

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

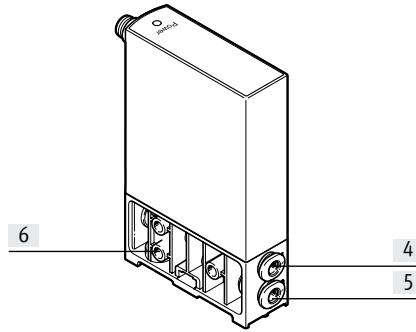
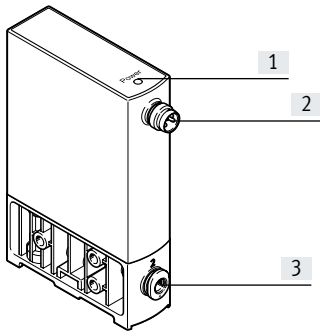
- Integrated pressure sensor with separate output
- Diagnostics
 - Operating voltage: over- and undervoltage
 - Setpoint value: falling below and exceeding
- Consistent pressure regulation performance with long-term stability
- Long service life

Easy to install

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

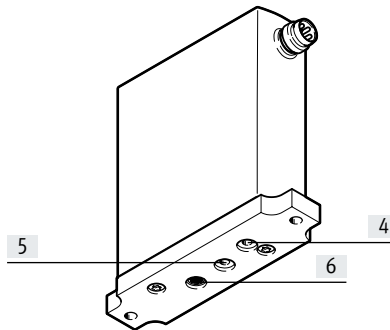
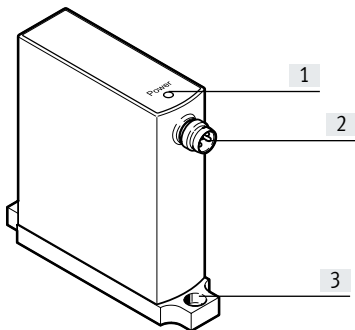
Key features – Display and operation

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

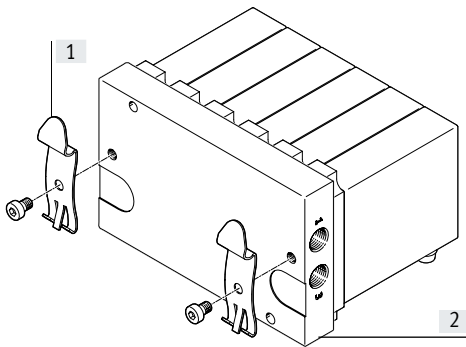


- [1] Power LED (green), fault LED (red)
- [2] Electrical connection, M8 plug
- [3] Through-holes for mounting the valve on the sub-base
- [4] Port 2, working air
- [5] Port 3, exhaust air
- [6] Port 1, compressed air

Key features – Mounting

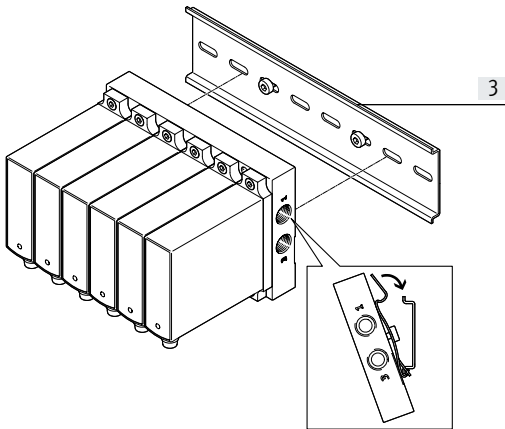
Mounting the valve manifold assembly

H-rail mounting



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

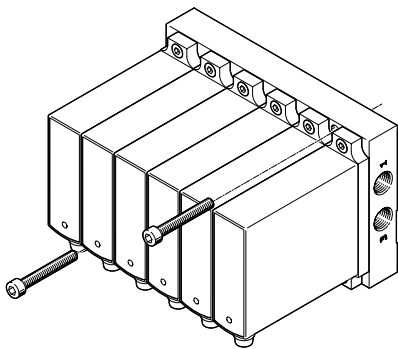
The H-rail mounting can be used to mount the manifold rail on H-rails in accordance with EN 60715.



- [3] H-rail

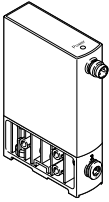
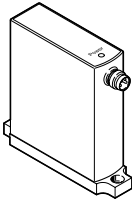
To do this, the manifold rail with the H-rail mounting is mounted on the H-rail and latched in place.

Wall mounting



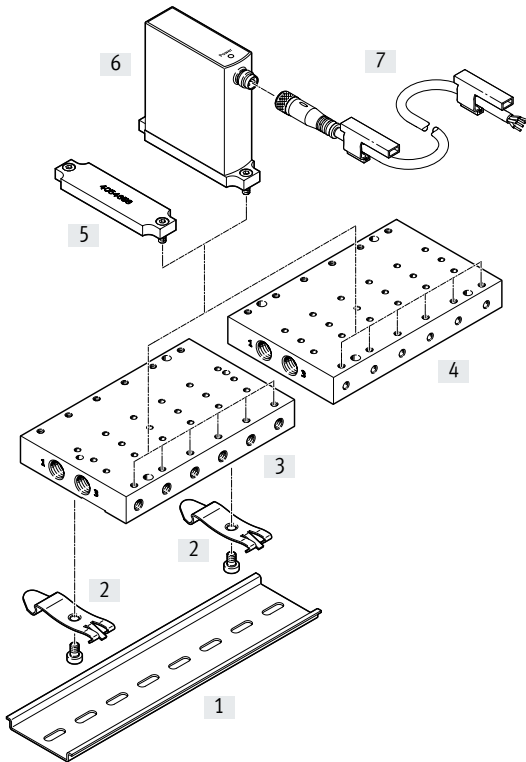
The manifold rail also has through-holes for wall mounting.

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	■	■	■	8
	-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	■	■	■	8
						-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		VEAB-L	VEAB-B
Type			
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⁾				
		To EU RoHS Directive ³⁾				
UKCA marking (see declaration of conformity)		To UK instructions for EMC ³⁾				
		To UK RoHS instructions 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

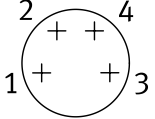
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

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

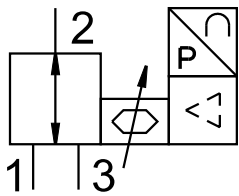
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Datasheet

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

Pin allocation	Pin	Function
		1
2		+ setpoint value
3		GND
4		+ actual value

Function



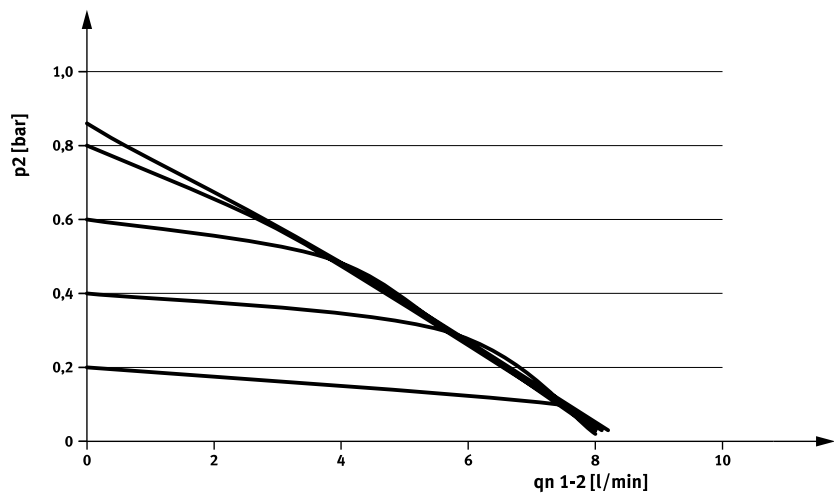
An integrated pressure sensor records the pressure at the working port and compares this value with the setpoint value.

The pressure is automatically readjusted in the event of deviations.

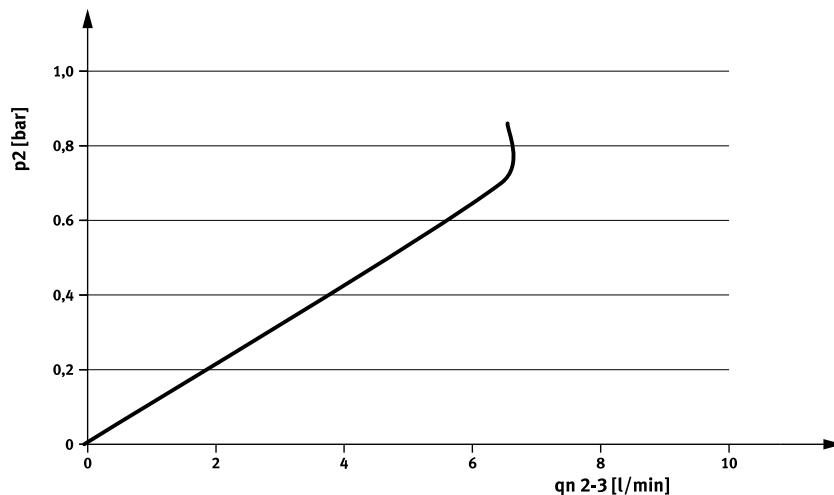
Datasheet

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



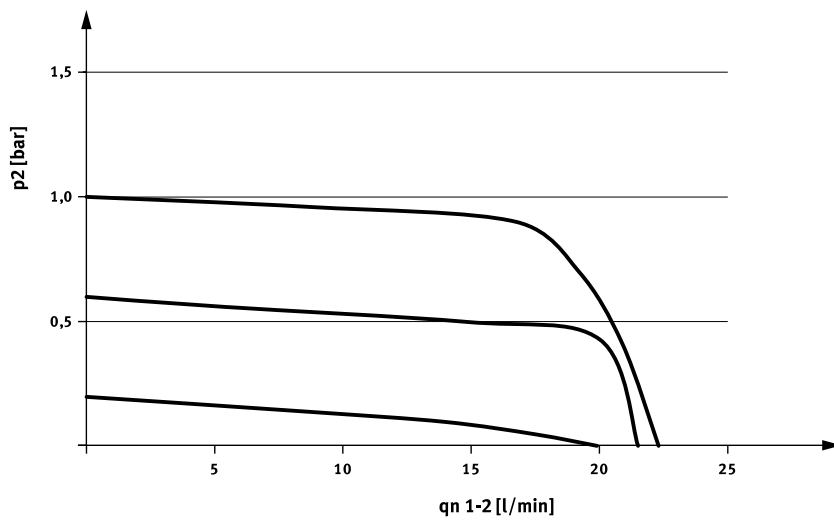
Flow rate q_n from 2 → 3 as a function of output pressure p_2



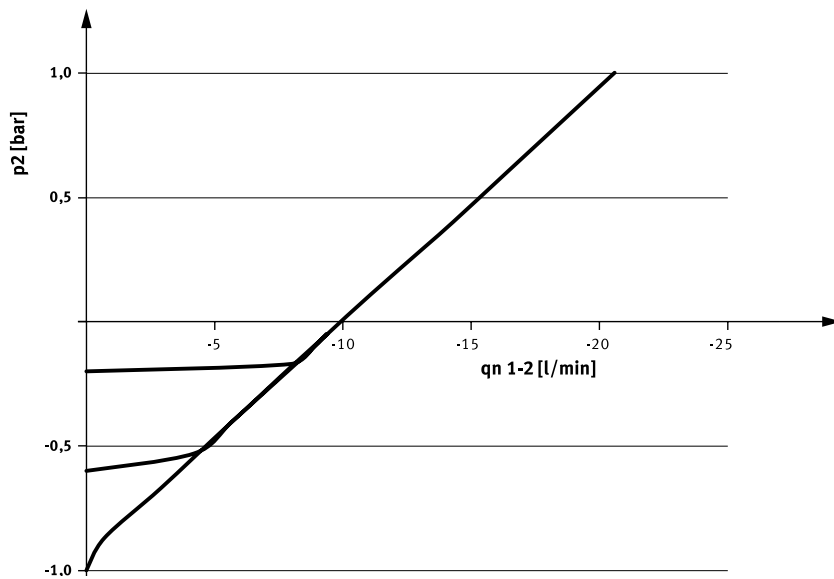
Datasheet

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



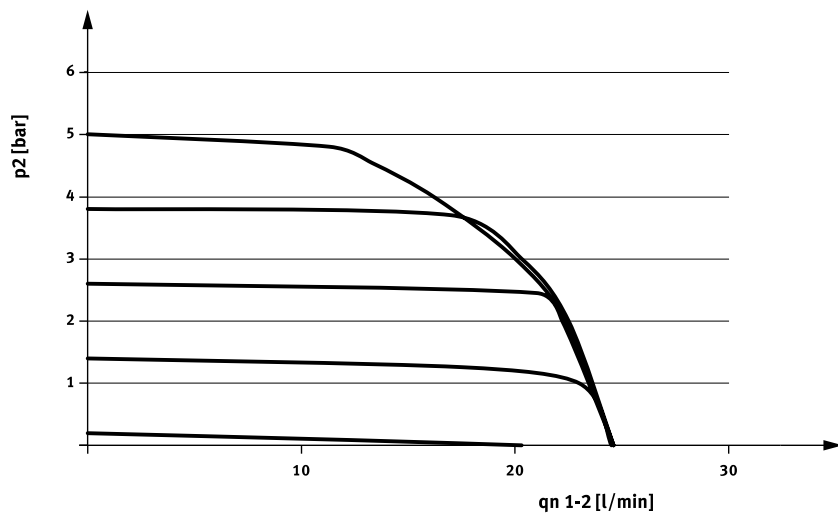
Flow rate q_n from 2 → 3 as a function of output pressure p_2



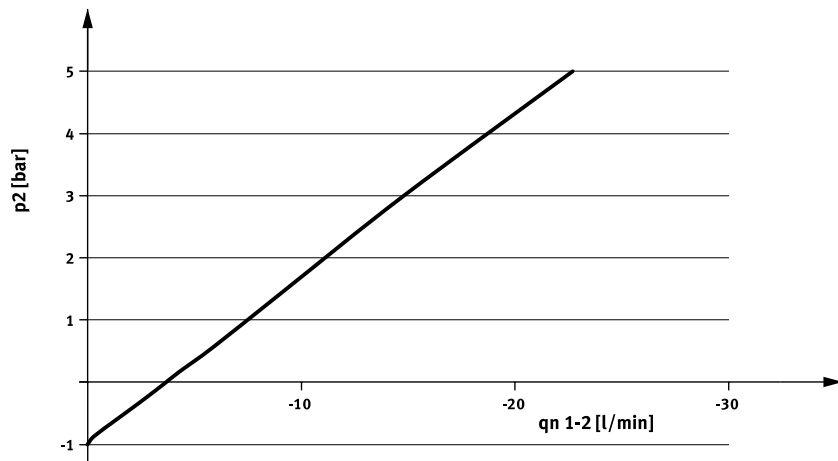
Datasheet

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



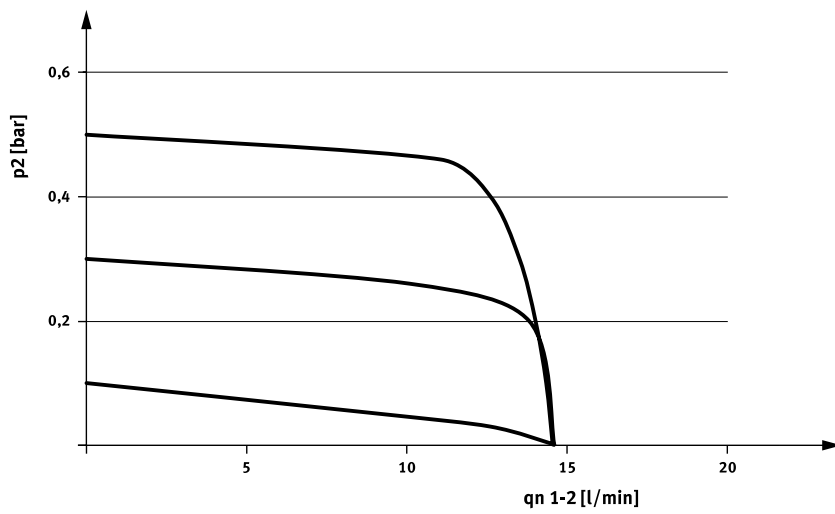
Flow rate q_n from 2 → 3 as a function of output pressure p_2



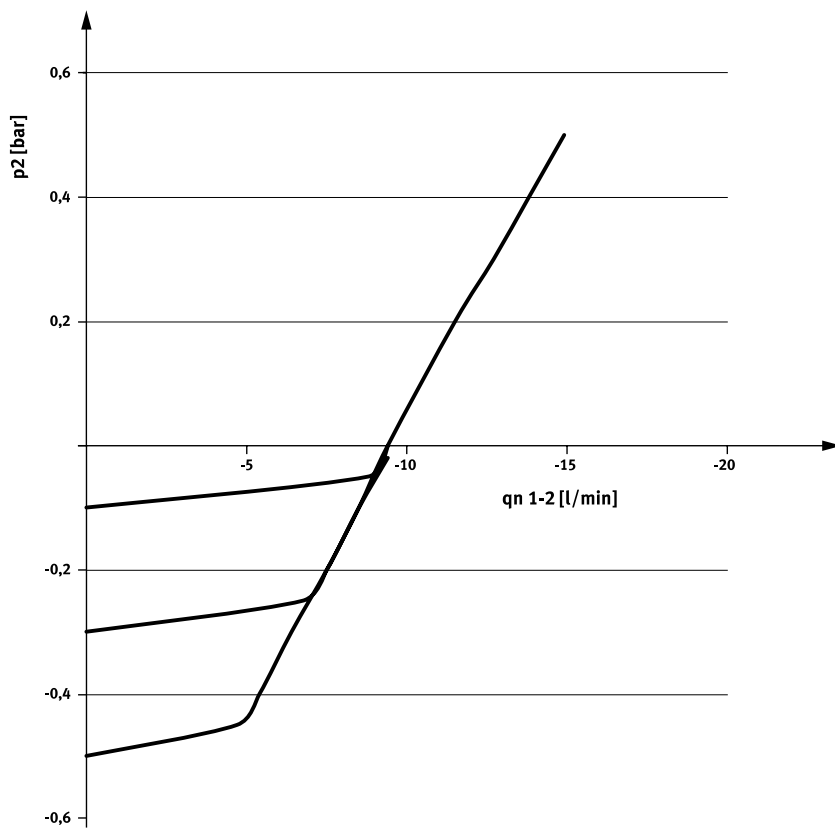
Datasheet

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



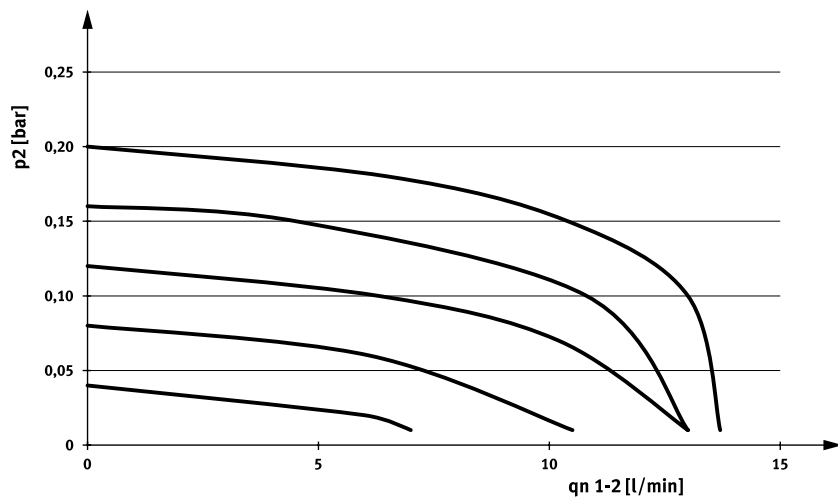
Flow rate q_n from 2 → 3 as a function of output pressure p_2



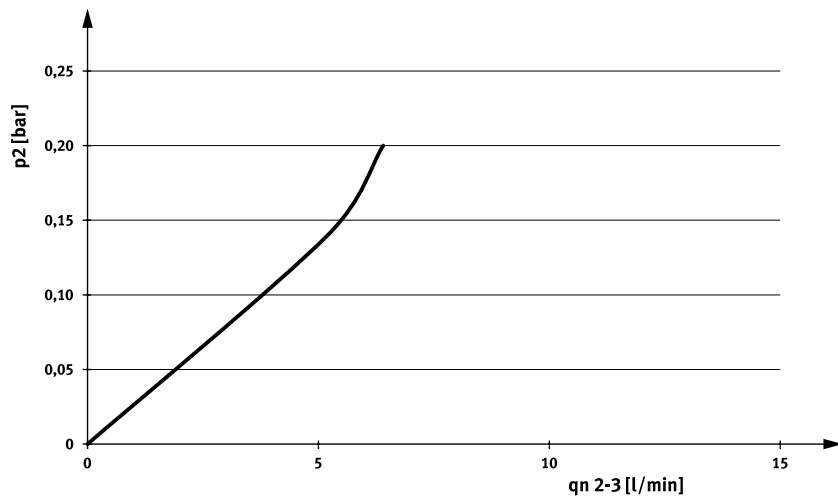
Datasheet

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



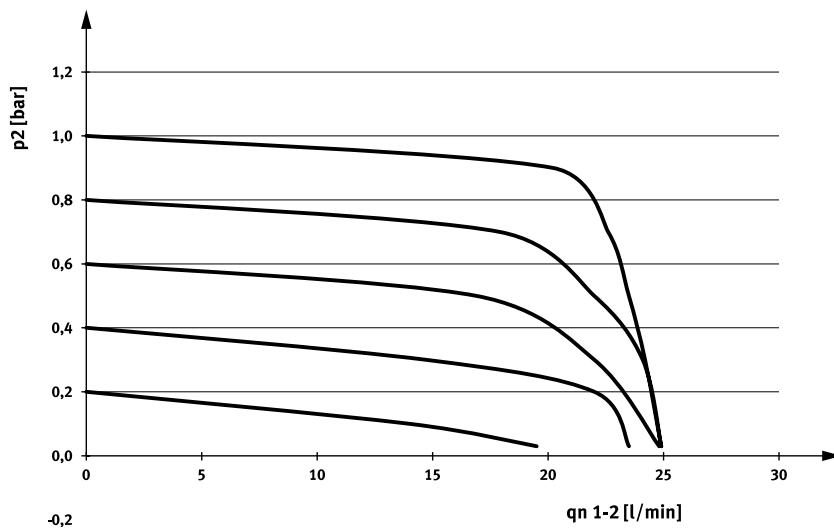
Flow rate q_n from 2 → 3 as a function of output pressure p_2



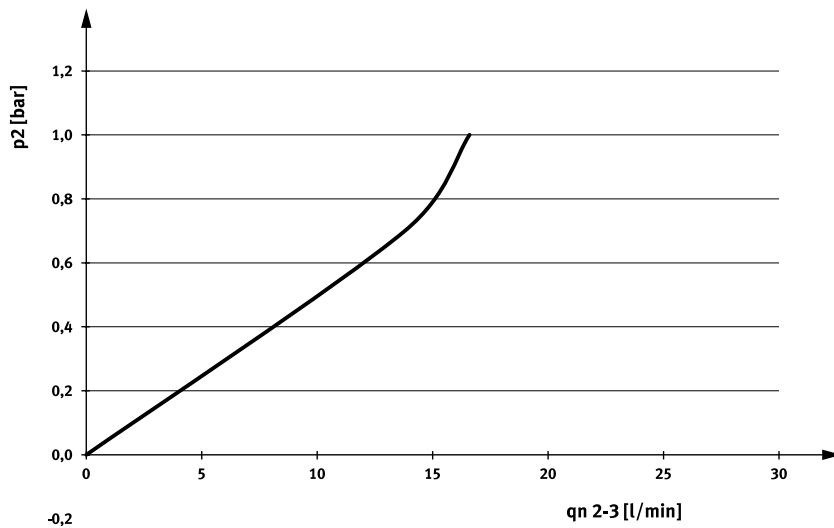
Datasheet

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

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



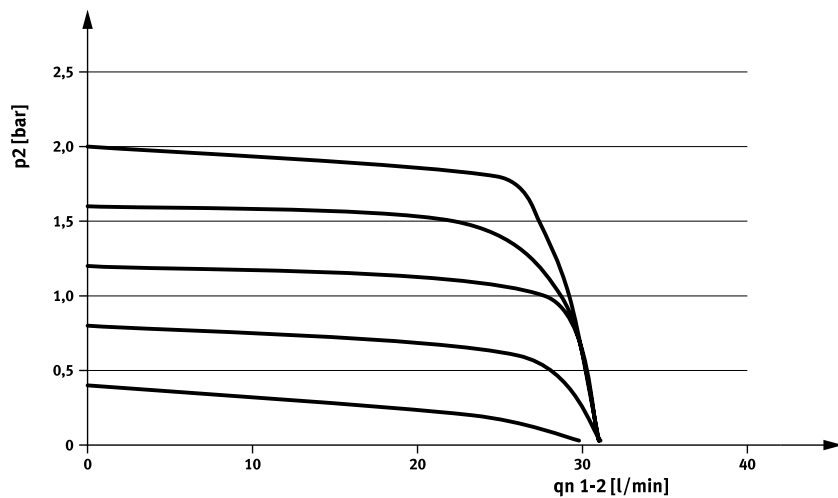
Flow rate q_n from 2 → 3 as a function of output pressure p_2



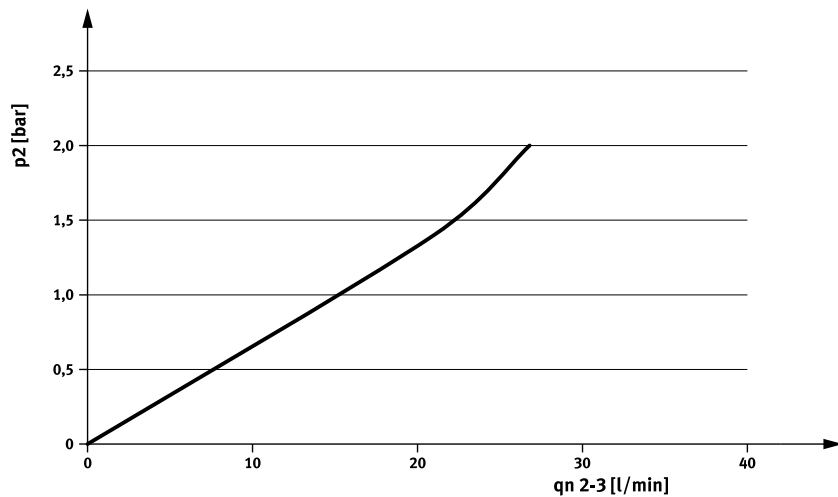
Datasheet

VEAB-...-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



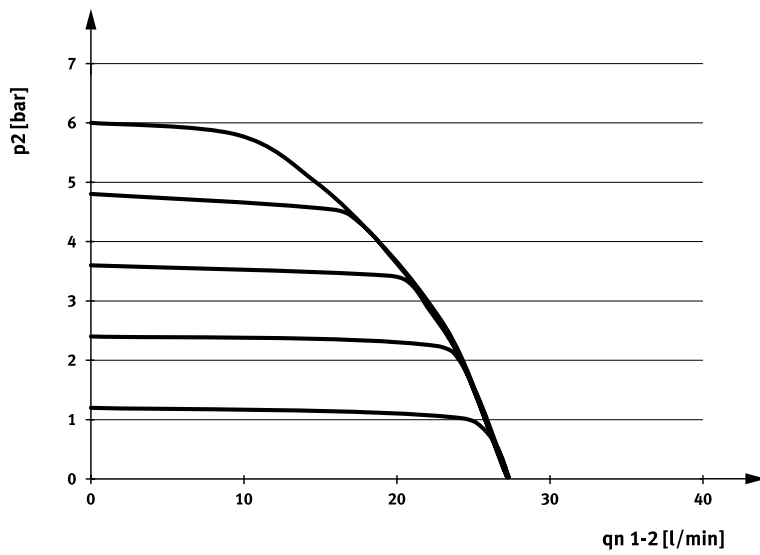
Flow rate q_n from 2 → 3 as a function of output pressure p_2



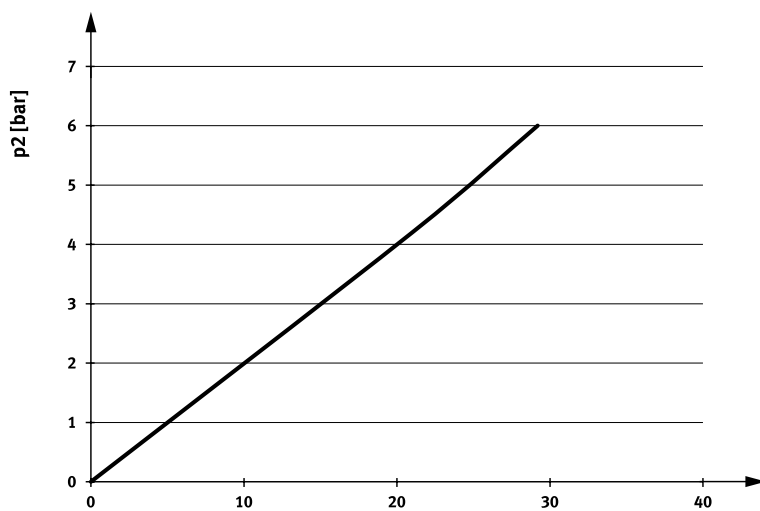
Datasheet

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

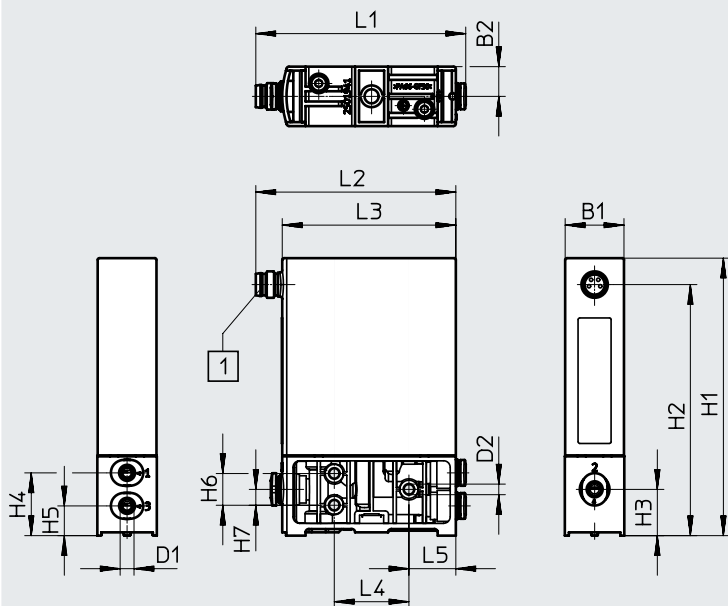


Datasheet

Dimensions

Download CAD data at www.festo.com

In-line valve



[1] Plug M8x1, 4-pin

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

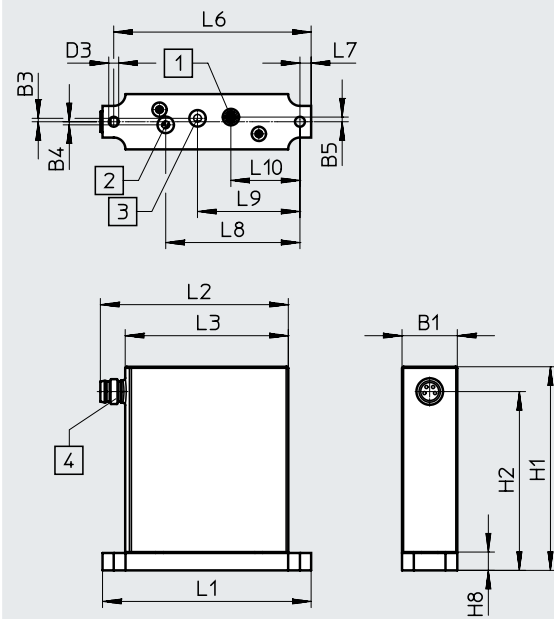
Type	L1	L2	L3	L4	L5
VEAB-L	64	60.5	52.5	22.6	14.2

Datasheet

Dimensions

Download CAD data at 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 ∅	H1	H2	H8
VEAB-B	18	1.1	1	1.5	3.2	66	58	6

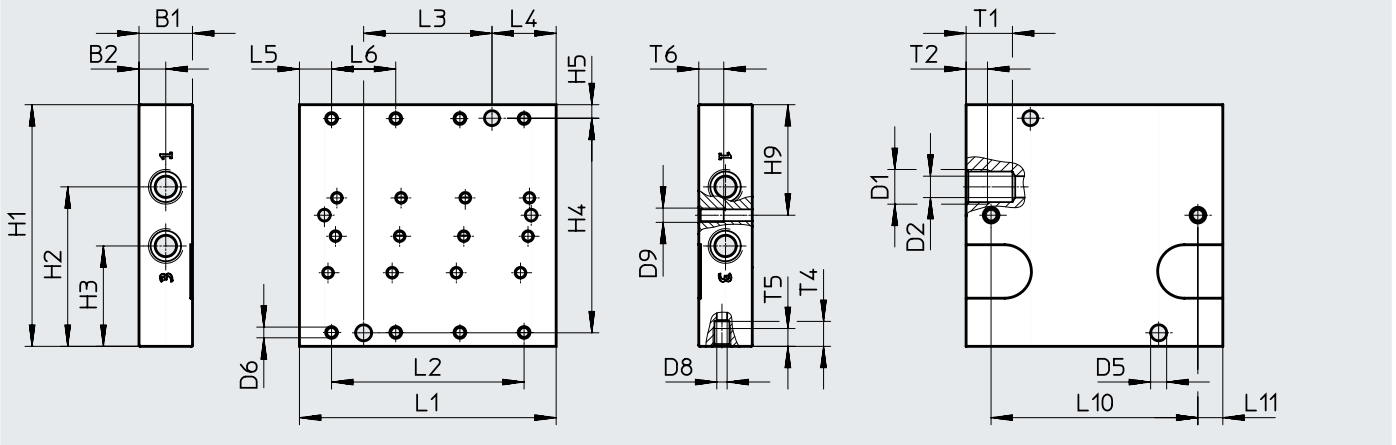
Type	L1	L2	L3	L6	L7	L8	L9	L10
VEAB-B	67.2	60.5	52.5	63.6	3.6	43.3	33	22.3

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																

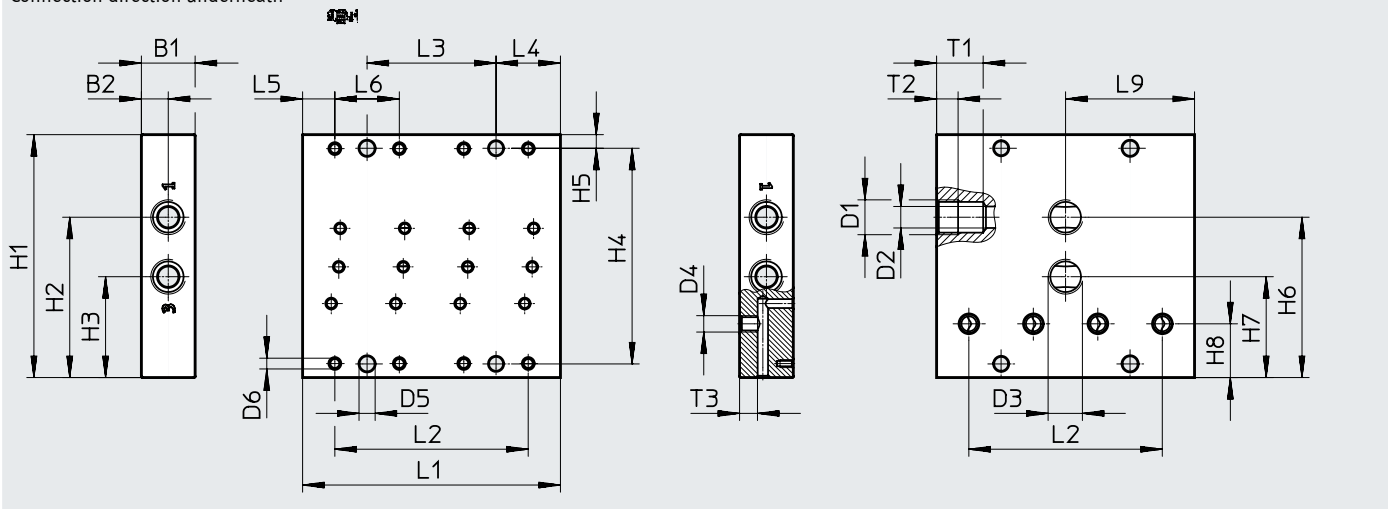
Type	L1	L2	L3	L4	L5	L6	L10	L11	T1	T2	T4	T5	T6
VABM-P7-18M-G18-M5-4	72	54	36	18	9	18	58	7	13	6	7	5	7
VABM-P7-18M-G18-M5-6	108	90	72				94						
VABM-P7-18M-G18-M5-8	144	126	108				130						

Datasheet

Dimensions – Manifold rail

Download CAD data at www.festo.com

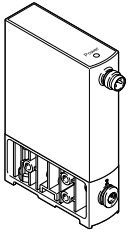
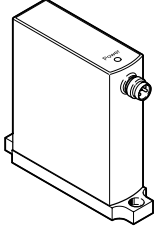
Connection direction underneath



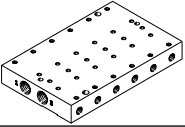
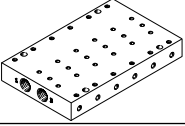
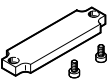
Type	B1	B2	B3	D1	D2	D3	D4	D5	D6	D7	H1	H2	H3	H4	H5	H6
VABM-P7-18MB-G18-M5-4	15	7.5	8.5	G1/8	6	G1/8	M5	4.5	M3	2.9	67.8	44.8	28.2	60.2	3.8	44.8
VABM-P7-18MB-G18-M5-6																
VABM-P7-18MB-G18-M5-8																

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							

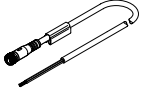
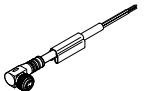
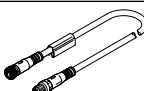
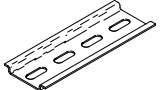


Datasheet

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	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 ... 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	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	

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