

Proportional pressure regulator VPPE

FESTO



Characteristics

At a glance

Design:

- Some selected types of the pressure regulator VPPE can be screwed onto a profile strip. This has the advantage that the profile strip can be used to create a central compressed air supply.
- The air can be fed into the profile strip at one end, at both ends through end plates, or using an intermediate air supply module (for increased air requirements).
- The holes for the profile strip must be drilled according to the assembly instructions. The pressure regulators VPPE are screwed to the profile strip using the mounting plate. The end plates are screwed to the profile strip on the front left and right. See the assembly instructions for further information: Internet: vppe

Compressed air supply on the profile strip:

- When using the profile strip as a central compressed air supply, make sure that the required compressed air supply is guaranteed. Bear in mind that an intermediate air supply module needs a valve position. The intermediate air supply module takes up one VPPE valve position.

Recommendation for compressed air supply:

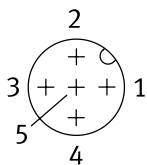
- For example, with tubing diameter Ø 16 mm with simultaneous max. flow rate for all valves, the following applies: Compressed air supply – number of valves: –At one end – max. 5 valves, At both sides – max. 10 valves, With intermediate air supply – max. 5 valves each
- Intermediate supply modules must always be placed centrally. Several intermediate supply modules must be evenly distributed.

Note:

- Only the following types of proportional-pressure regulators VPPE can be mounted on profile strips using a mounting plate: valve VPPE with display and top part turned 90°, VPPE-...-E1T
- Further information on mounting proportional-pressure regulators VPPE as well as intermediate supply modules on profile strips can be found in the assembly instructions: Internet: vppe

Series

[VPPE] Proportional pressure regulator



Pin 1: Supply 21.6 ... 26.4 V DC

Pin 2: Setpoint (-)

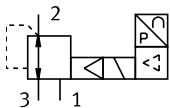
Pin 3: GND (-)

Pin 4: Setpoint (+) 0 ... 10 V DC / 4 ... 20 mA

Pin 5: Actual value output or switching output (can be selected via the operator panel)

Switching input/output

[V] 0 ... 10 V



Diagrams

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

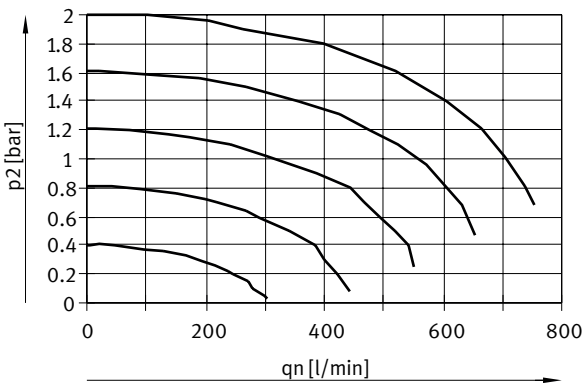
Type code

001	Series	
VPPE	Proportional pressure regulator	
002	Valve function	
3	3-way valve	
003	Valve function	
1	Normally closed	
004	Pneumatic connection	
1/8	Female thread G1/8	
005	Pressure regulation range	
2	0.02 ... 2 bar	
6	0.06 ... 6 bar	
10	0.1 ... 10 bar	
006	Setpoint input for individual valves	
005	0 ... 5 V	
010	0 ... 10 V	
420	4 ... 20 mA	
007	Operator unit/interface	
	None	
E1	LED display, 7-segment	
008	Mounting	
	In-line valve	
T	Common supply manifold mounting (mounting rail)	
009	Special material properties	
	None	
F1A	Recommended for production plants for manufacturing lithium-ion batteries, F1A	

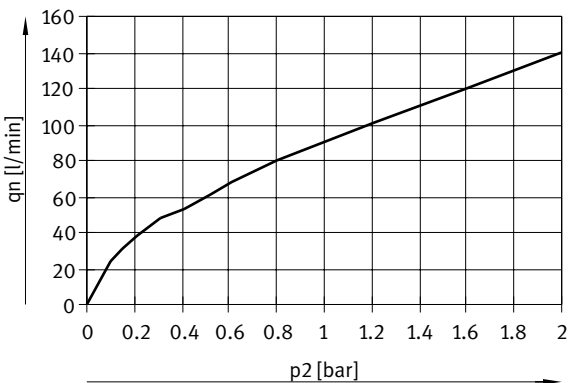
Datasheet

General technical data			
Pressure regulation range	0.002 ... 0.2 MPa	0.01 ... 1 MPa	0.006 ... 0.6 MPa
Pressure regulation range	0.02 ... 2 bar	0.1 ... 10 bar	0.06 ... 6 bar
Pneumatic connection, port 1	G1/8		
Pneumatic connection, port 2	G1/8		
Pneumatic connection, port 3	G1/8		
Design	Piloted diaphragm regulator		
Valve function	3-way proportional pressure regulator		
Safety instructions	Safety position VPPE: if the power supply cable is interrupted, output pressure is maintained unregulated.		
Sealing principle	Soft		
Type of actuation	Electric		
Type of mounting	With through-hole		
Mounting position	optional, Preferably vertical		
Nominal size, supply	5 mm		
Nominal size, exhaust	2.5 mm		
Standard nominal flow rate (standardised to DIN 1343)	310 l/min	1,250 l/min	800 l/min
Product weight	390 g		

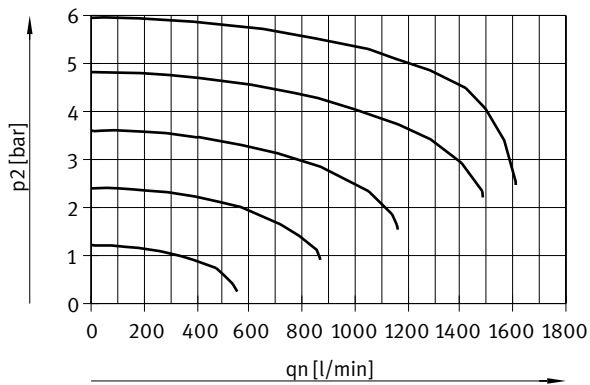
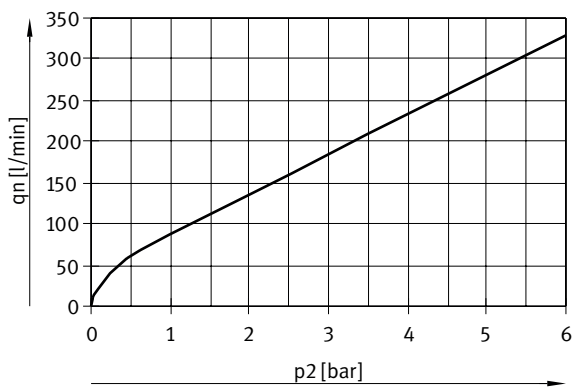
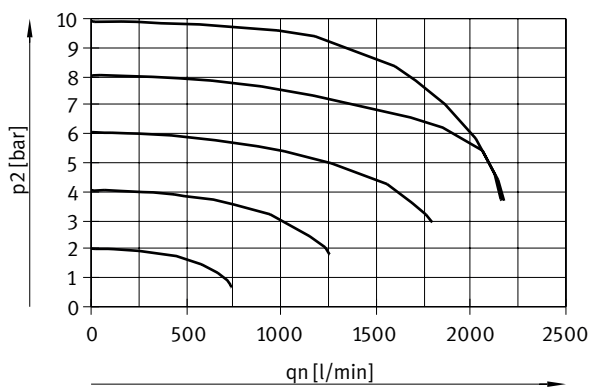
Flow rate qn as a function of output pressure p2, VPPE-...-2-..., qn 1 -> 2



Flow rate qn as a function of output pressure p2, VPPE-...-2-..., qn 2 -> 3

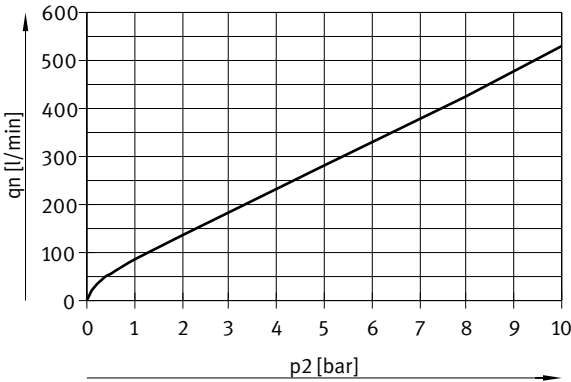


Datasheet

Flow rate q_n as a function of output pressure p_2 , VPPE-...-6-..., q_n 1 -> 2Flow rate q_n as a function of output pressure p_2 , VPPE-...-6-..., q_n 2 -> 3Flow rate q_n as a function of output pressure p_2 , VPPE-...-10-..., q_n 1 -> 2

Datasheet

Flow rate qn as a function of output pressure p2, VPPE-...-10-..., qn 2 -> 3



Electrical data			
Signal range analogue output	0 - 10 V	1 - 5 V	4 - 20 mA
Signal range analogue input	0 - 10 V	0 - 5 V	4 - 20 mA
Electrical connection	5-pin, M12, Plugs		
Operational voltage range DC	21.6 ... 26.4 V		
Display type	LED indicator, 3-digit		
Residual ripple	10%		
Max. electrical power consumption	4.2 W		
Max. current consumption	160 mA		
Short circuit current rating	For all electrical connections		
Reverse polarity protection	For all electrical connections		
Switching output	PNP		
Degree of protection	IP65		
Type of serial interface	—		
Protocol	—		

Datasheet

Operating and environmental conditions			
Pressure regulation range	0.002 ... 0.2 MPa	0.01 ... 1 MPa	0.006 ... 0.6 MPa
Pressure regulation range	0.02 ... 2 bar	0.1 ... 10 bar	0.06 ... 6 bar
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	0.3 ... 0.4 MPa	0.6 ... 1.1 MPa	0.6 ... 0.8 MPa
Inlet pressure 1	3 ... 4 bar	6 ... 11 bar	6 ... 8 bar
Max. pressure hysteresis	0.002 MPa	0.005 MPa	0.003 MPa
Max. pressure hysteresis	0.02 bar	0.05 bar	0.03 bar
Hysteresis	1 %FS	0.5 %FS	
Reproducibility	0.5 %FS		
Linearity	1 %FS		
Total accuracy	1.5%FS	1.25%FS	
Temperature coefficient	0.04 %/K		
Duty cycle	100%		
Ambient temperature	0 ... 60°C		
Media temperature	10 ... 50°C		
Corrosion resistance class CRC ¹⁾	2 - Moderate corrosion stress		
CE mark (see declaration of conformity) ²⁾	To EU EMC Directive In accordance with EU RoHS Directive		
UKCA marking (see declaration of conformity) ³⁾	To UK instructions for EMC To UK RoHS instructions		
Approval	RCM trademark c UL us listed (OL)		

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

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

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

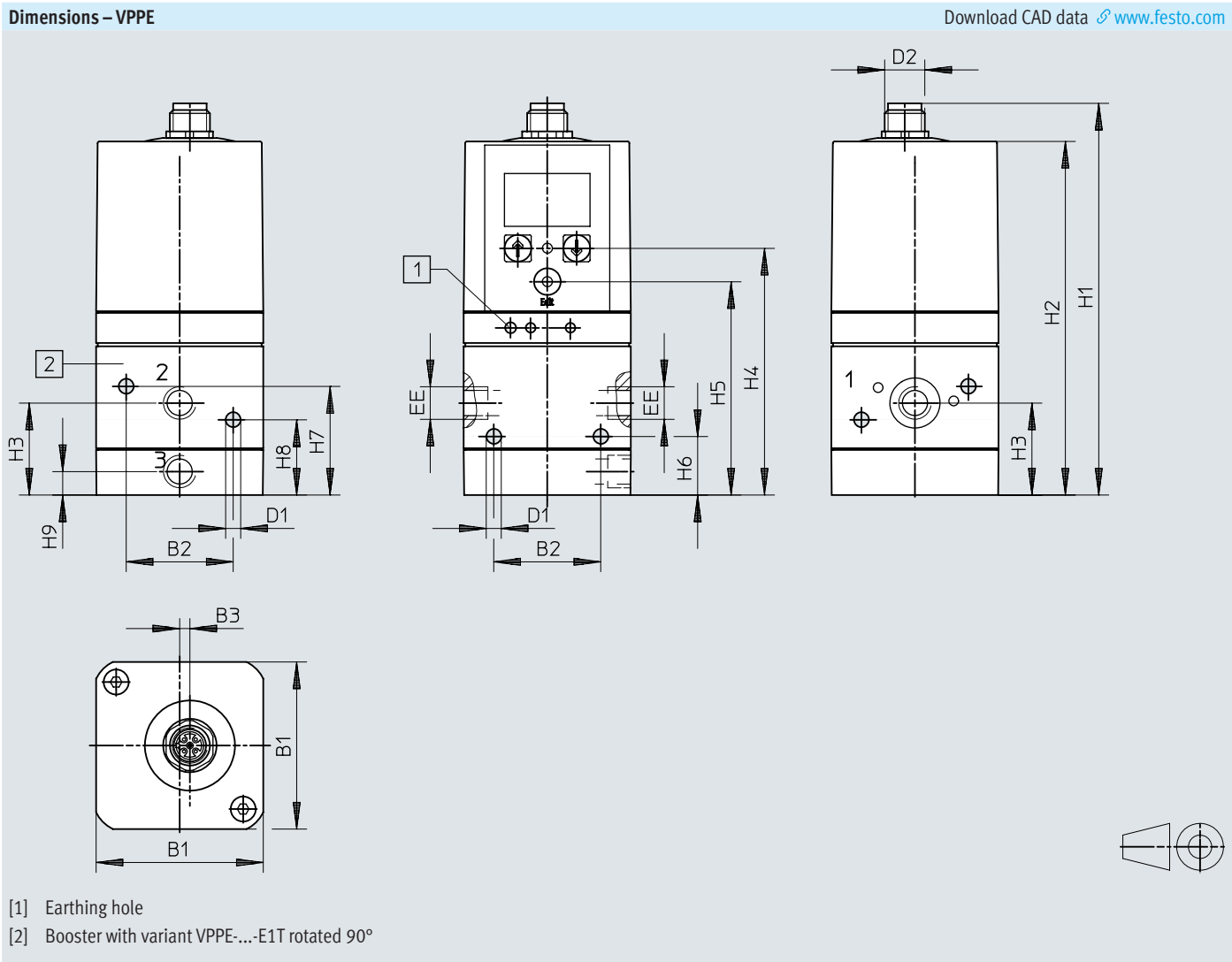
3) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... → Support/Downloads.

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

Materials, mounting plate (set)	
Material plate	Wrought aluminium alloy
Material seals	NBR
Material screws	Steel
Note on materials	RoHS-compliant
Corrosion resistance class CRC ¹⁾	2 - Moderate corrosion stress

1) More information www.festo.com/x/topic/kbk

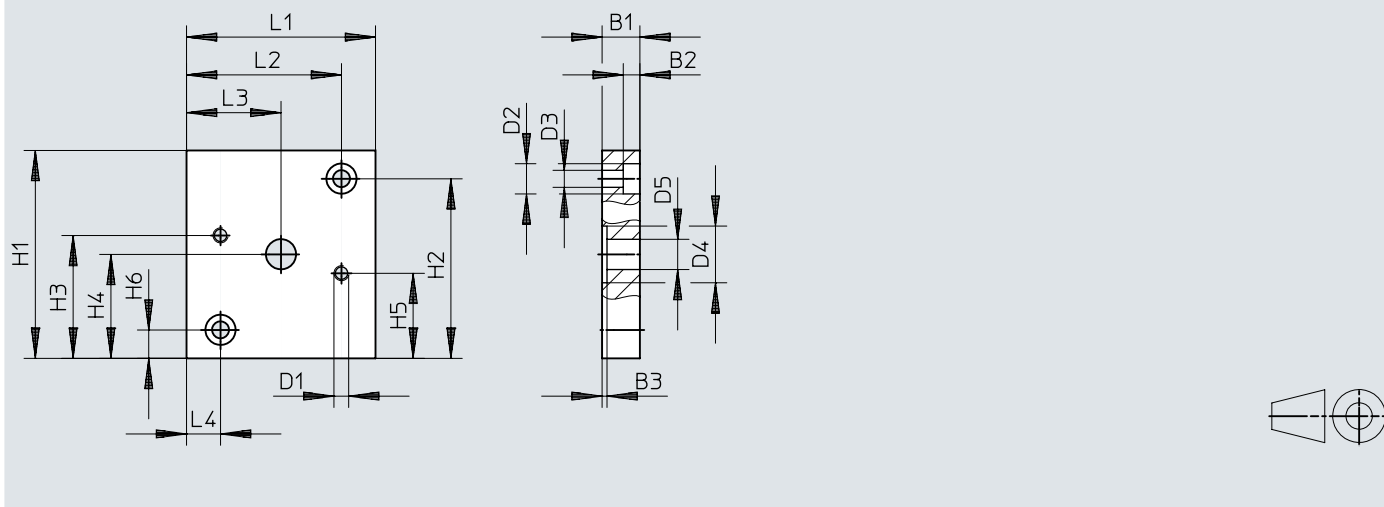
Dimensions



	B1	B2	B3	D1 Ø	D2	EE	H1	H2	H3	H4	H5	H6	H7	H8	H9
VPPE-3-1/8- ... E1 ...	50	32	3,1	4,5	M12x1	G1/8	117,2	105,8	27,5	73,8	63,8	17,5	32,5	22,5	7


Dimensions


Dimensions – Mounting plate


Download CAD data www.festo.com

	B1	B2	B3	D1	D2 Ø	D3 Ø	D4 Ø	D5 Ø	H1	H2	H3	H4	H5	H6	L1	L2	L3	L4
VAME-P5-MK	10	4,6	1,3	M4	8	4,5	15	8	55	47,5	32,5	27,5	22,5	7,5	50	41	25	9

Ordering data

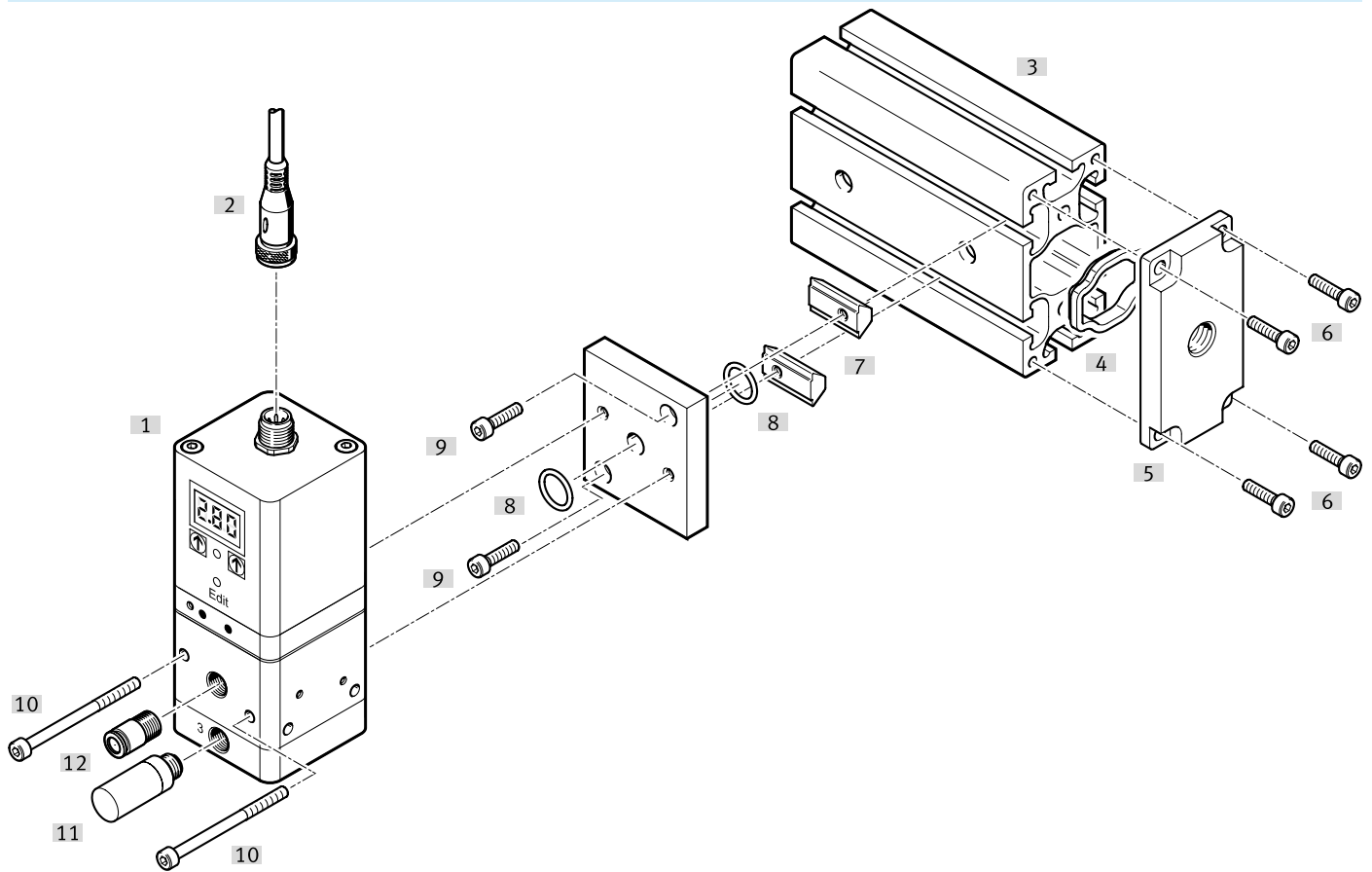
VPPE, in-line valve						
	Pressure regulation range	Pressure regulation range	Signal range analogue output	Signal range analogue input	Part no.	Type
	0.002 ... 0.2 MPa	0.02 ... 2 bar	0 - 10 V	0 - 10 V	557771	VPPE-3-1-1/8-2-010-E1
			4 - 20 mA	4 - 20 mA	557774	VPPE-3-1-1/8-2-420-E1
	0.006 ... 0.6 MPa	0.06 ... 6 bar	0 - 10 V	0 - 10 V	★ 557772	VPPE-3-1-1/8-6-010-E1
			4 - 20 mA	4 - 20 mA	★ 557775	VPPE-3-1-1/8-6-420-E1
	0.01 ... 1 MPa	0.1 ... 10 bar	0 - 10 V	0 - 10 V	★ 557773	VPPE-3-1-1/8-10-010-E1
			4 - 20 mA	4 - 20 mA	★ 557776	VPPE-3-1-1/8-10-420-E1

VPPE, F1A, recommended for production plants for manufacturing lithium-ion batteries						
	Pressure regulation range	Pressure regulation range	Signal range analogue output	Signal range analogue input	Part no.	Type
	0.006 ... 0.6 MPa	0.06 ... 6 bar	0 - 10 V	0 - 10 V	8156419	VPPE-3-1-1/8-6-010-E1-F1A
			1 - 5 V	0 - 5 V	8156421	VPPE-3-1-1/8-6-005-E1-F1A
			4 - 20 mA	4 - 20 mA	8156423	VPPE-3-1-1/8-6-420-E1-F1A
	0.01 ... 1 MPa	0.1 ... 10 bar	0 - 10 V	0 - 10 V	8156420	VPPE-3-1-1/8-10-010-E1-F1A
			1 - 5 V	0 - 5 V	8156422	VPPE-3-1-1/8-10-005-E1-F1A
			4 - 20 mA	4 - 20 mA	8156424	VPPE-3-1-1/8-10-420-E1-F1A

VPPE, common supply manifold						
	Pressure regulation range	Pressure regulation range	Signal range analogue output	Signal range analogue input	Part no.	Type
	0.002 ... 0.2 MPa	0.02 ... 2 bar	0 - 10 V	0 - 10 V	557777	VPPE-3-1-1/8-2-010-E1T
			4 - 20 mA	4 - 20 mA	557779	VPPE-3-1-1/8-2-420-E1T
	0.006 ... 0.6 MPa	0.06 ... 6 bar	0 - 10 V	0 - 10 V	567539	VPPE-3-1-1/8-6-010-E1T
			4 - 20 mA	4 - 20 mA	567540	VPPE-3-1-1/8-6-420-E1T
	0.01 ... 1 MPa	0.1 ... 10 bar	0 - 10 V	0 - 10 V	557778	VPPE-3-1-1/8-10-010-E1T
			4 - 20 mA	4 - 20 mA	557780	VPPE-3-1-1/8-10-420-E1T

Peripherals

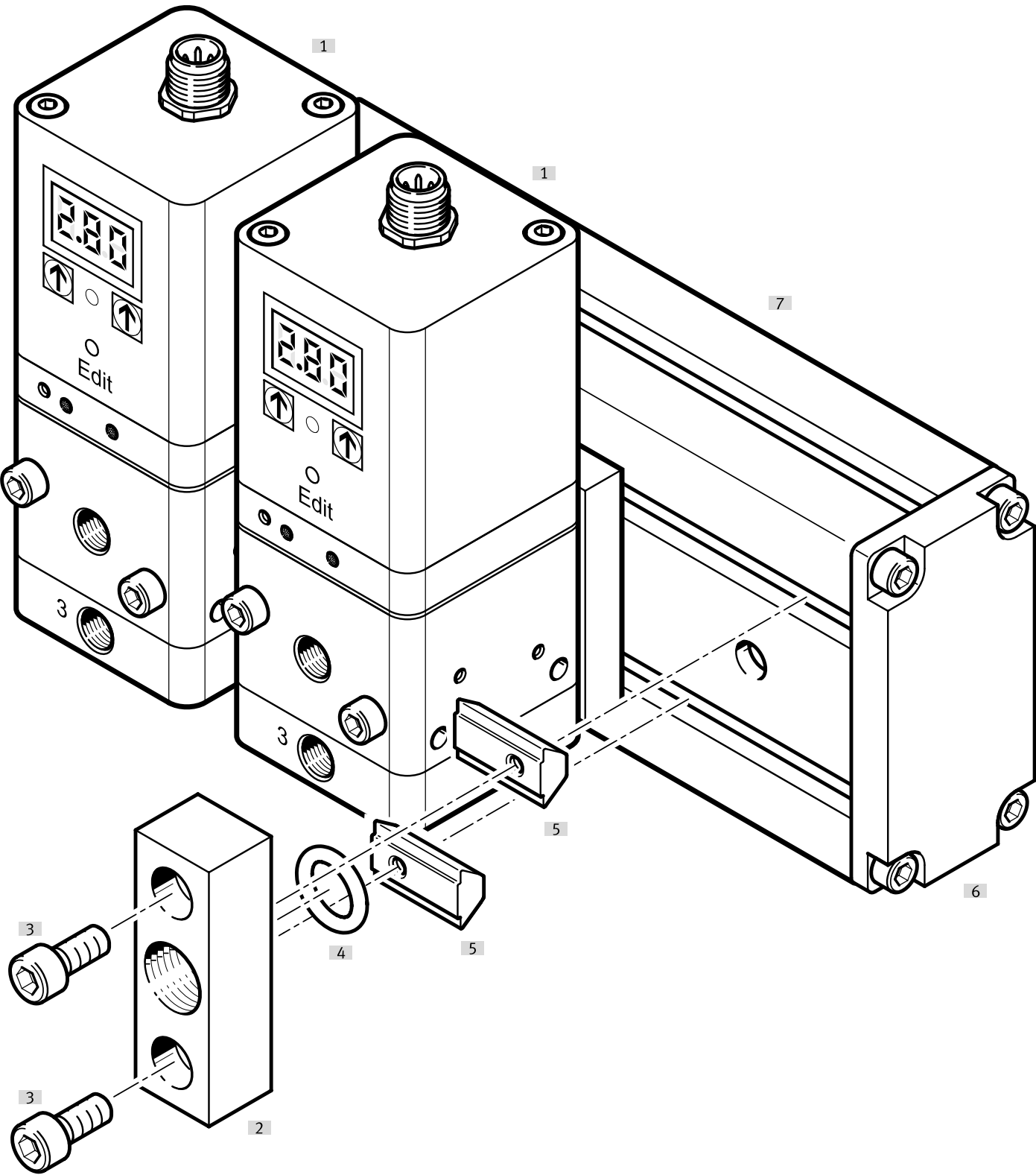
Peripherals overview



Accessories			→ Link
Type/order code	Description		
[1] Proportional pressure regulator	VPPE		↗ –
[2] Connecting cable	With straight plug socket for actuating the VPPE		14
[3] Profile strip	Standard profile strip as central air supply		14
[4] Compressed air supply plate (set)	For supplying compressed air (consists of compressed air supply plate, screws and seal)		14
[5] Seal	–		↗ –
[6] Socket head screw M5x12	For fitting pressure supply plate with profile strip		↗ –
[7] Slot nuts	For fastening on the profile strip using clamps		↗ –
[8] O-ring	For sealing		↗ –
[9] Socket head screw M5x12	For fitting pressure supply plate with profile strip		↗ –
[10] Socket head screw M4x16	For fitting the mounting plate to the slot nut		↗ –
[11] Silencer	For mounting in exhaust ports		↗ u
[12] Push-in fitting	For connecting tubing with standard O.D.		↗ quick star

Peripherals

Additional supply




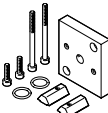
Accessories			→ Link
Type/order code	Description		
[1]	Proportional pressure regulator	VPPE	Link
[2]	Additional supply (set)	For supplying compressed air (consists of compressed air supply plate, screws and seal)	15
[3]	Socket head screw M6x20	For fitting pressure supply plate with slot nut	Link
[4]	O-ring	For sealing	Link

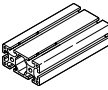
Peripherals


Accessories		→ Link
Type/order code	Description	
[5] Slot nuts	For fastening on the profile strip using clamps	↗ –
[6] End plate (SET)	For sealing the profile strip (consists of an end plate, screws and seal)	14
[7] Profile strip	Standard profile strip as central air supply	14


Accessories


Connecting cable, straight				
	Electrical connection	Cable length	Part no.	Type
	5-pin/5-wire, Straight socket/open end, M12x1/-	2.5 m	175715	SIM-M12-5GD-2,5-PU
		5 m	175716	SIM-M12-5GD-5-PU


Mounting plate set, consisting of: 1x mounting plate, 2x socket head screws M4X55, 2x socket head screws M4X16, 2x slot nut, 2x O-ring			
	Product weight	Part no.	Type
	110 g	570966	VAME-P5-MK


Profile column (profile strip), made of aluminium, as central air supply, length: individually adjustable			
	Mounting position	Part no.	Type
	optional	175964	HMBS-80/40- -

Set end plate closed, for sealing the profile strip, consisting of: 1x plate, 1x seal, 4x cylinder screws M5x12			
	Product weight	Part no.	Type
	96 g	8021858	VABE-P5-C

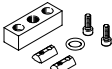
Set pressure supply plate, with connecting thread G1/4, consisting of: 1x plate with connecting thread G1/4, 1x seal, 4x socket head screws M5x12			
	Product weight	Part no.	Type
	85 g	8021861	VABF-P5-P3A3-G12
	87 g	8021860	VABF-P5-P3A3-G38
	88 g	8021859	VABF-P5-P3A3-G14

Pressure supply plate set, with connecting thread G3/8, consisting of: 1x plate with connecting thread G3/8, 1x seal, 4x socket head screws M5x12			
	Product weight	Part no.	Type
	85 g	8021861	VABF-P5-P3A3-G12
	87 g	8021860	VABF-P5-P3A3-G38
	88 g	8021859	VABF-P5-P3A3-G14

Pressure supply plate set, with connecting thread G1/2, consisting of: 1x plate with connecting thread G1/2, 1x seal, 4x socket head screws M5x12			
	Product weight	Part no.	Type
	85 g	8021861	VABF-P5-P3A3-G12
	87 g	8021860	VABF-P5-P3A3-G38
	88 g	8021859	VABF-P5-P3A3-G14

Additional supply set, with connecting thread G1/4, consisting of: 1x plate with G1/4 connection, 1x O-ring, 2x slot nut, 2x cylinder screws M6x20			
	Product weight	Part no.	Type
	58 g	8021863	VABF-P5-P1A3-G38
	61 g	8021862	VABF-P5-P1A3-G14

Accessories

Additional supply set, with G3/8 connection, consisting of: 1x plate with G3/8 connecting thread, 1x O-ring, 2x slot nuts, 2x cylinder screws M6x20			
	Product weight	Part no.	Type
	58 g	8021863	VABF-P5-P1A3-G38
	61 g	8021862	VABF-P5-P1A3-G14