PNEUMAX

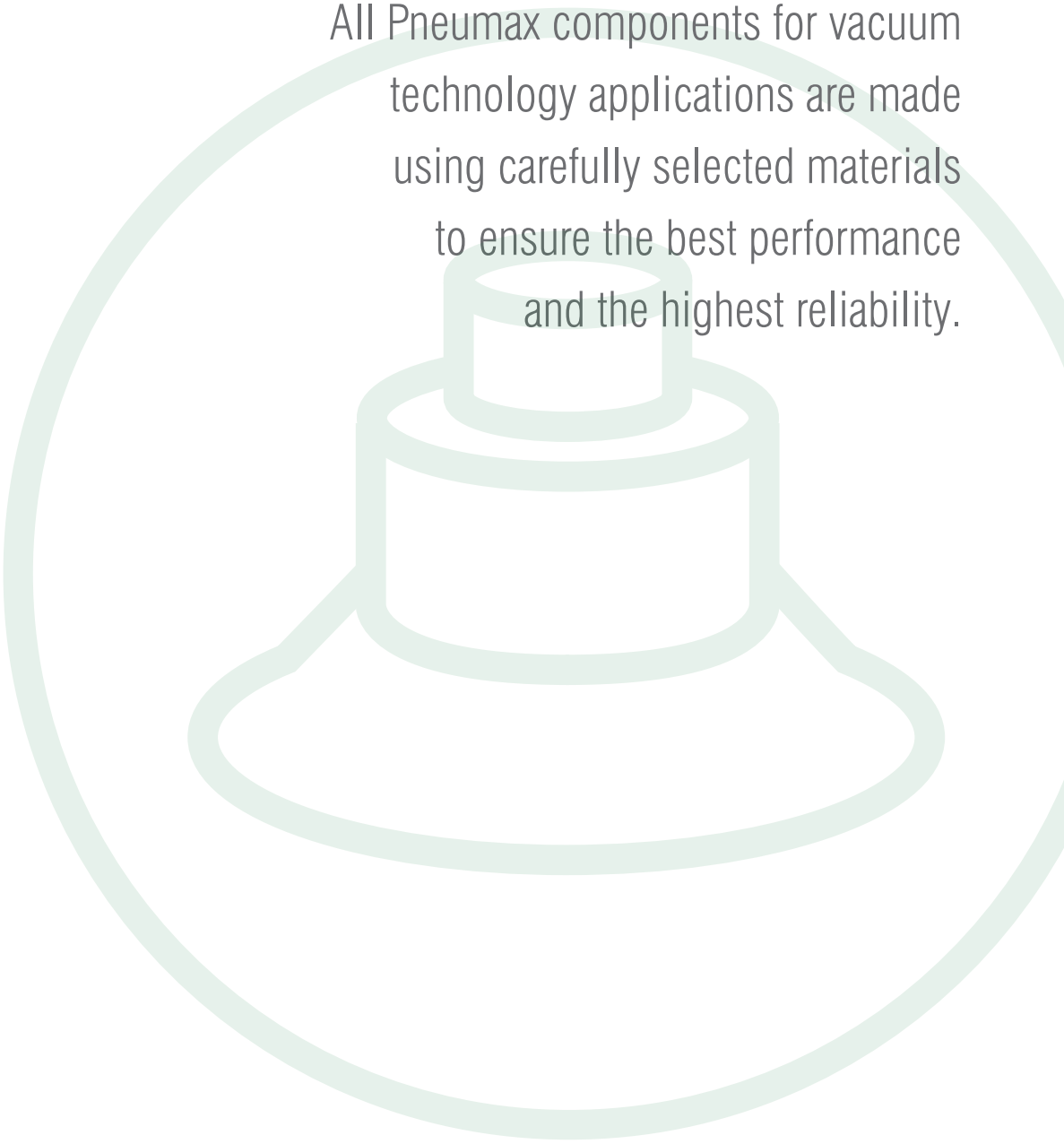
VACUUM TECHNOLOGY

CATALOGUE

Vacuum Technology Catalogue

Reliability, technology and quality of materials

All Pneumax components for vacuum technology applications are made using carefully selected materials to ensure the best performance and the highest reliability.



Pneumax

Smart Technologies and Human Competence

Founded in 1976, **Pneumax S.p.A.** is today one of the leading international manufacturers of components and systems for automation.
It is at the forefront of a Group comprised of 25 companies, with over 730 employees worldwide.

Ongoing investment in research and development has allowed **Pneumax** to continually expand its range of standard products and customized solutions including pneumatic components and systems, electric actuators and fluid control components.

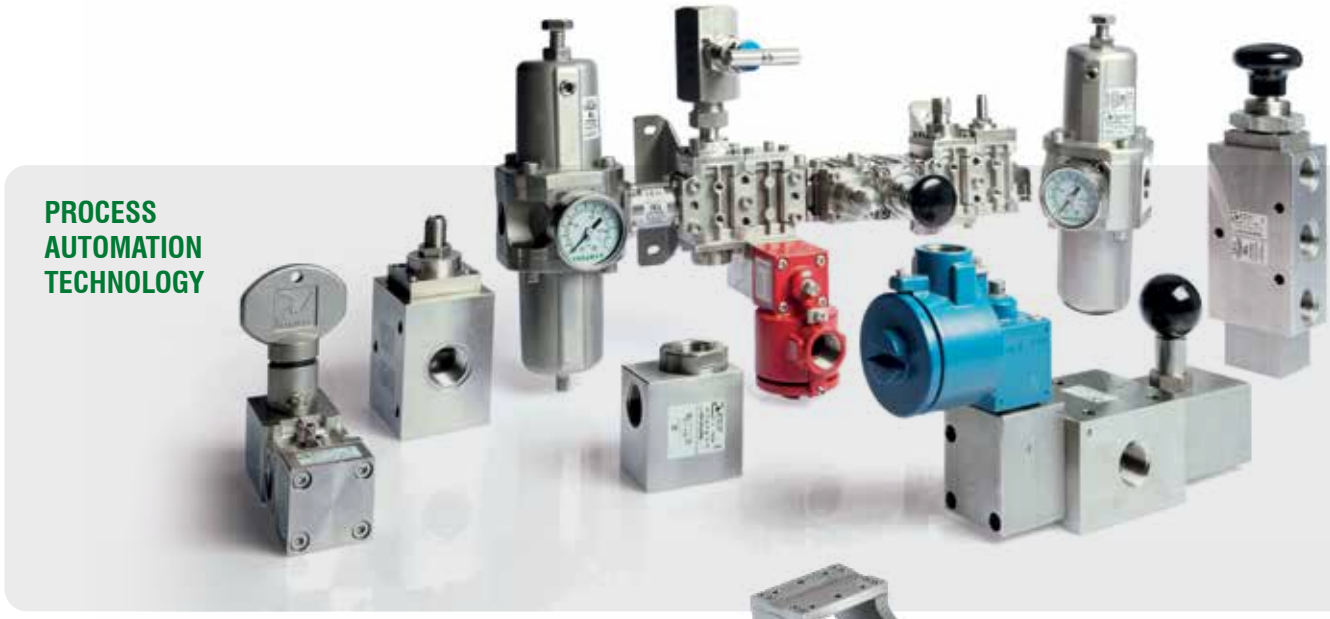
The desire to provide the service and specific application skills has led to the creation of 3 business units, dedicated to Industrial Automation, Process Automation and Automotive sector.

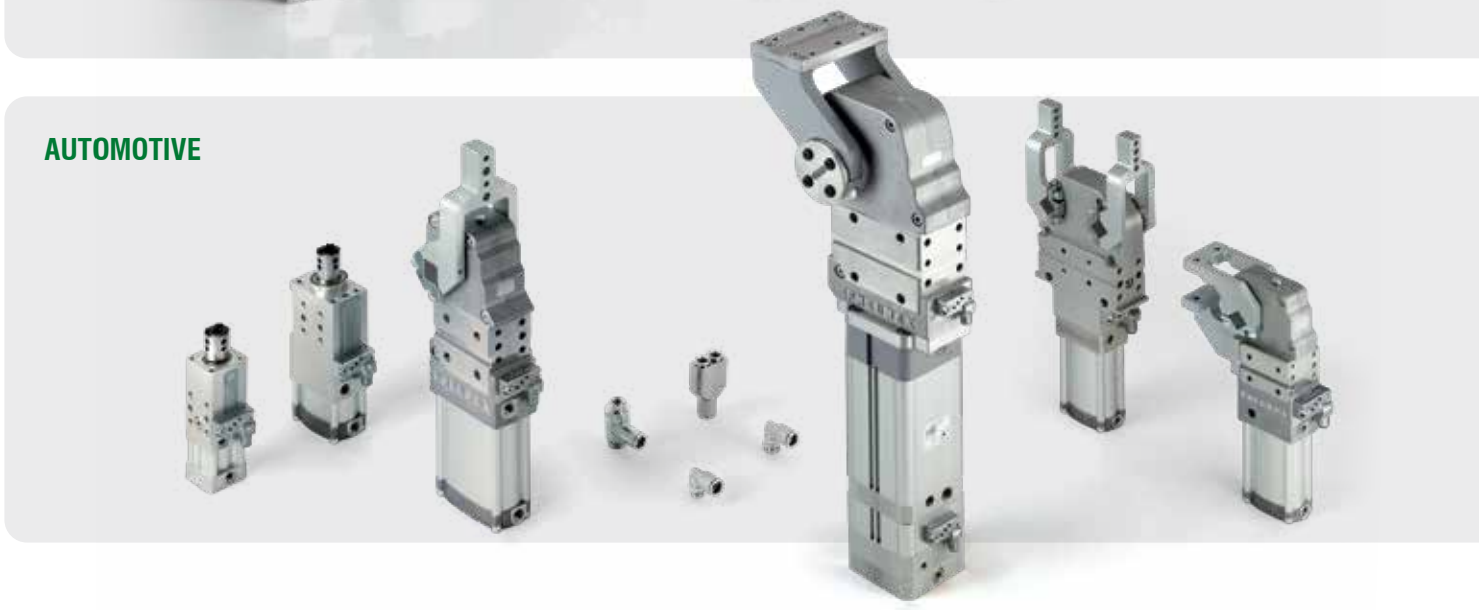
Pneumatic technology

Electric actuation

Fluid control

INDUSTRIAL AUTOMATION

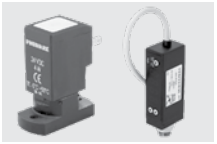




The ability to provide various technologies and solutions for each of our clients applications is the main objective of the Company, making Pneumax the ideal strategic partner.

What defines us is the "**Pneumax Business Attitude**", born out of the capacity to combine industry sectors, technology and our application skills via the clients collaboration with our business and product specialists.
The most effective solutions are studied around the TCO (Total cost of ownership) related to the entire life cycle of the product.
This represents the main Pneumax distinguishing factor.

Index
Vacuum technology



Accessories and spare parts for multifunction vacuum generators “SE” - “ME”

Valves and solenoid valves 82

Shut-off valves

Non-return valves that can close the suction line in the event of air leakage from the suction cup that is not located on the workpiece or that is not completely adherent to it.

Valves and solenoid valves poppet system

Valves and solenoid valves poppet system for high flow rates, for vacuum.

Solenoid coils

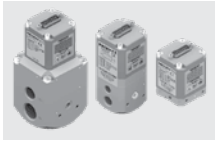
Pad valves

Pad valves, are one of the more functional and cost effective solutions, for intercepting fluids.
PVV series is specifically designed for large suction capacities.

Regulators 114

Manual regulator

Precision in keeping the vacuum regulated for applications that require stability and accuracy.



Proportional regulators

Electronic proportional pressure regulator with closed Loop.
Air-vacuum and vacuum-vacuum versions.

Accessories and instruments 127

Vacuum switch, vacuum gauge, silencers and filters.

VACUUM TECHNIQUE

"The vacuum is an experimentally attainable state", as it is defined in physics. By vacuum, we mean a space completely void of matter, "called absolute vacuum".In practice, this state is unattainable, so when we say vacuum, we mean that the air pressure inside an environment is lower than atmospheric pressure, or when the density of the particles in the air is lower. With the expressions "Vacuum", "suction", "negative pressure", etc., we are referring to a pressure below atmospheric pressure, due to the weight of the overlying air. At sea level, this pressure is equal to 1013 mBar.

Degree of Vacuum

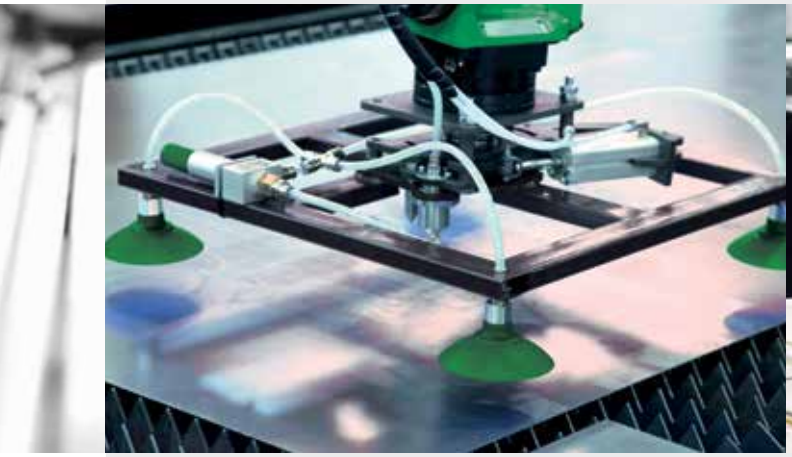
Depending on whether the pressure is higher or lower than atmospheric pressure, the phenomena that occur can vary considerably, and thus the means of achieving and measuring such pressure also varies. Usually we distinguish between different degrees of vacuum that are referred to by specific names as a function of the various intervals of sub-atmospheric pressure, as indicated below:
1) Low vacuum
2) Medium vacuum
3) High vacuum
4) Ultra high vacuum
5) Extreme high vacuum

In the industrial field, the vacuum is subdivided into three areas of application, which depend on the degree of vacuum required:

Low vacuum: This term means a degree of vacuum between 0 and -20 KPa inclusive, most often used in applications where high air flow suction is required. In this industrial segment, electromechanical impeller pumps, side channel blowers, vacuum generators etc.
Industrial Vacuum: this term refers to a degree of vacuum between -20 and -99 KPa inclusive. This range includes many of the applications where the vacuum is produced mainly by vacuum generators based on the Venturi principle, powered by compressed air and by vacuum pumps of the rotary vane, liquid ring, piston and hook-and-claw types, all driven by electric motors.
Process Vacuum: This is a degree of vacuum higher than -99 KPa, where the main generators of this degree of vacuum are the two-stage rotary vane pumps, turbo molecular pumps, diffusion pumps, cryogenic pumps, etc., all driven by electric motor.

The highest value of vacuum reached on earth is still far from the value of an absolute vacuum, which remains a purely theoretical matter. Even in space, so therefore in the absence of an atmosphere, there is a small presence of molecules per cubic metre. The impetus to improve vacuum technologies comes from industry and research. There is a great number of practical applications and highly disparate sectors: vacuum is used in the metallurgical, aerospace and food industries, in particle accelerators, in microelectronics, in the glass and ceramics industry, in industrial robotics, in moving and handling with suction cups, etc.

Examples of application



- **Robotics**

Handling auto parts for the automotive sector, Palletisation in packaging sector, handling sheets of glass, marble and wood panels.

- **Food packaging**

Vacuum packaging of food in modified atmosphere

- **Cardboard box forming**

With the help of suction cups and vacuum generators, the cardboard boxes can be formed easily and quickly.

- **Transportation of powders and granules**

With vacuum, it is possible to transport powders and granules while avoiding harm to the product and maintaining high standards of hygiene and safety.

- **Vacuum clamping**

With the help of vacuum and proper suction cups, it is possible to clamp products such as wood, marble, glass, fibre composites, onto machining centers.

- **Evaporation and degassing**

Vacuum can be used to lower the boiling point of any liquid, which considerably reduces the time needed to reach that point. In degassing applications, vacuum is used to reduce the gases present in a substance.
These gases may cause bubbles which have an adverse effection the product.

- **Pick and Place**

Plastic sector, automotive, electronic, printing, packaging.

- **Moving fragile products**

High sensitivity vacuum components are suitable to handling eggs, glass, ceramic parts and electronic components.

- **Vacuum infusion**

Infusion of composite materials is a production process that is becoming increasingly more popular to improve the aesthetic quality of the end product and reduce total manpower costs. The general principle of infusion is to “absorb” the resin into there and in the fabrics to be reinforced by using vacuum technology. The vacuum reduces the pressure at one end of the layers of fabric, allowing the atmosphere to push the resin through all the layers of fabric. The speed and distance at which a stack of fabric can be filled depends on the viscosity of the resin system, permeability of the layers of fabric and pressure gradient that acts on the infused resin.

- **Thermoforming**

Vacuum can be used in the process of thermoforming plastic materials.The preheated sheet of plastic material is placed on the die via suction (vacuum), so as to conform to the relief features of the die.

- **Medical**

Vacuum is used in a number of procedures in the medical sector, such as: dentistry and oral prosthetics, compression therapy and other hospital procedures.

Conversion table for positive pressure

	Pa (N/m²)	bar	Kg/cm²	Torr	psi (ibf/in²)	kPa	inHg
1 Pa	1	0,00001	$10,1792x10^{-6}$	$7,50062x10^{-3}$	$0,145038x10^{-3}$	0.001	$0,3x10^{-3}$
1 kPa	1000	0.01	$10,1792x10^{-3}$	7,50062	0,145038	1	0,3
1 bar	100000	1	1,01972	750,062	14,5038	100	30
1 kg/cm²	98066,5	0,980665	1	735,559	14,2233	98,0665	29,42
1 torr	133.322	$1,33322x10^{-3}$	$1,35951x10^{-3}$	1	$19,3368x10^{-3}$	0,133322	0,04
1 Psi	6894,76	$68,9476x1^{-3}$	$70,3096x10^{-3}$	51,7149	1	6,89476	2,07

Conversion table for negative pressure

	mbar	kPa	-kPa	%Vuoto	Torr	-mmHg	inHg
Atm	1013	101,3	0	0	760	0	0
	913	91,3	10	9,9	685	75	3
	813	81,3	20	19,7	610	150	6
	713	71,3	30	29,6	535	225	9
	613	61,3	40	39,5	460	300	12
	513	51,3	50	49,3	385	375	15
	413	41,3	60	59,2	310	450	18
	313	31,3	70	69,1	235	525	21
	213	21,3	80	79	160	600	24
	113	11,3	90	89	85	675	27
Absolute vacuum	0	0	101,3	100	0	760	30

Conversion table of Flow rate per unit of time

	m³/s	m³/h	l/min	l/s	ft³/min (scfm)
1 m³/s	1	3600	60000	1000	2118,9
1 m³/h	$0,28x10^{-3}$	1	16,6667	0,2778	0,5885
1 l/min	$16,67x10^{-4}$	0,06	1	0,0167	0,035
1 l/s	$1x10^{-3}$	3,6	60	1	2,1189
1 ft³/min (scfm)	$0,472x10^{-3}$	1,6992	28,32	0,4720	1

Suction cups

Suction cups are vacuum accessories that are indispensable whenever it is needed to lifting, clamping or handling manufactured products, sheets or other objects that are “difficult to grip” with traditional gripping means, because they lack handholds, are fragile or are easily deformable.

Correct application of suction cups ensures simple, economical and safe gripping operations, which are critical requirements for the proper execution of any automatic action.

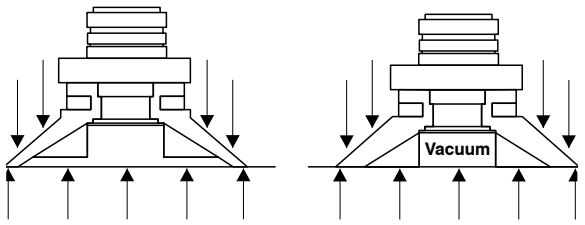
The suction cup adheres to the surface of an object whenever the pressure surrounding it outside (atmospheric pressure) is higher than the pressure existing between the suction cup and the surface of the object.

In order to generate low pressure inside the suction cup, the latter may be connected to a vacuum pump.

The lifting force of the suction cup will depend on the degree of vacuum attained by the pump and its capacity to compensate for losses.

The suction cup is an effective, simple and economical system for handling all kinds of shapes and surfaces.

The suction cup itself can have a number of different shapes: flat, oval, conical bellows with the possibility of adding various accessories, such as filters, shut-off valves, level compensators. Any given suction cup is designed for a specific vacuum movement application.



Applications:

Gripping, handling, lifting, forming, palletising, pick & place, transferring, positioning. The materials that can be managed with suction cups are highly varied, but we can roughly categorise them as follows:

METALS: heavy loads, large sizes, middle frequencies, dirty surfaces.

PLASTIC: light loads, medium to small sizes with irregular shapes, no surface deposits.

WOOD: rough surface, slightly deformed, middle-weight loads, no surface deposits.

Application symbols

	Applications	Description
	**Universal**	**Multipurpose applications, flat or slightly curved surface.**
	**Packaging**	**Product packaging and handling of packaged products, mainly used for handling cardboard boxes and interlayers.**
	**Plastick bag**	**Gripping and handling of plastic and paper bags, high capacity suction cups are designed to deform and adapt to the characteristics of the bag being picked up or opened.**
	**Food packaging**	**Designed for the handling of product within the food industry such as bread, chocolate, brioches etc. High capacity cups are designed to deform and adapt to the characteristics of the product being handled.**
	**Metal sheet**	**Sheet metal industry, mainly used for handling, fixing and the processing of metal plate. Particularly suitable for oily surfaces and for handling pieces with lateral force, high slip resistance.**
	**Stone & Marble**	**Stone and marble processing industry, mainly for handling marble slabs and bricks. Particularly suitable for uneven surfaces, where a large deformation of the suction cup is required.**
	**Slip resistance**	**Suitable for handling material with a smooth surface, prevent side sliding when gripped.**
	**Rough surface**	**Suitable for handling material with a rough surface such as sawn wood, marble slabs and bricks. Suction cups with sponge rubber are used in order to better compensate for the irregularity of the surface.**
	**Long life time**	**Made with a particular anti-abrasive compound that increases its resistance and longevity.**
	**Oily surfaces**	**Special suction cups suitable for oily surfaces**

SUCTION CUPS

Pneumax suction cups are available in different shapes and materials, to meet the application requirements of the most demanding industrial sectors.

Suction cup choice

Suction cup Flat series TP

Suction cup to be used for moving sheets and in those applications where the lifting force is parallel to the gripping plane.
Internal reinforcements improve stability and make this cup suitable for handling heavy objects.

Suction cup Bellows series TS

Suction cup best used in particular for moving light items in those applications where the lifting force is vertical to the gripping plane. The range of the bellows makes it possible to compensate for the irregularity of the surface and height of the object. The long bellows suction cup is best used in applications where it is necessary to pick off and move light products such as: leaves of paper or pieces of cardboard, thin sheets, wood panels, etc.
Due to their greater flexibility, these can be used to compensate for errors of flatness or to grip inclined surfaces, but are not suitable for applications with parallel loads or with a high degree of vacuum.

Suction cup (Plain) Cup series TN

Among the most common types of suction cup, used in sectors of industry where special performance is not required: Handling of objects made of plastic, wood panels, thin sheets of glass and metal, etc.
Recommended for vertical movement of heavy objects.

High Grip suction cup

Suction cup with high coefficient of friction, developed for the handling of oily surfaces, such as sheet metal in moulding processes, and also recommended for handling wet marbles and glasses, slabs and loads in general, subject to high accelerations and decelerations during movement. Recommended for the “automotive” sector, available in various sizes and shapes: round and oval flat and round and oval bellows.
Suitable for horizontal and vertical movement.

Foam rubber suction cups

This suction cup allows for the moving and gripping of loads with coarse, very rough or uneven surfaces, such as: textured, nonslip or ribbed/corrugated sheets, and sawn, bush-hammered or flamed marble. Items made of rough concrete, garden walkway tiles and brick in general. Recommended for use with oiled surfaces and to move vertical loads.

Material choice

The material choice depend on the individual application, evaluating as follows:

- **Surface roughness of the load to be moved and its temperature.**
- **Weight and dimensions of the load.**
- **The presence of chemical substances, oils, solvents etc. on the gripping surface.**
- **How labour-intensive and complex the work processes are.**
- **How important it is to ensure that no specks exist on the gripping surface.**

Suction cup characteristics and materials

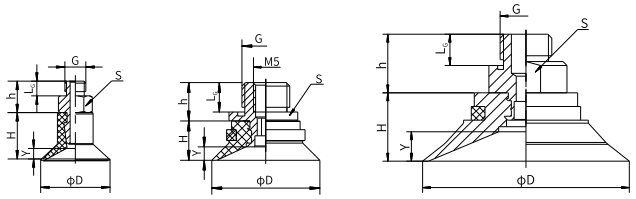
Material	Temperature °C	Abrasion resistance	Oil resistance	Resistance to weather/atmospheric agents
N NBR	**-20 ... +110**	**Excellent**	**Excellent**	**Good**
S Silicone	**-40 ... +200**	**Good**	**Low**	**Excellent**
PU Polyurethane	**10 ... 50**	**Excellent**	**Good**	**Excellent**
F Fluorinated rubber	**-20 ... +80**	**Low**	**Low**	**Low**
E-EPDM	**-30 ... +150**	**Good**	**Low**	**Excellent**

Series 1900

SUCTION CUPS

Standard round suction cup

UNIVERSAL



A B C

Code (V)=Version N=NBR / S=Silicone	Drawing	D	H	G	L_G	h	S	Y
19VTN.(V).05.008.00	A	9	7	M5	3.5	7.5	7	2
19VTN.(V).05.010.00	A	11	10.5	M5	3.5	7.5	7	2
19VTN.(V).18.020.00	B	22	8	G1/8"	6	7.8	13	2.2
19VTN.(V).18.030.00	B	32	9.5	G1/8"	6	7.8	13	4.5
19VTN.(V).18.040.00	C	42	13	G1/8"	6	12	17	5.2
19VTN.(V).14.050.00	C	53	17.5	G1/4"	9	17	24	7

Standard round suction cup, suitable for gripping and moving with vacuum objects with flat or slightly curved surfaces, allows gripping on concave surfaces.

Table of lifting forces

Code (V)=Version N=NBR / S=Silicone	Volume cm³	Lifting force in vertical direction (N)			Lifting force in parallel direction (N)			Weight (gr.)
		-20kPa	-60kPa	-90kPa	-20kPa	-60kPa	-90kPa	
19VTN.(V).05.004.00	0.03	0.198	0.885	1.275	0.198	0.78	1	2.3
19VTN.(V).05.008.00	0.1	1	2.55	3.8	1	2.85	3.35	2
19VTN.(V).05.010.00	0.18	1.48	4.4	6.85	1.5	4.4	4.9	2.7
19VTN.(V).18.020.00	1	5.9	12.2	16	5.9	8.8	9.8	3
19VTN.(V).18.030.00	2	13	25	33	7.8	9.8	11	4.2
19VTN.(V).18.040.00	5.5	20	37.5	60	13.8	22	27.5	11
19VTN.(V).14.050.00	12	35.5	74	95	20	37	44	26.6

Material	Colour	Hardness °Shore A	Working temperature °C
NBR	Black	55	-20 ... 110
Silicone	Red	50	-40 ... 200

Cup-style round suction cup

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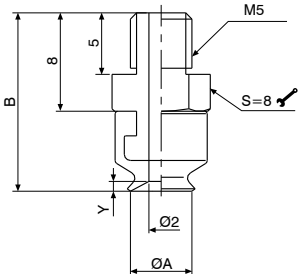
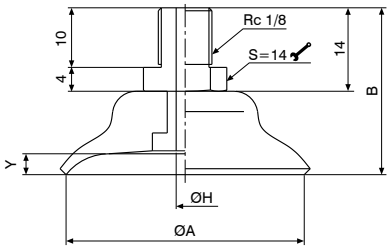


Code	ØA	B	Y
19VTC.N.05.006.00	6	14.5	0.8
19VTC.N.05.008.00	8	15	1.2
19VTC.N.05.010.00	10	15.5	1.5



Code	ØA	B	ØH	Y
19VTC.N.18.015.00	15	22	2	1.9
19VTC.N.18.020.00	20	24	3	2.3
19VTC.N.18.030.00	30	26	3	2
19VTC.N.18.040.00	40	28	3	3.5
19VTC.N.18.050.00	50	29	4	4

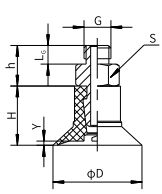
Typical cup-shaped suction cup, suitable for gripping and moving with vacuum objects with flat or slightly curved surfaces, allows gripping on concave surfaces.

Table of lifting forces

Code	Volume cm³	Lifting force in vertical direction (N)		Weight (gr.)
		-60kPa	-90kPa	
19VTC.N.05.006.00	0.03	0.885	1.275	2.3
19VTC.N.05.008.00	0.1	2.55	3.8	2
19VTC.N.05.010.00	0.18	4.4	6.85	2.7
19VTC.N.18.015.00	0.9	12.2	16	3
19VTC.N.18.020.00	2.5	25	33	4.2
19VTC.N.18.030.00	5	37.5	60	11
19VTC.N.18.040.00	12	74	95	26.6
19VTC.N.18.050.00	15	74	95	26.6

Material	Color	Hardness °Shore A	Working temperature °C
NBR	Black	55	-20 ... 110

Round flat suction cup



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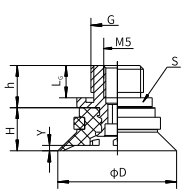

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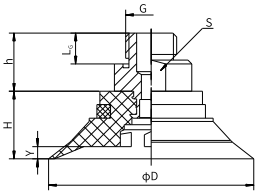

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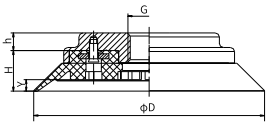


D

Code V=Version N=NBR / S=Silicone	Drawing	D	H	G	L_G	h	S	Y
19VTP.V.05.015.00	A	16,5	11	M5	3,5	7,5	7	0,8
19VTP.V.18.020.00	B	22	8	G1/8"	6	7,8	13	1
19VTP.V.18.025.00	B	27	9	G1/8"	6	7,8	13	1
19VTP.V.18.030.00	B	32	10	G1/8"	6	7,8	13	1,2
19VTP.V.18.040.00	C	42	13	G1/8"	6	12	17	1,2
19VTP.V.14.050.00	C	53	17,5	G1/4"	9	17	24	3,2
19VTP.V.14.075.00	D	77	13	G1/4"	*	13	*	4
19VTP.V.12.110.00	D	112	20	G1/2"	*	9	*	6
19VTP.V.12.150.00	D	152	26	G1/2"	*	10	*	8

UNIVERSAL

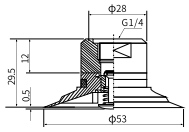
Round flat suction cup, suitable for gripping and moving with vacuum, objects with flat surfaces, offers good stability and minimal displacement. Recommended for applications with force parallel to grip plane, suitable for moving glass, wood, steel and plastic sheets. Internal reinforcements prevent thin objects from deforming and increase friction in applications with forces parallel to grip plane.

Table of lifting forces

Code V=Version N=NBR / S=Silicone	Volume cm^3	Lifting force in vertical direction (N)			Lifting force in parallel direction (N)			Weight (gr.)
		-20kPa	-60kPa	-90kPa	-20kPa	-60kPa	-90kPa	
19VTP.V.18.020.00	1	6	15	18.7	5	7.95	8.45	3.1
19VTP.V.18.025.00	1.1	9.2	19.3	24.9	7.95	8.95	10	3.6
19VTP.V.18.030.00	2	13	24.8	30.8	11	15.98	20	4.5
19VTP.V.18.040.00	4.8	20	40	50	15	25	29.5	11.5
19VTP.V.14.050.00	10	37	74	96	24	40	50	27.9
19VTP.V.14.075.00	20	80	201	272	60	110	140	121.3
19VTP.V.12.110.00	70	141	418.5	562	140	248	299.7	245.3
19VTP.V.12.150.00	160	300	845	1098	250	600	800	605

Material	Color	Hardness °Shore A	Working temperature °C
NBR	Black	55	-20 ... 110
Silicone	Red	50	-40 ... 200

Round flat suction cup with touch valve



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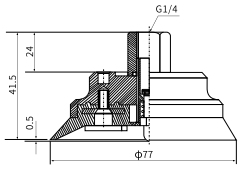
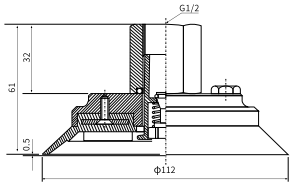


B



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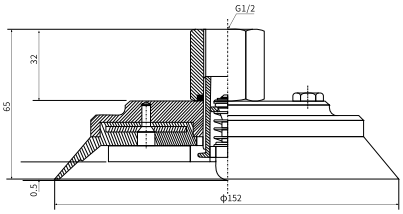
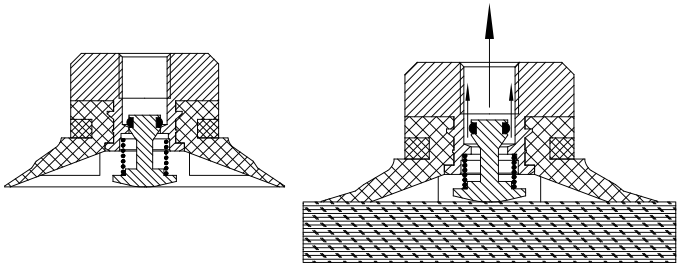


D



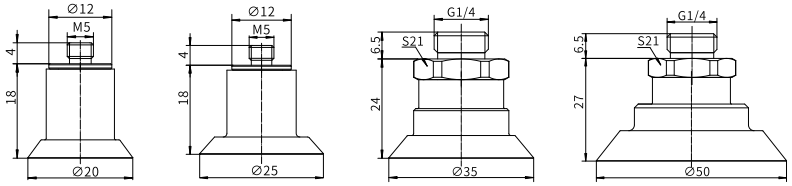
Code V=Version N=NBR / S=Silicone	Drawing
19VTP.N.27.050.00	A
19VTP.N.27.075.00	B
19VTP.N.28.110.00	C
19VTP.N.28.150.00	D
19VTP.S.27.050.00	A
19VTP.S.27.075.00	B
19VTP.S.28.110.00	C
19VTP.S.28.150.00	D

UNIVERSAL

When the suction cup is not in contact with the workpiece, the touch valve closes the suction avoiding loss of flow rate.
When the suction cup is not in contact with the workpiece, the touch valve is activated by opening the suction and ensuring normal operation of the suction cup.

SUCTION CUPS

Flat round bellows suction cup for plastic film



A B C D

Code (V)=Version N=NBR / S=Silicone	Drawing
19VTF.S.05.020.00	A
19VTF.S.05.025.00	B
19VTF.S.14.035.00	C
19VTF.S.14.050.00	D

PLASTIC BAG PACKAGING

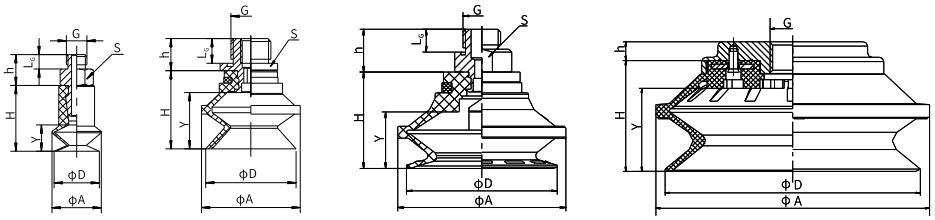
Specially designed for opening plastic bags. Suitable for handling thin and delicate objects, such as plastic films or paper.
The thin and adaptable lip together with the internal plugs avoid damages to the film during the suction phase.

Table of lifting forces

Code (V)=Version N=NBR / S=Silicone	Volume cm³	Lifting force in vertical direction (N) -60kPa	Lifting force in parallel direction (N) -60kPa	Stroke (mm)	Weight (gr.)
19VTF.S.05.020.00	1	10	6	1,5	4,6
19VTF.S.05.025.00	1,6	25	21	1,5	5,0
19VTF.S.14.035.00	2,1	38	32,5	1,5	10,0
19VTF.S.14.050.00	6	92	76	2	25,0

Material	Color	Hardness °Shore A	Working temperature °C
Silicone	Blue	40	-40 ... 200

Round bellows suction cup



A B C D

Code (V)=Version N=NBR / S=Silicone	Drawing	D	A	H	G	L_G	h	S	Y
19VTS.(V).05.005.15	A	5,8	6,2	9,2	M5	3,5	7,5	7	3,6
19VTS.(V).05.010.15	A	11	12	16	M5	3,5	7,5	7	7
19VTS.(V).05.015.15	A	15,5	17,5	19,5	M5	3,5	7,5	7	10
19VTS.(V).18.020.15	B	22	24	19	G1/8	6	7,8	13	9
19VTS.(V).18.030.15	C	34	36	26	G1/8	6	12	17	19
19VTS.(V).18.040.15	C	43	46	28	G1/8	6	12	17	20
19VTS.(V).14.050.15	C	53	58	35	G1/4	9	17	24	20
19VTS.(V).24.075.15	D	78	83	37	G1/4	*	13	*	27
19VTS.(V).26.110.15	D	115	124	54	G1/2	*	9	*	38,5
19VTS.(V).26.150.15	D	155	166	71	G1/2	*	10	*	44,5

UNIVERSAL

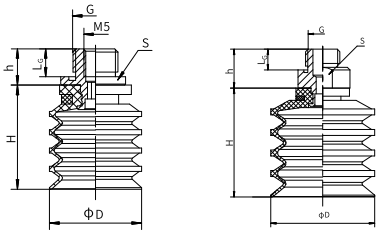
Round bellows suction cup, which, due to its shape, ensures that when in contact with the surface of the load to be lifted and in the presence of vacuum, it rapidly collapses, releasing the load of several millimetres, separately from the movements of the automation system; this rapid movement prevents the load underneath from remaining stuck to the one being lifted. For this reason, suction cups with this feature are recommended in cases where you need to pick off and move sheets of cardboard, fine sheets, wood panels, glass panes etc. and are also recommended for use on curved surfaces. This suction cup is not suitable for handling objects with lifting force parallel to the surface.

Table of lifting forces

Code (V)=Version N=NBR / S=Silicone	Volume cm³	Lifting force in vertical direction (N) -20kPa	-60kPa	-90kPa	Weight (gr.)
19VTS.(V).05.005.15	0.05	0.295	0.786	0.99	2
19VTS.(V).05.010.15	0.48	1.7	3.5	5.1	2.9
19VTS.(V).05.015.15	1.1	3.3	6	8.9	3.5
19VTS.(V).18.020.15	2.7	5.8	10.6	15	5
19VTS.(V).18.030.15	10	13	25	28	13.6
19VTS.(V).18.040.15	15	22.5	42	50.2	20.2
19VTS.(V).14.050.15	32	34	65	83	39.5
19VTS.(V).12.075.15	110	74	166.4	226	131.3
19VTS.(V).12.110.15	310	136.5	343	460.5	316.6
19VTS.(V).12.150.15	650	295	686	883	733.3

Material	Color	Hardness °Shore A	Working temperature °C
NBR	Black	55	-20 ... 110
Silicone	Red	50	-40 ... 200

Long bellows suction cup



A B

Code (V)=Version N=NBR / S=Silicone	Drawing	D	H	G	L_G	h	S
19VTS.(V).18.020.45	A	20	23	G1/8	6	7,8	13
19VTS.(V).18.030.45	B	30	32	G1/8	6	12	17
19VTS.(V).18.040.45	B	40	42	G1/8	6	12	17
19VTS.(V).14.050.45	B	50	52	G1/4	9	17	24

FOOD PACKAGING PLASTIC BAG

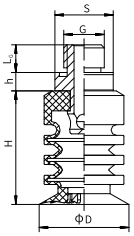
Long bellows suction cup which, due to its shape, makes it possible to compensate for differences in height. Its upward movements are particularly suitable for the separation of thin products, and suitable for handling food packed in plastic bags and for fragile objects. This suction cup is not suitable for handling objects with lifting force parallel to the surface.

Table of lifting forces

Code (V)=Version N=NBR / S=Silicone	Volume cm^3	Lifting force in vertical direction (N)		Weight (gr.)
		-20kPa	-60kPa	
19VTS.(V).18.020.45	4	0.3	0.6	3.9
19VTS.(V).18.030.45	13	0.6	1.55	12.4
19VTS.(V).18.040.45	27	1.05	2.15	19.8
19VTS.(V).14.050.45	55	1.68	4.22	38.3

Material	Color	Hardness °Shore A	Working temperature °C
NBR	Black	55	-20 ... 110
Silicone	Red	50	-40 ... 200

Long bellows suction cup for bags



A

Code (V)=Version N=NBR / S=Silicone	Drawing	D	H	h	L_G	G	S
19VTS.S.14.030.35	A	30	36,5	6	9	G1/4	19
19VTS.S.38.040.35	A	40	40	6	10	G3/8	22
19VTS.S.12.050.35	A	50	55	6	10	G1/2	28

FOOD PACKAGING PLASTIC BAG

The long bellows suction cup is especially suited for the movement of bags, thanks to its very thin lip and internal notchings, which allow it to ensure secure gripping even with heavy bags that are difficult to lift.

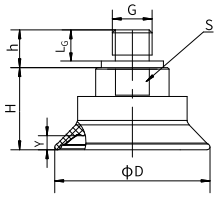
Table of lifting forces

Code	Volume cm^3	Lifting force in vertical direction (N)	Weight (gr.)
		-60kPa	
19VTS.S.14.030.35	8.5	9	17.6
19VTS.S.38.040.35	14	15	23.6
19VTS.S.12.050.35	26	25	44.2

Material	Color	Hardness °Shore A	Working temperature °C
Silicone	Red	40	-40 ... 200

SUCTION CUPS

High friction round suction cup



A

Code V=Version N=NBR / S=Silicone	Drawing	D	H	G	L_G	h	S	Y
19GTN.N.14.030.00	A	32	19,5	G1/4	12	13,5	16	2,7
19GTN.N.14.040.00	A	42	22	G1/4	12	13,5	17	3,7
19GTN.N.14.050.00	A	52	28	G1/4	12	13,5	22	4,7
19GTN.N.14.060.00	A	62,5	31	G1/4	12	13,5	22	6
19GTN.N.14.080.00	A	83	34,5	G1/4	12	13,5	22	6
19GTN.N.14.100.00	A	102	36,5	G1/4	12	13,5	22	9,2

METAL SHEET · SLIP RESISTANCE · OILY SURFACES

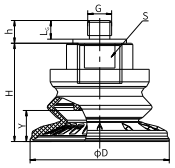
High friction round suction cup suitable for movement of pieces of various size and shape, reinforced internal structure ensures that lifted objects are not deformed and increases friction force in applications with force parallel to the grip plane. The innovative design of the support plane inside the suction cup ensures high coefficient of friction with the grip surface, in particular on very oily sheets or glass panes and very wet marble, thanks to this suction cup's drainage capability. This suction cup is most particularly recommended for applications of handing sheet metal parts in the "automotive" industry. This characteristic means that there is asecure and solid grip by the suction cup and consequently ensures accurate positioning of the load to be moved.

Table of lifting forces

Code	Volume cm³	Lifting force in vertical direction (N) -60kPa	Lifting force in parallel direction (N) -60kPa	Lateral force on oily surface (N) -60kPa	Weight (gr.)
19GTN.N.14.030.00	1.6	45	35	33	28.3
19GTN.N.14.040.00	3.5	72	54	51	30.1
19GTN.N.14.050.00	7.5	112	90	86	55.4
19GTN.N.14.060.00	12.6	145	102	93	62.6
19GTN.N.14.080.00	35	288	212	190	81.4
19GTN.N.14.100.00	60	445	322	308	96.6

Material	Color	Hardness °Shore A	Working temperature °C
NBR	Orange	60	-20 ... 110

High friction round bellows suction cup



A

Code V=Version N=NBR / S=Silicone	Drawing	D	H	G	L_G	h	S	Y
19GTS.N.14.022.15	A	22	25	G1/4	12	13,5	16	5,5
19GTS.N.14.030.15	A	32	28	G1/4	12	13,5	17	9,5
19GTS.N.14.040.15	A	42	28,5	G1/4	12	13,5	17	10
19GTS.N.14.050.15	A	52	36,2	G1/4	12	13,5	22	11,5
19GTS.N.14.060.15	A	62,5	41	G1/4	12	13,5	22	14,5
19GTS.N.14.080.15	A	82	49,5	G1/4	12	13,5	22	22,5
19GTS.N.14.100.15	A	103	55	G1/4	12	13,5	22	25

METAL SHEET · SLIP RESISTANCE · OILY SURFACES

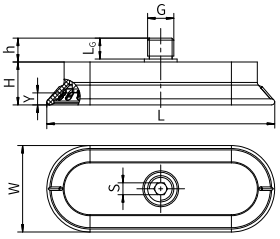
High friction round bellows suction cup suitable for movement of pieces of various size and shape and where level compensation is necessary, such as when withdrawing from loaders. Especially recommended for applications with force parallel to the grip plane.The innovative design of the support plane inside the suction cup ensures high coefficient of friction with the grip surface, in particular on very oily sheets or glass panes and very wet marble, thanks to this suction cup's drainage capability.
This feature enables a secure and solid grip by the suction cup and consequently ensures accurate positioning of the load to be moved.

Table of lifting forces

Code	Volume cm³	Lifting force in vertical direction (N) -60kPa	Lifting force in parallel direction (N) -60kPa	Lateral force on oily surface (N) -60kPa	Weight (gr.)
19GTS.N.14.022.15	1.5	23	20	6.5	25.2
19GTS.N.14.030.15	6.3	35	28	12	29.5
19GTS.N.14.040.15	7.2	62	37	34	30.9
19GTS.N.14.050.15	11.2	85	58	55	56.3
19GTS.N.14.060.15	22.5	141	88	83	64.4
19GTS.N.14.080.15	57	236	141	136	86.4
19GTS.N.14.100.15	92	371	228	221	116.6

Material	Color	Hardness °Shore A	Working temperature °C
NBR	Orange	60	-20 ... 110

High friction oval suction cup



A

Code V=Version N=NBR / S=Silicone	Drawing	L	W	H	G	L_G	h	S	Y
19GEN.N.14.JxD.00	A	50	16	19,5	G1/4	12	13,5	5	3
19GEN.N.14.AxH.00	A	84	24	15,5	G1/4	12	13,5	5	5
19GEN.N.14.BxL.00	A	93	33	16	G1/4	12	13,5	5	5
19GEN.N.14.CxN.00	A	113	43	21,5	G1/4	12	13,5	5	6
19GEN.N.14.FxO.00	A	123	65	18	G1/4	12	13,5	5	6

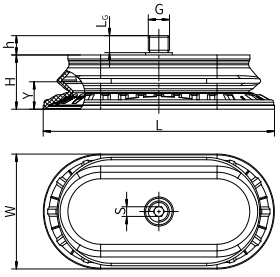
High friction oval suction cup suitable for movement of elongated thin pieces; the reinforced internal structure ensures that lifted objects are not deformed and increases friction force in applications with force parallel to the grip plane. The innovative design of the support plane inside the suction cup ensures high coefficient of friction with the grip surface, in particular on very oily sheets or glass panes and very wet marble, thanks to this suction cup's drainage capability. This suction cup is most particularly recommended for applications of handing sheet metal parts in the "automotive" industry. This feature enables a secure and solid grip by the suction cup and consequently ensures accurate positioning of the load to be moved.

Table of lifting forces

Code	Volume cm³	Lifting force in vertical direction (N) -60kPa	Lifting force in parallel direction (N) -60kPa	Lateral force on oily surface (N) -60kPa	Weight (gr.)
19GEN.N.14.JxD.00	2	33	24	12	17
19GEN.N.14.AxH.00	5	78	38	35	23
19GEN.N.14.BxL.00	10	125	77	60	24
19GEN.N.14.CxN.00	25	200	188	118	47
19GEN.N.14.FxO.00	35	312	254	170	70

Material	Color	Hardness °Shore A	Working temperature °C
NBR	Orange	60	-20 ... 110

Oval high-friction bellows suction cup



A

Code V=Version N=NBR / S=Silicone	Drawing	L	W	H	G	L_G	h	S	Y
19GES.N.14.BxF.15	A	62	31	20	G1/4	12	13,5	5	6
19GES.N.14.CxH.15	A	82	41	22,7	G1/4	12	13,5	5	8,8
19GES.N.14.ExN.15	A	112	57	29	G1/4	12	13,5	5	12,5
19GES.N.14.GxR.15	A	143	70,5	33	G1/4	12	13,5	5	17

High friction oval bellows suction cup suitable for movement of elongated and thin pieces and where level compensation is necessary, such as in the withdrawal of loaders.
Especially recommended for applications with force parallel to the grip plane. The innovative design of the support plane inside the suction cup ensures a high coefficient of friction with the grip surface, in particular on very oily sheets or glass panes and very wet marble, thanks to this suction cup's drainage capability.
This feature enables a secure and solid grip by the suction cup and consequently ensures accurate positioning of the load to be moved.

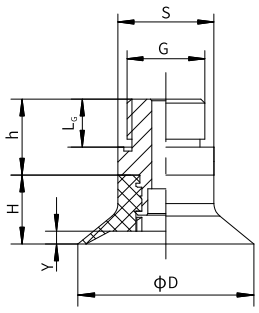
Table of lifting forces

Code	Volume cm³	Lifting force in vertical direction (N) -60kPa	Lifting force in parallel direction (N) -60kPa	Lateral force on oily surface (N) -60kPa	Weight (gr.)
19GES.N.14.BxF.15	8.7	53	60	50	41.9
19GES.N.14.CxH.15	22	110	118	101	51.5
19GES.N.14.ExN.15	57	197	200	183	102.1
19GES.N.14.GxR.15	108	275	295	267	138.9

Material	Color	Hardness °Shore A	Working temperature °C
NBR	Orange	60	-20 ... 110

SUCTION CUPS

Standard round suction cup made of polyurethane



A

PACKAGING LONG LIFETIME

Code (V)=Version N=NBR / S=Silicone	Drawing	D	H	G	h	L_G	Y	S
19VTN.P.18.030.00	A	31	10,5	G1/8	7,8	6	2	13
19VTN.P.18.040.00	A	41	14	G1/8	12	6	2,5	17

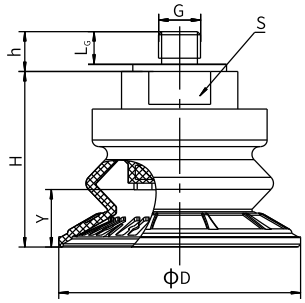
Standard round suction cup made of polyurethane, suitable for gripping and moving with vacuum, objects with flat or slightly curved surfaces, allows gripping on concave surfaces. The big advantage of this suction cup, is that the material it's made of, polyurethane, lasts longer than other materials, has optimum wear resistance, good flexibility and Polyurethane suction cups are mark resistant.

Table of lifting forces

Code	Volume cm³	Lifting force in vertical direction (N)			Lifting force in parallel direction (N)			Weight (gr.)
		-20kPa	-60kPa	-90kPa	-20kPa	-60kPa	-90kPa	
19VTN.P.18.030.00	2	13	23	33	7.8	9.8	11	5
19VTN.P.18.040.00	5.5	20	40	60	13.8	22	27.5	11.8

Material	Color	Hardness °Shore A	Working temperature °C
PU	Yellow	40	10 ... 50

Round bellows suction cup made of polyurethane



A

METAL SHEET SLIP RESISTANCE LONG LIFETIME OILY SURFACES

Code (V)=Version N=NBR / S=Silicone	Drawing	D	H	G	L_G	h	S	Y
19VTS.P.14.030.15	A	32	28	G1/4	12	13,5	17	7
19VTS.P.14.040.15	A	42	29	G1/4	12	13,5	17	9
19VTS.P.14.050.15	A	51,5	37	G1/4	12	13,5	22	12,5
19VTS.P.14.060.15	A	64	41,5	G1/4	12	13,5	22	15
19VTS.P.14.080.15	A	84	49,5	G1/4	12	13,5	22	23
19VTS.P.14.100.15	A	103	55	G1/4	12	13,5	22	22

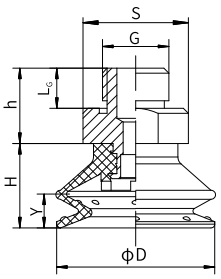
Round bellows suction cup made of polyurethane, suitable for moving pieces of various sizes and shapes and where level compensation is necessary, such as when withdrawing from loaders. The big advantage of this suction cup, is that the material it's made of, polyurethane, lasts longer than other materials, has optimum wear resistance, good flexibility and optimum tensile strength. Suitable for moving--with vacuum--steel sheets, glass sheets , cardboard boxes and wood panels.

Table of lifting forces

Code	Volume cm³	Lifting force in vertical direction (N)			Lifting force in parallel direction (N)			Weight (gr.)
		-20kPa	-60kPa	-90kPa	-20kPa	-60kPa	-90kPa	
19VTS.P.14.030.15	6	11	60.2	91	8.4	30.5	76	30
19VTS.P.14.040.15	7.2	17.5	93	119.8	11.3	63.8	110.8	30.6
19VTS.P.14.050.15	11	25	128.5	157.8	20.5	94	144	58.5
19VTS.P.14.060.15	22	87.3	156.2	189.2	67	125.6	165.8	67.9
19VTS.P.14.080.15	59.5	118.6	210.5	252.6	89	167.8	221.2	89.9
19VTS.P.14.100.15	103.5	149	269.5	310.4	111.8	209.8	276.5	135.3

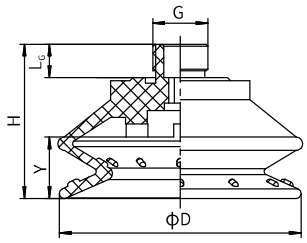
Material	Color	Hardness °Shore A	Working temperature °C
PU	Blu	70	10 ... 50

Round bellows suction cup made of polyurethane



A

Code V=Version N=NBR / S=Silicone	Drawing	D	H	G	h	L_G	Y	S
19VTS.P.18.030.15	**A**	31,5	16,8	G1/8	12	6	6,6	17
19VTS.P.18.040.15	**A**	42	22,4	G1/8	12	6	8,8	17
19VTS.P.38.050.15	**A**	52,5	29,3	G3/8	13	10	12,3	24



B

Code V=Version N=NBR / S=Silicone	Drawing	D	H	G	L_G	Y	S
19VTS.P.38.070.15	**B**	73	46,5	G3/8	10	16,5	*

PACKAGING

LONG LIFETIME

Round bellows suction cup made of polyurethane, suited for movement of pieces of various size and shape and where level compensation is necessary, such as when withdrawing from loaders. The big advantage of this suction cup, is that the material it's made of, polyurethane, lasts longer than other materials, has optimum wear resistance, good flexibility and optimum tensile strength. Polyurethane suction cups are mark resistant.

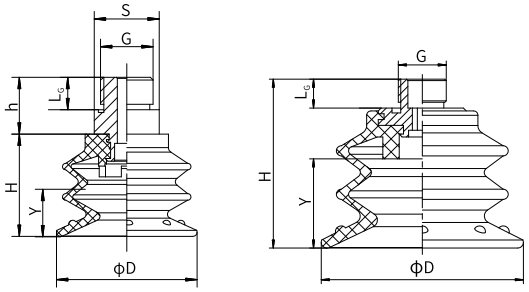
Table of lifting forces

Code	Volume cm^3	Lifting force in vertical direction (N)			Weight (gr.)
		-20kPa	-60kPa	-90kPa	
19VTS.P.18.030.15	10	13	30	37	10.3
19VTS.P.18.040.15	15	22.5	60	75	17.3
19VTS.P.38.050.15	32	34	86	100	33.4
19VTS.P.38.070.15	108	74	165	225	60.6

Material	Color	Hardness °Shore A	Working temperature °C
PU	Yellow	40	10 ... 50

SUCTION CUPS

Round bellows suction cup made of polyurethane



A B

PACKAGING LONG LIFETIME

Code V=Version N=NBR / S=Silicone	Drawing	D	H	G	h	L_G	Y	S
19VTS.P.18.020.25	**A**	21	14,8	G1/8	7,8	6	4,5	13
19VTS.P.18.030.25	**A**	30	21,3	G1/8	7,8	6	8	13
19VTS.P.18.040.25	**A**	40	28,4	G1/8	12	6	10,6	17
19VTS.P.38.050.25	**A**	50	35,5	G3/8	18	10	13,4	24
19VTS.P.38.070.25	**B**	70	58,5	G3/8	*	10	18,6	*

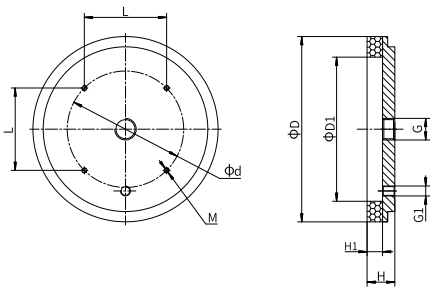
Round bellows suction cup made of polyurethane, suitable for movement of pieces of various size and shape and where level compensation is necessary, such as when withdrawing from loaders. The big advantage of this suction cup, is that the material it's made of, polyurethane, lasts longer than other materials, has optimum wear resistance, good flexibility and optimum tensile strength. Suitable for moving porous objects or ones with an irregular surface, such as cardboard. Polyurethane suction cups are mark resistant.

Table of lifting forces

Code	Volume cm^3	Lifting force in vertical direction (N)			Weight (gr.)
		-20kPa	-60kPa	-90kPa	
19VTS.P.18.020.25	1.18	4.5	7	10	4.2
19VTS.P.18.030.25	9	10	19	25	6.9
19VTS.P.14.040.25	15	15	32	50	18.2
19VTS.P.38.050.25	30	35	58	79	32.6
19VTS.P.38.070.25	75	72	125	150	60.5

Material	Color	Hardness °Shore A	Working temperature °C
PU	Green	55	10 ... 50

Foam rubber round suction cup



A

Code V=Version N=NBR / S=Silicone	Drawing	D	D1	H	H1	G1	L	M	d	G
19VTN.G.14.040.00	A	40	20	25	15	-	-	-	-	G1/4
19VTN.G.14.064.00	A	64	40	25	15	-	-	-	40	G1/4
19VTN.G.38.092.00	A	92	64	26	15	-	-	4-M5	70	G3/8
19VTN.G.12.127.00	A	127	92	30	15	G1/8	70	4-M5	-	G1/2


STONE & MARBLE


ROUGH SURFACE

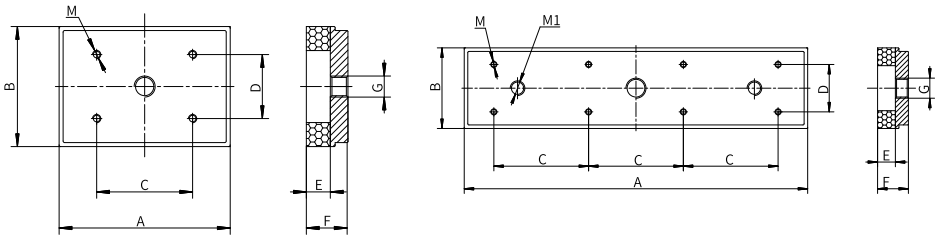
Foam rubber round suction cup is made from a special mixture called "NR", which has a density that allows for gripping even on very rough and irregular surfaces, and allows its elasticity to be maintained even after several working cycles. Especially suited for moving loads with coarse or very rough surfaces such as: sawn, bush-hammered or flamed marble, textured, non-slip or ribbed/corrugated sheets, brick, items made of rough concrete, garden walkway tiles, etc., and in general in all cases where traditional suction cups cannot be used.
Recommended for handling loads with lifting force parallel to the surface and for the movement of loads with oiled surfaces.

Table of lifting forces

Code	Lifting force in vertical direction (N) -60kPa	Weight (gr.)
19VTN.G.14.040.00	7.8	33.4
19VTN.G.14.064.00	35	82.4
19VTN.G.38.092.00	85	197.8
19VTN.G.12.127.00	175	489.3

Material	Color	Hardness °Shore A	Working temperature °C
Foam rubber "NR"	Orange	30	-20 ... 80

Foam rubber rectangular suction cup



A B

Code V=Version N=NBR / S=Silicone	Drawing	A	B	C	D	E	F	G	M	M1
19VRN.14.FxR.00	A	135	60	80	40	15	26	G1/4	4-M5	-
19VRN.14.HxN.00	A	107	75	60	40	15	26	G1/4	4-M5	-
19VRN.12.RxS.00	B	290	140	80	100	15	26	G1/2	8-M5	2-M12


STONE & MARBLE


ROUGH SURFACE

Foam rubber rectangular suction cup is made from a special mixture called "NR", which has a density that allows for gripping even on very rough and irregular surfaces, and allows its elasticity to be maintained even after several working cycles. Especially suited for movement of loads with coarse or very rough surfaces such as: sawn, bush-hammered or flamed marble, textured, non-slip or ribbed/corrugated sheets, brick, items made of rough concrete, garden walkway tiles, etc. and in general in all cases where traditional suction cups cannot be used.
Not recommended for handling loads with lifting force parallel to the surface or for the movement of loads with oiled surfaces.

Table of lifting forces

Code	Lifting force in vertical direction (N) -60kPa	Weight (gr.)
19VRN.14.FxR.00	80	231,7
19VRN.14.HxN.00	90	236,7
19VRN.12.RxS.00	706	1175,1

Material	Color	Hardness °Shore A	Working temperature °C
Foam rubber "NR"	Orange	30	-20 ... 80

LEVEL COMPENSATORS

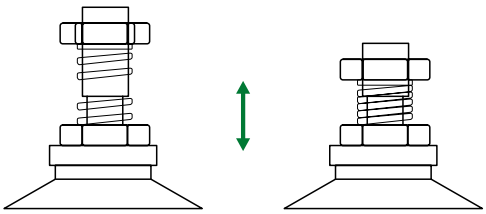
Range of compensators with external or internal spring. Anti-rotation version is available to guarantee maximum precision and reliability in positioning.

Criteria of choice and functionality

This accessory makes it possible to overcome differences in height that may be found in various applications, for example in lifting systems where the suction cups are fixed to a rigid structure or when a suction cup is used on the arm of an anthropomorphic robot or in a similar system where the items must be accurately positioned at the required height; in addition, the device makes it possible, within certain limits, to absorb pushback.

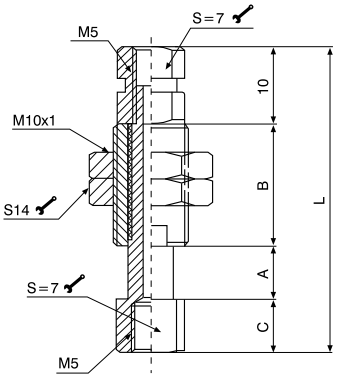
The Pneumax range is subdivided into three types:

- **Compensator with external spring**
- **Compensator with internal spring**
- **Anti-rotation compensator with internal spring**



Series 1900

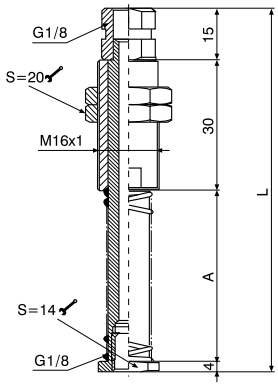
Standard level compensator M5 - internal spring

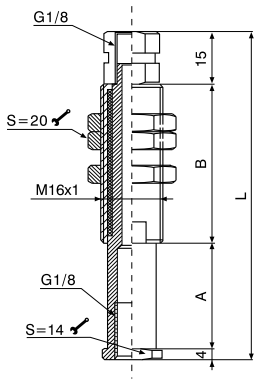


Code	A	B	C	L	Weight (gr.)
19P05.S.07.I	7	19	7	43	18.7
19P05.S.15.I	15	23	27	75	28.2
19P05.S.20.I	20	36	7	73	28.8

The standard level compensator M5 makes it possible to compensate for differences in height when the gripping system has to deal with objects of different heights, simplifies accurate positioning on vacuum systems, and makes it possible to position the suction cups on fragile items.

Standard level compensator G1/8" – internal and external spring



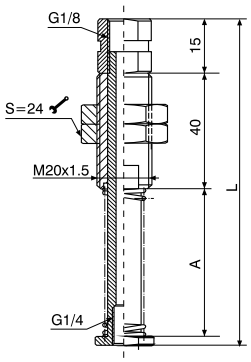


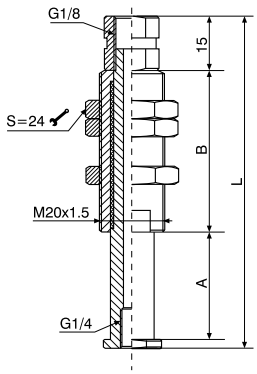
Code	A	L	Weight (gr.)
19P18.S.10.E	20	69	85
19P18.S.20.E	35	84	98
19P18.S.30.E	50	99	111.5
19P18.S.50.E	70	119	123.3

Code	A	B	L	Weight (gr.)
19P18.S.10.I	10	25	54	59.1
19P18.S.20.I	20	35	74	76.3
19P18.S.30.I	30	45	94	103.1
19P18.S.50.I	50	65	134	140.1

The standard level compensator G1/8" makes it possible to compensate for differences in height when the gripping system has to deal with objects of different heights, simplifies accurate positioning on vacuum systems, and makes it possible to position the suction cups on fragile items.

Standard level compensator G1/4" – internal and external spring



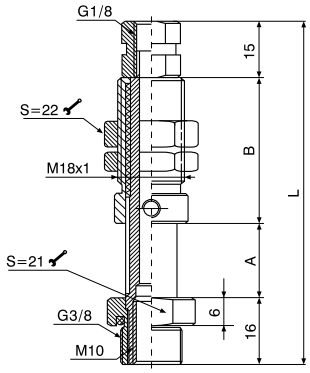


Code	A	L	Weight (gr.)
19P14.S.10.E	20	80	152.6
19P14.S.20.E	35	95	172.5
19P14.S.30.E	50	110	194
19P14.S.50.E	70	130	218.3

Code	A	B	L	Weight (gr.)
19P14.S.10.I	10	25	55	84.8
19P14.S.20.I	20	35	75	110.3
19P14.S.30.I	30	45	95	145.3
19P14.S.50.I	50	65	135	191.6

The standard level compensator G1/4" makes it possible to compensate for differences in height when the gripping system has to deal with objects of different heights, simplifies accurate positioning on vacuum systems, makes it possible to position the suction cups on fragile items.

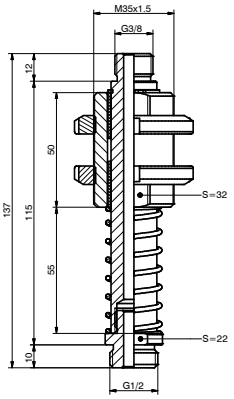
Anti-rotation level compensator G3/8" - internal spring



Code	A	B	L	Weight (gr.)
19P38.N.10.I	10	28	69	112.3
19P38.N.20.I	20	39	90	134.7
19P38.N.30.I	30	50	111	158.2
19P38.N.50.I	50	70	151	204.9

The anti-rotation level compensator G3/8" makes it possible to compensate for differences in height when the gripping system has to deal with objects of different heights, simplifies accurate positioning on vacuum systems, and makes it possible to position the suction cups on fragile items. The anti-rotation design makes it possible to use oval or rectangular suction cups.

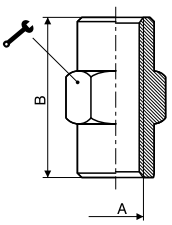
Standard level compensator G1/2"



Code	Weight (gr.)
19P12.S.55.E	470 g

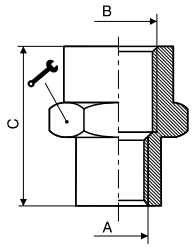
The standard level compensator G1/2" makes it possible to compensate for differences in height when the gripping system has to deal with objects of different heights, simplifies accurate positioning on vacuum systems, makes it possible to position the suction cups on fragile items.

Sleeves for antirotation level compensators



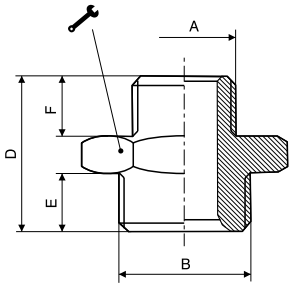
Code	A	B		Weight (gr.)
10338	G3/8"	23	22	34.9

Sleeves for antirotation level compensators



Code	A	B	C		Weight (gr.)
1061838	G1/8"	G3/8"	20	22	27.4
1061438	G1/4"	G3/8"	23	22	30.5
1063812	G3/8"	G1/2"	27.5	26	35.1

Cylindrical nipples for compensators



Code	A	B	D	E	F		Weight (gr.)
101M5M5	M5	M5	11.5	4	4	8	2.3
101M518	M5	G1/8"	14.5	6	4	14	8.4
1011818	G1/8"	G1/8"	16.5	6	6	14	9.2
1011814	G1/8"	G1/4"	19	8	6	17	14.6
1011838	G1/8"	G3/8"	20	9	6	19	19.7
1011414	G1/4"	G1/4"	21	8	8	17	15.7
1011438	G1/4"	G3/8"	22	9	8	19	22
1011412	G1/4"	G1/2"	23.5	10	8	24	36.5
1013838	G3/8"	G3/8"	23	9	9	19	24
1013812	G3/8"	G1/2"	24.5	10	9	24	38.1
1011212	G1/2"	G1/2"	25.5	10	10	24	40

VACUUM GENERATORS

Wide range of single stage and multistage vacuum generators with compact design and high reliability.

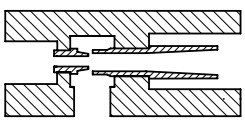
Range

The PNEUMAX range consists of single-stage and multistage equipment of various sizes and types; the single-stage generators use the Venturi effect in a single medium/high throughput nozzle and promptly generate vacuum, flow rate and suction values that are suitable for medium/light applications. Multistage generators having more than one nozzle (ejectors) in a line, using the kinetic energy that this layout generates to ensure, based on the flow rate, limited consumption of energy and attainment of a vacuum level equal to 90%, with various suction capabilities.
Single stage generators, very fast in switching pressure/vacuum, can also be equipped with a quick-release system for highly cyclical applications. Multistage generators can often be accessorised with integrated management and control functions, such as for example electropneumatic control for power supply and power shut-off, quick-release blowing, a regulator to measure this release, and a vacuum switch to control the degree of vacuum generated. These latter generators can be installed as modules as well, creating actual stand-alone modules for decentralised vacuum generation and management for controlling more than one gripping element.

Types

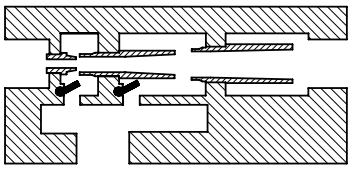
In terms of dimensions, functions and operation, we can categorise generators as one of two major types:

1) Single stage, compact and/or miniaturised, with pneumatic or electropneumatic control, for direct-contact installation with suction cup holders and suction cups.



Single stage section

2) Multistage with or without integrated functions, with pneumatic or electropneumatic control, for de-localised assembly and for controlling groups of suction cups.



Multistage section

Advantages:

- Limited air consumption to moments of use.
- Installation directly proximate to the suction cups.
- Short response times and high capacity.
- No limit to applications.
- Reduced weight and dimensions.
- High reliability.

Index

Single stage vacuum generators

Multistage vacuum generators

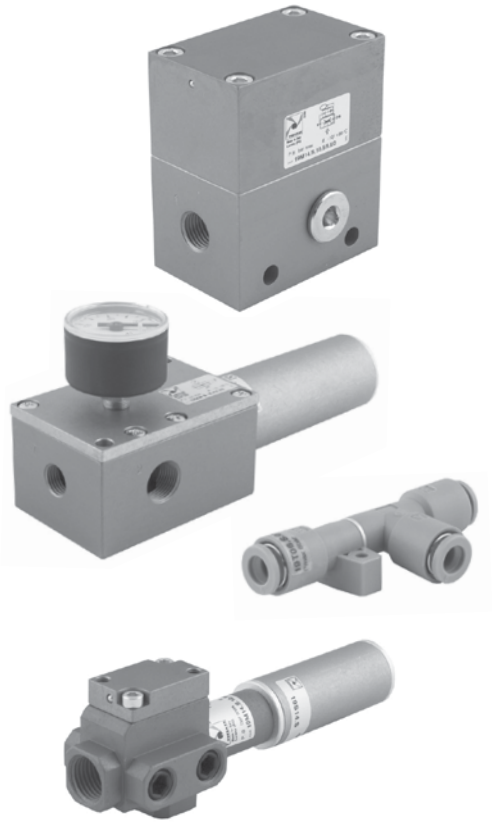
Multifunction vacuum generators

Modular multifunction vacuum generators

Accessories and spare parts for multifunction vacuum generators “SE” - “ME”

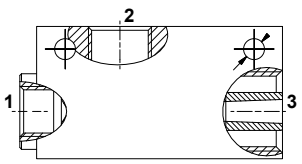
Single stage vacuum generators

Single stage generators, robust reliable and compact suitable for applications which need the required degree of vacuum to be reached quickly with high flow rates.



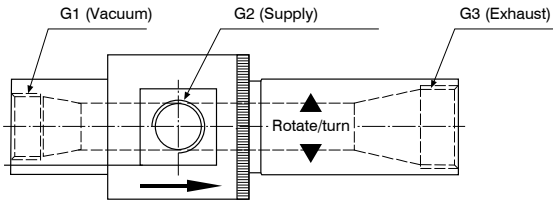
Performance and application

The single stage vacuum generator operates using the Venturi principle. By feeding compressed air into port 1 of the generator, a depression (Vacuum) is generated at port 2 with the air being drawn from port 2 discharged out at port 3. When the compressed supply to port 1 is interrupted, the suction (Vacuum) at port 2 is lost. The optimum inlet pressure is different for each type of single stage generator which ranges from 1 - 6 bar. These generator are generally used in conjunction with suction cups for gripping and the handling of porous and non-porous objects with limited suction flow required.



Adjustable version

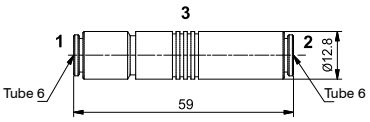
Based on the Venturi principle, these differ from traditional ones, infact they have an ejector with a much larger diameter, and are adjustable. This feature makes possible to change the device's flow rate and degree of vacuum without affecting the inlet pressure.

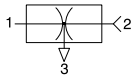


Series 1900

Single stage vacuum generator T06

Ordering code
19T06.S.05.HV.C0

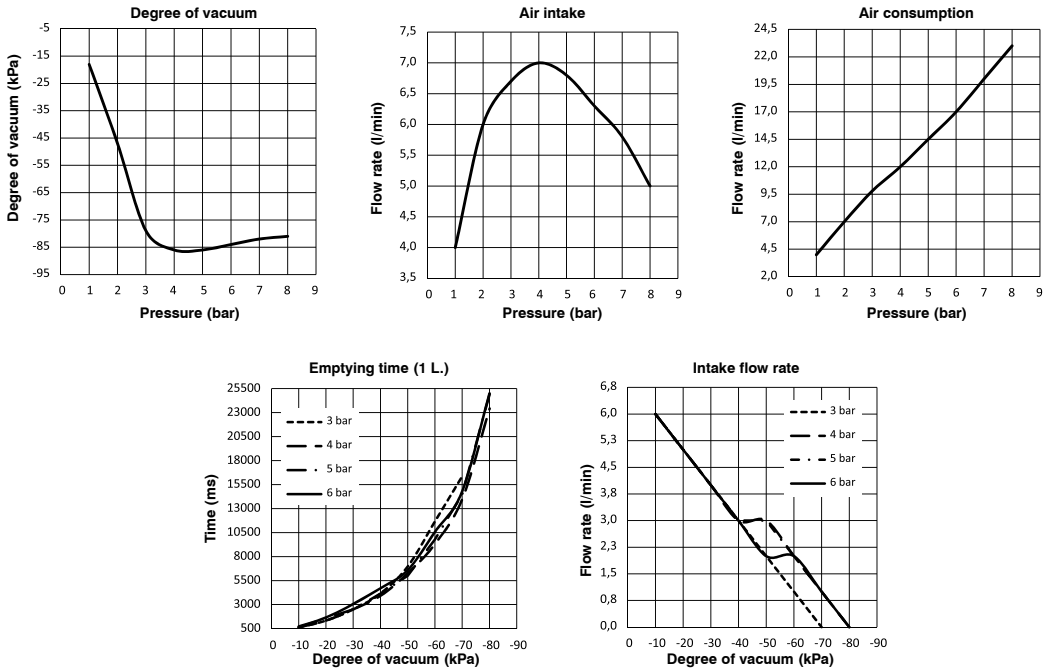




Single stage generators, with operation based on the Venturi principle; their main feature is the presence of feed pressure and connection for the vacuum on the same axis. This makes it possible to connect the suction cups directly to the generator or through the suction cup holder, so therefore still on the same axis with advantages in terms of system layout and simplicity.

Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	47	86	84
- Intake flow rate (l/min)	6	7	6
- Air consumption (l/min)	7	12	17

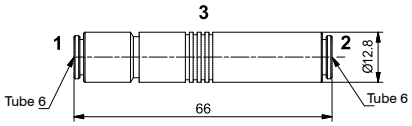
Performance Charts

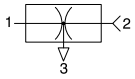


Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	7
Noise (dBA)	68

Single stage vacuum generator T06

Ordering code
19T06.S.07.HV.C0

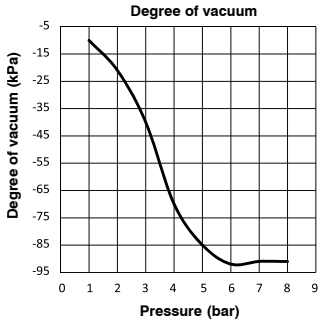


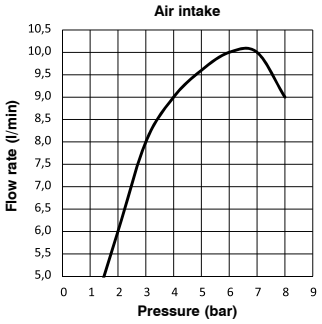


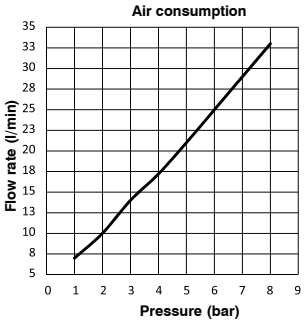
Single stage generators, with operation based on the Venturi principle; their main feature is the presence of feed pressure and connection for the vacuum on the same axis. This makes it possible to connect the suction cups directly to the generator or through the suction cup holder, so therefore still on the same axis with obvious advantages in terms of system layout and simplicity.

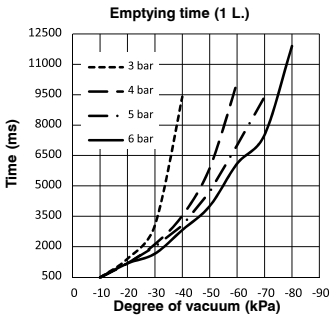
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	21	70	92
- Intake flow rate (l/min)	6	9	10
- Air consumption (l/min)	10	17	25

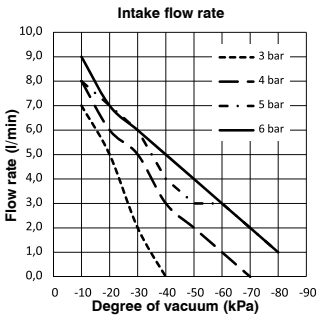
Performance Charts





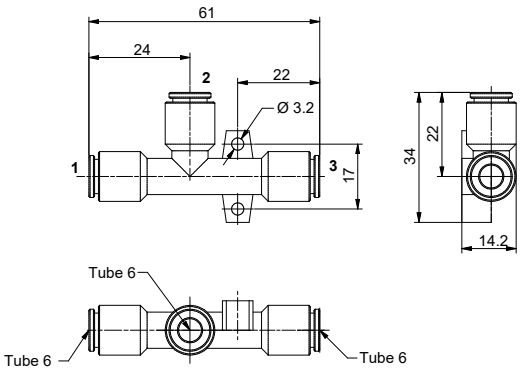




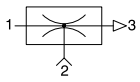


Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	8
Noise (dBA)	68

Single stage vacuum generator T06



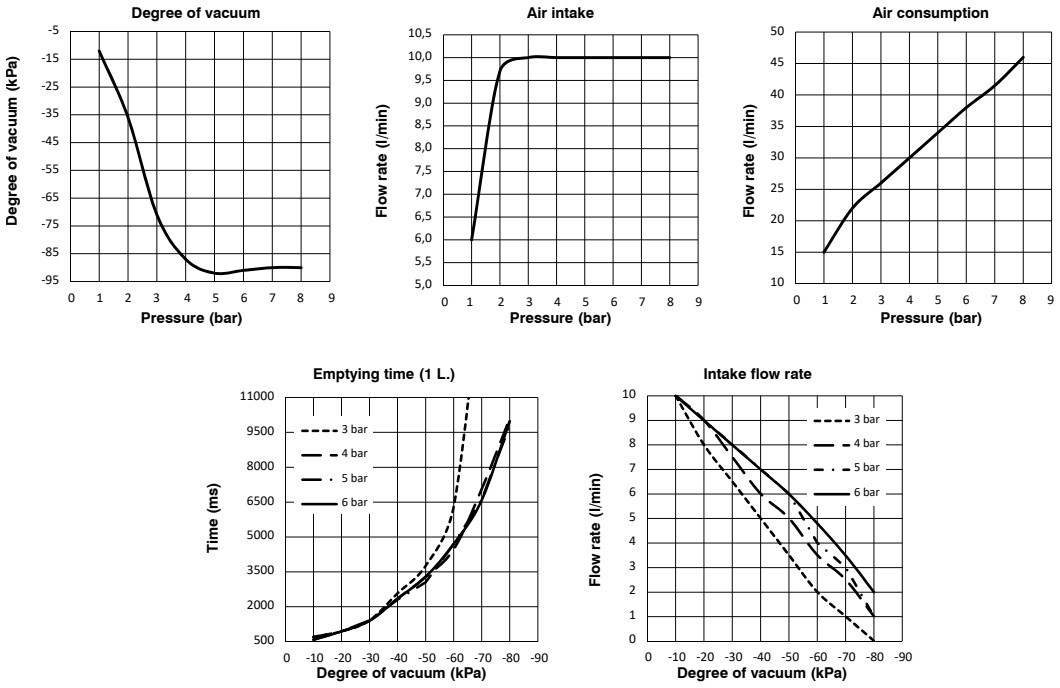
Ordering code
19T06.S.07.HV.ZZ



Single stage generators, robust and reliable, with compact dimensions and suitable for applications that need the required degree of vacuum to be reached quickly with limited air flows. Operating on the Venturi principle they have the vacuum connection orthogonal to the axis of supply and outlet. They can be connected directly to the suction cups and/or suction cup holder and can be applied in any position.

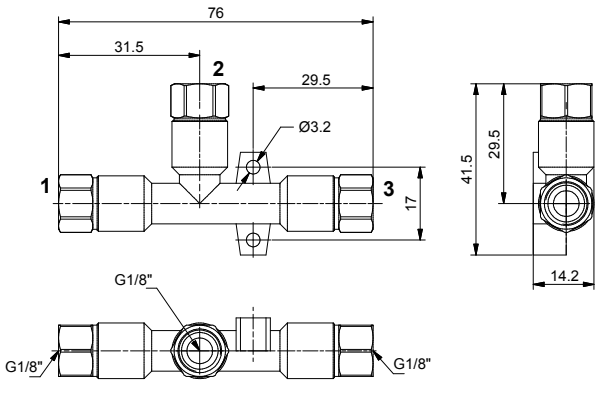
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	36	87	91
- Intake flow rate (l/min)	10	10	10
- Air consumption (l/min)	22	30	38

Performance Charts

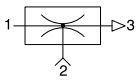


Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	12
Noise (dBA)	76

Single stage vacuum generator T18



Ordering code
19T18.S.07.HV.VV



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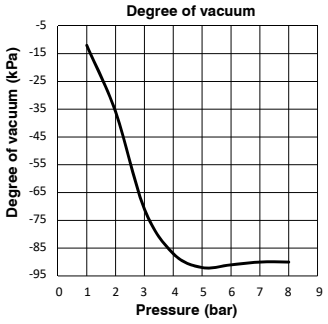
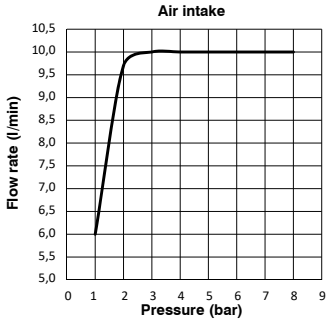
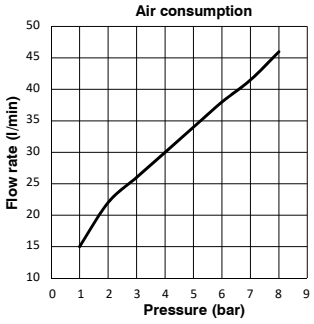
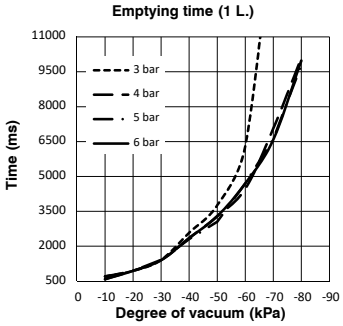
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	36	87	91
- Intake flow rate (l/min)	10	10	10
- Air consumption (l/min)	22	30	38

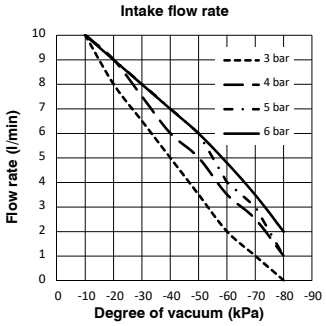
Performance Charts







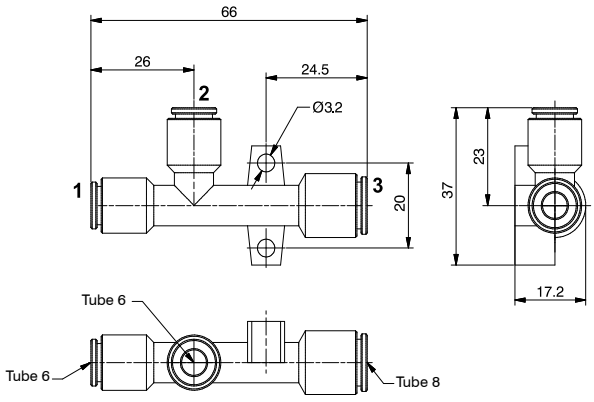




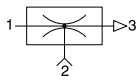
Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	36
Noise (dBA)	77

Accessories	
19S18.S	Silencer G1/8"

Single stage vacuum generator T06



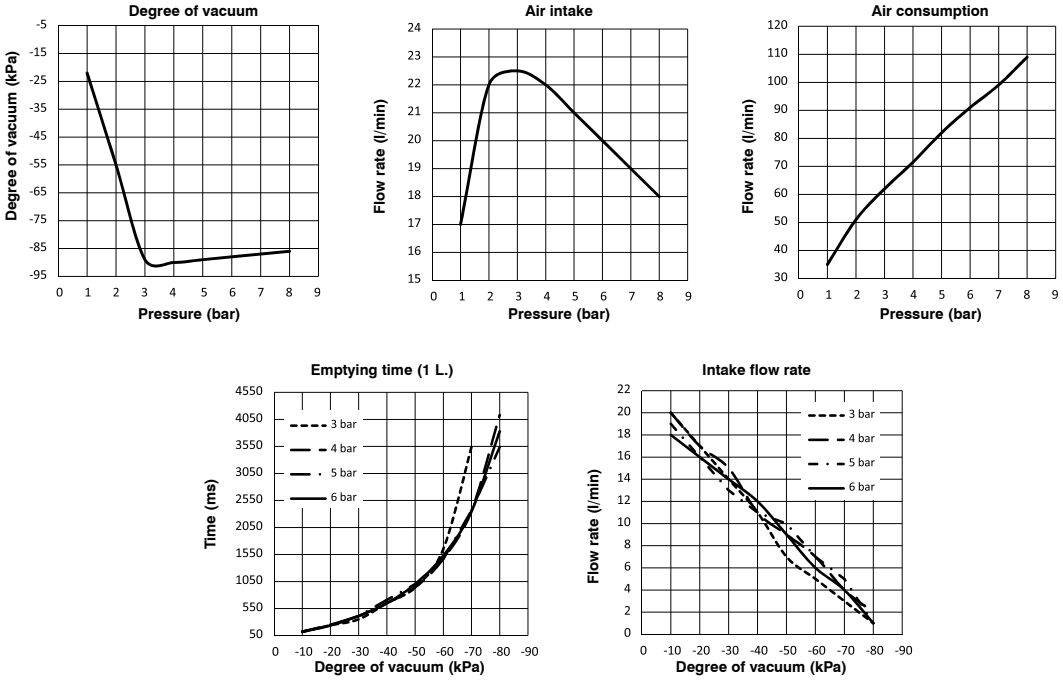
Ordering code
19T06.S.10.HV.ZY



Single stage generators, robust and reliable, with compact dimensions and suitable for applications which need the required degree of vacuum to be reached quickly with limited air flows. Operating on the Venturi principle they have the vacuum connection orthogonal to the axis of supply and outlet. They can be connected directly to the suction cups and/or suction cup holder and applied in any position.

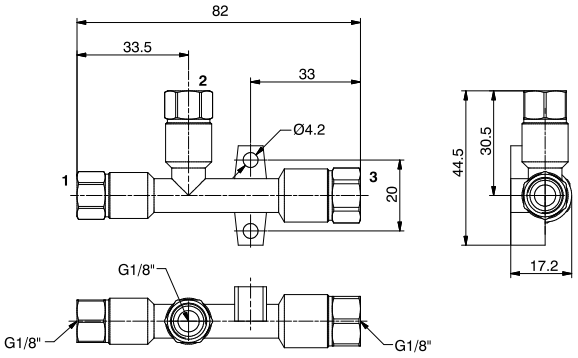
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	55	90	88
- Intake flow rate (l/min)	22	22	20
- Air consumption (l/min)	51	72	91

Performance Charts



Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	15
Noise (dBA)	94

Single stage vacuum generator T18



Ordering code
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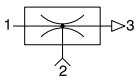

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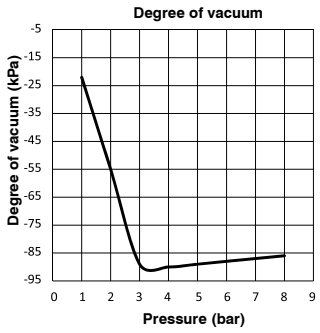
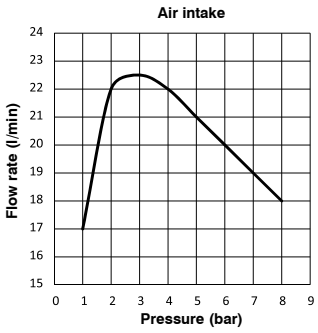
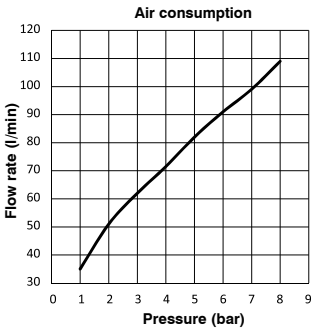
VACUUM GENERATORS

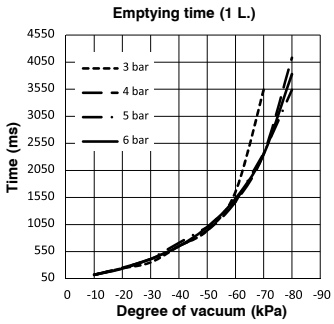
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	55	90	88
- Intake flow rate (l/min)	22	22	20
- Air consumption (l/min)	51	72	91

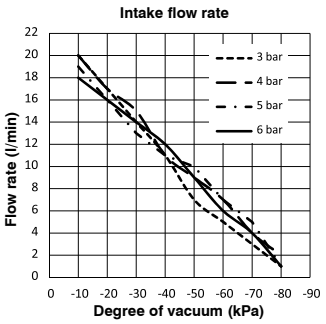
Performance Charts







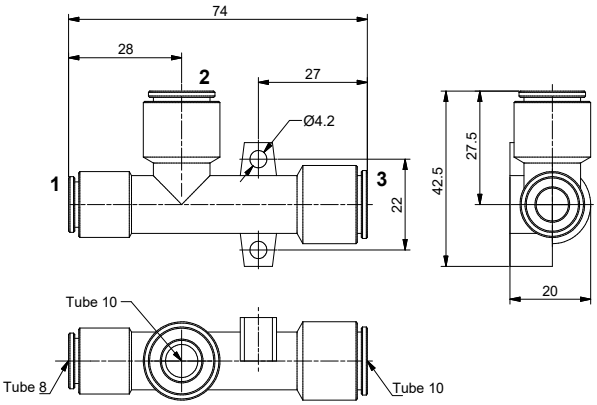




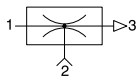
Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	46
Noise (dBA)	87

Accessories	
19S18.S	Silencer G1/8"

Single stage vacuum generator T10



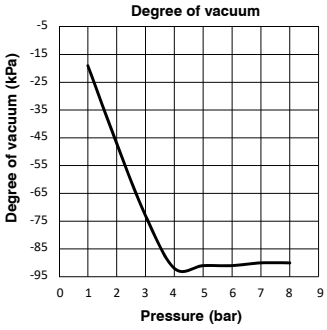
Ordering code
19T10.S.13.HV.XX

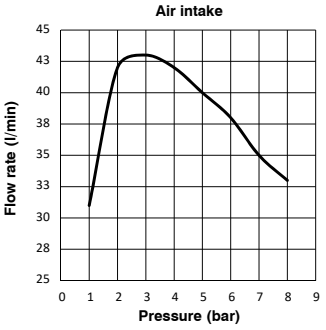


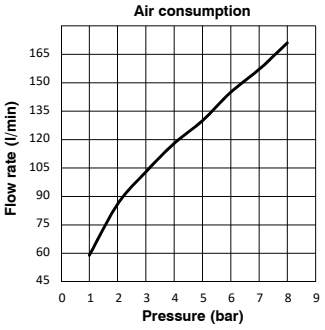
Single stage generators, robust and reliable, with compact dimensions and suitable for applications which need the required degree of vacuum to be reached quickly with limited air flows. Operating on the Venturi principle they have the vacuum connection orthogonal to the axis of supply and outlet. They can be connected directly to the suction cups and/or suction cup holder and applied in any position.

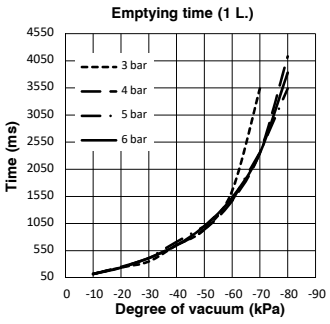
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	47	92	91
- Intake flow rate (l/min)	42	42	38
- Air consumption (l/min)	86	118	145

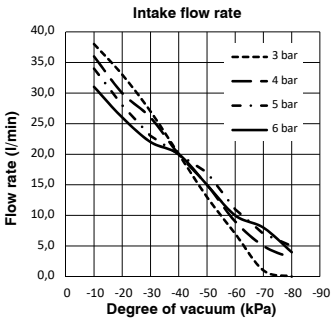
Performance Charts





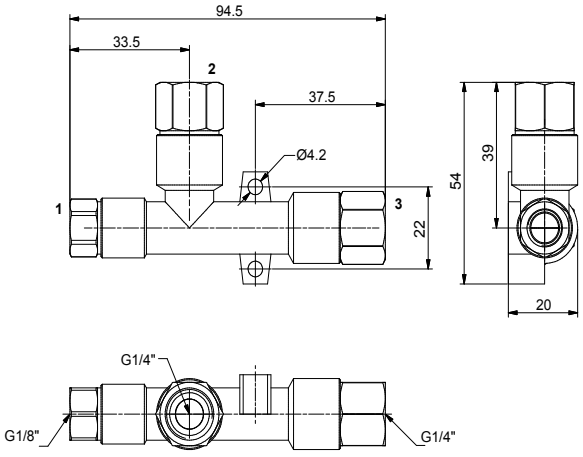




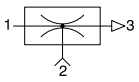


Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	25
Noise (dBA)	92

Single stage vacuum generator T14



Ordering code
19T14.S.15.HV.UU



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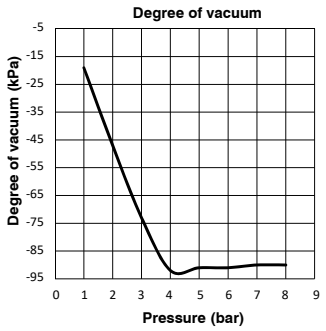
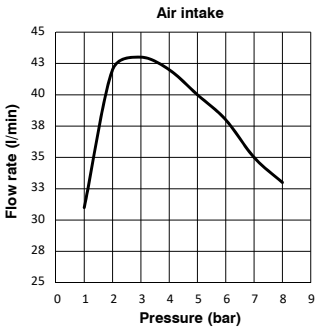
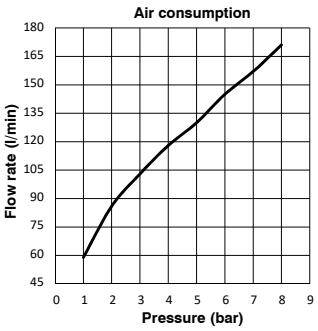
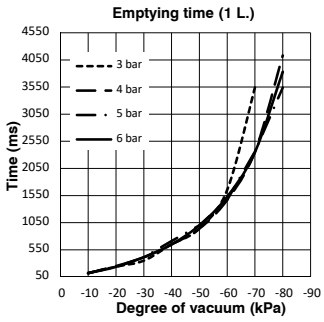
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	47	92	91
- Intake flow rate (l/min)	42	42	38
- Air consumption (l/min)	86	118	145

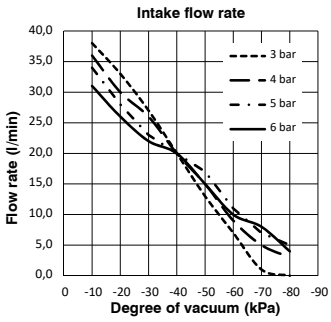
Performance Charts









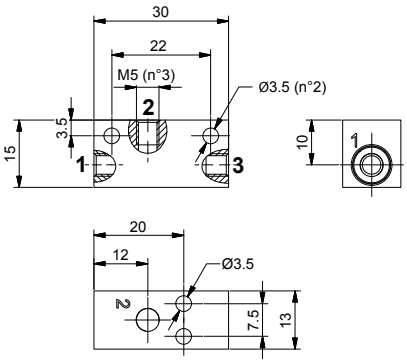


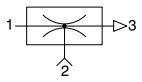
Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	86
Noise (dBA)	96

Accessories	
19S14.S	Silencer G 1/4"

Single stage vacuum generator M5

Ordering code
19M05.S.05.SS.00





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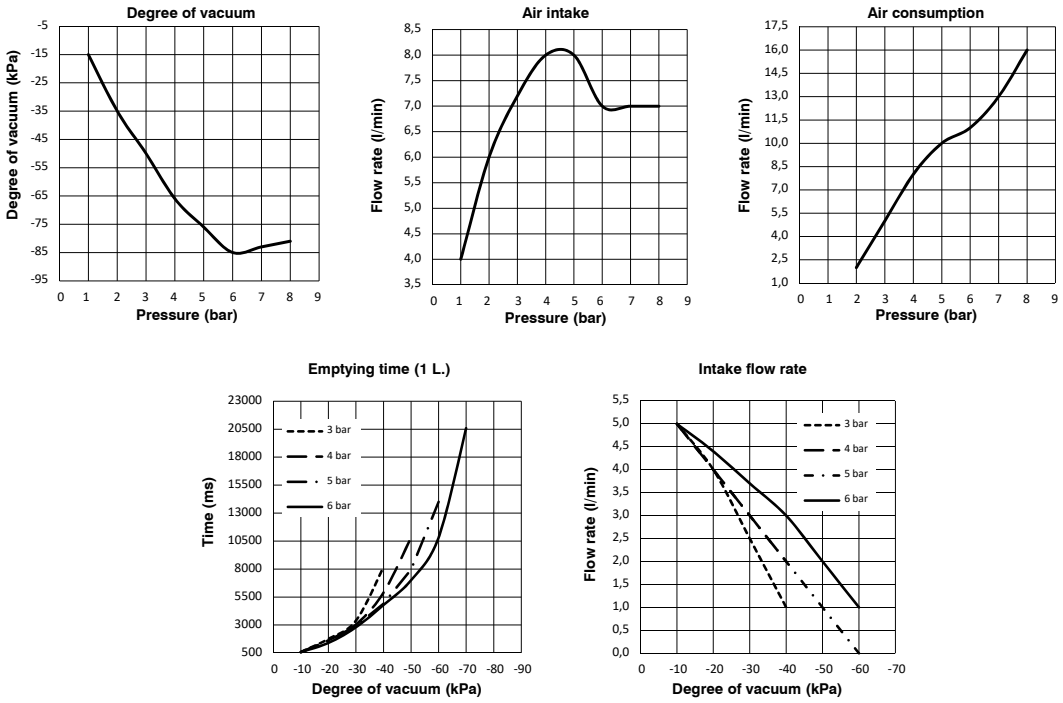
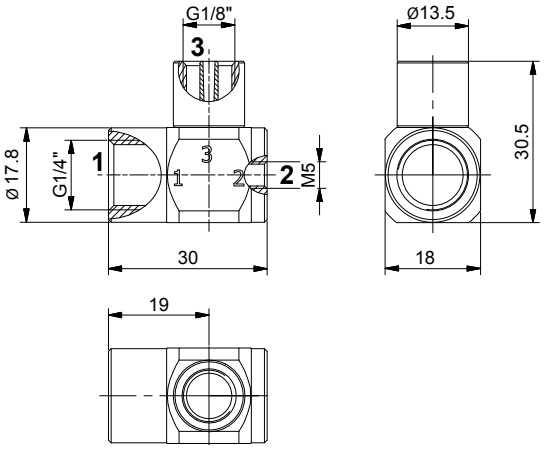
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	35	66	85
- Intake flow rate (l/min)	6	8	7
- Air consumption (l/min)	2	8	11

Performance Charts

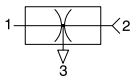


Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	15

Single stage vacuum generator M5



Ordering code
19M05.S.08.SS.L0

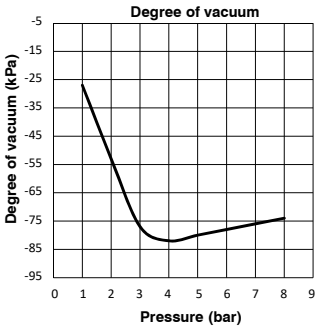


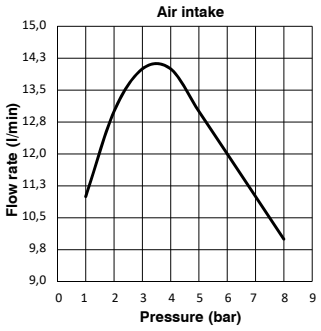
Single stage generators, with operation based on the Venturi principle; their main feature is the presence of feed pressure and connection for the vacuum on the same axis. This makes it possible to connect the suction cups directly to the generator or through the suction cup holder, so therefore still on the same axis with obvious advantages in terms of system layout and simplicity. The outlet connection has a female thread G 1/8".

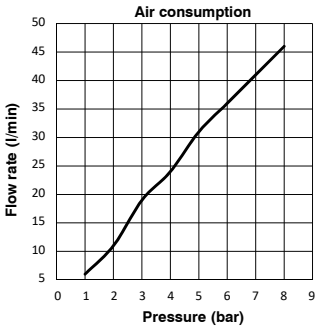
VACUUM GENERATORS

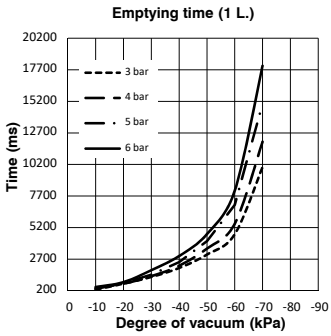
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	53	82	78
- Intake flow rate (l/min)	13	14	12
- Air consumption (l/min)	11	24	36

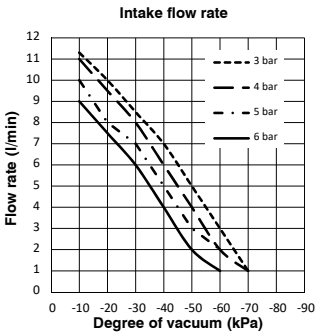
Performance Charts







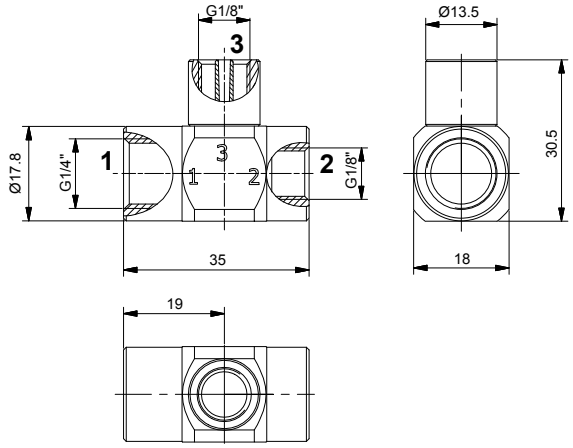




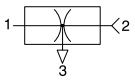
Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	24

Accessories	
19S18.S	Silencer G1/8"

Single stage vacuum generator G1/8”



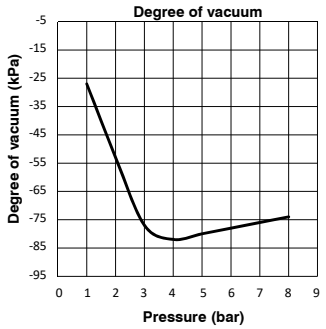
Ordering code
19M18.S.08.SS.L0

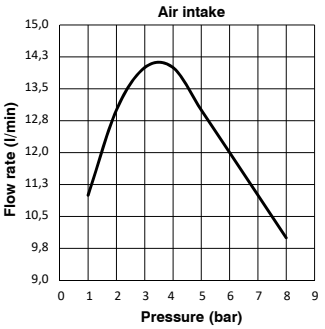


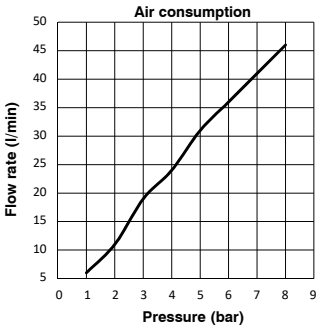
Single stage generators, with operation based on the Venturi principle; their main feature is the presence of feed pressure and connection for the vacuum on the same axis. This makes it possible to connect the suction cups directly to the generator or through the suction cup holder, so therefore still on the same axis with obvious advantages in terms of system layout and simplicity. The outlet connection has a female thread G 1/8".

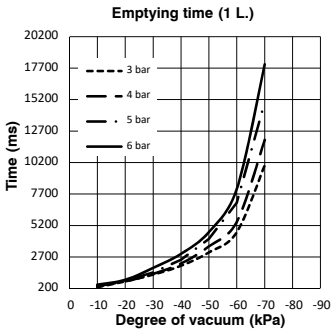
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	53	82	78
- Intake flow rate (l/min)	13	14	12
- Air consumption (l/min)	11	24	36

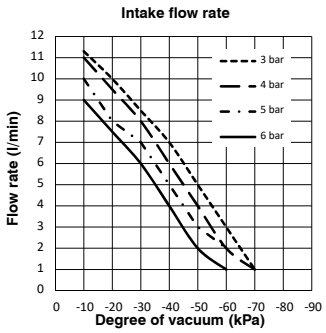
Performance Charts









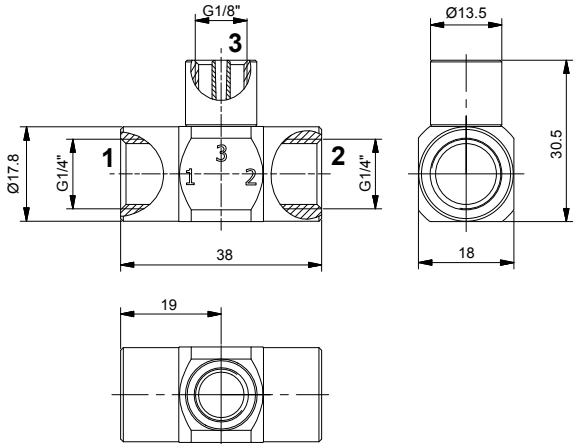


Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	26

Accessories	
19S18.S	Silencer G1/8”

VACUUM GENERATORS

Single stage vacuum generator G1/4”



Ordering code
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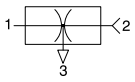

Single stage generators, with operation based on the Venturi principle; their main feature is the presence of feed pressure and connection for the vacuum on the same axis. This makes it possible to connect the suction cups directly to the generator or through the suction cup holder, so therefore still on the same axis with obvious advantages in terms of system layout and simplicity. The outlet connection has a female thread G 1/8".

VACUUM GENERATORS

Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	53	82	78
- Intake flow rate (l/min)	13	14	12
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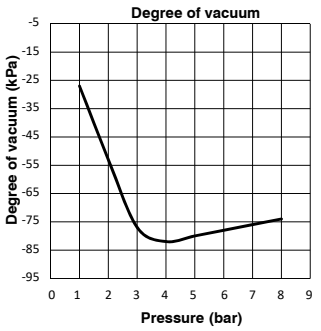
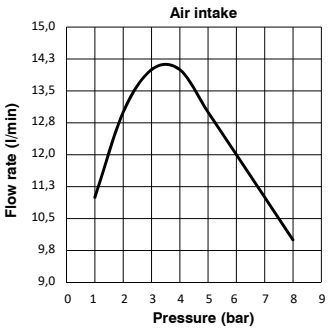
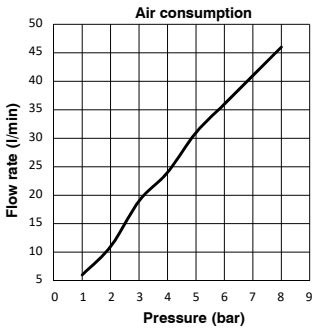
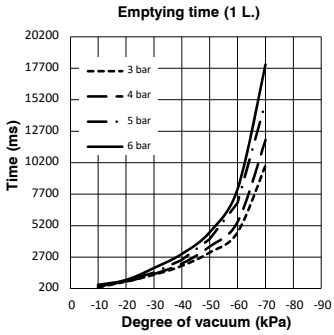
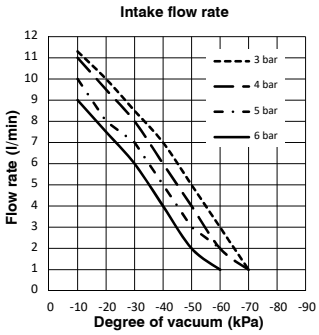
Performance Charts







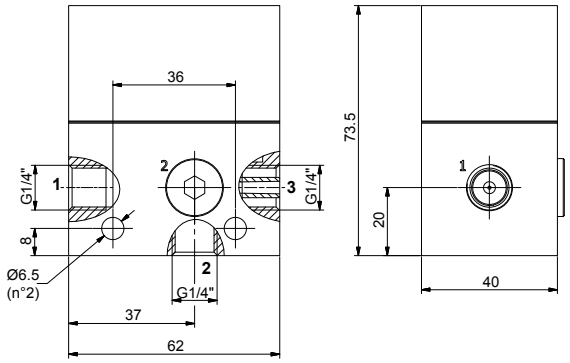




Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	26

Accessories	
19S18.S	Silencer G1/8”

Single stage vacuum generator G1/4”



Ordering code
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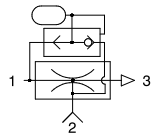
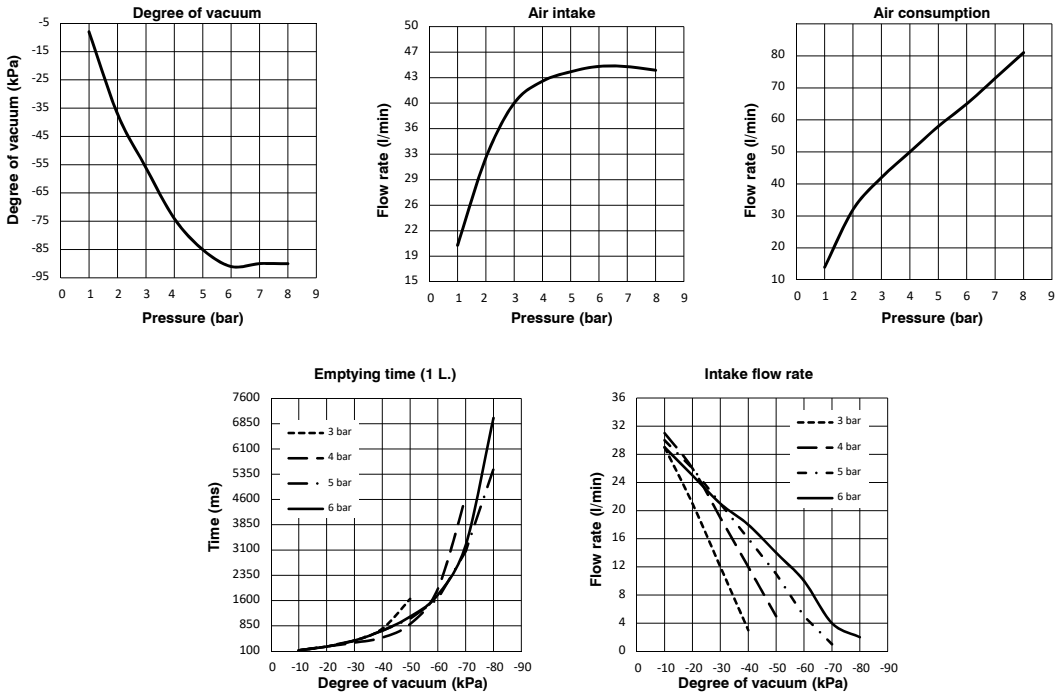


Single stage generators derived from standard traditional single-stage generators, complete with automatic release system. The pressure supply, in addition to generating the defined vacuum through the Venturi principle, supplies a chamber which serves as a pressure accumulator. When the supply stops, through a non-return valve, the accumulated pressure will be discharged automatically through the vacuum connection, ensuring quick detachment of the gripped piece.

Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	37	74	91
- Intake flow rate (l/min)	32	43	45
- Air consumption (l/min)	32	50	75

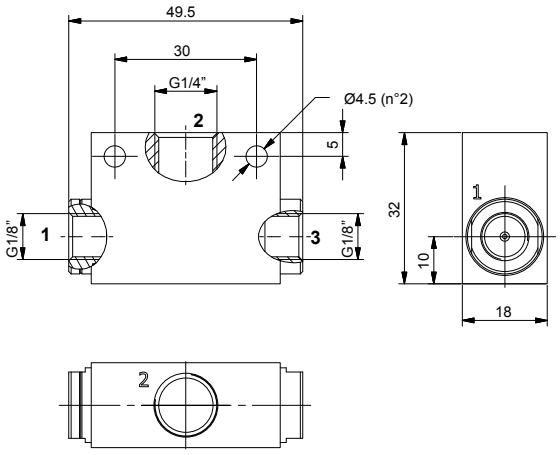
Performance Charts



Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	346

Accessories	
19S14.S	Silencer G1/4”

Single stage vacuum generator G1/4”



Ordering code
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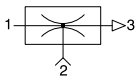
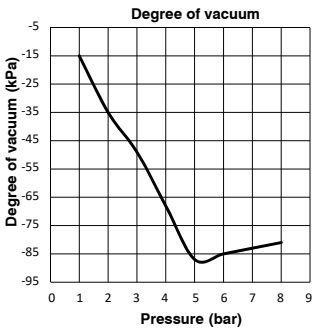
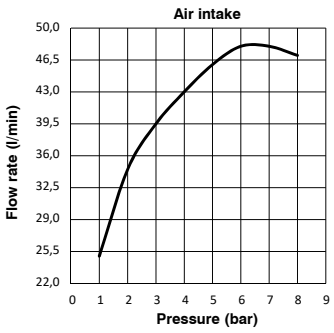


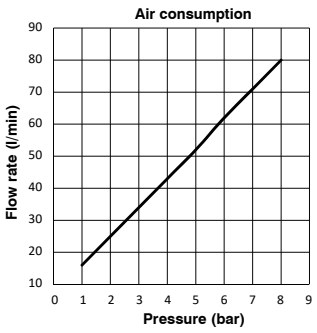
Single stage generators, robust and reliable, with compact dimensions and suitable for applications which need the required degree of vacuum to be reached quickly with limited air flows. Operating on the Venturi principle they have the vacuum connection orthogonal to the axis of supply and outlet. They can be connected directly to the suction cups and/or suction cup holder and applied in any position.

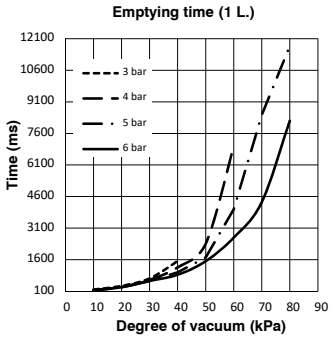
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	35	68	85
- Intake flow rate (l/min)	35	43	48
- Air consumption (l/min)	25	43	62

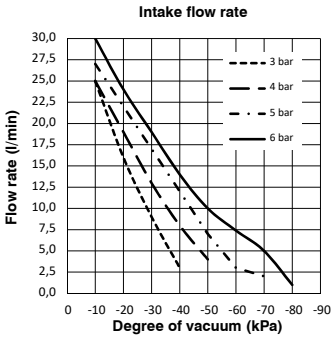
Performance Charts









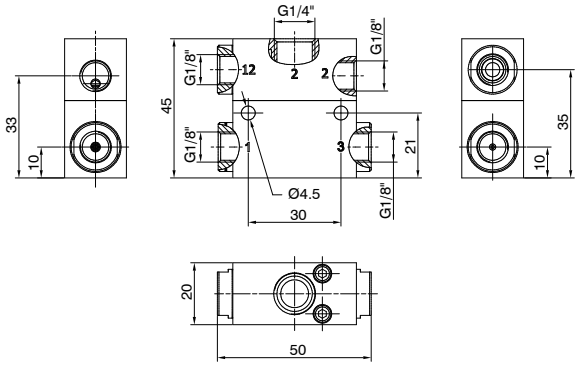


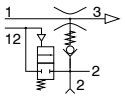
Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	55

Accessories	
19S18.S	Silencer G1/8”

Single stage vacuum generator with built in vacuum retaining valve

Ordering code
19M14.S.10.SS.03



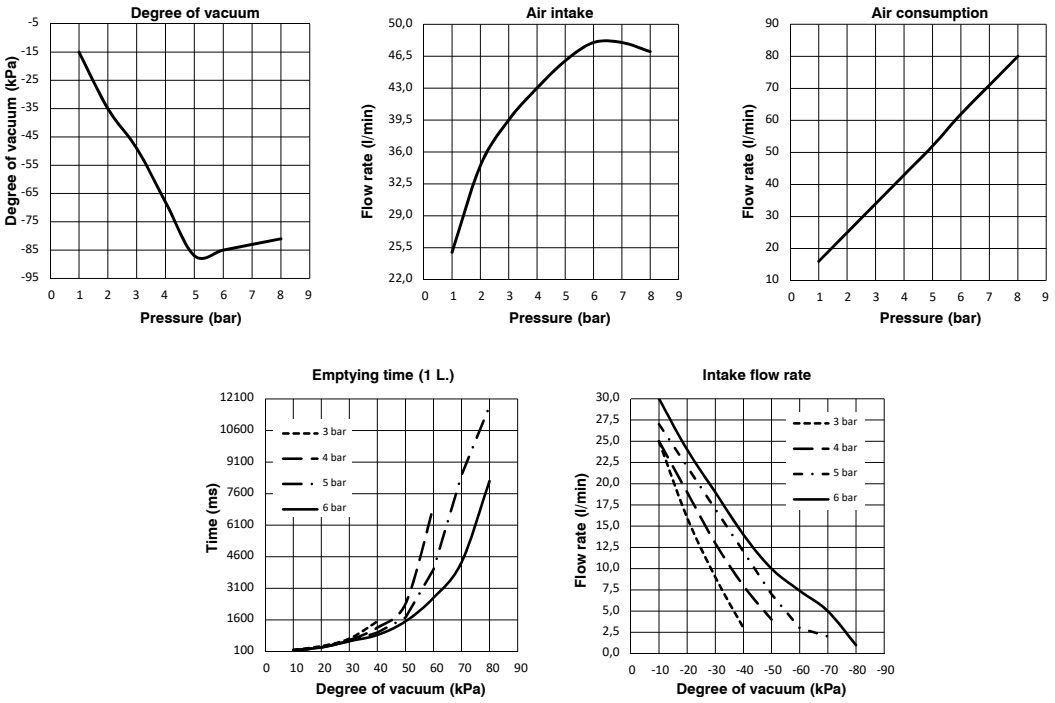


Single stage generators, robust and reliable, with compact dimensions and suitable for applications which require the vacuum to be reached quickly with limited air flow. Operating on the Venturi principle they have the vacuum connection orthogonal to the axis of supply and outlet. They can be connected directly to the suction cups or suction cup holder for the construction of a decentralized plant. Equipped with an integrated non-return valve, which holds the vacuum in sealed applications and breakdowns or lack of air supply and a flap valve for the quick release of the manipulated objects.

Operational characteristics

- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	35	68	85
- Intake flow rate (l/min)	35	43	48
- Air consumption (l/min)	25	43	62

Performance Charts



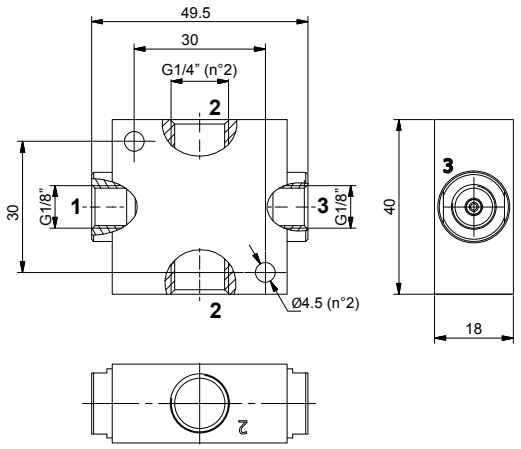
Technical characteristics

Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	85

Accessories

19S18.S	Silencer G1/8"

Single stage vacuum generator G1/4”



Ordering code
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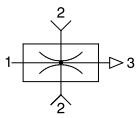
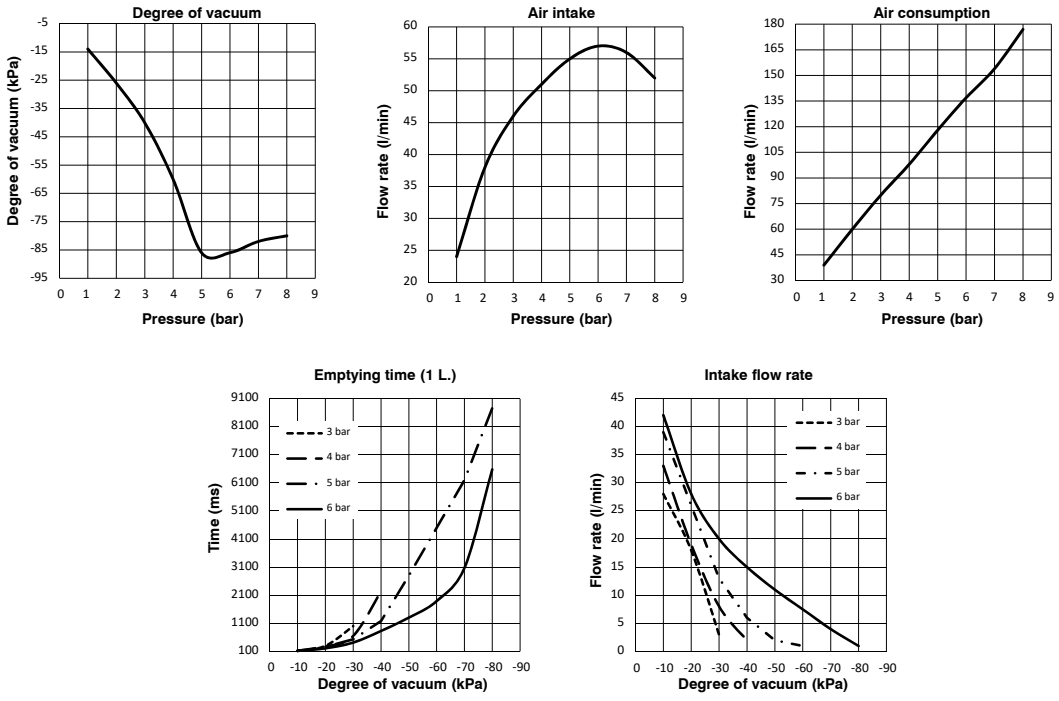


Single stage generators, robust and reliable, with compact dimensions and suitable for applications which need the required degree of vacuum to be reached quickly with limited air flows. Operating on the Venturi principle they have the vacuum connection orthogonal to the axis of supply and outlet. They can be connected directly to the suction cups and/or suction cup holder and applied in any position.

VACUUM GENERATORS

Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	26	60	86
- Intake flow rate (l/min)	38	51	57
- Air consumption (l/min)	60	98	137

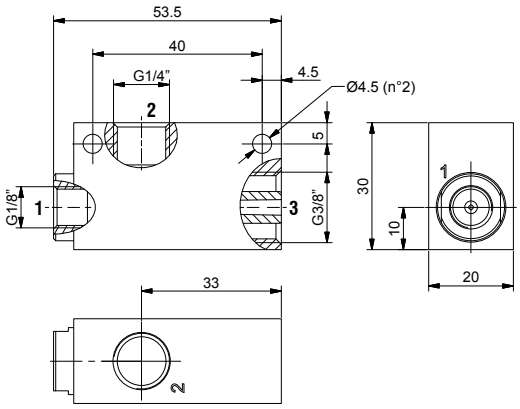
Performance Charts



Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	68

Accessories	
19S18.S	Silencer G1/8”

Single stage vacuum generator G1/4”



Ordering code
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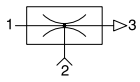

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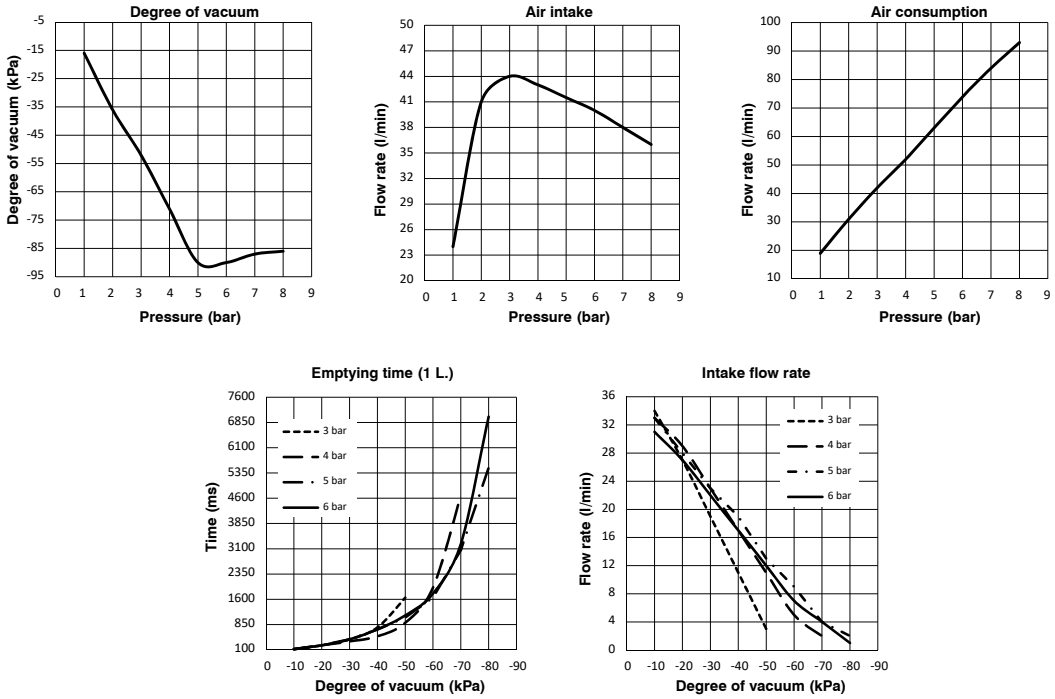
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	36	71	90
- Intake flow rate (l/min)	41	43	40
- Air consumption (l/min)	31	52	74

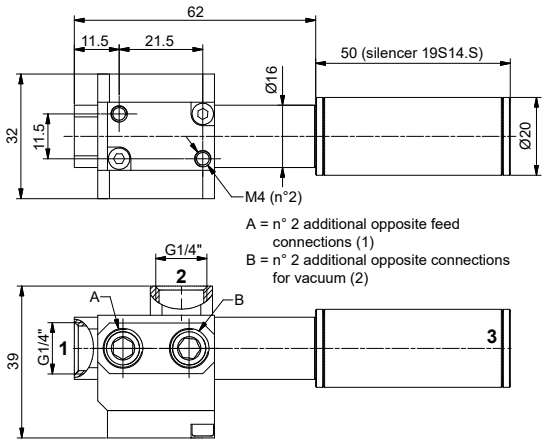
Performance Charts



Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	67

Accessories	
19S38.S	Silencer G3/8”

Single stage vacuum generator G1/4”



Ordering code
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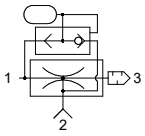
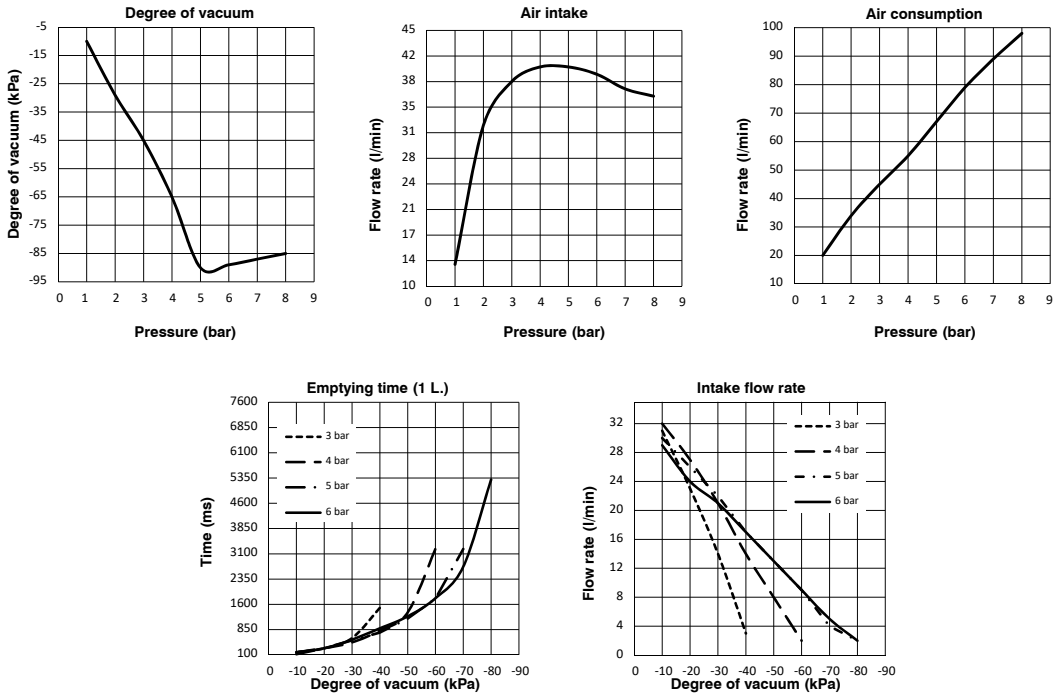


High-performance compact generator for high frequency applications; the presence of the integrated ejector ensures release capacity in the shortest possible time. The fact of it being extremely lightweight allows its application directly onto the robot gripping arms and/or mobile applications. Available with two flow rates in the same overall dimensions.

VACUUM GENERATORS

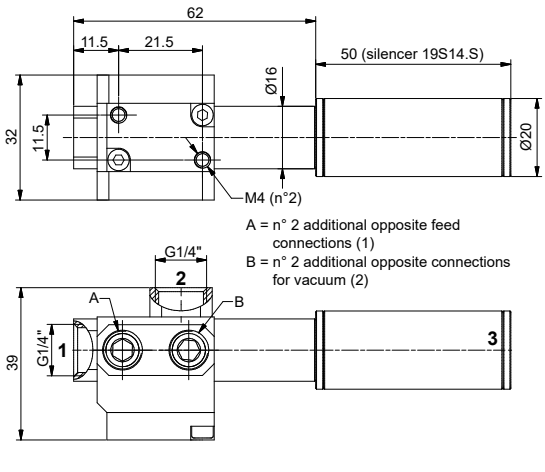
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	29	65	89
- Intake flow rate (l/min)	32	40	39
- Air consumption (l/min)	34	55	79

Performance Charts



Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	83

Single stage vacuum generator G1/4”



Ordering code
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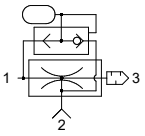
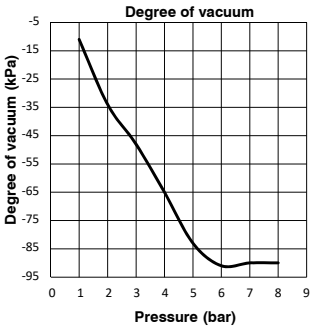
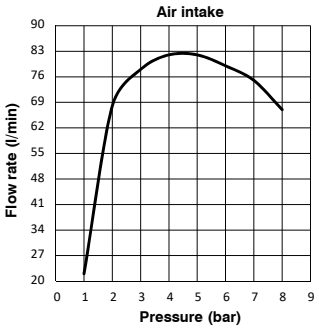


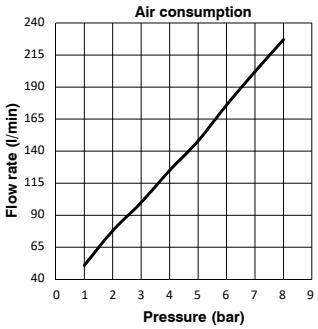
High-performance compact generator for high frequency applications; the presence of the integrated ejector ensures release capacity in the shortest possible time. The fact of it being extremely lightweight allows its application directly onto the robot gripping arms and/or mobile applications. Available with two flow rates in the same overall dimensions.

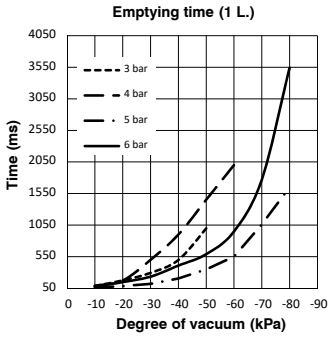
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	34	65	91
- Intake flow rate (l/min)	68	82	79
- Air consumption (l/min)	78	125	176

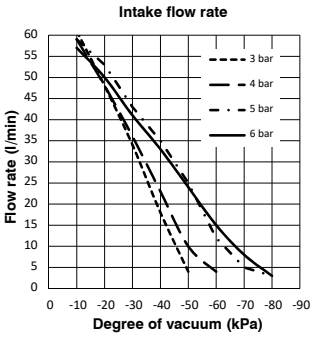
Performance Charts







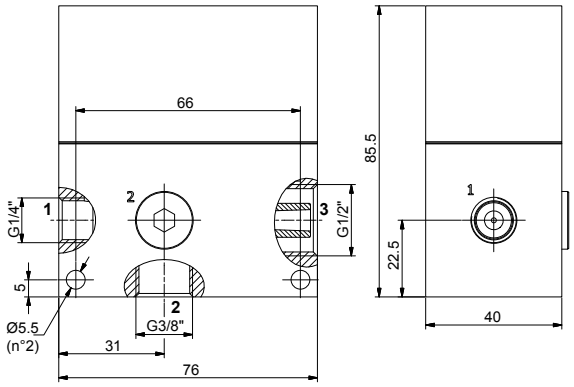




Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	83

VACUUM GENERATORS

Single stage vacuum generator G3/8”



Ordering code
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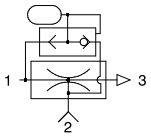
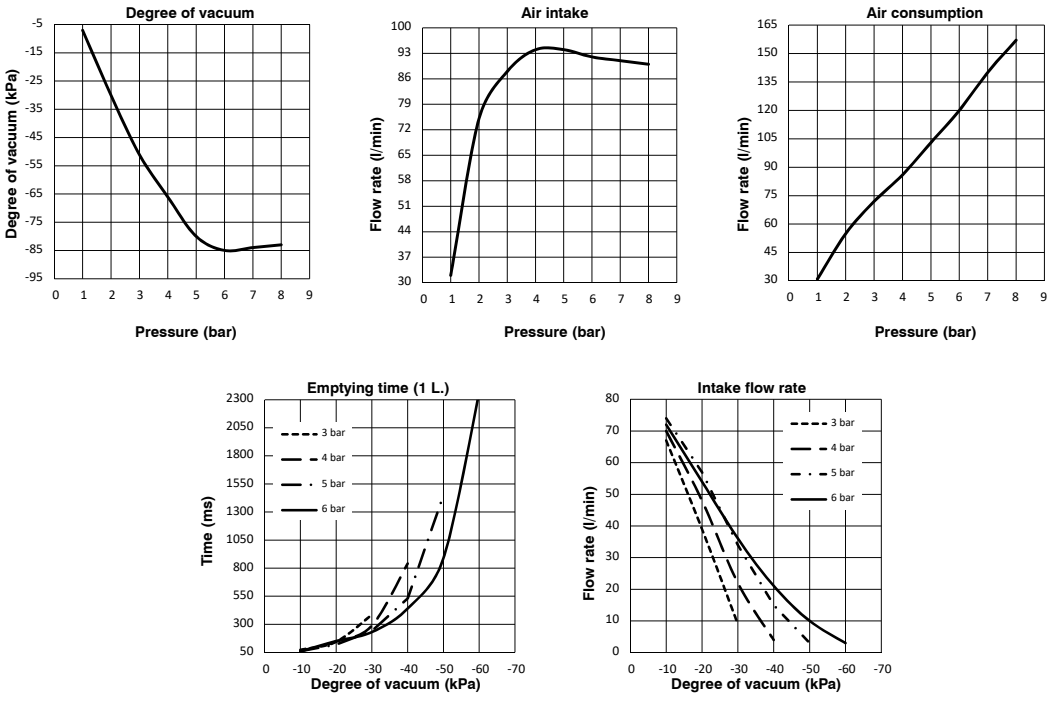


Single stage generators derived from standard traditional single-stage generators, complete with automatic release system. The pressure supply, in addition to generating the defined vacuum through the Venturi principle, supplies a chamber which serves as a pressure accumulator. When the supply stops, through a non-return valve, the accumulated pressure will be discharged automatically through the vacuum connection, ensuring quick detachment of the gripped piece.

VACUUM GENERATORS

Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	30	66	85
- Intake flow rate (l/min)	75	94	92
- Air consumption (l/min)	55	86	120

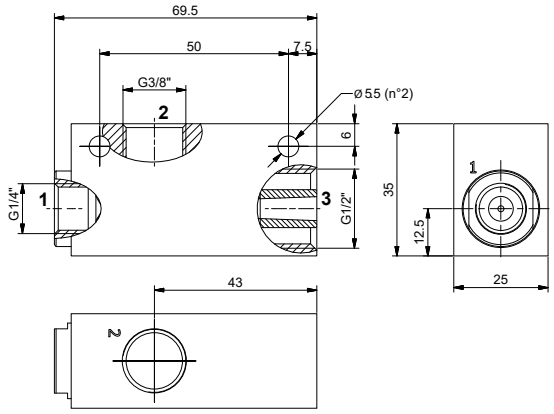
Performance Charts



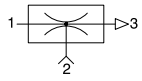
Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	480

Accessories	
19S12.R	Silencer G1/2”

Single stage vacuum generator G3/8”



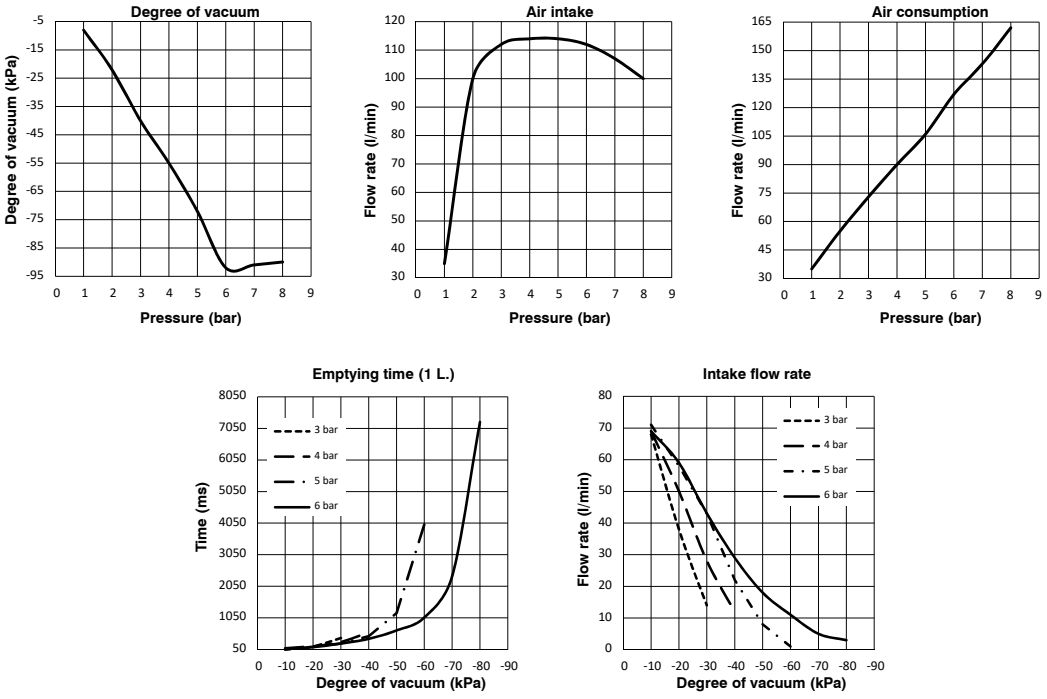
Ordering code
19M38.S.15.SS.00



Single stage generators, robust and reliable, with compact dimensions and suitable for applications which need the required degree of vacuum to be reached quickly with limited air flows. Operating on the Venturi principle they have the vacuum connection orthogonal to the axis of supply and outlet. They can be connected directly to the suction cups and/or suction cup holder and applied in any position.

Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	22	55	92
- Intake flow rate (l/min)	100	114	112
- Air consumption (l/min)	55	90	127

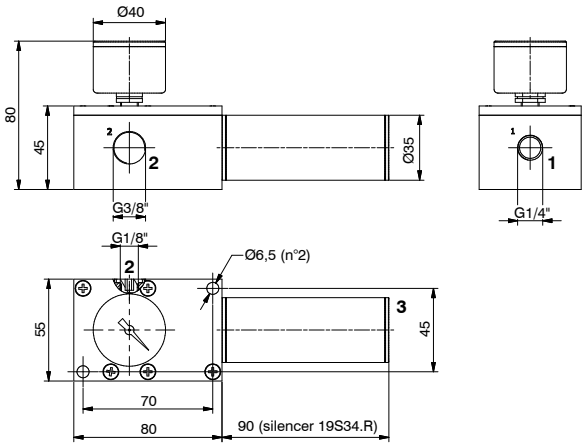
Performance Charts



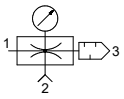
Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	122

Accessories	
19S12.R	Silencer G1/2”

Single stage vacuum generator G3/8”



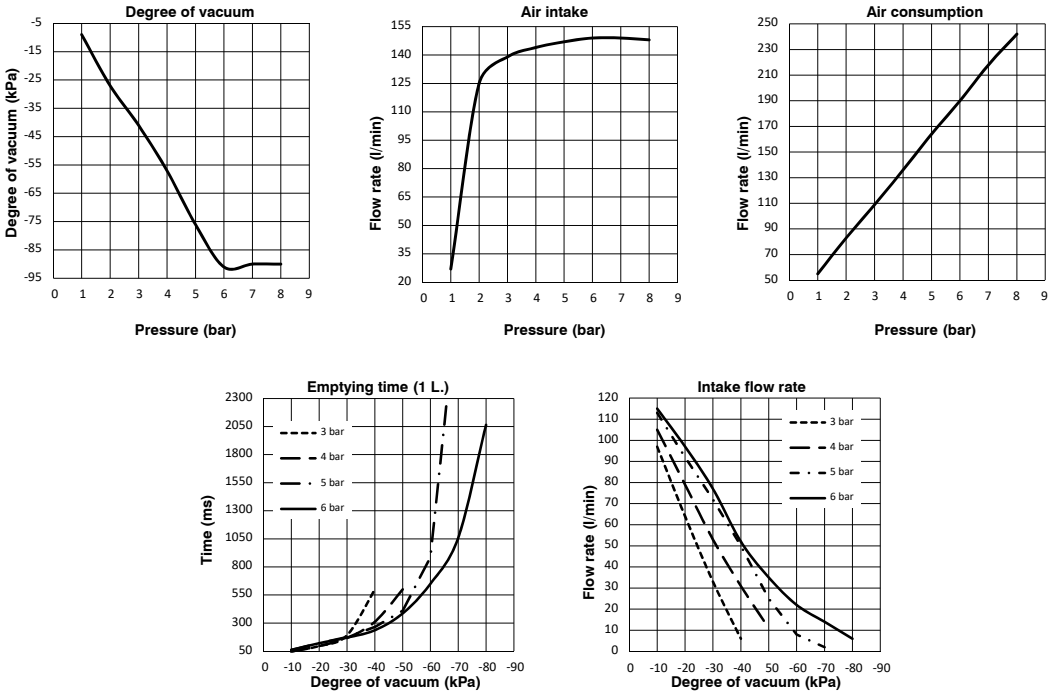
Ordering code	
19M38.S.18.HV.◉	
◉	OPTIONS
	VS = vacuum gauge + silencer
	0S = only silencer



Single stage generator with high suction capacity due to a pair of nozzles mounted in parallel; they are particularly quiet thanks to a free-flow type silencer, standard-fitted with a vacuum gauge, and allows direct connection with a vacuum switch or alternatively a solenoid valve for quick detachment via direct blowing into the vacuum connection. Suitable for decentralised connection of one or more suction cups.

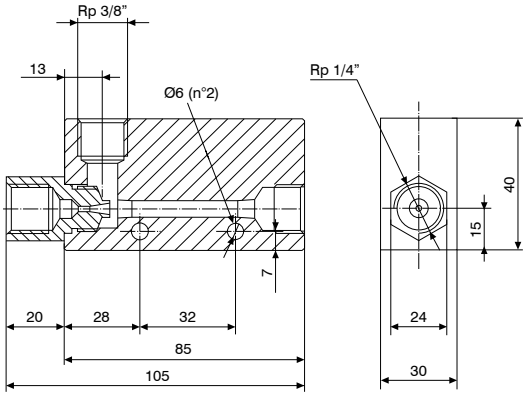
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	27	57	91
- Intake flow rate (l/min)	125	144	149
- Air consumption (l/min)	83	136	190

Performance Charts

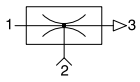


Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	450

High-flow single stage vacuum generator G3/8”



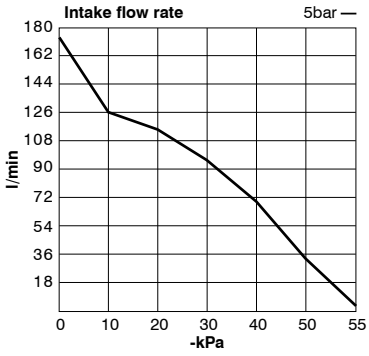
Ordering code
19M38.S.20.HF.00

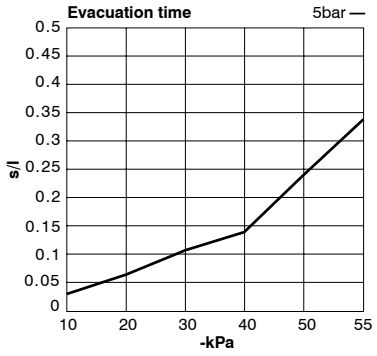


Single stage high suction power generators operating using a single large Venturi nozzle; particularly silent thanks to a free-low silencer which is mounted separately. Suitable for use in dusty environments and in applications where a large suction capacity and an average degree of vacuum are required (57 -kPa).

Operational characteristics	
- Inlet pressure (bar)	5
- Degree of Vacuum (-kPa)	57
- Intake flow rate (l/min)	170
- Air consumption (l/min)	180

Performance Charts





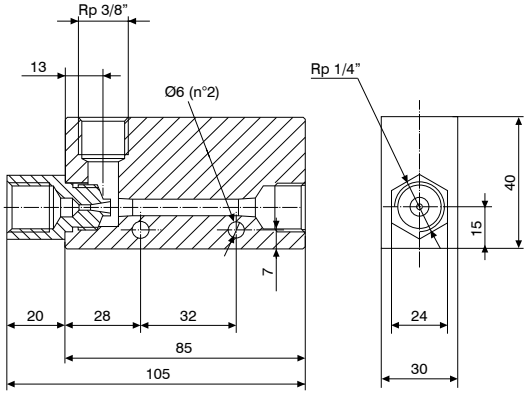
Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)							Degree of Vacuum max. (-kPa)
		0	10	20	30	40	50	55	
5	180	170	125	115	95	70	35.5	7.5	57

Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)						Degree of Vacuum max. (-kPa)
		10	20	30	40	50	55	
5	180	0.029	0.062	0.105	0.138	0.246	0.338	57

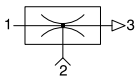
Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 6
Temperature (°C)	0 ... +60
Weight (gr.)	327
Noise (dBA)	72

Accessories	
19S12.S	Silencer G1/2”

High-flow single stage vacuum generator G3/8”



Ordering code
19M38.S.20.HH.00

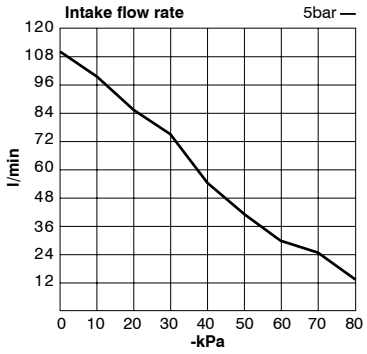


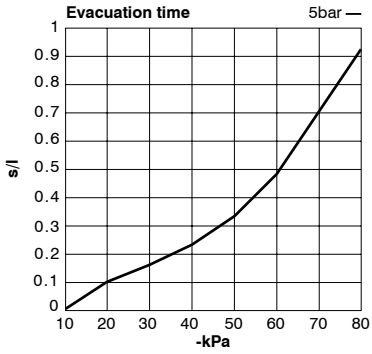
Single stage high suction power generators operating using a single large Venturi nozzle; particularly silent thanks to a free-low silencer which is mounted separately. Suitable for use in dusty environments and in applications where a large suction capacity and a high degree of vacuum are required (92 -kPa).

VACUUM GENERATORS

Operational characteristics	
- Inlet pressure (bar)	5
- Degree of Vacuum (-kPa)	92
- Intake flow rate (l/min)	110
- Air consumption (l/min)	180

Performance Charts





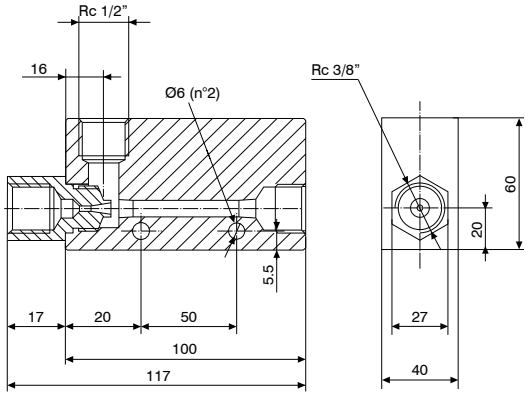
Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)									Degree of Vacuum max. (-kPa)
		0	10	20	30	40	50	60	70	80	
5	180	110	100	85	75	55	40.5	30	20	12	92

Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)								Degree of Vacuum max. (-kPa)
		10	20	30	40	50	60	70	80	
5	180	0.043	0.1	0.167	0.23	0.338	0.492	0.707	0.923	92

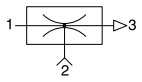
Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 6
Temperature (°C)	0 ... +60
Weight (gr.)	327
Noise (dBA)	72

Accessories	
19S12.S	Silencer G1/2”

High-flow single stage vacuum generator G1/2”



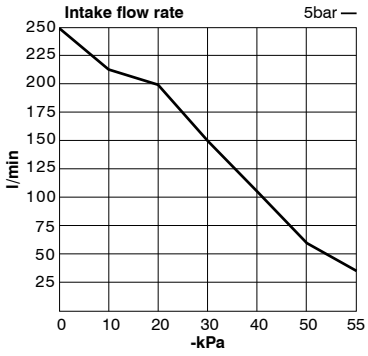
Ordering code
19M12.S.25.HF.00

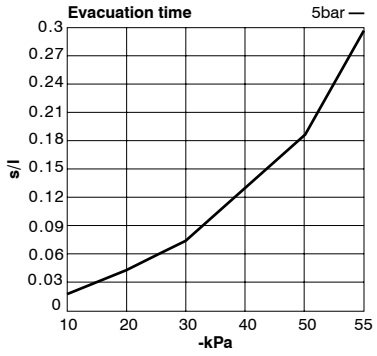


Single stage high suction power generators operating using a single large Venturi nozzle; particularly silent thanks to a free-low silencer which is mounted separately. Suitable for use in dusty environments and in applications where a large suction capacity and an average degree of vacuum are required (57 -kPa).

Operational characteristics	
- Inlet pressure (bar)	5
- Degree of Vacuum (-kPa)	57
- Intake flow rate (l/min)	250
- Air consumption (l/min)	265

Performance Charts





Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)							Degree of Vacuum max. (-kPa)
		0	10	20	30	40	50	55	
5	265	250	215	200	150	105	60	36	57

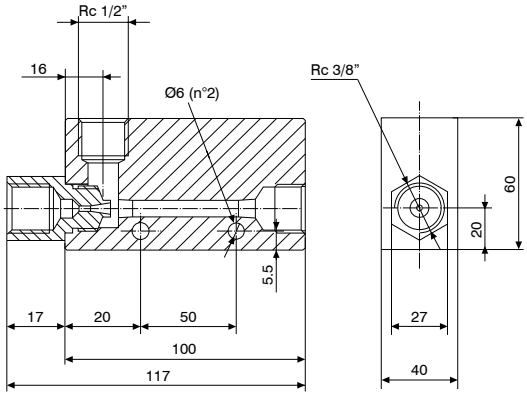
Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)						Degree of Vacuum max. (-kPa)
		10	20	30	40	50	55	
5	265	0.021	0.046	0.076	0.123	0.184	0.3	57

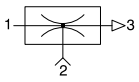
Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 6
Temperature (°C)	0 ... +60
Weight (gr.)	660
Noise (dBA)	75

Accessories	
19S34.R	Silencer G3/4”

High-flow single stage vacuum generator G1/2”

Ordering code
19M12.S.25.HH.00



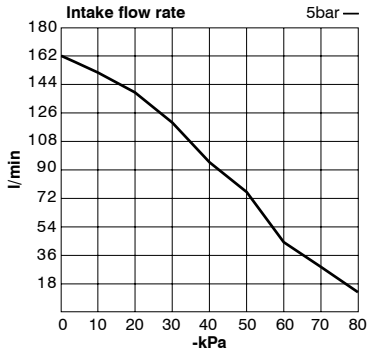


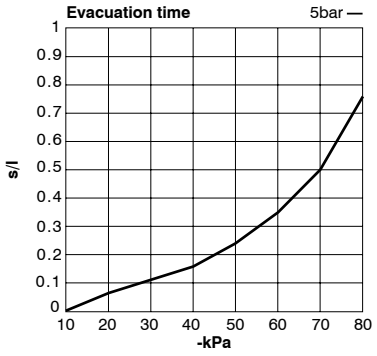
Single stage high suction power generators operating using a single large Venturi nozzle; particularly silent thanks to a free-low silencer which is mounted separately. Suitable for use in dusty environments and in applications where a large suction capacity and a high degree of vacuum are required (92 -kPa).

VACUUM GENERATORS

Operational characteristics	
- Inlet pressure (bar)	5
- Degree of Vacuum (-kPa)	92
- Intake flow rate (l/min)	160
- Air consumption (l/min)	265

Performance Charts





Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)									Degree of Vacuum max. (-kPa)
		0	10	20	30	40	50	60	70	80	
5	265	160	155	140	120	95	72	47	28	15	92

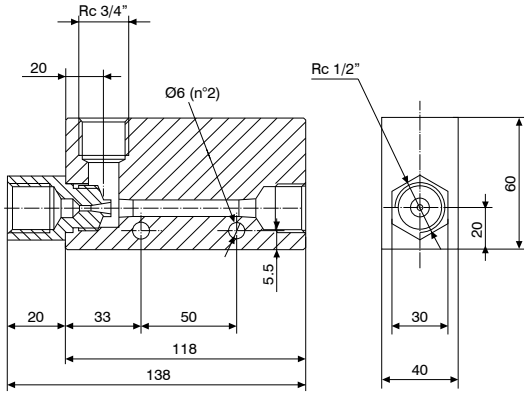
Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)								Degree of Vacuum max. (-kPa)
		10	20	30	40	50	60	70	80	
5	265	0.03	0.069	0.112	0.168	0.241	0.345	0.494	0.753	92

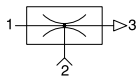
Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 6
Temperature (°C)	0 ... +60
Weight (gr.)	660
Noise (dBA)	75

Accessories	
19S34.R	Silencer G3/4”

High-flow single stage vacuum generator G3/4”

Ordering code
19M34.S.30.HF.00

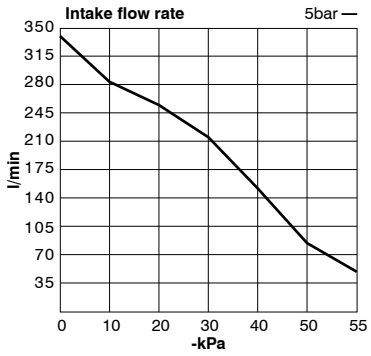


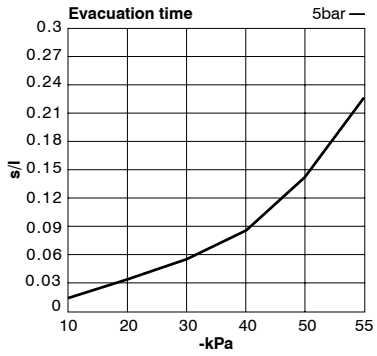


Single stage high suction power generators operating using a single large Venturi nozzle; particularly silent thanks to a free-low silencer which is mounted separately. Suitable for use in dusty environments and in applications where a large suction capacity and an average degree of vacuum are required (57 -kPa).

Operational characteristics	
- Inlet pressure (bar)	5
- Degree of Vacuum (-kPa)	57
- Intake flow rate (l/min)	350
- Air consumption (l/min)	385

Performance Charts





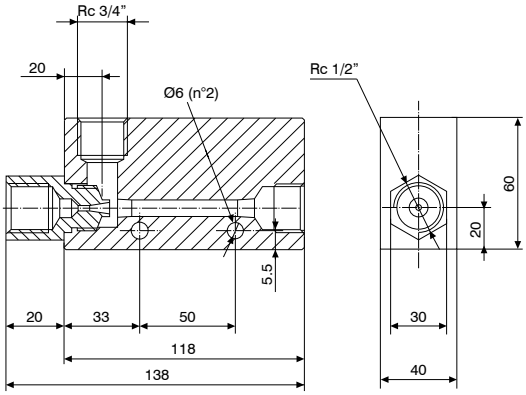
Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)							Degree of Vacuum max. (-kPa)
		0	10	20	30	40	50	55	
5	385	350	295	267	215	150	85	41	57

Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)						Degree of Vacuum max. (-kPa)
		10	20	30	40	50	55	
5	385	0.017	0.035	0.058	0.086	0.132	0.219	57

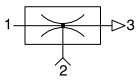
Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 6
Temperature (°C)	0 ... +60
Weight (gr.)	774
Noise (dBA)	75

Accessories	
19S34.R	Silencer G3/4”

High-flow single stage vacuum generator G3/4”



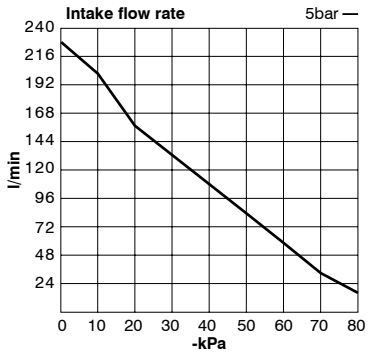
Ordering code
19M34.S.30.HH.00

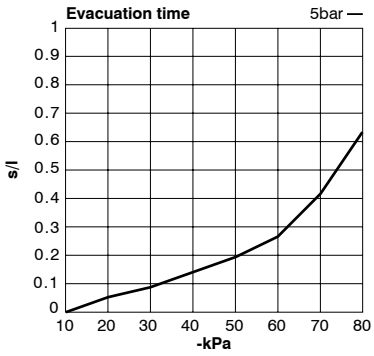


Single stage high suction power generators operating using a single large Venturi nozzle; particularly silent thanks to a free-low silencer which is mounted separately. Suitable for use in dusty environments and in applications where a large suction capacity and a high degree of vacuum are required (92 -kPa).

Operational characteristics	
- Inlet pressure (bar)	5
- Degree of Vacuum (-kPa)	92
- Intake flow rate (l/min)	225
- Air consumption (l/min)	385

Performance Charts





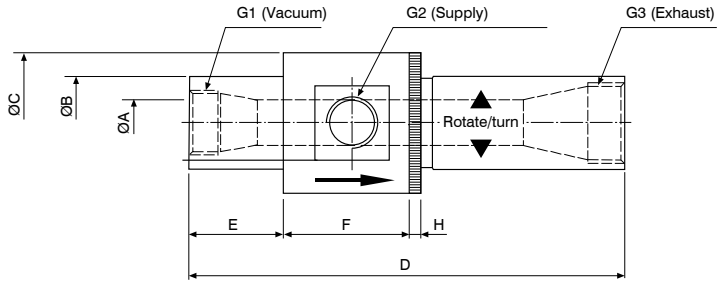
Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)									Degree of Vacuum max. (-kPa)
		0	10	20	30	40	50	60	70	80	
5	385	225	200	160	135	105	78	55	33	19	92

Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)								Degree of Vacuum max. (-kPa)
		10	20	30	40	50	60	70	80	
5	385	0.029	0.058	0.092	0.136	0.196	0.265	0.406	0.625	92

Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 6
Temperature (°C)	0 ... +60
Weight (gr.)	774
Noise (dBA)	75

Accessories	
19S34.R	Silencer G3/4”

Adjustable vacuum generator conveyor



Code	ØA	ØB	ØC	D	E	F	H	G1	G2	G3	Weight (gr.)
19M14.S.00.SS.RG	6.5	19	32	94-105	22	32	5	G1/4"	G1/8"	G1/4"	96
19M38.S.00.SS.RG	10	25	45	155-165	38	45	5	G3/8"	G3/8"	G1/2"	271.6
19M12.S.00.SS.RG	13	32	51	155-160	38	51	5	G1/2"	G3/8"	G3/4"	377.2
19M34.S.00.SS.RG	19	38	58	175-189	38	51	5	G3/4"	G1/2"	G1"	526.8

Based on the Ventury principle, these differ from traditional ones because they have a much better ejector and are adjustable, this characteristic makes it possible to change the device's low rate and degree of vacuum without affecting the inlet pressure. Their special shape and their operating principle make them suitable for suction and the transfer of powders, granules, sawdust, metal chips, liquid or dry food products, etc., to control suction cups in the presence of large quantities of powders or liquids; these can also be used to suction smoke, coolant fog, water vapour, etc.

Operational characteristics	
- Inlet pressure (bar)	4 ... 6 (Max. 7)
- Max. Degree of Vacuum (-kPa)	84
- Max. Intake flow rate (l/min)	3390
- Max. Air consumption (l/min)	2550

		Inlet pressure (bar)				
		5.5				
Code	Degree of Vacuum (-kPa)	17	34	50	68	84
19M14.S.00.SS.RG	Air consumption (l/min)	112	169	233	276	342
19M38.S.00.SS.RG		176	327	485	595	825
19M12.S.00.SS.RG		340	625	795	940	1280
19M34.S.00.SS.RG		650	875	1250	1790	2550

		Inlet pressure (bar)				
		5.5				
Code	Degree of Vacuum (-kPa)	17	34	50	68	84
19M14.S.00.SS.RG	Intake flow rate (l/min)	280	240	200	162	125
19M38.S.00.SS.RG		846	735	620	520	395
19M12.S.00.SS.RG		1695	1325	1130	990	650
19M34.S.00.SS.RG		3390	2460	1970	1440	1130

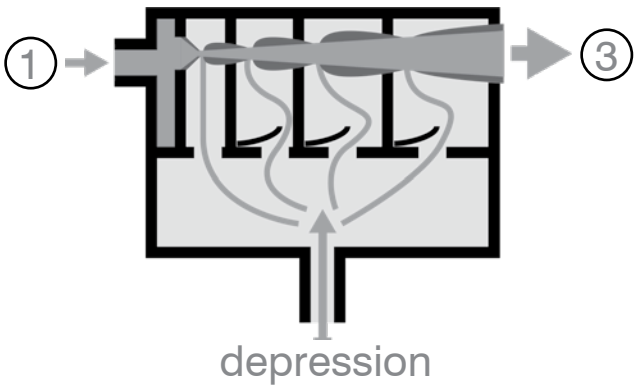
Accessories		Description
19S14.S	Silencer G1/4"	for 19M14.S.00.SS.RG
19S12.R	Silencer G1/2"	for 19M38.S.00.SS.RG
19S34.R	Silencer G3/4"	for 19M12.S.00.SS.RG
19S10.R	Silencer G1"	for 19M34.S.00.SS.RG

Multistage vacuum generators

Compact generators, composed of several modules according to the required performance to obtain high suction capacity with low consumption and high vacuum degrees.

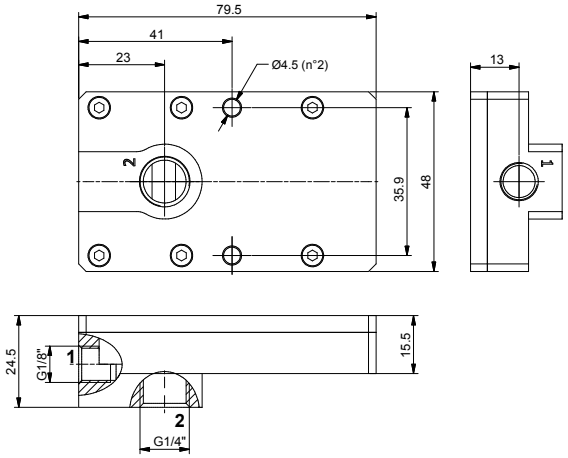
Performance and application

The multistage vacuum generators base their operating characteristics on the Venturi principle. The compressed air is manipulated to flow at high speed in port 1 which constitutes the first stage of the vacuum generator and in the subsequent stages, following the entrainment of the surrounding air, a depression is created.
The advantage of multistage vacuum generator is in the optimization of the kinetic energy. Injecting the compressed air through multiple nozzles generates an improve volumetric flow rate (Compared to a single stage unit) whilst using a lower consumption of compressed air.

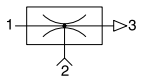


Series 1900

Multistage vacuum generator G1/4”



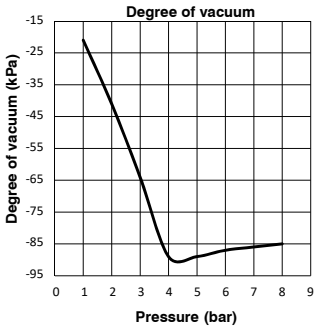
Ordering code
19M14.M.09.SS.00

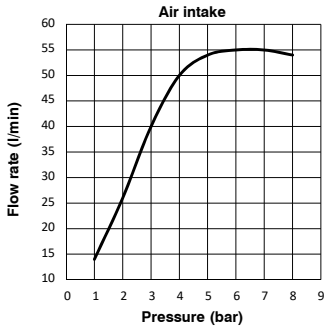


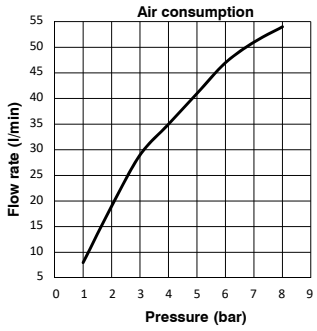
As a function of the modules (nozzles 2-4- 6-8) used, offer exactly the right performance for the most varied of industrial applications. They ensure a low level of noise thanks to the sound-absorbent material inside of them.

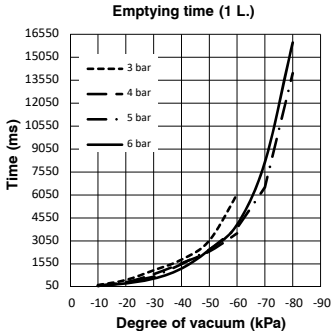
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	41	89	87
- Intake flow rate (l/min)	26	50	55
- Air consumption (l/min)	19	35	47

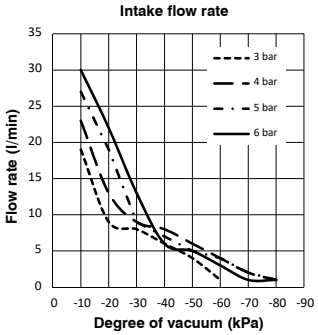
Performance Charts





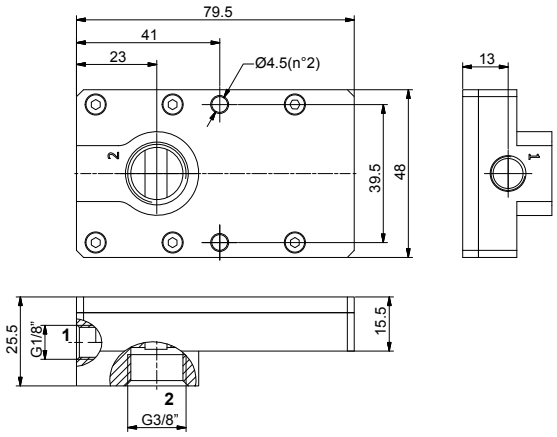




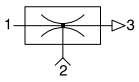


Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	132

Multistage vacuum generator G3/8”



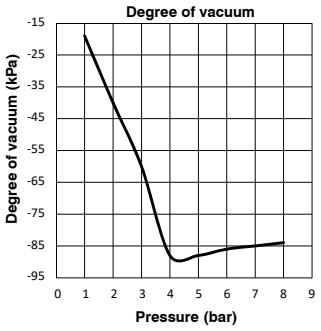
Ordering code
19M38.M.12.SS.00

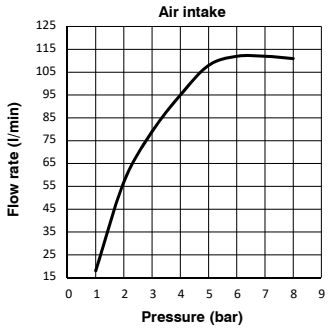


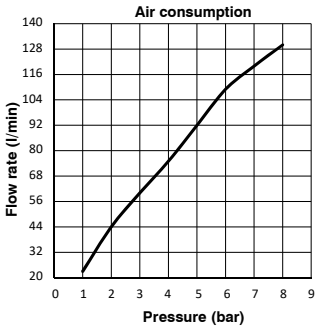
As a function of the modules (nozzles 2-4- 6-8) used, offer exactly the right performance for the most varied of industrial applications. They ensure a low level of noise thanks to the sound-absorbent material inside of them.

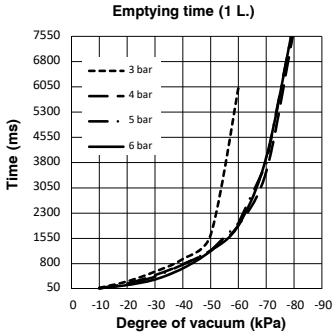
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	40	88	86
- Intake flow rate (l/min)	57	95	112
- Air consumption (l/min)	44	75	109

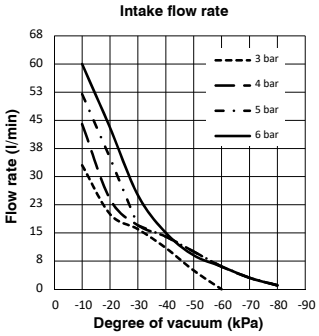
Performance Charts





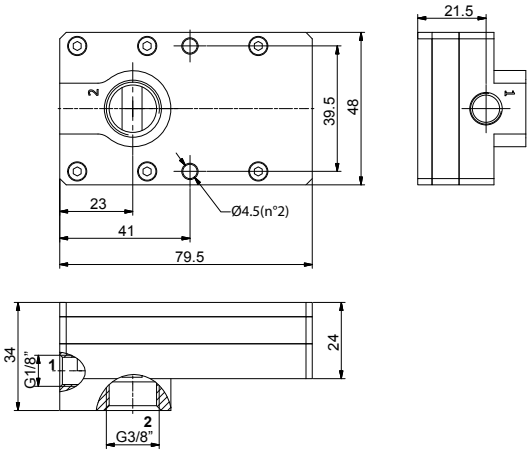




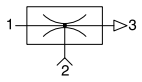


Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	132

Multistage vacuum generator G3/8”



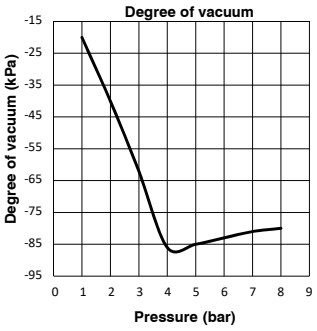
Ordering code
19M38.M.15.SS.00

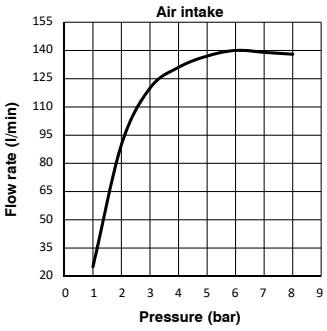


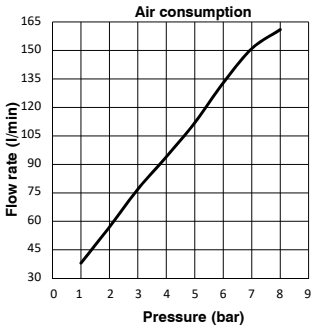
As a function of the modules (nozzles 2-4- 6-8) used, offer exactly the right performance for the most varied of industrial applications. They ensure a low level of noise thanks to the sound-absorbent material inside of them.

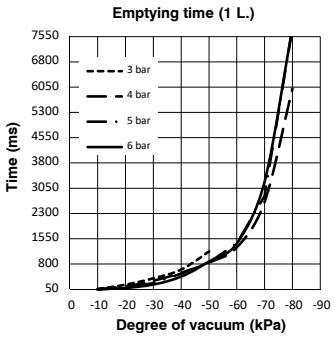
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	40	86	83
- Intake flow rate (l/min)	90	131	140
- Air consumption (l/min)	57	94	133

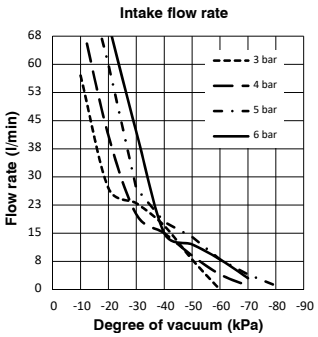
Performance Charts





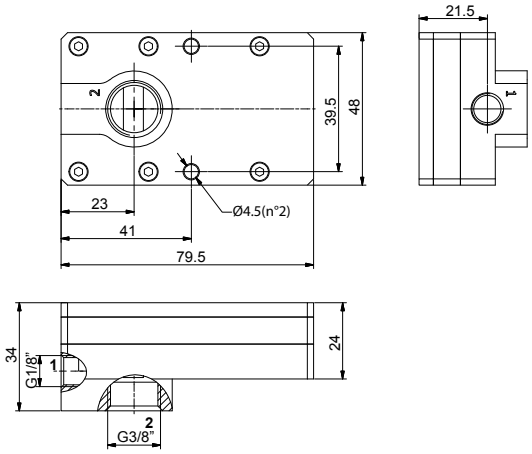




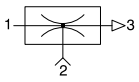


Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	178

Multistage vacuum generator G3/8”



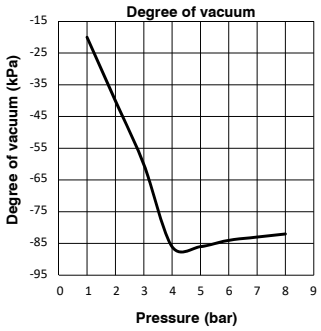
Ordering code
19M38.M.18.SS.00

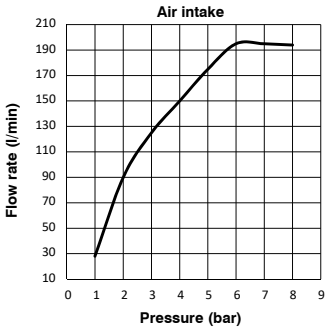


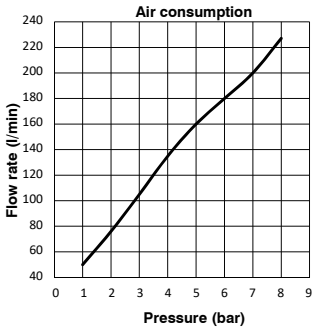
As a function of the modules (nozzles 2-4- 6-8) used, offer exactly the right performance for the most varied of industrial applications. They ensure a low level of noise thanks to the sound-absorbent material inside of them.

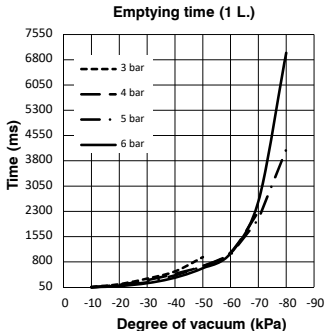
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	40	86	84
- Intake flow rate (l/min)	90	150	195
- Air consumption (l/min)	76	135	180

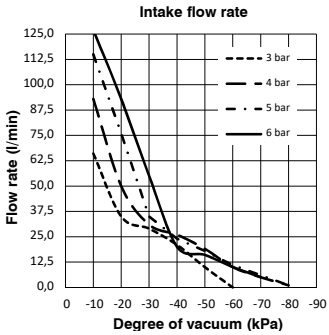
Performance Charts







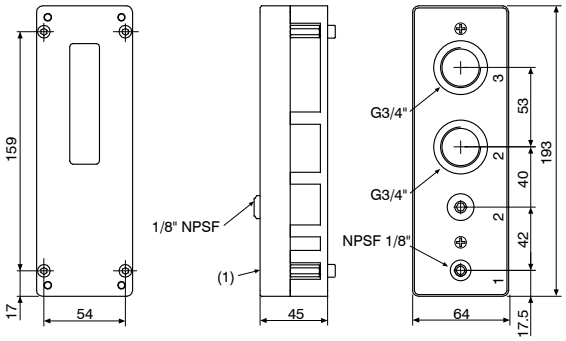


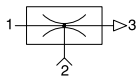


Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	1 ... 8
Temperature (°C)	-10 ... +80
Weight (gr.)	178

Multistage high flow vacuum generator G3/4”

Ordering code
19T34.M.32.HF.QQ

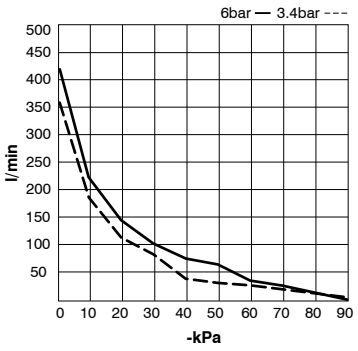




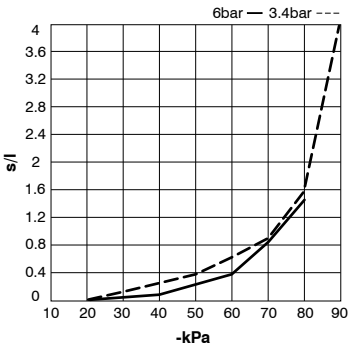
Operational characteristics	
- Optimum inlet pressure (bar)	3.4
- Inlet pressure (bar)	3.4 / 6
- Degree of Vacuum (-kPa)	89 / 92
- Intake flow rate (l/min)	360 / 420
- Air consumption (l/min)	116 / 185

Performance Charts

Intake flow rate



Evacuation time



Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)										Degree of Vacuum max. (-kPa)
		0	10	20	30	40	50	60	70	80	90	
3.4	116	360	180	115	80	43	30	22.5	15.5	7.5	1.2	92
6	185	420	240	125	100	82	65	38	12.5	3.5	/	89

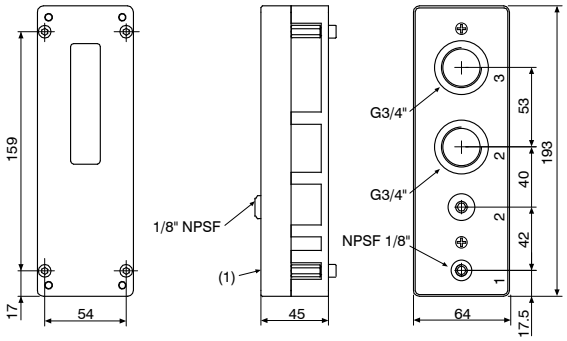
Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)									Degree of Vacuum max. (-kPa)
		10	20	30	40	50	60	70	80	90	
3.4	116	0.022	0.06	0.11	0.21	0.4	0.65	0.95	1.60	4	92
6	185	0.018	0.05	0.08	0.18	0.25	0.40	0.62	1.55	/	89

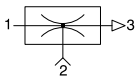
Technical characteristics	
Fluid	Unlubricated filtered air
Inlet pressure (bar)	3,4 ... 6
Noise (dBA)	93
Temperature (°C)	-20 ... +80
Material	PPS, SS, PA, NBR
Weight (gr)	675

Accessories	
19S34.R	Reduced silencer G3/4”
19S34.S	Silencer G3/4”

Multistage high flow vacuum generator G3/4”

Ordering code
19T34.M.41.HF.QQ

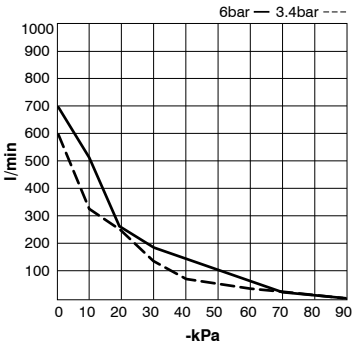




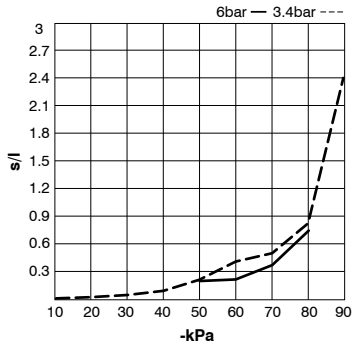
Operational characteristics	
- Optimum inlet pressure (bar)	3.4
- Inlet pressure (bar)	3.4 / 6
- Degree of Vacuum (-kPa)	89 / 92
- Intake flow rate (l/min)	600 / 700
- Air consumption (l/min)	230 / 370

Performance Charts

Intake flow rate



Evacuation time



Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)										Degree of Vacuum max. (-kPa)
		0	10	20	30	40	50	60	70	80	90	
3.4	230	600	320	250	135	75	60	46	30	13	1.5	92
6	370	700	510	290	195	160	115	70	22	8	/	89

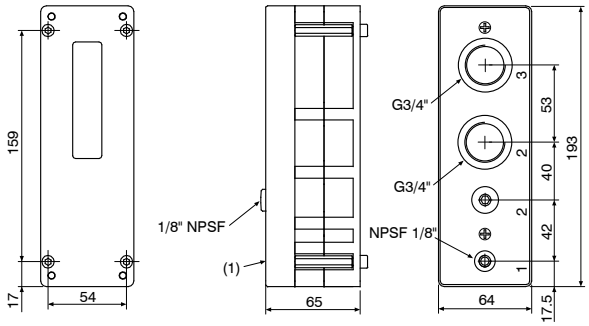
Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)									Degree of Vacuum max. (-kPa)
		10	20	30	40	50	60	70	80	90	
3.4	230	0.014	0.031	0.06	0.10	0.20	0.34	0.50	0.80	2.5	92
6	370	0.01	0.022	0.048	0.08	0.11	0.20	0.35	0.78	/	89

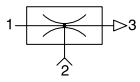
Technical characteristics	
Fluid	Unlubricated filtered air
Max. inlet pressure (bar)	3,4 ... 6
Noise (dBA)	92
Temperature (°C)	-20 ... +80
Material	PPS, SS, PA, NBR
Weight (gr)	675

Accessories	
19S34.R	Reduced silencer G3/4”
19S34.S	Silencer G3/4”

Multistage high flow vacuum generator G3/4”

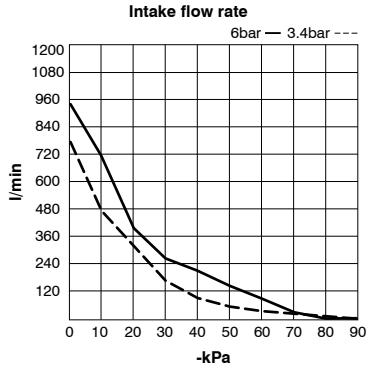
Ordering code
19T34.M.46.HF.QQ

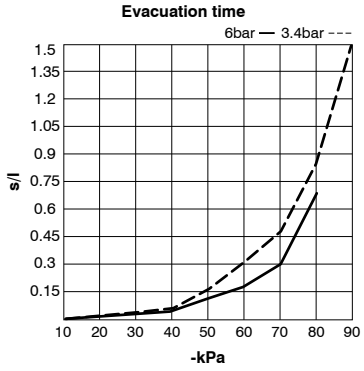




Operational characteristics	
- Optimum inlet pressure (bar)	3.4
- Inlet pressure (bar)	3.4 / 6
- Degree of Vacuum (-kPa)	89 / 92
- Intake flow rate (l/min)	760 / 950
- Air consumption (l/min)	365 / 610

Performance Charts





Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)										Degree of Vacuum max. (-kPa)
		0	10	20	30	40	50	60	70	80	90	
3.4	365	760	445	340	175	110	85	70	43	20	1.8	92
6	610	950	710	380	285	230	170	100	32	11	/	89

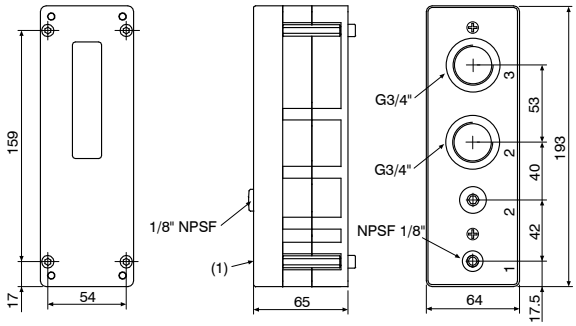
Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)									Degree of Vacuum max. (-kPa)
		10	20	30	40	50	60	70	80	90	
3.4	365	0.012	0.029	0.058	0.095	0.18	0.31	0.46	0.89	1.5	92
6	610	0.009	0.019	0.045	0.075	0.13	0.18	0.31	0.70	/	89

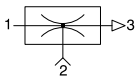
Technical characteristics	
Fluid	Unlubricated filtered air
Max. inlet pressure (bar)	3,4 ... 6
Noise (dBA)	93
Temperature (°C)	-20 ... +80
Material	PPS, SS, PA, NBR
Weight (gr)	837

Accessories	
19S34.R	Reduced silencer G3/4”
19S34.S	Silencer G3/4”

Multistage high flow vacuum generator G3/4”

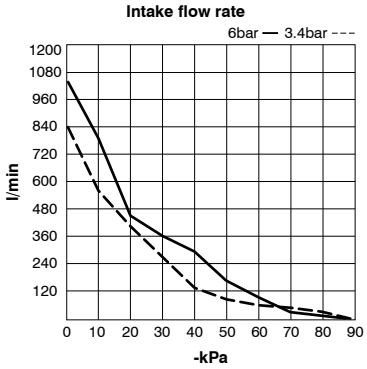
Ordering code
19T34.M.52.HF.QQ

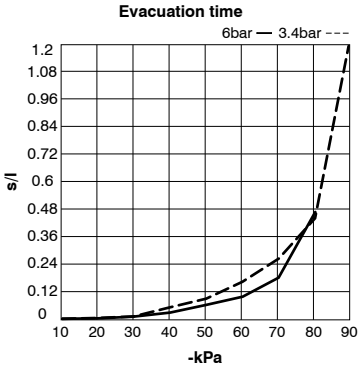




Operational characteristics	
- Optimum inlet pressure (bar)	3.4
- Inlet pressure (bar)	3.4 / 6
- Degree of Vacuum (-kPa)	89 / 92
- Intake flow rate (l/min)	850 / 1010
- Air consumption (l/min)	445 / 720

Performance Charts





Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)										Degree of Vacuum max. (-kPa)
		0	10	20	30	40	50	60	70	80	90	
3.4	445	850	550	430	280	145	115	85	60	28	2.2	92
6	720	1010	800	460	385	310	215	125	42	15.5	/	89

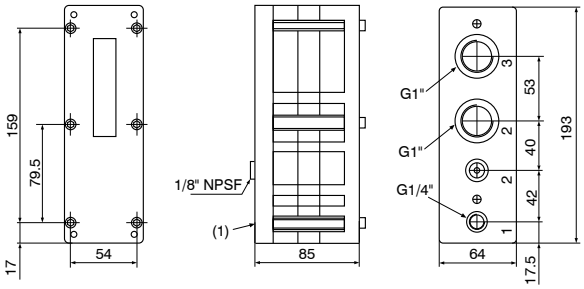
Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)									Degree of Vacuum max. (-kPa)
		10	20	30	40	50	60	70	80	90	
3.4	445	0.010	0.025	0.043	0.075	0.11	0.19	0.27	0.45	1.2	92
6	720	0.007	0.018	0.038	0.055	0.08	0.12	0.19	0.47	/	89

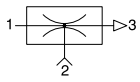
Technical characteristics	
Fluid	Unlubricated filtered air
Max. inlet pressure (bar)	3,4 ... 6
Noise (dBA)	88
Temperature (°C)	-20 ... +80
Material	PPS, SS, PA, NBR
Weight (gr)	837

Accessories	
19S34.R	Reduced silencer G3/4”
19S34.S	Silencer G3/4”

Multistage high flow vacuum generator G1”

Ordering code
19TG1.M.58.HF.PP

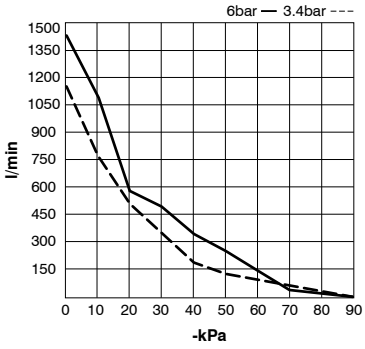




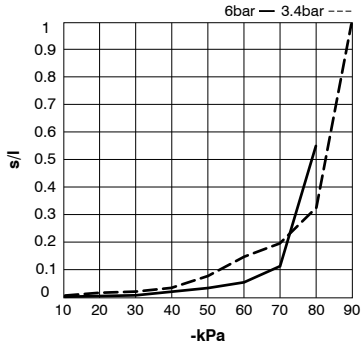
Operational characteristics	
- Optimum inlet pressure (bar)	3.4
- Inlet pressure (bar)	3.4 / 6
- Degree of Vacuum (-kPa)	89 / 92
- Intake flow rate (l/min)	1150 / 1400
- Air consumption (l/min)	545 / 780

Performance Charts

Intake flow rate



Evacuation time



Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)										Degree of Vacuum max. (-kPa)
		0	10	20	30	40	50	60	70	80	90	
3.4	545	1150	760	530	350	180	148	115	78	34.5	3.5	92
6	780	1400	1120	560	490	355	260	150	50	25	/	89

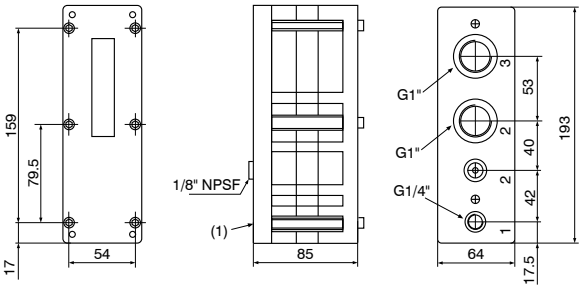
Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)									Degree of Vacuum max. (-kPa)
		10	20	30	40	50	60	70	80	90	
3.4	545	0.006	0.015	0.029	0.052	0.085	0.145	0.202	0.330	1	92
6	780	0.005	0.013	0.026	0.045	0.062	0.115	0.194	0.56	/	89

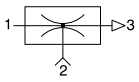
Technical characteristics	
Fluid	Unlubricated filtered air
Max. inlet pressure (bar)	3,4 ... 6
Noise (dBA)	92
Temperature (°C)	-20 ... +80
Material	PPS, SS, PA, NBR
Weight (gr)	1075

Accessories	
19S10.R	Reduced silencer G 1"

Multistage high flow vacuum generator G1”

Ordering code
19TG1.M.61.HF.PP

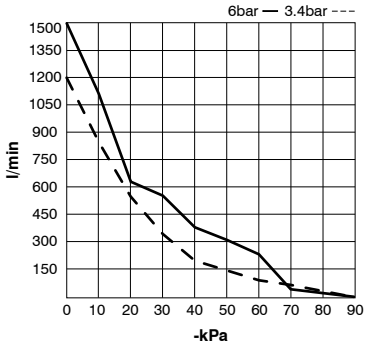




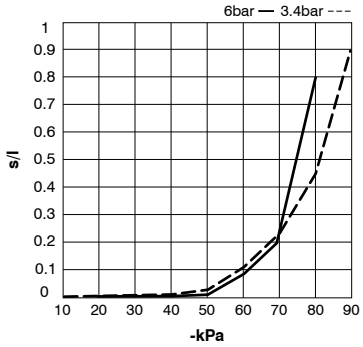
Operational characteristics	
- Optimum inlet pressure (bar)	3.4
- Inlet pressure (bar)	3.4 / 6
- Degree of Vacuum (-kPa)	89 / 92
- Intake flow rate (l/min)	1200 / 1500
- Air consumption (l/min)	655 / 810

Performance Charts

Intake flow rate



Evacuation time



Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)										Degree of Vacuum max. (-kPa)
		0	10	20	30	40	50	60	70	80	90	
3.4	655	1200	830	550	360	215	170	130	90	36	5	92
6	810	1500	1110	630	560	385	315	210	65	26	/	89

Inlet pressure (bar)	Air consumption (l/min)	Evacuation time (s/l) at different levels of vacuum (-kPa)									Degree of Vacuum max. (-kPa)
		10	20	30	40	50	60	70	80	90	
3.4	655	0.005	0.013	0.027	0.045	0.070	0.105	0.23	0.46	0.9	92
6	810	0.003	0.009	0.014	0.030	0.060	0.095	0.20	0.8	/	89

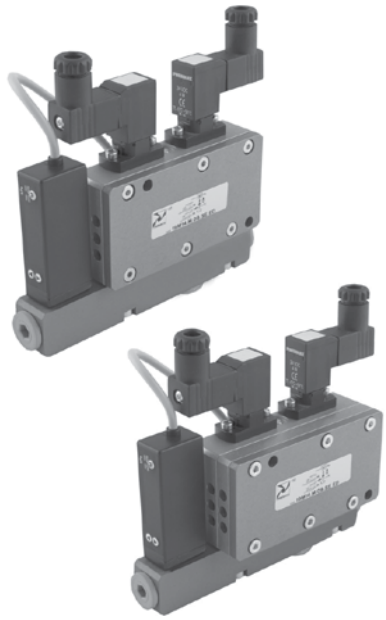
Technical characteristics	
Fluid	Unlubricated filtered air
Max. inlet pressure (bar)	3,4 ... 6
Noise (dBA)	88
Temperature (°C)	-20 ... +80
Material	PPS, SS, PA, NBR
Weight (gr)	1075

Accessories	
19S10.R	Reduced silencer G 1"

VACUUM GENERATORS

Multifunction vacuum generators

Vacuum units that can control a complete vacuum gripping system.



The range of multifunction vacuum generators are available in two versions, the “SE” & “ME”. The ‘SE’ can be installed as “stand alone” whilst the ‘ME’ version can be assembled with intermediate modules creating a multi position manifold which uses a single compressed air supply. The modular design allows the number of autonomous vacuum units to be increased as a function of requirements. They are constructed from a piece of anodised aluminium, and inside of this, the multiple ejectors are mounted and the vacuum chambers are fashioned, as well as threaded connections for supply.

The outside components are:

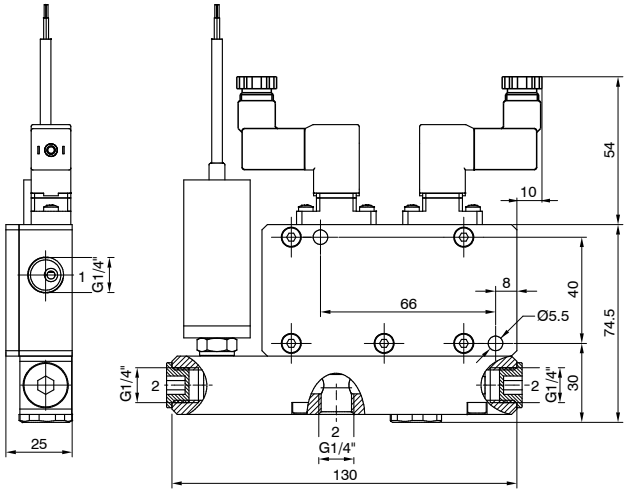
- A solenoid pilot valve for controlling the compressed air being supplied
- A solenoid pilot valve for controlling the compressed air from the bellows
- A vacuum switch with display for controlling and monitoring the system
- A flow regulator with setting screw for regulating the air of the bellows
- An intake manifold made of aluminium for the vacuum connections with the intake filter and check valve integrated inside it, serving to keep vacuum to be used should the electrical power or compressed air stop being supplied.

By activating the supply solenoid pilot valve, the generator creates vacuum that can be used, and when the maximum preset value is reached, the vacuum switch kicks in and, through the control solenoid pilot valve, cuts off the air supply and restores it when the vacuum value drops below the minimum set value.

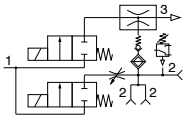
This modulation allows considerable savings of compressed air in addition to keeping the degree of vacuum within safety range.
A second vacuum switch signal, which is separate from the first one and is adjustable, can be used to start up the cycle when the degree of vacuum reached is that needed for the application.
Once the cycle has completed, the supply solenoid pilot valve for air supply to the generator powers down and at the same time the release solenoid pilot valve powers up to quickly restore atmospheric pressure within the circuit.
This series of vacuum generators is suitable for controlling suction cup gripping systems for moving glass panes, marble slabs, ceramic slabs, plastic panels, cardboard boxes, wood panels, etc., and, given their particular shape, they lend themselves to applications in the industrial robotics sector where there is increasing demand for high-performance equipment and autonomous vacuum systems for controlling a greater number of gripping elements while keeping weight low and dimensions compact.

Series 1900

Multifunction vacuum generator



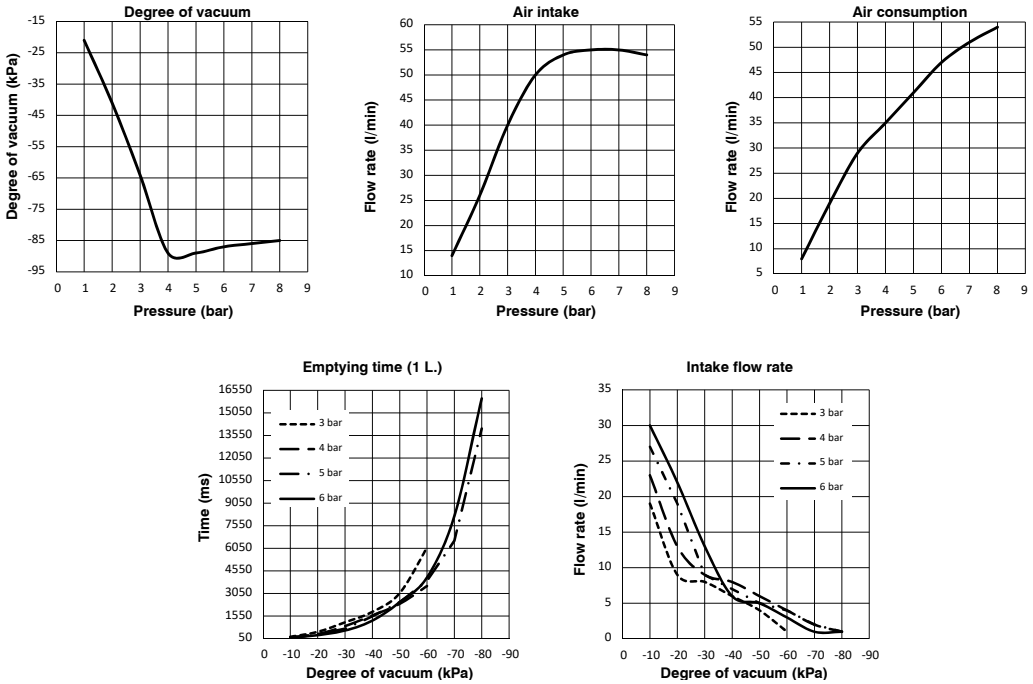
Ordering code		
19M14.M.09.SE.⊙		
⊙	OPTIONS	
	ED =	Solenoid valves + vacuum switch cable 2 Mt.
	EF =	Solenoid valves + vacuum switch cable 30 cm and connector M8
	01 =	Solenoid valve without vacuum switch
	02 =	Vacuum switch without back pressure valve
	04 =	Without vacuum switch and back pressure valve
	05 =	Vacuum switch cable 30 cm and connector M8 without back pressure valve



Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	41	89	87
- Intake flow rate (l/min)	26	50	55
- Air consumption (l/min)	19	35	47

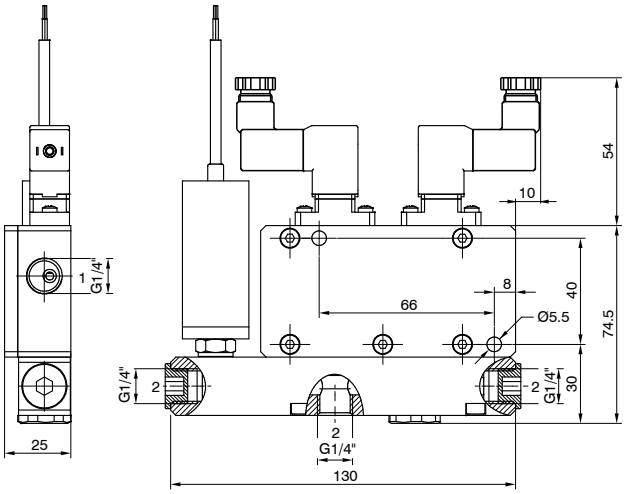
VACUUM GENERATORS

Performance Charts

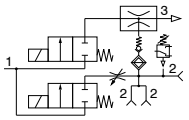


Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	0 ... 6
Inlet and release solenoid valve function	N.C.
Power consumption	4 Watt
Supply voltage	24 VDC
Solenoid valve - IP Rating	IP65
Vacuum switch output	2 PNP
Vacuum switch - IP Rating	IP40
Temperature (°C)	-10 ... +60
Weight (gr.)	538

Multifunction vacuum generator

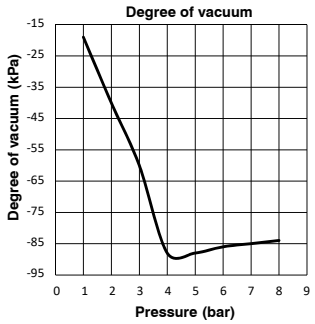


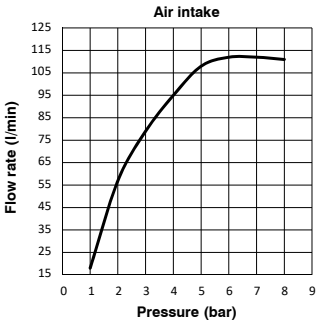
Ordering code		
19M14.M.12.SE.⊙		
⊙	OPTIONS	
	ED =	Solenoid valves + vacuum switch cable 2 Mt.
	EF =	Solenoid valves + vacuum switch cable 30 cm and connector M8
	01 =	Solenoid valve without vacuum switch
	02 =	Vacuum switch without back pressure valve
	04 =	Without vacuum switch and back pressure valve
	05 =	Vacuum switch cable 30 cm and connector M8 without back pressure valve

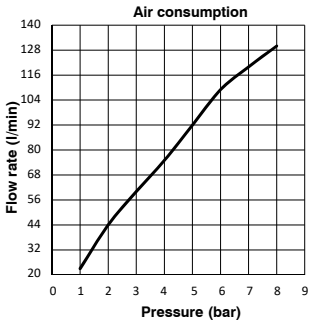


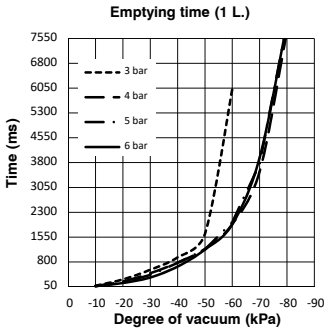
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	40	88	86
- Intake flow rate (l/min)	57	95	112
- Air consumption (l/min)	44	75	109

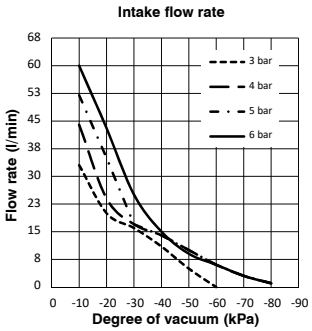
Performance Charts





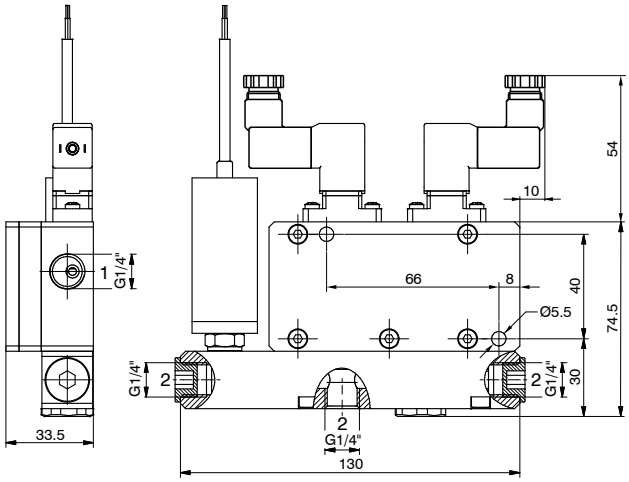




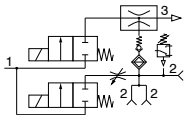


Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	0 ... 6
Inlet and release solenoid valve function	N.C.
Power consumption	4 Watt
Supply voltage	24 VDC
Solenoid valve - IP Rating	IP65
Vacuum switch output	2 PNP
Vacuum switch - IP Rating	IP40
Temperature (°C)	-10 ... +60
Weight (gr.)	538

Multifunction vacuum generator

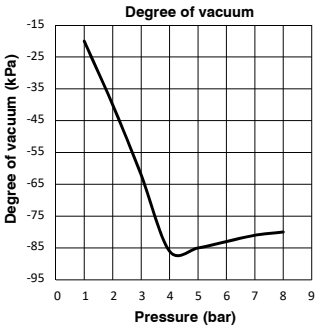


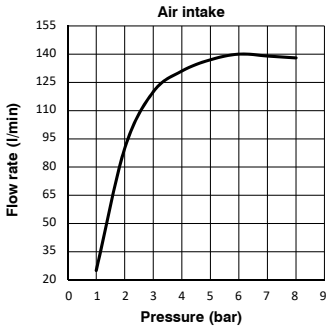
Ordering code		
19M14.M.15.SE.⊙		
⊙	OPTIONS	
	ED =	Solenoid valves + vacuum switch cable 2 Mt.
	EF =	Solenoid valves + vacuum switch cable 30 cm and connector M8
	01 =	Solenoid valve without vacuum switch
	02 =	Vacuum switch without back pressure valve
	04 =	Without vacuum switch and back pressure valve
	05 =	Vacuum switch cable 30 cm and connector M8 without back pressure valve

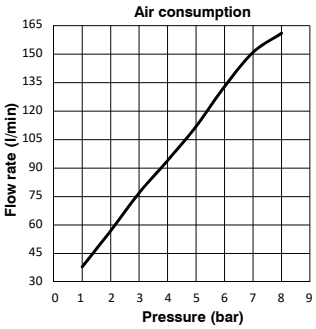


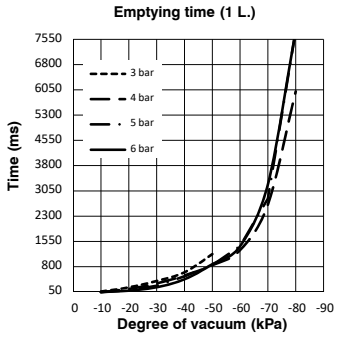
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	40	86	83
- Intake flow rate (l/min)	90	131	140
- Air consumption (l/min)	57	94	133

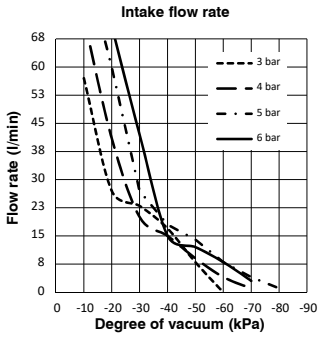
Performance Charts





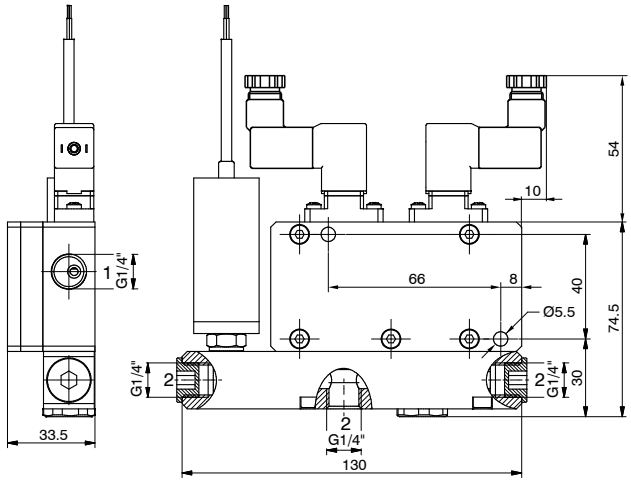




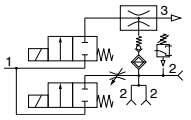


Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	0 ... 6
Inlet and release solenoid valve function	N.C.
Power consumption	4 Watt
Supply voltage	24 VDC
Solenoid valve - IP Rating	IP65
Vacuum switch output	2 PNP
Vacuum switch - IP Rating	IP40
Temperature (°C)	-10 ... +60
Weight (gr.)	661

Multifunction vacuum generator

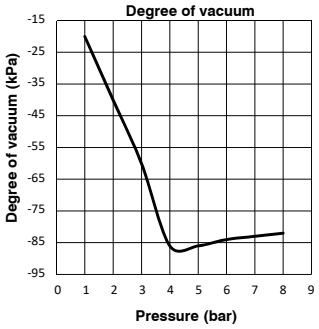


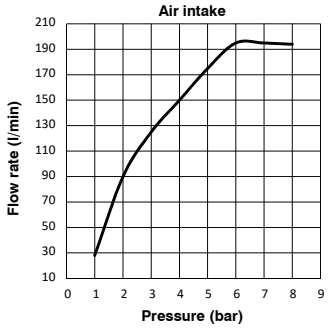
Ordering code		
19M14.M.18.SE.⊙		
⊙	OPTIONS	
	ED =	Solenoid valves + vacuum switch cable 2 Mt.
	EF =	Solenoid valves + vacuum switch cable 30 cm and connector M8
	01 =	Solenoid valve without vacuum switch
	02 =	Vacuum switch without back pressure valve
	04 =	Without vacuum switch and back pressure valve
	05 =	Vacuum switch cable 30 cm and connector M8 without back pressure valve

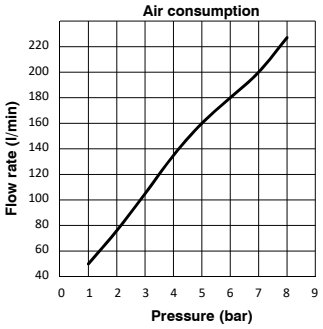


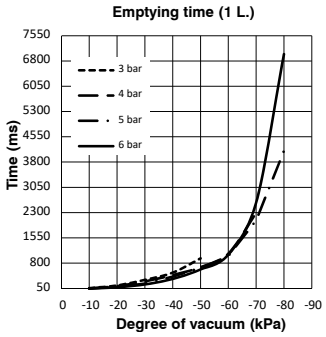
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	40	86	84
- Intake flow rate (l/min)	90	150	195
- Air consumption (l/min)	76	135	180

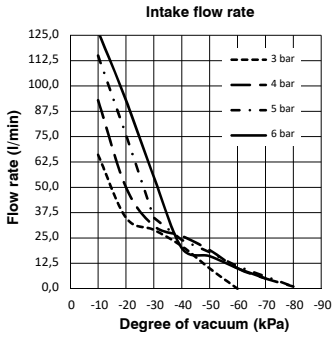
Performance Charts





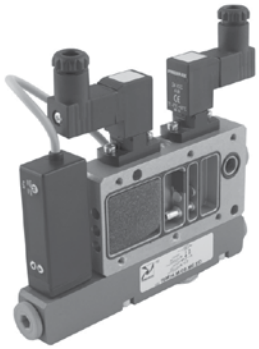






Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	0 ... 6
Inlet and release solenoid valve function	N.C.
Power consumption	4 Watt
Supply voltage	24 VDC
Solenoid valve - IP Rating	IP65
Vacuum switch output	2 PNP
Vacuum switch - IP Rating	IP40
Temperature (°C)	-10 ... +60
Weight (gr.)	661

Modular multifunction vacuum generators



The intermediate “ME” multistage and multifunction vacuum generators are not autonomous and must be hooked up to the “SE” units to operate.

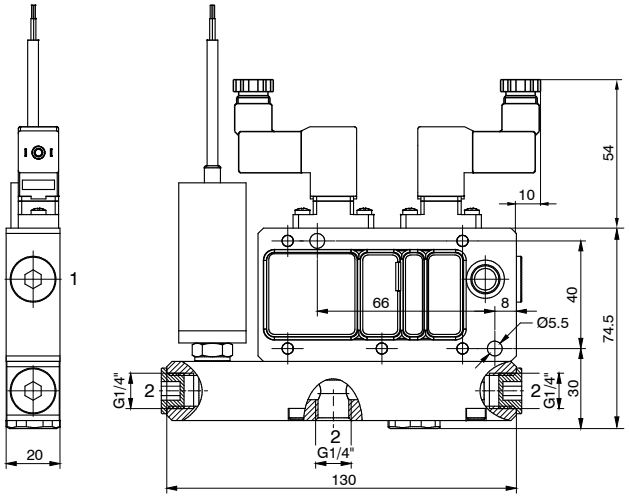
They have been designed to be enclosed between the cap and the base of the “SE” vacuum generator and attached to the latter via M4 screws; with the distribution manifold inside the generator, the compressed air is distributed without having to use external manifolds.

These can be ordered as individual components in the desired number and capacity, although to mount them onto the “SE” generator, a kit with a number of screws corresponding to the number of modules to be attached is necessary.

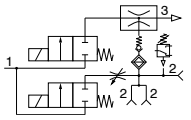
The “ME” vacuum generators comprise the same components as the “SE” generators do, except for the sealing cap; their operation and use are the same as the “SE” vacuum generator on which they are mounted.

Series 1900

Modular multifunction vacuum generator

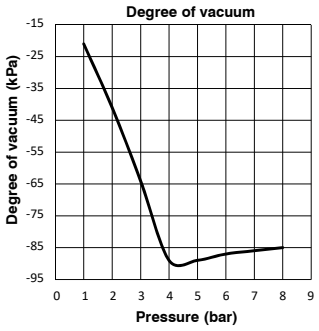


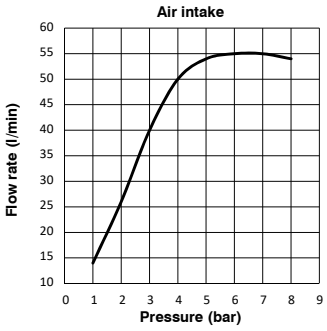
Ordering code		
19M14.M.09.ME.⊙		
⊙	OPTIONS	
	ED =	Solenoid valves + vacuum switch cable 2 Mt.
	EF =	Solenoid valves + vacuum switch cable 30 cm and connector M8
	01 =	Solenoid valve without vacuum switch
	02 =	Vacuum switch without back pressure valve
	04 =	Without vacuum switch and back pressure valve
	05 =	Vacuum switch cable 30 cm and connector M8 without back pressure valve

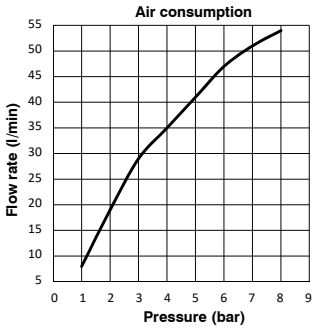


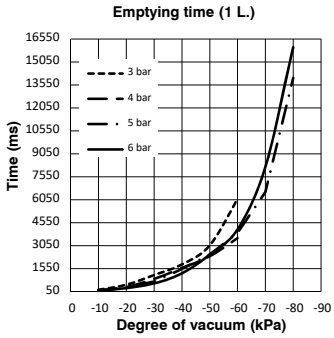
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	41	89	87
- Intake flow rate (l/min)	26	50	55
- Air consumption (l/min)	19	35	47

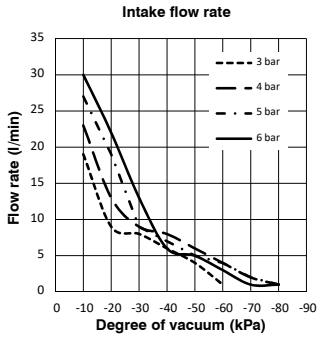
Performance Charts





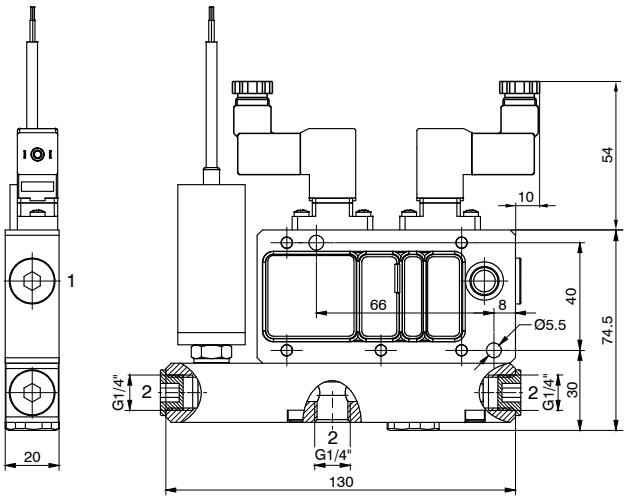






Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	0 ... 6
Inlet and release solenoid valve function	N.C.
Power consumption	4 Watt
Supply voltage	24 VDC
Solenoid valve - IP Rating	IP65
Vacuum switch output	2 PNP
Vacuum switch - IP Rating	IP40
Temperature (°C)	-10 ... +60
Weight (gr.)	474

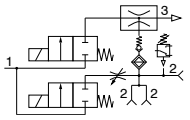
Modular multifunction vacuum generator



Ordering code

19M14.M.12.ME.⊙

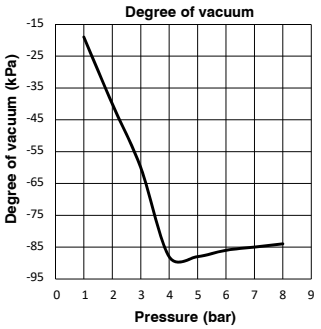
⊙	OPTIONS	
	ED =	Solenoid valves + vacuum switch cable 2 Mt.
	EF =	Solenoid valves + vacuum switch cable 30 cm and connector M8
	01 =	Solenoid valve without vacuum switch
	02 =	Vacuum switch without back pressure valve
	04 =	Without vacuum switch and back pressure valve
	05 =	Vacuum switch cable 30 cm and connector M8 without back pressure valve

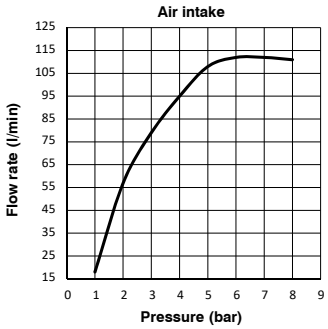


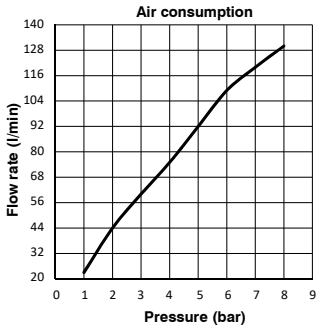
Operational characteristics

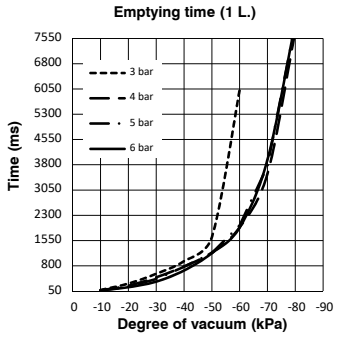
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	40	88	86
- Intake flow rate (l/min)	57	95	112
- Air consumption (l/min)	44	75	109

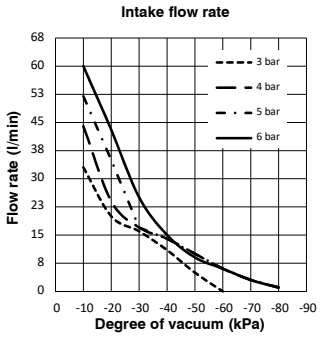
Performance Charts







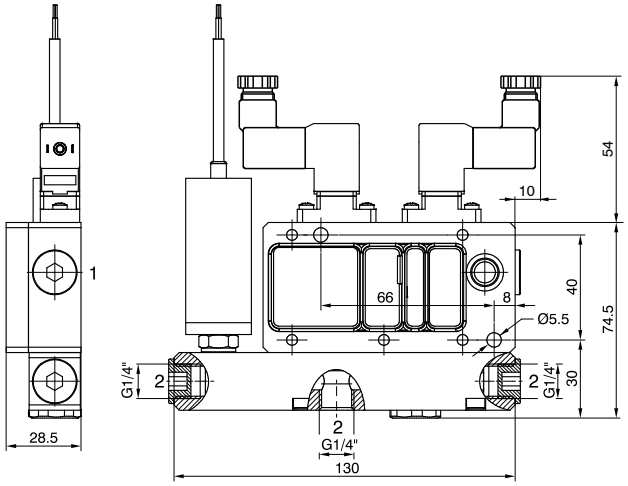




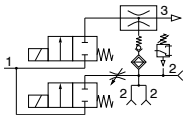
Technical characteristics

Fluid	Unlubricated filtered air
Pressure (bar)	0 ... 6
Inlet and release solenoid valve function	N.C.
Power consumption	4 Watt
Supply voltage	24 VDC
Solenoid valve - IP Rating	IP65
Vacuum switch output	2 PNP
Vacuum switch - IP Rating	IP40
Temperature (°C)	-10 ... +60
Weight (gr.)	474

Modular multifunction vacuum generator

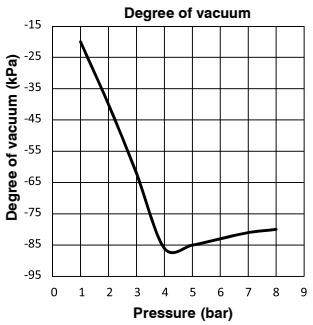


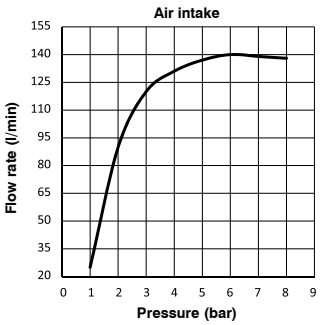
Ordering code		
19M14.M.15.ME.⊙		
⊙	OPTIONS	
	ED =	Solenoid valves + vacuum switch cable 2 Mt.
	EF =	Solenoid valves + vacuum switch cable 30 cm and connector M8
	01 =	Solenoid valve without vacuum switch
	02 =	Vacuum switch without back pressure valve
	04 =	Without vacuum switch and back pressure valve
	05 =	Vacuum switch cable 30 cm and connector M8 without back pressure valve

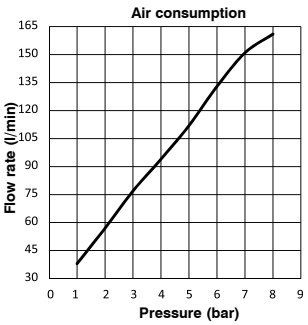


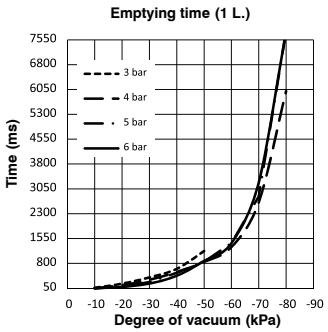
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	40	86	83
- Intake flow rate (l/min)	90	131	140
- Air consumption (l/min)	57	94	133

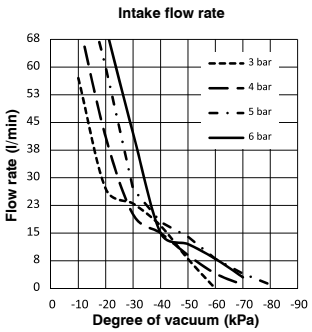
Performance Charts





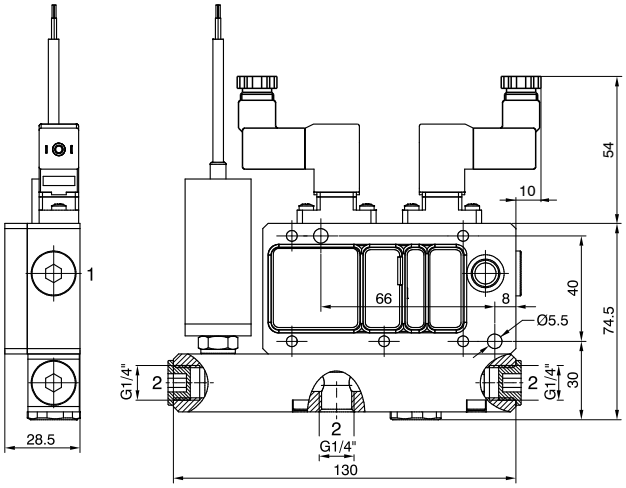




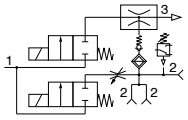


Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	0 ... 6
Inlet and release solenoid valve function	N.C.
Power consumption	4 Watt
Supply voltage	24 VDC
Solenoid valve - IP Rating	IP65
Vacuum switch output	2 PNP
Vacuum switch - IP Rating	IP40
Temperature (°C)	-10 ... +60
Weight (gr.)	537

Modular multifunction vacuum generator

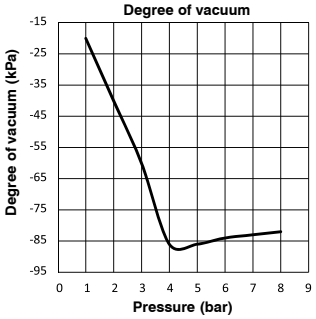


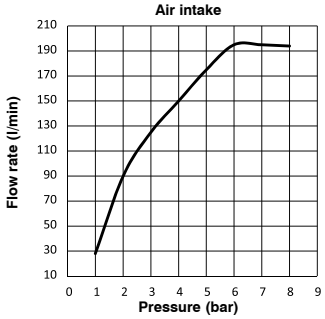
Ordering code		
19M14.M.18.ME.⊙		
⊙	OPTIONS	
	ED =	Solenoid valves + vacuum switch cable 2 Mt.
	EF =	Solenoid valves + vacuum switch cable 30 cm and connector M8
	01 =	Solenoid valve without vacuum switch
	02 =	Vacuum switch without back pressure valve
	04 =	Without vacuum switch and back pressure valve
	05 =	Vacuum switch cable 30 cm and connector M8 without back pressure valve

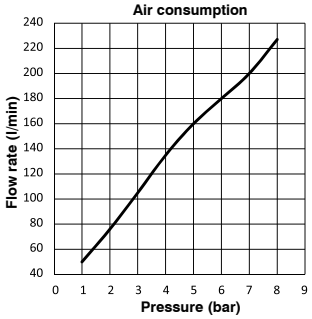


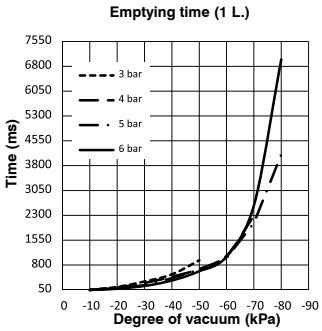
Operational characteristics			
- Inlet pressure (bar)	2	4	6
- Degree of Vacuum (-kPa)	40	86	84
- Intake flow rate (l/min)	90	150	195
- Air consumption (l/min)	76	135	180

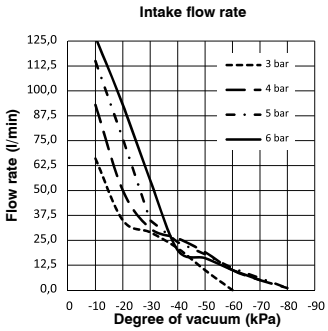
Performance Charts











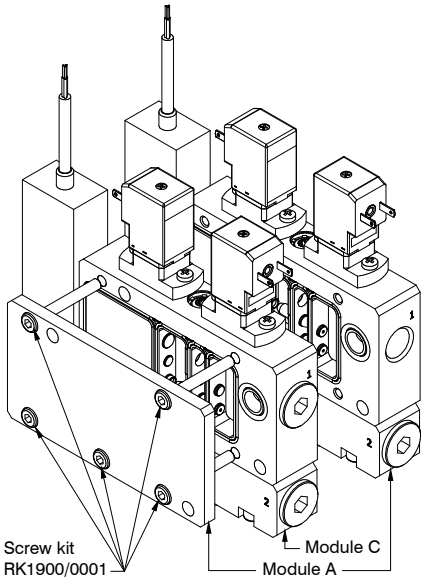
Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	0 ... 6
Inlet and release solenoid valve function	N.C.
Power consumption	4 Watt
Supply voltage	24 VDC
Solenoid valve - IP Rating	IP65
Vacuum switch output	2 PNP
Vacuum switch - IP Rating	IP40
Temperature (°C)	-10 ... +60
Weight (gr.)	537

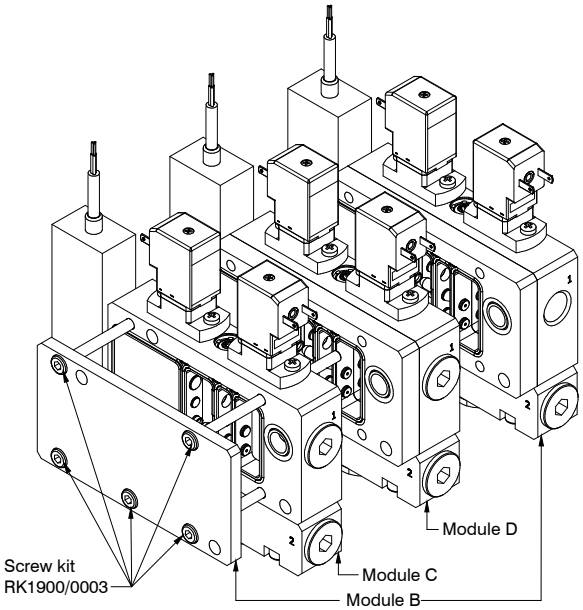
Modular vacuum systems

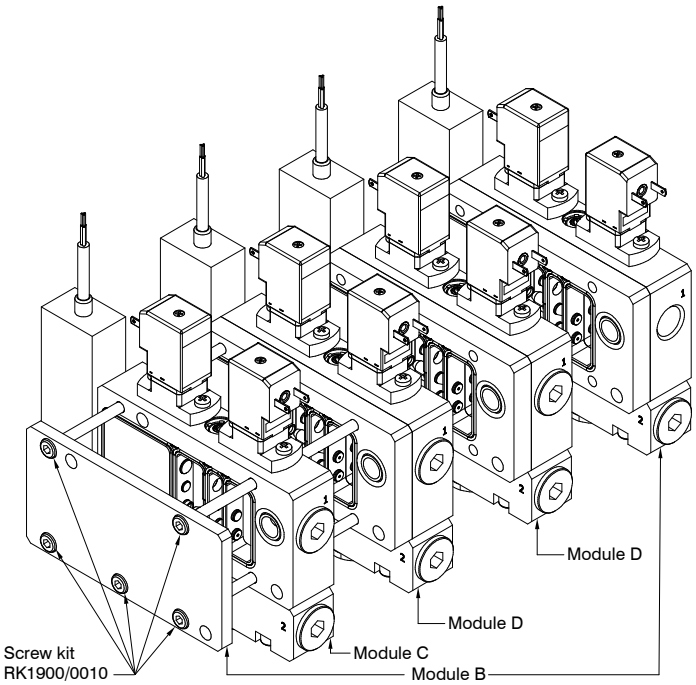
"SE" multifunction vacuum generators can be assembled with one or more "ME" intermediate modules, thus forming a modular vacuum system characterised by a compact shape and reduced size and weight.
With standard screw kits up to 4 vacuum units A+1C+1D can be assembled together independently but, with use of threaded bars, the manifold can be expanded to many more positions.
Below are a number of examples showing ways the manifold can be put together.

		Screws kit codes	Screw dimension
Combinations of standard modules	A+1C	RK1900/0001	M4X30
	A+2C	RK1900/0002	M4X50
	A+3C	RK1900/0003	M4X70
	A+1C+1D	RK1900/0004	M4X60
	A+1C+2D	RK1900/0005	M4X90
	A+2C+1D	RK1900/0006	M4X80
	A+3D	RK1900/0007	M4X100
	A+2D	RK1900/0003	M4X70
	A+1D	RK1900/0008	M4X40
	B+1C	RK1900/0008	M4X40
	B+2C	RK1900/0004	M4X60
	B+3C	RK1900/0006	M4X80
	B+1C+1D	RK1900/0003	M4X70
	B+1C+2D	RK1900/0007	M4X100
	B+2C+1D	RK1900/0005	M4X90
	B+2D	RK1900/0006	M4X80
	B+1D	RK1900/0002	M4X50

The letters of the modules correspond to purchase codes	
A	19M14.M.09.SE.ED
	19M14.M.12.SE.ED
B	19M14.M.15.SE.ED
	19M14.M.18.SE.ED
C	19M14.M.09.ME.ED
	19M14.M.12.ME.ED
D	19M14.M.15.SE.ED
	19M14.M.18.SE.ED

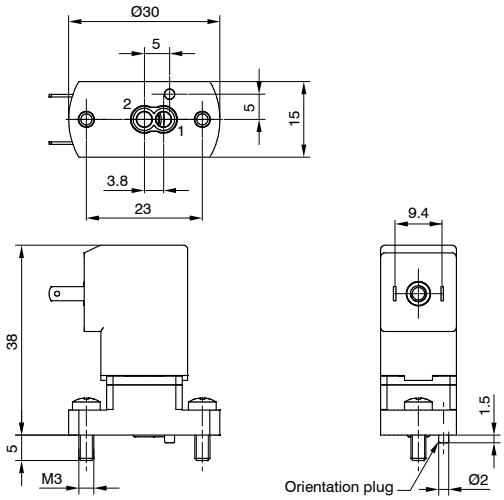




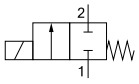


VACUUM GENERATORS

Mini solenoid valve 15 mm

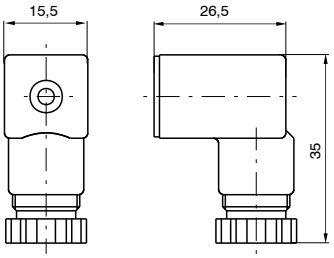


Ordering code
N221.0F



Technical characteristics	
Fluid	Unlubricated filtered air
Pressure (bar)	0 ... 6
Function	N.C.
Flow rate (Nl/m)	185
Operating voltage	24 VDC
Power	4 Watt
Class of insulation	F (155 °C)
IP Rating	IP65 (with connector) - IP00 (with Faston)
Temperature (°C)	-5 ... +50
Weight (gr.)	35.5

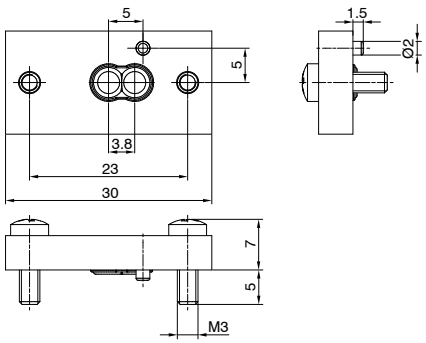
Connector



Ordering code
315.11.00

Weight 13 gr.

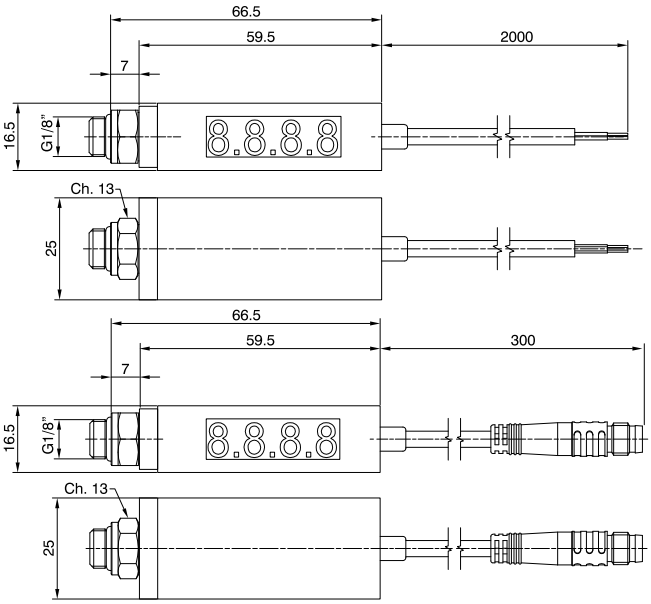
Closing plate



Ordering code
N221.00

Weight 7.5 gr.

Digital vacuum switch

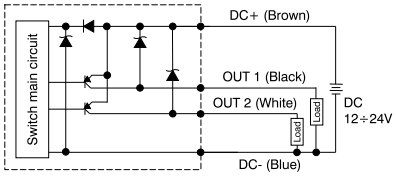


Ordering code	
DS.30.C.C.F8.Ⓛ.⓪	
Ⓛ	CABLE LENGTH
	B=300 mm *
	D=2000 mm **
⓪	OPTIONS
	0= Without connector
	2= With M8 4 Pin male connector

* only with M8 connector
** only without connector

Technical features		
Working pressure range		-100.0 ... 100.0kPa
Regulation pressure range		-100.0 ... 100.0kPa
Maximum supported pressure		300 kPa
Allowed fluids		Air, non-corrosive gases, non-combustible gases
Pressure calibration sensitivity	kPa	0.1
	2 kgf/cm²	0.001
	bar	0.001
	psi	0.01
	InHg	0.1
	mmHg	1
	mmH_2O	0.1
Supply voltage		From 12 to 24 VDC ± 10%
Current consumption		≤ 60mA
Digital output		PNP N.O. 2 outputs Maximum load current: 80mA Maximum supply voltage: 30VDC Voltage drop: ≤1V
Repeatability (Digital output)		± 0.2% Full Scale ± 1 digit
Digital output	Type of hysteresis	Fixed
	Hysteresis	0.003 bar
Response time		≤2,5 ms (anti-interference function: 24ms, 192ms and 768 ms selectable)
Protection from short circuit at output		Present
Display		Display with 3 1/2 digits (sampling 5 times per sec.)
Indicator precision		±2% F. S. ±1 digit (at ambient temperature of 25°C ±3°C)
Indicator		LED green (output1) LED red (output2)
Ingress protection rating	IP Rating	IP40
	Ambient temperature	Operational: 0 ... 50°C, Storage: -20 ... 60°C (without ice or condensation)
	Ambient humidity	Operational/Storage: 35 ... 85% (without condensation)
	Supported voltage	1000VAC in 1-min. (between body and cable)
	Insulation resistance	50MΩ min. (at 500VDC, between body and cable)
	Vibration	Total amplitude 1.5mm. or 10G, 10Hz-55Hz-10Hz scanning for 1 minute, 2 hours in each direction of X, Y and Z
	Impacts/shocks	980m/s² (100G), 3 times in each direction of X, Y and Z
Temperature characteristics		±2% Full Scale in a range between 0 ... 50°C
Type of connection		G1/8" (Swivel)
Electrical cable		Oil resistant cable
Weight		Approximately 67 gr. (with 2 metres of cable)

Output circuit wiring scheme



VALVES AND SOLENOID VALVES

Wide range of valves and solenoid valves with aluminium or technopolymer body, suitable for applications with high flow rates required

The experience gained over the years, resulting of collaboration with our customers and continuous research and development on materials and technologies, has allowed Pneumax to offer a wide range of valves and solenoid valves specially designed and manufactured for vacuum. Pneumax products are able to provide high performance in applications of very demanding industrial sectors, often characterized by hard environmental conditions.

The possibility of using different materials for the various components, from technopolymer to aluminum to stainless steel, allows to create a range of valves and solenoid valves ideal for applications in different operating conditions, ranging from the management of dusty fluids to applications in the food sector.

The attention to detail in the design phase with a deep focus on the correct dimensional ratio between the connections and the orifices, allowing to minimize the pressure drops and thus guaranteeing the maximum suction flow rate.

The Pneumax offer includes shut-off valves, poppet valves, solenoid valves and pad valves.

Index

Shut-off valves

Valves and solenoid valves poppet system

Solenoid coils

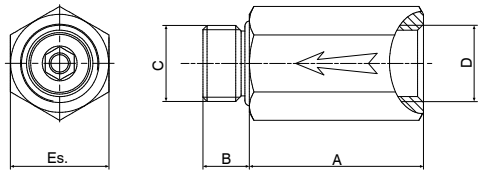
Pad valves

Shut-off valves Series 1900

Non-return valves that can close the suction line in the event of air leakage from the suction cup that is not located on the workpiece or not fully adherent to it.

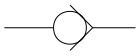
Designed to be applied to the suction cups, the shut-off valves, if there is no object to be lifted, if the suction grip is defective or in the presence of leakage, automatically closes off the suction, preventing the degree of vacuum in the still-gripping suction cups from dropping. These can shut off completely with characteristics described above or control leakage, where the principle of operation is the same as the abovementioned, differing from the sealing shutter in that, even when shut off entirely, it still allows a small air flow to the vacuum source. This feature allows a suction cup that has not gripped the object to be lifted to recreate the vacuum inside of it, and therefore carry out its gripping action without having to repeat the work cycle; if, on the other hand, the suction cup does not grip due to the fact that there is no object to lift, the valve will not stop the degree of vacuum from dropping on the remaining gripping suction cups, but the small percentage of loss is easily controllable and therefore recoverable.

Shut-off valves



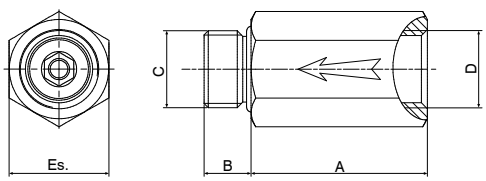
A	B	C	D	Es.
27	7	G1/8"	G1/8"	13
30	8	G1/4"	G1/4"	17
33	9	G3/8"	G3/8"	20

Ordering code	
19EⒹ.A.00.MF	
Ⓓ	Ø THREAD
	18 = G1/8"
	14 = G1/4"
	38 = G3/8"



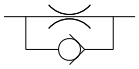
Operational characteristics	
Minimum trigger flow rate (l/min)	25

Shut-off valves with controlled leakege loss



A	B	C	D	Es.
27	7	G1/8"	G1/8"	13
30	8	G1/4"	G1/4"	17
33	9	G3/8"	G3/8"	20

Ordering code	
19EⒹ.A.Ⓕ.MF	
Ⓓ	Ø THREAD
	18 = G1/8"
	14 = G1/4"
	38 = G3/8"
Ⓕ	Ø NOZZLE ORIFICE
	03 = orifice Ø0,3
	05 = orifice Ø0,5
	07 = orifice Ø0,7
	10 = orifice Ø1



Operational characteristics	
Minimum trigger flow rate (l/min)	25

Valves and solenoid valves poppet system Series 700

Valves and solenoid valves poppet system for vacuum applications with high flow rates.

These are manufactured only in 3/2 and 2/2 versions, either normally closed or normally open.
Selection of the right type and connection to the pump requires some knowledge and skill.

For electrical actuation a normal M2 microsolenoid is used in the case of control via air and a special M2/V microsolenoid is used when control is via vacuum.

Construction characteristics

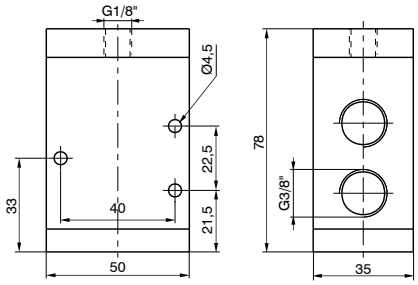
	G3/8"	G1/2"- G3/4"	G1"	G1 1/2"
Body	Aluminium	Zinc alloy	Aluminium	Aluminium
Actuators rod	Stainless steel			
Bottom plates	Aluminium			
Piston seals	NBR			
Springs	Stainless steel			
Poppets	NBR			
Pistons	Aluminium			

Use and maintenance

These valves and solenoid valves have an average service life of approximately 10 - 15 million cycles under optimum conditions of usage. They do not need to be lubricated to operate well, but good filtration is recommended to prevent dirt accumulation inside. Ensure that the conditions of use are consistent with the indicated limits, pressure, temperature, etc. Take care to protect the discharge outlets of the valves in the presence of dirt and powder. When the self feeding version is used in the solenoid valves, check that the supply flow rate is greater than or equal to that of use, otherwise switch to the version with external pilot. The ordering codes refer to solenoid valves with "M2" or "M2/V" mechanicals mounted. The solenoid coils are not included and have to be ordered separately (see summary page for solenoid coils).Certified solenoid coils are also available c UL us

Series 700

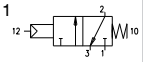
Pneumatic-Spring



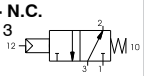
Weight 360 gr.

Ordering code	
779/V.32.11.Ⓕ	
Ⓕ	FUNCTION
	1C=Normally Closed
	1A=Normally Open

For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3

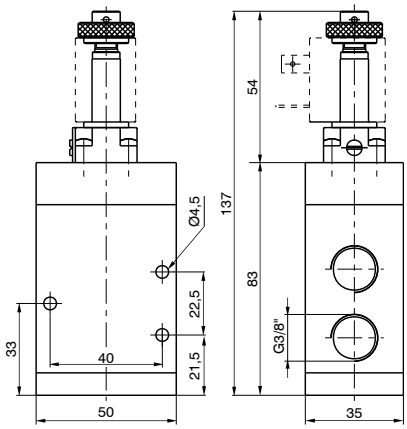


For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2
Temperature °C	-10 ... +70
Orifice size (mm)	10
Working port size	G3/8"
Pilot port size	G1/8"
Response time according to ISO 12238 energised (ms)	1C = 12 - 1A = 13
Response time according to ISO 12238 de-energised (ms)	1C = 46 - 1A = 48

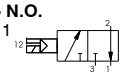
Solenoid-Spring-Self feeding



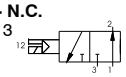
Weight 420 gr.

Ordering code	
779/V.32.0.Ⓕ.M2/V	
Ⓕ	FUNCTION
	1AA=Normally Open
	1AC=Normally Closed

For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3

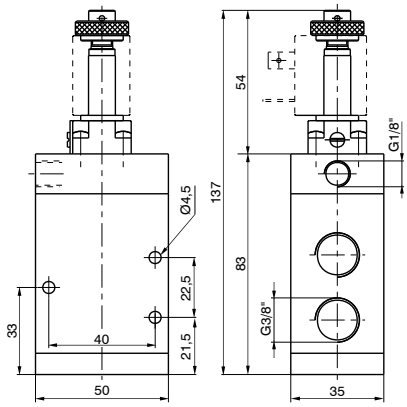


For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



Operational characteristics	
Fluid	Vacuum
Temperature °C	-10 ... +50
Orifice size (mm)	10
Working port size	G3/8"
Pilot port size	G1/8"
Response time according to ISO 12238 energised (ms)	1AC = 26 - 1AA = 16
Response time according to ISO 12238 de-energised (ms)	1AC = 9 - 1AA = 11

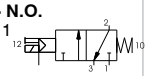
Solenoid-Spring-External feeding



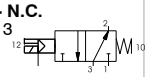
Weight 420 gr.

Ordering code	
779/V.32.0.Ⓕ.M2	
Ⓕ	FUNCTION
	1A=Normally Open
	1C=Normally Closed

For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3

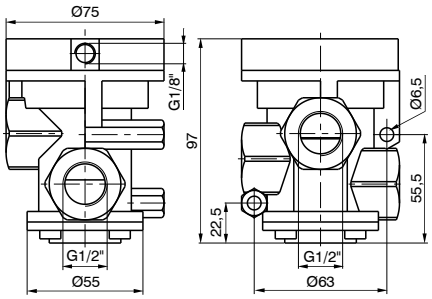


For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



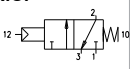
Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2
Temperature °C	-10 ... +50
Orifice size (mm)	10
Working port size	G3/8"
Pilot port size	G1/8"
Response time according to ISO 12238 energised (ms)	1C = 10 - 1A = 11
Response time according to ISO 12238 de-energised (ms)	1C = 35 - 1A = 36

Pneumatic-Spring

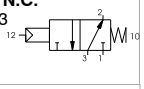


Ordering code
772/V.32.11.Ⓕ
Ⓕ FUNCTION
1C=Normally Closed
1A=Normally Open

For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



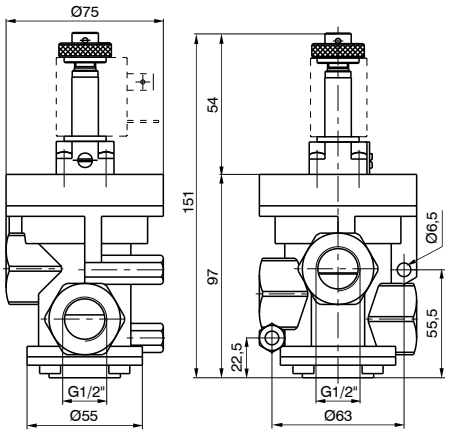
For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



Weight 1100 gr.

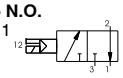
Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2
Temperature °C	-10 ... +70
Orifice size (mm)	15
Working port size	G1/2"
Pilot port size	G1/8"
Response time according to ISO 12238 energised (ms)	1C = 30 - 1A = 17
Response time according to ISO 12238 de-energised (ms)	1C = 105 - 1A = 150

Solenoid-Spring-Self feeding

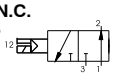


Ordering code
772/V.32.0.Ⓕ.M2/V
Ⓕ FUNCTION
1AA=Normally Open
1AC=Normally Closed

For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



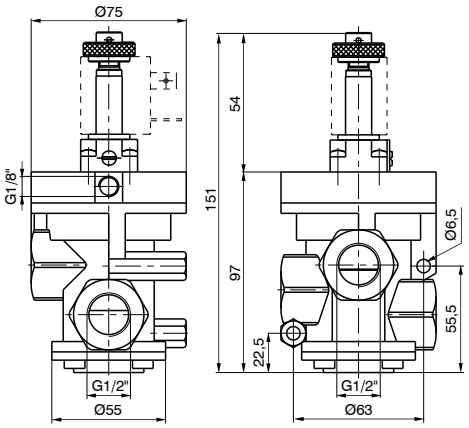
For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



Weight 1160 gr.

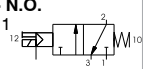
Operational characteristics	
Fluid	Vacuum
Temperature °C	-5 ... +50
Orifice size (mm)	15
Working port size	G1/2"
Pilot port size	G1/8"
Response time according to ISO 12238 energised (ms)	1AC = 80 - 1AA = 25
Response time according to ISO 12238 de-energised (ms)	1AC = 20 - 1AA = 20

Solenoid-Spring-External feeding

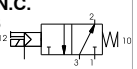


Ordering code
772/V.32.0.Ⓕ.M2
Ⓕ FUNCTION
1A=Normally Open
1C=Normally Closed

For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



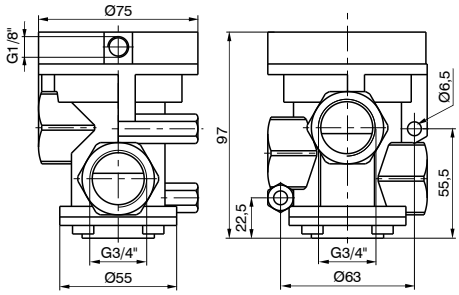
For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



Weight 1160 gr.

Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2
Temperature °C	-5 ... +50
Orifice size (mm)	15
Working port size	G 1/2"
Pilot port size	G 1/8"
Response time according to ISO 12238 energised (ms)	1C = 25 - 1A = 15
Response time according to ISO 12238 de-energised (ms)	1C = 95 - 1A = 140

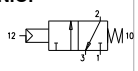
Pneumatic-Spring



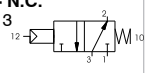
Weight 990 gr.

Ordering code	
773/V.32.11.Ⓕ	
Ⓕ	FUNCTION
	1C=Normally Closed
	1A=Normally Open

For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3

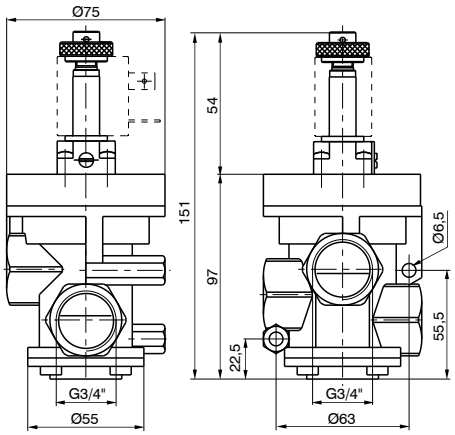


For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2
Temperature °C	-5 ... +70
Orifice size (mm)	20
Working port size	G3/4"
Pilot port size	G1/8"
Response time according to ISO 12238 energised (ms)	1C = 30 - 1A = 17
Response time according to ISO 12238 de-energised (ms)	1C = 105 - 1A = 145

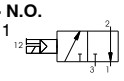
Solenoid-Spring-Self feeding



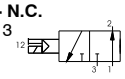
Weight 1050 gr.

Ordering code	
773/V.32.0.Ⓕ.M2/V	
Ⓕ	FUNCTION
	1AA=Normally Open
	1AC=Normally Closed

For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3

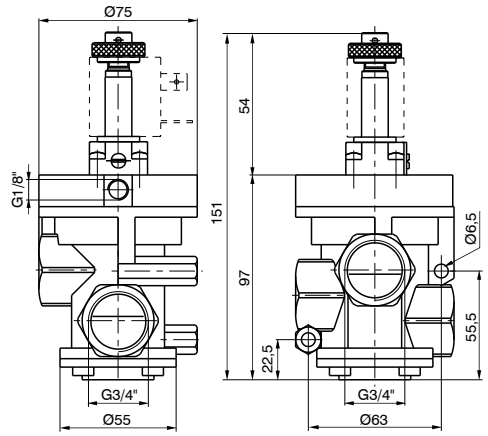


For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



Operational characteristics	
Fluid	Vacuum
Temperature °C	-5 ... +50
Orifice size (mm)	20
Working port size	G3/4"
Pilot port size	G1/8"
Response time according to ISO 12238 energised (ms)	1AC = 75 - 1AA = 33
Response time according to ISO 12238 de-energised (ms)	1AC = 13 - 1AA = 22

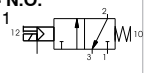
Solenoid-Spring-External feeding



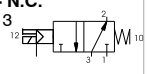
Weight 1050 gr.

Ordering code	
773/V.32.0.Ⓕ.M2	
Ⓕ	FUNCTION
	1A=Normally Open
	1C=Normally Closed

For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3

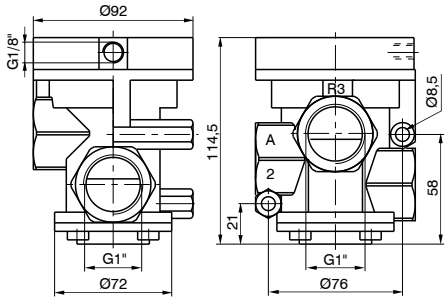


For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



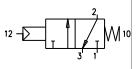
Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2
Temperature °C	-5 ... +50
Orifice size (mm)	20
Working port size	G3/4"
Pilot port size	G1/8"
Response time according to ISO 12238 energised (ms)	1C = 25 - 1A = 13
Response time according to ISO 12238 de-energised (ms)	1C = 95 - 1A = 140

Pneumatic-Spring

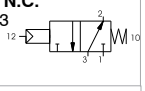


Ordering code
771/V.32.11.Ⓕ
Ⓕ FUNCTION
1C=Normally Closed
1A=Normally Open

For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



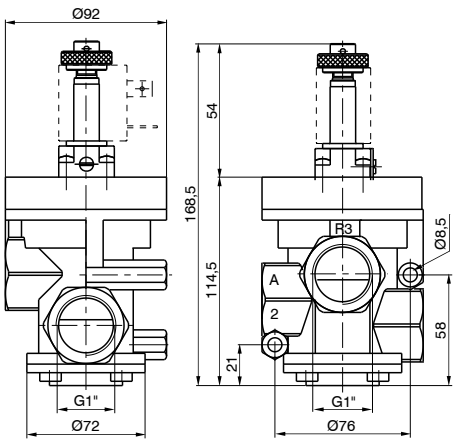
For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



Weight 1060 gr.

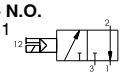
Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2
Temperature °C	-5 ... +70
Orifice size (mm)	25
Working port size	G1"
Pilot port size	G1/8"
Response time according to ISO 12238 energised (ms)	1C = 45 - 1A = 18
Response time according to ISO 12238 de-energised (ms)	1C = 250 - 1A = 260

Solenoid-Spring-Self feeding

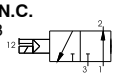


Ordering code
771/V.32.0.Ⓕ.M2/V
Ⓕ FUNCTION
1AA=Normally Open
1AC=Normally Closed

For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



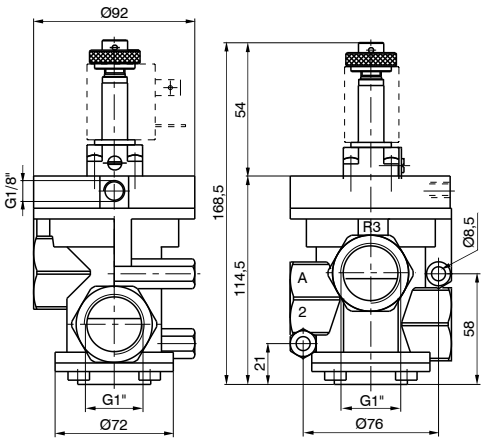
For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



Weight 1120 gr.

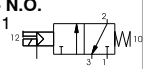
Operational characteristics	
Fluid	Vacuum
Temperature °C	-5 ... +50
Orifice size (mm)	25
Working port size	G1"
Pilot port size	G1/8"
Response time according to ISO 12238 energised (ms)	1AC = 120 - 1AA = 35
Response time according to ISO 12238 de-energised (ms)	1AC = 20 - 1AA = 40

Solenoid-Spring-External feeding

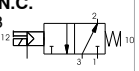


Ordering code
771/V.32.0.Ⓕ.M2
Ⓕ FUNCTION
1A=Normally Open
1C=Normally Closed

For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



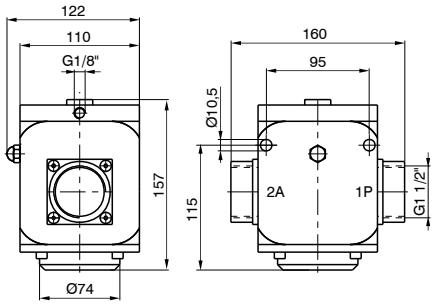
For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



Weight 1120 gr.

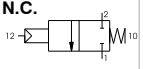
Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2
Temperature °C	-5 ... +50
Orifice size (mm)	25
Working port size	G1"
Pilot port size	G1/8"
Response time according to ISO 12238 energised (ms)	1C = 45 - 1A = 17
Response time according to ISO 12238 de-energised (ms)	1C = 250 - 1A = 325

Pneumatic-Spring



Ordering code
776/V.22.11.1C

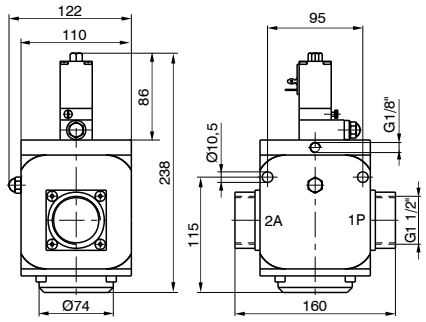
For vacuum - N.C.
Outlet: Port 2
Pump: Port 1



Weight 3950 gr.
Normally Closed

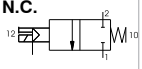
Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2
Temperature °C	-5 ... +70
Orifice size (mm)	38
Working port size	G1 1/2"
Pilot port size	G1/8"

Solenoid-Spring



Ordering code
776/V.22.0.1C.Ⓢ
Ⓢ SOLENOID CODE
See S.V. pag.109

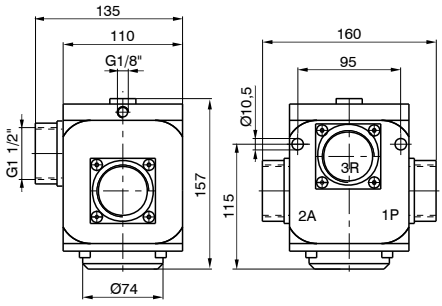
For vacuum - N.C.
Outlet: Port 2
Pump: Port 1



Weight 4450 gr.
External feeding Normally closed

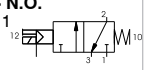
Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2
Temperature °C	-5 ... +50
Orifice size (mm)	38
Working port size	G1 1/2"
Pilot port size	G1/8"

Pneumatic-Spring

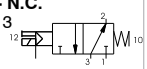


Ordering code
776/V.32.11.Ⓕ
Ⓕ FUNCTION
1A=Normally Open
1C=Normally Closed

For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



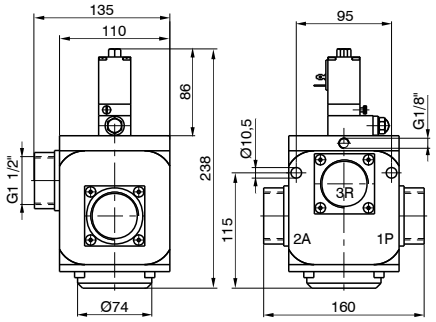
For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



Weight 3900 gr.

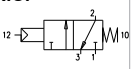
Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2
Temperature °C	-5 ... +70
Orifice size (mm)	38
Working port size	G1 1/2"
Pilot port size	G1/8"

Solenoid-Spring

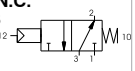


Ordering code	
776/V.32.0.Ⓕ.Ⓢ	
Ⓕ	FUNCTION
	1C= External feeding Normally closed
	1A= External feeding Normally open
Ⓢ	SOLENOID CODE
	See S.V. pag.109

For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



Weight 4500 gr.

Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2
Temperature °C	-5 ... +50
Orifice size (mm)	38
Working port size	G1 1/2”
Pilot port size	G 1/8”

Valves and solenoid valves poppet system Series T700

Valves and solenoid valves poppet system G1/2 ”and G3/4” made of high resistance thermoplastic material.

The use of thermoplastic materials has made possible to obtain significantly reduced weights respect to the zamak version and, most importantly, a cost optimization.
The use of a rolling diaphragm in place of the traditional piston, allowed to eliminate friction and wear on the seal.
Except for the versions with an external vacuum supply and normally open self feeding vacuum. There is an additional seal provided on the piston which isolates the diaphragm connection 3 this makes it possible to improve the functionality of the valve.

For versions with microsolenoid internal or external supply, there is a fast discharge system incorporated in the operator, which reduces the response time for repositioning the valve by 60%.
The MP version of the solenoid actuator requires an external air or vacuum supply. The MV version uses a self feeding vacuum.

Construction characteristics

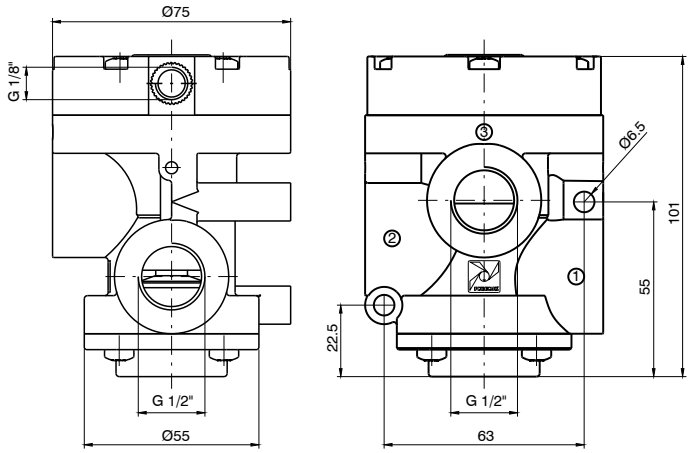
Body, operator and end cover	High resistance technopolymer
Seals and poppets	Oil resistant rubber (NBR)
Piston and shaft	Acetal resin
Springs	AISI 302 stainless steel
Diaphragm	Oil resistant rubber (NBR)

Use and maintenance

These valves and solenoid valves have an average service life of approximately 10 - 15 million cycles under optimum conditions of usage. They do not need to be lubricated to operate well, but good filtration is recommended to prevent dirt accumulation inside. Ensure that the conditions of use are consistent with the indicated limits, pressure, temperature, etc. Take care to protect the discharge outlets of the valves in the presence of dirt and powder. When the self feeding version is used in the solenoid valves, check that the supply flow rate is greater than or equal to that of use, otherwise switch to the version with external pilot. The ordering codes refer to solenoid valves with “MP” or “MV” mechanicals mounted. The solenoid coils are not included and have to be ordered separately (see General Catalogue, Series 300, Section 1) with the exception of the bistable versions which already have solenoid coils 24V DC (N331.0A). Certified solenoid coils are also available c UL us (see Series 300).

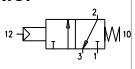
Series T700

Pneumatic-Spring

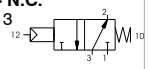


Ordering code
T772/V.32.11.1

For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



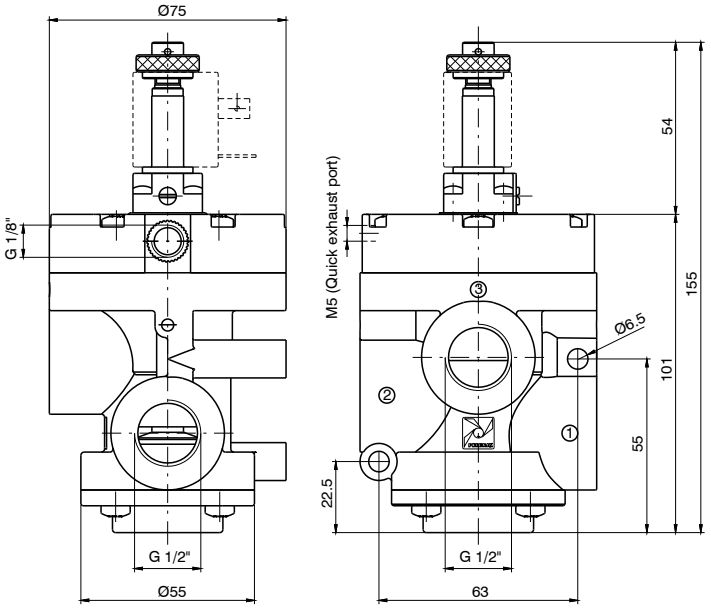
For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



Weight 350 gr.

Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2,5
Temperature °C	-5 ... +50
Orifice size (mm)	15
Working port size	G1/2"
Pilot port size	G1/8"
Response time according to ISO 12238 energised (ms)	N.C. = 50 - N.O. = 27
Response time according to ISO 12238 de-energised (ms)	N.C. = 150 - N.O. = 195

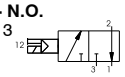
Solenoid-Spring-Self feeding



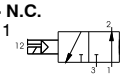
Ordering code
779/V.32.0.Ⓕ.M2/V

Ⓕ	FUNCTION
	1AA=Normally Open
	1AC=Normally Closed

For vacuum - N.O.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



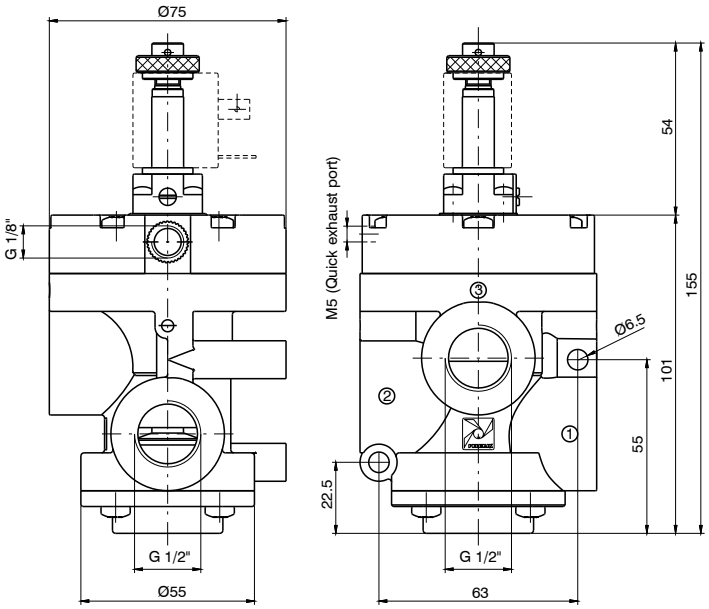
For vacuum - N.C.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



Weight 390 gr.

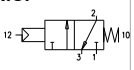
Operational characteristics	
Fluid	Vacuum
Temperature °C	-5 ... +50
Orifice size (mm)	15
Working port size	G1/2"
Pilot port size	G1/8"
Response time according to ISO 12238 energised (ms)	1AC = 55 - 1AA = 33
Response time according to ISO 12238 de-energised (ms)	1AC = 30 - 1AA = 38

Solenoid-Spring-External feeding

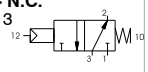


Ordering code
T772/V.32.0.1.MP

For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



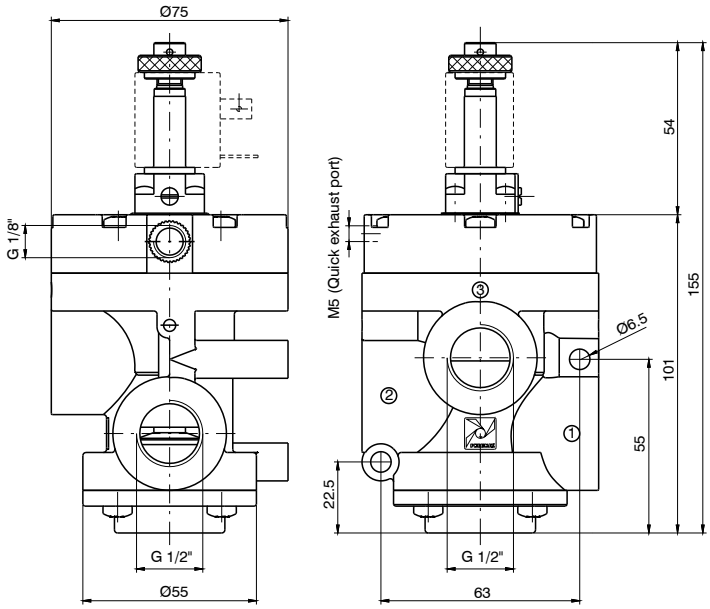
For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



Weight 390 gr.

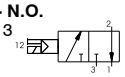
Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2,5
Temperature °C	-5 ... +50
Orifice size (mm)	15
Working port size	G1/2"
Pilot port size	G1/8"
Response time according to ISO 12238 energised (ms)	N.C. = 42 - N.O. = 22
Response time according to ISO 12238 de-energised (ms)	N.C. = 135 - N.O. = 175

Solenoid-Spring-Self feeding

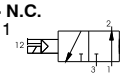


Ordering code
T772/VS.32.0.1.MP

For vacuum - N.O.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



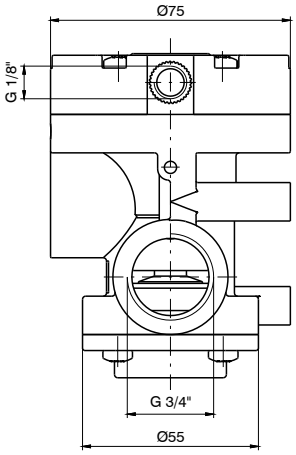
For vacuum - N.C.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3

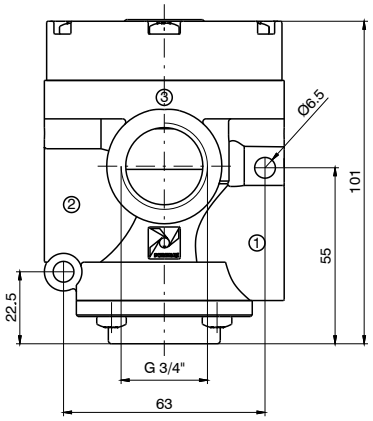


Weight 390 gr.

Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2,5
Temperature °C	-5 ... +50
Orifice size (mm)	15
Working port size	G 1/2"
Pilot port size	G 1/8"
Response time according to ISO 12238 energised (ms)	N.C. = 43 - N.O. = 25
Response time according to ISO 12238 de-energised (ms)	N.C. = 37 - N.O. = 42

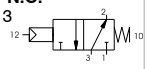
Pneumatic-Spring



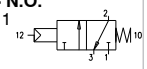


Ordering code
T773/V.32.11.1

For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



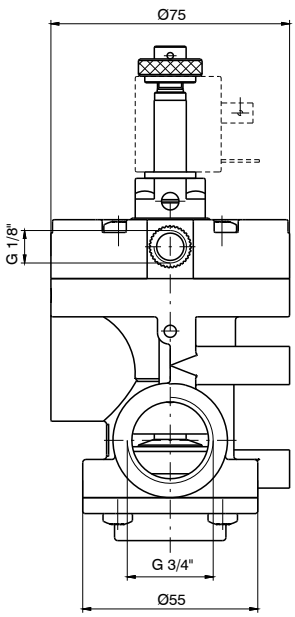
For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3

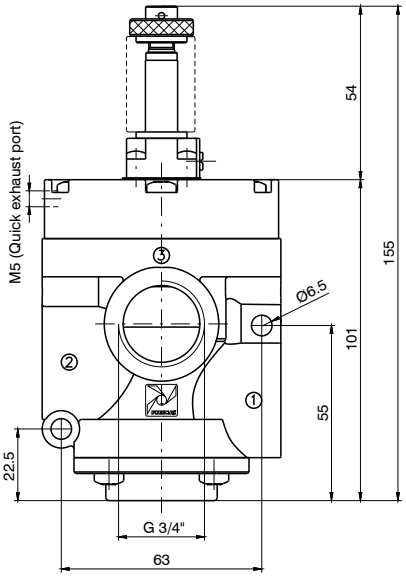


Weight 330 gr.

Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2,5
Temperature °C	-5 ... +50
Orifice size (mm)	20
Working port size	G3/4"
Pilot port size	G1/8"
Response time according to ISO 12238 energised (ms)	N.C. = 28 - N.O. = 50
Response time according to ISO 12238 de-energised (ms)	N.C. = 190 - N.O. = 150

Solenoid-Spring-Self feeding

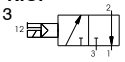




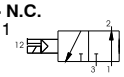
Ordering code
T773/V.32.0.Ⓕ.MV

Ⓕ	FUNCTION
	1AA=Normally Open
	1AC=Normally Closed

For vacuum - N.O.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



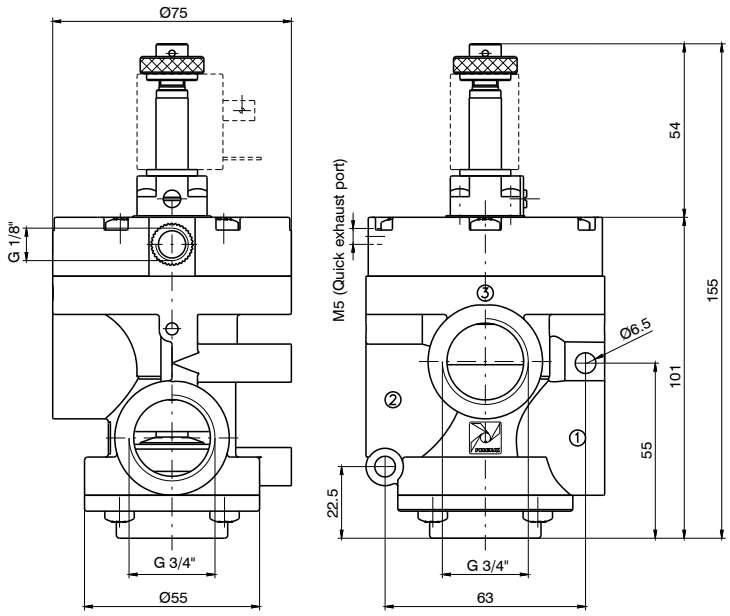
For vacuum - N.C.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



Weight 370 gr.

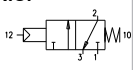
Operational characteristics	
Fluid	Vacuum
Temperature °C	-5 ... +50
Orifice size (mm)	20
Working port size	G3/4"
Pilot port size	G1/8"
Response time according to ISO 12238 energised (ms)	1AC = 35 - 1AA = 32
Response time according to ISO 12238 de-energised (ms)	1AC = 30 - 1AA = 80

Solenoid-Spring-External feeding

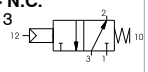


Ordering code
T773/V.32.0.1.MP

For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



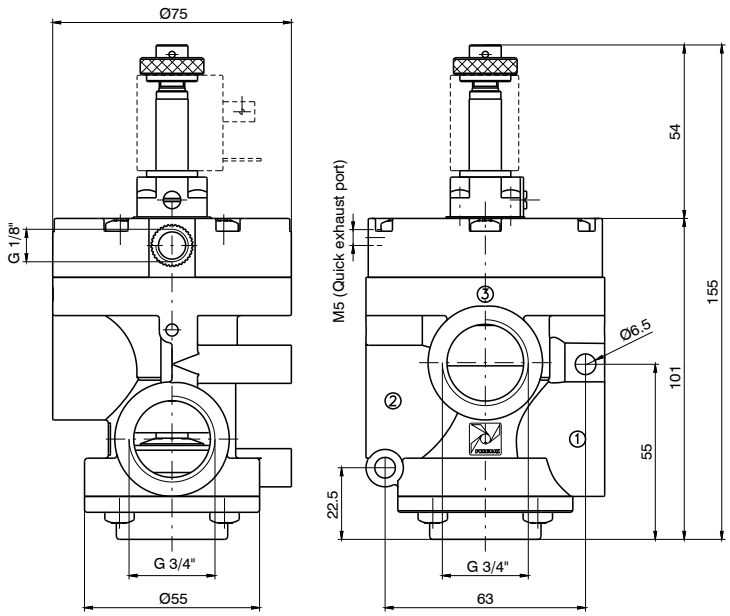
For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



Weight 350 gr.

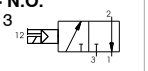
Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2,5
Temperature °C	-5 ... +50
Orifice size (mm)	20
Working port size	G3/4"
Pilot port size	G1/8"
Response time according to ISO 12238 energised (ms)	N.C. = 25 - N.O. = 40
Response time according to ISO 12238 de-energised (ms)	N.C. = 175 - N.O. = 145

Solenoid-Spring-External feeding with quick exhaust

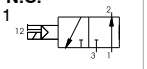


Ordering code
T773/VS.32.0.1.MP

For vacuum - N.O.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



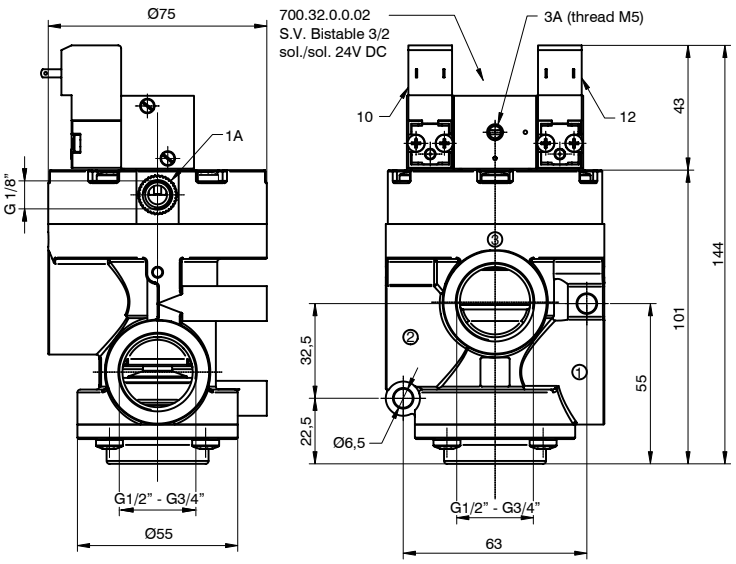
For vacuum - N.C.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



Weight 390 gr.

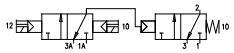
Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2,5
Temperature °C	-5 ... +50
Orifice size (mm)	20
Working port size	G3/4"
Pilot port size	G1/8"
Response time according to ISO 12238 energised (ms)	N.C. = 25 - N.O. = 42
Response time according to ISO 12238 de-energised (ms)	N.C. = 40 - N.O. = 38

Bistable version for vacuum G1/2”

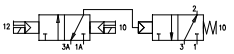


Ordering code
T772/V.32.0.1.BP

For vacuum - N.O.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



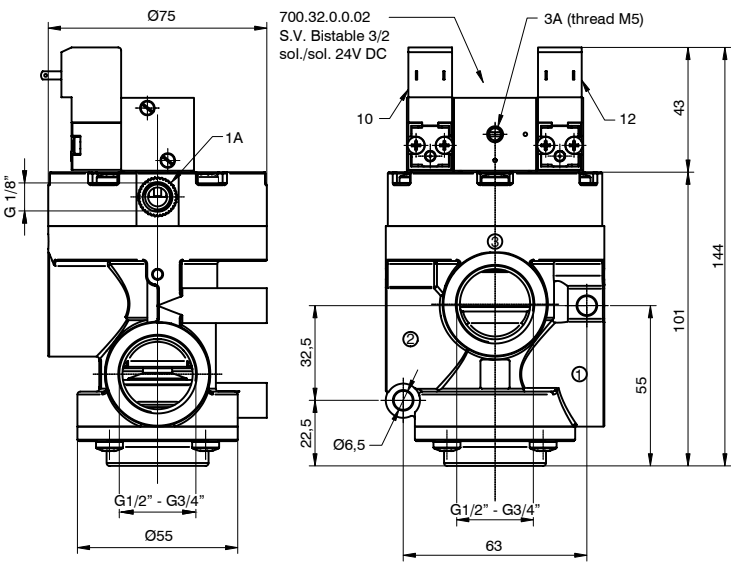
For vacuum - N.C.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



Weight 550 gr.

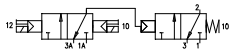
Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2,5
Temperature °C	-5 ... +50
Orifice size (mm)	15
Working port size	G 1/2”
Pilot port size	G 1/8”

Bistable version for vacuum G3/4”

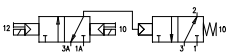


Ordering code
T773/V.32.0.1.BP

For vacuum - N.O.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



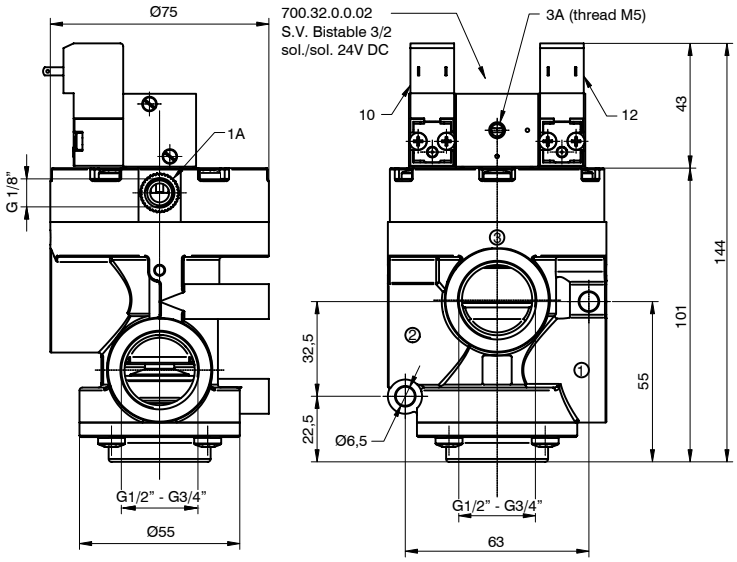
For vacuum - N.C.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



Weight 550 gr.

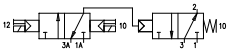
Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2,5
Temperature °C	-5 ... +50
Orifice size (mm)	15
Working port size	G 3/4”
Pilot port size	G 1/8”

Bistable version for vacuum G1/2" with quick exhaust

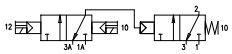


Ordering code
T772/VS.32.0.1.BP

For vacuum - N.C.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



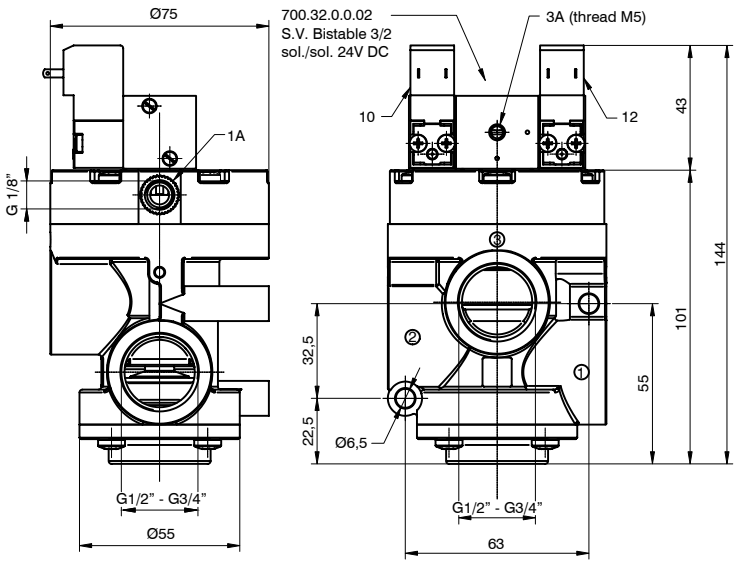
For vacuum - N.O.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



Weight 550 gr.

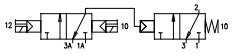
Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2,5
Temperature °C	-5 ... +50
Orifice size (mm)	15
Working port size	G 1/2"
Pilot port size	G 1/8"

Bistable version for vacuum G3/4" with quick exhaust

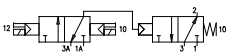


Ordering code
T773/VS.32.0.1.BP

For vacuum - N.O.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



For vacuum - N.C.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



Weight 550 gr.

Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2,5
Temperature °C	-5 ... +50
Orifice size (mm)	15
Working port size	G3/4"
Pilot port size	G1/8"

Valves and solenoid valves poppet system Series T771

The series of valves and solenoid valves poppet system G1” complete the range of technopolymer valves T700 series.

Even for this version, the main feature is the high-resistance thermoplastic material from which the components are moulded.This made it possible to obtain an aesthetically pleasing product with a considerably reduced weight compared to the standard version, and, most importantly, a cost optimization.
As for the versions of 1/2” and 3/4” there were also technical and functional changes made, starting with the use of a rolling diaphragm in place of the traditional piston, thus eliminating friction and wear on the seal.
With the exception of the normally open (N.O.) self feeding vacuum version. In this case an additional seal is provided on the piston which isolates the diaphragm connection 3, which improves the functionality of the valve.

For the versions with microsolenoids that are internally or externally supplied, a quick discharge system is available, incorporated in the operator, which reduces the valve’s repositioning response times by a further 80%. The MP version of the solenoid actuator requires an external vacuum supply. The MV version uses a self feeding vacuum. Double versions are also available, equipped with a solenoid valve 3/2 Solenoid-Solenoid complete with 15mm 24V DC microactuators (code N331.0A).

Construction characteristics

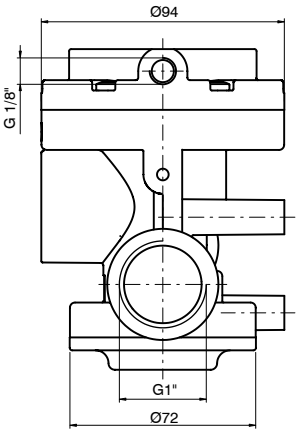
Body, operator and end cover	High resistance technopolymer
Seals and poppets	Oil resistant rubber (NBR)
Piston and shaft	Acetal resin
Springs	AISI 303 stainless steel
Diaphragm	Oil resistant rubber (NBR)

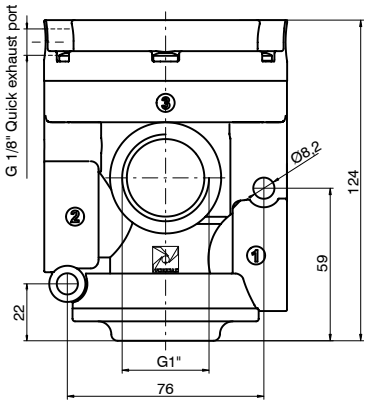
Use and maintenance

These valves and solenoid valves have an average service life of approximately 10 - 15 million cycles under optimum conditions of usage. They do not need to be lubricated to operate well, but good filtration is recommended to prevent dirt accumulation inside. Ensure that the conditions of use are consistent with the indicated limits, pressure, temperature, etc. Take care to protect the discharge outlets of the valves in the presence of dirt and powder. When the self feeding version is used in the solenoid valves, check that the supply flow rate is greater than or equal to that of use, otherwise switch to the version with external pilot. The ordering codes refer to solenoid valves with “MP” or “MV” mechanicals mounted. The solenoid coils are not included and have to be ordered separately (see General Catalogue, Series 300, Section 1) with the exception of the bistable versions which already have solenoid coils 24V DC (N331.0A). Certified solenoid coils are also available c UL us (see Series 300).

Series T771

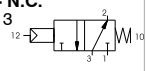
Pneumatic-Spring



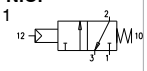


Ordering code
T771/V.32.11.1

For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



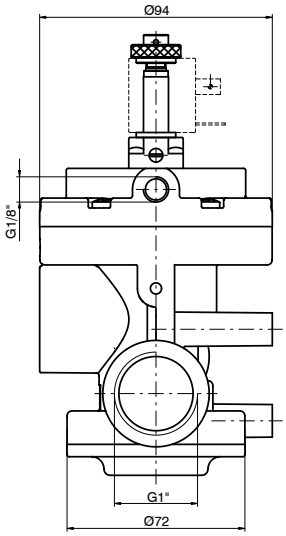
For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3

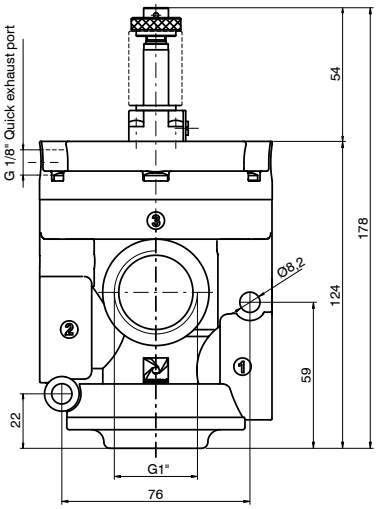


Weight 480 gr.

Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2
Temperature °C	-5 ... +50
Orifice size (mm)	25
Working port size	G 1"
Pilot port size	G 1/8"
Response time according to ISO 12238 energised (ms)	N.C. = 55 - N.O. = 19
Response time according to ISO 12238 de-energised (ms)	N.C. = 320 - N.O. = 450

Solenoid-Spring-Self feeding

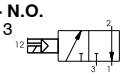




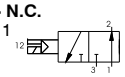
Ordering code
T771/V.32.0.Ⓕ.MV

	FUNCTION
Ⓕ	1AC=Normally Closed
	1AA=Normally Open

For vacuum - N.O.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



For vacuum - N.C.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



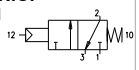
Weight 520 gr.

Operational characteristics	
Fluid	Vacuum
Temperature °C	-5 ... +50
Orifice size (mm)	25
Working port size	G 1"
Pilot port size	G 1/8"
Response time according to ISO 12238 energised (ms)	1AC = 100 - 1AA = 80
Response time according to ISO 12238 de-energised (ms)	1AC = 60 - 1AA = 60

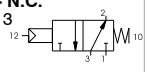
Solenoid-Spring-External feeding

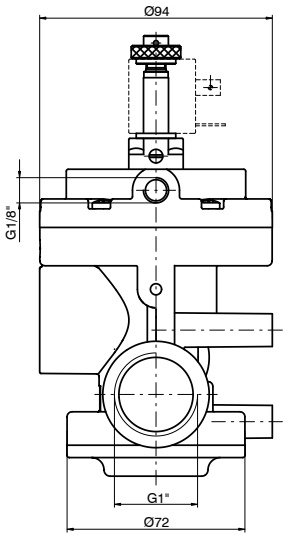
Ordering code
T771/V.32.0.1.MP

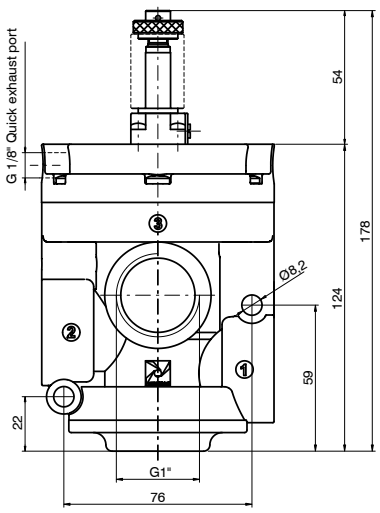
For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1







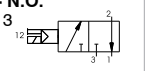
Weight 520 gr.

Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2
Temperature °C	-5 ... +50
Orifice size (mm)	25
Working port size	G 1"
Pilot port size	G 1/8"
Response time according to ISO 12238 energised (ms)	N.C. = 50 - N.O. = 19
Response time according to ISO 12238 de-energised (ms)	N.C. = 315 - N.O. = 450

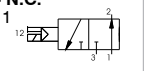
Solenoid-Spring-External feeding with quick exhaust

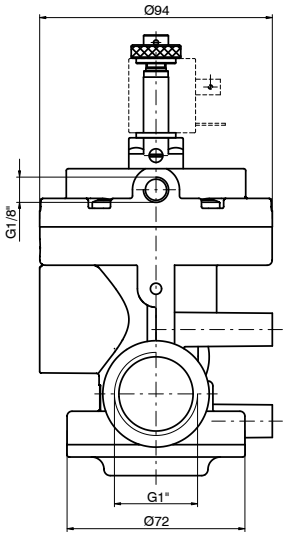
Ordering code
T771/VS.32.0.1.MP

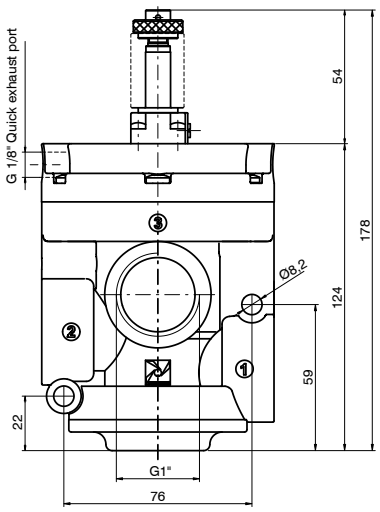
For vacuum - N.O.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



For vacuum - N.C.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



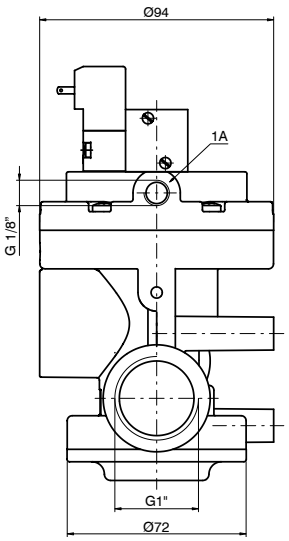


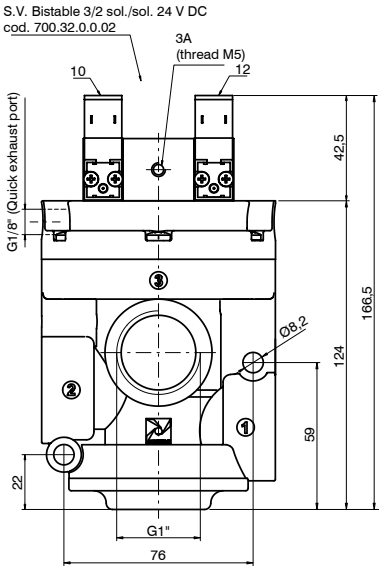


Weight 520 gr.

Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2
Temperature °C	-5 ... +50
Orifice size (mm)	25
Working port size	G 1"
Pilot port size	G 1/8"
Response time according to ISO 12238 energised (ms)	N.C. = 50 - N.O. = 19
Response time according to ISO 12238 de-energised (ms)	N.C. = 50 - N.O. = 70

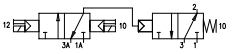
Bistable version for vacuum G1”



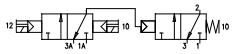


Ordering code
T771/V.32.0.1.BP

For vacuum - N.C.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



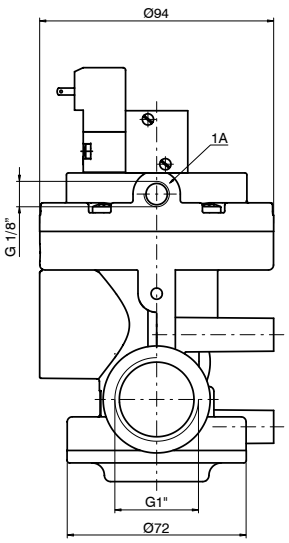
For vacuum - N.O.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1

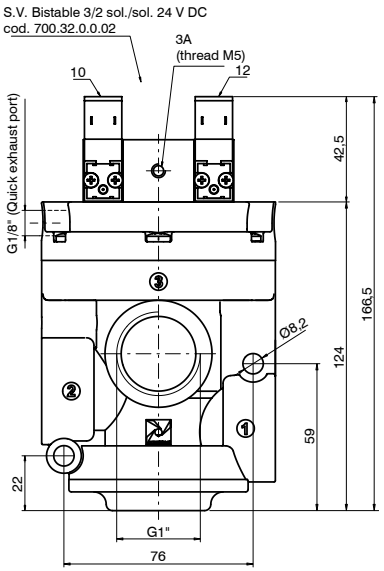


Weight 680 gr.

Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2,5
Temperature °C	-5 ... +50
Orifice size (mm)	25
Working port size	G1”
Pilot port size	G1/8”

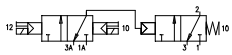
Bistable version for vacuum G1” with exhaust



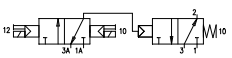


Ordering code
T771/VS.32.0.1.BP

For vacuum - N.O.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



For vacuum - N.C.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



Weight 680 gr.

Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2,5
Temperature °C	-5 ... +50
Orifice size (mm)	25
Working port size	G1”
Pilot port size	G1/8”

Valves and solenoid valves poppet system Series N776

Aluminium body, available with G1 1/2" connections, 3/2 and 2/2 N.C. and N.O. versions.

N776 valves mount rolling diaphragm in place of the traditional pistons, thus eliminating friction and wear on the seals.

There is an additional seal on the piston that insulates connection 3, making it possible to have normally open versions and self feeding versions with vacuum.

Construction characteristics

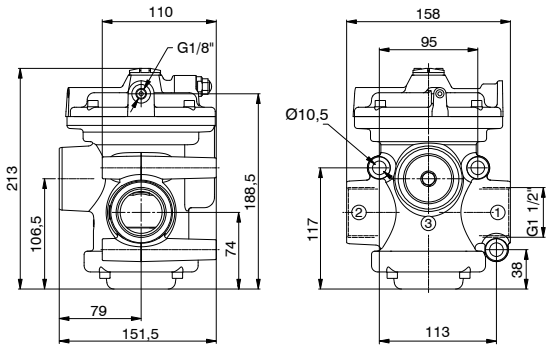
Body, operator and end cover	Die casting aluminium
Seals and poppets	Oil resistant rubber (NBR)
Piston	Acetal resin
Pin guide	Stainless steel
Springs	Stainless steel
Diaphragm	Oil resistant rubber (NBR)

Use and maintenance

These valves and solenoid valves have an average service life of approximately 10 - 15 million cycles under optimum conditions of usage. They do not need to be lubricated to operate well, but good filtration is recommended to prevent dirt accumulation inside. Ensure that the conditions of use are consistent with the indicated limits, pressure, temperature, etc. Take care to protect the discharge outlets of the valves in the presence of dirt and powder. When the self feeding version is used in the solenoid valves, check that the supply flow rate is greater than or equal to that of use, otherwise switch to the version with external pilot. The actuation mechanicals are the M3R (Mechanics CNOMO) with two position manual control. The solenoid coils are not included and have to be ordered separately (see series 300 solenoid coils MB 22mm and solenoid coils CNOMO MC 30mm). Certified solenoid coils are also available c UL us (see Series 300).

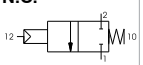
Series N776

Pneumatic-Spring



Ordering code
N776/V.22.11.1C

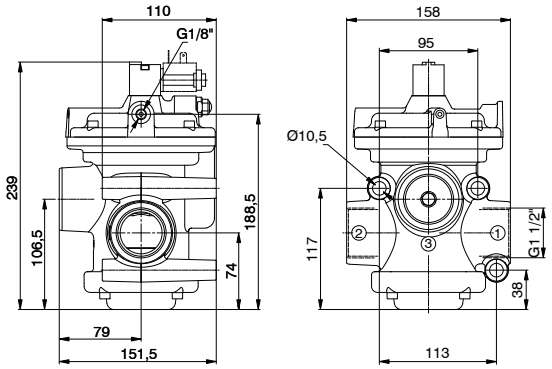
For vacuum - N.C.
Outlet: Port 2
Pump: Port 1



Weight 3178 gr.
Normally Closed

Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2
Temperature °C	-5 ... +70
Orifice size (mm)	38
Working port size	G1 1/2"
Pilot port size	G1/8"

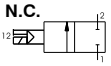
Solenoid-Spring



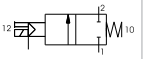
Ordering code
N776/V.22.0.F.M3R

F	FUNCTION
	1AC=Self feeding Normally Closed
	1C=External feeding Normally Closed

Self feeding
For vacuum - N.C.
Outlet: Port 2
Pump: Port 1



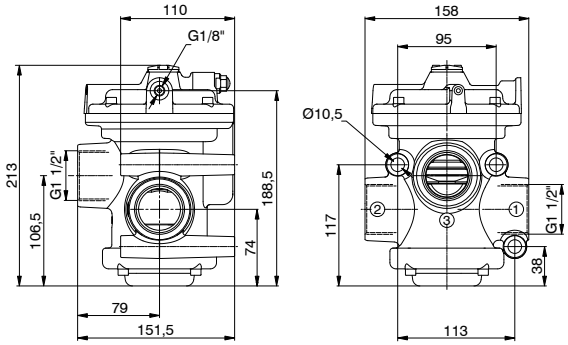
External feeding
For vacuum - N.C.
Outlet: Port 2
Pump: Port 1



Weight 3238 gr.

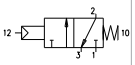
Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2
Temperature °C	-5 ... +70
Orifice size (mm)	38
Working port size	G1 1/2"
Pilot port size	G1/8"

Pneumatic-Spring

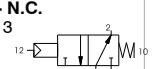


Ordering code
N776/V.32.11.1

For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



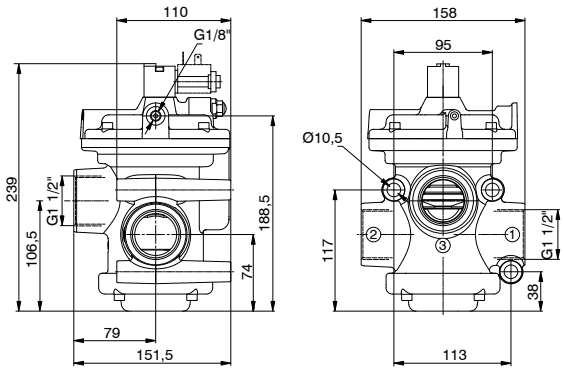
For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



Weight 3168 gr.
Normally Closed / Normally Open

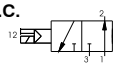
Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2
Temperature °C	-5 ... +70
Orifice size (mm)	38
Working port size	G1 1/2"
Pilot port size	G 1/8"

Solenoid-Spring

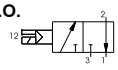


Ordering code	
N776/V.32.0.Ⓕ.M3R	
	FUNCTION
Ⓕ	1AC=Self feeding Normally Closed
	1AA=Self feeding Normally Open
	1=External feeding Normally Closed Normally Open

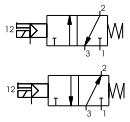
Self feeding
For vacuum - N.C.
Exhaust: Port 3
Outlet: Port 2
Pump: Port 1



Self feeding
For vacuum - N.O.
Exhaust: Port 1
Outlet: Port 2
Pump: Port 3



External feeding
For vacuum - N.C. - N.O.
Exhaust: Port 3 (N.C.) or 1 (N.O.)
Outlet: Port 2 (N.C. and N.O.)
Pump: Port 1 (N.C.) or 3 (N.O.)

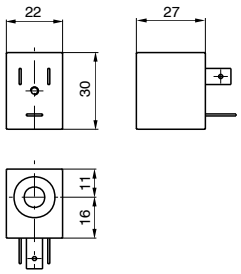


Weight 3228 gr.

Operational characteristics	
Fluid	Vacuum
Minimum piloting pressure (bar)	2 (external feeding version)
Temperature °C	-5 ... +50
Orifice size (mm)	38
Working port size	G1 1/2"
Pilot port size	G 1/8"

Solenoid coils

Solenoid coils (for Series 771, 772, 773, 779, T772, T773, T771 and N776)



Weight 52 gr.

Standard Version

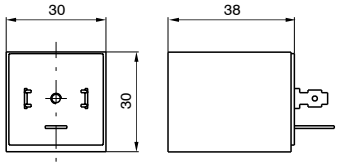
Ordering code	Available voltages
MB 4	12 D.C. Direct current
MB 5	24 D.C. Direct current
MB 6	48 D.C. Direct current
MB 9 *	24 D.C. (2 Watt) (Direct current, low consumption)
MB 17	24/50 Alternating current 50 Hz
MB 21	48/50 Alternating current 50 Hz
MB 22	110/50 Alternating current 50 Hz
MB 24	230/50 Alternating current 50 Hz
MB 37	24/60 Alternating current 60 Hz
MB 39	110/60 Alternating current 60 Hz
MB 41	230/60 Alternating current 60 Hz
MB 56	24/50-60 Alternating current 50/60 Hz
MB 57	110/50-60 Alternating current 50/60 Hz
MB 58	230/50-60 Alternating current 50/60 Hz
MB 66 **	24/50-60 Alternating current 50/60 Hz
MB 67 **	110/50-60 Alternating current 50/60 Hz
MB 68 **	230/50-60 Alternating current 50/60 Hz

* Use only with M2/9
** low consumption

Version c UL us

Ordering code	Available voltages
UMB 4	12 D.C. Direct current
UMB 5	24 D.C. Direct current
UMB 56	24/50-60 Alternating current 50/60 Hz
UMB 57	110 ... 120/50-60 Alternating current 50/60 Hz
UMB 58	230/50-60 Alternating current 50/60 Hz

Solenoid coils (for Series N776)



Weight 110 gr.

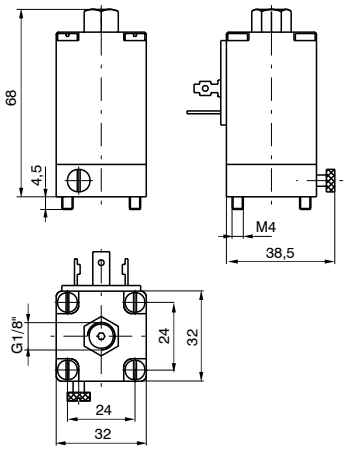
Standard Version

Ordering code	Available voltages
MC 5	24 D.C. Direct current
MC 9	24 D.C. (2 Watt) Direct current
MC 56	24/50-60 Alternating current 50/60 Hz
MC 57	110/50-60 Alternating current 50/60 Hz
MC 58	230/50-60 Alternating current 50/60 Hz

Version c UL us

Ordering code	Available voltages
UMC 5	24 D.C. Direct current
UMC 56	24/50-60 Alternating current 50/60 Hz
UMC 57	110 ... 120/50-60 Alternating current 50/60 Hz
UMC 58	230/50-60 Alternating current 50/60 Hz

Solenoid valve (for Series 776)



Weight 220 gr.

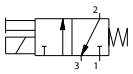
Versione Standard

Ordering code	Available voltages
S 2	6 D.C. Direct current
S 4	12 D.C. Direct current
S 5	24 D.C. Direct current
S 6	48 D.C. Direct current
S 16	12/50 Alternating current 50 Hz
S 17	24/50 Alternating current 50 Hz
S 19	32/50 Alternating current 50 Hz
S 20	42/50 Alternating current 50 Hz
S 21	48/50 Alternating current 50 Hz
S 22	110/50 Alternating current 50 Hz
S 23	115/50 Alternating current 50 Hz
S 24	230/50 Alternating current 50 Hz
S 36	12/60 Alternating current 60 Hz
S 37	24/60 Alternating current 60 Hz
S 38	48/60 Alternating current 60 Hz
S 39	110/60 Alternating current 60 Hz
S 40	115/60 Alternating current 60 Hz
S 41	230/60 Alternating current 60 Hz
S 56	24/50-60 Alternating current 50/60 Hz
S 57	110/50-60 Alternating current 50/60 Hz
S 58	230/50-60 Alternating current 50/60 Hz

Versione c UL us

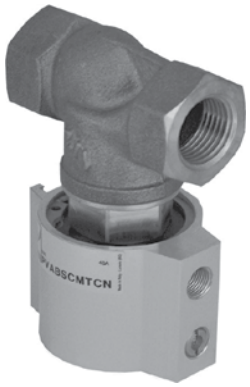
Ordering code	Available voltages
US 4	12 D.C. Direct current
US 5	24 D.C. Direct current
US 56	24/50-60 Alternating current 50/60 Hz
US 57	110 ... 120/50-60 Alternating current 50/60 Hz
US 58	230/50-60 Alternating current 50/60 Hz

Normally Closed (N.C.)



Pad valves Series PVA

Pad valves are one of the more functional and efficient solutions for intercepting fluids.



The valves are composed of a bronze body, 2 ways, with pneumatic control, with a compact single or double acting cylinder with connections which can be turned 360°. Versions are available that have the gaskets in contact with the fluid, and are made of NBR, FPM or PTFE.
The liner profile allows use of magnetic sensors with codes “1500._” , “RS._” , “HS._”, for type “A” slot.

Construction characteristics

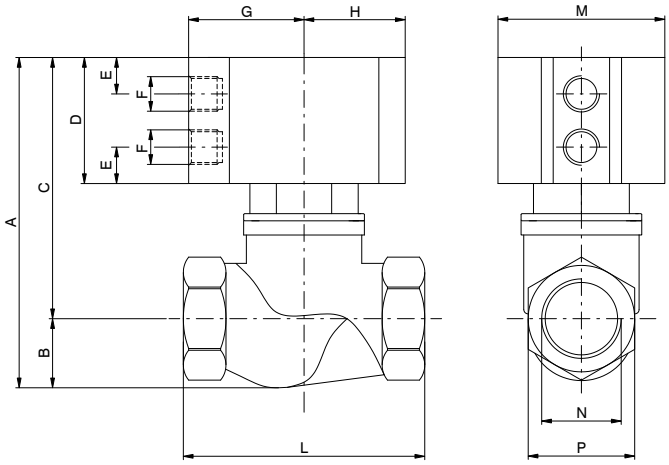
Rear eye, piston and rod bushing	Anodised aluminium
Cylinder	Aluminium alloy anodised
Spring	Zinc plated steel
Pneumatic cylinder seals	NBR (FPM for variants with seals in contact with fluid in FPM or PTFE)
Seals in contact with fluid	NBR, FPM, PTFE
Piston rod	Chromed stainless steel
Bushing, bushing pad, nut pad	Brass

Operational characteristics

Pneumatic cylinder fluid	Filtered and lubricated air or non
Valve fluid	Fluid compatible with seals compounds available
Actuator - Maximum working pressure	10
Pad Valve - Maximum working pressure	101,3
Temperature °C, Non magnetic piston, NBR seals	-5 / + 70
Non magnetic piston, FPM seals	-5 / + 150
Non magnetic piston, PTFE seals	-5 / + 150
Magnetic piston, NBR, FPM, PTFE seals	-5 / + 70

Series PVA

"T" body version pad valve



Ordering code	
PVA.B.Ⓐ.Ⓟ.T.Ⓒ.Ⓜ	
Ⓐ	ACTING
	DE=Double acting
	SC=Normally Closed
	SA=Normally Open
Ⓟ	PISTON
	N=Non magnetic
	M= Magnetic
Ⓒ	CONNECTIONS
	A=G1/4"
	B=G3/8"
	C=G1/2"
	D=G3/4"
	E=G1"
	F=G1 1/4"
	G=G1 1/2"
	H=G2"
Ⓜ	SEALS
	N=NBR
	V=FPM
	F=PTFE

Table of dimensions

	Non magnetic version			Magnetic version											Technical data		
Connection (N)	A	C	D	A	C	D	B	E	F	G	H	L	M	P	Actuator (N)	Valve Ø	Weight (gr.)
G1/4"	93,5	77,5	41	97,5	81,5	45	16	10,25	G1/8"	32,5	28,5	64	47	25	Ø40	Ø13,5	350
G3/8"	93,5	77,5	41	97,5	81,5	45	16	10,25	G1/8"	32,5	28,5	64	47	25	Ø40	Ø13,5	350
G1/2"	93,5	78	41	99,5	82	45	17,5	10,25	G1/8"	32,5	28,5	68	47	30	Ø40	Ø15	400
G 3/4"	105	83	41	113	90	48	22	11,25	G1/8"	44	40	79	70	36	Ø63	Ø20,5	850
G1"	117	89	41	125	101	53	28	11,25	G1/8"	44	40	94	70	44	Ø63	Ø25	1100
G1 1/4"	131	103	48	136	108	53	28	11,25	G1/8"	44	40	110	70	55	Ø63	Ø30	1400
G1 1/2"	154	118	57	166	130	69	36	13,75	G1/8"	56	49	120	90	60	Ø80	Ø38	2100
G2"	169	124	57	181	136	69	45	13,75	G1/8"	56	49	140	90	73	Ø80	Ø49,5	3000

Pad valves 2-ways, are a reliable and economic solution to control fluid, Pneumatically actuated by a compact double or single acting cylinder with 360° revolving connections.
Srandard seals in contact with are made in NBR, FPM or PTFE. The barrel profile allows the use of Pneumax magnetic sensors series 1500.

Construction characteristics		
- Rear eye, piston and rod bushing = anodised aluminium - Cylinder = aluminium alloy anodised - Spring = zinc plated steel - Seals = NBR, FPM, PTFE - Piston rod = chromed stainless steel - Bushing, bushing pad, nut pad = Brass	Fluid	Filtered and lubricated air or non
	Maximum working pressure (-kPa)	101
	Minimum working pressure single action (cylinder)	5 bar
	Minimum working pressure double action (cylinder)	5 bar
	Temperature °C (Non magnetic piston, NBR seals)	-5 / + 70
	Temperature °C (Non magnetic piston, FPM seals)	-5 / + 150
	Temperature °C (Non magnetic piston, PTFE seals)	-5 / + 150
	Temperature °C (Magnetic piston, NBR, FPM, PTFE seals)	-5 / + 70

Pad valves Series PVV

The PVV series vacuum valves are one of the most functional and efficient solutions for vacuum control, specifically designed for applications where large suction capacities is required. Thanks to the vacuum breaker function they are particularly suitable for handling applications.

The valves are made for the 3 ways body in aluminum or bronze and at the top a double-acting compact cylinder for actuation.

Construction characteristics

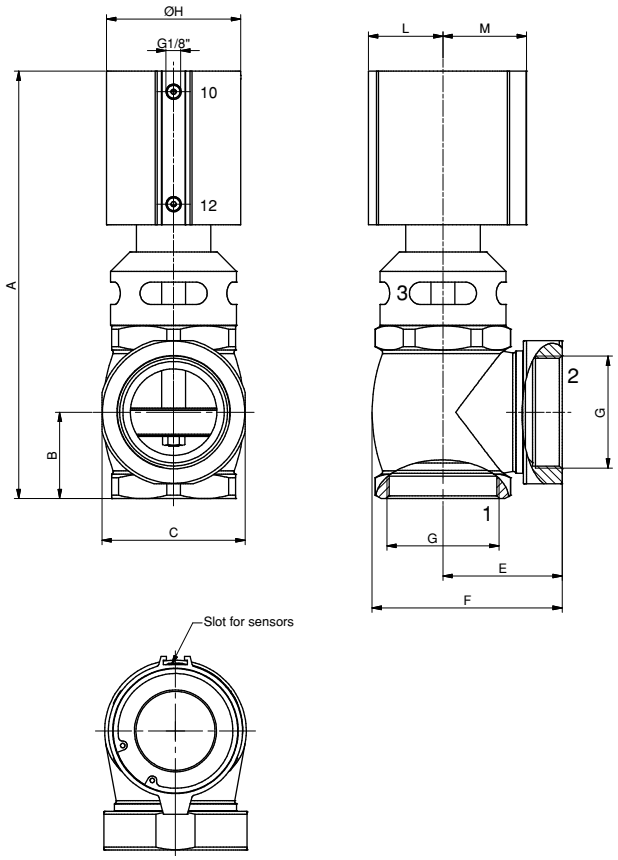
Valve body	G2" - Anodised aluminium
Seals	NBR
Valve drain filter	Steel/Paper
Cylinder support	Anodised aluminium alloy
Cylinder	Anodised aluminium alloy
Cylinder seals	NBR
Cylinder piston rod material	C43 chromed

Operational characteristics

Valve fluid	Vacuum	
Orifice size	ø DN see the table	
Temperature	-5 ... +70°C	
Working pressure (-kPa)	101,3	
Cylinder fluid	Compressed air filtered and non lubricated, if lubricated must be continuos	
Cylinder bore	G2" = ø 63 mm	
	G2-1/2" - G3" - G4" = ø 80 mm	
Working pressure (bar)	2 ... 6	
The liner profile of the cylinder allows use of magnetic sensors:	1500	
	RS	
	HS	
	1580	With adapter 1580.01F
	MRS	With adapter 1580.01F
	MHS	With adapter 1580.01F

Series PVV

Vacuum pad valve "L" body



Ordering code	
PVV.Ⓜ.DE.Ⓟ.L.Ⓒ.N.Ⓢ	
	BODY MATERIAL
Ⓜ	A = Aluminium
	B = Bronze
	PISTON
Ⓟ	N = Non magnetic
	M = Magnetic
	CONNECTION
Ⓒ	H = G 2"
	L = G 2"½
	M = G 3"
	N = G 4"
	EXHAUST
Ⓢ	F = Silenced
	L = Free

Table of dimensions

Size	A	B	C	DN	E	F	G	H	L	M
G2"	175	52,5	93	42	72	119	G2"	70	40	44
G2"1/2	290	58	96	50	80	128	G2"1/2	90	50	56
G3"	335	68	96	50	87	142	G3"	90	50	56
G4"	365	83	135	66	102	170	G4"	90	50	56

2-way valves to control fluids, pneumatic control with a compact double or single acting cylinder with connections that can turn 360°, seals in contact with fluid are made of NBR,FPM or PTFE.
The liner profile allows use of PNEUMAX series 1500 magnetic sensors.

Construction characteristics

- Body valve: G 2" - Anodised aluminium
  G 2"½ - G 3" - G 4" - Bronze
- Spool support: Anodised aluminium
- Shutter washers: Anodised aluminium
- Seals: NBR
- Filter: Steel/Paper
- Cylinder support: Anodised aluminium
- Body cylinder: Anodised aluminium
- Rear end cap: Anodised aluminium
- Piston: Anodised aluminium
- Rod cylinder: C43 chromed
- Cylinder connections: Orientable
- Screws: Zinc plated steel

Operational characteristics

Valve fluid: Vacuum
Outlet diameter: Ø DN (see the table)
Exhaust diameter: Ø DS (see the table)
Temperature: -5 ... +70°C
Fluid cylinder: Air filtered (if lubricated must be continuous)
Bore cylinder: G 2" - Ø63
G 2" ½ - G 3" - G 4" - Ø80
Pressure cylinder: 2 ... 6 bar
Available sensors: "1500._" - "1580*._" - "MRS*._" - "MHS*._"
(* with adapter code 1580.01F)

REGULATORS

The Pneumax range of regulators include high precision manual regulators and electronic proportional pressure regulators air-vacuum or vacuum-vacuum versions, available in 3 sizes with flow rates of 7; 1.100 or 4.000 Nl/min.

Index

Manual regulator

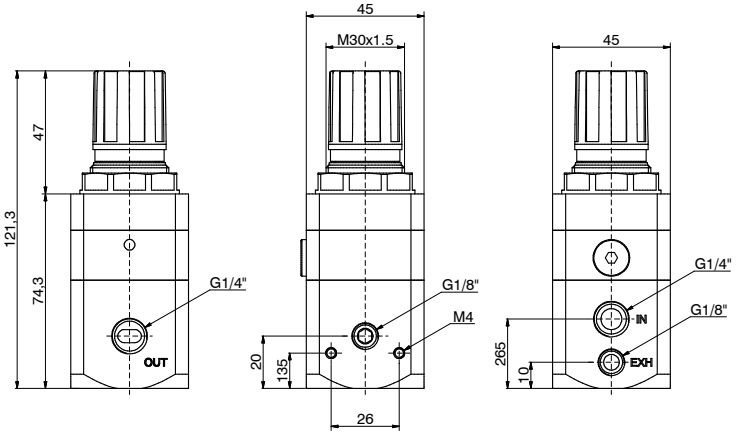
Proportional regulators

Manual regulator Series 1700

Vacuum degree regulation for applications requiring high stability and accuracy.

It have the function of regulating the negative vacuum pressure, keeping it stable at set value regardless of flow and variations in the degree of vacuum in the primary network. The units are of a double diaphragm construction and have been designed to exploit to their advantage any existing pressure differential between the secondary depression and atmospheric pressure. The degree of vacuum is obtained by rotating the adjusting knob, rotating it clockwise to increase the amount of vacuum and anti clockwise to decrease it. They are used in all centralized systems where regardless of the vacuum in the main network a lower vacuum level is required for other applications.

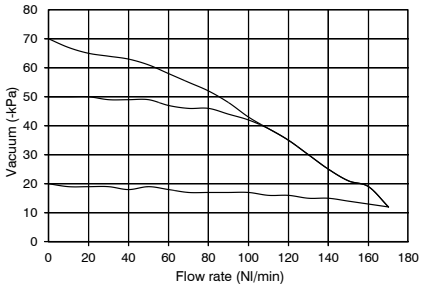
Regulator for vacuum



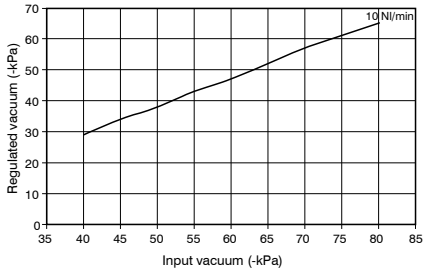
Ordering code
171S2B000V

Example: 171S2B000V
Regulator for vacuum G1/4"

Flow rate chart



Adjustment characteristic



Construction characteristics

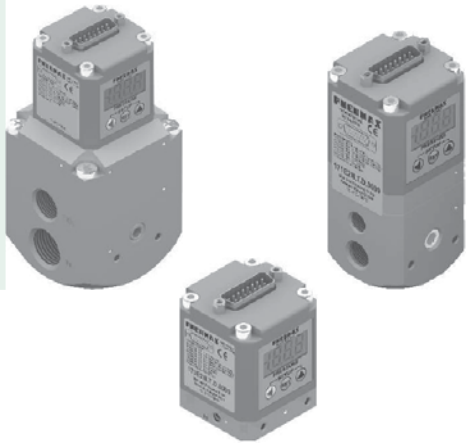
- Precision in keeping the set pressure value.
- Sensitivity combined with high flow rate of the downstream overpressure discharge valve.
- High flow rate with very low pressure drop.
- Setting knob can be locked using pressure into the desired position.
- Body made of light alloy.
- Two attachments for vacuum gauge with a cap equipped with a gasket.
- Ring nut for panel mounting.
- Once the reducer has been placed under vacuum, air intake through the appropriate orifice.

Technical characteristics

Connections	G1/4"
Max. working pressure (-kPa)	101
Working temperature °C	-5 ... +50
Pressure gauge connections	G1/8"
Weight (gr.)	400
Mounting position	indifferent
Max. fitting torque (Nm)	25
Fluid	Filtered air 20µm
Diameter of panel mounting orifice (mm)	30

Proportional regulators Series 1900

Electronic proportional pressure regulator with closed Loop.
Air-vacuum and vacuum-vacuum versions.



Modern industrial applications require increasingly high performances from their pneumatic components. For example, the speed and thrust of a pneumatic cylinder, or the torque of a rotary actuator may need to be varied. These parameters often need to be modified dynamically while an operation is running.
This solution can be obtained by employing a proportional pressure regulator Series 1700 available in 3 sizes with flow rates of 7; 1.100 or 4.000 Nl/min.
The model that manage the positive pressure that controls a vacuum generator and the negative pressure are then added to this range.

Application fields

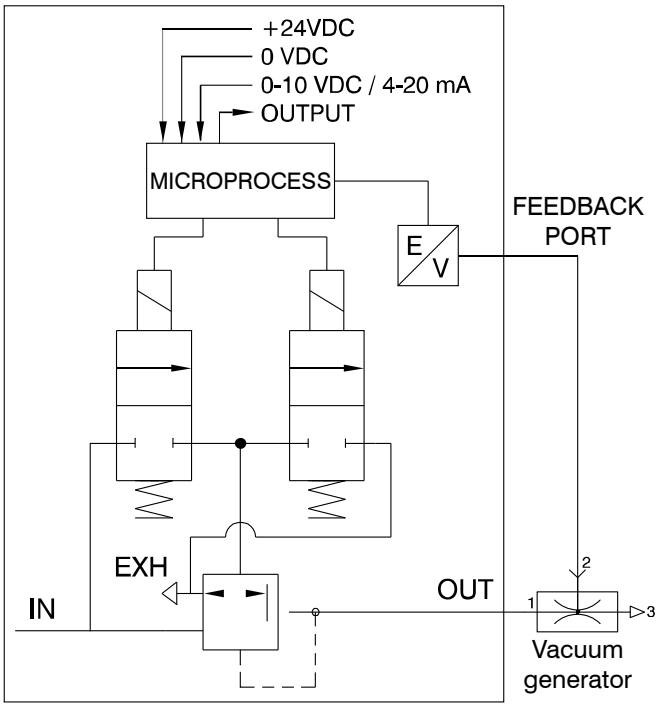
Typical applications will include the necessity to dynamically control the force of an actuator, be it thrust or torque or the degree of vacuum. Examples include: closing systems, painting systems, tensioning systems, packaging systems, pneumatic braking systems, force control for welding grippers, thickness compensation systems, balancing systems, laser cutting, pressure transducers for the control of modulating valves, test benches for system testing, force control for buffers on polishers, management of force exerted by suction cups in handling applications and management of the force exerted by the vacuum in the autoclaves.

Series 1900 air-vacuum version

Product description

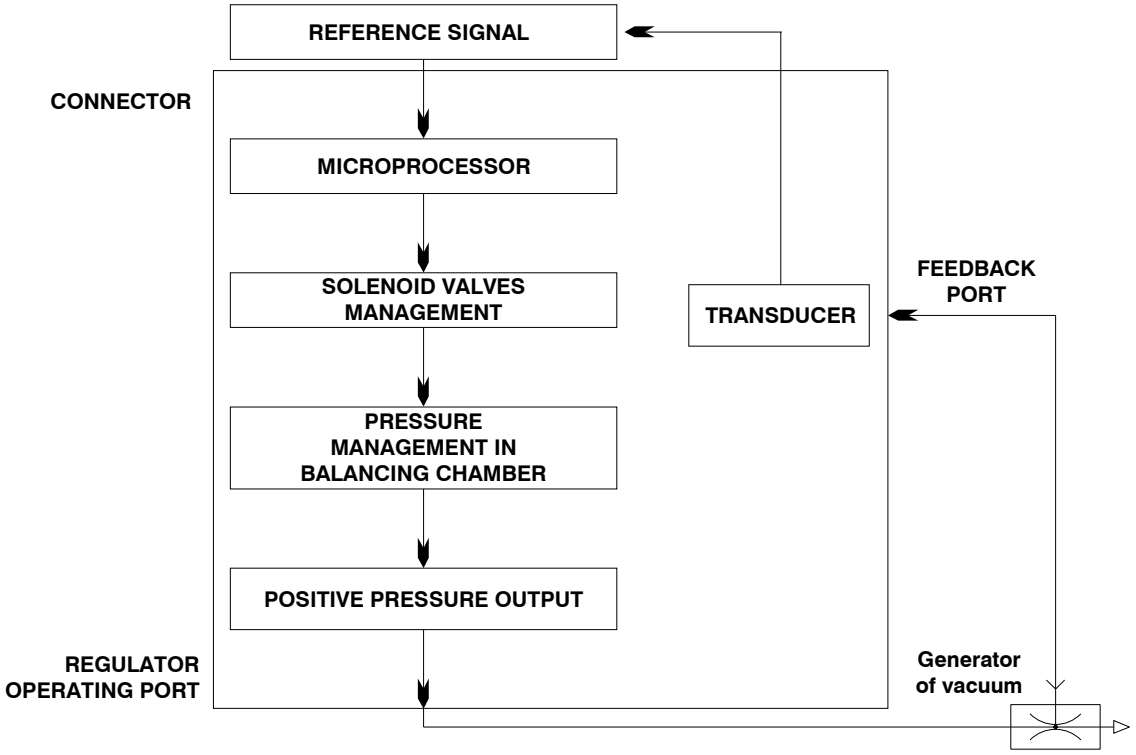
The pneumatic connections of the regulator require the aperture for supply and discharge to be on one side and the aperture for use on the opposite side. On the other two remaining sides there are apertures of G1/8" that are plugged up with removable plugs, however it is possible to connect a pressure gauge through them or use the connections as outputs. On the side where the service connection is, there is an M5 aperture where you can connect the return vacuum signal (to the pressure transducer).This option makes it possible to pick up the signal from a remote point rather than directly from the service connection. In the upper part of tregulators there are control solenoid valves, the pressure sensor and the electronics forcontrol. The part for electronically controlling the regulators is the same for all the 3 sizes. The new range of proportional regulators is supplied as standard with all the functionality initially considered only as optional; the only selections necessary in the ordering phase are thus related to the type of signal for control of voltage(T) or current (C) and the range of working pressures.

Functional diagram



CLOSED LOOP diagram (internal control circuit)

The proportional regulator is known as a CLOSED LOOP regulator because a pressure transducer in the circuit transmits a continuous analog signal to the microprocessor, which compares the reference value with the detected value and supplies the control solenoid valves accordingly.



CHARACTERISTICS

Pneumatic

Fluid	5 micron filtered and dehumidified air		
Input minimum pressure	As a function of the type of vacuum generator		
Input max pressure	10 bar		
Output pressure	0 ... 9 bar		
Nominal flow rate from 1 to 2 (6 bar Δp 1 bar)	**Size 0**	**Size 1**	**Size 3**
	7 Nl /min	1.100 Nl /min	4.000 Nl/min
Discharge flow rate (at 6 bar with overpressure of 1 bar)	7 Nl /min	1.300 Nl /min	4.500 Nl/min
Air consumption	< 1 Nl/min	< 1 Nl/min	< 1 Nl/min
Supply connection	M5	G1/4"	G1/2"
Service connection	M5	G1/4"	G1/2"
Discharge connection	Ø1,8	G1/8"	G3/8"
Maximum tightening torque for connections	3 Nm	15 Nm	15 Nm

Electric

Supply voltage		24VDC ± 10% (stabilized with ripple<1%)
Current consumption in standby		70mA
Current consumption with actuated S.V.		400mA
**Reference signal	Voltage	*0 ... 10 V *0 ... 5 V *1 ... 5 V
	Current	*4 ... 20 mA *0 ... 20 mA
**Input impedance	Voltage	10 kΩ
	Current	250 Ω
**Digital inputs		24VDC ± 10%
**Digital output		24 VDC PNP (max current 50 mA)

Functional

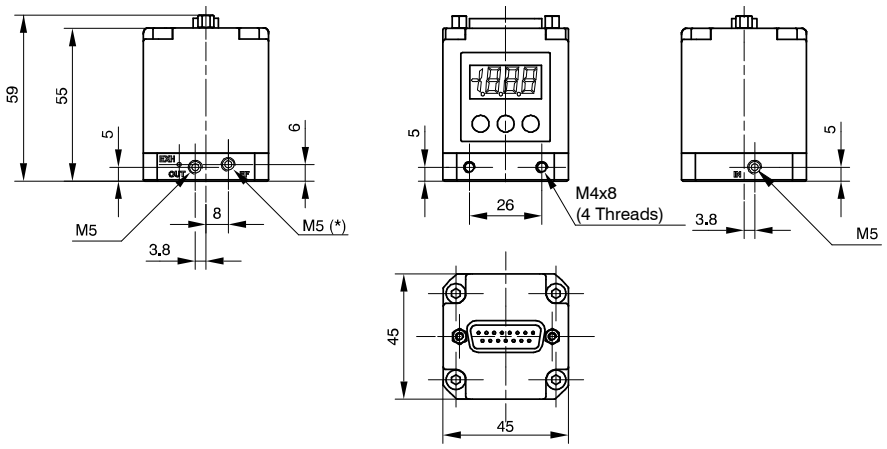
Linearity	± Insensitivity
Hysteresis	± Insensitivity
Repeatability	± Insensitivity
Sensitivity	0,01 bar
Assembly position	Indifferent
IP Rating	IP65 (with casing fitted)
Ambient temperature	-5° ... 50° / 23°F ... 122°F

Constructional

Body	Anodised aluminum		
Shutters	Brass with vulcanised NBR		
Diaphragm	Cloth-covered rubber		
Seals	NBR		
Cover for electrical part	Technopolymer		
Springs	AISI 302		
Weight	**Size 0**	**Size 1**	**Size 3**
	168 gr.	360 gr.	850 gr.

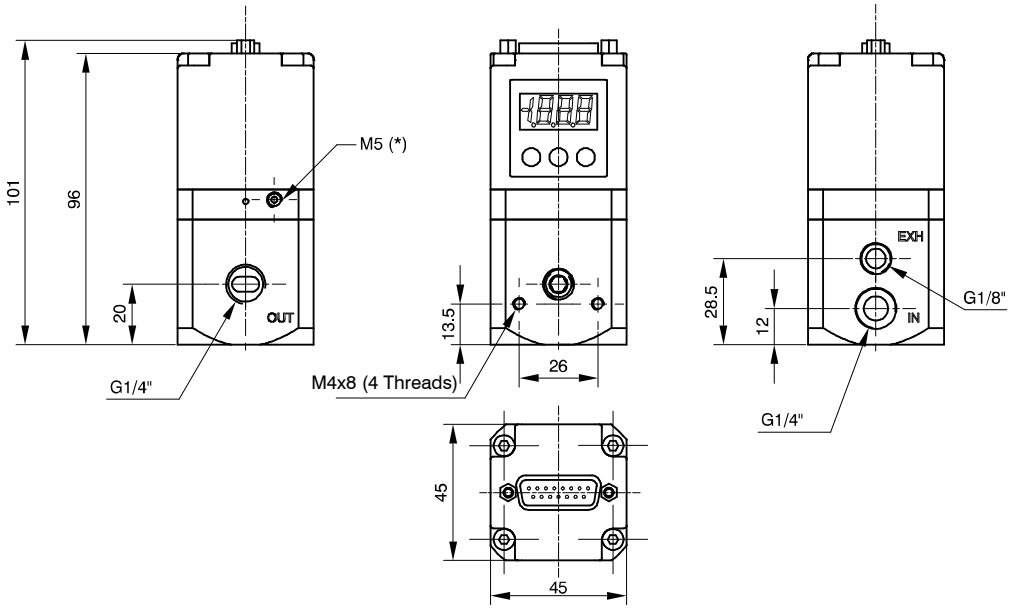
* Selectable by keyboard or by RS-232
** Valid only for devices with analog input

SIZE 0



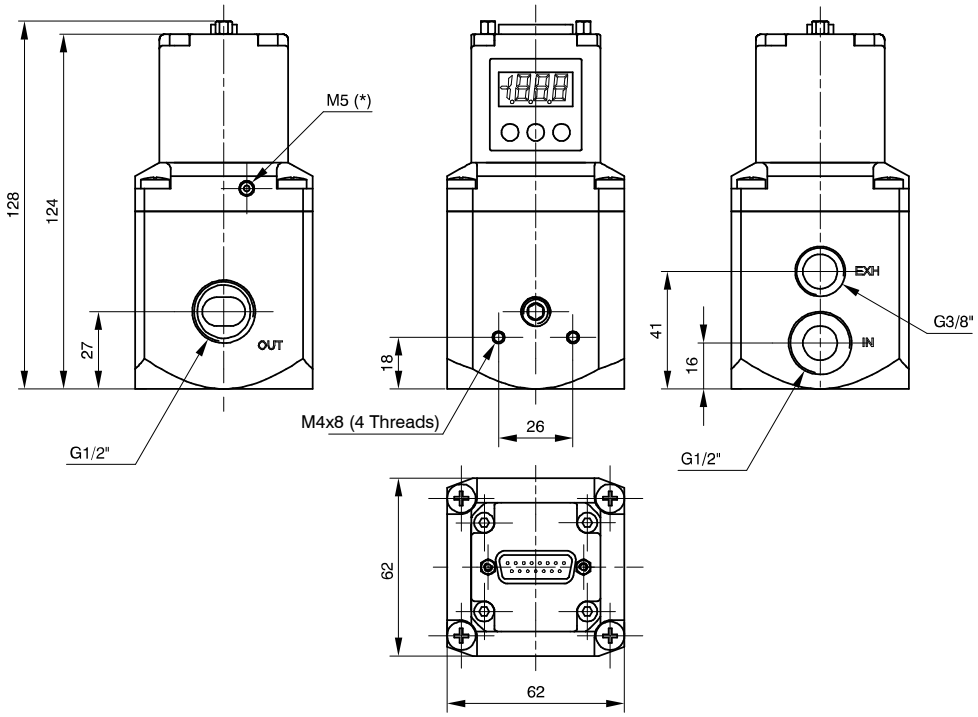
* EXTERNAL FEEDBACK INPUT CONNECTION

SIZE 1



* EXTERNAL FEEDBACK INPUT CONNECTION

SIZE 3



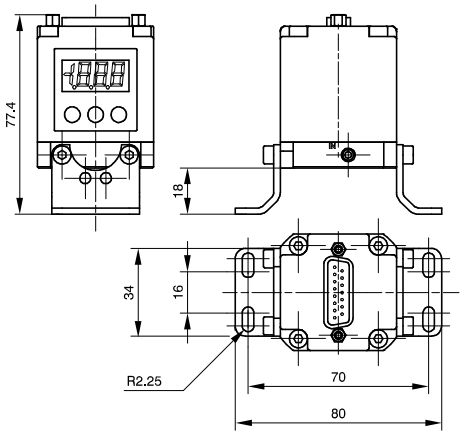
* EXTERNAL FEEDBACK INPUT CONNECTION

REGULATORS

Mounting options

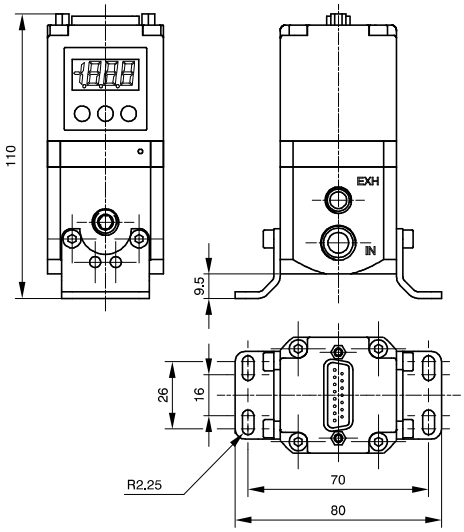
In addition to the possibility of fastening it directly to the wall using the M4 apertures present on the body, there is also the option of using the fastening bracket code 170M5 as can be seen in the figures shown below.

SIZE 0



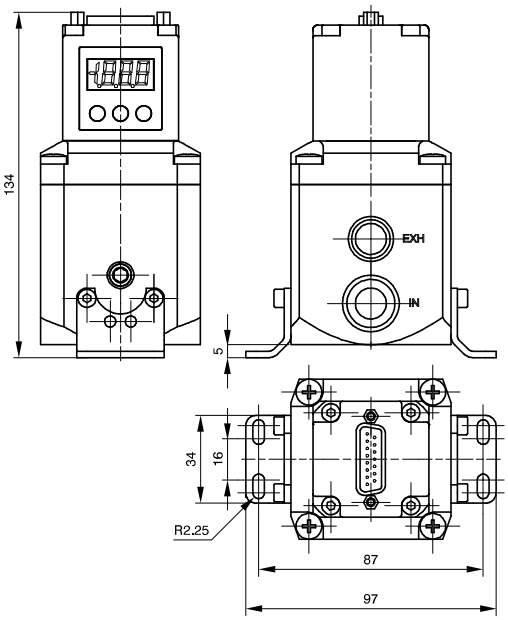
* EXTERNAL FEEDBACK INPUT CONNECTION

SIZE 1



* EXTERNAL FEEDBACK INPUT CONNECTION

SIZE 3



* EXTERNAL FEEDBACK INPUT CONNECTION

REGULATORS

Installation/ Operation

PNEUMATIC CONNECTION

The compressed air is connected by means of M5 threaded holes (for size 0 regulators), G 1/4" threaded holes (for size 1 regulators) and G 1/2" threaded holes (for size 3 regulators) on the body.
Before making the connections, eliminate any impurities in the connecting pipes to prevent chippings or dust entering the unit. Do not supply the circuit with more than 10 bar pressure and make sure that the compressed air is dried (excessive condensate could cause the appliance to malfunction) and filtered at 5 micron. The minimum supply pressure required depends on the characteristics of the vacuum generator.
If a silencer is applied to the discharge path the unit response time may change; periodically check that the silencer is not blocked and replace it if necessary.

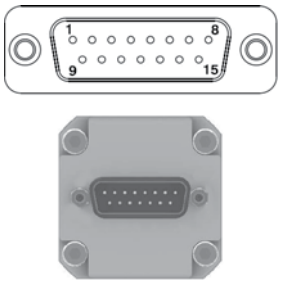
ELECTRICAL CONNECTION

For the electrical connection a SUB-D 15-pole female is used.
Wire in accordance with the wiring diagram shown below.
Warning: INCORRECT CONNECTIONS MAY DAMAGE THE DEVICE

NOTES ON OPERATION

If the electric supply is interrupted, the outlet pressure is maintained at the set value. However, maintaining the exact value cannot be ensured as it is impossible to operate the solenoid valves.
In order to discharge the circuit downstream, zero the reference, make sure that the display shows a pressure value equal to zero and then disconnect the electric power supply.
A version of the device is available that exhausts the downstream circuit when the power supply is removed. (Option "A" at the end of the ordering code). If the compressed-air supply is suspended and the electric power supply is maintained a whirring will be heard that is due to the solenoid valves; an operating parameter can be activated (P18) that triggers the regulator protection whenever the requested pressure is not reached within 4 seconds of the reference signal being sent. In this case the system will intervene to interrupt the control of the solenoid valves. Every twenty seconds, the unit will start the reset procedure until standard operating conditions have been restored.

TOP VIEW OF THE REGULATOR CONNECTOR



CONNECTOR PIN:	
1	DIGITAL INPUT 1
2	DIGITAL INPUT 2
3	DIGITAL INPUT 3
4	DIGITAL INPUT 4
5	DIGITAL INPUT 5
6	DIGITAL INPUT 6
7	DIGITAL INPUT 7
8	ANALOG INPUT / DIGITAL INPUT 8
9	SUPPLY (24 VDC)
10	DIGITAL OUTPUT (24 VDC PNP)
11	ANALOG OUTPUT (CURRENT)
12	ANALOG OUTPUT (VOLTAGE)
13	Rx RS-232
14	Tx RS-232
15	GND

Ordering codes

19_E2P._D.0090._

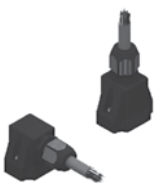
SIZE
- **0** = Size 0
- **1** = Size 1
- **3** = Size 3

VARIANT
- **E** = External pressure feedback without exhaust downstream pressure when power supply is removed
- **AE** = External pressure feedback with exhaust downstream pressure when power supply is removed

MANAGEMENT
- **C** = Current signal (4-20 mA / 0-20 mA)
- **T** = Voltage signal (0-10 V / 0-5 V / 1-5 V)

PRESSURE RANGE
0090 = from 0 to 90%

Fixing bracket 170M5

Model with SUB-D 15 poles connector		
	5300.F15.00.00	Straight connector + Casing IP65 *
	5300.F15.00.03	Straight connector + Cable 3 meters
	5300.F15.00.05	Straight connector + Cable 5 meters
	5300.F15.90.00	Connector 90° + Casing IP65 *
	5300.F15.90.03	Connector 90° + Cable 3 meters
	5300.F15.90.05	Connector 90° + Cable 5 meters

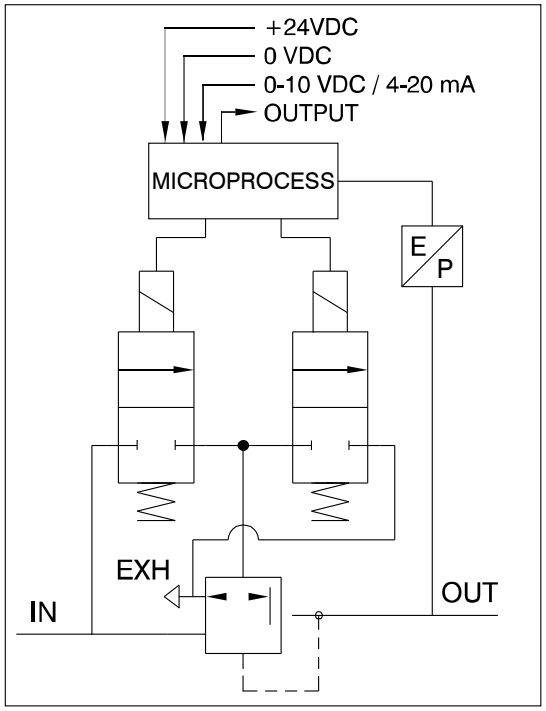
*** Without cable**

Series 1900 vacuum-vacuum version

Product description

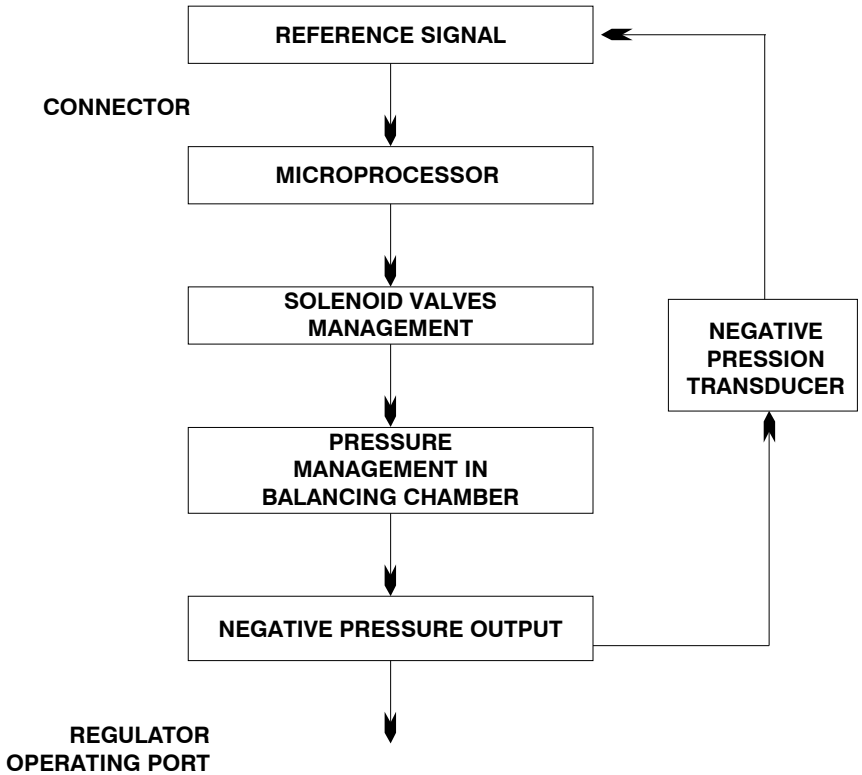
The connections of the regulator require the aperture for supply and discharge to be on one side and the aperture for use on the opposite side. On the other two remaining sides there are apertures of G1/8" that are plugged with removable plugs, however it is possible to connect a vacuum gauge or vacuum sampling for an additional remote vacuum switch. The control solenoid valves, the negative pressure sensor and the management electronics are located in the upper part of the regulator. The regulator is available in only one size, 1, with flow rate 170 l/min and the possibility to select commands: Voltage (T) Current (C).

Functional diagram



CLOSED LOOP diagram (internal control circuit)

The proportional regulator is known as a CLOSED LOOP regulator because a pressure transducer in the circuit transmits a continuous analog signal to the microprocessor, which compares the reference value with the detected value and supplies the control solenoid valves accordingly.



REGULATORS

CHARACTERISTICS

Pneumatic

Fluid	5 micron filtered and dehumidified air
Input minimum pressure	10 -kPa
Input max pressure	101 -kPa
Adjustment range	10 ... 90 -kPa
Flow rate	170 l/min
Air consumption	< 1 Nl/min
Supply connection	G 1/4”
Service connection	G 1/4”
Discharge connection	G 1/8”
Maximum tightening torque for connections	15 Nm

Electric

Supply voltage		24VDC ± 10% (stabilized with ripple<1%)
Current consumption in standby		70mA
Current consumption with actuated S.V.		400mA
**Reference Signal	Voltage	*0 ... 10 V *0 ... 5 V *1 ... 5 V
	Current	*4 ... 20 mA *0 ... 20 mA
**Input impedance	Voltage	10 kΩ
	Current	250 Ω
**Digital inputs		24VDC ± 10%
**Digital output		24 VDC PNP (max current 50 mA)

Functional

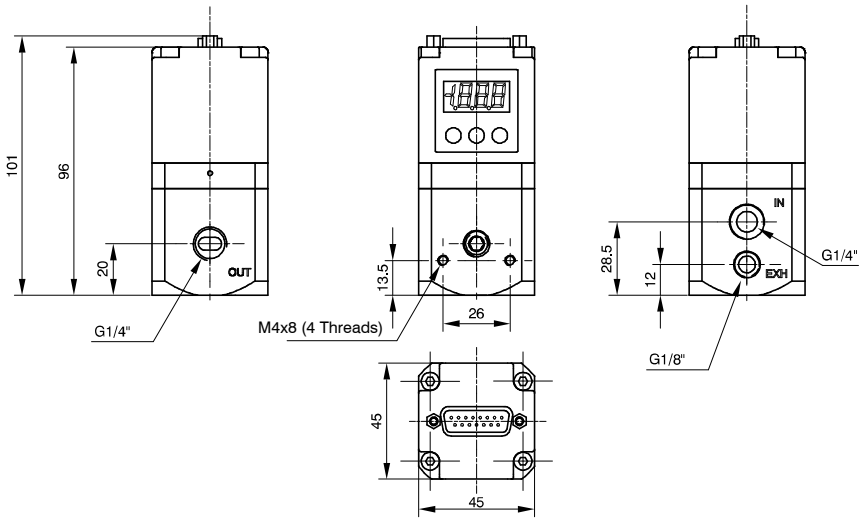
Linearity	± Insensitivity
Hysteresis	± Insensitivity
Repeatability	± Insensitivity
Sensitivity	0,01 bar
Assembly position	Indifferent
IP Rating	IP65 (with casing fitted)
Ambient temperature	-5° ... 50° / 23°F ... 122°F

Constructional

Body	Anodised aluminum	
Shutters	Brass with vulcanised NBR	
Diaphragm	Cloth-covered rubber	
Seals	NBR	
Cover for electrical part	Technopolymer	
Springs	AISI 302	
Weight	**Size 1**	
	360 gr.	

* Selectable by keyboard or by RS-232
** Valid only for devices with analog input

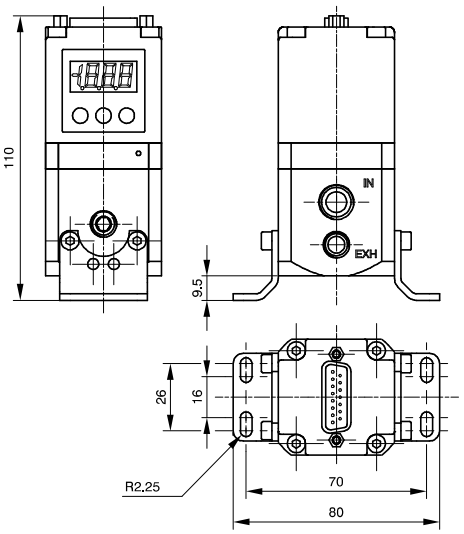
SIZE 1



Mounting options

In addition to the possibility of fastening it directly to the wall using the M4 apertures present on the body, there is also the option of using the fastening bracket code 170M5 as can be seen in the figures shown below.

SIZE 1



REGULATORS

Installation/ Operation

PNEUMATIC CONNECTION

The compressed air is connected by means of M5 threaded holes (for size 0 regulators), G 1/4" threaded holes (for size 1 regulators) and G 1/2" threaded holes (for size 3 regulators) on the body.
Before making the connections, eliminate any impurities in the connecting pipes to prevent chippings or dust entering the unit. Do not supply the circuit with more than 10 bar pressure and make sure that the compressed air is dried (excessive condensate could cause the appliance to malfunction) and filtered at 5 micron. The minimum supply pressure required depends on the characteristics of the vacuum generator.
If a silencer is applied to the discharge path the unit response time may change; periodically check that the silencer is not blocked and replace it if necessary.

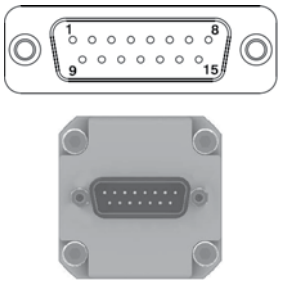
ELECTRICAL CONNECTION

For the electrical connection a SUB-D 15-pole female is used.
Wire in accordance with the wiring diagram shown below.
Warning: INCORRECT CONNECTIONS MAY DAMAGE THE DEVICE

NOTES ON OPERATION

If the electricity supply is cut off, the output pressure will be kept at the set value. However, maintenance of this exact value is not guaranteed given the fact that the solenoid valve cannot be actuated.
To discharge the circuit downstream, clear the reference, make sure the display shows a pressure value equal to zero, and then cut off the electrical power supply.
A version of the device is available as an option that discharges the circuit downstream right at the time the electricity is cut off (final letter A in the ordering code).If the air supply is stopped and the power supply is maintained, you may hear a humming noise being generated due to the solenoids; it is possible to activate an operating parameter (P18) that allows the regulator to be protected any time the pressure is not reached within 4 seconds after the moment the reference signal is sent. In this case, the system will intervene by interrupting control of the solenoid valves. Every 20 seconds the unit will start the restoration procedure until standard operating conditions are reintegrated.

TOP VIEW OF THE REGULATOR CONNECTOR



CONNECTOR PIN:	
1	DIGITAL INPUT 1
2	DIGITAL INPUT 2
3	DIGITAL INPUT 3
4	DIGITAL INPUT 4
5	DIGITAL INPUT 5
6	DIGITAL INPUT 6
7	DIGITAL INPUT 7
8	ANALOG INPUT / DIGITAL INPUT 8
9	SUPPLY (24 VDC)
10	DIGITAL OUTPUT (24 VDC PNP)
11	ANALOG OUTPUT (CURRENT)
12	ANALOG OUTPUT (VOLTAGE)
13	Rx RS-232
14	Tx RS-232
15	GND

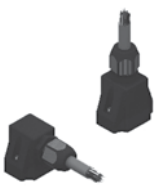
Ordering codes

191E2N._.D.0000.V

MANAGEMENT
C = Current signal (4-20 mA / 0-20 mA)
T = Voltage signal (0-10 V / 0-5 V / 1-5 V)

PRESSURE RANGE
0000 = from 10 to 90 -kPa

Fixing bracket 170M5

Model with SUB-D 15 poles connector		
	5300.F15.00.00	Straight connector + Casing IP65 *
	5300.F15.00.03	Straight connector + Cable 3 meters
	5300.F15.00.05	Straight connector + Cable 5 meters
	5300.F15.90.00	Connector 90° + Casing IP65 *
	5300.F15.90.03	Connector 90° + Cable 3 meters
	5300.F15.90.05	Connector 90° + Cable 5 meters

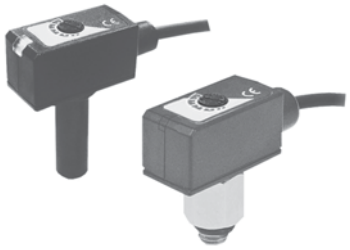
*** Without cable**

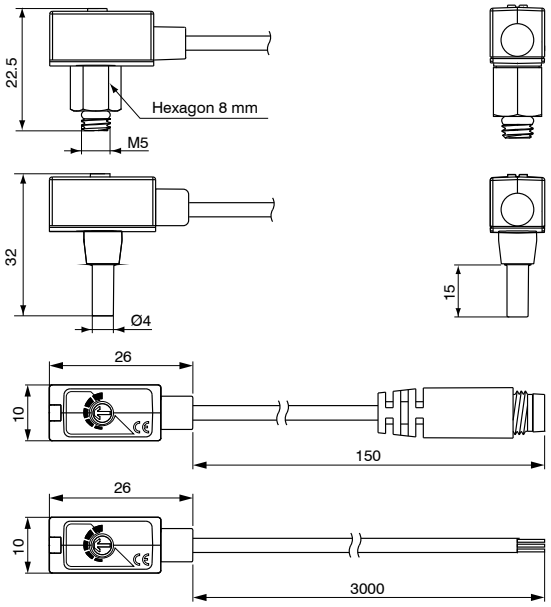
ACCESSORIES AND INSTRUMENTS

Vacuum switch, vacuum gauge, silencers and filters

Series 1900

Mini digital vacuum switch



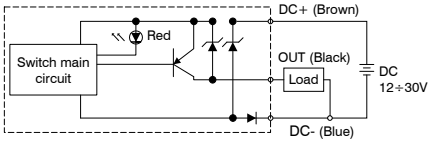


Ordering code	
DS.10.V.B.Ⓒ.Ⓛ.Ⓞ	
Ⓒ	CONNECTION
	F4= Male M5
	R4= Plug-in connection Ø4
Ⓛ	CABLE LENGTH
	A=150 mm *
	E=3000 mm **
Ⓞ	OPTIONS
	0= Without connector
	1= With connector M8 male 3 Pin

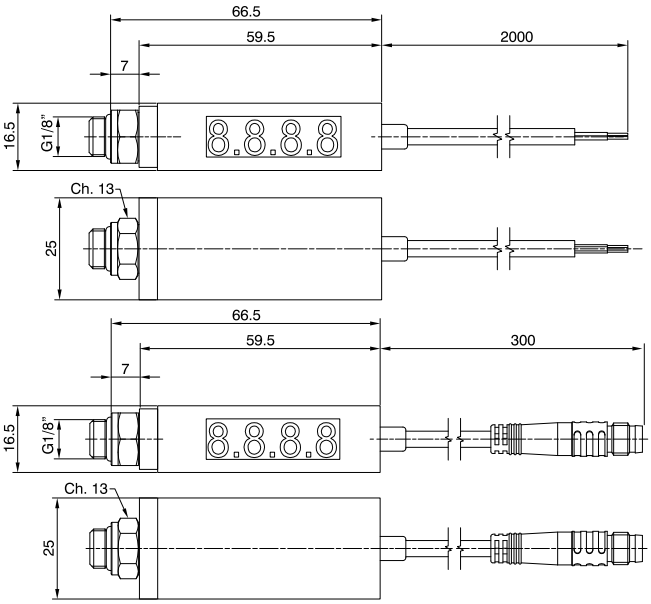
* only with M8 connector
** only without connector

Technical features		
Working pressure range		0 ... -100.0kPa
Regulation pressure range		0 ... -100.0kPa
Maximum supported pressure		600 kPa
Allowed fluids		Air, non-corrosive gases, non-combustible gases
Supply voltage		From 12 to 30 VDC ±10%
Current consumption		≤ 10mA
Digital output		PNP N.O. 1 outputs Maximum load current: 80mA Maximum supply voltage: 30VDC Voltage drop: ≤0.8V
Repeatability (Digital output)		± 1% Full Scale
Digital output	Type of hysteresis	Fixed
	Hysteresis	3% Full Scale max.
Response time		1ms
Protection from short circuit at output		Present
Method of setting threshold		Adjustable, trimmer
Indicator		LED red (output)
Ingress protection rating	IP Rating	IP40
	Ambient temperature	Operational: 0 ... 60°C, Storage: -20 ... 70°C (without ice or condensation)
	Ambient humidity	Operational/Storage: 35 ... 85% (without condensation)
	Vibration	Total amplitude 1.5mm, 10Hz-55Hz-10Hz scanning for 1 minute, 2 hours in each direction of X, Y and Z
	Impacts/shocks	980m/s² (100G), 3 times in each direction of X, Y and Z
Temperature characteristics		±2% Full Scale in a range between 0 ... 50°C
Type of connection		Male M5x0.8, Plug-in connection Ø4
Electrical cable		Oilproof cable, 3 wires (0.18mm²), Ø2.6mm
Weight		Approximately 50 gr. (with 3 metres of cable)

Output circuit wiring scheme



Digital vacuum switch

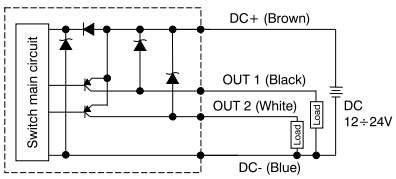


Ordering code	
DS.30.C.C.F8.Ⓛ.⓪	
Ⓛ	CABLE LENGTH
	B=300 mm *
	D=2000 mm **
⓪	OPTIONS
	0= Without connector
	2= With M8 4 Pin male connector

* only with M8 connector
** only without connector

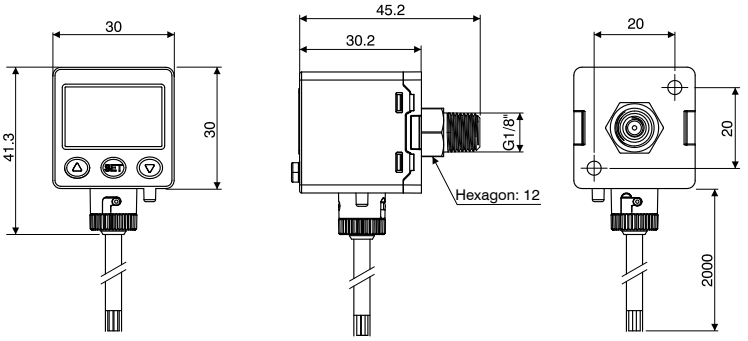
Technical features		
Working pressure range		-100.0 ... 100.0kPa
Regulation pressure range		-100.0 ... 100.0kPa
Maximum supported pressure		300 kPa
Allowed fluids		Air, non-corrosive gases, non-combustible gases
Pressure calibration sensitivity	kPa	0.1
	2 kgf/cm²	0.001
	bar	0.001
	psi	0.01
	InHg	0.1
	mmHg	1
	mmH_2O	0.1
Supply voltage		From 12 to 24 VDC ± 10%
Current consumption		≤ 60mA
Digital output		PNP N.O. 2 outputs Maximum load current: 80mA Maximum supply voltage: 30VDC Voltage drop: ≤1V
Repeatability (Digital output)		± 0.2% Full Scale ± 1 digit
Digital output	Type of hysteresis	Fixed
	Hysteresis	0.003 bar
Response time		≤2,5 ms (anti-interference function: 24ms, 192ms and 768 ms selectable)
Protection from short circuit at output		Present
Display		Display with 3 1/2 digits (sampling 5 times per sec.)
Indicator precision		±2% F. S. ±1 digit (at ambient temperature of 25°C ±3°C)
Indicator		LED green (output1) LED red (output2)
Ingress protection rating	IP Rating	IP40
	Ambient temperature	Operational: 0 ... 50°C, Storage: -20 ... 60°C (without ice or condensation)
	Ambient humidity	Operational/Storage: 35 ... 85% (without condensation)
	Supported voltage	1000VAC in 1-min. (between body and cable)
	Insulation resistance	50MΩ min. (at 500VDC, between body and cable)
	Vibration	Total amplitude 1.5mm. or 10G, 10Hz-55Hz-10Hz scanning for 1 minute, 2 hours in each direction of X, Y and Z
	Impacts/shocks	980m/s² (100G), 3 times in each direction of X, Y and Z
Temperature characteristics		±2% Full Scale in a range between 0 ... 50°C
Type of connection		G1/8" (Swivel)
Electrical cable		Oil resistant cable
Weight		Approximately 67 gr. (with 2 metres of cable)

Output circuit wiring scheme



ACCESSORIES

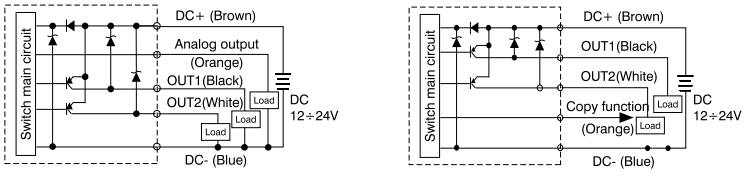
Panel-mounted digital vacuum switch



Ordering code		
DS.45.Ⓥ.Ⓤ.F3.D.0		
Ⓥ	VERSION	
	C= Vacuum/Pressure (-100 / 100 kPa)	
	V= Vacuum (0 / -101,3 kPa)	
Ⓤ	OUTPUTS	
	E= 2 PNP outputs + Analog output (4 / 20 mA)	
	L= 2 PNP outputs + copy function	

Technical features		**DS.45.C.B.C.F3.D.0 (Composite)**	**DS.45.V.B.E.F3.D.0 (Vacuum)**
Working pressure range		-100.0 ... 100.0kPa	0 ... -100.0kPa
Regulation pressure range		-100.0 ... 100.0kPa	0 ... -100.0kPa
Maximum supported pressure		300 kPa	
Allowed fluids		Air, non-corrosive gases, non-combustible gases	
Pressure calibration sensitivity	kPa	0.1	
	2 kgf/cm²	0.001	
	bar	0.001	
	psi	0.01	
	InHg	0.1	
Supply voltage		From 12 to 24 VDC	
Current consumption		≤40mA (without load)	
Digital output		PNP N.O. 2 outputs Maximum load current: 125mA Maximum supply voltage: 24VDC Voltage drop: ≤1.5V	
Repeatability (Digital output)		± 0.2% Full Scale ± 1 digit	
Digital output	Type of hysteresis	Settable	
	Hysteresis	from 0.001 to 0.008 bar	
Response time		≤2,5 ms (anti-interference function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selectable)	
Protection from short circuit at output		Present	
Display		Display with 3 1/2 digits (red/green)	
Indicator precision		±2% F. S. ±1 digit	
Indicator		LED orange (output1) LED orange (output2)	
Analog output		Output current: 4 ... 20mA ±2.5% F. S. Linearity: ±1% F. S. Maximum load resistance: 250Ω supply at 12V and 600Ω supply at 24V Minimum load resistance: 50Ω	
Ingress protection rating	IP Rating	IP65	
	Ambient temperature	Operational: 0 ... 50°C, Storage: -10 ... 60°C (without ice or condensation)	
	Ambient humidity	Operation/Storage: 35 ... 85% (without condensation)	
	Supported voltage	1000VAC in 1min. (between body and cable)	
	Insulation resistance	50MΩ (at 500VDC, between body and cable)	
	Vibration	Total amplitude 1.5mm or 10G,10Hz-55Hz-10Hz scanning for 1 minute, 2 hours in each direction of X, Y and Z	
	Impacts/shocks	100m/s² (10G), 3 times in each direction of X, Y and Z	
Temperature characteristics		±2.5% Full Scale in a range between 0 ... 50°C	
Type of connection		G1/8" (BSPP), M5 female	
Electrical cable		Oil resistant cable (internal 0.15mm²)	
Weight		Approximately 86 gr. (with 2 metres of cable)	

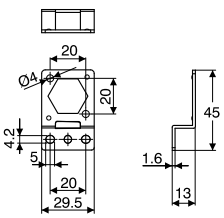
Output circuit wiring scheme



ACCESSORIES

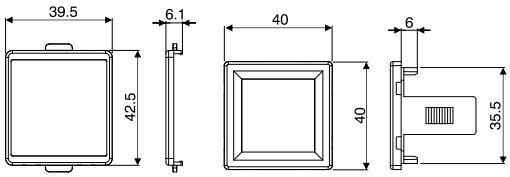
Fastening bracket

Ordering code
DS.BT10



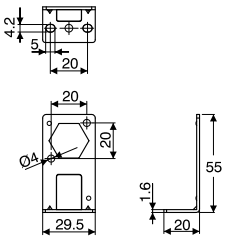
Panel mount adapter

Ordering code
DS.PAE



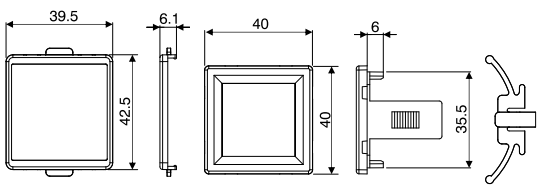
Fastening bracket

Ordering code
DS.BT11



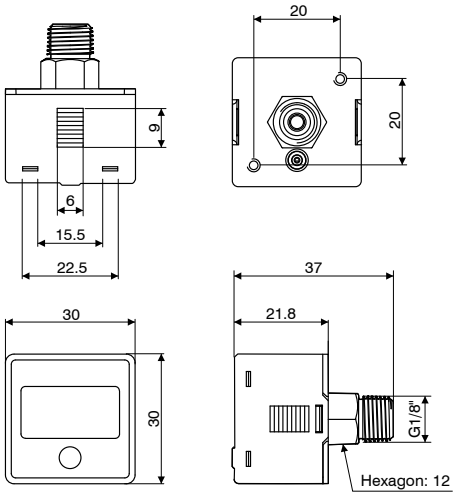
Panel mount adapter with screen protection

Ordering code
DS.PAF



Digital battery vacuum gauge

Ordering code
DS.60.V.I.F1.F.0

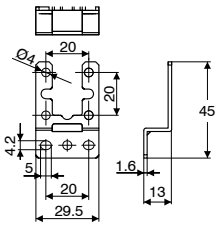


Caratteristiche tecniche		
Working pressure range		0 ... -100.0kPa
Regulation pressure range		0 ... -100.0kPa
Maximum supported pressure		300 kPa
Allowed fluids		Air, non-corrosive gases, non-combustible gases
Pressure calibration sensitivity	kPa	0.1
	bar	0.01
	psi	0.1
	mmHg	1
Battery		CR 2032 lithium
Backlight		Not present
Battery life		3 years (5 powerups a day)
Indication of battery level		Present
Battery replaceable		Yes
Display powerup time		Goes off after 60 seconds
Sampling frequency		2 Hz (2 times per second)
Repeatability		±1% F. S. ±1 digit
Display		Display with 3 1/2 digits
Indicator precision		±2% F.S. ±1 digit (at ambient temperature of 25°C ±3°C)
Ingress protection rating	IP Rating	IP65 (only with connected air tube)
	Ambient temperature	Operational: 0 ... 50°C, Storage: -10 ... 60°C (without ice or condensation)
	Ambient humidity	Operational/Storage 35 ... 85% (without condensation)
	Vibration	Total amplitude 1.5mm or 10G,10Hz-55Hz-10Hz scanning for 1 minute, 2 hours in each direction of X, Y and Z
	Impacts/shocks	100m/s² (10G), 3 times in each direction of X, Y and Z
Temperature characteristics		±2% Full Scale in a range between 0 ... 50°C
Type of connection		R1/8", M5 female
Weight		Approximately 40 gr.

Fastening bracket

Ordering code

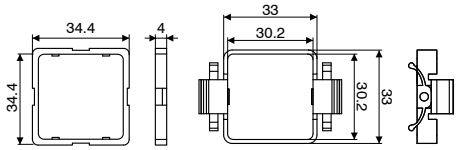
DS.BT5



Panel mount adapter

Ordering code

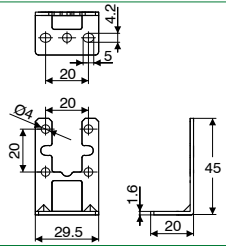
DS.PAC



Fastening bracket

Ordering code

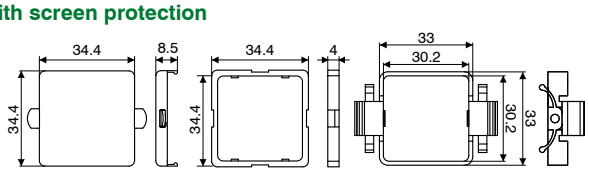
DS.BT6



Panel mount adapter with screen protection

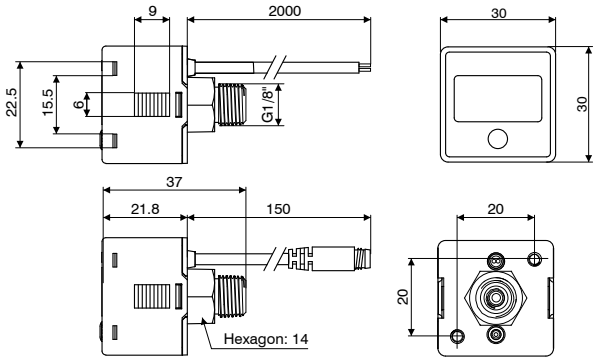
Ordering code

DS.PAD



ACCESSORIES

Digital vacuum gauge

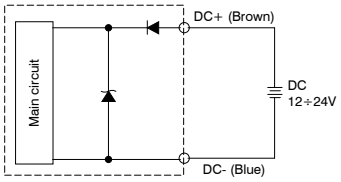


Ordering code		
DS.61.V.I.F1.L.O		
L		CABLE LENGTH
		A=150 mm *
		D=2000 mm **
O		OPTIONS
		0= Without connector
		2= With M8 4 Pin male connector

* only with M8 connector
** only without connector

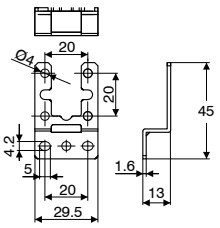
Technical features		
Working pressure range		0 ... -100.0kPa
Regulation pressure range		0 ... -100.0kPa
Maximum supported pressure		300 kPa
Allowed fluids		Air, non-corrosive gases, non-combustible gases
Pressure calibration sensitivity	kPa	1
	2 kgf/cm²	0.01
	bar	0.01
	psi	0.1
Supply voltage		From 12 to 24 VDC ± 10%
Current consumption		10mA
Repeatability		±1% Full Scale ±1 digit
Display		Display with 3 1/2 digits (sampling 5 times per sec.)
Indicator precision		±2% F. S. ±1 digit (at ambient temperature of 25°C ±3°C)
Ingress protection rating	IP Rating	IP65 (only with connected air tube)
	Ambient temperature	Operational: 0 ... 50°C, Storage: -10 ... 60°C (without ice or condensation)
	Ambient humidity	Operation/Storage: 35 ... 85% (without condensation)
	Supported voltage	1000VAC in 1 min. (between body and cable)
	Insulation resistance	50MΩ (at 500VDC, between body and cable)
	Vibration	Total amplitude 1.5mm or 10G, 10Hz-55Hz-10Hz scanning for 1 minute, 2 hours in each direction of X, Y and Z
	Impacts/shocks	100m/s² (10G), 3 times in each direction of X, Y and Z
Temperature characteristics		±2% Full Scale in a range between 0 ... 50°C
Type of connection		R1/8", M5 female
Electrical cable		Oil resistant cable (internal 0.15mm²)
Weight		Approximately 60 gr. (with 2 metres of cable) and approximately 40 gr. (with M8 4 pin male connector)

Output circuit wiring scheme



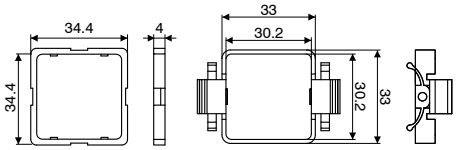
Fastening bracket

Ordering code
DS.BT5



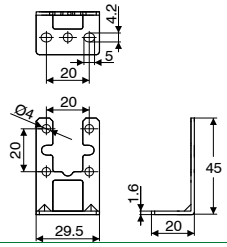
Panel mount adapter

Ordering code
DS.PAC



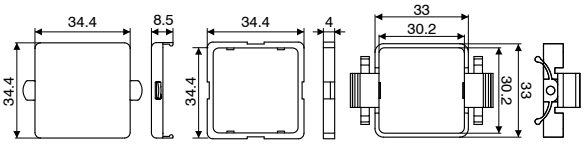
Fastening bracket

Ordering code
DS.BT6



Panel mount adapter with screen protection

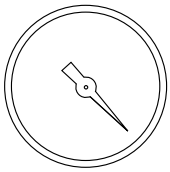
Ordering code
DS.PAD

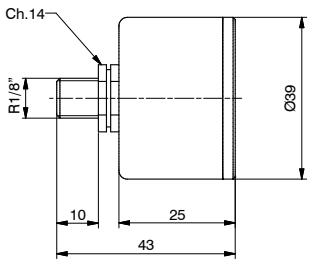


ACCESSORIES

Series 1900

Vacuum Gauge

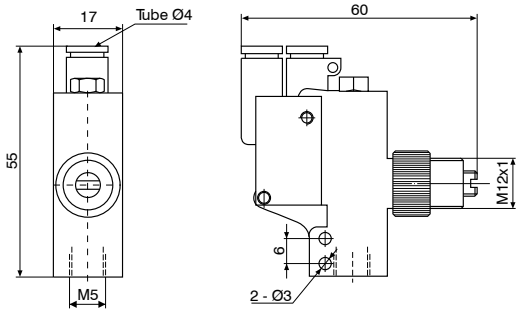




Ordering code
17070A.V

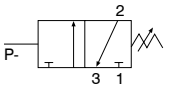
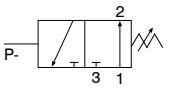
Technical features	
Fluid	Unlubricated filtered air
Scale (-kPa)	0 ... 100
Temperature (°C)	-10 ... 80
Weight (gr.)	56

Pneumatic vacuum switch

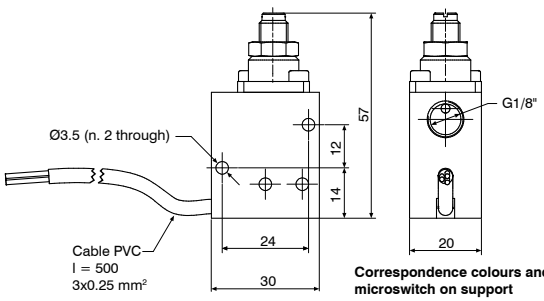


Vacuum switch whose function is, depending on the model, to turn a pneumatic signal on or off when a certain vacuum level is reached. The pressure differential that exists between the maximum value set and the restoration value cannot be adjusted. Especially recommended for the control of vacuum generators with a view to save energy.

Code	19TR4.C	19TR4.A
Type of contact	N.C. (Normally closed)	N.O. (Normally open)
Pressure (bar)	1.5 ~ 8	
Actuation threshold can be set (-kPa)	15 ~ 95	10 ~ 95
Hysteresis (kPa)	12	3
Temperature (°C)	-10 ~ +60°C	
Weight (gr.)	44	
Connections for vacuum	M5	

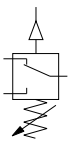
Function	Settable
N.C. (Normally closed)	
N.O. (Normally open)	

Electromechanical vacuum switch



Correspondence colours and mounted microswitch on support
Black = Common
Blue = N.C.
Grey = N.O.

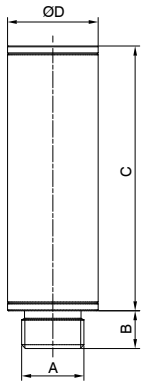
Ordering code
19VCE.0.C1



Vacuum switch whose function is to turn an electrical signal on or off when a certain vacuum level is reached. The pressure differential that exists between the maximum value set and the restoration value cannot be adjusted. Recommended for all cases where it is necessary to obtain an electrical signal once a certain level of vacuum is reached to start a work cycle, for control of the already attained grip by the suction cups or for reasons of safety, etc.

Technical features	
Fluid	Vacuum
Flow rate	2A - 250 VAC
Regulation (-kPa)	20 ... 90
Temperature (°C)	-5 ... 70
IP Rating	IP67
Weight (gr.)	62,5

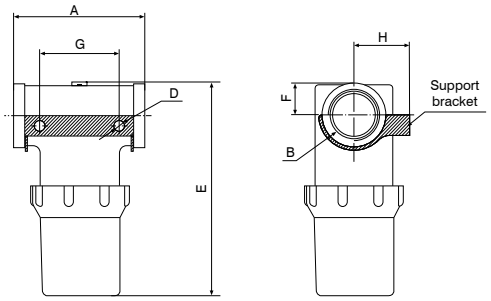
High efficiency silencers



Code	Description	A	B	C	ØD	Weight (gr.)
19S18.S	Silencer G1/8"	G1/8"	6	30	16	10
19S14.S	Silencer G1/4"	G1/4"	8	50	20	21
19S38.S	Silencer G3/8"	G3/8"	10	70	24	35
19S12.R	Silencer G1/2" reduced	G1/2"	12	70	29	46
19S12.S	Silencer G1/2"	G1/2"	12	90	35	83
19S34.R	Silencer G3/4" reduced	G3/4"	12	90	35	86
19S34.S	Silencer G3/4"	G3/4"	12	110	50	144
19S10.R	Silencer G1" reduced	G1"	14	110	50	144

The use of sound-absorbing material enclosed in appropriate aluminium containers made it possible to create this range of silencers which significantly lower air noisein the vacuum generator discharge stage.
Noise reduction: from -13 to -20 dBA
Working temperature: from -20 to +100 °C

Vertical filters



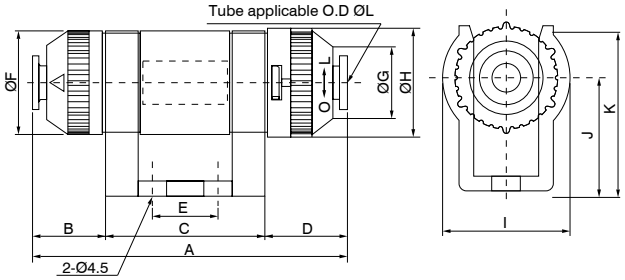
Code	Description	Flow rate (l/min)	Volume (cm^3)	A	B	D	E	F	G	Weight (gr.)
19F38.V.00	Filter G3/8"	150	45	76	2-G3/8"	2 - Ø6.5	71.3	14	45	70
19F12.V.00	Filter G1/2"	900	195	91	2-G1/2"	2 - Ø8.5	131.5	16	50	168
19F34.V.00	Filter G3/4"	900	205	91	2-G3/4"	2 - Ø8.5	139	18.5	50	170
19F10.V.00	Filter G1"	2520	495	126	2-G1"	2 - Ø10.5	167	23	80	424

Filter elements

Code	Description
RK1900/0022	Filter element for 19F12.V.00 and 19F34.V.00
RK1900/0023	Filter element for 19F10.V.00
RK1900/0024	Filter G3/4"

Preventing contaminants from reaching the vacuum generator is critical for maintaining its proper operation. Filters of this series have this function, manufactured in a simple way, have threaded connections for installation and a bowl that can be easily taken off to allow fast cleaning of the internal filter cartridge.
The various models of filter cover a flow rate range running from 150 to 2520 l/m, degree of filtration: 10 micron, working temperature: -20 / 80 °C, working pressure:-100 / 0 kPa.

Line filters



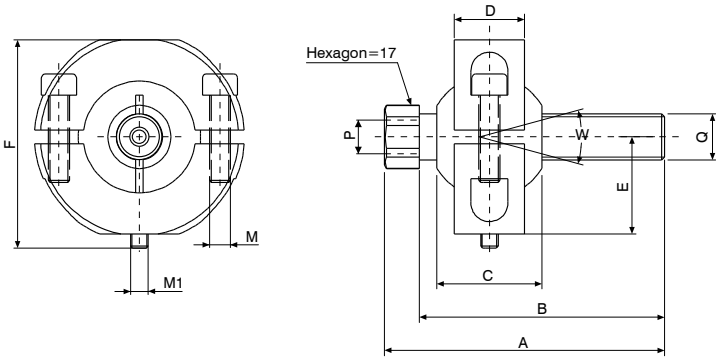
Code	Description	A	B	C	D	E	ØF	ØG	ØH	I	J	K	ØL	Weight (gr.)
19F04.L.01	Tube Ø4 - 20 l/min	53,2	9,1	30	14,1	10	18	11,6	19,5	23	20	29	4	14
19F06.L.01	Tube Ø6 - 20 l/min	53,2	9,1	30	14,1	10	18	11,6	19,5	23	20	29	6	13
19F06.L.02	Tube Ø6 - 50 l/min	67	15,5	34	17,5	14	22	15,6	23,1	27	24	35	6	26
19F08.L.02	Tube Ø8 - 50 l/min	67	15,5	34	17,5	14	22	15,6	23,1	27	24	35	8	24

Filter elements

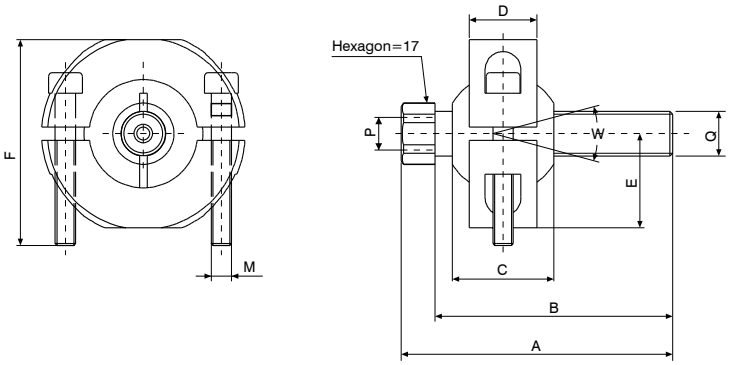
Code	Description
RK1900/0020	Filter element for 19F04.L.01 and 19F06.L.01
RK1900/0021	Filter element for 19F06.L.02 and 19F08.L.02

Line filters can handle very fine powders and contaminants without interfering with the intake flow rate. Thanks to the small dimensions they can be installed directly on the suction cups or on the vacuum pipework, and since they have automatic connections, wiring operations are facilitated.
Degree of filtration: 10 micron, working temperature: 0-60 °C, working pressure:-100 / 0 kPa.

Suction Cup Support



Code	A	B	C	D	E	F	P	Q	M	M1	W	Weight (gr.)
19SP1.T	80	70	55.6	20	27.5	59.5	G1/8"	G1/4"	M6	M5	30°	174



Code	A	B	C	D	E	F	P	Q	M	W	Weight (gr.)
19SP2.T	80	70	55.6	20	27.5	61	G1/8"	G1/4"	M6	30°	180

Support for suction cup with adjustability and fastening via a ball bearing that allows it to be kept in the desired position.

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