

Filter regulator LFR, LFRS (MPA)

FESTO



Characteristics

At a glance

Space-saving design with filter and regulator in a single device.

- Two pressure gauge connections for variable installation
- Sizes Mini, Midi, Maxi

Pneumatic connection

Individual fittings can be connected via connecting plates with female threads.

Version

[D] D series, metal

Sturdy in full metal design for the specific requirements of the process automation industry

Grade of filtration

Grade of filtration of 5 µm or 40 µm can be selected.

Pressure gauge

The filter regulator can be ordered with or without a pressure gauge. The interface has a thread of G1/4 or G1/8.

Function

Direct or pilot actuated pressure regulator with or without integrated return flow function.

The condensate is separated; then the compressed air is filtered. The output pressure is adjustable within the pressure range.

Condensate drain

The following functions can be selected:

- Manual
- Fully automatic, normally closed

Type code

001	Series	
LFR	Filter regulator	

002	Pneumatic connection	
1/8	Female thread G1/8	
1/4	Female thread G1/4	
3/8	Female thread G3/8	
1/2	Female thread G1/2	
3/4	Female thread G3/4	
1	Female thread G1	

003	Version	
D	D series, metal	

004	Pressure regulation range	
	0.5 ... 12 bar (0.05 ... 1.2 MPa)	
7	0.5 ... 7 bar (0.05 ... 0.7 MPa)	

005	Grade of filtration	
	40 µm	
5M	5 µm	

006	Pressure gauge	
	With pressure gauge	

007	Function	
	Directly actuated pressure regulator (MICRO, MINI, MIDI), pilot actuated pressure regulator (only MAXI)	
DI	Directly actuated pressure regulator with integrated return flow function (only MAXI)	

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

009	Condensate drain	
	Manually rotating	
A	Fully automatic	

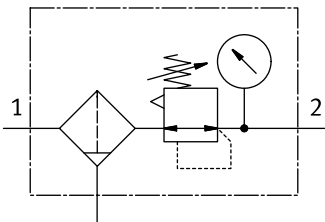
010	Display unit	
MPA	MPa	

Datasheet

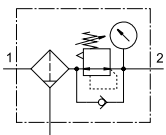
General technical data

General technical data										
Size	Maxi			Midi				Mini		
Pneumatic connection, port 1	G1/2	G3/4	G1	G1/4	G3/8	G1/2	G3/4	G1/8	G1/4	G3/8
Pneumatic connection, port 2	G1/2	G3/4	G1	G1/4	G3/8	G1/2	G3/4	G1/8	G1/4	G3/8
Standard nominal flow rate (standardised to DIN 1343)	7,500 ... 9,400 l/min	7,600 ... 10,000 l/min	7,800 ... 11,000 l/min	1,600 ... 2,100 l/min	2,400 ... 3,200 l/min	2,600 ... 3,900 l/min	2,600 ... 4,000 l/min	650 ... 900 l/ min	1,200 ... 1,500 l/min	1,350 ... 1,700 l/min
Max. pressure hysteresis	0.4 bar			0.2 bar						
Pressure regulation range	7.25 ... 174 psi									
Pressure regulation range	0.5 ... 12 bar									
Pressure regulation range	0.05 ... 1.2 MPa									
Design	Filter regulator with pressure gauge									
Condensate drain	Fully automatic Manually rotating									
Type of mounting	Either:, In-line installation, With accessories									
Mounting position	Vertical +/- 5°									
Grade of filtration	5 µm, 40 µm									
Actuator lock	Rotary knob with detent									
Pressure gauge (ANALOG) or Pressure display (DIGITAL)	With pressure gauge									
Air purity class at output	Compressed air to ISO 8573-1:2010 [6:8:4] Compressed air to ISO 8573-1:2010 [7:8:4] Inert gases									
Max. condensate volume	80 cm³		43 ... 80 cm³	43 cm³				22 cm³		

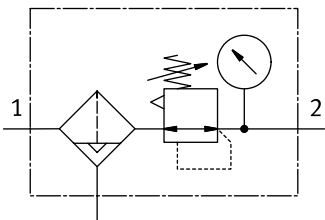
Function LFR/LFRS (manual condensate drain, with pressure gauge)



Function LFR/LFRS-...-DI-MAXI (manual condensate drain, with pressure gauge)



Function LFR/LFRS (semi- or fully automatic condensate drain, with pressure gauge)



Datasheet

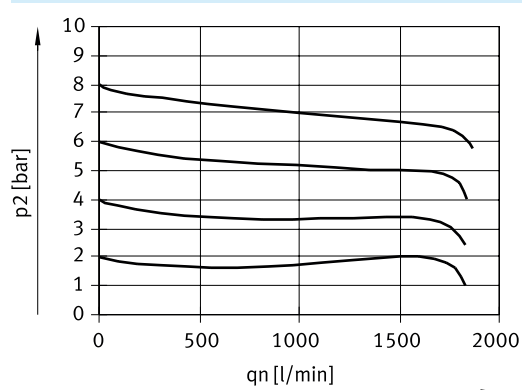
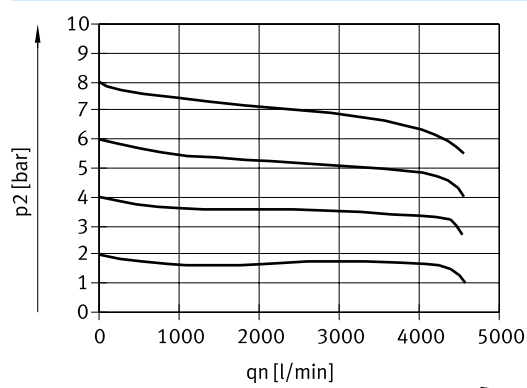
Operating and environmental conditions

Grade of filtration	5		40	
Condensate drain	Fully automatic	Manually rotating	Fully automatic	Manually rotating
Air purity class at output	Compressed air to ISO 8573-1:2010 [6:8:4], Inert gases		Compressed air to ISO 8573-1:2010 [7:8:4], Inert gases	
Operating pressure	0.2 ... 1.2 MPa	0.1 ... 1.6 MPa	0.2 ... 1.2 MPa	0.1 ... 1.6 MPa
Operating pressure	2 ... 12 bar	1 ... 16 bar	2 ... 12 bar	1 ... 16 bar
Operating pressure	29 ... 174 psi	14.5 ... 232 psi	29 ... 174 psi	14.5 ... 232 psi
Operating medium	Compressed air to ISO 8573-1:2010 [7:9:-] Inert gases	Compressed air to ISO 8573-1:2010 [-:9:-] Inert gases	Compressed air to ISO 8573-1:2010 [7:9:-] Inert gases	Compressed air to ISO 8573-1:2010 [-:9:-] Inert gases
Note on operating and pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)			
Ambient temperature	5 ... 60°C	-10 ... 60°C	5 ... 60°C	-10 ... 60°C
Media temperature	5 ... 60°C	-10 ... 60°C	5 ... 60°C	-10 ... 60°C
Storage temperature	-10 ... 60°C			
Corrosion resistance class CRC ¹⁾	2 - Moderate corrosion stress			

1.) More information www.festo.com/x/topic/crc

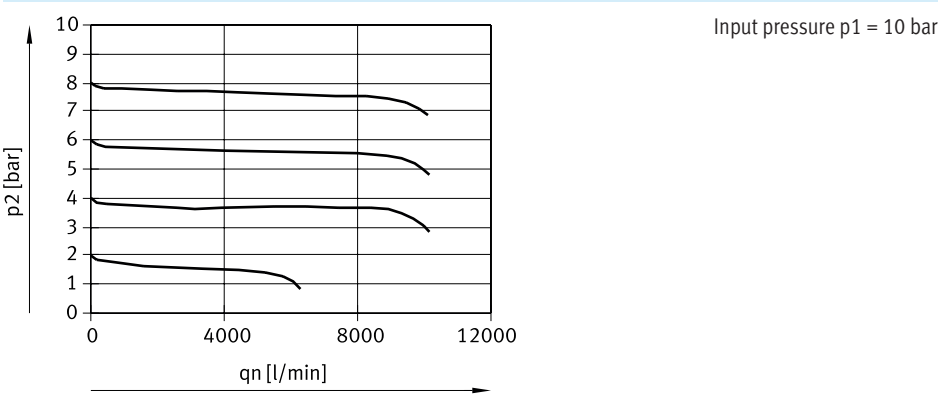
Materials

Material housing	Die-cast zinc
Material bowl	PC
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364-B1/B2-L

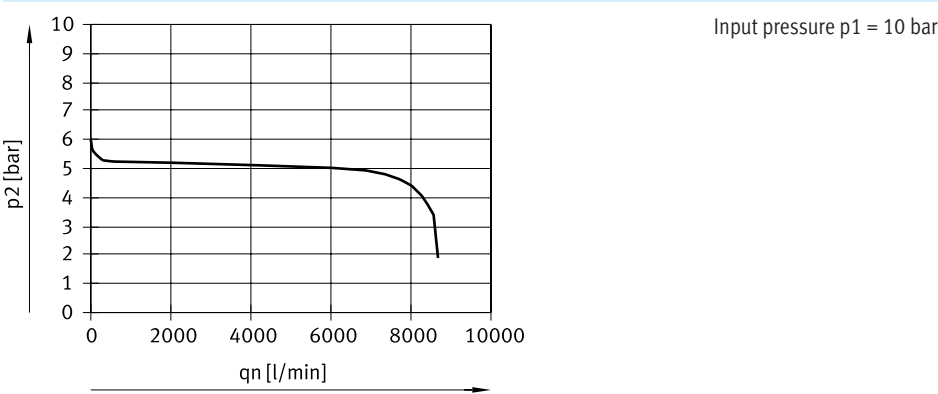
Standard flow rate q_n as a function of output pressure p_2 (LFR/LFRS-1/4-D-MINI)Standard flow rate q_n as a function of output pressure p_2 (LFR/LFRS-1/2-D-MIDI)

Datasheet

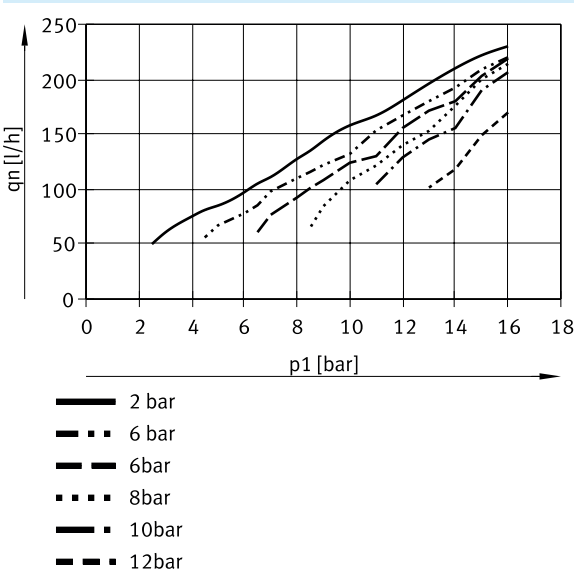
Standard flow rate q_n as a function of output pressure p_2 (LFR/LFRS-1-D-MAXI)



Standard flow rate q_n as a function of output pressure p_2 (LFR/LFRS-1-D-DI-MAXI)



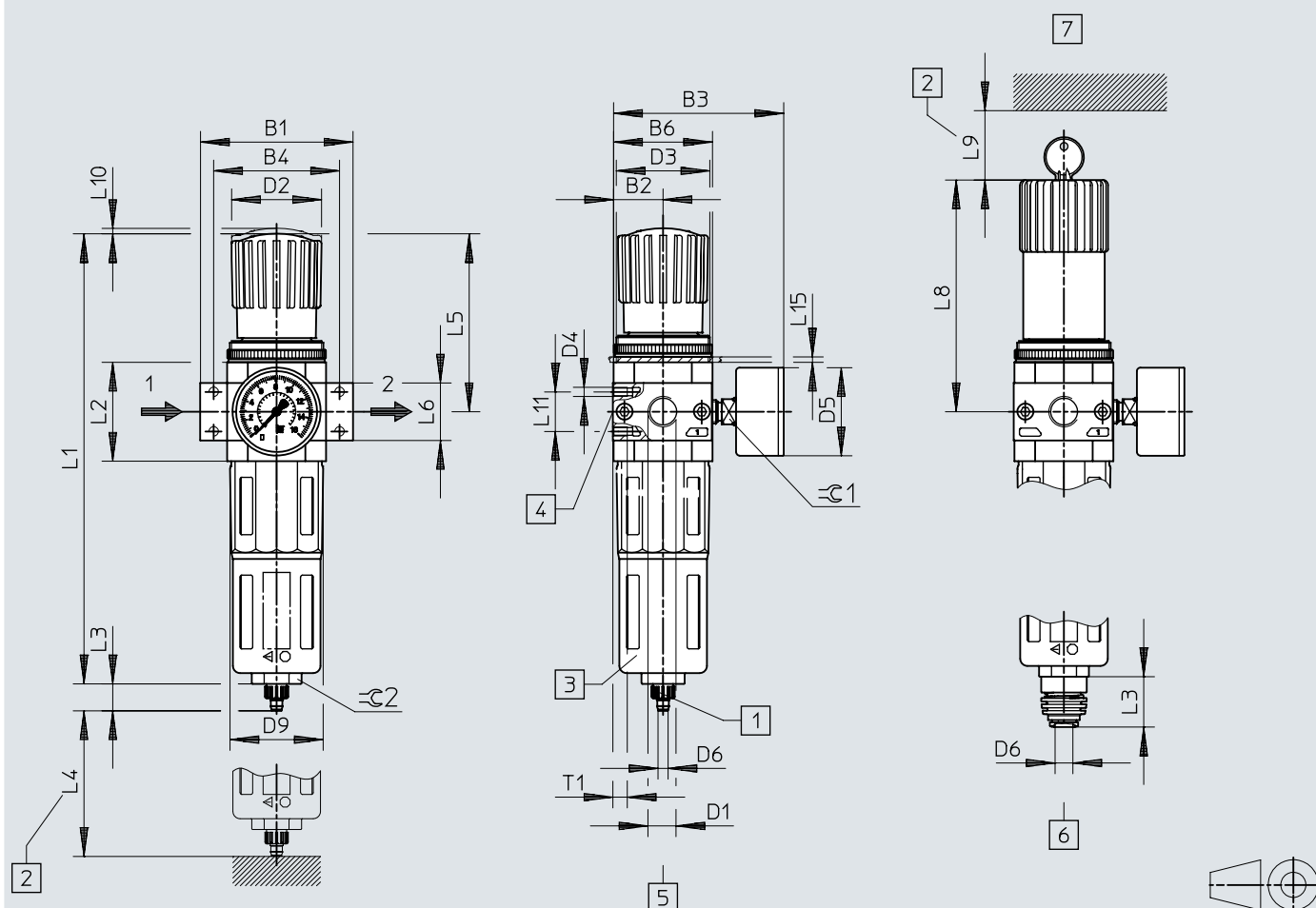
Internal air consumption q_n as a function of input pressure p_1 (LFR/LFRS-...-MAXI)



Dimensions

Dimensions – Filter regulators LFR/LFRS, Mini/Midi/Maxi

Download CAD data www.festo.com



- [1] Barbed connector for plastic tubing PUN(-H)-8x1.25
- [2] Installation dimension
- [3] Metal bowl guard
- [4] Second pressure gauge connection
- [5] Manual condensate drain
- [6] Fully automatic condensate drain for plastic tubing PUN-6/PAN-6
- [7] Lockable

Dimensions

	B1	B2	B3	B4	B6	D1	D2 Ø	D3	D4	D5 Ø	D6 Ø	D9 Ø
LFR/LFRS-1/8-D-MINI (A)	64	20	76	~52	40	G1/8	31	M36x1.5	M4	39	5,6	38
LFR/LFRS-1/4-D-MINI (A)						G1/4						
LFR/LFRS-3/8-D-MINI (A)						G3/8						
LFR/LFRS-1/4-D-MIDI (A)	~85	27,5	~94,5	~70	55	G1/4	50	M52x1.5	M5	39	5,6	52
LFR/LFRS-3/8-D-MIDI (A)						G3/8						
LFR/LFRS-1/2-D-MIDI (A)						G1/2						
LFR/LFRS-3/4-D-MIDI (A)						G3/4						
LFR/LFRS-1/2-D-MAXI (A)	96	33	106	80	66	G1/2	31	M36x1.5	M5	39	5,6	65
LFR/LFRS-1/2-D-DI-MAXI (A)			105				49	M52x1.5				
LFR/LFRS-3/4-D-MAXI (A)			106			G3/4	31	M36x1.5				
LFR/LFRS-3/4-D-DI-MAXI (A)			105				49	M52x1.5				
LFR/LFRS-1-D-MAXI (A)	116		106	91		G1	31	M36x1.5				
LFR/LFRS-1-D-DI-MAXI (A)			105				49	M52x1.5				

	L1	L2	L3	L4 min.	L5	L6	L8	L9	L10	L11 ±0,2	L15 max.	T1 min.	≈ 1	≈ 2
LFR/LFRS-1/8-D-MINI (A)	192,9	40	15 (19) ¹⁾	60	~69	20	98	60	3	11	3	7	14	22
LFR/LFRS-1/4-D-MINI (A)														
LFR/LFRS-3/8-D-MINI (A)														
LFR/LFRS-1/4-D-MIDI (A)	250	55 ±0,1	15 (19) ¹⁾	80	99	32 ±0,3	130	60	3	22	5	8	14	24
LFR/LFRS-3/8-D-MIDI (A)														
LFR/LFRS-1/2-D-MIDI (A)														
LFR/LFRS-3/4-D-MIDI (A)														
LFR/LFRS-1/2-D-MAXI (A)	252	66	15 (19) ¹⁾	90	82	32	111	60	3	22	4	8	14	24
LFR/LFRS-1/2-D-DI-MAXI (A)	275				~105	32	135		4					
LFR/LFRS-3/4-D-MAXI (A)	252				82	32	111		3					
LFR/LFRS-3/4-D-DI-MAXI (A)	275				~105	36	135		4					
LFR/LFRS-1-D-MAXI (A)	252				82	40	111		3					
LFR/LFRS-1-D-DI-MAXI (A)	275				~105	41	135		4					

Ordering data

Pressure regulation range 0.5 ... 12 bar, rotary knob with latch, connecting plates with threaded connection, with pressure gauge, outer scale in MPa, inner scale in bar							
Size	Condensate drain	Pneumatic connection, port 1	Grade of filtration	Standard nominal flow rate (standardised to DIN 1343)	Product weight	Part no.	Type
Maxi	Fully automatic	G1/2	5 µm	7,500 l/min	1,370 g	8025567	LFR-1/2-D-5M-MAXI-A-MPA
			40 µm	9,400 l/min		8002378	LFR-1/2-D-MAXI-A-MPA
		G3/4	5 µm	7,600 l/min		8002330	LFR-3/4-D-5M-MAXI-A-MPA
			40 µm	9,700 l/min		8002284	LFR-3/4-D-MAXI-A-MPA
		G1	5 µm	8,000 l/min	1,470 g	8002331	LFR-1-D-5M-MAXI-A-MPA
			40 µm	10,000 l/min		8002285	LFR-1-D-MAXI-A-MPA
	Manually rotating	G1/2	5 µm	7,500 l/min	1,370 g	8002377	LFR-1/2-D-5M-MAXI-MPA
			40 µm	9,400 l/min		8002376	LFR-1/2-D-MAXI-MPA
		G3/4	5 µm	7,600 l/min		8002322	LFR-3/4-D-5M-MAXI-MPA
			40 µm	9,700 l/min		8002280	LFR-3/4-D-MAXI-MPA
		G1	5 µm	8,000 l/min	1,470 g	8002323	LFR-1-D-5M-MAXI-MPA
			40 µm	10,000 l/min		8002281	LFR-1-D-MAXI-MPA
Midi	Fully automatic	G1/4	5 µm	1,600 l/min	900 g	8037020	LFR-1/4-D-5M-MIDI-A-MPA
			40 µm	2,000 l/min	920 g	8002374	LFR-1/4-D-MIDI-A-MPA
		G3/8	5 µm	2,400 l/min	900 g	8002327	LFR-3/8-D-5M-MIDI-A-MPA
			40 µm	3,100 l/min	920 g	8002259	LFR-3/8-D-MIDI-A-MPA
		G1/2	5 µm	2,600 l/min	900 g	8002328	LFR-1/2-D-5M-MIDI-A-MPA
			40 µm	3,400 l/min	920 g	8002261	LFR-1/2-D-MIDI-A-MPA
		G3/4	5 µm	2,600 l/min	900 g	8002329	LFR-3/4-D-5M-MIDI-A-MPA
			40 µm	3,400 l/min	920 g	8002299	LFR-3/4-D-MIDI-A-MPA
	Manually rotating	G1/4	5 µm	1,600 l/min	900 g	8002373	LFR-1/4-D-5M-MIDI-MPA
			40 µm	2,000 l/min	920 g	8002372	LFR-1/4-D-MIDI-MPA
		G3/8	5 µm	2,400 l/min	900 g	8002319	LFR-3/8-D-5M-MIDI-MPA
			40 µm	3,100 l/min	920 g	8002258	LFR-3/8-D-MIDI-MPA
		G1/2	5 µm	2,600 l/min	900 g	8002320	LFR-1/2-D-5M-MIDI-MPA
			40 µm	3,400 l/min	920 g	8002260	LFR-1/2-D-MIDI-MPA
		G3/4	5 µm	2,600 l/min	900 g	8002321	LFR-3/4-D-5M-MIDI-MPA
			40 µm	3,400 l/min	920 g	8002297	LFR-3/4-D-MIDI-MPA
Mini	Fully automatic	G1/8	5 µm	650 l/min	460 g	8002324	LFR-1/8-D-5M-MINI-A-MPA
			40 µm	750 l/min		8002282	LFR-1/8-D-MINI-A-MPA
		G1/4	5 µm	1,200 l/min		8002325	LFR-1/4-D-5M-MINI-A-MPA
			40 µm	1,400 l/min		8002283	LFR-1/4-D-MINI-A-MPA
		G3/8	5 µm	1,350 l/min		8002326	LFR-3/8-D-5M-MINI-A-MPA
			40 µm	1,600 l/min		8002298	LFR-3/8-D-MINI-A-MPA
	Manually rotating	G1/8	5 µm	650 l/min		8002316	LFR-1/8-D-5M-MINI-MPA
			40 µm	750 l/min		8002278	LFR-1/8-D-MINI-MPA
		G1/4	5 µm	1,200 l/min		8002317	LFR-1/4-D-5M-MINI-MPA
			40 µm	1,400 l/min		8002279	LFR-1/4-D-MINI-MPA
		G3/8	5 µm	1,350 l/min		8002318	LFR-3/8-D-5M-MINI-MPA
			40 µm	1,600 l/min		8002296	LFR-3/8-D-MINI-MPA

Pressure regulation range 0.5 ... 7 bar, rotary knob with latch, connecting cables with threaded connection, with pressure gauge, outer scale in MPa, inner scale in bar							
Size	Condensate drain	Pneumatic connection, port 1	Grade of filtration	Standard nominal flow rate (standardised to DIN 1343)	Product weight	Part no.	Type
Maxi	Fully automatic	G3/4	40 µm	10,000 l/min	1,370 g	8002314	LFR-3/4-D-7-MAXI-A-MPA
		G1		11,000 l/min	1,470 g	8002315	LFR-1-D-7-MAXI-A-MPA
	Manually rotating	G3/4		10,000 l/min	1,370 g	8002306	LFR-3/4-D-7-MAXI-MPA
		G1		11,000 l/min	1,470 g	8002307	LFR-1-D-7-MAXI-MPA
Midi	Fully automatic	G1/4		2,100 l/min	900 g	8002375	LFR-1/4-D-7-MIDI-A-MPA
		G3/8		3,200 l/min		8002311	LFR-3/8-D-7-MIDI-A-MPA
		G1/2		3,900 l/min		8002312	LFR-1/2-D-7-MIDI-A-MPA
		G3/4		4,000 l/min		8002313	LFR-3/4-D-7-MIDI-A-MPA
	Manually rotating	G3/8		3,200 l/min		8002303	LFR-3/8-D-7-MIDI-MPA
		G1/2		3,900 l/min		8002304	LFR-1/2-D-7-MIDI-MPA
		G3/4		4,000 l/min		8002305	LFR-3/4-D-7-MIDI-MPA
Mini	Fully automatic	G1/8		900 l/min	460 g	8002308	LFR-1/8-D-7-MINI-A-MPA

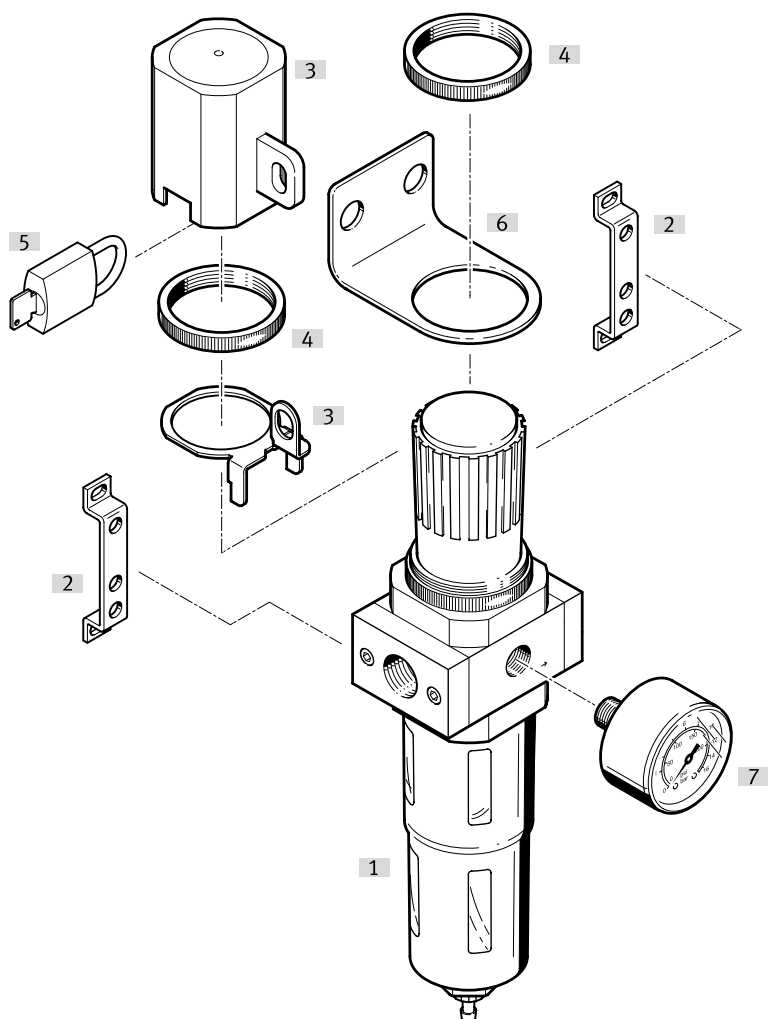
Ordering data

Pressure regulation range 0.5 ... 7 bar, rotary knob with latch, connecting cables with threaded connection, with pressure gauge, outer scale in MPa, inner scale in bar							
Size	Condensate drain	Pneumatic connection, port 1	Grade of filtration	Standard nominal flow rate (standardised to DIN 1343)	Product weight	Part no.	Type
Mini	Fully automatic	G1/4	40 µm	1,500 l/min	460 g	8002309	LFR-1/4-D-7-MINI-A-MPA
		G3/8		1,700 l/min		8002310	LFR-3/8-D-7-MINI-A-MPA
	Manually rotating	G1/8		900 l/min		8002300	LFR-1/8-D-7-MINI-MPA
		G1/4		1,500 l/min		8002301	LFR-1/4-D-7-MINI-MPA
		G3/8		1,700 l/min		8002302	LFR-3/8-D-7-MINI-MPA

Pressure regulation range 0.5 ... 7 bar, directly actuated diaphragm control valve with integrated reverse flow function, rotary knob with latch, connecting plates with threaded connection, with pressure gauge, outer scale in MPa, inner scale in bar							
Size	Condensate drain	Pneumatic connection, port 1	Grade of filtration	Standard nominal flow rate (standardised to DIN 1343)	Product weight	Part no.	Type
Maxi	Manually rotating	G1	40 µm	7,800 l/min	1,670 g	8002399	LFR-1-D-7-DI-MAXI-MPA

Peripherals

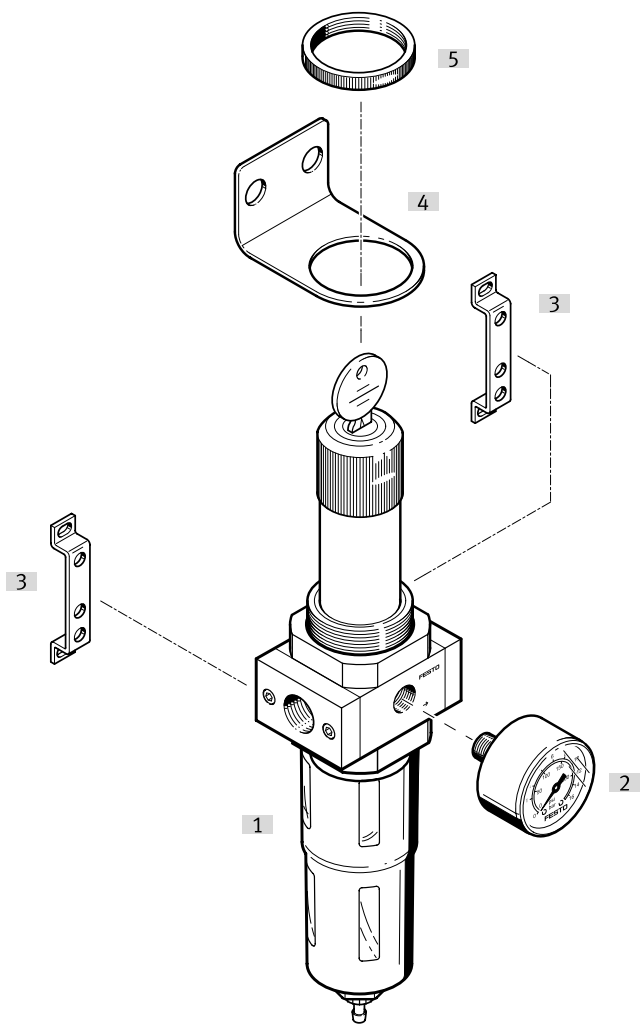
Filter regulator LFR



Accessories		→ Link
Type/order code	Description	
[1] Filter regulator LFR		lfr-d
[2] Mounting bracket HFOE		15
[3] Regulator lock LRVS		16
[4] Knurled nut HMR	Included in the scope of delivery	lfr-d
[5] Padlock LRVS-D		16
[6] Mounting bracket HR-D		15
[7] Pressure gauge MA		15

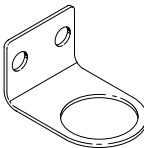
Peripherals

Filter regulator LFRS (lockable)



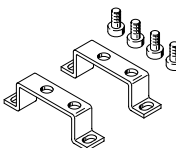
Accessories		→ Link
Type/order code	Description	
[1] Filter regulator LFRS		lfrs-d
[2] Pressure gauge MA		13
[3] Mounting bracket HFOE		13
[4] Mounting bracket HR-D		13
[5] Knurled nut HMR	Included in the scope of delivery	lfrs-d

Accessories

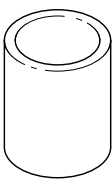
Mounting bracket HR-D-R3					
	Material bracket	Corrosion resistance class CRC ¹⁾	Product weight	Part no.	Type
		1 - Low corrosion stress		164936	HR-D-MINI
		2 - Moderate corrosion stress		162804	HR-D-MIDI
				162805	HR-D-MAXI
				193802	HR-D-DI-MAXI
	Steel	3 - high corrosion stress	73 g	4650310	HR-D-R3

1) Corrosion resistance class CRC 3 to Festo standard FN 940070

High corrosion stress. Outdoor exposure under moderate corrosive conditions. External visible parts with primarily functional surface requirements that are in direct contact with a normal industrial environment.

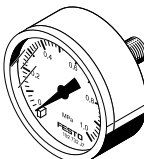
Mounting bracket HFOE-D-MIDI/MAXI				
	Short type code	Corrosion resistance class CRC ¹⁾	Part no.	Type
	HFOE	2 - Moderate corrosion stress	159593	HFOE-D-MIDI/MAXI

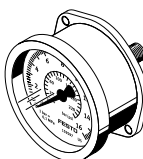
1) More information: www.festo.com/x/topic/crc

Filter cartridges, D series, metal				
	Size	Grade of filtration ¹⁾	Part no.	Type
	Maxi	5 µm	159641	LFP-D-MAXI-5M
		40 µm	363664	LFP-D-MAXI-40M
	Midi	5 µm	159594	LFP-D-MIDI-5M
		40 µm	363667	LFP-D-MIDI-40M
	Mini	5 µm	159640	LFP-D-MINI-5M
		40 µm	363665	LFP-D-MINI-40M

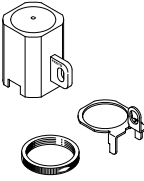
1) Grade of filtration 5 µm: colour blue

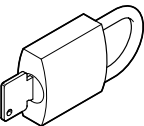
Grade of filtration 40 µm: colour white

Pressure gauge MA						
	Pneumatic connection	Indicating range	Conforms to standard	Product weight	Part no.	Type
	G1/8	0 ... 10 bar	EN 837-1	60 g	359874	MA-40-10-1/8
		0 ... 16 bar			345395	MA-40-16-1/8
	G1/4	0 ... 10 bar		70 g	183900	MA-40-10-G1/4-EN
		0 ... 16 bar			359873	MA-50-10-1/4
	R1/8	0 ... 10 bar		60 g	356759	MA-50-16-1/4
		0 ... 10 bar			162835	MA-40-10-1/8-EN

Flanged pressure gauge FMA						
	Size	Pneumatic connection	Indicating range	Product weight	Part no.	Type
	Diameter 40 mm	G1/4	0 ... 10 bar	80 g	159596	FMA-40-10-1/4-EN
			0 ... 16 bar		159597	FMA-40-16-1/4-EN
	Diameter 50 mm		0 ... 10 bar	100 g	159599	FMA-50-10-1/4-EN
			0 ... 16 bar		159600	FMA-50-16-1/4-EN

Accessories

Regulator lock LRVS					
	Size	LABS (PWIS) conformity	Product weight	Part no.	Type
	Grid dimension 40 mm (without sub-bases)	VDMA24364-B1/B2-L	40 g	193781	LRVS-D-MINI
	Grid dimension 55 mm (without sub-bases)		60 g	193782	LRVS-D-MIDI
	Grid dimension 66 mm (without sub-bases)		36 g	193784	LRVS-D-DI-MAXI
			56 g	193783	LRVS-D-MAXI

Padlock LRVS-D					
	Corrosion resistance class CRC	LABS (PWIS) conformity	Product weight	Part no.	Type
	2 - Moderate corrosion stress	VDMA24364-B1/B2-L	120 g	193786	LRVS-D