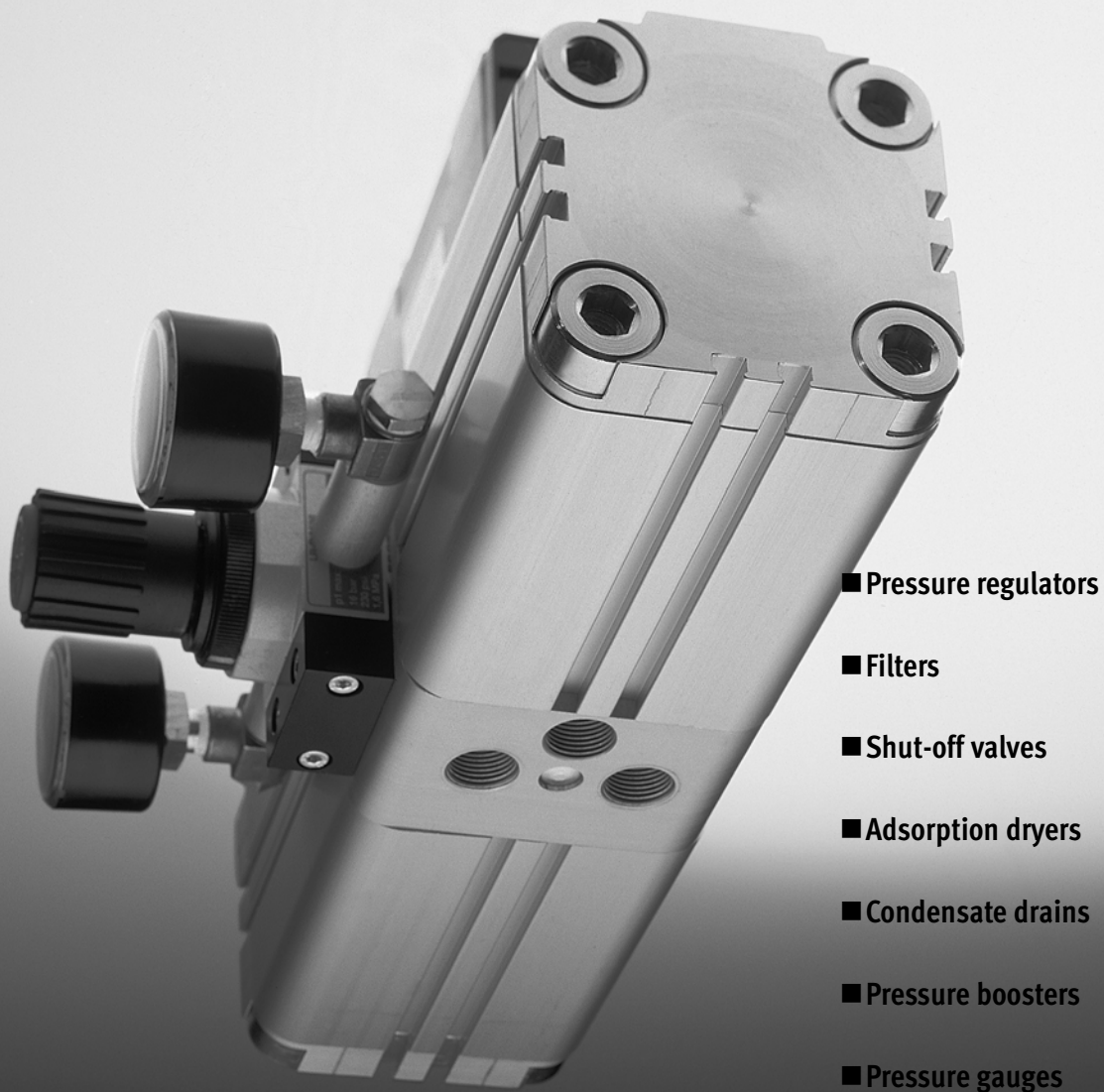




 New
LFU G¹/₄ and G³/₈

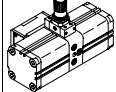
Individual devices

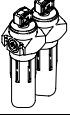
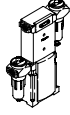
Product range overview

FESTO

Individual units
Pressure regulators

4.0

Type		Pneumatic connection				Pressure regulation range [bar]						Input pressure [bar]				→ Page
		G ¹ / ₈	G ¹ / ₄	G ³ / ₈	G ¹ / ₂	0.05 ... 7	0.05 ... 2.5	0.05 ... 4	0.1 ... 10	0.5 ... 7	0.5 ... 12	1 ... 20	1 ... 12	2 ... 8	2 ... 10	
Pressure regulators LR		■	-	-	-	-	-	-	-	■	■	■	-	-	-	3 / 4.1-0
Precision pressure regulators LRP		-	■	-	-	■	■	■	■	-	-	-	■	-	-	3 / 4.2-0
Pressure boosters DPA		-	-	■	■	-	-	-	-	-	-	-	-	■	■	3 / 4.7-0

Type		Pneumatic connection					Input pressure [bar]		Grade of filtration [μm]		Condensate drain		Supply voltage			→ Page
		G ¹ / ₄	G ³ / ₈	G ¹ / ₂	G ³ / ₄	G1	0 ... 16	4 ... 10.5	0.01	1	manual rotary	fully automatic	24 V DC	110 V AC	230 V AC	
Fine and micro filters LFMB-H/LFMA-H		-	-	■	■	■	■	-	■	■	-	■	-	-	-	3 / 4.3-0
Filter combination LFMBA-H		-	-	■	■	■	■	-	■	■	-	■	-	-	-	3 / 4.3-5
Adsorption dryer LDF		■	-	■	-	-	-	■	-	-	-	-	■	■	■	3 / 4.5-1
Filter silencer LFU		■	■	■	-	■	■	-	-	-	■	-	-	-	-	3 / 4.3-11
Shut-off valve HE-LO		-	■	■	■	■	-	-	-	-	-	-	-	-	-	3 / 4.4-0

Individual devices

Product range overview

FESTO

Type		Pneumatic connection		Operating pressure [bar]			Nominal operating voltage			→ Page
		G $\frac{1}{4}$	G $\frac{1}{2}$	0 ... 14	0.8 ... 16	4 ... 16	24 V DC	110 V AC	230 V AC	
Condensate drain WA		■	-	■	-	■	-	-	-	3 / 4.6-1
Condensate drain PWEA		-	■	-	■	-	■	■	■	3 / 4.6-4

Individual units
Pressure regulators

4.0

Type		Pneumatic connection								Nominal size						Display unit			Red-green range	→ Page
		M5	R $\frac{1}{8}$	R $\frac{1}{4}$	G $\frac{1}{8}$	G $\frac{1}{4}$	QS4	QS6	QS8	15	23	27	40	50	63	bar	MPa	psi		
Pressure gauge DIN EN 837-1 MA-...-EN		-	■	■	-	■	-	-	-	-	-	-	■	■	■	■	-	■	-	3 / 4.8-1
Pressure gauge DIN EN 837-1 MA-...-RG		-	■	■	-	-	-	-	-	-	-	-	■	■	■	■	■	■	■	3 / 4.8-4
Pressure gauge MA		■	■	-	■	■	-	-	-	-	■	■	■	■	■	■	■	■	-	3 / 4.8-6
Precision pressure gauge DIN EN 837-1 MAP-...-EN		-	■	-	-	-	-	-	-	-	-	-	■	-	-	■	-	■	-	3 / 4.8-9
Pressure gauge MA-...-QS		-	-	-	-	-	■	■	■	■	-	-	-	-	-	■	-	-	-	3 / 4.8-10
Flanged pressure gauge DIN EN 837-1 FMA-...-EN		-	-	-	-	■	-	-	-	-	-	-	■	■	■	■	-	■	-	3 / 4.8-11
Flanged pressure gauge FMA		-	-	-	-	■	-	-	-	-	-	-	-	-	■	■	-	■	-	3 / 4.8-13
Precision flanged pressure gauge DIN EN 837-1 FMAP-...-EN		-	-	-	-	■	-	-	-	-	-	-	-	-	■	■	-	■	-	3 / 4.8-14

Pressure regulators LR/LRS

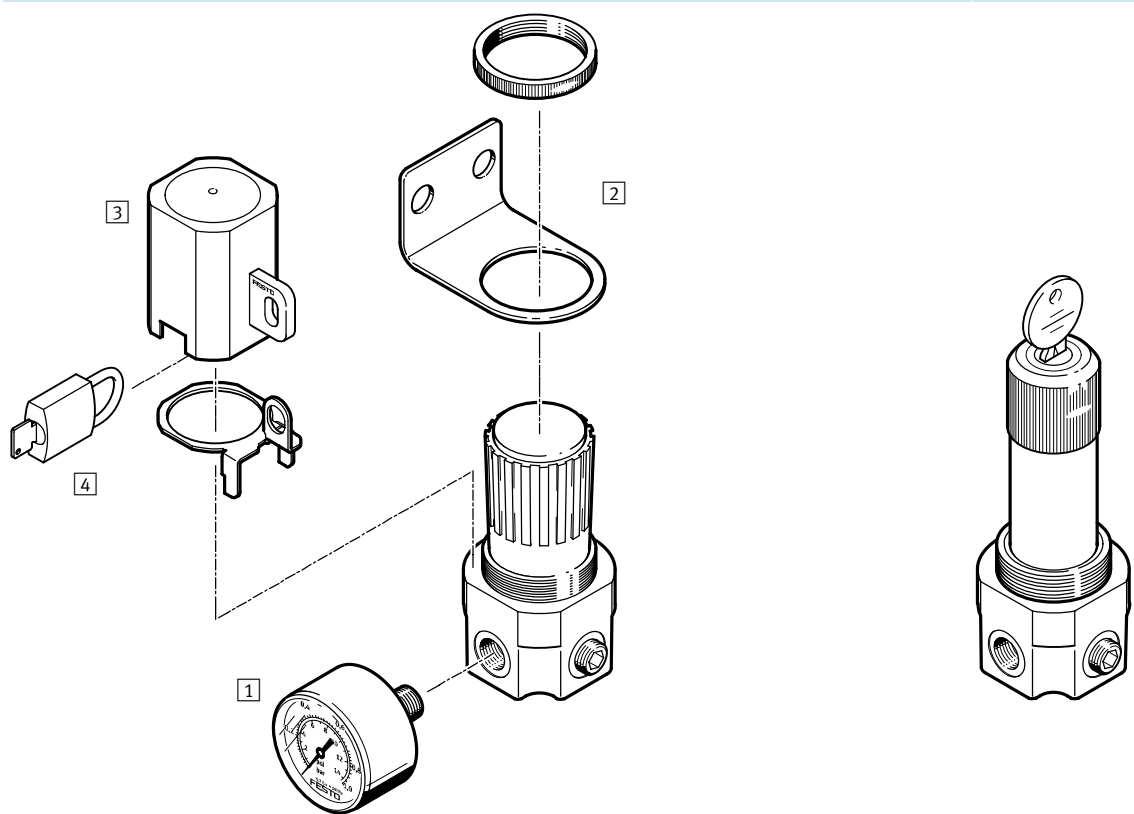
Peripherals overview and type codes



Individual units
Pressure regulators

4.1

Peripherals overview	
Pressure regulator LR	Pressure regulator LRS, lockable



Mounting attachments and accessories		Brief description	→ Page
1	Pressure gauge MA	The pressure gauges measure pressure in bar and the psi display range or in MPa	3 / 4.8-1
2	Mounting bracket HR-D	For wall mounting	3 / 4.1-5
3	Regulator lock LRVS-G-1/8 with lock plate	Prevents unintentional, and in conjunction with an LRVS padlock, unauthorised adjustment of the rotary knob	3 / 4.1-5
4	Padlock LRVS-D	Accessory for LRVS	3 / 4.1-5

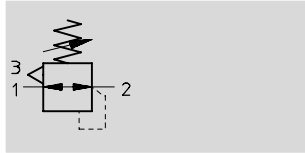
Type codes	
LR - 1/8 - G - 7	
Service function LR Pressure regulator LRS Pressure regulator, lockable	
Pneumatic connection 1/8 Thread G1/8	
Version code G Version code	
Pressure regulation range 7 0.5 ... 7 bar 0.5 ... 12 bar	

Pressure regulators LR/LRS

FESTO

Technical data

Function



-  Flow rate
600 ... 700 l/min
-  Temperature range
-10 ... +80 °C
-  Input pressure
1 ... 20 bar

The pressure regulator is free of paint-wetting impairment substances.



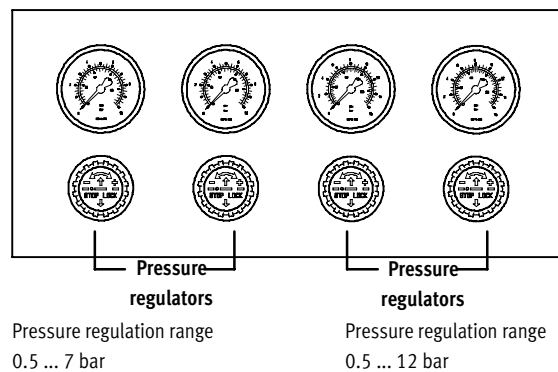
- Larger design (brass housing)
- Good flow rate performance
- Precise diaphragm regulator
- Detenting regulator knob
- Identical mounting bracket to D series
- Suitable for input pressures up to $p_1 = 20$ bar
- 2 pressure regulation ranges:
0.5 ... 7 bar and 0.5 ... 12 bar

The pressure regulator maintains an essentially constant working pressure at the regulator outlet, regardless of pressure fluctuations in the compressed air network. The regulated operating pressure can be reduced by means of the built-in secondary exhaust, even without compressed air consumers.

The pressure regulator is available in two design variants:

- LR(S)-1/8-G for standard applications.
- LR(S)-1/8-G-7 for special individual cases, e.g. regulators in the pressure range up to 7 bar. This variant demonstrates optimal flow and control characteristics.

Panel mounting



General technical data		
Type	LR(S)-1/8-G	LR(S)-1/8-G-7
Pneumatic connection	G1/8	
Operating medium	Filtered compressed air, lubricated or unlubricated (grade of filtration $\leq 40 \mu\text{m}$)	
Design	Input pressure compensated diaphragm pressure regulator with secondary exhaust	
Type of mounting	Via accessories	
	Front panel mounting, installation hole $\varnothing 36.5$ mm	
Mounting position	Any	
Max. hysteresis [bar]	0.2	
Input pressure [bar]	1 ... 20	
Pressure regulation range [bar]	0.5 ... 12	0.5 ... 7

Standard nominal flow rate ¹⁾ q_{pN} [l/min]	
Pressure regulation range 0.5 ... 7 bar	700
Pressure regulation range 0.5 ... 12 bar	600

1) With 10 bar input pressure, 6 bar working pressure and $\Delta p = 1$ bar.

Pressure regulators LR/LRS

Technical data

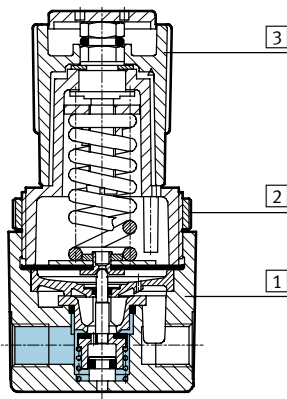
FESTO

Ambient conditions		
Ambient temperature	[°C]	-10 ... +80
Corrosion resistance	CRC ¹⁾	2

- 1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a surrounding industrial atmosphere or media such as cooling or lubricating agents.

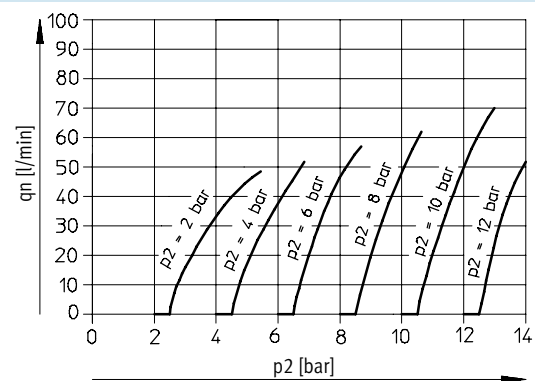
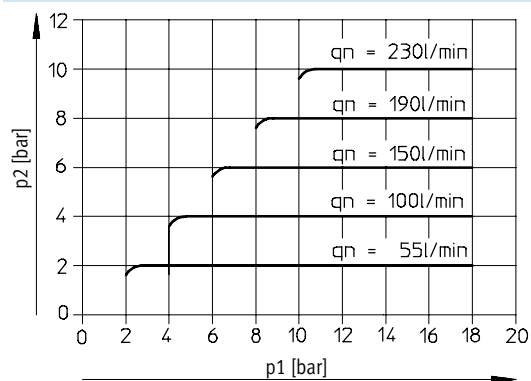
Weights [g]		
	LR	LRS
Pressure regulator	320	420

Materials	
Sectional view	



Pressure regulator		
1	Housing	Brass
2	Knurled nut	Aluminium
3	Rotary knob	LR: Polyacetate LRS: Aluminium
-	Seals	Nitrile rubber

Primary pressure compensation – Primary pressure p1 as a function of output pressure p2 LR(S)-1/8-G(-7)	Secondary venting – Output pressure p2 as a function of standard flow rate qn LR(S)-1/8-G(-7)
---	---



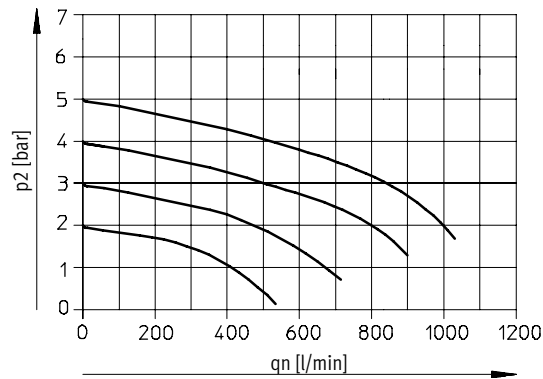
Pressure regulators LR/LRS

Technical data

FESTO

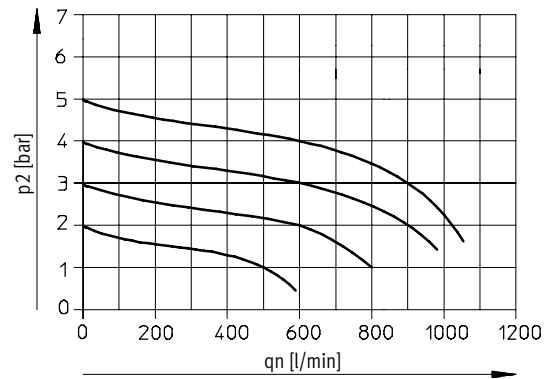
Standard flow rate q_n as a function of the output pressure p_2

LR(S)-1/8-G



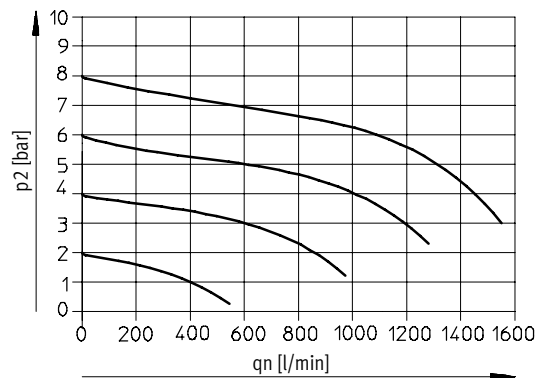
Primary pressure $p_1 = 7$ bar

LR(S)-1/8-G-7



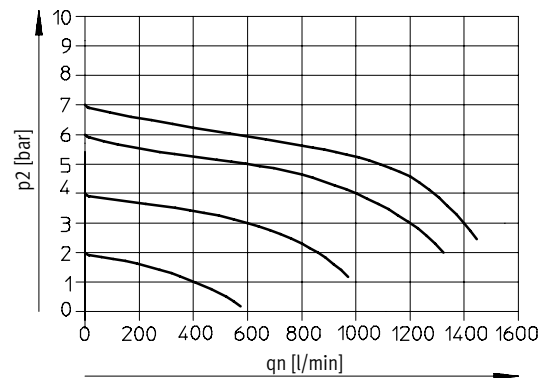
Primary pressure $p_1 = 7$ bar

LR(S)-1/8-G



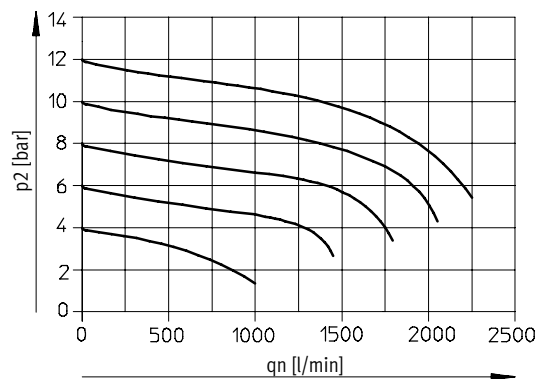
Primary pressure $p_1 = 10$ bar

LR(S)-1/8-G-7



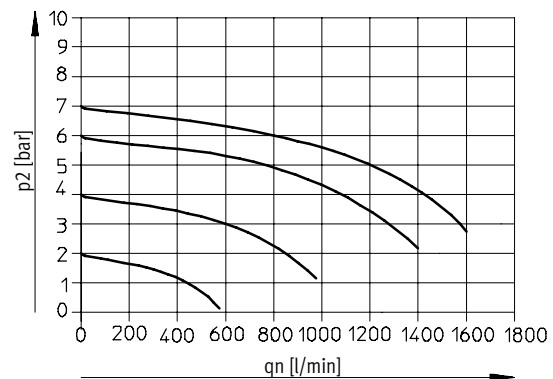
Primary pressure $p_1 = 10$ bar

LR(S)-1/8-G



Primary pressure $p_1 = 14$ bar

LR(S)-1/8-G-7



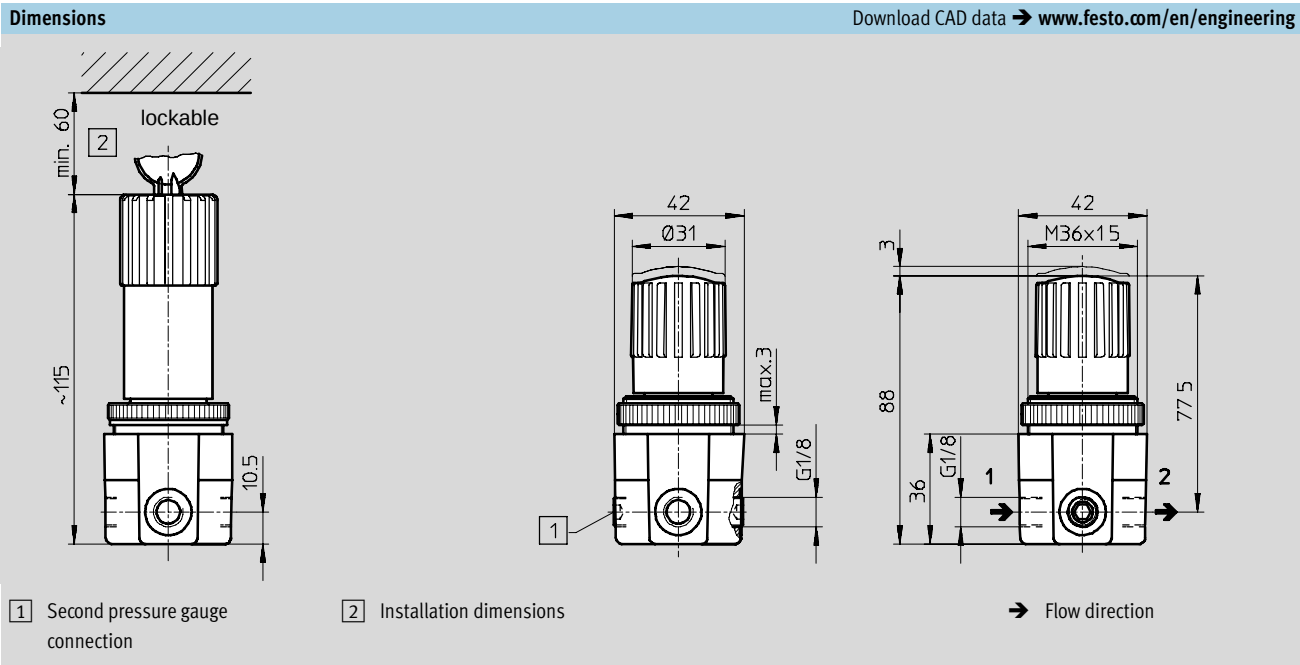
Primary pressure $p_1 = 14$ bar

Individual units
Pressure regulators

4.1

Pressure regulators LR/LRS

Technical data



Ordering data			
Connection	Pressure regulation range 0.5 ... 7 bar		Pressure regulation range 0.5 ... 12 bar
	Part No.	Type	Part No. Type
G1/8	159 506	LR-1/8-G-7	159 505 LR-1/8-G
lockable			
G1/8	194 695	LRS-1/8-G-7	194 694 LRS-1/8-G

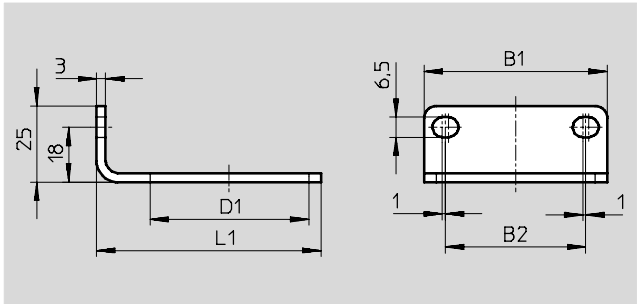
Pressure regulators LR/LRS



Accessories

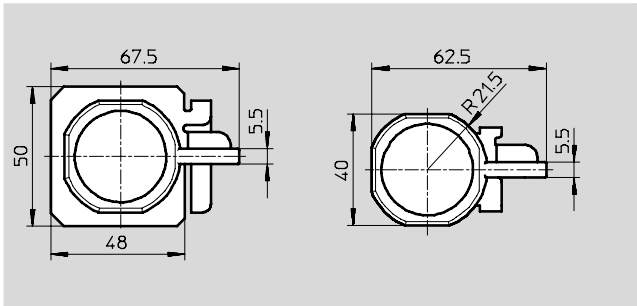
Mounting bracket HR-D
for wall mounting

Material:
Galvanised steel



Ordering data						
Type	B1	B2	D1 Ø	L1	Part No.	Type
Mounting bracket	42	28	36	57.5	164 936	HR-D-MINI

Regulator lock LRVS



Ordering data			
	Connection	Weight [g]	Part No. Type
Regulator lock	G1/8	36	196 080 LRVS-G-1/8

Padlock LRVS-D

Material:
Housing: Brass



Ordering data			
	Weight [g]	Part No.	Type
Padlock	120	193 786	LRVS-D

 Core Range

Individual units
Pressure regulators

4.1

Precision pressure regulators LRP/LRPS

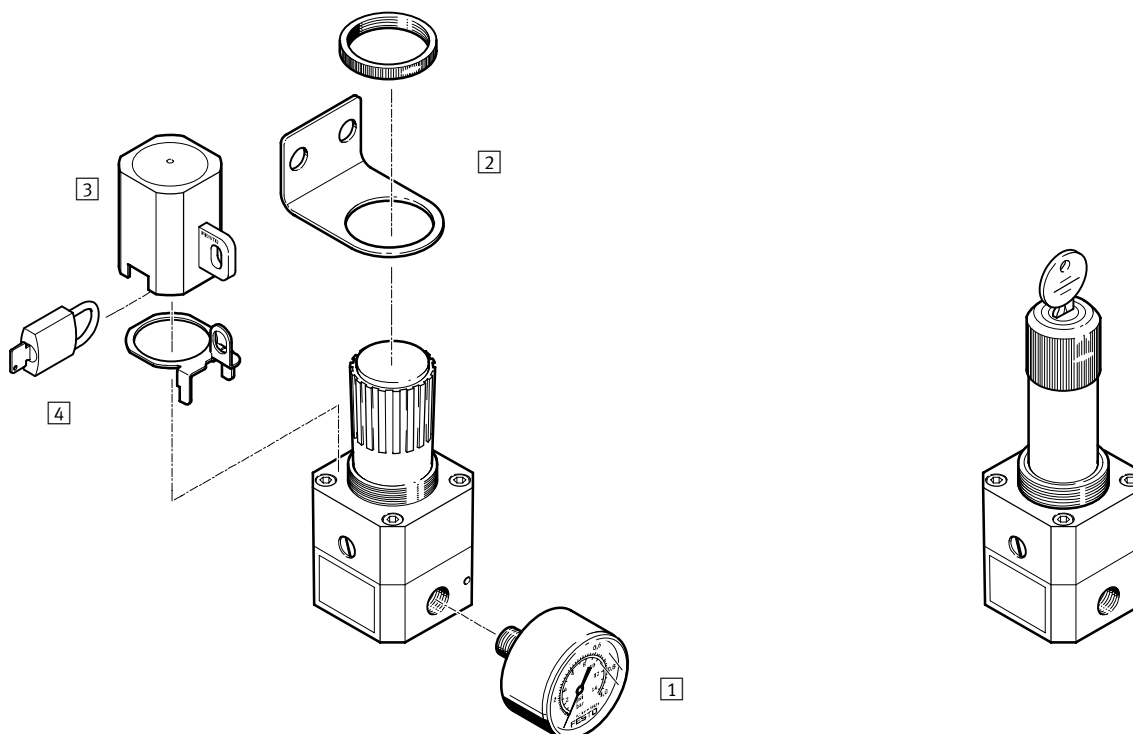
Peripherals overview and type codes

FESTO

Peripherals overview

Precision pressure regulator LRP

Precision pressure regulator LRPS, lockable



Mounting attachments and accessories	Brief description	→ Page
1 Pressure gauge MAP	The pressure gauges measure pressure in bar and the psi display range	3 / 4.8-9
2 Mounting bracket HR-1/4-P	For wall mounting	3 / 4.2-5
3 Regulator lock with lock plate LRVS-LRP-1/4	Prevents unintentional, and in conjunction with an LRVS padlock, unauthorised adjustment of the rotary knob	3 / 4.2-5
4 Padlock LRVS-D	Accessory for LRVS	3 / 4.2-5

Type codes

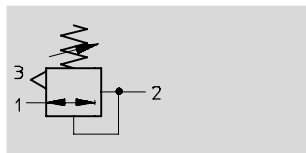
LRP		—	1/4	—	0.7
Service function					
LRP	Precision pressure regulator				
LRPS	Precision pressure regulator, lockable				
Pneumatic connection					
1/4	Thread G1/4				
Pressure regulation range					
0.7	0.05 ... 0.7 bar				
2.5	0.05 ... 2.5 bar				
4	0.05 ... 4 bar				
10	0.1 ... 10 bar				

Precision pressure regulators LRP/LRPS

FESTO

Technical data

Function



-  - Flow rate
800 ... 2 300 l/min
-  - Temperature range
-10 ... +60 °C
-  - Input pressure
1 ... 12 bar



The precision pressure regulator controls operating pressure (secondary side) with a diaphragm pilot control, which acts upon the main seat and thus achieves improved regulating characteristics.

- Precision pressure adjustment possible both in static and dynamic applications
- Pressure hysteresis of < 0.02 bar for flow rate characteristic curve

- Good response characteristics during rapid modification of input pressure and flow rate
- Input pressure fluctuations are almost entirely compensated

General technical data				
Type LRP/LRPS-1/4-...	0,7	2,5	4	10
Pneumatic connection	G1/4			
Operating medium	Compressed air, filtered, unlubricated, grade of filtration ≤ 40 µm			
Design	Pilot-actuated precision diaphragm regulating valve			
Type of mounting	Via accessories			
	Panel mounting			
	In-line installation			
Mounting position	Any			
Max. hysteresis [mbar]	20			
Input pressure 1 [bar]	1 ... 12			
Pressure regulation range [bar]	0.05 ... 0.7	0.05 ... 2.5	0.05 ... 4	0.1 ... 10
Pressure indication	G1/8 prepared			

Standard nominal flow rate ¹⁾ qnN [l/min]				
Type LRP/LRPS-1/4-...	0,7	2,5	4	10
Standard nominal flow rate [l/min]	800	1 800	2 000	2 300

1) measured at p1 = 12 bar, Δp2 = 100 mbar

Ambient conditions		
Ambient temperature [°C]	-10 ... +60	
Temperature of medium [°C]	-10 ... +60	

Individual units
Precision pressure regulators

4.2

Precision pressure regulators LRP/LRPS

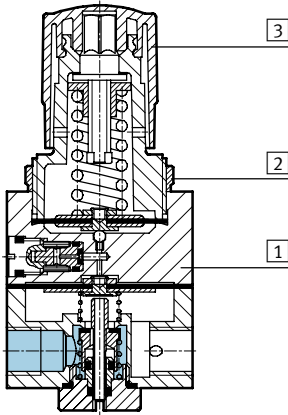
Technical data

FESTO

Weights [g]		
Type	LRP	LRPS
Precision pressure regulator	380	470

Materials

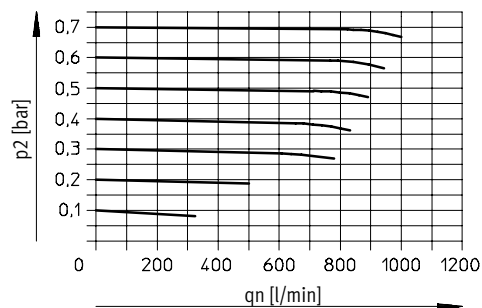
Sectional view



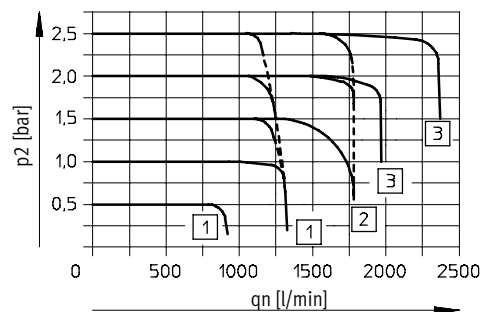
Precision pressure regulator	LRP	LRPS
1 Housing	Aluminium	
2 Knurled nut	Polycarbonate/polyamide	
3 Rotary knob	Polyacetate	Aluminium
- Seals	Nitrile rubber	

Standard flow rate q_n as a function of the output pressure p_2

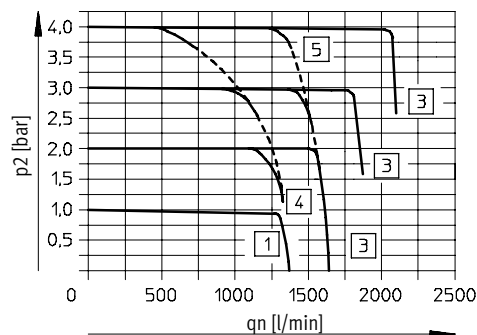
LRP/LRPS-1/4 -0.7



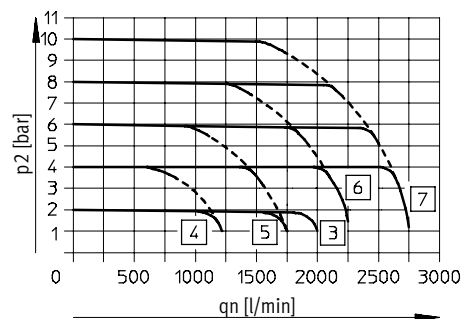
LRP/LRPS-1/4 -2.5



LRP/LRPS-1/4 -4



LRP/LRPS-1/4 -10



- 1 Input pressure $p_1 = 5 \dots 12$ bar
- 2 Input pressure $p_1 = 7 \dots 12$ bar
- 3 Input pressure $p_1 = 10 \dots 12$ bar
- 4 Input pressure $p_1 = 5$ bar

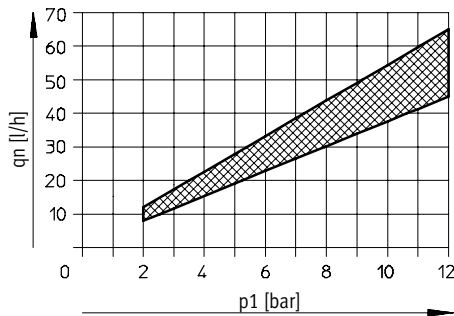
- 5 Input pressure $p_1 = 7$ bar
- 6 Input pressure $p_1 = 10$ bar
- 7 Input pressure $p_1 = 12$ bar

Precision pressure regulators LRP/LRPS

Technical data

FESTO

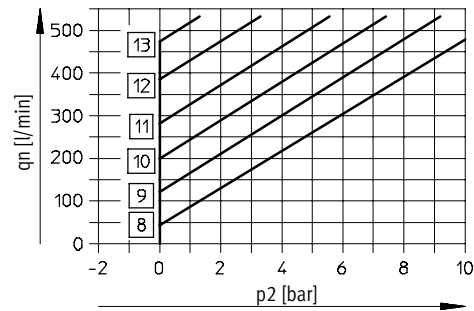
Internal air consumption q_n as a function of supply pressure p_1



- 8 Output excess pressure $p_2 = 0.7$ bar
- 9 Output excess pressure $p_2 = 2$ bar
- 10 Output excess pressure $p_2 = 4$ bar

Primary pressure $p_1 = 10$ bar

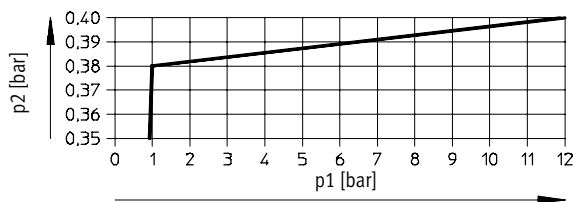
Standard flow rate q_n as a function of output excess pressure p_2



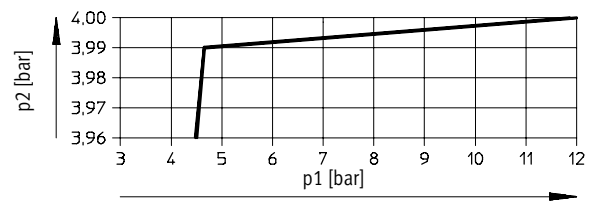
- 11 Output excess pressure $p_2 = 6$ bar
- 12 Output excess pressure $p_2 = 8$ bar
- 13 Output excess pressure $p_2 = 10$ bar

Output pressure p_2 as a function of input pressure p_1

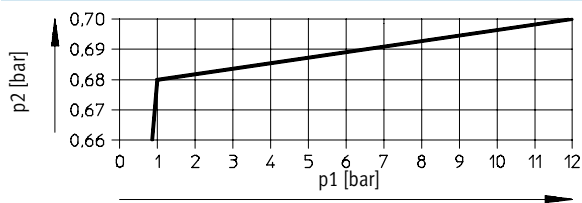
Primary pressure dependence $q_n = 35$ l/min



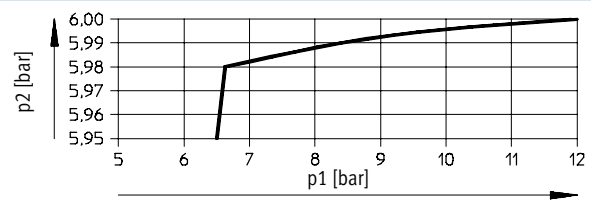
Primary pressure dependence $q_n = 220$ l/min



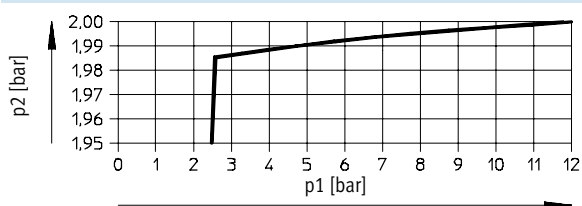
Primary pressure dependence $q_n = 55$ l/min



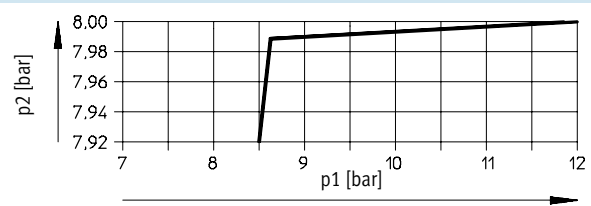
Primary pressure dependence $q_n = 340$ l/min



Primary pressure dependence $q_n = 120$ l/min



Primary pressure dependence $q_n = 420$ l/min



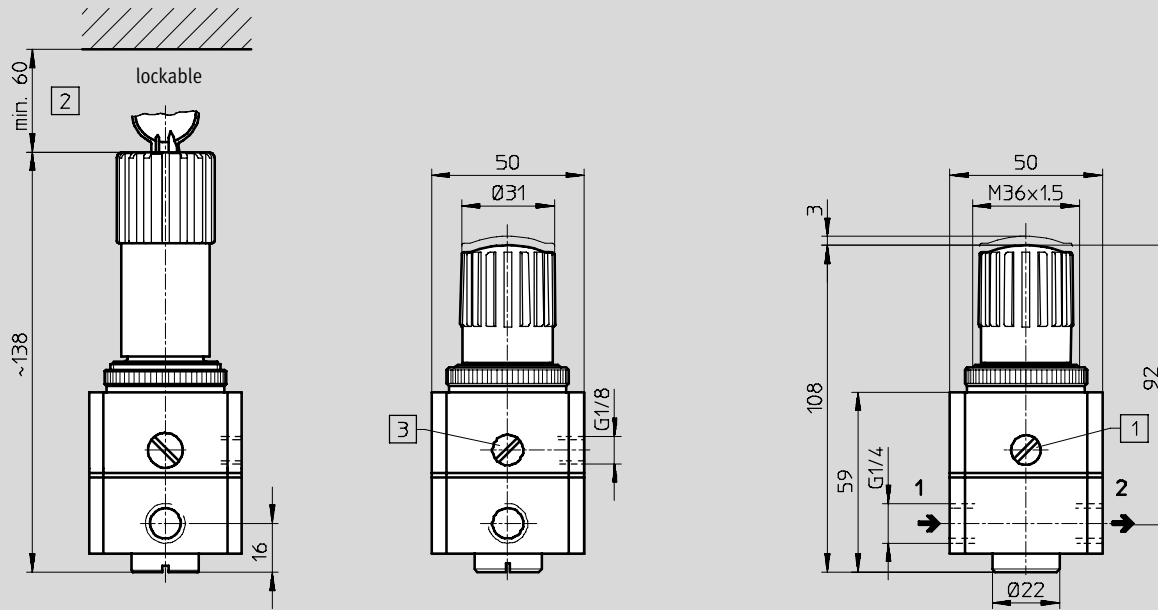
Precision pressure regulators LRP/LRPS

Technical data

FESTO

Dimensions

Download CAD data → www.festo.com/en/engineering



1 Pressure gauge connection

2 Installation dimensions

3 Filter throttle

→ Flow direction

Ordering data

Pressure regulation range [bar]	Precision pressure regulator LRP		Precision pressure regulator, lockable LRPS	
	Part No.	Type	Part No.	Type
0.05 ... 0.7	159 500	LRP-1/4-0,7	194 690	LRPS-1/4-0,7
0.05 ... 2.5	162 834	LRP-1/4-2,5	194 691	LRPS-1/4-2,5
0.05 ... 4	159 501	LRP-1/4-4	194 692	LRPS-1/4-4
0.1 ... 10	159 502	LRP-1/4-10	194 693	LRPS-1/4-10

Core Range

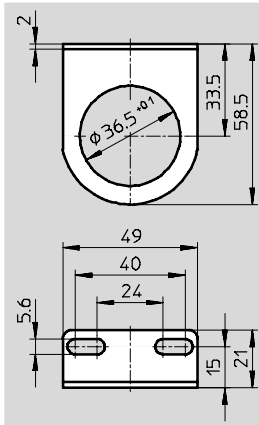
18.Precision pressure regulators LRP/LRPS



Accessories

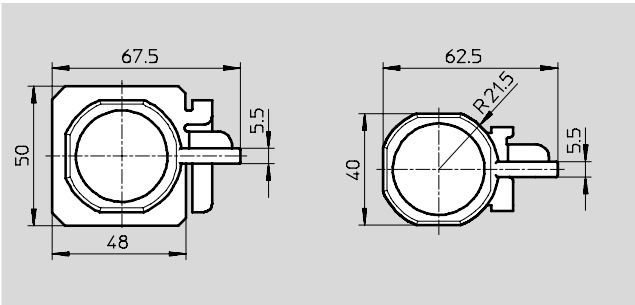
19.Mounting bracket HR
for wall mounting

Material:
Galvanised steel



Ordering data			Part No.	Type
Mounting bracket			159 503	HR-1/4-P

20.Regulator lock LRVS-LRP



Ordering data				
	Connection	Weight [g]	Part No.	Type
Regulator lock	G1/4	36	193 785	LRVS-LRP-1/4

21.Padlock LRVS-D

Material:
Housing: Brass



Ordering data				
	Weight [g]	Part No.	Type	
Padlock	120	193 786	LRVS-D	

Core Range

Individual units
Precision pressure regulators

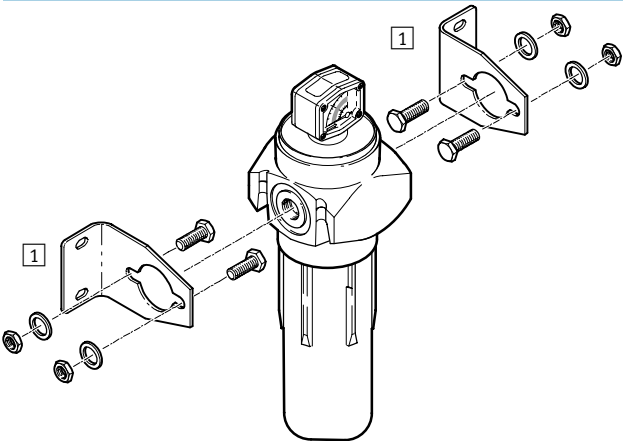
4.2

Fine and micro filters, LFMB-H/LFMA-H, H series

Peripherals overview and type codes



Peripherals overview



Mounting attachments and accessories		Brief description	→ Page
1	Mounting bracket (2 pcs.) LFMM	The fine and micro filters are mounted on the wall using mounting brackets LFMM	3 / 4.3-9

Type codes

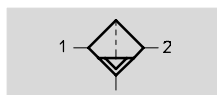
		LFMB	–	1/2	–	H	–	A
Service function								
LFMA	Micro filter							
LFMB	Fine filter							
Pneumatic connection								
1/2	Thread G1/2							
3/4	Thread G3/4							
1	Thread G1							
Series								
H	Series							
Condensate drain								
A	Fully automatic							

Fine and micro filters, LFMB-H/LFMA-H, H series

FESTO

Technical data

Function



-  - Flow rate
1,100 ... 5,200 l/min
-  - Temperature range
-10 ... +60 °C
-  - Input pressure
0 ... 16 bar



Various industries require fine or micro-filtered air: chemicals, pharmaceuticals, process technology, food industry, etc. Festo fine and micro filters clean compressed air almost completely of any remaining minute water and oil droplets, together with any dirt particles.

- Robust die-cast design
- Very high flow rates
- All filter units with automatic condensate drain and differential pressure gauge for displaying filter pollution

- Fine and micro-filters fulfil stringent air quality requirements in accordance with ISO 8573-1
- Easy replacement of filter components
- Resistant to mineral and synthetic lubricants

Fine filter function

Compressed air flows through a filter cartridge made of borosilicate fibre-glass, from the inside to the outside. As the compressed air flows through the fibre tissues, large particles are prevented from passing the filtration bed by simple inertia, or are collected by collision with the fibres.

Separation of fine and very fine oil vapour particles and solid impurities down to 0.01 micron results from an extremely fine filter tissue. The smallest particles collect on the fibres where they form larger droplets (coalescing effect), which run off due to gravity.

The flow rate recommended for each filter must be observed in order to prevent the oil-water emulsion which has accumulated in the foam jacket from being drawn in by the compressed air. Compressed air should be pre-filtered to 5 µm where fine filters and micro-filters are used.

General technical data						
Type	Micro filters LFMA			Fine filters LFMB		
Pneumatic connection	G1½	G¾	G1	G1½	G¾	G1
Design	Fibre filter					
Type of mounting	In-line installation					
	Via accessories					
Mounting position	Vertical ±5°					
Operating medium	Compressed air, filtered, grade of filtration 1 µm			Compressed air, filtered, grade of filtration 5 µm		
Grade of filtration [µm]	0.01			1		
Residual oil content [mg/m³]	≤0.01			≤0.5		
Filter efficiency [%]	99.9999					
Input pressure [bar]	0 ... 16					
Air purity classes per ISO 8573-1						
Particulate	1			2		
Atomised oil	2			3		

-  - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Fine and micro filters, LFMB-H/LFMA-H, H series

Technical data



Standard nominal flow rate ¹⁾ q _N [l/min]			
Connection	G1/2	G3/4	G1
Micro filters LFMA	1,100	2,000	3,400
Fine filters LFMB	1,600	3,300	5,200

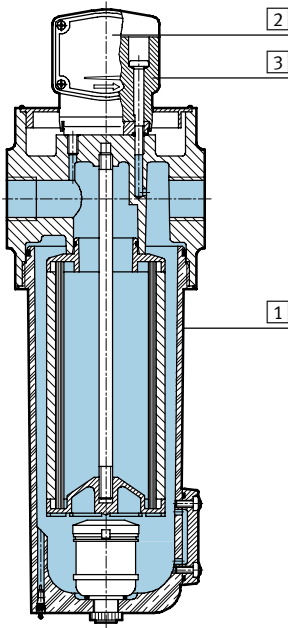
1) With 6 bar input pressure and Δp = 0.07 bar.

Ambient conditions		
Ambient temperature	[°C]	−10 ... +60
Corrosion resistance	CRC ¹⁾	2

1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a surrounding industrial atmosphere or media such as cooling or lubricating agents.

Weights [g]			
	G1/2	G3/4	G1
Micro filters LFMA	1,100	2,800	3,200
Fine filters LFMB	1,100	2,800	3,200

Materials	
Sectional view	



Fine and micro filters		
1	Housing/bowl	Die-cast zinc
2	Pressure gauge sight glass	Polymethylmethacrylate
3	Pressure gauge housing	Polyamide
–	Seals	Nitrile rubber

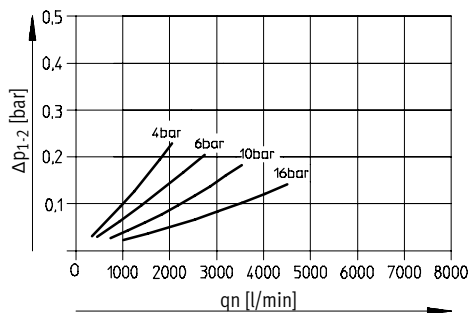
Fine and micro filters, LFMB-H/LFMA-H, H series

FESTO

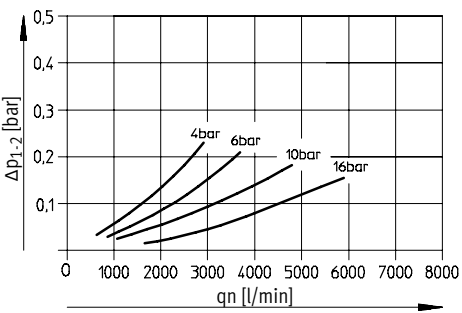
Technical data

Standard flow rate qn as a function of the output pressure Δp1-2

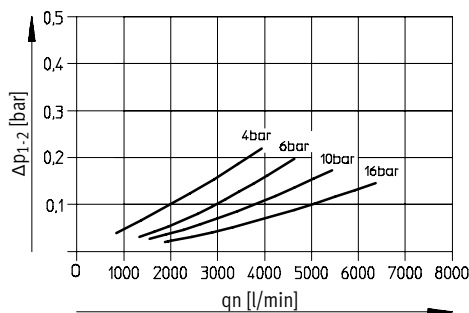
LFMA-1/2-H-A



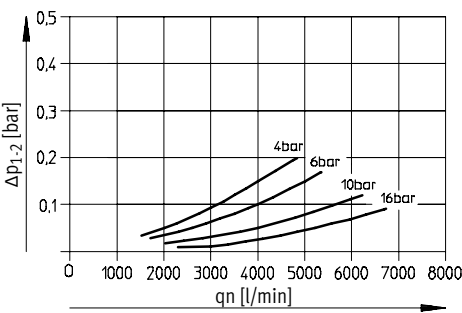
LFMB-1/2-H-A



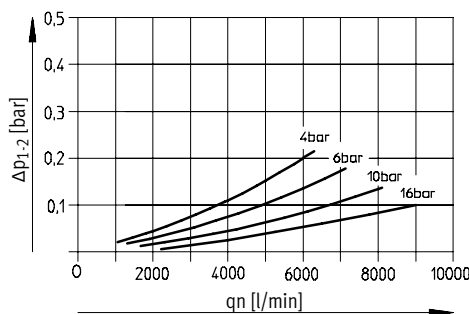
LFMA-3/4-H-A



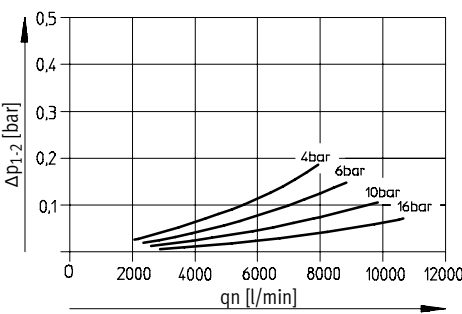
LFMB-3/4-H-A



LFMA-1-H-A



LFMB-1-H-A



Individual units
Filter

4.3

Fine and micro filters, LFMB-H/LFMA-H, H series

Technical data

FESTO

Individual units
Filter

4.3

Dimensions

Download CAD data → www.festo.com/en/engineering

The technical drawing shows two views of the filter. The front view (left) shows dimensions B3 (top width), B4 (top flange width), D1 (port diameter), and L1 (total height). The side view (right) shows dimensions B1 (top width), B2 (top flange width), L3 (top section height), L2 (main body height), and L1 (total height). Callout 1 points to the bottom port, callout 2 points to the pressure relief valve, and callout 3 points to the sight glass. A flow direction arrow is shown on the side view. A 10 mm dimension is indicated at the bottom of the side view.

1

Fully automatic condensate drain (tightening torque 1 Nm)

2

Pressure relief valve

3

Sight glass for condensate level

→ Flow direction

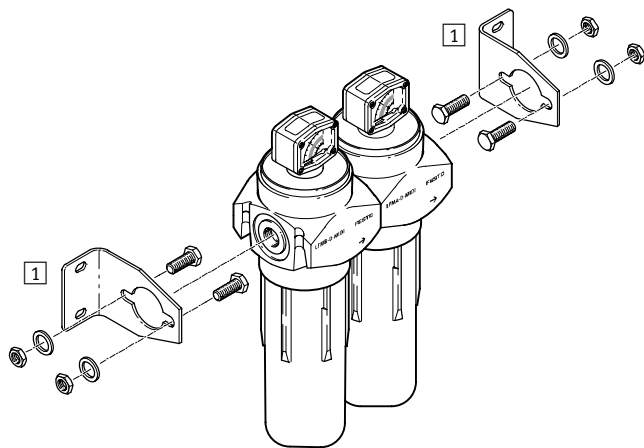
Type	B1	B2	B3	B4	D1	L1	L2	L3			
LFMA-1/2-H-A	89	65	81	39	G1/2	294	194	60			
LFMB-1/2-H-A			112		G3/4		366		251		
LFMA-3/4-H-A	120										
LFMB-3/4-H-A	120		112		G1	466	351				
LFMA-1-H-A											
LFMB-1-H-A											

Ordering data				
Connection	Grade of filtration 1 µm		Grade of filtration 0.01 µm	
	Part No.	Type	Part No.	Type
G1/2	162 818	LFMB-1/2-H-A	162 815	LFMA-1/2-H-A
G3/4	162 819	LFMB-3/4-H-A	162 816	LFMA-3/4-H-A
G1	162 820	LFMB-1-H-A	162 817	LFMA-1-H-A

Filter combinations LFMBA-H, H series

Peripherals overview

Peripherals overview



Mounting attachments and accessories	Brief description	→ Page
1 Mounting bracket (2 pcs.) LFMM	The filter combination is attached to the wall by means of the mounting brackets LFMM	3 / 4.3-9

Type codes

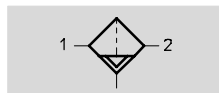
LFMBA		–	1/2	–	H	–	A
Service function							
LFMBA	Filter combination						
Pneumatic connection							
1/2	Thread G1/2						
3/4	Thread G3/4						
1	Thread G1						
Series							
H	Series						
Condensate drain							
A	Fully automatic						

Filter combinations LFMBA-H, H series

Technical data

FESTO

Function



-  - Flow rate
800 ... 2,600 l/min
-  - Temperature range
-10 ... +60 °C
-  - Input pressure
0 ... 16 bar



Various industries require fine or micro-filtered air: chemicals, pharmaceuticals, process technology, food industry, etc. Festo fine and micro filters clean compressed air almost completely of any remaining minute water and oil droplets, together with any dirt particles.

- Available as pre-assembled filter combination
- Very high flow rates
- All filter units with automatic condensate drain and differential pressure gauge for displaying filter pollution

- Fine and micro-filters fulfil stringent air quality requirements in accordance with ISO 8573-1
- Easy to replace filter components
- Resistant to mineral and synthetic lubricants

General technical data

General technical data			
Type	Filter combination LFMBA		
Pneumatic connection	G1½	G¾	G1
Design	Fibre filter		
Type of mounting	In-line installation		
	Via accessories		
Mounting position	Vertical ±5°		
Grade of filtration	[µm]	0.01	
Residual oil content	[mg/m³]	≤0.01	
Filter efficiency	[%]	99.9999	
Input pressure	[bar]	0 ... 16	
Air purity classes per ISO 8573-1			
Particulate	1		
Atomised oil	2		

Standard nominal flow rate¹⁾ qnN [l/min]

Connection	G1/2	G3/4	G1
LFMBA-...-H-A	800	1,400	2,600

1) With 6 bar input pressure and Δp = 0.07 bar.

Ambient conditions

Variant	G1/2	G3/4	G1
Ambient temperature	[°C]	-10 ... +60	
Corrosion resistance	CRC ¹⁾	2	

1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a surrounding industrial atmosphere or media such as cooling or lubricating agents.

-  - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Filter combinations LFMB-A-H, H series

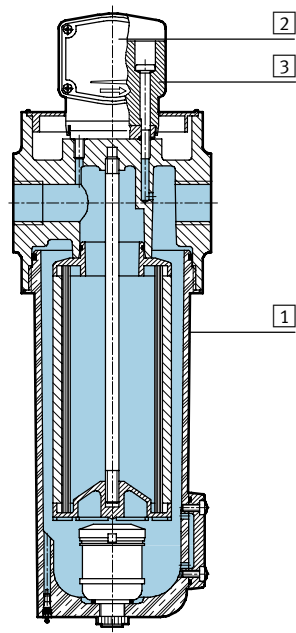


Technical data

Weights [g]	G½	G¾	G1
LFMB-A-...	2,300	5,700	6,500

Materials

Sectional view



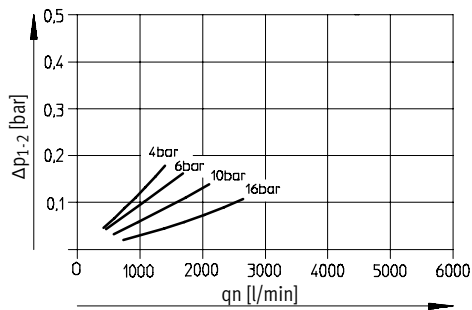
Fine and micro filters		
1	Housing/bowl	Die-cast zinc
2	Pressure gauge sight glass	Polymethylmethacrylate
3	Pressure gauge housing	Polyamide
-	Seals	Nitrile rubber

Individual units
Filter

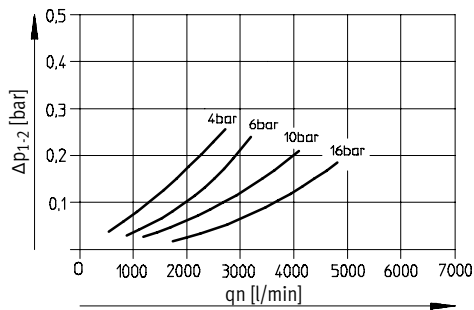
4.3

Standard flow rate qn as a function of the output pressure Δp1-2

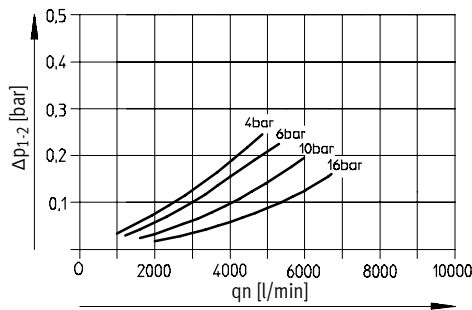
LFMB-A-½-H-A



LFMB-A-¾-H-A

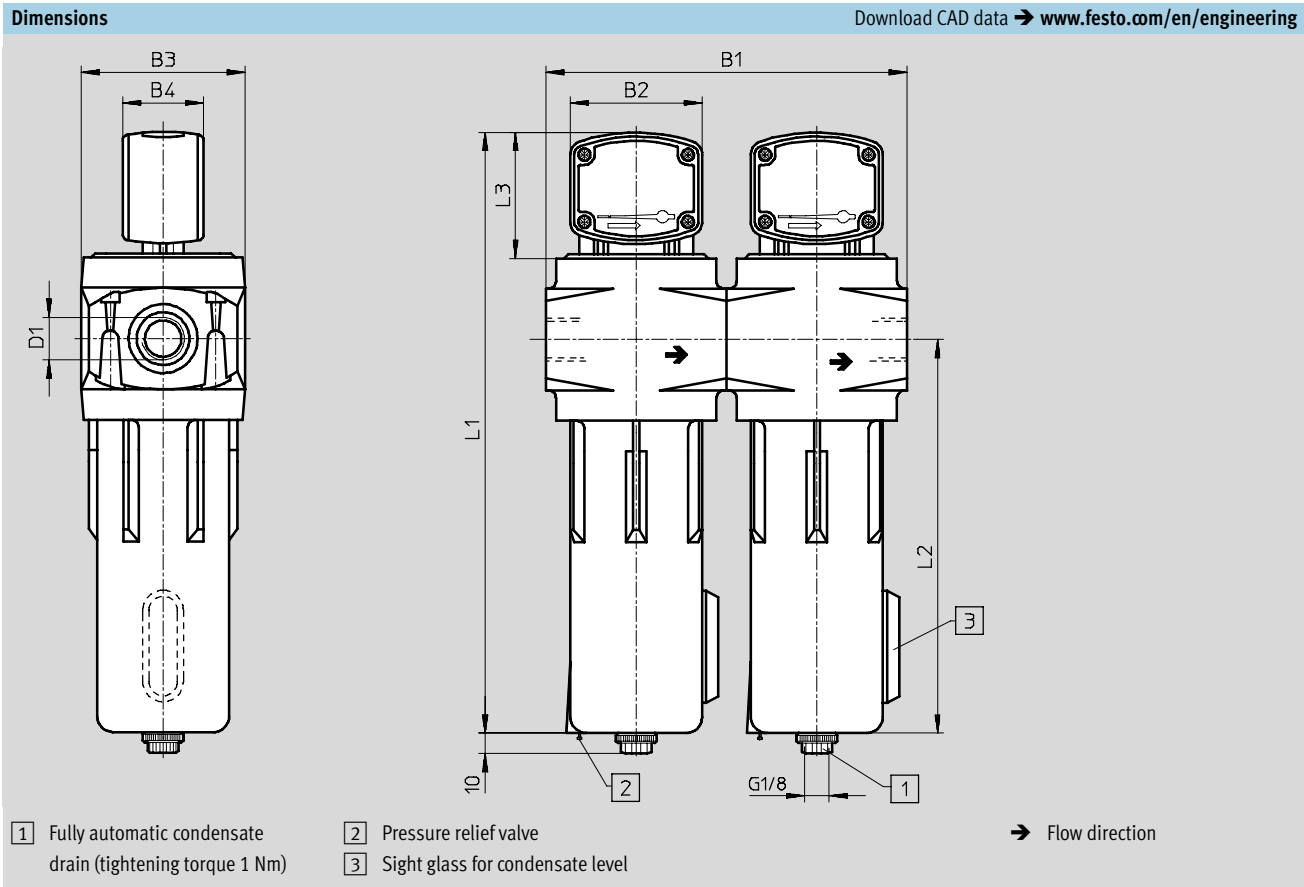


LFMB-A-1-H-A



Filter combinations LFMBA-H, H series

Technical data

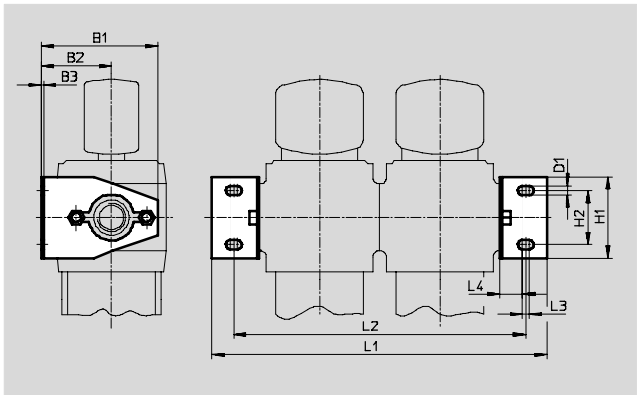
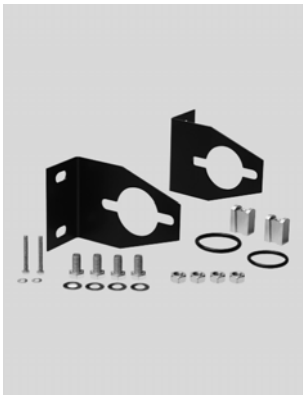


Type	B1	B2	B3	B4	D1	L1	L2	L3
LFMBA-1/2-H-A	178	65	81	39	G1/2	294	194	60
LFMBA-3/4-H-A	240		112		G3/4	366	251	
LFMBA-1-H-A	240		112		G1	466	351	

- ▮ - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

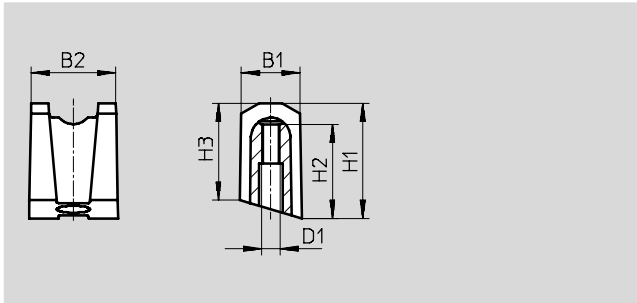
Ordering data		
Connection	Part No.	Type
G1/2	162 821	LFMBA-1/2-H-A
G3/4	162 822	LFMBA-3/4-H-A
G1	162 823	LFMBA-1-H-A

32.Mounting bracket LFMM



Ordering data														
Connection	B1	B2	B3	D1	H1	H2	LFMB/A		LFMBA		L3	L4	Part No.	Type
							L1	L2	L1	L2				
G1½	86	52	1.6	7	60	40	159	127	248	216	5	16.5	162 830	LFMM-1½-H
G¾, G1	116	68	2	9	80	60	200	157	320	277	5	16	162 831	LFMM-¾-1-H

33.Connection piece LFMV
for connecting two filters



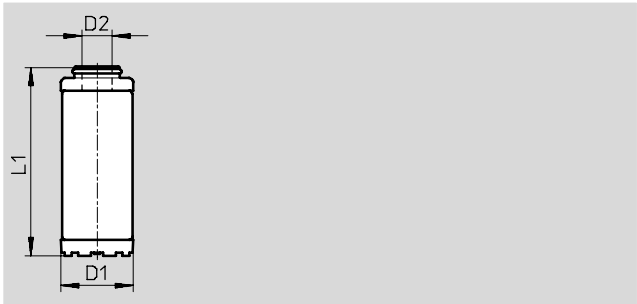
Ordering data							
Connection	B1	B2	D1	H1	H2	H3	Part No. Type
G1/2	9.75	14	M3x0.5	19	15.5	16	162 832 LFMV-1/2-H
G3/4, G1	12.5	20	M4	29	26	25.5	162 833 LFMV-3/4-1-H

Fine and micro filters, H series

Accessories



35.Filter cartridge LFMBP/LFMAP

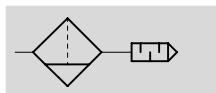


Ordering data					
Connection	D1 Ø	D2 Ø	L1	Part No.	Type
For fine filter					
G1/4	35	6.75	74	185 689	LFMBP-1/4-H
G1/2	48	21.7	126	162 827	LFMBP-1/2-H
G3/4	72	33	168.8	162 828	LFMBP-3/4-H
G1	72	33	268.8	162 829	LFMBP-1-H
For micro filter					
G1/4	35	6.75	74	185 688	LFMAP-1/4-H
G1/2	48	21.7	126	162 824	LFMAP-1/2-H
G3/4	72	33	168.8	162 825	LFMAP-3/4-H
G1	72	33	268.8	162 826	LFMAP-1-H

Filter silencers LFU

Technical data

Function



-  - Flow rate
4,000 ... 12,500 l/min
-  - Temperature range
-10 ... +100 °C
-  - Input pressure
0 ... 16 bar

All exhaust air from pneumatic control systems is cleaned by the filter silencer.

Exhaust air is discharged into the atmosphere via a fine filter cartridge (degree of filtration: >99.99%). At the same time, exhaust noise is greatly reduced. Condensate is collected in the lower plastic bowl and can be discharged via the condensate drain.



- Exhaust air is up to 99.99% free of oil and other contaminants.
- The silencer reduces exhaust noise regardless of frequency.
- Condensate drain, manual rotary.

General technical data				
Size	G ¹ / ₄	G ³ / ₈	G ¹ / ₂	G1
Pneumatic connection	G ¹ / ₄	G ³ / ₈	G ¹ / ₂	G1
Mounting position	Vertical ±5°			
Flow rate ¹⁾	[l/min]	≥4,000	≥4,700	≤6,000
Input pressure	[bar]	0 ... 16		
Noise reduction ¹⁾	Reduction of 40 db(A)		>40 db(A)	

1) At 6 bar with respect to atmosphere.

-  - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Ambient conditions		
Ambient temperature	[°C]	-10 ... +60
Corrosion resistance	CRC ¹⁾	2

1) Corrosion resistance class 2 according to Festo standard 940 070

Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a surrounding industrial atmosphere or media such as cooling or lubricating agents.

Weights [g]				
Size	G ¹ / ₄	G ³ / ₈	G ¹ / ₂	G1
Filter silencer	190	190	570	1,010

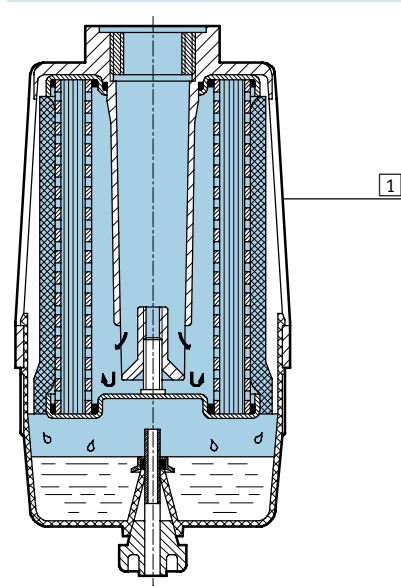
 New
LFU G¹/₄ and G³/₈

Filter silencers LFU

Technical data

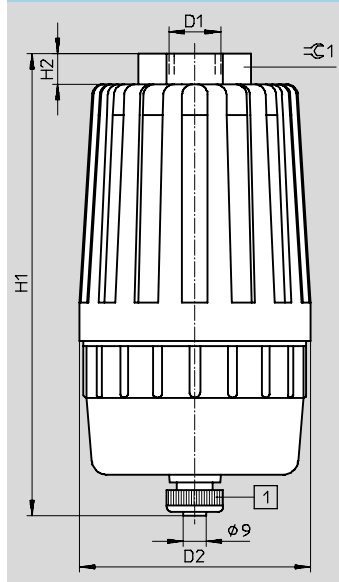
FESTO

Materials
Sectional view



Filter silencer		
1	Housing	Polypropylen
	Note on material	Free of copper and PTFE

Dimensions and ordering data Download CAD data → www.festo.com/en/engineering



1

Condensate drain, manual rotary

Connection	D1	D2	H1	H2	≙1	Part No.	Type	
G ¹ / ₄	G ¹ / ₄	77	131	7	26	539 132	LFU- ¹ / ₄	 New
G ³ / ₈	G ³ / ₈	77	131	7	26	539 133	LFU- ³ / ₈	 New
G ¹ / ₂	G ¹ / ₂	90	180	12	41	10 494	LFU- ¹ / ₂	
G1	G1	100	252	15	50	10 495	LFU-1	

 Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

 New
LFPU-1/4-3/8

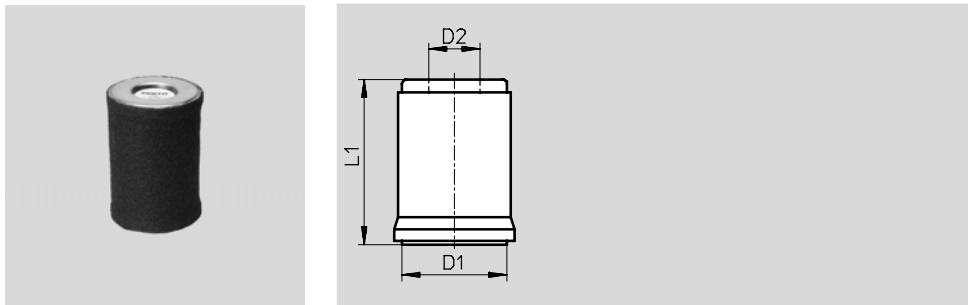
Filter silencers LFU

Accessories

FESTO

Filter cartridge LFPU

Note on material:
Free of copper and PTFE



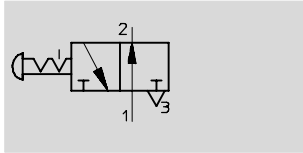
Dimensions and ordering data					
For connection	D1	D2	L1	Part No.	Type
	Ø	Ø			
G1/4, 3/8	60	28	69	539134	LFPU-1/4-3/8  New
G1/2	70	34.8	110	10 496	LFPU-1/2
G1	82	42.8	180	10 497	LFPU-1

Shut-off valve HE-LO, to safety standard

Technical data

FESTO

Function



-  - Flow rate
5,200 ... 12,000 l/min
-  - Temperature range
-10 ... +60 °C
-  - Operating pressure
1 ... 10 bar



-  - Note
The shut-off valve may not be used as an emergency stop valve.

For units that require a pneumatic shut-off in order to carry out maintenance or repair work, for example.

The valve is installed into the air supply line and fulfils requirements set forth by OSHA 29 CFR 147, "Controlling Dangerous Energy Sources", issued by the United States Department of Labor.

Function:

The valve is used for shutting off the compressed air supply, while simultaneously exhausting systems which are powered using compressed air.
Flow from port 1 to port 2 is blocked when the actuator knob is pressed, and flow from port 2 to port 3 is opened.

The largest exhaust flow rate is achieved by keeping the actuating knob in the actuated position until the connected system is completely exhausted.
The valve can be locked in the closed position using a padlock. This ensures that a decommissioned system (e.g. during maintenance work) cannot be pressurised without authorisation.

General technical data					
Type		HE-G3⁄8-LO	HE-G1⁄2-LO	HE-G3⁄4-LO	HE-G1-LO
Design		Manually actuated 3/2-way valve with piston slide			
Type of mounting		Screwed into piping 2 through holes in housing with Ø 8 mm for wall mounting			
Mounting position		Any, but make sure there is easy access to the actuating knob			
Connection	1, 2	G3⁄8	G1⁄2	G3⁄4	G1
(Female thread)	3	G1			
Operating pressure	[bar]	1 ... 10			

Standard nominal flow rate ¹⁾ qnN [l/min]				
Connection	G3/8	G1/2	G3/4	G1
1 → 2	5,200	6,200	8,000	10,000
2 → 3	12,000			

1) Measured at primary pressure p₁ = 6 bar and Δp = 1 bar.

Ambient conditions		
Ambient temperature	[°C]	-10 ... +60
Corrosion resistance	CRC ¹⁾	3

1) Corrosion resistance class 3 according to Festo standard 940 070
Components requiring higher corrosion resistance. External visible parts in direct contact with industrial atmospheres or media such as solvents and cleaning agents, with a predominantly functional requirement for the surface.

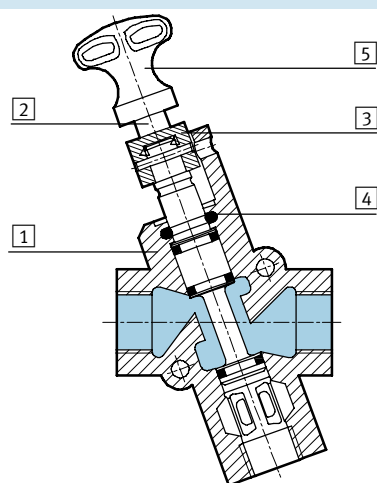
Weights [g]				
	G3/8	G1/2	G3/4	G1
HE-...-LO	1,100		1,000	

-  - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Technical data

Materials

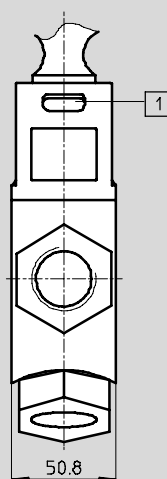
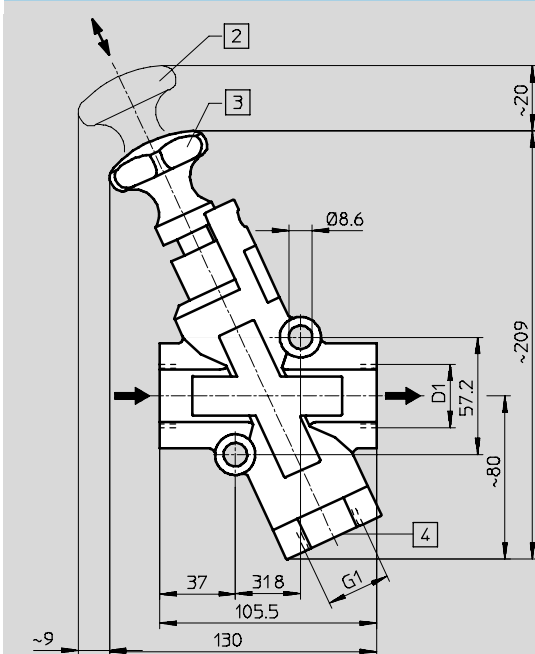
Sectional view



Shut-off valve		
1	Housing	Die-cast aluminium
2	Piston spool	Aluminium
3	Guide	Polytetrafluorethylene
4	O-ring	Polyurethane
5	Actuating knob	Die-cast aluminium
–	Seals	Nitrile rubber

Dimensions

Download CAD data → www.festo.com/en/engineering



- 1 Slot for padlock
- 2 Actuating knob open
- 3 Actuating knob locked
- 4 Threaded connection, e.g. for silencer

→ Flow direction

Type	D1
HE-G $\frac{3}{8}$ -LO	G $\frac{3}{8}$
HE-G $\frac{1}{2}$ -LO	G $\frac{1}{2}$
HE-G $\frac{3}{4}$ -LO	G $\frac{3}{4}$
HE-G1-LO	G1

• Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Ordering data

Connection	Part No.	Type
G $\frac{3}{8}$	197 133	HE-G $\frac{3}{8}$ -LO
G $\frac{1}{2}$	197 134	HE-G $\frac{1}{2}$ -LO
G $\frac{3}{4}$	197 135	HE-G $\frac{3}{4}$ -LO
G1	197 136	HE-G1-LO

Shut-off valve HE-LO, to safety standard

Accessories



43.Padlock LRVS-D for shut-off valve

Material:
Housing: Brass



Ordering data			
	Weight [g]	Part No.	Type
Padlock	120	193 786	LRVS-D

Adsorption dryer LDF

Features

FESTO



Individual units
Dryers

4.5

Small unit – big effect

Cold-regenerating adsorption dryer with defined pressure dew point and high flow rate for decentralised compressed air drying.

The LDF adsorption dryer effectively prevents corrosion, wear, excessive product wastage, frequent maintenance and damage to sensitive machinery.

- The solution for dry and clean compressed air
- Greater service life of pneumatic components
- Pressure dew point $-40\text{ }^{\circ}\text{C}$, ($-70\text{ }^{\circ}\text{C}$ on request)
- Additional filtering of oil and particulate

- Produced for decentralised compressed air drying
- High flow rate performance up to $1,600\text{ l/min}$
- Low energy consumption and noise levels
- In combination with a prefilter and secondary filter, this achieves air purity class 2.2.1 or 2.1.1 to DIN ISO 8573-1 at the outlet.

- Of particular interest for printed circuit production, optical industries, foil production, dental technology, drying and transportation of powder materials, paint systems, drying and cleaning precision parts, food industry and pharmaceuticals.

Decentralised drying

Partial drying is already started in the after-cooler. Actual drying can be centralised in the compressor room or decentralised as required with the

consuming devices using compact Festo LDF-H... adsorption dryers. Decentralised drying is advantageous because only the actually required

amount of dry air is prepared. Pressure dew points of less than $0\text{ }^{\circ}\text{C}$ always require the utilisation of adsorption dryers.

Constant air quality

The drying granulate is introduced into the dryer in such a way as to ensure even and compact filling.

Adsorption dryer LDF

Key features and type code

FESTO

Reduces energy costs	Reduced service costs	Complete drying package	
The dryers have a low differential pressure.	The dryer granulate has a long service life (approx. 15,000 operating hours). When refilling the dryer, the Festo	filling funnel must be used to ensure that the filling density in the chambers is optimal.	These dryers are fitted as standard with coalescing filters.
Function			
The airflow is filtered in the inlet filter (oil would considerably reduce the granulate service life). The adsorption dryer consists of two chambers filled with drying agent. Moist compressed air flows through the two chambers alternately, and the water from the air accumulates on the surface of the drying agent. After a predetermined period of time, the flow of air is	switched to the other chamber and a portion of the dried air is used to regenerate the drying agent in the first chamber. The drying agent has a service life of several years. The standard LDF dryers achieve a pressure dew point of –40 °C (air purity class 2.2.1 to DIN ISO 8573-1 at the outlet).	An appropriate drying agent is used with dryers which have a pressure dew point of up to –70 °C (air purity class 2.1.1 to DIN ISO 8573-1 at the outlet) (upon request). The pressure dew point should be about 10 °C less than the anticipated ambient temperature. The application area for the adsorption dryer is decentralised compressed	air preparation. The purge air requirement at the optimal operating point (6 bar/35 °C) is approx. 22%. If the dryer is used under different operating conditions, the input air/purge air ratio may change as the purge air consumption is only dependent on the input air and not on the used output flow rate.
Important			
The supplied inlet filter, a 0.01 µm micro filter, provides clean operating air. It protects the drying agents from contaminating dirt and oil particles.	The outlet filter, a 1 µm fine filter, removes any drying agent particles. The inlet filter cannot remove gaseous	components, such as water and oil vapour, from the air. However, this is achieved by the highly porous drying	granulate. It is for this reason that the LDF-H dryer achieves the highest air quality class for particles and oil.

Type codes

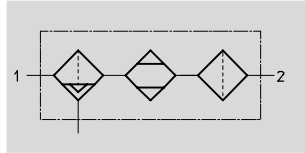
	LDF	–	H1	–	1/4	–	24
Basic function							
LDF	Adsorption dryer						
Differential pressure [mbar]							
H1	50						
H2	150						
H3	500						
H4	250						
H5	350						
H6	600						
H7	900						
Pneumatic connection							
1/4	Thread G1/4						
1/2	G1/2 thread						
Voltage							
24	24 V DC						
110	110 V AC						
230	230 V AC						

Adsorption dryer LDF

Technical data

FESTO

Function



-  Flow rate
26 ... 1,600 l/min
-  Temperature range
2 ... 50 °C
-  Input pressure
4 ... 10.5 bar



General technical data								
	H1	H2	H3	H4	H5	H6	H7	
Pneumatic connection	G1¼			G1½				
Operating medium	Compressed air, filtered, unlubricated							
Design	Cold regenerating compressed air adsorption dryer							
Type of mounting	Through-hole							
Mounting position	Vertical ±5°							
Pressure dew point	[°C]	−40 (−70 on request)						
Differential pressure	[mbar]	50	150	500	250	350	600	900
Input pressure	[bar]	4 ... 10.5						
Air purity class at the outlet	2.2.1 to DIN ISO 8573-1 (2.1.1 to DIN ISO 8573-1 upon request)							
Electrical data								
Electrical connection	With plug socket to DIN 43 650 type A (MSSD-C ➔ Volume 2)			With screw terminals				
Power consumption	DC	2.5 W			5 W			
	AC	50 Hz: 5 VA			110 V: 0.27 A			
		60 Hz: 3.7 VA			230 V: 0.12 A			
Protection against polarity reversal	At 24 V DC							
CE symbol	EU directive 89/336/EEC Electromagnetic compatibility (all types)							
	73/23/EEC Low voltage (all types except LDF-...-24)							
Protection class	IP65 to DIN 40 050							

Ambient conditions							
Variant	H1	H2	H3	H4	H5	H6	H7
Media temperature [°C]	2 ... 50						
Ambient temperature [°C]	2 ... 50						
Storage temperature [°C]	-20 ... +60						
Corrosion resistance CRC ¹⁾	1						

- 1) Corrosion resistance class 1 according to 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.

Weights [g]							
	H1	H2	H3	H4	H5	H6	H7
Adsorption dryer	5,400	6,500	9,200	24,700	30,200	35,700	41,200

Individual units
Dryers

4.5

Adsorption dryer LDF

Technical data

FESTO

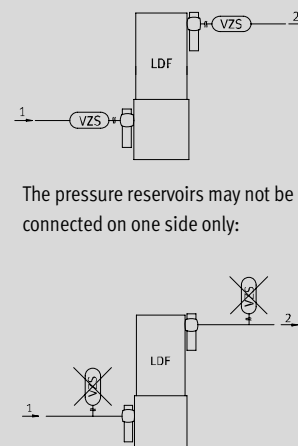
- Note

Please do not use the average consumption values as your guide when setting up the dryer, instead use

- the inlet pressure of the dryer
- the peak value for the flow rate
- the maximum permissible inlet temperature.

The adsorption dryers are designed for continuous operation. Pulsed or intermittent operation can lead to the premature aging of and/or damage to the drying agent and thus to the failure of the dryer.

If the adsorption dryer LDF is nonetheless to be used in pulsed or intermittent mode the use of buffer reservoirs, through which the compressed air flows, is recommended. Depending on the application these can be mounted before and/or after the dryer.



Standard nominal flow rate q_{nN} [Nl/min] at pressure dew point -40 °C

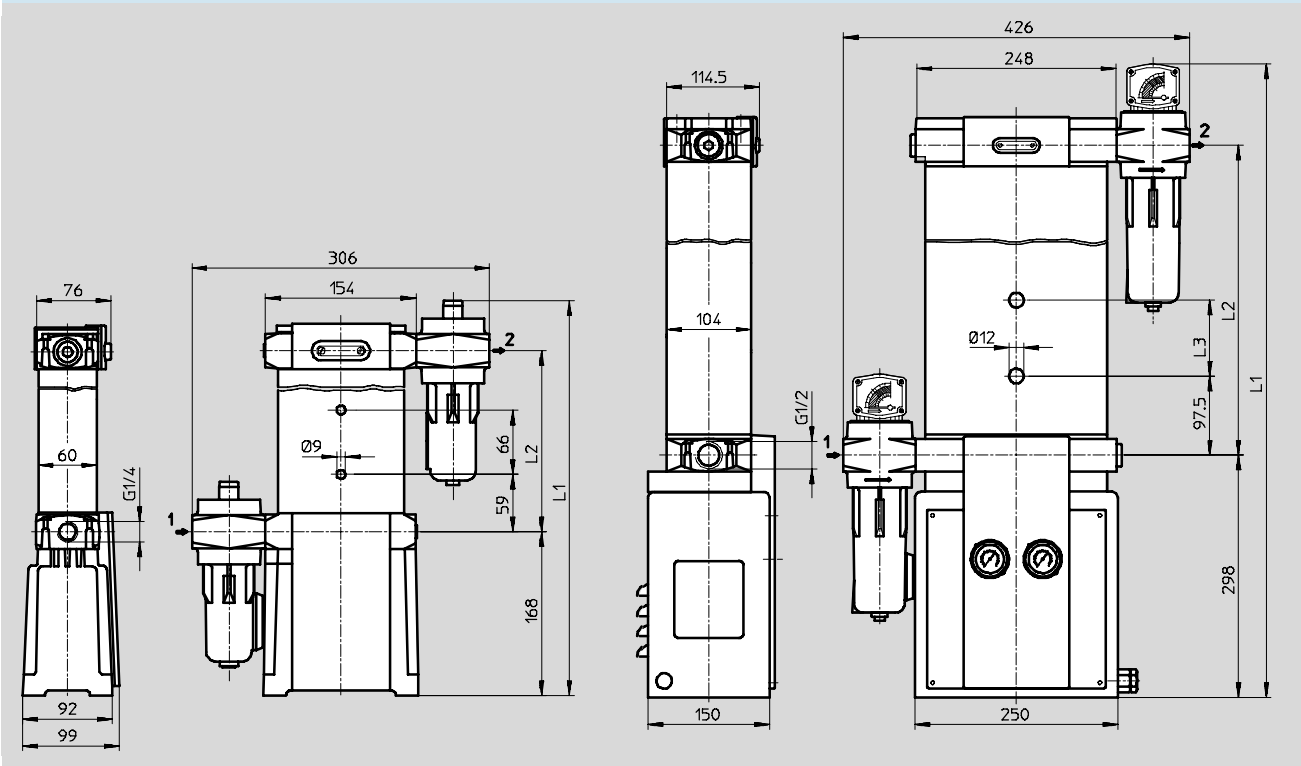
Type	Temperature of medium	Input pressure [bar]					
		4	5	6	7	8	10
LDF-H1	20 °C	25.9	40.1	57.4	65.6	73.8	90.1
	35 °C	25.2	39.1	57.8	66.1	74.3	90.8
LDF-H2	20 °C	51.7	80.2	114.8	131.2	147.6	180.3
	35 °C	50.4	78.2	115.7	132.1	148.6	181.6
LDF-H3	20 °C	111.9	173.6	248.8	284.3	319.8	390.7
	35 °C	109.1	169.3	250.6	286.4	322.1	393.6
LDF-H4	20 °C	207.8	322.3	461.5	527.2	593.0	724.6
	35 °C	202.7	314.4	464.8	531.1	597.4	729.9
LDF-H5	20 °C	273.8	424.8	607.7	694.3	781.0	954.2
	35 °C	267.1	414.3	612.1	699.4	786.7	961.2
LDF-H6	20 °C	359.7	558.0	799.2	913.1	1,027.1	1,255.0
	35 °C	350.9	544.3	805.0	919.8	1,034.6	1,264.1
LDF-H7	20 °C	456.1	707.5	1,013.0	1,157.4	1,301.9	1,590.7
	35 °C	444.9	690.1	1,020.4	1,165.9	1,311.3	1,602.3

Adsorption dryer LDF

Technical data



Dimensions		Download CAD data → www.festo.com/en/engineering
LDF-H1 ... H3	LDF-H4 ... H7	



Type	L1	L2	L3
H1	403	186	–
H2	498	281	–
H3	738	521	–
H4	780	382	93.5
H5	946	548	176.5
H6	1,111	713	259
H7	1,176	778	341.5

Ordering data							
Type	Connection	24 V DC		110 V AC		230 V AC	
		Part No.	Type	Part No.	Type	Part No.	Type
H1	G1/4	178 516	LDF-H1-G1/4-24 ¹⁾	178 517	LDF-H1-G1/4-110 ¹⁾	178 518	LDF-H1-G1/4-230 ¹⁾
H2		178 519	LDF-H2-G1/4-24 ¹⁾	178 520	LDF-H2-G1/4-110 ¹⁾	178 521	LDF-H2-G1/4-230 ¹⁾
H3		178 522	LDF-H3-G1/4-24 ¹⁾	178 523	LDF-H3-G1/4-110 ¹⁾	178 524	LDF-H3-G1/4-230 ¹⁾
H4	G1/2	178 525	LDF-H4-G1/2	–	–	–	–
H5		178 528	LDF-H5-G1/2	–	–	–	–
H6		178 531	LDF-H6-G1/2	–	–	–	–
H7		178 534	LDF-H7-G1/2	–	–	–	–

1) Free of copper, PTFE and silicone

49. Adsorption dryer LDF

Accessories

FESTO

50. Drying agent LDF-TM

Drying agent:
Aluminium oxide

Ordering data								
Weight [g]	Dryer type (volume required)							Part No. Type
	H1	H2	H3	H4	H5	H6	H7	
1,000	1	1	2	–	2	–	2	538 661 LDF-TM-H1-H7-1KG
4,000	–	–	–	1	1	2	2	538 662 LDF-TM-H1-H7-4KG

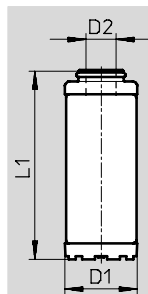
51. Funnel LDF-FS

Ordering data		
Type	Part No.	Type
H1 ... H3	538 668	LDF-FS-H1-H3
H4 ... H7	538 669	LDF-FS-H4-H7

52. Seal range LDF-DS

Ordering data		
Type	Part No.	Type
H1 ... H3	538 670	LDF-DS-H1-H3
H4 ... H7	538 671	LDF-DS-H4-H7

53. Filter cartridge LFMBP/LFMAP



Ordering data						
Dryer type	Connection	Grade of filtration [µm]	D1 Ø	D2 Ø	L1	Part No. Type
For inlet filter						
H1 ... H3	G $\frac{1}{4}$	0.01	35	6.75	74	185 688 LFMAP-1/4-H
H4 ... H7	G $\frac{1}{2}$	0.01	48	21.7	126	162 824 LFMAP-1/2-H
For outlet filter						
H1 ... H3	G $\frac{1}{4}$	1	35	6.75	74	185 689 LFMBP-1/4-H
H4 ... H7	G $\frac{1}{2}$	1	48	21.7	126	162 827 LFMBP-1/2-H

Condensate drain WA

Technical data

FESTO

Function



-  - Temperature range
0 ... +60 °C
-  - Input pressure
0 ... 16 bar



 **Note**
In order to close, the automatic condensate drain type WA-2 requires a flow rate of 125 l/min; this sets in at approx. 1.5 bar.

For attachment to service units and compressed air networks/systems. Condensate present in the compressed air is separated in suitable filters. The condensate that accumulates must be emptied from time to time, as otherwise it would be drawn in and could lead to faults in the downstream elements. The devices shown perform this task automatically.

They contain a float which opens when a certain condensate level is achieved. The accumulated condensate is then emptied.
With an additional, installed manual override, condensate emptying can also be performed manually.

- Automatic emptying after the max. fill level has been reached
- Automatic emptying after the operating pressure $p < 0.5$ bar is switched off
- Manual actuation during operation is possible

General technical data		
Type	WA-1-B	WA-2
Pneumatic connection	M9	M9
Condensate drain connection	G $\frac{1}{4}$	PK-4
Design	External, mechanically-operated, fully automatic condensate drain valve	
Operating medium	Water	
Type of mounting	In-line installation	
Mounting position	Vertical, $\pm 10^\circ$	Vertical, $\pm 5^\circ$
Input pressure [bar]	4 ... 16	0 ... 14
Valve function	2/2-way single solenoid valve, closed	2/2-way single solenoid valve, open
Manual override facility	Pushing	

Ambient conditions		
Type	WA-1-B	WA-2
Ambient temperature [°C]	0 ... +60	0 ... +50
Temperature of medium [°C]	0 ... +60	0 ... +50
Corrosion resistance CRC ¹⁾	2	

1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a surrounding industrial atmosphere or media such as cooling or lubricating agents.

Weights [g]		
	WA-1-B	WA-2
Condensate drain	210	92

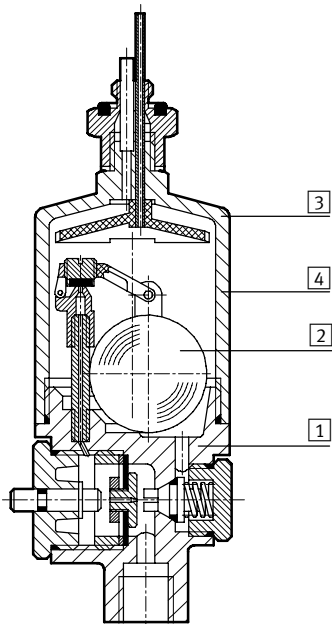
Condensate drain WA

Technical data

FESTO

Materials

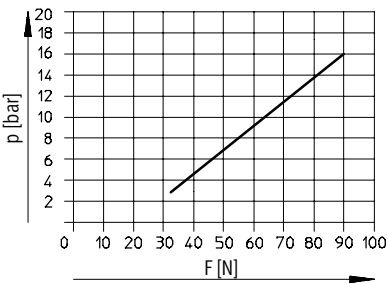
Sectional view



Condensate drain	WA-1-B	WA-2
1 Housing	Brass	Brass
2 Float	Polypropylene	Polyacetate
3 Cover	Polyamide	Wrought aluminium alloy
4 Bowl	–	Polycarbonate
– Seals	Nitrile rubber	Nitrile rubber

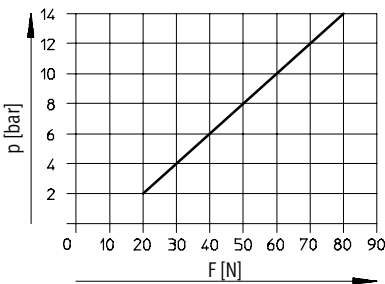
Actuating force F for manual actuation as a function of supply pressure p

WA-1-B



Primary pressure p1 = 7 bar

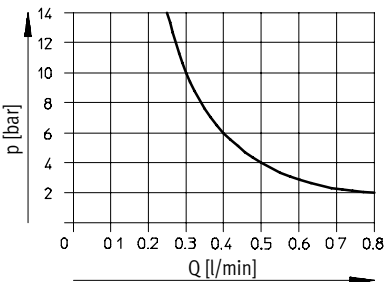
WA-2



Primary pressure p1 = 7 bar

Max. possible condensate flow rate Q as a function of input pressure p

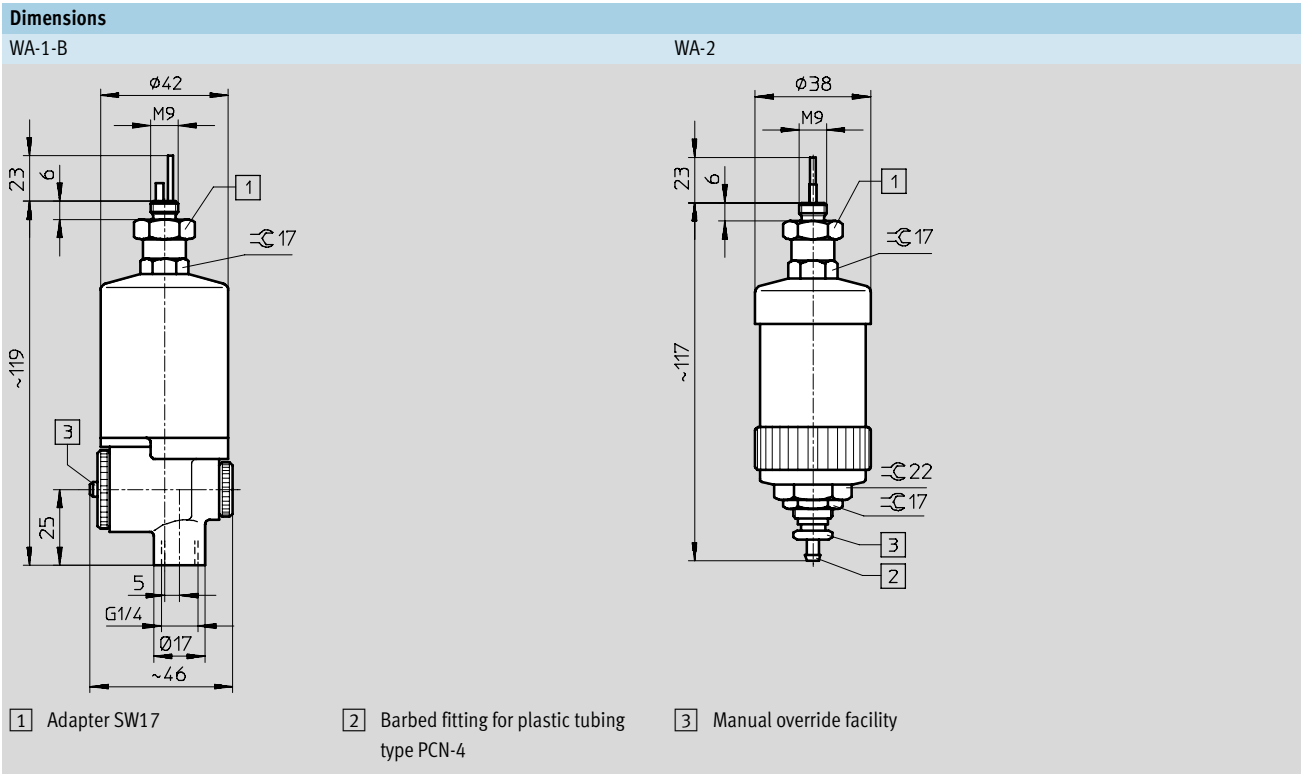
WA-2



Primary pressure p1 = 7 bar

Condensate drain WA

Technical data



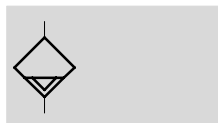
Ordering data		
Type	Part No.	Type
WA-1-B	158 497	WA-1-B
WA-2	152 810	WA-2

Condensate drain PWEA

Technical data

FESTO

Function



-  Temperature range
+1 ... +60 °C
-  Operating pressure
0.8 ... 16.0 bar



Condensate passes through the port in the bottom of the filter bowl into the attached condensate drain valve, where it is collected in a reservoir. A capacitive sensor detects once the maximum filling level is reached. The condensate escapes into the atmos-

phere via the opening diaphragm valve through the discharge line. The diaphragm valve closes again after a specified response time. A residual amount of condensate remains in the reservoir so that no compressed air can escape into the discharge line.

- Fully automatic condensate drain with integrated electrical control system
- Interface for communicating with master control device
- Reliable thanks to contactless capacitive sensor

- Can be used with service units or simply in piping systems
- Operated via touch-sensitive keys or electrical interface
- Ready status and switching status indicated via LEDs and electrical interface

General technical data					
		PWEA-AP-3D	PWEA-AC-6A	PWEA-AC-7A	PWEA-AC-3D
Pneumatic connection		G1/2			
Condensate drain connection		PK-8			
Design		Fully automatic condensate drain valve with electrical control interface			
Operating medium		Compressed air			
Type of mounting		In-line installation			
Mounting position		Vertical ±5°			
Operating pressure	[bar]	0.8 ... 16.0			
Valve function		3/2-way single solenoid valve, closed			
Manual override facility		Pushing			
Electrical					
Nominal operating voltage	[V DC]	24	–	–	24
	[V AC]	–	110	230	–
Electrical connection		M12x1 plug, 5-pin	Cable conduit fitting Pg9		
Nominal power of condensate drain		[W]	2		
Alarm output		Contacting			
Protection class (IEC 60529)		IP65			
Electrical protection class		III	II	II	III

Ambient conditions		
Ambient temperature [°C]	+1 ... +60	
Temperature of medium [°C]	+1 ... +60	
Corrosion resistance class CRC ¹⁾	2	

1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. 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.

Condensate drain PWEA

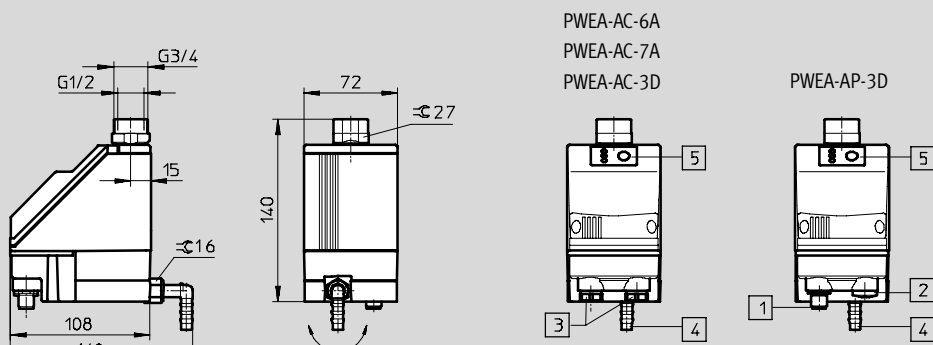
Technical data

FESTO

Materials	
Housing	Plastic
Condensate reservoir	Wrought aluminium alloy
Seals	Nitrile rubber, fluorocarbon rubber
Note on materials	Free of copper, PTFE and silicone

Weight [g]	
PWEA	700

Dimensions



PWEA-AC-6A
PWEA-AC-7A
PWEA-AC-3D

PWEA-AP-3D

- 1 M12x1 plug, 5-pin for SIM-M12-5GD-...
- 2 Plug screw
- 3 Cable conduit fitting Pg9
- 4 Connection 360° rotatable for plastic tubing PUN-H-12x2-...
- 5 Touch-sensitive keypad with LED display

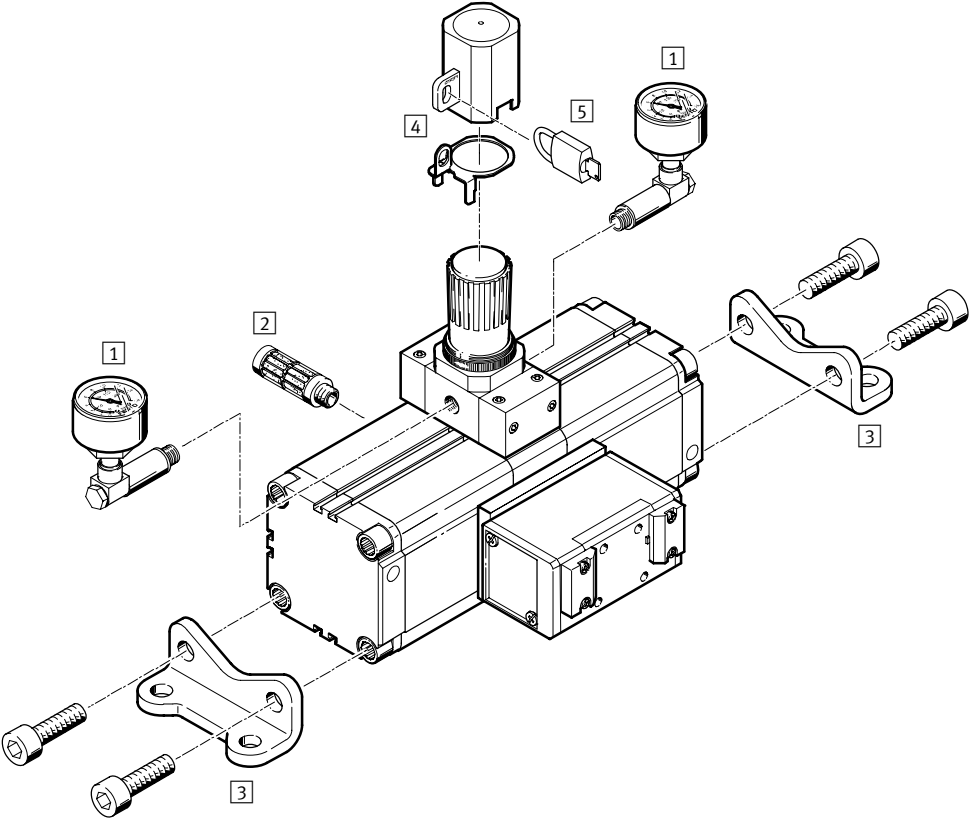
Ordering data		
Part No.	Type	
538 678	PWEA-AP-3D	
538 679	PWEA-AC-6A	
538 680	PWEA-AC-7A	
538 681	PWEA-AC-3D	

Pressure boosters DPA

Peripherals overview and type codes



Peripherals overview



Mounting attachments and accessories		Brief description	→ Page
1	Pressure gauge set MA-SET	The pressure gauge set is used to monitor the input and high pressure	3 / 4.7-5
2	Silencers U	The silencers are provided to reduce noise at the valve exhaust port	3 / 4.7-5
3	Foot mounting HUA	The pressure booster can be attached to other machine parts by means of the two foot mountings	3 / 4.7-5
4	Regulator lock LRVS with lock plate	Prevents unintentional, and in conjunction with an LRVS padlock, unauthorised adjustment of the rotary knob	3 / 4.7-6
5	Padlock LRVS-D	Accessory for LRVS	3 / 4.7-6

Type codes

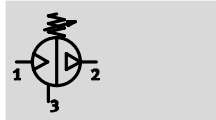
		DPA	–	63	–	16
Basic function						
DPA	Pressure boosters					
Piston Ø [mm]						
63						
100						
Output pressure [bar]						
10	4 ... 10					
16	4 ... 16					

Pressure boosters DPA

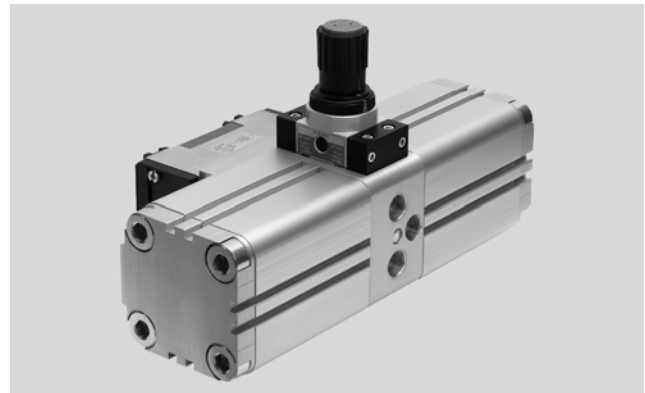
FESTO

Technical data

Function



-  - Temperature range
+5 ... +60 °C
-  - Input pressure
2 ... 10 bar



-  - Note

Pressure boosters do not replace a compressor, but are intended for the occasional boosting of compressed air.

-  - Note

The regulator is supplied with a non-compressed regulator spring. After the input pressure is applied, the regulator spring is pretensioned by turning the regulating knob until the desired output pressure is achieved. A pressure gauge is strongly recommended to monitor the output pressure. The regulator setting can be secured against unauthorised adjustment by means of a regulator lock.

The pressure booster is a twin-piston pressure intensifier that can compress air.

When the DPA is pressurised with compressed air, integrated directional control and non-return valves automatically facilitate pressure build-up on the secondary side up to twice the normal operating pressure, depending on the flow rate.

The air supply to both drive pistons is controlled by a pneumatic directional control valve, which reverses automatically when the stroke end-position is reached.

The output pressure is freely selectable; it lies between the system pressure and the maximum double value.

The reference value is set using a manually operated regulator, which supplies compressed air to the working pistons on the secondary side and ensures stable operation of the booster.

The booster starts automatically when the system pressure is applied and the desired output pressure has not yet been reached.

When the output pressure is reached, it stops operating automatically but restarts if the pressure drops again.

All benefits at a glance

- Any mounting position
- Long service life
- Compact construction and good design
- Mounting option with components from the ADVU standard range
- Minimal loss of volume with valve activation
- Short filling times

General technical data				
Type	DPA-63-10	DPA-100-10	DPA-63-16	DPA-100-16
Pneumatic connection	G3/8	G1/2	G3/8	G1/2
Operating medium	Compressed air, filtered, unlubricated, grade of filtration 5µm			
Design	Twin-piston pressure intensifier			
Mounting position	Any			
Input pressure p1 [bar]	2 ... 8		2 ... 10	
Output pressure p2 [bar]	4 ... 10 ¹⁾		4 ... 16 ¹⁾	
Pressure indicator	G1/8 prepared	G1/4 prepared	G1/8 prepared	G1/4 prepared

1) The differential pressure between the input and output pressure must be at least 2 bar.

-  - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Ambient conditions		
Ambient temperature [°C]	+5 ... +60	
Corrosion resistance CRC ¹⁾	2	

1) Corrosion resistance class 2 according to Festo standard 940 070

Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a surrounding industrial atmosphere or media such as cooling or lubricating agents.

Individual units
Pressure amplifier

4.7

Pressure boosters DPA

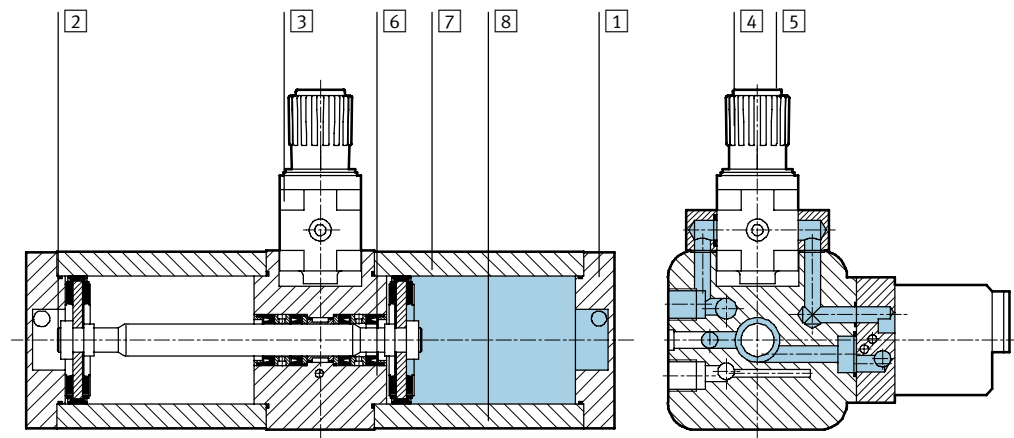
Technical data

FESTO

Weights [g]				
	DPA-63-10	DPA-100-10	DPA-63-16	DPA-100-16
Pressure boosters	6,000	13,000	6,000	13,000

Recommended tubing		
	For input pressure	For output pressure
DPA-63	PAN-16x2	PAN-12x1,75
DPA-100	P-19 PAN-16x2	PAN-16x2

Materials
Sectional view



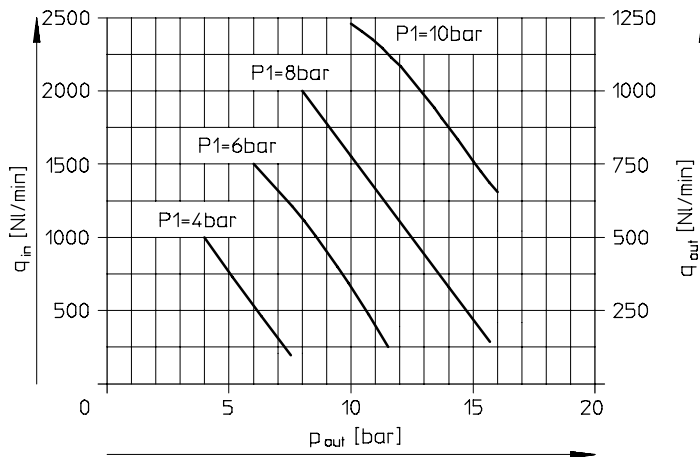
Pressure boosters		
1	Plug cap	Aluminium
2	Round nut	Galvanised steel
3	Valves	Die-cast aluminium, polyacetate
4	Rotary knob	Acetal
5	Protective cover	Acrylic butadiene styrene
6	Centre bit	Aluminium
7	Housing	Die-cast zinc
8	Cylinder barrel	Aluminium
-	Seals, regulator	Nitrile rubber
-	Seals, valve	Nitrile rubber

Pressure boosters DPA

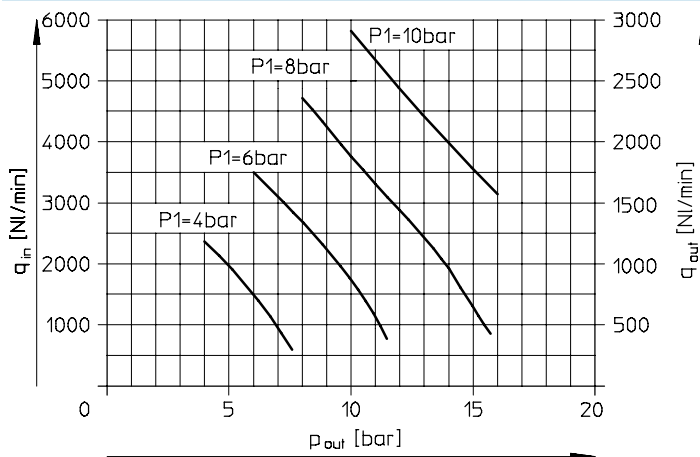
Technical data

Flow rate at input q_{in} and flow rate at output q_{out} as a function of output pressure p_{out}

DPA-63



DPA-100



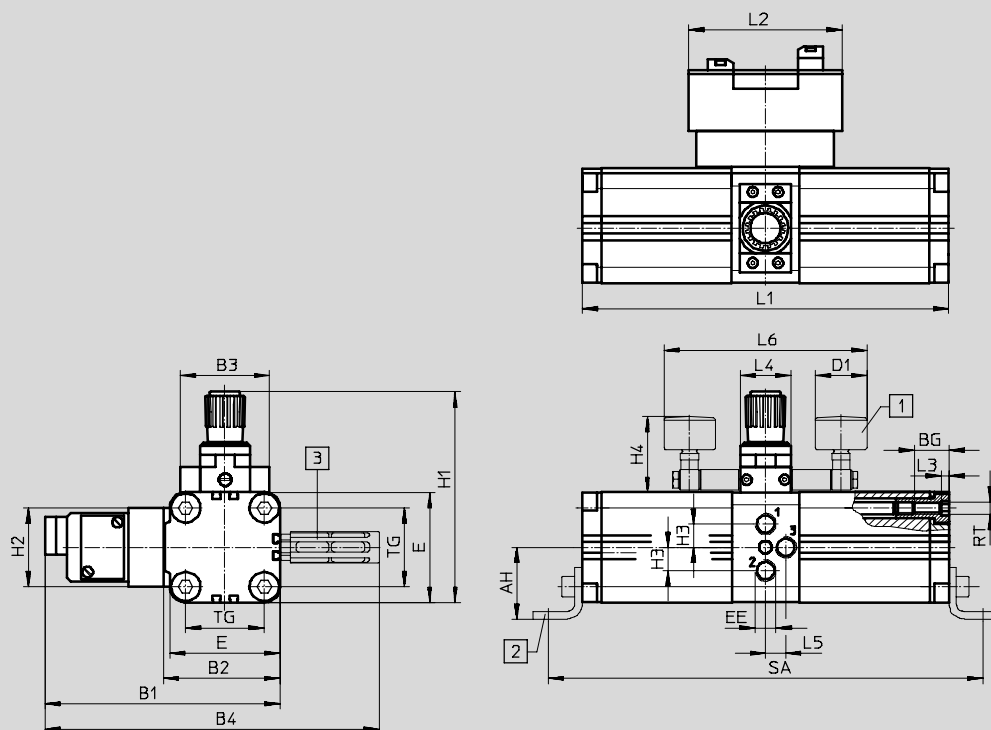
Pressure boosters DPA

Technical data

FESTO

Dimensions

Download CAD data → www.festo.com/en/engineering



1 Pressure gauge set

2 Foot mounting HUA

3 Silencer U

Type	AH	B1	B2	B3	B4	BG	D1 Ø	E	EE	H1	H2
DPA-63-10	56.5	187	92.5	70	266	25	41	88	G $\frac{3}{8}$	169	62
DPA-63-16								128	G $\frac{1}{2}$	244	71
DPA-100-10	81	244	133	102	352	30	41	88	G $\frac{3}{8}$	169	62
DPA-100-16								128	G $\frac{1}{2}$	244	71

Type	H3	H4	L1	L2	L3	L4	L5	L6	RT	TG	SA
DPA-63-10	17.5	60	289	122	6	40	19	161	M10	62	343
DPA-63-16										103	433
DPA-100-10	27	73	367	145.5	6	55	11	175	M10	62	343
DPA-100-16										103	433

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Ordering data

Size	Output pressure 4 ... 10 bar		Output pressure 4 ... 16 bar	
	Part No.	Type	Part No.	Type
63	184 518	DPA-63-10	193 392	DPA-63-16
100	184 519	DPA-100-10	188 399	DPA-100-16

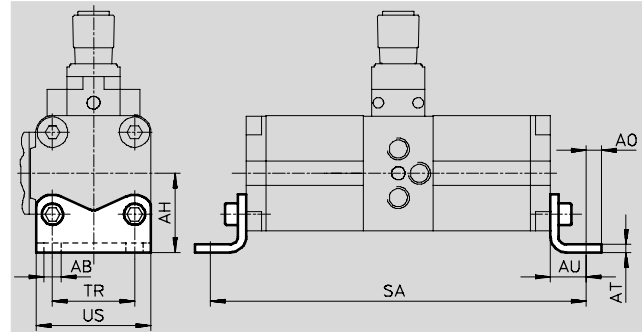
Pressure boosters DPA

Accessories

FESTO

Foot mounting HUA

Material:
Galvanised steel
Free of copper, PTFE and silicone

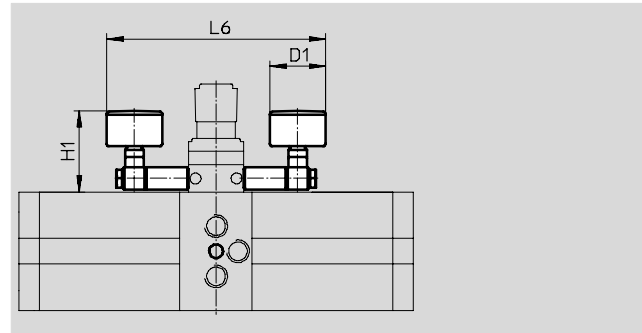


Ordering data										
Size	AB Ø	AH	AO	AT	AU	SA	TR	US	Part No.	Type
63	11	56.5	11.75	6	27	343	62	85.5	157 315	HUA-63
100	13.5	81	11.75	8	33	433	103	126.5	157 317	HUA-100

Pressure gauge set DPA-MA

If the pressure gauge scale is to be specifically aligned, PTFE sealing tape must be used instead of the included sealing rings.

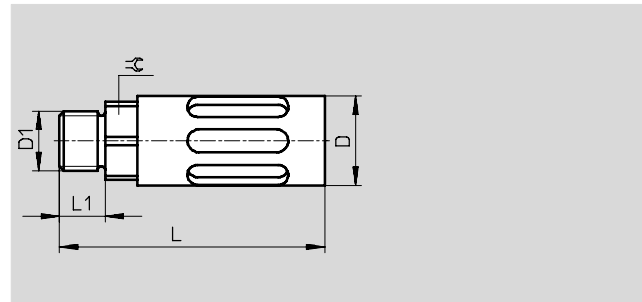
Material:
Housing: Acrylic butadiene styrene
Window shield: Polystyrene
Connection piece: Brass



Ordering data					
Size	D1 Ø	H1	L6	Part No.	Type
63-10	41	60	161	526 096	DPA-63-10-MA-SET
63-16				526 097	DPA-63-16-MA-SET
100-10	41	73	175	526 098	DPA-100-10-MA-SET
100-16				526 099	DPA-100-16-MA-SET

Silencer U

Material:
Housing: Die-cast aluminium
Insert: Polyethylene
Free of copper, PTFE and silicone



Ordering data						
Connection	D	D1	L	L1	≅	Part No. Type
G $\frac{3}{8}$	25	G $\frac{3}{8}$	88.5	10.5	19	6843 U- $\frac{3}{8}$ -B
G $\frac{1}{2}$	28	G $\frac{1}{2}$	120	14	24	6844 U- $\frac{1}{2}$ -B

Core Range

Individual units
Pressure amplifier

4.7

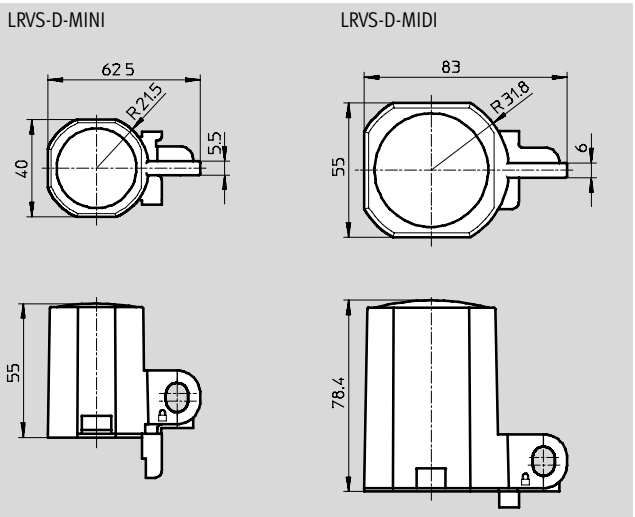
Pressure boosters DPA

Accessories



Regulator lock LRVS

Material:
Cap: Polyacetate
Lock plate: Steel
Knurled nut: Aluminium



Ordering data			
Size	Weight [g]	Part No.	Type
63	40	193 781	LRVS-D-MINI ¹⁾
100	60	193 782	LRVS-D-MIDI ¹⁾

1) Free of copper, PTFE and silicone

Padlock LRVS-D

Material:
Housing: Brass



Ordering data			
	Weight [g]	Part No.	Type
Padlock	120	193 786	LRVS-D

Pressure gauge MA, DIN EN 837-1

FESTO

Technical data

Function



-  - Temperature range
-20 ... +60 °C



Technical data			
Nominal size	40	50	63
Pneumatic connection	R $\frac{1}{8}$, G $\frac{1}{4}$, R $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{1}{4}$
Operating medium	Liquid media		
	Gaseous media		
	Not permitted: Oxygen		
	Not permitted: Acetylene		
Design	Bourdon tube pressure gauge		
Conforms to	DIN EN 837-1		
Type of mounting	Can be screwed in		
Connection position	Centre, rear side		
Ambient temperature [°C]	-20 ... +60		
Accuracy of measurement, class	2.5		
Factor, continuous load	0.75		
Factor, intermittent load	0.66		
Protection class	IP43		
For MS series service units	MS4/MS6	-	-
Materials	Housing: Acrylic butadiene styrene		
	Window shield: Polystyrene		
	Threaded plug: Brass		
Weight [g]	60	70	80

Indicating range				
[bar]	[psi]	40	50	63
0 ... 1	0 ... 14.5	-	-	■
0 ... 2.5	0 ... 36	-	■	■
0 ... 6	0 ... 87	■	-	-
0 ... 10	0 ... 145	■	■	■
0 ... 16	0 ... 232	■	■	■
0 ... 25	0 ... 360	■	-	-

Individual units
Pressure gauges

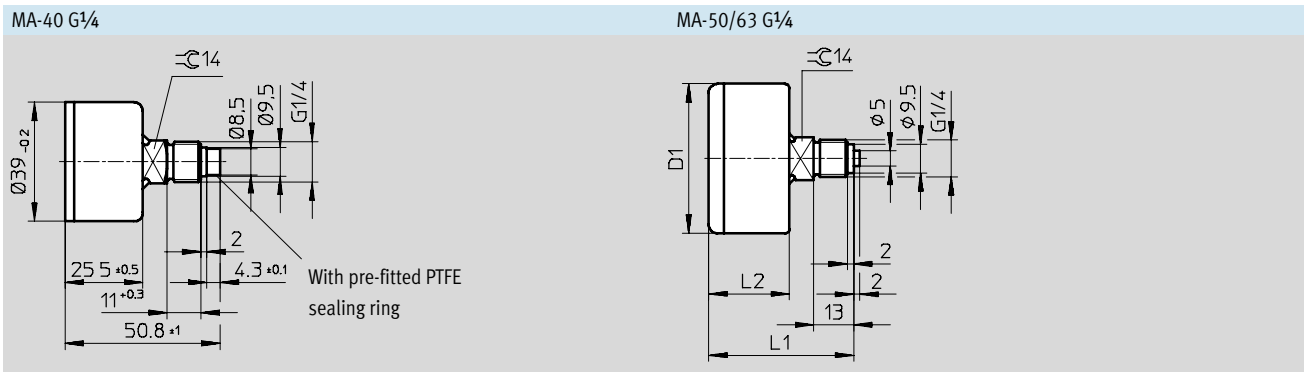
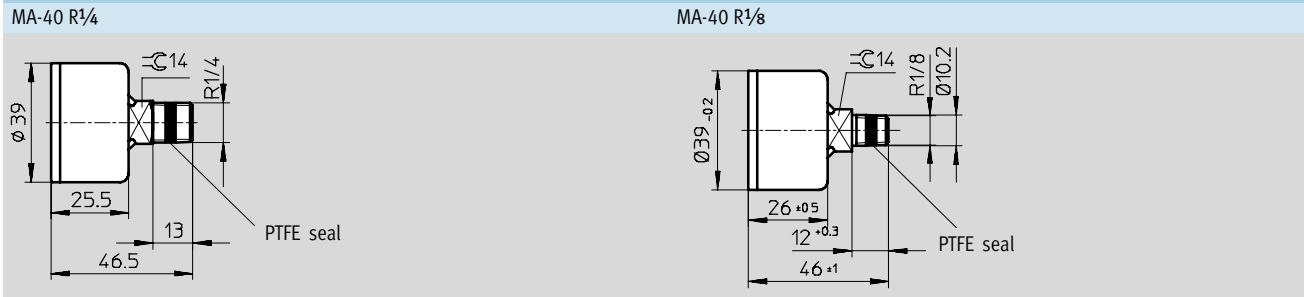
4.8

Pressure gauge MA, DIN EN 837-1

Technical data



Dimensions Download CAD data → www.festo.com/en/engineering



Type	D1 Ø	L1	L2
MA-50	49	47.5	26.5
MA-63	61.5	48.5	27.5

Pressure gauge MA, DIN EN 837-1

FESTO

Technical data

Ordering data					
Nominal size	Pneumatic connection	Indicating range		Part No.	Type
		[bar]	[psi]		
40	R $\frac{1}{8}$	0 ... 10	0 ... 145	162 835	MA-40-10- $\frac{1}{8}$ -EN
		0 ... 16	0 ... 232	162 836	MA-40-16- $\frac{1}{8}$ -EN
		0 ... 25	0 ... 360	526 167	MA-40-25- $\frac{1}{8}$ -EN
40	G $\frac{1}{4}$	0 ... 6	0 ... 87	183 899	MA-40-6-G $\frac{1}{4}$ -EN
		0 ... 10	0 ... 145	183 900	MA-40-10-G $\frac{1}{4}$ -EN
		0 ... 16	0 ... 232	183 901	MA-40-16-G $\frac{1}{4}$ -EN
		0 ... 25	0 ... 360	183 902	MA-40-25-G $\frac{1}{4}$ -EN
40	R $\frac{1}{4}$	0 ... 6	0 ... 87	187 078	MA-40-6-R $\frac{1}{4}$ -EN
		0 ... 10	0 ... 145	187 079	MA-40-10-R $\frac{1}{4}$ -EN
		0 ... 16	0 ... 232	187 080	MA-40-16-R $\frac{1}{4}$ -EN
		0 ... 25	0 ... 360	187 081	MA-40-25-R $\frac{1}{4}$ -EN
50	G $\frac{1}{4}$	0 ... 2.5	0 ... 36	162 837	MA-50-2,5- $\frac{1}{4}$ -EN
		0 ... 10	0 ... 145	162 838	MA-50-10- $\frac{1}{4}$ -EN
		0 ... 16	0 ... 232	162 839	MA-50-16- $\frac{1}{4}$ -EN
63	G $\frac{1}{4}$	0 ... 1	0 ... 14.5	162 844	MA-63-1- $\frac{1}{4}$ -EN
		0 ... 2.5	0 ... 36	162 845	MA-63-2,5- $\frac{1}{4}$ -EN
		0 ... 10	0 ... 145	162 840	MA-63-10- $\frac{1}{4}$ -EN
		0 ... 16	0 ... 232	162 841	MA-63-16- $\frac{1}{4}$ -EN

 Core Range

Individual units
Pressure gauges

4.8

Pressure gauge MA, DIN EN 837-1, with red-green range

FESTO

Technical data

Function



-  - Temperature range
-20 ... +60 °C



The adjustable red-green range provides additional safety when monitoring compressed air.

With the two red segments above the pressure gauge scale along with the printed green segment it is possible to individually limit the desired pressure range.

This coloured demarcation enables you to recognise immediately whether or not the pressure is in the permitted tolerance range.

Technical data			
Nominal size	40	50	63
Pneumatic connection	R1/8	R1/4	R1/4
Operating medium	Liquid media		
	Gaseous media		
	Not permitted: Oxygen		
	Not permitted: Acetylene		
Design	Bourdon tube pressure gauge		
Type of mounting	Can be screwed in		
Connection position	Centre, rear side		
Ambient temperature [°C]	-20 ... +60		
Accuracy of measurement, class	2.5		
Factor, continuous load	0.75		
Factor, intermittent load	0.66		
Protection class	IP43		
Materials	Housing: Acrylic butadiene styrene		
	Window shield: Polystyrene		
Weight [g]	62	76	88

Indicating range			
Nominal size	40	50	63
[bar]			
0 ... 2.5	—	■	■
0 ... 10	■	■	■
0 ... 16	■	■	■
[MPa]			
0 ... 0.25	—	—	■
0 ... 1	■	■	■
0 ... 1.6	■	■	■
[psi]			
0 ... 36	—	■	■
0 ... 145	■	■	■
0 ... 232	■	■	■

Pressure gauge MA, DIN EN 837-1, with red-green range

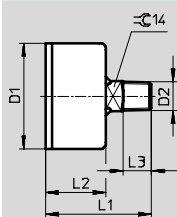
FESTO

Technical data

Dimensions

Download CAD data → www.festo.com/en/engineering

MA-...-E-RG



Type	D1 Ø ±0.5	D2	L1 ±1	L2 ±0.5	L3
MA-40-...-E-RG	39	R $\frac{1}{8}$	46	28	10
MA-50-...-E-RG	49	R $\frac{1}{4}$	49	28	13
MA-63-...-E-RG	61.5	R $\frac{1}{4}$	50.5	29.5	13

Ordering data

Nominal size	Pneumatic connection	Indicating range	Part No.	Type
Display unit [bar]				
40	R $\frac{1}{8}$	0 ... 10	525 725	MA-40-10-R $\frac{1}{8}$ -E-RG
		0 ... 16	525 726	MA-40-16-R $\frac{1}{8}$ -E-RG
50	R $\frac{1}{4}$	0 ... 2.5	525 727	MA-50-2,5-R $\frac{1}{4}$ -E-RG
		0 ... 10	525 728	MA-50-10-R $\frac{1}{4}$ -E-RG
		0 ... 16	525 729	MA-50-16-R $\frac{1}{4}$ -E-RG
63	R $\frac{1}{4}$	0 ... 2.5	525 730	MA-63-2,5-R $\frac{1}{4}$ -E-RG
		0 ... 10	525 731	MA-63-10-R $\frac{1}{4}$ -E-RG
		0 ... 16	525 732	MA-63-16-R $\frac{1}{4}$ -E-RG
Display unit [MPa]				
40	R $\frac{1}{8}$	0 ... 1	526 778	MA-40-1,0-R $\frac{1}{8}$ -MPA-E-RG
		0 ... 1.6	526 779	MA-40-1,6-R $\frac{1}{8}$ -MPA-E-RG
50	R $\frac{1}{4}$	0 ... 0.25	526 780	MA-50-0,25-R $\frac{1}{4}$ -MPA-E-RG
		0 ... 1	526 781	MA-50-1,0-R $\frac{1}{4}$ -MPA-E-RG
		0 ... 1.6	526 782	MA-50-1,6-R $\frac{1}{4}$ -MPA-E-RG
63	R $\frac{1}{4}$	0 ... 0.25	526 783	MA-63-0,25-R $\frac{1}{4}$ -MPA-E-RG
		0 ... 1	526 784	MA-63-1,0-R $\frac{1}{4}$ -MPA-E-RG
		0 ... 1.6	526 785	MA-63-1,6-R $\frac{1}{4}$ -MPA-E-RG
Display unit [psi]				
40	R $\frac{1}{8}$	0 ... 145	526 786	MA-40-145-R $\frac{1}{8}$ -PSI-E-RG
		0 ... 232	526 787	MA-40-232-R $\frac{1}{8}$ -PSI-E-RG
50	R $\frac{1}{4}$	0 ... 36	526 788	MA-50-36-R $\frac{1}{4}$ -PSI-E-RG
		0 ... 145	526 789	MA-50-145-R $\frac{1}{4}$ -PSI-E-RG
		0 ... 232	526 790	MA-50-232-R $\frac{1}{4}$ -PSI-E-RG
63	R $\frac{1}{4}$	0 ... 36	526 791	MA-63-36-R $\frac{1}{4}$ -PSI-E-RG
		0 ... 145	526 792	MA-63-145-R $\frac{1}{4}$ -PSI-E-RG
		0 ... 232	526 793	MA-63-232-R $\frac{1}{4}$ -PSI-E-RG

Individual units
Pressure gauges

4.8

Pressure gauge MA

Technical data

FESTO

Function



-  - Temperature range
-20 ... +60 °C



Technical data					
Nominal size	23	27	40	50	63
Pneumatic connection	R1/8	M5	G1/8	G1/4	G1/4
Operating medium	-				
	Liquid media				
	Gaseous media				
	Not permitted: Oxygen				
Design	Bourdon tube pressure gauge				
	Can be screwed in				
Type of mounting	Centre, rear side				
Ambient temperature [°C]	-40 ... +60	0 ... +60	-20 ... +60		
Accuracy of measurement, class	-	4	2.5		
Factor, continuous load	-	0.75			
Factor, intermittent load	-	0.66			
Protection class	-	IP43			
For D series service units	-	MICRO	MINI	MIDI/MAXI	-
Materials	Housing: Acrylic butadiene styrene	Housing: Plastic	Housing: Acrylic butadiene styrene		
	Sight glass: Polystyrene	Sight glass: Plastic	Sight glass: Polystyrene		
	Threaded plug: Brass	Threaded plug: Brass	Threaded plug: Brass		
Weight [g]	16	11	70	70	70

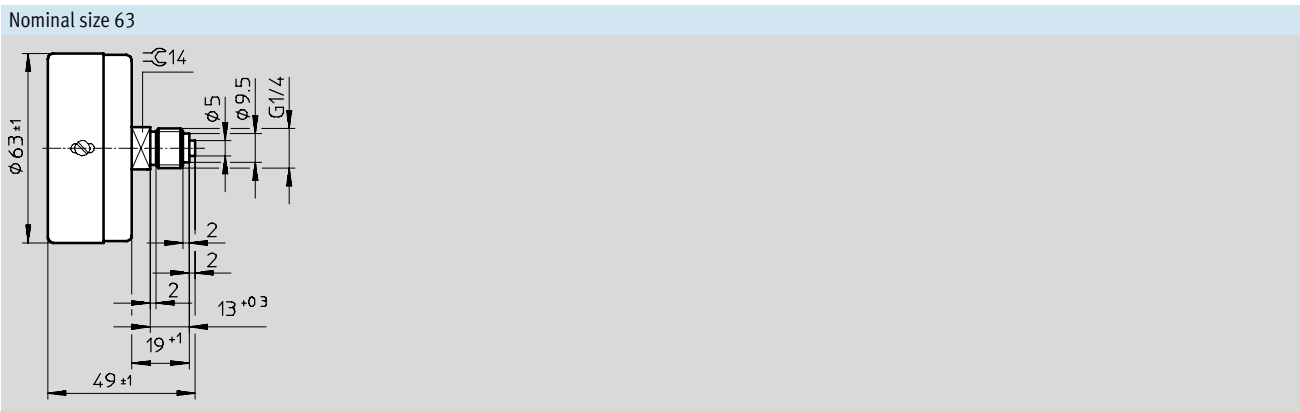
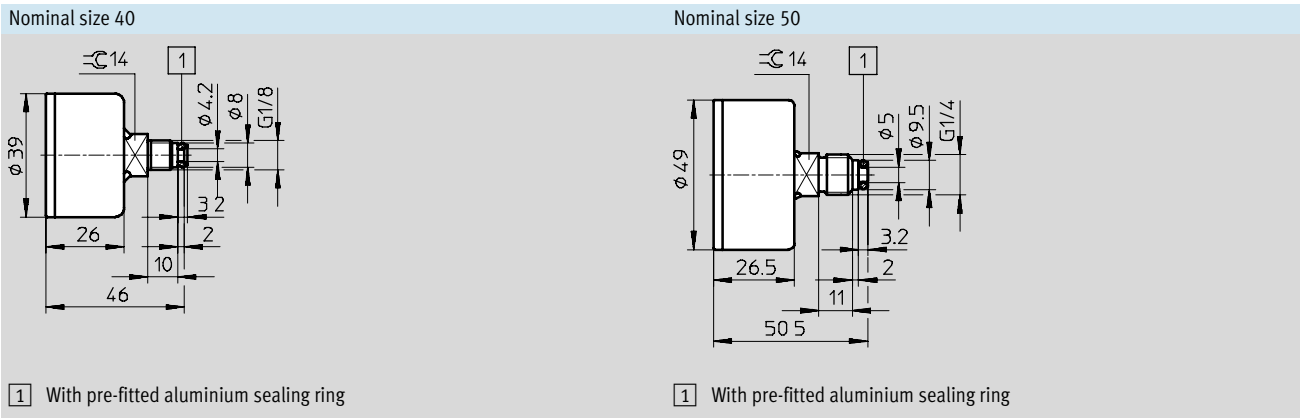
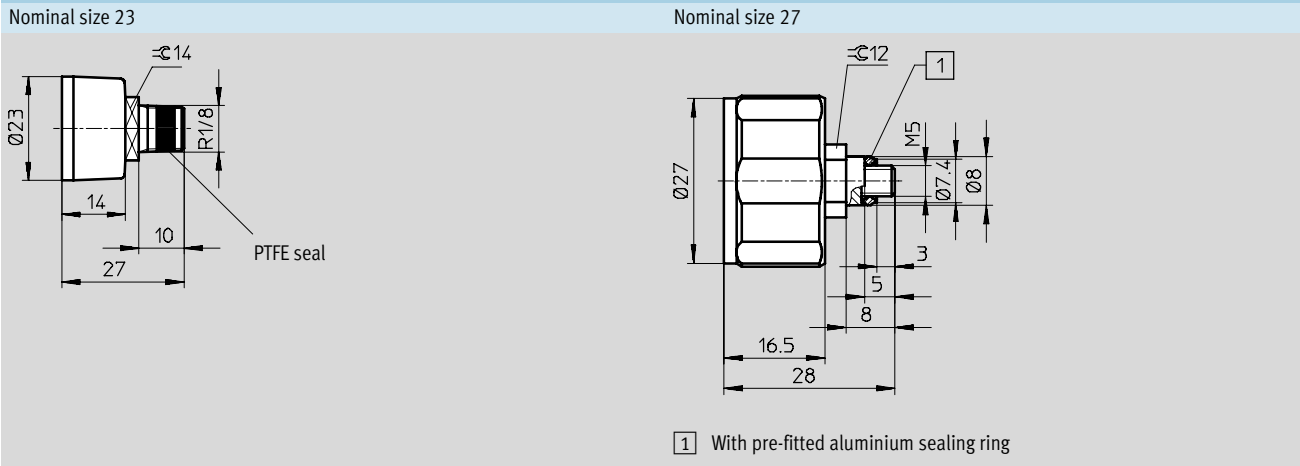
Indicating range						
Nominal size		23	27	40	50	63
[bar]	[psi]					
0 ... 6	0 ... 87	■	–	–	–	–
0 ... 10	0 ... 145	■	–	■	■	–
0 ... 16	0 ... 232	■	–	■	■	–
0 ... 20	0 ... 290	■	–	–	–	–
0 ... 25	0 ... 360	■	–	–	–	■
[bar]						
0 ... 10		–	■	–	–	–
[MPa]						
0 ... 0.6		–	–	–	–	–
0 ... 1		–	■	■	■	–
0 ... 1.6		–	–	■	■	–
0 ... 2.5		–	–	■		–
[psi]						
0 ... 160		–	■	–	–	–

Pressure gauge MA

Technical data



Dimensions Download CAD data → www.festo.com/en/engineering



Pressure gauge MA

Technical data

FESTO

Ordering data				
Nominal size	Pneumatic connection	Indicating range		Part No. Type
		[bar]	[psi]	
23	R $\frac{1}{8}$	0 ... 6	0 ... 87	183 896 MA-23-6-R$\frac{1}{8}$
		0 ... 10	0 ... 145	183 897 MA-23-10-R$\frac{1}{8}$
		0 ... 16	0 ... 232	183 898 MA-23-16-R$\frac{1}{8}$
		0 ... 20	0 ... 290	537 916 MA-23-20-R$\frac{1}{8}$
40	G $\frac{1}{8}$	0 ... 10	0 ... 145	359 874 MA-40-10-$\frac{1}{8}$
		0 ... 16	0 ... 232	345 395 MA-40-16-$\frac{1}{8}$
50	G $\frac{1}{4}$	0 ... 10	0 ... 145	359 873 MA-50-10-$\frac{1}{4}$
		0 ... 16	0 ... 232	356 759 MA-50-16-$\frac{1}{4}$
63	G $\frac{1}{4}$	0 ... 25	0 ... 360	7 169 MA-63-0,25

Ordering data				
Nominal size	Pneumatic connection	Indicating range	Part No.	Type
Display unit [bar]				
27	M5	0 ... 10	526 323	MA-27-10-M5
Display unit [MPa]				
27	M5	0 ... 1	526 324	MA-27-1,0-M5-MPA
40	G¼	0 ... 0.6	184 285	MA-40-0,6-G¼-MPA
		0 ... 1	184 286	MA-40-1,0-G¼-MPA
		0 ... 1.6	184 287	MA-40-1,6-G¼-MPA
		0 ... 2.5	184 288	MA-40-2,5-G¼-MPA
40	G⅛	0 ... 1	192 732	MA-40-1-G⅛-MPA
		0 ... 1.6	192 733	MA-40-1,6-G⅛-MPA
50	G¼	0 ... 1	192 734	MA-50-1-G¼-MPA
		0 ... 1.6	192 735	MA-50-1,6-G¼-MPA
Display unit [psi]				
27	M5	0 ... 160	527 405	MA-27-160-M5-PSI

Precision pressure gauge MAP, DIN EN 837-1

FESTO

Technical data

Function



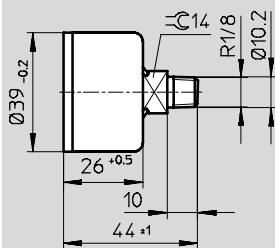
-  - Temperature range
-20 ... +60 °C



Technical data					
Nominal size		40			
Pneumatic connection		R1/8			
Operating medium		Liquid media			
		Gaseous media			
		Not permitted: Oxygen			
		Not permitted: Acetylene			
Design		Bourdon tube pressure gauge			
Indicating range	[bar]	0 ... 1	0 ... 4	0 ... 6	0 ... 16
	[psi]	0 ... 14.5	0 ... 58	0 ... 87	0 ... 232
Conforms to		DIN EN 837-1			
Type of mounting		Can be screwed in			
Connection position		Centre, rear side			
Ambient temperature [°C]		−20 ... +60			
Accuracy of measurement, class		1.6			
Factor, continuous load		0.75			
Factor, intermittent load		0.66			
Protection class		IP43			
Materials		Housing: Acrylic butadiene styrene			
		Sight glass: Polystyrene			
		Threaded plug: Brass			
Weight [g]	60				

Dimensions

Download CAD data → www.festo.com/en/engineering



Ordering data				
Nominal size	Pneumatic connection	Indicating range		Part No. Type
		[bar]	[psi]	
40	R $\frac{1}{8}$	0 ... 1	0 ... 14.5	161 126 MAP-40-1- $\frac{1}{8}$ -EN
		0 ... 4	0 ... 58	162 842 MAP-40-4- $\frac{1}{8}$ -EN
		0 ... 6	0 ... 87	161 127 MAP-40-6- $\frac{1}{8}$ -EN
		0 ... 16	0 ... 232	161 128 MAP-40-16- $\frac{1}{8}$ -EN

 Core Range

Individual units
Pressure gauges

4.8

Pressure gauge MA-QS

Technical data

FESTO

Function



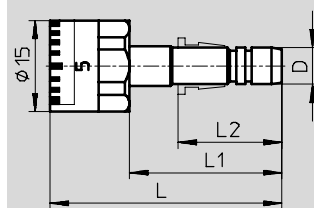
-  - Temperature range
0 ... +60 °C



Technical data			
Nominal size	15		
Pneumatic connection	QS4	QS6	QS8
Operating medium	Filtered compressed air, lubricated or unlubricated		
Design	Bourdon tube pressure gauge without measuring mechanism		
Indicating range [bar]	0 ... 10		
Type of mounting	Can be screwed in		
Connection position	Centre, rear side		
Ambient temperature [°C]	0 ... +60		
Factor, continuous load	0.75		
Materials	Housing: Nickel plated steel		
Weight [g]	8	10	13

Dimensions

Download CAD data → www.festo.com/en/engineering



Dimensions and ordering data						
Nominal size	Indicating range	Pneumatic connection	L	L1	L2	Part No. Type
D	[bar]					
15	0 ... 10	QS4	36	23	15	153 383 MA-15-10-QS-4
		QS6	38	25	17	153 384 MA-15-10-QS-6
		QS8	34	21	18.5	153 385 MA-15-10-QS-8

Flanged pressure gauge FMA, DIN EN 837-1

FESTO

Technical data

Function



-  - Temperature range
-20 ... +60 °C



Technical data			
Nominal size	40	50	63
Pneumatic connection	G1/4		
Operating medium	Liquid media		
	Gaseous media		
	Not permitted: Oxygen		
	Not permitted: Acetylene		
Design	Bourdon tube pressure gauge		
Conforms to	DIN EN 837-1		
Type of mounting	Panel mounting		
Connection position	Centre, rear side		
Ambient temperature [°C]	-20 ... +60		
Accuracy of measurement, class	2.5		
Factor, continuous load	0.75		
Factor, intermittent load	0.66		
Protection class	IP43		
Materials	Housing: Polystyrene		
	Sight glass: Styrene acrylonitrile copolymer		
	Threaded plug: Brass		
Weight [g]	80	100	120

Indicating range				
[bar]	[psi]	Nominal size		
		40	50	63
0 ... 2.5	0 ... 36	—	■	■
0 ... 10	0 ... 145	■	■	■
0 ... 16	0 ... 232	■	■	■

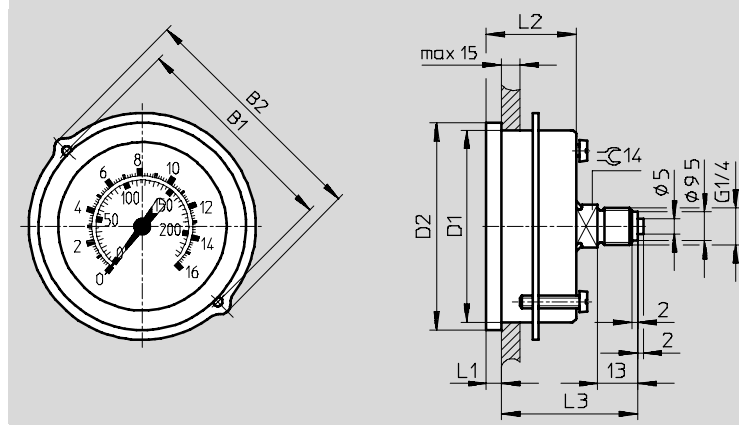
Flanged pressure gauge FMA, DIN EN 837-1

Technical data

FESTO

Dimensions

Download CAD data → www.festo.com/en/engineering



Type	B1	B2	D1 Ø	D2 Ø	L1	L2	L3
FMA-40	48	56	40	45	4.5	26.5	43
FMA-50	57	66	49.5	54	4.5	26.8	43.3
FMA-63	70	79	63	68	4.8	29.5	42.5

Ordering data

Nominal size	Pneumatic connection	Indicating range		Part No.	Type
		[bar]	[psi]		
40	G1/4	0 ... 10	0 ... 145	159 596	FMA-40-10-1/4-EN
		0 ... 16	0 ... 232	159 597	FMA-40-16-1/4-EN
50	G1/4	0 ... 2.5	0 ... 36	159 598	FMA-50-2,5-1/4-EN
		0 ... 10	0 ... 145	159 599	FMA-50-10-1/4-EN
		0 ... 16	0 ... 232	159 600	FMA-50-16-1/4-EN
63	G1/4	0 ... 2.5	0 ... 36	159 601	FMA-63-2,5-1/4-EN
		0 ... 10	0 ... 145	159 602	FMA-63-10-1/4-EN
		0 ... 16	0 ... 232	159 603	FMA-63-16-1/4-EN

Technical data

Function

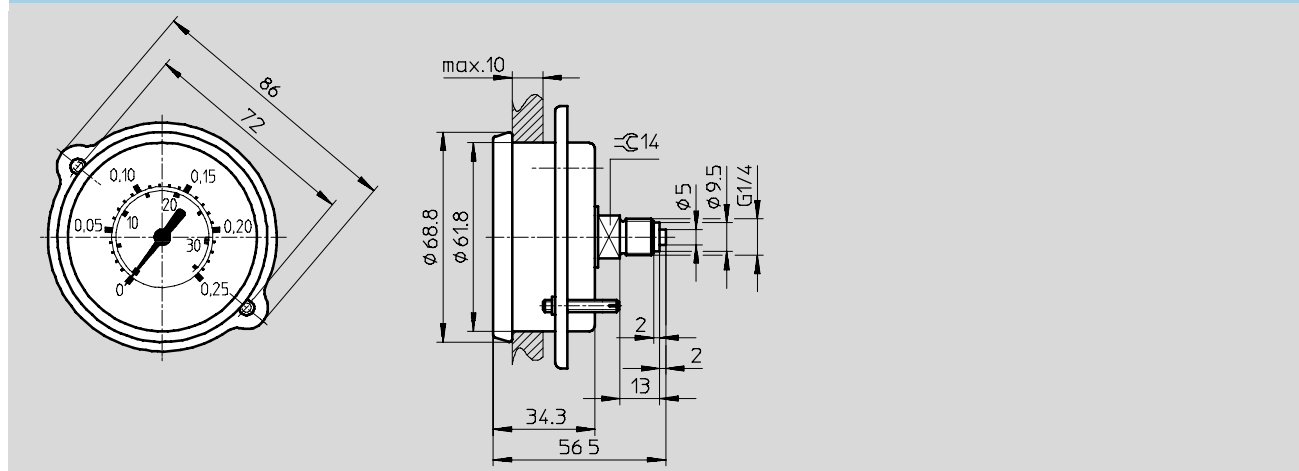


-  - Temperature range
-10 ... +60 °C



Technical data		
Nominal size		63
Pneumatic connection		G1¼
Operating medium		Gaseous media
Design		Aneroid pressure gauge
Indicating range	[bar]	0 ... 0.25
Indicating range	[psi]	0 ... 3.6
Type of mounting		Panel mounting
Connection position		Centre, rear side
Ambient temperature	[°C]	−10 ... +60
Accuracy of measurement, class		2.5
Factor, continuous load		0.75
Factor, intermittent load		0.66
Protection class		IP43
Materials		Housing: Steel
		Sight glass: Polymethylmethacrylate
		Threaded plug: Brass
Weight	[g]	240

Download CAD data → www.festo.com/en/engineering



Ordering data				
Nominal size	Pneumatic connection	Indicating range		Part No. Type
		[bar]	[psi]	
63	G1/4	0 ... 0.25	0 ... 3.6	225 783 FMA-63-0,25-C

Precision pressure gauge FMAP, DIN EN 837-1

Technical data

FESTO

Function



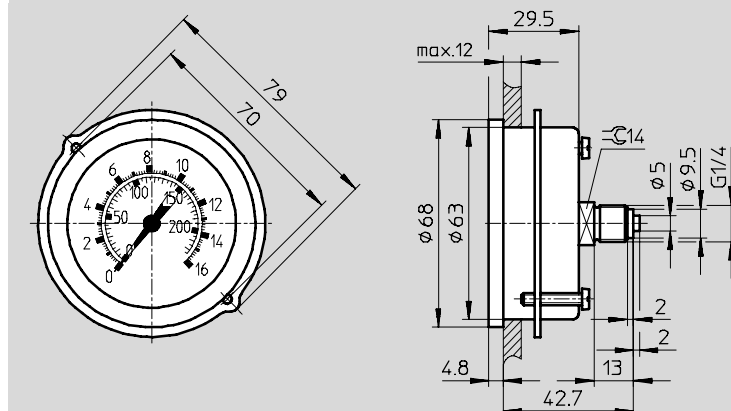
-  - Temperature range
-20 ... +60 °C



Technical data					
Nominal size		63			
Pneumatic connection		G1/4			
Operating medium		Liquid media			
		Gaseous media			
		Not permitted: Oxygen			
		Not permitted: Acetylene			
Design		Bourdon tube pressure gauge			
Indicating range	[bar]	0 ... 1	0 ... 4	0 ... 6	0 ... 16
	[psi]	0 ... 14.5	0 ... 58	0 ... 87	0 ... 232
Conforms to		DIN EN 837-1			
Type of mounting		Panel mounting			
Connection position		Centre, rear side			
Ambient temperature		[°C] −20 ... +60			
Accuracy of measurement, class		1.0			
Factor, continuous load		0.75			
Factor, intermittent load		0.66			
Protection class		IP43			
Materials		Housing: Polystyrene			
		Sight glass: Styrene acrylonitrile copolymer			
		Threaded plug: Brass			
Weight	[g]	120			

Dimensions

Download CAD data → www.festo.com/en/engineering



Ordering data				
Nominal size	Pneumatic connection	Indicating range		Part No. Type
		[bar]	[psi]	
63	G1/4	0 ... 1	0 ... 14.5	161 129 FMAP-63-1-1/4-EN
		0 ... 4	0 ... 58	162 843 FMAP-63-4-1/4-EN
		0 ... 6	0 ... 87	161 130 FMAP-63-6-1/4-EN
		0 ... 16	0 ... 232	161 131 FMAP-63-16-1/4-EN