

Proportional-pressure regulators VEAB

FESTO



Key features



Innovative

- Silent operation
- Very low power consumption
- Extremely precise
- Short switching times
- 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

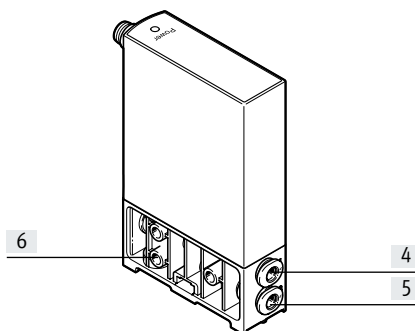
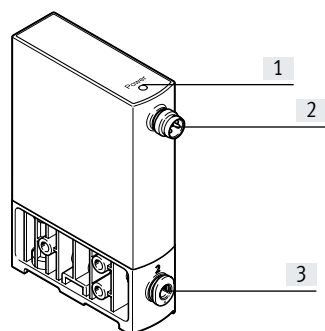
- Integrated pressure sensor with separate output
- Diagnostics
 - Operating voltage: over- and undervoltage
 - Setpoint value: falling below and exceeding
- Consistent pressure regulation performance with long-term stability
- Long service life

Easy to install

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

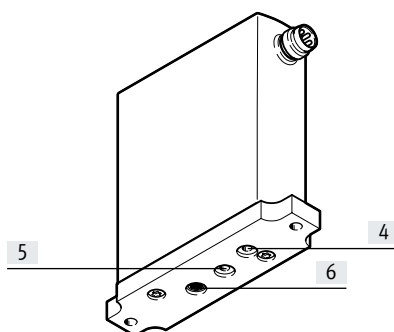
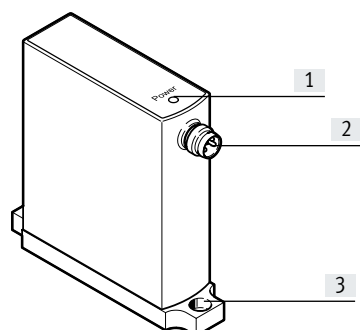
Key features – Display and operation

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

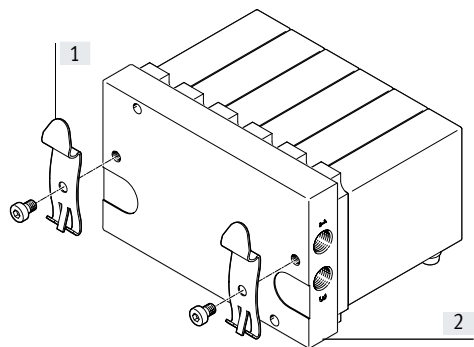


- [1] Power LED (green), fault LED (red)
- [2] Electrical connection, M8 plug
- [3] Through-holes for mounting the valve on the sub-base
- [4] Port 2, working air
- [5] Port 3, exhaust air
- [6] Port 1, compressed air

Key features – Mounting

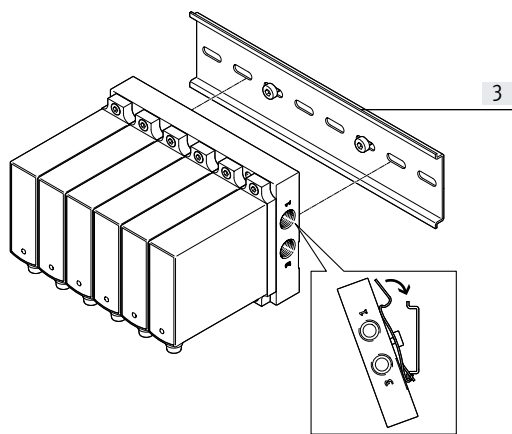
Mounting the valve manifold assembly

H-rail mounting



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

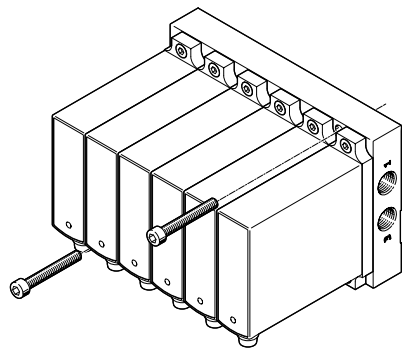
The H-rail mounting can be used to mount the manifold rail on H-rails in accordance with EN 60715.



- [3] H-rail

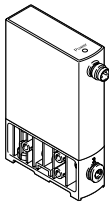
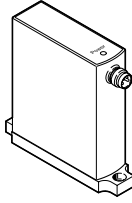
To do this, the manifold rail with the H-rail mounting is mounted on the H-rail and latched in place.

Wall mounting



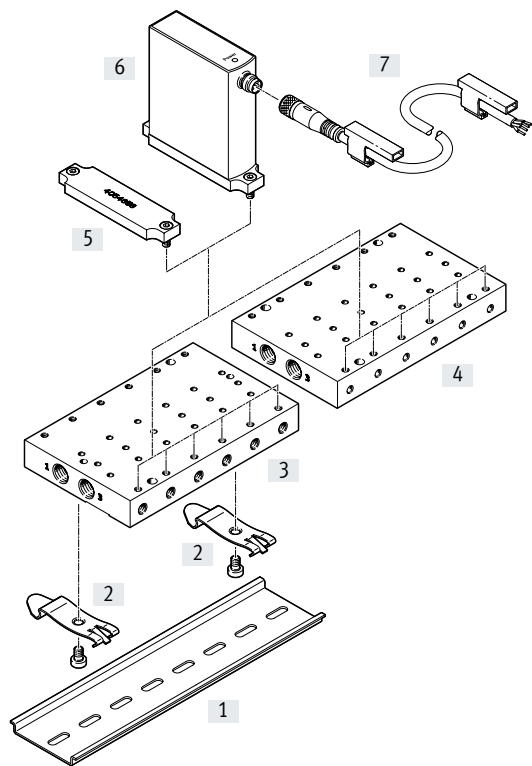
The manifold rail also has through-holes for wall mounting.

Product range overview

Design	Valve function	Pneumatic port 1, 2, 3	Output pressure 2 (pressure regulation range) [MPa]	Setpoint value input			→ Page/ Internet
				Voltage type		Current type	
				0 ... 5 V	0 ... 10 V	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 0.0025 ... 0.5	■ ■	■ -	■ -
	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 0.0025 ... 0.5	■ ■	■ -	■ -

Peripherals overview

Valve manifold assembly VEAB



Type	Description	→ Page/Internet
[1] H-rail NRH352000	For control cabinet installation	25
[2] H-rail mounting VAME	For mounting the H-rail	25
[3] Manifold rail VABM-P7-G18M	Connection direction at the side, for control cabinet installation	24
[4] Manifold rail VABM-P7-G18MB	Connection direction underneath, for wall mounting and control cabinet installation	24
[5] Cover plate VABB	–	24
[6] Proportional-pressure regulator VEAB	–	23
[7] Connecting cable NEBU	–	25

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]	
D9	0 ... 6	
D12	0 ... 0.2	
D7	0 ... 1	
D13	-1 ... 1	
D14	-1 ... 0	
D25		
D15	-0.5 ... 0.5	
D2	0 ... 2	
D18	-1 ... 5	

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

Datasheet

-  - 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
0.0025 ... 0.5 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 port 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
		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 VEAB:
If the electrical power supply fails, the output pressure will be unregulated and may rise or fall – valve blocked.

Datasheet

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 the operating/pilot medium		Lubricated operation 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				

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/... → 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.

Operating and environmental conditions					
Output pressure 2 (pressure regulation range)	[MPa]	0.0005 ... 0.1	0.001 ... 0.2	0.0025 ... 0.5	0.003 ... 0.6
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	[MPa]	0 ... 0.3	0 ... 0.4	0 ... 0.55	0 ... 0.65
	[bar]	0 ... 3	0 ... 4	0 ... 5.5	0 ... 6.5
	[psi]	0 ... 43.5	0 ... 58	0 ... 79.75	0 ... 94.25
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			

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

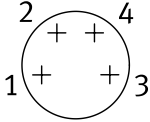
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

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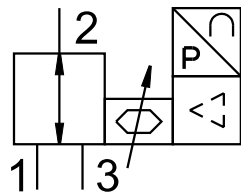
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Datasheet

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

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

Function



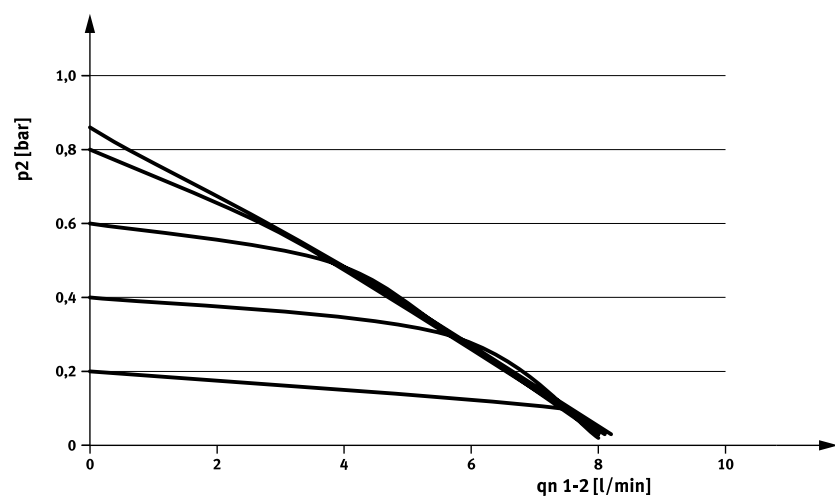
An integrated pressure sensor records the pressure at the working port and compares this value with the setpoint value.

The pressure is automatically readjusted in the event of deviations.

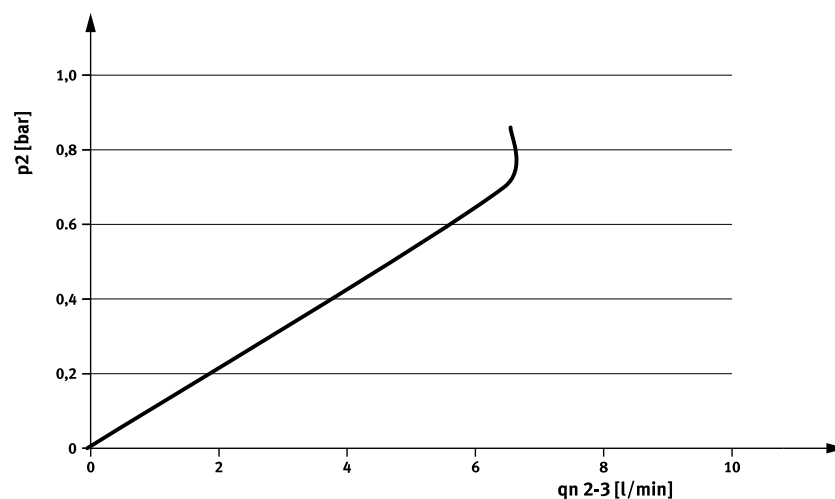
Datasheet

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

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



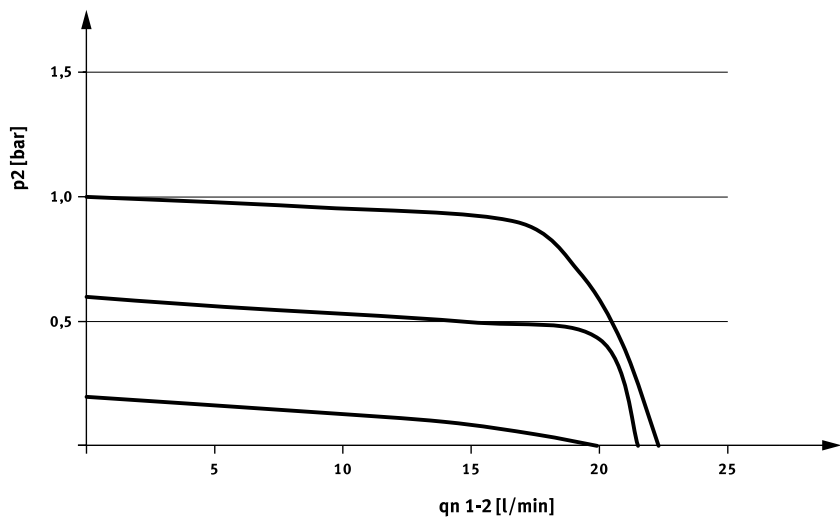
Flow rate q_n from 2 → 3 as a function of output pressure p_2



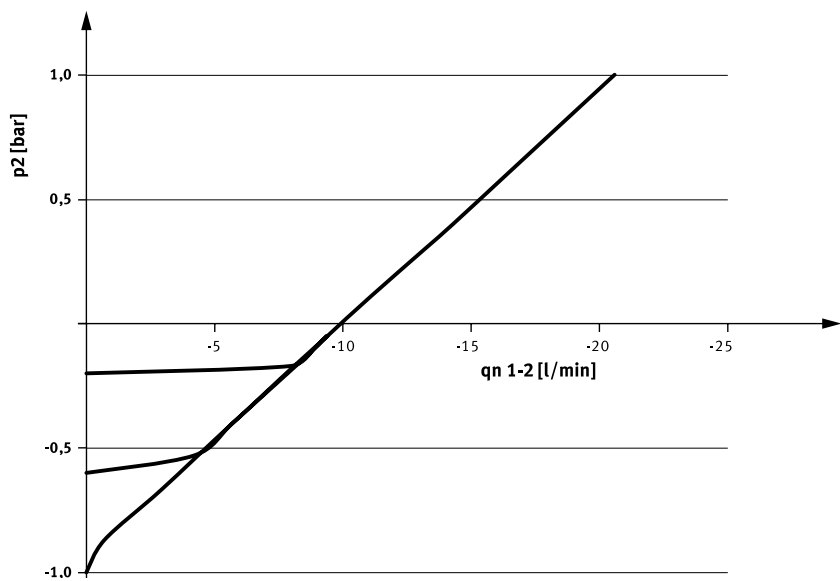
Datasheet

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

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



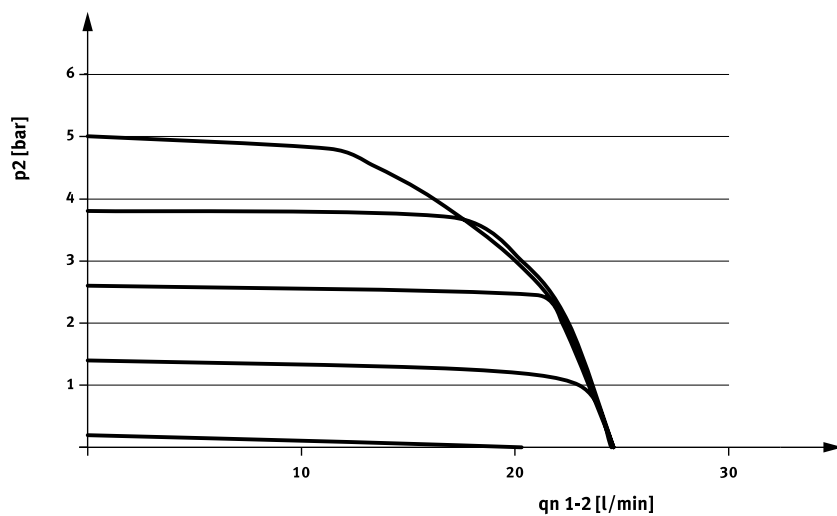
Flow rate q_n from 2 → 3 as a function of output pressure p_2



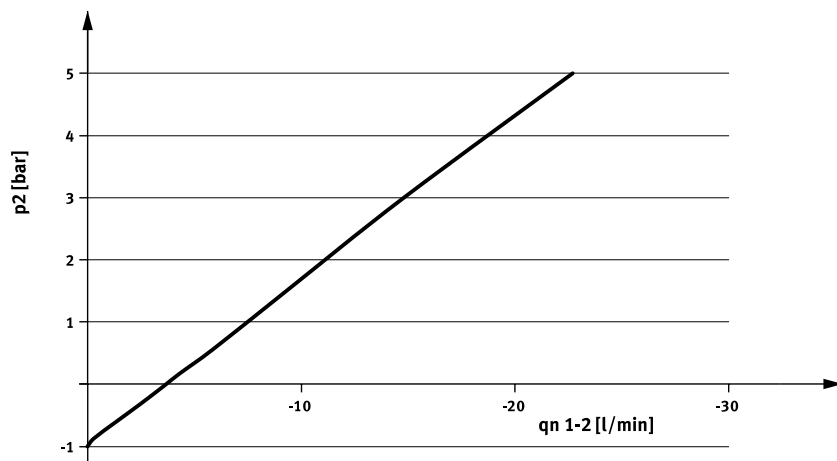
Datasheet

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

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



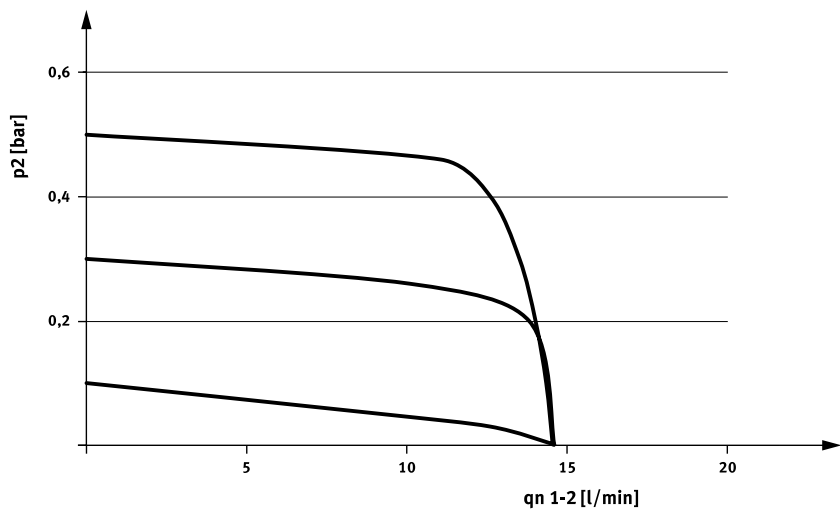
Flow rate q_n from 2 → 3 as a function of output pressure p_2



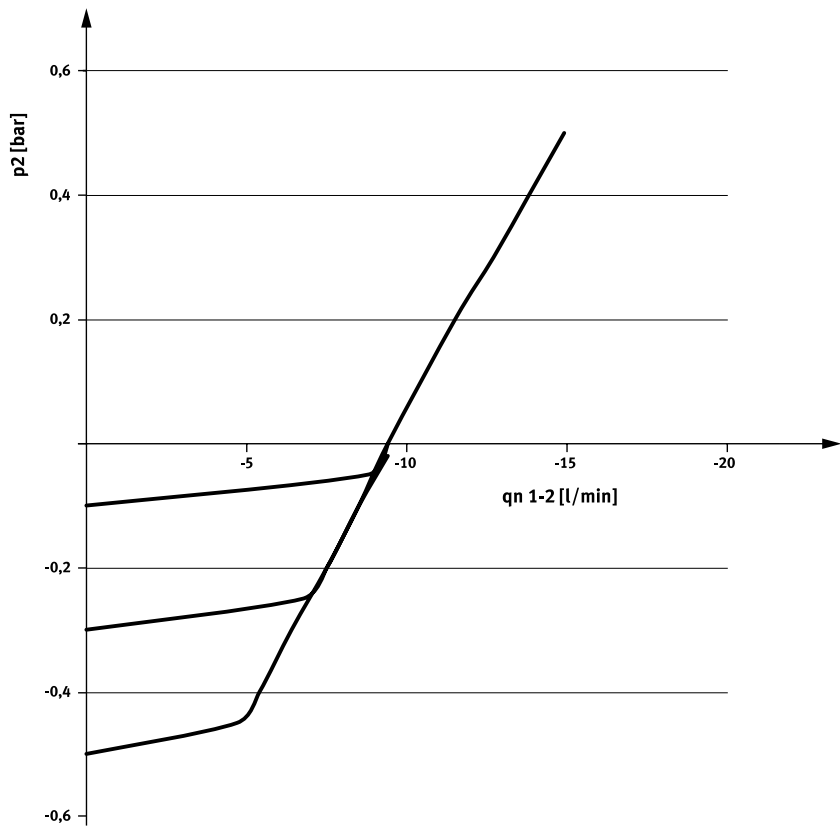
Datasheet

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

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



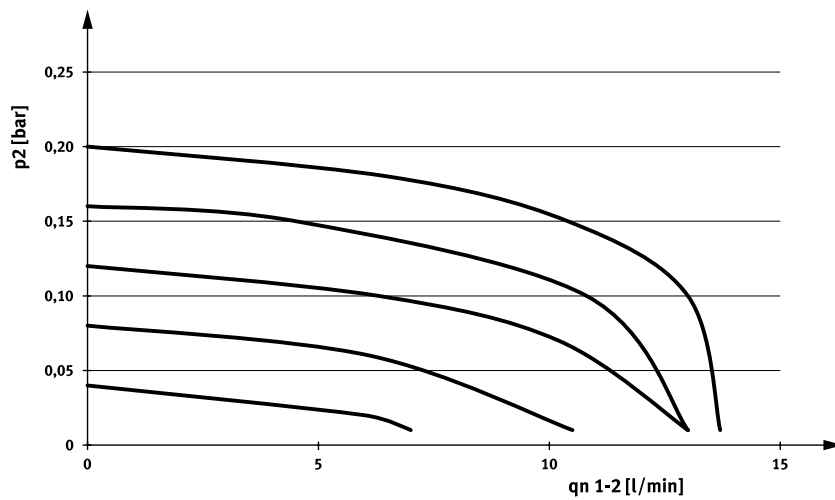
Flow rate q_n from 2 → 3 as a function of output pressure p_2



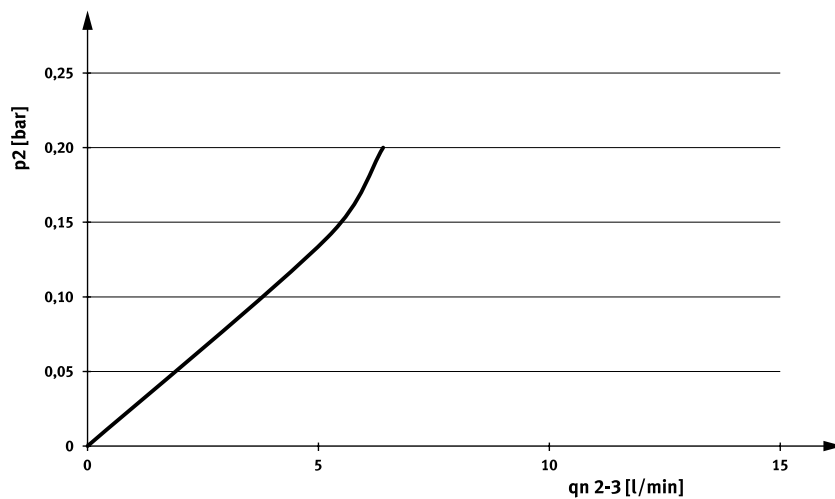
Datasheet

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

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

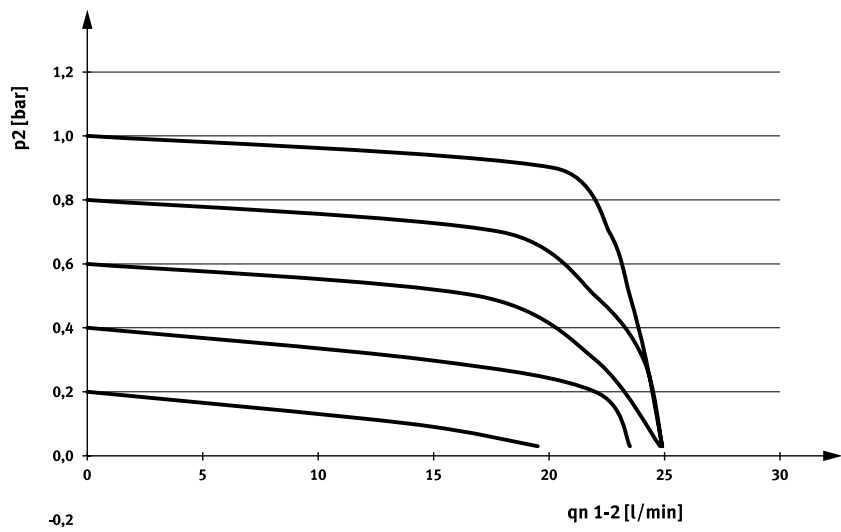


Flow rate q_n from 2 → 3 as a function of output pressure p_2

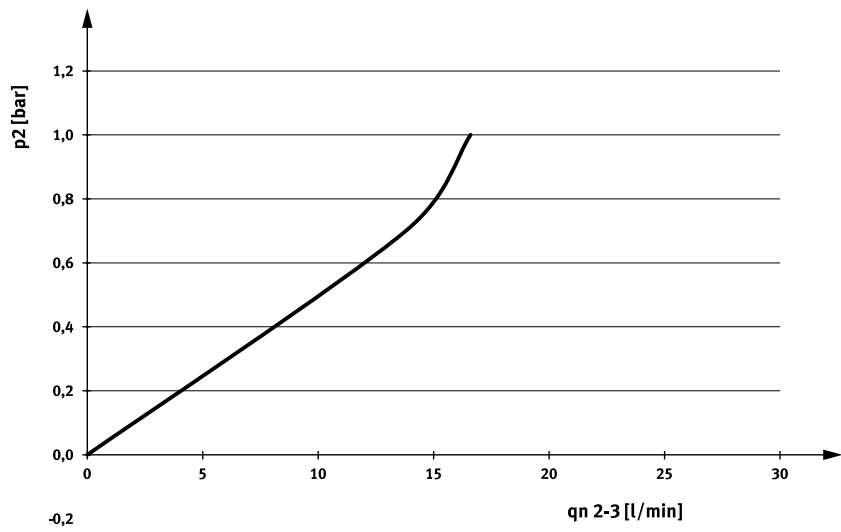


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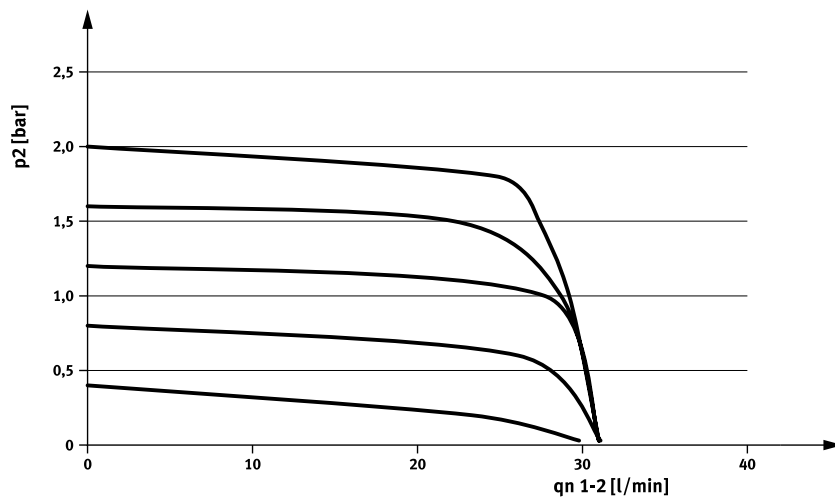
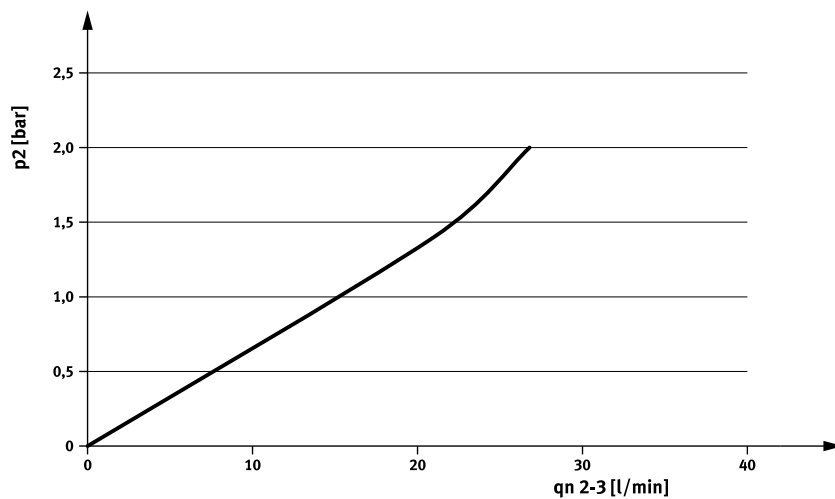
VEAB-...-D7-..., output pressure 2 (pressure regulation range) -0.005 ... 1
Flow rate qn from 1 → 2 as a function of output pressure p2



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

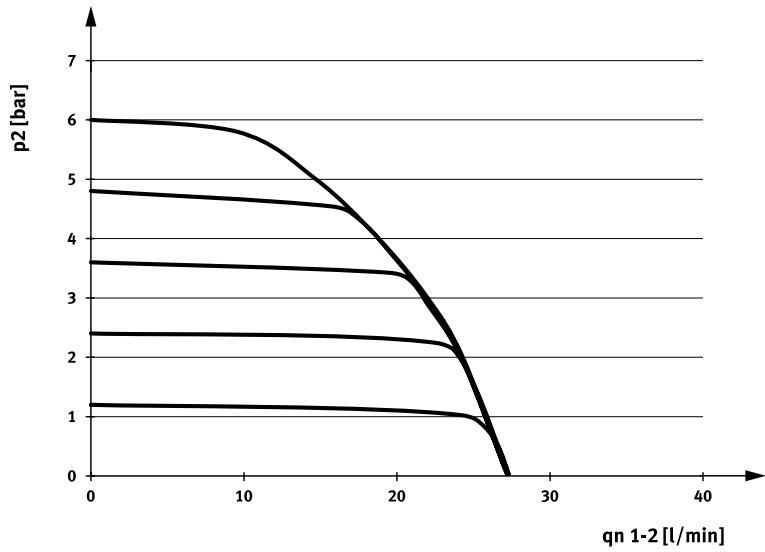


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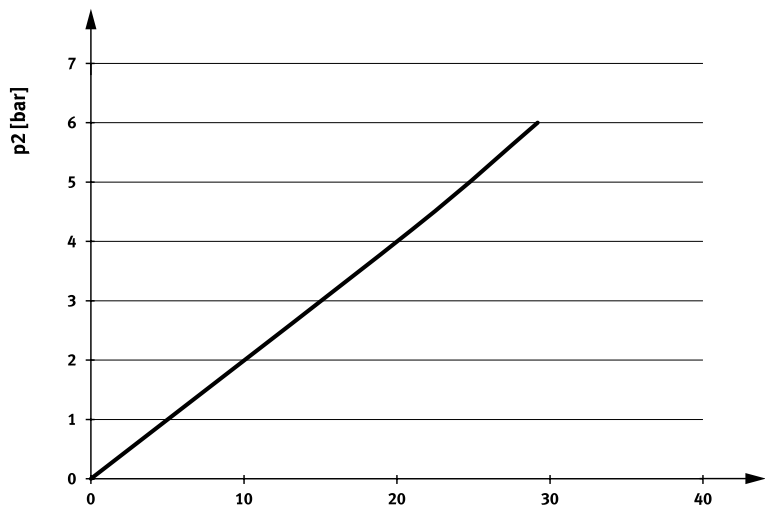
VEAB-...-D2-..., output pressure 2 (pressure regulation range) -0.01 ... 2Flow rate q_n from 1 → 2 as a function of output pressure p_2 Flow rate q_n from 2 → 3 as a function of output pressure p_2 

Datasheet

VEAB-...-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

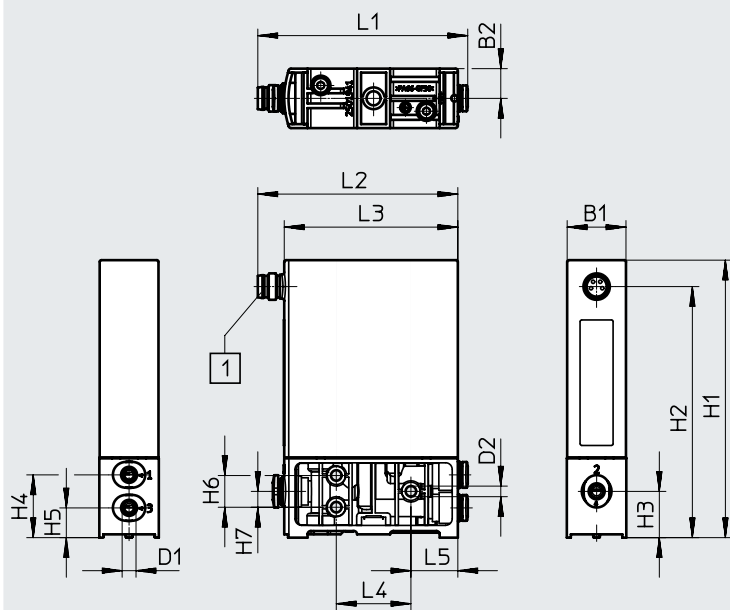


Datasheet

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
VEAB-L	18	9	4	3.2	85	76	14	19	9.5	9.6	4.8

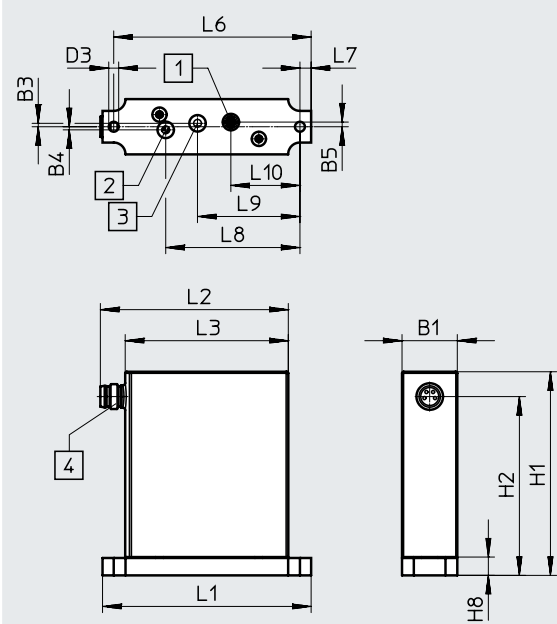
Type	L1	L2	L3	L4	L5
VEAB-L	64	60.5	52.5	22.6	14.2

Datasheet

Dimensions

Sub-base valve

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	B4	B5	D3 Ø	H1	H2	H8
VEAB-B	18	1.1	1	1.5	3.2	66	58	6

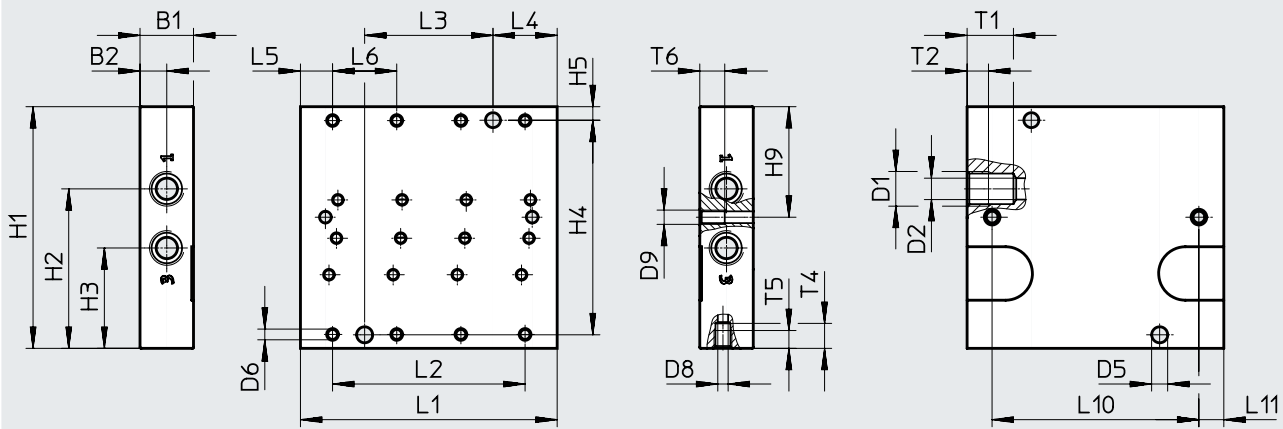
Type	L1	L2	L3	L6	L7	L8	L9	L10
VEAB-B	67.2	60.5	52.5	63.6	3.6	43.3	33	22.3

Datasheet

Dimensions – Manifold rail

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-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																

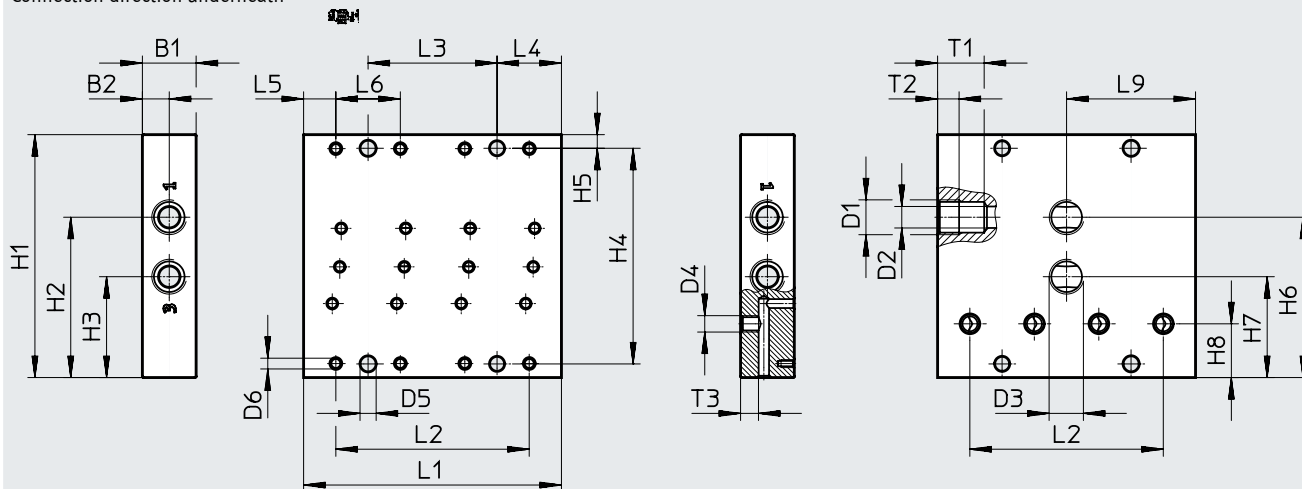
Type	L1	L2	L3	L4	L5	L6	L10	L11	T1	T2	T4	T5	T6
VABM-P7-18M-G18-M5-4	72	54	36	18	9	18	58	7	13	6	7	5	7
VABM-P7-18M-G18-M5-6	108	90	72				94						
VABM-P7-18M-G18-M5-8	144	126	108				130						

Datasheet

Dimensions – Manifold rail

Download CAD data at www.festo.com

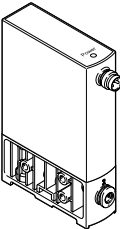
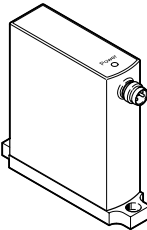
Connection direction underneath



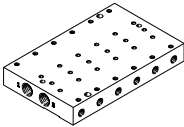
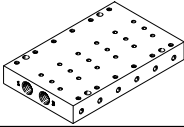
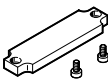
Type	B1	B2	B3	D1	D2 Ø	D3	D4	D5 Ø	D6	D7 Ø	H1	H2	H3	H4	H5	H6
VABM-P7-18MB-G18-M5-4	15	7.5	8.5	G1/8	6	G1/8	M5	4.5	M3	2.9	67.8	44.8	28.2	60.2	3.8	44.8
VABM-P7-18MB-G18-M5-6																
VABM-P7-18MB-G18-M5-8																

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							

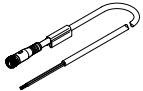
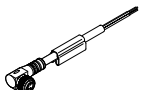
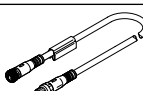
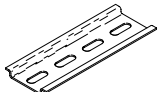
Datasheet

Ordering data		Output pressure 2 (pressure regulation range) [MPa]	Part no.	Type
In-line valve				
	Voltage type, 0 ... 5 V	-0.1 ... -0.0005	8153676	VEAB-L-26-D14-Q4-V2-1R1
		-0.1 ... 0.1	8153681	VEAB-L-26-D13-Q4-V2-1R1
		-0.1 ... 0.5	8153682	VEAB-L-26-D18-Q4-V2-1R1
		-0.05 ... 0.05	8153680	VEAB-L-26-D15-Q4-V2-1R1
		0.0001 ... 0.02	8153673	VEAB-L-26-D12-Q4-V2-1R1
		0.0005 ... 0.1	8153674	VEAB-L-26-D7-Q4-V2-1R1
		0.001 ... 0.2	8153675	VEAB-L-26-D2-Q4-V2-1R1
		0.0025 ... 0.5	8153685	VEAB-L-26-D25-Q4-V2-1R1
		0.003 ... 0.6	8153672	VEAB-L-26-D9-Q4-V2-1R1
	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
	-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 ... 5 V	-0.1 ... -0.0005	8153671	VEAB-B-26-D14-F-V2-1R1
		-0.1 ... 0.1	8153678	VEAB-B-26-D13-F-V2-1R1
		-0.1 ... 0.5	8153679	VEAB-B-26-D18-F-V2-1R1
		-0.05 ... 0.05	8153677	VEAB-B-26-D15-F-V2-1R1
		0.0001 ... 0.02	8153668	VEAB-B-26-D12-F-V2-1R1
		0.0005 ... 0.1	8153669	VEAB-B-26-D7-F-V2-1R1
		0.001 ... 0.2	8153670	VEAB-B-26-D2-F-V2-1R1
		0.0025 ... 0.5	8153684	VEAB-B-26-D25-F-V2-1R1
		0.003 ... 0.6	8153667	VEAB-B-26-D9-F-V2-1R1
	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
	-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

Datasheet

Ordering data		Description		Part no.	Type
Manifold rail					
	Connection direction on 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, premounted)		4054658	VABB-P7-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	4054656	VAME-P7-Y	