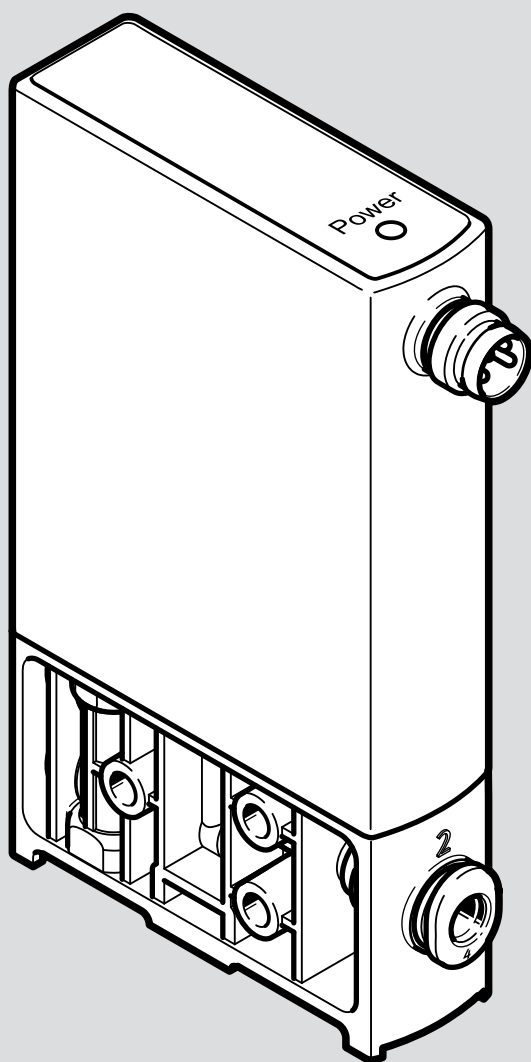


**VEAA**  
Proportional-pressure regulator

**FESTO**

Operating instruction



8210295

8210295  
2024-03d  
[8210297]

Original instructions

# Table of contents

<b>1</b>	<b>About this document</b> .....	<b>5</b>
1.1	Applicable documents.....	5
1.2	Product Labelling.....	5
<b>2</b>	<b>Safety</b> .....	<b>5</b>
2.1	Safety instructions.....	5
2.2	Intended use.....	5
<b>3</b>	<b>Additional information</b> .....	<b>5</b>
<b>4</b>	<b>Product overview</b> .....	<b>6</b>
4.1	Function.....	6
4.2	Structure.....	6
4.2.1	Product design.....	6
<b>5</b>	<b>Mechanical mounting</b> .....	<b>8</b>
5.1	Mounting in-line valve VEAA-L.....	8
5.2	Mounting sub-base valve VEAA-B.....	8
<b>6</b>	<b>Installation</b> .....	<b>8</b>
6.1	Pneumatic installation (in-line valve).....	8
6.2	Electrical installation.....	8
<b>7</b>	<b>Commissioning</b> .....	<b>9</b>
<b>8</b>	<b>Malfunctions</b> .....	<b>9</b>
8.1	Diagnostics.....	9
8.2	Fault clearance.....	9
<b>9</b>	<b>Dismounting</b> .....	<b>10</b>
<b>10</b>	<b>Technical data</b> .....	<b>10</b>
10.1	Technical data, general.....	10
10.2	Technical data, pneumatic.....	11
10.3	Technical data, electrical.....	12



# 1 About this document

## 1.1 Applicable documents



All available documents for the product → [www.festo.com/sp](http://www.festo.com/sp).

Document	Product	Content
Assembly instructions	H-rail mounting, VAME-P7-T	Mounting
Assembly instructions	Mounting plate, VAME-P...-Y	Mounting
Assembly instructions	Manifold rail, VABM-P6-15.../-P7-18...	Mounting


Tab. 1: Applicable documents

## 1.2 Product Labelling

- Observe the specifications on the product.

### Warning Symbol

The following warning symbol can be seen on the product:

Symbol	Meaning
	If the housing is damaged (for example due to cracks), protection against dangerous voltage is no longer guaranteed. <ul style="list-style-type: none"> <li>– Do not start the device.</li> <li>– Immediately shut down the device.</li> </ul>

Tab. 2: Warning Symbol

# 2 Safety

## 2.1 Safety instructions

- Only use the product in its original condition without unauthorised modifications.
- Only use the product if it is in a perfect technical condition and it is not damaged in any way.
- Take into account the ambient conditions at the location of use.
- Before working on the product, switch off the power supply and secure it against being switched on again.
- Install the product so it can only be accessed by authorised persons.
- Observe additional safety instructions in chapter → 6 Installation.

## 2.2 Intended use

The product regulates the pressure proportional to a specified setpoint value. The product is intended for use in industrial environments.

# 3 Additional information

- Contact the regional Festo contact if you have technical problems → [www.festo.com](http://www.festo.com).
- Accessories and spare parts → [www.festo.com/catalogue](http://www.festo.com/catalogue).

## 4 Product overview

### 4.1 Function

An integrated pressure sensor records the pressure at the working port and compares this value with the setpoint value. If the setpoint value and actual value deviate, the valve regulates the pressure until the outlet pressure has reached the setpoint value.

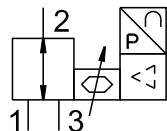


Fig. 1: Pneumatic circuit symbol

### 4.2 Structure

#### 4.2.1 Product design

##### 4.2.1.1 In-line valve VEAA-L

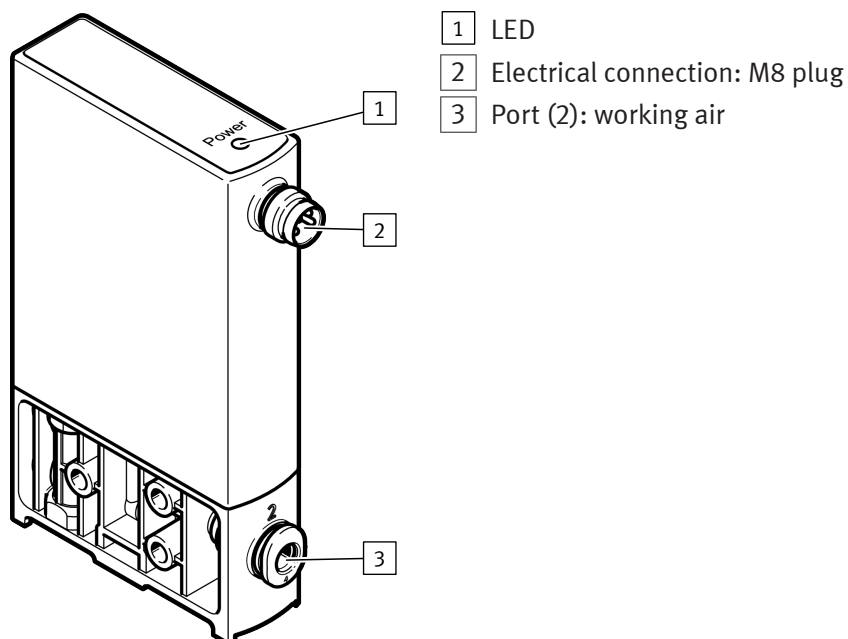
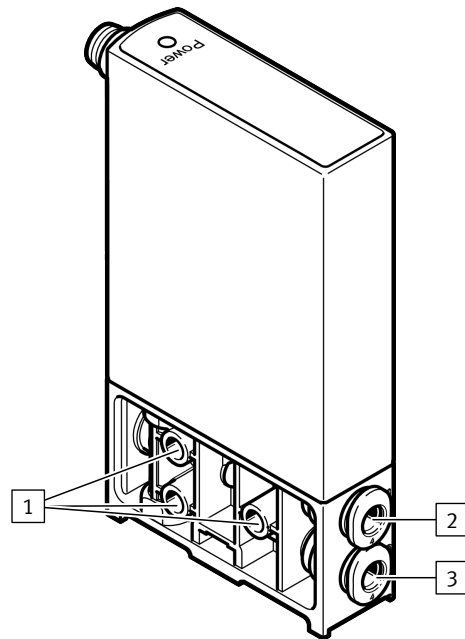


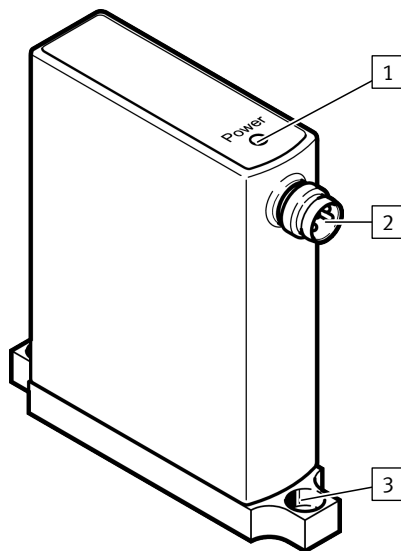
Fig. 2: View from front



- 1 Through-holes (3x) for mounting the valve
- 2 Port (1): compressed air
- 3 Port (3): exhaust air

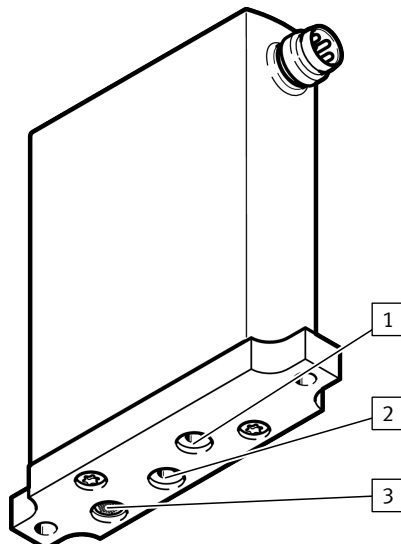
Fig. 3: View from rear

#### 4.2.1.2 Sub-base valve VEAA-B



- 1 LED
- 2 Electrical connection: M8 plug
- 3 Through-holes (2x) for mounting the valve on the sub-base

Fig. 4: View from front



- 1 Port (2): working air
- 2 Port (3): exhaust air
- 3 Port (1): compressed air

Fig. 5: View from beneath

## 5 Mechanical mounting

1. Make sure there is sufficient space for the connecting cable and tubing connections.
  - ⇒ This will prevent kinks from forming in the connecting cables and the tubing.
2. Place the valve as close to the consumer as possible.
  - ⇒ This improves control precision and reduces response times.

### 5.1 Mounting in-line valve VEAA-L

- Mounting the in-line valve via 3 lateral through-holes
- Mounting the in-line valve on H-rails using H-rail mounting VAME-P7-T → 1.1 Applicable documents
- Mounting the in-line valve on the mounting plate VAME-P6-Y → 1.1 Applicable documents

### 5.2 Mounting sub-base valve VEAA-B

- Mounting the sub-base valve by 2 through-holes with the sub-base VABM-... → 1.1 Applicable documents

## 6 Installation

### 6.1 Pneumatic installation (in-line valve)

1. Attach the tubing to the following ports:
  - Compressed air port (1)
  - Working air port (2)
2. Mount a silencer at the exhaust air port (3) or install ducted exhaust air.

#### Operating medium

#### NOTICE

##### Pay attention to compressed air quality.

Damage to property or loss of function from lubricated compressed air.

- Operate product only with unlubricated compressed air.
- Observe the requirements for compressed air quality → Technical data.

### 6.2 Electrical installation

#### ⚠ WARNING

##### Risk of injury due to electric shock.

- For the electric power supply, use only PELV circuits that ensure a reliable electric disconnection from the mains network.
- Observe IEC 60204-1/EN 60204-1.

#### ⚠ WARNING

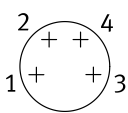
##### Risk of Injury due to Electric Shock.

If the housing is damaged (for example due to cracks), protection against dangerous voltage is no longer guaranteed.

- Do not start the device.
- Immediately shut down the device.



1. If a screened cable is used: earth the screen at the cable end away from the valve.
2. Lay the electrical connection cable without crushing, kinking or stretching it.
3. Screw electrical connecting cable to the M8 plug. Tightening torque: maximum 0.3 Nm

M8 plug, 4-pin	Pin	Allocation
	1	+ 24 V DC
	2	Setpoint value (+)
	3	GND
	4	Actual value (+)

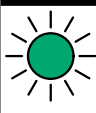
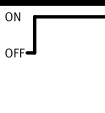

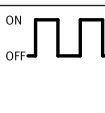


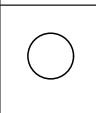
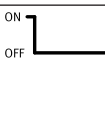
Tab. 3: Pin allocation

## 7 Commissioning

1. Switch on the compressed air supply.
2. Switch on the setpoint voltage.
3. Switch on the operating voltage supply.

## 8 Malfunctions

### 8.1 Diagnostics

LED	Meaning
 ON OFF  Green light	- The operating voltage is present and within the permissible range. - There is no error. - The setpoint signal is within the permissible range (0 ... 10.8 V or 2.5 ... 20.5 mA).
 ON OFF  Flashing red	- The operating voltage is above the permissible range (> 29 V).
 ON OFF  Flashing green/red	- The setpoint signal is above the permissible range (>10.8 V or > 20.5 mA). - The setpoint signal is below the permissible range (< 2.5 mA).
 ON OFF  Off	- No operating voltage. - The operating voltage is below the permissible range (< 19 V).

Tab. 4: LED table with LED behaviour

### 8.2 Fault clearance

Malfunction	Cause	Remedy
Valve does not respond.	No operating voltage → 8.1 Diagnostics.	- Check operating voltage connection.
	No setpoint voltage → 8.1 Diagnostics.	- Check control unit, check connection.
	No or insufficient compressed air supply.	- Check compressed air supply.

Malfunction	Cause	Remedy
Flow rate is too low.	Restriction of the flow cross section due to connection technology (swivel fittings).	– Use alternative connection technology.
Compressed air supply remains constant despite changes to the setpoint specification.	Supply cable breakage; the last output pressure set is maintained but not regulated. Slow pressure drop due to leakage.	– Replace supply cable.
Setpoint value not reached.	Input pressure p1 is too low.	– Increase input pressure p1. Maintain permissible maximum operating pressure → 10 Technical data.

Tab. 5: Fault clearance

## 9 Dismounting

1. Switch off setpoint voltage.
2. Switch off operating voltage.
3. Switch off compressed air supply.
4. Remove electrical connecting cables.
5. Remove compressed air lines.
6. Dismantle the product.

## 10 Technical data

### 10.1 Technical data, general

VEAA	
Certificates, declaration of conformity	→ <a href="http://www.festo.com/sp">www.festo.com/sp</a>
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [6:4:4] Inert gases
Information on the operating medium	Lubricated operation not possible
Degree of protection	IP65 (fully mounted)
Climate class in accordance with EN 60721	3K3
Ambient temperature [°C]	0 ... +50
Temperature of medium [°C]	+5 ... +50 (non-condensing)
Storage temperature [°C]	–20 ... +70
Mounting position	Any
Vibration resistance in accordance with IEC 60068-2-6	
Direct fastening	SL2
Mounting on H-rail, mounting plate, manifold rail	SL1
Shock resistance in accordance with IEC 60068-2-27	
Direct fastening	SL2
Mounting on H-rail, mounting plate, manifold rail	SL1
Continuous shock resistance in accordance with IEC 60068-2-27	
Direct fastening	SL1
Mounting on H-rail, mounting plate, manifold rail	SL1

VEAA		
Materials		
Housing	PA, PAMX	
Screws	Heat-treated steel Galvanised steel	
Seals	HNBR, NBR	
Adapter plate	Wrought aluminium alloy	
Weight		
In-line valve weight	[g]	approx. 55
Sub base valve weight	[g]	approx. 55

Tab. 6: Technical data, general

Type of severity level (SL)					
Vibration load					
Frequency range [Hz]		Acceleration [m/s <sup>2</sup> ]		Deflection [mm]	
SL1	SL2	SL1	SG2	SL1	SL2
2 ... 8	2 ... 8	–	–	±3.5	±3.5
8 ... 27	8 ... 27	10	10	–	–
27 ... 58	27 ... 60	–	–	±0.15	±0.35
58 ... 160	60 ... 160	20	50	–	–
160 ... 200	160 ... 200	10	10	–	–
Shock load					
Acceleration [m/s <sup>2</sup> ]		Duration [ms]		Shocks per direction	
SL1	SL2	SL1	SL2	SL1	SL2
±150	±300	11	11	5	5
Continuous shock load					
Acceleration [m/s <sup>2</sup> ]		Duration [ms]		Shocks per direction	
±150		6		1000	

Tab. 7: Type of severity level (SL)

Characteristics of closed-loop control technology <sup>1)</sup>		
Linearity error	[% FS]	0.500
Hysteresis	[% FS]	± 0.25
Repetition accuracy	[% FS]	± 0.400
Absolute accuracy	[% FS]	± 0.750
Temperature coefficient	[%/K]	0.05
Accuracy of analogue output	[% FS]	± 2.00

1) Characteristic values determined at room temperature in accordance with ISO 10094. The linearity refers to the ideal characteristic curve.

Tab. 8: Characteristics of closed-loop control technology

## 10.2 Technical data, pneumatic

VEAA		D2	D9	D11
Maximum input pressure	[MPa]	1.1		
	[bar]	11		
Pressure control range	[MPa]	0.001 ... 0.2	0.003 ... 0.6	0.005 ... 1.0
	[bar]	0.01 ... 2	0.03 ... 6	0.05 ... 10

Tab. 9: Technical data

### 10.3 Technical data, electrical

VEAA		A4	V1	V2
Nominal operating voltage	[V DC]	24		
Operating voltage range	[V DC]	19 ... 29		
Permissible residual ripple of operating voltage	[%]	10		
Maximum current consumption	[mA]	80		
Maximum signal line length	[m]	< 30		
Setpoint value, analogue input	[mA]	4 ... 20	–	–
	[V]	–	0 ... 10	0 ... 5
Actual value: analogue output	[mA]	4 ... 20	–	–
	[V]	–	0 ... 10	1 ... 5
Setpoint value, input resistance	[Ω]	250	–	–
	[kΩ]	–	10	10

Tab. 10: Technical data



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