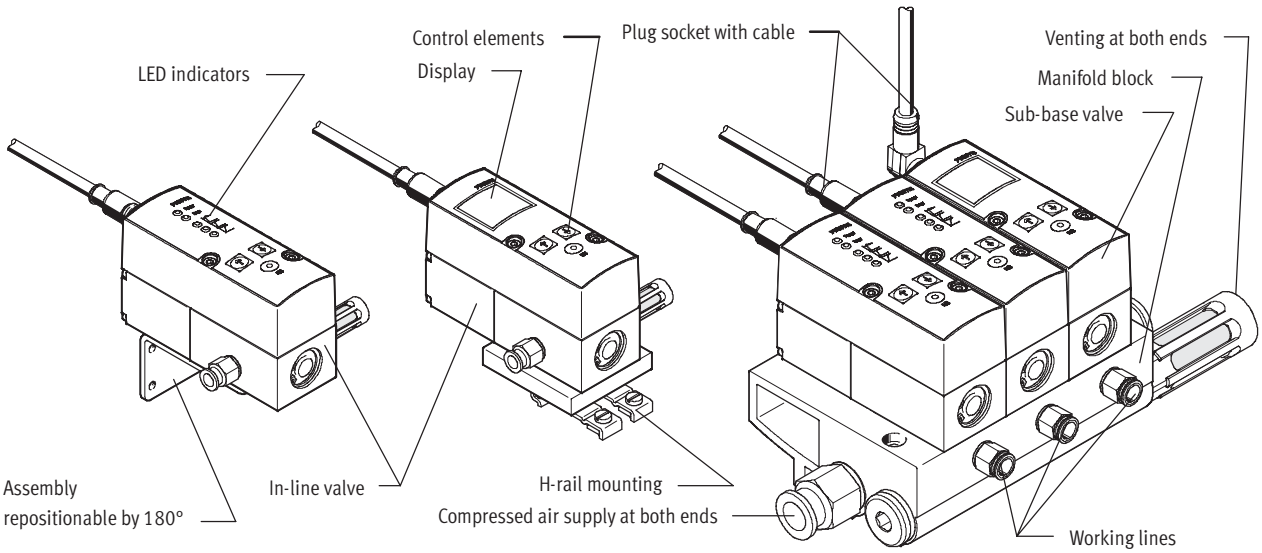
Proportional pressure regulators VPPM

New

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

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

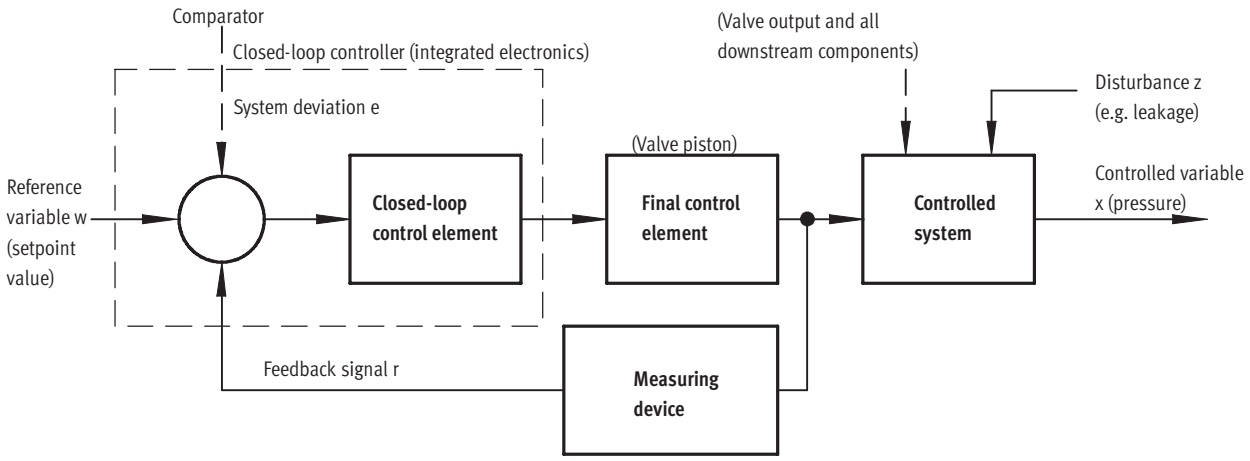
- Manifold block
- H-rail mounting
- Individually via mounting bracket
- QS fittings

Proportional pressure regulators VPPM

General information

FESTO

Layout of a control circuit



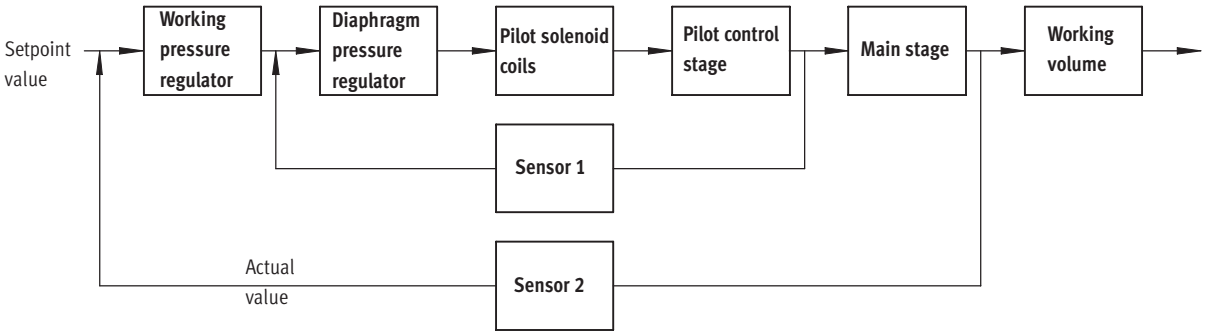
Layout

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

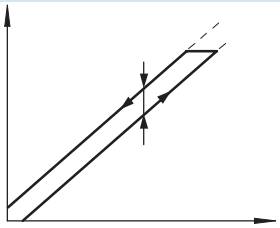
Multi-sensor control significantly improves control precision and dynamic response in comparison with single-acting regulators.

Proportional pressure regulators VPPM

General information

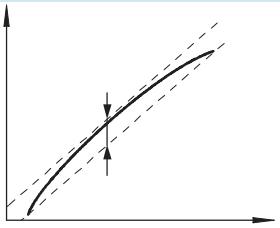
Terms related to the proportional pressure regulator

Hysteresis



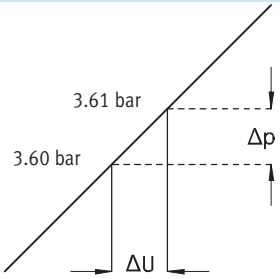
There is always a linear relationship within a certain tolerance between the setpoint value entered and the pressure output. Nevertheless it makes a difference whether the setpoint value is entered as rising or falling. The difference between the maximum deviations is referred to as hysteresis.

Linearity error



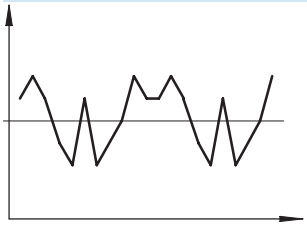
A perfectly linear progression of the control characteristic of the output pressure is theoretical. The maximum percentage deviation from this theoretical control characteristic is referred to as the linearity error. The percentage value refers to the maximum output pressure (full scale).

Response sensitivity



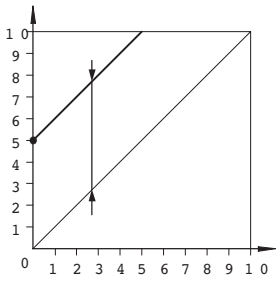
The response sensitivity of the device determines how sensitively one can change, i.e. adjust, a pressure.
The smallest setpoint value difference that results in a change in the output pressure is referred to as the response sensitivity. In this case, 0.01 bar.

Repetition accuracy (reproducibility)



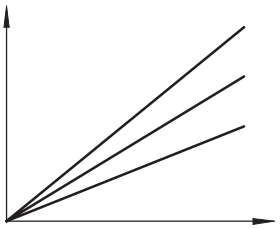
The repetition accuracy is the margin within which the fluid output variables are scattered when the same electrical input signal coming from the same direction is repeatedly adjusted. The repetition accuracy is expressed as a percentage of the maximum fluid output signal.

Zero offset



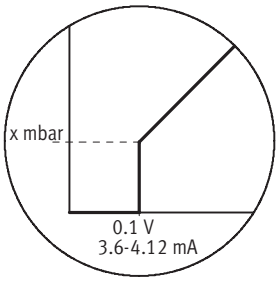
If, for example, a VPPM cannot be vented for safety reasons, the minimum pressure can be increased from the zero point. The smallest setpoint value is then assigned an output pressure of 5 bar, for example, and the largest setpoint value an output pressure of 10 bar. Zero suppression is automatically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



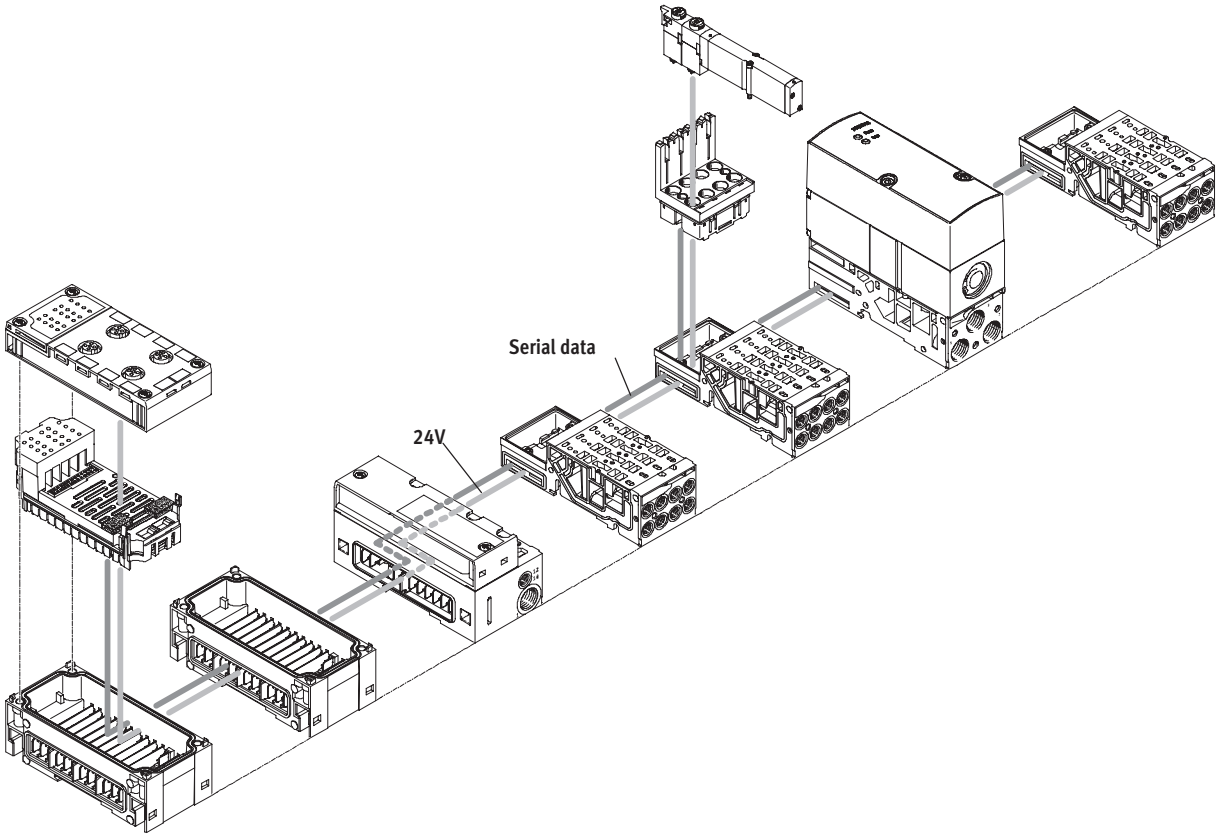
In practice there exists the possibility of residual voltage or residual current at the setpoint input of the VPPM via the setpoint generator.
Zero point suppression is used so that the valve is reliably vented at a setpoint value of zero.

Proportional pressure regulators VPPM

General information

FESTO

VPPM on the valve terminal MPA



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

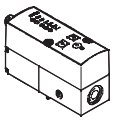
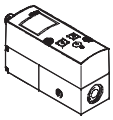
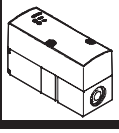
Easy to mount

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

New

Proportional pressure regulators VPPM

Product range overview

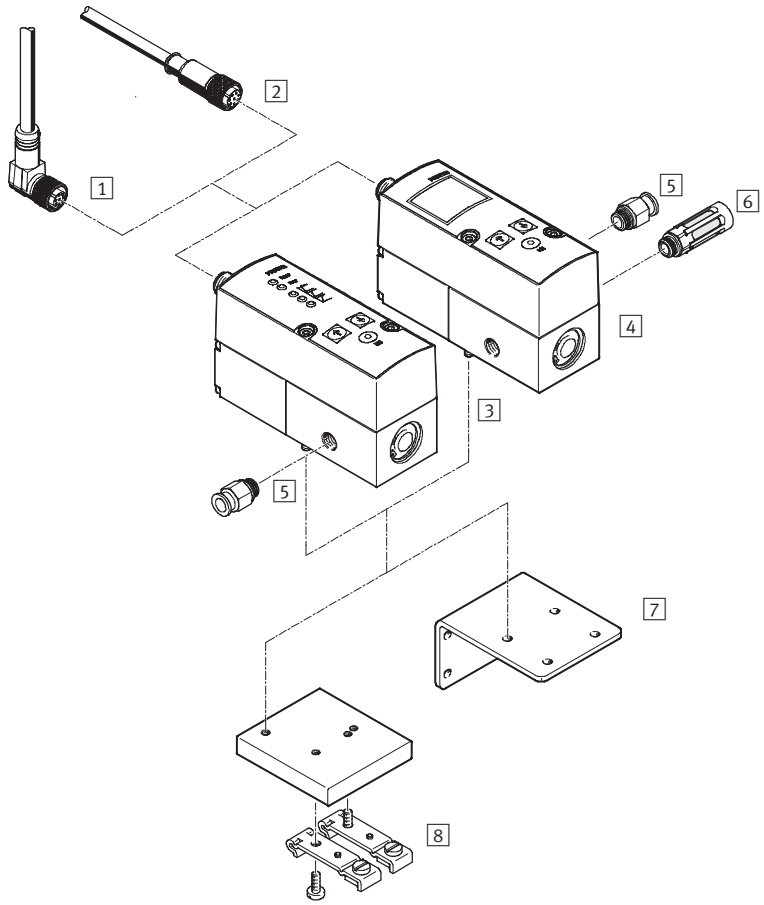
Function	Version	Construc-tional design	Pneumatic connection 1, 2, 3	Nominal diameter pressurise/ exhaust [mm]	Pressure regulation range [bar]	Setpoint value input			→ Page/ Internet
						Voltage type 0 ... 10 V	Current type 4 ... 20 mA	Digital –	
Pressure regulators	**With LED**								
		Pilot actuated diaphragm valve	G⅛	6/4.5	0.02 ... 2 0.06 ... 6 0.1 ... 10	■	■	–	11
			Sub-base	6/4.5	0.02 ... 2 0.06 ... 6 0.1 ... 10	■	■	–	
	With LCD								
		Pilot actuated diaphragm valve	G⅛	6/4.5	0.02 ... 2 0.06 ... 6 0.1 ... 10	■	■	–	11
			Sub-base	6/4.5	0.02 ... 2 0.06 ... 6 0.1 ... 10	■	■	–	
	With LED for valve terminal MPA								
		Pilot actuated diaphragm valve	Manifold block MPA	6/4.5	0.02 ... 2 0.06 ... 6 0.1 ... 10	–	–	■	11

Proportional pressure regulators VPPM

Peripherals overview

FESTO

Individual valve



Accessories

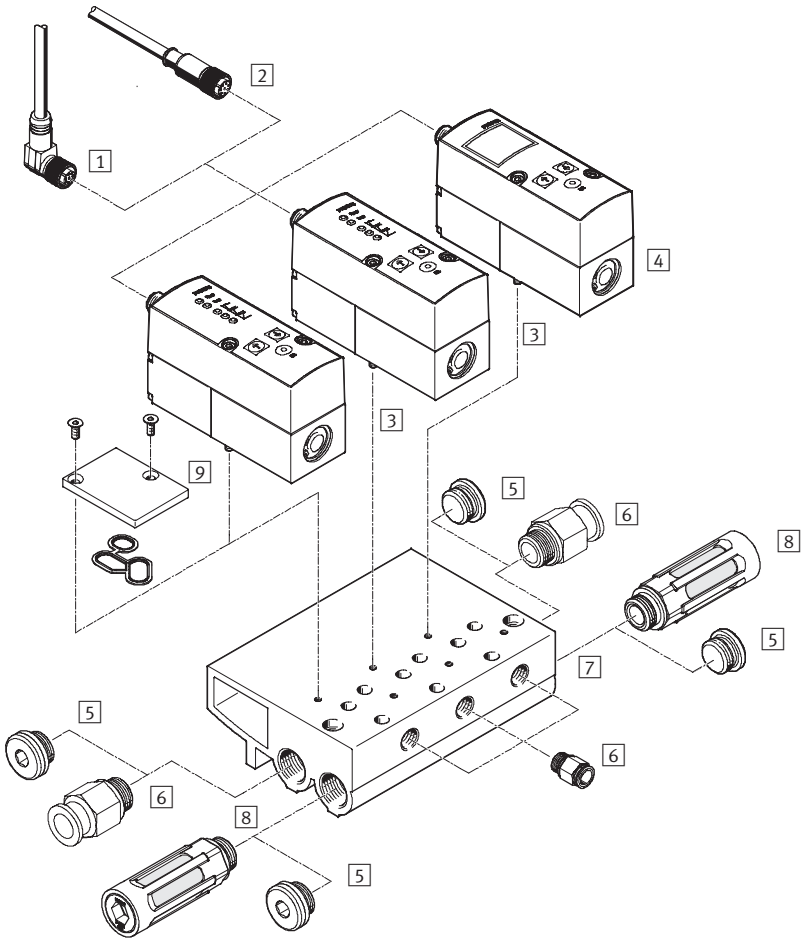
		Brief description	→ Page/Internet
1	Plug socket with cable, angled NEBU-M12W8-...	–	23
2	Plug socket with cable, straight SIM-M12-8GD-...	–	23
3	Proportional pressure regulator VPPM	Operator unit with LED	11
4	Proportional pressure regulator VPPM	Operator unit with LCD	11
5	Push-in fitting QS	For connecting compressed air tubing with standard outside diameter	qs
6	Silencer	For fitting on exhaust ports	u
7	Mounting bracket VAME-P1-A	For attaching the valve	20
8	H-rail mounting VAME-P1-T	For mounting on a H-rail	18

Proportional pressure regulators VPPM

Peripherals overview

FESTO

Valve manifold



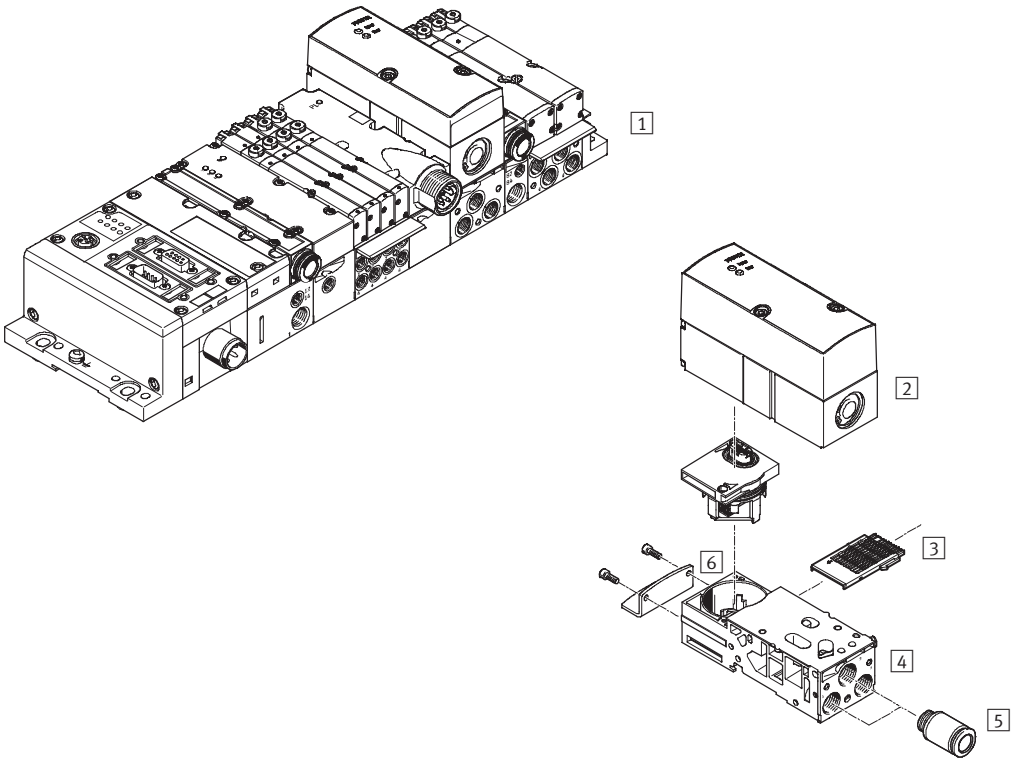
Accessories

	Brief description	→ Page/Internet
1 Plug socket with cable, angled NEBU-M12W8-...	–	23
2 Plug socket with cable, straight SIM-M12-8GD-...	–	23
3 Proportional pressure regulator VPPM	Operator unit with LED	11
4 Proportional pressure regulator VPPM	Operator unit with LCD	11
5 Blanking plug B	–	b
6 Push-in fitting QS	For connecting compressed air tubing with standard outside diameter	qs
7 Manifold block VABM	–	18
8 Silencer	For fitting on exhaust ports	u
9 Blanking plate VABB-P1	For vacant position; seal and countersunk screws included in the scope of delivery	19

Proportional pressure regulators VPPM

System overview

VPPM for valve terminal MPA

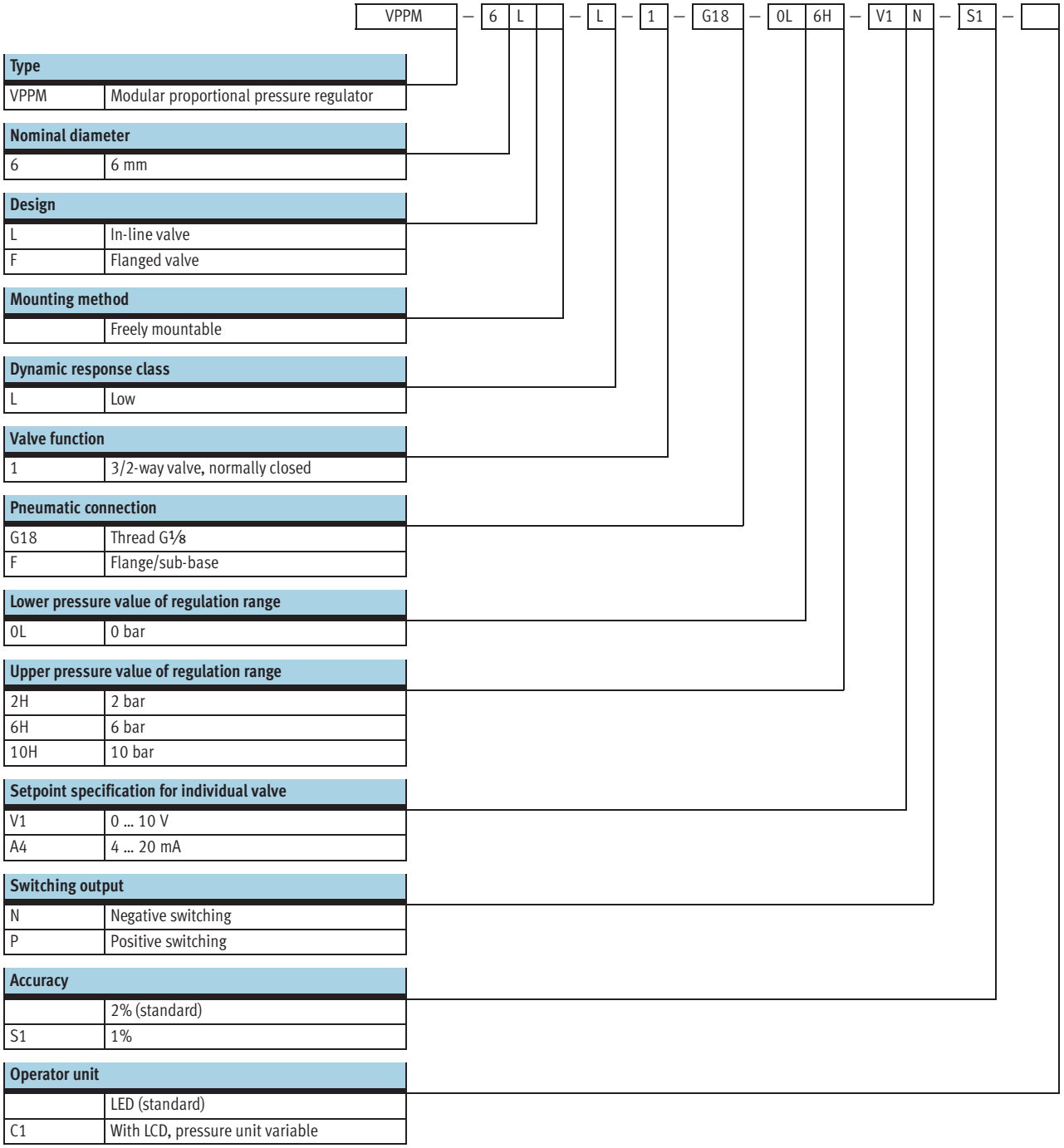


Accessories

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

Proportional pressure regulators VPPM

Type codes



Type	
VPPM	Modular proportional pressure regulator

Nominal diameter	
6	6 mm

Design	
L	In-line valve
F	Flanged valve

Mounting method	
	Freely mountable

Dynamic response class	
L	Low

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

Pneumatic connection	
G18	Thread G1/8
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

Setpoint specification for individual valve	
V1	0 ... 10 V
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 ... 1,400 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
- Integration in valve terminal via fieldbus

General technical data

			G1⁄8	Sub-base	Valve terminal MPA
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		
	Exhaust	[mm]	4.5		
Standard nominal flow rate		[l/min]	➔ Graphs		
Product weight		[g]	400		

Electrical data

			G1⁄8	Sub-base	Valve terminal MPA
Electrical connection			Plug, round design, 8-pin, M12		Terminal linking
Operating voltage range		[V DC]	24 ± 10% = 21.6 ... 26.4		
Residual ripple			10%		
Max. electrical power consumption		[W]	7		
Signal setpoint input	Voltage	[V DC]	0 ... 10		Digitally via fieldbus
	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			EU conformity in accordance with the directive 89/336/EEC (EMC)		

Note

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

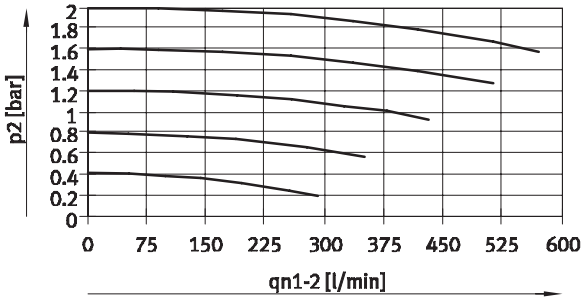
Proportional pressure regulators VPPM

Technical data

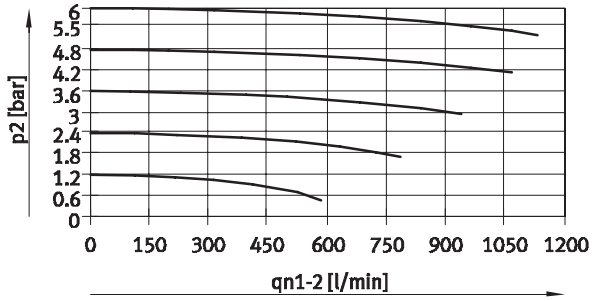
FESTO

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

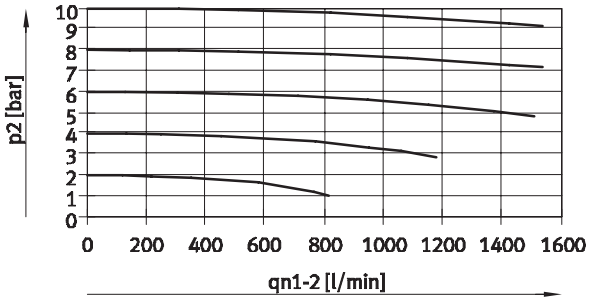
VPPM-6L-...-0L2H-... (2 bar)



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

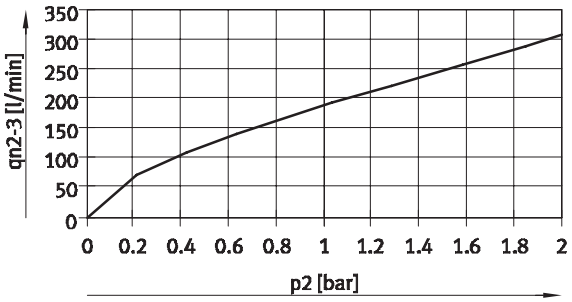


VPPM-6L-...-0L10H-... (10 bar)

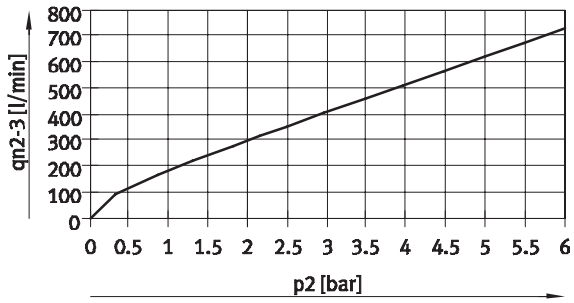


Flow rate qn from 2 → 3 as a function of output pressure p2

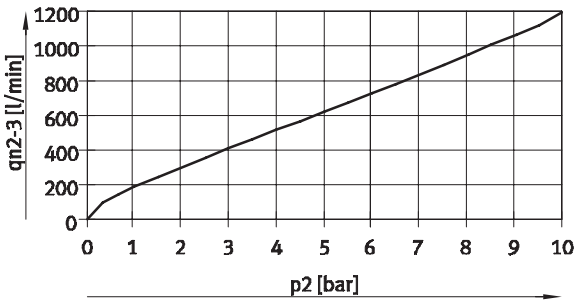
VPPM-6L-...-0L2H-... (2 bar)



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



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



Proportional pressure regulators VPPM

Technical data

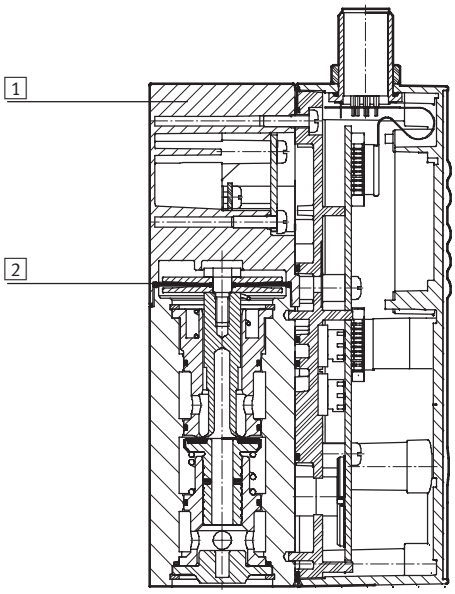
Operating and environmental conditions				
Pressure regulation range	[bar]	0.02 ... 2	0.06 ... 6	0.1 ... 10
Operating medium		Compressed air, filtered, unlubricated, grade of filtration 40 µm Neutral gases		
Supply pressure 1	[bar]	2 [2)] ... 4	2 [2)] ... 8	2 [2)] ... 11
Max. hysteresis	[mbar]	10	30	50
FS (full scale) linearity error	[%]	± 0.5		
FS (full scale) repetition accuracy	[%]	0.5		
Temperature coefficient	[%/°C]	0.04/1		
Ambient temperature	[°C]	0 ... 60		
Temperature of medium	[°C]	10 ... 50		
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



1	Housing	Wrought aluminium alloy
2	Diaphragm	Nitrile rubber

Proportional pressure regulators VPPM

Technical data

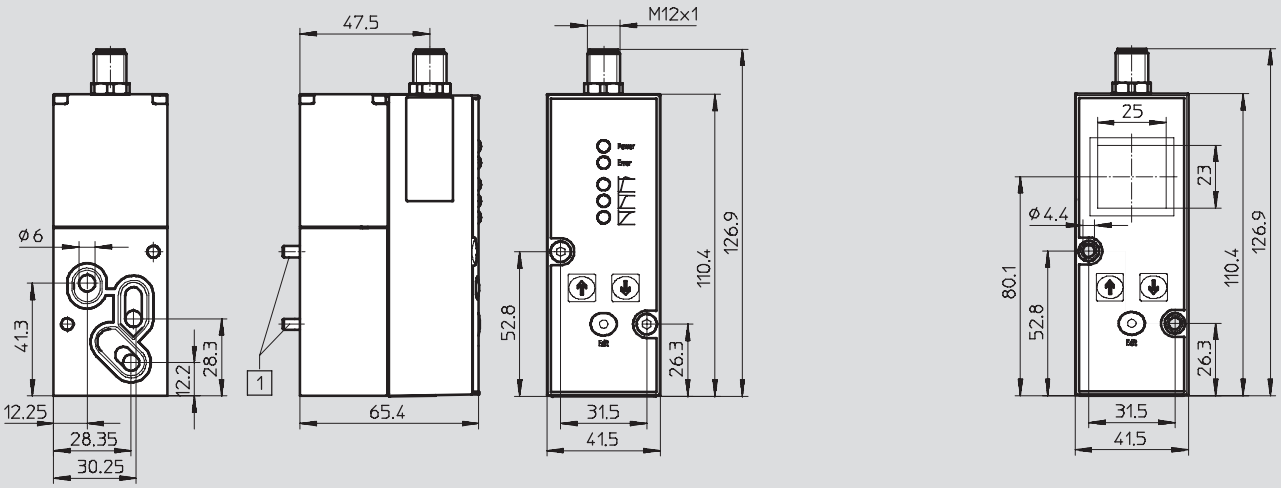
FESTO

Dimensions

Download CAD data ➔ **www.festo.com**

VPPM-6F

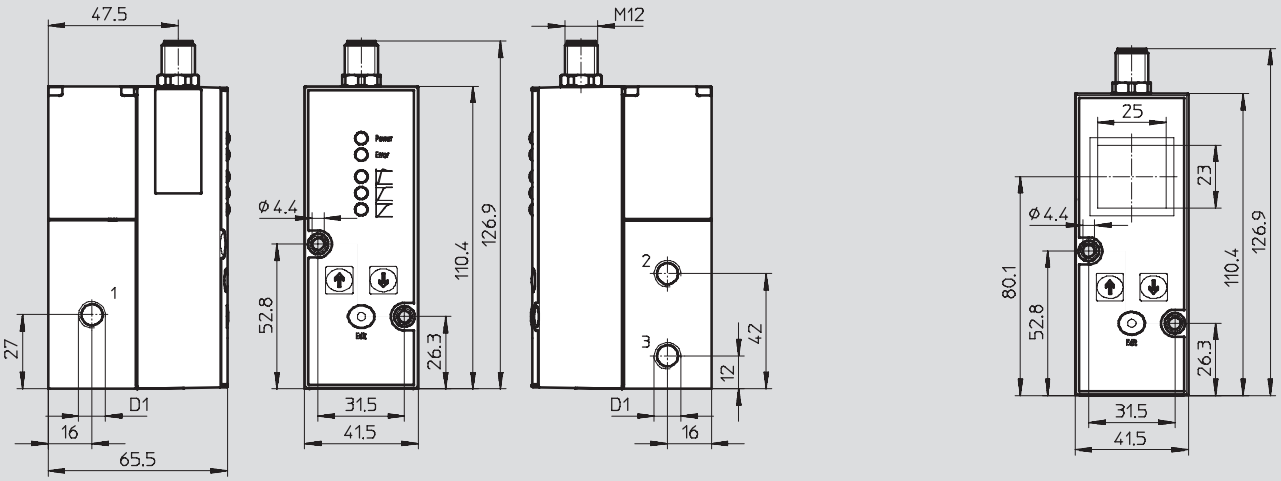
With LCD



1 Socket head screw M4x65

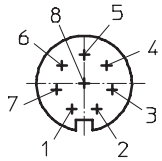
VPPM-6L

With LCD



D1 = G1/8

M12 – Pin allocation



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

Proportional pressure regulators VPPM

Technical data

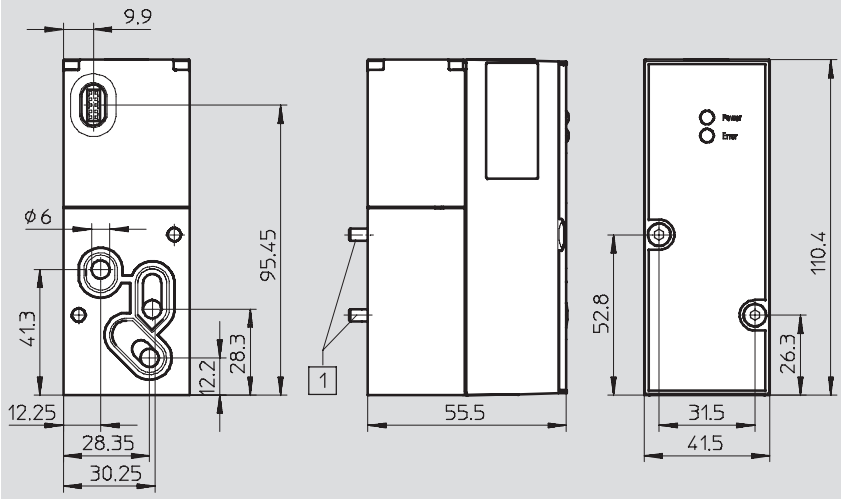
Ordering data					
Pneumatic connection	Pressure regulation range [bar]	Voltage type 0 ... 10 V Part No.	Type	Current type 4 ... 20 mA Part No.	Type
Overall accuracy 2%					
G1/8	0.02 ... 2	542233	VPPM-6L-L-1-G18-0L2H-V1N	542236	VPPM-6L-L-1-G18-0L2H-A4N
	0.06 ... 6	542234	VPPM-6L-L-1-G18-0L6H-V1N	542237	VPPM-6L-L-1-G18-0L6H-A4N
		554043	VPPM-6L-L-1-G18-0L6H-V1P	554045	VPPM-6L-L-1-G18-0L6H-A4P
		558337	VPPM-6L-L-1-G18-0L6H-V1P-C1	558338	VPPM-6L-L-1-G18-0L6H-A4P-C1
	0.1 ... 10	542235	VPPM-6L-L-1-G18-0L10H-V1N	542238	VPPM-6L-L-1-G18-0L10H-A4N
		554044	VPPM-6L-L-1-G18-0L10H-V1P	554046	VPPM-6L-L-1-G18-0L10H-A4P
Sub-base	0.02 ... 2	542245	VPPM-6F-L-1-F-0L2H-V1N	542248	VPPM-6F-L-1-F-0L2H-A4N
	0.06 ... 6	542246	VPPM-6F-L-1-F-0L6H-V1N	542249	VPPM-6F-L-1-F-0L6H-A4N
		558339	VPPM-6F-L-1-F-0L6H-V1P-C1	558340	VPPM-6F-L-1-F-0L6H-A4P-C1
		558347	VPPM-6F-L-1-F-0L6H-V1N-C1		
	0.1 ... 10	542247	VPPM-6F-L-1-F-0L10H-V1N	542250	VPPM-6F-L-1-F-0L10H-A4N
Overall accuracy 1%					
G1/8	0.02 ... 2	542227	VPPM-6L-L-1-G18-0L2H-V1N-S1	542230	VPPM-6L-L-1-G18-0L2H-A4N-S1
	0.06 ... 6	542228	VPPM-6L-L-1-G18-0L6H-V1N-S1	542231	VPPM-6L-L-1-G18-0L6H-A4N-S1
		554039	VPPM-6L-L-1-G18-0L6H-V1P-S1	554041	VPPM-6L-L-1-G18-0L6H-A4P-S1
	0.1 ... 10	542229	VPPM-6L-L-1-G18-0L10H-V1N-S1	542232	VPPM-6L-L-1-G18-0L10H-A4N-S1
		554040	VPPM-6L-L-1-G18-0L10H-V1P-S1	554042	VPPM-6L-L-1-G18-0L10H-A4P-S1
		558335	VPPM-6L-L-1-G18-0L10H-V1P-S1-C1	558336	VPPM-6L-L-1-G18-0L10H-A4P-S1-C1
Sub-base	0.02 ... 2	542239	VPPM-6F-L-1-F-0L2H-V1N-S1	542242	VPPM-6F-L-1-F-0L2H-A4N-S1
	0.06 ... 6	542240	VPPM-6F-L-1-F-0L6H-V1N-S1	542243	VPPM-6F-L-1-F-0L6H-A4N-S1
	0.1 ... 10	542241	VPPM-6F-L-1-F-0L10H-V1N-S1	542244	VPPM-6F-L-1-F-0L10H-A4N-S1

Note

Further variants can be ordered using the modular system.
➔ 16
VPPM for MPA fieldbus variant must be ordered together with the valve terminal.

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

VPPM for valve terminal MPA



1 Socket head screw M4x55

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 F		L		1		G18 F
Order example										
543432	**VPPM**	–	**6**	**F**	–	**L**	–	**1**	–	**F**

Ordering table

Size		6	Condi-tions	Code		Enter code
M	Module No.	**543 432**				
	Design	Modular pressure regulator		**VPPM**		VPPM
	Nominal diameter	6		**-6**		-6
	Valve type	In-line	1	**L**		
		Flanged valve	2	**F**		
	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**		
↓		Flange/sub-base		**-F**		

1 **L** Only with connection type G18 (G⅛ thread)

2 **F** Only with connection type F (flange/sub-base)

Transfer 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	P N		S1	C1
–		**6.5L**	**7.1H**	–	**A4**	**P**	–	**S1**	**C1**

Ordering table

	Size	6	Condi-tions	Code		Enter code
↓	Pressure regulation range	0 ... 2 bar		**-0L2H**		
M		0 ... 6 bar		**-0L6H**		
		0 ... 10 bar		**-0L10H**		
	Alternative lower pressure regulation range	0.1 ... 10 bar	3	**-...L**		
	Alternative upper pressure regulation range	0.1 ... 10 bar	4	**...H**		
	Setpoint specification	Voltage (standard 0 ... 10 V)		**-V1**		
		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**		

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

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

Transfer order code

–				–			–		

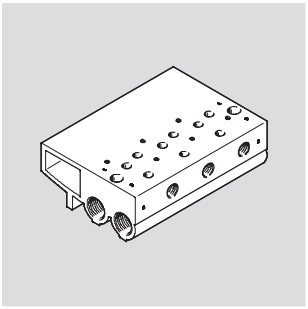
Proportional pressure regulators VPPM

Accessories

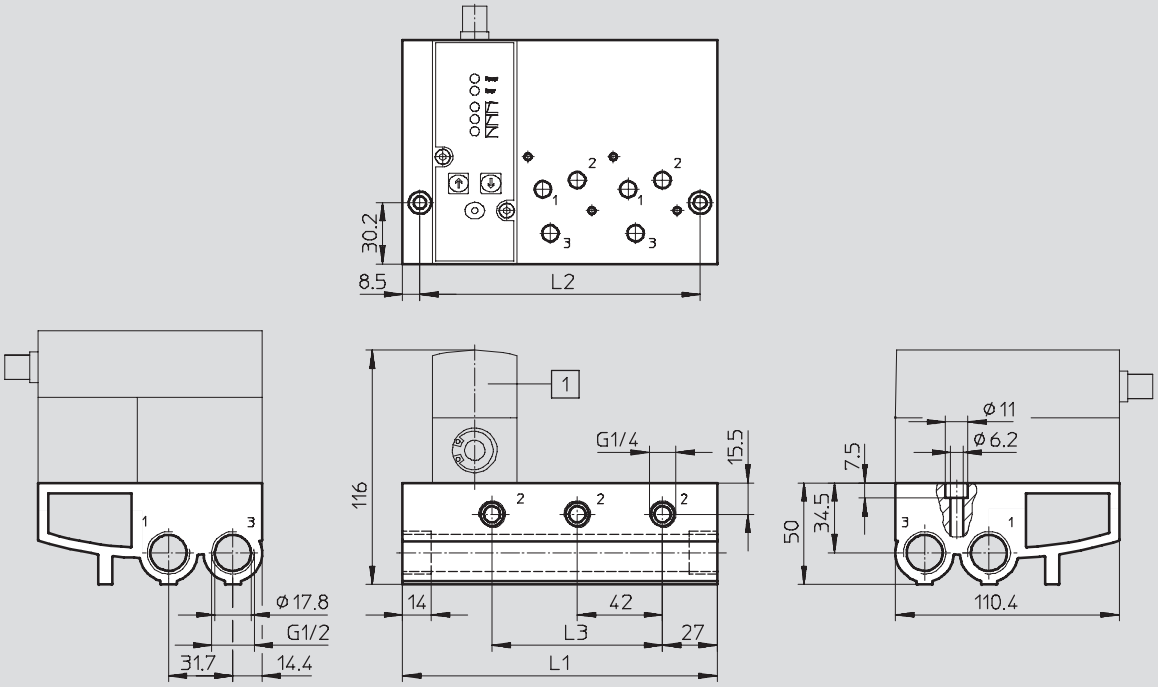
FESTO

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.

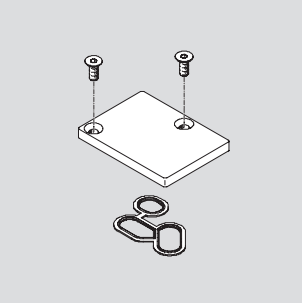
Proportional pressure regulators VPPM

Accessories

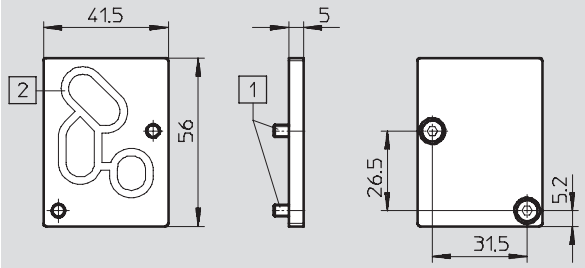
FESTO

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.

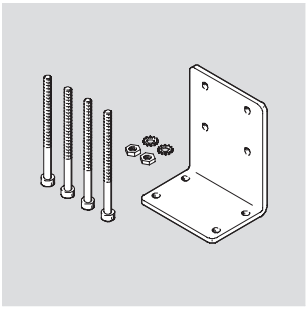
Proportional pressure regulators VPPM

Accessories

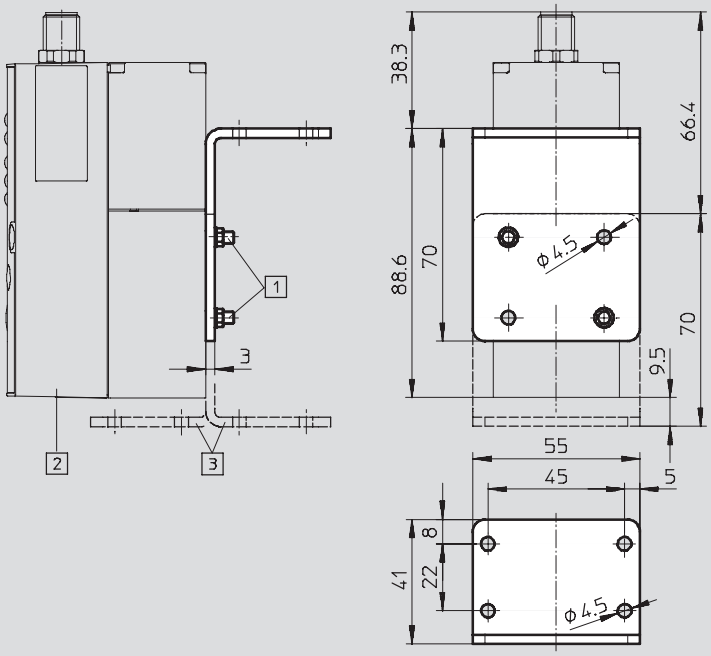
FESTO

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.

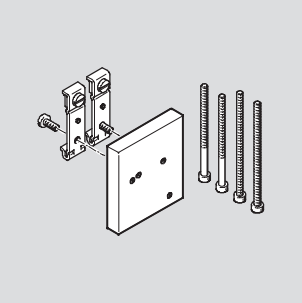
Proportional pressure regulators VPPM

Accessories

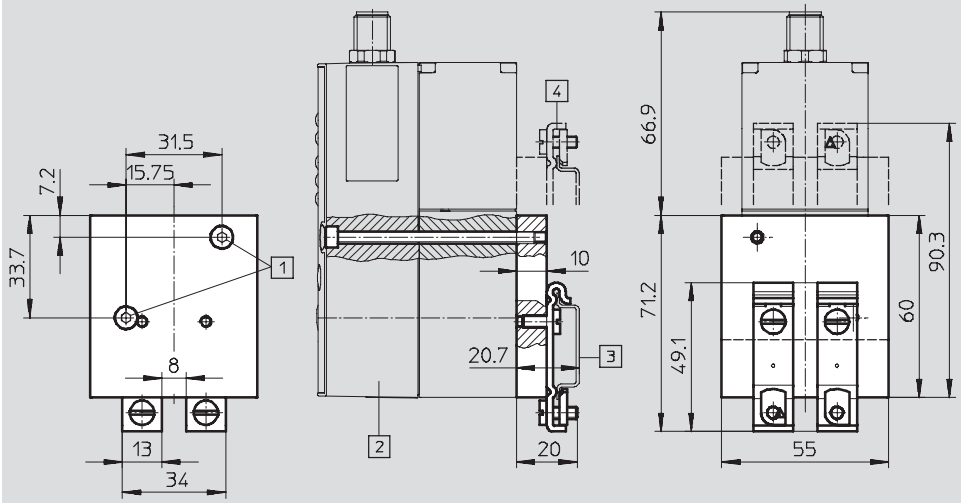
FESTO

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**

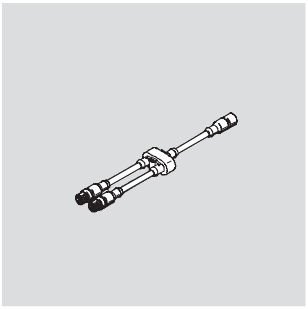
1) Corrosion resistance class 1 as per Festo standard 940 070
Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

Proportional pressure regulators VPPM

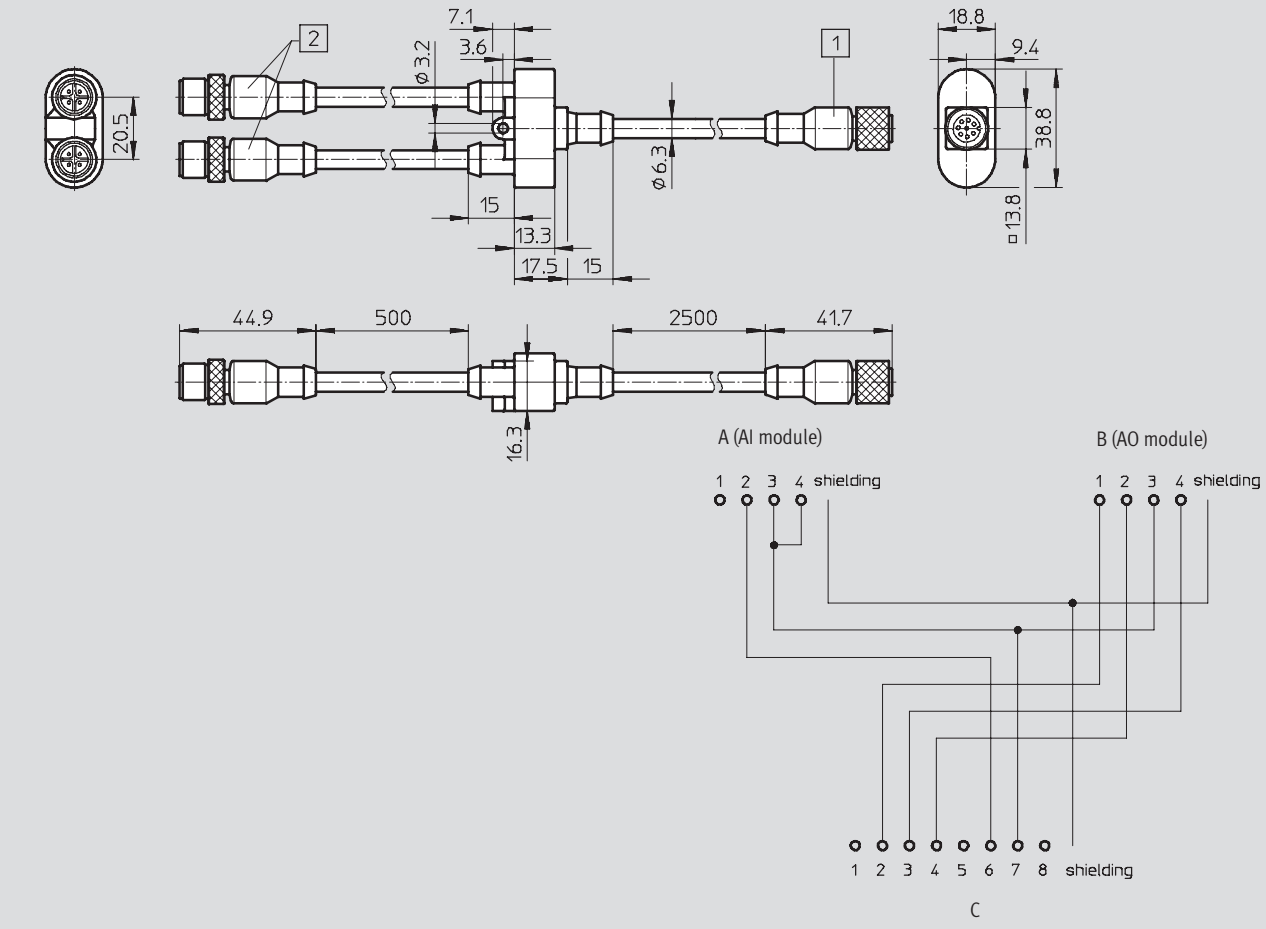
Accessories

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

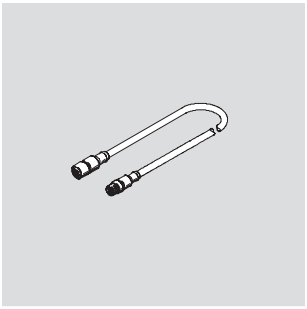
Proportional pressure regulators VPPM

Accessories

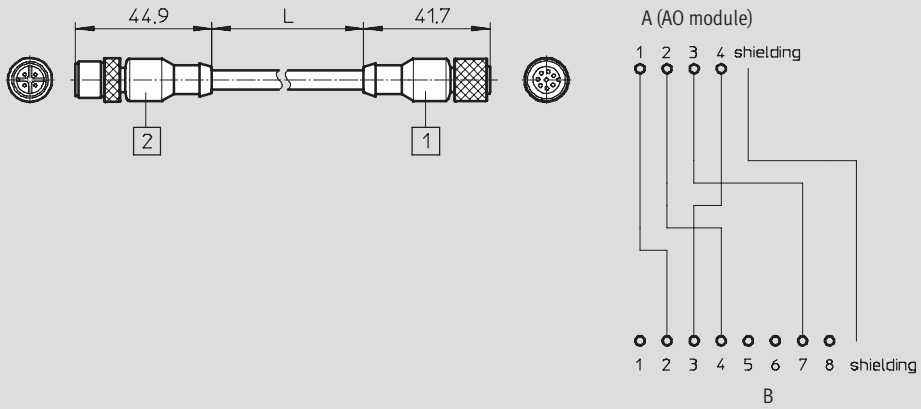
FESTO

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.

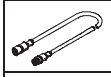
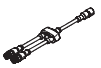
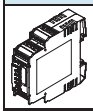


Dimensions and pin allocation Download CAD data ➔ **www.festo.com**



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	Cable length [m]	Part No.	Type
Plug socket with cable			Technical data ➔ Internet: plug socket with cable	
	Straight socket, 8-pin, M12	2	**525616**	**SIM-M12-8GD-2-PU**
		5	**525618**	**SIM-M12-8GD-5-PU**
		10	**570008**	**SIM-M12-8GD-10-PU**
	Angled socket, 8-pin, M12	2	**542256**	**NEBU-M12W8-2-N-LE8**
		5	**542257**	**NEBU-M12W8-5-N-LE8**
		10	**570007**	**NEBU-M12W8-10-N-LE8**
	One straight socket, 8-pin, and one straight plug, 4-pin	2	**553575**	**NEBV-M12G8-K-2-M12G4**
		5	**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**

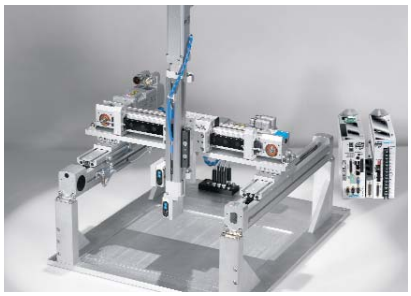
Product Range and Company Overview

A Complete Suite of Automation Services

Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.

Custom Automation Components
Complete custom engineered solutions

Custom Control Cabinets
Comprehensive engineering support and on-site services



Complete Systems
Shipment, stocking and storage services

The Broadest Range of Automation Components

With a comprehensive line of more than 30,000 automation components, Festo is capable of solving the most complex automation requirements.

Electromechanical
Electromechanical actuators, motors, controllers & drives

Pneumatics
Pneumatic linear and rotary actuators, valves, and air supply

PLCs and I/O Devices
PLC's, operator interfaces, sensors and I/O devices

Supporting Advanced Automation... As No One Else Can!
Festo is a leading global manufacturer of pneumatic and electromechanical systems, components and controls for industrial automation, with more than 12,000 employees in 56 national headquarters serving more than 180 countries. For more than 80 years, Festo has continuously elevated the state of manufacturing with innovations and optimized motion control solutions that deliver higher performing, more profitable automated manufacturing and processing equipment. Our dedication to the advancement of automation extends beyond technology to the education and development of current and future automation and robotics designers with simulation tools, teaching programs, and on-site services.

Quality Assurance, ISO 9001 and ISO 14001 Certifications

Festo Corporation is committed to supply all Festo products and services that will meet or exceed our customers' requirements in product quality, delivery, customer service and satisfaction.

To meet this commitment, we strive to ensure a consistent, integrated, and systematic approach to management that will meet or exceed the requirements of the ISO 9001 standard for Quality Management and the ISO 14001 standard for Environmental Management.

Printed on recycled paper at New Horizon Graphic, Inc., FSC certified as an environmentally friendly printing plant.

Festo North America

Festo Regional Contact Center

5300 Explorer Drive
Mississauga, Ontario L4W 5G4
Canada

USA Customers:

For ordering assistance,
Call: 1.800.99.FESTO (1.800.993.3786)
Fax: 1.800.96.FESTO (1.800.963.3786)
Email: customer.service@us.festo.com

For technical support,
Call: 1.866.GO.FESTO (1.866.463.3786)
Fax: 1.800.96.FESTO (1.800.963.3786)
Email: product.support@us.festo.com

Canadian Customers:

Call: 1.877.GO.FESTO (1.877.463.3786)
Fax: 1.877.FX.FESTO (1.877.393.3786)
Email: festo.canada@ca.festo.com

USA Headquarters

Festo Corporation
395 Moreland Road
P.O. Box 18023
Hauppauge, NY 11788, USA
www.festo.com/us

USA Sales Offices

Appleton
North 922 Tower View Drive, Suite N
Greenville, WI 54942, USA

Boston
120 Presidential Way, Suite 330
Woburn, MA 01801, USA

Chicago
1441 East Business Center Drive
Mt. Prospect, IL 60056, USA

Dallas
1825 Lakeway Drive, Suite 600
Lewisville, TX 75057, USA

Detroit – Automotive Engineering Center
2601 Cambridge Court, Suite 320
Auburn Hills, MI 48326, USA

New York
395 Moreland Road
Hauppauge, NY 11788, USA

Silicon Valley
4935 Southfront Road, Suite F
Livermore, CA 94550, USA

United States

USA Headquarters, East: Festo Corp., 395 Moreland Road, Hauppauge, NY 11788
Phone: 1.631.435.0800; Fax: 1.631.435.8026;
Email: info@festo-usa.com **www.festo.com/us**

Canada

Headquarters: Festo Inc., 5300 Explorer Drive, Mississauga, Ontario L4W 5G4
Phone: 1.905.624.9000; Fax: 1.905.624.9001;
Email: festo.canada@ca.festo.com **www.festo.ca**

Mexico

Headquarters: Festo Pneumatic, S.A., Av. Ceylán 3, Col. Tequesquinahuac,
54020 Tlalnepantla, Edo. de México
Phone: 011 52 [55] 53 21 66 00; Fax: 011 52 [55] 53 21 66 65;
Email: festo.mexico@mx.festo.com **www.festo.com/mx**

Central USA
Festo Corporation
1441 East Business
Center Drive
Mt. Prospect, IL 60056, USA
Phone: 1.847.759.2600
Fax: 1.847.768.9480

Western USA
Festo Corporation
4935 Southfront Road,
Suite F
Livermore, CA 94550, USA
Phone: 1.925.371.1099
Fax: 1.925.245.1286

Festo Worldwide

Argentina Australia Austria Belarus Belgium Brazil Bulgaria Canada Chile China Colombia Croatia Czech Republic Denmark Estonia Finland France Germany Great Britain Greece Hong Kong Hungary India Indonesia Iran Ireland Israel Italy Japan Latvia Lithuania Malaysia Mexico Netherlands New Zealand Norway Peru Philippines Poland Romania Russia Serbia Singapore Slovakia Slovenia South Africa South Korea Spain Sweden Switzerland Taiwan Thailand Turkey Ukraine United States Venezuela

www.festo.com