

## Proportional-pressure regulators VEAA

**FESTO**



## Key features



### Innovative

- Silent operation
- Very low power consumption
- Extremely precise
- Integrated piezo technology

### Flexible

- In-line valves
- Sub-base valves
- Simple electrical and pneumatic interfaces
- Choice of different setpoint specifications
  - Current input
  - Voltage input

### Operational safety

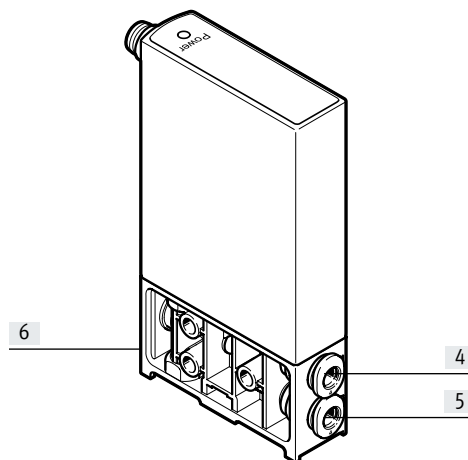
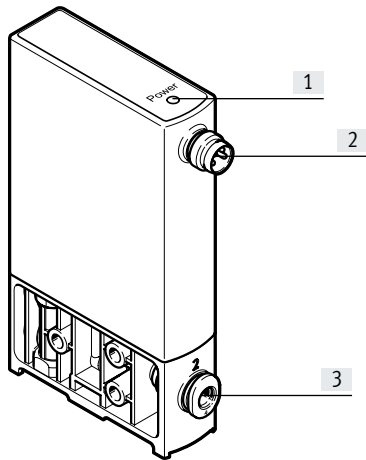
- Integrated pressure sensor with separate output
- Diagnostics:
  - Operating voltage: over- and undervoltage
  - Setpoint value: falling below and exceeding
- Consistent pressure regulation performance with long-term stability

### Easy to install

- Mounting the in-line valve via three lateral through-holes
- H-rail mounting
- Mounting the in-line valve on the mounting plate
- Mounting the sub-base valve using the sub-base

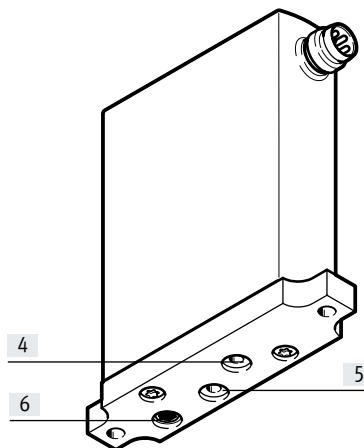
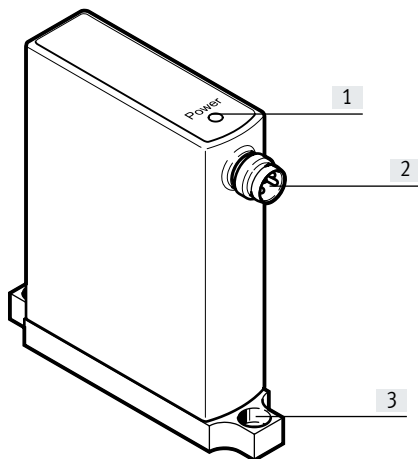
## Key features

### In-line valve



- [1] Power LED (green), fault LED (red)
- [2] Electrical connection, M8 plug
- [3] Port 2, working air
- [4] Port 1, compressed air
- [5] Port 3, exhaust air
- [6] Through-holes for mounting the valve

### Sub-base valve

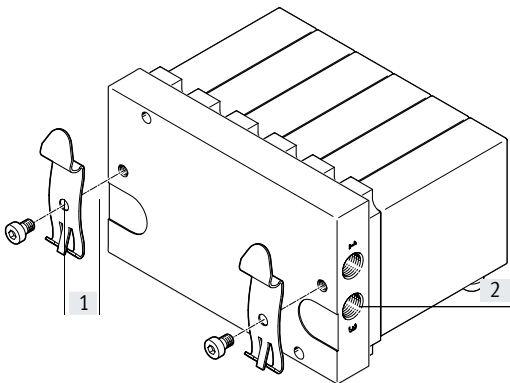


- [1] Power LED (green), fault LED (red)
- [2] Electrical connection, M8 plug
- [3] Through-holes for mounting the valve on the sub-base
- [4] Port 2, working air
- [5] Port 3, exhaust air
- [6] Port 1, compressed air

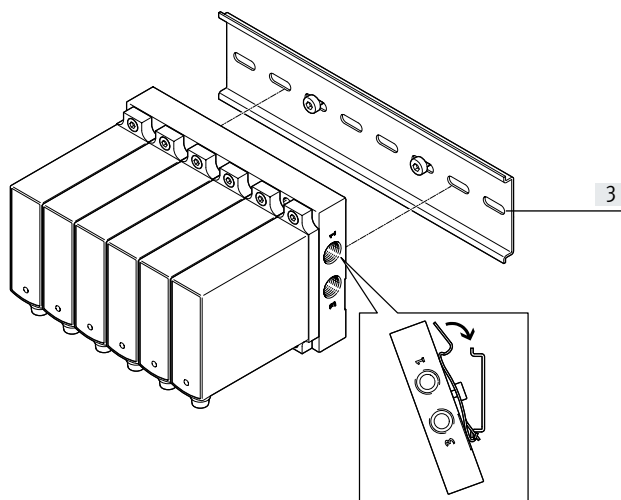
## Key features

### Mounting the valve manifold assembly

#### H-rail mounting

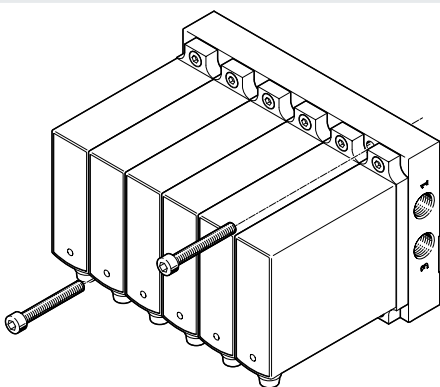


The H-rail mounting [1] can be used to mount the manifold rail [2] on H-rails in accordance with EN 60715.



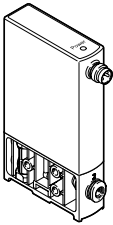
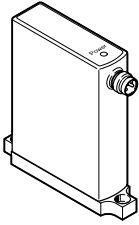
To do this, the manifold rail with the H-rail mounting attached is mounted on the H-rail [3] and latched in place.

#### Wall mounting



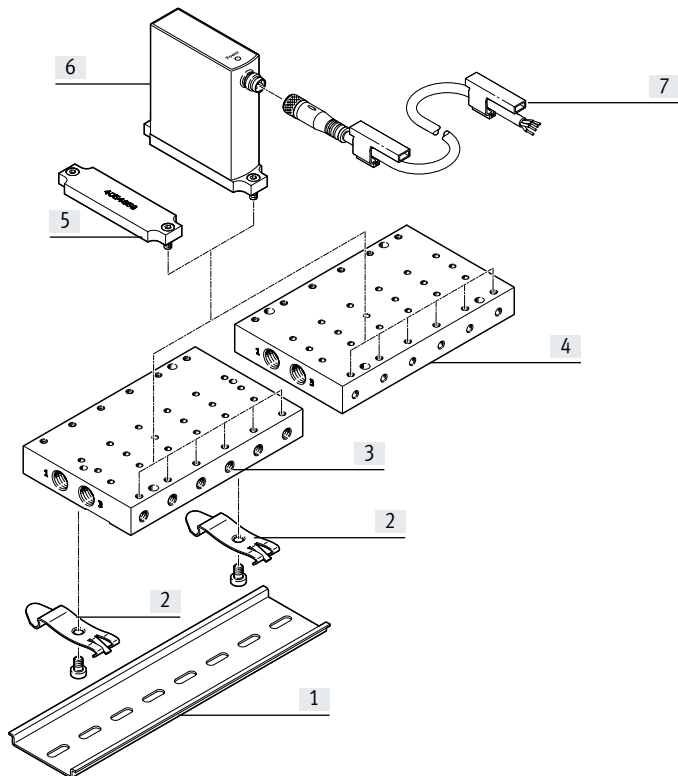
Through-holes for wall mounting are located on the manifold rail.

Product range overview

Design	Valve function	Pneumatic Port 1, 2, 3	Output pressure 2 (pressure regulation range) [MPa]	Setpoint value input			
				Voltage type		Current type	
				0 ... 5 V	0 ... 10 V	4 ... 20 mA	
Pressure regulator	<b>In-line valve</b>						
		3/3-way valve, normally closed	QS 4	0.001 ... 0.2	■	■	■
				0.003 ... 0.6	■	■	■
				0.005 ... 1	■	■	■
	<b>Sub-base valve</b>						
		3/3-way valve, normally closed	Flange	0.001 ... 0.2	■	■	■
0.003 ... 0.6				■	■	■	
0.005 ... 1				■	■	■	

## Peripherals overview

### Valve manifold assembly VEAA




Accessories		Description	→ Page/Internet
[1]	H-rail NRH352000	For control cabinet installation	19
[2]	H-rail mounting VAME	For mounting the H-rail	19
[3]	Manifold rail VABM-P6-G15M	Connection direction at the side, for control cabinet installation	18
[4]	Manifold rail VABM-P6-G15MB	Connection direction underneath, for wall mounting and control cabinet installation	18
[5]	Cover plate VABB	-	18
[6]	Proportional pressure regulator VEAA	-	17
[7]	Connecting cable NEBU	-	19

## Type codes


<b>001</b>	Series	
<b>VEAA</b>	Proportional pressure regulator	
<b>002</b>	Directional control valve type	
<b>L</b>	In-line valve	
<b>B</b>	Sub-base valve	
<b>003</b>	Valve function	
<b>3</b>	3/3-way valve, normally closed	
<b>004</b>	Pressure range [bar]	
<b>D11</b>	0 ... 10	
<b>D9</b>	0 ... 6	
<b>D2</b>	0 ... 2	

<b>005</b>	Pneumatic connection	
<b>F</b>	Flange/sub-base	
<b>Q4</b>	Push-in connector 4 mm	
<b>006</b>	Setpoint input for individual valves	
<b>A4</b>	4 ... 20 mA	
<b>V1</b>	0 ... 10 V	
<b>V2</b>	0 ... 5 V	
<b>007</b>	Nominal operating voltage	
<b>1</b>	24 V DC	
<b>008</b>	Electrical connection	
<b>R1</b>	Individual connector M8, 4-pin	

Datasheet

-  - Flow rate  
7 ... 13 l/min

-  - Voltage  
24 V DC

-  - Output pressure 2 (pressure regulation range)  
0.001 ... 0.2 MPa  
0.003 ... 0.6 MPa  
0.005 ... 1 MPa




**General technical data**

Type	VEAA-L	VEAA-B
Valve type	In-line valve	Sub-base valve
Valve function	3-way proportional-pressure regulator	
Dimensions W x L x H [mm]	15 x 54.5 x 85	15 x 61 x 66
Standard nominal flow rate	→ Page 10	
Pneumatic port 1, 2, 3	QS-4	Flange
Sealing principle	Soft	
Actuation type	Electrical with piezo element	
Display type	LED	
Type of control	Directly actuated	
Reset method	Mechanical spring	
Type of mounting	Via through-hole, via accessories	
Mounting position	Any	
Product weight [g]	55	

**Electrical data**

Electrical connection	Plug, M8x1, 4-pin, to EN 60947-5-2		
Nominal operating voltage [V DC]	24		
Operating voltage range [V DC]	19 ... 29		
Residual ripple [%]	10		
Max. electrical power consumption [W]	1		
Setpoint input signal	Voltage [V DC]	0 ... 10 0 ... 5	
	Current [mA]	4 ... 20	
Analogue output signal range (actual value)	Voltage [V DC]	0 ... 10 1 ... 5	
	Current [mA]	4 ... 20	
Accuracy of analogue output [%]	2		
Short circuit current rating	For all electrical connections		
Reverse polarity protection	For all electrical connections		
Degree of protection	IP65		

-  - **Note**  
Safety position, VEAA:  
If the electrical power supply fails, the output pressure will be unregulated and may rise or fall – valve blocked.



## Datasheet

Operating and environmental conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases
Note on the operating/pilot medium	Lubricated operation not possible
Input pressure at port 1 <sup>1)</sup>	[MPa] 0 ... 1.1
	[bar] 0 ... 11
	[psi] 0 ... 159.5
Hysteresis FS (full scale)	[%] 0.25
Linearity error FS (full scale)	[%] ± 0.5
Repetition accuracy FS (full scale)	[%] ± 0.4
Absolute accuracy FS (full scale)	[%] Max. 0.75
Temperature coefficient	[%/K] 0.05
Ambient temperature	[°C] 0 ... 50
Temperature of medium	[°C] 5 ... 50
Storage temperature	[°C] -20 ... +70
Corrosion resistance class CRC <sup>2)</sup>	2
CE marking (see declaration of conformity)	To EU EMC Directive <sup>3)</sup>
	To EU RoHS Directive <sup>3)</sup>
UKCA marking (see declaration of conformity)	To UK instructions for EMC <sup>3)</sup>
	To UK RoHS instructions <sup>3)</sup>
Certification	RCM

1) Input pressure 1 should always be 1 bar greater than the maximum regulated output pressure.

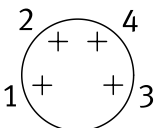
2) Corrosion resistance class CRC 2 to Festo standard FN 940070

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.

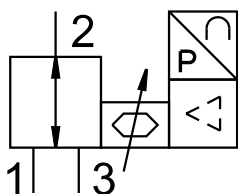
3) For information about the area of use, see the EC declaration of conformity at: [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...) → Support/Downloads.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Materials	
Seals	NBR
Housing	PA-reinforced
Note on materials	RoHS-compliant
PWIS conformity	VDMA24364 zone III

Pin allocation, electrical connection		
	Pin	Function
	1	+24 V DC supply voltage
	2	+ setpoint value
	3	GND
	4	+ actual value

### Function



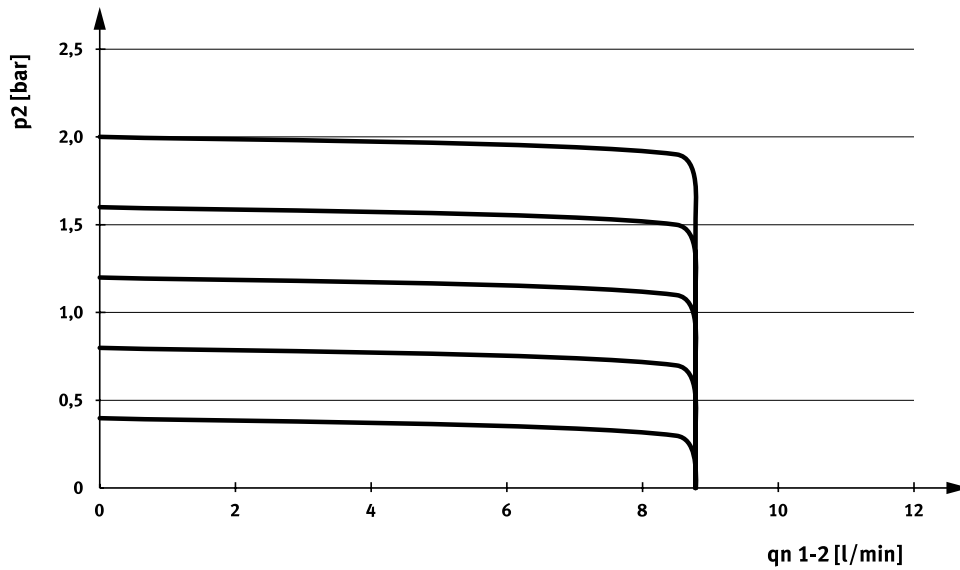
An integrated pressure sensor records the pressure at the working port and compares this value with the setpoint value.

The pressure is automatically readjusted in the event of deviations.

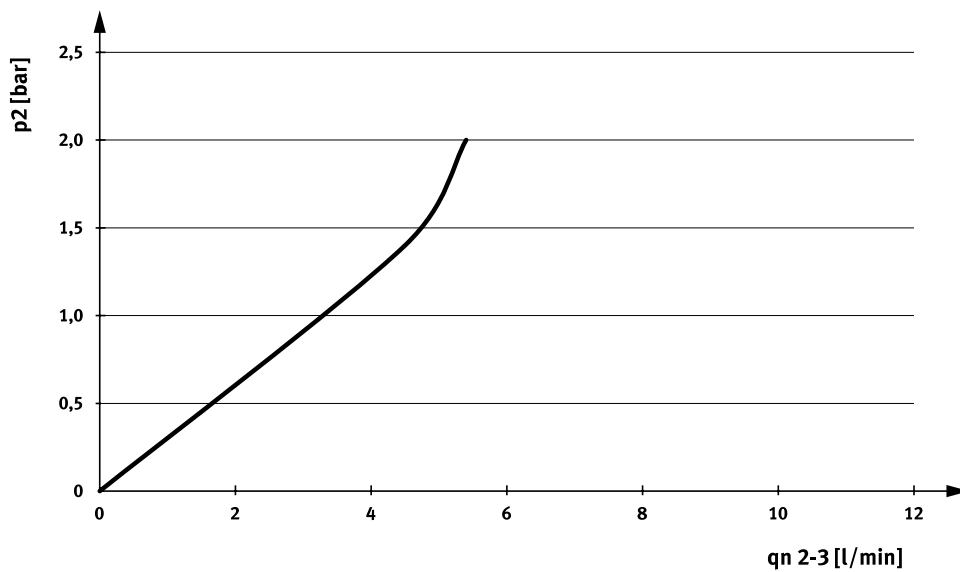
Datasheet

VEAA-...-D2-..., output pressure 2 (pressure regulation range) 0.01 ... 2

Flow rate  $q_n$  from 1 → 2 as a function of output pressure  $p_2$



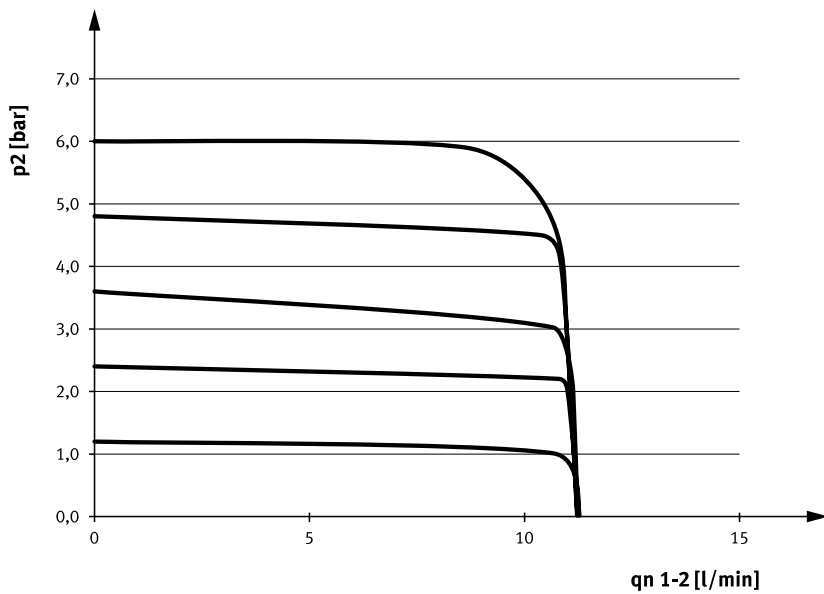
Flow rate  $q_n$  from 2 → 3 as a function of output pressure  $p_2$



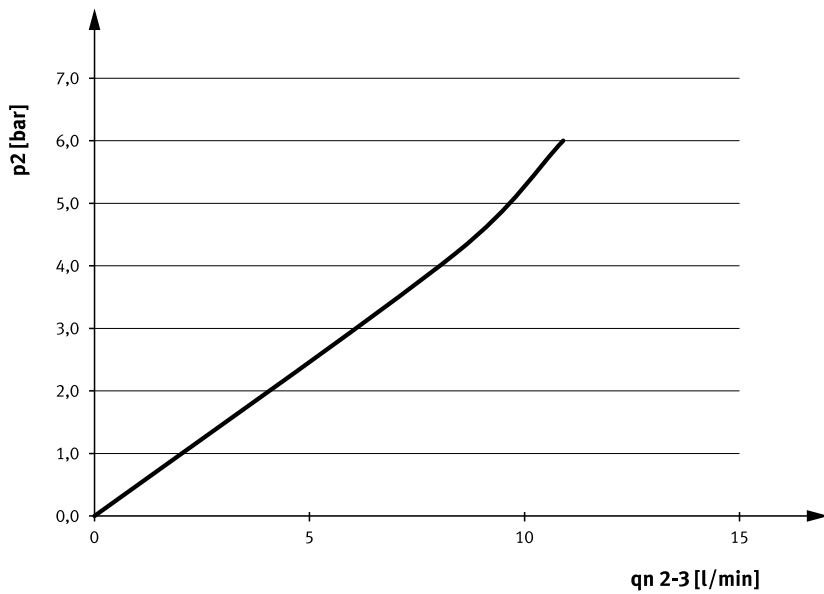
## Datasheet

VEAA-...-D9-..., output pressure 2 (pressure regulation range) 0.03 ... 6

Flow rate  $q_n$  from 1 → 2 as a function of output pressure  $p_2$



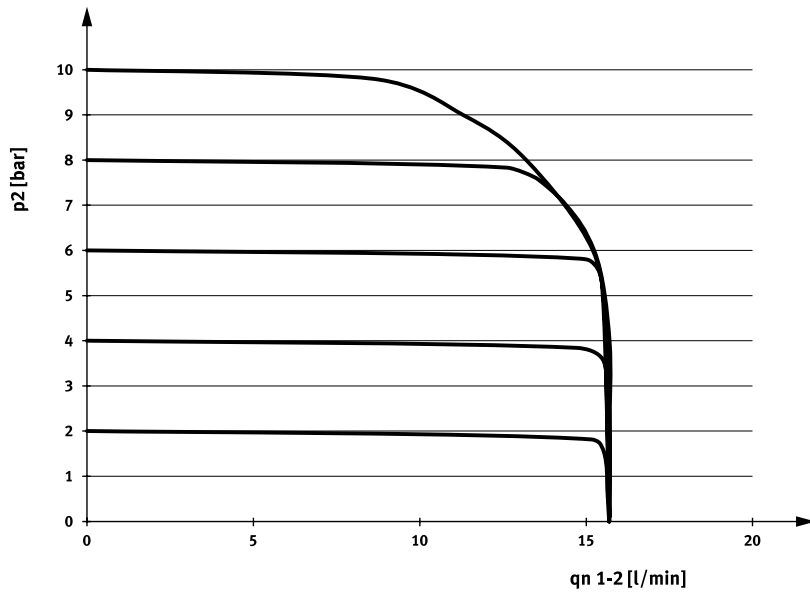
Flow rate  $q_n$  from 2 → 3 as a function of output pressure  $p_2$



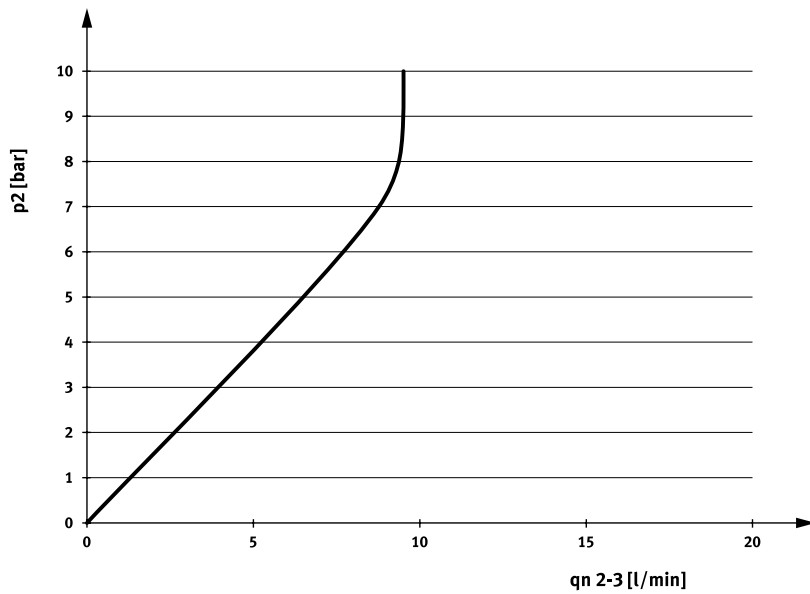
## Datasheet

### VEAA-...-D11-..., output pressure 2 (pressure regulation range) ... 10

Flow rate  $q_n$  from 1 → 2 as a function of output pressure  $p_2$



Flow rate  $q_n$  from 2 → 3 as a function of output pressure  $p_2$

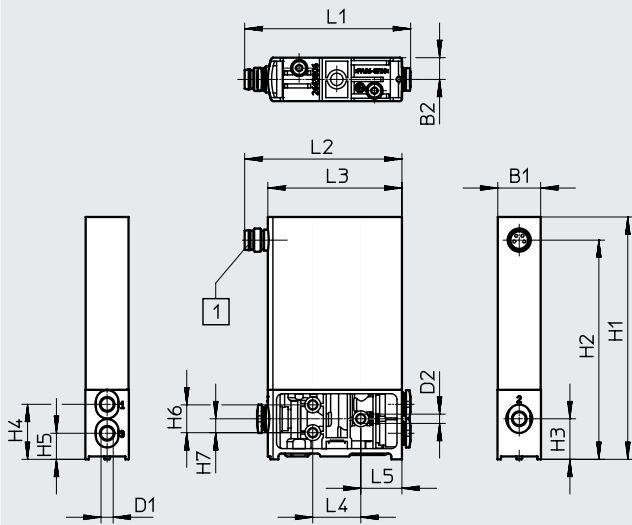


Datasheet

Download CAD data at [www.festo.com](http://www.festo.com)

Dimensions

In-line valve



[1] Plug M8x1, 4-pin

Type	B1	B2	D1 ∅	D2 ∅	H1	H2	H3	H4	H5	H6	H7
VEAA-L	15	9	4	3.2	85	76	14	19	9.5	9.6	4.8

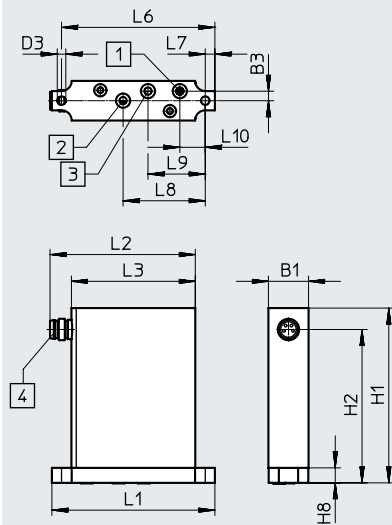
Type	L1	L2	L3	L4	L5
VEAA-L	58	54.5	46.5	16.6	14.2

## Datasheet

### Dimensions

Download CAD data at [www.festo.com](http://www.festo.com)

Sub-base valve



- [1] Port 1, compressed air
- [2] Port 2, working air
- [3] Port 3, exhaust air
- [4] Plug M8x1, 4-pin

Type	B1	B3	D3 ø	H1	H2	H8
VEAA-B	15	3.6	3.2	66	58	6

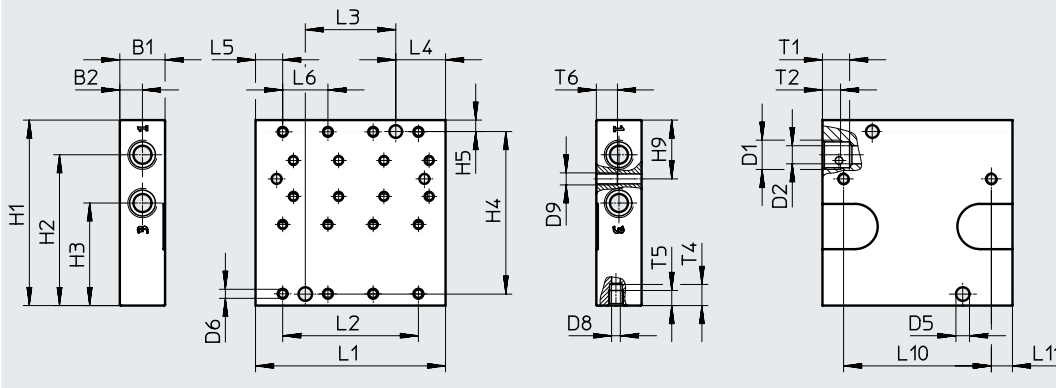
Type	L1	L2	L3	L6	L7	L8	L9	L10
VEAA-B	61	54.5	46.5	57.3	3.6	30.7	21.4	9.5

Datasheet

Dimensions

Download CAD data at [www.festo.com](http://www.festo.com)

Connection direction on the side



Type	B1	B2	B3	D1	D2 ∅	D5 ∅	D6	D7	D8 ∅	D9	H1	H2	H3	H4	H5	H9
VABM-P6-15M-G18-M5-4	15	7.5	8.5	G1/8	6	4.5	M3	M5	2.9	M4	61.5	50	34	53.9	3.8	19.5
VABM-P6-15M-G18-M5-6																
VABM-P6-15M-G18-M5-8																

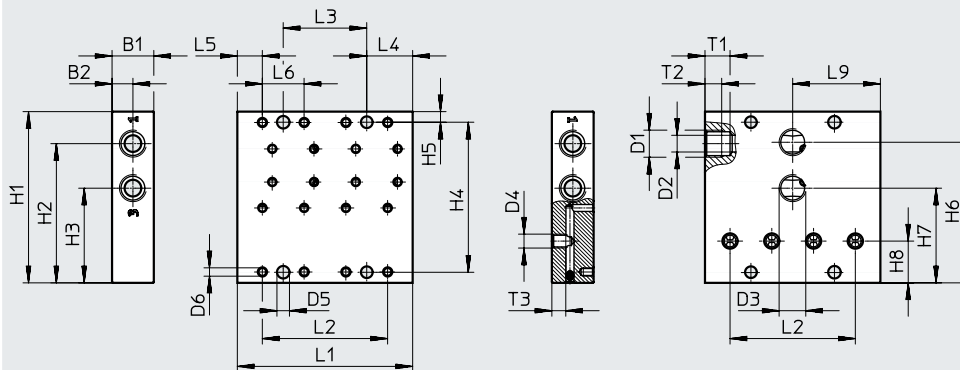
Type	L1	L2	L3	L4	L5	L6	L10	L11	T1	T2	T4	T5	T6
VABM-P6-15M-G18-M5-4	63	45	30	16.5	9	15	49	7	9	6	7	5	7
VABM-P6-15M-G18-M5-6	93	75	60				79						
VABM-P6-15M-G18-M5-8	123	105	90				130						

Datasheet

Dimensions

Download CAD data at [www.festo.com](http://www.festo.com)

Connection direction underneath

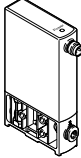
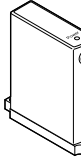


Type	B1	B2	B3	D1	D2 ∅	D3	D4	D5 ∅	D6	D7 ∅	H1	H2	H3	H4	H5	H6
VABM-P6-15MB-G18-M5-4	15	7.5	8.5	G1/8	6	G1/8	M5	4.5	M3	2.9	61.5	50	34	53.9	3.8	50.5
VABM-P6-15MB-G18-M5-6																
VABM-P6-15MB-G18-M5-8																

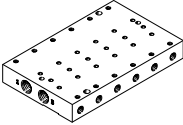
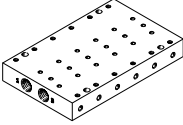
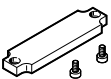
Type	H7	H8	L1	L2	L3	L4	L5	L6	L9	T1	T2	T3
VABM-P6-15MB-G18-M5-4	34	15	63	45	30	16.5	9	15	31.5	9	6	5
VABM-P6-15MB-G18-M5-6			93	75	60							
VABM-P6-15MB-G18-M5-8			123	105	90							



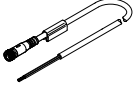
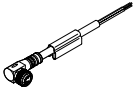
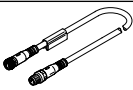
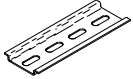


## Datasheet

Ordering data		Output pressure 2 (pressure regulation range) [MPa]	Part no.	Type
<b>In-line valve</b>				
	Voltage type, 0 ... 5 V	0.005 ... 1	<b>8126196</b>	<b>VEAA-L-3-D11-Q4-V2-1R1</b>
		0.001 ... 0.2	<b>8153645</b>	<b>VEAA-L-3-D2-Q4-V2-1R1</b>
		0.003 ... 0.6	<b>8153646</b>	<b>VEAA-L-3-D9-Q4-V2-1R1</b>
	Voltage type, 0 ... 10 V	0.005 ... 1	<b>8046905</b>	<b>VEAA-L-3-D11-Q4-V1-1R1</b>
		0.001 ... 0.2	<b>8046901</b>	<b>VEAA-L-3-D2-Q4-V1-1R1</b>
		0.003 ... 0.6	<b>8046903</b>	<b>VEAA-L-3-D9-Q4-V1-1R1</b>
	Current type, 4 ... 20 mA	0.005 ... 1	<b>8046906</b>	<b>VEAA-L-3-D11-Q4-A4-1R1</b>
		0.001 ... 0.2	<b>8046902</b>	<b>VEAA-L-3-D2-Q4-A4-1R1</b>
		0.003 ... 0.6	<b>8046904</b>	<b>VEAA-L-3-D9-Q4-A4-1R1</b>
<b>Sub-base valve</b>				
	Voltage type, 0 ... 5 V	0.005 ... 1	<b>8153644</b>	<b>VEAA-B-3-D11-F-V2-1R1</b>
		0.001 ... 0.2	<b>8153642</b>	<b>VEAA-B-3-D2-F-V2-1R1</b>
		0.003 ... 0.6	<b>8153643</b>	<b>VEAA-B-3-D9-F-V2-1R1</b>
	Voltage type, 0 ... 10 V	0.005 ... 1	<b>8046896</b>	<b>VEAA-B-3-D11-F-V1-1R1</b>
		0.001 ... 0.2	<b>8046892</b>	<b>VEAA-B-3-D2-F-V1-1R1</b>
		0.003 ... 0.6	<b>8046894</b>	<b>VEAA-B-3-D9-F-V1-1R1</b>
	Current type, 4 ... 20 mA	0.005 ... 1	<b>8046897</b>	<b>VEAA-B-3-D11-F-A4-1R1</b>
		0.001 ... 0.2	<b>8046893</b>	<b>VEAA-B-3-D2-F-A4-1R1</b>
		0.003 ... 0.6	<b>8046895</b>	<b>VEAA-B-3-D9-F-A4-1R1</b>

## Datasheet

Ordering data	Description	Part no.	Type
<b>Manifold rail</b>			
	Connection direction on the side	4 valve positions	<b>8083543</b> VABM-P6-15M-G18-M5-4
		6 valve positions	<b>8083545</b> VABM-P6-15M-G18-M5-6
		8 valve positions	<b>8083547</b> VABM-P6-15M-G18-M5-8
	Connection direction underneath	4 valve positions	<b>8083544</b> VABM-P6-15MB-G18-M5-4
		6 valve positions	<b>8083546</b> VABM-P6-15MB-G18-M5-6
		8 valve positions	<b>8083548</b> VABM-P6-15MB-G18-M5-8
<b>Cover plate</b>			
	Including screws (2) and O-rings (3, premounted)	<b>4054657</b>	VABB-P6-M

## Accessories

Ordering data	Description	Part no.	Type
Connecting cable <span style="float: right;">Datasheets at Internet: nebu</span>			
	Straight socket, M8x1, 4-pin Open end, 4-wire	2.5 m	541342 NEBU-M8G4-K-2.5-LE4
		5 m	541343 NEBU-M8G4-K-5-LE4
	Angled socket, M8x1, 4-pin Open end, 4-wire	2.5 m	541344 NEBU-M8W4-K-2.5-LE4
		5 m	541345 NEBU-M8W4-K-5-LE4
	Straight socket, M8x1, 4-pin Straight plug M8x1, 4-pin	2.5 m	554035 NEBU-M8G4-K-2.5-M8G4
H-rail			
	To EN 60715, 35 x 7.5 (WxH), for control cabinet installation	35430	NRH-35-2000
H-rail mounting			
	For H-rail NRH-35-2000	4054652	VAME-P7-T
Mounting plate			
	For in-line valve	4054655	VAME-P6-Y