



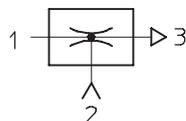
- Simple, compact, robust design
- Quick and reliable setting down of parts via an ejector pulse from a pre-filled reservoir
- 4 nominal sizes:
0.5 ... 1.5 mm
- No wearing parts
- Free of copper and PTFE

Vacuum generators

Key features

Product overview

Vacuum generator



All Festo vacuum generators have a single-stage design and operate according to the venturi principle. The product families described below

have been designed for a wide range of applications. The different performance classes of the individual

product families make it possible to select vacuum generators tailored to suit specific requirements.

Standard and inline ejectors

VN-...

→ 6 / 1.1-13



- Nominal size 0.45 ... 3 mm
- Max. vacuum 93%
- Temperature range 0 ... +60 °C
- A range of extremely effective generators suitable for use directly in the workplace
- Available as straight or T-shaped housing
- Low space requirement
- Low-cost
- No wearing parts
- Extremely fast evacuation time
- Vacuum switch (optional)
- Optional with additional functions:
 - integrated eject pulse
 - electric control for vacuum ON/OFF
 - combination of eject pulse and control

VAD-.../VAK-...

→ 6 / 1.1-54



- Nominal size 0.5 ... 1.5 mm
- Max. vacuum 80%
- Temperature range -20 ...+80 °C
- Range of vacuum generators with sturdy aluminium casing
- VAK-...: Built-in reservoir
- VAD-...: Connection for additional external reservoir
- Maintenance-free
- VAK-...: Reliable setting down of workpieces

Vacuum generators

Key features

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Vacuum generators
Pneumatic

1.1

Compact ejectors

VADM-...VADMI-...

→ 6 / 1.2-8



- Nominal size
0.45 ... 3 mm
- Max. vacuum
84%
- Temperature range
0 ... +60 °C
- Compact design
- Minimal installation work required
- Short response times
- Built-in solenoid valve (on/off)
- VADMI-...: Additional built-in solenoid valve for ejector pulse
- Filter with display
- Air-saving circuit (optional)
- Vacuum switch (optional)
- Reliable setting down of workpieces

VAD-M-.../VAD-M-I-...

→ 6 / 1.2-28



- Nominal size
0.7 ... 2 mm
- Max. vacuum
85%
- Temperature range
0 ... +40 °C
- Compact design
- Minimal installation work required
- Short response times
- Built-in solenoid valve (on/off)
- VAD-M-I-...: Additional built-in solenoid valve for ejector pulse
- Reliable setting down of workpieces

Vacuum generators VAD/VAK

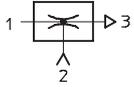
Key features



Vacuum generators
Pneumatic

1.1

At a glance



- Vacuum generation via ejector principle
- Mounting holes in metal housing
- Connecting thread for the suction

Compressed air flowing from 1 to 3 generates a vacuum at port 2 in accordance with the ejector principle.

The low noise levels which occur during exhaust can be further reduced with a silencer at port 3.

Workpieces can be picked up in any position. When the compressed air is turned off, the suction process ends and the vacuum dissipates.

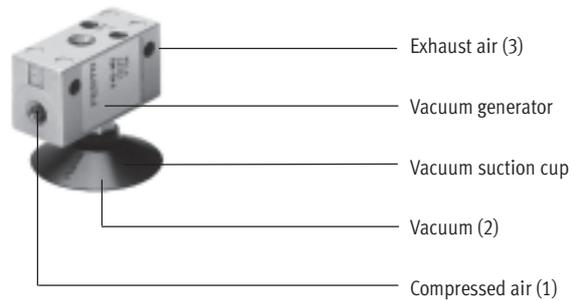
During the suction process, the vacuum generator VAK fills a reservoir of approx. 32 cm³ with compressed

air, which creates an ejector pulse when the input pressure is switched off and reliably releases the workpiece from the suction cup.

Max. switching frequency approx. 10 Hz at 6 bar and with approx. 1 m suction line.

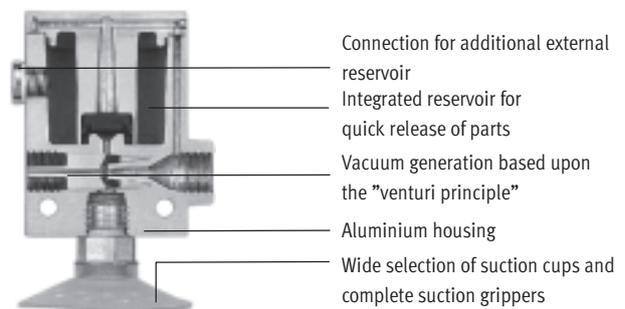
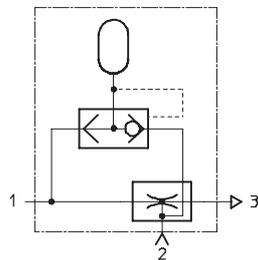
Vacuum generator VAD-... without ejector pulse

- Workpieces can be picked up in any position.
- Sturdy and resistant to environmental factors
- Easy to install
- No moving parts, maintenance-free
- Connecting threads and mounting holes available



Vacuum generator VAK-... with ejector pulse

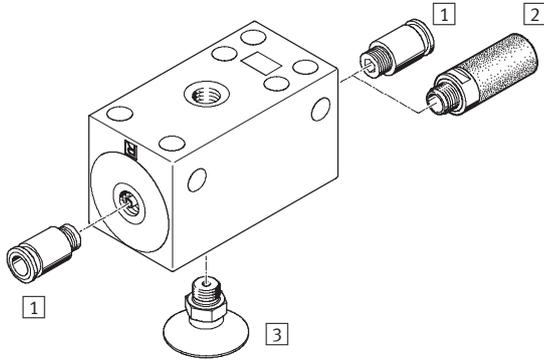
- Quick and reliable setting down of parts via an ejector pulse from a pre-filled reservoir
- Robust vacuum generator for a broad field of applications
- Optional silencer



Vacuum generators VAD/VAK

Peripherals overview and type codes

Peripherals overview



Mounting attachments and accessories		→ Page
1	Push-in fitting QS	Volume 3 www.festo.com
2	Silencer U/UC	6 / 4.1-21
3	Suction cups VAS/VASB	6 / 2.1-77
-	Suction gripper ESG	6 / 2.1-7
-	Suction cup holder ESH	6 / 2.1-33
-	suction cup ESS	6 / 2.1-49

Type codes

		VAD	-	M5
Type				
VAD	Vacuum generator			
VAK	Vacuum generator			
Connection sizes				
M5	Thread M5			
1/8	Thread G1/8			
1/4	Thread G1/4			
3/8	Thread G3/8			

-  - Note
Possible combinations can be found in the ordering data.

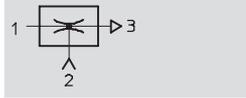
Vacuum generators VAD/VAK

Technical data



Function

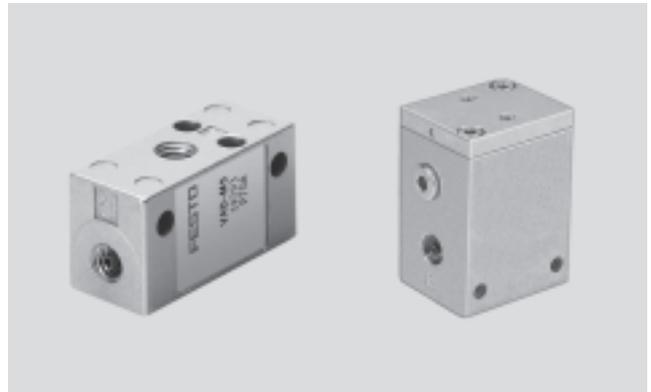
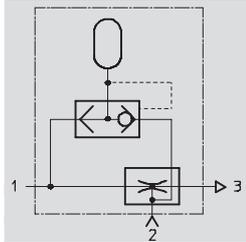
VAD-...



-  - Temperature range
-20 ... +80 °C

-  - Operating pressure
1.5 ... 10 bar

VAK-...



General technical data					
Type	VAD-...				VAK-...
Size	M5	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{4}$
Design	Block-shaped				
Operating medium	Lubricated and unlubricated compressed air				
Mounting position	Any				
Ejector features	High vacuum				
Type of mounting	Via through-holes				
Pneumatic connection	M5	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{4}$
Nominal size of laval nozzle [mm]	0.5	0.8	1.0	1.5	1.0
Max. vacuum [%]	80				
Operating pressure [bar]	1.5 ... 10				

Ambient conditions	
Variant	VAD/VAK
Ambient temperature [°C]	-20 ... +80
Corrosion resistance CRC ¹⁾	2
Note on material	Free of copper, PTFE and silicone

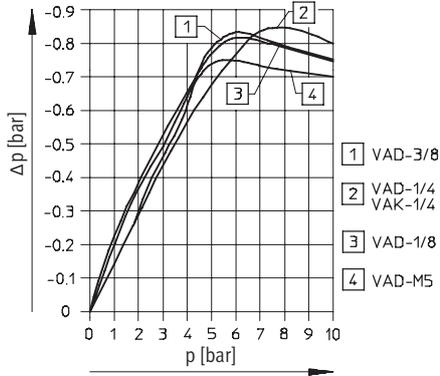
1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a surrounding industrial atmosphere or media such as cooling or lubricating agents.

Weights [g]					
Type	VAD-...				VAK-...
Size	M5	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{4}$
VAD-.../VAK-...	14	40	90	155	265

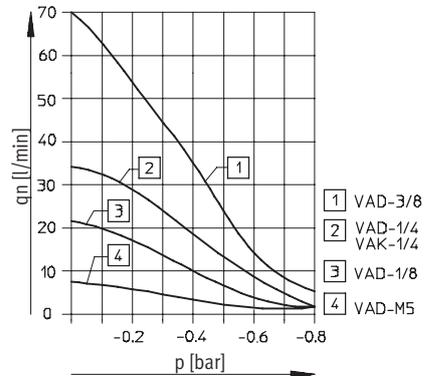
Vacuum generators VAD/VAK

Technical data

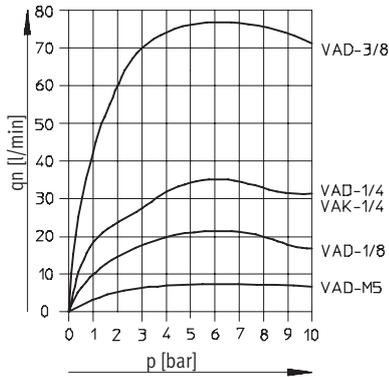
Vacuum Δp as a function of operating pressure p



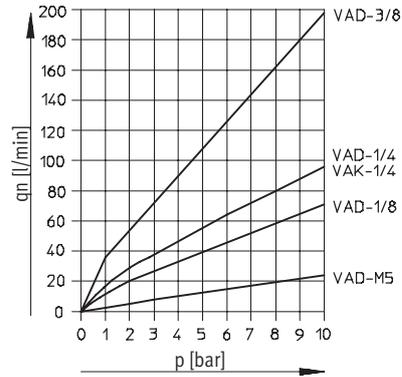
Suction capacity q_n as a function of vacuum p



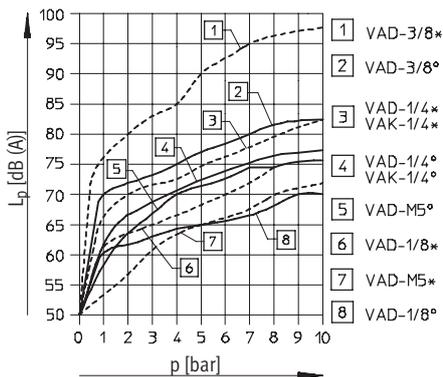
Suction capacity q_n as a function of operating pressure p



Air consumption q_n as a function of operating pressure p



Noise level L_p as a function of operating pressure p



* = without silencer; ° = with silencer

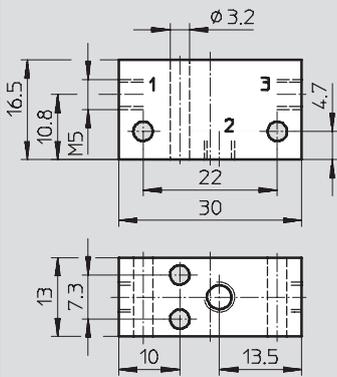
Vacuum generators VAD/VAK

Technical data



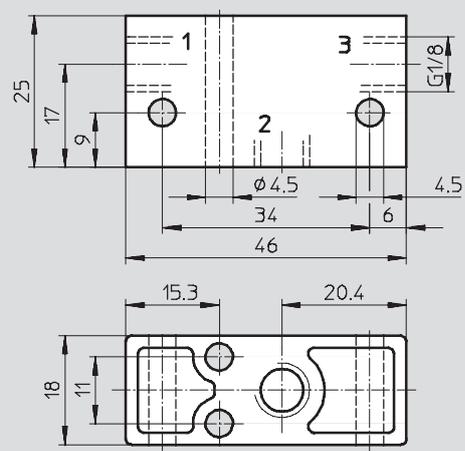
Dimensions

VAD-M5

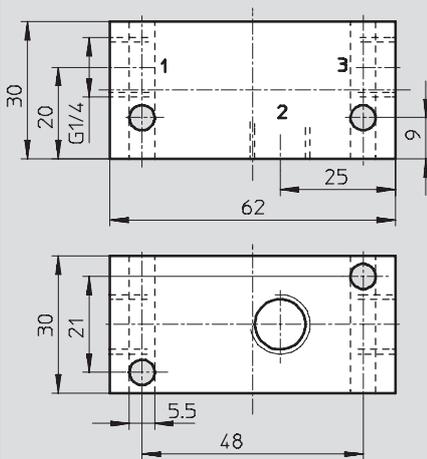


- 1 Compressed air connection
- 2 Vacuum port
- 3 Exhaust

VAD-1/8

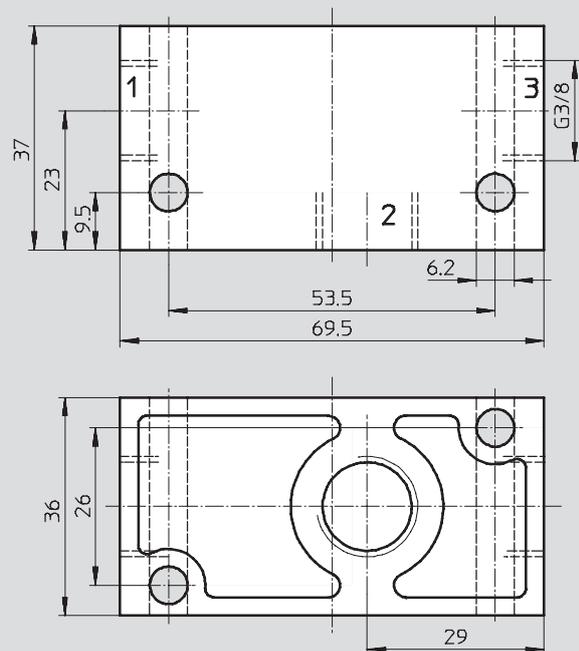


VAD-1/4



- 1 Compressed air connection
- 2 Vacuum port
- 3 Exhaust

VAD-3/8



Vacuum generators VAD/VAK

Technical data

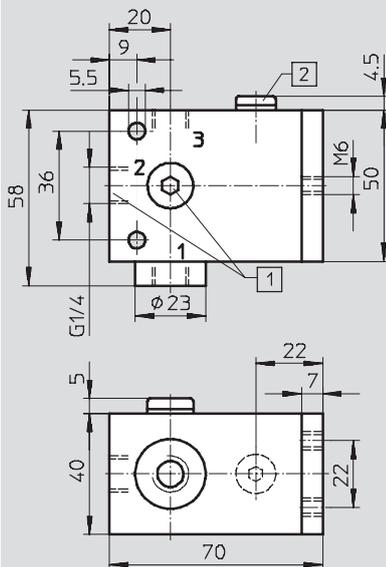
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Vacuum generators
Pneumatic

1.1

Dimensions

VAK-1/4



- 1 Alternative connection 2
- 2 Connection for additional reservoir
- 1 Compressed air connection
- 2 Vacuum port
- 3 Exhaust

Response time [s] as a function of vacuum [bar] at 6 bar operating pressure and 1 l volume

Type	Vacuum			
	0.2	0.4	0.6	0.8
VAD-M5				
Evacuation	1.3	3.53	8.18	26.6 ¹⁾
Air supply	2.8	3.8	4.65	5.45
VAD-1/8				
Evacuation	0.51	1.38	3.41	11.67
Air supply	0.89	1.3	1.64	1.98
VAD-1/4				
Evacuation	0.29	0.745	1.69	4.04 ¹⁾
Air supply	0.61	0.89	1.12	1.32
VAD-3/8				
Evacuation	0.142	0.35	0.817	2.72
Air supply	0.265	0.372	0.46	0.536 ¹⁾
VAK-1/4				
Evacuation	0.29	0.745	1.69	4.04 ¹⁾
Air supply	0.61	0.89	1.12	1.32

1) At 0.75 bar vacuum.

Ordering data

Pneumatic connection	Part No.	Type
Without ejector pulse		
M5	19 293	VAD-M5
G1/8	14 015	VAD-1/8
G1/4	9 394	VAD-1/4
G3/8	19 294	VAD-3/8
With ejector pulse		
G1/4	6 890	VAK-1/4