

Electric pressure regulator PREL

FESTO



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	[2]	Variant 2
Pilot valve without external auxiliary pilot air, pressure booster with stepped piston.		Pilot valve without external auxiliary pilot air, pressure booster without stepped piston.	
[3]	Variant 3	[4]	Variant 4
Pilot valve without external auxiliary pilot air, pressure booster with stepped piston.		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.			

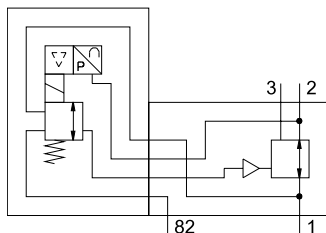
Type code

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/crc2) 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

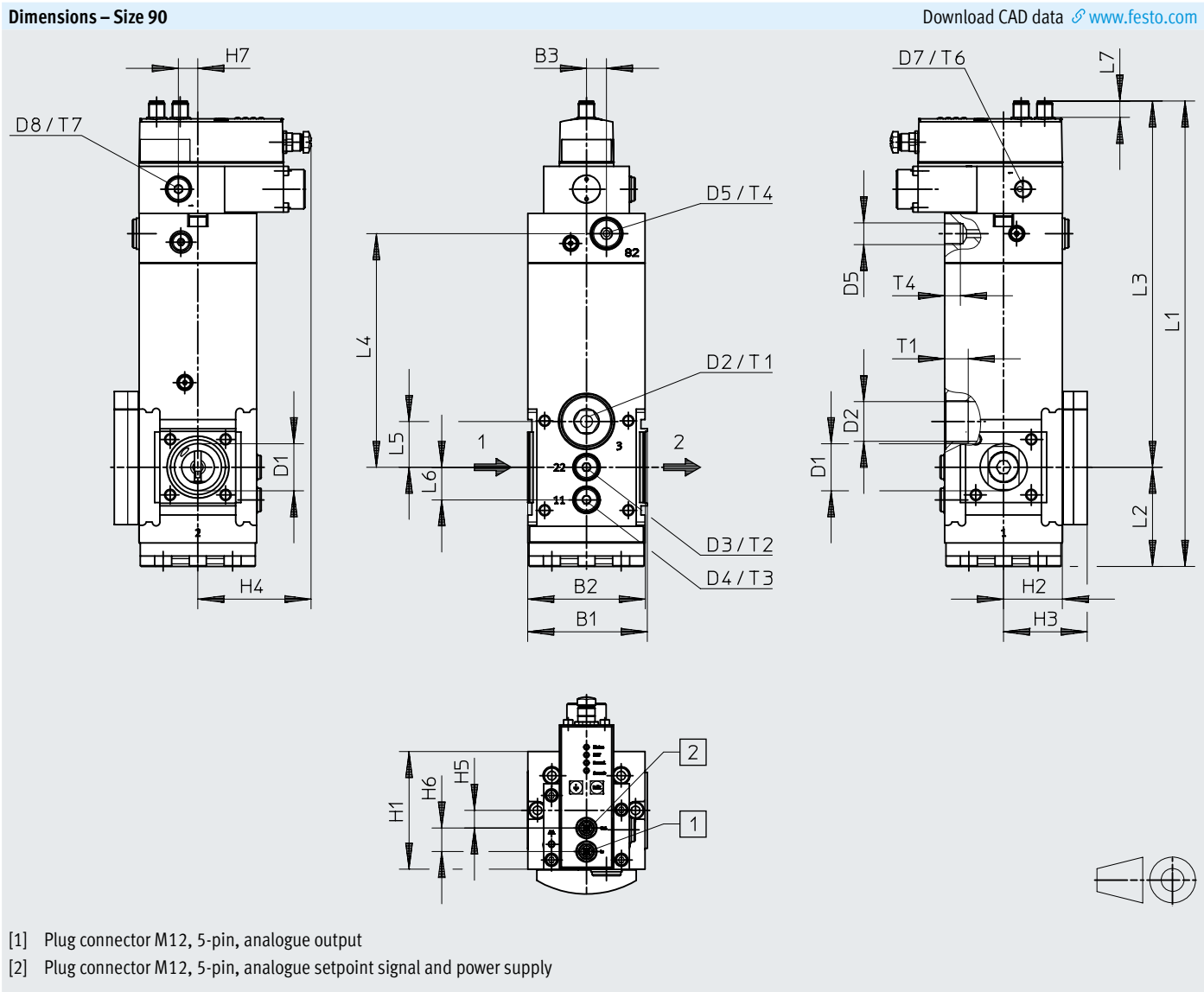
Weight

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

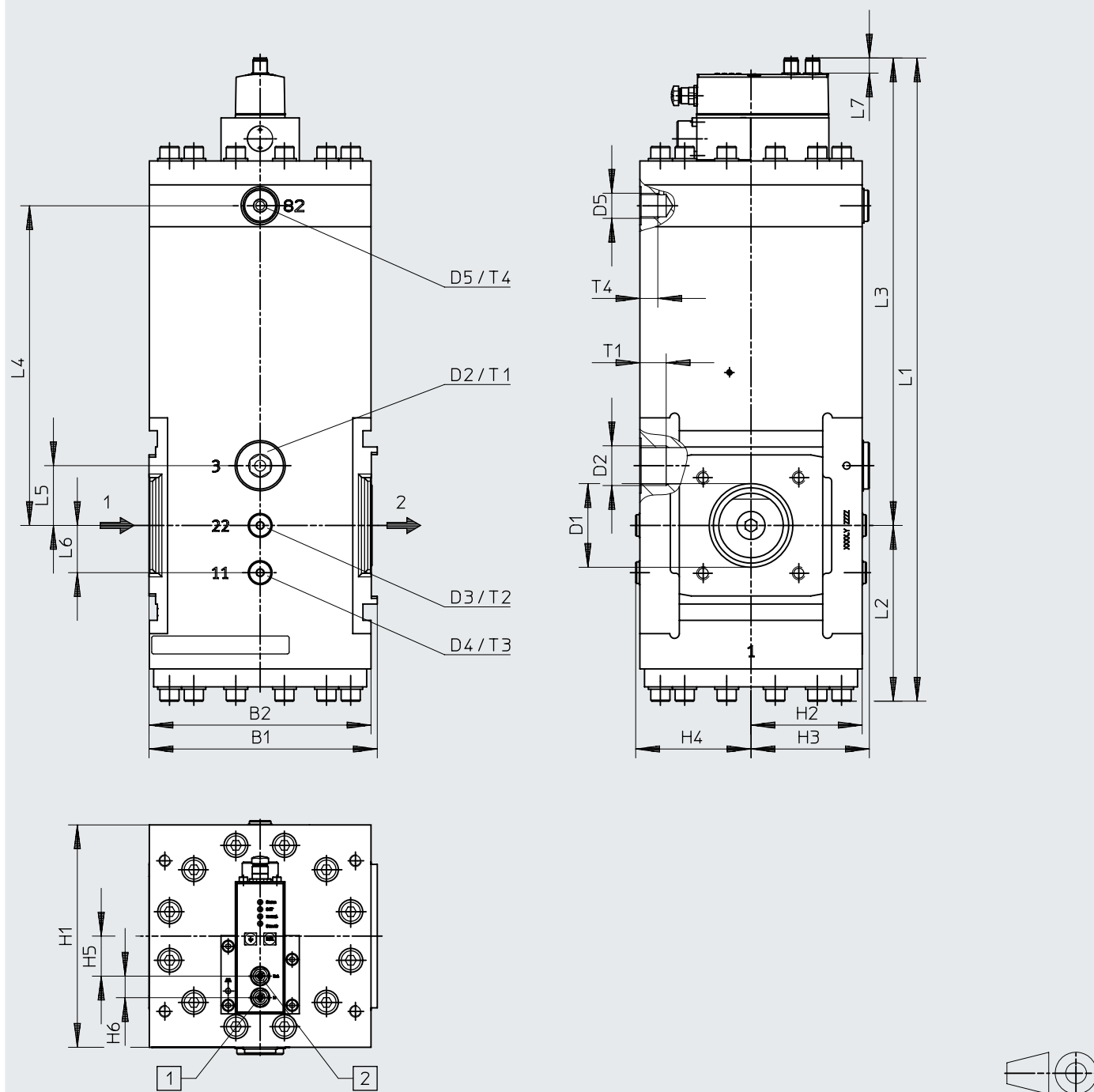


	B1	B2	B3	D1 Ø	D2	D3	D4	D5	D7	D8	H1	H2	H3	H4	H5	H6	H7
PREL-90-...CFX-...-2/3	91,5	90	~15,3	36	G1	G1/4	G1/4	G3/8	-	-	90	~45	~64	~87	13,5	18	~14,9
PREL-90-...CFX-...-4/5/8									G1/4	G1/4							

	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

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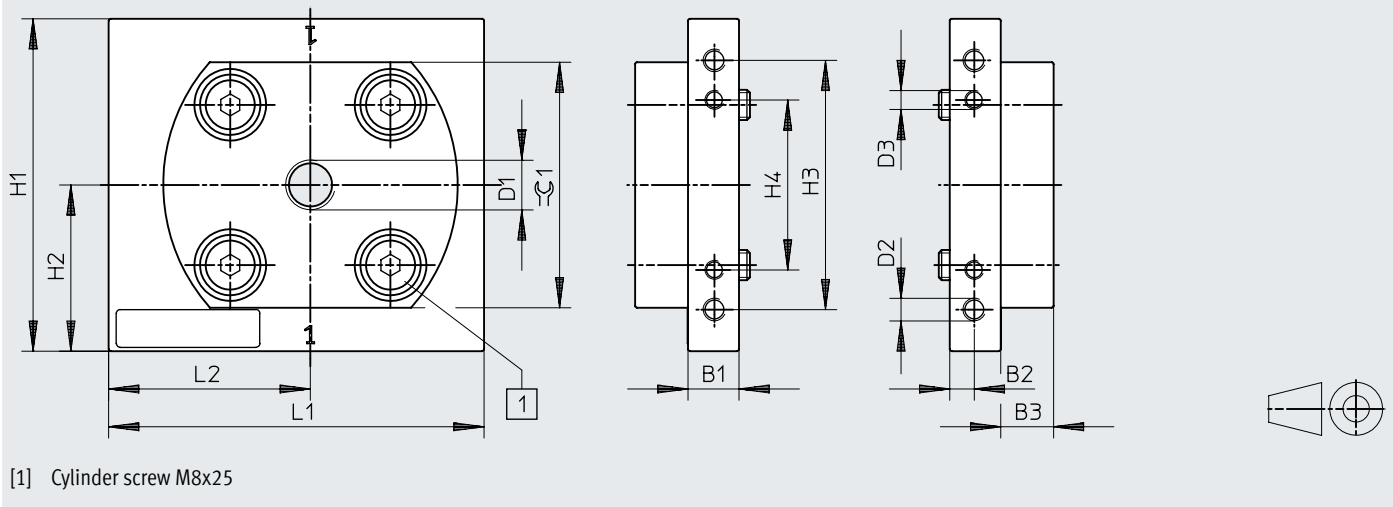
[1] Plug connector M12, 5-pin, analogue output

[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



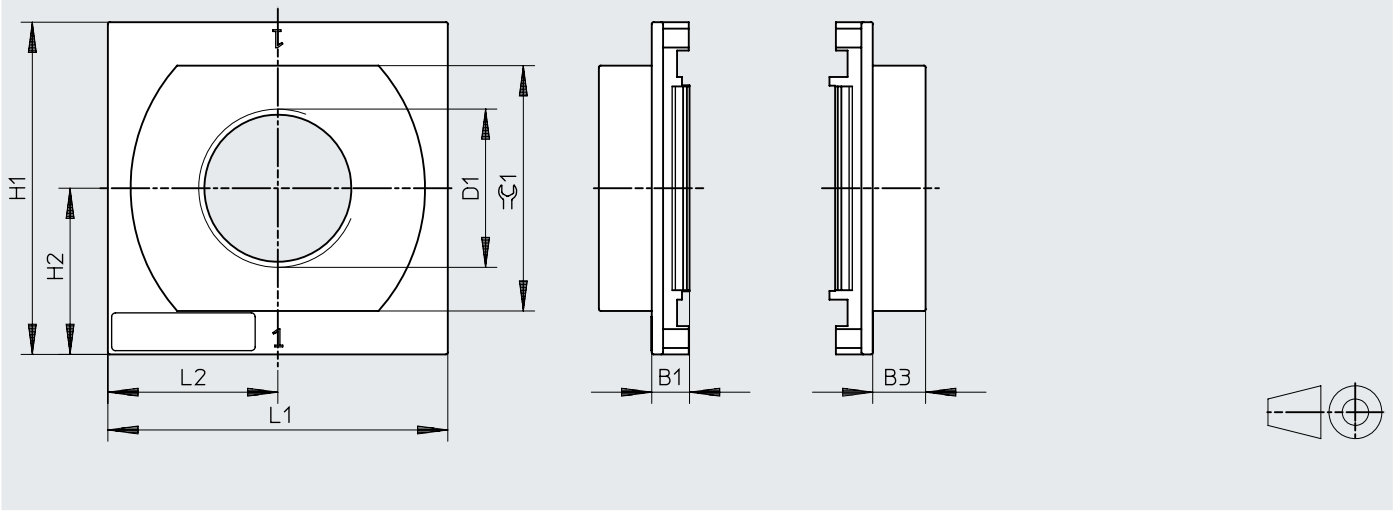
	B1	B2	B3	D1	D2 ¹⁾	D3	H1	H2	H3	H4	L1	L2	±C 1
PAML-CP-90-HP3-G14	13,5	6,5	14	G1/4	M6x10	M5x9	88	44	66	45	~99	~53	65
PAML-CP-90-HP3-G14				G1/2									
PAML-CP-90-HP3-G14				G3/4									
PAML-CP-90-HP3-G14				G1									

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

Dimensions

Dimensions – Connecting plate PAML-CP-90-HP3-G114

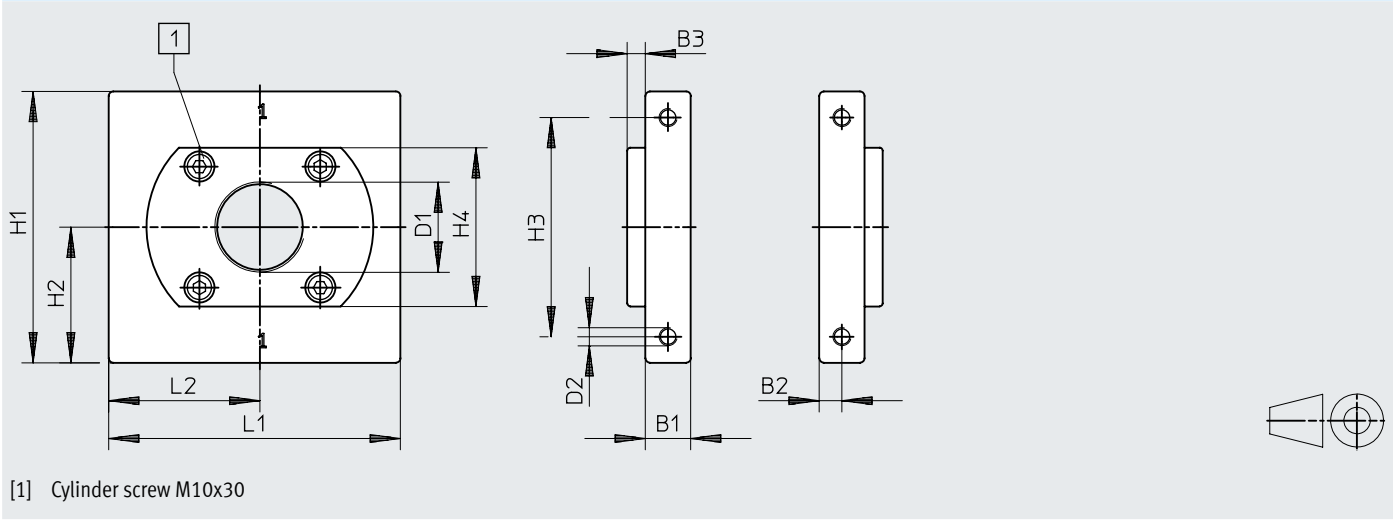
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	B1	B3	D1	D3	H1	H2	L1	L2	⊥ 1
PAML-CP-90-HP3-G114	10	14	G1 1/4	M5x9	88	44	90	45	65

Dimensions

Dimensions – Connecting plate PAML-CP-186-... [Download CAD data](#) www.festo.com

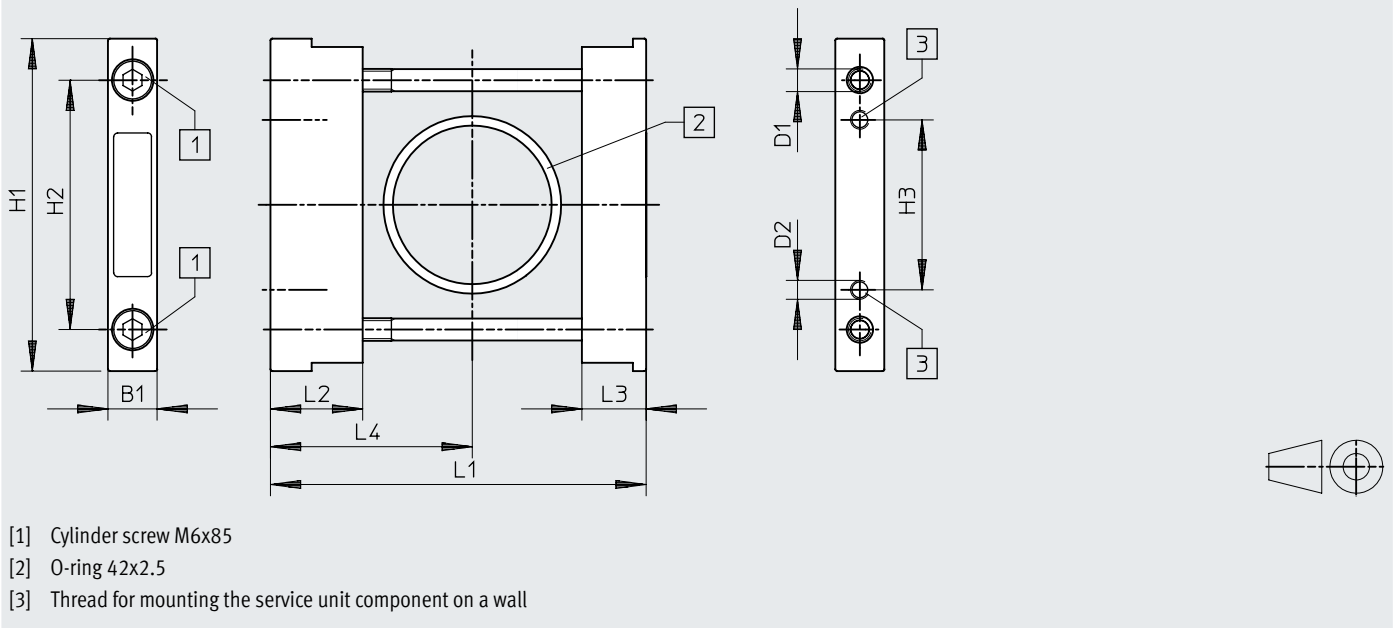


	B1	B2	B3	D1	D2	H1	H2	H3	H4	L1	L2
PAML-CP-186-HP3-G14	30	15	12	G1/4	M12	180	90	145	105	193	100
PAML-CP-186-HP3-G114				G1 1/4							
PAML-CP-186-HP3-G112				G1 1/2							
PAML-CP-186-HP3-G2				G2							
PAML-CP-186-HP3-G212			25	G2 1/2							

Dimensions

Dimensions – Module connector PAML-MK-90

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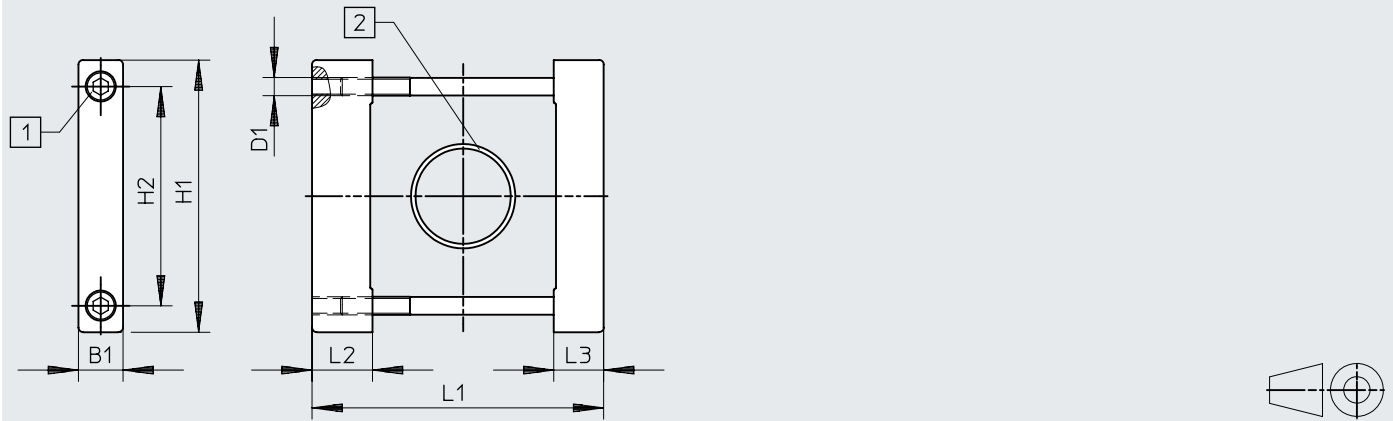


	B1	D1	D2	H1	H2	H3	L1 ¹⁾	L2	L3	L4 ¹⁾
PAML-MK-90-HP3	13	M6	M5x9	88	66	45	99	24,4	17	~53

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

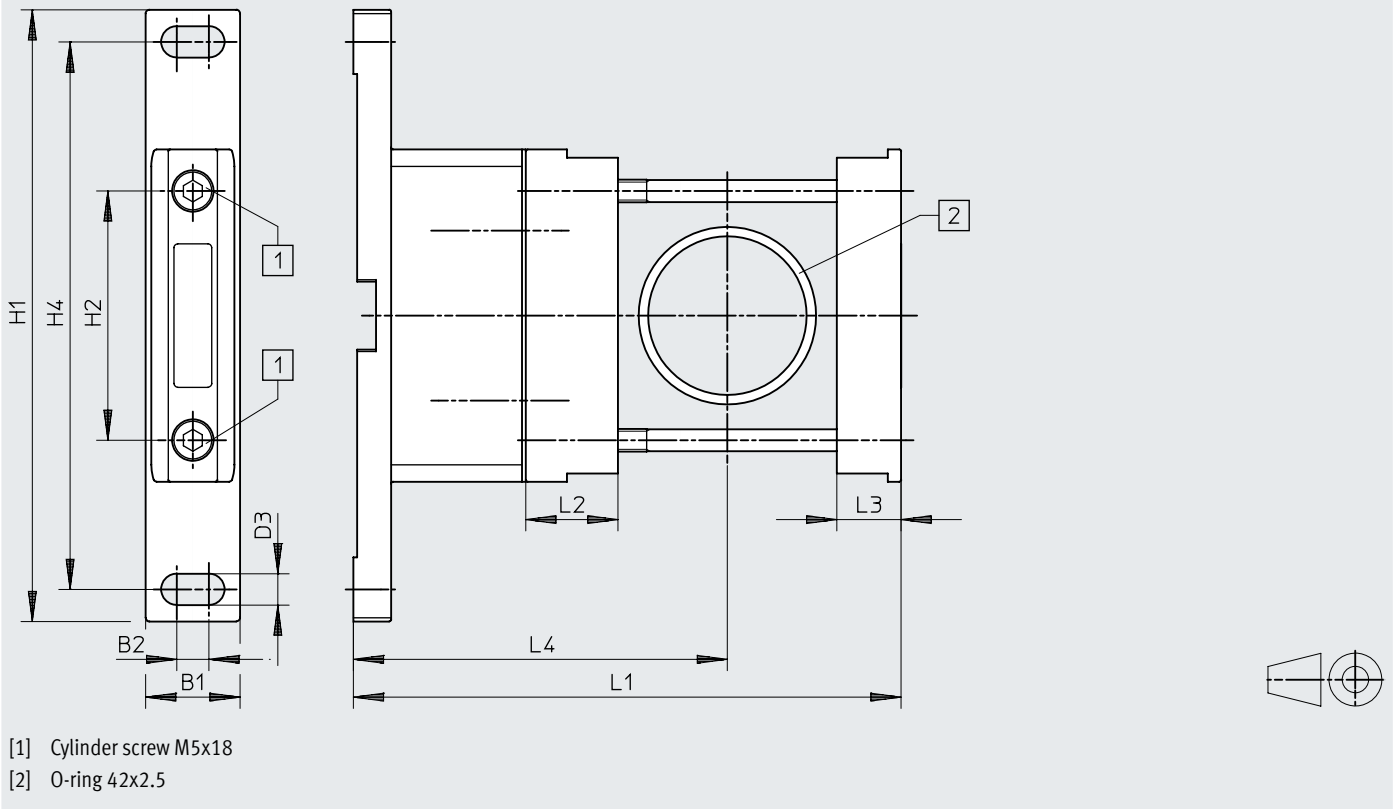
	B1	D1	H1	H2	L1 ¹⁾	L2	L3
PAML-MK-186-HP3	29,5	M12	180	145	193	40	33

1) Dimension when mounted

Dimensions

Dimensions – Mounting bracket PAML-MB

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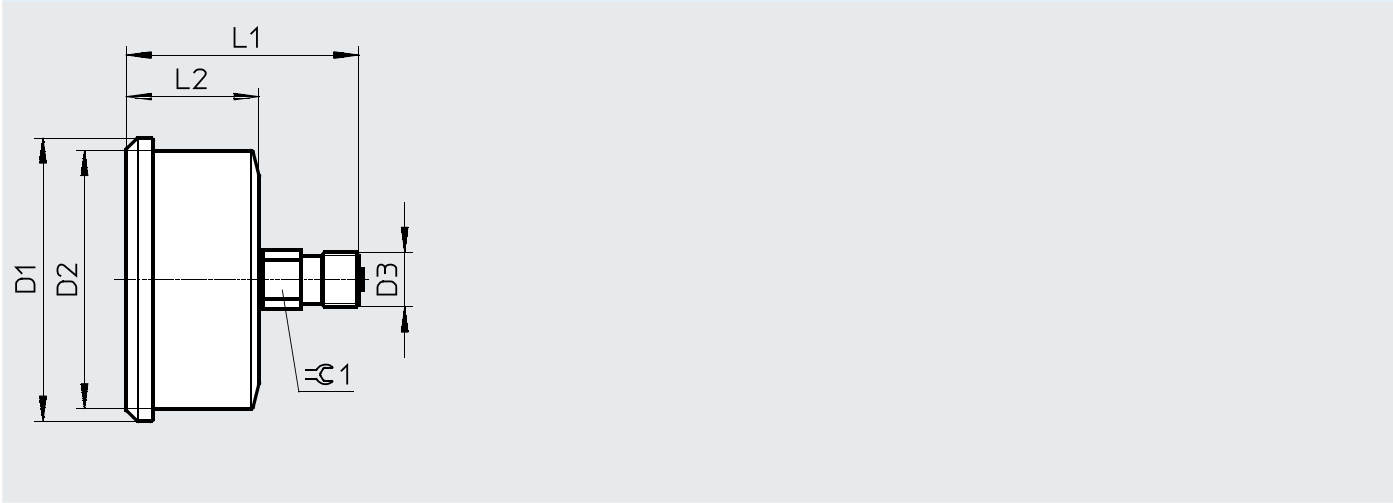


	B1	B2	D3	H1	H2	H4	L1 ¹⁾	L2	L3	L4 ¹⁾
PAML-MB-90-HP3	25	8,5	8,3	162	66	145	~145	24,4	17	~99

1) Dimension when mounted

Dimensions

Dimensions – Pressure gauge PAGL [Download CAD data](http://www.festo.com) www.festo.com



	D1	D2	D3	L1	L2	⌀ 1
	∅	∅		±0,5	±0,5	
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
	0.6 ... 40 bar			4 - 20 mA	1709128	PREL-90-HP3-V1-A-20CFX-S1-2
				Current type 4-20 mA	0 - 10 V	1709132
		4 - 20 mA			1709131	PREL-90-HP3-V1-A-40CFX-S2-3
		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

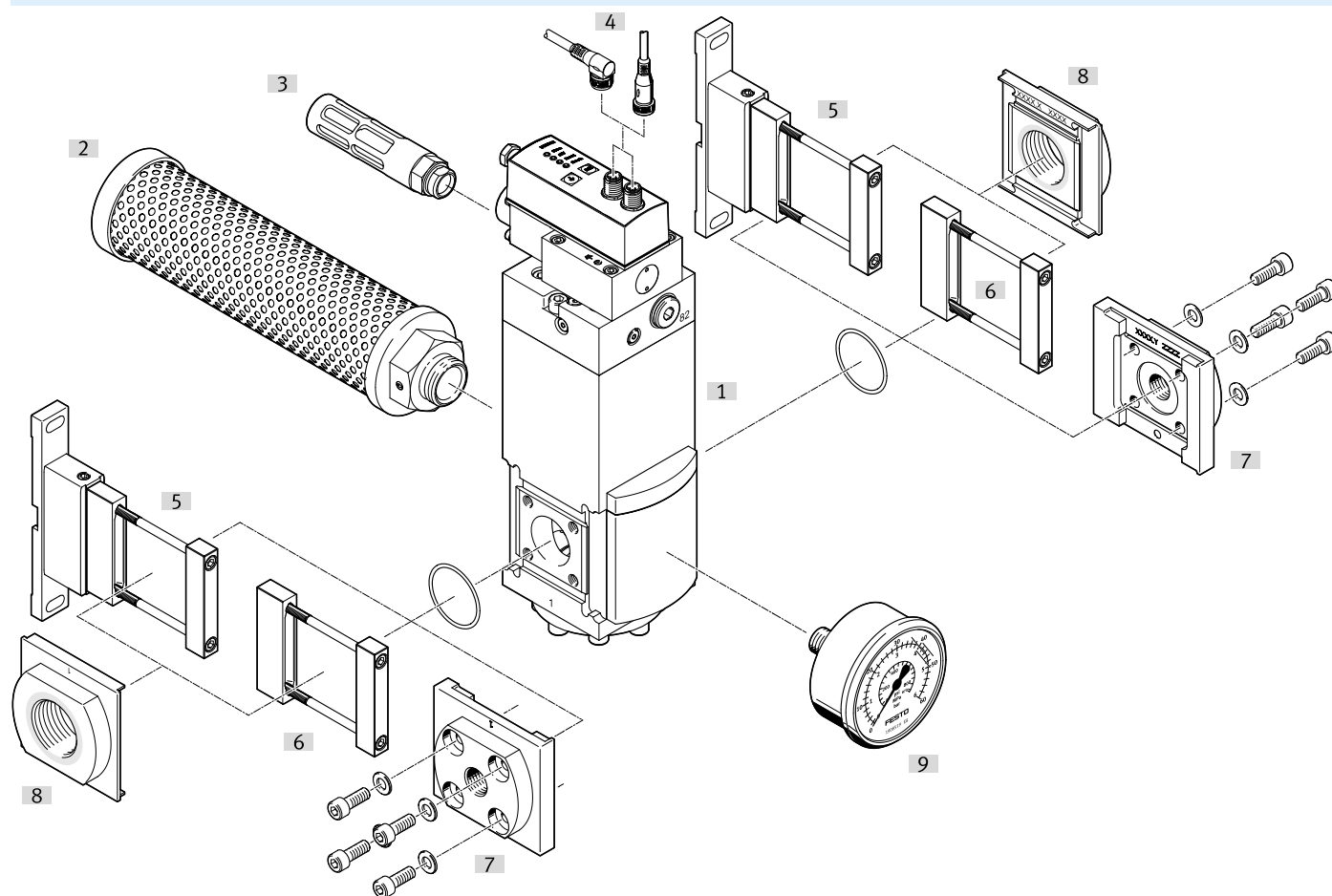
Size 186 – without external auxiliary pilot air						
	Pressure regulation range	SETPOINT/ACTUAL values	Signal range analogue input	Signal range analogue output	Part no.	Type
	0.4 ... 40 bar	Voltage type 0 - 10 V	0 - 10 V	0 - 10 V	1709212	PREL-186-HP3-V1-V-40CFX-1

Ordering data

Size 186 – without external auxiliary pilot air						
	Pressure regula- tion range	SETPOINT/ACTU- AL values	Signal range ana- logue input	Signal range ana- logue 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

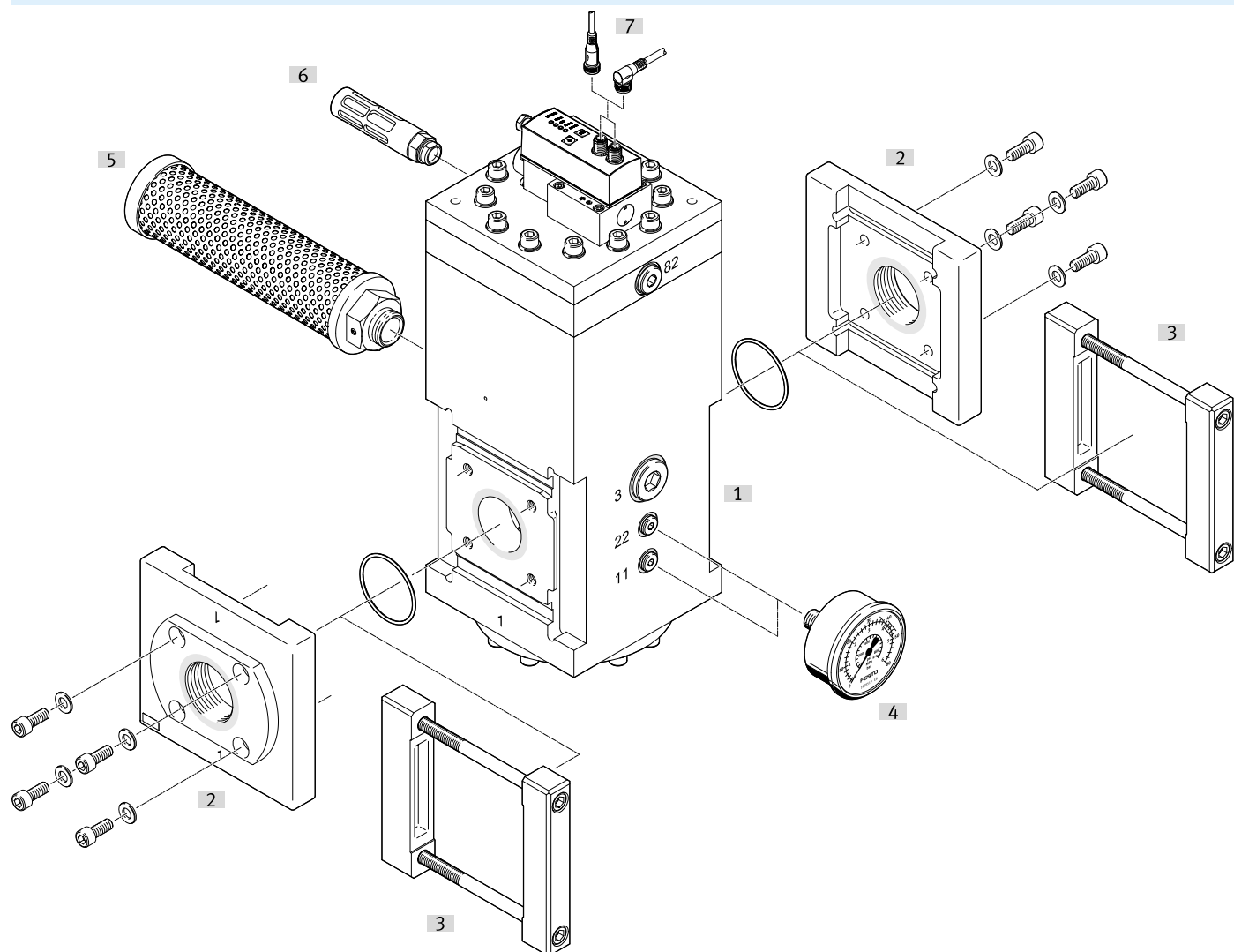
Size 90



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

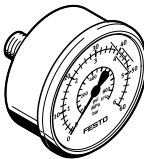
Peripherals

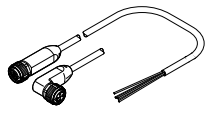
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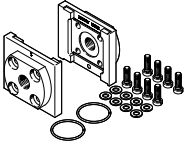


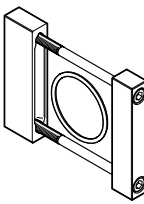
Accessories		→ Link
Type/order code	Description	
[1] Electric pressure regulator PREL		↗ prel
[2] Connecting plate PAML-CP		19
[3] Module connector PAML-MK		19
[4] Pressure gauge PAGL		19
[5] Silencer U-G1-HD-SA	On request	↗ –
[6] Silencer U-1/2-B		20
[7] Connecting cable NEBA-M12		19

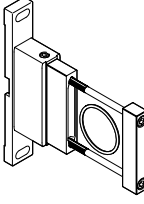
Accessories

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

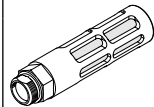
Connecting cable NEBA-M12						
	Electrical connection 1, connector system	Electrical connection 1, cable outlet	Electrical connection 1, used connections/cores	Cable length	Part no.	Type
	M12x1, A-coded to EN 61076-2-101	Straight	5	2.5 m	★ 8078242	NEBA-M12G5-U-2.5-N-LE5
				5 m	★ 8078243	NEBA-M12G5-U-5-N-LE5
				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