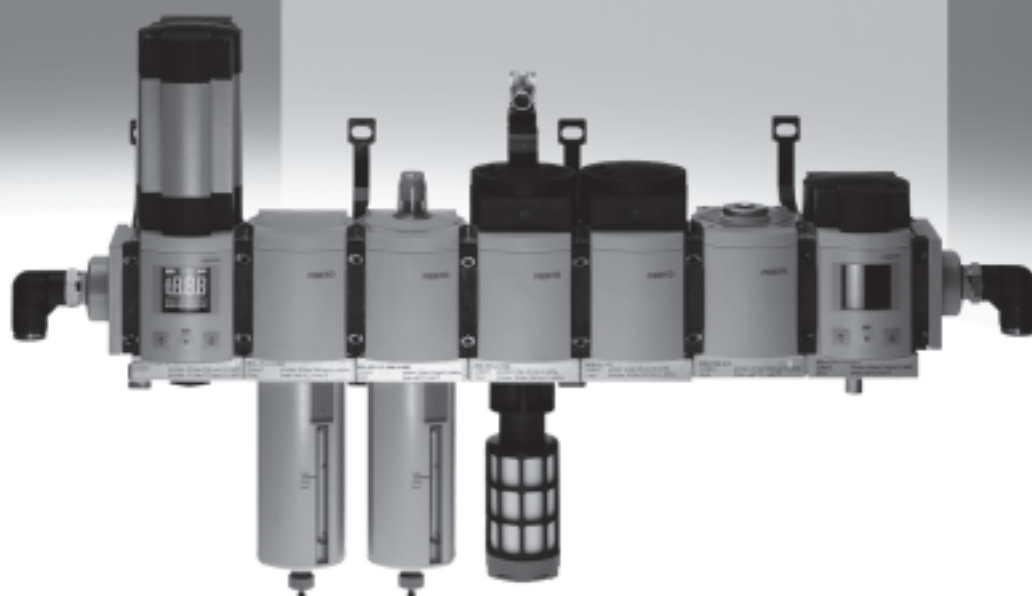


Filter regulators MS-LFR, MS series

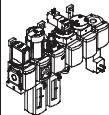
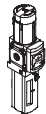
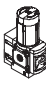
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Filter regulators MS-LFR, MS series

Product range overview – MS series service units

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Type		Size		Pneumatic connection in housing	Connecting plate	Pressure regulation range						Grade of filtration			
						[bar]						[µm]			
						0.05 ... 0.7	0.05 ... 2.5	0.1 ... 4	0.3 ... 7	0.1 ... 12	0.5 ... 16				
Code					AG...	D2	D4	D5	D6	D7	D8	A	B	C	E
Service units															
MSB-FRC		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	■	■	–	–	–	■	■	
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	■	■	–	–	–	■	■	
		9	–												
		12	–												
Service unit combinations (further variants can be ordered using the configurator → Internet: msb4, msb6 or msb9)															
MSB		4	G1/4	G1/8, G1/4, G3/8	–	–	–	■	■	–	–	–	■	■	
		6	G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	■	■	–	–	–	■	■	
		9	–												
		12	–												
Individual devices															
Filter regulators MS-LFR		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	■	■	■	–	–	–	■	■	
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	■	■	■	■	–	–	■	■	
		9	–												
		12	–	G1, G1¼, G1½, G2	–	–	–	■	■	■	–	–	■	■	
Filter MS-LF		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–	–	■	■	
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	■	■	
		9	–												
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–	■	■	
Fine and micro filters MS-LFM		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	■	■	–	–	
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	■	■	–	–	
		9	G3/4, G1	G1/2, G3/4, G1, G1¼, G1½	–	–	–	–	–	–	■	■	–	–	
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	■	■	–	–	
Activated carbon filters MS-LFX		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–	–	–	–	
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	–	–	
		9	G3/4, G1	G1/2, G3/4, G1, G1¼, G1½	–	–	–	–	–	–	–	–	–	–	
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–	–	–	
Pressure regulators MS-LR		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	■	■	■	–	–	–	–	–	
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	■	■	■	■	–	–	–	–	
		9	–												
		12	–	G1, G1¼, G1½, G2	–	–	–	■	■	■	–	–	–	–	
Pressure regulators MS-LRB		4	G1/4	G1/8, G1/4, G3/8	–	–	■	■	■	–	–	–	–	–	
		6	G1/2	G1/4, G3/8, G1/2, G3/4	–	–	■	■	■	■	–	–	–	–	
		9	–												
		12	–												
Precision pressure regulators MS-LRP		4	–												
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	■	■	■	–	■	–	–	–	–	–	
		9	–												
		12	–												
Precision pressure regulators MS-LRPB		4	–												
		6	G1/2	G1/4, G3/8, G1/2, G3/4	■	■	■	–	■	–	–	–	–	–	
		9	–												
		12	–												

Filter regulators MS-LFR, MS series

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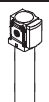
Product range overview – MS series service units

Type	Size	Bowl guard		Condensate drains				Pressure indicator					Actuator lock		Options		→ Page/ Internet
		Plastic bowl with plastic bowl guard	Metal bowl	Manual rotary	Semi-automatic	Fully automatic	External, fully automatic, electrical	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor with display	Rotary knob, lockable	Rotary knob, long	Silencer	Flow direction from right to left	
Code		R	U	M	H	V	E ...	VS	AG	A8	A4	AD...	AS	LD	S	Z	
Service units																	
MSB-FRC	4	■	–	■	–	■	–	–	■	–	–	–	■	–	–	■	msb4
	6	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb6
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Service unit combinations																	
MSB	4	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb4
	6	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb6
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Individual devices																	
Filter regulators MS-LFR	4	■	■	■	■	■	–	■	■	■	■	■	■	■	–	■	8
	6	■	■	■	■	■	■	■	■	–	■	■	■	■	–	■	8
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	■	■	–	■	■	■	■	–	■	–	■	■	–	■	22
Filters MS-LF	4	■	■	■	■	■	–	–	–	–	–	–	–	–	–	■	ms4-lf
	6	■	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms6-lf
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	■	■	–	■	■	–	–	–	–	–	–	–	–	■	ms12-lf
Fine and micro filters MS-LFM	4	■	■	■	■	■	–	–	–	–	–	–	–	–	–	■	ms4-lfm
	6	■	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms6-lfm
	9	–	■	■	–	■	■	–	–	–	–	–	–	–	–	■	ms9-lfm
	12	–	■	■	–	■	■	–	–	–	–	–	–	–	–	■	ms12-lfm
Activated carbon filters MS-LFX	4	■	■	–	–	–	–	–	–	–	–	–	–	–	–	■	ms4-lfx
	6	■	■	–	–	–	–	–	–	–	–	–	–	–	–	■	ms6-lfx
	9	–	■	–	–	–	–	–	–	–	–	–	–	–	–	■	ms9-lfx
	12	–	■	–	–	–	–	–	–	–	–	–	–	–	–	■	ms12-lfx
Pressure regulators MS-LR	4	–	–	–	–	–	–	■	■	■	■	■	■	■	–	■	ms4-lr
	6	–	–	–	–	–	–	■	■	–	■	■	■	■	–	■	ms6-lr
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	■	■	–	■	–	■	■	–	■	ms12-lr
Pressure regulators MS-LRB	4	–	–	–	–	–	–	■	■	■	■	■	■	■	–	■	ms4-lrb
	6	–	–	–	–	–	–	■	■	–	■	■	■	■	–	■	ms6-lrb
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Precision pressure regulators MS-LRP	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	6	–	–	–	–	–	–	■	–	■	■	■	■	■	–	■	ms6-lrp
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Precision pressure regulators MS-LRPB	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	6	–	–	–	–	–	–	■	–	■	■	■	■	■	–	■	ms6-lrpb
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Filter regulators MS-LFR, MS series

Product range overview – MS series service units

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Type	Size			Pressure regulation range [bar]	Supply voltage							
					0.3 ... 4	0.3 ... 7	0.5 ... 12	0.5 ... 16	24 V DC, connection pattern to EN 175301	24 V DC, connection pattern M12 to DESINA	110 V AC, connection pattern to EN 175301	230 V AC, connection pattern to EN 175301
Code		Pneumatic connection in housing	Connecting plate		D5	D6	D7	D8	V24	V24P	V110	V230
Individual devices												
Electrical pressure regulators MS-LRE		4	–						–	–	–	–
		6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	■	■	■	■	–	–	–	–
		9	–									
		12	–									
Lubricators MS-LOE		4	G ¹ / ₈ , G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	–	–	–	–	–	–	–	–
		6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	–	–	–	–	–	–	–	–
		9	–									
		12	–	G1, G1 ¹ / ₄ , G1 ¹ / ₂ , G2	–	–	–	–	–	–	–	–
Electrical on-off valves MS-EM(1)		4	G ¹ / ₈ , G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	–	–	–	–	–	–	–	–
		6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	–	–	–	–	–	–	–	–
		9	–									
		12	–	G1, G1 ¹ / ₄ , G1 ¹ / ₂ , G2	–	–	–	–	–	–	–	–
Electrical on-off valves MS-EE		4	G ¹ / ₈ , G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	–	–	–	–	■	–	■	■
		6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	–	–	–	–	■	–	■	■
		9	–									
		12	–	G1, G1 ¹ / ₄ , G1 ¹ / ₂ , G2	–	–	–	–	■	■	■	■
Electrical soft-start valves MS-DL		4	G ¹ / ₈ , G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	–	–	–	–	–	–	–	–
		6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	–	–	–	–	–	–	–	–
		9	–									
		12	–	G1, G1 ¹ / ₄ , G1 ¹ / ₂ , G2	–	–	–	–	–	–	–	–
Electrical soft-start valves MS-DE		4	G ¹ / ₈ , G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	–	–	–	–	■	–	■	■
		6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	–	–	–	–	■	–	■	■
		9	–									
		12	–	G1, G1 ¹ / ₄ , G1 ¹ / ₂ , G2	–	–	–	–	■	■	■	■
Soft start and exhaust valves MS-SV		4	–									
		6	G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	–	–	–	–	■	–	–	–
		9	–									
		12	–									
Membrane air dryers MS-LDM1		4	G ¹ / ₈ , G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	–	–	–	–	–	–	–	–
		6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	–	–	–	–	–	–	–	–
		9	–									
		12	–									

Filter regulators MS-LFR, MS series

Product range overview – MS series service units

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Type	Size	Bowl guard		Pressure indicator					Options		→ Page/ Internet
		Plastic bowl with plastic bowl guard	Metal bowl	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor with display	Silencer	Flow direction from right to left	
Individual devices											
Electrical pressure regulators MS-LRE	4	-									-
	6	-	-	■	■	-	■	-	-	■	ms6-lre
	9	-									-
	12	-									-
Lubricators MS-LOE	4	■	■	-	-	-	-	-	-	■	ms4-loe
	6	■	■	-	-	-	-	-	-	■	ms6-loe
	9	-									-
	12	-	■	-	-	-	-	-	-	■	ms12-loe
Electrical on-off valves MS-EM(1)	4	-	-	■	■	■	■	■	■	■	ms4-em1
	6	-	-	■	■	-	■	■	■	■	ms6-em1
	9	-									-
	12	-	-	■	■	-	■	-	■	■	ms12-em
Electrical on-off valves MS-EE	4	-	-	■	■	■	■	■	■	■	ms4-ee
	6	-	-	■	■	-	■	■	■	■	ms6-ee
	9	-									-
	12	-	-	■	■	-	■	-	■	■	ms12-ee
Electrical soft-start valves MS-DL	4	-	-	■	■	■	■	■	-	■	ms4-dl
	6	-	-	■	■	-	■	■	-	■	ms6-dl
	9	-									-
	12	-	-	■	■	-	■	-	-	■	ms12-dl
Electrical soft-start valves MS-DE	4	-	-	■	■	■	■	■	-	■	ms4-de
	6	-	-	■	■	-	■	■	-	■	ms6-de
	9	-									-
	12	-	-	■	■	-	■	-	-	■	ms12-de
Soft start and exhaust valves MS-SV	4	-									-
	6	-	-	■	■	-	■	■	■	■	ms6-sv
	9	-									-
	12	-									-
Membrane air dryers MS-LDM1	4	-	■	-	-	-	-	-	-	■	ms4-ldm1
	6	-	■	-	-	-	-	-	-	■	ms6-ldm1
	9	-									-
	12	-									-

Filter regulators MS-LFR, MS series

Product range overview – MS series service units

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Type	Size				Pressure regulation range [bar]				Supply voltage			
Code		Pneumatic connection in housing	Connecting plate	0.3 ... 4	0.3 ... 7	0.5 ... 12	0.5 ... 16	24 V DC, connection pattern to EN 175301	24 V DC, connection pattern M12 to DESINA	110 V AC, connection pattern to EN 175301	230 V AC, connection pattern to EN 175301	
			AG...	D5	D6	D7	D8	V24	V24P	V110	V230	
Individual devices												
Branching modules MS-FRM		4	G1⁄8, G1⁄4	G1⁄8, G1⁄4, G3⁄8	–	–	–	–	–	–	–	
		6	G1⁄4, G3⁄8, G1⁄2	G1⁄4, G3⁄8, G1⁄2, G3⁄4	–	–	–	–	–	–	–	
		9	–									
		12	–	G1, G11⁄4, G11⁄2, G2	–	–	–	–	–	–	–	
Distributor blocks MS-FRM-FRZ		4	G1⁄4	–	–	–	–	–	–	–	–	
		6	G1⁄2	–	–	–	–	–	–	–	–	
		9	–									
		12	–									
Flow sensors MS-SFE		4	–									
		6	G1⁄2	G1⁄2	–	–	–	–	–	–	–	
		9	–									
		12	–									

Filter regulators MS-LFR, MS series

Product range overview – MS series service units

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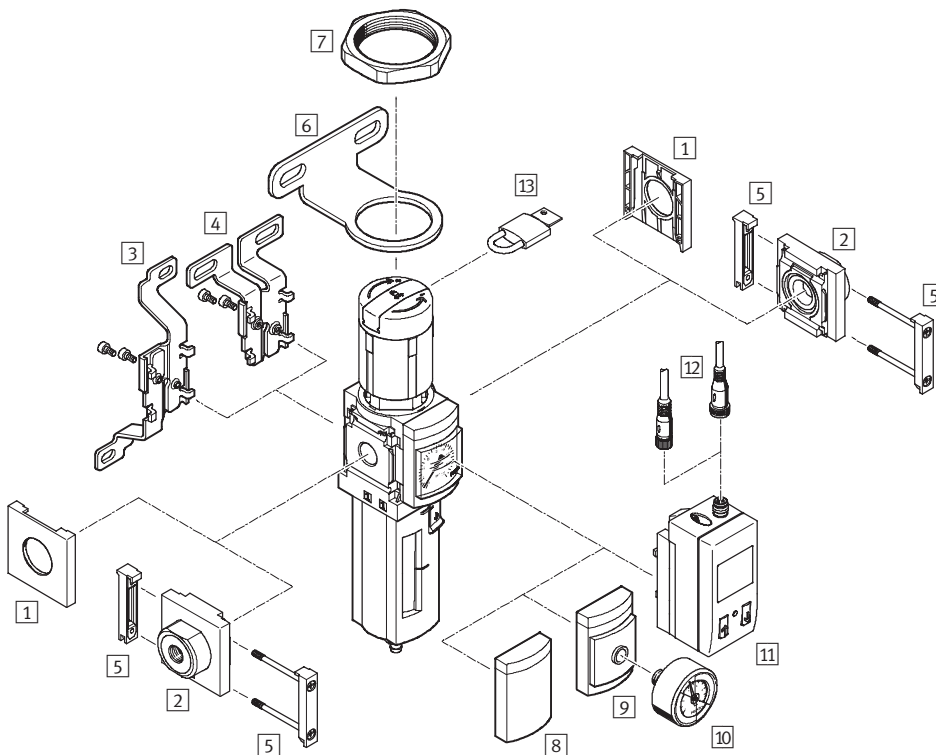
Type	Size	Pressure indicator					Switch output		Options		→ Page/ Internet
		Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor with display	2x PNP	2x NPN	Silencer	Flow direction from right to left	
VS	AG	A8	A4	AD...	P2	N2	S	Z			
Individual devices											
Branching modules MS-FRM	4	■	■	■	■	■	-	-	-	■	ms4-frm
	6	■	■	-	■	■	-	-	-	■	ms6-frm
	9	-									-
	12	■	-	-	-	-	-	-	-	-	ms12-frm
Distributor blocks MS-FRM-FRZ	4	-	-	-	-	-	-	-	-	-	ms4-frm
	6	-	-	-	-	-	-	-	-	-	ms6-frm
	9	-									-
	12	-									-
Flow sensors MS-SFE	4	-									-
	6	-	-	-	-	-	■	■	-	■ ¹⁾	ms6-sfe
	9	-									-
	12	-									-

1) Can only be ordered using the configurator → Internet: ms6-sfe

Filter regulators MS4/MS6-LFR, MS series

Peripherals overview

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Note

Additional accessories:

- Module connector for combination with sizes MS4/MS6 or size MS9 → Internet: amv, rmv, armv
- Adapter plate for mounting on profiles → Internet: ipm-80, ipm-40-80, ipm-80-80

Mounting attachments and accessories

		Individual unit		Combination		→ Page/Internet
		without connecting plate	with connecting plate	without connecting plate	with connecting plate	
1	Cover cap MS4/6-END	■	–	■	–	ms4-end, ms6-end
2	Connecting plate MS4/6-AG...	–	■	–	■	ms4-ag, ms6-ag
3	Mounting bracket MS4/6-WB	■	■	–	–	ms4-wb, ms6-wb
4	Mounting bracket MS4-WBM	■	■	–	–	ms4-wbm
5	Module connector MS4/6-MV	–	■	■	■	ms4-mv, ms6-mv
6	Regulator wall bracket MS4/6-WR	■	■	–	–	ms4-wr, ms6-wr
7	Hex nut MS4/6-WRS	■	■	■	■	ms4-wrs, ms6-wrs
8	Cover plate VS	■	■	■	■	20
9	Adapter for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	20
10	Pressure gauge MA	■	■	■	■	32
11	Pressure sensor SDE1-...-MS AD1 ... AD4	■	■	■	■	20
12	Plug socket with cable SIM-M8-3.../SIM-M12-4...	■	■	■	■	sim
13	Padlock LRVS-D	■	■	■	■	32
–	Mounting bracket MS4/6-WP/WPB/WPM	–	■	■	■	ms4-wp, ms6-wp

Filter regulators MS4/MS6-LFR, MS series

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Type codes

		MS	6	-	LFR	-	1/2	-	D7	-	E	R	M	-	AS
Series															
MS	Standard service unit														
Size															
4	Grid dimension 40 mm														
6	Grid dimension 62 mm														
Service function															
LFR	Filter regulator														
Pneumatic connection															
1/8	Thread G1/8														
1/4	Thread G1/4														
3/8	Thread G3/8														
1/2	Thread G1/2														
Pressure regulation range															
D6	Pressure regulation range 0.3 ... 7 bar														
D7	Pressure regulation range 0.5 ... 12 bar														
Grade of filtration															
C	5 µm														
E	40 µm														
Bowl guard															
R	Plastic bowl guard														
U	Metal bowl														
Condensate drain															
M	Manual rotary														
V	Fully automatic														
Security															
AS	Lockable standard type rotary knob														

Further variants can be ordered using the modular system

Filter regulators LFR → 20

- Connecting plates
- Pressure regulation range
- Condensate drain
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Rotary knob
- Security
- Type of mounting
- Alternative flow direction

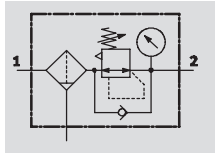
Filter regulators MS4/MS6-LFR, MS series

FESTO

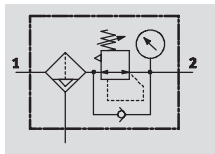
Technical data

Function

Manual rotary condensate drain, with pressure gauge



Semi- or fully automatic condensate drain, with pressure gauge



With this device, the filter and pressure regulator are combined into a single unit. The sintered filter with water separator removes contamination, pipe sinter, rust and condensate from the compressed air.

Flow rate
850 ... 7,200 l/min

Temperature range
-10 ... +60 °C

Input pressure
0.8 ... 20 bar

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Wearing parts kits
→ 19

- Good regulation characteristics with low hysteresis and primary pressure compensation
- Good particle and condensate separation
- Available with or without secondary venting



- High flow rates
- Directly actuated diaphragm regulator
- Four pressure regulation ranges: 0.3 ... 4 bar, 0.3 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Lockable rotary knob
- Two pressure gauge connections for different fitting options
- Return flow option for exhausting from output 2 to output 1
- Optional pressure sensor with display
- Choice of filter cartridges: 5 µm or 40 µm
- New filter cartridges → 32

General technical data					
Size		MS4		MS6	
Pneumatic connection 1, 2		G1/8	G1/4	G1/4	G3/8 G1/2
Design		Filter regulator with/without pressure display			
Regulating function		With/without secondary venting			
		Via return flow function			
		Output pressure constant			
Type of mounting		Via accessories			
		In-line installation			
		Front panel mounting			
Assembly position		Vertical ± 5°			
Grade of filtration [µm]		5 (air purity class at the output 3.7.– to DIN ISO 8573-1)			
		40 (air purity class at the output 5.7.– to DIN ISO 8573-1)			
Bowl guard		Plastic bowl guard			
		Metal bowl			
Condensate drain		Manual rotary			
		Semi-automatic			
		Fully automatic			
		–		Fully automatic, electrical	
Actuator lock		Rotary knob with detent			
		Rotary knob with integrated lock			
		Lockable with accessories			
Pressure regulation range	D5 [bar]	0.3 ... 4			
	D6 [bar]	0.3 ... 7			
	D7 [bar]	0.5 ... 12 (0.5 ... 10 with pressure sensor variant AD...)			
	D8 [bar]	–		0.5 ... 16	
Max. hysteresis [bar]		0.25			
Pressure display		Via pressure sensor for displaying output pressure and electrical output			
		Via pressure gauge for displaying output pressure			
Max. condensate volume [cm³]		19 (with plastic bowl guard)		38	
		25 (with metal bowl)			

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

Filter regulators MS4/MS6-LFR, MS series

FESTO

Technical data

Standard nominal flow rate $q_{nN}^{1)}$ [l/min]						
Size	MS4			MS6		
Pneumatic connection	G $\frac{1}{8}$	G $\frac{1}{4}$		G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
D5 – Pressure regulation range 0.3 ... 4 bar						
Grade of filtration	5 μ m	900 ²⁾	1,800 ²⁾	2,000 ²⁾	5,500 ²⁾	6,900 ²⁾
	40 μ m	1,100 ²⁾	1,900 ²⁾	2,200 ²⁾	6,000 ²⁾	7,200 ²⁾
D6 – Pressure regulation range 0.3 ... 7 bar						
Grade of filtration	5 μ m	900	1,500	2,700	5,000	5,600
	40 μ m	1,000	1,700	2,800	5,700	6,200
D7 – Pressure regulation range 0.5 ... 12 bar						
Grade of filtration	5 μ m	850	1,200	2,200	3,500	4,000
	40 μ m	900	1,500	2,500	4,000	4,500
D8 – Pressure regulation range 0.5 ... 16 bar						
Grade of filtration	5 μ m	–	–	2,000	3,300	3,800
	40 μ m	–	–	2,300	3,500	4,000

1) Measured at $p_1 = 10$ bar and $p_2 = 6$ bar, $\Delta p = 1$ bar

2) Measured at $p_1 = 10$ bar and $p_2 = 3$ bar, $\Delta p = 1$ bar

Operating and environmental conditions							
Condensate drain	Manual rotary		Semi-automatic		Fully automatic		Fully automatic, electrical E1 ... E4
	M		H		V		
Size	MS4	MS6	MS4	MS6	MS4	MS6	MS6
Input pressure [bar]	0.8 ... 14	0.8 ... 20	1.5 ... 12	1.5 ... 12	2 ... 12	2 ... 12	0.8 ... 16
Operating medium	Compressed air						
Operating medium with pressure sensor AD...	Filtered compressed air, lubricated or unlubricated, grade of filtration 40 µm						
Ambient temperature [°C]	-10 ... +60		+5 ... +60		+5 ... +60		+1 ... +60
Ambient temperature with pressure sensor AD...	0 ... +50		+5 ... +50		+5 ... +50		+1 ... +50
Temperature of medium [°C]	-10 ... +60		+5 ... +60		+5 ... +60		+1 ... +60
Medium temperature with pressure sensor AD...	0 ... +50		+5 ... +50		+5 ... +50		+1 ... +50
Storage temperature [°C]	-10 ... +60		-10 ... +60		-10 ... +60		+1 ... +60
Corrosion resistance class CRC ¹⁾	2						

1) Corrosion resistance class 2 to Festo standard 940 070

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

Weight [g]				
Size	MS4		MS6	
Rotary knob	Without integrated lock E11	With integrated lock E11	Without integrated lock E11	With integrated lock E11
Filter regulator with plastic bowl guard R	275	400	875	1,145
Filter regulator with metal bowl U	475	600	1,087	1,627
Filter regulator with metal bowl U and condensate drain fully automatic, electrically actuated E1 ... E4	–	–	1,800	2,070

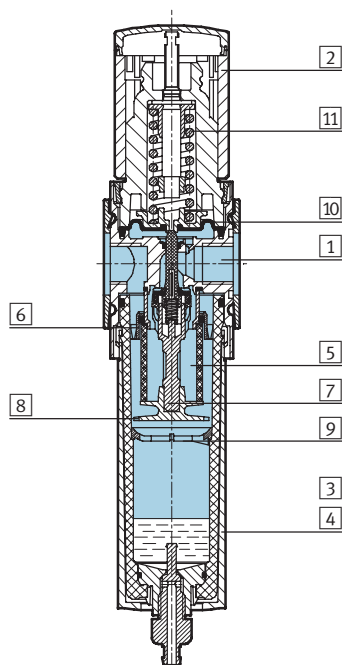
Filter regulators MS4/MS6-LFR, MS series

Technical data



Materials

Sectional view



Filter regulator		
1	Housing	Die-cast aluminium
2	Rotary knob	Polyamide/polyacetate
	Rotary knob with integrated lock E11	Aluminium
3	Plastic bowl guard	Polycarbonate/polyamide
4	Metal bowl	Aluminium
	Inspection window	Polyamide
5	Filter element	Polyethylene
6	Spin disc	Polyacetate
7	Filter holder	Polyacetate
8	Separating plate	Polyacetate
9	Stabilising disc	Polyacetate
10	Diaphragm	Nitrile rubber
11	Spring	Steel
–	Seals	Nitrile rubber
Note on materials		Free of copper and PTFE only with cover plate VS

Filter regulators MS4/MS6-LFR, MS series

Technical data

FESTO

Standard flow rate q_n as a function of output pressure p_2

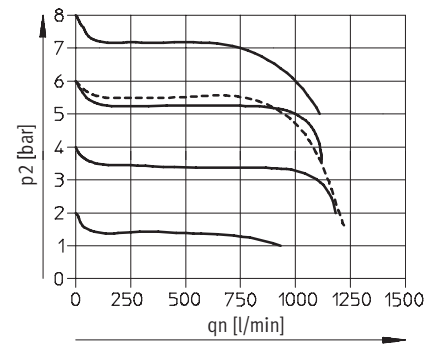
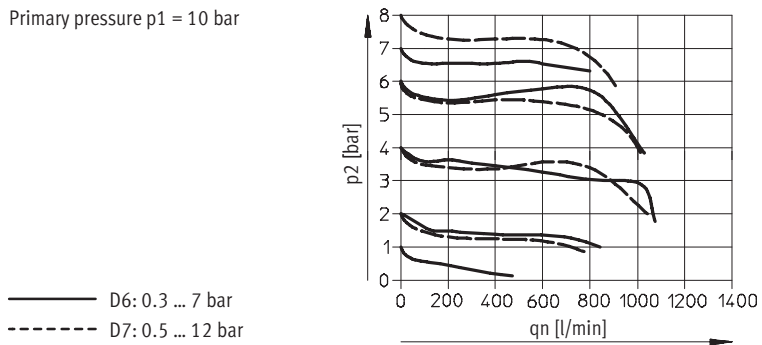
Pressure regulation range D6 or D7

Grade of filtration 5 μm

Grade of filtration 40 μm

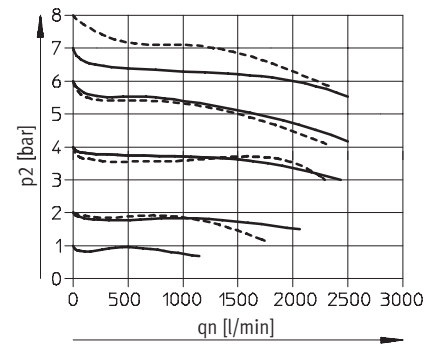
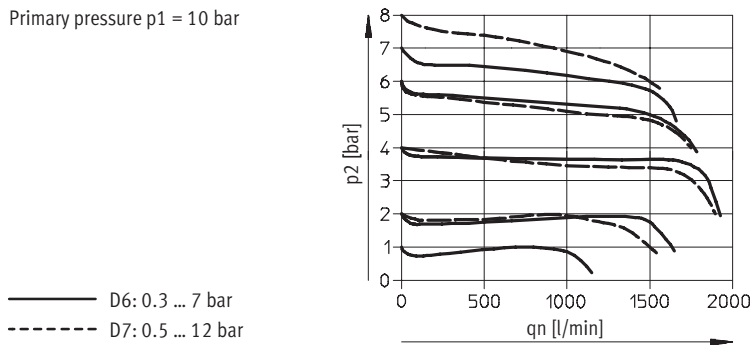
MS4-LFR-1/8

Primary pressure $p_1 = 10$ bar



MS4-LFR-1/4

Primary pressure $p_1 = 10$ bar



Filter regulators MS4/MS6-LFR, MS series

Technical data

FESTO

Standard flow rate q_n as a function of output pressure p_2

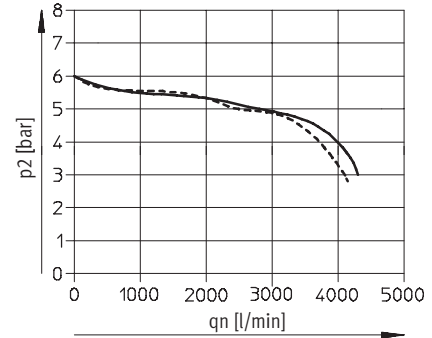
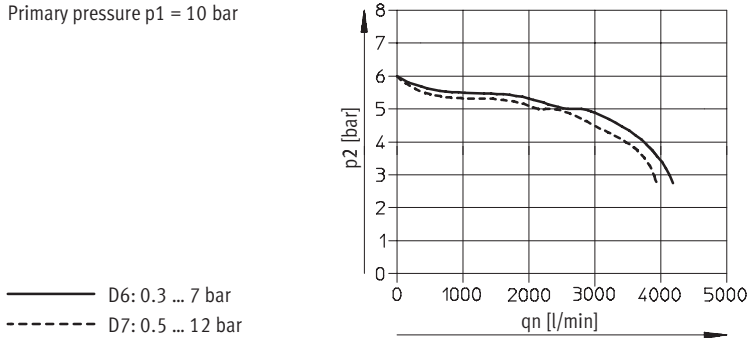
Pressure regulation range D6 or D7

Grade of filtration 5 μm

Grade of filtration 40 μm

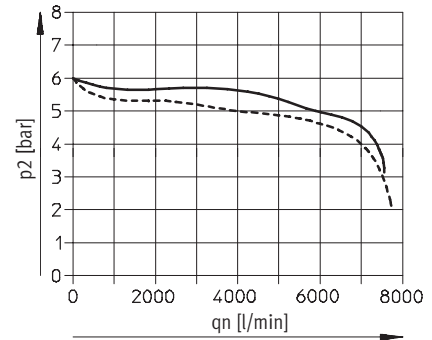
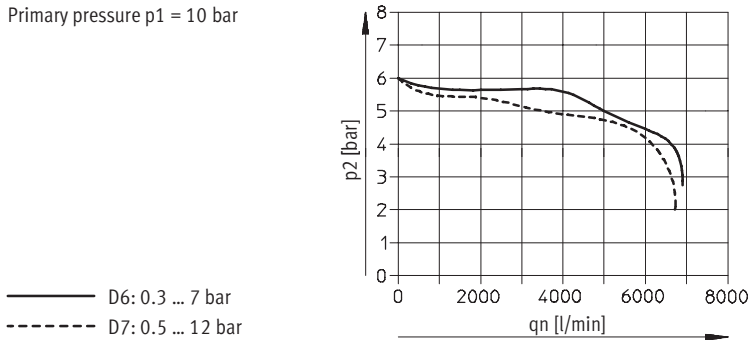
MS6-LFR-1/4

Primary pressure $p_1 = 10 \text{ bar}$



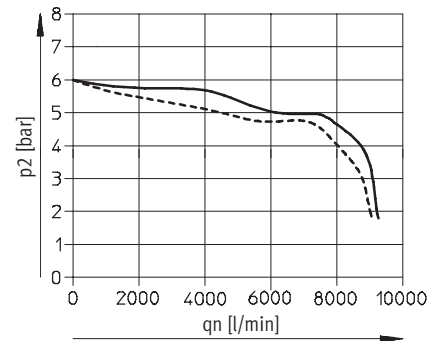
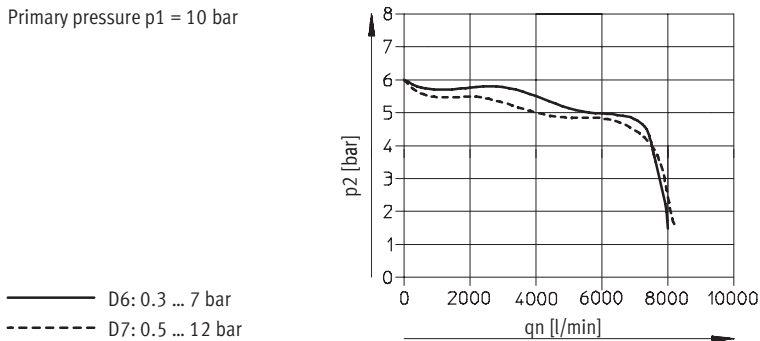
MS6-LFR-3/8

Primary pressure $p_1 = 10 \text{ bar}$



MS6-LFR-1/2

Primary pressure $p_1 = 10 \text{ bar}$



Filter regulators MS4/MS6-LFR, MS series

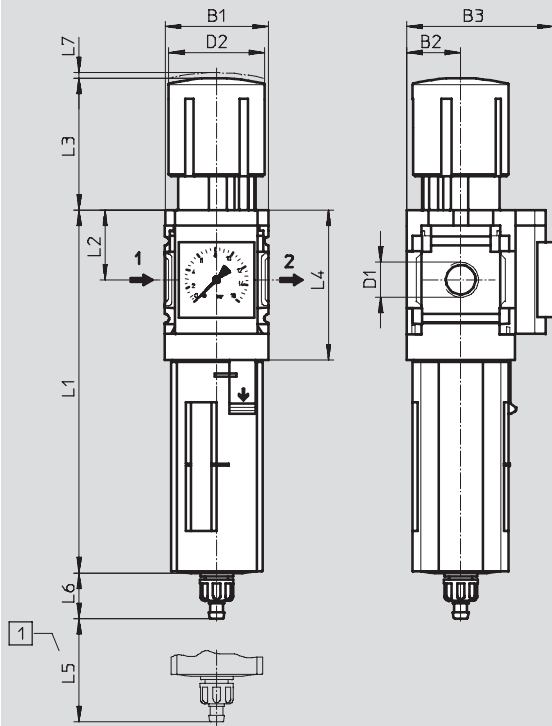
Technical data

FESTO

Dimensions – Standard

Download CAD data → www.festo.com

Integrated pressure gauge, display unit [bar], rotary knob as standard, manual rotary condensate drain



1 Installation dimensions

→ Flow direction

Type	B1	B2	B3		D1	D2	L1		L2	L3	L4	L5	L6		L7
			Pressure gauge				Bowl guard						Bowl guard		
			Standard scale	Red-green scale			Polymer	Metal					Polymer	Metal	
MS4-LFR-1/8	40	21	57	58.5	G1/8	37.2	140.6	158.2	27	51.1	58.5	25	17.7	17.7	2
MS4-LFR-1/4					G1/4										
MS6-LFR-1/4	62	31	77	78.5	G1/4	51	189	194.4	39	86	84	68	15.8	19	5
MS6-LFR-3/8					G3/8										
MS6-LFR-1/2					G1/2										

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

Filter regulators MS4/MS6-LFR, MS series

Technical data

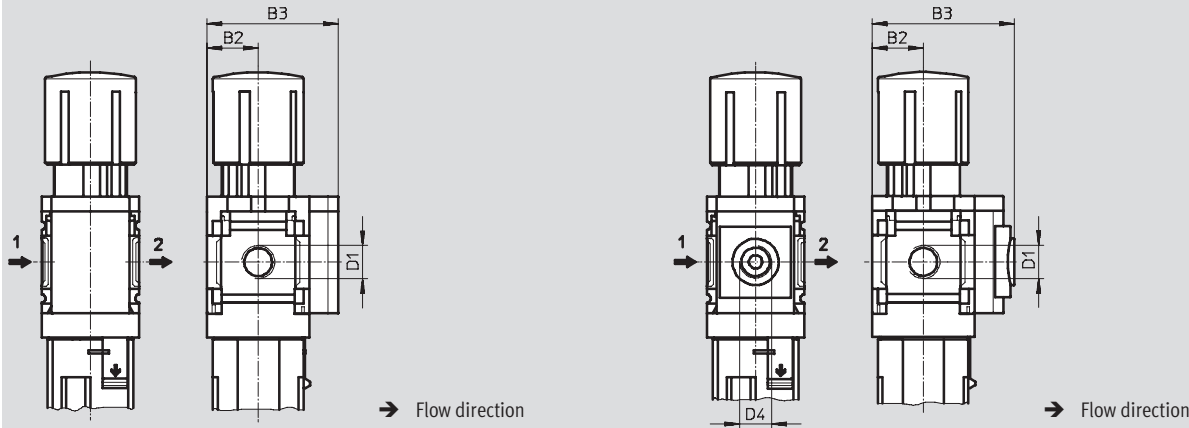
FESTO

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

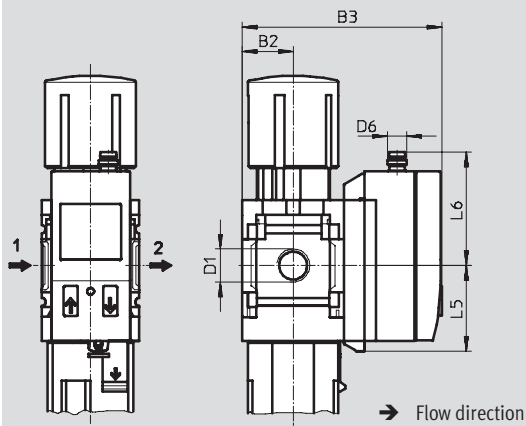
Cover plate VS

Adapter plate A8/A4 for EN pressure gauge 1/8"/1/4", without pressure gauge



Pressure sensor with display AD1 ... AD4

Technical data → Internet: [sde1](http://sde1.festo.com)



Variant AD1:
SDE1-D10-G2-MS-L-P1-M8 with
3-pin plug M8x1, 1 switch output
PNP

Variant AD3:
SDE1-D10-G2-MS-L-PI-M12 with
4-pin plug M12x1, 1 switch output
PNP and 4 ... 20 mA analogue

Variant AD2:
SDE1-D10-G2-MS-L-N1-M8 with
3-pin plug M8x1, 1 switch output
NPN

Variant AD4:
SDE1-D10-G2-MS-L-NI-M12 with
4-pin plug M12x1, 1 switch output
NPN and 4 ... 20 mA analogue

Type	B2	B3	D1	D4	D6	L5	L6
MS4-LFR-1/8-...-VS	21	54	G1/8	-	-	-	-
MS4-LFR-1/4-...-VS			G1/4				
MS4-LFR-1/8-...-A8	21	58.5	G1/8	G1/8	-	-	-
MS4-LFR-1/4-...-A8			G1/4				
MS4-LFR-1/8-...-A4	21	58.5	G1/8	G1/4	-	-	-
MS4-LFR-1/4-...-A4			G1/4				
MS4-LFR-1/8-...-AD1/AD2	21	82.6	G1/8	-	M8x1	35.1	46.7
MS4-LFR-1/4-...-AD1/AD2			G1/4				
MS4-LFR-1/8-...-AD3/AD4	21	82.6	G1/8	-	M12x1	35.1	55.8
MS4-LFR-1/4-...-AD3/AD4			G1/4				
MS6-LFR-1/4-...-VS	31	76	G1/4	-	-	-	-
MS6-LFR-3/8-...-VS			G3/8				
MS6-LFR-1/2-...-VS			G1/2				
MS6-LFR-1/4-...-A4	31	78.5	G1/4	G1/4	-	-	-
MS6-LFR-3/8-...-A4			G3/8				
MS6-LFR-1/2-...-A4			G1/2				
MS6-LFR-1/4-...-AD1/AD2	31	103	G1/4	-	M8x1	35.1	46.7
MS6-LFR-3/8-...-AD1/AD2			G3/8				
MS6-LFR-1/2-...-AD1/AD2			G1/2				
MS6-LFR-1/4-...-AD3/AD4	31	103	G1/4	-	M12x1	35.1	55.8
MS6-LFR-3/8-...-AD3/AD4			G3/8				
MS6-LFR-1/2-...-AD3/AD4			G1/2				

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

Filter regulators MS4/MS6-LFR, MS series

Technical data

FESTO

Dimensions – Rotary knob

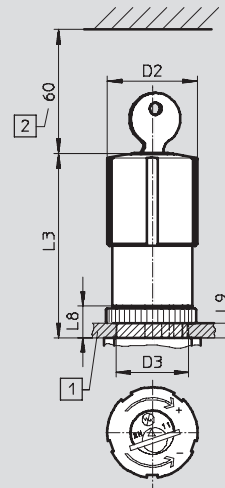
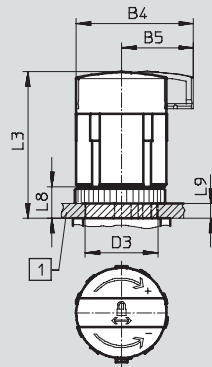
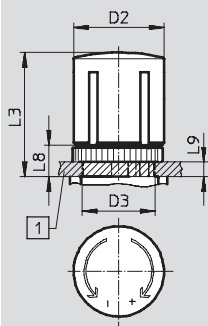
Download CAD data → www.festo.com

For installation into control panel

Standard

Standard, lockable AS

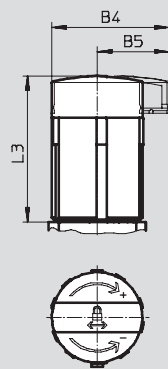
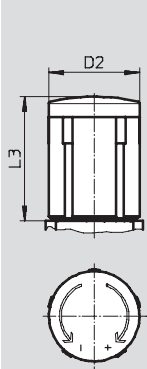
With integrated lock E11



- 1 Max. control panel thickness
- 2 Installation dimensions

Long LD

Long, lockable LD-AS

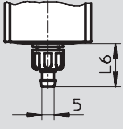
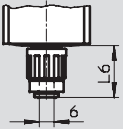


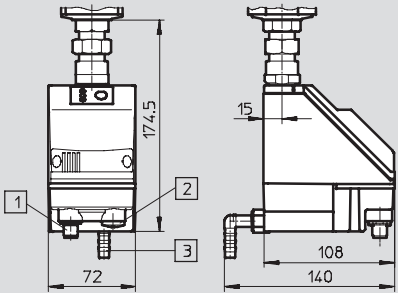
Type	B4	B5	D2	D3 +1	L3	L8	L9
MS4-LFR-...	-	-	37.2	30	51.1	13	6
MS4-LFR-...-AS	48.3	29.7			60.2		
MS4-LFR-...-E11	-	-			76		
MS4-LFR-...-LD	-	-	37.2	-	51.1	-	-
MS4-LFR-...-LD-AS	48.3	29.7			60.2		
MS6-LFR-...	-	-	51	44	86	22	14
MS6-LFR-...-AS	67.7	42			95.5		
MS6-LFR-...-E11	-	-			112.1		
MS6-LFR-...-LD	-	-	51	-	86	-	-
MS6-LFR-...-LD-AS	67.7	42			95.5		

Filter regulators MS4/MS6-LFR, MS series

Technical data

FESTO

Dimensions – Condensate drain		Download CAD data → www.festo.com	
Manual rotary M		Semi-automatic H	Fully automatic V
 Barbed fitting for plastic tubing PCN-4		 QS fitting for plastic tubing PUN-6/PAN-6	
Type	L6	Type	L6
Plastic bowl guard		Plastic bowl guard	
MS4-LFR-...-M	17.7	MS4-LFR-...-H	22.1
MS6-LFR-...-M	15.8	MS6-LFR-...-H	20.2
Metal bowl		Metal bowl	
MS4-LFR-...-M	17.7	MS4-LFR-...-H	22.1
MS6-LFR-...-M	19	MS6-LFR-...-H	22.8
Type	L6	Type	L6
Plastic bowl guard		Plastic bowl guard	
MS4-LFR-...-V	20.4	MS4-LFR-...-V	20.4
MS6-LFR-...-V	18.5	MS6-LFR-...-V	18.5
Metal bowl		Metal bowl	
MS4-LFR-...-V	20.4	MS4-LFR-...-V	20.4
MS6-LFR-...-V	22	MS6-LFR-...-V	22

Fully automatic, electrically actuated E1 ... E4		Technical data → Internet: pwea
		1 Variant E1 PWEA-AP-... with M12x1 plug, 5-pin for SIM-M12-5GD-... 2 Variant E2/E3/E4 PWEA-AC-... with cable conduit fitting Pg9 3 Connection 360° rotatable for plastic tubing PUN-H-12x2-...

Filter regulators MS4/MS6-LFR, MS series

Technical data

FESTO

Ordering data							
Pressure regulation range 0.3 ... 7 bar							
Size	Condensate drain	Connection	Grade of filtration 5 µm			Grade of filtration 40 µm	
			Part No.	Type		Part No.	Type
Plastic bowl guard							
MS4	Manual rotary	G $\frac{1}{8}$	529 160	MS4-LFR- $\frac{1}{8}$ -D6-CRM-AS		529 164	MS4-LFR- $\frac{1}{8}$ -D6-ERM-AS
		G $\frac{1}{4}$	529 144	MS4-LFR- $\frac{1}{4}$ -D6-CRM-AS		529 148	MS4-LFR- $\frac{1}{4}$ -D6-ERM-AS
	Fully automatic	G $\frac{1}{8}$	529 162	MS4-LFR- $\frac{1}{8}$ -D6-CRV-AS		529 166	MS4-LFR- $\frac{1}{8}$ -D6-ERV-AS
		G $\frac{1}{4}$	529 146	MS4-LFR- $\frac{1}{4}$ -D6-CRV-AS		529 150	MS4-LFR- $\frac{1}{4}$ -D6-ERV-AS
MS6	Manual rotary	G $\frac{1}{4}$	529 196	MS6-LFR- $\frac{1}{4}$ -D6-CRM-AS		529 200	MS6-LFR- $\frac{1}{4}$ -D6-ERM-AS
		G $\frac{3}{8}$	529 216	MS6-LFR- $\frac{3}{8}$ -D6-CRM-AS		529 220	MS6-LFR- $\frac{3}{8}$ -D6-ERM-AS
		G $\frac{1}{2}$	529 176	MS6-LFR- $\frac{1}{2}$ -D6-CRM-AS		529 180	MS6-LFR- $\frac{1}{2}$ -D6-ERM-AS
	Fully automatic	G $\frac{1}{4}$	529 198	MS6-LFR- $\frac{1}{4}$ -D6-CRV-AS		529 202	MS6-LFR- $\frac{1}{4}$ -D6-ERV-AS
		G $\frac{3}{8}$	529 218	MS6-LFR- $\frac{3}{8}$ -D6-CRV-AS		529 222	MS6-LFR- $\frac{3}{8}$ -D6-ERV-AS
		G $\frac{1}{2}$	529 178	MS6-LFR- $\frac{1}{2}$ -D6-CRV-AS		529 182	MS6-LFR- $\frac{1}{2}$ -D6-ERV-AS

Ordering data								
Pressure regulation range 0.5 ... 12 bar								
Size	Condensate drain	Connection	Grade of filtration 5 µm			Grade of filtration 40 µm		
			Part No.	Type		Part No.	Type	
Plastic bowl guard								
MS4	Manual rotary	G $\frac{1}{8}$	529 168	MS4-LFR- $\frac{1}{8}$ -D7-CRM-AS		529 172	MS4-LFR- $\frac{1}{8}$ -D7-ERM-AS	
		G $\frac{1}{4}$	529 152	MS4-LFR- $\frac{1}{4}$ -D7-CRM-AS		529 156	MS4-LFR- $\frac{1}{4}$ -D7-ERM-AS	
	Fully automatic	G $\frac{1}{8}$	529 170	MS4-LFR- $\frac{1}{8}$ -D7-CRV-AS		529 174	MS4-LFR- $\frac{1}{8}$ -D7-ERV-AS	
		G $\frac{1}{4}$	529 154	MS4-LFR- $\frac{1}{4}$ -D7-CRV-AS		529 158	MS4-LFR- $\frac{1}{4}$ -D7-ERV-AS	
MS6	Manual rotary	G $\frac{1}{4}$	529 204	MS6-LFR- $\frac{1}{4}$ -D7-CRM-AS		529 208	MS6-LFR- $\frac{1}{4}$ -D7-ERM-AS	
		G $\frac{3}{8}$	529 224	MS6-LFR- $\frac{3}{8}$ -D7-CRM-AS		529 228	MS6-LFR- $\frac{3}{8}$ -D7-ERM-AS	
		G $\frac{1}{2}$	529 184	MS6-LFR- $\frac{1}{2}$ -D7-CRM-AS		529 188	MS6-LFR- $\frac{1}{2}$ -D7-ERM-AS	
	Fully automatic	G $\frac{1}{4}$	529 206	MS6-LFR- $\frac{1}{4}$ -D7-CRV-AS		529 210	MS6-LFR- $\frac{1}{4}$ -D7-ERV-AS	
		G $\frac{3}{8}$	529 226	MS6-LFR- $\frac{3}{8}$ -D7-CRV-AS		529 230	MS6-LFR- $\frac{3}{8}$ -D7-ERV-AS	
		G $\frac{1}{2}$	529 186	MS6-LFR- $\frac{1}{2}$ -D7-CRV-AS		529 190	MS6-LFR- $\frac{1}{2}$ -D7-ERV-AS	
		Metal bowl						
MS4	Manual rotary	G $\frac{1}{8}$	535 702	MS4-LFR- $\frac{1}{8}$ -D7-CUM-AS		535 708	MS4-LFR- $\frac{1}{8}$ -D7-EUM-AS	
		G $\frac{1}{4}$	535 718	MS4-LFR- $\frac{1}{4}$ -D7-CUM-AS		535 724	MS4-LFR- $\frac{1}{4}$ -D7-EUM-AS	
	Fully automatic	G $\frac{1}{8}$	535 704	MS4-LFR- $\frac{1}{8}$ -D7-CUV-AS		535 706	MS4-LFR- $\frac{1}{8}$ -D7-EUV-AS	
		G $\frac{1}{4}$	535 720	MS4-LFR- $\frac{1}{4}$ -D7-CUV-AS		535 722	MS4-LFR- $\frac{1}{4}$ -D7-EUV-AS	
MS6	Manual rotary	G $\frac{1}{4}$	530 342	MS6-LFR- $\frac{1}{4}$ -D7-CUM-AS		529 212	MS6-LFR- $\frac{1}{4}$ -D7-EUM-AS	
		G $\frac{3}{8}$	530 346	MS6-LFR- $\frac{3}{8}$ -D7-CUM-AS		529 232	MS6-LFR- $\frac{3}{8}$ -D7-EUM-AS	
		G $\frac{1}{2}$	530 338	MS6-LFR- $\frac{1}{2}$ -D7-CUM-AS		529 192	MS6-LFR- $\frac{1}{2}$ -D7-EUM-AS	
	Fully automatic	G $\frac{1}{4}$	530 344	MS6-LFR- $\frac{1}{4}$ -D7-CUV-AS		529 214	MS6-LFR- $\frac{1}{4}$ -D7-EUV-AS	
		G $\frac{3}{8}$	530 348	MS6-LFR- $\frac{3}{8}$ -D7-CUV-AS		529 234	MS6-LFR- $\frac{3}{8}$ -D7-EUV-AS	
		G $\frac{1}{2}$	530 340	MS6-LFR- $\frac{1}{2}$ -D7-CUV-AS		529 194	MS6-LFR- $\frac{1}{2}$ -D7-EUV-AS	

Ordering data – Wearing parts kits			
Size	Part No.	Type	
MS4	673 647	MS4-LFR	
MS6	673 648	MS6-LFR	

Filter regulators MS4/MS6-LFR, MS series

Ordering data – Modular products

FESTO

Mandatory data →							
Module No.	Series	Size	Function	Connection sizes	Pressure regulation range	Grade of filtration	Bowl
526 489 526 490	MS	4 6	LFR	1/8, 1/4, 3/8, 1/2, AGA, AGB, AGC, AGD, AGE	D5 D6 D7 D8	E C	R U
Order example							
526 489	MS	4	- LFR	- AGA	- D6	- C	- R

Ordering table							
Grid dimension [mm]		40	62	Condi- tions	Code	Enter code	
M	Module No.	526 489	526 490				
	Series	Standard			MS		MS
	Size	4	6		...		
	Function	Filter regulator			-LFR		-LFR
	Connection sizes	Thread G1/8	–		-1/8		
		Thread G1/4	Thread G1/4		-1/4		
		–	Thread G3/8		-3/8		
		–	Thread G1/2		-1/2		
		Connecting plate G1/8	–		-AGA		
		Connecting plate G1/4	Connecting plate G1/4		-AGB		
		Connecting plate G3/8	Connecting plate G3/8		-AGC		
		–	Connecting plate G1/2		-AGD		
		–	Connecting plate G3/4		-AGE		
	Pressure regulation range	0.3 ... 4 bar			-D5		
		0.3 ... 7 bar			-D6		
		0.5 ... 12 bar			-D7		
		–	0.5 ... 16 bar		-D8		
	Grade of filtration	40 µm			-E		
		5 µm			-C		
	Bowl	Plastic bowl with plastic bowl guard			-R		
		Metal bowl			-U		

Transfer order code

	MS		-	LFR	-		-		-	
--	----	--	---	-----	---	--	---	--	---	--

Filter regulators MS4/MS6-LFR, MS series

Ordering data – Modular products

FESTO

Options							
Condensate drain	Pressure gauge alternatives	Alternative pressure gauge scale	Secondary venting	Rotary knob	Security	Type of mounting	Alternative flow direction
M H V E1 E2 E3 E4	VS, A8, A4, RG, AD1, AD2, AD3, AD4	PSI MPa	OS	LD	AS E11	WR WP WPM WB WBM	Z
- M	- A8	-	-	- LD	- AS	- WPM	- Z

Ordering table							
Grid dimension [mm]		40	62	Condi- tions	Code	Enter code	
↓ M	Condensate drain	Manual			-M		
		Semi-automatic (P1 max. 12 bar)		1	-H		
		Fully automatic (P1 max. 12 bar)		1	-V		
		External, fully automatic, electrical	24 V DC, M12	2	-E1		
			110 V AC, terminal strip	2	-E2		
			230 V AC, terminal strip	2	-E3		
			24 V DC, terminal strip	2	-E4		
0	Pressure gauge alternatives	Cover plate			-VS		
		Adapter plate for EN pressure gauge 1/8, without pressure gauge			-A8		
		Adapter plate for EN pressure gauge 1/4, without pressure gauge			-A4		
		Integrated pressure gauge, red-green scale		3	-RG		
		Pressure sensor with display, plug M8, 1 switch output PNP, 3-pin		4	-AD1		
		Pressure sensor with display, plug M8, 1 switch output NPN, 3-pin		4	-AD2		
		Pressure sensor with display, plug M12, 1 switch output PNP, 4-pin, analogue output 4 ... 20 mA		4	-AD3		
		Pressure sensor with display, plug M12, 1 switch output NPN, 4-pin, analogue output 4 ... 20 mA		4	-AD4		
	Alternative pressure gauge scale	psi		5	-PSI		
		MPa		5	-MPa		
	Secondary venting	Without secondary venting			-OS		
	Rotary knob	Long rotary knob		6	-LD		
	Security	Lockable rotary knob			-AS		
		With integrated lock			-E11		
	Type of mounting	Wall mounting bracket with knurled nut for regulator head		7	-WR		
		Mounting bracket		8	-WP		
		Mounting bracket (for retro-fitting M-series)		8	-WPM		
		Mounting bracket			-WB		
		Mounting bracket			-WBM		
	Alternative flow direction	Flow direction from right to left			-Z		

1 H, V Not with pressure regulation range D8

2 E1 ... E4 Only with metal bowl U

3 RG Alternative pressure gauge scale PSI serves only as an auxiliary scale

4 AD1 ... AD4 Measuring range max. 10 bar.

Not with pressure regulation range D8.

5 PSI, MPa Not with pressure gauge alternatives VS, A8, A4, AD1, AD2, AD3, AD4

6 LD Not with security E11

7 WR Not with long rotary knob LD

8 WP, WPM Only with connecting plate AGA, AGB, AGC, AGD or AGE

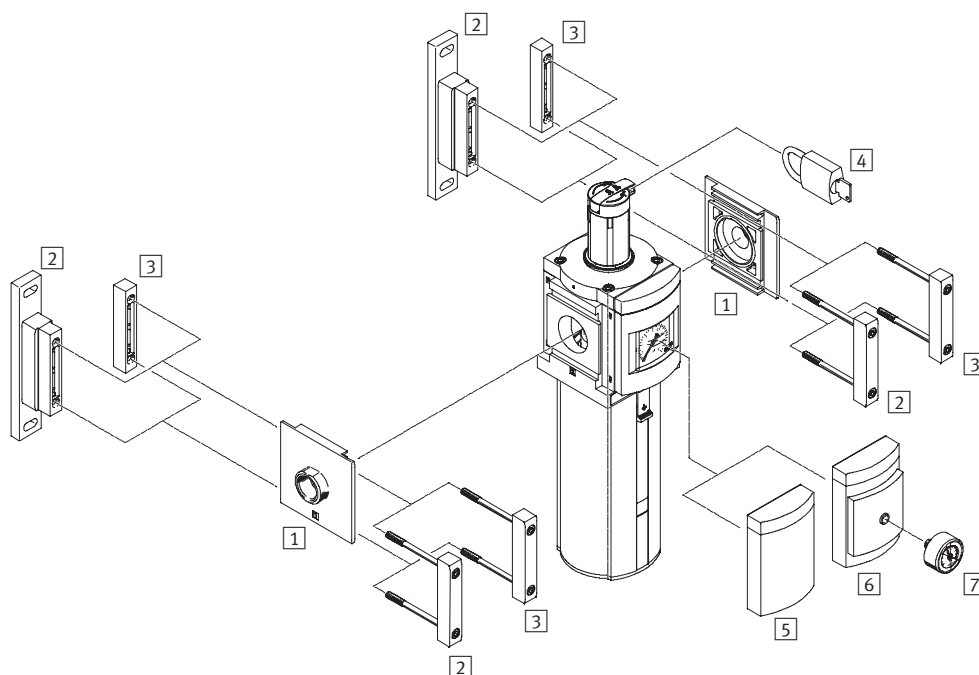
Transfer order code

- [] - [] - [] - [] - [] - [] - [] - []

Filter regulators MS12-LFR, MS series

Peripherals overview

FESTO



 Note

Additional accessories:

- Module connector for combination with size MS9 → Internet: armv

Mounting attachments and accessories

		→ Page/Internet
1	Connecting plate MS12-AG...	ms12-ag
2	Mounting bracket MS12-WP	ms12-wp
3	Module connector MS12-MV	ms12-mv
4	Padlock LRVS-D	32
5	Cover plate VS	30
6	Adapter for EN pressure gauge 1/4 A4	30
7	Pressure gauge MA	32

Filter regulators MS12-LFR, MS series

FESTO

Type codes

		MS	12	-	LFR	-	G	-	D7	-	C	U	V	-	LD	-	AS
Series																	
MS	Standard service unit																
Size																	
12	Grid dimension 124 mm																
Service function																	
LFR	Filter regulator																
Connection size																	
G	Module without connecting thread, without connecting plate Connecting plates → Accessories																
Pressure regulation range																	
D7	Pressure regulation range 0.5 ... 12 bar																
Grade of filtration																	
C	5 µm																
E	40 µm																
Bowl guard																	
U	Metal bowl																
Condensate drain																	
V	Fully automatic																
Rotary knob																	
LD	Long rotary knob																
Security																	
AS	Lockable rotary knob																

Further variants can be ordered using the modular system

Filter regulators LFR → 30

- Connecting plates
- Pressure regulation range
- Condensate drain
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Security
- Type of mounting
- Alternative flow direction

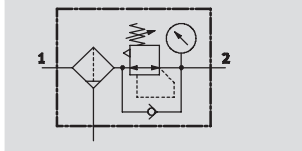
Filter regulators MS12-LFR, MS series

FESTO

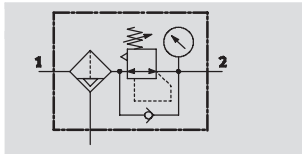
Technical data

Function

Condensate drain
manual rotary
with pressure gauge



Condensate drain
fully automatic
with pressure gauge



Flow rate
11,000 ... 17,000 l/min

Temperature range
-10 ... +60 °C

Input pressure
0.8 ... 20 bar

www.festo.com

Wearing parts kits
→ 29

With this device, the filter and pressure regulator are combined into a single unit. The sintered filter with water separator removes contamination, pipe sinter, rust and condensate from the compressed air.



- Good control characteristics with low hysteresis and primary pressure compensation
- Good particle and condensate separation
- High flow rates
- Pilot actuated diaphragm regulator without intrinsic air consumption
- Three pressure regulation ranges: 0.3 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Pressure gauge connection for different fitting options
- Available with manual, fully automatic or fully automatic, electrically actuated condensate drain
- Setting values are secured by locking the rotary knob
- Rotary knob can be locked using accessories
- Choice of filter cartridges: 5 µm or 40 µm
- New filter cartridges → 32

General technical data				
Pneumatic connection 1, 2 ¹⁾		G1	G1¼	G1½
Design		Filter regulator with/without pressure gauge		
		Sintered filter with centrifugal separation		
		Pilot actuated diaphragm regulator		
Regulating function		With primary pressure compensation		
		With secondary venting		
		Output pressure constant		
Type of mounting		Via accessories		
		In-line installation		
Assembly position		Vertical ±5°		
Grade of filtration [µm]		5 (air purity class at the output 3.7.- to DIN ISO 8573-1)		
		40 (air purity class at the output 5.7.- to DIN ISO 8573-1)		
Bowl guard		Metal bowl		
Condensate drain		Manual rotary		
		Fully automatic		
		Fully automatic, electrical actuated		
Actuator lock		Rotary knob with detent		
		Rotary knob with integrated lock		
		Lockable with accessories		
Pressure regulation range	D6 [bar]	0.3 ... 7		
	D7 [bar]	0.5 ... 12		
	D8 [bar]	0.5 ... 16		
Max. hysteresis [bar]		0.4		
Pressure indicator		With pressure gauge		
Max. condensate volume [cm³]		400		

1) Dependent on connecting plate selected, must be ordered separately as an accessory → Internet: ms12-ag
 - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Filter regulators MS12-LFR, MS series

Technical data

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Standard nominal flow rate $q_{nN}^{1)}$ [l/min]				
Pneumatic connection	G1	G1¼	G1½	G2
Grade of filtration	5 µm	11,000	11,500	12,000
	40 µm	12,000	12,500	13,000
				14,000
				17,000

1) Dependent on connecting plate selected, must be ordered separately as an accessory → Internet: ms12-ag
measured at $p_1 = 10$ bar and $p_2 = 6$ bar, $\Delta p = 0.5$ bar

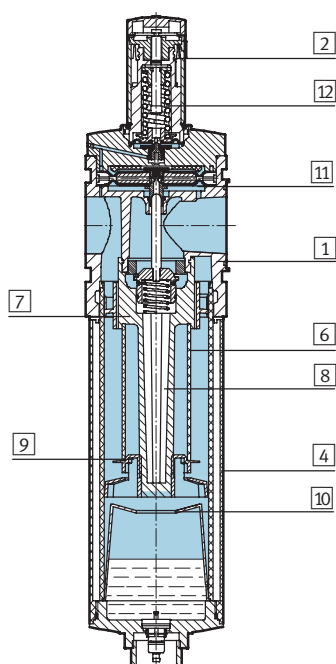
Operating and environmental conditions			
Condensate drain	Manual rotary M	Fully automatic V	Fully automatic, electrical actuated E1 ... E4
Input pressure [bar]	0.8 ... 20	2 ... 12	0.8 ... 16
Operating medium	Compressed air, air quality class 5.7. – to DIN ISO 8573-1		
Ambient temperature [°C]	–10 ... +60	+5 ... +60	+1 ... +60
Temperature of medium [°C]	–10 ... +60	+5 ... +60	+1 ... +60
Storage temperature [°C]	–10 ... +60	–10 ... +60	+1 ... +60
Corrosion resistance CRC ¹⁾	2		

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

Weights [g]		
Rotary knob	Without integrated lock E11	With integrated lock E11
Filter regulator with metal bowl U	7,000	7,300
Filter regulator with metal bowl U and fully automatic, electrically actuated condensate drain E1 ... E4	7,700	8,000

Materials

Sectional view



Filter regulator		
1	Body	Die-cast aluminium
2	Rotary knob	Polyamide
	Rotary knob with integrated lock E11	Aluminium
4	Metal bowl	Wrought aluminium alloy
6	Filter element	Sintered bronze
7	Spin disc	Polyacetate
8	Filter holder	Polyacetate
9	Separating plate	Polyacetate
10	Stabilising disc	Polyacetate
11	Diaphragm	Nitrile rubber
12	Spring	Steel
–	Seals	Nitrile rubber

Filter regulators MS12-LFR, MS series

Technical data

FESTO

Standard flow rate q_n as a function of output pressure p_2

Grade of filtration 40 μm

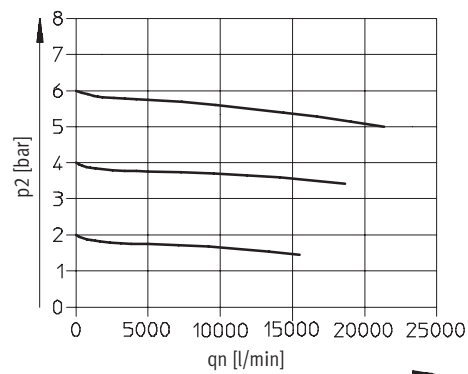
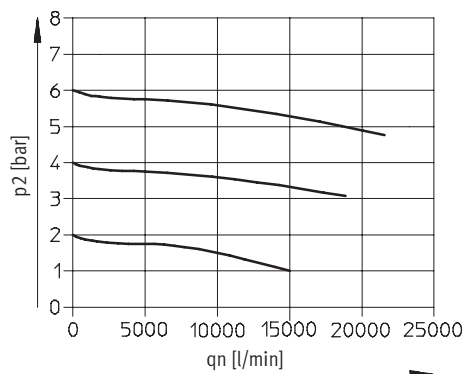
With connecting plate MS12-AGF

Pneumatic connection G1

With connecting plate MS12-AGG

Pneumatic connection G1 $\frac{1}{4}$

Primary pressure $p_1 = 10 \text{ bar}$



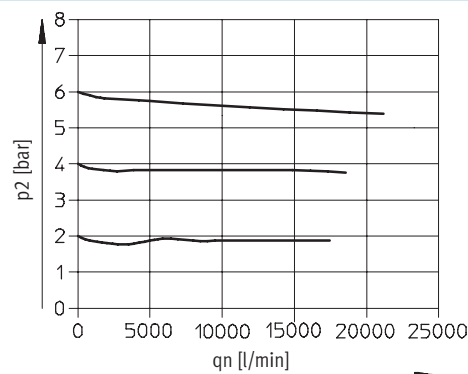
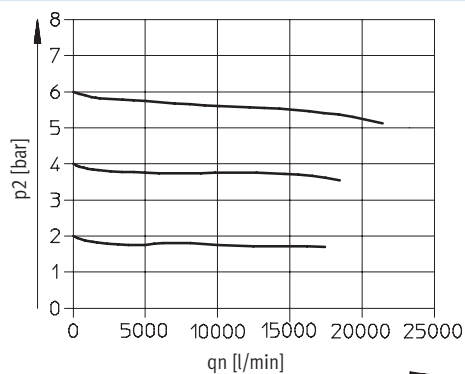
With connecting plate MS12-AGH

Pneumatic connection G1 $\frac{1}{2}$

With connecting plate MS12-AGI

Pneumatic connection G2

Primary pressure $p_1 = 10 \text{ bar}$



Filter regulators MS12-LFR, MS series

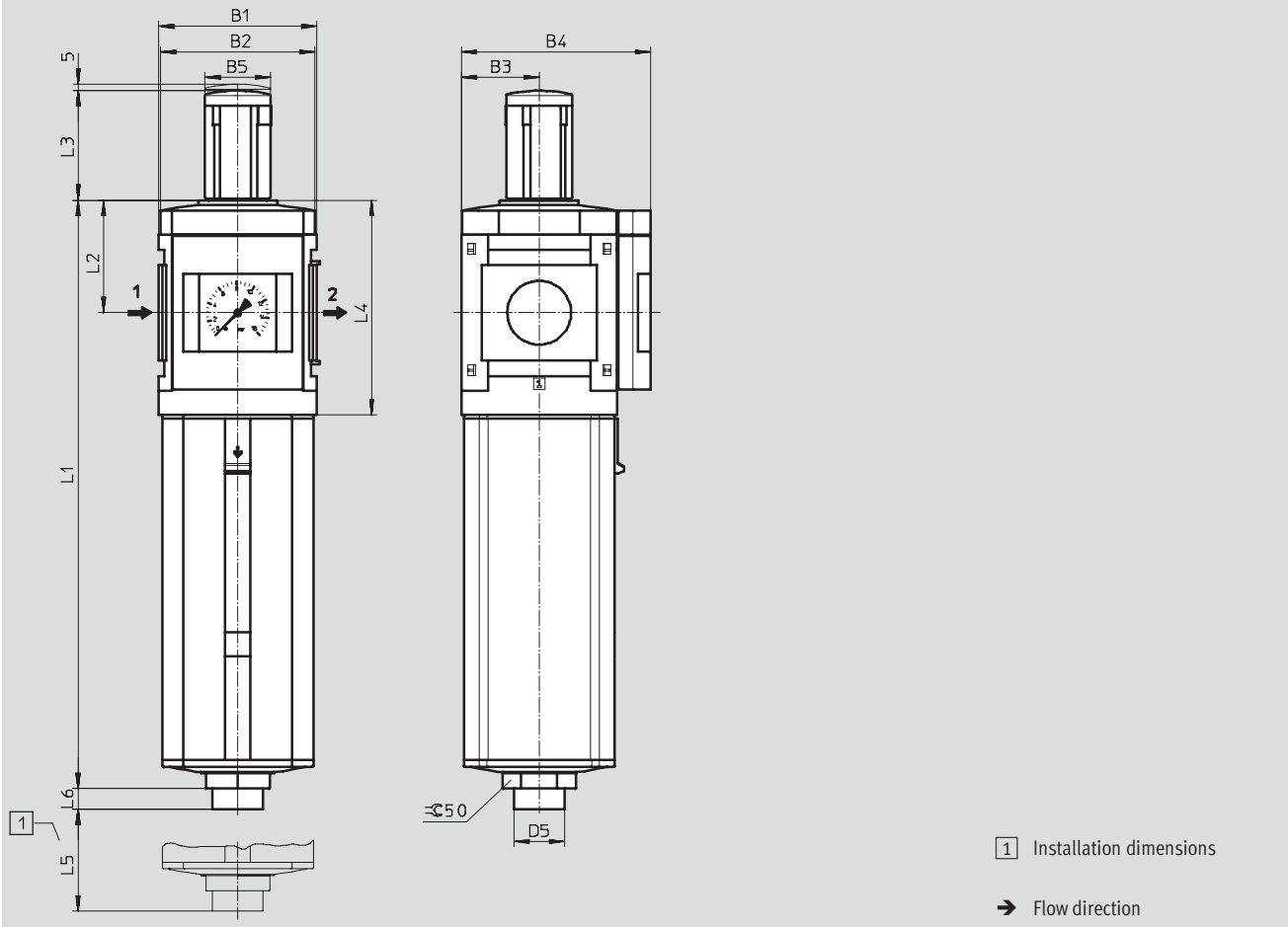
Technical data

FESTO

Dimensions – Standard

Download CAD data → www.festo.com

With pressure gauge, display unit [bar], long rotary knob



Type	B1	B2	B3	B4	B5	D5 Ø	L1	L2	L3	L4	L5	L6
MS12-LFR	124	122	61	148	51	40	460	88	86	168	250	16

Filter regulators MS12-LFR, MS series

Technical data

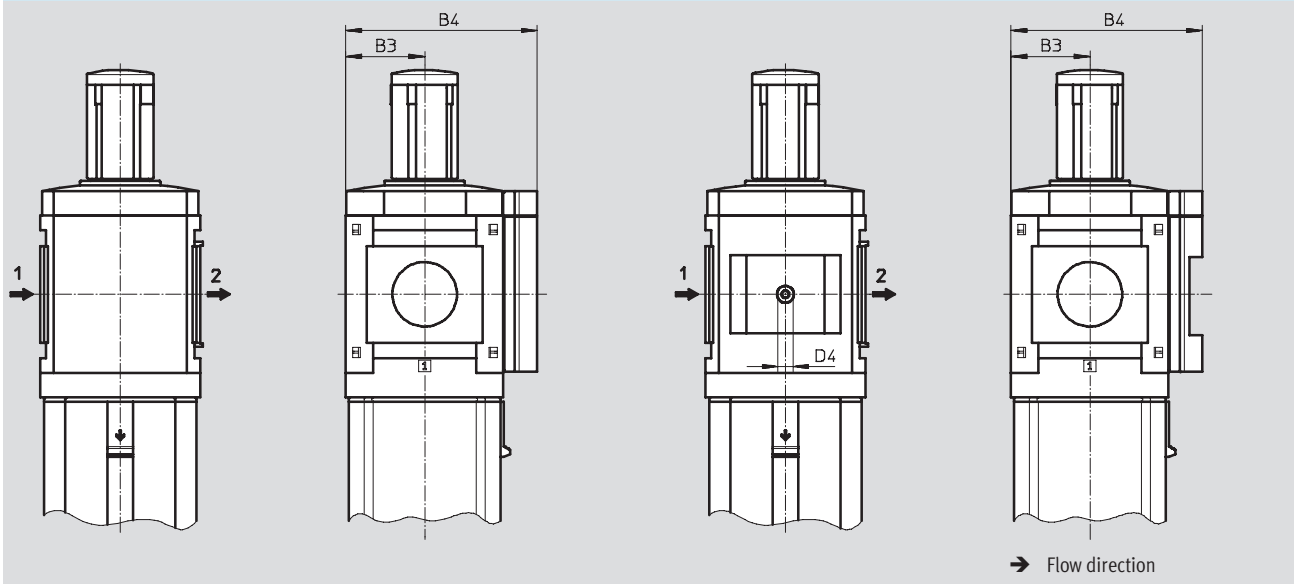
FESTO

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Cover plate VS

Adapter A4 for EN pressure gauge 1/4, without pressure gauge



Type	B3	B4	D4
MS12-LFR-...-VS	61	148	–
MS12-LFR-...-A4	61	148	G1/4

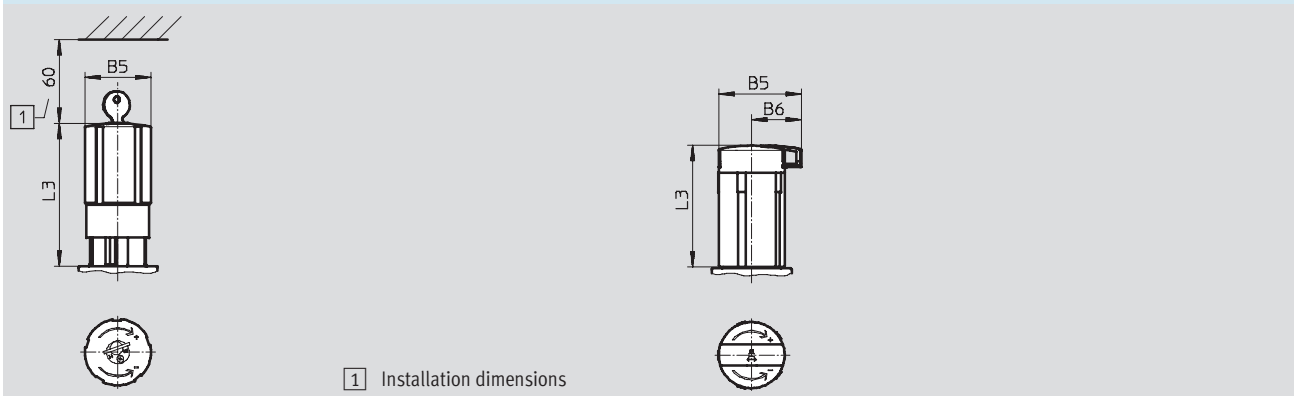
– Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Dimensions – Security

Download CAD data → www.festo.com

With integrated lock E11

Long, lockable LD-AS



Type	B5	B6	L3
MS12-LFR-...-E11	51.8	–	112
MS12-LFR-...-LD-AS	64.4	39	95.5

Filter regulators MS12-LFR, MS series

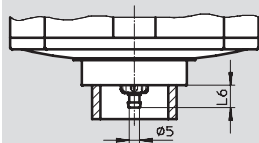
Technical data

FESTO

Dimensions – Condensate drain

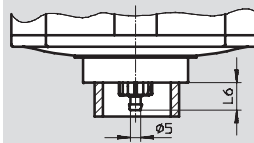
Download CAD data → www.festo.com

Manual rotary M



Barbed fitting for plastic tubing
PCN-4

Fully automatic V



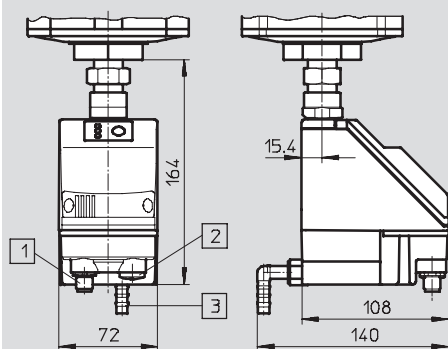
Barbed fitting for plastic tubing
PCN-4

Type	L6
MS12-LFR-...-M	11

Type	L6
MS12-LFR-...-V	13

Fully automatic, electrically actuated E1 ... E4

Technical data → Internet: [pwea](http://pwea.com)



- 1 Variant E1
PWEA-AP-... with M12x1 plug,
5-pin for SIM-M12-5GD-...
- 2 Variant E2/E3/E4
PWEA-AC-... with cable conduit
fitting Pg9
- 3 Connection 360° rotatable for
plastic tubing PUN-H-12x2-...

Ordering data

Pressure regulation range 0.5 ... 12 bar, metal bowl, long rotary knob, can be locked using accessories

Size	Condensate drain	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
MS12	fully automatic	G1 ... G2 ¹⁾	537 150	MS12-LFR-G-D7-CUV-LD-AS	537 149	MS12-LFR-G-D7-EUV-LD-AS

1) Connecting plate must be ordered separately as an accessory → Internet: [ms12-ag](http://ms12-ag.com)
 - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Ordering data – Wearing parts kits

Size	Part No.	Type
MS12	673 586	MS12-LR/LFR

Filter regulators MS12-LFR, MS series

FESTO

Ordering data – Modular products

Mandatory data →							
Module No.	Series	Size	Function	Connection sizes	Pressure regulation range	Grade of filtration	Bowl
535 022	MS	12	LFR	AGF AGG AGH AGI G	D6 D7 D8	E C	U
Order example							
535 022	MS	12	- LFR	- AGF	- D6	- C	- U

Ordering table					
Grid dimension [mm]		124	Condi- tions	Code	Enter code
M	Module No.	535 022			
	Series	Standard		MS	MS
	Size	12		12	12
	Function	Filter regulator		-LFR	-LFR
	Connection sizes	Connecting plate G1		-AGF	
		Connecting plate G1¼		-AGG	
		Connecting plate G1½		-AGH	
		Connecting plate G2		-AGI	
		Module without connecting thread, without connecting plate		-G	
	Pressure regulation range	0.3 ... 7 bar		-D6	
		0.5 ... 12 bar		-D7	
		0.5 ... 16 bar		-D8	
	Grade of filtration	40 µm		-E	
		5 µm		-C	
↓	Bowl	Metal bowl		-U	-U

Transfer order code

535 022	MS	12	-	LFR	-		-		-		-	U
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Filter regulators MS12-LFR, MS series

FESTO

Ordering data – Modular products

Options						
Condensate drain	Pressure gauge alternatives	Alternative pressure gauge scale	Rotary knob	Security	Type of mounting	Alternative flow direction
M V E1 E2 E3 E4	VS A4	PSI MPa	LD	AS E11	WP	Z
- E1	-	-	- LD	- AS	- WP	- Z

Ordering table						
Grid dimension	[mm]	124	Condi- tions	Code		Enter code
↓ [M] Condensate drain	Manual			-M		
	Fully automatic (P1 max. 12 bar)		[1]	-V		
	External fully automatic condensate drain, electrical, 24 V DC, M12			-E1		
	External fully automatic condensate drain, electrical, 110 V AC, terminal strip			-E2		
	External fully automatic condensate drain, electrical, 230 V AC, terminal strip			-E3		
	External fully automatic condensate drain, electrical, 24 V DC, terminal strip			-E4		
[O] Pressure gauge alternatives	Cover plate			-VS		
	Adapter plate for EN pressure gauge 1/4, without pressure gauge			-A4		
Alternative pressure gauge scale	psi		[2]	-PSI		
	MPa		[2]	-MPa		
Rotary knob	Long rotary knob		[3] [4]	-LD		
Security	Lockable rotary knob			-AS		
	With integrated lock		[3]	-E11		
Type of mounting	Mounting bracket		[5]	-WP		
Alternative flow direction	Flow direction from right to left			-Z		

- [1] **V** Not with pressure regulation range D8
 [2] **PSI, MPa** Not with pressure gauge alternatives VS, A4
 [3] **LD, E11** Either rotary knob LD or security E11 must be selected
 [4] **LD** Not with security E11
 [5] **WP** Only with connecting plate AGF, AGG, AGH or AGI

Transfer order code

- [] - [] - [] - [] - [] - [] - []

Filter regulators MS-LFR, MS series

Accessories

FESTO

Filter cartridges



Ordering data				
Size	Grade of filtration [µm]	Part No.	Type	
MS4	5	534 501	MS4-LFP-C	
	40	534 502	MS4-LFP-E	
MS6	5	534 499	MS6-LFP-C	
	40	534 500	MS6-LFP-E	
MS12	5	537 143	MS12-LFP-C	
	40	537 144	MS12-LFP-E	

Ordering data – Pressure gauge MA						
	Nominal size	Pneumatic connection	Indicating range		Part No.	Type
			[bar]	[psi]		
	Pressure gauge MA, DIN EN 837-1					Technical data ➔ Internet: ma
	40	G1/4	0 ... 16	0 ... 232	183 901	MA-40-16-G1/4-EN
	Pressure gauge MA, DIN EN 837-1, with red-green range					Technical data ➔ Internet: ma
	40	R1/8	0 ... 16	–	525 726	MA-40-16-R1/8-E-RG
	50	R1/4	0 ... 16	–	525 729	MA-50-16-R1/4-E-RG

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