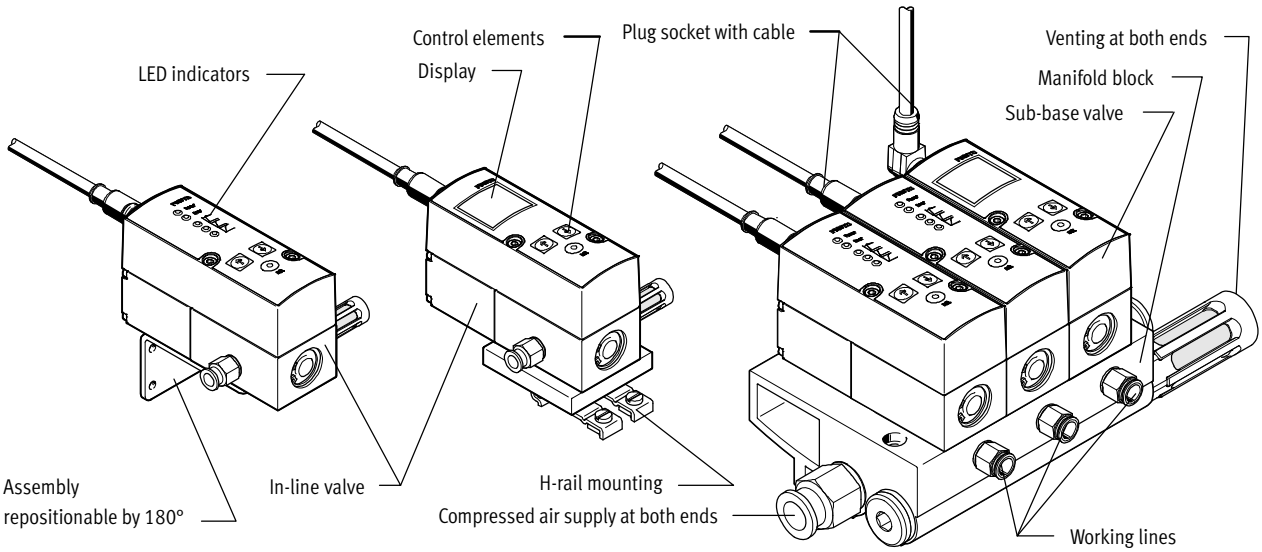
Proportional pressure regulators VPPM

FESTO

Proportional pressure regulators VPPM

General information



Innovative

- Multi-sensor control (cascade control)
- Diagnostics
- Choice of regulation characteristics
- Temperature compensated
- High dynamic response
- High repetition accuracy
- Modular product system
- IO-Link, for direct connection to a higher-level IO-Link/I-Port master

Versatile

- Individual valves (in-line valve)
- Manifold valves (sub-base/flange valve)
- Various user interfaces
  - LED indicators
  - LCD display
  - Adjustment/selection buttons
- A choice of valves with different pressure ranges
- Pressure range can be modified on the valve
- Choice of different setpoint specifications
  - Current input
  - Voltage input

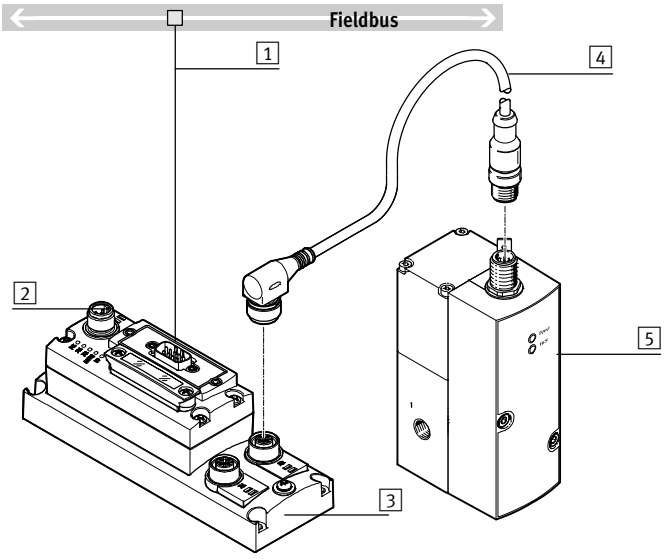
Reliable

- Integrated pressure sensor with independent output
- Open circuit monitoring
- Pressure is maintained if the controller fails

Easy to mount

- Manifold block
- H-rail mounting
- Individually via mounting bracket
- QS fittings

Overview, VPPM IO-Link



1 Diagnostics via fieldbus
2 Fieldbus node
3 Connecting block CAPC
4 Connecting cable NEBU
5 Proportional pressure regulator VPPM with IO-Link

Proportional pressure regulators VPPM

General information

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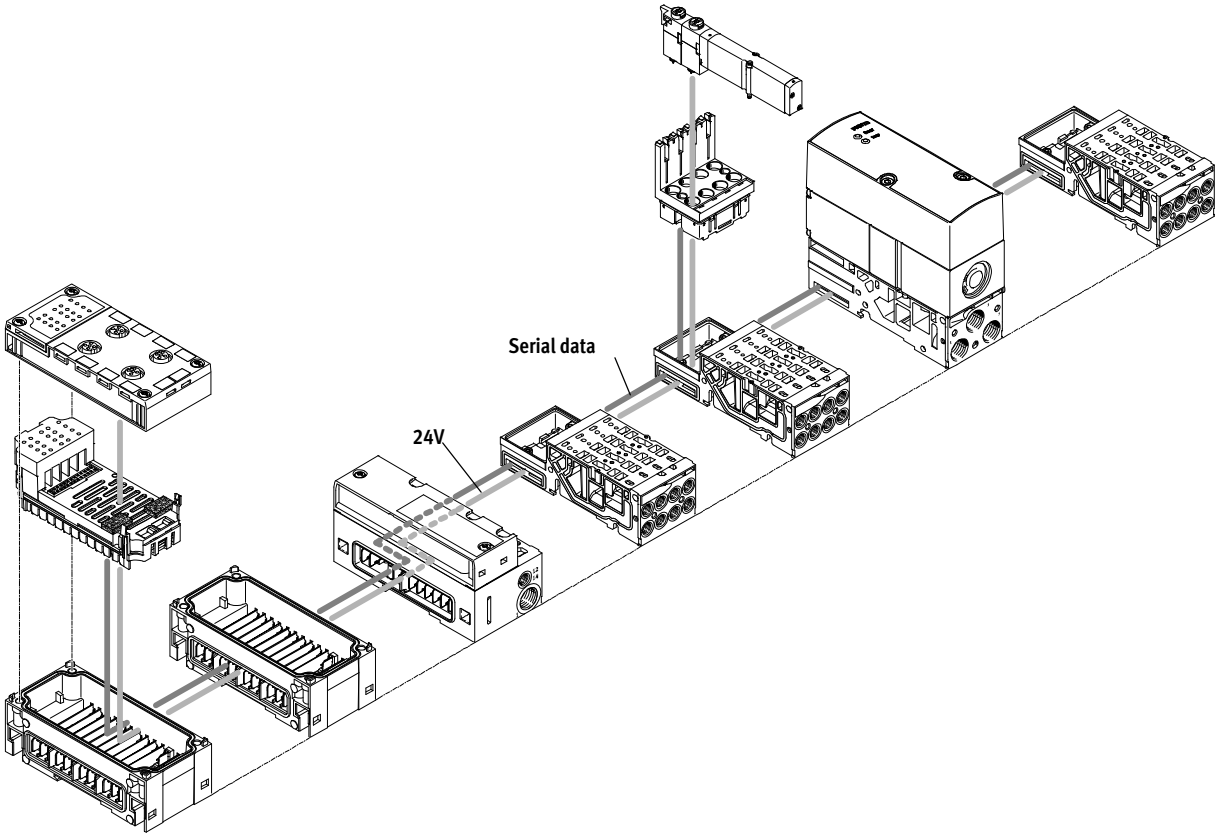
VPPM on the valve terminal MPA-S



Innovative

- Multi-sensor control
- Diagnostics via bus
- Choice of regulation characteristics
- High dynamic response
- 2 accuracy levels

Versatile

- For all common protocols
- As an individual pressure regulator
- As a pressure zone regulator
- Choice of 3 valves with different pressure ranges
- 3 pressure ranges (presets) can be set via the bus
- Internal or external compressed air supply possible

Reliable

- Long service life
- LED display for the operating status
- Pressure is maintained if the supply voltage fails
- Fast troubleshooting thanks to LEDs on the valves and diagnostics via fieldbus
- Ease of servicing through replaceable valves

Easy to mount

- Simple replacement of the valves
- Tested units
- Easy extension of the valve terminal

Note

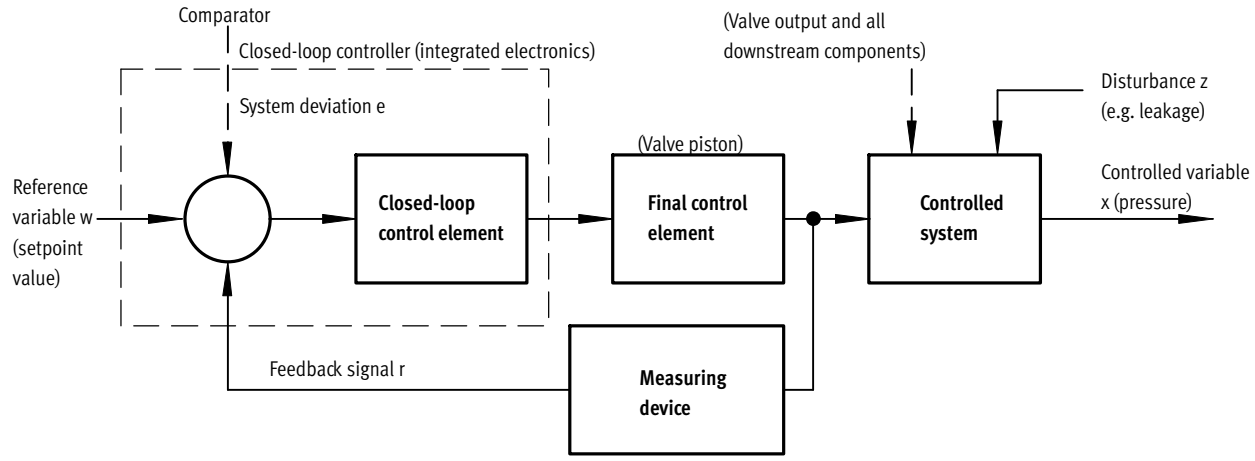
More information on the VPPM valves for MPA-S

➔ mpas

Proportional pressure regulators VPPM

General information

Layout of a control circuit



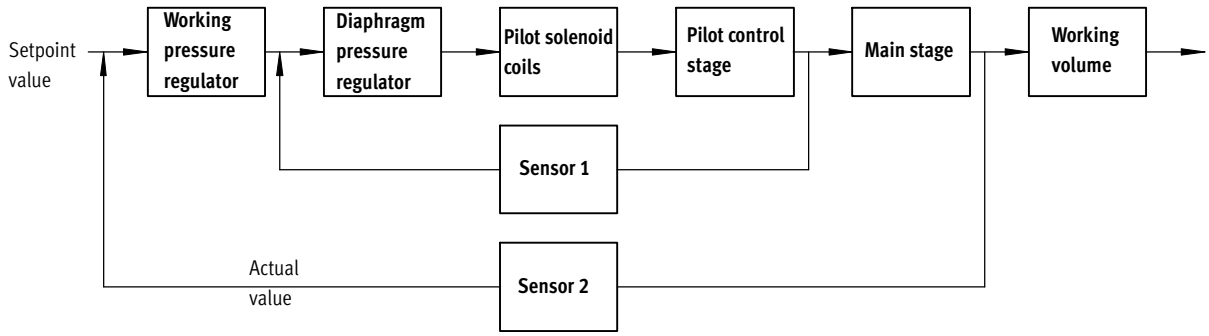
Layout

The figure shows a closed-loop control circuit. The reference variable w (setpoint value, e.g. 5 volts or 8 mA) initially acts on a comparator. The measuring device sends the controlled variable x value (actual value, e.g. 3 bar) to the comparator as a feedback signal r. The closed-loop control element detects the system deviation e and actuates the final control element. The output of the final control element acts on the controlled system. The closed-loop control element thus attempts to compensate for the difference between the reference variable w and the controlled variable x by using the final control element.

Method of operation

This process runs continuously so changes in the reference variable are always detected. However, a system deviation will also appear if the reference variable is constant but the controlled variable changes. This happens when the flow through the valve changes in response to a switching action, a cylinder movement or a change in load. The disturbance variable z will also cause a system deviation. An example of this is when the pressure drops in the air supply. The disturbance variable z acts on the controlled variable x unintentionally. In all cases, the regulator attempts to readjust the controlled variable x to the reference variable w.

Multi-sensor control (cascade control) of the VPPM



Cascade control

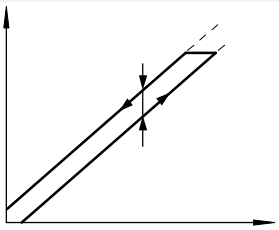
Unlike conventional direct-acting regulators, with multi-sensor control several control circuits are nested inside each other. The overall controlled system is divided into smaller sub-controlled circuits that are easier to control for the specific task.

Control precision

Multi-sensor control significantly improves control precision and dynamic response in comparison with single-acting regulators.

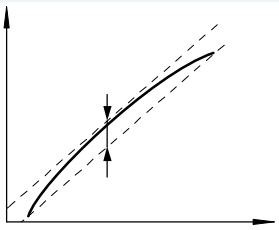
Terms related to the proportional pressure regulator

Hysteresis



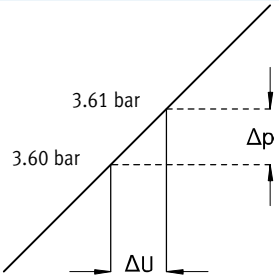
There is always a linear relationship within a certain tolerance between the setpoint value entered and the pressure output. Nevertheless it makes a difference whether the setpoint value is entered as rising or falling. The difference between the maximum deviations is referred to as hysteresis.

Linearity error



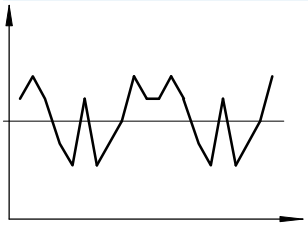
A perfectly linear progression of the control characteristic of the output pressure is theoretical. The maximum percentage deviation from this theoretical control characteristic is referred to as the linearity error. The percentage value refers to the maximum output pressure (full scale).

Response sensitivity



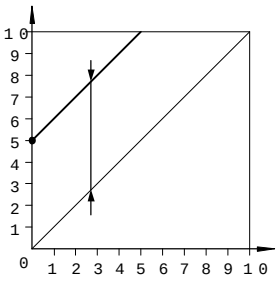
The response sensitivity of the device determines how sensitively one can change, i.e. adjust, a pressure.
The smallest setpoint value difference that results in a change in the output pressure is referred to as the response sensitivity. In this case, 0.01 bar.

Repetition accuracy (reproducibility)



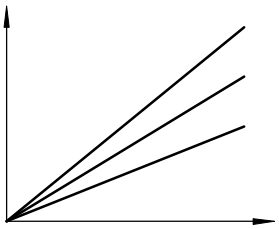
The repetition accuracy is the margin within which the fluid output variables are scattered when the same electrical input signal coming from the same direction is repeatedly adjusted. The repetition accuracy is expressed as a percentage of the maximum fluid output signal.

Zero offset



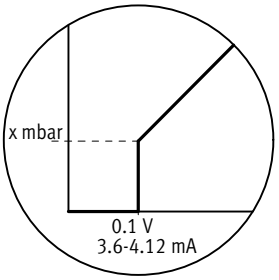
If, for example, a VPPM cannot be vented for safety reasons, the minimum pressure can be increased from the zero point. The smallest setpoint value is then assigned an output pressure of 5 bar, for example, and the largest setpoint value an output pressure of 10 bar. Zero suppression is automatically switched off if zero offsetting is used.

Pressure range adaptation



In the delivery condition, 100% setpoint value equals 100% fluid output signal. Pressure range adaptation or adjustment enables the fluid output variable to be matched to the setpoint value.

Zero point suppression

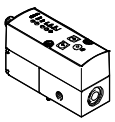
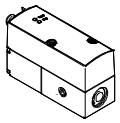


In practice there exists the possibility of residual voltage or residual current at the setpoint input of the VPPM via the setpoint generator.
Zero point suppression is used so that the valve is reliably vented at a setpoint value of zero.

Proportional pressure regulators VPPM

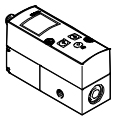
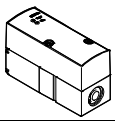
Product range overview

FESTO

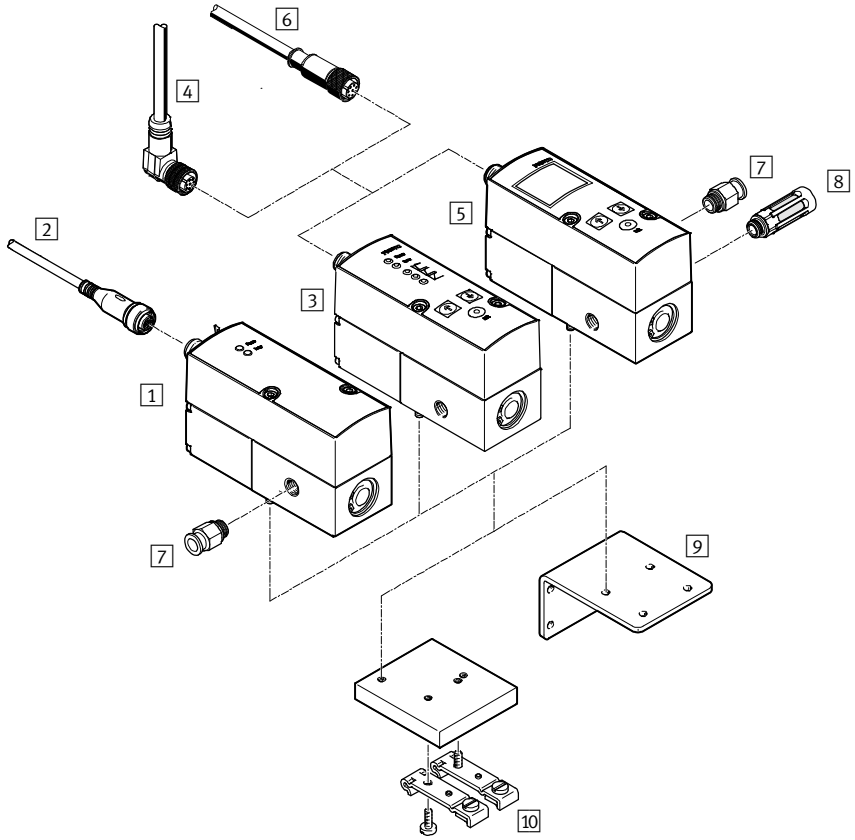
Function	Version	Design	Pneumatic connection 1, 2, 3	Nominal width for pressurisation/exhaust [mm]	Pressure regulation range [bar]	Setpoint value input			➔ Page/ Internet
						Voltage type 0 ... 10 V	Current type 4 ... 20 mA	Digital –	
Pressure regulators	**LED operator unit (standard)**								
		Piloted diaphragm valve	G⅛	6/4.5	0.02 ... 2 0.06 ... 6 0.1 ... 10	■	■	–	14
			Sub-base	6/4.5	0.02 ... 2 0.06 ... 6 0.1 ... 10	■	■	–	
				8/7	0.02 ... 2 0.06 ... 6 0.1 ... 10	■	■	–	
			G¼	8/7	0.02 ... 2 0.06 ... 6 0.1 ... 10	■	■	–	
			G½	12/12	0.02 ... 2 0.06 ... 6 0.1 ... 10	■	■	–	
	LED operator unit with IO-Link								
		Piloted diaphragm valve	G⅛	6/4.5	0.02 ... 2 0.06 ... 6 0.1 ... 10	–	–	■	15
			G⅛ Sub-base	6/4.5	0.02 ... 2 0.06 ... 6 0.1 ... 10	–	–	■	
				8/7	0.02 ... 2 0.06 ... 6 0.1 ... 10	–	–	■	
			G¼	8/7	0.02 ... 2 0.06 ... 6 0.1 ... 10	–	–	■	
			G½	12/12	0.02 ... 2 0.06 ... 6 0.1 ... 10	–	–	■	

Proportional pressure regulators VPPM

Product range overview

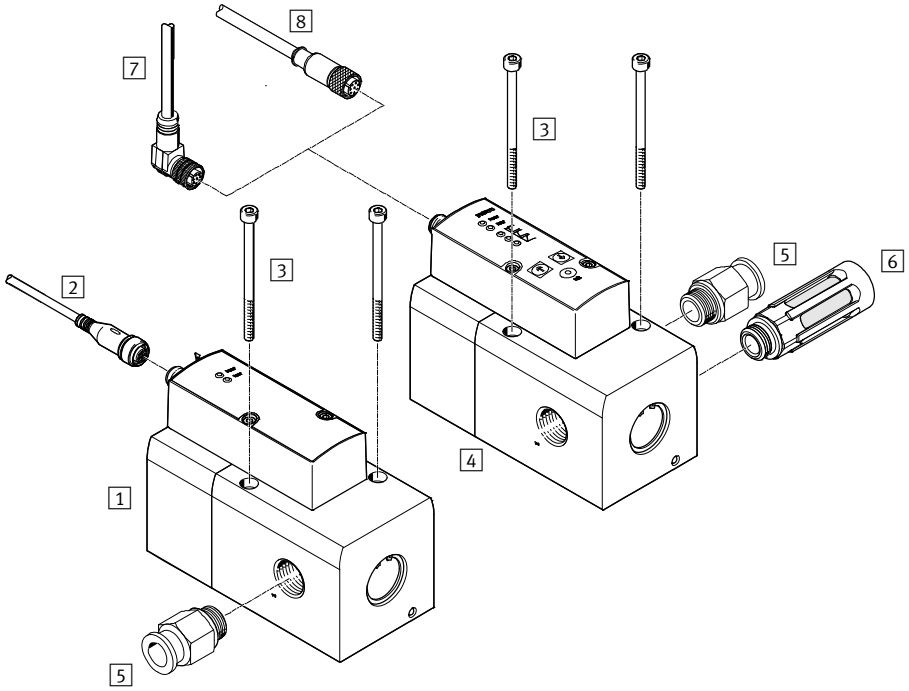
Function	Version	Design	Pneumatic connection 1, 2, 3	Nominal width for pressurisation/ exhaust	Pressure regulation range	Setpoint value input			→ Page/ Internet
						Voltage type	Current type	Digital	
Pressure regulators	**Operator unit with LCD, pressure unit variable**								
		Piloted diaphragm valve	G1⁄8	6/4.5	0.02 … 2 0.06 … 6 0.1 … 10	■	■	–	14
			Sub-base	6/4.5	0.02 … 2 0.06 … 6 0.1 … 10	■	■	–	
				8/7	0.02 … 2 0.06 … 6 0.1 … 10	■	■	–	
			G1⁄4	8/7	0.02 … 2 0.06 … 6 0.1 … 10	■	■	–	
			G1⁄2	12/12	0.02 … 2 0.06 … 6 0.1 … 10	■	■	–	
	For valve terminal MPA-S, with LED indicator								
		Piloted diaphragm valve	Sub-base MPA	6/4.5, 8/7	0.02 … 2 0.06 … 6 0.1 … 10	–	–	■	mpas

Individual valve VPPM-6L … , VPPM-8L …



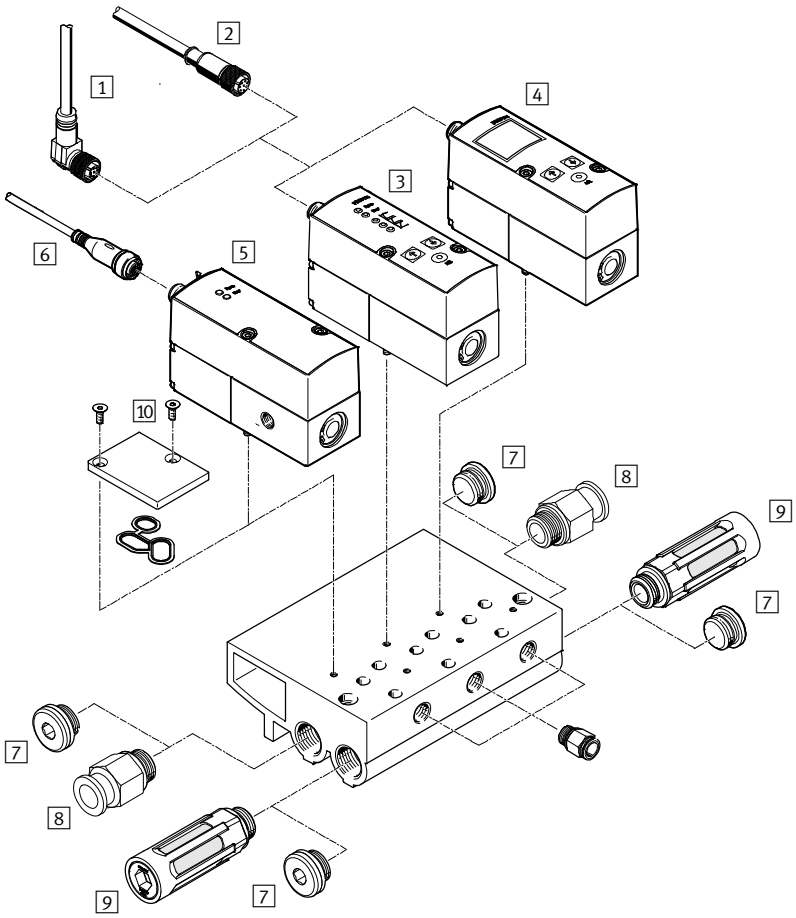
Accessories			
		Brief description	**➔ Page/Internet**
1	Proportional pressure regulator VPPM	Operator unit with LED, IO-Link	15
2	Connecting cable NEDU-M12W5-…	–	38
3	Proportional pressure regulator VPPM	Operator unit with LED	38
4	Angled plug socket with cable NEBU-M12W8-…	–	38
5	Proportional pressure regulator VPPM	Operator unit with LCD	14
6	Straight plug socket with cable SIM-M12-8GD-…	–	14
7	Push-in fitting QS	For connecting compressed air tubing with standard O.D.	qs
8	Silencer	For installation in exhaust ports	u
9	Angle bracket VAME-P1-A	For mounting the valve	35
10	H-rail mounting VAME-P1-T	For mounting on an H-rail	33

Individual valve VPPM-12L ...



Accessories			
		Brief description	**➔ Page/Internet**
1	Proportional pressure regulator VPPM	Operator unit with LED, IO-Link	15
2	Connecting cable NEDU-M12W5-...	–	38
3	Mounting screws	–	–
4	Proportional pressure regulator VPPM	Operator unit with LED or LCD	14
5	Push-in fitting QS	For connecting compressed air tubing with standard O.D.	qs
6	Silencer	For installation in exhaust ports	u
7	Angled plug socket with cable NEBU-M12W8-...	–	38
8	Straight plug socket with cable SIM-M12-8GD-...	–	38

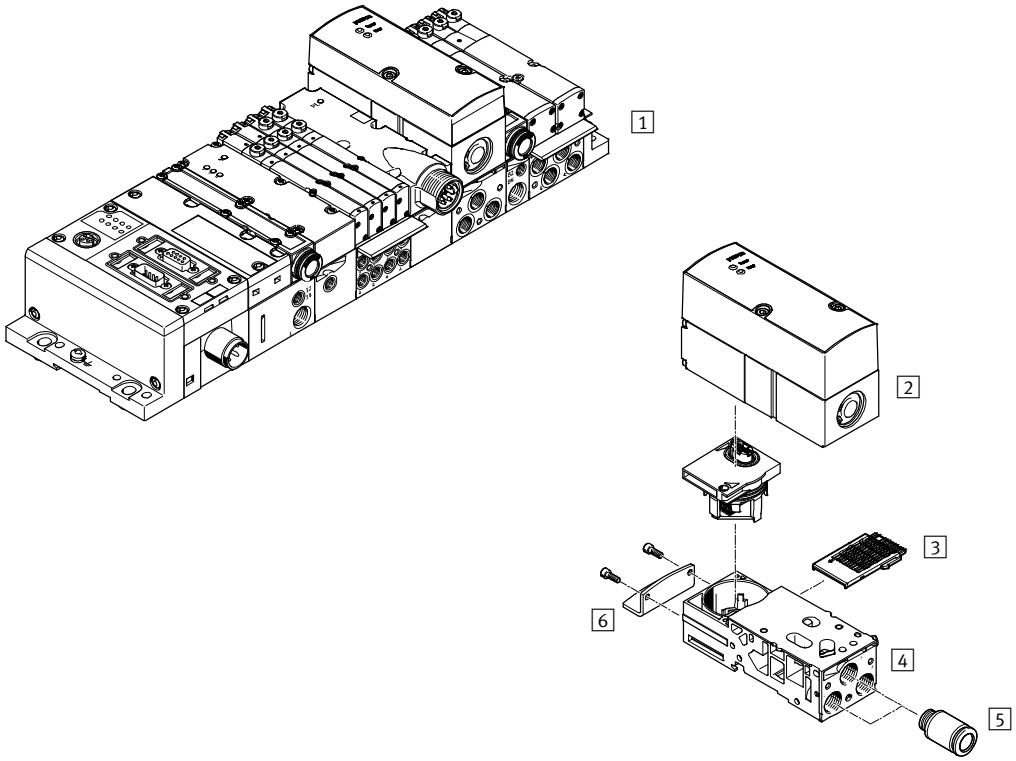
Manifold assembly with VPPM-6F … , VPPM-8F …



Accessories

		Brief description	➔ Page/Internet
1	Angled plug socket with cable NEBU-M12W8-…	–	38
2	Straight plug socket with cable SIM-M12-8GD-…	–	38
3	Proportional pressure regulator VPPM	Operator unit with LED	14
4	Proportional pressure regulator VPPM	Operator unit with LCD	14
5	Proportional pressure regulator VPPM	Operator unit with LED, IO-Link	15
6	Connecting cable NEDU-M12W5-…	–	38
7	Blanking plug B	–	b
8	Push-in fitting QS	For connecting compressed air tubing with standard O.D.	qs
9	Silencer	For installation in exhaust ports	u
10	Cover plate VABB-P1	For vacant position; seal and countersunk screws included in the scope of delivery	34
	Manifold block VABM	–	33

VPPM-6TA … , VPPM-8TA … for valve terminal MPA-S



Accessories			
		Brief description	**➔ Page/Internet**
1	Valve terminal MPA-S	With fieldbus connection and VPPM	mpas
2	Proportional pressure regulator VPPM	For valve terminal MPA-S	mpas
3	Electrical interlinking module VMPA1-FB-EV-AB	For sub-base of the proportional pressure regulator	mpas
4	Sub-base VMPA-FB-AP-P1	Without electrical interlinking module or electrical module	mpas
5	Push-in fitting QS	–	qs
6	Mounting component VMPA-BG	–	mpas

Proportional pressure regulators VPPM

Type codes

VPPM	–	6	L		–	L	–	1	–	G18	–	0L	6H	–	1L	–	6H

Type	
VPPM	Modular proportional pressure regulator

Nominal diameter	
6	6 mm
8	8 mm
12	12 mm

Design	
L	In-line valve
F	Flanged valve
T	Flanged valve for valve terminal

Mounting method	
–	Freely mountable
A	Valve terminal MPA
G	H-rail
P	Manifold PR

Dynamic response class	
L	Low

Valve function	
1	3/2-way valve, normally closed

Pneumatic connection	
G18	Thread G1⁄8
G14	Thread G1⁄4
G12	Thread G1⁄2
F	Flange/sub-base

Lower pressure value of regulation range	
0L	0 bar

Upper pressure value of regulation range	
2H	2 bar
6H	6 bar
10H	10 bar

Alternative lower pressure value of regulation range	
...L	0 ... 9 bar

Alternative upper pressure value of regulation range	
...H	0.2 ... 10 bar

Proportional pressure regulators VPPM

Type codes

→	–	V1	N	–	S1	

Setpoint specification for individual valve	
–	For valve terminals / servo pneumatics
V1	0 … 10 V
LK	IO-Link
A4	4 … 20 mA

Switching output	
N	Negative switching
P	Positive switching

Accuracy	
–	2% (standard)
S1	1%

Operator unit	
–	LED (standard)
C1	With LCD, pressure unit variable

Proportional pressure regulators VPPM

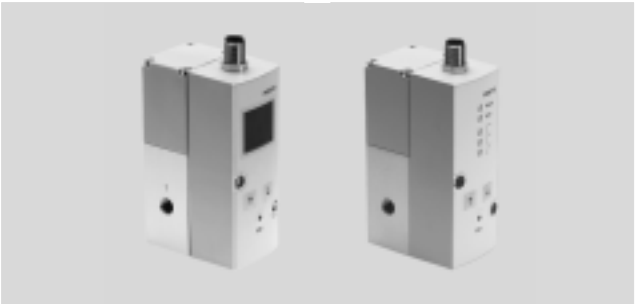
Technical data

FESTO

- Flow rate
  380 ... 7,000 l/min
- Voltage
  21.6 ... 26.4 V DC
- Pressure regulation range
  0.02 ... 10 bar

Variants

- Setpoint input as analogue voltage signal 0 ... 10 V
- Setpoint input as analogue current signal 4 ... 20 mA
- LED version
- With LCD display
- NPN or PNP switching output



General technical data							
			G1⁄8	G1⁄4	G1⁄2	Sub-base	
Constructional design			Pilot actuated diaphragm regulator				
Sealing principle			Soft				
Actuation type			Electric				
Type of control			Pilot actuated via 2/2-way valves				
Type of mounting			Via through-hole, via accessories				
Mounting position			Any				
Nominal diameter	Pressurisation	[mm]	6	8	12	6	8
	Exhaust	[mm]	4.5	7	12	4.5	7
Standard nominal flow rate		[l/min]	➔ Graphs				
Product weight		[g]	400	560	2,050	400	560

Electrical data					
			VPPM-6	VPPM-8	VPPM-12
Electrical connection			Plug, round design, 8-pin, M12		
Operating voltage range		[V DC]	24 ± 10% = 21.6 ... 26.4		
Residual ripple		[%]	10		
Duty cycle		[%]	100		
Max. electrical power consumption		[W]	7	7	12
Signal setpoint input	Voltage	[V DC]	0 ... 10		
	Current	[mA]	4 ... 20		
Protection against short circuit			For all electrical connections		
Protection against polarity reversal			For all electrical connections		
Protection class			IP65		
CE mark (see declaration of conformity)[1)]			To EU EMC Directive		
Certification			C-Tick		
			c UL us - Recognized (OL)	–	–

1) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.

- Note

If the power supply cable is interrupted, output pressure is maintained unregulated.

Proportional pressure regulators VPPM, IO-Link

FESTO

Technical data – VPPM IO-Link

Flow rate
380 ... 7,000 l/min

Voltage
18 ... 30 V DC

Pressure regulation range
0.02 ... 10 bar

- Digital setpoint and actual value transfer
- For connection to an I/O-Link/I-Port master
- LED version
- Comparator output (digital)

General technical data							
Port			G⅛	G¼	G½	Sub-base	
Valve function			3-way proportional pressure regulator				
Design			Piloted diaphragm regulator				
Sealing principle			Soft				
Actuation type			Electric				
Type of control			Piloted				
Reset method			Mechanical spring				
Type of mounting			Via through-hole, via accessories				
Mounting position			Any				
Nominal width	Pressurisation	[mm]	6	8	12	6	8
	Exhaust	[mm]	4.5	7	12	4.5	7
Standard nominal flow rate		[l/min.]	➔ Graphs				
Product weight		[g]	400	560	2,050	400	560
IO-Link	Protocol		IO-Link, I-Port				
	Protocol version		Device V1.1				
	Port type		A				
	Process data width OUT	[byte]	2				
	Process data width IN	[byte]	2				
Communication mode	COM1	[kBaud]	4.8				
	COM2	[kBaud]	38.4				
	COM3	[kBaud]	230.4				
IO-Link	Minimum cycle time	[ms]	0.5				

Electrical data				
Type		VPPM-6	VPPM-8	VPPM-12
Electrical connection		M12 plug connector, 5-pin		
Operating voltage range	[V DC]	18 ... 30		
Max. electrical power consumption	[W]	7		12
Protection against short circuit		For all electrical connections		
Protection against incorrect polarity		For all electrical connections		
Residual ripple	[%]	10		
Duty cycle	[%]	100		
Degree of protection		IP65		
CE marking		To EU EMC Directive (see declaration of conformity)[1)]		
Certification		RCM trademark		

1) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.

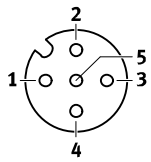
Note

Output pressure remains unregulated if the power supply cable is interrupted.

Proportional pressure regulators VPPM

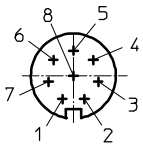
Technical data

Pin allocation of IO-Link interface



Pin	Allocation	Function
1	24 V DC ($U_{EL/SEN}$)	Operating voltage supply (PS)
2	n.c.	Not connected
3	0 V DC ($U_{EL/SEN}$)	Operating voltage supply (PS)
4	C/Q I-PORT	Data communication
5	n.c.	Not connected
–	FE	Functional earth

Pin allocation M12, electrical connection



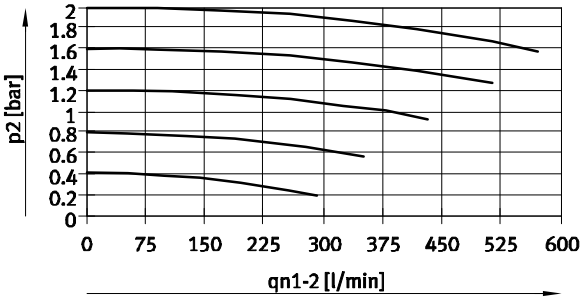
Pin	Function
1	Digital input D1
2	+24 V DC supply voltage
3	Analogue input W–
4	Analogue input W+
5	Digital input D2
6	Analogue output X
7	0 V DC or GND
8	Digital output D3

Proportional pressure regulators VPPM

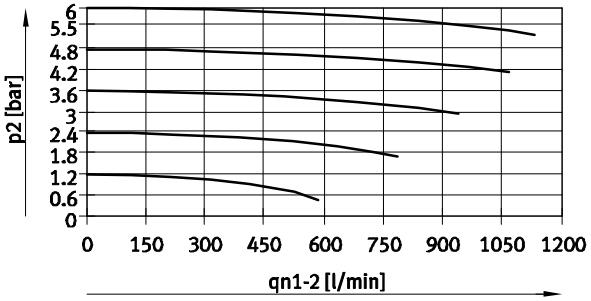
Technical data

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

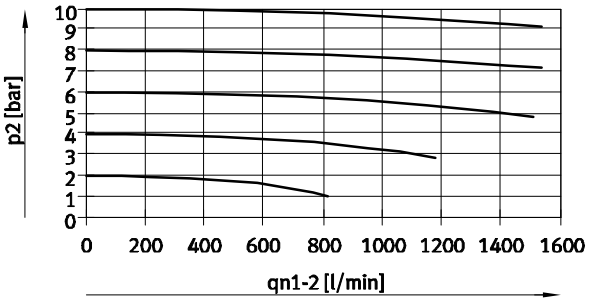
VPPM-6L/F-...-0L2H-... (2 bar)



VPPM-6L/F-...-0L6H-... (6 bar)

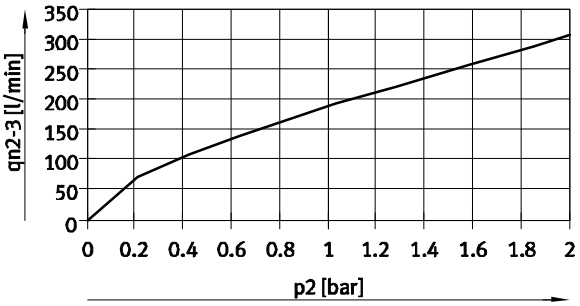


VPPM-6L/F-...-0L10H-... (10 bar)

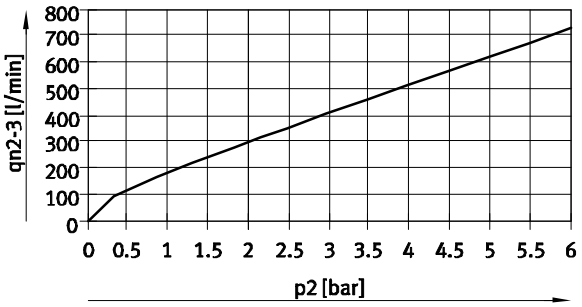


Flow rate qn from 2 ⟶ 3 as a function of output excess pressure p2

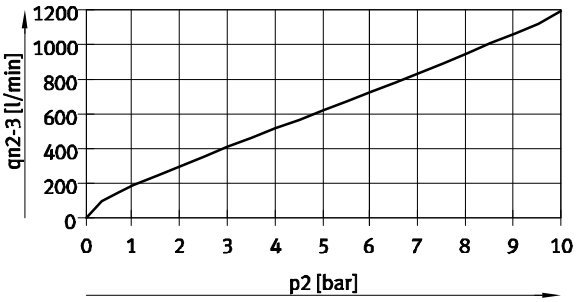
VPPM-6L/F-...-0L2H-... (2 bar)



VPPM-6L/F-...-0L6H-... (6 bar)

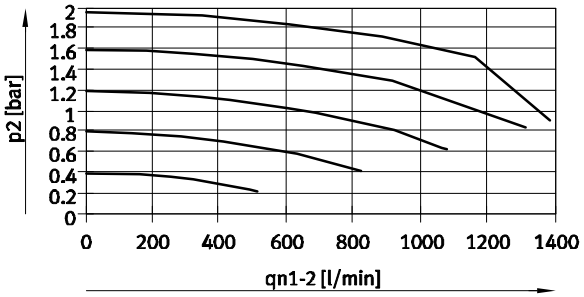


VPPM-6L/F-...-0L10H-... (10 bar)

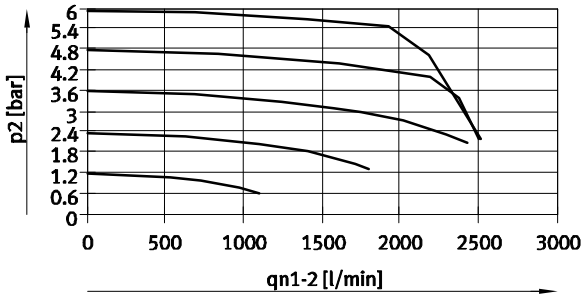


Flow rate qn from 1 ⟶ 2 as a function of output excess pressure p2

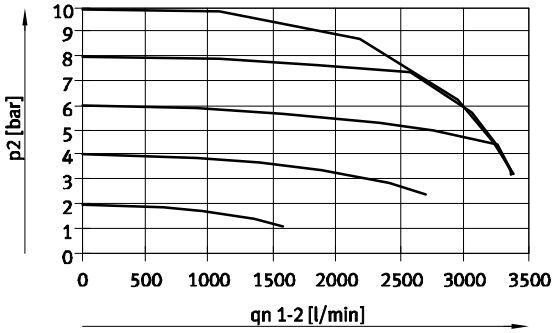
VPPM-8L-...-0L2H-... (2 bar)



VPPM-8L-...-0L6H-... (6 bar)

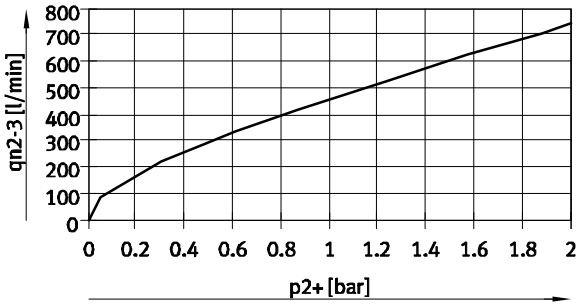


VPPM-8L-...-0L10H-... (10 bar)

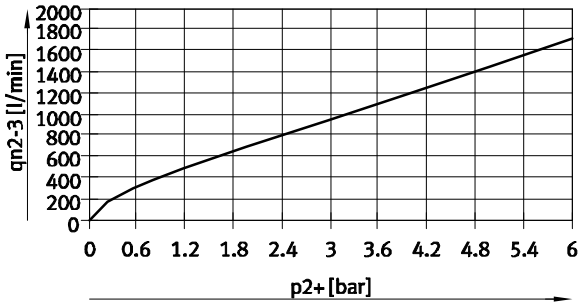


Flow rate qn from 2 ⟶ 3 as a function of output excess pressure p2

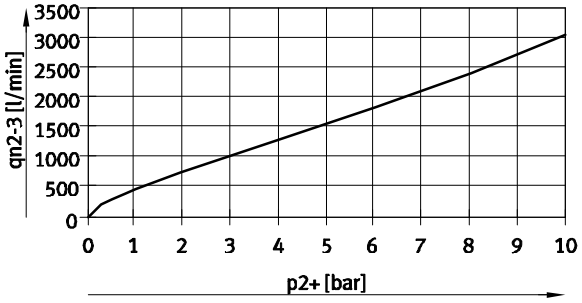
VPPM-8L-...-0L2H-... (2 bar)



VPPM-8L-...-0L6H-... (6 bar)

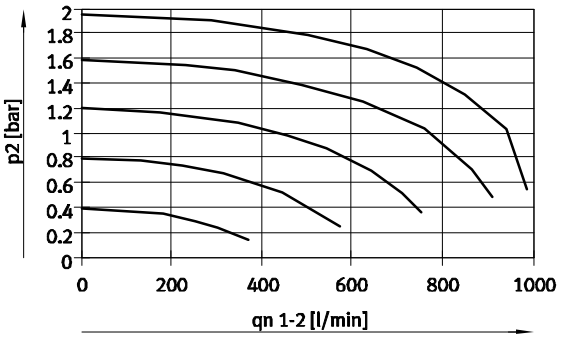


VPPM-8L-...-0L10H-... (10 bar)

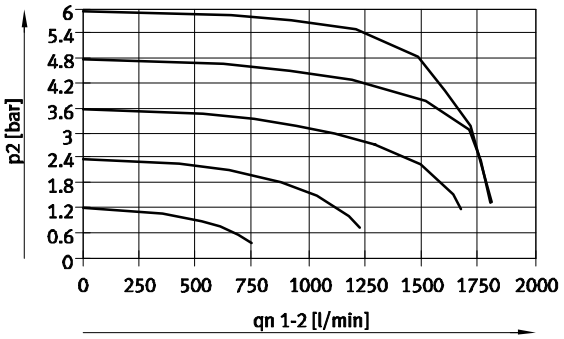


Flow rate qn from 1 ⟶ 2 as a function of output excess pressure p2

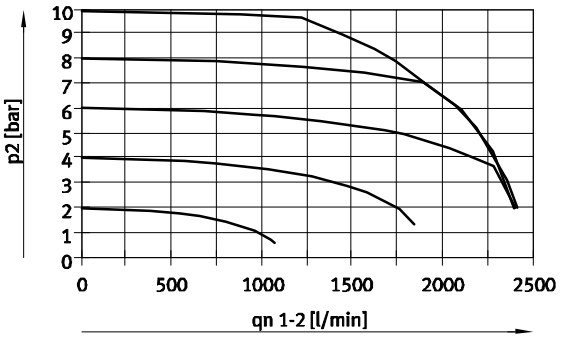
VPPM-8F/8TA-...-0L2H-... (2 bar)



VPPM-8F/8TA-...-0L6H-... (6 bar)



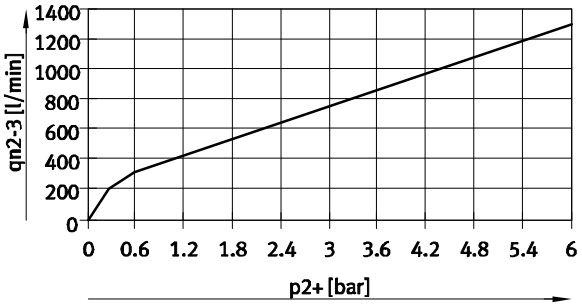
VPPM-8F/8TA-...-0L10H-... (10 bar)



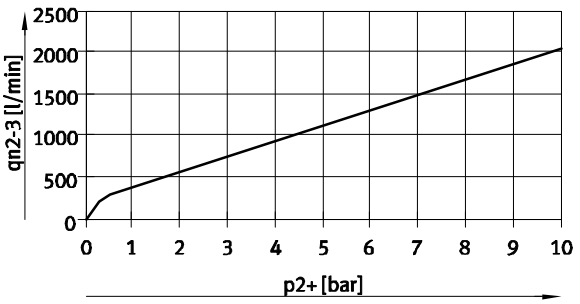
Flow rate qn from 2 ⟶ 3 as a function of output excess pressure p2

VPPM-8F/8TA-...-0L2H-... (2 bar)

VPPM-8F/8TA-...-0L6H-... (6 bar)

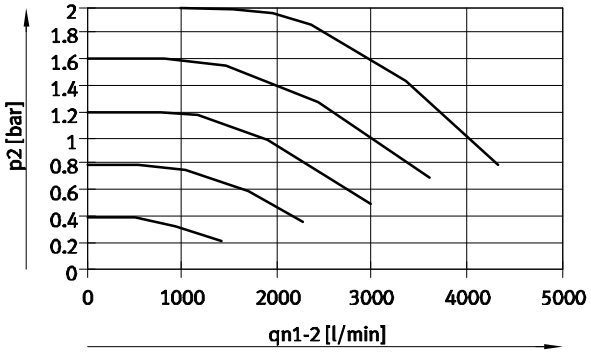


VPPM-8F/8TA-...-0L10H-... (10 bar)

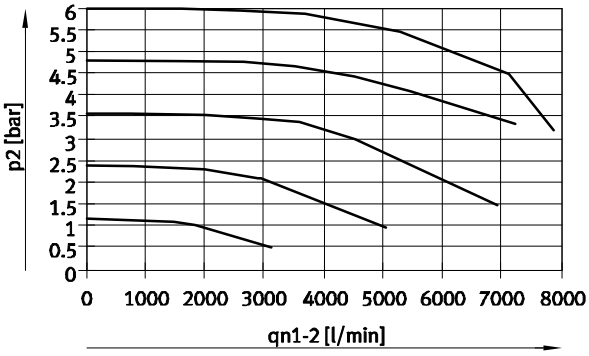


Flow rate qn from 1 ⟶ 2 as a function of output excess pressure p2

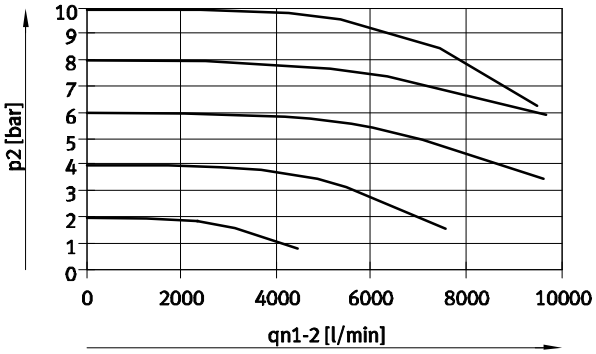
VPPM-12L-...-0L2H-... (4 bar)



VPPM-12L-...-0L6H-... (8 bar)

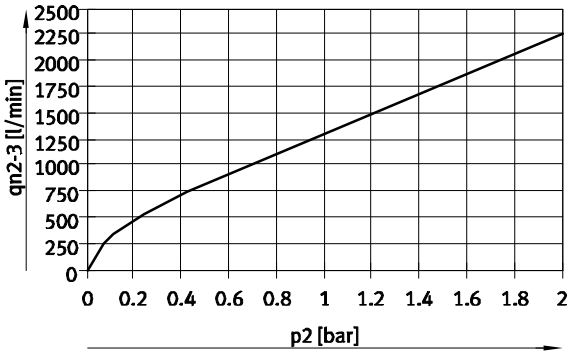


VPPM-12L-...-0L10H-... (11 bar)

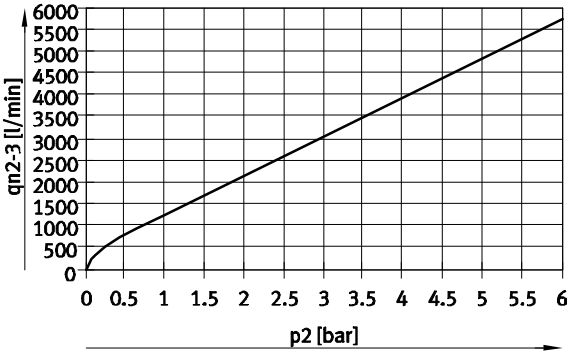


Flow rate qn from 2 ⟶ 3 as a function of output excess pressure p2

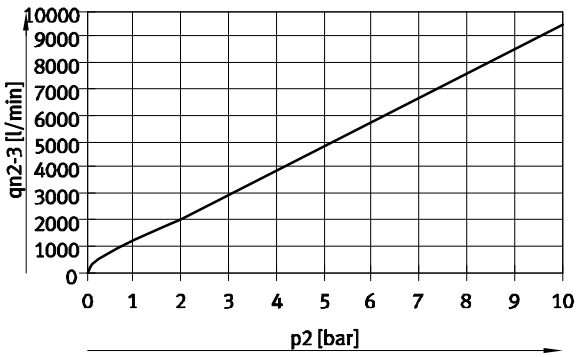
VPPM-12L...-0L2H-... (4 bar)



VPPM-12L-...-0L6H-... (8 bar)



VPPM-12L-...-0L10H-... (11 bar)



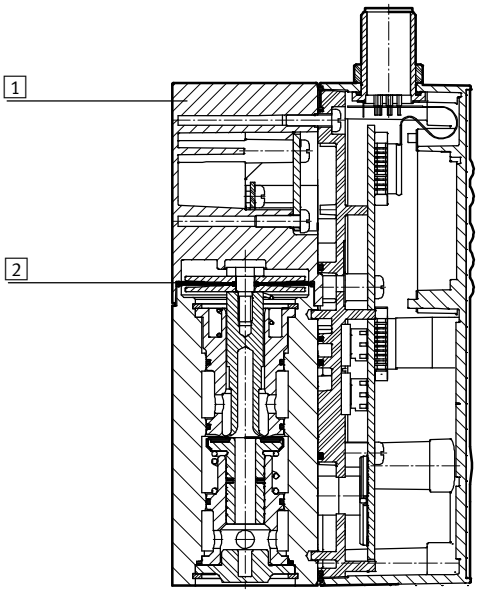
Operating and environmental conditions				
Pressure regulation range	[bar]	0.02 ... 2	0.06 ... 6	0.1 ... 10
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]		
		Inert gases		
Note on operating/pilot medium		Operation with lubricated medium not possible		
Supply pressure 1[2)]	[bar]	0 ... 4	0 ... 8	0 ... 11
Max. hysteresis	[mbar]	10	30	50
FS (full scale) linearity error	[%]	±0.5		
FS (full scale) repetition accuracy	[%]	0.5		
Temperature coefficient	[%/K]	0.04		
Ambient temperature, operator unit LED (standard)	[°C]	0 ... 60		
Ambient temperature, operator unit with LCD	[°C]	0 ... 50		
Temperature of medium	[°C]	10 ... 50		
Note on materials		RoHS-compliant		
Corrosion resistance	[CRC]	2[1)]		

1) Corrosion resistance class 2 as per Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

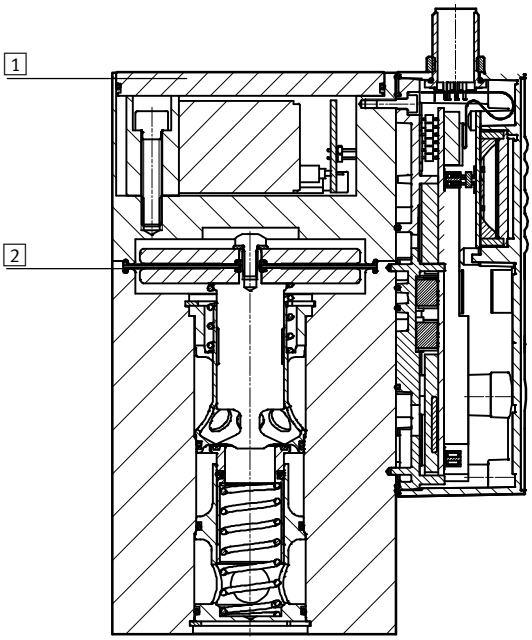
2) Supply pressure 1 should always be 1 bar greater than the maximum regulated output pressure.

Materials

Sectional view VPPM-6 ..., VPPM-8 ...



Sectional view VPPM-12 ...



1	Housing	Wrought aluminium alloy
2	Diaphragm	Nitrile rubber

Proportional pressure regulators VPPM

Technical data

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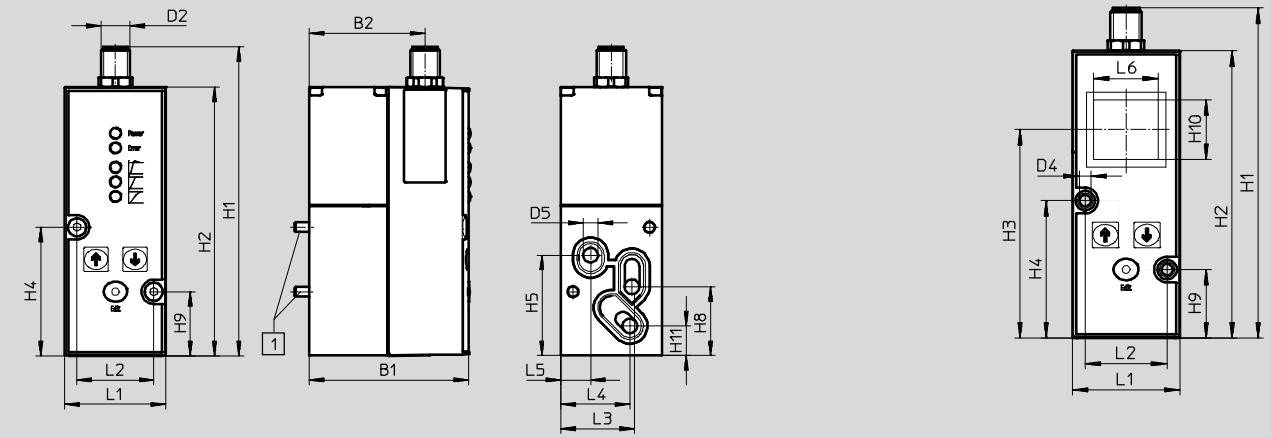
Dimensions Download CAD data ➔ **www.festo.com**

VPPM-6F

With LCD

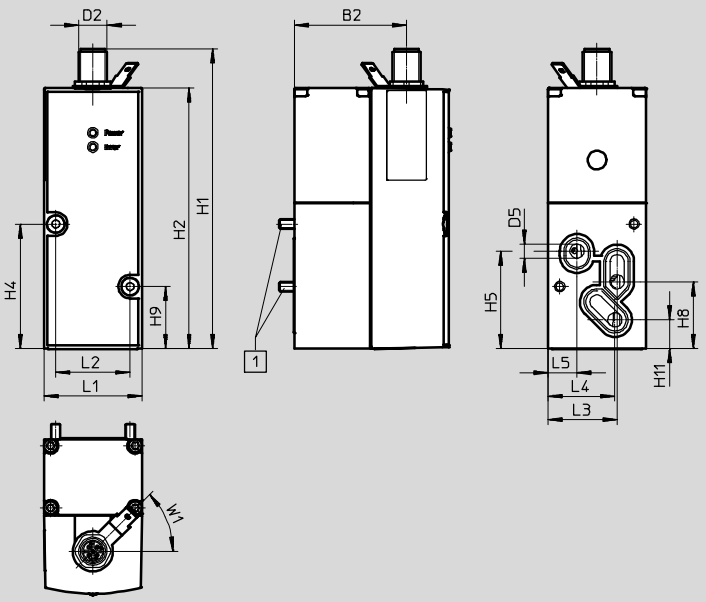


1 Socket head screw M4x65

Type	B1	B2	B3	D1	D2	D4 ∅	D5 ∅	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12
VPPM-6F	65.4	47.5	–	–	M12	4.4	6	126.9	110.4	80.1	52.8	41.3	–	–	28.3	26.3	23	12.2	–

Type	L1	L2	L3	L4	L5	L6
VPPM-6F	41.5	31.5	30.3	28.4	12.3	25

VPPM-6F, IO-Link



1 Socket head screw M4x65

Type	B1	B2	D2 ∅	D5 ∅	H1	H2	H4	H5	H8	H9	H11
VPPM-6F	65.5	47.5	M12	6	126.9	110.4	52.8	41.3	28.3	26.3	12.2

Type	L1	L2	L3	L4	L5	W1 ± 5°
VPPM-6L	41.5	31.5	30.3	28.4	12.3	45°

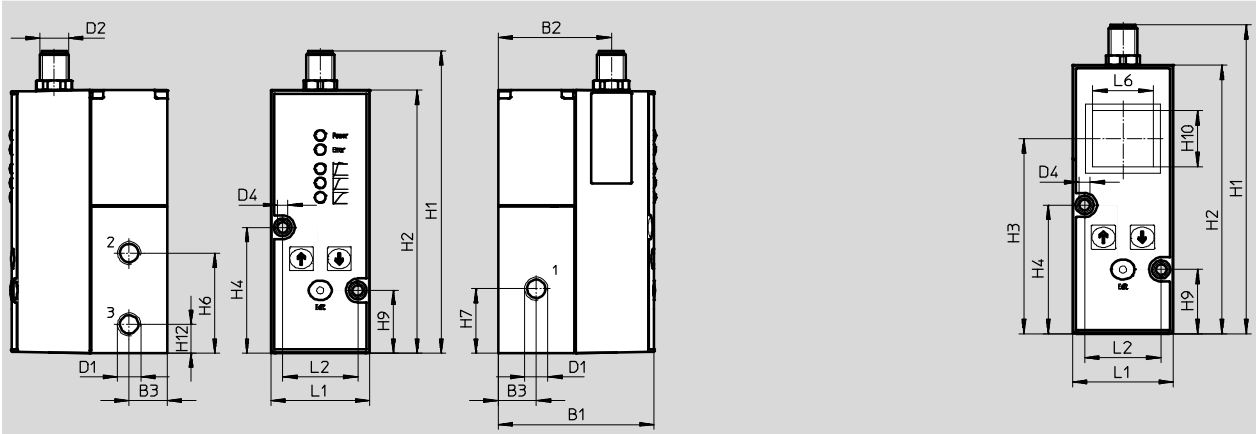
Proportional pressure regulators VPPM

Technical data

Dimensions Download CAD data ➔ **www.festo.com**

VPPM-6L

With LCD

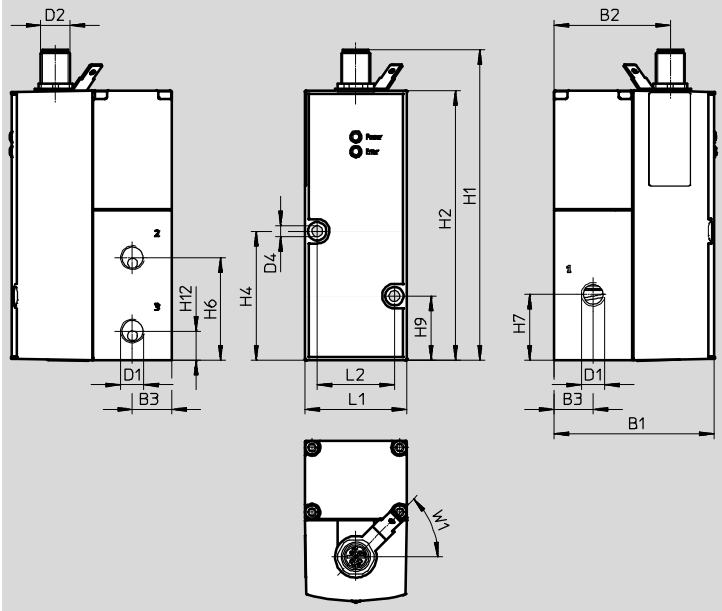


1 Socket head screw M4x65

Type	B1	B2	B3	D1 ∅	D2 ∅	D4 ∅	H1	H2	H3	H4	H6	H7	H9	H10	H12
VPPM-6L	65.5	47.5	16	G1⁄8	M12	4.4	126.9	110.4	80.1	52.8	42	27	26.3	23	12

Type	L1	L2	L6
VPPM-6L	41.5	31.5	25

VPPM-6L, IO-Link



Type	B1	B2	B3	D1 ∅	D2 ∅	D4 ∅	H1	H2	H4	H6	H7	H9	H12
VPPM-6L	65.5	47.5	16	G1⁄8	M12	4.4	126.9	110.4	52.8	42	27	26.3	12

Type	L1	L2	W1 ± 5°
VPPM-6L	41.5	31.5	45°

Proportional pressure regulators VPPM

Technical data

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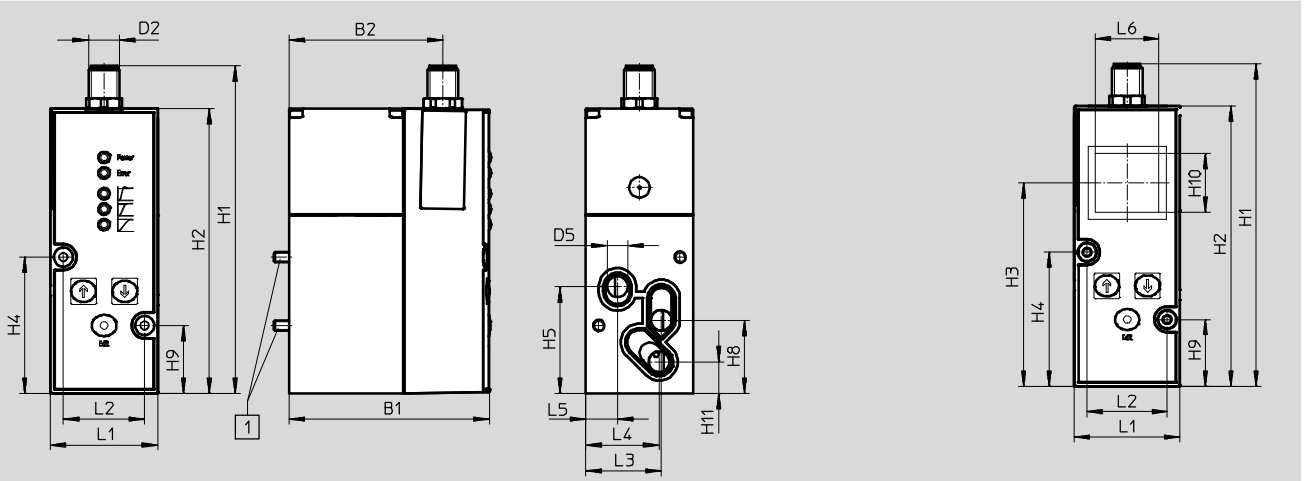
Dimensions Download CAD data ➔ **www.festo.com**

VPPM-8F With LCD

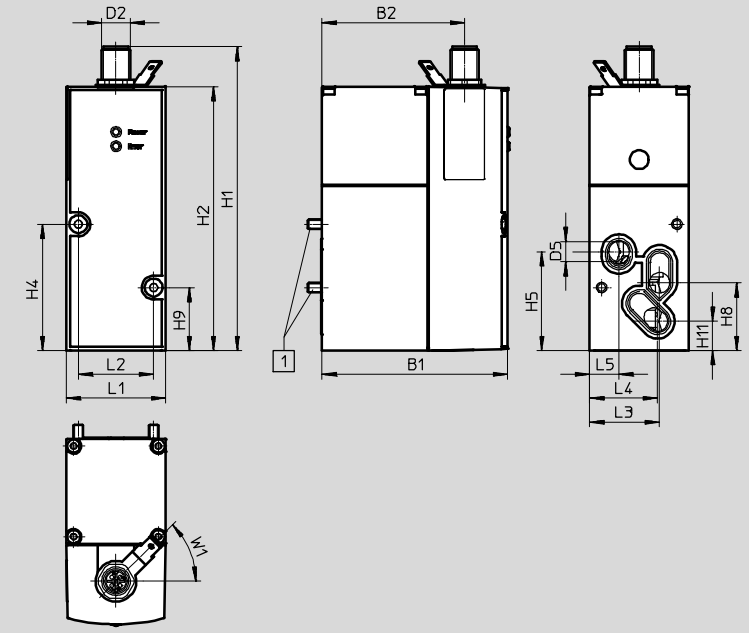


1 Socket head screw M4x77

Type	B1	B2	D2	D5 ∅	H1	H2	H3	H4	H5	H8	H9	H10	H11
VPPM-8F	77.4	59.5	M12	8	126.9	110.4	80	52.8	41.3	28.3	26.3	23	12.2

Type	L1	L2	L3	L4	L5	L6
VPPM-8F	41.5	31.5	29.3	28.4	12.3	25

VPPM-8F, IO-Link



1 Socket head screw M4x77

Type	B1	B2	D2	D5 ∅	H1	H2	H4	H5	H8	H9	H11
VPPM-8L	77.4	59.5	M12	8	126.9	110.4	52.8	41.3	28.3	26.3	12.2

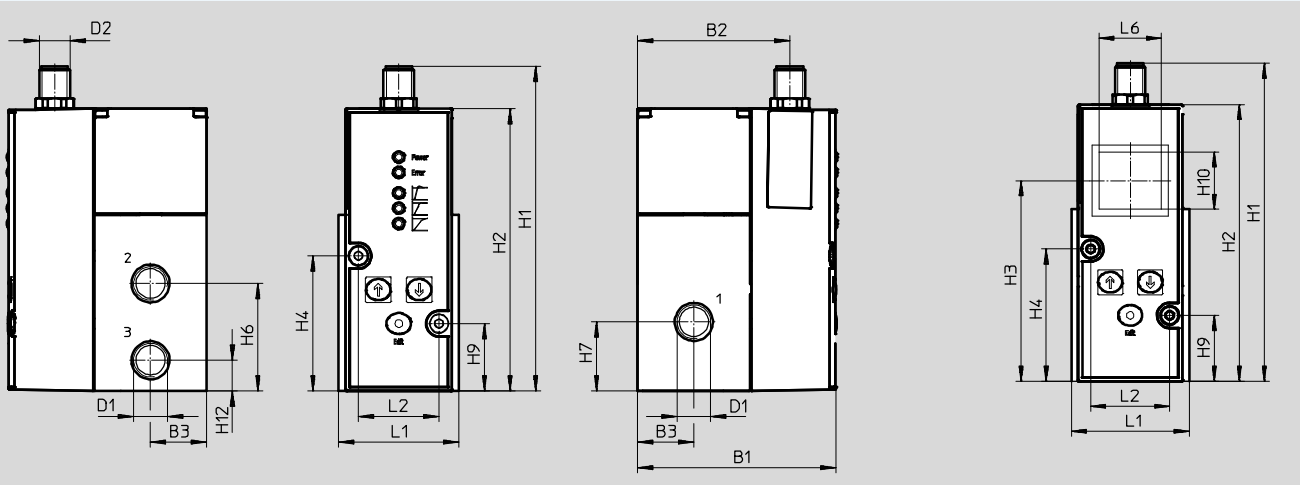
Type	L1	L2	L3	L4	L5	W1 ± 5°
VPPM-8L	41.5	31.5	29.3	28.4	12.3	45°

Proportional pressure regulators VPPM

Technical data

Dimensions Download CAD data ➔ **www.festo.com**

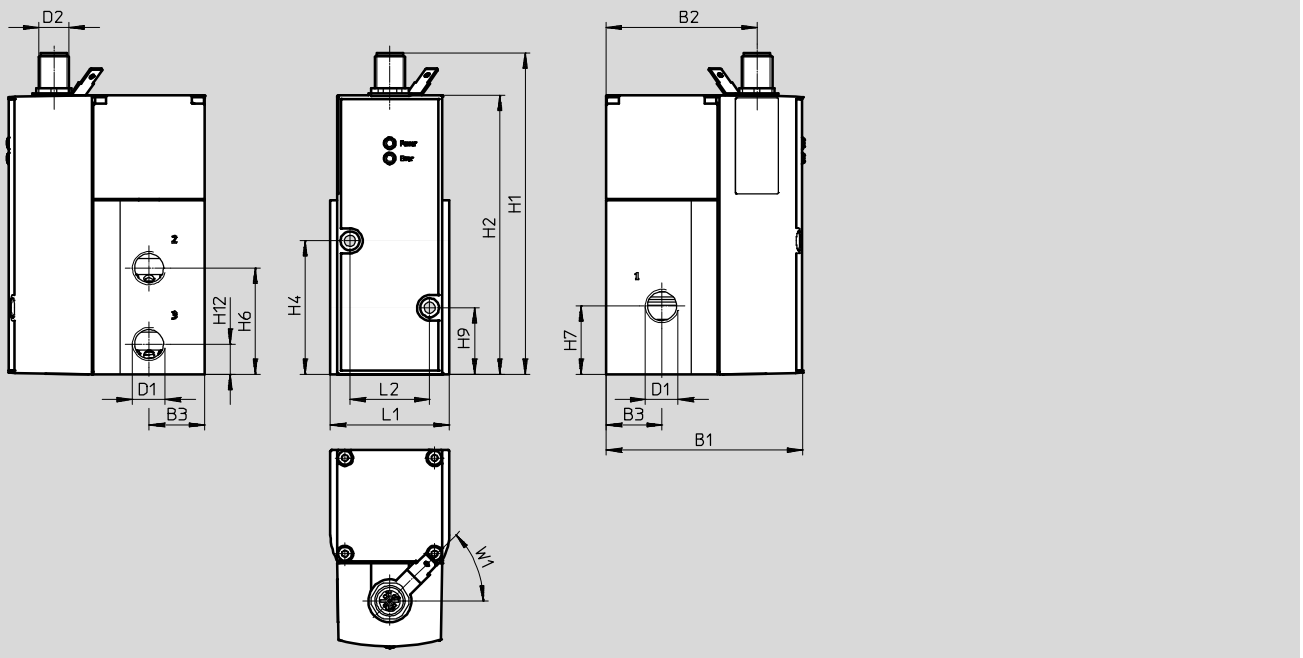
VPPM-8L With LCD



Type	B1	B2	B3	D1	D2	H1	H2	H3	H4	H6	H7	H9	H10	H12
VPPM-8L	77.4	59.5	22	G¼	M12	126.9	110.4	80	52.8	42	27	26.3	23	12

Type	L1	L2	L6
VPPM-8L	47	31.5	25

VPPM-8L, IO-Link

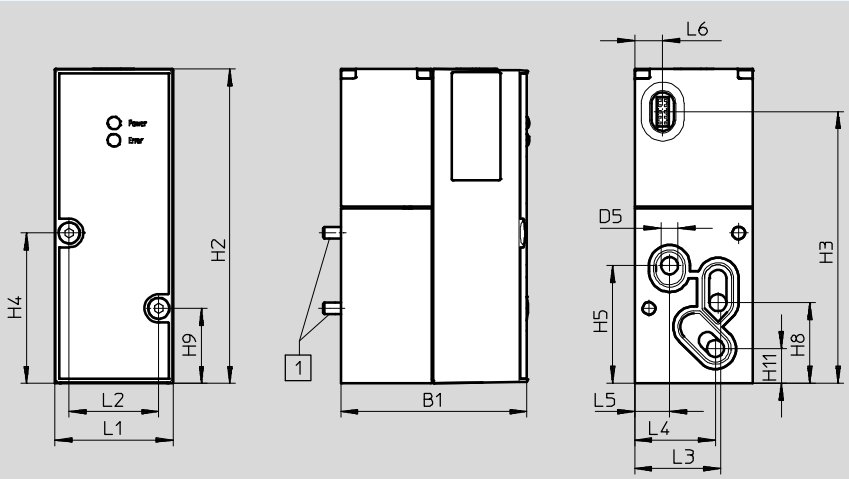


Type	B1	B2	B3	D1	D2	H1	H2	H4	H6	H7	H9	H12
VPPM-8L	77.4	59.5	22	G¼	M12	126.9	110.4	52.8	42	27	26.3	12

Type	L1	L2	W1 ± 5°
VPPM-8L	47	31.5	45°

Dimensions Download CAD data ➔ **www.festo.com**

VPPM-6TA

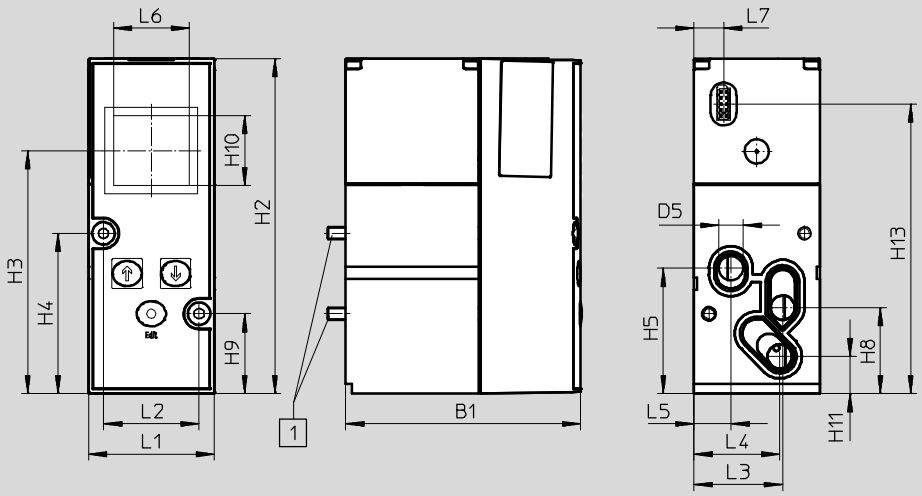


1 Socket head screw M4x55

Type	B1	D5 ∅	H2	H3	H4	H5	H8	H9	H11
VPPM-6TA	55.1	6	110.4	95.5	52.8	41.3	28.3	26.3	12.2

Type	L1	L2	L3	L4	L5	L6
VPPM-6TA	41.5	31.5	30.3	28.4	12.3	9.9

VPPM-8TA with LCD



1 Socket head screw M4x77

Type	B1	B2	B3	D1	D2	D5 ∅	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12	H13
VPPM-8TA	77.4	–	–	–	–	8	–	110.4	80	52.8	41.3	–	–	28.3	26.3	23	12.2	–	95.5

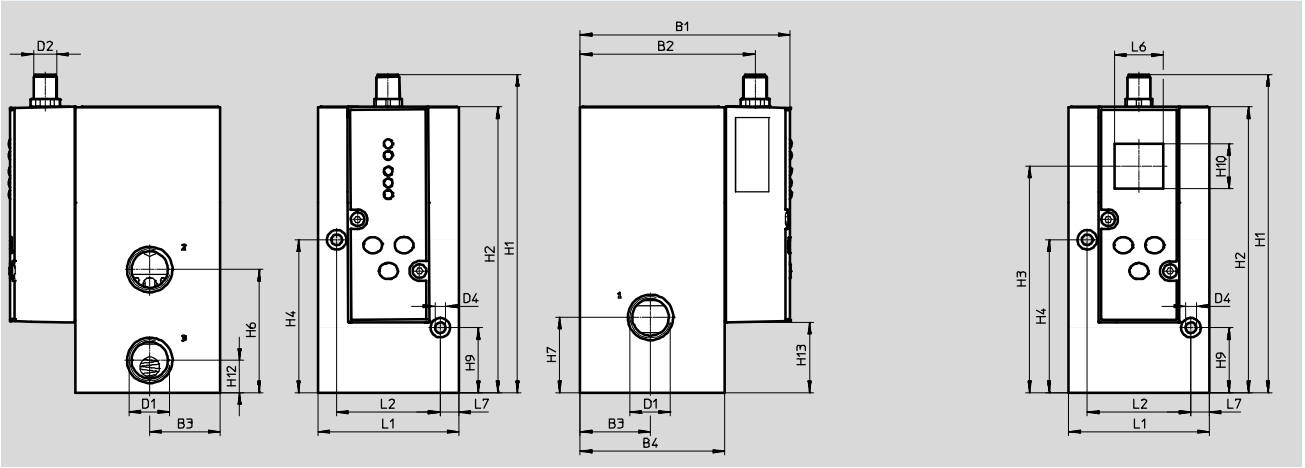
Type	L1	L2	L3	L4	L5	L6	L7
VPPM-8TA	41.5	31.5	29.3	28.4	12.3	25	9.9

Proportional pressure regulators VPPM

Technical data

Dimensions Download CAD data ➔ **www.festo.com**

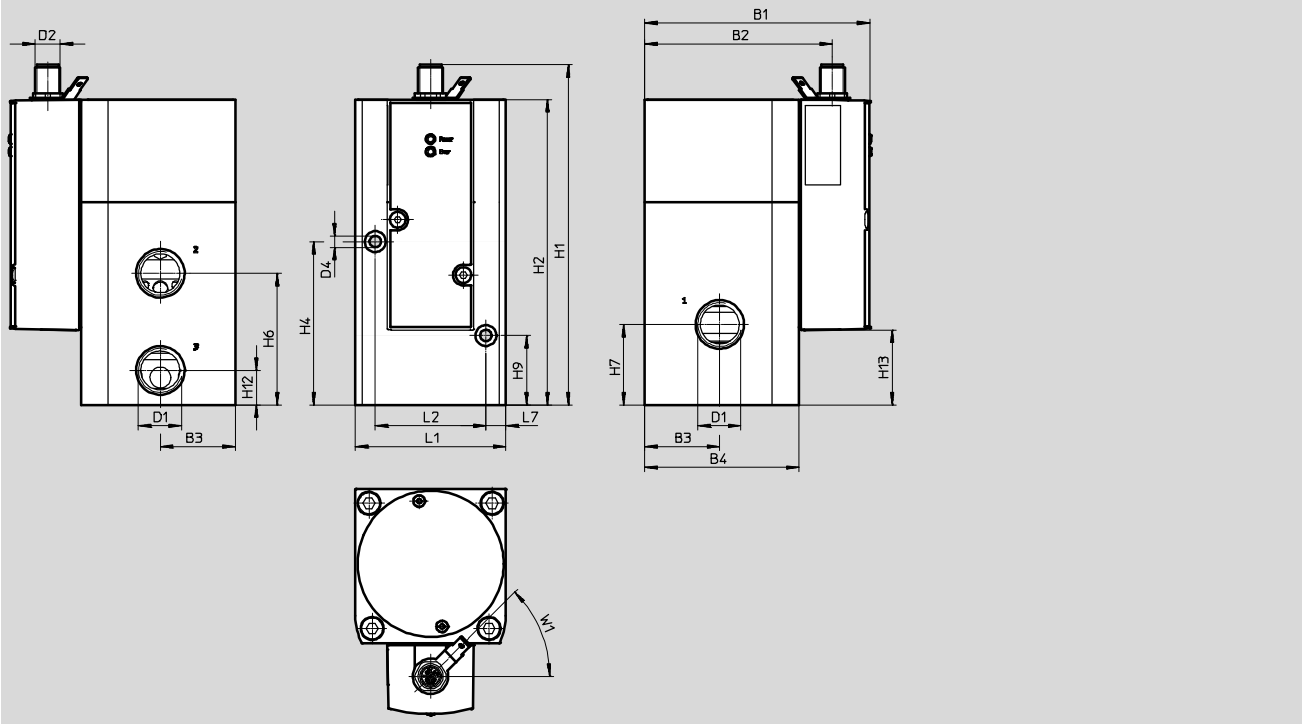
VPPM-12L With LCD



Type	B1	B2	B3	B4	D1 ∅	D2	D4 ∅	H1	H2	H3	H4	H6	H7	H9	H10	H12	H13
VPPM-12L	107.4	89.5	36	74	G½	M12	5.5	162.8	146.3	116	78.2	63	38.5	33.2	23	16.5	35.9

Type	L1	L2	L6	L7
VPPM-12L	72	53	25	9.5

VPPM-12L, IO-Link



Type	B1	B2	B3	B4	D1	D2	D4 ∅	H1	H2	H4	H6	H7	H9	H12	H13
VPPM-12L	107.4	89.5	36	74	G½	M12	4.4	162.8	146.3	78.2	63	38.5	33.2	16.5	35.9

Type	L1	L2	L7	W1 ±5°
VPPM-12L	72	53	9.5	45°

Proportional pressure regulators VPPM

Technical data

FESTO

Ordering data				
Proportional pressure regulators VPPM	Pneumatic connection 1, 2, 3	Pressure regulation range [bar]	Part No.	Type
Voltage type 0 ... 10 V				
Overall accuracy 2%	G⅛	0.02 ... 2	542233	VPPM-6L-L-1-G18-0L2H-V1N
		0.06 ... 6	542234	VPPM-6L-L-1-G18-0L6H-V1N
			554043	VPPM-6L-L-1-G18-0L6H-V1P
			558337	VPPM-6L-L-1-G18-0L6H-V1P-C1
		0.1 ... 10	575125	VPPM-6L-L-1-G18-0L10H-V1P-C1
			542235	VPPM-6L-L-1-G18-0L10H-V1N
			554044	VPPM-6L-L-1-G18-0L10H-V1P
	Sub-base	0.02 ... 2	542245	VPPM-6F-L-1-F-0L2H-V1N
		0.06 ... 6	542246	VPPM-6F-L-1-F-0L6H-V1N
			558339	VPPM-6F-L-1-F-0L6H-V1P-C1
			558347	VPPM-6F-L-1-F-0L6H-V1N-C1
			571285	VPPM-8F-L-1-F-0L6H-V1P
		0.1 ... 10	542247	VPPM-6F-L-1-F-0L10H-V1N
	G¼	0.06 ... 6	571296	VPPM-8L-L-1-G14-0L6H-V1P
Overall accuracy 1%	G⅛	0.02 ... 2	542227	VPPM-6L-L-1-G18-0L2H-V1N-S1
		0.06 ... 6	542228	VPPM-6L-L-1-G18-0L6H-V1N-S1
			554039	VPPM-6L-L-1-G18-0L6H-V1P-S1
			571448	VPPM-6L-L-1-G18-0L6H-V1N-S1C1
			575121	VPPM-6L-L-1-G18-0L6H-V1P-S1C1
		0.1 ... 10	542229	VPPM-6L-L-1-G18-0L10H-V1N-S1
			554040	VPPM-6L-L-1-G18-0L10H-V1P-S1
			558335	VPPM-6L-L-1-G18-0L10H-V1P-S1C1
			558345	VPPM-6L-L-1-G18-0L10H-V1N-S1C1
	Sub-base	0.02 ... 2	542239	VPPM-6F-L-1-F-0L2H-V1N-S1
		0.06 ... 6	542240	VPPM-6F-L-1-F-0L6H-V1N-S1
			571286	VPPM-8F-L-1-F-0L6H-V1P-S1
			571287	VPPM-8F-L-1-F-0L6H-V1P-S1C1
		0.1 ... 10	542241	VPPM-6F-L-1-F-0L10H-V1N-S1
	G¼	0.1 ... 10	571291	VPPM-8L-L-1-G14-0L10H-V1N-S1
			571292	VPPM-8L-L-1-G14-0L10H-V1P-S1
			571293	VPPM-8L-L-1-G14-0L10H-V1P-S1C1
		0.06 ... 6	571294	VPPM-8L-L-1-G14-0L6H-V1N-S1
			571295	VPPM-8L-L-1-G14-0L6H-V1N-S1C1
			571297	VPPM-8L-L-1-G14-0L6H-V1P-S1
			571298	VPPM-8L-L-1-G14-0L6H-V1P-S1C
	G½	0.1 ... 10	575235	VPPM-12L-L-1-G12-0L10H-V1N-S1
			575236	VPPM-12L-L-1-G12-0L10H-V1P-S1
			575237	VPPM-12L-L-1-G12-0L10H-V1P-S1C1
		0.06 ... 6	575238	VPPM-12L-L-1-G12-0L6H-V1N-S1
			575239	VPPM-12L-L-1-G12-0L6H-V1N-S1C1
			575240	VPPM-12L-L-1-G12-0L6H-V1P-S1
			575241	VPPM-12L-L-1-G12-0L6H-V1P-S1C1

Proportional pressure regulators VPPM

Technical data

FESTO

Ordering data				
Proportional pressure regulators VPPM	Pneumatic connection 1, 2, 3	Pressure regulation range [bar]	Part No.	Type
Current type 4 … 20 mA				
Overall accuracy 2%	G⅛	0.02 … 2	**542236**	**VPPM-6L-L-1-G18-0L2H-A4N**
		0.06 … 6	**542237**	**VPPM-6L-L-1-G18-0L6H-A4N**
			554045	**VPPM-6L-L-1-G18-0L6H-A4P**
			558338	**VPPM-6L-L-1-G18-0L6H-A4P-C1**
		0.1 … 10	**542238**	**VPPM-6L-L-1-G18-0L10H-A4N**
			554046	**VPPM-6L-L-1-G18-0L10H-A4P**
	Sub-base	0.02 … 2	**542248**	**VPPM-6F-L-1-F-0L2H-A4N**
		0.06 … 6	**542249**	**VPPM-6F-L-1-F-0L6H-A4N**
			558340	**VPPM-6F-L-1-F-0L6H-A4P-C1**
			571282	**VPPM-8F-L-1-F-0L6H-A4P**
		0.1 … 10	**542250**	**VPPM-6F-L-1-F-0L10H-A4N**
	G¼	0.06 … 6	**571299**	**VPPM-8L-L-1-G14-0L6H-A4P**
Overall accuracy 1%	G⅛	0.02 … 2	**542230**	**VPPM-6L-L-1-G18-0L2H-A4N-S1**
		0.06 … 6	**542231**	**VPPM-6L-L-1-G18-0L6H-A4N-S1**
			554041	**VPPM-6L-L-1-G18-0L6H-A4P-S1**
			575128	**VPPM-6L-L-1-G18-0L6H-A4P-S1C1**
		0.1 … 10	**542232**	**VPPM-6L-L-1-G18-0L10H-A4N-S1**
			554042	**VPPM-6L-L-1-G18-0L10H-A4P-S1**
			558336	**VPPM-6L-L-1-G18-0L10H-A4P-S1C1**
	Sub-base	0.02 … 2	**542242**	**VPPM-6F-L-1-F-0L2H-A4N-S1**
		0.06 … 6	**542243**	**VPPM-6F-L-1-F-0L6H-A4N-S1**
			571283	**VPPM-8F-L-1-F-0L6H-A4P-S1**
			571284	**VPPM-8F-L-1-F-0L6H-A4P-S1C1**
		0.1 … 10	**542244**	**VPPM-6F-L-1-F-0L10H-A4N-S1**
	G¼	0.1 … 10	**571288**	**VPPM-8L-L-1-G14-0L10H-A4N-S1**
			571289	**VPPM-8L-L-1-G14-0L10H-A4P-S1**
			571290	**VPPM-8L-L-1-G14-0L10H-A4P-S1C1**
		0.06 … 6	**571302**	**VPPM-8L-L-1-G14-0L6H-A4N-S1**
			571303	**VPPM-8L-L-1-G14-0L6H-A4N-S1C1**
			571300	**VPPM-8L-L-1-G14-0L6H-A4P-S1**
			571301	**VPPM-8L-L-1-G14-0L6H-A4P-S1C1**
	G½	0.1 … 10	**575232**	**VPPM-12L-L-1-G12-0L10H-A4N-S1**
			575233	**VPPM-12L-L-1-G12-0L10H-A4P-S1**
			575234	**VPPM-12L-L-1-G12-0L10H-A4P-S1C1**
		0.06 … 6	**575242**	**VPPM-12L-L-1-G12-0L6H-A4P-S1**
			575243	**VPPM-12L-L-1-G12-0L6H-A4P-S1C1**
			575244	**VPPM-12L-L-1-G12-0L6H-A4N-S1**
			575245	**VPPM-12L-L-1-G12-0L6H-A4N-S1C1**
For valve terminal				
Overall accuracy 2%	Via valve terminal	0.02 … 2	**542220**	**VPPM-6TA-L-1-F-0L2H**
			572410	**VPPM-8TA-L-1-F-0L2H-C1**
		0.06 … 6	**542221**	**VPPM-6TA-L-1-F-0L6H**
			572411	**VPPM-8TA-L-1-F-0L6H-C1**
		0.02 … 10	**542222**	**VPPM-6TA-L-1-F-0L10H**
			572412	**VPPM-8TA-L-1-F-0L10H-C1**
Overall accuracy 1%	Via valve terminal	0.02 … 2	**542217**	**VPPM-6TA-L-1-F-0L2H-S1**
			572407	**VPPM-8TA-L-1-F-0L2H-S1C1**
		0.06 … 6	**542218**	**VPPM-6TA-L-1-F-0L6H-S1**
			572408	**VPPM-8TA-L-1-F-0L6H-S1C1**
		0.02 … 10	**542219**	**VPPM-6TA-L-1-F-0L10H-S1**
			572409	**VPPM-8TA-L-1-F-0L10H-S1C1**

Proportional pressure regulators VPPM

Technical data

FESTO

Ordering data				
Proportional pressure regulators VPPM	Pneumatic connection 1, 2, 3	Pressure regulation range [bar]	Part No.	Type
Overall accuracy 1%	G⅛	0.02 ... 2	**8024258**	**VPPM-6L-L-1-G18-0L2H-LK-S1**
		0.06 ... 6	**8024259**	**VPPM-6L-L-1-G18-0L6H-LK-S1**
		0.1 ... 10	**8024260**	**VPPM-6L-L-1-G18-0L10H-LK-S1**
	Sub-base	0.02 ... 2	**8031107**	**VPPM-6F-L-1-F-0L2H-LK-S1**
		0.06 ... 6	**8031108**	**VPPM-6F-L-1-F-0L6H-LK-S1**
		0.1 ... 10	**8031109**	**VPPM-6F-L-1-F-0L10H-LK-S1**
	G¼	0.02 ... 2	**8024261**	**VPPM-8L-L-1-G14-0L2H-LK-S1**
		0.06 ... 6	**8024262**	**VPPM-8L-L-1-G14-0L6H-LK-S1**
		0.1 ... 10	**8024263**	**VPPM-8L-L-1-G14-0L10H-LK-S1**
	Sub-base	0.02 ... 2	**8031110**	**VPPM-8F-L-1-F-0L2H-LK-S1**
		0.06 ... 6	**8031111**	**VPPM-8F-L-1-F-0L6H-LK-S1**
		0.1 ... 10	**8031112**	**VPPM-8F-L-1-F-0L10H-LK-S1**
	G½	0.02 ... 2	**8024264**	**VPPM-12L-L-1-G12-0L2H-LK-S1**
		0.06 ... 6	**8024265**	**VPPM-12L-L-1-G12-0L6H-LK-S1**
		0.1 ... 10	**8024266**	**VPPM-12L-L-1-G12-0L10H-LK-S1**

Proportional pressure regulators VPPM

Ordering data – Modular products

FESTO

[M] **Mandatory data** ➔

Module No.	Design		Nominal diameter	Valve type		Dynamic response		Valve mode		Type of connection
543432	VPPM		6	L		L		1		G18
				F						F
				T						F
543433			8	L						G14
				F						F
				T						F
543435			12	L						G12
Order example										
543432	**VPPM**	–	**6**	**F**	–	**L**	–	**1**	–	**F**

Ordering table

Size		6	Condi-tions	Code		Enter code
[M]	Module No.	**543432**				
	Design	Modular pressure regulator		**VPPM**		VPPM
	Nominal diameter	6		**-6**		
		8		**-8**		
		12	[1]	**-12**		
	Valve type	In-line	[2]	**L**		
		Flanged valve	[3]	**F**		
		Flanged valve for valve terminal	[4]	**T**		
	Dynamic response	Low dynamic response (pilot-actuated, soft-sealing)		**-L**		-L
	Valve mode	3/2-way valve, normally closed		**-1**		-1
	Type of connection	G⅛ thread		**-G18**		
		G¼ thread		**-G14**		
		G½ thread		**-G12**		
↓		Flange/sub-base		**-F**		

[1] **12** Only with valve type L (In-Line)
[2] **L** Only with connection type G18, G14, G12 (G⅛, G¼, G½ thread)
[3] **F** Only with connection type F (flange/sub-base)
[4] **T** Only with connection type F (flange/sub-base)

Order code

543432	**VPPM**	–	**6**		–	**L**	–	**1**	–	

Proportional pressure regulators VPPM

Ordering data – Modular products

FESTO

➔ M Mandatory data | O Options

	Pressure regulation range	Alternative lower pressure regulation range	Alternative upper pressure regulation range		Setpoint specification	Switching output		Overall accuracy	Operator unit
	0L2H 0L6H 0L10H	0.1 ... 10L	0.1 ... 10H		V1 A4 LK	P N		S1	C1
–		**6.5L**	**7.1H**	–	**A4**	**P**	–	**S1**	**C1**

Ordering table

Size		6	Conditions	Code	Enter code
↓ M	Pressure regulation range	0 ... 2 bar		**-0L2H**	
		0 ... 6 bar		**-0L6H**	
		0 ... 10 bar		**-0L10H**	
	Alternative lower pressure regulation range	0.1 ... 10 bar	4	**-...L**	
	Alternative upper pressure regulation range	0.1 ... 10 bar	5	**...H**	
	Setpoint specification	Voltage (standard 0 ... 10 V)		**-V1**	
		IO-Link	New	**-LK**	
		Current (standard 4 ... 20 mA)		**-A4**	
	Switching output	Positive switching		**P**	
		Negative switching		**N**	
O	Overall accuracy	1%		**-S1**	
	Operator unit	With LCD, pressure unit variable		**C1**	

4 **...L** Not with pressure regulation range (0L2H, 0L6H, 0L10H).
Must always be less than alternative upper pressure regulation range H

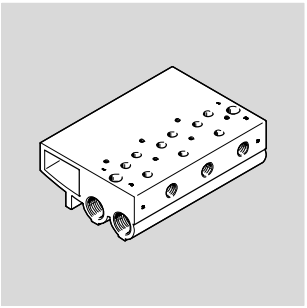
5 **...H** Not with pressure regulation range (0L2H, 0L6H, 0L10H).
Must always be greater than alternative lower pressure regulation range L

Transfer order code

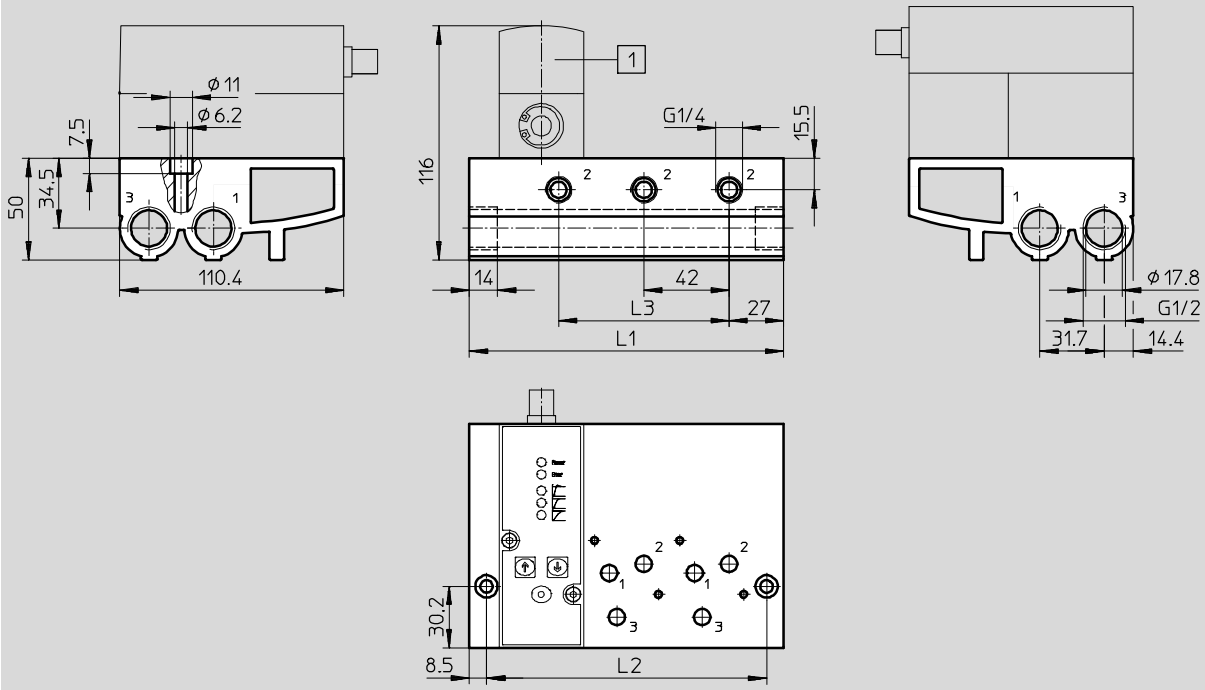
–				–			–		

Sub-base VABM-P1

Material:
Wrought aluminium alloy



Dimensions Download CAD data ➔ **www.festo.com**



1 Proportional pressure regulator VPPM

Dimensions and ordering data

Valve positions	L1	L2	L3	Weight [g]	CRC[1]	Part No.	Type
2	113	96	42	900	2	**542252**	**VABM-P1-SF-G18-2-P3**
3	155	138	84	1,230	2	**542253**	**VABM-P1-SF-G18-3-P3**
4	197	180	126	1,565	2	**542254**	**VABM-P1-SF-G18-4-P3**

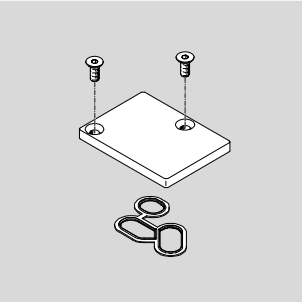
1) Corrosion resistance class 2 as per Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

- Note

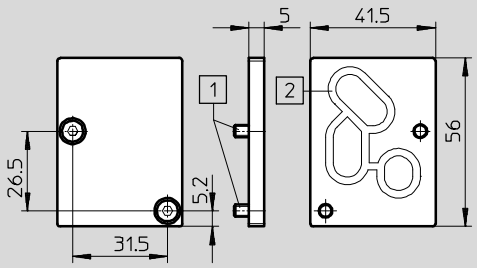
Flanged valves VPPM-6F-... and VPPM-8F-... must be used in combination with the manifold block VABM-P1-....

Blanking plate VABB-P1

Material:
Wrought aluminium alloy, NBR, steel



Dimensions Download CAD data ➔ **www.festo.com**



1 Countersunk screw M4x10 2 Seal VMPA- ...

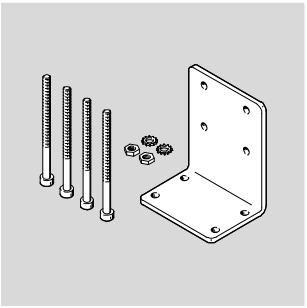
Ordering data

Weight [g]	CRC	Part No.	Type
35	1[1)]	**558350**	**VABB-P1**

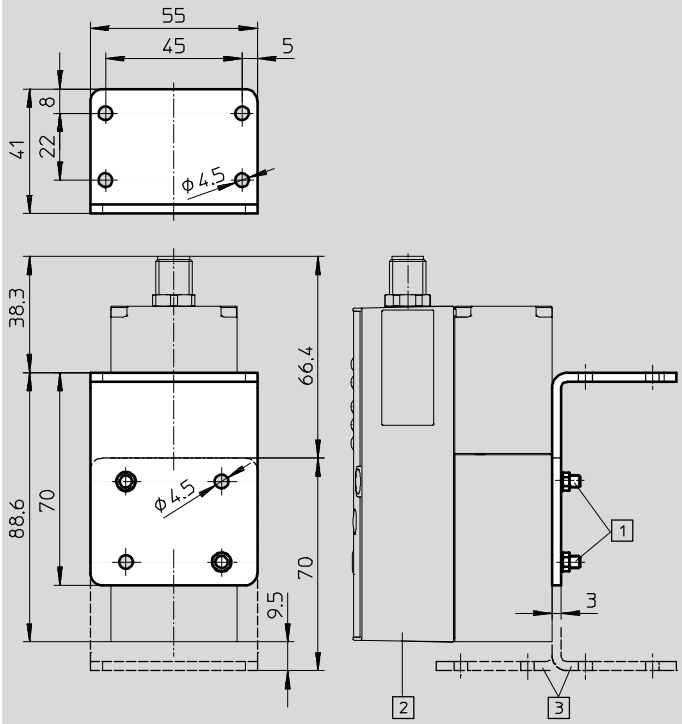
1) Corrosion resistance class 1 as per Festo standard 940 070
Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

Mounting bracket VAME-P1-A

Material:
Wrought aluminium alloy, steel



Dimensions Download CAD data ➔ **www.festo.com**



1 Socket head screw M4

2 Proportional pressure regulator VPPM

3 Mounting bracket can be reversed if required

Ordering data

Weight [g]	CRC	Part No.	Type
71	1[1)]	**542251**	**VAME-P1-A**

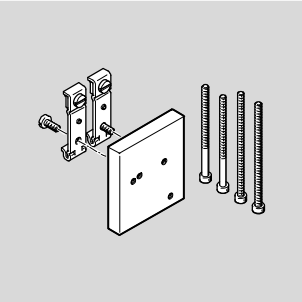
1) Corrosion resistance class 1 as per Festo standard 940 070
Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

Note

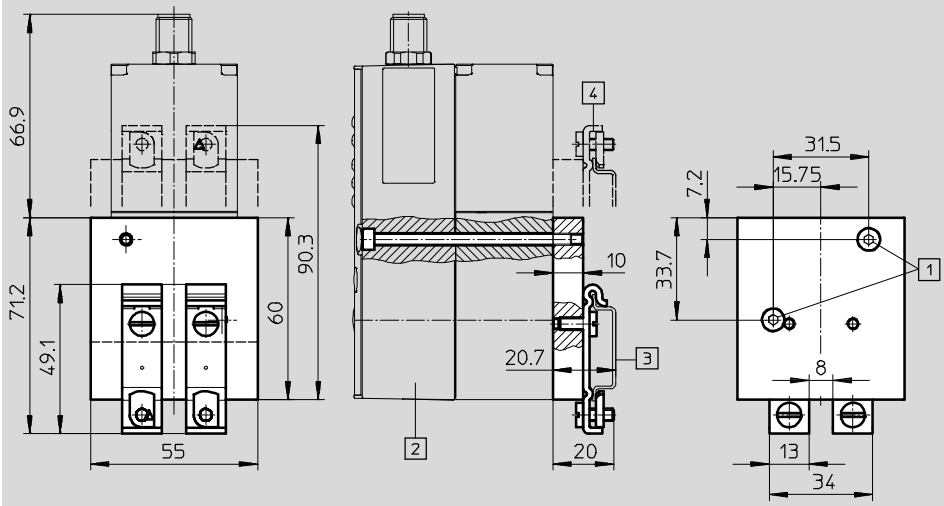
In-line valves VPPM-6L-... and VPPM-8L-... must be used in combination with the bracket VAME-P1-A.

H-rail mounting VAME-P1-T

Material:
Wrought aluminium alloy, steel



Dimensions Download CAD data ➔ **www.festo.com**



1 Socket head screw M4

2 Proportional pressure regulator VPPM

3 H-rail NRH

4 H-rail mounting can be rotated by 180º if required

Ordering data

Weight [g]	CRC	Part No.	Type
150	1[1)]	**542255**	**VAME-P1-T**

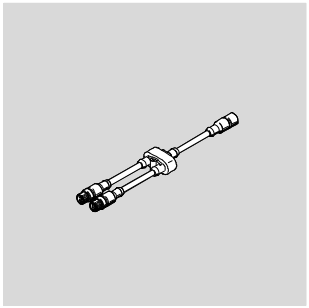
1) Corrosion resistance class 1 as per Festo standard 940 070
Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

- - Note

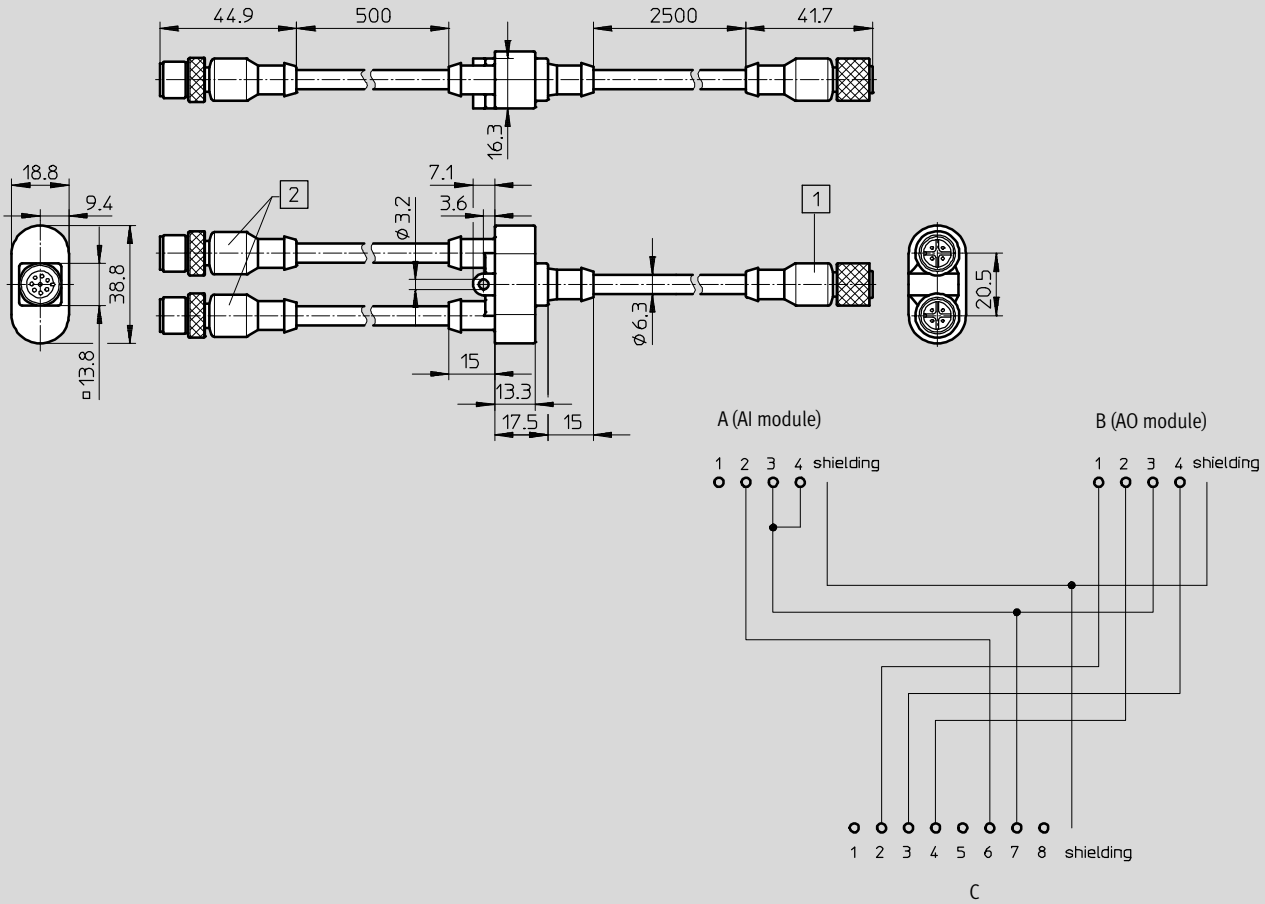
In-line valves VPPM-6L-... and VPPM-8L-... must be used in combination with the H-rail VAME-P1-T.

Plug socket with cable
NEBV-M12G8-KD-3-M12G4

For connecting the VPPM with the analogue input and output modules of the controller CPX.



Dimensions and pin allocation Download CAD data ➔ **www.festo.com**



1 Straight socket, 8-pin, to VPPM

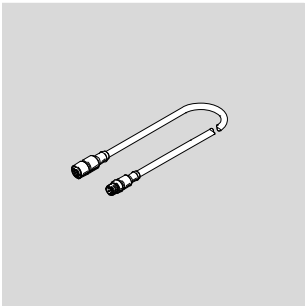
2 Straight plug, 4-pin, to CPX modules

Proportional pressure regulators VPPM

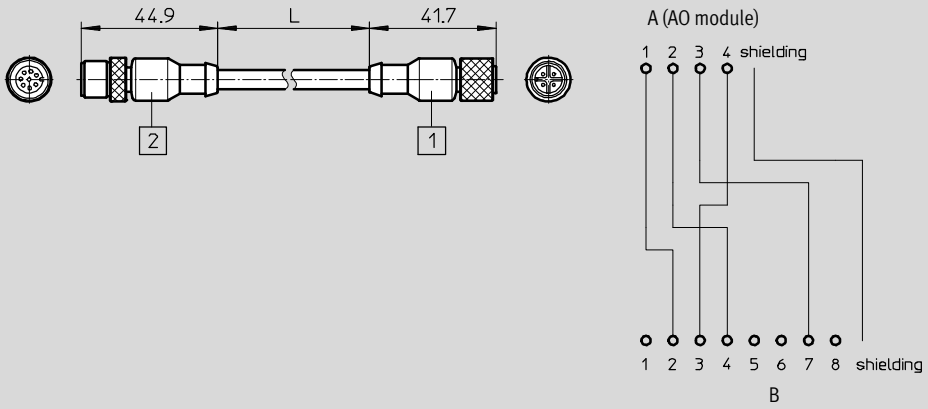
Accessories

Plug socket with cable
NEBV-M12G8-K-2-M12G4
NEBV-M12G8-K-5-M12G4

For connecting the VPPM with the analogue output modules of the controller CPX.

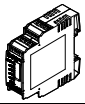


Dimensions and pin allocation Download CAD data ➔ **www.festo.com**



Type	2	1	L1
NEBV-M12G8-K-2-M12G4	Straight socket, M12, 8-pin to VPPM	Straight plug, M12, 4-pin to CPX module	2 m
NEBV-M12G8-K-5-M12G4			5 m

Ordering data

	Description		Part No.	Type
Connecting cable				Technical data ➔ Internet: connecting cable
	Straight socket, 8-pin, M12	2 m	**525616**	**SIM-M12-8GD-2-PU**
		5 m	**525618**	**SIM-M12-8GD-5-PU**
		10 m	**570008**	**SIM-M12-8GD-10-PU**
	Angled socket, 8-pin, M12	2 m	**542256**	**NEBU-M12W8-K-2-N-LE8**
		5 m	**542257**	**NEBU-M12W8-K-5-N-LE8**
		10 m	**570007**	**NEBU-M12W8-K-10-N-LE8**
	One straight socket, 8-pin, and one straight plug, 4-pin	2 m	**553575**	**NEBV-M12G8-K-2-M12G4**
		5 m	**553576**	**NEBV-M12G8-K-5-M12G4**
	One straight socket, 8-pin, and two straight plugs, 4-pin		**547888**	**NEBV-M12G8-KD-3-M12G4**
Setpoint module				Technical data ➔ Internet: mpz
	Generation of 6+1 analogue setpoint values		**546224**	**MPZ-1-24DC-SGH-6-SW5**

Ordering data IO-Link

	Description		Part No.	Type
Connecting cable				Technical data ➔ Internet: connecting cable
	Straight socket, 5-pin, M12x1, protection class IP65, IP68, IP69K	5 m	**574321**	**NEBU-M12G5-E-5-Q8N-M12G5**
		7 m	**574322**	**NEBU-M12G5-E-7.5-Q8N-M12G5**
		10 m	**574323**	**NEBU-M12G5-E-10-Q8N-M12G5**