

## Vacuum generators VAD/VAK

**FESTO**



## Key features

### Product overview

All Festo vacuum generators have a single-stage design and operate according to the Venturi principle. The product series described below have been designed for a wide range of applications.

The different performance classes of the individual product series make it possible to select vacuum generators tailored to suit the specific requirements of each application.

### Standard and inline ejectors

VN

Data sheets → Internet: vn



- Nominal width  
0.45 ... 3 mm
- Max. vacuum  
93%
- Temperature range  
0 ... +60°C
- A range of extremely effective generators suitable for use directly in the work space
- Available with straight or T-shaped housing
- Minimal space required
- Low cost
- No wearing parts
- Extremely fast evacuation time
- Optional vacuum switch
- Optional additional functions:
  - Integrated ejector pulse
  - Electrical control for vacuum ON/OFF
  - Combination of ejector pulse and actuation

VAD/VAK

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- Nominal width  
0.5 ... 1.5 mm
- Max. vacuum  
80%
- Temperature range  
–20 ... +80°C
- Range of vacuum generators with sturdy aluminium housing
- VAK-...: integrated volume,  
VAD-...: connection for external volume
- Maintenance-free
- VAK: reliable setting down of workpieces

## Key features

## Compact ejectors

OVEM

Data sheets → Internet: [ovem](#)

- Nominal width  
0.45 ... 2 mm
- Max. vacuum  
93%
- Temperature range  
0 ... +50°C
- Compact design
- Minimal installation effort
- Short switching times
- Integrated solenoid valves for vacuum ON/OFF and ejector pulse
- Filter with display
- Vacuum sensor with LCD display for continuous monitoring of the entire vacuum system
- Optional air saving function
- Reliable setting down of workpieces
- Blocking of multiple vacuum generators on a common supply manifold

## VADM/VADMI

Data sheets → Internet: [vadm](#)

- Nominal width  
0.45 ... 3 mm
- Max. vacuum  
85%
- Temperature range  
0 ... +60°C
- Compact design
- Minimal installation effort
- Short switching times
- Integrated solenoid valve (on/off)
- VADMI: additional integrated solenoid valve for ejector pulse
- Filter with display
- Optional air saving function
- Optional vacuum switch
- Reliable setting down of workpieces

## VAD-M

Data sheets → Internet: [vad-m](#)

- Nominal width  
0.7 ... 2 mm
- Max. vacuum  
85%
- Temperature range  
0 ... +40°C
- Compact design
- Minimal installation effort
- Short switching times
- Integrated solenoid valve (on/off)
- VAD-M-I: additional integrated solenoid valve for ejector pulse
- Reliable setting down of workpieces

### Key features

#### At a glance

- Compressed air flowing from 1 to 3 generates a vacuum at port 2 in accordance with the ejector principle.
- The low exhaust noise during blowing can be further damped by using a silencer in port 3.
- Workpieces can be picked up in any position. When the compressed air is switched off, suction stops and the vacuum breaks down.
- During suction with vacuum generator VAK, a volume of approx. 32 cm<sup>3</sup> is filled with compressed air; this creates an ejector pulse when the input pressure is switched off, reliably releasing the workpiece from the suction cup.
- Max. switching frequency approx. 10 Hz at 6 bar and 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



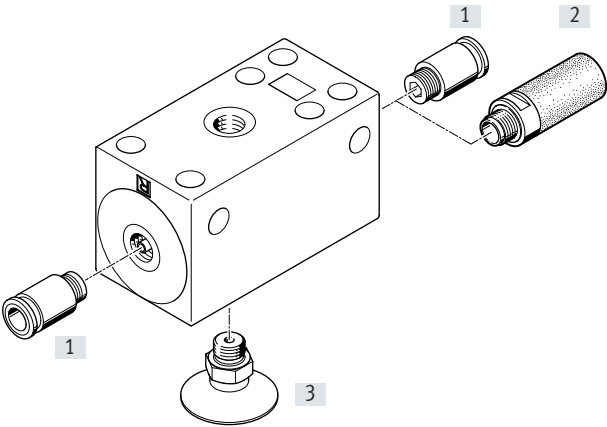
- Quick and reliable setting down of parts via an ejector pulse from a pre-filled reservoir
- Robust vacuum generator for a broad field of applications
- Optional silencer

## Type codes

001	Series	
<b>VAK</b>	Vacuum generator	
<b>VAD</b>	Vacuum generator, electric	

002	Pneumatic connection	
<b>M5</b>	Female thread M5	
<b>1/8</b>	Female thread G1/8	
<b>1/4</b>	Female thread G1/4	
<b>3/8</b>	Female thread G3/8	

Peripherals overview



Mounting attachments and accessories		→ Page/Internet
[1]	Push-in fitting QS	quick star
[2]	Silencers U/UC	u
[3]	Suction cups VAS/VASB	vas
–	Suction gripper ESG	esg
–	Suction cup holder ESH	esh
–	Suction cup ESS	ess

## Data sheet

Temperature range  
-20 ... +80°C

Operating pressure  
1.5 ... 10 bar



## General technical data

Type	VAD				VAK
Size	M5	G1/8	G1/4	G3/8	G1/4
Nominal width of Laval nozzle [mm]	0.5	0.8	1	1.5	1
Ejector characteristics	High vacuum				
Max. vacuum [%]	80				
Pneumatic connection 1	M5	G1/8	G1/4	G3/8	G1/4
Vacuum port	M5	G1/8	G1/4	G3/8	G1/4
Pneumatic connection 3	M5	G1/8	G1/4	G3/8	G1/4
Design	T-shape				
Integrated function	–				Ejector pulse, pneumatic
Type of mounting	With through-hole				
Mounting position	Any				

## Operating and environmental conditions

Operating pressure [bar]	1.5 ... 10
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature [°C]	–20 ... +80
Temperature of medium [°C]	–20 ... +80
Corrosion resistance class CRC <sup>1)</sup>	2

1) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

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

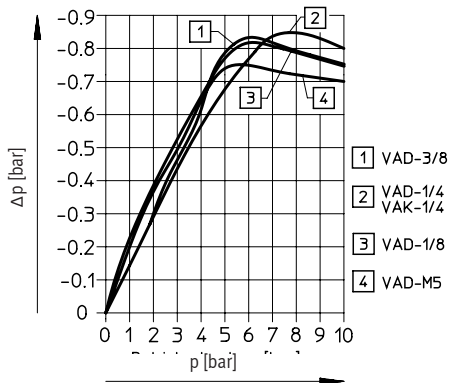
Type	VAD				VAK
Size	M5	G1/8	G1/4	G3/8	G1/4
<b>Evacuation</b>					
At vacuum	0.2 bar	1.3	0.51	0.29	0.29
	0.4 bar	3.53	1.38	0.745	0.745
	0.6 bar	8.18	3.41	1.69	1.69
	0.8 bar	26.6 <sup>1)</sup>	11.67	4.04 <sup>1)</sup>	4.04 <sup>1)</sup>
<b>Pressurisation</b>					
At vacuum	0.2 bar	2.8	0.89	0.61	–
	0.4 bar	3.8	1.3	0.89	–
	0.6 bar	4.65	1.64	1.12	–
	0.8 bar	5.45	1.98	1.32	–

1) At –0.75 bar vacuum.

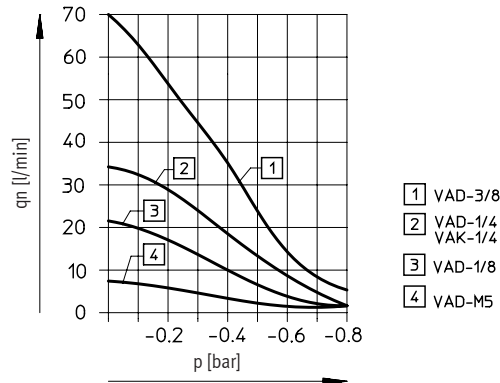
## Data sheet

Materials	
Housing	Die-cast aluminium
Note on materials	Free of copper and PTFE

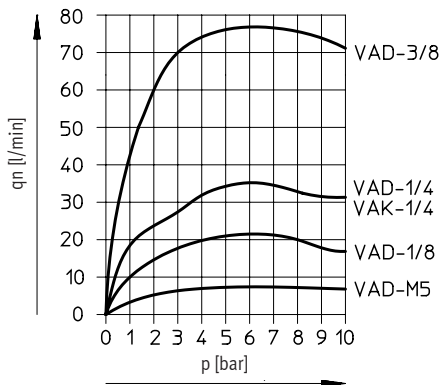
Vacuum  $\Delta p$  as a function of operating pressure  $p$



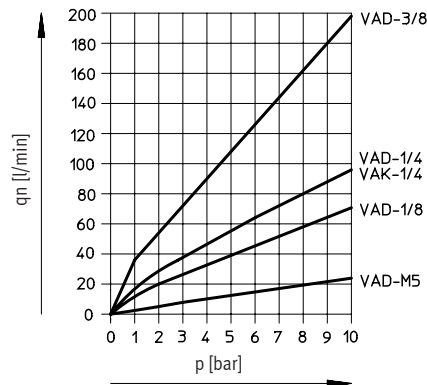
Suction capacity  $q_n$  as a function of vacuum  $p$



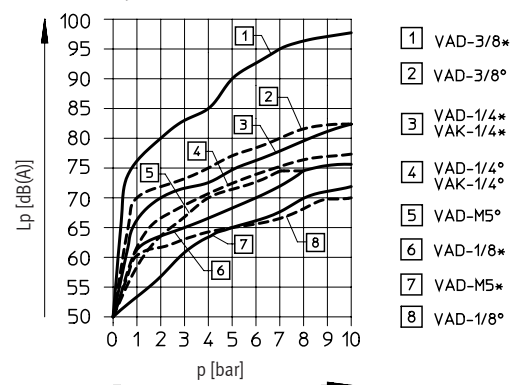
Suction capacity  $q_n$  as a function of operating pressure  $p$



Air consumption  $q_n$  as a function of operating pressure  $p$



Noise level  $L_p$  as a function of operating pressure  $p$

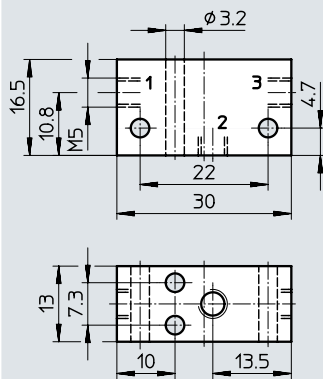


\* = without silencer; ° = with silencer

# Data sheet

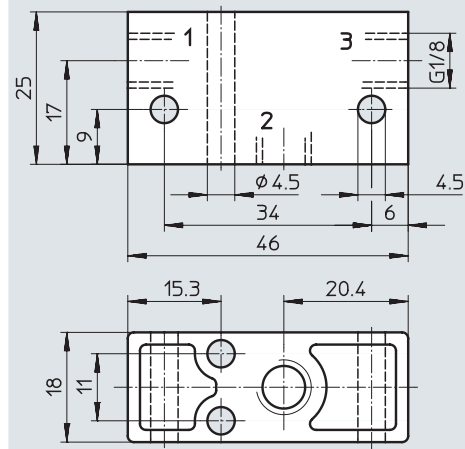
## Dimensions

### VAD-M5



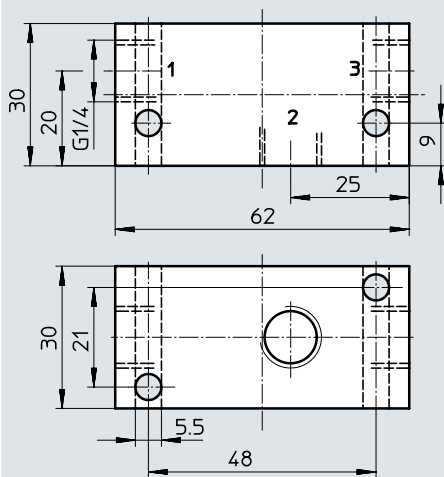
- 1 Supply port
- 2 Vacuum port
- 3 Exhaust

### VAD-1/8



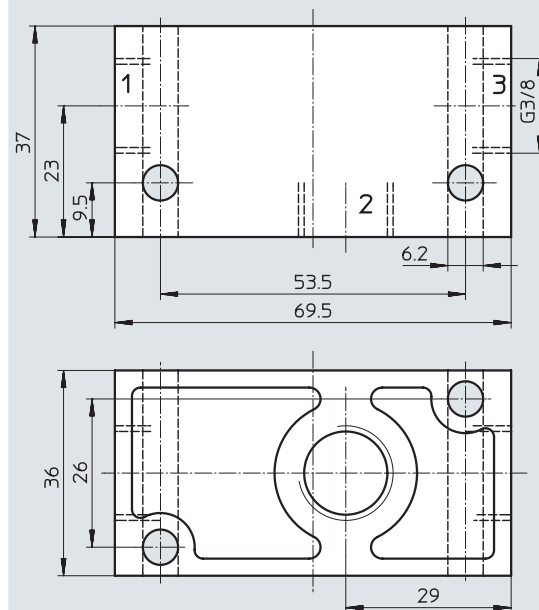
- 1 Supply port
- 2 Vacuum port
- 3 Exhaust

### VAD-1/4



- 1 Supply port
- 2 Vacuum port
- 3 Exhaust

### VAD-3/8

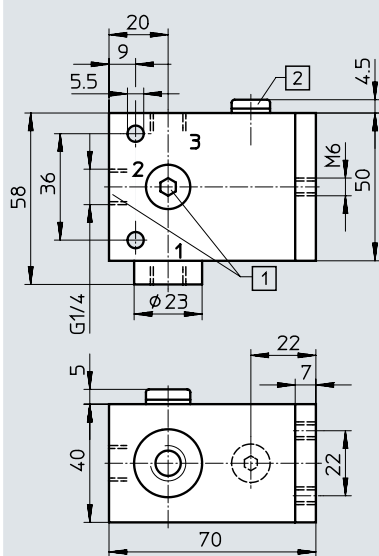


- 1 Supply port
- 2 Vacuum port
- 3 Exhaust

## Data sheet

## Dimensions

VAK-1/4



- [1] Alternative connection 2  
[2] Connection for additional volume

- 1 Supply port  
2 Vacuum port  
3 Exhaust

## Ordering data

Pneumatic connection	Nominal width of Laval nozzle [mm]	Weight [g]	Part no.	Type
<b>Without ejector pulse</b>				
M5	0.5	14	19293	VAD-M5
G1/8	0.8	40	14015	VAD-1/8
G1/4	1	90	9394	VAD-1/4
G3/8	1.5	155	19294	VAD-3/8
<b>With ejector pulse</b>				
G1/4	1	265	6890	VAK-1/4

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