




# Air Preparation Units, D Series – Overview

Service Units FRC, Filter Regulators LFR, Pressure Regulators LR

Service Units FRC												
	Flow Rate	Pneumatic Connection						Operating Pressure	Filtration Grade	Lead Time <sup>1)</sup>		→ Page
										Same Day/Next Day	3 Days	
	<b>Inch Series</b>											
	[scfm]	1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT	3/4 NPT	1 NPT	[psi]	[µm]			
	25 ... 46	■	■	–	–	–	–	7 ... 103,	40	–	■	187
	71 ... 99	–	–	■	■	–	–	7 ... 176	–	■		
	293 ... 307	–	–	–	–	■	■	–	–	■		
	<b>Metric Series</b>											
	[l/min]	G1/8	G1/4	G3/8	G1/2	G3/4	G1	[bar]	[µm]			
	700 ... 1,300	■	■	–	–	–	–	0.5 ... 7,	40	–	■	211
	2,000 ... 2,800	–	–	■	■	–	–	0.5 ... 12	–	■		
	8,300 ... 8,700	–	–	–	–	■	■	–	–	■		


Filter Regulators LFR													
	Flow Rate	Pneumatic Connection						Operating Pressure	Filtration Grade	Lead Time <sup>1)</sup>		→ Page	
										Same Day/Next Day	3 Days		
	<b>Inch Series</b>												
	[scfm]	–	1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT	3/4 NPT	1 NPT	[psi]	[µm]			
	23 ... 53	–	■	■	–	–	–	–	7 ... 103,	5, 40	–	■	189
	85 ... 138	–	–	–	■	■	–	–	7 ... 176	–	■		
	268 ... 388	–	–	–	–	–	■	■	–	–	■		
	<b>Metric Series</b>												
	[l/min]	M5	G1/8	G1/4	G3/8	G1/2	G3/4	G1	[bar]	[µm]			
	110 ... 410	■	■	–	–	–	–	–	0.5 ... 7	5	■	–	213
	650 ... 1,500	–	■	■	–	–	–	–	0.5 ... 7,	5, 40	–	■	
	2,400 ... 3,900	–	–	–	■	■	■	–	0.5 ... 12	–	–	■	
7,600 ... 11,000	–	–	–	–	■	■	■	–	–	–	■		


Pressure Regulators LR													
	Flow Rate	Pneumatic Connection						Operating Pressure	Lead Time <sup>1)</sup>		→ Page		
									Same Day/Next Day	3 Days			
	<b>Inch Series</b>												
	[scfm]	–	1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT	3/4 NPT	1 NPT	[psi]				
	28 ... 56	–	■	■	–	–	–	–	7 ... 103,	–	■	192	
	113 ... 141	–	–	–	■	■	–	–	7 ... 176	–	■		
	388 ... 441	–	–	–	–	–	■	■	–	–	■		
	<b>Metric Series</b>												
	[l/min]	M5	G1/8	G1/4	G3/8	G1/2	G3/4	G1	[bar]				
	120 ... 230	■	■	–	–	–	–	–	0.5 ... 7	–	■	–	216
	800 ... 1,600	–	■	■	–	–	–	–	0.5 ... 7,	–	■		
	3,200 ... 4,000	–	–	–	■	■	–	–	0.5 ... 12	–	■		
11,000 ... 12,500	–	–	–	–	■	■	■	–	–	■			


1) Same day lead time when product is purchased with port blocks, seals, and screws as separate items. 3 day lead time when product is purchased with port blocks mounted. The lead time, from order placement until the item will ship, is approximate only. Actual shipping date to be confirmed upon order placement.

# Air Preparation Units, D Series – Overview

Pressure Regulators LRB, Standard Filters LF, Fine and Micro Filters LFMB/LFMA

Pressure Regulators LRB (Manifold Assembly)												
	Flow Rate	Pneumatic Connection							Operating Pressure	Lead Time <sup>1)</sup>		→ Page
										Same Day/Next Day	3 Days	
	Metric Series											
	[l/min]	M5	G1/8	G1/4	G3/8	G1/2	G3/4	G1	[bar]			
	1,600... 1,800	-	-	■	■	-	-	-	0.5 ... 7, 0.5 ... 12	-	■	218
	3,200... 3,800	-	-	-	■	■	-	-		-	■	


Standard Filters LF													
	Flow Rate	Pneumatic Connection							Operating Pressure	Filtration Grade	Lead Time <sup>1)</sup>		→ Page
											Same Day/Next Day	3 Days	
	Inch Series												
	[scfm]	-	1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT	3/4 NPT	1 NPT	[psi]	[µm]			
	28 ... 42	-	■	■	-	-	-	-	0 ... 235	5,	-	■	194
	64 ... 106	-	-	-	■	■	-	-		40	-	■	
	127 ... 187	-	-	-	-	-	■	■			-	■	
	Metric Series												
	[l/min]	M5	G1/8	G1/4	G3/8	G1/2	G3/4	G1	[bar]	[µm]			
170 ... 290	■	■	-	-	-	-	-	0 ... 16	5	■	-	220	
800 ... 1,200	-	■	■	-	-	-	-		5,	-	■		
1,800 ... 3,000	-	-	-	■	■	-	-		40	-	■		
3,600 ... 5,300	-	-	-	-	-	■	■			-	■		


Fine and Micro Filters LFMB/LFMA													
	Flow Rate	Pneumatic Connection							Operating Pressure	Filtration Grade	Lead Time <sup>1)</sup>		→ Page
											Same Day/Next Day	3 Days	
	Inch Series												
	[scfm]	1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT	3/4 NPT	1 NPT	[psi]	[µm]				
	5 ... 11	■	■	-	-	-	-	15 ... 235	0.01,	-	■	196	
	13 ... 32	-	-	■	■	-	-		1	-	■		
	32 ... 44	-	-	-	-	■	■			-	■		
	Metric Series												
	[l/min]	G1/8	G1/4	G3/8	G1/2	G3/4	G1	[bar]	[µm]				
130 ... 300	■	■	-	-	-	-	1 ... 16	0.01,	-	■	222		
380 ... 900	-	-	■	■	-	-		1	-	■			
900 ... 1,250	-	-	-	-	■	■			-	■			


1) Same day lead time when product is purchased with port blocks, seals, and screws as separate items. 3 day lead time when product is purchased with port blocks mounted. The lead time, from order placement until the item will ship, is approximate only. Actual shipping date to be confirmed upon order placement.

# Air Preparation Units, D Series – Overview

Lubricators LOE, Manual On/Off Valves HE, Electric On/Off Valves HEE

Lubricators LOE														
	Flow Rate	Pneumatic Connection							Operating Pressure	Lead Time <sup>1)</sup>			→ Page	
										Same Day/Next Day	3 Days			
	Inch Series													
	[scfm]	–	1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT	3/4 NPT	1 NPT	[psi]					
	46 ... 81	–	■	■	–	–	–	–	0 ... 235	–	–	■	198	
	194 ... 215	–	–	–	■	■	–	–		–	–	■		
	297 ... 318	–	–	–	–	–	■	■		–	–	■		
	Metric Series													
	[l/min]	M5	G1/8	G1/4	G3/8	G1/2	G3/4	G1	[bar]					
	200 ... 410	■	■	–	–	–	–	–	0 ... 16	–	■	–	224	
	1,300 ... 2,300	–	■	■	–	–	–	–		–	–	■		
	5,500 ... 6,100	–	–	–	■	■	–	–		–	–	■		
8,400 ... 9,000	–	–	–	–	–	■	■		–	–	■			


Manual On/Off Valves HE														
	Flow Rate	Pneumatic Connection							Operating Pressure	Lead Time <sup>1)</sup>			→ Page	
										Same Day/Next Day	3 Days			
	Inch Series													
	[scfm]		1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT	3/4 NPT	1 NPT	[psi]					
	35 ... 53	–	■	■	–	–	–	–	0 ... 235	–	–	■	200	
	113 ... 127	–	–	–	■	■	–	–		–	–	■		
	212 ... 229	–	–	–	–	–	■	■		–	–	■		
	Metric Series													
	[l/min]		G1/8	G1/4	G3/8	G1/2	G3/4	G1	[bar]					
	1,000 ... 1,500	–	■	■	–	–	–	–	0 ... 16	–	–	■	226	
	3,200 ... 3,600	–	–	–	■	■	–	–		–	–	■		
	6,000 ... 6,500	–	–	–	–	–	■	■		–	–	■		


Electric On/Off Valves HEE														
	Flow Rate	Pneumatic Connection							Operating Pressure	Supply Voltage	Lead Time <sup>1)</sup>			→ Page
											Same Day/Next Day	3 Days		
	Inch Series													
	[scfm]		1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT	3/4 NPT	1 NPT	[psi]					
	35 ... 53	–	■	■	–	–	–	–	37 ... 235	24 V DC, 110 V AC	–	–	■	202
	113 ... 127	–	–	–	■	■	–	–			–	–	■	
	212 ... 229	–	–	–	–	–	■	■			–	–	■	
	Metric Series													
	[l/min]		G1/8	G1/4	G3/8	G1/2	G3/4	G1	[bar]					
	1,000 ... 1,500	–	■	■	–	–	–	–	2.5 ... 16	24 V DC, 110 V AC	–	–	■	228
	3,200 ... 3,600	–	–	–	■	■	–	–			–	–	■	
	6,000 ... 6,500	–	–	–	–	–	■	■			–	–	■	


1) Same day lead time when product is purchased with port blocks, seals, and screws as separate items. 3 day lead time when product is purchased with port blocks mounted. The lead time, from order placement until the item will ship, is approximate only. Actual shipping date to be confirmed upon order placement.

# Air Preparation Units, D Series – Overview

Soft-start Valves HEL, Distributor Blocks FRM/FRZ, Pressure Gauges MA

Soft-start Valves HEL											
	Flow Rate	Pneumatic Connection						Operating Pressure	Lead Time <sup>1)</sup>		→ Page
									Same Day/Next Day	3 Days	
	Inch Series										
	[scfm]	1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT	3/4 NPT	1 NPT	[psi]			
	35 ... 53	■	■	–	–	–	–	44 ... 235	–	■	204
	113 ... 127	–	–	■	■	–	–		–	■	
	212 ... 229	–	–	–	–	■	■		–	■	
	Metric Series										
	[l/min]	G1/8	G1/4	G3/8	G1/2	G3/4	G1	[bar]			
1,000 ... 1,500	■	■	–	–	–	–	3 ... 16	–	■	230	
3,200 ... 3,600	–	–	■	■	–	–		–	■		
6,000 ... 6,500	–	–	–	–	■	■		–	■		

Distributor Blocks FRM/FRZ											
	Flow Rate	Pneumatic Connection						Operating Pressure	Lead Time <sup>1)</sup>		→ Page
									Same Day/Next Day	3 Days	
	Inch Series										
	[scfm]	1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT	3/4 NPT	1 NPT	[psi]			
	7.5 ... 20.5	■	–	–	–	–	–	0 ... 235	–	■	206
	46 ... 117	■	■	–	–	–	–		–	■	
	194 ... 290	–	–	■	■	–	–		–	■	
	473 ... 706	–	–	–	–	■	■		–	■	
	Metric Series										
[l/min]	G1/8	G1/4	G3/8	G1/2	G3/4	G1	[bar]				
210 ... 580	■	–	–	–	–	–	0 ... 16	–	■	232	
1,300 ... 3,300	■	■	–	–	–	–		–	■		
5,500 ... 8,200	–	–	■	■	–	–		–	■		
13,400 ... 20,000	–	–	–	–	■	■		–	■		

Pressure Gauges MA										
	Pneumatic Connection			Housing ∅ [mm]	Operating Pressure / Indicating Range		Lead Time		→ Page	
	M5	G1/8	G1/4		[psi]	[bar]	Same Day/Next Day	3 Days		
	Metric and Inch Series									
	■	–	–	27	0 ... 160	0 ... 10	■	–	208	
	–	■	–	40	0 ... 145	0 ... 10	■	–		
	–	■	–	40	0 ... 240	0 ... 16	■	–		
	–	–	■	50	0 ... 145	0 ... 10	■	–		
	–	–	■	50	0 ... 240	0 ... 16	■	–		

1) Same day lead time when product is purchased with port blocks, seals, and screws as separate items. 3 day lead time when product is purchased with port blocks mounted. The lead time, from order placement until the item will ship, is approximate only. Actual shipping date to be confirmed upon order placement.

# Air Preparation Units – Inch and Metric Series

Overview



- Sturdy and versatile metal series
- 4 sizes: Micro (Metric Series only), Mini, Midi and Maxi
- 13 connection sizes:  
 Inch Series: 1/8NPT, 1/4 NPT, 3/8NPT, 1/2NPT, 3/4 NPT, 1NPT  
 Metric Series: M5, G1/8, G1/4, G3/8, G1/2, G3/4, G1
- 2 pressure ranges:  
 7 ... 103 psi / 0.5 ... 7 bar or 7 ... 176 psi / 0.5 ... 12 bar
- Flow rates up to 307 scfm / 8.700 l/min
- Broad range of functions:  
 Individual devices or pre-assembled and tested combinations

Detailed product information → [www.festo.com/catalog/<type>](http://www.festo.com/catalog/<type>)

## Features

- High-quality and sturdy product
- Metal bowl guard standard
- Wide range of functions in four sizes
- Wealth of options ensures the right solution for every task
- Compressed air qualities to DIN ISO 8573-1:2010
- Reduced maintenance overheads, long service life and easy servicing save time and money

## Contents

### Inch Series

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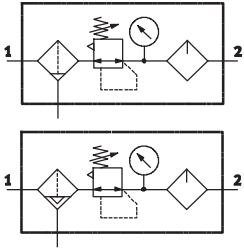
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– Pressure Gauges MA	→ 208
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# Service Units FRC – Inch Series

Technical Data



**Materials**  
 Housing: Die-cast zinc  
 Bowl: Polycarbonate  
 Seals: Nitrile rubber  
 Free of copper and PTFE



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 104 °F

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

Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>				
Size	Mini	Midi		Maxi		
Pneumatic connection	1/8NPT	1/4NPT	3/8NPT	1/2NPT	3/4NPT	1NPT
Design	Filter regulator Proportional standard mist lubricator					
Type of mounting	Via accessories In-line installation					
Mounting position	Vertical ±5°					
Grade of filtration [µm]	40 (air purity class at the output: compressed air in accordance with ISO 8573-1:2010 [7:8:-])					
Pressure regulation range [psi]	7.5 ... 103 7.5 ... 176					
Pressure indication	With pressure gauge					
Length [in]	3.0	3.7		4.2		
Width [in]	3.1 (4.1) <sup>1)</sup>	4.3 (5.5) <sup>1)</sup>		5.1 (6.4) <sup>1)</sup>	5.2 (7.2) <sup>1)</sup>	
Height [in]	8.3	10.6		10.7		

1) Value in brackets with connecting plates.

Standard Nominal Flow Rate <sup>1)</sup> qnN [scfm]							
Size	Mini		Midi		Maxi		
Pneumatic connection	1/8NPT	1/4NPT	3/8NPT	1/2NPT	3/4NPT	1NPT	
Pressure regulation range 7.5 ... 103 psi							
Grade of filtration 40 µm	28	46	71	99	300	307	
Pressure regulation range 7.5 ... 176 psi							
Grade of filtration 40 µm	25	35	71	92	293	300	

1) Measured at p1 = 147 psi, p2 = 88 psi and Δp = 15 psi. A minimum flow rate of 4 scfm is required for flawless functioning.

Operating Conditions	
Condensate drain	Manual rotary Fully automatic
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [--:9:-] Inert gases Compressed air in accordance with ISO 8573-1:2010 [7:9:-]
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)
Supply pressure [psi]	15 ... 235 29 ... 176
Ambient temperature [°F]	14 ... 140

# Service Units FRC – Inch Series

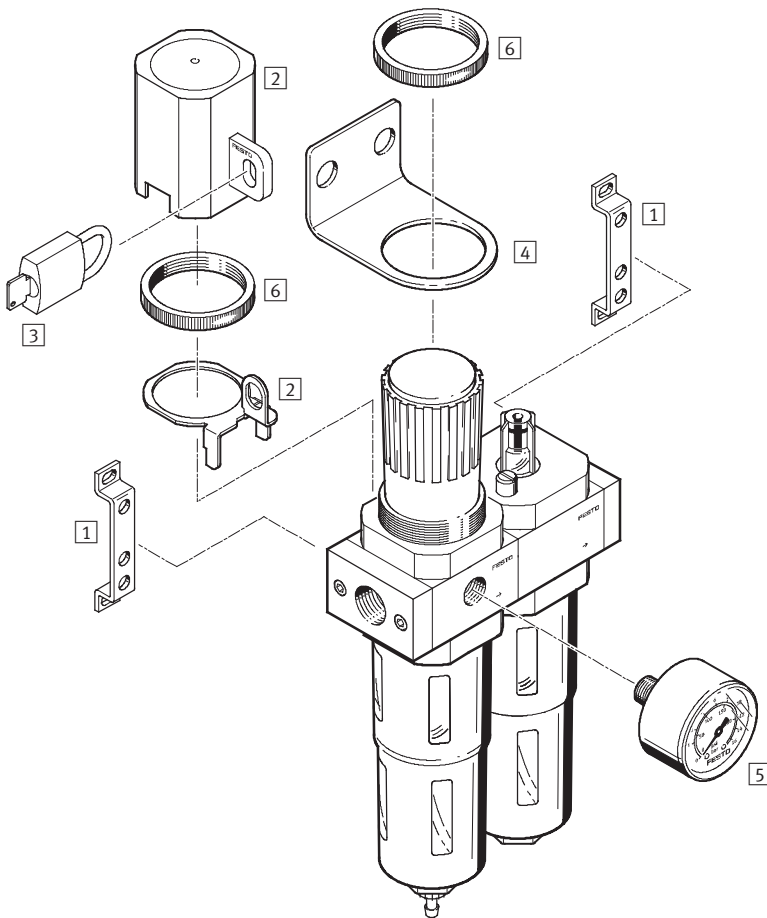
Ordering Data, Accessories

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Ordering Data									
Condensate drain	Size	Connection	Pressure regulation range 7.5 ... 103 psi			LT	Pressure regulation range 7.5 ... 176 psi		
			Part No.	Type			Part No.	Type	LT
Turned manually	Mini	1/8NPT	173834	FRC-1/8-D-7-MINI-NPT	3D	173828	FRC-1/8-D-MINI-NPT	3D	
		1/4NPT	173842	FRC-1/4-D-7-MINI-NPT	3D	173836	FRC-1/4-D-MINI-NPT	3D	
	Midi	3/8NPT	173858	FRC-3/8-D-7-MIDI-NPT	3D	173852	FRC-3/8-D-MIDI-NPT	3D	
		1/2NPT	173866	FRC-1/2-D-7-MIDI-NPT	3D	173860	FRC-1/2-D-MIDI-NPT	3D	
	Maxi	3/4NPT	173882	FRC-3/4-D-7-MAXI-NPT	3D	173876	FRC-3/4-D-MAXI-NPT	3D	
		1NPT	173890	FRC-1-D-7-MAXI-NPT	3D	173884	FRC-1-D-MAXI-NPT	3D	
Fully automatic	Mini	1/8NPT	173835	FRC-1/8-D-7-MINI-A-NPT	3D	173829	FRC-1/8-D-MINI-A-NPT	3D	
		1/4NPT	173843	FRC-1/4-D-7-MINI-A-NPT	3D	173837	FRC-1/4-D-MINI-A-NPT	3D	
	Midi	3/8NPT	173859	FRC-3/8-D-7-MIDI-A-NPT	3D	173853	FRC-3/8-D-MIDI-A-NPT	3D	
		1/2NPT	173867	FRC-1/2-D-7-MIDI-A-NPT	3D	173861	FRC-1/2-D-MIDI-A-NPT	3D	
	Maxi	3/4NPT	173883	FRC-3/4-D-7-MAXI-A-NPT	3D	173877	FRC-3/4-D-MAXI-A-NPT	3D	
		1NPT	173891	FRC-1-D-7-MAXI-A-NPT	3D	173885	FRC-1-D-MAXI-A-NPT	3D	

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview

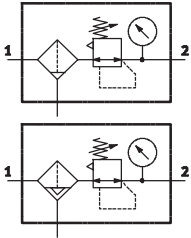


Mounting attachments and accessories	→ Page/Internet
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2 Regulator lock LRVS	209
3 Padlock LRVS-D	-

Mounting attachments and accessories	→ Page/Internet
4 Mounting bracket HR-D	209
5 Pressure gauge MA (included in scope of delivery)	208
6 Knurled nut HMR (included in scope of delivery)	-

# Filter Regulators LFR – Inch Series

Technical Data



Materials  
 Housing: Die-cast zinc  
 Bowl: Polycarbonate  
 Seals: Nitrile rubber  
 Free of copper and PTFE



Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>				
Size	Mini	Midi		Maxi		
Pneumatic connection	1/8NPT	1/4NPT	3/8NPT	1/2NPT	3/4NPT	1NPT
Design	Filter regulator with pressure gauge					
	Filter regulator without pressure gauge					
Type of mounting	Via accessories					
	In-line installation					
	Front panel mounting					
Mounting position	Vertical ±5°					
Grade of filtration [µm]	5 or 40					
Pressure regulation range [psi]	7.5 ... 103					
	7.5 ... 176					
Pressure indication	Via pressure gauge					
Length [in]	3.0	3.7		4.2		
Width [in]	1.6 (2.5) <sup>1)</sup>	2.2 (3.3) <sup>1)</sup>		2.6 (3.8) <sup>1)</sup>	2.6 (4.6) <sup>1)</sup>	
Height [in]	8.3	10.6		10.7		

1) Value in brackets with connecting plates.

Standard Nominal Flow Rate <sup>1)</sup> qnN [scfm]							
Size	Mini	Midi		Maxi			
Pneumatic connection	1/8NPT	1/4NPT	3/8NPT	1/2NPT	3/4NPT	1NPT	
Pressure regulation range 7.5 ... 103 psi							
40 µm	32	53	113	138	353	388	
Pressure regulation range 7.5 ... 176 psi							
Grade of filtration	5 µm	23	42	85	92	268	282
	40 µm	26	49	109	120	342	353

1) Measured at p1 = 147 psi, p2 = 88 psi and Δp = 15 psi.

Operating Conditions	
Condensate drain	Manual rotary   Fully automatic
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [:-:--]
Supply pressure [psi]	15 ... 235   29 ... 176
Ambient temperature [°F]	14 ... 140



# Filter Regulators LFR – Inch Series

Ordering Data

Ordering Data – Filtration Grade 40µm										
Condensate drain	Size	Connection	Pressure regulation range 7.5 ... 103 psi			LT	Pressure regulation range 7.5 ... 176 psi			LT
			Part No.	Type			Part No.	Type		
Directly actuated diaphragm regulator										
Turned manually	Mini	1/8NPT	173762	LFR-1/8-D-7-MINI-NPT	3D	173756	LFR-1/8-D-MINI-NPT	3D		
		1/4NPT	173770	LFR-1/4-D-7-MINI-NPT	3D	173764	LFR-1/4-D-MINI-NPT	3D		
	Midi	3/8NPT	173786	LFR-3/8-D-7-MIDI-NPT	3D	173780	LFR-3/8-D-MIDI-NPT	3D		
		1/2NPT	173794	LFR-1/2-D-7-MIDI-NPT	3D	173788	LFR-1/2-D-MIDI-NPT	3D		
	Maxi	3/4NPT	173810	LFR-3/4-D-7-MAXI-NPT	3D	173804	LFR-3/4-D-MAXI-NPT	3D		
		1NPT	173818	LFR-1-D-7-MAXI-NPT	3D	173812	LFR-1-D-MAXI-NPT	3D		
Fully automatic	Mini	1/8NPT	173763	LFR-1/8-D-7-MINI-A-NPT	3D	173757	LFR-1/8-D-MINI-A-NPT	3D		
		1/4NPT	173771	LFR-1/4-D-7-MINI-A-NPT	3D	173765	LFR-1/4-D-MINI-A-NPT	3D		
	Midi	3/8NPT	173787	LFR-3/8-D-7-MIDI-A-NPT	3D	173781	LFR-3/8-D-MIDI-A-NPT	3D		
		1/2NPT	173795	LFR-1/2-D-7-MIDI-A-NPT	3D	173789	LFR-1/2-D-MIDI-A-NPT	3D		
	Maxi	3/4NPT	173811	LFR-3/4-D-7-MAXI-A-NPT	3D	173805	LFR-3/4-D-MAXI-A-NPT	3D		
		1NPT	173819	LFR-1-D-7-MAXI-A-NPT	3D	173813	LFR-1-D-MAXI-A-NPT	3D		

Ordering Data – Basic Units without Threaded Connecting Plates, Filtration Grade 5µm										
Condensate drain	Size	Connection	Pressure regulation range 7.5 ... 103 psi			LT	Pressure regulation range 7.5 ... 176 psi			LT
			Part No.	Type			Part No.	Type		
Basic Unit without pressure gauge										
Turned manually	Mini	–	546454	LFR-D-5M-MINI	1D	–	–			
	Midi	–	546455	LFR-D-5M-MIDI	1D	–	–			
	Maxi	–	546461	LFR-D-5M-MAXI	1D	–	–			
Fully automatic	Mini	–	546462	LFR-D-5M-MINI-A	1D	–	–			
	Midi	–	546468	LFR-D-5M-MIDI-A	1D	–	–			
	Maxi	–	546469	LFR-D-5M-MAXI-A	1D	–	–			

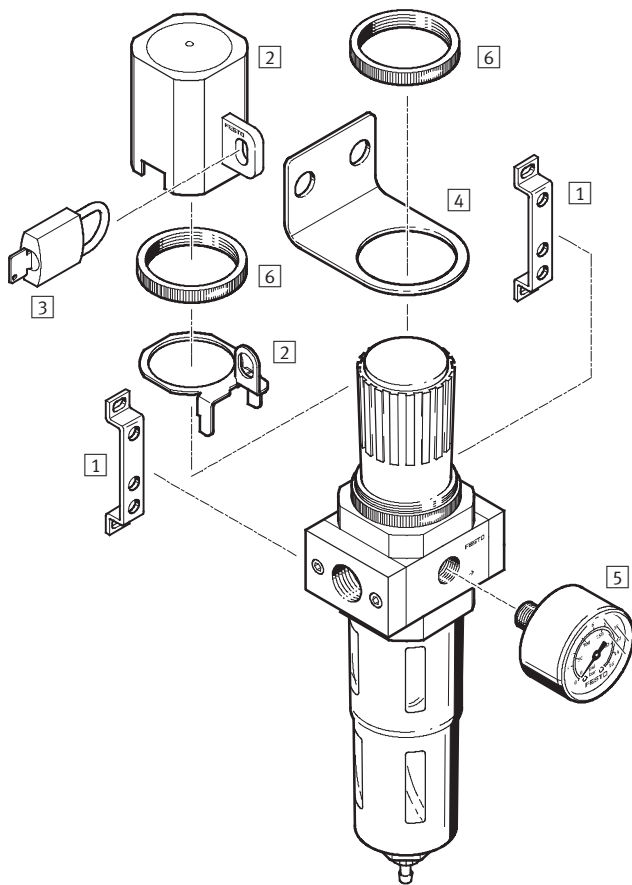
Ordering Data – Basic Units without Threaded Connecting Plates, Filtration Grade 40µm										
Condensate drain	Size	Connection	Pressure regulation range 7.5 ... 103 psi			LT	Pressure regulation range 7.5 ... 176 psi			LT
			Part No.	Type			Part No.	Type		
Basic Unit without pressure gauge										
Turned manually	Mini	–	546456	LFR-D-7-MINI	1D	546432	LFR-D-MINI	1D		
	Midi	–	546463	LFR-D-7-MIDI	1D	546425	LFR-D-MIDI	1D		
	Maxi	–	546470	LFR-D-7-MAXI	1D	546437	LFR-D-MAXI	1D		
Fully automatic	Mini	–	546457	LFR-D-7-MINI-A	1D	546433	LFR-D-MINI-A	1D		
	Midi	–	546464	LFR-D-7-MIDI-A	1D	546426	LFR-D-MIDI-A	1D		
	Maxi	–	546471	LFR-D-7-MAXI-A	1D	546438	LFR-D-MAXI-A	1D		
Basic Unit without pressure gauge, with integrated return flow function										
Turned manually	Maxi	–	546514	LFR-D-7-DI-MAXI	1D	546512	LFR-D-DI-MAXI	1D		
Fully automatic	Maxi	–	546518	LFR-D-7-DI-MAXI-A	1D	546515	LFR-D-DI-MAXI-A	1D		

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

# Filter Regulators LFR – Inch Series

Accessories

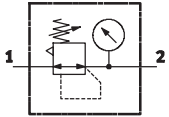
## Accessories Overview



Mounting attachments and accessories		→ Page/Internet
1	Mounting bracket HFOE	209
2	Regulator lock LRVS	209
3	Padlock LRVS-D	lrvs-d
4	Mounting bracket HR-D	209
5	Pressure gauge MA	208
6	Knurled nut HMR (not included in the basic units' scope of delivery)	hmr

# Pressure Regulators LR – Inch Series

Technical Data



Materials  
 Housing: Die-cast zinc/aluminum  
 Seals: Nitrile rubber  
 Free of copper and PTFE



Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>				
Size	Mini	Midi		Maxi		
Pneumatic connection	1/8NPT	1/4NPT	3/8NPT	1/2NPT	3/4NPT	1NPT
Design	Directly actuated diaphragm regulator				Pilot actuated piston regulator	
Type of mounting	Via accessories					
	In-line installation					
	Front panel mounting					
Mounting position	Any					
Max. hysteresis [psi]	1.5				2.9	
Pressure regulation range [psi]	7.5 ... 103					
	7.5 ... 176					
Pressure indication	Via pressure gauge					
	G1/8 port		G1/4 port		G1/4 port	
Length [in]	3.0		3.7		4.2	
Width [in]	1.6 (2.5) <sup>1)</sup>		2.2 (3.3) <sup>1)</sup>		2.6 (3.8) <sup>1)</sup> 2.6 (4.6) <sup>1)</sup>	
Height [in]	3.8		5.3		4.9	

1) Value in brackets with connecting plates.

Standard Nominal Flow Rate <sup>1)</sup> qn [scfm]						
Size	Mini		Midi		Maxi	
Pneumatic connection	1/8NPT	1/4NPT	3/8NPT	1/2NPT	3/4NPT	1NPT
Pressure regulation range 7.5 ... 103 psi	35	56	116	141	424	441
Pressure regulation range 7.5 ... 176 psi	28	53	113	124	388	406

1) Measured at p1 = 147 psi, p2 = 88 psi and Δp = 15 psi.

Operating Conditions	
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)
Supply pressure [psi]	15 ... 235
Ambient temperature [°F]	14 ... 140

# Pressure Regulators LR – Inch Series

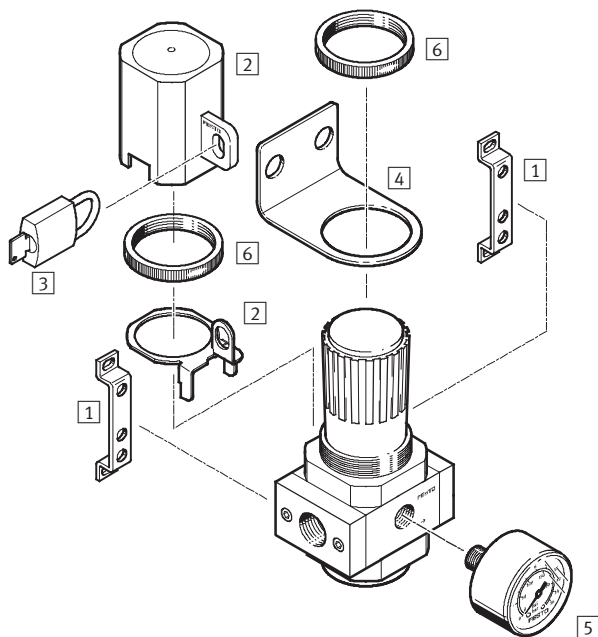
Ordering Data, Accessories

Ordering Data								
Size	Connection	Pressure regulation range 7.5 ... 103 psi			LT	Pressure regulation range 7.5 ... 176 psi		
		Part No.	Type			Part No.	Type	
Directly actuated diaphragm regulator								
Mini	1/8NPT	173646	LR-1/8-D-7-MINI-NPT	3D	173644	LR-1/8-D-MINI-NPT	3D	
	1/4NPT	173650	LR-1/4-D-7-MINI-NPT	3D	173648	LR-1/4-D-MINI-NPT	3D	
Midi	3/8NPT	173658	LR-3/8-D-7-MIDI-NPT	3D	173656	LR-3/8-D-MIDI-NPT	3D	
	1/2NPT	173662	LR-1/2-D-7-MIDI-NPT	3D	173660	LR-1/2-D-MIDI-NPT	3D	
Pilot actuated piston regulator								
Maxi	3/4NPT	173670	LR-3/4-D-7-MAXI-NPT	3D	173668	LR-3/4-D-MAXI-NPT	3D	
	1NPT	173674	LR-1-D-7-MAXI-NPT	3D	173672	LR-1-D-MAXI-NPT	3D	

Ordering Data – Basic Units, without Threaded Connecting Plates								
Size	Connection	Pressure regulation range 7.5 ... 103 psi			LT	Pressure regulation range 07.5 ... 176 psi		
		Part No.	Type			Part No.	Type	
Basic Unit without pressure gauge								
Mini	–	546452	LR-D-7-MINI	1D	546430	LR-D-MINI	1D	
Midi	–	546458	LR-D-7-MIDI	1D	546424	LR-D-MIDI	1D	
Maxi	–	546465	LR-D-7-MAXI	1D	546436	LR-D-MAXI	1D	
Basic Unit without pressure gauge, with integrated return flow function								
Maxi	–	546513	LR-D-7-DI-MAXI	1D	546511	LR-D-DI-MAXI	1D	

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

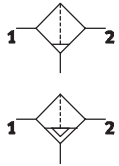
## Accessories Overview



Mounting attachments and accessories		→ Page/Internet
1	Mounting bracket HFOE	209
2	Regulator lock LRVS	209
3	Padlock LRVS-D	lrvs-d
4	Mounting bracket HR-D	209
5	Pressure gauge MA	208
6	Knurled nut HMR (not included in the basic units' scope of delivery)	hmr

# Filters LF – Inch Series

Technical Data



Materials  
 Housing: Die-cast zinc  
 Bowl: Polycarbonate  
 Seals: Nitrile rubber  
 Free of copper and PTFE



Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>				
Size	Mini		Midi		Maxi	
Pneumatic connection	1/8NPT	1/4NPT	3/8NPT	1/2NPT	3/4NPT	1NPT
Design	Sintered filter with centrifugal separation					
Type of mounting	Via accessories In-line installation					
Mounting position	Vertical ±5°					
Grade of filtration [µm]	5 or 40					
Length [in]	1.6		2.2		2.6	
Width [in]	1.6 (2.5) <sup>1)</sup>		2.2 (3.3) <sup>1)</sup>		2.6 (3.8) <sup>1)</sup> 2.6 (4.6) <sup>1)</sup>	
Height [in]	6.4		7.8		8.7	

1) Value in brackets with connecting plates.

Standard Nominal Flow Rate <sup>1)</sup> q <sub>N</sub> [scfm]		Mini		Midi		Maxi	
Size		1/8NPT	1/4NPT	3/8NPT	1/2NPT	3/4NPT	1NPT
Grade of filtration	5 µm	28	34	64	71	127	134
	40 µm	35	42	95	106	177	187

1) Measured at p<sub>1</sub> = 147 psi, p<sub>2</sub> = 88 psi and Δp = 15 psi.  
 A minimum flow rate of 4.4 scfm is required for flawless functioning.

Operating Conditions		Manual rotary		Fully automatic	
Condensate drain		Manual rotary		Fully automatic	
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:-:-]			
Supply pressure [psi]		0 ... 235		29 ... 176	
Ambient temperature [°F]		14 ... 140			

# Filters LF – Inch Series

Ordering Data, Accessories

Ordering Data								
Condensate drain	Size	Connection	Grade of filtration 5 µm		LT	Grade of filtration 40 µm		LT
			Part No.	Type		Part No.	Type	
Turned manually	Mini	1/8NPT	173678	LF-1/8-D-5M-MINI-NPT	3D	173676	LF-1/8-D-MINI-NPT	3D
		1/4NPT	173682	LF-1/4-D-5M-MINI-NPT	3D	173680	LF-1/4-D-MINI-NPT	3D
	Midi	3/8NPT	173690	LF-3/8-D-5M-MIDI-NPT	3D	173688	LF-3/8-D-MIDI-NPT	3D
		1/2NPT	173694	LF-1/2-D-5M-MIDI-NPT	3D	173692	LF-1/2-D-MIDI-NPT	3D
	Maxi	3/4NPT	173702	LF-3/4-D-5M-MAXI-NPT	3D	173700	LF-3/4-D-MAXI-NPT	3D
		1NPT	173706	LF-1-D-5M-MAXI-NPT	3D	173704	LF-1-D-MAXI-NPT	3D
Fully automatic	Mini	1/8NPT	173679	LF-1/8-D-5M-MINI-A-NPT	3D	173677	LF-1/8-D-MINI-A-NPT	3D
		1/4NPT	173683	LF-1/4-D-5M-MINI-A-NPT	3D	173681	LF-1/4-D-MINI-A-NPT	3D
	Midi	3/8NPT	173691	LF-3/8-D-5M-MIDI-A-NPT	3D	173689	LF-3/8-D-MIDI-A-NPT	3D
		1/2NPT	173695	LF-1/2-D-5M-MIDI-A-NPT	3D	173693	LF-1/2-D-MIDI-A-NPT	3D
	Maxi	3/4NPT	173703	LF-3/4-D-5M-MAXI-A-NPT	3D	173701	LF-3/4-D-MAXI-A-NPT	3D
		1NPT	173707	LF-1-D-5M-MAXI-A-NPT	3D	173705	LF-1-D-MAXI-A-NPT	3D

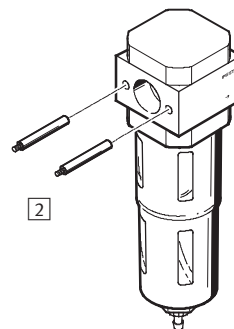
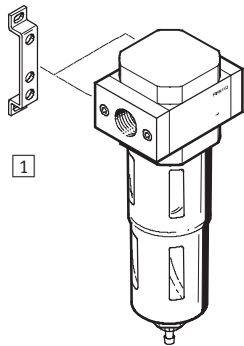
Ordering Data – Basic Units, without Threaded Connecting Plates								
Condensate drain	Size	Connection	Grade of filtration 5 µm		LT	Grade of filtration 40 µm		LT
			Part No.	Type		Part No.	Type	
Turned manually	Mini	–	546451	LF-D-5M-MINI-U	1D	546428	LF-D-MINI-U	1D
	Midi	–	546453	LF-D-5M-MIDI-U	1D	546422	LF-D-MIDI-U	1D
	Maxi	–	546459	LF-D-5M-MAXI-U	1D	546434	LF-D-MAXI-U	1D
Fully automatic	Mini	–	546460	LF-D-5M-MINI-A-U	1D	546429	LF-D-MINI-A-U	1D
	Midi	–	546466	LF-D-5M-MIDI-A-U	1D	546423	LF-D-MIDI-A-U	1D
	Maxi	–	546467	LF-D-5M-MAXI-A-U	1D	546435	LF-D-MAXI-A-U	1D

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview

Individual device

Basic unit for manifold assembly

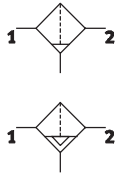


Mounting attachments and accessories	→ Page/Internet
1 Mounting bracket HFOE	209

Mounting attachments and accessories	→ Page/Internet
2 Threaded bolt FRB (must be ordered separately)	209

# Fine and Micro Filters LFMB/LFMA – Inch Series

Technical Data



**Materials**  
 Housing: Die-cast zinc  
 Bowl: Polycarbonate  
 Filter: Borosilicate fibre  
 Seals: Nitrile rubber  
 Free of copper and PTFE

- High efficiency filter for special requirements
- Air quality to ISO 8573-1:2010
- Choice of filter cartridges:  
0.01 µm or 1 µm



Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>				
Size	Mini	Midi		Maxi		
Pneumatic connection	1/8NPT	1/4NPT	3/8NPT	1/2NPT	3/4NPT	1NPT
Design	Fibre filter					
Type of mounting	Via accessories In-line installation					
Mounting position	Vertical ±5°					
Length [in]	3.0		3.7		4.2	
Width [in]	1.6 (2.5) <sup>1)</sup>		2.2 (3.3) <sup>1)</sup>		2.6 (3.8) <sup>1)</sup> 2.6 (4.6) <sup>1)</sup>	
Height [in]	6.4		7.8		8.7	

1) Value in brackets with connecting plates.

Standard Nominal Flow Rate <sup>1)</sup> qnN [scfm]						
Size	Mini	Midi		Maxi		
Pneumatic connection	1/8NPT	1/4NPT	3/8NPT	1/2NPT	3/4NPT	1NPT
Micro filter LFMA	5	6	13	14	32	34
Fine filter LFMB	9	11	25	32	42	44

1) Measured at p<sub>1</sub> = 88 psi and Δp = 70 mbar.  
 A minimum flow rate of 4.4 scfm is required for flawless functioning.

Operating Conditions				
Type	LFMA		LFMB	
Condensate drain	Manual rotary	Fully automatic	Manual rotary	Fully automatic
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:-:-]		Compressed air in accordance with ISO 8573-1:2010 [6:4:4]	
Grade of filtration [µm]	0.01 (air purity class at the output: compressed air in accordance with ISO 8573-1:2010 [2:7:2])		1 (air purity class at the output: compressed air in accordance with ISO 8573-1:2010 [4:7:3])	
Residual oil content [mg/m <sup>3</sup> ]	≤ 0.01		≤ 0.5	
Supply pressure [psi]	15 ... 235	22 ... 176	15 ... 235	22 ... 176
Ambient temperature [°F]	14 ... 140		14 ... 140	

# Fine and Micro Filters LFMB/LFMA – Inch Series

Ordering Data, Accessories

Ordering Data – Fine filters LFMB								
Grade of filtration 1 µm, metal bowl guard								
Size	Connection	Input pressure 15 ... 235 psi			LT	Input pressure 22 ... 176 psi		LT
		Condensate drain turned manually				Condensate drain fully automatic		
		Part No.	Type			Part No.	Type	
With threaded connecting plates								
Mini	1/8NPT	173708	LFMB-1/8-D-MINI-NPT	3D	173709	LFMB-1/8-D-MINI-A-NPT	3D	
	1/4NPT	173710	LFMB-1/4-D-MINI-NPT	3D	173711	LFMB-1/4-D-MINI-A-NPT	3D	
Midi	3/8NPT	173714	LFMB-3/8-D-MIDI-NPT	3D	173715	LFMB-3/8-D-MIDI-A-NPT	3D	
	1/2NPT	173716	LFMB-1/2-D-MIDI-NPT	3D	173717	LFMB-1/2-D-MIDI-A-NPT	3D	
Maxi	3/4NPT	173720	LFMB-3/4-D-MAXI-NPT	3D	173721	LFMB-3/4-D-MAXI-A-NPT	3D	
	1NPT	173722	LFMB-1-D-MAXI-NPT	3D	173723	LFMB-1-D-MAXI-A-NPT	3D	
Basic Units, without Threaded Connecting Plates								
Mini	–	546440	LFMB-D-MINI-U	1D	546442	LFMB-D-MINI-A-U	1D	
Midi	–	546444	LFMB-D-MIDI-U	1D	546445	LFMB-D-MIDI-A-U	1D	
Maxi	–	546448	LFMB-D-MAXI-U	1D	546450	LFMB-D-MAXI-A-U	1D	

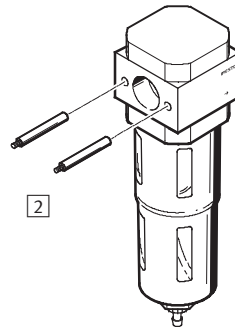
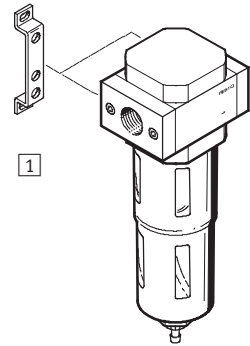
Ordering Data – Micro filters LFMA								
Grade of filtration 0.01 µm, metal bowl guard								
Size	Connection	Input pressure 15 ... 235 psi			LT	Input pressure 22 ... 176 psi		LT
		Condensate drain turned manually				Condensate drain fully automatic		
		Part No.	Type			Part No.	Type	
With threaded connecting plates								
Mini	1/8NPT	173724	LFMA-1/8-D-MINI-NPT	3D	173725	LFMA-1/8-D-MINI-A-NPT	3D	
	1/4NPT	173726	LFMA-1/4-D-MINI-NPT	3D	173727	LFMA-1/4-D-MINI-A-NPT	3D	
Midi	3/8NPT	173730	LFMA-3/8-D-MIDI-NPT	3D	173731	LFMA-3/8-D-MIDI-A-NPT	3D	
	1/2NPT	173732	LFMA-1/2-D-MIDI-NPT	3D	173733	LFMA-1/2-D-MIDI-A-NPT	3D	
Maxi	3/4NPT	173736	LFMA-3/4-D-MAXI-NPT	3D	173737	LFMA-3/4-D-MAXI-A-NPT	3D	
	1NPT	173738	LFMA-1-D-MAXI-NPT	3D	173739	LFMA-1-D-MAXI-A-NPT	3D	
Basic Units, without Threaded Connecting Plates								
Mini	–	546439	LFMA-D-MINI-U	1D	546441	LFMA-D-MINI-A-U	1D	
Midi	–	546443	LFMA-D-MIDI-U	1D	546446	LFMA-D-MIDI-A-U	1D	
Maxi	–	546447	LFMA-D-MAXI-U	1D	546449	LFMA-D-MAXI-A-U	1D	

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

### Accessories Overview

Individual device

Basic unit for manifold assembly



Mounting attachments and accessories	→ Page/Internet
1 Mounting bracket HFOE	209

Mounting attachments and accessories	→ Page/Internet
2 Threaded bolt FRB (must be ordered separately)	209



# Lubricators LOE – Inch Series

Technical Data



Materials  
 Housing: Die-cast zinc/aluminum  
 Seals: Nitrile rubber  
 Free of copper and PTFE



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 OFSW-32
- ARAL Vitam GF 32
- BP Energol HLP 32
- Esso Nuto H 32
- Mobil DTE 24
- Shell Tellus Oil DO 32

Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>				
Size	Mini		Midi		Maxi	
Pneumatic connection	1/8NPT	1/4NPT	3/8NPT	1/2NPT	3/4NPT	1NPT
Design	Proportional standard mist lubricator					
Type of mounting	Via accessories In-line installation					
Mounting position	Vertical ±5°					
Minimum flow for lubricator operation [scfm]	0.1		0.3		0.4	
Max. oil capacity [in <sup>3</sup> ]	2.7		6.7		11.6	
Length [in]	1.6		2.2		2.6	
Width [in]	1.6 (2.5) <sup>1)</sup>		2.2 (3.3) <sup>1)</sup>		2.6 (3.8) <sup>1)</sup>	2.6 (4.6) <sup>1)</sup>
Height [in]	6.7		8		9	

1) Value in brackets with connecting plates.

Standard Nominal Flow Rate <sup>1)</sup> qnN [scfm]						
Size	Mini		Midi		Maxi	
Pneumatic connection	1/8NPT	1/4NPT	3/8NPT	1/2NPT	3/4NPT	1NPT
Lubricator LOE	46	81	194	215	297	318

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

Operating Conditions	
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Operation with lubricated medium not possible
Supply pressure [psi]	0 ... 235
Ambient temperature [°F]	14 ... 140

# Lubricators LOE – Inch Series

Ordering Data, Accessories

Ordering Data				
Size	Connection	Part No.	Type	LT
Micro	1/8NPT	526311	LOE-N1/8-D-MICRO	3D
Mini	1/8NPT	173820	LOE-1/8-D-MINI-NPT	3D
	1/4NPT	173821	LOE-1/4-D-MINI-NPT	3D
Midi	3/8NPT	173823	LOE-3/8-D-MIDI-NPT	3D
	1/2NPT	173824	LOE-1/2-D-MIDI-NPT	3D
Maxi	3/4NPT	173826	LOE-3/4-D-MAXI-NPT	3D
	1NPT	173827	LOE-1-D-MAXI-NPT	3D

Ordering Data – Basic Units, without Threaded Connecting Plates				
Size	Connection	Part No.	Type	LT
Mini	–	546431	LOE-D-MINI-U	1D
Midi	–	546427	LOE-D-MIDI-U	1D
Maxi	–	546517	LOE-D-MAXI-U	1D

LT = Lead time

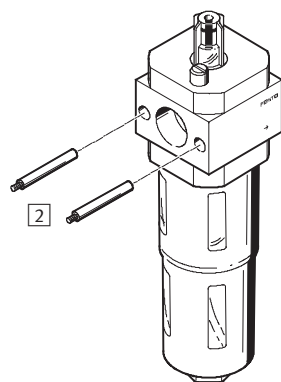
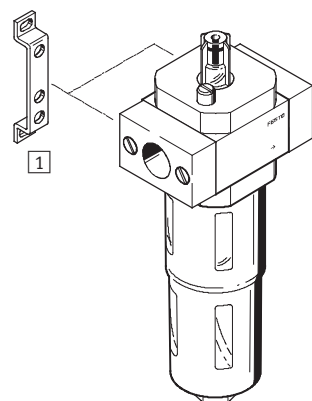
1D typically ships same day/next day

3D typically ships within 3 days

## Accessories Overview

Individual device

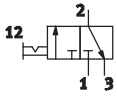
Basic unit for manifold assembly



Mounting attachments and accessories		→ Page/Internet
1	Mounting bracket HFOE	209
2	Threaded bolt FRB (must be ordered separately)	209

# Manual On-off Valves HE – Inch Series

Technical Data



Materials  
 Housing: Die-cast aluminum  
 Seals: Nitrile rubber  
 Free of copper and PTFE



Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>				
Size	Mini		Midi		Maxi	
Pneumatic connection	1/8NPT	1/4NPT	3/8NPT	1/2NPT	3/4NPT	1NPT
Design	Piston spool					
Type of mounting	Via accessories In-line installation					
Mounting position	Any					
Valve function	3/2-way					
Exhaust port	G1/8		G1/4		G3/8	
Reset method	Mechanical spring					
Direction of flow	Non-reversible					
Length [in]	1.6		2.2		2.6	
Width [in]	1.6 (2.5) <sup>1)</sup>		2.2 (3.3) <sup>1)</sup>		2.6 (3.8) <sup>1)</sup> 2.6 (4.6) <sup>1)</sup>	
Height [in]	3.9		4.8		5.3	

1) Value in brackets with connecting plates.

Standard Nominal Flow Rate <sup>1)</sup> qnN [scfm]						
Size	Mini		Midi		Maxi	
Pneumatic connection	1/8NPT	1/4NPT	3/8NPT	1/2NPT	3/4NPT	1NPT
On-off valve HE	35	53	113	127	212	229

1) Measured at p1 = 88 psi and Δp = 15 psi

Operating Conditions	
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)
Operating pressure [psi]	0 ... 235
Ambient temperature [°F]	14 ... 140

# Manual On-off Valves HE – Inch Series

Ordering Data, Accessories

Ordering Data				
3/2-way valve, operating pressure 0 ... 235 psi, normally closed				
Size	Connection	Part No.	Type	LT
With threaded connecting plates				
Mini	1/8NPT	173892	HE-1/8-D-MINI-NPT	3D
	1/4NPT	173893	HE-1/4-D-MINI-NPT	3D
Midi	3/8NPT	173895	HE-3/8-D-MIDI-NPT	3D
	1/2NPT	173896	HE-1/2-D-MIDI-NPT	3D
Maxi	3/4NPT	173898	HE-3/4-D-MAXI-NPT	3D
	1NPT	173899	HE-1-D-MAXI-NPT	3D
Basic Unit, without threaded connecting plates				
Mini	–	170681	HE-D-MINI	1D
Midi	–	170682	HE-D-MIDI	1D
Maxi	–	170683	HE-D-MAXI	1D

LT = Lead time

1D typically ships same day/next day

3D typically ships within 3 days

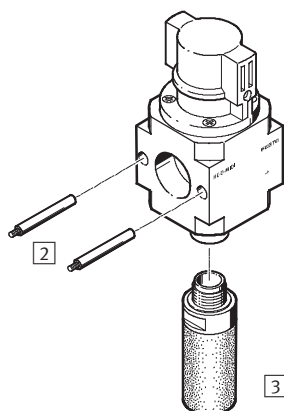
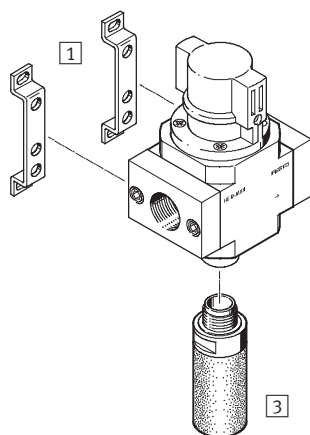
## Accessories Overview

Individual device

Basic unit for manifold assembly

Mounting attachments and accessories

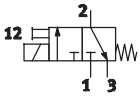
→ Page/Internet



1	Mounting bracket HFOE	209
2	Threaded bolt FRB (included in scope of delivery)	209
3	Silencer U	210

# Electric On-off valves HEE – Inch Series

Technical Data



Materials  
 Housing: Die-cast aluminum  
 Seals: Nitrile rubber  
 Free of copper and PTFE



Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>				
Size	Mini		Midi		Maxi	
Pneumatic connection	1/8NPT	1/4NPT	3/8NPT	1/2NPT	3/4NPT	1NPT
Design	Piston spool					
Type of mounting	Via accessories In-line installation					
Mounting position	Any					
Valve function	3/2-way, single solenoid					
Exhaust port	G1/8		G1/4		G3/8	
Reset method	Mechanical spring					
Direction of flow	Non-reversible					
Operating voltage	[V DC]	24				
	[V AC]	110				
Length	[in]	1.6	2.2		2.6	
Width	[in]	1.6 (2.5) <sup>1)</sup>	2.2 (3.3) <sup>1)</sup>		2.6 (3.8) <sup>1)</sup>	2.6 (4.6) <sup>1)</sup>
Height	[in]	4.1	4.8		5.3	

1) Value in brackets with connecting plates.

Standard Nominal Flow Rate <sup>1)</sup> qnN [scfm]						
Size	Mini		Midi		Maxi	
Pneumatic connection	1/8NPT	1/4NPT	3/8NPT	1/2NPT	3/4NPT	1NPT
On-off valve HE	35	53	113	127	212	229

1) Measured at p1 = 88 psi and Δp = 15 psi

Operating Conditions	
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)
Operating pressure	[psi] 37 ... 235
Ambient temperature	[°F] 14 ... 140

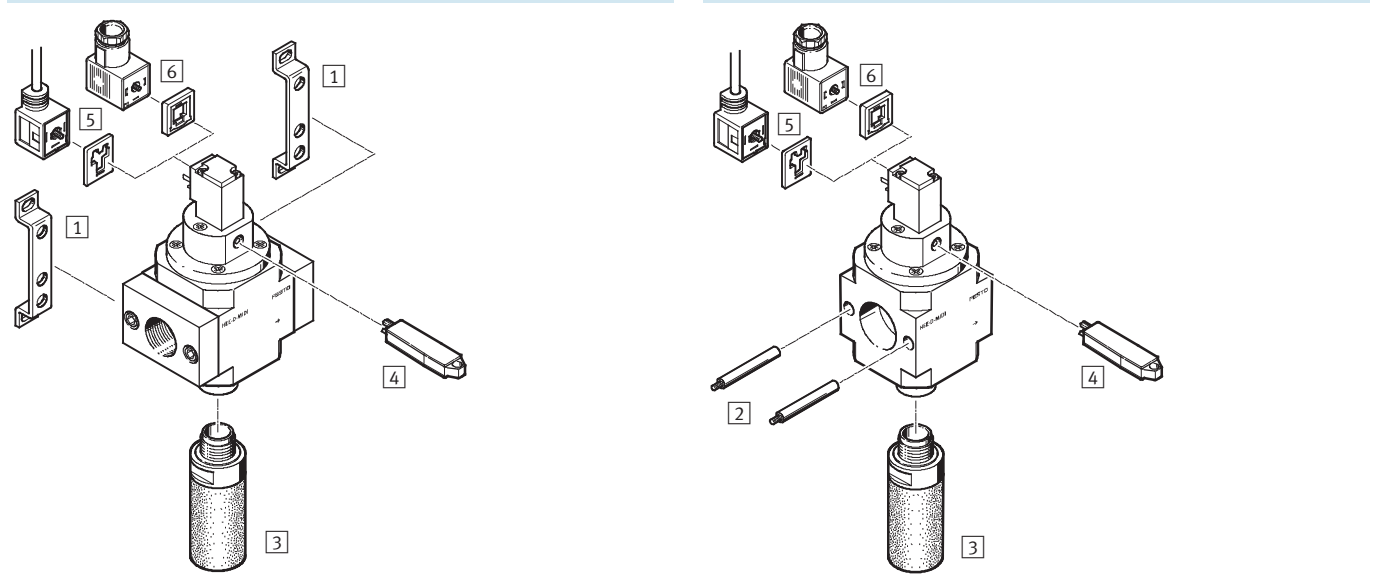
# Electric On-off valves HEE – Inch Series

Ordering Data, Accessories

Ordering Data							
3/2-way valve, operating pressure 37 ... 235 psi, normally closed							
Size	Connection	24 V DC		LT	110 V AC		LT
		Part No.	Type		Part No.	Type	
With threaded connecting plates							
Mini	1/8NPT	173900	HEE-1/8-D-MINI-24-NPT	3D	173901	HEE-1/8-D-MINI-110-NPT	3D
	1/4NPT	173902	HEE-1/4-D-MINI-24-NPT	3D	173903	HEE-1/4-D-MINI-110-NPT	3D
Midi	3/8NPT	173906	HEE-3/8-D-MIDI-24-NPT	3D	173907	HEE-3/8-D-MIDI-110-NPT	3D
	1/2NPT	173908	HEE-1/2-D-MIDI-24-NPT	3D	173909	HEE-1/2-D-MIDI-110-NPT	3D
Maxi	3/4NPT	173912	HEE-3/4-D-MAXI-24-NPT	3D	173913	HEE-3/4-D-MAXI-110-NPT	3D
	1NPT	173914	HEE-1-D-MAXI-24-NPT	3D	173915	HEE-1-D-MAXI-110-NPT	3D
Without threaded connecting plates							
Mini	–	172956	HEE-D-MINI-24	1D	172957	HEE-D-MINI-110	1D
Midi	–	172959	HEE-D-MIDI-24	1D	172960	HEE-D-MIDI-110	1D
Maxi	–	172962	HEE-D-MAXI-24	1D	172963	HEE-D-MAXI-110	1D

LT = Lead time                      1D typically ships same day/next day                      3D typically ships within 3 days

## Accessories Overview

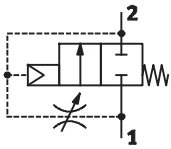


Mounting attachments and accessories	→ Page/Internet
1 Mounting bracket HFOE	209
3 Silencer U	210
4 Non-detenting manual override tool AHB-MD/MF/MY	210
5 Plug socket with cable KMEB	kmeb
6 Plug socket MSSD-EB	mssd-eb

Mounting attachments and accessories	→ Page/Internet
2 Threaded bolt FRB (included in scope of delivery)	209
3 Silencer U	210
4 Non-detenting manual override tool AHB-MD/MF/MY	210
5 Plug socket with cable KMEB	kmeb
6 Plug socket MSSD-EB	mssd-eb

# Soft-start Valves HEL – Inch Series

Technical Data



Materials  
 Housing: Die-cast aluminum  
 Seals: Nitrile rubber  
 Free of copper and PTFE



Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>				
Size	Mini		Midi		Maxi	
Pneumatic connection	1/8NPT	1/4NPT	3/8NPT	1/2NPT	3/4NPT	1NPT
Design	Piston spool					
Type of mounting	Via accessories In-line installation					
Mounting position	Any					
Valve function	2/2-way, closed, air operated, adjustable					
Reset method	Mechanical spring					
Actuation method	Direct					
Direction of flow	Non-reversible					
Length [in]	1.6		2.2		2.6	
Width [in]	1.6 (2.5) <sup>1)</sup>		2.2 (3.3) <sup>1)</sup>		2.6 (3.8) <sup>1)</sup> 2.6 (4.6) <sup>1)</sup>	
Height [in]	2.6		3		3.5	

1) Value in brackets with connecting plates.

Standard Nominal Flow Rate <sup>1)</sup> qnN [scfm]						
Size	Mini		Midi		Maxi	
Pneumatic connection	1/8NPT	1/4NPT	3/8NPT	1/2NPT	3/4NPT	1NPT
On-off valve HE	35	53	113	127	212	229

1) Measured at p<sub>1</sub> = 88 psi and Δp = 15 psi

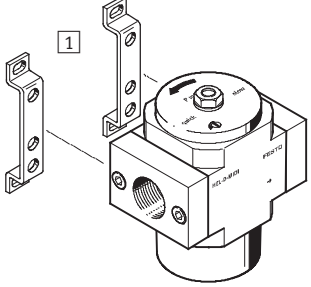
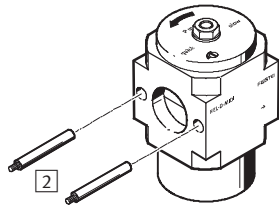
Operating Conditions	
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)
Operating pressure [psi]	44 ... 235
Ambient temperature [°F]	14 ... 140

# Soft-start Valves HEL – Inch Series

Ordering Data, Accessories

Ordering Data				
Gradual pressure build-up, 2/2-way valve, normally closed, operating pressure 44 ... 235 psi				
Size	Connection	Part No.	Type	LT
With threaded connecting plates				
Mini	1/8NPT	173916	HEL-1/8-D-MINI-NPT	3D
	1/4NPT	173917	HEL-1/4-D-MINI-NPT	3D
Midi	3/8NPT	173919	HEL-3/8-D-MIDI-NPT	3D
	1/2NPT	173920	HEL-1/2-D-MIDI-NPT	3D
Maxi	3/4NPT	173922	HEL-3/4-D-MAXI-NPT	3D
	1NPT	173923	HEL-1-D-MAXI-NPT	3D
Basic Unit, without threaded connecting plates				
Mini	–	170690	HEL-D-MINI	1D
Midi	–	170691	HEL-D-MIDI	1D
Maxi	–	170692	HEL-D-MAXI	1D

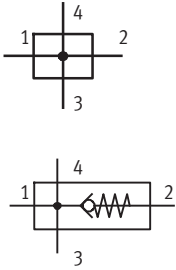
LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

Accessories Overview			
Individual device	Basic unit for manifold assembly	Mounting attachments and accessories	→ Page/Internet
		1 Mounting bracket HFOE	209
		2 Threaded bolt FRB (included in scope of delivery)	209



# Branching Modules FRM/FRZ – Inch Series

Technical Data



Materials  
 Housing: Die-cast zinc  
 Seals: Nitrile rubber, polyvinyl chloride  
 Free of copper and PTFE



Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>					
Size	Micro	Mini	Midi	Maxi			
Pneumatic connection 1, 2 <sup>1)</sup>	1/8NPT	1/8NPT	1/4NPT	3/8NPT	1/2NPT	3/4NPT	1NPT
Pneumatic connection 3	1/8NPT	1/4NPT		1/2NPT		3/4NPT	
Pneumatic connection 4	10/32 UNF	1/4NPT					
Design	Branching module						
Type of mounting	With accessories In-line installation						
Mounting position	Any						
Length [in]	1	1.6	2.2	2.6			
Width [in]	1	1.6 (2.5) <sup>2)</sup>	2.2 (3.3) <sup>2)</sup>	2.6 (3.8) <sup>2)</sup>		2.6 (4.6) <sup>2)</sup>	
Height [in]	1.2	1.9	2.6	3.1			

- 1) With connecting plates.
- 2) Value in brackets with connecting plates.

Standard Nominal Flow Rate <sup>1)</sup> qnN [scfm]								
Connection		Basic Unit Without		With connecting plates				
		Connecting Plates		1/8NPT	1/4NPT	3/8NPT	1/2NPT	3/4NPT
Standard								
In main flow direction	Micro	7.4	–	–	–	–	–	–
	Mini	117	53	117	–	–	–	–
	Midi	290	–	–	247	290	–	–
	Maxi	706	–	–	–	–	706	614
With non-return function								
In main flow direction	Mini	71	46	71	–	–	–	–
	Midi	198	–	–	194	198	–	–
	Maxi	530	–	–	–	–	530	473

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

Operating Conditions				
Size	Micro	Mini	Midi	Maxi
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:--:-]			
Ambient temperature [°F]	14 ... 140			
Operating pressure [psi]				
Standard	0 ... 235			
With non-return function	–	2.2 ... 235	2.9 ... 235	3.7 ... 235

# Branching Modules FRM/FRZ – Inch Series

Ordering Data, Accessories

Ordering Data – With Connecting Plates				
Size	Port	With integrated non-return function		LT
		Part No.	Type	
Mini	1/8NPT	173932	FRM-H-1/8-D-MINI-NPT	3D
	1/4NPT	173933	FRM-H-1/4-D-MINI-NPT	3D
Midi	3/8NPT	173935	FRM-H-3/8-D-MIDI-NPT	3D
	1/2NPT	173936	FRM-H-1/2-D-MIDI-NPT	3D
Maxi	3/4NPT	173938	FRM-H-3/4-D-MAXI-NPT	3D
	1NPT	173939	FRM-H-1-D-MAXI-NPT	3D

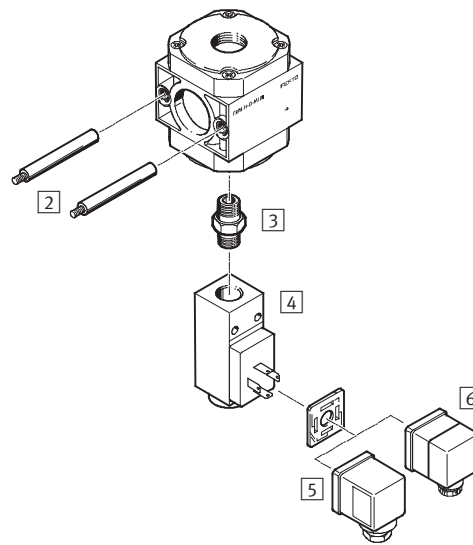
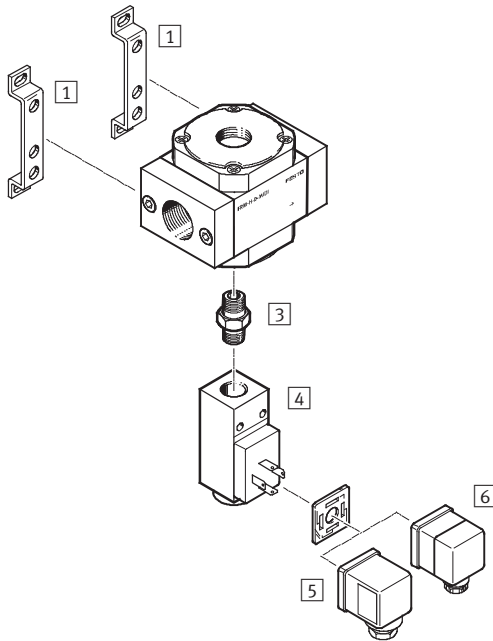
Ordering Data – Basic Unit Without Connecting Plates						
Size	Standard		LT	With integrated non-return function		LT
	Part No.	Type		Part No.	Type	
Micro	526315	FRZ-D-MICRO-NPT	1D	–	–	
Mini	170684	FRM-D-MINI	1D	170687	FRM-H-D-MINI	1D
Midi	170685	FRM-D-MIDI	1D	170688	FRM-H-D-MIDI	1D
Maxi	170686	FRM-D-MAXI	1D	170689	FRM-H-D-MAXI	1D

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview

Individual device

Basic unit for manifold assembly



Mounting attachments and accessories	→ Page/Internet
1 Mounting bracket HFOE	209
3 Double nipple ESK	esk
4 Pressure switch PEV	209
5 Plug socket MSSD-C	mssd-c
6 Angled plug socket PEV-...-WD-LED	pev

Mounting attachments and accessories	→ Page/Internet
2 Threaded bolt FRB (included in scope of delivery)	frb
3 Double nipple ESK	esk
4 Pressure switch PEV	209
5 Plug socket MSSD-C	mssd-c
6 Angled plug socket PEV-...-WD-LED	pev

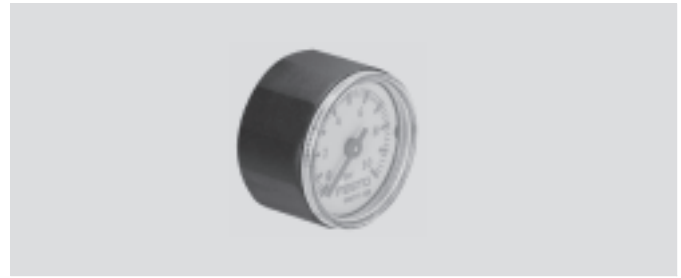
# Pressure Gauges MA

Technical Data, Ordering Data

FESTO



Materials  
 Housing:  
 MA-23: Brass  
 MA-27/40/50: Acrylic butadiene styrene/plastic  
 MA-63: Steel  
 Dial cover: Polystyrene/plastic  
 Threaded plug: Brass



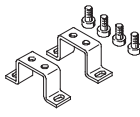
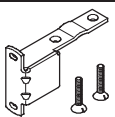
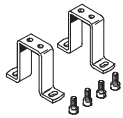
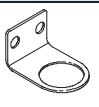
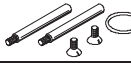

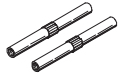


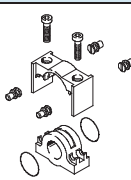

Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>	
Nominal size	27	40	50
Pneumatic connection	M5	G1/8	G1/4
Operating medium	Liquid and gaseous media		
	Not permitted: Oxygen, Acetylene		
Constructional design	Bourdon tube pressure gauge		
Type of mounting	Screw-in		
Connection position	Rear side, center		
Ambient temperature	[°F]	32 ... 140	-4 ... +140
	[°C]	0 ... +60	-20 ... +60
Measurement accuracy class	4	2.5	
Continuous load factor	0.75		
Intermittent load factor	0.66		
Protection class	IP43		

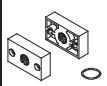
Ordering Data							
Nominal size	For D Series service units	Pneumatic connection	Indicating range		Part No.	Type	LT
			[bar]	[psi]			
27	MICRO	M5	0 ... 10	–	<b>526323</b>	<b>MA-27-10-M5</b>	1D
			–	0 ... 160	<b>527405</b>	<b>MA-27-160-M5-PSI</b>	1D
40	MINI	G1/8	0 ... 10	0 ... 145	<b>359874</b>	<b>MA-40-10-1/8</b>	1D
			0 ... 16	0 ... 240	<b>345395</b>	<b>MA-40-16-1/8</b>	1D
50	MIDI/MAXI	G1/4	0 ... 10	0 ... 160	<b>359873</b>	<b>MA-50-10-1/4</b>	1D
			0 ... 16	0 ... 240	<b>356759</b>	<b>MA-50-16-1/4</b>	1D

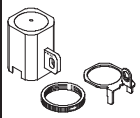
LT = Lead time      **1D** typically ships same day/next day      **3D** typically ships within 3 days

# Accessories – Inch Series

Ordering Data

Ordering Data – Mounting attachments			
Designation	Size	Part No.	Order code
<b>Mounting bracket HFOE</b>			
	Micro	526317	HFOE-D-MICRO
	Mini	159638	HFOE-D-MINI
	Midi/Maxi	159593	HFOE-D-MIDI/MAXI
<b>Mounting bracket HRBK</b>			
	Mini	525031	HRBK-D-MINI
	Midi	525032	HRBK-D-MIDI
<b>Mounting bracket HRB</b>			
	Mini	525029	HRB-D-MINI
	Midi	525030	HRB-D-MIDI
<b>Mounting bracket HR-D</b>			
	Micro	526316	HRS-D-MICRO
	Mini	164936	HR-D-MINI
	Midi	162804	HR-D-MIDI
	Maxi	162805	HR-D-MAXI
<b>Threaded bolt FRB</b>			
	Micro	526817	FRB-D-MICRO
	Mini	546481	FRB-D-MINI-U
	Midi	546480	FRB-D-MIDI-U
	Maxi	546476	FRB-D-MAXI-U
<b>Threaded bolt LF/LOE</b>			
	Mini	546483	LF/LOE-D-MINI
	Midi	546489	LF/LOE-D-MIDI
	Maxi	546494	LF/LOE-D-MAXI
<b>Metric socket head screws</b>			
	Mini	562472	DIN 912-M4X16-8.8
	Midi	562475	DIN 912-M5X18-8.8
	Maxi	562473	DIN 912-M5X20-8.8
<b>Hex nut HMR</b>			
	Micro	526816	HMR-D-MICRO
<b>Connecting kit HRBC</b>			
	Mini	529022	HRBC-D-MINI
	Midi	529023	HRBC-D-MIDI
<b>Sealings</b>			
	Mini	546478	O-12,42X1,78-N-NBR70
	Midi	546474	O-26X2-N-NBR75
	Maxi	546477	LR/LF/LFR/LOE/FRC-D-MAXI

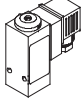
Ordering Data – Connecting plates					
Designation	Size	Connec- tion	Position	Part No.	Order code
<b>Connecting plates PBL</b>					
	Micro	1/8 NPT	Either	526319	PBL-N1/8-D-MICRO
	Mini	1/8 NPT	Left	546520	PBL-1/8-D-MINI-L-NPT
			Right	546521	PBL-1/8-D-MINI-R-NPT
		1/4 NPT	Left	546522	PBL-1/4-D-MINI-L-NPT
			Right	546523	PBL-1/4-D-MINI-R-NPT
		3/8 NPT	Left	546524	PBL-3/8-D-MINI-L-NPT
			Right	546525	PBL-3/8-D-MINI-R-NPT
	Midi	3/8 NPT	Left	546530	PBL-3/8-D-MIDI-L-NPT
			Right	546531	PBL-3/8-D-MIDI-R-NPT
		1/2 NPT	Left	546526	PBL-1/2-D-MIDI-L-NPT
			Right	546527	PBL-1/2-D-MIDI-R-NPT
		3/4 NPT	Left	546528	PBL-3/4-D-MIDI-L-NPT
			Right	546529	PBL-3/4-D-MIDI-R-NPT
	Maxi	3/4 NPT	Left	546490	PBL-3/4-D-MAXI-NPT-L
			Right	546492	PBL-3/4-D-MAXI-NPT-R
1 NPT		Left	546491	PBL-1-D-MAXI-NPT-L	
		Right	546493	PBL-1-D-MAXI-NPT-R	


Ordering Data – Safety components			
Designation	Size	Part No.	Order code
<b>Regulator lock LRVS</b>			
	Mini	193781	LRVS-D-MINI
	Midi	193782	LRVS-D-MIDI
	Maxi	193783	LRVS-D-MAXI


Lead Time LT for all products on this page: 1D typically ships same day/next day



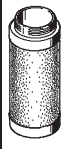
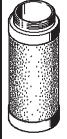
# Accessories – Inch Series

Ordering Data

Ordering Data – Sensors			
Designation	Connection	Part No.	Order code
Pressure switch PEV <span style="float: right;">Technical Data → 150</span>			
	G $\frac{1}{4}$	10773	PEV- $\frac{1}{4}$ -B

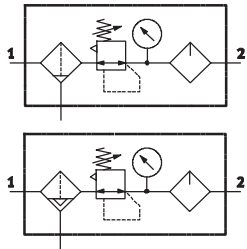
Ordering Data – Connecting Cables NEBU			
Technical data → Internet: nebu			
	Number of wires	Cable length [m]	Part No. Type
M8x1, straight socket			
	3	2.5	541333 NEBU-M8G3-K-2.5-LE3
	4	2.5	541342 NEBU-M8G4-K-2.5-LE4

Ordering Data – Accessories			
Designation	Description	Part No.	Order code
Silencer U <span style="float: right;">Technical Data → 257</span>			
	G $\frac{1}{8}$	6841	U- $\frac{1}{8}$ -B
	G $\frac{1}{4}$	6842	U- $\frac{1}{4}$ -B
	G $\frac{3}{8}$	6844	U- $\frac{3}{8}$ -B

Ordering Data – Filter cartridges			
Designation	Size	Part No.	Order code
Grade of filtration 40 µm			
	Mini	546487	LFP-D-MINI-40M-U
	Midi	546488	LFP-D-MIDI-40M-U
	Maxi	546486	LFP-D-MAXI-40M-U
Grade of filtration 5 µm			
	Micro	526818	LFP-D-MICRO-5M
	Mini	159640	LFP-D-MINI-5M
	Midi	159594	LFP-D-MIDI-5M
	Maxi	159641	LFP-D-MAXI-5M
Grade of filtration 1 µm			
	Mini	162677	MS4/D-MINI-LFM-B
	Midi	162678	LFMBP-D-MIDI
	Maxi	162679	LFMBP-D-MAXI
Grade of filtration 0.01 µm			
	Mini	162674	MS4/D-MINI-LFM-A
	Midi	162675	LFMAP-D-MIDI
	Maxi	162676	LFMAP-D-MAXI

# Service Units FRC – Metric Series

Technical Data



**Materials**  
 Housing: Die-cast zinc  
 Bowl: Polycarbonate  
 Seals: Nitrile rubber  
 Free of copper and PTFE



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 104 °F

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

Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>					
Size	Mini		Midi		Maxi		
Pneumatic connection	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1	
Design	Filter regulator						
	Proportional standard mist lubricator						
Type of mounting	Via accessories						
	In-line installation						
Mounting position	Vertical $\pm 5^\circ$						
Grade of filtration [µm]	40 (air purity class at the output: compressed air in accordance with ISO 8573-1:2010 [7:8:-])						
Pressure regulation range [bar]	0.5 ... 7						
	0.5 ... 12						
Pressure indication	With pressure gauge						
Length [mm]	76		95		107		
Width [mm]	80 (104) <sup>1)</sup>		110 (140) <sup>1)</sup>		130 (162) <sup>1)</sup> 132 (182) <sup>1)</sup>		
Height [mm]	212		269		271		

1) Value in brackets with connecting plates.

Standard Nominal Flow Rate <sup>1)</sup> q <sub>N</sub> [l/min]							
Size	Mini		Midi		Maxi		
Pneumatic connection	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1	
Pressure regulation range 0.5 ... 7 bar							
Grade of filtration 40 µm	800	1,300	2,000	2,800	8,500	8,700	
Pressure regulation range 0.5 ... 12 bar							
Grade of filtration 40 µm	700	1 000	2 000	2 600	8 300	8 500	

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.

Operating Conditions		
Condensate drain	Manual rotary	Fully automatic
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [--:9:-]	
	Inert gases	
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)	
Supply pressure [bar]	1 ... 16 2 ... 12	
Ambient temperature [°C]	-10 ... +60	

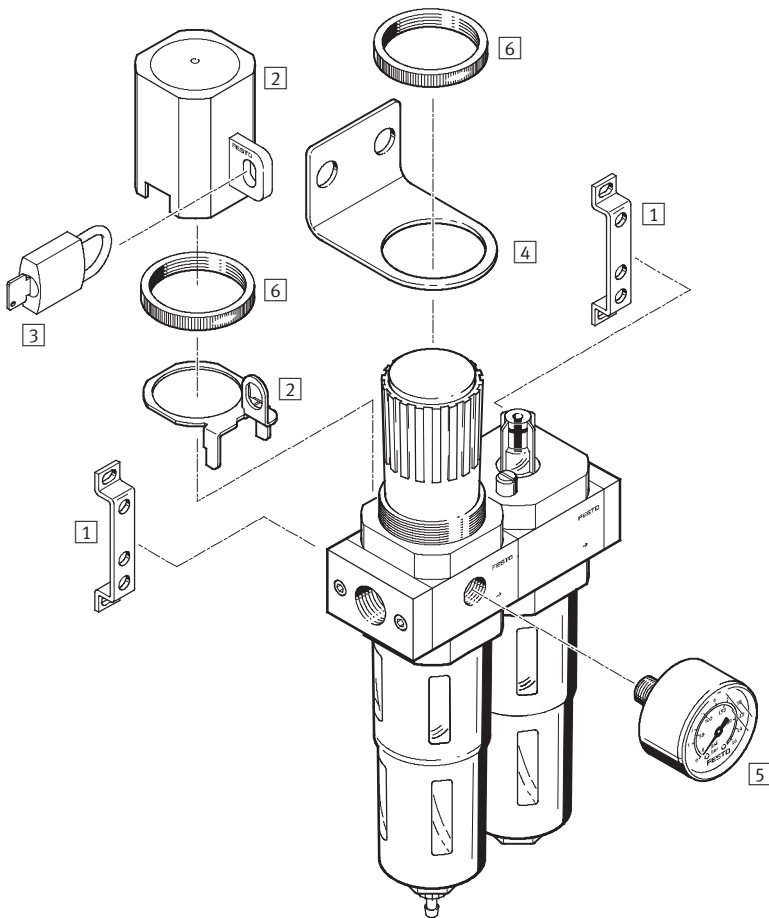
# Service Units FRC – Metric Series

Ordering Data, Accessories

Ordering Data									
Condensate drain	Size	Connection	Pressure regulation range 0.5 ... 7 bar			LT	Pressure regulation range 0.5 ... 12 bar		
			Part No.	Type			Part No.	Type	LT
Turned manually	Mini	G $\frac{1}{8}$	162754	FRC- $\frac{1}{8}$ -D-7-MINI		3D	159604	FRC- $\frac{1}{8}$ -D-MINI	3D
		G $\frac{1}{4}$	162755	FRC- $\frac{1}{4}$ -D-7-MINI		3D	159605	FRC- $\frac{1}{4}$ -D-MINI	3D
	Midi	G $\frac{3}{8}$	162757	FRC- $\frac{3}{8}$ -D-7-MIDI		3D	159588	FRC- $\frac{3}{8}$ -D-MIDI	3D
		G $\frac{1}{2}$	162758	FRC- $\frac{1}{2}$ -D-7-MIDI		3D	159590	FRC- $\frac{1}{2}$ -D-MIDI	3D
	Maxi	G $\frac{3}{4}$	162760	FRC- $\frac{3}{4}$ -D-7-MAXI		3D	159606	FRC- $\frac{3}{4}$ -D-MAXI	3D
		G1	162761	FRC-1-D-7-MAXI		3D	159607	FRC-1-D-MAXI	3D
Fully automatic	Mini	G $\frac{1}{8}$	162762	FRC- $\frac{1}{8}$ -D-7-MINI-A		3D	159608	FRC- $\frac{1}{8}$ -D-MINI-A	3D
		G $\frac{1}{4}$	162763	FRC- $\frac{1}{4}$ -D-7-MINI-A		3D	159609	FRC- $\frac{1}{4}$ -D-MINI-A	3D
	Midi	G $\frac{3}{8}$	162765	FRC- $\frac{3}{8}$ -D-7-MIDI-A		3D	159589	FRC- $\frac{3}{8}$ -D-MIDI-A	3D
		G $\frac{1}{2}$	162766	FRC- $\frac{1}{2}$ -D-7-MIDI-A		3D	159591	FRC- $\frac{1}{2}$ -D-MIDI-A	3D
	Maxi	G $\frac{3}{4}$	162768	FRC- $\frac{3}{4}$ -D-7-MAXI-A		3D	159610	FRC- $\frac{3}{4}$ -D-MAXI-A	3D
		G1	162769	FRC-1-D-7-MAXI-A		3D	159611	FRC-1-D-MAXI-A	3D

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview

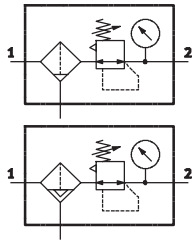


Mounting attachments and accessories	→ Page/Internet
1 Mounting bracket HFOE	235
2 Regulator lock LRVS	235
3 Padlock LRVS-D	lrvs-d

Mounting attachments and accessories	→ Page/Internet
4 Mounting bracket HR-D	235
5 Pressure gauge MA (included in scope of delivery)	208
6 Knurled nut HMR (included in scope of delivery)	hmr

# Filter Regulators LFR – Metric Series

Technical Data



Materials  
 Housing: Die-cast zinc  
 Bowl: Polycarbonate  
 Seals: Nitrile rubber  
 Free of copper and PTFE



Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>						
Size	Micro	Mini		Midi		Maxi		
Pneumatic connection	M5	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1
Design	Filter regulator with pressure gauge							
	–		Filter regulator without pressure gauge					
Type of mounting	Via accessories							
	In-line installation							
	Front panel mounting							
Mounting position	Vertical $\pm 5^\circ$							
Grade of filtration [µm]	5		5 or 40					
Pressure regulation range [bar]	0,5 ... 7							
	–		0,5 ... 12					
Pressure indication	Via pressure gauge							
Length [mm]	50		76		95		107	
Width [mm]	25	45	40 (64) <sup>1)</sup>		55 (85) <sup>1)</sup>		66 (96) <sup>1)</sup>	66 (116) <sup>1)</sup>
Height [mm]	120		212		269		271	

1) Value in brackets with connecting plates.

Standard Nominal Flow Rate <sup>1)</sup> qnN [l/min]									
Size	Micro		Mini		Midi		Maxi		
Pneumatic connection	M5	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1	
Pressure regulation range 0.5 ... 7 bar									
Grade of filtration	5 µm	110	410	–	–	–	–	–	–
	40 µm	–	–	900	1,500	3,200	3,900	10,000	11,000
Pressure regulation range 0.5 ... 12 bar									
Grade of filtration	5 µm	–	–	650	1,200	2,400	2,600	7,600	8,000
	40 µm	–	–	750	1,400	3,100	3,400	9,700	10,000

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

Operating Conditions			
Size	Micro		Mini / Midi / Maxi
Condensate drain	Manual rotary		Manual rotary / Fully automatic
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [–:–:–]		
Supply pressure [bar]	1 ... 10		1 ... 16 / 2 ... 12
Ambient temperature [°C]	–10 ... +60		–10 ... +60



# Filter Regulators LFR – Metric Series

Ordering Data

Ordering Data – Filtration Grade 5µm								
Condensate drain	Size	Connection	Pressure regulation range 0.5 ... 7 bar		LT	Pressure regulation range 0.5 ... 12 bar		LT
			Part No.	Type		Part No.	Type	
Directly actuated diaphragm regulator								
Turned manually	Micro	M5	526273	LFR-M5-D-7-5M-MICRO	1D	–	–	
		G $\frac{1}{8}$	526277	LFR- $\frac{1}{8}$ -D-7-5M-MICRO	1D	–	–	
Semi-automatic	Micro	M5	526274	LFR-M5-D-7-5M-MICRO-H	1D	–	–	
		G $\frac{1}{8}$	526278	LFR- $\frac{1}{8}$ -D-7-5M-MICRO-H	1D	–	–	
Directly actuated diaphragm regulator with integrated return flow function								
Turned manually	Maxi	G $\frac{1}{2}$	192370	LFR- $\frac{1}{2}$ -D-5M-DI-MAXI	3D	–	–	
		G $\frac{3}{4}$	192376	LFR- $\frac{3}{4}$ -D-5M-DI-MAXI	3D	–	–	
		G1	192382	LFR-1-D-5M-DI-MAXI	3D	–	–	
Fully automatic	Maxi	G $\frac{1}{2}$	192388	LFR- $\frac{1}{2}$ -D-5M-DI-MAXI-A	3D	–	–	
		G $\frac{3}{4}$	192394	LFR- $\frac{3}{4}$ -D-5M-DI-MAXI-A	3D	–	–	
		G1	192400	LFR-1-D-5M-DI-MAXI-A	3D	–	–	

Ordering Data – Filtration Grade 40µm								
Condensate drain	Size	Connection	Pressure regulation range 0.5 ... 7 bar		LT	Pressure regulation range 0.5 ... 12 bar		LT
			Part No.	Type		Part No.	Type	
Directly actuated diaphragm regulator								
Turned manually	Mini	G $\frac{1}{8}$	162702	LFR- $\frac{1}{8}$ -D-7-MINI	3D	159630	LFR- $\frac{1}{8}$ -D-MINI	3D
		G $\frac{1}{4}$	162703	LFR- $\frac{1}{4}$ -D-7-MINI	3D	159631	LFR- $\frac{1}{4}$ -D-MINI	3D
	Midi	G $\frac{3}{8}$	162705	LFR- $\frac{3}{8}$ -D-7-MIDI	3D	159582	LFR- $\frac{3}{8}$ -D-MIDI	3D
		G $\frac{1}{2}$	162706	LFR- $\frac{1}{2}$ -D-7-MIDI	3D	159584	LFR- $\frac{1}{2}$ -D-MIDI	3D
	Maxi	G $\frac{3}{4}$	162708	LFR- $\frac{3}{4}$ -D-7-MAXI	3D	159632	LFR- $\frac{3}{4}$ -D-MAXI	3D
		G1	162709	LFR-1-D-7-MAXI	3D	159633	LFR-1-D-MAXI	3D
Fully automatic	Mini	G $\frac{1}{8}$	162710	LFR- $\frac{1}{8}$ -D-7-MINI-A	3D	159634	LFR- $\frac{1}{8}$ -D-MINI-A	3D
		G $\frac{1}{4}$	162711	LFR- $\frac{1}{4}$ -D-7-MINI-A	3D	159635	LFR- $\frac{1}{4}$ -D-MINI-A	3D
	Midi	G $\frac{3}{8}$	162713	LFR- $\frac{3}{8}$ -D-7-MIDI-A	3D	159583	LFR- $\frac{3}{8}$ -D-MIDI-A	3D
		G $\frac{1}{2}$	162714	LFR- $\frac{1}{2}$ -D-7-MIDI-A	3D	159585	LFR- $\frac{1}{2}$ -D-MIDI-A	3D
	Maxi	G $\frac{3}{4}$	162716	LFR- $\frac{3}{4}$ -D-7-MAXI-A	3D	159636	LFR- $\frac{3}{4}$ -D-MAXI-A	3D
		G1	162717	LFR-1-D-7-MAXI-A	3D	159637	LFR-1-D-MAXI-A	3D
Directly actuated diaphragm regulator with integrated return flow function								
Turned manually	Maxi	G $\frac{1}{2}$	192372	LFR- $\frac{1}{2}$ -D-7-DI-MAXI	3D	192368	LFR- $\frac{1}{2}$ -D-DI-MAXI	3D
		G $\frac{3}{4}$	192378	LFR- $\frac{3}{4}$ -D-7-DI-MAXI	3D	192374	LFR- $\frac{3}{4}$ -D-DI-MAXI	3D
		G1	192384	LFR-1-D-7-DI-MAXI	3D	192380	LFR-1-D-DI-MAXI	3D
Fully automatic	Maxi	G $\frac{1}{2}$	192390	LFR- $\frac{1}{2}$ -D-7-DI-MAXI-A	3D	192386	LFR- $\frac{1}{2}$ -D-DI-MAXI-A	3D
		G $\frac{3}{4}$	192396	LFR- $\frac{3}{4}$ -D-7-DI-MAXI-A	3D	192392	LFR- $\frac{3}{4}$ -D-DI-MAXI-A	3D
		G1	192402	LFR-1-D-7-DI-MAXI-A	3D	192398	LFR-1-D-DI-MAXI-A	3D

Ordering Data – Basic Units without Threaded Connecting Plates, Filtration Grade 5µm								
Condensate drain	Size	Connection	Pressure regulation range 7.5 ... 103 psi		LT	Pressure regulation range 7.5 ... 176 psi		LT
			Part No.	Type		Part No.	Type	
Basic Unit without pressure gauge								
Turned manually	Mini	–	546454	LFR-D-5M-MINI	1D	–	–	
	Midi	–	546455	LFR-D-5M-MIDI	1D	–	–	
	Maxi	–	546461	LFR-D-5M-MAXI	1D	–	–	
Fully automatic	Mini	–	546462	LFR-D-5M-MINI-A	1D	–	–	
	Midi	–	546468	LFR-D-5M-MIDI-A	1D	–	–	
	Maxi	–	546469	LFR-D-5M-MAXI-A	1D	–	–	

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

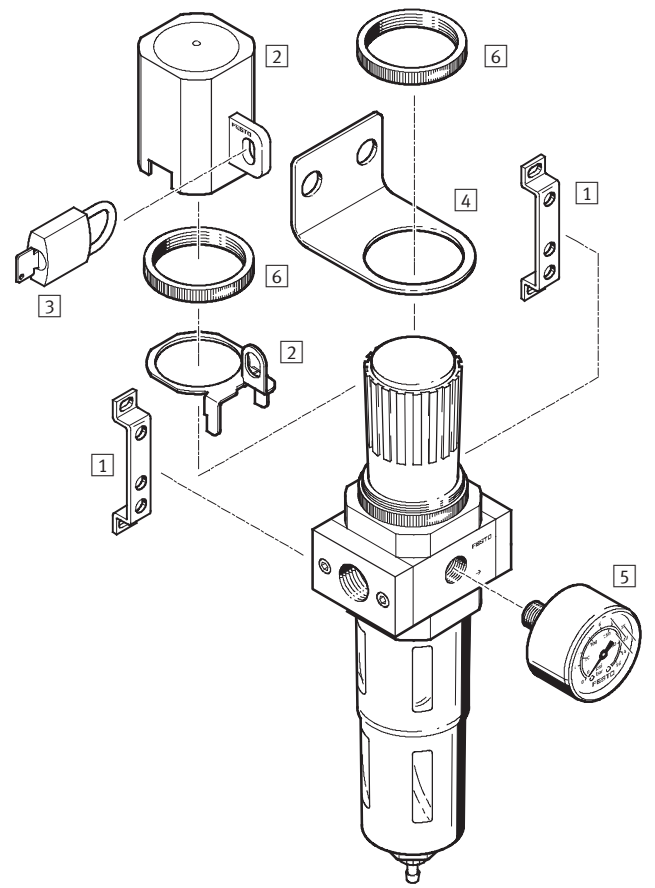
# Filter Regulators LFR – Metric Series

Ordering Data, Accessories

Ordering Data – Basic Units without Threaded Connecting Plates, Filtration Grade 40µm									
Condensate drain	Size	Connection	Pressure regulation range 7.5 ... 103 psi			LT	Pressure regulation range 7.5 ... 176 psi		LT
			Part No.	Type			Part No.	Type	
Basic Unit without pressure gauge									
Turned manually	Mini	–	546456	LFR-D-7-MINI	1D	546432	LFR-D-MINI	1D	
	Midi	–	546463	LFR-D-7-MIDI	1D	546425	LFR-D-MIDI	1D	
	Maxi	–	546470	LFR-D-7-MAXI	1D	546437	LFR-D-MAXI	1D	
Fully automatic	Mini	–	546457	LFR-D-7-MINI-A	1D	546433	LFR-D-MINI-A	1D	
	Midi	–	546464	LFR-D-7-MIDI-A	1D	546426	LFR-D-MIDI-A	1D	
	Maxi	–	546471	LFR-D-7-MAXI-A	1D	546438	LFR-D-MAXI-A	1D	
Basic Unit without pressure gauge, with integrated return flow function									
Turned manually	Maxi	–	546514	LFR-D-7-DI-MAXI	1D	546512	LFR-D-DI-MAXI	1D	
Fully automatic	Maxi	–	546518	LFR-D-7-DI-MAXI-A	1D	546515	LFR-D-DI-MAXI-A	1D	

LT = Lead time                      1D typically ships same day/next day                      3D typically ships within 3 days

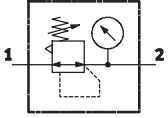
## Accessories Overview



Mounting attachments and accessories		→ Page/Internet
1	Mounting bracket HFOE	235
2	Regulator lock LRVS	235
3	Padlock LRVS-D	lrvs-d
4	Mounting bracket HR-D	235
5	Pressure gauge MA	208
6	Knurled nut HMR (not included in the basic units' scope of delivery)	hmr

# Pressure Regulators LR – Metric Series

Technical Data



Materials  
 Housing: Die-cast zinc/aluminum  
 Seals: Nitrile rubber  
 Free of copper and PTFE



Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>						
Size	Micro		Mini		Midi		Maxi	
Pneumatic connection	M5	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1
Design	Directly actuated diaphragm regulator						Pilot actuated piston regulator	
Type of mounting	Via accessories							
	In-line installation							
	Front panel mounting							
Mounting position	Any							
Max. hysteresis [bar]	0.2		0.2				0.4	
Pressure regulation range [bar]	0.5 ... 7		0.5 ... 7					
	–		0.5 ... 12					
Pressure indication	Via pressure gauge							
	M5 port		G $\frac{1}{8}$ port		G $\frac{1}{4}$ port		G $\frac{3}{4}$ port	
Length [mm]	50		76		95		107	
Width [mm]	25	45	40 (64) <sup>1)</sup>		55 (85) <sup>1)</sup>		66 (96) <sup>1)</sup>	66 (116) <sup>1)</sup>
Height [mm]	65		96		135		125	

1) Value in brackets with connecting plates.

Standard Nominal Flow Rate <sup>1)</sup> qnN [l/min]								
Size	Micro		Mini		Midi		Maxi	
Pneumatic connection	M5	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1
Pressure regulation range 0.5 ... 7 bar	120	230	1,000	1,600	3,300	4,000	12,000	12,500
Pressure regulation range 0.5 ... 12 bar	–		800	1,500	3,200	3,500	11,000	11,500

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

Operating Conditions		
	Micro	Mini/Midi/Maxi
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [–:–:–]	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	–	Operation with lubricated medium possible (in which case lubricated operation will always be required)
Supply pressure [bar]	1 ... 10	1 ... 16
Ambient temperature [°C]	–10 ... +60	

# Pressure Regulators LR – Metric Series

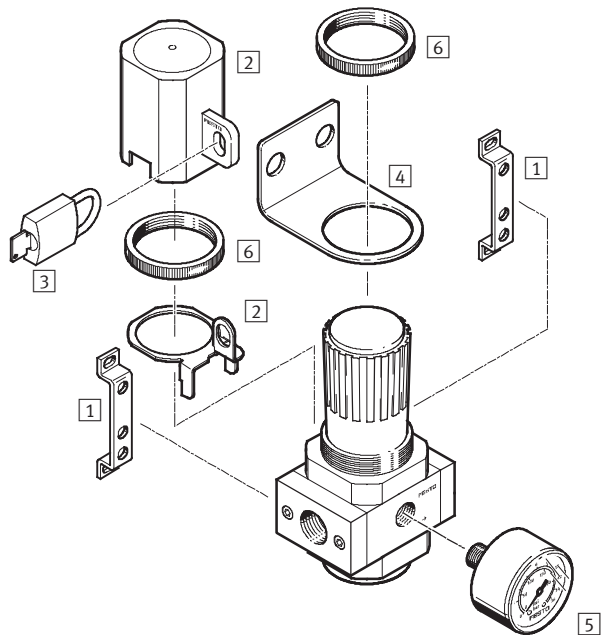
Ordering Data, Accessories

Ordering Data								
Size	Connection	Pressure regulation range 0.5 ... 7 bar			LT	Pressure regulation range 0.5 ... 12 bar		LT
		Part No.	Type			Part No.	Type	
Directly actuated diaphragm regulator								
Micro	M5	526261	LR-M5-D-7-MICRO	1D	–	–		
	G1/8	526263	LR-1/8-D-7-MICRO	1D	–	–		
Mini	G1/8	162582	LR-1/8-D-7-MINI	3D	159624	LR-1/8-D-MINI	3D	
	G1/4	162583	LR-1/4-D-7-MINI	3D	159625	LR-1/4-D-MINI	3D	
Midi	G3/8	162585	LR-3/8-D-7-MIDI	3D	159580	LR-3/8-D-MIDI	3D	
	G1/2	162586	LR-1/2-D-7-MIDI	3D	159581	LR-1/2-D-MIDI	3D	
Pilot actuated piston regulator								
Maxi	G3/4	162588	LR-3/4-D-7-MAXI	3D	159626	LR-3/4-D-MAXI	3D	
	G1	162589	LR-1-D-7-MAXI	3D	159627	LR-1-D-MAXI	3D	
Directly actuated diaphragm regulator with integrated return flow function								
Maxi	G1/2	192358	LR-1/2-D-7-DI-MAXI	3D	192356	LR-1/2-D-DI-MAXI	3D	
	G3/4	192362	LR-3/4-D-7-DI-MAXI	3D	192360	LR-3/4-D-DI-MAXI	3D	
	G1	192366	LR-1-D-7-DI-MAXI	3D	192364	LR-1-D-DI-MAXI	3D	

Ordering Data – Basic Units, without Threaded Connecting Plates								
Size	Connection	Pressure regulation range 7.5 ... 103 psi			LT	Pressure regulation range 07.5 ... 176 psi		LT
		Part No.	Type			Part No.	Type	
Basic Unit without pressure gauge								
Mini	–	546452	LR-D-7-MINI	1D	546430	LR-D-MINI	1D	
Midi	–	546458	LR-D-7-MIDI	1D	546424	LR-D-MIDI	1D	
Maxi	–	546465	LR-D-7-MAXI	1D	546436	LR-D-MAXI	1D	
Basic Unit without pressure gauge, with integrated return flow function								
Maxi	–	546513	LR-D-7-DI-MAXI	1D	546511	LR-D-DI-MAXI	1D	

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

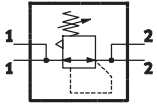
## Accessories Overview



Mounting attachments and accessories		→ Page/Internet
1	Mounting bracket HFOE	235
2	Regulator lock LRVS	235
3	Padlock LRVS-D	lrvs-d
4	Mounting bracket HR-D	235
5	Pressure gauge MA	208
6	Knurled nut HMR (not included in the basic units' scope of delivery)	hmr

# Pressure Regulators LRB – Metric Series

Technical Data



Materials  
 Housing: Die-cast zinc  
 Seals: Nitrile rubber  
 Free of copper and PTFE



Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>	
Size	Mini	Midi	
Pneumatic connection 1 <sup>1)</sup>	G¼	G¾	G½
Pneumatic connection 2 (rear outlet)	G¼	G¾	
Design	Directly actuated diaphragm regulator with through pressure supply		
Type of mounting	Via accessories In-line installation		
Mounting position	Any		
Max. hysteresis [bar]	0.2		
Pressure regulation range [bar]	0.5 ... 7 0.5 ... 12		
Pressure indication	G¾ port		G¼ port
Length [mm]	40		55
Width [mm]	40		55
Height [mm]	96		136

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 235

Standard Nominal Flow Rate <sup>1)</sup> qnN [l/min]	
Size	Mini
Pressure regulation range 0.5 ... 7 bar	1,800
Pressure regulation range 0.5 ... 12 bar	1,600
	Midi
Pressure regulation range 0.5 ... 7 bar	3,800
Pressure regulation range 0.5 ... 12 bar	3,200

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

Operating Conditions	
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Supply pressure [bar]	1 ... 16
Ambient temperature [°C]	-10 ... +60

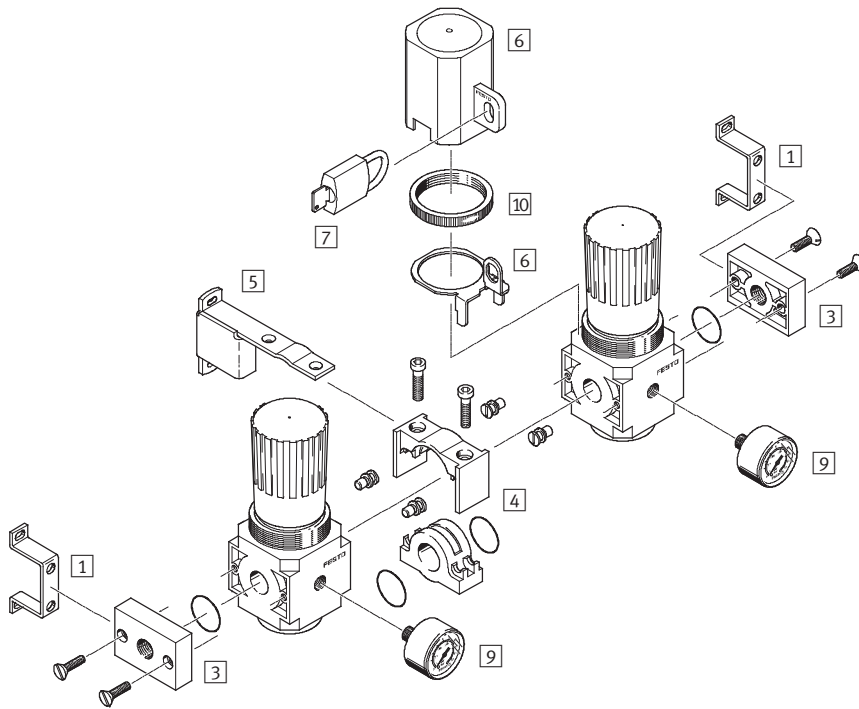
# Pressure Regulators LRB – Metric Series

Ordering Data, Accessories

Ordering Data						
Pressure regulator for manifold assembly						
Size	Pressure regulation range 0.5 ... 7 bar		LT	Pressure regulation range 0.5 ... 12 bar		LT
	Part No.	Type		Part No.	Type	
Mini	197534	LRB-D-7-0-MINI	1D	197535	LRB-D-0-MINI	1D
Midi	197538	LRB-D-7-0-MIDI	1D	197539	LRB-D-0-MIDI	1D

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview



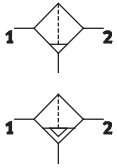
Mounting attachments and accessories	→ Page/Internet
1 Mounting bracket HRB	235
3 Connecting plates LRBAS	lrbas
4 Connecting kit HRBC	235
5 Mounting bracket HRBK <sup>1)</sup>	235

Mounting attachments and accessories	→ Page/Internet
6 Regulator lock LRVS	235
7 Padlock LRVS-D	lrvs-d
9 Pressure gauge MA	208
10 Knurled nut HMR (included in scope of delivery)	hmr

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

# Filters LF – Metric Series

Technical Data



Materials  
 Housing: Die-cast zinc  
 Bowl: Polycarbonate  
 Seals: Nitrile rubber  
 Free of copper and PTFE



Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>						
Size	Micro		Mini		Midi		Maxi	
Pneumatic connection	M5	G1/8	G1/8	G1/4	G3/8	G1/2	G3/4	G1
Design	Sintered filter with centrifugal separation							
Type of mounting	Via accessories In-line installation							
Mounting position	Vertical ±5°							
Grade of filtration [µm]	5		5 or 40					
Length [mm]	25		40		55		66	
Width [mm]	25	45	40 (64) <sup>1)</sup>		55 (85) <sup>1)</sup>		66 (96) <sup>1)</sup>	66 (116) <sup>1)</sup>
Height [mm]	88		163		198		222	

1) Value in brackets with connecting plates.

Standard Nominal Flow Rate <sup>1)</sup> qnN [l/min]		Micro		Mini		Midi		Maxi	
Size	Micro		Mini		Midi		Maxi		
Pneumatic connection	M5	G1/8	G1/8	G1/4	G3/8	G1/2	G3/4	G1	
Grade of filtration	5 µm	170	290	800	950	1,800	2,000	3,600	3,800
	40 µm	-		1,000	1,200	2,700	3,000	5,000	5,300

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.

Operating Conditions		Micro		Mini / Midi / Maxi	
Condensate drain	Manual rotary		Semi-automatic		Manual rotary / Fully automatic
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:-:-]				
Supply pressure [bar]	0 ... 10		1 ... 10		0 ... 16 / 2 ... 12
Ambient temperature [°C]	-10 ... +60				

# Filters LF – Metric Series

Ordering Data, Accessories

Ordering Data										
Condensate drain	Size	Connection	Grade of filtration 5 µm			LT	Grade of filtration 40 µm			LT
			Part No.	Type			Part No.	Type		
Input pressure 0 ... 10 bar										
Turned manually	Micro	M5	526297	LF-M5-D-5M-MICRO		1D	–	–		
		G $\frac{1}{8}$	526299	LF- $\frac{1}{8}$ -D-5M-MICRO		1D	–	–		
Semi-automatic	Micro	M5	526298	LF-M5-D-5M-MICRO-H		1D	–	–		
		G $\frac{1}{8}$	526300	LF- $\frac{1}{8}$ -D-5M-MICRO-H		1D	–	–		
Input pressure 0 ... 16 bar, metal bowl guard										
Turned manually	Mini	G $\frac{1}{8}$	162610	LF- $\frac{1}{8}$ -D-5M-MINI		3D	159612	LF- $\frac{1}{8}$ -D-MINI	3D	
		G $\frac{1}{4}$	162611	LF- $\frac{1}{4}$ -D-5M-MINI		3D	159613	LF- $\frac{1}{4}$ -D-MINI	3D	
	Midi	G $\frac{3}{8}$	162613	LF- $\frac{3}{8}$ -D-5M-MIDI		3D	159576	LF- $\frac{3}{8}$ -D-MIDI	3D	
		G $\frac{1}{2}$	162614	LF- $\frac{1}{2}$ -D-5M-MIDI		3D	159578	LF- $\frac{1}{2}$ -D-MIDI	3D	
	Maxi	G $\frac{3}{4}$	162616	LF- $\frac{3}{4}$ -D-5M-MAXI		3D	159614	LF- $\frac{3}{4}$ -D-MAXI	3D	
		G1	162617	LF-1-D-5M-MAXI		3D	159615	LF-1-D-MAXI	3D	
Fully automatic	Mini	G $\frac{1}{8}$	162618	LF- $\frac{1}{8}$ -D-5M-MINI-A		3D	159616	LF- $\frac{1}{8}$ -D-MINI-A	3D	
		G $\frac{1}{4}$	162619	LF- $\frac{1}{4}$ -D-5M-MINI-A		3D	159617	LF- $\frac{1}{4}$ -D-MINI-A	3D	
	Midi	G $\frac{3}{8}$	162621	LF- $\frac{3}{8}$ -D-5M-MIDI-A		3D	159577	LF- $\frac{3}{8}$ -D-MIDI-A	3D	
		G $\frac{1}{2}$	162622	LF- $\frac{1}{2}$ -D-5M-MIDI-A		3D	159579	LF- $\frac{1}{2}$ -D-MIDI-A	3D	
	Maxi	G $\frac{3}{4}$	162624	LF- $\frac{3}{4}$ -D-5M-MAXI-A		3D	159618	LF- $\frac{3}{4}$ -D-MAXI-A	3D	
		G1	162625	LF-1-D-5M-MAXI-A		3D	159619	LF-1-D-MAXI-A	3D	

Ordering Data – Basic Units, without Threaded Connecting Plates										
Condensate drain	Size	Connection	Grade of filtration 5 µm			LT	Grade of filtration 40 µm			LT
			Part No.	Type			Part No.	Type		
Turned manually	Mini	–	546451	LF-D-5M-MINI-U		1D	546428	LF-D-MINI-U	1D	
	Midi	–	546453	LF-D-5M-MIDI-U		1D	546422	LF-D-MIDI-U	1D	
	Maxi	–	546459	LF-D-5M-MAXI-U		1D	546434	LF-D-MAXI-U	1D	
Fully automatic	Mini	–	546460	LF-D-5M-MINI-A-U		1D	546429	LF-D-MINI-A-U	1D	
	Midi	–	546466	LF-D-5M-MIDI-A-U		1D	546423	LF-D-MIDI-A-U	1D	
	Maxi	–	546467	LF-D-5M-MAXI-A-U		1D	546435	LF-D-MAXI-A-U	1D	

LT = Lead time

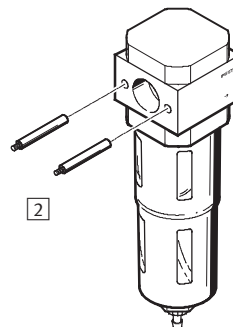
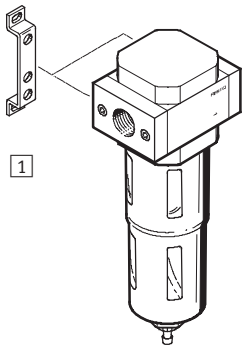
1D typically ships same day/next day

3D typically ships within 3 days

## Accessories Overview

Individual device

Basic unit for manifold assembly



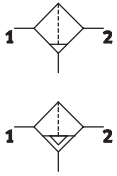
Mounting attachments and accessories	→ Page/Internet
1 Mounting bracket HFOE	235

Mounting attachments and accessories	→ Page/Internet
2 Threaded bolt FRB (included in scope of delivery)	235



# Fine and Micro Filters LFMB/LFMA – Metric Series

Technical Data



**Materials**  
 Housing: Die-cast zinc  
 Bowl: Polycarbonate  
 Filter: Borosilicate fibre  
 Seals: Nitrile rubber  
 Free of copper and PTFE



**LFMA**  
 DIN ISO class 1 for particles:  
 max. particle density 0.1 mg/m<sup>3</sup>  
 DIN ISO class 2 for oil aerosols:  
 max. oil concentration 0.1 mg/m<sup>3</sup>

**LFMB**  
 DIN ISO class 2 for particles:  
 max. particle density 1 mg/m<sup>3</sup>  
 DIN ISO class 3 for oil aerosols:  
 max. oil concentration 1 mg/m<sup>3</sup>

Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>				
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>2</sub>	G <sup>3</sup> / <sub>4</sub>	G1
Design	Fibre filter					
Type of mounting	Via accessories In-line installation					
Mounting position	Vertical ±5°					
Length [mm]	40		55		66	
Width [mm]	40 (64) <sup>1)</sup>		55 (85) <sup>1)</sup>		66 (96) <sup>1)</sup> 66 (116) <sup>1)</sup>	
Height [mm]	163		198		222	

1) Value in brackets with connecting plates.

Standard Nominal Flow Rate <sup>1)</sup> qnN [l/min]						
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>2</sub>	G <sup>3</sup> / <sub>4</sub>	G1
Micro filter LFMA	130	160	380	400	900	950
Fine filter LFMB	250	300	700	900	1,200	1,250

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.

Operating Conditions				
Type	LFMA		LFMB	
Condensate drain	Manual rotary Fully automatic		Manual rotary Fully automatic	
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:-:-]		Compressed air in accordance with ISO 8573-1:2010 [6:4:4]	
Grade of filtration [µm]	0.01 (air purity class at the output: compressed air in accordance with ISO 8573-1:2010 [2:7:2])		1 (air purity class at the output: compressed air in accordance with ISO 8573-1:2010 [4:7:3])	
Residual oil content [mg/m <sup>3</sup> ]	≤ 0.01		≤ 0.5	
Supply pressure [bar]	1 ... 16	1.5 ... 12	1 ... 16	1.5 ... 12
Ambient temperature [°C]	-10 ... +60		-10 ... +60	

# Fine and Micro Filters LFMB/LFMA – Metric Series

Ordering Data, Accessories

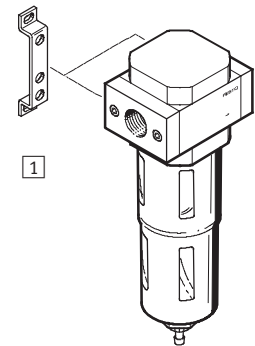
Ordering Data – Fine filters LFMB									
Grade of filtration 1 µm, metal bowl guard									
Size	Connection	Input pressure 1 ... 16 bar			LT	Input pressure 1.5 ... 12 bar		LT	
		Condensate drain turned manually				Condensate drain fully automatic			
		Part No.	Type			Part No.	Type		
With threaded connecting plates									
Mini	G1/8	162626	LFMB-1/8-D-MINI		1D	162634	LFMB-1/8-D-MINI-A		1D
	G1/4	162627	LFMB-1/4-D-MINI		1D	162635	LFMB-1/4-D-MINI-A		1D
Midi	G3/8	162629	LFMB-3/8-D-MIDI		1D	162637	LFMB-3/8-D-MIDI-A		1D
	G1/2	162930	LFMB-1/2-D-MIDI		1D	162638	LFMB-1/2-D-MIDI-A		1D
Maxi	G3/4	162632	LFMB-3/4-D-MAXI		1D	162640	LFMB-3/4-D-MAXI-A		1D
	G1	162633	LFMB-1-D-MAXI		1D	162641	LFMB-1-D-MAXI-A		1D
Basic Units, without Threaded Connecting Plates									
Mini	–	546440	LFMB-D-MINI-U		1D	546442	LFMB-D-MINI-A-U		1D
Midi	–	546444	LFMB-D-MIDI-U		1D	546445	LFMB-D-MIDI-A-U		1D
Maxi	–	546448	LFMB-D-MAXI-U		1D	546450	LFMB-D-MAXI-A-U		1D

Ordering Data – Micro filters LFMA									
Grade of filtration 0.01 µm, metal bowl guard									
Size	Connection	Input pressure 1 ... 16 bar			LT	Input pressure 1.5 ... 12 bar		LT	
		Condensate drain turned manually				Condensate drain fully automatic			
		Part No.	Type			Part No.	Type		
With threaded connecting plates									
Mini	G1/8	162642	LFMA-1/8-D-MINI		1D	162650	LFMA-1/8-D-MINI-A		1D
	G1/4	162643	LFMA-1/4-D-MINI		1D	162651	LFMA-1/4-D-MINI-A		1D
Midi	G3/8	162645	LFMA-3/8-D-MIDI		1D	162653	LFMA-3/8-D-MIDI-A		1D
	G1/2	162646	LFMA-1/2-D-MIDI		1D	162654	LFMA-1/2-D-MIDI-A		1D
Maxi	G3/4	162648	LFMA-3/4-D-MAXI		1D	162656	LFMA-3/4-D-MAXI-A		1D
	G1	162649	LFMA-1-D-MAXI		1D	162657	LFMA-1-D-MAXI-A		1D
Basic Units, without Threaded Connecting Plates									
Mini	–	546439	LFMA-D-MINI-U		1D	546441	LFMA-D-MINI-A-U		1D
Midi	–	546443	LFMA-D-MIDI-U		1D	546446	LFMA-D-MIDI-A-U		1D
Maxi	–	546447	LFMA-D-MAXI-U		1D	546449	LFMA-D-MAXI-A-U		1D

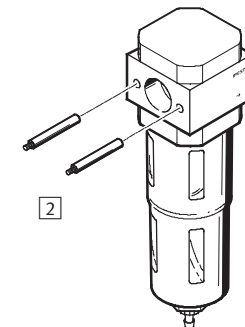
LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview

Individual device



Basic unit for manifold assembly



Mounting attachments and accessories	→ Page/Internet
1 Mounting bracket HFOE	235

Mounting attachments and accessories	→ Page/Internet
2 Threaded bolt FRB (included in scope of delivery)	235

# Lubricators LOE – Metric Series

Technical Data

FESTO



Materials  
 Housing: Die-cast zinc/aluminum  
 Seals: Nitrile rubber  
 Free of copper and PTFE



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 OFSW-32
- ARAL Vitam GF 32
- BP Energol HLP 32
- Esso Nuto H 32
- Mobil DTE 24
- Shell Tellus Oil DO 32

Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>						
Size	Micro	Mini	Midi	Maxi				
Pneumatic connection	M5	G <sup>1</sup> / <sub>8</sub>	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>	G1
Design	Proportional standard mist lubricator							
Type of mounting	Via accessories In-line installation							
Mounting position	Vertical ±5°							
Minimum flow for lubricator operation [l/min]	3	3	8	10				
Max. oil capacity [cm <sup>3</sup> ]	6.5	45	110	190				
Length [mm]	25	40	55	66				
Width [mm]	25	45	40 (64) <sup>1)</sup>	55 (85) <sup>1)</sup>	66 (96) <sup>1)</sup>	66 (116) <sup>1)</sup>		
Height [mm]	96	169	204	228				

1) Value in brackets with connecting plates.

Standard Nominal Flow Rate <sup>1)</sup> q <sub>N</sub> [l/min]								
Size	Micro	Mini	Midi	Maxi				
Pneumatic connection	M5	G <sup>1</sup> / <sub>8</sub>	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>	G1
Lubricator LOE	200	410	1,300	2,300	5,500	6,100	8,400	9,000

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

Operating Conditions		
Size	Micro	Mini / Midi / Maxi
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [6:4:4]	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Operation with lubricated medium not possible	
Supply pressure [bar]	0 ... 10	0 ... 16
Ambient temperature [°C]	-10 ... +60	

# Lubricators LOE – Metric Series

Ordering Data, Accessories

Ordering Data				
Size	Connection	Part No.	Type	LT
Input pressure 0 ... 10 bar				
Micro	M5	526309	LOE-M5-D-MICRO	1D
	G1/8	526310	LOE-1/8-D-MICRO	1D
Input pressure 0 ... 16 bar, metal bowl guard				
Mini	G1/8	159620	LOE-1/8-D-MINI	3D
	G1/4	159621	LOE-1/4-D-MINI	3D
Midi	G3/8	159586	LOE-3/8-D-MIDI	3D
	G1/2	159587	LOE-1/2-D-MIDI	3D
Maxi	G3/4	159622	LOE-3/4-D-MAXI	3D
	G1	159623	LOE-1-D-MAXI	3D

Ordering Data – Basic Units, without Threaded Connecting Plates				
Size	Connection	Part No.	Type	LT
Mini	–	546431	LOE-D-MINI-U	1D
Midi	–	546427	LOE-D-MIDI-U	1D
Maxi	–	546517	LOE-D-MAXI-U	1D

LT = Lead time

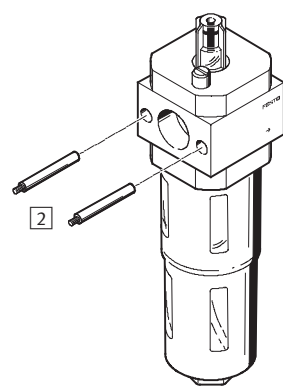
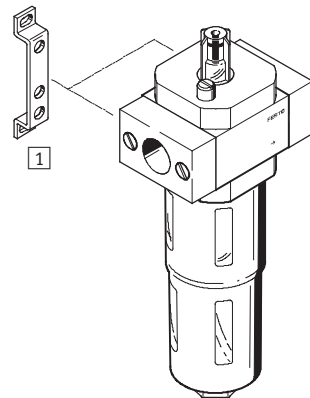
1D typically ships same day/next day

3D typically ships within 3 days

## Accessories Overview

Individual device

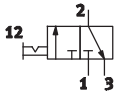
Basic unit for manifold assembly



Mounting attachments and accessories		→ Page/Internet
1	Mounting bracket HFOE	235
2	Threaded bolt FRB (included in scope of delivery)	235

# Manual On-off Valves HE – Metric Series

Technical Data



Materials  
 Housing: Die-cast aluminum  
 Seals: Nitrile rubber  
 Free of copper and PTFE



Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>				
Size	Mini		Midi		Maxi	
Pneumatic connection	G1/8	G1/4	G3/8	G1/2	G3/4	G1
Design	Piston spool					
Type of mounting	Via accessories In-line installation					
Mounting position	Any					
Valve function	3/2-way					
Exhaust port	G1/8		G1/4		G3/8	
Reset method	Mechanical spring					
Direction of flow	Non-reversible					
Length [mm]	40		55		66	
Width [mm]	40 (64) <sup>1)</sup>		55 (85) <sup>1)</sup>		66 (96) <sup>1)</sup> 66 (116) <sup>1)</sup>	
Height [mm]	100		121		134	

1) Value in brackets with connecting plates.

Standard Nominal Flow Rate <sup>1)</sup> qnN [l/min]						
Size	Mini		Midi		Maxi	
Pneumatic connection	G1/8	G1/4	G3/8	G1/2	G3/4	G1
On-off valve HE	1,000	1,500	3,200	3,600	6,000	6,500

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

Operating Conditions	
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)
Operating pressure [bar]	0 ... 16
Ambient temperature [°C]	-10 ... +60

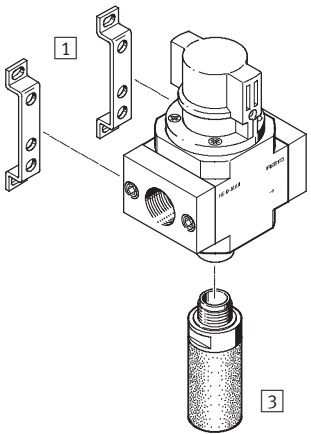
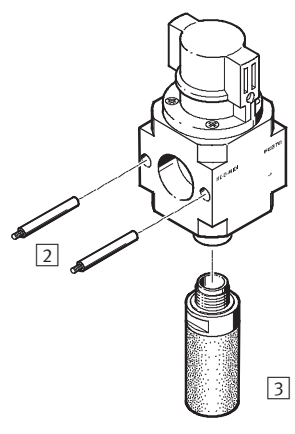
# Manual On-off Valves HE – Metric Series

Ordering Data, Accessories

Ordering Data				
3/2-way valve, operating pressure 0 ... 16 bar, normally closed				
Size	Connection	Part No.	Type	LT
With threaded connecting plates				
Mini	G1/8	162806	HE-1/8-D-MINI	3D
	G1/4	162807	HE-1/4-D-MINI	3D
Midi	G3/8	162809	HE-3/8-D-MIDI	3D
	G1/2	162810	HE-1/2-D-MIDI	3D
Maxi	G3/4	162812	HE-3/4-D-MAXI	3D
	G1	162813	HE-1-D-MAXI	3D
Basic Unit, without threaded connecting plates				
Mini	–	170681	HE-D-MINI	1D
Midi	–	170682	HE-D-MIDI	1D
Maxi	–	170683	HE-D-MAXI	1D

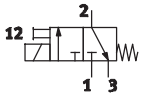
LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview

Individual device	Basic unit for manifold assembly	Mounting attachments and accessories	→ Page/Internet
		1 Mounting bracket HFOE	235
		2 Threaded bolt FRB (included in scope of delivery)	235
		3 Silencer U	236

# Electric On-off Valves HEE – Metric Series

Technical Data



Materials  
 Housing: Die-cast aluminum  
 Seals: Nitrile rubber  
 Free of copper and PTFE



Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>				
Size	Mini		Midi		Maxi	
Pneumatic connection	G1/8	G1/4	G3/8	G1/2	G3/4	G1
Design	Piston spool					
Type of mounting	Via accessories In-line installation					
Mounting position	Any					
Valve function	3/2-way, single solenoid					
Exhaust port	G1/8		G1/4		G3/8	
Reset method	Mechanical spring					
Direction of flow	Non-reversible					
Operating voltage	[V DC]	24				
	[V AC]	110				
Length	[mm]	40		55		66
Width	[mm]	40 (64) <sup>1)</sup>		55 (85) <sup>1)</sup>		66 (96) <sup>1)</sup> 66 (116) <sup>1)</sup>
Height	[mm]	104		122		135

1) Value in brackets with connecting plates.

Standard Nominal Flow Rate <sup>1)</sup> qnN [l/min]						
Size	Mini		Midi		Maxi	
Pneumatic connection	G1/8	G1/4	G3/8	G1/2	G3/4	G1
On-off valve HEE	1,000	1,500	3,200	3,600	6,000	6,500

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

Operating Conditions	
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)
Operating pressure [bar]	2,5 ... 16
Ambient temperature [°C]	-10 ... +60

# Electric On-off Valves HEE – Metric Series

Ordering Data, Accessories

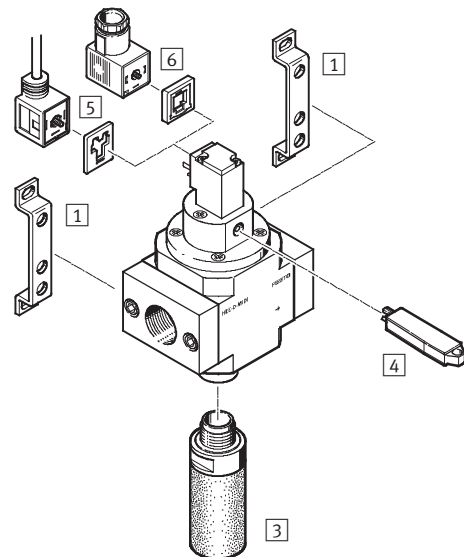
Ordering Data					
3/2-way valve, operating pressure 2.5 ... 16 bar, normally closed, 24 V DC					
Size	Connection	Part No.	Type	LT	
With threaded connecting plates					
Mini	G1/8	165068	HE-1/8-D-MINI-24	3D	
	G1/4	165071	HE-1/4-D-MINI-24	3D	
Midi	G3/8	165074	HE-3/8-D-MIDI-24	3D	
	G1/2	186518	HE-1/2-D-MIDI-24	3D	
Maxi	G3/4	172950	HE-3/4-D-MAXI-24	3D	
	G1	172953	HE-1-D-MAXI-24	3D	

Ordering Data					
3/2-way valve, operating pressure 2.5 ... 16 bar, normally closed					
Size	Connection	24 V DC	LT	110 V AC	LT
		Part No.	Type	Part No.	Type
Without threaded connecting plates					
Mini	–	172956	HEE-D-MINI-24	1D	172957 HEE-D-MINI-110
Midi	–	172959	HEE-D-MIDI-24	1D	172960 HEE-D-MIDI-110
Maxi	–	172962	HEE-D-MAXI-24	1D	172963 HEE-D-MAXI-110

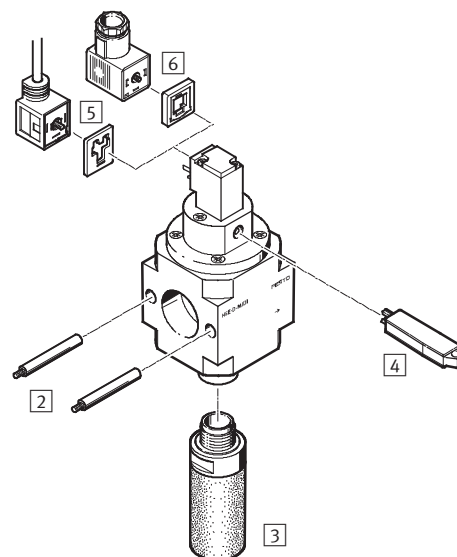
LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview

Individual device



Basic unit for manifold assembly



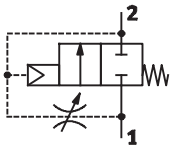
Mounting attachments and accessories	→ Page/Internet
1 Mounting bracket HFOE	235
3 Silencer U	236
4 Non-detenting manual override tool AHB-MD/MF/MY	236
5 Plug socket with cable KMEB	kmeb
6 Plug socket MSSD-EB	mssd-eb

Mounting attachments and accessories	→ Page/Internet
2 Threaded bolt FRB (included in scope of delivery)	235
3 Silencer U	236
4 Non-detenting manual override tool AHB-MD/MF/MY	236
5 Plug socket with cable KMEB	kmeb
6 Plug socket MSSD-EB	mssd-eb



# Soft-start Valves HEL – Metric Series

Technical Data



Materials  
 Housing: Die-cast aluminum  
 Seals: Nitrile rubber  
 Free of copper and PTFE



Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>				
Size	Mini		Midi		Maxi	
Pneumatic connection	G1/8	G1/4	G3/8	G1/2	G3/4	G1
Design	Piston spool					
Type of mounting	Via accessories In-line installation					
Mounting position	Any					
Valve function	2/2-way, closed, air operated, adjustable					
Reset method	Mechanical spring					
Actuation method	Direct					
Direction of flow	Non-reversible					
Length [mm]	40		55		66	
Width [mm]	40 (64) <sup>1)</sup>		55 (85) <sup>1)</sup>		66 (96) <sup>1)</sup> 66 (116) <sup>1)</sup>	
Height [mm]	66		77		89	

1) Value in brackets with connecting plates.

Standard Nominal Flow Rate <sup>1)</sup> qnN [l/min]						
Size	Mini		Midi		Maxi	
Pneumatic connection	G1/8	G1/4	G3/8	G1/2	G3/4	G1
Soft-start valve HEL	1,000	1,500	3,200	3,600	6,000	6,500

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

Operating Conditions	
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)
Operating pressure [bar]	3 ... 16
Ambient temperature [°C]	-10 ... +60

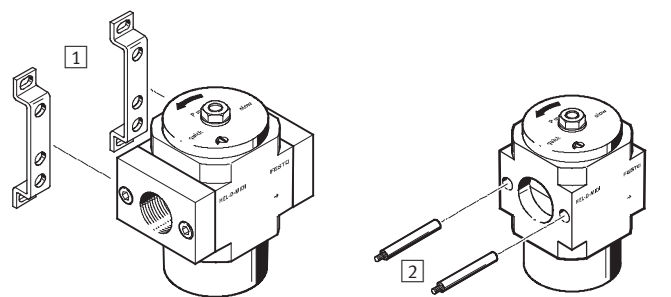
# Soft-start Valves HEL – Metric Series

Ordering Data, Accessories

Ordering Data				
Gradual pressure build-up, 2/2-way valve, normally closed, operating pressure 3 ... 16 bar				
Size	Connection	Part No.	Type	LT
<b>With threaded connecting plates</b>				
Mini	G1/8	165076	HEL-1/8-D-MINI	3D
	G1/4	165077	HEL-1/4-D-MINI	3D
Midi	G3/8	165079	HEL-3/8-D-MIDI	3D
	G1/2	165080	HEL-1/2-D-MIDI	3D
Maxi	G3/4	165082	HEL-3/4-D-MAXI	3D
	G1	165083	HEL-1-D-MAXI	3D
<b>Basic Unit, without threaded connecting plates</b>				
Mini	–	170690	HEL-D-MINI	1D
Midi	–	170691	HEL-D-MIDI	1D
Maxi	–	170692	HEL-D-MAXI	1D

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

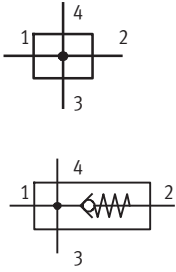
Accessories Overview			
Individual device	Basic unit for manifold assembly	Mounting attachments and accessories	→ Page/Internet



1	Mounting bracket HFOE	235
2	Threaded bolt FRB (included in scope of delivery)	235

# Branching Modules FRM/FRZ – Metric Series

Technical Data



Materials  
 Housing: Die-cast zinc  
 Seals: Nitrile rubber, polyvinyl chloride  
 Free of copper and PTFE



Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>					
Size	Micro	Mini		Midi		Maxi	
Pneumatic connection 1, 2 <sup>1)</sup>	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1
Pneumatic connection 3	G $\frac{1}{8}$	G $\frac{1}{4}$		G $\frac{1}{2}$		G $\frac{3}{4}$	
Pneumatic connection 4	M5	G $\frac{1}{4}$					
Design	Branching module						
Type of mounting	With accessories						
	In-line installation						
Mounting position	Any						
Length [mm]	25	40		55		66	
Width [mm]	25	40 (64) <sup>2)</sup>		55 (85) <sup>2)</sup>		66 (96) <sup>2)</sup>	66 (116) <sup>2)</sup>
Height [mm]	30	49		67		78	

- 1) With connecting plates.
- 2) Value in brackets with connecting plates.

Standard Nominal Flow Rate <sup>1)</sup> qnN [l/min]								
Connection		Basic Unit Without Connecting Plates	With connecting plates					
			G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1
Standard								
In main flow direction	Micro	210	–	–	–	–	–	–
	Mini	3,300	1,500	3,300	–	–	–	–
	Midi	8,200	–	–	7,000	8,200	–	–
	Maxi	20,000	–	–	–	–	20,000	17,400
With non-return function								
In main flow direction	Mini	2,000	1,300	2,000	–	–	–	–
	Midi	5,600	–	–	5,500	5,600	–	–
	Maxi	15,000	–	–	–	–	15,000	13,400

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

Operating Conditions				
Size	Mini	Mini	Midi	Maxi
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:-:-]			
Ambient temperature [°C]	–10 ... +60			
Operating pressure [bar]				
Standard	0 ... 16			
With non-return function	–	0.15 ... 16	0.2 ... 16	0.25 ... 16

# Branching Modules FRM/FRZ – Metric Series

Ordering Data, Accessories

Ordering Data – With Connecting Plates				
Size	Port	With integrated non-return function		LT
		Part No.	Type	
Mini	G1/8	162788	FRM-H-1/8-D-MINI	3D
	G1/4	162789	FRM-H-1/4-D-MINI	3D
Midi	G3/8	162791	FRM-H-3/8-D-MIDI	3D
	G1/2	162792	FRM-H-1/2-D-MIDI	3D
Maxi	G3/4	162794	FRM-H-3/4-D-MAXI	3D
	G1	162795	FRM-H-1-D-MAXI	3D

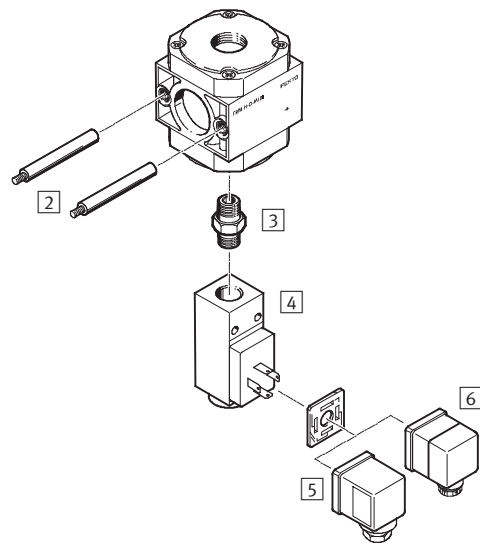
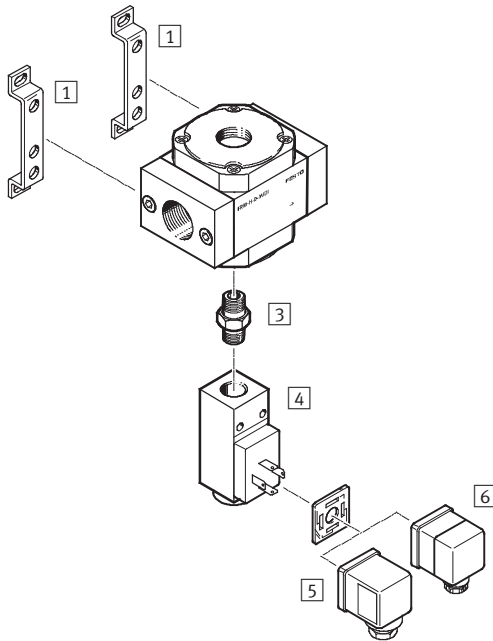
Ordering Data – Basic Unit Without Connecting Plates						
Size	Standard		LT	With integrated non-return function		LT
	Part No.	Type		Part No.	Type	
Micro	526815	FRZ-D-MICRO	1D	–	–	
Mini	170684	FRM-D-MINI	1D	170687	FRM-H-D-MINI	1D
Midi	170685	FRM-D-MIDI	1D	170688	FRM-H-D-MIDI	1D
Maxi	170686	FRM-D-MAXI	1D	170689	FRM-H-D-MAXI	1D

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview

Individual device

Basic unit for manifold assembly



Mounting attachments and accessories	→ Page/Internet
1 Mounting bracket HFOE	235
3 Double nipple ESK	esk
4 Pressure switch PEV	236
5 Plug socket MSSD-C	mssd-c
6 Angled plug socket PEV-...-WD-LED	pev

Mounting attachments and accessories	→ Page/Internet
2 Threaded bolt FRB (included in scope of delivery)	frb
3 Double nipple ESK	esk
4 Pressure switch PEV	236
5 Plug socket MSSD-C	mssd-c
6 Angled plug socket PEV-...-WD-LED	pev

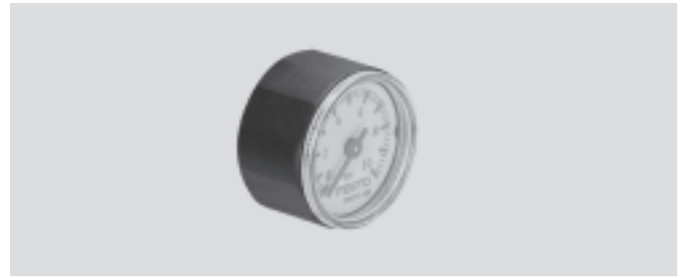
# Pressure Gauges MA

Technical Data, Ordering Data

FESTO



Materials  
 Housing:  
 MA-23: Brass  
 MA-27/40/50: Acrylic butadiene styrene/plastic  
 MA-63: Steel  
 Dial cover: Polystyrene/plastic  
 Threaded plug: Brass



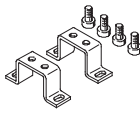
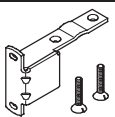
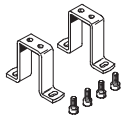
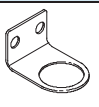
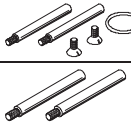
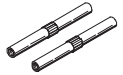


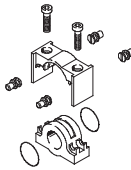

Technical Data		Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a>	
Nominal size	27	40	50
Pneumatic connection	M5	G $\frac{1}{8}$	G $\frac{1}{4}$
Operating medium	Liquid and gaseous media		
	Not permitted: Oxygen, Acetylene		
Constructional design	Bourdon tube pressure gauge		
Type of mounting	Screw-in		
Connection position	Rear side, center		
Ambient temperature	[°F]	32 ... 140	-4 ... +140
	[°C]	0 ... +60	-20 ... +60
Measurement accuracy class	4	2.5	
Continuous load factor	0.75		
Intermittent load factor	0.66		
Protection class	IP43		

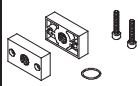
Ordering Data							
Nominal size	For D Series service units	Pneumatic connection	Indicating range		Part No.	Type	LT
			[bar]	[psi]			
27	MICRO	M5	0 ... 10	–	<b>526323</b>	<b>MA-27-10-M5</b>	1D
			–	0 ... 160	<b>527405</b>	<b>MA-27-160-M5-PSI</b>	1D
40	MINI	G $\frac{1}{8}$	0 ... 10	0 ... 145	<b>359874</b>	<b>MA-40-10-1/8</b>	1D
			0 ... 16	0 ... 240	<b>345395</b>	<b>MA-40-16-1/8</b>	1D
50	MIDI/MAXI	G $\frac{1}{4}$	0 ... 10	0 ... 160	<b>359873</b>	<b>MA-50-10-1/4</b>	1D
			0 ... 16	0 ... 240	<b>356759</b>	<b>MA-50-16-1/4</b>	1D

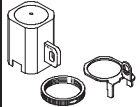
LT = Lead time      **1D** typically ships same day/next day      **3D** typically ships within 3 days

# Accessories – Metric Series

Ordering Data

Ordering Data – Mounting attachments			
Designation	Size	Part No.	Order code
<b>Mounting bracket HFOE</b>			
	Micro	526317	HFOE-D-MICRO
	Mini	159638	HFOE-D-MINI
	Midi/Maxi	159593	HFOE-D-MIDI/MAXI
<b>Mounting bracket HRBK</b>			
	Mini	525031	HRBK-D-MINI
	Midi	525032	HRBK-D-MIDI
<b>Mounting bracket HRB</b>			
	Mini	525029	HRB-D-MINI
	Midi	525030	HRB-D-MIDI
<b>Mounting bracket HR-D</b>			
	Micro	526316	HRS-D-MICRO
	Mini	164936	HR-D-MINI
	Midi	162804	HR-D-MIDI
	Maxi	162805	HR-D-MAXI
<b>Threaded bolt FRB</b>			
	Micro	526817	FRB-D-MICRO
	Mini	159642	FRB-D-MINI
	Midi	159595	FRB-D-MIDI
	Maxi	159643	FRB-D-MAXI
<b>Threaded bolt LF/LOE</b>			
	Mini	546483	LF/LOE-D-MINI
	Midi	546489	LF/LOE-D-MIDI
	Maxi	546494	LF/LOE-D-MAXI
<b>Metric socket head screws</b>			
	Mini	562472	DIN 912-M4X16-8.8
	Midi	562475	DIN 912-M5X18-8.8
	Maxi	562473	DIN 912-M5X20-8.8
<b>Hex nut HMR</b>			
	Micro	526816	HMR-D-MICRO
<b>Connecting kit HRBC</b>			
	Mini	529022	HRBC-D-MINI
	Midi	529023	HRBC-D-MIDI
<b>Sealings</b>			
	Mini	546478	O-12,42X1,78-N-NBR70
	Midi	546474	O-26X2-N-NBR75
	Maxi	546477	LR/LF/LFR/LOE/FRC-D-MAXI

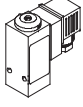
Ordering Data – Connecting plates					
Designation	Size	Connec- tion	Position	Part No.	Order code
<b>Connecting plates PBL</b>					
	Micro	G $\frac{1}{8}$	Either	526318	PBL-1/8-D-MICRO
		QS-4	Either	526321	PBL-QS4-D-MICRO
		QS-6	Either	526322	PBL-QS6-D-MICRO
	Mini	G $\frac{1}{8}$	Left	546495	PBL-1/8-D-MINI-L
			Right	546496	PBL-1/8-D-MINI-R
		G $\frac{1}{4}$	Left	546497	PBL-1/4-D-MINI-L
			Right	546498	PBL-1/4-D-MINI-R
		G $\frac{3}{8}$	Left	546499	PBL-3/8-D-MINI-L
			Right	546500	PBL-3/8-D-MINI-R
	Midi	G $\frac{1}{4}$	Left	546501	PBL-1/4-D-MIDI-L
			Right	546502	PBL-1/4-D-MIDI-R
		G $\frac{3}{8}$	Left	546503	PBL-3/8-D-MIDI-L
			Right	546504	PBL-3/8-D-MIDI-R
		G $\frac{1}{2}$	Left	546505	PBL-1/2-D-MIDI-L
			Right	546506	PBL-1/2-D-MIDI-R
		G $\frac{3}{4}$	Left	546532	PBL-3/4-D-MIDI-L
			Right	546533	PBL-3/4-D-MIDI-R
		Maxi	G $\frac{1}{2}$	Left	546534
Right				546535	PBL-1/2-D-MAXI-R
G $\frac{3}{4}$			Left	546507	PBL-3/4-D-MAXI-L
			Right	546508	PBL-3/4-D-MAXI-R
G1	Left		546509	PBL-1-D-MAXI-L	
	Right		546510	PBL-1-D-MAXI-R	


Ordering Data – Safety components			
Designation	Size	Part No.	Order code
<b>Regulator lock LRVS</b>			
	Mini	193781	LRVS-D-MINI
	Midi	193782	LRVS-D-MIDI
	Maxi	193783	LRVS-D-MAXI


Lead Time LT for all products on this page: 1D typically ships same day/next day



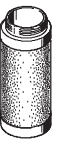
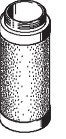
# Accessories – Metric Series

Ordering Data

Ordering Data – Sensors			
Designation	Connection	Part No.	Order code
Pressure switch PEV <span style="float: right;">Technical Data → 150</span>			
	G $\frac{1}{4}$	10773	PEV- $\frac{1}{4}$ -B

Ordering Data – Connecting Cables NEBU			
Technical data → Internet: nebu			
	Number of wires	Cable length [m]	Part No. Type
M8x1, straight socket			
	3	2.5	541333 NEBU-M8G3-K-2.5-LE3
	4	2.5	541342 NEBU-M8G4-K-2.5-LE4

Ordering Data – Accessories			
Designation	Description	Part No.	Order code
Silencer U <span style="float: right;">Technical Data → 257</span>			
	G $\frac{1}{8}$	6841	U- $\frac{1}{8}$ -B
	G $\frac{1}{4}$	6842	U- $\frac{1}{4}$ -B
	G $\frac{3}{8}$	6844	U- $\frac{3}{8}$ -B

Ordering Data – Filter cartridges			
Designation	Size	Part No.	Order code
Grade of filtration 40 µm			
	Mini	546487	LFP-D-MINI-40M-U
	Midi	546488	LFP-D-MIDI-40M-U
	Maxi	546486	LFP-D-MAXI-40M-U
Grade of filtration 5 µm			
	Micro	526818	LFP-D-MICRO-5M
	Mini	159640	LFP-D-MINI-5M
	Midi	159594	LFP-D-MIDI-5M
	Maxi	159641	LFP-D-MAXI-5M
Grade of filtration 1 µm			
	Mini	162677	MS4/D-MINI-LFM-B
	Midi	162678	LFMBP-D-MIDI
	Maxi	162679	LFMBP-D-MAXI
Grade of filtration 0.01 µm			
	Mini	162674	MS4/D-MINI-LFM-A
	Midi	162675	LFMAP-D-MIDI
	Maxi	162676	LFMAP-D-MAXI

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