

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

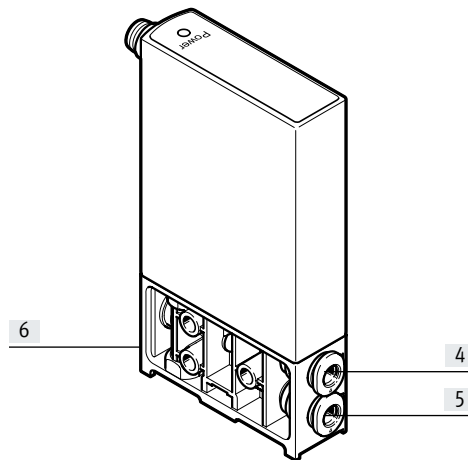
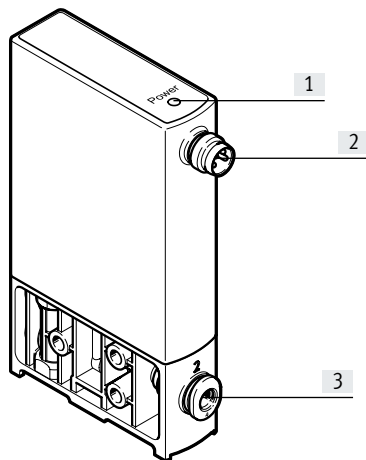
- Integrated pressure sensor with separate output
- Diagnostics:
 - Operating voltage: over- and undervoltage
 - Setpoint value: falling below and exceeding
- Consistent pressure regulation performance with long-term stability

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

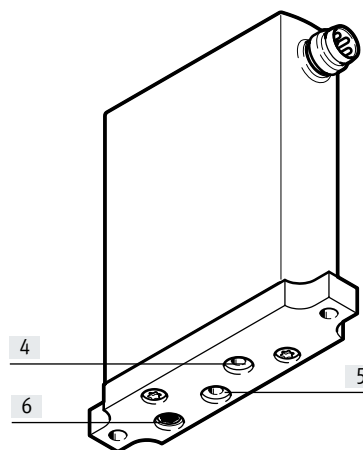
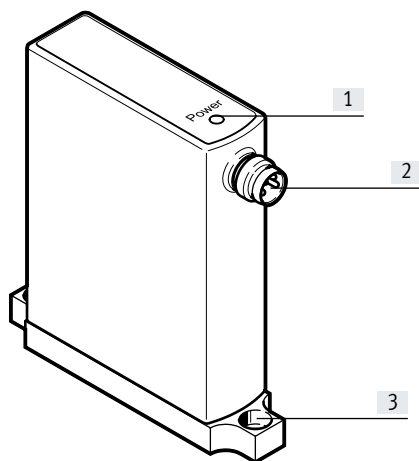
Key features

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

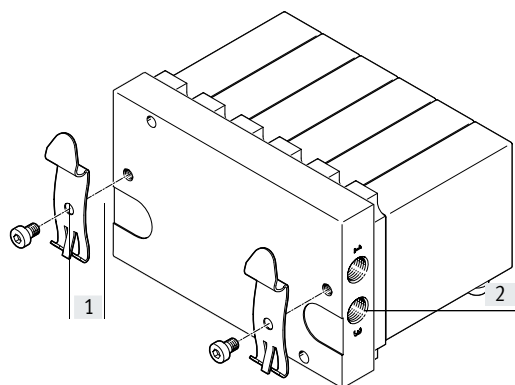


- [1] Power LED (green), fault LED (red)
- [2] Electrical connection, M8 plug
- [3] Through-holes for mounting the valve on the sub-base
- [4] Port 2, working air
- [5] Port 3, exhaust air
- [6] Port 1, compressed air

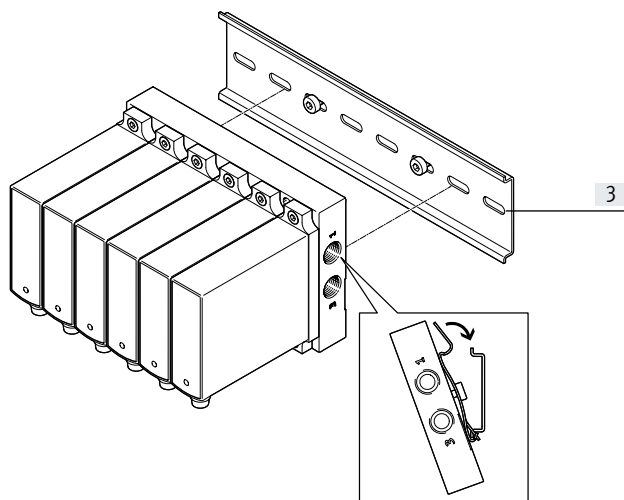
Key features

Mounting the valve manifold assembly

H-rail mounting

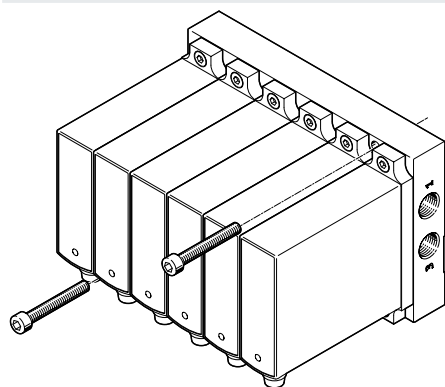


The H-rail mounting [1] can be used to mount the manifold rail [2] on H-rails in accordance with EN 60715.



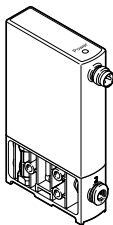
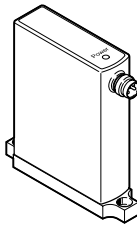
To do this, the manifold rail with the H-rail mounting attached is mounted on the H-rail [3] and latched in place.

Wall mounting



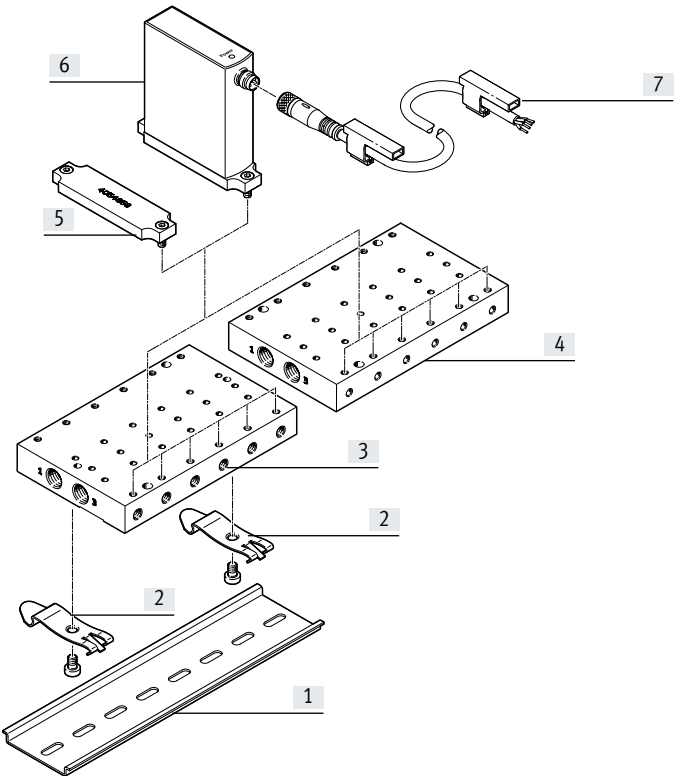
Through-holes for wall mounting are located on the manifold rail.

Product range overview

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

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

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

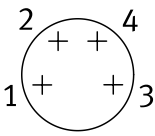
Operating and environmental conditions		
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases
Note on the operating/pilot medium		Lubricated operation not possible
Input pressure at port 1 ¹⁾	[MPa]	0 ... 1.1
	[bar]	0 ... 11
	[psi]	0 ... 159.5
Hysteresis FS (full scale)	[%]	0.25
Linearity 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 ²⁾		2
CE marking (see declaration of conformity)		To EU EMC Directive
Certification		RCM

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

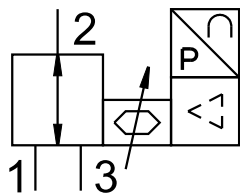
2) Corrosion resistance class CRC 2 to Festo standard FN 940070

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.

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



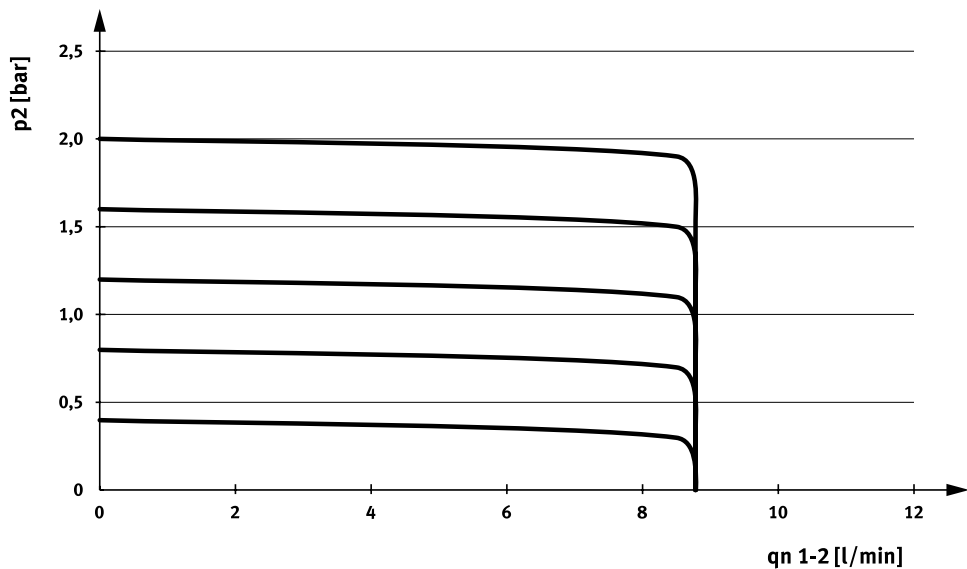
An integrated pressure sensor records the pressure at the working port and compares this value with the setpoint value.

The pressure is automatically readjusted in the event of deviations.

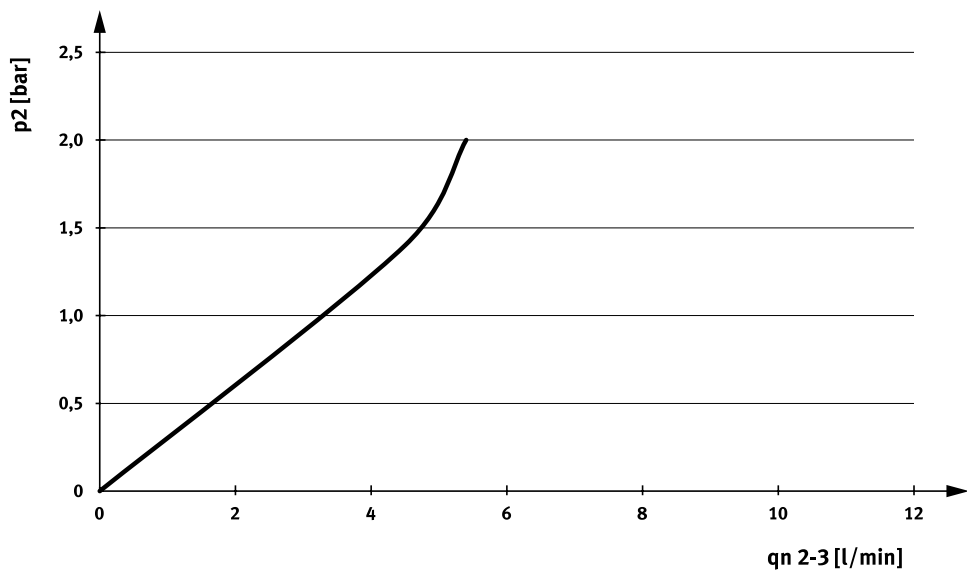
Datasheet

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

Flow rate qn from 1 → 2 as a function of output pressure p2



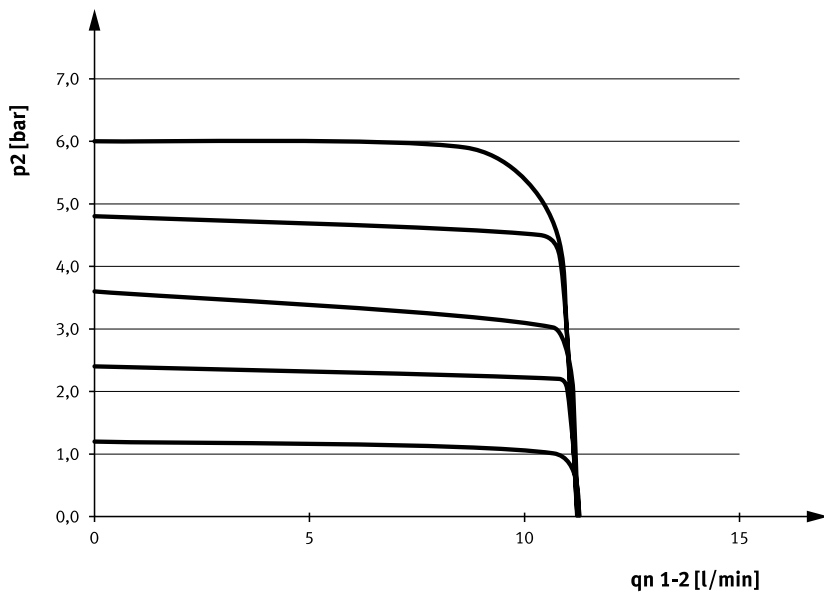
Flow rate qn from 2 → 3 as a function of output pressure p2



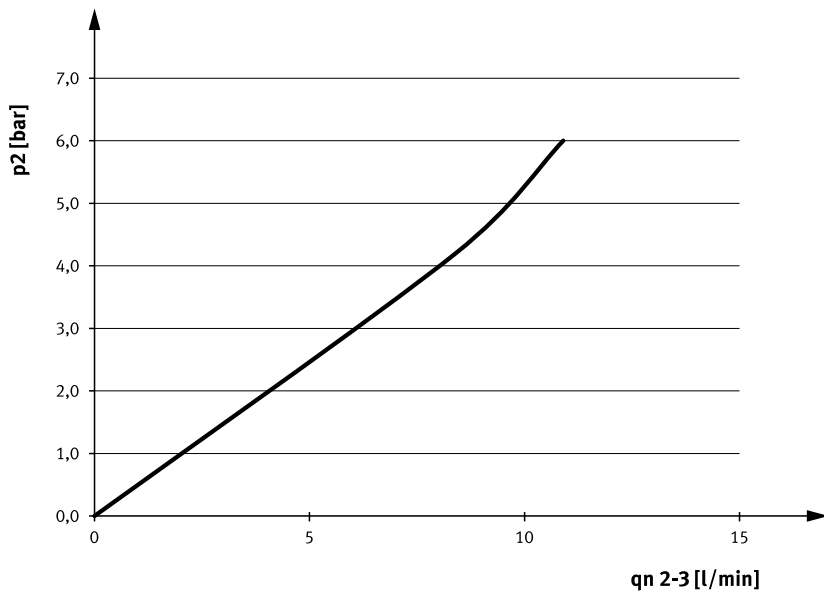
Datasheet

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



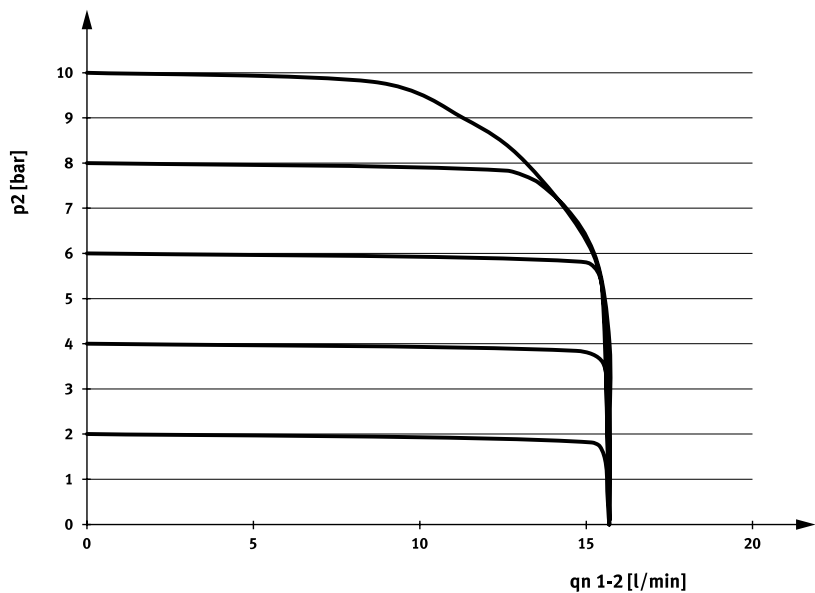
Flow rate q_n from 2 → 3 as a function of output pressure p_2



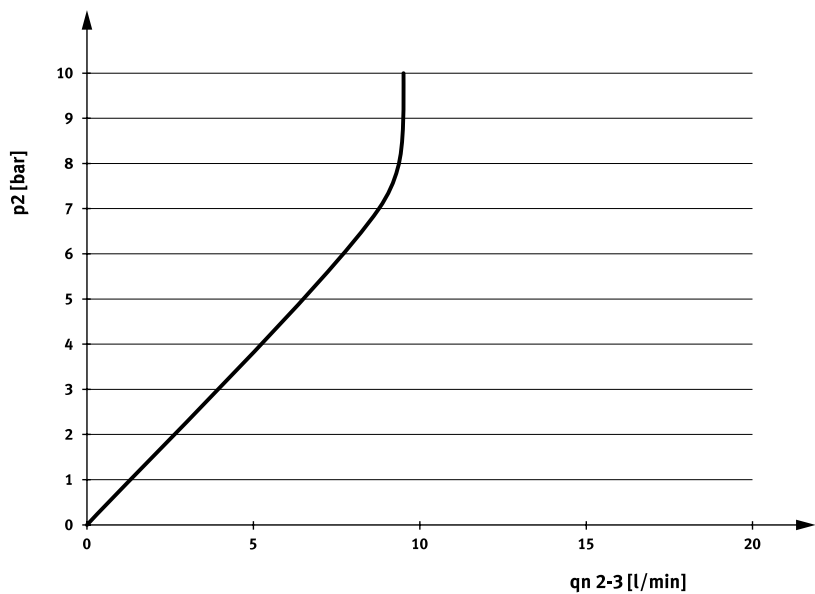
Datasheet

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

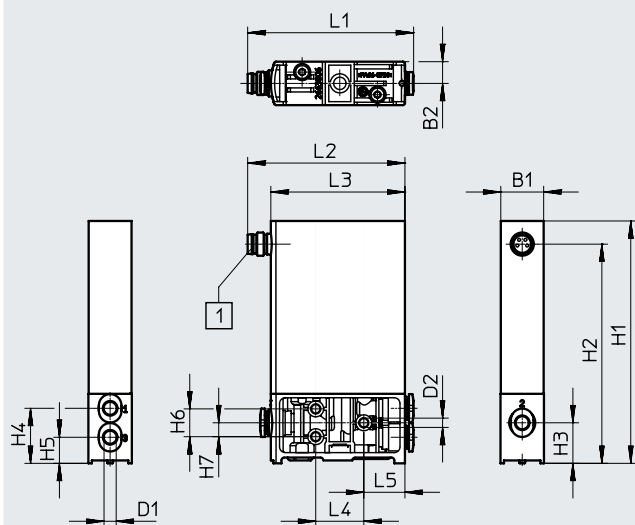


Datasheet

Dimensions

Download CAD data at www.festo.com

In-line valve



[1] Plug M8x1, 4-pin

Type	B1	B2	D1 Ø	D2 Ø	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

Sub-base valve

Technical drawing of the VEAA-B sub-base valve. The drawing includes three views: a top view, a side view, and a front view. The top view shows the valve body with three ports labeled 1, 2, and 3. Port 1 is for compressed air, Port 2 is for working air, and Port 3 is for exhaust air. A plug (callout 4) is shown in the side view. Dimensions are labeled as follows: L1 (total length), L2 (length to port 1), L3 (length to port 2), L4 (length to port 3), L5 (length to plug), L6 (length to port 1), L7 (length to port 2), L8 (length to port 3), L9 (length to plug), L10 (length to port 1), B1 (width), B3 (width), D3 (port diameter), H1 (height to port 1), H2 (height to port 2), and H8 (height to plug).

Download CAD data at www.festo.com

- [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

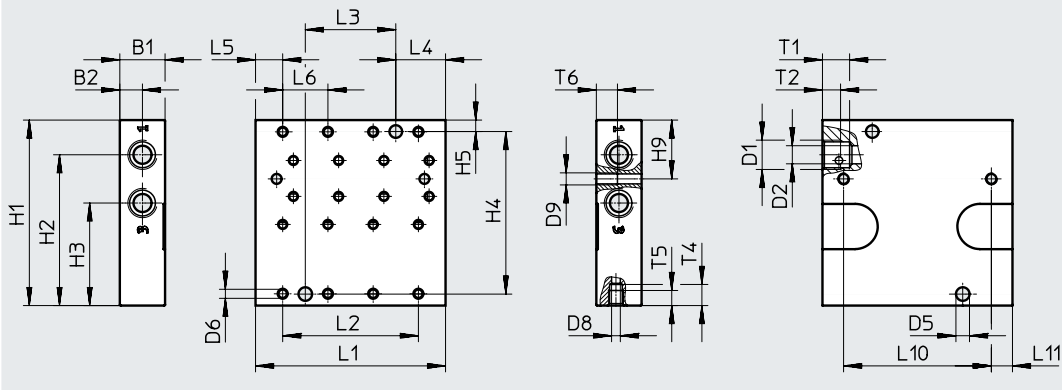
Type	L1	L2	L3	L6	L7	L8	L9	L10
VEAA-B	61	54.5	46.5	57.3	3.6	30.7	21.4	9.5

Datasheet

Dimensions

Download CAD data at www.festo.com

Connection direction on the side



Type	B1	B2	B3	D1	D2 Ø	D5 Ø	D6	D7	D8 Ø	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																

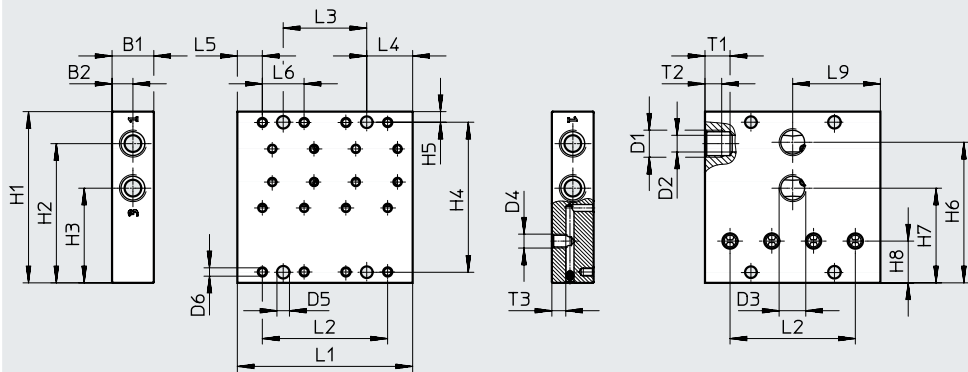
Type	L1	L2	L3	L4	L5	L6	L10	L11	T1	T2	T4	T5	T6
VABM-P6-15M-G18-M5-4	63	45	30	16.5	9	15	49	7	9	6	7	5	7
VABM-P6-15M-G18-M5-6	93	75	60				79						
VABM-P6-15M-G18-M5-8	123	105	90				130						

Datasheet

Dimensions

Download CAD data at www.festo.com

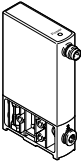
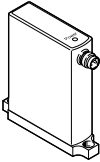
Connection direction underneath



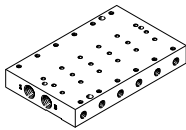
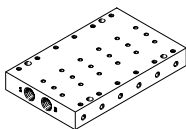
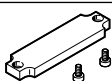
Type	B1	B2	B3	D1	D2 Ø	D3	D4	D5 Ø	D6	D7 Ø	H1	H2	H3	H4	H5	H6
VABM-P6-15MB-G18-M5-4	15	7.5	8.5	G1/8	6	G1/8	M5	4.5	M3	2.9	61.5	50	34	53.9	3.8	50.5
VABM-P6-15MB-G18-M5-6																
VABM-P6-15MB-G18-M5-8																

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							

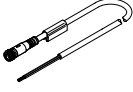
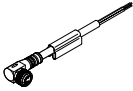
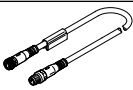
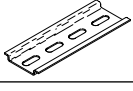
Datasheet

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

Datasheet

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

Accessories

Ordering data	Description	Part no.	Type
Connecting cable			
Datasheets at Internet: nebu			
	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