

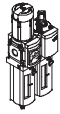
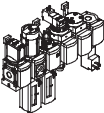




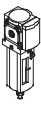
Filters MS-LF/LFM/LFX, MS series



# Filters MS-LF/LFM/LFX, MS series



Product range overview – MS series service units

Type	Size	Pneumatic connection in housing	Connecting plate	Pressure regulation range [bar]						Grade of filtration [µm]			
				0.05 ... 0.7	0.05 ... 2.5	0.1 ... 4	0.3 ... 7	0.1 ... 12	0.5 ... 16	0.01	1	5	40
Code			AG...	D2	D4	D5	D6	D7	D8	A	B	C	E
<b>Service units</b>													
<b>MSB-FRC</b> 	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	-	-	-	-	-	-	-	-	-	-	-	-
<b>Service unit combinations (further variants can be ordered using the configurator → Internet: msb4, msb6 or msb9)</b>													
<b>MSB</b> 	4	G1/4	G1/8, G1/4, G3/8	-	-	-	■	■	-	-	-	■	■
	6	G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	■	■	-	-	-	■	■
	9	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-
<b>Individual devices</b>													
Filter regulators <b>MS-LFR</b> 	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 <b>MS-LF</b> 	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 <b>MS-LFM</b> 	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 <b>MS-LFX</b> 	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 <b>MS-LWS</b> 	4	-	-	-	-	-	-	-	-	-	-	-	-
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	-	-	-	-
	9	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-

# Filters MS-LF/LFM/LFX, MS series

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 G 1/8	Adapter plate for EN pressure gauge G 1/4	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	
<b>Service units</b>																	
MSB-FRC	4	■	-	■	-	■	-	-	■	-	-	-	■	-	-	■	msb4
	6	■	■	■	-	■	-	-	■	-	-	-	■	-	-	■	msb6
	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Service unit combinations</b>																	
MSB	4	■	■	■	-	■	-	-	■	-	-	-	■	-	-	■	msb4
	6	■	■	■	-	■	-	-	■	-	-	-	■	-	-	■	msb6
	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Individual devices</b>																	
Filter regulators MS-LFR	4	■	■	■	■	■	-	■	■	■	■	■	■	■	-	■	ms4-lfr
	6	■	■	■	■	■	■	■	■	-	■	■	■	■	-	■	ms6-lfr
	9	-	■	■	■	■	■	■	■	-	■	■	■	■	-	■	ms9-lfr
	12	-	■	■	-	■	■	■	■	-	■	-	■	■	-	■	ms12-lfr
Filters MS-LF	4	■	■	■	■	■	-	-	-	-	-	-	-	-	-	■	8, 10
	6	■	■	■	■	■	■	-	-	-	-	-	-	-	-	■	8, 10
	9	-	■	■	■	■	■	-	-	-	-	-	-	-	-	■	36
	12	-	■	■	-	■	■	-	-	-	-	-	-	-	-	■	63
Fine and micro filters MS-LFM	4	■	■	■	■	■	-	-	-	-	-	-	-	-	-	■	8, 18
	6	■	■	■	■	■	■	-	-	-	-	-	-	-	-	■	8, 18
	9	-	■	■	■	■	■	-	-	-	-	-	-	-	-	■	44
	12	-	■	■	-	■	■	-	-	-	-	-	-	-	-	■	70
Activated carbon filters MS-LFX	4	■	■	-	-	-	-	-	-	-	-	-	-	-	-	■	8, 30
	6	■	■	-	-	-	-	-	-	-	-	-	-	-	-	■	8, 30
	9	-	■	-	-	-	-	-	-	-	-	-	-	-	-	■	56
	12	-	■	-	-	-	-	-	-	-	-	-	-	-	-	■	79
Water separators MS-LWS	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	■	-	-	■	■	-	-	-	-	-	-	-	-	■	ms6-lws
	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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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
<b>Individual devices</b>													
Pressure regulators <b>MS-LR</b>		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 <b>MS-LRB</b>		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 <b>MS-LRP</b>		4	-	-	-	-	-	-	-	-	-	-	-
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	■	■	■	-	■	-	-	-	-
		9	-	-	-	-	-	-	-	-	-	-	-
		12	-	-	-	-	-	-	-	-	-	-	-
Precision pressure regulators <b>MS-LRPB</b>		4	-	-	-	-	-	-	-	-	-	-	-
		6	G1/2	G1/4, G3/8, G1/2, G3/4	■	■	■	-	■	-	-	-	-
		9	-	-	-	-	-	-	-	-	-	-	-
		12	-	-	-	-	-	-	-	-	-	-	-
Electrical pressure regulators <b>MS-LRE</b>		4	-	-	-	-	-	-	-	-	-	-	-
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	■	■	■	■	-	-	-
		9	-	-	-	-	-	-	-	-	-	-	-
		12	-	-	-	-	-	-	-	-	-	-	-
Lubricators <b>MS-LOE</b>		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 <b>MS-EM(1)</b>		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 <b>MS-EE</b>		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 <b>MS-DL</b>		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 <b>MS-DE</b>		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 <b>MS-SV</b>		4	-	-	-	-	-	-	-	-	-	-	-
		6	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		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	
<b>Individual devices</b>													
Pressure regulators <b>MS-LR</b>	4	-	-	■	■	■	■	■	■	■	-	■	ms4-lr
	6	-	-	■	■	-	■	■	■	■	-	■	ms6-lr
	9	-	-	■	■	-	■	■	■	■	-	■	ms9-lr
	12	-	-	■	■	-	■	-	■	■	-	■	ms12-lr
Pressure regulators <b>MS-LRB</b>	4	-	-	■	■	■	■	■	■	■	-	■	ms4-lrb
	6	-	-	■	■	-	■	■	■	■	-	■	ms6-lrb
	9	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-
Precision pressure regulators <b>MS-LRP</b>	4	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	■	-	■	■	■	■	■	-	■	ms6-lrp
	9	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-
Precision pressure regulators <b>MS-LRPB</b>	4	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	■	-	■	■	■	■	■	-	■	ms6-lrpb
	9	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-
Electrical pressure regulators <b>MS-LRE</b>	4	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	■	■	-	■	-	-	-	-	■	ms6-lre
	9	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-
Lubricators <b>MS-LOE</b>	4	■	■	-	-	-	-	-	-	-	-	■	ms4-loe
	6	■	■	-	-	-	-	-	-	-	-	■	ms6-loe
	9	-	■	-	-	-	-	-	-	-	-	■	ms9-loe
	12	-	■	-	-	-	-	-	-	-	-	■	ms12-loe
Electrical on-off valves <b>MS-EM(1)</b>	4	-	-	■	■	■	■	■	-	-	■	■	ms4-em1
	6	-	-	■	■	-	■	■	-	-	■	■	ms6-em1
	9	-	-	■	■	-	■	-	-	-	■	■	ms9-em
	12	-	-	■	■	-	■	-	-	-	■	■	ms12-em
Electrical on-off valves <b>MS-EE</b>	4	-	-	■	■	■	■	■	-	-	■	■	ms4-ee
	6	-	-	■	■	-	■	■	-	-	■	■	ms6-ee
	9	-	-	■	■	-	■	-	-	-	■	■	ms9-ee
	12	-	-	■	■	-	■	-	-	-	■	■	ms12-ee
Electrical soft-start valves <b>MS-DL</b>	4	-	-	■	■	■	■	■	-	-	-	■	ms4-dl
	6	-	-	■	■	-	■	■	-	-	-	■	ms6-dl
	9	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	■	■	-	■	-	-	-	-	■	ms12-dl
Electrical soft-start valves <b>MS-DE</b>	4	-	-	■	■	■	■	■	-	-	-	■	ms4-de
	6	-	-	■	■	-	■	■	-	-	-	■	ms6-de
	9	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	■	■	-	■	-	-	-	-	■	ms12-de
Soft start and exhaust valves <b>MS-SV</b>	4	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	■	■	-	■	■	-	-	■	■	ms6-sv
	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				
				0.1	0.3	0.1	0.5	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	
<b>Individual devices</b>												
Membrane air dryers <b>MS-LDM1</b>		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 <b>MS-FRM</b>		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 <b>MS-FRM-FRZ</b>		4	G1/4	-	-	-	-	-	-	-	-	
		6	G1/2	-	-	-	-	-	-	-	-	
		9	-	-	-	-	-	-	-	-	-	
		12	-	-	-	-	-	-	-	-	-	
Flow sensors <b>SFAM</b>		4	-	-	-	-	-	-	-	-	-	
		6	G1/2	G1/2	-	-	-	-	-	-	-	
		9	-	G1, G1 1/2	-	-	-	-	-	-	-	
		12	-	-	-	-	-	-	-	-	-	

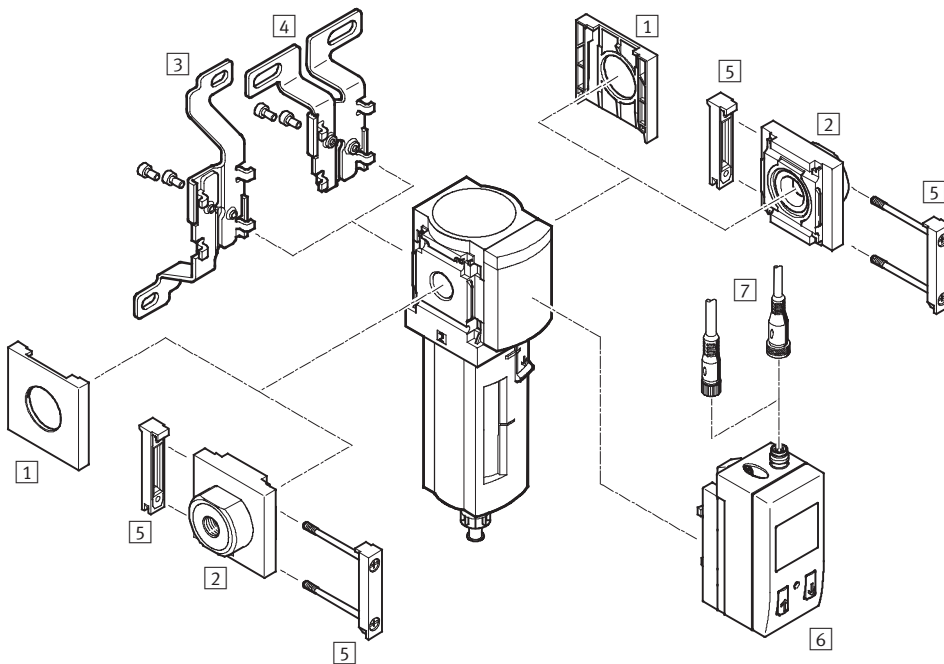
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Type	Size	Bowl guard		Pressure indicator					Switch output		Options		→ Page/ Internet
		Plastic bowl with plastic bowl guard	Metal bowl	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G 1/8	Adapter plate for EN pressure gauge G 1/4	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	
<b>Individual devices</b>													
Membrane air dryers <b>MS-LDM1</b>	4	-	■	-	-	-	-	-	-	-	-	■	ms4-ldm1
	6	-	■	-	-	-	-	-	-	-	-	■	ms6-ldm1
	9	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-
Branching modules <b>MS-FRM</b>	4	-	-	■	■	■	■	■	-	-	-	■	ms4-frm
	6	-	-	■	■	-	■	■	-	-	-	■	ms6-frm
	9	-	-	■	■	-	■	■	-	-	-	■	ms9-frm
	12	-	-	■	-	-	-	-	-	-	-	-	ms12-frm
Distributor blocks <b>MS-FRM-FRZ</b>	4	-	-	-	-	-	-	-	-	-	-	■	ms4-frm
	6	-	-	-	-	-	-	-	-	-	-	■	ms6-frm
	9	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-
Flow sensors <b>SFAM</b>	4	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	-	-	-	-	-	■	■	-	■	sfam-62
	9	-	-	-	-	-	-	-	■	■	-	■	sfam-90
	12	-	-	-	-	-	-	-	-	-	-	-	-

# Filters MS4/MS6-LF/LFM/LFX, MS series

Peripherals overview



- - Note

Other 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 device		Combination		→ Page/Internet
		without connecting plate	with connecting plate	without connecting plate	with connecting plate	
1	Cover plate 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	Filter pollution indicator DP/DN/DPI/DNI	■ for LFM	■ for LFM	■ for LFM	■ for LFM	28
7	Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4	■ for LFM	■ for LFM	■ for LFM	■ for LFM	nebu
-	Mounting bracket MS4/6-WP/WPB/WPE/WPM	-	■	■	■	ms4-wp, ms6-wp



# Filters MS4/MS6-LF/LFM/LFX, MS series

Type codes

MS 6 - LFM - 1/4 - A R M - - DA

### Series

MS	Standard service unit
----	-----------------------

### Size

4	Grid dimension 40 mm
6	Grid dimension 62 mm

### Service function

LF	Filter
LFM	Fine and micro filter
LFX	Activated carbon filter

### Pneumatic connection

<b>MS4</b>	
1/8	G1/8 thread
1/4	G1/4 thread
<b>MS6</b>	
1/4	G1/4 thread
3/8	G3/8 thread
1/2	G1/2 thread

### Grade of filtration (for LF and LFM only)

A	0.01 µm
B	1 µm
C	5 µm
E	40 µm

### Bowl guard

R	Plastic bowl guard
U	Integrated as metal bowl

### Condensate drain (for LF and LFM only)

M	Manual rotary
V	Fully automatic

### Flow rate (for LFM and LFX only)

	Standard
HF	High flow rate

### Filter change sensor (for LFM only)

	Without differential pressure indicator
DA	Differential pressure indicator

### Further variants can be ordered using the modular system

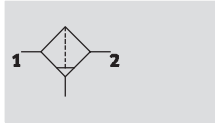
Filters LF	→ 16
Fine and micro filters LFM	→ 28
Activated carbon filters LFX	→ 35

- Connecting plates
- Condensate drain
- Range of application (only for LFM and LFX)
- Filter pollution indicator (for LFM only)
- Type of mounting
- Alternative flow direction

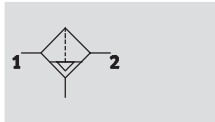
# Filters MS4/MS6-LF, MS series





Technical data

Function  
Condensate drain  
manual rotary



semi or fully automatic




-  - Flow rate  
1,000 ... 4,100 l/min
-  - Temperature range  
-10 ... +60 °C
-  - Input pressure  
0 ... 20 bar
-  - [www.festo.com](http://www.festo.com)



The sintered filter with centrifugal separation removes contamination, rust and condensate from the compressed air. The filter cartridges are replaceable.

- Good particle and condensate separation
- High flow rate with minimal pressure drop
- Available with manual, semi-automatic, fully automatic or fully automatic, electrically actuated condensate drain
- Choice of filter cartridges: 5 µm or 40 µm
- New filter cartridges → 85

General technical data					
Size	MS4		MS6		
Pneumatic connection 1, 2	G <sup>1</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>2</sub>
Design	Sintered filter with centrifugal separation				
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	Plastic bowl guard				
	Integrated as metal bowl				
Condensate drain	Manual rotary				
	Semi-automatic				
	Fully automatic				
			Fully automatic, electrical		
Max. condensate volume [cm <sup>3</sup> ]	19 (with plastic bowl guard)		38		
	25 (with metal bowl)				

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

Standard nominal flow rate q <sub>nN</sub> <sup>1)</sup> [l/min]					
Size	MS4		MS6		
Pneumatic connection	G <sup>1</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>2</sub>
Grade of filtration	5 µm	1,000	1,300	2,000	3,200
	40 µm	1,100	1,700	2,500	4,100

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

# Filters MS4/MS6-LF, MS series

Technical data

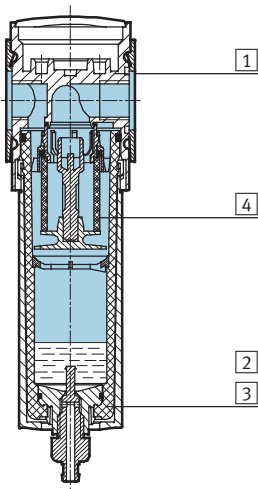
Operating and environmental conditions							
Condensate drain	Manual rotary M		Semi-automatic H		Fully automatic V		Fully automatic, electrical E1 ... E4
Size	MS4	MS6	MS4	MS6	MS4	MS6	MS6
Input pressure [bar]	0 ... 14	0 ... 20	1.5 ... 12	1.5 ... 12	2 ... 12	2 ... 12	0.8 ... 16
Operating medium	Filtered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

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

Weights [g]		
Size	MS4	MS6
Filter with plastic bowl guard R	189	600
Filter with metal bowl U	349	820
Filter with metal bowl U and fully automatic, electrically actuated condensate drain E1 ... E4	-	1,800

## Materials

Sectional view



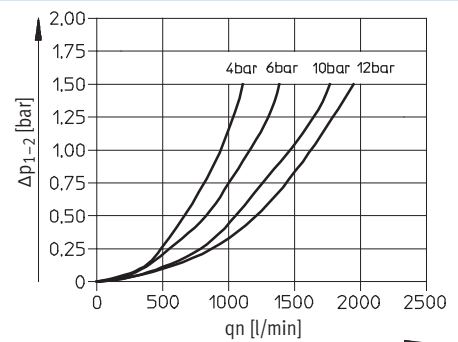
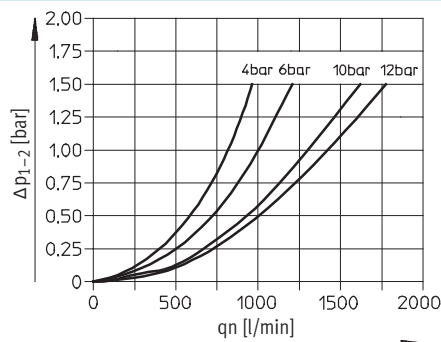
Filters	
1	Body Die-cast aluminium
2	Plastic bowl guard PC
3	Metal bowl Wrought aluminium alloy, die-cast aluminium
	Viewing window PA
4	Filter element PE
-	Seals NBR
Note on materials RoHS-compliant (not with variant E1, E2, E3 or E4) Free of copper and PTFE	

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

MS4-LF-1/8

Grade of filtration 5 µm

Grade of filtration 40 µm



# Filters MS4/MS6-LF, MS series

Technical data

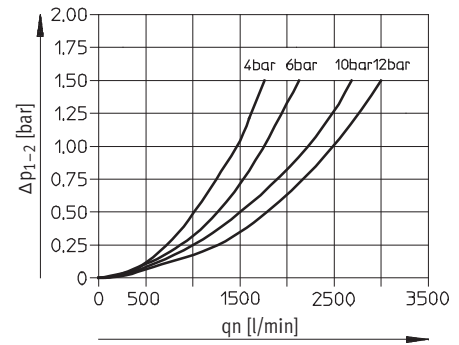
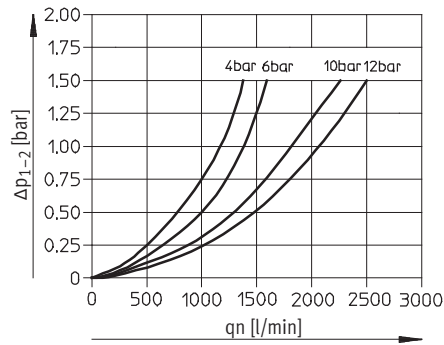


## Standard flow rate $q_n$ as a function of the differential pressure $\Delta p_{1-2}$

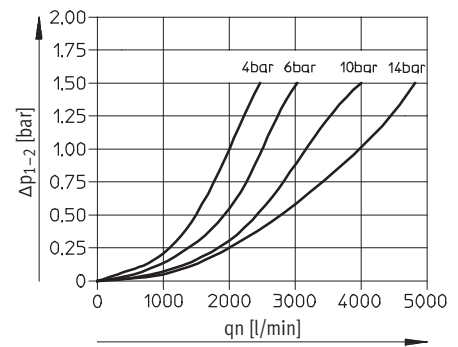
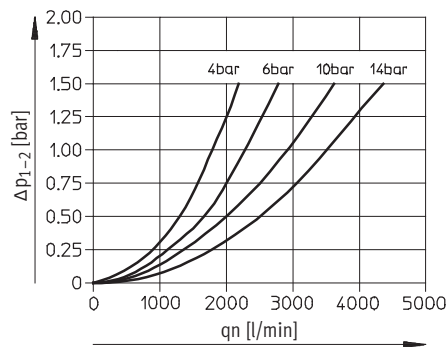
Grade of filtration 5  $\mu\text{m}$

Grade of filtration 40  $\mu\text{m}$

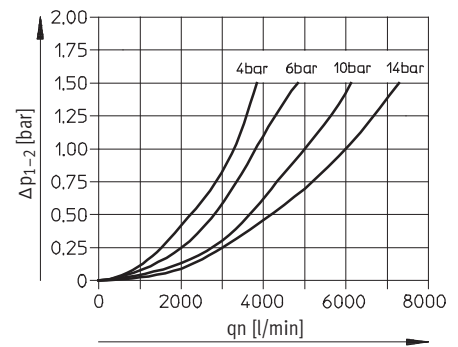
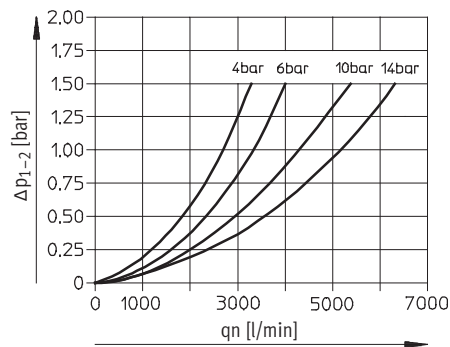
MS4-LF-1/4



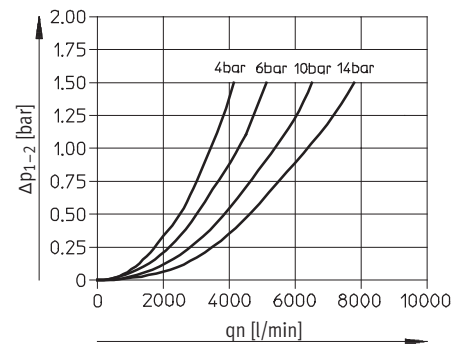
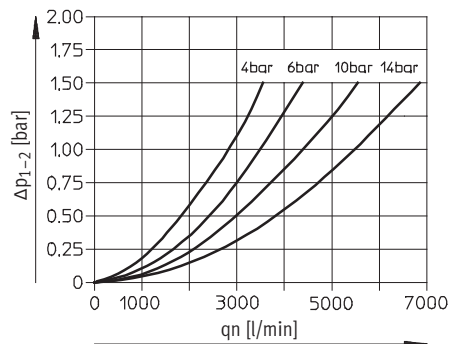
MS6-LF-1/4



MS6-LF-3/8



MS6-LF-1/2



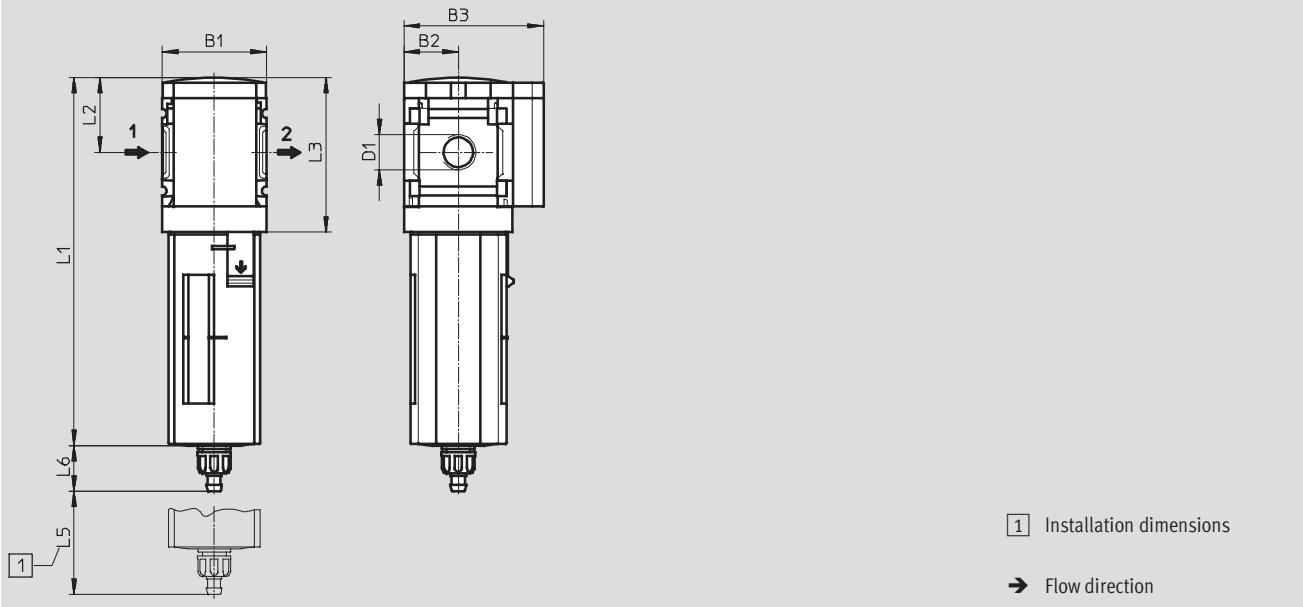
# Filters MS4/MS6-LF, MS series

Technical data

**Dimensions – Standard**

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

Manual rotary condensate drain



Type	B1	B2	B3	D1	L1 Bowl guard		L2	L3	L5	L6 Bowl guard	
					Plastic	Metal				Plastic	Metal
MS4-LF-1/8	40	21	54	G1/8	142.8	159.4	29	60.5	25	17.7	17.7
MS4-LF-1/4				G1/4							
MS6-LF-1/4	62	31	76	G1/4	193	199	42	87.5	68	16	19
MS6-LF-3/8				G3/8							
MS6-LF-1/2				G1/2							

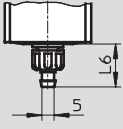
• || • Note: This product conforms to ISO 1179-1 and to ISO 228-1

# Filters MS4/MS6-LF, MS series

Technical data

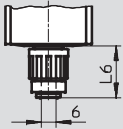
**Dimensions – Condensate drain** Download CAD data → [www.festo.com](http://www.festo.com)

**Manual rotary M**



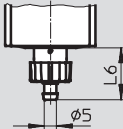
Barbed fitting for plastic tubing  
PCN-4

**Semi-automatic H**



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

**Fully automatic V**



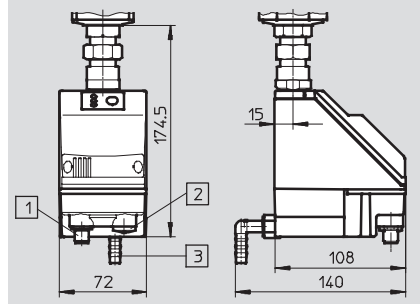
Barbed fitting for plastic tubing  
PCN-4

Type	L6
<b>Plastic bowl guard</b>	
MS4-LF-...-M	17.7
MS6-LF-...-M	16
<b>Metal bowl</b>	
MS4-LF-...-M	17.7
MS6-LF-...-M	19

Type	L6
<b>Plastic bowl guard</b>	
MS4-LF-...-H	22.1
MS6-LF-...-H	20
<b>Metal bowl</b>	
MS4-LF-...-H	22.1
MS6-LF-...-H	23

Type	L6
<b>Plastic bowl guard</b>	
MS4-LF-...-V	20.4
MS6-LF-...-V	19
<b>Metal bowl</b>	
MS4-LF-...-V	20.4
MS6-LF-...-V	22

**Fully automatic, electrically actuated E1 ... E4** Technical data → Internet: [pwea](http://pwea)



- 1 Variant E1  
PWEA-AP-... with M12x1 plug,  
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-...

# Filters MS4/MS6-LF, MS series

Technical data

Ordering data							
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 $\frac{1}{8}$	529403	MS4-LF- $\frac{1}{8}$ -CRM	529407	MS4-LF- $\frac{1}{8}$ -ERM	
		G $\frac{1}{4}$	529395	MS4-LF- $\frac{1}{4}$ -CRM	529399	MS4-LF- $\frac{1}{4}$ -ERM	
	fully automatic	G $\frac{1}{8}$	529405	MS4-LF- $\frac{1}{8}$ -CRV	529409	MS4-LF- $\frac{1}{8}$ -ERV	
		G $\frac{1}{4}$	529397	MS4-LF- $\frac{1}{4}$ -CRV	529401	MS4-LF- $\frac{1}{4}$ -ERV	
	MS6	manual rotary	G $\frac{1}{4}$	529623	MS6-LF- $\frac{1}{4}$ -CRM	529631	MS6-LF- $\frac{1}{4}$ -ERM
			G $\frac{3}{8}$	529639	MS6-LF- $\frac{3}{8}$ -CRM	529647	MS6-LF- $\frac{3}{8}$ -ERM
G $\frac{1}{2}$			529607	MS6-LF- $\frac{1}{2}$ -CRM	529615	MS6-LF- $\frac{1}{2}$ -ERM	
fully automatic		G $\frac{1}{4}$	529625	MS6-LF- $\frac{1}{4}$ -CRV	529633	MS6-LF- $\frac{1}{4}$ -ERV	
		G $\frac{3}{8}$	529641	MS6-LF- $\frac{3}{8}$ -CRV	529649	MS6-LF- $\frac{3}{8}$ -ERV	
		G $\frac{1}{2}$	529609	MS6-LF- $\frac{1}{2}$ -CRV	529617	MS6-LF- $\frac{1}{2}$ -ERV	
Integrated as metal bowl							
MS4	manual rotary	G $\frac{1}{8}$	535638	MS4-LF- $\frac{1}{8}$ -CUM	535644	MS4-LF- $\frac{1}{8}$ -EUM	
		G $\frac{1}{4}$	535654	MS4-LF- $\frac{1}{4}$ -CUM	535660	MS4-LF- $\frac{1}{4}$ -EUM	
	fully automatic	G $\frac{1}{8}$	535640	MS4-LF- $\frac{1}{8}$ -CUV	535642	MS4-LF- $\frac{1}{8}$ -EUV	
		G $\frac{1}{4}$	535656	MS4-LF- $\frac{1}{4}$ -CUV	535658	MS4-LF- $\frac{1}{4}$ -EUV	
MS6	manual rotary	G $\frac{1}{4}$	529627	MS6-LF- $\frac{1}{4}$ -CUM	529635	MS6-LF- $\frac{1}{4}$ -EUM	
		G $\frac{3}{8}$	529643	MS6-LF- $\frac{3}{8}$ -CUM	529651	MS6-LF- $\frac{3}{8}$ -EUM	
		G $\frac{1}{2}$	529611	MS6-LF- $\frac{1}{2}$ -CUM	529619	MS6-LF- $\frac{1}{2}$ -EUM	
	fully automatic	G $\frac{1}{4}$	529629	MS6-LF- $\frac{1}{4}$ -CUV	529637	MS6-LF- $\frac{1}{4}$ -EUV	
		G $\frac{3}{8}$	529645	MS6-LF- $\frac{3}{8}$ -CUV	529653	MS6-LF- $\frac{3}{8}$ -EUV	
		G $\frac{1}{2}$	529613	MS6-LF- $\frac{1}{2}$ -CUV	529621	MS6-LF- $\frac{1}{2}$ -EUV	

- 1 - Variant E1 discontinued  
Available up until 2011

## Filters MS4/MS6-LF, MS series

Ordering data – Modular products

FESTO

**M** Mandatory data →

Module No.	Series	Size	Function	Connection size	Grade of filtration	Bowl
527695 527668	MS	4 6	LF	1/8, 1/4, 3/8, 1/2, AGA, AGB, AGC, AGD, AGE	E C	R U
<b>Order example</b>						
<b>527695</b>	<b>MS</b>	<b>4</b>	<b>- LF</b>	<b>- AGB</b>	<b>- E</b>	<b>- R</b>

**Ordering table**

Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
<b>M</b> Module No.		<b>527695</b>	<b>527668</b>			
Series		Standard			<b>MS</b>	MS
Size		4	6		...	
Function		Filters			<b>-LF</b>	-LF
Connection size	Thread G1/8				<b>-1/8</b>	
	Thread G1/4		Thread G1/4		<b>-1/4</b>	
			Thread G3/8		<b>-3/8</b>	
			Thread G1/2		<b>-1/2</b>	
	Connecting plate G1/8				<b>-AGA</b>	
	Connecting plate G1/4		Connecting plate G1/4		<b>-AGB</b>	
	Connecting plate G3/8		Connecting plate G3/8		<b>-AGC</b>	
			Connecting plate G1/2		<b>-AGD</b>	
Grade of filtration	40 µm				<b>-E</b>	
	5 µm				<b>-C</b>	
Bowl	Plastic bowl with plastic bowl guard				<b>-R</b>	
	Metal bowl				<b>-U</b>	

Transfer order code

	<b>MS</b>		<b>- LF</b>				
--	-----------	--	-------------	--	--	--	--



- 1 - Variant E1 discontinued  
Available up until 2011

## Filters MS4/MS6-LF, MS series

Ordering data – Modular products

FESTO

M Mandatory data		O Options	
Condensate drain		Type of mounting	Alternative flow direction
M H V E1 E2 E3 E4		WP WPM WB WBM	Z
- M		- WP	- Z

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
M Condensate drain	Manual				-M	
	Semi-automatic (P1 max. 12 bar)				-H	
	Fully automatic (P1 max. 12 bar)				-V	
	-	External fully automatic condensate drain, electrical, 24 V DC, M12 - 1	1		-E1	
	-	External fully automatic condensate drain, electrical, 110 V AC, terminals	1		-E2	
	-	External fully automatic condensate drain, electrical, 230 V AC, terminals	1		-E3	
O Type of mounting	Mounting bracket			2	-WP	
	Mounting bracket			2	-WPM	
	Mounting bracket				-WB	
	Mounting bracket		-		-WBM	
	Alternative flow direction		Flow direction from right to left			

1 E1, E2, E3, E4

Only with metal bowl U.

2 WP, WPM

Only with connecting plate AGA, AGB, AGC, AGD or AGE.

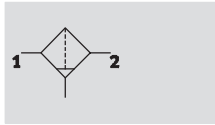
Transfer order code

- [ ] - [ ] - [ ]

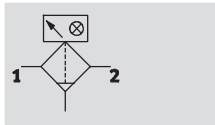
# Fine and micro filters MS4/MS6-LFM, MS series

Technical data

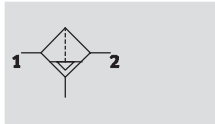
Function  
Condensate drain  
manual rotary  
without differential pressure indicator



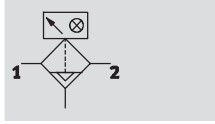
with differential pressure indicator or  
filter pollution indicator







Condensate drain  
semi or fully automatic  
without differential pressure indicator



with differential pressure indicator or  
filter pollution indicator




-  Flow rate  
54 ... 3,000 l/min
-  Temperature range  
-10 ... +60 °C
-  Supply pressure  
0 ... 20 bar
-  [www.festo.com](http://www.festo.com)  
Wearing parts kits  
→ 27



- High-performance filter for exceptionally clean compressed air
  - Air quality to DIN ISO 8573-1
  - Available with manual, semi-automatic, fully automatic or fully automatic, electrically actuated condensate drain
  - Available with differential pressure indicator for display of filter pollution
  - Available with electronic filter pollution indicator
  - Optionally with filter cartridge for low flow rates, suitable for sealing air and cleaning air
  - Choice of filter cartridges: 0.01 µm or 1 µm
  - New filter cartridges → 85
- Micro filter MS-LFM-A:  
ISO class 1 for particles:  
Max. particle density 0.1 mg/m<sup>3</sup>  
ISO class 2 for oil aerosols:  
Max. oil concentration 0.1 mg/m<sup>3</sup>  
Filter efficiency 99.9999%
- Fine filter MS-LFM-B:  
ISO class 2 for particles:  
Max. particle density 1 mg/m<sup>3</sup>  
ISO class 3 for oil aerosols:  
Max. oil concentration 1 mg/m<sup>3</sup>  
Filter efficiency 99.99%

General technical data					
Size	MS4		MS6		
Pneumatic connection 1, 2	G <sup>1</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>2</sub>
Constructional design	Fibre filter				
Type of mounting	Via accessories In-line installation				
Mounting position	Vertical ±5°				
Grade of filtration [µm]	0.01 (micro filter MS-LFM-A, air purity class at the output 1.7.2 to DIN ISO 8573-1) 1 (fine filter MS-LFM-B, air purity class at the output 2.7.3 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		
Differential pressure indication <sup>1)</sup>	Visual display With filter pollution indicator based on differential pressure				
Residual oil content [mg/m <sup>3</sup> ]	≤0.01 (micro filter MS-LFM-A) ≤0.5 (fine filter MS-LFM-B)				
Max. condensate volume [cm <sup>3</sup> ]	19 (with plastic bowl guard) 25 (with metal shell)		38		

1) Recommended max. differential pressure for changing the filter cartridge is Δp<sub>1-2</sub> = 0.35 bar; for the micro filter MS6-LFM-A with range of application HP Δp<sub>1-2</sub> = 0.5 bar  
-  Note: This product conforms to ISO 1179-1 and to ISO 228-1

# Fine and micro filters MS4/MS6-LFM, MS series

Technical data

Standard flow rate $q_n^{1)}$ [l/min]				
Size	MS4	MS6		
Variant	Standard	Standard	High flow rate HF	Range of application HP, suitable for sealing air and cleaning air
Micro filter MS-LFM-A				
Max. standard flow rate for air purity class $q_{n \max}$	360	900	2,500	400
Min. standard flow rate for air purity class $q_{n \min}$	54	135	150	60
Fine filter MS-LFM-B				
Max. standard flow rate for air purity class $q_{n \max}$	360	950	3,000	500
Min. standard flow rate for air purity class $q_{n \min}$	54	140	188	60

1) Measured at  $p_1 = 6$  bar.

- | - 125 l/min must be available for the fully automatic condensate drain to close correctly.

Technical data – Filter pollution indicator				
Variant	DP	DN	DPI	DNI
Pressure measuring range [bar]	0 ... +1			
Measured variable	Differential pressure; percentage value for filter pollution			
Switch output	PNP	NPN	PNP	NPN
Analogue output [mA]	-		4 ... 20	
Operating voltage range [V DC]	15 ... 30			
Max. output current [mA]	150			
Protection class	IP65			
CE mark (see declaration of conformity)	In accordance with EU EMC directive			
	In accordance with EU Low Voltage Directive			

Operating and environmental conditions									
Variant	Condensate drain							Filter pollution indicator	
	Manual rotary		Semi-automatic		Fully automatic		Fully automatic, electrically actuated		
	M		H		V		E1 ... E4	DP/DN/DPI/DNI	
Size	MS4	MS6	MS4	MS6	MS4	MS6	MS6	MS4	MS6
Supply pressure [bar]	0 ... 14	0 ... 20	1.5 ... 12	1.5 ... 12	2 ... 12	2 ... 12	0.8 ... 16	max. 10	
Operating medium for micro filter MS-LFM-A	Filtered compressed air or inert gases, unlubricated, grade of filtration 1 $\mu$ m								
Operating medium for fine filter MS-LFM-B	Filtered compressed air or inert gases, unlubricated, grade of filtration 5 $\mu$ m								
Ambient temperature [°C]	-10 ... +60		+5 ... +60		+5 ... +60		+1 ... +60	0 ... +50	
Temperature of medium [°C]	-10 ... +60		+5 ... +60		+5 ... +60		+1 ... +60	0 ... +50	
Storage temperature [°C]	-10 ... +60		-10 ... +60		-10 ... +60		+1 ... +60	0 ... +50	
Corrosion resistance class CRC <sup>1)</sup>	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.

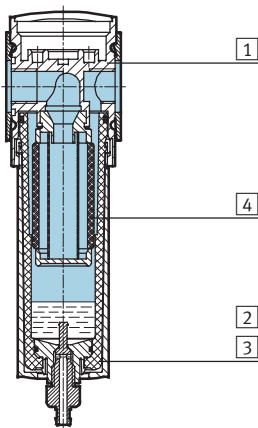
# Fine and micro filters MS4/MS6-LFM, MS series

Technical data

Weight [g]			
Size	MS4	MS6	
Variant	Standard	Standard	High flow rate HF
Fine and micro filter with plastic bowl guard R	190	600	1,280
Fine and micro filter with metal bowl U	350	820	1,500
Fine and micro filter with metal bowl guard U and fully automatic, electrically actuated condensate drain E1 ... E4	-	1,800	2,180
Filter pollution indicator	80	100	100

## Materials

Sectional view



Fine and micro filters	
1 Housing	Die-cast aluminium
2 Plastic bowl guard	PC
3 Metal bowl	Wrought aluminium alloy, die-cast aluminium
Viewing window	PA
4 Filter	Borosilicate fibre
- Seals	NBR
Note on materials	RoHS-compliant (not with variant E1, E2, E3 or E4) Free of copper and PTFE

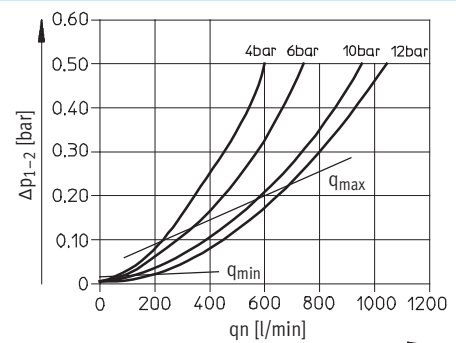
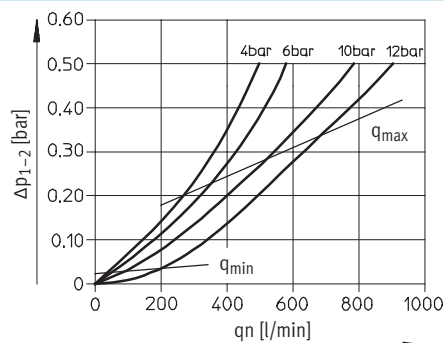
Filter pollution indicator	
Housing	PA POM
Adapter	PA
Display	PC
Seals	NBR
Note on materials	Free of copper and PTFE

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

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

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

MS4-LFM-1/8 and MS4-LFM-1/4



# Fine and micro filters MS4/MS6-LFM, MS series

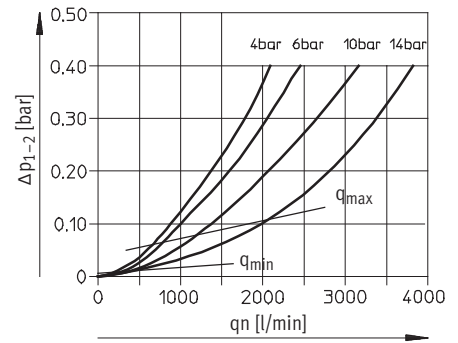
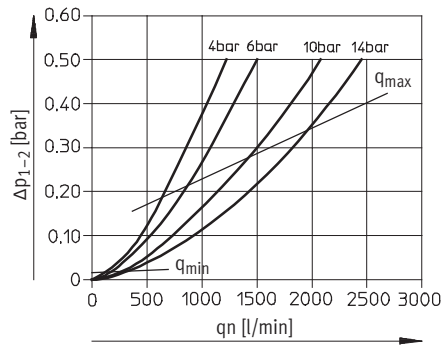
Technical data

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

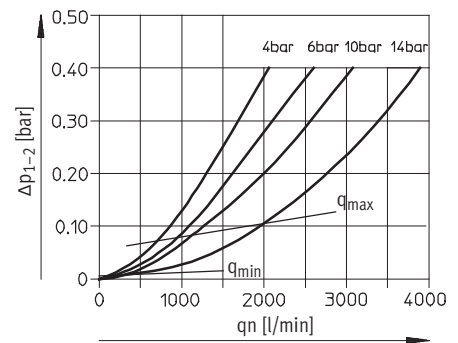
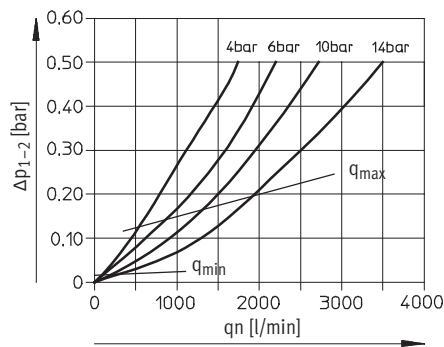
MS6-LFM-1/4

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

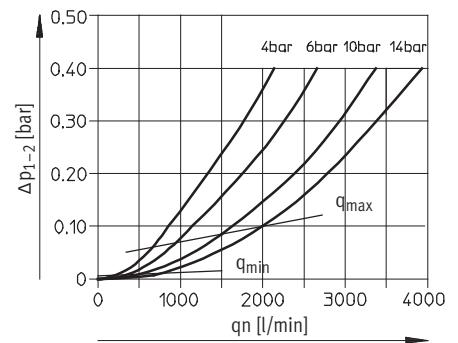
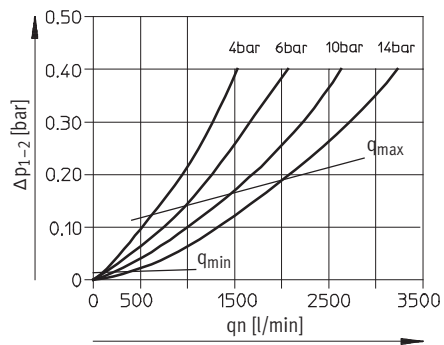
Grade of filtration 1  $\mu\text{m}$



MS6-LFM-3/8



MS6-LFM-1/2

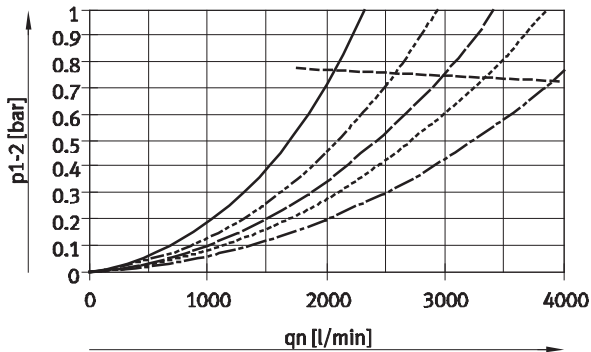


# Fine and micro filters MS4/MS6-LFM, MS series

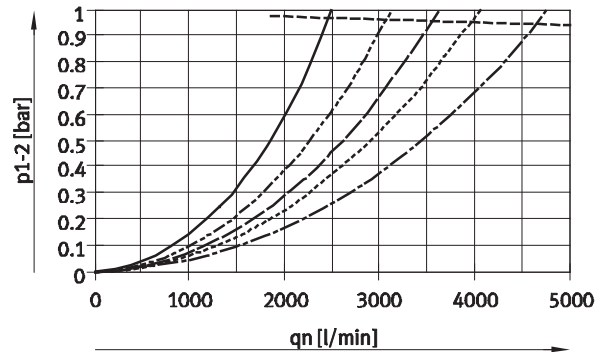
Technical data

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

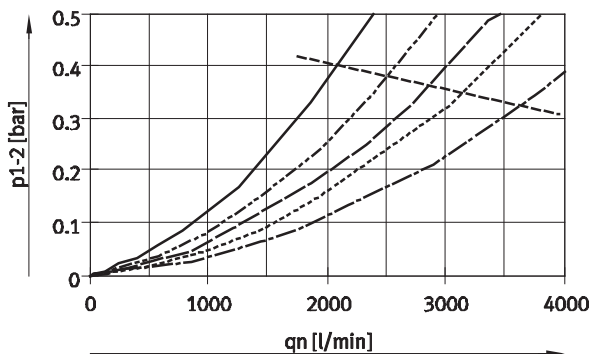
MS6-LFM-1/4-...-HF, Grade of filtration 0.01  $\mu\text{m}$



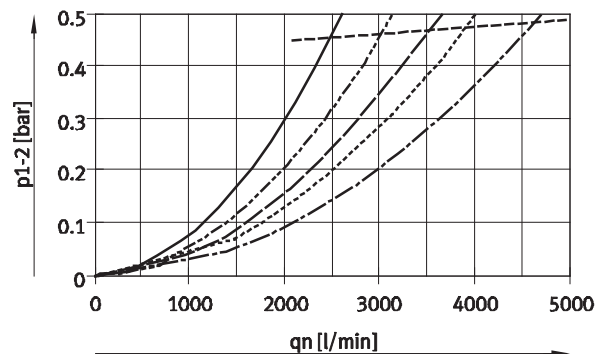
MS6-LFM-1/4-...-HF, Grade of filtration 1  $\mu\text{m}$



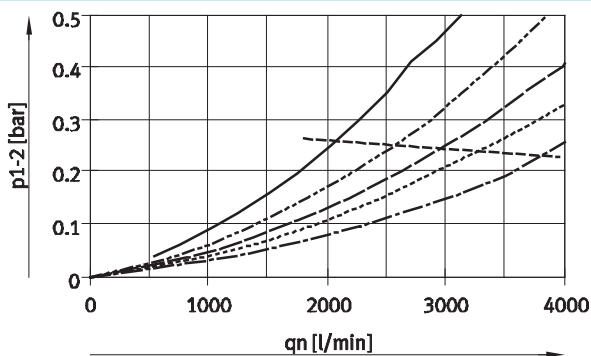
MS6-LFM-3/8-...-HF, Grade of filtration 0.01  $\mu\text{m}$



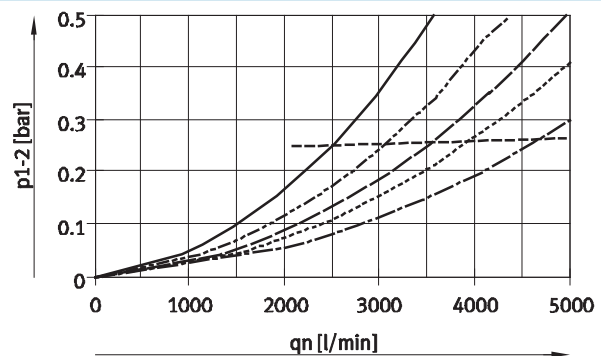
MS6-LFM-3/8-...-HF, Grade of filtration 1  $\mu\text{m}$



MS6-LFM-1/2-...-HF, Grade of filtration 0.01  $\mu\text{m}$



MS6-LFM-1/2-...-HF, Grade of filtration 1  $\mu\text{m}$

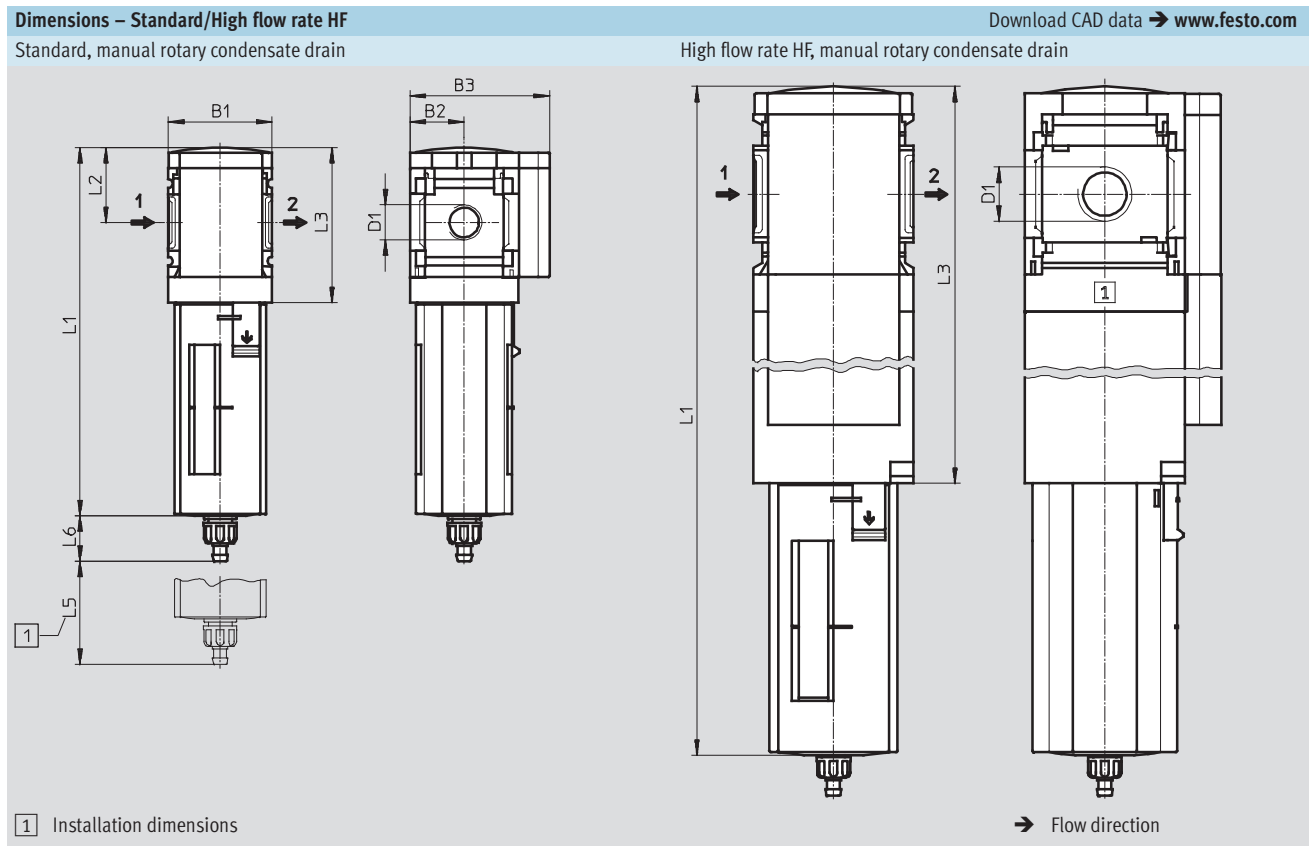


- p1: 4 bar ( $q_{\text{min}}$ : 103 l/min)
- - - p1: 6 bar ( $q_{\text{min}}$ : 125 l/min)
- - - p1: 8 bar
- - - p1: 10 bar ( $q_{\text{min}}$ : 162 l/min)
- - - p1: 14 bar ( $q_{\text{min}}$ : 192 l/min)
- - -  $q_{\text{max}}$

- p1: 4 bar ( $q_{\text{min}}$ : 124 l/min)
- - - p1: 6 bar ( $q_{\text{min}}$ : 150 l/min)
- - - p1: 8 bar
- - - p1: 10 bar ( $q_{\text{min}}$ : 194 l/min)
- - - p1: 14 bar ( $q_{\text{min}}$ : 230 l/min)
- - -  $q_{\text{max}}$

# Fine and micro filters MS4/MS6-LFM, MS series

Technical data



Type	B1	B2	B3	D1	L1		L2	L3	L5	L6	
					Bowl guard					Plastic	Metal
					Plastic	Metal					
MS4-LFM-1/8	40	21	54	G1/8	142	160	29	60	25	17.7	17.7
MS4-LFM-1/4				G1/4							
MS6-LFM-1/4	62	31	76	G1/4	193	199	42	87.5	75	16	19
MS6-LFM-3/8				G3/8							
MS6-LFM-1/2				G1/2							
MS6-LFM-1/4-...-HF	62	31	76	G1/4	313	319	42	207	75	16	19
MS6-LFM-3/8-...-HF				G3/8							
MS6-LFM-1/2-...-HF				G1/2							

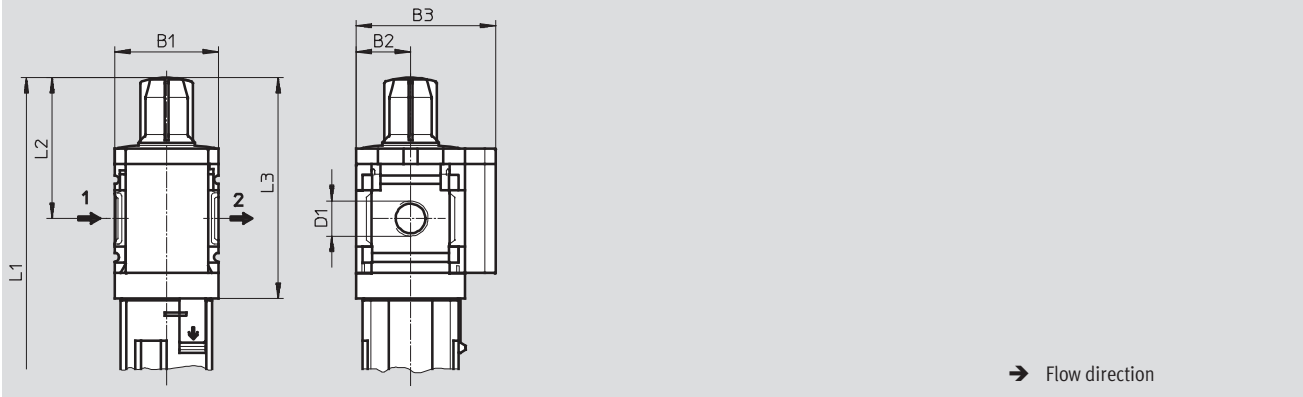
Note: This product conforms to ISO 1179-1 and to ISO 228-1

# Fine and micro filters MS4/MS6-LFM, MS series

Technical data

## Dimensions – Differential pressure indicator DA

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



Type	B1	B2	B3	D1	L1 Bowl guard		L2	L3
					Plastic	Metal		
MS4-LFM-1/8-...-DA	40	21	54	G1/8	168	186	55	86
MS4-LFM-1/4-...-DA				G1/4				
MS6-LFM-1/4-...-DA	62	31	76	G1/4	219	225	68	113
MS6-LFM-3/8-...-DA				G3/8				
MS6-LFM-1/2-...-DA				G1/2				
MS6-LFM-1/4-...-HF-DA	62	31	76	G1/4	339	345	68	113
MS6-LFM-3/8-...-HF-DA				G3/8				
MS6-LFM-1/2-...-HF-DA				G1/2				

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



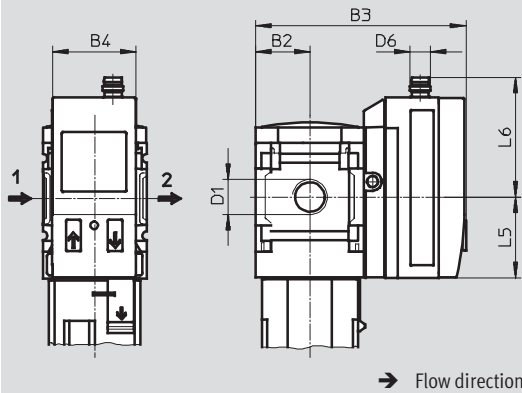
# Fine and micro filters MS4/MS6-LFM, MS series

Technical data



## Dimensions – Filter pollution indicator DP/DN/DPI/DNI

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



Variant DP:  
Filter pollution indicator with 3-pin  
M8x1 plug, 1 switch output PNP

Variant DN:  
Filter pollution indicator with 3-pin  
M8x1 plug, 1 switch output NPN

Variant DPI:  
Filter pollution indicator with 4-pin  
M12x1 plug, 1 switch output PNP  
and 4 ... 20 mA analogue

Variant DNI:  
Filter pollution indicator with 4-pin  
M12x1 plug, 1 switch output NPN  
and 4 ... 20 mA analogue

Type	B2	B3	B4	D1	D6	L5	L6
MS4-LFM-1/8-...-DP/DN	21	81.8	32.3	G1/8	M8x1	32	47
MS4-LFM-1/4-...-DP/DN				G1/4			
MS4-LFM-1/8-...-DPI/DNI	21	81.8	32.3	G1/8	M12x1	32	56
MS4-LFM-1/4-...-DPI/DNI				G1/4			
MS6-LFM-1/4-...-DP/DN	31	102	32.3	G1/4	M8x1	32	47
MS6-LFM-3/8-...-DP/DN				G3/8			
MS6-LFM-1/2-...-DP/DN				G1/2			
MS6-LFM-1/4-...-DPI/DNI	31	102	32.3	G1/4	M12x1	32	56
MS6-LFM-3/8-...-DPI/DNI				G3/8			
MS6-LFM-1/2-...-DPI/DNI				G1/2			

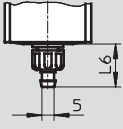
· || · Note: This product conforms to ISO 1179-1 and to ISO 228-1

# Fine and micro filters MS4/MS6-LFM, MS series

Technical data

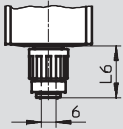
## Dimensions – Condensate drain Download CAD data → [www.festo.com](http://www.festo.com)

**Manual rotary M**



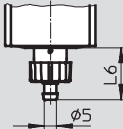
Barbed fitting for plastic tubing  
PCN-4

**Semi-automatic H**



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

**Fully automatic V**



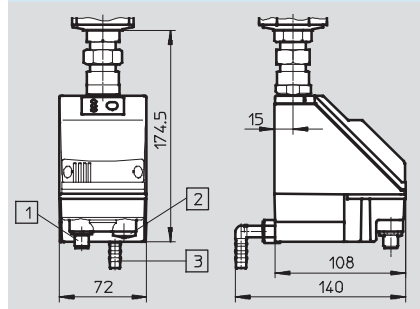
Barbed fitting for plastic tubing  
PCN-4

Type	L6
<b>Plastic bowl guard</b>	
MS4-LFM-...-M	17.7
MS6-LFM-...-M	16
<b>Metal bowl</b>	
MS4-LFM-...-M	17.7
MS6-LFM-...-M	19

Type	L6
<b>Plastic bowl guard</b>	
MS4-LFM-...-H	22.1
MS6-LFM-...-H	20
<b>Metal bowl</b>	
MS4-LFM-...-H	22.1
MS6-LFM-...-H	23

Type	L6
<b>Plastic bowl guard</b>	
MS4-LFM-...-V	20.4
MS6-LFM-...-V	19
<b>Metal bowl</b>	
MS4-LFM-...-V	20.4
MS6-LFM-...-V	22

## Fully automatic, electrically actuated E1 ... E4 Technical data → Internet: [pwea](http://pwea)



- 1 Variant E1  
PWEA-AP-... with M12x1 plug,  
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-...

# Fine and micro filters MS4/MS6-LFM, MS series

FESTO

Technical data

Ordering data						
Without differential pressure indicator						
Size	Condensate drain	Connection	Micro filter		Fine filter	
			Grade of filtration 0.01 µm		Grade of filtration 1 µm	
			Part No.	Type	Part No.	Type
Plastic bowl guard						
MS4	Manual rotary	G $\frac{1}{8}$	529463	MS4-LFM- $\frac{1}{8}$ -ARM	529465	MS4-LFM- $\frac{1}{8}$ -BRM
		G $\frac{1}{4}$	529459	MS4-LFM- $\frac{1}{4}$ -ARM	529461	MS4-LFM- $\frac{1}{4}$ -BRM
MS6	Manual rotary	G $\frac{1}{4}$	529663	MS6-LFM- $\frac{1}{4}$ -ARM	529667	MS6-LFM- $\frac{1}{4}$ -BRM
		G $\frac{3}{8}$	529671	MS6-LFM- $\frac{3}{8}$ -ARM	529675	MS6-LFM- $\frac{3}{8}$ -BRM
		G $\frac{1}{2}$	529655	MS6-LFM- $\frac{1}{2}$ -ARM	529659	MS6-LFM- $\frac{1}{2}$ -BRM
	Fully automatic	G $\frac{1}{4}$	530510	MS6-LFM- $\frac{1}{4}$ -ARV	530514	MS6-LFM- $\frac{1}{4}$ -BRV
		G $\frac{3}{8}$	530518	MS6-LFM- $\frac{3}{8}$ -ARV	530522	MS6-LFM- $\frac{3}{8}$ -BRV
		G $\frac{1}{2}$	530502	MS6-LFM- $\frac{1}{2}$ -ARV	530506	MS6-LFM- $\frac{1}{2}$ -BRV
Integrated as metal bowl						
MS4	Fully automatic	G $\frac{1}{8}$	539208	MS4-LFM- $\frac{1}{8}$ -AUV	539204	MS4-LFM- $\frac{1}{8}$ -BUV
		G $\frac{1}{4}$	535768	MS4-LFM- $\frac{1}{4}$ -AUV	535766	MS4-LFM- $\frac{1}{4}$ -BUV
MS6	Fully automatic	G $\frac{1}{4}$	529665	MS6-LFM- $\frac{1}{4}$ -AUV	529669	MS6-LFM- $\frac{1}{4}$ -BUV
		G $\frac{3}{8}$	529673	MS6-LFM- $\frac{3}{8}$ -AUV	529677	MS6-LFM- $\frac{3}{8}$ -BUV
		G $\frac{1}{2}$	529657	MS6-LFM- $\frac{1}{2}$ -AUV	529661	MS6-LFM- $\frac{1}{2}$ -BUV

Ordering data						
With differential pressure indicator						
Size	Condensate drain	Connection	Micro filter		Fine filter	
			Grade of filtration 0.01 µm		Grade of filtration 1 µm	
			Part No.	Type	Part No.	Type
Plastic bowl guard						
MS4	Manual rotary	G $\frac{1}{8}$	536821	MS4-LFM- $\frac{1}{8}$ -ARM-DA	536817	MS4-LFM- $\frac{1}{8}$ -BRM-DA
		G $\frac{1}{4}$	536822	MS4-LFM- $\frac{1}{4}$ -ARM-DA	536818	MS4-LFM- $\frac{1}{4}$ -BRM-DA
MS6	Manual rotary	G $\frac{1}{4}$	536869	MS6-LFM- $\frac{1}{4}$ -ARM-DA	536833	MS6-LFM- $\frac{1}{4}$ -BRM-DA
		G $\frac{3}{8}$	536870	MS6-LFM- $\frac{3}{8}$ -ARM-DA	536834	MS6-LFM- $\frac{3}{8}$ -BRM-DA
		G $\frac{1}{2}$	536871	MS6-LFM- $\frac{1}{2}$ -ARM-DA	536835	MS6-LFM- $\frac{1}{2}$ -BRM-DA
	Fully automatic	G $\frac{1}{4}$	536875	MS6-LFM- $\frac{1}{4}$ -ARV-DA	536839	MS6-LFM- $\frac{1}{4}$ -BRV-DA
		G $\frac{3}{8}$	536876	MS6-LFM- $\frac{3}{8}$ -ARV-DA	536840	MS6-LFM- $\frac{3}{8}$ -BRV-DA
		G $\frac{1}{2}$	536877	MS6-LFM- $\frac{1}{2}$ -ARV-DA	536841	MS6-LFM- $\frac{1}{2}$ -BRV-DA
Integrated as metal bowl						
MS4	Fully automatic	G $\frac{1}{8}$	537213	MS4-LFM- $\frac{1}{8}$ -AUV-DA	537209	MS4-LFM- $\frac{1}{8}$ -BUV-DA
		G $\frac{1}{4}$	537214	MS4-LFM- $\frac{1}{4}$ -AUV-DA	537210	MS4-LFM- $\frac{1}{4}$ -BUV-DA
MS6	Fully automatic	G $\frac{1}{4}$	536881	MS6-LFM- $\frac{1}{4}$ -AUV-DA	536845	MS6-LFM- $\frac{1}{4}$ -BUV-DA
		G $\frac{3}{8}$	536882	MS6-LFM- $\frac{3}{8}$ -AUV-DA	536846	MS6-LFM- $\frac{3}{8}$ -BUV-DA
		G $\frac{1}{2}$	536883	MS6-LFM- $\frac{1}{2}$ -AUV-DA	536847	MS6-LFM- $\frac{1}{2}$ -BUV-DA
Integrated as metal bowl and high flow rate						
MS6	Fully automatic	G $\frac{1}{2}$	552926	MS6-LFM- $\frac{1}{2}$ -AUV-HF-DA	552925	MS6-LFM- $\frac{1}{2}$ -BUV-HF-DA

Ordering data – Wearing parts kits		
Size	Part No.	Type
MS4	673641	MS4-LFM
MS6	673642	MS6-LFM

- 1 - Variant E1 discontinued  
Available up until 2011

## Fine and micro filters MS4/MS6-LFM, MS series

FESTO

Ordering data – Modular products

**M** Mandatory data →

Module No.	Series	Size	Function	Connection size	Grade of filtration	Bowl
527697 527670	MS	4 6	LFM	1/8, 1/4, 3/8, 1/2, AGA, AGB, AGC, AGD, AGE	B A	R U
<b>Ordering example</b>						
<b>527697</b>	<b>MS</b>	<b>4</b>	<b>- LFM</b>	<b>- AGB</b>	<b>- B</b>	<b>- R</b>

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
<b>M</b> Module No.		<b>527697</b>	<b>527670</b>			
Series		Standard			<b>MS</b>	MS
Size		4	6		...	
Function		Fine and micro filter			<b>-LFM</b>	-LFM
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	-		<b>-AGA</b>	
		Connecting plate G1/4	Connecting plate G1/4		<b>-AGB</b>	
		Connecting plate G3/8	Connecting plate G3/8		<b>-AGC</b>	
		-	Connecting plate G1/2		<b>-AGD</b>	
Grade of filtration		1 µm			<b>-B</b>	
		0.01 µm			<b>-A</b>	
Bowl		Plastic bowl with plastic bowl guard			<b>-R</b>	
		Metal bowl			<b>-U</b>	

Transfer order code

	<b>MS</b>		<b>- LFM</b>			
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- 1 - Variant E1 discontinued  
Available up until 2011

## Fine and micro filters MS4/MS6-LFM, MS series

Ordering data – Modular products

FESTO

Mandatory data		Options			
Condensate drain	Flow rate	Range of application	Filter contamination sensing	Type of mounting	Alternative flow direction
M H V E1 E2 E3 E4	HF	HP	DA DP DN DPI DNI	WP WPM WB WBM	Z
- M	-	-	-	- WP	- Z

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
Mandatory data Condensate drain	Manual				-M	
	Semi-automatic (P1 max. 12 bar)				-H	
	Fully automatic (P1 max. 12 bar)			1	-V	
	-	External fully automatic condensate drain, electrical, 24 V DC, M12 - 1	2	-E1		
	-	External fully automatic condensate drain, electrical, 110 V AC, terminals	2	-E2		
	-	External fully automatic condensate drain, electrical, 230 V AC, terminals	2	-E3		
	-	External fully automatic condensate drain, electrical, 24 V DC, terminals	2	-E4		
Options Flow rate	-	High flow rate			-HF	
Range of application	-	Suitable for sealing air and cleaning air	3		-HP	
Filter contamination sensing	Differential pressure indicator, visual				-DA	
	Filter contamination indicator, M8 plug, PNP, 3-pin		4		-DP	
	Filter contamination indicator, M8 plug, NPN, 3-pin		4		-DN	
	Filter contamination indicator, M12 plug, PNP, 4-pin, analogue output 4 ... 20 mA		4		-DPI	
	Filter contamination indicator, M12 plug, PNP, 4-pin, analogue output 4 ... 20 mA		4		-DNI	
Type of mounting	Mounting bracket		5		-WP	
	Mounting bracket		5		-WPM	
	Mounting bracket				-WB	
	Mounting bracket				-WBM	
Alternative flow direction	Flow direction from right to left				-Z	

1 V Size 4: only with metal bowl U

2 E1, E2, E3, E4

Only with metal bowl U

3 HP

Not with flow rate HF or filter contamination sensing DA

4 DP, DN, DPI, DNI

Measuring range max. 10 bar

5 WP, WPM

Only with connecting plate AGA, AGB, AGC, AGD or AGE

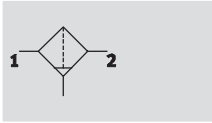
Transfer order code

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

# Active carbon filters MS4/MS6-LFX, MS series

## Technical data

### Function



- - Flow rate  
max. 2,500 l/min
- - Temperature range  
-10 ... +60 °C
- - Input pressure  
0 ... 20 bar



- - Note  
Prefiltration with micro filter  
MS-LFM-A, grade of filtration  
0.01 µm, recommended.

- Removal of liquid and gaseous oil particles from compressed air using active carbon
- Eliminates odours and vapours
- Optionally with filter cartridge for low flow rates, suitable for sealing air and cleaning air
- New filter cartridges → 85

General technical data					
Size	MS4		MS6		
Pneumatic connection 1, 2	G <sup>1</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>2</sub>
Design	Active carbon filter				
Type of mounting	Via accessories				
	In-line installation				
Assembly position	Vertical ±5°				
Air purity class at the output <sup>1)</sup>	1.7.1 to DIN ISO 8573-1				
Bowl guard	Plastic bowl guard				
	Integrated as metal bowl				
Residual oil content [mg/m <sup>3</sup> ]	≤0.003				

1) We recommend that the filter cartridge be replaced by a new one after 1,000 operating hours. (Applies to an ambient temperature of 21 °C. At higher temperatures the service life of the filter cartridge will be reduced.)  
 - - Note: This product conforms to ISO 1179-1 and to ISO 228-1

Standard flow rate $q_n^{1)}$ [l/min]				
Size	MS4	MS6		
Variant	Standard	Standard	High flow rate HF	Range of application HP, suitable for sealing air and cleaning air
Max. standard flow rate for air purity class $q_{n \max}$	360	900	2,500	900

1) Measured at  $p_1 = 6 \text{ bar}$ .

# Active carbon filters MS4/MS6-LFX, MS series

Technical data

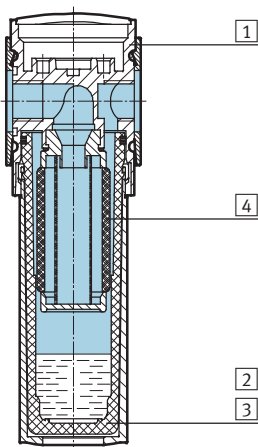
Operating and environmental conditions		
Size	MS4	MS6
Input pressure [bar]	0 ... 14	0 ... 20
Operating medium	Filtered compressed air or inert gases, unlubricated, grade of filtration 0.01 µm	
Ambient temperature [°C]	-10 ... +60	
Temperature of medium [°C]	+5 ... +30	
Storage temperature [°C]	-10 ... +60	
Corrosion resistance CRC <sup>1)</sup>	2	

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

Weights [g]			
Size	MS4	MS6	
Variant	Standard	Standard	High flow rate HF
Active carbon filter with plastic bowl guard R	190	600	1,280
Active carbon filter with metal bowl U	350	820	1,500

## Materials

Sectional view



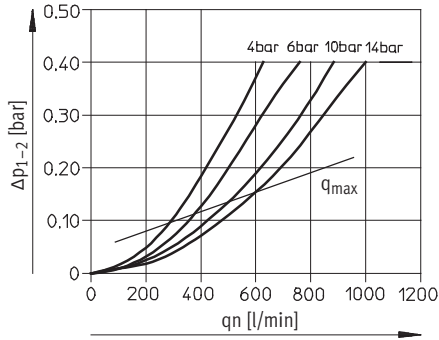
Active carbon filter	
1 Body	Die-cast aluminium
2 Plastic bowl guard	PC
3 Metal bowl	Wrought aluminium alloy, die-cast aluminium
Viewing window	PA
4 Filters	Active carbon
- Seals	NBR
Note on materials	RoHS-compliant
	Free of copper and PTFE

# Active carbon filters MS4/MS6-LFX, MS series

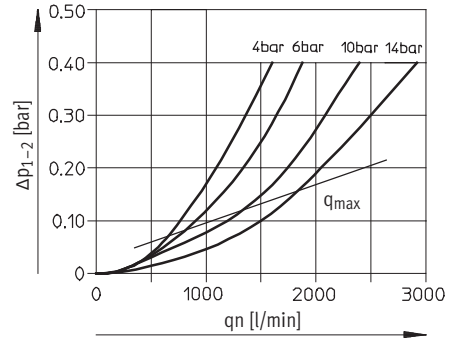
Technical data

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

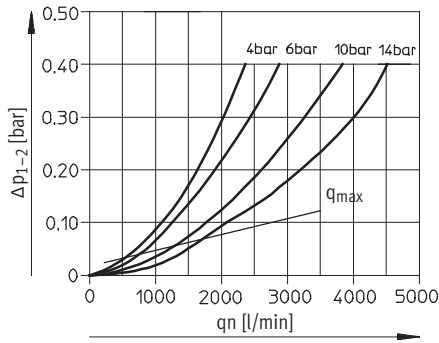
MS4-LFX-1/8 and MS4-LFX-1/4



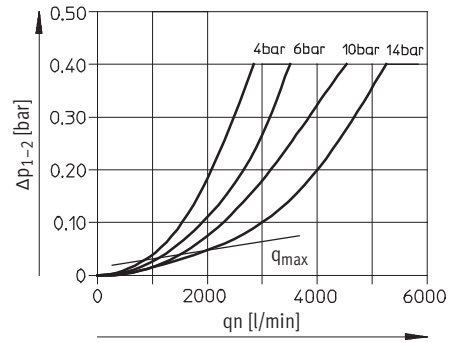
MS6-LFX-1/4



MS6-LFX-3/8



MS6-LFX-1/2



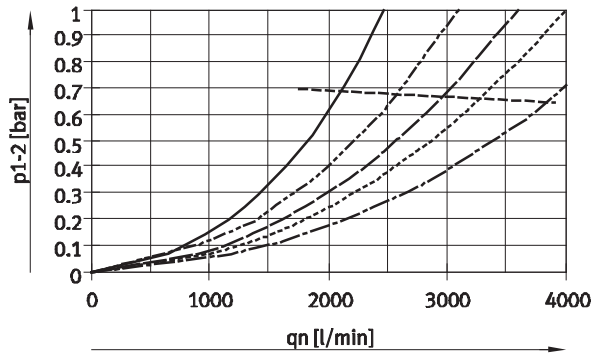


# Active carbon filters MS4/MS6-LFX, MS series

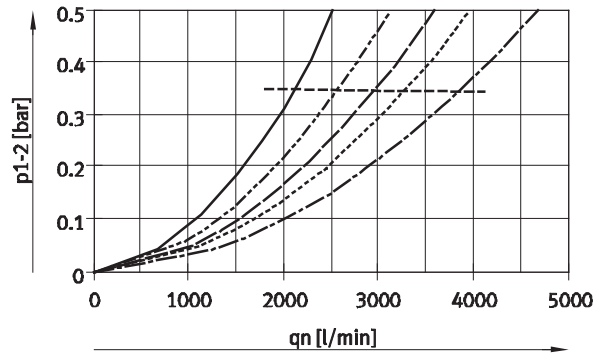
Technical data

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

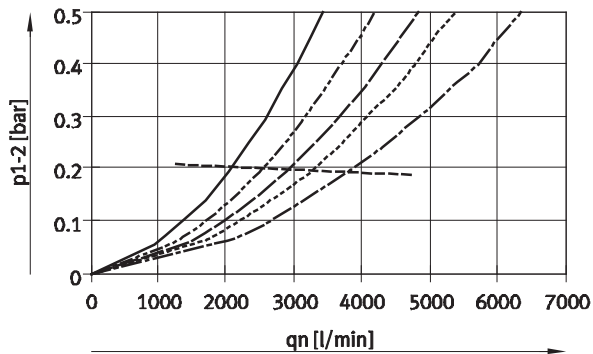
MS6-LFX-1/4-...-HF



MS6-LFX-3/8-...-HF



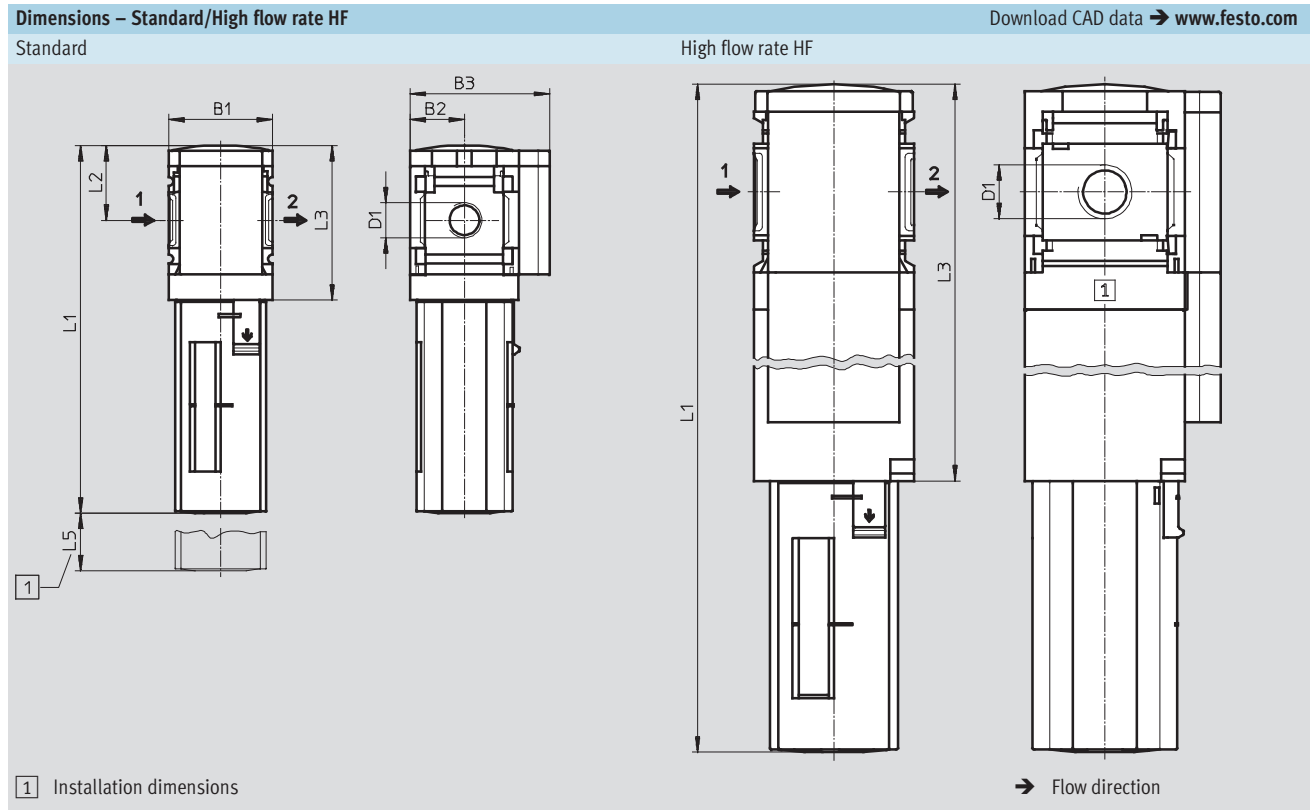
MS6-LFX-1/2-...-HF



- p1: 4 bar
- - - p1: 6 bar
- p1: 8 bar
- - - p1: 10 bar
- p1: 14 bar
- - -  $q_{max}$

# Active carbon filters MS4/MS6-LFX, MS series

Technical data



Type	B1	B2	B3	D1	Bowl guard		L2	L3	L5
					Plastic	Metal			
MS4-LFX-1/8	40	21	54	G1/8	142.8	160.4	29	60	73
MS4-LFX-1/4				G1/4					
MS6-LFX-1/4	62	31	76	G1/4	192	198	42	87	100
MS6-LFX-3/8				G3/8					
MS6-LFX-1/2				G1/2					
MS6-LFX-1/4-...-HF	62	31	76	G1/4	312	318	42	207	100
MS6-LFX-3/8-...-HF				G3/8					
MS6-LFX-1/2-...-HF				G1/2					

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

Ordering data					
Size	Connection	Plastic bowl guard		Integrated as metal bowl	
		Part No.	Type	Part No.	Type
MS4	G1/8	536707	MS4-LFX-1/8-R	536709	MS4-LFX-1/8-U
	G1/4	529467	MS4-LFX-1/4-R	535782	MS4-LFX-1/4-U
MS6	G1/4	529683	MS6-LFX-1/4-R	529685	MS6-LFX-1/4-U
	G3/8	529687	MS6-LFX-3/8-R	529689	MS6-LFX-3/8-U
	G1/2	529679	MS6-LFX-1/2-R	529681	MS6-LFX-1/2-U
High flow rate					
MS6	G1/2	-	-	552927	MS6-LFX-1/2-U-HF

# Activated carbon filters MS4/MS6-LFX, MS series

Ordering data – Modular products

M Mandatory data					O Options				
Module No.	Series	Size	Function	Connection size	Bowl	Flow rate	Range of application	Type of mounting	Alternative flow direction
527699 527672	MS	4 6	LFX	1/8, 1/4, 3/8, 1/2, AGA, AGB, AGC, AGD, AGE	R U	HF	HP	WP WPM WB WBM	Z
<b>Ordering example</b>									
527699	MS	4	LFX	AGB	R			WP	Z

Ordering table						
Grid dimension	[mm]	40	62	Conditions	Code	Enter code
M	Module No.	527699	527672			
	Series	Standard			MS	MS
	Size	4	6		...	
	Function	Activated carbon filter			-LFX	-LFX
	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	
	Bowl	Plastic bowl with plastic bowl guard			-R	
		Metal bowl			-U	
	Flow rate	-	High flow rate		-HF	
	Range of application	-	Suitable for sealing air and cleaning air	1	-HP	
	Type of mounting	Mounting bracket			2	-WP
		Mounting bracket			2	-WPM
		Mounting bracket				-WB
		Mounting bracket				-WBM
	Alternative flow direction	Flow direction from right to left				-Z

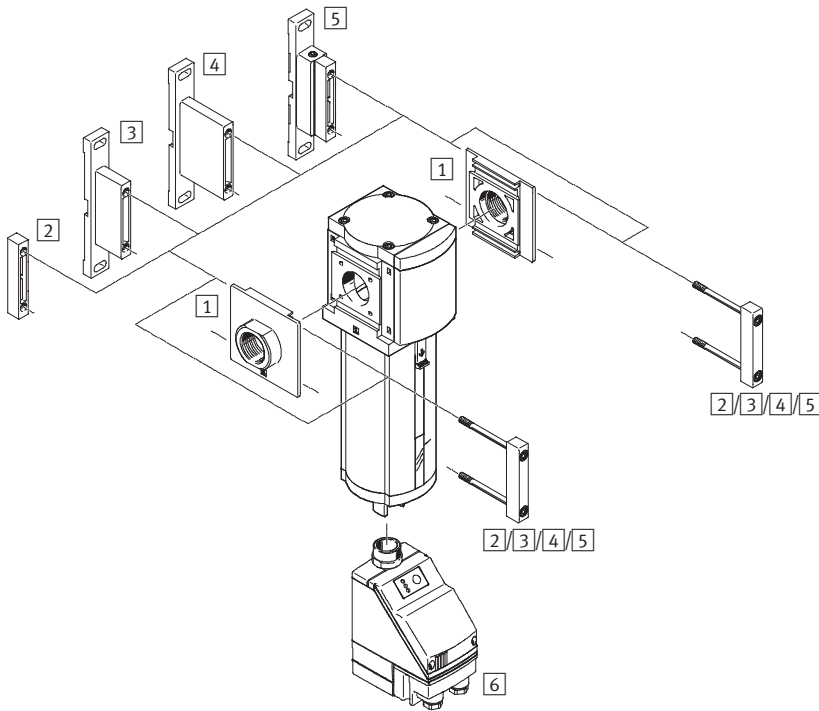
- 1 HP Not with flow rate HF
- 2 WP, WPM Only with connecting plate AGA, AGB, AGC, AGD or AGE


Transfer order code

	MS		LFX						
--	----	--	-----	--	--	--	--	--	--

## Filters MS9-LF, MS series

Peripherals overview



 Note  
 Additional accessories:  
 – Module connector for combination with size MS6, MS9 or MS12  
 → Internet: rmv, armv

Mounting attachments and accessories					
		Individual device		Combination	→ Page/Internet
		without connecting thread	with connecting thread 3/4 or 1		
1	Connecting plate MS9-AG...	■	–	■	ms9-ag
2	Module connector MS9-MV	■	–	■	ms9-mv
3	Mounting bracket MS9-WP	■	■	■	ms9-wp
4	Mounting bracket MS9-WPB	■	■	■	ms9-wp
5	Mounting bracket MS9-WPM	■	–	■	ms9-wp
6	Condensate drain, fully automatic, electrically actuated E1/E2/E3/E4	■	■	■	42

## Filters MS9-LF, MS series

Type codes

		MS	9	-	LF	-	G	-	E	U	M	
<b>Series</b>												
MS	Standard service unit											
<b>Size</b>												
9	Grid dimension 90 mm											
<b>Service function</b>												
LF	Filter											
<b>Connection size</b>												
G	Module without connecting thread, without connecting plate											
<b>Grade of filtration</b>												
C	5 µm											
E	40 µm											
<b>Bowl guard</b>												
U	Integrated as metal bowl											
<b>Condensate drain</b>												
M	Manual rotary											
V	Fully automatic											

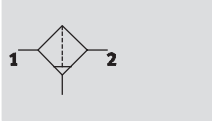
Additional variants can be ordered using the modular system → 42

- Connecting plates
- Condensate drain
- Type of mounting
- Alternative flow direction

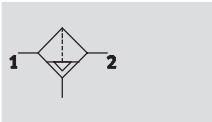
## Filters MS9-LF, MS series


### Technical data


Condensate drain,  
manual rotary




Condensate drain,  
semi or fully automatic



 Flow rate  
6,000 ... 16,000 l/min


 Temperature range  
-10 ... +60 °C

 Supply pressure  
0 ... 20 bar



- Good particle and condensate separation
- High flow rate with minimal pressure drop
- Available with manual, semi-automatic, fully automatic or fully automatic, electrically actuated condensate drain
- Choice of filter cartridges: 5 µm or 40 µm
- New filter cartridges → 86

General technical data				
Size	MS9			
Pneumatic connection 1, 2	G3/4	G1	G1/2 ... G1 1/2 (with connecting plate AG...)	– (without connecting thread G)
Design	Sintered filter with centrifugal separator			
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			
Max. condensate volume [ml]	220			

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

Standard nominal flow rate $q_{nN}^{1)}$ [l/min]				
Pneumatic connection		Connecting plate AGD	Thread G3/4 or connecting plate AGE	Thread G1 or connecting plate AGF/AGG/AGH
Grade of filtration	5 µm	6,000	8,500	9,500
	40 µm	8,000	12,500	16,000

1) Measured at  $p_1 = 6 \text{ bar}$  and  $\Delta p = 1 \text{ bar}$

# Filters MS9-LF, MS series

Technical data

**FESTO**

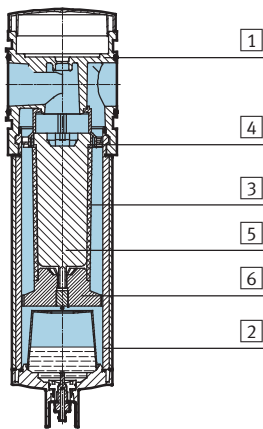
Operating and environmental conditions				
Condensate drain	Manual rotary M	Semi-automatic H	Fully automatic V	Fully automatic, electrically actuated E1/E2/E3/E4
Supply pressure [bar]	0 ... 20	1.5 ... 12	2 ... 12	0.8 ... 16
Operating medium	Air quality class 5.7.- to DIN ISO 8573-1			
Ambient temperature [°C]	-10 ... +60	+5 ... +60	+5 ... +60	+1 ... +60
Temperature of medium [°C]	-10 ... +60	+5 ... +60	+5 ... +60	+1 ... +60
Storage temperature [°C]	-10 ... +60	+5 ... +60	+5 ... +60	+1 ... +60
Corrosion resistance class CRC <sup>1)</sup>	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]	
Filter	2,000
Filter with condensate drain, fully automatic, electrically actuated E1/E2/E3/E4	2,400

## Materials

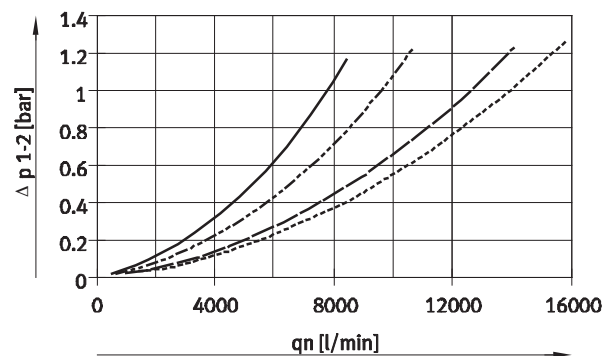
Sectional view



Filter		
1	Housing	Die-cast aluminium
2	Bowl	Wrought aluminium alloy
	Inspection window	PA
3	Filter	PE
4	Spin disc	POM
5	Filter holder	POM
6	Separating plate	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)

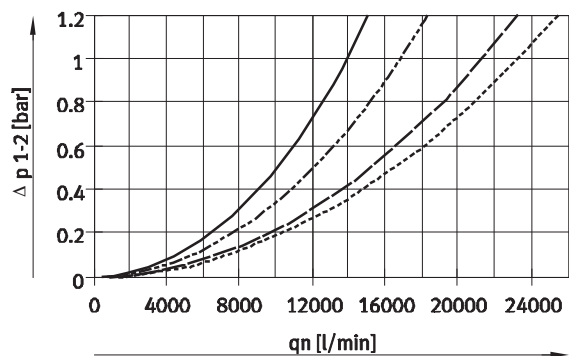
## Standard flow rate qn as a function of differential pressure Δp1-2

Grade of filtration 5 μm  
 MS9-LF-1/AGF, pneumatic connection G1



— 4 bar                      - - - - - 10 bar  
 - · - · - 6 bar                · · · · · 12 bar

Grade of filtration 40 μm  
 MS9-LF-1/AGF, pneumatic connection G1



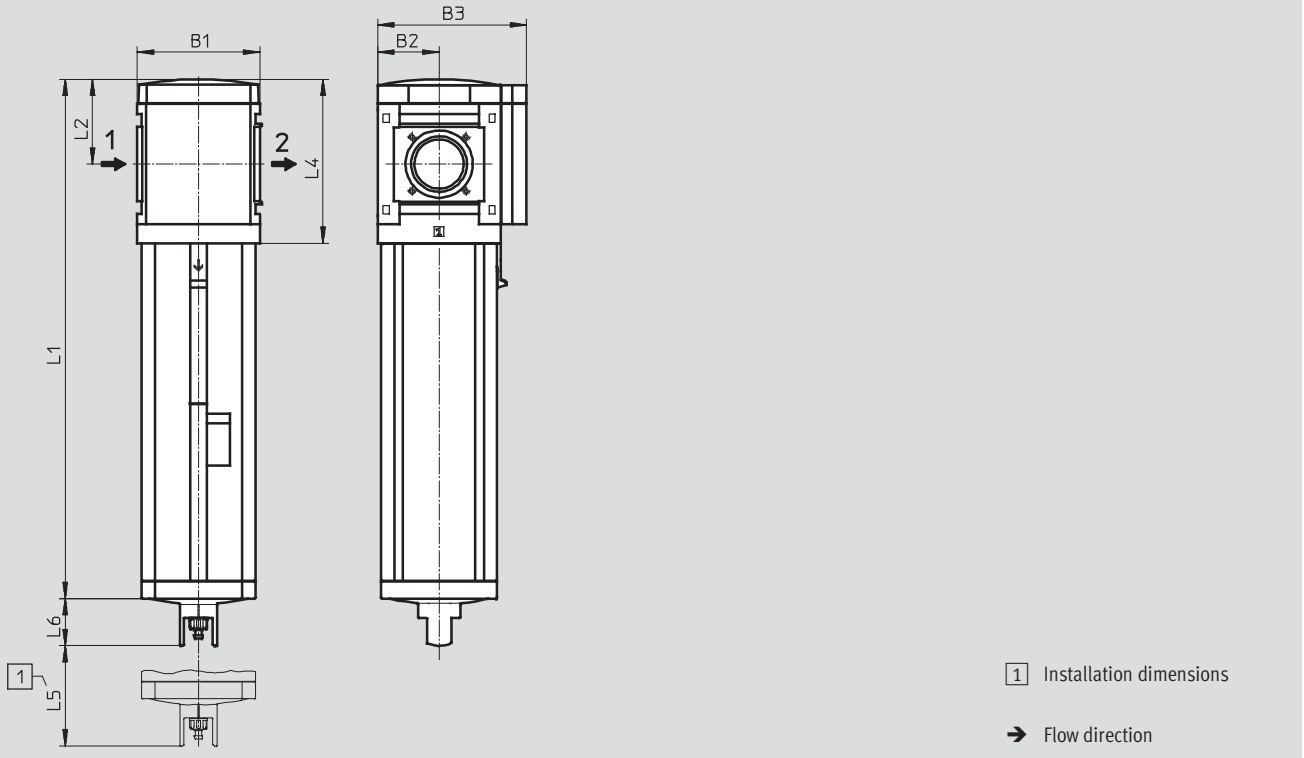
# Filters MS9-LF, MS series

Technical data

## Dimensions – Basic version

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

Without connecting thread G



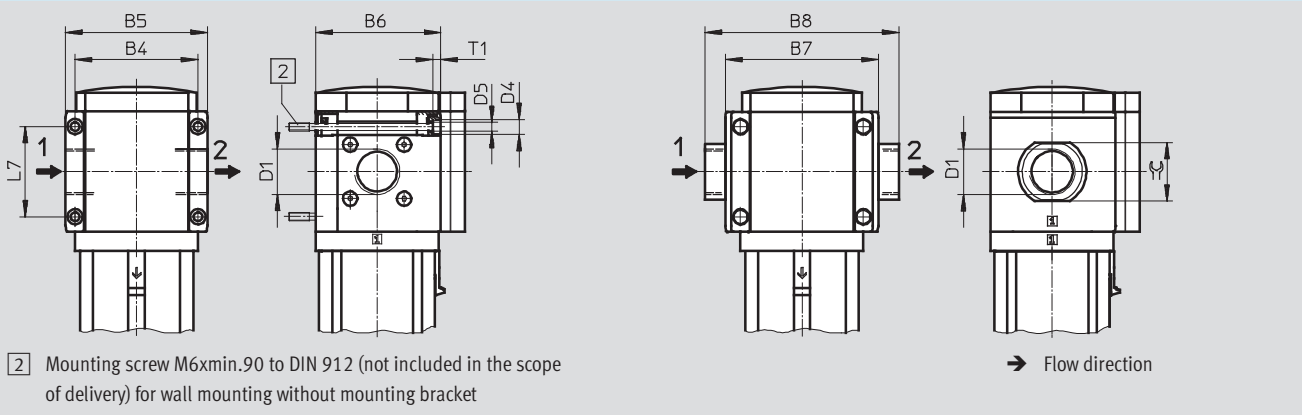
Type	B1	B2	B3	L1	L2	L4	L5	L6
MS9-LF-G	90	45	109	310.5	62	120	150	34.5

## Dimensions – Connecting thread/connecting plate

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

With connecting thread 3/4 or 1

With connecting plate AG...



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

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

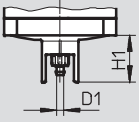


# Filters MS9-LF, MS series

Technical data

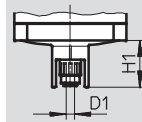
**Dimensions – Condensate drain** Download CAD data → [www.festo.com](http://www.festo.com)

Manual rotary M/fully automatic V



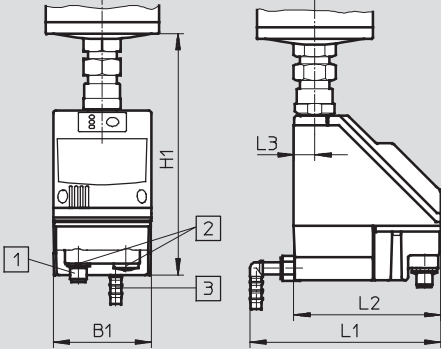
Barbed fitting for plastic tubing  
PCN-4

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.com)



- 1 Variant E1:  
Condensate drain PWEA-AP with M12x1 plug, 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-LF...M/V	-	5	34.5	-	-	-
MS9-LF...H		6				
MS9-LF...E1/E2/E3/E4	72	-	178	140	108	15

Ordering data						
Size	Condensate drain	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
MS9	Manual rotary	-	564108	MS9-LF-G-CUM	564106	MS9-LF-G-EUM
	Fully automatic	-	564109	MS9-LF-G-CUV	564107	MS9-LF-G-EUV

## Filters MS9-LF, MS series

Ordering data – Modular products

**M** Mandatory data →

Module No.	Series	Size	Function	Connection size	Grade of filtration	Bowl
562532	MS	9	LF	¾, 1, AGD, AGE, AGF, AGG, AGH, G	E, C	U
<b>Ordering example</b>						
<b>562532</b>	<b>MS</b>	<b>9</b>	<b>- LF</b>	<b>- AGD</b>	<b>- E</b>	<b>- U</b>

**Ordering table**

Grid dimension	[mm]	90	Condi- tions	Code	Enter code
<b>M</b> Module No.		<b>562532</b>			
Series		Standard		<b>MS</b>	MS
Size		9		<b>9</b>	9
Function		Filter		<b>-LF</b>	-LF
Connection size		Thread G¾		<b>-¾</b>	
		Thread G1		<b>-1</b>	
		Connecting plate G½		<b>-AGD</b>	
		Connecting plate G¾		<b>-AGE</b>	
		Connecting plate G1		<b>-AGF</b>	
		Connecting plate G1¼		<b>-AGG</b>	
		Connecting plate G1½		<b>-AGH</b>	
		Module without connecting thread, without connecting plate		<b>-G</b>	
Grade of filtration		40 µm		<b>-E</b>	
		5 µm		<b>-C</b>	
<b>↓</b> Bowl		Metal bowl		<b>-U</b>	-U

Transfer order code

<b>562532</b>	<b>MS</b>	<b>9</b>	<b>- LF</b>			<b>- U</b>
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# Filters MS9-LF, MS series

Ordering data – Modular products

→ M Mandatory data	O Options	
Condensate drain	Type of mounting	Alternative flow direction
M, H, V, E1 ... E4	WP, WPM, WPB	Z
- M	- WP	- Z

Ordering table						
Grid dimension	[mm]		90	Condi- tions	Code	Enter code
↓ M	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	
O	Type of mounting	Mounting bracket		1	-WP	
		Mounting bracket		1	-WPM	
		Mounting bracket for large wall gap		1	-WPB	
	Alternative flow direction	Flow direction from right to left			-Z	

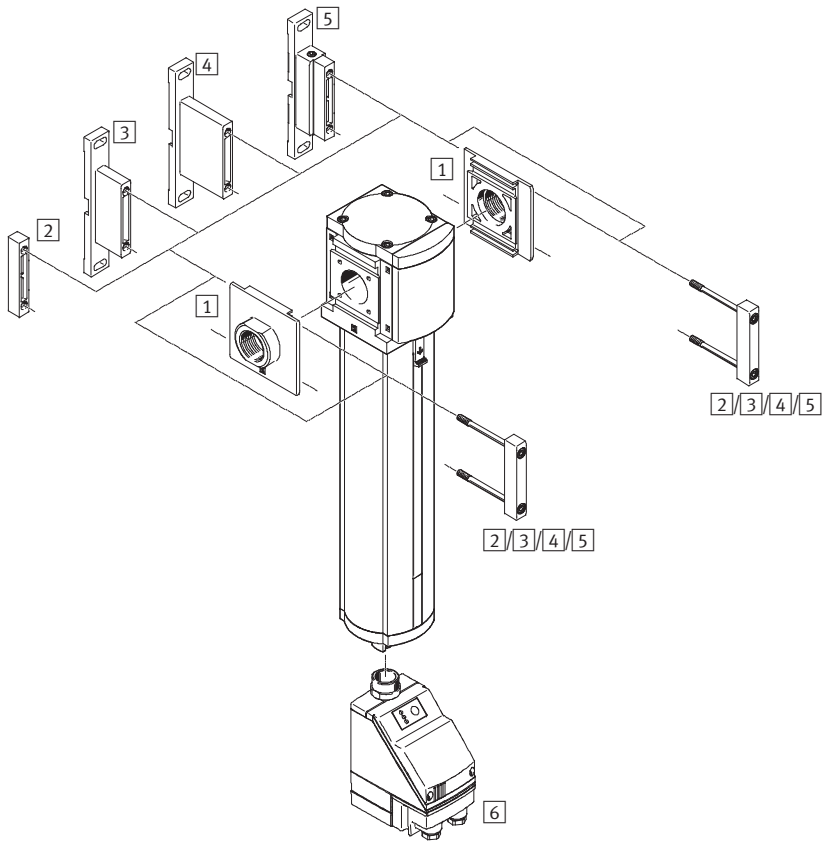
 WP, WPM, WPB Not with module G


Transfer order code

-  -  -

# Fine and micro filters MS9-LFM, MS series

Peripherals overview



 Note  
 Other accessories:  
 – Module connector for combination with size MS6, MS9 or MS12  
 → Internet: rmv, armv

Mounting attachments and accessories					
		Individual device		Combination	→ Page/Internet
		without connecting thread	with connecting thread ¾ or 1		
1	Connecting plate MS9-AG...	■	–	■	ms9-ag
2	Module connector MS9-MV	■	–	■	ms9-mv
3	Mounting bracket MS9-WP	■	■	■	ms9-wp
4	Mounting bracket MS9-WPB	■	■	■	ms9-wp
5	Mounting bracket MS9-WPM	■	–	■	ms9-wp
6	Condensate drain, fully automatic, electrically actuated E1/E2/E3/E4	■	■	■	54

## Fine and micro filters MS9-LFM, MS series

Type codes

		MS	9	-	LFM	-	1	-	A	U	M	-	HF	-	DA
<b>Series</b>															
MS	Standard service unit														
<b>Size</b>															
9	Grid dimension 90 mm														
<b>Service function</b>															
LFM	Fine and micro filter														
<b>Pneumatic connection</b>															
3/4	Thread G3/4														
1	Thread G1														
G	Module without connecting thread, without connecting plate														
<b>Grade of filtration</b>															
A	0.01 µm														
B	1 µm														
<b>Bowl guard</b>															
U	Integrated as metal bowl														
<b>Condensate drain</b>															
M	Manual rotary														
V	Fully automatic														
<b>Flow rate</b>															
	Standard														
HF	High flow rate														
<b>Filter contamination sensor</b>															
	Without differential pressure indicator														
DA	Differential pressure indicator														

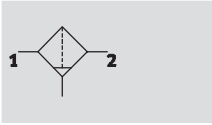
Further variants can be ordered using the modular system → 54


- Connecting plates
- Condensate drain
- Type of mounting
- Alternative flow direction


## Fine and micro filters MS9-LFM, MS series


Technical data

Condensate drain  
Manual rotary  
Without differential pressure indicator



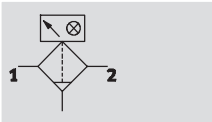
 Flow rate  
325 ... 10,000 l/min

 Temperature range  
-10 ... +60 °C

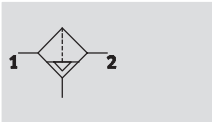
 Supply pressure  
0 ... 20 bar



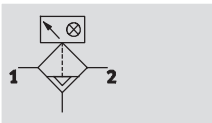
With differential pressure indicator



Condensate drain  
Semi or fully automatic  
Without differential pressure indicator



With differential pressure indicator



- High-performance filter for exceptionally clean compressed air
- Air quality to DIN ISO 8573-1
- Available with manual, semi-automatic, fully automatic or fully automatic, electrically actuated condensate drain
- Available with differential pressure indicator for indication of contamination
- Choice of filter cartridges: 0.01 µm or 1 µm
- New filter cartridges → 86

MS9-LFM-A:  
ISO class 1 for particles:  
max. particle density 0.1 mg/m<sup>3</sup>  
ISO class 2 for oil aerosols:  
max. oil concentration 0.1 mg/m<sup>3</sup>  
Filter efficiency 99.9999%

MS9-LFM-B:  
ISO class 2 for particles:  
max. particle density 1 mg/m<sup>3</sup>  
ISO class 3 for oil aerosols:  
max. oil concentration 1 mg/m<sup>3</sup>  
Filter efficiency 99.99%

General technical data				
Size	MS9			
Pneumatic connection 1, 2	G3/4	G1	G1/2 ... G1 1/2 (with connecting plate AG...)	– (without connecting thread G)
Constructional design	Fibre filter			
Type of mounting	Via accessories In-line installation			
Installation position	Vertical ±5°			
Grade of filtration [µm]	0.01 (micro filter MS9-LFM-A, air purity class at the output 1.7.2 to DIN ISO 8573-1) 1 (fine filter MS9-LFM-B, air purity class at the output 2.7.3 to DIN ISO 8573-1)			
Bowl guard	Integrated as metal bowl			
Condensate drain	Manual rotary Semi-automatic Fully automatic Fully automatic, electrically actuated			
Differential pressure indicator	Visual indicator			
Residual oil content [mg/m <sup>3</sup> ]	≤0.01 (micro filter MS9-LFM-A) ≤0.5 (fine filter MS9-LFM-B)			
Max. condensate volume [cm <sup>3</sup> ]	225			

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

# Fine and micro filters MS9-LFM, MS series

Technical data

Standard flow rate $q_n^{1)}$ [l/min]		
Version	Standard	High flow rate HF
<b>Micro filter MS9-LFM-A</b>		
qn min	325	390
qn max	6,500	7,800
<b>Fine filter MS9-LFM-B</b>		
qn min	350	500
qn max	7,000	10,000

 1) Measured at  $p_1 = 6$  bar

Operating and environmental conditions				
Version	Condensate drain			
	Manual rotary	Semi-automatic	Fully automatic	Fully automatic, electrically actuated
	M	H	V	E1 ... E4
Supply pressure [bar]	0 ... 20	1.5 ... 12	2 ... 12	0.8 ... 16
Operating medium for micro filter MS9-LFM-A	Filtered compressed air, unlubricated, grade of filtration 1 $\mu$ m			
Operating medium for fine filter MS9-LFM-B	Filtered compressed air, unlubricated, grade of filtration 5 $\mu$ m			
Ambient temperature [°C]	-10 ... +60	+5 ... +60	+5 ... +60	+1 ... +60
Temperature of medium [°C]	-10 ... +60	+5 ... +60	+5 ... +60	+1 ... +60
Storage temperature [°C]	-10 ... +60	+5 ... +60	-10 ... +60	+1 ... +60
Corrosion resistance CRC <sup>1)</sup>	2			

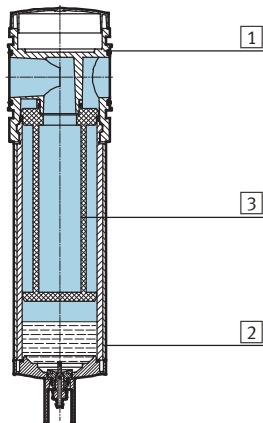
1) Corrosion resistance class 2 as per Festo standard 940 070

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.

Weights [g]		
Version	Standard	High flow rate HF
Fine and micro filter	2,000	2,500
Fine and micro filter with condensate drain fully automatic, electrically actuated E1 ... E4	2,900	2,900

## Materials

Sectional view



Fine and micro filters	
1	Housing Die-cast aluminium
2	Bowl Inspection window Wrought aluminium alloy PA
3	Filter Borosilicate fibre
-	Cover PA
-	Seals NBR
Note on materials Free of copper and PTFE	

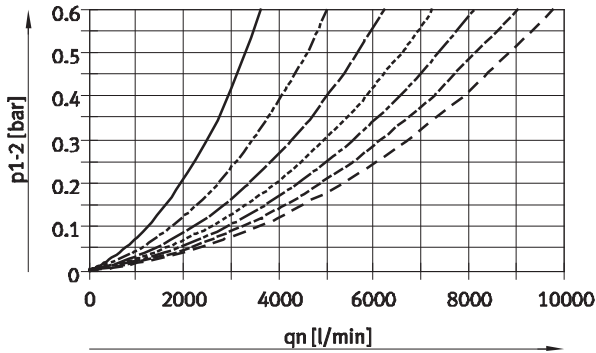
# Fine and micro filters MS9-LFM, MS series

Technical data

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

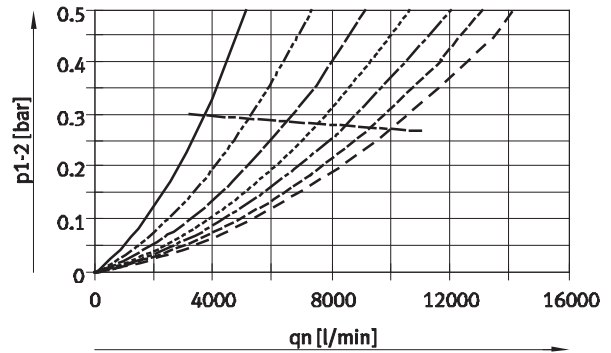
Grade of filtration 0.01  $\mu\text{m}$

MS9-LFM-AGD, Pneumatic connection G $\frac{1}{2}$



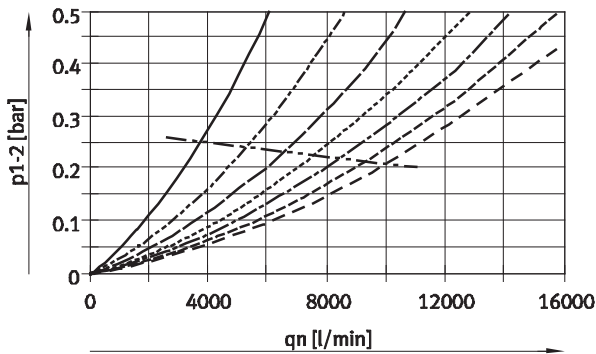
Grade of filtration 0.01  $\mu\text{m}$

MS9-LFM- $\frac{3}{4}$ /AGE, Pneumatic connection G $\frac{3}{4}$



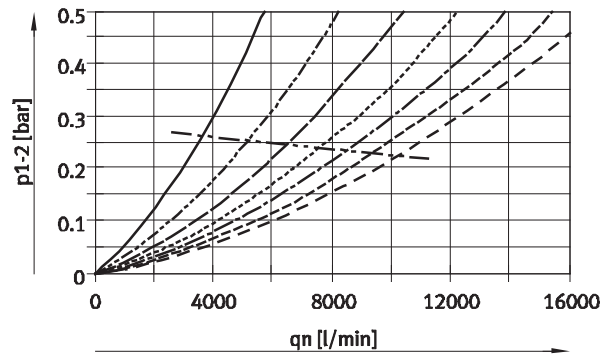
Grade of filtration 0.01  $\mu\text{m}$

MS9-LFM-1/AGE, Pneumatic connection G1



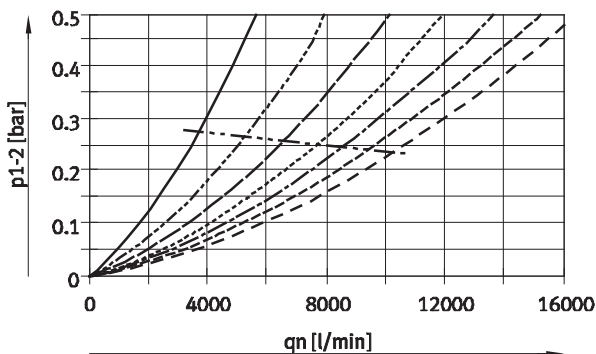
Grade of filtration 0.01  $\mu\text{m}$

MS9-LFM-AGG, Pneumatic connection G1 $\frac{1}{4}$



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

MS9-LFM-AGH, Pneumatic connection G1 $\frac{1}{2}$



- 2 bar
  - - - - - 4 bar ( $q_{n \text{ min}}$ : 268 l/min)
  - · - · - 6 bar ( $q_{n \text{ min}}$ : 325 l/min)
  - · · · · 8 bar
  - - - - - 10 bar ( $q_{n \text{ min}}$ : 420 l/min)
  - - - - - 12 bar
  - - - - - 14 bar ( $q_{n \text{ min}}$ : 498 l/min)
  - - - - -  $q_{n \text{ max}}$
- (with MS9-LFM-AGD:  $q_{n \text{ max}}$ -values lie above the measured  $q_n$ -values)



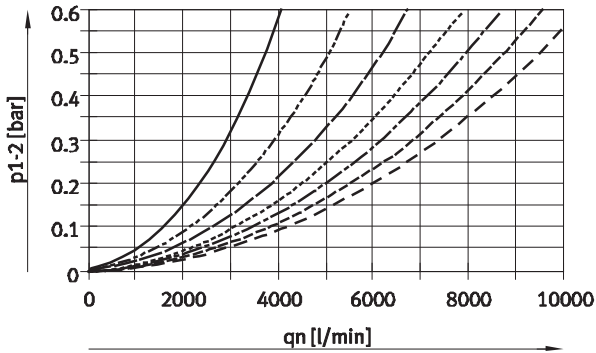
# Fine and micro filters MS9-LFM, MS series

Technical data

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

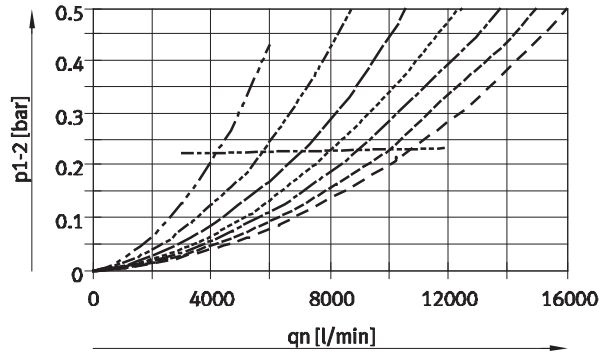
Grade of filtration  $1 \mu\text{m}$

MS9-LFM-AGD, Pneumatic connection  $G^{1/2}$



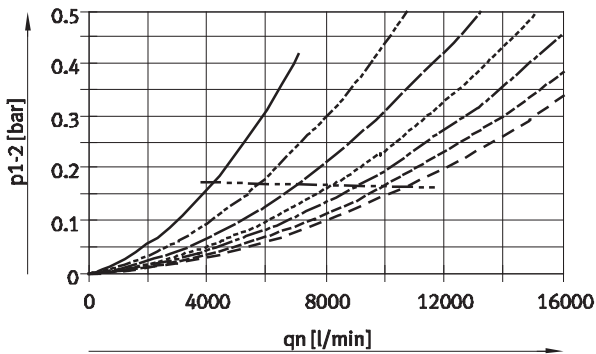
Grade of filtration  $1 \mu\text{m}$

MS9-LFM- $\frac{3}{4}$ /AGE, Pneumatic connection  $G^{\frac{3}{4}}$



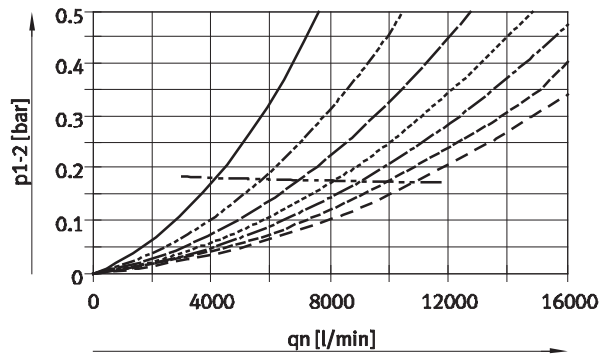
Grade of filtration  $1 \mu\text{m}$

MS9-LFM-1/AGF, Pneumatic connection  $G_1$



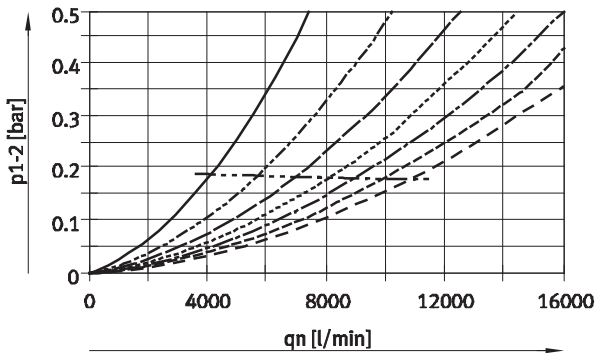
Grade of filtration  $1 \mu\text{m}$

MS9-LFM-AGG, Pneumatic connection  $G_1^{\frac{1}{4}}$



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

MS9-LFM-AGH, Pneumatic connection  $G_1^{\frac{1}{2}}$



- 2 bar
- - - 4 bar ( $q_{n \text{ min}}$ : 289 l/min)
- · - 6 bar ( $q_{n \text{ min}}$ : 350 l/min)
- · · 8 bar
- - - 10 bar ( $q_{n \text{ min}}$ : 450 l/min)
- - - 12 bar
- - - 14 bar ( $q_{n \text{ min}}$ : 540 l/min)
- - -  $q_{n \text{ max}}$   
(with MS9-LFM-AGD:  $q_{n \text{ max}}$ -values lie above the measured  $q_n$ -values)

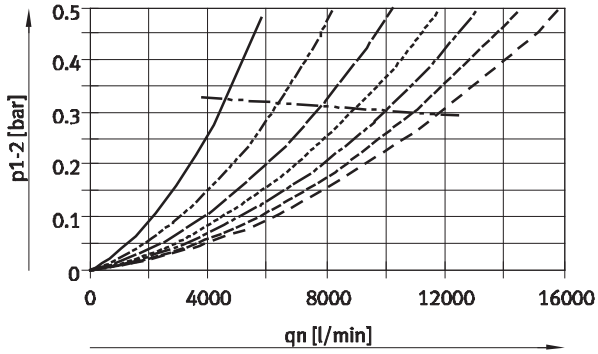
# Fine and micro filters MS9-LFM, MS series

Technical data

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

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

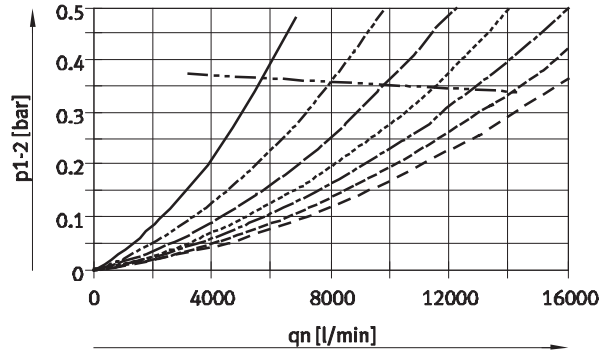
MS9-LFM- $\frac{3}{4}$ -...-HF, Pneumatic connection G $\frac{3}{4}$



- 2 bar
- - - 4 bar
- · - 6 bar ( $q_{n \text{ min}}$ : 390 l/min)
- · · 8 bar
- - - - 10 bar
- - - - 12 bar
- · - · 14 bar
- · ·  $q_n \text{ max}$

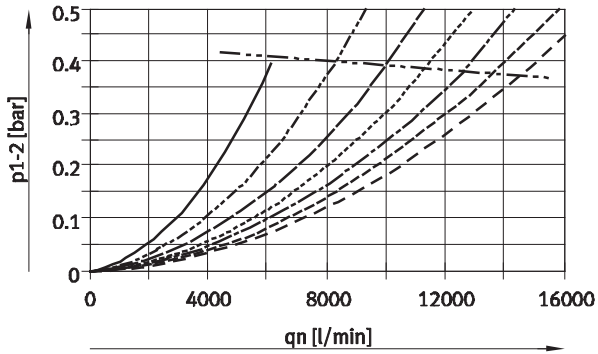
Grade of filtration 0.01  $\mu\text{m}$

MS9-LFM-1-...-HF, Pneumatic connection G1



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

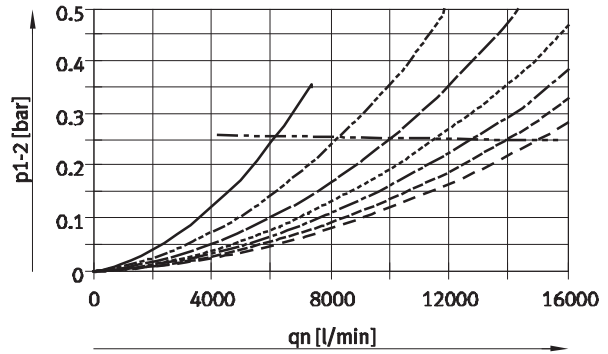
MS9-LFM- $\frac{3}{4}$ -...-HF, Pneumatic connection G $\frac{3}{4}$



- 2 bar
- - - 4 bar
- · - 6 bar ( $q_{n \text{ min}}$ : 500 l/min)
- · · 8 bar
- - - - 10 bar
- - - - 12 bar
- · - · 14 bar
- · ·  $q_n \text{ max}$

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

MS9-LFM-1-...-HF, Pneumatic connection G1



# Fine and micro filters MS9-LFM, MS series

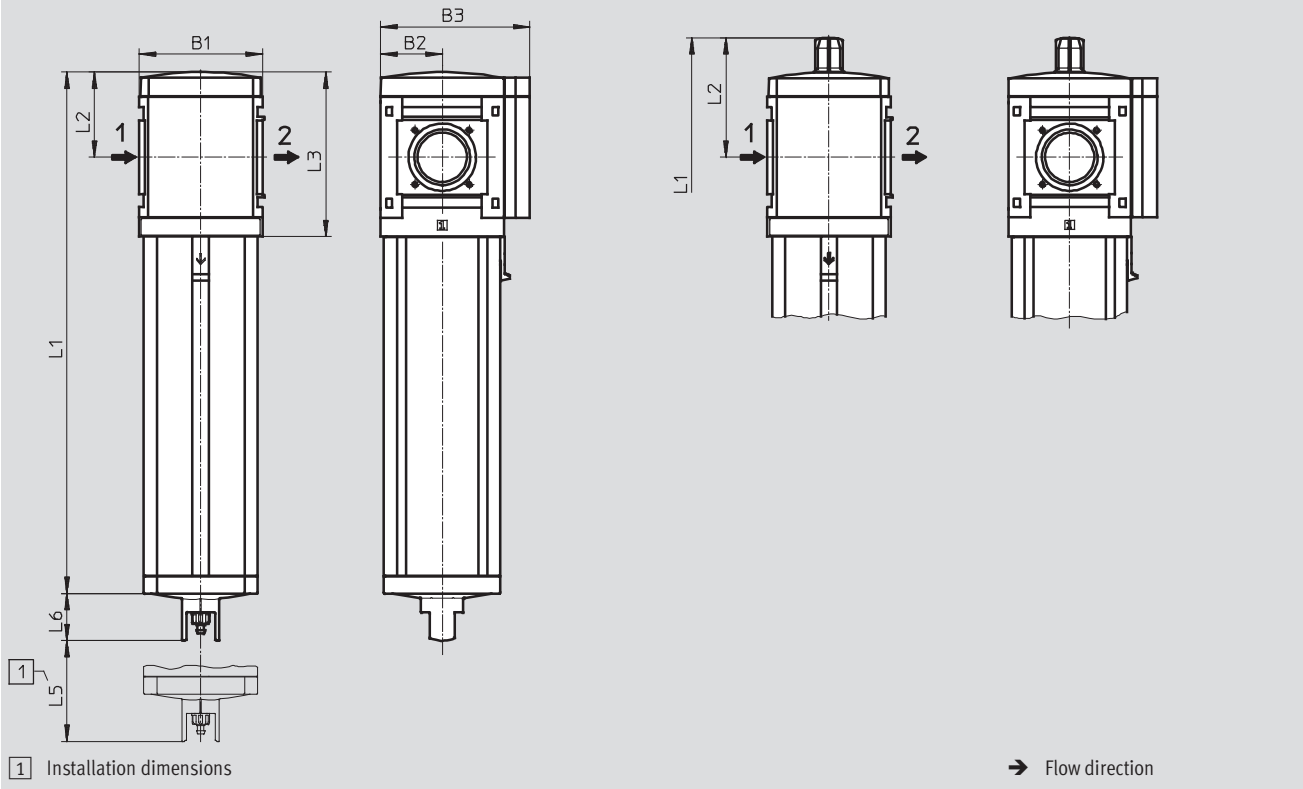
Technical data

**Dimensions – Basic version**

without connecting thread G

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

without connecting thread G, with differential pressure indicator DA



Type	B1	B2	B3	L1		L2	L3	L5	L6
				Standard	High flow rate HF				
MS9-LFM-G	90	45	109	380.5	480.5	62	120	50	34.5
MS9-LFM-G-...-DA				405.5	505.5				

# Fine and micro filters MS9-LFM, MS series

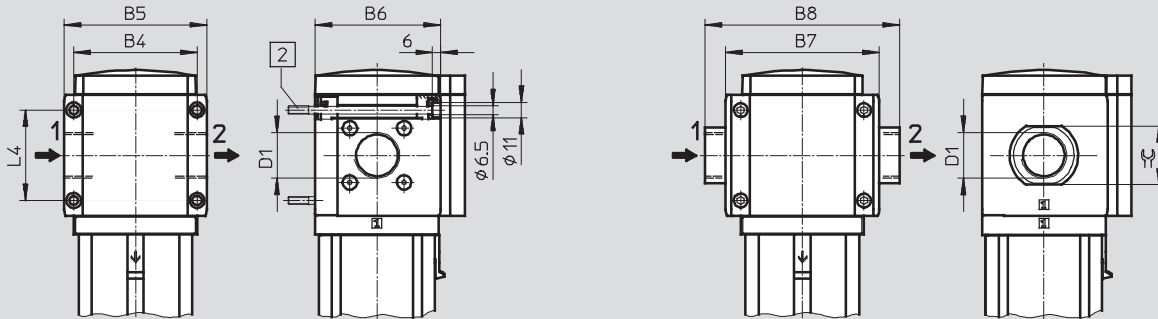
Technical data

## Dimensions – Connecting thread/connecting plate

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

with connecting thread 3/4 or 1

with connecting plate AG...



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

→ Flow direction

Type	B4	B5	B6	B7	B8	D1	L4	≅
MS9-LFM-3/4	90	104	91.5	-	-	G3/4	66	-
MS9-LFM-1						G1		
MS9-LFM-AGD	-	-	-	112	132	G1/2	-	30
MS9-LFM-AGE					132	G3/4		36
MS9-LFM-AGF					G1	41		
MS9-LFM-AGG					162	G1 1/4		50
MS9-LFM-AGH					176	G1 1/2		55

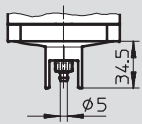
Note: This product conforms to ISO 1179-1 and to ISO 228-1

## Dimensions – Condensate drain

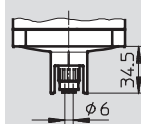
Download CAD data → [www.festo.com](http://www.festo.com)

Manual rotary M/fully automatic V

Semi-automatic H



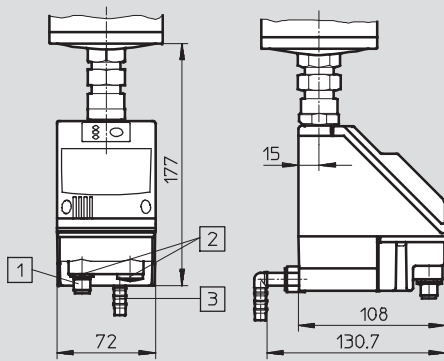
Barbed fitting for plastic tubing  
PCN-4



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

Fully automatic, electrically actuated E1 ... E4

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



- 1] Variant E1  
PWEA-AP-... with M12x1 plug, 5-pin for NEBU-M12...-LE5
- 2] Variants E2/E3/E4  
PWEA-AC-... with cable conduit fitting Pg9
- 3] Connection 360° rotatable for plastic tubing PUN-H-12x2-...

## Fine and micro filters MS9-LFM, MS series

**FESTO**

Technical data

Ordering data						
Without differential pressure indicator						
Size	Condensate drain	Connection	Micro filter		Fine filter	
			Grade of filtration 0.01 µm		Grade of filtration 1 µm	
			Part No.	Type	Part No.	Type
<b>Standard</b>						
MS9	Manual rotary	G $\frac{3}{4}$	553070	MS9-LFM- $\frac{3}{4}$ -AUM	553074	MS9-LFM- $\frac{3}{4}$ -BUM
		G1	553000	MS9-LFM-1-AUM	553004	MS9-LFM-1-BUM
		–	564047	MS9-LFM-G-AUM	564039	MS9-LFM-G-BUM
	Fully automatic	G $\frac{3}{4}$	553072	MS9-LFM- $\frac{3}{4}$ -AUV	553076	MS9-LFM- $\frac{3}{4}$ -BUV
		G1	553002	MS9-LFM-1-AUV	553006	MS9-LFM-1-BUV
		–	564049	MS9-LFM-G-AUV	564041	MS9-LFM-G-BUV
<b>High flow rate</b>						
MS9	Manual rotary	G $\frac{3}{4}$	552964	MS9-LFM- $\frac{3}{4}$ -AUM-HF	552968	MS9-LFM- $\frac{3}{4}$ -BUM-HF
		G1	553038	MS9-LFM-1-AUM-HF	553042	MS9-LFM-1-BUM-HF
		–	564051	MS9-LFM-G-AUM-HF	564043	MS9-LFM-G-BUM-HF
	Fully automatic	G $\frac{3}{4}$	552966	MS9-LFM- $\frac{3}{4}$ -AUV-HF	552970	MS9-LFM- $\frac{3}{4}$ -BUV-HF
		G1	553040	MS9-LFM-1-AUV-HF	553044	MS9-LFM-1-BUV-HF
		–	564053	MS9-LFM-G-AUV-HF	564045	MS9-LFM-G-BUV-HF

Ordering data						
With differential pressure indicator						
Size	Condensate drain	Connection	Micro filter		Fine filter	
			Grade of filtration 0.01 µm		Grade of filtration 1 µm	
			Part No.	Type	Part No.	Type
<b>Standard</b>						
MS9	Manual rotary	G $\frac{3}{4}$	553078	MS9-LFM- $\frac{3}{4}$ -AUM-DA	553082	MS9-LFM- $\frac{3}{4}$ -BUM-DA
		G1	553008	MS9-LFM-1-AUM-DA	553012	MS9-LFM-1-BUM-DA
		–	564048	MS9-LFM-G-AUM-DA	564040	MS9-LFM-G-BUM-DA
	Fully automatic	G $\frac{3}{4}$	553080	MS9-LFM- $\frac{3}{4}$ -AUV-DA	553084	MS9-LFM- $\frac{3}{4}$ -BUV-DA
		G1	553010	MS9-LFM-1-AUV-DA	553014	MS9-LFM-1-BUV-DA
		–	564050	MS9-LFM-G-AUV-DA	564042	MS9-LFM-G-BUV-DA
<b>High flow rate</b>						
MS9	Manual rotary	G $\frac{3}{4}$	552972	MS9-LFM- $\frac{3}{4}$ -AUM-HF-DA	552976	MS9-LFM- $\frac{3}{4}$ -BUM-HF-DA
		G1	553046	MS9-LFM-1-AUM-HF-DA	553050	MS9-LFM-1-BUM-HF-DA
		–	564052	MS9-LFM-G-AUM-HF-DA	564044	MS9-LFM-G-BUM-HF-DA
	Fully automatic	G $\frac{3}{4}$	552974	MS9-LFM- $\frac{3}{4}$ -AUV-HF-DA	552978	MS9-LFM- $\frac{3}{4}$ -BUV-HF-DA
		G1	553048	MS9-LFM-1-AUV-HF-DA	553052	MS9-LFM-1-BUV-HF-DA
		–	564054	MS9-LFM-G-AUV-HF-DA	564046	MS9-LFM-G-BUV-HF-DA

## Fine and micro filters MS9-LFM, MS series

Ordering data – Modular products

**M** Mandatory data →

Module No.	Series	Size	Function	Connection size	Grade of filtration	Bowl
552940	MS	9	LFM	¾, 1, AGD, AGE, AGF, AGG, AGH, G	B, A	U
<b>Order example</b>						
552940	MS	9	- LFM	- AGD	- B	- U

**Ordering table**

Grid dimension	[mm]	90	Condi- tions	Code	Enter code
<b>M</b> Module No.	552940				
Series	Standard service unit			MS	MS
Size	9			9	9
Function	Fine and micro filter			-LFM	-LFM
Connection size	Thread G¾			-¾	
	Thread G1			-1	
	Connecting plate G½			-AGD	
	Connecting plate G¾			-AGE	
	Connecting plate G1			-AGF	
	Connecting plate G1¼			-AGG	
	Connecting plate G1½			-AGH	
	Module without connecting thread, without connecting plate			-G	
Grade of filtration	µm	1		-B	
		0.01		-A	
Bowl	Metal bowl			-U	-U

**Transfer order code**

552940	MS	9	- LFM	-		-		- U
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## Fine and micro filters MS9-LFM, MS series

FESTO

Ordering data – Modular products

→ M Mandatory data		O Options		
Condensate drain	Flow rate	Filter contamination sensor	Type of mounting	Alternative flow direction
M, H, V, E1, E2, E3, E4	HF	DA	WP, WPM, WPB	Z
- M	- HF	- DA	- WP	- Z

Ordering table					
Grid dimension	[mm]	90	Condi- tions	Code	Enter code
↓ M	Condensate drain	Manual		-M	
		Semi-automatic (P1 max. 12 bar)		-H	
		Fully automatic (P1 max. 12 bar)		-V	
		External fully automatic condensate drain, electrical, 24 V DC, M12 - 7 -		-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	Flow rate	High flow rate	
	Filter contamination sensor	Differential pressure indicator, visual		-DA	
	Type of mounting	Mounting bracket	1	-WP	
		Mounting bracket	1	-WPM	
		Wall mounting bracket for large wall gap	1	-WPB	
	Alternative flow direction	Flow direction from right to left		-Z	

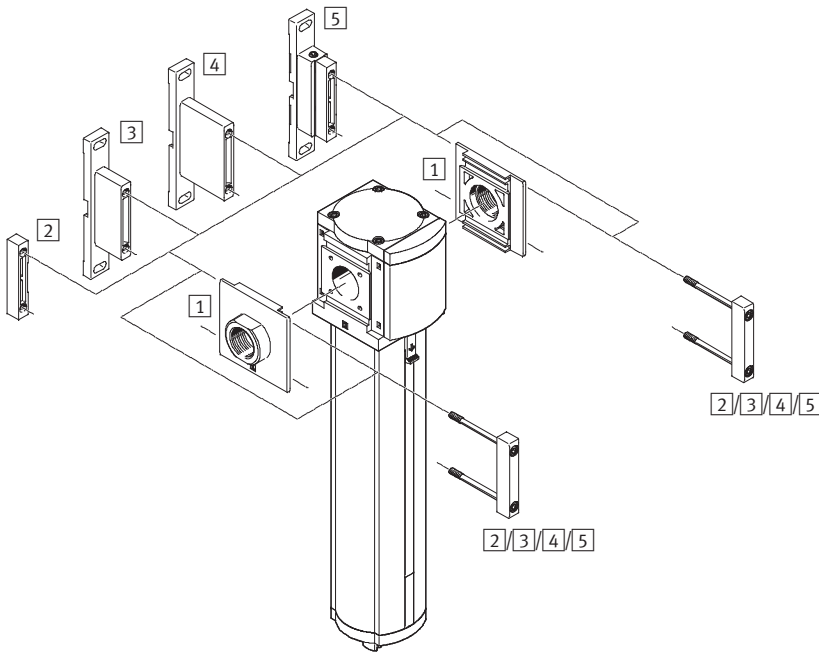
1 WP, WPM, WPB Not with module G


Transfer order code

-  -  -  -  -

## Activated carbon filters MS9-LFX, MS series

Peripherals overview



 Note  
 Other accessories:  
 – Module connector for combination with size MS6, MS9 or MS12  
 → Internet: rmv, armv

Mounting attachments and accessories					
		Individual device		Combination	→ Page/Internet
		without connecting thread	with connecting thread 3/4 or 1		
1	Connecting plate MS9-AG...	■	–	■	ms9-ag
2	Module connector MS9-MV	■	–	■	ms9-mv
3	Mounting bracket MS9-WP	■	■	■	ms9-wp
4	Mounting bracket MS9-WPB	■	■	■	ms9-wp
5	Mounting bracket MS9-WPM	■	–	■	ms9-wp



## Activated carbon filters MS9-LFX, MS series

Type codes

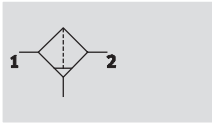
		MS	9	-	LFX	-	¾	-	U
<b>Series</b>									
MS	Standard service unit								
<b>Size</b>									
9	Grid dimension 90 mm								
<b>Service function</b>									
LFX	Activated carbon filter								
<b>Pneumatic connection</b>									
¾	Thread G¾								
1	Thread G1								
G	Module without connecting thread, without connecting plate								
<b>Bowl guard</b>									
U	Integrated as metal bowl								




Further variants can be ordered using the modular system → 62

- Connecting plates
- Type of mounting
- Alternative flow direction

## Activated carbon filters MS9-LFX, MS series

Technical data




-  Flow rate  
max. 6,500 l/min
-  Temperature range  
-10 ... +60 °C
-  Supply pressure  
0 ... 20 bar



- Removal of liquid and gaseous oil particles from compressed air using activated carbon
- Eliminates odours and vapours
- Prefiltration with micro filter MS9-LFM-A, grade of filtration 0.01 µm, recommended
- New filter cartridges → 86

General technical data				
Size	MS9			
Pneumatic connection 1, 2	G3/4	G1	G1/2 ... G1 1/2 (with connecting plate AG...)	- (without connecting thread G)
Constructional design	Activated carbon filter			
Type of mounting	Via accessories In-line installation			
Installation position	Vertical ±5°			
Air purity class at the output <sup>1)</sup>	1.7.1 to DIN ISO 8573-1			
Bowl guard	Integrated as metal bowl			
Residual oil content [mg/m <sup>3</sup> ]	≤0.003			

1) It is recommended to replace filter cartridges after 1,000 operating hours (applies to an ambient temperature of 21 °C). The service life of a filter cartridge is reduced at higher temperatures.  
 -  Note: This product conforms to ISO 1179-1 and to ISO 228-1

Standard flow rate qn <sup>1)</sup> [l/min]	
qn max.	6,500

1) Measured at p1 = 6 bar

Operating and environmental conditions		
Supply pressure [bar]		0 ... 20
Operating medium		Filtered compressed air, unlubricated, grade of filtration 0.01 µm
Ambient temperature [°C]		-10 ... +60
Temperature of medium [°C]		+5 ... +30
Storage temperature [°C]		-10 ... +60
Corrosion resistance CRC <sup>1)</sup>		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.

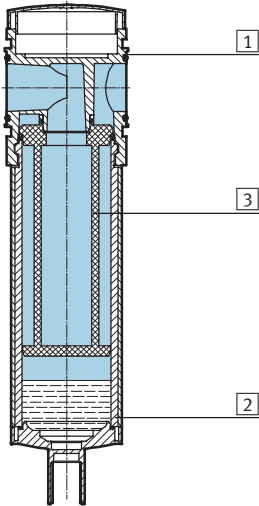
Weights [g]	
Activated carbon filter	2,000

# Activated carbon filters MS9-LFX, MS series

Technical data

## Materials

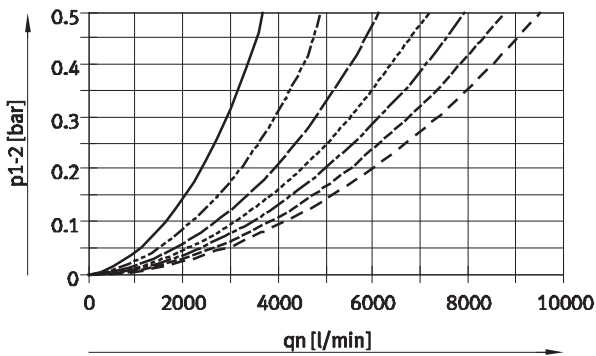
Sectional view



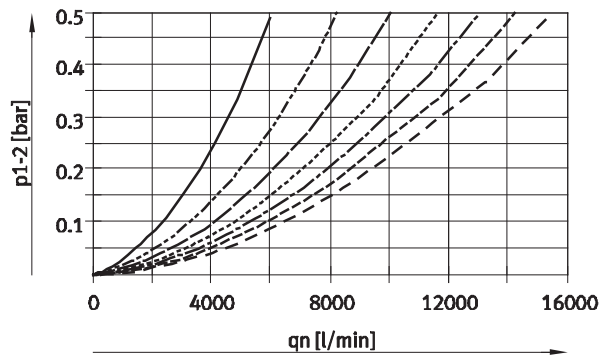
Activated carbon filter		
1	Housing	Die-cast aluminium
2	Bowl Inspection window	Wrought aluminium alloy PA
3	Filter	Activated carbon
-	Cover	PA
-	Seals	NBR
Note on materials		Free of copper and PTFE

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

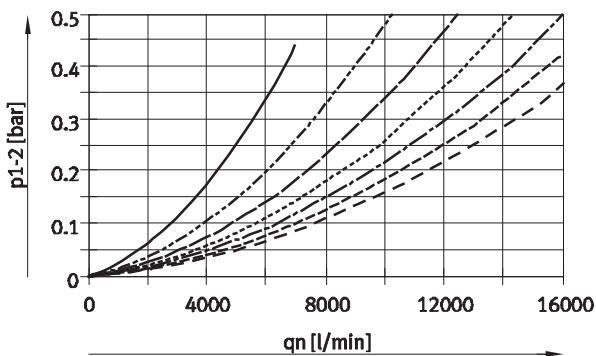
MS9-LFX-AGD, Pneumatic connection G $\frac{1}{2}$



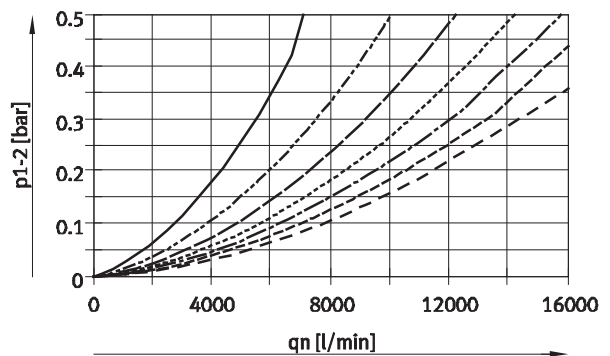
MS9-LFX- $\frac{3}{4}$ /AGE, Pneumatic connection G $\frac{3}{4}$



MS9-LFX-1/AGE, Pneumatic connection G1



MS9-LFX-AGH, Pneumatic connection G1 $\frac{1}{2}$



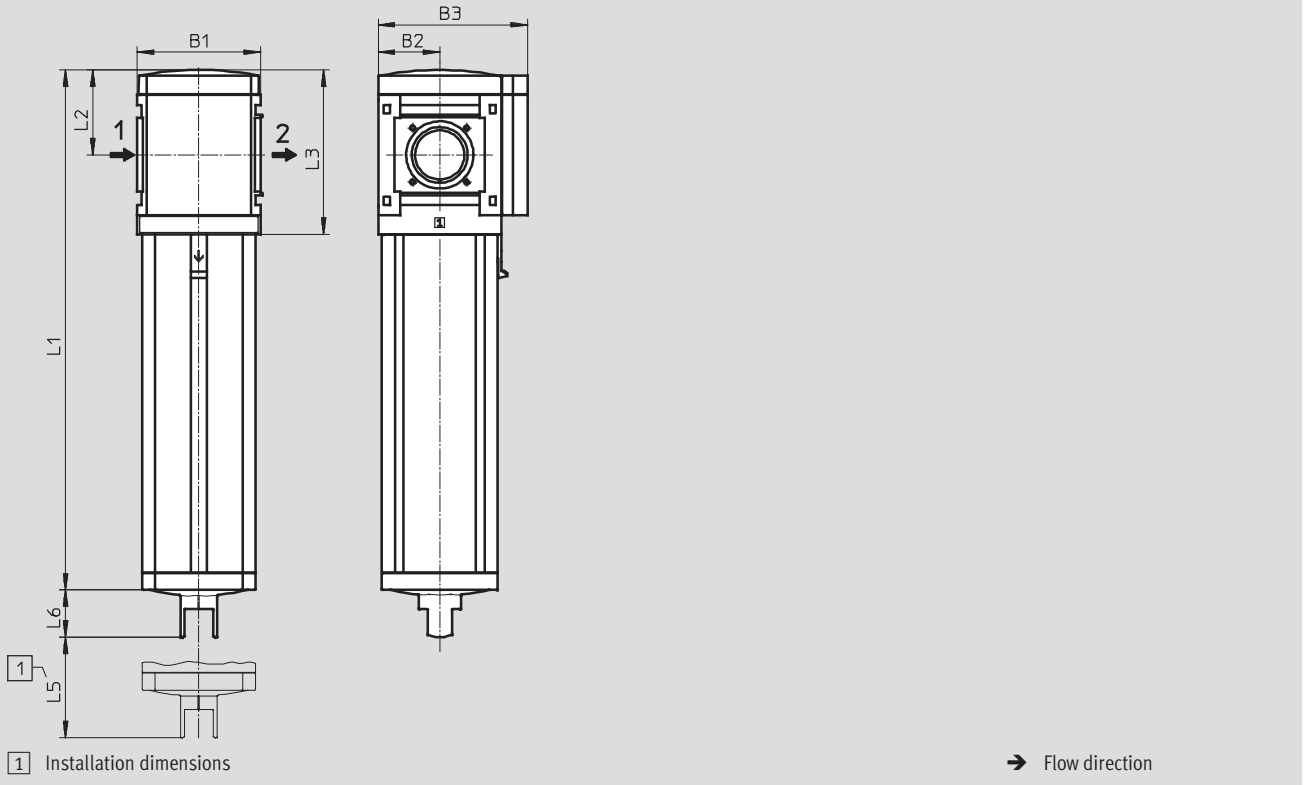
- 2 bar
- - - 4 bar
- · - · 6 bar
- · · · 8 bar
- · · · · 10 bar
- · · · · · 12 bar
- · · · · · · 14 bar

# Activated carbon filters MS9-LFX, MS series

Technical data

Dimensions – Basic version  
without connecting thread G

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



Type	B1	B2	B3	L1	L2	L3	L5	L6
MS9-LFX-G	90	45	109	380.5	62	120	50	34.5

# Activated carbon filters MS9-LFX, MS series

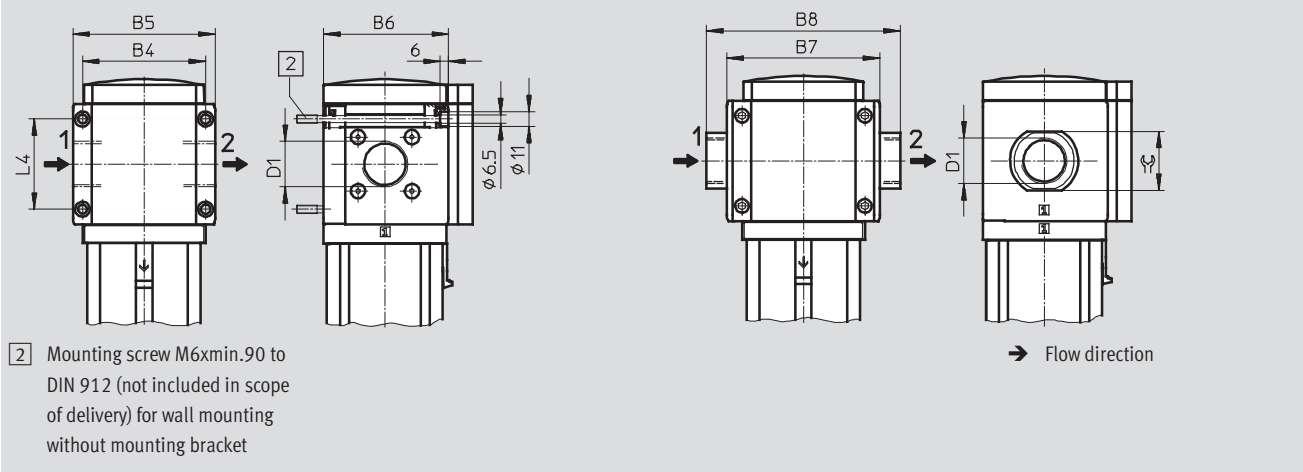
Technical data

**Dimensions – Connecting thread/connecting plate**

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

with connecting thread 3/4 or 1

with connecting plate AG...



Type	B4	B5	B6	B7	B8	D1	L4	☞
MS9-LFX-3/4	90	104	91.5	-	-	G3/4	66	-
MS9-LFX-1						G1		
MS9-LFX-AGD	-	-	-	112	132	G1/2	-	30
MS9-LFX-AGE					132	G3/4		36
MS9-LFX-AGF					142	G1		41
MS9-LFX-AGG					162	G1 1/4		50
MS9-LFX-AGH					176	G1 1/2		55

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

Ordering data			
Size	Connection	Part No.	Type
MS9	G3/4	552996	MS9-LFX-3/4-U
	G1	553032	MS9-LFX-1-U
	-	564038	MS9-LFX-G-U

# Activated carbon filters MS9-LFX, MS series

Ordering data – Modular products

M Mandatory data						O Options	
Module No.	Series	Size	Function	Connection size	Bowl	Type of mounting	Alternative flow direction
552942	MS	9	LFX	¾, 1, AGD, AGE, AGF, AGG, AGH, G	U	WP, WPM, WPB	Z
<b>Order example</b>							
552942	MS	9	- LFX	- AGD	- U	- WP	- Z

Ordering table			
Grid dimension	[mm]		
	90		
		Condi- tions	Code
			Enter code
<b>M</b>	Module No.	552942	
	Series	Standard service unit	MS
	Size	9	9
	Function	Activated carbon filter	-LFX
	Connection size	Thread G¾	-¾
		Thread G1	-1
		Connecting plate G½	-AGD
		Connecting plate G¾	-AGE
		Connecting plate G1	-AGF
		Connecting plate G1¼	-AGG
		Connecting plate G1½	-AGH
		Module without connecting thread, without connecting plate	-G
	Bowl	Metal bowl	-U
<b>O</b>	Type of mounting	Mounting bracket	1 -WP
		Mounting bracket	1 -WPM
		Wall mounting bracket for large wall gap	1 -WPB
	Alternative flow direction	Flow direction from right to left	-Z

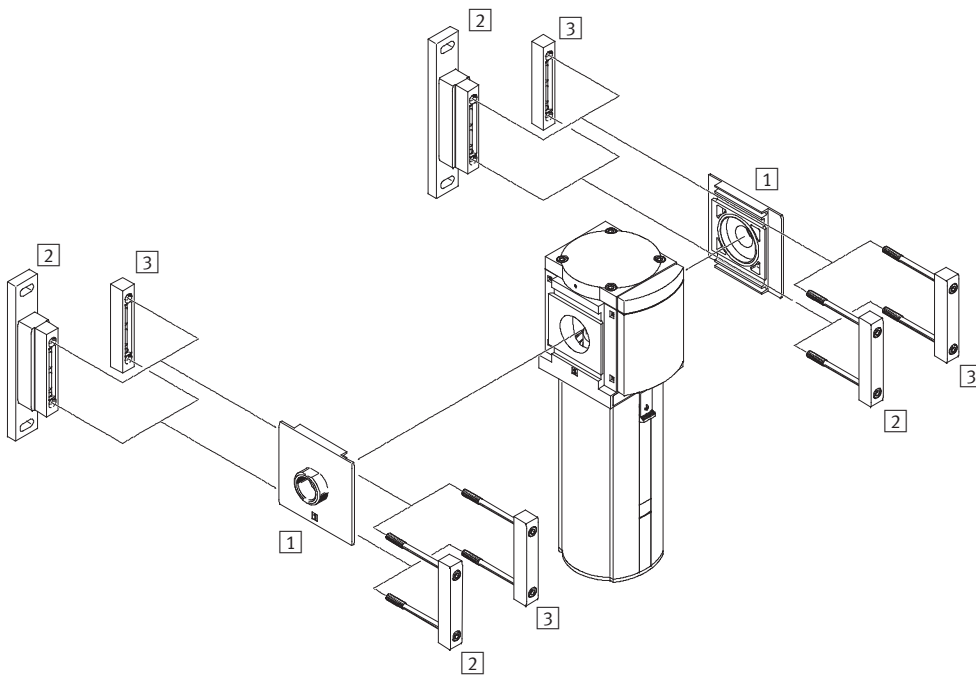
1 WP, WPM, WPB Not with module G


Transfer order code

552942	MS	9	- LFX	-		- U	-		-	
--------	----	---	-------	---	--	-----	---	--	---	--

# Filters MS12-LF, MS series

Peripherals overview



-  - 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

# Filters MS12-LF, MS series

Type codes

		MS	12	-	LF	-	G	-	C	U	V
<b>Series</b>											
MS	Standard service unit										
<b>Size</b>											
12	Grid dimension 124 mm										
<b>Service function</b>											
LF	Filter										
<b>Connection size</b>											
G	Module without connecting thread, without connecting plate Connecting plates → Accessories										
<b>Grade of filtration</b>											
C	5 µm										
E	40 µm										
<b>Bowl guard</b>											
U	Integrated as metal bowl										
<b>Condensate drain</b>											
V	Fully automatic										

Further variants can be ordered using the modular system → 69

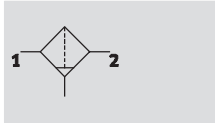
- Connecting plates
- Condensate drain
- Type of mounting
- Alternative flow direction



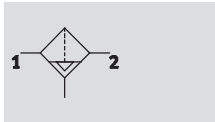
# Filters MS12-LF, MS series


## Technical data


Function  
Condensate drain  
manual rotary




fully automatic



-  - Flow rate  
11,500 ... 16,000 l/min

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


-  - Input pressure  
0.8 ... 20 bar



The sintered filter with centrifugal separation removes contamination, rust and condensate from the compressed air. The filter cartridges are replaceable.

- Good particle and condensate separation
- High flow rate with minimal pressure drop
- Available with manual, fully automatic or fully automatic, electrically actuated condensate drain
- Choice of filter cartridges: 5 µm or 40 µm
- New filter cartridges → 87

General technical data				
Pneumatic connection 1, 2 <sup>1)</sup>	G1	G1¼	G1½	G2
Design	Sintered filter with centrifugal separation			
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	Integrated as metal bowl			
Condensate drain	Manual rotary			
	Fully automatic			
	Fully automatic, electrical actuated			
Max. condensate volume [cm <sup>3</sup> ]	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

Standard nominal flow rate qnN <sup>1)</sup> [l/min]					
Pneumatic connection		G1	G1¼	G1½	G2
Grade of filtration	5 µm	11,500	12,500	13,500	14,000
	40 µm	12,500	13,000	14,000	16,000

1) Dependent on connecting plate selected, must be ordered separately as an accessory → Internet: ms12-ag  
 Measured at p<sub>1</sub> = 6 bar and Δp = 0.5 bar

# Filters MS12-LF, MS series

Technical data



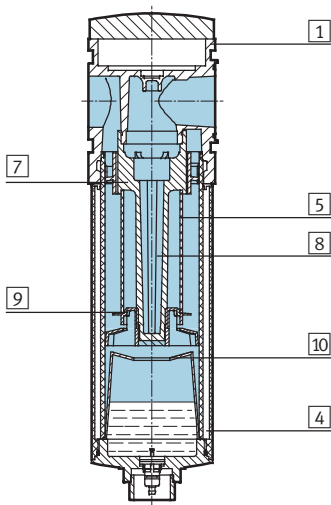
Operating and environmental conditions			
Condensate drain	Manual rotary M	Fully automatic V	Fully automatic, electrical actuated E1 ... E4
Input pressure [bar]	0.8 ... 20	2 ... 12	0.8 ... 16
Operating medium	Compressed air, air quality class 5.7. – to DIN ISO 8573-1		
Ambient temperature [°C]	-10 ...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

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

Weights [g]	
Filter with metal bowl U	6,500
Filter with metal bowl U and fully automatic, electrically actuated condensate drain E1 ... E4	7,200

## Materials

Sectional view



Filter		
1	Body	Die-cast aluminium
4	Metal bowl	Wrought aluminium alloy
5	Filter element	Sintered bronze
7	Spin disc	Polyacetate
8	Filter holder	Polyacetate
9	Separating plate	Polyacetate
10	Stabilising disc	Polyacetate
-	Seals	Nitrile rubber

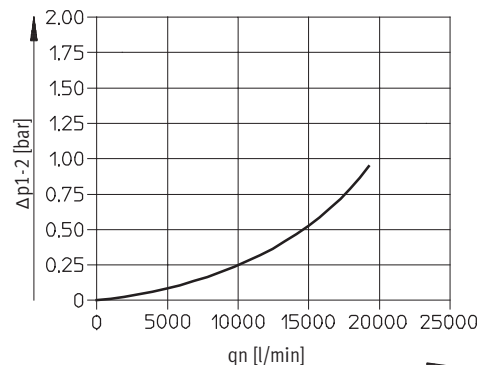
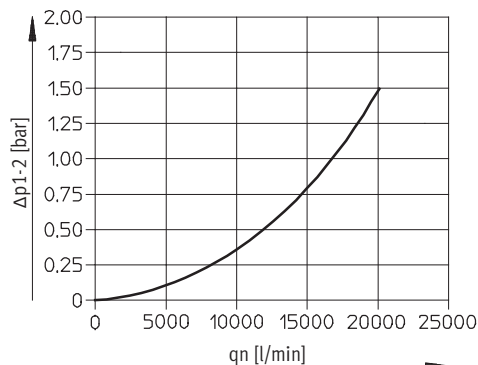
## Standard flow rate $q_n$ as a function of the differential pressure $\Delta p_{1-2}$

Grade of filtration 5  $\mu\text{m}$

$p_1 = 6 \text{ bar}$

With connecting plate MS12-AGF  
Pneumatic connection G1

With connecting plate MS12-AGI  
Pneumatic connection G2



# Filters MS12-LF, MS series

Technical data



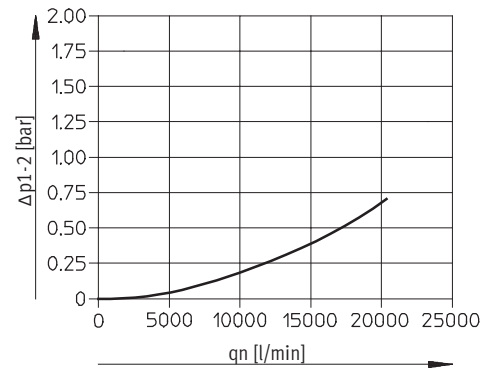
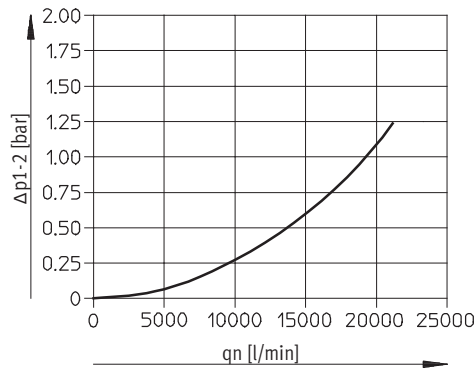
## Standard flow rate $q_n$ as a function of the differential pressure $\Delta p_{1-2}$

Grade of filtration 40  $\mu\text{m}$

With connecting plate MS12-AGF  
Pneumatic connection G1

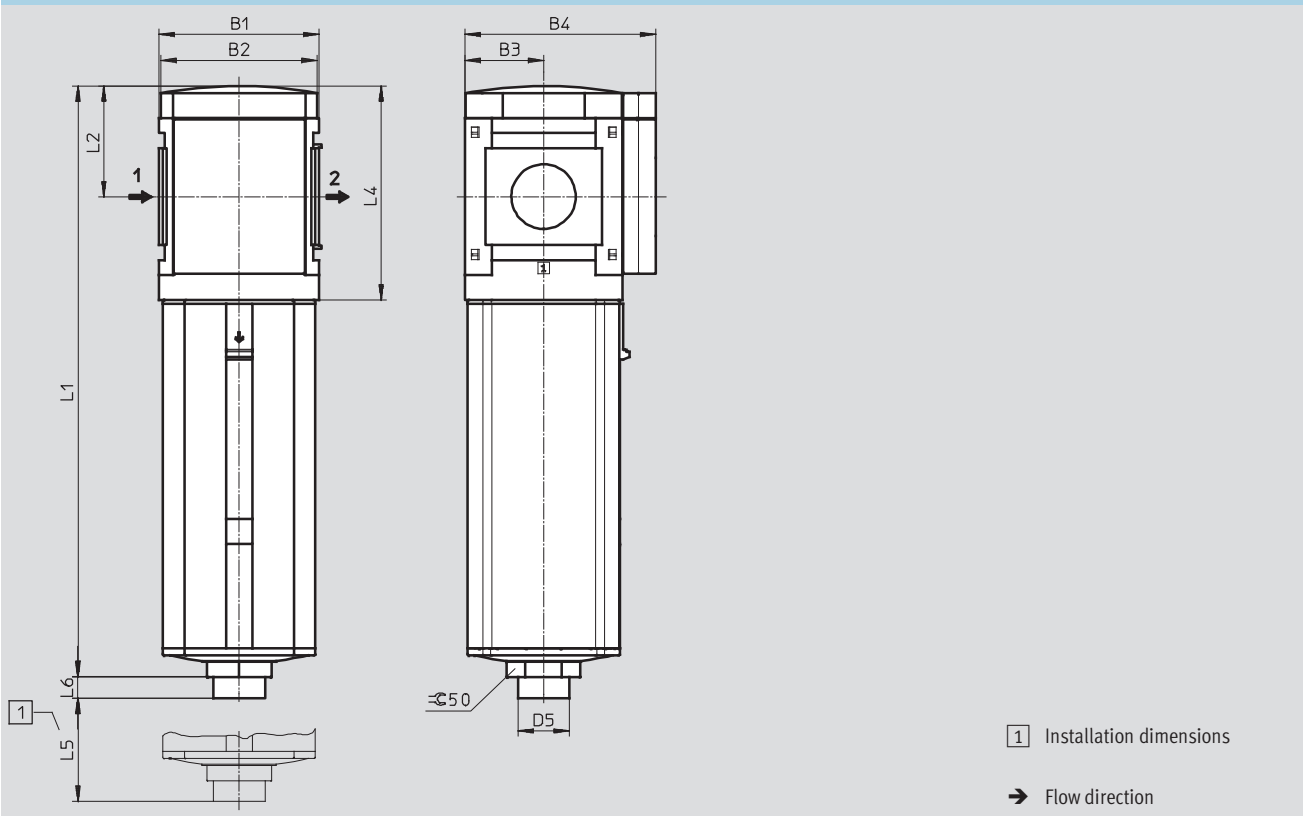
With connecting plate MS12-AGI  
Pneumatic connection G2

$p_1 = 6 \text{ bar}$



## Dimensions – Standard

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



Type	B1	B2	B3	B4	D5 Ø	L1	L2	L4	L5	L6
MS12-LF	124	122	61	148	40	458	86	166	250	16

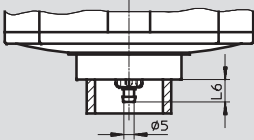
# Filters MS12-LF, MS series

Technical data

**FESTO**

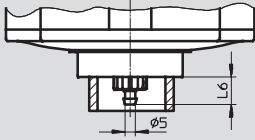
## Dimensions – Condensate drain Download CAD data → [www.festo.com](http://www.festo.com)

**Manual rotary M**



Barbed fitting for plastic tubing  
PCN-4

**Fully automatic V**

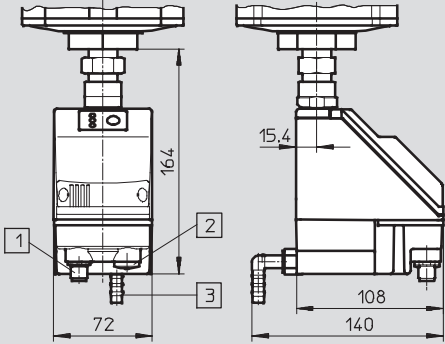


Barbed fitting for plastic tubing  
PCN-4

Type	L6
MS12-LF-...-M	11

Type	L6
MS12-LF-...-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 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-...

## Ordering data

Metal bowl						
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 <sup>1)</sup>	537152	MS12-LF-G-CUV	537151	MS12-LF-G-EUV

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

- 1 - Variant E1 discontinued  
Available up until 2011

## Filters MS12-LF, MS series

Ordering data – Modular products

FESTO

M Mandatory data								O Options	
Module No.	Series	Size	Function	Connec- tion size	Grade of filtration	Bowl	Conden- sate drain	Type of mounting	Alternative flow direction
535023	MS	12	LF	AGF AGG AGH AGI G	E C	U	M V E1 E2 E3 E4	WP	Z
<b>Order example</b>									
535023	MS	12	- LF	- G	- E	- U	- V	-	-

Ordering table					
Grid dimension	[mm]	124	Condi- tions	Code	Enter code
M	Module No.	535023			
	Series	Standard		MS	MS
	Size	12		12	12
	Function	Filter		-LF	-LF
	Connection size	Connecting plate G1		-AGF	
		Connecting plate G1¼		-AGG	
		Connecting plate G1½		-AGH	
		Connecting plate G2		-AGI	
		Module without connecting thread, without connecting plate		-G	
	Grade of filtration	40 µm		-E	
		5 µm		-C	
	Bowl	Metal bowl		-U	-U
	Condensate drain	Manual		-M	
		Fully automatic (P1 max. 12 bar)		-V	
		External fully automatic condensate drain, electrical, 24 V DC, M12 - 1		-E1	
		External fully automatic condensate drain, electrical, 110 V AC, terminals		-E2	
		External fully automatic condensate drain, electrical, 230 V AC, terminals		-E3	
		External fully automatic condensate drain, electrical, 24 V DC, terminals		-E4	
O	Type of mounting	Mounting bracket	1	-WP	
	Alternative flow direction	Flow direction from right to left		-Z	

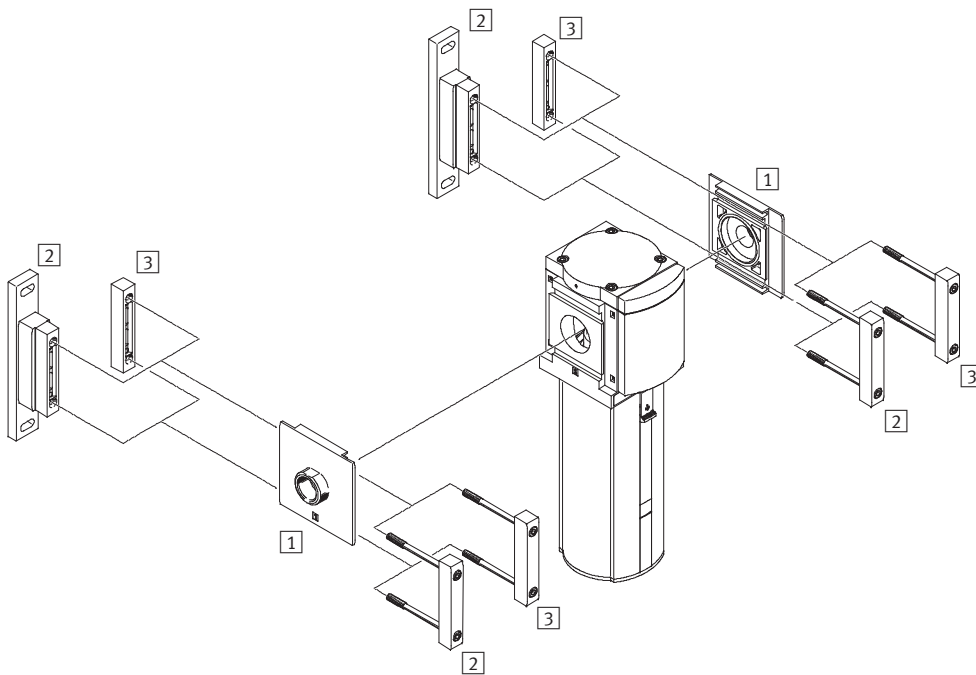
1 WP Only with connecting plate AGF, AGG, AGH or AGI.


### Transfer order code

535023 MS 12 - LF - - U - - - -

# Fine and micro filters MS12-LFM, MS series

Peripherals overview

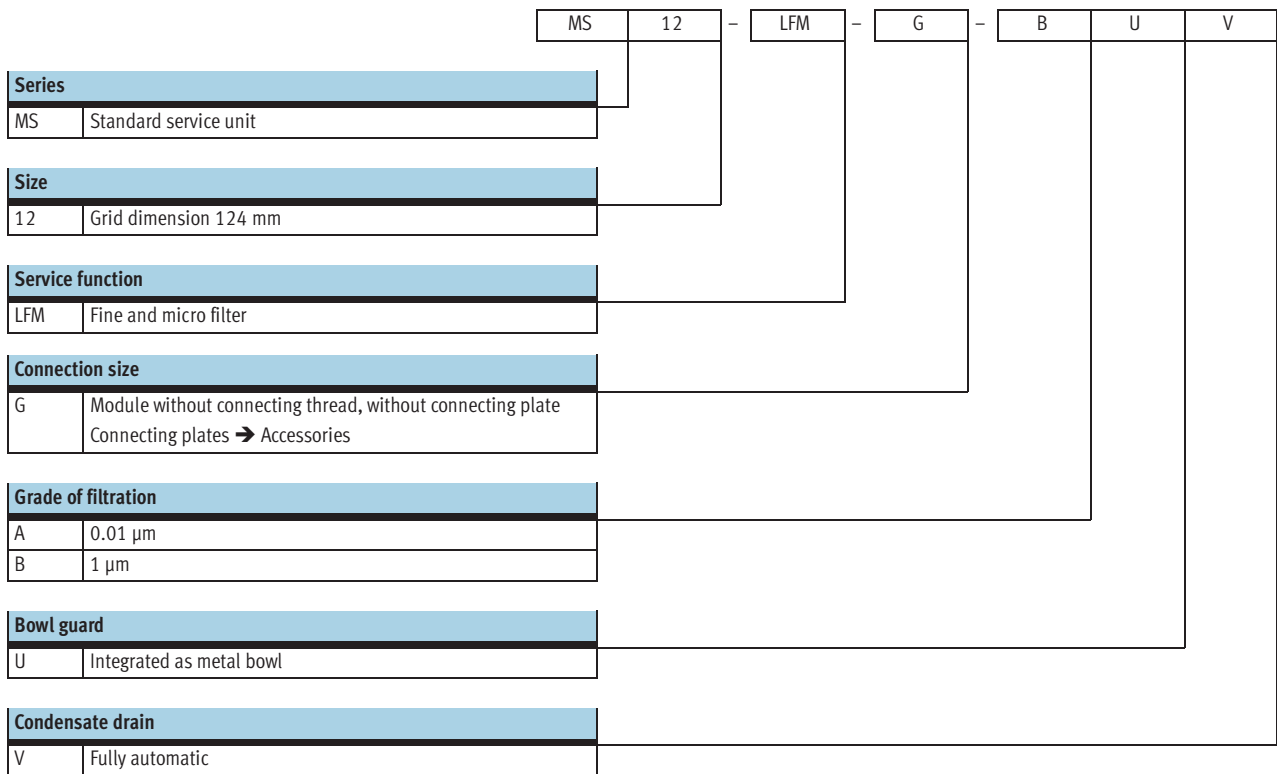


-  - Note  
 Additional accessories:  
 - Module connector for combination with size MS9 → Internet: armv

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

# Fine and micro filters MS12-LFM, MS series

Type codes



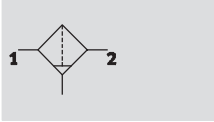
Further variants can be ordered using the modular system → 78

- Connecting plates
- Condensate drain
- Filter change sensor
- Type of mounting
- Alternative flow direction

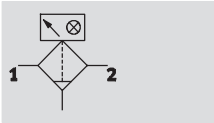
# Fine and micro filters MS12-LFM, MS series

Technical data

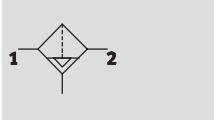
Function  
 Condensate drain  
 manual rotary  
 without differential pressure indicator



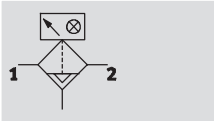
with differential pressure indicator






Condensate drain  
 fully automatic  
 without differential pressure indicator



with differential pressure indicator




-  Flow rate  
500 ... 50,000 l/min
-  Temperature range  
-10 ... +60 °C
-  Input pressure  
0.8 ... 20 bar



- High-performance filter for exceptionally clean compressed air
  - Air quality to DIN ISO 8573-1
  - Available with manual, fully automatic or fully automatic, electrically actuated condensate drain
  - Available with differential pressure indicator for optical indication of filter contamination
  - Choice of filter cartridges: 0.01 µm or 1 µm
  - New filter cartridges → 87
- MS12-LFM-A:  
 ISO class 1 for particles:  
 max. particle density 0.1 mg/m<sup>3</sup>  
 ISO class 2 for oil aerosols:  
 max. oil concentration 0.1 mg/m<sup>3</sup>  
 Filter efficiency 99.9999%
- MS12-LFM-B:  
 ISO class 2 for particles:  
 max. particle density 1 mg/m<sup>3</sup>  
 ISO class 3 for oil aerosols:  
 max. oil concentration 1 mg/m<sup>3</sup>  
 Filter efficiency 99.99%

General technical data				
Pneumatic connection 1, 2 <sup>1)</sup>	G1	G1¼	G1½	G2
Design	Fibre filter			
Type of mounting	Via accessories In-line installation			
Assembly position	Vertical ±5°			
Grade of filtration [µm]	0.01 (micro filter MS12-LFM-A, air purity class at the output 1.7.2 to DIN ISO 8573-1) 1 (fine filter MS12-LFM-B, air purity class at the output 2.7.3 to DIN ISO 8573-1)			
Bowl guard	Integrated as metal bowl			
Condensate drain	Manual rotary Fully automatic Fully automatic, electrical actuated			
Max. condensate volume [cm <sup>3</sup> ]	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



# Fine and micro filters MS12-LFM, MS series

Technical data

Standard flow rate $q_n$ [l/min]				
Input pressure $p_1$	4 bar	6 bar	10 bar	14 bar
<b>Micro filter MS12-LFM-A</b>				
Max. standard flow rate for air purity class $q_{n \max}$	16,670	23,300	36,670	50,000
Min. standard flow rate for air purity class $q_{n \min}$	500	700	1,100	1,500
<b>Fine filter MS12-LFM-B</b>				
Max. standard flow rate for air purity class $q_{n \max}$	16,670	23,300	36,670	50,000
Min. standard flow rate for air purity class $q_{n \min}$	625	950	1,390	1,675

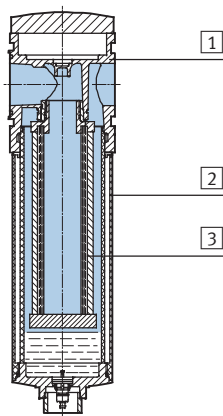
Operating and environmental conditions			
Condensate drain	Manual rotary M	Fully automatic V	Fully automatic, electrical actuated E1 ... E4
Input pressure $p_1$ [bar]	0.8 ... 20	2 ... 12	0.8 ... 16
Operating medium micro filter MS12-LFM-A	Compressed air, filtered, unlubricated, grade of filtration 1 $\mu\text{m}$		
Operating medium fine filter MS12-LFM-B	Compressed air, filtered, unlubricated, grade of filtration 5 $\mu\text{m}$		
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 <sup>1)</sup>	2		

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

Weights [g]	
Fine and micro filter with metal bowl U	7,000
Fine and micro filter with metal bowl U and fully automatic, electrically actuated condensate drain E1 ... E4	7,700

## Materials

Sectional view



Fine and micro filter	
[1] Body	Die-cast aluminium
[2] Metal bowl	Wrought aluminium alloy
[3] Filter element	Borosilicate mesh
- Seals	Nitrile rubber

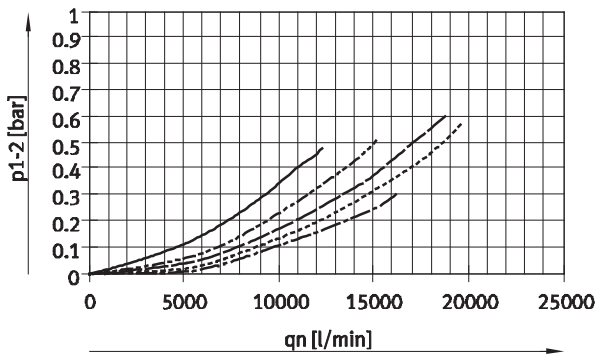
# Fine and micro filters MS12-LFM, MS series

Technical data

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

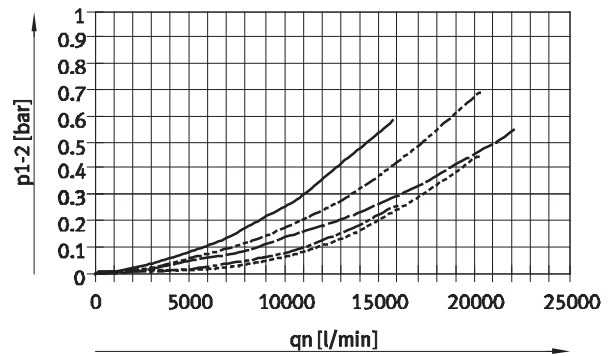
Grade of filtration 0.01  $\mu\text{m}$

With connecting plate MS12-AGF, Pneumatic connection G1



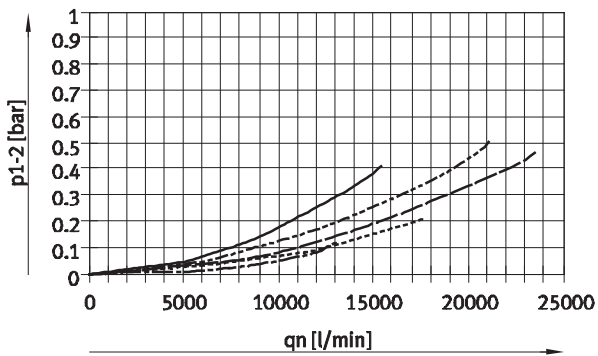
Grade of filtration 0.01  $\mu\text{m}$

With connecting plate MS12-AGG, Pneumatic connection G1¼



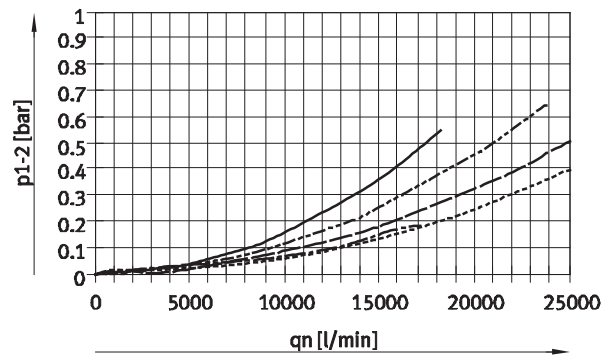
Grade of filtration 0.01  $\mu\text{m}$

With connecting plate MS12-AGH, Pneumatic connection G1½



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

With connecting plate MS12-AGI, Pneumatic connection G2



- p1: 4 bar
- p1: 6 bar
- p1: 8 bar
- p1: 10 bar
- p1: 12 bar

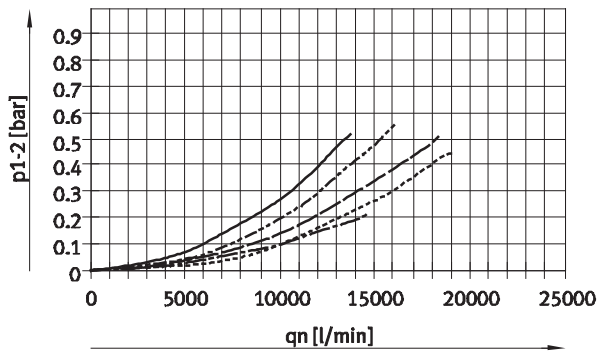
# Fine and micro filters MS12-LFM, MS series

Technical data

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

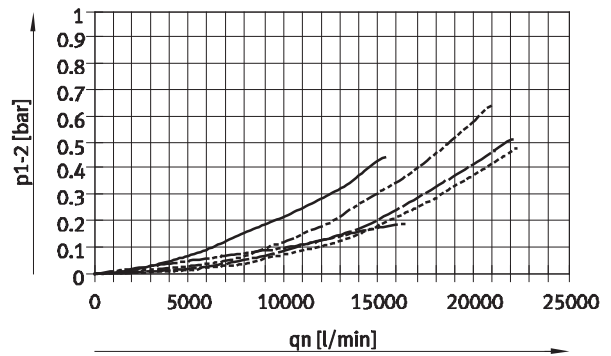
Grade of filtration  $1 \mu\text{m}$

With connecting plate MS12-AGF, Pneumatic connection G1



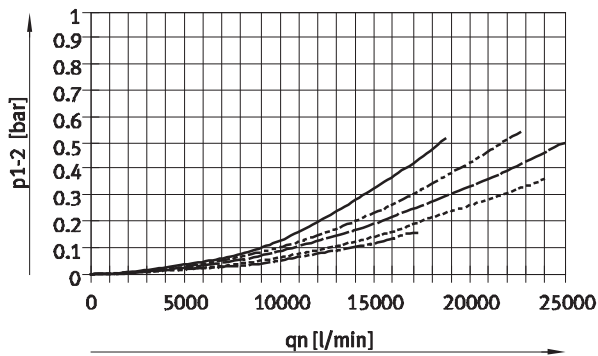
Grade of filtration  $1 \mu\text{m}$

With connecting plate MS12-AGG, Pneumatic connection  $G1\frac{1}{4}$



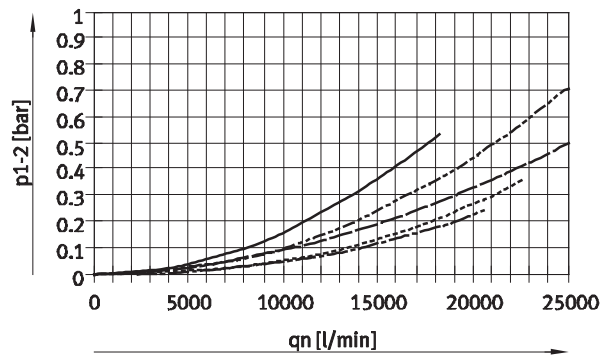
Grade of filtration  $1 \mu\text{m}$

With connecting plate MS12-AGH, Pneumatic connection  $G1\frac{1}{2}$



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

With connecting plate MS12-AGI, Pneumatic connection G2



- p1: 4 bar
- p1: 6 bar
- p1: 8 bar
- p1: 10 bar
- p1: 12 bar

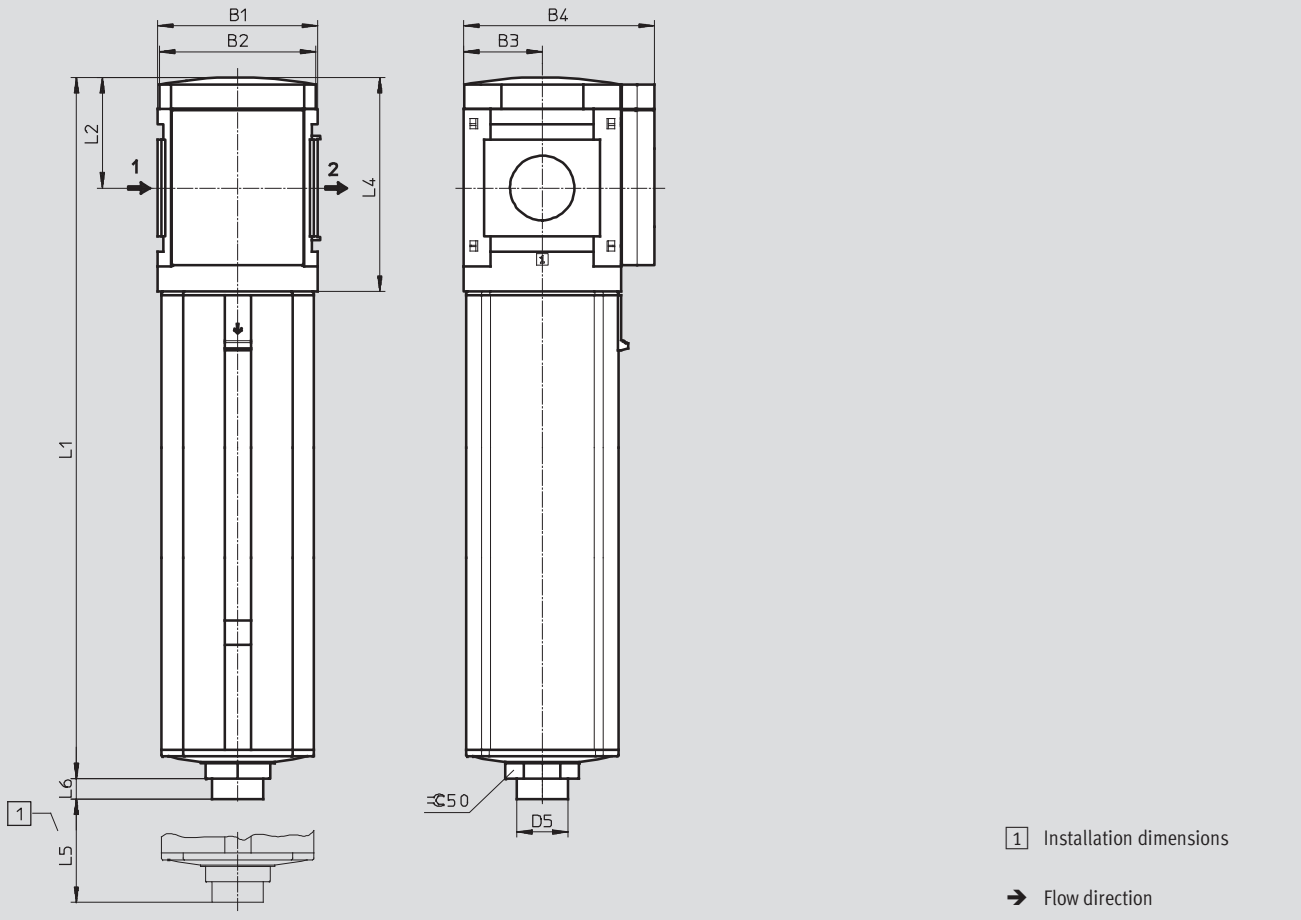
# Fine and micro filters MS12-LFM, MS series

Technical data



## Dimensions – Standard

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



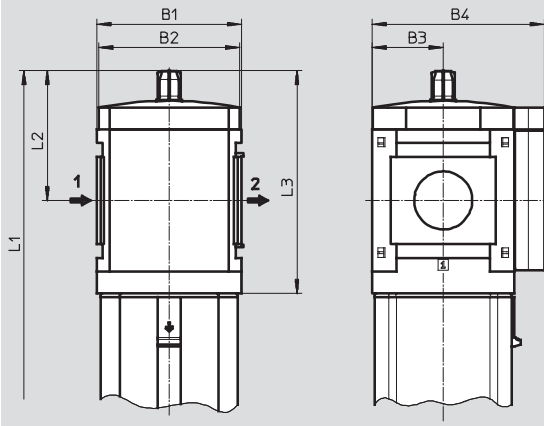
Type	B1	B2	B3	B4	D5 Ø	L1	L2	L4	L5	L6
MS12-LFM	124	122	61	148	40	543	86	166	350	16

# Fine and micro filters MS12-LFM, MS series

Technical data

## Dimensions – Differential pressure indicator

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



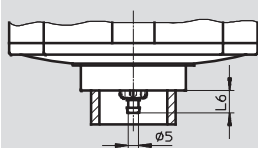
→ Flow direction

Type	B1	B2	B3	B4	L1	L2	L3
MS12-LFM-...-DA	124	122	61	148	569	112	192

## Dimensions – Condensate drain

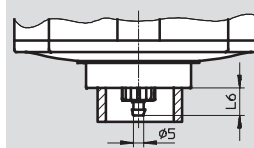
Download CAD data → [www.festo.com](http://www.festo.com)

Manual rotary M



Barbed fitting for plastic tubing  
PCN-4

Fully automatic V



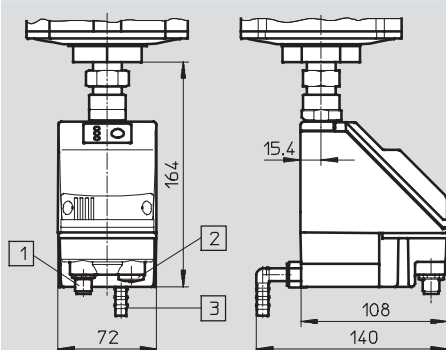
Barbed fitting for plastic tubing  
PCN-4

Type	L6
MS12-LFM-...-M	11

Type	L6
MS12-LFM-...-V	13

## Fully automatic, electrically actuated E1 ... E4

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



- 1) Variant E1  
PWEA-AP-... with M12x1 plug,  
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-...

## Ordering data

Metal bowl

Size	Condensate drain	Connection	Micro filter Grade of filtration 0.01 µm		Fine filter Grade of filtration 1 µm	
			Part No.	Type	Part No.	Type
MS12	fully automatic	G1 ... G2 <sup>1)</sup>	537154	MS12-LFM-G-AUV	537153	MS12-LFM-G-BUV

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

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

- 1 - Variant E1 discontinued  
Available up until 2011

## Fine and micro filters MS12-LFM, MS series

Ordering data – Modular products

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M Mandatory data								O Options		
Module No.	Series	Size	Function	Connection size	Grade of filtration	Bowl	Condensate drain	Filter change sensor	Type of mounting	Alternative flow direction
535042	MS	12	LFM	AGF AGG AGH AGI G	B A	U	M V E1 E2 E3 E4	DA	WP	Z
<b>Order example</b>										
535042	MS	12	- LFM	- AGI	- A	- U	- M	-	-	-

Ordering table		Grid dimension [mm]	124	Condi-tions	Code	Enter code
M	Module No.	535042				
	Series	Standard			MS	MS
	Size	12			12	12
	Function	Fine and micro filter			-LFM	-LFM
	Connection size	Connecting plate G1			-AGF	
		Connecting plate G1¼			-AGG	
		Connecting plate G1½			-AGH	
		Connecting plate G2			-AGI	
		Module without connecting thread, without connecting plate			-G	
	Grade of filtration	1 µm			-B	
		0.01 µm			-A	
	Bowl	Metal bowl			-U	-U
	Condensate drain	Manual			-M	
		Fully automatic (P1 max. 12 bar)			-V	
		External fully automatic condensate drain, electrical, 24 V DC, M12 - 1			-E1	
		External fully automatic condensate drain, electrical, 110 V AC, terminals			-E2	
		External fully automatic condensate drain, electrical, 230 V AC, terminals			-E3	
	External fully automatic condensate drain, electrical, 24 V DC, terminals			-E4		
O	Filter change sensor	Differential pressure indicator, optical			-DA	
	Type of mounting	Mounting bracket		1	-WP	
	Alternative flow direction	Flow direction from right to left			-Z	

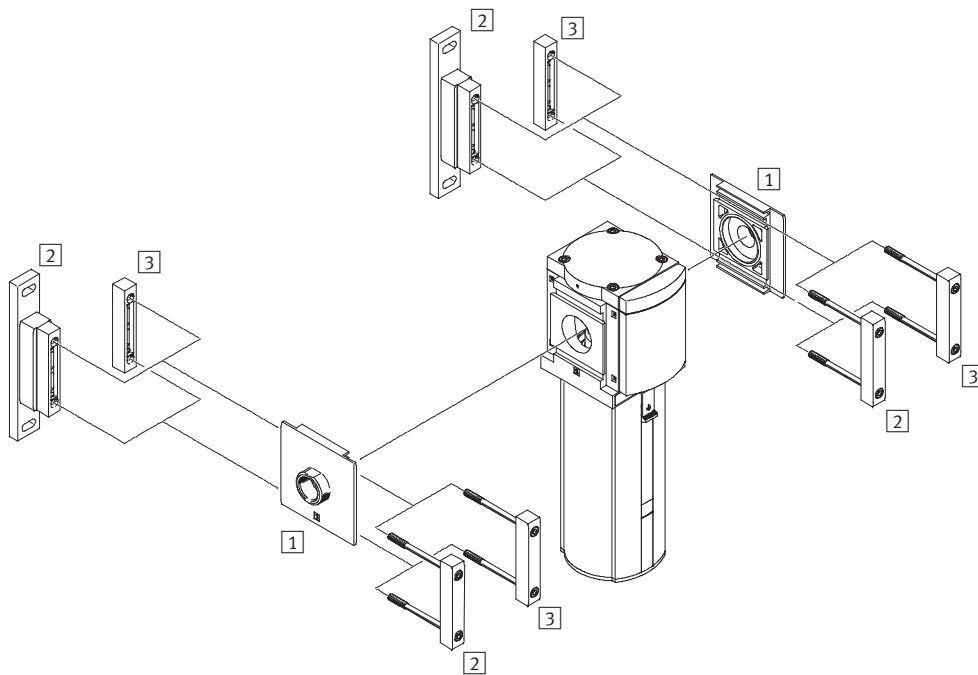
1 WP Only with connecting plate AGF, AGG, AGH or AGI.


### Transfer order code

535042 MS 12 - LFM - - U - - -

# Active carbon filters MS12-LFX, MS series

Peripherals overview

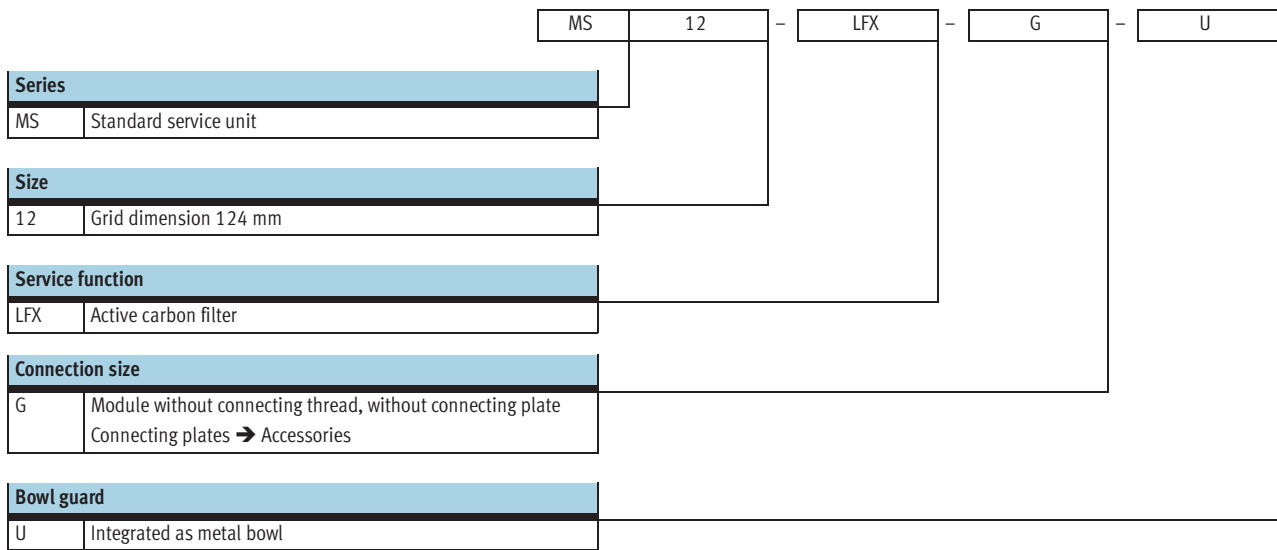


-  - Note  
 Additional accessories:  
 - Module connector for combination with size MS9 → Internet: armv

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

# Active carbon filters MS12-LFX, MS series

Type codes



Further variants can be ordered using the modular system → 84

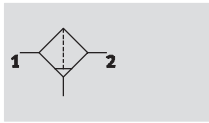
- Connecting plates
- Type of mounting
- Alternative flow direction






# Active carbon filters MS12-LFX, MS series

## Technical data

### Function



-  - Flow rate  
5,065 ... 15,190 l/min
-  - Temperature range  
-10 ... +60 °C
-  - Input pressure  
0 ... 20 bar



- Removal of liquid and gaseous oil particles from compressed air using active carbon
- Eliminates odours and vapours
- Prefiltration with micro filter MS12-LFM-A, grade of filtration 0.01 µm, recommended
- New filter cartridges → 87

General technical data				
Pneumatic connection 1, 2 <sup>1)</sup>	G1	G1¼	G1½	G2
Design	Active carbon filter			
Type of mounting	Via accessories			
	In-line installation			
Assembly position	Vertical ±5°			
Air purity class at the output <sup>2)</sup>	1.7.1 to DIN ISO 8573-1			
Bowl guard	Integrated as metal bowl			
Residual oil content [mg/m <sup>3</sup> ]	≤ 0.003			

1) Dependent on connecting plate selected, must be ordered separately as an accessory → Internet: ms12-ag

2) We recommend that the filter cartridge be replaced by a new one after 1,000 operating hours. (Applies to an ambient temperature of 21 °C. At higher temperatures the service life of the filter cartridge will be reduced.)

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

Standard flow rate q <sub>n</sub> [l/min]				
Input pressure p <sub>1</sub>	4 bar	6 bar	10 bar	14 bar
Max. standard flow rate for air purity class q <sub>n max</sub>	5,065	7,090	11,150	15,190

Operating and environmental conditions		
Input pressure p <sub>1</sub> [bar]	0 ... 20	
Operating medium	Compressed air, filtered, unlubricated, grade of filtration 0.01 µm	
Ambient temperature [°C]	-10 ... +60	
Temperature of medium [°C]	+5 ... +30	
Storage temperature [°C]	-10 ... +60	
Corrosion resistance CRC <sup>1)</sup>	2	

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

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

Weights [g]	
Active carbon filter with metal bowl U	7,000

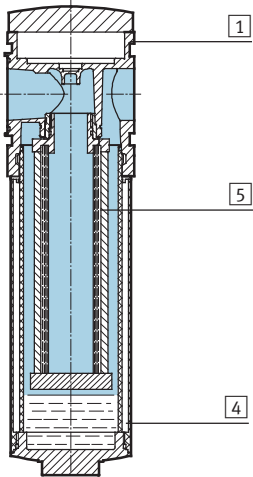
# Active carbon filters MS12-LFX, MS series

Technical data

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## Materials

Sectional view

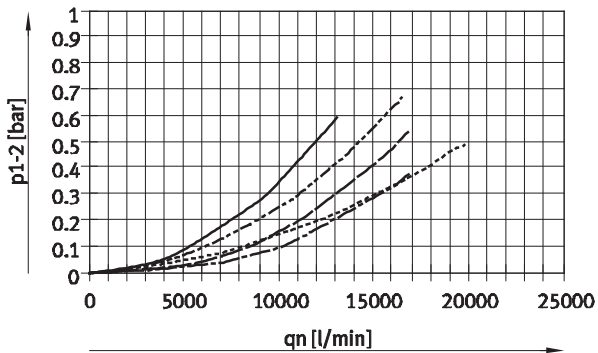


## Active carbon filter

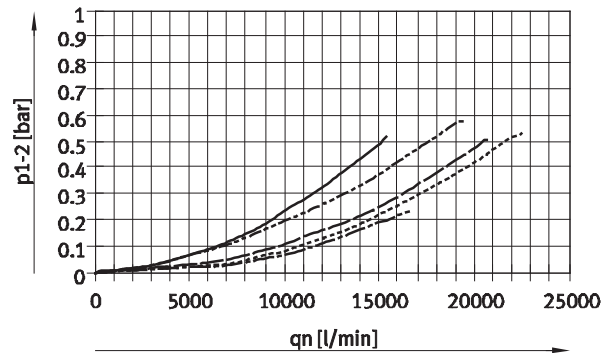
1	Body	Die-cast aluminium
4	Metal bowl	Wrought aluminium alloy
5	Filter	Active carbon
-	Seals	Nitrile rubber
Note on materials		Free of copper and PTFE

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

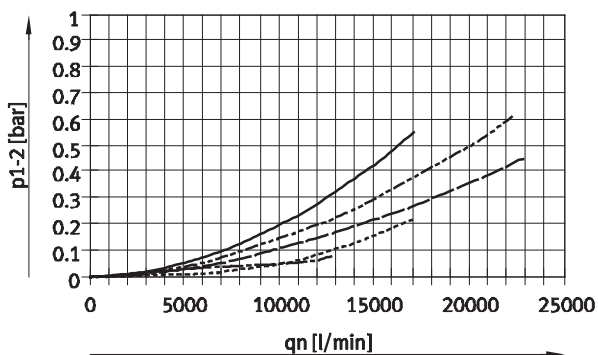
With connecting plate MS12-AGF, Pneumatic connection G1



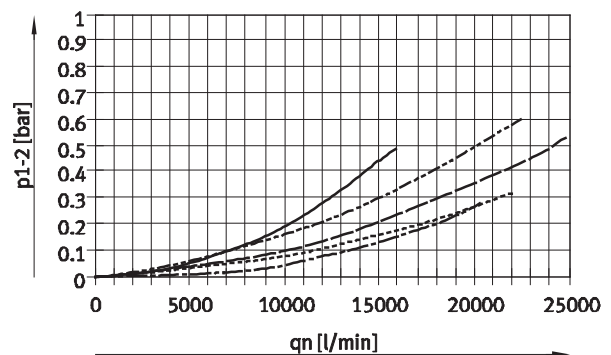
With connecting plate MS12-AGG, Pneumatic connection G1¼



With connecting plate MS12-AGH, Pneumatic connection G1½



With connecting plate MS12-AGI, Pneumatic connection G2



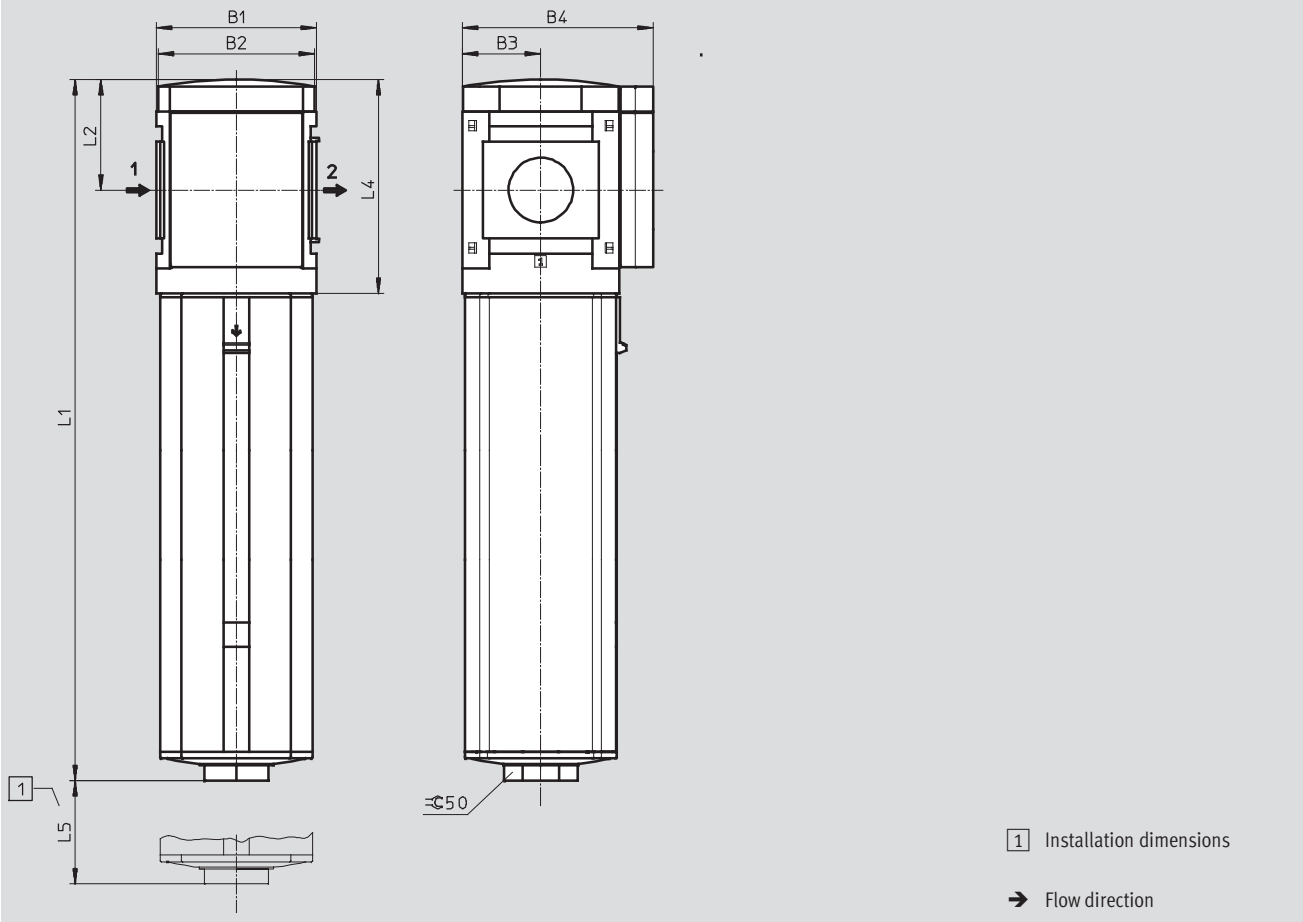
- p1: 4 bar
- - - p1: 6 bar
- · - p1: 8 bar
- · · - p1: 10 bar
- · · · p1: 12 bar

# Active carbon filters MS12-LFX, MS series

Technical data

Dimensions – Standard

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



Type	B1	B2	B3	B4	L1	L2	L4	L5
MS12-LFX	124	122	61	148	543	86	166	350

Ordering data

Metal bowl

Size	Connection	Part No.	Type
MS12	G1 ... G2 <sup>1)</sup>	537155	MS12-LFX-G-U

1) Connecting plate must be ordered separately as an accessory → Internet: ms12-ag  
 - † - Note: This product conforms to ISO 1179-1 and to ISO 228-1

# Active carbon filters MS12-LFX, MS series

Ordering data – Modular products

M Mandatory data						O Options	
Module No.	Series	Size	Function	Connection size	Bowl	Type of mounting	Alternative flow direction
535043	MS	12	LFX	AGF AGG AGH AGI G	U	WP	Z
<b>Order example</b>							
535043	MS	12	LFX	AGF	U	WP	Z

Ordering table								
Grid dimension		[mm]	124			Condi- tions	Code	Enter code
M	Module No.	535043						
	Series	Standard					MS	MS
	Size	12					12	12
	Function	Active carbon filter					-LFX	-LFX
	Connection size	Connecting plate G1					-AGF	
		Connecting plate G1 ¼					-AGG	
		Connecting plate G1 ½					-AGH	
		Connecting plate G2					-AGI	
		Module without connecting thread, without connecting plate					-G	
	Bowl	Metal bowl					-U	-U
O	Type of mounting	Mounting bracket				1	-WP	
	Alternative flow direction	Flow direction from right to left					-Z	

1 WP Only with connecting plate AGF, AGG, AGH or AGI.

Transfer order code

535043	MS	12	-	LFX	-		-	U	-		-	
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# Filters MS-LF/LFM/LFX, MS series

Accessories

## Filter cartridges, MS4/MS6 series



Ordering data				
Size	Filter cartridge	Grade of filtration [µm]	Part No.	Type
MS4	Micro-filter cartridge	0.01	162674	MS4/D-MINI-LFM-A
	Fine-filter cartridge	1	162677	MS4/D-MINI-LFM-B
	Filter cartridge (colour: blue)	5	534501	MS4-LFP-C
	Filter cartridge (colour: white)	40	534502	MS4-LFP-E
	Activated carbon filter cartridge	–	532912	MS4/D-MINI-LFX
MS6	Micro-filter cartridge	0.01	532909	MS6-LFM-A
	Fine-filter cartridge	1	532910	MS6-LFM-B
	Filter cartridge (colour: blue)	5	534499	MS6-LFP-C
	Filter cartridge (colour: white)	40	534500	MS6-LFP-E
	Activated carbon filter cartridge	–	532911	MS6-LFX
High flow rate HF				
MS6	Micro-filter cartridge	0.01	552093	MS6-LFM-A-HF
	Fine-filter cartridge	1	552092	MS6-LFM-B-HF
	Activated carbon filter cartridge	–	552094	MS6-LFX-HF
Range of application HP, suitable for sealing air and cleaning air				
MS6	Micro-filter cartridge	0,01	547922	MS6-LFM-AI
	Fine-filter cartridge	1	547923	MS6-LFM-BI
	Activated carbon filter cartridge	–	547925	MS6-LFX-AKI

## Filters MS-LF/LFM/LFX, MS series

Accessories

Filter cartridges, MS9 series



Ordering data				
Size	Filter cartridge	Grade of filtration [µm]	Part No.	Type
MS9	Micro-filter cartridge	0.01	553036	MS9-LFM-A
	Fine-filter cartridge	1	553037	MS9-LFM-B
	Filter cartridge	5	570309	MS9-LFP-C
	Filter cartridge	40	570310	MS9-LFP-E
	Activated carbon filter cartridge	–	552946	MS9-LFX
High flow rate HF				
MS9	Micro-filter cartridge	0.01	552944	MS9-LFM-A-HF
	Fine-filter cartridge	1	552945	MS9-LFM-B-HF

## Filters MS-LF/LFM/LFX, MS series

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Accessories

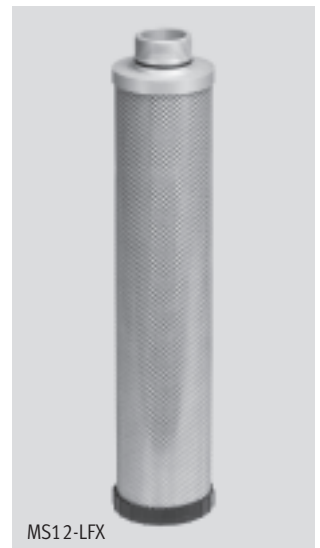
Filter cartridges, MS12 series



MS12-LFM-B



MS12-LFM-A



MS12-LFX

Ordering data				
Size	Filter cartridge	Grade of filtration [µm]	Part No.	Type
MS12	Micro-filter cartridge	0.01	537146	MS12-LFM-A
	Fine-filter cartridge	1	537145	MS12-LFM-B
	Filter cartridge	5	537143	MS12-LFP-C
	Filter cartridge	40	537144	MS12-LFP-E
	Activated carbon filter cartridge	-	537147	MS12-LFX