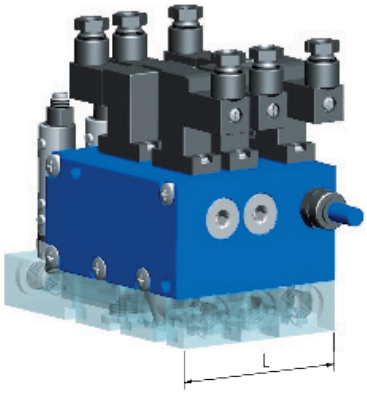
EXAMPLE OF SET-UP 2 00 KIT GVMM 02

No.	Item	B
1	GVMM 10 - 14	25
2	MI 3 - 7	20
3	MI 10 - 14	25

Total length L= 70

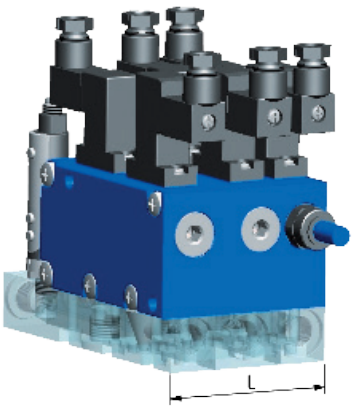
Required screw kit: Item 00 KIT GVMM 03

Ordering example:
1 Generator GVMM 10
1 Intermediate module MI 3
1 Intermediate module MI 10
1 kit of stainless steel screws 00 KIT GVMM 03



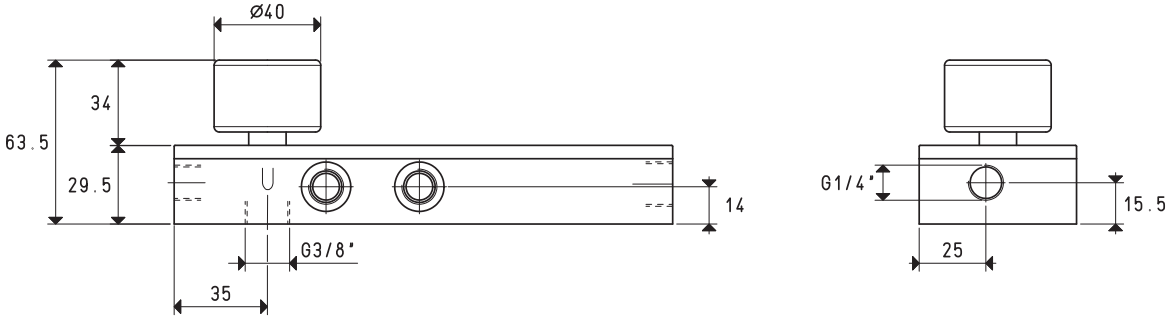
STAINLESS STEEL M5 SCREW KIT

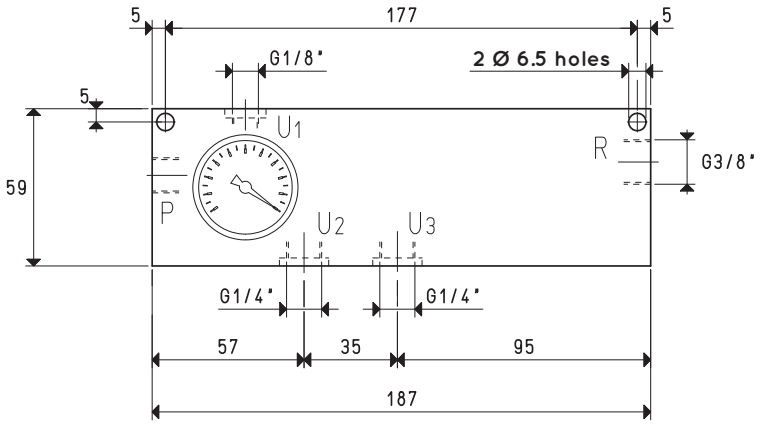
Item	L
00 KIT GVMM 01	45 - 50
00 KIT GVMM 02	60 - 65
00 KIT GVMM 03	70 - 75
00 KIT GVMM 04	80 - 85
00 KIT GVMM 05	90 - 95
00 KIT GVMM 06	100 - 105
00 KIT GVMM 07	110 - 115
00 KIT GVMM 08	120 - 125
00 KIT GVMM 09	130 - 135
00 KIT GVMM 12	140 - 145
00 KIT GVMM 11	150 - 155

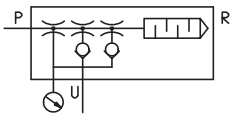


MULTI-STAGE VACUUM GENERATORS PVP 12 MX / MXLP and 25 MX / MXLP

This range of multiple ejector vacuum generators offers increased suction flow rate, given the same compressed air consumption, than single-stage models.
Supply pressure goes between 4-6 bar, for items MX and between 1-3 bar, for MXLP. The capacities go from 10.5 to 31 m^3/h. They are fully made with anodised aluminium, with stainless steel ejectors and screws. The EPDM seals, the silicone reed valves and the vacuum gauge are provided as standard. They are equipped with additional intake connections for increased points of usage or control tools. The suctioned air discharge connections are threaded to allow for installation, upon request, of "free-flow" SSX high sound damping silencers







P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION U 1-2-3=ADDITIONAL VACUUM CONNECTION

Item		PVP 12 MX			PVP 12 MXLP		
Intake air flow rate	m^3/h	16.0	18.0	21.0	10.5	15.5	18.0
Maximum level of vacuum	-KPa	65	85	90	30	61	86
Final pressure	abs. mbar	350	150	100	700	390	140
Supply pressure	bar	4	5	6	1	2	3
Optimal supply pressure	bar			6			3
Air consumption	Nl/s	1.0	1.3	1.5	1.1	1.6	2.3
Temperature of use	°C			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			65			79
Weight	g			660			660

Spare parts		PVP 12 MX / MXLP
Sealing kit and reed valves	item	00 KIT PVP 12 MX
Sound absorption material for exhaust	item	00 15 112
Vacuum gauge	item	09 03 15

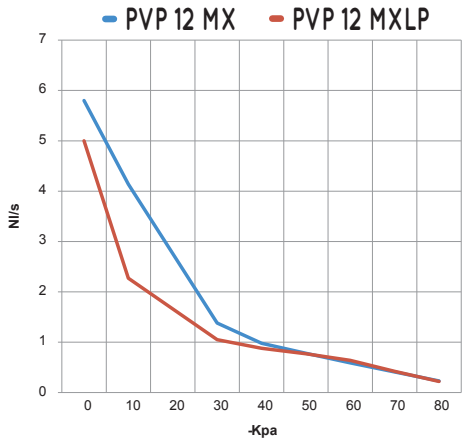
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

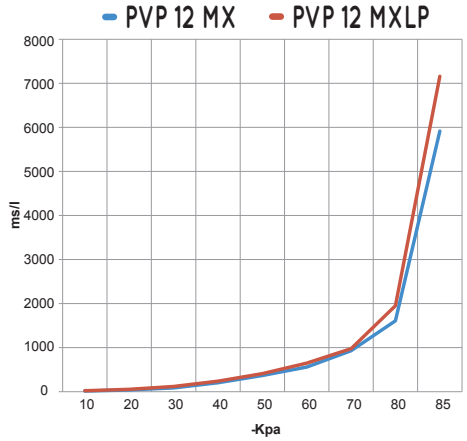
3D drawings are available on **vuototecnica.net**

Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
PVP 12 MX	6.0	1.5	5.80	4.14	2.76	1.38	0.98	0.78	0.59	0.41	0.23	90
PVP 12 MXLP	3.0	2.3	5.00	2.27	1.66	1.05	0.88	0.77	0.64	0.42	0.22	86

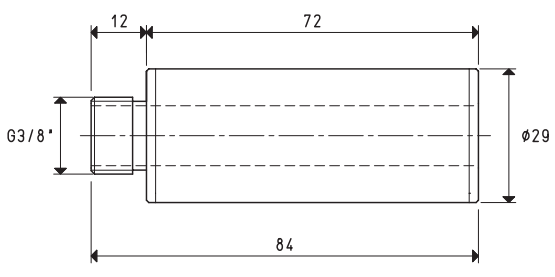
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



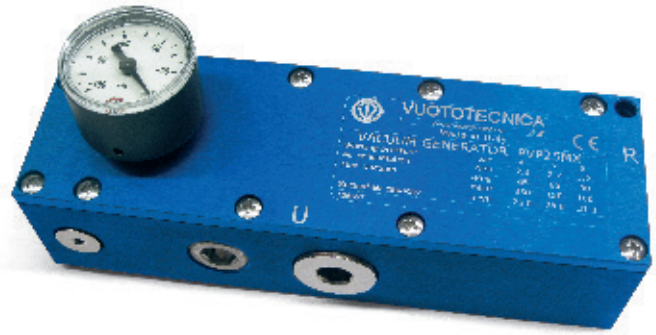
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
PVP 12 MX	6.0	1.5	15	38	85	204	365	559	929	1607	5916	90
PVP 12 MXLP	3.0	2.3	22	56	120	240	410	650	975	1950	7160	86

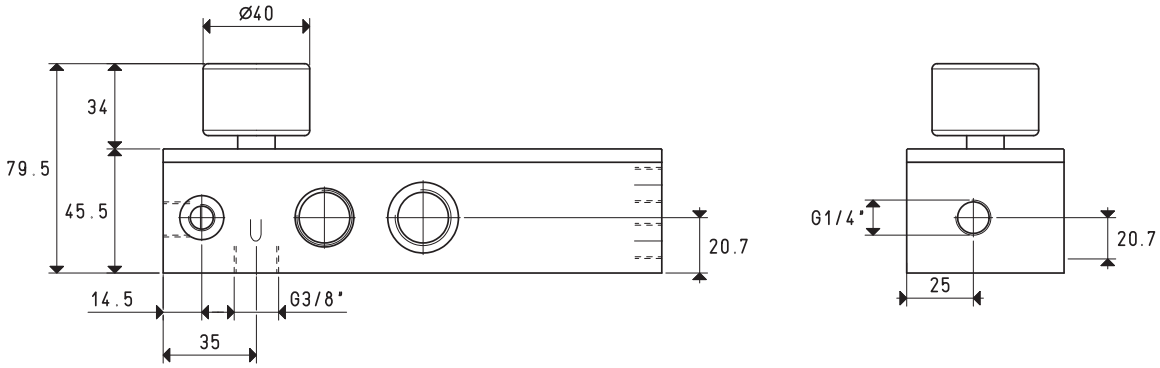
ACCESSORIES UPON REQUEST

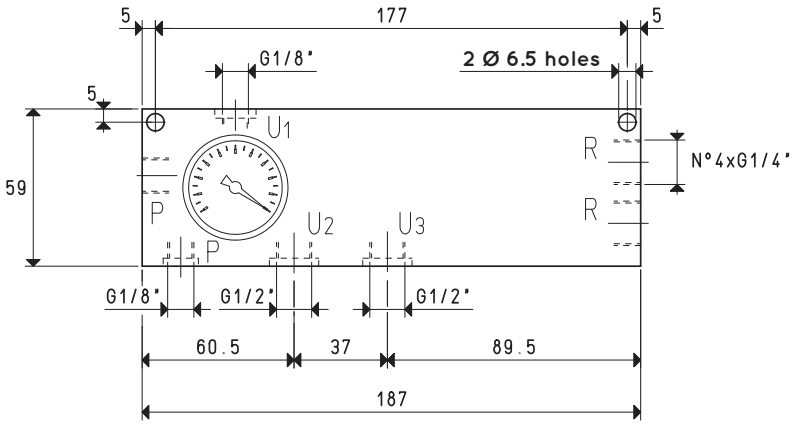
Silencer item SSX 3/8”

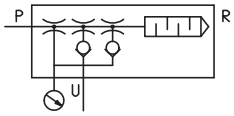


MULTI-STAGE VACUUM GENERATORS PVP 25 MX / MXLP









P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION U 1-2-3=ADDITIONAL VACUUM CONNECTION

Item		PVP 25 MX			PVP 25 MXLP		
Intake air flow rate	m^3/h	25.0	28.0	31.0	19.0	27.5	34.0
Maximum level of vacuum	-KPa	65	85	90	30	61	86
Final pressure	abs. mbar	350	150	100	700	390	140
Supply pressure	bar	4	5	6	1	2	3
Optimal supply pressure	bar			6			3
Air consumption	Nl/s	2.1	2.6	3.0	2.2	3.2	4.5
Temperature of use	°C			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			70			70
Weight	g			960			960

Spare parts		PVP 25 MX / MXLP
Sealing kit and reed valves	item	00 KIT PVP 25 MX
Sound absorption material for exhaust	item	00 15 113
Vacuum gauge	item	09 03 15

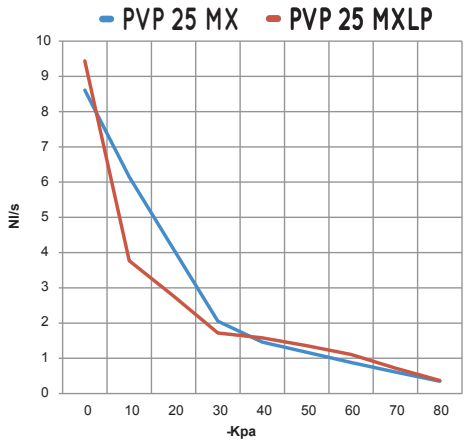
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

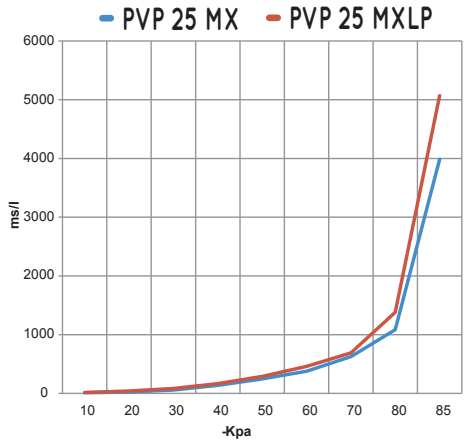
3D drawings are available on **vuototecnica.net**

Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
PVP 25 MX	6.0	3.0	8.61	6.15	4.10	2.05	1.46	1.17	0.88	0.61	0.35	90
PVP 25 MXLP	3.0	4.5	9.44	3.77	2.77	1.72	1.58	1.36	1.11	0.72	0.37	86

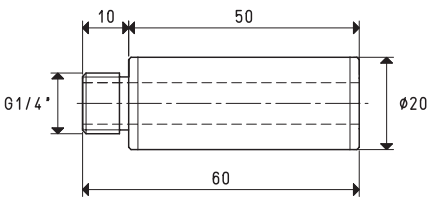
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
PVP 25 MX	6.0	3.0	10	26	57	137	246	377	626	1083	3986	90
PVP 25 MXLP	3.0	4.5	16	41	83	165	290	460	690	1380	5070	86

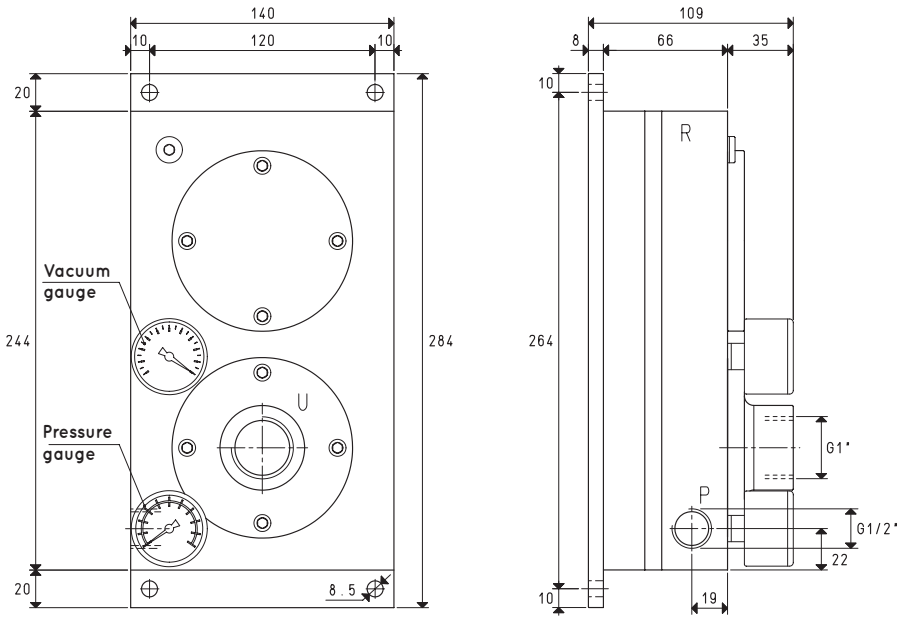
ACCESSORIES UPON REQUEST

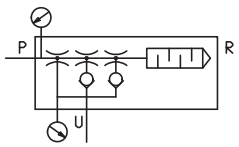
4 silencers item SSX 1/4”



MULTI-STAGE VACUUM GENERATORS PVP 40 M / MLP ÷ PVP 300 M / MLP

Created to be assembled on OCTOPUS gripping systems, this series of generators is available with suction capacities between 24 and 320 m³/h. The supply pressure goes from 4-6 bar for M items and from 1-3 bar for MLP items. Level of vacuum and flow rate can be adjusted according to the supply air pressure. Characterised by their new generation of ejectors, boasting an excellent ratio between the quantity of air consumed and that suctioned, benefiting operational consumption. The silencers are built into all generators. They are fully made with anodised aluminium, with stainless steel ejectors and screws. EPDM or FKM seals and reed valves upon request. Low maintenance and simple scheduled filter cleaning.





P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		PVP 40 M			PVP 70 M			PVP 100 M		
Intake air flow rate	m³/h	36	39	42	65	73	80	88	98	108
Maximum level of vacuum	-KPa	65	82	90	65	82	90	65	82	90
Final pressure	abs. mbar	350	180	100	350	180	100	350	180	100
Supply pressure	bar	4	5	6	4	5	6	4	5	6
Optimal supply pressure	bar			6			6			6
Air consumption	Nl/s	2.3	2.7	3.2	4.9	5.7	6.6	7.2	8.5	9.8
Temperature of use	°C			-20 / +80			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			67			68			70
Weight	Kg			4.2			4.2			4.2

Item		PVP 40 MLP			PVP 70 MLP			PVP 100 MLP		
Intake air flow rate	m³/h	24	35	41	41	56	73	50	80	95
Maximum level of vacuum	-KPa	30	64	88	30	64	88	30	64	88
Final pressure	abs. mbar	700	360	120	700	360	120	700	360	120
Supply pressure	bar	1	2	3	1	2	3	1	2	3
Optimal supply pressure	bar			3			3			3
Air consumption	Nl/s	2.4	3.4	4.4	4.6	7.0	8.9	6.7	10.2	13.3
Temperature of use	°C			-20 / +80			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			70			72			75
Weight	Kg			4.2			4.2			4.2

Spare parts		PVP 40 M / MLP	PVP 70 M / MLP	PVP 100 M / MLP
Sealing kit and reed valves	item	00 KIT PVP 40 M	00 KIT PVP 70 M	00 KIT PVP 100 M
Exhaust silencer	item	00 15 110	00 15 110	00 15 110
Silencer on nozzles	item	00 15 111	00 15 111	00 15 111
Vacuum gauge	item	09 03 15	09 03 15	09 03 15
Pressure gauge	item	09 03 25	09 03 25	09 03 25

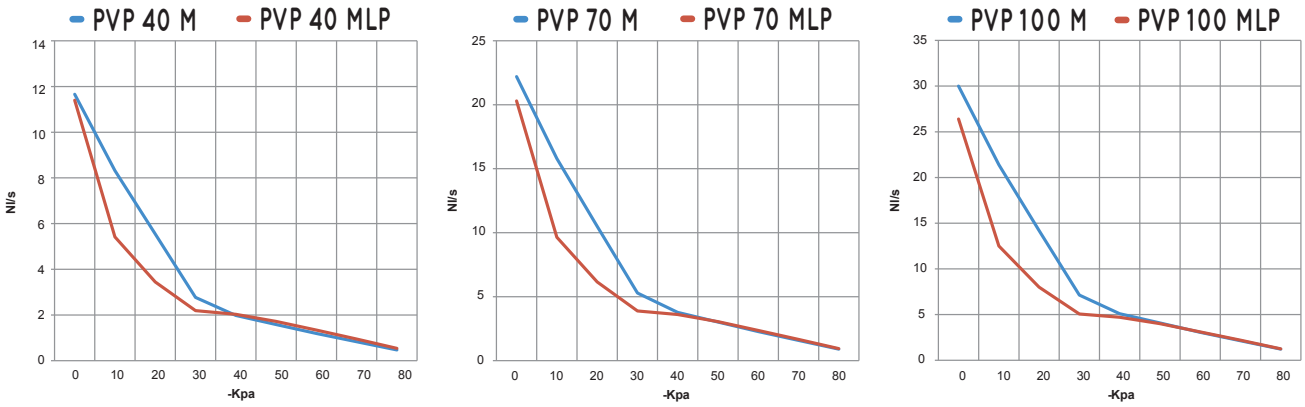
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Add the letters ES to the article for a generator supplied complete with an ES energy saving device (example: PVP 40 M ES).
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

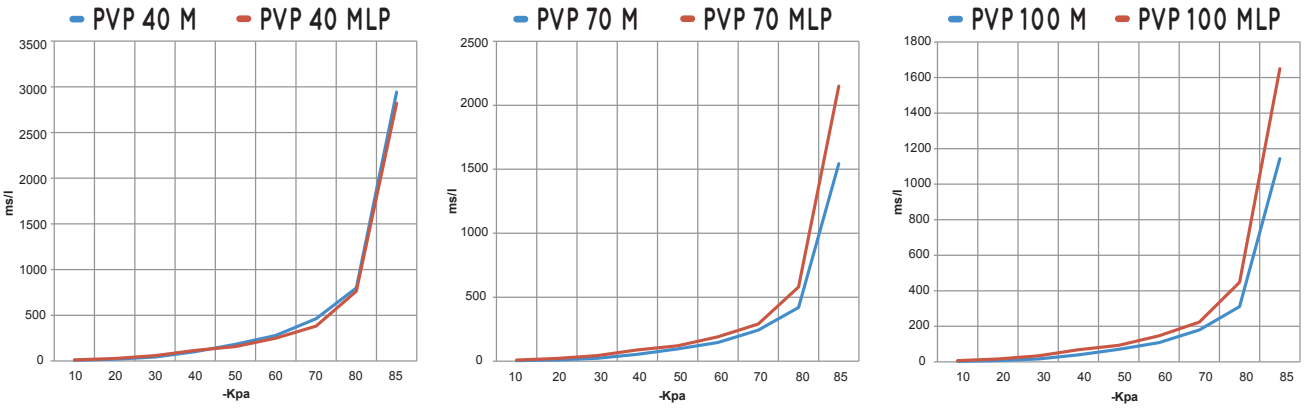
MULTI-STAGE VACUUM GENERATORS PVP 40 M / MLP, PVP 70 M / MLP and PVP 100 M / MLP

Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure



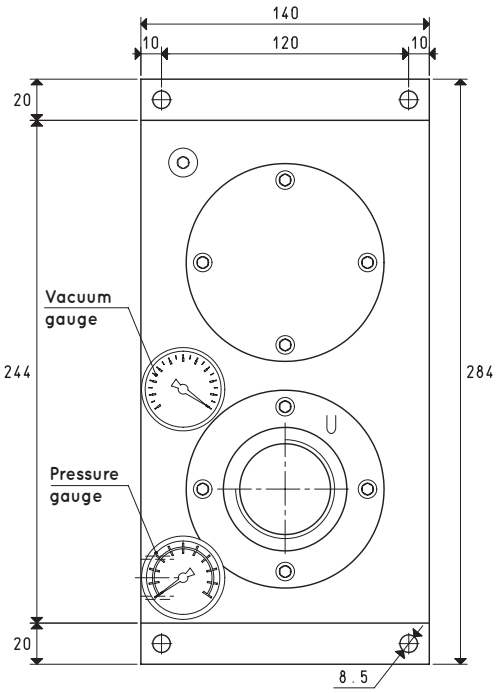
Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			0	10	20	30	40	50	60	70	80	
PVP 40 M	6.0	3.2	11.66	8.32	5.55	2.77	1.98	1.58	1.19	0.83	0.47	90
PVP 70 M	6.0	6.6	22.20	15.80	10.50	5.29	3.77	3.02	2.27	1.58	0.90	90
PVP 100 M	6.0	9.8	30.00	21.40	14.20	7.14	5.10	4.08	3.06	2.14	1.22	90
PVP 40 MLP	3.0	4.4	11.40	5.42	3.45	2.19	2.03	1.72	1.34	0.95	0.54	88
PVP 70 MLP	3.0	8.9	20.30	9.65	6.15	3.88	3.61	3.05	2.36	1.66	0.94	88
PVP 100 MLP	3.0	13.3	26.40	12.50	8.00	5.07	4.70	4.00	3.10	2.20	1.25	88

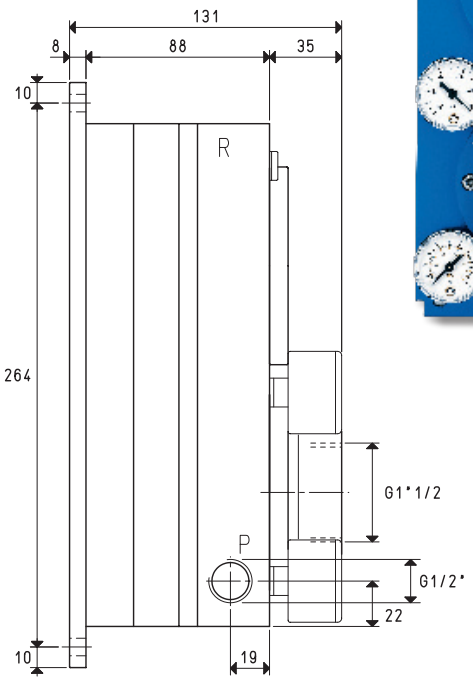
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

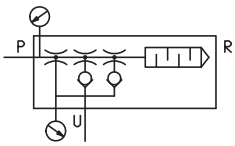


Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
PVP 40 M	6.0	3.2	7.7	19.2	42.3	101.6	182.0	278.4	462.3	799.8	2943	90
PVP 70 M	6.0	6.6	4.0	10.1	22.2	53.3	95.5	146.1	242.6	419.7	1544	90
PVP 100 M	6.0	9.8	3.0	7.4	16.4	39.5	70.7	108.2	179.6	310.8	1144	90
PVP 40 MLP	3.0	4.4	12.0	28.0	58.0	116.0	158.0	250.0	382.0	764.0	2820	88
PVP 70 MLP	3.0	8.9	9.0	21.0	44.0	88.0	120.0	190.0	290.0	580.0	2150	88
PVP 100 MLP	3.0	13.3	7.0	16.0	34.0	68.0	93.0	147.0	224.0	448.0	1650	88

MULTI-STAGE VACUUM GENERATORS PVP 140 M / MLP, PVP 170 M / MLP and PVP 200 M / MLP







P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		PVP 140 M			PVP 170 M			PVP 200 M		
Intake air flow rate	m^3/h	125	140	152	150	168	182	170	188	200
Maximum level of vacuum	-KPa	65	82	90	65	82	90	65	82	90
Final pressure	abs. mbar	350	180	100	350	180	100	350	180	100
Supply pressure	bar	4	5	6	4	5	6	4	5	6
Optimal supply pressure	bar			6			6			6
Air consumption	Nl/s	9.6	11.4	13.0	12.1	14.2	16.3	14.2	16.9	19.4
Temperature of use	°C			-20 / +80			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			70			71			72
Weight	Kg			5.1			5.1			5.1

Item		PVP 140 MLP			PVP 170 MLP			PVP 200 MLP		
Intake air flow rate	m^3/h	73	115	138	80	137	165	105	157	190
Maximum level of vacuum	-KPa	30	64	88	30	64	88	30	64	88
Final pressure	abs. mbar	700	360	120	700	360	120	700	360	120
Supply pressure	bar	1	2	3	1	2	3	1	2	3
Optimal supply pressure	bar			3			3			3
Air consumption	Nl/s	8.6	13.3	17.8	10.5	16.3	22.2	12.8	20.0	26.6
Temperature of use	°C			-20 / +80			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			75			76			78
Weight	Kg			5.1			5.1			5.1

Spare parts		PVP 140 M / MLP	PVP 170 M / MLP	PVP 200 M / MLP
Sealing kit and reed valves	item	00 KIT PVP 140 M	00 KIT PVP 170 M	00 KIT PVP 200 M
Exhaust silencer	item	00 15 110	00 15 110	00 15 110
Silencer on nozzles	item	N°2 00 15 111	N°2 00 15 111	N°2 00 15 111
Vacuum gauge	item	09 03 15	09 03 15	09 03 15
Pressure gauge	item	09 03 25	09 03 25	09 03 25

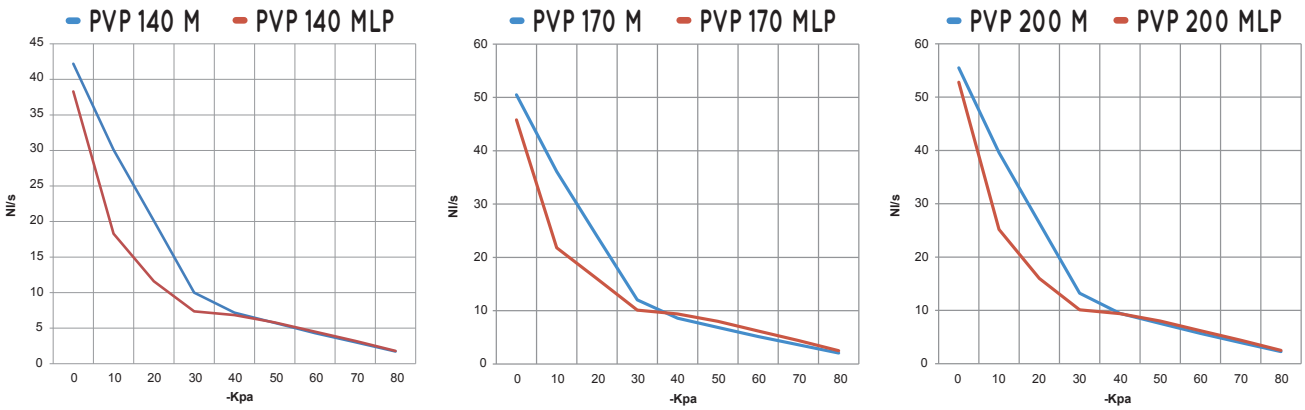
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Add the letters ES to the article for a generator supplied complete with an ES energy saving device (example: PVP 140 M ES).
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

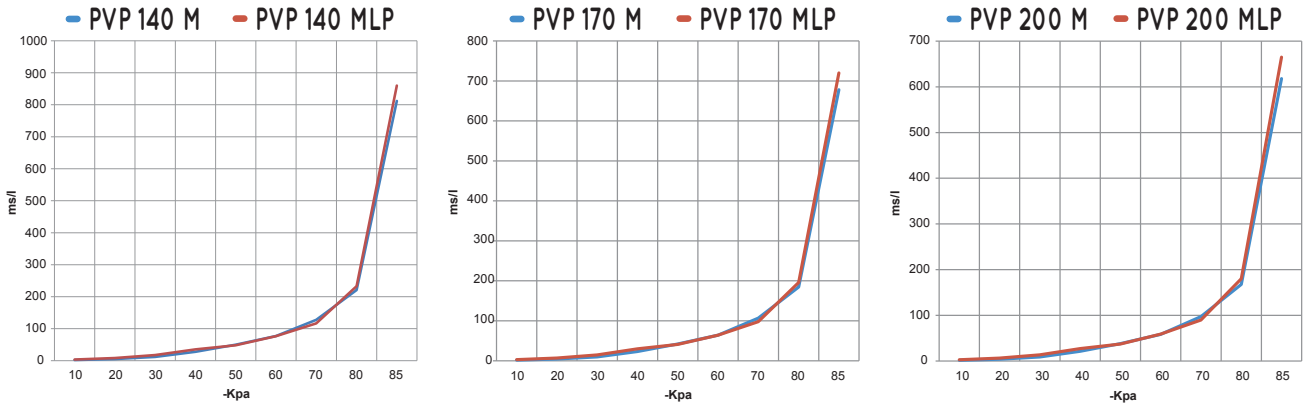
MULTI-STAGE VACUUM GENERATORS PVP 140 M / MLP, PVP 170 M / MLP and PVP 200 M / MLP

Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure



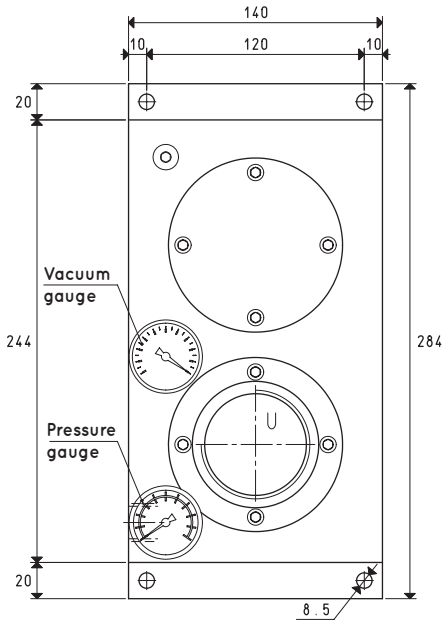
Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
PVP 140 M	6.0	13.0	42.20	30.10	20.10	10.00	7.18	5.74	4.31	3.02	1.72	90
PVP 170 M	6.0	16.3	50.50	36.10	24.00	12.03	8.59	6.87	5.17	3.61	2.06	90
PVP 200 M	6.0	19.4	55.50	39.60	26.40	13.22	9.44	7.55	5.68	3.97	2.27	90
PVP 140 MLP	3.0	17.8	38.30	18.30	11.60	7.36	6.84	5.80	4.50	3.20	1.80	88
PVP 170 MLP	3.0	22.2	45.80	21.80	13.80	8.81	8.18	6.94	5.39	3.82	2.16	88
PVP 200 MLP	3.0	26.6	52.80	25.20	16.00	10.10	9.40	8.00	6.20	4.40	2.50	88

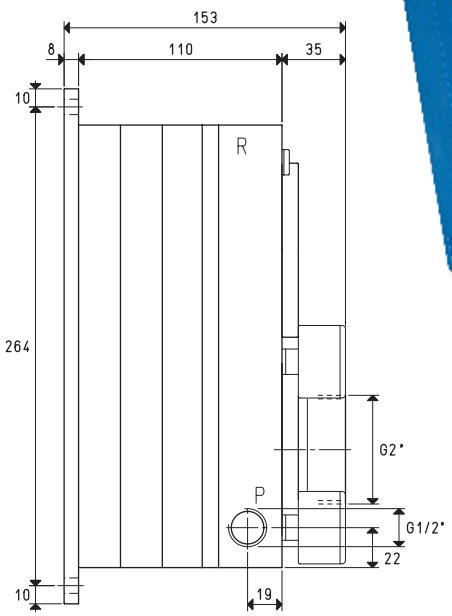
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

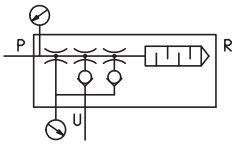


Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
PVP 140 M	6.0	13.0	2.1	5.3	11.7	28.0	50.2	76.9	127.6	220.8	812	90
PVP 170 M	6.0	16.3	1.7	4.4	9.7	23.4	42.0	64.2	106.6	184.5	678	90
PVP 200 M	6.0	19.4	1.6	4.0	8.9	21.3	38.2	58.4	97.0	167.8	618	90
PVP 140 MLP	3.0	17.8	3.6	8.4	17.7	35.4	48.3	76.5	116.8	233.0	860	88
PVP 170 MLP	3.0	22.2	3.0	7.1	14.9	29.9	40.6	64.2	98.0	196.0	720	88
PVP 200 MLP	3.0	26.6	2.8	6.5	13.6	27.3	37.2	58.8	89.7	180.0	665	88

MULTI-STAGE VACUUM GENERATORS PVP 250 M / MLP and PVP 300 M / MLP







P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		PVP 250 M			PVP 300 M		
Intake air flow rate	m^3/h	224	252	280	240	290	320
Maximum level of vacuum	-KPa	65	82	90	65	82	90
Final pressure	abs. mbar	350	180	100	350	180	100
Supply pressure	bar	4	5	6	4	5	6
Optimal supply pressure	bar			6			6
Air consumption	Nl/s	17.3	20.7	24.0	20.4	24.8	29.0
Temperature of use	°C			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			72			74
Weight	Kg			6.0			6.0

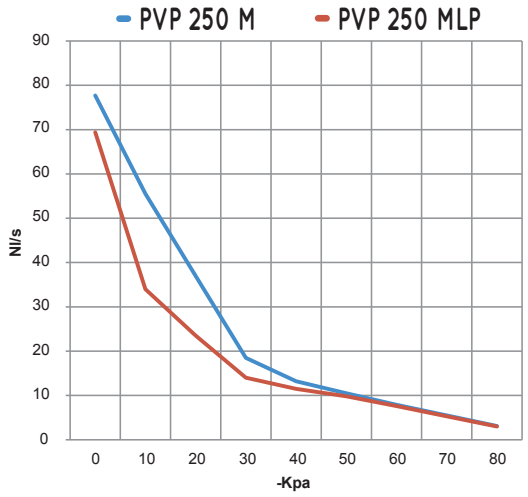
Item		PVP 250 MLP			PVP 300 MLP		
Intake air flow rate	m^3/h	120	185	250	128	210	300
Maximum level of vacuum	-KPa	30	64	88	30	64	88
Final pressure	abs. mbar	700	360	120	700	360	120
Supply pressure	bar	1	2	3	1	2	3
Optimal supply pressure	bar			3			3
Air consumption	Nl/s	16.0	25.0	33.6	19.1	28.8	39.3
Temperature of use	°C			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			77			78
Weight	Kg			6.0			6.0

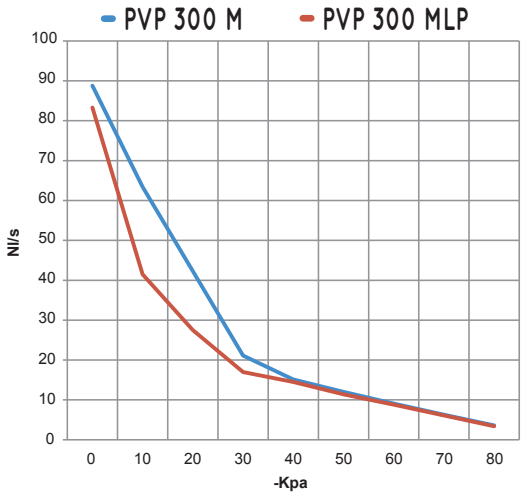
Spare parts		PVP 250 M / MLP	PVP 300 M / MLP
Sealing kit and reed valves	item	00 KIT PVP 250 M	00 KIT PVP 300 M
Exhaust silencer	item	00 15 110	00 15 110
Silencer on nozzles	item	N°3 00 15 111	N°3 00 15 111
Vacuum gauge	item	09 03 15	09 03 15
Pressure gauge	item	09 03 25	09 03 25

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Add the letters ES to the article for a generator supplied complete with an ES energy saving device (example: PVP 250 M ES).
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

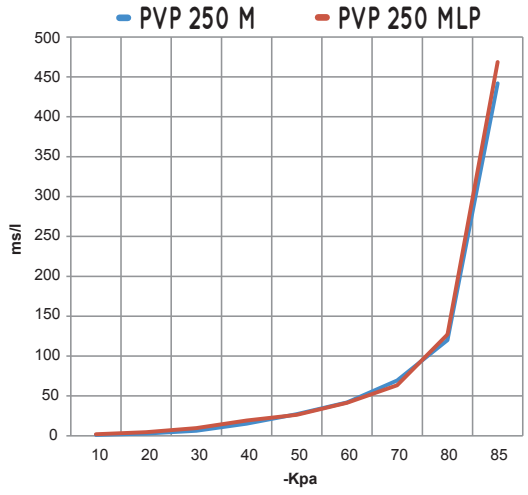
Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure

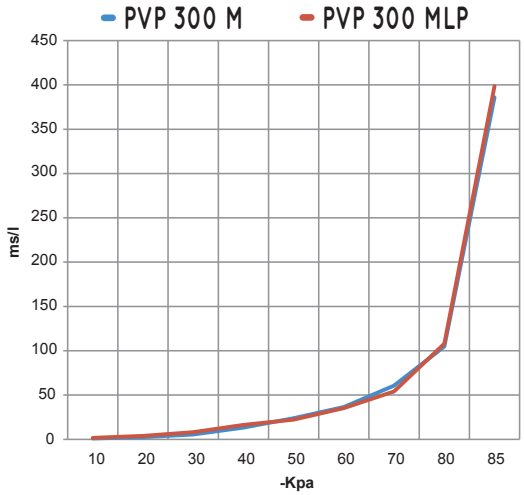




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			0	10	20	30	40	50	60	70	80	
PVP 250 M	6.0	24.0	77.7	55.5	37.0	18.5	13.2	10.5	7.9	5.5	3.1	90
PVP 300 M	6.0	29.0	88.8	63.4	42.3	21.1	15.1	12.0	9.1	6.3	3.6	90
PVP 250 MLP	3.0	33.6	69.4	34.0	23.5	14.0	11.5	9.8	7.6	5.3	3.0	88
PVP 300 MLP	3.0	39.3	83.3	41.5	27.5	17.0	14.5	11.4	8.8	6.1	3.4	88

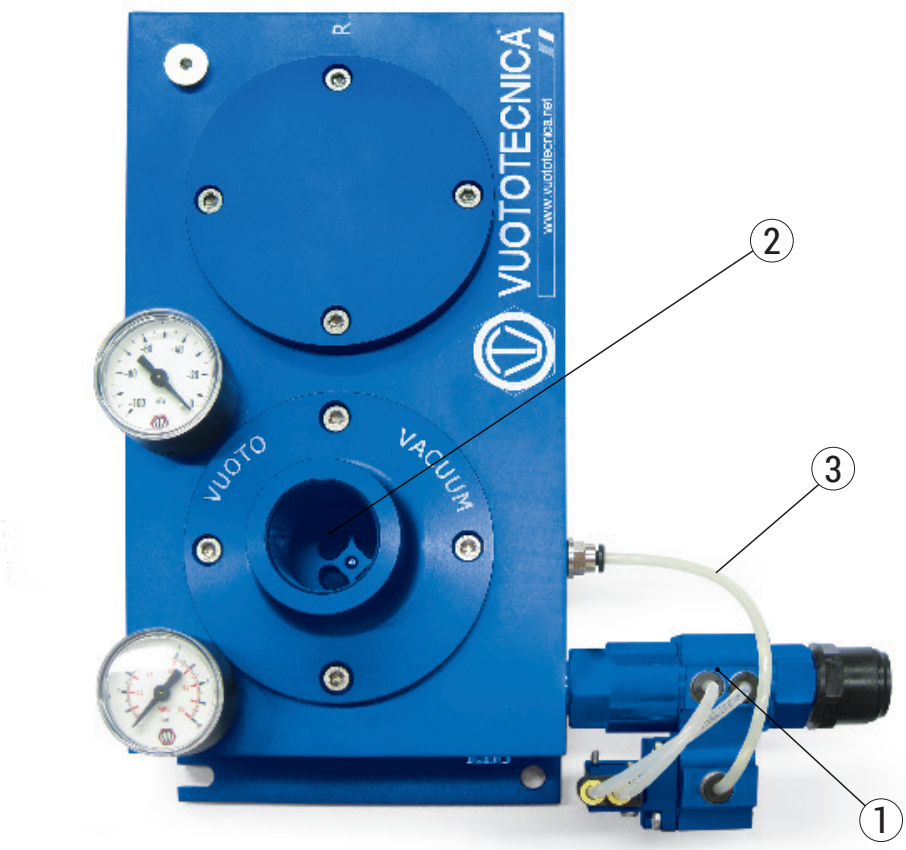
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

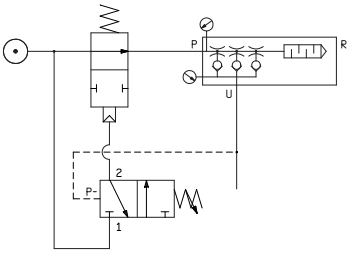




Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
PVP 250 M	6.0	24.0	1.1	2.9	6.4	15.2	27.3	41.8	69.3	119.9	442.0	90
PVP 300 M	6.0	29.0	1.0	2.5	5.5	13.3	23.8	36.5	60.6	104.9	386.0	90
PVP 250 MLP	3.0	33.6	2.0	4.6	9.6	19.3	26.3	41.5	63.5	127.0	468.7	88
PVP 300 MLP	3.0	39.3	1.7	3.9	8.2	16.4	22.3	35.3	54.0	108.0	398.5	88

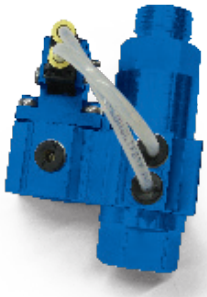
3D drawings are available on **vuototecnica.net**





COMPLETE KIT FOR ENERGY SAVING DEVICE ES

The three components described above make up an energy saving kit for the compressed air supply ES (Energy Saving System). In fact, the ES device acts directly on the generator, making it operate only within the preset vacuum values, thus limiting compressed air supply consumption; all this entails considerable energy savings.
This kit has been designed for the PVP 40 - 300 M/MLP series of generators.

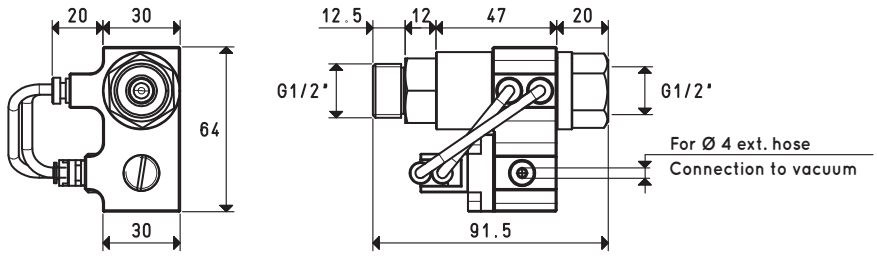


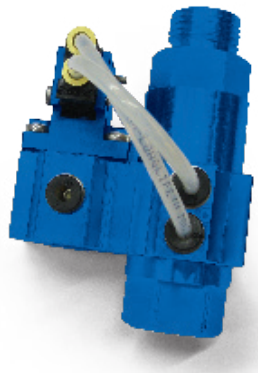
Item	For generator item	Weight g
ES 06	PVP 40 ÷ 300 M/MLP	380

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

① - COAXIAL SHUTTER SERVO-CONTROLLED SUPPLY VALVE

This is an innovative valve with coaxial shutter, pneumatically driven by the integrated vacuum switch on it, able to intercept the compressed air supply to the vacuum generator, with operating pressures between 1.5 and 7 bar. The vacuum switch has the task of removing and returning a pneumatic signal when a preset and adjustable level of vacuum is reached.
The pressure differential existing between the set maximum value and that of restoring the signal at rest is not adjustable and is equal to about 100 mbar.
The pneumatic vacuum switch, acting on the coaxial shutter supply valve automatically maintains the maximum and minimum level of vacuum within the differential value.

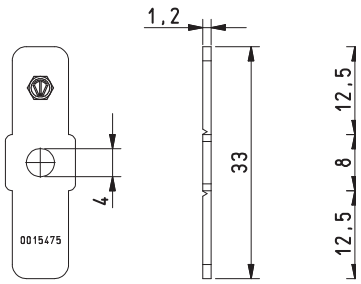




Item	For generator item	Sealing kit item	Weight g
07 03 71	PVP 40 ÷ 300 M/MLP	00 KIT 07 03 71	355

② - REED VALVE KIT FOR CHECK DEVICE ON VACUUM GENERATORS

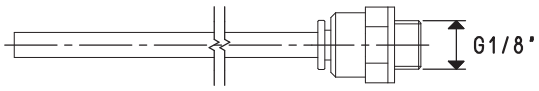
This reed valve kit, specifically designed to be integrated on PVP 40 - 300 M/MLP vacuum generators, has the task of preventing the return of atmospheric air into the vacuum system (tanks, autoclaves, intake systems depression, vacuum cups, etc.), when the generator stops, guaranteeing the seal and maintaining the level of vacuum reached in use.



Item	For generator item	No. pc.	Weight g
00 KIT TRASM-MR	PVP 40 ÷ 300 M/MLP	3	8

③ - FLEXIBLE TUBE FOR CONNECTION TO VACUUM

This flexible tube is fitted on one end with a 1/8 "quick-fit coupling, to be screwed onto one of the two vacuum generator connections reserved for the vacuum gauge, while the other free end is inserted into the fitting installed on the pneumatic vacuum switch. The task of this tube is to continuously monitor the value of the level of vacuum reached in use and to transmit it to the vacuum switch.



Item	For supply valve item	Weight g
00 15 496	07 03 71 - 07 04 71	10

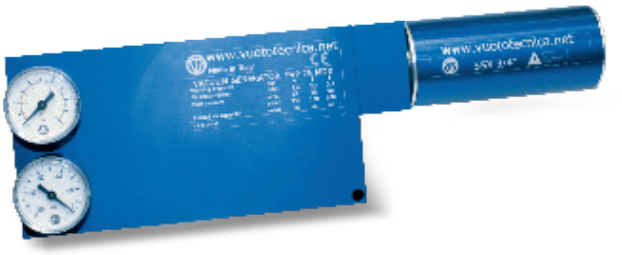
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

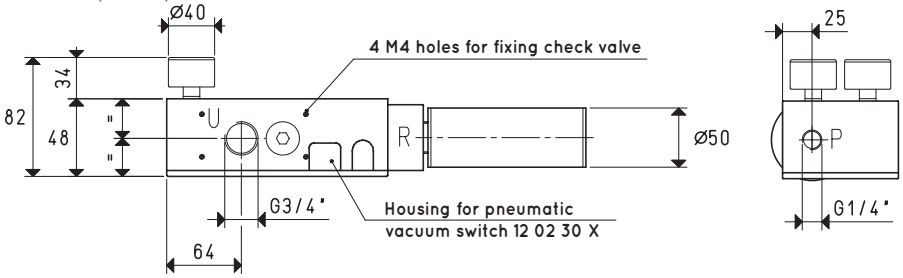
inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

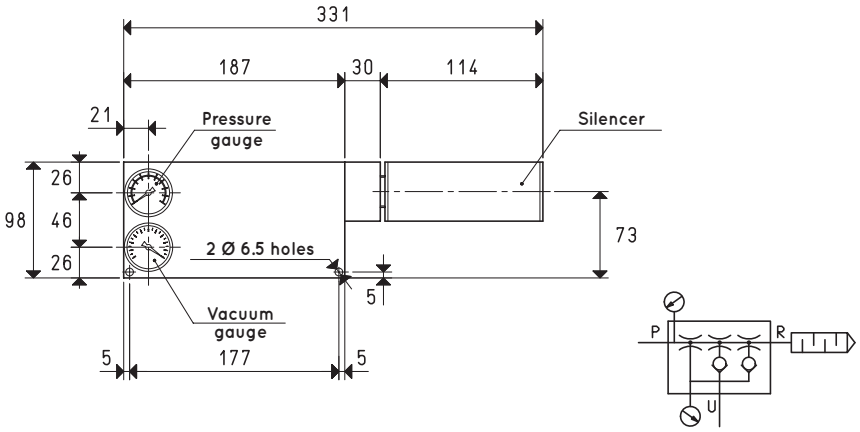
Adapters for GAS - NPT threading available on page 1.134

MULTI-STAGE VACUUM GENERATORS
PVP 25 MDX / MDXLP ÷ PVP 75 MDX / MDXLP

This line of generators is available with suction rates between 20 and 103 m³/h. The supply pressure goes from 4-6 bar for MDX items and from 1-3 bar for MDXLP items. The maximum level of vacuum is -90 KPa. Characterised by their new generation of ejectors, boasting an excellent ratio between the quantity of air consumed and that suctioned, benefiting operational consumption. They are fully made with anodised aluminium, with stainless steel ejectors and screws. The tightness seal is made from EPDM, while the reed valves are made as standard and in FKM, upon request. The "free-flow" SSX high sound damping silencers installed as standard on the air exhaust. They are equipped with additional threaded connections for increased points of usage or for the installation of measurement or control tools. Upon request, can be supplied with a compressed air energy savings kit ES (ENERGY SAVING SYSTEM), composed of a pneumatic vacuum regulator, a pneumatic coaxial shutter supply valve, a check valve and necessary tubing.







P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		PVP 25 MDX			PVP 35 MDX			PVP 50 MDX		
Intake air flow rate	m³/h	35	39	43	47	52	57	57	62	68
Maximum level of vacuum	-KPa	65	82	90	65	82	90	65	82	90
Final pressure	abs. mbar	350	180	100	350	180	100	350	180	100
Supply pressure	bar	4	5	6	4	5	6	4	5	6
Optimal supply pressure	bar			6			6			6
Air consumption	Nl/s	2.3	2.8	3.2	3.4	4.1	4.8	4.7	5.6	6.5
Temperature of use	°C			-20 / + 80			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			58			58			60
Weight	Kg			1.71			1.73			1.75

Item		PVP 25 MDXLP			PVP 35 MDXLP			PVP 50 MDXLP		
Intake air flow rate	m³/h	20	28	35	26	38	47	31	48	58
Maximum level of vacuum	-KPa	30	64	88	30	64	88	30	64	88
Final pressure	abs. mbar	700	360	120	700	360	120	700	360	120
Supply pressure	bar	1	2	3	1	2	3	1	2	3
Optimal supply pressure	bar			3			3			3
Air consumption	Nl/s	2.2	3.3	4.4	3.4	5.0	6.5	4.5	6.6	8.6
Temperature of use	°C			-20 / +80			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			62			68			74
Weight	Kg			1.71			1.73			1.75

Spare parts		PVP 25 MDX / MDXLP	PVP 35 MDX / MDXLP	PVP 50 MDX / MDXLP
Sealing kit and reed valves	item	00 KIT PVP 25 MDX	00 KIT PVP 35 MDX	00 KIT PVP 50 MDX
Vacuum gauge	item	09 03 15	09 03 15	09 03 15
Pressure gauge	item	09 03 25	09 03 25	09 03 25
Silencer	item	SSX 3/4"	SSX 3/4"	SSX 3/4"

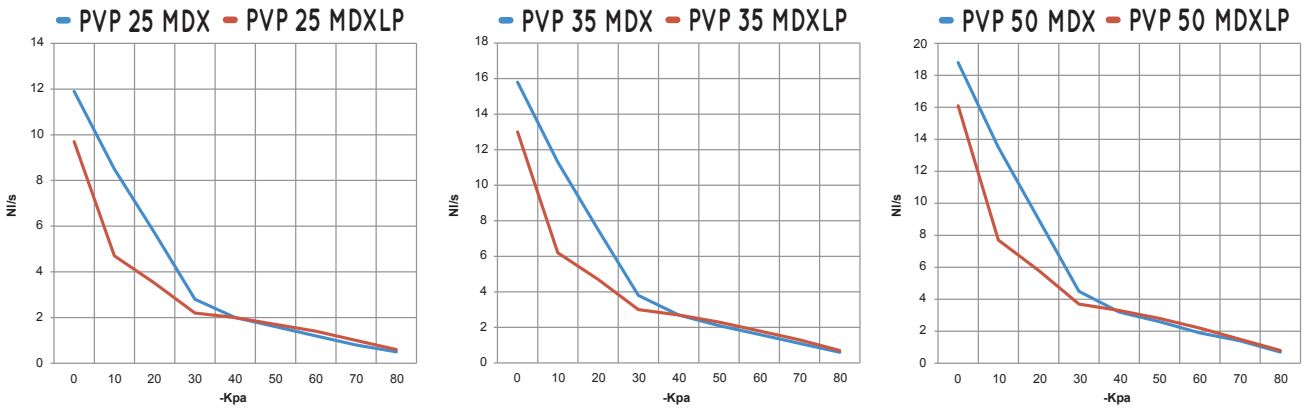
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Add the letters ES to the article for a generator supplied complete with an ES energy saving device (example: PVP 25 MDX ES).
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

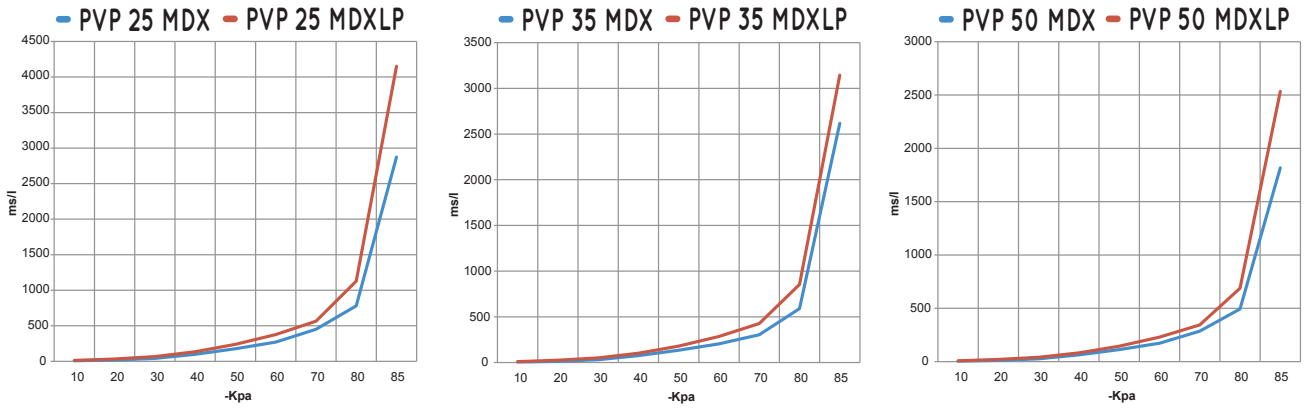
MULTI-STAGE VACUUM GENERATORS PVP 25 MDX / MDXLP, PVP 35 MDX / MDXLP and PVP 50 MDX / MDXLP

Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure



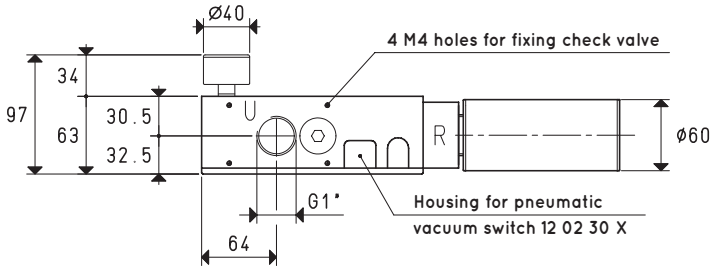
Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuum (-KPa) at optimal supply pressure									Max vacuum -KPa
			0	10	20	30	40	50	60	70	80	
PVP 25 MDX	6.0	3.2	11.9	8.5	5.7	2.8	2.0	1.6	1.2	0.8	0.5	90
PVP 35 MDX	6.0	4.8	15.8	11.3	7.5	3.8	2.7	2.1	1.6	1.1	0.6	90
PVP 50 MDX	6.0	6.5	18.8	13.5	9.0	4.5	3.2	2.6	1.9	1.4	0.7	90
PVP 25 MDXLP	3.0	4.4	9.7	4.7	3.5	2.2	2.0	1.7	1.4	1.0	0.6	88
PVP 35 MDXLP	3.0	6.5	13.0	6.2	4.7	3.0	2.7	2.3	1.8	1.3	0.7	88
PVP 50 MDXLP	3.0	8.6	16.1	7.7	5.8	3.7	3.3	2.8	2.2	1.5	0.8	88

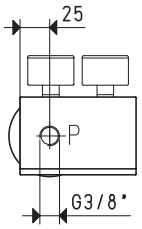
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

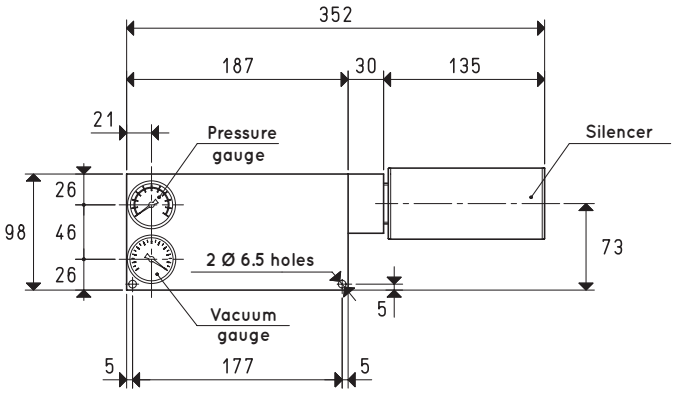


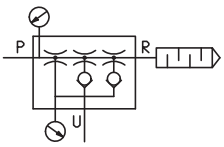
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
PVP 25 MDX	6.0	3.2	7.5	18.8	41.3	99.3	177.7	271.9	451.4	781.0	2874	90
PVP 35 MDX	6.0	4.8	5.6	14.1	31.2	74.9	134.0	205.1	340.5	589.1	2618	90
PVP 50 MDX	6.0	6.5	4.7	11.9	26.2	62.8	112.4	172.0	285.5	494.0	1818	90
PVP 25 MDXLP	3.0	4.4	13.0	33.3	67.2	134.4	238.0	376.0	564.0	1128.0	4151	88
PVP 35 MDXLP	3.0	6.5	9.8	25.2	50.9	101.9	180.3	284.9	427.3	854.7	3145	88
PVP 50 MDXLP	3.0	8.6	7.9	20.3	41.0	82.0	145.3	229.5	344.3	688.5	2534	88

MULTI-STAGE VACUUM GENERATORS PVP 60 MDX / MDXLP and PVP 75 MDX / MDXLP









P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		PVP 60 MDX			PVP 75 MDX		
Intake air flow rate	m^3/h	75	85	92	85	94	103
Maximum level of vacuum	-KPa	65	82	90	65	82	90
Final pressure	abs. mbar	350	180	100	350	180	100
Supply pressure	bar	4	5	6	4	5	6
Optimal supply pressure	bar			6			6
Air consumption	Nl/s	5.9	7.0	8.2	7.0	8.4	9.8
Temperature of use	°C			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			65			70
Weight	Kg			1.90			1.92

Item		PVP 60 MDXLP			PVP 75 MDXLP		
Intake air flow rate	m^3/h	35	57	65	44	70	80
Maximum level of vacuum	-KPa	30	64	88	30	64	88
Final pressure	abs. mbar	700	360	120	700	360	120
Supply pressure	bar	1	2	3	1	2	3
Optimal supply pressure	bar			3			3
Air consumption	Nl/s	5.5	8.3	11.0	6.6	9.9	13.2
Temperature of use	°C			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			68			70
Weight	Kg			1.90			1.92

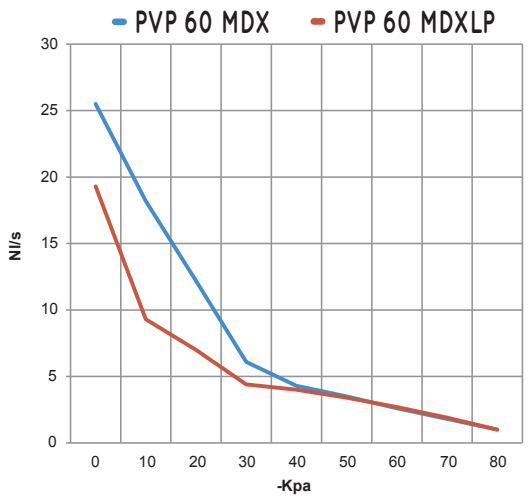
Spare parts		PVP 60 MDX / MDXLP	PVP 75 MDX / MDXLP
Sealing kit and reed valves	item	00 KIT PVP 60 MDX	00 KIT PVP 75 MDX
Vacuum gauge	item	09 03 15	09 03 15
Pressure gauge	item	09 03 25	09 03 25
Silencer	item	SSX 1"	SSX 1"

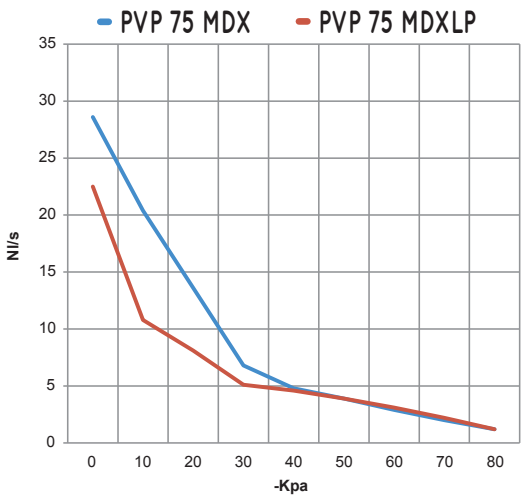
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Add the letters ES to the article for a generator supplied complete with an ES energy saving device (example: PVP 60 MDX ES).
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

MULTI-STAGE VACUUM GENERATORS PVP 60 MDX / MDXLP and PVP 75 MDX / MDXLP

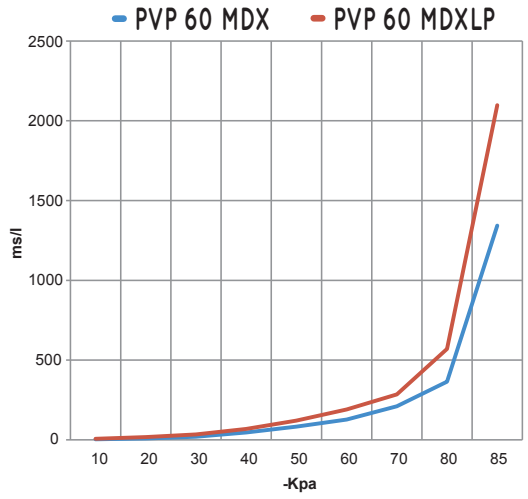
Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure

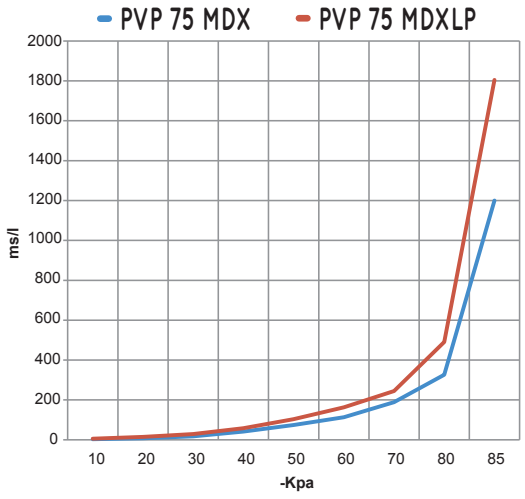




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different vacuum levels (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
PVP 60 MDX	6.0	8.2	25.5	18.2	12.2	6.1	4.3	3.5	2.6	1.8	1.0	90
PVP 75 MDX	6.0	9.8	28.6	20.4	13.6	6.8	4.8	3.9	2.9	2.0	1.2	90
PVP 60 MDXLP	3.0	11.0	19.3	9.3	7.0	4.4	4.0	3.4	2.7	1.9	1.0	88
PVP 75 MDXLP	3.0	13.2	22.5	10.8	8.1	5.1	4.6	3.9	3.1	2.2	1.2	88

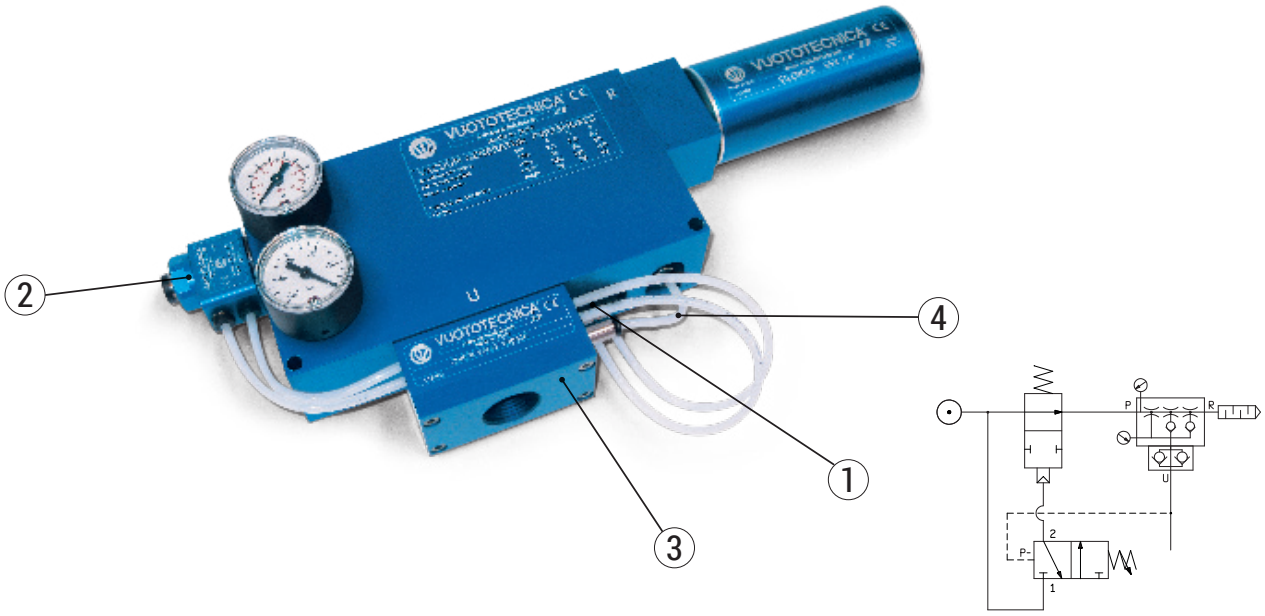
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



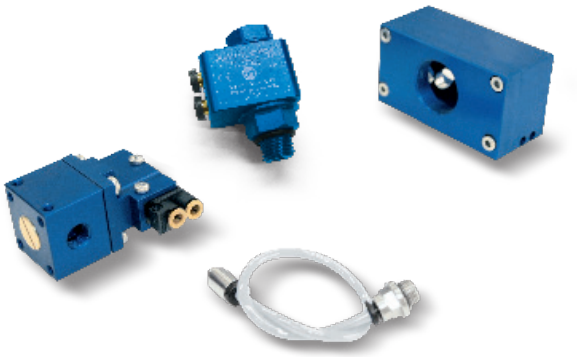


Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
PVP 60 MDX	6.0	8.2	3.5	8.8	19.3	46.4	83.0	127.0	211.0	365.0	1343	90
PVP 75 MDX	6.0	9.8	3.1	7.8	17.2	41.4	74.2	113.5	188.4	326.0	1200	90
PVP 60 MDXLP	3.0	11.0	6.6	16.8	34.0	68.0	120.3	190.0	285.0	570.0	2098	88
PVP 75 MDXLP	3.0	13.2	5.7	14.5	29.2	58.4	103.4	163.4	245.0	490.3	1805	88

ACCESSORIES FOR VACUUM GENERATORS
PVP 25 MDX / MDXLP ÷ PVP 75 MDX / MDXLP



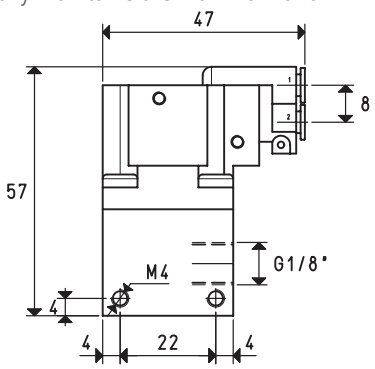
COMPLETE KIT FOR ENERGY SAVING DEVICE ES

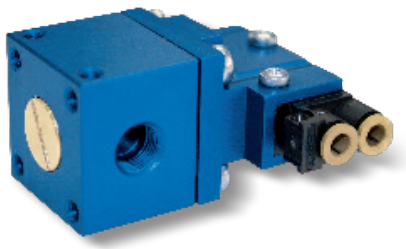


Item	For generator item	Weight g
ES 01	PVP 25 ÷ 50 MDX / MDXLP	475
ES 02	PVP 60 ÷ 75 MDX / MDXLP	998

① - MINI PNEUMATIC VACUUM SWITCH

The vacuum switch has the task of removing a pneumatic signal when a specific adjustable level of vacuum is reached. The pressure differential existing between the set maximum value and that of restoring the signal at rest is not adjustable and is equal to about 100 mbar.
The pneumatic vacuum switch, installed on the vacuum generators PVP 25 - 75 MDX / MDXLP acting on the coaxial shutter supply valve automatically maintains the maximum and minimum level of vacuum within the differential value.





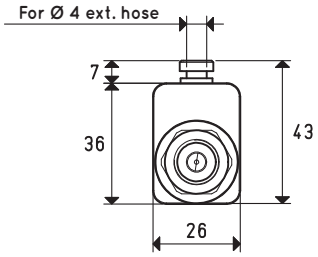
Item	For generator item	Sealing kit item	Weight g
12 01 30 X	PVP 25 ÷ 75 MDX / MDXLP	00 KIT 12 01 30	104

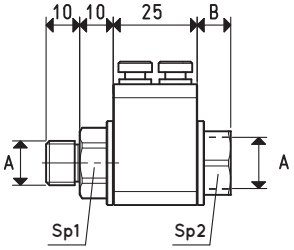
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

② - COAXIAL SHUTTER SERVO-CONTROLLED PNEUMATIC VALVES

These coaxial shutter valves, pneumatically driven by a vacuum switch or an alternative source, are able to intercept the compressed air supply to the vacuum generators, with pressures between 1.5 and 7 bar. They must be chosen based on the generator power supply connection and the required air quantity.

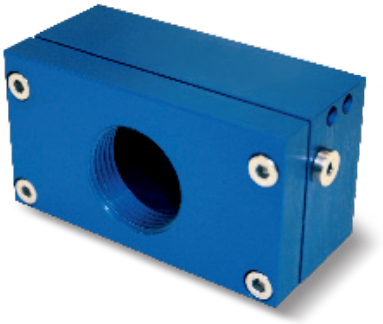


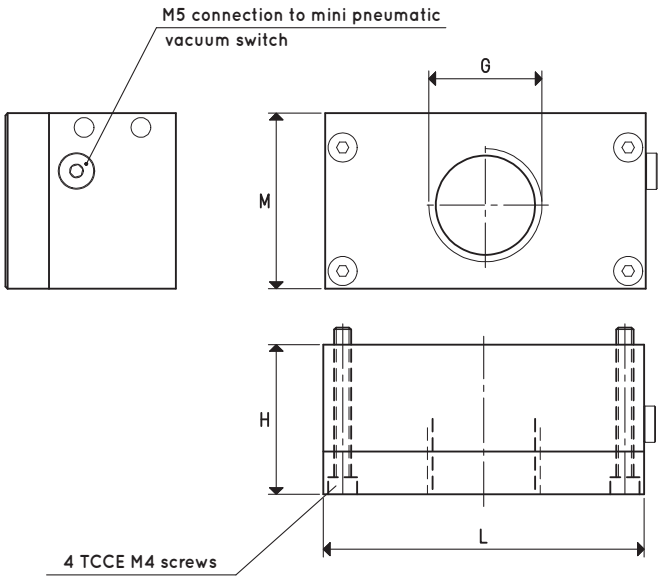


Item	A Ø	B	Sp1	Sp2	For generator item	Sealing kit item	Weight g
07 01 71	G 1/4"	10	19	19	PVP 25 ÷ 50 MDX / MDXLP	00 KIT 07 01 71	72
07 02 71	G 3/8"	15	19	19	PVP 60 ÷ 75 MDX / MDXLP	00 KIT 07 02 71	70

③ - MEMBRANE CHECK VALVE

A check valve specially designed to adapt to vacuum generators PVP 25 - 75 MDX / MDXLP.
The originality of this valve, besides its shape, consists in its membrane seal component, which is able to guarantee very low pressure drops, rapid intervention and perfect sealing.

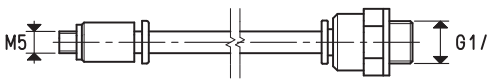




Item	G Ø	H	L	M	For generator item	Sealing kit item	Weight g
10 04 20	G3/4"	35	75	41	PVP 25 ÷ 50 MDX / MDXLP	00 KIT 10 04 20	165
10 05 20	G1"	48	113	58	PVP 60 ÷ 75 MDX / MDXLP	00 KIT 10 05 20	458

④ - FLEXIBLE HOSE KIT WITH FITTINGS

This flexible hose kit is used to connect the mini vacuum switch to the coaxial shutter supply valve and the membrane check valve. The appropriate quick couplings are already assembled at the ends of the tubes, to be screwed to the valve and vacuum switch connections.



Item	For generator item	Weight g
00 15 308	PVP 25 ÷ 75 MDX / MDXLP	16

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

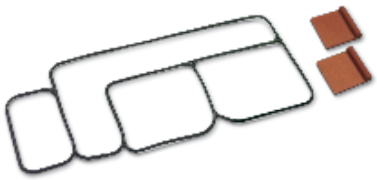
Adapters for GAS - NPT threading available on page 1.134

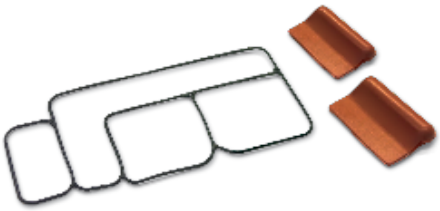
3D drawings are available on **vuototecnica.net**

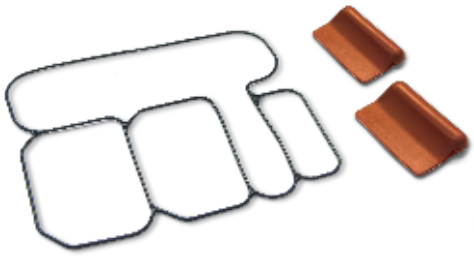
3D drawings are available on **vuototecnica.net**

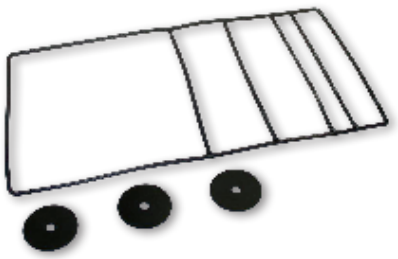
Sealing kit and reed valves

Item	By generators item
00 KIT PVP 12 MX	PVP 12 MX / MXLP
00 KIT PVP 25 MX	PVP 25 MX / MXLP
00 KIT PVP 25 MDX	PVP 25 MDX / MDXLP
00 KIT PVP 35 MDX	PVP 35 MDX / MDXLP
00 KIT PVP 50 MDX	PVP 50 MDX / MDXLP
00 KIT PVP 60 MDX	PVP 60 MDX / MDXLP
00 KIT PVP 75 MDX	PVP 55 MDX / MDXLP
00 KIT PVP 40 M	PVP 40 M / MLP
00 KIT PVP 70 M	PVP 70 M / MLP
00 KIT PVP 100 M	PVP 100 M / MLP
00 KIT PVP 140 M	PVP 140 M / MLP
00 KIT PVP 170 M	PVP 170 M / MLP
00 KIT PVP 200 M	PVP 200 M / MLP
00 KIT PVP 250 M	PVP 250 M / MLP
00 KIT PVP 300 M	PVP 300 M / MLP









Sound absorbing material on the exhaust

Item	By generators item	Quantity
00 15 112	PVP 12 MX / MXLP	1 piece
00 15 113	PVP 25 MX / MXLP	1 piece
00 15 110	PVP 40 M / MLP	1 piece
	PVP 70 M / MLP	1 piece
	PVP 100 M / MLP	1 piece
	PVP 140 M / MLP	1 piece
	PVP 170 M / MLP	1 piece
	PVP 200 M / MLP	1 piece
	PVP 250 M / MLP	1 piece
	PVP 300 M / MLP	1 piece

3D drawings are available on **vuototecnica.net**

Sound absorbing material on ejectors

Item	By generators item	Quantity
00 15 111	PVP 40 M / MLP	1 piece
	PVP 70 M / MLP	1 piece
	PVP 100 M / MLP	1 piece
	PVP 140 M / MLP	2 pieces
	PVP 170 M / MLP	2 pieces
	PVP 200 M / MLP	2 pieces
	PVP 250 M / MLP	3 pieces
	PVP 300 M / MLP	3 pieces

Vacuum gauge Ø 40 mm with 1/8” coaxial gas coupler

Item	By generators item
09 03 15	All

Pressure gauge Ø 40 mm with 1/8” coaxial gas coupler

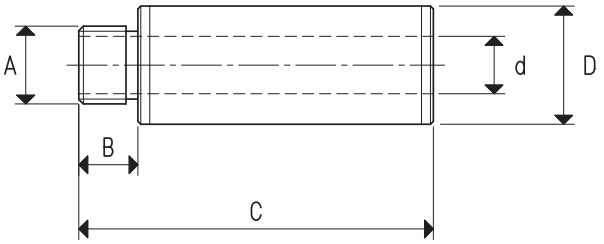
Item	bar	By generators item
09 03 25	1 ÷ 10	All

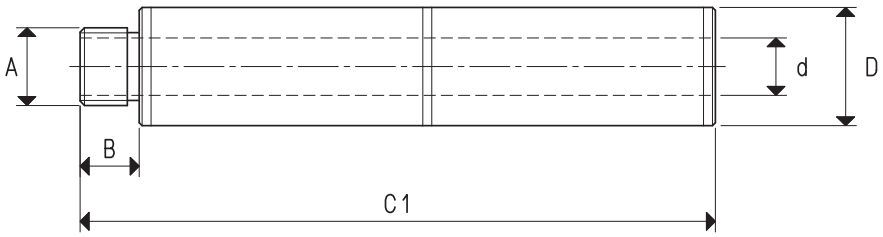
Exhaust silencers SSX

Item	By generators item
SSX 1/4”	M3 SSX
SSX 3/8”	M7 SSX - M10 S

SILENCERS

The use of natural fibre sound absorbing material enclosed in special anodised aluminium casings has allowed creating this new range of silencers that considerably reduce noise made by air at the vacuum generator exhaust.
There are two versions with different lengths: the longer the length, the more noise will be reduced.
Noise reduction: from -13 to -20 dB (A)
Working temperature: from -20 to +100°C





Item	A Ø	B	C	C1	D Ø	d Ø	Weight g
SSX 1/8"	G1/8"	10	58	--	17	7	14
SSX 1/4"	G1/4"	10	60	--	20	10	20
SSX 3/8" R	G3/8"	7	57	--	20	10	17
SSX 3/8"	G3/8"	12	84	--	29	16	52
SSX 1/2"	G1/2"	14	106	--	35	16	96
SSX 3/4" R	G3/4"	14	106	--	35	16	100
SSX 3/4"	G3/4"	14	126	--	50	21	174
SSX 1"	G1"	14	146	--	55	28	240
SSX 1" 1/2	G1" 1/2	30	210	--	80	38	302
SSX 2"	G2"	30	250	--	90	48	372
2SSX 1/8"	G1/8"	10	--	104	17	7	28
2SSX 1/4"	G1/4"	10	--	108	20	10	40
2SSX 3/8"	G3/8"	12	--	154	29	16	104
2SSX 1/2"	G1/2"	14	--	196	35	16	192
2SSX 3/4"	G3/4"	14	--	236	50	21	348
2SSX 1"	G1"	14	--	276	55	28	480
2SSX 1" 1/2	G1" 1/2	30	--	390	80	38	604
2SSX 2"	G2"	30	--	470	90	48	744

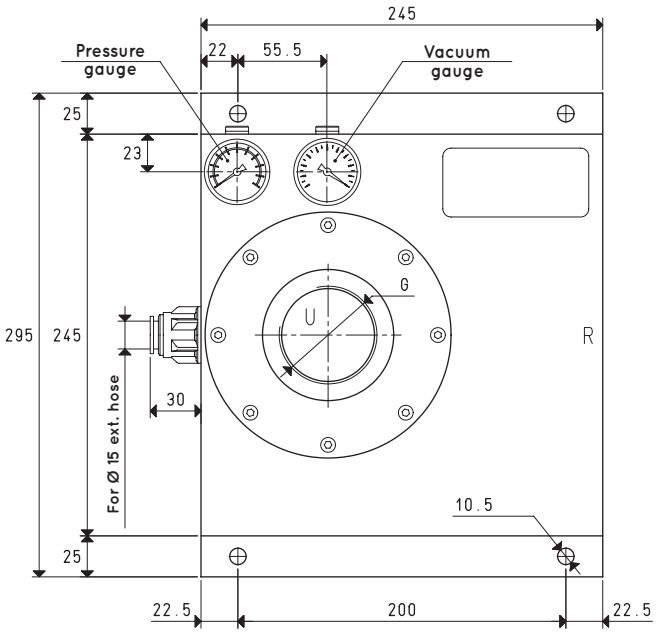
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

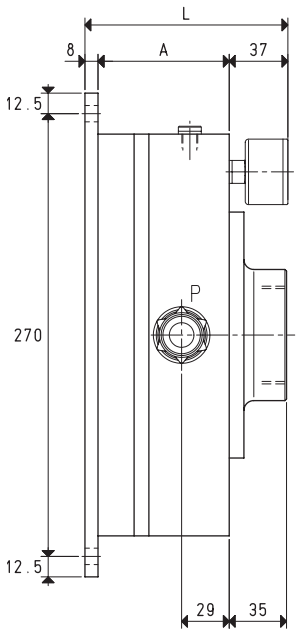
Adapters for GAS - NPT threading available on page 1.134

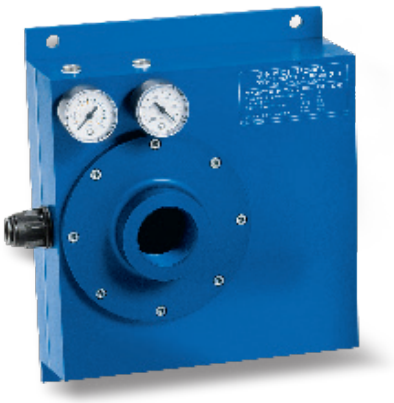
MULTI-STAGE AND MODULAR VACUUM GENERATORS
PVP 150 MD / MDLP ÷ PVP 750 MD / MDLP - GENERAL DESCRIPTION

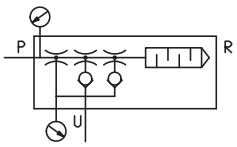
The special shape of these vacuum generators has allowed obtaining great suction capacities in very limited overall dimensions.
The new design stainless steel ejectors are assembled on modular frames; the overlapping of one or more frames defines the flow rate of the generators. They are supplied with a flow rate ranging from 85 e 900 m^3/h and a maximum level of vacuum of -90KPa.
The supply pressure goes from 4-6 bar for MD items and from 1-3 bar
for MDLP items. Level of vacuum and flow rate can be adjusted according to the supply air pressure. They are fully made with anodised aluminium.
The sealing gaskets and disc valves are EPDM as standard, but can be supplied in FKM upon request. Also upon request, an energy saving kit for the compressed air ES (Energy Saving System) can be supplied. It is composed of a pneumatic coaxial shutter valve for supply of the compressed air, an integrated pneumatic vacuum switch, a reed valve kit for the check system and a flexible tube with quick fitting to monitor and transmit the value of the level of vacuum to the vacuum switch.
Perfectly soundproofed with silencers built into all generators, offering extremely quiet operation.

MULTI-STAGE AND MODULAR VACUUM GENERATORS PVP 150 MD / MDLP and PVP 300 MD / MDLP









P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		PVP 150 MD			PVP 300 MD		
Intake air flow rate	m^3/h	160	180	200	320	360	400
Maximum level of vacuum	-KPa	65	82	90	65	82	90
Final pressure	abs. mbar	350	180	100	350	180	100
Supply pressure	bar	4	5	6	4	5	6
Optimal supply pressure	bar			6			6
Air consumption	Nl/s	12.1	14.2	16.0	23.2	27.8	32.0
Temperature of use	°C			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			72			74
Weight	Kg			7.0			8.0
A				80			100
G	Ø			G1" 1/2			G2"
L				125			145

Item		PVP 150 MDLP			PVP 300 MDLP		
Intake air flow rate	m^3/h	85	146	170	190	300	340
Maximum level of vacuum	-KPa	30	64	88	30	64	88
Final pressure	abs. mbar	700	360	120	700	360	120
Supply pressure	bar	1	2	3	1	2	3
Optimal supply pressure	bar			3			3
Air consumption	Nl/s	10.5	16.5	22.6	22.5	33.6	45.5
Temperature of use	°C			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			76			78
Weight	Kg			7.8			8.8
A				80			100
G	Ø			G1" 1/2			G2"
L				125			145

Spare parts		PVP 150 MD / MDLP	PVP 300 MD / MDLP
Sealing kit and reed valves	item	00 KIT PVP 150 MD	00 KIT PVP 300 MD
Exhaust silencer	item	00 15 70	00 15 70
Silencer on nozzles	item	00 15 71	00 15 72
Vacuum gauge	item	09 03 15	09 03 15
Pressure gauge	item	09 03 25	09 03 25

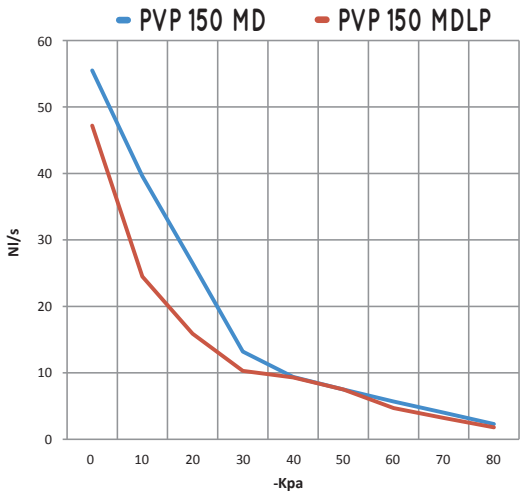
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Add the letter R to the item for a generator supplied with an integrated check valve (Example: PVP 150 MDR).
Add the letters ES to the article for a generator supplied complete with an ES energy saving device (example: PVP 140 MD ES).
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

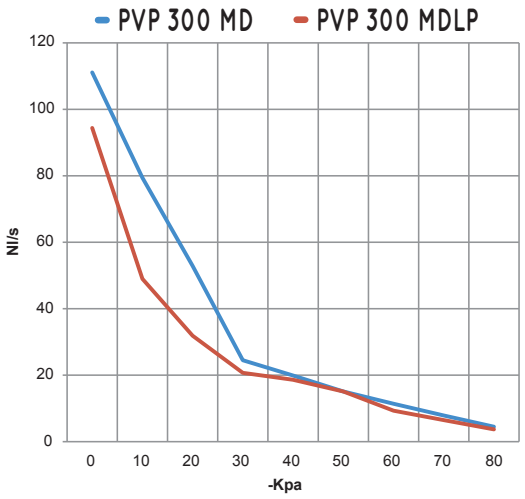
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

MULTI-STAGE AND MODULAR VACUUM GENERATORS PVP 150 MD / MDLP and PVP 300 MD / MDLP

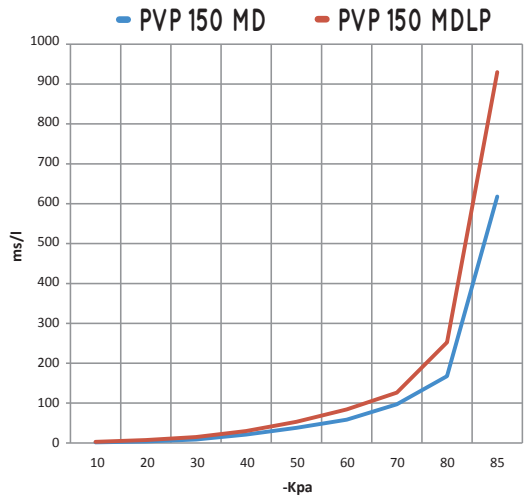
Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure

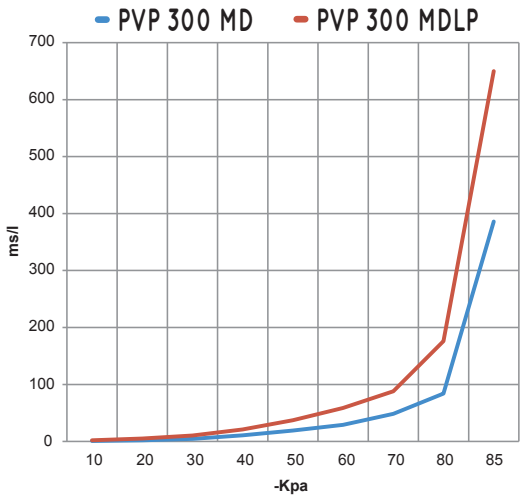




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			0	10	20	30	40	50	60	70	80	
PVP 150 MD	6.0	16.0	55.5	39.6	26.5	13.2	9.4	7.5	5.7	4.0	2.3	90
PVP 300 MD	6.0	32.0	111.1	79.4	52.9	26.5	19.9	15.1	11.4	7.9	4.5	90
PVP 150 MDLP	3.0	22.6	47.2	24.5	15.9	10.3	9.3	7.5	4.7	3.2	1.8	88
PVP 300 MDLP	3.0	45.5	94.4	49.0	31.9	20.7	18.6	15.1	9.3	6.5	3.7	88

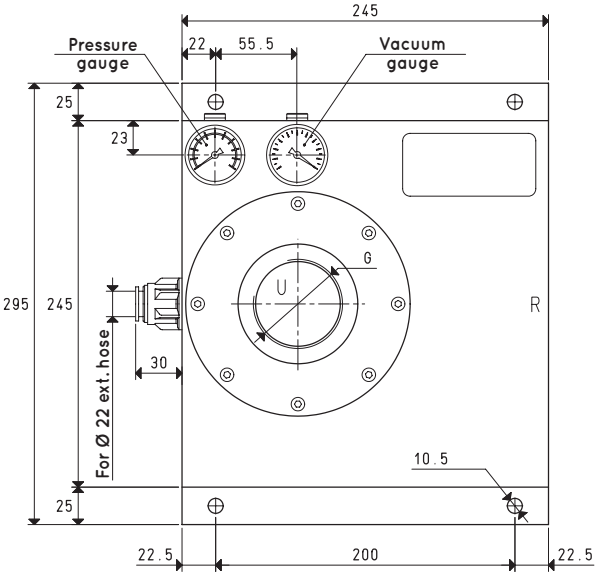
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

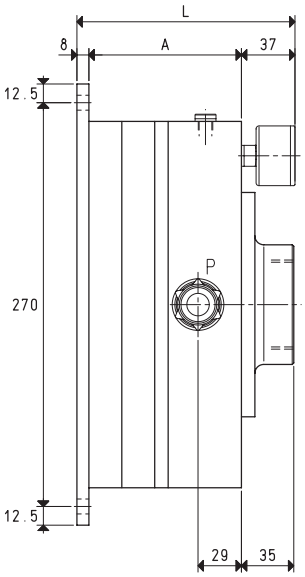


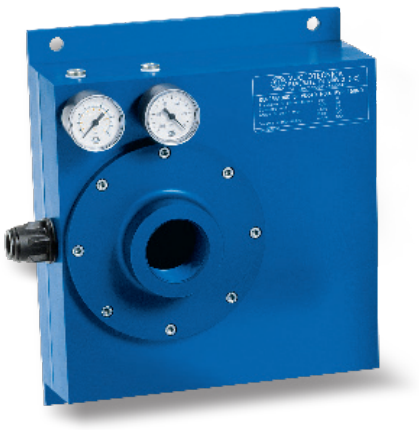


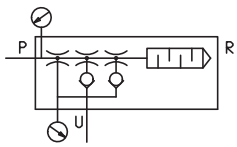
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
PVP 150 MD	6.0	16.0	1.6	4.0	8.9	21.3	38.2	58.4	97.0	167.8	618	90
PVP 300 MD	6.0	32.0	0.8	2.0	4.4	10.6	19.1	29.2	48.5	83.9	386	90
PVP 150 MDLP	3.0	22.6	2.9	7.5	15.0	30.1	53.3	84.2	126.3	252.5	930	88
PVP 300 MDLP	3.0	45.5	2.0	5.2	10.5	21.0	37.2	58.7	88.0	176.1	650	88

MULTI-STAGE AND MODULAR VACUUM GENERATORS PVP 450 MD / MDLP and PVP 600 MD / MDLP









P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		PVP 450 MD			PVP 600 MD		
Intake air flow rate	m^3/h	490	530	580	640	700	750
Maximum level of vacuum	-KPa	65	82	90	65	82	90
Final pressure	abs. mbar	350	180	100	350	180	100
Supply pressure	bar	4	5	6	4	5	6
Optimal supply pressure	bar			6			6
Air consumption	Nl/s	35.4	40.6	47.8	45.4	56.8	63.2
Temperature of use	°C			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			74			78
Weight	Kg			9.1			10.3
A				122			142
G	Ø			G3"			G3"
L				167			187

Item		PVP 450 MDLP			PVP 600 MDLP		
Intake air flow rate	m^3/h	250	440	500	330	590	670
Maximum level of vacuum	-KPa	30	64	88	30	64	88
Final pressure	abs. mbar	700	360	120	700	360	120
Supply pressure	bar	1	2	3	1	2	3
Optimal supply pressure	bar			3			3
Air consumption	Nl/s	32.0	48.8	65.8	42.0	66.0	87.7
Temperature of use	°C			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			80			82
Weight	Kg			9.1			10.3
A				122			142
G	Ø			G3"			G3"
L				167			187

Spare parts		PVP 450 MD / MDLP	PVP 600 MD / MDLP
Sealing kit and reed valves	item	00 KIT PVP 450 MD	00 KIT PVP 600 MD
Exhaust silencer	item	00 15 70	00 15 70
Silencer on nozzles	item	00 15 71 + 00 15 72	N°2 00 15 72
Vacuum gauge	item	09 03 15	09 03 15
Pressure gauge	item	09 03 25	09 03 25

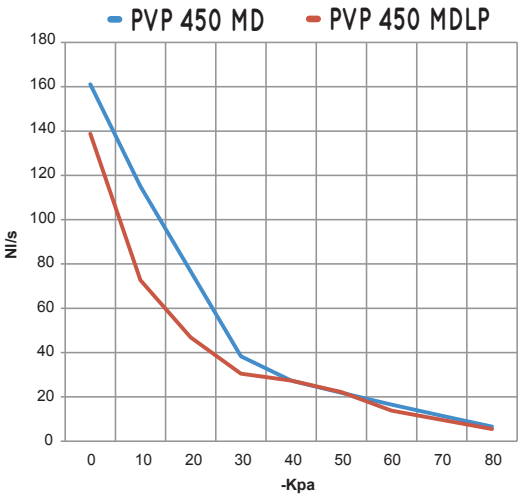
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Add the letter R to the item for a generator supplied with an integrated check valve (Example: PVP 450 MDR).
Add the letters ES to the article for a generator supplied complete with an ES energy saving device (example: PVP 450 MD ES).
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

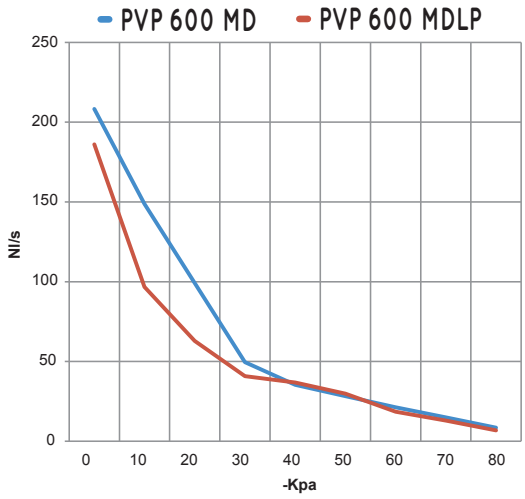
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

MULTI-STAGE AND MODULAR VACUUM GENERATORS PVP 450 MD / MDLP and PVP 600 MD / MDLP

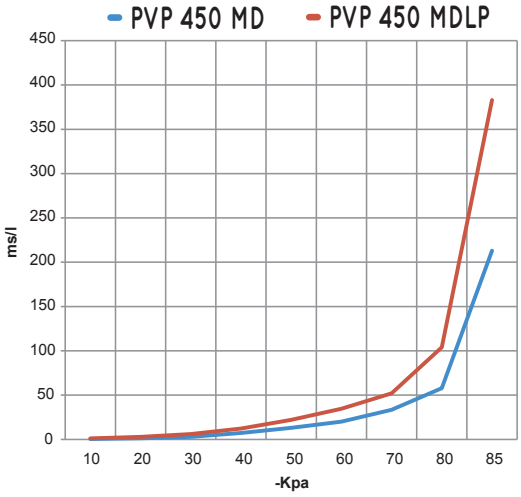
Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure

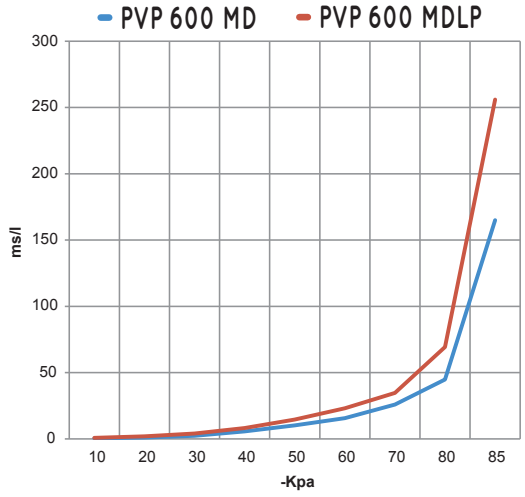




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			0	10	20	30	40	50	60	70	80	
PVP 450 MD	6.0	47.8	161.1	115.0	76.7	38.3	27.4	21.9	16.5	11.5	6.6	90
PVP 600 MD	6.0	63.2	208.3	148.8	99.2	49.6	35.4	28.3	21.3	14.9	8.5	90
PVP 450 MDLP	3.0	65.8	138.8	72.7	46.9	30.5	27.4	22.2	13.8	9.6	5.5	88
PVP 600 MDLP	3.0	87.7	186.1	96.7	62.9	40.8	36.8	29.8	18.5	12.9	6.8	88

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

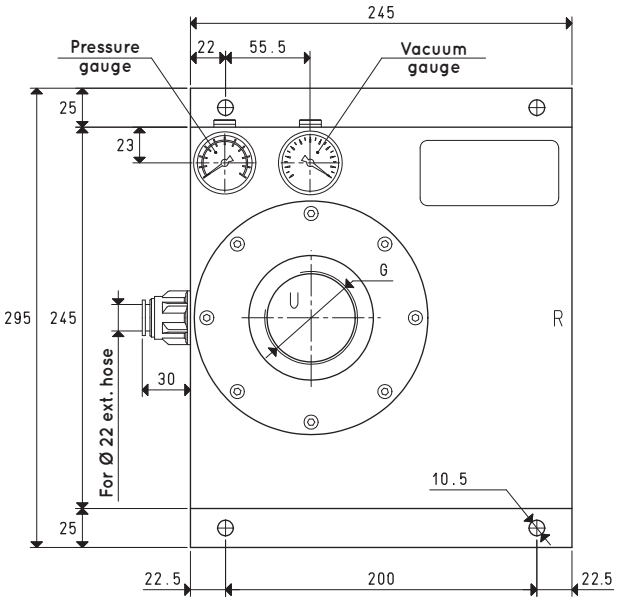


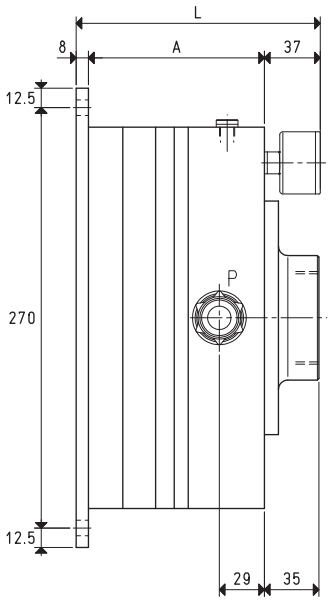


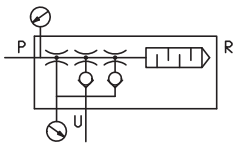
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
PVP 450 MD	6.0	47.8	0.5	1.4	3.0	7.4	13.2	20.1	33.5	57.9	213	90
PVP 600 MD	6.0	63.2	0.4	1.0	2.4	5.7	10.2	15.6	25.9	44.8	165	90
PVP 450 MDLP	3.0	65.8	1.2	3.0	6.2	12.4	22.0	34.7	52.0	104.1	383	88
PVP 600 MDLP	3.0	87.7	0.8	2.0	4.1	8.2	14.6	23.1	34.7	69.4	256	88

3D drawings are available on **vuototecnica.net**

3D drawings are available on **vuototecnica.net**







P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		PVP 750 MD		
Intake air flow rate	m^3/h	650	780	900
Maximum level of vacuum	-KPa	65	82	90
Final pressure	abs. mbar	350	180	100
Supply pressure	bar	4	5	6
Optimal supply pressure	bar			6
Air consumption	Nl/s	60.5	71.0	80.0
Temperature of use	°C			-20 / +80
Noise level at optimal supply pressure	dB(A)			84
Weight	Kg			12.7
A				164
G	Ø			G3"
L				209

Item		PVP 750 MDLP		
Intake air flow rate	m^3/h	420	650	800
Maximum level of vacuum	-KPa	30	64	88
Final pressure	abs. mbar	700	360	120
Supply pressure	bar	1	2	3
Optimal supply pressure	bar			3
Air consumption	Nl/s	52.0	82.5	110.0
Temperature of use	°C			-20 / +80
Noise level at optimal supply pressure	dB(A)			85
Weight	Kg			12.7
A				164
G	Ø			G3"
L				209

Spare parts		PVP 750 MD / MDLP
Sealing kit and reed valves	item	00 KIT PVP 750 MD
Exhaust silencer	item	00 15 70
Silencer on nozzles	item	N°2 00 15 72 + 00 15 71
Vacuum gauge	item	09 03 15
Pressure gauge	item	09 03 25

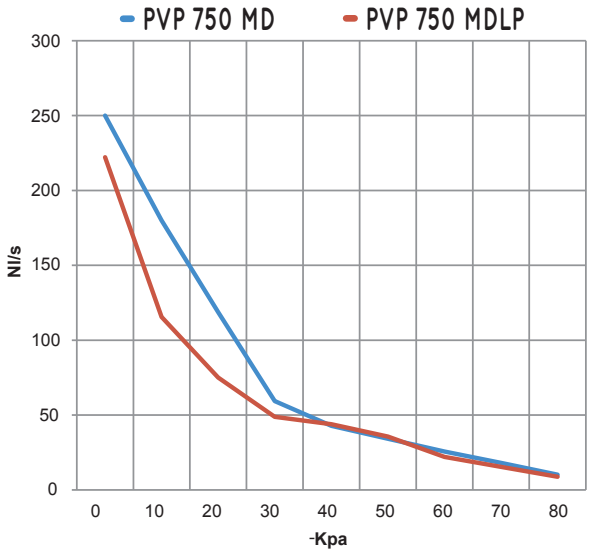
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Add the letter R to the item for a generator supplied with an integrated check valve (Example: PVP 750 MDR).
Add the letters ES to the article for a generator supplied complete with an ES energy saving device (example: PVP 750 MD ES).
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

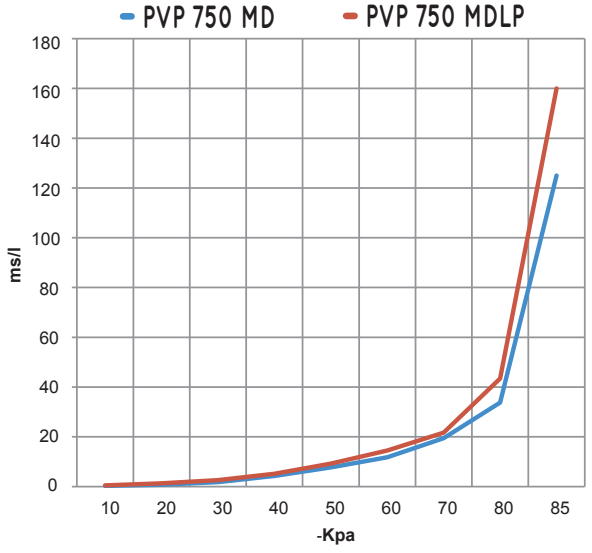
3D drawings are available on **vuototecnica.net**

Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure



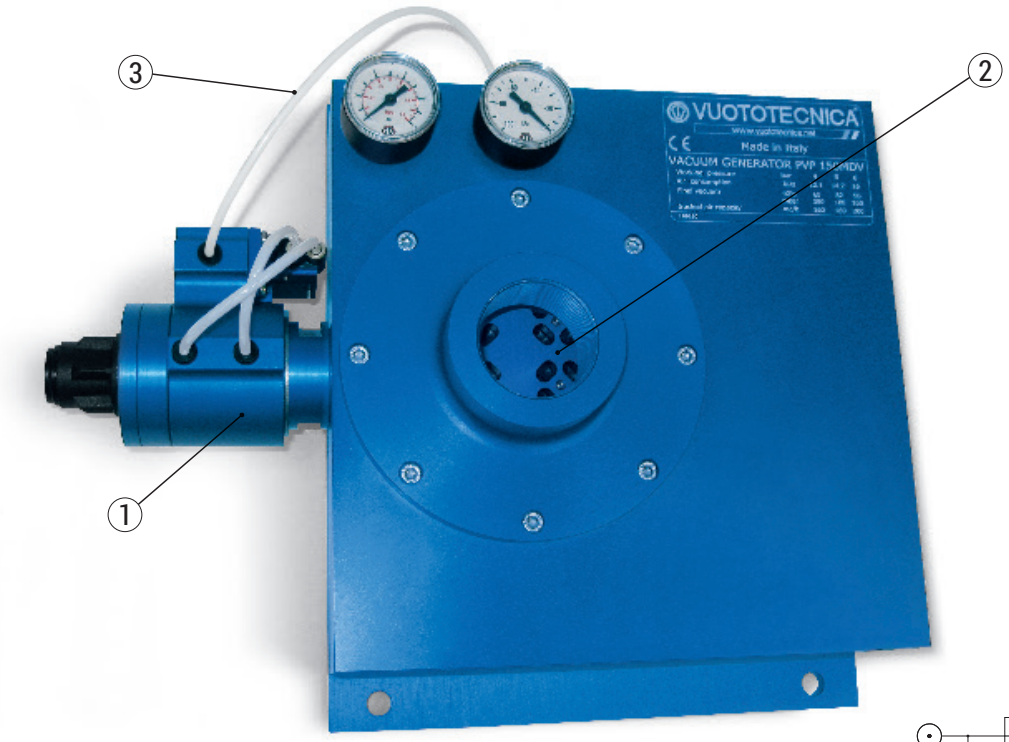
Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
PVP 750 MD	6.0	80.0	250.0	180.0	118.8	59.4	42.8	34.2	25.7	18.0	10.2	90
PVP 750 MDLP	3.0	110.0	222.2	115.5	75.1	48.8	43.9	35.6	22.0	15.4	8.8	88

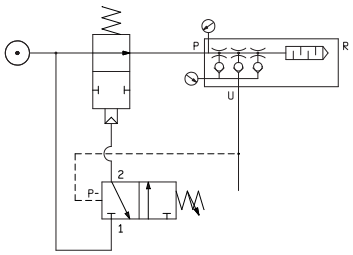
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
PVP 750 MD	6.0	80.0	0.3	0.8	1.8	4.3	7.7	11.8	19.5	33.8	125	90
PVP 750 MDLP	3.0	110.0	0.5	1.3	2.6	5.2	9.2	14.5	21.7	43.4	160	88

ACCESSORIES FOR VACUUM GENERATORS PVP 150 MD / MDLP ÷ PVP 750 MD / MDLP





COMPLETE KIT FOR ENERGY SAVING DEVICE ES

The three components described above make up an energy saving kit for the compressed air supply ES (Energy Saving System).
In fact, the ES device acts directly on the generator, making it operate only within the preset vacuum values, thus limiting compressed air supply consumption; all this entails considerable energy savings.
This kit has been specifically designed for the PVP 150-750 MD/MDLP series of generators.

Item	For generator item	Weight g
ES 05	PVP 150 ÷ 750 MD / MDLP	596

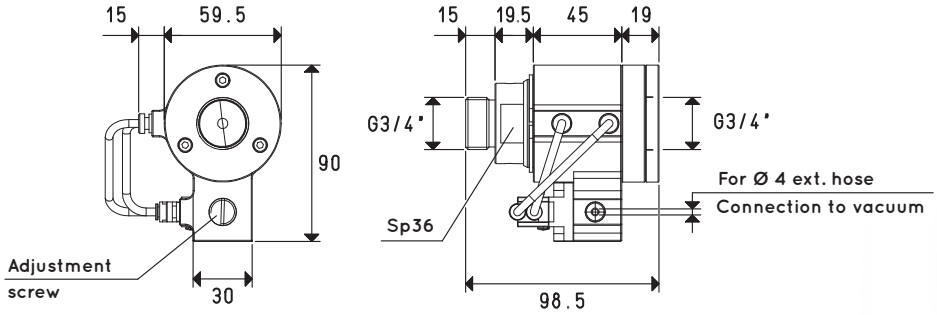
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

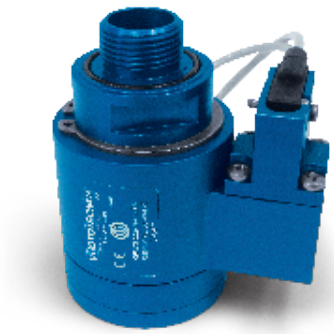
Adapters for GAS - NPT threading available on page 1.134

ACCESSORIES FOR VACUUM GENERATORS PVP 150 MD / MDLP ÷ PVP 750 MD / MDLP

① - COAXIAL SHUTTER SERVO-CONTROLLED SUPPLY VALVE

This is an innovative valve with coaxial shutter, pneumatically driven by the integrated vacuum switch on it, able to intercept the compressed air supply to the vacuum generator, with operating pressures between 1.5 and 7 bar. The vacuum switch has the task of removing and returning a pneumatic signal when a preset and adjustable level of vacuum is reached. The pressure differential existing between the set maximum value and that of restoring the signal at rest is not adjustable and is equal to about 100 mbar.
The pneumatic vacuum switch, acting on the coaxial shutter supply valve automatically maintains the maximum and minimum level of vacuum within the differential value.

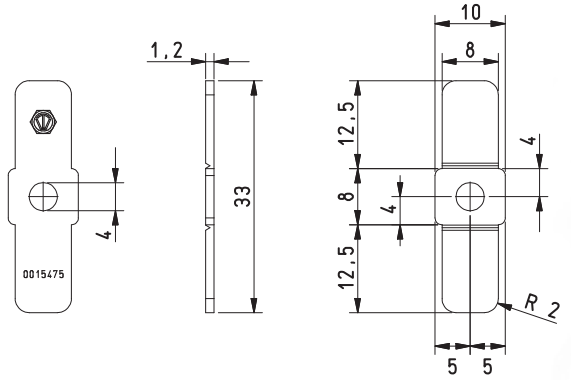


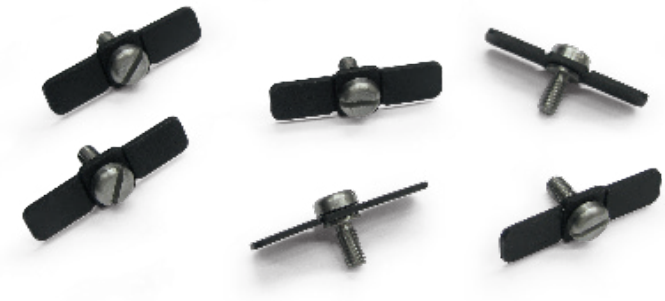


Item	For generator item	Sealing kit item	Weight g
07 04 71	PVP 150 ÷ 750 MD / MDLP	00 KIT 07 04 71	570

② - REED VALVE KIT FOR CHECK DEVICE ON VACUUM GENERATORS

This reed valve kit, specifically designed to be integrated on PVP 150/750 MD/MDLP vacuum generators, has the task of preventing the return of atmospheric air into the vacuum system (tanks, autoclaves, intake systems depression, vacuum cups, etc.), when the generator stops, guaranteeing the seal and maintaining the level of vacuum reached in use.

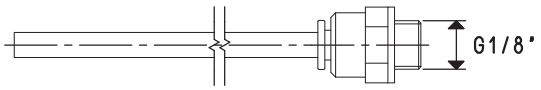




Item	For generator item	No. pc.	Weight g
00 KIT TRASMD-MDR	PVP 150 ÷ 750 MD / MDLP	6	16

③ - FLEXIBLE TUBE FOR CONNECTION TO VACUUM

This flexible tube is fitted on one end with a 1/8 "quick-fit coupling, to be screwed onto one of the two vacuum generator connections reserved for the vacuum gauge, while the other free end is inserted into the fitting installed on the pneumatic vacuum switch. The task of this tube is to continuously monitor the value of the level of vacuum reached in use and to transmit it to the vacuum switch.



Item	For supply valve item	Weight g
00 15 496	07 03 71 - 07 04 71	10

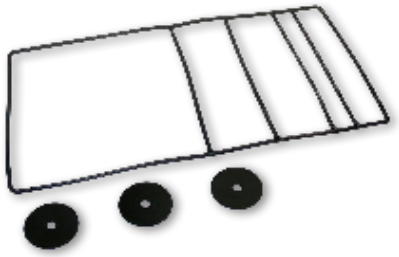
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**

Sealing kit and reed valves

Item	By generators item
00 KIT PVP 150 MD	PVP 150 MD / MDLP
00 KIT PVP 300 MD	PVP 300 MD / MDLP
00 KIT PVP 450 MD	PVP 450 MD / MDLP
00 KIT PVP 600 MD	PVP 600 MD / MDLP
00 KIT PVP 750 MD	PVP 750 MD / MDLP



Sound absorbing material on the exhaust

Item	By generators item	Quantity
00 15 70	PVP 150 MD / MDLP	1 piece
	PVP 300 MD / MDLP	1 piece
	PVP 450 MD / MDLP	1 piece
	PVP 600 MD / MDLP	1 piece
	PVP 750 MD / MDLP	1 piece

Sound absorbing material on ejectors

Item		00 15 71	00 15 72
PVP 150 MD / MDLP	No. pc.	1	1-piece
PVP 300 MD / MDLP	No. pc.	-	11piece
PVP 450 MD / MDLP	No. pc.	1	11piece
PVP 600 MD / MDLP	No. pc.	-	22pieces
PVP 750 MD / MDLP	No. pc.	1	12piece

Vacuum gauge Ø 40 mm with 1/8” coaxial gas coupler

Item	By generators item
09 03 15	All

Pressure gauge Ø 40 mm with 1/8” coaxial gas coupler

Item	bar	By generators item
09 03 25	1 ÷ 10	All

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

VACUUM JET FLOW GENERATORS - GENERAL DESCRIPTION

Working principle

The compressed air supply blown into a ring chamber concentric to the device, flows at a very high speed towards the centre of the main pipe, thus forming a cyclonic effect. The latter creates a vacuum inside the device and leads a great volume of air towards its outlet.

Therefore, a variation of the air supply pressure will modify the level of vacuum and the amount of sucked air.

Features

The special shape of the flow generators and their straight-flow working principle allow for the suctioning and handling of various nature products without interference. Vacuum Jets are in fact suitable for the handling of powders, granulated products, sawdust, corn, metal chips, liquid or dry food products, etc., or for extracting fumes, coolant mists, water or oil condensation, etc.

The absence of moving parts allows them to be used continuously, without developing heat.

They do not require electricity; therefore, they can be used in work environments with hazardous environments where an ignition source would be dangerous.

Available in anodised aluminium and stainless steel.

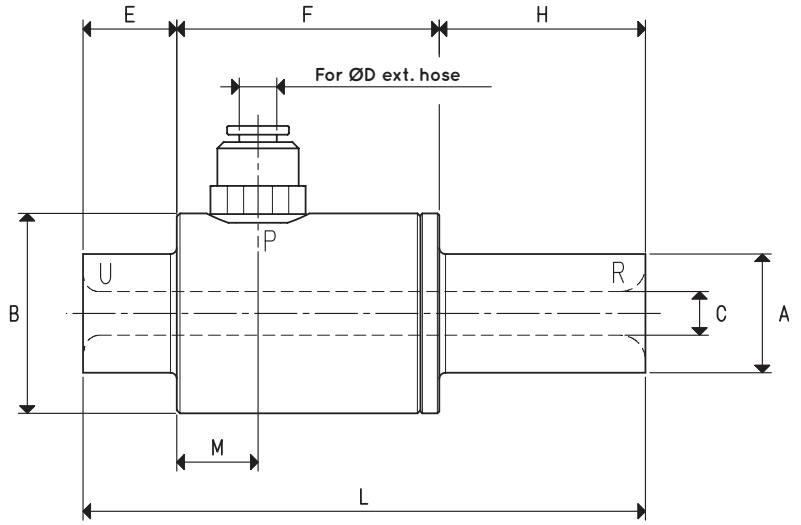
Thanks to all these features, a good filtration of the compressed air supply will be sufficient to make these devices fully maintenance-free.

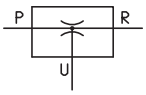
3D drawings are available on **vuototecnica.net**

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**





P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

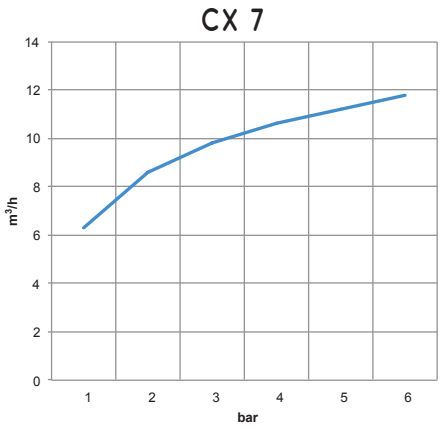
Item		CX 7	CX 10
Max quantity of intake air at 6 bar	m^3/h	12.0	28.0
Max quantity of air blown at 6 bar	m^3/h	17.6	36.2
Maximum level of vacuum	-KPa	15	22
Final pressure	abs. mbar	850	780
Maximum supply pressure	bar	6	6
Maximum air consumption at 6 bar	Nl/s	1.5	2.3
Temperature of use	°C	-20 / +80	-20 / +80
Noise level	dB(A)	75	84
Weight	g	110	104
A	Ø	19	19
B	Ø	32	32
C	Ø	7	10
D	Ø	6	6
E		15	15
F		42	42
H		33	33
L		90	90
M		13	13

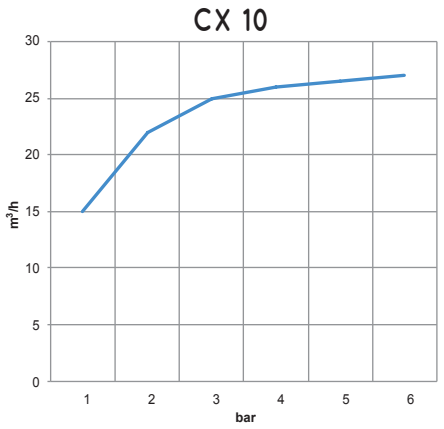
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Add the letter I, to the item for a generator supplied in stainless steel (Example: CX 10 I).
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

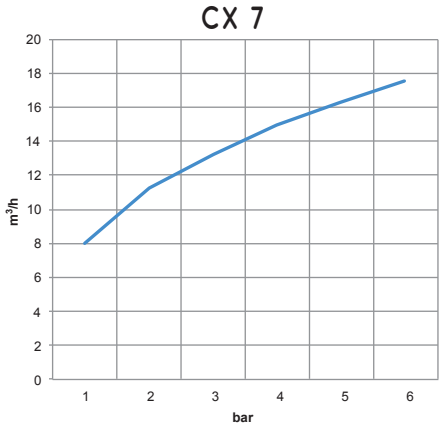
3D drawings are available on vuototecnica.net

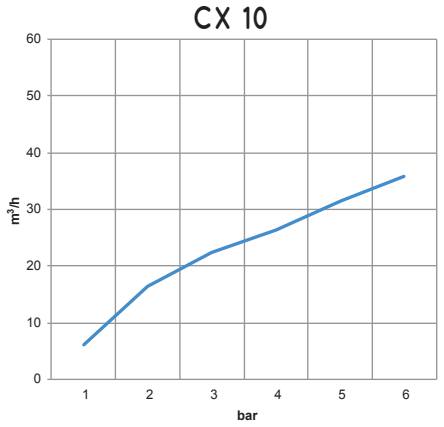
Quantity of air suctioned (m^3/h) at different supply pressures (bar)



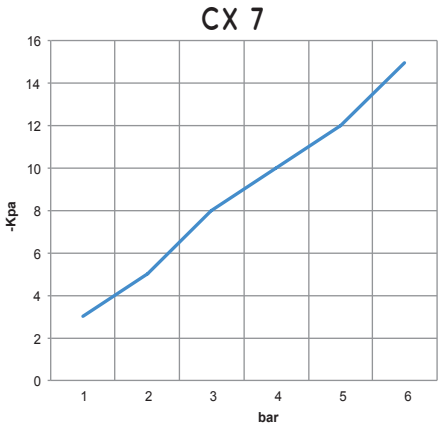


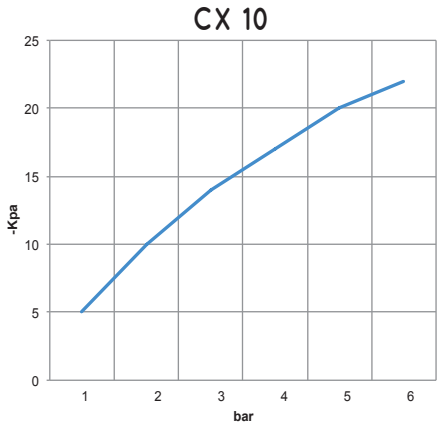
Quantity of air blown (m^3/h) at different supply pressures (bar)



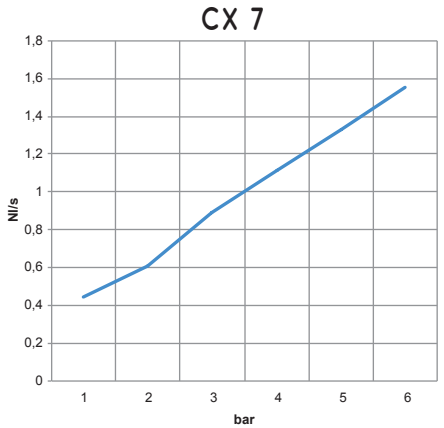


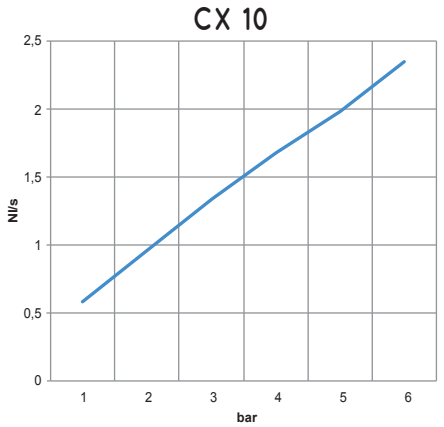
Level of vacuum (-Kpa) at different supply pressures (bar)



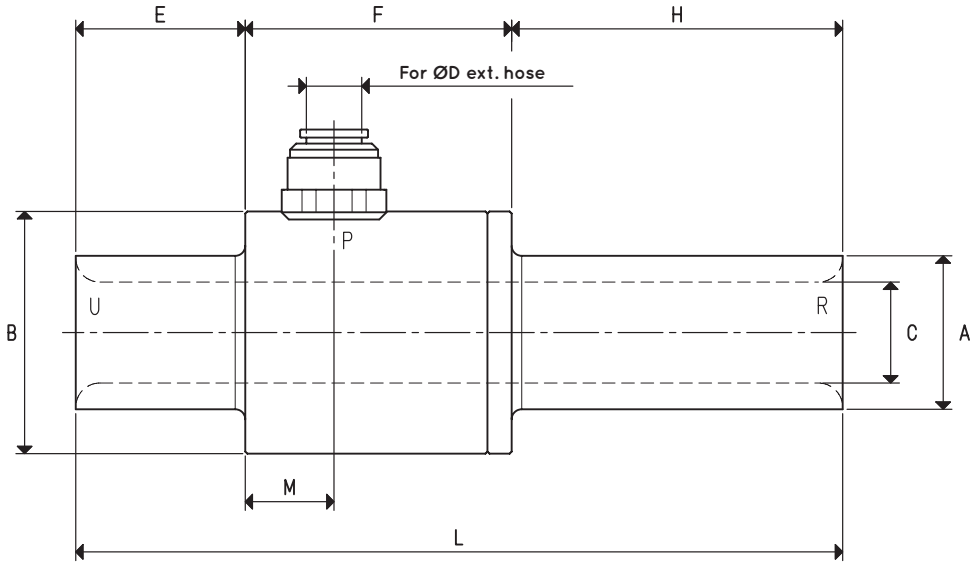


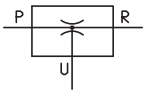
Air consumption (Nl/s) at different supply pressures (bar)





3D drawings are available on **vuototecnica.net**





P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

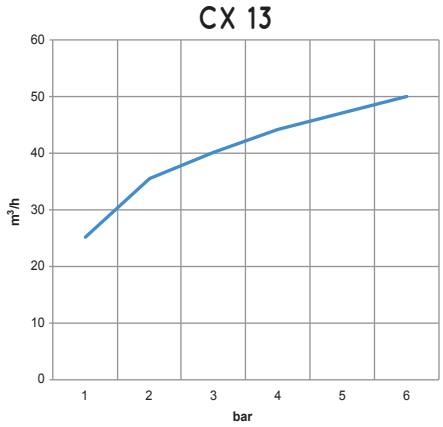
Item		CX 13	CX 19
Max quantity of intake air at 6 bar	m^3/h	50.0	92.0
Max quantity of air blown at 6 bar	m^3/h	73.7	134.0
Maximum level of vacuum	-KPa	18	16
Final pressure	abs. mbar	820	840
Maximum supply pressure	bar	6	6
Maximum air consumption at 6 bar	Nl/s	6.6	11.6
Temperature of use	°C	-20 / +80	-20 / +80
Noise level	dB(A)	88	92
Weight	g	280	500
A	Ø	25	32
B	Ø	45	54
C	Ø	13	19
D	Ø	8	10
E		30	43
F		55	65
H		55	82
L		140	190
M		18	22

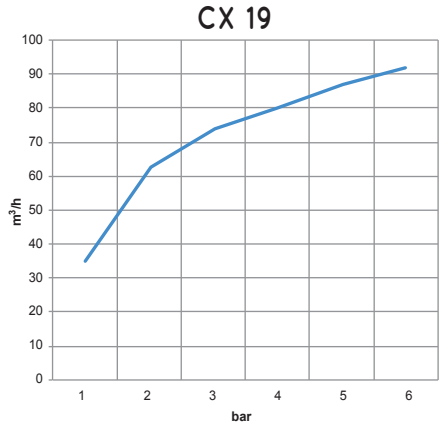
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Add the letter I, to the item for a generator supplied in stainless steel (Example: CX 13 I).
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

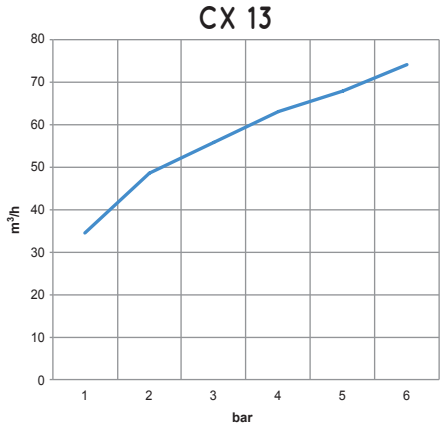
3D drawings are available on vuototecnica.net

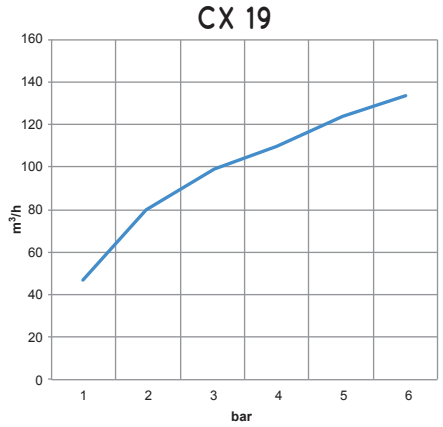
Quantity of air suctioned (m^3/h) at different supply pressures (bar)



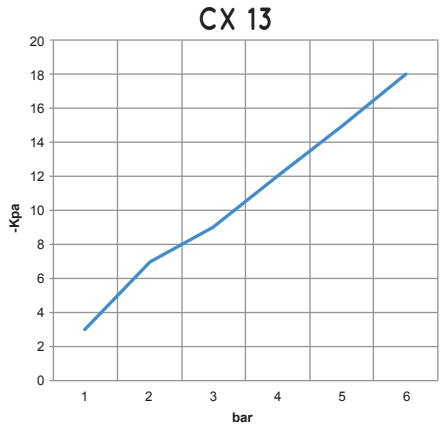


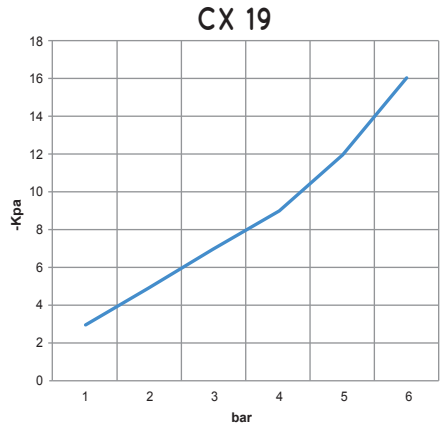
Quantity of air blown (m^3/h) at different supply pressures (bar)



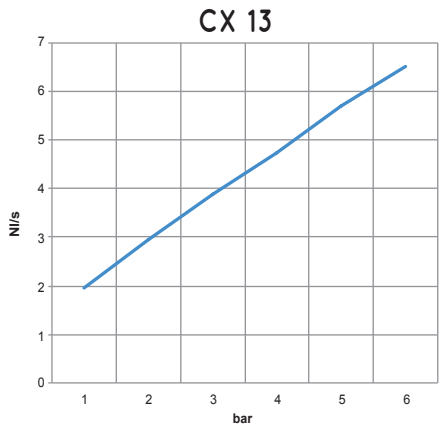


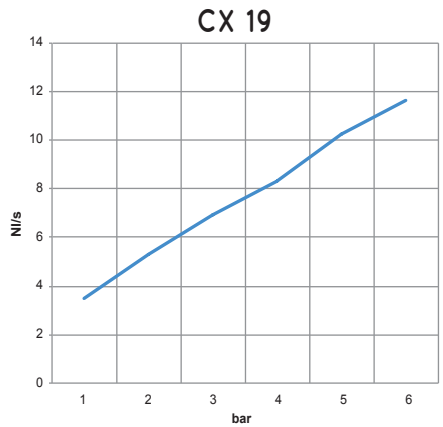
Level of vacuum (-Kpa) at different supply pressures (bar)



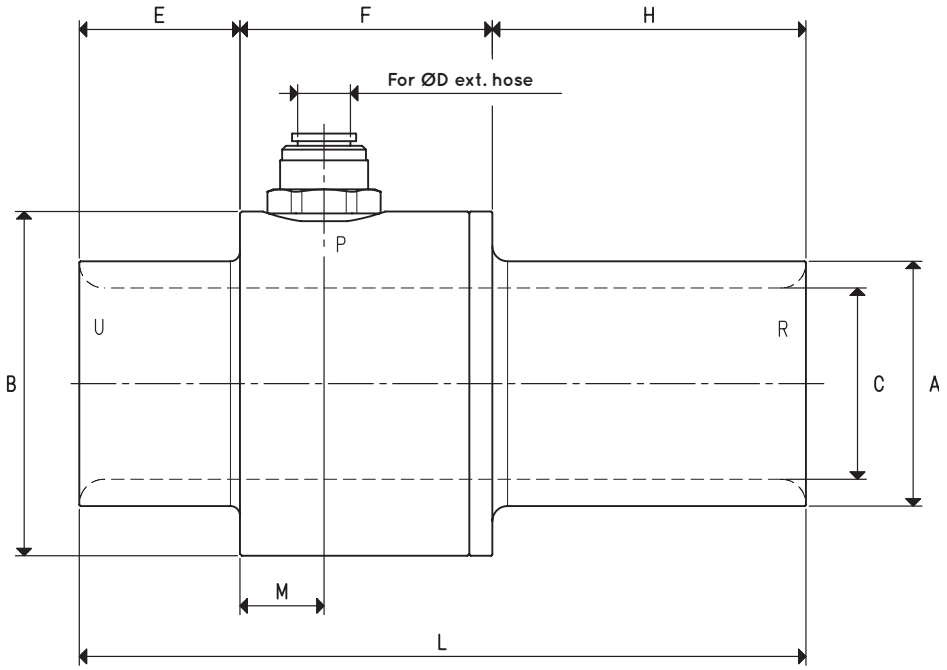


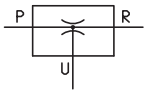
Air consumption (Nl/s) at different supply pressures (bar)





3D drawings are available on **vuototecnica.net**





P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		CX 25	CX 38	CX 50
Max quantity of intake air at 6 bar	m^3/h	150	310	405
Max quantity of air blown at 6 bar	m^3/h	210	400	525
Maximum level of vacuum	-KPa	13	10	8
Final pressure	abs. mbar	870	900	920
Maximum supply pressure	bar	6.0	6.0	6.0
Maximum air consumption at 6 bar	Nl/s	16.6	25.0	33.3
Temperature of use	°C	-20 / +80	-20 / +80	-20 / +80
Noise level	dB(A)	100	103	103
Weight	g	560	800	1090
A	Ø	38	51	64
B	Ø	60	75	90
C	Ø	25	38	50
D	Ø	10	12	16
E		42	42	42
F		66	66	66
H		82	82	82
L		190	190	190
M		22	22	22

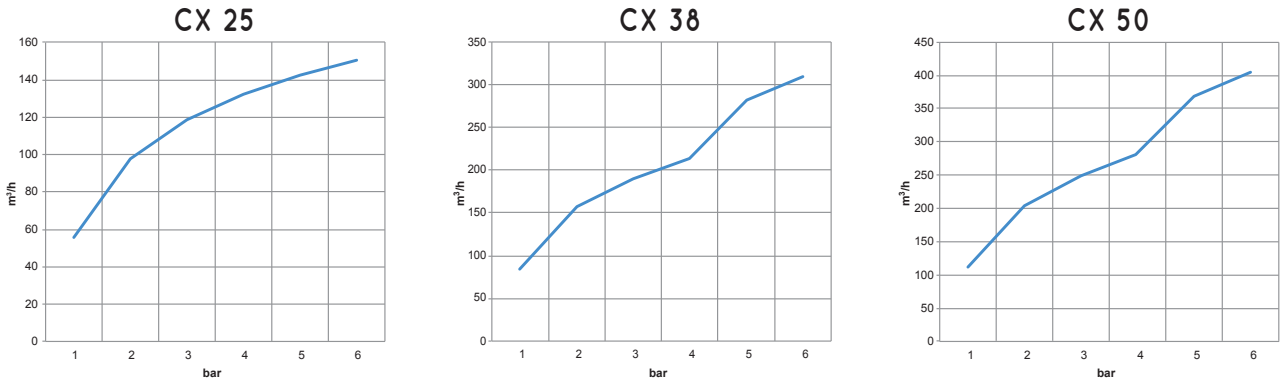
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Add the letter I, to the item for a generator supplied in stainless steel (Example: CX 38 I).
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

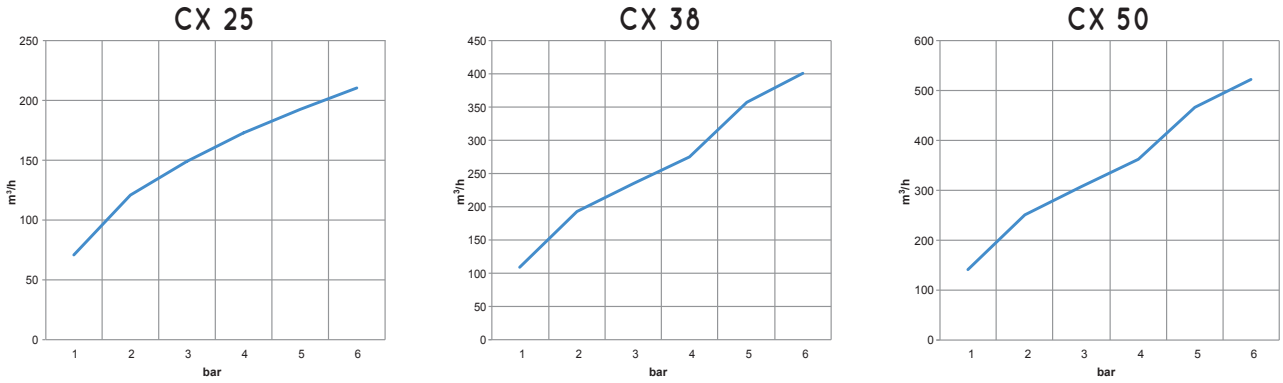
Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on vuototecnica.net

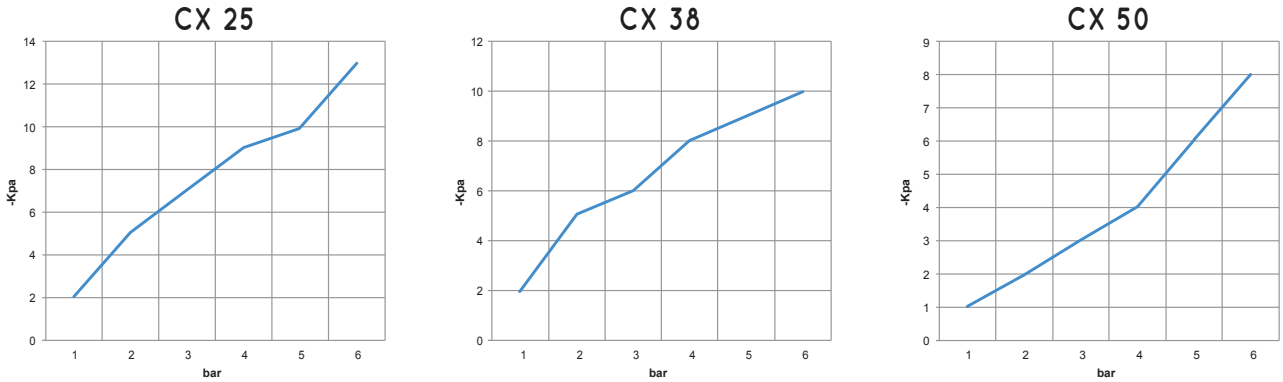
Quantity of air suctioned (m^3/h) at different supply pressures (bar)



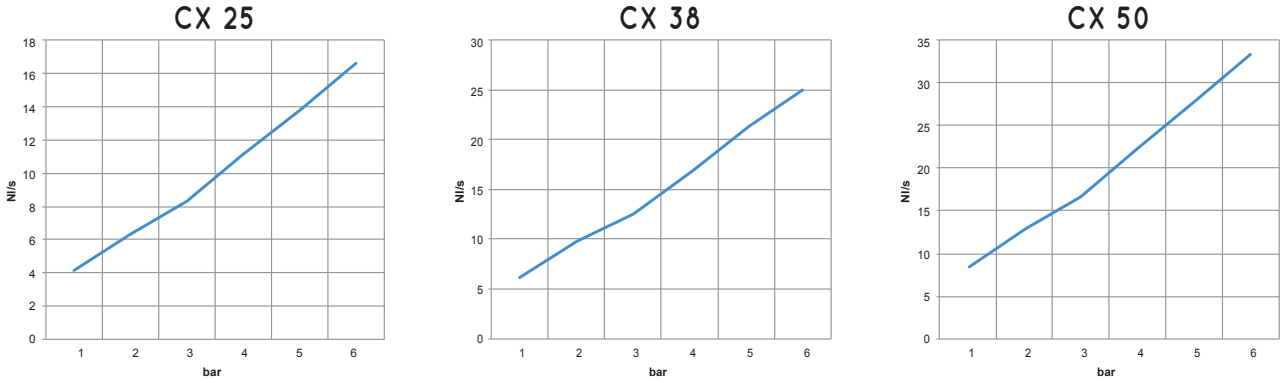
Quantity of air blown (m^3/h) at different supply pressures (bar)



Level of vacuum (-Kpa) at different supply pressures (bar)

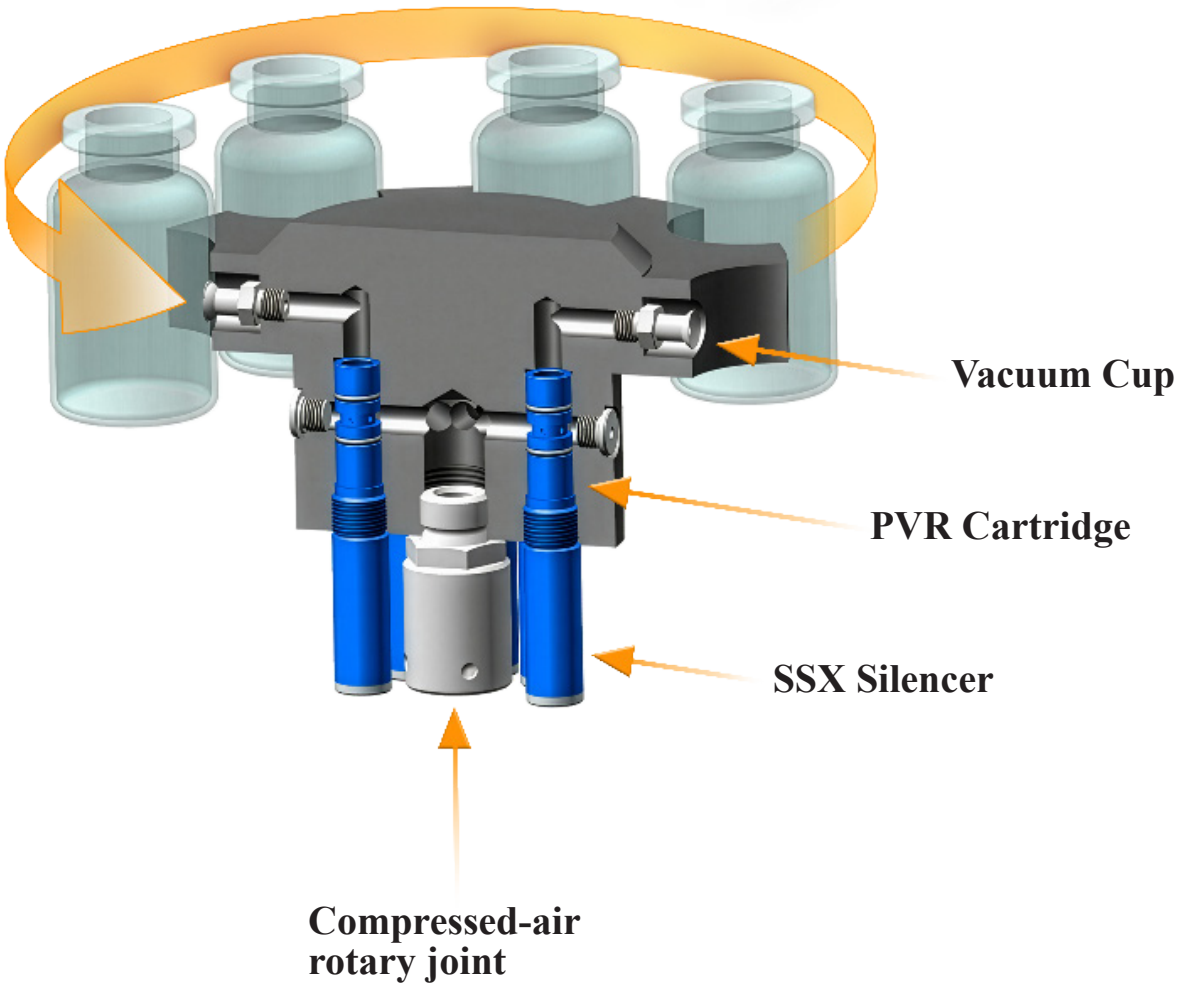


Air consumption (Nl/s) at different supply pressures (bar)



CARTRIDGE VACUUM GENERATORS PVR 1 and PVR 4

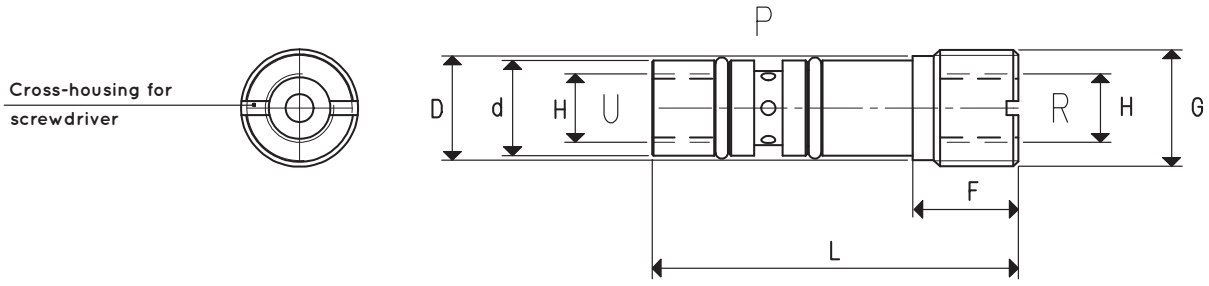
These small cartridge vacuum generators can be integrated directly into the gripping elements of packaging machines.
The maximum yield is offered at low compressed air pressures of 2-3 bar, providing levels of vacuums up to -72 KPa and flow rates between 1 and 4 m^3/h.
Their particular shape permits the suction of dust or small processing residues, without creating clogging problems.
They are made as standard in anodised aluminium but can also be supplied in stainless steel, upon request.



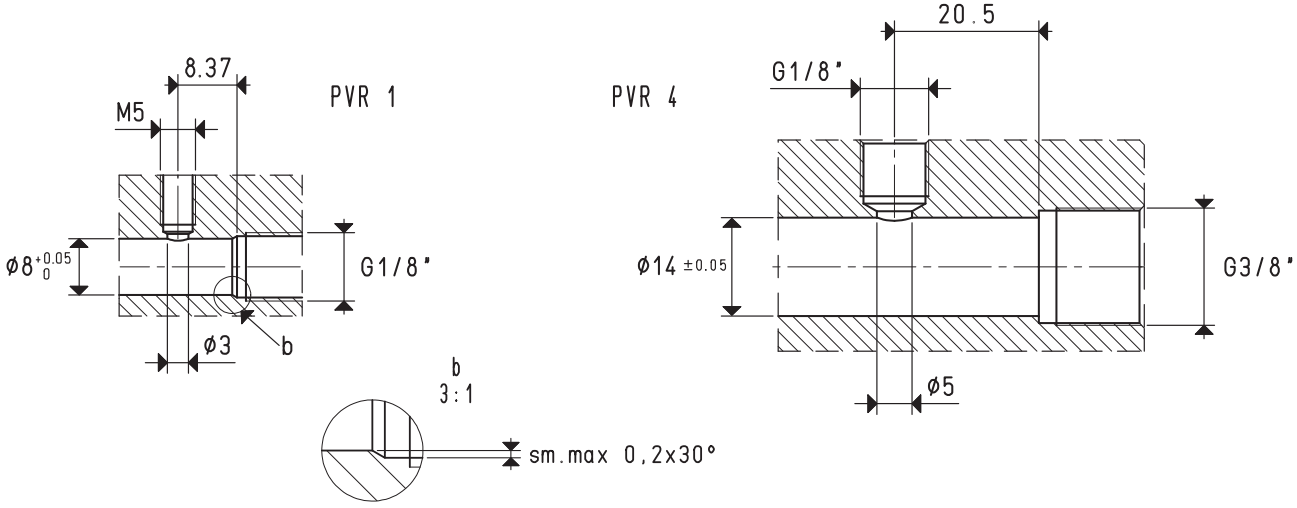
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

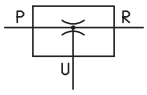
Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**



CREATION OF HOUSING FOR CARTRIDGE INSERTION





P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		PVR 1			PVR 4	
Intake air flow rate	m^3/h	0.6	0.8	0.9	2.7	3.3
Maximum level of vacuum	-KPa	19	41	60	30	72
Final pressure	abs. mbar	810	590	400	700	280
Supply pressure	bar	1	2	3	1	2.5
Air consumption	Nl/s	0.3	0.5	0.6	1.7	2.9
Temperature of use	°C			-10 / +80		-10 / +80
Noise level	dB(A)			68		80
Weight	g			4		16
d	Ø			7.8		13.5
D	Ø			8.7		14.8
L				26		52
F				9.3		15
G	Ø			G1/8"		G3/8"
H	Ø			M5		G1/8"

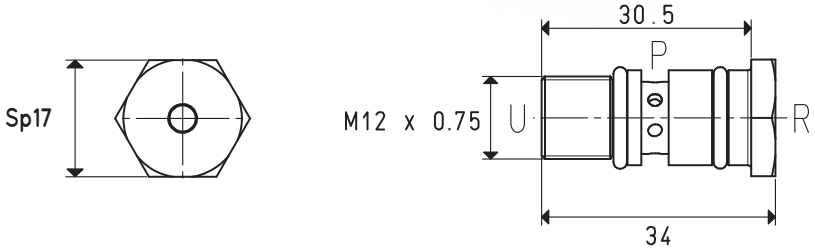
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Add the letter I, to the item for a generator supplied in stainless steel (Example: PVR 4 I).
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

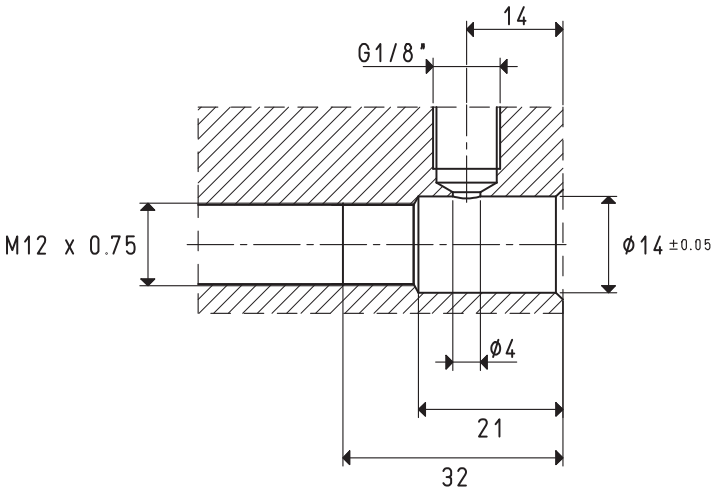
Adapters for GAS - NPT threading available on page 1.134

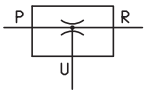
CARTRIDGE VACUUM GENERATOR PVR 3 OT

Also the construction of this cartridge vacuum generator was necessary in order to meet the demand for ever smaller and more performing devices in the packaging sector.
The compressed air supply pressure is between 1 and 3 bar, while the maximum level of vacuum is -52 KPa, with a flow rate of 2.6 m^3/h.
Also the shape of these generators, like the previous ones described, allows for the suction of dust and small processing waste without clogging problems.
They are made of brass as standard, but upon request they can also be supplied in different metals.



CREATION OF HOUSING FOR CARTRIDGE INSERTION





Item		PVR 3 OT				
Intake air flow rate	m^3/h	2.2	2.6	2.6	2	1.6
Maximum level of vacuum	-KPa	21	37	52	50	47
Final pressure	abs. mbar	790	630	480	500	530
Supply pressure	bar	1	2	3	4	5
Air consumption	Nl/s	1.25	1.8	2.4	3.1	3.6
Temperature of use	°C			-10 / +60		
Noise level	dB(A)			78		
Weight	g			60		

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**

Working principle

These vacuum generators operate based on the Venturi principle.
Unlike those previously described, the ejectors with which they are supplied are adjustable, in addition to having a considerably higher flow diameter.
This detail lets them vary the flow rate and level of vacuum of the device, without altering the level of vacuum of the supply air.
The compressed air consumption is also related to the actual performance of the vacuum generator.

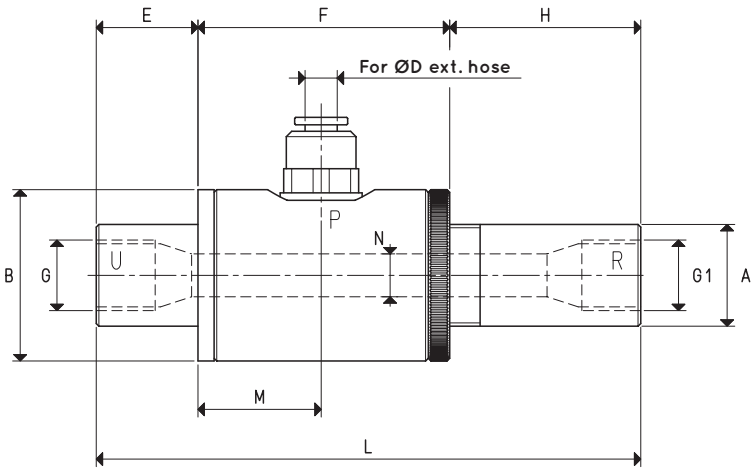
Features

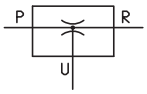
The special shape of these adjustable vacuum generators, as well as their straight-flow working principle allow sucking and transferring products of various nature with no interference, just like flow generators, only, unlike these, they allow overcoming much higher level differences.
They are suited for transferring powders, granulated products, sawdust, metal chips, dry or liquid food products, etc. They are also recommended for controlling vacuum cups in presence of large amounts of dust or liquids, as well as for sucking fumes, cooling mists, water and oil condensation, etc. The absence of moving parts allows for a continuous use without developing heat.
The noise level, which is quite high for this kind of equipment, can be considerably reduced with a silencer screwed on the exhaust connection.
They do not require electricity, therefore, they can even be used in work environments with hazardous environments where an ignition source would be dangerous.
Available in anodised aluminium and stainless steel.
Thanks to all these features, a good filtration of the compressed air supply will be sufficient to make these devices fully maintenance-free.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

ADJUSTABLE CONVEYOR VACUUM GENERATORS PVR 25 and PVR 50





P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		PVR 25	PVR 50
Max quantity of intake air at 5 bar	m^3/h	13.0	36.0
Max quantity of air blown at 6 bar	m^3/h	33.5	88.0
Maximum level of vacuum	-KPa	80	75
Final pressure	abs. mbar	200	250
Maximum supply pressure	bar	6	6
Maximum air consumption at 6 bar	Nl/s	6.1	15.5
Temperature of use	°C	-20 / +80	-20 / +80
Noise level	dB(A)	92	98
Weight	g	150	280
A	Ø	19	26
B	Ø	32	38
D	Ø	6	8
E		19	35
F		47	54
G	Ø	G1/4"	G3/8"
G 1	Ø	G1/4"	G1/2"
H		34	61
L		100	150
M		22	25
N	Ø	6	10

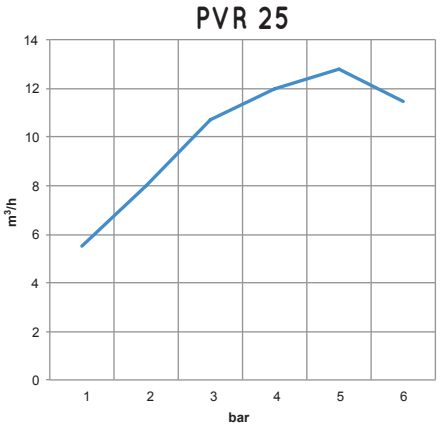
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Add the letter I, to the item for a generator supplied in stainless steel (Example: PVR 50 I).
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

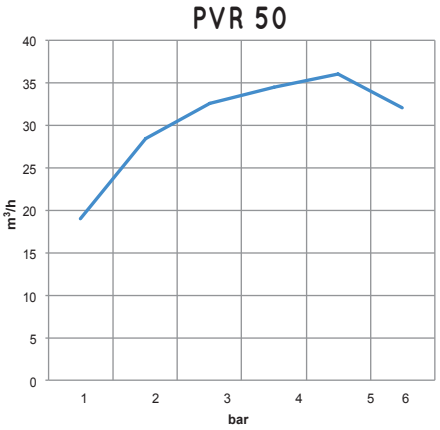
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

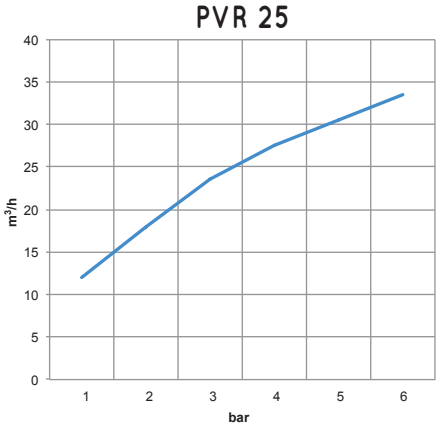
3D drawings are available on vuototecnica.net

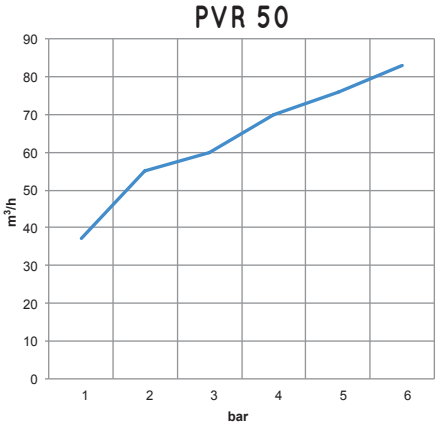
Quantity of air suctioned (m^3/h) at different supply pressures (bar)



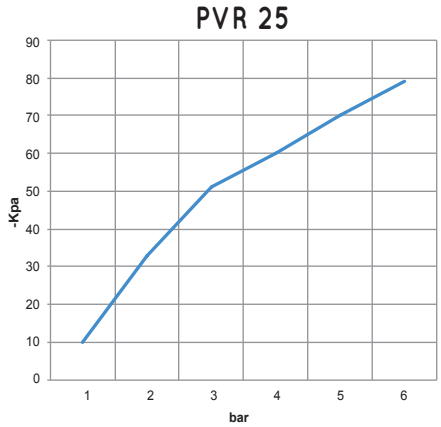


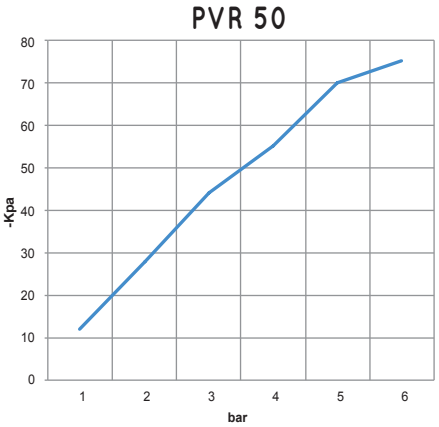
Quantity of air blown (m^3/h) at different supply pressures (bar)



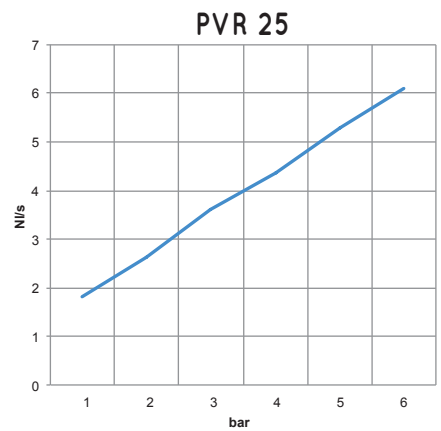


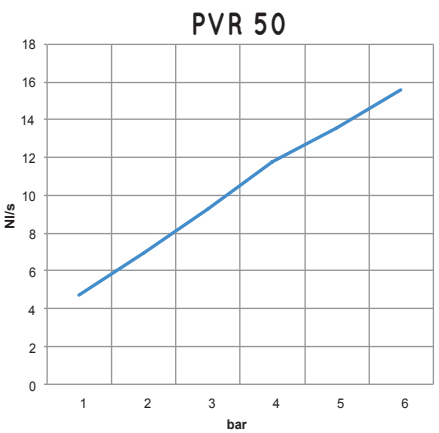
Level of vacuum (-Kpa) at different supply pressures (bar)



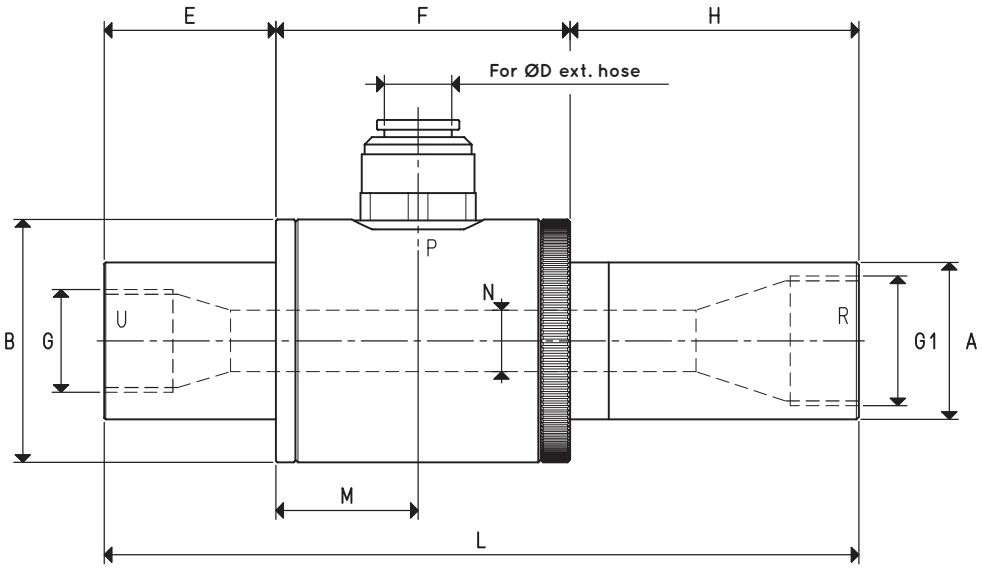


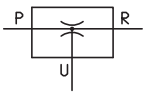
Air consumption (Nl/s) at different supply pressures (bar)





ADJUSTABLE CONVEYOR VACUUM GENERATORS PVR 100 and PVR 200





P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		PVR 100	PVR 200
Max quantity of intake air at 5 bar	m^3/h	50	72
Max quantity of air blown at 6 bar	m^3/h	129	177
Maximum level of vacuum	-KPa	75	70
Final pressure	abs. mbar	250	300
Maximum supply pressure	bar	6	6
Maximum air consumption at 6 bar	Nl/s	22.7	28.3
Temperature of use	°C	-20 / +80	-20 / +80
Noise level	dB(A)	100	104
Weight	g	430	550
A	Ø	32	38
B	Ø	50	57
D	Ø	10	12
E		35	35
F		60	60
G	Ø	G1/2"	G3/4"
G 1	Ø	G3/4"	G1"
H		55	77
L		150	172
M		28	28
N	Ø	12.5	16.0

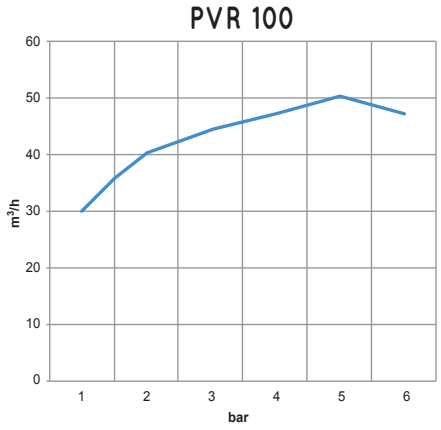
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Add the letter I, to the item for a generator supplied in stainless steel (Example: PVR 100 I).
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

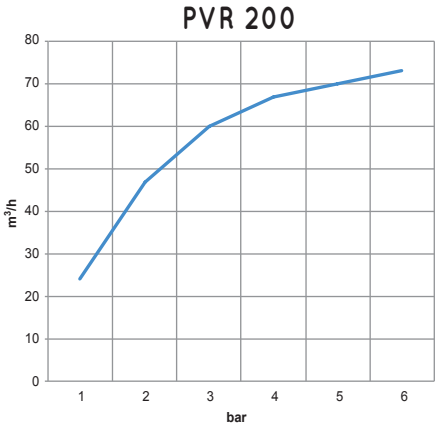
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

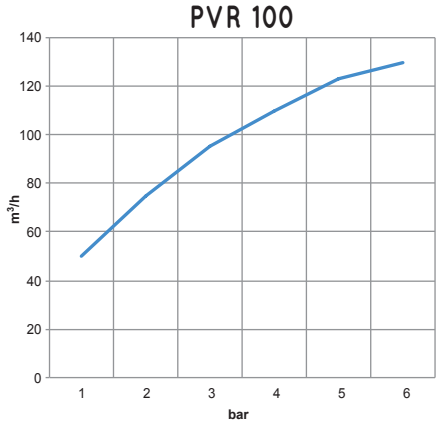
3D drawings are available on **vuototecnica.net**

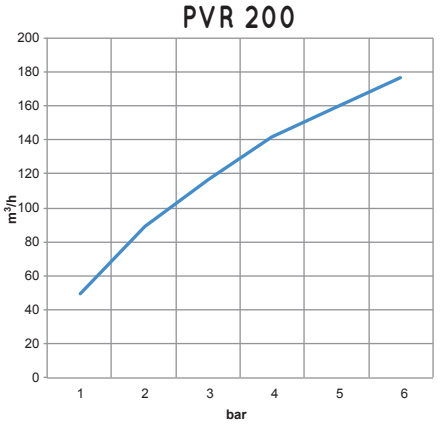
Quantity of air suctioned (m^3/h) at different supply pressures (bar)



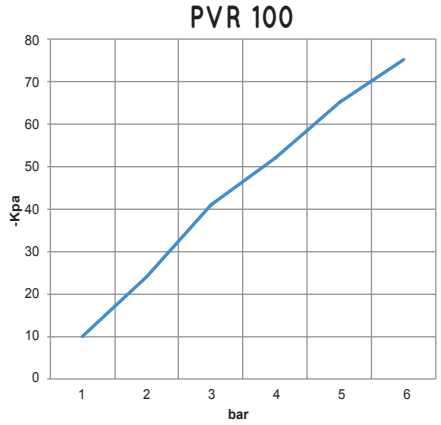


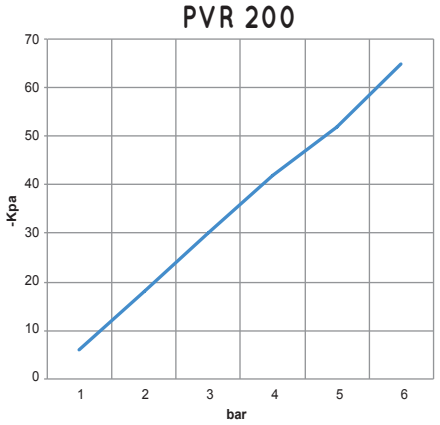
Quantity of air blown (m^3/h) at different supply pressures (bar)



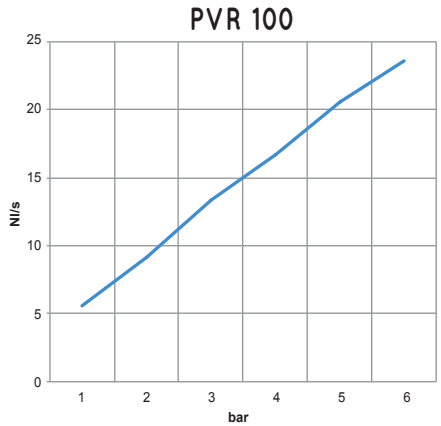


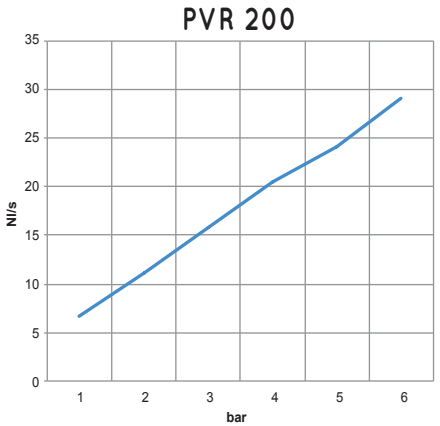
Level of vacuum (-Kpa) at different supply pressures (bar)





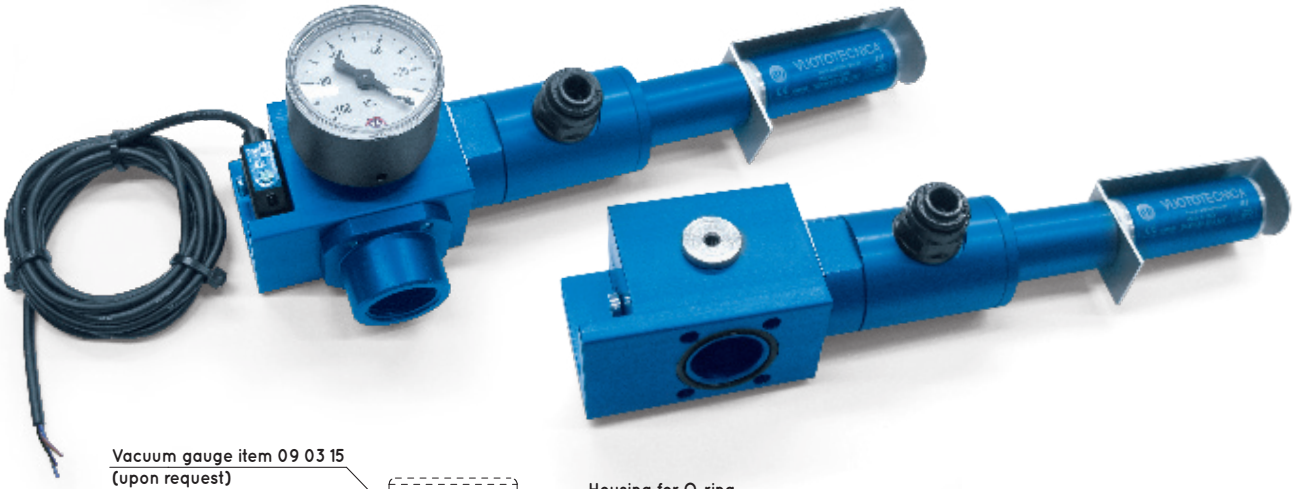
Air consumption (Nl/s) at different supply pressures (bar)

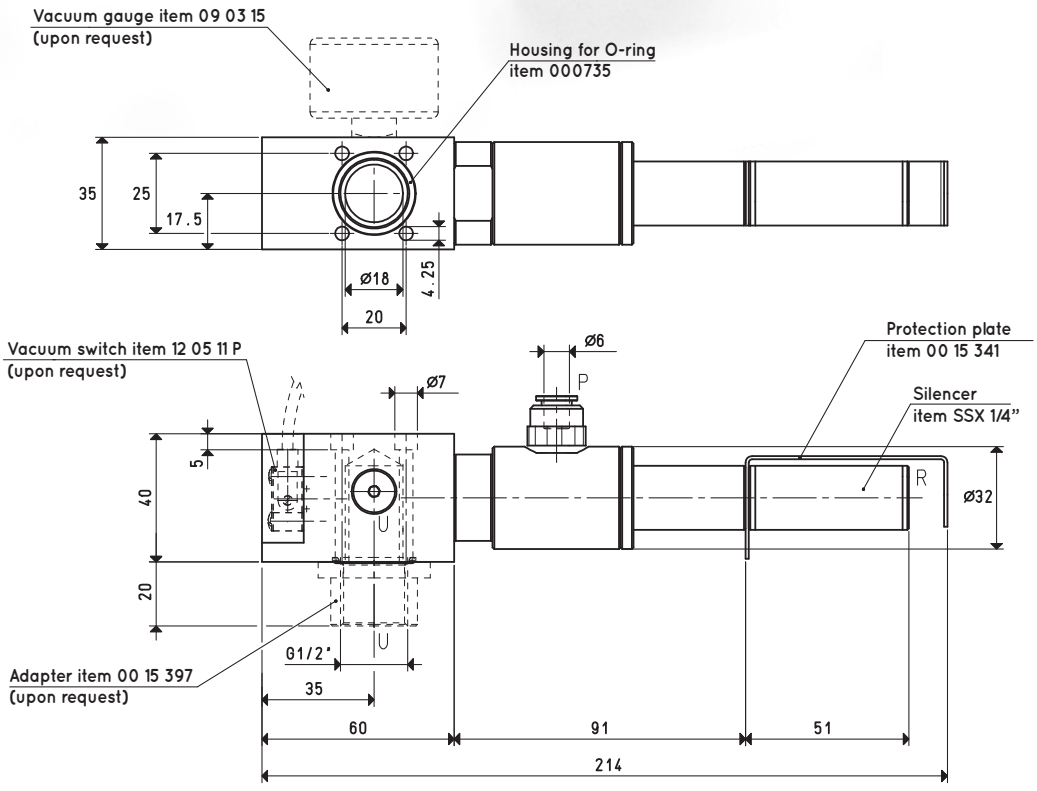


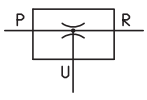


CONVEYOR VACUUM GENERATOR PVR 25 MS, WITH SUPPORT FOR FASTENING TO VACUUM CUPS

The particular shape of this rectilinear flow vacuum generator allows for the supply of vacuum cups, especially in the presence of abundant quantities of dust, liquids, sawdust, of various origins, and shavings, without interference. It can reach a level of vacuum of -70KPa, a suction flow rate of about 10 m^3/h, with a supply pressure of 3 bar.
The support it is equipped with allows it to be fixed to flat vacuum cups, starting from Ø 200 mm, while a special adapter, available upon request, allows the generator to be fixed at a distance. A "free-flow" silencer is installed on the intake air exhaust with high sound reduction, equipped with appropriate safety protection to prevent the dispersion of the sucked solid impurities in the work environment.
Also upon request, it is possible to supply a digital micro vacuum switch, item 12 05 11 P, for checking the level of vacuum inside the vacuum cup, and a vacuum gauge item 09 03 15, for direct reading of the level.
A good filtration of the compressed air supply will be sufficient to make these devices fully maintenance-free.
Their use is recommended in particular on vacuum cups for gripping marble and granite, bricks, rusty metal sheets, rough wooden boards and anything else with especially dirty gripping surfaces.







P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

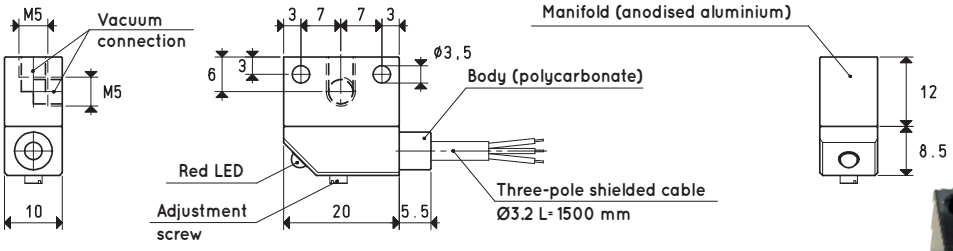
Item		PVR 25 MS		
Intake air flow rate	m^3/h	6.4	9.4	9.6
Maximum level of vacuum	-KPa	12	45	70
Final pressure	abs. mbar	880	550	300
Supply pressure	bar	1	2	3
Air consumption	Nl/s	8.2	10.87	12.49

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

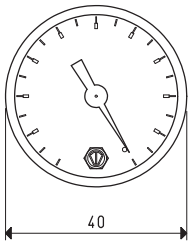
Adapters for GAS - NPT threading available on page 1.134

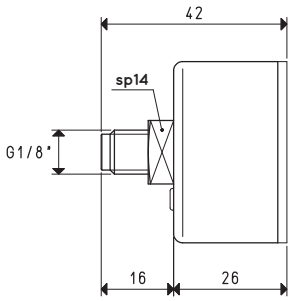
Digital micro vacuum switch



Item	Description
12 05 11 P	Digital micro vacuum switch

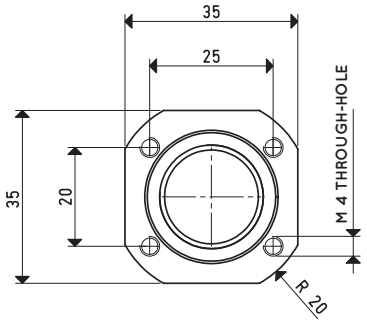
Vacuum gauge

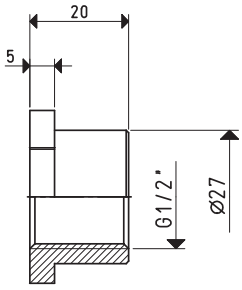




Item	Scale KPa	Double Scale	Admissible error on the scale	Temperature of use	Notes	Material of case	Weight g
09 03 15	0 ÷ -100	--	2.5%	-10 °C ÷ +50 °C			52

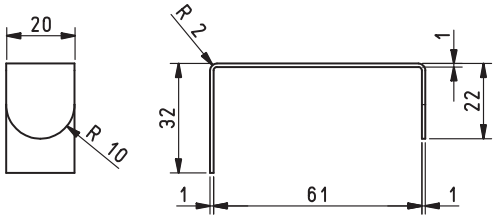
Threaded adapter for suction mouth item 00 15 397





SPARE PARTS

Safety protection for exhaust silencer SSX 1/4" item 00 15 341



3D drawings are available on vuototecnica.net

ACCESSORIES FOR CONVEYOR ADJUSTABLE VACUUM GENERATORS

The noise level of Conveyor adjustable vacuum generators, which is always quite high, can be considerably mitigated by a suitable silencer screwed onto the air exhaust connection. SSX series silencers can be supplied upon specific request. These are suitable for all Conveyor vacuum generators.
The table below shows the codes of the silencers related to the various vacuum generators.

PVR 25 with exhaust silencer SSX 1/4" and vacuum cup 08 53 35 S

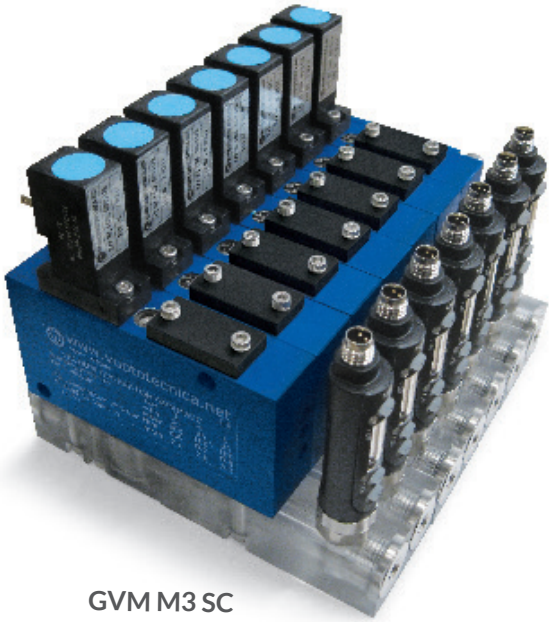
PVR 50 with exhaust silencer 2SSX 1/2"

PVR 100 with exhaust silencer SSX 3/4"

Item	Silencer item	Noise reduction dB(A)	Silencer item	Noise reduction dB(A)
PVR 25	SSX 1/4"	-13	2SSX 1/4"	-20
PVR 50	SSX 1/2"	-13	2SSX 1/2"	-20
PVR 100	SSX 3/4"	-13	2SSX 3/4"	-20
PVR 200	SSX 1"	-13	2SSX 1"	-20

PVP 170 MI

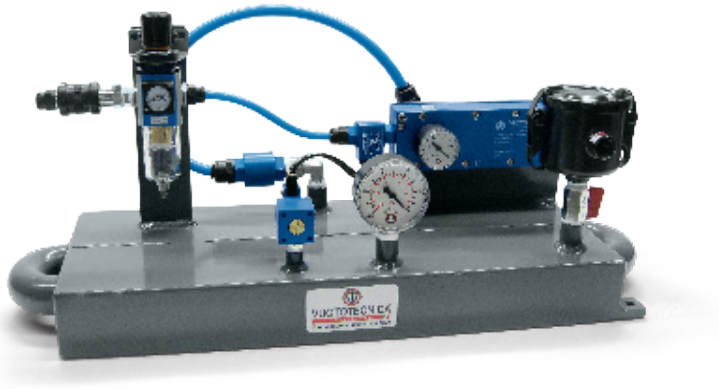
CX 7 K



GVM M3 SC

PVP 750 MDV - COS1

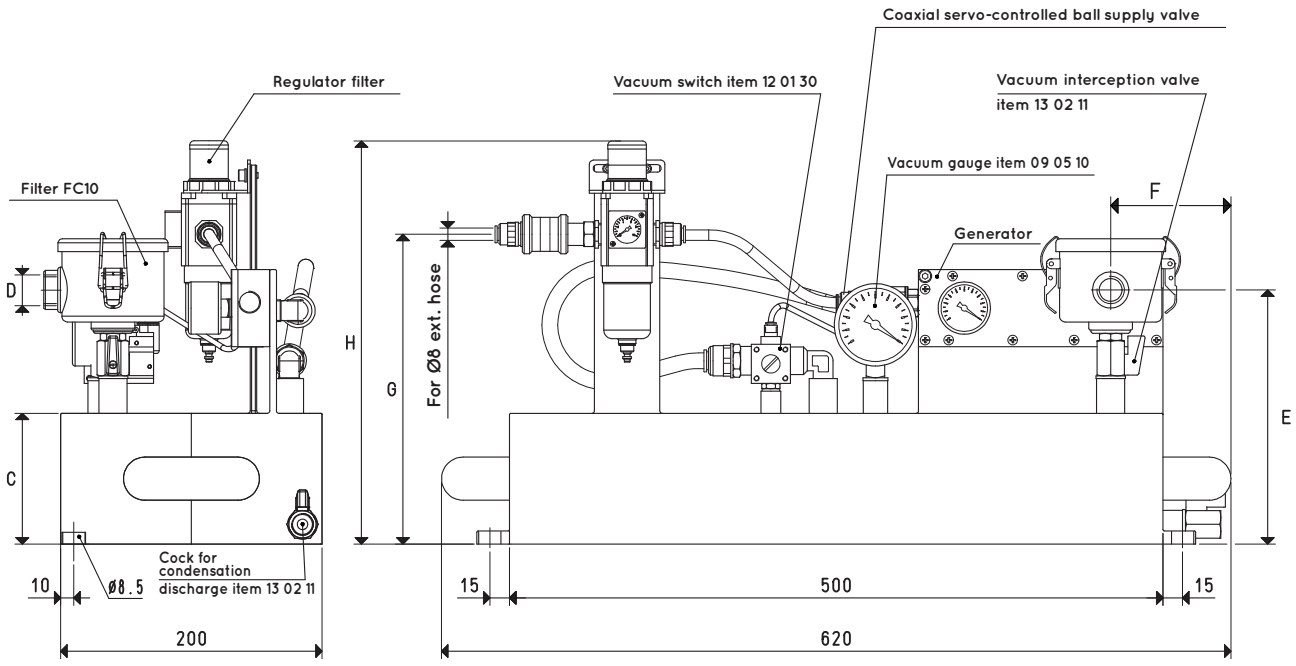
MINI PNEUMATIC PUMP SETS DOP 06 and DOP 10



Mini pneumatic pump sets are small independent vacuum-producing units, exclusively supplied with compressed air, with reduced size.
They are composed of:
- A small welded sheet steel tank;
- A shut off valve to intercept compressed air;
- A pressure regulator with filter and pressure gauge;
- A compressed air vacuum generator;
- A pneumatic drive valve for supplying the vacuum generator operated by the vacuum switch;
- A pneumatic vacuum switch for adjusting the level of vacuum;
- A vacuum gauge for reading the level of vacuum;
- A manual valve for vacuum interception;
- A suction filter with FC series paper cartridge;
- A cock for condensation drainage from the tank.

The level of vacuum, preset via the mini vacuum switch is automatically maintained in the tank.
Mini pneumatic pump sets are suited for equipping fixed or mobile working units that require vacuum, such as:
- Trolleys with vacuum cups for fixing and transporting glass and crystals;
- Vacuum clamping systems for ski maintenance, marble drilling and processing, for polishing objects in pewter, copper, silver, etc.;
- Hoists with vacuum cups for lifting television sets and household appliances in general, for glass installation in door and window frames, for feeding sheet metal into presses, etc.

The mini pneumatic pump sets do not require any electrical current but only compressed air at 4-6 bar pressure.
Recommended in working environments where ignition sources could cause a fire hazard.



Item	Tank	Generator	Pneumatic switchgear	C	D	E	F	G	H	L	Weight
	Litres	item	item		Ø						Kg
DOP 06 PVP 12 MX	6	PVP 12 MX	DOP 20 90	60	G3/8"	150	95	180	270	620	12.7
DOP 06 PVP 25 MX	6	PVP 25 MX	DOP 20 90	60	G3/8"	150	95	180	270	620	13.0
DOP 10 PVP 12 MX	10	PVP 12 MX	DOP 20 90	100	G3/8"	210	95	240	310	620	12.9
DOP 10 PVP 25 MX	10	PVP 25 MX	DOP 20 90	100	G3/8"	210	95	240	310	620	13.2

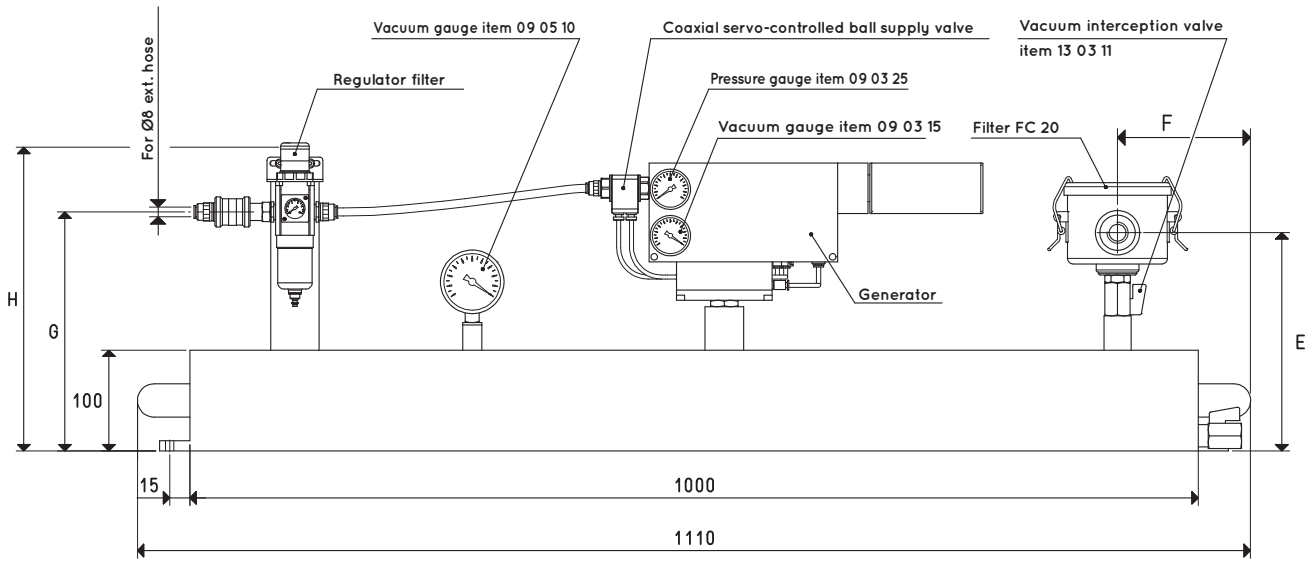
Note: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

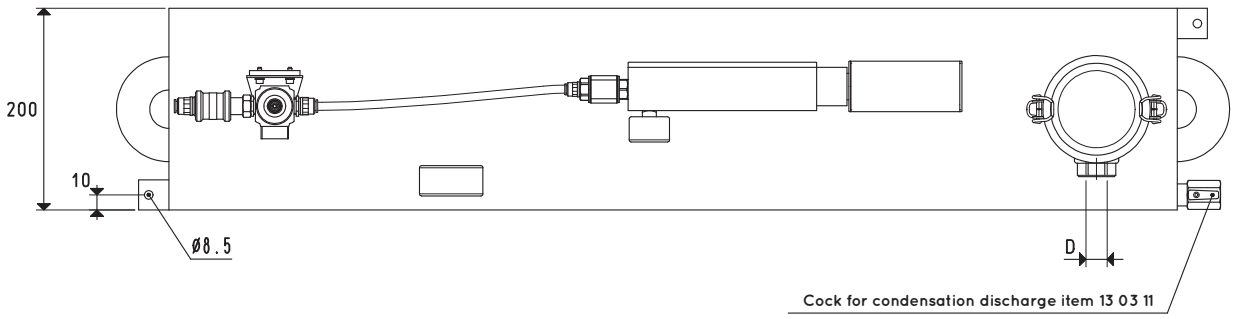
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

MINI PNEUMATIC PUMP SETS DOP 20

This mini pump set is set apart from the previously ones for the vacuum generator installed, as well as for the tank volume.
Vacuum generators of the series PVP... MDX ES are in fact equipped with an energy saving device which automatically maintains the preset level of vacuum inside the tank. The other accessories installed, except the vacuum switch and the pneumatically driven valve for vacuum generator supply, are the same installed on DOP 06 and DOP 10. Their intended use is the same as the previously described mini pneumatic pump sets.





Item	Tank	Generator	Pneumatic switchgear	D	E	F	G	H	L	Weight
	Litres	item	item	Ø						Kg
DOP 20 PVP 25 MDX	20	PVP 25 MDX ES	DOP 20 90	G1/2"	225	135	270	340	1110	20.6
DOP 20 PVP 35 MDX	20	PVP 35 MDX ES	DOP 20 90	G1/2"	225	135	270	340	1110	20.7

Note: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

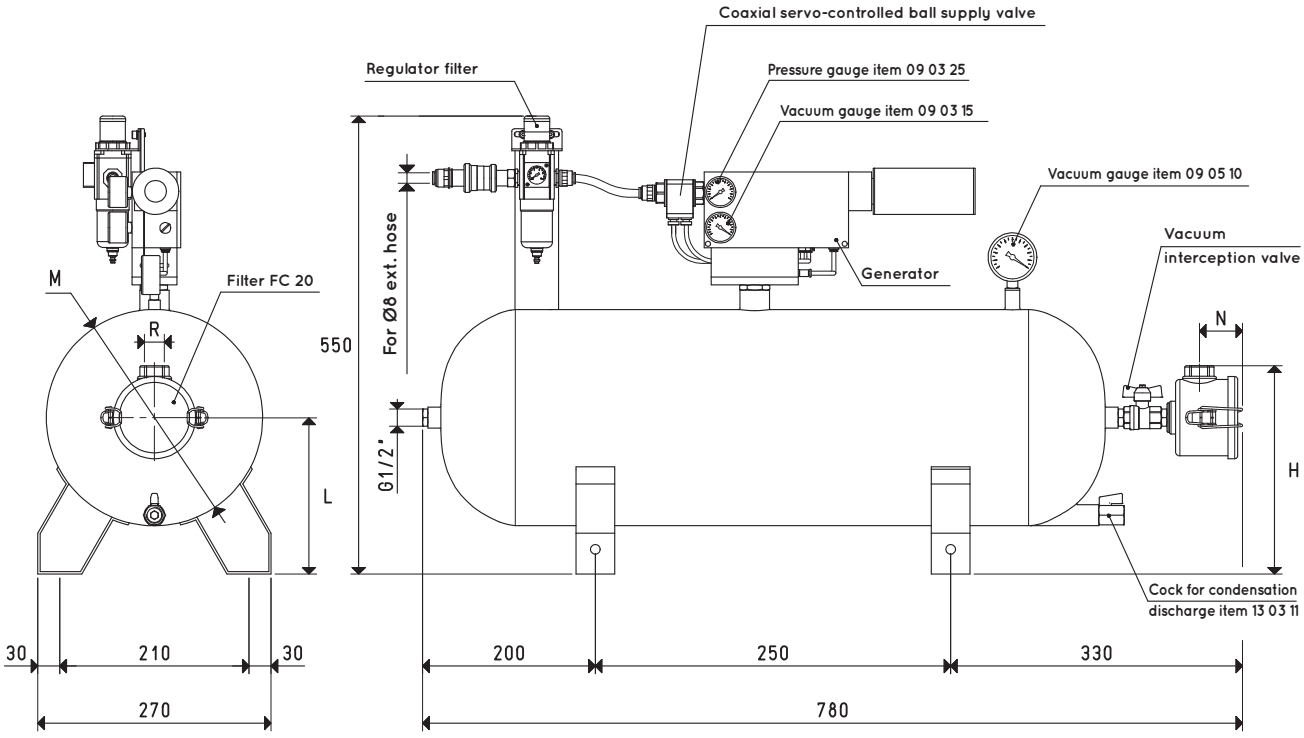
Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**

PNEUMATIC PUMP SETS 25, DOP 50 and DOP 100

Pneumatic pump sets are self-contained vacuum production units, fed exclusively by compressed air.
They are composed of:
- A welded sheet steel tank;
- A compressed air vacuum generator of the series PVP ... MDX ES, equipped with an energy saving device;
- A vacuum gauge for reading the level of vacuum;
- A manual valve for vacuum interception;
- A suction filter with FC series paper cartridge;
- A pressure regulator with filter and pressure gauge;
- A shut off valve to intercept compressed air;
- A cock for condensation drainage from the tank.

The level of vacuum in the tank, previously set with the vacuum switch in the generator, is automatically maintained. The pneumatic pump sets are normally used to handle particularly heavy or valuable loads, as it allows vacuum cups to maintain grip for a certain period of time (varies according to tank capacity) even during unexpected absence of power. These pump sets are recommended for multi-point applications, to centralise vacuum.
In both cases, use of the pump set is especially advantageous under the profile of energy savings as the generator only operates when a vacuum is required by the utility machine.
The pneumatic pump sets do not require any electrical current but only compressed air at 4-6 bar pressure. Recommended in working environments where ignition sources could cause a fire hazard.



Item	Tank	Generator	Pneumatic switchgear	H	L	M	N	R	Weight
	Litres	item	item			Ø		Ø	Kg
DOP 25 PVP 25 MDX	25	PVP 25 MDX ES	DOP 20 90	225	185	240	51	G1/2"	15.9
DOP 25 PVP 35 MDX	25	PVP 35 MDX ES	DOP 20 90	225	185	240	51	G1/2"	16.0

Note: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

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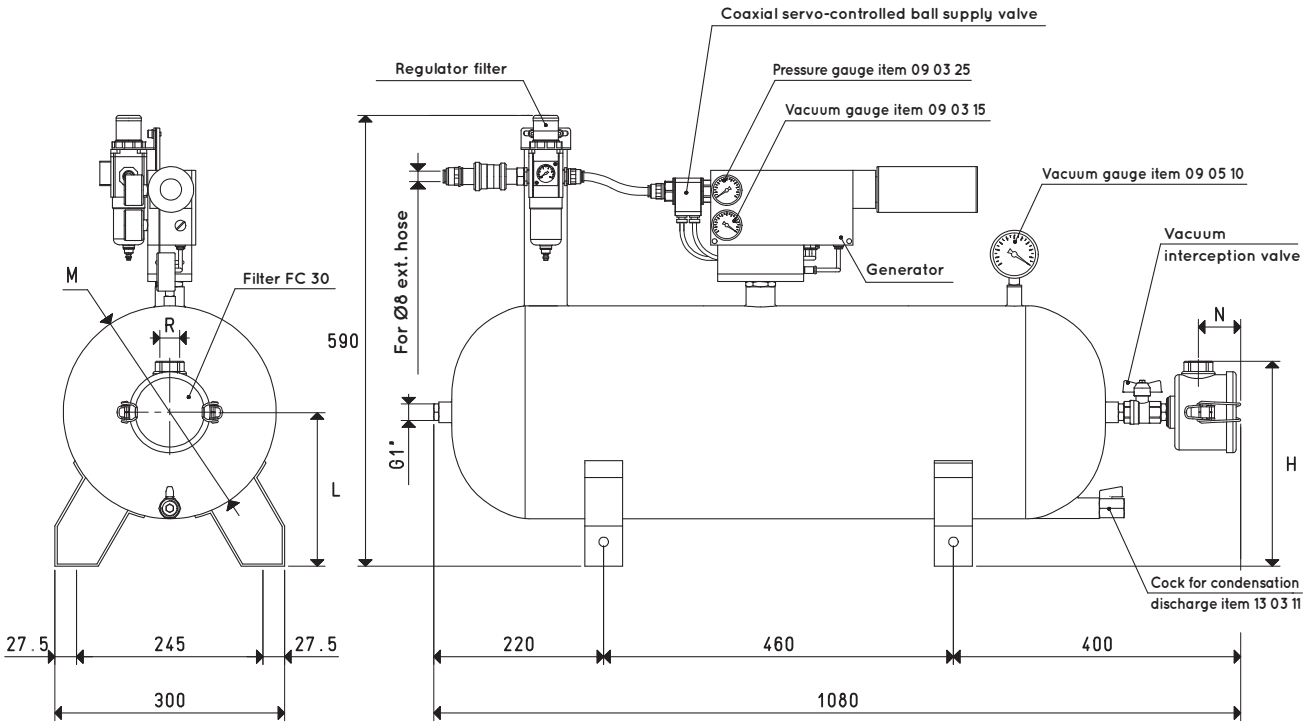


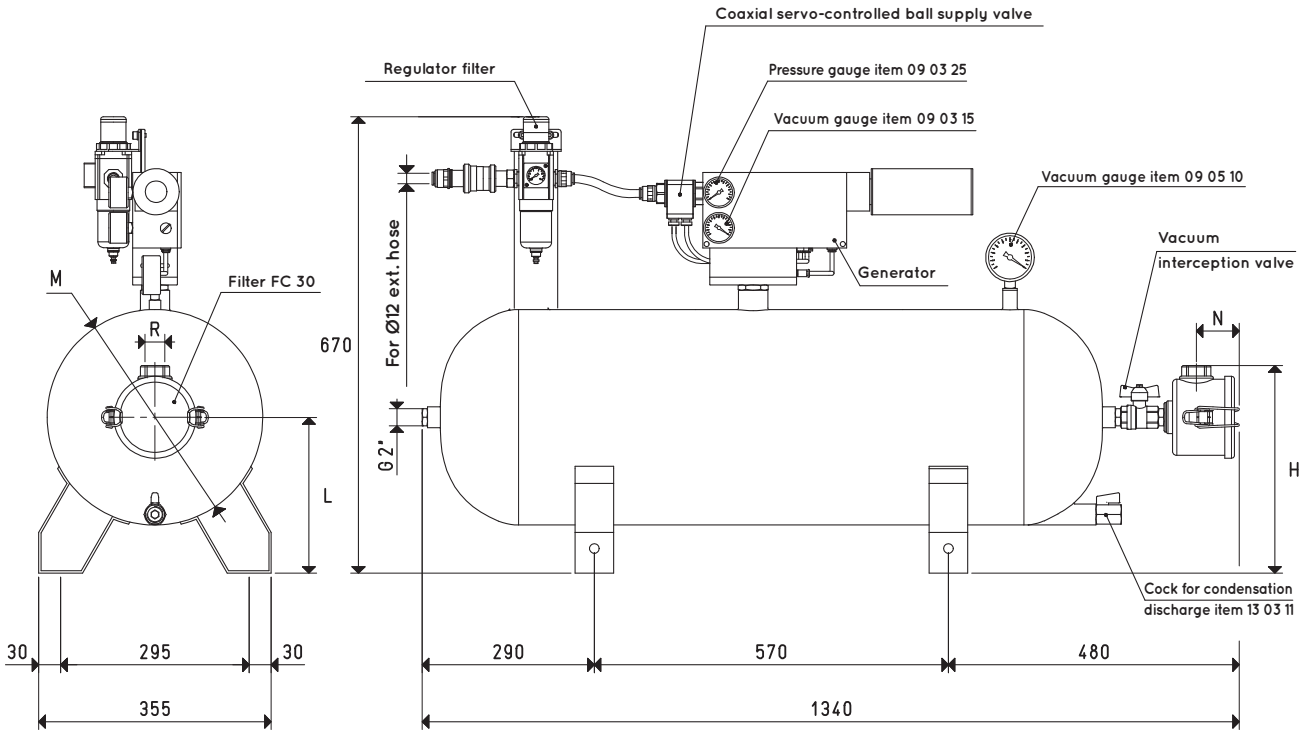
Item	Tank	Generator	Pneumatic switchgear	H	L	M	N	R	Ø ext. tube	Weight
	Litres	item	item			Ø		Ø	Ø	Kg
DOP 50 PVP 50 MDX	50	PVP 50 MDX ES	DOP 20 90	245	205	280	51	G1"	8	18.9
DOP 50 PVP 60 MDX	50	PVP 60 MDX ES	DOP 50 90	245	205	280	51	G1"	12	19.7

Note: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**



Item	Tank	Generator	Pneumatic switchgear	H	L	M	N	R	Weight
	Litres	item	item			Ø		Ø	Kg
DOP 100 PVP 75 MDX	100	PVP 75 MDX ES	DOP 50 90	300	255	350	41	G1"	31.0

Note: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

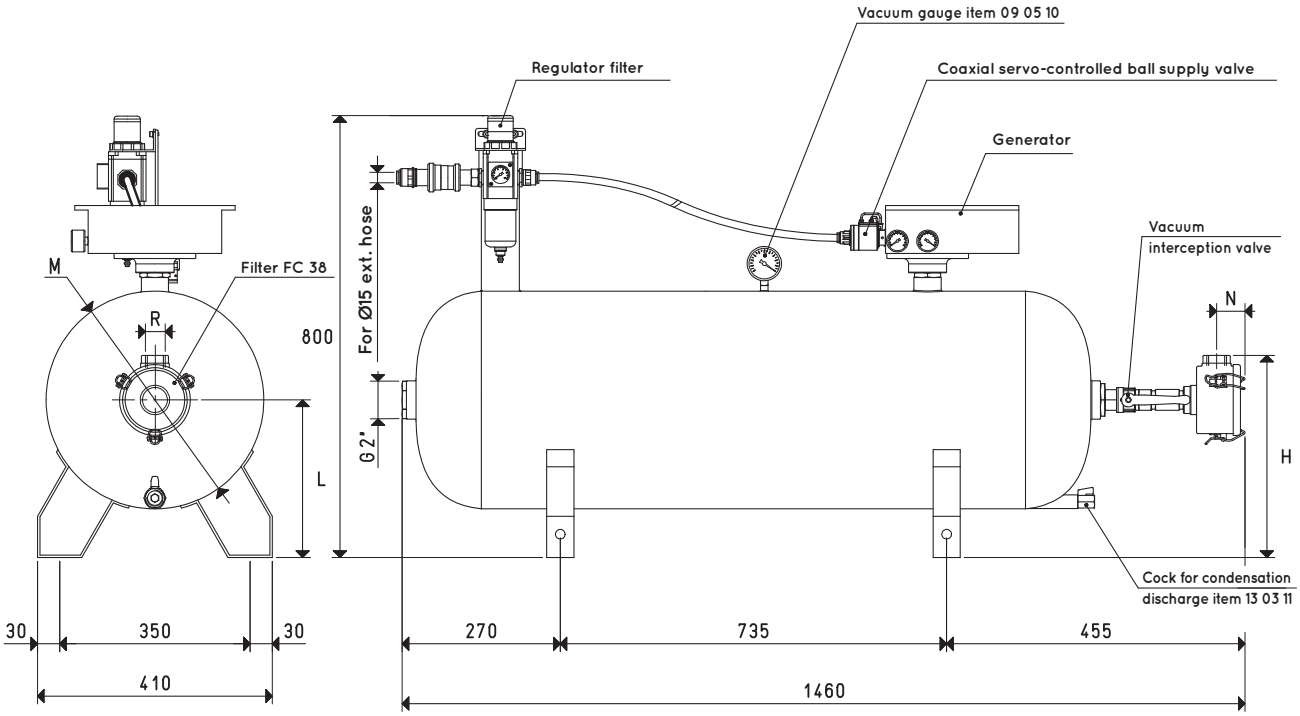
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

PNEUMATIC PUMP SETS DOP 150 and DOP 300

Pneumatic pump sets are self-contained vacuum production units, fed exclusively by compressed air.
They are composed of:
- A welded sheet steel tank;
- A compressed air vacuum generator of the series PVP ... MDR ES, equipped with energy saving device;
- A vacuum gauge for a direct reading of the level of vacuum in the tank;
- A manual valve for vacuum interception;
- A suction filter with FC series paper cartridge;
- A pressure regulator with filter;
- A shut off valve to intercept compressed air;
- A cock for condensation drainage from the tank.

The level of vacuum in the tank, previously set with the vacuum switch integrated in the pneumatic coaxial shutter supply valve, is fully automatically. The pneumatic pump sets are normally used to handle particularly heavy or valuable loads, as it allows vacuum cups to maintain grip for a certain period of time (varies according to tank capacity) even during unexpected absence of power.
They are also recommended for centralising vacuums, for powering multiple utility machines. In both cases, use of the pump set is especially advantageous under the profile of energy savings as the generator only operates when a vacuum is required by the utility machine.
The pneumatic pump sets do not require any electrical energy but only compressed air at 4-6 bar pressure. Recommended in working environments where ignition sources could cause a fire hazard.



Item	Tank	Generator	Pneumatic switchgear	H	L	M	N	R	Weight
	Litres	item	item			Ø		Ø	Kg
DOP 150 PVP 150 MD	150	PVP 150 MD ES	DOP 150 90	360	280	400	41	G1"1/2	40.2

Note: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**

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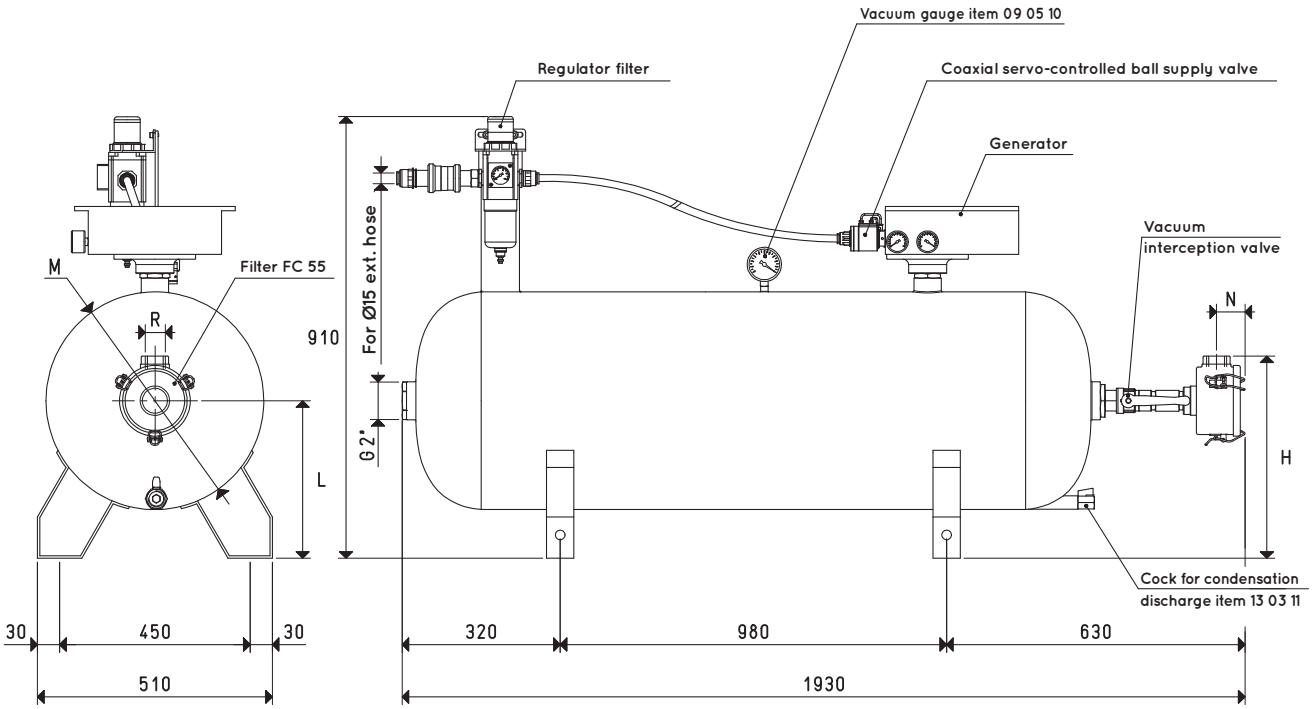


Item	Tank	Generator	Pneumatic switchgear	H	L	M	N	R	Weight
	Litres	item	item			Ø		Ø	Kg
DOP 300 PVP 300 MD	300	PVP 300 MD ES	DOP 150 90	440	340	500	45	G2"	41.2

Note: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

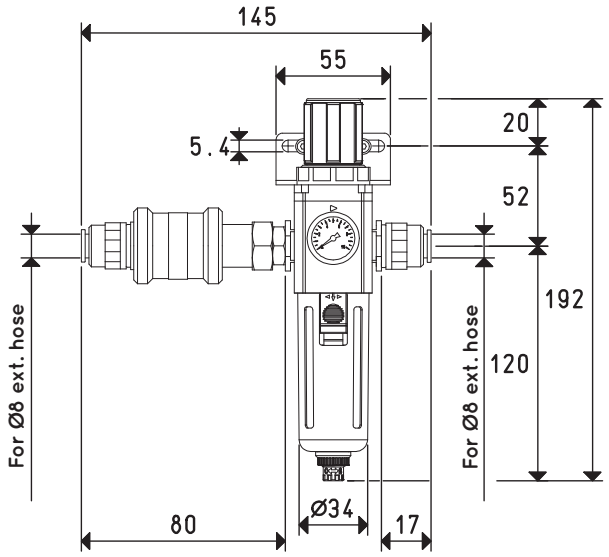
PNEUMATIC DEVICES FOR THE POWER SUPPLY OF MINI PNEUMATIC PUMP SETS DOP 06, DOP 10, DOP 20 AND PUMP SETS DOP 25, DOP 50, DOP 100, DOP 150 and DOP 300

The pneumatic equipment of the mini pump sets and pump sets is sized so as to guarantee the right amount of compressed air supply to the vacuum generators installed on them, at a correct, constant and continuous pressure.
It is composed of:
- A pressure regulator with filter and pressure gauge for regulating compressed supply air;
- A metal bracket for fixing the pressure regulator to the support;
- A slide valve to intercept compressed air;
- Two quick couplings to connect the air supply line and the vacuum generator.

They are available in different sizes depending on the vacuum generator installed on the mini pump set or on the pump set.

3D drawings are available on **vuototecnica.net**

PNEUMATIC DEVICES FOR THE POWER SUPPLY OF MINI PNEUMATIC PUMP SETS DOP 06, DOP 10 and DOP 20

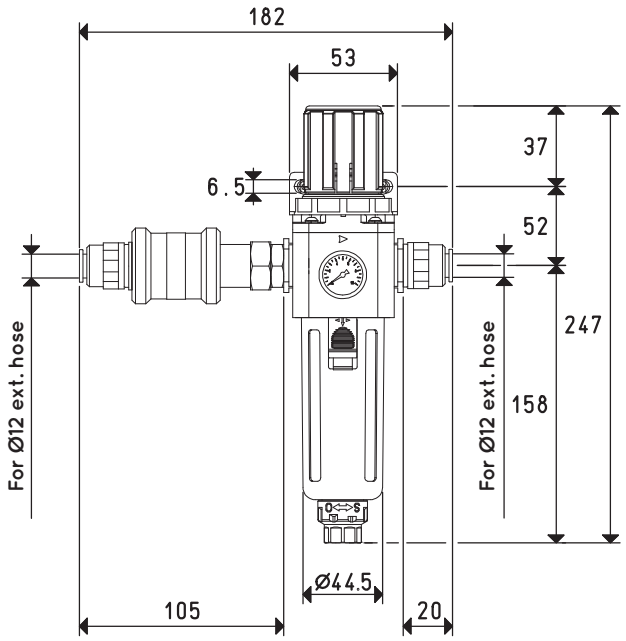


Item	Weight Kg	Suitable for generator item
DOP 20 90	0.36	PVP 12 MX - PVP 25 MX - PVP 25 MDX ES - PVP 35 MDX ES - PVP 50 MDX ES

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

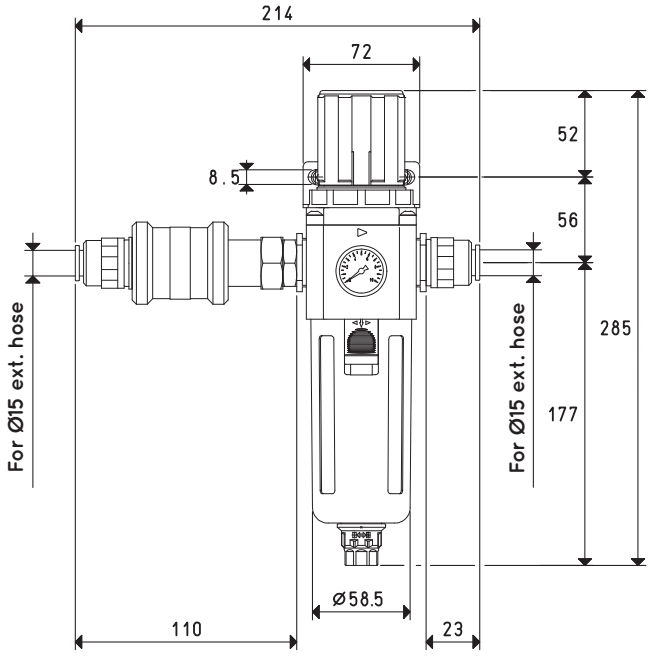
Adapters for GAS - NPT threading available on page 1.134

PNEUMATIC DEVICES FOR THE POWER SUPPLY OF PNEUMATIC PUMP SETS DOP 25, DOP 50 and DOP 100



Item	Weight Kg	Suitable for generator item
DOP 50 90	0.72	PVP 60 MDX ES - PVP 75 MDX ES

PNEUMATIC DEVICES FOR THE POWER SUPPLY OF PNEUMATIC PUMP SETS DOP 150 and DOP 300



Item	Weight Kg	Suitable for generator item
DOP 150 90	1.2	PVP 150 MDR - PVP 300 MDR

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

OCTOPUS VACUUM GRIPPING SYSTEMS

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OCTOPUS GRIPPING SYSTEM item SO 15 20 MX	PG.	9.06
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OCTOPUS GRIPPING SYSTEM item SO 30 30 X, SO 30 40 X, SO 30 50 X, SO 40 40 X and SO 40 60 X	PG.	9.08
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3D drawings are available on **vuototecnica.net**

OCTOPUS VACUUM GRIPPING SYSTEM - GENERAL DESCRIPTION

3D drawings are available on **vuototecnica.net**

The OCTOPUS system is our answer to the ever increasing requirements of operational flexibility for palletising robots and vacuum gripping systems in general.
In fact, this system allows gripping objects of any shape and nature, provided that they do not have an excessive transpiration, without having to place or change vacuum cups, and even when their surface occupies only 5% of the entire suction plate. The maximum weight of the load to be lifted will obviously be proportional to the gripping surface.
Standard OCTOPUS systems are composed of:

- One or two compressed air-fed vacuum generator as shown in the picture and in the drawing, that has to be ordered separately, since it is not included in the code, with the exception of item SO 15 20 MX.
- An anodised aluminium box, open on one side, with a built-in micro-fine mesh filter in stainless steel that protects the vacuum generator and is very easy to inspect. On the top outside of the box there are one or more connections for possible installation of control devices or solenoid valves for prompt restoration of the atmospheric pressure on its inside.
- A suction plate sealing the box, also made with anodised aluminium, with calibrated holes equidistant from each other and coated with a special perforated foam rubber. This suction plate can thus perfectly adapt to any gripping surface, whether it be smooth, rough or irregular. With the same system, for instance, it is possible to grip and handle cardboard boxes and the wooden pallet that supports it.

These OCTOPUS systems are also available upon request in dimensions and with vacuum tables and vacuum generators other than those indicated in the tables.

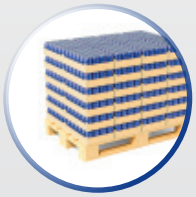
SPECIAL SOLUTIONS FOR ALL SECTORS WITH OCTOPUS VACUUM GRIPPING SYSTEMS

CERAMICS

PACKAGING

MARBLE

PLASTIC

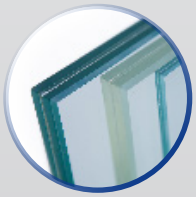

FOOD

PHARMACEUTICALS

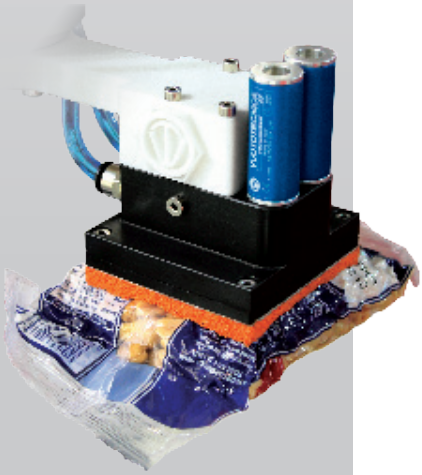
WOOD

CONSTRUCTION

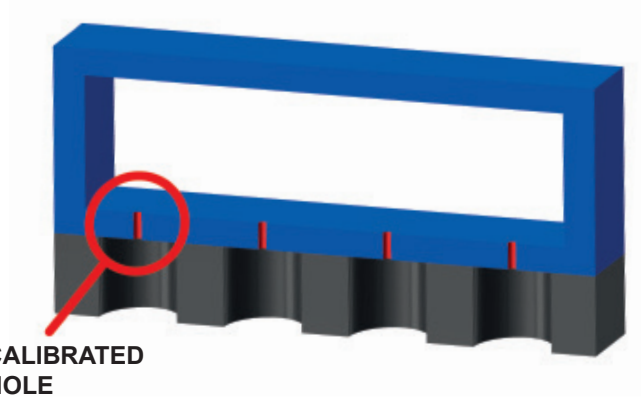
PALLETS

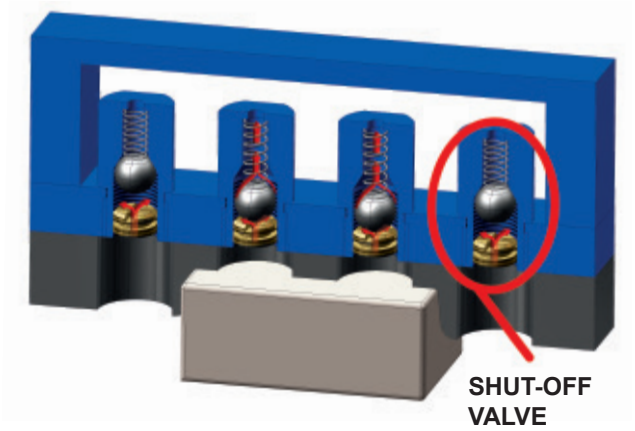

GLASS

CAN



TECHNIQUES USED FOR THE CREATION OF OCTOPUS SUCTION PLATES:



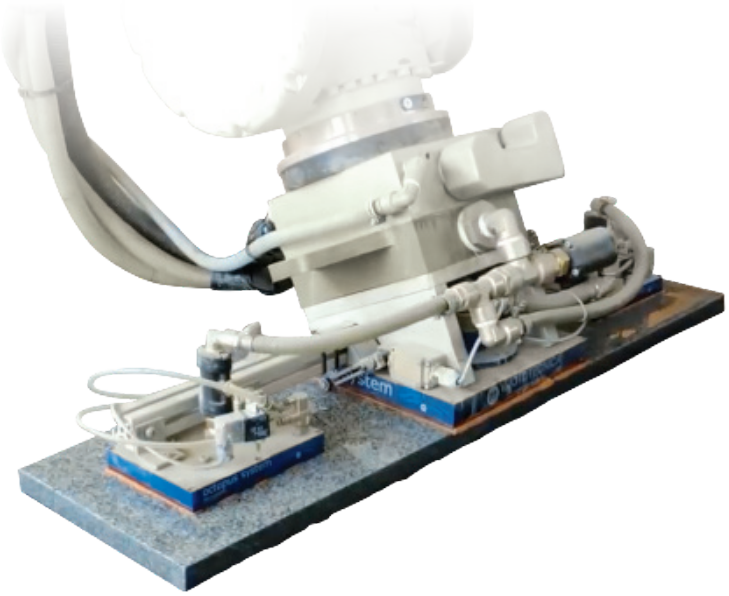


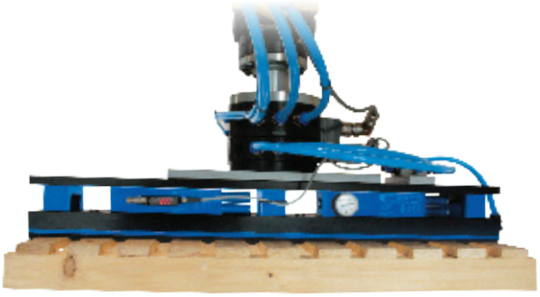
WITH CALIBRATED HOLES

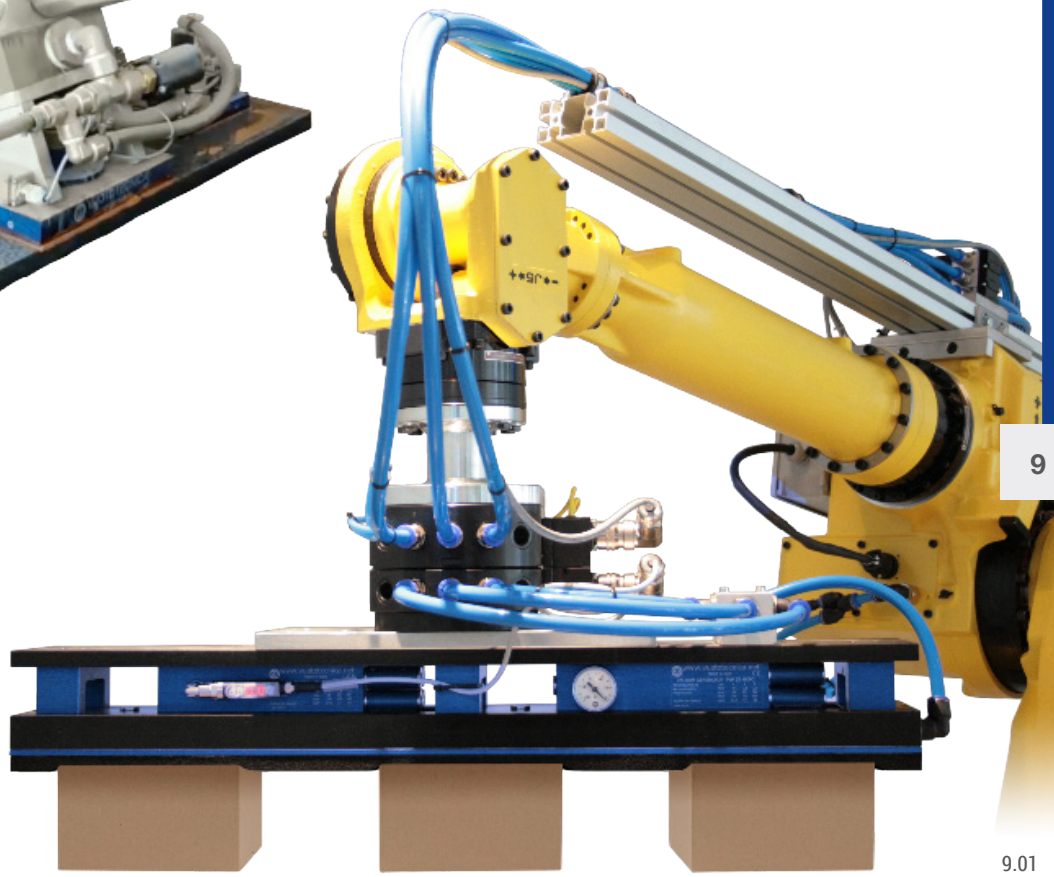
The calibrated holes drilled onto the aluminium suction plates, based on their number and cross-section, allows for the selection of the exact flow rate of the vacuum generator to be used: in fact, when the vacuum differential is reached with all calibrated holes of the open suction plate on the OCTOPUS system is 0 mbar, this means that the flow rate of the vacuum generator used is correct, but due to the operating principle of the OCTOPUS systems, it will be necessary to increase it to obtain a vacuum differential greater than 0 mbar.
It will therefore be necessary to use a generator with a higher flow rate to obtain a vacuum differential greater than the greater the flow rate of the generator used. In this way, it is possible to determine which percentage of the surface of the load to be gripped can remain uncovered during the gripping phase, in compliance with the safety parameters.
This technique requires a greater expenditure of energy with respect to the use of shut-off valves.

WITH SHUT-OFF VALVES

Shut-off valves, when properly calibrated, allow a certain quantity of fluid to go through; afterwards, if the fluid continues to go through, they automatically close.
When applied on the section plates, without a load to be gripped or in the presence of a defective grip on foam rubber, they automatically close suction, thus preventing the level of vacuum from lowering on the remaining holes or vacuum cups that are regularly being gripped.
This feature reduces the vacuum generator flow rate compared to standard OCTOPUS systems, to the benefit of energy savings. Moreover, the particular shape of our shut-off valves allows the use of the gripping surfaces in any position.







OCTOPUS GRIPPING SYSTEM COMPOSITION AND RELATIVE IDENTIFICATION CODES

The OCTOPUS systems described on the following pages are equipped as standard with PX suction plates. Should you want to replace these plates with others with different features you will have to modify the identification codes as described in this page.

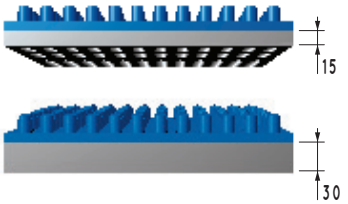
3D drawings are available on **vuototecnica.net**

Example of a standard OCTOPUS system composition with a gripping plane of **300x400 mm:**

Vacuum generator (to be ordered separately)		item PVP 150 MD PO

OCTOPUS system body		item SO 30 40

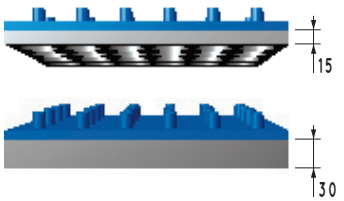
With suction plate	PX	item SO 30 40 X
With suction plate	P2X	item SO 30 40 2X



With suction plate	PX and shut-off valves	item SO 30 40 XE
With suction plate	P2X and shut-off valves	item SO 30 40 2XE

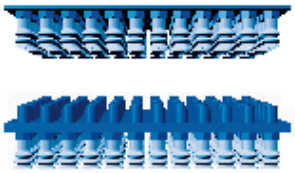
With suction plate	PH	item SO 30 40 H
With suction plate	P2H	item SO 30 40 2H

With suction plate	PY	item SO 30 40 Y
With suction plate	P2Y	item SO 30 40 2Y



With suction plate	PY and shut-off valves	item SO 30 40 Y2E
With suction plate	P2Y and shut-off valves	item SO 30 40 2Y2E

OCTOPUS GRIPPING SYSTEM COMPOSITION AND RELATIVE IDENTIFICATION CODES



With suction plate (1/8" vacuum cup supports, vacuum cups not included)	PV	item SO 30 40 V
With suction plate (1/8" vacuum cup supports, vacuum cups not included)	PV and shut-off valves	item SO 30 40 VE

With suction plate (1/4" vacuum cup supports, vacuum cups not included)	P2V	item SO 30 40 2V
With suction plate (1/4" vacuum cup supports, vacuum cups not included)	P2V and shut-off valves	item SO 30 40 2V2E

With suction plate	PJ	item SO 30 40 J

Example of an order for an OCTOPUS system with suction plate P2Y, complete with vacuum generator:
1 PVP 150 MD PO
1 SO 30 40 2Y

Example of an order for an OCTOPUS system with suction plate P2V, complete with silicone vacuum cups vacuum generator:
1 PVP 150 MD PO
1 SO 30 40 2V
36 01 40 42 S

Example of an order for an OCTOPUS system with suction plate PX and shut-off valves, complete with vacuum generator:
1 PVP 150 MD PO
1 SO 30 40 XE

VACUUM GENERATORS USED ON OCTOPUS SYSTEMS

Although not an included part, the standard OCTOPUS gripping system generators indicated in the tables have been selected after careful evaluation of the best ratio achieved between performance and consumption of compressed air. Contact our technical department before replacing them with others having different characteristics.

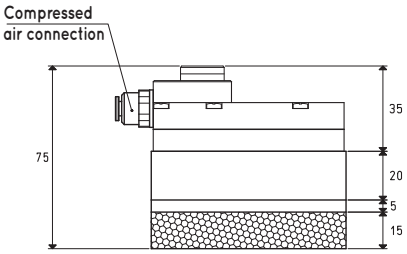
FASTENING AND CONNECTION ALTERNATIVES

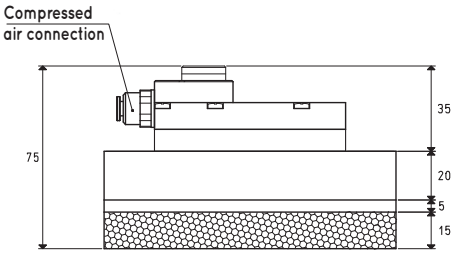
It is possible to connect the OCTOPUS system to a remote installed vacuum generator or to an alternative vacuum source, by fixing one of the special flange supports shown and described on the following pages instead of the generator.

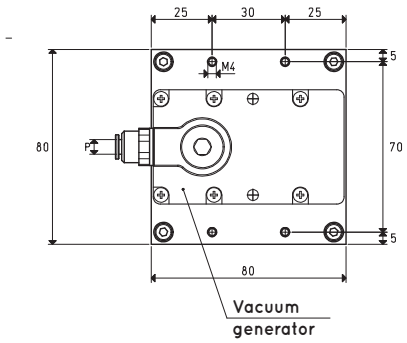
SMALL OCTOPUS VACUUM GRIPPING SYSTEMS

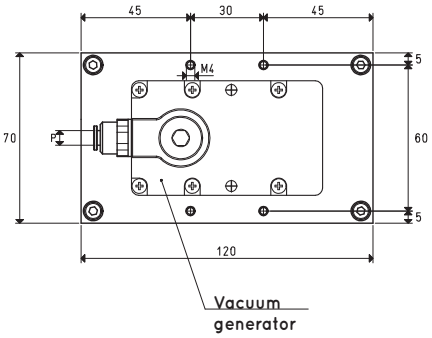
The OCTOPUS system is a vacuum gripping device equipped with one or more compressed air-fed vacuum generators (included in the item code).
It is composed of:
- Main body in anodised aluminium;
- Anodised aluminium suction plate with evenly spaced calibrated holes and covered with perforated foam rubber, which ensures adaptability to smooth, rough or uneven surfaces;
- A multi-stage vacuum generator with built-in silencer.

These OCTOPUS systems are also available upon request in dimensions and with vacuum tables and vacuum generators other than those indicated in the table.









Item		SO 08 08 X	SO 07 12 X
Suction plate	item	PX 08 08	PX 07 12
Gripping force	Kg	3	4
Vacuum generator (integrated)	item	M14PO	M14PO
Maximum supply pressure	bar	5	5
Maximum level of vacuum	-KPa	85	85
Air consumption at 6 bar	Nl/s	2.5	2.5
Intake air flow rate	m^3/h	12.6	12.6
Temperature of use	°C	-20 / +80	-20 / +80
Weight (including vacuum generator/s)	Kg	0.4	0.7
P Connection for compressed air tube	Ø ext.	6	6

NOTE: The vacuum generator indicated in the table is included with the OCTOPUS system.

NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

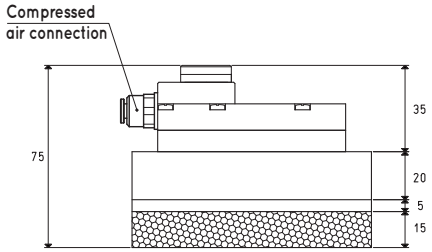
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

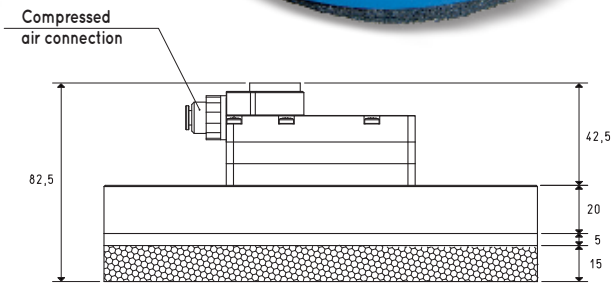
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

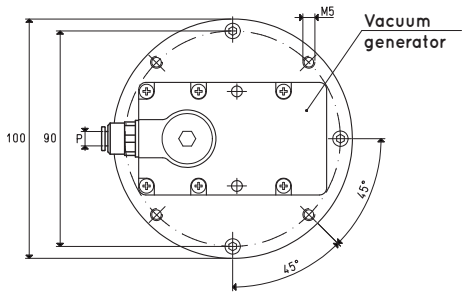
SMALL OCTOPUS VACUUM GRIPPING SYSTEMS

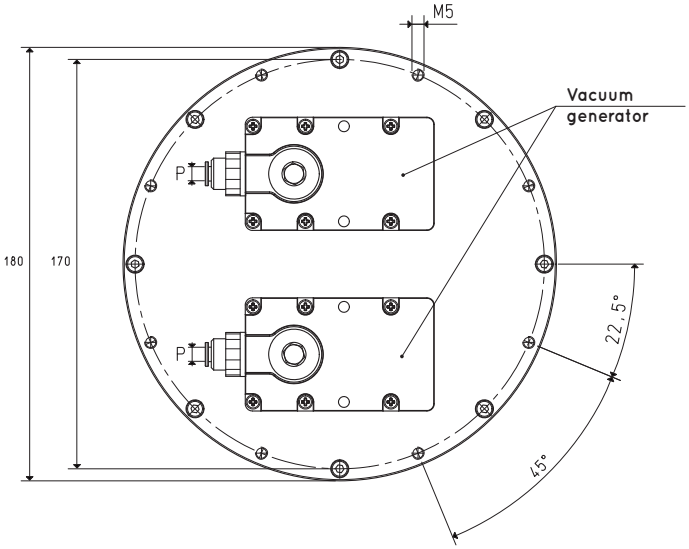
The OCTOPUS system is a vacuum gripping device equipped with one or more compressed air-fed vacuum generators (included in the item code).
It is composed of:
- Main body in anodised aluminium;
- Anodised aluminium suction plate with evenly spaced calibrated holes and covered with perforated foam rubber, which ensures adaptability to smooth, rough or uneven surfaces;
- A multi-stage vacuum generator with built-in silencer.

These OCTOPUS systems are also available upon request in dimensions and with vacuum tables and vacuum generators other than those indicated in the table.









Item		SO DO 10 X	SO DO 18 X
Suction plate	item	PX DO 10	PX DO 18
Gripping force	Kg	4	13
Vacuum generator (integrated)	item	M14PO	N°2 M18PO
Maximum supply pressure	bar	5	5
Maximum level of vacuum	-KPa	85	85
Air consumption at 6 bar	Nl/s	2.5	5.0
Intake air flow rate	m^3/h	12.6	25.2
Temperature of use	°C	-20 / +80	-20 / +80
Weight (including vacuum generator/s)	Kg	0.5	1.32
P Connection for compressed air tube	Ø ext.	6	6

NOTE: The vacuum generator indicated in the table is included with the OCTOPUS system.

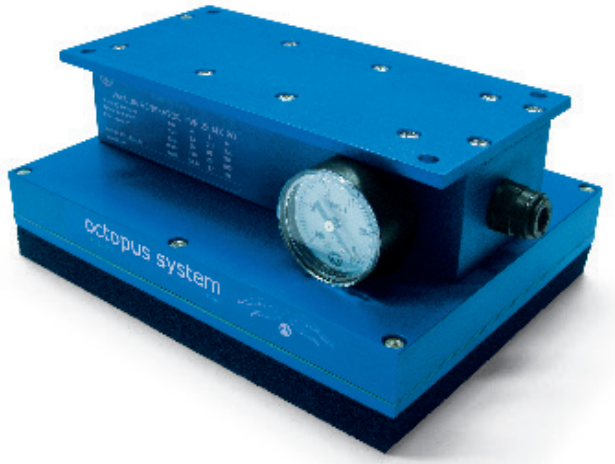
NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

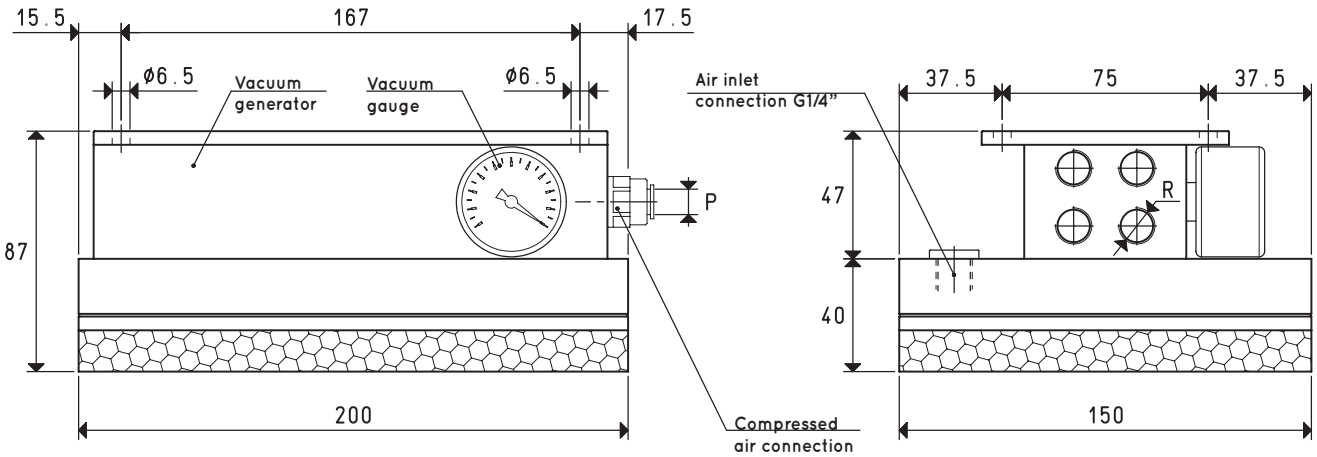
3D drawings are available on **vuototecnica.net**

OCTOPUS VACUUM GRIPPING SYSTEM

The OCTOPUS system is a vacuum gripping device equipped with one or more compressed air-fed vacuum generators (included in the item code).
It is composed of:
- Main body in anodised aluminium;
- Anodised aluminium suction plate with evenly spaced calibrated holes and covered with perforated foam rubber, which ensures adaptability to smooth, rough or uneven surfaces;
- A multi-stage vacuum generator with built-in silencer.

These OCTOPUS systems are also available upon request in dimensions and with vacuum tables and vacuum generators other than those indicated in the table.





Item		SO 15 20 MX
Suction plate	item	PX 15 20
Gripping force	Kg	21.2
Vacuum generator (integrated)	item	N°1 PVP 25 MX PO
Maximum supply pressure	bar	6
Maximum level of vacuum	-KPa	90
Air consumption at 6 bar	Nl/s	3.2
Intake air flow rate	m^3/h	31.0
Temperature of use	°C	-20 / +80
Weight (including vacuum generator/s)	Kg	2.1
P Connection for compressed air tube	Ø ext.	8
R Exhaust connection	Ø	N° 4 x G1/4"

NOTE: The vacuum generator indicated in the table are included with the OCTOPUS system

NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

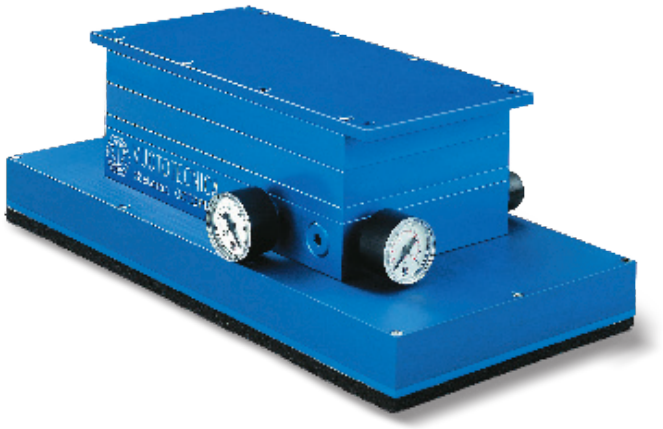
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

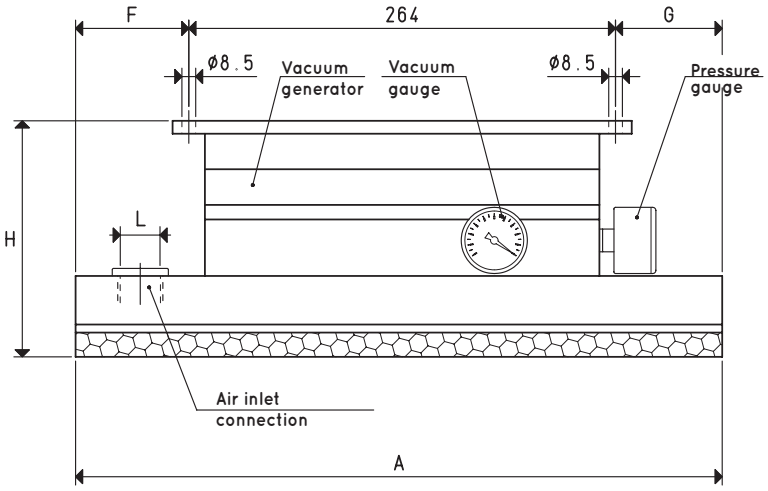
OCTOPUS VACUUM GRIPPING SYSTEM

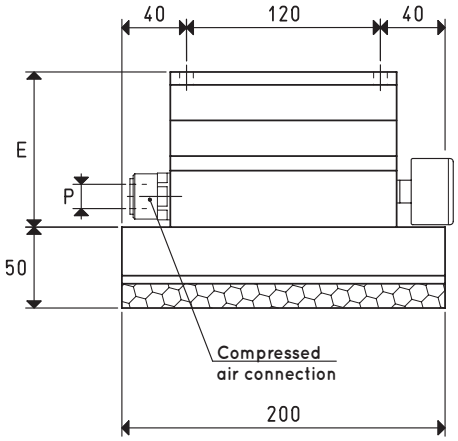
The OCTOPUS system is a vacuum gripping device equipped with one or more compressed air-fed vacuum generators (not included in the item code and to be ordered separately).
It is composed of:
- Main body in anodised aluminium;
- Anodised aluminium suction plate with evenly spaced calibrated holes and covered with perforated foam rubber, which ensures adaptability to smooth, rough or uneven surfaces.

These OCTOPUS systems are also available upon request in dimensions and with vacuum tables and vacuum generators other than those indicated in the table.



3D drawings are available on **vuototecnica.net**





Item		SO 20 30 X	SO 20 40 X	SO 20 60 X
Suction plate	item	PX 20 30	PX 20 40	PX 20 60
Gripping force	Kg	42.4	56.6	84.8
Fitted for vacuum generator	item	N°1 PVP 100 M PO	N°1 PVP 140 M PO	N°1 PVP 200 M PO
Maximum supply pressure	bar	6	6	6
Maximum level of vacuum	-KPa	90	90	90
Air consumption at 6 bar	Nl/s	9.8	13.0	19.4
Intake air flow rate	m^3/h	108.0	152.0	200.0
Temperature of use	°C	-20 / +80	-20 / +80	-20 / +80
Weight (including vacuum generator/s)	Kg	7.0	8.6	10.7
A		300	400	600
E		74	96	96
F		16	66	166
G		20	70	170
H		124	146	146
L Air inlet connection	Ø ext.	G1/4"	G1/2"	G1/2"
P Connection for compressed air tube	Ø ext.	15	15	15

NOTE: The code SO .. .. X only identifies the OCTOPUS system body with relative suction plate PX.
The vacuum generator indicated in the table is not included with the OCTOPUS system and therefore must be ordered separately with its own code.

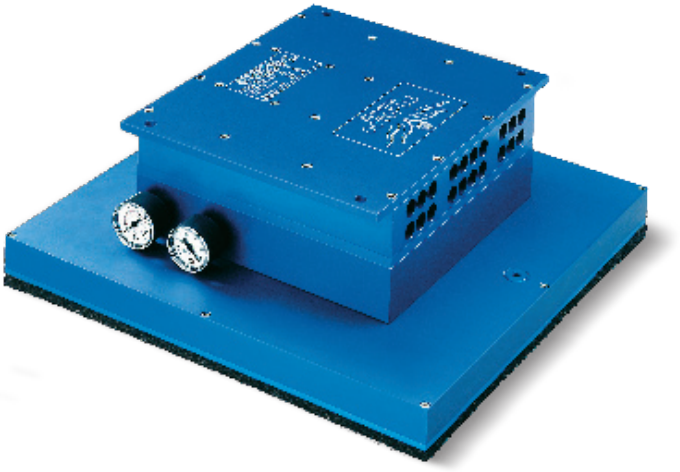
NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

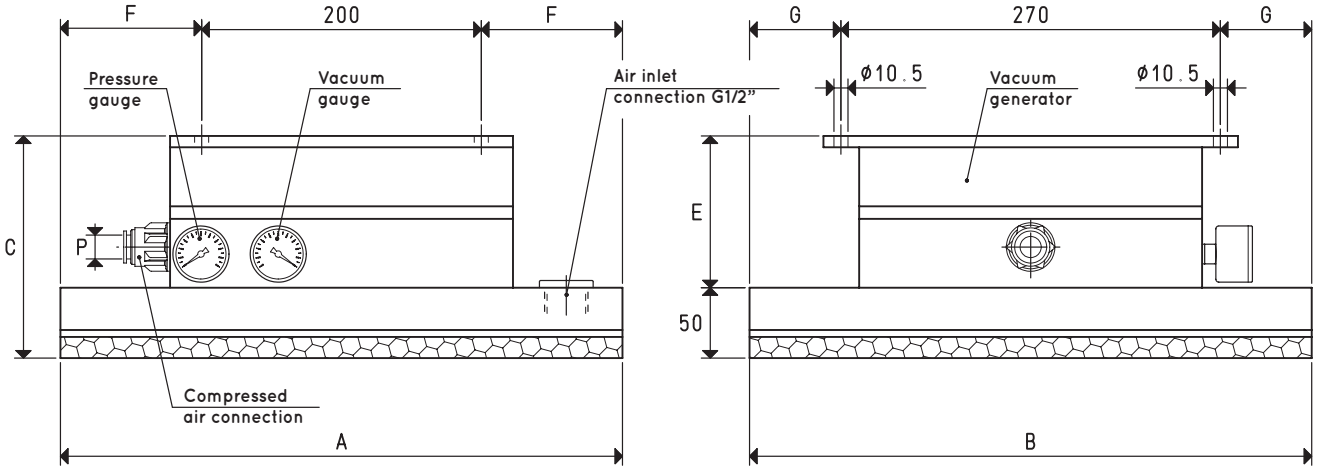
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

OCTOPUS VACUUM GRIPPING SYSTEM

The OCTOPUS system is a vacuum gripping device equipped with one or more compressed air-fed vacuum generators (not included in the item code and to be ordered separately).
It is composed of:
- Main body in anodised aluminium;
- Anodised aluminium suction plate with evenly spaced calibrated holes and covered with perforated foam rubber, which ensures adaptability to smooth, rough or uneven surfaces.

These OCTOPUS systems are also available upon request in dimensions and with vacuum tables and vacuum generators other than those indicated in the table.





Item		SO 30 30 X	SO 30 40 X	SO 30 50 X	SO 40 40 X	SO 40 60 X
Suction plate	item	PX 30 30	PX 30 40	PX 30 50	PX 40 40	PX 40 60
Gripping force	Kg	63.6	84.8	106.0	113.1	169.6
Fitted for vacuum generator	item	N°1 PVP 150 MD PO	N°1 PVP 150 MD PO	N°1 PVP 300 MD PO	N°1 PVP 300 MD PO	N°1 PVP 300 MD PO
Maximum supply pressure	bar	6	6	6	6	6
Maximum level of vacuum	-KPa	90	90	90	90	90
Air consumption at 6 bar	Nl/s	16.0	16.0	32.0	32.0	32.0
Intake air flow rate	m^3/h	200.0	200.0	400.0	400.0	400.0
Temperature of use	°C	-20 / +80	-20 / +80	-20 / +80	-20 / +80	-20 / +80
Weight (including vacuum generator/s)	Kg	11.5	12.5	15.0	17.0	19.0
A		300	400	500	400	400
B		300	300	300	400	600
C		138	138	158	158	158
E		88	88	108	108	108
F		50	100	150	100	100
G		15	15	15	65	165
P Connection for compressed air tube	Ø ext.	15	15	15	15	15

NOTE: The code SO .. .. X only identifies the OCTOPUS system body with relative suction plate PX.
The vacuum generator indicated in the table is not included with the OCTOPUS system and therefore must be ordered separately with its own code.

NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

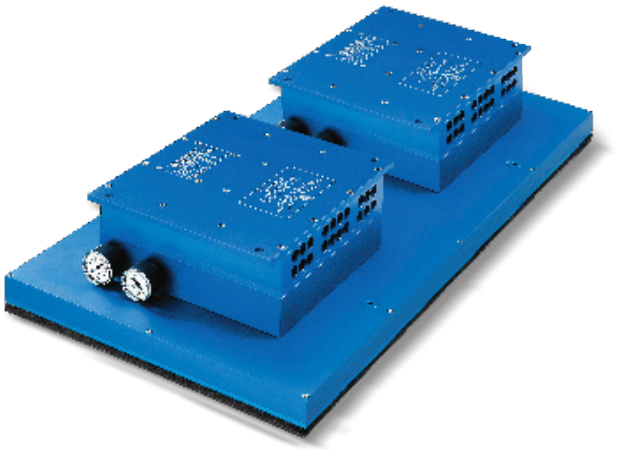
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

3D drawings are available on **vuototecnica.net**

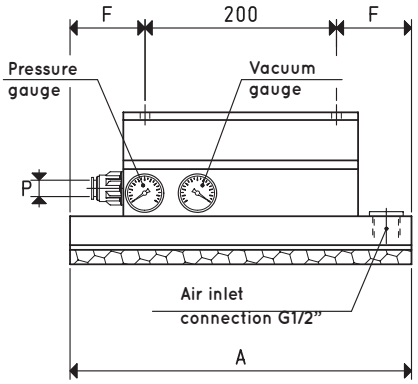
OCTOPUS VACUUM GRIPPING SYSTEM

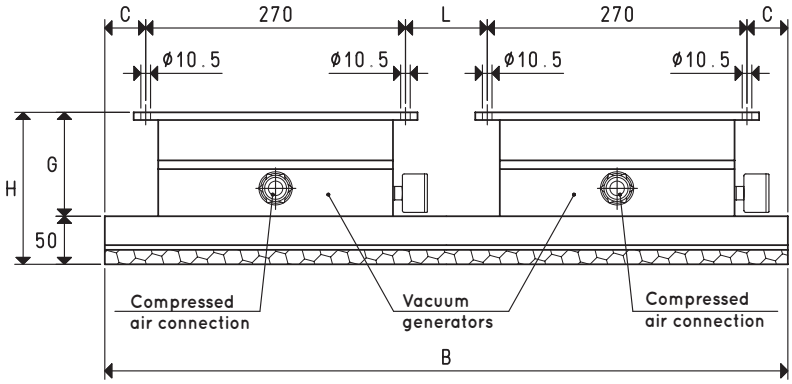
The OCTOPUS system is a vacuum gripping device equipped with one or more compressed air-fed vacuum generators (not included in the item code and to be ordered separately).
It is composed of:
- Main body in anodised aluminium;
- Anodised aluminium suction plate with evenly spaced calibrated holes and covered with perforated foam rubber, which ensures adaptability to smooth, rough or uneven surfaces.

These OCTOPUS systems are also available upon request in dimensions and with vacuum tables and vacuum generators other than those indicated in the table.



3D drawings are available on **vuototecnica.net**





Item		SO 40 100 X	SO 60 80 X	SO 60 120 X	SO 80 100 X
Suction plate	item	PX 40 100	PX 60 80	PX 60 120	PX 80 100
Gripping force	Kg	282.6	339.2	508.7	597.4
Fitted for vacuum generators	item	N°2 PVP 300 MD PO	N°2 PVP 300 MD PO	N°2 PVP 450 MD PO	N°2 PVP 450 MD PO
Maximum supply pressure	bar	6	6	6	6
Maximum level of vacuum	-KPa	90	90	90	90
Air consumption at 6 bar	Nl/s	64.0	64.0	95.6	95.6
Intake air flow rate	m^3/h	800.0	800.0	1160	1160
Temperature of use	°C	-20 / +80	-20 / +80	-20 / +80	-20 / +80
Weight (including vacuum generator/s)	Kg	34.0	37.5	50.0	53.5
A		400	600	600	800
B		1000	800	1200	1000
C		120	70	170	120
F		100	200	200	300
G		108	108	130	130
H		158	158	180	180
L		220	120	320	220
P Connection for compressed air tube	Ø ext.	15	15	22	22

NOTE: The code SO .. .. X only identifies the OCTOPUS system body with relative suction plate PX.
The vacuum generators indicated in the table are not included with the OCTOPUS system and therefore must be ordered separately with its own code.

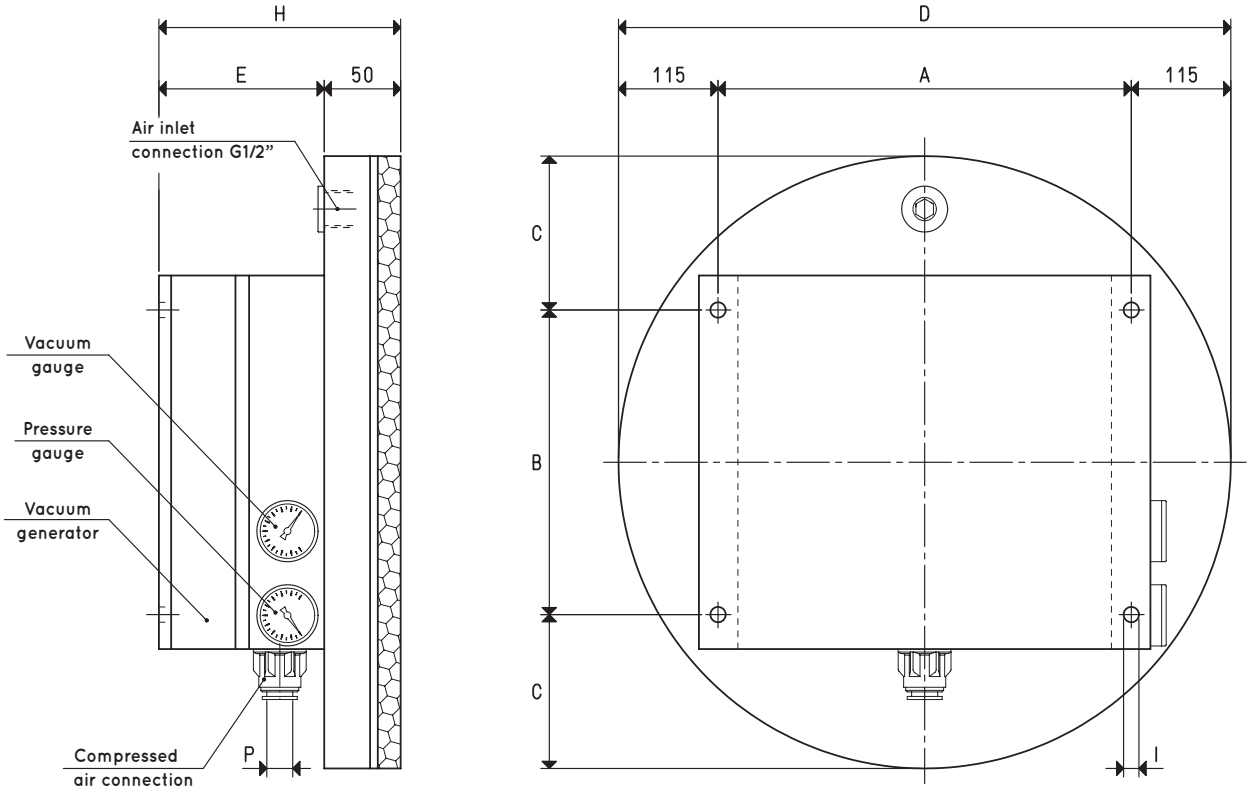
NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

ROUND OCTOPUS VACUUM GRIPPING SYSTEM

The OCTOPUS system is a vacuum gripping device equipped with one or more compressed air-fed vacuum generators (not included in the item code and to be ordered separately).
It is composed of:
- Main body in anodised aluminium;
- Anodised aluminium suction plate with evenly spaced calibrated holes and covered with perforated foam rubber, which ensures adaptability to smooth, rough or uneven surfaces.

These OCTOPUS systems are also available upon request in dimensions and with vacuum tables and vacuum generators other than those indicated in the table.



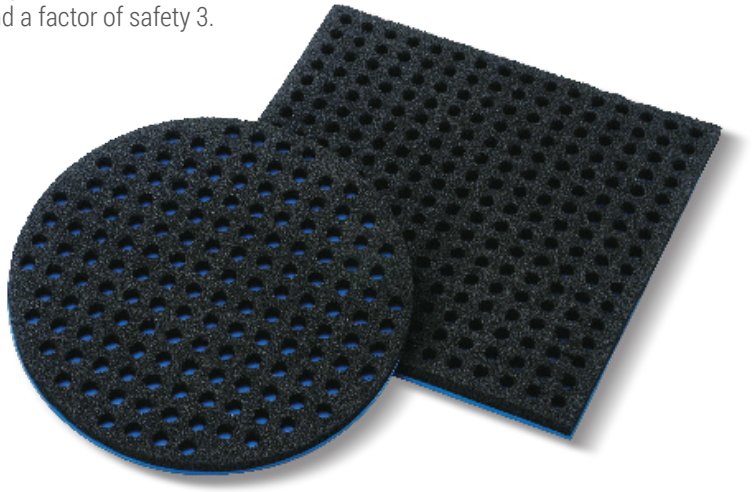
Item		SO DO 35 X	SO DO 50 X
Suction plate	item	PX DO 35	PX DO 50
Gripping force	Kg	65.4	139.6
Fitted for vacuum generator	item	N°1 PVP 170 M PO	N°1 PVP 300 MD PO
Maximum supply pressure	bar	6	6
Maximum level of vacuum	-KPa	90	90
Air consumption at 6 bar	Nl/s	16.3	32.0
Intake air flow rate	m^3/h	182.0	400.0
Temperature of use	°C	-20 / +80	-20 / +80
Weight (including vacuum generator/s)	Kg	9.5	17.0
A		120	270
B		264	200
C		43	150
D	Ø	350	500
E		96	108
H		146	158
I		8.5	10.5
P Connection for compressed air tube	Ø ext.	15	15

NOTE: The code SO DO . X only identifies the OCTOPUS system body with relative suction plate PX.
The vacuum generator indicated in the table is not included with the OCTOPUS system and therefore must be ordered separately with its own code.
NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

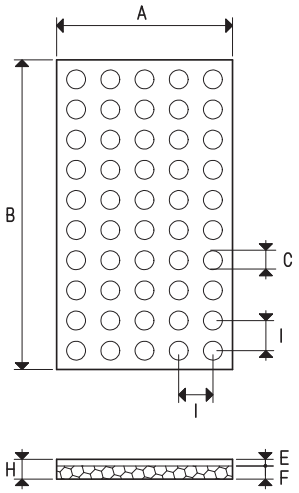
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

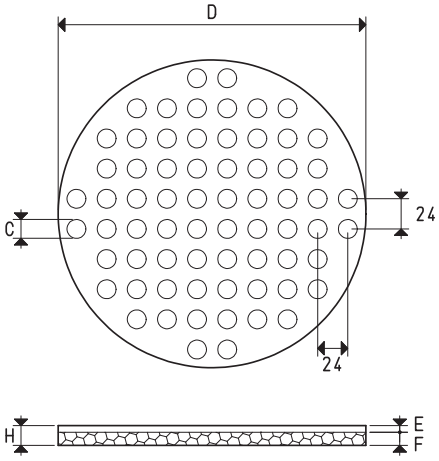
STANDARD SUCTION PLATES PX and P2X FOR OCTOPUS SYSTEMS

The suction plates PX described on this page are installed as standard on all OCTOPUS systems and, therefore, can be supplied as a spare or replacement part.
They are made with anodised aluminium sheets with calibrated holes equidistant from each other and coated with a special perforated foam rubber with two different thicknesses: 15 mm for suction plates of the PX range; 30 mm, for special suction plates of the P2X range. The foam rubber is also perforated at the calibrated holes, but its holes have a diameter of 10-15 mm. The use of calibrated holes allows for exact calculation of the flow rate of the vacuum generator to be used, to ensure that, even in the presence of losses due to transpiration or even in case of failure to cover the object to be gripped, a minimum sufficient level of vacuum remains for gripping and handling the load.
Their lifting force was calculated considering a level of vacuum of at least -75 Kpa, the total surface of the holes within the foam rubber and a factor of safety 3.



Item	Force Kg	A	B	C Ø	D Ø	E	F	H	I	Holes No.	Only rubber item	Weight Kg
PX 07 12	4.5	70	120	10	---	5	15	20	17	24	X 07 12	0.13
PX 08 08	3.0	80	80	10	---	5	15	20	17	16	X 08 08	0.12
PX 15 20	21.2	150	200	15	---	5	15	20	24	48	X 15 20	0.40
PX 20 30	42.4	200	300	15	---	5	15	20	24	96	X 20 30	0.80
PX 20 40	56.6	200	400	15	---	5	15	20	24	128	X 20 40	1.10
PX 20 60	84.8	200	600	15	---	5	15	20	24	192	X 20 60	1.70
PX 30 30	63.6	300	300	15	---	5	15	20	24	144	X 30 30	1.30
PX 30 40	84.8	300	400	15	---	5	15	20	24	192	X 30 40	1.70
PX 30 50	106.0	300	500	15	---	5	15	20	24	240	X 30 50	2.10
PX 40 40	113.1	400	400	15	---	5	15	20	24	256	X 40 40	2.20
PX 40 60	169.6	400	600	15	---	5	15	20	24	384	X 40 60	3.40
PX 40 100	282.6	400	1000	15	---	5	15	20	24	656	X 40 100	5.60
PX 60 80	339.2	600	800	15	---	5	15	20	24	768	X 60 80	6.70
PX 60 120	508.7	600	1200	15	---	5	15	20	24	1176	X 60 120	10.10
PX 80 100	597.4	800	1000	15	---	5	15	20	24	1353	X 80 100	11.30
PX DO 10	9.0	---	---	15	100	5	15	20	17	21	X DO 10	0.12
PX DO 35	65.4	---	---	15	350	5	15	20	24	148	X DO 35	1.30
PX DO 50	139.6	---	---	15	500	5	15	20	24	316	X DO 50	2.30
P2X 07 12	4.5	70	120	10	---	5	30	35	17	24	2X 07 12	0.26
P2X 08 08	3.0	80	80	10	---	5	30	35	17	16	2X 08 08	0.24
P2X 15 20	21.2	150	200	15	---	5	30	35	24	48	2X 15 20	0.44
P2X 20 30	42.4	200	300	15	---	5	30	35	24	96	2X 20 30	0.89
P2X 20 40	56.6	200	400	15	---	5	30	35	24	128	2X 20 40	1.21
P2X 20 60	84.8	200	600	15	---	5	30	35	24	192	2X 20 60	1.77
P2X 30 30	63.6	300	300	15	---	5	30	35	24	144	2X 30 30	1.36
P2X 30 40	84.8	300	400	15	---	5	30	35	24	192	2X 30 40	1.78
P2X 30 50	106.0	300	500	15	---	5	30	35	24	240	2X 30 50	2.22
P2X 40 40	113.1	400	400	15	---	5	30	35	24	256	2X 40 40	2.41
P2X 40 60	169.6	400	600	15	---	5	30	35	24	384	2X 40 60	3.55
P2X 40 100	282.6	400	1000	15	---	5	30	35	24	656	2X 40 100	5.96
P2X 60 80	339.2	600	800	15	---	5	30	35	24	768	2X 60 80	7.18
P2X 60 120	508.7	600	1200	15	---	5	30	35	24	1176	2X 60 120	10.73
P2X 80 100	597.4	800	1000	15	---	5	30	35	24	1353	2X 80 100	11.93
P2X DO 10	9.0	---	---	15	100	5	30	35	17	21	2X DO 10	0.14
P2X DO 35	65.4	---	---	15	350	5	30	35	24	148	2X DO 35	1.49
P2X DO 50	139.6	---	---	15	500	5	30	35	24	316	2X DO 50	2.48



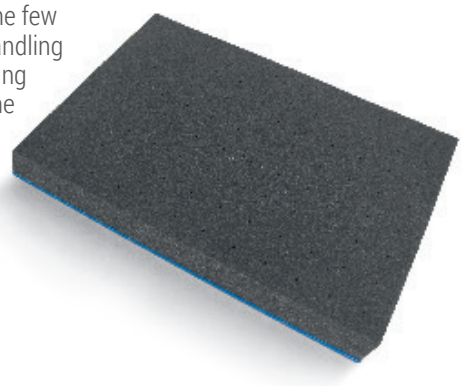


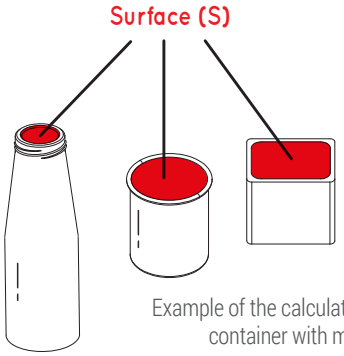
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SPECIAL PH and P2H SUCTION PLATES FOR OCTOPUS SYSTEMS FOR GRIPPING EMPTY CANS, TINS, JARS AND VIALS WITHOUT LIDS OR CAPS

The special suction plates illustrated and described on this page can be installed on OCTOPUS systems to replace the PX and P2X plates. They are made of anodised aluminium sheets with holes equidistant from each other and coated with a special sponge rubber, microperforated at the holes in the aluminium sheet, in two different thicknesses: 20 mm for PH suction plates and 30 mm for P2H plates. The use of calibrated holes makes it possible to calculate the flow rate of the vacuum generator to be installed on the OCTOPUS SYSTEM, to ensure that, even in the presence of losses due to transpiration or the absence of some objects to be picked up, there is always a minimum vacuum value, sufficient to grip even the few remaining containers. The use of these suction plates is recommended for gripping and handling empty cans, tins, vials and jars made of various materials and without lids or caps. The lifting force of the container will be directly proportional to the degree of vacuum generated on the surface of the mouth of the can or vial to be picked up.

Note: These plates are not suitable for picking up empty plastic or glass water and wine bottles.
All flexible containers must be previously vacuum tested to avoid the risk of implosion.





$$F = \frac{S \times P}{\eta}$$

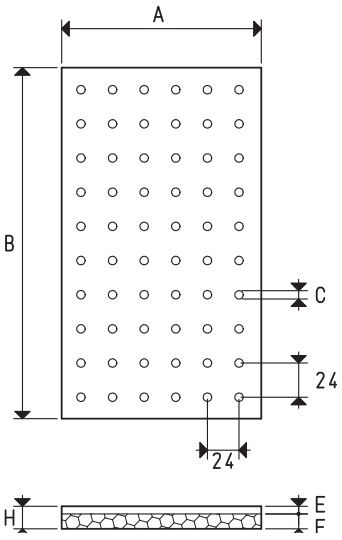
Where:
F = Lifting force expressed in Kg;
S = Surface area of the container mouth expressed in cm^2;
P = Force exerted by atmospheric pressure, depending on the level of vacuum, expressed in Kg/cm^2;
η = Factor of safety.

Example of the calculation of the force applied to the container with mouth diameter 60 mm:

$$F = \frac{28{,}26\ cm^2 \times 0{,}75\ Kg/cm^2}{3} = 7{,}06\ Kg$$

Where:
S = 28,26 cm^2;
P = 0,75 Kg/cm^2 (value developed from a level of vacuum of -750 mbar);
η = 3.

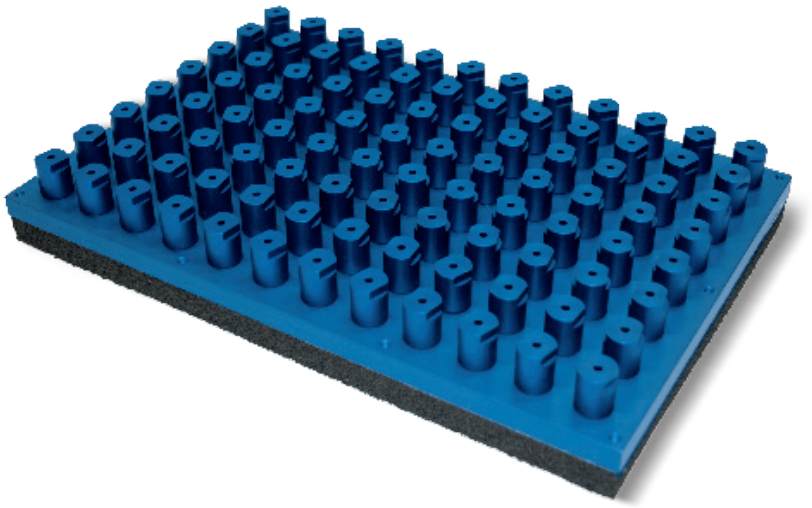
Item	A	B	C Ø	E	F	H	Holes No.	Only rubber item	Weight Kg
PH 15 20	150	200	~2	5	20	25	48	H 15 20	0.40
PH 20 30	200	300	~2	5	20	25	96	H 20 30	0.80
PH 20 40	200	400	~2	5	20	25	128	H 20 40	1.10
PH 20 60	200	600	~2	5	20	25	192	H 20 60	1.70
PH 30 30	300	300	~2	5	20	25	144	H 30 30	1.30
PH 30 40	300	400	~2	5	20	25	192	H 30 40	1.70
PH 30 50	300	500	~2	5	20	25	240	H 30 50	2.10
PH 40 40	400	400	~2	5	20	25	256	H 40 40	2.20
PH 40 60	400	600	~2	5	20	25	384	H 40 60	3.40
PH 40 100	400	1000	~2	5	20	25	656	H 40 100	5.60
PH 60 80	600	800	~2	5	20	25	768	H 60 80	6.70
PH 60 120	600	1200	~2	5	20	25	1176	H 60 120	10.10
PH 80 100	800	1000	~2	5	20	25	1353	H 80 100	11.30
PH 110 130	1100	1130	~2	5	20	25	2385	H 110 130	19.60
P2H 15 20	150	200	~2	5	30	35	48	2H 15 20	0.44
P2H 20 30	200	300	~2	5	30	35	96	2H 20 30	0.89
P2H 20 40	200	400	~2	5	30	35	128	2H 20 40	1.21
P2H 20 60	200	600	~2	5	30	35	192	2H 20 60	1.77
P2H 30 30	300	300	~2	5	30	35	144	2H 30 30	1.36
P2H 30 40	300	400	~2	5	30	35	192	2H 30 40	1.78
P2H 30 50	300	500	~2	5	30	35	240	2H 30 50	2.22
P2H 40 40	400	400	~2	5	30	35	256	2H 40 40	2.41
P2H 40 60	400	600	~2	5	30	35	384	2H 40 60	3.55
P2H 40 100	400	1000	~2	5	30	35	656	2H 40 100	5.96
P2H 60 80	600	800	~2	5	30	35	768	2H 60 80	7.18
P2H 60 120	600	1200	~2	5	30	35	1176	2H 60 120	10.73
P2H 80 100	800	1000	~2	5	30	35	1353	2H 80 100	11.93
P2H 110 130	1100	1130	~2	5	30	35	2385	2H 110 130	21.20



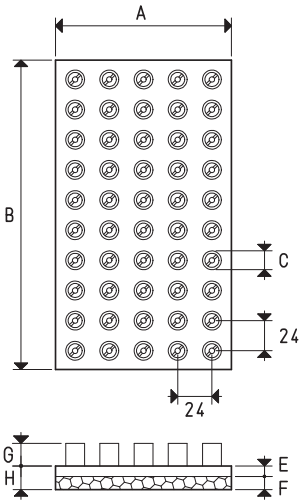
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

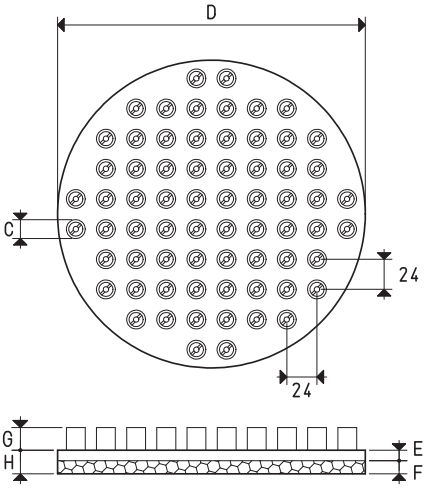
STANDARD SUCTION PLATES WITH SHUT-OFF VALVES PXE and P2XE FOR OCTOPUS SYSTEMS

The suction plates described on this page are the same as the previously described PX and P2X, but with the addition of shut-off valves inserted in each hole. In absence of an object to grip or in case of a defective grip of the foam rubber, the shut-off valves automatically close the suction inlet, thus preventing the level of vacuum from decreasing on the other gripping holes.
This feature reduces the vacuum generator flow rate compared to standard OCTOPUS systems, to the benefit of energy savings. Moreover, the particular shape of our shut-off valves allows the use of the gripping surfaces in any position.



Item	Force Kg	A	B	C Ø	D Ø	E	F	G	H	Valves No.	Only rubber item	Weight Kg
PXE 20 30	42.4	200	300	15	---	10	15	18	25	96	X 20 30	1.76
PXE 20 40	56.6	200	400	15	---	10	15	18	25	128	X 20 40	2.38
PXE 20 60	84.8	200	600	15	---	10	15	18	25	192	X 20 60	3.62
PXE 30 30	63.6	300	300	15	---	10	15	18	25	144	X 30 30	2.74
PXE 30 40	84.8	300	400	15	---	10	15	18	25	192	X 30 40	3.62
PXE 30 50	106.0	300	500	15	---	10	15	18	25	240	X 30 50	4.50
PXE 40 40	113.1	400	400	15	---	10	15	18	25	256	X 40 40	4.76
PXE 40 60	169.6	400	600	15	---	10	15	18	25	384	X 40 60	7.24
PXE 40 100	282.6	400	1000	15	---	10	15	18	25	656	X 40 100	12.16
PXE 60 80	339.2	600	800	15	---	10	15	18	25	768	X 60 80	14.38
PXE 60 120	508.7	600	1200	15	---	10	15	18	25	1176	X 60 120	21.86
PXE 80 100	597.4	800	1000	15	---	10	15	18	25	1353	X 80 100	24.83
PXE DO 35	65.4	---	---	15	350	10	15	18	25	148	X DO 35	2.78
PXE DO 50	139.6	---	---	15	500	10	15	18	25	308	X DO 50	5.38
P2XE 20 30	42.4	200	300	15	---	10	30	18	40	96	2X 20 30	1.85
P2XE 20 40	56.6	200	400	15	---	10	30	18	40	128	2X 20 40	2.49
P2XE 20 60	84.8	200	600	15	---	10	30	18	40	192	2X 20 60	3.69
P2XE 30 30	63.6	300	300	15	---	10	30	18	40	144	2X 30 30	2.80
P2XE 30 40	84.8	300	400	15	---	10	30	18	40	192	2X 30 40	3.70
P2XE 30 50	106.0	300	500	15	---	10	30	18	40	240	2X 30 50	4.62
P2XE 40 40	113.1	400	400	15	---	10	30	18	40	256	2X 40 40	4.97
P2XE 40 60	169.6	400	600	15	---	10	30	18	40	384	2X 40 60	7.24
P2XE 40 100	282.6	400	1000	15	---	10	30	18	40	656	2X 40 100	12.52
P2XE 60 80	339.2	600	800	15	---	10	30	18	40	768	2X 60 80	14.86
P2XE 60 120	508.7	600	1200	15	---	10	30	18	40	1176	2X 60 120	22.49
P2XE 80 100	597.4	800	1000	15	---	10	30	18	40	1353	2X 80 100	25.46
P2XE DO 35	65.4	---	---	15	350	10	30	18	40	148	2X DO 35	2.97
P2XE DO 50	139.6	---	---	15	500	10	30	18	40	308	2X DO 50	5.56



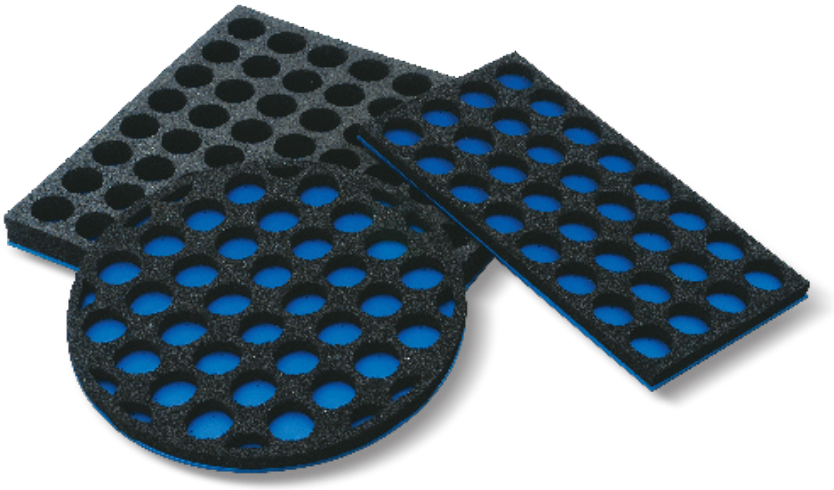


Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

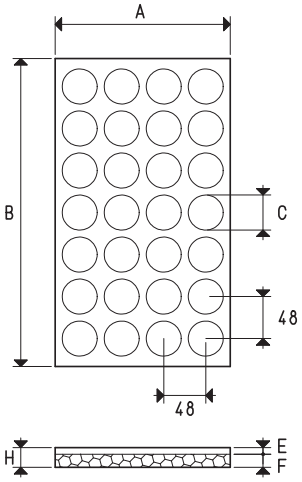
3D drawings are available on **vuototecnica.net**

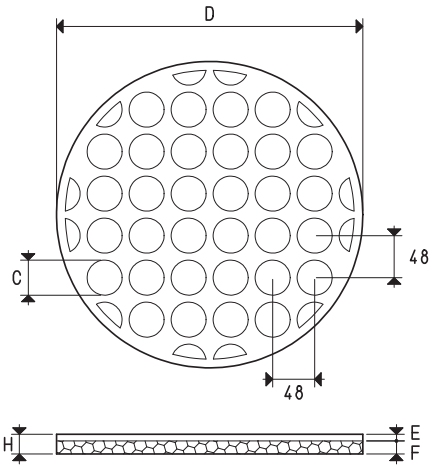
SPECIAL SUCTION PLATES PY and P2Y FOR OCTOPUS SYSTEMS

Compared to the standard ones, when given the same gripping surface, these suction plates develop a greater force (item PY) and can grip even very rough and uneven surfaces (item P2Y).
They are made with anodised aluminium with calibrated holes and coated with special perforated foam rubber, with two different thicknesses upon request.
They are perfectly interchangeable with the standard suction plates.
Their lifting force was calculated considering a level of vacuum of at least -75 Kpa, the total surface of the holes within the foam rubber and a factor of safety 3.



Item	Force Kg	A	B	C Ø	D Ø	E	F	H	Holes No.	Only rubber item	Weight Kg
PY 15 20	37.7	150	200	40	---	5	15	20	12	Y 15 20	0.39
PY 20 30	75.4	200	300	40	---	5	15	20	24	Y 20 30	0.78
PY 20 40	100.5	200	400	40	---	5	15	20	32	Y 20 40	1.07
PY 20 60	150.8	200	600	40	---	5	15	20	48	Y 20 60	1.66
PY 30 30	113.0	300	300	40	---	5	15	20	36	Y 30 30	1.27
PY 30 40	150.8	300	400	40	---	5	15	20	48	Y 30 40	1.65
PY 30 50	188.4	300	500	40	---	5	15	20	60	Y 30 50	2.04
PY 40 40	201.0	400	400	40	---	5	15	20	64	Y 40 40	2.14
PY 40 60	301.5	400	600	40	---	5	15	20	96	Y 40 60	3.35
PY 40 100	502.4	400	1000	40	---	5	15	20	164	Y 40 100	5.50
PY 60 80	602.9	600	800	40	---	5	15	20	192	Y 60 80	6.61
PY 60 120	904.4	600	1200	40	---	5	15	20	294	Y 60 120	10.01
PY 80 100	1037.3	800	1000	40	---	5	15	20	315	Y 80 100	11.24
PY DO 35	100.5	---	---	40	350	5	15	20	37	Y DO 35	1.25
PY DO 50	213.5	---	---	40	500	5	15	20	79	Y DO 50	2.24
P2Y 15 20	37.7	200	200	40	---	5	30	35	12	2Y 15 20	0.42
P2Y 20 30	75.4	200	300	40	---	5	30	35	24	2Y 20 30	0.85
P2Y 20 40	100.5	200	400	40	---	5	30	35	32	2Y 20 40	1.15
P2Y 20 60	150.8	200	600	40	---	5	30	35	48	2Y 20 60	1.69
P2Y 30 30	113.0	300	300	40	---	5	30	35	36	2Y 30 30	1.30
P2Y 30 40	150.8	300	400	40	---	5	30	35	48	2Y 30 40	1.68
P2Y 30 50	188.4	300	500	40	---	5	30	35	60	2Y 30 50	2.10
P2Y 40 40	201.0	400	400	40	---	5	30	35	64	2Y 40 40	2.29
P2Y 40 60	301.5	400	600	40	---	5	30	35	96	2Y 40 60	3.45
P2Y 40 100	502.4	400	1000	40	---	5	30	35	164	2Y 40 100	5.80
P2Y 60 80	602.9	600	800	40	---	5	30	35	192	2Y 60 80	7.01
P2Y 60 120	904.4	600	1200	40	---	5	30	35	294	2Y 60 120	10.60
P2Y 80 100	1037.3	800	1000	40	---	5	30	35	315	2Y 80 100	11.81
P2Y DO 35	100.5	---	---	40	350	5	30	35	37	2Y DO 35	1.39
P2Y DO 50	213.5	---	---	40	500	5	30	35	79	2Y DO 50	2.36

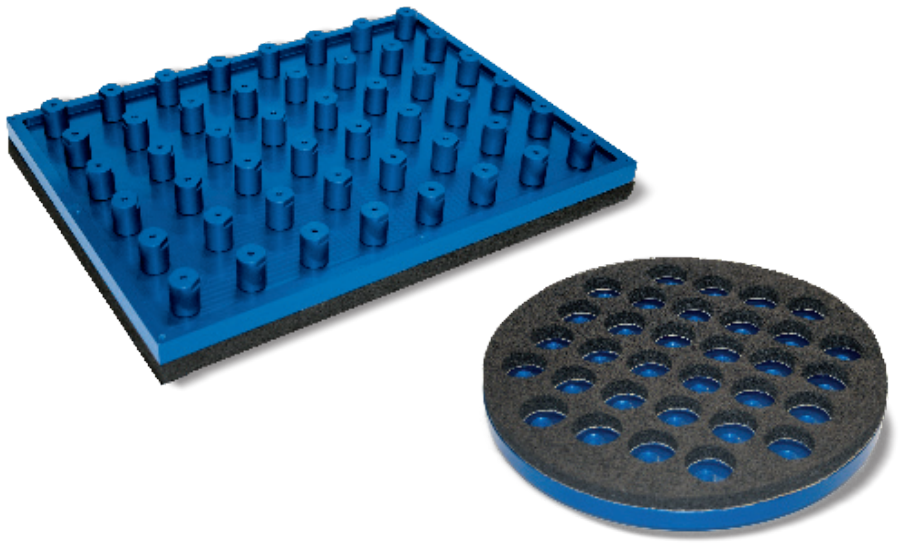




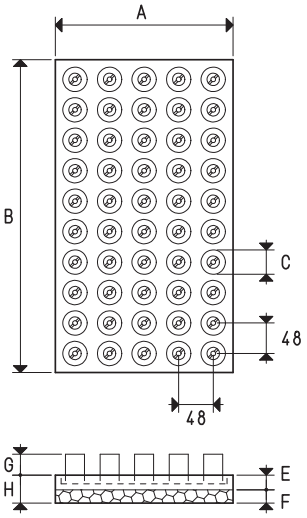
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

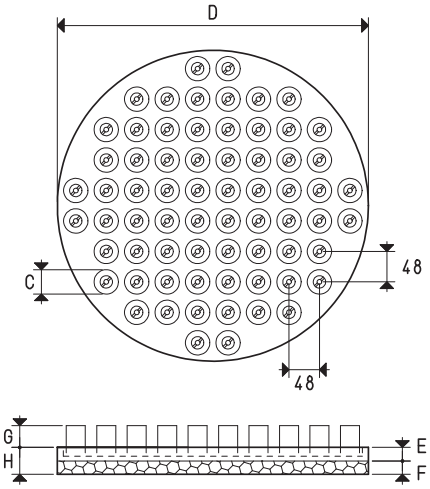
SPECIAL SUCTION PLATES WITH SHUT-OFF VALVES PY2E and P2Y2E FOR OCTOPUS SYSTEMS

The suction plates described on this page are the same as the previously described PY and P2Y, but with the addition of shut-off valves inserted in each hole. In absence of an object to grip or in case of a defective grip of the foam rubber, the shut-off valves automatically close the suction inlet, thus preventing the level of vacuum from decreasing on the other gripping holes.
This feature reduces the vacuum generator flow rate compared to OCTOPUS systems with calibrated holes, to the benefit of energy savings. Also these plates an be used in any position without altering the operating features.



Item	Force Kg	A	B	C Ø	D Ø	E	F	G	H	Valves No.	Only rubber item	Weight Kg
PY2E 20 30	75.4	200	300	40	---	17	15	18	32	24	Y 20 30	1.26
PY2E 20 40	100.5	200	400	40	---	17	15	18	32	32	Y 20 40	1.71
PY2E 20 60	150.8	200	600	40	---	17	15	18	32	48	Y 20 60	2.62
PY2E 30 30	113.0	300	300	40	---	17	15	18	32	36	Y 30 30	1.99
PY2E 30 40	150.8	300	400	40	---	17	15	18	32	48	Y 30 40	2.61
PY2E 30 50	188.4	300	500	40	---	17	15	18	32	60	Y 30 50	3.24
PY2E 40 40	201.0	400	400	40	---	17	15	18	32	64	Y 40 40	3.42
PY2E 40 60	301.5	400	600	40	---	17	15	18	32	96	Y 40 60	5.27
PY2E 40 100	502.4	400	1000	40	---	17	15	18	32	160	Y 40 100	8.70
PY2E 60 80	602.9	600	800	40	---	17	15	18	32	192	Y 60 80	10.45
PY2E 60 120	904.4	600	1200	40	---	17	15	18	32	288	Y 60 120	15.77
PY2E 80 100	1037.3	800	1000	40	---	17	15	18	32	320	Y 80 100	17.64
PY2E DO 35	100.5	---	---	40	350	17	15	18	32	32	Y DO 35	1.89
PY2E DO 50	213.5	---	---	40	500	17	15	18	32	76	Y DO 50	3.76
P2Y2E 20 30	75.4	200	300	40	---	17	30	18	47	24	2Y 20 30	1.33
P2Y2E 20 40	100.5	200	400	40	---	17	30	18	47	32	2Y 20 40	1.79
P2Y2E 20 60	150.8	200	600	40	---	17	30	18	47	48	2Y 20 60	2.65
P2Y2E 30 30	113.0	300	300	40	---	17	30	18	47	36	2Y 30 30	2.02
P2Y2E 30 40	150.8	300	400	40	---	17	30	18	47	48	2Y 30 40	2.64
P2Y2E 30 50	188.4	300	500	40	---	17	30	18	47	60	2Y 30 50	3.30
P2Y2E 40 40	201.0	400	400	40	---	17	30	18	47	64	2Y 40 40	3.57
P2Y2E 40 60	301.5	400	600	40	---	17	30	18	47	96	2Y 40 60	5.37
P2Y2E 40 100	502.4	400	1000	40	---	17	30	18	47	160	2Y 40 100	9.00
P2Y2E 60 80	602.9	600	800	40	---	17	30	18	47	192	2Y 60 80	10.85
P2Y2E 60 120	904.4	600	1200	40	---	17	30	18	47	288	2Y 60 120	16.36
P2Y2E 80 100	1037.3	800	1000	40	---	17	30	18	47	320	2Y 80 100	18.21
P2Y2E DO 35	100.5	---	---	40	350	17	30	18	47	32	2Y DO 35	2.03
P2Y2E DO 50	213.5	---	---	40	500	17	30	18	47	76	2Y DO 50	3.88



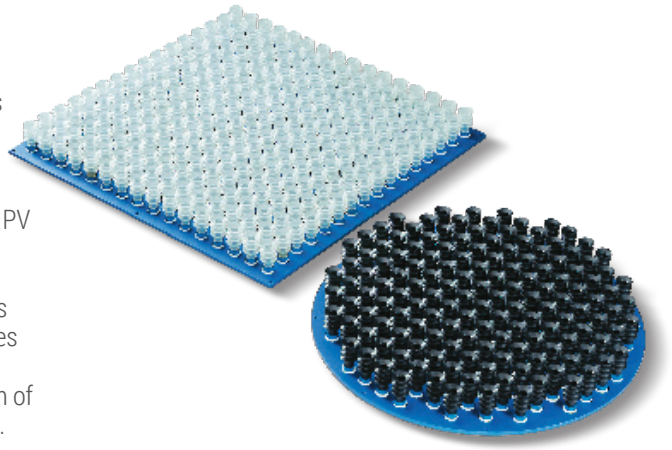


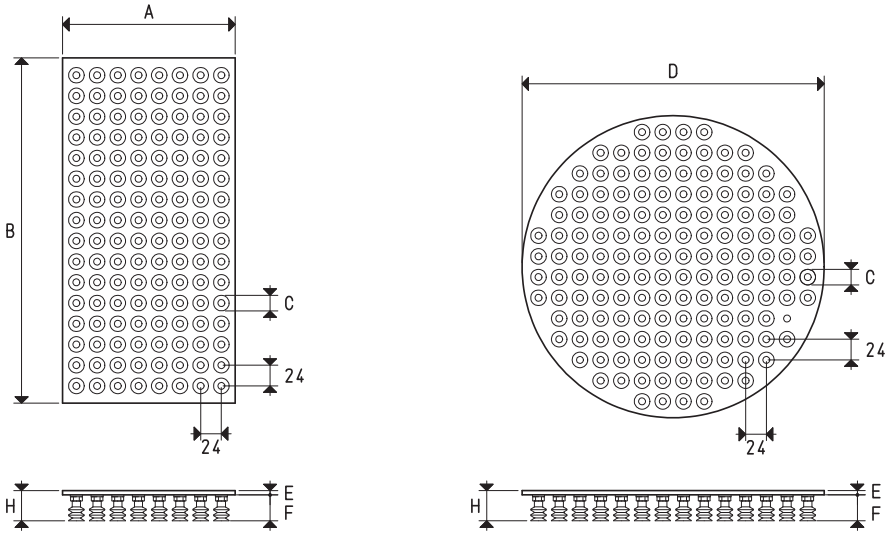
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

3D drawings are available on **vuototecnica.net**

VACUUM CUP SUCTION PLATES PV and PV2 FOR OCTOPUS SYSTEMS

These suction plates provided with vacuum cups have been designed to ensure a better grip on uneven and very flexible surfaces (pasta or candy bags, blister or skin-film packs, thin cardboard boxes, etc.), which are difficult to grip with suction plates coated with foam rubber.
We recommend using bellows cups. Thanks to their great flexibility, they adapt themselves to any gripping surface, following its profiles and movements during the lifting phase, guaranteeing a firm and safe grip.
They are made with anodised aluminium, as are the vacuum cup supports screwed onto them, which are 1/8" gas supports for the PV version and 1/4" gas for the P2V version. They are each equipped with a calibrated hole.
The cups are cold assembled onto the supports with no adhesives and can be provided in other compounds. Also these suction plates are perfectly interchangeable with the standard ones.
Their lifting force has been calculated considering a level of vacuum of at least -75 Kpa, the total vacuum cup surface and a safety factor 3.
Upon request, they can be provided with different cups, as long as the diameter does not exceed 22 mm for the PV suction plates and 45 mm for the P2V ones.



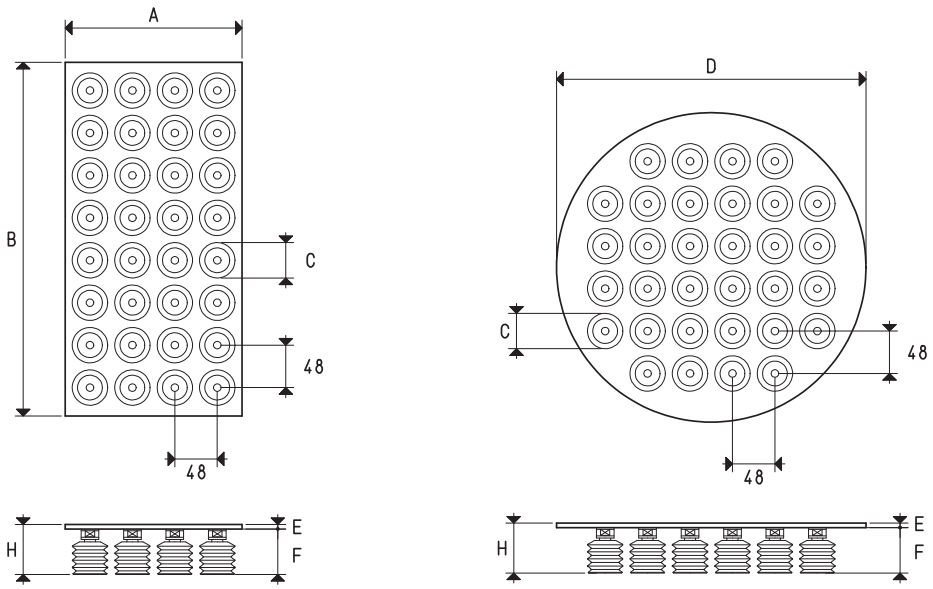


Item	Force Kg	A	B	C Ø	D Ø	E	F	H	Vacuum cup example item	Vacuum cups No.	Weight Kg
PV 15 20	30.2	150	200	18	---	5	36	41	01 18 29	48	0.54
PV 20 30	60.5	200	300	18	---	5	36	41	01 18 29	96	1.13
PV 20 40	80.6	200	400	18	---	5	36	41	01 18 29	128	1.54
PV 20 60	121.0	200	600	18	---	5	36	41	01 18 29	192	2.37
PV 30 30	90.7	300	300	18	---	5	36	41	01 18 29	144	1.80
PV 30 40	121.0	300	400	18	---	5	36	41	01 18 29	192	2.37
PV 30 50	151.2	300	500	18	---	5	36	41	01 18 29	240	2.94
PV 40 40	167.0	400	400	18	---	5	36	41	01 18 29	256	3.09
PV 40 60	242.0	400	600	18	---	5	36	41	01 18 29	384	4.74
PV 40 100	413.3	400	1000	18	---	5	36	41	01 18 29	656	7.89
PV 60 80	483.9	600	800	18	---	5	36	41	01 18 29	768	9.38
PV 60 120	740.8	600	1200	18	---	5	36	41	01 18 29	1176	14.21
PV 80 100	852.4	800	1000	18	---	5	36	41	01 18 29	1353	16.03
PV DO 35	93.2	---	---	18	350	5	36	41	01 18 29	148	1.81
PV DO 50	194.0	---	---	18	500	5	36	41	01 18 29	300	3.37

NOTE: The code PV .. .. only identifies the suction plate with the relative supports for the vacuum cups screwed onto it.
The vacuum cups indicated in the table or those chosen freely are not included with the suction plate and therefore must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

VACUUM CUP SUCTION PLATES PV2 FOR OCTOPUS SYSTEMS



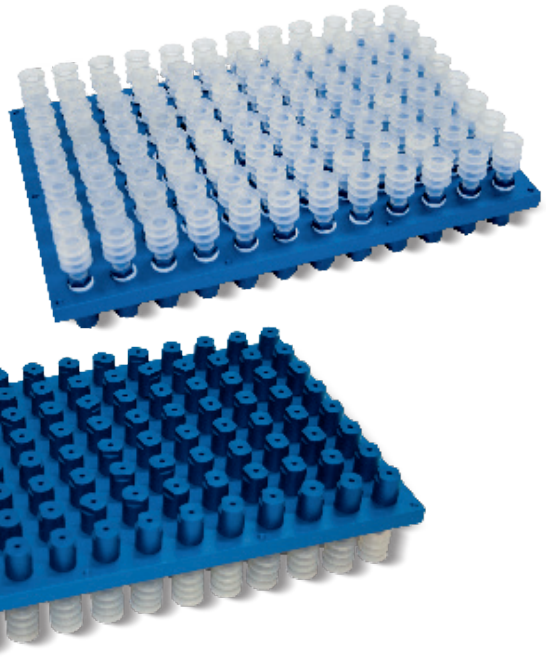
Item	Force Kg	A	B	C Ø	D Ø	E	F	H	Vacuum cup example item	Vacuum cups No.	Weight Kg
P2V 15 20	37.7	150	200	40	---	5	51.5	56.5	01 40 42	12	0.56
P2V 20 30	75.4	200	300	40	---	5	51.5	56.5	01 40 42	24	1.12
P2V 20 40	100.5	200	400	40	---	5	51.5	56.5	01 40 42	32	1.67
P2V 20 60	150.8	200	600	40	---	5	51.5	56.5	01 40 42	48	2.24
P2V 30 30	113.0	300	300	40	---	5	51.5	56.5	01 40 42	36	1.68
P2V 30 40	150.8	300	400	40	---	5	51.5	56.5	01 40 42	48	2.24
P2V 30 50	188.4	300	500	40	---	5	51.5	56.5	01 40 42	60	2.80
P2V 40 40	201.0	400	400	40	---	5	51.5	56.5	01 40 42	64	3.34
P2V 40 60	301.5	400	600	40	---	5	51.5	56.5	01 40 42	96	4.48
P2V 40 100	502.4	400	1000	40	---	5	51.5	56.5	01 40 42	160	8.35
P2V 60 80	602.9	600	800	40	---	5	51.5	56.5	01 40 42	192	8.96
P2V 60 120	904.3	600	1200	40	---	5	51.5	56.5	01 40 42	288	13.44
P2V 80 100	1004.8	800	1000	40	---	5	51.5	56.5	01 40 42	320	16.70
P2V DO 35	100.5	---	---	40	350	5	51.5	56.5	01 40 42	32	1.67
P2V DO 50	213.5	---	---	40	500	5	51.5	56.5	01 40 42	76	3.17

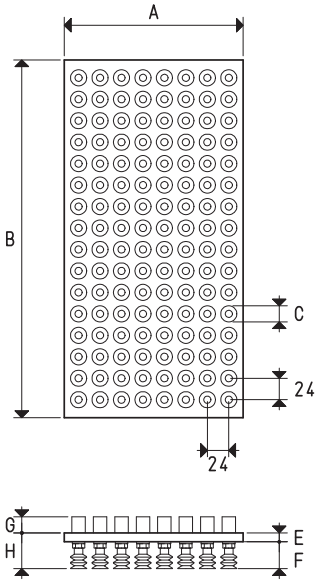
NOTE: The code P2V .. .. only identifies the suction plate with the relative supports for the vacuum cups screwed onto it.
The vacuum cups indicated in the table or those chosen freely are not included with the suction plate and therefore must be ordered separately.

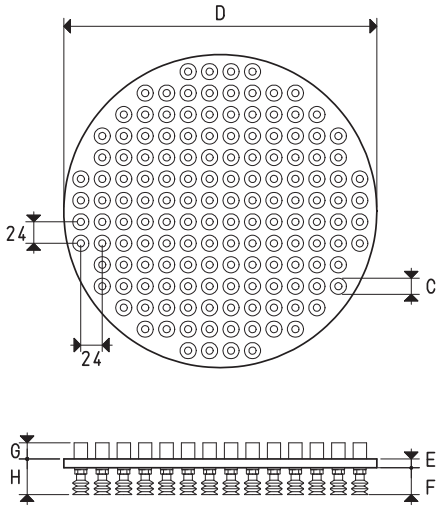
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

VACUUM CUP SUCTION PLATES WITH SHUT-OFF VALVES PVE and P2V2E FOR OCTOPUS SYSTEMS

The suction plates described on this page are the same as the previously described PY and P2V, but with the addition of shut-off valves inserted in each vacuum cup support connection. In absence of an object to grip or in case of a defective grip of the cup, the shut-off valves automatically close the suction inlet, thus preventing the level of vacuum from decreasing on the other gripping vacuum cups. This feature reduces the vacuum generator flow rate compared to OCTOPUS systems with calibrated holes, to the benefit of energy savings. Also these plates an be used in any position without compromising correct operation.





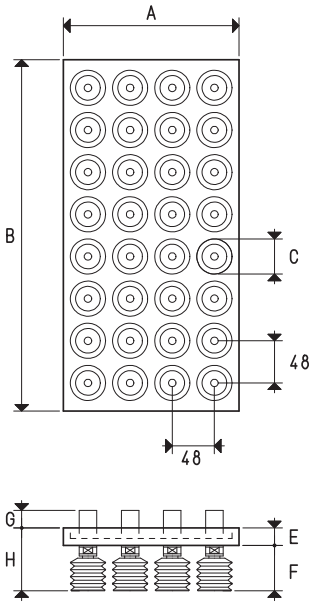


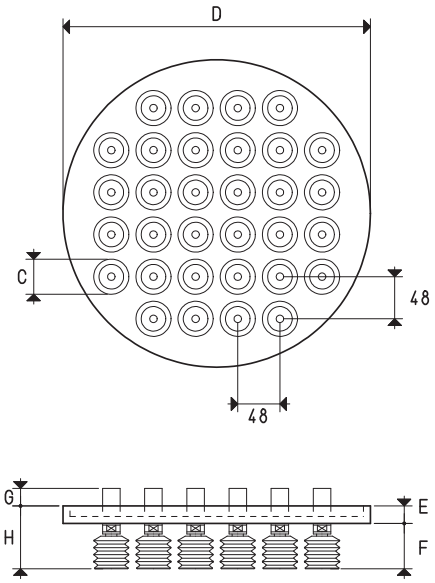
Item	Force Kg	A	B	C Ø	D Ø	E	F	G	H	Vacuum cup example item	Valves and vacuum cups No.	Weight Kg
PVE 20 30	60.5	200	300	18	---	10	36	18	46	01 18 29	96	2.09
PVE 20 40	80.6	200	400	18	---	10	36	18	46	01 18 29	128	2.82
PVE 20 60	121.0	200	600	18	---	10	36	18	46	01 18 29	192	4.18
PVE 30 30	90.7	300	300	18	---	10	36	18	46	01 18 29	144	3.24
PVE 30 40	121.0	300	400	18	---	10	36	18	46	01 18 29	192	4.18
PVE 30 50	151.2	300	500	18	---	10	36	18	46	01 18 29	240	6.27
PVE 40 40	167.0	400	400	18	---	10	36	18	46	01 18 29	256	5.64
PVE 40 60	242.0	400	600	18	---	10	36	18	46	01 18 29	384	8.36
PVE 40 100	413.3	400	1000	18	---	10	36	18	46	01 18 29	656	14.45
PVE 60 80	483.9	600	800	18	---	10	36	18	46	01 18 29	768	17.06
PVE 60 120	740.8	600	1200	18	---	10	36	18	46	01 18 29	1176	25.97
PVE 80 100	852.4	800	1000	18	---	10	36	18	46	01 18 29	1353	29.56
PVE DO 35	93.2	---	---	18	350	10	36	18	46	01 18 29	148	3.29
PVE DO 50	194.0	---	---	18	500	10	36	18	46	01 18 29	308	6.45

NOTE: The code PVE .. .. only identifies the suction plate with the relative supports for the vacuum cups screwed onto it and the built-in shut-off valves.
The vacuum cups indicated in the table or those chosen freely are not included with the suction plate and therefore must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

VACUUM CUP SUCTION PLATES WITH SHUT-OFF VALVES P2V2E FOR OCTOPUS SYSTEMS





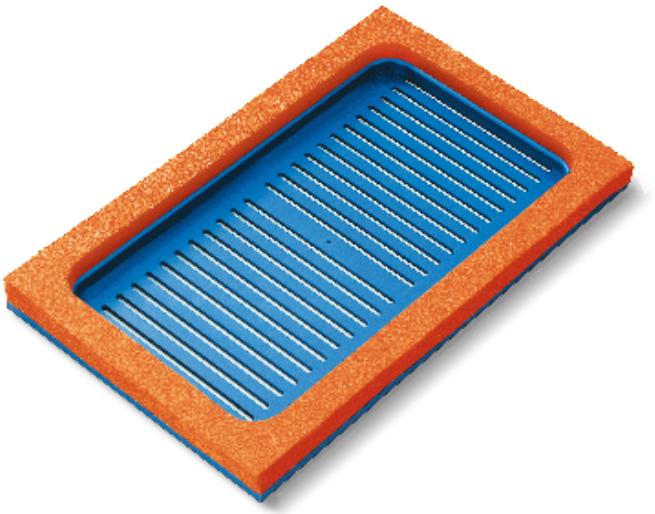
Item	Force Kg	A	B	C Ø	D Ø	E	F	G	H	Vacuum cup example item	Valves and vacuum cups No.	Weight Kg
P2V2E 20 30	75.4	200	300	40	---	17	51.5	18	68.5	01 40 42	24	1.60
P2V2E 20 40	100.5	200	400	40	---	17	51.5	18	68.5	01 40 42	32	2.31
P2V2E 20 60	150.8	200	600	40	---	17	51.5	18	68.5	01 40 42	48	3.20
P2V2E 30 30	113.0	300	300	40	---	17	51.5	18	68.5	01 40 42	36	2.40
P2V2E 30 40	150.8	300	400	40	---	17	51.5	18	68.5	01 40 42	48	3.20
P2V2E 30 50	188.4	300	500	40	---	17	51.5	18	68.5	01 40 42	60	4.00
P2V2E 40 40	201.0	400	400	40	---	17	51.5	18	68.5	01 40 42	64	4.62
P2V2E 40 60	301.5	400	600	40	---	17	51.5	18	68.5	01 40 42	96	6.40
P2V2E 40 100	502.4	400	1000	40	---	17	51.5	18	68.5	01 40 42	160	11.55
P2V2E 60 80	602.9	600	800	40	---	17	51.5	18	68.5	01 40 42	192	12.80
P2V2E 60 120	904.3	600	1200	40	---	17	51.5	18	68.5	01 40 42	288	19.20
P2V2E 80 100	1004.8	800	1000	40	---	17	51.5	18	68.5	01 40 42	320	23.10
P2V2E DO 35	100.5	---	---	40	350	17	51.5	18	68.5	01 40 42	32	2.31
P2V2E DO 50	213.5	---	---	40	500	17	51.5	18	68.5	01 40 42	76	4.53

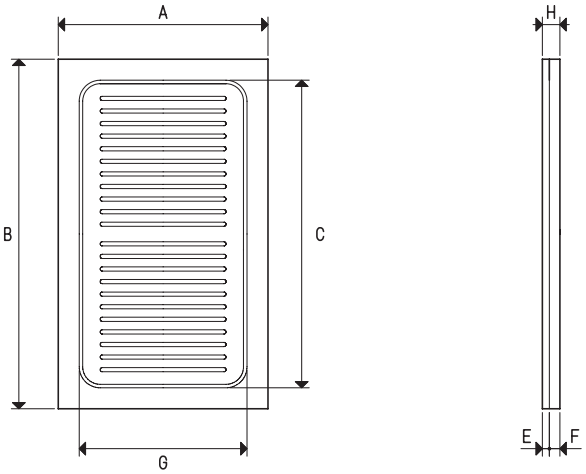
NOTE: The code P2V2E .. .. only identifies the suction plate with the relative supports for the vacuum cups screwed onto it and the built-in shut-off valves.
The vacuum cups indicated in the table or those chosen freely are not included with the suction plate and therefore must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

BAG GRIPPING SUCTION PLATES PJ FOR OCTOPUS SYSTEMS

These suction plates have been designed to allow gripping paper or plastic bags containing powders, granulated products, bulk products or liquids. These suction plates are associated with OCTOPUS systems that fully exploit their performance. They are made with anodised aluminium and are provided with a special foam rubber seal. They are perfectly interchangeable with the OCTOPUS system standard suction plates. The special shapes of the seal and the face allow reducing bag deformation during gripping, reducing vacuum loss to a minimum and guaranteeing the largest gripping surface possible.
Their lifting force has been calculated considering a level of vacuum of at least -75 Kpa, the total gripping surface enclosed in the seal and a safety factor 3.





Item	Force Kg	A	B	C	E	F	G	H	Only rubber item	Weight Kg
PJ 07 12	4.0	70	120	100	5.0	15	50	15.0	J 07 12	0.09
PJ 08 08	3.0	80	80	60	5.0	15	60	15.0	J 08 08	0.08
PJ 15 20	24.6	150	200	170	7.5	15	120	22.5	J 15 20	0.46
PJ 20 30	73.4	200	300	240	10.0	30	140	40.0	J 20 30	0.92
PJ 20 40	106.0	200	400	330	10.0	30	130	40.0	J 20 40	1.25
PJ 20 60	171.0	200	600	530	10.0	30	130	40.0	J 20 60	1.84
PJ 30 40	188.4	300	400	330	10.0	30	230	40.0	J 30 40	1.84
PJ 30 50	246.0	300	500	430	10.0	30	230	40.0	J 30 50	2.30
PJ 40 60	436.0	400	600	530	10.0	30	330	40.0	J 40 60	3.68

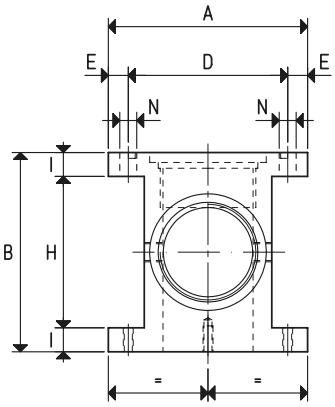
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

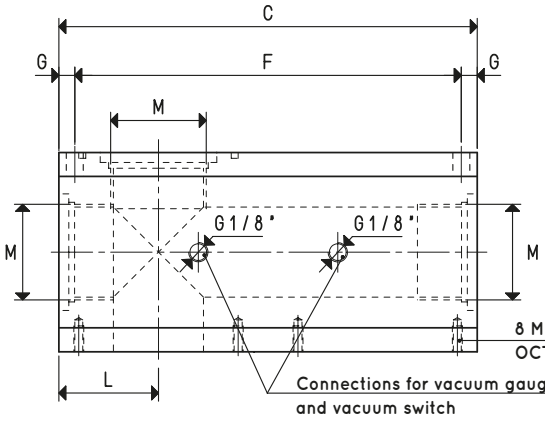
FLANGE FIXING SUPPORT FOR OCTOPUS SYSTEMS WITHOUT VACUUM GENERATOR

The fixing supports described on this page have been designed to connect an OCTOPUS system to a remotely installed vacuum generator or to an alternative vacuum source.
The supports, made with anodised aluminium, have two flanges: one to be fixed on the OCTOPUS system in the place of the generator and the other on the machine.
They are also equipped with connections for direct connection to the OCTOPUS system, to the generator or to the alternative vacuum source and to the instruments for reading and control of the level of vacuum. The unused connections can be closed with the metal caps provided.
The flange supports are currently available in the versions shown on this page and are suitable for OCTOPUS systems that use the vacuum generators indicated to beside the item:

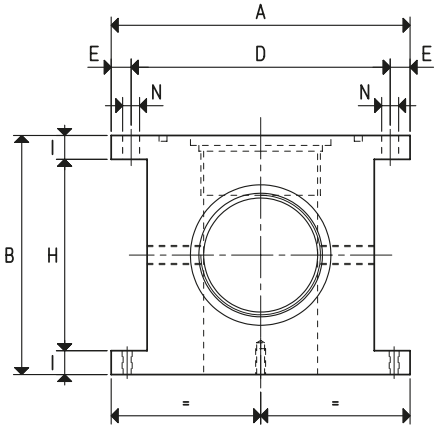
- Item SO 00 02 PVP 100 ÷ 200M
- Item SO 00 05 PVP 150 ÷ 300MD
- Item SO 00 06 PVP 450 MD

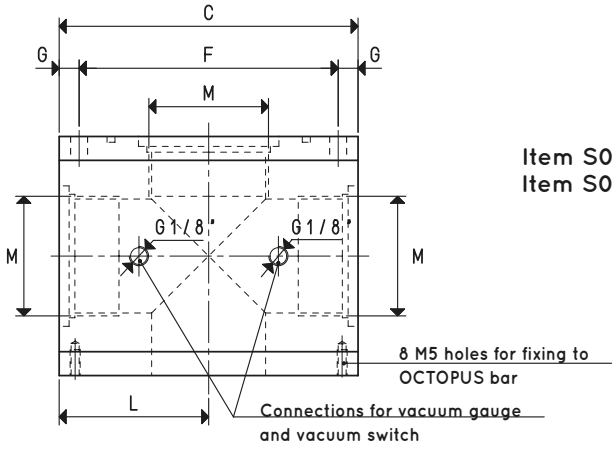
NOTE: The vacuum gauges and vacuum switches shown in the photo are not included with the supports.





Item SO 00 02





Item SO 00 05
Item SO 00 06

Item	A	B	C	D	E	F	G	H	I	L	M Ø	N Ø	Weight Kg
SO 00 02	100	100	210	80	10	194	8	76	12	50	G1" 1/2	8.5	2.8
SO 00 05	150	120	150	130	10	134	8	96	12	75	G2"	8.5	4.2
SO 00 06	150	145	150	130	10	134	8	121	12	75	G2" 1/2	8.5	4.3

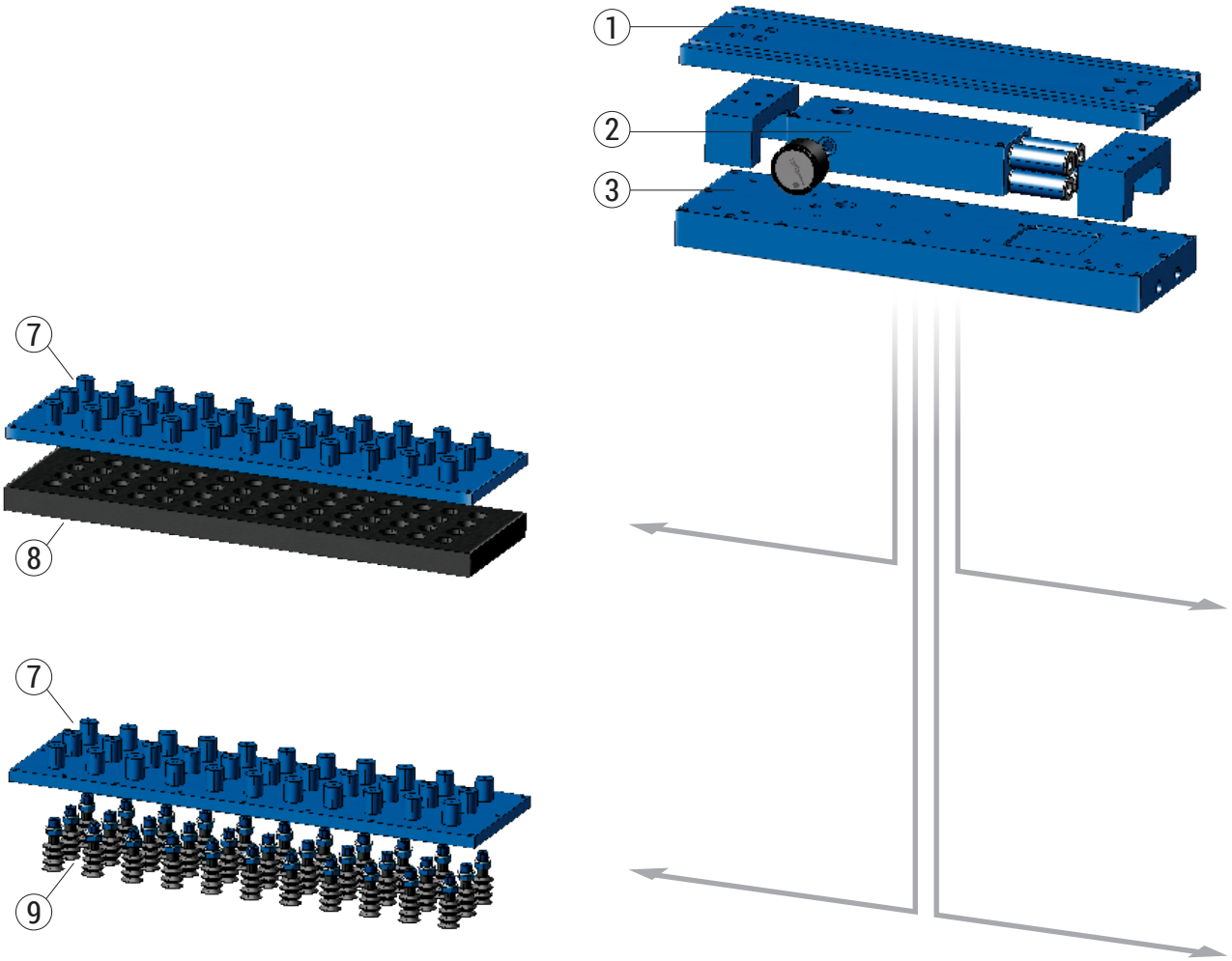
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

$$\text{inch} = \frac{\text{mm}}{25.4} \; ; \; \text{pounds} = \frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$$

OCTOPUS VACUUM GRIPPING BARS - GENERAL DESCRIPTION

These bars have been created to further facilitate the installation of OCTOPUS vacuum gripping systems on palletising robots. They are based on the same operating principle and, in addition to the advantages and technical features of the standard OCTOPUS, are equipped with a grooved support plate to allow quick installation on the machine and easy positioning with respect to the load to be gripped.
They are in fact composed of:
- A slotted anodised aluminium fixing plate for quick installation onto the machine;
- One or more compressed air-fed vacuum generators, depending on their size;
- A connection equipped with quick coupling for feeding compressed air to the generators;
- An anodised aluminium box, open on one side, with two air inlet connections inside at the end of the cycle, for quick restoration of the atmospheric pressure and one for possible installation of a vacuum switch;
- A suction plate sealing the box, also made with anodised aluminium, with calibrated holes equidistant from each other and coated with a special perforated foam rubber. This suction plate can thus perfectly adapt to any gripping surface, whether it be smooth, rough or irregular. With the same bar, for example, it is possible to grip and move wooden joists or metal profiles and the pallet that supports them.

The OCTOPUS gripping bars described so far are the standard bars: they can be supplied upon request with suction plates and with shut-off valves and, to make them even lighter, the aluminium parts can be made of Polizene, a thermoplastic material that decreases the weight by about 40%.



COMPOSITION OF THE OCTOPUS GRIPPING BARS

The OCTOPUS gripping bars are composed of:

(1) A grooved support plate made of anodised aluminium for rapid installation on the machine and easy positioning with respect to the load to be picked up.

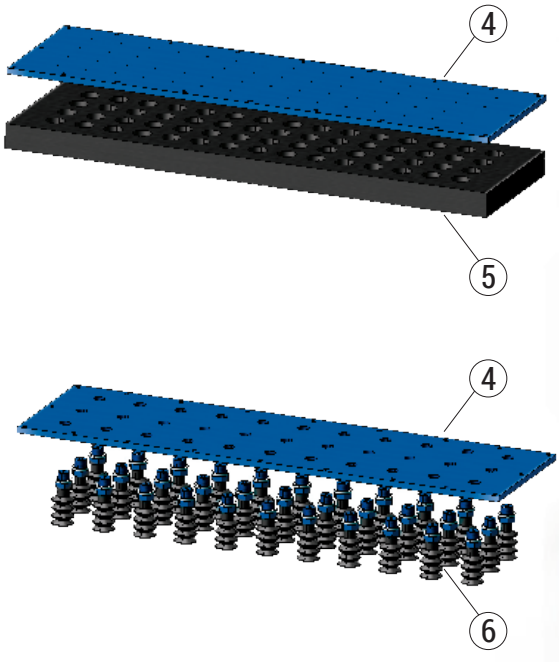
(2) One or more compressed air-fed vacuum generators, depending on the size of the bars.

(3) An anodised aluminium box, open on one side, with two air inlet connections inside at the end of the cycle, for quick restoration of the atmospheric pressure and one for possible installation of a vacuum switch.

(4) A micro-perforated anodised aluminium suction plate to close the bar body, coated with special perforated foam rubber (5), with 15 mm diameter holes, axial to the calibrated holes of the plate, with thickness 20 mm **(PX)** or 30 mm **(P2X)** or with bellows (6) vacuum cups 18 mm **(PV)**.

Or:

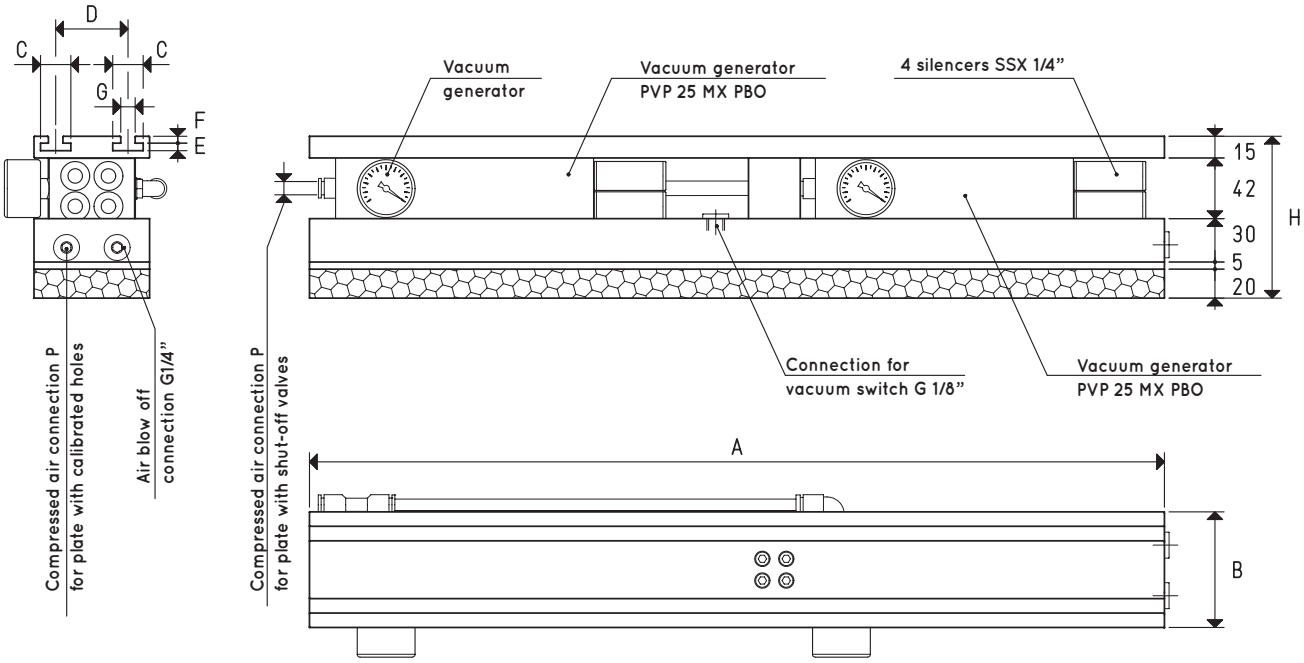
(7) A suction plate with shut-off valves coated with foam rubber (8), with 15 mm diameter holes, thickness 20 mm **(PXE)** or 30 mm **(P2XE)** or with vacuum cups (9) diameter 18 mm **(PVE)**.



OCTOPUS VACUUM GRIPPING BARS

The OCTOPUS gripping bar is a vacuum gripping device equipped with two or more compressed air-fed vacuum generators (included in the item code).
It is composed of:
- Main body in anodised aluminium;
- Anodised aluminium suction plate with evenly spaced calibrated holes and covered with perforated foam rubber, which ensures adaptability to smooth, rough or uneven surfaces;
- Two or more vacuum generators equipped with vacuum gauge and exhaust silencers;
- Two quick couplings for pneumatic supply and blow off;
- A grooved bar to facilitate fastening to the automation.

OCTOPUS gripping bars can be supplied upon request in dimensions and with suction plates and vacuum generators other than those indicated in the table.



Item		BO 08 60 X	BO 08 80 X	BO 08 100 X
Suction plate	item	PX 08 60	PX 08 80	PX 08 100
Gripping force	Kg	31.7	42.2	54.1
Vacuum generators (integrated)	item	N°2 PVP 25 MX PBO	N°2 PVP 25 MX PBO	N°2 PVP 25 MX PBO
Maximum supply pressure	bar	6	6	6
Maximum level of vacuum	-KPa	90	90	90
Air consumption at 6 bar	Nl/s	6.4	6.4	6.4
Intake air flow rate	m^3/h	62	62	62
Temperature of use	°C	-20 / +80	-20 / +80	-20 / +80
Weight (including vacuum generator/s)	Kg	6	8	10
A		600	800	1000
B		80	80	80
C		21	21	21
D		50	50	50
E		5.2	5.2	5.2
F		4.8	4.8	4.8
G		10	10	10
H		112	112	112
P Connection for compressed air tube	Ø ext.	8	8	8

NOTE: The code BO 08 .. X identifies the body of the OCTOPUS bar with relative suction plate PX, the grooved support plate and the vacuum generators indicated in the table.
Add the letters CD to the item for an Octopus bar supplied without vacuum generators and with closing plates with distributor item 00 BO 07 assembled (Example: BO 08 80 X CD).

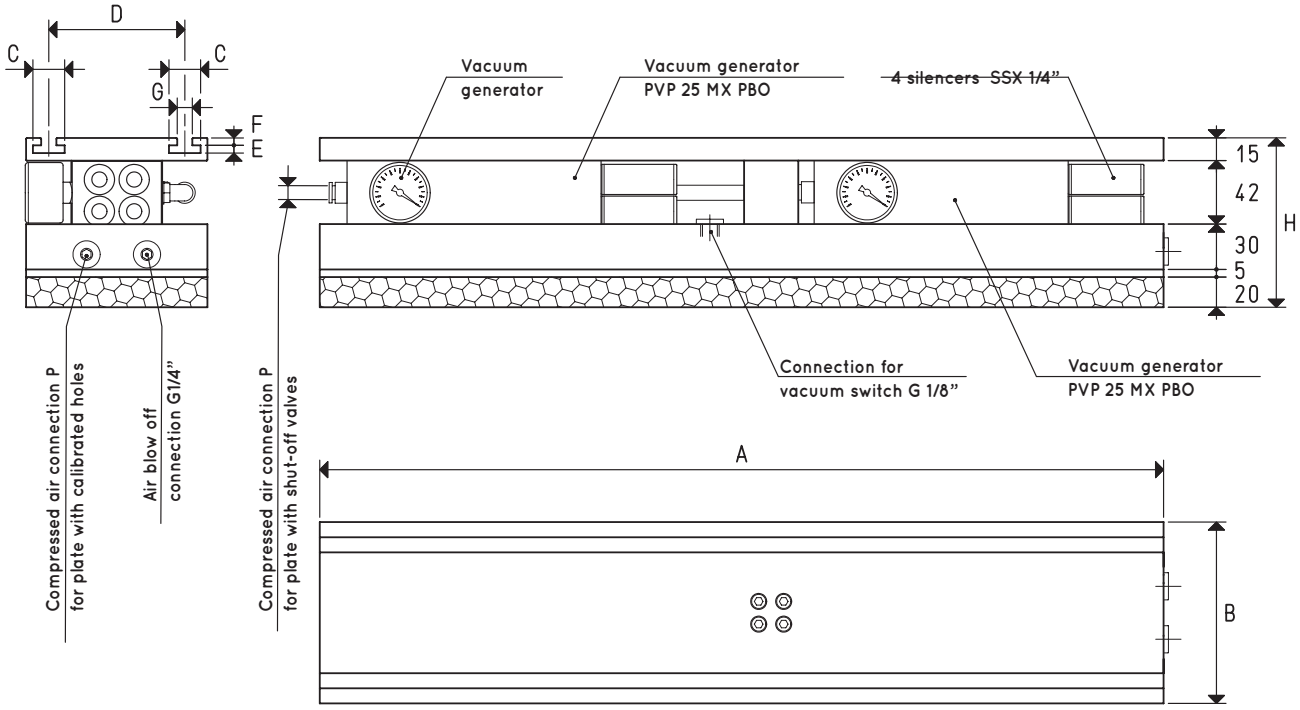
NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

OCTOPUS VACUUM GRIPPING BARS

The OCTOPUS gripping bar is a vacuum gripping device equipped with two or more compressed air-fed vacuum generators (included in the item code).
It is composed of:
- Main body in anodised aluminium;
- Anodised aluminium suction plate with evenly spaced calibrated holes and covered with perforated foam rubber, which ensures adaptability to smooth, rough or uneven surfaces;
- Two or more vacuum generators equipped with vacuum gauge and exhaust silencers;
- Two quick couplings for pneumatic supply and blow off;
- A grooved bar to facilitate fastening to the automation.

OCTOPUS gripping bars can be supplied upon request in dimensions and with suction plates and vacuum generators other than those indicated in the table.



Item		BO 12 40 X	BO 12 60 X	BO 12 80 X
Suction plate	item	PX 12 40	PX 12 60	PX 12 80
Gripping force	Kg	25.7	42.2	56.3
Vacuum generators (integrated)	item	N°1 PVP 25 MX PBO	N°2 PVP 25 MX PBO	N°2 PVP 25 MX PBO
Maximum supply pressure	bar	6	6	6
Maximum level of vacuum	-KPa	90	90	90
Air consumption at 6 bar	Nl/s	3.2	6.4	6.4
Intake air flow rate	m^3/h	31	62	62
Temperature of use	°C	-20 / +80	-20 / +80	-20 / +80
Weight (including vacuum generator/s)	Kg	4.5	8.1	10.8
A		400	600	800
B		120	120	120
C		21	21	21
D		90	90	90
E		5.2	5.2	5.2
F		4.8	4.8	4.8
G		10	10	10
H		112	112	112
P Connection for compressed air tube	Ø ext.	8	8	8

NOTE: The code BO 12 .. X identifies the body of the OCTOPUS bar with relative suction plate PX, the grooved support plate and the vacuum generators indicated in the table.
Add the letters CD to the item for an Octopus bar supplied without vacuum generators and with closing plates with distributor item 00 BO 07 assembled (Example: BO 12 60 X CD).

NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

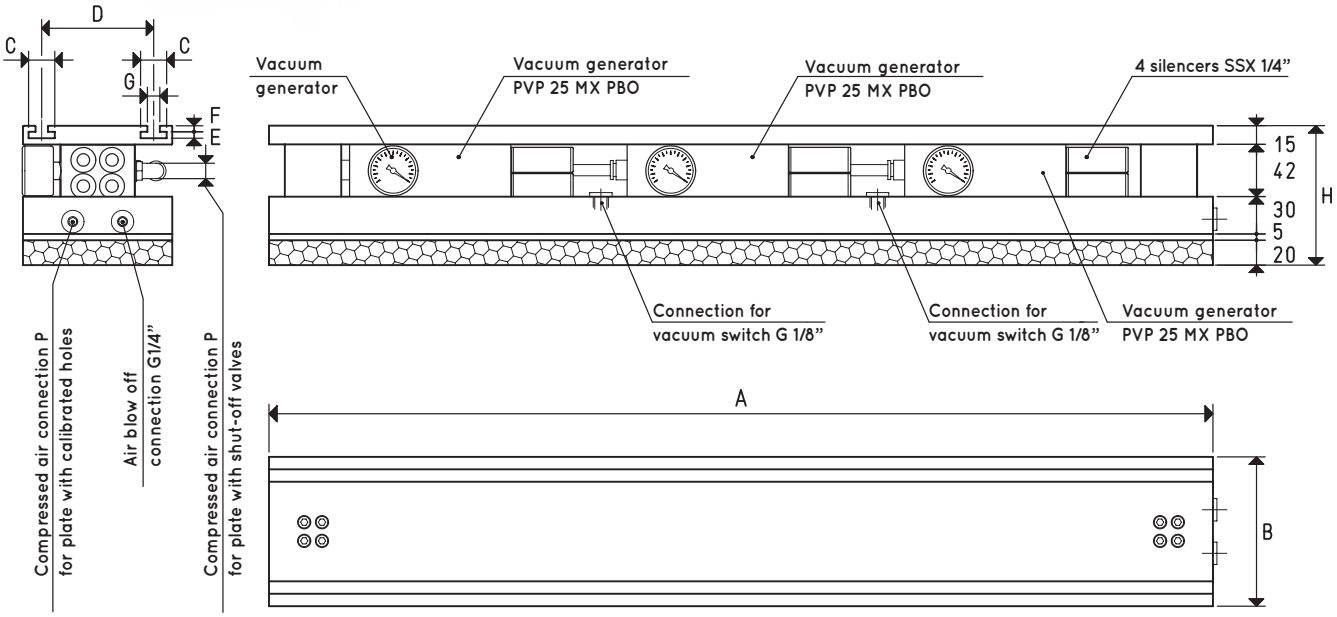
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

3D drawings are available on **vuototecnica.net**

OCTOPUS VACUUM GRIPPING BARS

The OCTOPUS gripping bar is a vacuum gripping device equipped with two or more compressed air-fed vacuum generators (included in the item code).
It is composed of:
- Main body in anodised aluminium;
- Anodised aluminium suction plate with evenly spaced calibrated holes and covered with perforated foam rubber, which ensures adaptability to smooth, rough or uneven surfaces;
- Two or more vacuum generators equipped with vacuum gauge and exhaust silencers;
- Two quick couplings for pneumatic supply and blow off;
- A grooved bar to facilitate fastening to the automation.

OCTOPUS gripping bars can be supplied upon request in dimensions and with suction plates and vacuum generators other than those indicated in the table.



Item		BO 12 100 X	BO 08 120 X	BO 12 120 X	BO 12 140 X
Suction plate	item	PX 12 100	PX 08 120	PX 12 120	PX 12 140
Gripping force	Kg	72.2	64.7	86.2	100.3
Vacuum generators (integrated)	item	N°3 PVP 25 MX PBO	N°3 PVP 25 MX PBO	N°3 PVP 25 MX PBO	N°4 PVP 25 MX PBO
Maximum supply pressure	bar	6	6	6	6
Maximum level of vacuum	-KPa	90	90	90	90
Air consumption at 6 bar	Nl/s	9.6	9.6	9.6	12.8
Intake air flow rate	m^3/h	93	93	93	124
Temperature of use	°C	-20 / +80	-20 / +80	-20 / +80	-20 / +80
Weight (including vacuum generator/s)	Kg	14.5	13	17.4	20.8
A		1000	1200	1200	1400
B		120	80	120	120
C		21	21	21	21
D		90	50	90	90
E		5.2	5.2	5.2	5.2
F		4.8	4.8	4.8	4.8
G		10	10	10	10
H		112	112	112	112
P Connection for compressed air tube	Ø ext.	8	8	8	8

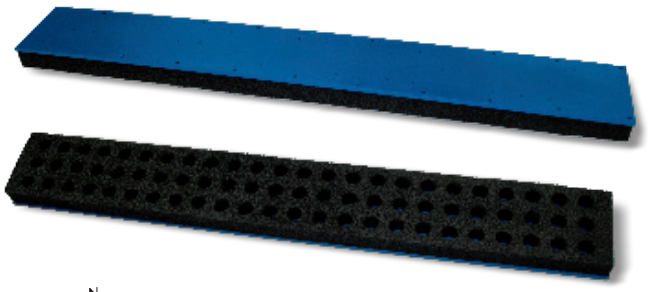
NOTE: The code BO .. .. X identifies the body of the OCTOPUS bar with relative suction plate PX, the grooved support plate and the vacuum generators indicated in the table.
Add the letters CD to the item for an Octopus bar supplied without vacuum generators and with closing plates with distributor item 00 BO 07 assembled (Example: BO 12 100 X CD).

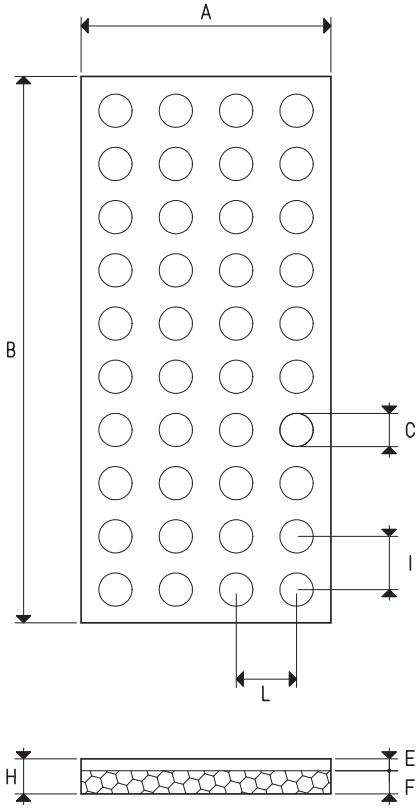
NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

STANDARD SUCTION PLATES PX and P2X FOR OCTOPUS GRIPPING BARS

The suction plates PX described on this page are installed as standard on all OCTOPUS gripping bars and, therefore, can be supplied as a spare or replacement part.
They are made with anodised aluminium sheets with calibrated holes equidistant from each other and coated with a special perforated foam rubber with two different thicknesses: 20 mm for suction plates of the PX range and 30 mm for special plates P2X. Their lifting force was calculated considering a level of vacuum of at least -75 Kpa, the total surface of the holes within the foam rubber and a factor of safety 3.



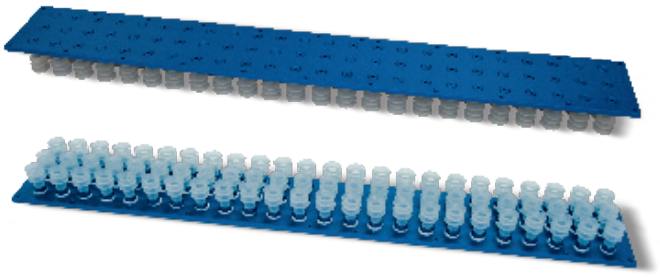


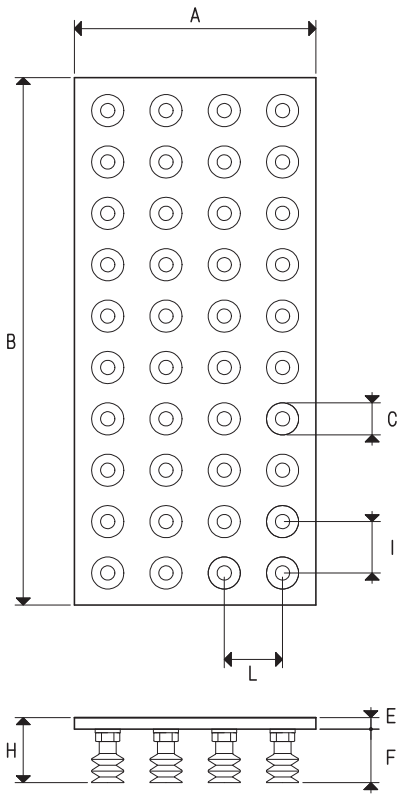
Item	Force Kg	A	B	C Ø	E	F	H	Holes No.	I	L	Only rubber item	Weight Kg
PX 08 60	31.7	80	600	15	5	20	25	72	24	24	00 BO 12	0.70
PX 08 80	42.2	80	800	15	5	20	25	96	24	24	00 BO 18	0.94
PX 08 100	54.1	80	1000	15	5	20	25	123	24	24	00 BO 97	1.06
PX 08 120	64.7	80	1200	15	5	20	25	147	24	24	00 BO 101	1.12
PX 12 40	25.7	120	400	20	5	20	25	33	34	35	00 BO 68	0.70
PX 12 60	42.2	120	600	15	5	20	25	96	24	24	00 BO 27	1.06
PX 12 80	56.3	120	800	15	5	20	25	128	24	24	00 BO 05	1.41
PX 12 100	72.2	120	1000	15	5	20	25	164	24	24	00 BO 36	1.75
PX 12 120	86.2	120	1200	15	5	20	25	196	24	24	00 BO 40	2.11
PX 12 140	100.3	120	1400	15	5	20	25	228	24	24	00 BO 63	2.47
P2X 08 60	31.7	80	600	15	5	30	35	72	24	24	00 BO 79	0.72
P2X 08 80	42.2	80	800	15	5	30	35	96	24	24	00 BO 80	0.96
P2X 08 100	54.1	80	1000	15	5	30	35	123	24	24	00 BO 106	1.10
P2X 08 120	64.7	80	1200	15	5	30	35	147	24	24	00 BO 107	1.18
P2X 12 40	25.7	120	400	20	5	30	35	33	34	35	00 BO 81	0.78
P2X 12 60	42.2	120	600	15	5	30	35	96	24	24	00 BO 82	1.10
P2X 12 80	56.3	120	800	15	5	30	35	128	24	24	00 BO 83	1.45
P2X 12 100	72.2	120	1000	15	5	30	35	164	24	24	00 BO 84	1.80
P2X 12 120	86.2	120	1200	15	5	30	35	196	24	24	00 BO 85	2.17
P2X 12 140	100.3	120	1400	15	5	30	35	228	24	24	00 BO 86	2.54

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

VACUUM CUP SUCTION PLATES PV FOR OCTOPUS GRIPPING BARS

These suction plates provided with vacuum cups have been designed to ensure a better grip on uneven and very flexible surfaces (pasta or candy bags, blister or skin-film packs, thin cardboard boxes, etc.), which are difficult to grip with suction plates coated with foam rubber.
We recommend using bellows cups. Thanks to their great flexibility, they adapt themselves to any gripping surface, following its profiles and movements during the lifting phase, guaranteeing a firm and safe grip.
They are made with anodised aluminium, as are the vacuum cup supports screwed onto them, which are 1/8" gas supports and are each equipped with a calibrated hole.
The cups are cold assembled onto the supports with no adhesives and can be provided in other compounds. Also these suction plates are perfectly interchangeable with the standard ones.
Their lifting force has been calculated considering a level of vacuum of at least -75 Kpa, the total vacuum cup gripping surface and a safety factor 3.
They can be supplied upon request with different vacuum cups, provided that their diameter is no larger than 22 mm.





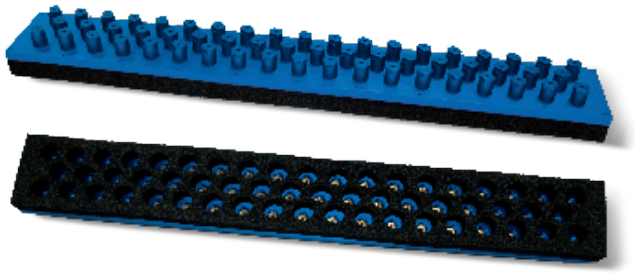
Item	Force Kg	A	B	C Ø	E	F	H	Vacuum cup example item	I	L	Vacuum cups No.	Weight Kg
PV 08 60	45.4	80	600	18	5	36	41	01 18 29	24	24	72	0.83
PV 08 80	60.5	80	800	18	5	36	41	01 18 29	24	24	96	1.26
PV 08 100	75.6	80	1000	18	5	36	41	01 18 29	24	24	120	1.52
PV 08 120	92.6	80	1200	18	5	36	41	01 18 29	24	24	147	1.82
PV 12 40	20.8	120	400	18	5	36	41	01 18 29	34	35	33	1.14
PV 12 60	60.5	120	600	18	5	36	41	01 18 29	24	24	96	1.42
PV 12 80	80.6	120	800	18	5	36	41	01 18 29	24	24	128	1.90
PV 12 100	100.8	120	1000	18	5	36	41	01 18 29	24	24	160	2.37
PV 12 120	121.0	120	1200	18	5	36	41	01 18 29	24	24	192	2.84
PV 12 140	143.7	120	1400	18	5	36	41	01 18 29	24	24	228	3.40

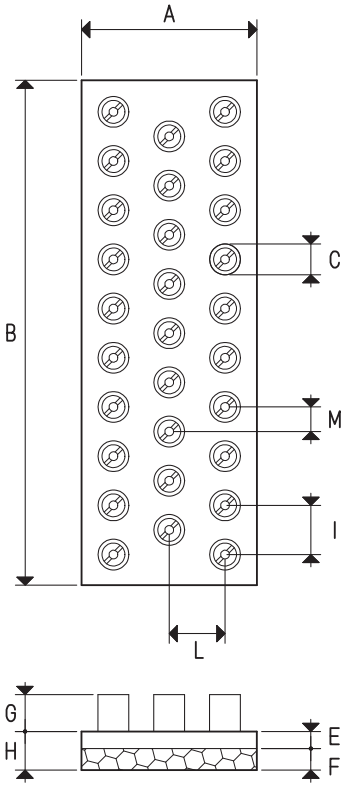
NOTE: The code PV .. .. only identifies the suction plate with the relative supports for the vacuum cups screwed onto it.
The vacuum cups indicated in the table or those chosen freely are not included with the suction plate and therefore must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SUCTION PLATES WITH SHUT-OFF VALVES PXE and P2XE FOR OCTOPUS GRIPPING BARS

The suction plates described on this page are the same as the previously described PX and P2X, but with the addition of shut-off valves inserted in each hole. In absence of an object to grip or in case of a defective grip of the foam rubber, the shut-off valves automatically close the suction inlet, thus preventing the level of vacuum from decreasing on the other gripping holes. This feature reduces the vacuum generator flow rate compared to standard OCTOPUS gripping bars, to the benefit of energy savings. Moreover, the particular shape of our shut-off valves allows the use of the gripping surfaces in any position.





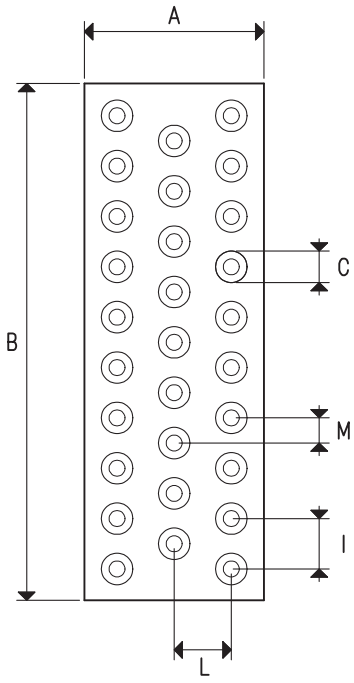
Item	Force Kg	A	B	C Ø	E	F	G	H	I	L	M	Valves No.	Only rubber item	Weight Kg
PXE 08 60	43.7	80	600	20	10	20	18	30	30	20	15	56	00 BO 21	1.69
PXE 08 80	60.0	80	800	20	10	20	18	30	30	20	15	77	00 BO 25	2.25
PXE 08 100	74.1	80	1000	20	10	20	18	30	30	20	15	95	00 BO 111	2.27
PXE 08 120	90.5	80	1200	20	10	20	18	30	30	20	15	116	00 BO 113	2.54
PXE 12 40	25.7	120	400	20	10	20	18	30	34	35	15	33	00 BO 68	2.03
PXE 12 60	42.1	120	600	20	10	20	18	30	40	25	20	54	00 BO 32	2.53
PXE 12 80	57.7	120	800	20	10	20	18	30	40	25	20	74	00 BO 23	3.38
PXE 12 100	73.3	120	1000	20	10	20	18	30	40	25	20	94	00 BO 43	4.22
PXE 12 120	88.9	120	1200	20	10	20	18	30	40	25	20	114	00 BO 45	5.07
PXE 12 140	104.5	120	1400	20	10	20	18	30	40	25	20	134	00 BO 76	6.08
P2XE 08 60	43.7	80	600	20	10	30	18	40	30	20	15	56	00 BO 87	1.72
P2XE 08 80	60.0	80	800	20	10	30	18	40	30	20	15	77	00 BO 88	2.28
P2XE 08 100	74.1	80	1000	20	10	30	18	40	30	20	15	95	00 BO 114	2.30
P2XE 08 120	90.5	80	1200	20	10	30	18	40	30	20	15	116	00 BO 115	2.58
P2XE 12 40	25.7	120	400	20	10	30	18	40	34	35	15	33	00 BO 81	2.06
P2XE 12 60	42.1	120	600	20	10	30	18	40	40	25	20	54	00 BO 89	2.58
P2XE 12 80	57.7	120	800	20	10	30	18	40	40	25	20	74	00 BO 90	3.44
P2XE 12 100	73.3	120	1000	20	10	30	18	40	40	25	20	94	00 BO 91	4.30
P2XE 12 120	88.9	120	1200	20	10	30	18	40	40	25	20	114	00 BO 92	5.16
P2XE 12 140	104.5	120	1400	20	10	30	18	40	40	25	20	134	00 BO 93	6.16

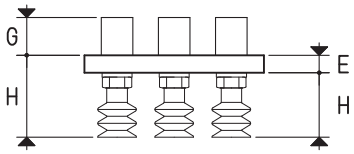
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

3D drawings are available on **vuototecnica.net**

VACUUM CUP SUCTION PLATES WITH SHUT-OFF VALVES PVE FOR OCTOPUS GRIPPING BARS

The suction plates described on this page are the same as the previously described PY and P2V, but with the addition of shut-off valves inserted in each vacuum cup support connection. In absence of an object to grip or in case of a defective grip of the cup, the shut-off valves automatically close the suction inlet, thus preventing the level of vacuum from decreasing on the other gripping vacuum cups. This feature reduces the vacuum generator flow rate compared to standard OCTOPUS gripping bars with calibrated holes, to the benefit of energy savings. Their particular shape of our shut-off valves allows the use of the gripping surfaces in any position.





Item	Force Kg	A	B	C Ø	E	F	G	H	I	L	M	Vacuum cup example item	Valves and vacuum cups No.	Weight Kg
PVE 08 60	35.3	80	600	18	10	36	18	46	30	20	15	01 18 29	56	1.96
PVE 08 80	48.5	80	800	18	10	36	18	46	30	20	15	01 18 29	77	2.61
PVE 08 100	59.9	80	1000	18	10	36	18	46	30	20	15	01 18 29	95	2.91
PVE 08 120	73.0	80	1200	18	10	36	18	46	30	20	15	01 18 29	116	3.28
PVE 12 40	20.8	120	400	18	10	36	18	46	34	35	--	01 18 29	33	2.35
PVE 12 60	34.0	120	600	18	10	36	18	46	40	25	20	01 18 29	54	2.93
PVE 12 80	46.6	120	800	18	10	36	18	46	40	25	20	01 18 29	74	3.92
PVE 12 100	59.2	120	1000	18	10	36	18	46	40	25	20	01 18 29	94	4.89
PVE 12 120	71.8	120	1200	18	10	36	18	46	40	25	20	01 18 29	114	5.88
PVE 12 140	84.4	120	1400	18	10	36	18	46	40	25	20	01 18 29	134	7.05

NOTE: The code PVE .. .. only identifies the suction plate with the relative supports for the vacuum cups screwed onto it and the built-in shut-off valves.
The vacuum cups indicated in the table or those chosen freely are not included with the suction plate and therefore must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

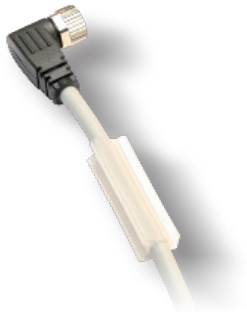
Digital vacuum switch with 1/8” gas axial connection

Item	Description
12 10 10	Digital vacuum switch

Electrical cable with axial connector

Item	Description
00 12 20	Electrical connection cable with M8 - 4 pin axial connector for digital vacuum switch length 5 m

Electrical cable with radial connector



Item	Description
00 12 21	Electrical connection cable with M8 - 4 pin radial connector for digital vacuum switch length 5 m

Vacuum gauge Ø 40 mm with 1/8” coaxial gas coupler

Item	Description
09 03 15	Vacuum gauge

Pressure gauge Ø 40 mm with 1/8” coaxial gas coupler

Item	Description
09 03 25	Pressure gauge

Insert for slot

Item	Description
00 BO 116	Insert for fixing octopus bar to the automation

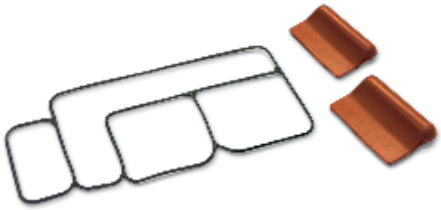
3D drawings are available on **vuototecnica.net**

Silencer

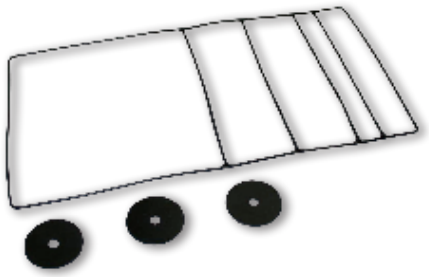
Item	For generator item
SSX 1/4"	PVP 25 MX PO - PVP 25 MX PBO

Sealing kit and reed valves

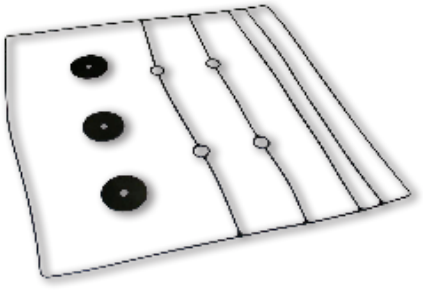
Item	For generator item
00 KIT PVP 25 MX	PVP 25 MX PO - PVP 25 MX PBO



Item	For generator item
00 KIT PVP 100 M	PVP 100 M PO
00 KIT PVP 140 M	PVP 140 M PO
00 KIT PVP 170 M	PVP 170 M PO
00 KIT PVP 200 M	PVP 200 M PO



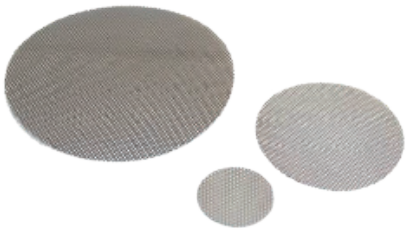
Item	For generator item
00 KIT PVP 150 MD	PVP 150 MD PO
00 KIT PVP 300 MD	PVP 300 MD PO
00 KIT PVP 450 MD	PVP 450 MD PO



3D drawings are available on **vuototecnica.net**

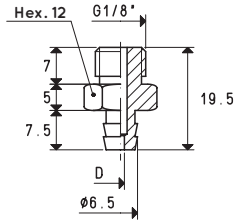
Stainless steel disc filters

Item	D	For OCTOPUS systems
00 SO 05	24	SO 15 20 - BO 08 60 - BO 08 80 - BO 08 100 - BO 08 120
		BO 12 40 - BO 12 60 - BO 12 80 - BO 12 100 - BO 12 120 - BO 12 140
00 SO 10	50	SO 20 30 - SO 20 40 - SO 20 60 - SO DO 35
00 SO 14	80	SO 30 30 - SO 30 40 - SO 30 50 - SO 40 40
		SO 40 60 - SO DO 50 - SO 40 100 - SO 60 80
		SO 60 120 - SO 80 100

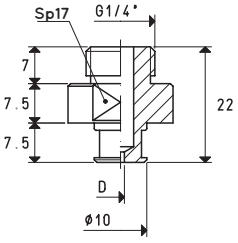


Supports for vacuum cups with calibrated hole

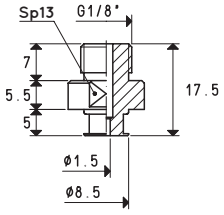
Item	D Ø	Weight g	Support material	For vacuum cup item
00 08 157	1.5	4	aluminium	01 18 29
00 08 178	2.5	4	aluminium	01 18 29



Item	D Ø	Weight g	Support material	For vacuum cup item
00 08 158	1,5	8	aluminium	01 40 42
00 08 425	5	8	aluminium	01 40 42



Item	Weight g	Support material	For vacuum cup item
00 08 170	4	aluminium	01 20 23



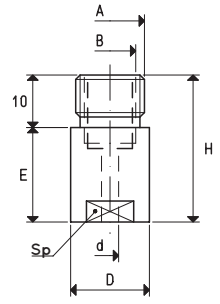
Shut-off valves

Item	A Ø	B Ø	d Ø	D Ø	E	H	Ch	Weight g	Support material
14 01 06	G1/4"	G1/8"	3.25	15	18	28	12	10	aluminium

Minimum trigger flow = 1.5 m³/h — Minimum level of vacuum = -250 mbar

Item	A Ø	B Ø	d Ø	D Ø	E	H	Ch	Weight g	Support material
14 01 07	G3/8"	G1/4"	4.50	20	25	35	17	24	aluminium

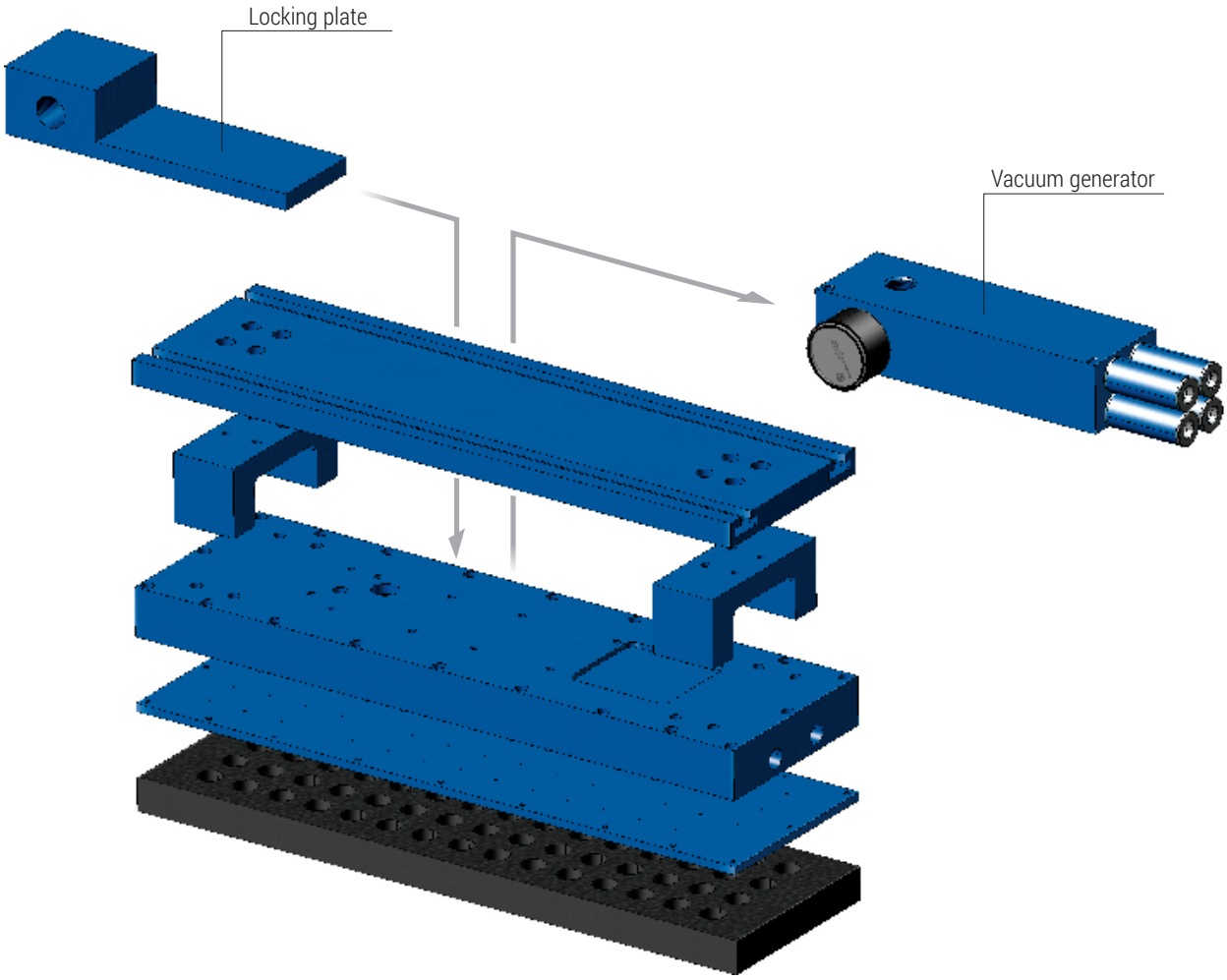
Minimum trigger flow = 4 m³/h — Minimum level of vacuum = -250 mbar



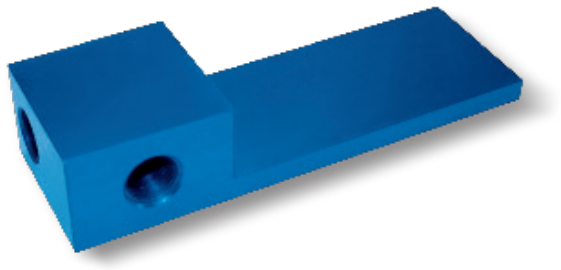
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

LOCKING PLATE WITH DISTRIBUTOR FOR OCTOPUS GRIPPING BARS WITHOUT VACUUM GENERATOR

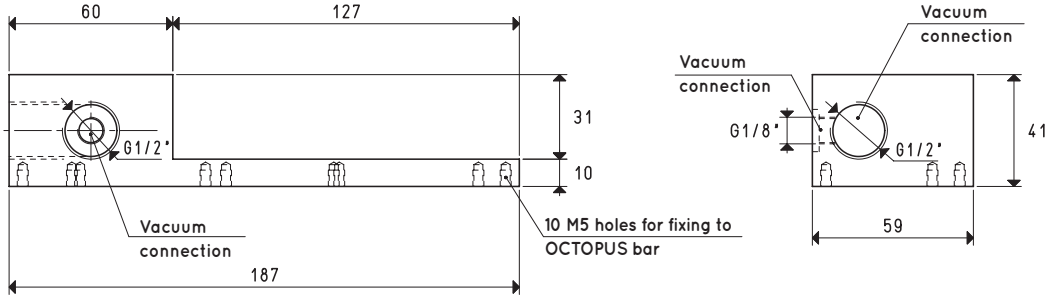
The locking plates with distributor described on this page have been designed to connect an OCTOPUS gripping bar to a remotely installed vacuum generator or to an alternative vacuum source.
The plate, made of anodised aluminium, is fastened with screws to the body of the OCTOPUS bar in place of the generator. The distributor is equipped with connections for direct connection to the OCTOPUS bar, to the generator or to the alternative vacuum source and to the instruments for reading and control of the level of vacuum.
The unused connections can be closed with the metal caps provided.
The locking plate with distributor is suitable for all OCTOPUS gripping bars that use vacuum generators PVP 12 MX and PVP 25 MX.



LOCKING PLATE WITH DISTRIBUTOR FOR OCTOPUS GRIPPING BARS WITHOUT VACUUM GENERATOR

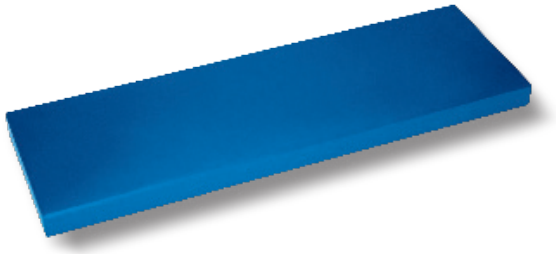


Item	For OCTOPUS gripping bars
00 BO 07	BO 08 60 X - BO 08 80 X
	BO 08 100 X - BO 08 120 X
	BO 12 40 X - BO 12 60 X
	BO 12 80 X - BO 12 100 X
	BO 12 120 X - BO 12 140 X

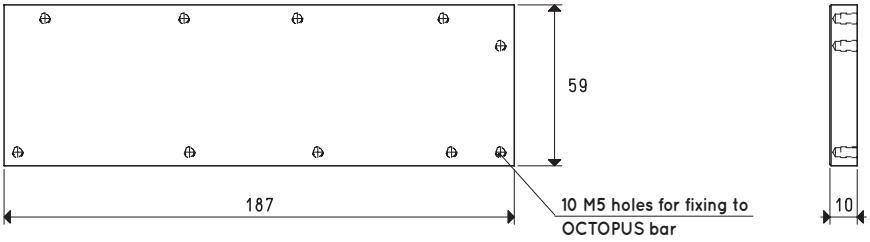


LOCKING PLATE FOR OCTOPUS GRIPPING BARS WITHOUT VACUUM GENERATOR

Use the locking plate illustrated and described on this page to close the suction holes on the body of the OCTOPUS bar, left free by the removal of the vacuum generator.
The plate, made of anodised aluminium, is fastened with screws to the body of the OCTOPUS bar in place of the generator. The seal with which it is provided ensures a perfect vacuum seal.
The locking plate is suitable for all OCTOPUS gripping bars that use vacuum generators PVP 12 MX and PVP 25 MX.

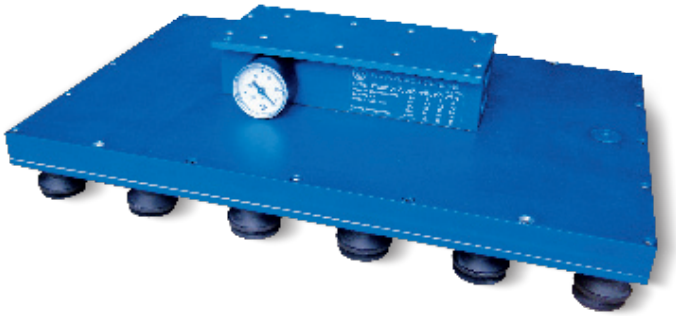


Item	For OCTOPUS gripping bars
00 BO 06	BO 08 60 X - BO 08 80 X
	BO 08 100 X - BO 08 120 X
	BO 12 40 X - BO 12 60 X
	BO 12 80 X - BO 12 100 X
	BO 12 120 X - BO 12 140 X

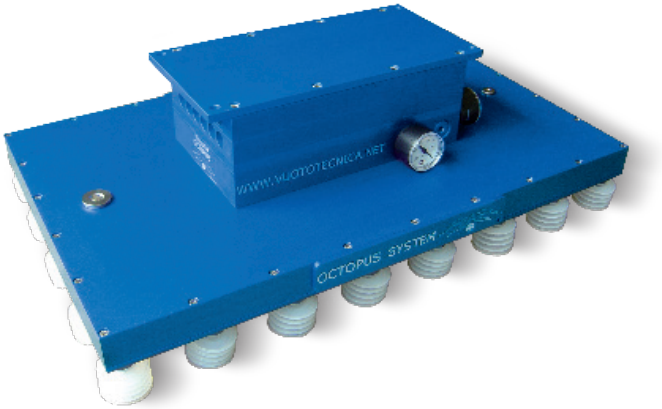


Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

3D drawings are available on **vuototecnica.net**



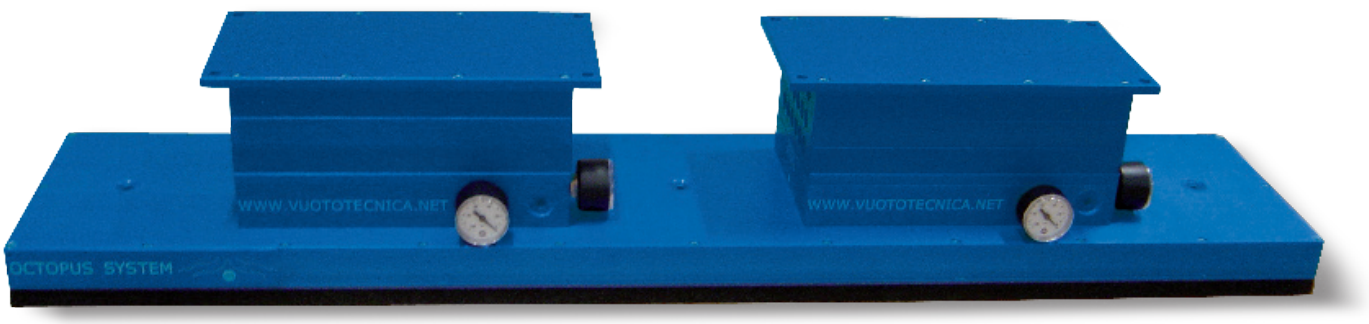
mm 270x420 - SO 27 42 2V



mm 330x550 - SO 33 55 2V

mm 180x210 - SO 18 21 2C X

mm 70x200 - SO 07 20 X

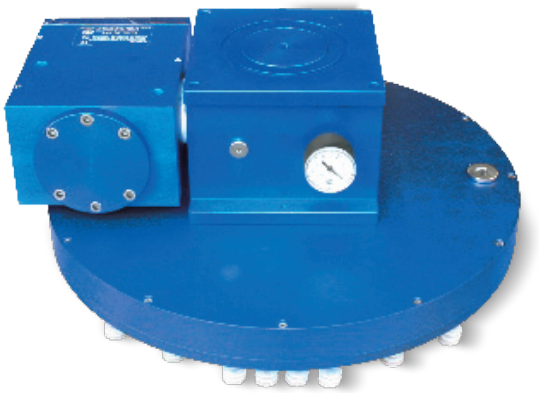


mm 200x1000 - SO 20 100 X

mm 300x360 with fixing support - SO 30 36 X

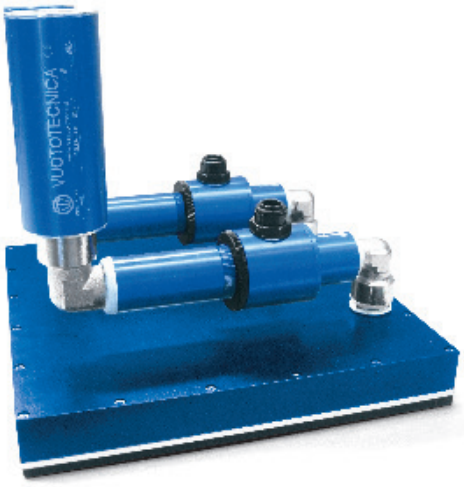
mm 70x140 with digital vacuum switch - SO 07 14 V

mm 210x360 with 3 independent chambers - SO 21 36 V



mm Ø400 with fixing support and vacuum interception solenoid valve - SO DO 40 V

mm 50x50 - SO 05 05 M2 X



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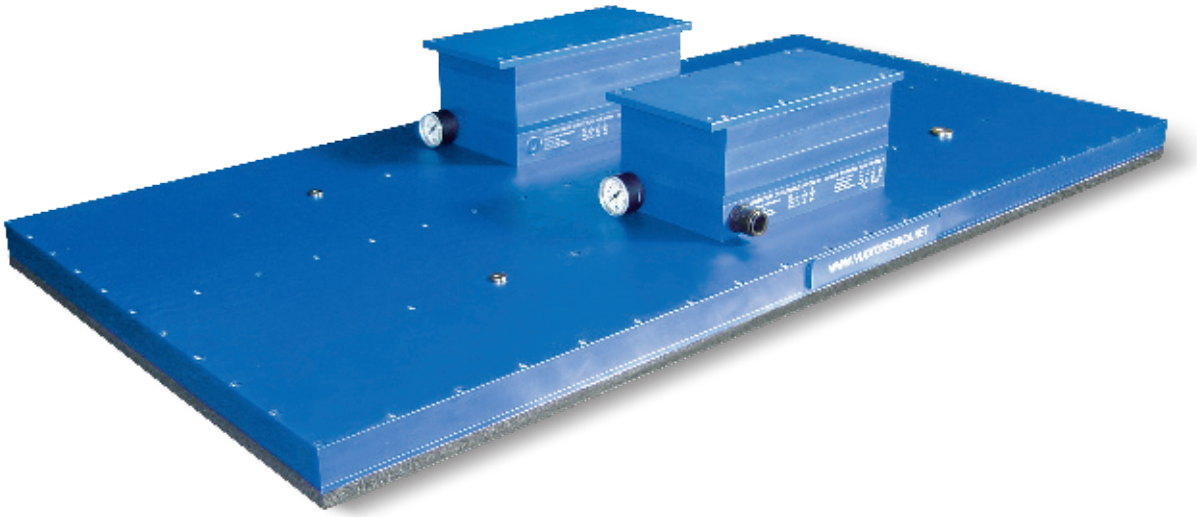
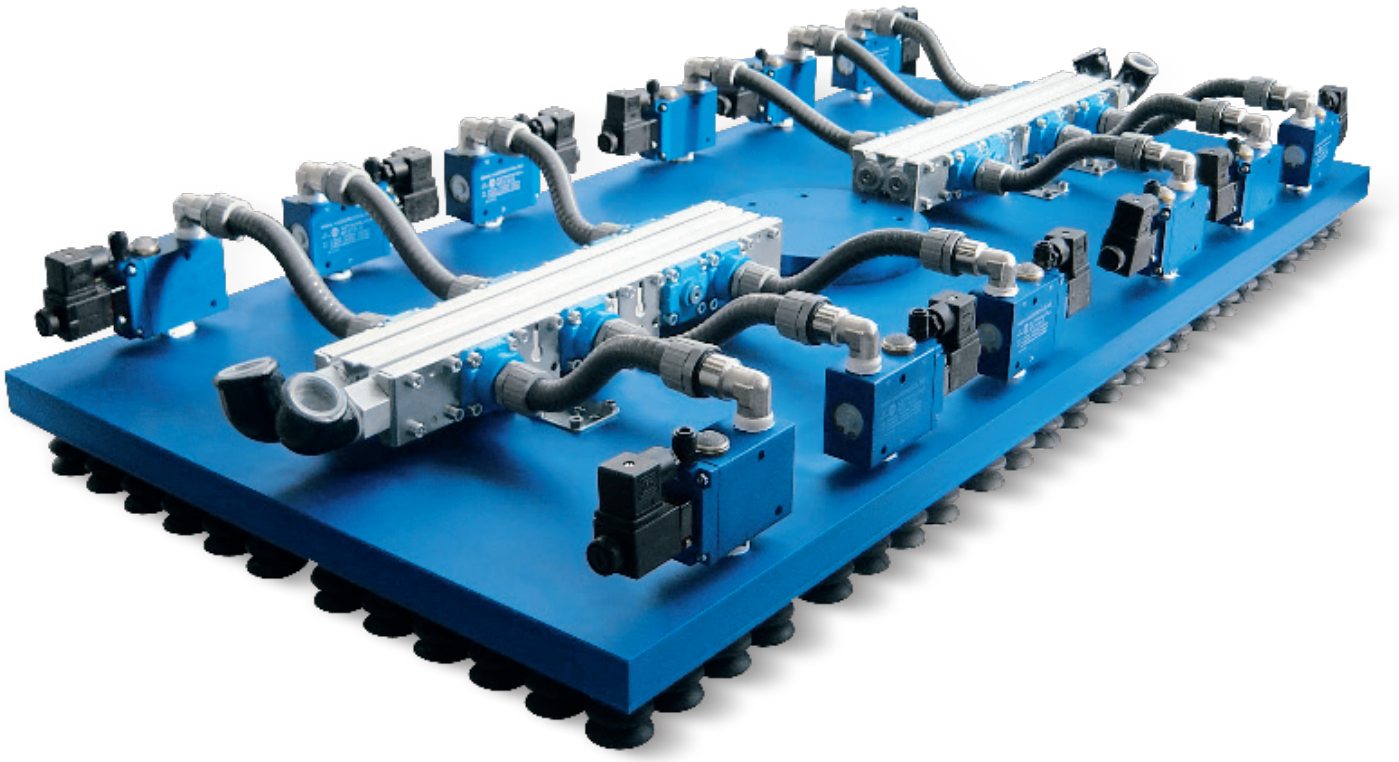
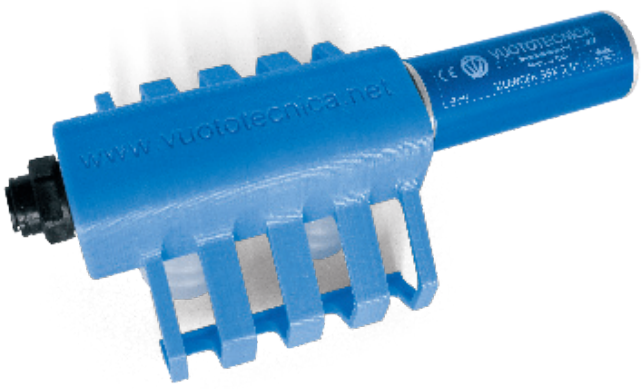


mm 600x1200 with 2 independent chambers - SO 60 120 X



mm 620x1240 with 12 independent chambers - SO 62 127 2V



NOTE: Octopus gripping systems made with 3D printer can be supplied in colours: blue, black, white and red.

OCTOPUS VACUUM GRIPPING SYSTEM QUESTIONNAIRE

For a correct dimensioning of an octopus vacuum gripping system, it is important to know and assess the features of the load to be handled.
For this reason, please fill out the following form and send it back to us via e-mail or fax.
We will suggest the best Octopus to solve your problem.
A drawing of the product to be handled or the product itself would allow us to offer the best solution.
E-mail: tecnico@vuototecnica.net
Fax: + 39 039 5320015

Company

.....

Address

.....

Post code / City ***Country***

....

Contact person:

.....

Telephone ***Fax***

....

E-mail

.....

1) *In which industrial sector would the Octopus be used?*

- ☐ *Plastic*
- ☐ *Marble/Stone*
- ☐ *Automotive*
- ☐ *Cosmetics*
- ☐ *Wood*
- ☐ *Ceramic/Baked clay*
- ☐ *Graphics*
- ☐ *Bottling*
- ☐ *Glass/Solar*
- ☐ *Paper/Cardboard*
- ☐ *Pharmaceuticals*
- ☐ *Other sectors* .....
- ☐ *Steel sheet*
- ☐ *Packaging*
- ☐ *Food*

2) *With what material is the product to be handled made?*

- ☐ *Plastic*
- ☐ *Steel sheet*
- ☐ *Glass*
- ☐ *Marble/Granite*
- ☐ *Wood*
- ☐ *Rubber*
- ☐ *Paper/Cardboard*
- ☐ *Other*.....

3) *What is the surface of the product to be gripped like?*

- ☐ *Dry*
- ☐ *Corrugated*
- ☐ *Wet*
- ☐ *Flaky*
- ☐ *Smooth*
- ☐ *Porous*
- ☐ *Rough*
- ☐ *Textured*
- ☐ *Creased*
- ☐ *Bush-hammered*

4) *On the gripping surface there may be impurities such as:*

- ☐ *Powder*
- ☐ *Water*
- ☐ *Oil*
- ☐ *Solvents*
- ☐ *Other* .....

5) *What is the temperature of the load to be handled?*

From - .....*°C to +* .....*°C* ☐ *For a short time °C* ..... ☐ *Continuously °C*.....

6) *What do you need to pick up?*

Description of product: .....

☐

☐

☐

☐

☐

☐

☐

☐

☐

☐ *Other*

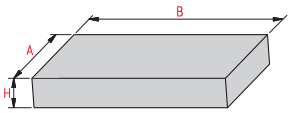
3D drawings are available on **vuototecnica.net**

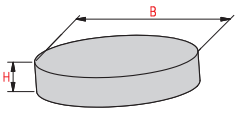
7) What shape is the product to be handled?

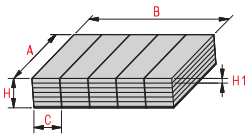
☐ Square ☐ Rectangular ☐ Triangular ☐ Round
☐ Irregular ☐ Other .....

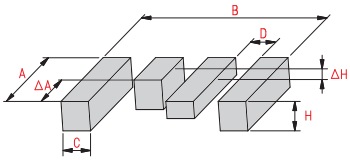
8) What are the dimensions and weight of the load?

☐ Sheet / Block ☐ Cylinder / Disc ☐ Pallets / Tables ☐ Beams / Tiles









Size	A	B	H	H1	C	D	ΔH	ΔA	Weight
Minimum	mm	mm	mm	mm	mm	mm	mm	mm	kg
Maximum	mm	mm	mm	mm	mm	mm	mm	mm	kg

9) On what machine will the Octopus be assembled?

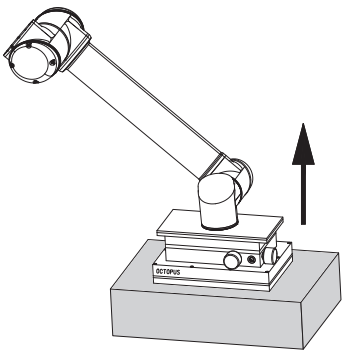
☐ Anthropomorphic robot ☐ Cartesian axes portal ☐ Other .....

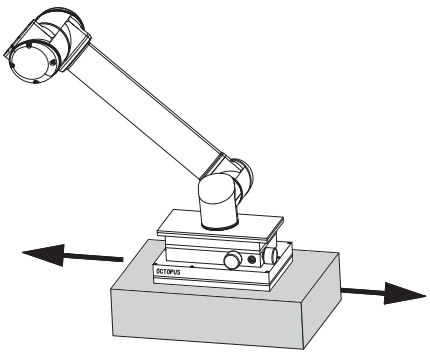
10) From where will the load be picked up?

☐ From a conveyor belt ☐ From a fixed worktop ☐ From another machine

11) How will the load be handled?

☐ Vertically ☐ Horizontally ☐ Both ways





12) In what position will the load to be handled be?

☐ Vertical ☐ Horizontal ☐ Inclined

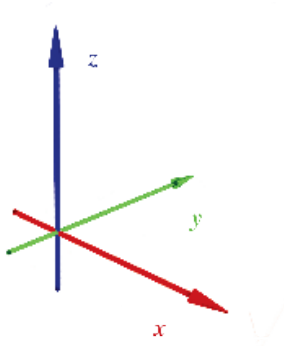
3D drawings are available on **vuototecnica.net**

13) Is the position of the load always well defined?

☐ *Yes* ☐ *No, errors of deviation may occur within:* ..... *mm*

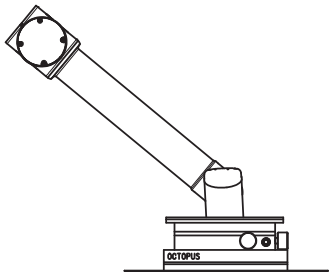
14) What are the maximum acceleration values?

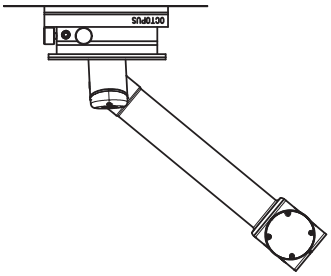
☐ *Z-axis acceleration m/s²* .....
☐ *Y-axis acceleration m/s²* .....
☐ *X-axis acceleration m/s²* .....

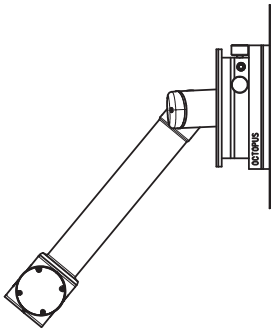


15) How is the product picked up?

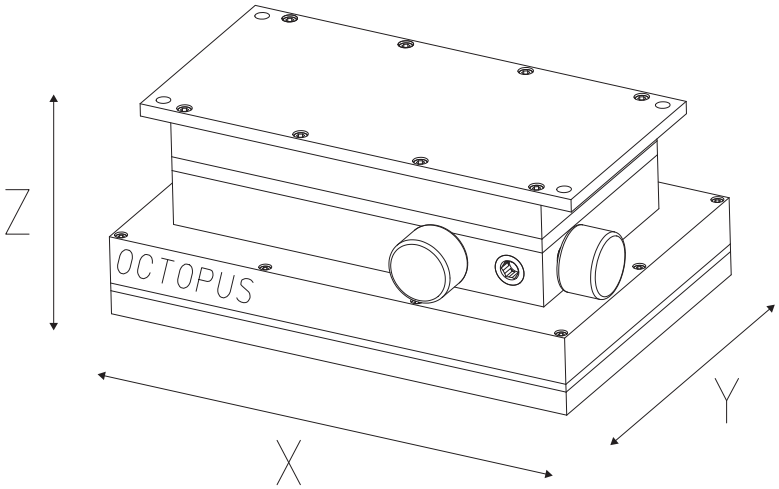
☐ *From above* ☐ *From below* ☐ *From the side*







16) What can the maximum overall dimensions of the Octopus gripping system be, related to your needs?



X ..... *mm* *Y* ..... *mm* *Z* ..... *mm*

3D drawings are available on **vuototecnica.net**

17) By what device would you like to generate the vacuum?

☐ *Electrical vacuum pump*
☐ *Pneumatic vacuum generator*

If you selected a vacuum pump, indicate the electrical characteristics available:

Electrical power: ☐ *Single-phase* ☐ *Volt 230 – 50Hz* ☐ *Other* *Volt* ..... *Hz* .....
☐ *Three-phase* ☐ *Volt 230/400 – 50Hz* ☐ *Other* *Volt* ..... *Hz* .....

If you selected a pneumatic vacuum generator, indicate the characteristics of the available compressor:

☐ *Installed power* *kW* .....
☐ *Maximum compressed air pressure* *bar* .....

18) Other technical data required:

☐ *Maximum gripping time sec* ..... ☐ *Maximum cycle time sec* .....

19) At which height above sea level is the Octopus system to be installed?

☐ *m* .....

20) What other components must be moved in addition to the product?

☐ *Separators* ☐ *Empty pallets* ☐ *Containers* ☐ *Other* .....

For Boxes, containers, vessels and similar, supply:

☐ *Relative drawings* ☐ *Layout* ☐ *Gripping arrangement* ☐ *Other* .....

21) Gripping tests on your samples

We can perform tests for gripping and handling on samples of products supplied by you and can send you videos/images relative to tests performed.

22) Contact

☐ *Do you wish to be called back?* ☐ *Yes* ☐ *No*
☐ *Are you interested in a visit?* ☐ *Yes* ☐ *No* *If yes, what date/time?* .....

GRAPHIC DIVISION

GRAPHIC DIVISION – PRODUCT DESCRIPTION	PG. 10.01
TABLE FOR PNEUMATIC PUMP SELECTION	PG. 10.02
SMALL PNEUMATIC SUCTION PUMPS item PA 3 and PA 7	PG. 10.03
SMALL PNEUMATIC SUCTION PUMPS item PA 10, PA 14 and PA 18	PG. 10.04
SMALL PNEUMATIC SUCTION PUMPS item PA 40, PA 70 and PA 100	PG. 10.05
SMALL PNEUMATIC SUCTION PUMPS item PA 140, PA 170 and PA 200	PG. 10.06
PNEUMATIC SUCTION PUMPS item PA 250 and PA 300	PG. 10.07
SMALL PNEUMATIC BLOWING PUMPS item PS 3 and PS 7	PG. 10.08
SMALL PNEUMATIC BLOWING PUMPS item PS 10, PS 14 and PS 18	PG. 10.09
SMALL PNEUMATIC BLOWING PUMPS item PS 40, PS 70 and PS 100	PG. 10.10
SMALL PNEUMATIC BLOWING PUMPS item PS 140, PS 170 and PS 200	PG. 10.11
PNEUMATIC BLOWING PUMPS item PS 250 and PS 300	PG. 10.12
SMALL COMBINED PNEUMATIC SUCTION PUMPS PA AND BLOWING PUMPS PS	
item PA 3 ÷ 7 WITH PS 3 ÷ 7	PG. 10.13
item PA 10 ÷ 18 WITH PS 10 ÷ 18	PG. 10.14
COMBINED PNEUMATIC SUCTION PUMPS PA AND BLOWING PUMPS PS	
item PA 40 ÷ 100 WITH PS 40 ÷ 100	PG. 10.15
item PA 140 ÷ 200 WITH PS 140 ÷ 200	PG. 10.16
item PA 250 ÷ 300 WITH PS 250 ÷ 300	PG. 10.17
SUCTION AND BLOWING SYSTEM AS	PG. 10.18
PNEUMATIC SUCTION AND BLOWING PUMP HOLDING SUPPORTS	PG. 10.19
PNEUMATIC SUCTION AND BLOWING PUMP SUCTION FILTERS	PG. 10.20
PNEUMATIC PUMP SPARE PARTS	PG. 10.21 ÷ 10.22
DISC CUPS	PG. 10.23
VACUUM CYLINDERS	PG. 10.24 ÷ 10.25

3D drawings are available on **vuototecnica.net**

3D drawings are available on **vuototecnica.net**

GRAPHIC DIVISION

The experience and production capacity of Vuototecnica has originated a division specially dedicated to the graphics and printing sector. A reference entity, ranging from engineering to services, that offers innovative and advantageous technical solutions under every point of view: performance, reliability, duration and operational economy. A significant demonstration of the Graphic Division specialisation is represented by the new range of products among which:

PNEUMATIC SUCTION AND BLOWING PUMPS
This new generation of highly versatile multiple-ejector pumps (multi-stage) are able to suction or blow as needed and represent a real evolution compared to conventional rotary vane pumps. Characterised by their new generation of ejectors, these pumps boast an excellent ratio between the quantity of air consumed and that suctioned (or generated), benefiting operational consumption. Their level of vacuum (or pressure level) and flow rate can be adjusted based simply on the air supply pressure. The state of the art hi-tech materials have considerably reduced the weight allowing them to be installed directly on the machine. The Vuototecnica research centre has focused its attention on noise reduction, with solutions that provide for full soundproofing and no moving parts, thus prolonging duration and eliminating any vibrations. Furthermore, these pumps are based on the Venturi principle which exploits the compressed air kinetic energy via in-line ejectors and, therefore, do not develop heat. The excellent filtration of the compressed air supply and intake air allows the intake of air free from oil, water condensates and impurities from between the sheets of paper to be separated in the working environment, with no pollution. Other assets of this safe and competitive technology include a minimal maintenance, limited to a regular filter cleaning operation, and reliability with no comparison. The pneumatic suction and blowing pumps are described in the following pages.

VACUUM CYLINDERS
By assembling a vacuum cup onto their perforated stem and creating a vacuum, the cup will quickly come into contact with the sheet or the object to be handled and it will automatically lift it, holding it until the vacuum is excluded. Thanks to all these features, this range of cylinders combined with cups are particularly recommended for separating sheets of paper or plastic. Advantages include: high speed operation, automatic compensation of the height of the objects to be lifted, non-rotating stems and extremely easy fixing. These vacuum cylinders are illustrated and described on the following pages.

VACUUM CUPS
These come in a large variety of shapes and sizes, to guarantee a quick and safe grip and they can be provided in anti-abrasion natural para rubber, nitrile or oil-resistant rubber, silicone, FKM, polyurethane and other compounds, according to the requirements.
Vacuum cups are described in detail in Chapter 1. This chapter on the other hand will focus on disc cups only.

Low air consumption and lightweight.
Surprising silence and total absence of heat.
Maximum respect for the work environment and minimum maintenance.

TABLE FOR PNEUMATIC SUCTION PUMP SELECTION

Maximum suction flow rate generated by a corresponding electric pump	Maximum vacuum generated by a corresponding electric pump							
	-0.1 bar -10 KPa	-0.2 bar -20 KPa	-0.3 bar -30 KPa	-0.4 bar -40 KPa	-0.5 bar -50 KPa	-0.6 bar -60 KPa	-0.7 bar -70 KPa	-0.8 bar -80 KPa
10 m³/h	PA 40	PA 40	PA 40	PA 40	PA 40	PA 40	PA 40	PA 40
15 m³/h	PA 40	PA 40	PA 40	PA 40	PA 40	PA 40	PA 40	PA 70
20 m³/h	PA 40	PA 40	PA 40	PA 40	PA 40	PA 40	PA 70	PA 70
25 m³/h	PA 40	PA 40	PA 40	PA 40	PA 40	PA 70	PA 70	PA 70
30 m³/h	PA 40	PA 40	PA 40	PA 40	PA 70	PA 70	PA 70	PA 100
40 m³/h	PA 40	PA 70	PA 70	PA 70	PA 70	PA 100	PA 100	PA 140
60 m³/h	PA 70	PA 70	PA 70	PA 70	PA 100	PA 140	PA 140	PA 170
80 m³/h	PA 100	PA 100	PA 100	PA 100	PA 140	PA 140	PA 170	PA 200
100 m³/h	PA 100	PA 100	PA 100	PA 100	PA 140	PA 170	PA 200	PA 250
120 m³/h	PA 140	PA 140	PA 140	PA 140	PA 170	PA 200	PA 250	PA 300
140 m³/h	PA 140	PA 140	PA 140	PA 140	PA 200	PA 250	PA 300	-- ---
160 m³/h	PA 170	PA 170	PA 170	PA 200	PA 250	PA 300	-- ---	-- ---
180 m³/h	PA 170	PA 170	PA 200	PA 250	PA 300	-- ---	-- ---	-- ---
200 m³/h	PA 200	PA 200	PA 200	PA 250	PA 300	-- ---	-- ---	-- ---
250 m³/h	PA 250	PA 300	PA 300	PA 300	-- ---	-- ---	-- ---	-- ---
300 m³/h	PA 300	PA 300	PA 300	-- ---	-- ---	-- ---	-- ---	-- ---

Example: We need to replace an electric pump with a flow rate of 80 m³/h and a residual vacuum of -0.6 bar.
In the table, cross the "80 m³/h" line with the "-0.6 bar" column. At the intersection of the line with the column, you will find that PA 140 will be the ideal pump for replacement.

TABLE FOR PNEUMATIC BLOWING PUMP SELECTION

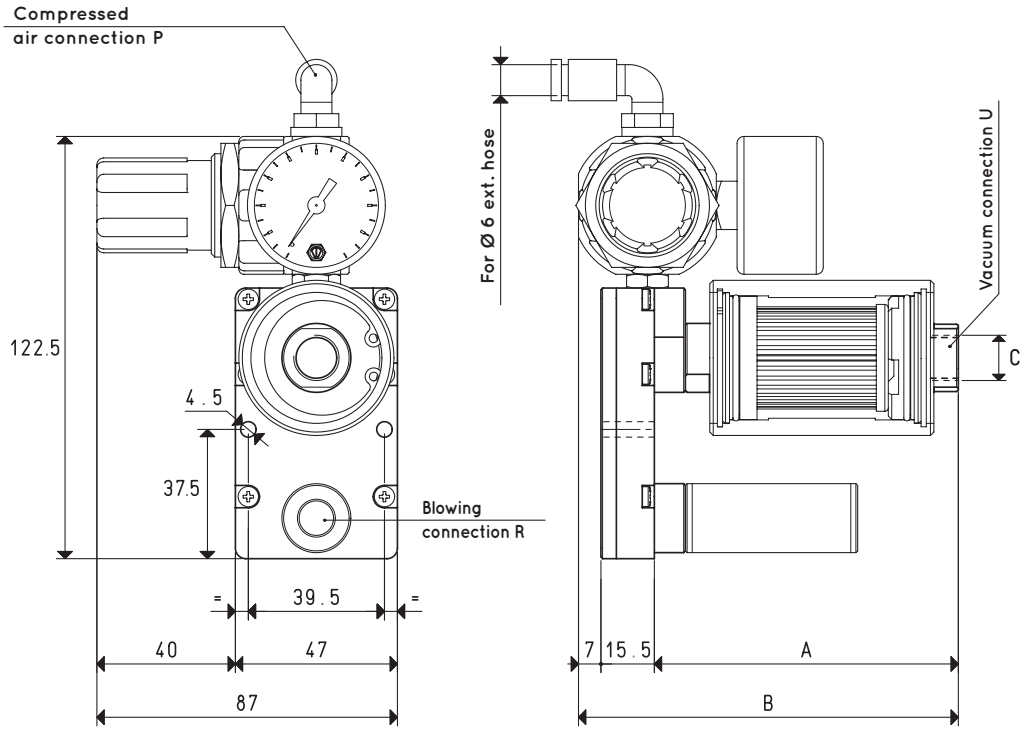
Maximum blowing flow rate generated by a corresponding electric pump	Maximum overpressure generated by a corresponding electric pump							
	0.1 bar 10 KPa	0.2 bar 20 KPa	0.3 bar 30 KPa	0.4 bar 40 KPa	0.5 bar 50 KPa	0.6 bar 60 KPa	0.7 bar 70 KPa	0.8 bar 80 KPa
25 m³/h	PS 40	PS 40	PS 40	PS 40	PS 40	PS 40	PS 40	PS 40
30 m³/h	PS 40	PS 40	PS 40	PS 40	PS 40	PS 40	PS 40	PS 40
40 m³/h	PS 40	PS 40	PS 40	PS 40	PS 40	PS 40	PS 40	PS 40
60 m³/h	PS 70	PS 70	PS 70	PS 70	PS 70	PS 70	PS 70	PS 70
80 m³/h	PS 70	PS 70	PS 70	PS 70	PS 70	PS 70	PS 70	PS 70
100 m³/h	PS 70	PS 70	PS 70	PS 70	PS 70	PS 70	PS 100	PS 100
120 m³/h	PS 100	PS 100	PS 100	PS 100	PS 100	PS 100	PS 100	PS 100
140 m³/h	PS 100	PS 100	PS 100	PS 100	PS 100	PS 100	PS 100	PS 140
160 m³/h	PS 140	PS 140	PS 140	PS 140	PS 140	PS 140	PS 140	PS 140
180 m³/h	PS 140	PS 140	PS 140	PS 140	PS 140	PS 140	PS 140	PS 140
200 m³/h	PS 140	PS 140	PS 140	PS 140	PS 140	PS 140	PS 170	PS 170
250 m³/h	PS 200	PS 200	PS 200	PS 200	PS 200	PS 250	PS 250	PS 250
300 m³/h	PS 250	PS 250	PS 250	PS 250	PS 250	PS 300	PS 300	PS 300
350 m³/h	PS 300	PS 300	PS 300	PS 300	PS 300	PS 300	PS 300	PS 300
400 m³/h	PS 300	PS 300	PS 300	PS 300	PS 300	PS 300	-- ---	-- ---

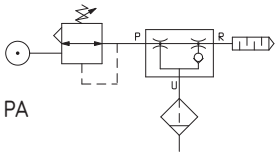
Example: We need to replace an electric pump with a flow rate of 80 m³/h and an overpressure of 0.6 bar.
In the table, cross the "80 m³/h" line with the "0.6 bar" column. At the intersection of the line with the column, you will find that PS 70 will be the ideal pump for replacement.

SMALL PNEUMATIC SUCTION PUMPS PA

The assembly of a pressure adjuster equipped with pressure gauge and of an FCL filter on the suction inlet connection of a vacuum generator of the M .. SSX range has allowed creating these small pneumatic suction pumps. Their main features include reduced overall dimensions compared to their technical performance.
The level of vacuum and flow rate can be adjusted according to the supply air pressure.
These pumps are powered with compressed air with a pressure ranging from 1 to 5 bar and they can produce a maximum vacuum of 85% and a suction flow rate between 2 and 18 m^3/h, measured at a normal atmospheric pressure of 1013 mbar.
Based on the Venturi principle, they do not develop heat.
An SSX silencer screwed onto the pump exhaust ensures a silent operation.
The filter equipped with a microporous cartridge is located on the suction inlet connection and can keep the finest dust and impurities.
Thanks to their static operating principle, maintenance is reduced to only a simple regular cleaning of the filter.

3D drawings are available on **vuototecnica.net**





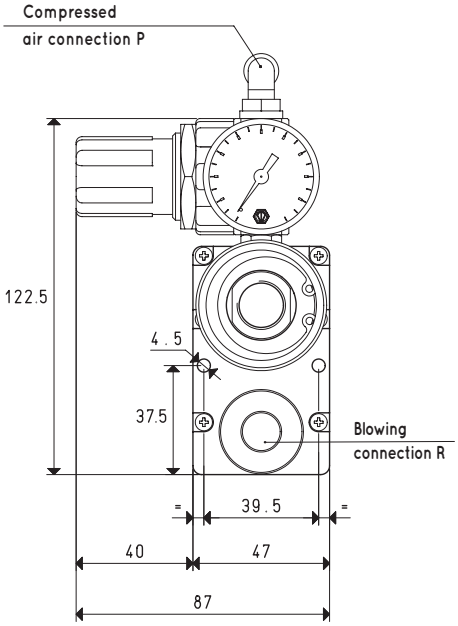
Item		PA 3				
Supply pressure	bar	1	2	3	4	5
Maximum level of vacuum	-KPa	20	42	62	80	85
Air consumption	Nl/s	0.2	0.4	0.5	0.7	0.8
Intake air flow rate	m^3/h	2.0	2.5	3.0	3.4	3.6
A				88		
B				110.5		
C	Ø			G1/4"		
Weight	Kg			0.45		
Item		**PA 7**				
Supply pressure	bar	1	2	3	4	5
Maximum level of vacuum	-KPa	20	42	62	80	85
Air consumption	Nl/s	0.4	0.6	0.8	1.2	1.4
Intake air flow rate	m^3/h	3.0	4.0	5.4	5.8	6.2
A				89		
B				111.5		
C				G3/8"		
Weight	Kg			0.46		
Operating temperature	°C			-20 / +60		

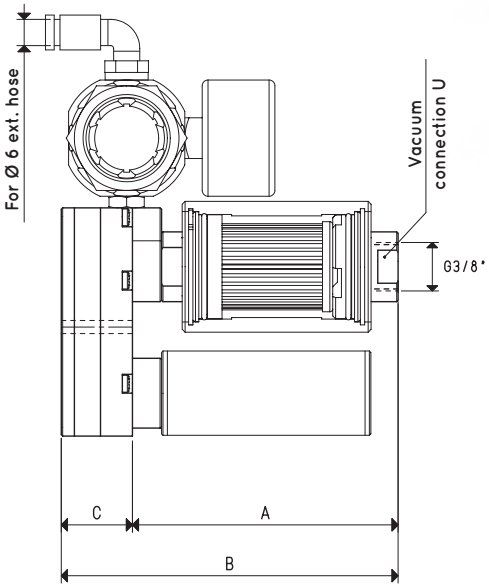
NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

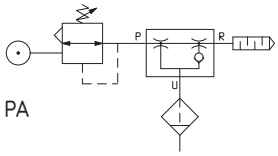
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**







Item		PA 10				
Supply pressure	bar	1	2	3	4	5
Maximum level of vacuum	-KPa	20	42	62	80	85
Air consumption	Nl/s	0.5	0.9	1.2	1.6	1.9
Intake air flow rate	m^3/h	4.0	6.0	7.7	8.5	9.4
A				94		
B				118.5		
C				24.5		
Weight	Kg			0.59		
Item		**PA 14**				
Supply pressure	bar	1	2	3	4	5
Maximum level of vacuum	-KPa	20	42	62	80	85
Air consumption	Nl/s	0.9	1.3	1.7	2.1	2.5
Intake air flow rate	m^3/h	6.0	8.0	10.2	11.5	12.6
A				94		
B				118.5		
C				24.5		
Weight	Kg			0.60		
Item		**PA 18**				
Supply pressure	bar	1	2	3	4	5
Maximum level of vacuum	-KPa	20	42	62	80	85
Air consumption	Nl/s	1.2	1.7	2.3	2.9	3.6
Intake air flow rate	m^3/h	8.0	11.5	14.8	16.5	18.0
A				102		
B				128.5		
C				34.5		
Weight	Kg			0.62		
Operating temperature	°C			-20 / +60		

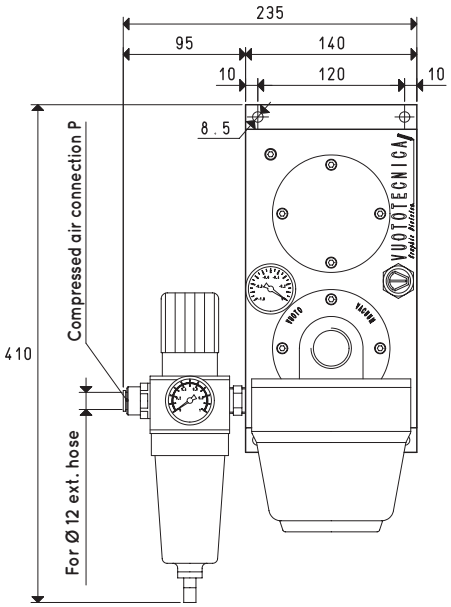
NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

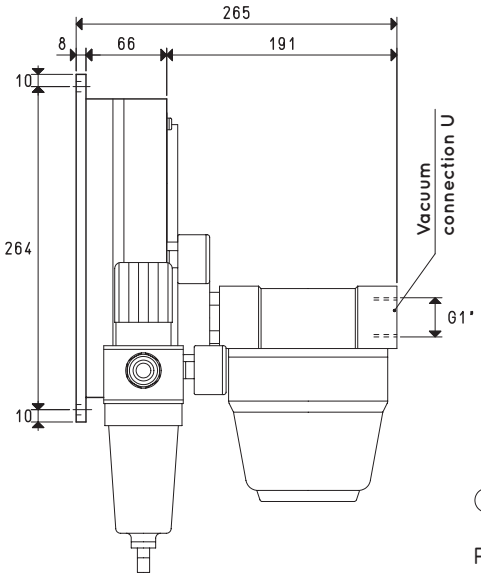
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

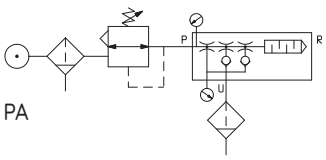
Adapters for GAS - NPT threading available on page 1.134

PNEUMATIC SUCTION PUMPS PA

A newly designed range of ejectors has allowed creating this range of pneumatic suction pumps featuring an excellent ratio between the amount of consumed air and sucked air, as well as the ability to adjust the level of vacuum and flow rate according to the supply air pressure.
These pumps are powered with compressed air with a pressure ranging from 1 to 6 bar and they can produce a maximum vacuum of 90% and a suction flow rate between 15 and 320 m^3/h, measured at a normal atmospheric pressure of 1013 mbar.
When designing these pumps, our attention was focused on noise. In fact, they are perfectly soundproofed and there are no moving parts subject to wear and vibrations. All this results in an extremely silent operation. Moreover, as they are based on the Venturi principle, they do not develop heat.
They are equipped as standard with a filter/pressure reducer unit for the supply air and a filter with microporous cartridge located on the suction inlet connection which can keep the finest dust and impurities. The excellent compressed air and sucked air filtration allows blowing air free from oil vapours, water condensation and impurities in the work environment, causing no pollution. The use of light alloys for making these pumps has allowed a considerable reduction of their weight thus allowing them to be directly installed onto the machine.
Thanks to their static operating principle, maintenance is reduced to a only a simple regular cleaning of the filters.







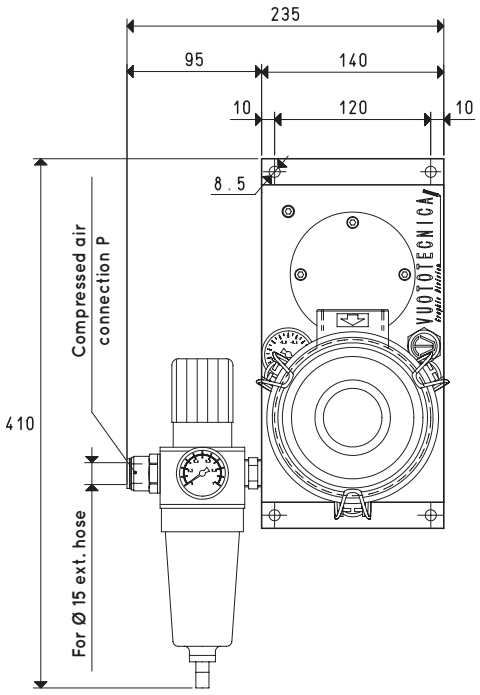
Item		PA40					
Supply pressure	bar	1	2	3	4	5	6
Maximum level of vacuum	-KPa	14	30	46	65	82	90
Air consumption	Nl/s	1.0	1.5	2.0	2.3	2.7	3.2
Intake air flow rate	m^3/h	15	23	30	36	39	42
Weight	Kg	6.2					
Item		**PA70**					
Supply pressure	bar	1	2	3	4	5	6
Maximum level of vacuum	-KPa	14	30	46	65	82	90
Air consumption	Nl/s	2.0	3.0	4.1	4.9	5.7	6.6
Intake air flow rate	m^3/h	29	47	58	65	73	80
Weight	Kg	6.2					
Item		**PA100**					
Supply pressure	bar	1	2	3	4	5	6
Maximum level of vacuum	-KPa	11	28	45	65	82	90
Air consumption	Nl/s	3.0	4.6	6.2	7.2	8.5	9.8
Intake air flow rate	m^3/h	28	57	75	88	98	108
Weight	Kg	6.2					
Operating temperature	°C	-10 / +45					

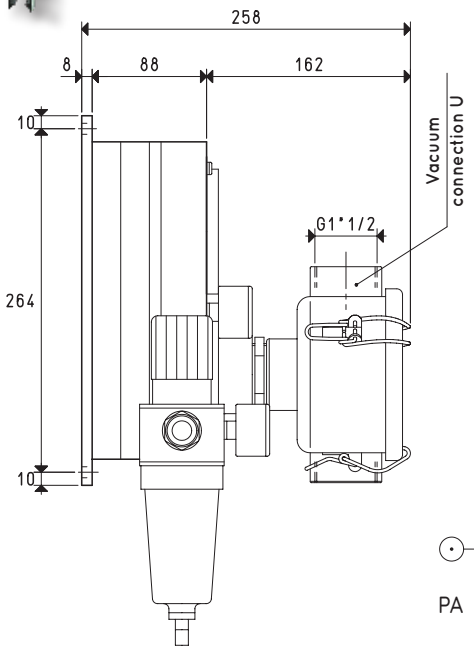
NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

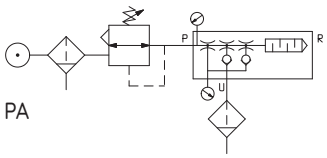
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**







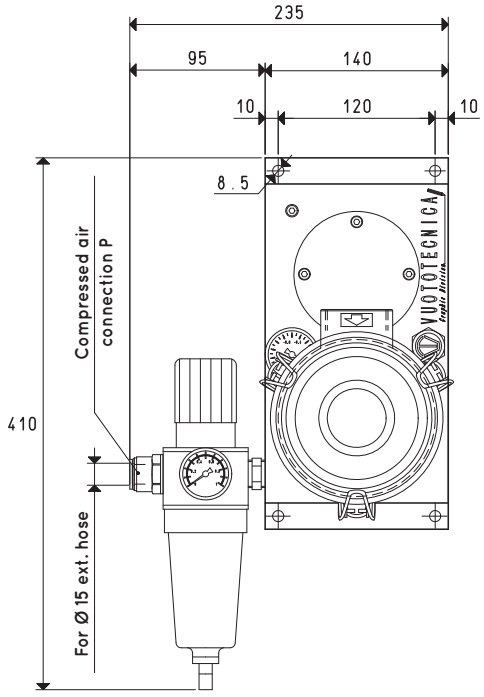
Item		PA 140					
Supply pressure	bar	1	2	3	4	5	6
Maximum level of vacuum	-KPa	15	35	55	70	85	90
Air consumption	Nl/s	4.1	6.2	8.3	9.6	11.4	13.0
Intake air flow rate	m^3/h	45	80	106	125	140	152
Weight	Kg	7.2					
Item		**PA 170**					
Supply pressure	bar	1	2	3	4	5	6
Maximum level of vacuum	-KPa	15	35	55	70	85	90
Air consumption	Nl/s	5.1	7.7	10.3	12.1	14.2	16.3
Intake air flow rate	m^3/h	53	98	128	150	168	182
Weight	Kg	7.2					
Item		**PA 200**					
Supply pressure	bar	1	2	3	4	5	6
Maximum level of vacuum	-KPa	15	35	55	70	85	90
Air consumption	Nl/s	6.0	9.1	12.2	14.2	16.9	19.4
Intake air flow rate	m^3/h	60	110	142	170	188	200
Weight	Kg	7.2					
Operating temperature	°C	-20 / +60					

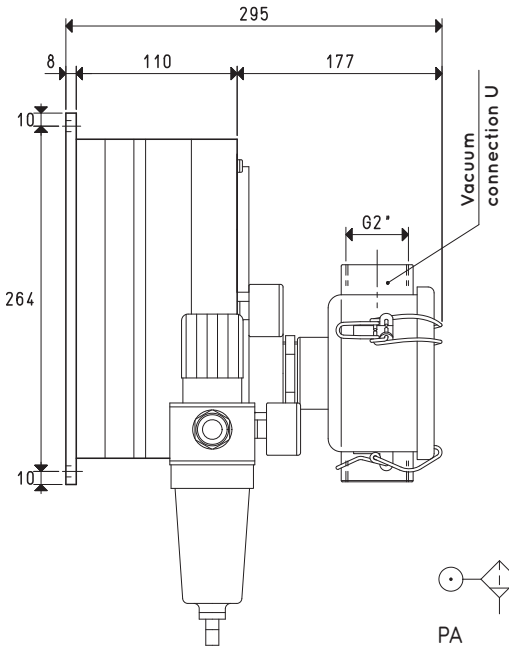
NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

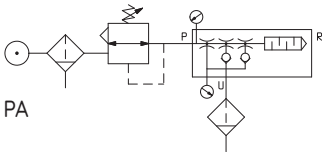
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

PNEUMATIC SUCTION PUMPS PA 250 and PA 300







Item		PA250					
Supply pressure	bar	1	2	3	4	5	6
Maximum level of vacuum	-KPa	15	35	55	70	85	90
Air consumption	Nl/s	7.5	11.2	15.0	17.3	20.7	24.0
Intake air flow rate	m^3/h	100	145	190	224	252	280
Weight	Kg	8,1					
Item		**PA300**					
Supply pressure	bar	1	2	3	4	5	6
Maximum level of vacuum	-KPa	15	35	55	70	85	90
Air consumption	Nl/s	9.0	13.5	18.1	20.4	24.8	29.0
Intake air flow rate	m^3/h	106	160	213	240	290	320
Weight	Kg	8.1					
Operating temperature	°C	-20 / +60					

NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

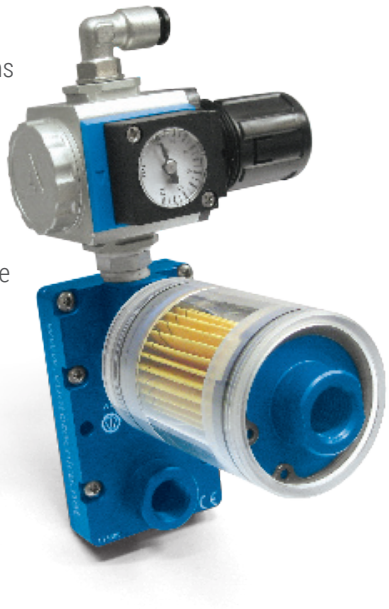
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

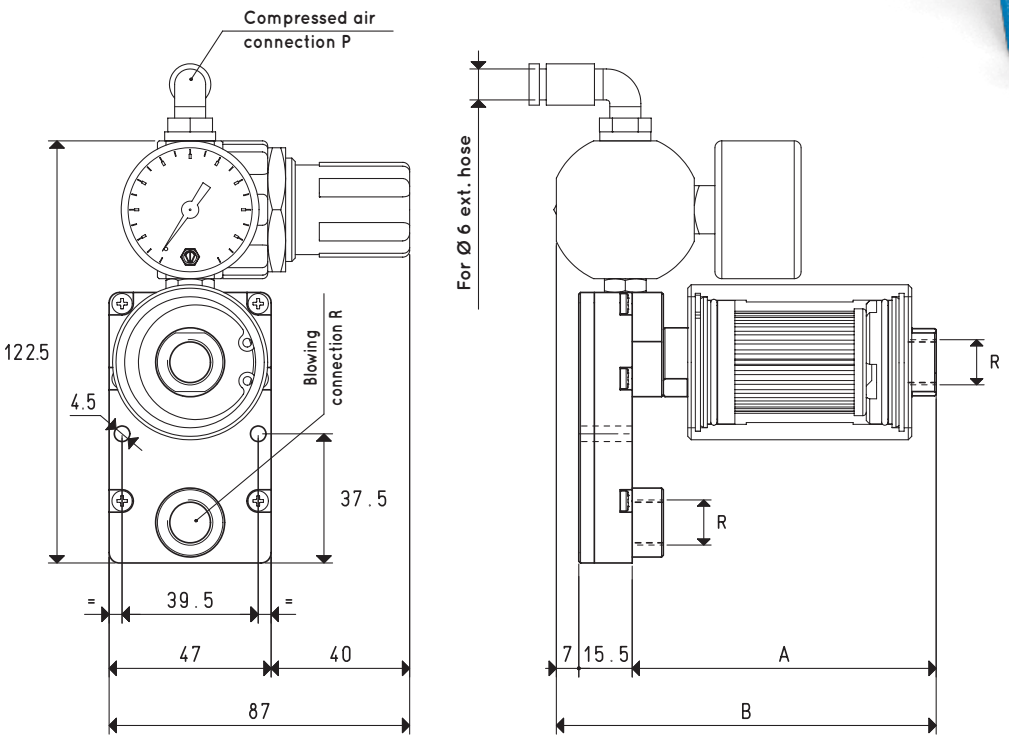
Adapters for GAS - NPT threading available on page 1.134

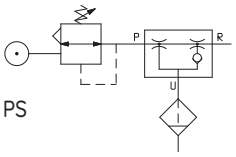
3D drawings are available on **vuototecnica.net**

SMALL PNEUMATIC BLOWING PUMPS PS

The assembly of a pressure adjuster equipped with pressure gauge and of an FCL filter on the suction inlet connection of a vacuum generator of the M .. SSX range has allowed creating these small pneumatic suction pumps. Their main features include reduced overall dimensions compared to their technical performance.
The pressure and flow rate can be adjusted according to the supply air pressure.
These pumps are powered with compressed air with a pressure ranging from 1 to 5 bar and can produce a maximum pressure of 0.7 bar and a blowing flow rate between 2.7 and 31 m^3/h, measured at a normal atmospheric pressure of 1013 mbar.
Based on the Venturi principle, they do not develop heat.
The filter equipped with microporous cartridge located on the air inlet connection can keep the finest dust and impurities.
Thanks to their static operating principle, maintenance is reduced to only a simple regular cleaning of the filter.







Item		PS 3				
Supply pressure	bar	1	2	3	4	5
Maximum blowing pressure	bar	0.1	0.2	0.3	0.5	0.7
Air consumption	Nl/s	0.2	0.4	0.5	0.7	0.8
Blown air flow rate	m^3/h	2.7	3.9	4.8	5.9	6.5
A				88		
B				110.5		
R	Ø			G1/4"		
Weight	Kg			0.44		

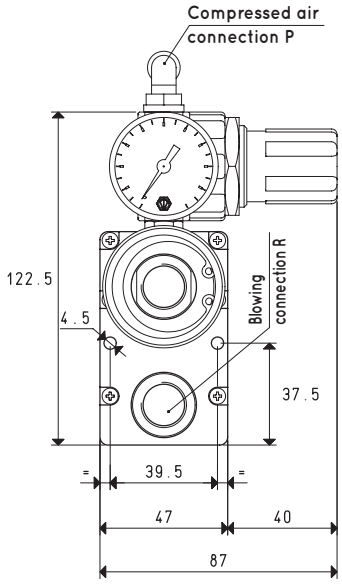
Item		PS 7				
Supply pressure	bar	1	2	3	4	5
Maximum blowing pressure	bar	0.1	0.2	0.3	0.5	0.7
Air consumption	Nl/s	0.4	0.6	0.8	1.2	1.4
Blown air flow rate	m^3/h	4.4	6.1	8.2	10.1	11.2
A				89		
B				111.5		
R				G3/8"		
Weight	Kg			0.45		

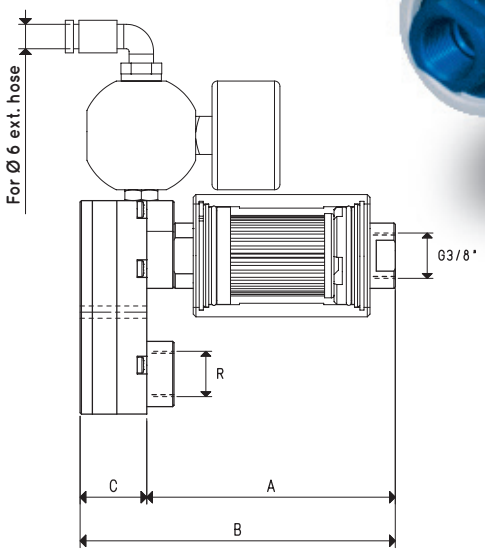
Operating temperature	°C	-20 / +60

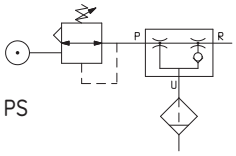
NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.134

SMALL PNEUMATIC BLOWING PUMPS PS 10, PS 14 and PS 18







Item		PS 10				
Supply pressure	bar	1	2	3	4	5
Maximum blowing pressure	-KPa	0.1	0.2	0.3	0.5	0.7
Air consumption	Nl/s	0.5	0.9	1.2	1.6	1.9
Blown air flow rate	m^3/h	5.8	9.2	12.0	14.2	16.2
A				94		
B				118.5		
C				24.5		
R				G3/8"		
Weight	Kg			0.49		
Item		**PS 14**				
Supply pressure	bar	1	2	3	4	5
Maximum blowing pressure	-KPa	0.1	0.2	0.3	0.5	0.7
Air consumption	Nl/s	0.9	1.3	1.7	2.1	2.5
Blown air flow rate	m^3/h	9.2	12.6	16.3	19.0	21.6
A				94		
B				118.5		
C				24.5		
R				G3/8"		
Weight	Kg			0.50		
Item		**PS 18**				
Supply pressure	bar	1	2	3	4	5
Maximum blowing pressure	-KPa	0.1	0.2	0.3	0.5	0.7
Air consumption	Nl/s	1.2	1.7	2.3	2.9	3.6
Blown air flow rate	m^3/h	12.3	17.6	23.0	26.9	31.0
A				94		
B				128.5		
C				34.5		
R				G1/2"		
Weight	Kg			0.52		
Operating temperature	°C			-20 / +60		

NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

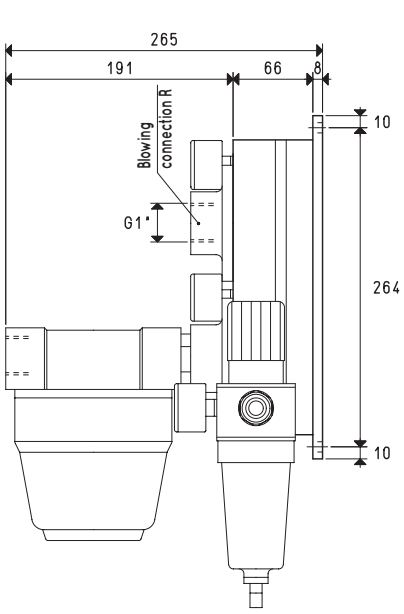
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

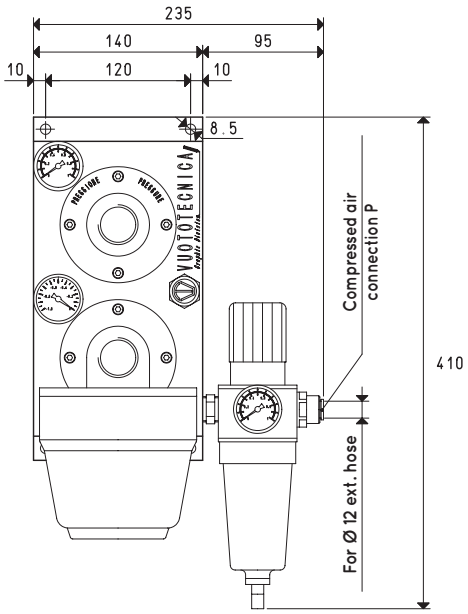
Adapters for GAS - NPT threading available on page 1.134

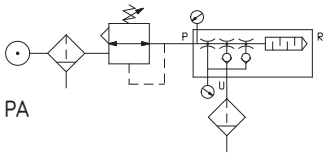
3D drawings are available on **vuototecnica.net**

PNEUMATIC BLOWING PUMPS PS

A newly designed range of ejectors has allowed creating this range of pneumatic blowing pumps featuring an excellent ratio between the amount of consumed air and generated air, as well as the ability to adjust the pressure and flow rate according to the supply air pressure.
These pumps are powered with compressed air with a pressure ranging from 1 to 6 bar and have a blowing flow rate between 18 and 425 m^3/h, measured at a normal atmospheric pressure of 1013 mbar.
When designing these pumps, our attention was focused on noise. In fact, they are perfectly soundproofed and there are no moving parts subject to wear and vibrations. All this results in an extremely silent operation.
Moreover, as they are based on the Venturi principle, they do not develop heat.
They are equipped as standard with a filter/pressure reducer unit for the supply air and a filter with microporous cartridge located on the air inlet connection which can keep the finest dust and impurities.
The excellent filtration of the compressed air supply and intake air allows the intake of air free from oil, water condensates or impurities from between the sheets of paper to be separated in the working environment, with no pollution.
The use of light alloys for making these pumps has allowed a considerable reduction of their weight thus allowing them to be directly installed onto the machine.
Thanks to their static operating principle, maintenance is reduced to a only a simple regular cleaning of the filters.







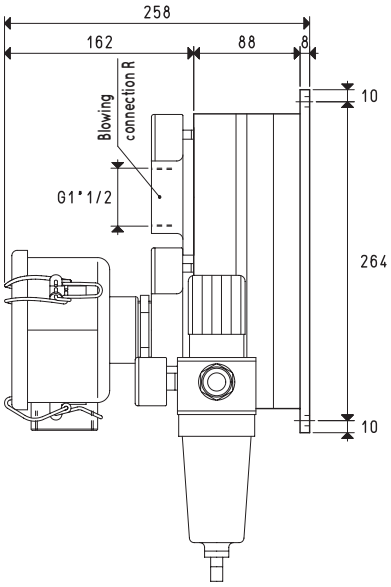
Item		PS 40					
Supply pressure	bar	1	2	3	4	5	6
Maximum blowing pressure	bar	0.1	0.2	0.3	0.5	0.7	0.8
Air consumption	Nl/s	1.0	1.5	2.0	2.3	2.7	3.2
Blown air flow rate	m^3/h	18	28	37	44	48	53
Weight	Kg	6.3					
Item		**PS 70**					
Supply pressure	bar	1	2	3	4	5	6
Maximum blowing pressure	bar	0.1	0.2	0.3	0.5	0.7	0.8
Air consumption	Nl/s	2.0	3.0	4.1	4.9	5.7	6.6
Blown air flow rate	m^3/h	36	57	72	83	93	104
Weight	Kg	6.3					
Item		**PS 100**					
Supply pressure	bar	1	2	3	4	5	6
Maximum blowing pressure	bar	0.1	0.2	0.3	0.5	0.7	0.8
Air consumption	Nl/s	3.0	4.6	6.2	7.2	8.5	9.8
Blown air flow rate	m^3/h	38	73	97	114	129	144
Weight	Kg	6.3					
Operating temperature	°C	-10 / +45					

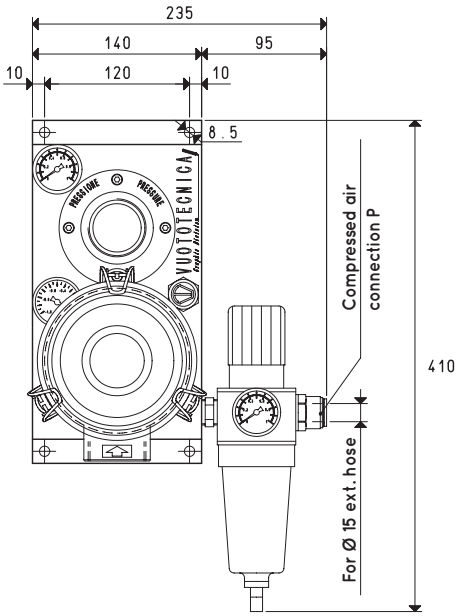
NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

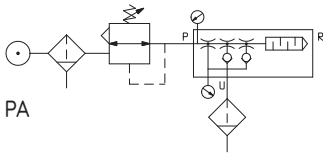
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

PNEUMATIC BLOWING PUMPS PS 140, PS 170 and PS 200







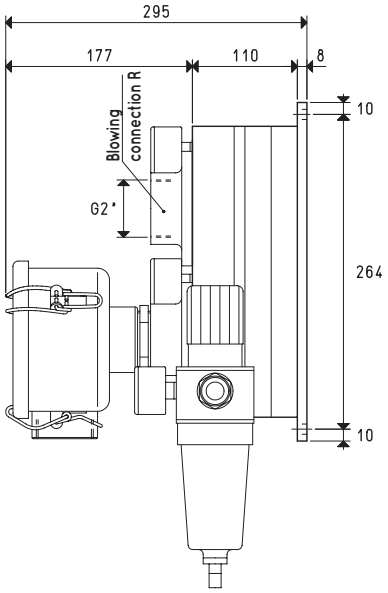
Item		PS 140					
Supply pressure	bar	1	2	3	4	5	6
Maximum blowing pressure	bar	0.1	0.2	0.3	0.5	0.7	0.8
Air consumption	Nl/s	4.1	6.2	8.3	9.6	11.4	13.0
Blown air flow rate	m^3/h	59	102	135	160	181	199
Weight	Kg	7.3					
Item		**PS 170**					
Supply pressure	bar	1	2	3	4	5	6
Maximum blowing pressure	bar	0.1	0.2	0.3	0.5	0.7	0.8
Air consumption	Nl/s	5.1	7.7	10.3	12.1	14.2	16.3
Blown air flow rate	m^3/h	71	125	165	194	219	240
Weight	Kg	7.3					
Item		**PS 200**					
Supply pressure	bar	1	2	3	4	5	6
Maximum blowing pressure	bar	0.1	0.2	0.3	0.5	0.7	0.8
Air consumption	Nl/s	6.0	9.1	12.2	14.2	16.9	19.4
Blown air flow rate	m^3/h	81	142	185	221	249	270
Weight	Kg	7.3					
Operating temperature	°C	-20 / +60					

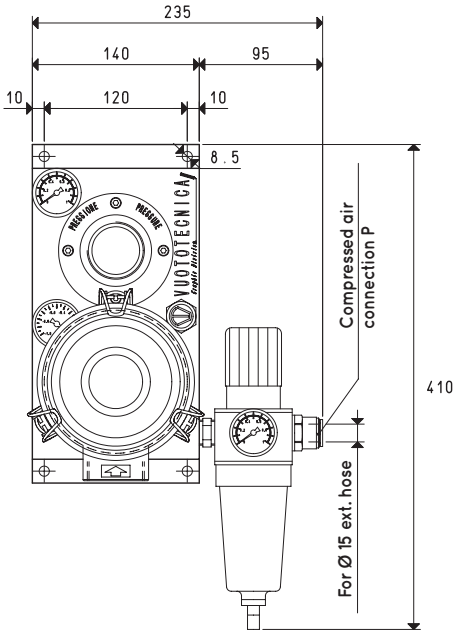
NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

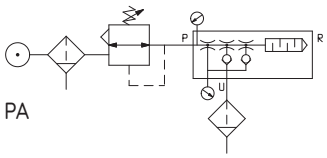
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

PNEUMATIC BLOWING PUMPS PS 250 and PS 300







Item		PS 250					
Supply pressure	bar	1	2	3	4	5	6
Maximum blowing pressure	bar	0.1	0.2	0.3	0.5	0.7	0.8
Air consumption	Nl/s	7.5	11.2	15.0	17.3	20.7	24.0
Blown air flow rate	m^3/h	127	185	244	286	327	366
Weight	Kg	8.2					
Item		**PS 300**					
Supply pressure	bar	1	2	3	4	5	6
Maximum blowing pressure	bar	0.1	0.2	0.3	0.5	0.7	0.8
Air consumption	Nl/s	9.0	13.5	18.1	20.4	24.8	29.0
Blown air flow rate	m^3/h	138	208	278	313	379	424
Weight	Kg	8.2					
Operating temperature	°C	-20 / +60					

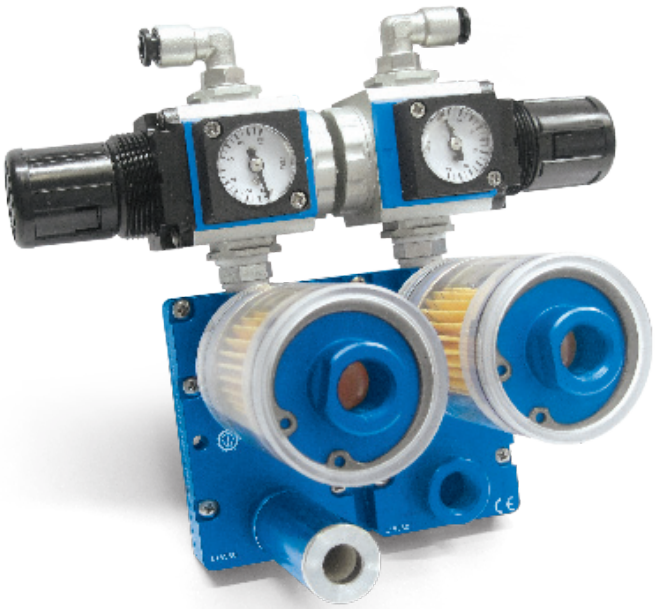
NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

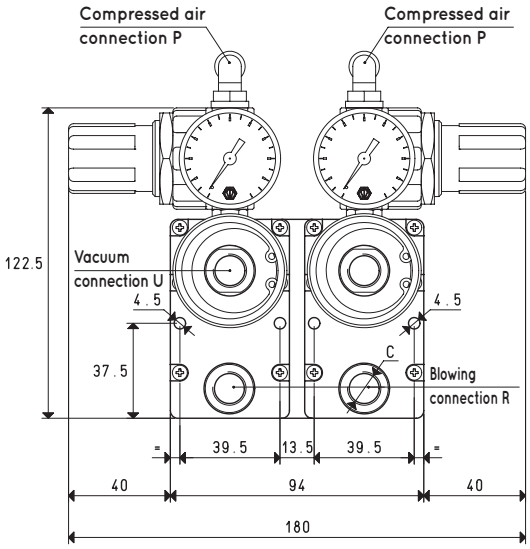
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

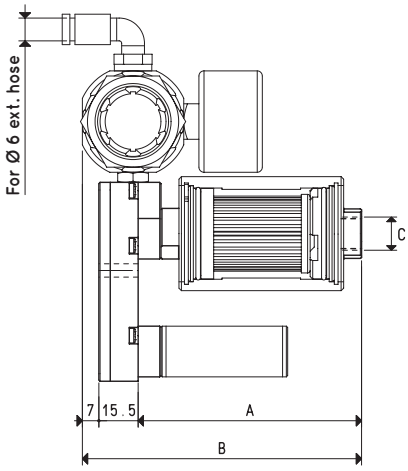
Adapters for GAS - NPT threading available on page 1.134

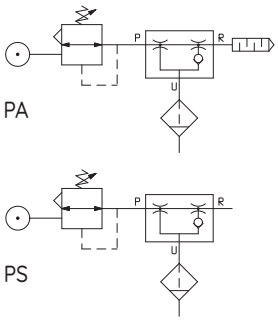
SMALL COMBINED PNEUMATIC SUCTION PUMPS PA AND BLOWING PUMPS PS
PA 3 ÷ 7 WITH PS 3 ÷ 7

All the small pneumatic suction and blowing pumps previously described can be combined regardless of their suction or blowing flow rate.
Given the enormous number of possible combinations, for space reasons, this catalogue only describes combinations of pumps with the same size.









Item		PA 3				
Supply pressure	bar	1	2	3	4	5
Maximum level of vacuum	-KPa	20	42	62	80	85
Air consumption	Nl/s	0.2	0.4	0.5	0.7	0.8
Intake air flow rate	m^3/h	2.0	2.5	3.0	3.4	3.6
A		88				
B		110.5				
R	Ø	G1/4"				
Weight	Kg	0.45				

Item		PS 3				
Supply pressure	bar	1	2	3	4	5
Maximum blowing pressure	bar	0.1	0.2	0.3	0.5	0.7
Air consumption	Nl/s	0.2	0.4	0.5	0.7	0.8
Blown air flow rate	m^3/h	2.7	3.9	4.8	5.9	6.5
A		88				
B		110.5				
R	Ø	G1/4"				
Weight	Kg	0.44				

Item		PA 7				
Supply pressure	bar	1	2	3	4	5
Maximum level of vacuum	-KPa	20	42	62	80	85
Air consumption	Nl/s	0.4	0.6	0.8	1.2	1.4
Intake air flow rate	m^3/h	3.0	4.0	5.4	5.8	6.2
A		88				
B		110.5				
R	Ø	G3/8"				
Weight	Kg	0.46				
Operating temperature	°C	-20 / +60				

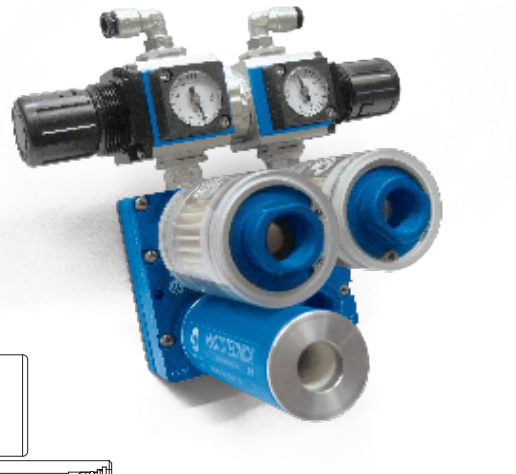
Item		PS 7				
Supply pressure	bar	1	2	3	4	5
Maximum blowing pressure	bar	0.1	0.2	0.3	0.5	0.7
Air consumption	Nl/s	0.4	0.6	0.8	1.2	1.4
Blown air flow rate	m^3/h	4.4	6.1	8.2	10.1	11.2
A		88				
B		110.5				
R	Ø	G3/8"				
Weight	Kg	0.45				
Operating temperature	°C	-20 / +60				

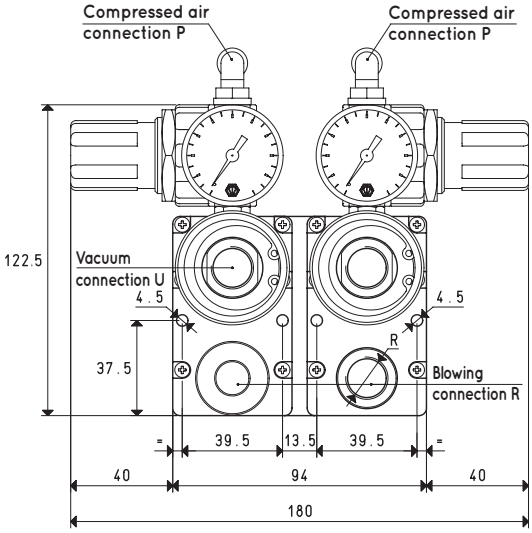
NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

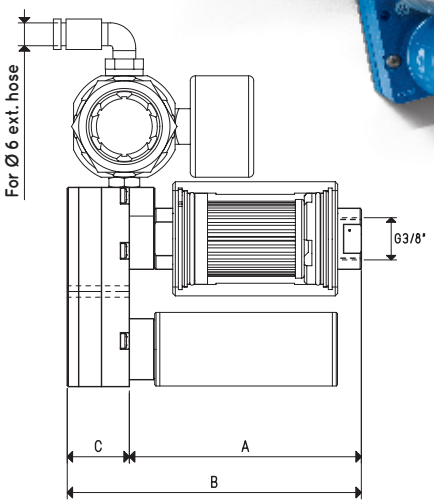
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

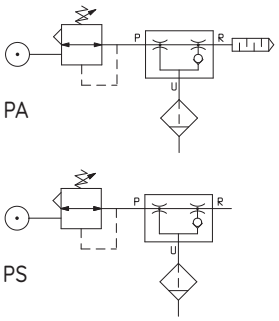
Adapters for GAS - NPT threading available on page 1.134

SMALL COMBINED PNEUMATIC SUCTION PUMPS PA AND BLOWING PUMPS PS
PA 10 ÷ 18 WITH PS 10 ÷ 18









Item		PA 10				
Supply pressure	bar	1	2	3	4	5
Maximum level of vacuum	-KPa	20	42	62	80	85
Air consumption	Nl/s	0.5	0.9	1.2	1.6	1.9
Intake air flow rate	m^3/h	4.0	6.0	7.7	8.5	9.4
A				94		
B				118.5		
C				24.5		
Weight	Kg			0.59		

Item		PS 10				
Supply pressure	bar	1	2	3	4	5
Maximum blowing pressure	bar	0.1	0.2	0.3	0.5	0.7
Air consumption	Nl/s	0.5	0.9	1.2	1.6	1.9
Blown air flow rate	m^3/h	5.8	9.2	12.0	14.2	16.2
A				94		
B				118.5		
C				24.5		
R	Ø			G3/8"		
Weight	Kg			0.49		

Item		PA 14				
Supply pressure	bar	1	2	3	4	5
Maximum level of vacuum	-KPa	20	42	62	80	85
Air consumption	Nl/s	0.9	1.3	1.7	2.1	2.5
Intake air flow rate	m^3/h	6.0	8.0	10.2	11.5	12.6
A				94		
B				118.5		
C				24.5		
Weight	Kg			0.60		

Item		PS 14				
Supply pressure	bar	1	2	3	4	5
Maximum blowing pressure	bar	0.1	0.2	0.3	0.5	0.7
Air consumption	Nl/s	0.9	1.3	1.7	2.1	2.5
Blown air flow rate	m^3/h	9.2	12.6	16.3	19.0	21.6
A				94		
B				118.5		
C				24.5		
R	Ø			G3/8"		
Weight	Kg			0.50		

Item		PA 18				
Supply pressure	bar	1	2	3	4	5
Maximum level of vacuum	-KPa	20	42	62	80	85
Air consumption	Nl/s	1.2	1.7	2.3	2.9	3.6
Intake air flow rate	m^3/h	8.0	11.5	14.8	16.5	18.0
A				94		
B				136.5		
C				34.5		
Weight	Kg			0.62		
Operating temperature	°C			-20 / +60		

Item		PS 18				
Supply pressure	bar	1	2	3	4	5
Maximum blowing pressure	bar	0.1	0.2	0.3	0.5	0.7
Air consumption	Nl/s	1.2	1.7	2.3	2.9	3.6
Blown air flow rate	m^3/h	12.3	17.6	23.0	26.9	31.0
A				94		
B				128.5		
C				34.5		
R	Ø			G1/2"		
Weight	Kg			0.52		
Operating temperature	°C			-20 / +60		

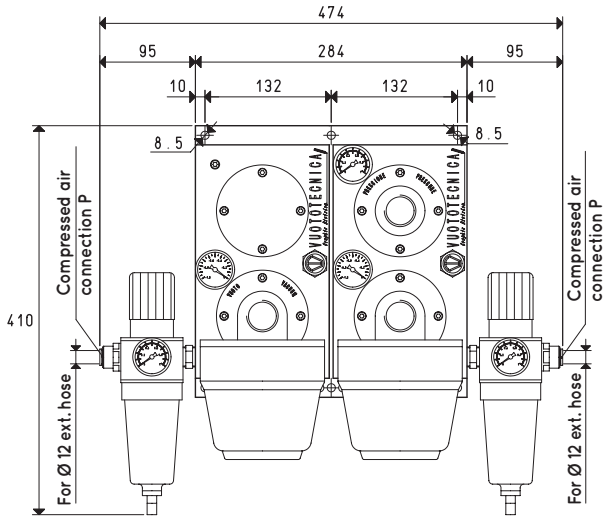
NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

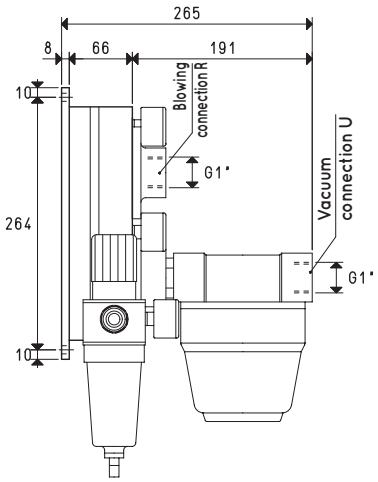
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

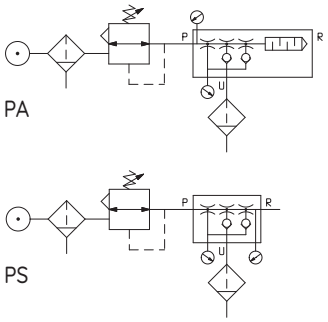
Adapters for GAS - NPT threading available on page 1.134

COMBINED PNEUMATIC SUCTION PUMPS PA AND BLOWING PUMPS PS
PA 40 ÷ 100 WITH PS 40 ÷ 100

All the pneumatic suction and blowing pumps previously described can be combined regardless of their suction or blowing flow rate.
Given the enormous number of possible combinations, for space reasons, this catalogue only describes combinations of pumps with the same size.







Item		PA 40					
Supply pressure	bar	1	2	3	4	5	6
Maximum level of vacuum	-KPa	14	30	46	65	82	90
Air consumption	Nl/s	1.0	1.5	2.0	2.3	2.7	3.2
Intake air flow rate	m^3/h	15	23	30	36	39	42
Weight	Kg	6.2					

Item		PA 70					
Supply pressure	bar	1	2	3	4	5	6
Maximum level of vacuum	-KPa	14	30	46	65	82	90
Air consumption	Nl/s	2.0	3.0	4.1	4.9	5.7	6.6
Intake air flow rate	m^3/h	29	47	58	65	73	80
Weight	Kg	6.2					

Item		PA 100					
Supply pressure	bar	1	2	3	4	5	6
Maximum level of vacuum	-KPa	14	30	46	65	82	90
Air consumption	Nl/s	3.0	4.6	6.2	7.2	8.5	9.8
Intake air flow rate	m^3/h	28	57	75	88	98	108
Weight	Kg	6.2					
Operating temperature	°C	-20 / +60					

Item		PS 40					
Supply pressure	bar	1	2	3	4	5	6
Maximum blowing pressure	-KPa	0.1	0.2	0.3	0.5	0.7	0.8
Air consumption	Nl/s	1.0	1.5	2.0	2.3	2.7	3.2
Blown air flow rate	m^3/h	18	28	37	44	48	53
Weight	Kg	6.3					

Item		PS 70					
Supply pressure	bar	1	2	3	4	5	6
Maximum blowing pressure	-KPa	0.1	0.2	0.3	0.5	0.7	0.8
Air consumption	Nl/s	2.0	3.0	4.1	4.9	5.7	6.6
Blown air flow rate	m^3/h	36	57	72	83	93	104
Weight	Kg	6.3					

Item		PS 100					
Supply pressure	bar	1	2	3	4	5	6
Maximum blowing pressure	-KPa	0.1	0.2	0.3	0.5	0.7	0.8
Air consumption	Nl/s	3.0	4.6	6.2	7.2	8.5	9.8
Blown air flow rate	m^3/h	38	73	97	114	129	144
Weight	Kg	6.3					
Operating temperature	°C	-20 / +60					

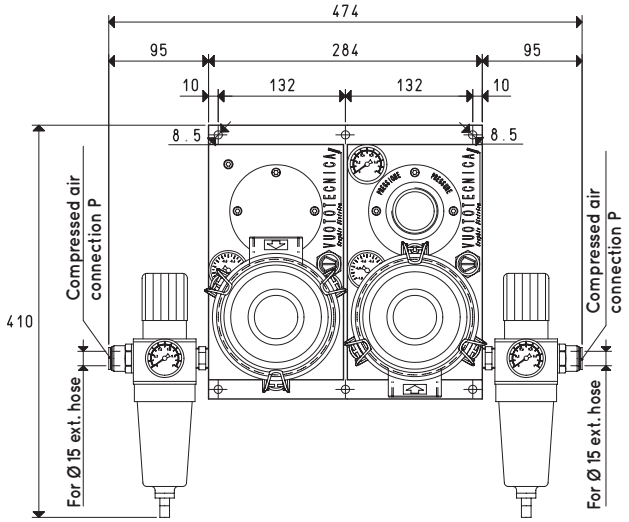
NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

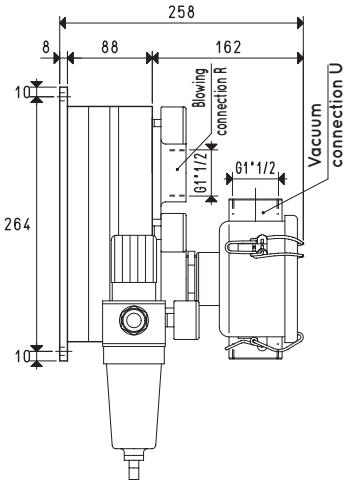
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

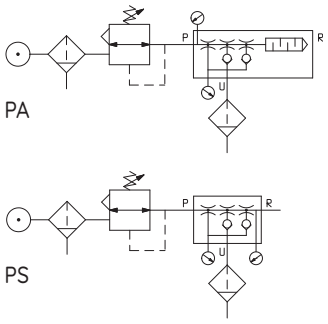
Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**

COMBINED PNEUMATIC SUCTION PUMPS PA AND BLOWING PUMPS PS
PA 140 ÷ 200 WITH PS 140 ÷ 200







Item		PA 140					
Supply pressure	bar	1	2	3	4	5	6
Maximum level of vacuum	-KPa	15	35	55	70	85	90
Air consumption	Nl/s	4.1	6.2	8.3	9.6	11.4	13.0
Intake air flow rate	m^3/h	45	80	106	125	140	152
Weight	Kg	7.2					

Item		PA 170					
Supply pressure	bar	1	2	3	4	5	6
Maximum level of vacuum	-KPa	15	35	55	70	85	90
Air consumption	Nl/s	5.1	7.7	10.3	12.1	14.2	16.3
Intake air flow rate	m^3/h	53	98	128	150	168	182
Weight	Kg	7.2					

Item		PA 200					
Supply pressure	bar	1	2	3	4	5	6
Maximum level of vacuum	-KPa	15	35	55	70	85	90
Air consumption	Nl/s	6.0	9.1	12.2	14.2	16.9	19.4
Intake air flow rate	m^3/h	60	110	142	170	188	200
Weight	Kg	7.2					
Operating temperature	°C	-20 / +60					

Item		PS 140					
Supply pressure	bar	1	2	3	4	5	6
Maximum blowing pressure	-KPa	0.1	0.2	0.3	0.5	0.7	0.8
Air consumption	Nl/s	4.1	6.2	8.3	9.6	11.4	13.0
Blown air flow rate	m^3/h	59	102	135	160	181	199
Weight	Kg	7.3					

Item		PS 170					
Supply pressure	bar	1	2	3	4	5	6
Maximum blowing pressure	-KPa	0.1	0.2	0.3	0.5	0.7	0.8
Air consumption	Nl/s	5.1	7.7	10.3	12.1	14.2	16.3
Blown air flow rate	m^3/h	71	125	165	194	219	240
Weight	Kg	7.3					

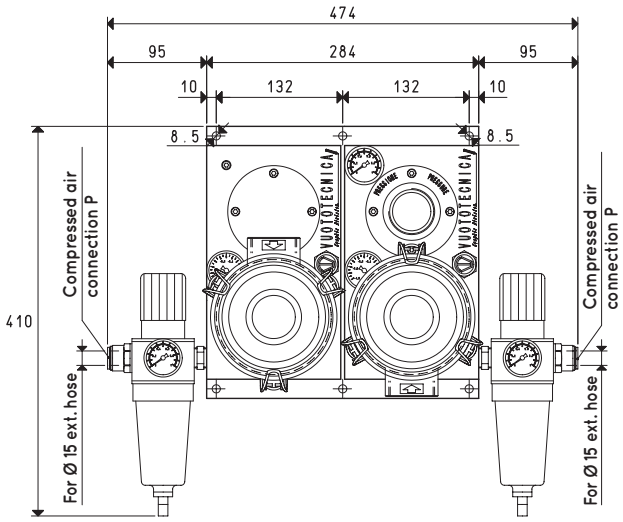
Item		PS 200					
Supply pressure	bar	1	2	3	4	5	6
Maximum blowing pressure	-KPa	0.1	0.2	0.3	0.5	0.7	0.8
Air consumption	Nl/s	6.0	9.1	12.2	14.2	16.9	19.4
Blown air flow rate	m^3/h	81	142	185	221	249	270
Weight	Kg	7.3					
Operating temperature	°C	-20 / +60					

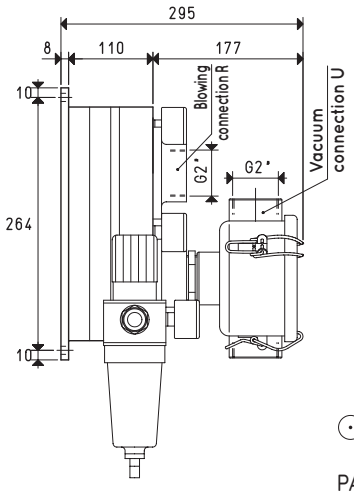
NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

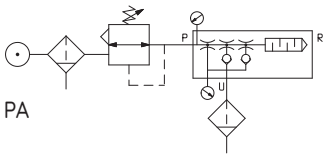
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

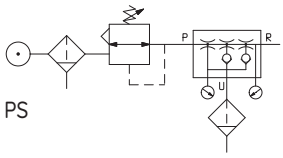
Adapters for GAS - NPT threading available on page 1.134

COMBINED PNEUMATIC SUCTION PUMPS PA AND BLOWING PUMPS PS
PA 250 ÷ 300 WITH PS 250 ÷ 300









Item		PA 250					
Supply pressure	bar	1	2	3	4	5	6
Maximum level of vacuum	-KPa	15	35	55	70	85	90
Air consumption	Nl/s	7.5	11.2	15.0	17.3	20.7	24.0
Intake air flow rate	m³/h	100	145	190	224	252	280
Weight	Kg	8.1					

Item		PA 300					
Supply pressure	bar	1	2	3	4	5	6
Maximum level of vacuum	-KPa	15	35	55	70	85	90
Air consumption	Nl/s	9.0	13.5	18.1	20.4	24.8	29.0
Intake air flow rate	m³/h	106	160	213	240	290	320
Weight	Kg	8.1					
Operating temperature	°C	-20 / +60					

Item		PS 250					
Supply pressure	bar	1	2	3	4	5	6
Maximum blowing pressure	-KPa	0.1	0.2	0.3	0.5	0.7	0.8
Air consumption	Nl/s	7.5	11.2	15.0	17.3	20.7	24.0
Blown air flow rate	m³/h	127	185	244	286	327	366
Weight	Kg	8.2					

Item		PS 300					
Supply pressure	bar	1	2	3	4	5	6
Maximum blowing pressure	-KPa	0.1	0.2	0.3	0.5	0.7	0.8
Air consumption	Nl/s	9.0	13.5	18.1	20.4	24.8	29.0
Blown air flow rate	m³/h	138	208	278	313	379	424
Weight	Kg	8.2					
Operating temperature	°C	-20 / +60					

NOTE: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

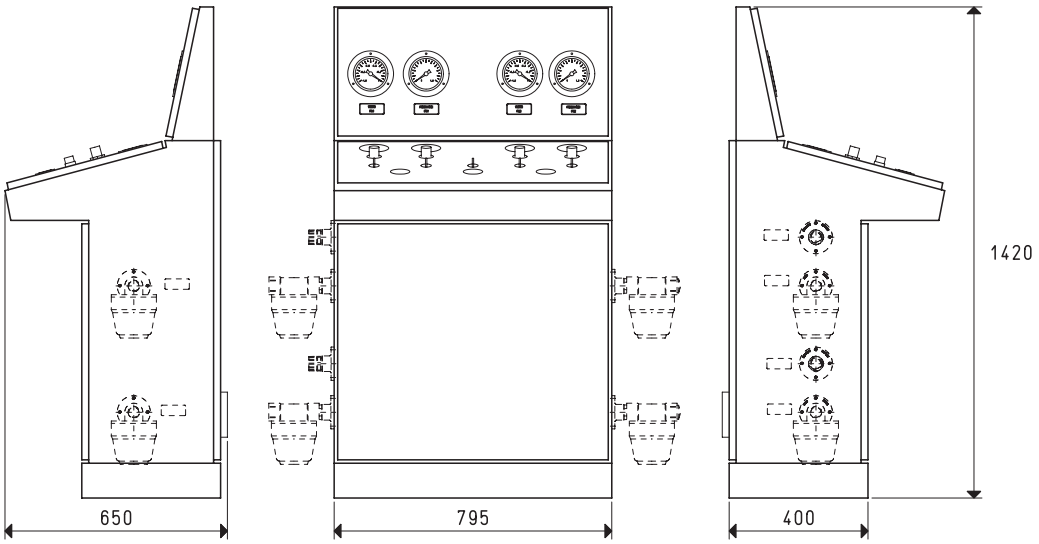
3D drawings are available on **vuototecnica.net**

SUCTION AND BLOWING SYSTEM AS

With the suction and blowing system AS, we have tried to provide the printing industry with an answer to most of their requirements regarding the management of paper during the printing process, or rather:
- The concentration of all the necessary pumps and commands on one single piece;
- An increased printing quality thanks to individually controlled pumps;
- An increase of productivity resulting from the configuration and use of individual pumps;
- Reduced machine idle state due to the pneumatic pumps based on the Venturi principle;
- An improvement of the work environment thanks to the noise reduction, absence of heat and the emission of air free of oil vapours, water condensation and impurities between the sheets of paper to be separated and in the work environment;
- Energy saving due to a low compressed air consumption compared to the amount of sucked (or generated) air;
- Maintenance reduced to a regular cleaning of the filters.

The suction and blowing system AS is composed of a metal, easy-to-place cabinet, inside of which the combined pneumatic pumps PA and PS are located with the supply compressed air interception and adjustment valves.
The suction and blowing capacities of the pumps are determined according to the client's requirements or to technical specifications of the machine manufacturer.
The blowing and suction connectors are located on the sides of the cabinet for the connection to the application, as well as the filters equipped with micro-porous cartridge against fine dust.
The following are installed on the control panel:
- The pneumatic main switch for supply compressed air interception with a pressure gauge for a direct reading of the line pressure;
- The pneumatic switches for supply compressed air interception of every single pump;
- The pressure reducers with relative pressure gauges for adjusting the compressed air of every single pump. The vacuum (or pressure) level as well as the pump flow rate can be adjusted according to the supply air pressure;
- Vacuum gauges and pressure gauges for a direct reading of the vacuum and pressure at the application;
- Vacuum gauges for controlling the clogging level of the PS pump filters.

All our pneumatic suction and blowing pumps can be combined regardless of their suction and blowing flow rate and can be installed inside the system cabinet. Given the enormous number of possible combinations, this catalogue only describes combinations of pumps with the same size.



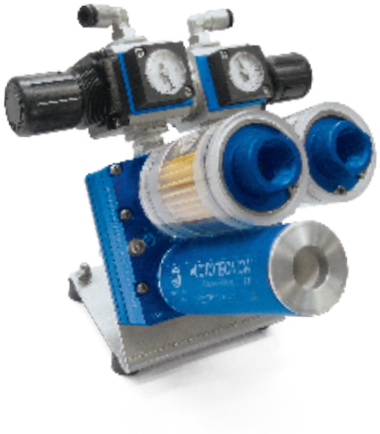
Item	Fitted for:	Weight Kg
AS 4	4 PA / PS pumps	120

NOTE: The filters are not parts built into the system, but they are the same filters installed on the PA / PS pumps, carried outside the cabinet.
To order the complete system, simply add the item of the selected PA and PS pumps to item AS 4.
Example: 1 AS 4
1 PA 100 1 PS 140
1 PA 170 1 PS 200
It is possible to install maximum 4 pumps on the system, regardless of their size and suction or blowing function.
NOTE: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

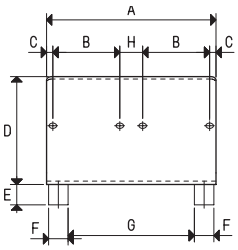
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

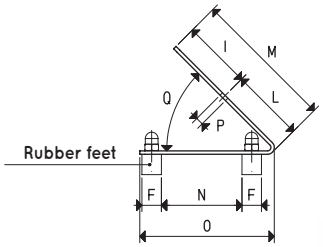
PNEUMATIC SUCTION AND BLOWING PUMP HOLDING SUPPORTS

The supports described on this page have been designed to allow a quick assembly of the pneumatic suction and blowing pumps and their easy placement on the machine.
They are made with a sturdy, satin-finished, stainless sheet steel and are equipped with anti-slip and anti-vibration rubber feet.
These supports are currently available for single pneumatic pumps and for the combined ones.



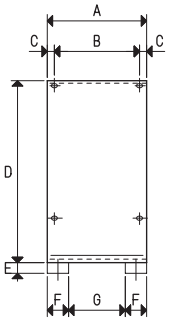
SUPPORT FOR SMALL COMBINED PNEUMATIC PUMPS

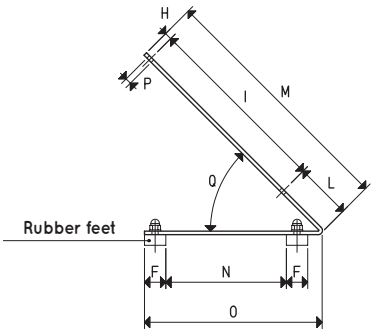




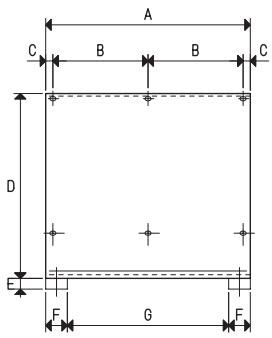
Item	A	B	C	D	E	F Ø	G	H	I	L	M	N	O	P Ø	Q	Weight Kg
GR DIV 03	100	39.5	3.75	64	12	11.5	74.5	13.5	41	43	84	47.5	79	4.5	45°	0.1

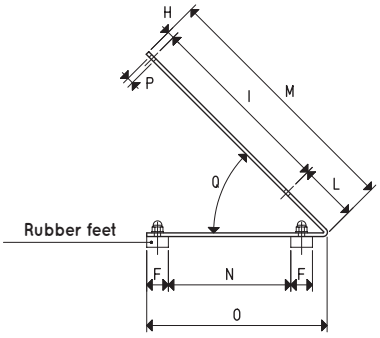
SUPPORT FOR SINGLE PNEUMATIC PUMPS





SUPPORT FOR COMBINED PNEUMATIC PUMPS



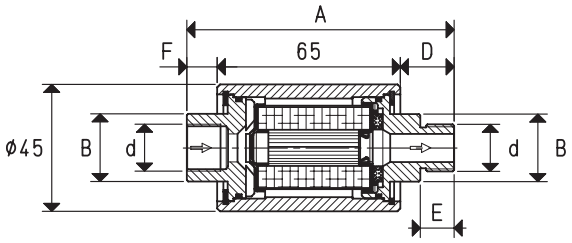


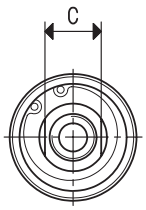
Item	A	B	C	D	E	F Ø	G	H	I	L	M	N	O	P Ø	Q	Weight Kg
GR DIV 01	140	120	10	270	15	30	80	10	264	81	355	170	250	8.5	45°	2.1
GR DIV 02	284	132	10	270	15	30	224	10	264	81	355	170	250	8.5	45°	4.2

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

PNEUMATIC SUCTION AND BLOWING PUMP SUCTION FILTERS

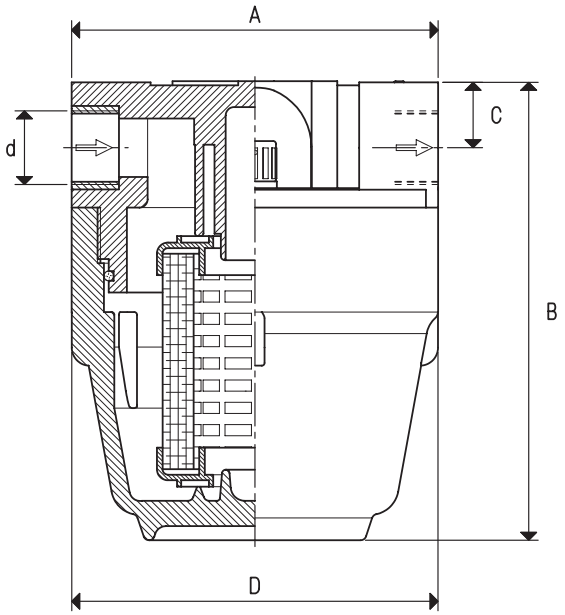
To allow the pneumatic suction and blowing pumps to work even in very dusty environments, it is necessary to use these filters that, installed on the suction inlet connection, can keep the finest dust and impurities and affecting the flow rate in a negligible manner.
The filtering cartridges, in fact, are made with a special treated paper with a porosity level of 5 - 7 micron, and pleated to increase the filtering surface.
FCL filters are composed of a transparent Plexiglass cylindrical body inside of which is located the filtering cartridge locked by two anodised aluminium flanges that are kept in place by Seeger rings, inside of which the threaded connectors and the seals are housed.
The filters can be inspected by simply removing one of the two flanges.
The container of the filtering element FP is made with plastic and it is screwed onto the blue plastic lid; a gasket located between the two elements ensures a perfect seal.
The container of the filtering element FC, as well as its lid, are made with sheet steel and varnished with a special oxidation-resistant treatment. A seal between the lid and the container ensures a perfect vacuum seal, while the release clamps on the container allow a quick opening of the lid to check or replace the filtering cartridge.



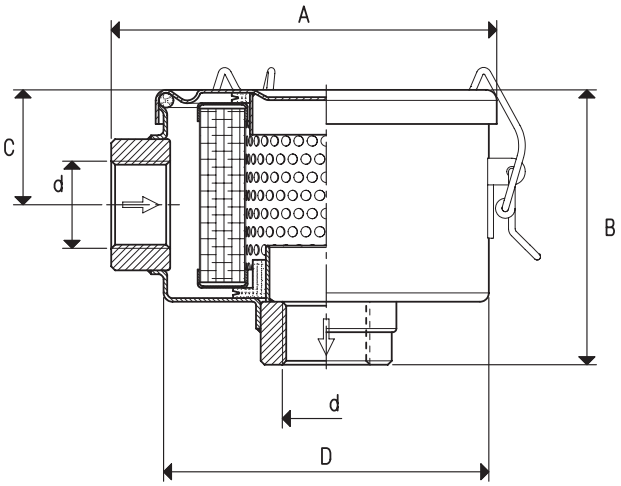


Item	d Ø	A	B Ø	C	D	E	F	Max capac. m³/h	For pumps item	Weight Kg	Spare cartridge item
FCL 1 MF	G1/4"	91.2	20	17	19.1	12	7.1	5	PA - PS 3	0.12	00 FCL 03
FCL 2 MF	G3/8"	93.4	24	20	19.1	12	9.3	20	PA - PS 7 - 14 - 18	0.14	00 FCL 03

Item FP 30 / 4 / SP



Item FC 38
Item FC 55



Item	d Ø	A	B	C	D Ø	Max capac. m³/h	For pumps item	Weight Kg	Spare cartridge item
FP 30/4/SP	G1"	145	169	24	130	100	PA - PS 40 ÷ 100	1.00	SP/4
FC 38	G1" 1/2	143	101	45	120	200	PA - PS 140 ÷ 200	0.95	00 FC 15
FC 55	G2"	143	170	79	120	300	PA - PS 250 ÷ 300	1.29	00 FC 33

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

3D drawings are available on **vuototecnica.net**

Vacuum gauge Ø 40 mm with 1/8” coaxial gas coupler

Item	For pneumatic pumps
09 03 15	PA - PS 40 ÷ 300

Pressure gauge Ø 40 mm with 1/8” coaxial gas coupler

Item	bar	For pneumatic pumps
09 03 25	1 ÷ 10	All
09 03 20	1 ÷ 1.6	PS 40 ÷ 300

1/8” gas pressure reducer

Item	For pneumatic pumps
FIR 00 SF	PA 3 - 7 - 10 - 14 - 18
	PS 3 - 7 - 10 - 14 - 18

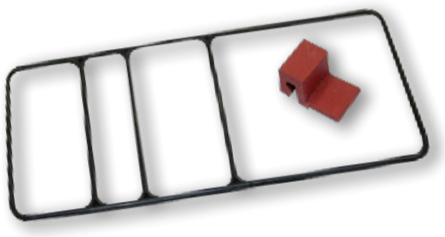
1/2” gas filter/pressure reducer

Item	For pneumatic pumps
FIR 03	PA 40 - 70 - 100 - 140 - 170 - 200 - 250 - 300
	PS 40 - 70 - 100 - 140 - 170 - 200 - 250 - 300

3D drawings are available on **vuototecnica.net**

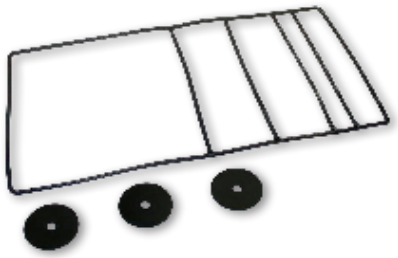
Sealing kit and reed valves

Item	For pneumatic pumps item
00 KIT M 3	PA 3 - PS 3
00 KIT M 7	PA 7 - PS 7
00 KIT M 10	PA 10 - PS 10
00 KIT M 14	PA 14 - PS 14
00 KIT M 18	PA 18 - PS 18



Sealing kit and reed valves

Item	For pneumatic pumps item
00 KIT PVP 40 M	PA 40 - PS 40
00 KIT PVP 70 M	PA 70 - PS 70
00 KIT PVP 100 M	PA 100 - PS 100
00 KIT PVP 140 M	PA 140 - PS 140
00 KIT PVP 170 M	PA 170 - PS 170
00 KIT PVP 200 M	PA 200 - PS 200
00 KIT PVP 250 M	PA 250 - PS 250
00 KIT PVP 300 M	PA 300 - PS 300



Exhaust silencers SSX

Item	For pneumatic pumps
SSX 1/4"	PA 3
SSX 3/8"	PA 7 - 10 - 14
SSX 1/2"	PA 18

Sound absorbing material on the exhaust

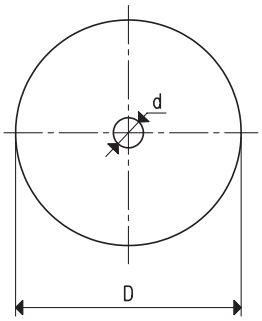
Item	For pneumatic pumps item	Quantity
00 15 150	M3 - M3 SSX	1 piece
	M7 - M7 SSX	1 piece
	M10 - M10 SSX	2 pieces
	M14 - M14 SSX	2 pieces
	M18 - M18 SSX	3 pieces
00 15 110	PA 40 - PS 40	1 piece
	PA 70 - PS 70	1 piece
	PA 100 - PS 100	1 piece
	PA 140 - PS 140	1 piece
	PA 170 - PS 170	1 piece
	PA 200 - PS 200	1 piece
	PA 250 - PS 250	1 piece
	PA 300 - PS 300	1 piece

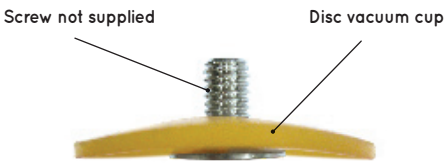
Sound absorbing material on ejectors

Item	For pneumatic pumps item	Quantity
00 15 111	PA 40 - PS 40	1 piece
	PA 70 - PS 70	1 piece
	PA 100 - PS 100	1 piece
	PA 140 - PS 140	2 pieces
	PA 170 - PS 170	2 pieces
	PA 200 - PS 200	2 pieces
	PA 250 - PS 250	3 pieces
	PA 300 - PS 300	3 pieces

DISC CUPS

Apart from some standard rubber discs, these items are generally produced upon specific request by the client and for a minimum amount to be specified in the offer phase.
They can be die-cut from sheets or moulded in nitrile rubber, in natural para rubber, silicone or special compounds, as well as in rubberised or polyurethane fabric.
The discs described above are used in the printing industry, as an alternative to vacuum cups, for gripping and handling sheets of paper, cardboard or plastic.





EXAMPLE OF APPLICATION

Item	D Ø	d Ø	S
01 17 31 N	17	3.5	0.8
01 30 41 NG	30	4.0	1.5
01 30 61 N	30	6.0	2.0
01 30 91 N	30	9.0	1.5
01 57 81 S	57	8.5	1.3

N = natural para rubber; NG= yellow rubber; S = silicone

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

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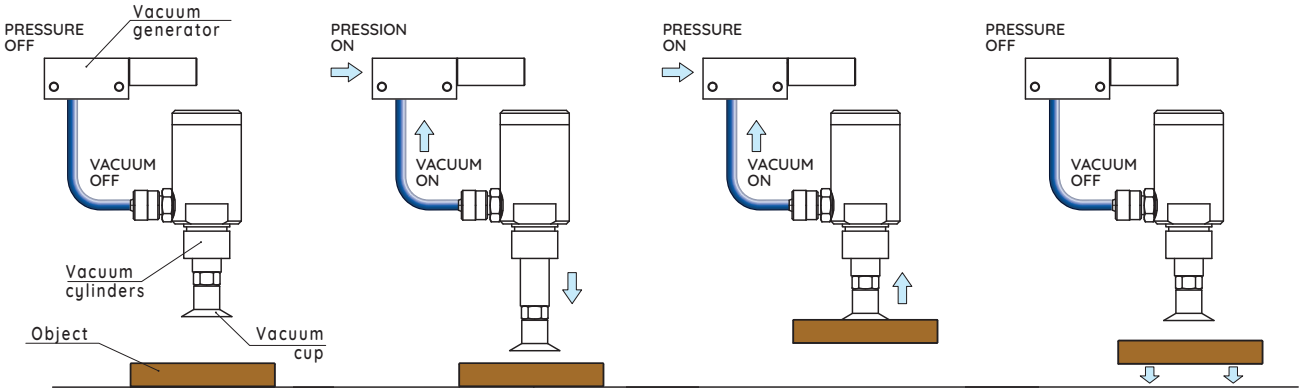
VACUUM CYLINDERS

The cylinders described on this page are vacuum operated.
By creating a vacuum in the anterior chamber of the cylinder, the piston's integrated rod protrudes, overcoming the opposing spring force.
The piston is pushed by the air at atmospheric pressure that gets into the cylinder's rear chamber through the hollow stem.
The greater the pressure differential between the front chamber under vacuum and the rear chamber at atmospheric pressure, and the larger the piston thrust force will be.
The stem returns into position in two ways:

1) By preventing the atmospheric air from entering through the stem hole and with the vacuum inserted, the pressure differential inside the cylinder is removed. Under this condition, the thrust spring and the atmospheric pressure forces prevail on the stem which is thus pushed into its initial position.
2) By excluding the vacuum, the atmospheric pressure is restored in both the cylinder chambers. Also in this case, being the pressure differential removed, the stem returns to its initial position pushed by the thrust spring.

The first of these two methods is the true operating principle for which this cylinder has been designed. When a vacuum is created, in fact, a vacuum cup mounted on the stem of the perforated cylinder will be brought rapidly into contact with the object to be taken. The object is then automatically lifted and remain gripped during the whole time the vacuum stays engaged.
Because of this feature, vacuum cylinders associated with vacuum cups are recommended for gripping and handling machined, moulded or thermoformed objects, as well as for separating sheets of paper or plastic, sheet steel, etc. and lifting printed circuits or thin plastic panels.
The advantages offered by these vacuum cylinders include: short, fast quick cycles controlled by a single vacuum interception valve, automatic compensation of the height of the objects to be gripped with no compression on them, non-rotating piston and extremely easy fixing.
They are fully made with anodised aluminium and are equipped with a special self-lubricating technopolymer bush which guarantees long duration.

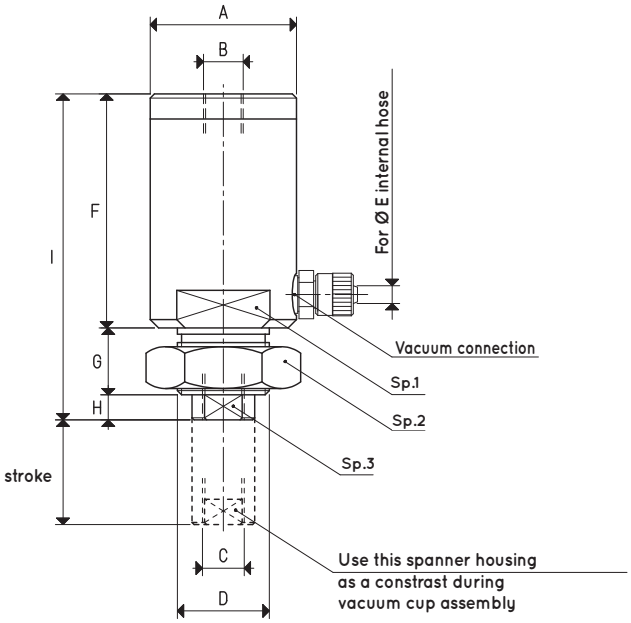


Sequence 1	Sequence 2	Sequence 3	Sequence 4
Vacuum not active	**Vacuum active**	**Vacuum active**	**Vacuum not active**
Piston rod at rest	Piston extends towards the object	The rod retracts automatically as soon as the suction cup adheres to the object	The object is released

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**



Caution:
during the vacuum cup assembly phase, use the wr.3 seat as a contrast and not the wr.1 seat to avoid damaging the product.

Item		25 05 10	25 10 10	25 15 10
Stroke	mm	17	25	30
Lifting force at -KPa 80	Kg	0.45	1.0	2.5
Minimum cycle time	sec	0.3	0.4	0.6
Minimum level of vacuum	-KPa	60	60	60
Minimum necessary flow rate	Nl/1'	15	30	90
	m^3/h	0.9	1.8	4.5
Operating temperature	°C	5 ÷ 80	5 ÷ 80	5 ÷ 80
Weight	g	55	145	515
A	Ø	24	35	59
B	Ø	M 6	G1/8"	M 10
C	Ø	M 5	G1/8"	G1/4"
D	Ø	M 16 x 1.5	M 22 x 1.5	M 40 x 1.5
E Vacuum connection by tube	Ø int.	4	4	6
F		39.5	56	66
G		12	16	17
H		4	6	9
I		55.5	78	92
wr. 1		19	27	50
wr. 2		24	32	55
wr. 3		8	12	17

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

SPECIAL PRODUCTS

PNEUMATIC EQUIPMENT FOR VACUUM TESTS	PG. 11.01
SUCTION UNITS WITH SYPHON FILTER GA FS 5 and GA FS 10	PG. 11.02
SUCTION UNITS WITH SYPHON FILTER GA FS 20 ES - GA FS 30 ES	PG. 11.03
SUCTION UNITS WITH SYPHON FILTER GA FS 50 ES	PG. 11.04
ELECTRICAL EQUIPMENT FOR VACUUM TESTS	PG. 11.05
DEGASIFIERS	PG. 11.06
MOBILE SYSTEM FOR RESIN VACUUM INFUSION	PG. 11.07
LIQUID-SUCKING PUMP SETS	PG. 11.08
SAMPLES AND EQUIPMENT FOR DEMONSTRATION USE	PG. 11.09 ÷ 11.13

3D drawings are available on **vuototecnica.net**

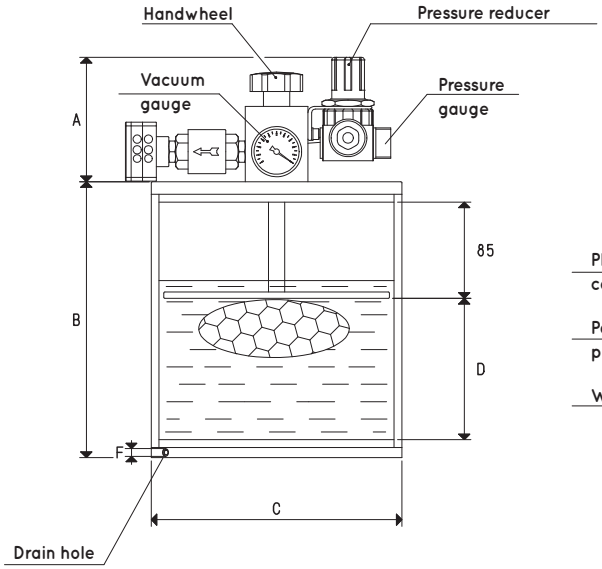
EQUIPMENT FOR VACUUM TESTS

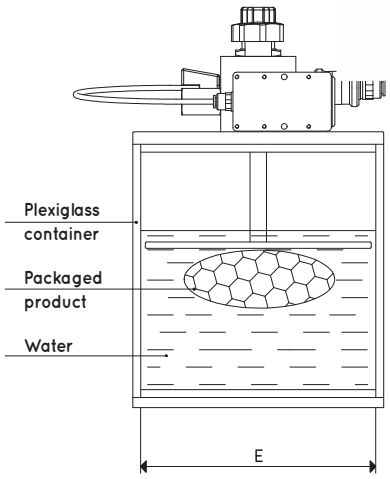
The function of these devices is to test the welding sealing in flow-pack, cellophane or food product wrappings.
They are composed of:
- A transparent Plexiglass cylindrical container into which the water is poured and the vacuum is created;
- A mobile transparent Plexiglass lid with, on its lower part, a perforated disc fixed via a pin which is for keeping the flow-pack wrapping submerged in the water, in the container and on its upper part, the instruments for managing and controlling the vacuum;
- A multiple ejector multi-stage vacuum generator;
- A check valve located on the generator suction inlet to prevent the air from returning into the container when the generator is not in operation;
- A sleeve valve for compressed air interception;
- A supply compressed air reducer equipped with pressure gauge;
- A 2-way manual valve for restoring the atmospheric pressure inside the container.

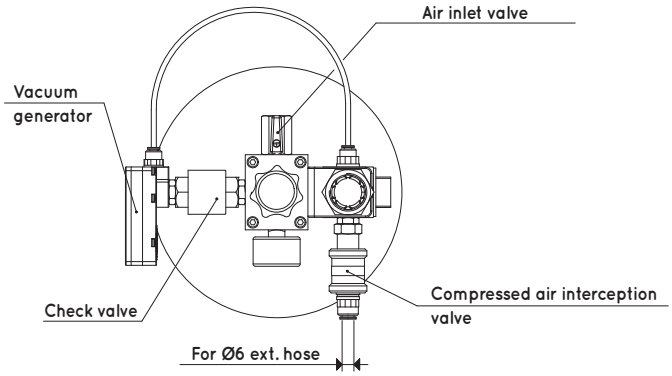
The wrapping submerged in the water in the container tends to inflate because of the pressure differential produced between the air at atmospheric pressure on its inside and the vacuum created in the container. The higher the level of vacuum reached in the bell jar and the greater the thrust that the air contained in the wrapping will exert on the walls and, therefore, on the weldings.
Any air leak from the wrapping due to a defecting welding is proved by bubbles that indicate the exact point of the welding that's leaking.
The level of vacuum that can be reached inside the bell jar depends on the pump installed.
The test values are adjustable and can be automatically repeated.
Available in other versions upon request.

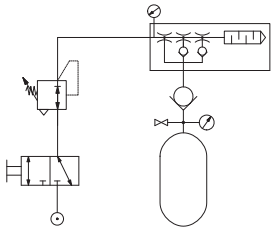
Technical features

Operating pressure: from 0.5 to 1000 absolute mbar
Fluid temperature: from -5 to +50°C
Level of filtration: 60 µ









Item	Capacity L	A	B	C Ø	D	E Ø	F Ø	Generator item	Vacuum gauge item	Weight Kg
ATP 02	6.0	100	220	200	100	190	- - -	M10	09 03 15	5.0
ATP 03	26.0	100	250	457	116	433	G1/4"	M14	09 03 15	18.0
ATP 04	56.0	100	450	457	280	433	G1/4"	M18	09 03 15	25.0
ATP 07	75.0	100	560	457	425	433	G1/4"	M18	09 03 15	28.5

NOTE: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

3D drawings are available on **vuototecnica.net**

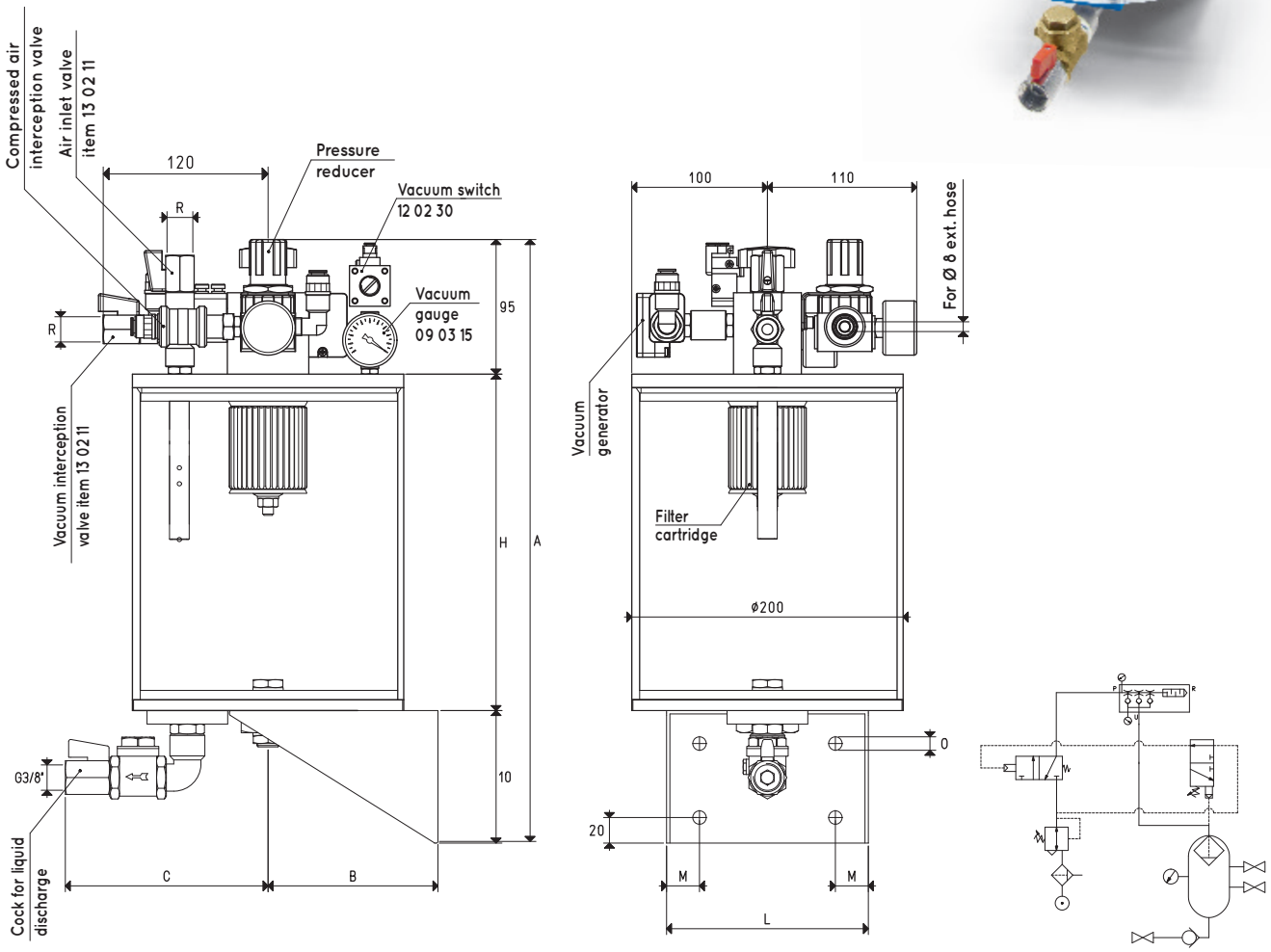
SUCTION UNITS WITH SYPHON FILTER GA FS 5 and GA FS 10

These suction units with syphon filter allow sucking fluids saturated with condensation or mixed with water and liquids. They share all the best technical features of syphon filters and vacuum generators. In fact, they keep liquids and solid impurities, while the vacuum generator can suck fluids saturated with vapours or liquid condensation without compromising its performance.
These devices are composed of:
- A standard syphon filter described in Chapter 5;
- A compressed air-fed multi-stage vacuum generator;
- A pneumatic vacuum switch for adjusting the level of vacuum;
- A vacuum gauge for a direct reading of the level of vacuum in the container;
- A pneumatic valve for supplying the vacuum generator operated by the vacuum switch;
- A sleeve valve for compressed air interception.

The level of vacuum, preset with the vacuum switch, is automatically maintained in the Plexiglass container. These suction units with syphon filter are suited for vacuum cup clamping systems for gripping glass, marble, granite, light alloys and in all those cases with a considerable presence of refrigerating liquids.
They are also recommended for suctioning creamy or muddy substances which can be difficult to handle with traditional pumps.
These suction assemblies are fed by compressed air at a pressure of 4-6 bar only.
Available in other versions upon request.

Technical features

Operating pressure: from 0.5 to 1000 absolute mbar
Fluid temperature: from -5 to +50°C
Level of filtration: 60 µ



Item	A	B	C	H	L	M	O Ø	R Ø	Vacuum generator item	Capacity L	Weight Kg
GA FS 5	445	130	175	250	150	25	10	G3/8"	M14	6.0	6.0
GA FS 10	535	130	175	340	150	25	10	G3/8"	M14	8.5	6.5

NOTE: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

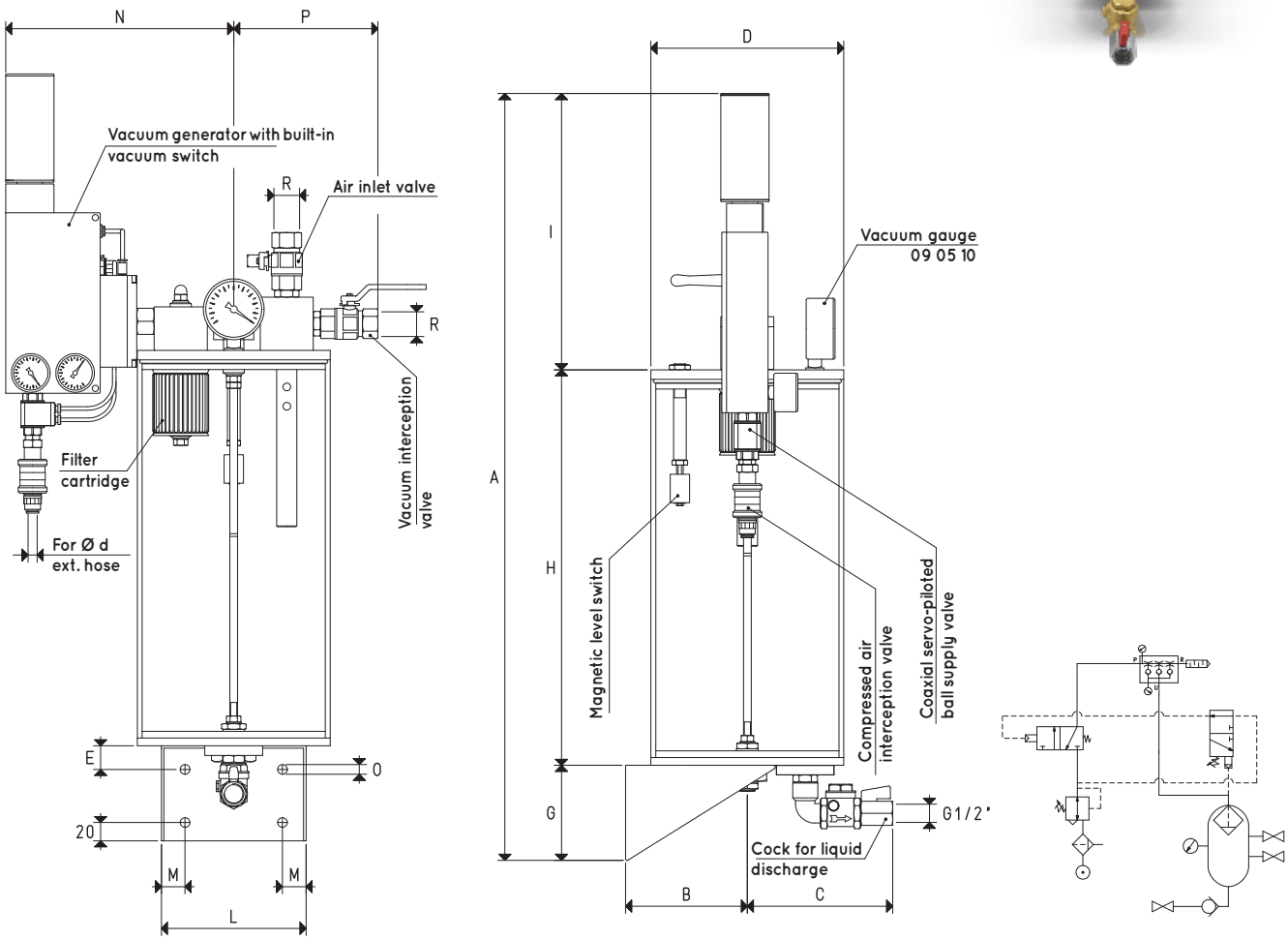
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

SUCTION UNITS WITH SYPHON FILTER GA FS 20 ES - GA FS 30 ES

These suction units with syphon filters share the same features and functions as the previous ones; their distinctive features are their size and the type of generator installed. Their functions are also the same.
These devices are composed of:
- A standard syphon filter described in Chapter 5;
- A compressed air-operated multi-stage vacuum generator with a built-in energy-saving system ES;
- A vacuum gauge for a direct reading of the level of vacuum in the container;
- A shut off valve to intercept compressed air.

The level of vacuum, preset with the vacuum switch, is automatically maintained in the Plexiglass container. Like the previous ones, these suction units with syphon filter are also suited for vacuum cup clamping systems for gripping glass, marble, granite, light alloys and in all those cases with a considerable presence of refrigerating liquids.
They are also recommended for suctioning creamy or muddy substances which can be difficult to handle with traditional pumps.
These suction assemblies are fed by compressed air at a pressure of 4-6 bar only.
Available in other versions upon request.

Technical features
Operating pressure: from 0.5 to 1000 absolute mbar
Fluid temperature: from -5 to +50°C
Level of filtration: 60 µ



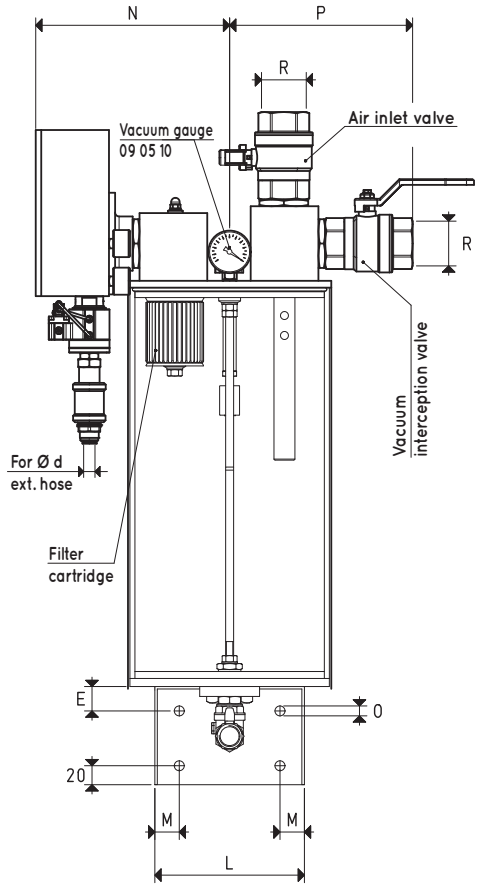
Item	A	B	C	d	D	E	G	H	I	L	M	N	O	P	R	Generator of vacuum	Capacity	Weight
				Ø	Ø								Ø		Ø	item	L	Kg
GA FS 20 ES	800	130	175	8	200	25	100	410	290	150	25	240	10	145	G1/2"	PVP 25 MDX ES	10.5	9.5
GA FS 25 ES	900	150	195	8	240	25	100	510	290	170	30	270	11	180	G3/4"	PVP 50 MDX ES	19.5	12.0
GA FS 30 ES	1060	190	225	12	300	30	120	610	330	200	40	310	11	220	G1"	PVP 75 MDX ES	38.0	22.0

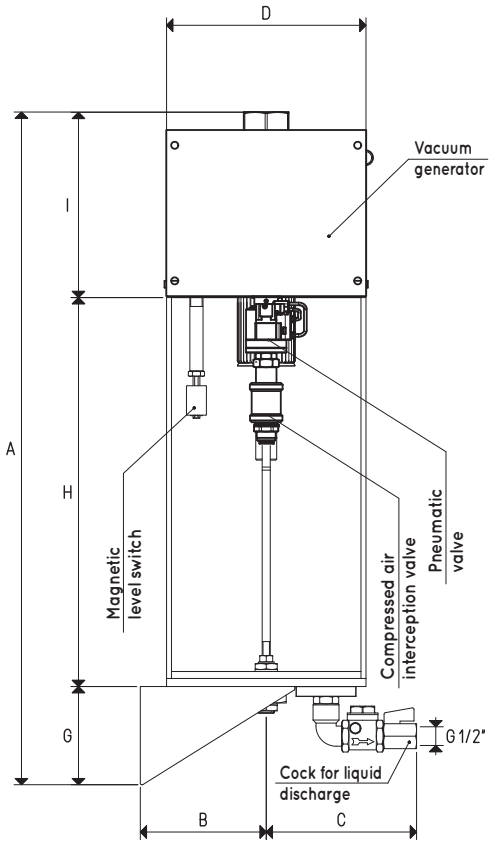
NOTE: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

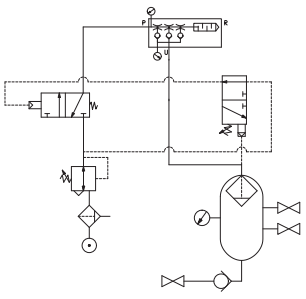
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

3D drawings are available on **vuototecnica.net**

SUCTION UNIT WITH SYPHON FILTER GA FS 50 ES







Item	A	B	C	d	D	E	G	H	I	L	M	N	O	P	R	Generator of vacuum	Capacity	Weight
				Ø	Ø								Ø		Ø	item	L	Kg
GA FS 50 ES	980	190	225	15	300	30	120	610	250	200	40	266	11	276	G2"	PVP 150 MD ES	38	27.5

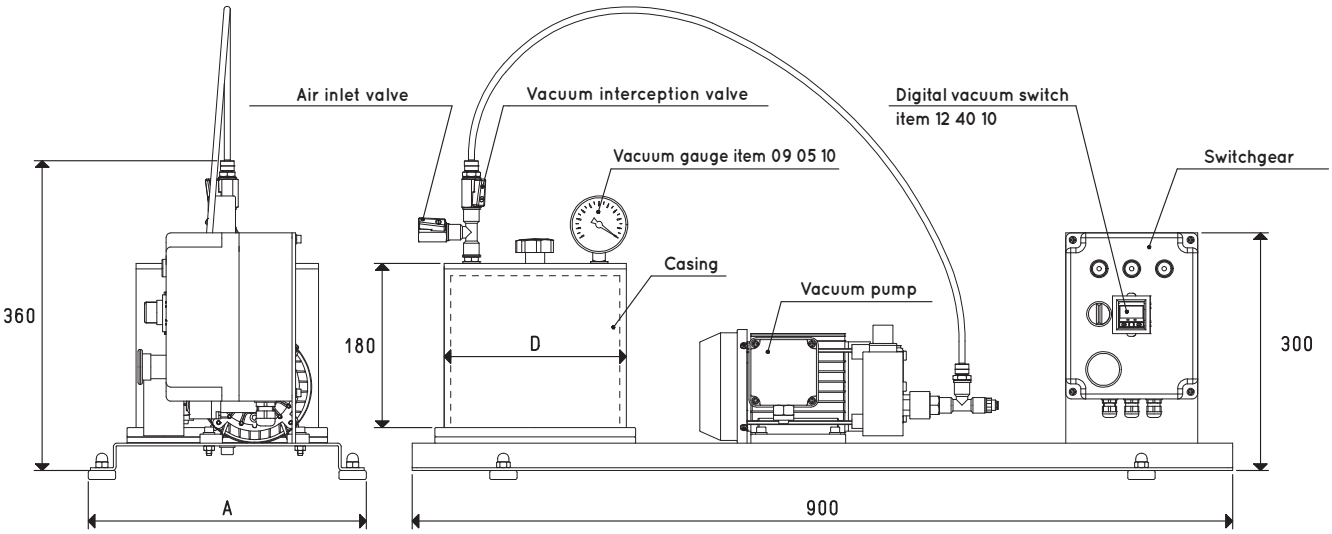
NOTE: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

ELECTRICAL EQUIPMENT FOR VACUUM TESTS

These devices have been created for testing the weldings and, therefore, the sealing of cellophane or PVC wrappings for food products.
In fact, the wrapping placed inside a bell jar tends to inflate because of the pressure differential created between the air at atmospheric pressure contained inside and the vacuum created inside the bell jar. The higher the level of vacuum reached in the bell jar and the greater the thrust that the air contained in the wrapping will exert on the walls and, therefore, on the weldings.
The devices for vacuum tests are composed of:
- A mobile transparent Plexiglass bell jar;
- A support surface with seal;
- A dry rotating vane vacuum pump;
- Two 2-way manual valves for vacuum interception;
- A vacuum gauge for a direct reading of the level of vacuum and the atmospheric air in the bell jar at the end of the cycle;
- A switchgear enclosed in a special protective casing with a digital vacuum switch to adjust the level of vacuum in the bell jar;
- A bent sheet steel frame with anti-vibration feet for assembling all the components described above.

The level of vacuum that can be reached inside the bell jar depends on the pump installed.
The test values are adjustable and can be automatically repeated
Available in other versions upon request.



Item	Bell jar Litres	Pump mod.	Motor performance Volt	Motor power Kw	Switchgear item	A	D Ø	Weight Kg
ATS 05	5.5	VTS 4M	1 ~ 230-50Hz	0.18	DO 06 95 V	300	200	21.5
ATS 20	21.5	VTS 10M	1 ~ 230-50Hz	0.37	DO 06 95 V	500	400	29.5

Note: On request, vacuum gauges art. 09 05 16 can be supplied separately with calibration certificate.

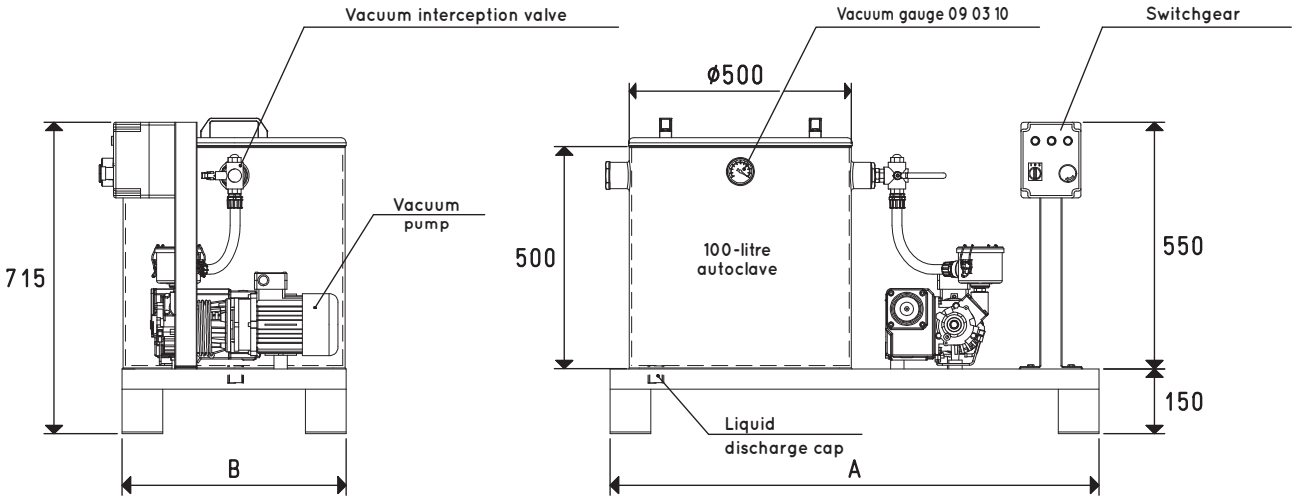
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

3D drawings are available on **vuototecnica.net**

DEGASIFIERS

The function of degasifiers is to suck the air bubbles that remain in the synthetic resin or composite material mixes and in silicone or similar compounds during their preparation. The presence of bubbles, in fact causes a drastic reduction of their technical features and negatively affects their appearance.
Degasifiers are composed of:
- An autoclave in welded steel sheet, with perfect vacuum seal, equipped with transparent methacrylate covers, manually removable;
- An oil-bath rotary vane pump for high vacuum;
- A vacuum switch for direct reading of the vacuum level in the autoclave;
- A three-way manual valve for vacuum interception;
- A switchgear enclosed in a special protective casing;
- A profiled steel frame for assembling all the components.

Inside the autoclave, the degasifiers can reach a final level of vacuum equal to 99.5 %. With small modifications and with the aid of insulating or waterproofing resins these degasifiers can be used for vacuum-impregnating windings for electric motors, transformers, electric coils, etc.
Upon request they can also be supplied in different versions.



Item	Autoclaves Litres	Pump mod.	Motor performance Volt	Motor power Kw	Switchgear item	A	B	Weight Kg
DR 100 01	100	RVP 21	3 ~ 230/400-50Hz	0.75	DR 100 90	1100	670	61.0
DR 100 02	100	RVP 40	3 ~ 230/400-50Hz	1.10	DR 100 90	1100	670	84.5
DR 100 03	100	RVP 60	3 ~ 230/400-50Hz	1.50	DR 100 90	1100	670	94.5
DR 100 04	100	RVP 100	3 ~ 230/400-50Hz	2.20	DR 100 90	1100	710	105.0

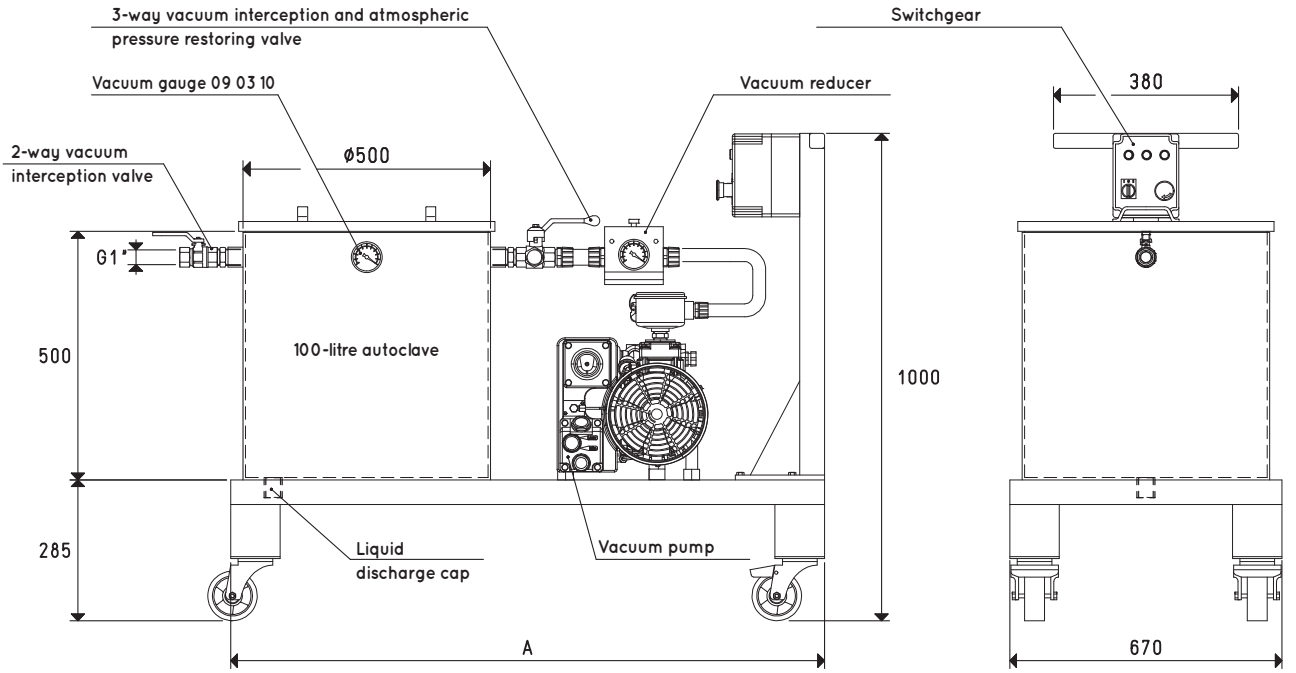
Note: On request, vacuum gauges art. 09 05 16 can be supplied separately with calibration certificate.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

MOBILE SYSTEM FOR RESIN VACUUM INFUSION

This system has been designed for allowing resin vacuum infusion moulding and composite fibre vacuum forming.
The system is composed of:
- A welded sheet steel autoclave featuring a perfect vacuum seal, equipped with a transparent methacrylate lid that can be manually removed;
- An oil-bath rotating vane pump for high vacuum;
- A reducer for adjusting the required level of vacuum;
- A vacuum gauge, for a direct reading of the level of vacuum in the autoclave;
- A three-way manual valve for pump vacuum interception and for restoring the atmospheric pressure inside the autoclave;
- A two-way valve for vacuum interception at the application;
- Switchgear enclosed in a special casing;
- A profiled steel frame for assembling all the components mounted on wheels;
- A handle to move and place it.

Resin vacuum infusion moulding is carried out connecting the connector controlled by the two-way manual valve to the mould.
The resin inside its container is sucked via the vacuum inside the mould, until it's totally full. The resin in excess is collected in the autoclave.
The same connector can be connected to the vacuum press bag for forming composite fibres.
The installed vacuum pumps can reach a maximum level of vacuum of 99.5% inside the autoclave. Therefore, this device can also be used as a degasifier.
The vacuum reducer allows adjusting the level of vacuum within a minimum value of 20% a maximum value of 99.5%.
Upon request they can also be supplied in different versions.



Item	Autoclave Litres	Pump mod.	Motor performance Volt	Motor power Kw	Switchgear item	A	Weight Kg
DR 100 M 01	100	RVP 21	3 ~ 230/400-50Hz	0.75	DR 100 90	1100	64.0
DR 100 M 02	100	RVP 40	3 ~ 230/400-50Hz	1.10	DR 100 90	1100	87.5

Note: On request, vacuum gauges art. 09 05 16 can be supplied separately with calibration certificate.

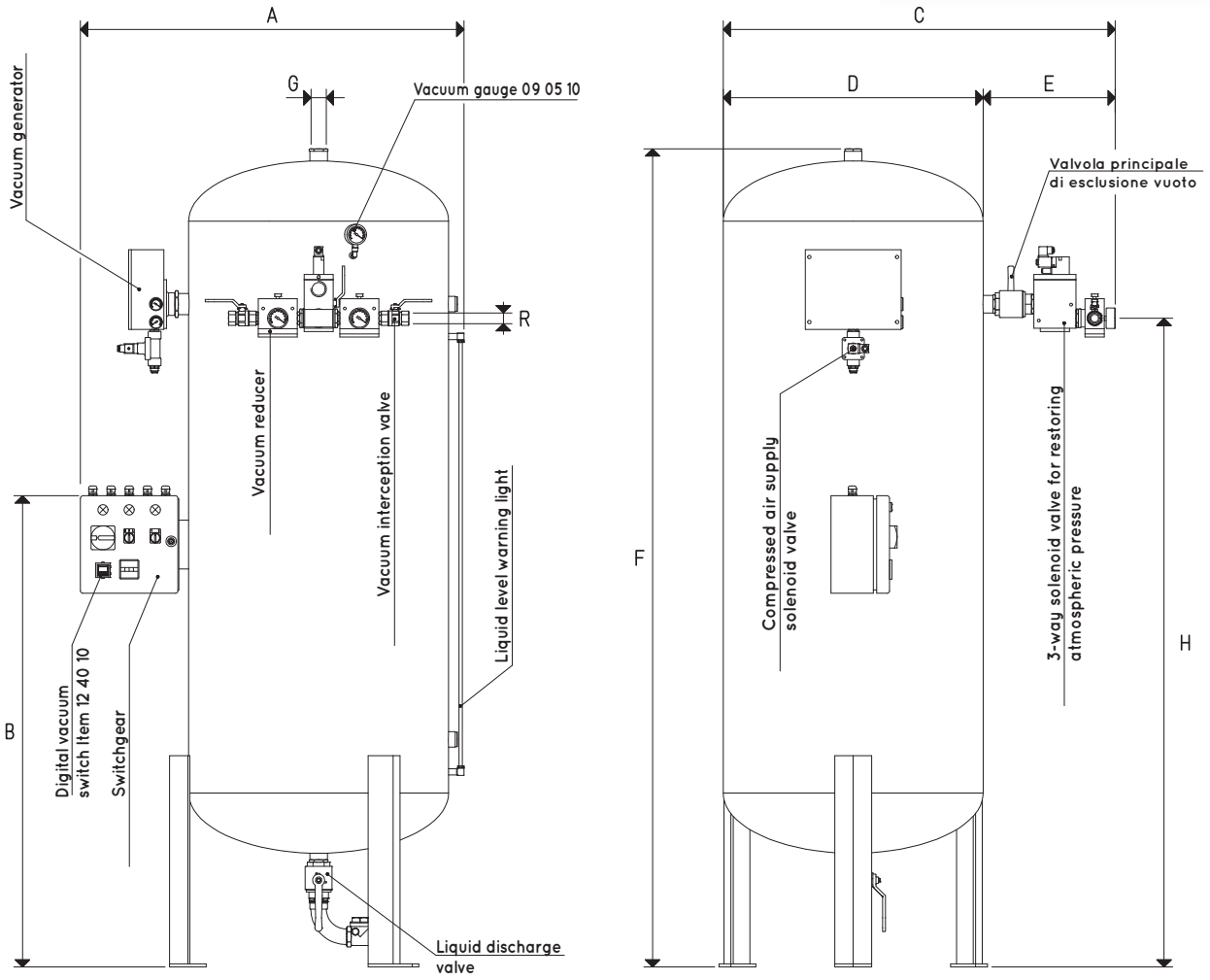
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

3D drawings are available on **vuototecnica.net**

LIQUID-SUCKING PUMP SETS

These pump sets are for sucking liquids and collect them inside their tanks. The maximum level difference that can be exceeded is approximately 9 metres.
They are composed of:
- A welded sheet steel large-capacity tank;
- A compressed air-fed multi-stage vacuum generator;
- A digital vacuum switch for adjusting the level of vacuum within which to operate;
- A vacuum gauge for a direct reading of the level of vacuum in the tank;
- A liquid level visible warning light;
- Two magnetic switches for minimum and maximum liquid level;
- One three-way vacuum solenoid valve for resetting the atmospheric pressure in the tank, with consequent automatic discharge of the accumulated liquid;
- Two vacuum reducers for level of vacuum adjustment at the application;
- Three manual valves for vacuum interception;
- A switchgear enclosed in a special protective casing for manual or automatic operation selection.

Liquid-sucking pump sets are normally used for extracting the water contained in washing machine and dishwasher filters that cannot be automatically drained after their commissioning. They are also recommended for transferring dense liquids and creamy or muddy substances. Available in other versions upon request.



Item	Flow rate L	A	B	C	D Ø	E	F	G Ø	H	R Ø	Generator of vacuum item	Electrical switchgear	Spare part voltage Volt	Weight Kg
DVL 150	150	780	900	700	400	300	1600	G1"	1220	G3/8"	PVP 75 MDXR	DVL 150 90V	1 ~ 230-50Hz	63
DVL 300	300	880	1150	800	500	300	1890	G2"	1470	G3/8"	PVP 140 MR	DVL 150 90V	1 ~ 230-50Hz	75
DVL 500	500	980	1450	1000	600	400	2220	G2"	1800	G1/2"	PVP 250 MR	DVL 150 90V	1 ~ 230-50Hz	165
DVL 1000	1000	1180	1450	1200	800	400	2480	G3"	2000	G1"	PVP 300 MDR	DVL 150 90V	1 ~ 230-50Hz	214

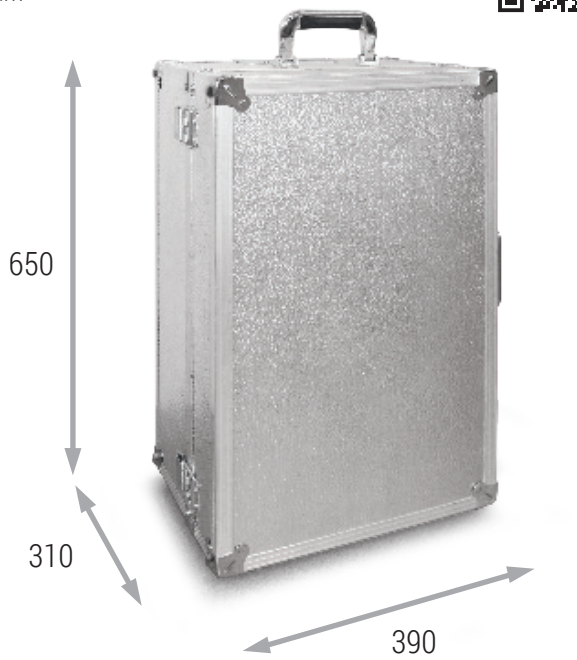
NOTE: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

VACUUM TRAINING BOX - VTBOX 01

A suitcase containing a sample of our most important products, guaranteeing an informative overview on the vacuum technology intended for industrial automation.
It is an excellent educational, training and information tool.
An easily transportable trolley shaped case.

Technical features
VTBOX01 weight: 26 kg



VTBOX 01

3D drawings are available on **vuototecnica.net**

TEST BENCH AND TESTS FOR THE SELECTION OF VACUUM CUPS- BT 00

3D drawings are available on **vuototecnica.net**

The device, equipped with 6 vacuum and 2 pneumatic sockets, lets users carry out vacuum or Bernoulli suction cups tests on the objects to be gripped or moved, to aid in correctly choosing gripping cups.
This is a useful tool to have at trade show exhibitions, in a showroom or in a test room, for gripping or handling demonstrations or for technical personnel training dedicated to vacuum technology.
The device must be connected to compressed air, vacuum and the electrical power line.
Contact our technical department for further information.

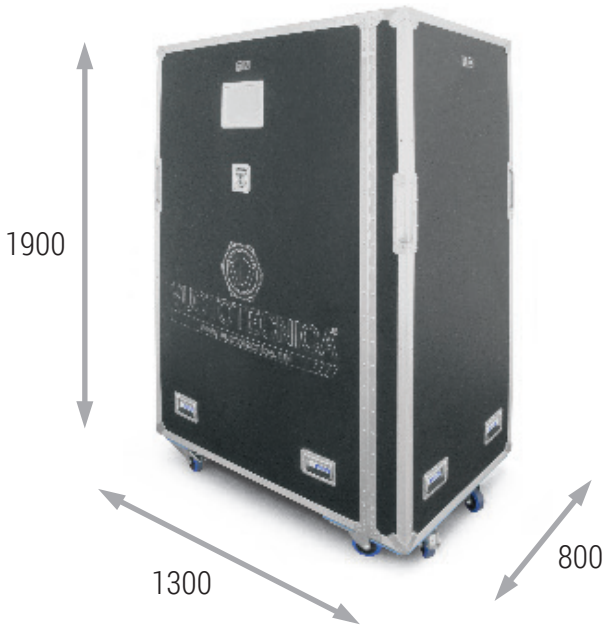
Technical features
Electrical power: Single-phase V230 ± 10% 50/60 Hz
Electric power: 0.5 kw
Compressed air consumption: 390 L/min 2bar
BT00 weight: 30 kg

BT 00

TEST BENCH AND TESTS FOR THE SELECTION OF VACUUM CUPS- BT 01

The device, equipped with 6 vacuum and 2 pneumatic sockets, lets users carry out vacuum or Bernoulli suction cups tests on the objects to be gripped or moved, to aid in correctly choosing gripping cups.
This is a useful tool to have at trade show exhibitions, in a showroom or in a test room, for gripping or handling demonstrations or for technical personnel training dedicated to vacuum technology.
The device is already equipped with its own vacuum generator and only needs to be connected to compressed air and to the electrical power line.
Contact our technical department for further information.

Technical features
Electrical power: Single-phase V230 ± 10% 50/60 Hz
Electric power: 1.5 kw
Compressed air consumption: 390 L/min 2bar
BT01 weight: 115 kg
Flight case 01 weight: 200 kg
Total weight: 315 kg



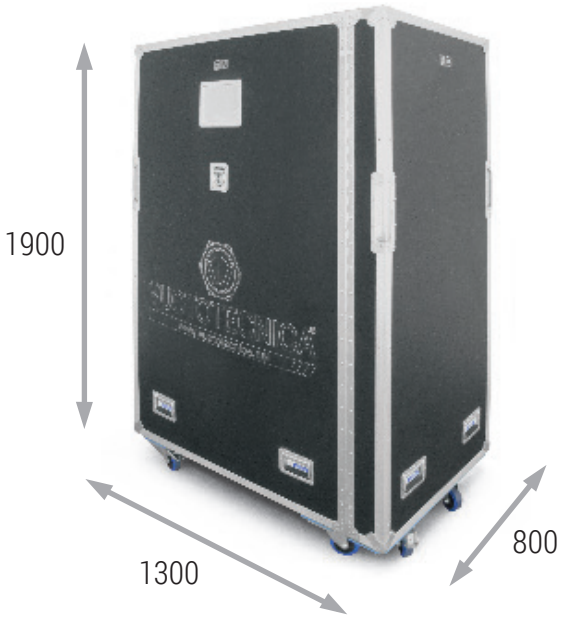
3D drawings are available on **vuototecnica.net**

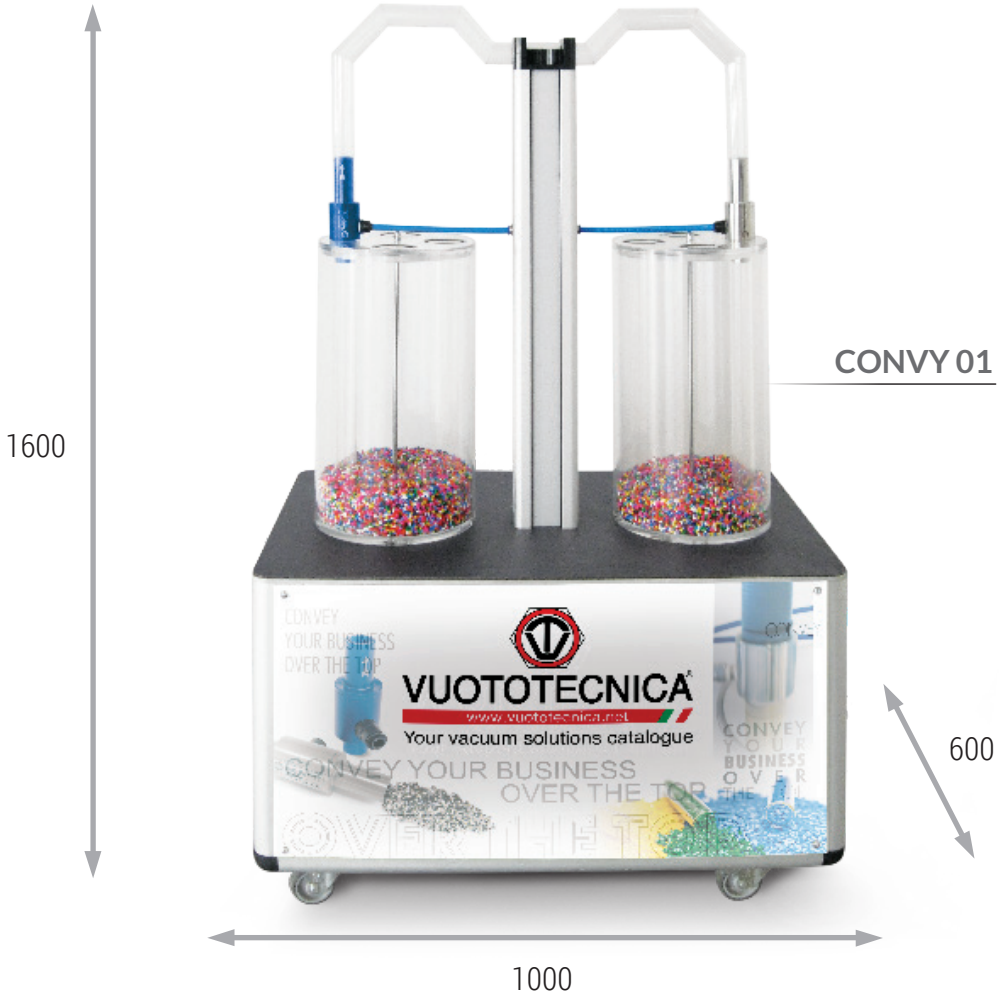
3D drawings are available on **vuototecnica.net**

DEMONSTRATION UNIT FOR THE HANDLING OF POWDERS AND GRANULATED PRODUCTS WITH FLOW GENERATORS CX - CONVY 01

The special shape of the flow generators with which this unit is supplied and their straight-flow working principle allow for the suctioning and handling of various nature products without interference.
As previously described, this device is also specially recommended for exhibitions at trade shows, showrooms or test rooms, for practical demonstrations on the handling and transfer of powders, granulated products, sawdust, grains, metal shavings, liquid or dry food products, etc.
Requires connection to compressed air and to the electrical power line.

Technical features
Electrical power: Single-phase V230 ± 10% 50/60 Hz
Electric power: 0.5 kw
Compressed air consumption: 390 L/min 2bar
CONVY01 weight: 90 kg
Flight case 01 weight: 200 kg
Total weight: 290 kg

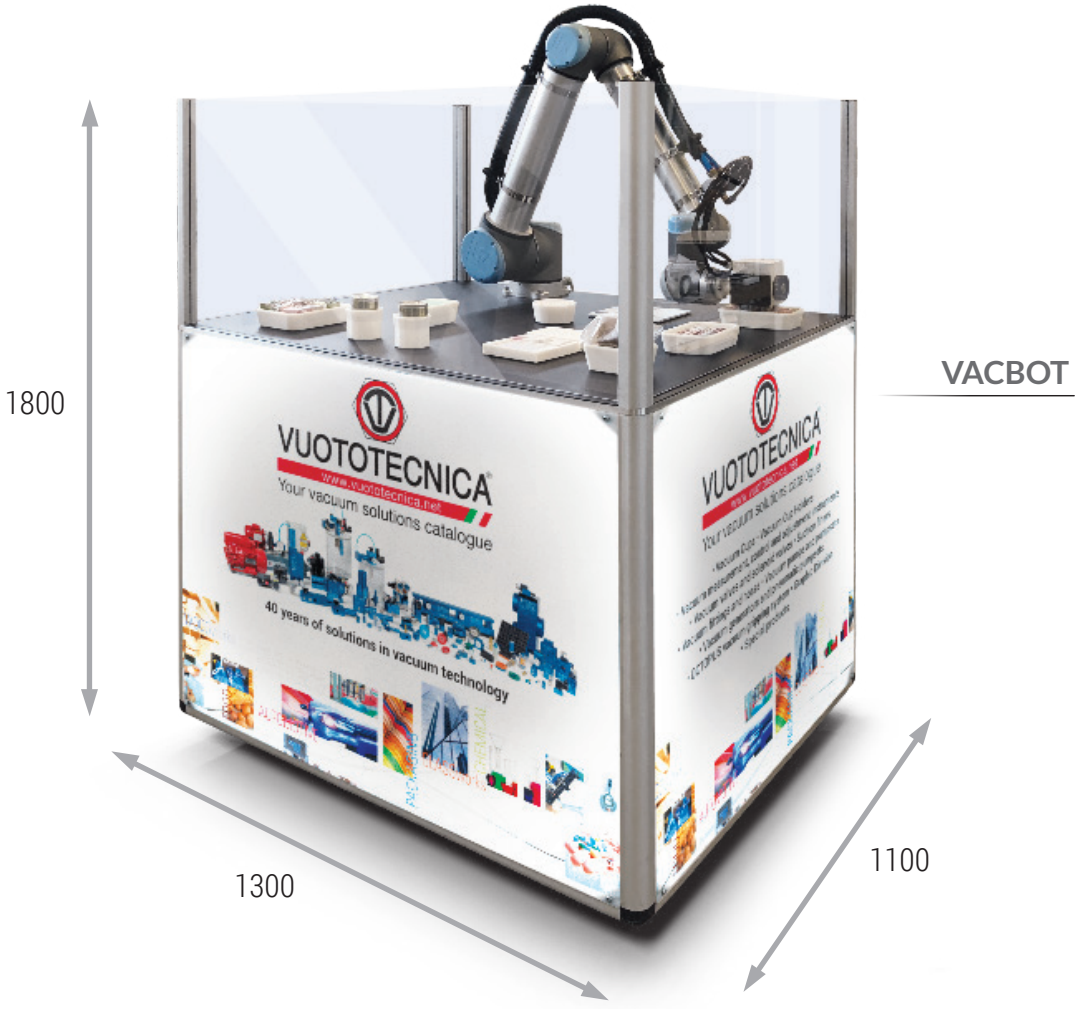




EQUIPPED ROBOT FOR GRIPPING AND HANDLING OBJECTS WITH SPECIAL VACUUM CUPS AND GRIPPERS - VACBOT

The system we offer is composed of a robot fixed to a work surface, programmable by means of a special keyboard, servo-assisted by a mini-compressor with a vacuum pump and a compressor, enclosed in a sturdy metal cabinet on wheels.
The robot can be configured and equipped in various ways, for gripping with vacuum cups or small Octopus surfaces, with repetitive gripping programs to better render the idea of its multiple gripping capabilities of different objects with different shapes.
This device is ideal for trade fairs or showrooms, since seeing it work highlights the full potential of its use in the automation and handling sector in general, with the help of vacuums.
Only needs to be connected to the electrical power line.

Technical features
Electrical power: Single-phase V230 ± 10% 50/60 Hz
Electric power: 3.5 kw
VACBOT weight: 475 kg
Flight case 02 weight: 275 kg
Total weight: 750 kg



VACBOT

3D drawings are available on vuototecnica.net

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TECHNICAL INSTRUCTIONS FOR THE CORRECT STORAGE OF VACUUM CUPS AND RUBBER PARTS

Rubber ages naturally, which means that the material may deteriorate over time due to incorrect storage and preservation conditions.
By following these storage guidelines, it is possible to maintain the properties of vacuum cups and rubber products for a long time without changing their chemical/physical/mechanical characteristics.

Failure to follow these guidelines may result in the following problems:
• Premature deterioration;
• Excessive hardening or softening;
• Permanent deformation or other surface damage.

STORAGE

In order to prevent premature deterioration of vacuum cups or other rubber components, it is advisable that:
• The products be stored in a dark place, thus avoiding exposure to sunlight or artificial light;
• The storage location be at a temperature between 15°C and 25°C;
• The ambient humidity be less than 65%;
• Avoid mechanical stresses or strains in order to prevent permanent deformation;
• Avoid contact with dirt, dust or grease;
• The products not be stored for an extended period of time, taking care that the products in stock are always the most recent.

EFFLORESCENCE

It can occur that a vacuum cup or rubber component shows a whitish patina on its surface. This is known as "Efflorescence". This is a completely normal phenomenon of surface blooming of the rubber and is indicative of a protective effect against the action of atmospheric ozone and against the ageing of the compound.
The patina preserves the chemical-physical characteristics of the rubber and therefore efflorescence should by no means be considered a defect but rather an advantage of the quality of the compound.
It is always possible to wash the vacuum cups with water and neutral detergent if efflorescence is undesired from a purely aesthetic point of view.

Note: The guidelines recommended above, however, refer to the ISO 2230 regulation regarding the conservation of rubber products.

GENERAL CONDITIONS OF SALE

The following conditions are considered accepted by the customer when ordering.

1. **ORDERS:** upon transmission of the order, all the current sales conditions are considered approved by the customer, unless special agreements have been accepted by the contracting parties. The item code must be specified in the order.

2. **PRICES:** prices are intended for goods delivered ex our warehouse (VAT, packaging and transport not included); those in force when ordering will be considered valid.

3. **PACKAGING:** free for accessories, at cost for pumps and pump sets.

4. **SHIPPING:** will be carried out via parcel post or via a trusted customer courier; returns will be ex our Beverate factory and the goods will travel entirely at the risk of the customer. Therefore, in the event of delays, shortages, damage, theft, etc., complaints must be addressed to the Carrier, who is solely responsible.

5. **DELIVERIES:** the delivery limit, if indicated, is purely indicative and therefore relieves our company of any recourse.

6. **COMPLAINTS:** must be received in writing within 8 days from the date of receipt of goods. Complaints will not be accepted after this deadline. Complaints of any kind do not suspend the obligation to make payments in the agreed form. In the event that the goods are deemed by us to be unsuitable, the purchaser has the right solely to replace the goods or a credit in the amount. Any other type of compensation is considered of no value. For any dispute and controversy, the only competent court shall be that of the Court of Lecco.

7. **RETURNS:** any replacement or return must be authorised in advance with a return number. The authorisation number must be clearly indicated on the delivery note. The goods will be accepted for return only if sent carriage paid and subject to verification upon arrival at the warehouse. Return credits will be made at the purchase price. The materials returned due to an incorrect order will be subject to a flat-rate charge of €25.00 for management fees.

8. **PAYMENTS:** must be made exclusively to our headquarters, according to the agreed specifications. In the event of late payment, statutory interest will be debited from the agreed expiration date until the payment is made and, at the same time, any orders in progress will be suspended.

9. **PRODUCT FEATURES:** the images and technical information contained in the production catalogue are subject to change; therefore, our company reserves the right to make modifications without prior notice.
FULL OR PARTIAL REPRODUCTION OF THE CATALOGUE IS PROHIBITED.

10. **ORDER VALUE:** We do not accept orders for values less than €150.00.

Any clause contained in the customer order which is in contrast with the above shall be considered of no value.

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