Proportional-pressure regulators VEAB

Characteristics

Innovative

- Silent operation
- Very low power consumption
- High precision
- Short switching times
- Piezo technology

Versatile

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

Reliable

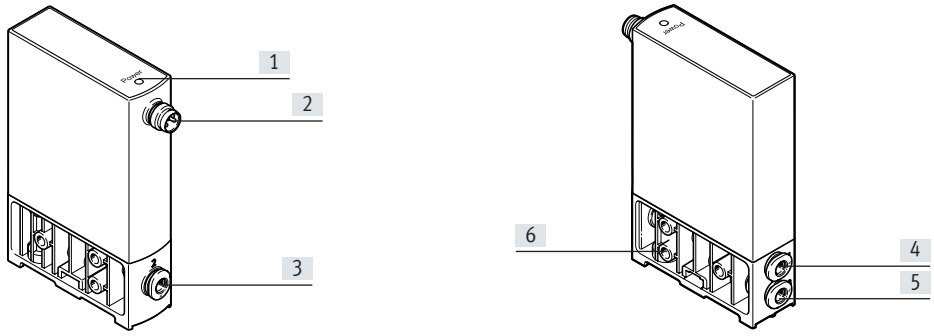
- Integrated pressure sensor with separate output
- Diagnostics
  - Operating voltage: over- and undervoltage
  - Setpoint value: falling below and exceeding
- Consistent pressure regulation performance with long-term stability
- Durable

Easy to install

- Mounting the in-line valve via three lateral through-holes
- Secure mounting on wall or H-rail

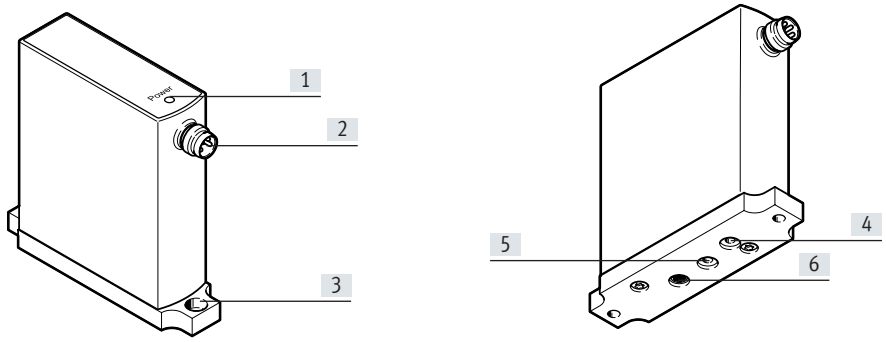
Characteristics – Display and operation

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

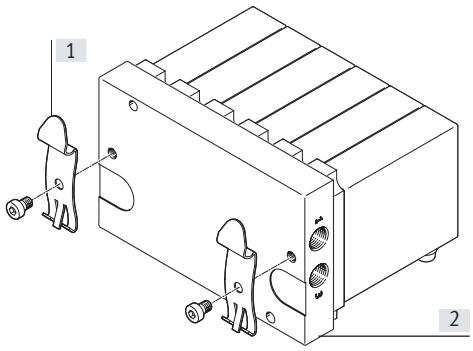


[1] Power LED (green), fault LED (red)
[2] Electrical connection, M8 plug
[3] Through-holes for mounting the valve on the sub-base
[4] Port 2, working air
[5] Port 3, exhaust air
[6] Port 1, compressed air

Characteristics – Mounting

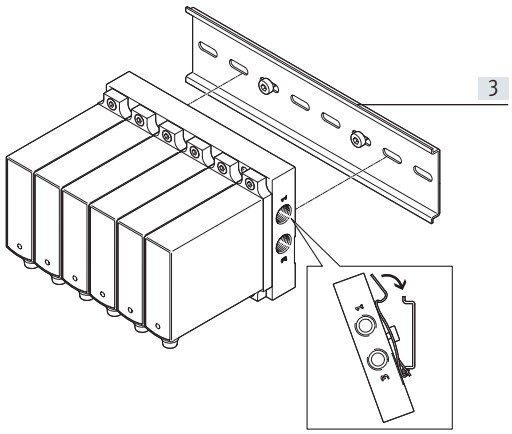
Mounting the valve manifold assembly

H-rail mounting



[1] H-rail mounting
[2] Manifold rail

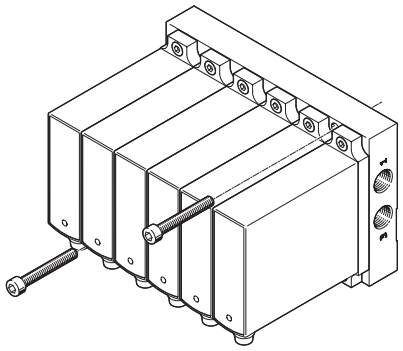
The H-rail mounting can be used to attach the manifold rail to H-rails in accordance with EN 60715.



[3] H-rail

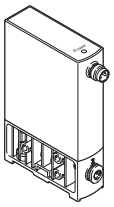
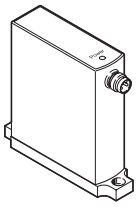
To do this, the manifold rail with the H-rail mounting is attached to the H-rail and latched in place.

Wall mounting



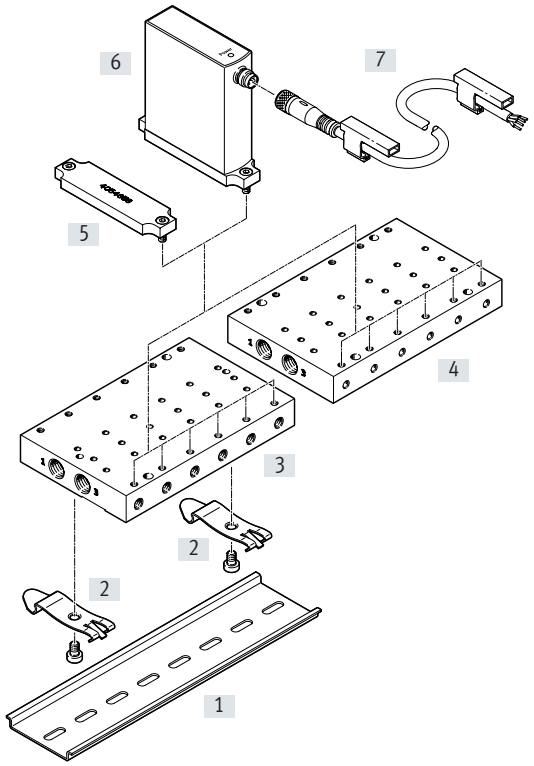
The manifold rail also has through-holes for wall mounting.

Product range overview

Design		Valve function	Pneumatic connection 1, 2, 3	Output pressure 2 (pressure regulation range) [MPa]	Setpoint value input		→ Page/ Internet
					Voltage type 0 … 10 V	Current type 4 … 20 mA	
Pressure regulator	**In-line valve**						
		3-way proportional-pressure regulator	Push-in connector	–0.1 … –0.0005 –0.1 … 0.1 –0.1 … 0.5 –0.05 … 0.05 0.0001 … 0.02 0.0005 … 0.1 0.001 … 0.2 0.003 … 0.6	■	■	8
	Sub-base valve						
		3-way proportional-pressure regulator	Via manifold rail	–0.1 … –0.0005 –0.1 … 0.1 –0.1 … 0.5 –0.05 … 0.05 0.0001 … 0.02 0.0005 … 0.1 0.001 … 0.2 0.003 … 0.6	■	■	8

Peripherals overview

Valve manifold assembly VEAB



Type		Description	→ Page/Internet
[1]	H-rail NRH352000	For control cabinet installation	24
[2]	H-rail mounting VAME	For mounting the H-rail	24
[3]	Manifold rail VABM-P7-G18M	Connection direction at the side, for control cabinet installation	23
[4]	Manifold rail VABM-P7-G18MB	Connection direction underneath, for wall mounting and control cabinet installation	23
[5]	Cover plate VABB	–	23
[6]	Proportional-pressure regulator VEAB	–	23
[7]	Connecting cable NEBU	–	24

Type codes

001	Series	
VEAB	Proportional pressure regulator	

002	Valve function	
26	2x2/2-way valve, normally closed	

003	Directional control valve type	
L	In-line valve	
B	Sub-base valve	

004	Pressure range [bar]	
D12	0 ... 0.2	
D7	0 ... 1	
D13	-1 ... 1	
D14	-1 ... 0	
D9	0 ... 6	
D15	-0.5 ... 0.5	
D2	0 ... 2	
D18	-1 ... 5	

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	

007	Electrical connection	
R1	Individual connector M8, 4-pin	

008	Nominal operating voltage	
1	24 V DC	

Data sheet

- Flow rate
  4.5 ... 20 l/min

- Voltage
  24 V DC

- Output pressure 2 (pressure regulation range)
  –0,1 ... –0,0005 MPa
  0,0001 ... 0,02 MPa
  0,0005 ... 0,1 MPa
  0,001 ... 0,2 MPa
  0,003 ... 0,6 MPa
  –0,1 ... 0,1 MPa
  –0,1 ... 0,5 MPa
  –0,05 ... 0,05 MPa

General technical data				
Type			VEAB-L	VEAB-B
Valve type			In-line valve	Sub-base valve
Valve function			3-way proportional-pressure regulator	
Dimensions W x L x H		[mm]	18 x 60.5 x 85	18 x 67 x 66
Standard nominal flow rate			→ Page 11	
Pneumatic connection 1, 2, 3			Push-in connector 4 mm	Flange/via sub-base
Sealing principle			Soft	
Actuation type			Electrical	
Display type			LED	
Type of control			Direct	
Reset method			Mechanical spring	
Type of mounting			Optionally with through-hole, with accessories	
Mounting position			Any	
Product weight		[g]	70	

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
	Current	[mA]	4 ... 20
Short circuit current rating			For all electrical connections
Reverse polarity protection			For all electrical connections
Degree of protection			IP65

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

Data sheet

Operating and environmental conditions						
Output pressure 2 (pressure regulation range)	[MPa]	–0.1...–0.0005	–0.1 ... 0.1	–0.1 ... 0.5	–0.05 ... 0.05	0.0001 ... 0.02
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]				
		Inert gases				
Note on operating/pilot medium		Operation with lubricated medium not possible				
Input pressure at port 1[1]	[MPa]	0.1	0 ... 0.2	0 ... 0.55	0 ... 0.2	0 ... 0.1
	[bar]	1	0 ... 2	0 ... 5.5	0 ... 2	0 ... 1
	[psi]	14.5	0 ... 29	0 ... 79.75	0 ... 29	0 ... 14.5
Input pressure at port 3	[MPa]	–0.1	–0.1	–0.1	–0.1	
	[bar]	–1	–1	–1	–1	
	[psi]	–14.5	–14.5	–14.5	–14.5	
Hysteresis FS (full scale)	[%]	0.25	0.25	0.25	0.25	0.5
Linearity error FS (full scale)	[%]	± 0.5	0.5	0.5	0.5	± 0.8
Repetition accuracy FS (full scale)	[%]	± 0.4				
Absolute accuracy at room temperature FS (full scale)	[%]	0.75	0.75	0.75	0.75	0.8
Accuracy of analogue output FS (full scale)	[%]	2				
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[3]				
Certification		RCM compliance mark				

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/sp → Certificates.
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.

Operating and environmental conditions				
Output pressure 2 (pressure regulation range)	[MPa]	0.0005 ... 0.1	0.001 ... 0.2	0.003 ... 0.6
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]		
		Inert gases		
Note on operating/pilot medium		Operation with lubricated medium not possible		
Input pressure at port 1	[MPa]	0 ... 0.3	0 ... 0.4	0 ... 0.65
	[bar]	0 ... 3	0 ... 4	0 ... 6.5
	[psi]	0 ... 43.5	0 ... 58	0 ... 94.25
Input pressure at port 3	[MPa]	–	–	–
	[bar]	–	–	–
	[psi]	–	–	–
Hysteresis FS (full scale)	[%]	0.25		
Linearity error FS (full scale)	[%]	± 0.5		
Repetition accuracy FS (full scale)	[%]	± 0.4		
Absolute accuracy at room temperature FS (full scale)	[%]	0.75		
Accuracy of analogue output FS (full scale)	[%]	2		
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[1]		2		
CE marking (see declaration of conformity)		To EU EMC Directive[2]		
Certification		RCM compliance mark		

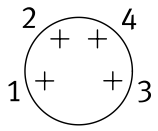
1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

2) For information about the area of use, see the EC declaration of conformity: www.festo.com/sp → Certificates.
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.

Data sheet

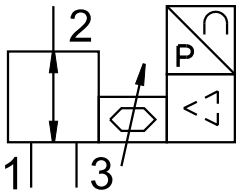
Materials	
Seals	NBR
Housing	Reinforced PA
Note on materials	RoHS-compliant
	Contains paint-wetting impairment substances

Pin allocation



Pin	Function
1	+24 V DC supply voltage
2	+ Setpoint value
3	GND
4	+ Actual value

Function



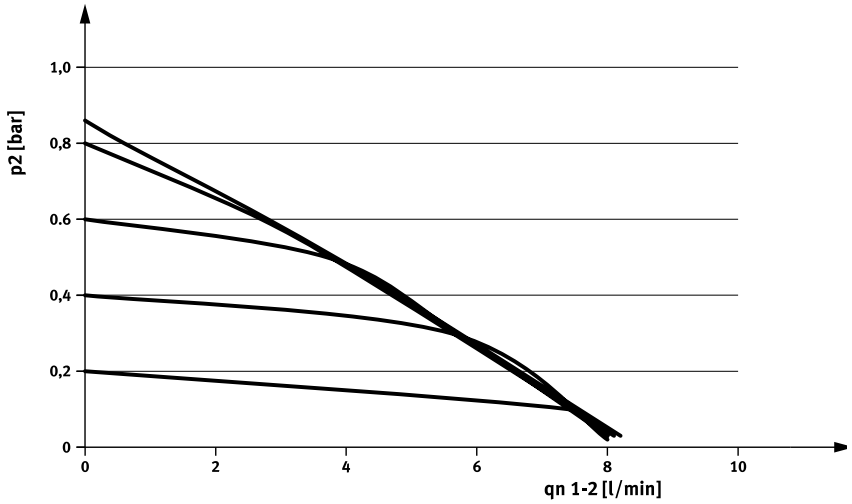
An integrated pressure sensor records the pressure at the working port and compares this value with the setpoint value.

The pressure is automatically readjusted in the event of deviations.

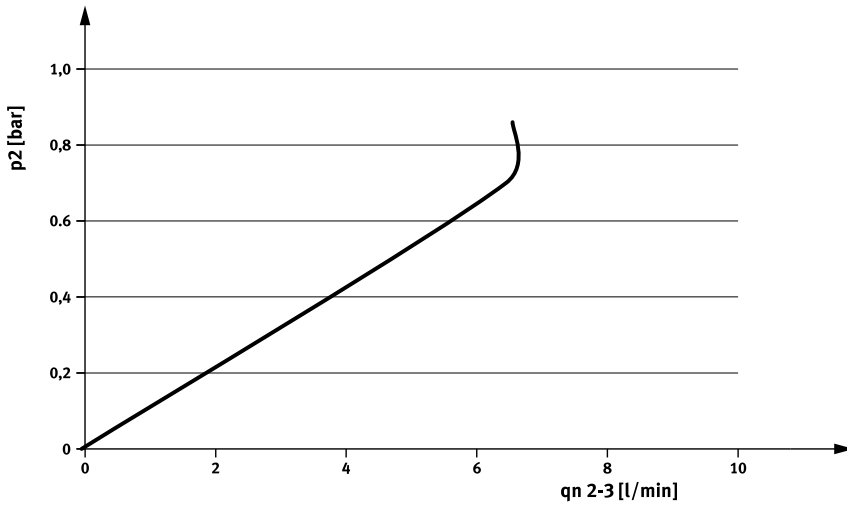
Data sheet

VEAB-...-D14-..., output pressure 2 (pressure regulation range) –1 ... –0.005

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



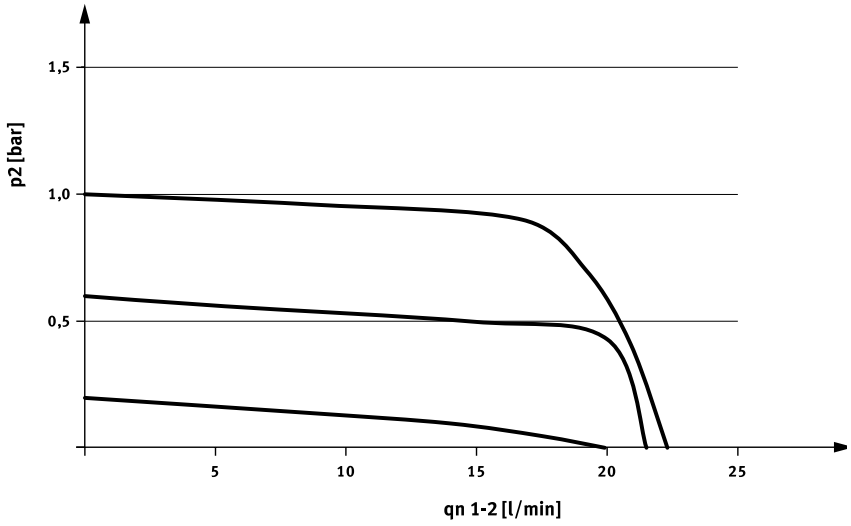
Flow rate qn from 2➔ 3 as a function of output pressure p2



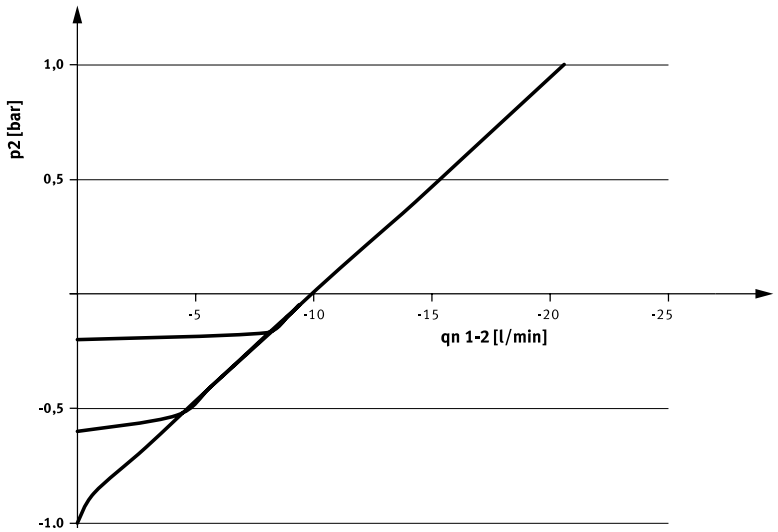
Data sheet

VEAB-...-D13-..., output pressure 2 (pressure regulation range) –1 ... 1

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



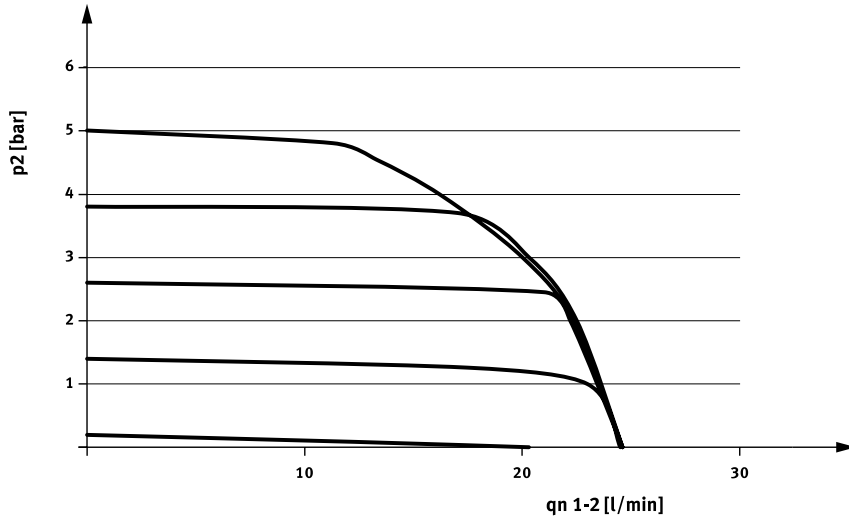
Flow rate qn from 2➔ 3 as a function of output pressure p2



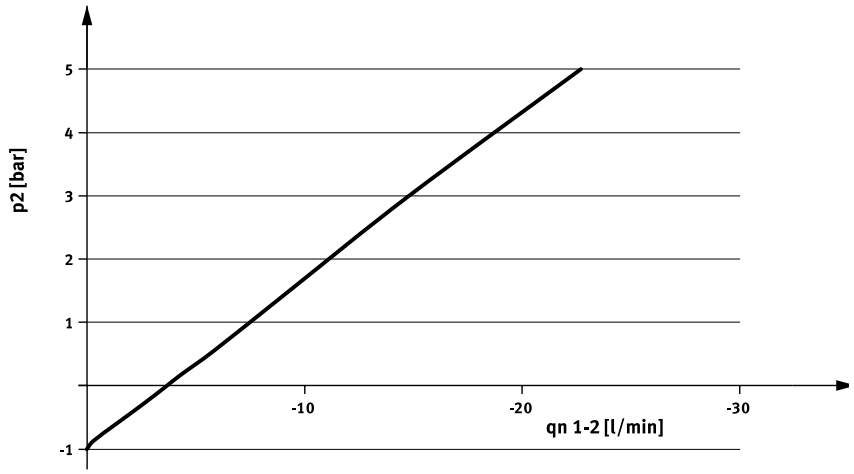
Data sheet

VEAB-...-D18-..., output pressure 2 (pressure regulation range) –1 ... 5

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



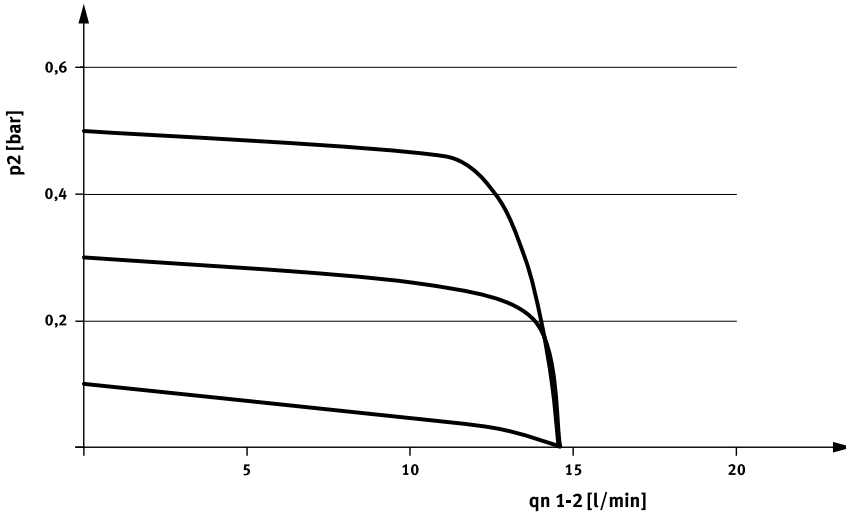
Flow rate qn from 2➔ 3 as a function of output pressure p2



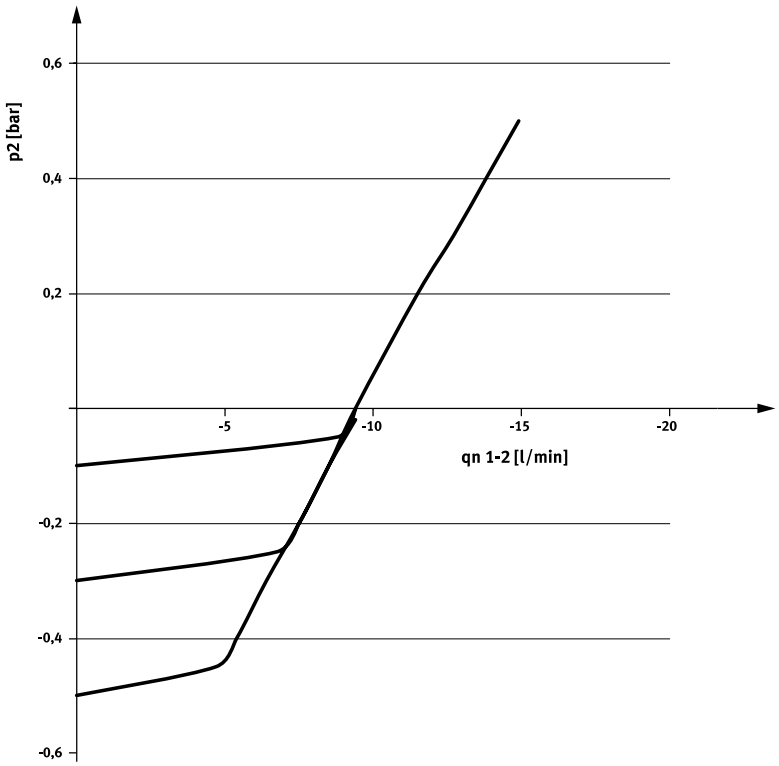
Data sheet

VEAB-...-D15-..., output pressure 2 (pressure regulation range) –0.5 ... 0.5

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



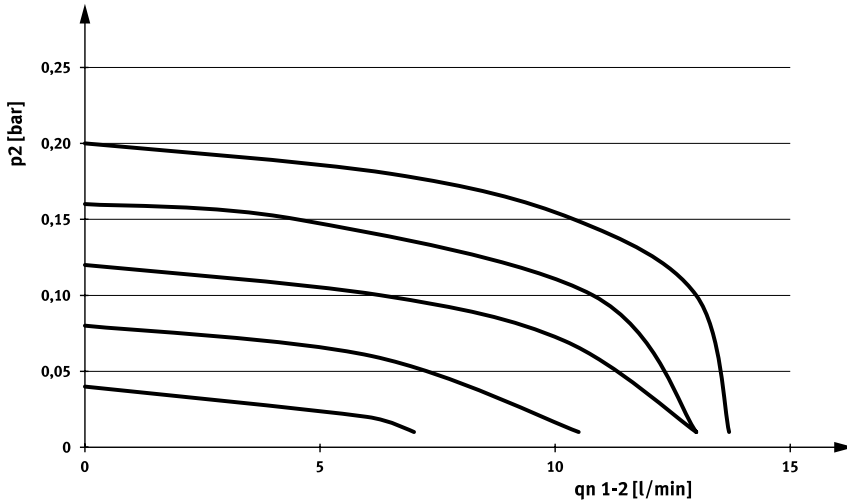
Flow rate qn from 2➔ 3 as a function of output pressure p2



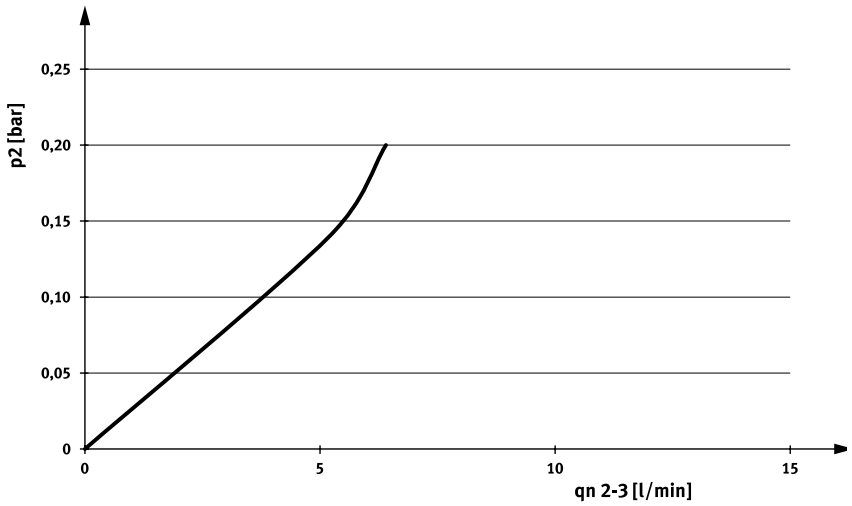
Data sheet

VEAB-...-D12-..., output pressure 2 (pressure regulation range) 0.001 ... 0.2

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



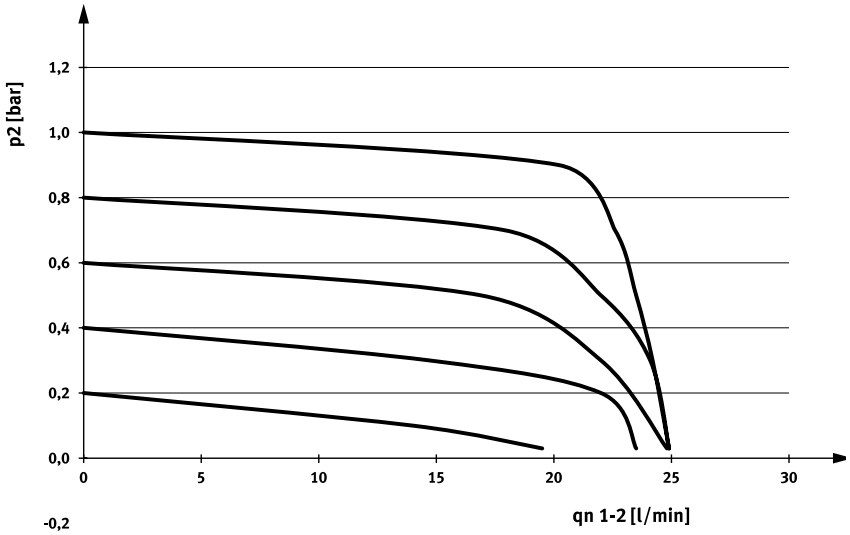
Flow rate qn from 2➔ 3 as a function of output pressure p2



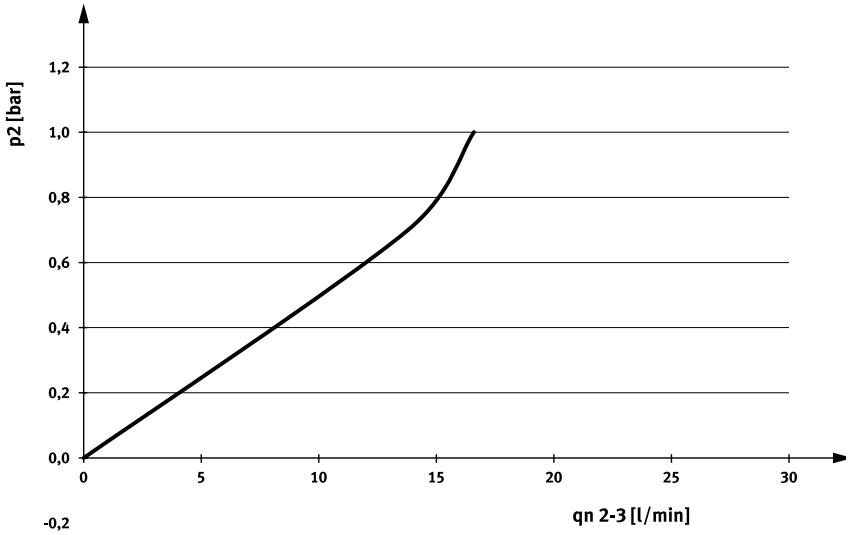
Data sheet

VEAB-...-D7-..., output pressure 2 (pressure regulation range) 0.005 ... 1

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



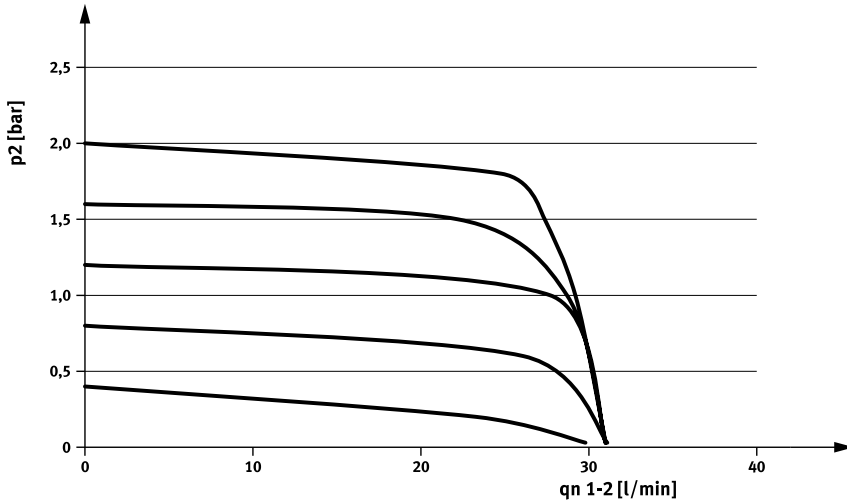
Flow rate qn from 2➔ 3 as a function of output pressure p2



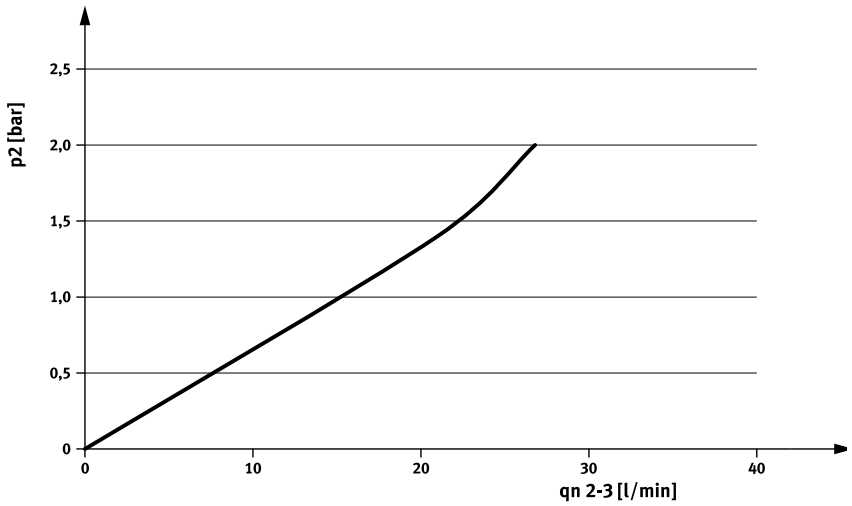
Data sheet

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

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



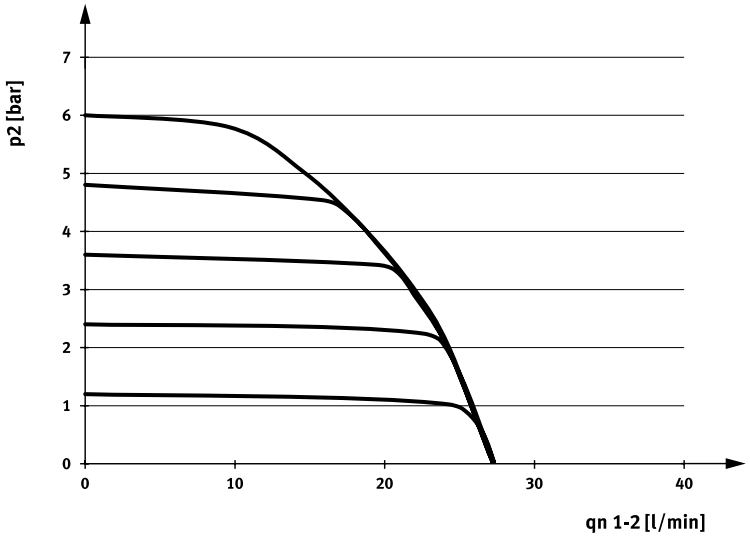
Flow rate qn from 2➔ 3 as a function of output pressure p2



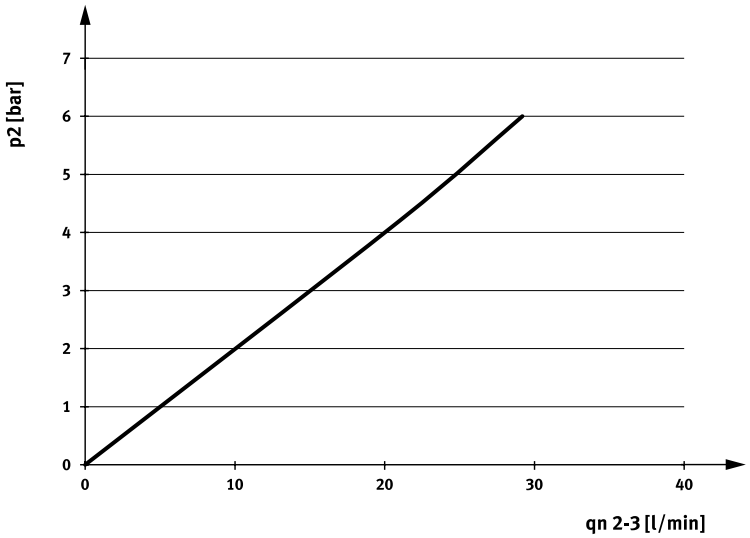
Data sheet

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

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



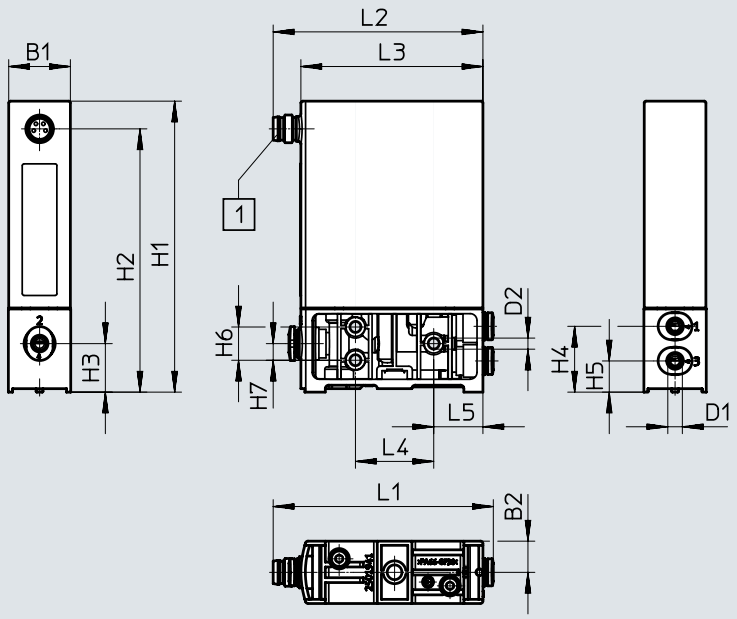
Flow rate qn from 2➔ 3 as a function of output pressure p2



Data sheet

Dimensions Download CAD data ➔ www.festo.com

In-line valve



[1] Plug M8x1, 4-pin

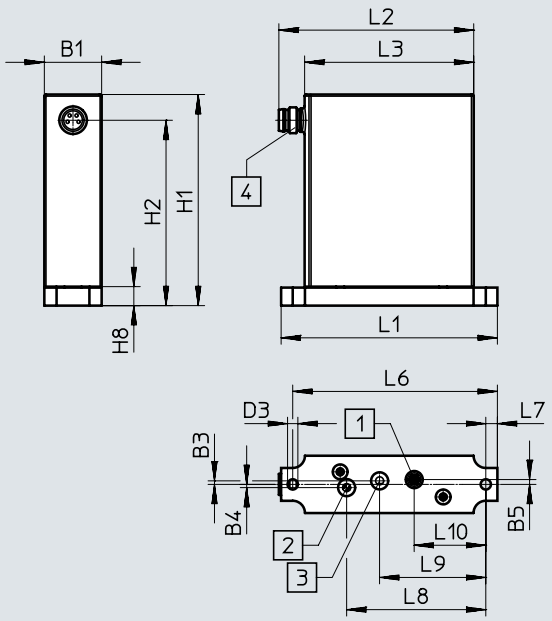
Type	B1	B2	D1 ø	D2 ø	H1	H2	H3	H4	H5	H6	H7
VEAB-L	18	9	4	3.2	85	76	14	19	9.5	9.6	4.8

Type	L1	L2	L3	L4	L5
VEAB-L	64	60.5	52.5	22.6	14.2

Data sheet

Dimensions Download CAD data ➔ 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

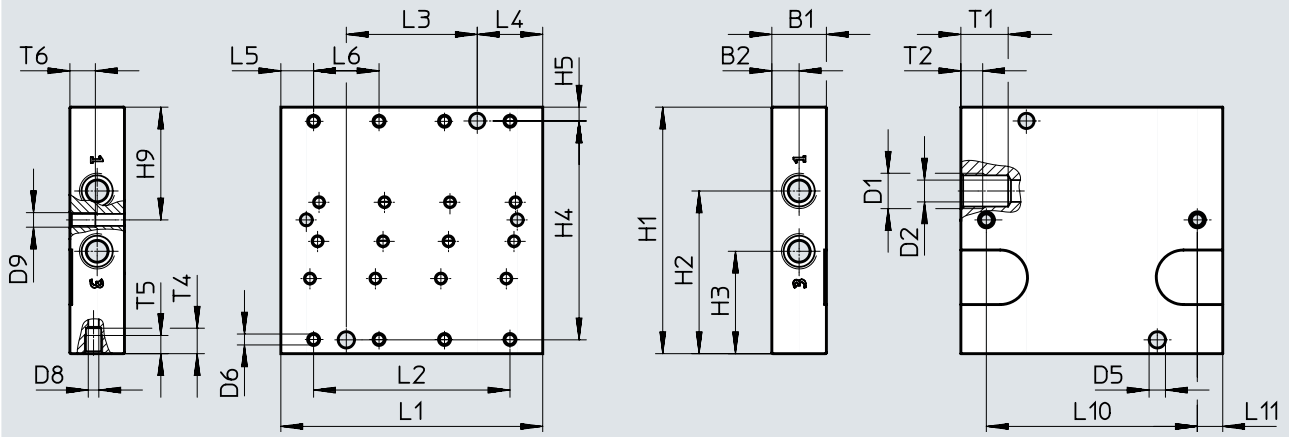
Type	B1	B3	B4	B5	D3 ø	H1	H2	H8
VEAB-B	18	1.1	1	1.5	3.2	66	58	6

Type	L1	L2	L3	L6	L7	L8	L9	L10
VEAB-B	67.2	60.5	52.5	63.6	3.6	43.3	33	22.3

Data sheet

Dimensions – Manifold rail Download CAD data ➔ www.festo.com

Connection direction at the side



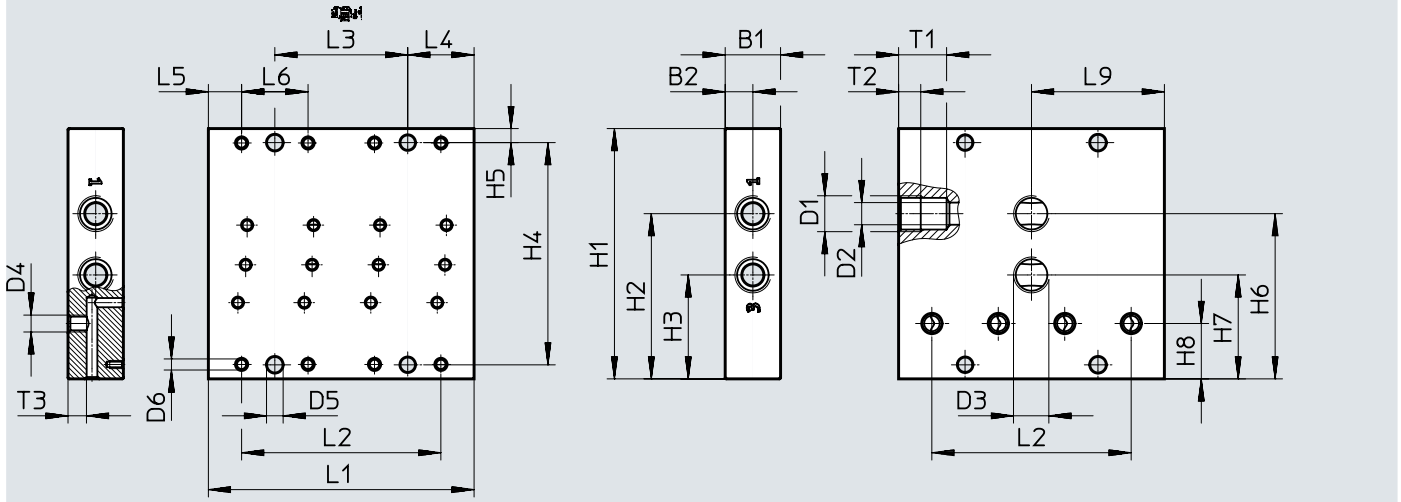
Type	B1	B2	B3	D1	D2 ø	D5 ø	D6	D7	D8 ø	D9	H1	H2	H3	H4	H5	H9
VABM-P7-18M-G18-M5-4	15	7.5	8.5	G1/8	6	4.5	M3	M5	2.9	M4	67.8	44.8	28.2	60.2	3.8	31
VABM-P7-18M-G18-M5-6																
VABM-P7-18M-G18-M5-8																

Type	L1	L2	L3	L4	L5	L6	L10	L11	T1	T2	T4	T5	T6
VABM-P7-18M-G18-M5-4	72	54	36	18	9	18	58	7	13	6	7	5	7
VABM-P7-18M-G18-M5-6	108	90	72				94						
VABM-P7-18M-G18-M5-8	144	126	108				130						

Data sheet

Dimensions – Manifold rail Download CAD data ➔ www.festo.com

Connection direction underneath

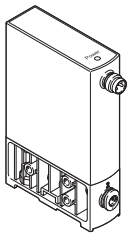
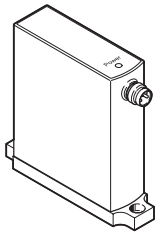
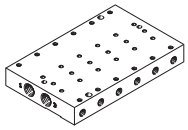
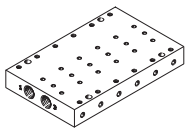
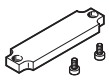


Type	B1	B2	B3	D1	D2 ø	D3	D4	D5 ø	D6	D7 ø	H1	H2	H3	H4	H5	H6
VABM-P7-18MB-G18-M5-4	15	7.5	8.5	G1/8	6	G1/8	M5	4.5	M3	2.9	67.8	44.8	28.2	60.2	3.8	44.8
VABM-P7-18MB-G18-M5-6																
VABM-P7-18MB-G18-M5-8																

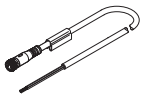
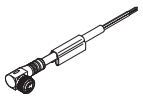
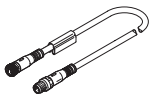
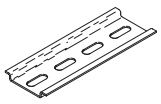
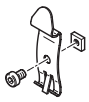
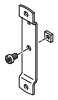
Type	H7	H8	L1	L2	L3	L4	L5	L6	L9	T1	T2	T3
VABM-P7-18MB-G18-M5-4	28.2	15	72	54	36	18	9	18	36	13	6	5
VABM-P7-18MB-G18-M5-6			108	90	72							
VABM-P7-18MB-G18-M5-8			144	126	108							

Accessories

Ordering data

		Output pressure 2 (pressure regulation range) [MPa]	Part no.	Type
In-line valve				
	Voltage type, 0 ... 10 V	–0.1 ... –0.0005	**8046307**	**VEAB-L-26-D14-Q4-V1-1R1**
		–0.1 ... 0.1	**8067677**	**VEAB-L-26-D13-Q4-V1-1R1**
		–0.1 ... 0.5	**8067679**	**VEAB-L-26-D18-Q4-V1-1R1**
		–0.05 ... 0.05	**8067675**	**VEAB-L-26-D15-Q4-V1-1R1**
		0.0001 ... 0.02	**8046301**	**VEAB-L-26-D12-Q4-V1-1R1**
		0.0005 ... 0.1	**8046303**	**VEAB-L-26-D7-Q4-V1-1R1**
		0.001 ... 0.2	**8046305**	**VEAB-L-26-D2-Q4-V1-1R1**
		0.003 ... 0.6	**8046299**	**VEAB-L-26-D9-Q4-V1-1R1**
	Current type, 4 ... 20 mA	–0.1 ... –0.0005	**8046308**	**VEAB-L-26-D14-Q4-A4-1R1**
		–0.1 ... 0.1	**8067678**	**VEAB-L-26-D13-Q4-A4-1R1**
		–0.1 ... 0.5	**8067680**	**VEAB-L-26-D18-Q4-A4-1R1**
		–0.05 ... 0.05	**8067676**	**VEAB-L-26-D15-Q4-A4-1R1**
		0.0001 ... 0.02	**8046302**	**VEAB-L-26-D12-Q4-A4-1R1**
		0.0005 ... 0.1	**8046304**	**VEAB-L-26-D7-Q4-A4-1R1**
		0.001 ... 0.2	**8046306**	**VEAB-L-26-D2-Q4-A4-1R1**
		0.003 ... 0.6	**8046300**	**VEAB-L-26-D9-Q4-A4-1R1**
Sub-base valve				
	Voltage type, 0 ... 10 V	–0.1 ... –0.0005	**8046271**	**VEAB-B-26-D14-F-V1-1R1**
		–0.1 ... 0.1	**8067669**	**VEAB-B-26-D13-F-V1-1R1**
		–0.1 ... 0.5	**8067671**	**VEAB-B-26-D18-F-V1-1R1**
		–0.05 ... 0.05	**8067667**	**VEAB-B-26-D15-F-V1-1R1**
		0.0001 ... 0.02	**8046265**	**VEAB-B-26-D12-F-V1-1R1**
		0.0005 ... 0.1	**8046267**	**VEAB-B-26-D7-F-V1-1R1**
		0.001 ... 0.2	**8046269**	**VEAB-B-26-D2-F-V1-1R1**
		0.003 ... 0.6	**8046263**	**VEAB-B-26-D9-F-V1-1R1**
	Current type, 4 ... 20 mA	–0.1 ... –0.0005	**8046272**	**VEAB-B-26-D14-F-A4-1R1**
		–0.1 ... 0.1	**8067670**	**VEAB-B-26-D13-F-A4-1R1**
		–0.1 ... 0.5	**8067672**	**VEAB-B-26-D18-F-A4-1R1**
		–0.05 ... 0.05	**8067668**	**VEAB-B-26-D15-F-A4-1R1**
		0.0001 ... 0.02	**8046266**	**VEAB-B-26-D12-F-A4-1R1**
		0.0005 ... 0.1	**8046268**	**VEAB-B-26-D7-F-A4-1R1**
		0.001 ... 0.2	**8046270**	**VEAB-B-26-D2-F-A4-1R1**
		0.003 ... 0.6	**8046264**	**VEAB-B-26-D9-F-A4-1R1**
Manifold rail				
	Connection direction at the side	4 valve positions	**8076386**	**VABM-P7-18M-G18-M5-4**
		6 valve positions	**8076388**	**VABM-P7-18M-G18-M5-6**
		8 valve positions	**8076390**	**VABM-P7-18M-G18-M5-8**
	Connection direction underneath	4 valve positions	**8076387**	**VABM-P7-18MB-G18-M5-4**
		6 valve positions	**8076389**	**VABM-P7-18MB-G18-M5-6**
		8 valve positions	**8076391**	**VABM-P7-18MB-G18-M5-8**
Cover plate				
	Including screws (2) and O-rings (3, preassembled)		**4054658**	**VABB-P7-M**

Accessories

Ordering data	Description		Part no.	Type
Connecting cable				Data sheets ➔ 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		**4054656**	**VAME-P7-Y**

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