

## 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

→ Page 4



- 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



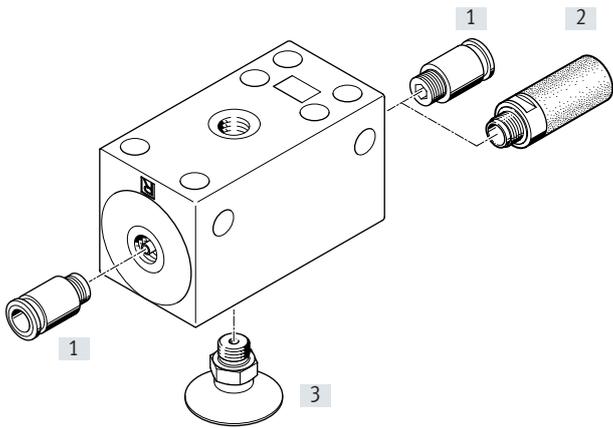
- Quick and reliable setting down of parts via an ejector pulse from a pre-filled reservoir
- Robust vacuum generator for a broad field of applications
- Optional silencer

## 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**

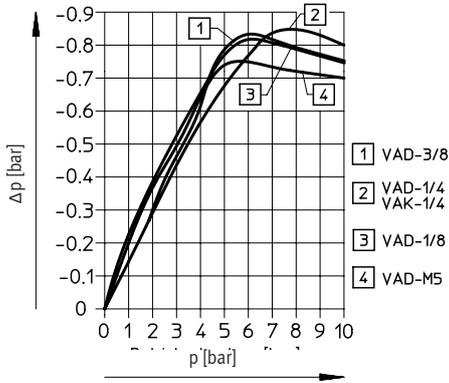
Type	VAD				VAK	
Size	M5	G1/8	G1/4	G3/8	G1/4	
<b>Evacuation</b>						
At vacuum	0.2 bar	1.3	0.51	0.29	0.29	
	0.4 bar	3.53	1.38	0.745	0.745	
	0.6 bar	8.18	3.41	1.69	1.69	
	0.8 bar	26.6 <sup>1)</sup>	11.67	4.04 <sup>1)</sup>	2.72	4.04 <sup>1)</sup>
<b>Pressurisation</b>						
At vacuum	0.2 bar	2.8	0.89	0.61	0.265	-
	0.4 bar	3.8	1.3	0.89	0.372	-
	0.6 bar	4.65	1.64	1.12	0.46	-
	0.8 bar	5.45	1.98	1.32	0.536	-

1) At -0.75 bar vacuum.

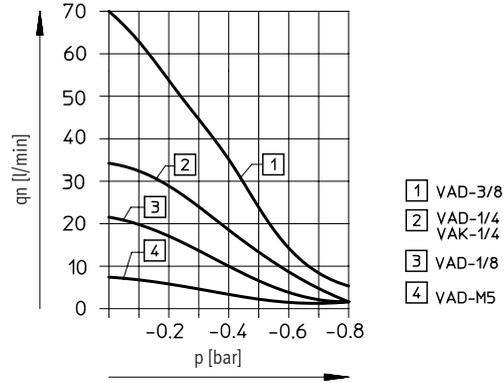
Data sheet

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

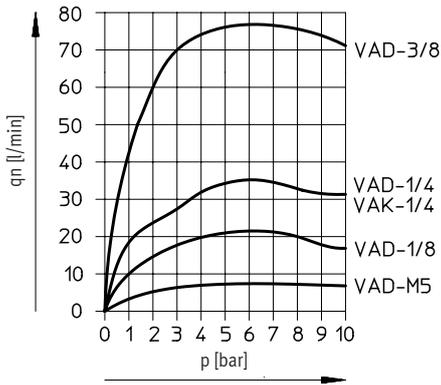
Vacuum  $\Delta p$  as a function of operating pressure  $p$



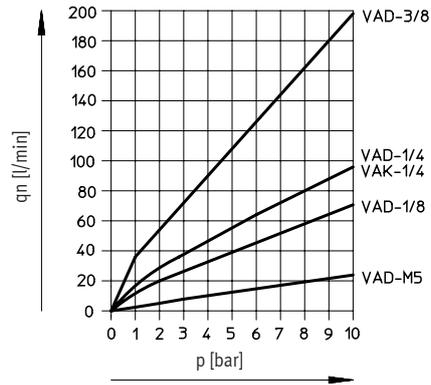
Suction capacity  $q_n$  as a function of vacuum  $p$



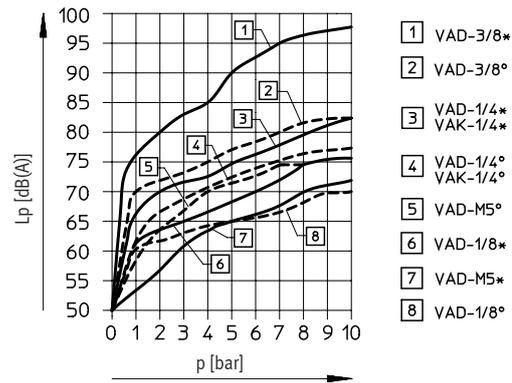
Suction capacity  $q_n$  as a function of operating pressure  $p$



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



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

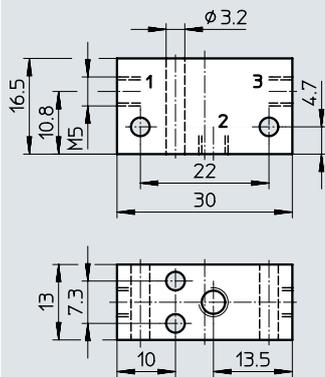


\* = without silencer; ° = with silencer

## Data sheet

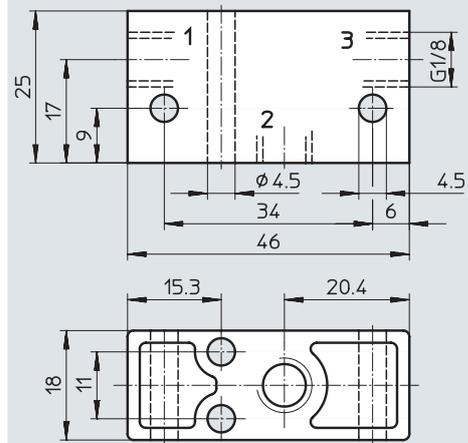
### Dimensions

#### VAD-M5



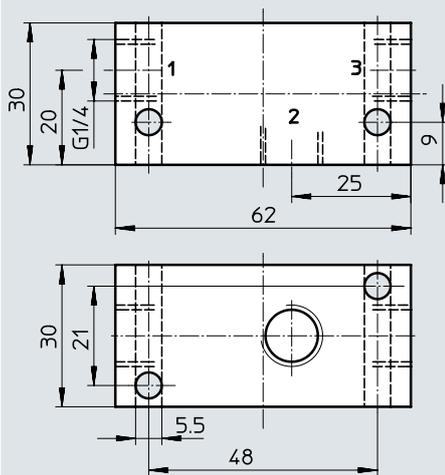
- 1 Supply port
- 2 Vacuum port
- 3 Exhaust

#### VAD-1/8



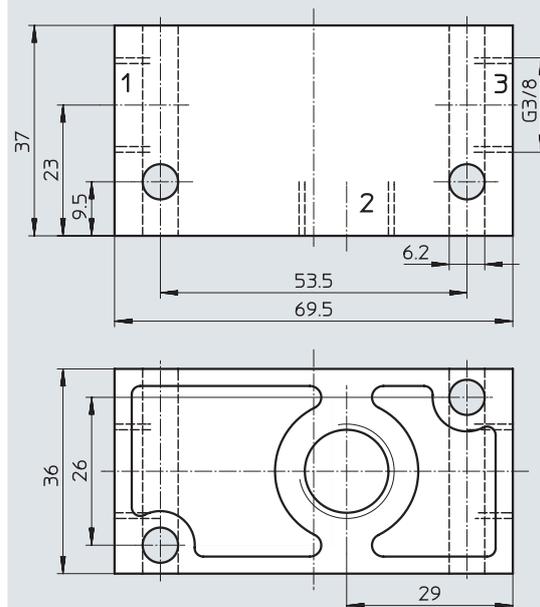
- 1 Supply port
- 2 Vacuum port
- 3 Exhaust

#### VAD-1/4



- 1 Supply port
- 2 Vacuum port
- 3 Exhaust

#### VAD-3/8



- 1 Supply port
- 2 Vacuum port
- 3 Exhaust



# Festo - Your Partner in Automation



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