

## D series service units

The proven standard

**FESTO**



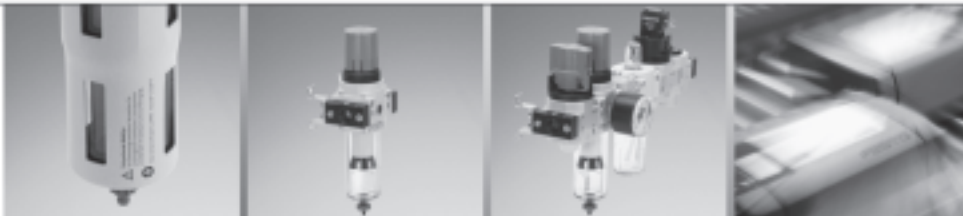
Reliable compressed air  
preparation for all  
standard applications

**Info 403**

## Ideal for all standard applications

### Successfully proven over many years – D series service units.

Available in a highly robust, universal and standardised metal version. The keenly priced polymer components DB are tailored to core functions. They are also upgradeable because they can be combined with the metal components in the series.



Whether it's the metal version, polymer version, ...

or both, ...

rapid availability guaranteed.

#### Proven a million times over

Maximum sturdiness and reliability thanks to the metal housing, the all-metal bowl guard and the sturdy fittings. For compressed air preparation in applications with standard compressed air requirements.

#### Fast availability, fast usability

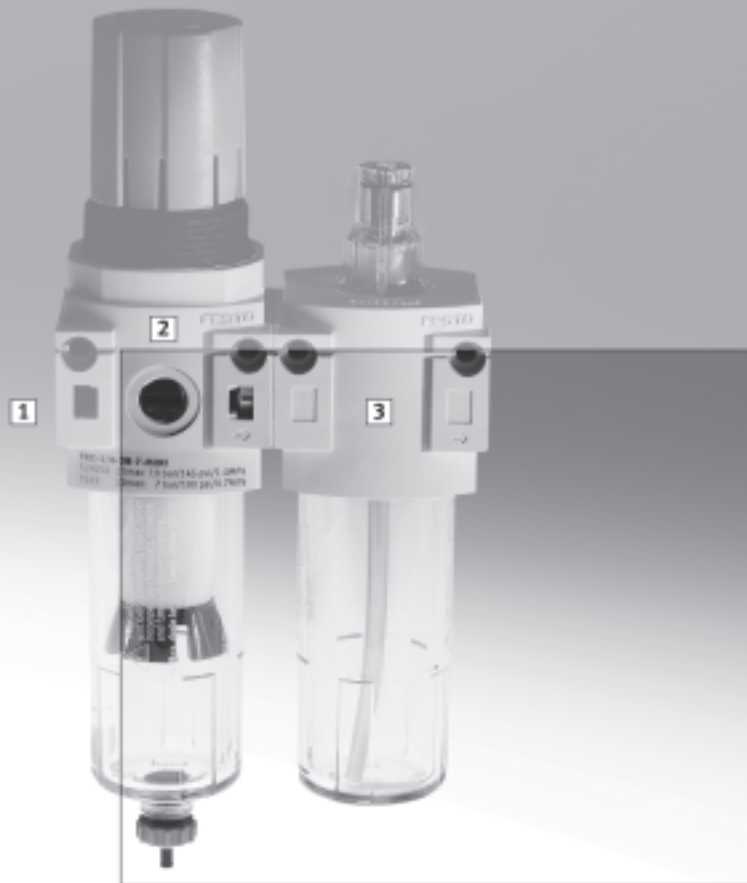
Suitable for all standard applications, whether they involve individual components or any of over 400 ready-to-use combinations with the most frequently required compressed air preparation functions. Available to order direct from stock. Delivered fast and installed fast thanks to Festo plug and work®.

#### Economical thanks to focusing on the basics

Economical compressed air preparation for basic requirements with the polymer components DB. This range concentrates on the core functions of compressed air preparation. Ideal for applications requiring reduced functionality and reliable quality.

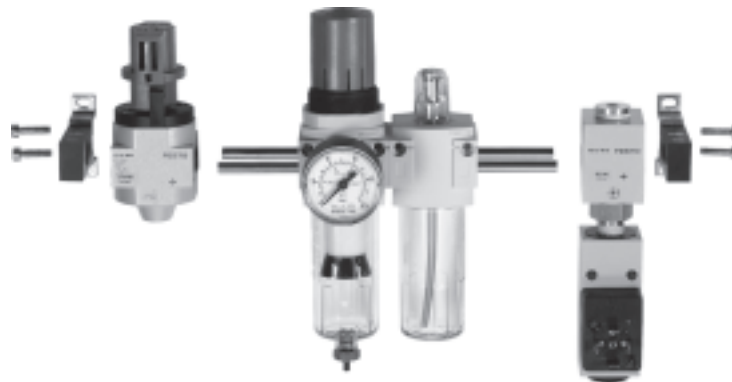
#### Combinable for enhanced compressed air preparation

The functions of the service units can be extended at any time thanks to the compatibility of the polymer components DB with the metal components of the D series.



- 1 Economical functionality: permissible primary pressure up to max. 10 bar.
- 2 Collective product range: filter regulator, pressure regulator and filter regulator/lubricator service unit.
- 3 Reliable in use: high-strength housing made of long-fibre polyamide with integrated connecting threads – simple to install and use.

Core functions of compressed air preparation: D series, polymer type



**Easy to combine:**

The polymer components DB and the metal components of the D series can be easily fitted together to form hybrid combinations.

**Extendable functionality:**

FRC-DB with on-off valve (left) and branching module (right) from the metal components of the D series.



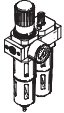
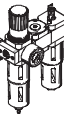
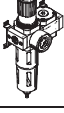
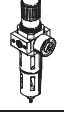
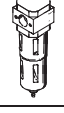
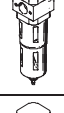
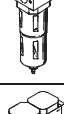

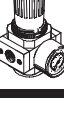


- **Sturdy and versatile metallic series**
- **4 sizes: MICRO, MINI, MIDI and MAXI**
- **10 connection sizes**
- **2 pressure ranges: 7 and 12 bar**
- **Broad range of functions**

# Service units, D series, metal design

Product range overview



Type	Size	Pneumatic connection										Pressure regulation range [bar]			Grade of filtration [µm]			
		M5	M7	G1/8	G1/4	G3/8	G1/2	G3/4	G1	QS4	QS6	0.5 ...	0.5 ...	2.5 ...	0.01	1	5	40
<b>Service units</b>																		
<b>FRC/FRCS</b> 	Micro	■	■	■	-	-	-	-	-	■	■	■	-	-	-	-	■	-
	Mini	-	-	■	■	■	-	-	-	-	-	-	■	-	-	-	■	■
	Midi	-	-	-	■	■	■	■	-	-	-	-	■	-	-	-	■	■
	Maxi	-	-	-	-	-	■	■	■	-	-	-	■	-	-	-	■	■
<b>Service unit combinations</b>																		
<b>FRC-K</b> 	Micro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Mini	-	-	■	■	-	-	-	-	-	-	-	■	■	-	-	-	■
	Midi	-	-	-	■	■	■	-	-	-	-	-	■	■	-	-	-	■
	Maxi	-	-	-	-	-	■	■	-	-	-	-	■	■	-	-	-	■
<b>LFR-K LFRS-K</b> 	Micro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Mini	-	-	■	■	-	-	-	-	-	-	-	■	■	-	-	-	■
	Midi	-	-	-	■	■	■	-	-	-	-	-	■	■	-	-	-	■
	Maxi	-	-	-	-	-	■	■	-	-	-	-	■	■	-	-	-	■
<b>Individual devices</b>																		
<b>Filter regulators LFR/LFRS</b> 	Micro	■	■	■	-	-	-	-	-	■	■	■	-	-	-	-	■	-
	Mini	-	-	■	■	■	-	-	-	-	-	-	■	■	-	-	-	■
	Midi	-	-	-	■	■	■	■	-	-	-	-	■	■	-	-	-	■
	Maxi	-	-	-	-	-	■	■	■	-	-	-	■	■	-	-	-	■
<b>Filters LF</b> 	Micro	■	■	■	-	-	-	-	-	■	■	-	-	-	-	-	■	-
	Mini	-	-	■	■	■	-	-	-	-	-	-	-	-	-	-	-	■
	Midi	-	-	-	■	■	■	■	-	-	-	-	-	-	-	-	-	■
	Maxi	-	-	-	-	-	■	■	■	-	-	-	-	-	-	-	-	■
<b>Fine and micro filters LFMA/LFMB</b> 	Micro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Mini	-	-	■	■	■	-	-	-	-	-	-	-	-	■	■	-	-
	Midi	-	-	-	■	■	■	■	-	-	-	-	-	-	■	■	-	-
	Maxi	-	-	-	-	-	■	■	■	-	-	-	-	-	■	■	-	-
<b>Active carbon filters LFX</b> 	Micro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Mini	-	-	■	■	■	-	-	-	-	-	-	-	-	-	-	-	-
	Midi	-	-	-	■	■	■	■	-	-	-	-	-	-	-	-	-	-
	Maxi	-	-	-	-	-	■	■	■	-	-	-	-	-	-	-	-	-
<b>Filter combinations LFMBA</b> 	Micro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Mini	-	-	■	■	■	-	-	-	-	-	-	-	-	■	■	-	-
	Midi	-	-	-	■	■	■	■	-	-	-	-	-	-	■	■	-	-
	Maxi	-	-	-	-	-	■	■	■	-	-	-	-	-	■	■	-	-
<b>Pressure regulators LR/LRS</b> 	Micro	■	■	■	-	-	-	-	-	■	■	■	-	-	-	-	-	
	Mini	-	-	■	■	■	-	-	-	-	-	-	■	■	-	-	-	-
	Midi	-	-	-	■	■	■	■	-	-	-	-	■	■	-	-	-	-
	Maxi	-	-	-	-	-	■	■	■	-	-	-	■	■	-	-	-	-

# Service units, D series, metal design

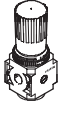
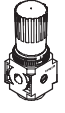
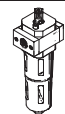
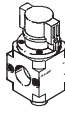

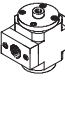
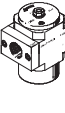
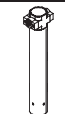
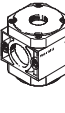

Product range overview



Type	Size	Bowl guard		Condensate drain			Pressure indication		Actuator lock		Supply voltage			Options			→ Page
		Metal bowl guard	Plastic bowl	Manual rotary	Semi-automatic	Fully automatic	With pressure gauge	Without pressure gauge	Rotary knob with detent	Rotary knob with integrated lock	24 V DC	110 V AC	230 V AC	Directly actuated pressure regulator with integrated return flow function	Pilot actuated pressure regulator with integrated return flow function	Differential pressure indicator	
<b>Service units</b>																	
FRC/FRCS	Micro	-	■	■	■	-	■	■	■	-	-	-	-	-	-	-	10
	Mini	■	-	■	-	■	■	■	■	■	-	-	-	-	-	-	
	Midi	■	-	■	-	■	■	■	■	■	-	-	-	-	-	-	
	Maxi	■	-	■	-	■	■	■	■	■	-	-	-	■	■	-	
<b>Service unit combinations</b>																	
FRC-K	Micro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26
	Mini	■	-	■	-	■	■	-	■	-	-	-	-	-	-	-	
	Midi	■	-	■	-	■	■	-	■	-	-	-	-	-	-	-	
	Maxi	■	-	■	-	■	■	-	■	-	-	-	-	■	■	-	
LFR-K LFRS-K	Micro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44
	Mini	■	-	■	-	■	■	-	■	■	■	-	-	-	-	-	
	Midi	■	-	■	-	■	■	-	■	■	■	-	-	-	-	-	
	Maxi	■	-	■	-	■	■	-	■	■	■	-	-	■	■	-	
<b>Individual devices</b>																	
Filter regulators LFR/LFRS	Micro	-	■	■	■	-	■	■	■	-	-	-	-	-	-	-	75
	Mini	■	-	■	-	■	■	■	■	■	-	-	-	-	-	-	
	Midi	■	-	■	-	■	■	■	■	■	-	-	-	-	-	-	
	Maxi	■	-	■	-	■	■	■	■	■	-	-	-	■	■	-	
Filters LF	Micro	-	■	■	■	-	-	-	-	-	-	-	-	-	-	-	93
	Mini	■	-	■	-	■	-	-	-	-	-	-	-	-	-	-	
	Midi	■	-	■	-	■	-	-	-	-	-	-	-	-	-	-	
	Maxi	■	-	■	-	■	-	-	-	-	-	-	-	-	-	-	
Fine and micro filters LFMA/LFMB	Micro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	103
	Mini	■	-	■	-	■	-	-	-	-	-	-	-	-	-	■	
	Midi	■	-	■	-	■	-	-	-	-	-	-	-	-	-	■	
	Maxi	■	-	■	-	■	-	-	-	-	-	-	-	-	-	■	
Active carbon filters LFX	Micro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	112
	Mini	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Midi	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Maxi	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Filter combinations LFMBA	Micro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	117
	Mini	■	-	■	-	■	-	-	-	-	-	-	-	-	-	■	
	Midi	■	-	■	-	■	-	-	-	-	-	-	-	-	-	■	
	Maxi	■	-	■	-	■	-	-	-	-	-	-	-	-	-	■	
Pressure regulators LR/LRS	Micro	-	-	-	-	-	■	■	■	-	-	-	-	-	-	-	124
	Mini	-	-	-	-	-	■	■	■	■	-	-	-	■	-	-	
	Midi	-	-	-	-	-	■	■	■	■	-	-	-	■	-	-	
	Maxi	-	-	-	-	-	■	■	■	■	-	-	-	■	■	-	

# Service units, D series, metal design

Product range overview

Type	Size	Pneumatic connection										Pressure regulation range [bar]		
		M5	M7	G1/8	G1/4	G3/8	G1/2	G3/4	G1	QS4	QS6	0.5 ... 7	0.5 ... 12	
<b>Individual devices</b>														
Pressure regulators <b>LRB/LRBS</b>		Micro	-											
		Mini	-	-	-	■	-	-	-	-	-	-	■	■
		Midi	-	-	-	-	■	-	-	-	-	-	■	■
		Maxi	-											
Pressure regulator combinations <b>LRB-K</b>		Micro	-											
		Mini	-	-	-	■	■	-	-	-	-	-	■	■
		Midi	-	-	-	-	■	■	-	-	-	-	■	■
		Maxi	-											
Lubricators <b>LOE</b>		Micro	■	■	■	-	-	-	-	-	■	■	-	-
		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
On-off valves <b>HE</b>		Micro	-											
		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
On-off valves, electrical <b>HEE</b>		Micro	-											
		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
On-off valves, pneumatic <b>HEP</b>		Micro	-											
		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
Soft-start valves <b>HEL</b>		Micro	-											
		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
Membrane air dryers <b>LDM1</b>		Micro	-											
		Mini	-											
		Midi	-											
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
Branching modules <b>FRM</b>		Micro	-											
		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
Distributor block <b>FRZ</b>		Micro	-											
		Mini	-	-	-	-	-	-	-	-	-	-	-	-
		Midi	-	-	-	-	-	-	-	-	-	-	-	-
		Maxi	-	-	-	-	-	-	-	-	-	-	-	-



# Service units, D series, metal design

Product range overview

Type	Size	Bowl guard		Pressure indication		Actuator lock		Supply voltage			Options		→ Page
		Metal bowl guard	Plastic bowl	With pressure gauge	Without pressure gauge	Rotary knob with detent	Rotary knob with integrated lock	24 V DC	110 V AC	230 V AC	Non-return function	Pressure switch	
<b>Individual devices</b>													
Pressure regulators <b>LRB/LRBS</b>	Micro	-	-	-	■	■	■	-	-	-	-	-	138
	Mini	-	-	-	■	■	■	-	-	-	-	-	
	Midi	-	-	-	■	■	■	-	-	-	-	-	
	Maxi	-	-	-	■	■	■	-	-	-	-	-	
Pressure regulator combinations <b>LRB-K</b>	Micro	-	-	-	■	■	-	-	-	-	-	-	146
	Mini	-	-	-	■	■	-	-	-	-	-	-	
	Midi	-	-	-	■	■	-	-	-	-	-	-	
	Maxi	-	-	-	■	■	-	-	-	-	-	-	
Lubricators <b>LOE</b>	Micro	-	■	-	■	-	-	-	-	-	-	-	155
	Mini	■	-	-	■	-	-	-	-	-	-	-	
	Midi	■	-	-	■	-	-	-	-	-	-	-	
	Maxi	■	-	-	■	-	-	-	-	-	-	-	
On-off valves <b>HE</b>	Micro	-	-	-	■	■	-	-	-	-	-	-	164
	Mini	-	-	-	■	■	-	-	-	-	-	-	
	Midi	-	-	-	■	■	-	-	-	-	-	-	
	Maxi	-	-	-	■	■	-	-	-	-	-	-	
On-off valves, electrical <b>HEE</b>	Micro	-	-	-	■	-	-	■	■	■	-	-	169
	Mini	-	-	-	■	-	-	■	■	■	-	-	
	Midi	-	-	-	■	-	-	■	■	■	-	-	
	Maxi	-	-	-	■	-	-	■	■	■	-	-	
On-off valves, pneumatic <b>HEP</b>	Micro	-	-	-	■	-	-	-	-	-	-	-	175
	Mini	-	-	-	■	-	-	-	-	-	-	-	
	Midi	-	-	-	■	-	-	-	-	-	-	-	
	Maxi	-	-	-	■	-	-	-	-	-	-	-	
Soft-start valves <b>HEL</b>	Micro	-	-	-	■	-	-	-	-	-	-	-	180
	Mini	-	-	-	■	-	-	-	-	-	-	-	
	Midi	-	-	-	■	-	-	-	-	-	-	-	
	Maxi	-	-	-	■	-	-	-	-	-	-	-	
Membrane air dryers <b>LDM1</b>	Micro	-	-	-	■	-	-	-	-	-	-	-	185
	Mini	-	-	-	■	-	-	-	-	-	-	-	
	Midi	-	-	-	■	-	-	-	-	-	-	-	
	Maxi	■	-	-	■	-	-	-	-	-	-	-	
Branching modules <b>FRM</b>	Micro	-	-	-	■	-	-	-	-	-	■	■	190
	Mini	-	-	-	■	-	-	-	-	-	■	■	
	Midi	-	-	-	■	-	-	-	-	-	■	■	
	Maxi	-	-	-	■	-	-	-	-	-	■	■	
Distributor block <b>FRZ</b>	Micro	-	-	-	■	-	-	-	-	-	-	-	196
	Mini	-	-	-	■	-	-	-	-	-	-	-	
	Midi	-	-	-	■	-	-	-	-	-	-	-	
	Maxi	-	-	-	■	-	-	-	-	-	-	-	

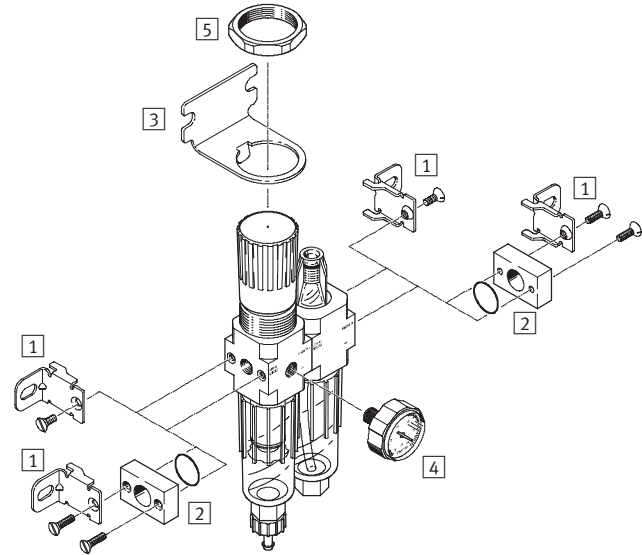
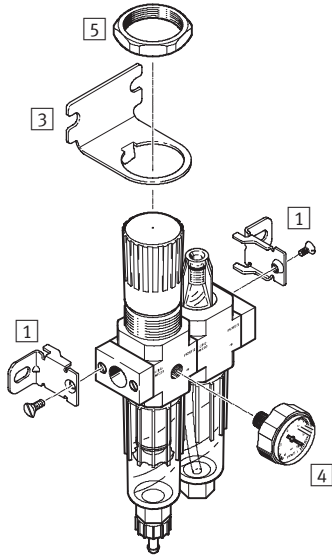
# Service units FRC/FRCS, D series, metal design

Peripherals overview

**Micro**

Service unit FRC with connection plates, connection size G $\frac{1}{8}$ , QS4 or QS6

Service unit FRC without connection plates, connection size M5 or M7 in housing



Mounting attachments and accessories			
	with connection plates	without connection plates	→ Page
1 Mounting bracket HFOE	■	■	198
2 Connecting plate kit PBL	-	■	202
3 Mounting bracket HRS	■	■	199
4 Pressure gauge MA-27	■	■	204
5 Hexagon nut (included in scope of delivery) HMR	■	■	-

# Service units FRC/FRCS, D series, metal design

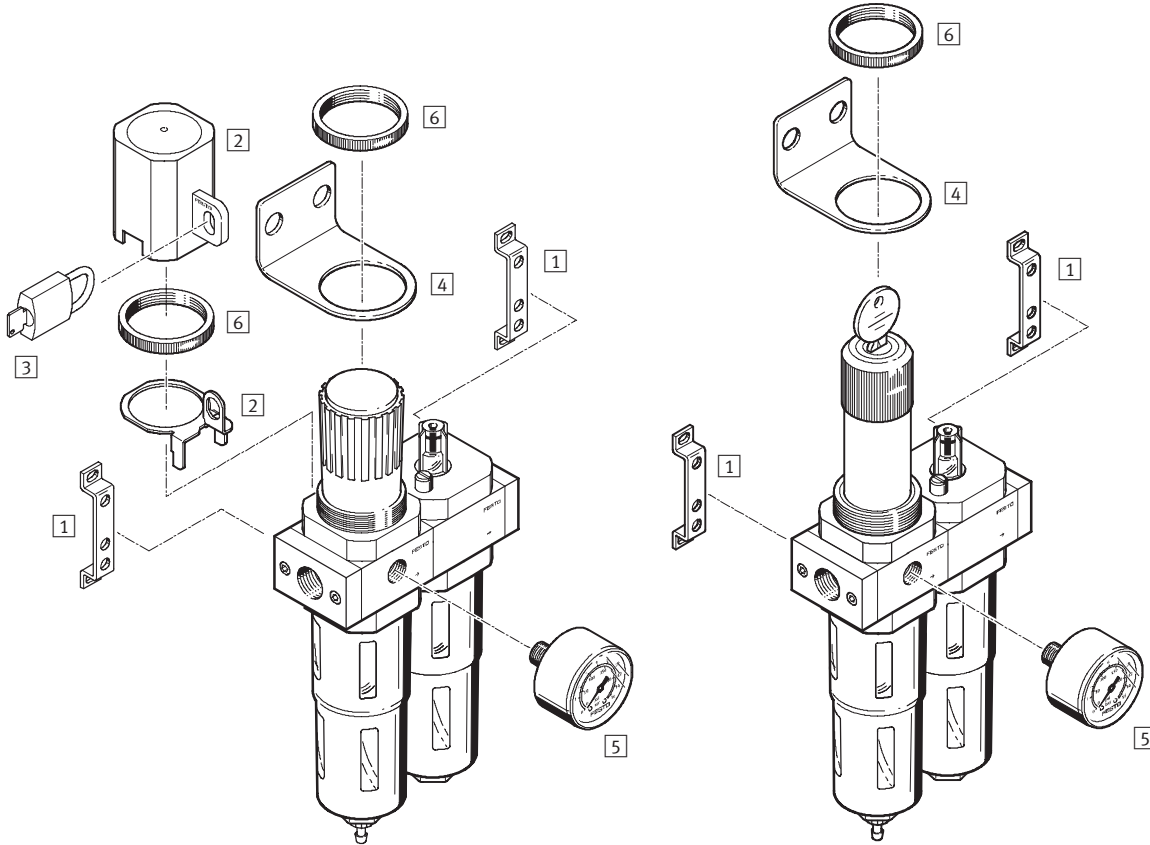
Peripherals overview

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Mini/Midi/Maxi

Service unit FRC

Service unit FRCS, lockable



Mounting attachments and accessories			
	Rotary knob with detent	Rotary knob, lockable	→ Page
1 Mounting bracket HFOE	■	■	198
2 Regulator lock LRVS	■	–	203
3 Padlock LRVS-D	■	–	203
4 Mounting bracket HR-D	■	■	200
5 Pressure gauge MA	■	■	204
6 Knurled nut (included in scope of delivery) HMR	■	■	–

# Service units FRC/FRCS, D series, metal design

Type codes

FRC – 3/4 – D – – 5M – O – DI – MAXI – A

### Basic function

FRC	Service unit
FRCS	Service unit, lockable

### Pneumatic connection

M5	Thread M5
M7	Thread M7
QS4	Push-in fitting QS4
QS6	Push-in fitting QS6
1/8	Thread G1/8
1/4	Thread G1/4
3/8	Thread G3/8
1/2	Thread G1/2
3/4	Thread G3/4
1	Thread G1

### Series

D	Series
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### Pressure regulation range

	0.5 ... 12 bar
7	0.5 ... 7 bar

### Grade of filtration

	40 µm
5M	5 µm

### Pressure gauge

	With pressure gauge
O	Without pressure gauge

### Function (FRC and MAXI size only)

DI	Directly actuated pressure regulator with integrated return flow function
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### Size

MICRO	Grid dimension 25 mm (without connecting plates)
MINI	Grid dimension 40 mm (without connecting plates)
MIDI	Grid dimension 55 mm (without connecting plates)
MAXI	Grid dimension 66 mm (without connecting plates)

### Condensate drain

	Turned manually
H	Semi-automatic
A	Fully automatic

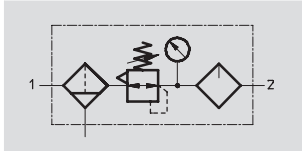
# Service units FRC/FRCS, D series, metal design

Technical data

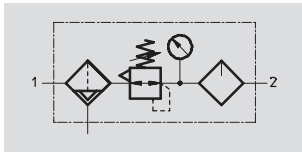
Function

FRC/FRCS-...-D-...

Condensate drain turned manually

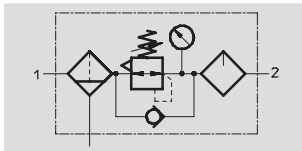


semi- or fully automatic

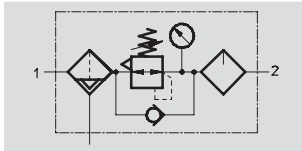


FRC-...-D-DI-MAXI

Condensate drain turned manually



fully automatic



- - Flow rate  
90 ... 8700 l/min

- - Temperature range  
-10 ... +60 °C

- - Input pressure  
1 ... 16 bar



- Filter, regulator and lubricator functions in a single unit
- High flow rate and highly efficient removal of contaminants
- Good regulating characteristics with minimal pressure hysteresis
- Setting values are secured by locking the rotary knob
- Lockable rotary knob
- Two pressure regulation ranges: 0.5 ... 7 bar and 0.5 ... 12 bar
- Two pressure gauge connections for different fitting options
- Choice of filter cartridges: 5 µm or 40 µm
- With manual, semi-automatic or fully automatic condensate drain

General technical data																
Size	Micro					Mini			Midi				Maxi			
Pneumatic connection	M5	M7	G <sup>1</sup> / <sub>8</sub>	QS4	QS6	G <sup>1</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>2</sub>	G <sup>3</sup> / <sub>4</sub>	G <sup>1</sup> / <sub>2</sub>	G <sup>3</sup> / <sub>4</sub>	G1	
Operating medium	Compressed air					Compressed air										
Design	Filter regulator					Filter regulator										
	Proportional standard mist lubricator					Proportional standard mist lubricator										
Type of mounting	Via accessories					Via accessories										
	In-line installation					In-line installation										
Assembly position	Vertical ±5°					Vertical ±5°										
Grade of filtration [µm]	5					5 or 40										
Max. hysteresis [bar]	0.3					0.2									0.4	
Pressure regulation range [bar]	0.5 ... 7					0.5 ... 7										
						0.5 ... 12										
Pressure indication	Via pressure gauge					Via pressure gauge										
	M5 prepared					G <sup>1</sup> / <sub>8</sub> prepared			G <sup>1</sup> / <sub>4</sub> prepared				G <sup>1</sup> / <sub>4</sub> prepared			
Max. condensate volume [cm <sup>3</sup> ]	3					22			43				80 <sup>1)</sup>			
Input pressure [bar]																
Condensate drain	turned manually					1 ... 16										
	semi-automatic					-										
	fully automatic					2 ... 12										

1) The max. condensate volume for the FRC-...-DI-MAXI is 43 cm<sup>3</sup>.

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

# Service units FRC/FRCS, D series, metal design

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Technical data

Standard nominal flow rate <sup>1)</sup> qnN [l/min]					
Connection	Female thread		Connecting plate		
	M5	M7	G1/8	QS4	QS6
Micro					
FRC/FRCS	90	170	140	100	140

- 1) Measured at p<sub>1</sub> = 10 bar, p<sub>2</sub> = 6 bar and Δp = 1 bar.  
A minimum flow rate of 125 l/min is required for flawless functioning.

Standard nominal flow rate <sup>1)</sup> qnN [l/min]						
Connection	G1/8	G1/4	G3/8	G1/2	G3/4	G1
Mini						
FRC/FRCS-...-D-...(A)	700	1000	1200	–	–	–
FRC/FRCS-...-D-7-...(A)	800	1300	1500	–	–	–
FRC/FRCS-...-D-5M-...(A)	600	850	1050	–	–	–
Midi						
FRC/FRCS-...-D-...(A)	–	1500	2000	2600	2600	–
FRC/FRCS-...-D-7-...(A)	–	1700	2000	2800	2800	–
FRC/FRCS-...-D-5M-...(A)	–	1300	1700	1800	2100	–
Maxi						
FRC/FRCS-...-D-...(A)	–	–	–	7600	8300	8500
FRC/FRCS-...-D-7-...(A)	–	–	–	7700	8500	8700
FRC/FRCS-...-D-5M-...(A)	–	–	–	6800	7000	7200
Maxi – Directly actuated pressure regulator with integrated return flow function						
FRC-...-D-...(A)	–	–	–	3300	3800	4000
FRC-...-D-7-...(A)	–	–	–	4500	5000	5200
FRC-...-D-5M-...(A)	–	–	–	3000	3600	3800

- 1) Measured at p<sub>1</sub> = 10 bar, p<sub>2</sub> = 6 bar and Δp = 1 bar.  
A minimum flow rate of 125 l/min is required for flawless functioning.

Screw-in depth of connecting thread [mm]					
Connection	M5	M7	G1/8	QS4	QS6
Micro					
In housing	5	6	–	–	–
In connecting plates	–	–	8	–	–

Ambient conditions				
Size	Micro	Mini	Midi	Maxi
Ambient temperature [°C]	–10 ... +60			
Temperature of medium [°C]	–10 ... +60			
Corrosion resistance class CRC <sup>1)</sup>	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.

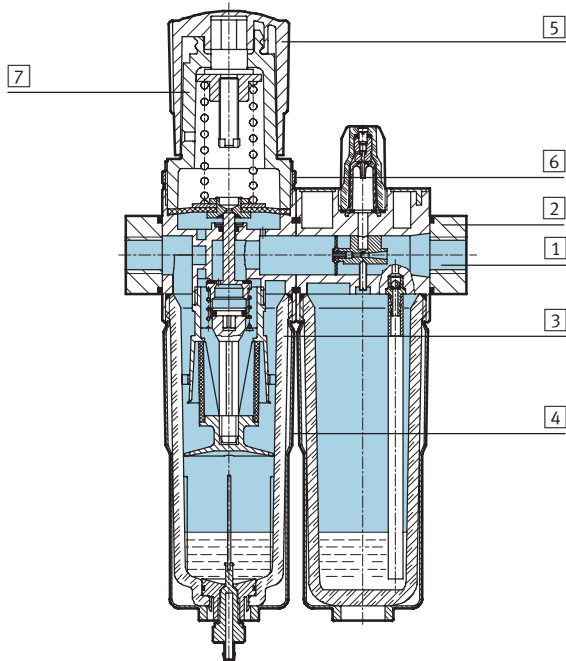
# Service units FRC/FRCS, D series, metal design

Technical data

Weight [g]						
Size	Micro		Mini	Midi	Maxi	
	Female thread	Connecting plate			Connection G½, G¾	Connection G1
With pressure gauge						
FRC-...	113	133	660	1440	2390	2520
FRC-...-DI	-	-	-	-	2670	2670
FRCS-...	-	-	760	1680	2490	2620
Without pressure gauge						
FRC-...	103	123	600	1350	2280	2460
FRC-...-DI	-	-	-	-	2600	2600
FRCS-...	-	-	700	1590	2380	2560

## Materials

Sectional view



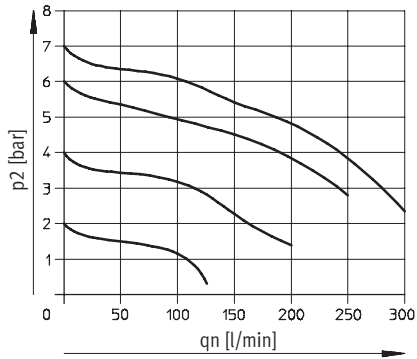
Service units	Micro	Mini/Midi/Maxi
1 Housing	Wrought aluminium alloy	Die-cast zinc
2 Connecting plates	Wrought aluminium alloy	Die-cast zinc/aluminium
3 Bowl	Polycarbonate	Polycarbonate
4 Metal bowl guard	-	Aluminium
5 Regulating knob	Polyacetal	Polyacetal
6 Knurled nut	Wrought aluminium alloy	Aluminium
7 Support	Polycarbonate	-
- Seals	Nitrile rubber	Nitrile rubber

# Service units FRC/FRCS, D series, metal design

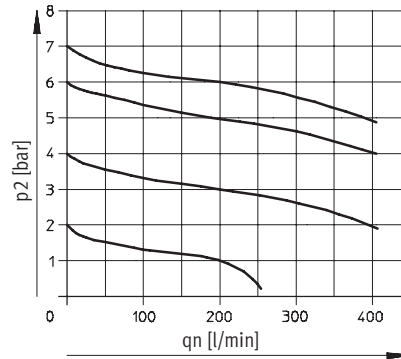
Technical data

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

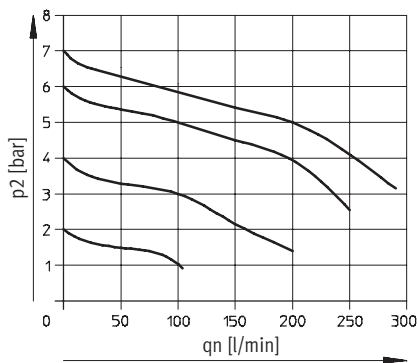
FRC-M5-...-MICRO



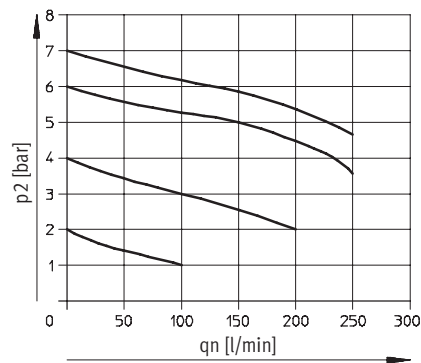
FRC-M7-...-MICRO B



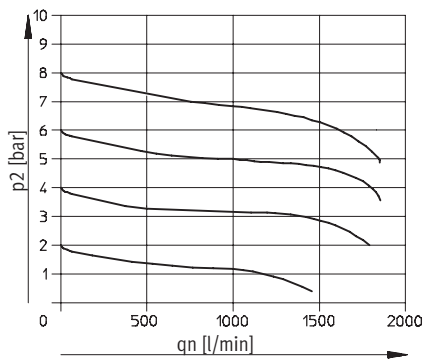
FRC-QS4-...-MICRO



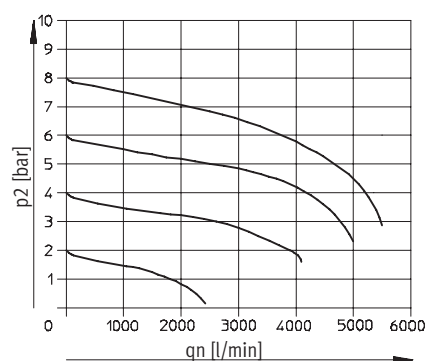
FRC-QS6-...-MICRO and FRC-1/8-...-MICRO



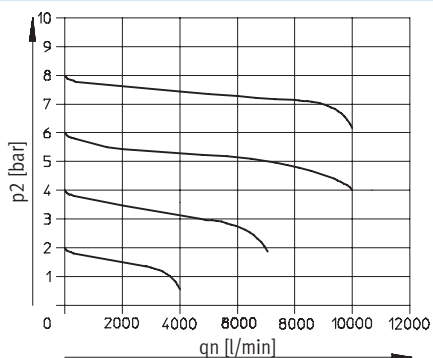
FRC/FRCS-1/4-D-MINI



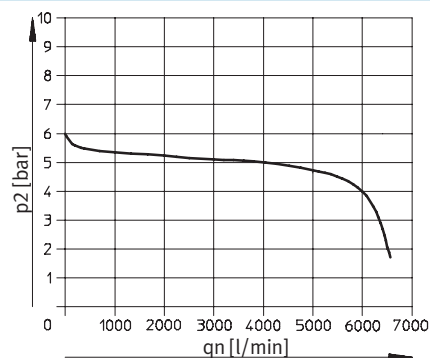
FRC/FRCS-1/2-D-MIDI



FRC/FRCS-1-D-MAXI



FRC-1-D-DI-MAXI



Primary pressure  $p_1 = 10$  bar



# Service units FRC/FRCS, D series, metal design

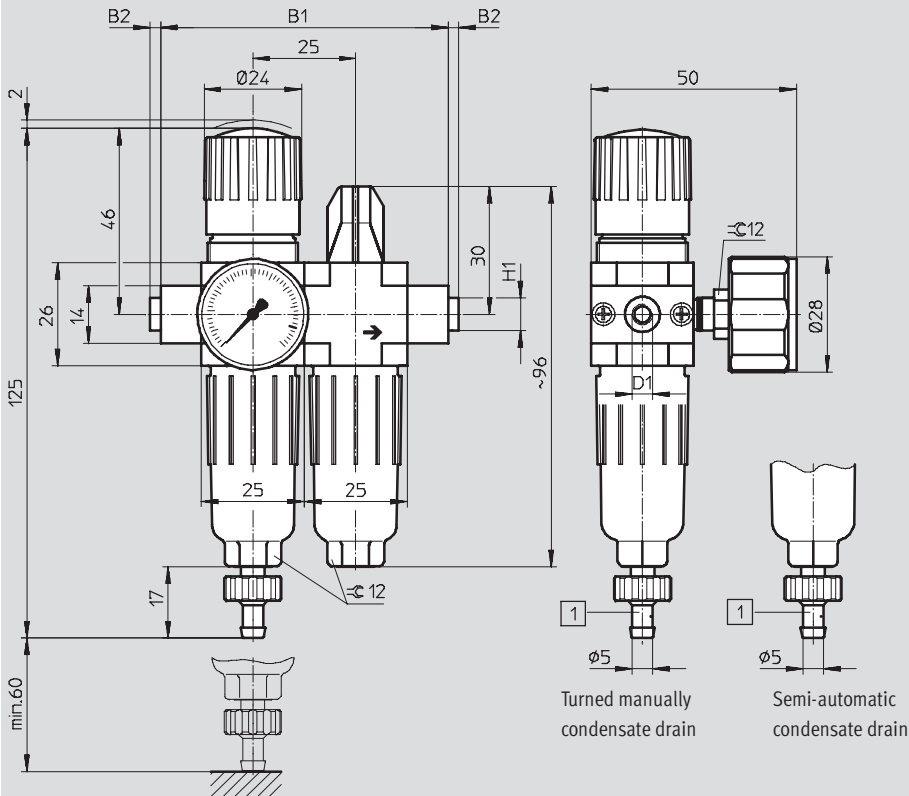
Technical data

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## Dimensions

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Micro



1 Barbed fitting for plastic tubing type PCN-4

→ Flow direction

Type	B1	B2	D1	H1
FRC-M5-D-7-5M-MICRO (H)	50	-	M5	-
FRC-M7-D-7-5M-MICRO (H) B			M7	
FRC-1/8-D-7-5M-MICRO (H)			G1/8	
FRC-QS4-D-7-5M-MICRO (H)	70	~2.5	QS4	~8
FRC-QS6-D-7-5M-MICRO (H)			QS6	~10

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

# Service units FRC/FRCS, D series, metal design

Technical data

Dimensions Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Mini/Midi/Maxi

lockable

Turned manually condensate drain

Fully automatic condensate drain

1 Barbed fitting for plastic tubing type PCN-4  
 2 Metal bowl guard  
 3 Installation dimensions  
 4 Second pressure gauge connection  
 5 Bleed screw for oil reservoir  
 6 Oil adjusting screw

→ Flow direction

Type	B1	B2	B3	B4	D1	D2	D3	D4	D5	D6
<b>Mini</b>										
FRC/FRCS-1/8-D-MINI	104	92	40	76	G1/8	31	M4	M36x1.5	41	38
FRC/FRCS-1/4-D-MINI					G1/4					
FRC/FRCS-3/8-D-MINI					G3/8					
<b>Midi</b>										
FRC/FRCS-1/4-D-MIDI	140	125	55	95	G1/4	50	M5	M52x1.5	50	52
FRC/FRCS-3/8-D-MIDI					G3/8					
FRC/FRCS-1/2-D-MIDI					G1/2					
FRC/FRCS-3/4-D-MIDI					G3/4					
<b>Maxi</b>										
FRC/FRCS-1/2-D-MAXI	162	146	66	107	G1/2	31	M5	M36x1.5	50	65
FRC-1/2-D-DI-MAXI						49		M52x1.5		
FRC/FRCS-3/4-D-MAXI					G3/4	31		M36x1.5		
FRC-3/4-D-DI-MAXI						49		M52x1.5		
FRC/FRCS-1-D-MAXI	182	157			G1	31		M36x1.5		
FRC-1-D-DI-MAXI						49		M52x1.5		

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

# Service units FRC/FRCS, D series, metal design

Technical data

Type	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9	T1	≅ 1	≅ 2	
<b>Mini</b>															
FRC/FRCS-1/8-D-MINI	20	11	193	169	60	69	100	98	60	15	19	7	14	22	
FRC/FRCS-1/4-D-MINI															
FRC/FRCS-3/8-D-MINI															
<b>Midi</b>															
FRC/FRCS-1/4-D-MIDI	32	22	250	204	80	99	120	130	60	15	19	8	14	24	
FRC/FRCS-3/8-D-MIDI															
FRC/FRCS-1/2-D-MIDI															
FRC/FRCS-3/4-D-MIDI															
<b>Maxi</b>															
FRC/FRCS-1/2-D-MAXI	32	22	252	228	90	82	150	111	60	15	19	8	14	24	
FRC-1/2-D-DI-MAXI			275			105		135							
FRC/FRCS-3/4-D-MAXI			252			82		111							
FRC-3/4-D-DI-MAXI			275			105		135							
FRC/FRCS-1-D-MAXI			40			252		82							111
FRC-1-D-DI-MAXI						275		105							135

## Service units FRC/FRCS, D series, metal design

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Technical data

Ordering data			
Pressure regulation range 0.5 ... 7 bar			
Condensate drain	Size	Connection	Grade of filtration 5 µm
			Part No. Type
With pressure gauge			
Turned manually	Micro	Without threaded connecting plates, connecting thread in housing	
		M5	527 860 FRC-M5-D-7-5M-MICRO
		M7	534 189 FRC-M7-D-7-5M-MICRO B
		With threaded connecting plates	
		G $\frac{1}{8}$	527 864 FRC- $\frac{1}{8}$ -D-7-5M-MICRO
		With connecting plate and push-in fitting	
		QS4	527 876 FRC-QS4-D-7-5M-MICRO
		QS6	527 880 FRC-QS6-D-7-5M-MICRO
Semi-automatic	Micro	Without threaded connecting plates, connecting thread in housing	
		M5	527 861 FRC-M5-D-7-5M-MICRO-H
		M7	534 190 FRC-M7-D-7-5M-MICRO-H B
		With threaded connecting plates	
		G $\frac{1}{8}$	527 865 FRC- $\frac{1}{8}$ -D-7-5M-MICRO-H
		With connecting plate and push-in fitting	
		QS4	527 877 FRC-QS4-D-7-5M-MICRO-H
		QS6	527 881 FRC-QS6-D-7-5M-MICRO-H
Without pressure gauge			
Turned manually	Micro	Without threaded connecting plates, connecting thread in housing	
		M5	527 862 FRC-M5-D-7-0-5M-MICRO
		M7	534 191 FRC-M7-D-7-0-5M-MICRO B
		With threaded connecting plates	
		G $\frac{1}{8}$	527 866 FRC- $\frac{1}{8}$ -D-7-0-5M-MICRO
		With connecting plate and push-in fitting	
		QS4	527 878 FRC-QS4-D-7-0-5M-MICRO
		QS6	527 882 FRC-QS6-D-7-0-5M-MICRO
Semi-automatic	Micro	Without threaded connecting plates, connecting thread in housing	
		M5	527 863 FRC-M5-D-7-0-5M-MICRO-H
		M7	534 192 FRC-M7-D-7-0-5M-MICRO-H B
		With threaded connecting plates	
		G $\frac{1}{8}$	527 867 FRC- $\frac{1}{8}$ -D-7-0-5M-MICRO-H
		With connecting plate and push-in fitting	
		QS4	527 879 FRC-QS4-D-7-0-5M-MICRO-H
		QS6	527 883 FRC-QS6-D-7-0-5M-MICRO-H

# Service units FRC/FRCS, D series, metal design

Technical data

Ordering data							
Pressure regulation range 0.5 ... 12 bar, metal bowl guard							
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm		
			Part No.	Type	Part No.	Type	
With pressure gauge							
Turned manually	Mini	G1/8	162 770	FRC-1/8-D-5M-MINI	159 604	FRC-1/8-D-MINI	
		G1/4	162 771	FRC-1/4-D-5M-MINI	159 605	FRC-1/4-D-MINI	
		G3/8	162 772	FRC-3/8-D-5M-MINI	162 734	FRC-3/8-D-MINI	
	Midi	G1/4	186 499	FRC-1/4-D-5M-MIDI	186 497	FRC-1/4-D-MIDI	
		G3/8	162 773	FRC-3/8-D-5M-MIDI	159 588	FRC-3/8-D-MIDI	
		G1/2	162 774	FRC-1/2-D-5M-MIDI	159 590	FRC-1/2-D-MIDI	
		G3/4	162 775	FRC-3/4-D-5M-MIDI	162 735	FRC-3/4-D-MIDI	
	Maxi	G1/2	186 507	FRC-1/2-D-5M-MAXI	186 505	FRC-1/2-D-MAXI	
		G3/4	162 776	FRC-3/4-D-5M-MAXI	159 606	FRC-3/4-D-MAXI	
		G1	162 777	FRC-1-D-5M-MAXI	159 607	FRC-1-D-MAXI	
	Fully automatic						
	Fully automatic	Mini	G1/8	162 778	FRC-1/8-D-5M-MINI-A	159 608	FRC-1/8-D-MINI-A
G1/4			162 779	FRC-1/4-D-5M-MINI-A	159 609	FRC-1/4-D-MINI-A	
G3/8			162 780	FRC-3/8-D-5M-MINI-A	162 736	FRC-3/8-D-MINI-A	
Midi		G1/4	186 502	FRC-1/4-D-5M-MIDI-A	186 500	FRC-1/4-D-MIDI-A	
		G3/8	162 781	FRC-3/8-D-5M-MIDI-A	159 589	FRC-3/8-D-MIDI-A	
		G1/2	162 782	FRC-1/2-D-5M-MIDI-A	159 591	FRC-1/2-D-MIDI-A	
		G3/4	162 783	FRC-3/4-D-5M-MIDI-A	162 737	FRC-3/4-D-MIDI-A	
Maxi		G1/2	186 510	FRC-1/2-D-5M-MAXI-A	186 508	FRC-1/2-D-MAXI-A	
		G3/4	162 784	FRC-3/4-D-5M-MAXI-A	159 610	FRC-3/4-D-MAXI-A	
		G1	162 785	FRC-1-D-5M-MAXI-A	159 611	FRC-1-D-MAXI-A	
Without pressure gauge							
Turned manually		Mini	G1/8	192 650	FRC-1/8-D-5M-O-MINI	162 738	FRC-1/8-D-O-MINI
	G1/4		192 651	FRC-1/4-D-5M-O-MINI	162 739	FRC-1/4-D-O-MINI	
	G3/8		192 652	FRC-3/8-D-5M-O-MINI	162 740	FRC-3/8-D-O-MINI	
	Midi	G1/4	192 653	FRC-1/4-D-5M-O-MIDI	186 498	FRC-1/4-D-O-MIDI	
		G3/8	192 654	FRC-3/8-D-5M-O-MIDI	162 741	FRC-3/8-D-O-MIDI	
		G1/2	192 655	FRC-1/2-D-5M-O-MIDI	162 742	FRC-1/2-D-O-MIDI	
		G3/4	192 656	FRC-3/4-D-5M-O-MIDI	162 743	FRC-3/4-D-O-MIDI	
	Maxi	G1/2	192 657	FRC-1/2-D-5M-O-MAXI	186 506	FRC-1/2-D-O-MAXI	
		G3/4	192 658	FRC-3/4-D-5M-O-MAXI	162 744	FRC-3/4-D-O-MAXI	
		G1	192 659	FRC-1-D-5M-O-MAXI	162 745	FRC-1-D-O-MAXI	
	Fully automatic						
	Fully automatic	Mini	G1/8	192 660	FRC-1/8-D-5M-O-MINI-A	162 746	FRC-1/8-D-O-MINI-A
G1/4			192 661	FRC-1/4-D-5M-O-MINI-A	162 747	FRC-1/4-D-O-MINI-A	
G3/8			192 662	FRC-3/8-D-5M-O-MINI-A	162 748	FRC-3/8-D-O-MINI-A	
Midi		G1/4	192 663	FRC-1/4-D-5M-O-MIDI-A	186 501	FRC-1/4-D-O-MIDI-A	
		G3/8	192 664	FRC-3/8-D-5M-O-MIDI-A	162 749	FRC-3/8-D-O-MIDI-A	
		G1/2	192 665	FRC-1/2-D-5M-O-MIDI-A	162 750	FRC-1/2-D-O-MIDI-A	
		G3/4	192 666	FRC-3/4-D-5M-O-MIDI-A	162 751	FRC-3/4-D-O-MIDI-A	
Maxi		G1/2	192 667	FRC-1/2-D-5M-O-MAXI-A	186 509	FRC-1/2-D-O-MAXI-A	
		G3/4	192 668	FRC-3/4-D-5M-O-MAXI-A	162 752	FRC-3/4-D-O-MAXI-A	
		G1	192 669	FRC-1-D-5M-O-MAXI-A	162 753	FRC-1-D-O-MAXI-A	

# Service units FRC/FRCS, D series, metal design

FESTO

Technical data

Ordering data				
Pressure regulation range 0.5 ... 7 bar, metal bowl guard				
Condensate drain	Size	Connection	Grade of filtration 40 µm	
			Part No.	Type
<b>With pressure gauge</b>				
Turned manually	Mini	G $\frac{1}{8}$	162 754	FRC- $\frac{1}{8}$ -D-7-MINI
		G $\frac{1}{4}$	162 755	FRC- $\frac{1}{4}$ -D-7-MINI
		G $\frac{3}{8}$	162 756	FRC- $\frac{3}{8}$ -D-7-MINI
	Midi	G $\frac{1}{4}$	186 503	FRC- $\frac{1}{4}$ -D-7-MIDI
		G $\frac{3}{8}$	162 757	FRC- $\frac{3}{8}$ -D-7-MIDI
		G $\frac{1}{2}$	162 758	FRC- $\frac{1}{2}$ -D-7-MIDI
		G $\frac{3}{4}$	162 759	FRC- $\frac{3}{4}$ -D-7-MIDI
	Maxi	G $\frac{1}{2}$	186 511	FRC- $\frac{1}{2}$ -D-7-MAXI
		G $\frac{3}{4}$	162 760	FRC- $\frac{3}{4}$ -D-7-MAXI
		G1	162 761	FRC-1-D-7-MAXI
<b>Fully automatic</b>				
Fully automatic	Mini	G $\frac{1}{8}$	162 762	FRC- $\frac{1}{8}$ -D-7-MINI-A
		G $\frac{1}{4}$	162 763	FRC- $\frac{1}{4}$ -D-7-MINI-A
		G $\frac{3}{8}$	162 764	FRC- $\frac{3}{8}$ -D-7-MINI-A
	Midi	G $\frac{1}{4}$	186 504	FRC- $\frac{1}{4}$ -D-7-MIDI-A
		G $\frac{3}{8}$	162 765	FRC- $\frac{3}{8}$ -D-7-MIDI-A
		G $\frac{1}{2}$	162 766	FRC- $\frac{1}{2}$ -D-7-MIDI-A
		G $\frac{3}{4}$	162 767	FRC- $\frac{3}{4}$ -D-7-MIDI-A
	Maxi	G $\frac{1}{2}$	186 512	FRC- $\frac{1}{2}$ -D-7-MAXI-A
		G $\frac{3}{4}$	162 768	FRC- $\frac{3}{4}$ -D-7-MAXI-A
		G1	162 769	FRC-1-D-7-MAXI-A
<b>Without pressure gauge</b>				
Turned manually	Mini	G $\frac{1}{8}$	192 630	FRC- $\frac{1}{8}$ -D-7-O-MINI
		G $\frac{1}{4}$	192 631	FRC- $\frac{1}{4}$ -D-7-O-MINI
		G $\frac{3}{8}$	192 632	FRC- $\frac{3}{8}$ -D-7-O-MINI
	Midi	G $\frac{1}{4}$	192 633	FRC- $\frac{1}{4}$ -D-7-O-MIDI
		G $\frac{3}{8}$	192 634	FRC- $\frac{3}{8}$ -D-7-O-MIDI
		G $\frac{1}{2}$	192 635	FRC- $\frac{1}{2}$ -D-7-O-MIDI
		G $\frac{3}{4}$	192 636	FRC- $\frac{3}{4}$ -D-7-O-MIDI
	Maxi	G $\frac{1}{2}$	192 637	FRC- $\frac{1}{2}$ -D-7-O-MAXI
		G $\frac{3}{4}$	192 638	FRC- $\frac{3}{4}$ -D-7-O-MAXI
		G1	192 639	FRC-1-D-7-O-MAXI
<b>Fully automatic</b>				
Fully automatic	Mini	G $\frac{1}{8}$	192 640	FRC- $\frac{1}{8}$ -D-7-O-MINI-A
		G $\frac{1}{4}$	192 641	FRC- $\frac{1}{4}$ -D-7-O-MINI-A
		G $\frac{3}{8}$	192 642	FRC- $\frac{3}{8}$ -D-7-O-MINI-A
	Midi	G $\frac{1}{4}$	192 643	FRC- $\frac{1}{4}$ -D-7-O-MIDI-A
		G $\frac{3}{8}$	192 644	FRC- $\frac{3}{8}$ -D-7-O-MIDI-A
		G $\frac{1}{2}$	192 645	FRC- $\frac{1}{2}$ -D-7-O-MIDI-A
		G $\frac{3}{4}$	192 646	FRC- $\frac{3}{4}$ -D-7-O-MIDI-A
	Maxi	G $\frac{1}{2}$	192 647	FRC- $\frac{1}{2}$ -D-7-O-MAXI-A
		G $\frac{3}{4}$	192 648	FRC- $\frac{3}{4}$ -D-7-O-MAXI-A
		G1	192 649	FRC-1-D-7-O-MAXI-A

# Service units FRC/FRCS, D series, metal design

Technical data

Ordering data						
Pressure regulation range 0.5 ... 12 bar, directly actuated pressure regulator with integrated return flow function, metal bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
With pressure gauge						
Turned manually	Maxi	G1/2	192 406	FRC-1/2-D-5M-DI-MAXI	192 404	FRC-1/2-D-DI-MAXI
		G3/4	192 412	FRC-3/4-D-5M-DI-MAXI	192 410	FRC-3/4-D-DI-MAXI
		G1	192 418	FRC-1-D-5M-DI-MAXI	192 416	FRC-1-D-DI-MAXI
Fully automatic	Maxi	G1/2	192 424	FRC-1/2-D-5M-DI-MAXI-A	192 422	FRC-1/2-D-DI-MAXI-A
		G3/4	192 430	FRC-3/4-D-5M-DI-MAXI-A	192 428	FRC-3/4-D-DI-MAXI-A
		G1	192 436	FRC-1-D-5M-DI-MAXI-A	192 434	FRC-1-D-DI-MAXI-A
Without pressure gauge						
Turned manually	Maxi	G1/2	192 407	FRC-1/2-D-5M-O-DI-MAXI	192 405	FRC-1/2-D-O-DI-MAXI
		G3/4	192 413	FRC-3/4-D-5M-O-DI-MAXI	192 411	FRC-3/4-D-O-DI-MAXI
		G1	192 419	FRC-1-D-5M-O-DI-MAXI	192 417	FRC-1-D-O-DI-MAXI
Fully automatic	Maxi	G1/2	192 425	FRC-1/2-D-5M-O-DI-MAXI-A	192 423	FRC-1/2-D-O-DI-MAXI-A
		G3/4	192 431	FRC-3/4-D-5M-O-DI-MAXI-A	192 429	FRC-3/4-D-O-DI-MAXI-A
		G1	192 437	FRC-1-D-5M-O-DI-MAXI-A	192 435	FRC-1-D-O-DI-MAXI-A

Ordering data						
Pressure regulation range 0.5 ... 7 bar, directly actuated pressure regulator with integrated return flow function, metal bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
With pressure gauge						
Turned manually	Maxi	G1/2	-		192 408	FRC-1/2-D-7-DI-MAXI
		G3/4	-		192 414	FRC-3/4-D-7-DI-MAXI
		G1	-		192 420	FRC-1-D-7-DI-MAXI
Fully automatic	Maxi	G1/2	-		192 426	FRC-1/2-D-7-DI-MAXI-A
		G3/4	-		192 432	FRC-3/4-D-7-DI-MAXI-A
		G1	-		192 438	FRC-1-D-7-DI-MAXI-A
Without pressure gauge						
Turned manually	Maxi	G1/2	-		192 409	FRC-1/2-D-7-O-DI-MAXI
		G3/4	-		192 415	FRC-3/4-D-7-O-DI-MAXI
		G1	-		192 421	FRC-1-D-7-O-DI-MAXI
Fully automatic	Maxi	G1/2	-		192 427	FRC-1/2-D-7-O-DI-MAXI-A
		G3/4	-		192 433	FRC-3/4-D-7-O-DI-MAXI-A
		G1	-		192 439	FRC-1-D-7-O-DI-MAXI-A

# Service units FRC/FRCS, D series, metal design

FESTO

Technical data

Ordering data							
Pressure regulation range 0.5 ... 12 bar, metal bowl guard, lockable							
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm		
			Part No.	Type	Part No.	Type	
<b>With pressure gauge</b>							
Turned manually	Mini	G $\frac{1}{8}$	194 860	FRCS- $\frac{1}{8}$ -D-5M-MINI	194 852	FRCS- $\frac{1}{8}$ -D-MINI	
		G $\frac{1}{4}$	194 872	FRCS- $\frac{1}{4}$ -D-5M-MINI	194 864	FRCS- $\frac{1}{4}$ -D-MINI	
		G $\frac{3}{8}$	194 884	FRCS- $\frac{3}{8}$ -D-5M-MINI	194 876	FRCS- $\frac{3}{8}$ -D-MINI	
	Midi	G $\frac{1}{4}$	194 896	FRCS- $\frac{1}{4}$ -D-5M-MIDI	194 888	FRCS- $\frac{1}{4}$ -D-MIDI	
		G $\frac{3}{8}$	194 908	FRCS- $\frac{3}{8}$ -D-5M-MIDI	194 900	FRCS- $\frac{3}{8}$ -D-MIDI	
		G $\frac{1}{2}$	194 920	FRCS- $\frac{1}{2}$ -D-5M-MIDI	194 912	FRCS- $\frac{1}{2}$ -D-MIDI	
		G $\frac{3}{4}$	194 932	FRCS- $\frac{3}{4}$ -D-5M-MIDI	194 924	FRCS- $\frac{3}{4}$ -D-MIDI	
	Maxi	G $\frac{1}{2}$	194 944	FRCS- $\frac{1}{2}$ -D-5M-MAXI	194 936	FRCS- $\frac{1}{2}$ -D-MAXI	
		G $\frac{3}{4}$	194 956	FRCS- $\frac{3}{4}$ -D-5M-MAXI	194 948	FRCS- $\frac{3}{4}$ -D-MAXI	
		G1	194 968	FRCS-1-D-5M-MAXI	194 960	FRCS-1-D-MAXI	
	<b>Fully automatic</b>						
	Fully automatic	Mini	G $\frac{1}{8}$	194 862	FRCS- $\frac{1}{8}$ -D-5M-MINI-A	194 853	FRCS- $\frac{1}{8}$ -D-MINI-A
G $\frac{1}{4}$			194 874	FRCS- $\frac{1}{4}$ -D-5M-MINI-A	194 865	FRCS- $\frac{1}{4}$ -D-MINI-A	
G $\frac{3}{8}$			194 886	FRCS- $\frac{3}{8}$ -D-5M-MINI-A	194 877	FRCS- $\frac{3}{8}$ -D-MINI-A	
Midi		G $\frac{1}{4}$	194 898	FRCS- $\frac{1}{4}$ -D-5M-MIDI-A	194 889	FRCS- $\frac{1}{4}$ -D-MIDI-A	
		G $\frac{3}{8}$	194 910	FRCS- $\frac{3}{8}$ -D-5M-MIDI-A	194 901	FRCS- $\frac{3}{8}$ -D-MIDI-A	
		G $\frac{1}{2}$	194 922	FRCS- $\frac{1}{2}$ -D-5M-MIDI-A	194 913	FRCS- $\frac{1}{2}$ -D-MIDI-A	
		G $\frac{3}{4}$	194 934	FRCS- $\frac{3}{4}$ -D-5M-MIDI-A	194 925	FRCS- $\frac{3}{4}$ -D-MIDI-A	
Maxi		G $\frac{1}{2}$	194 946	FRCS- $\frac{1}{2}$ -D-5M-MAXI-A	194 937	FRCS- $\frac{1}{2}$ -D-MAXI-A	
		G $\frac{3}{4}$	194 958	FRCS- $\frac{3}{4}$ -D-5M-MAXI-A	194 949	FRCS- $\frac{3}{4}$ -D-MAXI-A	
		G1	194 970	FRCS-1-D-5M-MAXI-A	194 961	FRCS-1-D-MAXI-A	
<b>Without pressure gauge</b>							
Turned manually		Mini	G $\frac{1}{8}$	194 861	FRCS- $\frac{1}{8}$ -D-5M-O-MINI	194 854	FRCS- $\frac{1}{8}$ -D-O-MINI
	G $\frac{1}{4}$		194 873	FRCS- $\frac{1}{4}$ -D-5M-O-MINI	194 866	FRCS- $\frac{1}{4}$ -D-O-MINI	
	G $\frac{3}{8}$		194 885	FRCS- $\frac{3}{8}$ -D-5M-O-MINI	194 878	FRCS- $\frac{3}{8}$ -D-O-MINI	
	Midi	G $\frac{1}{4}$	194 897	FRCS- $\frac{1}{4}$ -D-5M-O-MIDI	194 890	FRCS- $\frac{1}{4}$ -D-O-MIDI	
		G $\frac{3}{8}$	194 909	FRCS- $\frac{3}{8}$ -D-5M-O-MIDI	194 902	FRCS- $\frac{3}{8}$ -D-O-MIDI	
		G $\frac{1}{2}$	194 921	FRCS- $\frac{1}{2}$ -D-5M-O-MIDI	194 914	FRCS- $\frac{1}{2}$ -D-O-MIDI	
		G $\frac{3}{4}$	194 933	FRCS- $\frac{3}{4}$ -D-5M-O-MIDI	194 926	FRCS- $\frac{3}{4}$ -D-O-MIDI	
	Maxi	G $\frac{1}{2}$	194 945	FRCS- $\frac{1}{2}$ -D-5M-O-MAXI	194 938	FRCS- $\frac{1}{2}$ -D-O-MAXI	
		G $\frac{3}{4}$	194 957	FRCS- $\frac{3}{4}$ -D-5M-O-MAXI	194 950	FRCS- $\frac{3}{4}$ -D-O-MAXI	
		G1	194 969	FRCS-1-D-5M-O-MAXI	194 962	FRCS-1-D-O-MAXI	
	<b>Fully automatic</b>						
	Fully automatic	Mini	G $\frac{1}{8}$	194 863	FRCS- $\frac{1}{8}$ -D-5M-O-MINI-A	194 855	FRCS- $\frac{1}{8}$ -D-O-MINI-A
G $\frac{1}{4}$			194 875	FRCS- $\frac{1}{4}$ -D-5M-O-MINI-A	194 867	FRCS- $\frac{1}{4}$ -D-O-MINI-A	
G $\frac{3}{8}$			194 887	FRCS- $\frac{3}{8}$ -D-5M-O-MINI-A	194 879	FRCS- $\frac{3}{8}$ -D-O-MINI-A	
Midi		G $\frac{1}{4}$	194 899	FRCS- $\frac{1}{4}$ -D-5M-O-MIDI-A	194 891	FRCS- $\frac{1}{4}$ -D-O-MIDI-A	
		G $\frac{3}{8}$	194 911	FRCS- $\frac{3}{8}$ -D-5M-O-MIDI-A	194 903	FRCS- $\frac{3}{8}$ -D-O-MIDI-A	
		G $\frac{1}{2}$	194 923	FRCS- $\frac{1}{2}$ -D-5M-O-MIDI-A	194 915	FRCS- $\frac{1}{2}$ -D-O-MIDI-A	
		G $\frac{3}{4}$	194 935	FRCS- $\frac{3}{4}$ -D-5M-O-MIDI-A	194 927	FRCS- $\frac{3}{4}$ -D-O-MIDI-A	
Maxi		G $\frac{1}{2}$	194 947	FRCS- $\frac{1}{2}$ -D-5M-O-MAXI-A	194 939	FRCS- $\frac{1}{2}$ -D-O-MAXI-A	
		G $\frac{3}{4}$	194 959	FRCS- $\frac{3}{4}$ -D-5M-O-MAXI-A	194 951	FRCS- $\frac{3}{4}$ -D-O-MAXI-A	
		G1	194 971	FRCS-1-D-5M-O-MAXI-A	194 963	FRCS-1-D-O-MAXI-A	



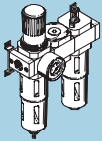
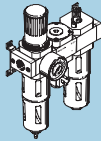
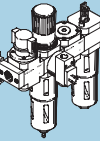
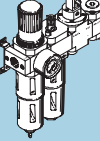
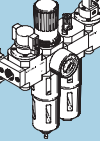
# Service units FRC/FRCS, D series, metal design

Technical data

Ordering data				
Pressure regulation range 0.5 ... 7 bar, metal bowl guard, lockable				
Condensate drain	Size	Connection	Grade of filtration 40 µm	
			Part No.	Type
With pressure gauge				
Turned manually	Mini	G <sup>1</sup> / <sub>8</sub>	194 856	FRCS- <sup>1</sup> / <sub>8</sub> -D-7-MINI
		G <sup>1</sup> / <sub>4</sub>	194 868	FRCS- <sup>1</sup> / <sub>4</sub> -D-7-MINI
		G <sup>3</sup> / <sub>8</sub>	194 880	FRCS- <sup>3</sup> / <sub>8</sub> -D-7-MINI
	Midi	G <sup>1</sup> / <sub>4</sub>	194 892	FRCS- <sup>1</sup> / <sub>4</sub> -D-7-MIDI
		G <sup>3</sup> / <sub>8</sub>	194 904	FRCS- <sup>3</sup> / <sub>8</sub> -D-7-MIDI
		G <sup>1</sup> / <sub>2</sub>	194 916	FRCS- <sup>1</sup> / <sub>2</sub> -D-7-MIDI
		G <sup>3</sup> / <sub>4</sub>	194 928	FRCS- <sup>3</sup> / <sub>4</sub> -D-7-MIDI
	Maxi	G <sup>1</sup> / <sub>2</sub>	194 940	FRCS- <sup>1</sup> / <sub>2</sub> -D-7-MAXI
		G <sup>3</sup> / <sub>4</sub>	194 952	FRCS- <sup>3</sup> / <sub>4</sub> -D-7-MAXI
		G1	194 964	FRCS-1-D-7-MAXI
Fully automatic				
Fully automatic	Mini	G <sup>1</sup> / <sub>8</sub>	194 858	FRCS- <sup>1</sup> / <sub>8</sub> -D-7-MINI-A
		G <sup>1</sup> / <sub>4</sub>	194 870	FRCS- <sup>1</sup> / <sub>4</sub> -D-7-MINI-A
		G <sup>3</sup> / <sub>8</sub>	194 882	FRCS- <sup>3</sup> / <sub>8</sub> -D-7-MINI-A
	Midi	G <sup>1</sup> / <sub>4</sub>	194 894	FRCS- <sup>1</sup> / <sub>4</sub> -D-7-MIDI-A
		G <sup>3</sup> / <sub>8</sub>	194 906	FRCS- <sup>3</sup> / <sub>8</sub> -D-7-MIDI-A
		G <sup>1</sup> / <sub>2</sub>	194 918	FRCS- <sup>1</sup> / <sub>2</sub> -D-7-MIDI-A
		G <sup>3</sup> / <sub>4</sub>	194 930	FRCS- <sup>3</sup> / <sub>4</sub> -D-7-MIDI-A
	Maxi	G <sup>1</sup> / <sub>2</sub>	194 942	FRCS- <sup>1</sup> / <sub>2</sub> -D-7-MAXI-A
		G <sup>3</sup> / <sub>4</sub>	194 954	FRCS- <sup>3</sup> / <sub>4</sub> -D-7-MAXI-A
		G1	194 966	FRCS-1-D-7-MAXI-A
Without pressure gauge				
Turned manually	Mini	G <sup>1</sup> / <sub>8</sub>	194 857	FRCS- <sup>1</sup> / <sub>8</sub> -D-7-O-MINI
		G <sup>1</sup> / <sub>4</sub>	194 869	FRCS- <sup>1</sup> / <sub>4</sub> -D-7-O-MINI
		G <sup>3</sup> / <sub>8</sub>	194 881	FRCS- <sup>3</sup> / <sub>8</sub> -D-7-O-MINI
	Midi	G <sup>1</sup> / <sub>4</sub>	194 893	FRCS- <sup>1</sup> / <sub>4</sub> -D-7-O-MIDI
		G <sup>3</sup> / <sub>8</sub>	194 905	FRCS- <sup>3</sup> / <sub>8</sub> -D-7-O-MIDI
		G <sup>1</sup> / <sub>2</sub>	194 917	FRCS- <sup>1</sup> / <sub>2</sub> -D-7-O-MIDI
		G <sup>3</sup> / <sub>4</sub>	194 929	FRCS- <sup>3</sup> / <sub>4</sub> -D-7-O-MIDI
	Maxi	G <sup>1</sup> / <sub>2</sub>	194 941	FRCS- <sup>1</sup> / <sub>2</sub> -D-7-O-MAXI
		G <sup>3</sup> / <sub>4</sub>	194 953	FRCS- <sup>3</sup> / <sub>4</sub> -D-7-O-MAXI
		G1	194 965	FRCS-1-D-7-O-MAXI
Fully automatic				
Fully automatic	Mini	G <sup>1</sup> / <sub>8</sub>	194 859	FRCS- <sup>1</sup> / <sub>8</sub> -D-7-O-MINI-A
		G <sup>1</sup> / <sub>4</sub>	194 871	FRCS- <sup>1</sup> / <sub>4</sub> -D-7-O-MINI-A
		G <sup>3</sup> / <sub>8</sub>	194 883	FRCS- <sup>3</sup> / <sub>8</sub> -D-7-O-MINI-A
	Midi	G <sup>1</sup> / <sub>4</sub>	194 895	FRCS- <sup>1</sup> / <sub>4</sub> -D-7-O-MIDI-A
		G <sup>3</sup> / <sub>8</sub>	194 907	FRCS- <sup>3</sup> / <sub>8</sub> -D-7-O-MIDI-A
		G <sup>1</sup> / <sub>2</sub>	194 919	FRCS- <sup>1</sup> / <sub>2</sub> -D-7-O-MIDI-A
		G <sup>3</sup> / <sub>4</sub>	194 931	FRCS- <sup>3</sup> / <sub>4</sub> -D-7-O-MIDI-A
	Maxi	G <sup>1</sup> / <sub>2</sub>	194 943	FRCS- <sup>1</sup> / <sub>2</sub> -D-7-O-MAXI-A
		G <sup>3</sup> / <sub>4</sub>	194 955	FRCS- <sup>3</sup> / <sub>4</sub> -D-7-O-MAXI-A
		G1	194 967	FRCS-1-D-7-O-MAXI-A

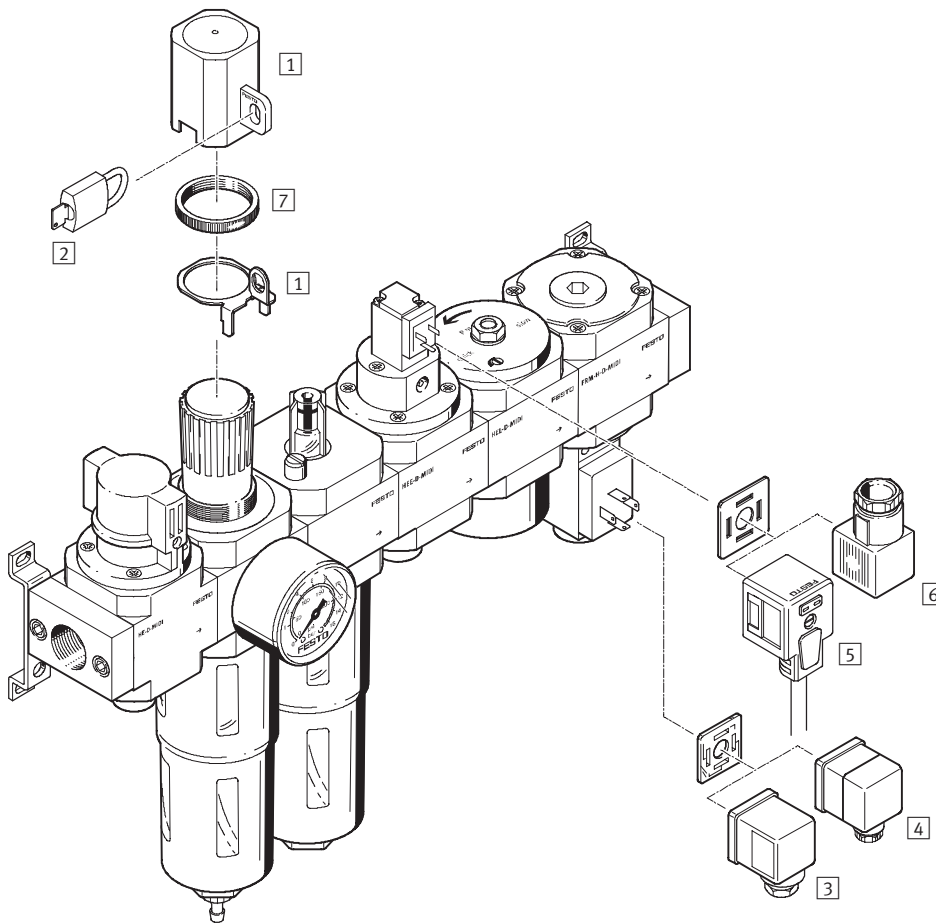
# Service unit combinations FRC-K, D series, metal design


Product range overview

<b>FRC</b> Rotary knob with detent	 KA	 KB	 KC	 KE	 KF
<b>Individual devices</b>					
On-off valve, manual	-	-	■	-	■
Filter regulator with pressure gauge	■	■	■	■	■
Branching module	■	-	-	-	-
Branching module with pressure switch	-	■	■	-	■
Lubricator	■	■	■	■	■
On-off valve with solenoid coil 24 V DC	-	-	-	■	■
Soft-start valve	-	-	-	■	■
Mounting bracket	■	■	■	■	■
➔ Page	29	32	35	38	41

# Service unit combinations FRC-K, D series, metal design

Peripherals overview



-  - Note

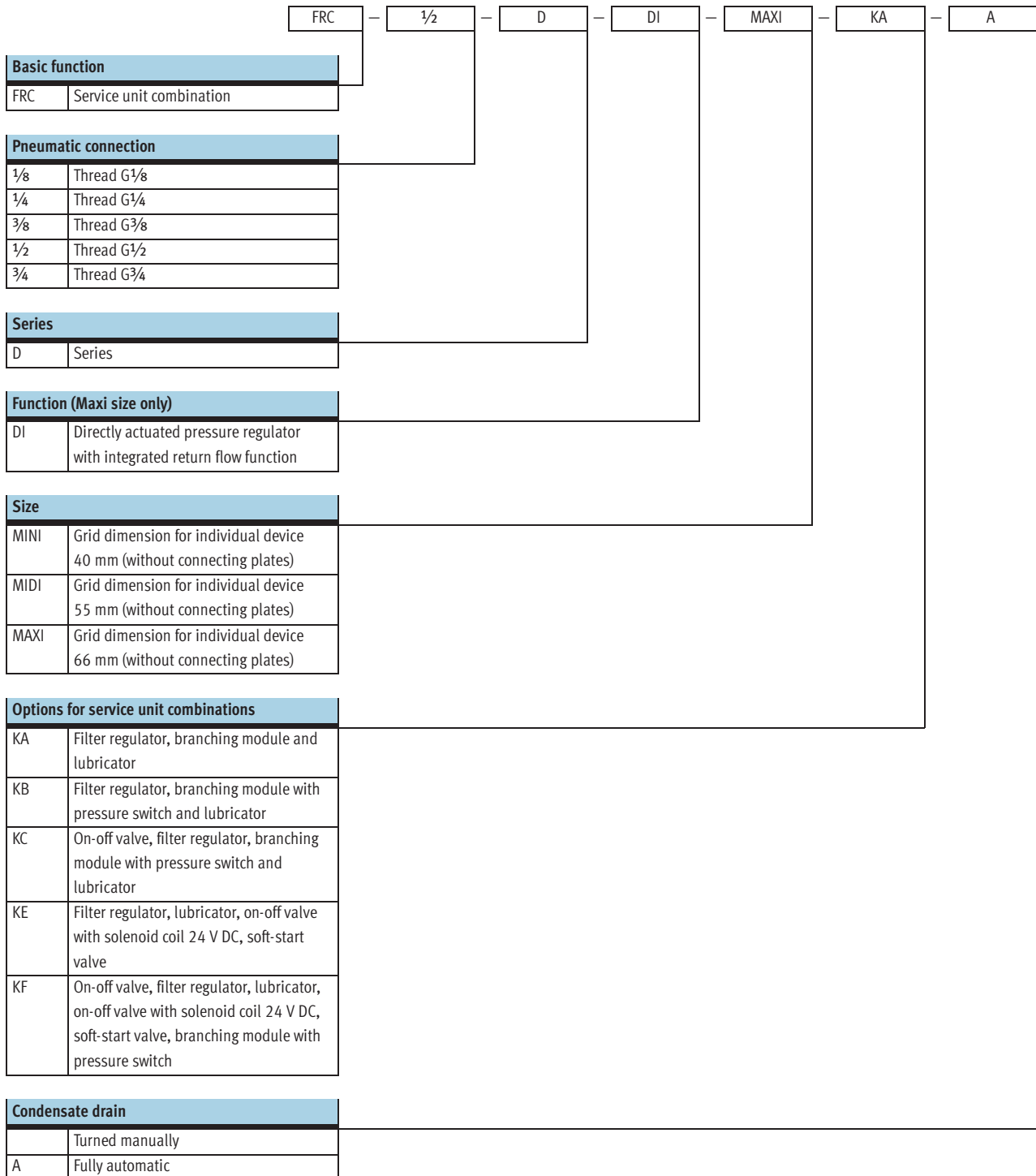
The choice of accessories depends on the selected service unit combination. The example shows the service unit combination FRC-KF.

Range of accessories  
 → Peripherals pages of the individual devices

Mounting attachments and accessories		→ Page
1	Regulator lock LRVS	203
2	Padlock LRVS	203
3	Plug socket MSSD-C	208
4	Angled plug socket PEV-...-WD-LED	208
5	Plug socket with cable KMEB-1	209
6	Plug socket MSSD-EB	209
7	Knurled nut (included in scope of delivery) HMR	-

# Service unit combinations FRC-K, D series, metal design

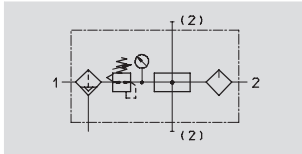
Type codes



# Service unit combinations FRC-KA, D series, metal design

Technical data

Function



- Flow rate  
650 ... 8200 l/min
- Temperature range  
-10 ... +60 °C
- Input pressure  
1 ... 16 bar

- Filter regulator LFR
  - grade of filtration 40 µm
  - metal bowl guard
  - condensate drain, turned manually or fully automatic
  - rotary knob with detent
  - pressure gauge
- Branching module FRM
- Lubricator LOE
  - metal bowl guard
- Mounting accessories



- For lubricated and unlubricated compressed air
- Two connections for unlubricated compressed air supply
- One connection for lubricated compressed air supply

General technical data							
Size	Mini		Midi			Maxi	
Pneumatic connection	G1/8	G1/4	G1/4	G3/8	G1/2	G1/2	G3/4
Operating medium	Compressed air						
Type of mounting	Via accessories						
	In-line installation						
Assembly position	Vertical ±5°						
Grade of filtration [µm]	40						
Max. hysteresis [bar]	0.25	0.2	0.25	0.35	0.3	0.1	0.2
Pressure regulation range [bar]	0.5 ... 12						
Pressure indication	Via pressure gauge						
Max. condensate volume [cm <sup>3</sup> ]	22		43			80 <sup>1)</sup>	
Input pressure [bar]							
Condensate drain	turned manually	1 ... 16					
	fully automatic	2 ... 12					

1) The max. condensate volume for the FRC...-DI-MAXI-KA is 43 cm<sup>3</sup>.  
 -||- Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

# Service unit combinations FRC-KA, D series, metal design

Technical data


Standard nominal flow rate <sup>1)</sup> qnN [l/min]					
Connection	G <sup>1</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>2</sub>	G <sup>3</sup> / <sub>4</sub>
<b>Mini</b>					
FRC-...-D-...	650	980	-	-	-
<b>Midi</b>					
FRC-...-D-...	-	1400	2100	2500	-
<b>Maxi</b>					
FRC-...-D-...	-	-	-	7500	8200
<b>Maxi – Directly actuated pressure regulator with integrated return flow function</b>					
FRC-...-D-DI-...	-	-	-	5200	5800

1) Measured at p<sub>1</sub> = 10 bar, p<sub>2</sub> = 6 bar and Δp = 1 bar.

Ambient conditions		Mini	Midi	Maxi
Size				
Ambient temperature	[°C]	-10 ... +60		
Temperature of medium	[°C]	-10 ... +60		
Corrosion resistance class	CRC <sup>1)</sup>	2		

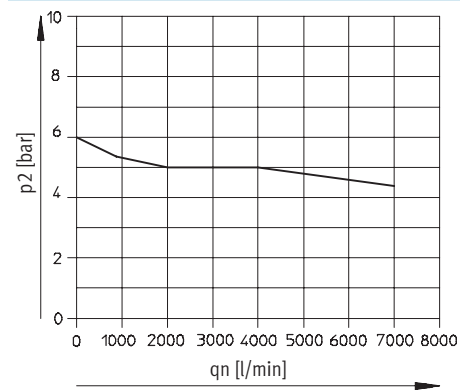
1) Corrosion resistance class 2 according to Festo standard 940 070  
 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating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

Weight [g]				
Size	Mini	Midi	Maxi	
			D	D-DI
FRC	1000	2400	3500	3700

-  - Note  
 Materials → Technical data of the individual devices

## Standard flow rate qn as a function of the output pressure p<sub>2</sub>

FRC-1/2-D-DI-MAXI-KA(-A)



Primary pressure p<sub>1</sub> = 10 bar

# Service unit combinations FRC-KA, D series, metal design

Technical data

**Dimensions** Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

FRC-...-KA

Installation dimensions → Flow direction

Type	B5	B6	D1	H1	H2	H3	L1	L2	L3	L4	L5	L8	L9	T1	T2
<b>Mini</b>															
FRC-...-D-MINI-KA (-A)	144	132	4.3	43	17.5	17.5	193	124	60	68	100	15	19	39	95
<b>Midi</b>															
FRC-...-D-MIDI-KA (-A)	195	180	5.3	70	24.5	35.5	250	152	80	99	120	15	19	47	114
<b>Maxi</b>															
FRC-...-D-MAXI-KA (-A)	228	212	5.3	70	24.5	35.5	252	171	90	82	150	15	19	53	126
FRC-...-D-DI-MAXI-KA (-A)							275			105					

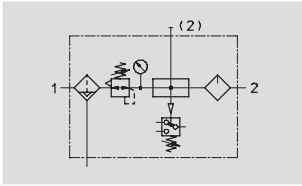
<b>Ordering data</b>					
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
Mini	G1/8	185 791	FRC-1/8-D-MINI-KA	185 792	FRC-1/8-D-MINI-KA-A
	G1/4	185 793	FRC-1/4-D-MINI-KA	185 794	FRC-1/4-D-MINI-KA-A
Midi	G1/4	185 795	FRC-1/4-D-MIDI-KA	185 796	FRC-1/4-D-MIDI-KA-A
	G3/8	185 797	FRC-3/8-D-MIDI-KA	185 798	FRC-3/8-D-MIDI-KA-A
	G1/2	185 799	FRC-1/2-D-MIDI-KA	185 800	FRC-1/2-D-MIDI-KA-A
Maxi	G1/2	186 053	FRC-1/2-D-MAXI-KA	186 054	FRC-1/2-D-MAXI-KA-A
	G3/4	185 801	FRC-3/4-D-MAXI-KA	185 802	FRC-3/4-D-MAXI-KA-A
<b>Directly actuated pressure regulator with integrated return flow function</b>					
Maxi	G1/2	192 468	FRC-1/2-D-DI-MAXI-KA	192 478	FRC-1/2-D-DI-MAXI-KA-A
	G3/4	192 473	FRC-3/4-D-DI-MAXI-KA	192 483	FRC-3/4-D-DI-MAXI-KA-A

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

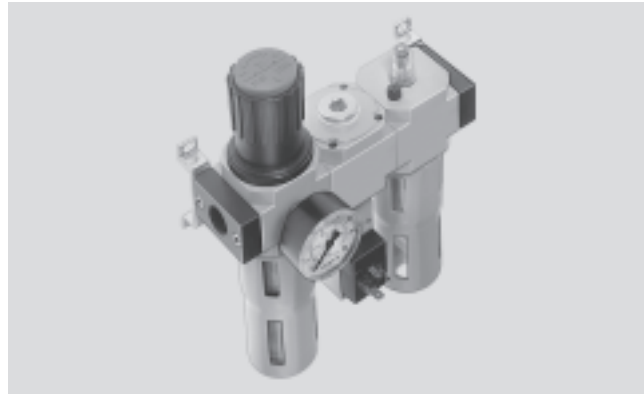
# Service unit combinations FRC-KB, D series, metal design

Technical data

Function



- - Flow rate  
650 ... 8200 l/min
- - Temperature range  
-10 ... +60 °C
- - Input pressure  
1 ... 16 bar



- Filter regulator LFR
  - grade of filtration 40 µm
  - metal bowl guard
  - condensate drain, turned manually or fully automatic
  - rotary knob with detent
  - pressure gauge
- Branching module FRM
  - Pressure switch without display
- Lubricator LOE
  - metal bowl guard
- Mounting accessories

- Electrical pressure monitoring with adjustable switching pressure
- For lubricated and unlubricated compressed air
- One connection for unlubricated compressed air supply
- One connection for lubricated compressed air supply

General technical data							
Size	Mini		Midi			Maxi	
Pneumatic connection	G1/8	G1/4	G1/4	G3/8	G1/2	G1/2	G3/4
Operating medium	Compressed air						
Type of mounting	Via accessories						
	In-line installation						
Assembly position	Vertical ±5°						
Grade of filtration [µm]	40						
Max. hysteresis [bar]	0.25	0.2	0.25	0.35	0.35	0.1	0.2
Pressure regulation range [bar]	0.5 ... 12						
Pressure indication	Via pressure gauge						
Max. condensate volume [cm <sup>3</sup> ]	22		43			80 <sup>1)</sup>	
Input pressure [bar]							
Condensate drain	turned manually						
	fully automatic						
	1 ... 16					2 ... 12	

1) The max. condensate volume for the FRC...-DI-MAXI-KB is 43 cm<sup>3</sup>.  
 - - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.



# Service unit combinations FRC-KB, D series, metal design

Technical data


Standard nominal flow rate <sup>1)</sup> qnN [l/min]					
Connection	G1/8	G1/4	G3/8	G1/2	G3/4
<b>Mini</b>					
FRC-...-D-...	650	980	-	-	-
<b>Midi</b>					
FRC-...-D-...	-	1400	2100	2500	-
<b>Maxi</b>					
FRC-...-D-...	-	-	-	7500	8200
<b>Maxi – Directly actuated pressure regulator with integrated return flow function</b>					
FRC-...-D-DI-...	-	-	-	5000	6000

1) Measured at p1 = 10 bar, p2 = 6 bar and Δp = 1 bar.

Ambient conditions			
Size	Mini	Midi	Maxi
Ambient temperature [°C]	-10 ... +60		
Temperature of medium [°C]	-10 ... +60		
Corrosion resistance class CRC <sup>1)</sup>	2		

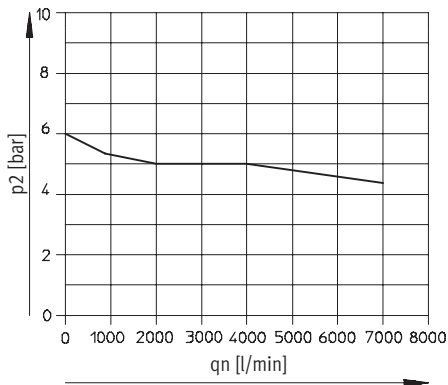
1) Corrosion resistance class 2 according to Festo standard 940 070  
 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating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

Weight [g]				
Size	Mini	Midi	Maxi	
			D	D-DI
FRC	1200	2600	3500	3700

 Note  
 Materials → Technical data of the individual devices

## Standard flow rate qn as a function of the output pressure p2

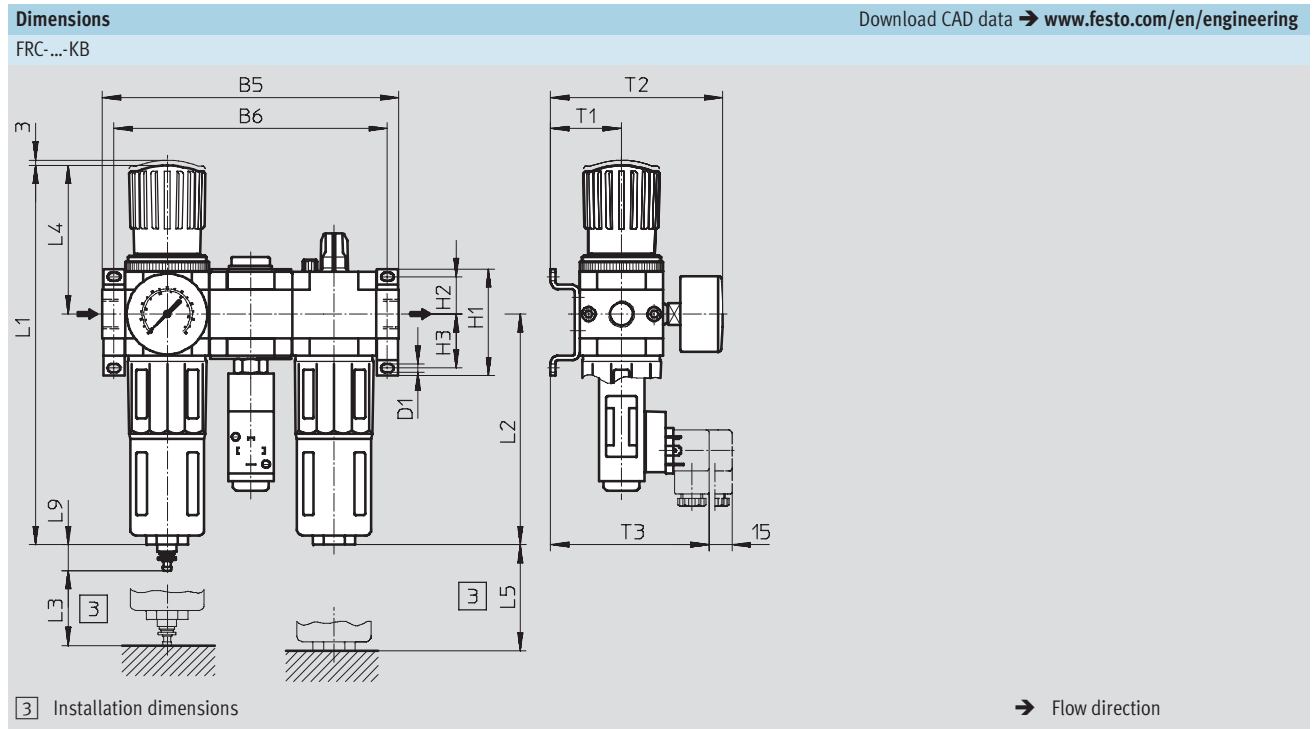
FRC-1/2-D-DI-MAXI-KB(-A)



Primary pressure p1 = 10 bar

# Service unit combinations FRC-KB, D series, metal design

Technical data



Type	B5	B6	D1	H1	H2	H3	L1	L2	L3	L4	L5	L9	T1	T2	T3
<b>Mini</b>															
FRC-...-D-MINI-KB (-A)	144	132	4.3	43	17.5	17.5	193	124	60	68	100	19	39	95	97
<b>Midi</b>															
FRC-...-D-MIDI-KB (-A)	195	180	5.3	70	24.5	35.5	250	152	80	99	120	19	47	114	105
<b>Maxi</b>															
FRC-...-D-MAXI-KB (-A)	228	212	5.3	70	24.5	35.5	252	171	90	82	150	19	53	126	111
FRC-...-D-DI-MAXI-KB (-A)							275			105					

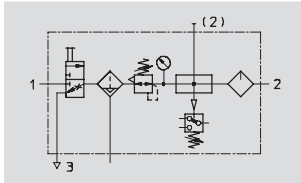
<b>Ordering data</b>					
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
Mini	G $\frac{1}{8}$	185 803	FRC- $\frac{1}{8}$ -D-MINI-KB	185 804	FRC- $\frac{1}{8}$ -D-MINI-KB-A
	G $\frac{1}{4}$	185 805	FRC- $\frac{1}{4}$ -D-MINI-KB	185 806	FRC- $\frac{1}{4}$ -D-MINI-KB-A
Midi	G $\frac{1}{4}$	185 807	FRC- $\frac{1}{4}$ -D-MIDI-KB	185 808	FRC- $\frac{1}{4}$ -D-MIDI-KB-A
	G $\frac{3}{8}$	185 809	FRC- $\frac{3}{8}$ -D-MIDI-KB	185 810	FRC- $\frac{3}{8}$ -D-MIDI-KB-A
	G $\frac{1}{2}$	185 811	FRC- $\frac{1}{2}$ -D-MIDI-KB	185 812	FRC- $\frac{1}{2}$ -D-MIDI-KB-A
Maxi	G $\frac{1}{2}$	186 055	FRC- $\frac{1}{2}$ -D-MAXI-KB	186 056	FRC- $\frac{1}{2}$ -D-MAXI-KB-A
	G $\frac{3}{4}$	185 813	FRC- $\frac{3}{4}$ -D-MAXI-KB	185 814	FRC- $\frac{3}{4}$ -D-MAXI-KB-A
<b>Directly actuated pressure regulator with integrated return flow function</b>					
Maxi	G $\frac{1}{2}$	192 469	FRC- $\frac{1}{2}$ -D-DI-MAXI-KB	192 479	FRC- $\frac{1}{2}$ -D-DI-MAXI-KB-A
	G $\frac{3}{4}$	192 474	FRC- $\frac{3}{4}$ -D-DI-MAXI-KB	192 484	FRC- $\frac{3}{4}$ -D-DI-MAXI-KB-A

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

# Service unit combinations FRC-KC, D series, metal design

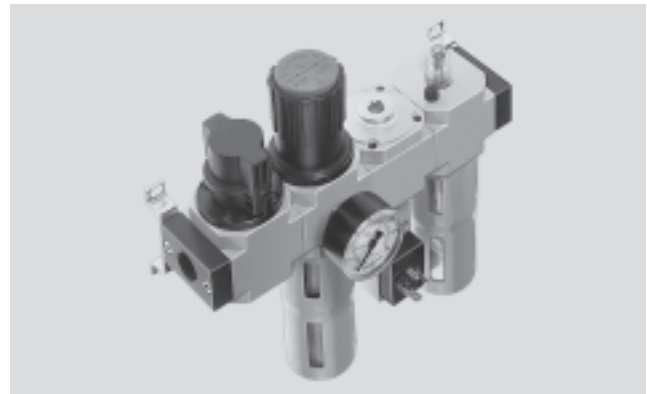
Technical data

Function



- Flow rate  
640 ... 7800 l/min
- Temperature range  
-10 ... +60 °C
- Input pressure  
1 ... 16 bar

- On-off valve HE
  - manually actuated
- Filter regulator LFR
  - grade of filtration 40 µm
  - metal bowl guard
  - condensate drain, turned manually or fully automatic
  - rotary knob with detent
  - pressure gauge
- Branching module FRM
  - pressure switch without display
- Lubricator LOE
  - metal bowl guard
- Mounting accessories



- To ensure safe venting of the system, an additional quick exhaust valve is necessary at the output of the service unit
- Electrical pressure monitoring with adjustable switching pressure
- The system is vented when supply air is closed
- For lubricated and unlubricated compressed air
- One connection for unlubricated compressed air supply
- One connection for lubricated compressed air supply

General technical data							
Size	Mini		Midi			Maxi	
Pneumatic connection	G1/8	G1/4	G1/4	G3/8	G1/2	G1/2	G3/4
Operating medium	Compressed air						
Type of mounting	Via accessories						
	In-line installation						
Assembly position	Vertical ±5°						
Grade of filtration [µm]	40						
Max. hysteresis [bar]	0.2	0.2	0.4	0.3	0.3	0.15	0.15
Pressure regulation range [bar]	0.5 ... 12						
Pressure indication	Via pressure gauge						
Max. condensate volume [cm³]	22		43			80 <sup>1)</sup>	
Input pressure [bar]							
Condensate drain	turned manually	1 ... 16					
	fully automatic	1.5 ... 12					

1) The max. condensate volume for the FRC...-DI-MAXI-KC is 43 cm³.  
 - | - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

# Service unit combinations FRC-KC, D series, metal design

Technical data

Standard nominal flow rate <sup>1)</sup> qnN [l/min]					
Connection	G <sup>1</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>2</sub>	G <sup>3</sup> / <sub>4</sub>
<b>Mini</b>					
FRC-...-D-...	640	870	-	-	-
<b>Midi</b>					
FRC-...-D-...	-	1320	1870	2400	-
<b>Maxi</b>					
FRC-...-D-...	-	-	-	6600	7800
<b>Maxi – Directly actuated pressure regulator with integrated return flow function</b>					
FRC-...-D-DI-...	-	-	-	4800	5400


1) Measured at p<sub>1</sub> = 10 bar, p<sub>2</sub> = 6 bar and Δp = 1 bar.

Ambient conditions		Mini	Midi	Maxi
Size				
Ambient temperature	[°C]	-10 ... +60		
Temperature of medium	[°C]	-10 ... +60		
Corrosion resistance class	CRC <sup>1)</sup>	2		

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

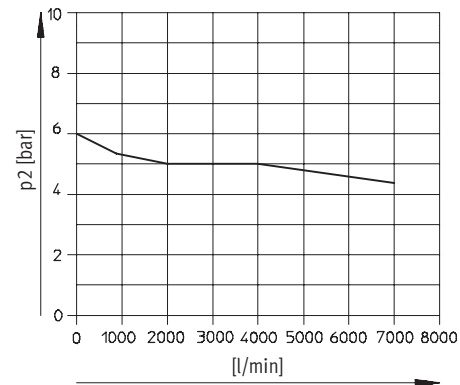
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Weight [g]				
Size	Mini	Midi	Maxi	
			D	D-DI
FRC	1400	3000	4600	4800

-  Note  
Materials → Technical data of the individual devices

## Standard flow rate qn as a function of the output pressure p<sub>2</sub>

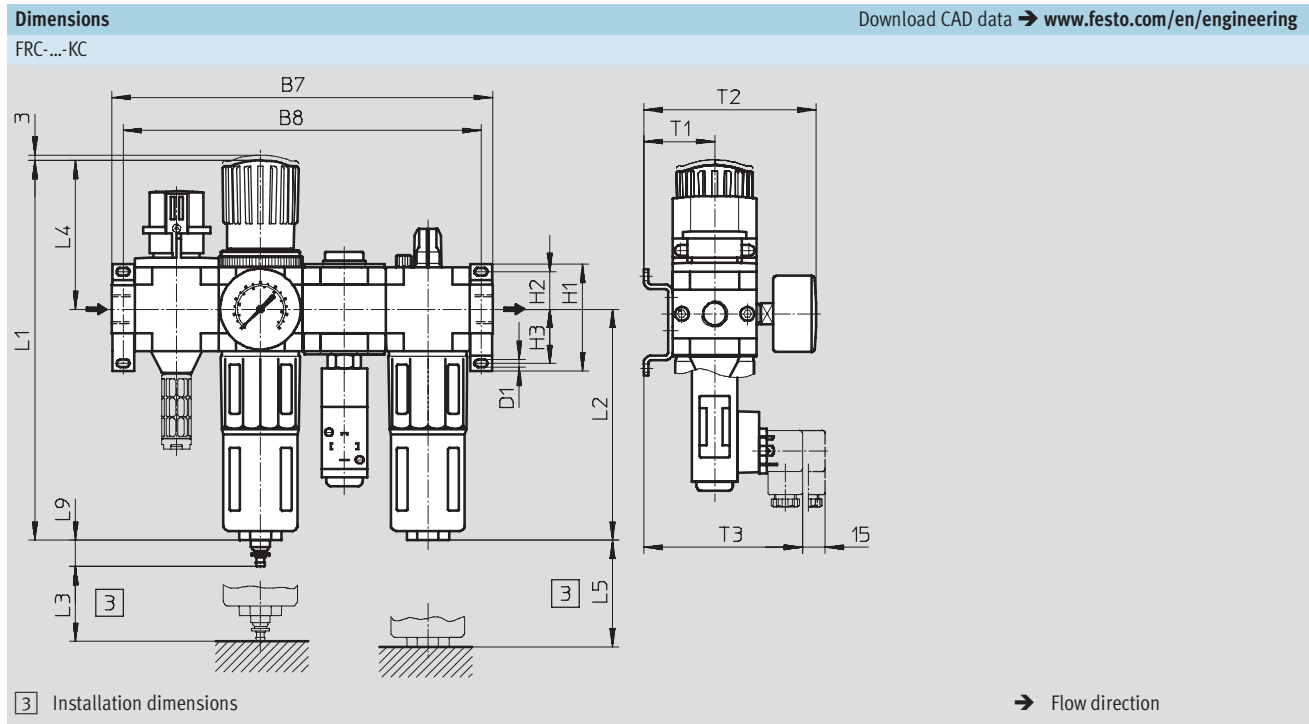
FRC-1/2-D-DI-MAXI-KC(-A)



Primary pressure p<sub>1</sub> = 10 bar

# Service unit combinations FRC-KC, D series, metal design

Technical data



Type	B7	B8	D1	H1	H2	H3	L1	L2	L3	L4	L5	L9	T1	T2	T3
<b>Mini</b>															
FRC-...-D-MINI-KC (-A)	184	172	4.3	43	17.5	17.5	193	124	60	68	100	19	39	95	97
<b>Midi</b>															
FRC-...-D-MIDI-KC (-A)	250	235	5.3	70	24.5	35.5	250	152	80	99	120	19	47	114	105
<b>Maxi</b>															
FRC-...-D-MAXI-KC (-A)	294	278	5.3	70	24.5	35.5	252	171	90	82	150	19	53	126	111
FRC-...-D-DI-MAXI-KC (-A)							275			105					

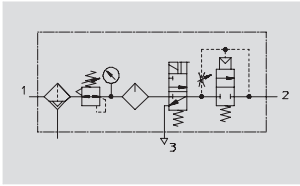
<b>Ordering data</b>					
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
Mini	G1/8	185 815	FRC-1/8-D-MINI-KC	185 816	FRC-1/8-D-MINI-KC-A
	G1/4	185 817	FRC-1/4-D-MINI-KC	185 818	FRC-1/4-D-MINI-KC-A
Midi	G1/4	185 819	FRC-1/4-D-MIDI-KC	185 820	FRC-1/4-D-MIDI-KC-A
	G3/8	185 821	FRC-3/8-D-MIDI-KC	185 822	FRC-3/8-D-MIDI-KC-A
	G1/2	185 823	FRC-1/2-D-MIDI-KC	185 824	FRC-1/2-D-MIDI-KC-A
Maxi	G1/2	186 057	FRC-1/2-D-MAXI-KC	186 058	FRC-1/2-D-MAXI-KC-A
	G3/4	185 825	FRC-3/4-D-MAXI-KC	185 826	FRC-3/4-D-MAXI-KC-A
<b>Directly actuated pressure regulator with integrated return flow function</b>					
Maxi	G1/2	192 470	FRC-1/2-D-DI-MAXI-KC	192 480	FRC-1/2-D-DI-MAXI-KC-A
	G3/4	192 475	FRC-3/4-D-DI-MAXI-KC	192 485	FRC-3/4-D-DI-MAXI-KC-A

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

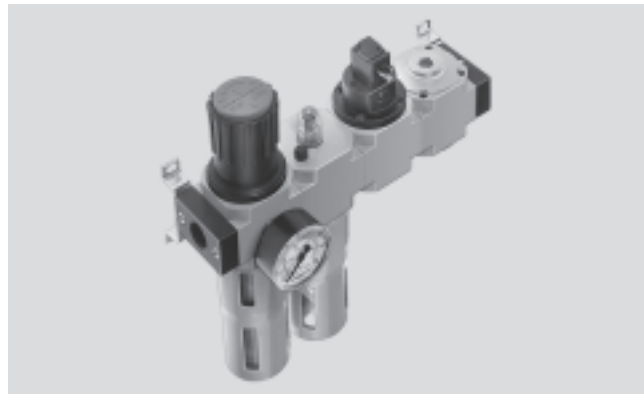
# Service unit combinations FRC-KE, D series, metal design

Technical data

Function



- Flow rate  
550 ... 6000 l/min
- Temperature range  
-10 ... +60 °C
- Input pressure  
3 ... 16 bar



- Filter regulator LFR
  - grade of filtration 40 µm
  - metal bowl guard
  - condensate drain, turned manually or fully automatic
  - rotary knob with detent
  - pressure gauge
- Lubricator LOE
  - metal bowl guard
- On-off valve HEE
  - solenoid actuated
  - 24 V DC
- Soft-start valve HEL
  - pneumatically actuated
- Mounting accessories

- Gradual pressure build-up prevents sudden, unpredictable movements
- For lubricated compressed air
- When supply pressure is closed, quick venting ensures rapid pressure reduction

General technical data							
Size	Mini		Midi			Maxi	
Pneumatic connection	G1/8	G1/4	G1/4	G3/8	G1/2	G1/2	G3/4
Operating medium	Compressed air						
Type of mounting	Via accessories						
	In-line installation						
Assembly position	Vertical ±5°						
Grade of filtration [µm]	40						
Max. hysteresis [bar]	0.15	0.18	0.25	0.35	0.4	0.3	0.3
Pressure regulation range [bar]	2.5 ... 12						
Pressure indication	Via pressure gauge						
Max. condensate volume [cm <sup>3</sup> ]	22		43			80 <sup>1)</sup>	
Input pressure [bar]							
Condensate drain	turned manually						
	fully automatic						
	3 ... 16						
	3 ... 12						

1) The max. condensate volume for the FRC-...-DI-MAXI-KE is 43 cm<sup>3</sup>.  
 - - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

# Service unit combinations FRC-KE, D series, metal design

Technical data


Standard nominal flow rate <sup>1)</sup> qnN [l/min]					
Connection	G1/8	G1/4	G3/8	G1/2	G3/4
<b>Mini</b>					
FRC-...-D-...	550	650	-	-	-
<b>Midi</b>					
FRC-...-D-...	-	1100	1420	1590	-
<b>Maxi</b>					
FRC-...-D-...	-	-	-	3500	3800
<b>Maxi – Directly actuated pressure regulator with integrated return flow function</b>					
FRC-...-D-DI-...	-	-	-	5000	6000

1) Measured at p1 = 10 bar, p2 = 6 bar and Δp = 1 bar.

Ambient conditions			
Size	Mini	Midi	Maxi
Ambient temperature [°C]	-10 ... +60		
Temperature of medium [°C]	-10 ... +60		
Corrosion resistance class CRC <sup>1)</sup>	2		

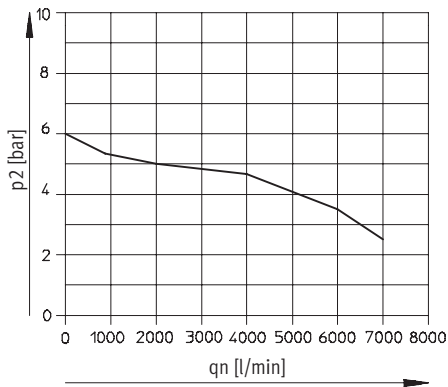
1) Corrosion resistance class 2 according to Festo standard 940 070  
 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating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

Weight [g]				
Size	Mini	Midi	Maxi	
			D	D-DI
FRC	1200	2800	4200	4400

 Note  
 Materials → Technical data of the individual devices

## Standard flow rate qn as a function of the output pressure p2

FRC-1/2-D-DI-MAXI-KE(-A)

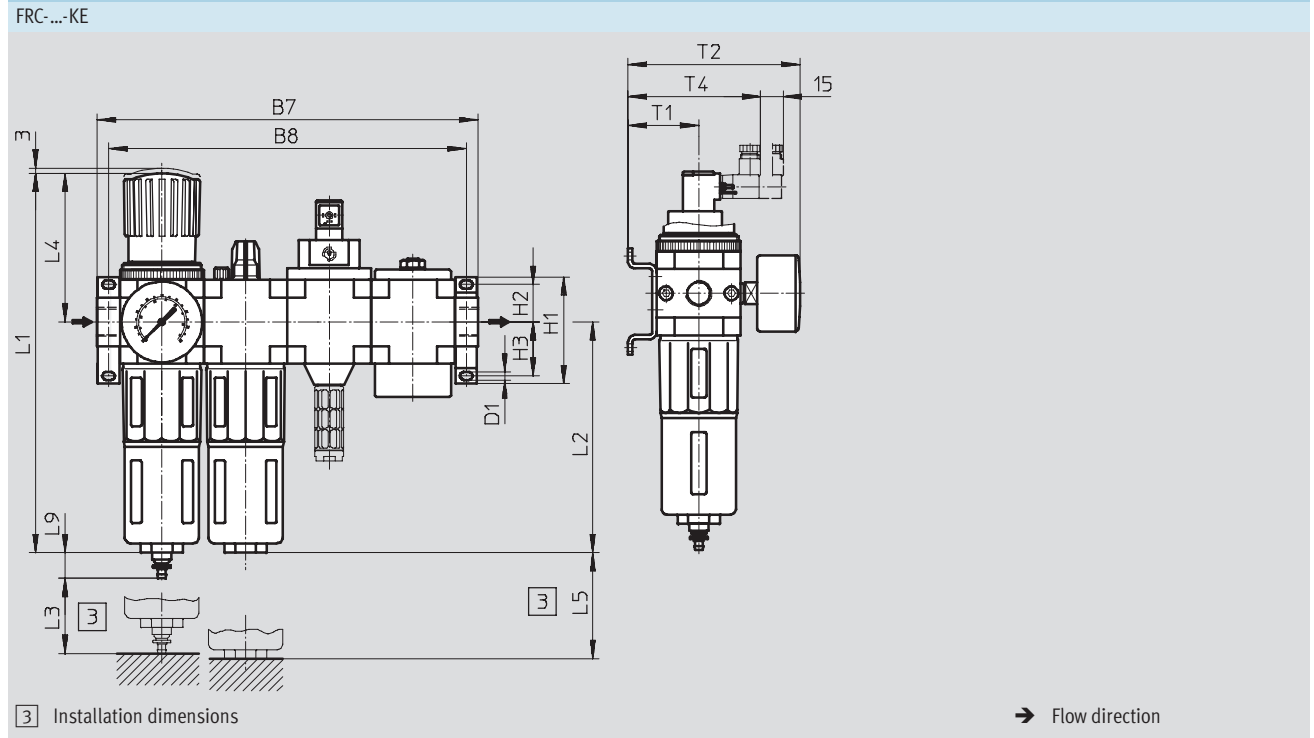


Primary pressure p1 = 10 bar

# Service unit combinations FRC-KE, D series, metal design

Technical data

Dimensions Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)



Type	B7	B8	D1	H1	H2	H3	L1	L2	L3	L4	L5	L9	T1	T2	T4
<b>Mini</b>															
FRC-...-D-MINI-KE (-A)	184	172	4.3	43	17.5	17.5	193	124	60	68	100	19	39	95	78
<b>Midi</b>															
FRC-...-D-MIDI-KE (-A)	250	235	5.3	70	24.5	35.5	250	152	80	99	120	19	47	114	86
<b>Maxi</b>															
FRC-...-D-MAXI-KE (-A)	294	278	5.3	70	24.5	35.5	252	171	90	82	150	19	53	126	92
FRC-...-D-DI-MAXI-KE (-A)							275			105					

<b>Ordering data</b>					
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
Mini	G1/8	185 827	FRC-1/8-D-MINI-KE	185 828	FRC-1/8-D-MINI-KE-A
	G1/4	185 829	FRC-1/4-D-MINI-KE	185 830	FRC-1/4-D-MINI-KE-A
Midi	G1/4	185 831	FRC-1/4-D-MIDI-KE	185 832	FRC-1/4-D-MIDI-KE-A
	G3/8	185 833	FRC-3/8-D-MIDI-KE	185 834	FRC-3/8-D-MIDI-KE-A
	G1/2	185 835	FRC-1/2-D-MIDI-KE	185 836	FRC-1/2-D-MIDI-KE-A
Maxi	G1/2	186 059	FRC-1/2-D-MAXI-KE	186 060	FRC-1/2-D-MAXI-KE-A
	G3/4	185 837	FRC-3/4-D-MAXI-KE	185 838	FRC-3/4-D-MAXI-KE-A
<b>Directly actuated pressure regulator with integrated return flow function</b>					
Maxi	G1/2	192 471	FRC-1/2-D-DI-MAXI-KE	192 481	FRC-1/2-D-DI-MAXI-KE-A
	G3/4	192 476	FRC-3/4-D-DI-MAXI-KE	192 486	FRC-3/4-D-DI-MAXI-KE-A

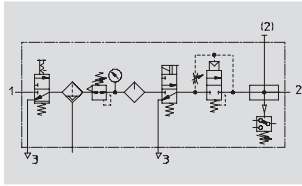
|| - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.



# Service unit combinations FRC-KF, D series, metal design

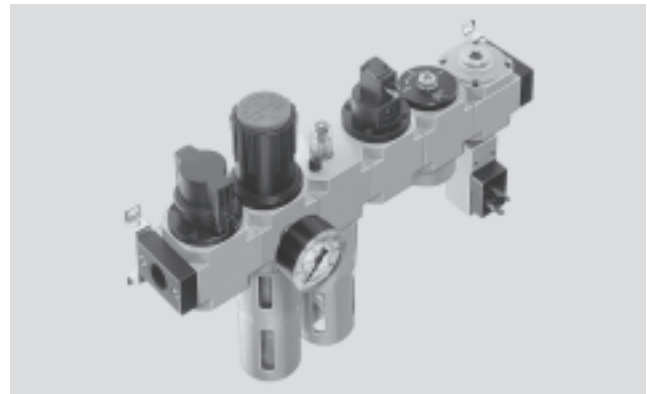
Technical data

Function



- Flow rate  
530 ... 6000 l/min
- Temperature range  
-10 ... +60 °C
- Input pressure  
3 ... 16 bar

- On-off valve HE
  - manually actuated
- Filter regulator LFR
  - grade of filtration 40 µm
  - metal bowl guard
  - condensate drain, turned manually or fully automatic
  - rotary knob with detent
  - pressure gauge
- Lubricator LOE
  - metal bowl guard
- On-off valve HEE
  - solenoid actuated
  - 24 V DC
- Soft-start valve HEL
  - pneumatically actuated
- Branching module FRM
  - pressure switch without display
- Mounting accessories



- Gradual pressure build-up prevents sudden, unpredictable movements
- To ensure safe venting of the system, an additional quick exhaust valve is necessary at the output of the service unit combination
- For lubricated compressed air
- Two branch connections are available
- Supply pressure can be opened and closed

General technical data							
Size	Mini		Midi			Maxi	
Pneumatic connection	G1/8	G1/4	G1/4	G3/8	G1/2	G1/2	G3/4
Operating medium	Compressed air						
Type of mounting	Via accessories						
	In-line installation						
Assembly position	Vertical ±5°						
Grade of filtration [µm]	40						
Max. hysteresis [bar]	0.2	0.3	0.4	0.3	0.35	0.25	0.3
Pressure regulation range [bar]	2.5 ... 12						
Pressure indication	Via pressure gauge						
Max. condensate volume [cm <sup>3</sup> ]	22		43			80 <sup>1)</sup>	
Input pressure [bar]							
Condensate drain	turned manually	3 ... 16					
	fully automatic	3 ... 12					

1) The max. condensate volume for the FRC...-DI-MAXI-KF is 43 cm<sup>3</sup>.  
 - - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

# Service unit combinations FRC-KF, D series, metal design

Technical data


Standard nominal flow rate <sup>1)</sup> qnN [l/min]					
Connection	G <sup>1</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>2</sub>	G <sup>3</sup> / <sub>4</sub>
<b>Mini</b>					
FRC-...-D-...	530	620	-	-	-
<b>Midi</b>					
FRC-...-D-...	-	1060	1150	1220	-
<b>Maxi</b>					
FRC-...-D-...	-	-	-	3400	3700
<b>Maxi – Directly actuated pressure regulator with integrated return flow function</b>					
FRC-...-D-DI-...	-	-	-	5000	6000

1) Measured at p<sub>1</sub> = 10 bar, p<sub>2</sub> = 6 bar and Δp = 1 bar.

Ambient conditions		Mini	Midi	Maxi
Size				
Ambient temperature	[°C]	-10 ... +60		
Temperature of medium	[°C]	-10 ... +60		
Corrosion resistance class	CRC <sup>1)</sup>	2		

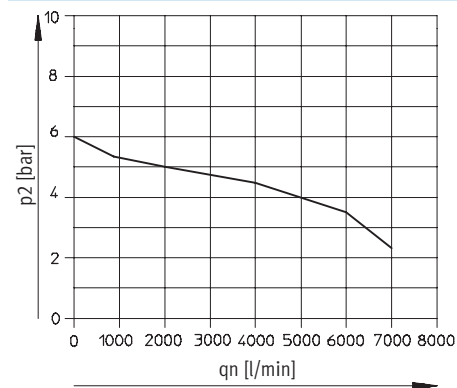
1) Corrosion resistance class 2 according to Festo standard 940 070  
 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating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

Weight [g]				
Size	Mini	Midi	Maxi	
			D	D-DI
FRC	1800	4000	6300	6500

-  - Note  
 Materials → Technical data of the individual devices

## Standard flow rate qn as a function of the output pressure p<sub>2</sub>

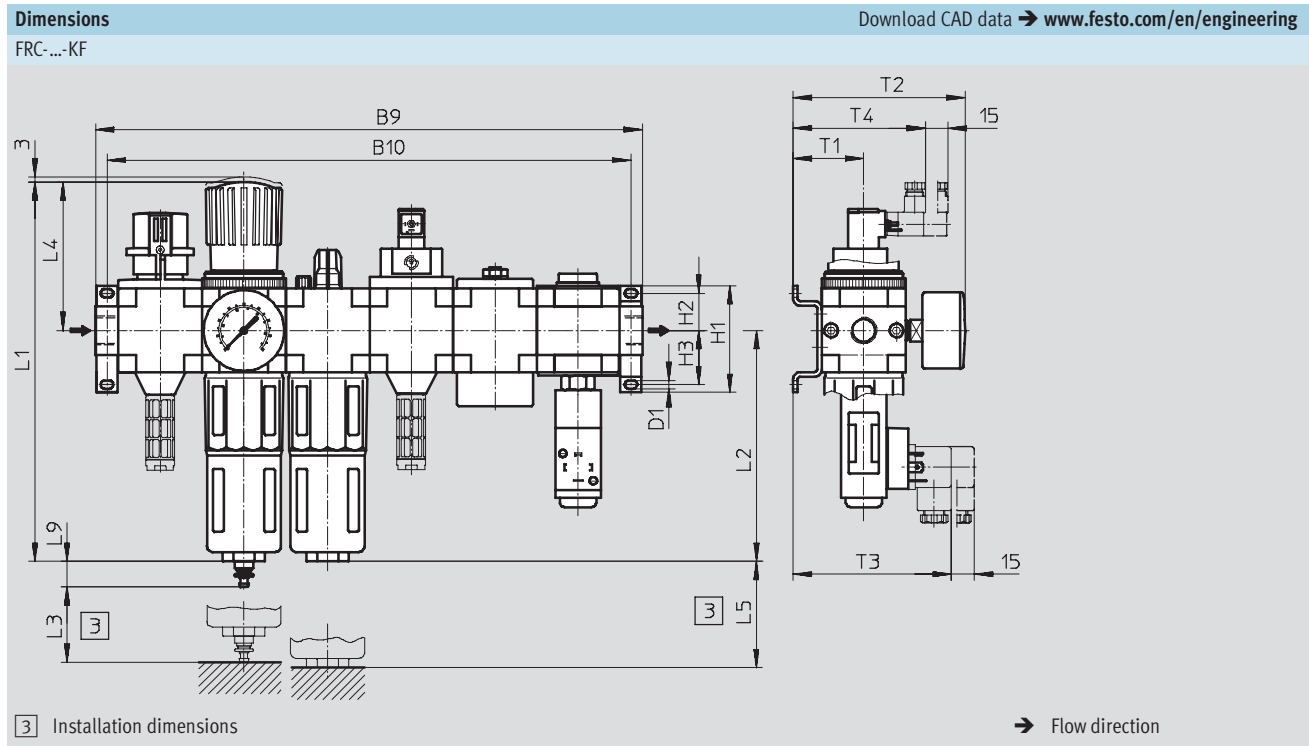
FRC-<sup>1</sup>/<sub>2</sub>-D-DI-MAXI-KF(-A)



Primary pressure p<sub>1</sub> = 10 bar

# Service unit combinations FRC-KF, D series, metal design

Technical data



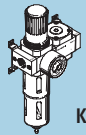
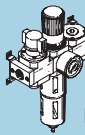
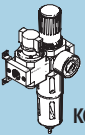
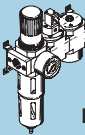
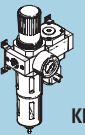
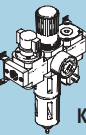
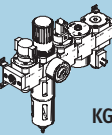
Type	B9	B10	D1	H1	H2	H3	L1	L2	L3	L4	L5	L9	T1	T2	T3	T4
<b>Mini</b>																
FRC-...-D-MINI-KF (-A)	264	252	4.3	43	17.5	17.5	193	124	60	68	100	19	39	95	97	78
<b>Midi</b>																
FRC-...-D-MIDI-KF (-A)	360	344	5.3	70	24.5	35.5	250	152	80	99	120	19	47	114	105	86
<b>Maxi</b>																
FRC-...-D-MAXI-KF (-A)	426	410	5.3	70	24.5	35.5	252	171	90	82	150	19	53	126	111	92
FRC-...-D-DI-MAXI-KF (-A)							275			105						

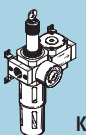
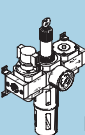
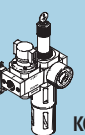
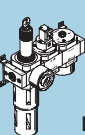
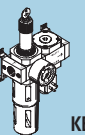
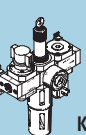
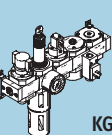
<b>Ordering data</b>					
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
Mini	G1/8	185 839	FRC-1/8-D-MINI-KF	185 840	FRC-1/8-D-MINI-KF-A
	G1/4	185 841	FRC-1/4-D-MINI-KF	185 842	FRC-1/4-D-MINI-KF-A
Midi	G1/4	185 843	FRC-1/4-D-MIDI-KF	185 844	FRC-1/4-D-MIDI-KF-A
	G3/8	185 845	FRC-3/8-D-MIDI-KF	185 846	FRC-3/8-D-MIDI-KF-A
	G1/2	185 847	FRC-1/2-D-MIDI-KF	185 848	FRC-1/2-D-MIDI-KF-A
Maxi	G1/2	186 061	FRC-1/2-D-MAXI-KF	186 062	FRC-1/2-D-MAXI-KF-A
	G3/4	185 849	FRC-3/4-D-MAXI-KF	185 850	FRC-3/4-D-MAXI-KF-A
<b>Directly actuated pressure regulator with integrated return flow function</b>					
Maxi	G1/2	192 472	FRC-1/2-D-DI-MAXI-KF	192 482	FRC-1/2-D-DI-MAXI-KF-A
	G3/4	192 477	FRC-3/4-D-DI-MAXI-KF	192 487	FRC-3/4-D-DI-MAXI-KF-A

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

# Service unit combinations LFR-K/LFRS-K, D series, metal design

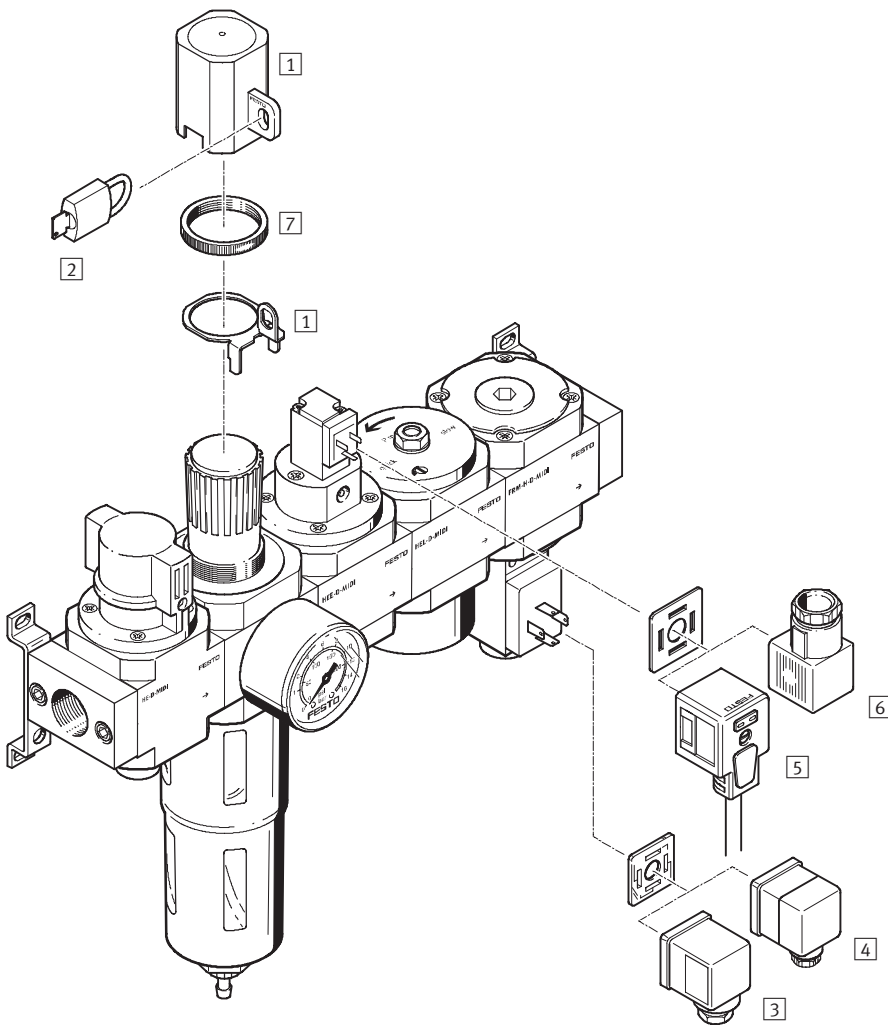
Product range overview

LFR Rotary knob with detent	 KA	 KB	 KC	 KD	 KE	 KF	 KG
<b>Individual devices</b>							
On-off valve, manual	-	■	■	-	-	■	■
Filter regulator with pressure gauge	■	■	■	■	■	■	■
Branching module	■	■	-	-	-	-	-
On-off valve with solenoid coil 24 V DC	-	-	-	■	-	-	■
Soft-start valve	-	-	-	■	-	-	■
Branching module with pressure switch	-	-	-	-	■	■	■
Mounting bracket	■	■	■	■	■	■	■
→ Page	47	51	55	59	63	67	71

LFRS Rotary knob with integrated lock	 KA	 KB	 KC	 KD	 KE	 KF	 KG
<b>Individual devices</b>							
On-off valve, manual	-	■	■	-	-	■	■
Filter regulator with pressure gauge	■	■	■	■	■	■	■
Branching module	■	■	-	-	-	-	-
On-off valve with solenoid coil 24 V DC	-	-	-	■	-	-	■
Soft-start valve	-	-	-	■	-	-	■
Branching module with pressure switch	-	-	-	-	■	■	■
Mounting bracket	■	■	■	■	■	■	■
→ Page	47	51	55	59	63	67	71

# Service unit combinations LFR-K/LFRS-K, D series, metal design

Peripherals overview



**Note**

The choice of accessories depends on the selected service unit combination. The example shows the service unit combination LFR-KG. This combination can also be obtained with a lockable rotary regulator as service unit combination LFRS-KG.

Range of accessories  
 → Peripherals pages of the individual devices

Mounting attachments and accessories		→ Page
1	Regulator lock LRVS	203
2	Padlock LRVS	203
3	Plug socket MSSD-C	208
4	Angled plug socket PEV...-WD-LED	208
5	Plug socket with cable KMEB-1	209
6	Plug socket MSSD-EB	209
7	Knurled nut (included in scope of delivery) HMR	-

# Service unit combinations LFR-K/LFRS-K, D series, metal design

Type codes

LFR – 1/2 – D – DI – MAXI – KA – A

### Basic function

LFR	Service unit combination
LFRS	Service unit combination, lockable

### Pneumatic connection

1/8	Thread G1/8
1/4	Thread G1/4
3/8	Thread G3/8
1/2	Thread G1/2
3/4	Thread G3/4

### Series

D	Series
---	--------

### Function (LFR and MAXI size only)

DI	Directly actuated pressure regulator with integrated return flow function
----	---

### Size

MINI	Grid dimension for individual device 40 mm (without connecting plates)
MIDI	Grid dimension for individual device 55 mm (without connecting plates)
MAXI	Grid dimension for individual device 66 mm (without connecting plates)

### Options for service unit combinations

KA	Filter regulator, branching module
KB	On-off valve, filter regulator, branching module
KC	On-off valve, filter regulator
KD	Filter regulator, on-off valve with solenoid coil 24 V DC, soft-start valve
KE	Filter regulator, branching module with pressure switch
KF	On-off valve, filter regulator, branching module with pressure switch
KG	On-off valve, filter regulator, on-off valve with solenoid coil 24 V DC, soft-start valve, branching module with pressure switch

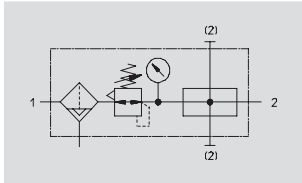
### Condensate drain

	Turned manually
A	Fully automatic

# Service unit combinations LFR-KA/LFRS-KA, D series, metal design

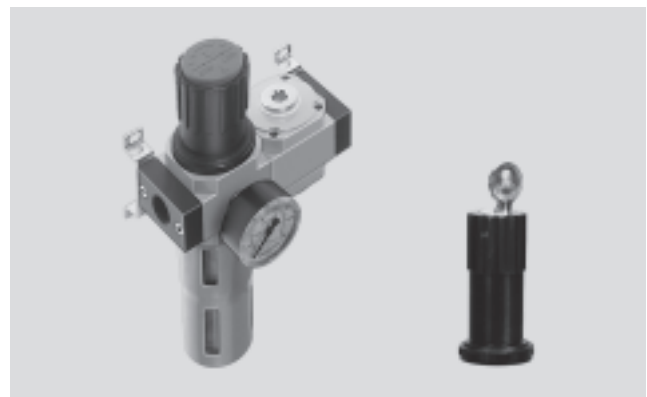
Technical data

Function



- Flow rate  
720 ... 9400 l/min
- Temperature range  
-10 ... +60 °C
- Input pressure  
1 ... 16 bar

- Filter regulator LFR/LFRS
  - grade of filtration 40 µm
  - metal bowl guard
  - condensate drain, turned manually or fully automatic
  - rotary knob with detent or lockable rotary knob
  - pressure gauge
- Branching module FRM
- Mounting accessories



- For unlubricated compressed air supply
- Three branch connections are available

General technical data							
Size	Mini		Midi			Maxi	
Pneumatic connection	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>2</sub>	G <sup>1</sup> / <sub>2</sub>	G <sup>3</sup> / <sub>4</sub>
Operating medium	Compressed air						
Type of mounting	Via accessories						
	In-line installation						
Assembly position	Vertical ±5°						
Grade of filtration [µm]	40						
Max. hysteresis [bar]	0.15	0.15	0.25	0.2	0.2	0.2	0.3
Pressure regulation range [bar]	0.5 ... 12						
Pressure indication	Via pressure gauge						
Max. condensate volume [cm <sup>3</sup> ]	22		43			80 <sup>1)</sup>	
Input pressure [bar]							
Condensate drain	turned manually	1 ... 16					
	fully automatic	2 ... 12					

1) The max. condensate volume for the LFR...DI-MAXI-KA is 43 cm<sup>3</sup>.  
 - - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

# Service unit combinations LFR-KA/LFRS-KA, D series, metal design

Technical data


Standard nominal flow rate <sup>1)</sup> qnN [l/min]					
Connection	G <sup>1</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>2</sub>	G <sup>3</sup> / <sub>4</sub>
<b>Mini</b>					
LFR/LFRS-...-D-...	720	1140	-	-	-
<b>Midi</b>					
LFR/LFRS-...-D-...	-	1850	2620	3050	-
<b>Maxi</b>					
LFR/LFRS-...-D-...	-	-	-	9200	9400
<b>Maxi – Directly actuated pressure regulator with integrated return flow function</b>					
LFR-...-D-...	-	-	-	5200	5800

1) Measured at p<sub>1</sub> = 10 bar, p<sub>2</sub> = 6 bar and Δp = 1 bar.

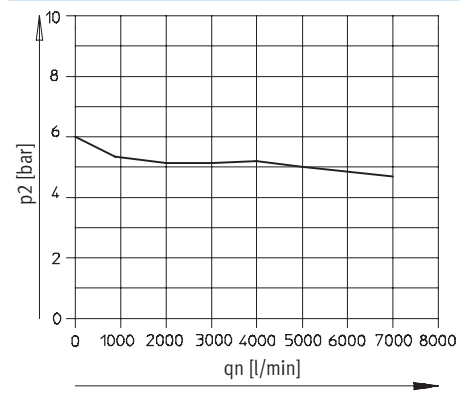
Ambient conditions		Mini	Midi	Maxi
Size				
Ambient temperature	[°C]	-10 ... +60		
Temperature of medium	[°C]	-10 ... +60		
Corrosion resistance class	CRC <sup>1)</sup>	2		

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.

Weight [g]				
Size	Mini	Midi	Maxi	
			D	D-DI
LFR	800	1800	2400	2600
LFRS	900	2040	2500	-

-  - Note  
 Materials → Technical data of the individual devices

## Standard flow rate qn as a function of the output pressure p2 LFR-1/2-D-DI-MAXI-KA(-A)



Primary pressure p<sub>1</sub> = 10 bar





## Service unit combinations LFR-KA/LFRS-KA, D series, metal design

FESTO

Technical data

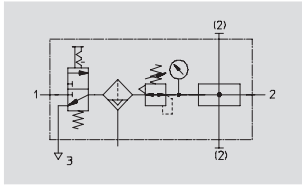
Ordering data					
Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, mounting bracket and metal bowl guard					
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
Filter regulator, branching module					
Mini	G $\frac{1}{8}$	185 707	LFR- $\frac{1}{8}$ -D-MINI-KA	185 708	LFR- $\frac{1}{8}$ -D-MINI-KA-A
	G $\frac{1}{4}$	185 709	LFR- $\frac{1}{4}$ -D-MINI-KA	185 710	LFR- $\frac{1}{4}$ -D-MINI-KA-A
Midi	G $\frac{1}{4}$	185 711	LFR- $\frac{1}{4}$ -D-MIDI-KA	185 712	LFR- $\frac{1}{4}$ -D-MIDI-KA-A
	G $\frac{3}{8}$	185 713	LFR- $\frac{3}{8}$ -D-MIDI-KA	185 714	LFR- $\frac{3}{8}$ -D-MIDI-KA-A
	G $\frac{1}{2}$	185 715	LFR- $\frac{1}{2}$ -D-MIDI-KA	185 716	LFR- $\frac{1}{2}$ -D-MIDI-KA-A
Maxi	G $\frac{1}{2}$	186 039	LFR- $\frac{1}{2}$ -D-MAXI-KA	186 040	LFR- $\frac{1}{2}$ -D-MAXI-KA-A
	G $\frac{3}{4}$	185 717	LFR- $\frac{3}{4}$ -D-MAXI-KA	185 718	LFR- $\frac{3}{4}$ -D-MAXI-KA-A
Directly actuated pressure regulator with integrated return flow function					
Maxi	G $\frac{1}{2}$	192 440	LFR- $\frac{1}{2}$ -D-DI-MAXI-KA	192 454	LFR- $\frac{1}{2}$ -D-DI-MAXI-KA-A
	G $\frac{3}{4}$	192 447	LFR- $\frac{3}{4}$ -D-DI-MAXI-KA	192 461	LFR- $\frac{3}{4}$ -D-DI-MAXI-KA-A

Ordering data					
Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, mounting bracket and metal bowl guard, lockable					
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
Filter regulator, branching module					
Mini	G $\frac{1}{8}$	195 008	LFRS- $\frac{1}{8}$ -D-MINI-KA	195 009	LFRS- $\frac{1}{8}$ -D-MINI-KA-A
	G $\frac{1}{4}$	195 022	LFRS- $\frac{1}{4}$ -D-MINI-KA	195 023	LFRS- $\frac{1}{4}$ -D-MINI-KA-A
Midi	G $\frac{1}{4}$	195 036	LFRS- $\frac{1}{4}$ -D-MIDI-KA	195 037	LFRS- $\frac{1}{4}$ -D-MIDI-KA-A
	G $\frac{3}{8}$	195 050	LFRS- $\frac{3}{8}$ -D-MIDI-KA	195 051	LFRS- $\frac{3}{8}$ -D-MIDI-KA-A
	G $\frac{1}{2}$	195 064	LFRS- $\frac{1}{2}$ -D-MIDI-KA	195 065	LFRS- $\frac{1}{2}$ -D-MIDI-KA-A
Maxi	G $\frac{1}{2}$	195 078	LFRS- $\frac{1}{2}$ -D-MAXI-KA	195 079	LFRS- $\frac{1}{2}$ -D-MAXI-KA-A
	G $\frac{3}{4}$	195 092	LFRS- $\frac{3}{4}$ -D-MAXI-KA	195 093	LFRS- $\frac{3}{4}$ -D-MAXI-KA-A

# Service unit combinations LFR-KB/LFRS-KB, D series, metal design

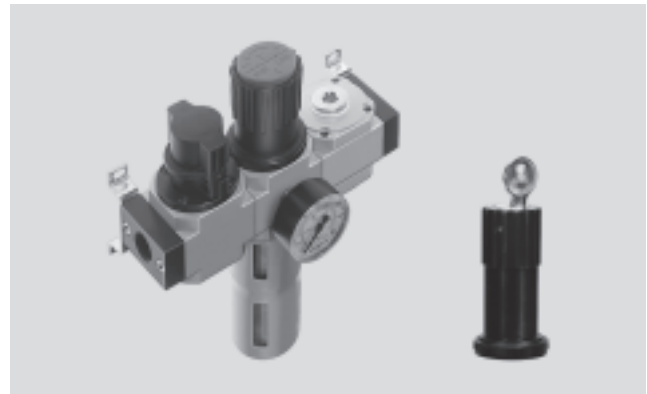
Technical data

Function



- - Flow rate  
700 ... 8400 l/min
- - Temperature range  
-10 ... +60 °C
- - Input pressure  
1 ... 16 bar

- On-off valve HE
  - manually actuated
- Filter regulator LFR/LFRS
  - grade of filtration 40 µm
  - metal bowl guard
  - condensate drain, turned manually or fully automatic
  - rotary knob with detent or lockable rotary knob
  - pressure gauge
- Branching module FRM
- Mounting accessories



- For unlubricated compressed air supply
- Supply pressure can be opened and closed
- Three branch connections are available
- To ensure safe venting of the system, an additional quick exhaust valve is necessary at the output of the service unit combination

General technical data							
Size	Mini		Midi			Maxi	
Pneumatic connection	G1/8	G1/4	G1/4	G3/8	G1/2	G1/2	G3/4
Operating medium	Compressed air						
Type of mounting	Via accessories						
	In-line installation						
Assembly position	Vertical ±5°						
Grade of filtration [µm]	40						
Max. hysteresis [bar]	0.2	0.2	0.25	0.3	0.25	0.2	0.2
Pressure regulation range [bar]	0.5 ... 12						
Pressure indication	Via pressure gauge						
Max. condensate volume [cm <sup>3</sup> ]	22		43			80 <sup>1)</sup>	
Input pressure [bar]							
Condensate drain	turned manually	1 ... 16					
	fully automatic	2 ... 12					

1) The max. condensate volume for the LFR...-DI-MAXI-KB is 43 cm<sup>3</sup>.  
 - - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

# Service unit combinations LFR-KB/LFRS-KB, D series, metal design

Technical data

Standard nominal flow rate <sup>1)</sup> qnN [l/min]					
Connection	G1/8	G1/4	G3/8	G1/2	G3/4
<b>Mini</b>					
LFR/LFRS-...-D-...	700	1050	-	-	-
<b>Midi</b>					
LFR/LFRS-...-D-...	-	1720	2420	2920	-
<b>Maxi</b>					
LFR/LFRS-...-D-...	-	-	-	8000	8400
<b>Maxi – Directly actuated pressure regulator with integrated return flow function</b>					
LFR-...-D-...	-	-	-	5400	7000


1) Measured at p1 = 10 bar, p2 = 6 bar and Δp = 1 bar.

Ambient conditions		Mini	Midi	Maxi
Size				
Ambient temperature	[°C]	-10 ... +60		
Temperature of medium	[°C]	-10 ... +60		
Corrosion resistance class	CRC <sup>1)</sup>	2		

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

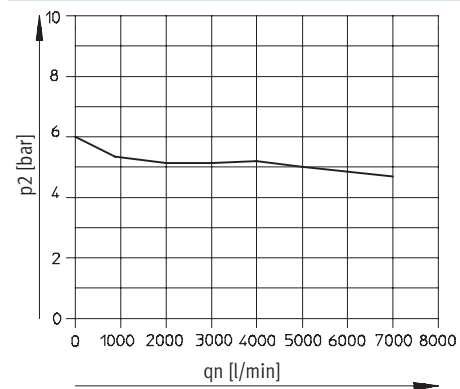
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Weight [g]				
Size	Mini	Midi	Maxi	
			D	D-DI
LFR	1000	2200	3300	3500
LFRS	1100	2440	3400	-

-  - Note  
Materials → Technical data of the individual devices

## Standard flow rate qn as a function of the output pressure p2

LFR-1/2-D-DI-MAXI-KB(-A)



Primary pressure p1 = 10 bar

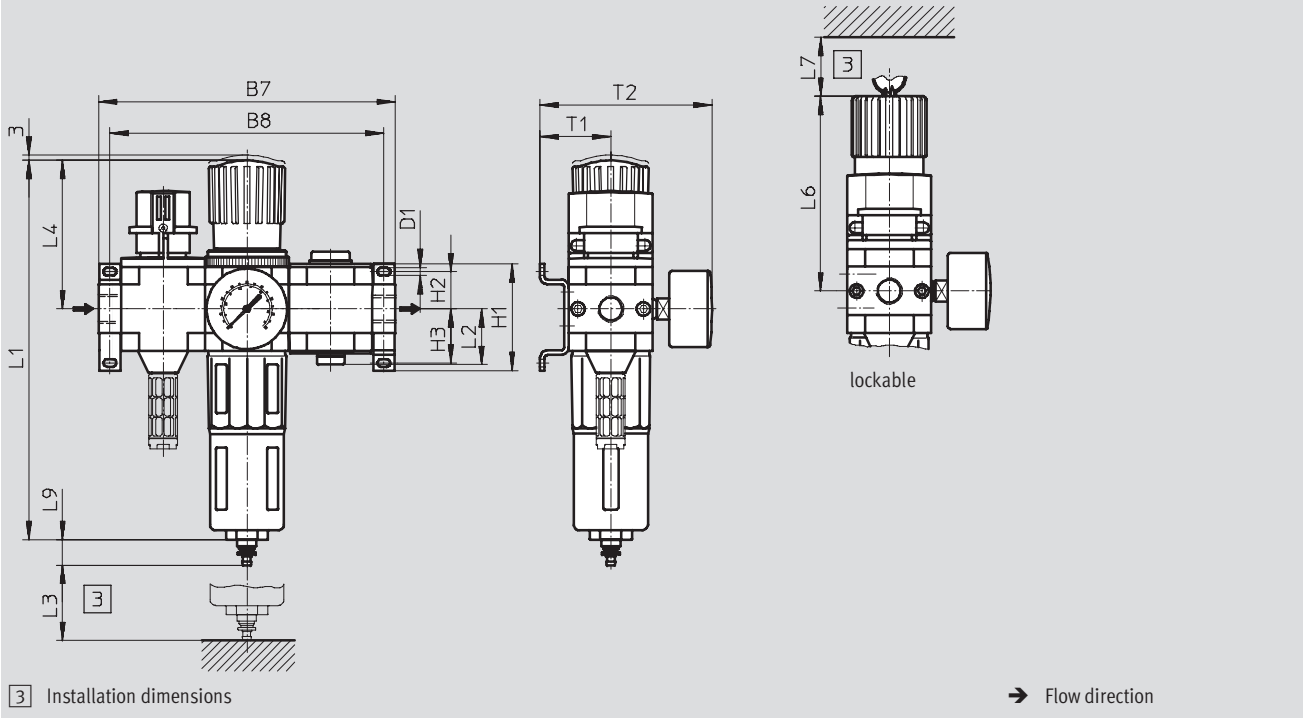
# Service unit combinations LFR-KB/LFRS-KB, D series, metal design

Technical data

**Dimensions**

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

LFR/LFRS-...-KB



3 Installation dimensions

→ Flow direction

Type	B7	B8	D1	H1	H2	H3	L1	L2	L3	L4	L5	L6	L7	L9	T1	T2
<b>Mini</b>																
LFR-...-D-MINI-KB (A)	144	132	4.3	43	17.5	17.5	193	28	60	68	100	98	60	19	39	95
LFRS-...-D-MINI-KB (A)																
<b>Midi</b>																
LFR-...-D-MIDI-KB (A)	195	180	5.3	70	24.5	35.5	250	36.5	80	99	120	130	60	19	47	114
LFRS-...-D-MIDI-KB (A)																
<b>Maxi</b>																
LFR-...-D-MAXI-KB (A)	228	212	5.3	70	24.5	35.5	252	42	90	82	150	111	60	19	53	126
LFRS-...-D-MAXI-KB (A)							275			105		135				
LFR-...-D-DI-MAXI-KB (A)																

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

## Service unit combinations LFR-KB/LFRS-KB, D series, metal design

FESTO

Technical data

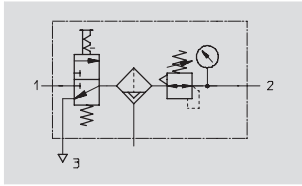
Ordering data					
Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, mounting bracket and metal bowl guard					
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
On-off valve, filter regulator, branching module					
Mini	G $\frac{1}{8}$	185 719	LFR- $\frac{1}{8}$ -D-MINI-KB	185 720	LFR- $\frac{1}{8}$ -D-MINI-KB-A
	G $\frac{1}{4}$	185 721	LFR- $\frac{1}{4}$ -D-MINI-KB	185 722	LFR- $\frac{1}{4}$ -D-MINI-KB-A
Midi	G $\frac{1}{4}$	185 723	LFR- $\frac{1}{4}$ -D-MIDI-KB	185 724	LFR- $\frac{1}{4}$ -D-MIDI-KB-A
	G $\frac{3}{8}$	185 725	LFR- $\frac{3}{8}$ -D-MIDI-KB	185 726	LFR- $\frac{3}{8}$ -D-MIDI-KB-A
	G $\frac{1}{2}$	185 727	LFR- $\frac{1}{2}$ -D-MIDI-KB	185 728	LFR- $\frac{1}{2}$ -D-MIDI-KB-A
Maxi	G $\frac{1}{2}$	186 041	LFR- $\frac{1}{2}$ -D-MAXI-KB	186 042	LFR- $\frac{1}{2}$ -D-MAXI-KB-A
	G $\frac{3}{4}$	185 729	LFR- $\frac{3}{4}$ -D-MAXI-KB	185 730	LFR- $\frac{3}{4}$ -D-MAXI-KB-A
Directly actuated pressure regulator with integrated return flow function					
Maxi	G $\frac{1}{2}$	192 441	LFR- $\frac{1}{2}$ -D-DI-MAXI-KB	192 455	LFR- $\frac{1}{2}$ -D-DI-MAXI-KB-A
	G $\frac{3}{4}$	192 448	LFR- $\frac{3}{4}$ -D-DI-MAXI-KB	192 462	LFR- $\frac{3}{4}$ -D-DI-MAXI-KB-A

Ordering data					
Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, mounting bracket and metal bowl guard, lockable					
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
On-off valve, filter regulator, branching module					
Mini	G $\frac{1}{8}$	195 010	LFRS- $\frac{1}{8}$ -D-MINI-KB	195 011	LFRS- $\frac{1}{8}$ -D-MINI-KB-A
	G $\frac{1}{4}$	195 024	LFRS- $\frac{1}{4}$ -D-MINI-KB	195 025	LFRS- $\frac{1}{4}$ -D-MINI-KB-A
Midi	G $\frac{1}{4}$	195 038	LFRS- $\frac{1}{4}$ -D-MIDI-KB	195 039	LFRS- $\frac{1}{4}$ -D-MIDI-KB-A
	G $\frac{3}{8}$	195 052	LFRS- $\frac{3}{8}$ -D-MIDI-KB	195 053	LFRS- $\frac{3}{8}$ -D-MIDI-KB-A
	G $\frac{1}{2}$	195 066	LFRS- $\frac{1}{2}$ -D-MIDI-KB	195 067	LFRS- $\frac{1}{2}$ -D-MIDI-KB-A
Maxi	G $\frac{1}{2}$	195 080	LFRS- $\frac{1}{2}$ -D-MAXI-KB	195 081	LFRS- $\frac{1}{2}$ -D-MAXI-KB-A
	G $\frac{3}{4}$	195 094	LFRS- $\frac{3}{4}$ -D-MAXI-KB	195 095	LFRS- $\frac{3}{4}$ -D-MAXI-KB-A

# Service unit combinations LFR-KC/LFRS-KC, D series, metal design

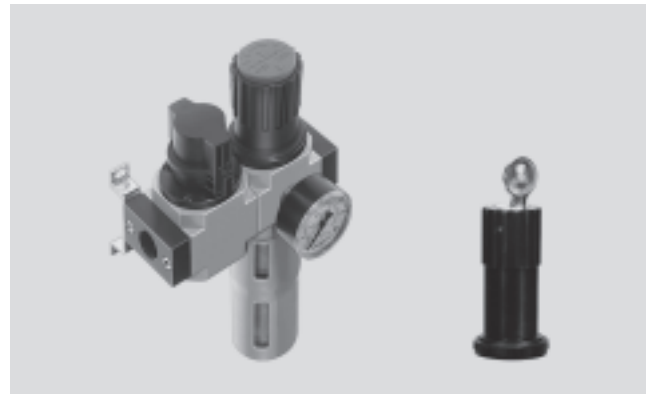
Technical data

Function



- Flow rate  
750 ... 8400 l/min
- Temperature range  
-10 ... +60 °C
- Input pressure  
1 ... 16 bar

- On-off valve HE
  - manually actuated
- Filter regulator LFR/LFRS
  - grade of filtration 40 µm
  - metal bowl guard
  - condensate drain, turned manually or fully automatic
  - rotary knob with detent or lockable rotary knob
  - pressure gauge
- Mounting accessories



- For unlubricated compressed air
- Supply pressure can be opened and closed
- To ensure safe venting of the system, an additional quick exhaust valve is necessary at the output of the service unit combination

General technical data							
Size	Mini		Midi			Maxi	
Pneumatic connection	G1/8	G1/4	G1/4	G3/8	G1/2	G1/2	G3/4
Operating medium	Compressed air						
Type of mounting	Via accessories						
	In-line installation						
Assembly position	Vertical ±5°						
Grade of filtration [µm]	40						
Max. hysteresis [bar]	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Pressure regulation range [bar]	0.5 ... 12						
Pressure indication	Via pressure gauge						
Max. condensate volume [cm <sup>3</sup> ]	22		43			80 <sup>1)</sup>	
Input pressure [bar]							
Condensate drain	turned manually	1 ... 16					
	fully automatic	2 ... 12					

1) The max. condensate volume for the LFR...-DI-MAXI-KC is 43 cm<sup>3</sup>.  
 - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

# Service unit combinations LFR-KC/LFRS-KC, D series, metal design

Technical data


Standard nominal flow rate <sup>1)</sup> qnN [l/min]					
Connection	G1/8	G1/4	G3/8	G1/2	G3/4
<b>Mini</b>					
LFR/LFRS-...-D-...	750	1150	-	-	-
<b>Midi</b>					
LFR/LFRS-...-D-...	-	1900	2700	3150	-
<b>Maxi</b>					
LFR/LFRS-...-D-...	-	-	-	8100	8400
<b>Maxi – Directly actuated pressure regulator with integrated return flow function</b>					
LFR-...-D-...	-	-	-	4800	5400

1) Measured at p1 = 10 bar, p2 = 6 bar and Δp = 1 bar.

Ambient conditions		Mini	Midi	Maxi
Size				
Ambient temperature	[°C]	-10 ... +60		
Temperature of medium	[°C]	-10 ... +60		
Corrosion resistance class	CRC <sup>1)</sup>	2		

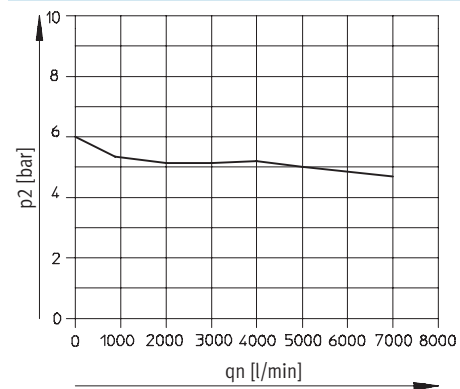
1) Corrosion resistance class 2 according to Festo standard 940 070  
 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating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

Weight [g]				
Size	Mini	Midi	Maxi	
			D	D-DI
LFR	700	1600	2300	2600
LFRS	1000	1840	2400	-

-  - Note  
 Materials → Technical data of the individual devices

## Standard flow rate qn as a function of the output pressure p2

LFR-1/2-D-DI-MAXI-KC(-A)



Primary pressure p1 = 10 bar



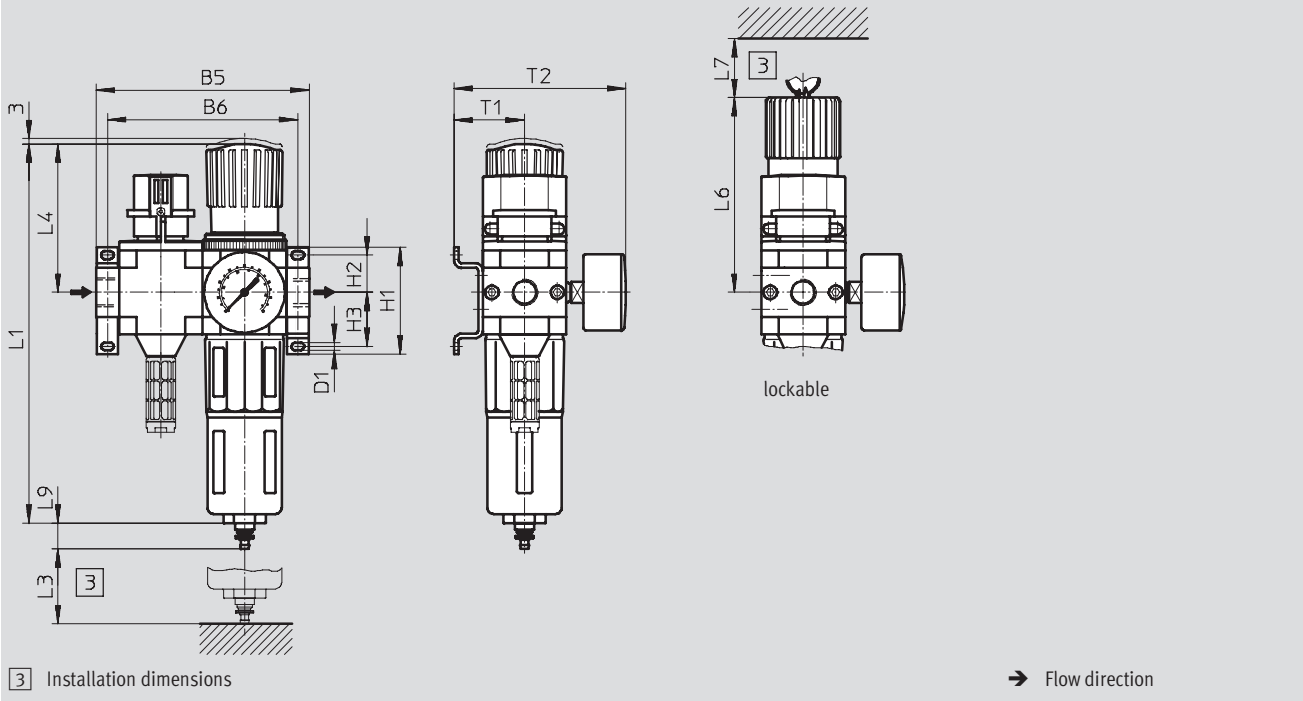
# Service unit combinations LFR-KC/LFRS-KC, D series, metal design

Technical data

**Dimensions**

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LFR/LFRS-...-KC



Type	B5	B6	D1	H1	H2	H3	L1	L3	L4	L5	L6	L7	L9	T1	T2
<b>Mini</b>															
LFR-...-D-MINI-KC (A)	104	92	4.3	43	17.5	17.5	193	60	68	100	98	60	19	39	95
LFRS-...-D-MINI-KC (A)															
<b>Midi</b>															
LFR-...-D-MIDI-KC (A)	140	125	5.3	70	24.5	35.5	250	80	99	120	130	60	19	47	114
LFRS-...-D-MIDI-KC (A)															
<b>Maxi</b>															
LFR-...-D-MAXI-KC (A)	162	146	5.3	70	24.5	35.5	252	90	82	150	111	60	19	53	126
LFRS-...-D-MAXI-KC (A)							275		105		135				
LFR-...-D-DI-MAXI-KC (A)															

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

## Service unit combinations LFR-KC/LFRS-KC, D series, metal design

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Technical data

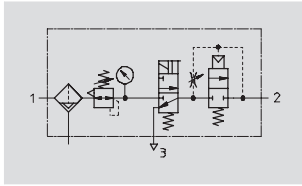
Ordering data					
Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, mounting bracket and metal bowl guard					
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
On-off valve, filter regulator					
Mini	G $\frac{1}{8}$	185 731	LFR- $\frac{1}{8}$ -D-MINI-KC	185 732	LFR- $\frac{1}{8}$ -D-MINI-KC-A
	G $\frac{1}{4}$	185 733	LFR- $\frac{1}{4}$ -D-MINI-KC	185 734	LFR- $\frac{1}{4}$ -D-MINI-KC-A
Midi	G $\frac{1}{4}$	185 735	LFR- $\frac{1}{4}$ -D-MIDI-KC	185 736	LFR- $\frac{1}{4}$ -D-MIDI-KC-A
	G $\frac{3}{8}$	185 737	LFR- $\frac{3}{8}$ -D-MIDI-KC	185 738	LFR- $\frac{3}{8}$ -D-MIDI-KC-A
	G $\frac{1}{2}$	185 739	LFR- $\frac{1}{2}$ -D-MIDI-KC	185 740	LFR- $\frac{1}{2}$ -D-MIDI-KC-A
Maxi	G $\frac{1}{2}$	186 043	LFR- $\frac{1}{2}$ -D-MAXI-KC	186 044	LFR- $\frac{1}{2}$ -D-MAXI-KC-A
	G $\frac{3}{4}$	185 741	LFR- $\frac{3}{4}$ -D-MAXI-KC	185 742	LFR- $\frac{3}{4}$ -D-MAXI-KC-A
Directly actuated pressure regulator with integrated return flow function					
Maxi	G $\frac{1}{2}$	192 442	LFR- $\frac{1}{2}$ -D-DI-MAXI-KC	192 456	LFR- $\frac{1}{2}$ -D-DI-MAXI-KC-A
	G $\frac{3}{4}$	192 449	LFR- $\frac{3}{4}$ -D-DI-MAXI-KC	192 463	LFR- $\frac{3}{4}$ -D-DI-MAXI-KC-A

Ordering data					
Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, mounting bracket and metal bowl guard, lockable					
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
On-off valve, filter regulator					
Mini	G $\frac{1}{8}$	195 012	LFRS- $\frac{1}{8}$ -D-MINI-KC	195 013	LFRS- $\frac{1}{8}$ -D-MINI-KC-A
	G $\frac{1}{4}$	195 026	LFRS- $\frac{1}{4}$ -D-MINI-KC	195 027	LFRS- $\frac{1}{4}$ -D-MINI-KC-A
Midi	G $\frac{1}{4}$	195 040	LFRS- $\frac{1}{4}$ -D-MIDI-KC	195 041	LFRS- $\frac{1}{4}$ -D-MIDI-KC-A
	G $\frac{3}{8}$	195 054	LFRS- $\frac{3}{8}$ -D-MIDI-KC	195 055	LFRS- $\frac{3}{8}$ -D-MIDI-KC-A
	G $\frac{1}{2}$	195 068	LFRS- $\frac{1}{2}$ -D-MIDI-KC	195 069	LFRS- $\frac{1}{2}$ -D-MIDI-KC-A
Maxi	G $\frac{1}{2}$	195 082	LFRS- $\frac{1}{2}$ -D-MAXI-KC	195 083	LFRS- $\frac{1}{2}$ -D-MAXI-KC-A
	G $\frac{3}{4}$	195 096	LFRS- $\frac{3}{4}$ -D-MAXI-KC	195 097	LFRS- $\frac{3}{4}$ -D-MAXI-KC-A

# Service unit combinations LFR-KD/LFRS-KD, D series, metal design

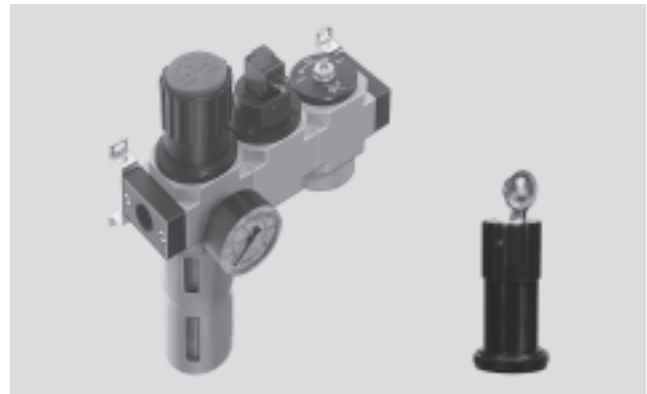
Technical data

Function



- Flow rate  
595 ... 5000 l/min
- Temperature range  
-10 ... +60 °C
- Input pressure  
3 ... 16 bar

- Filter regulator LFR/LFRS
  - grade of filtration 40 µm
  - metal bowl guard
  - condensate drain, turned manually or fully automatic
  - rotary knob with detent or lockable rotary knob
  - pressure gauge
- On-off valve HEE
  - solenoid actuated
  - 24 V DC
- Soft-start valve HEL
  - pneumatically actuated
- Mounting accessories



- For unlubricated compressed air
- When supply pressure is closed, quick venting ensures rapid pressure reduction
- Gradual pressure build-up prevents sudden, unpredictable movements

General technical data							
Size	Mini		Midi			Maxi	
Pneumatic connection	G1/8	G1/4	G1/4	G3/8	G1/2	G1/2	G3/4
Operating medium	Compressed air						
Type of mounting	Via accessories						
	In-line installation						
Assembly position	Vertical ±5°						
Grade of filtration [µm]	40						
Max. hysteresis [bar]	0.15	0.15	0.25	0.25	0.25	0.3	0.2
Pressure regulation range [bar]	2.5 ... 12						
Pressure indication	Via pressure gauge						
Max. condensate volume [cm <sup>3</sup> ]	22		43			80 <sup>1)</sup>	
Input pressure [bar]							
Condensate drain	turned manually	3 ... 16					
	fully automatic	3 ... 12					

1) The max. condensate volume for the LFR...DI-MAXI-KD is 43 cm<sup>3</sup>.  
 - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

# Service unit combinations LFR-KD/LFRS-KD, D series, metal design

Technical data

Standard nominal flow rate <sup>1)</sup> qnN [l/min]					
Connection	G <sup>1</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>2</sub>	G <sup>3</sup> / <sub>4</sub>
<b>Mini</b>					
LFR/LFRS-...-D-...	595	730	-	-	-
<b>Midi</b>					
LFR/LFRS-...-D-...	-	1440	1890	2000	-
<b>Maxi</b>					
LFR/LFRS-...-D-...	-	-	-	4300	5000
<b>Maxi – Directly actuated pressure regulator with integrated return flow function</b>					
LFR-...-D-...	-	-	-	3000	2800


1) Measured at p<sub>1</sub> = 10 bar, p<sub>2</sub> = 6 bar and Δp = 1 bar.

Ambient conditions		Mini	Midi	Maxi
Size				
Ambient temperature	[°C]	-10 ... +60		
Temperature of medium	[°C]	-10 ... +60		
Corrosion resistance class	CRC <sup>1)</sup>	2		

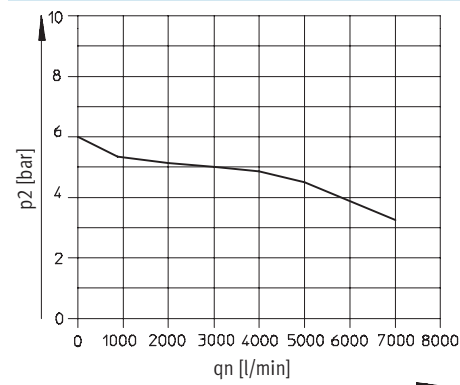
1) Corrosion resistance class 2 according to Festo standard 940 070

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.

Weight [g]				
Size	Mini	Midi	Maxi	
			D	D-DI
LFR	900	2100	3100	3300
LFRS	1000	2340	3200	-

-  - Note  
Materials → Technical data of the individual devices

## Standard flow rate qn as a function of the output pressure p<sub>2</sub> LFR-1/2-D-DI-MAXI-KD(-A)



Primary pressure p<sub>1</sub> = 10 bar

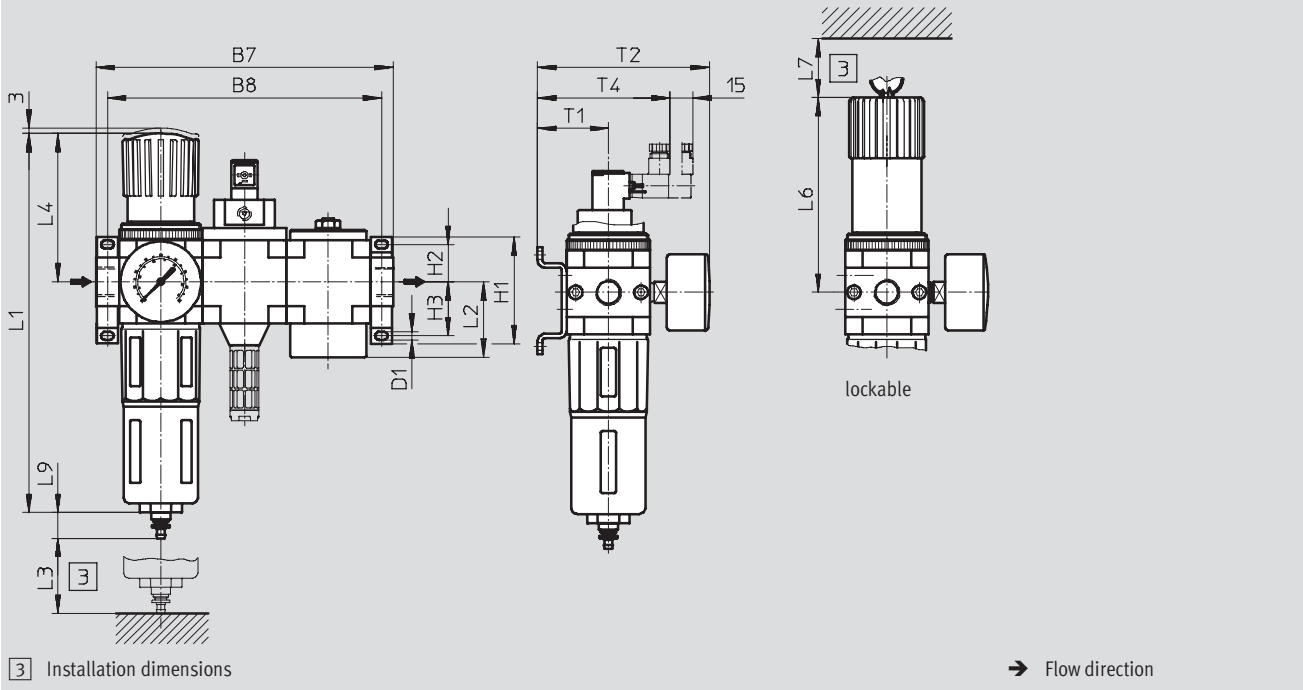
# Service unit combinations LFR-KD/LFRS-KD, D series, metal design

Technical data

**Dimensions**

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

LFR/LFRS-...-KD



Type	B7	B8	D1	H1	H2	H3	L1	L2	L3	L4	L5	L6	L7	L9	T1	T2	T4
<b>Mini</b>																	
LFR-...-D-MINI-KD (A)	144	132	4.3	43	17.5	17.5	193	36	60	68	100	98	60	19	39	95	78
LFRS-...-D-MINI-KD (A)																	
<b>Midi</b>																	
LFR-...-D-MIDI-KD (A)	195	180	5.3	70	24.5	35.5	250	49.5	80	99	120	130	60	19	47	114	86
LFRS-...-D-MIDI-KD (A)																	
<b>Maxi</b>																	
LFR-...-D-MAXI-KD (A)	228	212	5.3	70	24.5	35.5	252	56.4	90	82	150	111	60	19	53	126	92
LFRS-...-D-MAXI-KD (A)							275			105		135					
LFR-...-D-DI-MAXI-KD (A)																	

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

## Service unit combinations LFR-KD/LFRS-KD, D series, metal design

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Technical data

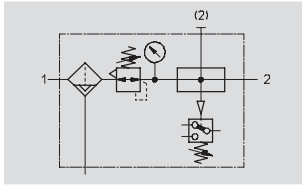
Ordering data					
Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, mounting bracket and metal bowl guard					
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
Filter regulator, on-off valve with solenoid coil 24 V DC, soft-start valve					
Mini	G $\frac{1}{8}$	185 743	LFR- $\frac{1}{8}$ -D-MINI-KD	185 744	LFR- $\frac{1}{8}$ -D-MINI-KD-A
	G $\frac{1}{4}$	185 745	LFR- $\frac{1}{4}$ -D-MINI-KD	185 746	LFR- $\frac{1}{4}$ -D-MINI-KD-A
Midi	G $\frac{1}{4}$	185 747	LFR- $\frac{1}{4}$ -D-MIDI-KD	185 748	LFR- $\frac{1}{4}$ -D-MIDI-KD-A
	G $\frac{3}{8}$	185 749	LFR- $\frac{3}{8}$ -D-MIDI-KD	185 750	LFR- $\frac{3}{8}$ -D-MIDI-KD-A
	G $\frac{1}{2}$	185 751	LFR- $\frac{1}{2}$ -D-MIDI-KD	185 752	LFR- $\frac{1}{2}$ -D-MIDI-KD-A
Maxi	G $\frac{1}{2}$	186 045	LFR- $\frac{1}{2}$ -D-MAXI-KD	186 046	LFR- $\frac{1}{2}$ -D-MAXI-KD-A
	G $\frac{3}{4}$	185 753	LFR- $\frac{3}{4}$ -D-MAXI-KD	185 754	LFR- $\frac{3}{4}$ -D-MAXI-KD-A
Directly actuated pressure regulator with integrated return flow function					
Maxi	G $\frac{1}{2}$	192 443	LFR- $\frac{1}{2}$ -D-DI-MAXI-KD	192 457	LFR- $\frac{1}{2}$ -D-DI-MAXI-KD-A
	G $\frac{3}{4}$	192 450	LFR- $\frac{3}{4}$ -D-DI-MAXI-KD	192 464	LFR- $\frac{3}{4}$ -D-DI-MAXI-KD-A

Ordering data					
Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, mounting bracket and metal bowl guard, lockable					
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
Filter regulator, on-off valve with solenoid coil 24 V DC, soft-start valve					
Mini	G $\frac{1}{8}$	195 014	LFRS- $\frac{1}{8}$ -D-MINI-KD	195 015	LFRS- $\frac{1}{8}$ -D-MINI-KD-A
	G $\frac{1}{4}$	195 028	LFRS- $\frac{1}{4}$ -D-MINI-KD	195 029	LFRS- $\frac{1}{4}$ -D-MINI-KD-A
Midi	G $\frac{1}{4}$	195 042	LFRS- $\frac{1}{4}$ -D-MIDI-KD	195 043	LFRS- $\frac{1}{4}$ -D-MIDI-KD-A
	G $\frac{3}{8}$	195 056	LFRS- $\frac{3}{8}$ -D-MIDI-KD	195 057	LFRS- $\frac{3}{8}$ -D-MIDI-KD-A
	G $\frac{1}{2}$	195 070	LFRS- $\frac{1}{2}$ -D-MIDI-KD	195 071	LFRS- $\frac{1}{2}$ -D-MIDI-KD-A
Maxi	G $\frac{1}{2}$	195 084	LFRS- $\frac{1}{2}$ -D-MAXI-KD	195 085	LFRS- $\frac{1}{2}$ -D-MAXI-KD-A
	G $\frac{3}{4}$	195 098	LFRS- $\frac{3}{4}$ -D-MAXI-KD	195 099	LFRS- $\frac{3}{4}$ -D-MAXI-KD-A

# Service unit combinations LFR-KE/LFRS-KE, D series, metal design

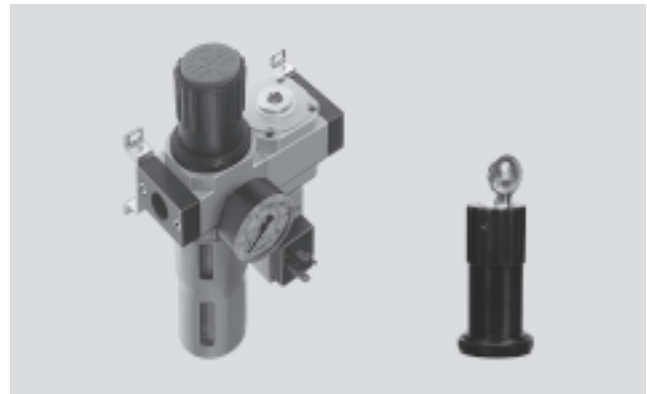
Technical data

Function



- Flow rate  
720 ... 9400 l/min
- Temperature range  
-10 ... +60 °C
- Input pressure  
1 ... 16 bar

- Filter regulator LFR/LFRS
  - grade of filtration 40 µm
  - metal bowl guard
  - condensate drain, turned manually or fully automatic
  - rotary knob with detent or lockable rotary knob
  - pressure gauge
- Branching module FRM
  - pressure switch without display
- Mounting accessories



- For unlubricated compressed air
- Two branch connections are available
- Electrical pressure monitoring with adjustable switching pressure

General technical data							
Size	Mini		Midi			Maxi	
Pneumatic connection	G1/8	G1/4	G1/4	G3/8	G1/2	G1/2	G3/4
Operating medium	Compressed air						
Type of mounting	Via accessories						
	In-line installation						
Assembly position	Vertical ±5°						
Grade of filtration [µm]	40						
Max. hysteresis [bar]	0.15	0.15	0.25	0.2	0.2	0.2	0.3
Pressure regulation range [bar]	0.5 ... 12						
Pressure indication	Via pressure gauge						
Max. condensate volume [cm <sup>3</sup> ]	22		43			80 <sup>1)</sup>	
Input pressure [bar]							
Condensate drain	turned manually	1 ... 16					
	fully automatic	2 ... 12					

1) The max. condensate volume for the LFR...-DI-MAXI-KE is 43 cm<sup>3</sup>.  
 - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

# Service unit combinations LFR-KE/LFRS-KE, D series, metal design

Technical data

Standard nominal flow rate <sup>1)</sup> qnN [l/min]					
Connection	G1/8	G1/4	G3/8	G1/2	G3/4
<b>Mini</b>					
LFR/LFRS-...-D-...	720	1140	-	-	-
<b>Midi</b>					
LFR/LFRS-...-D-...	-	1850	2620	3050	-
<b>Maxi</b>					
LFR/LFRS-...-D-...	-	-	-	9200	9400
<b>Maxi – Directly actuated pressure regulator with integrated return flow function</b>					
LFR-...-D-...	-	-	-	5000	6000


1) Measured at p1 = 10 bar, p2 = 6 bar and Δp = 1 bar.

Ambient conditions		Mini	Midi	Maxi
Size				
Ambient temperature	[°C]	-10 ... +60		
Temperature of medium	[°C]	-10 ... +60		
Corrosion resistance class	CRC <sup>1)</sup>	2		

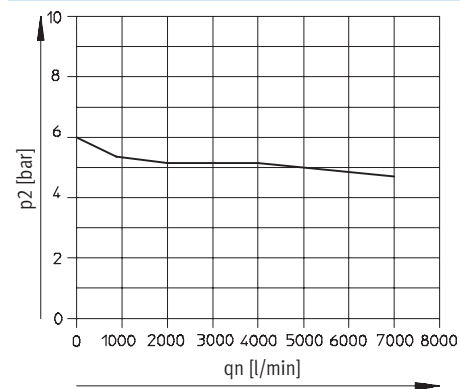
1) Corrosion resistance class 2 according to Festo standard 940 070

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.

Weight [g]				
Size	Mini	Midi	Maxi	
			D	D-DI
LFR	1000	2000	2400	2600
LFRS	1100	2240	2500	-

-  - Note  
 Materials → Technical data of the individual devices

## Standard flow rate qn as a function of the output pressure p2 LFR-1/2-D-DI-MAXI-KE(-A)



Primary pressure p1 = 10 bar



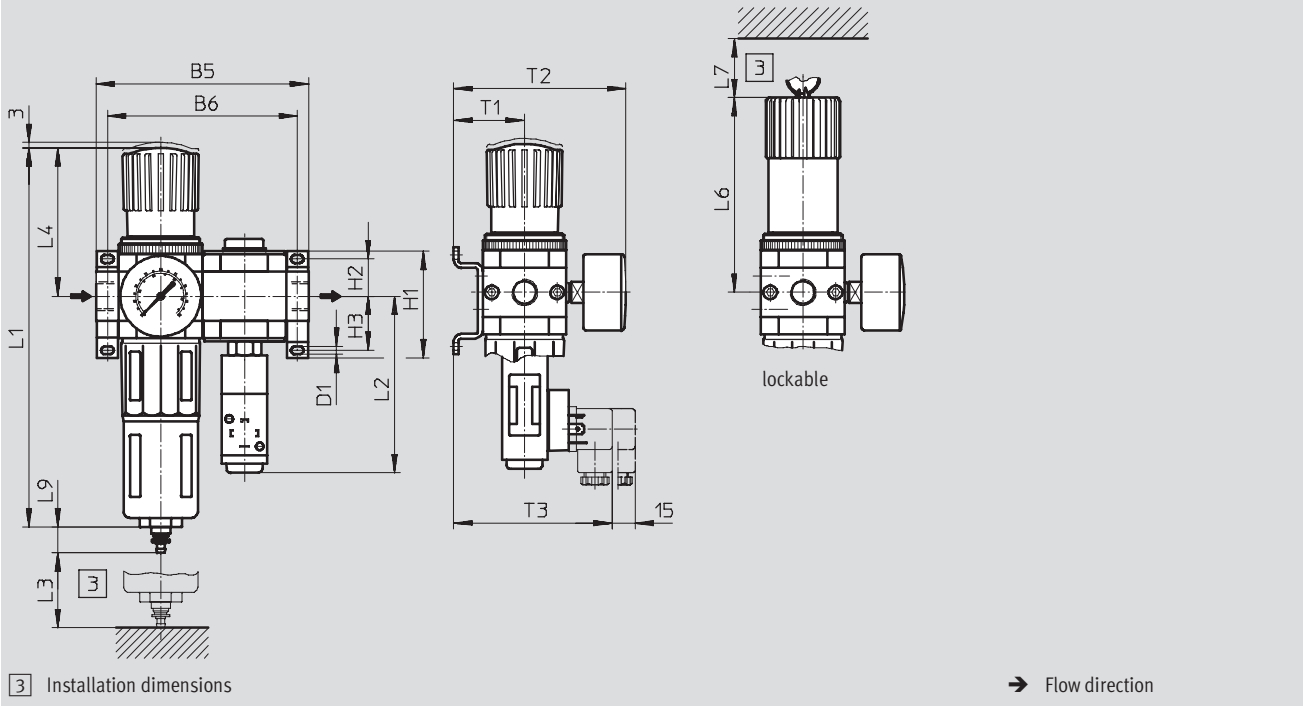
# Service unit combinations LFR-KE/LFRS-KE, D series, metal design

Technical data

**Dimensions**

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

LFR/LFRS-...-KE



Type	B5	B6	D1	H1	H2	H3	L1	L2	L3	L4	L5	L6	L7	L9	T1	T2	T3
<b>Mini</b>																	
LFR-...-D-MINI-KE (A)	104	92	4.3	43	17.5	17.5	193	108	60	68	100	98	60	19	39	95	97
LFRS-...-D-MINI-KE (A)																	
<b>Midi</b>																	
LFR-...-D-MIDI-KE (A)	140	125	5.3	70	24.5	35.5	250	117	80	99	120	130	60	19	47	114	109
LFRS-...-D-MIDI-KE (A)																	
<b>Maxi</b>																	
LFR-...-D-MAXI-KE (A)	162	146	5.3	70	24.5	35.5	252	122	90	82	150	111	60	19	53	126	111
LFRS-...-D-MAXI-KE (A)							275			105		135					
LFR-...-D-DI-MAXI-KE (A)																	

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

## Service unit combinations LFR-KE/LFRS-KE, D series, metal design

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Technical data

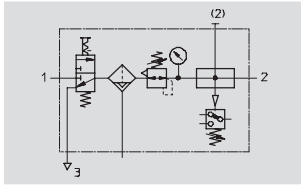
Ordering data					
Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, mounting bracket and metal bowl guard					
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
Filter regulator, branching module with pressure switch					
Mini	G $\frac{1}{8}$	185 755	LFR- $\frac{1}{8}$ -D-MINI-KE	185 756	LFR- $\frac{1}{8}$ -D-MINI-KE-A
	G $\frac{1}{4}$	185 757	LFR- $\frac{1}{4}$ -D-MINI-KE	185 758	LFR- $\frac{1}{4}$ -D-MINI-KE-A
Midi	G $\frac{1}{4}$	185 759	LFR- $\frac{1}{4}$ -D-MIDI-KE	185 760	LFR- $\frac{1}{4}$ -D-MIDI-KE-A
	G $\frac{3}{8}$	185 761	LFR- $\frac{3}{8}$ -D-MIDI-KE	185 762	LFR- $\frac{3}{8}$ -D-MIDI-KE-A
	G $\frac{1}{2}$	185 763	LFR- $\frac{1}{2}$ -D-MIDI-KE	185 764	LFR- $\frac{1}{2}$ -D-MIDI-KE-A
Maxi	G $\frac{1}{2}$	186 047	LFR- $\frac{1}{2}$ -D-MAXI-KE	186 048	LFR- $\frac{1}{2}$ -D-MAXI-KE-A
	G $\frac{3}{4}$	185 765	LFR- $\frac{3}{4}$ -D-MAXI-KE	185 766	LFR- $\frac{3}{4}$ -D-MAXI-KE-A
Directly actuated pressure regulator with integrated return flow function					
Maxi	G $\frac{1}{2}$	192 444	LFR- $\frac{1}{2}$ -D-DI-MAXI-KE	192 458	LFR- $\frac{1}{2}$ -D-DI-MAXI-KE-A
	G $\frac{3}{4}$	192 451	LFR- $\frac{3}{4}$ -D-DI-MAXI-KE	192 465	LFR- $\frac{3}{4}$ -D-DI-MAXI-KE-A

Ordering data					
Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, mounting bracket and metal bowl guard, lockable					
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
Filter regulator, branching module with pressure switch					
Mini	G $\frac{1}{8}$	195 016	LFRS- $\frac{1}{8}$ -D-MINI-KE	195 017	LFRS- $\frac{1}{8}$ -D-MINI-KE-A
	G $\frac{1}{4}$	195 030	LFRS- $\frac{1}{4}$ -D-MINI-KE	195 031	LFRS- $\frac{1}{4}$ -D-MINI-KE-A
Midi	G $\frac{1}{4}$	195 044	LFRS- $\frac{1}{4}$ -D-MIDI-KE	195 045	LFRS- $\frac{1}{4}$ -D-MIDI-KE-A
	G $\frac{3}{8}$	195 058	LFRS- $\frac{3}{8}$ -D-MIDI-KE	195 059	LFRS- $\frac{3}{8}$ -D-MIDI-KE-A
	G $\frac{1}{2}$	195 072	LFRS- $\frac{1}{2}$ -D-MIDI-KE	195 073	LFRS- $\frac{1}{2}$ -D-MIDI-KE-A
Maxi	G $\frac{1}{2}$	195 086	LFRS- $\frac{1}{2}$ -D-MAXI-KE	195 087	LFRS- $\frac{1}{2}$ -D-MAXI-KE-A
	G $\frac{3}{4}$	195 100	LFRS- $\frac{3}{4}$ -D-MAXI-KE	195 101	LFRS- $\frac{3}{4}$ -D-MAXI-KE-A

# Service unit combinations LFR-KF/LFRS-KF, D series, metal design

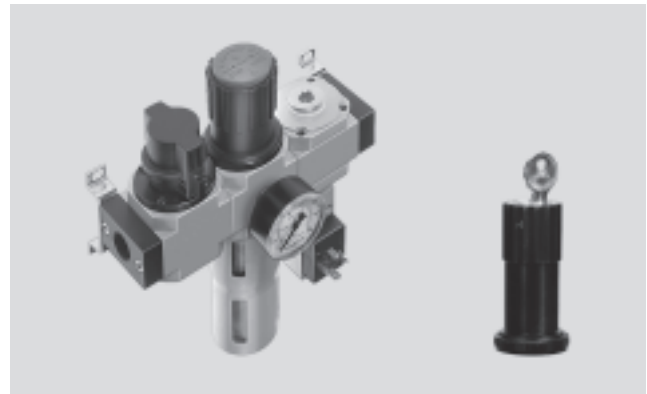
Technical data

Function



- Flow rate  
700 ... 8400 l/min
- Temperature range  
-10 ... +60 °C
- Input pressure  
1 ... 16 bar

- On-off valve HE
  - manually actuated
- Filter regulator LFR/LFRS
  - grade of filtration 40 µm
  - metal bowl guard
  - condensate drain, turned manually or fully automatic
  - rotary knob with detent or lockable rotary knob
  - pressure gauge
- Branching module FRM
  - pressure switch without display
- Mounting accessories



- For unlubricated compressed air
- Supply pressure can be opened and closed
- Two branch connections are available
- Electrical pressure monitoring with adjustable switching pressure
- To ensure safe venting of the system, an additional quick exhaust valve is necessary at the output of the service unit combination

General technical data							
Size	Mini		Midi			Maxi	
Pneumatic connection	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{1}{2}$	G $\frac{3}{4}$
Operating medium	Compressed air						
Type of mounting	Via accessories						
	In-line installation						
Assembly position	Vertical $\pm 5^\circ$						
Grade of filtration [µm]	40						
Max. hysteresis [bar]	0.2	0.2	0.25	0.3	0.25	0.2	0.2
Pressure regulation range [bar]	0.5 ... 12						
Pressure indication	Via pressure gauge						
Max. condensate volume [cm $^3$ ]	22		43			80 <sup>1)</sup>	
Input pressure [bar]							
Condensate drain	turned manually	1 ... 16					
	fully automatic	2 ... 12					

1) The max. condensate volume for the LFR...-DI-MAXI-KF is 43 cm $^3$ .  
 -  $\parallel$  - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

# Service unit combinations LFR-KF/LFRS-KF, D series, metal design

Technical data


Standard nominal flow rate <sup>1)</sup> qnN [l/min]					
Connection	G1/8	G1/4	G3/8	G1/2	G3/4
<b>Mini</b>					
LFR/LFRS-...-D-...	700	1050	-	-	-
<b>Midi</b>					
LFR/LFRS-...-D-...	-	1720	2420	2920	-
<b>Maxi</b>					
LFR/LFRS-...-D-...	-	-	-	8000	8400
<b>Maxi – Directly actuated pressure regulator with integrated return flow function</b>					
LFR-...-D-...	-	-	-	5000	6000

1) Measured at p1 = 10 bar, p2 = 6 bar and Δp = 1 bar.

Ambient conditions		Mini	Midi	Maxi
Size				
Ambient temperature	[°C]	-10 ... +60		
Temperature of medium	[°C]	-10 ... +60		
Corrosion resistance class	CRC <sup>1)</sup>	2		

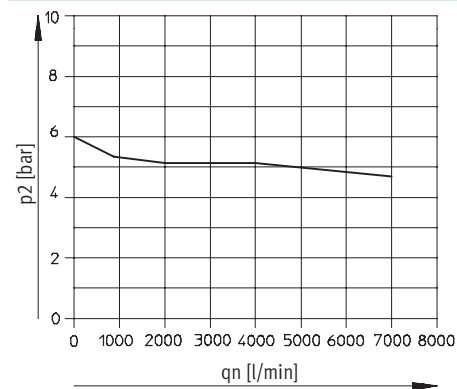
1) Corrosion resistance class 2 according to Festo standard 940 070  
 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating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

Weight [g]				
Size	Mini	Midi	Maxi	
			D	D-DI
LFR	1200	2400	3300	3500
LFRS	1300	2640	3400	-

-  - Note  
 Materials → Technical data of the individual devices

## Standard flow rate qn as a function of the output pressure p2

LFR-1/2-D-DI-MAXI-KF(-A)



Primary pressure p1 = 10 bar

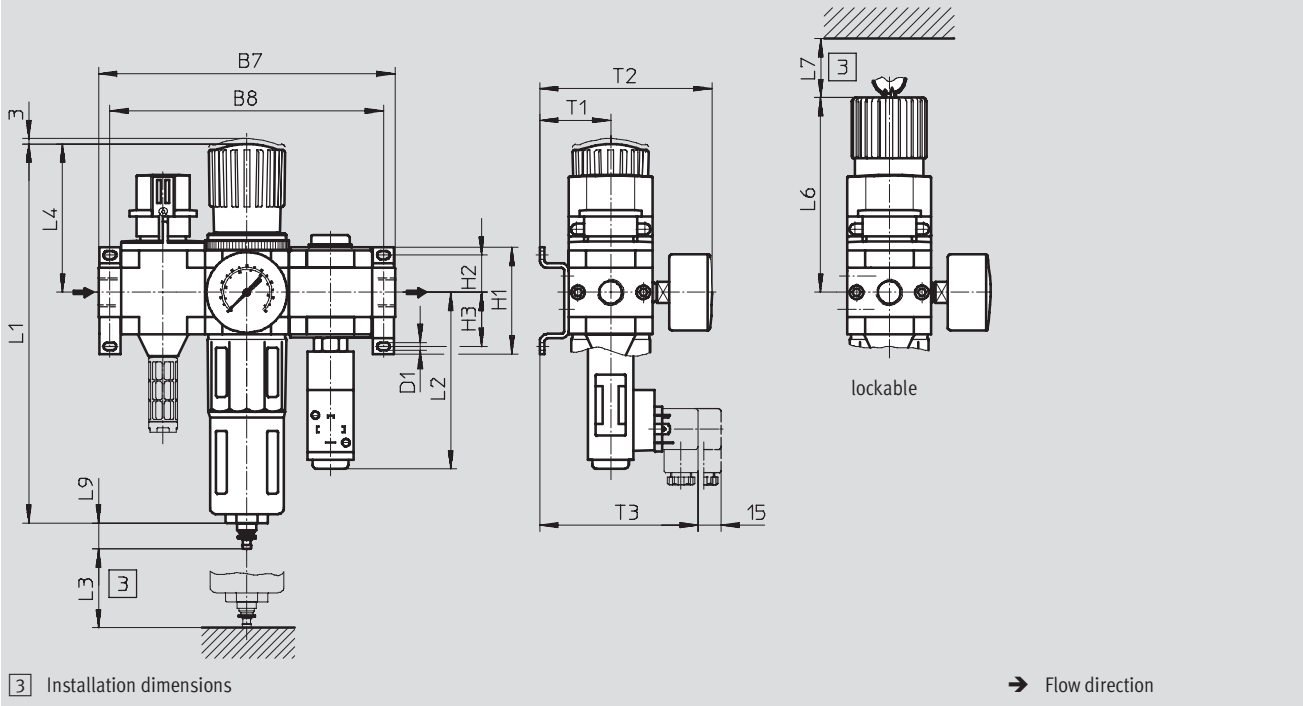
# Service unit combinations LFR-KF/LFRS-KF, D series, metal design

Technical data

**Dimensions**

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

LFR/LFRS-...-KF



Type	B7	B8	D1	H1	H2	H3	L1	L2	L3	L4	L5	L6	L7	L9	T1	T2	T3
<b>Mini</b>																	
LFR-...-D-MINI-KF (A)	144	132	4.3	43	17.5	17.5	193	108	60	68	100	98	60	19	39	95	97
LFRS-...-D-MINI-KF (A)																	
<b>Midi</b>																	
LFR-...-D-MIDI-KF (A)	195	180	5.3	70	24.5	35.5	250	117	80	99	120	130	60	19	47	114	105
LFRS-...-D-MIDI-KF (A)																	
<b>Maxi</b>																	
LFR-...-D-MAXI-KF (A)	228	212	5.3	70	24.5	35.5	252	122	90	82	150	111	60	19	53	126	111
LFRS-...-D-MAXI-KF (A)							275			105		135					
LFR-...-D-DI-MAXI-KF (A)																	

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

## Service unit combinations LFR-KF/LFRS-KF, D series, metal design

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Technical data

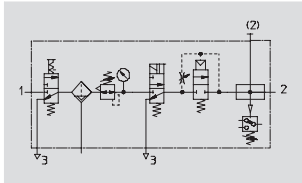
Ordering data					
Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, mounting bracket and metal bowl guard					
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
On-off valve, filter regulator, branching module with pressure switch					
Mini	G $\frac{1}{8}$	185 767	LFR- $\frac{1}{8}$ -D-MINI-KF	185 768	LFR- $\frac{1}{8}$ -D-MINI-KF-A
	G $\frac{1}{4}$	185 769	LFR- $\frac{1}{4}$ -D-MINI-KF	185 770	LFR- $\frac{1}{4}$ -D-MINI-KF-A
Midi	G $\frac{1}{4}$	185 771	LFR- $\frac{1}{4}$ -D-MIDI-KF	185 772	LFR- $\frac{1}{4}$ -D-MIDI-KF-A
	G $\frac{3}{8}$	185 773	LFR- $\frac{3}{8}$ -D-MIDI-KF	185 774	LFR- $\frac{3}{8}$ -D-MIDI-KF-A
	G $\frac{1}{2}$	185 775	LFR- $\frac{1}{2}$ -D-MIDI-KF	185 776	LFR- $\frac{1}{2}$ -D-MIDI-KF-A
Maxi	G $\frac{1}{2}$	186 049	LFR- $\frac{1}{2}$ -D-MAXI-KF	186 050	LFR- $\frac{1}{2}$ -D-MAXI-KF-A
	G $\frac{3}{4}$	185 777	LFR- $\frac{3}{4}$ -D-MAXI-KF	185 778	LFR- $\frac{3}{4}$ -D-MAXI-KF-A
Directly actuated pressure regulator with integrated return flow function					
Maxi	G $\frac{1}{2}$	192 445	LFR- $\frac{1}{2}$ -D-DI-MAXI-KF	192 459	LFR- $\frac{1}{2}$ -D-DI-MAXI-KF-A
	G $\frac{3}{4}$	192 452	LFR- $\frac{3}{4}$ -D-DI-MAXI-KF	192 466	LFR- $\frac{3}{4}$ -D-DI-MAXI-KF-A

Ordering data					
Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, mounting bracket and metal bowl guard, lockable					
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
On-off valve, filter regulator, branching module with pressure switch					
Mini	G $\frac{1}{8}$	195 018	LFRS- $\frac{1}{8}$ -D-MINI-KF	195 019	LFRS- $\frac{1}{8}$ -D-MINI-KF-A
	G $\frac{1}{4}$	195 032	LFRS- $\frac{1}{4}$ -D-MINI-KF	195 033	LFRS- $\frac{1}{4}$ -D-MINI-KF-A
Midi	G $\frac{1}{4}$	195 046	LFRS- $\frac{1}{4}$ -D-MIDI-KF	195 047	LFRS- $\frac{1}{4}$ -D-MIDI-KF-A
	G $\frac{3}{8}$	195 060	LFRS- $\frac{3}{8}$ -D-MIDI-KF	195 061	LFRS- $\frac{3}{8}$ -D-MIDI-KF-A
	G $\frac{1}{2}$	195 074	LFRS- $\frac{1}{2}$ -D-MIDI-KF	195 075	LFRS- $\frac{1}{2}$ -D-MIDI-KF-A
Maxi	G $\frac{1}{2}$	195 088	LFRS- $\frac{1}{2}$ -D-MAXI-KF	195 089	LFRS- $\frac{1}{2}$ -D-MAXI-KF-A
	G $\frac{3}{4}$	195 102	LFRS- $\frac{3}{4}$ -D-MAXI-KF	195 103	LFRS- $\frac{3}{4}$ -D-MAXI-KF-A

# Service unit combinations LFR-KG/LFRS-KG, D series, metal design

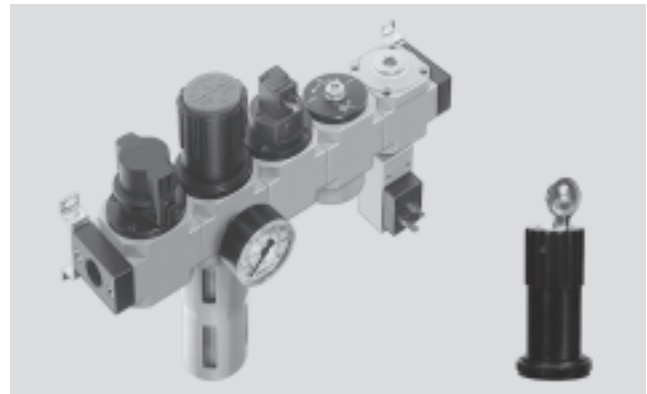
Technical data

Function



- Flow rate  
575 ... 4900 l/min
- Temperature range  
-10 ... +60 °C
- Input pressure  
3 ... 16 bar

- On-off valve HE
  - manually actuated
- Filter regulator LFR/LFRS
  - grade of filtration 40 µm
  - metal bowl guard
  - condensate drain, turned manually or fully automatic
  - rotary knob with detent or lockable rotary knob
  - pressure gauge
- On-off valve HEE
  - solenoid actuated
  - 24 V DC
- Soft-start valve HEL
  - pneumatically actuated
- Branching module FRM
  - pressure switch without display
- Mounting accessories



- For unlubricated compressed air
- To ensure safe venting of the system, an additional quick exhaust valve is necessary at the output of the service unit combination
- Two branch connections are available
- Gradual pressure build-up prevents sudden, unpredictable movements
- Electrical pressure monitoring with adjustable switching pressure

General technical data							
Size	Mini		Midi			Maxi	
Pneumatic connection	G1/8	G1/4	G1/4	G3/8	G1/2	G1/2	G3/4
Operating medium	Compressed air						
Type of mounting	Via accessories						
	In-line installation						
Assembly position	Vertical ±5°						
Grade of filtration [µm]	40						
Max. hysteresis [bar]	0.15	0.15	0.25	0.2	0.2	0.25	0.25
Pressure regulation range [bar]	2.5 ... 12						
Pressure indication	Via pressure gauge						
Max. condensate volume [cm <sup>3</sup> ]	22		43			80 <sup>1)</sup>	
Input pressure [bar]							
Condensate drain	turned manually	3 ... 16					
	fully automatic	3 ... 12					

1) The max. condensate volume for the LFR...DI-MAXI-KG is 43 cm<sup>3</sup>.  
 - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

# Service unit combinations LFR-KG/LFRS-KG, D series, metal design

Technical data

Standard nominal flow rate <sup>1)</sup> qnN [l/min]					
Connection	G <sup>1</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>2</sub>	G <sup>3</sup> / <sub>4</sub>
<b>Mini</b>					
LFR/LFRS-...-D-...	575	715	-	-	-
<b>Midi</b>					
LFR/LFRS-...-D-...	-	1370	1680	1740	-
<b>Maxi</b>					
LFR/LFRS-...-D-...	-	-	-	4200	4900
<b>Maxi – Directly actuated pressure regulator with integrated return flow function</b>					
LFR-...-D-...	-	-	-	2500	3000


1) Measured at p<sub>1</sub> = 10 bar, p<sub>2</sub> = 6 bar and Δp = 1 bar.

Ambient conditions		Mini	Midi	Maxi
Size				
Ambient temperature	[°C]	-10 ... +60		
Temperature of medium	[°C]	-10 ... +60		
Corrosion resistance class	CRC <sup>1)</sup>	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.

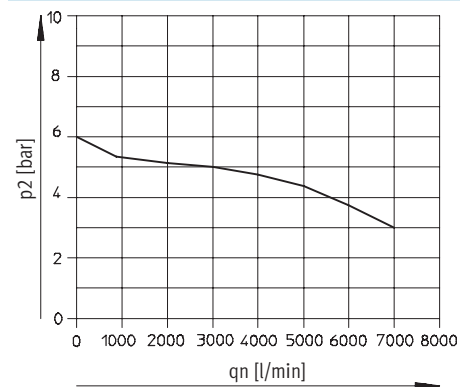
Weight [g]				
Size	Mini	Midi	Maxi	
			D	D-DI
LFR	1500	3400	5200	5400
LFRS	1600	3640	5300	-

-  - Note

Materials → Technical data of the individual devices

## Standard flow rate qn as a function of the output pressure p<sub>2</sub>

LFR-1/2-D-DI-MAXI-KG(-A)



Primary pressure p<sub>1</sub> = 10 bar



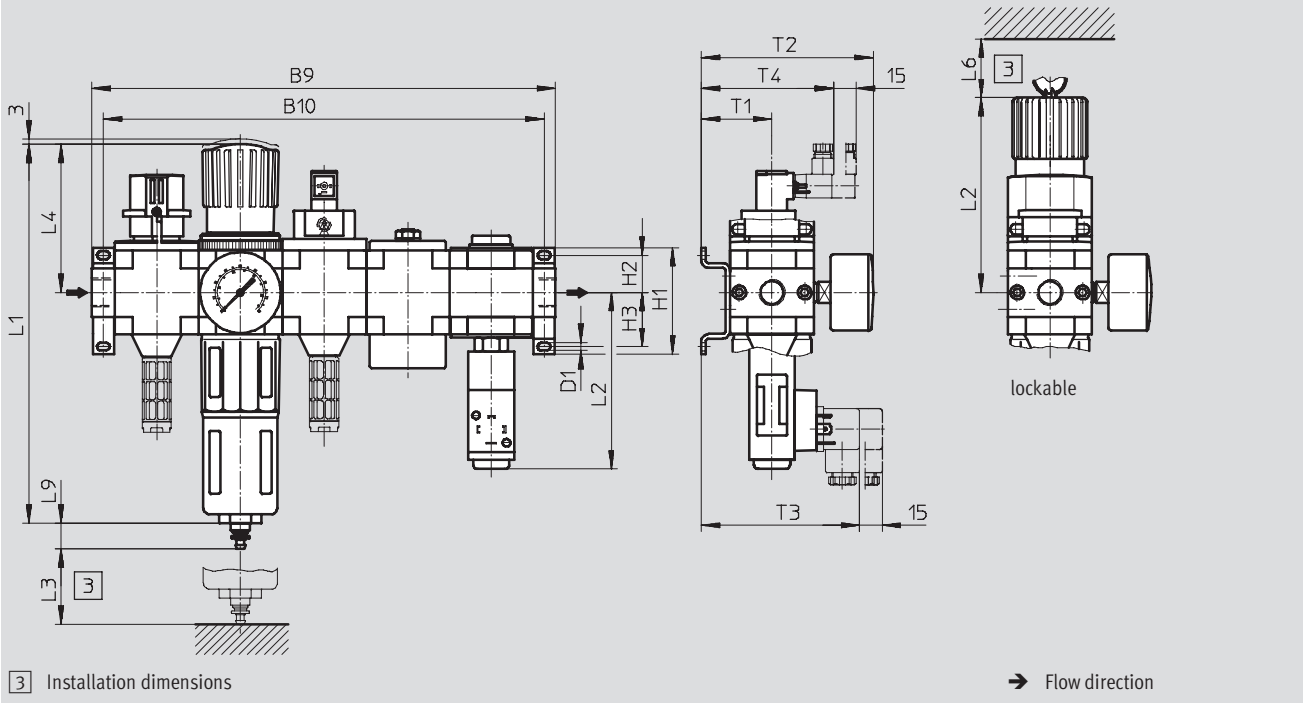
# Service unit combinations LFR-KG/LFRS-KG, D series, metal design

Technical data

**Dimensions**

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

LFR/LFRS-...-KG



Type	B9	B10	D1	H1	H2	H3	L1	L2	L3	L4	L5	L6	L7	L9	T1	T2	T3	T4
<b>Mini</b>																		
LFR-...-D-MINI-KG (A)	244	212	4.3	43	17.5	17.5	193	108	60	68	100	98	60	19	39	95	97	78
LFRS-...-D-MINI-KG (A)																		
<b>Midi</b>																		
LFR-...-D-MIDI-KG (A)	305	290	5.3	70	24.5	35.5	250	117	80	99	120	130	60	19	47	114	105	86
LFRS-...-D-MIDI-KG (A)																		
<b>Maxi</b>																		
LFR-...-D-MAXI-KG (A)	360	344	5.3	70	24.5	35.5	252	122	90	82	150	111	60	19	53	126	111	92
LFRS-...-D-MAXI-KG (A)							275			105		135						
LFR-...-D-DI-MAXI-KG (A)																		

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

## Service unit combinations LFR-KG/LFRS-KG, D series, metal design

FESTO

Technical data

Ordering data					
Pressure regulation range 2.5 ... 12 bar, grade of filtration 40 µm, mounting bracket and metal bowl guard					
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
On-off valve, filter regulator, on-off valve with solenoid coil 24 V DC, soft-start valve, branching module with pressure switch					
Mini	G $\frac{1}{8}$	185 779	LFR- $\frac{1}{8}$ -D-MINI-KG	185 780	LFR- $\frac{1}{8}$ -D-MINI-KG-A
	G $\frac{1}{4}$	185 781	LFR- $\frac{1}{4}$ -D-MINI-KG	185 782	LFR- $\frac{1}{4}$ -D-MINI-KG-A
Midi	G $\frac{1}{4}$	185 783	LFR- $\frac{1}{4}$ -D-MIDI-KG	185 784	LFR- $\frac{1}{4}$ -D-MIDI-KG-A
	G $\frac{3}{8}$	185 785	LFR- $\frac{3}{8}$ -D-MIDI-KG	185 786	LFR- $\frac{3}{8}$ -D-MIDI-KG-A
	G $\frac{1}{2}$	185 787	LFR- $\frac{1}{2}$ -D-MIDI-KG	185 788	LFR- $\frac{1}{2}$ -D-MIDI-KG-A
Maxi	G $\frac{1}{2}$	186 051	LFR- $\frac{1}{2}$ -D-MAXI-KG	186 052	LFR- $\frac{1}{2}$ -D-MAXI-KG-A
	G $\frac{3}{4}$	185 789	LFR- $\frac{3}{4}$ -D-MAXI-KG	185 790	LFR- $\frac{3}{4}$ -D-MAXI-KG-A
Directly actuated pressure regulator with integrated return flow function					
Maxi	G $\frac{1}{2}$	192 446	LFR- $\frac{1}{2}$ -D-DI-MAXI-KG	192 460	LFR- $\frac{1}{2}$ -D-DI-MAXI-KG-A
	G $\frac{3}{4}$	192 453	LFR- $\frac{3}{4}$ -D-DI-MAXI-KG	192 467	LFR- $\frac{3}{4}$ -D-DI-MAXI-KG-A

Ordering data					
Pressure regulation range 2.5 ... 12 bar, grade of filtration 40 µm, mounting bracket and metal bowl guard, lockable					
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
On-off valve, filter regulator, on-off valve with solenoid coil 24 V DC, soft-start valve, branching module with pressure switch					
Mini	G $\frac{1}{8}$	195 020	LFRS- $\frac{1}{8}$ -D-MINI-KG	195 021	LFRS- $\frac{1}{8}$ -D-MINI-KG-A
	G $\frac{1}{4}$	195 034	LFRS- $\frac{1}{4}$ -D-MINI-KG	195 035	LFRS- $\frac{1}{4}$ -D-MINI-KG-A
Midi	G $\frac{1}{4}$	195 048	LFRS- $\frac{1}{4}$ -D-MIDI-KG	195 049	LFRS- $\frac{1}{4}$ -D-MIDI-KG-A
	G $\frac{3}{8}$	195 062	LFRS- $\frac{3}{8}$ -D-MIDI-KG	195 063	LFRS- $\frac{3}{8}$ -D-MIDI-KG-A
	G $\frac{1}{2}$	195 076	LFRS- $\frac{1}{2}$ -D-MIDI-KG	195 077	LFRS- $\frac{1}{2}$ -D-MIDI-KG-A
Maxi	G $\frac{1}{2}$	195 090	LFRS- $\frac{1}{2}$ -D-MAXI-KG	195 091	LFRS- $\frac{1}{2}$ -D-MAXI-KG-A
	G $\frac{3}{4}$	195 104	LFRS- $\frac{3}{4}$ -D-MAXI-KG	195 105	LFRS- $\frac{3}{4}$ -D-MAXI-KG-A

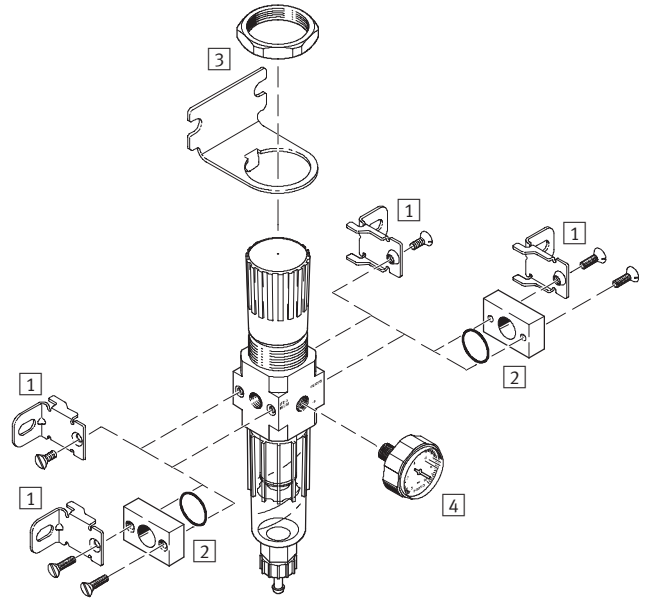
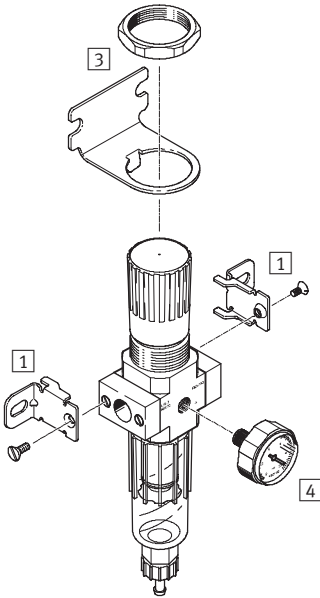
# Filter regulators LFR/LFRS, D series, metal design

Peripherals overview

**Micro**

Individual unit with connection plates,  
connection size G $\frac{1}{8}$ , QS4 or QS6

Individual unit without connection plates, for service unit combination  
connection size M5 or M7 in housing



Mounting attachments and accessories					
	Individual unit		Combination		→ Page
	with connection plates	without connection plates	with connection plates	without connection plates	
1 Mounting bracket HFOE	■	■	■	■	198
2 Connecting plate kit PBL	-	■	-	■	202
3 Mounting bracket HRS	■	■	■	■	199
4 Pressure gauge MA-27	■	■	■	■	204

# Filter regulators LFR/LFRS, D series, metal design

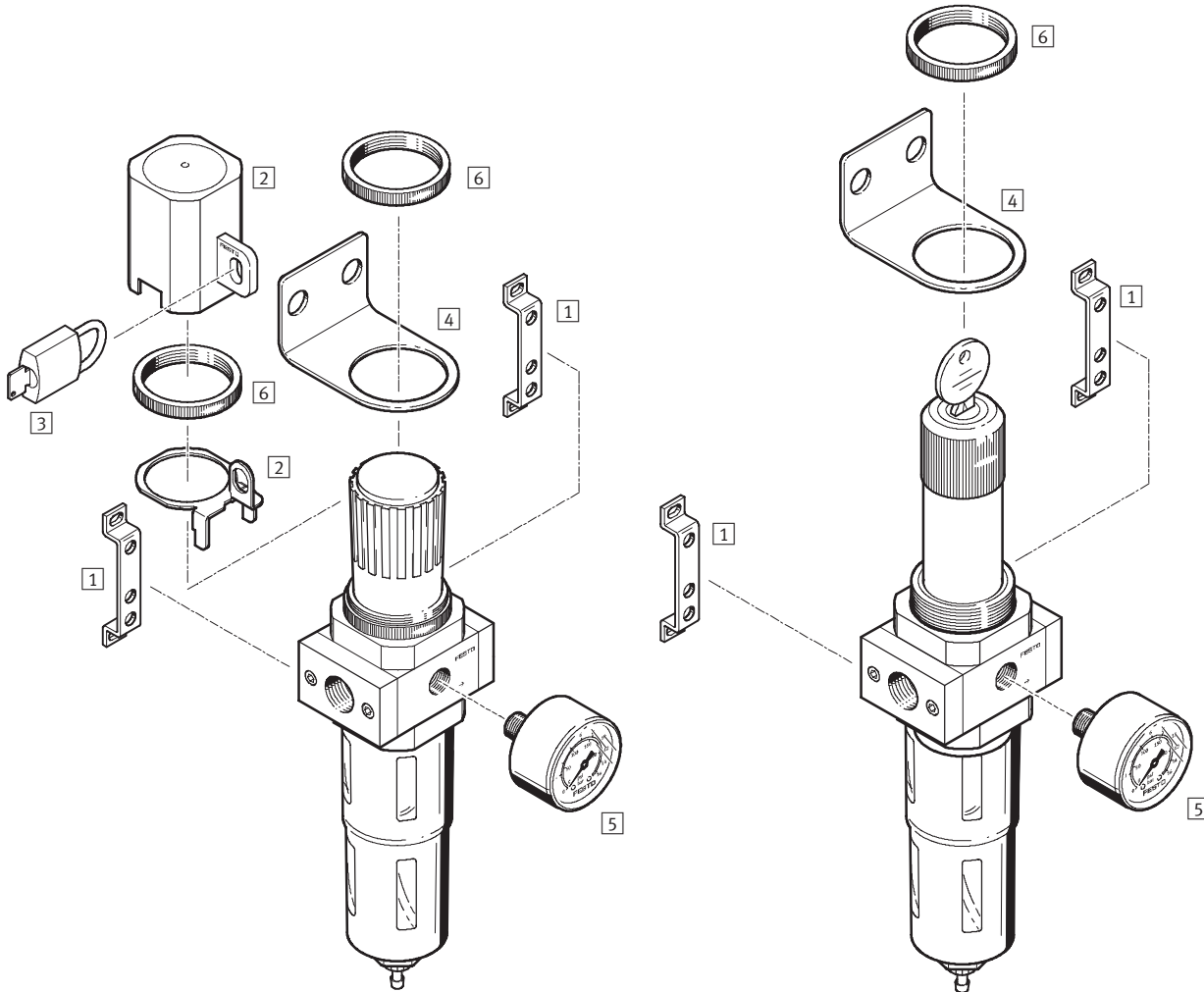
Peripherals overview

FESTO

Mini/Midi/Maxi

Filter regulator LFR

Filter regulator LFRS, lockable



Mounting attachments and accessories			
	Rotary knob with detent	Rotary knob, lockable	→ Page
1	Mounting bracket HFOE	■	198
2	Regulator lock LRVS	■	203
3	Padlock LRVS-D	■	203
4	Mounting bracket HR-D	■	200
5	Pressure gauge MA	■	204
6	Knurled nut (included in scope of delivery) HMR	■	-

# Filter regulators LFR/LFRS, D series, metal design

Type codes

LFR – 3/8 – D – 7 – [ ] – 0 – [ ] – MIDI – A

### Basic function

LFR	Filter regulator
LFRS	Filter regulator, lockable

### Pneumatic connection

M5	Thread M5
M7	Thread M7
QS4	Push-in fitting QS4
QS6	Push-in fitting QS6
1/8	Thread G1/8
1/4	Thread G1/4
3/8	Thread G3/8
1/2	Thread G1/2
3/4	Thread G3/4
1	Thread G1

### Series

D	Series
---	--------

### Pressure regulation range

	0.5 ... 12 bar
7	0.5 ... 7 bar

### Grade of filtration

	40 µm
5M	5 µm

### Pressure gauge

	With pressure gauge
0	Without pressure gauge

### Function (Maxi size only)

DI	Directly actuated pressure regulator with integrated return flow function
----	---

### Size

MICRO	Grid dimension 25 mm (without connecting plates)
MINI	Grid dimension 40 mm (without connecting plates)
MIDI	Grid dimension 55 mm (without connecting plates)
MAXI	Grid dimension 66 mm (without connecting plates)

### Condensate drain

	Turned manually
H	Semi-automatic
A	Fully automatic

# Filter regulators LFR/LFRS, D series, metal design

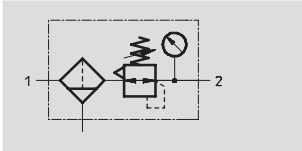
Technical data



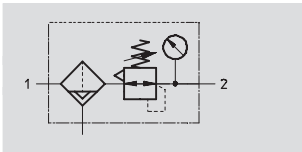
Function

LFR/LFRS-...-D-...

Condensate drain  
turned manually

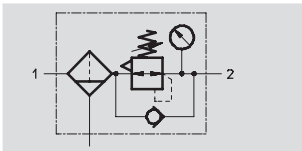


semi- or fully automatic

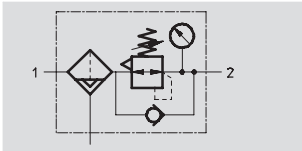


LFR/LFRS-...-D-DI-MAXI

Condensate drain  
turned manually



fully automatic



- - Flow rate  
110 ... 11000 l/min
- - Temperature range  
-10 ... +60 °C
- - Input pressure  
1 ... 16 bar



- Space-saving design with filter and regulator in a single unit
- Good particle separation and high flow rate
- Good regulating characteristics with minimal hysteresis
- Two pressure regulation ranges: 0.5 ... 7 bar and 0.5 ... 12 bar
- Two pressure gauge connections for flexible installation
- With manual, semi-automatic or fully automatic condensate drain
- Setting values are secured by locking the rotary knob
- Choice of filter cartridges: 5 µm or 40 µm
- Filter cartridges → 212
- Pressure sensor (optional) → 205

General technical data																
Size	Micro					Mini			Midi				Maxi			
Pneumatic connection	M5	M7	G <sup>1</sup> / <sub>8</sub>	QS4	QS6	G <sup>1</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>2</sub>	G <sup>3</sup> / <sub>4</sub>	G <sup>1</sup> / <sub>2</sub>	G <sup>3</sup> / <sub>4</sub>	G1	
Operating medium	Compressed air					Compressed air										
Design	Directly actuated diaphragm regulator					Directly actuated diaphragm regulator							Pilot actuated piston regulator			
													Directly actuated diaphragm regulator			
Type of mounting	Via accessories					Via accessories										
	In-line installation					In-line installation										
	Front panel mounting					Front panel mounting										
Assembly position	Vertical ±5°					Vertical ±5°										
Grade of filtration [µm]	5					5 or 40										
Max. hysteresis [bar]	0.3					0.2							0.4			
Pressure regulation range [bar]	0.5 ... 7					0.5 ... 7							0.5 ... 12			
Pressure indication	Via pressure gauge					Via pressure gauge										
	M5 prepared					G <sup>1</sup> / <sub>8</sub> prepared			G <sup>1</sup> / <sub>4</sub> prepared				G <sup>1</sup> / <sub>4</sub> prepared			
Max. condensate volume [cm <sup>3</sup> ]	3					22			43				80 <sup>1)</sup>			
Input pressure [bar]																
Condensate drain	turned manually					1 ... 10					1 ... 16					
	semi-automatic					1 ... 10					-					
	fully automatic					-					2 ... 12					

1) The max. condensate volume for the LFR/LFRS-...-DI-MAXI is 43 cm<sup>3</sup>.  
 - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

# Filter regulators LFR/LFRS, D series, metal design

Technical data

Standard nominal flow rate <sup>1)</sup> qnN [l/min]					
Connection	Female thread		Connecting plate		
	M5	M7	G $\frac{1}{8}$	QS4	QS6
Micro					
LFR	110	280	410	150	410

1) Measured at p<sub>1</sub> = 10 bar, p<sub>2</sub> = 6 bar and Δp = 1 bar.

Standard nominal flow rate <sup>1)</sup> qnN [l/min]						
Connection	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1
Mini						
LFR/LFRS-...-D-...	750	1400	1600	–	–	–
LFR/LFRS-...-D-7-...	900	1500	1700	–	–	–
LFR/LFRS-...-D-5M-...	650	1200	1350	–	–	–
Midi						
LFR/LFRS-...-D-...	–	2000	3100	3400	3400	–
LFR/LFRS-...-D-7-...	–	2100	3200	3900	4000	–
LFR/LFRS-...-D-5M-...	–	1600	2400	2600	2600	–
Maxi						
LFR/LFRS-...-D-...	–	–	–	9400	9700	10000
LFR/LFRS-...-D-7-...	–	–	–	9500	10000	11000
LFR/LFRS-...-D-5M-...	–	–	–	7500	7600	8000
Maxi – Directly actuated diaphragm regulator with integrated return flow function						
LFR/LFRS-...-D-...-DI	–	–	–	4500	6800	7000
LFR/LFRS-...-D-7-...-DI	–	–	–	7600	7700	7800
LFR/LFRS-...-D-5M-...-DI	–	–	–	4000	5800	6000

1) Measured at p<sub>1</sub> = 10 bar, p<sub>2</sub> = 6 bar and Δp = 1 bar.

Screw-in depth of connecting thread [mm]					
Connection	M5	M7	G $\frac{1}{8}$	QS4	QS6
Micro					
In housing	5	6	–	–	–
In connecting plates	–	–	8	–	–

Ambient conditions					
Size	Micro	Mini	Midi	Maxi	
Ambient temperature [°C]	–10 ... +60				
Temperature of medium [°C]	–10 ... +60				
Corrosion resistance class CRC <sup>1)</sup>	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.

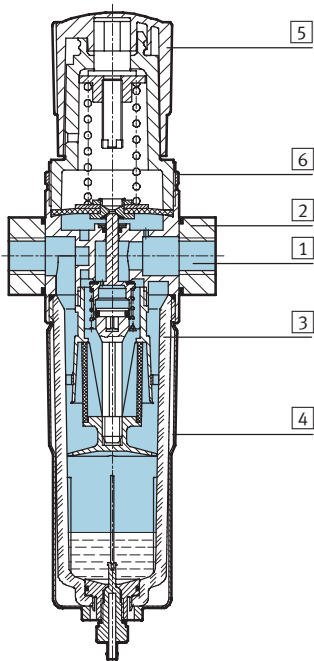
# Filter regulators LFR/LFRS, D series, metal design

Technical data

Weight [g]						
Size	Micro		Mini	Midi	Maxi	
	Female thread	Connecting plate			Connection G½, G¾	Connection G1
<b>With pressure gauge</b>						
LFR-...	74	94	460	920	1370	1470
LFR-...-DI	-	-	-	-	1670	1670
LFRS-...	-	-	560	1160	1470	1570
LFRS-...-DI	-	-	-	-	1950	1950
<b>Without pressure gauge</b>						
LFR-...	64	84	410	830	1300	1400
LFR-...-DI	-	-	-	-	1600	1600
LFRS-...	-	-	510	1070	1400	1500
LFRS-...-DI	-	-	-	-	1880	1880

## Materials

Sectional view



Filter regulator	Micro	Mini/Midi/Maxi
1 Housing	Wrought aluminium alloy	Die-cast zinc
2 Connecting plates	Wrought aluminium alloy	Die-cast zinc/aluminium
3 Bowl	Polycarbonate	Polycarbonate
4 Metal bowl guard	-	Aluminium
5 Regulating knob	Polyacetal	Polyacetal
6 Knurled nut	Wrought aluminium alloy	Aluminium
- Seals	Nitrile rubber	Nitrile rubber
Note on materials	-	Designs free of copper and PTFE → Ordering data

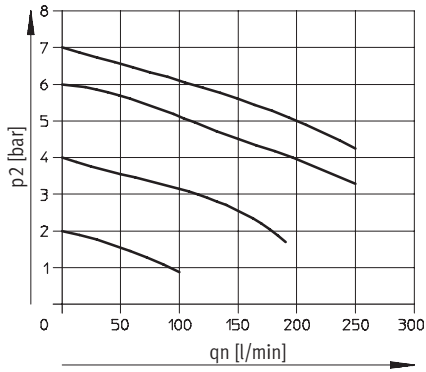


# Filter regulators LFR/LFRS, D series, metal design

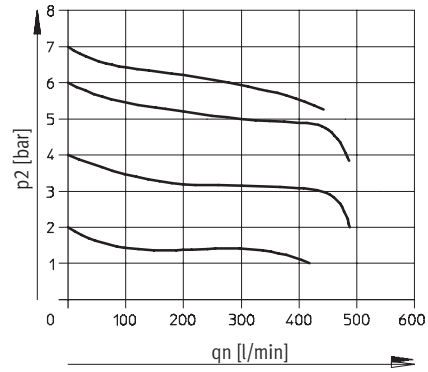
Technical data

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

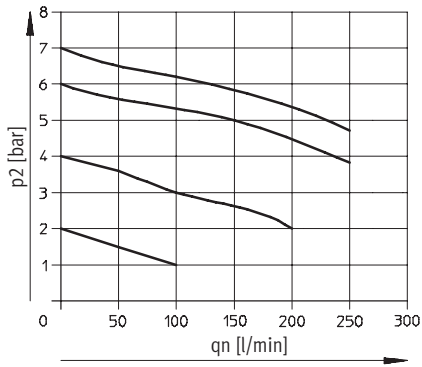
LFR-M5-...-MICRO



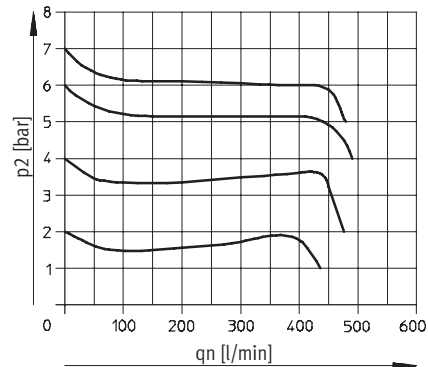
LFR-M7-...-MICRO B



LFR-QS4-...-MICRO



LFR-QS6-...-MICRO and LFR-1/8-...-MICRO



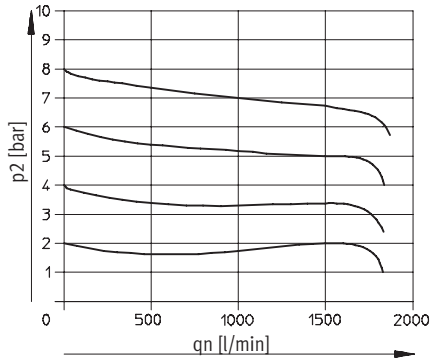
Primary pressure  $p_1 = 10$  bar

# Filter regulators LFR/LFRS, D series, metal design

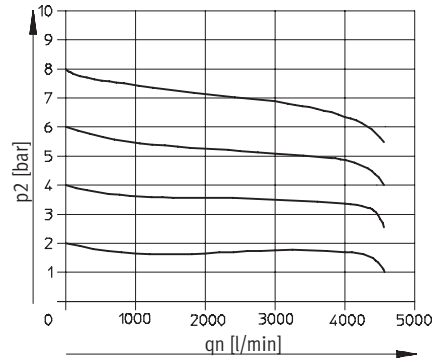
Technical data

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

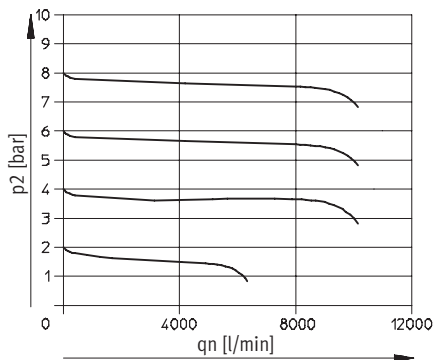
LFR/LFRS-1/4-D-MINI



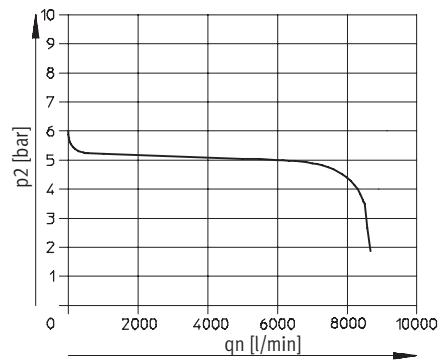
LFR/LFRS-1/2-D-MIDI



LFR/LFRS-1-D-MAXI



LFR/LFRS-1-D-DI-MAXI



Primary pressure  $p_1 = 10$  bar

# Filter regulators LFR/LFRS, D series, metal design

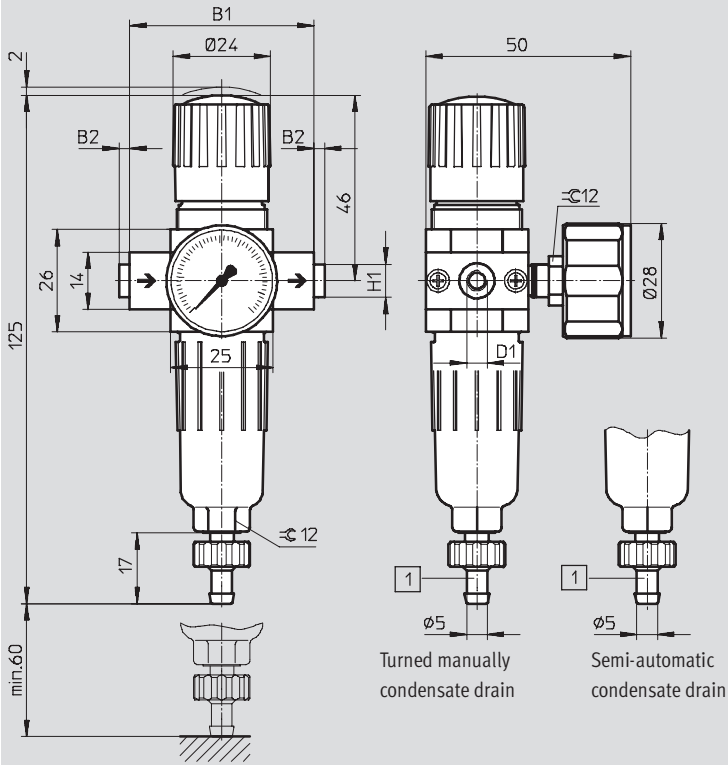
Technical data

FESTO

## Dimensions

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Micro



1 Barbed fitting for plastic tubing type PCN-4

→ Flow direction

Type	B1	B2	D1	H1
LFR-M5-...-MICRO (H)	25	-	M5	-
LFR-M7-...-MICRO (H) B			M7	
LFR-1/8-...-MICRO (H)			G1/8	
LFR-QS4-...-MICRO (H)	45	~2.5	QS4	~8
LFR-QS6-...-MICRO (H)			QS6	~10

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

# Filter regulators LFR/LFRS, D series, metal design

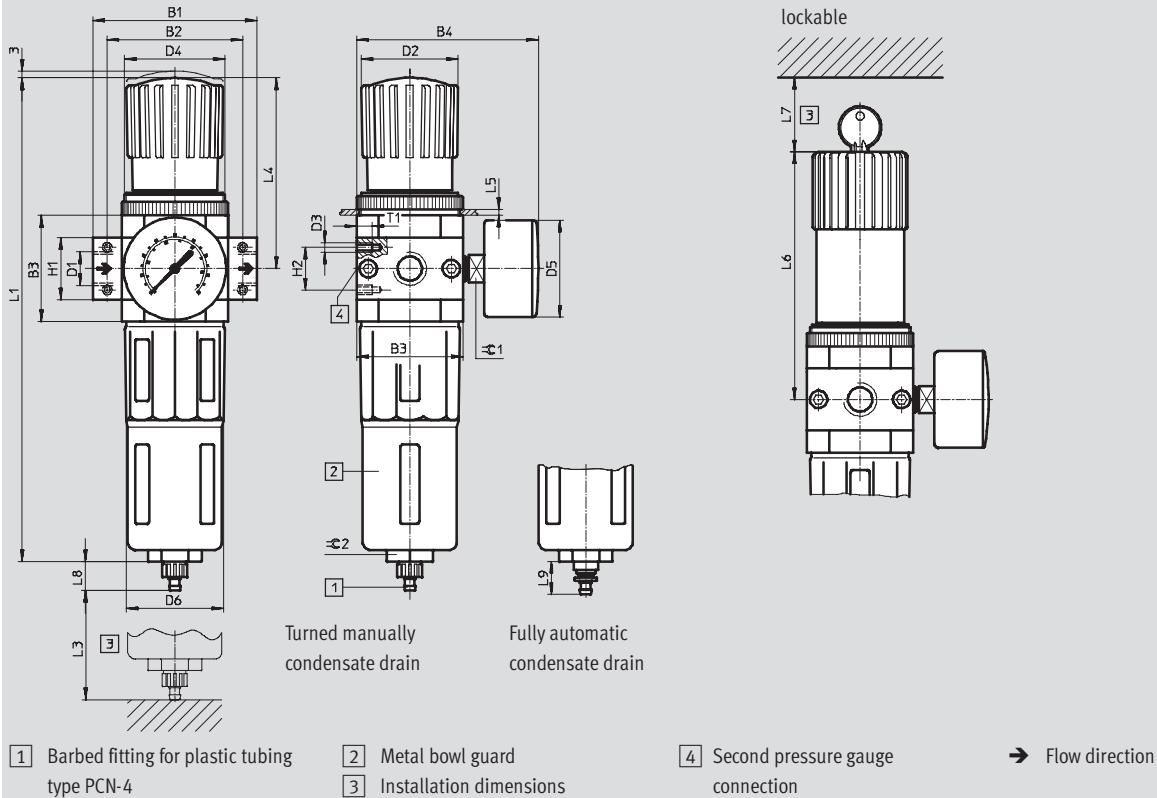
Technical data

FESTO

## Dimensions

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Mini/Midi/Maxi



Type	B1	B2	B3	B4	D1	D2 ∅	D3	D4	D5 ∅	D6 ∅
<b>Mini</b>										
LFR/LFRS-1/8-D-MINI (A)	64	52	40	76	G1/8	31	M4	M36x1.5	41	38
LFR/LFRS-1/4-D-MINI (A)					G1/4					
LFR/LFRS-3/8-D-MINI (A)					G3/8					
<b>Midi</b>										
LFR/LFRS-1/4-D-MIDI (A)	85	70	55	95	G1/4	50	M5	M52x1.5	50	52
LFR/LFRS-3/8-D-MIDI (A)					G3/8					
LFR/LFRS-1/2-D-MIDI (A)					G1/2					
LFR/LFRS-3/4-D-MIDI (A)					G3/4					
<b>Maxi</b>										
LFR/LFRS-1/2-D-MAXI (A)	96	80	66	107	G1/2	31	M5	M36x1.5	50	65
LFR/LFRS-1/2-D-DI-MAXI (A)						49		M52x1.5		
LFR/LFRS-3/4-D-MAXI (A)					G3/4	31		M36x1.5		
LFR/LFRS-3/4-D-DI-MAXI (A)						49		M52x1.5		
LFR/LFRS-1-D-MAXI (A)	116	91			G1	31		M36x1.5		
LFR/LFRS-1-D-DI-MAXI (A)						49		M52x1.5		

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

# Filter regulators LFR/LFRS, D series, metal design

Technical data

Type	H1	H2	L1	L3	L4	L5 max.	L6	L7	L8	L9	T1	≈C 1	≈C 2	
<b>Mini</b>														
LFR/LFRS-1/8-D-MINI (A)	20	11	193	60	68	3	98	60	15	19	7	14	22	
LFR/LFRS-1/4-D-MINI (A)														
LFR/LFRS-3/8-D-MINI (A)														
<b>Midi</b>														
LFR/LFRS-1/4-D-MIDI (A)	32	22	250	80	99	5	130	60	15	19	8	14	24	
LFR/LFRS-3/8-D-MIDI (A)														
LFR/LFRS-1/2-D-MIDI (A)														
LFR/LFRS-3/4-D-MIDI (A)														
<b>Maxi</b>														
LFR/LFRS-1/2-D-MAXI (A)	32	22	252	90	82	4	111	60	15	19	8	14	24	
LFR/LFRS-1/2-D-DI-MAXI (A)			275		105		135							
LFR/LFRS-3/4-D-MAXI (A)			252		82		111							
LFR/LFRS-3/4-D-DI-MAXI (A)			275		105		135							
LFR/LFRS-1-D-MAXI (A)			40		252		82							111
LFR/LFRS-1-D-DI-MAXI (A)					275		105							135

# Filter regulators LFR/LFRS, D series, metal design

FESTO

Technical data

Ordering data			
Pressure regulation range 0.5 ... 7 bar			
Condensate drain	Size	Connection	Grade of filtration 5 µm
			Part No. Type
<b>With pressure gauge</b>			
Turned manually	Micro	Without threaded connecting plates, connecting thread in housing	
		M5	526 273 LFR-M5-D-7-5M-MICRO
		M7	534 184 LFR-M7-D-7-5M-MICRO B
		With threaded connecting plates	
		G $\frac{1}{8}$	526 277 LFR- $\frac{1}{8}$ -D-7-5M-MICRO
		With connecting plate and push-in fitting	
		QS4	526 289 LFR-QS4-D-7-5M-MICRO
		QS6	526 293 LFR-QS6-D-7-5M-MICRO
Semi-automatic	Micro	Without threaded connecting plates, connecting thread in housing	
		M5	526 274 LFR-M5-D-7-5M-MICRO-H
		M7	534 185 LFR-M7-D-7-5M-MICRO-H B
		With threaded connecting plates	
		G $\frac{1}{8}$	526 278 LFR- $\frac{1}{8}$ -D-7-5M-MICRO-H
		With connecting plate and push-in fitting	
		QS4	526 290 LFR-QS4-D-7-5M-MICRO-H
		QS6	526 294 LFR-QS6-D-7-5M-MICRO-H
<b>Without pressure gauge</b>			
Turned manually	Micro	Without threaded connecting plates, connecting thread in housing	
		M5	526 275 LFR-M5-D-7-0-5M-MICRO
		M7	534 186 LFR-M7-D-7-0-5M-MICRO B
		With threaded connecting plates	
		G $\frac{1}{8}$	526 279 LFR- $\frac{1}{8}$ -D-7-0-5M-MICRO
		With connecting plate and push-in fitting	
		QS4	526 291 LFR-QS4-D-7-0-5M-MICRO
		QS6	526 295 LFR-QS6-D-7-0-5M-MICRO
Semi-automatic	Micro	Without threaded connecting plates, connecting thread in housing	
		M5	526 276 LFR-M5-D-7-0-5M-MICRO-H
		M7	534 187 LFR-M7-D-7-0-5M-MICRO-H B
		With threaded connecting plates	
		G $\frac{1}{8}$	526 280 LFR- $\frac{1}{8}$ -D-7-0-5M-MICRO-H
		With connecting plate and push-in fitting	
		QS4	526 292 LFR-QS4-D-7-0-5M-MICRO-H
		QS6	526 296 LFR-QS6-D-7-0-5M-MICRO-H

# Filter regulators LFR/LFRS, D series, metal design

Technical data

Ordering data							
Pressure regulation range 0.5 ... 12 bar, metal bowl guard							
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm		
			Part No.	Type	Part No.	Type	
With pressure gauge							
Turned manually	Mini	G1/8	162 718	LFR-1/8-D-5M-MINI	159 630	LFR-1/8-D-MINI	
		G1/4	162 719	LFR-1/4-D-5M-MINI	159 631	LFR-1/4-D-MINI	
		G3/8	162 720	LFR-3/8-D-5M-MINI	162 682	LFR-3/8-D-MINI	
	Midi	G1/4	186 483	LFR-1/4-D-5M-MIDI	186 481	LFR-1/4-D-MIDI	
		G3/8	162 721	LFR-3/8-D-5M-MIDI	159 582	LFR-3/8-D-MIDI	
		G1/2	162 722	LFR-1/2-D-5M-MIDI	159 584	LFR-1/2-D-MIDI	
		G3/4	162 723	LFR-3/4-D-5M-MIDI	162 683	LFR-3/4-D-MIDI	
	Maxi	G1/2	186 491	LFR-1/2-D-5M-MAXI	186 489	LFR-1/2-D-MAXI	
		G3/4	162 724	LFR-3/4-D-5M-MAXI	159 632	LFR-3/4-D-MAXI	
		G1	162 725	LFR-1-D-5M-MAXI	159 633	LFR-1-D-MAXI	
	Fully automatic						
	Fully automatic	Mini	G1/8	162 726	LFR-1/8-D-5M-MINI-A	159 634	LFR-1/8-D-MINI-A
G1/4			162 727	LFR-1/4-D-5M-MINI-A	159 635	LFR-1/4-D-MINI-A	
G3/8			162 728	LFR-3/8-D-5M-MINI-A	162 684	LFR-3/8-D-MINI-A	
Midi		G1/4	186 486	LFR-1/4-D-5M-MIDI-A	186 484	LFR-1/4-D-MIDI-A	
		G3/8	162 729	LFR-3/8-D-5M-MIDI-A	159 583	LFR-3/8-D-MIDI-A	
		G1/2	162 730	LFR-1/2-D-5M-MIDI-A	159 585	LFR-1/2-D-MIDI-A	
		G3/4	162 731	LFR-3/4-D-5M-MIDI-A	162 685	LFR-3/4-D-MIDI-A	
Maxi		G1/2	186 494	LFR-1/2-D-5M-MAXI-A	186 492	LFR-1/2-D-MAXI-A	
		G3/4	162 732	LFR-3/4-D-5M-MAXI-A	159 636	LFR-3/4-D-MAXI-A	
		G1	162 733	LFR-1-D-5M-MAXI-A	159 637	LFR-1-D-MAXI-A	
Without pressure gauge							
Turned manually		Mini	G1/8	192 610	LFR-1/8-D-5M-O-MINI <sup>1)</sup>	162 686	LFR-1/8-D-O-MINI <sup>1)</sup>
	G1/4		192 611	LFR-1/4-D-5M-O-MINI <sup>1)</sup>	162 687	LFR-1/4-D-O-MINI <sup>1)</sup>	
	G3/8		192 612	LFR-3/8-D-5M-O-MINI <sup>1)</sup>	162 688	LFR-3/8-D-O-MINI <sup>1)</sup>	
	Midi	G1/4	192 613	LFR-1/4-D-5M-O-MIDI <sup>1)</sup>	186 482	LFR-1/4-D-O-MIDI <sup>1)</sup>	
		G3/8	192 614	LFR-3/8-D-5M-O-MIDI <sup>1)</sup>	162 689	LFR-3/8-D-O-MIDI <sup>1)</sup>	
		G1/2	192 615	LFR-1/2-D-5M-O-MIDI <sup>1)</sup>	162 690	LFR-1/2-D-O-MIDI <sup>1)</sup>	
		G3/4	192 616	LFR-3/4-D-5M-O-MIDI <sup>1)</sup>	162 691	LFR-3/4-D-O-MIDI <sup>1)</sup>	
	Maxi	G1/2	192 617	LFR-1/2-D-5M-O-MAXI <sup>1)</sup>	186 490	LFR-1/2-D-O-MAXI <sup>1)</sup>	
		G3/4	192 618	LFR-3/4-D-5M-O-MAXI <sup>1)</sup>	162 692	LFR-3/4-D-O-MAXI <sup>1)</sup>	
		G1	192 619	LFR-1-D-5M-O-MAXI <sup>1)</sup>	162 693	LFR-1-D-O-MAXI <sup>1)</sup>	
	Fully automatic						
	Fully automatic	Mini	G1/8	192 620	LFR-1/8-D-5M-O-MINI-A <sup>1)</sup>	162 694	LFR-1/8-D-O-MINI-A <sup>1)</sup>
G1/4			192 621	LFR-1/4-D-5M-O-MINI-A <sup>1)</sup>	162 695	LFR-1/4-D-O-MINI-A <sup>1)</sup>	
G3/8			192 622	LFR-3/8-D-5M-O-MINI-A <sup>1)</sup>	162 696	LFR-3/8-D-O-MINI-A <sup>1)</sup>	
Midi		G1/4	192 623	LFR-1/4-D-5M-O-MIDI-A <sup>1)</sup>	186 485	LFR-1/4-D-O-MIDI-A <sup>1)</sup>	
		G3/8	192 624	LFR-3/8-D-5M-O-MIDI-A <sup>1)</sup>	162 697	LFR-3/8-D-O-MIDI-A <sup>1)</sup>	
		G1/2	192 625	LFR-1/2-D-5M-O-MIDI-A <sup>1)</sup>	162 698	LFR-1/2-D-O-MIDI-A <sup>1)</sup>	
		G3/4	192 626	LFR-3/4-D-5M-O-MIDI-A <sup>1)</sup>	162 699	LFR-3/4-D-O-MIDI-A <sup>1)</sup>	
Maxi		G1/2	192 627	LFR-1/2-D-5M-O-MAXI-A <sup>1)</sup>	186 493	LFR-1/2-D-O-MAXI-A <sup>1)</sup>	
		G3/4	192 628	LFR-3/4-D-5M-O-MAXI-A <sup>1)</sup>	162 700	LFR-3/4-D-O-MAXI-A <sup>1)</sup>	
		G1	192 629	LFR-1-D-5M-O-MAXI-A <sup>1)</sup>	162 701	LFR-1-D-O-MAXI-A <sup>1)</sup>	

1) Free of copper and PTFE

# Filter regulators LFR/LFRS, D series, metal design

FESTO

Technical data

Ordering data				
Pressure regulation range 0.5 ... 7 bar, metal bowl guard				
Condensate drain	Size	Connection	Grade of filtration 40 µm	
			Part No.	Type
<b>With pressure gauge</b>				
Turned manually	Mini	G $\frac{1}{8}$	162 702	LFR- $\frac{1}{8}$ -D-7-MINI
		G $\frac{1}{4}$	162 703	LFR- $\frac{1}{4}$ -D-7-MINI
		G $\frac{3}{8}$	162 704	LFR- $\frac{3}{8}$ -D-7-MINI
	Midi	G $\frac{1}{4}$	186 487	LFR- $\frac{1}{4}$ -D-7-MIDI
		G $\frac{3}{8}$	162 705	LFR- $\frac{3}{8}$ -D-7-MIDI
		G $\frac{1}{2}$	162 706	LFR- $\frac{1}{2}$ -D-7-MIDI
		G $\frac{3}{4}$	162 707	LFR- $\frac{3}{4}$ -D-7-MIDI
	Maxi	G $\frac{1}{2}$	186 495	LFR- $\frac{1}{2}$ -D-7-MAXI
		G $\frac{3}{4}$	162 708	LFR- $\frac{3}{4}$ -D-7-MAXI
G1	162 709	LFR-1-D-7-MAXI		
<b>Fully automatic</b>				
Fully automatic	Mini	G $\frac{1}{8}$	162 710	LFR- $\frac{1}{8}$ -D-7-MINI-A
		G $\frac{1}{4}$	162 711	LFR- $\frac{1}{4}$ -D-7-MINI-A
		G $\frac{3}{8}$	162 712	LFR- $\frac{3}{8}$ -D-7-MINI-A
	Midi	G $\frac{1}{4}$	186 488	LFR- $\frac{1}{4}$ -D-7-MIDI-A
		G $\frac{3}{8}$	162 713	LFR- $\frac{3}{8}$ -D-7-MIDI-A
		G $\frac{1}{2}$	162 714	LFR- $\frac{1}{2}$ -D-7-MIDI-A
		G $\frac{3}{4}$	162 715	LFR- $\frac{3}{4}$ -D-7-MIDI-A
	Maxi	G $\frac{1}{2}$	186 496	LFR- $\frac{1}{2}$ -D-7-MAXI-A
		G $\frac{3}{4}$	162 716	LFR- $\frac{3}{4}$ -D-7-MAXI-A
G1	162 717	LFR-1-D-7-MAXI-A		
<b>Without pressure gauge</b>				
Turned manually	Mini	G $\frac{1}{8}$	192 590	LFR- $\frac{1}{8}$ -D-7-O-MINI <sup>1)</sup>
		G $\frac{1}{4}$	192 591	LFR- $\frac{1}{4}$ -D-7-O-MINI <sup>1)</sup>
		G $\frac{3}{8}$	192 592	LFR- $\frac{3}{8}$ -D-7-O-MINI <sup>1)</sup>
	Midi	G $\frac{1}{4}$	192 593	LFR- $\frac{1}{4}$ -D-7-O-MIDI <sup>1)</sup>
		G $\frac{3}{8}$	192 594	LFR- $\frac{3}{8}$ -D-7-O-MIDI <sup>1)</sup>
		G $\frac{1}{2}$	192 595	LFR- $\frac{1}{2}$ -D-7-O-MIDI <sup>1)</sup>
		G $\frac{3}{4}$	192 596	LFR- $\frac{3}{4}$ -D-7-O-MIDI <sup>1)</sup>
	Maxi	G $\frac{1}{2}$	192 597	LFR- $\frac{1}{2}$ -D-7-O-MAXI <sup>1)</sup>
		G $\frac{3}{4}$	192 598	LFR- $\frac{3}{4}$ -D-7-O-MAXI <sup>1)</sup>
G1	192 599	LFR-1-D-7-O-MAXI <sup>1)</sup>		
<b>Fully automatic</b>				
Fully automatic	Mini	G $\frac{1}{8}$	192 600	LFR- $\frac{1}{8}$ -D-7-O-MINI-A <sup>1)</sup>
		G $\frac{1}{4}$	192 601	LFR- $\frac{1}{4}$ -D-7-O-MINI-A <sup>1)</sup>
		G $\frac{3}{8}$	192 602	LFR- $\frac{3}{8}$ -D-7-O-MINI-A <sup>1)</sup>
	Midi	G $\frac{1}{4}$	192 603	LFR- $\frac{1}{4}$ -D-7-O-MIDI-A <sup>1)</sup>
		G $\frac{3}{8}$	192 604	LFR- $\frac{3}{8}$ -D-7-O-MIDI-A <sup>1)</sup>
		G $\frac{1}{2}$	192 605	LFR- $\frac{1}{2}$ -D-7-O-MIDI-A <sup>1)</sup>
		G $\frac{3}{4}$	192 606	LFR- $\frac{3}{4}$ -D-7-O-MIDI-A <sup>1)</sup>
	Maxi	G $\frac{1}{2}$	192 607	LFR- $\frac{1}{2}$ -D-7-O-MAXI-A <sup>1)</sup>
		G $\frac{3}{4}$	192 608	LFR- $\frac{3}{4}$ -D-7-O-MAXI-A <sup>1)</sup>
G1	192 609	LFR-1-D-7-O-MAXI-A <sup>1)</sup>		

1) Free of copper and PTFE



# Filter regulators LFR/LFRS, D series, metal design

FESTO

Technical data

Ordering data						
Pressure regulation range 0.5 ... 12 bar, directly actuated diaphragm regulator with integrated return flow function						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
With pressure gauge						
Turned manually	Maxi	G $\frac{1}{2}$	192 370	LFR- $\frac{1}{2}$ -D-5M-DI-MAXI	192 368	LFR- $\frac{1}{2}$ -D-DI-MAXI
		G $\frac{3}{4}$	192 376	LFR- $\frac{3}{4}$ -D-5M-DI-MAXI	192 374	LFR- $\frac{3}{4}$ -D-DI-MAXI
		G1	192 382	LFR-1-D-5M-DI-MAXI	192 380	LFR-1-D-DI-MAXI
Fully automatic	Maxi	G $\frac{1}{2}$	192 388	LFR- $\frac{1}{2}$ -D-5M-DI-MAXI-A	192 386	LFR- $\frac{1}{2}$ -D-DI-MAXI-A
		G $\frac{3}{4}$	192 394	LFR- $\frac{3}{4}$ -D-5M-DI-MAXI-A	192 392	LFR- $\frac{3}{4}$ -D-DI-MAXI-A
		G1	192 400	LFR-1-D-5M-DI-MAXI-A	192 398	LFR-1-D-DI-MAXI-A
Without pressure gauge						
Turned manually	Maxi	G $\frac{1}{2}$	192 371	LFR- $\frac{1}{2}$ -D-5M-O-DI-MAXI	192 369	LFR- $\frac{1}{2}$ -D-O-DI-MAXI
		G $\frac{3}{4}$	192 377	LFR- $\frac{3}{4}$ -D-5M-O-DI-MAXI	192 375	LFR- $\frac{3}{4}$ -D-O-DI-MAXI
		G1	192 383	LFR-1-D-5M-O-DI-MAXI	192 381	LFR-1-D-O-DI-MAXI
Fully automatic	Maxi	G $\frac{1}{2}$	192 389	LFR- $\frac{1}{2}$ -D-5M-O-DI-MAXI-A	192 387	LFR- $\frac{1}{2}$ -D-O-DI-MAXI-A
		G $\frac{3}{4}$	192 395	LFR- $\frac{3}{4}$ -D-5M-O-DI-MAXI-A	192 393	LFR- $\frac{3}{4}$ -D-O-DI-MAXI-A
		G1	192 401	LFR-1-D-5M-O-DI-MAXI-A	192 399	LFR-1-D-O-DI-MAXI-A

Ordering data						
Pressure regulation range 0.5 ... 7 bar, directly actuated diaphragm regulator with integrated return flow function						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
With pressure gauge						
Turned manually	Maxi	G $\frac{1}{2}$	–	–	192 372	LFR- $\frac{1}{2}$ -D-7-DI-MAXI
		G $\frac{3}{4}$	–	–	192 378	LFR- $\frac{3}{4}$ -D-7-DI-MAXI
		G1	–	–	192 384	LFR-1-D-7-DI-MAXI
Fully automatic	Maxi	G $\frac{1}{2}$	–	–	192 390	LFR- $\frac{1}{2}$ -D-7-DI-MAXI-A
		G $\frac{3}{4}$	–	–	192 396	LFR- $\frac{3}{4}$ -D-7-DI-MAXI-A
		G1	–	–	192 402	LFR-1-D-7-DI-MAXI-A
Without pressure gauge						
Turned manually	Maxi	G $\frac{1}{2}$	–	–	192 373	LFR- $\frac{1}{2}$ -D-7-O-DI-MAXI
		G $\frac{3}{4}$	–	–	192 379	LFR- $\frac{3}{4}$ -D-7-O-DI-MAXI
		G1	–	–	192 385	LFR-1-D-7-O-DI-MAXI
Fully automatic	Maxi	G $\frac{1}{2}$	–	–	192 391	LFR- $\frac{1}{2}$ -D-7-O-DI-MAXI-A
		G $\frac{3}{4}$	–	–	192 397	LFR- $\frac{3}{4}$ -D-7-O-DI-MAXI-A
		G1	–	–	192 403	LFR-1-D-7-O-DI-MAXI-A

# Filter regulators LFR/LFRS, D series, metal design

FESTO

Technical data

Ordering data						
Pressure regulation range 0.5 ... 12 bar, lockable						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
<b>With pressure gauge</b>						
Turned manually	Mini	G $\frac{1}{8}$	194 704	LFRS- $\frac{1}{8}$ -D-5M-MINI	194 696	LFRS- $\frac{1}{8}$ -D-MINI
		G $\frac{1}{4}$	194 716	LFRS- $\frac{1}{4}$ -D-5M-MINI	194 708	LFRS- $\frac{1}{4}$ -D-MINI
		G $\frac{3}{8}$	194 728	LFRS- $\frac{3}{8}$ -D-5M-MINI	194 720	LFRS- $\frac{3}{8}$ -D-MINI
	Midi	G $\frac{1}{4}$	194 740	LFRS- $\frac{1}{4}$ -D-5M-MIDI	194 732	LFRS- $\frac{1}{4}$ -D-MIDI
		G $\frac{3}{8}$	194 752	LFRS- $\frac{3}{8}$ -D-5M-MIDI	194 744	LFRS- $\frac{3}{8}$ -D-MIDI
		G $\frac{1}{2}$	194 764	LFRS- $\frac{1}{2}$ -D-5M-MIDI	194 756	LFRS- $\frac{1}{2}$ -D-MIDI
		G $\frac{3}{4}$	194 776	LFRS- $\frac{3}{4}$ -D-5M-MIDI	194 768	LFRS- $\frac{3}{4}$ -D-MIDI
	Maxi	G $\frac{1}{2}$	194 788	LFRS- $\frac{1}{2}$ -D-5M-MAXI	194 780	LFRS- $\frac{1}{2}$ -D-MAXI
		G $\frac{3}{4}$	194 800	LFRS- $\frac{3}{4}$ -D-5M-MAXI	194 792	LFRS- $\frac{3}{4}$ -D-MAXI
		G1	194 812	LFRS-1-D-5M-MAXI	194 804	LFRS-1-D-MAXI
	<b>Fully automatic</b>					
	Fully automatic	Mini	G $\frac{1}{8}$	194 706	LFRS- $\frac{1}{8}$ -D-5M-MINI-A	194 697
G $\frac{1}{4}$			194 718	LFRS- $\frac{1}{4}$ -D-5M-MINI-A	194 709	LFRS- $\frac{1}{4}$ -D-MINI-A
G $\frac{3}{8}$			194 730	LFRS- $\frac{3}{8}$ -D-5M-MINI-A	194 721	LFRS- $\frac{3}{8}$ -D-MINI-A
Midi		G $\frac{1}{4}$	194 742	LFRS- $\frac{1}{4}$ -D-5M-MIDI-A	194 733	LFRS- $\frac{1}{4}$ -D-MIDI-A
		G $\frac{3}{8}$	194 754	LFRS- $\frac{3}{8}$ -D-5M-MIDI-A	194 745	LFRS- $\frac{3}{8}$ -D-MIDI-A
		G $\frac{1}{2}$	194 766	LFRS- $\frac{1}{2}$ -D-5M-MIDI-A	194 757	LFRS- $\frac{1}{2}$ -D-MIDI-A
		G $\frac{3}{4}$	194 778	LFRS- $\frac{3}{4}$ -D-5M-MIDI-A	194 769	LFRS- $\frac{3}{4}$ -D-MIDI-A
Maxi		G $\frac{1}{2}$	194 790	LFRS- $\frac{1}{2}$ -D-5M-MAXI-A	194 781	LFRS- $\frac{1}{2}$ -D-MAXI-A
		G $\frac{3}{4}$	194 802	LFRS- $\frac{3}{4}$ -D-5M-MAXI-A	194 793	LFRS- $\frac{3}{4}$ -D-MAXI-A
		G1	194 814	LFRS-1-D-5M-MAXI-A	194 805	LFRS-1-D-MAXI-A
<b>Without pressure gauge</b>						
Turned manually		Mini	G $\frac{1}{8}$	194 705	LFRS- $\frac{1}{8}$ -D-5M-O-MINI	194 698
	G $\frac{1}{4}$		194 717	LFRS- $\frac{1}{4}$ -D-5M-O-MINI	194 710	LFRS- $\frac{1}{4}$ -D-O-MINI
	G $\frac{3}{8}$		194 729	LFRS- $\frac{3}{8}$ -D-5M-O-MINI	194 722	LFRS- $\frac{3}{8}$ -D-O-MINI
	Midi	G $\frac{1}{4}$	194 741	LFRS- $\frac{1}{4}$ -D-5M-O-MIDI	194 734	LFRS- $\frac{1}{4}$ -D-O-MIDI
		G $\frac{3}{8}$	194 753	LFRS- $\frac{3}{8}$ -D-5M-O-MIDI	194 746	LFRS- $\frac{3}{8}$ -D-O-MIDI
		G $\frac{1}{2}$	194 765	LFRS- $\frac{1}{2}$ -D-5M-O-MIDI	194 758	LFRS- $\frac{1}{2}$ -D-O-MIDI
		G $\frac{3}{4}$	194 777	LFRS- $\frac{3}{4}$ -D-5M-O-MIDI	194 770	LFRS- $\frac{3}{4}$ -D-O-MIDI
	Maxi	G $\frac{1}{2}$	194 789	LFRS- $\frac{1}{2}$ -D-5M-O-MAXI	194 782	LFRS- $\frac{1}{2}$ -D-O-MAXI
		G $\frac{3}{4}$	194 801	LFRS- $\frac{3}{4}$ -D-5M-O-MAXI	194 794	LFRS- $\frac{3}{4}$ -D-O-MAXI
		G1	194 813	LFRS-1-D-5M-O-MAXI	194 806	LFRS-1-D-O-MAXI
	<b>Fully automatic</b>					
	Fully automatic	Mini	G $\frac{1}{8}$	194 707	LFRS- $\frac{1}{8}$ -D-5M-O-MINI-A	194 699
G $\frac{1}{4}$			194 719	LFRS- $\frac{1}{4}$ -D-5M-O-MINI-A	194 711	LFRS- $\frac{1}{4}$ -D-O-MINI-A
G $\frac{3}{8}$			194 731	LFRS- $\frac{3}{8}$ -D-5M-O-MINI-A	194 723	LFRS- $\frac{3}{8}$ -D-O-MINI-A
Midi		G $\frac{1}{4}$	194 743	LFRS- $\frac{1}{4}$ -D-5M-O-MIDI-A	194 735	LFRS- $\frac{1}{4}$ -D-O-MIDI-A
		G $\frac{3}{8}$	194 755	LFRS- $\frac{3}{8}$ -D-5M-O-MIDI-A	194 747	LFRS- $\frac{3}{8}$ -D-O-MIDI-A
		G $\frac{1}{2}$	194 767	LFRS- $\frac{1}{2}$ -D-5M-O-MIDI-A	194 759	LFRS- $\frac{1}{2}$ -D-O-MIDI-A
		G $\frac{3}{4}$	194 779	LFRS- $\frac{3}{4}$ -D-5M-O-MIDI-A	194 771	LFRS- $\frac{3}{4}$ -D-O-MIDI-A
Maxi		G $\frac{1}{2}$	194 791	LFRS- $\frac{1}{2}$ -D-5M-O-MAXI-A	194 783	LFRS- $\frac{1}{2}$ -D-O-MAXI-A
		G $\frac{3}{4}$	194 803	LFRS- $\frac{3}{4}$ -D-5M-O-MAXI-A	194 795	LFRS- $\frac{3}{4}$ -D-O-MAXI-A
		G1	194 815	LFRS-1-D-5M-O-MAXI-A	194 807	LFRS-1-D-O-MAXI-A

# Filter regulators LFR/LFRS, D series, metal design

Technical data

Ordering data				
Pressure regulation range 0.5 ... 7 bar, lockable				
Condensate drain	Size	Connection	Grade of filtration 40 µm	
			Part No.	Type
With pressure gauge				
Turned manually	Mini	G <sup>1</sup> / <sub>8</sub>	194 700	LFRS- <sup>1</sup> / <sub>8</sub> -D-7-MINI
		G <sup>1</sup> / <sub>4</sub>	194 712	LFRS- <sup>1</sup> / <sub>4</sub> -D-7-MINI
		G <sup>3</sup> / <sub>8</sub>	194 724	LFRS- <sup>3</sup> / <sub>8</sub> -D-7-MINI
	Midi	G <sup>1</sup> / <sub>4</sub>	194 736	LFRS- <sup>1</sup> / <sub>4</sub> -D-7-MIDI
		G <sup>3</sup> / <sub>8</sub>	194 748	LFRS- <sup>3</sup> / <sub>8</sub> -D-7-MIDI
		G <sup>1</sup> / <sub>2</sub>	194 760	LFRS- <sup>1</sup> / <sub>2</sub> -D-7-MIDI
		G <sup>3</sup> / <sub>4</sub>	194 772	LFRS- <sup>3</sup> / <sub>4</sub> -D-7-MIDI
	Maxi	G <sup>1</sup> / <sub>2</sub>	194 784	LFRS- <sup>1</sup> / <sub>2</sub> -D-7-MAXI
		G <sup>3</sup> / <sub>4</sub>	194 796	LFRS- <sup>3</sup> / <sub>4</sub> -D-7-MAXI
		G1	194 808	LFRS-1-D-7-MAXI
Fully automatic				
Fully automatic	Mini	G <sup>1</sup> / <sub>8</sub>	194 702	LFRS- <sup>1</sup> / <sub>8</sub> -D-7-MINI-A
		G <sup>1</sup> / <sub>4</sub>	194 714	LFRS- <sup>1</sup> / <sub>4</sub> -D-7-MINI-A
		G <sup>3</sup> / <sub>8</sub>	194 726	LFRS- <sup>3</sup> / <sub>8</sub> -D-7-MINI-A
	Midi	G <sup>1</sup> / <sub>4</sub>	194 738	LFRS- <sup>1</sup> / <sub>4</sub> -D-7-MIDI-A
		G <sup>3</sup> / <sub>8</sub>	194 750	LFRS- <sup>3</sup> / <sub>8</sub> -D-7-MIDI-A
		G <sup>1</sup> / <sub>2</sub>	194 762	LFRS- <sup>1</sup> / <sub>2</sub> -D-7-MIDI-A
		G <sup>3</sup> / <sub>4</sub>	194 774	LFRS- <sup>3</sup> / <sub>4</sub> -D-7-MIDI-A
	Maxi	G <sup>1</sup> / <sub>2</sub>	194 786	LFRS- <sup>1</sup> / <sub>2</sub> -D-7-MAXI-A
		G <sup>3</sup> / <sub>4</sub>	194 798	LFRS- <sup>3</sup> / <sub>4</sub> -D-7-MAXI-A
		G1	194 810	LFRS-1-D-7-MAXI-A
Without pressure gauge				
Turned manually	Mini	G <sup>1</sup> / <sub>8</sub>	194 701	LFRS- <sup>1</sup> / <sub>8</sub> -D-7-O-MINI
		G <sup>1</sup> / <sub>4</sub>	194 713	LFRS- <sup>1</sup> / <sub>4</sub> -D-7-O-MINI
		G <sup>3</sup> / <sub>8</sub>	194 725	LFRS- <sup>3</sup> / <sub>8</sub> -D-7-O-MINI
	Midi	G <sup>1</sup> / <sub>4</sub>	194 737	LFRS- <sup>1</sup> / <sub>4</sub> -D-7-O-MIDI
		G <sup>3</sup> / <sub>8</sub>	194 749	LFRS- <sup>3</sup> / <sub>8</sub> -D-7-O-MIDI
		G <sup>1</sup> / <sub>2</sub>	194 761	LFRS- <sup>1</sup> / <sub>2</sub> -D-7-O-MIDI
		G <sup>3</sup> / <sub>4</sub>	194 773	LFRS- <sup>3</sup> / <sub>4</sub> -D-7-O-MIDI
	Maxi	G <sup>1</sup> / <sub>2</sub>	194 785	LFRS- <sup>1</sup> / <sub>2</sub> -D-7-O-MAXI
		G <sup>3</sup> / <sub>4</sub>	194 797	LFRS- <sup>3</sup> / <sub>4</sub> -D-7-O-MAXI
		G1	194 809	LFRS-1-D-7-O-MAXI
Fully automatic				
Fully automatic	Mini	G <sup>1</sup> / <sub>8</sub>	194 703	LFRS- <sup>1</sup> / <sub>8</sub> -D-7-O-MINI-A
		G <sup>1</sup> / <sub>4</sub>	194 715	LFRS- <sup>1</sup> / <sub>4</sub> -D-7-O-MINI-A
		G <sup>3</sup> / <sub>8</sub>	194 727	LFRS- <sup>3</sup> / <sub>8</sub> -D-7-O-MINI-A
	Midi	G <sup>1</sup> / <sub>4</sub>	194 739	LFRS- <sup>1</sup> / <sub>4</sub> -D-7-O-MIDI-A
		G <sup>3</sup> / <sub>8</sub>	194 751	LFRS- <sup>3</sup> / <sub>8</sub> -D-7-O-MIDI-A
		G <sup>1</sup> / <sub>2</sub>	194 763	LFRS- <sup>1</sup> / <sub>2</sub> -D-7-O-MIDI-A
		G <sup>3</sup> / <sub>4</sub>	194 775	LFRS- <sup>3</sup> / <sub>4</sub> -D-7-O-MIDI-A
	Maxi	G <sup>1</sup> / <sub>2</sub>	194 787	LFRS- <sup>1</sup> / <sub>2</sub> -D-7-O-MAXI-A
		G <sup>3</sup> / <sub>4</sub>	194 799	LFRS- <sup>3</sup> / <sub>4</sub> -D-7-O-MAXI-A
		G1	194 811	LFRS-1-D-7-O-MAXI-A

# Filter regulators LFR/LFRS, D series, metal design

FESTO

Technical data

Ordering data						
Pressure regulation range 0.5 ... 12 bar, directly actuated diaphragm regulator with integrated return flow function, lockable						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
With pressure gauge						
Turned manually	Maxi	G1/2	194 818	LFRS-1/2-D-5M-DI-MAXI	194 816	LFRS-1/2-D-DI-MAXI
		G3/4	194 824	LFRS-3/4-D-5M-DI-MAXI	194 822	LFRS-3/4-D-DI-MAXI
		G1	194 830	LFRS-1-D-5M-DI-MAXI	194 828	LFRS-1-D-DI-MAXI
Fully automatic	Maxi	G1/2	194 836	LFRS-1/2-D-5M-DI-MAXI-A	194 834	LFRS-1/2-D-DI-MAXI-A
		G3/4	194 842	LFRS-3/4-D-5M-DI-MAXI-A	194 840	LFRS-3/4-D-DI-MAXI-A
		G1	194 848	LFRS-1-D-5M-DI-MAXI-A	194 846	LFRS-1-D-DI-MAXI-A
Without pressure gauge						
Turned manually	Maxi	G1/2	194 819	LFRS-1/2-D-5M-O-DI-MAXI	194 817	LFRS-1/2-D-O-DI-MAXI
		G3/4	194 825	LFRS-3/4-D-5M-O-DI-MAXI	194 823	LFRS-3/4-D-O-DI-MAXI
		G1	194 831	LFRS-1-D-5M-O-DI-MAXI	194 829	LFRS-1-D-O-DI-MAXI
Fully automatic	Maxi	G1/2	194 837	LFRS-1/2-D-5M-O-DI-MAXI-A	194 835	LFRS-1/2-D-O-DI-MAXI-A
		G3/4	194 843	LFRS-3/4-D-5M-O-DI-MAXI-A	194 841	LFRS-3/4-D-O-DI-MAXI-A
		G1	194 849	LFRS-1-D-5M-O-DI-MAXI-A	194 847	LFRS-1-D-O-DI-MAXI-A

Ordering data						
Pressure regulation range 0.5 ... 7 bar, directly actuated diaphragm regulator with integrated return flow function, lockable						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
With pressure gauge						
Turned manually	Maxi	G1/2	–		194 820	LFRS-1/2-D-7-DI-MAXI
		G3/4	–		194 826	LFRS-3/4-D-7-DI-MAXI
		G1	–		194 832	LFRS-1-D-7-DI-MAXI
Fully automatic	Maxi	G1/2	–		194 838	LFRS-1/2-D-7-DI-MAXI-A
		G3/4	–		194 844	LFRS-3/4-D-7-DI-MAXI-A
		G1	–		194 850	LFRS-1-D-7-DI-MAXI-A
Without pressure gauge						
Turned manually	Maxi	G1/2	–		194 821	LFRS-1/2-D-7-O-DI-MAXI
		G3/4	–		194 827	LFRS-3/4-D-7-O-DI-MAXI
		G1	–		194 833	LFRS-1-D-7-O-DI-MAXI
Fully automatic	Maxi	G1/2	–		194 839	LFRS-1/2-D-7-O-DI-MAXI-A
		G3/4	–		194 845	LFRS-3/4-D-7-O-DI-MAXI-A
		G1	–		194 851	LFRS-1-D-7-O-DI-MAXI-A

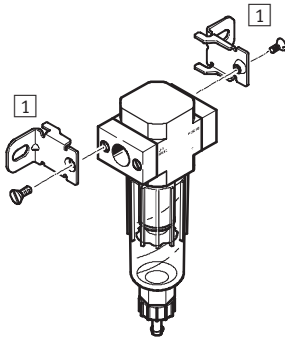
# Filters LF, D series, metal design

Peripherals overview

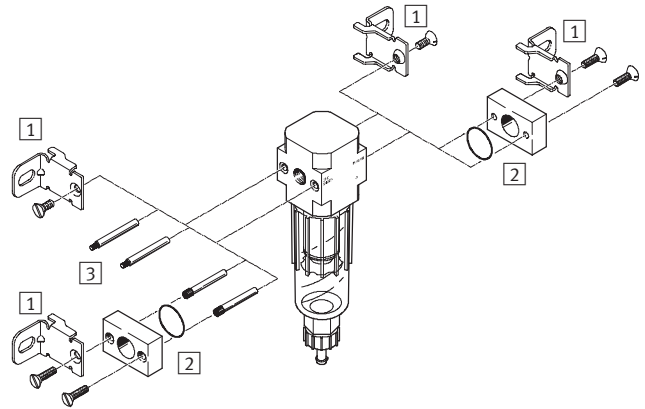
FESTO

## Micro

Individual unit with connection plates,  
connection size G $\frac{1}{8}$ , QS4 or QS6



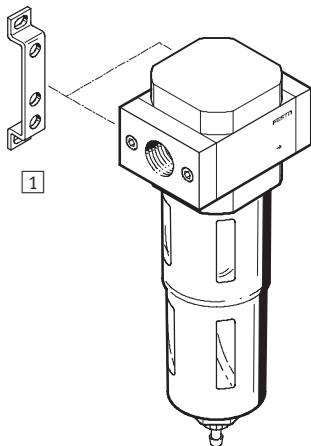
Individual unit without connection plates, for service unit combination  
connection size M5 or M7 in housing



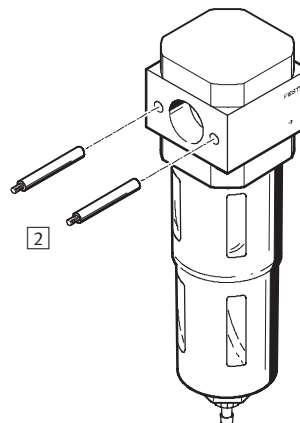
Mounting attachments and accessories					
	Individual unit		Combination		→ Page
	with connection plates	without connection plates	with connection plates	without connection plates	
1 Mounting bracket HFOE	■	■	■	■	198
2 Connecting plate kit PBL	-	■	-	■	202
3 Threaded pin FRB	-	-	■	■	200

## Mini/Midi/Maxi

Individual unit with connection plates



Individual unit without connection plates, for service unit combination



Mounting attachments and accessories					
	Individual unit		Combination		→ Page
	with connection plates	without connection plates	with connection plates	without connection plates	
1 Mounting bracket HFOE	■	-	■	-	198
2 Threaded pin (included in scope of delivery) FRB	-	-	■	■	200

# Filters LF, D series, metal design

Type codes

LF – 1/4 – D – 5M – MIDI – A

### Basic function

LF	Filter
----	--------

### Pneumatic connection

M5	Thread M5
M7	Thread M7
QS4	Push-in fitting QS4
QS6	Push-in fitting QS6
1/8	Thread G1/8
1/4	Thread G1/4
3/8	Thread G3/8
1/2	Thread G1/2
3/4	Thread G3/4
1	Thread G1

### Series

D	Series
---	--------

### Grade of filtration

5M	5 µm
	40 µm

### Size

MICRO	Grid dimension 25 mm (without connecting plates)
MINI	Grid dimension 40 mm (without connecting plates)
MIDI	Grid dimension 55 mm (without connecting plates)
MAXI	Grid dimension 66 mm (without connecting plates)

### Condensate drain

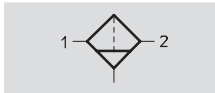
	Turned manually
H	Semi-automatic
A	Fully automatic

# Filters LF, D series, metal design

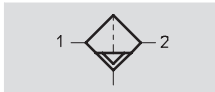
Technical data


Function


Condensate drain  
turned manually




semi- or fully automatic



-  - Flow rate  
170 ... 5300 l/min

-  - Temperature range  
-10 ... +60 °C

-  - Input pressure  
0 ... 16 bar



- Good particle and condensate separation
- High flow rate with minimal pressure drop
- With manual or fully automatic condensate drain
- Choice of filter cartridges: 5 µm or 40 µm
- Filter cartridges → 212

General technical data																
Size	Micro					Mini			Midi				Maxi			
Pneumatic connection	M5	M7	G1/8	QS4	QS6	G1/8	G1/4	G3/8	G1/4	G3/8	G1/2	G3/4	G1/2	G3/4	G1	
Operating medium	Compressed air					Compressed air										
Design	Sintered filter with centrifugal separation					Sintered filter with centrifugal separation										
Type of mounting	Via accessories					Via accessories										
	In-line installation					In-line installation										
Assembly position	Vertical ±5°					Vertical ±5°										
Grade of filtration [µm]	5					5 or 40										
Max. condensate volume [cm <sup>3</sup> ]	3					22			43				80			
Input pressure [bar]																
Condensate drain	turned manually					0 ... 10			0 ... 16							
	semi-automatic					1 ... 10			-							
	fully automatic					-			2 ... 12							

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

Standard nominal flow rate <sup>1)</sup> qnN [l/min]						
Connection	Female thread			Connecting plate		
	M5	M7		G1/8	QS4	QS6
Micro						
LF	170	280		290	170	280

1) Measured at p<sub>1</sub> = 6 bar and Δp = 1 bar.  
A minimum flow rate of 125 l/min is required for flawless functioning.

# Filters LF, D series, metal design

Technical data

Standard nominal flow rate <sup>1)</sup> qnN [l/min]						
Connection	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1
<b>Mini</b>						
LF-...-D-...(-A)	1000	1200	1400	-	-	-
LF-...-D-5M-...(-A)	800	950	1100	-	-	-
<b>Midi</b>						
LF-...-D-...(-A)	-	1900	2700	3000	3000	-
LF-...-D-5M-...(-A)	-	1600	1800	2000	2000	-
<b>Maxi</b>						
LF-...-D-...(-A)	-	-	-	4400	5000	5300
LF-...-D-5M-...(-A)	-	-	-	3700	3600	3800

- 1) Measured at p<sub>1</sub> = 6 bar and Δp = 1 bar.  
A minimum flow rate of 125 l/min is required for flawless functioning.

Screw-in depth of connecting thread [mm]					
Connection	M5	M7	G $\frac{1}{8}$	QS4	QS6
<b>Micro</b>					
In housing	5	6	-	-	-
In connecting plates	-	-	8	-	-

Ambient conditions		Micro	Mini	Midi	Maxi
Ambient temperature	[°C]	-10 ... +60			
Temperature of medium	[°C]	-10 ... +60			
Corrosion resistance class	CRC <sup>1)</sup>	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.

Weight [g]						
Size	Micro		Mini	Midi	Maxi	
	Female thread	Connecting plate			Connection G $\frac{1}{2}$ , G $\frac{3}{4}$	Connection G1
LF-...	44	64	250	700	1340	1440

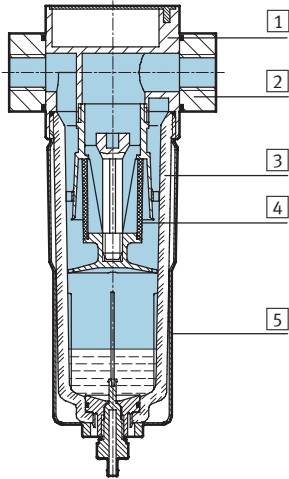


# Filters LF, D series, metal design

Technical data

## Materials

Sectional view



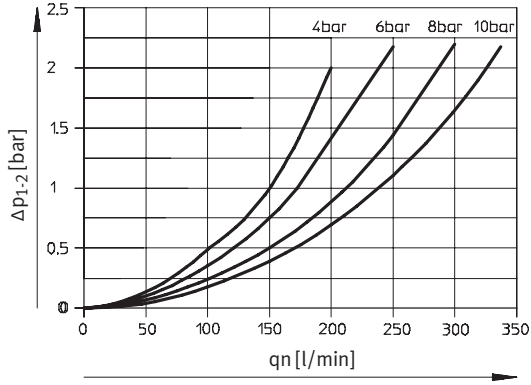
Filter	Micro	Mini/Midi/Maxi
1 Housing	Wrought aluminium alloy	Die-cast zinc
2 Connecting plates	Wrought aluminium alloy	Die-cast zinc/aluminium
3 Bowl	Polycarbonate	Polycarbonate
4 Filter cartridge	Polyethylene	Polyethylene
5 Metal bowl guard	-	Aluminium
- Seals	Nitrile rubber	Nitrile rubber

# Filters LF, D series, metal design

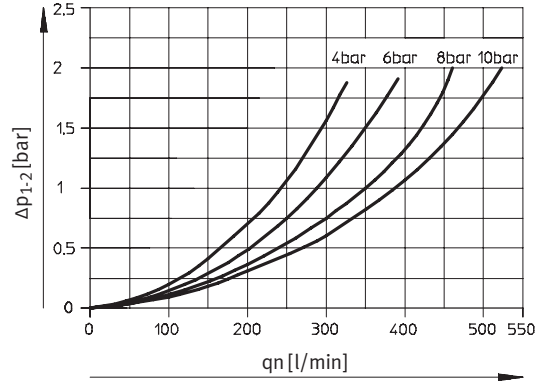
Technical data

## Standard flow rate $q_n$ as a function of the differential pressure $\Delta p_{1-2}$

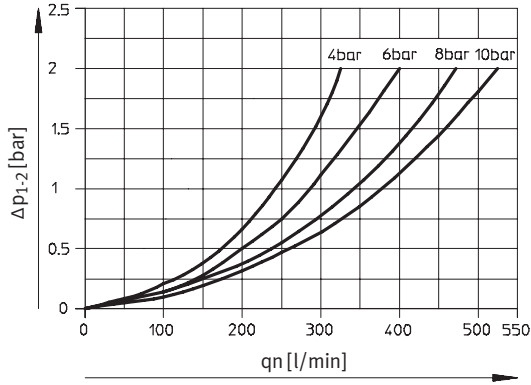
LF-M5-...-MICRO and LF-QS4-...-MICRO



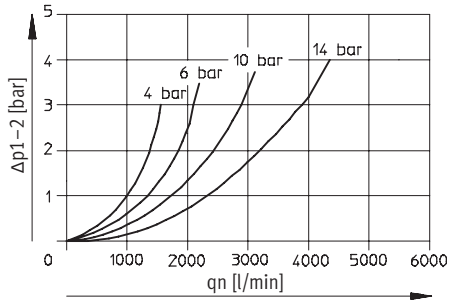
LF-1/8-...-MICRO



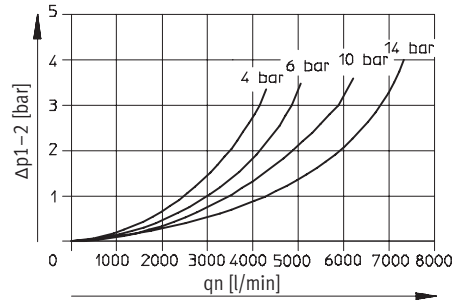
LF-M7-...-MICRO B and LF-QS6-...-MICRO



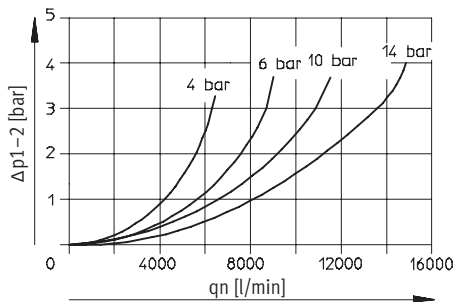
LF-1/4-D-MINI



LF-1/2-D-MIDI



LF-1-D-MAXI



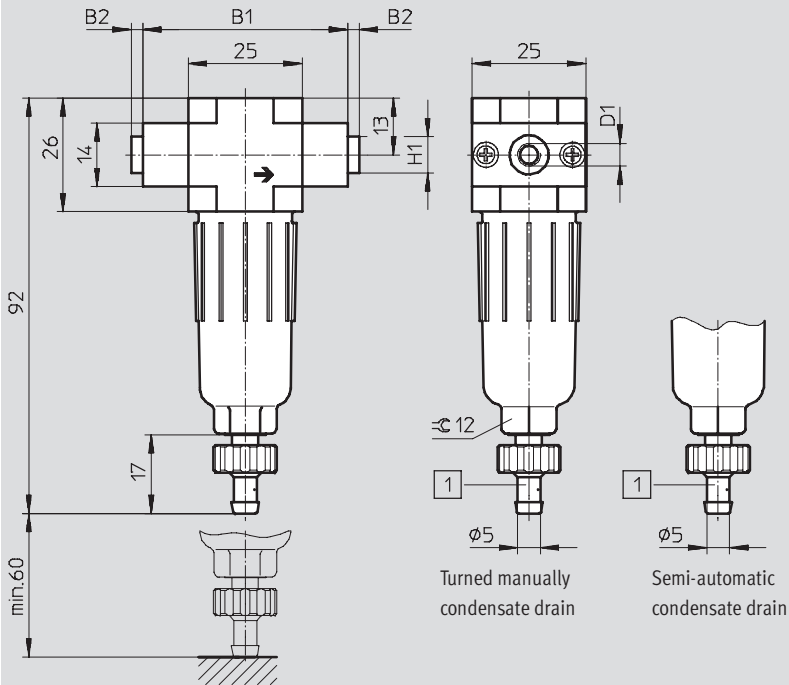
# Filters LF, D series, metal design

Technical data

## Dimensions

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Micro



1 Barbed fitting for plastic tubing type PCN-4

→ Flow direction

Type	B1	B2	D1	H1
LF-M5-D-5M-MICRO (H)	25	-	M5	-
LF-M7-D-5M-MICRO (H) B			M7	
LF-1/8-D-5M-MICRO (H)			G1/8	
LF-QS4-D-5M-MICRO (H)	45	~2.5	QS4	~8
LF-QS6-D-5M-MICRO (H)			QS6	~10

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

# Filters LF, D series, metal design

Technical data

FESTO

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Mini/Midi/Maxi

With threaded connecting plates Without threaded connecting plates

1 Barbed fitting for plastic tubing type PCN-4      2 Metal bowl guard      4 Threaded pin (exchangeable)      → Flow direction

3 Installation dimensions

Turned manually condensate drain      Fully automatic condensate drain

Type	B1	B2	B3	B4	B5	D1	D2	D3	D6	H1	H2	L1	L2	L3	L8	L9	T1	T2	⊕ 2
<b>Mini</b>																			
LF-1/8-D-MINI	64	52	40	30	-	G1/8	-	M4	38	20	11	144	124	60	15	19	7	-	22
LF-1/4-D-MINI	70					G1/4													
LF-3/8-D-MINI	70					G3/8													
LF-D-MINI	-	-				5.8	-	11										-	10
<b>Midi</b>																			
LF-1/4-D-MIDI	85	70	55	43	-	G1/4	-	M5	52	32	22	179	151	80	15	19	8	-	24
LF-3/8-D-MIDI						G3/8													
LF-1/2-D-MIDI						G1/2													
LF-3/4-D-MIDI						G3/4													
LF-D-MIDI	-	-				6.8	-	24										-	11
<b>Maxi</b>																			
LF-1/2-D-MAXI	96	80	66	46	-	G1/2	-	M5	65	32	22	203	170	90	15	19	8	-	24
LF-3/4-D-MAXI						G3/4													
LF-1-D-MAXI	116	91				G1													
LF-D-MAXI	-	-				6.8	-	30										-	11

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

# Filters LF, D series, metal design

Technical data

**FESTO**

Ordering data			
Input pressure 1 ... 10 bar			
Condensate drain	Size	Connection	Grade of filtration 5 µm
			Part No.    Type
Turned manually	Micro	Without threaded connecting plates, connecting thread in housing	
		M5	526 297    LF-M5-D-5M-MICRO
		M7	534 182    LF-M7-D-5M-MICRO B
		With threaded connecting plates	
		G $\frac{1}{8}$	526 299    LF- $\frac{1}{8}$ -D-5M-MICRO
		With connecting plate and push-in fitting	
		QS4	526 305    LF-QS4-D-5M-MICRO
	QS6	526 307    LF-QS6-D-5M-MICRO	
Semi-automatic	Micro	Without threaded connecting plates, connecting thread in housing	
		M5	526 298    LF-M5-D-5M-MICRO-H
		M7	534 183    LF-M7-D-5M-MICRO-H B
		With threaded connecting plates	
		G $\frac{1}{8}$	526 300    LF- $\frac{1}{8}$ -D-5M-MICRO-H
		With connecting plate and push-in fitting	
		QS4	526 306    LF-QS4-D-5M-MICRO-H
	QS6	526 308    LF-QS6-D-5M-MICRO-H	

Ordering data					
Input pressure 0 ... 16 bar, metal bowl guard					
Condensate drain	Size	Grade of filtration 5 µm		Grade of filtration 40 µm	
		Part No.	Type	Part No.	Type
Without threaded connecting plates					
Turned manually	Mini	192 557	LF-D-5M-MINI	192 551	LF-D-MINI
	Midi	192 558	LF-D-5M-MIDI	192 552	LF-D-MIDI
	Maxi	192 559	LF-D-5M-MAXI	192 553	LF-D-MAXI
Fully automatic	Mini	192 560	LF-D-5M-MINI-A	192 554	LF-D-MINI-A
	Midi	192 561	LF-D-5M-MIDI-A	192 555	LF-D-MIDI-A
	Maxi	192 562	LF-D-5M-MAXI-A	192 556	LF-D-MAXI-A

# Filters LF, D series, metal design

Technical data

Ordering data							
Input pressure 0 ... 16 bar, metal bowl guard							
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm		
			Part No.	Type	Part No.	Type	
With threaded connecting plates							
Turned manually	Mini	G $\frac{1}{8}$	162 610	LF- $\frac{1}{8}$ -D-5M-MINI	159 612	LF- $\frac{1}{8}$ -D-MINI	
		G $\frac{1}{4}$	162 611	LF- $\frac{1}{4}$ -D-5M-MINI	159 613	LF- $\frac{1}{4}$ -D-MINI	
		G $\frac{3}{8}$	162 612	LF- $\frac{3}{8}$ -D-5M-MINI	162 606	LF- $\frac{3}{8}$ -D-MINI	
	Midi	G $\frac{1}{4}$	186 460	LF- $\frac{1}{4}$ -D-5M-MIDI	186 459	LF- $\frac{1}{4}$ -D-MIDI	
		G $\frac{3}{8}$	162 613	LF- $\frac{3}{8}$ -D-5M-MIDI	159 576	LF- $\frac{3}{8}$ -D-MIDI	
		G $\frac{1}{2}$	162 614	LF- $\frac{1}{2}$ -D-5M-MIDI	159 578	LF- $\frac{1}{2}$ -D-MIDI	
		G $\frac{3}{4}$	162 615	LF- $\frac{3}{4}$ -D-5M-MIDI	162 607	LF- $\frac{3}{4}$ -D-MIDI	
	Maxi	G $\frac{1}{2}$	186 464	LF- $\frac{1}{2}$ -D-5M-MAXI	186 463	LF- $\frac{1}{2}$ -D-MAXI	
		G $\frac{3}{4}$	162 616	LF- $\frac{3}{4}$ -D-5M-MAXI	159 614	LF- $\frac{3}{4}$ -D-MAXI	
		G1	162 617	LF-1-D-5M-MAXI	159 615	LF-1-D-MAXI	
	Fully automatic						
	Fully automatic	Mini	G $\frac{1}{8}$	162 618	LF- $\frac{1}{8}$ -D-5M-MINI-A	159 616	LF- $\frac{1}{8}$ -D-MINI-A
G $\frac{1}{4}$			162 619	LF- $\frac{1}{4}$ -D-5M-MINI-A	159 617	LF- $\frac{1}{4}$ -D-MINI-A	
G $\frac{3}{8}$			162 620	LF- $\frac{3}{8}$ -D-5M-MINI-A	162 608	LF- $\frac{3}{8}$ -D-MINI-A	
Midi		G $\frac{1}{4}$	186 462	LF- $\frac{1}{4}$ -D-5M-MIDI-A	186 461	LF- $\frac{1}{4}$ -D-MIDI-A	
		G $\frac{3}{8}$	162 621	LF- $\frac{3}{8}$ -D-5M-MIDI-A	159 577	LF- $\frac{3}{8}$ -D-MIDI-A	
		G $\frac{1}{2}$	162 622	LF- $\frac{1}{2}$ -D-5M-MIDI-A	159 579	LF- $\frac{1}{2}$ -D-MIDI-A	
		G $\frac{3}{4}$	162 623	LF- $\frac{3}{4}$ -D-5M-MIDI-A	162 609	LF- $\frac{3}{4}$ -D-MIDI-A	
Maxi		G $\frac{1}{2}$	186 466	LF- $\frac{1}{2}$ -D-5M-MAXI-A	186 465	LF- $\frac{1}{2}$ -D-MAXI-A	
		G $\frac{3}{4}$	162 624	LF- $\frac{3}{4}$ -D-5M-MAXI-A	159 618	LF- $\frac{3}{4}$ -D-MAXI-A	
		G1	162 625	LF-1-D-5M-MAXI-A	159 619	LF-1-D-MAXI-A	

# Fine and micro filters LFMA/LFMB, D series, metal design

Peripherals overview

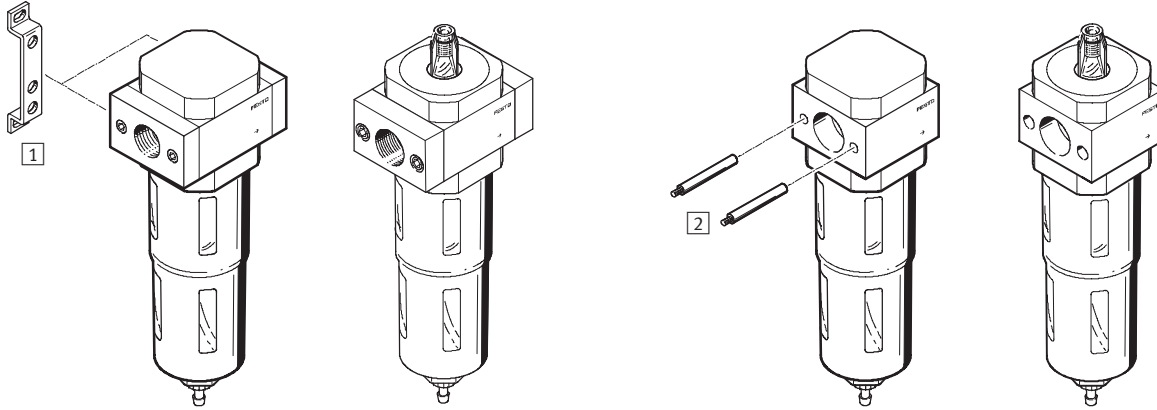
## Mini/Midi/Maxi

Individual unit with connection plates without differential pressure indicator

with differential pressure indicator

Individual unit without connection plates, for service unit combination without differential pressure indicator

with differential pressure indicator



## Mounting attachments and accessories

	Individual unit		Combination		→ Page
	with connection plates	without connection plates	with connection plates	without connection plates	
1 Mounting bracket HFOE	■	-	■	-	198
2 Threaded pin (included in scope of delivery) FRB	-	-	■	■	200

# Fine and micro filters LFMA/LFMB, D series, metal design

Type codes

LFMB – 1/4 – D – MIDI – DA – A

### Basic function

LFMA	Micro filter with grade of filtration 0.01 µm
LFMB	Fine filter with grade of filtration 1 µm

### Pneumatic connection

1/8	Thread G1/8
1/4	Thread G1/4
3/8	Thread G3/8
1/2	Thread G1/2
3/4	Thread G3/4
1	Thread G1

### Series

D	Series
---	--------

### Size

MINI	Grid dimension 40 mm (without connecting plates)
MIDI	Grid dimension 55 mm (without connecting plates)
MAXI	Grid dimension 66 mm (without connecting plates)

### Filter change sensor

	Without differential pressure indicator
DA	With differential pressure indicator

### Condensate drain

	Turned manually
A	Fully automatic

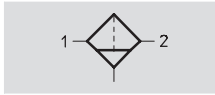


# Fine and micro filters LFMA/LFMB, D series, metal design

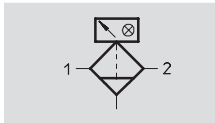
Technical data

Function

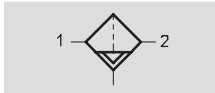
Condensate drain  
turned manually  
without differential pressure indicator



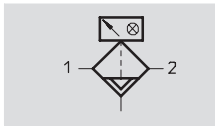
with differential pressure indicator





Condensate drain  
fully automatic  
without differential pressure indicator




with differential pressure indicator



-  - Flow rate  
130 ... 1250 l/min

-  - Temperature range  
-10 ... +60 °C

-  - Input pressure  
1 ... 16 bar



- High efficiency filter for special requirements
- Air quality to DIN ISO 8573-1
- With or without threaded connecting plates
- Version with differential pressure indicator for optical indication of filter pollution
- Choice of filter cartridges: 0.01 µm or 1 µm
- Filter cartridges → 212

LFMA:  
ISO class 1 for particles:  
max. particle density 0.1 mg/m<sup>3</sup>  
ISO class 2 for oil aerosols:  
max. oil concentration 0.1 mg/m<sup>3</sup>  
Filter efficiency 99.9999%

LFMB:  
ISO class 2 for particles:  
max. particle density 1 mg/m<sup>3</sup>  
ISO class 3 for oil aerosols:  
max. oil concentration 1 mg/m<sup>3</sup>  
Filter efficiency 99.99%

General technical data										
Size	Mini			Midi				Maxi		
Pneumatic connection	G <sup>1</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>2</sub>	G <sup>3</sup> / <sub>4</sub>	G <sup>1</sup> / <sub>2</sub>	G <sup>3</sup> / <sub>4</sub>	G1
Design	Fibre filter									
Type of mounting	Via accessories In-line installation									
Assembly position	Vertical ±5°									
Operating medium										
Micro filter LFMA	Filtered compressed air, lubricated or unlubricated, grade of filtration 1 µm									
Fine filter LFMB	Filtered compressed air, lubricated or unlubricated, grade of filtration 5 µm									
Grade of filtration [µm]										
Micro filter LFMA	0.01									
Fine filter LFMB	1									
Air purity class at the output										
Grade of filtration	0.01 µm	1.7.2 to DIN ISO 8573-1								
	1 µm	2.7.3 to DIN ISO 8573-1								
Residual oil content [mg/m <sup>3</sup> ]										
Micro filter LFMA	≤0.01									
Fine filter LFMB	≤0.5									
Input pressure [bar]										
Condensate drain	turned manually	1 ... 16								
	fully automatic	1.5 ... 12								
Max. condensate volume [cm <sup>3</sup> ]										
Micro filter LFMA/fine filter LFMB	22			43				80		

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

# Fine and micro filters LFMA/LFMB, D series, metal design

Technical data

Standard nominal flow rate <sup>1)</sup> qnN [l/min]										
Connection	Mini			Midi				Maxi		
	G <sup>1</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>2</sub>	G <sup>3</sup> / <sub>4</sub>	G <sup>1</sup> / <sub>2</sub>	G <sup>3</sup> / <sub>4</sub>	G1
Micro filter LFMA	130	160	180	350	380	400	460	750	900	950
Fine filter LFMB	250	300	310	500	700	900	1000	1150	1200	1250

1) Measured at p<sub>1</sub> = 6 bar and Δp = 70 mbar.  
A minimum flow rate of 125 l/min is required for flawless functioning.

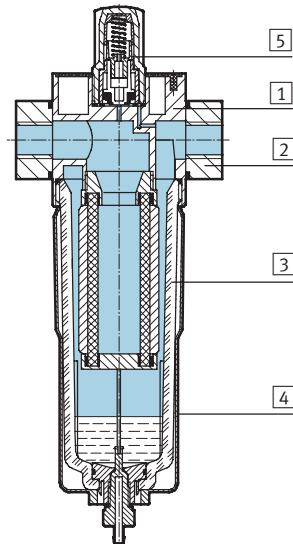
Ambient conditions			
Size	Mini	Midi	Maxi
Ambient temperature [°C]	-10 ... +60		
Temperature of medium [°C]	+1.5 ... +60		
Corrosion resistance class CRC <sup>1)</sup>	2		

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.

Weight [g]			
Size	Mini	Midi	Maxi
Without differential pressure indicator	250	650	1200
With differential pressure indicator	368	834	1340

## Materials

Sectional view



Fine and micro filters		
1	Housing	Die-cast zinc
2	Connecting plates	Aluminium
3	Bowl	Polycarbonate
4	Metal bowl guard	Aluminium
5	Housing for version with differential pressure indicator	Polycarbonate
-	Seals	Nitrile rubber
Note on materials		Free of copper and PTFE

# Fine and micro filters LFMA/LFMB, D series, metal design

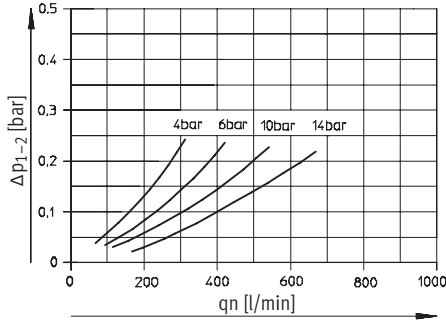
Technical data

## Standard flow rate $q_n$ as a function of the differential pressure $\Delta p_{1-2}$

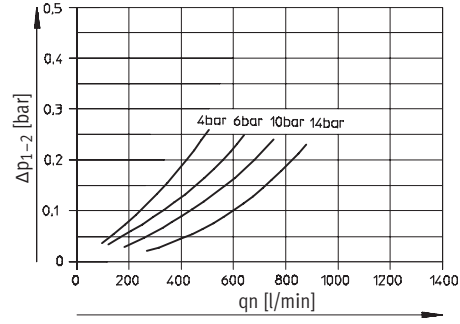
Grade of filtration 0.01  $\mu\text{m}$

Grade of filtration 1  $\mu\text{m}$

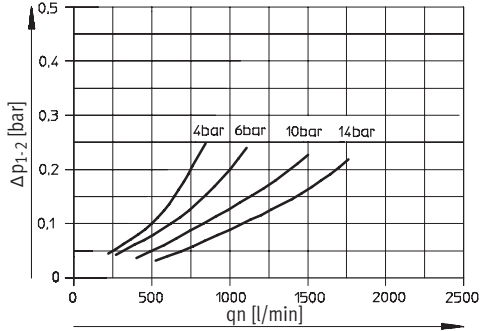
### LFMA-1/4-D-MINI and LFMA-1/4-D-MINI-A



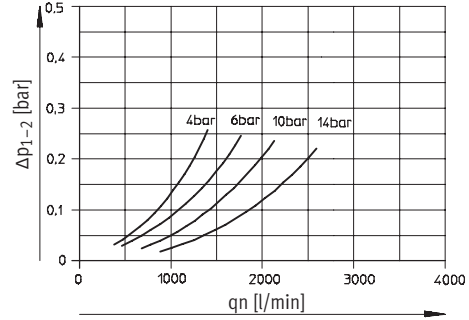
### LFMB-1/4-D-MINI and LFMB-1/4-D-MINI-A



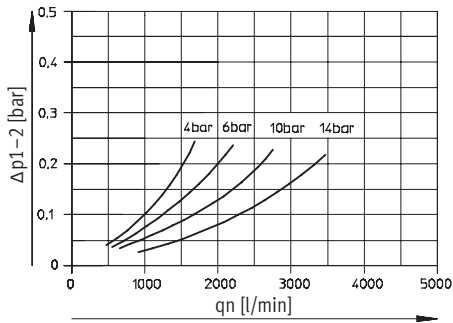
### LFMA-1/2-D-MIDI and LFMA-1/2-D-MIDI-A



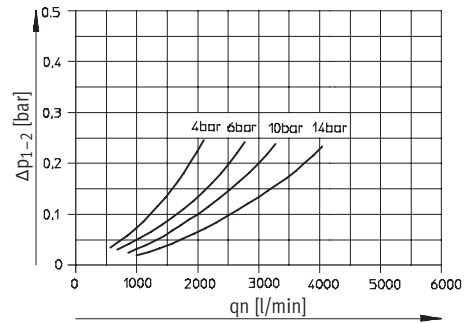
### LFMB-1/2-D-MIDI and LFMB-1/2-D-MIDI-A



### LFMA-1-D-MAXI and LFMA-1-D-MAXI-A



### LFMB-1-D-MAXI and LFMB-1-D-MAXI-A



# Fine and micro filters LFMA/LFMB, D series, metal design

Technical data

FESTO

**Dimensions**

With threaded connecting plates

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Without threaded connecting plates

1 Barbed fitting for plastic tubing type PCN-4

2 Metal bowl guard

3 Installation dimensions

4 Threaded pin (exchangeable)

→ Flow direction

Type	B1	B2	B3	B4	B5	D1	D2	D3	D6	H1	H2	L1	L2	L3	L8	L9	T1	T2	∅ 2
<b>Mini</b>																			
LFMB/A-1/8-D-MINI	64	52	40	30	-	G1/8	-	M4	38	20	11	144	124	60	15	19	7	-	22
LFMB/A-1/4-D-MINI						G3/8													
LFMB/A-3/8-D-MINI						G3/8													
LFMB/A-D-MINI	-	-	-	-	5.8	-	11	-	-	-	-	-	-	-	-	-	-	10	-
<b>Midi</b>																			
LFMB/A-1/4-D-MIDI	85	70	55	43	-	G1/4	-	M5	52	32	22	179	151	80	15	19	8	-	24
LFMB/A-3/8-D-MIDI						G3/8													
LFMB/A-1/2-D-MIDI						G1/2													
LFMB/A-3/4-D-MIDI						G3/4													
LFMB/A-D-MIDI	-	-	-	-	6.8	-	24	-	-	-	-	-	-	-	-	-	-	11	-
<b>Maxi</b>																			
LFMB/A-1/2-D-MAXI	96	80	66	46	-	G1/2	-	M5	65	32	22	203	170	90	15	19	8	-	24
LFMB/A-3/4-D-MAXI						G3/4													
LFMB/A-1-D-MAXI						G1													
LFMB/A-D-MAXI	-	-	-	-	6.8	-	30	-	-	-	-	-	-	-	-	-	-	11	-

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

# Fine and micro filters LFMA/LFMB, D series, metal design

Technical data

**Dimensions with differential pressure indicator DA** Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

With threaded connecting plates Without threaded connecting plates

1 Barbed fitting for plastic tubing type PCN-4      2 Metal bowl guard      4 Threaded pin (exchangeable)      → Flow direction

3 Installation dimensions

Type	B1	B2	B3	B4	B5	D1	D2	D3	D6	H1	H2	L1	L2	L3	L8	L9	T1	T2	∅C 2
<b>Mini</b>																			
LFMB/A-1/8-D-MINI-DA	64	52	40	30	-	G1/8	-	M4	38	20	11	173	124	60	15	19	7	-	22
LFMB/A-1/4-D-MINI-DA						G3/8													
LFMB/A-3/8-D-MINI-DA	70																		
LFMB/A-D-MINI-DA	-	-			5.8	-	11											10	
<b>Midi</b>																			
LFMB/A-1/4-D-MIDI-DA	85	70	55	43	-	G1/4	-	M5	52	32	22	207	151	80	15	19	8	-	24
LFMB/A-3/8-D-MIDI-DA						G3/8													
LFMB/A-1/2-D-MIDI-DA						G1/2													
LFMB/A-3/4-D-MIDI-DA						G3/4													
LFMB/A-D-MIDI-DA	-	-			6.8	-	24											11	
<b>Maxi</b>																			
LFMB/A-1/2-D-MAXI-DA	96	80	66	46	-	G1/2	-	M5	65	32	22	232	170	90	15	19	8	-	24
LFMB/A-3/4-D-MAXI-DA						G3/4													
LFMB/A-1-D-MAXI-DA	116	91								40									
LFMB/A-D-MAXI-DA	-	-			6.8	-	30											11	

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

# Fine and micro filters LFMA/LFMB, D series, metal design

FESTO

Technical data

Ordering data – Micro filter LFMA					
Grade of filtration 0.01 µm, metal bowl guard					
Size	Connection	Input pressure 1 ... 16 bar		Input pressure 1.5 ... 12 bar	
		Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
Without threaded connecting plates					
Mini		192 563	LFMA-D-MINI	192 566	LFMA-D-MINI-A
Midi		192 564	LFMA-D-MIDI	192 567	LFMA-D-MIDI-A
Maxi		192 565	LFMA-D-MAXI	192 568	LFMA-D-MAXI-A
With threaded connecting plates					
Mini	G $\frac{1}{8}$	162 642	LFMA- $\frac{1}{8}$ -D-MINI	162 650	LFMA- $\frac{1}{8}$ -D-MINI-A
	G $\frac{1}{4}$	162 643	LFMA- $\frac{1}{4}$ -D-MINI	162 651	LFMA- $\frac{1}{4}$ -D-MINI-A
	G $\frac{3}{8}$	162 644	LFMA- $\frac{3}{8}$ -D-MINI	162 652	LFMA- $\frac{3}{8}$ -D-MINI-A
Midi	G $\frac{1}{4}$	186 469	LFMA- $\frac{1}{4}$ -D-MIDI	186 470	LFMA- $\frac{1}{4}$ -D-MIDI-A
	G $\frac{3}{8}$	162 645	LFMA- $\frac{3}{8}$ -D-MIDI	162 653	LFMA- $\frac{3}{8}$ -D-MIDI-A
	G $\frac{1}{2}$	162 646	LFMA- $\frac{1}{2}$ -D-MIDI	162 654	LFMA- $\frac{1}{2}$ -D-MIDI-A
	G $\frac{3}{4}$	162 647	LFMA- $\frac{3}{4}$ -D-MIDI	162 655	LFMA- $\frac{3}{4}$ -D-MIDI-A
Maxi	G $\frac{1}{2}$	186 476	LFMA- $\frac{1}{2}$ -D-MAXI	186 475	LFMA- $\frac{1}{2}$ -D-MAXI-A
	G $\frac{3}{4}$	162 648	LFMA- $\frac{3}{4}$ -D-MAXI	162 656	LFMA- $\frac{3}{4}$ -D-MAXI-A
	G1	162 649	LFMA-1-D-MAXI	162 657	LFMA-1-D-MAXI-A

Ordering data – Fine filter LFMB					
Grade of filtration 1 µm, metal bowl guard					
Size	Connection	Input pressure 1 ... 16 bar		Input pressure 1.5 ... 12 bar	
		Condensate drain turned manually		Condensate drain fully automatic	
		Part No.	Type	Part No.	Type
Without threaded connecting plates					
Mini		192 569	LFMB-D-MINI	192 572	LFMB-D-MINI-A
Midi		192 570	LFMB-D-MIDI	192 573	LFMB-D-MIDI-A
Maxi		192 571	LFMB-D-MAXI	192 574	LFMB-D-MAXI-A
With threaded connecting plates					
Mini	G $\frac{1}{8}$	162 626	LFMB- $\frac{1}{8}$ -D-MINI	162 634	LFMB- $\frac{1}{8}$ -D-MINI-A
	G $\frac{1}{4}$	162 627	LFMB- $\frac{1}{4}$ -D-MINI	162 635	LFMB- $\frac{1}{4}$ -D-MINI-A
	G $\frac{3}{8}$	162 628	LFMB- $\frac{3}{8}$ -D-MINI	162 636	LFMB- $\frac{3}{8}$ -D-MINI-A
Midi	G $\frac{1}{4}$	186 467	LFMB- $\frac{1}{4}$ -D-MIDI	186 468	LFMB- $\frac{1}{4}$ -D-MIDI-A
	G $\frac{3}{8}$	162 629	LFMB- $\frac{3}{8}$ -D-MIDI	162 637	LFMB- $\frac{3}{8}$ -D-MIDI-A
	G $\frac{1}{2}$	162 630	LFMB- $\frac{1}{2}$ -D-MIDI	162 638	LFMB- $\frac{1}{2}$ -D-MIDI-A
	G $\frac{3}{4}$	162 631	LFMB- $\frac{3}{4}$ -D-MIDI	162 639	LFMB- $\frac{3}{4}$ -D-MIDI-A
Maxi	G $\frac{1}{2}$	186 473	LFMB- $\frac{1}{2}$ -D-MAXI	186 474	LFMB- $\frac{1}{2}$ -D-MAXI-A
	G $\frac{3}{4}$	162 632	LFMB- $\frac{3}{4}$ -D-MAXI	162 640	LFMB- $\frac{3}{4}$ -D-MAXI-A
	G1	162 633	LFMB-1-D-MAXI	162 641	LFMB-1-D-MAXI-A

# Fine and micro filters LFMA/LFMB, D series, metal design

Technical data

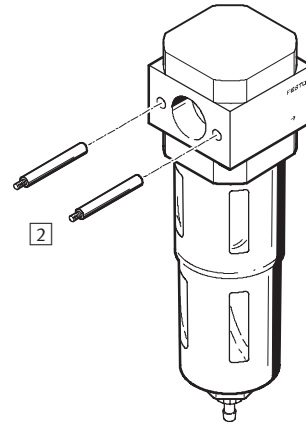
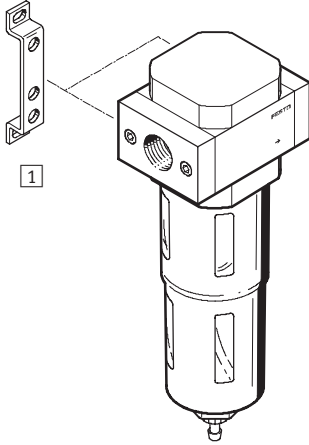
Ordering data – Micro filter LFMA with differential pressure indicator DA				
Working pressure 12 bar, grade of filtration 0.01 µm, metal bowl guard				
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic
		Part No.	Type	Part No. Type
Without threaded connecting plates				
Mini		532 837	LFMA-D-MINI-DA	532 840 LFMA-D-MINI-DA-A
Midi		532 838	LFMA-D-MIDI-DA	532 841 LFMA-D-MIDI-DA-A
Maxi		532 839	LFMA-D-MAXI-DA	532 842 LFMA-D-MAXI-DA-A
With threaded connecting plates				
Mini	G1/8	532 843	LFMA-1/8-D-MINI-DA	532 853 LFMA-1/8-D-MINI-DA-A
	G1/4	532 844	LFMA-1/4-D-MINI-DA	532 854 LFMA-1/4-D-MINI-DA-A
	G3/8	532 845	LFMA-3/8-D-MINI-DA	532 855 LFMA-3/8-D-MINI-DA-A
Midi	G1/4	532 846	LFMA-1/4-D-MIDI-DA	532 856 LFMA-1/4-D-MIDI-DA-A
	G3/8	532 847	LFMA-3/8-D-MIDI-DA	532 857 LFMA-3/8-D-MIDI-DA-A
	G1/2	532 848	LFMA-1/2-D-MIDI-DA	532 858 LFMA-1/2-D-MIDI-DA-A
	G3/4	532 849	LFMA-3/4-D-MIDI-DA	532 859 LFMA-3/4-D-MIDI-DA-A
Maxi	G1/2	532 850	LFMA-1/2-D-MAXI-DA	532 860 LFMA-1/2-D-MAXI-DA-A
	G3/4	532 851	LFMA-3/4-D-MAXI-DA	532 861 LFMA-3/4-D-MAXI-DA-A
	G1	532 852	LFMA-1-D-MAXI-DA	532 862 LFMA-1-D-MAXI-DA-A

Ordering data – Fine filter LFMB with differential pressure indicator DA				
Working pressure 12 bar, grade of filtration 1 µm, metal bowl guard				
Size	Connection	Condensate drain turned manually		Condensate drain fully automatic
		Part No.	Type	Part No. Type
Without threaded connecting plates				
Mini		532 811	LFMB-D-MINI-DA	532 814 LFMB-D-MINI-DA-A
Midi		532 812	LFMB-D-MIDI-DA	532 815 LFMB-D-MIDI-DA-A
Maxi		532 813	LFMB-D-MAXI-DA	532 816 LFMB-D-MAXI-DA-A
With threaded connecting plates				
Mini	G1/8	532 817	LFMB-1/8-D-MINI-DA	532 827 LFMB-1/8-D-MINI-DA-A
	G1/4	532 818	LFMB-1/4-D-MINI-DA	532 828 LFMB-1/4-D-MINI-DA-A
	G3/8	532 819	LFMB-3/8-D-MINI-DA	532 829 LFMB-3/8-D-MINI-DA-A
Midi	G1/4	532 820	LFMB-1/4-D-MIDI-DA	532 830 LFMB-1/4-D-MIDI-DA-A
	G3/8	532 821	LFMB-3/8-D-MIDI-DA	532 831 LFMB-3/8-D-MIDI-DA-A
	G1/2	532 822	LFMB-1/2-D-MIDI-DA	532 832 LFMB-1/2-D-MIDI-DA-A
	G3/4	532 823	LFMB-3/4-D-MIDI-DA	532 833 LFMB-3/4-D-MIDI-DA-A
Maxi	G1/2	532 824	LFMB-1/2-D-MAXI-DA	532 834 LFMB-1/2-D-MAXI-DA-A
	G3/4	532 825	LFMB-3/4-D-MAXI-DA	532 835 LFMB-3/4-D-MAXI-DA-A
	G1	532 826	LFMB-1-D-MAXI-DA	532 836 LFMB-1-D-MAXI-DA-A

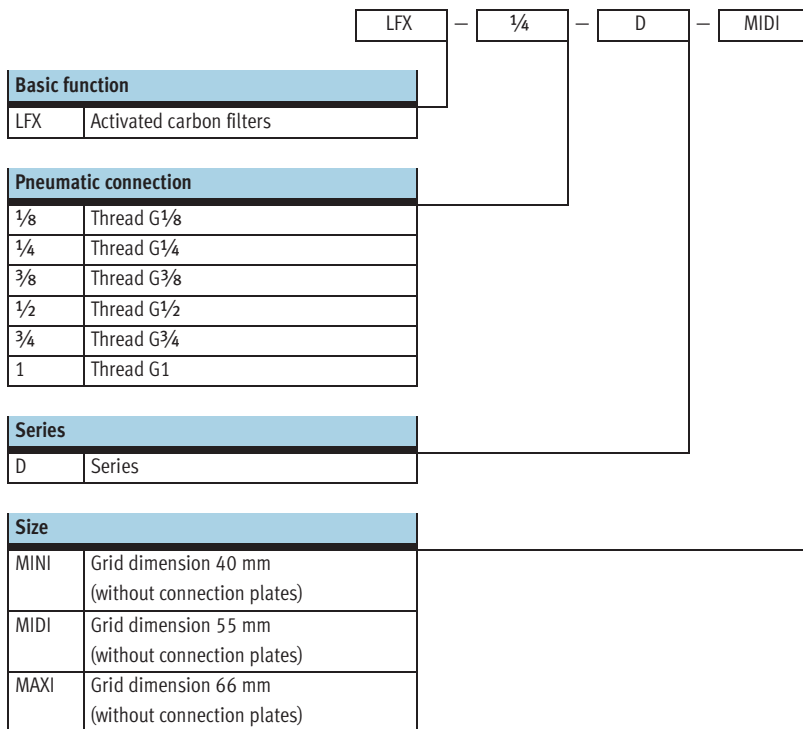
# Active carbon filters LFX, D series, metal design

Peripherals overview and type codes

**Mini/Midi/Maxi**  
 Individual unit with connection plates Individual unit without connection plates, for service unit combination



Mounting attachments and accessories						
		Individual unit		Combination		→ Page
		with connection plates	without connection plates	with connection plates	without connection plates	
1	Mounting bracket HFOE	■	-	■	-	198
2	Threaded pin (included in scope of delivery) FRB	-	-	■	■	200



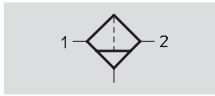


# Active carbon filters LFX, D series, metal design

Technical data

Function

Condensate drain  
turned manually



- - Flow rate  
300 ... 1430 l/min

- - Temperature range  
-10 ... +60 °C

- - Input pressure  
0 ... 16 bar



- Removal of liquid and gaseous oil particles from compressed air using active carbon
- Active carbon filter cartridges provide odour and oil-free air to food industry standard
- Prefiltration down to a particle size of 0.01µm is recommended
- Filter cartridges → 212

General technical data										
Size	Mini			Midi			Maxi			
Pneumatic connection	G1/8	G1/4	G3/8	G1/4	G3/8	G1/2	G3/4	G1/2	G3/4	G1
Operating medium	Compressed air, filtered, unlubricated, grade of filtration 0.01 µm									
Design	Fibre filter (filter fabric made of active carbon)									
Type of mounting	Via accessories In-line installation									
Assembly position	Vertical ±5°									
Residual oil content [mg/m <sup>3</sup> ]	≤0.003									
Air purity class at the output	1.7.1 to DIN ISO 8573-1									
Input pressure [bar]	0 ... 16									

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

Standard nominal flow rate <sup>1)</sup> qnN and standard flow rate qn [l/min]						
Connection	G1/8	G1/4	G3/8	G1/2	G3/4	G1
<b>Mini</b>						
qnN	300	330	400	-	-	-
qn max	360	360	360	-	-	-
<b>Midi</b>						
qnN	-	650	950	1050	1100	-
qn max	-	900	900	900	900	-
<b>Maxi</b>						
qnN	-	-	-	1350	1400	1430
qn max	-	-	-	1100	1100	1100

1) Measured at p<sub>1</sub> = 6 bar and Δp = 70 mbar.  
A minimum flow rate of 125 l/min is required for flawless functioning.

Ambient conditions		
Size	Mini	Maxi
Ambient temperature [°C]	-10 ... +60 °C	
Temperature of medium [°C]	+5 ... +30 °C	
Corrosion resistance class CRC <sup>1)</sup>	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.

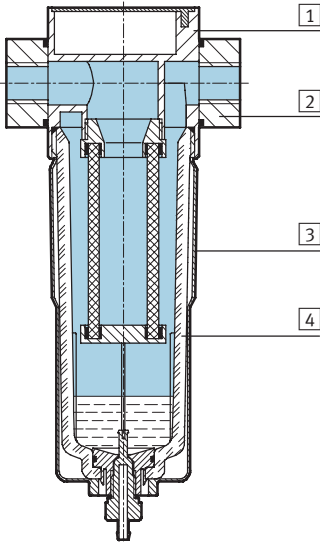
# Active carbon filters LFX, D series, metal design

Technical data

Weight [g]			
Size	Mini	Midi	Maxi
With connecting plates	376	816	1191
Without connecting plates	283	600	921

## Materials

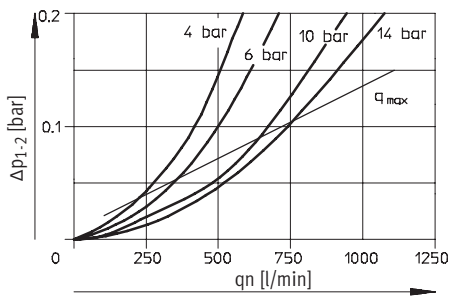
Sectional view



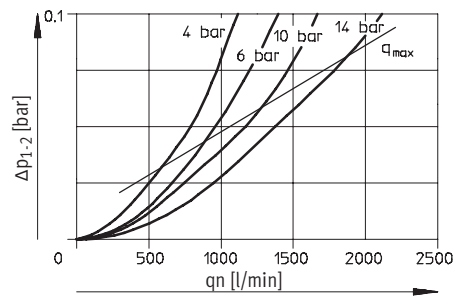
Active carbon filter		
1	Housing	Die-cast zinc
2	Connecting plates	Aluminium
3	Bowl	Polycarbonate
4	Metal bowl guard	Aluminium
-	Seals	Nitrile rubber
Note on materials		Free of copper, PTFE and silicone

## Standard flow rate $q_n$ as a function of the differential pressure $\Delta p_{1-2}$

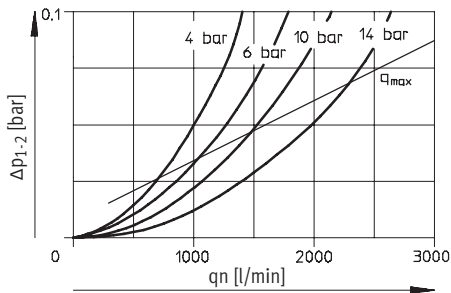
LFX-1/4-D-MINI



LFX-1/2-D-MIDI



## LFX-1-D-MAXI

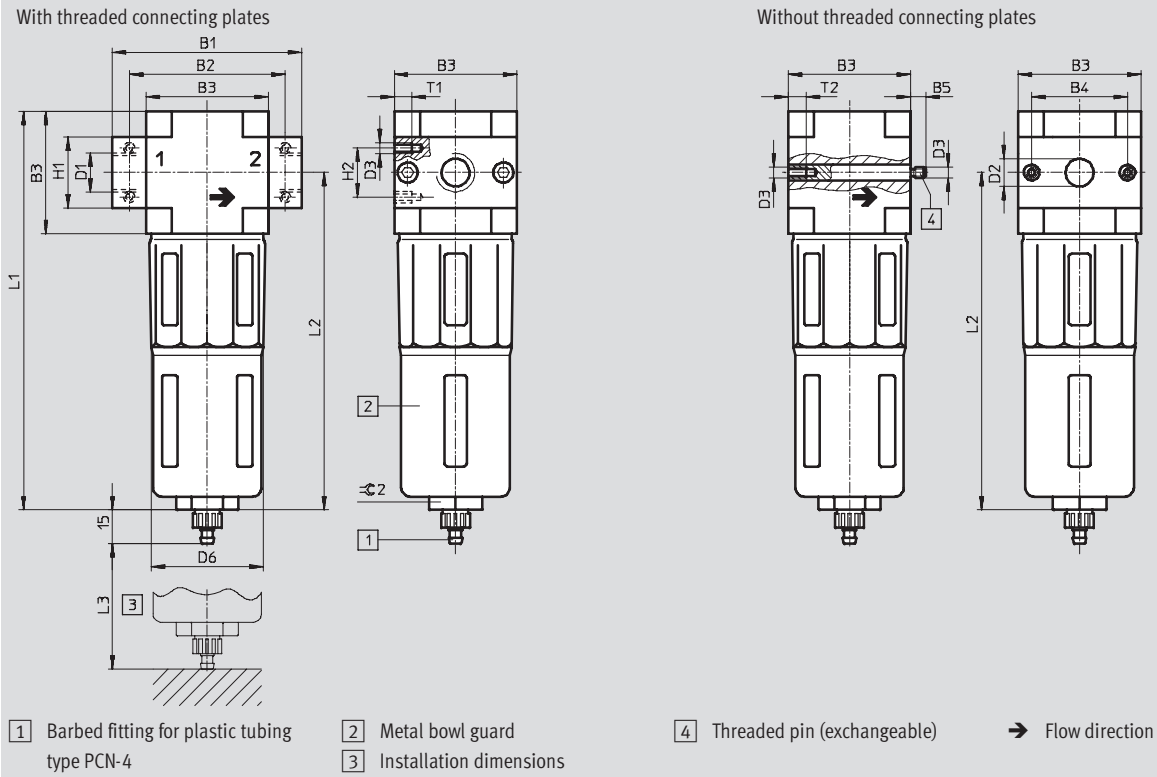


# Active carbon filters LFX, D series, metal design

Technical data

## Dimensions

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)



Type	B1	B2	B3	B4	B5	D1	D2	D3	D6	H1	H2	L1	L2	L3	T1	T2	∅ 2
<b>Mini</b>																	
LFX-1/8-D-MINI	64	52	40	30	-	G1/8	-	M4	38	20	11	144	124	60	7	-	22
LFX-1/4-D-MINI						G1/4											
LFX-3/8-D-MINI						G3/8											
LFX-D-MINI	-	-	-	-	5.8	-	11	-	-	-	-	-	-	-	10	-	-
<b>Midi</b>																	
LFX-1/4-D-MIDI	85	70	55	43	-	G1/4	-	M5	52	32	22	179	151	80	8	-	24
LFX-3/8-D-MIDI						G3/8											
LFX-1/2-D-MIDI						G1/2											
LFX-3/4-D-MIDI						G3/4											
LFX-D-MIDI	-	-	-	-	6.8	-	24	-	-	-	-	-	-	-	11	-	-
<b>Maxi</b>																	
LFX-1/2-D-MAXI	96	80	66	46	-	G1/2	-	M5	65	32	22	203	170	90	8	-	24
LFX-3/4-D-MAXI						G3/4											
LFX-1-D-MAXI	116	91				-				-	6.8						
LFX-D-MAXI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

## Active carbon filters LFX, D series, metal design

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Technical data

Ordering data			
Active carbon filter with metal bowl guard			
Size	Part No.	Type	
Without threaded connecting plates			
Mini	532 776	LFX-D-MINI	
Midi	532 777	LFX-D-MIDI	
Maxi	532 778	LFX-D-MAXI	

Ordering data			
Active carbon filter with metal bowl guard			
Size	Connection	Part No.	Type
With threaded connecting plates			
Mini	G $\frac{1}{8}$	532 779	LFX- $\frac{1}{8}$ -D-MINI
	G $\frac{1}{4}$	532 802	LFX- $\frac{1}{4}$ -D-MINI
	G $\frac{3}{8}$	532 780	LFX- $\frac{3}{8}$ -D-MINI
Midi	G $\frac{1}{4}$	532 781	LFX- $\frac{1}{4}$ -D-MIDI
	G $\frac{3}{8}$	532 782	LFX- $\frac{3}{8}$ -D-MIDI
	G $\frac{1}{2}$	532 783	LFX- $\frac{1}{2}$ -D-MIDI
	G $\frac{3}{4}$	532 784	LFX- $\frac{3}{4}$ -D-MIDI
Maxi	G $\frac{1}{2}$	532 785	LFX- $\frac{1}{2}$ -D-MAXI
	G $\frac{3}{4}$	532 786	LFX- $\frac{3}{4}$ -D-MAXI
	G1	532 787	LFX-1-D-MAXI

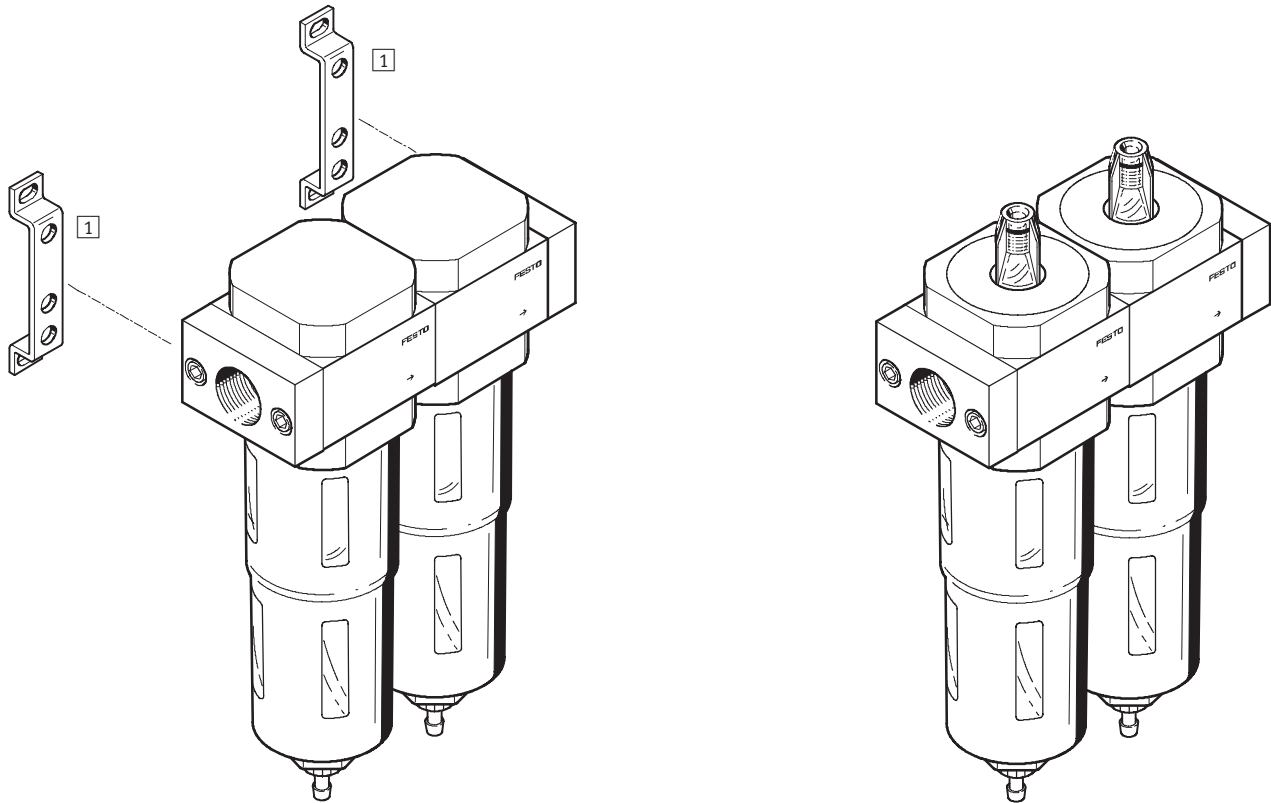
# Filter combinations LFMBA, D series, metal design

Peripherals overview

## Mini/Midi/Maxi

without differential pressure indicator

with differential pressure indicator



### Mounting components

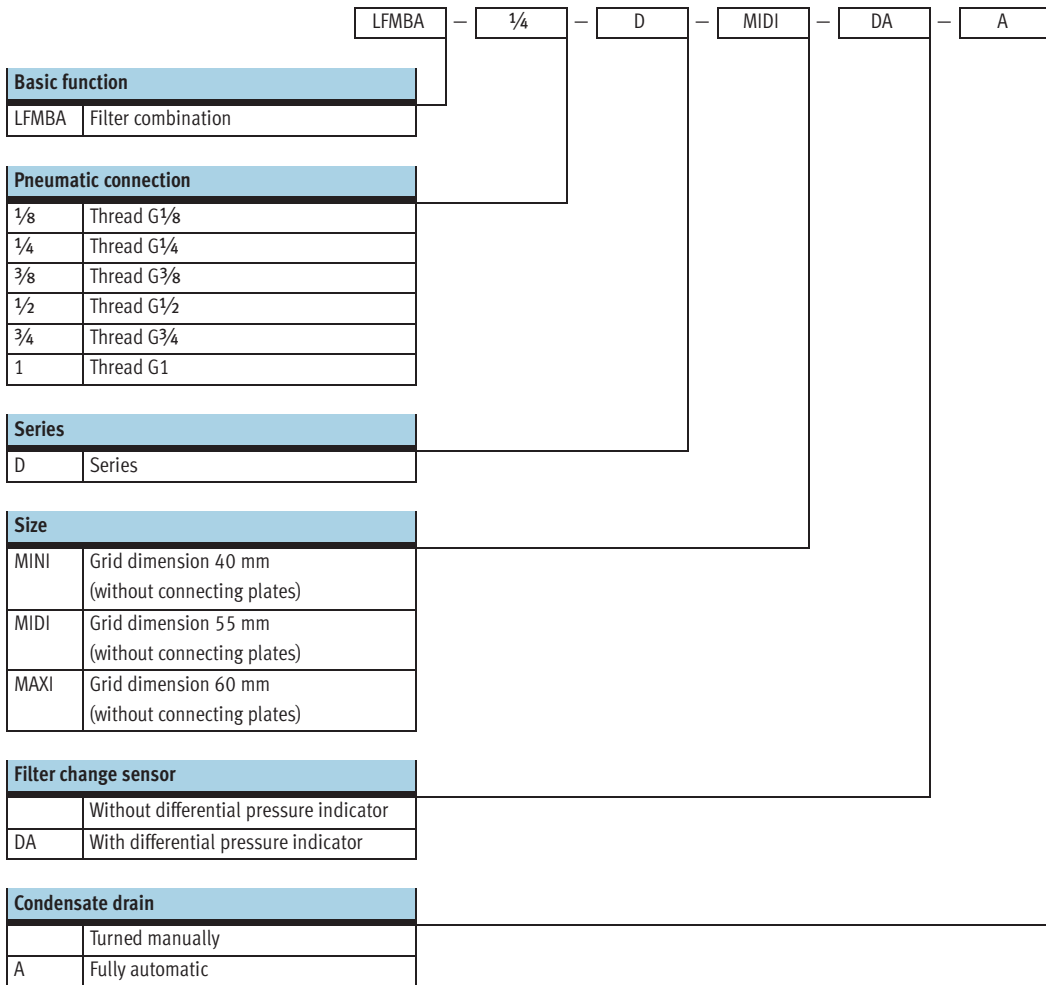
→ Page

1 Mounting bracket  
HFOE

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# Filter combinations LFMBA, D series, metal design

Type codes

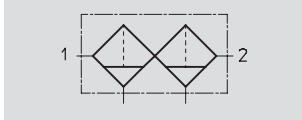


# Filter combinations LFMBA, D series, metal design

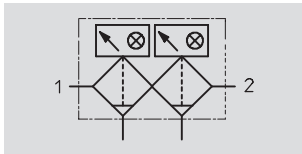
Technical data

Function

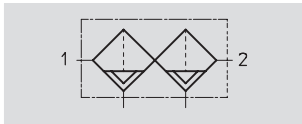
Condensate drain  
turned manually  
without differential pressure indicator



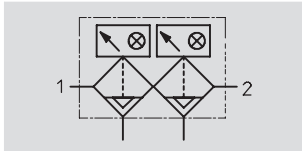
with differential pressure indicator



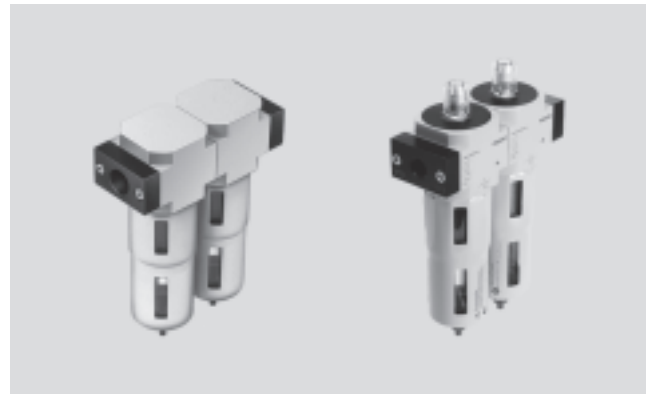
Condensate drain  
fully automatic  
without differential pressure indicator



with differential pressure indicator



- - Flow rate  
125 ... 600 l/min
- - Temperature range  
-10 ... +60 °C
- - Input pressure  
1 ... 16 bar



- High efficiency filter for special requirements
  - Air quality to DIN ISO 8573-1
  - Available as pre-assembled filter combination
  - Version with differential pressure indicator for optical indication of filter pollution
  - Filter cartridges with 1 µm and 0.01 µm
  - Filter cartridges → 212
- ISO class 1 for particles:  
max. particle density 0.1 mg/m<sup>3</sup>
- ISO class 2 for oil aerosols:  
max. oil concentration 0.1 mg/m<sup>3</sup>
- Filter efficiency 99.9999%

General technical data										
Size	Mini			Midi				Maxi		
Pneumatic connection	G <sup>1</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>2</sub>	G <sup>3</sup> / <sub>4</sub>	G <sup>1</sup> / <sub>2</sub>	G <sup>3</sup> / <sub>4</sub>	G1
Operating medium	Filtered compressed air, lubricated or unlubricated									
Design	Fibre filter									
Type of mounting	Via accessories In-line installation									
Assembly position	Vertical ±5°									
Grade of filtration [µm]	0.01 and 1									
Residual oil content [mg/m <sup>3</sup> ]	≤0.01									
Max. condensate volume [cm <sup>3</sup> ]	22			43				80		
Input pressure [bar]										
Condensate drain turned manually	1 ... 16									
fully automatic	1.5 ... 12									

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

Standard nominal flow rate <sup>1)</sup> qnN [l/min]										
Connection	Mini			Midi				Maxi		
	G <sup>1</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>2</sub>	G <sup>3</sup> / <sub>4</sub>	G <sup>1</sup> / <sub>2</sub>	G <sup>3</sup> / <sub>4</sub>	G1
LFMBA	125	130	140	300	350	350	350	550	550	600

1) Measured at p<sub>1</sub> = 6 bar and Δp = 70 mbar.  
A minimum flow rate of 125 l/min is required for flawless functioning.

# Filter combinations LFMBA, D series, metal design

Technical data

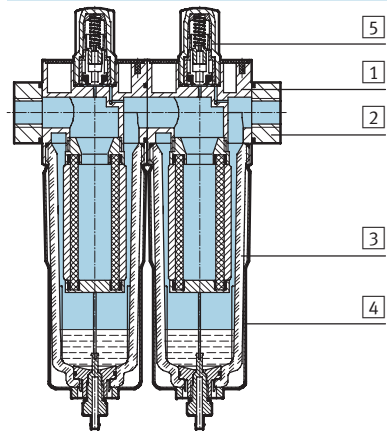
Ambient conditions		Mini	Midi	Maxi
Size				
Ambient temperature [°C]		-10 ... +60		
Temperature of medium [°C]		+1.5 ... +60		
Corrosion resistance class	CRC <sup>1)</sup>	2		

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.

Weight [g]		Mini	Midi	Maxi
Without differential pressure indicator		500	1300	2400
With differential pressure indicator		651	1429	2362

## Materials

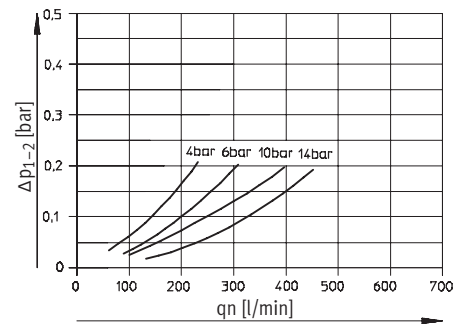
Sectional view



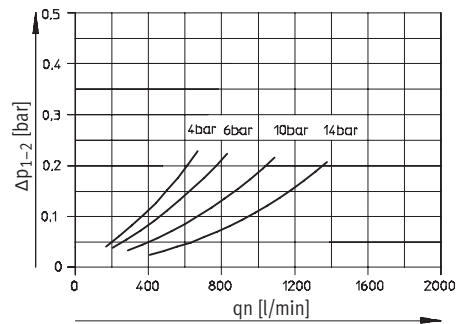
Filter combination	
1	Housing Die-cast zinc
2	Connecting plates Die-cast zinc
3	Bowl Polycarbonate
4	Bowl guard Aluminium
5	Housing for version with differential pressure indicator Polycarbonate
-	Seals Nitrile rubber
Note on materials Free of copper and PTFE	

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

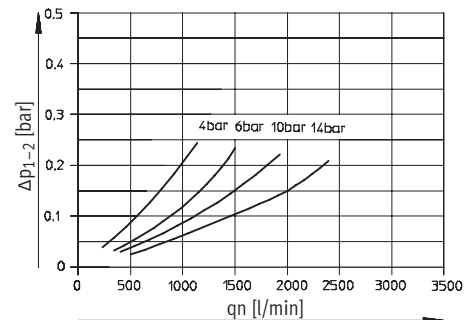
LFMBA-1/4-D-MINI and LFMBA-1/4-D-MINI-A



LFMBA-1/2-D-MIDI and LFMBA-1/2-D-MIDI-A



LFMBA-1-D-MAXI and LFMBA-1-D-MAXI-A





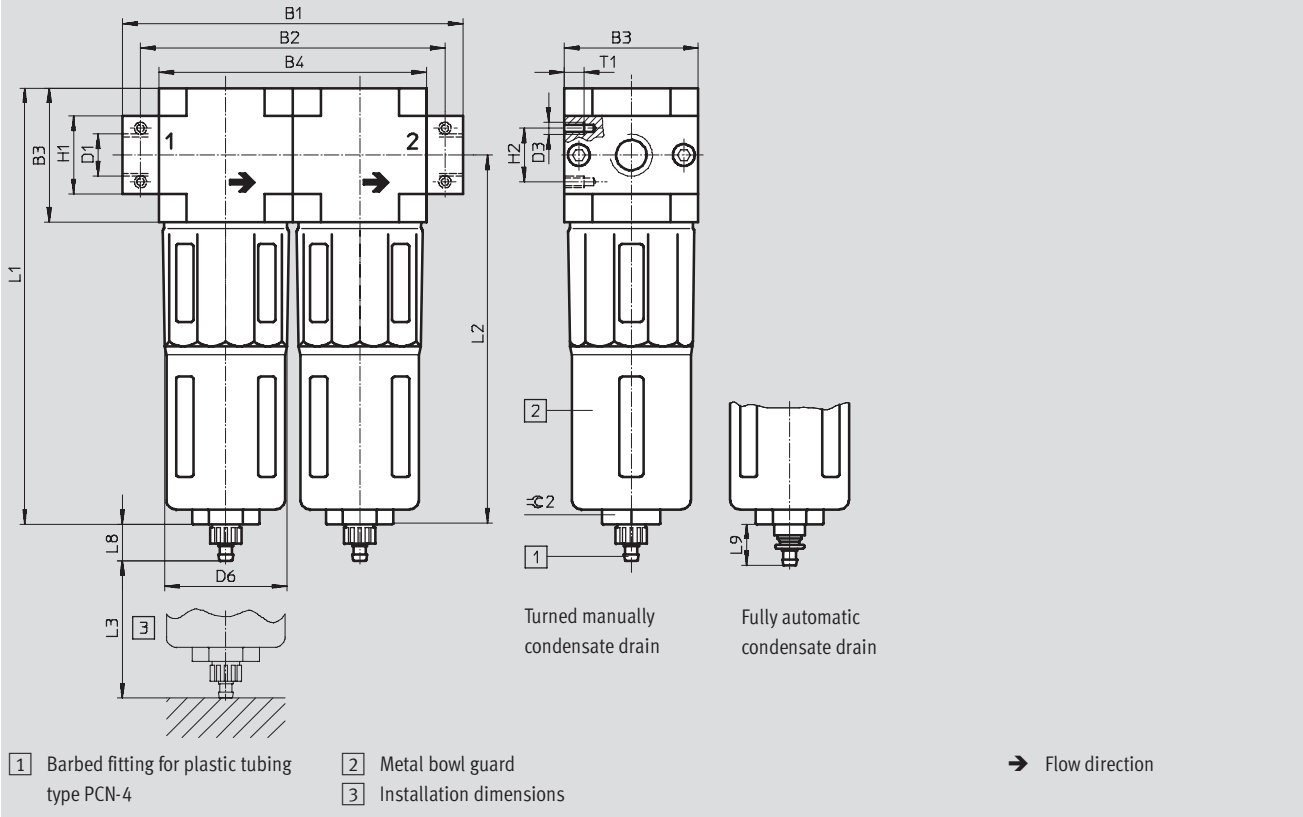
# Filter combinations LFMBA, D series, metal design

Technical data

FESTO

## Dimensions

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)



Type	B1	B2	B3	B4	D1	D3	D6	H1	H2	L1	L2	L3	L8	L9	T1	≈ 2
<b>Mini</b>																
LFMBA-1/8-D-MINI	104	92	40	80	G1/8	M4	38	20	11	144	124	60	15	19	7	22
LFMBA-1/4-D-MINI					G1/4											
LFMBA-3/8-D-MINI					G3/8											
<b>Midi</b>																
LFMBA-1/4-D-MIDI	140	125	55	110	G1/4	M5	52	32	22	179	151	80	15	19	8	24
LFMBA-3/8-D-MIDI					G3/8											
LFMBA-1/2-D-MIDI					G1/2											
LFMBA-3/4-D-MIDI					G3/4											
<b>Maxi</b>																
LFMBA-1/2-D-MAXI	162	146	66	132	G1/2	M5	65	32	22	203	170	90	15	19	8	24
LFMBA-3/4-D-MAXI					G3/4											
LFMBA-1-D-MAXI	182	157			G1			40								

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

# Filter combinations LFMBA, D series, metal design

Technical data

Dimensions with differential pressure indicator Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

1 Barbed fitting for plastic tubing type PCN-4      2 Metal bowl guard      → Flow direction  
 3 Installation dimensions

Type	B1	B2	B3	B4	D1	D3	D6	H1	H2	L1	L2	L3	L8	L9	T1	⊙ 2
<b>Mini</b>																
LFMBA-1/8-D-MINI-DA	104	92	40	80	G1/8	M4	38	20	11	173	124	60	15	19	7	22
LFMBA-1/4-D-MINI-DA					G1/4											
LFMBA-3/8-D-MINI-DA					G3/8											
<b>Midi</b>																
LFMBA-1/4-D-MIDI-DA	140	125	55	110	G1/4	M5	52	32	22	206	151	80	15	19	8	24
LFMBA-3/8-D-MIDI-DA					G3/8											
LFMBA-1/2-D-MIDI-DA					G1/2											
LFMBA-3/4-D-MIDI-DA					G3/4											
<b>Maxi</b>																
LFMBA-1/2-D-MAXI-DA	162	146	66	132	G1/2	M5	65	32	22	231	170	90	15	19	8	24
LFMBA-3/4-D-MAXI-DA					G3/4											
LFMBA-1-D-MAXI-DA					G1											

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

# Filter combinations LFMBA, D series, metal design

Technical data

Ordering data – Filter combination LFMBA				
Grade of filtration 1 µm and 0.01 µm, metal bowl guard				
Size	Connection	Input pressure 1 ... 16 bar		Input pressure 1.5 ... 12 bar
		Condensate drain turned manually		Condensate drain fully automatic
		Part No.	Type	Part No.
Mini	G1/8	162 658	LFMBA-1/8-D-MINI	162 666 LFMBA-1/8-D-MINI-A
	G1/4	162 659	LFMBA-1/4-D-MINI	162 667 LFMBA-1/4-D-MINI-A
	G3/8	162 660	LFMBA-3/8-D-MINI	162 668 LFMBA-3/8-D-MINI-A
Midi	G1/4	186 471	LFMBA-1/4-D-MIDI	186 472 LFMBA-1/4-D-MIDI-A
	G3/8	162 661	LFMBA-3/8-D-MIDI	162 669 LFMBA-3/8-D-MIDI-A
	G1/2	162 662	LFMBA-1/2-D-MIDI	162 670 LFMBA-1/2-D-MIDI-A
	G3/4	162 663	LFMBA-3/4-D-MIDI	162 671 LFMBA-3/4-D-MIDI-A
Maxi	G1/2	186 477	LFMBA-1/2-D-MAXI	186 478 LFMBA-1/2-D-MAXI-A
	G3/4	162 664	LFMBA-3/4-D-MAXI	162 672 LFMBA-3/4-D-MAXI-A
	G1	162 665	LFMBA-1-D-MAXI	162 673 LFMBA-1-D-MAXI-A

Ordering data – Filter combination LFMBA with differential pressure indicator DA				
Grade of filtration 1 µm and 0.01 µm, metal bowl guard				
Size	Connection	Input pressure 1 ... 16 bar		Input pressure 1.5 ... 12 bar
		Condensate drain turned manually		Condensate drain fully automatic
		Part No.	Type	Part No.
Mini	G1/8	532 863	LFMBA-1/8-D-MINI-DA	532 873 LFMBA-1/8-D-MINI-DA-A
	G1/4	532 864	LFMBA-1/4-D-MINI-DA	532 874 LFMBA-1/4-D-MINI-DA-A
	G3/8	532 865	LFMBA-3/8-D-MINI-DA	532 875 LFMBA-3/8-D-MINI-DA-A
Midi	G1/4	532 866	LFMBA-1/4-D-MIDI-DA	532 876 LFMBA-1/4-D-MIDI-DA-A
	G3/8	532 867	LFMBA-3/8-D-MIDI-DA	532 877 LFMBA-3/8-D-MIDI-DA-A
	G1/2	532 868	LFMBA-1/2-D-MIDI-DA	532 878 LFMBA-1/2-D-MIDI-DA-A
	G3/4	532 869	LFMBA-3/4-D-MIDI-DA	532 879 LFMBA-3/4-D-MIDI-DA-A
Maxi	G1/2	532 870	LFMBA-1/2-D-MAXI-DA	532 880 LFMBA-1/2-D-MAXI-DA-A
	G3/4	532 871	LFMBA-3/4-D-MAXI-DA	532 881 LFMBA-3/4-D-MAXI-DA-A
	G1	532 872	LFMBA-1-D-MAXI-DA	532 882 LFMBA-1-D-MAXI-DA-A

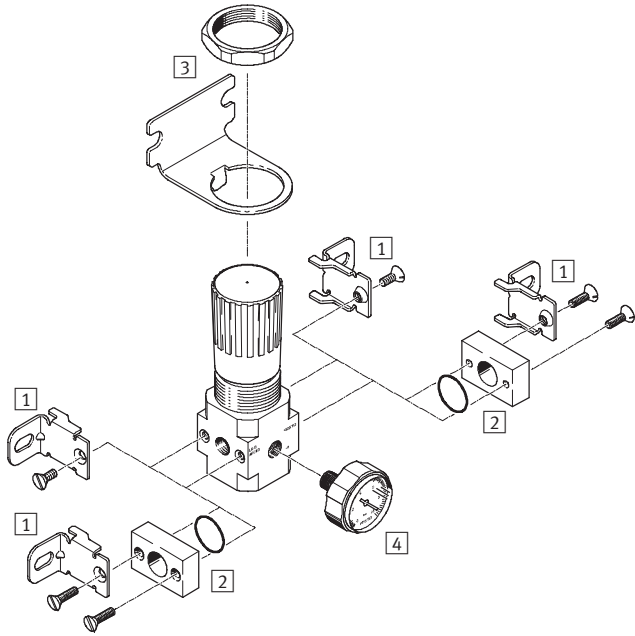
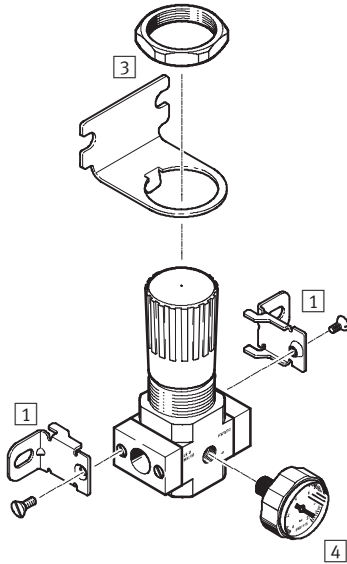
# Pressure regulators LR/LRS, D series, metal design

Peripherals overview

**Micro**

Individual unit with connection plates, connection size G $\frac{1}{8}$ , QS4 or QS6

Individual unit without connection plates, for service unit combination connection size M5 or M7 in housing



Mounting attachments and accessories					
	Individual unit		Combination		→ Page
	with connection plates	without connection plates	with connection plates	without connection plates	
1 Mounting bracket HFOE	■	■	■	■	198
2 Connecting plate kit PBL	-	■	-	■	202
3 Mounting bracket HRS	■	■	■	■	199
4 Pressure gauge MA-27	■	■	■	■	204

# Pressure regulators LR/LRS, D series, metal design

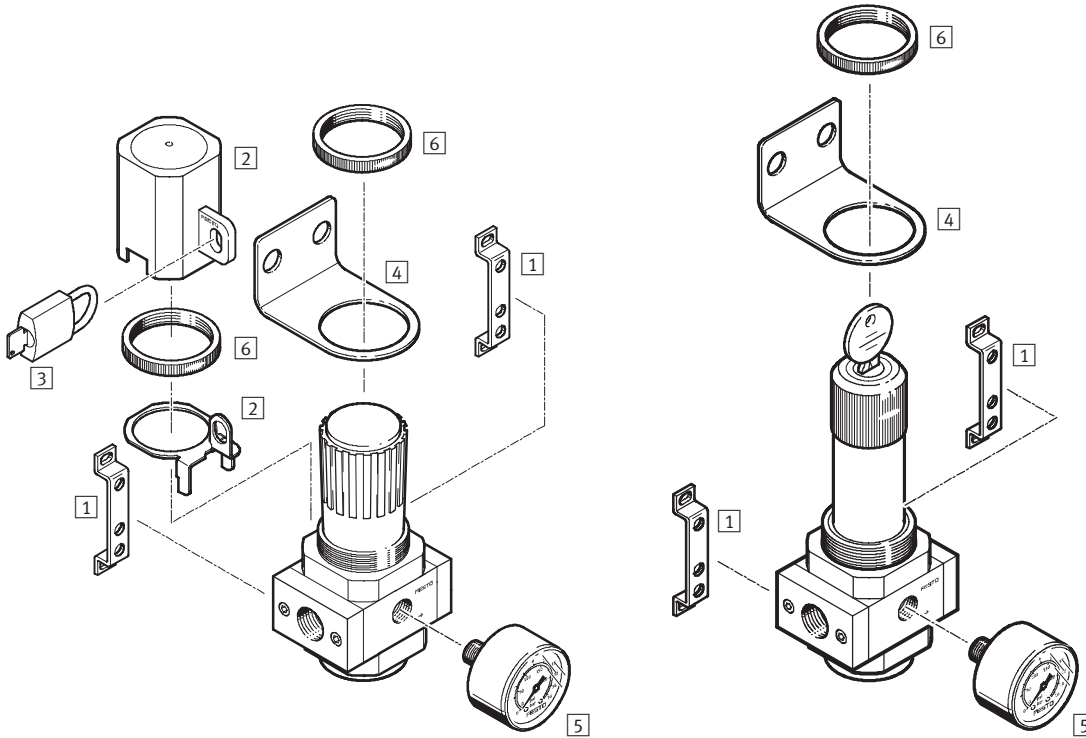
Peripherals overview

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## Mini/Midi/Maxi

Pressure regulator LR

Pressure regulator LRS, lockable



Mounting attachments and accessories		Rotary knob with detent	Rotary knob, lockable	→ Page
1	Mounting bracket HFOE	■	■	198
2	Regulator lock LRVS	■	-	203
3	Padlock LRVS-D	■	-	203
4	Mounting bracket HR-D	■	■	200
5	Pressure gauge MA	■	■	204
6	Knurled nut (included in scope of delivery) HMR	■	■	-

# Pressure regulators LR/LRS, D series, metal design

Type codes

LR – 1/2 – D – 7 – 0 – DI – MAXI

### Basic function

LR	Pressure regulator
LRS	Pressure regulator, lockable

### Pneumatic connection

M5	Thread M5
M7	Thread M7
QS4	Push-in fitting QS4
QS6	Push-in fitting QS6
1/8	Thread G1/8
1/4	Thread G1/4
3/8	Thread G3/8
1/2	Thread G1/2
3/4	Thread G3/4
1	Thread G1

### Series

D	Series
---	--------

### Pressure regulation range

	0.5 ... 12 bar
7	0.5 ... 7 bar

### Pressure gauge

	With pressure gauge
0	Without pressure gauge

### Functions

I	With integrated return flow function
DI	Directly actuated pressure regulator with integrated return flow function (MAXI units only)

### Size

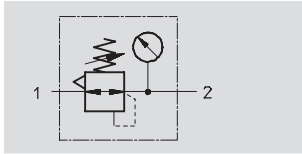
MICRO	Grid dimension 25 mm (without connecting plates)
MINI	Grid dimension 40 mm (without connecting plates)
MIDI	Grid dimension 55 mm (without connecting plates)
MAXI	Grid dimension 66 mm (without connecting plates)

# Pressure regulators LR/LRS, D series, metal design

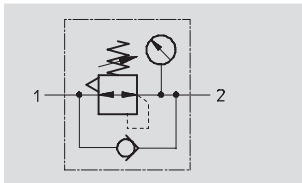
Technical data

Function

LR/LRS-...-D-...



LR/LRS-...-D-DI-MAXI



- - Flow rate  
120 ... 12500 l/min

- - Temperature range  
-10 ... +60 °C

- - Input pressure  
1 ... 16 bar



Integrated universal locking for pressure regulators of D series which prevents alteration of the set secondary pressure (p2) by unauthorized persons. Universal locking means that multiple locks can be closed with the same key. A cylinder lock is integrated in the rotary knob.

- Also suitable for front panel mounting
- Two pressure gauge connections for different fitting options
- Mini and Midi sizes: Directly actuated diaphragm regulator
- Maxi size: Pilot actuated piston regulator, diaphragm regulator LRS-DI
- Good regulating characteristics with minimal pressure hysteresis
- High flow rate
- Two pressure regulation ranges: 0.5 ... 7 bar and 0.5 ... 12 bar
- Setting values are secured by locking the rotary knob
- Return flow option for venting from output 2 to input 1
- Pressure sensor (optional) → 205

General technical data																
Size	Micro					Mini			Midi				Maxi			
Pneumatic connection	M5	M7	G1/8	QS4	QS6	G1/8	G1/4	G3/8	G1/4	G3/8	G1/2	G3/4	G1/2	G3/4	G1	
Operating medium	Compressed air					Filtered compressed air, lubricated or unlubricated, grade of filtration 40 µm										
Design	Directly actuated diaphragm regulator					Directly actuated diaphragm regulator							Pilot actuated piston regulator			
													Directly actuated diaphragm regulator			
Type of mounting	Via accessories					Via accessories										
	In-line installation					In-line installation										
	Front panel mounting					Front panel mounting										
Assembly position	Any					Any										
Max. hysteresis [bar]	0.3					0.2							0.4			
Input pressure [bar]	1 ... 10					1 ... 16										
Pressure regulation range [bar]	0.5 ... 7					0.5 ... 7										
						0.5 ... 12										
Pressure indication	Via pressure gauge					Via pressure gauge										
	M5 prepared					G1/8 prepared			G1/4 prepared				G1/4 prepared			

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

# Pressure regulators LR/LRS, D series, metal design

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Technical data

Standard nominal flow rate <sup>1)</sup> qnN [l/min]					
Connection	Female thread		Connecting plate		
	M5	M7	G $\frac{1}{8}$	QS4	QS6
Micro					
LR	120	300	450	160	450

1) Measured at p<sub>1</sub> = 10 bar, p<sub>2</sub> = 6 bar and  $\Delta p$  = 1 bar.

Standard nominal flow rate <sup>1)</sup> qnN [l/min]						
Connection	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1
Mini						
Pressure regulation range 0.5 ... 7 bar	1000	1600	1800	–	–	–
Pressure regulation range 0.5 ... 12 bar	800	1500	1700	–	–	–
Midi						
Pressure regulation range 0.5 ... 7 bar	–	2200	3300	4000	4500	–
Pressure regulation range 0.5 ... 12 bar	–	2100	3200	3500	3500	–
Maxi						
Pressure regulation range 0.5 ... 7 bar	–	–	–	10700	12000	12500
Pressure regulation range 0.5 ... 12 bar	–	–	–	10500	11000	11500
Maxi – Directly actuated pressure regulator with integrated return flow function						
Pressure regulation range 0.5 ... 7 bar	–	–	–	5400	6800	7000
Pressure regulation range 0.5 ... 12 bar	–	–	–	7300	8350	8400

1) Measured at p<sub>1</sub> = 10 bar, p<sub>2</sub> = 6 bar and  $\Delta p$  = 1 bar.

Screw-in depth of connecting thread [mm]					
Connection	M5	M7	G $\frac{1}{8}$	QS4	QS6
Micro					
In housing	5	6	–	–	–
In connecting plates	–	–	8	–	–

Ambient conditions				
Size	Micro	Mini	Midi	Maxi
Ambient temperature [°C]	–10 ... +60			
Temperature of medium [°C]	–10 ... +60			
Corrosion resistance class CRC <sup>1)</sup>	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.

Weight [g]					
Size	Micro		Mini	Midi	Maxi
	Female thread	Connecting plate			
With pressure gauge					
LR	60	80	350	720	1200
LRS	–	–	520	1250	1290
Without pressure gauge					
LR	50	70	300	660	1 100
LRS	–	–	470	1 180	1 215

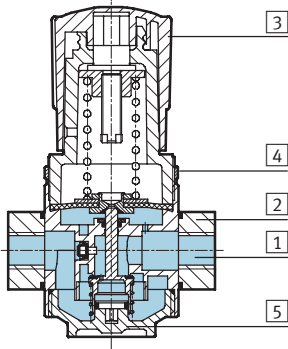


# Pressure regulators LR/LRS, D series, metal design

Technical data

## Materials

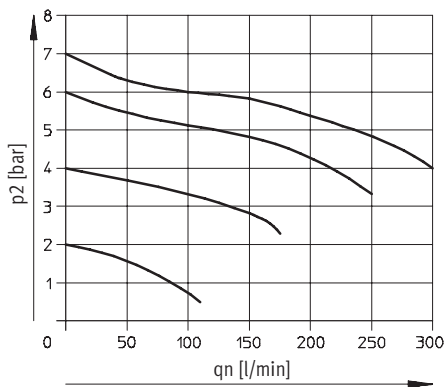
Sectional view



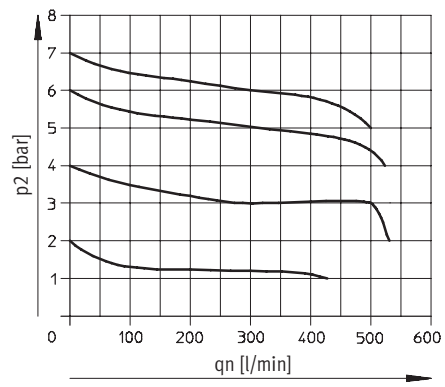
Pressure regulator	Micro	Mini/Midi/Maxi
1 Housing	Wrought aluminium alloy	Die-cast zinc/aluminium
2 Connecting plates	Wrought aluminium alloy	Die-cast zinc/aluminium
3 Regulating knob	Polyacetal	Polyacetal
4 Knurled nut	-	Aluminium
5 Plug cap	Polycarbonate	Polycarbonate
- Seals	Nitrile rubber	Nitrile rubber
Note on materials	-	Designs free of copper, PTFE and silicone → Ordering data

## Standard flow rate qn as a function of the output pressure p2

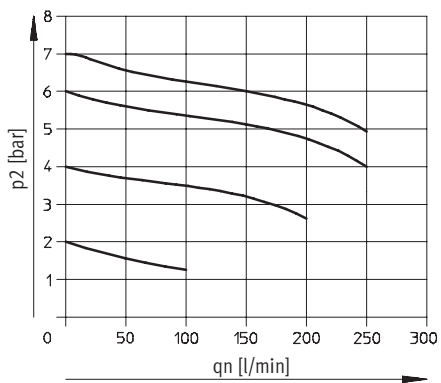
LR-M5-...-MICRO



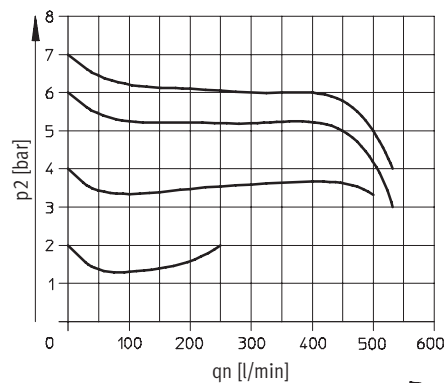
LR-M7-...-MICRO B



LR-QS4-...-MICRO



LR-QS6-...-MICRO and LR-1/8-...-MICRO



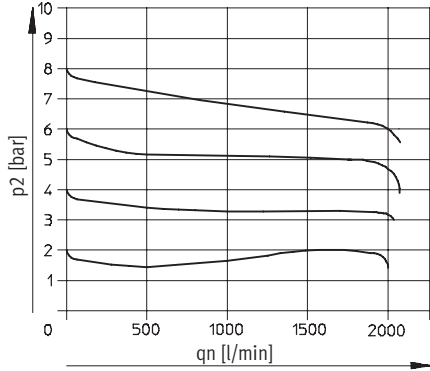
Primary pressure p1 = 10 bar

# Pressure regulators LR/LRS, D series, metal design

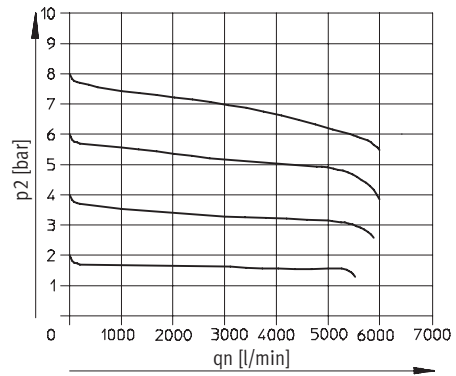
Technical data

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

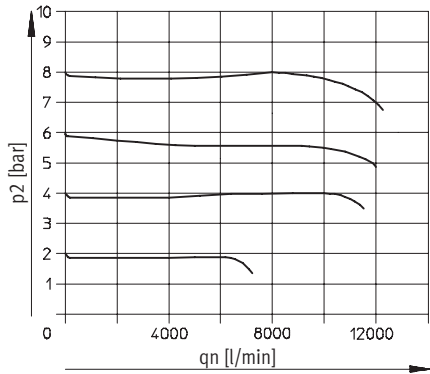
LR/LRS-1/4-D-MINI



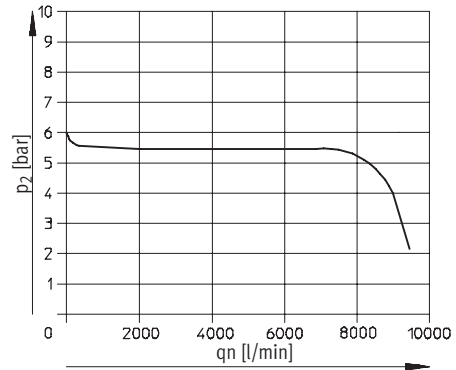
LR/LRS-1/2-D-MIDI



LR/LRS-1-D-MAXI



LR/LRS-1-D-DI-MAXI



Primary pressure  $p_1 = 10$  bar

# Pressure regulators LR/LRS, D series, metal design

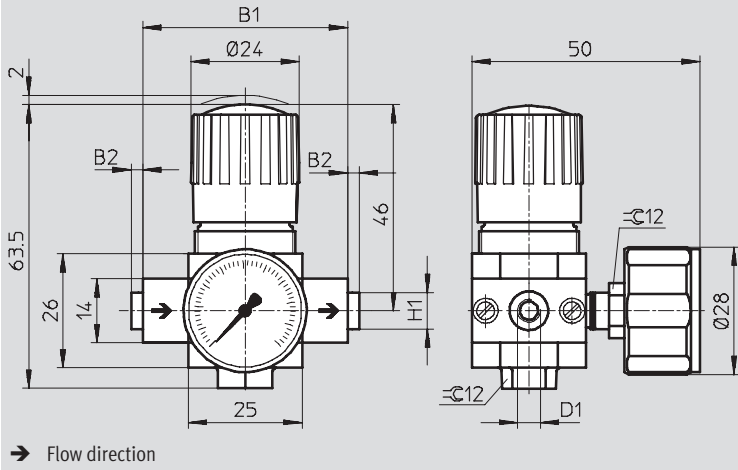
Technical data

FESTO

## Dimensions

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Micro



Type	B1	B2	D1	H1
Micro				
LR-M5-D-7-MICRO	25	-	M5	-
LR-M7-D-7-MICRO B			M7	
LR-1/8-D-7-MICRO	45	~2.5	G1/8	-
LR-QS4-D-7-MICRO			QS4	~8
LR-QS6-D-7-MICRO			QS6	~10

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

# Pressure regulators LR/LRS, D series, metal design

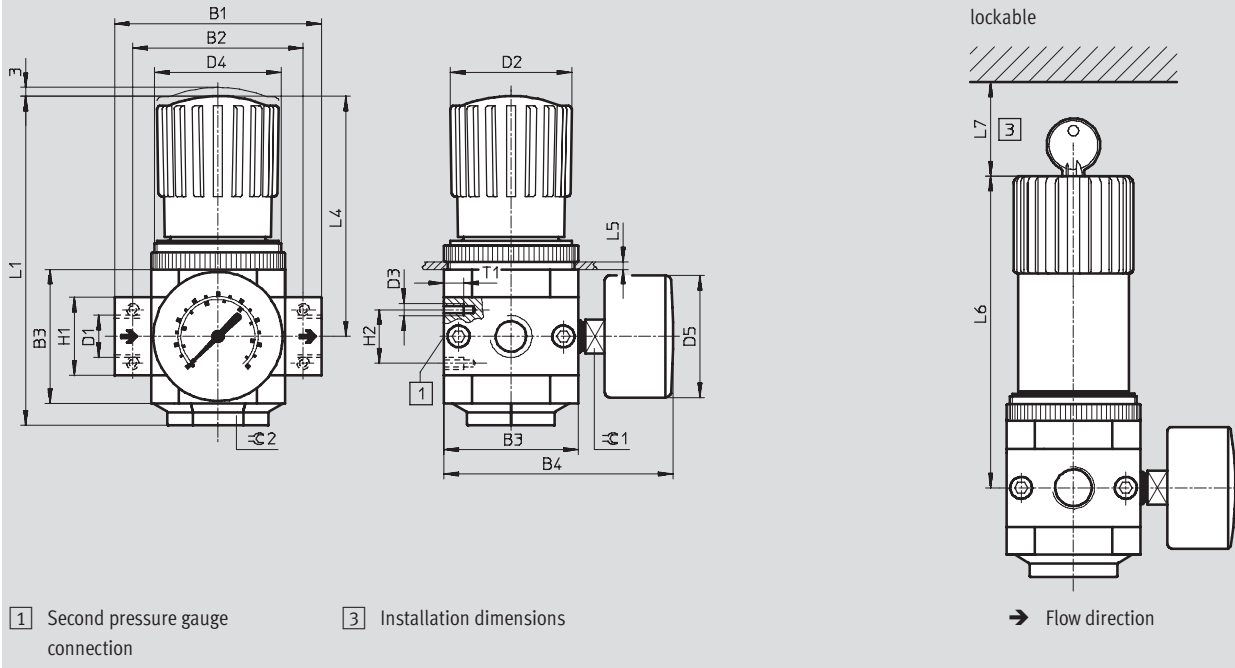
Technical data

FESTO

## Dimensions

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Mini/Midi/Maxi



Type	B1	B2	B3	B4	D1	D2 ∅	D3	D4	D5 ∅
<b>Mini</b>									
LR/LRS-1/8-D-(I)-MINI	64	52	40	76	G1/8	31	M4	M36x1.5	41
LR/LRS-1/4-D-(I)-MINI					G1/4				
LR/LRS-3/8-D-(I)-MINI					G3/8				
<b>Midi</b>									
LR/LRS-1/4-D-(I)-MIDI	85	70	55	95	G1/4	50	M5	M52x1.5	50
LR/LRS-3/8-D-(I)-MIDI					G3/8				
LR/LRS-1/2-D-(I)-MIDI					G1/2				
LR/LRS-3/4-D-(I)-MIDI					G3/4				
<b>Maxi</b>									
LR/LRS-1/2-D-MAXI	96	80	66	107	G1/2	31	M5	M36x1.5	50
LR/LRS-1/2-D-DI-MAXI						49		M52x1.5	
LR/LRS-3/4-D-MAXI					G3/4	31		M36x1.5	
LR/LRS-3/4-D-DI-MAXI						49		M52x1.5	
LR/LRS-1-D-MAXI					G1	31		M36x1.5	
LR/LRS-1-D-DI-MAXI						49		M52x1.5	

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

# Pressure regulators LR/LRS, D series, metal design

Technical data

Type	H1	H2	L1	L4	L5 max.	L6	L7	T1	∅ 1	∅ 2
<b>Mini</b>										
LR/LRS-1/8-D-MINI	20	11	96	68	3	98	60	7	14	17
LR/LRS-1/4-D-MINI										
LR/LRS-3/8-D-MINI										
<b>Midi</b>										
LR/LRS-1/4-D-MIDI	32	22	135	99	5	130	60	8	14	36
LR/LRS-3/8-D-MIDI										
LR/LRS-1/2-D-MIDI										
LR/LRS-3/4-D-MIDI										
<b>Maxi</b>										
LR/LRS-1/2-D-MAXI	32	22	125	82	4	111	60	8	14	22
LR/LRS-1/2-D-DI-MAXI			148	105		135				
LR/LRS-3/4-D-MAXI	40		125	82		111				
LR/LRS-3/4-D-DI-MAXI			148	105		135				
LR/LRS-1-D-MAXI			125	82		111				
LR/LRS-1-D-DI-MAXI			148	105		135				

# Pressure regulators LR/LRS, D series, metal design

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Technical data

Ordering data			
Size	Connection	Pressure regulation range 0.5 ... 7 bar	
		Part No.	Type
With pressure gauge			
Micro	Without threaded connecting plates, connecting thread in housing		
	M5	526 261	LR-M5-D-7-MICRO
	M7	534 180	LR-M7-D-7-MICRO B
	With threaded connecting plates		
	G1/8	526 263	LR-1/8-D-7-MICRO
	With connecting plate and push-in fitting		
	QS4	526 269	LR-QS4-D-7-MICRO
QS6	526 271	LR-QS6-D-7-MICRO	
Without pressure gauge			
Micro	Without threaded connecting plates, connecting thread in housing		
	M5	526 262	LR-M5-D-O-7-MICRO
	M7	534 181	LR-M7-D-O-7-MICRO B
	With threaded connecting plates		
	G1/8	526 264	LR-1/8-D-O-7-MICRO
	With connecting plate and push-in fitting		
	QS4	526 270	LR-QS4-D-O-7-MICRO
QS6	526 272	LR-QS6-D-O-7-MICRO	

Ordering data					
Size	Connection	Pressure regulation range 0.5 ... 7 bar		Pressure regulation range 0.5 ... 12 bar	
		Part No.	Type	Part No.	Type
With pressure gauge					
Mini	G1/8	162 582	LR-1/8-D-7-MINI	159 624	LR-1/8-D-MINI
	G1/4	162 583	LR-1/4-D-7-MINI	159 625	LR-1/4-D-MINI
	G3/8	162 584	LR-3/8-D-7-MINI	162 580	LR-3/8-D-MINI
Midi	G1/4	186 453	LR-1/4-D-7-MIDI	186 451	LR-1/4-D-MIDI
	G3/8	162 585	LR-3/8-D-7-MIDI	159 580	LR-3/8-D-MIDI
	G1/2	162 586	LR-1/2-D-7-MIDI	159 581	LR-1/2-D-MIDI
	G3/4	162 587	LR-3/4-D-7-MIDI	162 581	LR-3/4-D-MIDI
Maxi	G1/2	186 457	LR-1/2-D-7-MAXI	186 455	LR-1/2-D-MAXI
	G3/4	162 588	LR-3/4-D-7-MAXI	159 626	LR-3/4-D-MAXI
	G1	162 589	LR-1-D-7-MAXI	159 627	LR-1-D-MAXI
Without pressure gauge					
Mini	G1/8	162 598	LR-1/8-D-7-O-MINI <sup>1)</sup>	162 590	LR-1/8-D-O-MINI <sup>1)</sup>
	G1/4	162 599	LR-1/4-D-7-O-MINI <sup>1)</sup>	162 591	LR-1/4-D-O-MINI <sup>1)</sup>
	G3/8	162 600	LR-3/8-D-7-O-MINI <sup>1)</sup>	162 592	LR-3/8-D-O-MINI <sup>1)</sup>
Midi	G1/4	186 454	LR-1/4-D-7-O-MIDI <sup>1)</sup>	186 452	LR-1/4-D-O-MIDI <sup>1)</sup>
	G3/8	162 601	LR-3/8-D-7-O-MIDI <sup>1)</sup>	162 593	LR-3/8-D-O-MIDI <sup>1)</sup>
	G1/2	162 602	LR-1/2-D-7-O-MIDI <sup>1)</sup>	162 594	LR-1/2-D-O-MIDI <sup>1)</sup>
	G3/4	162 603	LR-3/4-D-7-O-MIDI <sup>1)</sup>	162 595	LR-3/4-D-O-MIDI <sup>1)</sup>
Maxi	G1/2	186 458	LR-1/2-D-7-O-MAXI <sup>1)</sup>	186 456	LR-1/2-D-O-MAXI <sup>1)</sup>
	G3/4	162 604	LR-3/4-D-7-O-MAXI <sup>1)</sup>	162 596	LR-3/4-D-O-MAXI <sup>1)</sup>
	G1	162 605	LR-1-D-7-O-MAXI <sup>1)</sup>	162 597	LR-1-D-O-MAXI <sup>1)</sup>

1) Free of copper, PTFE and silicone

# Pressure regulators LR/LRS, D series, metal design

Technical data

Ordering data					
Pressure regulator with integrated return flow function					
Size	Connection	Pressure regulation range 0.5 ... 7 bar		Pressure regulation range 0.5 ... 12 bar	
		Part No.	Type	Part No.	Type
With pressure gauge					
Mini	G1/8	192 299	LR-1/8-D-7-I-MINI	192 298	LR-1/8-D-I-MINI
	G1/4	192 301	LR-1/4-D-7-I-MINI	192 300	LR-1/4-D-I-MINI
	G3/8	192 303	LR-3/8-D-7-I-MINI	192 302	LR-3/8-D-I-MINI
Midi	G1/4	192 311	LR-1/4-D-7-I-MIDI	192 310	LR-1/4-D-I-MIDI
	G3/8	192 313	LR-3/8-D-7-I-MIDI	192 312	LR-3/8-D-I-MIDI
	G1/2	192 315	LR-1/2-D-7-I-MIDI	192 314	LR-1/2-D-I-MIDI
	G3/4	192 317	LR-3/4-D-7-I-MIDI	192 316	LR-3/4-D-I-MIDI
Without pressure gauge					
Mini	G1/8	192 305	LR-1/8-D-7-O-I-MINI <sup>1)</sup>	192 304	LR-1/8-D-O-I-MINI <sup>1)</sup>
	G1/4	192 307	LR-1/4-D-7-O-I-MINI <sup>1)</sup>	192 306	LR-1/4-D-O-I-MINI <sup>1)</sup>
	G3/8	192 309	LR-3/8-D-7-O-I-MINI <sup>1)</sup>	192 308	LR-3/8-D-O-I-MINI <sup>1)</sup>
Midi	G1/4	192 319	LR-1/4-D-7-O-I-MIDI <sup>1)</sup>	192 318	LR-1/4-D-O-I-MIDI <sup>1)</sup>
	G3/8	192 321	LR-3/8-D-7-O-I-MIDI <sup>1)</sup>	192 320	LR-3/8-D-O-I-MIDI <sup>1)</sup>
	G1/2	192 323	LR-1/2-D-7-O-I-MIDI <sup>1)</sup>	192 322	LR-1/2-D-O-I-MIDI <sup>1)</sup>
	G3/4	192 325	LR-3/4-D-7-O-I-MIDI <sup>1)</sup>	192 324	LR-3/4-D-O-I-MIDI <sup>1)</sup>

1) Free of copper, PTFE and silicone

Ordering data					
Directly actuated pressure regulator with integrated return flow function					
Size	Connection	Pressure regulation range 0.5 ... 7 bar		Pressure regulation range 0.5 ... 12 bar	
		Part No.	Type	Part No.	Type
With pressure gauge					
Maxi	G1/2	192 358	LR-1/2-D-7-DI-MAXI	192 356	LR-1/2-D-DI-MAXI
	G3/4	192 362	LR-3/4-D-7-DI-MAXI	192 360	LR-3/4-D-DI-MAXI
	G1	192 366	LR-1-D-7-DI-MAXI	192 364	LR-1-D-DI-MAXI
Without pressure gauge					
Maxi	G1/2	192 359	LR-1/2-D-7-O-DI-MAXI <sup>1)</sup>	192 357	LR-1/2-D-O-DI-MAXI <sup>1)</sup>
	G3/4	192 363	LR-3/4-D-7-O-DI-MAXI <sup>1)</sup>	192 361	LR-3/4-D-O-DI-MAXI <sup>1)</sup>
	G1	192 367	LR-1-D-7-O-DI-MAXI <sup>1)</sup>	192 365	LR-1-D-O-DI-MAXI <sup>1)</sup>

1) Free of copper, PTFE and silicone

# Pressure regulators LR/LRS, D series, metal design

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Technical data

Ordering data				
Pressure regulator, lockable				
Size	Connection	Pressure regulation range 0.5 ... 7 bar		Pressure regulation range 0.5 ... 12 bar
		Part No.	Type	Part No. Type
<b>With pressure gauge</b>				
Mini	G $\frac{1}{8}$	194 606	LRS- $\frac{1}{8}$ -D-7-MINI	194 602 LRS- $\frac{1}{8}$ -D-MINI
	G $\frac{1}{4}$	194 614	LRS- $\frac{1}{4}$ -D-7-MINI	194 610 LRS- $\frac{1}{4}$ -D-MINI
	G $\frac{3}{8}$	194 622	LRS- $\frac{3}{8}$ -D-7-MINI	194 618 LRS- $\frac{3}{8}$ -D-MINI
Midi	G $\frac{1}{4}$	194 630	LRS- $\frac{1}{4}$ -D-7-MIDI	194 626 LRS- $\frac{1}{4}$ -D-MIDI
	G $\frac{3}{8}$	194 638	LRS- $\frac{3}{8}$ -D-7-MIDI	194 634 LRS- $\frac{3}{8}$ -D-MIDI
	G $\frac{1}{2}$	194 646	LRS- $\frac{1}{2}$ -D-7-MIDI	194 642 LRS- $\frac{1}{2}$ -D-MIDI
	G $\frac{3}{4}$	194 656	LRS- $\frac{3}{4}$ -D-7-MIDI	194 650 LRS- $\frac{3}{4}$ -D-MIDI
Maxi	G $\frac{1}{2}$	194 660	LRS- $\frac{1}{2}$ -D-7-MAXI	194 658 LRS- $\frac{1}{2}$ -D-MAXI
	G $\frac{3}{4}$	194 662	LRS- $\frac{3}{4}$ -D-7-MAXI	194 664 LRS- $\frac{3}{4}$ -D-MAXI
	G1	194 668	LRS-1-D-7-MAXI	194 666 LRS-1-D-MAXI
<b>Without pressure gauge</b>				
Mini	G $\frac{1}{8}$	194 608	LRS- $\frac{1}{8}$ -D-7-O-MINI	194 604 LRS- $\frac{1}{8}$ -D-O-MINI
	G $\frac{1}{4}$	194 616	LRS- $\frac{1}{4}$ -D-7-O-MINI	194 612 LRS- $\frac{1}{4}$ -D-O-MINI
	G $\frac{3}{8}$	194 624	LRS- $\frac{3}{8}$ -D-7-O-MINI	194 620 LRS- $\frac{3}{8}$ -D-O-MINI
Midi	G $\frac{1}{4}$	194 632	LRS- $\frac{1}{4}$ -D-7-O-MIDI	194 628 LRS- $\frac{1}{4}$ -D-O-MIDI
	G $\frac{3}{8}$	194 640	LRS- $\frac{3}{8}$ -D-7-O-MIDI	194 636 LRS- $\frac{3}{8}$ -D-O-MIDI
	G $\frac{1}{2}$	194 648	LRS- $\frac{1}{2}$ -D-7-O-MIDI	194 644 LRS- $\frac{1}{2}$ -D-O-MIDI
	G $\frac{3}{4}$	194 654	LRS- $\frac{3}{4}$ -D-7-O-MIDI	194 652 LRS- $\frac{3}{4}$ -D-O-MIDI
Maxi	G $\frac{1}{2}$	194 661	LRS- $\frac{1}{2}$ -D-7-O-MAXI	194 659 LRS- $\frac{1}{2}$ -D-O-MAXI
	G $\frac{3}{4}$	194 663	LRS- $\frac{3}{4}$ -D-7-O-MAXI	194 665 LRS- $\frac{3}{4}$ -D-O-MAXI
	G1	194 669	LRS-1-D-7-O-MAXI	194 667 LRS-1-D-O-MAXI

Ordering data				
Pressure regulator with integrated return flow function, lockable				
Size	Connection	Pressure regulation range 0.5 ... 7 bar		Pressure regulation range 0.5 ... 12 bar
		Part No.	Type	Part No. Type
<b>With pressure gauge</b>				
Mini	G $\frac{1}{8}$	194 607	LRS- $\frac{1}{8}$ -D-7-I-MINI	194 603 LRS- $\frac{1}{8}$ -D-I-MINI
	G $\frac{1}{4}$	194 615	LRS- $\frac{1}{4}$ -D-7-I-MINI	194 611 LRS- $\frac{1}{4}$ -D-I-MINI
	G $\frac{3}{8}$	194 623	LRS- $\frac{3}{8}$ -D-7-I-MINI	194 619 LRS- $\frac{3}{8}$ -D-I-MINI
Midi	G $\frac{1}{4}$	194 631	LRS- $\frac{1}{4}$ -D-7-I-MIDI	194 627 LRS- $\frac{1}{4}$ -D-I-MIDI
	G $\frac{3}{8}$	194 639	LRS- $\frac{3}{8}$ -D-7-I-MIDI	194 635 LRS- $\frac{3}{8}$ -D-I-MIDI
	G $\frac{1}{2}$	194 647	LRS- $\frac{1}{2}$ -D-7-I-MIDI	194 643 LRS- $\frac{1}{2}$ -D-I-MIDI
	G $\frac{3}{4}$	194 657	LRS- $\frac{3}{4}$ -D-7-I-MIDI	194 651 LRS- $\frac{3}{4}$ -D-I-MIDI
<b>Without pressure gauge</b>				
Mini	G $\frac{1}{8}$	194 609	LRS- $\frac{1}{8}$ -D-7-O-I-MINI	194 605 LRS- $\frac{1}{8}$ -D-O-I-MINI
	G $\frac{1}{4}$	194 617	LRS- $\frac{1}{4}$ -D-7-O-I-MINI	194 613 LRS- $\frac{1}{4}$ -D-O-I-MINI
	G $\frac{3}{8}$	194 625	LRS- $\frac{3}{8}$ -D-7-O-I-MINI	194 621 LRS- $\frac{3}{8}$ -D-O-I-MINI
Midi	G $\frac{1}{4}$	194 633	LRS- $\frac{1}{4}$ -D-7-O-I-MIDI	194 629 LRS- $\frac{1}{4}$ -D-O-I-MIDI
	G $\frac{3}{8}$	194 641	LRS- $\frac{3}{8}$ -D-7-O-I-MIDI	194 637 LRS- $\frac{3}{8}$ -D-O-I-MIDI
	G $\frac{1}{2}$	194 649	LRS- $\frac{1}{2}$ -D-7-O-I-MIDI	194 645 LRS- $\frac{1}{2}$ -D-O-I-MIDI
	G $\frac{3}{4}$	194 655	LRS- $\frac{3}{4}$ -D-7-O-I-MIDI	194 653 LRS- $\frac{3}{4}$ -D-O-I-MIDI



# Pressure regulators LR/LRS, D series, metal design

Technical data

Ordering data					
Directly actuated pressure regulator with integrated return flow function, lockable					
Size	Connection	Pressure regulation range 0.5 ... 7 bar		Pressure regulation range 0.5 ... 12 bar	
		Part No.	Type	Part No.	Type
With pressure gauge					
Maxi	G $\frac{1}{2}$	194 672	LRS- $\frac{1}{2}$ -D-7-DI-MAXI	194 670	LRS- $\frac{1}{2}$ -D-DI-MAXI
	G $\frac{3}{4}$	194 676	LRS- $\frac{3}{4}$ -D-7-DI-MAXI	194 674	LRS- $\frac{3}{4}$ -D-DI-MAXI
	G1	194 680	LRS-1-D-7-DI-MAXI	194 678	LRS-1-D-DI-MAXI
Without pressure gauge					
Maxi	G $\frac{1}{2}$	194 673	LRS- $\frac{1}{2}$ -D-7-O-DI-MAXI	194 671	LRS- $\frac{1}{2}$ -D-O-DI-MAXI
	G $\frac{3}{4}$	194 677	LRS- $\frac{3}{4}$ -D-7-O-DI-MAXI	194 675	LRS- $\frac{3}{4}$ -D-O-DI-MAXI
	G1	194 681	LRS-1-D-7-O-DI-MAXI	194 679	LRS-1-D-O-DI-MAXI

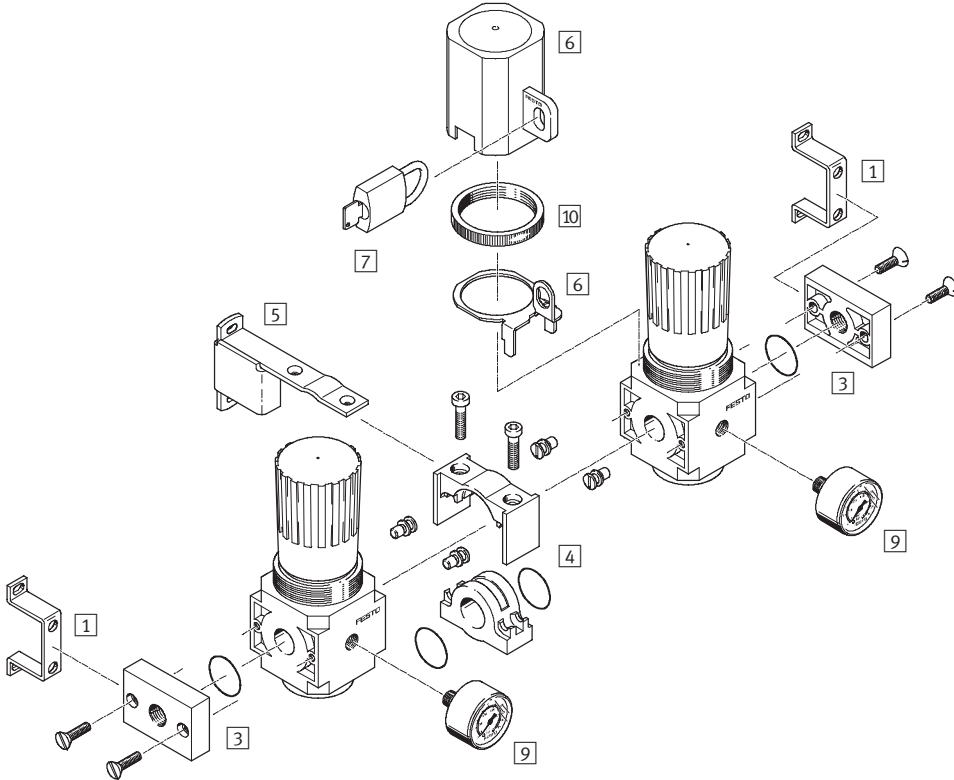
# Pressure regulators LRB/LRBS, D series, metal design

Peripherals overview

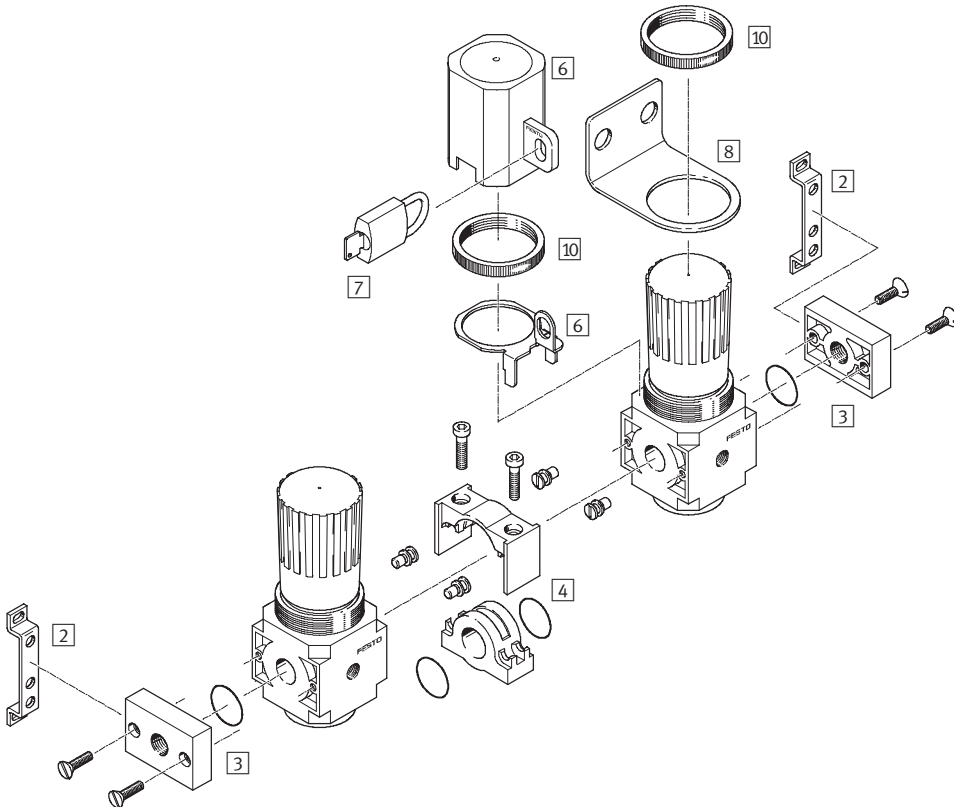
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## Mini/Midi

Pressure regulator LRB – pressure output at rear



Pressure regulator LRB – pressure output at front



## Pressure regulators LRB/LRBS, D series, metal design

Peripherals overview

Mounting attachments and accessories			
Pressure regulator LRB	Pressure output at rear	Pressure output at front	→ Page
1) Mounting bracket HRB	■	-	198
2) Mounting bracket HFOE	-	■	198
3) Connection plates LRBAS	■	■	202
4) Adapter kit HRBC	■	■	201
5) Mounting bracket HRBK	■ <sup>1)</sup>	-	198
6) Regulator lock LRVS	■	■	203
7) Padlock LRVS-D	■	■	203
8) Mounting bracket HR-D	-	■	200
9) Pressure gauge MA	■	-	204
10) Knurled nut (included in scope of delivery) HMR	■	■	-

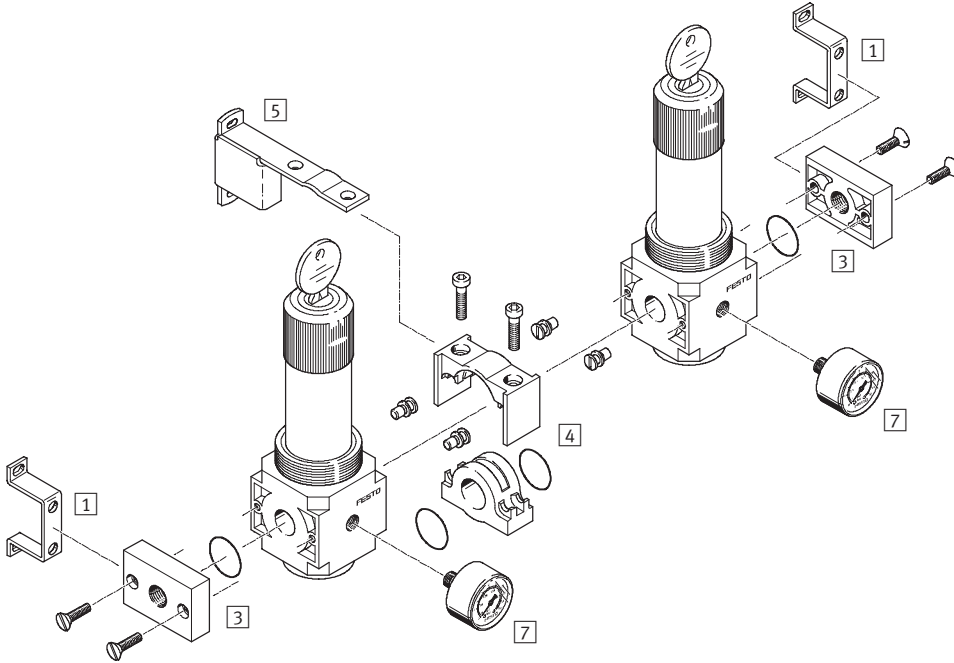
1) The mounting bracket must be mounted after every second pressure regulator.

# Pressure regulators LRB/LRBS, D series, metal design

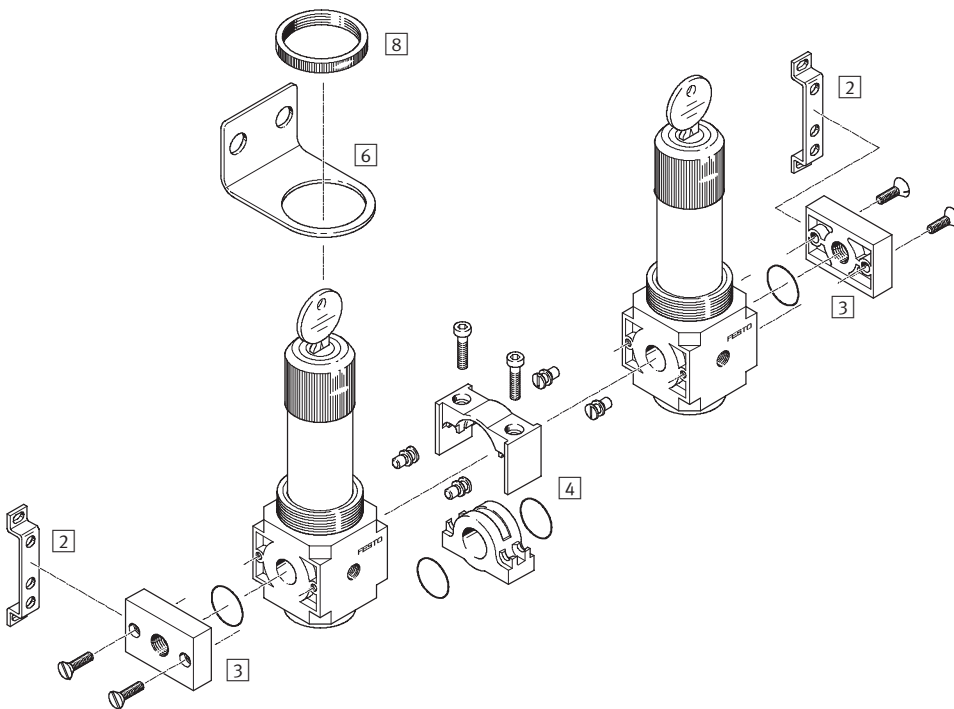
Peripherals overview

## Mini/Midi

Pressure regulator LRBS lockable – pressure output at rear



Pressure regulator LRBS lockable – pressure output at front



## Pressure regulators LRB/LRBS, D series, metal design

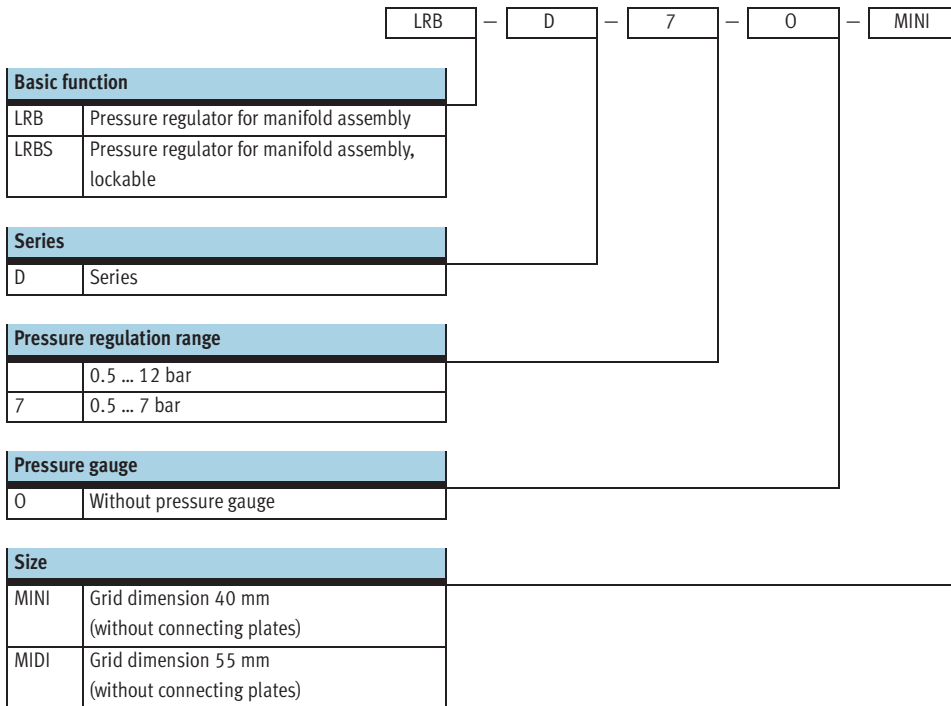
Peripherals overview

Mounting attachments and accessories			
Pressure regulator LRBS, lockable	Pressure output at rear	Pressure output at front	→ Page
1) Mounting bracket HRB	■	-	198
2) Mounting bracket HFOE	-	■	198
3) Connection plates LRBAS	■	■	202
4) Adapter kit HRBC	■	■	201
5) Mounting bracket HRBK	■ <sup>1)</sup>	-	198
6) Mounting bracket HR-D	-	■	200
7) Pressure gauge MA	■	-	204
8) Knurled nut (included in scope of delivery) HMR	■	■	-

1) The mounting bracket must be mounted after every second pressure regulator.

# Pressure regulators LRB/LRBS, D series, metal design

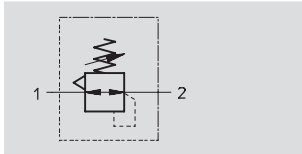
Type codes



# Pressure regulators LRB/LRBS, D series, metal design

Technical data

Function



- - Flow rate  
1600 ... 3800 l/min
- - Temperature range  
-10 ... +60 °C
- - Input pressure  
1 ... 16 bar

The pressure regulator is suitable for manifold assemblies with through air supply on both sides, for configuring a regulator manifold with separate, independent pressure ranges. Pressure output is at the front or rear.



- Good control characteristics with low hysteresis and primary pressure compensation
- Manifold assembly with through air supply
- For configuring a regulator manifold with independent pressure ranges
- Two pressure regulation ranges: 0.5 ... 7 bar and 0.5 ... 12 bar
- Settings secured via detent on knob and push-in adjustment lock
- Directly actuated diaphragm regulator

General technical data				
Size	Mini		Midi	
Pneumatic connection 1 <sup>1)</sup>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>2</sub>
Pneumatic connection 2	G <sup>1</sup> / <sub>4</sub>		G <sup>3</sup> / <sub>8</sub>	
Operating medium	Compressed air, filtered, grade of filtration 40 µm			
Design	Directly actuated diaphragm regulator with through pressure supply			
Type of mounting	Via accessories In-line installation			
Assembly position	Any			
Max. hysteresis [bar]	0.2			
Input pressure p <sub>1</sub> [bar]	1 ... 16			
Pressure regulation range [bar]	0.5 ... 7 0.5 ... 12			
Pressure indication	G <sup>1</sup> / <sub>8</sub> prepared		G <sup>1</sup> / <sub>4</sub> prepared	

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 202

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

Standard nominal flow rate <sup>1)</sup> qnN [l/min]		
Size	Mini	Midi
Pressure regulation range 0.5 ... 7 bar	1800	3800
Pressure regulation range 0.5 ... 12 bar	1600	3200

1) Measured at p<sub>1</sub> = 10 bar, p<sub>2</sub> = 6 bar and Δp = 1 bar.

Ambient conditions		
Size	Mini	Midi
Ambient temperature [°C]	-10 ... +60 °C	
Temperature of medium [°C]	-10 ... +60 °C	
Corrosion resistance class CRC <sup>1)</sup>	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.

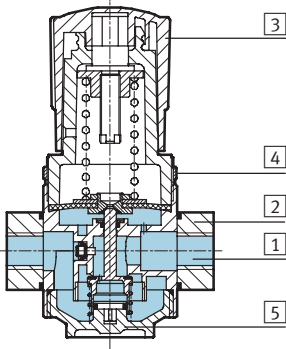
# Pressure regulators LRB/LRBS, D series, metal design

Technical data

Weight [g]		
Size	Mini	Midi
Pressure regulator	250	700
Pressure regulator, lockable	350	940

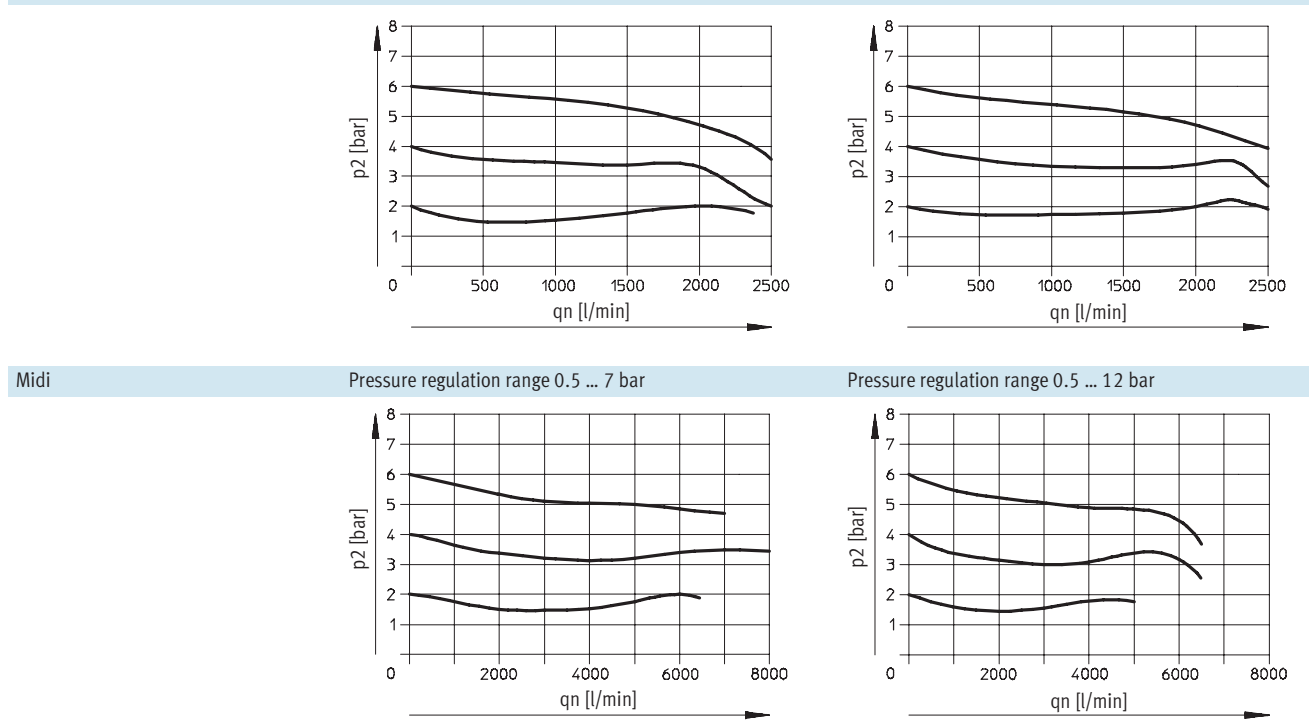
## Materials

Sectional view



Pressure regulator		
1	Housing	Die-cast zinc
2	Connecting plates	Die-cast zinc
3	Regulating knob	Polyacetal
4	Knurled nut	Aluminium
5	Plug cap	Polycarbonate
-	Seals	Nitrile rubber
Note on materials		Free of copper, PTFE and silicone

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



Primary pressure  $p_1 = 10$  bar



# Pressure regulators LRB/LRBS, D series, metal design

Technical data

**Dimensions** Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Pressure regulator LRB Pressure regulator, lockable LRBS

1 Pressure gauge connection      3 Installation dimensions

→ Flow direction, Input pressure p1 from both directions possible

Type	B3	D2	D3	D4	D7	L1	L2	L4	L5 max.	L6	L7 min.	≈ 2
<b>Mini</b>												
LRB-D-...-MINI	40	31	G $\frac{1}{8}$	M36x1.5	G $\frac{1}{4}$	~95.4	3	~68.9	3	98	60	17
LRBS-D-...-MINI												
<b>Midi</b>												
LRB-D-...-MIDI	55	50	G $\frac{1}{4}$	M52x1.5	G $\frac{3}{8}$	~135.8	3	~100.3	5	129.2	60	36
LRBS-D-...-MIDI												

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

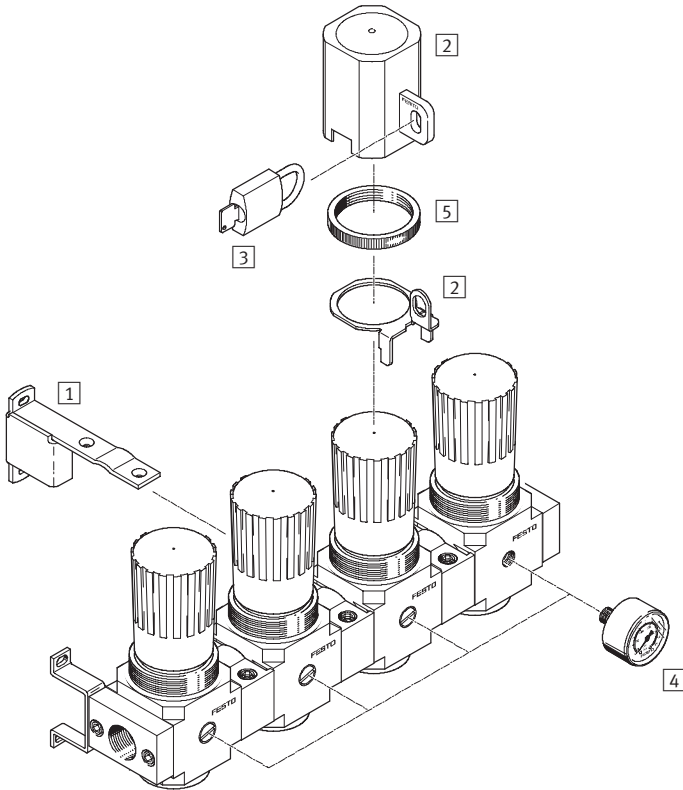
<b>Ordering data</b>				
Pressure regulator for manifold assembly				
Size	Pressure regulation range 0.5 ... 7 bar		Pressure regulation range 0.5 ... 12 bar	
	Part No.	Type	Part No.	Type
<b>Without pressure gauge</b>				
Mini	197 534	LRB-D-7-O-MINI	197 535	LRB-D-O-MINI
Midi	197 538	LRB-D-7-O-MIDI	197 539	LRB-D-O-MIDI
<b>Lockable</b>				
Mini	194 683	LRBS-D-7-O-MINI	194 682	LRBS-D-O-MINI
Midi	194 687	LRBS-D-7-O-MIDI	194 686	LRBS-D-O-MIDI

# Pressure regulator combinations LRB-K, D series, metal design

Peripherals overview

## Mini/Midi

Pressure regulator combination LRB-K

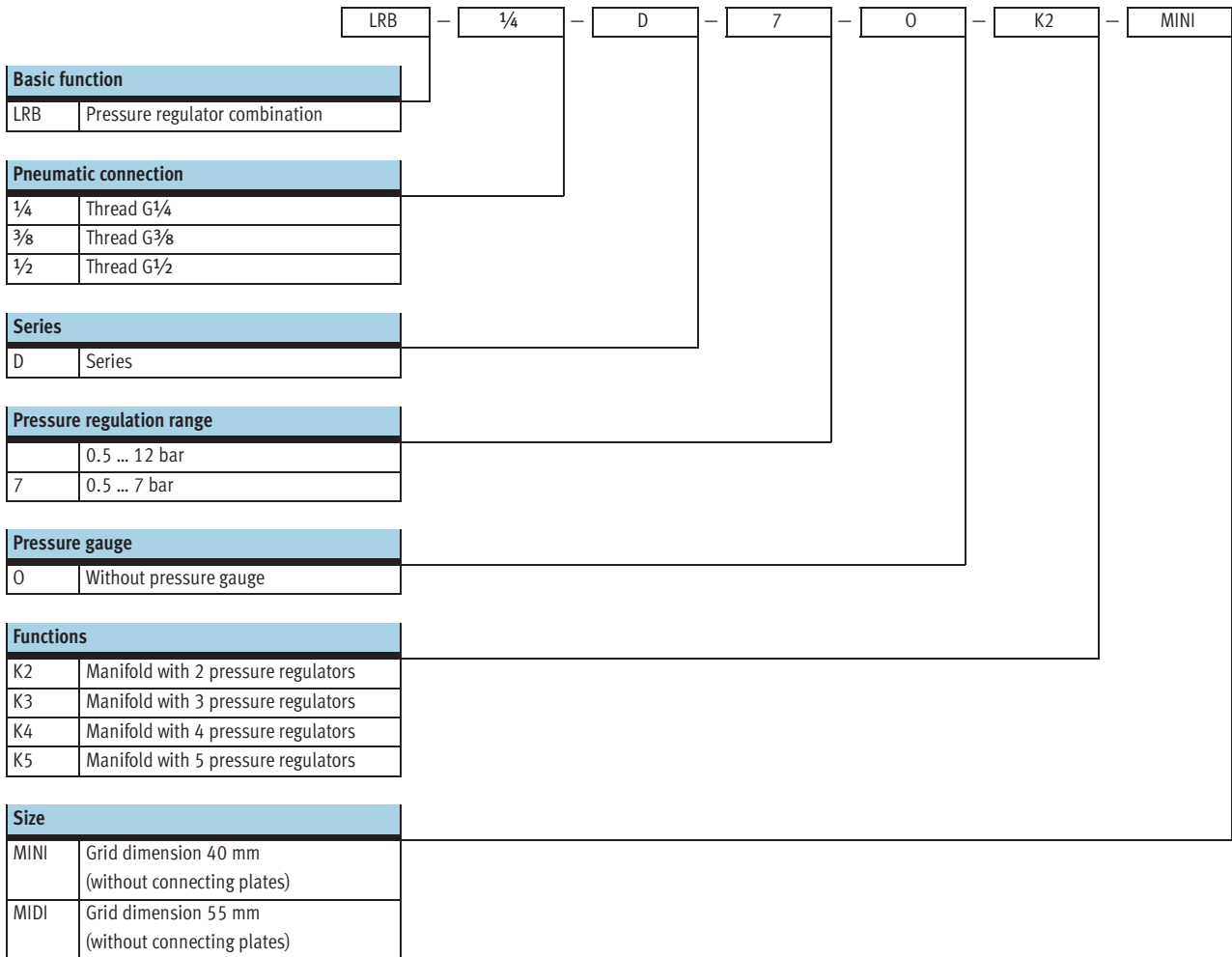


Mounting attachments and accessories		→ Page
1	Mounting bracket HRBK <sup>1)</sup>	198
2	Regulator lock LRVS	203
3	Padlock LRVS-D	203
4	Pressure gauge MA	204
5	Knurled nut (included in scope of delivery) HMR	-

1) The mounting bracket must be mounted after every second pressure regulator.

# Pressure regulator combinations LRB-K, D series, metal design

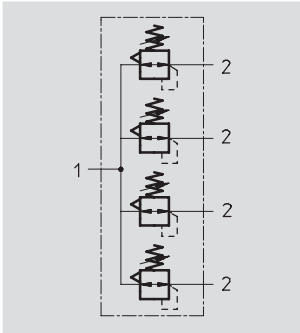
Type codes



# Pressure regulator combinations LRB-K, D series, metal design

Technical data

Function



- - Flow rate  
1600 ... 3800 l/min
- - Temperature range  
-10 ... +60 °C
- - Input pressure  
1 ... 16 bar



Pressure regulator combinations

LRB-...-D-...-O-K2

LRB-...-D-...-O-K3

LRB-...-D-...-O-K4

LRB-...-D-...-O-K5

with through pressure supply for manifold assembly

- Good control characteristics with low hysteresis and primary pressure compensation
- Manifold assembly with through air supply
- For configuring a regulator manifold with independent pressure ranges
- Two pressure regulation ranges: 0.5 ... 7 bar and 0.5 ... 12 bar
- Settings secured via detent on knob and push-in adjustment lock
- Directly actuated diaphragm regulator

General technical data				
Size	Mini		Midi	
Pneumatic connection 1	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{3}{8}$	G $\frac{1}{2}$
Pneumatic connection 2	G $\frac{1}{4}$		G $\frac{3}{8}$	
Operating medium	Compressed air, filtered, grade of filtration 40 $\mu$ m			
Design	Directly actuated diaphragm regulator with through pressure supply			
Type of mounting	Via accessory (mounting bracket HRB or HRBK included in scope of delivery)			
Assembly position	Any			
Max. hysteresis [bar]	0.2			
Input pressure p <sub>1</sub> [bar]	1 ... 16			
Pressure regulation range [bar]	0.5 ... 7			
	0.5 ... 12			
Pressure indication	G $\frac{1}{8}$ prepared		G $\frac{1}{4}$ prepared	

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

Standard nominal flow rate <sup>1)</sup> qnN [l/min]		
Size	Mini	Midi
Pressure regulation range 0.5 ... 7 bar	1800	3800
Pressure regulation range 0.5 ... 12 bar	1600	3200

1) Measured at p<sub>1</sub> = 10 bar, p<sub>2</sub> = 6 bar and  $\Delta p$  = 1 bar.

# Pressure regulator combinations LRB-K, D series, metal design

Technical data

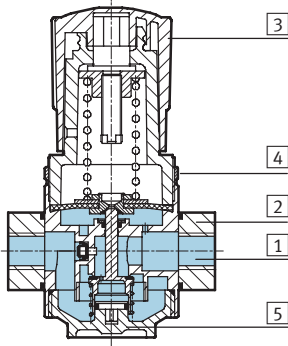
Ambient conditions		
Size	Mini	Midi
Ambient temperature [°C]	-10 ... +60 °C	
Temperature of medium [°C]	-10 ... +60 °C	
Corrosion resistance class CRC <sup>1)</sup>	2	

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.

Weight [g]		
Size	Mini	Midi
Manifold with 2 pressure regulators		
LRB-...-K2	760	1950
Manifold with 3 pressure regulators		
LRB-...-K3	1090	3144
Manifold with 4 pressure regulators		
LRB-...-K4	1480	3834
Manifold with 5 pressure regulators		
LRB-...-K5	1860	4820

## Materials

Sectional view

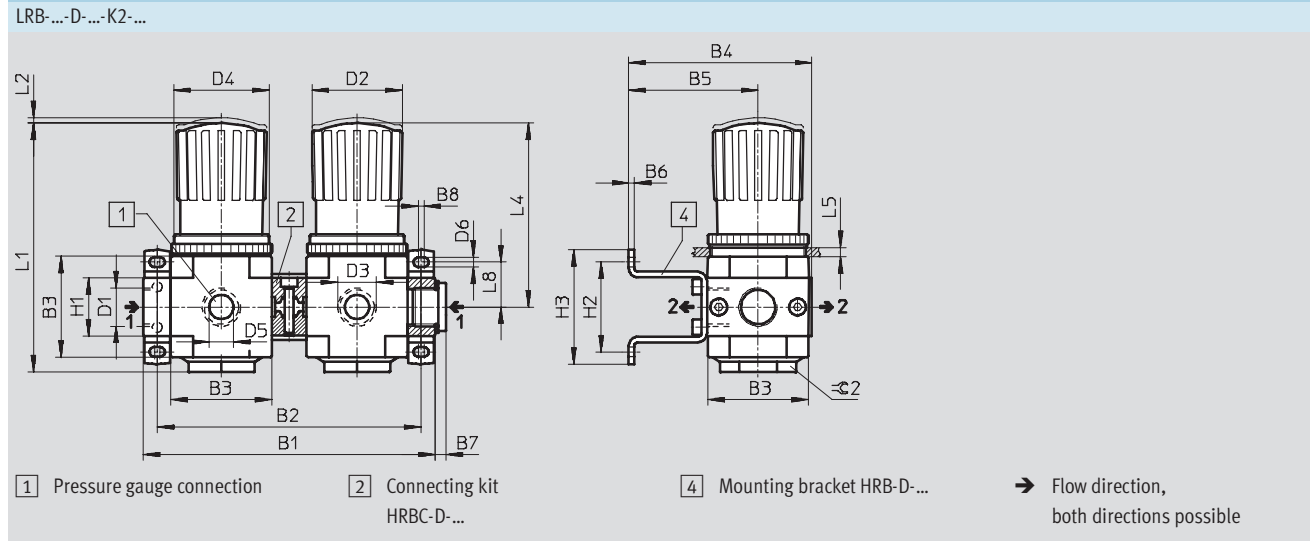


Pressure regulator	Mini/Midi
1 Housing	Die-cast zinc
2 Connecting plates	Die-cast zinc
3 Regulating knob	Polycetal
4 Knurled nut	Aluminium
5 Plug cap	Polycarbonate
- Seals	Nitrile rubber

# Pressure regulator combinations LRB-K, D series, metal design

Technical data

Dimensions Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)



Type	B1	B2	B3	B4	B5	B6	B7	B8	D1	D2	D3	D4
<b>Mini</b>												
LRB-1/4-D-...-K2-MINI	119	~107	40	80.7	59.2	2.5	5	7.3	G1/4	31	G1/4	M36x1.5
LRB-3/8-D-...-K2-MINI	125								G3/8			
<b>Midi</b>												
LRB-3/8-D-...-K2-MIDI	159	~144	55	99.9	70.6	3	5	8.3	G3/8	50	G3/8	M52x1.5
LRB-1/2-D-...-K2-MIDI							6		G1/2			

Type	D5	D6	H1	H2 ±0.2	H3	L1	L2	L4	L5 max.	L8	≈ 2
<b>Mini</b>											
LRB-1/4-D-...-K2-MINI	G1/8	4.3	20	35	47.3	~95.4	3	~68.9	3	17.5	17
LRB-3/8-D-...-K2-MINI											
<b>Midi</b>											
LRB-3/8-D-...-K2-MIDI	G1/4	5.3	32	49	62.3	~135.8	3	~100.3	5	31.2	36
LRB-1/2-D-...-K2-MIDI											

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

# Pressure regulator combinations LRB-K, D series, metal design

Technical data

**Dimensions** Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

LRB-...-D-...-K3-...

1 Pressure gauge connection      4 Mounting bracket HRB-D-...      5 Mounting bracket HRBK-D-...      → Flow direction, both directions possible

2 Connecting kit HRBC-D-...

Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	D1	D2	D3	D4
<b>Mini</b>													
LRB-1/4-D-...-K3-MINI	174	~162	40	80.7	59.2	2.5	5	7.3	108.5	G1/4	31	G1/4	M36x1.5
LRB-3/8-D-...-K3-MINI	180									G3/8			
<b>Midi</b>													
LRB-3/8-D-...-K3-MIDI	233	~218	55	99.9	70.6	3	5	8.3	146	G3/8	50	G3/8	M52x1.5
LRB-1/2-D-...-K3-MIDI							6			G1/2			

Type	D5	D6	H1	H2 ±0.2	H3	L1	L2	L4	L5 max.	L8	≈ 2
<b>Mini</b>											
LRB-1/4-D-...-K3-MINI	G1/8	4.3	20	35	47.3	~95.4	3	~68.9	3	17.5	17
LRB-3/8-D-...-K3-MINI											
<b>Midi</b>											
LRB-3/8-D-...-K3-MIDI	G1/4	5.3	32	49	62.3	~135.8	3	~100.3	5	31.2	36
LRB-1/2-D-...-K3-MIDI											

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

# Pressure regulator combinations LRB-K, D series, metal design

Technical data

**Dimensions** Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

LRB-...-D-...-K4-...

1 Pressure gauge connection      4 Mounting bracket HRB-D-...      5 Mounting bracket HRBK-D-...      → Flow direction, both directions possible

2 Connecting kit HRBC-D-...

Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	D1	D2	D3	D4
<b>Mini</b>													
LRB-1/4-D-...-K4-MINI	229	~217	40	80.7	59.2	2.5	5	7.3	108.5	G1/4	31	G1/4	M36x1.5
LRB-3/8-D-...-K4-MINI	235									G3/8			
<b>Midi</b>													
LRB-3/8-D-...-K4-MIDI	307	~292	55	99.9	70.6	3	5	8.3	146	G3/8	50	G3/8	M52x1.5
LRB-1/2-D-...-K4-MIDI							6			G1/2			

Type	D5	D6	H1	H2 ±0.2	H3	L1	L2	L4	L5 max.	L8	⊙ 2
<b>Mini</b>											
LRB-1/4-D-...-K4-MINI	G1/8	4.3	20	35	47.3	~95.4	3	~68.9	3	17.5	17
LRB-3/8-D-...-K4-MINI											
<b>Midi</b>											
LRB-3/8-D-...-K4-MIDI	G1/4	5.3	32	49	62.3	~135.8	3	~100.3	5	31.2	36
LRB-1/2-D-...-K4-MIDI											

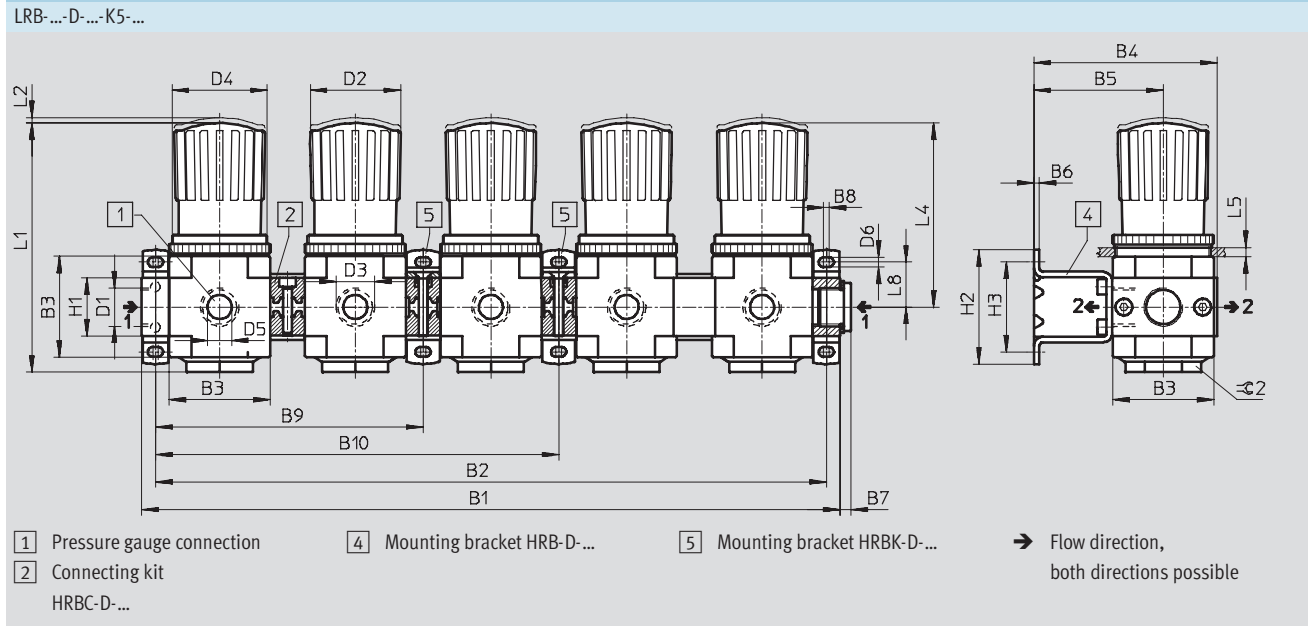
• | • Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.



# Pressure regulator combinations LRB-K, D series, metal design

Technical data

Dimensions Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)



Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	D1	D2	D3	D4
<b>Mini</b>														
LRB-1/4-D-...-K5-MINI	284	~272	40	80.7	59.2	2.5	5	7.3	108.5	146	G1/4	31	G1/4	M36x1.5
LRB-3/8-D-...-K5-MINI	290										G3/8			
<b>Midi</b>														
LRB-3/8-D-...-K5-MIDI	381	~366	55	99.9	70.6	3	5	8.3	146	186	G3/8	50	G3/8	M52x1.5
LRB-1/2-D-...-K5-MIDI							6				G1/2			

Type	D5	D6	H1	H2 ±0.2	H3	L1	L2	L4	L5 max.	L8	∅2
<b>Mini</b>											
LRB-1/4-D-...-K5-MINI	G1/8	4.3	20	35	47.3	~95.4	3	~68.9	3	17.5	17
LRB-3/8-D-...-K5-MINI											
<b>Midi</b>											
LRB-3/8-D-...-K5-MIDI	G1/4	5.3	32	49	62.3	~135.8	3	~100.3	5	31.2	36
LRB-1/2-D-...-K5-MIDI											

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

# Pressure regulator combinations LRB-K, D series, metal design

FESTO

Technical data

Ordering data					
Connecting kit, connecting plate and mounting bracket					
Size	Connection	Pressure regulation range 0.5 ... 7 bar		Pressure regulation range 0.5 ... 12 bar	
		Part No.	Type	Part No.	Type
<b>Manifold with 2 pressure regulators</b>					
Mini	G $\frac{1}{4}$	528 952	LRB- $\frac{1}{4}$ -D-7-O-K2-MINI	528 954	LRB- $\frac{1}{4}$ -D-O-K2-MINI
	G $\frac{3}{8}$	528 953	LRB- $\frac{3}{8}$ -D-7-O-K2-MINI	528 955	LRB- $\frac{3}{8}$ -D-O-K2-MINI
Midi	G $\frac{3}{8}$	528 956	LRB- $\frac{3}{8}$ -D-7-O-K2-MIDI	528 958	LRB- $\frac{3}{8}$ -D-O-K2-MIDI
	G $\frac{1}{2}$	528 957	LRB- $\frac{1}{2}$ -D-7-O-K2-MIDI	528 959	LRB- $\frac{1}{2}$ -D-O-K2-MIDI
<b>Manifold with 3 pressure regulators</b>					
Mini	G $\frac{1}{4}$	528 968	LRB- $\frac{1}{4}$ -D-7-O-K3-MINI	528 970	LRB- $\frac{1}{4}$ -D-O-K3-MINI
	G $\frac{3}{8}$	528 969	LRB- $\frac{3}{8}$ -D-7-O-K3-MINI	528 971	LRB- $\frac{3}{8}$ -D-O-K3-MINI
Midi	G $\frac{3}{8}$	528 972	LRB- $\frac{3}{8}$ -D-7-O-K3-MIDI	528 974	LRB- $\frac{3}{8}$ -D-O-K3-MIDI
	G $\frac{1}{2}$	528 973	LRB- $\frac{1}{2}$ -D-7-O-K3-MIDI	528 975	LRB- $\frac{1}{2}$ -D-O-K3-MIDI
<b>Manifold with 4 pressure regulators</b>					
Mini	G $\frac{1}{4}$	528 984	LRB- $\frac{1}{4}$ -D-7-O-K4-MINI	528 986	LRB- $\frac{1}{4}$ -D-O-K4-MINI
	G $\frac{3}{8}$	528 985	LRB- $\frac{3}{8}$ -D-7-O-K4-MINI	528 987	LRB- $\frac{3}{8}$ -D-O-K4-MINI
Midi	G $\frac{3}{8}$	528 988	LRB- $\frac{3}{8}$ -D-7-O-K4-MIDI	528 990	LRB- $\frac{3}{8}$ -D-O-K4-MIDI
	G $\frac{1}{2}$	528 989	LRB- $\frac{1}{2}$ -D-7-O-K4-MIDI	528 991	LRB- $\frac{1}{2}$ -D-O-K4-MIDI
<b>Manifold with 5 pressure regulators</b>					
Mini	G $\frac{1}{4}$	529 000	LRB- $\frac{1}{4}$ -D-7-O-K5-MINI	529 002	LRB- $\frac{1}{4}$ -D-O-K5-MINI
	G $\frac{3}{8}$	529 001	LRB- $\frac{3}{8}$ -D-7-O-K5-MINI	529 003	LRB- $\frac{3}{8}$ -D-O-K5-MINI
Midi	G $\frac{3}{8}$	529 004	LRB- $\frac{3}{8}$ -D-7-O-K5-MIDI	529 006	LRB- $\frac{3}{8}$ -D-O-K5-MIDI
	G $\frac{1}{2}$	529 005	LRB- $\frac{1}{2}$ -D-7-O-K5-MIDI	529 007	LRB- $\frac{1}{2}$ -D-O-K5-MIDI

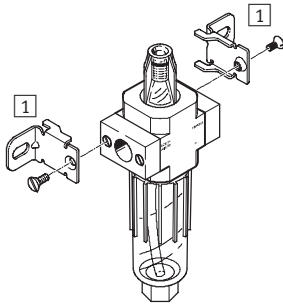
# Lubricators LOE, D series, metal design

Peripherals overview

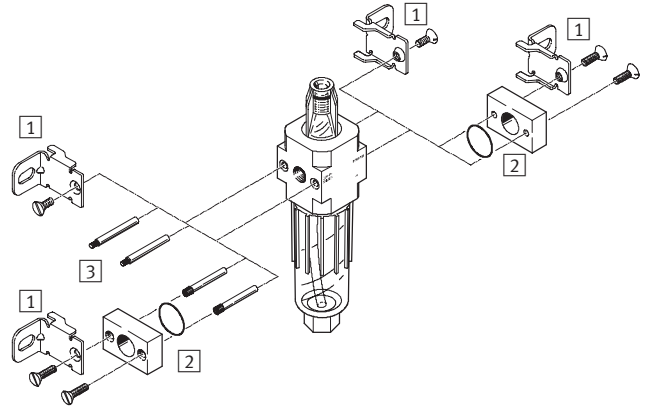
FESTO

## Micro

Individual unit with connection plates,  
connection size G $\frac{1}{8}$ , QS4 or QS6



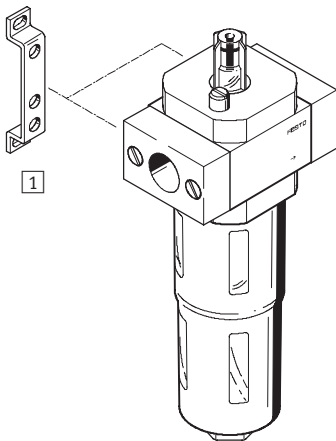
Individual unit without connection plates, for service unit combination  
connection size M5 or M7 in housing



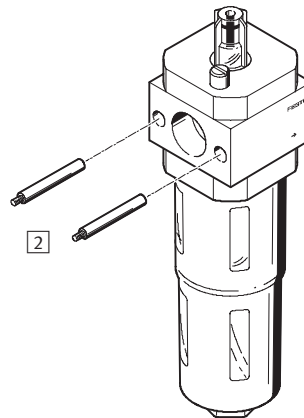
Mounting attachments and accessories					
	Individual unit with connection plates	Individual unit without connection plates	Combination		→ Page
			with connection plates	without connection plates	
1 Mounting bracket HFOE	■	■	■	■	198
2 Connecting plate kit PBL	-	■	-	■	202
3 Threaded pin FRB	-	-	■	■	200

## Mini/Midi/Maxi

Individual unit with connection plates



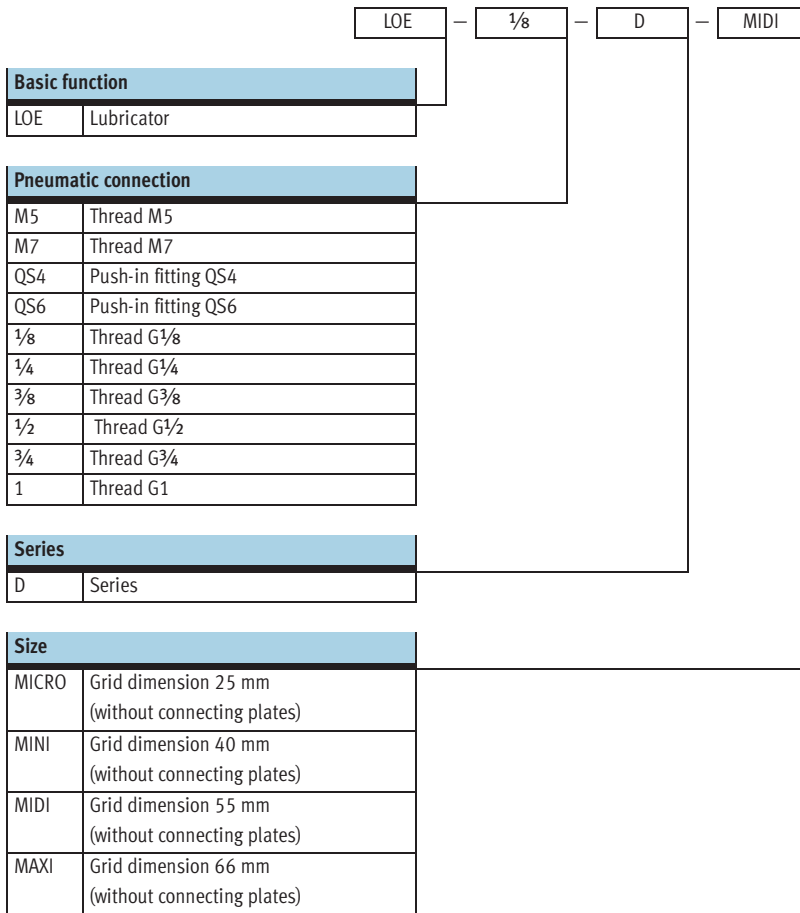
Individual unit without connection plates, for service unit combination



Mounting attachments and accessories					
	Individual unit with connection plates	Individual unit without connection plates	Combination		→ Page
			with connection plates	without connection plates	
1 Mounting bracket HFOE	■	-	■	-	198
2 Threaded pin (included in scope of delivery) FRB	-	-	■	■	200

# Lubricators LOE, D series, metal design

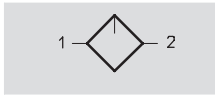
Type codes



# Lubricators LOE, D series, metal design

Technical data

Function



- - Flow rate  
160 ... 9000 l/min
- - Temperature range  
-10 ... +60 °C
- - Input pressure  
1 ... 16 bar

The proportional lubricator adds a precision adjustable quantity of oil to the compressed air stream.

The pressure drop that occurs when air flows through a Venturi nozzle is used to convey oil from the container to the drip cap. From here, the oil drips into the air duct directly behind the proportional valve, where it is atomised. The oil mist component is proportional to the compressed air flow rate.



- Proportional lubricator with precision oil metering
- Reduces wear on drive units subject to high loading
- High flow rate
- Quick and easy oil top-up
- Robust metal housing
- Transparent lubricator bowl with metallic bowl guard

The following oils are recommended for Festo components:

Viscosity range to ISO 3448, ISO class VG 32  
32 mm<sup>2</sup>/s (= cSt) at 40 °C

- Festo special oil  
→ 163
- ARAL Vitam GF 32
- BP Energol HLP 32
- Esso Nuto H 32
- Mobil DTE 24
- Shell Tellus Oil DO 32

General technical data																
Size	Micro					Mini			Midi				Maxi			
Pneumatic connection	M5	M7	G1/8	QS4	QS6	G1/8	G1/4	G3/8	G1/4	G3/8	G1/2	G3/4	G1/2	G3/4	G1	
Operating medium	Filtered compressed air, unlubricated, grade of filtration 5 µm					Filtered compressed air, unlubricated, grade of filtration 40 µm										
Design	Proportional standard mist lubricator															
Type of mounting	Via accessories															
	In-line installation															
Assembly position	Vertical ±5°															
Input pressure [bar]	0 ... 10					0 ... 16										
Minimum flow for lubricator operation [l/min]	3					3			8				10			
Max. oil capacity [cm <sup>3</sup> ]	6.5					45			110				190			

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

Standard nominal flow rate <sup>1)</sup> qnN [l/min]						
Connection	Female thread			Connecting plate		
	M5	M7		G1/8	QS4	QS6
Micro						
LOE	200	430		410	160	330

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

# Lubricators LOE, D series, metal design

Technical data

Standard nominal flow rate <sup>1)</sup> qnN [l/min]						
Connection	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1
<b>Mini</b>						
LOE	1300	2300	2700	–	–	–
<b>Midi</b>						
LOE	–	2800	5500	6100	6300	–
<b>Maxi</b>						
LOE	–	–	–	8300	8400	9000

1) Measured at p<sub>1</sub> = 6 bar and Δp = 1 bar.

Screw-in depth of connecting thread [mm]						
Connection	M5	M7	G $\frac{1}{8}$	QS4	QS6	
<b>Micro</b>						
In housing	5	6	–	–	–	
In connecting plates	–	–	8	–	–	

Ambient conditions						
Size	Micro	Mini	Midi	Maxi		
Ambient temperature [°C]	–10 ... +60					
Temperature of medium [°C]	–10 ... +60					
Corrosion resistance class CRC <sup>1)</sup>	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.

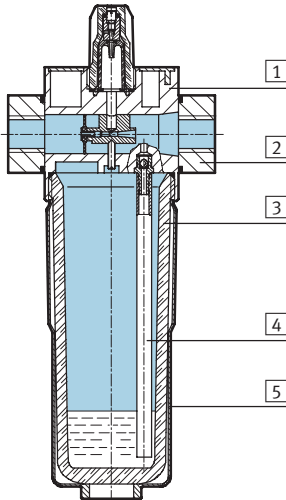
Weight [g]						
Size	Micro		Mini	Midi	Maxi	
	Female thread	Connecting plate			Connection G $\frac{1}{2}$ , G $\frac{3}{4}$	Connection G1
LOE	39	59	270	630	1100	1200

# Lubricators LOE, D series, metal design

Technical data

## Materials

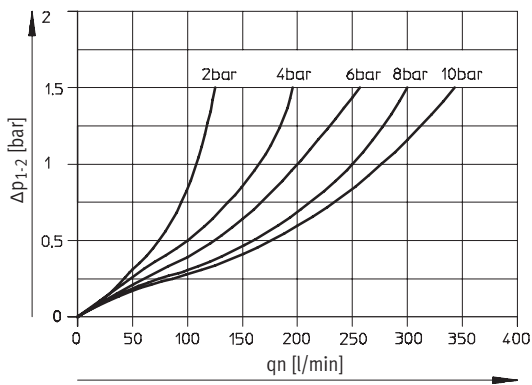
Sectional view



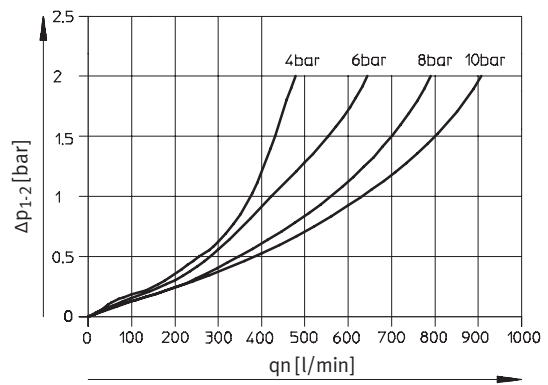
Lubricator	Micro	Mini/Midi/Maxi
1 Housing	Wrought aluminium alloy	Die-cast zinc/aluminium
2 Connecting plates	Wrought aluminium alloy	Die-cast zinc/aluminium
3 Bowl	Polycarbonate	Polycarbonate
4 Tubing	Polyethylene	Polyethylene
5 Metal bowl guard	-	Aluminium
- Seals	Nitrile rubber	Nitrile rubber

## Standard flow rate $q_n$ as a function of the differential pressure $\Delta p_{1-2}$

LOE-M5-D-MICRO



LOE-M7-D-MICRO B

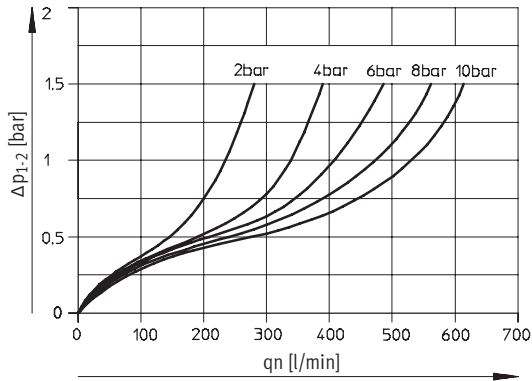


# Lubricators LOE, D series, metal design

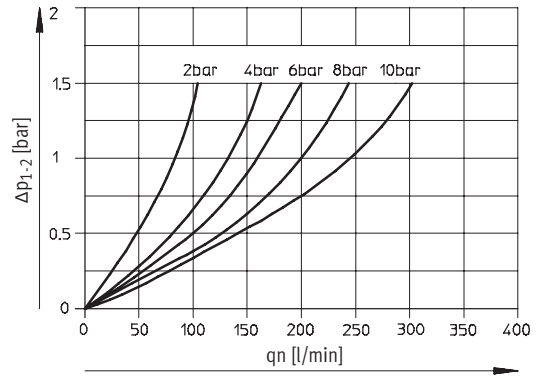
Technical data

## Standard flow rate $q_n$ as a function of the differential pressure $\Delta p_{1-2}$

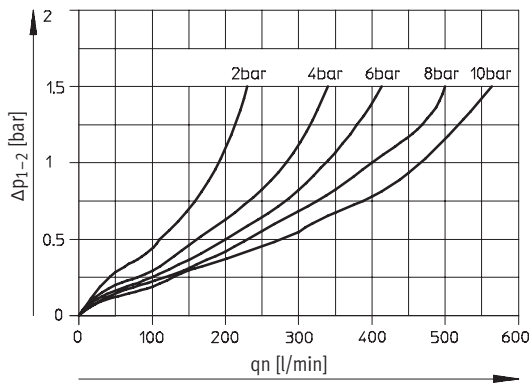
LOE-1/8-D-MICRO



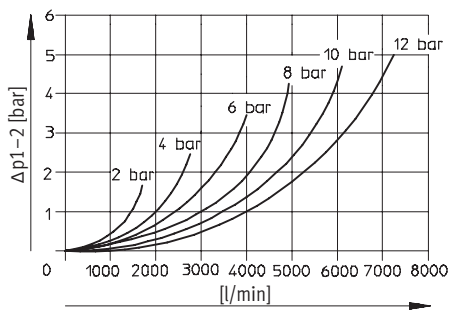
LOE-QS4-D-MICRO



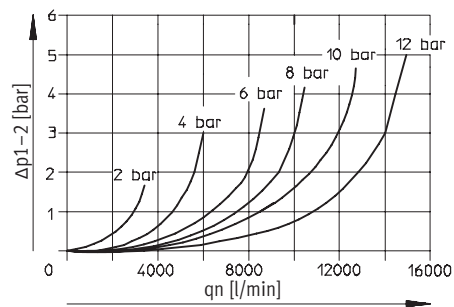
LOE-QS6-D-MICRO



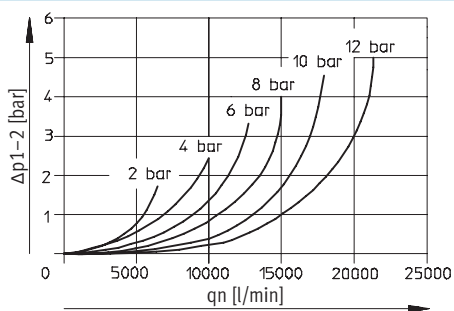
LOE-1/4-D-MINI



LOE-1/2-D-MIDI



LOE-1-D-MAXI



Primary pressure  $p_1 = 10$  bar



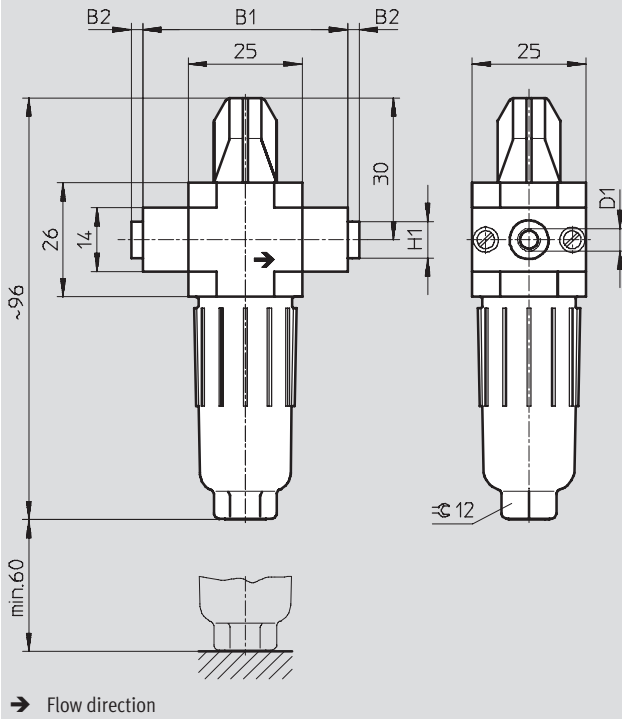
# Lubricators LOE, D series, metal design

Technical data

## Dimensions

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Micro



Type	B1	B2	D1	H1
<b>MICRO</b>				
LOE-M5-D-MICRO	25	-	M5	-
LOE-M7-D-MICRO B			M7	
LOE-1/8-D-MICRO			G1/8	
LOE-QS4-D-MICRO	45	~2.5	QS4	~8
LOE-QS6-D-MICRO			QS6	~10

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

# Lubricators LOE, D series, metal design

Technical data

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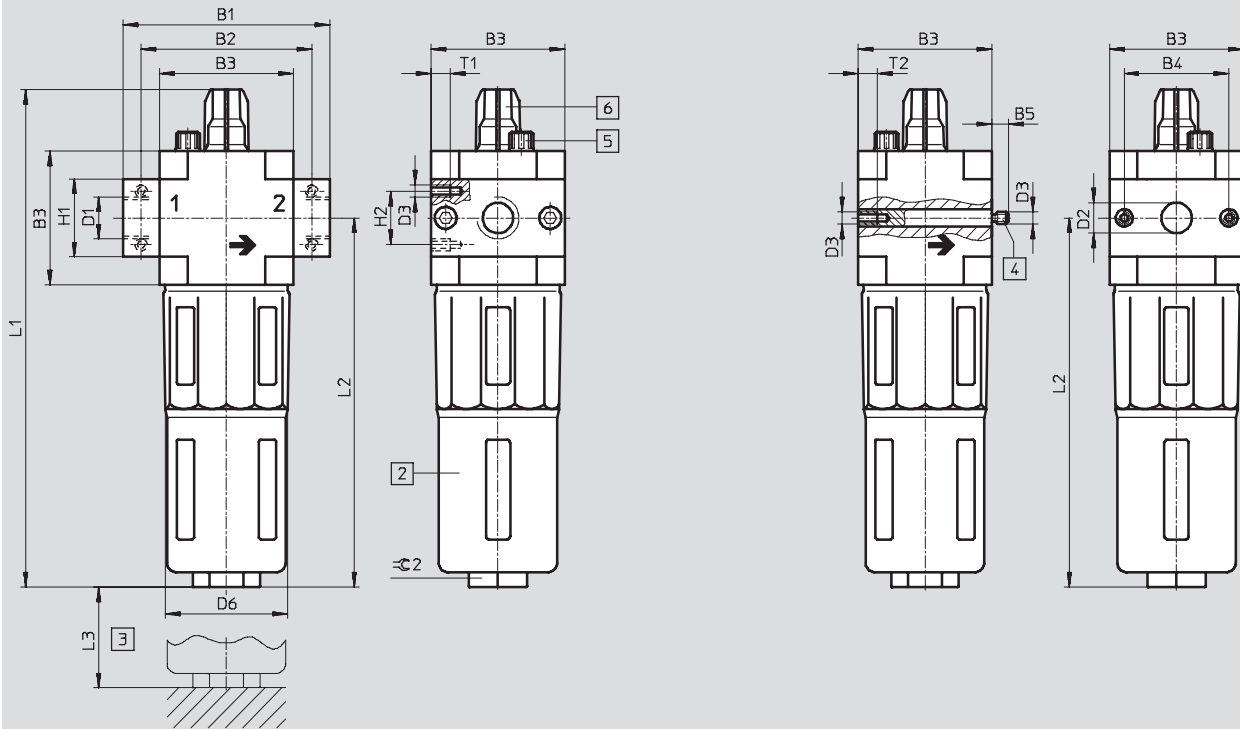
## Dimensions

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Mini/Midi/Maxi

With threaded connecting plates

Without threaded connecting plates



- 2 Metal bowl guard
  - 3 Installation dimensions
  - 4 Threaded pin (exchangeable)
  - 5 Bleed screw for oil reservoir
  - 6 Oil adjusting screw
- Flow direction

Type	B1	B2	B3	B4	B5	D1	D2	D3	D6	H1	H2	L1	L2	L3	T1	T2	≈ 2
<b>Mini</b>																	
LOE-1/8-D-MINI	64	52	40	30	-	G1/8	-	M4	38	20	11	169	124	100	7	-	22
LOE-1/4-D-MINI						G1/4											
LOE-3/8-D-MINI						G3/8											
LOE-D-MINI	-	-	-	-	5.8	-	11	-	-	-	-	-	-	-	-	10	-
<b>Midi</b>																	
LOE-1/4-D-MIDI	85	70	55	43	-	G1/4	-	M5	52	32	22	204	151	120	8	-	24
LOE-3/8-D-MIDI						G3/8											
LOE-1/2-D-MIDI						G1/2											
LOE-3/4-D-MIDI						G3/4											
LOE-D-MIDI	-	-	-	-	6.8	-	24	-	-	-	-	-	-	-	-	11	-
<b>Maxi</b>																	
LOE-1/2-D-MAXI	96	80	66	46	-	G1/2	-	M5	65	32	22	228	170	150	8	-	24
LOE-3/4-D-MAXI						G3/4											
LOE-1-D-MAXI						G1											
LOE-D-MAXI	-	-	-	-	6.8	-	30	-	-	-	-	-	-	-	-	11	-

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


# Lubricators LOE, D series, metal design

Technical data

Ordering data			
Lubricator, input pressure 0 ... 10 bar			
Size	Connection	Part No.	Type
Micro	Without threaded connecting plates, connecting thread in housing		
	M5	526 309	LOE-M5-D-MICRO
	M7	534 188	LOE-M7-D-MICRO B
	With threaded connecting plates		
	G1/8	526 310	LOE-1/8-D-MICRO
	With connecting plate and push-in fitting		
	QS4	526 313	LOE-QS4-D-MICRO
	QS6	526 314	LOE-QS6-D-MICRO

Ordering data			
Lubricator, input pressure 0 ... 16 bar, metal bowl guard			
Size	Part No.	Type	
Without threaded connecting plates			
Mini	192 575	LOE-D-MINI	
Midi	192 576	LOE-D-MIDI	
Maxi	192 577	LOE-D-MAXI	

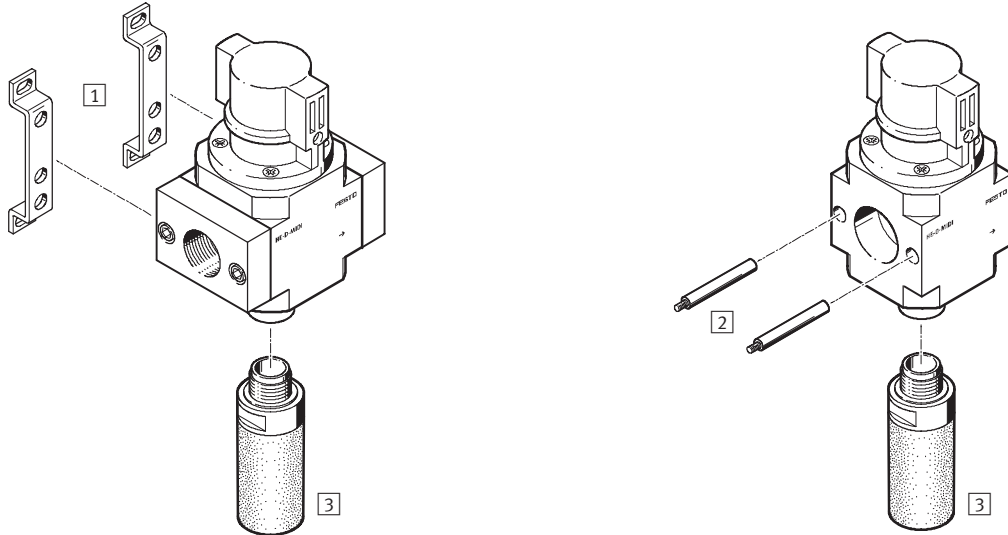
Ordering data			
Lubricator, input pressure 0 ... 16 bar, metal bowl guard			
Size	Connection	Part No.	Type
With threaded connecting plates			
Mini	G1/8	159 620	LOE-1/8-D-MINI
	G1/4	159 621	LOE-1/4-D-MINI
	G3/8	162 680	LOE-3/8-D-MINI
Midi	G1/4	186 479	LOE-1/4-D-MIDI
	G3/8	159 586	LOE-3/8-D-MIDI
	G1/2	159 587	LOE-1/2-D-MIDI
	G3/4	162 681	LOE-3/4-D-MIDI
Maxi	G1/2	186 480	LOE-1/2-D-MAXI
	G3/4	159 622	LOE-3/4-D-MAXI
	G1	159 623	LOE-1-D-MAXI

Ordering data – Special oil			
	Scope of delivery	Part No.	Type
	1 litre	152 811	OFSW-32

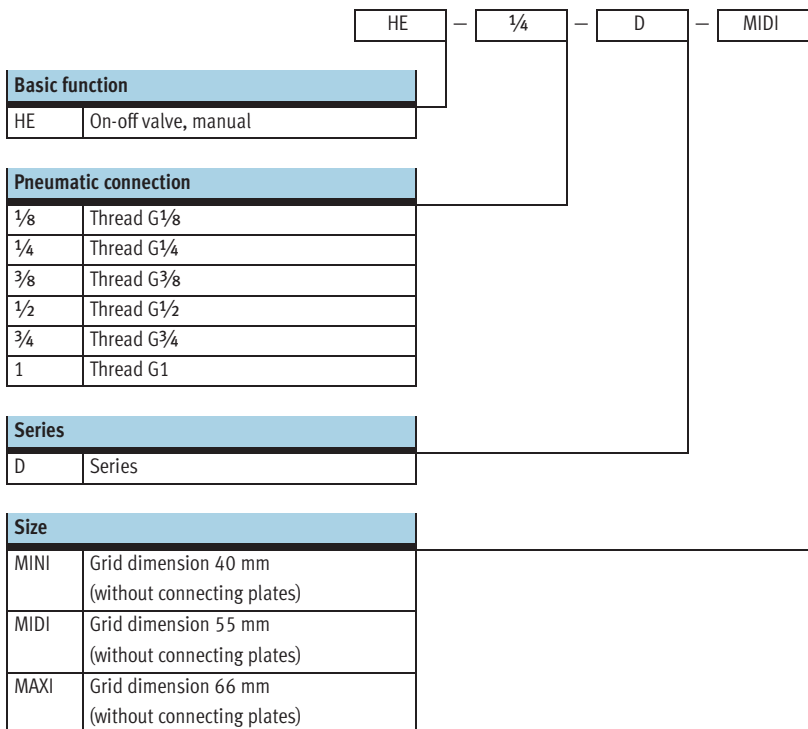
# On-off valves HE, D series, metal design

Peripherals overview and type codes

**Mini/Midi/Maxi**  
 Individual unit with connection plates Individual unit without connection plates, for service unit combination



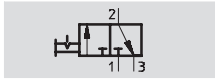
Mounting attachments and accessories					
	Individual unit		Combination		→ Page
	with connection plates	without connection plates	with connection plates	without connection plates	
1 Mounting bracket HFOE	■	-	■	-	198
2 Threaded pin (included in scope of delivery) FRB	-	-	■	■	200
3 Silencer U	■	■	■	■	206



# On-off valves HE, D series, metal design

## Technical data

### Function



- - Flow rate  
1000 ... 6500 l/min
- - Temperature range  
-10 ... +60 °C
- - Operating pressure  
0 ... 16 bar



- 3/2-way manual shut-off valve
- The unit is vented when switched off
- Ducted exhaust possible via a threaded connection
- The switching position is immediately recognisable
- Commercially available padlock can be used for security

General technical data										
Size	Mini			Midi				Maxi		
Pneumatic connection	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1
Operating medium	Filtered compressed air, lubricated or unlubricated, grade of filtration 50 $\mu$ m									
Design	Piston spool valve									
Type of mounting	Via accessories									
	In-line installation									
Assembly position	Any									
Operating pressure [bar]	0 ... 16									
Valve function	3/2-way valve, single solenoid									
Exhaust function	Without flow control									
Reset method	Mechanical spring									
C value [l/sbar]	4.4	7.2	7.5	9.9	15.7	17.0	17.3	23.7	26.8	25.9
b value	0.44	0.28	0.27	0.45	0.30	0.30	0.42	0.32	0.35	0.37
Direction of flow	Non-reversible									

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

Standard nominal flow rate <sup>1)</sup> qnN [l/min]						
Connection	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1
<b>Mini</b>						
HE	1000	1500	1600	-	-	-
<b>Midi</b>						
HE	-	2600	3200	3600	3800	-
<b>Maxi</b>						
HE	-	-	-	5600	6000	6500

1) Measured at p<sub>1</sub> = 6 bar and  $\Delta$ p = 1 bar.

# On-off valves HE, D series, metal design

Technical data

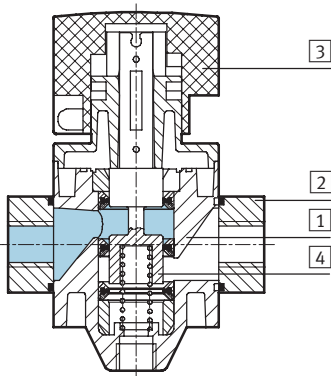
Ambient conditions				
Size		Mini	Midi	Maxi
Ambient temperature	[°C]	-10 ... +60		
Temperature of medium	[°C]	-10 ... +60		
Corrosion resistance class	CRC <sup>1)</sup>	2		

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.

Weight [g]				
Size		Mini	Midi	Maxi
HE		192	511	796

## Materials

Sectional view



On-off valve		
1	Housing	Die-cast aluminium
2	Connecting plates	Wrought aluminium alloy
3	Rotary knob	Polyamide
4	Piston	Stainless steel
-	Seals	Nitrile rubber
Note on materials		Free of copper, PTFE and silicone

# On-off valves HE, D series, metal design

Technical data

FESTO

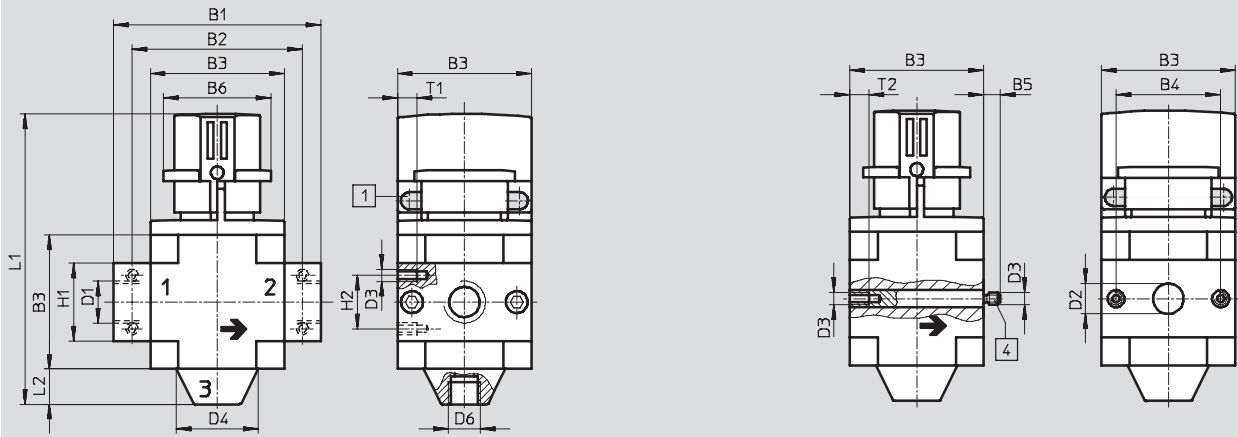
## Dimensions

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Mini/Midi/Maxi

With threaded connecting plates

Without threaded connecting plates



1 Hole for locking with padlock

4 Threaded pin (exchangeable)

→ Flow direction

Type	B1	B2	B3	B4	B5	B6	D1	D2	D3	D4	D6	H1	H2	L1	L2	T1	T2
<b>Mini</b>																	
HE-1/8-D-MINI	64	52	40	30	-	32	G1/8	-	M4	24	G1/8	20	11	100	11	7	-
HE-1/4-D-MINI							G1/4										
HE-3/8-D-MINI	70						G3/8										
HE-D-MINI	-	-			5.8		-	11				-	-			-	10
<b>Midi</b>																	
HE-1/4-D-MIDI	85	70	55	43	-	44	G1/4	-	M5	34	G1/4	32	22	121	14	8	-
HE-3/8-D-MIDI							G3/8										
HE-1/2-D-MIDI							G1/2										
HE-3/4-D-MIDI							G3/4										
HE-D-MIDI	-	-			6.8		-	24				-	-			-	11
<b>Maxi</b>																	
HE-1/2-D-MAXI	96	80	66	46	-	44	G1/2	-	M5	38	G3/8	32	22	134	16	8	-
HE-3/4-D-MAXI							G3/4										
HE-1-D-MAXI	116	91					G1					40					
HE-D-MAXI	-	-			6.8		-	30				-	-			-	11

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

## On-off valves HE, D series, metal design

FESTO

Technical data

Ordering data		
3/2-way valve, operating pressure 0 ... 16 bar, normally closed		
Size	Part No.	Type
Without threaded connecting plates		
Mini	170 681	HE-D-MINI
Midi	170 682	HE-D-MIDI
Maxi	170 683	HE-D-MAXI

Ordering data			
3/2-way valve, operating pressure 0 ... 16 bar, normally closed			
Size	Connection	Part No.	Type
With threaded connecting plates			
Mini	G $\frac{1}{8}$	162 806	HE- $\frac{1}{8}$ -D-MINI
	G $\frac{1}{4}$	162 807	HE- $\frac{1}{4}$ -D-MINI
	G $\frac{3}{8}$	162 808	HE- $\frac{3}{8}$ -D-MINI
Midi	G $\frac{1}{4}$	186 513	HE- $\frac{1}{4}$ -D-MIDI
	G $\frac{3}{8}$	162 809	HE- $\frac{3}{8}$ -D-MIDI
	G $\frac{1}{2}$	162 810	HE- $\frac{1}{2}$ -D-MIDI
	G $\frac{3}{4}$	162 811	HE- $\frac{3}{4}$ -D-MIDI
Maxi	G $\frac{1}{2}$	186 514	HE- $\frac{1}{2}$ -D-MAXI
	G $\frac{3}{4}$	162 812	HE- $\frac{3}{4}$ -D-MAXI
	G1	162 813	HE-1-D-MAXI



# On-off valves HEE, D series, metal design

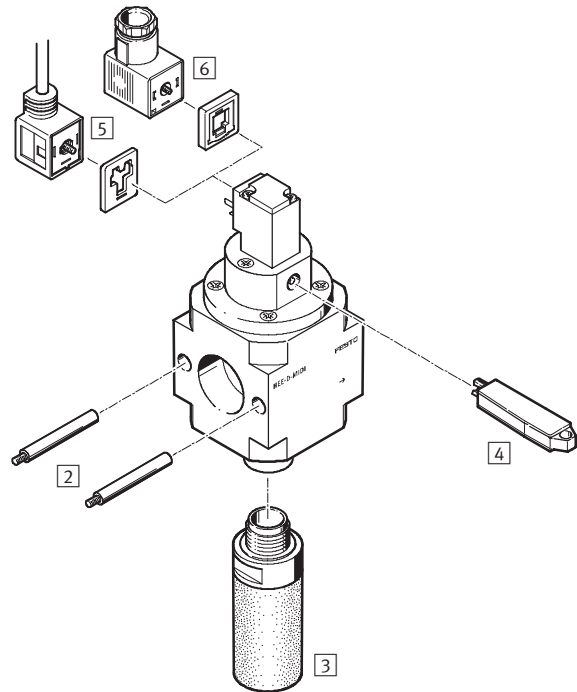
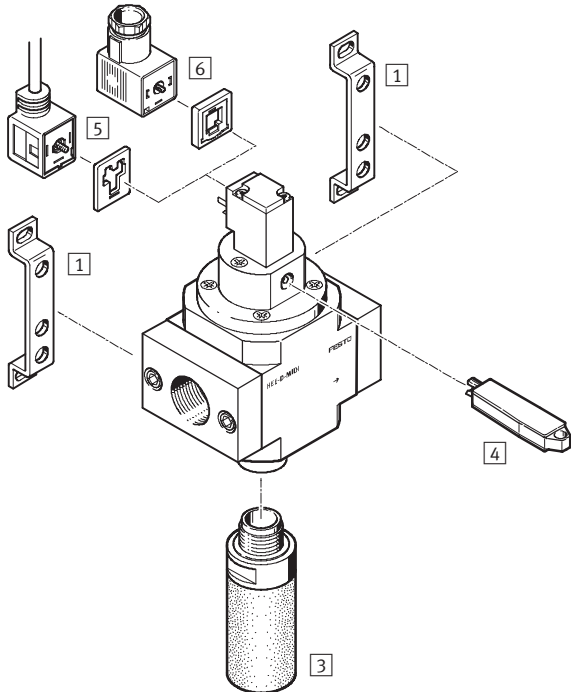
Peripherals overview

FESTO

## Mini/Midi/Maxi

Individual unit with connection plates

Individual unit without connection plates, for service unit combination



Mounting attachments and accessories						
	Individual unit		Combination		→ Page	
	with connection plates	without connection plates	with connection plates	without connection plates		
1	Mounting bracket HFOE	■	-	■	-	198
2	Threaded pin (included in scope of delivery) FRB	-	-	■	■	200
3	Silencer U	■	■	■	■	206
4	Manual override tool, non-detenting AHB-MD/MF/MY	■	■	■	■	-
5	Plug socket with cable KMEB-1	■	■	■	■	209
6	Plug socket MSSD-EB	■	■	■	■	209

# On-off valves HEE, D series, metal design

Type codes

HEE – 1/4 – D – MIDI – 110

### Basic function

HEE	On-off valve, electrical
-----	--------------------------

### Pneumatic connection

1/8	Thread G1/8
1/4	Thread G1/4
3/8	Thread G3/8
1/2	Thread G1/2
3/4	Thread G3/4
1	Thread G1

### Series

D	Series
---	--------

### Size

MINI	Grid dimension 40 mm (without connecting plates)
MIDI	Grid dimension 55 mm (without connecting plates)
MAXI	Grid dimension 66 mm (without connecting plates)

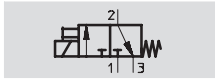
### Voltage

24	Supply voltage 24 V DC
110	Supply voltage 110 V AC
230	Supply voltage 230 V AC

# On-off valves HEE, D series, metal design

Technical data

Function



- - Flow rate  
1000 ... 6500 l/min

- - Temperature range  
-10 ... +60 °C

- - Operating pressure  
2.5 ... 16 bar

Selected types according to ATEX  
directive for explosive atmospheres  
→ [www.festo.com/en/ex](http://www.festo.com/en/ex)



- Electrical on-off valve for pressurising and venting pneumatic installations
- With solenoid coil without plug socket
- Three voltage ranges can be selected
- Manual override via pushing and detenting (using override tool AHB-MD/MF/MV)
- Solenoid head can be repositioned by 4 x 90°

General technical data										
Size	Mini			Midi				Maxi		
Pneumatic connection	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1
Operating medium	Filtered compressed air, lubricated or unlubricated, grade of filtration 50 µm									
Design	Piston spool valve									
Type of mounting	Via accessories In-line installation									
Assembly position	Any									
Operating pressure [bar]	2.5 ... 16									
Valve function	3/2-way valve, single solenoid									
Exhaust function	Without flow control									
Type of actuation	Mechanical spring									
C value [l/sbar]	4.4	7.0	7.3	9.7	15.7	17.0	17.3	24.2	28.0	27.6
b value	0.44	0.31	0.28	0.47	0.33	0.30	0.41	0.30	0.32	0.32
Direction of flow	Non-reversible									
Supply voltage [V DC/AC]	24, 110, 230									
Electrical connection	Plug to DIN 43 650, type C									
Duty cycle	100%									
Protection class	IP65									

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

Standard nominal flow rate <sup>1)</sup> qnN [l/min]						
Connection	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1
<b>Mini</b>						
HEE	1000	1500	1600	-	-	-
<b>Midi</b>						
HEE	-	2400	3200	3600	3800	-
<b>Maxi</b>						
HEE	-	-	-	5600	6000	6500

1) Measured at p<sub>1</sub> = 6 bar and Δp = 1 bar.

# On-off valves HEE, D series, metal design

Technical data

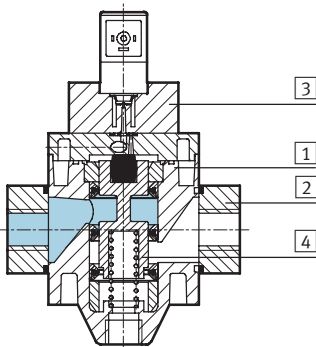
Ambient conditions				
Size		Mini	Midi	Maxi
Ambient temperature	[°C]	-10 ... +60		
Temperature of medium	[°C]	-10 ... +60		
Corrosion resistance class	CRC <sup>1)</sup>	2		

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.

Weight [g]				
Size		Mini	Midi	Maxi
HEE		223	500	800

## Materials

Sectional view



On-off valve		
1	Housing	Die-cast aluminium
2	Connecting plates	Wrought aluminium alloy
3	Solenoid and intermediate plate	Polyamide
4	Piston	Stainless steel
-	Seals	Nitrile rubber
Note on materials		Free of copper, PTFE and silicone

# On-off valves HEE, D series, metal design

Technical data

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Mini/Midi/Maxi

With threaded connecting plates Without threaded connecting plates

1 Manual override facility      4 Threaded pin (exchangeable)      → Flow direction

Type	B1	B2	B3	B4	B5	D1	D2	D3	D4	D6	H1	H2	L1	L2	T1	T2
<b>Mini</b>																
HEE-1/8-D-MINI	64	52	40	30	-	G1/8	-	M4	24	G1/8	20	11	104	11	7	-
HEE-1/4-D-MINI						G1/4										
HEE-3/8-D-MINI	70					G3/8										
HEE-D-MINI	-	-			5.8	-	11				-	-			-	10
<b>Midi</b>																
HEE-1/4-D-MIDI	85	70	55	43	-	G1/4	-	M5	34	G1/4	32	22	122	14	8	-
HEE-3/8-D-MIDI						G3/8										
HEE-1/2-D-MIDI						G1/2										
HEE-3/4-D-MIDI						G3/4										
HEE-D-MIDI	-	-			6.8	-	24				-	-			-	11
<b>Maxi</b>																
HEE-1/2-D-MAXI	96	80	66	46	-	G1/2	-	M5	38	G3/8	32	22	135	16	8	-
HEE-3/4-D-MAXI						G3/4										
HEE-1-D-MAXI	116	91				G1					40					
HEE-D-MAXI	-	-			6.8	-	30				-	-			-	11

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

## On-off valves HEE, D series, metal design

FESTO

Technical data

Ordering data							
3/2-way valve, operating pressure 2.5 ... 16 bar, normally closed							
Size	Connection	24 V DC		110 V AC		230 V AC	
		Part No.	Type	Part No.	Type	Part No.	Type
Without threaded connecting plates							
Mini		172 956	HEE-D-MINI-24	172 957	HEE-D-MINI-110	172 958	HEE-D-MINI-230
Midi		172 959	HEE-D-MIDI-24	172 960	HEE-D-MIDI-110	172 961	HEE-D-MIDI-230
Maxi		172 962	HEE-D-MAXI-24	172 963	HEE-D-MAXI-110	172 964	HEE-D-MAXI-230

Ordering data							
3/2-way valve, operating pressure 2.5 ... 16 bar, normally closed							
Size	Connection	24 V DC		110 V AC		230 V AC	
		Part No.	Type	Part No.	Type	Part No.	Type
With threaded connecting plates							
Mini	G $\frac{1}{8}$	165 068	HEE- $\frac{1}{8}$ -D-MINI-24	165 069	HEE- $\frac{1}{8}$ -D-MINI-110	165 070	HEE- $\frac{1}{8}$ -D-MINI-230
	G $\frac{1}{4}$	165 071	HEE- $\frac{1}{4}$ -D-MINI-24	165 072	HEE- $\frac{1}{4}$ -D-MINI-110	165 073	HEE- $\frac{1}{4}$ -D-MINI-230
	G $\frac{3}{8}$	165 074	HEE- $\frac{3}{8}$ -D-MINI-24	165 075	HEE- $\frac{3}{8}$ -D-MINI-110	172 940	HEE- $\frac{3}{8}$ -D-MINI-230
Midi	G $\frac{1}{4}$	186 515	HEE- $\frac{1}{4}$ -D-MIDI-24	186 517	HEE- $\frac{1}{4}$ -D-MIDI-110	186 516	HEE- $\frac{1}{4}$ -D-MIDI-230
	G $\frac{3}{8}$	172 941	HEE- $\frac{3}{8}$ -D-MIDI-24	172 942	HEE- $\frac{3}{8}$ -D-MIDI-110	172 943	HEE- $\frac{3}{8}$ -D-MIDI-230
	G $\frac{1}{2}$	172 944	HEE- $\frac{1}{2}$ -D-MIDI-24	172 945	HEE- $\frac{1}{2}$ -D-MIDI-110	172 946	HEE- $\frac{1}{2}$ -D-MIDI-230
	G $\frac{3}{4}$	172 947	HEE- $\frac{3}{4}$ -D-MIDI-24	172 948	HEE- $\frac{3}{4}$ -D-MIDI-110	172 949	HEE- $\frac{3}{4}$ -D-MIDI-230
Maxi	G $\frac{1}{2}$	186 518	HEE- $\frac{1}{2}$ -D-MAXI-24	186 520	HEE- $\frac{1}{2}$ -D-MAXI-110	186 519	HEE- $\frac{1}{2}$ -D-MAXI-230
	G $\frac{3}{4}$	172 950	HEE- $\frac{3}{4}$ -D-MAXI-24	172 951	HEE- $\frac{3}{4}$ -D-MAXI-110	172 952	HEE- $\frac{3}{4}$ -D-MAXI-230
	G1	172 953	HEE-1-D-MAXI-24	172 954	HEE-1-D-MAXI-110	172 955	HEE-1-D-MAXI-230

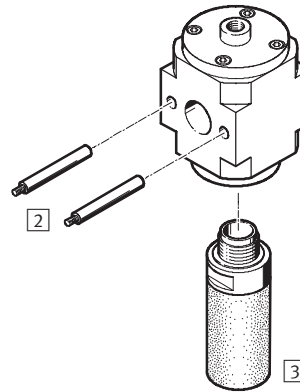
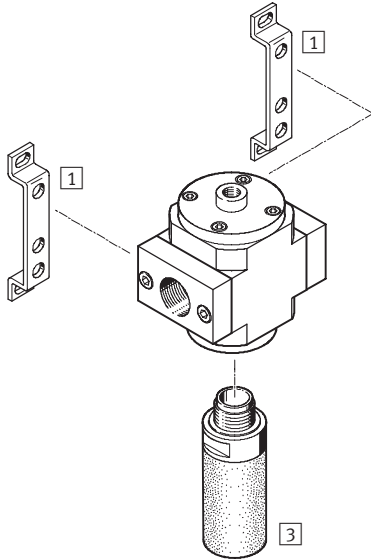
# On-off valves HEP, D series, metal design

Peripherals overview and type codes

## Mini/Midi/Maxi

Individual unit with connection plates

Individual unit without connection plates, for service unit combination



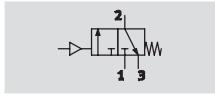
Mounting attachments and accessories					
	Individual unit		Combination		→ Page
	with connection plates	without connection plates	with connection plates	without connection plates	
1 Mounting bracket HFOE	■	-	■	-	198
2 Threaded pin (included in scope of delivery) FRB	-	-	■	■	200
3 Silencer U	■	■	■	■	206




Basic function		HEP	1/4	D	MIDI
HEP	On-off valve, pneumatic				
Pneumatic connection					
1/8	Thread G1/8				
1/4	Thread G1/4				
3/8	Thread G3/8				
1/2	Thread G1/2				
3/4	Thread G3/4				
1	Thread G1				
Series					
D	Series				
Size					
MINI	Grid dimension 40 mm (without connecting plates)				
MIDI	Grid dimension 55 mm (without connecting plates)				
MAXI	Grid dimension 66 mm (without connecting plates)				

# On-off valves HEP, D series, metal design

Technical data

Function



-  - Flow rate  
800 ... 6500 l/min
-  - Temperature range  
-10 ... +60 °C
-  - Operating pressure  
2 ... 16 bar



- Pneumatically actuated on-off valve for pressurising and venting pneumatic installations
- The valve can be used as a single unit or in combination with other D series modules
- These valves are particularly suitable for applications in explosion protection areas

General technical data										
Size	Mini			Midi				Maxi		
Pneumatic connection	G1/8	G1/4	G3/8	G1/4	G3/8	G1/2	G3/4	G1/2	G3/4	G1
Operating medium	Filtered compressed air, lubricated or unlubricated, grade of filtration 50 µm									
Design	Piston spool valve									
Type of mounting	Via accessories									
	In-line installation									
Assembly position	Any									
Operating pressure [bar]	2 ... 16									
Pilot pressure [bar]	3 ... 16									
Valve function	3/2-way valve									
Exhaust function	Without flow control									
Type of actuation	Mechanical spring									
C value [l/sbar]	4.3	7.2	7.7	10.1	15.5	16.6	16.2	24.2	28.0	27.6
b value	0.48	0.34	0.30	0.46	0.33	0.40	0.47	0.30	0.32	0.32
Direction of flow	Non-reversible									

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

Standard nominal flow rate <sup>1)</sup> qnN [l/min]						
Connection	G1/8	G1/4	G3/8	G1/2	G3/4	G1
<b>Mini</b>						
HEP	1000	1500	1600	-	-	-
Without threaded connecting plates	800			-	-	-
<b>Midi</b>						
HEP	-	2600	3500	3900	4100	-
Without threaded connecting plates	-	1900				-
<b>Maxi</b>						
HEP	-	-	-	5600	6000	6500
Without threaded connecting plates	-	-	-	2400		

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



# On-off valves HEP, D series, metal design

Technical data

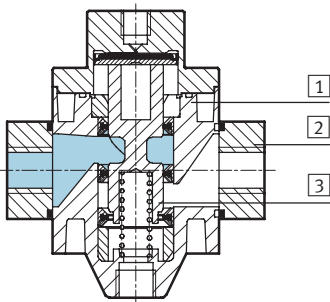
Ambient conditions				
Size		Mini	Midi	Maxi
Ambient temperature	[°C]	-10 ... +60 °C		
Temperature of medium	[°C]	-10 ... +60 °C		
Corrosion resistance class	CRC <sup>1)</sup>	2		

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.

Weight [g]				
Size		Mini	Midi	Maxi
HEP		223	500	800

## Materials

Sectional view



On-off valve		
1	Housing	Die-cast aluminium
2	Connecting plates	Wrought aluminium alloy
3	Piston	Stainless steel
-	Seals	Nitrile rubber
	Note on materials	Free of copper, PTFE and silicone

# On-off valves HEP, D series, metal design

Technical data

Dimensions Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Mini/Midi/Maxi

With threaded connecting plates Without threaded connecting plates

1 Threaded connection for pilot air (12)      4 Threaded pin (exchangeable)      → Flow direction

Type	B1	B2	B3	B4	B5	D1	D2	D3	D4	D5	D6	H1	H2	L1	L2	T1	T2
<b>Mini</b>																	
HEP-1/8-D-MINI	64	52	40	30	-	G1/8	-	M4	24	16	G1/8	20	11	73.8	11	7	-
HEP-1/4-D-MINI						G1/4											
HEP-3/8-D-MINI	70	-	-	-	5.8	-	11	-	-	-	-	-	-	-	-	-	10
HEP-D-MINI																	
<b>Midi</b>																	
HEP-1/4-D-MIDI	85	70	55	43	-	G1/4	-	M5	34	32	G1/4	32	22	94.6	14	8	-
HEP-3/8-D-MIDI						G3/8											
HEP-1/2-D-MIDI						G1/2											
HEP-3/4-D-MIDI						G3/4											
HEP-D-MIDI	-	-	-	-	6.8	-	24	-	-	-	-	-	-	-	-	-	11
<b>Maxi</b>																	
HEP-1/2-D-MAXI	96	80	66	46	-	G1/2	-	M5	38	16	G3/8	32	22	95.6	16	8	-
HEP-3/4-D-MAXI						G3/4											
HEP-1-D-MAXI	116	91	-	-	6.8	-	30	-	-	-	-	-	-	-	-	-	11
HEP-D-MAXI																	

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

## On-off valves HEP, D series, metal design

FESTO

Technical data

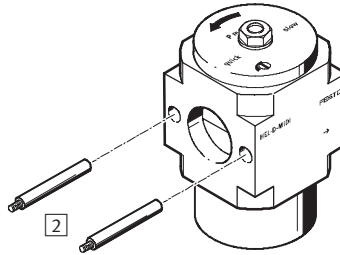
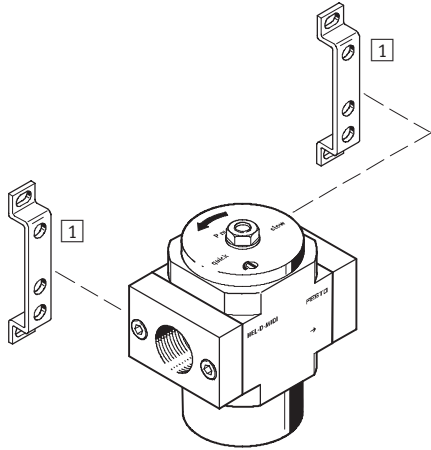
Ordering data		
Pneumatic actuation, 3/2-way valve, operating pressure 2 ... 16 bar, normally closed		
Size	Part No.	Type
Without threaded connecting plates		
Mini	193 242	HEP-D-MINI
Midi	193 249	HEP-D-MIDI
Maxi	193 257	HEP-D-MAXI

Ordering data			
Pneumatic actuation, 3/2-way valve, operating pressure 2 ... 16 bar, normally closed			
Size	Connection	Part No.	Type
With threaded connecting plates			
Mini	G $\frac{1}{8}$	193 243	HEP- $\frac{1}{8}$ -D-MINI
	G $\frac{1}{4}$	193 244	HEP- $\frac{1}{4}$ -D-MINI
	G $\frac{3}{8}$	193 245	HEP- $\frac{3}{8}$ -D-MINI
Midi	G $\frac{1}{4}$	193 250	HEP- $\frac{1}{4}$ -D-MIDI
	G $\frac{3}{8}$	193 251	HEP- $\frac{3}{8}$ -D-MIDI
	G $\frac{1}{2}$	193 252	HEP- $\frac{1}{2}$ -D-MIDI
	G $\frac{3}{4}$	193 253	HEP- $\frac{3}{4}$ -D-MIDI
Maxi	G $\frac{1}{2}$	193 258	HEP- $\frac{1}{2}$ -D-MAXI
	G $\frac{3}{4}$	193 259	HEP- $\frac{3}{4}$ -D-MAXI
	G1	193 260	HEP-1-D-MAXI

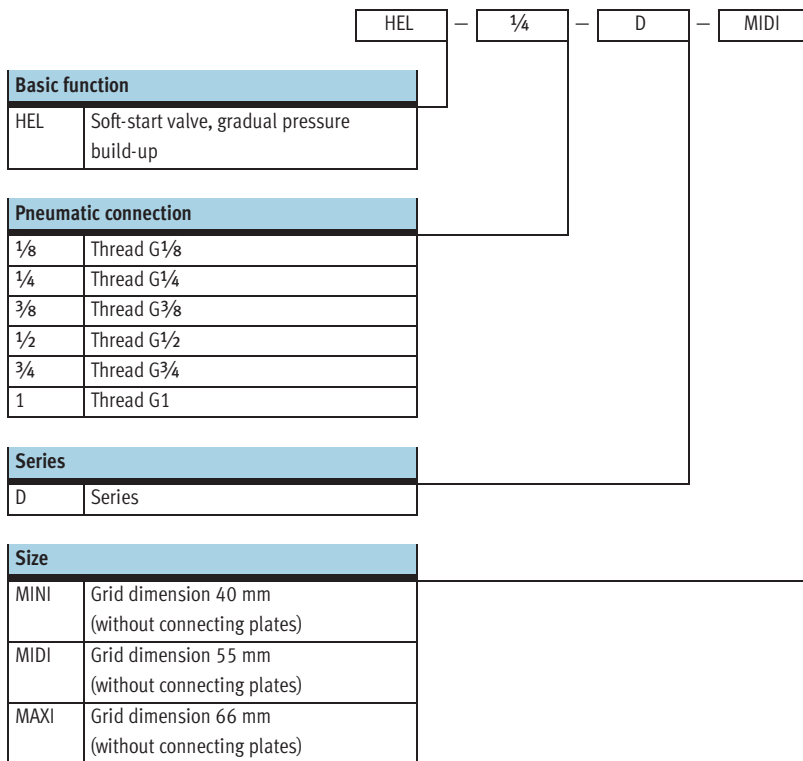
# Soft-start valves HEL, D series, metal design

Peripherals overview and type codes

<b>Mini/Midi/Maxi</b>
Individual unit with connection plates
Individual unit without connection plates, for service unit combination



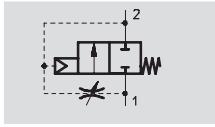
Mounting attachments and accessories						
		Individual unit		Combination		→ Page
		with connection plates	without connection plates	with connection plates	without connection plates	
1	Mounting bracket HFOE	■	-	■	-	198
2	Threaded pin (included in scope of delivery) FRB	-	-	■	■	200






# Soft-start valves HEL, D series, metal design

Technical data

Function



-  Flow rate  
1000 ... 6500 l/min
-  Temperature range  
-10 ... +60 °C
-  Operating pressure  
3 ... 16 bar



- Soft-start valve for gradual pressure build-up (for use with on-off valves HE and HEE)
- Drives are moved slowly and safely to their initial positions
- Sudden and erratic movements are avoided
- Pressure switching approx. 50% of input pressure
- Adjustable switching time delay

General technical data										
Size	Mini			Midi				Maxi		
Pneumatic connection	G1/8	G1/4	G3/8	G1/4	G3/8	G1/2	G3/4	G1/2	G3/4	G1
Operating medium	Filtered compressed air, lubricated or unlubricated, grade of filtration 50 µm									
Design	Piston spool valve									
Type of mounting	Via accessories									
	In-line installation									
Assembly position	Any									
Operating pressure [bar]	3 ... 16									
Valve function	2/2-way valve, single solenoid, closed									
Exhaust function	Flow control									
Reset method	Mechanical spring									
C value [l/sbar]	4.4	7.9	9.1	10.0	18.4	21.0	22.5	26.9	31.0	29.0
b value	0.46	0.38	0.29	0.49	0.33	0.29	0.36	0.36	0.30	0.38
Type of actuation	Direct									
Direction of flow	Non-reversible									

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

Standard nominal flow rate <sup>1)</sup> qnN [l/min]						
Connection	G1/8	G1/4	G3/8	G1/2	G3/4	G1
<b>Mini</b>						
HEL	1000	1500	1600	-	-	-
<b>Midi</b>						
HEL	-	2600	3200	3600	3800	-
<b>Maxi</b>						
HEL	-	-	-	5600	6000	6500

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

# Soft-start valves HEL, D series, metal design

Technical data

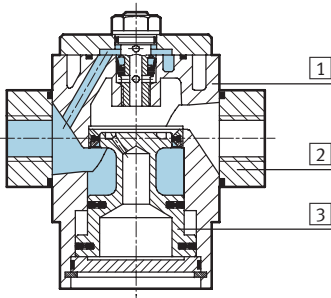
Ambient conditions				
Size		Mini	Midi	Maxi
Ambient temperature	[°C]	-10 ... +60		
Temperature of medium	[°C]	-10 ... +60		
Corrosion resistance class	CRC <sup>1)</sup>	2		

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.

Weight [g]				
Size		Mini	Midi	Maxi
HEL		184	586	850

## Materials

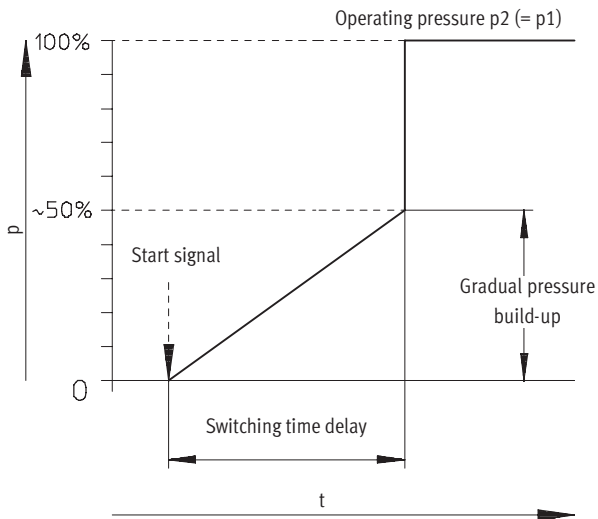
Sectional view



On-off valve		
1	Housing	Die-cast aluminium
2	Connecting plates	Wrought aluminium alloy
3	Piston	Stainless steel
-	Seals	Nitrile rubber
Note on materials		Free of copper, PTFE and silicone

## Switching point

Pressure p as a function of time t



# Soft-start valves HEL, D series, metal design

Technical data

Dimensions Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Mini

With threaded connecting plates Without threaded connecting plates

1 Regulating screw for flow control valve 4 Threaded pin (exchangeable) → Flow direction

Midi/Maxi

With threaded connecting plates Without threaded connecting plates

1 Regulating screw in housing 4 Threaded pin (exchangeable) → Flow direction

Type	B1	B2	B3	B4	B5	D1	D2 ∅	D3	D6	H1	H2	L1	L2	T1	T2
<b>Mini</b>															
HEL-1/8-D-MINI	64	52	40	30	-	G1/8	-	M4	30	20	11	66	16	7	-
HEL-1/4-D-MINI						G1/4									
HEL-3/8-D-MINI	70					G3/8									
HEL-D-MINI	-	-			5.8	-	11			-	-			-	10
<b>Midi</b>															
HEL-1/4-D-MIDI	85	70	55	43	-	G1/4	-	M5	50	32	22	77	22	8	-
HEL-3/8-D-MIDI						G3/8									
HEL-1/2-D-MIDI						G1/2									
HEL-3/4-D-MIDI						G3/4									
HEL-D-MIDI	-	-			6.8	-	24			-	-			-	11
<b>Maxi</b>															
HEL-1/2-D-MAXI	96	80	66	46	-	G1/2	-	M5	50	32	22	89	23	8	-
HEL-3/4-D-MAXI						G3/4									
HEL-1-D-MAXI	116	91				G1				40					
HEL-D-MAXI	-	-			6.8	-	30			-	-			-	11

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

## Soft-start valves HEL, D series, metal design

FESTO

Technical data

Ordering data		
Gradual pressure build-up, 2/2-way valve, operating pressure 3 ... 16 bar, normally closed		
Size	Part No.	Type
Without threaded connecting plates		
Mini	170 690	HEL-D-MINI
Midi	170 691	HEL-D-MIDI
Maxi	170 692	HEL-D-MAXI

Ordering data		
Gradual pressure build-up, 2/2-way valve, operating pressure 3 ... 16 bar, normally closed		
Size	Connection	Part No. Type
With threaded connecting plates		
Mini	G $\frac{1}{8}$	165 076 HEL- $\frac{1}{8}$ -D-MINI
	G $\frac{1}{4}$	165 077 HEL- $\frac{1}{4}$ -D-MINI
	G $\frac{3}{8}$	165 078 HEL- $\frac{3}{8}$ -D-MINI
Midi	G $\frac{1}{4}$	186 521 HEL- $\frac{1}{4}$ -D-MIDI
	G $\frac{3}{8}$	165 079 HEL- $\frac{3}{8}$ -D-MIDI
	G $\frac{1}{2}$	165 080 HEL- $\frac{1}{2}$ -D-MIDI
	G $\frac{3}{4}$	165 081 HEL- $\frac{3}{4}$ -D-MIDI
Maxi	G $\frac{1}{2}$	186 522 HEL- $\frac{1}{2}$ -D-MAXI
	G $\frac{3}{4}$	165 082 HEL- $\frac{3}{4}$ -D-MAXI
	G1	165 083 HEL-1-D-MAXI



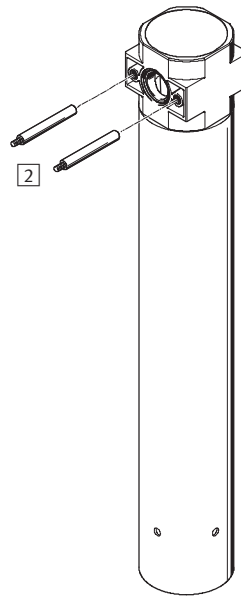
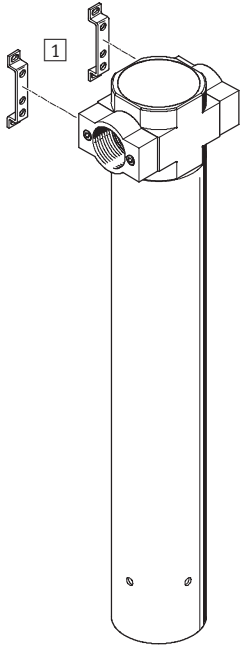
# Membrane air dryers LDM1, D series, metal design

Peripherals overview and type codes

**Maxi**

Individual unit with connection plates

Individual unit without connection plates, for service unit combination



Mounting attachments and accessories					
	Individual unit		Combination		→ Page
	with connection plates	without connection plates	with connection plates	without connection plates	
<b>1</b> Mounting bracket HFOE	■	-	■	-	198
<b>2</b> Threaded pin (included in scope of delivery) FRB	-	-	■	■	200

LDM1 – ½ – D – MAXI – 300

**Basic function**

LDM1	Membrane air dryer
------	--------------------

**Pneumatic connection**

-	Without connection plates
½	Thread G½
¾	Thread G¾
1	Thread G1

**Series**

D	Series
---	--------

**Size**

MAXI	Grid dimension 66 mm (without connection plates)
------	--

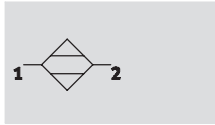
**Standard flow rate at output q<sub>n Off</sub>**


300	300 l/min
600	600 l/min
1000	1,000 l/min


# Membrane air dryers LDM1, D series, metal design


Technical data

Function



 Flow rate  
300 ... 1,000 l/min

 Temperature range  
+2 ... +50 °C

 Input pressure  
3 ... 12.5 bar

Pressure dew point reduction:  
LDM1-...-300/600: 20 K  
LDM1-...-1000: 17 K



- Optimum final dryer with excellent operational reliability
- Suitable for use as an individual device or for integration in existing service unit combinations
- Flow rate-dependent dew point reduction

- Wear-free function requiring no external energy
- The composition of the compressed air remains almost unchanged due to the drying process
- 15% purge air flow rate with the LDM1-...-300/600 and 20% with the LDM1-...-1000

Typical areas of application:

- Drying, cleaning of precision parts
- Measuring technology
- Rinsing of precision glass scales
- Painting systems
- Paper and packaging machines

 Note

Prefiltration of the compressed air using a micro filter LFMA-D-MAXI, grade of filtration 0.01 µm (residual particles < 0.1 µm, residual oil content < 0.1 mg/m<sup>3</sup>) is vital for flawless functioning of the unit.

General technical data			
Size	Maxi		
Pneumatic connection 1 <sup>1)</sup>	G½	G¾	G1
Pneumatic connection 2 <sup>1)</sup>	G½	G¾	G1
Operating medium	Compressed air, air quality class 1.7.2 to DIN ISO 8573-1		
Design	Membrane dryer with internal air consumption		
Type of mounting	Via accessories In-line installation		
Assembly position	Vertical ±5°		

1) with connection plates

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

Standard flow rate q <sub>n</sub> [l/min]			
Type	LDM1-...-300 <sup>1)</sup>	LDM1-...-600 <sup>1)</sup>	LDM1-...-1000 <sup>2)</sup>
Input q <sub>n In</sub>	353	706	1,250
Output q <sub>n Out</sub>	300	600	1,000
Purge air q <sub>n Purge</sub>	52.9	105.9	250

1) Measured at p<sub>1</sub> = 6.9 bar, θ<sub>pd In</sub> = 25 °C, θ<sub>pd Out</sub> = 5 °C ± 1.5 °C (θ<sub>pA Out</sub> = -21.5 °C ± 1.2 °C), θ<sub>amb</sub> = 25 °C

2) Measured at p<sub>1</sub> = 6.9 bar, θ<sub>pd In</sub> = 25 °C, θ<sub>pd Out</sub> = 8 °C ± 1.5 °C (θ<sub>pA Out</sub> = -19.1 °C ± 1.2 °C), θ<sub>amb</sub> = 25 °C

Operating and environmental conditions			
Type	LDM1-...-300	LDM1-...-600	LDM1-...-1000
Input pressure [bar]	3 ... 12,5		
Pressure dew point reduction [K]	20	20	17
Ambient temperature [°C]	+2 ... +50		
Temperature of medium [°C]	+2 ... +50		
Storage temperature [°C]	-20 ... +60		
Corrosion resistance class CRC <sup>1)</sup>	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.

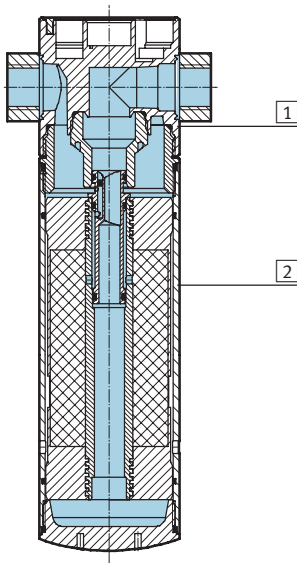
# Membrane air dryers LDM1, D series, metal design

Technical data

Weights [g]				
Port	Without connection plates	With connection plates		
		G $\frac{1}{2}$	G $\frac{3}{4}$	G1
LDM1-...-300	1,650	1,800	1,900	2,000
LDM1-...-600	2,100	2,250	2,350	2,450
LDM1-...-1000	2,100	2,250	2,350	2,450

## Materials

Sectional view



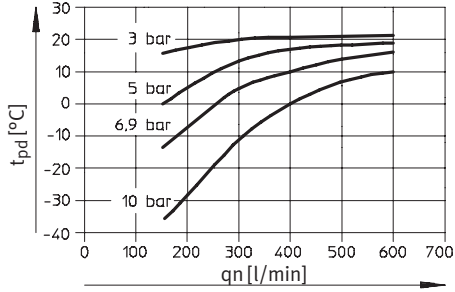
Membrane air dryer		
1	Housing	Die-cast zinc
2	Bowl	Wrought aluminium alloy
-	Seals	Nitrile rubber

# Membrane air dryers LDM1, D series, metal design

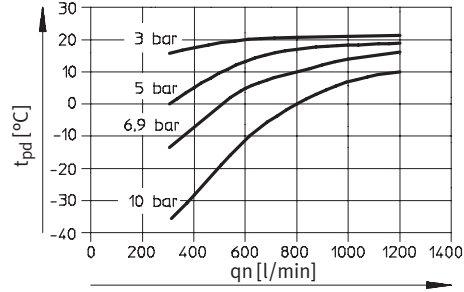
Technical data

## Pressure dew point $t_{pd}$ (output) as a function of the standard flow rate at output $q_n$

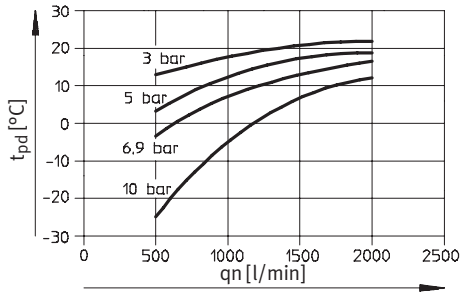
LDM1-...-300



LDM1-...-600

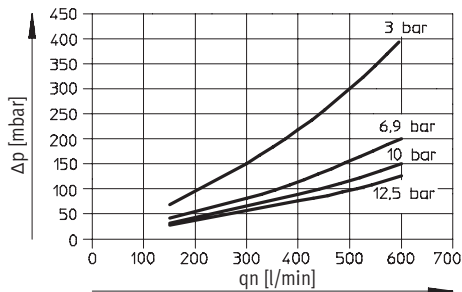


LDM1-...-1000

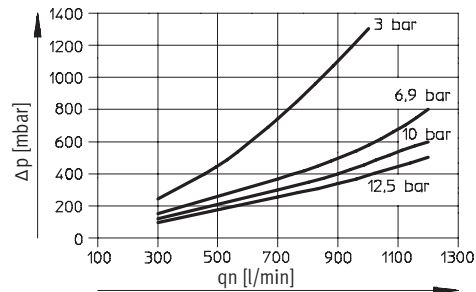


## Differential pressure $\Delta p$ as a function of the standard flow rate at output $q_n$

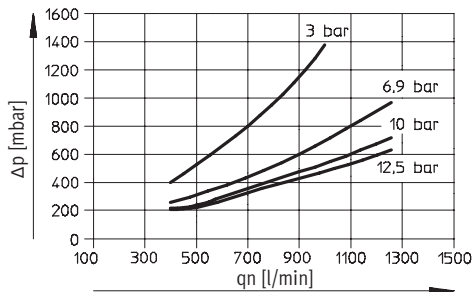
LDM1-...-300



LDM1-...-600



LDM1-...-1000



# Membrane air dryers LDM1, D series, metal design

Technical data

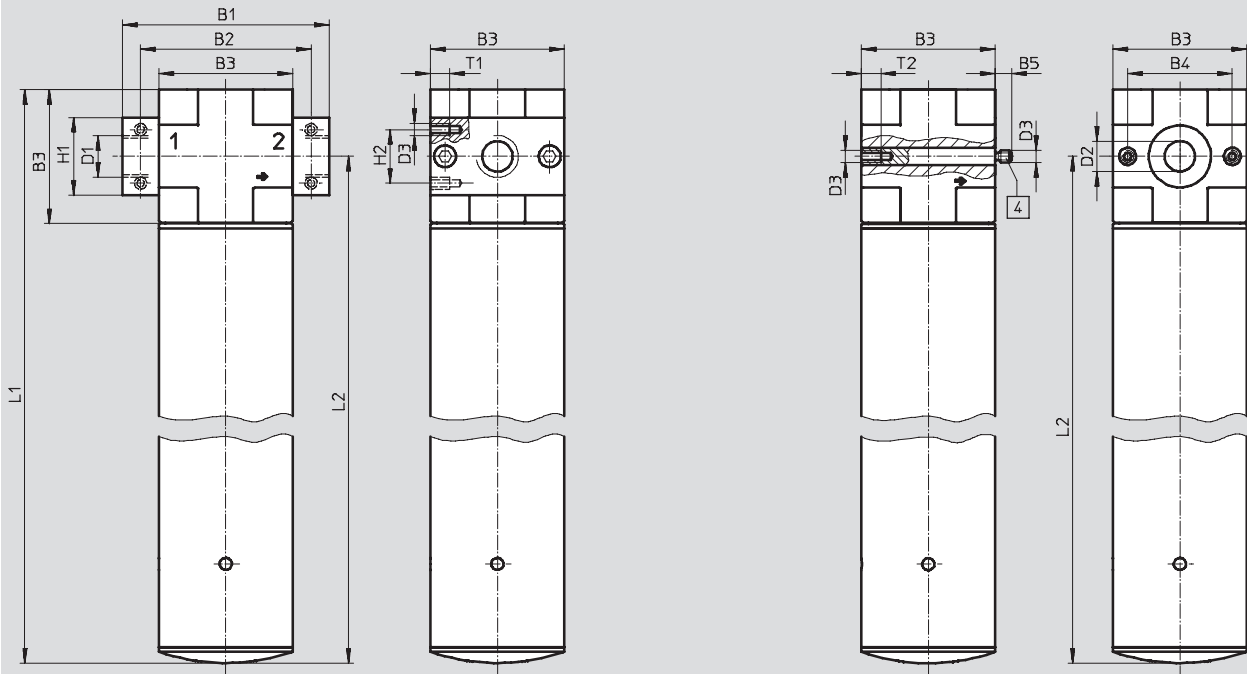
**Dimensions**

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Maxi

With threaded connecting plates

Without threaded connecting plates



4 Threaded pin (exchangeable)

→ Flow direction

Type	B1	B2	B3	B4	B5	D1	D2 ∅	D3	H1	H2	L1	L2	T1	T2
LDM1-1/2-D-MAXI-300	96	80	66	46	-	G1/2	-	M5	32	22	329	296	8	-
LDM1-1/2-D-MAXI-600											519	486		
LDM1-1/2-D-MAXI-1000											519	486		
LDM1-3/4-D-MAXI-300	96	80	66	46	-	G3/4	-	M5	36	22	329	296	8	-
LDM1-3/4-D-MAXI-600											519	486		
LDM1-3/4-D-MAXI-1000											519	486		
LDM1-1-D-MAXI-300	116	91	66	46	-	G1	-	M5	41	22	329	296	8	-
LDM1-1-D-MAXI-600											519	486		
LDM1-1-D-MAXI-1000											519	486		
LDM1-D-MAXI-300	-	-	66	46	7	-	30	M5	-	-	329	296	-	11
LDM1-D-MAXI-600											519	486		
LDM1-D-MAXI-1000											519	486		

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

**Ordering data – Without connection plates**

Size	LDM1-...-300		LDM1-...-600		LDM1-...-1000	
	Part No.	Type	Part No.	Type	Part No.	Type
Maxi	543 664	LDM1-D-MAXI-300	543 665	LDM1-D-MAXI-600	543 666	LDM1-D-MAXI-1000

**Ordering data – With connection plates**

Size	Connection	LDM1-...-300		LDM1-...-600		LDM1-...-1000	
		Part No.	Type	Part No.	Type	Part No.	Type
Maxi	G1/2	543 667	LDM1-1/2-D-MAXI-300	543 668	LDM1-1/2-D-MAXI-600	543 669	LDM1-1/2-D-MAXI-1000
	G3/4	543 670	LDM1-3/4-D-MAXI-300	543 671	LDM1-3/4-D-MAXI-600	543 672	LDM1-3/4-D-MAXI-1000
	G1	543 673	LDM1-1-D-MAXI-300	543 674	LDM1-1-D-MAXI-600	543 675	LDM1-1-D-MAXI-1000

# Branching modules FRM, D series, metal design

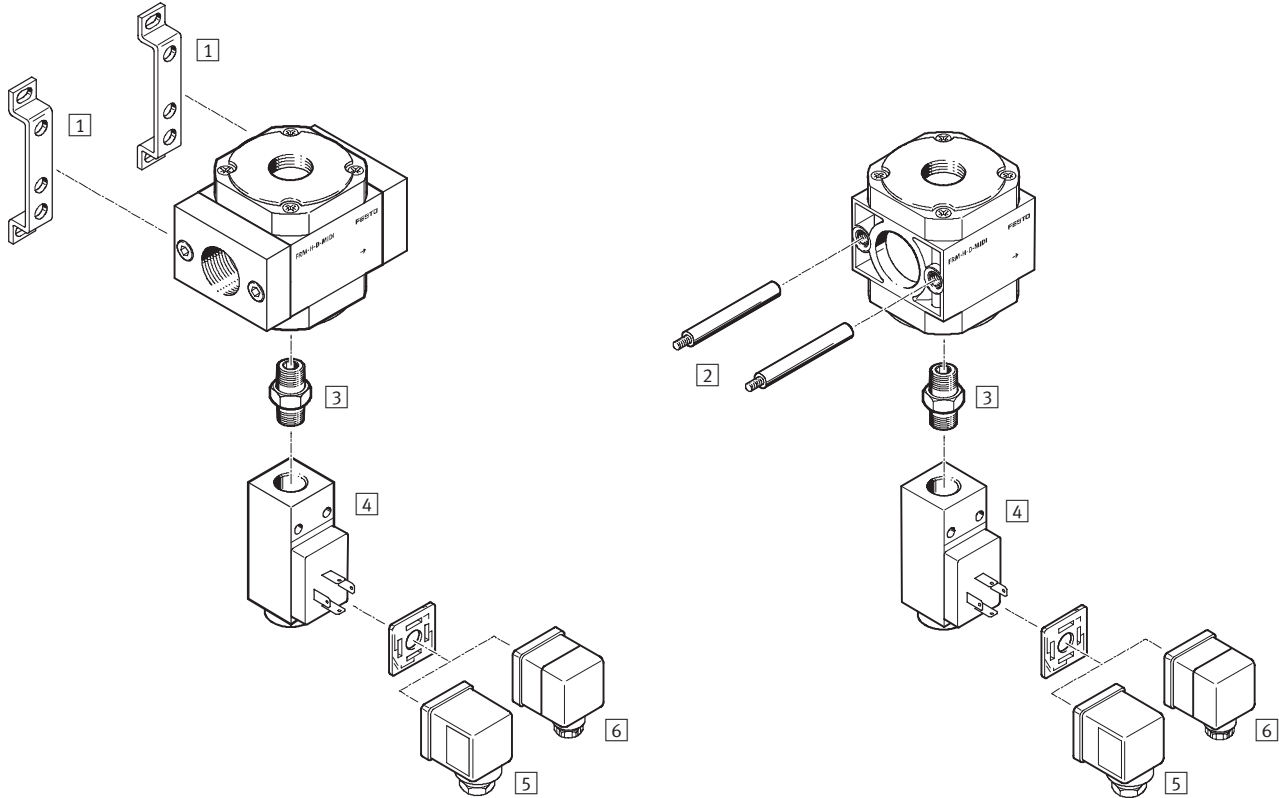
Peripherals overview

FESTO

## Mini/Midi/Maxi

Individual unit with connection plates

Individual unit without connection plates, for service unit combination



Mounting attachments and accessories					
	Individual unit		Combination		→ Page
	with connection plates	without connection plates	with connection plates	without connection plates	
1 Mounting bracket HFOE	■	-	■	-	198
2 Threaded pin (included in scope of delivery) FRB	-	-	■	■	200
3 Double nipple ESK	■	■	■	■	206
4 Pressure switches PEV	■	■	■	■	207
5 Plug socket MSSD-C	■	■	■	■	208
6 Angled plug socket PEV-...-WD-LED	■	■	■	■	208

# Branching modules FRM, D series, metal design

Type codes



**Basic function**

FRM	Branching module
-----	------------------

**Non-return function/pressure switch**

	Standard
H	With integrated non-return function
Y	With pressure switch

**Pneumatic connection**

	Without connection plates
1/8	Thread G1/8
1/4	Thread G1/4
3/8	Thread G3/8
1/2	Thread G1/2
3/4	Thread G3/4
1	Thread G1

**Series**

D	Series
---	--------

**Size**

MINI	Grid dimension 40 mm (without connection plates)
MIDI	Grid dimension 55 mm (without connection plates)
MAXI	Grid dimension 66 mm (without connection plates)

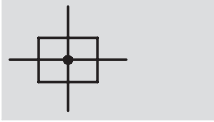
# Branching modules FRM, D series, metal design


Technical data

Function

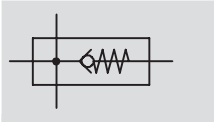
-  - Flow rate  
1,300 ... 20,000 l/min


Standard



-  - Temperature range  
-10 ... +60 °C

With non-return function




-  - Operating pressure  
0 ... 16 bar



- An integrated non-return valve prevents return flow of lubricated compressed air
- Branching module for compressed air distribution for attachment of additional modules (pressure regulator, pressure switch, etc.)
- Several additional air connections for greater flexibility
- Can be used as an intermediate distributor for varying air qualities

General technical data										
Size	Mini			Midi				Maxi		
Pneumatic connection 1 <sup>1)</sup>	G1/8	G1/4	G3/8	G1/4	G3/8	G1/2	G3/4	G1/2	G3/4	G1
Pneumatic connection 2 <sup>1)</sup>	G1/8	G1/4	G3/8	G1/4	G3/8	G1/2	G3/4	G1/2	G3/4	G1
Pneumatic connection 3	G1/4			G1/2				G3/4		
Pneumatic connection 4	G1/4									
Operating medium	Filtered compressed air									
Design	Branching module									
Type of mounting	Via accessories									
	In-line installation									
Assembly position	Any									
Operating pressure [bar]										
Standard	0 ... 16									
With non-return function	0.15 ... 16			0.2 ... 16				0.25 ... 16		
With pressure switch	0 ... 12									

1) with connection plates

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



# Branching modules FRM, D series, metal design

Technical data

Standard nominal flow rate <sup>1)</sup> qnN [l/min]								
Port		Without connection plates	With connection plates					
			G1/8	G1/4	G3/8	G1/2	G3/4	G1
<b>Standard</b>								
In main flow direction 1 → 2	Mini	3,300	1,500	3,300	3,300	–	–	–
	Midi	8,200	–	3,500	7,000	8,200	8,800	–
	Maxi	20,000	–	–	–	11,700	20,000	17,400
<b>With non-return function</b>								
In main flow direction 1 → 2	Mini	2,000	1,300	2,000	2,100	–	–	–
	Midi	5,600	–	3,400	5,500	5,600	5,500	–
	Maxi	15,000	–	–	–	9,600	15,000	13,400
<b>With pressure switch</b>								
In main flow direction 1 → 2	Mini	3,300	–	–	–	–	–	–
	Midi	8,200	–	–	–	–	–	–
	Maxi	20,000	–	–	–	–	–	–

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

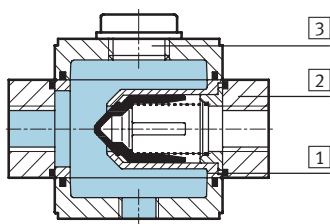
Ambient conditions			
Size	Mini	Midi	Maxi
Ambient temperature [°C]	–10 ... +60		
Temperature of medium [°C]	–10 ... +60		
Storage temperature [°C]	–10 ... +60		
Corrosion resistance class CRC <sup>1)</sup>	2		

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.

Weights [g]								
Port		Without connection plates	With connection plates					
			G1/8	G1/4	G3/8	G1/2	G3/4	G1
<b>Mini</b>								
Without pressure switch		210	290	280	290	–	–	–
With pressure switch		590	–	–	–	–	–	–
<b>Midi</b>								
Without pressure switch		520	–	770	760	740	710	–
With pressure switch		900	–	–	–	–	–	–
<b>Maxi</b>								
Without pressure switch		900	–	–	–	1,160	1,120	1,230
With pressure switch		1,280	–	–	–	–	–	–

## Materials

Sectional view



Branching module	
1	Housing Die-cast zinc
2	Connection plates Die-cast zinc
3	Cover plate Galvanised steel
–	Seals Nitrile rubber, polyvinyl chloride
Note on materials Free of copper, PTFE and silicone	

# Branching modules FRM, D series, metal design

Technical data

FESTO

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Mini/Midi/Maxi

With connection plates

Without connection plates

4 Threaded pin (exchangeable) → Flow direction

Type	B1	B2	B3	B4	B5	D1	D2 Ø	D3	D6	H1	H2	L1	L2	T1	T2
<b>Mini</b>															
FRM-1/8-D-MINI	64	52	40	30	-	G1/8	-	M4	G1/4	20	11	42	7	7	-
FRM-1/4-D-MINI						G1/4									
FRM-3/8-D-MINI	70					G3/8									
FRM-D-MINI	-	-			5.8	-	11			-	-			-	10
<b>Midi</b>															
FRM-1/4-D-MIDI	85	70	55	43	-	G1/4	-	M5	G1/2	32	22	59	8	8	-
FRM-3/8-D-MIDI						G3/8									
FRM-1/2-D-MIDI						G1/2									
FRM-3/4-D-MIDI						G3/4									
FRM-D-MIDI	-	-			6.8	-	24			-	-			-	11
<b>Maxi</b>															
FRM-1/2-D-MAXI	96	80	66	46	-	G1/2	-	M5	G3/4	32	22	70	8	8	-
FRM-3/4-D-MAXI						G3/4									
FRM-1-D-MAXI	116	91				G1				40					
FRM-D-MAXI	-	-			6.8	-	30			-	-			-	11

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

Dimensions – Pressure switch PEV Technical data → [www.festo.com](http://www.festo.com)

Mini/Midi/Maxi

Pressure switch PEV-1/4-B-0D with adjustable pressure switching point, plug, square design to DIN EN 175 301, type A

Type	B6	B7	L3
FRM-Y-D-MINI	20	62	92.3
FRM-Y-D-MIDI	27.5	69.5	92.3
FRM-Y-D-MAXI	33	75	92.3

## Branching modules FRM, D series, metal design

FESTO

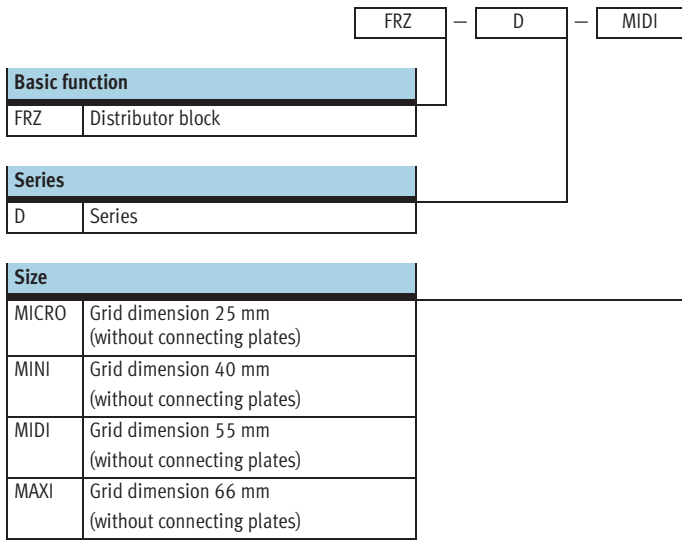
Technical data

Ordering data – Without connection plates						
Size	Standard		With integrated non-return function		With pressure switch PEV-1/4-B-0D	
	Part No.	Type	Part No.	Type	Part No.	Type
Mini	170 684	FRM-D-MINI	170 687	FRM-H-D-MINI	542 184	FRM-Y-D-MINI
Midi	170 685	FRM-D-MIDI	170 688	FRM-H-D-MIDI	542 185	FRM-Y-D-MIDI
Maxi	170 686	FRM-D-MAXI	170 689	FRM-H-D-MAXI	542 186	FRM-Y-D-MAXI

Ordering data – With connection plates					
Size	Port	Standard		With integrated non-return function	
		Part No.	Type	Part No.	Type
Mini	G1/8	164 949	FRM-1/8-D-MINI	162 788	FRM-H-1/8-D-MINI
	G1/4	164 950	FRM-1/4-D-MINI	162 789	FRM-H-1/4-D-MINI
	G3/8	164 951	FRM-3/8-D-MINI	162 790	FRM-H-3/8-D-MINI
Midi	G1/4	186 523	FRM-1/4-D-MIDI	186 525	FRM-H-1/4-D-MIDI
	Gy	164 952	FRM-3/8-D-MIDI	162 791	FRM-H-3/8-D-MIDI
	G1/2	164 953	FRM-1/2-D-MIDI	162 792	FRM-H-1/2-D-MIDI
	G3/4	164 954	FRM-3/4-D-MIDI	162 793	FRM-H-3/4-D-MIDI
Maxi	G1/2	186 524	FRM-1/2-D-MAXI	186 526	FRM-H-1/2-D-MAXI
	G3/4	164 955	FRM-3/4-D-MAXI	162 794	FRM-H-3/4-D-MAXI
	G1	164 956	FRM-1-D-MAXI	162 795	FRM-H-1-D-MAXI

# Distributor blocks FRZ, D series, metal design

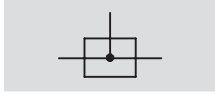
Type codes



# Distributor blocks FRZ, D series, metal design

Technical data

Function

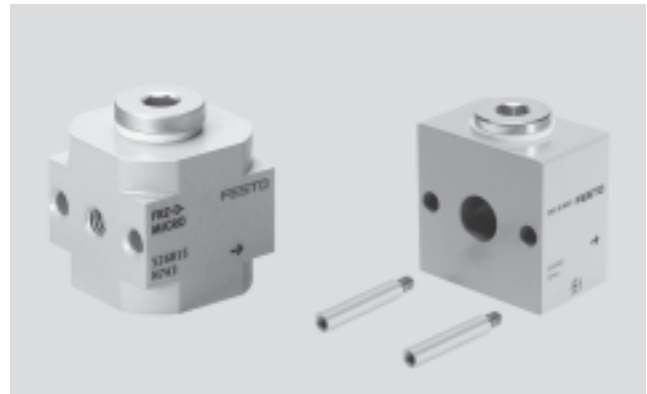


Additional air connections can be used to branch off filtered, unlubricated compressed air, e.g. to supply air barriers, sensors and control systems, or for especially clean air in combination with micro filter LFM.

Materials:

Housing: Aluminium

Cover plate: Galvanised steel



**Dimensions** Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

**Micro**

**Mini/Midi/Maxi**

→ Flow direction

4 Threaded pin (exchangeable)

Type	B1	B3	B4	B5	B6	D1 Ø	D2	D3	D4	T2
<b>Mini</b>										
FRZ-D-MINI	30	40	30	6	4.5	12	G¼	M4	G¼	12
<b>Midi</b>										
FRZ-D-MIDI	35	55	43	7	6	16	G¼	M5	G½	8
<b>Maxi</b>										
FRZ-D-MAXI	40	65	30	7	6	22	G¼	M5	G¾	10

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

Ordering data		
Distributor block		
Size	Part No.	Type
Without threaded connecting plates		
Micro	526 815	FRZ-D-MICRO
Mini	162 786	FRZ-D-MINI
Midi	159 592	FRZ-D-MIDI
Maxi	162 787	FRZ-D-MAXI

# Mounting attachments, D series, metal design

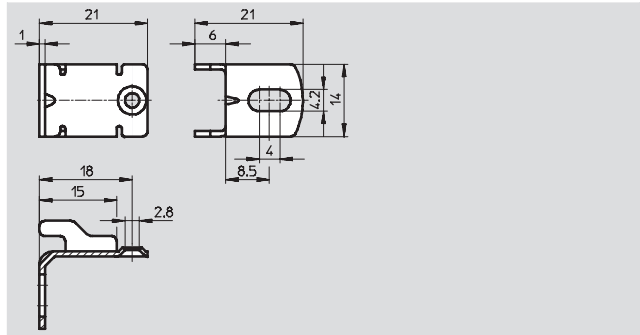
Accessories

FESTO

## Mounting bracket HFOE

Micro size  
for wall mounting

Material:  
Galvanised steel

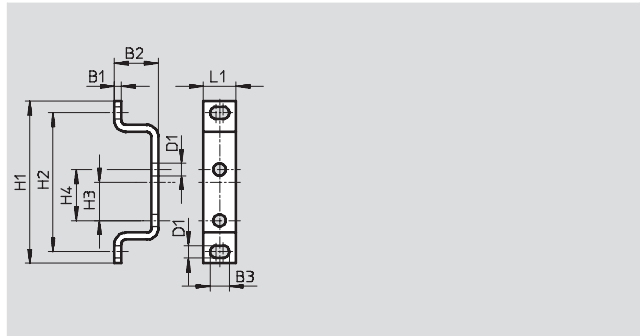


Ordering data			
Size	Part No.	Type	
Micro	526 317	HFOE-D-MICRO	

## Mounting bracket HFOE

Mini/Midi/Maxi size  
for wall mounting

Material:  
Galvanised steel



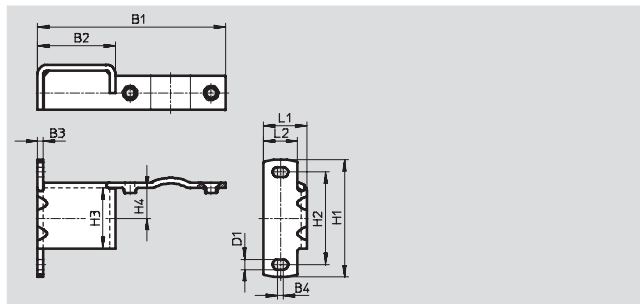
Dimensions and ordering data											
Size	B1	B2	B3	D1	H1	H2	H3	H4	L1	Part No.	Type
Mini	2	19	7.3	4.3	43	35	5.5	11	12	159 638	HFOE-D-MINI <sup>1)</sup>
Midi/Maxi	3	19	8.3	5.3	70	60	16.5	22	14	159 593	HFOE-D-MIDI/MAXI <sup>1)</sup>

1) Free of copper, PTFE and silicone

## Mounting bracket HRBK

for LRB/LRBS

Material:  
Galvanised steel



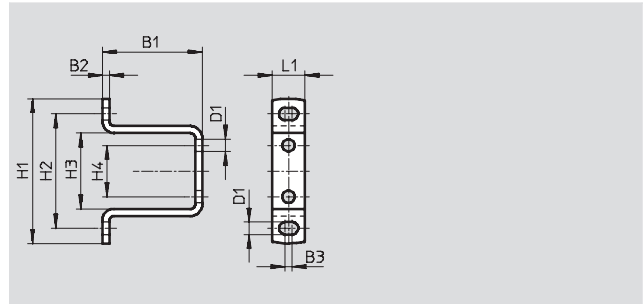
Dimensions and ordering data													
Size	B1	B2	B3	B4	D1	H1	H2	H3	H4	L1	L2	Part No.	Type
Mini	80.5	37.5	2.5	3	4.3	47.3	35	20	10	18.5	14	525 031	HRBK-D-MINI
Midi	99.8	41.3	3	3	5.3	62.3	49	32	16	23	18	525 032	HRBK-D-MIDI

# Mounting attachments, D series, metal design

Accessories

## Mounting bracket HRB for LRB/LRBS

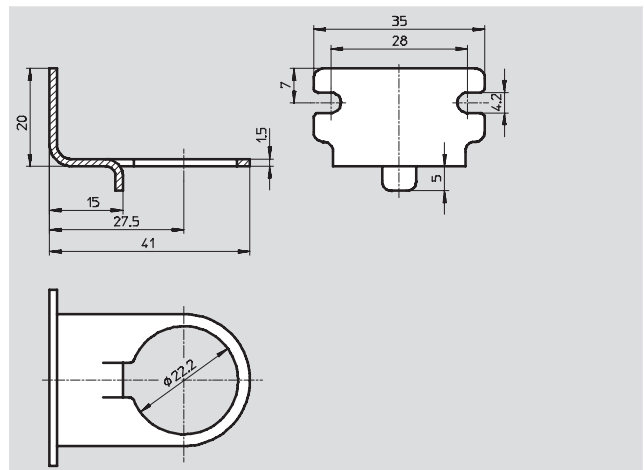
Material:  
Galvanised steel



Dimensions and ordering data											
Size	B1	B2	B3	D1 Ø	H1	H2	H3	H4	L1	Part No.	Type
Mini	38.5	2.5	3	4.3	47.3	35	20	11	12	525 029	HRB-D-MINI
Midi	42.7	3	3	5.3	62.3	49	32.5	22	14	525 030	HRB-D-MIDI

## Mounting bracket HRS Micro size for wall mounting

Material:  
Galvanised steel



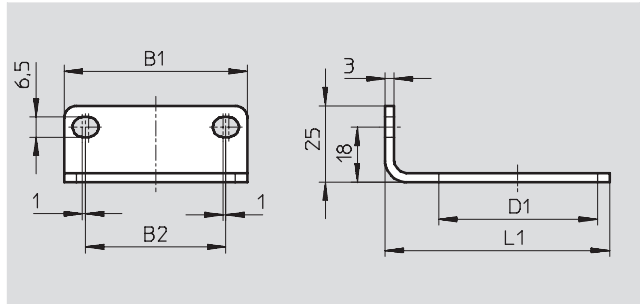
Ordering data		
Size	Part No.	Type
Micro	526 316	HRS-D-MICRO

# Mounting attachments, D series, metal design

Accessories

**Mounting bracket HR-D**  
for wall mounting

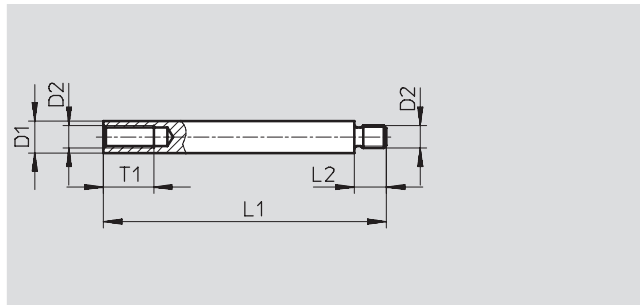
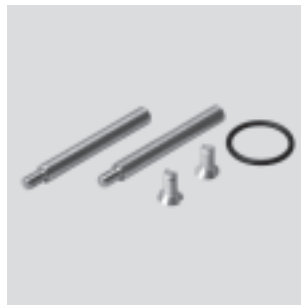
Material:  
Galvanised steel



Dimensions and ordering data						
Size	B1	B2	D1 Ø	L1	Part No.	Type
Mini	42	28	36	57.5	164 936	HR-D-MINI
Midi	60	46	52	73.5	162 804	HR-D-MIDI
Maxi	64	51	36	82	162 805	HR-D-MAXI
	DI	64	51	82	193 802	HR-D-DI-MAXI

**Threaded pin FRB**  
for service unit combinations

Material:  
High-alloy steel

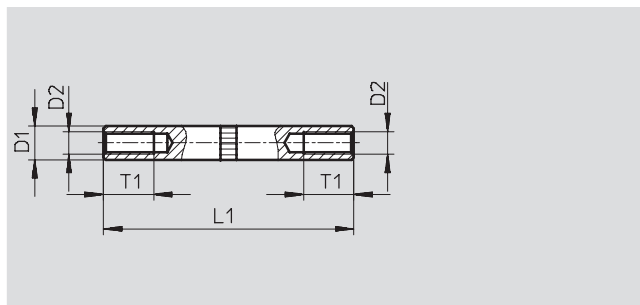


Dimensions and ordering data							
Size	D1 Ø	D2	L1	L2	T1 min.	Part No.	Type
Micro	3.5	M2.5	28.4	4	6	526 817	FRB-D-MICRO
Mini	6	M4	45.8	6	10	159 642	FRB-D-MINI <sup>1)</sup>
Midi	7	M5	61.8	7	11	159 595	FRB-D-MIDI <sup>1)</sup>
Maxi	7	M5	72.8	7	11	159 643	FRB-D-MAXI <sup>1)</sup>

1) Free of copper, PTFE and silicone

**Threaded pin HSB**  
for fitting individual devices with  
connecting plates

Material:  
High-alloy steel



Dimensions and ordering data						
Size	D1 Ø	D2	L1	T1 min.	Part No.	Type
Mini	6.5	M4	39.7	10	531 057	HSB-D-MINI
Midi	7.5	M5	54.7	11	531 058	HSB-D-MIDI



## Mounting attachments, D series, metal design

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Accessories

### Hex nut HMR

for filter regulators LFR and pressure regulators LR

Material:

Wrought aluminium alloy



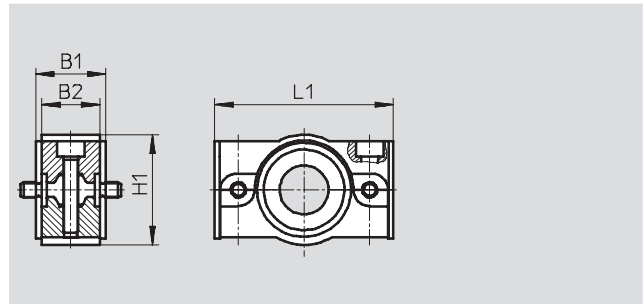
Ordering data		
Size	Part No.	Type
Micro	526 816	HMR-D-MICRO
Mini/Maxi	530 025	HMR-D-MINI/MAXI
Midi	530 026	HMR-D-MIDI

### Connecting kit HRBC

for LRB/LRBS

Material:

Die-cast zinc



Dimensions and ordering data						
Size	B1	B2	H1	L1	Part No.	Type
Mini	17.4	14.8	20	43	529 022	HRBC-D-MINI
Midi	23	18.6	38	58.5	529 023	HRBC-D-MIDI

# Connecting plates, D series, metal design

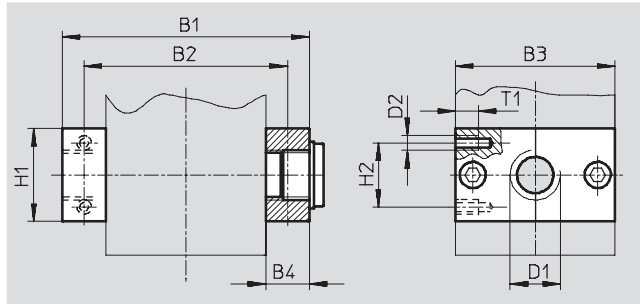
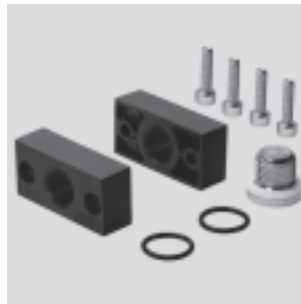
Accessories

## Connecting plates LRBAS

for pressure regulators LRB/LRBS

Material:

Die-cast zinc



Dimensions and ordering data											
Connection	B1	B2	B3	B4	D1	D2	H1	H2	T1 max.	Part No.	Type
G $\frac{1}{4}$	64	52	40	12	G $\frac{1}{4}$	M4	20	11	7	525 033	LRBAS- $\frac{1}{4}$ -D-MINI
G $\frac{3}{8}$	70	52	40	15	G $\frac{3}{8}$	M4	23	11	7	525 034	LRBAS- $\frac{3}{8}$ -D-MINI
G $\frac{3}{8}$	85	70	55	15	G $\frac{3}{8}$	M5	32	22	8	525 035	LRBAS- $\frac{3}{8}$ -D-MIDI
G $\frac{1}{2}$	85	70	55	15	G $\frac{1}{2}$	M5	32	22	8	525 036	LRBAS- $\frac{1}{2}$ -D-MIDI

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

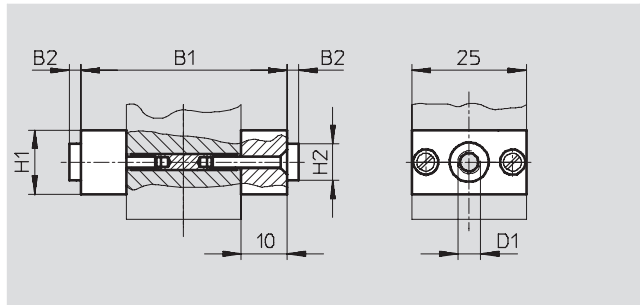
## Connecting plate kit PBL

Micro size

for service units FRC, filter regulators LFR, filters LF, pressure regulators LR and lubricators LOE

Material:

Wrought aluminium alloy



Dimensions and ordering data							
Connection	B1	B2	D1	H1	H2	Part No.	Type
G $\frac{1}{8}$	45	-	M5	10	-	526 318	PBL- $\frac{1}{8}$ -D-MICRO
QS4	45	2.5	QS4	10	8	526 321	PBL-QS4-D-MICRO
QS6	45	2.5	QS6	10	10	526 322	PBL-QS6-D-MICRO

## Security components, D series, metal design

Accessories

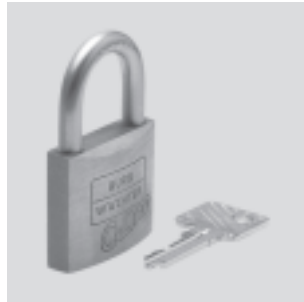
FESTO

### Padlock LRVS-D

for regulator lock LRVS for pressure regulators LR and on-off valves HE

Material:

Housing: Brass



#### Ordering data

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

### Regulator lock LRVS

Material:

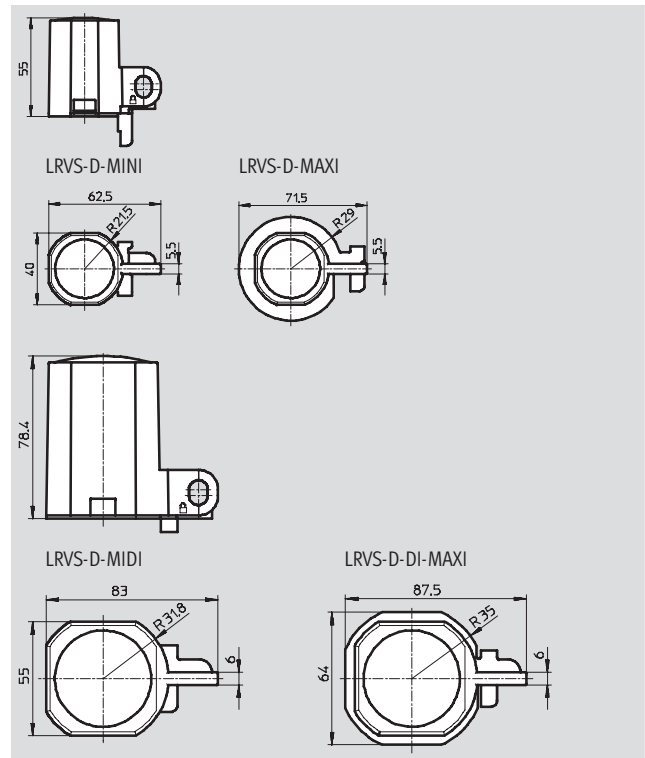
Cap: Polyacetal

Lock plate: Steel

Knurled nut: Aluminium

Lock plate of galvanised steel mounted on pressure regulating valve using knurled nut.

Locking device to prevent unauthorised alteration of the set pressure of pressure and filter regulators.



#### Ordering data

Size	Weight [g]	Part No.	Type
Mini	40	193 781	LRVS-D-MINI <sup>1)</sup>
Midi	60	193 782	LRVS-D-MIDI <sup>1)</sup>
Maxi	56	193 783	LRVS-D-MAXI <sup>1)</sup>
	DI	36	193 784

1) Free of copper, PTFE and silicone

## Pressure gauges, D series, metal design

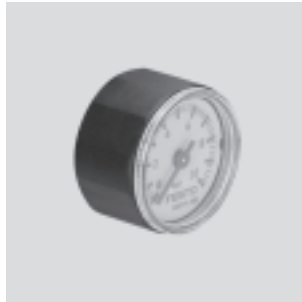
Accessories

FESTO

### Pressure gauge MA

Further pressure gauges

→ [www.festo.com](http://www.festo.com)



Ordering data					
Nominal size	Pneumatic connection	Indicating range		Part No.	Type
27	M5	0 ... 10 bar		526 323	MA-27-10-M5
		0 ... 1 MPa		526 324	MA-27-1,0-M5-MPA
		0 ... 160 psi		527 405	MA-27-160-M5-PSI

### Pressure gauge MA

Further pressure gauges

→ [www.festo.com](http://www.festo.com)



Ordering data					
Nominal size	Pneumatic connection	Indicating range		Part No.	Type
40	G $\frac{1}{8}$	0 ... 10 bar		359 874	MA-40-10- $\frac{1}{8}$
		0 ... 16 bar		345 395	MA-40-16- $\frac{1}{8}$
50	G $\frac{1}{4}$	0 ... 10 bar		359 873	MA-50-10- $\frac{1}{4}$
		0 ... 16 bar		356 759	MA-50-16- $\frac{1}{4}$

### Flanged pressure gauge FMA, DIN EN 837-1

- For pressure regulator combinations with front panel mounting

Further pressure gauges

→ [www.festo.com](http://www.festo.com)



Ordering data					
Nominal size	Pneumatic connection	Indicating range		Part No.	Type
		[bar]	[psi]		
40	G $\frac{1}{4}$	0 ... 10	0 ... 145	159 596	FMA-40-10- $\frac{1}{4}$ -EN
	G $\frac{1}{4}$	0 ... 16	0 ... 232	159 597	FMA-40-16- $\frac{1}{4}$ -EN
50	G $\frac{1}{4}$	0 ... 10	0 ... 145	159 599	FMA-50-10- $\frac{1}{4}$ -EN
	G $\frac{1}{4}$	0 ... 16	0 ... 232	159 600	FMA-50-16- $\frac{1}{4}$ -EN

## Additional functions, D series, metal design

Accessories

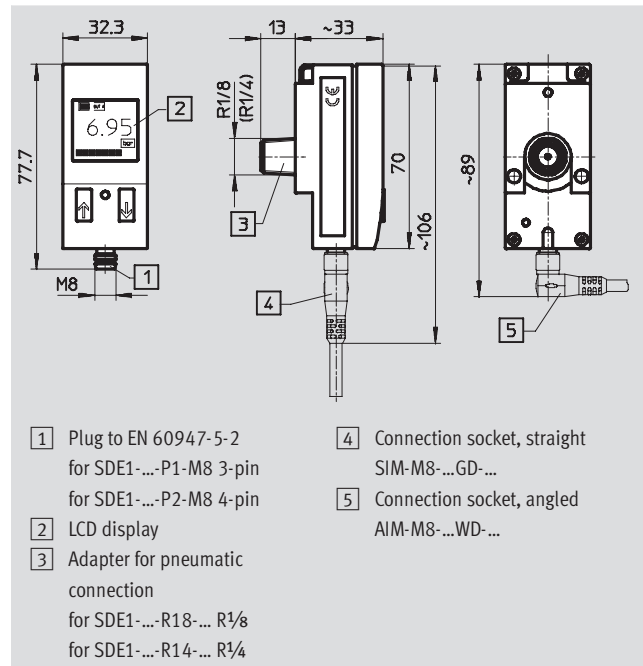
FESTO

### Pressure sensor SDE1 with LCD display

Material: Polyacetal

Besides freely programmable switching pressures and hysteresis for each switching output, all SDE1-... variants provide the following setting possibilities:

- Selection of threshold value/window comparator
- Selection of NO contacts/NC contacts
- Selection of pressure display in bar/kPa/psi
- Fast programming option through teach-in function
- Option for protecting against unauthorised programming via a PIN code



Ordering data			
Connection	Weight [g]	Part No.	Type
Pressure measuring range 0 ... 10 bar, overload pressure max. 20 bar, temperature range 0 ... +50 °C			
R $\frac{1}{4}$ -...-M8	95	192 028	SDE1-D10-G2-R14-C-P1-M8
R $\frac{1}{4}$ -...-M8	95	192 029	SDE1-D10-G2-R14-C-P2-M8
R $\frac{1}{8}$ -...-M8	95	192 026	SDE1-D10-G2-R18-C-P1-M8
R $\frac{1}{8}$ -...-M8	95	192 027	SDE1-D10-G2-R18-C-P2-M8

### Plastic tubing PCN for condensate drain

Material:  
Tubing: Polyvinyl chloride



Ordering data			
Length [m]	Weight [g/m]	Part No.	Type
50	25	7134	PCN-4-NT

## Additional functions, D series, metal design

Accessories

FESTO

### Silencer U

Further silencers  
 → [www.festo.com](http://www.festo.com)

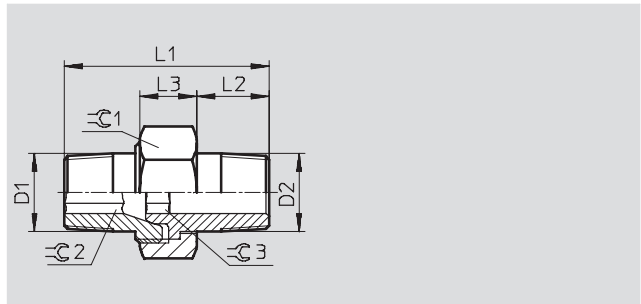


Ordering data		Technical data → <a href="http://www.festo.com">www.festo.com</a>	
Pneumatic connection		Part No.	Type
G $\frac{1}{8}$		6 841	U- $\frac{1}{8}$ -B
G $\frac{1}{4}$		6 842	U- $\frac{1}{4}$ -B
G $\frac{3}{8}$		6 843	U- $\frac{3}{8}$ -B

### Double nipple ESK

Adjustable for angular compensation  
 • For retro-fitting pressure switch PEV  
 to branching module FRM

Material:  
 Brass



Dimensions and ordering data										
Connection		L1	L2	L3	⌀1	⌀2	⌀3	Part No.	Type	PU*
D1	D2									
R $\frac{1}{4}$	R $\frac{1}{4}$	34	12	9.5	19	6	6	151 521	ESK- $\frac{1}{4}$ - $\frac{1}{4}$	1

\* Packaging unit quantity

## Additional functions, D series, metal design

Accessories

FESTO

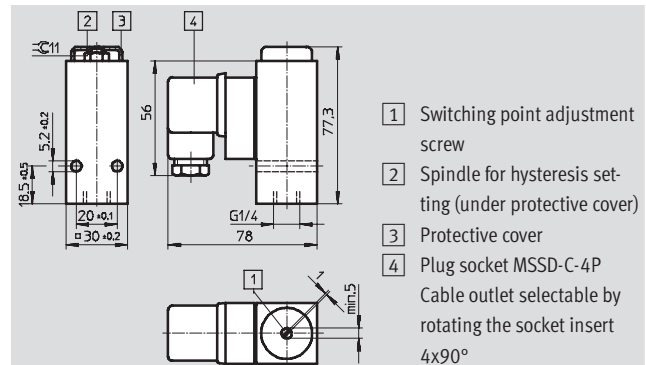
### Pressure switch PEV

adjustable  
with plug socket

Material:

Housing: Wrought aluminium alloy

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



Ordering data		Technical data → <a href="http://www.festo.com">www.festo.com</a>	
Connection	Weight [g]	Part No.	Type
G <sup>1</sup> / <sub>4</sub>	231	10 773	PEV-1/4-B

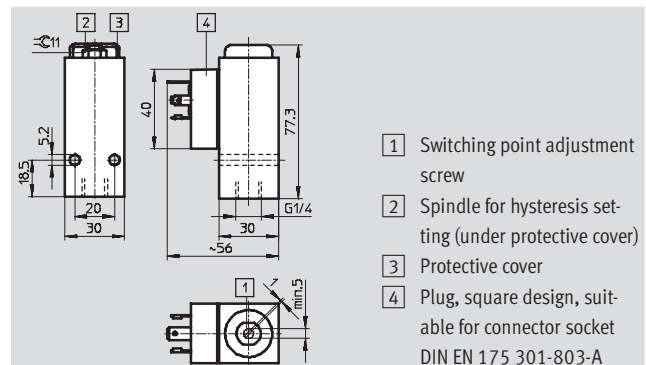
### Pressure switch PEV

adjustable  
without plug socket

Material:

Housing: Wrought aluminium alloy

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



Ordering data		Technical data → <a href="http://www.festo.com">www.festo.com</a>	
Connection	Weight [g]	Part No.	Type
G <sup>1</sup> / <sub>4</sub>	220	175 250	PEV-1/4-B-0D

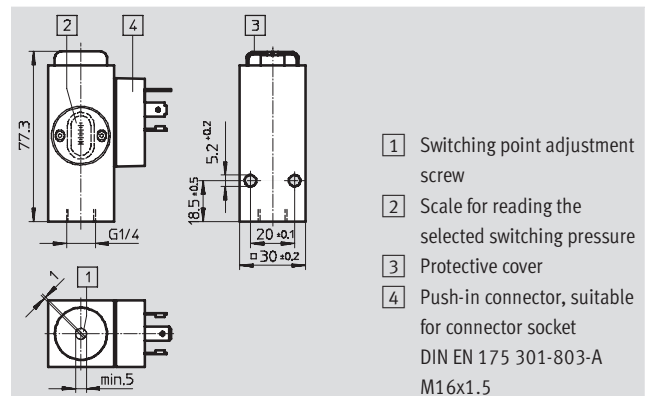
### Pressure switch PEV

adjustable with visual scale  
without plug socket

Material:

Housing: Wrought aluminium alloy

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



Ordering data		Technical data → <a href="http://www.festo.com">www.festo.com</a>	
Connection	Weight [g]	Part No.	Type
G <sup>1</sup> / <sub>4</sub>	170	161 760	PEV-1/4-SC-0D

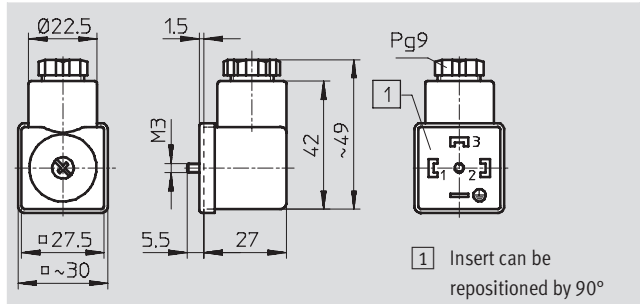
## Additional functions, D series, metal design

FESTO

Accessories

### Plug socket MSSD

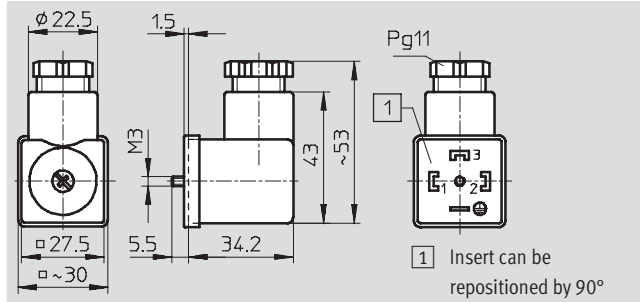
for pressure switch PEV



Ordering data		Technical data → <a href="http://www.festo.com">www.festo.com</a>	
Weight [g]		Part No.	Type
22		171 157	MSSD-C-4P

### Angled plug socket with LED

for pressure switch PEV



Ordering data		Technical data → <a href="http://www.festo.com">www.festo.com</a>	
Voltage	Weight [g]	Part No.	Type
24 V DC	34	164 274	PEV-1/4-WD-LED-24
230 V AC	34	164 275	PEV-1/4-WD-LED-230

### Illuminating seal MEB-LD

for on-off valve HEE

Material:

Polyurethane



Ordering data		Technical data → <a href="http://www.festo.com">www.festo.com</a>	
Voltage	Weight [g]	Part No.	Type
24 V DC	5	151 717	MEB-LD-12-24DC
230 V AC	5	151 718	MEB-LD-230AC



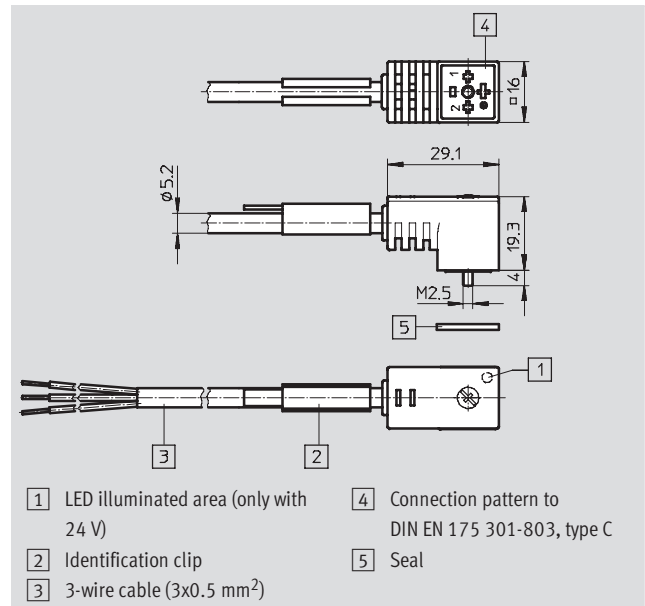
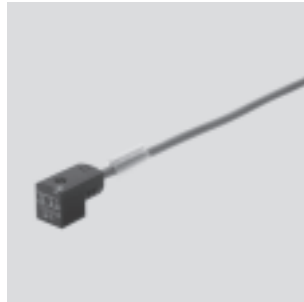
## Additional functions, D series, metal design

FESTO

Accessories

**Plug socket with cable KMEB and LED**  
for on-off valve HEE

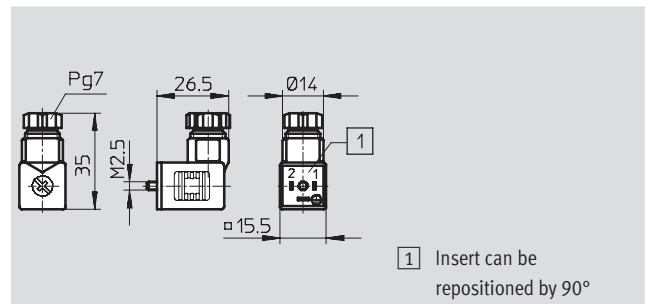
Material:  
Housing: Polymer  
Seal: Nitrile rubber  
Cable: Polyvinyl chloride



Ordering data			Technical data → <a href="http://www.festo.com">www.festo.com</a>	
Voltage	Cable length [m]	Weight [g]	Part No.	Type
24 V DC	2.5	125	151 688	KMEB-1-24-2,5-LED
24 V DC	5	230	151 689	KMEB-1-24-5-LED
24 V DC	10	460	193 457	KMEB-1-24-10-LED
230 V AC	2.5	125	151 690	KMEB-1-230AC-2,5
230 V AC	5	230	151 691	KMEB-1-230AC-5

**Plug socket MSSD**  
for on-off valve HEE

Material:  
Housing: Polymer  
Seal: Nitrile rubber



Ordering data		Technical data → <a href="http://www.festo.com">www.festo.com</a>	
Weight [g]	Part No.	Type	
11	151 687	MSSD-EB	

## Additional functions, D series, metal design

Accessories

FESTO

### Plug socket MSSD

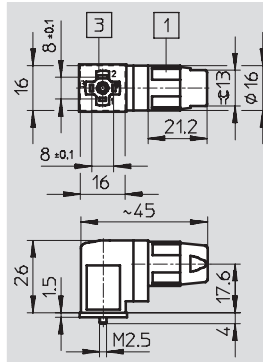
for on-off valve HEE

Insulation displacement technology

Material:

Housing: Polyamide

Seal: Nitrile rubber



- 1 Union nut M14x1
- 3 Connection side can be repositioned by 90°

Ordering data		Technical data → <a href="http://www.festo.com">www.festo.com</a>	
Weight	Part No.	Type	
[g]			
17	192 745	MSSD-EB-S-M14	

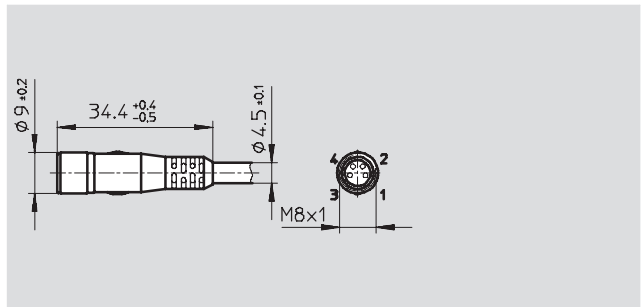
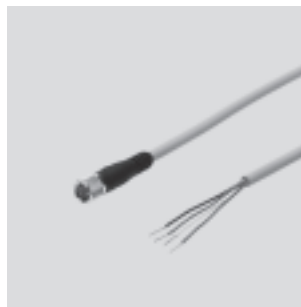
### Plug socket with cable SIM

M8, 4-pin

straight socket

Material:

Polyurethane



Ordering data		Technical data → <a href="http://www.festo.com">www.festo.com</a>	
Length	Part No.	Type	
[m]			
2.5	158 960	SIM-M8-4GD-2,5-PU	
5	158 961	SIM-M8-4GD-5-PU	

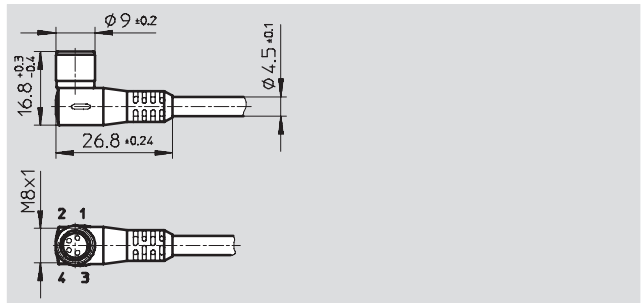
### Plug socket with cable SIM

M8, 4-pin

angled socket

Material:

Polyurethane



Ordering data		Technical data → <a href="http://www.festo.com">www.festo.com</a>	
Length	Part No.	Type	
[m]			
2.5	158 962	SIM-M8-4WD-2,5-PU	
5	158 963	SIM-M8-4WD-5-PU	

## Additional functions, D series, metal design

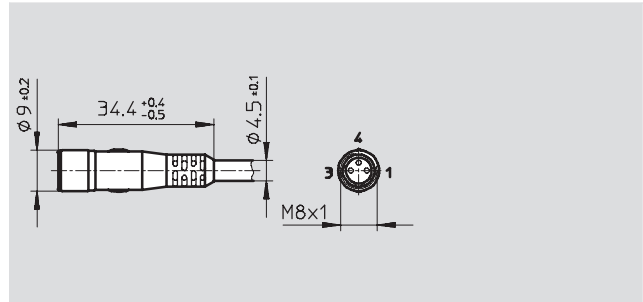
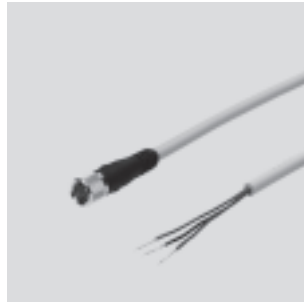
Accessories

FESTO

### Plug socket with cable SIM

M8, 3-pin  
straight socket

Material:  
Polyurethane

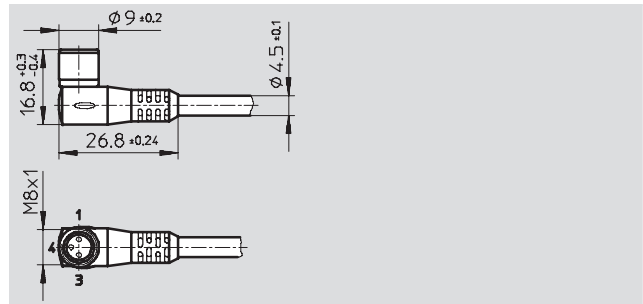


Ordering data		Technical data → <a href="http://www.festo.com">www.festo.com</a>	
Length [m]	Part No.	Type	
2.5	159 420	SIM-M8-3GD-2,5-PU	
5	159 421	SIM-M8-3GD-5-PU	

### Plug socket with cable SIM

M8, 3-pin  
angled socket

Material:  
Polyurethane



Ordering data		Technical data → <a href="http://www.festo.com">www.festo.com</a>	
Length [m]	Part No.	Type	
2.5	159 422	SIM-M8-3WD-2,5-PU	
5	159 423	SIM-M8-3WD-5-PU	

# Filter cartridges, D series, metal design

Accessories

## Filter cartridges



Ordering data				
Size	Filter cartridge	Grade of filtration [µm]	Part No.	Type
Micro	Filter cartridge	5	526 818	LFP-D-MICRO-5M
Mini	Micro-filter cartridge	0.01	162 674	MS4/D-MINI-LFM-A
	Fine-filter cartridge	1	162 677	MS4/D-MINI-LFM-B
	Filter cartridge	5	159 640	LFP-D-MINI-5M
	Filter cartridge	40	363 665	LFP-D-MINI-40M
	Active carbon filter cartridge	Residual oil content ≤ 0.003 mg/m <sup>3</sup>	532 912	MS4/D-MINI-LFX
Midi	Micro-filter cartridge	0.01	162 675	LFMAP-D-MIDI
	Fine-filter cartridge	1	162 678	LFMBP-D-MIDI
	Filter cartridge	5	159 594	LFP-D-MIDI-5M
	Filter cartridge	40	363 667	LFP-D-MIDI-40M
	Active carbon filter cartridge	Residual oil content ≤ 0.003 mg/m <sup>3</sup>	532 788	LFACP-MIDI
Maxi	Micro-filter cartridge	0.01	162 676	LFMAP-D-MAXI
	Fine-filter cartridge	1	162 679	LFMBP-D-MAXI
	Filter cartridge	5	159 641	LFP-D-MAXI-5M
	Filter cartridge	40	363 664	LFP-D-MAXI-40M
	Active carbon filter cartridge	Residual oil content ≤ 0.003 mg/m <sup>3</sup>	532 789	LFACP-MAXI



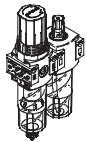
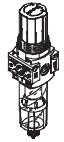

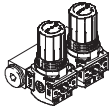
- **Basic functions at an attractive price**
- **Compatible with components of the D series of service units in metal**
- **Award-winning design suitable for modern systems**
- **Sturdy connection technology**
- **High reliability and long service life**



# Service units, D series, polymer

Product range overview



Type	Size	Pneumatic connection			Pressure regulation range [bar]	Grade of filtration [µm]		
		G1/8	G1/4	G1/2		5	40	
<b>Service units</b>								
FRC		Mini	■	■	-	■	■	■
<b>Individual devices</b>								
Filter regulators LFR		Mini	■	■	-	■	■	■
Pressure regulators LR		Mini	■	■	-	■	-	-
Pressure regulator combinations LRB-K		Mini	-	-	■	■	-	-

# Service units, D series, polymer

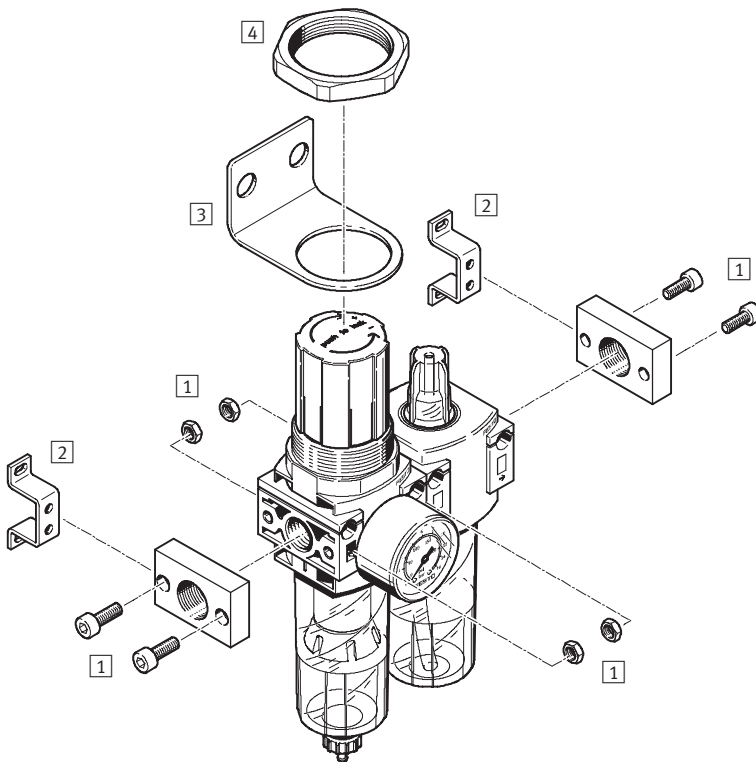
Product range overview



Type	Size	Condensate drain		Pressure display		Actuator lock	Regulating functions		→ Page
		Manual rotary	Semi-automatic	With pressure gauge	Without pressure gauge		Rotary knob with detent	With secondary venting	
<b>Service units</b>									
FRC	Mini	■	■	■	-	■	■	■	216
<b>Individual devices</b>									
Filter regulators LFR	Mini	■	■	■	■	■	■	■	222
Pressure regulators LR	Mini	-	-	■	■	■	■	■	228
Pressure regulator combinations LRB-K	Mini	-	-	-	■	■	■	■	233

# Service units FRC, D series, polymer

Peripherals overview

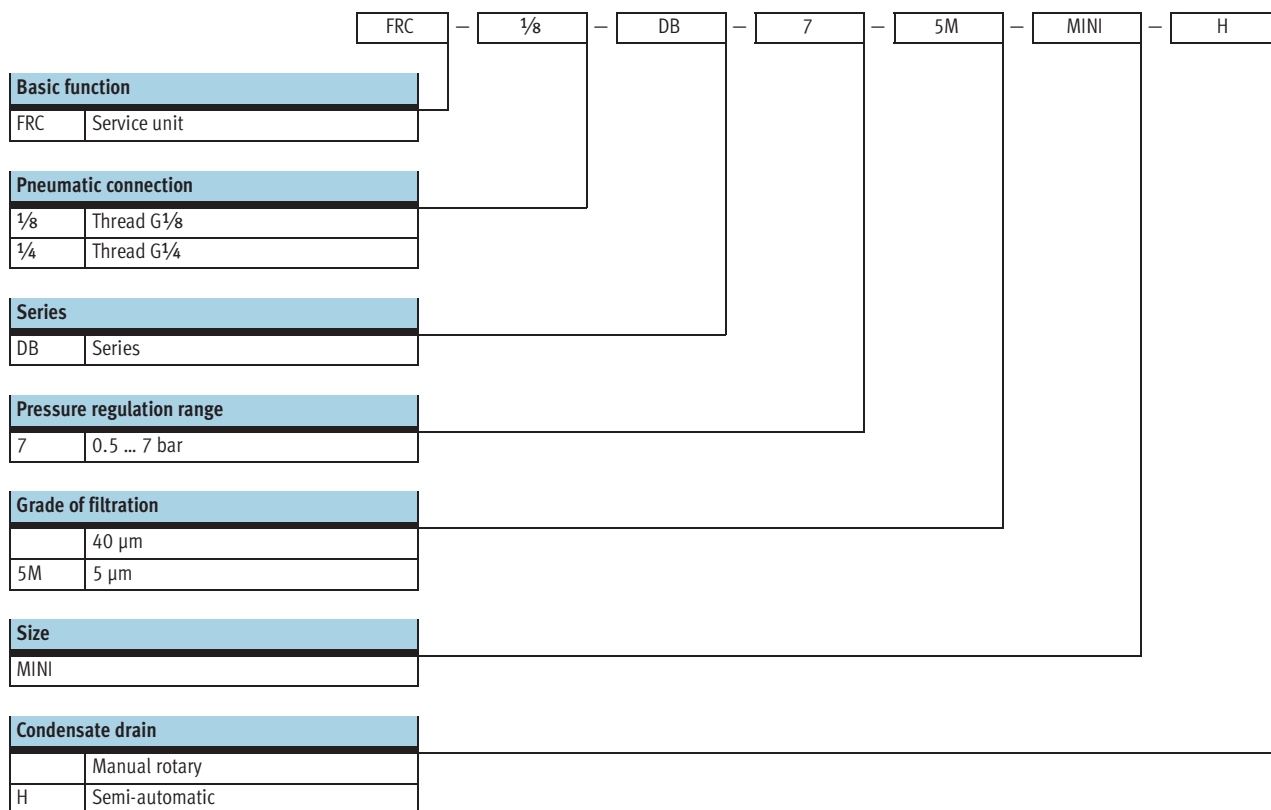


Mounting attachments and accessories		→ Page
1	Connecting plate kit PBL	240
2	Mounting bracket HFOE	241
3	Mounting bracket HR-D	240
4	Hex nut HMR	240



# Service units FRC, D series, polymer

Type codes




# Service units FRC, D series, polymer

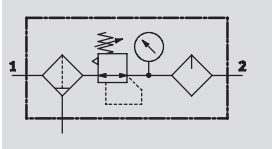
Technical data


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Function

-  - Flow rate  
400 ... 650 l/min

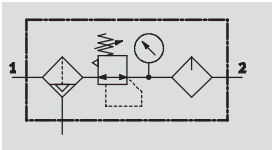
Condensate drain  
manual rotary



-  - Temperature range  
-5 ... +50 °C

-  - Input pressure  
1.5 ... 10 bar

semi-automatic



- Filter, regulator and lubricator functions in a single unit
- High flow rate and highly efficient removal of contaminants
- Good regulating characteristics with minimal pressure hysteresis
- Setting values are secured by means of the rotary knob with detent
- With manual or semi-automatic condensate drain

The following oils are recommended for Festo components:

Viscosity range to ISO 3448 class VG 32  
32 mm<sup>2</sup>/s (cSt) at 40 °C

- Festo special oil → 221
- ARAL Vitam GF 32
- BP Energol HLP 32
- Esso Nuto H 32
- Mobil DTE 24
- Shell Tellus Oil DO 32

General technical data		Mini	
Size		Mini	
Pneumatic connection		G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>
Operating medium		Compressed air	
Design		Filter/regulator/lubricator	
Regulating function		With return flow function	
		With secondary venting	
Type of mounting		Inline installation	
		Via through-holes	
		Via mounting bracket	
Assembly position		Vertical ±5°	
Grade of filtration	[µm]	5 or 40	
Max. hysteresis	[bar]	0.5	
Input pressure	[bar]	1.5 ... 10	
Pressure regulation range	[bar]	0.5 ... 7	
Pressure indication		Via pressure gauge	
Pressure gauge connection		G <sup>3</sup> / <sub>8</sub>	

Standard nominal flow rate <sup>1)</sup> qnN [l/min]			
Pneumatic connection		Mini	
		G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>
Grade of filtration	5 µm	≥ 400	≥ 550
	40 µm	≥ 550	≥ 650

1) Measured at p<sub>1</sub> = 10 bar, p<sub>2</sub> = 6 bar and Δp = 1 bar.

# Service units FRC, D series, polymer

Technical data

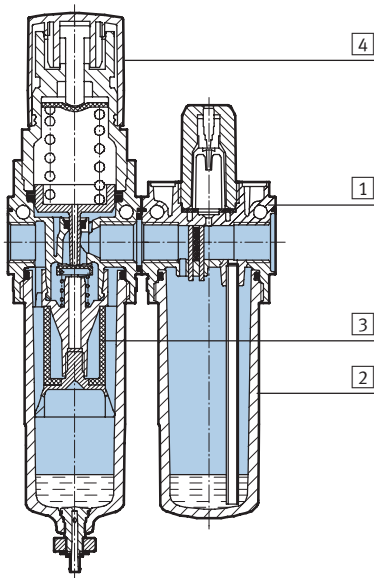
Ambient conditions		
Size		Mini
Ambient temperature	[°C]	-5 ... +50
Temperature of medium	[°C]	-5 ... +50
Corrosion resistance class	CRC <sup>1)</sup>	1

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.

Weight [g]	
Size	Mini
Service unit	300

## Materials

Sectional view



Service unit	Mini
1 Housing	Polyamide, reinforced
2 Bowl	Polycarbonate
3 Filter	Polyethylene
4 Rotary knob	Polyacetate
- Seals	Nitrile rubber

# Service units FRC, D series, polymer

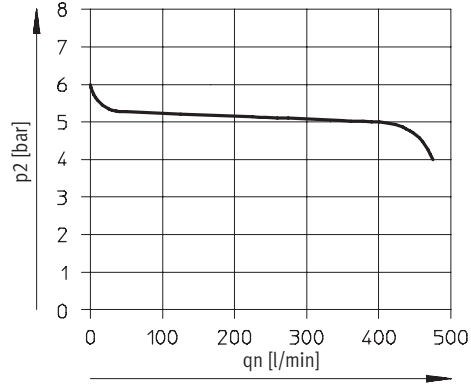
Technical data



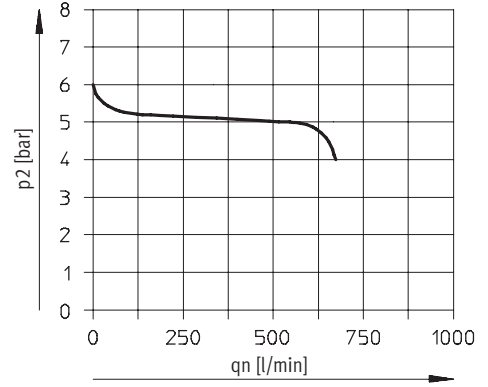
## Standard flow rate $q_n$ as a function of output pressure $p_2$

Pneumatic connection  $G\frac{3}{8}$

Grade of filtration  $5\ \mu\text{m}$

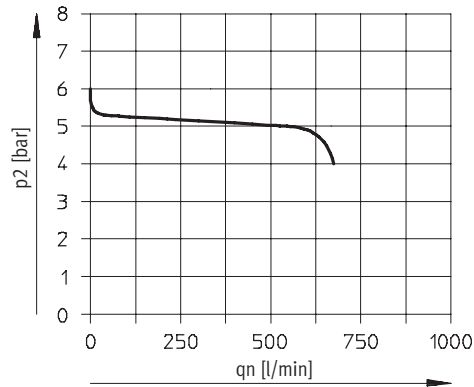


Grade of filtration  $40\ \mu\text{m}$

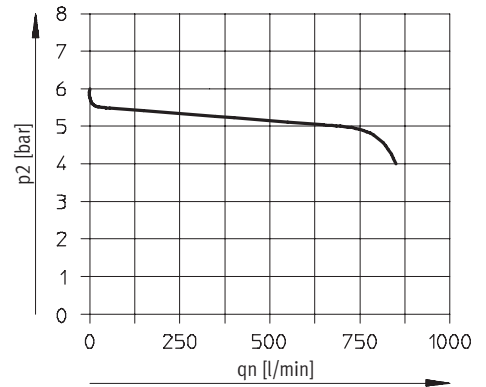


Pneumatic connection  $G\frac{1}{4}$

Grade of filtration  $5\ \mu\text{m}$



Grade of filtration  $40\ \mu\text{m}$



Primary pressure  $p_1 = 10\ \text{bar}$

# Service units FRC, D series, polymer

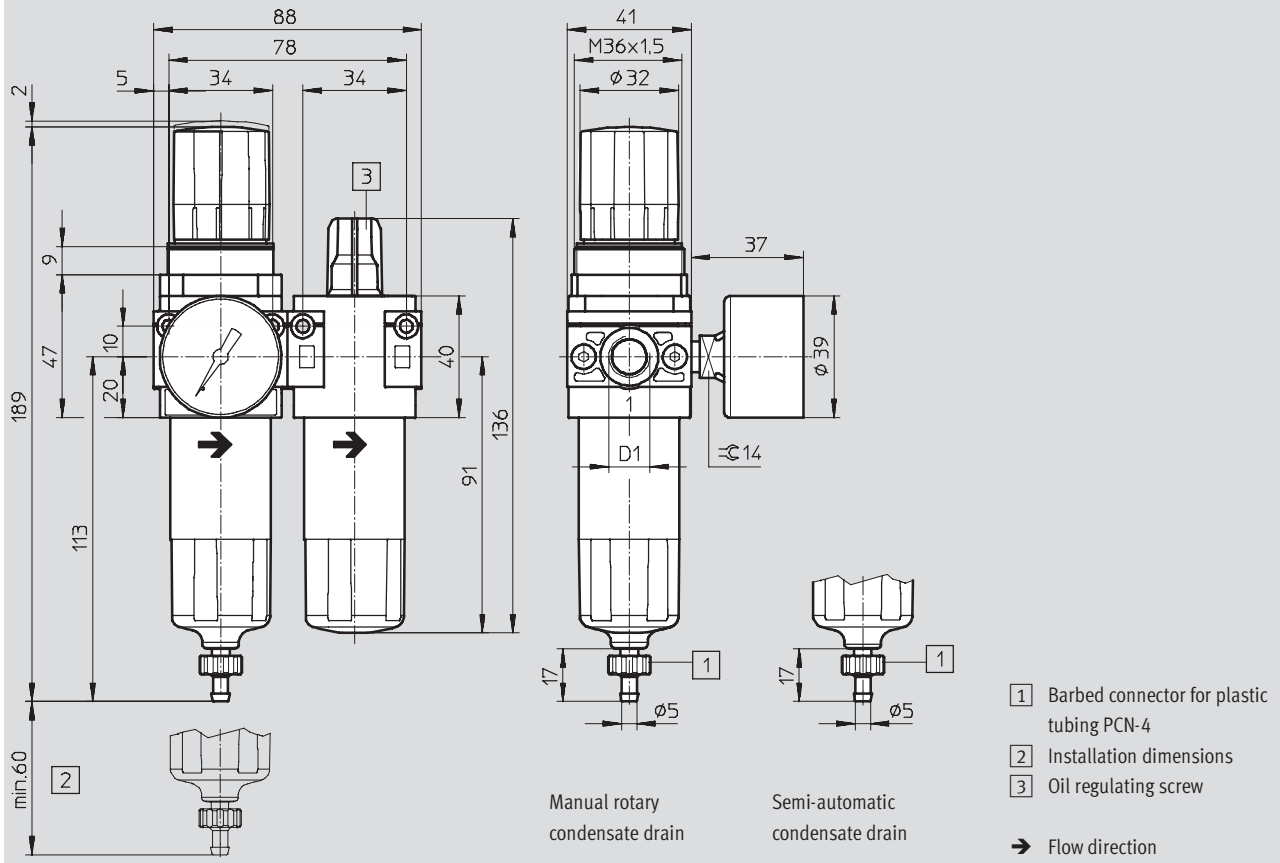
Technical data

FESTO

## Dimensions

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Mini




Type	D1
FRC-1/8-DB	G1/8
FRC-1/4-DB	G1/4

## Ordering data

Pressure regulation range 0.5 ... 7 bar

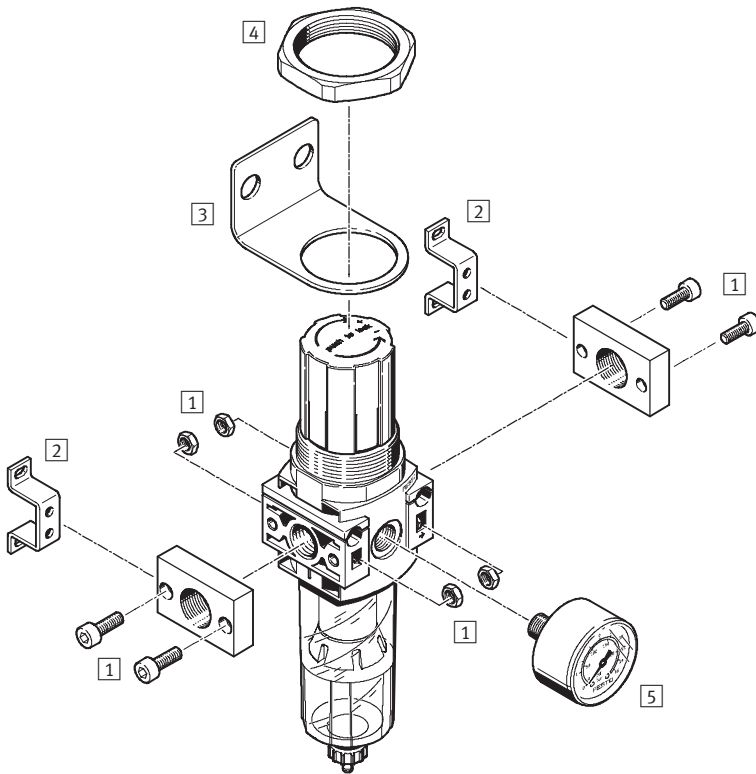
Condensate drain	Size	Connection	Grade of filtration 5 $\mu$ m		Grade of filtration 40 $\mu$ m	
			Part No.	Type	Part No.	Type
With pressure gauge						
Manual rotary	Mini	G1/8	537 659	FRC-1/8-DB-7-5M-MINI	537 655	FRC-1/8-DB-7-MINI
		G1/4	537 658	FRC-1/4-DB-7-5M-MINI	537 654	FRC-1/4-DB-7-MINI
Semi-automatic	Mini	G1/8	537 661	FRC-1/8-DB-7-5M-MINI-H	537 657	FRC-1/8-DB-7-MINI-H
		G1/4	537 660	FRC-1/4-DB-7-5M-MINI-H	537 656	FRC-1/4-DB-7-MINI-H

## Ordering data – Special oil

	Scope of delivery	Part No.	Type
	1 litre	152 811	OFSW-32

# Filter regulators LFR, D series, polymer

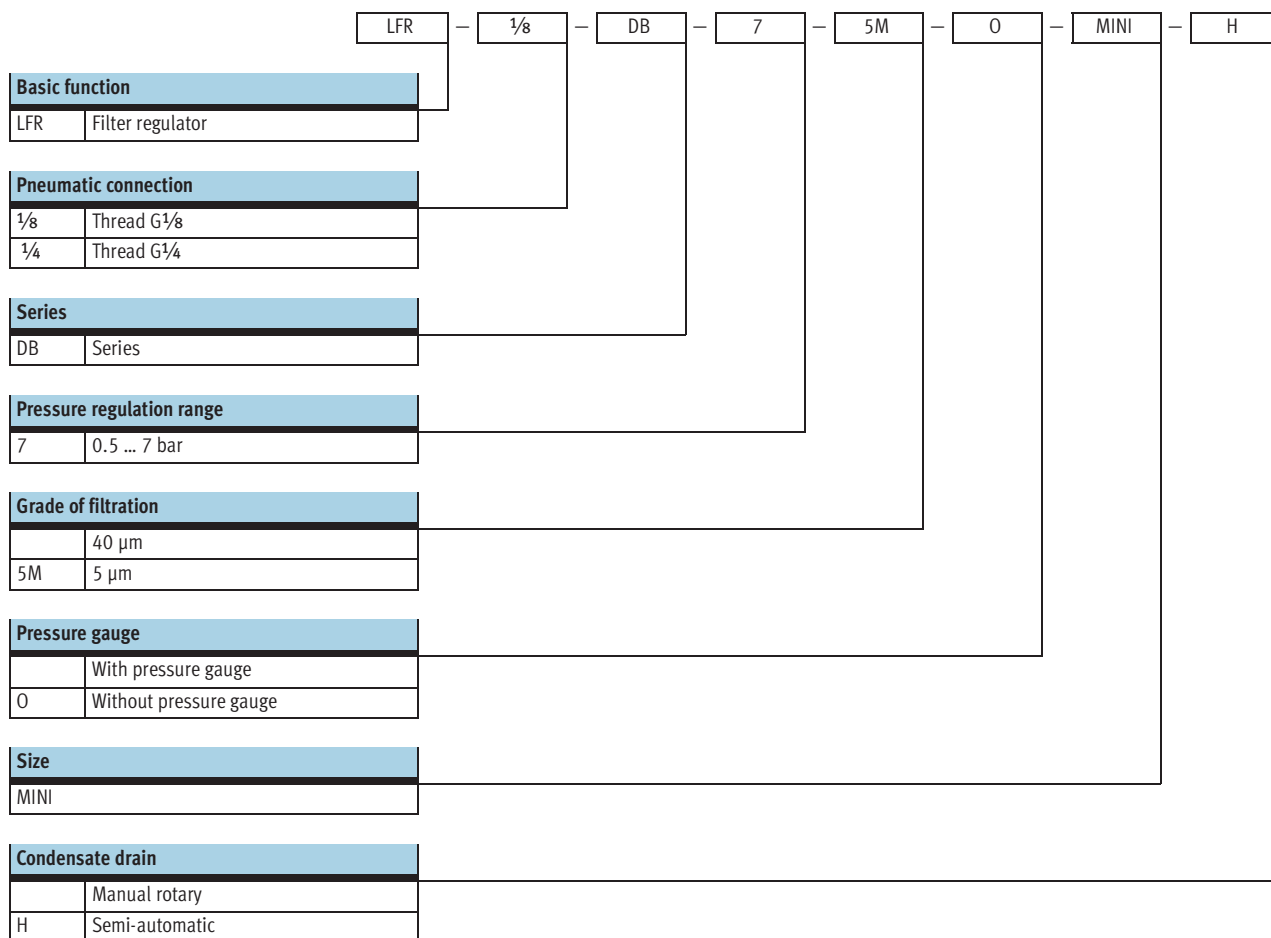
Peripherals overview



Mounting attachments and accessories		→ Page
1	Connecting plate kit PBL	240
2	Mounting bracket HFOE	241
3	Mounting bracket HR-D	240
4	Hex nut HMR	240
5	Pressure gauge MA	243

# Filter regulators LFR, D series, polymer

Type codes




# Filter regulators LFR, D series, polymer


Technical data

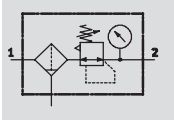
FESTO


Function

 Flow rate  
500 ... 1200 l/min

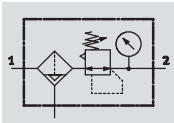
with pressure gauge  
Condensate drain  
manual rotary

 Temperature range  
-5 ... +50 °C

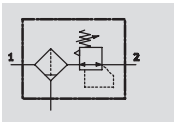


 Input pressure  
1.5 ... 10 bar

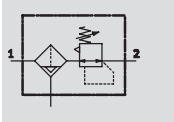
semi-automatic



without pressure gauge  
Condensate drain  
manual rotary



semi-automatic



- Space-saving design with filter and regulator in a single unit
- Good particle separation and high flow rate
- Good regulating characteristics with minimal hysteresis
- With manual or semi-automatic condensate drain
- Setting values are secured by locking the rotary knob
- Choice of filter cartridges: 5 µm or 40 µm
- Filter cartridges → 245

General technical data				
Size	Mini			
	with pressure gauge		without pressure gauge	
Pneumatic connection	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{8}$	G $\frac{1}{4}$
Operating medium	Compressed air			
Design	Filter regulator with pressure gauge		Filter regulator without pressure gauge	
Regulating function	With return flow function			
	With secondary venting			
Type of mounting	Inline installation			
	Via through-holes			
	Via mounting bracket			
Assembly position	Vertical $\pm 5^\circ$			
Grade of filtration	[µm]	5 or 40	5 or 40	
Max. hysteresis	[bar]	0.5		
Input pressure	[bar]	1.5 ... 10		
Pressure regulation range	[bar]	0.5 ... 7		
Pressure indication	Via pressure gauge		G $\frac{1}{8}$ prepared	
Pressure gauge connection	G $\frac{1}{8}$			

Standard nominal flow rate <sup>1)</sup> qnN [l/min]				
Pneumatic connection	G $\frac{1}{8}$		G $\frac{1}{4}$	
Mini				
Grade of filtration	5 µm	≥ 500	≥ 1000	
	40 µm	≥ 700	≥ 1200	

1) Measured at p<sub>1</sub> = 10 bar, p<sub>2</sub> = 6 bar and Δp = 1 bar.



# Filter regulators LFR, D series, polymer

Technical data

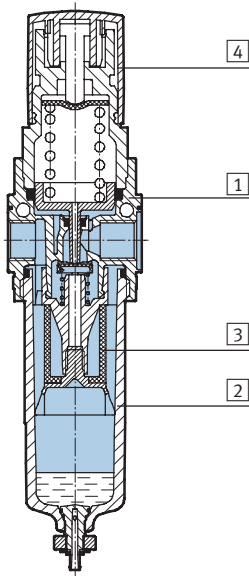
Ambient conditions		
Size	Mini	
Ambient temperature	[°C]	-5 ... +50
Temperature of medium	[°C]	-5 ... +50
Corrosion resistance class	CRC <sup>1)</sup>	1

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.

Weight [g]	
Size	Mini
Filter regulator	200

## Materials

Sectional view



Filter regulator	Mini
1 Housing	Polyamide, reinforced
2 Bowl	Polycarbonate
3 Filter	Polyethylene
4 Rotary knob	Polyacetate
- Seals	Nitrile rubber

# Filter regulators LFR, D series, polymer

Technical data

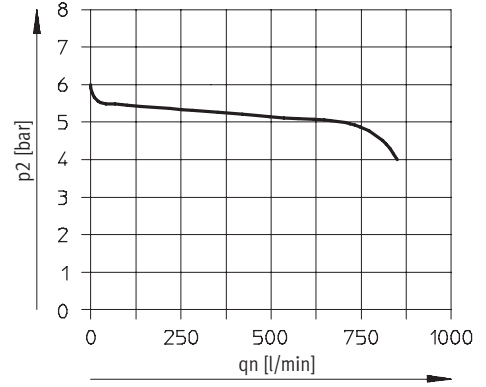
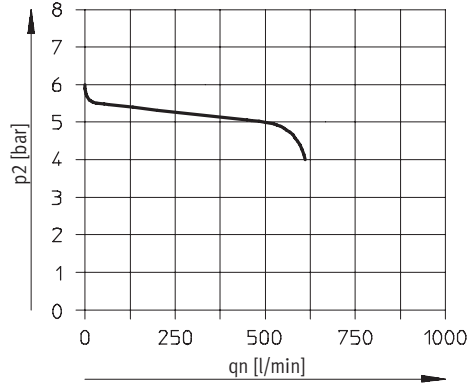
FESTO

## Standard flow rate $q_n$ as a function of output pressure $p_2$

Pneumatic connection  $G\frac{3}{8}$

Grade of filtration  $5\ \mu\text{m}$

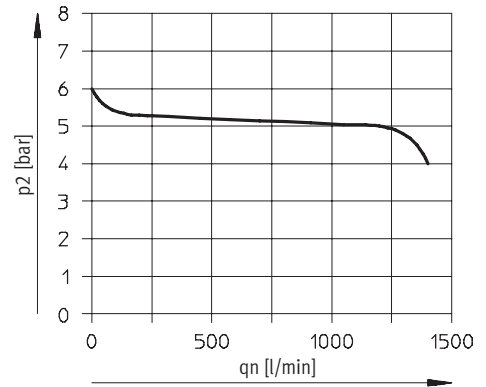
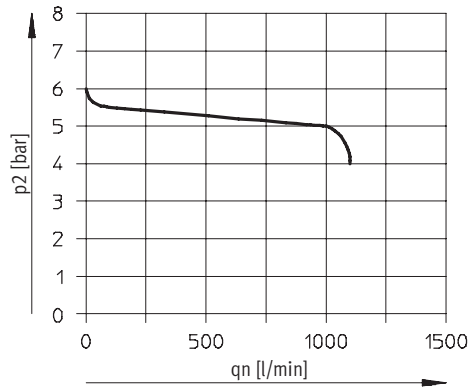
Grade of filtration  $40\ \mu\text{m}$



Pneumatic connection  $G\frac{1}{4}$

Grade of filtration  $5\ \mu\text{m}$

Grade of filtration  $40\ \mu\text{m}$



Primary pressure  $p_1 = 10\ \text{bar}$

# Filter regulators LFR, D series, polymer

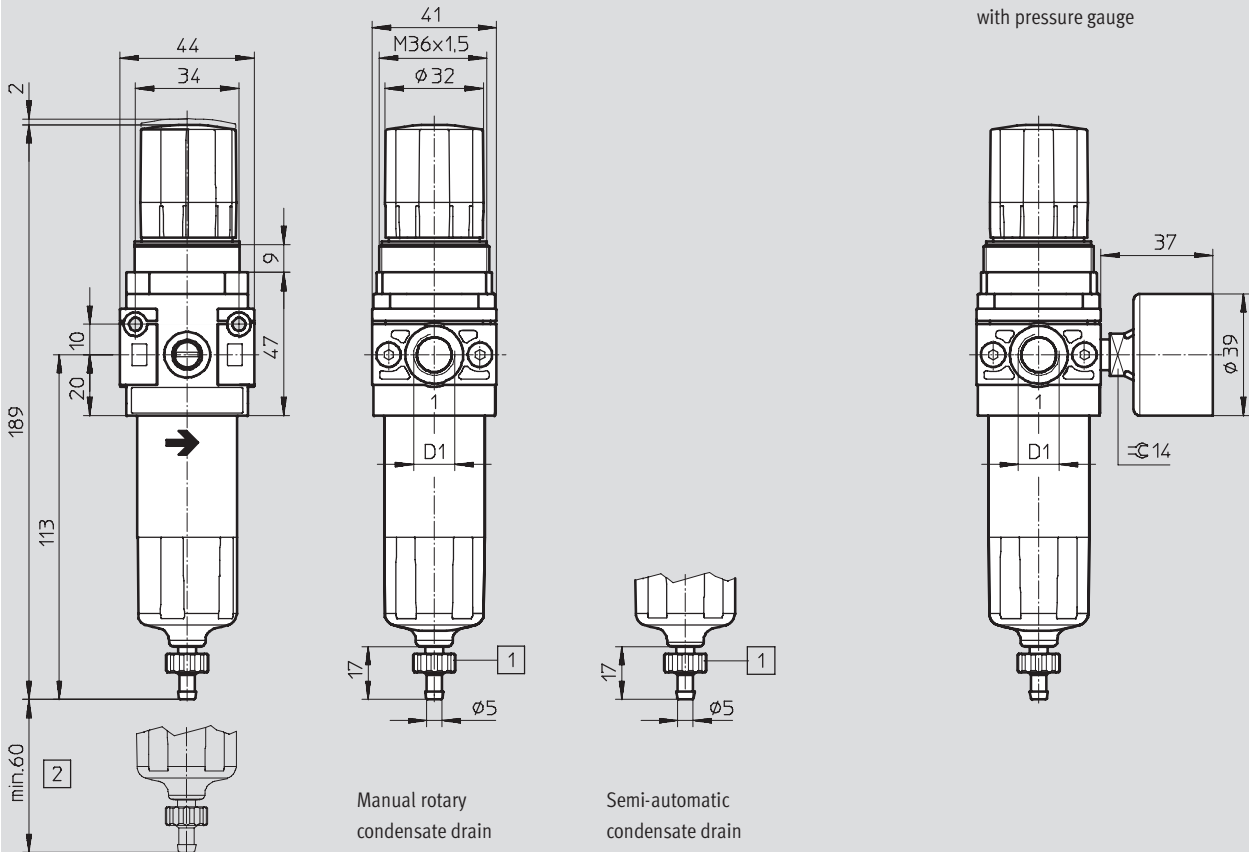
Technical data

FESTO

## Dimensions

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Mini



1 Barbed connector for plastic tubing PCN-4

2 Installation dimensions

→ Flow direction

Type	D1
LFR-1/8-DB	G1/8
LFR-1/4-DB	G1/4

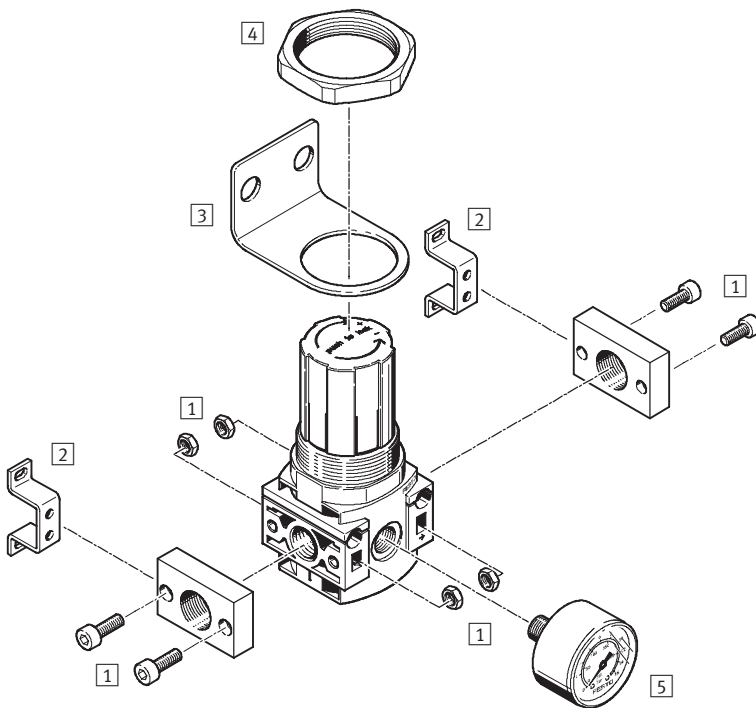
## Ordering data

Pressure regulation range 0.5 ... 7 bar

Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
<b>With pressure gauge</b>						
Manual rotary	Mini	G1/8	539 687	LFR-1/8-DB-7-5M-MINI	539 683	LFR-1/8-DB-7-MINI
		G1/4	539 689	LFR-1/4-DB-7-5M-MINI	539 685	LFR-1/4-DB-7-MINI
Semi-automatic	Mini	G1/8	539 688	LFR-1/8-DB-7-5M-MINI-H	539 684	LFR-1/8-DB-7-MINI-H
		G1/4	539 690	LFR-1/4-DB-7-5M-MINI-H	539 686	LFR-1/4-DB-7-MINI-H
<b>Without pressure gauge</b>						
Manual rotary	Mini	G1/8	537 648	LFR-1/8-DB-7-5M-O-MINI	537 651	LFR-1/8-DB-7-O-MINI
		G1/4	537 644	LFR-1/4-DB-7-5M-O-MINI	537 647	LFR-1/4-DB-7-O-MINI
Semi-automatic	Mini	G1/8	537 650	LFR-1/8-DB-7-5M-O-MINI-H	537 649	LFR-1/8-DB-7-O-MINI-H
		G1/4	537 646	LFR-1/4-DB-7-5M-O-MINI-H	537 645	LFR-1/4-DB-7-O-MINI-H

# Pressure regulators LR, D series, polymer

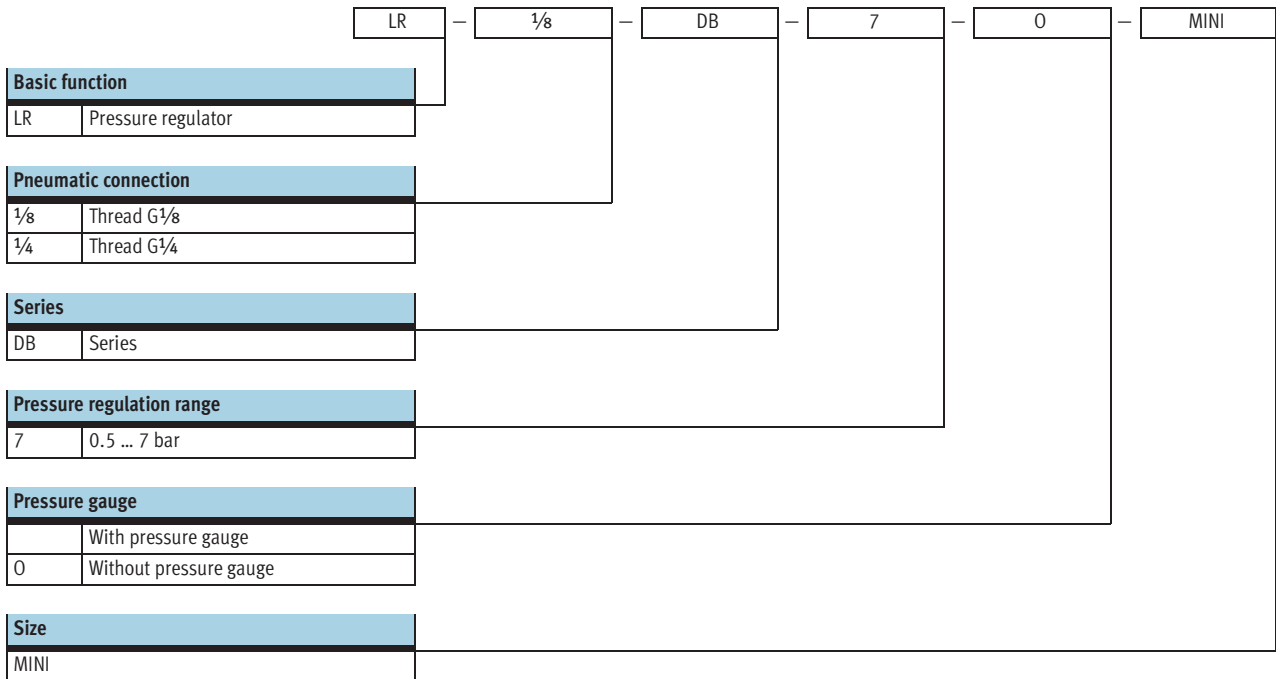
Peripherals overview



Mounting attachments and accessories		→ Page
1	Connecting plate kit PBL	240
2	Mounting bracket HFOE	241
3	Mounting bracket HR-D	240
4	Hex nut HMR	240
5	Pressure gauge MA	243

# Pressure regulators LR, D series, polymer

Type codes



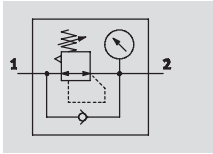
# Pressure regulators LR, D series, polymer

Technical data

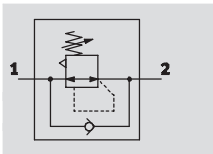
FESTO


Function


with pressure gauge




without pressure gauge



-  - Flow rate  
800 ... 1300 l/min

-  - Temperature range  
-5 ... +50 °C

-  - Input pressure  
1.5 ... 10 bar



- Setting values are secured by locking the rotary knob
- High flow rate
- Good regulating characteristics with minimal pressure hysteresis

General technical data					
Size	Mini				
	With pressure gauge			Without pressure gauge	
Pneumatic connection	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{8}$	G $\frac{1}{4}$	
Operating medium	Compressed air				
Design	Pressure regulator with pressure gauge			Pressure regulator without pressure gauge	
Regulating function	With return flow function				
	With secondary venting				
Type of mounting	Inline installation				
	Via through-holes				
	Via mounting bracket				
	Front panel mounting				
Assembly position	Any				
Max. hysteresis [bar]	0.5				
Input pressure [bar]	1.5 ... 10				
Pressure regulation range [bar]	0.5 ... 7				
Pressure indication	Via pressure gauge			G $\frac{1}{8}$ prepared	
Pressure gauge connection	G $\frac{1}{8}$				

Standard nominal flow rate <sup>1)</sup> qnN [l/min]		
Pneumatic connection	G $\frac{1}{8}$	G $\frac{1}{4}$
Mini		
Pressure regulation range 0.5 ... 7 bar	≥ 800	≥ 1300

1) Measured at p<sub>1</sub> = 10 bar, p<sub>2</sub> = 6 bar and Δp = 1 bar.

# Pressure regulators LR, D series, polymer

Technical data

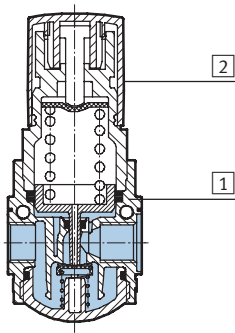
Ambient conditions		
Size		Mini
Ambient temperature	[°C]	-5 ... +50
Temperature of medium	[°C]	-5 ... +50
Corrosion resistance class	CRC <sup>1)</sup>	1

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.

Weight [g]	
Size	Mini
Pressure regulator	150

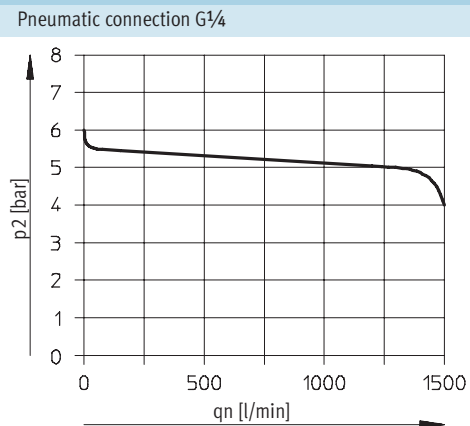
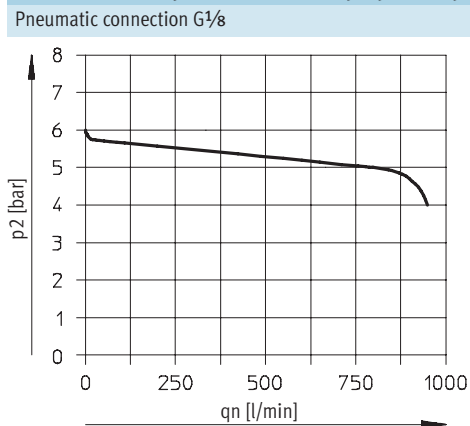
## Materials

Sectional view



Pressure regulator	Mini
1) Housing	Polyamide, reinforced
2) Rotary knob	Polyacetate
- Seals	Nitrile rubber

## Standard flow rate qn as a function of output pressure p2



Primary pressure p1 = 10 bar

# Pressure regulators LR, D series, polymer

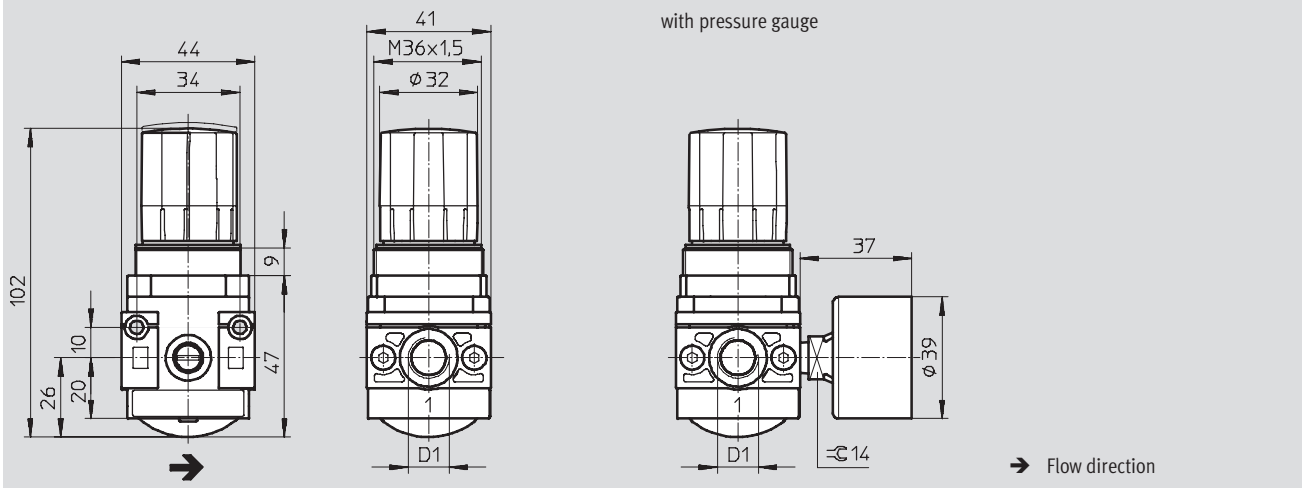
Technical data

FESTO

## Dimensions

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Mini



Type	D1
Mini	
LR-1/8-DB	G1/8
LR-1/4-DB	G1/4

## Ordering data

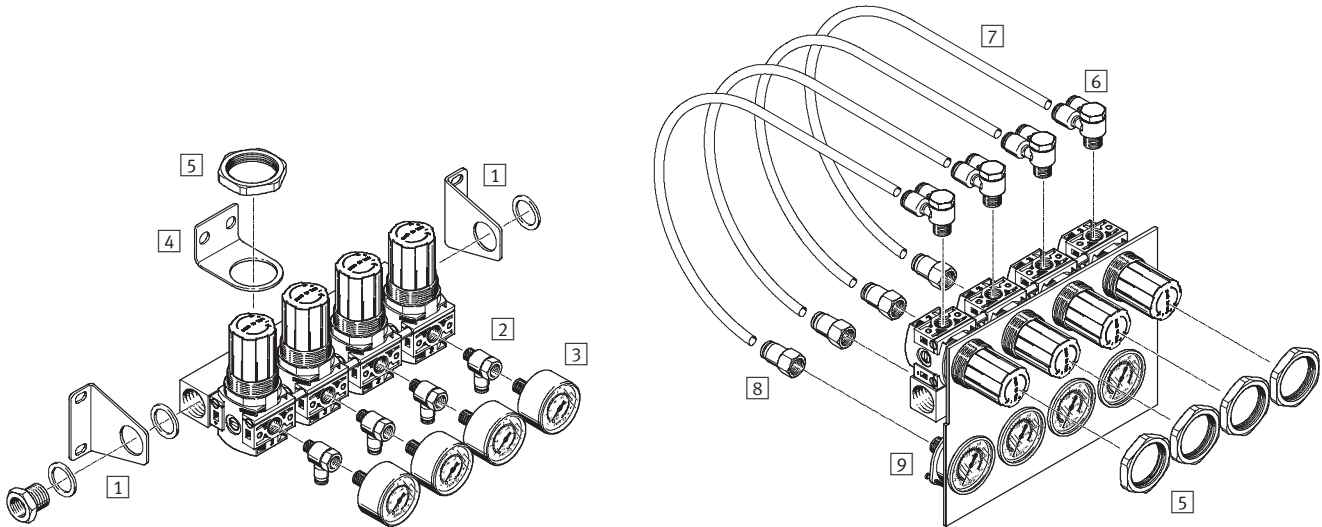
Size	Connection	Pressure regulation range 0.5 ... 7 bar	
		Part No.	Type
With pressure gauge			
Mini	G1/8	539 681	LR-1/8-DB-7-MINI
	G1/4	539 682	LR-1/4-DB-7-MINI
Without pressure gauge			
Mini	G1/8	537 642	LR-1/8-DB-7-O-MINI
	G1/4	537 643	LR-1/4-DB-7-O-MINI



# Pressure regulator combinations LRB-K, D series, polymer

Peripherals overview

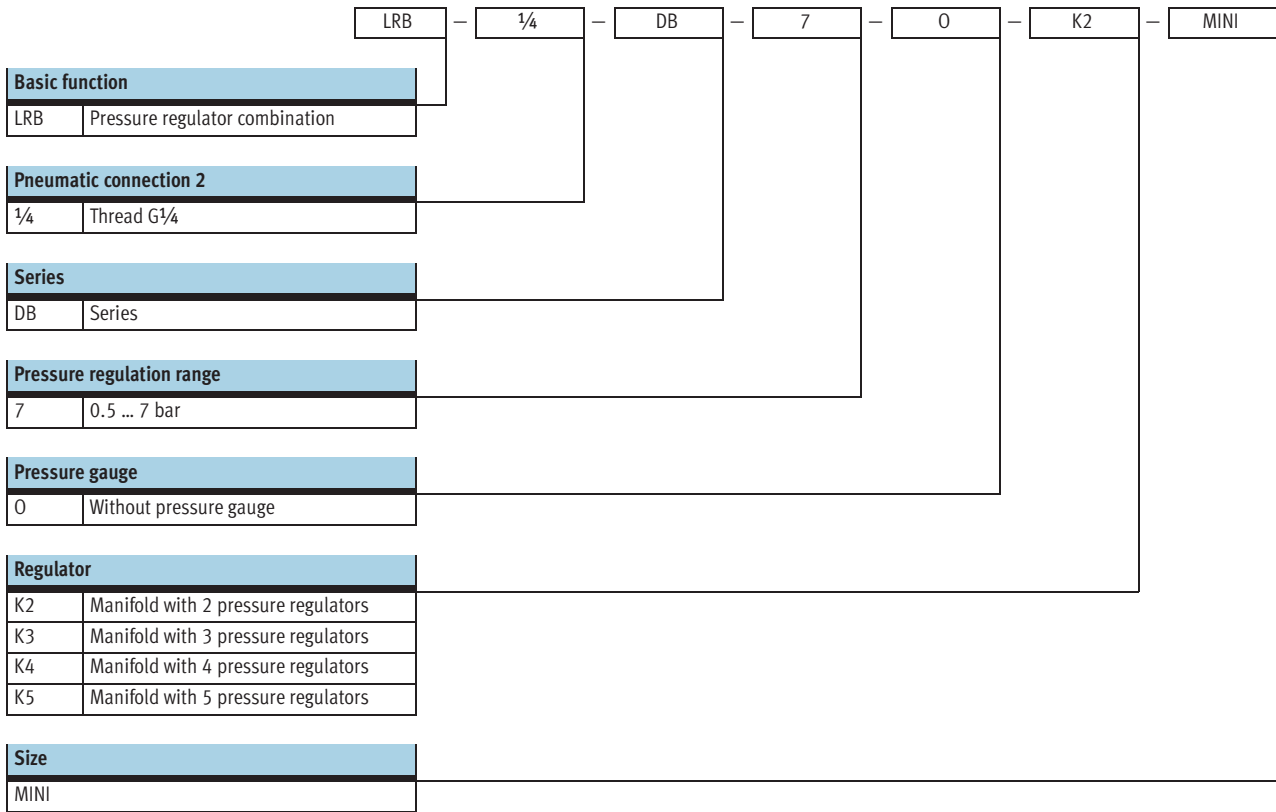
**Mini**  
 With mounting bracket Front panel mounting



Mounting attachments and accessories			
	With mounting bracket	Front panel mounting	→ Page
1 Mounting bracket kit HRBS-DB-MINI	■	-	241
2 Push-in T-fitting QSTF	■	-	244
3 Pressure gauge MA	■	-	243
4 Mounting bracket HR-D	■	-	240
5 Hex nut HMR	■	■	240
6 Push-in Y-fitting QSYLV	-	■	244
7 Plastic tubing PUN-E	-	■	245
8 Push-in fitting QSF	-	■	244
9 Flanged pressure gauge FMA	-	■	243

# Pressure regulator combinations LRB-K, D series, polymer

Type codes

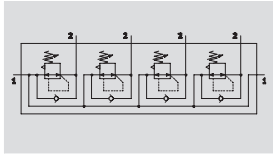





# Pressure regulator combinations LRB-K, D series, polymer

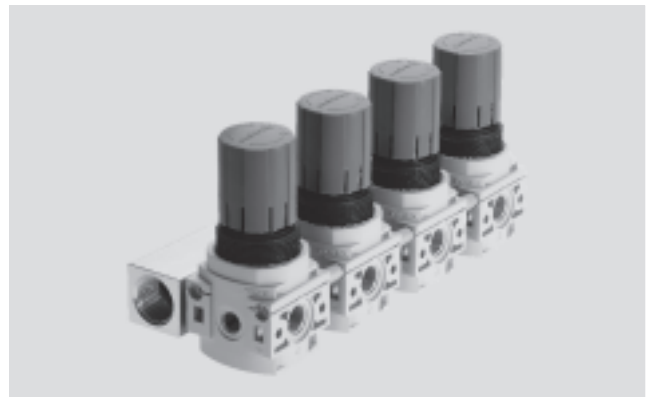
Technical data

Function

without pressure gauge



-  - Flow rate  
1000 l/min
-  - Temperature range  
-5 ... +50 °C
-  - Input pressure  
1.5 ... 10 bar



- Good control characteristics with low hysteresis and primary pressure compensation
- Manifold assembly with through air supply
- For the configuration of a regulator manifold with independent pressure ranges
- Setting values are secured by locking the rotary knob

General technical data	
Size	Mini
Pneumatic connection 1	G½
Pneumatic connection 2	G¼
Operating medium	Compressed air
Regulating functions	Output pressure constant
	With return flow function
	With secondary venting
Design	Directly actuated piston regulator
	On P-manifold
Type of mounting	Front panel mounting
	Via accessories
Assembly position	Any
Max. hysteresis [bar]	0.5
Input pressure [bar]	1.5 ... 10
Pressure regulation range [bar]	0.5 ... 7

Standard nominal flow rate <sup>1)</sup> qnN [l/min]	
Size	Mini
Pressure regulation range 0.5 ... 7 bar	≥ 1000

1) Measured at p1 = 10 bar, p2 = 6 bar and Δp = 1 bar.

Ambient conditions		
Ambient temperature [°C]		-5 ... +50
Temperature of medium [°C]		-5 ... +50
Corrosion resistance class CRC <sup>1)</sup>		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.

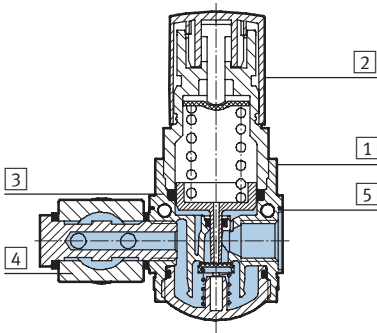
# Pressure regulator combinations LRB-K, D series, polymer

Technical data

Weight [g]	
Size	Mini
Manifold with 2 pressure regulators	
LRB-...-K2	500
Manifold with 3 pressure regulators	
LRB-...-K3	750
Manifold with 4 pressure regulators	
LRB-...-K4	1000
Manifold with 5 pressure regulators	
LRB-...-K5	1250

## Materials

Sectional view



Pressure regulator	Mini
1 Housing	Polyamide, reinforced
2 Rotary knob	Polyacetate
3 Sealing ring	Polyvinyl chloride
4 Manifold strip	Wrought aluminium alloy
5 Spacing bolt	Wrought aluminium alloy
- Seals	Nitrile rubber

# Pressure regulator combinations LRB-K, D series, polymer

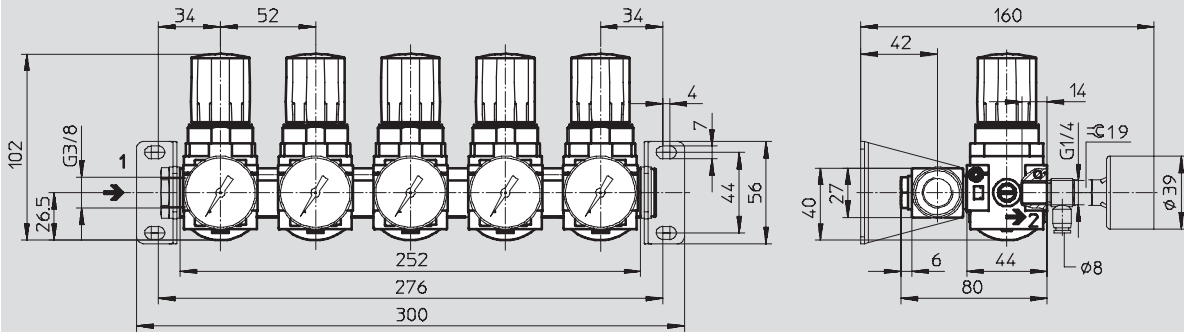
Technical data

## Dimensions

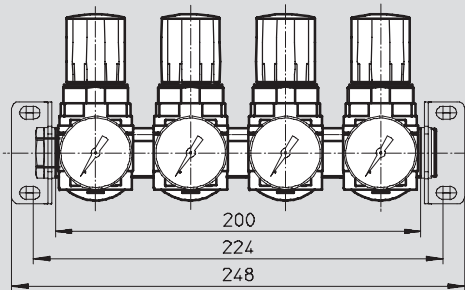
Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

With mounting bracket

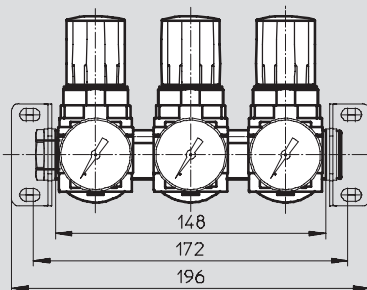
LRB-...-K5



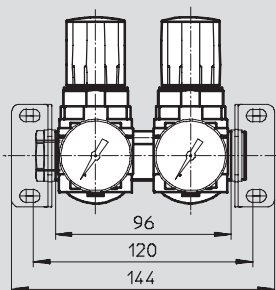
LRB-...-K4



LRB-...-K3



LRB-...-K2



→ Flow direction

# Pressure regulator combinations LRB-K, D series, polymer

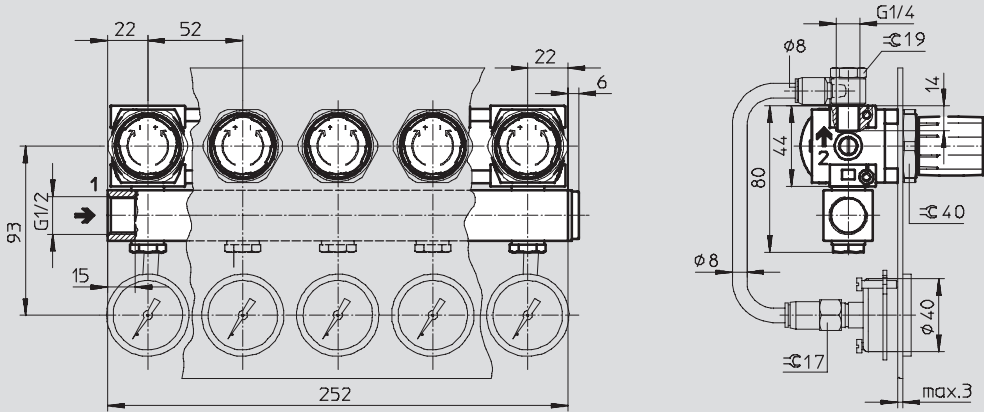
Technical data

## Dimensions

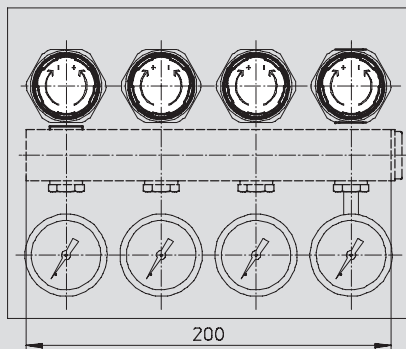
Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

### Front panel mounting

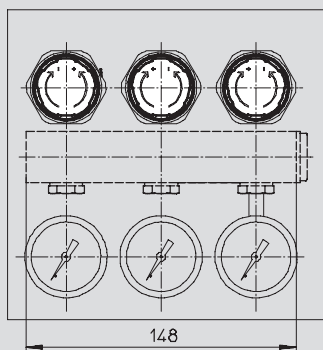
#### LRB-...-K5



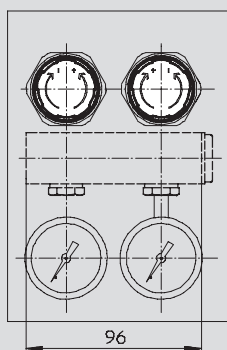
#### LRB-...-K4



#### LRB-...-K3



#### LRB-...-K2



→ Flow direction

## Pressure regulator combinations LRB-K, D series, polymer

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Technical data

Ordering data			
Size	Connection	Pressure regulation range 0.5 ... 7 bar	
		Part No.	Type
Manifold with 2 pressure regulators			
Mini	G $\frac{1}{4}$	540 040	LRB- $\frac{1}{4}$ -DB-7-O-K2-MINI
Manifold with 3 pressure regulators			
Mini	G $\frac{1}{4}$	540 041	LRB- $\frac{1}{4}$ -DB-7-O-K3-MINI
Manifold with 4 pressure regulators			
Mini	G $\frac{1}{4}$	540 042	LRB- $\frac{1}{4}$ -DB-7-O-K4-MINI
Manifold with 5 pressure regulators			
Mini	G $\frac{1}{4}$	540 043	LRB- $\frac{1}{4}$ -DB-7-O-K5-MINI

# Mounting attachments, D series, polymer


Accessories

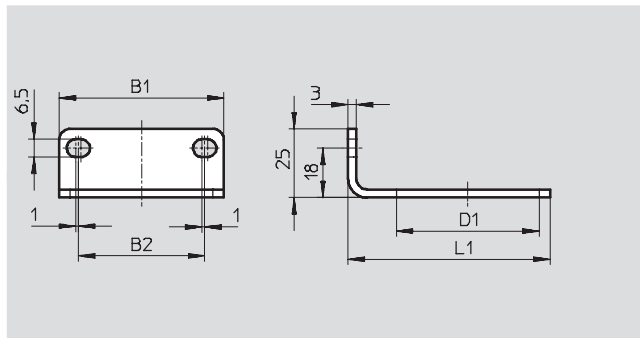


## Mounting bracket HR-D

- For wall mounting

Material:  
Galvanised steel

-  - Note  
The hex nut for attaching this bracket must be ordered separately.



Dimensions and ordering data							
Size	B1	B2	D1 Ø	L1	CRC <sup>1)</sup>	Part No.	Type
Mini	42	28	36	57.5	2	164 936	HR-D-MINI

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.

## Hex nut HMR

- For front panel mounting
- For attaching the mounting bracket HR-D

Material:  
Wrought aluminium alloy



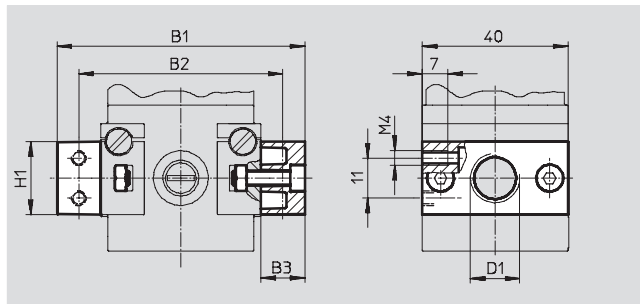
Ordering data		
Size	Part No.	Type
Mini	530 025	HMR-D-MINI/MAXI

## Connecting plate kit PBL

- For wall mounting
- For establishing a pneumatic connection G<sup>3</sup>/<sub>8</sub>

Material:  
Connecting plate: Die-cast zinc  
Nut, screws: Galvanised steel  
Seals: Nitrile rubber

Note on materials:  
Free of copper and PTFE



Dimensions and ordering data								
Size	B1	B2	B3	D1	H1	CRC <sup>1)</sup>	Part No.	Type
Mini	68	56	12	G <sup>1</sup> / <sub>8</sub>	20	1	542 787	PBL- <sup>1</sup> / <sub>8</sub> -DB-MINI
	68	56	12	G <sup>1</sup> / <sub>4</sub>	20		542 788	PBL- <sup>1</sup> / <sub>4</sub> -DB-MINI
	74	56	15	G <sup>3</sup> / <sub>8</sub>	23		542 789	PBL- <sup>3</sup> / <sub>8</sub> -DB-MINI

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.



## Mounting attachments, D series, polymer

FESTO

Accessories

### Mounting bracket HFOE

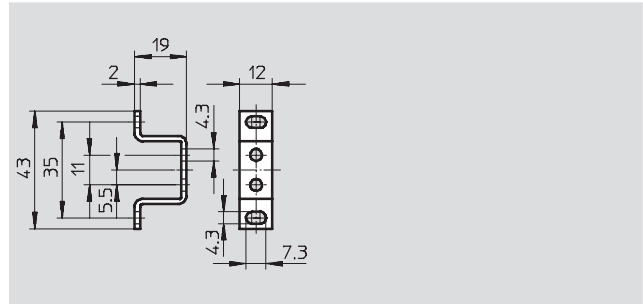
- For wall mounting

Material:

Galvanised steel

Note on materials:

Free of copper and PTFE



Dimensions and ordering data			
Size	CRC <sup>1)</sup>	Part No.	Type
Mini	2	159 638	HFOE-D-MINI

- 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.

### Mounting bracket kit HRBS-DB-MINI

- For wall mounting

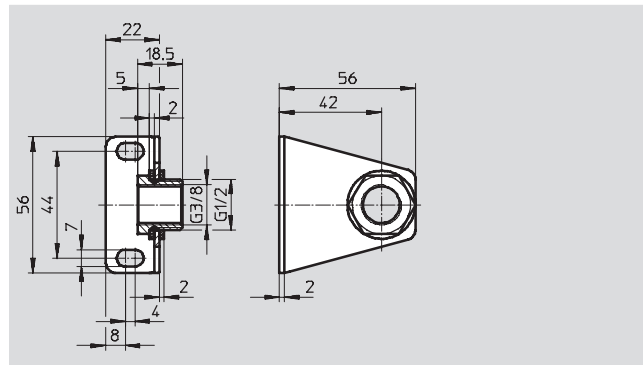
Material:

Hollow bolt, housing: Galvanised steel

Sealing ring: Polyvinyl chloride

Note on materials:

Free of copper and PTFE



Dimensions and ordering data				
Size	Pneumatic connection 1	CRC <sup>1)</sup>	Weight [g]	Part No. Type
Mini	G $\frac{3}{8}$	2	150	540 791 HRBS-DB-MINI

- 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.

## Mounting attachments, D series, polymer

Accessories

FESTO

### Threaded pin FRB

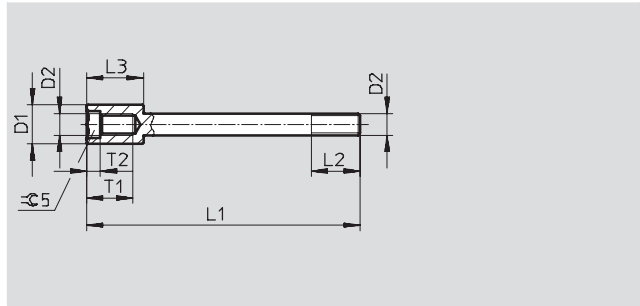
- For service unit combinations

Material:

Steel

Note on materials:

Free of copper and PTFE



Dimensions and ordering data										
Size	D1 Ø	D2	L1	L2 min.	L3	T1	T2	CRC <sup>1)</sup>	Part No.	Type
Mini	7.2	M4	50.5	9	10.5	8.5	2.5	1	542 187	FRB-DB-MINI

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.

### Nut assortment M4-DB

- For service unit combinations

Material:

Galvanised steel

Note on materials:

Free of copper and PTFE



Ordering data			
Size	CRC <sup>1)</sup>	Part No.	Type
Mini	1	542 790	M4-DB-MINI

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.

## Pressure gauges, D series, polymer

Accessories

FESTO

### Pressure gauge MA, DIN EN 837-1

- For filter regulators and pressure regulators

Further pressure gauges

→ [www.festo.com](http://www.festo.com)



Ordering data				
Pneumatic connection	Indicating range		Part No.	Type
	[bar]	[psi]		
R $\frac{1}{8}$	0 ... 10	0 ... 145	162 835	MA-40-10- $\frac{1}{8}$ -EN

### Pressure gauge MA, DIN EN 837-1

- For pressure regulator combinations with mounting via bracket

Further pressure gauges

→ [www.festo.com](http://www.festo.com)



Ordering data				
Pneumatic connection	Indicating range		Part No.	Type
	[bar]	[psi]		
G $\frac{1}{4}$	0 ... 10	0 ... 145	183 900	MA-40-10-G $\frac{1}{4}$ -EN

### Flanged pressure gauge FMA, DIN EN 837-1

- For pressure regulator combinations with front panel mounting

Further pressure gauges

→ [www.festo.com](http://www.festo.com)



Ordering data					
Nominal size	Pneumatic connection	Indicating range		Part No.	Type
		[bar]	[psi]		
40	G $\frac{1}{4}$	0 ... 10	0 ... 145	159 596	FMA-40-10- $\frac{1}{4}$ -EN

## Push-in fittings, D series, polymer

Accessories

FESTO

### Push-in T-fitting QSTF

360° rotatable  
with male and female thread

Further push-in fittings  
→ [www.festo.com](http://www.festo.com)



Ordering data					
Pneumatic connection			Part No.	Type	PU*
Male thread	Female thread	Tubing O.D.			
G $\frac{1}{4}$	G $\frac{1}{4}$	8	186 203	QSTF-G $\frac{1}{4}$ -8	1

\* Packaging unit quantity

### Push-in Y-fitting QSYLV

360° rotatable  
Male thread  
with external hex

Further push-in fittings  
→ [www.festo.com](http://www.festo.com)



Ordering data					
Pneumatic connection		Tubing O.D.	Part No.	Type	PU*
G $\frac{1}{4}$		8	186 210	QSYLV-G $\frac{1}{4}$ -8	1

\* Packaging unit quantity

### Push-in fitting QSF

Female thread  
with external hex

Further push-in fittings  
→ [www.festo.com](http://www.festo.com)



Ordering data					
Pneumatic connection		Tubing O.D.	Part No.	Type	PU*
G $\frac{1}{4}$		8	153 026	QSF- $\frac{1}{4}$ -8-B	10

\* Packaging unit quantity

# Plastic tubing and filter cartridges, D series, polymer

Accessories

## Plastic tubing PCN

- For condensate drain

Material: Polyvinyl chloride

Further tubing

→ [www.festo.com](http://www.festo.com)



Ordering data					
Tubing O.D. [mm]	Tubing I.D. [mm]	Weight [g/m]	Part No.	Type	PU* [m]
6.5	4	25	7 134	PCN-4-NT	50

\* Packaging unit

## Plastic tubing PUN-E

Highly flexible, hydrolysis and microbe resistant tubing

Material: Polyurethane

Note on materials:

Free of copper and PTFE

Further tubing

→ [www.festo.com](http://www.festo.com)



Ordering data					
Tubing O.D. [mm]	Colour	Part No.	Type	PU* [m]	
8	Silver	535 322	PUN-E-8x1-SI	50	
		534 174	PUN-E-8x1-SI-400	400	
	Blue	535 327	PUN-E-8x1-BL	50	
		534 175	PUN-E-8x1-BL-400	400	
	Black	538 467	PUN-E-8x1-SW	50	
		538 462	PUN-E-8x1-SW-400	400	

\* Packaging unit

## Filter cartridges LFP



Ordering data				
Size	Grade of filtration [µm]	Part No.	Type	
Mini	5	547 957	LFP-DB-MINI-5M	
	40	534 502	MS4-LFP-E	

## Products and services – everything from a single source

Products incorporating new ideas are created when enthusiasm for technology and efficiency come together. Tailor-made service goes without saying when the customer is the focus of attention.



### Pneumatic and electrical drives

- Pneumatic cylinders
- Semi-rotary drives
- Handling modules
- Servopneumatic positioning systems
- Electromechanical drives
- Positioning controllers and controllers



### Valves and valve terminals

- Standard valves
- Universal and application-optimised valves
- Manually and mechanically actuated valves
- Shut-off, pressure control and flow control valves
- Proportional valves
- Safety valves

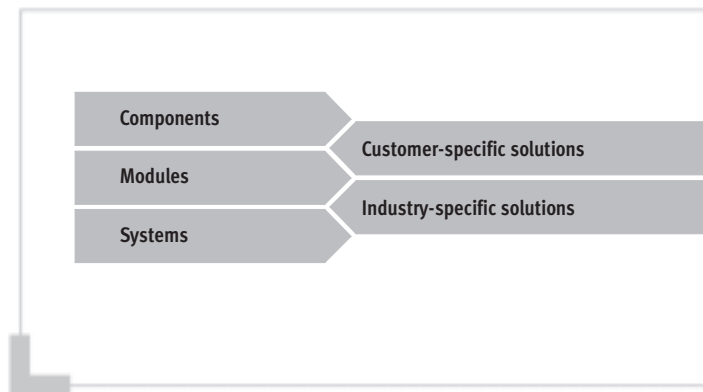
### Fieldbus systems/ electrical peripherals

- Fieldbus Direct
- Installation system CP/CPI
- Modular electrical terminal CPX



### Compressed air preparation

- Service unit combinations
- Filter regulators
- Filters
- Pressure regulators
- Lubricators
- On-off and soft-start valves
- Dryers
- Pressure amplifiers
- Accessories for compressed air preparation



## Services from Festo to increase your productivity – across the entire value creation sequence



### Engineering – for greater speed in the development process

- CAD models
- 14 engineering tools
- Digital catalogue
- FluidDRAW®
- More than 1,000 technical consultants and project engineers worldwide
- Technical hotlines



### Supply chain – for greater speed in the procurement process

- E-commerce and online shop
- Online order tracking
- Euro special manufacturing service
- Logistics optimisation



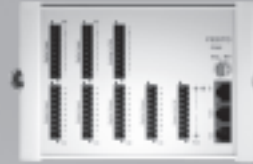
### Gripping and vacuum technology

- Vacuum generators
- Vacuum grippers
- Vacuum security valves
- Vacuum accessories
- Standard grippers
- Micro grippers
- Precision grippers
- Heavy-duty grippers



### Sensors and monitoring units

- Proximity sensors
- Pressure and flow sensors
- Display and operating units
- Inductive and optical proximity sensors
- Displacement encoders for positioning cylinders
- Optical orientation detection and quality inspection



### Controllers/bus systems

- Pneumatic and electropneumatic controllers
- Programmable logic controllers
- Fieldbus systems and accessories
- Timers/counters
- Software for visualisation and data acquisition
- Display and operating units



### Accessories

- Pipes
- Tubing
- Pipe connectors and fittings
- Electrical connection technology
- Silencers
- Reservoirs
- Air guns

### All in all, 100% product and service quality

A customer-oriented range with unlimited flexibility: Components combine to produce ready-to-install modules and systems. Included in this are special designs – since at Festo, most industry-specific products and customer-specific solutions are based on the 23,000 plus catalogue products. Combined with the services for the entire value creation sequence, the end result is unbeatable economy.



### Assembly – for greater speed in the assembly/commissioning process

- Prepack
- Preassembly
- Turnkey pneumatics
- Handling solutions



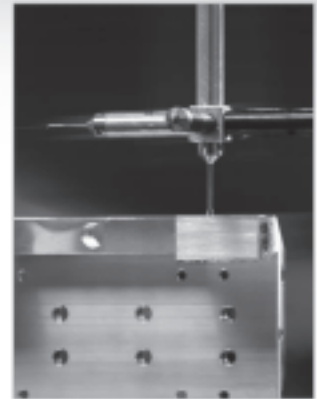
### Operation – for greater speed in the operational process

- Spare parts service
- Energy saving service
- Compressed air consumption analysis
- Compressed air quality analysis
- Customer service

## Aspects of quality

Quality can be viewed from a number of aspects. A short virtual tour of the Research and Development department, the Production department or the Customer Service Centre speaks more than a thousand words.

3D engineering and simulation



### Innovation quality

Let's look at some of the figures:

- 6.5% of turnover
- 2,800 patents with 100 new applications every year
- 3D engineering and simulation
- 10,600 employees worldwide
- Each and every one of them a lateral thinker

### Production quality

Your interest is quality and economy – therefore we place considerable value on:

- Minimum production tolerances
- Ultra-modern, proprietary production methods
- Core competencies in production
- Defined quality standards across the entire production chain
- Strict quality assurance systems: on that you can depend.





#### Price quality

**More service for less money.** Many of the new and further developments in the Festo product range have one thing in common: they are technically superior and more attractively priced than their predecessor product. Examples are to be found in all product segments: among the drives, valves, valve terminals; among the service units, and among the range of accessories.



#### Range quality

**For individual solutions.** Festo offers components as industry-specific catalogue products as well as standards-based and highly individual special designs. Ready-to-install combinations of these components play an integral part in the Festo product portfolio as modules or systems. Incidentally, an increasing number of components can be individually configured as modular products.



#### Didactic quality

**To complement the products and services for automation,** Festo Didactic offers exceptionally efficient training hardware, learning software and seminars of the highest quality. Optimally tailored to your value creation sequence. In short – training in practical applications for practical application.

## What must be observed when using Festo components?

Specified limit values for technical data and any specific instructions must be adhered to by the user in order to ensure recommended operating conditions.

When pneumatic components are used, the user shall ensure that they are operated using correctly prepared compressed air without aggressive media.

When Festo components are used in safety-oriented applications, the user shall ensure that all applicable

national and local safety laws and regulations, for example the machine directive, together with the relevant references to standards are observed. Unauthorised conversions or modifications to products and systems from Festo involve a safety risk and are thus not permissible. Festo does not accept any liability for resulting damages.

You should contact Festo's advisors if one of the following apply to your application:

- The ambient conditions and conditions of use or the operating medium differ from the specified technical data.
- The product is to perform a safety function.
- A risk or safety analysis is required.
- You are unsure about the product's suitability for use in the planned application.
- You are unsure about the product's suitability for use in safety-oriented applications.

All technical data applies at the time of going to print.

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