

Filter regulators MS-LFR, MS series

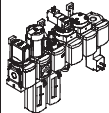
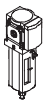
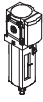
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Filter regulators MS-LFR, MS series

Product range overview – MS series service units

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Type	Size				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		Pneumatic connection in housing	Connecting plate	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	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	–	–	■	■	■	■	–	–	■	■
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	■	■	■	–	–	■	■
Filters 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	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	–	–	–	–	–	–	–	–	■	■
		12	–	G1, G1 1/4, G1 1/2, 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, G1 1/4, G1 1/2	–	–	–	–	–	–	■	■	–	–
		12	–	G1, G1 1/4, G1 1/2, 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, G1 1/4, G1 1/2	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–	–	–	–
Water separators MS-LWS		4	–											
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	–	–
		9	–											
		12	–											

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Product range overview – MS series service units

Type	Size	Bowl guard		Condensate drains				Pressure indicator					Security		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	Rotary knob with detent, lockable via accessories	Rotary knob with integrated lock	Silencer	Flow direction from right to left	
Code		R	U	M	H	V	E...	VS	AG	A8	A4	AD...	AS	E11	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	–	■	■	■	■	■	■	■	–	■	■	■	■	–	■	24
	12	–	■	■	–	■	■	■	■	–	■	–	■	■	–	■	36
Filters MS-LF	4	■	■	■	■	■	–	–	–	–	–	–	–	–	–	■	ms4-lf
	6	■	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms6-lf
	9	–	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms9-lf
	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
Water separators MS-LWS	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	6	–	■	–	–	■	■	–	–	–	–	–	–	–	–	■	ms6-lws
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

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Product range overview – MS series service units



Type	Size	Pneumatic connection in housing	Connecting plate	Pressure regulation range [bar]						Supply voltage				
				0.05 ... 0.7	0.05 ... 2.5	0.1 ... 4	0.3 ... 7	0.1 ... 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			AG...	D2	D4	D5	D6	D7	D8	V24	V24P	V110	V230	
Individual devices														
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	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	–	–	■	■	■	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, 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	–	–	–	–	–	–	–	–	–	–	–	–
Electrical pressure regulators MS-LRE		4	–	–	–	–	–	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	■	■	■	■	–	–	–	–
		9	–	–	–	–	–	–	–	–	–	–	–	–
		12	–	–	–	–	–	–	–	–	–	–	–	–
Lubricators MS-LOE		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, G1 1/4, G1 1/2	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–	–	–	–
Electrical on-off valves MS-EM(1)		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, G1 1/4, G1 1/2	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–	–	–	–
Electrical on-off valves MS-EE		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, G1 1/4, G1 1/2	–	–	–	–	–	■	■	■	■	■
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	■	■	■	■	■
Electrical soft-start valves MS-DL		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, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–	–	–	–
Electrical soft-start valves MS-DE		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, G1 1/4, G1 1/2, G2	–	–	–	–	–	■	■	■	■	■
Soft start and exhaust valves MS-SV		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		Pressure indicator					Security		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	Rotary knob with detent, lockable via accessories	Rotary knob with integrated lock	Silencer	Flow direction from right to left	
Code		R	U	VS	AG	A8	A4	AD...	AS	E11	S	Z	
Individual devices													
Pressure regulators MS-LR	4	–	–	■	■	■	■	■	■	■	–	■	ms4-lr
	6	–	–	■	■	–	■	■	■	■	–	■	ms6-lr
	9	–	–	■	■	–	■	■	■	■	–	■	ms9-lr
	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	–	–	–	–	–	–	–	–	–	–	–	–
Electrical pressure regulators MS-LRE	4	–	–	–	–	–	–	–	–	–	–	–	–
	6	–	–	■	■	–	■	–	–	–	–	■	ms6-lre
	9	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–
Lubricators MS-LOE	4	■	■	–	–	–	–	–	–	–	–	■	ms4-loe
	6	■	■	–	–	–	–	–	–	–	–	■	ms6-loe
	9	–	■	–	–	–	–	–	–	–	–	■	ms9-loe
	12	–	■	–	–	–	–	–	–	–	–	■	ms12-loe
Electrical on-off valves MS-EM(1)	4	–	–	■	■	■	■	■	–	–	■	■	ms4-em1
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-em1
	9	–	–	■	■	–	■	■	–	–	■	■	ms9-em
	12	–	–	■	■	–	■	–	–	–	■	■	ms12-em
Electrical on-off valves MS-EE	4	–	–	■	■	■	■	■	–	–	■	■	ms4-ee
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-ee
	9	–	–	■	■	–	■	■	–	–	■	■	ms9-ee
	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	–	–	–	–	–	–	–	–	–	–	–	–

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Product range overview – MS series service units

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Type	Size	Pneumatic connection in housing	Connecting plate	Pressure regulation range [bar]				Supply voltage			
				0.1 ... 4	0.3 ... 7	0.1 ... 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			AG...	D5	D6	D7	D8	V24	V24P	V110	V230
Individual devices											
Membrane air dryers MS-LDM1		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	–	–	–	–	–	–	–	–	–
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	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–
Distributor blocks MS-FRM-FRZ		4	G1/4	–	–	–	–	–	–	–	–
		6	G1/2	–	–	–	–	–	–	–	–
		9	–	–	–	–	–	–	–	–	–
		12	–	–	–	–	–	–	–	–	–
Flow sensors SFAM		4	–	–	–	–	–	–	–	–	–
		6	G1/2	G1/2	–	–	–	–	–	–	–
		9	–	–	–	–	–	–	–	–	–
		12	–	–	–	–	–	–	–	–	–

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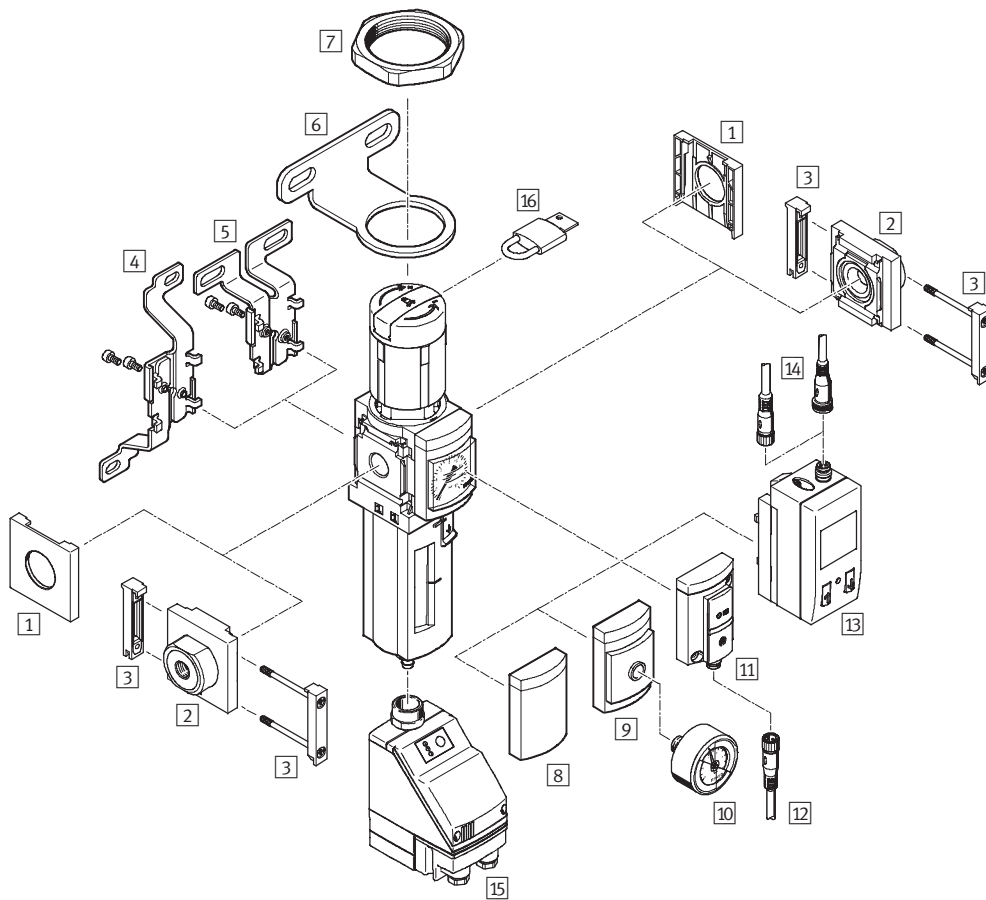
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Type	Size	Bowl guard		Pressure indicator					Switch output		Options		→ Page/ Internet
		Plastic bowl with plastic bowl guard	Metal bowl	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor	2x PNP or NPN, 1 analogue output 4 ... 20 mA	2x PNP or NPN, 1 analogue output 0 ... 10 V	Silencer	Flow direction from right to left	
Code		R	U	VS	AG	A8	A4	AD...	2SA	2SV	S	Z/R	
Individual devices													
Membrane air dryers MS-LDM1	4	–	■	–	–	–	–	–	–	–	–	■	ms4-ldm1
	6	–	■	–	–	–	–	–	–	–	–	■	ms6-ldm1
	9	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–
Branching modules MS-FRM	4	–	–	■	■	■	■	■	–	–	–	■	ms4-frm
	6	–	–	■	■	–	■	■	–	–	–	■	ms6-frm
	9	–	–	■	■	–	■	■	–	–	–	■	ms9-frm
	12	–	–	■	–	–	–	–	–	–	–	–	ms12-frm
Distributor blocks MS-FRM-FRZ	4	–	–	–	–	–	–	–	–	–	–	■	ms4-frm
	6	–	–	–	–	–	–	–	–	–	–	■	ms6-frm
	9	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–
Flow sensors SFAM	4	–	–	–	–	–	–	–	■	■	–	■	–
	6	–	–	–	–	–	–	–	■	■	–	■	sfam
	9	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–

Peripherals overview

Filter regulator MS4/MS6-LFR



- Module connector for combination with size MS4/MS6 or size MS9 → Internet: amv, rmv, armv

- Adapter plate for mounting on profiles → Internet: ipm-80, ipm-40-80, ipm-80-80

Filter regulators MS4/MS6-LFR, MS series

Peripherals overview

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Mounting attachments and accessories						
		Individual device		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	Module connector MS4/6-MV	–	■	■	■	ms4-mv, ms6-mv
4	Mounting bracket MS4/6-WB	■	■	–	–	ms4-wb, ms6-wb
5	Mounting bracket MS4-WBM	■	■	–	–	ms4-wbm
6	Mounting bracket MS4/6-WR	■	■	–	–	ms4-wr, ms6-wr
7	Hex nut MS4/6-WRS	■	■	■	■	ms4-wrs, ms6-wrs
8	Cover plate VS	■	■	■	■	22
9	Adapter plate for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	22
10	Pressure gauge MA	■	■	■	■	47
11	Pressure sensor without display AD7 ... AD10	■	■	■	■	22
12	Connecting cable NEBU-M8...-LE3	■	■	■	■	47
13	Pressure sensor with display AD1 ... AD4	■	■	■	■	22
14	Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4	■	■	■	■	47
15	Fully automatic condensate drain, electrically actuated E1 ... E4	■	■	■	■	22
16	Padlock LRVS-D	■	■	■	■	47
–	Mounting bracket MS4/6-WP/WPB/WPE/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															
MS4															
1/8	Thread G1/8														
1/4	Thread G1/4														
MS6															
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	Integrated as metal bowl														
Condensate drain															
M	Manual rotary														
V	Fully automatic														
Security															
AS	Standard rotary knob with detent, lockable via accessories														

Additional variants can be ordered using the modular system → 22

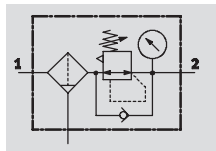
- Connecting plates
- Pressure regulation range
- Condensate drain
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Rotary knob
- Security
- Type of mounting
- Alternative flow direction

Filter regulators MS4/MS6-LFR, MS series

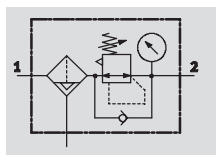
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Technical data

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

 Supply pressure
0.8 ... 20 bar

www.festo.com/en/Spare_parts_service

Wearing parts kits
→ 21



- Good regulation characteristics with low hysteresis and primary pressure compensation
- Good particle and condensate separation
- Available with or without secondary venting
- High flow rate
- 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
- Regulator lock for protecting the values against adjustment
- Two pressure gauge connections for different fitting options
- Return flow option for exhausting from output 2 to output 1 already integrated
- Optional pressure sensor
- Choice of filter cartridges: 5 µm or 40 µm
- New filter cartridges → 46

General technical data					
Size		MS4		MS6	
Pneumatic connection 1, 2		G1/8	G1/4	G1/4	G3/8 G1/2
Constructional design		Filter regulator with/without pressure display			
Regulating function		Output pressure constant, with return flow action, with/without secondary venting			
Type of mounting		Via accessories			
		In-line installation			
		Front panel mounting			
Mounting position		Vertical ±5°			
Grade of filtration [µm]		5 (air quality class at the output 3.7.– to DIN ISO 8573-1)			
		40 (air quality class at the output 5.7.– to DIN ISO 8573-1)			
Bowl guard		Plastic bowl guard			
		Integrated as metal bowl			
Condensate drain		Manual rotary			
		Semi-automatic			
		Fully automatic			
		–		Fully automatic, electrically actuated	
Regulator lock		Rotary knob with detent			
		Rotary knob with detent, lockable via accessories			
		Rotary knob with integrated lock			
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 via LCD display and electrical output			
		Via pressure sensor for displaying output pressure via operational status indicator 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 to ISO 1179-1 and to ISO 228-1

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, electrically actuated E1 ... E4
	M		H		V		
Size	MS4	MS6	MS4	MS6	MS4	MS6	MS6
Supply pressure [bar]	0.8 ... 14	0.8 ... 20	1.5 ... 12	1.5 ... 12	2 ... 12	2 ... 12	0.8 ... 16
Operating medium	Filtered compressed air or inert gases, 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
Temperature of medium 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 as per 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.

Filter regulators MS4/MS6-LFR, MS series

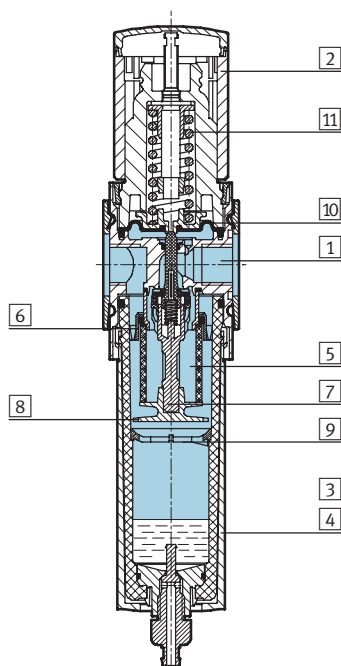
Technical data

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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 fully automatic condensate drain, electrically actuated E1 ... E4	–	–	1,800	2,070

Materials

Sectional view



Filter regulator		
1	Housing	Die-cast aluminium
2	Rotary knob	PA/POM
	Rotary knob with integrated lock E11	Aluminium
3	Plastic bowl guard	PC
4	Metal bowl	Wrought aluminium alloy, die-cast aluminium
	Inspection window	PA
5	Filter element	PE
6	Spin disc	POM
7	Filter holder	POM
8	Separating plate	POM
9	Stabilising disc	POM
10	Diaphragm	NBR
11	Spring	Steel
–	Seals	NBR
Note on materials		RoHS-compliant (not with variant E1, E2, E3 or E4)
		Free of copper and PTFE only with cover plate VS

Filter regulators MS4/MS6-LFR, MS series

Technical data

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Standard flow rate q_n as a function of output pressure p_2

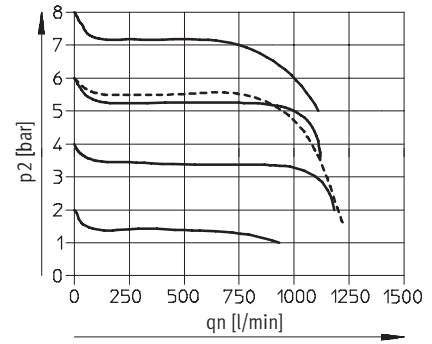
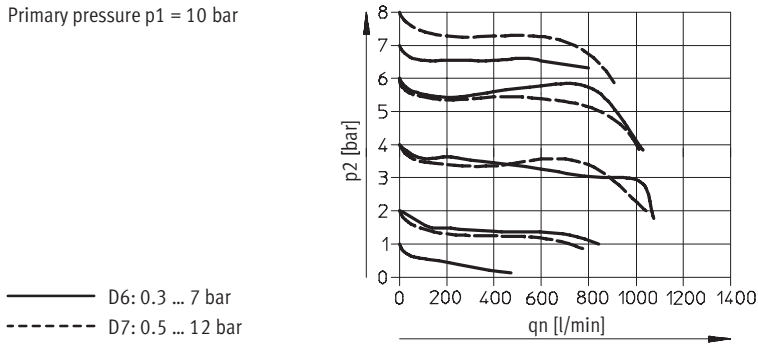
Pressure regulation range D6 or D7

Grade of filtration 5 μm

Grade of filtration 40 μm

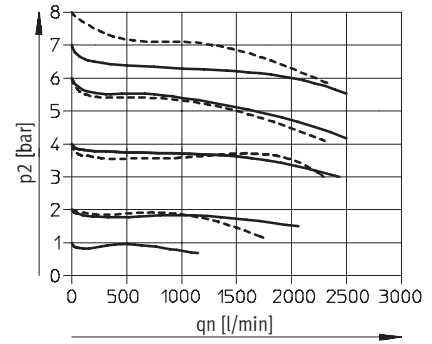
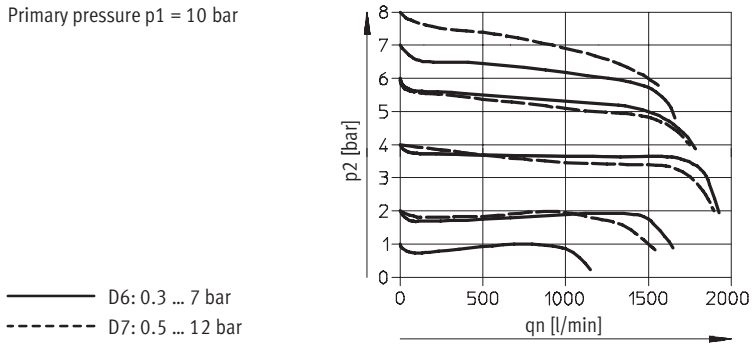
MS4-LFR-1/8

Primary pressure $p_1 = 10$ bar



MS4-LFR-1/4

Primary pressure $p_1 = 10$ bar



Filter regulators MS4/MS6-LFR, MS series

FESTO

Technical data

Standard flow rate q_n as a function of output pressure p_2

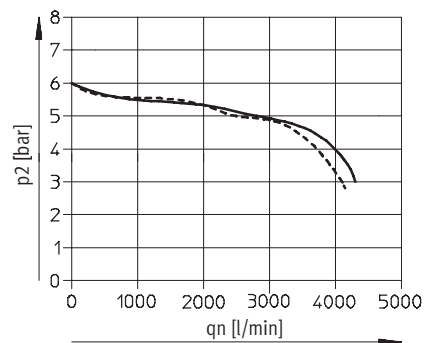
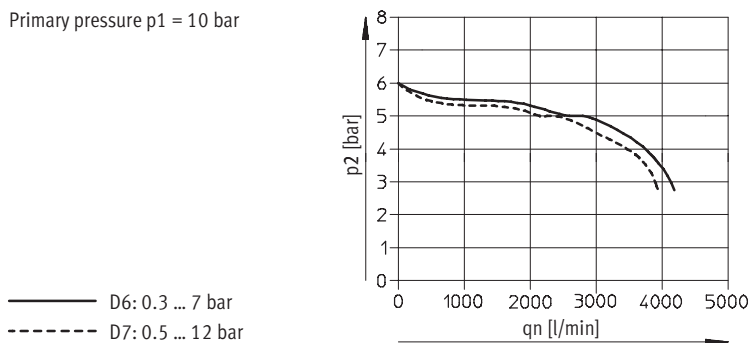
Pressure regulation range D6 or D7

Grade of filtration 5 μm

Grade of filtration 40 μm

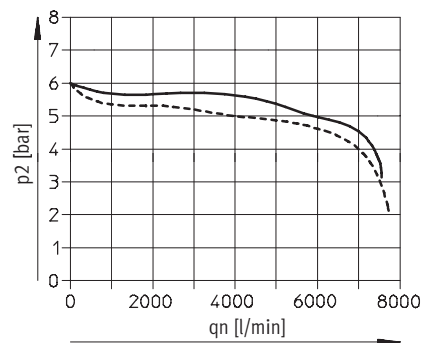
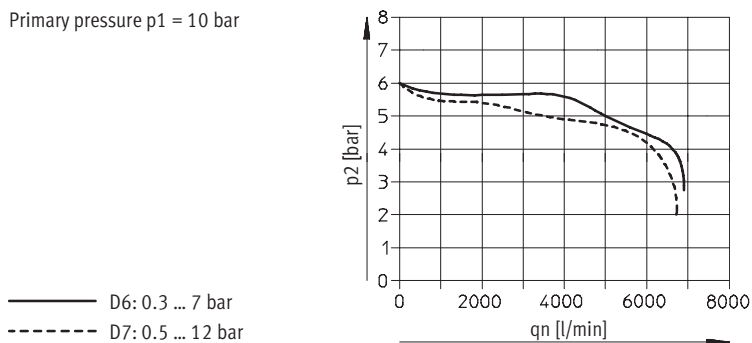
MS6-LFR-1/4

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



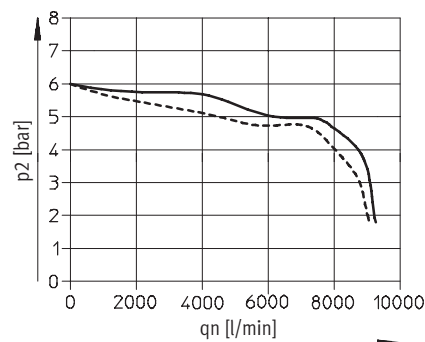
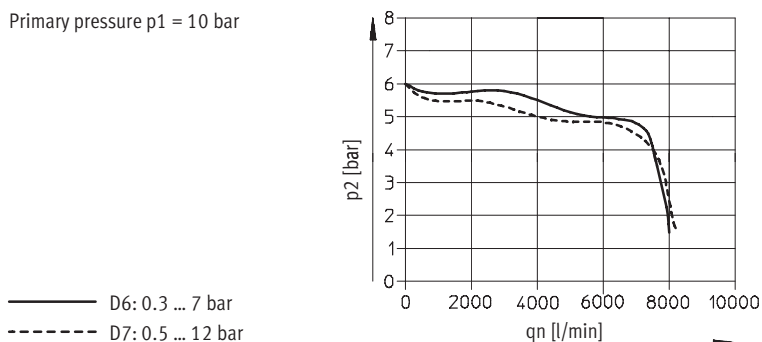
MS6-LFR-3/8

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

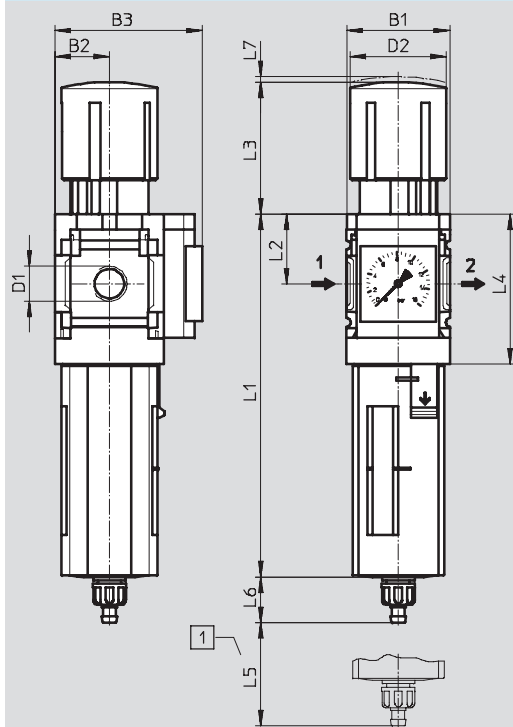
Technical data

FESTO

Dimensions – Standard

Download CAD Data → www.festo.com/us/cad

Integrated pressure gauge, display unit [bar], standard rotary knob with detent, 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		
			Stand- ard scale	Red-gree- n scale			Plastic	Metal					Plastic	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 to ISO 1179-1 and to ISO 228-1

Filter regulators MS4/MS6-LFR, MS series

Technical data

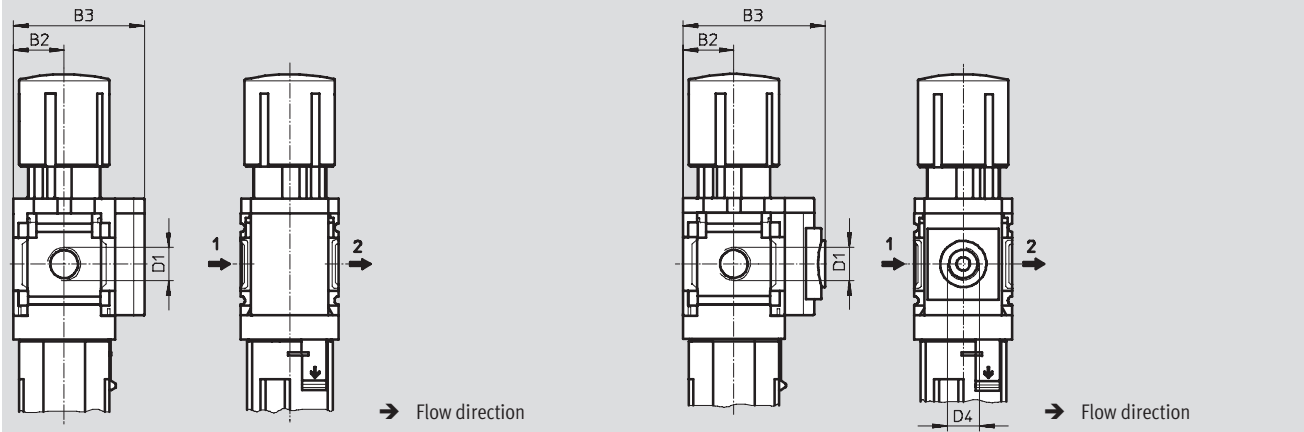
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Dimensions – Pressure gauge alternatives

Download CAD Data → www.festo.com/us/cad

Cover plate VS

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



Type	B2	B3	D1	D4
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	
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	

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Filter regulators MS4/MS6-LFR, MS series

Technical data

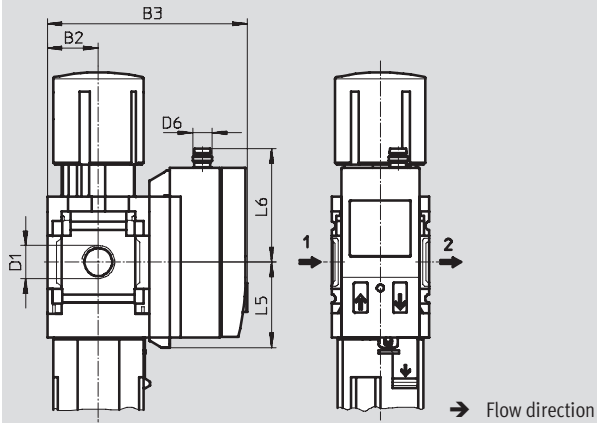
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Dimensions – Pressure gauge alternatives

Download CAD Data → www.festo.com/us/cad

Pressure sensor with LCD display AD1 ... AD4

Technical data → Internet: [sde1](#)



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

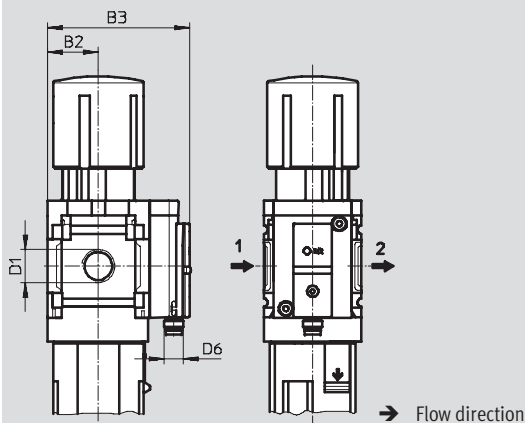
Variant AD2:
SDE1-D10-G2-MS-L-N1-M8 with
3-pin plug M8x1, 1 switching
output NPN

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

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

Pressure sensor without LCD display (operational status indicator only) AD7 ... AD10

Technical data → Internet: [sde5](#)



Variant AD7:
SDE5-D10-O-...-P-M8 with 3-pin
plug M8x1, threshold value
comparator, 1 switching output PNP,
N/O contact

Variant AD8:
SDE5-D10-C-...-P-M8 with 3-pin
plug M8x1, threshold value
comparator, 1 switching output PNP,
N/C contact

Variant AD9:
SDE5-D10-O3-...-P-M8 with 3-pin
plug M8x1, window comparator,
1 switching output PNP, N/O contact

Variant AD10:
SDE5-D10-C3-...-P-M8 with 3-pin
plug M8x1, window comparator,
1 switching output PNP, N/C contact

Type	B2	B3	D1	D6	L5	L6
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			
MS4-LFR-1/8-...-AD7/AD8/AD9/AD10	21	59.1	G1/8	M8x1	-	-
MS4-LFR-1/4-...-AD7/AD8/AD9/AD10			G1/4			
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			
MS6-LFR-1/4-...-AD7/AD8/AD9/AD10	31	79	G1/4	M8x1	-	-
MS6-LFR-3/8-...-AD7/AD8/AD9/AD10			G3/8			
MS6-LFR-1/2-...-AD7/AD8/AD9/AD10			G1/2			

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Filter regulators MS4/MS6-LFR, MS series

Technical data

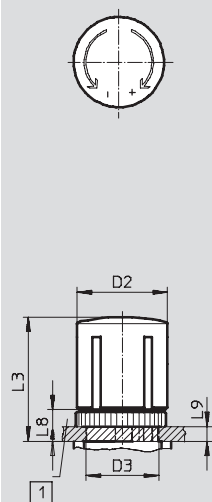
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Dimensions – Rotary knob

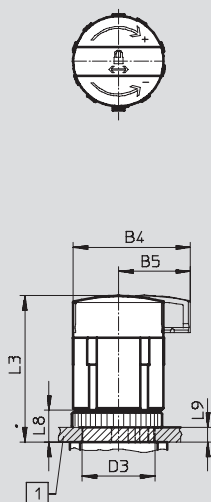
Download CAD Data → www.festo.com/us/cad

For installation into control panel

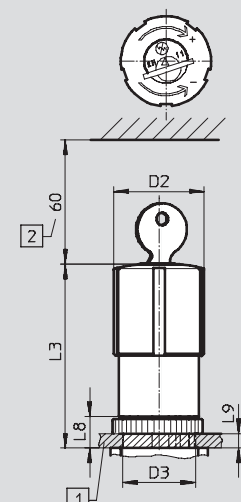
Standard rotary knob with detent



Standard rotary knob with detent,
lockable via accessories AS

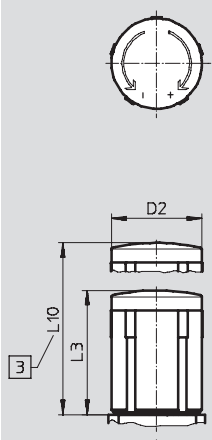


Rotary knob with integrated lock
E11

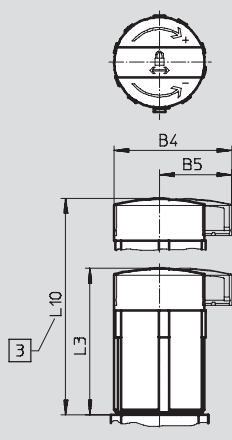


- 1 Max. control panel thickness
- 2 Installation dimensions

Long rotary knob with detent LD



Long rotary knob with detent,
lockable via accessories LD-AS



- 3 For pressure adjustment: pull out telescopic rotary knob fully

Type	B4	B5	D2	D3 +1	L3	L8	L9	L10
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	–	–	76.8
MS4-LFR-...-LD-AS	48.3	29.7			60.2			85.7
MS6-LFR-...	–	–	51	44	86	22	14	–
MS6-LFR-...-AS	64.4	39			95.5			
MS6-LFR-...-E11	–	–			112.1			
MS6-LFR-...-LD	–	–	51	–	86	–	–	139
MS6-LFR-...-LD-AS	64.4	39			95.5			148.5

Filter regulators MS4/MS6-LFR, MS series

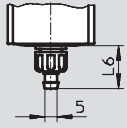
Technical data

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Dimensions – Condensate drain

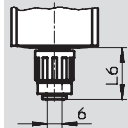
Download CAD Data → www.festo.com/us/cad

Manual rotary M



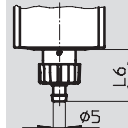
Barbed fitting for plastic tubing
PCN-4

Semi-automatic H



QS fitting for plastic tubing
PUN-6/PAN-6

Fully automatic V



Barbed fitting for plastic tubing
PCN-4

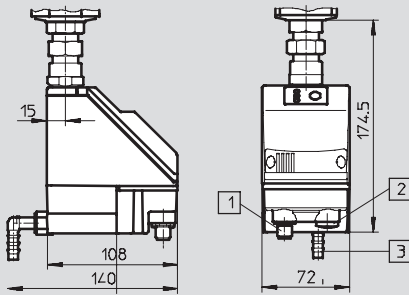
Type	L6
Plastic bowl guard	
MS4-LFR-...-M	17.7
MS6-LFR-...-M	15.8
Metal bowl	
MS4-LFR-...-M	17.7
MS6-LFR-...-M	19

Type	L6
Plastic bowl guard	
MS4-LFR-...-H	22.1
MS6-LFR-...-H	20.2
Metal bowl	
MS4-LFR-...-H	22.1
MS6-LFR-...-H	22.8

Type	L6
Plastic bowl guard	
MS4-LFR-...-V	20.4
MS6-LFR-...-V	18.5
Metal bowl	
MS4-LFR-...-V	20.4
MS6-LFR-...-V	22

Fully automatic, electrically actuated E1 ... E4

Technical data → Internet: pwea



- 1 Variant E1
PWEA-AP-... with plug M12x1,
5-pin for NEBU-M12...-LE5
- 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

FESTO

Technical data

Ordering data							
Pressure regulation range 0.3 ... 7 bar, integrated pressure gauge, display unit [bar], standard rotary knob with detent, lockable via accessories							
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 $\frac{1}{8}$	529160	MS4-LFR- $\frac{1}{8}$ -D6-CRM-AS		529164	MS4-LFR- $\frac{1}{8}$ -D6-ERM-AS
		G $\frac{1}{4}$	529144	MS4-LFR- $\frac{1}{4}$ -D6-CRM-AS		529148	MS4-LFR- $\frac{1}{4}$ -D6-ERM-AS
	Fully automatic	G $\frac{1}{8}$	529162	MS4-LFR- $\frac{1}{8}$ -D6-CRV-AS		529166	MS4-LFR- $\frac{1}{8}$ -D6-ERV-AS
		G $\frac{1}{4}$	529146	MS4-LFR- $\frac{1}{4}$ -D6-CRV-AS		529150	MS4-LFR- $\frac{1}{4}$ -D6-ERV-AS
MS6	Manual rotary	G $\frac{1}{4}$	529196	MS6-LFR- $\frac{1}{4}$ -D6-CRM-AS		529200	MS6-LFR- $\frac{1}{4}$ -D6-ERM-AS
		G $\frac{3}{8}$	529216	MS6-LFR- $\frac{3}{8}$ -D6-CRM-AS		529220	MS6-LFR- $\frac{3}{8}$ -D6-ERM-AS
		G $\frac{1}{2}$	529176	MS6-LFR- $\frac{1}{2}$ -D6-CRM-AS		529180	MS6-LFR- $\frac{1}{2}$ -D6-ERM-AS
	Fully automatic	G $\frac{1}{4}$	529198	MS6-LFR- $\frac{1}{4}$ -D6-CRV-AS		529202	MS6-LFR- $\frac{1}{4}$ -D6-ERV-AS
		G $\frac{3}{8}$	529218	MS6-LFR- $\frac{3}{8}$ -D6-CRV-AS		529222	MS6-LFR- $\frac{3}{8}$ -D6-ERV-AS
		G $\frac{1}{2}$	529178	MS6-LFR- $\frac{1}{2}$ -D6-CRV-AS		529182	MS6-LFR- $\frac{1}{2}$ -D6-ERV-AS

Ordering data							
Pressure regulation range 0.5 ... 12 bar, integrated pressure gauge, display unit [bar], standard rotary knob with detent, lockable via accessories							
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 $\frac{1}{8}$	529168	MS4-LFR- $\frac{1}{8}$ -D7-CRM-AS		529172	MS4-LFR- $\frac{1}{8}$ -D7-ERM-AS
		G $\frac{1}{4}$	529152	MS4-LFR- $\frac{1}{4}$ -D7-CRM-AS		529156	MS4-LFR- $\frac{1}{4}$ -D7-ERM-AS
	Fully automatic	G $\frac{1}{8}$	529170	MS4-LFR- $\frac{1}{8}$ -D7-CRV-AS		529174	MS4-LFR- $\frac{1}{8}$ -D7-ERV-AS
		G $\frac{1}{4}$	529154	MS4-LFR- $\frac{1}{4}$ -D7-CRV-AS		529158	MS4-LFR- $\frac{1}{4}$ -D7-ERV-AS
MS6	Manual rotary	G $\frac{1}{4}$	529204	MS6-LFR- $\frac{1}{4}$ -D7-CRM-AS		529208	MS6-LFR- $\frac{1}{4}$ -D7-ERM-AS
		G $\frac{3}{8}$	529224	MS6-LFR- $\frac{3}{8}$ -D7-CRM-AS		529228	MS6-LFR- $\frac{3}{8}$ -D7-ERM-AS
		G $\frac{1}{2}$	529184	MS6-LFR- $\frac{1}{2}$ -D7-CRM-AS		529188	MS6-LFR- $\frac{1}{2}$ -D7-ERM-AS
	Fully automatic	G $\frac{1}{4}$	529206	MS6-LFR- $\frac{1}{4}$ -D7-CRV-AS		529210	MS6-LFR- $\frac{1}{4}$ -D7-ERV-AS
		G $\frac{3}{8}$	529226	MS6-LFR- $\frac{3}{8}$ -D7-CRV-AS		529230	MS6-LFR- $\frac{3}{8}$ -D7-ERV-AS
		G $\frac{1}{2}$	529186	MS6-LFR- $\frac{1}{2}$ -D7-CRV-AS		529190	MS6-LFR- $\frac{1}{2}$ -D7-ERV-AS
Integrated as metal bowl							
MS4	Manual rotary	G $\frac{1}{8}$	535702	MS4-LFR- $\frac{1}{8}$ -D7-CUM-AS		535708	MS4-LFR- $\frac{1}{8}$ -D7-EUM-AS
		G $\frac{1}{4}$	535718	MS4-LFR- $\frac{1}{4}$ -D7-CUM-AS		535724	MS4-LFR- $\frac{1}{4}$ -D7-EUM-AS
	Fully automatic	G $\frac{1}{8}$	535704	MS4-LFR- $\frac{1}{8}$ -D7-CUV-AS		535706	MS4-LFR- $\frac{1}{8}$ -D7-EUV-AS
		G $\frac{1}{4}$	535720	MS4-LFR- $\frac{1}{4}$ -D7-CUV-AS		535722	MS4-LFR- $\frac{1}{4}$ -D7-EUV-AS
MS6	Manual rotary	G $\frac{1}{4}$	530342	MS6-LFR- $\frac{1}{4}$ -D7-CUM-AS		529212	MS6-LFR- $\frac{1}{4}$ -D7-EUM-AS
		G $\frac{3}{8}$	530346	MS6-LFR- $\frac{3}{8}$ -D7-CUM-AS		529232	MS6-LFR- $\frac{3}{8}$ -D7-EUM-AS
		G $\frac{1}{2}$	530338	MS6-LFR- $\frac{1}{2}$ -D7-CUM-AS		529192	MS6-LFR- $\frac{1}{2}$ -D7-EUM-AS
	Fully automatic	G $\frac{1}{4}$	530344	MS6-LFR- $\frac{1}{4}$ -D7-CUV-AS		529214	MS6-LFR- $\frac{1}{4}$ -D7-EUV-AS
		G $\frac{3}{8}$	530348	MS6-LFR- $\frac{3}{8}$ -D7-CUV-AS		529234	MS6-LFR- $\frac{3}{8}$ -D7-EUV-AS
		G $\frac{1}{2}$	530340	MS6-LFR- $\frac{1}{2}$ -D7-CUV-AS		529194	MS6-LFR- $\frac{1}{2}$ -D7-EUV-AS

Ordering data – Wearing parts kits			
Size	Part No.	Type	
MS4	673647	MS4-LFR	
MS6	673648	MS6-LFR	

Filter regulators MS4/MS6-LFR, MS series

Ordering data – Modular products

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M Mandatory data →								
Module No.	Series	Size	Function	Connection size	Pressure regulation range	Grade of filtration	Bowl	Condensate drain
526489 526490	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	M H V E1 ... E4
Order example								
526489	MS	4	- LFR	- AGA	- D6	- C	- R	- M

Ordering table						
Grid dimension [mm]		40	62	Condition s	Code	Enter code
M	Module No.	526489	526490			
	Series	Standard			MS	MS
	Size	4	6		...	
	Function	Filter regulator			-LFR	-LFR
	Connection size	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	
	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, terminals	2	-E2	
		–	230 V AC, terminals	2	-E3	
		–	24 V DC, terminals	2	-E4	

1 H, V Not with pressure regulation range D8

2 E1 ... E4 Only with metal bowl U

Transfer order code

	MS		-	LFR	-		-		-		-		-	
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Filter regulators MS4/MS6-LFR, MS series

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Ordering data – Modular products

0 Options						
Pressure gauge alternatives	Alternative pressure gauge scale	Secondary venting	Rotary knob	Security	Type of mounting	Alternative flow direction
VS, A8, A4, RG, AD1 ... AD4, AD7 ... AD10	PSI MPa	OS	LD	AS E11	WR WP WPM WB WBM	Z
- A8	-	-	- LD	- AS	- WPM	- Z

Ordering table						
Grid dimension	[mm]	40	62	Condition s	Code	Enter code
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			4	-RG	
	Pressure sensor with display, plug M8, 1 switching output PNP, 3-pin			5	-AD1	
	Pressure sensor with display, plug M8, 1 switching output NPN, 3-pin			5	-AD2	
	Pressure sensor with display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA			5	-AD3	
	Pressure sensor with display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA			5	-AD4	
	Pressure sensor without display, plug M8, threshold value comparator, PNP, N/O contact			5	-AD7	
	Pressure sensor without display, plug M8, threshold value comparator, PNP, N/C contact			5	-AD8	
	Pressure sensor without display, plug M8, window comparator, PNP, N/O contact			5	-AD9	
	Pressure sensor without display, plug M8, window comparator, PNP, N/C contact			5	-AD10	
	Alternative pressure gauge scale					
	psi			6	-PSI	
	MPa			6	-MPa	
Secondary venting	Without secondary venting				-OS	
Rotary knob	Long rotary knob			7	-LD	
Security	Lockable via accessories				-AS	
	With integrated lock				-E11	
Type of mounting	Mounting bracket with knurled nut for regulator head			8	-WR	
	Mounting bracket			9	-WP	
	Mounting bracket			9	-WPM	
	Mounting bracket				-WB	
	Mounting bracket				-WBM	
Alternative flow direction	Flow direction from right to left				-Z	

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

5 AD1 ... AD4, AD7 ... AD10
Measuring range max. 10 bar
Not with pressure regulation range D8

6 PSI, MPa Not with pressure gauge alternatives VS, A8, A4, AD1 ... AD4, AD7 ... AD10

7 LD Not with security E11

8 WR Not with long rotary knob LD

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

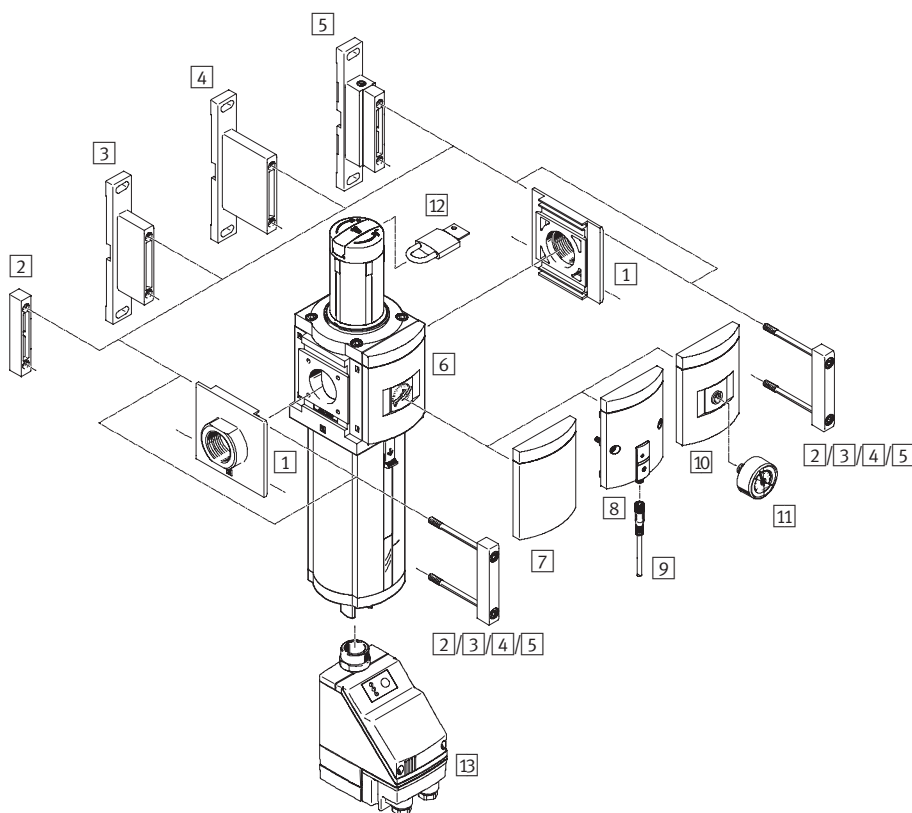
Transfer order code

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Filter regulators MS9-LFR, MS series

Peripherals overview

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 Note

Additional accessories:

- Module connector for combinations with size MS6, MS9 or MS12
- Internet: rmv, armv

Mounting attachments and accessories				
		Individual unit		Combination
		Without connecting thread	With connecting thread 3/4 or 1	
1	Connecting plate MS9-AG...	■	–	■
2	Module connector MS9-MV	■	–	■
3	Mounting bracket MS9-WP	■	■	■
4	Mounting bracket MS9-WPB	■	■	■
5	Mounting bracket MS9-WPM	■	–	■
6	MS pressure gauge AG	■	■	■
7	Cover plate VS	■	■	■
8	Pressure sensor without display AD7 ... AD10	■	■	■
9	Connecting cable NEBU-M8...-LE3	■	■	■
10	Adapter plate for EN pressure gauge 3/4 A4	■	■	■
11	Pressure gauge MA	■	■	■
12	Padlock LRVS-D	■	■	■
13	Condensate drain, fully automatic, electrically actuated E1/E2/E3/E4	■	■	■

Filter regulators MS9-LFR, MS series

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Type codes

		MS	9	-	LFR	-	G	-	D6	-	E	U	M	-	DI	-	AG	-	BAR	-	AS
Series																					
MS	Standard service unit																				
Size																					
9	Grid dimension 90 mm																				
Service function																					
LFR	Filter regulator																				
Connection size																					
G	Module without connecting thread, without connecting plate																				
Pressure regulation range/operation mode																					
D6	0.3 ... 7 bar, manually operated																				
D7	0.5 ... 12 bar, manually operated																				
Grade of filtration																					
C	5 µm																				
E	40 µm																				
Bowl guard																					
U	Integrated as metal bowl																				
Condensate drain																					
M	Manual rotary																				
V	Fully automatic																				
Regulator type																					
	Piloted																				
DI	Directly actuated (only with pressure regulation range D6)																				
Pressure gauge																					
AG	MS pressure gauge																				
Pressure gauge scale																					
BAR	Bar																				
Security																					
AS	Rotary knob with detent, can be locked using accessories																				

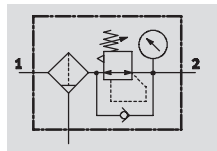
Additional variants can be ordered using the modular system → 34

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

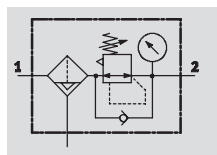
Filter regulators MS9-LFR, MS series

Technical data

Manual rotary condensate drain, with pressure gauge



Semi or fully automatic condensate drain, with pressure gauge



With this component, 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
3,600 ... 21,500 l/min

Temperature range
-10 ... +60 °C

 Supply pressure
0.8 ... 20 bar



- Good regulation characteristics with low hysteresis and primary pressure compensation
- Good particle and condensate separation
- Piloted or directly actuated filter-diaphragm regulator
- High flow rates
- Available with or without secondary venting
- Four pressure regulation ranges: 0.3 ... 4 bar, 0.3 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Actuator lock to protect set values against adjustment
- Pressure gauge connection for different fitting options
- Available with manual, semi-automatic, fully automatic or fully automatic, electrically actuated condensate drain
- Optional pressure sensor
- Choice of filter cartridges: 5 µm or 40 µm
- New filter cartridges → 46

General technical data					
Pneumatic connection 1, 2		G3/4	G1	G1½ ... G1½ (with connecting plate AG...)	– (without connecting thread G)
Design		Piloted filter-diaphragm regulator			
		Directly actuated filter-diaphragm regulator			
Regulator type	Piloted	Output pressure constant, with return flow action, with primary pressure compensation, with secondary venting			
	Directly actuated	Output pressure constant, with return flow action, with/without secondary venting			
Type of mounting		Via accessories			
		In-line installation			
Mounting position		Vertical ±5°			
Grade of filtration	[µm]	5 (air quality class at the output 3.7.– to DIN ISO 8573-1)			
		40 (air quality class at the output 5.7.– to DIN ISO 8573-1)			
Bowl guard		Integrated as metal bowl			
Condensate drain		Manual rotary			
		Semi-automatic			
		Fully automatic			
		Fully automatic, electrically actuated			
Security		Rotary knob with detent			
		Rotary knob with detent, can be locked using accessories			
		Rotary knob with integrated lock			
Pressure regulation range/operation mode	D5 [bar]	0.3 ... 4, manually operated			
	D6 [bar]	0.3 ... 7, manually operated			
	D7 [bar]	0.5 ... 12, manually operated (0.5 ... 10 with pressure sensor variant AD...)			
	D8 [bar]	0.5 ... 16, manually operated (0.5 ... 10 with pressure sensor variant AD...)			
Max. pressure hysteresis [bar]		0.3			
Pressure display		Via pressure sensor for displaying output pressure via operational status indicator and electrical output			
		Via pressure gauge for displaying output pressure			
		Via pressure gauge with red/green scale for displaying output pressure			
		G¼ prepared			
Max. condensate volume [ml]		220			

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Filter regulators MS9-LFR, MS series

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Technical data

Standard nominal flow rate q_{N1} [l/min]			
Pneumatic connection		With connecting thread G $\frac{3}{4}$ With connecting plate AGD, AGE	With connecting thread G1 With connecting plate AGF, AGG, AGH
Directly actuated diaphragm regulator DI			
Pressure regulation	D5	8,000 $\pm 15\%$ ¹⁾	13,000 $\pm 15\%$ ²⁾
range	D6	7,000 $\pm 15\%$	10,000 $\pm 15\%$

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

2) Measured at $p_1 = 10$ bar and $p_2 = 4$ bar, $\Delta p = 1$ bar

Operating and environmental conditions				
Condensate drain	Manual rotary M	Semi-automatic H	Fully automatic V	Fully automatic, electrically actuated E1 ... E4
Operating pressure [bar]	0.8 ... 20	1.5 ... 12	2 ... 12	0.8 ... 16
Operating medium	Air quality class 5:7:- to DIN ISO 8573-1			
Operating medium with pressure sensor AD	Filtered compressed air, lubricated or unlubricated, grade of filtration 40 μ m			
Ambient temperature [°C]	-10 ... +60	+5 ... +60	+5 ... +60	+1 ... +60
Ambient temperature with pressure sensor AD [°C]	0 ... +50	+5 ... +50	+5 ... +50	+1 ... +50
Temperature of medium [°C]	-10 ... +60	+5 ... +60	+5 ... +60	+1 ... +60
Temperature of medium with pressure sensor AD [°C]	0 ... +50	+5 ... +50	+5 ... +50	+1 ... +50
Storage temperature [°C]	-10 ... +60	+5 ... +60	+5 ... +60	+1 ... +60
Corrosion resistance class CRC ¹⁾	2			

1) Corrosion resistance class 2 according 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]		
Rotary knob	Without integrated lock E11	With integrated lock E11
Filter regulator with metal bowl U	2,400	2,700
Filter regulator with metal bowl U and fully automatic condensate drain, electrically actuated E1 ... E4	2,800	3,100

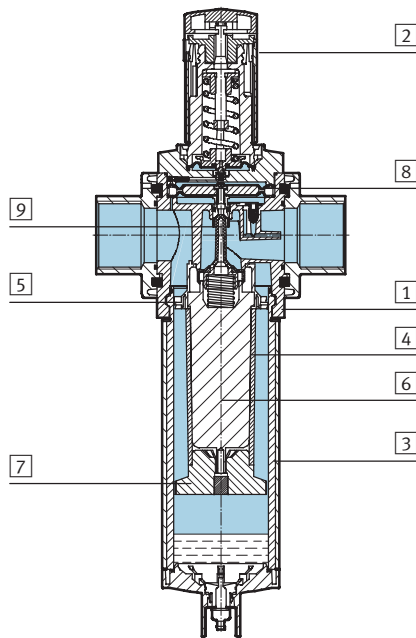
Filter regulators MS9-LFR, MS series

Technical data

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Materials

Sectional view



Filter regulator		
1	Housing	Die-cast aluminium
2	Rotary knob	PA
	Rotary knob with integrated lock E11	Aluminium
3	Bowl	Wrought aluminium alloy
	Inspection window	PA
4	Filter element	PE
5	Spin disc	POM
6	Filter holder	POM
7	Separating plate	POM
8	Diaphragm	NBR
9	Valve stem	Wrought aluminium alloy, NBR, POM
–	Cover	PA reinforced
–	Connecting plate, module connector, mounting bracket	Die-cast aluminium
–	Seals	NBR
Note on materials		RoHS-compliant (not with variant E1, E2, E3 or E4)

Filter regulators MS9-LFR, MS series

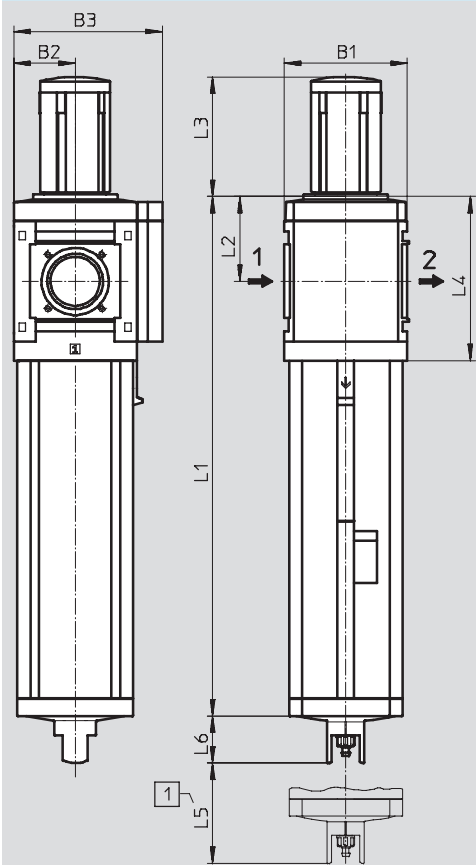
Technical data

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Dimensions – Basic version

Download CAD Data → www.festo.com/us/cad

Without connecting thread G, rotary knob with detent



1 Installation dimensions

→ Flow direction

Type	B1	B2	B3	L1	L2	L3	L4	L5	L6
MS9-LFR-G	90	45	109	313	62	86	120	150	34.5

Filter regulators MS9-LFR, MS series

Technical data

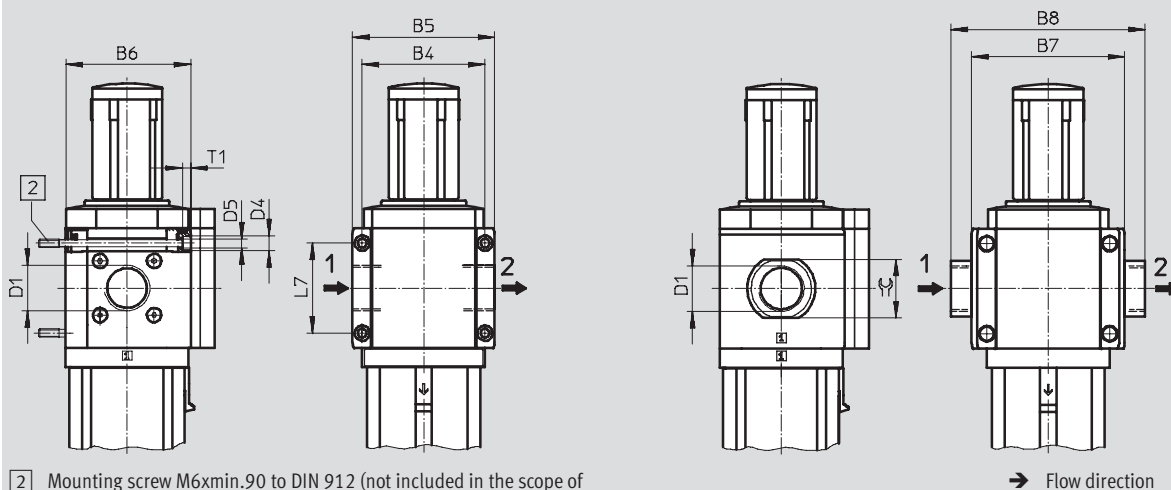
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Dimensions – Connecting thread/connecting plate

Download CAD Data → www.festo.com/us/cad

With connecting thread 3/4 or 1

With connecting plate AG...



2 Mounting screw M6xmin.90 to DIN 912 (not included in the scope of delivery) for wall mounting without mounting bracket

Type	B4	B5	B6	B7	B8	D1	D4	D5	L7	T1	≅
MS9-LFR-3/4	90	104	91.5	-	-	G3/4	11	6.5	66	6	-
MS9-LFR-1						G1					
MS9-LFR-AGD	-	-	-	112	132	G1/2	-	-	-	-	30
MS9-LFR-AGE					132	G3/4					36
MS9-LFR-AGF					142	G1					41
MS9-LFR-AGG					162	G1 1/4					50
MS9-LFR-AGH					176	G1 1/2					55

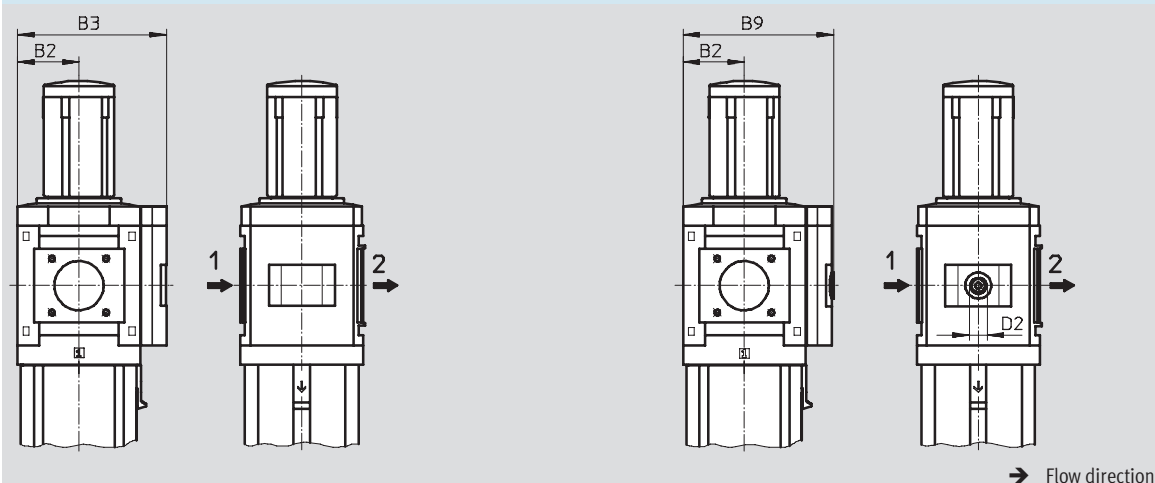
Note: This product conforms to ISO 1179-1 and to ISO 228-1

Dimensions – Pressure gauge alternatives

Download CAD Data → www.festo.com/us/cad

Integrated MS pressure gauge with standard scale AG or red/green scale RG, display unit [bar]

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



Type	B2	B3	B9	D2
MS9-LFR-...-AG/RG	45	109	-	-
MS9-LFR-...-A4		-	110	G1/4

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Filter regulators MS9-LFR, MS series

Technical data

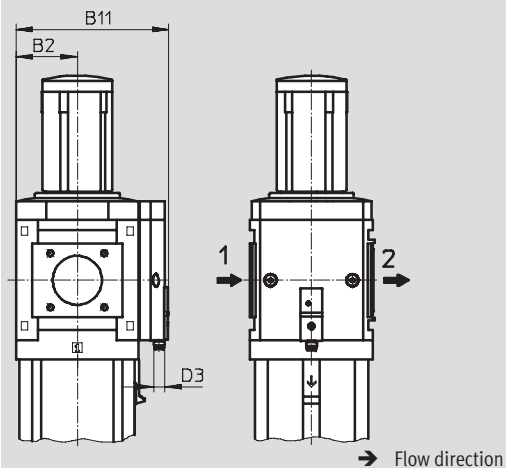
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Dimensions – Pressure gauge alternatives

Download CAD Data → www.festo.com/us/cad

Pressure sensor without LCD display (operational status indicator only) AD7 ... AD10

Technical data → Internet: sde5



Variant AD7:
SDE5-D10-O-...-P-M8 with
3-pin plug M8x1, threshold
value comparator,
1 switching output PNP, N/O
contact

Variant AD9:
SDE5-D10-O3-...-P-M8 with
3-pin plug M8x1, window
comparator, 1 switching
output PNP, N/O contact

Variant AD8:
SDE5-D10-C-...-P-M8 with
3-pin plug M8x1, threshold
value comparator,
1 switching output PNP, N/C
contact

Variant AD10:
SDE5-D10-C3-...-P-M8 with
3-pin plug M8x1, window
comparator, 1 switching
output PNP, N/C contact

Type	B2	B11	D3
MS9-LFR-...-AD7/AD8/AD9/AD10	45	112	M8

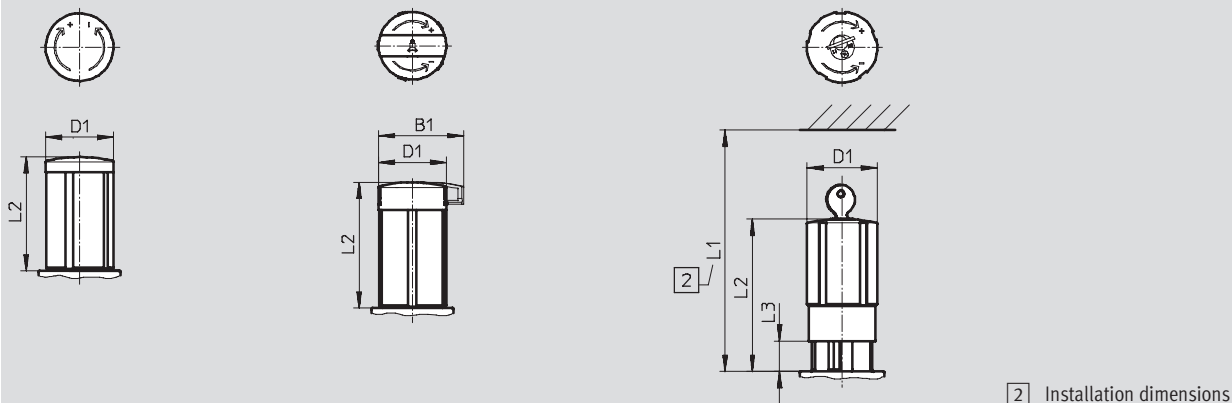
Dimensions – Rotary knob

Download CAD Data → www.festo.com/us/cad

Rotary knob with detent

Rotary knob with detent, can be
locked using accessories AS

Rotary knob with integrated lock
E11



Type	B1	D1	L1	L2	L3
MS9-LFR	–	52	–	86	–
MS9-LFR-...-AS	65	52	–	96	–
MS9-LFR-...-E11	–	52	174	114	25

Filter regulators MS9-LFR, MS series

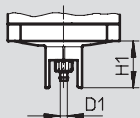
Technical data

FESTO

Dimensions – Condensate drain

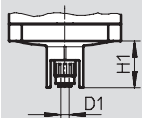
Download CAD Data → www.festo.com/us/cad

Manual rotary M/fully automatic V



Barbed connector for plastic tubing PCN-4

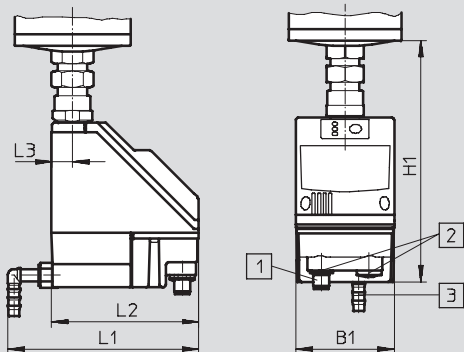
Semi-automatic H



QS connector for plastic tubing PUN-6/PAN-6

Fully automatic, electrically actuated E1/E2/E3/E4

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



- 1 Variant E1:
Condensate drain PWEA-AP
with plug M12x1, 5-pin for
NEBU-M12...-LE5
- 2 Variant E2/E3/E4:
Condensate drain PWEA-AC
with cable connector Pg9

- 3 Connection 360° rotatable for
plastic tubing PUN-H-12x2

Type	B1	D1	H1	L1	L2	L3
MS9-LFR-...M/V	–	5	34.5	–	–	–
MS9-LFR-...H		6				
MS9-LFR-...E1/E2/E3/E4	72	–	178	140	108	15

Filter regulators MS9-LFR, MS series

FESTO

Technical data

Ordering data						
Pressure regulation range 0.3 ... 7 bar, integrated pressure gauge, display unit [bar], rotary knob with detent, 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
Piloted filter-diaphragm regulator						
MS9	Manual rotary	–	564114	MS9-LFR-G-D6-CUM-AGBARAS	564110	MS9-LFR-G-D6-EUM-AGBARAS
	Fully automatic	–	564115	MS9-LFR-G-D6-CUV-AGBARAS	564111	MS9-LFR-G-D6-EUV-AGBARAS
Directly actuated filter-diaphragm regulator						
MS9	Manual rotary	–	564116	MS9-LFR-G-D6CUMDIAGBARAS	564112	MS9-LFR-G-D6EUMDIAGBARAS
	Fully automatic	–	564117	MS9-LFR-G-D6CUVDIAGBARAS	564113	MS9-LFR-G-D6EUVDIAGBARAS

Ordering data							
Pressure regulation range 0.5 ... 12 bar, integrated pressure gauge, display unit [bar], rotary knob with detent, 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
Piloted filter-diaphragm regulator							
MS9	Manual rotary	–	564120	MS9-LFR-G-D7-CUM-AGBARAS		564118	MS9-LFR-G-D7-EUM-AGBARAS
	Fully automatic	–	564121	MS9-LFR-G-D7-CUV-AGBARAS		564119	MS9-LFR-G-D7-EUV-AGBARAS

Filter regulators MS9-LFR, MS series

Ordering data – Modular products

FESTO

Mandatory data →								
Module No.	Series	Size	Function	Connection size	Pressure range/operation mode	Grade of filtration	Bowl	Condensate drain
562531	MS	9	LFR	3/4, 1, AGD, AGE, AGF, AGG, AGH, G	D5, D6, D7, D8	E, C	U	M, H, V, E1 ... E4
Ordering example								
562531	MS	9	- LFR	- G	- D5	- E	- U	- M

Ordering table				
Grid dimension	[mm]	90	Condition s	Code
M	Module No.	562531		
	Series	Standard		MS
	Size	9		9
	Function	Filter regulator		-LFR
	Connection size	Thread G3/4		-3/4
		Thread G1		-1
		Connecting plate G1/2		-AGD
		Connecting plate G3/4		-AGE
		Connecting plate G1		-AGF
		Connecting plate G1 1/4		-AGG
		Connecting plate G1 1/2		-AGH
		Module without connecting thread, without connecting plate		-G
	Pressure range/operation mode	0.3 ... 4 bar, manually operated		-D5
		0.3 ... 7 bar, manually operated		-D6
		0.5 ... 12 bar, manually operated		-D7
		0.5 ... 16 bar, manually operated		-D8
	Grade of filtration	40 µm		-E
		5 µm		-C
	Bowl	Metal bowl		-U
	Condensate drain	Manual		-M
		Semi-automatic (P1 max. 12 bar)		-H
		Fully automatic (P1 max. 12 bar)		-V
	External, fully automatic, electric	24 V DC, M12 (P1 max. 16 bar)		-E1
		110 V AC, terminals (P1 max. 16 bar)		-E2
		230 V AC, terminals (P1 max. 16 bar)		-E3
		24 V DC, terminals (P1 max. 16 bar)		-E4

Transfer order code

562531	MS	9	-	LFR	-		-		-		-	U	-	
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Variants D7, D8, pilot actuated regulator: **Available from 2nd quarter 2011**

 **New**

Filter regulators MS9-LFR, MS series

FESTO

Ordering data – Modular products

Options		Mandatory data		Options		
Regulator type	Pressure gauge/pressure gauge alternatives	Alternative pressure gauge scale	Secondary venting	Security	Type of mounting	Alternative flow direction
DI	AG, VS, A4, RG, AD7 ... AD10	PSI, MPA, BAR	OS	AS, E11	WP, WPM, WPB	Z
- DI	- AG	- BAR	- OS	- AS	-	-

Ordering table						
Grid dimension	[mm]	90	Condition s	Code		Enter code
Options	Regulator type	Directly actuated	1	-DI		
Mandatory	Pressure gauge/pressure gauge alternatives	MS pressure gauge		-AG		
		Cover plate		-VS		
		Adapter plate for EN pressure gauge 1/4, without pressure gauge		-A4		
		Integrated pressure gauge, red/green scale	2	-RG		
		Pressure sensor without display, plug M8, threshold value comparator, PNP, N/O contact	3	-AD7		
		Pressure sensor without display, plug M8, threshold value comparator, PNP, N/C contact	3	-AD8		
		Pressure sensor without display, plug M8, window comparator, PNP, N/O contact	3	-AD9		
		Pressure sensor without display, plug M8, window comparator, PNP, N/C contact	3	-AD10		
	Alternative pressure gauge scale	Psi	4	-PSI		
		MPa	4	-MPA		
		Bar	4	-BAR		
Options	Secondary venting	Without secondary venting	5	-OS		
	Security	Can be locked using accessories		-AS		
		With integrated lock		-E11		
	Type of mounting	Mounting bracket	6	-WP		
		Mounting bracket	6	-WPM		
		Mounting bracket for large wall gap	6	-WPB		
	Alternative flow direction	Flow direction from right to left		-Z		

- | | | | |
|-----------------|--|----------------|-----------------------------|
| 1 DI | Not with pressure range D7, D8 | 5 OS | Only with regulator type DI |
| 2 RG | Not with alternative pressure gauge scale PSI | 6 WP, WPM, WPB | Not with module G |
| 3 AD7 ... AD10 | Measuring range max. 10 bar | | |
| 4 PSI, MPA, BAR | Not with pressure gauge alternatives VS, A4, AD7, AD8, AD9, AD10 | | |

Transfer order code

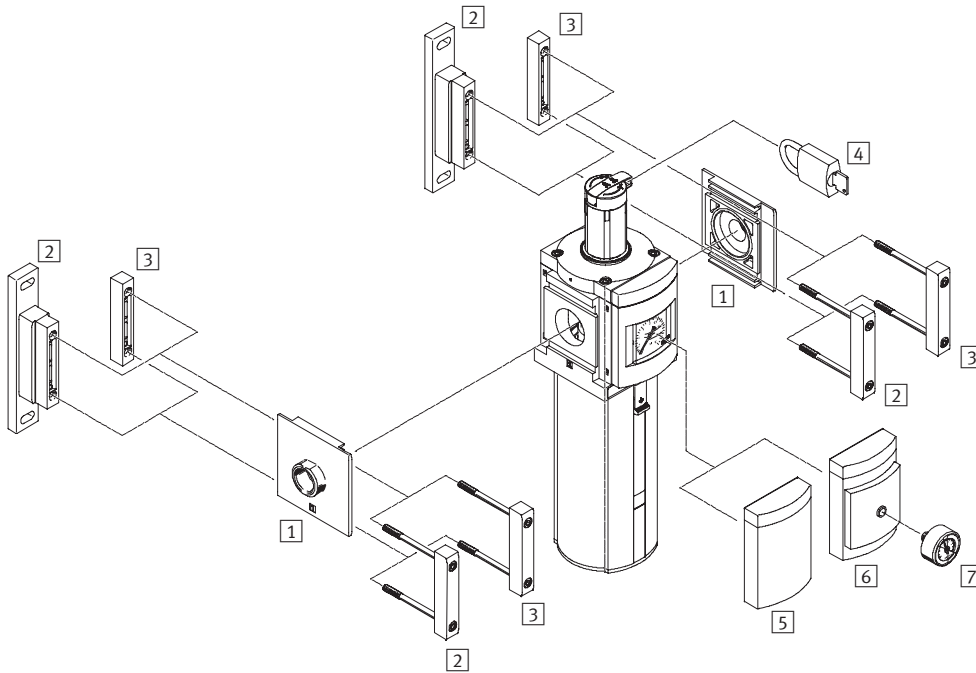
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Filter regulators MS12-LFR, MS series

Peripherals overview

FESTO

Filter regulators MS12-LFR



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	47
5	Cover plate VS	44
6	Adapter for EN pressure gauge 1/4 A4	44
7	Pressure gauge MA	47

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	Rotary knob with detent, lockable via accessories																

Further variants can be ordered using the modular system → 44

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

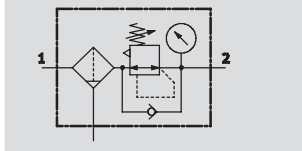
Filter regulators MS12-LFR, MS series

FESTO

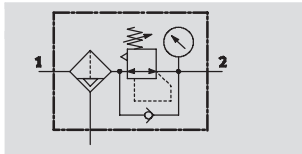
Technical data

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/en/Spare_parts_service

Wearing parts kits

→ 43

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
- Regulator lock for protecting the values against adjustment
- Choice of filter cartridges: 5 µm or 40 µm
- New filter cartridges → 46



General technical data					
Pneumatic connection 1, 2 ¹⁾		G1	G1¼	G1½	G2
Design		Filter regulator with/without pressure gauge			
		Sintered filter with centrifugal separation			
		Pilot actuated diaphragm regulator			
Regulating function		Output pressure constant, with primary pressure compensation, with secondary venting			
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			
Regulator lock		Rotary knob with detent			
		Rotary knob with detent, lockable via accessories			
		Rotary knob with integrated lock			
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		[cm ³]	400		

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

Filter regulators MS12-LFR, MS series

Technical data

FESTO

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	14,000
	40 µm	12,000	12,500	13,000	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

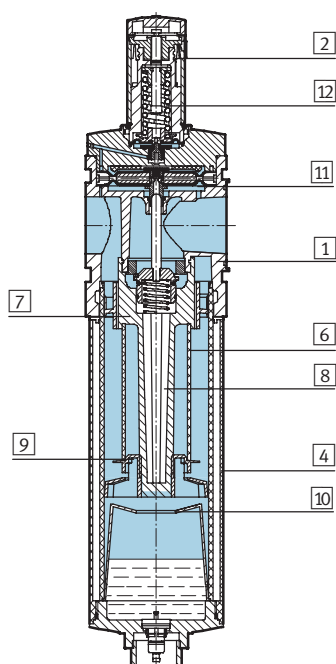
Operating and environmental conditions				
Condensate drain		Manual rotary M	Fully automatic V	Fully automatic, electrical actuated E1 ... E4
Input pressure	[bar]	0.8 ... 20	2 ... 12	0.8 ... 16
Operating medium		Compressed air, air quality class 5.7. – to DIN ISO 8573-1		
Ambient temperature	[°C]	–10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

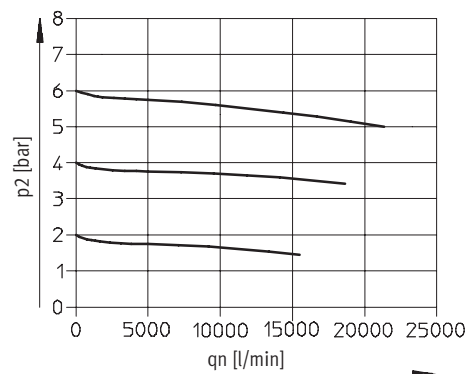
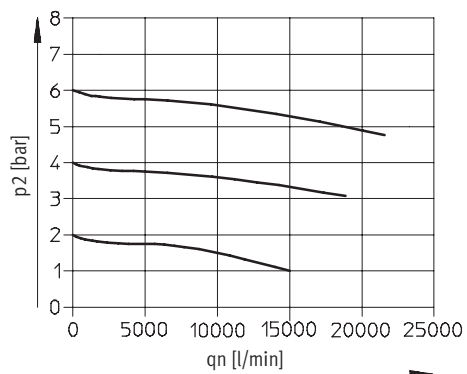
With connecting plate MS12-AGF

Pneumatic connection G1

With connecting plate MS12-AGG

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

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



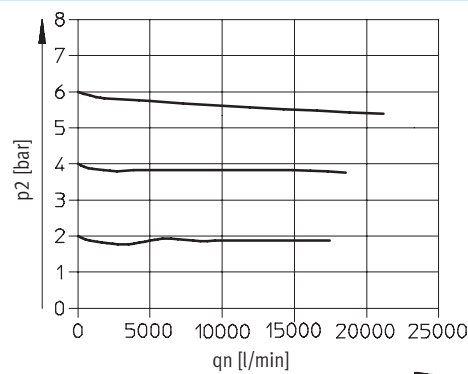
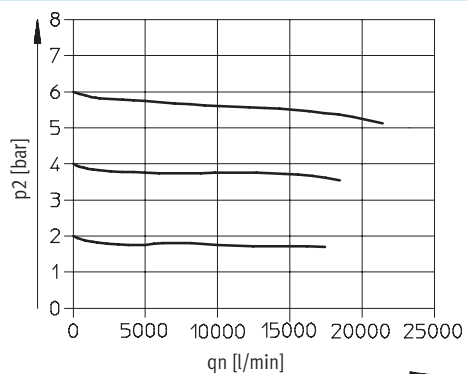
With connecting plate MS12-AGH

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

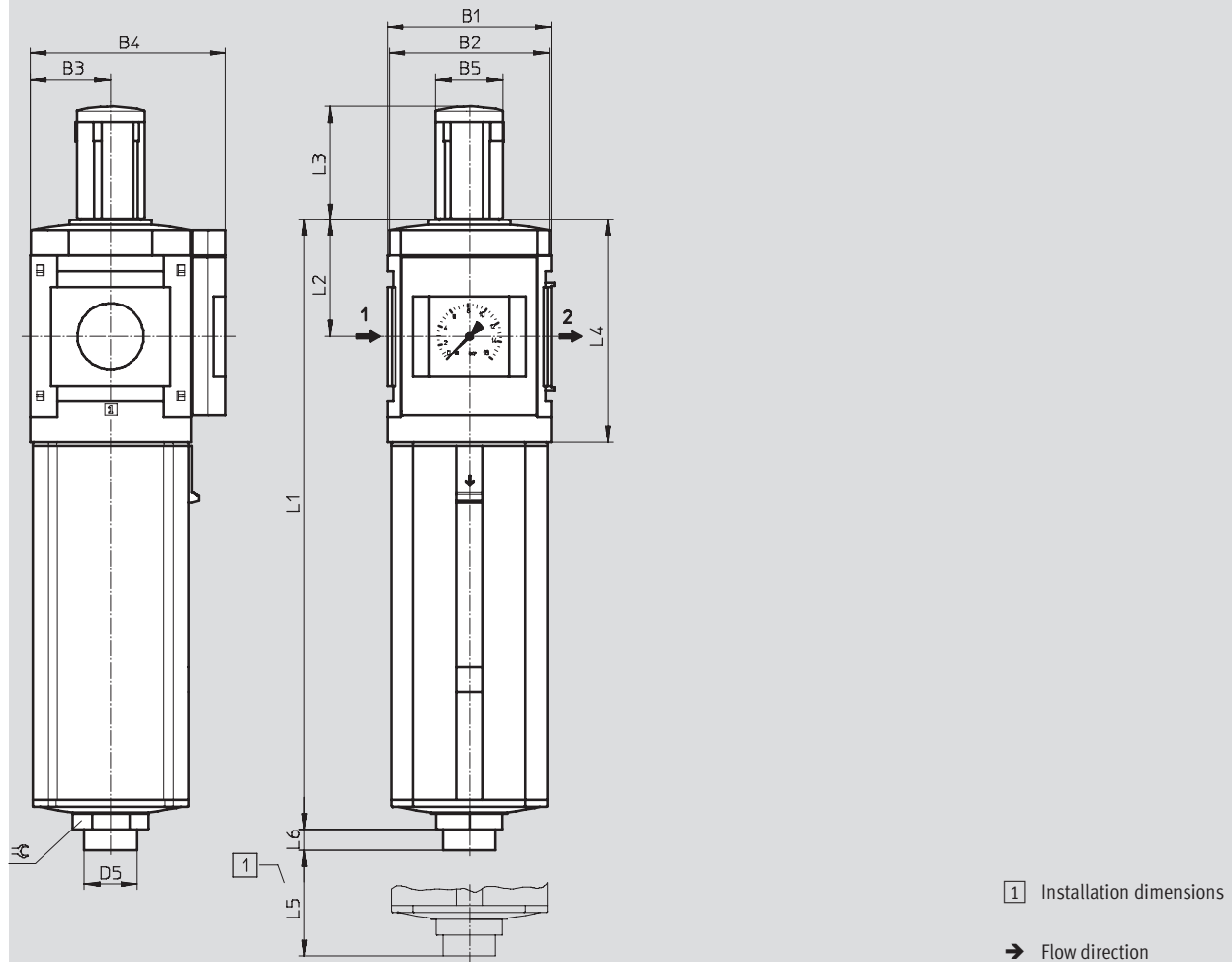
Technical data

FESTO

Dimensions

Download CAD Data → www.festo.com/us/cad

Integrated pressure gauge, display unit [bar], long rotary knob with detent



Type	B1	B2	B3	B4	B5	D5 Ø	L1	L2	L3	L4	L5	L6
MS12-LFR-...-LD	124	122	61	148	52	40	460	88	86	168	250	16

Filter regulators MS12-LFR, MS series

Technical data

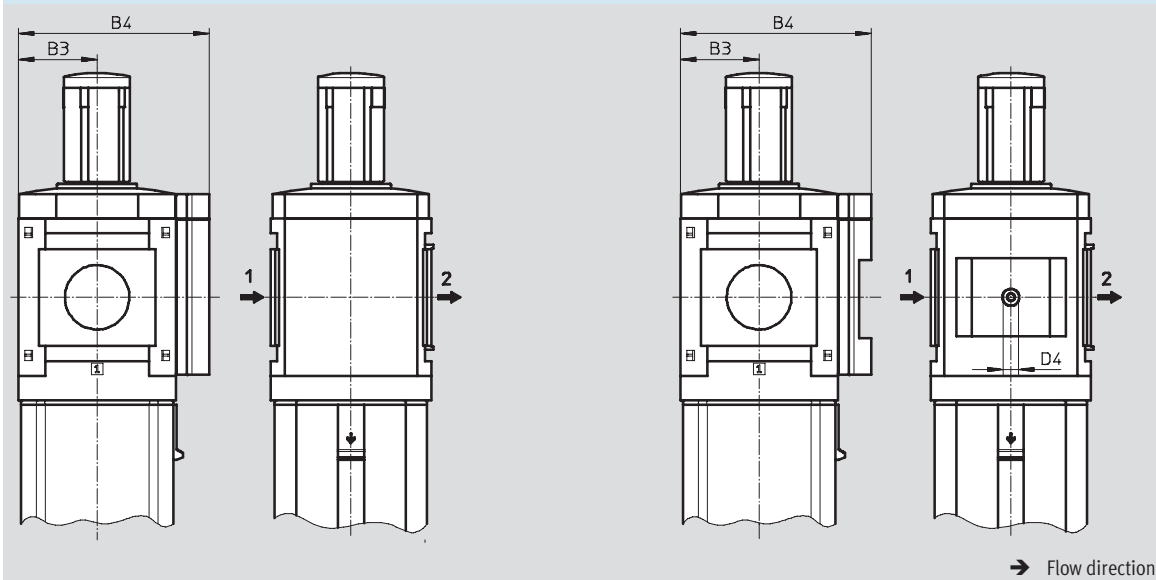
FESTO

Dimensions – Pressure gauge alternatives

Download CAD Data → www.festo.com/us/cad

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 to ISO 1179-1 and to ISO 228-1

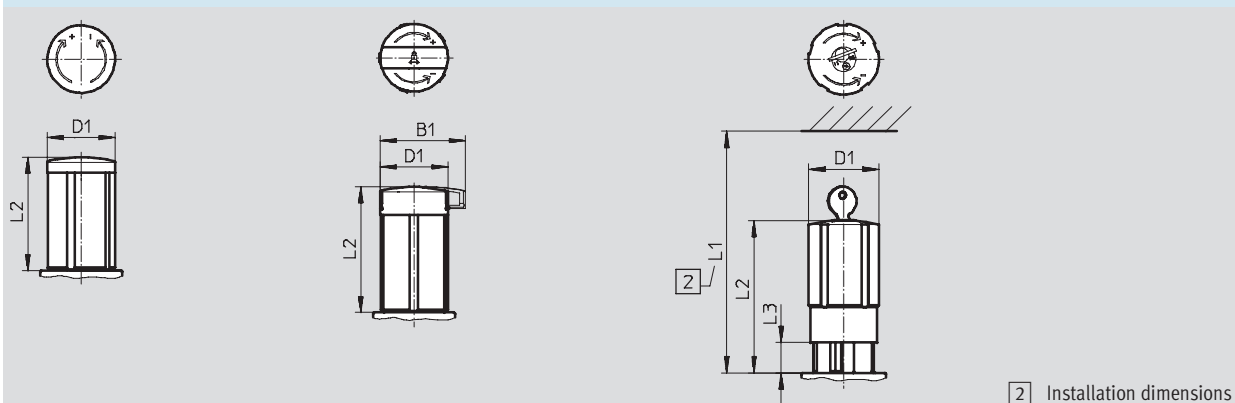
Dimensions – Rotary knob

Download CAD Data → www.festo.com/us/cad

Long rotary knob with detent LD

Long rotary knob with detent,
lockable via accessories LD-AS

Rotary knob with integrated lock
E11



Type	B1	D1	L1	L2	L3
MS12-LFR-...-LD	–	52	–	86	–
MS12-LFR-...-LD-AS	65	52	–	96	–
MS12-LFR-...-E11	–	52	174	114	25

Filter regulators MS12-LFR, MS series

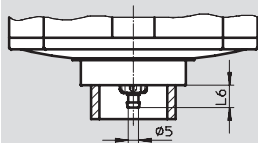
Technical data

FESTO

Dimensions – Condensate drain

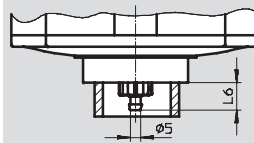
Download CAD Data → www.festo.com/us/cad

Manual rotary M



Barbed fitting for plastic tubing
PCN-4

Fully automatic V



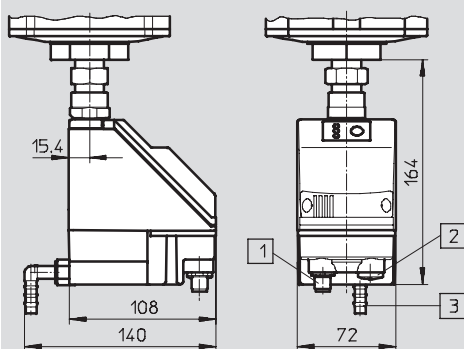
Barbed fitting for plastic tubing
PCN-4

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

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

Fully automatic, electrically actuated E1 ... E4

Technical data → Internet: [pwea](http://pwea.festo.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, integrated pressure gauge, display unit [bar], long rotary knob with detent, lockable via 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⁾	537150	MS12-LFR-G-D7-CUV-LD-AS	537149	MS12-LFR-G-D7-EUV-LD-AS

1) Connecting plate must be ordered separately as an accessory → Internet: [ms12-ag](http://ms12-ag.festo.com)

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Ordering data – Wearing parts kits

Size	Part No.	Type
MS12	673586	MS12-LR/LFR

Filter regulators MS12-LFR, MS series

Ordering data – Modular products

FESTO

M Mandatory data →							
Module No.	Series	Size	Function	Connection sizes	Pressure regulation range	Grade of filtration	Bowl
535022	MS	12	LFR	AGF AGG AGH AGI G	D6 D7 D8	E C	U
Order example							
535022	MS	12	- LFR	- AGF	- D6	- C	- U

Ordering table					
Grid dimension [mm]		124	Condition s	Code	Enter code
M	Module No.	535022			
	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

535022	MS	12	-	LFR	-		-		-		-	U
--------	----	----	---	-----	---	--	---	--	---	--	---	---

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	Condition s	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 via accessories			-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

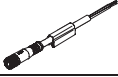


Ordering data			
Size	Grade of filtration [µm]	Part No.	Type
MS4	5 (colour: blue)	534501	MS4-LFP-C
	40 (colour: white)	534502	MS4-LFP-E
MS6	5 (colour: blue)	534499	MS6-LFP-C
	40 (colour: white)	534500	MS6-LFP-E
MS9	5	570309	MS9-LFP-C 
	40	570310	MS9-LFP-E 
MS12	5	537143	MS12-LFP-C
	40	537144	MS12-LFP-E

Filter regulators MS-LFR, MS series

Accessories

FESTO

Ordering data – Connecting cable NEBU-M8				Technical data → Internet: nebu	
	Electrical connection	Number of wires	Cable length [m]	Part No.	Type
	M8x1, straight socket	3	2.5	541333	NEBU-M8G3-K-2.5-LE3
			5	541334	NEBU-M8G3-K-5-LE3
	M8x1, angled socket	3	2.5	541338	NEBU-M8W3-K-2.5-LE3
			5	541341	NEBU-M8W3-K-5-LE3

Ordering data – Connecting cable NEBU-M12				Technical data → Internet: nebu	
	Electrical connection	Number of wires	Cable length [m]	Part No.	Type
	M12x1, straight socket	4	2.5	550326	NEBU-M12G5-K-2.5-LE4
			5	541328	NEBU-M12G5-K-5-LE4
	M12x1, angled socket	4	2.5	550325	NEBU-M12W5-K-2.5-LE4
			5	541329	NEBU-M12W5-K-5-LE4

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	183901	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	–	525726	MA-40-16-R1/8-E-RG
	50	R1/4	0 ... 16	–	525729	MA-50-16-R1/4-E-RG

Ordering data – Padlock LRVS-D		
	Weight [g]	Part No. Type
	120	193786 LRVS-D

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