Proportional pressure regulator VPPX

Characteristics

At a glance

Innovative:
- Multi-sensor control (cascade control)
- Control characteristic is adjustable via FCT
- Temperature-compensated
- High dynamic response
- High repetition accuracy

Flexible:
- Sub-base valves (manifold/flanged valve)
- Actual value input for external sensors
- Limit value is freely adjustable
- Possible to control many physical variables
- Current or voltage can be adjusted individually via FCT

Operationally safe:
- Integrated pressure sensor with separate output
- Cable break monitoring
- Pressure is maintained if the controller fails
- LED indicator

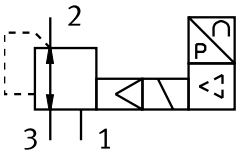
Easy to assemble:
- H-rail mounting
- Individually with mounting bracket
- Mounting bracket can be fitted in increments of 180°
- Compressed air supply/exhaust on both sides

Parameterisation:
- The proportional valve VPPX can be parameterised using the Festo Configuration Tool. The Festo Configuration Tool can be downloaded from the Support Portal.
- The connection between the PC and the proportional valve VPPX is via a programming cable (VAVE) and the adapter (NEFC-M12G5-0.3-U1G5). A conventional USB connecting cable is required to connect the adapter to the PC.

Sensor connection:
- The DUO cable makes it easy to connect an external sensor to the VPPX. The sensor and valve signals are pre-assigned to ensure a reliable connection.

Valve function

[3] 3-way valve



Diagrams

Link vppx

The diagrams shown in this document are also available online. These can be used to display precise values.

Type code

001	Nominal width [mm]	
6	6	
8	8	
12	12	

002	Directional control valve type	
L	In-line valve	
F	Flanged valve	

003	Dynamic response	
L	Low	

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

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

006	Lower pressure value of control range	
0L	0 bar	

007	Upper pressure value of control range	
10H	10 bar	

008	Overall accuracy	
S1	1 %	

Datasheet

General technical data

Pneumatic connection, port 1	Sub-base		G1/8	G1/4	G1/2
Standard nominal flow rate (standardised to DIN 1343)	1,400 l/min	1,650 l/min	1,400 l/min	2,750 l/min	7,000 l/min
Valve function	3-way proportional pressure regulator				
Design	Piloted diaphragm regulator				
Sealing principle	Soft				
Type of actuation	Electric				
Type of piloting	Pilot actuated				
Type of reset	Mechanical spring				
Type of mounting	Either: With through-hole With accessories				
Mounting position	optional				
Nominal size, supply	6 mm	8 mm	6 mm	8 mm	12 mm
Nominal size, exhaust	4.5 mm	7 mm	4.5 mm	7 mm	12 mm
Product weight	400 g	560 g	400 g	560 g	2,050 g

Electrical data

Pneumatic connection, port 1	Sub-base	G1/8	G1/4	G1/2
Electrical connection	8-pin, M12, Plugs			
Operational voltage range DC	21.6 ... 26.4 V			
Residual ripple	10%			
Duty cycle	100%			
Max. electrical power consumption	7 W			12 W
Signal range analogue input	0 - 10 V 4 - 20 mA 0 - 20 mA			
Signal range analogue output	0 - 10 V 0 - 20 mA 4 - 20 mA			
Short circuit current rating	For all electrical connections			
Reverse polarity protection	For all electrical connections			
Degree of protection	IP65			

Operating and environmental conditions

Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases
Note on operating and pilot medium	Lubricated operation not possible
Inlet pressure 1 [1]	0 ... 11 bar
Pressure regulation range	0.1 ... 10 bar
Max. pressure hysteresis	0.05 bar
Linearity error in ± %FS	–
Repetition accuracy in ± %FS	0.5 %FS
Temperature cooefficient	0.04 %/K
Ambient temperature	0 ... 60°C
Media temperature	10 ... 50°C
Note on materials	RoHS-compliant
Corrosion resistance class CRC [2]	2 - Moderate corrosion stress
CE mark (see declaration of conformity) [3]	To EU EMC Directive In accordance with EU RoHS Directive
Approval	RCM trademark c UL us listed (OL)

1) The input pressure 1 should always be 1 bar greater than the maximum regulated outlet pressure.

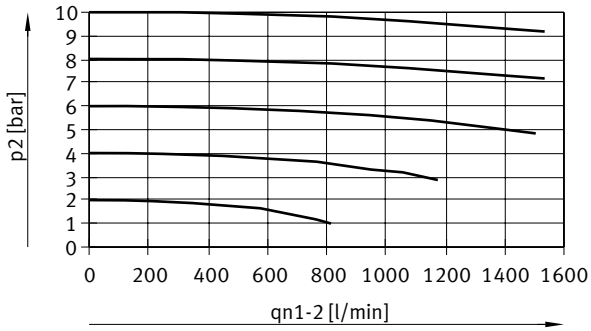
2) More information www.festo.com/x/topic/crc

3) For information about the area of use, see the declaration of conformity at: www.festo.com/catalogue/... d 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

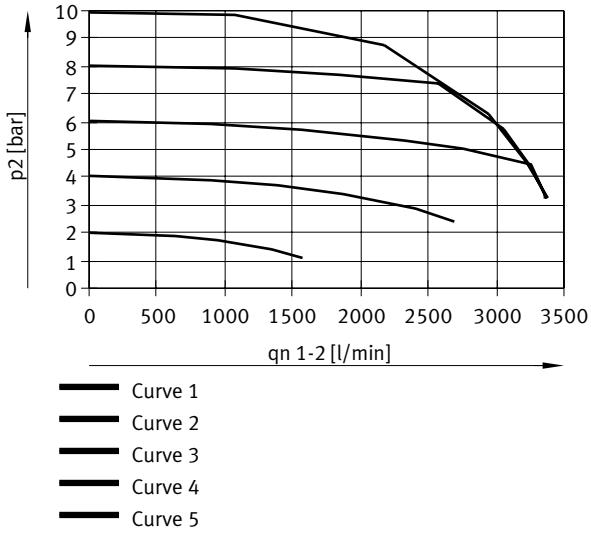
Materials	
Material housing	Wrought aluminium alloy Anodised

Flow rate qn from 1 → 2 as a function of output pressure p2, VPPX-6L/F-...-0L10H-... (10 bar)



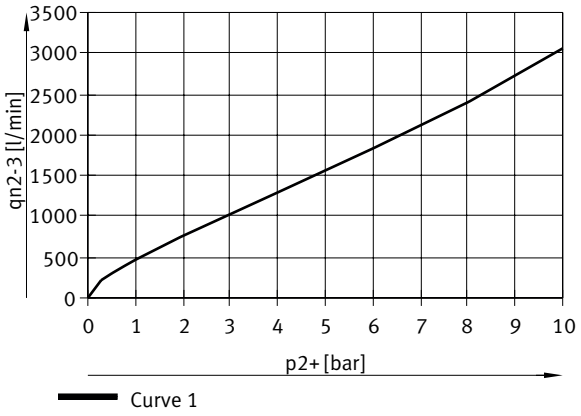
Flow rate qn from 2 → 3 as a function of output pressure p2, VPPX-6L/F-...-0L10H-... (10 bar)

Flow rate qn from 1 → 2 as a function of output pressure p2, VPPX-8L/F-...-0L10H-... (10 bar)

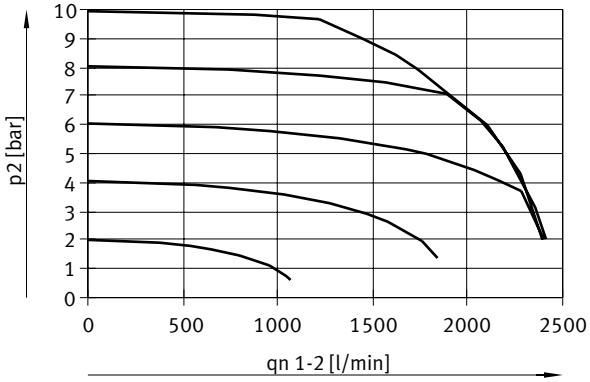


Datasheet

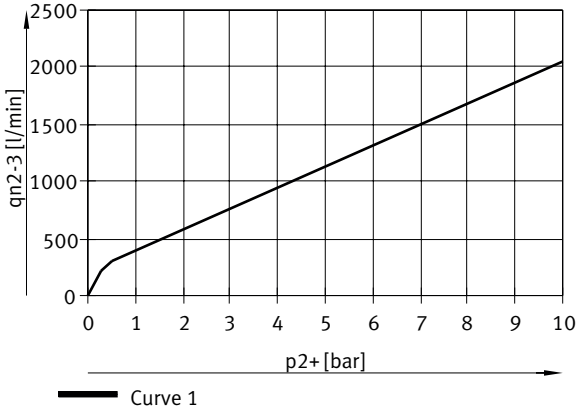
Flow rate qn from 2 → 3 as a function of output pressure p2, VPPX-8L/F-...-0L10H-... (10 bar)



Flow rate qn from 1 → 2 as a function of output pressure p2, VPPX-8F-...-0L10H-... (10 bar)

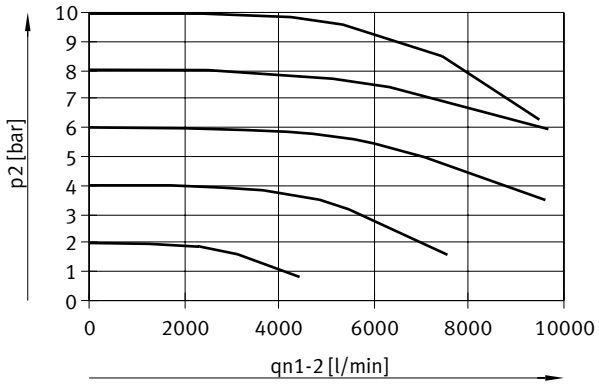


Flow rate qn from 2 → 3 as a function of output pressure p2, VPPX-8F-...-0L10H-... (10 bar)

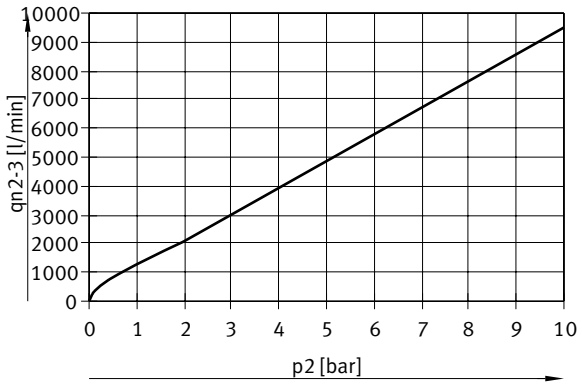


Datasheet

Flow rate qn from 1 → 2 as a function of output pressure p2, VPPX-12L-...-0L10H-... (10 bar)



Flow rate qn from 2 → 3 as a function of output pressure p2, VPPX-12L-...-0L10H-... (10 bar)



Programming cable VAVE, general technical data

Design	T-distributor with cable on controller side
Distrubution	1 to 2
Conforms to standard	DIN 47100 EN 61076-2-101

Programming cable VAVE, technical data - electrical connection 1

Electrical connection 1, function	Field device side
Electrical connection 1, design	Round
Electrical connection 1, connection type	Socket
Electrical connection 1, cable outlet	Straight
Electrical connection 1, connector system	M12x1, A-coded to EN 61076-2-101
Electrical connection 1, number of connections/cores	8
Electrical connection 1, used connections/cores	8

Datasheet

Programming cable VAVE, technical data - electrical connection 2	
Electrical connection 2, function	Controller side
Electrical connection 2, design	Round
Electrical connection 2, connection type	Plugs
Electrical connection 2, cable outlet	Straight
Electrical connection 2, connector system	M12x1, A-coded to EN 61076-2-101
Electrical connection 2, number of connections/cores	8
Electrical connection 2, used connections/cores	8

Programming cable VAVE, technical data - electrical connection 3	
Electrical connection 3, function	Controller side
Electrical connection 3, design	Round
Electrical connection 3, connection type	Socket
Electrical connection 3, cable outlet	Straight
Electrical connection 3, connector system	M12x1, A-coded to EN 61076-2-101
Electrical connection 3, number of connections/cores	5
Electrical connection 3, used connections/cores	4

Programming cable VAVE, electrical data	
Cable structure	8 x 0.25 mm²
Shielding	yes
Cable diameter 1	6.3 mm
Cable length 1	0.15 m
Cable designation	Without inscription label holder

Programming cable VAVE, operating and environmental conditions	
Note on materials	RoHS-compliant, Free of halogen
CE mark (see declaration of conformity) [1)]	To EU EMC Directive
UKCA marking (see declaration of conformity)[2)]	To UK instructions for EMC

1) For information about the area of use, see the 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.

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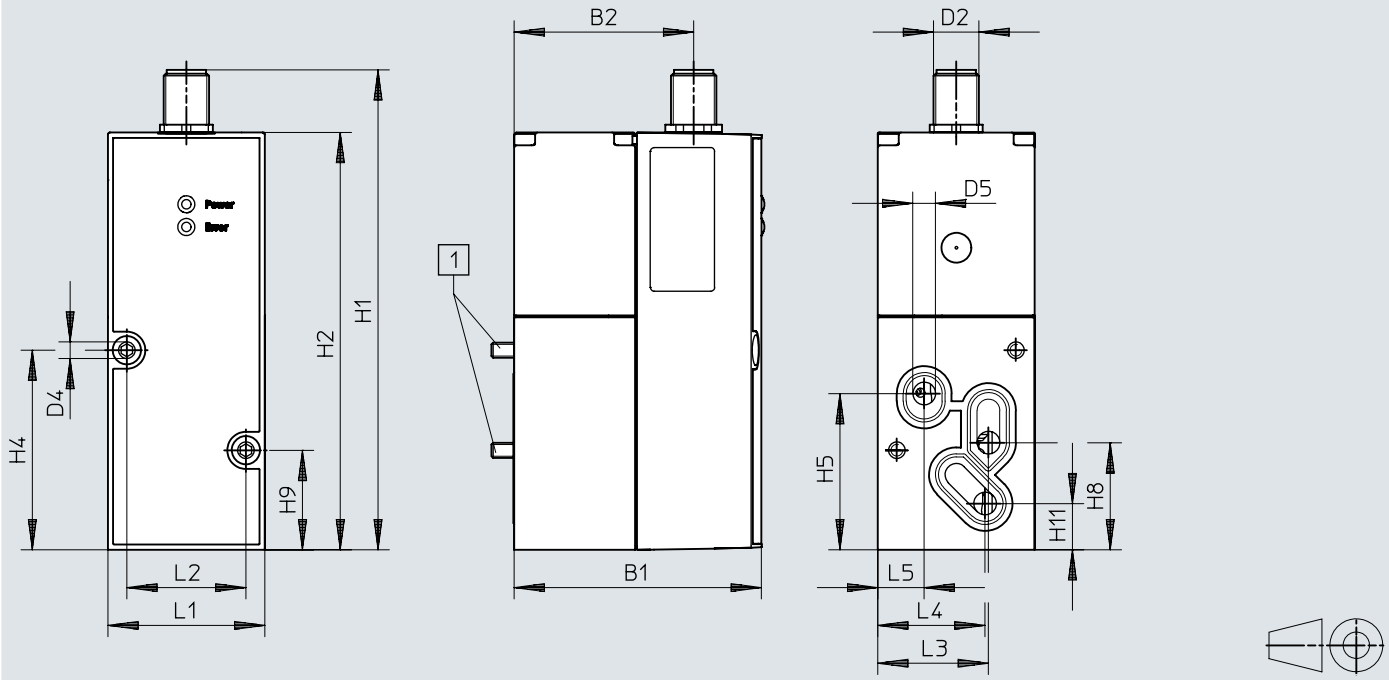
Dimensions

Dimensions Download CAD data www.festo.com



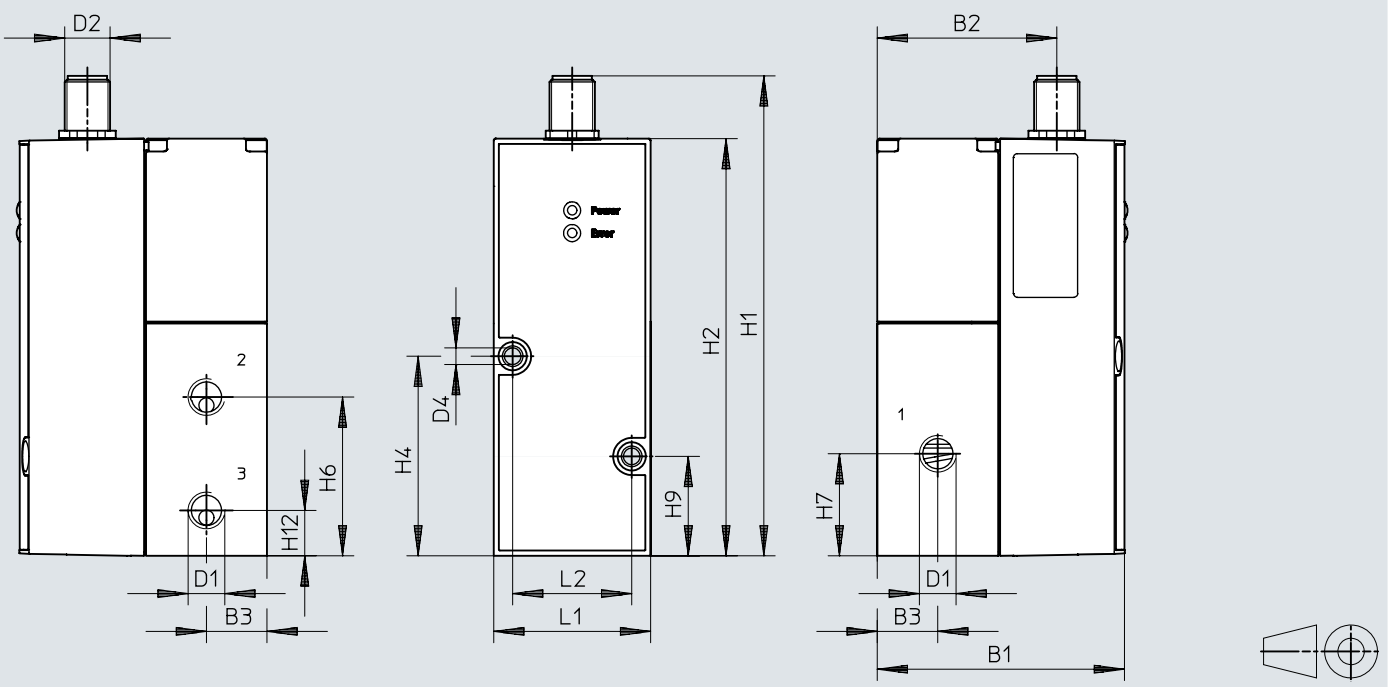
[1] Socket head screw M4x65

	B1	B2	D2	D4 ⌀	D5 ⌀	H1	H2	H4	H5	H8	H9	H11
VPPX-6F	65,4	47,5	M12	4,4	6	126,9	110,4	52,8	41,3	28,3	26,3	12,2

	L1	L2	L3	L4	L5
VPPX-6F	41,5	31,5	29,3	28,4	12,3

Dimensions

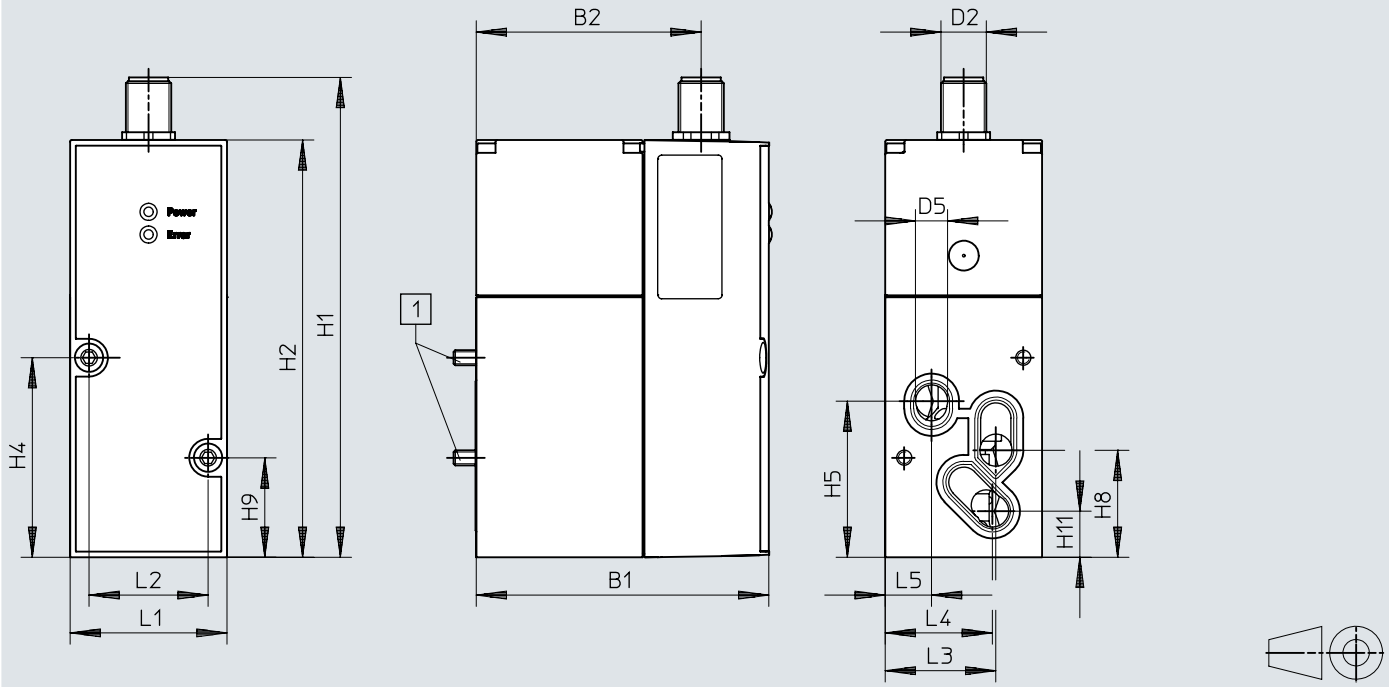
Dimensions Download CAD data www.festo.com



	B1	B2	B3	D1	D2	D4 ø	H1	H2	H4	H6	H7	H9	H12	L1	L2
VPPX-6L	65,5	47,5	16	G1/8	M12	4,4	126,9	110,4	52,8	42	27	26,3	12	41,5	31,5

Dimensions

Dimensions Download CAD data www.festo.com



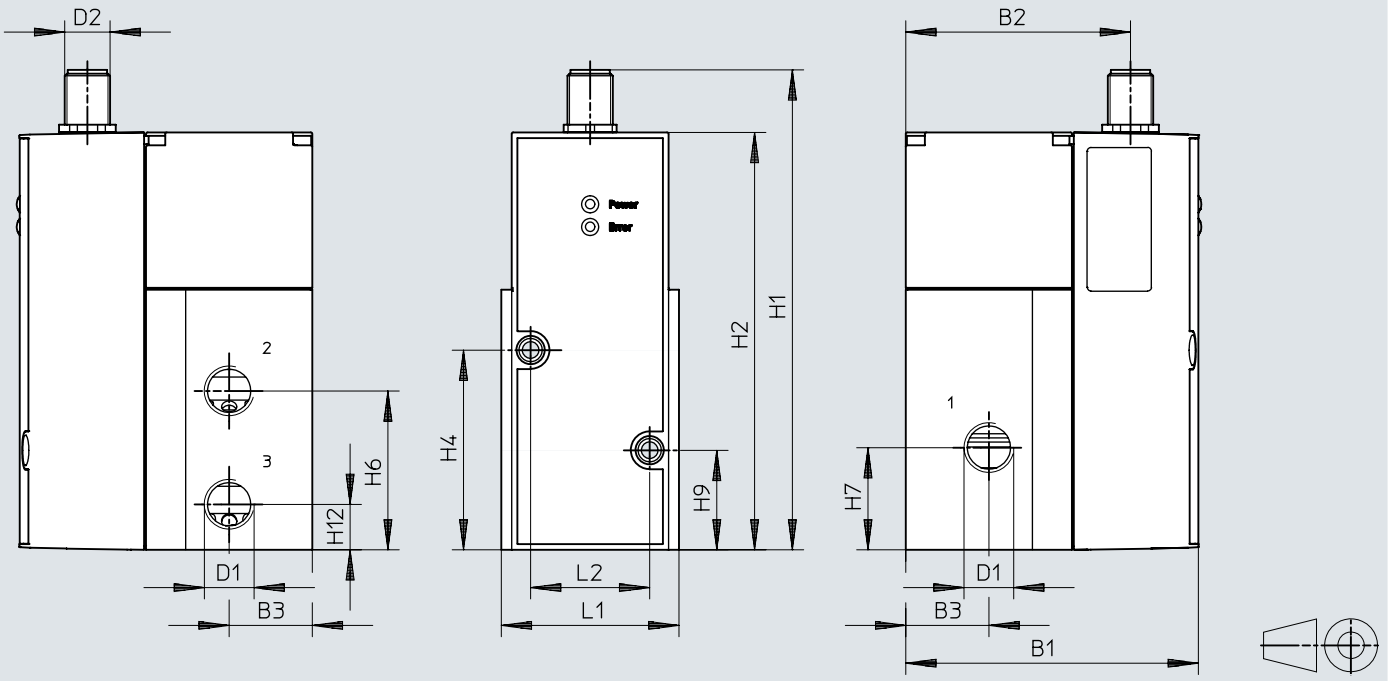
[1] Socket head screw M4x77

	B1	B2	D2	D5 ⌀	H1	H2	H4	H5	H8	H9	H11
VPPX-8F	77,4	59,5	M12	8,5	126,9	110,4	52,8	41,3	28,3	26,3	12,2

	L1	L2	L3	L4	L5
VPPX-8F	41,5	31,5	29,3	28,4	12,3

Dimensions

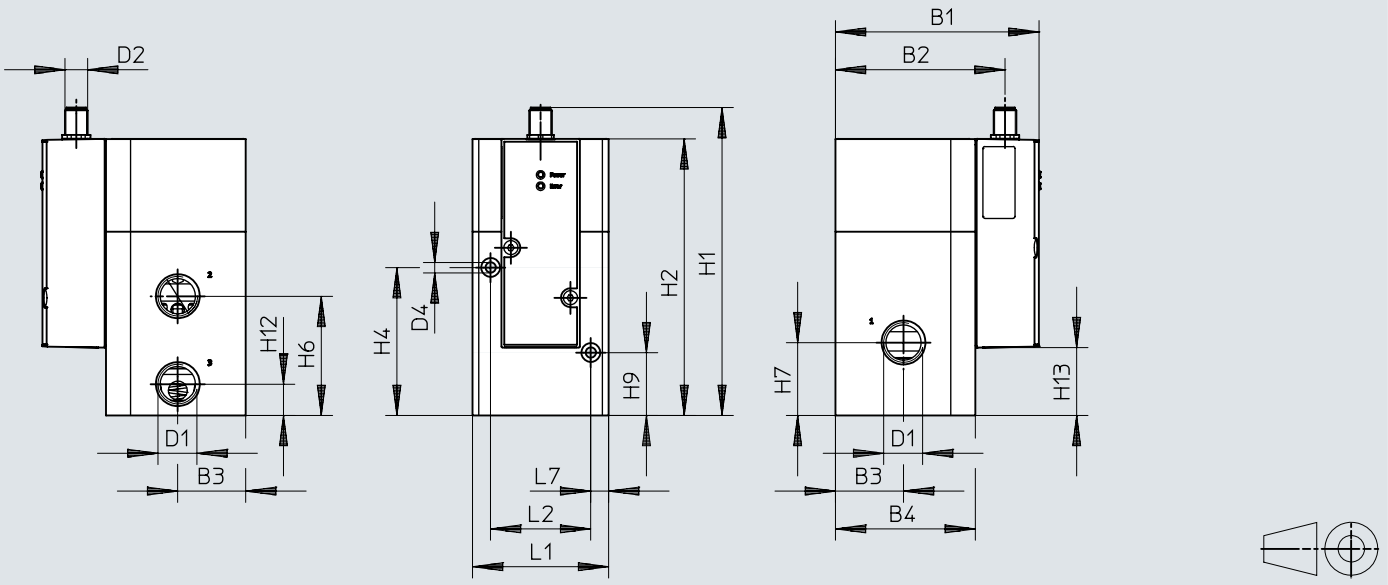
Dimensions Download CAD data www.festo.com



	B1	B2	B3	D1	D2	H1	H2	H4	H6	H7	H9	H12	L1	L2
VPPX-8L	77,4	59,5	22	G1/4	M12	126,9	110,4	52,8	42	27	26,3	12	47	31,5

Dimensions

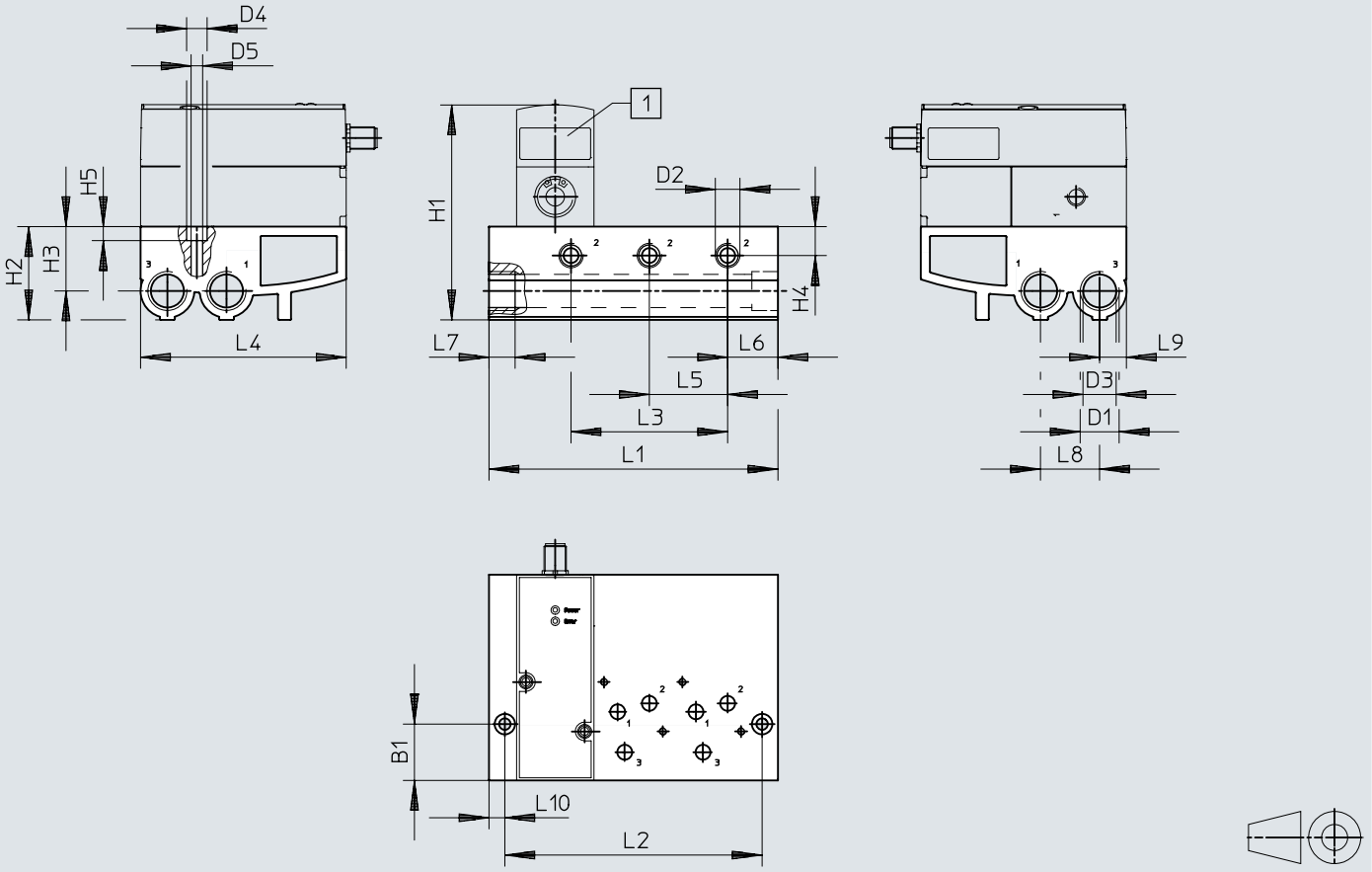
Dimensions Download CAD data www.festo.com



	B1	B2	B3	B4	D1	D2	H1	H2	H4	H6	H7	H9	H12	L1	L2	L7
VPPX-12L	107,3	89,4	36	74	G1/2	M12	162,8	146,3	78,2	63	38,5	33,2	16,5	72	53	9,5

Dimensions

Dimensions Download CAD data www.festo.com



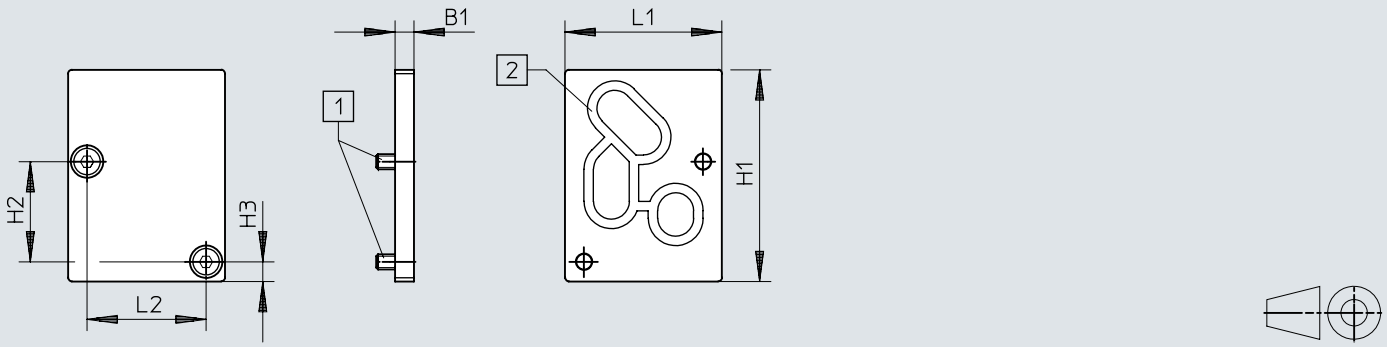
[1] Proportional-pressure regulator VPPX

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10
VABM-P1-SF-G14-2-P3	113	96	42	110,4	42	27	14	31,7	14,4	8,5
VABM-P1-SF-G14-3-P3	155	138	84	110,4	42	27	14	31,7	14,4	8,5
VABM-P1-SF-G14-4-P3	197	180	126	110,4	42	27	14	31,7	14,4	8,5

	B1	D1	D2	D3 ø	D4	D5	H1	H2	H3	H4	H5
VABM-P1-SF-G14-2-P3	30,2	G1/2	G1/4	17,8	11	6,2	116	50	34,5	15,5	7,5
VABM-P1-SF-G14-3-P3	30,2	G1/2	G1/4	17,8	11	6,2	116	50	34,5	15,5	7,5
VABM-P1-SF-G14-4-P3	30,2	G1/2	G1/4	17,8	11	6,2	116	50	34,5	15,5	7,5

Dimensions

Dimensions Download CAD data www.festo.com

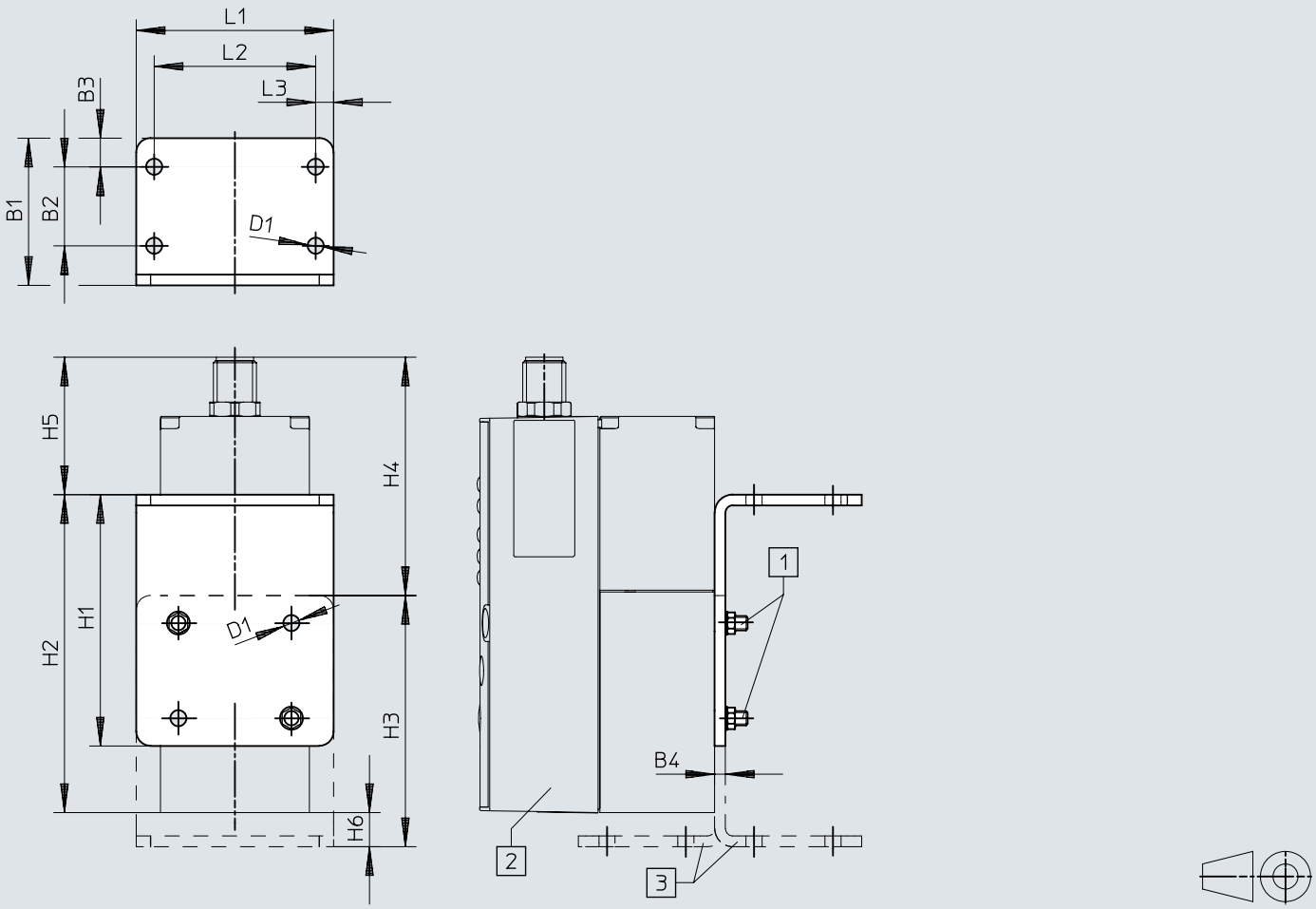


[1] Countersunk screw M4x10
[2] Seal VMPA- ...

	B1	H1	H2	H3	L1	L2
VABB-P1	5	56	26,5	5,2	41,5	31,5

Dimensions

Dimensions Download CAD data www.festo.com

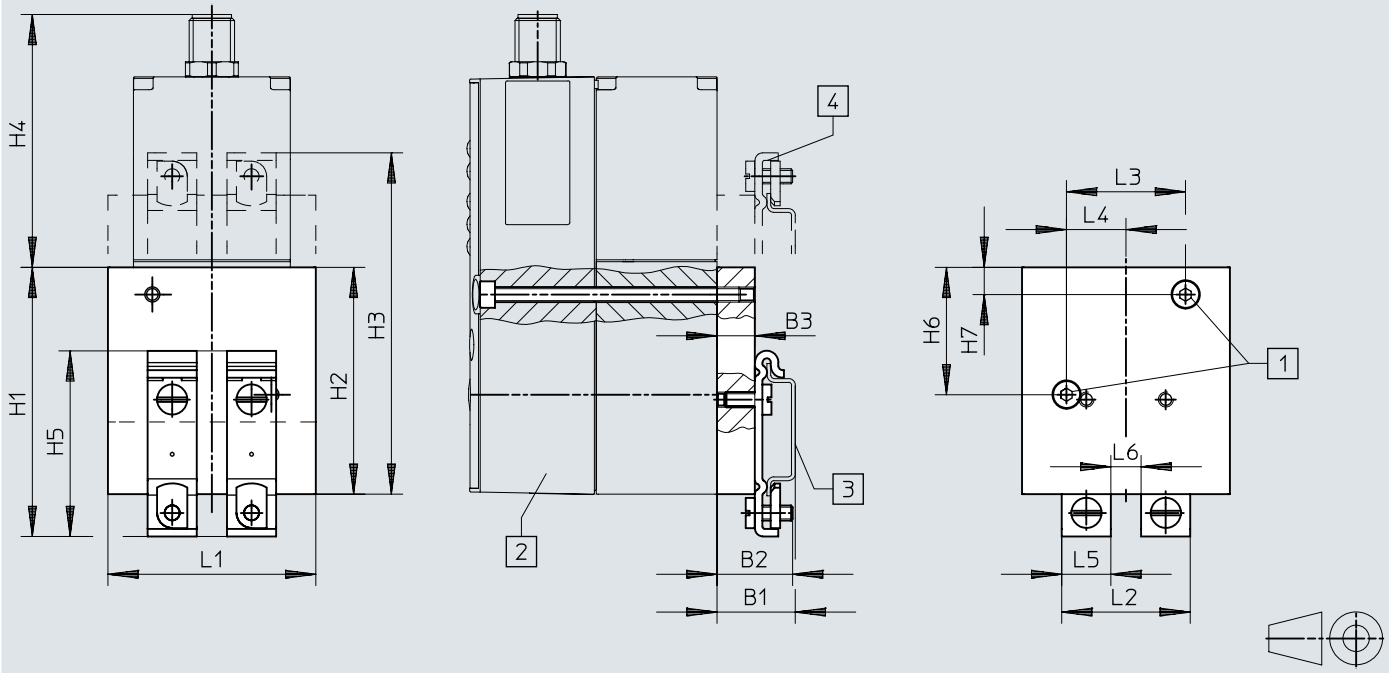


[1] Socket head screw M4
[2] Proportional-pressure regulator VPPX
[3] Bracket can be reversed if required

	B1	B2	B3	B4	D1 ø	H1	H2	H3	H4	H5	H6	L1	L2	L3
VAME-P1-A	41	22	8	3	4,5	70	88,6	70	66,4	38,3	9,5	55	45	5

Dimensions

Dimensions Download CAD data www.festo.com

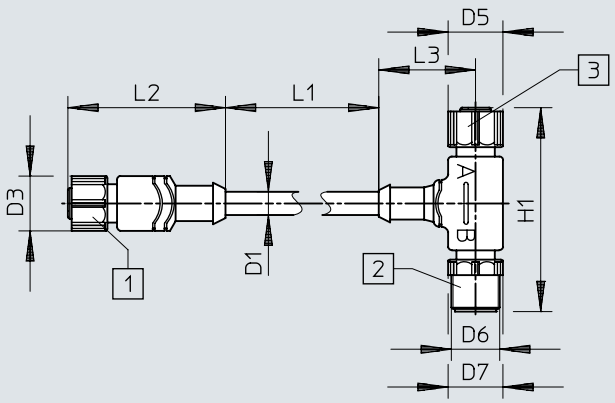


[1] Socket head screw M4
[2] Proportional-pressure regulator VPPX
[3] H-rail NRH
[4] H-rail mounting can be rotated 180° if required

	B1	B2	B3	H1	H2	H3	H4	H5	H6	H7	L1	L2	L3	L4	L5	L6
VAME-P1-T	20,7	20	10	71,2	60	90,3	66,9	49,1	33,7	7,2	55	34	31,5	15,75	13	8

Dimensions

Dimensions Download CAD data www.festo.com

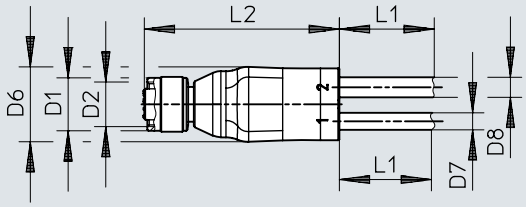


[1] Socket M12x1, 8-pin
[2] M12x1 plug, 8-pin
[3] M12x1 socket, 4-pin

	D1 ø ±0,2	D3 ø	D5 ø	D6	D7 ø	H1	L1	L2	L3
VAVE-P8-VPS	6,2	14,5	14,5	M12x1	14,5	54	150	41,7	11,1

Dimensions

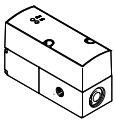
Dimensions Download CAD data www.festo.com



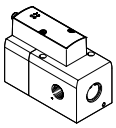
	D1 ø	D2	D6 ø	D7 ø	D8 ø	L1	L2
NEDU-L1R2-V9	14,5	M12x1	20	4,5	5,3	5000+200	51,6

Ordering data

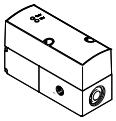
Proportional-pressure regulator VPPX, G1/8 and G1/4

	Pneumatic connection, port 1	Pneumatic connection, port 2	Pneumatic connection, port 3	Part no.	Type
	G1/8	G1/8	G1/8	**570967**	**VPPX-6L-L-1-G18-0L10H-S1**
	G1/4	G1/4	G1/4	**570969**	**VPPX-8L-L-1-G14-0L10H-S1**

Proportional-pressure regulator VPPX, G1/2

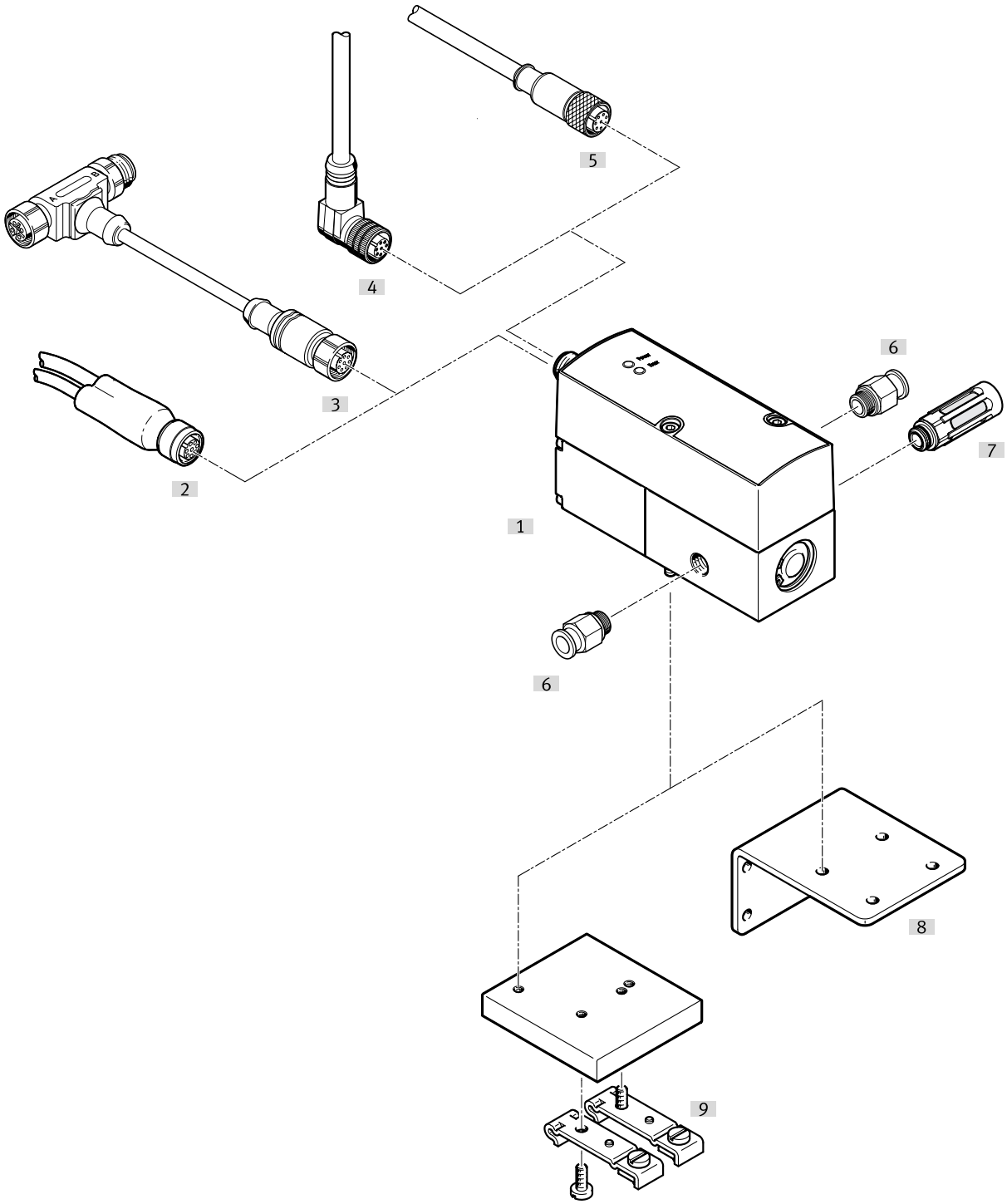
	Pneumatic connection, port 1	Pneumatic connection, port 2	Pneumatic connection, port 3	Part no.	Type
	G1/2	G1/2	G1/2	**2448444**	**VPPX-12L-L-1-G12-0L10H-S1**

Proportional pressure regulator VPPX, sub-base

	Pneumatic connection, port 1	Pneumatic connection, port 2	Pneumatic connection, port 3	Part no.	Type
	Sub-base	Sub-base	Sub-base	**570970**	**VPPX-8F-L-1-F-0L10H-S1**
				570968	**VPPX-6F-L-1-F-0L10H-S1**

Peripherals

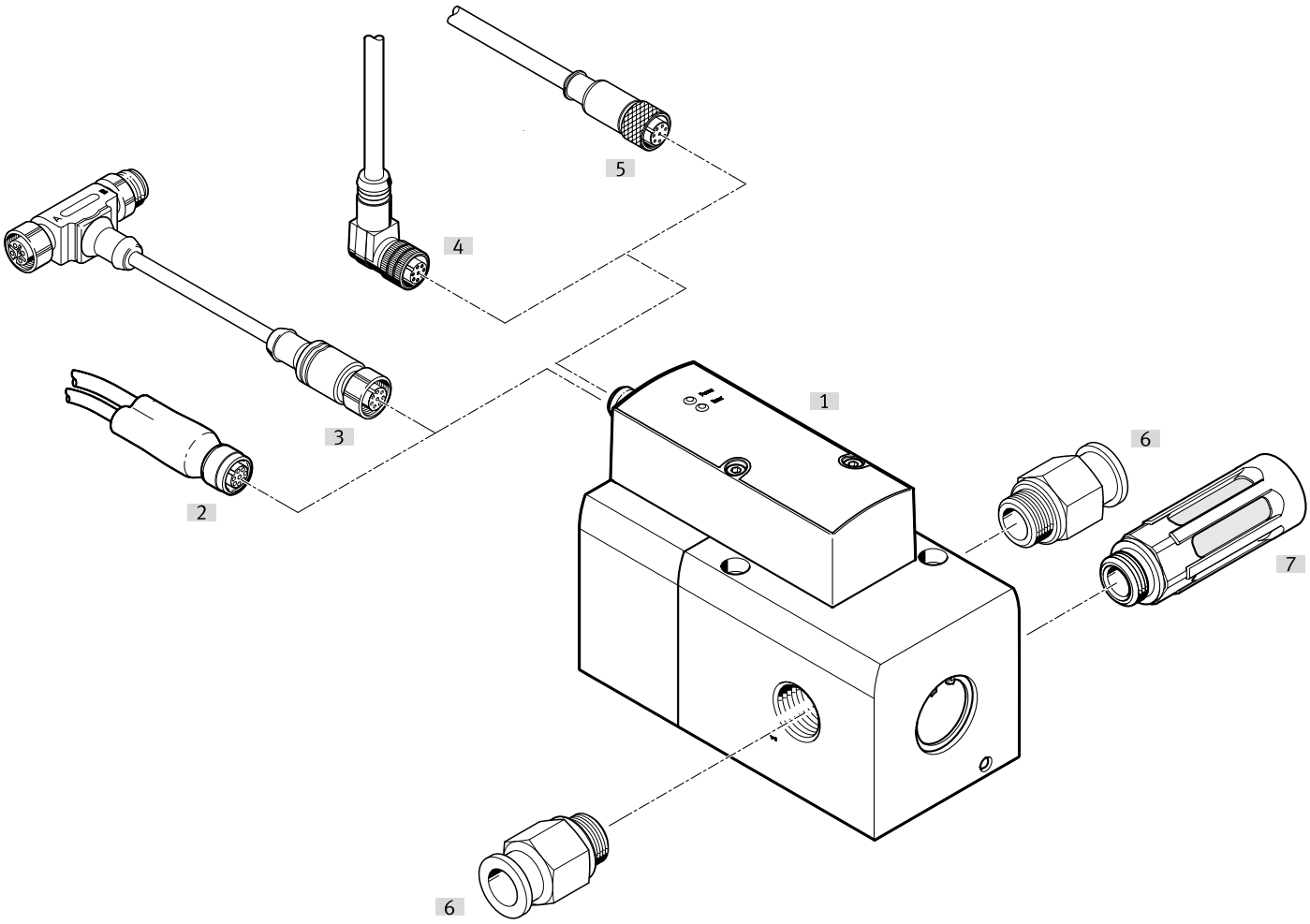
Individual valve VPPX-6L-..., VPPX-8L-...



Accessories			→ Link
	Type/order code	Description	
[1]	DUO cable	For connecting a sensor to the VPPX	25
[2]	Programming cable VAVE	For adapter NEFC, for the connection between the VPPX and PC	
[3]	Plug socket with cable, angled NEBU-M12W8-...	–	
[4]	Plug socket with cable, straight, SIM-M12-8GD-...	–	24
[5]	Proportional pressure control valve VPPX	Operator unit with LED	vppx
[6]	Push-in fitting QS	For connecting tubing with standard O.D.	qs
[7]	Silencer	For mounting in exhaust ports	u
[8]	Bracket VAME-P1-A	For mounting the valve	24
[9]	H-rail mounting VAME-P1-T	For mounting on an H-rail	24

Peripherals

Individual valve VPPX-12L-...



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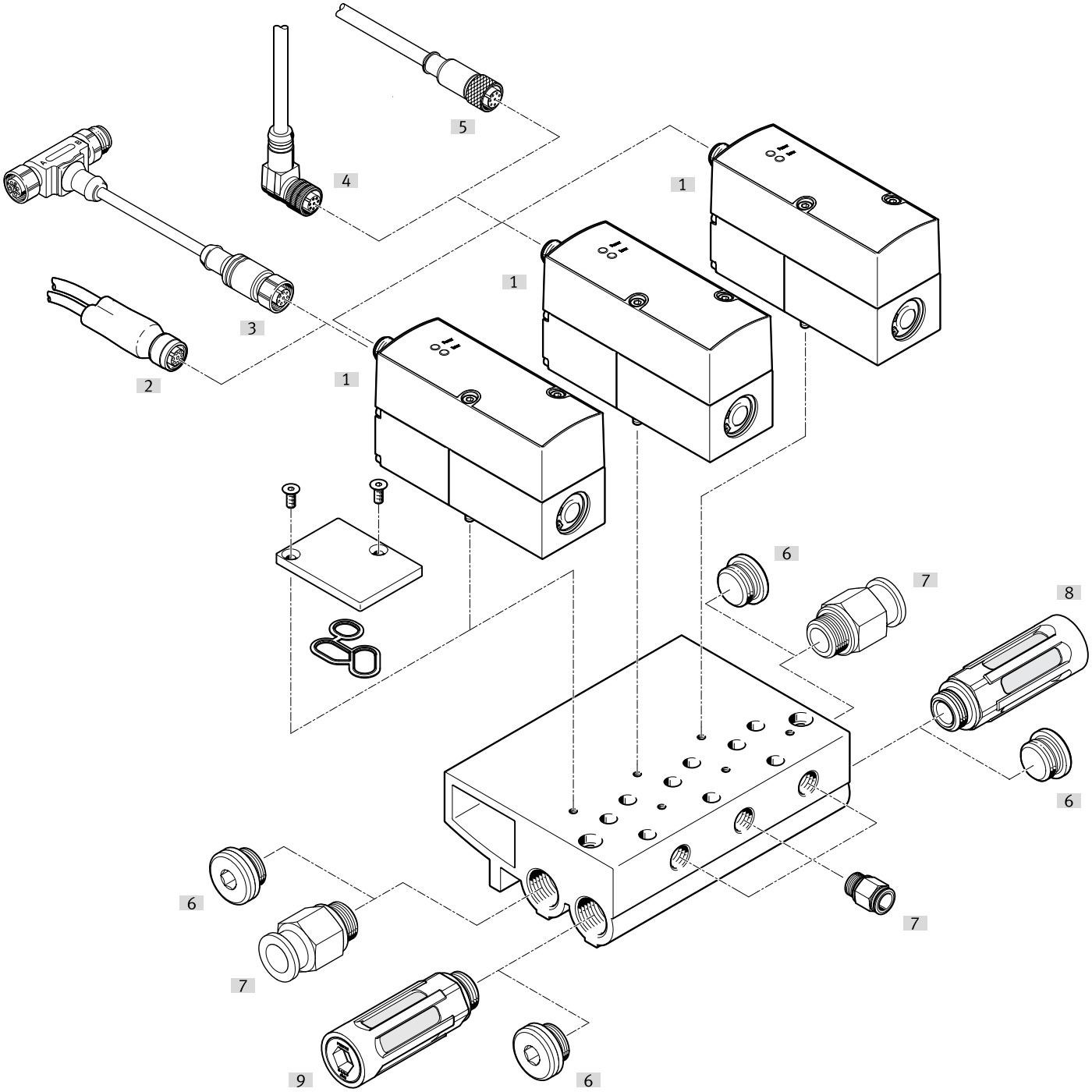
[2]	Programming cable VAVE	For adapter NEFC, for the connection between the VPPX and PC	
[3]	Plug socket with cable, angled NEBU-M12W8-...	–	
[4]	Plug socket with cable, straight, SIM-M12-8GD-...	–	24
[5]	Proportional-pressure regulator VPPX	Operator unit with LED	vppx
[6]	Push-in fitting QS	For connecting tubing with standard O.D.	qs
[7]	Silencer	For mounting in exhaust ports	u

Peripherals

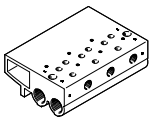
Valve manifold assembly VPPX-6F ..., VPPX-8F-...



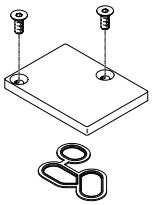
Accessories			→ Link
	Type/order code	Description	
[1]	DUO cable	For connecting a sensor to the VPPX	25
[2]	Programming cable VAVE	For adapter NEFC, for the connection between the VPPX and PC	
[3]	Plug socket with cable, angled NEBU-M12-W8-...	–	
[4]	Plug socket with cable, straight, SIM-M12-8GD-...	–	24
[5]	Proportional-pressure regulator VPPX	Operator unit with LED	vppx
[6]	Blanking plug B	–	
[7]	Push-in fitting QS	For connecting tubing with standard O.D.	qs
[8]	Silencer	For mounting in exhaust ports	u
[9]	Manifold block VABM	–	24
[10]	Cover plate VABB-P1	For vacant position, seal and countersunk screws are included in the scope of delivery	24

Accessories

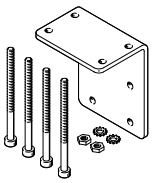
Manifold block

	Material manifold rail	Part no.	Type
	Wrought aluminium alloy	**542253**	**VABM-P1-SF-G14-3-P3**
		542252	**VABM-P1-SF-G14-2-P3**
		542254	**VABM-P1-SF-G14-4-P3**

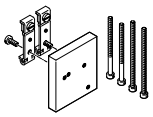
Cover plate

	Material cover plate	Material seals	Material screws	Part no.	Type
	Wrought aluminium alloy	NBR	Steel	**558350**	**VABB-P1**

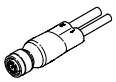
Bracket

	Material bracket	Part no.	Type
	Wrought aluminium alloy Steel	**542251**	**VAME-P1-A**

H-rail mounting

	Material H-rail mounting	Part no.	Type
	Wrought aluminium alloy Steel	**542255**	**VAME-P1-T**

Programming cable

	Electrical connection 1, connection type	Electrical connection 1, cable outlet	Electrical connection 1, number of connections/ cores	Electrical connection 1, connector system	Part no.	Type
	Socket	Straight	8	M12x1, A-coded to EN 61076-2-101	**570971**	**VAVE-P8-VPS**

Plug socket with cable, straight socket

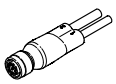
	Electrical connection 1, connection type	Electrical connection 1, number of connections/ cores	Electrical connection 1, connector system	Cable length	Part no.	Type
	Socket	8	M12x1, A-coded to EN 61076-2-101	2 m	**525616**	**SIM-M12-8GD-2-PU**
				5 m	**525618**	**SIM-M12-8GD-5-PU**
				10 m	**570008**	**SIM-M12-8GD-10-PU**

Accessories

Adapter for connecting the interface of the VPPX valves/VPPX manifold to the PC. A standard USB cable with mini USB connector is also required

	Cable length	Part no.	Type
	0.3 m	**547432**	**NEFC-M12G5-0.3-U1G5**

DUO cable

	Material seals	Material housing	Material cable sheath	Material insulating sheath	Part no.	Type
	FPM	TPE-U(PUR)	TPE-U(PUR)	PVC	**2903567**	**NEDU-L1R2-V9-M12G8-E-LE5-5R1-LE3-5R2**