



- Simple, compact, robust design
- Quick and reliable setting down of parts via an ejector pulse from a pre-filled reservoir
- No wearing parts

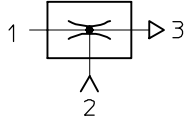
# Vacuum generators

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 / 1.1-9



- Nominal size  
0.45 ... 1.4 mm
- Max. vacuum  
88%
- 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 required
- Extremely fast evacuation time

VAD-.../VAK-...

→ 6 / 1.1-27



- 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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## Compact ejectors

VADM-...VADMI-...

→ 6 / 1.2-7



- 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 / 1.2-25



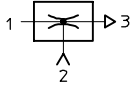
- Nominal size  
0.7 ... 2 mm
- Max. vacuum  
85%
- Temperature range  
0 ... +40 °C
- Compact design
- Minimal installation work required
- Short response times
- Built-in solenoid valve (on/off)
- VAD-M-I-...: Additional built-in solenoid valve for ejector pulse
- Reliable setting down of workpieces

# Vacuum generators VAD/VAK

Key features and type codes



## At a glance



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

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

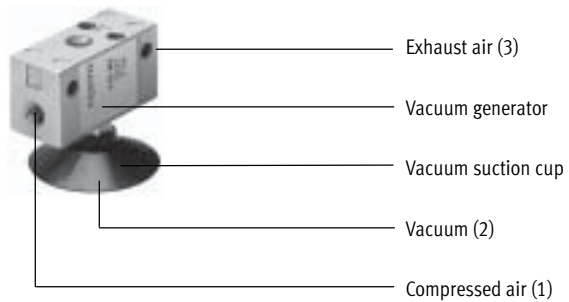
The low noise levels which occur during exhaust can be further reduced with a silencer at port 3.

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 cm<sup>3</sup> 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.

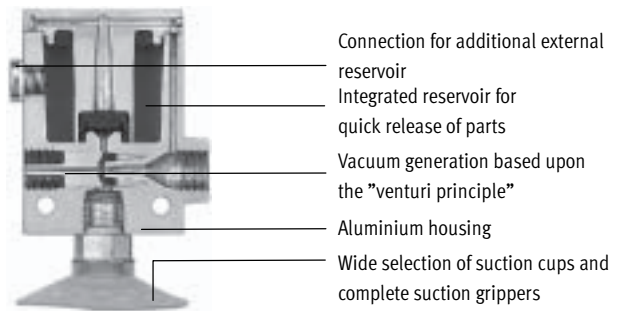
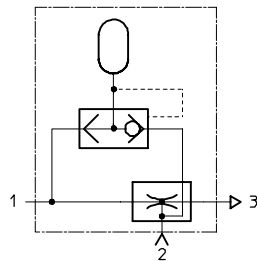
## Vacuum generator VAD-... without ejector pulse

- 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



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

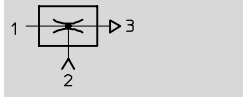
- - Note  
Possible combinations can be found in the ordering data.

# Vacuum generators VAD/VAK

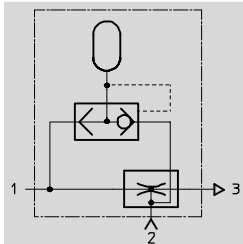
Technical data


Function


VAD-...

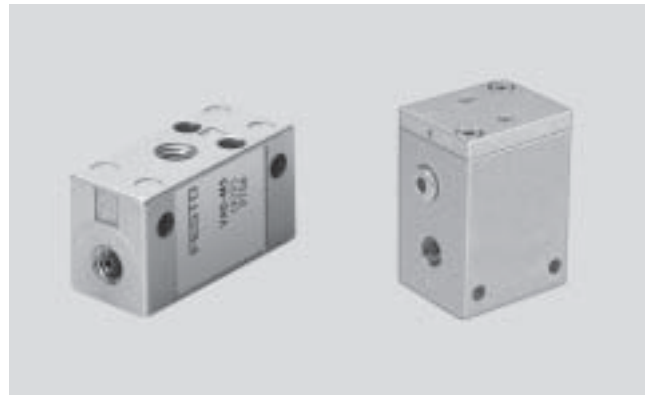


VAK-...



-  - Temperature range  
-20 ... +80 °C

-  - Operating pressure  
1.5 ... 10 bar



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 <sup>1)</sup>	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.

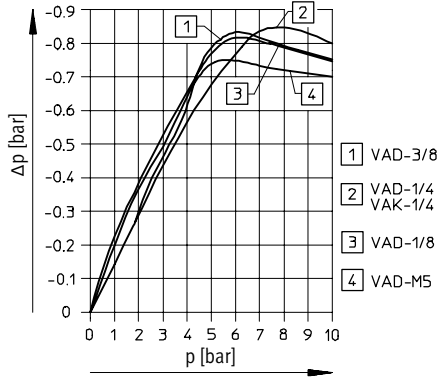
Weights [g]						
Type	VAD-...					VAK-...
Size	M5	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{4}$	
VAD-.../VAK-...	14	40	90	155	265	

# Vacuum generators VAD/VAK

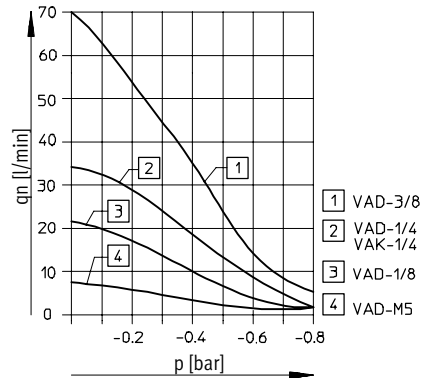
Technical data



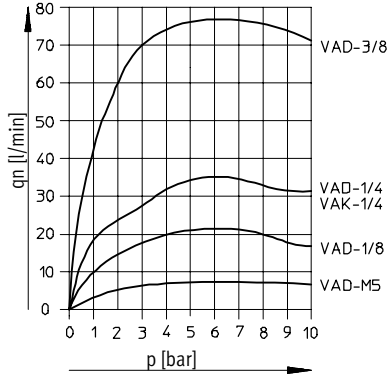
**Vacuum  $\Delta p$  as a function of operating pressure  $p$**



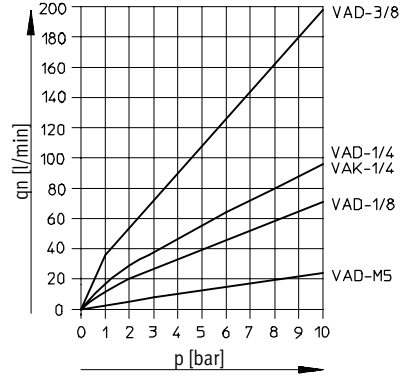
**Suction capacity  $q_n$  as a function of vacuum  $p$**



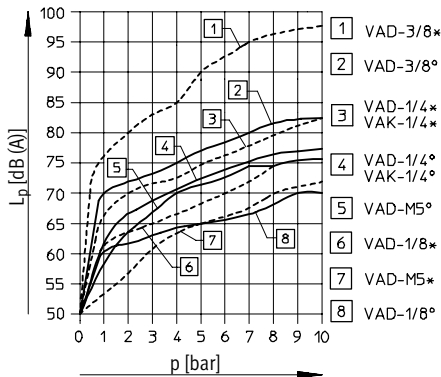
**Suction capacity  $q_n$  as a function of operating pressure  $p$**



**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

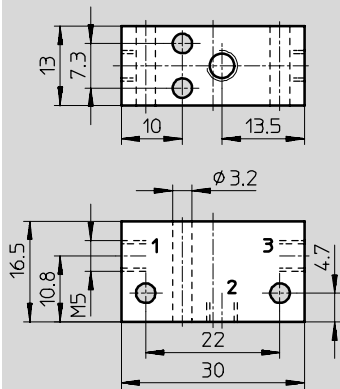
# Vacuum generators VAD/VAK

Technical data



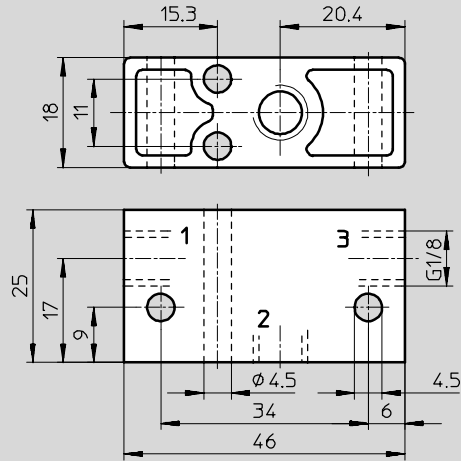
## Dimensions

VAD-M5

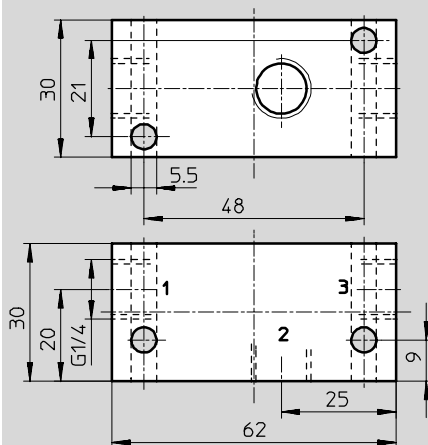


- 1 Compressed air connection
- 2 Vacuum port
- 3 Exhaust

VAD-1/8

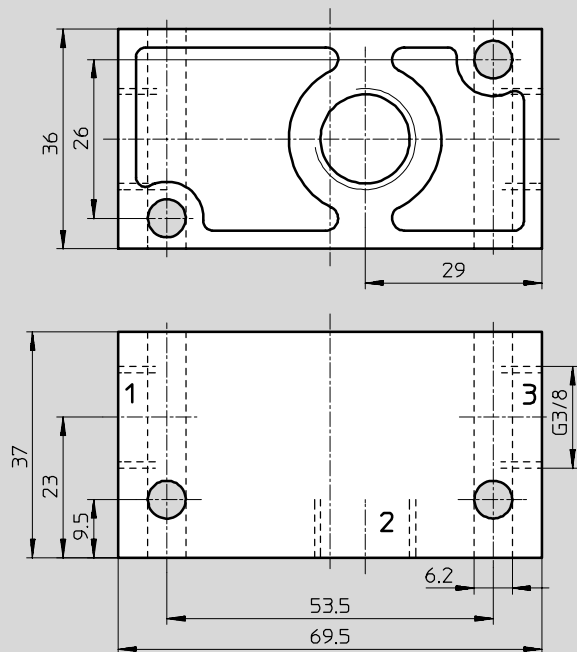


VAD-1/4



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

VAD-3/8



# Vacuum generators VAD/VAK

Technical data

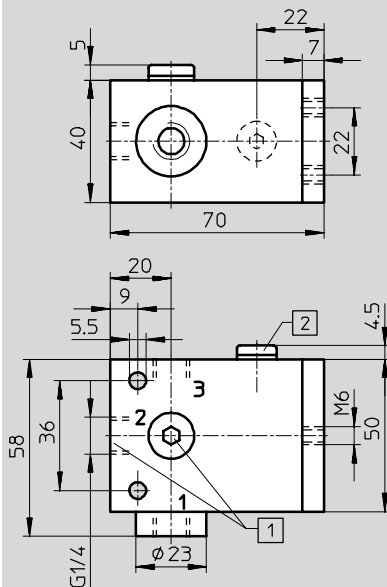
FESTO

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

1) At 0.75 bar vacuum.

## Ordering data

Pneumatic connection	Part No.	Type
<b>Without ejector pulse</b>		
M5	19 293	VAD-M5
G <sup>1</sup> / <sub>8</sub>	14 015	VAD-1/8
G <sup>1</sup> / <sub>4</sub>	9 394	VAD-1/4
G <sup>3</sup> / <sub>8</sub>	19 294	VAD-3/8
<b>With ejector pulse</b>		
G <sup>1</sup> / <sub>4</sub>	6 890	VAK-1/4