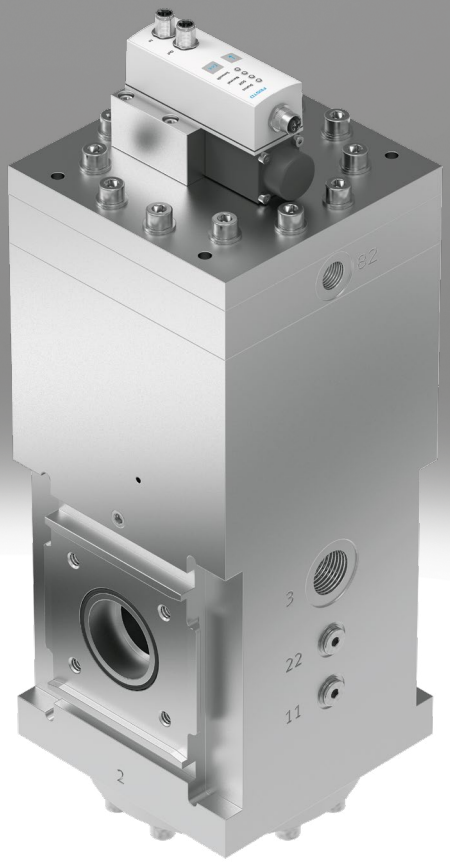
Electric pressure regulator PREL



Characteristics

At a glance

The electrical pressure regulator PREL is operated together with the proportional-pressure regulator VPPL. The output pressure of the electric pressure regulator PREL is determined by the proportional-pressure regulator VPPL via an integrated pressure sensor and compared internally to the setpoint value. In case of deviations, the VPPL controls the regulator of the PREL until the output pressure reaches the setpoint value. In the initial position (no setpoint specification), the output pressure is reduced when the exhaust seat is fully open.

- Pressure regulation in pneumatic control loops
- For high-pressure applications
- Sizes: 90 mm, 186 mm
- Slow pressure increase of 0.6 bar/s with a setpoint value of up to 8 bar, then 4.4 bar/s
- Connection options for pressure gauges on the front and rear, one each for the operating and output pressure

Variant

[1] Variant 1

Pilot valve without external auxiliary pilot air, pressure booster with stepped piston.

[2] Variant 2

Pilot valve without external auxiliary pilot air, pressure booster without stepped piston.

[3] Variant 3

Pilot valve without external auxiliary pilot air, pressure booster with stepped piston.

[4] Variant 4

Pilot valve with external auxiliary pilot air, pressure booster without stepped piston.

[5] Variant 5

Pilot valve with external auxiliary pilot air, pressure booster without stepped piston, with 2 bar offset in the setpoint input.

Type code

001	Series	
PREL	Electric pressure regulator	

002	Size [mm]	
90	90 mm	
186	186 mm	

003	Pressure application range	
HP3	Up to 50 bar	

004	Setpoint input for individual valves	
A4	4 ... 20 mA	
V1	0 ... 10 V	

005	Electrical output 1	
A	4 ... 20 mA	
V	0 ... 10 V	

006	Pressure regulation range	
20	Up to 20 bar	
40	Up to 40 bar	

007	Regulator type	
C	Piloted	

008	Regulator exhausting	
F	Integrated return flow function with secondary exhaust	

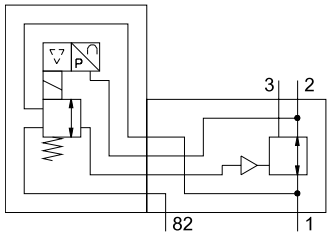
009	Control element	
X	Proportional valve	

010	Overall accuracy	
	Standard	
S1	1%	
S2	2%	

011	Variant	
1	Variant 1	
2	Variant 2	
3	Variant 3	
4	Variant 4	
5	Variant 5	

Datasheet

General technical data



Size	90	186
Nominal size DN	24	45
Pneumatic connection, port 1	G1	
Pneumatic connection, port 2	G1	
Pneumatic connection, port 3	G1	
Pneumatic connection, port 11	G1/4	
Pneumatic port 22	G1/4	
Pneumatic port 82	G3/8	G1/2
Type of actuation	Electric	
Design	Electrically adjustable pressure regulator	
Controller function	Output pressure constant Via primary pressure compensation With secondary venting	
Type of mounting	Either: On service unit With accessories	
Mounting position	Vertical	
Pressure regulation range	0.5 ... 40 bar	0.4 ... 40 bar
Max. pressure hysteresis	–	0.806 bar

Operating and environmental conditions

Operating pressure	0 ... 5 MPa
Operating pressure	0 ... 50 bar
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases
Ambient temperature	5 ... 50°C
Media temperature	5 ... 50°C
Storage temperature	-10 ... 60°C
Corrosion resistance class CRC [1]	2 - Moderate corrosion stress
CE mark (see declaration of conformity) [2]	In accordance with EU Pressure Equipment Directive
UKCA marking (see declaration of conformity)[3]	to UK Pressure Equipment Regulations
Suitable for use with food [4]	See supplementary material information
Approval	Special Equipment Type Test Certification

1) More information: www.festo.com/x/topic/crc
2) More information www.festo.com/catalogue/prel → Support/Downloads.
3) More information www.festo.com/catalogue/prel → Support/Downloads.
4) More information www.festo.com/catalogue/prel → Support/Downloads.

Datasheet

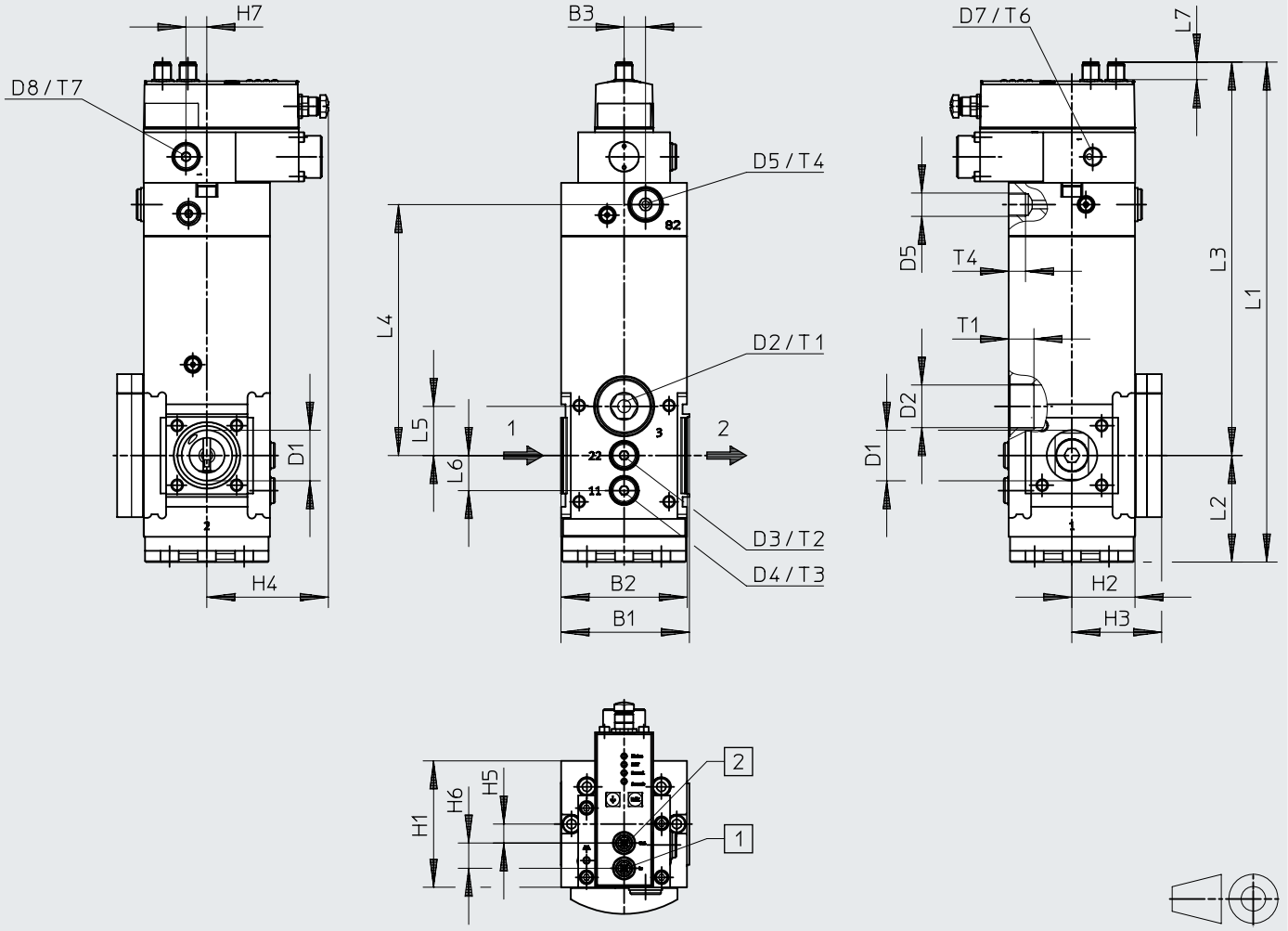
Electrical data				
Size	90		186	
Setpoint input for individual valves	4 ... 20 mA [A4]	0 ... 10 V [V1]	4 ... 20 mA [A4]	0 ... 10 V [V1]
Electrical connection, IN	Plug connector, M12, 5-pin, A-coded			
Electrical connection, OUT	Plug connector, M12, 5-pin, A-coded			
Nominal operating voltage DC	24 V			
Signal range analogue input [1]	0 - 10 V, 4 - 20 mA	0 - 10 V	4 - 20 mA	0 - 10 V
Signal range analogue output [2]	4 - 20 mA	0 - 10 V, 4 - 20 mA	4 - 20 mA	0 - 10 V, 4 - 20 mA
SETPOINT/ACTUAL values [3]	Current type 4-20 mA	Voltage type 0 - 10 V	Current type 4-20 mA	Voltage type 0 - 10 V

Weight		
Size	90	186
Product weight	6,100 g	37,100 g

Materials	
Material housing	Anodised aluminium
Material spring	Spring steel
Material underneath cover	Anodised aluminium
Material seals	NBR
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364 zone III

Dimensions

Dimensions – Size 90 Download CAD data www.festo.com



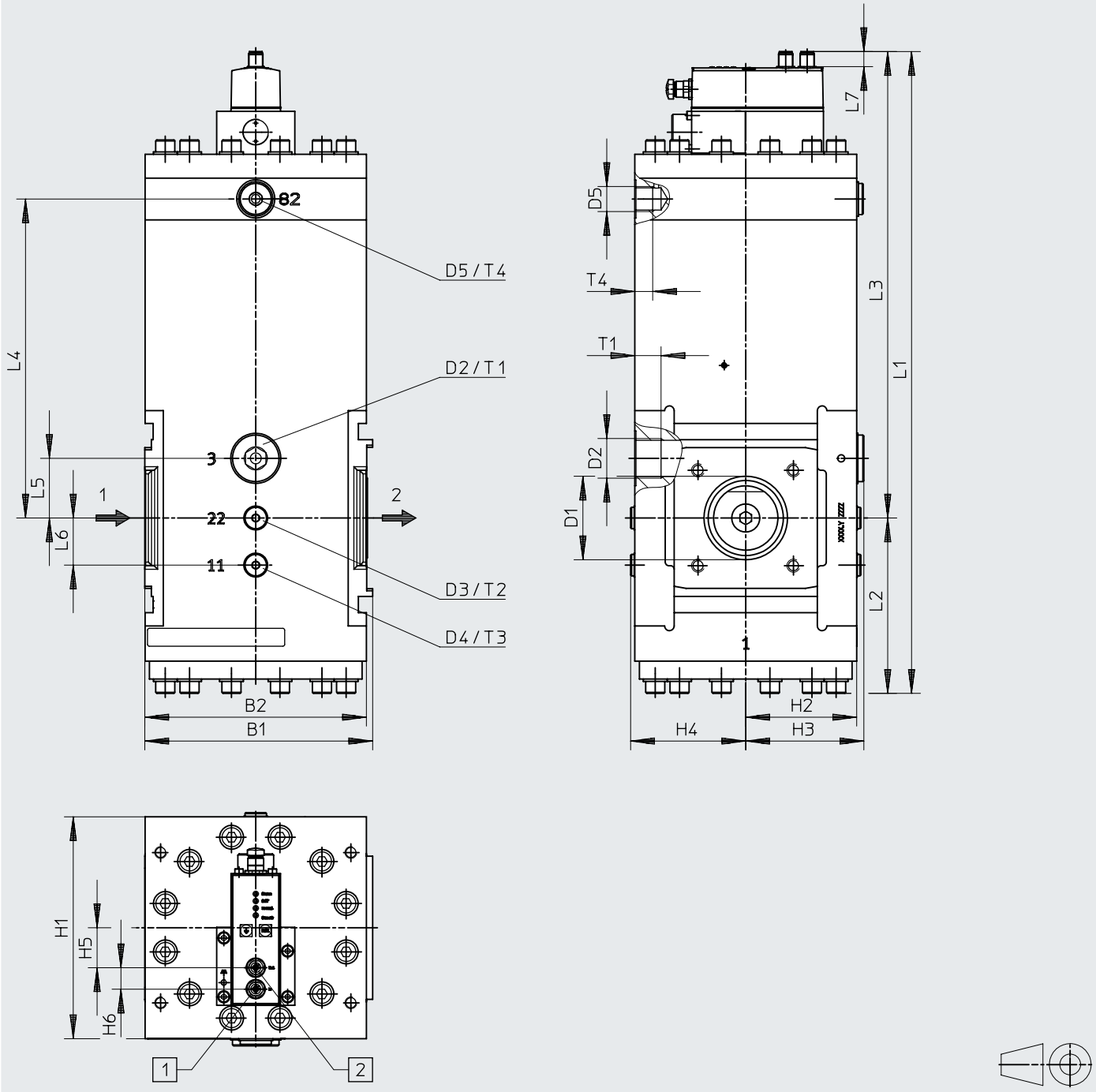
[1] Plug connector M12, 5-pin, analogue output
[2] Plug connector M12, 5-pin, analogue setpoint signal and power supply

	B1	B2	B3	D1 ø	D2	D3	D4	D5	D7	D8	H1	H2	H3	H4	H5	H6	H7
PREL-90-...-...CFX-...-2/3	91,5	90	~15,3	36	G1	G1/4	G1/4	G3/8	–	–	90	~45	~64	~87	13,5	18	~14,9
PREL-90-...-...CFX-...-4/5/8									G1/4	G1/4							

	L1	L2	L3	L4	L5	L6	L7	T1	T2	T3	T4	T6	T7
PREL-90-...-...CFX-...-2/3	~356	76	~280	~179	~35	~25	~12,6	18	12	12	12	–	–
PREL-90-...-...CFX-...-4/5/8												12	12

Dimensions

Dimensions – Size 186 Download CAD data www.festo.com



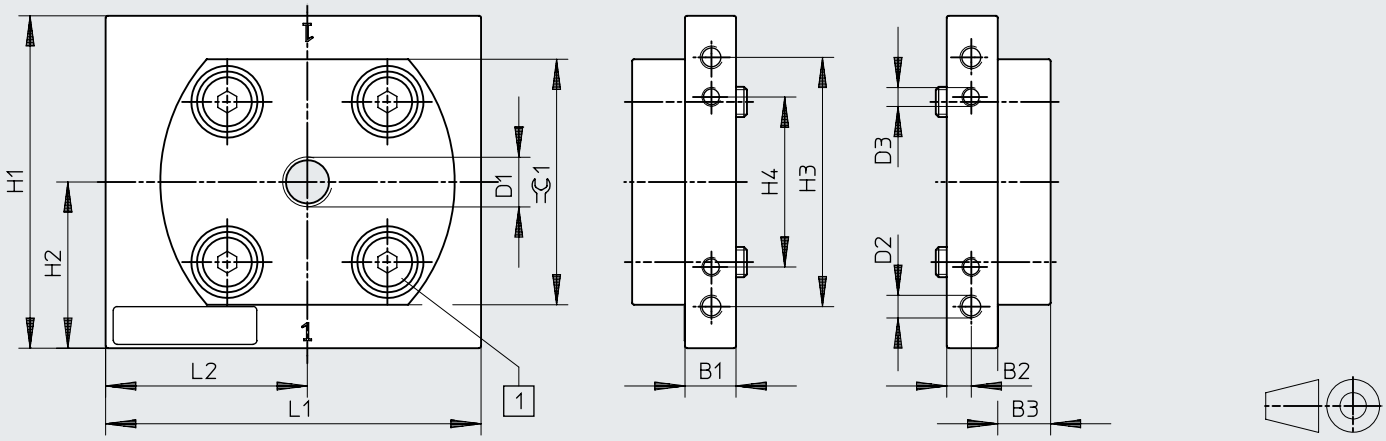
[1] Plug connector M12, 5-pin, analogue output
[2] Plug connector M12, 5-pin, analogue setpoint signal and power supply

	B1	B2	D1 ø	D2	D3	D4	D5	H1	H2	H3	H4	H5	H6
PREL-186-...-40CFX-1	191	186	70	G1	G1/4	G1/4	G1/2	186	93	99	96,5	33,5	18

	L1	L2	L3	L4	L5	L6	L7	T1	T2	T3	T4
PREL-186-...-40CFX-1	~537	~147	~390	267,5	50	39,5	~12,6	18	12	12	14

Dimensions

Dimensions – Connecting plate PAML-CP-90-HP3-G14/G12/G34/G1 Download CAD data www.festo.com



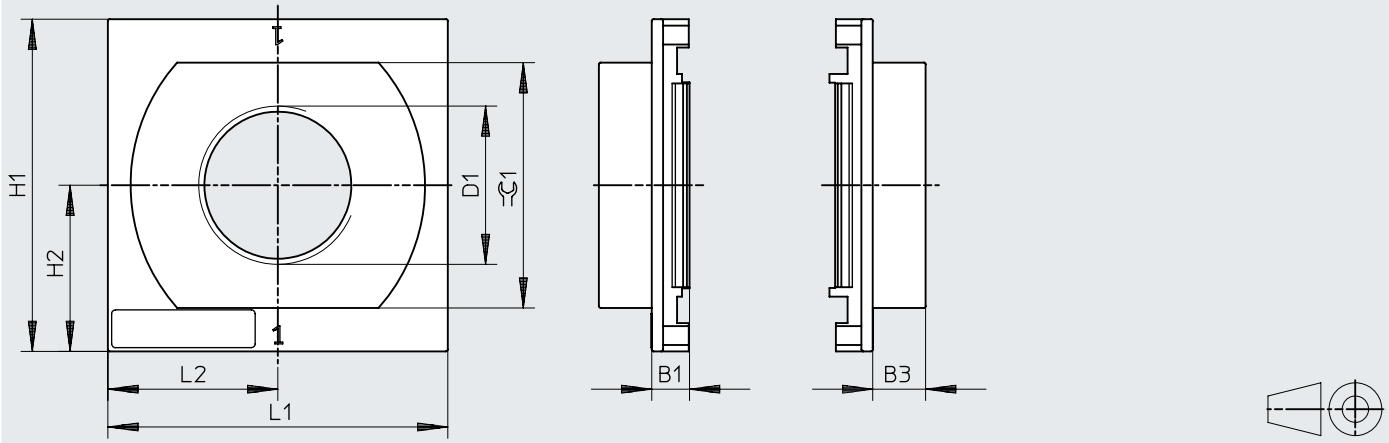
[1] Cylinder screw M8x25

	B1	B2	B3	D1	D2[1)]	D3	H1	H2	H3	H4	L1	L2	⊂ 1
PAML-CP-90-HP3-G14	13,5	6,5	14	G1/4	M6x10	M5x9	88	44	66	45	~99	~53	65
PAML-CP-90-HP3-G14				G1/2									
PAML-CP-90-HP3-G14				G3/4									
PAML-CP-90-HP3-G14				G1									

1) Thread for mounting the service unit component on a wall without mounting bracket

Dimensions

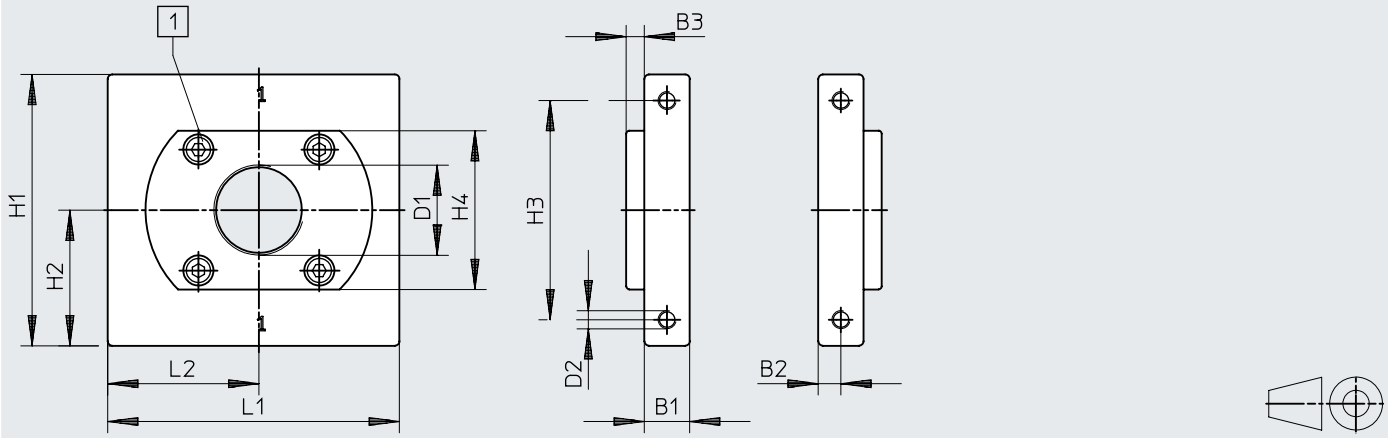
Dimensions – Connecting plate PAML-CP-90-HP3-G114 Download CAD data www.festo.com



	B1	B3	D1	D3	H1	H2	L1	L2	⌀1
PAML-CP-90-HP3-G114	10	14	G1 1/4	M5x9	88	44	90	45	65

Dimensions

Dimensions – Connecting plate PAML-CP-186-... Download CAD data www.festo.com

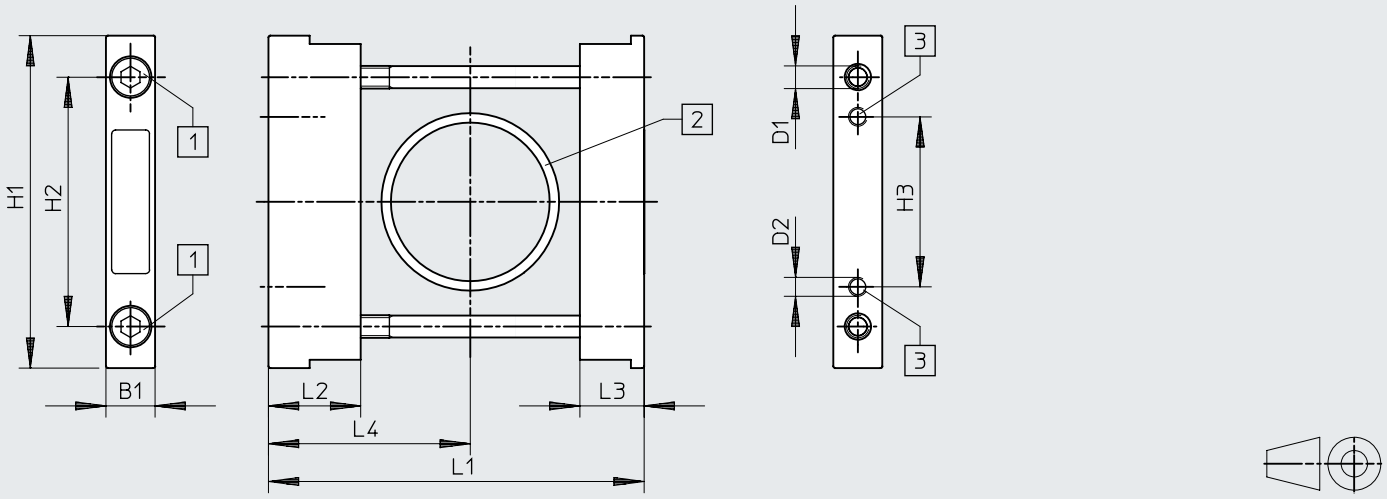


[1] Cylinder screw M10x30

	B1	B2	B3	D1	D2	H1	H2	H3	H4	L1	L2
PAML-CP-186-HP3-G14	30	15	12	G1/4	M12	180	90	145	105	193	100
PAML-CP-186-HP3-G114				G1 1/4							
PAML-CP-186-HP3-G112				G1 1/2							
PAML-CP-186-HP3-G2				G2							
PAML-CP-186-HP3-G212			25	G2 1/2							

Dimensions

Dimensions – Module connector PAML-MK-90 Download CAD data www.festo.com



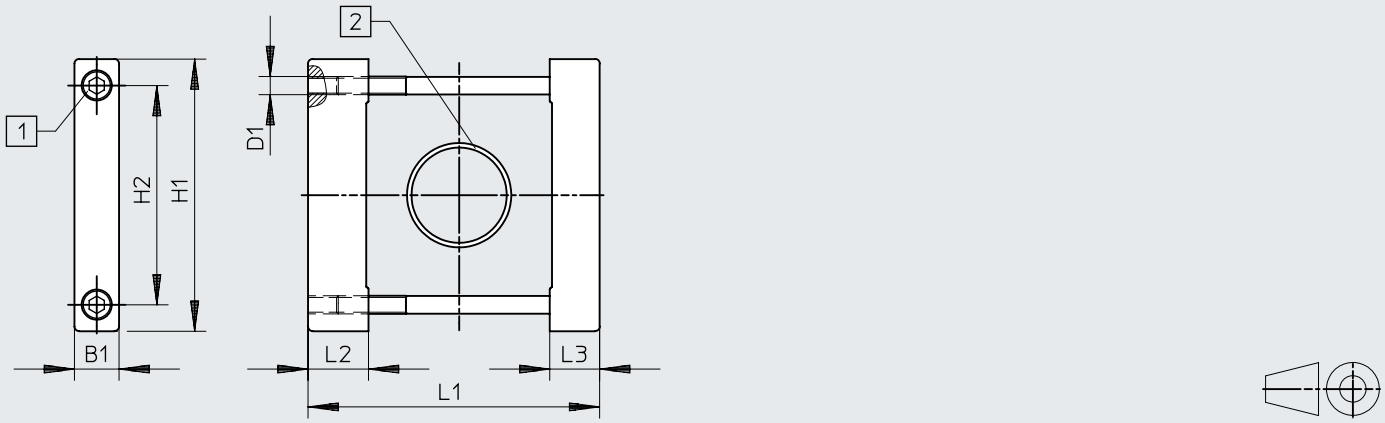
[1] Cylinder screw M6x85
[2] O-ring 42x2.5
[3] Thread for mounting the service unit component on a wall

	B1	D1	D2	H1	H2	H3	L1[1)]	L2	L3	L4[1)]
PAML-MK-90-HP3	13	M6	M5x9	88	66	45	99	24,4	17	~53

1) Dimension when mounted

Dimensions

Dimensions – Module connector PAML-MK-186 Download CAD data www.festo.com



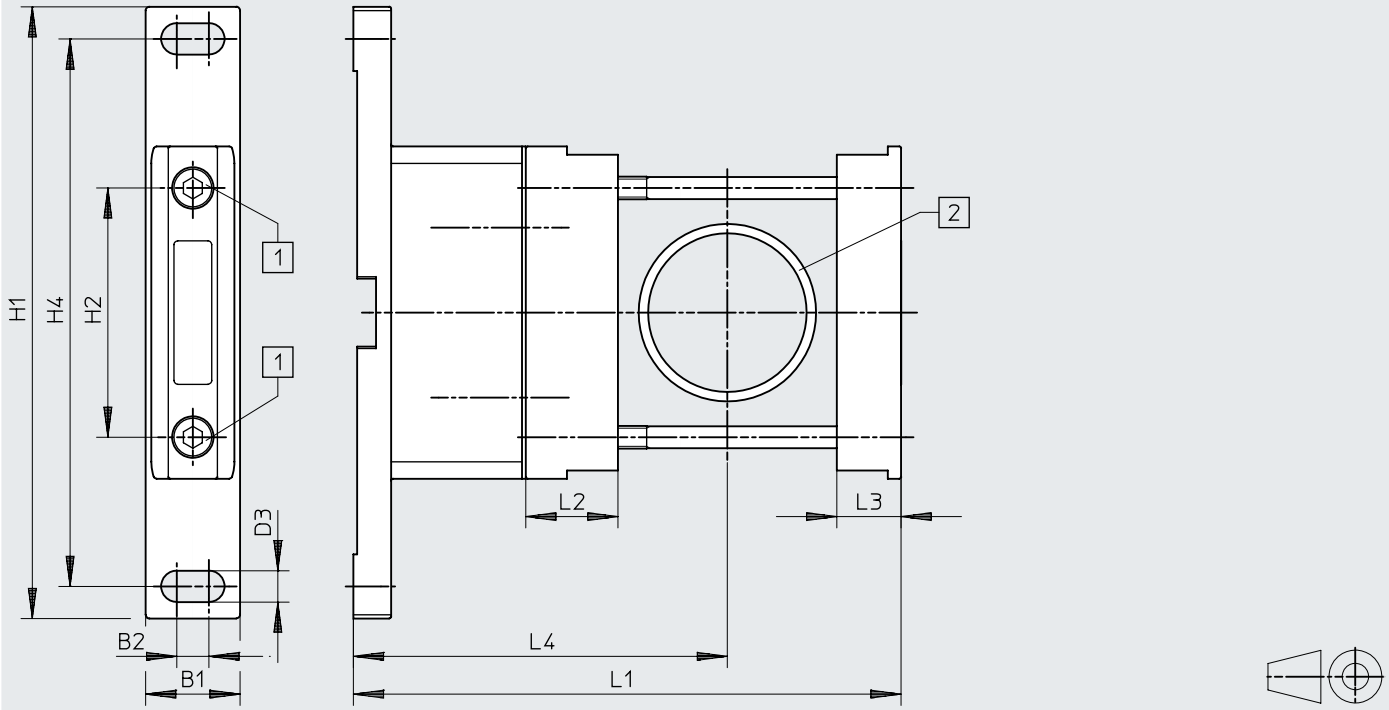
[1] Cylinder screw M12x160
[2] O-ring 63x3

	B1	D1	H1	H2	L1[1)]	L2	L3
PAML-MK-186-HP3	29,5	M12	180	145	193	40	33

1) Dimension when mounted

Dimensions

Dimensions – Mounting bracket PAML-MB Download CAD data www.festo.com



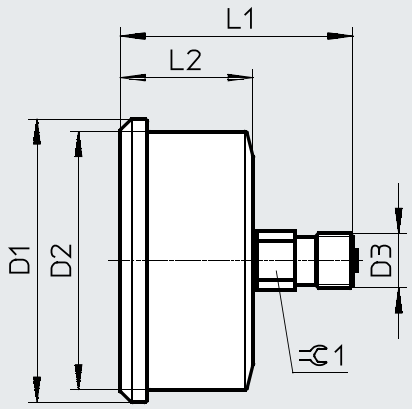
[1] Cylinder screw M5x18
[2] O-ring 42x2.5

	B1	B2	D3	H1	H2	H4	L1[1)]	L2	L3	L4[1)]
PAML-MB-90-HP3	25	8,5	8,3	162	66	145	~145	24,4	17	~99

1) Dimension when mounted

Dimensions

Dimensions – Pressure gauge PAGL Download CAD data www.festo.com



	D1 ø	D2 ø	D3	L1 ±0,5	L2 ±0,5	1
PAGL-HP3-63-60-G14	68	62	G1/4	56	32	14

Ordering data

Size 90 – without external auxiliary pilot air

	Pressure regulation range	SETPOINT/ACTUAL values	Signal range analogue input	Signal range analogue output	Part no.	Type
	0.5 ... 20 bar	Voltage type 0 - 10 V	0 - 10 V	0 - 10 V	**1709129**	**PREL-90-HP3-V1-V-20CFX-S1-2**
				4 - 20 mA	**1709128**	**PREL-90-HP3-V1-A-20CFX-S1-2**
	0.6 ... 40 bar			0 - 10 V	**1709132**	**PREL-90-HP3-V1-V-40CFX-S2-3**
				4 - 20 mA	**1709131**	**PREL-90-HP3-V1-A-40CFX-S2-3**
		Current type 4-20 mA			**1709133**	**PREL-90-HP3-A4-A-40CFX-S2-3**

Size 90 – with external auxiliary pilot air

	Pressure regulation range	SETPOINT/ACTUAL values	Signal range analogue input	Signal range analogue output	Part no.	Type
	0.5 ... 20 bar	Voltage type 0 - 10 V	0 - 10 V	0 - 10 V	**1709135**	**PREL-90-HP3-V1-V-20CFX-S1-4**
				4 - 20 mA	**1709134**	**PREL-90-HP3-V1-A-20CFX-S1-4**
		Current type 4-20 mA	4 - 20 mA		**1709136**	**PREL-90-HP3-A4-A-20CFX-S1-4**

Size 90 – with external auxiliary pilot air, with 2 bar offset in setpoint input

	Pressure regulation range	SETPOINT/ACTUAL values	Signal range analogue input	Signal range analogue output	Part no.	Type
	2 ... 40 bar	Voltage type 0 - 10 V	0 - 10 V	4 - 20 mA	**1709137**	**PREL-90-HP3-V1-A-40CFX-S1-5**

Size 186 – without external auxiliary pilot air

	Pressure regulation range	SETPOINT/ACTUAL values	Signal range analogue input	Signal range analogue output	Part no.	Type
	0.4 ... 40 bar	Voltage type 0 - 10 V	0 - 10 V	0 - 10 V	**1709212**	**PREL-186-HP3-V1-V-40CFX-1**

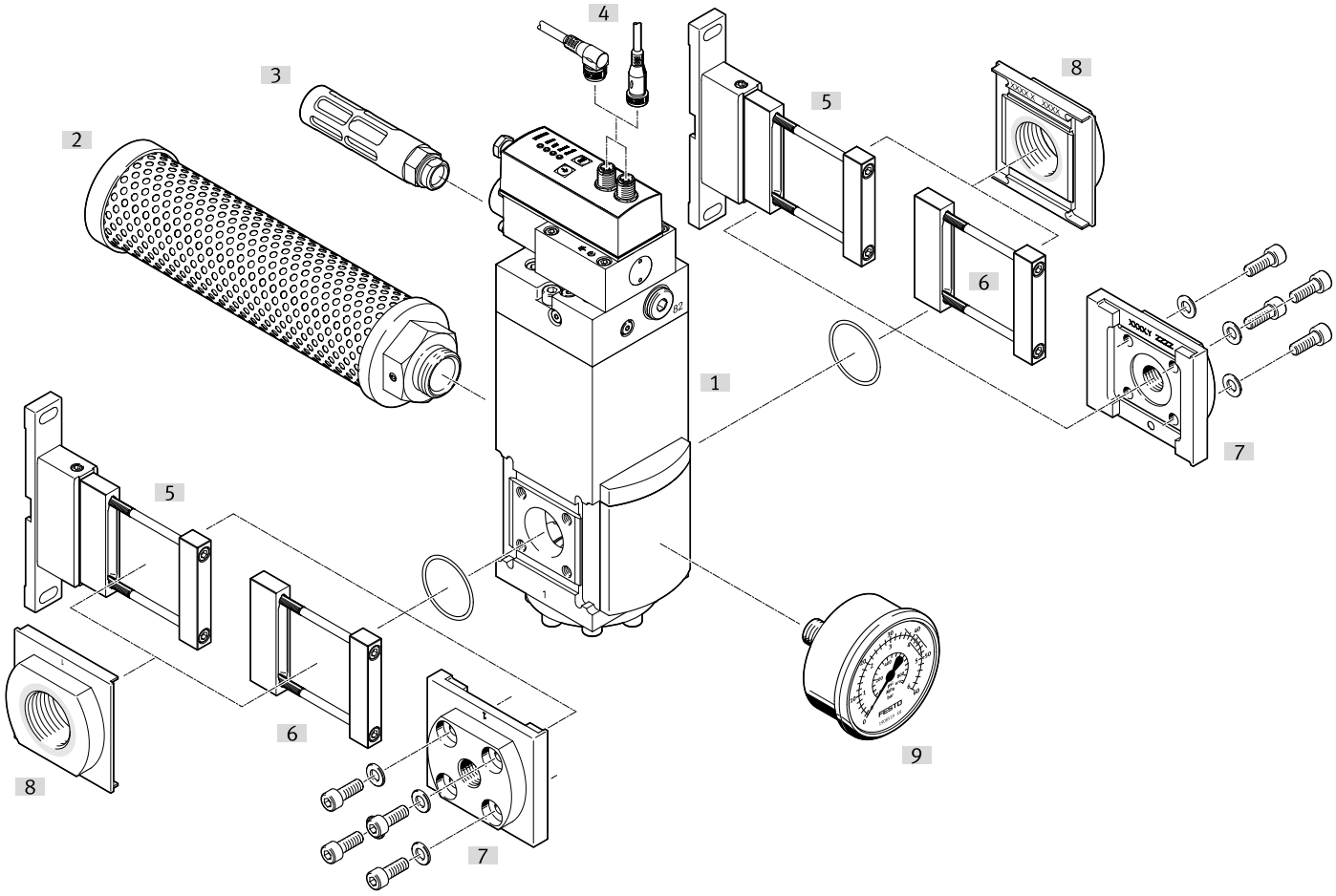
Ordering data

Size 186 – without external auxiliary pilot air

	Pressure regulation range	SETPOINT/ACTUAL values	Signal range analogue input	Signal range analogue output	Part no.	Type
	0.4 ... 40 bar	Voltage type 0 - 10 V	0 - 10 V	4 - 20 mA	**1709211**	**PREL-186-HP3-V1-A-40CFX-1**
		Current type 4-20 mA	4 - 20 mA		**1709213**	**PREL-186-HP3-A4-A-40CFX-1**

Peripherals

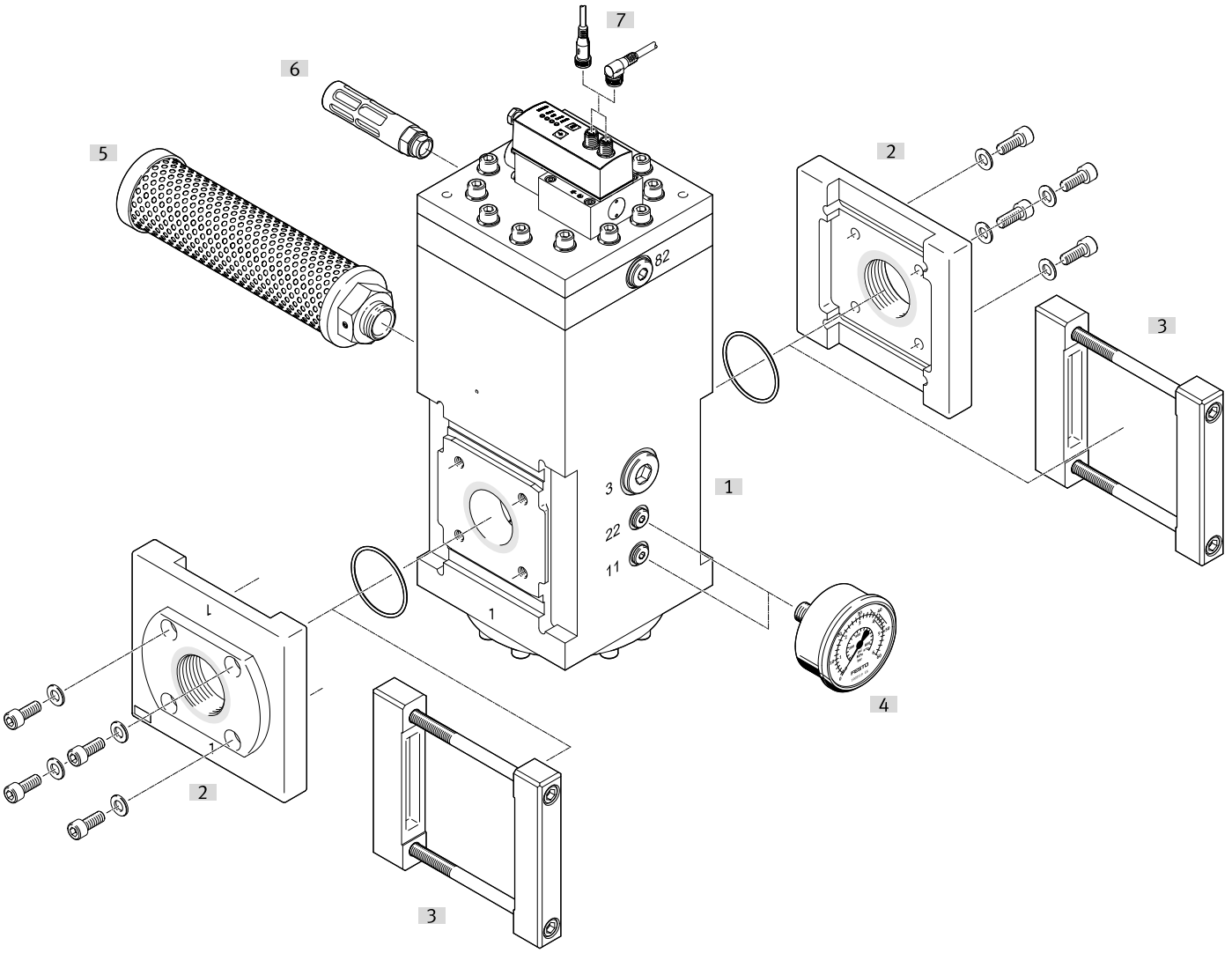
Size 90



Accessories			→ Link
	Type/order code	Description	
[1]	Electric pressure regulator PREL		prel
[2]	Silencer U-G1-HD-SA	On request	–
[3]	Silencer U-3/8-B		20
[4]	Connecting cable NEBA-M12		19
[5]	Mounting bracket PAML-MB		19
[6]	Module connector PAML-MK		19
[7]	Connecting plate PAML-CP		19
[8]	Sub-bases PAML-CP-...-G114		19
[9]	Pressure gauge PAGL		19

Peripherals

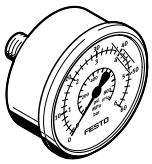
Size 186



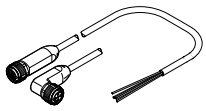
Accessories			→ Link
	Type/order code	Description	
[1]	Electric pressure regulator PREL		prel
[2]	Connecting plate PAML-CP		19
[3]	Module connector PAML-MK		19
[4]	Pressure gauge PAGL		19
[5]	Silencer U-G1-HD-SA	On request	–
[6]	Silencer U-1/2-B		20
[7]	Connecting cable NEBA-M12		19

Accessories

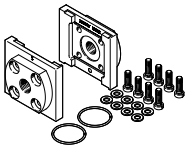
Pressure gauge PAGL

	Nominal size of pressure gauge	Pneumatic connection	Position of connection	Product weight	Part no.	Type
	63	G1/4	Radial underneath	80 g	**1908519**	**PAGL-HP3-63-60-G14-RC**
			Centred, rear side		**1166938**	**PAGL-HP3-63-60-G14**

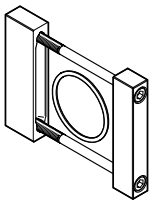
Connecting cable NEBA-M12

	Electrical connection 1, connector system	Electrical connection 1, cable outlet	Electrical connection 1, used connections/cores	Cable length	Part no.	Type
	M12x1, A-coded to EN 61076-2-101	Straight	5	2.5 m	★ **8078242**	**NEBA-M12G5-U-2.5-N-LE5**
				5 m	★ **8078243**	**NEBA-M12G5-U-5-N-LE5**
				10 m	★ **8078244**	**NEBA-M12G5-U-10-N-LE5**
		Angled		2.5 m	**8078251**	**NEBA-M12W5-U-2.5-N-LE5**
				5 m	**8078252**	**NEBA-M12W5-U-5-N-LE5**

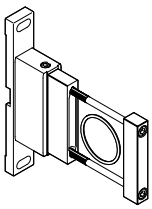
Connecting plates PAML-CP

	Size	Pneumatic connection, port 1	Pneumatic connection, port 2	Product weight	Part no.	Type
	90	G1/4	G1/4	800 g	**1651540**	**PAML-CP-90-HP3-G14**
		G1/2	G1/2	770 g	**1651541**	**PAML-CP-90-HP3-G12**
		G3/4	G3/4	750 g	**1651542**	**PAML-CP-90-HP3-G34**
		G1	G1	730 g	**1651543**	**PAML-CP-90-HP3-G1**
		G1 1/4	G1 1/4	500 g	**1448978**	**PAML-CP-90-HP3-G114**
	186	G1/4	G1/4	4,700 g	**1629300**	**PAML-CP-186-HP3-G14**
		G1 1/4	G1 1/4	4,600 g	**1629296**	**PAML-CP-186-HP3-G114**
		G1 1/2	G1 1/2	4,500 g	**1629297**	**PAML-CP-186-HP3-G112**
		G2	G2	4,400 g	**1629298**	**PAML-CP-186-HP3-G2**
		G2 1/2	G2 1/2	4,900 g	**1629299**	**PAML-CP-186-HP3-G212**

Module connector PAML-MK

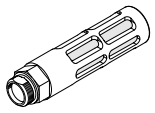
	Size	Product weight	Part no.	Type
	90	150 g	**1367005**	**PAML-MK-90-HP3**
	186	1,300 g	**1629377**	**PAML-MK-186-HP3**

Mounting bracket PAML-MB

	Size	Product weight	Part no.	Type
	90	300 g	**1367323**	**PAML-MB-90-HP3**

Accessories

Silencer U

	Description	Pneumatic connection	Sound pressure level	Product weight	Part no.	Type
	for PREL-90	G3/8	80 dB(A)	37 g	**6843**	**U-3/8-B**
	for PREL-186	G1/2	81 dB(A)	75 g	**6844**	**U-1/2-B**