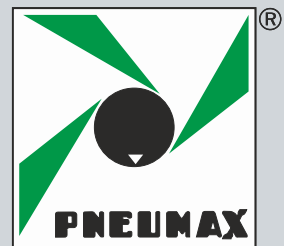


VACUUM GENERATORS **3**

3

PNEUMAX GREEN LINE: TECHNOLOGY & INNOVATION



www.pneumaxspa.com

General details

Vacuum generators of the pneumatic type operate on the Venturi principle: one or more nozzles are fed by compressed air, generating a jet of air that drags (in contact with the environment) the surrounding air and then evacuates. This "dragging" creates a depression which results in generation of a vacuum. The big advantage of pneumatic pumps is that they can operate only when the suction cups connected to them require vacuum.

Advantages:

- 1) Consumption of air (and therefore power) limited to moments of use.
- 2) Installation directly proximate to the suction cups (simplification of layout / savings).
- 3) Short response times and high capacity.
- 4) Flow rates for any requirement.
- 5) No limit to applications.
- 6) Compactness / lightness / reliability / little or no wear.

Types:

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

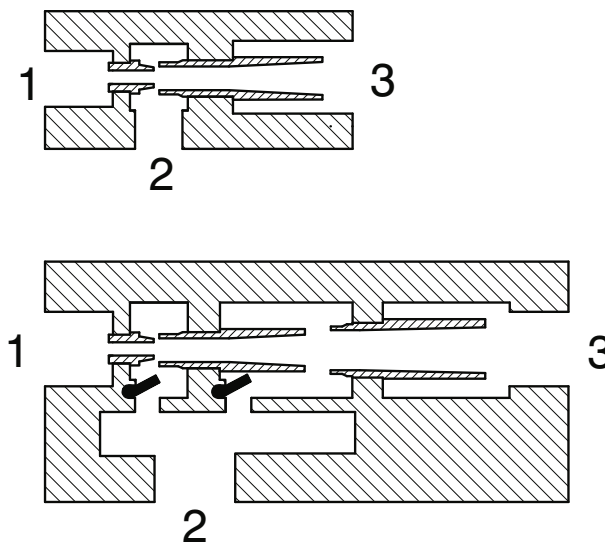
- 1) Single stage, compact and/or miniaturised, with pneumatic or electropneumatic control, for direct-contact installation with suction cup holders and suction cups.
- 2) Multistage with or without integrated functions, with pneumatic or electropneumatic control, for de-localised assembly and for controlling groups of suction cups.

Range:

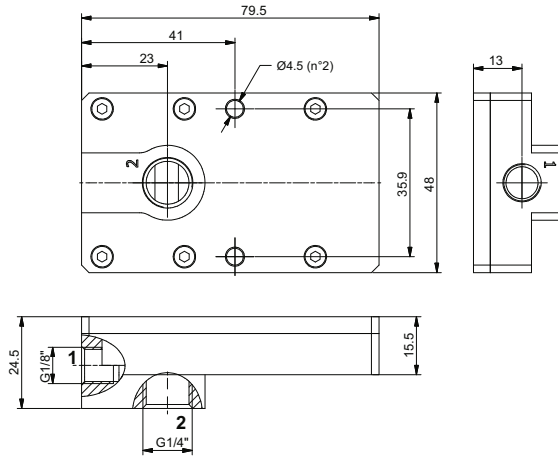
The **PNEUMAX** range consists of single-stage and multistage equipment of various sizes and types; the single-stage generators use the Venturi effect in a single medium/high throughput nozzle and promptly generate vacuum, flow rate and suction values that are suitable for medium/light applications. 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.

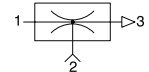
Multistage section



Multistage vacuum generator G1/4"



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

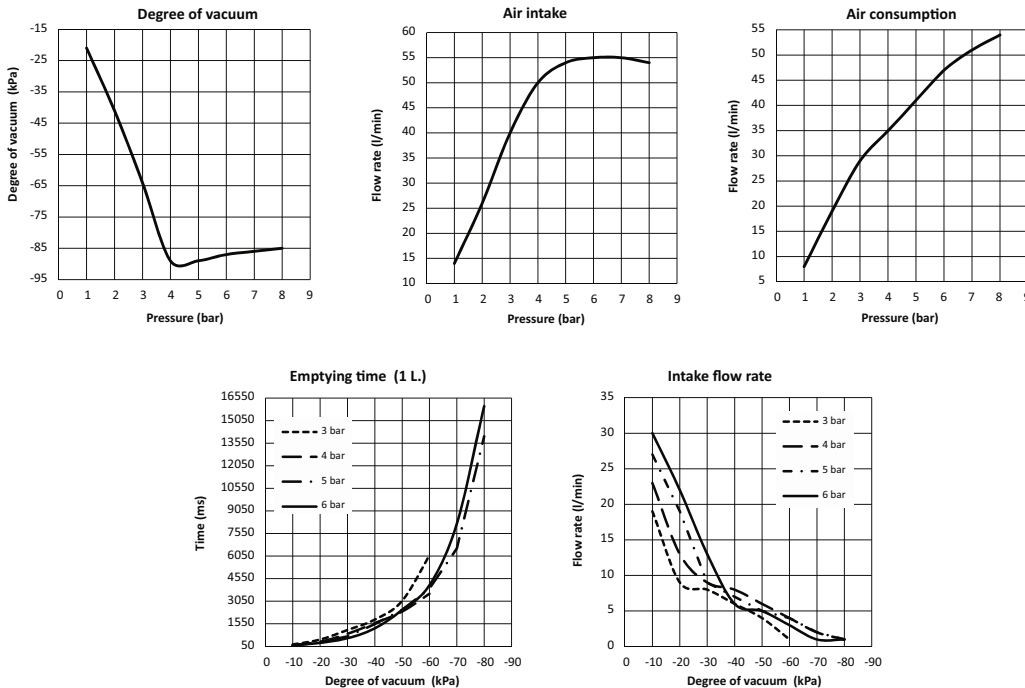


Compact generators comprising a number of modules as a function of the desired performance allow high-suction capacity with low consumption and other degrees of vacuum; as a function of the modules (nozzles 2-4-6-8) used, offer exactly the right performance for the most varied of industrial applications. They ensure a low level of noise thanks to the sound-absorbent material inside of them.

Performance characteristics

- Supply 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

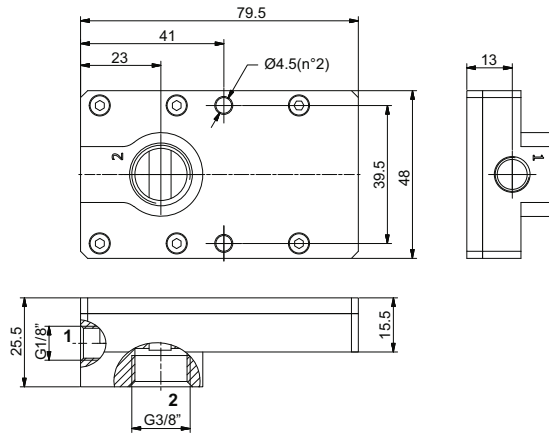
Characteristic curves



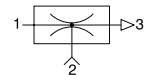
Technical features

Fluid	Unlubricated filtered air
Pressure (bar)	1 ÷ 8
Temperature (°C)	-10 ÷ +80
Weight (g)	130

Multistage vacuum generator G3/8"



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

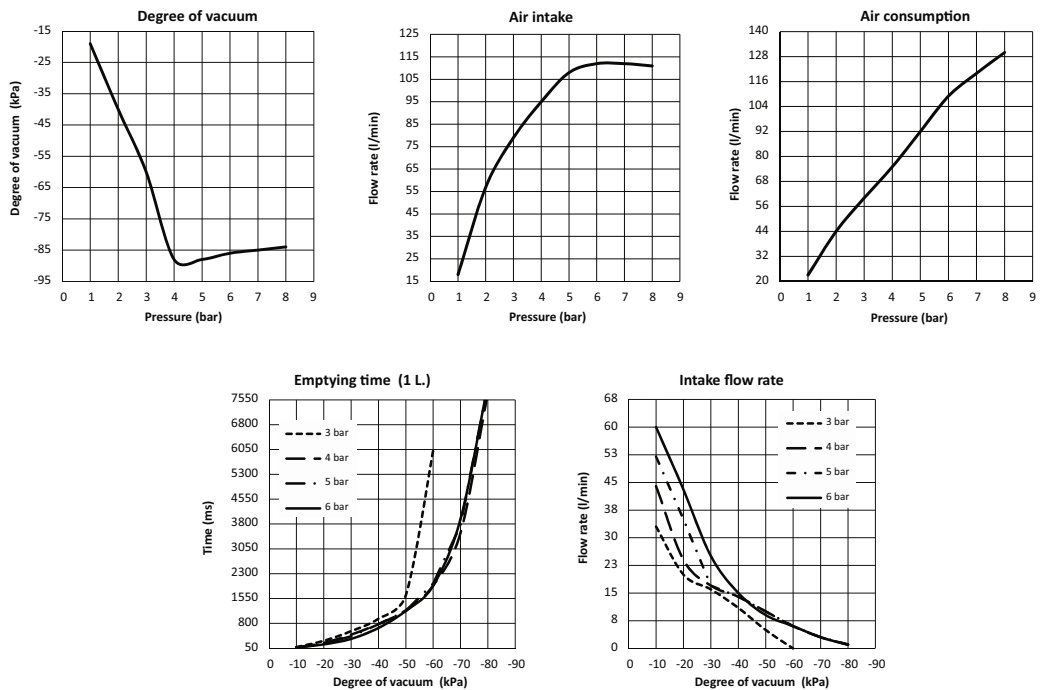


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Performance characteristics

- Supply 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

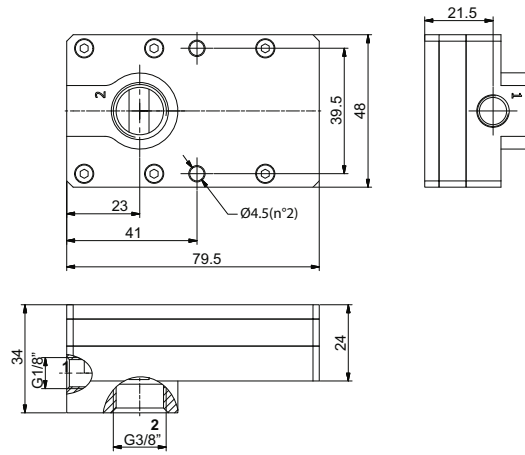
Characteristic curves



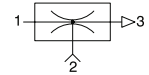
Technical features

Fluid	Unlubricated filtered air
Pressure (bar)	1 ÷ 8
Temperature (°C)	-10 ÷ +80
Weight (g)	132

Multistage vacuum generator G3/8"



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

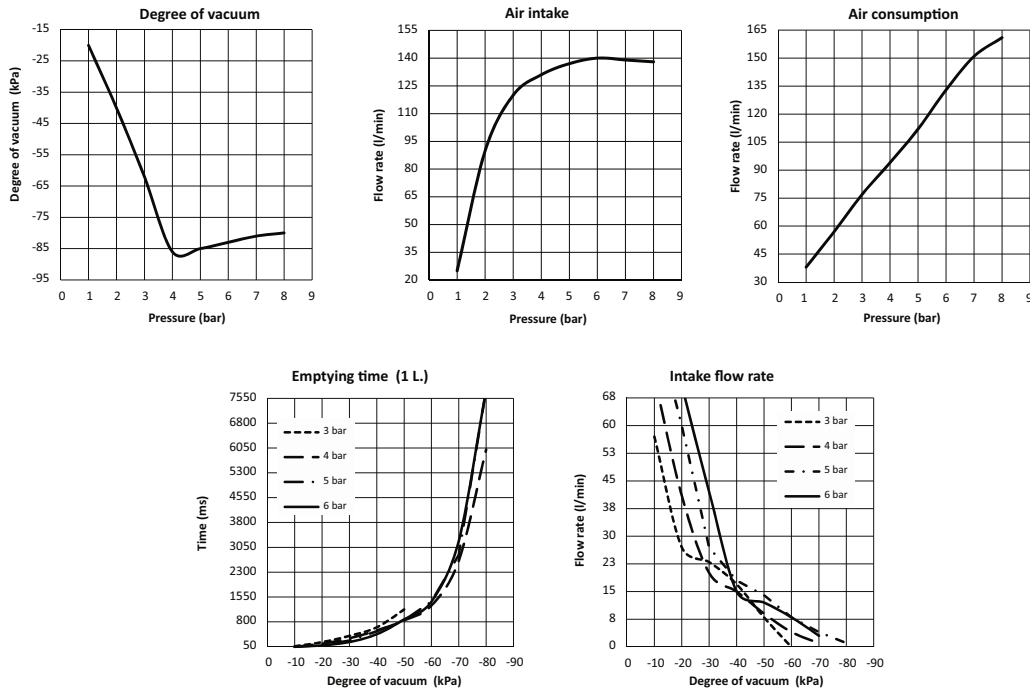


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Performance characteristics

- Supply 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

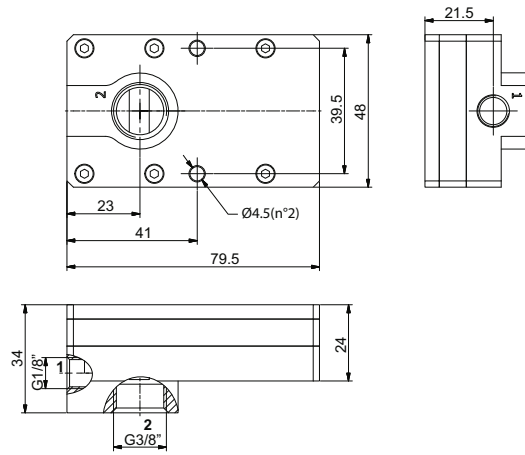
Characteristic curves



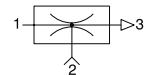
Technical features

Fluid	Unlubricated filtered air
Pressure (bar)	1 ÷ 8
Temperature (°C)	-10 ÷ +80
Weight (g)	178

Multistage vacuum generator G3/8"



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

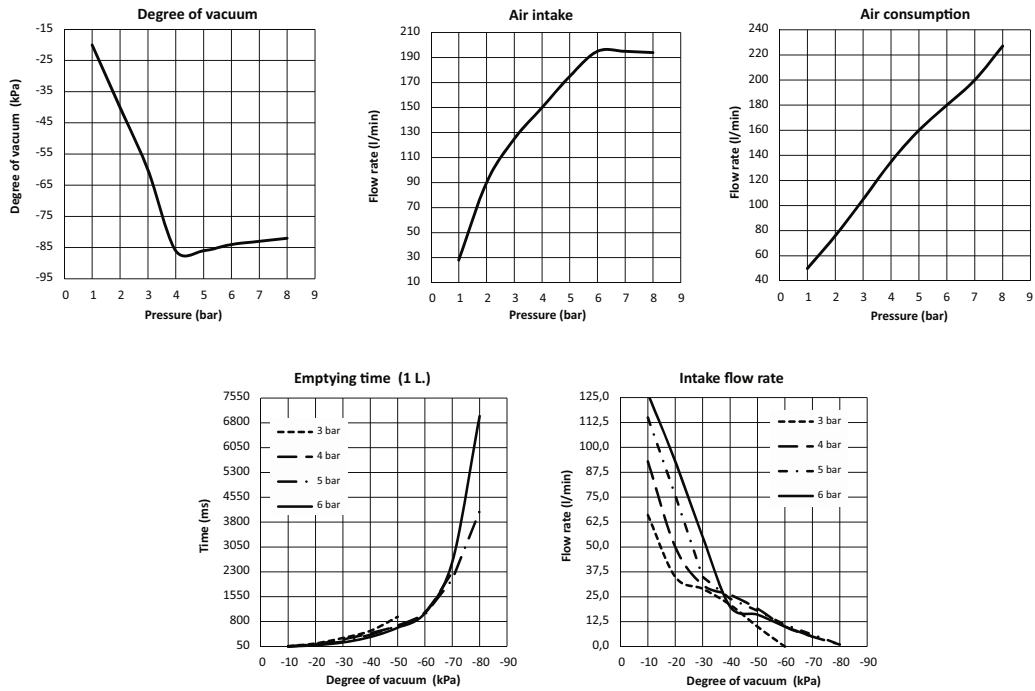


Compact generators comprising a number of modules as a function of the desired performance allow high-suction capacity with low consumption and other degrees of vacuum; as a function of the modules (nozzles 2-4-6-8) used, offer exactly the right performance for the most varied of industrial applications. They ensure a low level of noise thanks to the sound-absorbent material inside of them.

Performance characteristics

- Supply 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

Characteristic curves



Technical features

Fluid	Unlubricated filtered air
Pressure (bar)	1 ÷ 8
Temperature (°C)	-10 ÷ +80
Weight (g)	178

General details

These generators are separate vacuum units that can control a complete vacuum gripping system. They are designed and manufactured to be installed individually, model SE, or to be assembled with intermediate modules, model ME, the latter making it possible to create a multi-position manifold with 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.

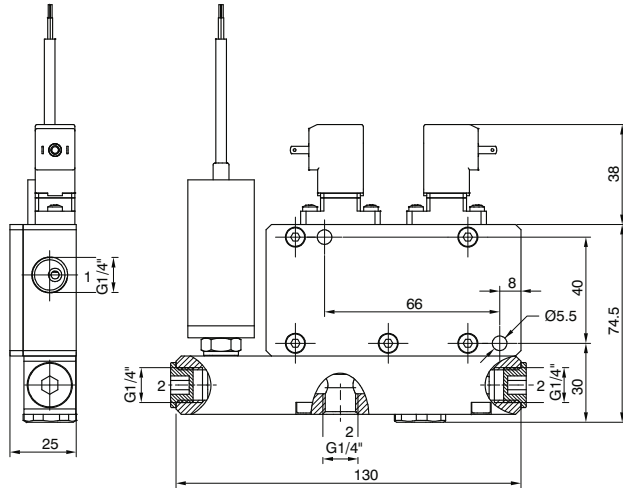
This modulation allows considerable savings of compressed air in addition to keeping the degree of vacuum within safety range.

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.

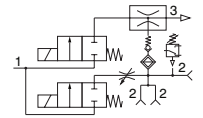
Once the cycle has completed, the supply solenoid pilot valve for air supply to the generator powers down and at the same time the release solenoid pilot valve powers up to quickly restore atmospheric pressure within the circuit.

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.

Multifunction vacuum generator



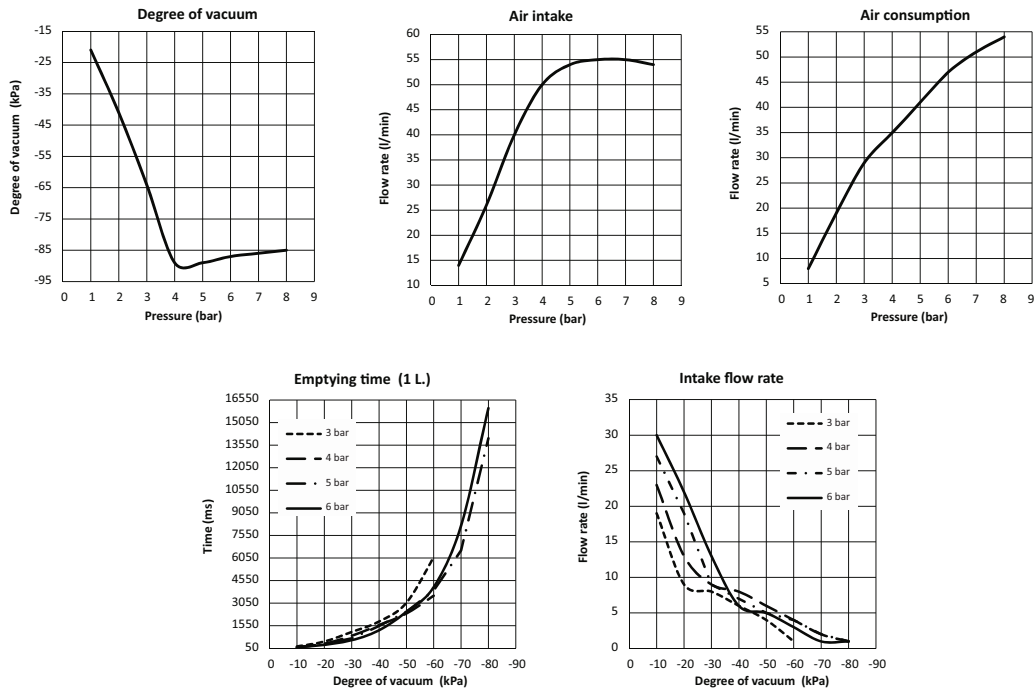
Ordering code
19M14.M.09.SE.ED



Performance characteristics

- Supply 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

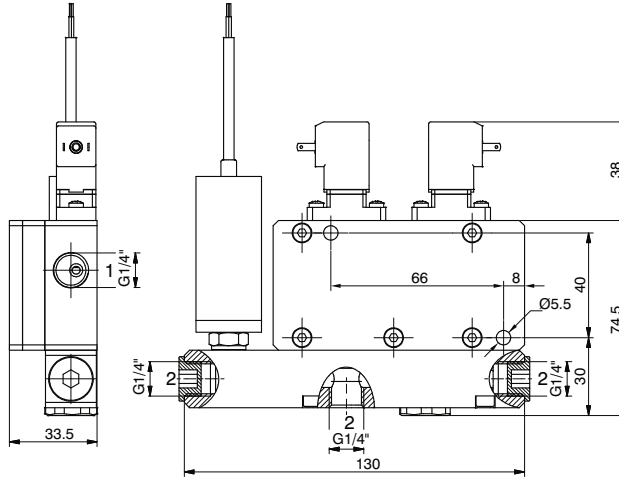
Characteristic curves



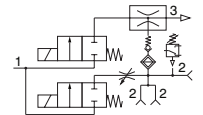
Technical features

Fluid	Unlubricated filtered air
Pressure (bar)	0 ÷ 6
Supply and release solenoid valve function	N.C.
Power consumption	4 Watt
Tensione di alimentazione	24 VDC
Solenoid valve level of protection	IP65
Vacuum switch output	2 PNP
Vacuum switch level of protection	IP40
Temperature (°C)	-10 ÷ +60
Weight (g)	538

Multifunction vacuum generator



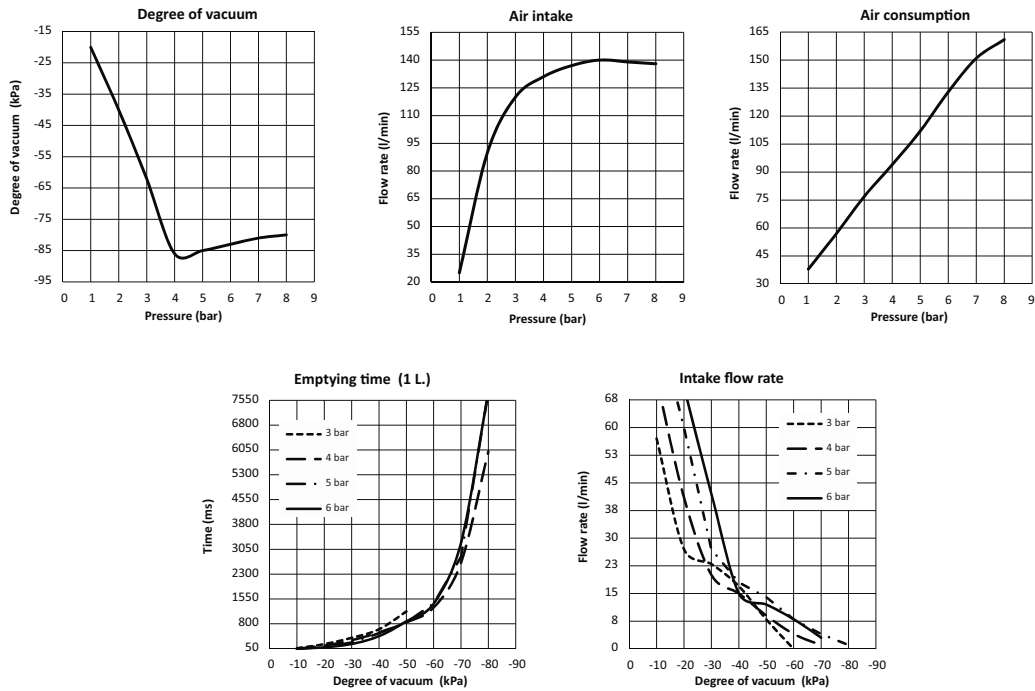
Ordering code
19M14.M.15.SE.ED



Performance characteristics

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Characteristic curves

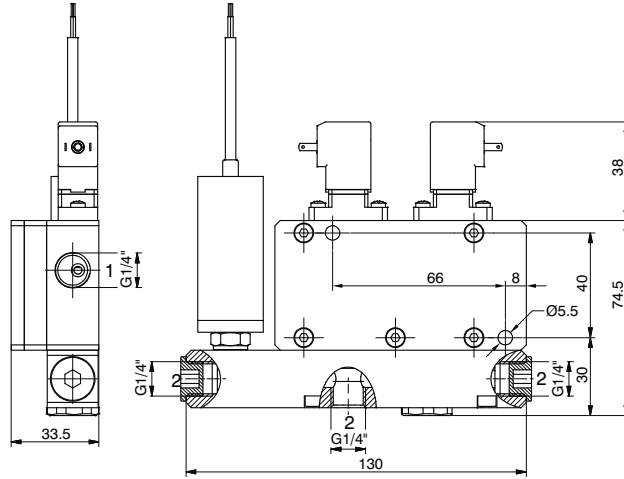


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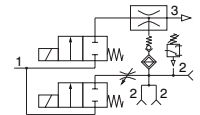
Technical features

Fluid	Unlubricated filtered air
Pressure (bar)	0 ÷ 6
Supply and release solenoid valve function	N.C.
Power consumption	4 Watt
Tensione di alimentazione	24 VDC
Solenoid valve level of protection	IP65
Vacuum switch output	2 PNP
Vacuum switch level of protection	IP40
Temperature (°C)	-10 ÷ +60
Weight (g)	661

Multifunction vacuum generator



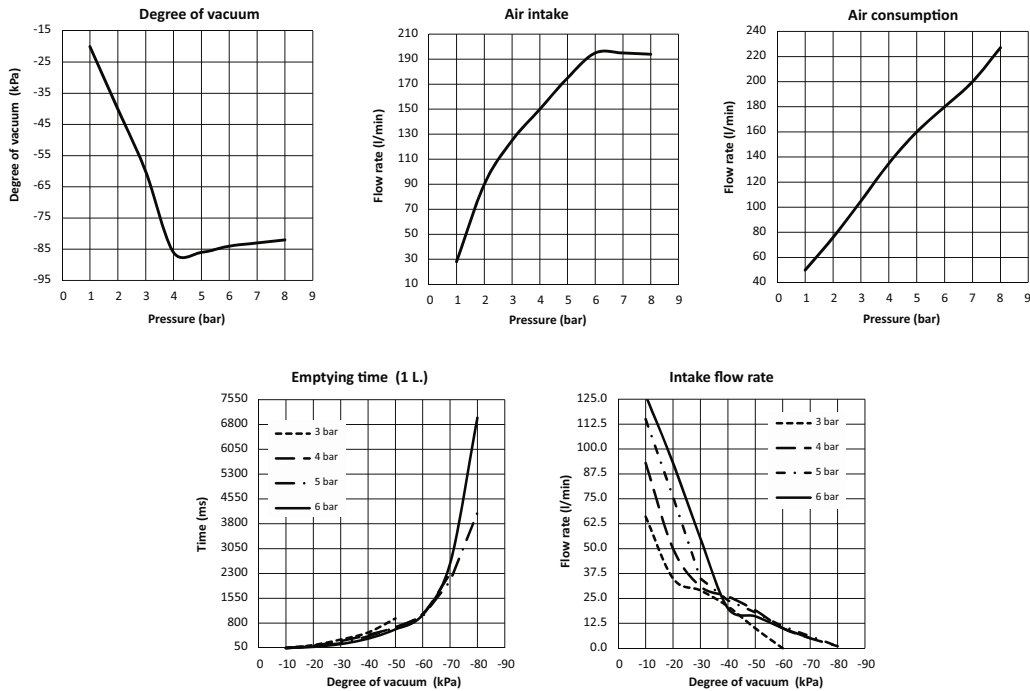
Ordering code
19M14.M.18.SE.ED



Performance characteristics

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Characteristic curves



Technical features

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Power consumption	4 Watt
Tensione di alimentazione	24 VDC
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Vacuum switch level of protection	IP40
Temperature (°C)	-10 ÷ +60
Weight (g)	661



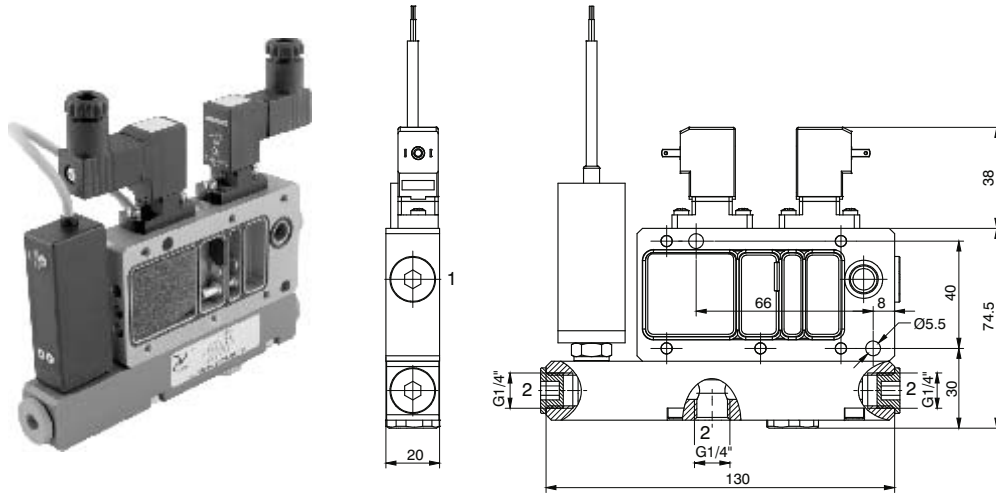
General details

The intermediate "ME" models are multistage and multifunction vacuum generators that are not autonomous and must be hooked up to the "SE" units to operate. They were 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.

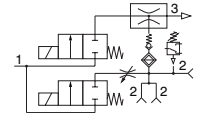
These can be ordered as individual components in the desired number and capacity, although to mount them onto the "SE" generator, a kit with a number of screws corresponding to the number of modules to be attached is necessary.

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.

Modular multifunction vacuum generators



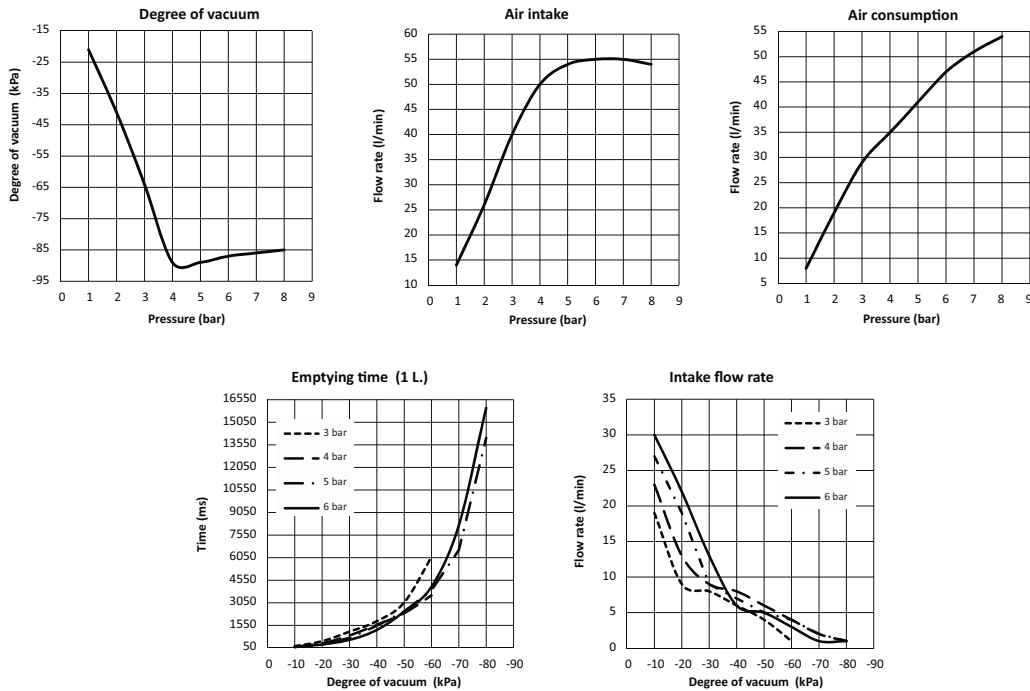
Ordering code
19M14.M.09.ME.ED



Performance characteristics

- Supply 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

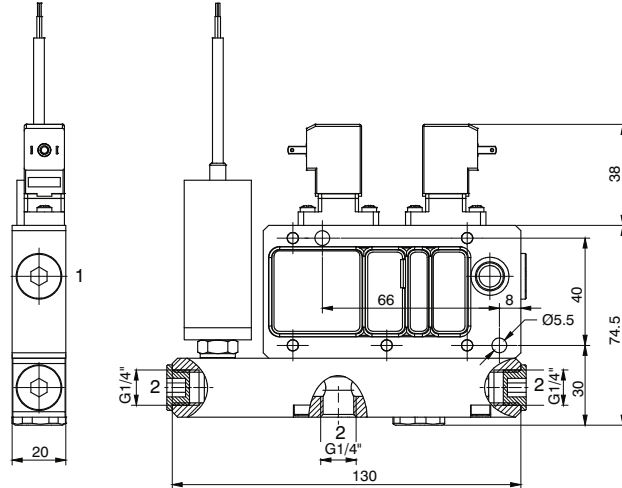
Characteristic curves



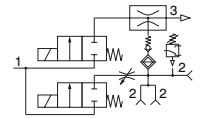
Technical features

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

Modular multifunction vacuum generators



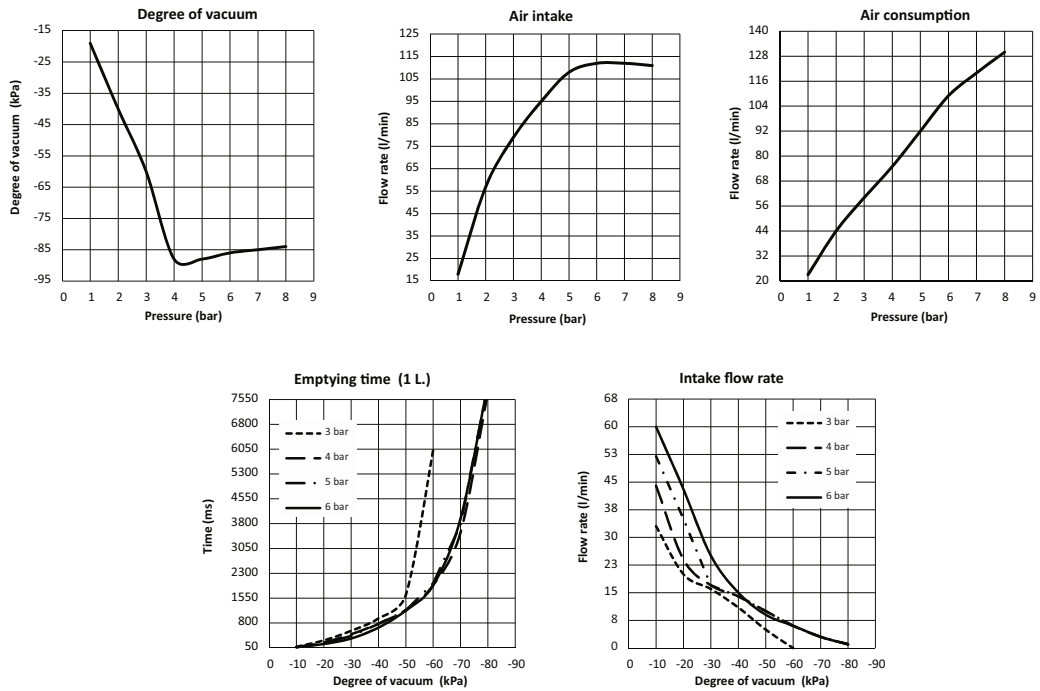
Ordering code
19M14.M.12.ME.ED



Performance characteristics

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- Air consumption (l/min)	44	75	109

Characteristic curves

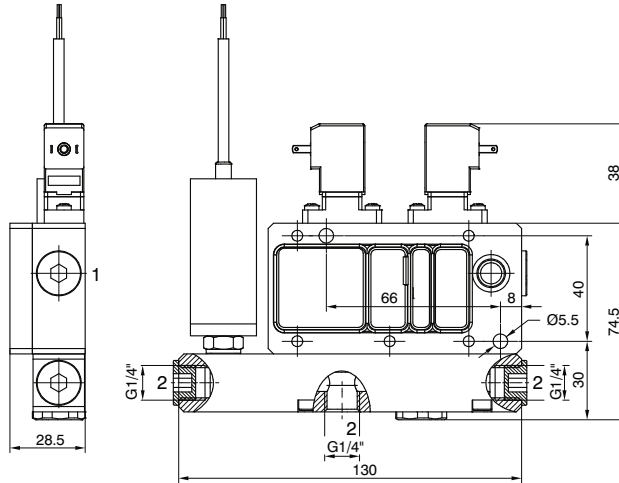


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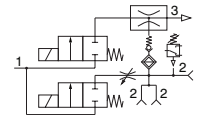
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Weight (g)	474

Modular multifunction vacuum generators



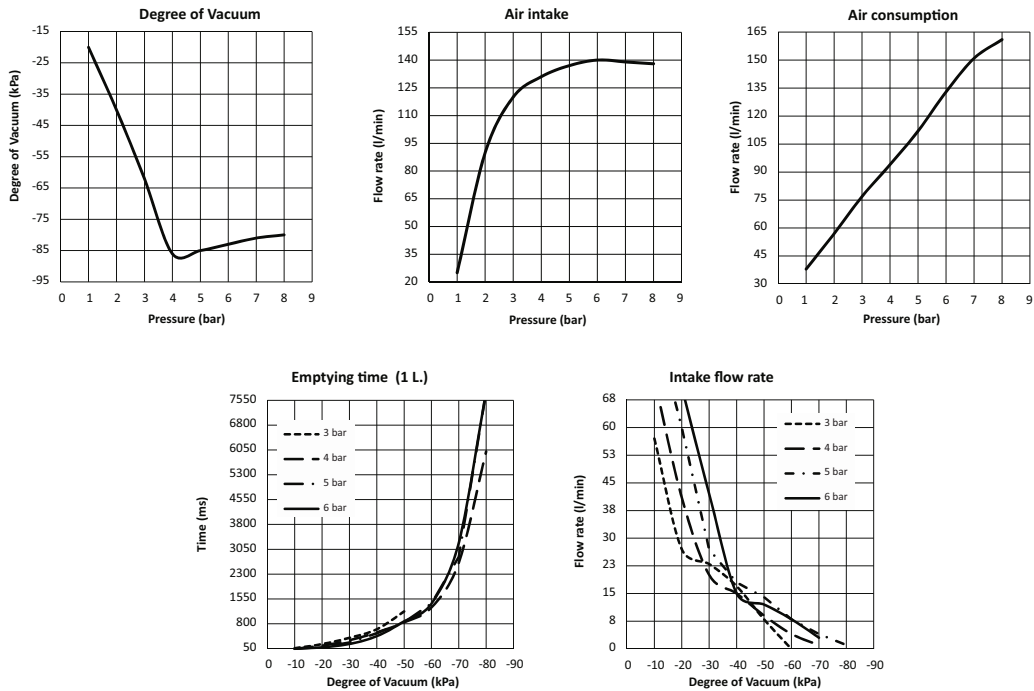
Ordering code
19M14.M.15.ME.ED



Performance characteristics

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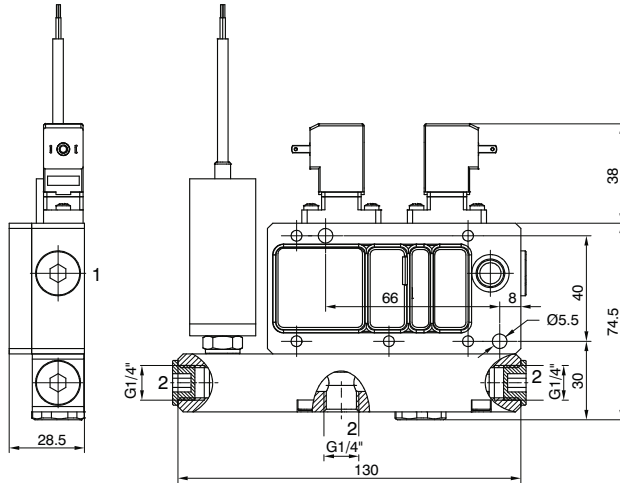
Characteristic curves



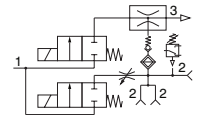
Technical features

Fluid	Unlubricated filtered air
Pressure (bar)	0 ÷ 6
Supply and release solenoid valve function	N.C.
Power consumption	4 Watt
Supply voltage	24 VDC
Solenoid valve level of protection	IP65
Vacuum switch output	2 PNP
Vacuum switch level of protection	IP40
Temperature (°C)	-10 ÷ +60
Weight (g)	537

Modular multifunction vacuum generators



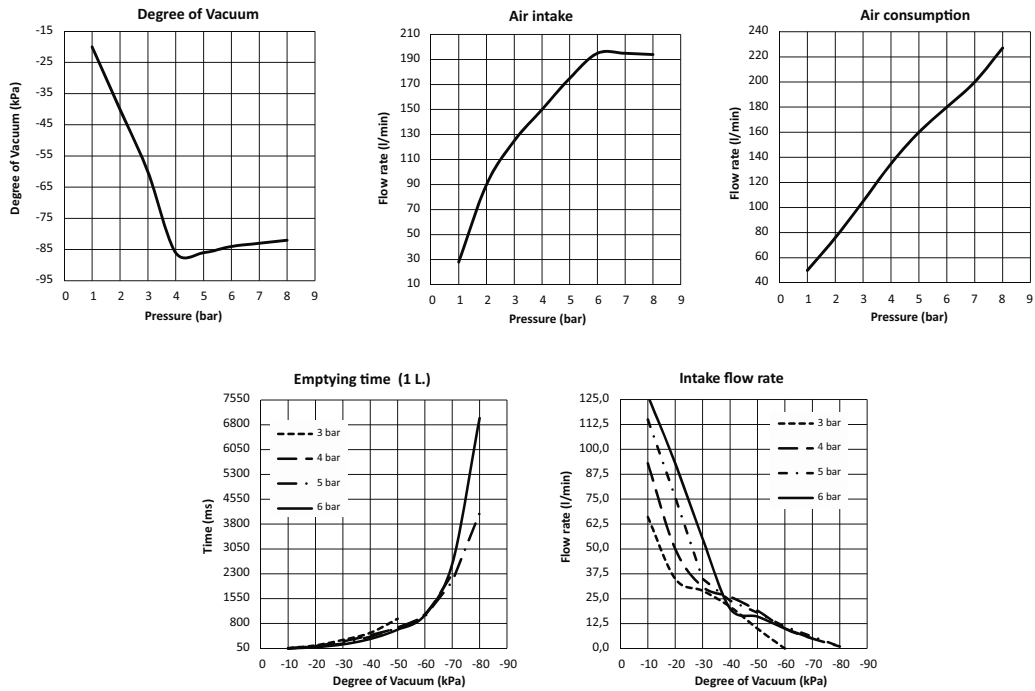
Ordering code
19M14.M.18.ME.ED



Performance characteristics

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Characteristic curves



Technical features

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