

MS series service unit components

Key features

FESTO

MS series service unit components		Freely combinable function modules	
Solutions for every application			
With its large product range, highly functional components and a wide choice of services, the MS series from Festo offers a complete concept for compressed air preparation. Suitable for simple standard applications as well as application-specific solutions to the highest quality standards.	Available as individual components, pre-assembled combinations ex-stock, application-specific combinations or complete turnkey solutions. The five sizes in the MS series achieve maximum flow rates with minimum space requirements.	Pressure regulators, on/off and soft-start valves with safety function, filter, pressure and flow sensors, dryers, sensors and lubricators. All these allow a suitable solution to be assembled for every task. Their modular structure means that the components	are freely combinable. A simple connection system saves time when replacing individual modules without dismantling the entire combination. What's more, many of the components are certified to UL and ATEX.

CAD models and configurator	Engineering tools
Convenient aids for planning and selecting application-specific individual devices and combinations. The product configurator lets you configure customised solutions quickly and transfer the order data with no hassle.	Selection tool for choosing the right service unit without oversizing, and with the right air quality class: → www.festo.com/engineering/wartungseinheit

Air quality

This program supports configuring an appropriate service unit. Please insert the required air cleanliness either by your application or an ISO-code or by direct selection of air filters.

Selection criteria: Application	Selection criteria: ISO-class	Direct filter selection
Filter combination is proposed based upon your selected application ☐ standard pneumatics operation of valves and cylinders, e.g. in automotive industry, secondary packaging ☐ mining and building industry applications without special air cleanliness requirements ☐ application of pressure operated tools and machines: pneumatic hammer, air engine, positioning with proportional valve ☐ electronic, flatpanel and solar industry, textile and paper production application with residual oil content <0.3 mg/m³ ☐ painting, powder coating, air bearing application with residual oil content <0.01 mg/m³ ☐ food and beverage industry, optics application with residual oil content <0.003 mg/m³ reduction of oil vapours and aerosols	Filter combination is proposed based upon the air cleanliness class according to ISO 8573-1:2010 particle water oil ↓ ↓ ↓ 4 * ISO * Downstream from the compressor the water content is assumed to be ISO class 4, better classes can be achieved by applying an adsorption dryer PSD40 or a membrane dryer LDM1	Independent selection of filter combination ☐ 40 µm Filter ☐ 5 µm Filter ☐ 1 µm Fine Filter ☐ 0.01 µm Micro Filter * ☐ Active Carbon Filter * To enhance the filter lifetime and in consequence the maintenance interval arrange a 1 µm Fine Filter in front of the 0.01 µm Micro Filter as a preliminary filter. 

Integrated sensors	Safety functions	Energy savings	
Pressure and flow sensors	Soft-start/quick exhaust valves MS6-SV/MS9-SV	Service units MSE6	Intelligent mix of sizes



- Maximum machine availability through controlled processes
- Reliable compressed air preparation and supply for systems
- Integrable or stand-alone
- Easy to connect with M8/M12 plug



- Fast and reliable exhausting of systems up to Performance Level e, certified to EN ISO 13849-1
- Integrated soft-start function



- Fully automatic monitoring and regulation of compressed air supply
- Automatic shut-off of the compressed air in stand-by mode
- Detection and notification of leakages
- Condition monitoring of relevant process data



- Optimum flow rate with up to 18% smaller size
- Excellent energy efficiency
- Cost-optimised combinations – save up to 30%!

Size differences					
Size	MS2	MS4	MS6	MS9	MS12
Grid dimension [mm]	25	40	62	90	124
Port sizes	M5, QS-6	G1/8, G1/4, G3/8	G1/4, G3/8, G1/2, G3/4	G1/2, G3/4, G1, G1 1/4, G1 1/2	G1, G1 1/4, G1 1/2, G2
Standard nominal flow rate q _N ¹⁾ [l/min]	350	1800	6500	20000	22000

1) Using pressure regulator MS-LR as an example

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Note

Information

The next few pages provide a brief overview of the complete product range for the MS series service unit components.

You can find detailed information and all of the technical data in the documentation for the corresponding service unit component.

Accessories such as connection plates or mounting brackets can be ordered either via the configurator or separately.

Structure of a service unit

The order of the individual components within a service unit is relevant for safety and functionality. It is not possible to assemble the service unit components in any order in the flow direction. There are restrictions and rules.

The configurator for service unit MSB is a reliable and convenient way of arranging individual service unit components. This ensures that the applicable rules are complied with. As a result, you get a completely assembled combination with UL or ATEX certification if you need it. When arranging a combination of individually configured and ordered service unit components, the points on the right must be adhered to under all circumstances.

- Regulators MS-LFR/LR/LRP/LRE are only permissible in the flow direction with the same or decreasing pressure regulation range
- Filters MS-LFR/LF/LFM/LFX are only permissible in the flow direction with an increasing grade of filtration
- Lubricators MS-LOE are not permitted in the flow direction upstream of a filter MS-LFR/LFM/LF/LFX, water separator MS-LWS or membrane air dryer MS-LDM1
- A micro filter MS-LFM must be installed upstream of an activated carbon filter MS-LFX or membrane air dryer MS-LDM1 in the flow direction
- A flow sensor SFAM cannot be installed directly downstream of a regulator MS-LFR/LR; a branching module MS-FRM must be positioned between them
- A soft-start/quick exhaust valve MS-SV must be the last service unit component in the flow direction

Total product range for MS series service unit components

Type	Description	Size	Pneumatic connection					
			Push-in connector	Female thread			Connection plate with thread	
				M	G	NPT	G	NPT
Combinations								
Service units MSB-FRC Technical data → Internet: msb								
	Combinations of filter regulator and lubricator	4	–	–	1/8, 1/4	–	–	–
		6	–	–	1/4, 3/8, 1/2	–	–	–
Service units MSB Technical data → Internet: msb								
	7 combinations, predefined	4	–	–	1/4	–	–	–
		6	–	–	1/2	–	–	–
	Combinations freely configurable	4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
Service units MSE6 Technical data → Internet: mse6								
	Combinations with fieldbus connection for measuring pressure, flow rate and consumption	6	–	–	–	–	1/2	–

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Type	Description	Size	Pneumatic connection					
			Push-in connector	Female thread			Connection plate with thread	
				M	G	NPT	G	NPT
Individual devices								
Filter regulators MS-LFR Technical data → Internet: ms-lfr								
	Filter and pressure regulator in a single device, grade of filtration 5 or 40 µm	2	QS-6	M5	–	–	–	–
		4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–
Filters MS-LF Technical data → Internet: ms-lf								
	Grade of filtration 5 or 40 µm	4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–
Fine and micro filters MS-LFM Technical data → Internet: ms-lfm								
	Grade of filtration Q01 or 1 µm	4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–
Activated carbon filters MS-LFX Technical data → Internet: ms-lfx								
	For removing liquid and gaseous oil particles	4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–
Water separators MS-LWS Technical data → Internet: ms-lws								
	Remove condensed water from compressed air, maintenance-free	6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–

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Type	Description	Size	Pneumatic connection					
			Push-in connector	Female thread			Connection plate with thread	
				M	G	NPT	G	NPT
Individual devices								
Pressure regulators MS-LR Technical data ➔ Internet: ms-lr								
	For setting the required operating pressure, 4 pressure regulation ranges	2	QS-6	M5	–	–	–	–
		4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–
Pressure regulators MS-LRB Technical data ➔ Internet: ms-lrb								
	For creating a regulator manifold with independent pressure regulation ranges. Pressure output is to the front or rear.	4	–	–	1/4	–	1/8, 1/4, 3/8	–
		6	–	–	1/2	–	1/4, 3/8, 1/2, 3/4	–
Precision pressure regulators MS-LRP Technical data ➔ Internet: ms-lrp								
	For precise setting of the required operating pressure, 4 pressure regulation ranges, pressure hysteresis 0.02 bar	6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
Precision pressure regulators MS-LRPB Technical data ➔ Internet: ms-lrpb								
	For configuring a regulator manifold with independent pressure regulation ranges. Pressure output is to the front or rear.	6	–	–	1/2	–	1/4, 3/8, 1/2, 3/4	–
Electrical pressure regulators MS-LRE Technical data ➔ Internet: ms-lre								
	Electrically adjustable pressure regulator, 4 pressure regulation ranges	6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
Lubricators MS-LOE Technical data ➔ Internet: ms-loe								
	Add a precisely adjustable amount of oil to the compressed air. The oil mist component is proportional to the compressed air flow rate.	4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–

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Type	Description	Size	Pneumatic connection					
			Push-in connector	Female thread			Connection plate with thread	
				M	G	NPT	G	NPT
Individual devices								
On/off valves MS-EM Technical data ➔ Internet: ms-em								
	Manually operated on/off valve for pressurising and exhausting pneumatic installations.	4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–
On/off valves MS-EE Technical data ➔ Internet: ms-ee								
	Solenoid actuated on/off valve for pressurising and exhausting pneumatic installations.	4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–
Soft-start valves MS-DL Technical data ➔ Internet: ms-dl								
	Pneumatically actuated soft-start valve for slowly pressurising and exhausting pneumatic installations.	4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–
Soft-start valves MS-DE Technical data ➔ Internet: ms-de								
	Solenoid actuated soft-start valve for slowly pressurising and exhausting pneumatic installations.	4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–
Soft-start/quick exhaust valves MS-SV Technical data ➔ Internet: ms-sv								
	For building up pressure gradually and reducing pressure quickly and safely in pneumatic piping systems. Up to category 1, PL c.	6	–	–	1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
	Up to category 3, PL d. Up to category 4, PL e in the case of optional extension.	6	–	–	1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
	Up to category 4, PL e.	6	–	–	1/2	–	1/4, 3/8, 1/2, 3/4	–

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Type	Description	Size	Pneumatic connection					
			Push-in connector	Female thread			Connection plate with thread	
				M	G	NPT	G	NPT
Individual devices								
Membrane air dryers MS-LDM1 Technical data → Internet: ms-ldm								
	Wear-free membrane dryer with internal air consumption	4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
Branching modules MS-FRM Technical data → Internet: ms-frm								
	Compressed air distributor with 4 connections	4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	–
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	–
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–
Distributor blocks MS-FRM-FRZ Technical data → Internet: ms-frm-frz								
	Compressed air distributor with 4 connections and half the grid dimension width	4	–	–	–	–	–	–
		6	–	–	–	–	–	–
Flow sensors SFAM Technical data → Internet: sfam								
	For absolute flow rate information and accumulated air consumption measurement	6	–	–	–	–	1/2	1/2
		9	–	–	–	–	1, 1 1/2	1, 1 1/2

Filters MS-LF/LFM/LFX, MS series

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Filters MS-LF/LFM/LFX, MS series

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Product range overview – MS series service units

Type	Size				Pressure regulation range [bar]						Grade of filtration [µm]			

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 G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor	Rotary knob with detent, lockable via accessories	Rotary knob with integrated lock	Silencer	Flow direction from right to left	
Code		R	U	M	H	V	E...	VS	AG	A8	A4	AD...	AS	E11	S	Z	
Service unit combinations																	
MSB-FRC	4	■	–	■	–	■	–	–	■	–	–	–	■	–	–	■	msb4
	6	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb6
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Service unit combinations																	
MSB	4	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb4
	6	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb6
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Individual devices																	
Filter regulators MS-LFR	4	■	■	■	■	■	–	■	■	■	■	■	■	■	–	■	ms4-lfr
	6	■	■	■	■	■	■	■	■	■	■	■	■	■	–	■	ms6-lfr
	9	–	■	■	■	■	■	■	■	■	■	■	■	■	–	■	ms9-lfr
	12	–	■	■	–	■	■	■	■	■	■	■	■	■	–	■	ms12-lfr
Filters MS-LF	4	■	■	■	■	■	–	–	–	–	–	–	–	–	–	■	8, 10
	6	■	■	■	■	■	■	–	–	–	–	–	–	–	–	■	8, 10
	9	–	■	■	■	■	■	–	–	–	–	–	–	–	–	■	39
	12	–	■	■	–	■	■	–	–	–	–	–	–	–	–	■	67
Fine and micro filters MS-LFM	4	■	■	■	■	■	–	–	–	–	–	–	–	–	–	■	8, 20
	6	■	■	■	■	■	■	–	–	–	–	–	–	–	–	■	8, 20
	9	–	■	■	■	■	■	–	–	–	–	–	–	–	–	■	47
	12	–	■	■	–	■	■	–	–	–	–	–	–	–	–	■	74
Activated carbon filters MS-LFX	4	■	■	–	–	–	–	–	–	–	–	–	–	–	–	■	8, 34
	6	■	■	–	–	–	–	–	–	–	–	–	–	–	–	■	8, 34
	9	–	■	–	–	–	–	–	–	–	–	–	–	–	–	■	60
	12	–	■	–	–	–	–	–	–	–	–	–	–	–	–	■	83
Water separators MS-LWS	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	6	–	■	–	–	■	■	–	–	–	–	–	–	–	–	■	ms6-lws
	9	–	■	–	–	■	■	–	–	–	–	–	–	–	–	■	ms9-lws
	12	–	■	–	–	■	■	–	–	–	–	–	–	–	–	■	ms12-lws

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]						Supply voltage			
				0.05	0.05	0.1	0.3	0.1	0.5	24 V DC, connection pattern to EN 175301	24 V DC, connection M12 to IEC 61076-2-101	110 V AC, connection pattern to EN 175301	230 V AC, connection pattern to EN 175301
Code			AG.../AQ...	0.7	2.5	4	7	12	16	V24	V24P	V110	V230
Individual devices													
Pressure regulators MS-LR		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	■	■	■	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	■	■	■	–	–	–	–
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	–	–	■	■	■	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	■	■	■	–	–	–
Pressure regulators MS-LRB		4	G1/4	G1/8, G1/4, G3/8	–	–	■	■	■	–	–	–	–
		6	G1/2	G1/4, G3/8, G1/2, G3/4	–	–	■	■	■	–	–	–	–
		9	–	–	–	–	–	–	–	–	–	–	–
		12	–	–	–	–	–	–	–	–	–	–	–
Precision pressure regulators MS-LRP		4	–	–	–	–	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	■	■	■	–	■	–	–	–	–
		9	–	–	–	–	–	–	–	–	–	–	–
		12	–	–	–	–	–	–	–	–	–	–	–
Precision pressure regulators MS-LRPB		4	–	–	–	–	–	–	–	–	–	–	–
		6	G1/2	G1/4, G3/8, G1/2, G3/4	■	■	■	–	■	–	–	–	–
		9	–	–	–	–	–	–	–	–	–	–	–
		12	–	–	–	–	–	–	–	–	–	–	–
Electrical pressure regulators MS-LRE		4	–	–	–	–	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	■	■	■	–	–	–	–
		9	–	–	–	–	–	–	–	–	–	–	–
		12	–	–	–	–	–	–	–	–	–	–	–
Lubricators MS-LOE		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	–
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	–	–	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–	–	–
On-off valves, manually actuated MS-EM(1)		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	–
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	–	–	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–	–	–
On-off valves, electrically actuated MS-EE		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	■	–	■	■
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	■	–	■	■
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	–	–	–	–	–	■	■	■	■
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	■	■	■	■
Soft-start valves, pneumatically actuated MS-DL		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	–
		9	–	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–	–	–
Soft-start valves, electrically actuated MS-DE		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	■	–	■	■
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	■	–	■	■
		9	–	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	■	■	■	■

Filters MS-LF/LFM/LFX, MS series

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Product range overview – MS series service units

Type	Size	Bowl guard		Pressure indicator					Security		Options		→ Page/ Internet
		Plastic bowl with plastic bowl guard	Metal bowl	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor	Rotary knob with detent, lockable via accessories	Rotary knob with integrated lock	Silencer	Flow direction from right to left	
Code		R	U	VS	AG	A8	A4	AD...	AS	E11	S	Z	
Individual devices													
Pressure regulators MS-LR	4	–	–	■	■	■	■	■	■	■	–	■	ms4-lr
	6	–	–	■	■	–	■	■	■	■	–	■	ms6-lr
	9	–	–	■	■	–	■	■	■	■	–	■	ms9-lr
	12	–	–	■	■	–	■	–	■	■	–	■	ms12-lr
Pressure regulators MS-LRB	4	–	–	■	■	■	■	■	■	■	–	■	ms4-lrb
	6	–	–	■	■	–	■	■	■	■	–	■	ms6-lrb
	9	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–
Precision pressure regulators MS-LRP	4	–	–	–	–	–	–	–	–	–	–	–	–
	6	–	–	■	–	■	■	■	■	■	–	■	ms6-lrp
	9	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–
Precision pressure regulators MS-LRPB	4	–	–	–	–	–	–	–	–	–	–	–	–
	6	–	–	■	–	■	■	■	■	■	–	■	ms6-lrpb
	9	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–
Electrical pressure regulators MS-LRE	4	–	–	–	–	–	–	–	–	–	–	–	–
	6	–	–	■	■	–	■	–	–	–	–	■	ms6-lre
	9	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–
Lubricators MS-LOE	4	■	■	–	–	–	–	–	–	–	–	■	ms4-loe
	6	■	■	–	–	–	–	–	–	–	–	■	ms6-loe
	9	–	■	–	–	–	–	–	–	–	–	■	ms9-loe
	12	–	■	–	–	–	–	–	–	–	–	■	ms12-loe
On-off valves, manually actuated MS-EM(1)	4	–	–	■	■	■	■	■	–	–	■	■	ms4-em1
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-em1
	9	–	–	■	■	–	■	–	–	–	■	■	ms9-em
	12	–	–	■	■	–	■	–	–	–	■	■	ms12-em
On-off valves, electrically actuated MS-EE	4	–	–	■	■	■	■	■	–	–	■	■	ms4-ee
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-ee
	9	–	–	■	■	–	■	■	–	–	■	■	ms9-ee
	12	–	–	■	■	–	■	–	–	–	■	■	ms12-ee
Soft-start valves, pneumatically actuated MS-DL	4	–	–	■	■	■	■	■	–	–	–	■	ms4-dl
	6	–	–	■	■	–	■	■	–	–	–	■	ms6-dl
	9	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	■	■	–	■	–	–	–	–	■	ms12-dl
Soft-start valves, electrically actuated MS-DE	4	–	–	■	■	■	■	■	–	–	–	■	ms4-de
	6	–	–	■	■	–	■	■	–	–	–	■	ms6-de
	9	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	■	■	–	■	–	–	–	–	■	ms12-de

Filters MS-LF/LFM/LFX, MS series

Product range overview – MS series service units



Type	Size			Performance Level			Supply voltage				
				Category 1, 1-channel	Category 3, 2-channel	Category 4, 2-channel with self-monitoring	24 V DC, Sub-D, 9-pin	24 V DC, connection pattern to EN 175301	24 V DC, connection M12 to IEC 61076-2-101	110/230 V AC, connection pattern to EN 175301	22 ... 31.6 V DC, connection M12, AS-i Safety at Work
Code		Pneumatic connection in housing	Connecting plate	C	D	E	10V24	10V24/V24	10V24P	V110/V230	ASIS
Individual devices											
Soft start and exhaust valves MS-SV-C		4	–								
		6	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	–								
Soft start and exhaust valves MS-SV-D		4	–								
		6	G1/2	G1/4, G3/8, G1/2, G3/4	–	■	–	–	■	■	–
		9	–								
		12	–								
Soft start and exhaust valves MS-SV-E		4	–								
		6	G1/2	G1/4, G3/8, G1/2, G3/4	–	–	■	■	–	–	■
		9	–								
		12	–								
Membrane air dryers MS-LDM1		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–
		9	–								
		12	–								
Branching modules MS-FRM		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–
Distributor blocks MS-FRM-FRZ		4	G1/4	–	–	–	–	–	–	–	–
		6	G1/2	–	–	–	–	–	–	–	–
		9	–								
		12	–								
Flow sensors SFAM		4	–								
		6	G1/2	G1/2	–	–	–	–	–	–	–
		9	–	G1, G1 1/2	–	–	–	–	–	–	–
		12	–								

Filters MS-LF/LFM/LFX, MS series



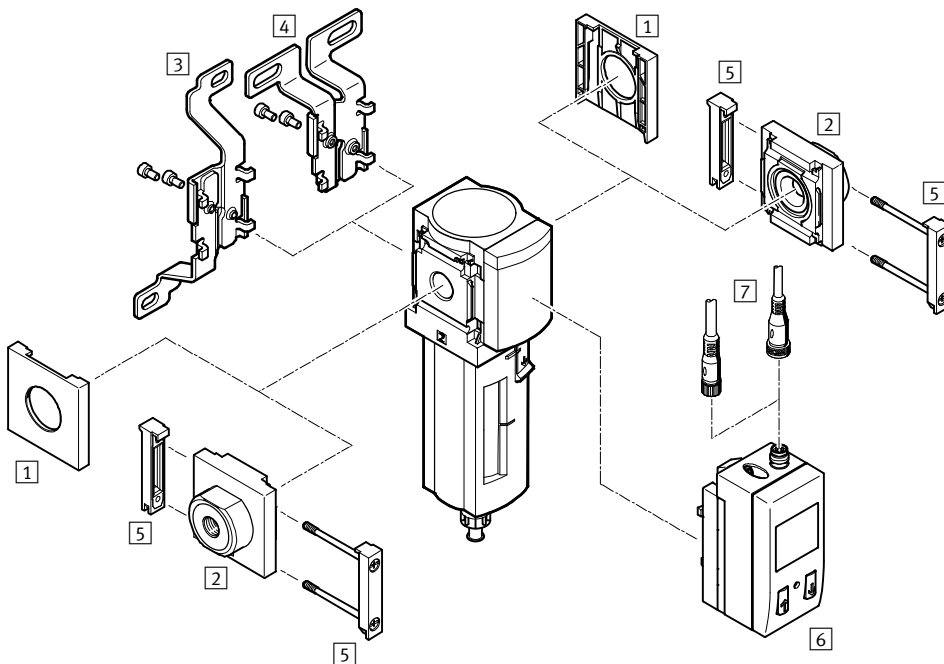
Product range overview – MS series service units

Type	Size	Bowl guard		Pressure indicator					Switch output		Options		→ Page/ Internet
Code		Plastic bowl with plastic bowl guard	Metal bowl	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G $\frac{3}{8}$	Adapter plate for EN pressure gauge G $\frac{1}{4}$	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	
		R	U	VS	AG	A8	A4	AD...	2SA	2SV	S	Z/R	
Individual devices													
Soft start and exhaust valves MS-SV-C	4	–											–
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-sv
	9	–	–	■	■	–	■	■	–	–	■	■	ms9-sv
	12	–											–
Soft start and exhaust valves MS-SV-D	4	–											–
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-sv
	9	–											–
	12	–											–
Soft start and exhaust valves MS-SV-E	4	–											–
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-sv
	9	–											–
	12	–											–
Membrane air dryers MS-LDM1	4	–	■	–	–	–	–	–	–	–	–	■	ms4-ldm1
	6	–	■	–	–	–	–	–	–	–	–	■	ms6-ldm1
	9	–											–
	12	–											–
Branching modules MS-FRM	4	–	–	■	■	■	■	■	–	–	–	■	ms4-frm
	6	–	–	■	■	–	■	■	–	–	–	■	ms6-frm
	9	–	–	■	■	–	■	■	–	–	–	■	ms9-frm
	12	–	–	■	–	–	–	–	–	–	–	–	ms12-frm
Distributor blocks MS-FRM-FRZ	4	–	–	–	–	–	–	–	–	–	–	■	ms4-frm
	6	–	–	–	–	–	–	–	–	–	–	■	ms6-frm
	9	–											–
	12	–											–
Flow sensors SFAM	4	–											–
	6	–	–	–	–	–	–	–	■	■	–	■	sfam-62
	9	–	–	–	–	–	–	–	■	■	–	■	sfam-90
	12	–											–

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

Peripherals overview

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 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						→ Page/Internet
		Individual device without connecting plate	with connecting plate	Combination without connecting plate	with connecting plate	
1	Cover plate MS4/6-END	■	–	■	–	ms4-end, ms6-end
2	Connecting plate-SET MS4/6-AG...	–	■	–	■	ms4-ag, ms6-ag
	Connecting plate-SET MS4/6-AQ...	–	■	–	■	ms4-aq, ms6-aq
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	32
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

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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	
MS4	
1/8	G1/8 thread
1/4	G1/4 thread
MS6	
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 → 18
 Fine and micro filters LFM → 32
 Activated carbon filters LFX → 38

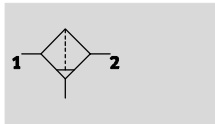
- Pneumatic connection
- Condensate drain
- Range of application (only for LFM and LFX)
- Filter pollution indicator (for LFM only)
- Type of mounting
- EU certification
- UL certification
- Flow direction

Filters MS4/MS6-LF, MS series

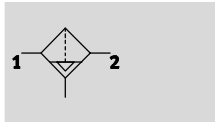
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Technical data

Function
Condensate drain
manual rotary



semi or fully automatic



-  Flow rate
1,000 ... 4,100 l/min
-  Temperature range
-10 ... +60 °C
-  Operating pressure
0 ... 20 bar
-  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
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22
- Choice of filter cartridges: 5 µm or 40 µm
- New filter cartridges → 89

General technical data		
Size	MS4	MS6
Pneumatic connection 1, 2		
Female thread	G $\frac{1}{8}$ or G $\frac{1}{4}$	G $\frac{1}{4}$, G $\frac{3}{8}$ or G $\frac{1}{2}$
Connecting plate AG...	G $\frac{1}{8}$, G $\frac{1}{4}$ or G $\frac{3}{8}$	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$ or G $\frac{3}{4}$
Connecting plate AQ...	NPT $\frac{1}{8}$, NPT $\frac{1}{4}$ or NPT $\frac{3}{8}$	NPT $\frac{1}{4}$, NPT $\frac{3}{8}$, NPT $\frac{1}{2}$ or NPT $\frac{3}{4}$
Design	Sintered filter with centrifugal separation	
Type of mounting	Via accessories	
	In-line installation	
Assembly position	Vertical $\pm 5^\circ$	
Grade of filtration [µm]	5	
	40	
Air purity class at the output	Compressed air in accordance with ISO 8573-1:2010 [6:8:4] (Grade of filtration 5 µm)	
	Compressed air in accordance with ISO 8573-1:2010 [7:8:4] (Grade of filtration 40 µm)	
Bowl guard	Plastic bowl guard	
	Integrated as metal bowl	
Condensate drain	Manual rotary	
	Semi-automatic	
	Fully automatic	
	-	
	Fully automatic, electrical	
Max. condensate volume [cm ³]	19 (with plastic bowl guard)	
	25 (with metal bowl)	
	38	

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

Standard nominal flow rate q _N ¹⁾ [l/min]						
Size	MS4		MS6			
Pneumatic connection	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	
Grade of filtration 5 µm	1,000	1,300	2,000	3,000	3,200	
Grade of filtration 40 µm	1,100	1,700	2,500	3,800	4,100	

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

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

Filters MS4/MS6-LF, MS series

FESTO

Technical data

Operating and environmental conditions							
Condensate drain	Manual rotary M		Semi-automatic H		Fully automatic V		Fully automatic, electrical E2/E3/E4
Size	MS4	MS6	MS4	MS6	MS4	MS6	MS6
Operating pressure [bar]	0 ... 14 (0 ... 10) ¹⁾	0 ... 20 (0 ... 10) ¹⁾	1.5 ... 12 (1.5 ... 10) ¹⁾	1.5 ... 12 (1.5 ... 10) ¹⁾	2 ... 12 (2 ... 10) ¹⁾	2 ... 12 (2 ... 10) ¹⁾	0.8 ... 16 (0.8 ... 10) ¹⁾
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [–:9:–]		Compressed air in accordance with ISO 8573-1:2010 [–:9:–]		Compressed air in accordance with ISO 8573-1:2010 [7:9:–]		Compressed air in accordance with ISO 8573-1:2010 [–:9:–]
	Inert gases						
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 class CRC ²⁾	2						
Food-safe ³⁾	See supplementary material information						–
UL certification ³⁾	cULus recognized (OL)						

1) Value in brackets applies to MS4/MS6-LF with UL certification.

2) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

3) Additional information www.festo.com/sp → Certificates.

ATEX	
EU certification	EX4
ATEX category gas	II 2G
Ex-ignition protection type gas	Ex h IIC T6 Gb X
ATEX category dust	II 2D
Ex-ignition protection type dust	Ex h IIIC T60°C Db X
ATEX ambient temperature	+5 °C ≤ Ta ≤ +60 °C
CE mark (see declaration of conformity) ¹⁾	To EU Explosion Protection Directive (ATEX)

1) Additional information www.festo.com/sp → Certificates.

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 E2/E3/E4	–	1,800

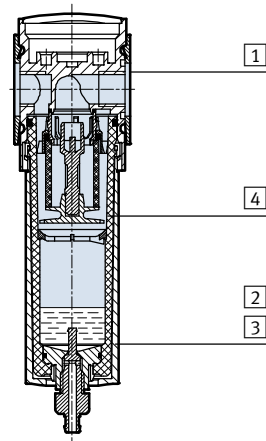
Filters MS4/MS6-LF, MS series

Technical data

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Materials

Sectional view



Filters

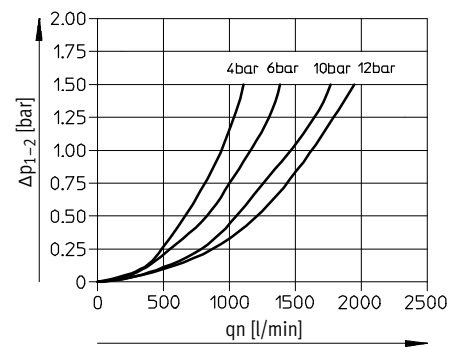
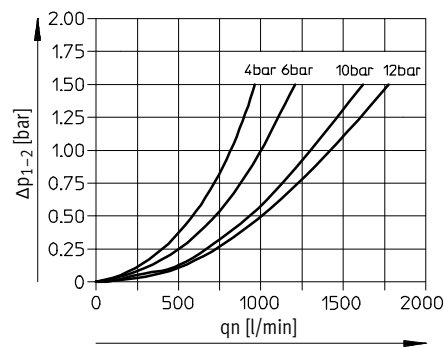
1	Body	Die-cast aluminium
2	Plastic bowl guard	PC
3	Metal bowl	Wrought aluminium alloy, die-cast aluminium
	Viewing window	PA
4	Filter element	PE
-	Seals	NBR
Note on materials		RoHS-compliant Free of copper and PTFE

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

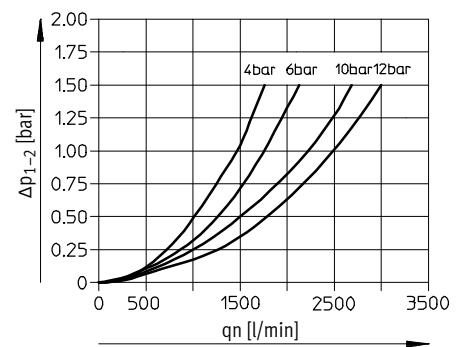
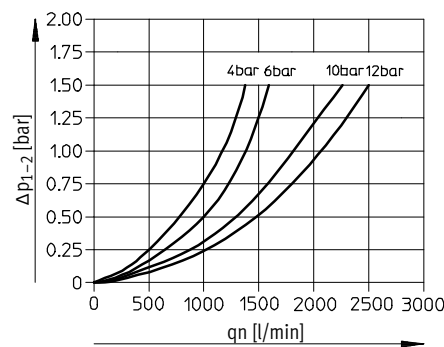
Grade of filtration 5 μm

Grade of filtration 40 μm

MS4-LF-1/8



MS4-LF-1/4



Filters MS4/MS6-LF, MS series

Technical data

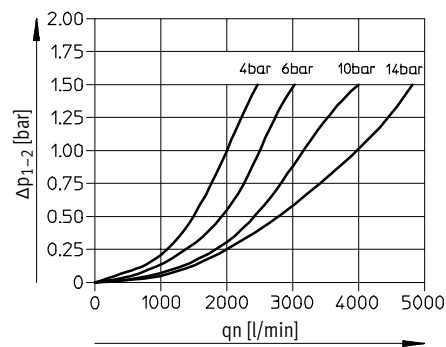
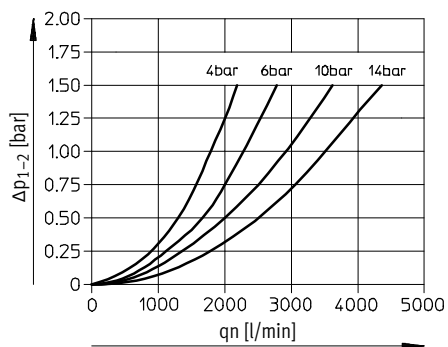
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Standard flow rate q_n as a function of the differential pressure Δp_{1-2}

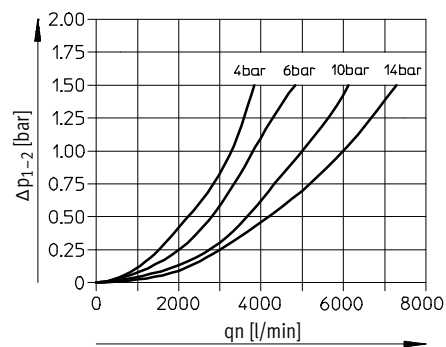
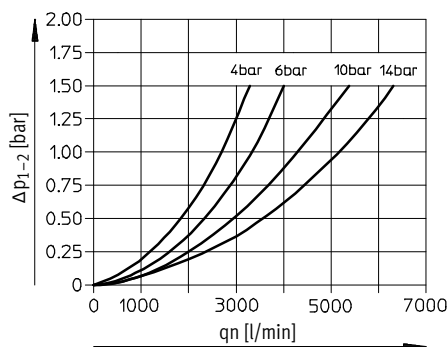
Grade of filtration 5 μm

Grade of filtration 40 μm

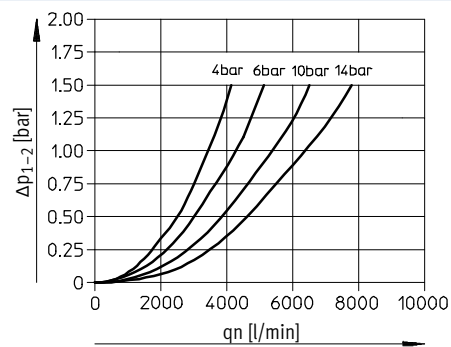
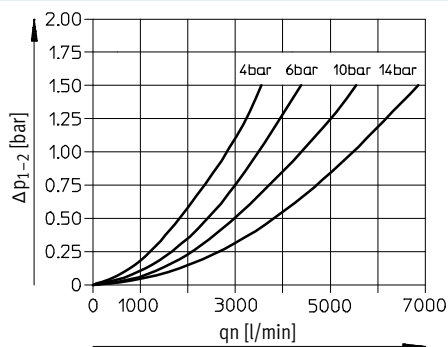
MS6-LF-1/4



MS6-LF-3/8



MS6-LF-1/2



Filters MS4/MS6-LF, MS series

Technical data

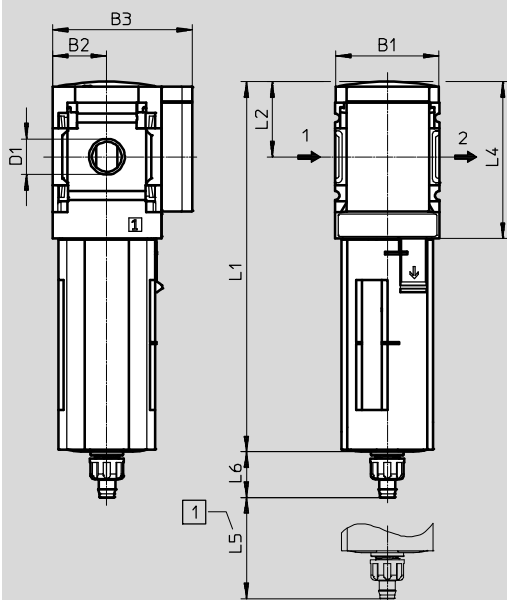
FESTO

Dimensions – Basic version MS4-LF

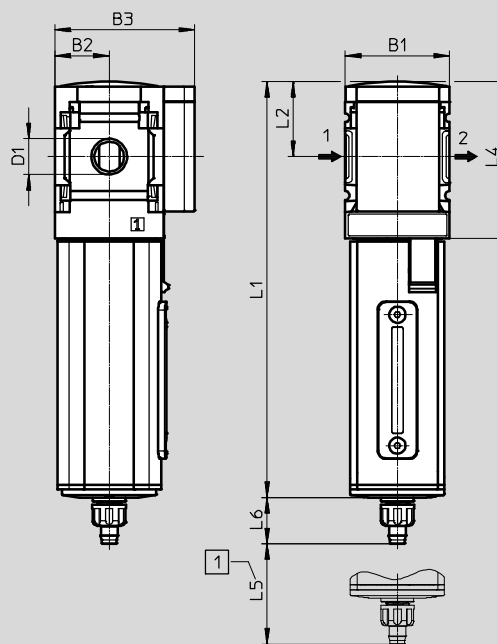
Download CAD data → www.festo.com

Manual rotary condensate drain

With plastic bowl guard R



With metal bowl U



1 Installation dimensions

→ Flow direction

Type	B1	B2	B3	D1	L1		L2	L4	L5	L6
					Plastic bowl guard	Metal bowl				
MS4-LF-1/8	40	21	54	G1/8	142.8	159.4	29	60.5	75	17.7
MS4-LF-1/4				G1/4						

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

Filters MS4/MS6-LF, MS series

Technical data

FESTO

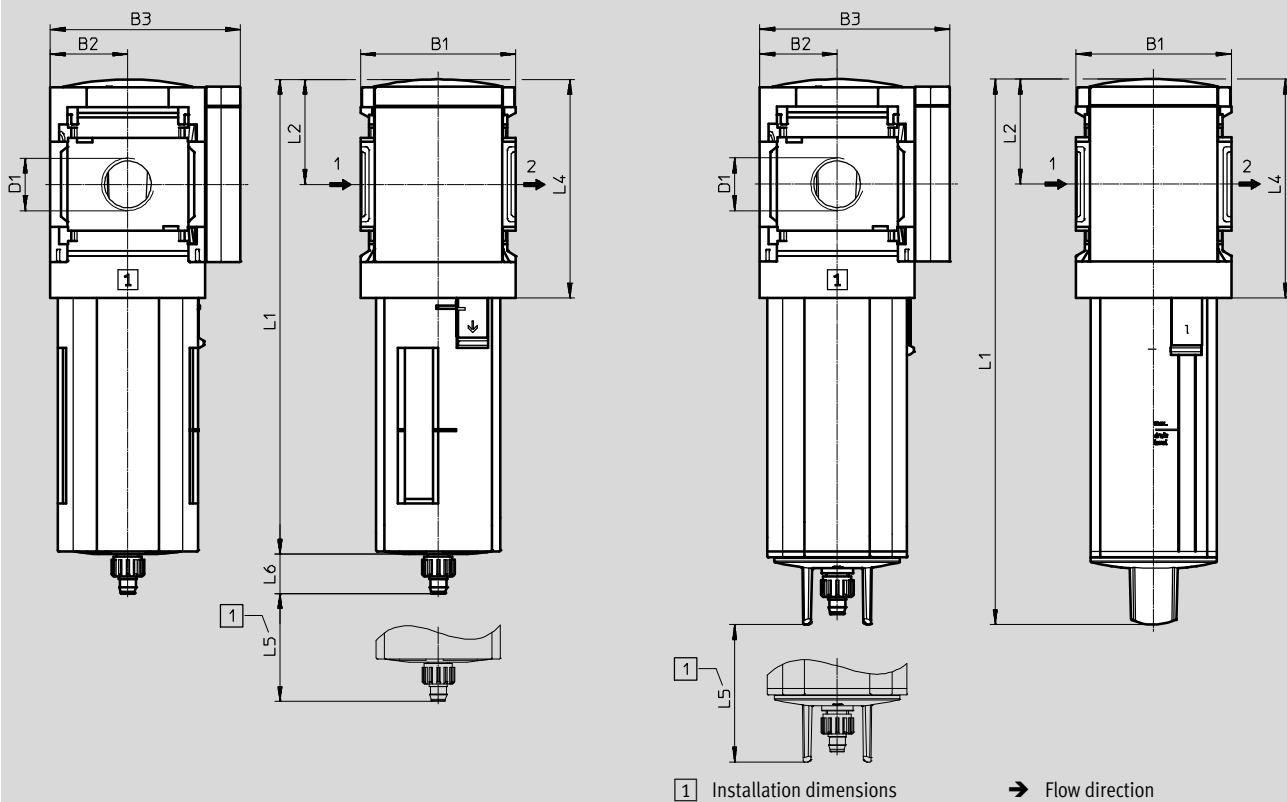
Dimensions – Basic version MS6-LF

Download CAD data → www.festo.com

Manual rotary condensate drain

With plastic bowl guard R

With metal bowl U



Type	B1	B2	B3	D1	L1		L2	L4	L5	L6
					Plastic bowl guard	Metal bowl				
MS6-LF-1/4	62	31	76	G1/4	190	218	42	87.5	74	15.8
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

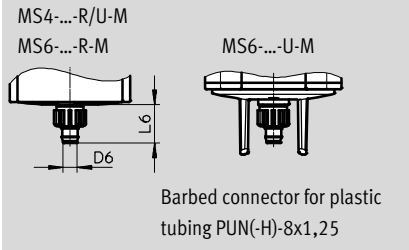
Technical data

FESTO

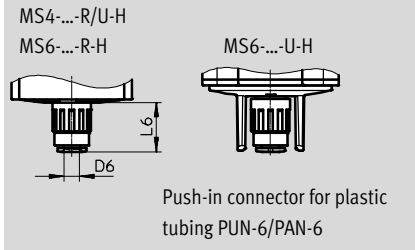
Dimensions – Condensate drain

Download CAD data → www.festo.com

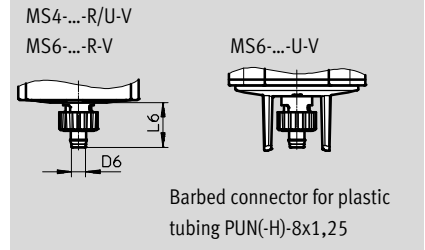
Manual rotary M



Semi-automatic H



Fully automatic V



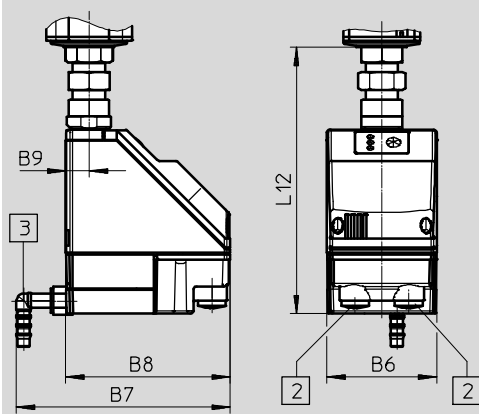
Type	D6 Ø	L6
Plastic bowl guard R		
MS4-LF-...-M	5.6	17.7
MS6-LF-...-M		15.8
Metal bowl U		
MS4-LF-...-M	5.6	17.7
MS6-LF-...-M		-

Type	D6 Ø	L6
Plastic bowl guard R		
MS4-LF-...-H	6.2	22.1
MS6-LF-...-H		20.4
Metal bowl U		
MS4-LF-...-H	6.2	22.1
MS6-LF-...-H		—

Type	D6 Ø	L6
Plastic bowl guard R		
MS4-LF-...-V	5.6	20.4
MS6-LF-...-V		18.5
Metal bowl U		
MS4-LF-...-V	5.6	20.4
MS6-LF-...-V		–

Fully automatic, electrically actuated E2/E3/E4

Technical data → Internet: pwea



Condensate drain PWEA:

- 2 Electrical connection: Screw terminal PG9
- 3 Connection 360° rotatable for plastic tubing PUN-H-12x2

Type	B6	B7	B8	B9	L12
MS6-LF-...-E2/E3/E4	72	140	108	15	174.5

Filters MS4/MS6-LF, MS series

Technical data

FESTO

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		–	–
		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		–	–
		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 $\frac{1}{4}$	535654	MS4-LF- $\frac{1}{4}$ -CUM		535660	MS4-LF- $\frac{1}{4}$ -EUM
	fully automatic	G $\frac{1}{4}$	–	–		535658	MS4-LF- $\frac{1}{4}$ -EUV
MS6	manual rotary	G $\frac{1}{2}$	529611	MS6-LF- $\frac{1}{2}$ -CUM		529619	MS6-LF- $\frac{1}{2}$ -EUM
	fully automatic	G $\frac{1}{2}$	529613	MS6-LF- $\frac{1}{2}$ -CUV		529621	MS6-LF- $\frac{1}{2}$ -EUV

Filters MS4/MS6-LF, MS series

Ordering data – Modular products

FESTO

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
M Module No.		527695	527668			
Series		Standard			MS	MS
Size		4	6		...	
Function		Filters			-LF	-LF
Pneumatic connection	Female thread G1/8	–		1	-1/8	
	Female thread G1/4	Female thread G1/4		1	-1/4	
	–	Female thread G3/8		1	-3/8	
	–	Female thread G1/2		1	-1/2	
	Connecting plate G1/8	–			-AGA	
	Connecting plate G1/4	Connecting plate G1/4			-AGB	
	Connecting plate G3/8	Connecting plate G3/8			-AGC	
	–	Connecting plate G1/2			-AGD	
	–	Connecting plate G3/4			-AGE	
	Connecting plate NPT1/8	–		1	-AQK	
	Connecting plate NPT1/4	Connecting plate NPT1/4		1	-AQN	
	Connecting plate NPT3/8	Connecting plate NPT3/8		1	-AQP	
	–	Connecting plate NPT1/2		1	-AQR	
	–	Connecting plate NPT3/4		1	-AQS	
Grade of filtration	40 µm				-E	
	5 µm				-C	
Bowl	Plastic bowl with plastic bowl guard				-R	
	Metal bowl				-U	

1 1/8, 1/4, 3/8, 1/2, AQK, AQN, AQP, AQR, AQS, E2, E3, E4, WPM

Not with EU certification EX4

M Mandatory data

O Options

Transfer order code

MS - **LF** - - -

Filters MS4/MS6-LF, MS series

Ordering data – Modular products

FESTO

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, 115 V AC, terminals	[1] [2]	-E2	
		–	External fully automatic condensate drain, electrical, 230 V AC, terminals	[1] [2]	-E3	
		–	External fully automatic condensate drain, electrical, 24 V DC, terminals	[1] [2]	-E4	
[O]	Type of mounting	Mounting bracket standard design		[3]	-WP	
		Mounting bracket for attaching the service units		[1] [3]	-WPM	
		Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required			-WB	
		Mounting bracket centrally at rear (wall mounting top), connecting plates not required	–		-WBM	
	EU certification	II 2GD to EU Explosion Protection Directive (ATEX)			-EX4	
	UL certification	cULus, ordinary location for Canada and USA			-UL1	
	Flow direction	Flow direction from right to left			-Z	

[2] **E2, E3, E4** Only with metal bowl U.

[3] **WP, WPM** Only with connecting plate AGA, AGB, AGC, AGD, AGE, AQK, AQN, AQP, AQR or AQS.

[M] Mandatory data

[O] Options

Transfer order code

– [] – [] – [] – [] – []

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

FESTO

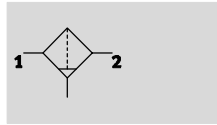
Technical data

Function

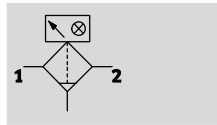
Condensate drain

manual rotary

without differential pressure indicator



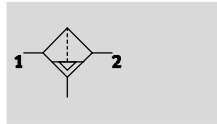
with differential pressure indicator or
filter pollution indicator



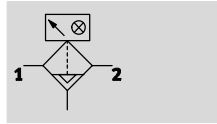
Condensate drain

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
-  Operating pressure
0 ... 20 bar
-  www.festo.com



- High-performance filter for exceptionally clean compressed air
- Air quality to ISO 8573-1:2010
- 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
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22
- Choice of filter cartridges: 0.01 µm or 1 µm
- New filter cartridges → 89

General technical data		
Size	MS4	MS6
Pneumatic connection 1, 2		
Female thread	G $\frac{1}{8}$ or G $\frac{1}{4}$	G $\frac{1}{4}$, G $\frac{3}{8}$ or G $\frac{1}{2}$
Connecting plate AG...	G $\frac{1}{8}$, G $\frac{1}{4}$ or G $\frac{3}{8}$	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$ or G $\frac{3}{4}$
Connecting plate AQ...	NPT $\frac{1}{8}$, NPT $\frac{1}{4}$ or NPT $\frac{3}{8}$	NPT $\frac{1}{4}$, NPT $\frac{3}{8}$, NPT $\frac{1}{2}$ or NPT $\frac{3}{4}$
Constructional design	Fibre filter	
Type of mounting	Via accessories In-line installation	
Mounting position	Vertical $\pm 5^\circ$	
Grade of filtration [µm]	0.01 (micro filter MS-LFM-A) 1 (fine filter MS-LFM-B)	
Air purity class at the output	Compressed air in accordance with ISO 8573-1:2010 [1:7:2] (Grade of filtration 0.01µm, micro filter MS-LFM-A) Compressed air in accordance with ISO 8573-1:2010 [5:7:3] (Grade of filtration 1µm, fine filter MS-LFM-B)	
Filter efficiency [%]	99.9999 (Grade of filtration 0.01µm, micro filter MS-LFM-A) 99.99 (Grade of filtration 1µm, fine filter MS-LFM-B)	
Bowl guard	Plastic bowl guard Integrated as metal bowl	
Condensate drain	Manual rotary Semi-automatic Fully automatic –	
		Fully automatic, electrically actuated
Differential pressure indication ¹⁾	Visual display With filter pollution indicator based on differential pressure	

¹⁾ Recommended max. differential pressure for changing the filter cartridge is $\Delta p_{1-2} = 0.35$ bar; for the micro filter MS6-LFM-A with range of application HP $\Delta p_{1-2} = 0.5$ bar

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

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

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Technical data

General technical data				
Size		MS4		MS6
Residual oil content	[mg/m³]	≤0.01 (micro filter MS-LFM-A) ≤0.5 (fine filter MS-LFM-B)		
Max. condensate volume	[cm³]	19 (with plastic bowl guard) 25 (with metal shell)		38

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 p₁ = 6 bar.

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

Operating and environmental conditions							
Condensate drain	Manual rotary M		Semi-automatic H		Fully automatic V		Fully automatic, electrical E2/E3/E4
Size	MS4	MS6	MS4	MS6	MS4	MS6	MS6
Operating pressure [bar]	0 ... 14 (0 ... 10) ¹⁾	0 ... 20 (0 ... 10) ¹⁾	1.5 ... 12 (1.5 ... 10) ¹⁾	1.5 ... 12 (1.5 ... 10) ¹⁾	2 ... 12 (2 ... 10) ¹⁾	2 ... 12 (2 ... 10) ¹⁾	0.8 ... 16 (0.8 ... 10) ¹⁾
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [6:8:4] ²⁾						
	Inert gases						
Ambient temperature [°C]	-10 ... +60 (0 ... +50) ³⁾		+5 ... +60 (+5 ... +50) ³⁾		+5 ... +60 (+5 ... +50) ³⁾		+1 ... +60 (+1 ... +50) ³⁾
Temperature of medium [°C]	-10 ... +60 (0 ... +50) ³⁾		+5 ... +60 (+5 ... +50) ³⁾		+5 ... +60 (+5 ... +50) ³⁾		+1 ... +60 (+1 ... +50) ³⁾
Storage temperature [°C]	-10 ... +60 (0 ... +50) ³⁾		-10 ... +60 (0 ... +50) ³⁾		-10 ... +60 (0 ... +50) ³⁾		+1 ... +60 (+1 ... +50) ³⁾
Corrosion resistance class CRC ⁴⁾	2						
Food-safe ⁵⁾	See supplementary material information						–
UL certification ⁵⁾	cULus recognized (OL)						

1) Value in brackets applies to MS4/MS6-LFM with UL certification or with filter pollution indicator DP/DN/DPI/DPN.

2) It is recommended to prefilter the compressed air for the micro filter MS-LFM-A using a fine filter MS-LFM-B (grade of filtration 1 µm).

3) Value in brackets applies to MS4/MS6-LFM with filter pollution indicator DP/DN/DPI/DPN.

4) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

5) Additional information www.festo.com/sp → Certificates.

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

FESTO

Technical data

Technical data – Filter pollution indicator				
Filter pollution indicator	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			

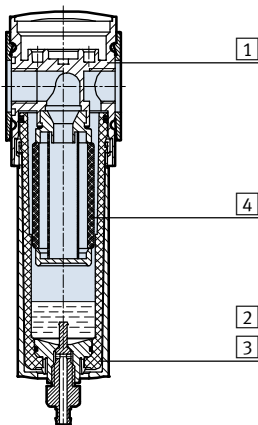
ATEX	
EU certification	EX4
ATEX category gas	II 2G
Ex-ignition protection type gas	Ex h IIC T6 Gb X
ATEX category dust	II 2D
EX-ignition protection type dust	Ex h IIIC T60°C Db X
ATEX ambient temperature	+5 °C ≤ Ta ≤ +60 °C
CE mark (see declaration of conformity) ¹⁾	To EU Explosion Protection Directive (ATEX)

1) Additional information www.festo.com/sp → Certificates.

Weight [g]			
Size	MS4	MS6	
Variant	Standard	Standard/Range of application HP	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 E2/E3/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
	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

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

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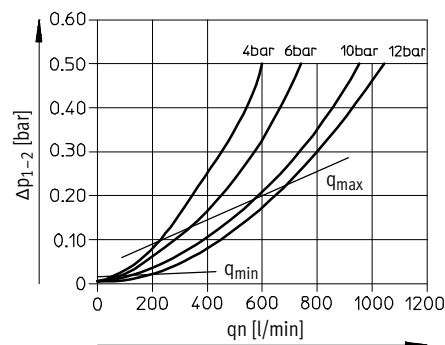
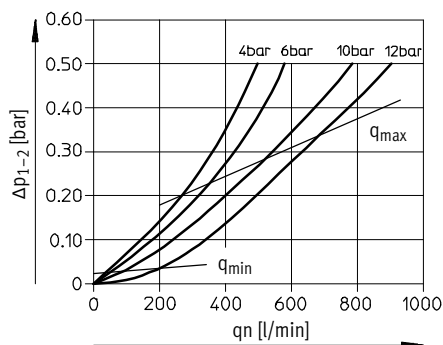
Technical data

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

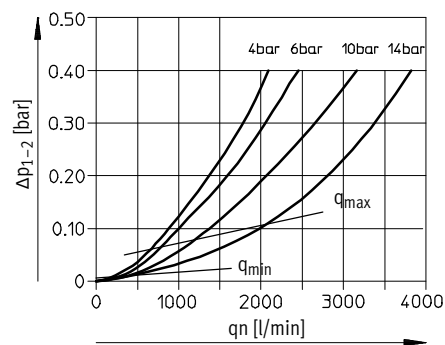
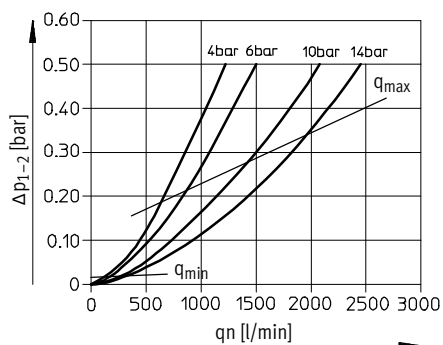
Grade of filtration 0.01 μm

Grade of filtration 1 μm

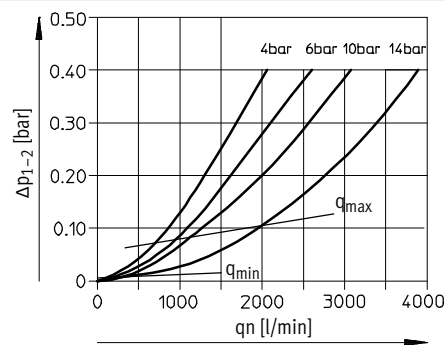
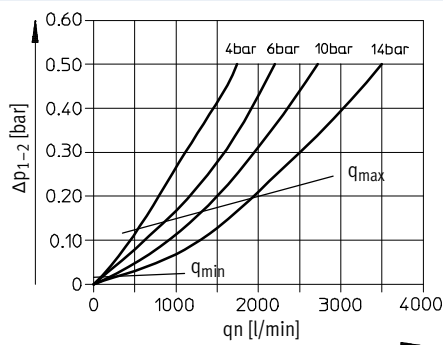
MS4-LFM-1/8 and MS4-LFM-1/4



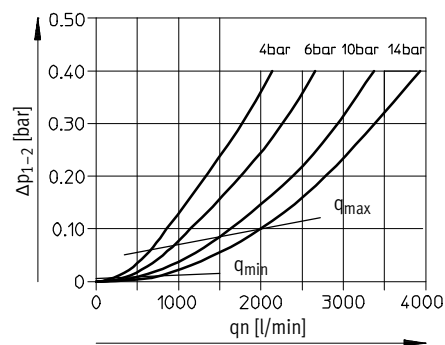
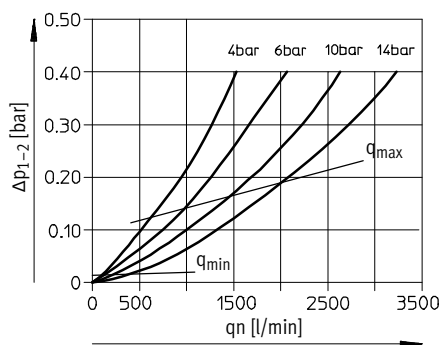
MS6-LFM-1/4



MS6-LFM-3/8



MS6-LFM-1/2



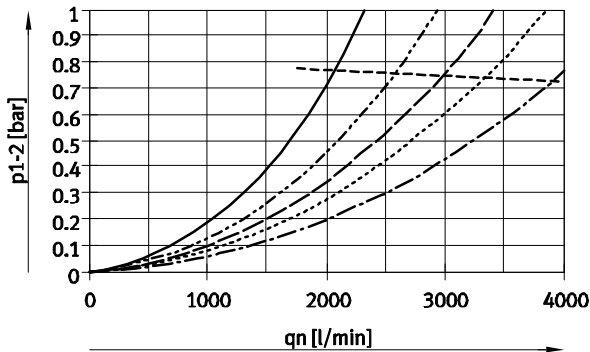
Fine and micro filters MS4/MS6-LFM, MS series

FESTO

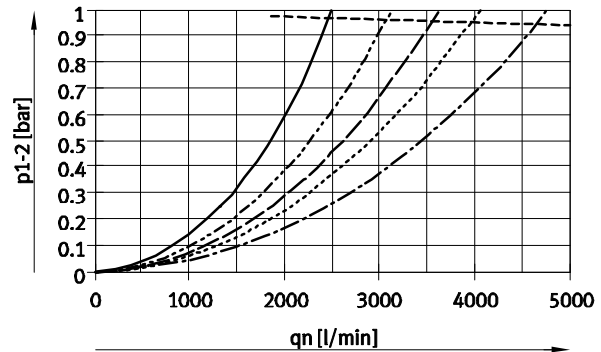
Technical data

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

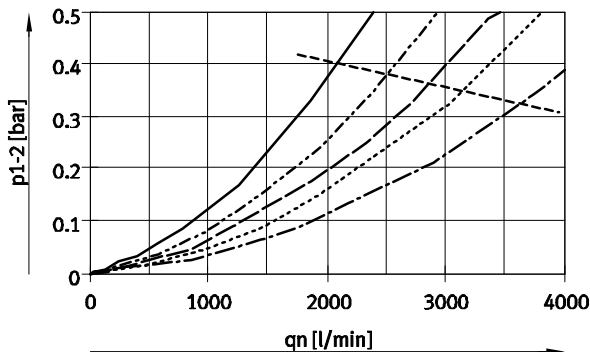
MS6-LFM-1/4-...-HF, Grade of filtration 0.01 μm



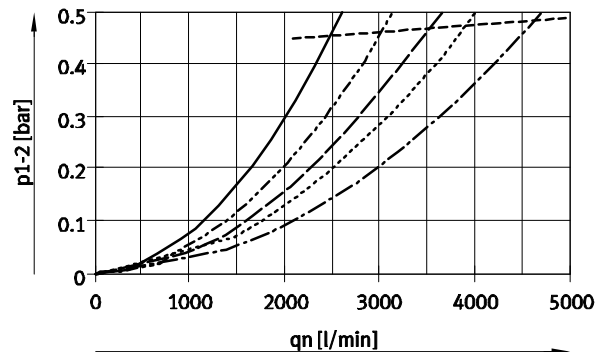
MS6-LFM-1/4-...-HF, Grade of filtration 1 μm



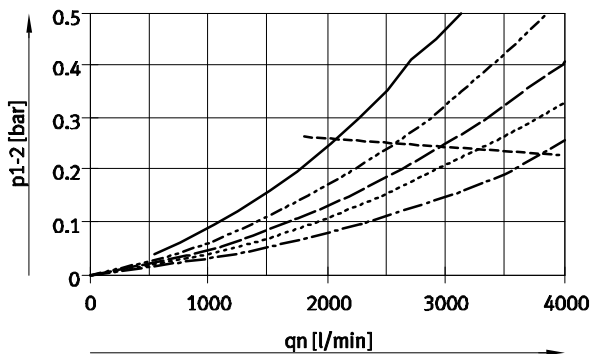
MS6-LFM-3/8-...-HF, Grade of filtration 0.01 μm



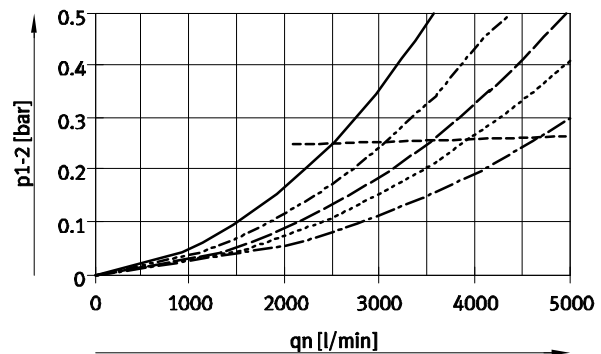
MS6-LFM-3/8-...-HF, Grade of filtration 1 μm



MS6-LFM-1/2-...-HF, Grade of filtration 0.01 μm



MS6-LFM-1/2-...-HF, Grade of filtration 1 μm



———— p_1 : 4 bar ($q_{\min}$: 103 l/min)
 - - - - - p_1 : 6 bar ($q_{\min}$: 125 l/min)
 - · - · - p_1 : 8 bar
 · · · · · p_1 : 10 bar ($q_{\min}$: 162 l/min)
 - - - - - p_1 : 14 bar ($q_{\min}$: 192 l/min)
 - - - - - $q_{\max}$

———— p_1 : 4 bar ($q_{\min}$: 124 l/min)
 - - - - - p_1 : 6 bar ($q_{\min}$: 150 l/min)
 - · - · - p_1 : 8 bar
 · · · · · p_1 : 10 bar ($q_{\min}$: 194 l/min)
 - - - - - p_1 : 14 bar ($q_{\min}$: 230 l/min)
 - - - - - $q_{\max}$

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

FESTO

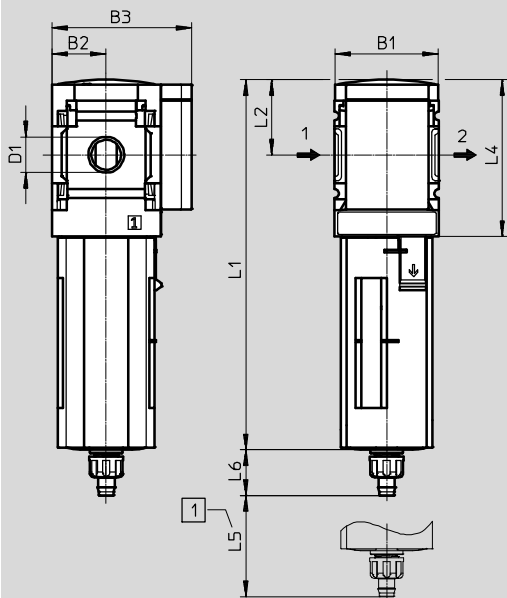
Technical data

Dimensions – Basic version MS4-LFM

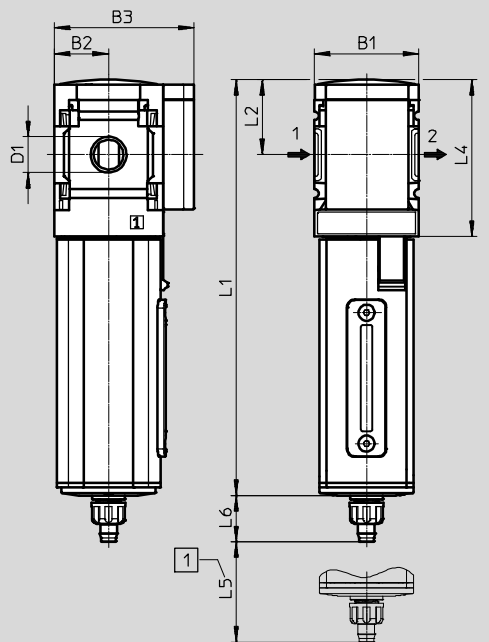
Download CAD data → www.festo.com

Manual rotary condensate drain

With plastic bowl guard R



With metal bowl U



1 Installation dimensions

→ Flow direction

Type	B1	B2	B3	D1	L1		L2	L4	L5	L6
					Plastic bowl guard	Metal bowl				
MS4-LFM-1/8	40	21	54	G1/8	141.6	160	29	60.5	25	17.7
MS4-LFM-1/4				G1/4						

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

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

Technical data

FESTO

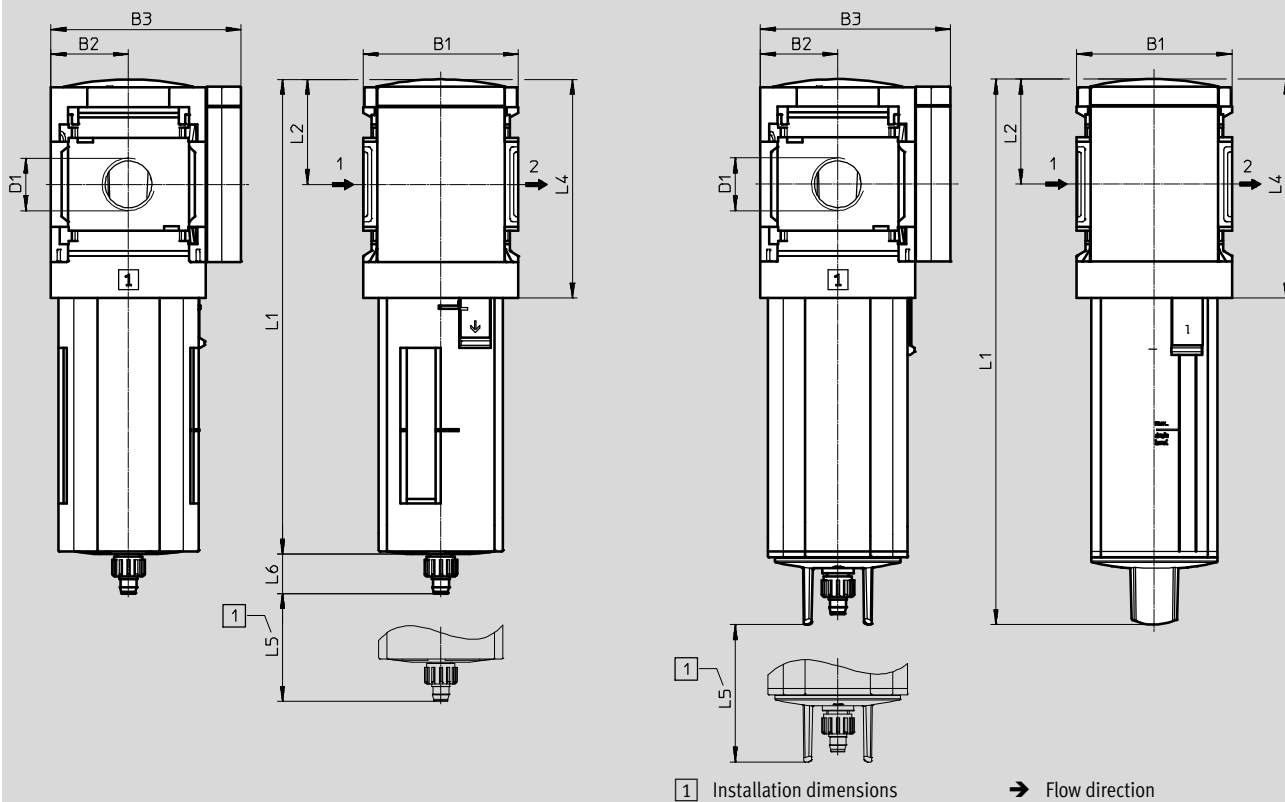
Dimensions – Basic version MS6-LFM

Download CAD data → www.festo.com

Manual rotary condensate drain

With plastic bowl guard R

With metal bowl U



Type	B1	B2	B3	D1	L1		L2	L4	L5	L6
					Plastic bowl guard	Metal bowl				
MS6-LFM-1/4	62	31	76	G1/4	193	221	42	88	75	15.8
MS6-LFM-3/8				G3/8						
MS6-LFM-1/2				G1/2						

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

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

FESTO

Technical data

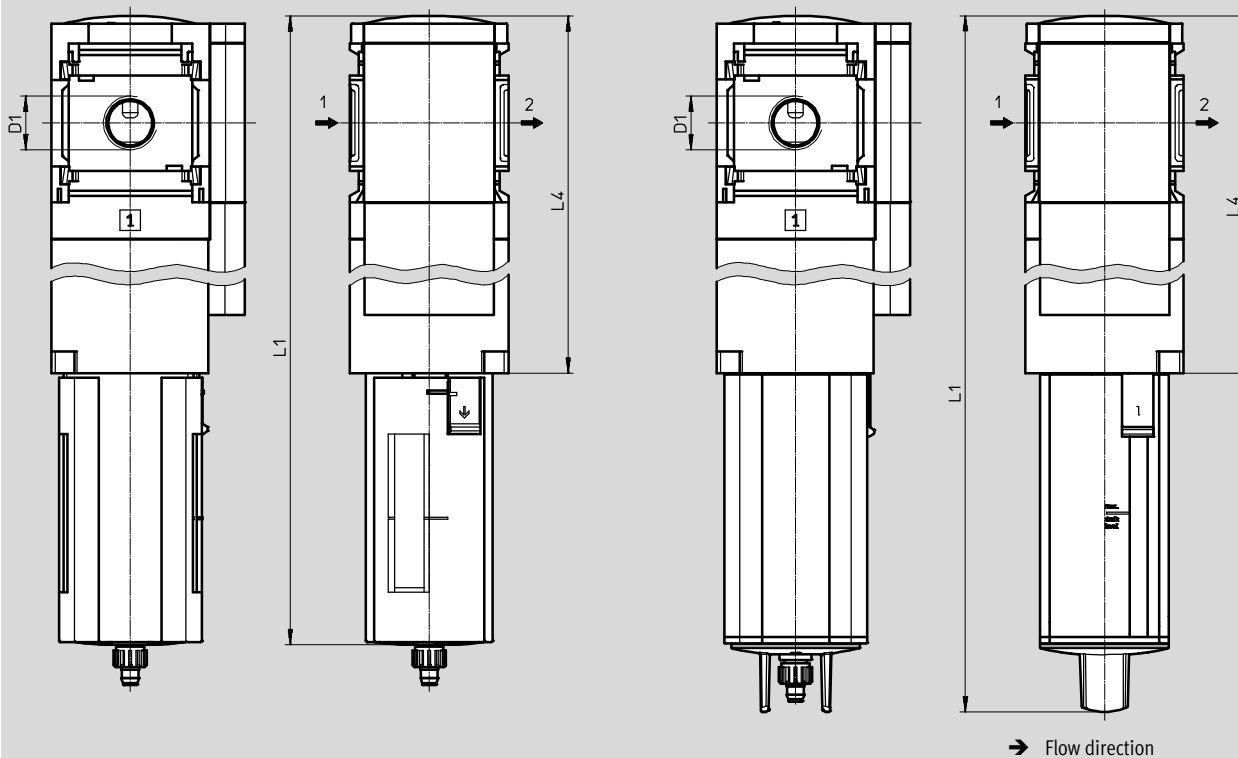
Dimensions – High flow rate HF

Download CAD data → www.festo.com

Manual rotary condensate drain

With plastic bowl guard R

With metal bowl U



Type	D1	L1		L4
		Plastic bowl guard	Metal bowl	
MS6-LFM-1/4-...-HF	G1/4	313	340	207
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

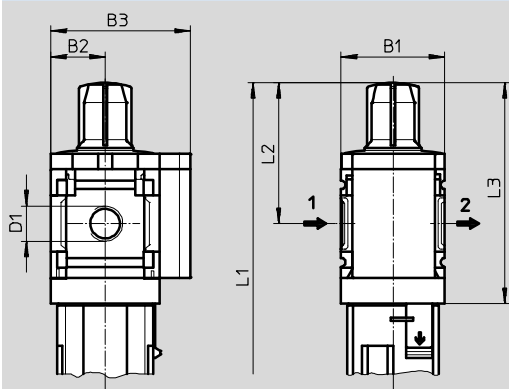
Fine and micro filters MS4/MS6-LFM, MS series

Technical data

FESTO

Dimensions – Differential pressure indicator DA

Download CAD data → www.festo.com



Type	B1	B2	B3	D1	L1		L2	L3
					Plastic bowl guard	Metal bowl		
MS4-LFM-1/8-...-DA	40	21	54	G1/8	168.4	186.8	55.8	87.3
MS4-LFM-1/4-...-DA				G1/4				
MS6-LFM-1/4-...-DA	62	31	76	G1/4	229	257	78	124
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	349	376	78	124
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

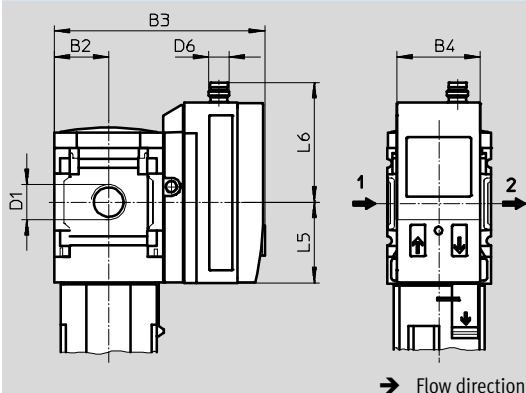
Fine and micro filters MS4/MS6-LFM, MS series

FESTO

Technical data

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

Download CAD data → 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

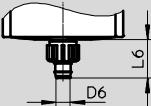
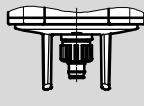
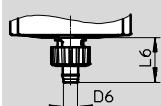
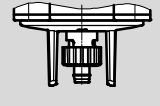
Type	B2	B3	B4	D1	D6	L5	L6
MS4-LFM-1/8-...-DP/DN	21	82.6	32.3	G1/8	M8x1	35.1	46.7
MS4-LFM-1/4-...-DP/DN				G1/4			
MS4-LFM-1/8-...-DPI/DNI	21	82.6	32.3	G1/8	M12x1	35.1	55.8
MS4-LFM-1/4-...-DPI/DNI				G1/4			
MS6-LFM-1/4-...-DP/DN	31	103	32.3	G1/4	M8x1	35.1	46.7
MS6-LFM-3/8-...-DP/DN				G3/8			
MS6-LFM-1/2-...-DP/DN				G1/2			
MS6-LFM-1/4-...-DPI/DNI	31	103	32.3	G1/4	M12x1	35.1	55.8
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

FESTO

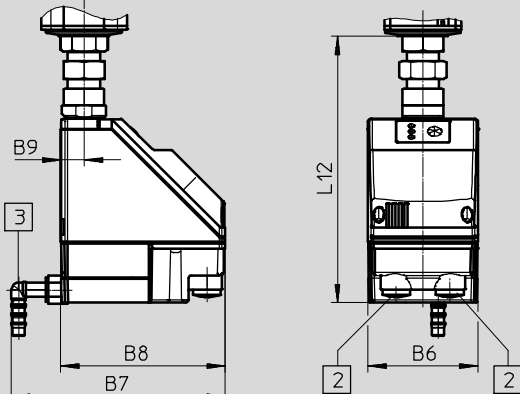
Technical data

Dimensions – Condensate drain		Download CAD data → www.festo.com	
Manual rotary M		Fully automatic V	
MS4-...-R/U-M MS6-...-R-M	MS6-...-U-M	MS4-...-U-V MS6-...-R-V	MS6-...-U-V
			
Barbed connector for plastic tubing PUN(-H)-8x1,25		Push-in connector for plastic tubing PUN-6/PAN-6	
		Barbed connector for plastic tubing PUN(-H)-8x1,25	

Type	D6 Ø	L6
Plastic bowl guard R		
MS4-LFM-...-M	5.6	17.7
MS6-LFM-...-M		15.8
Metal bowl U		
MS4-LFM-...-M	5.6	17.7
MS6-LFM-...-M		–

Type	D6 Ø	L6
Plastic bowl guard R		
MS4-LFM-...-H	6.2	22.1
MS6-LFM-...-H		20.4
Metal bowl U		
MS4-LFM-...-H	6.2	22.1
MS6-LFM-...-H		–

Type	D6 Ø	L6
Plastic bowl guard R		
–	–	–
MS6-LFM-...-V	5.6	18.5
Metal bowl U		
MS4-LFM-...-V	5.6	20.4
MS6-LFM-...-V		–

Fully automatic, electrically actuated E2/E3/E4		Technical data → Internet: pwea
		Condensate drain PWEA: 2 Electrical connection: Screw terminal PG9 3 Connection 360° rotatable for plastic tubing PUN-H-12x2

Type	B6	B7	B8	B9	L12
MS6-LFM-...-E2/E3/E4	72	140	108	15	174.5

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	G1/8	529463	MS4-LFM-1/8-ARM	529465	MS4-LFM-1/8-BRM
		G1/4	529459	MS4-LFM-1/4-ARM	529461	MS4-LFM-1/4-BRM
MS6	Manual rotary	G1/4	529663	MS6-LFM-1/4-ARM	529667	MS6-LFM-1/4-BRM
		G3/8	529671	MS6-LFM-3/8-ARM	529675	MS6-LFM-3/8-BRM
		G1/2	529655	MS6-LFM-1/2-ARM	529659	MS6-LFM-1/2-BRM
		G1/4	530510	MS6-LFM-1/4-ARV	530514	MS6-LFM-1/4-BRV
	Fully automatic	G3/8	530518	MS6-LFM-3/8-ARV	—	—
		G1/2	530502	MS6-LFM-1/2-ARV	530506	MS6-LFM-1/2-BRV
Integrated as metal bowl						
MS4	Fully automatic	G1/4	535768	MS4-LFM-1/4-AUV	535766	MS4-LFM-1/4-BUV
MS6	Fully automatic	G1/4	529665	MS6-LFM-1/4-AUV	—	—
		G3/8	529673	MS6-LFM-3/8-AUV	—	—
		G1/2	529657	MS6-LFM-1/2-AUV	529661	MS6-LFM-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	–	–
		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	–	–
		G $\frac{1}{2}$	536871	MS6-LFM- $\frac{1}{2}$ -ARM-DA	536835	MS6-LFM- $\frac{1}{2}$ -BRM-DA
	Fully automatic	G $\frac{1}{2}$	536877	MS6-LFM- $\frac{1}{2}$ -ARV-DA	536841	MS6-LFM- $\frac{1}{2}$ -BRV-DA
Integrated as metal bowl						
MS4	Fully automatic	G $\frac{1}{4}$	537214	MS4-LFM- $\frac{1}{4}$ -AUV-DA	–	–
MS6	Fully automatic	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

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

FESTO

Ordering data – Modular products

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
M Module No.		527697	527670			
Series		Standard			MS	MS
Size		4	6		...	
Function		Fine and micro filter			-LFM	-LFM
Pneumatic connection	Female thread G $\frac{1}{8}$	–		1	- $\frac{1}{8}$	
	Female thread G $\frac{1}{4}$	Female thread G $\frac{1}{4}$		1	- $\frac{1}{4}$	
	–	Female thread G $\frac{3}{8}$		1	- $\frac{3}{8}$	
	–	Female thread G $\frac{1}{2}$		1	- $\frac{1}{2}$	
	Connecting plate G $\frac{1}{8}$	–			-AGA	
	Connecting plate G $\frac{1}{4}$	Connecting plate G $\frac{1}{4}$			-AGB	
	Connecting plate G $\frac{3}{8}$	Connecting plate G $\frac{3}{8}$			-AGC	
	–	Connecting plate G $\frac{1}{2}$			-AGD	
	–	Connecting plate G $\frac{3}{4}$			-AGE	
	Connecting plate NPT $\frac{1}{8}$	–		1	-AQK	
	Connecting plate NPT $\frac{1}{4}$	Connecting plate NPT $\frac{1}{4}$		1	-AQN	
	Connecting plate NPT $\frac{3}{8}$	Connecting plate NPT $\frac{3}{8}$		1	-AQP	
	–	Connecting plate NPT $\frac{1}{2}$		1	-AQR	
	–	Connecting plate NPT $\frac{3}{4}$		1	-AQS	
Grade of filtration	1 μ m				-B	
	0.01 μ m				-A	
Bowl	Plastic bowl with plastic bowl guard				-R	
	Metal bowl				-U	

1 $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, **AQK, AQN, AQP, AQR, AQS, E2, E3, E4, DP, DN, DPI, DNI, WPM**

Not with EU certification EX4

M Mandatory data

O Options

Transfer order code

MS - **LFM** - -

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

FESTO

Ordering data – Modular products

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)		[2]	-V	
		–	External fully automatic condensate drain, electrical, 115 V AC, terminals	[1] [3]	-E2	
		–	External fully automatic condensate drain, electrical, 230 V AC, terminals	[1] [3]	-E3	
		–	External fully automatic condensate drain, electrical, 24 V DC, terminals	[1] [3]	-E4	
[O]	Flow rate	–	High flow rate		-HF	
	Range of application	–	Suitable for sealing air and cleaning air	[4]	-HP	
	Filter contamination sensing	Differential pressure indicator, visual			-DA	
		Filter contamination indicator, M8 plug, PNP, 3-pin		[1] [5]	-DP	
		Filter contamination indicator, M8 plug, NPN, 3-pin		[1] [5]	-DN	
		Filter contamination indicator, M12 plug, PNP, 4-pin, analogue output 4 ... 20 mA		[1] [5]	-DPI	
		Filter contamination indicator, M12 plug, PNP, 4-pin, analogue output 4 ... 20 mA		[1] [5]	-DNI	
	Type of mounting	Mounting bracket standard design		[6]	-WP	
		Mounting bracket for attaching the service units		[1] [6]	-WPM	
		Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required			-WB	
		Mounting bracket centrally at rear (wall mounting top), connecting plates not required	–		-WBM	
	EU certification	II 2GD to EU Explosion Protection Directive (ATEX)			-EX4	
	UL certification	cULus, ordinary location for Canada and USA			-UL1	
	Flow direction	Flow direction from right to left			-Z	

- [2] V Size 4: only with metal bowl U
 [3] E2, E3, E4 Only with metal bowl U
 [4] HP Not with flow rate HF or filter contamination sensing DA

- [5] DP, DN, DPI, DNI Measuring range max. 10 bar
 [6] WP, WPM Only with connecting plate AGA, AGB, AGC, AGD, AGE, AQK, AQN, AQP, AQR or AQS.

- [M] Mandatory data
 [O] Options

Transfer order code

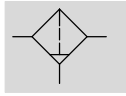
– [] – [] – [] – [] – [] – [] – [] – []

Active carbon filters MS4/MS6-LFX, MS series

FESTO

Technical data

Function



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



-  - 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
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22
- New filter cartridges → 89

General technical data		
Size	MS4	MS6
Pneumatic connection 1, 2		
Female thread	G $\frac{1}{8}$ or G $\frac{1}{4}$	G $\frac{1}{4}$, G $\frac{3}{8}$ or G $\frac{1}{2}$
Connecting plate AG...	G $\frac{1}{8}$, G $\frac{1}{4}$ or G $\frac{3}{8}$	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$ or G $\frac{3}{4}$
Connecting plate AQ...	NPT $\frac{1}{8}$, NPT $\frac{1}{4}$ or NPT $\frac{3}{8}$	NPT $\frac{1}{4}$, NPT $\frac{3}{8}$, NPT $\frac{1}{2}$ or NPT $\frac{3}{4}$
Design	Active carbon filter	
Type of mounting	Via accessories	
	In-line installation	
Assembly position	Vertical $\pm 5^\circ$	
Air purity class at the output ¹⁾	Compressed air in accordance with ISO 8573-1:2010 [1:4:1]	
Bowl guard	Plastic bowl guard	
	Integrated as metal bowl	
Residual oil content [mg/m ³]	≤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 $p_1 = 6$ bar.

Active carbon filters MS4/MS6-LFX, MS series

FESTO

Technical data

Operating and environmental conditions		
Size	MS4	MS6
Operating pressure [bar]	0 ... 14 (0 ... 10) ¹⁾	0 ... 20 (0 ... 10) ¹⁾
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [1:4:2] Inert gases	
Ambient temperature [°C]	-10 ... +60	
Temperature of medium [°C]	+5 ... +30	
Storage temperature [°C]	-10 ... +60	
Corrosion resistance class CRC ²⁾	2	
Food-safe ³⁾	See supplementary material information	
UL certification ³⁾	cULus recognized (OL)	

1) Value in brackets applies to MS4/MS6-LFX with UL certification.

2) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

3) Additional information www.festo.com/sp → Certificates.

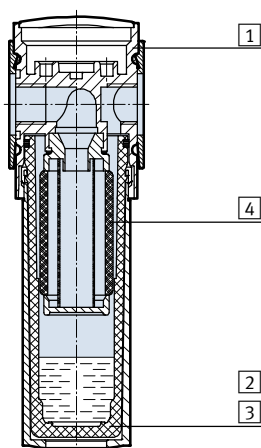
ATEX	
EU certification	EX4
ATEX category gas	II 2G
Ex-ignition protection type gas	Ex h IIC T6 Gb X
ATEX category dust	II 2D
Ex-ignition protection type dust	Ex h IIIC T60°C Db X
ATEX ambient temperature	-10 °C ≤ Ta ≤ +60 °C
CE mark (see declaration of conformity) ¹⁾	To EU Explosion Protection Directive (ATEX)

1) Additional information www.festo.com/sp → Certificates.

Weights [g]			
Size	MS4	MS6	
Variant	Standard	Standard/Range of application HP	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

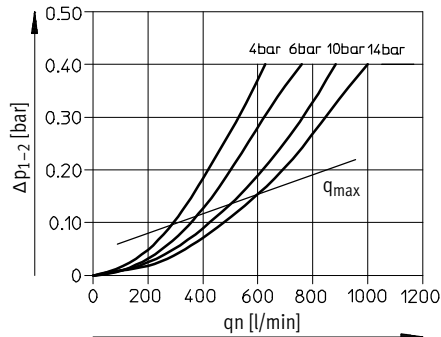
Active carbon filters MS4/MS6-LFX, MS series

FESTO

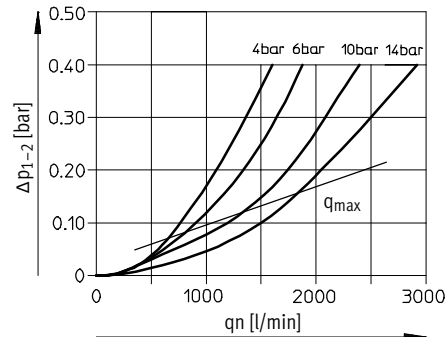
Technical data

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

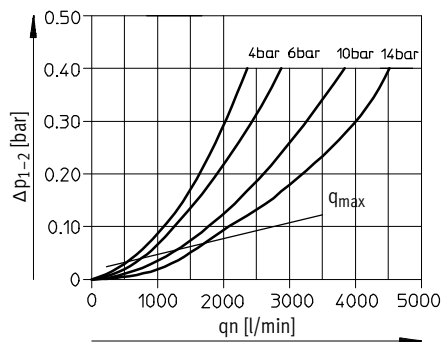
MS4-LFX-1/8 and MS4-LFX-1/4



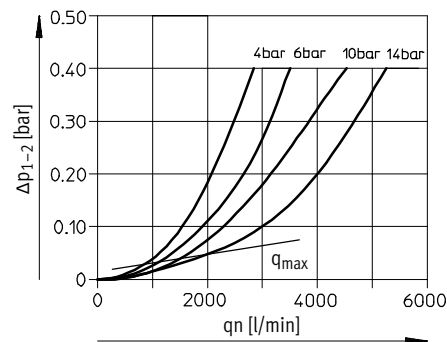
MS6-LFX-1/4



MS6-LFX-3/8

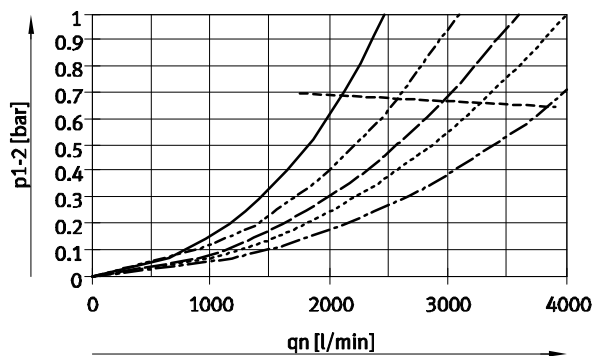


MS6-LFX-1/2

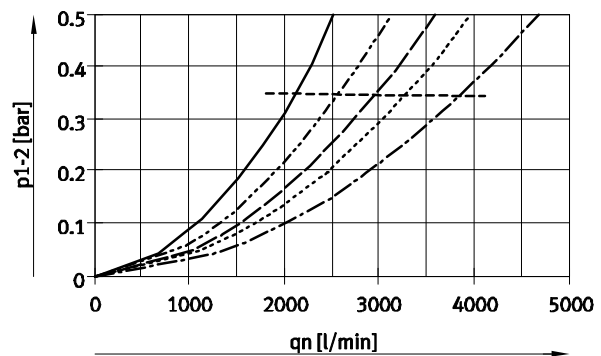


Standard flow rate q_n as a function of the differential pressure p_{1-2}

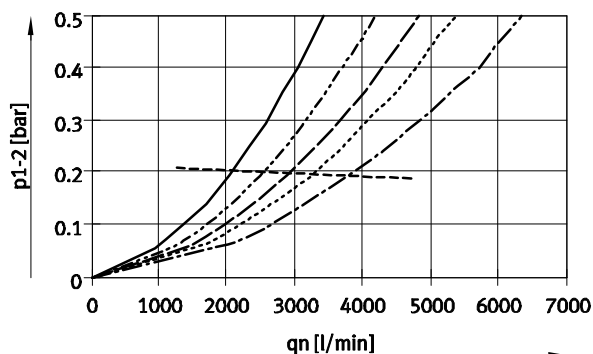
MS6-LFX-1/4-...-HF



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
- - - qmax

Active carbon filters MS4/MS6-LFX, MS series

Technical data

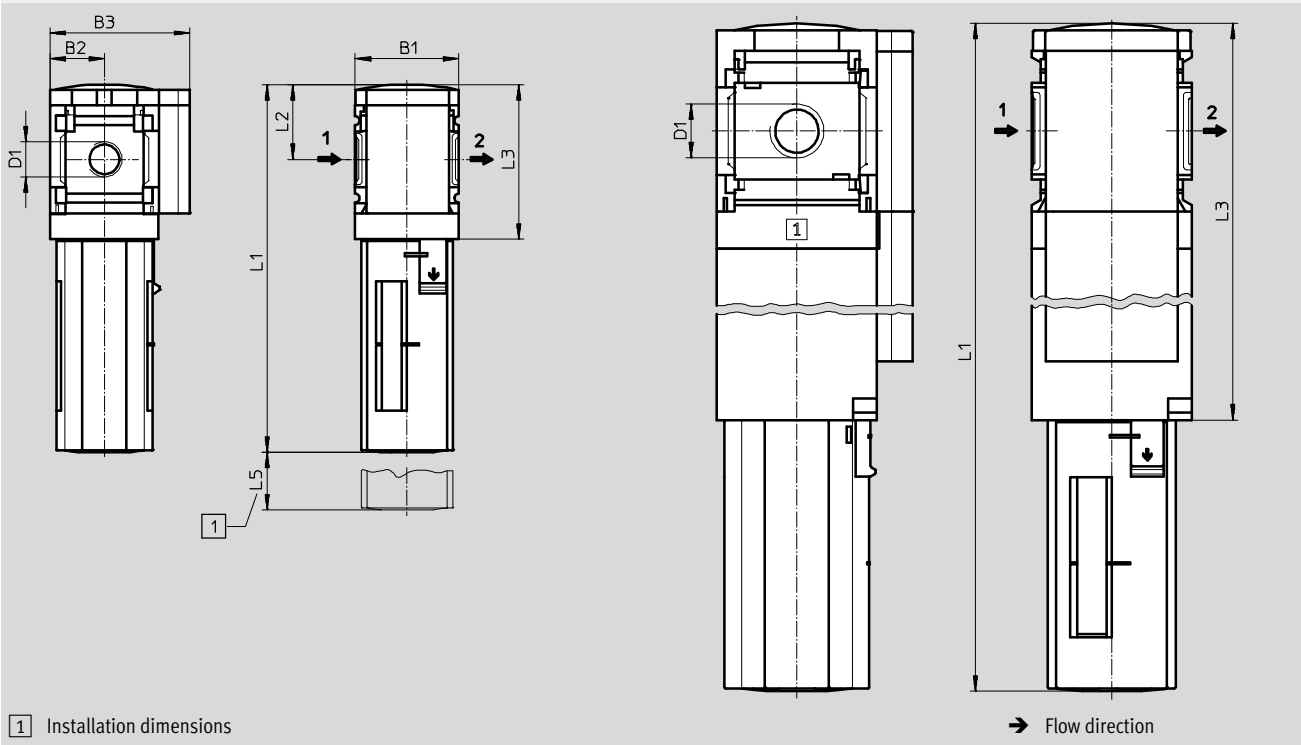
FESTO

Dimensions – Basic version

Download CAD data → www.festo.com

Standard/Range of application HP

High flow rate HF



Type	B1	B2	B3	D1	L1 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	88	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	–	–	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	–	–
	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

FESTO

Ordering data – Modular products

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
M Module No.		527699	527672			
Series		Standard			MS	MS
Size		4	6		...	
Function		Activated carbon filter			-LFX	-LFX
Pneumatic connection	Female thread G $\frac{1}{8}$	–		1	-$\frac{1}{8}$	
	Female thread G $\frac{1}{4}$	Female thread G $\frac{1}{4}$		1	-$\frac{1}{4}$	
	–	Female thread G $\frac{3}{8}$		1	-$\frac{3}{8}$	
	–	Female thread G $\frac{1}{2}$		1	-$\frac{1}{2}$	
	Connecting plate G $\frac{1}{8}$	–			-AGA	
	Connecting plate G $\frac{1}{4}$	Connecting plate G $\frac{1}{4}$			-AGB	
	Connecting plate G $\frac{3}{8}$	Connecting plate G $\frac{3}{8}$			-AGC	
	–	Connecting plate G $\frac{1}{2}$			-AGD	
	–	Connecting plate G $\frac{3}{4}$			-AGE	
	Connecting plate NPT $\frac{1}{8}$	–		1	-AQK	
	Connecting plate NPT $\frac{1}{4}$	Connecting plate NPT $\frac{1}{4}$		1	-AQN	
	Connecting plate NPT $\frac{3}{8}$	Connecting plate NPT $\frac{3}{8}$		1	-AQP	
	–	Connecting plate NPT $\frac{1}{2}$		1	-AQR	
	–	Connecting plate NPT $\frac{3}{4}$		1	-AQS	
Bowl	Plastic bowl with plastic bowl guard				-R	
	Metal bowl				-U	
O Flow rate	–	High flow rate			-HF	
Range of application	–	Suitable for sealing air and cleaning air		2	-HP	
Type of mounting	Mounting bracket standard design			3	-WP	
	Mounting bracket for attaching the service units			1 3	-WPM	
	Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required				-WB	
	Mounting bracket centrally at rear (wall mounting top), connecting plates not required	–			-WBM	
EU certification	II 2GD to EU Explosion Protection Directive (ATEX)				-EX4	
UL certification	cULus, ordinary location for Canada and USA				-UL1	
Flow direction	Flow direction from right to left				-Z	

1 $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, **AQK, AQN, AQP, AQR, AQS, WPM**

Not with EU certification EX4

2 **HP**

Not with flow rate HF

3 **WP, WPM**

Only with connecting plate AGA, AGB, AGC, AGD, AGE, AQK, AQN, AQP, AQR or AQS.

M Mandatory data

O Options

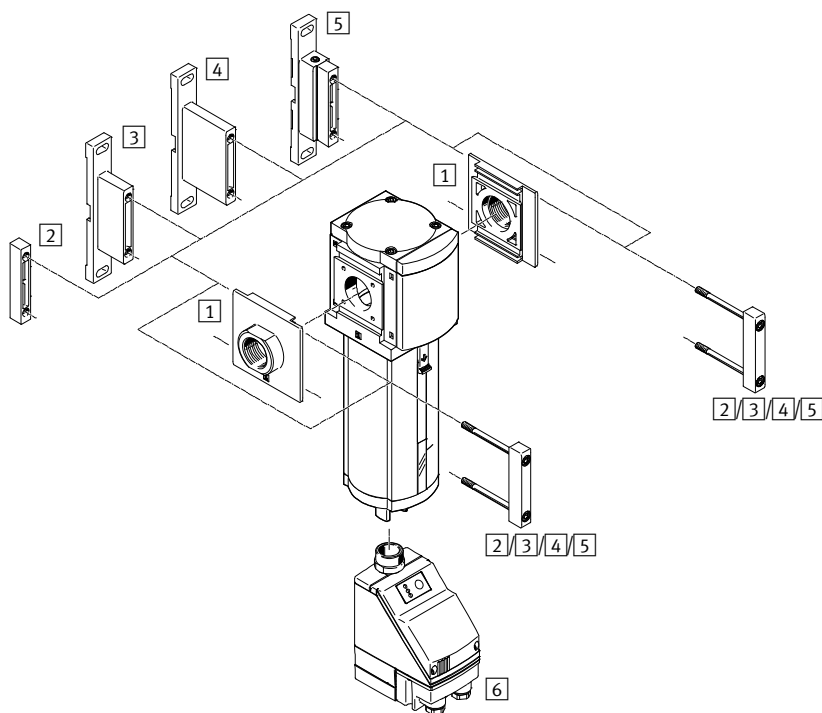
Transfer order code

MS - **LFX** - - - - - - - - -

Filters MS9-LF, MS series

Peripherals overview

FESTO



-  - 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
		With female thread ¾/1/N¾/N1	With connecting plate AG.../AQ...		Module without connect- ing thread, without connecting plate G	
			Without EU certification EX4	With EU certification EX4		
1	Connecting plate-SET MS9-AG...	–	■	■	■	ms9-ag
	Connecting plate-SET MS9-AQ...	–	■	–	■	ms9-aq
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 E2/E3/E4	■	■	–	■	46

Filters MS9-LF, MS series

Type codes

FESTO

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

Additional variants can be ordered using the modular system → 46

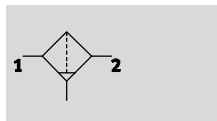
- Pneumatic connection
- Condensate drain
- Type of mounting
- EU certification
- UL certification
- Flow direction

Filters MS9-LF, MS series

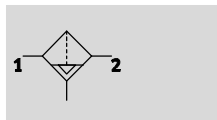
FESTO

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
-  Operating 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 → 90
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

General technical data	
Size	MS9
Pneumatic connection 1, 2	
Female thread	G3/4, G1, NPT3/4 or NPT1
Connecting plate AG...	G1/2, G3/4, G1, G1 1/4 or G1 1/2
Connecting plate AQ...	NPT1/2, NPT3/4, NPT1, NPT1 1/4 or NPT1 1/2
Module without connecting thread/plate G	–
Design	Sintered filter with centrifugal separator
Type of mounting	Via accessories In-line installation
Mounting position	Vertical ±5°
Grade of filtration [µm]	5 40
Air purity class at the output	Compressed air in accordance with ISO 8573-1:2010 [6:8:4] (grade of filtration 5 µm) Compressed air in accordance with ISO 8573-1:2010 [7:8:4] (grade of filtration 40 µm)
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 _N ¹⁾ [l/min]				
Pneumatic connection		G1/2/NPT1/2	G3/4/NPT3/4	G1/G1 1/4/G1 1/2/ NPT1/NPT1 1/4/NPT1 1/2
Grade of filtration	5 µm	6,000	8,500	9,500
	40 µm	8,000	12,500	16,000

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

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

Filters MS9-LF, MS series

Technical data

FESTO

Operating and environmental conditions				
Condensate drain	Manual rotary	Semi-automatic	Fully automatic	Fully automatic, electrically actuated
	M	H	V	E2/E3/E4
Operating pressure [bar]	0 ... 20	1.5 ... 12	2 ... 12	1 ... 16
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [-:9:-]	Compressed air in accordance with ISO 8573-1:2010 [-:9:-]	Compressed air in accordance with ISO 8573-1:2010 [7:9:-]	Compressed air in accordance with ISO 8573-1:2010 [-:9:-]
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 ¹⁾	2			
UL certification ²⁾	cULus recognized (OL)			

1) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

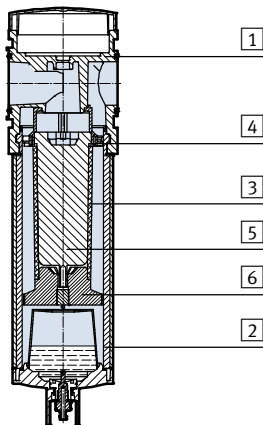
2) Additional information www.festo.com/sp → Certificates.

ATEX	
EU certification	EX4
ATEX category gas	II 2G
Ex-ignition protection type gas	Ex h IIC T6 Gb X
ATEX category dust	II 2D
EX-ignition protection type dust	Ex h IIIC T60°C Db X
ATEX ambient temperature	+5 °C ≤ Ta ≤ +60 °C
CE mark (see declaration of conformity) ¹⁾	To EU Explosion Protection Directive (ATEX)

1) Additional information www.festo.com/sp → Certificates.

Weight [g]	
Filter	2,000
Filter with condensate drain, fully automatic, electrically actuated 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

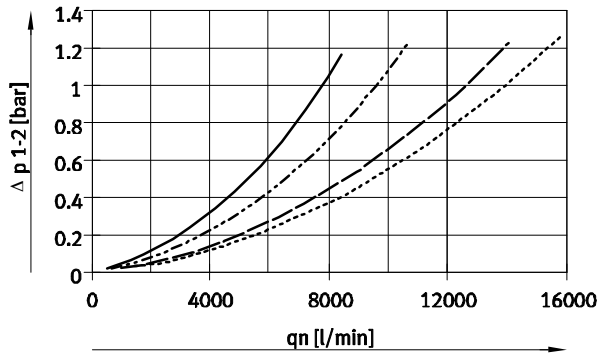
Filters MS9-LF, MS series

Technical data

FESTO

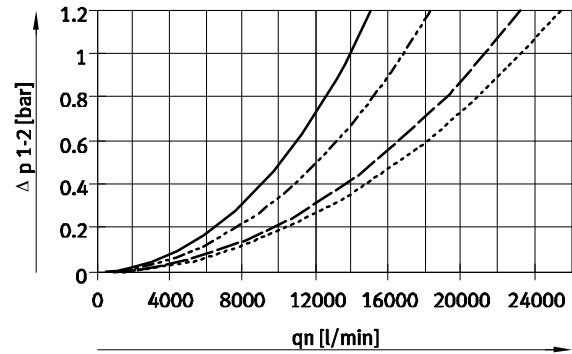
Standard flow rate q_n as a function of differential pressure Δp_{1-2}

Grade of filtration 5 μm , pneumatic connection G1/NPT1



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

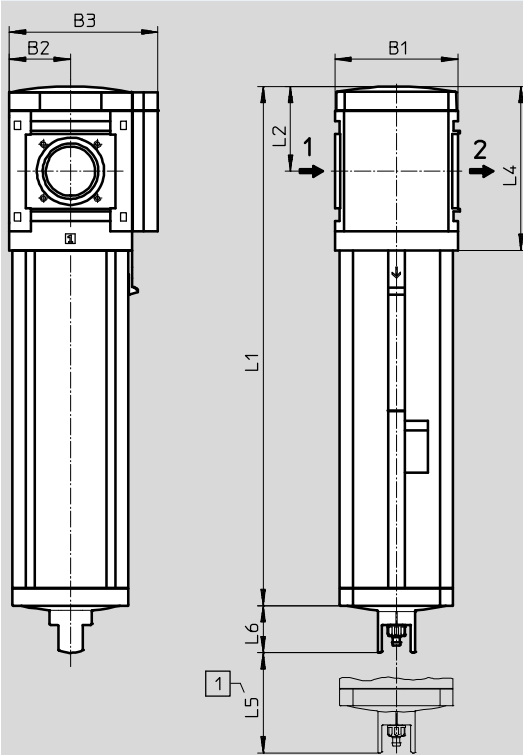
Grade of filtration 40 μm , pneumatic connection G1/NPT1



Dimensions – Basic version

Download CAD data → www.festo.com

Module without connecting thread, without connecting plate G



1 Installation dimensions

→ Flow direction

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

Filters MS9-LF, MS series

Technical data

FESTO

Dimensions – Connecting thread/connecting plate

With female thread 3/4/1/N3/4/N1

Download CAD data → www.festo.com

With connecting plate AG.../AQ...

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

3 Earthing screw M4x8 (only with MS9-...-EX4)

→ Flow direction

Type	B4	B5	B6	B7		B8	D1	D4	D5	L7	L8	T1	≡
					EX4						EX4		
MS9-LF-¾	90	104	91.5	-	-	-	G¾	11	6.5	66	-	6	-
MS9-LF-1							G1						
MS9-LF-AGD	-	-	-	112	122	132	G½	-	-	-	35	-	30
MS9-LF-AGE						132	G¾						36
MS9-LF-AGF						142	G1						41
MS9-LF-AGG						162	G1¼						50
MS9-LF-AGH						176	G1½						55
MS9-LF-N¾	90	104	91.5	-	-	-	NPT¾-14	11	6.5	66	-	6	-
MS9-LF-N1							NPT1-11½						
MS9-LF-AQR	-	-	-	112	122	132	NPT½-14	-	-	-	35	-	30
MS9-LF-AQS						132	NPT¾-14						36
MS9-LF-AQT						142	NPT1-11½						41
MS9-LF-AQU						162	NPT1¼-11½						50
MS9-LF-AQV						176	NPT1½-11½						55

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

Filters MS9-LF, MS series

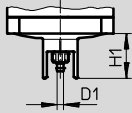
Technical data

FESTO

Dimensions – Condensate drain

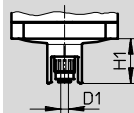
Download CAD data → www.festo.com

Manual rotary M/fully automatic V



Barbed connector for plastic tubing PUN(-H)-8x1,25

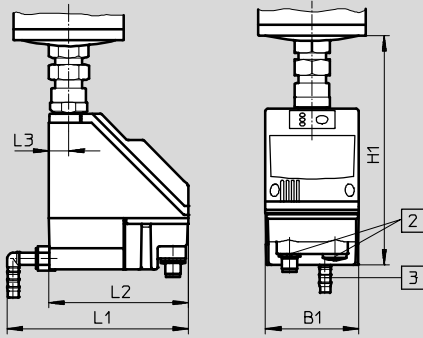
Semi-automatic H



Push-in connector for plastic tubing PUN-6/PAN-6

Fully automatic, electrically actuated E2/E3/E4

Technical data → Internet: pwea



Condensate drain PWEA:

- 2 Electrical connection: Screw terminal PG9
- 3 Connection 360° rotatable for plastic tubing PUN-H-12x2

Type	B1	D1	H1	L1	L2	L3
MS9-LF-...-M/V	–	5.6	34.5	–	–	–
MS9-LF-...-H		6.2				
MS9-LF-...-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

FESTO

Ordering table				
Grid dimension	[mm]	90	Condi- tions	Code
M Module No.	562532			
Series	Standard			MS
Size	9			9
Function	Filter			-LF
Pneumatic connection	Female thread G $\frac{3}{4}$	1	-$\frac{3}{4}$	
	Female thread G1	1	-1	
	Connecting plate G $\frac{1}{2}$		-AGD	
	Connecting plate G $\frac{3}{4}$		-AGE	
	Connecting plate G1		-AGF	
	Connecting plate G1 $\frac{1}{4}$		-AGG	
	Connecting plate G1 $\frac{1}{2}$		-AGH	
	Female thread NPT $\frac{3}{4}$	1	-N$\frac{3}{4}$	
	Female thread NPT1	1	-N1	
	Connecting plate NPT $\frac{1}{2}$	1	-AQR	
	Connecting plate NPT $\frac{3}{4}$	1	-AQS	
	Connecting plate NPT1	1	-AQT	
	Connecting plate NPT1 $\frac{1}{4}$	1	-AQU	
	Connecting plate NPT1 $\frac{1}{2}$	1	-AQV	
	Module without connecting thread, without connecting plate	1	-G	
Grade of filtration	40 μ m		-E	
	5 μ m		-C	
Bowl	Metal bowl		-U	-U
Condensate drain	Manual		-M	
	Semi-automatic (P1 max. 12 bar)		-H	
	Fully automatic (P1 max. 12 bar)		-V	
	External, fully automatic, electric	115 V AC, terminals (P1 max. 16 bar)	1	-E2
		230 V AC, terminals (P1 max. 16 bar)	1	-E3
		24 V DC, terminals (P1 max. 16 bar)	1	-E4
O Type of mounting	Mounting bracket standard design	2	-WP	
	Mounting bracket for attaching the service units	1 2	-WPM	
	Mounting bracket for large wall gap	2	-WPB	
EU certification	II 2GD to EU Explosion Protection Directive (ATEX)		-EX4	
UL certification	cULus, ordinary location for Canada and USA		-UL1	
Flow direction	Flow direction from right to left		-Z	

1 $\frac{3}{4}$, 1, N $\frac{3}{4}$, N1, AQR, AQS, AQT, AQU, AQV, G, E2, E3, E4, WPM

Not with EU certification EX4

2 **WP, WPM, WPB** Not with pneumatic connection G

M Mandatory data

O Options

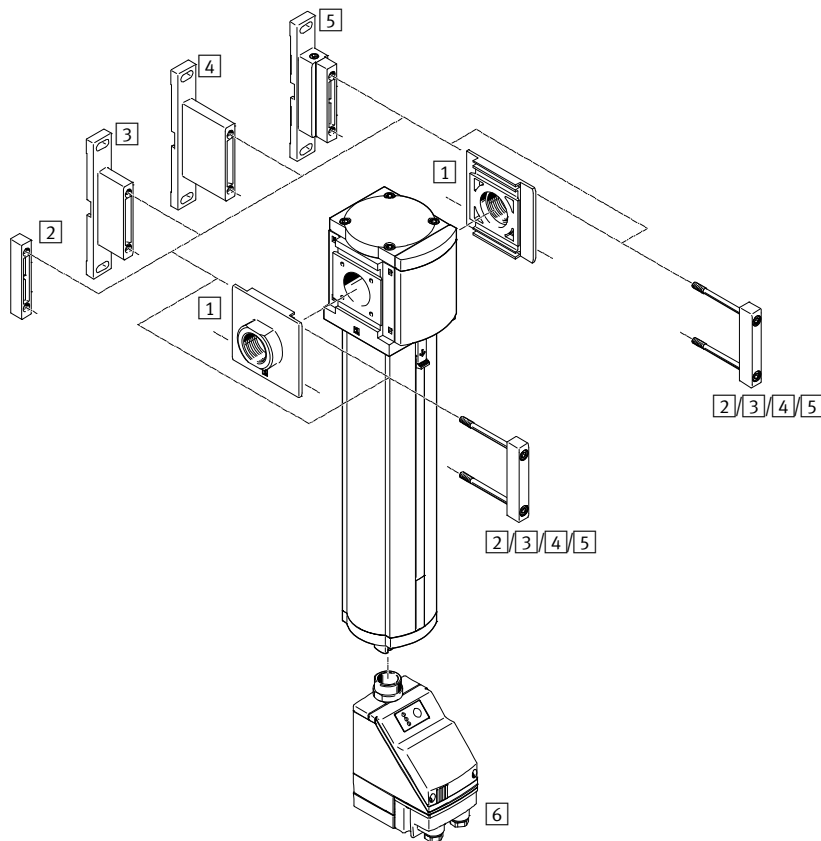
Transfer order code

562532 MS 9 - LF - - - U - - - - -

Fine and micro filters MS9-LFM, MS series

Peripherals overview

FESTO



-  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
		With female thread ¾/1/N¾/N1	With connecting plate AG.../AQ...		Module without connect- ing thread, without connecting plate G	
			Without EU certification EX4	With EU certification EX4		
1	Connecting plate-SET MS9-AG...	–	■	■	■	ms9-ag
	Connecting plate-SET MS9-AQ...	–	■	–	■	ms9-aq
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 E2/E3/E4	■	■	–	■	59

Fine and micro filters MS9-LFM, MS series

FESTO

Type codes

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

Further variants can be ordered using the modular system → 59

- Pneumatic connection
- Condensate drain
- Type of mounting
- EU certification
- UL certification
- Flow direction

Fine and micro filters MS9-LFM, MS series

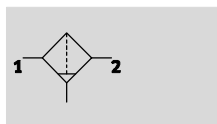
FESTO

Technical data

Condensate drain

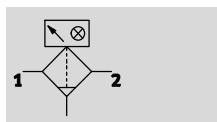
Manual rotary

Without differential pressure indicator



-  Flow rate
325 ... 10,000 l/min
-  Temperature range
-10 ... +60 °C
-  Operating pressure
0 ... 20 bar

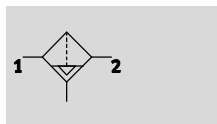
With differential pressure indicator



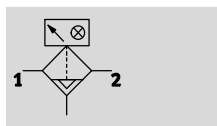
Condensate drain

Semi or fully automatic

Without differential pressure indicator



With differential pressure indicator



- High-performance filter for exceptionally clean compressed air
- Air quality to ISO 8573-1:2010
- 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 → 90
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

General technical data	
Size	MS9
Pneumatic connection 1, 2	
Female thread	G3/4, G1, NPT3/4 or NPT1
Connecting plate AG...	G1/2, G3/4, G1, G1 1/4 or G1 1/2
Connecting plate AQ...	NPT1/2, NPT3/4, NPT1, NPT1 1/4 or NPT1 1/2
Module without connecting thread/plate G	–
Constructional design	Fibre filter
Type of mounting	Via accessories In-line installation
Installation position	Vertical ±5°
Grade of filtration [µm]	Q01 (micro filter MS9-LFM-A) 1 (fine filter MS9-LFM-B)
Air purity class at the output	Compressed air in accordance with ISO 8573-1:2010 [1:7:2] (micro filter MS9-LFM-A) Compressed air in accordance with ISO 8573-1:2010 [5:7:3] (fine filter MS9-LFM-B)
Filter efficiency [%]	99.9999 (Grade of filtration Q01 µm, micro filter MS9-LFM-A) 99.99 (Grade of filtration 1 µm, fine filter MS9-LFM-B)
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/m³]	≤0.01 (micro filter MS9-LFM-A) ≤0.5 (fine filter MS9-LFM-B)
Max. condensate volume [cm³]	225

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

Fine and micro filters MS9-LFM, MS series

FESTO

Technical data

Standard flow rate $q_n^{1)}$ [l/min]		
Version	Standard	High flow rate HF
Micro filter MS9-LFM-A		
Max. standard flow rate for air purity class $q_{n \max}$	6,500	7,800
Min. standard flow rate for air purity class $q_{n \min}$	325	390
Fine filter MS9-LFM-B		
Max. standard flow rate for air purity class $q_{n \max}$	7,000	10,000
Min. standard flow rate for air purity class $q_{n \min}$	350	500

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

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

Operating and environmental conditions				
Condensate drain	Manual rotary	Semi-automatic	Fully automatic	Fully automatic, electrically actuated
	M	H	V	E2/E3/E4
Operating pressure [bar]	0 ... 20	1.5 ... 12	2 ... 12	0.8 ... 16
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [6:8:4] 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	-10 ... +60	+1 ... +60
Corrosion resistance class CRC ²⁾	2			
UL certification ³⁾	cULus recognized (OL)			

1) It is recommended to prefilter the compressed air for the micro filter MS-LFM-A using a fine filter MS-LFM-B (grade of filtration 1 μm).

2) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

3) Additional information www.festo.com/sp → Certificates.

ATEX	
EU certification	EX4
ATEX category gas	II 2G
Ex-ignition protection type gas	Ex h IIC T6 Gb X
ATEX category dust	II 2D
Ex-ignition protection type dust	Ex h IIIC T60°C Db X
ATEX ambient temperature	+5 °C ≤ Ta ≤ +60 °C
CE mark (see declaration of conformity) ¹⁾	To EU Explosion Protection Directive (ATEX)

1) Additional information www.festo.com/sp → Certificates.

Fine and micro filters MS9-LFM, MS series

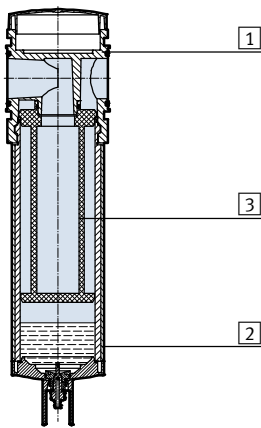
FESTO

Technical data

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 E2/E3/E4	2,900	2,900

Materials

Sectional view



Fine and micro filters		
1	Housing	Die-cast aluminium
2	Bowl	Wrought aluminium alloy
	Inspection window	PA
3	Filter	Borosilicate fibre
–	Cover	PA reinforced
–	Connecting plate, module connector, mounting bracket	Die-cast aluminium
–	Seals	NBR
Note on materials		Free of copper and PTFE

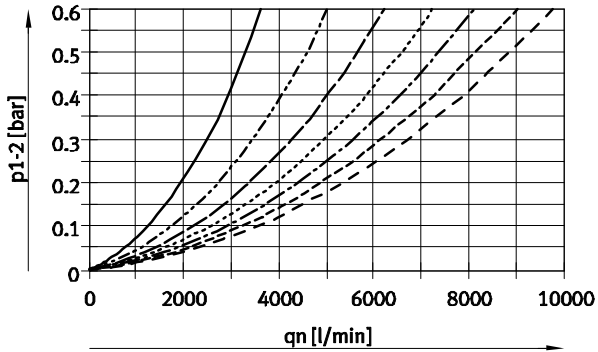
Fine and micro filters MS9-LFM, MS series

Technical data

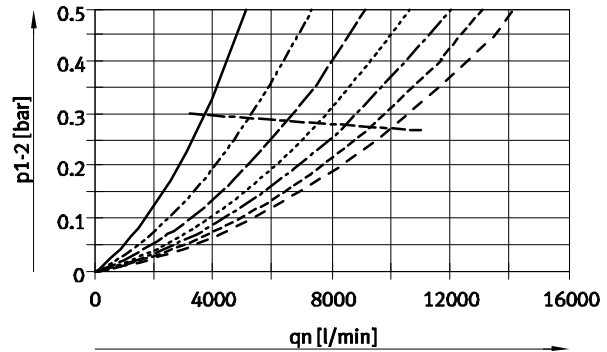
FESTO

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

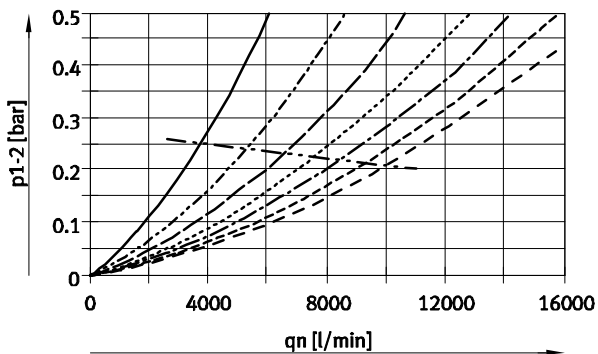
Grade of filtration 0.01 μm , pneumatic connection G $\frac{3}{2}$ /NPT $\frac{1}{2}$



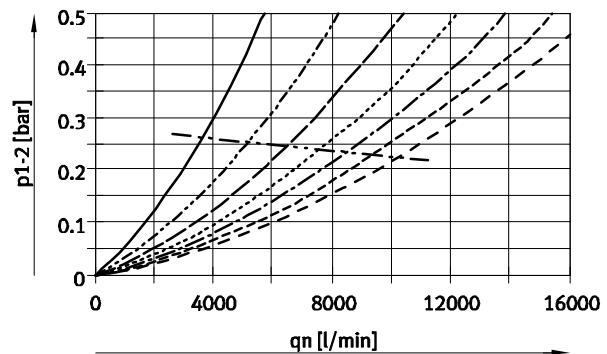
Grade of filtration 0.01 μm , pneumatic connection G $\frac{3}{4}$ /NPT $\frac{3}{4}$



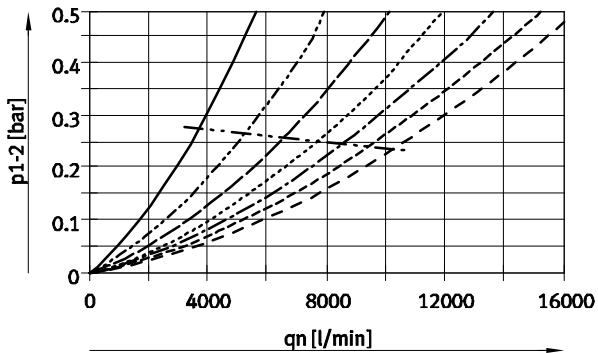
Grade of filtration 0.01 μm , pneumatic connection G1/NPT1



Grade of filtration 0.01 μm , pneumatic connection G1 $\frac{1}{4}$ /NPT1 $\frac{1}{4}$



Grade of filtration 0.01 μm , pneumatic connection G1 $\frac{1}{2}$ /NPT1 $\frac{1}{2}$



- 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/AQR: $q_{n \text{ max}}$ -values lie above the measured q_n -values)

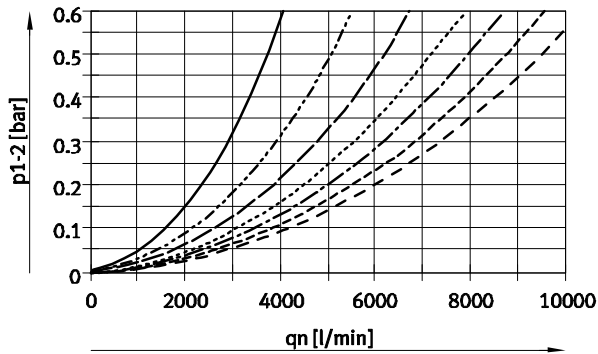
Fine and micro filters MS9-LFM, MS series

Technical data

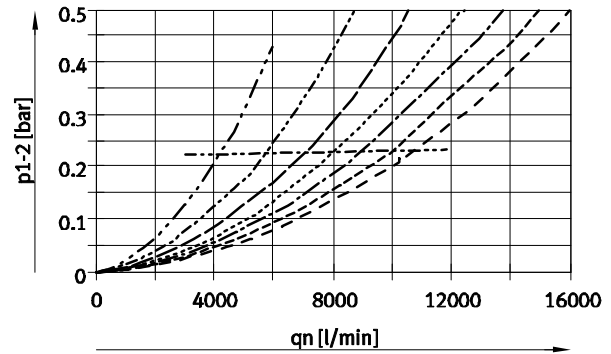
FESTO

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

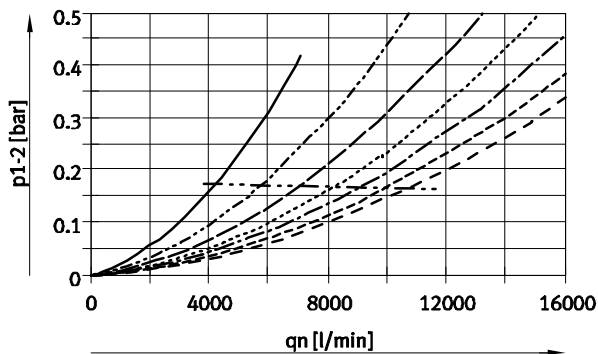
Grade of filtration 1 μm , pneumatic connection $G\frac{1}{2}/NPT\frac{1}{2}$



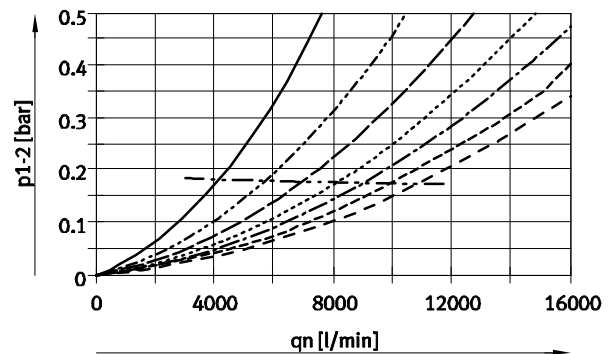
Grade of filtration 1 μm , pneumatic connection $G\frac{3}{4}/NPT\frac{3}{4}$



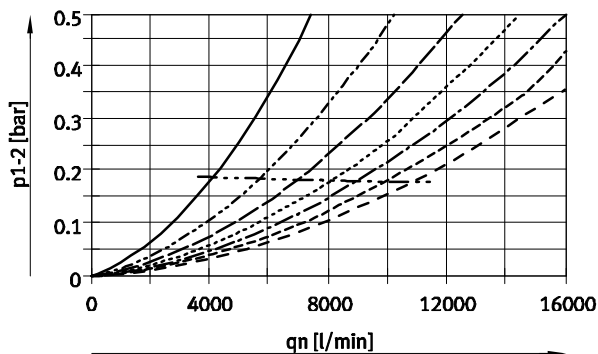
Grade of filtration 1 μm , pneumatic connection $G1/NPT1$



Grade of filtration 1 μm , pneumatic connection $G1\frac{1}{4}/NPT1\frac{1}{4}$



Grade of filtration 1 μm , pneumatic connection $G1\frac{1}{2}/NPT1\frac{1}{2}$



- 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/AQR: $q_{n \text{ max}}$ -values lie above the measured q_n -values)

Fine and micro filters MS9-LFM, MS series

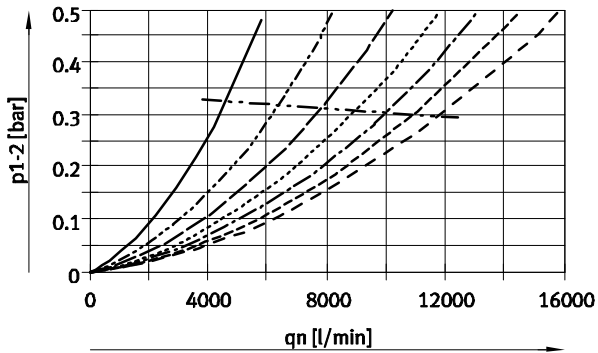
Technical data

FESTO

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

Grade of filtration 0.01 μm , pneumatic connection G $\frac{3}{4}$ /NPT $\frac{3}{4}$

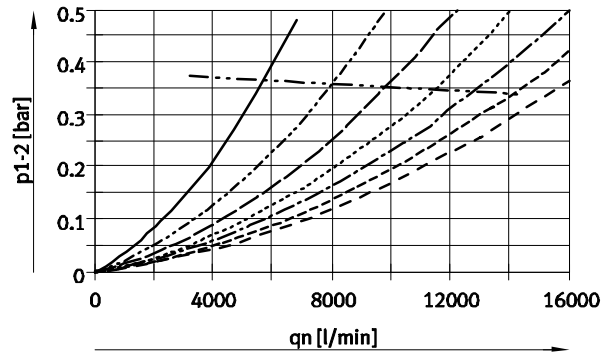
High flow rate HF



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

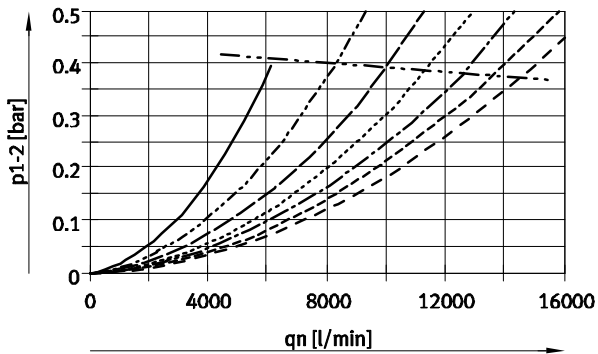
Grade of filtration 0.01 μm , pneumatic connection G1/NPT1

High flow rate HF



Grade of filtration 1 μm , pneumatic connection G $\frac{3}{4}$ /NPT $\frac{3}{4}$

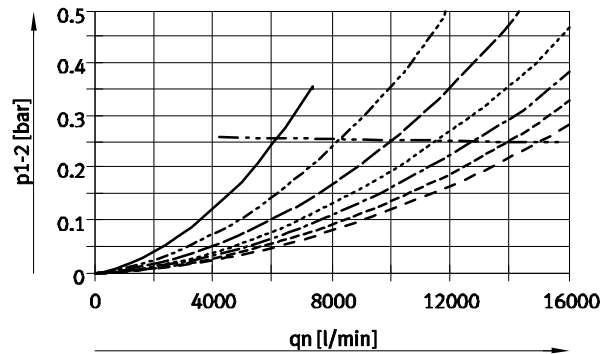
High flow rate HF



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

Grade of filtration 1 μm , pneumatic connection G1/NPT1

High flow rate HF



Fine and micro filters MS9-LFM, MS series

Technical data

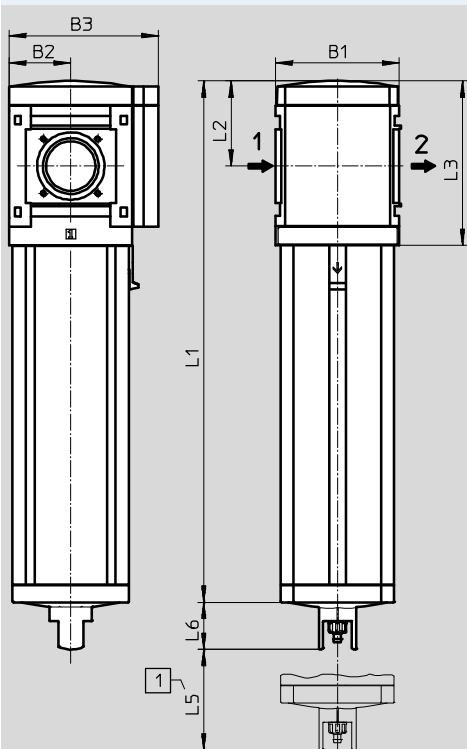
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Dimensions – Basic version

Download CAD data → www.festo.com

Module without connecting thread, without connecting plate G

Module without connecting thread, without connecting plate G, with differential pressure indicator DA



1 Installation dimensions

→ Flow direction

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	88			

Fine and micro filters MS9-LFM, MS series

Technical data

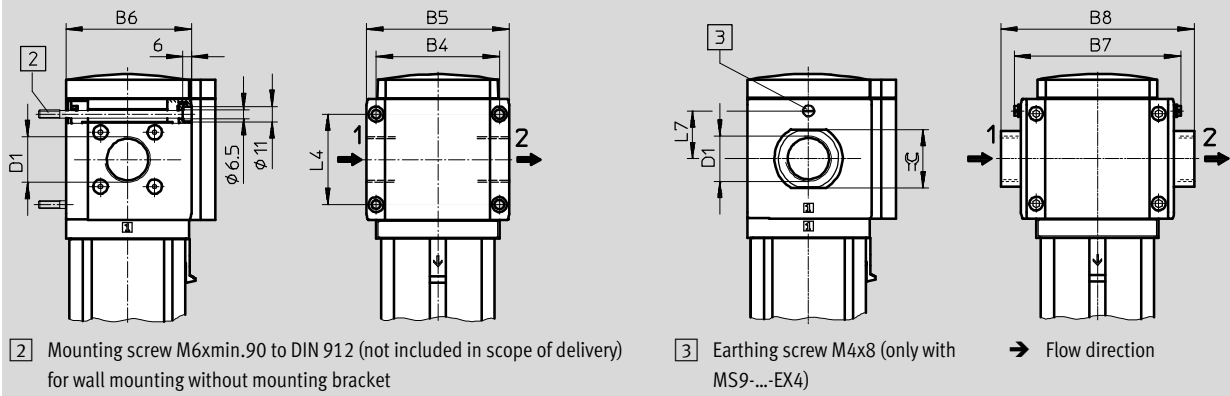
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Dimensions – Connecting thread/connecting plate

Download CAD data → www.festo.com

With female thread 3/4/1/N3/4/N1

With connecting plate AG.../AQ...



Type	B4	B5	B6	B7		B8	D1	L4	L7	≙
					EX4				EX4	
MS9-LFM-3/4	90	104	91.5	-	-	-	G3/4	66	-	-
MS9-LFM-1							G1			
MS9-LFM-AGD	-	-	-	112	122	132	G1/2	-	35	30
MS9-LFM-AGE						132	G3/4			36
MS9-LFM-AGF						142	G1			41
MS9-LFM-AGG						162	G1 1/4			50
MS9-LFM-AGH						176	G1 1/2			55
MS9-LFM-N3/4	90	104	91.5	-	-	-	NPT3/4-14	66	-	-
MS9-LFM-N1							NPT1-11 1/2			
MS9-LFM-AQR	-	-	-	112	122	132	NPT1/2-14	-	35	30
MS9-LFM-AQS						132	NPT3/4-14			36
MS9-LFM-AQT						142	NPT1-11 1/2			41
MS9-LFM-AQU						162	NPT1 1/4-11 1/2			50
MS9-LFM-AQV						176	NPT1 1/2-11 1/2			55

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

Fine and micro filters MS9-LFM, MS series

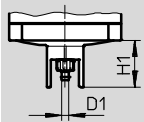
Technical data

FESTO

Dimensions – Condensate drain

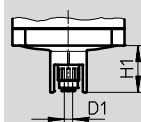
Download CAD data → www.festo.com

Manual rotary M/fully automatic V



Barbed connector for plastic tubing PUN(-H)-8x1,25

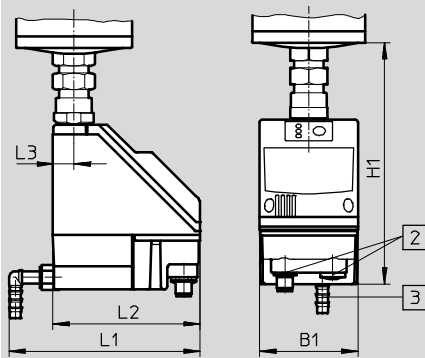
Semi-automatic H



Push-in connector for plastic tubing PUN-6/PAN-6

Fully automatic, electrically actuated E2/E3/E4

Technical data → Internet: pwea



Condensate drain PWEA:

- 2 Electrical connection: Screw terminal PG9
- 3 Connection 360° rotatable for plastic tubing PUN-H-12x2

Type	B1	D1	H1	L1	L2	L3
MS9-LFM-...-M/V	–	5.6	34.5	–	–	–
MS9-LFM-...-H		6.2				
MS9-LFM-...-E2/E3/E4	72	–	178	140	108	15

Fine and micro filters MS9-LFM, MS series

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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
Standard							
MS9	Manual rotary	G¾	553070	MS9-LFM-¾-AUM		553074	MS9-LFM-¾-BUM
		G1	553000	MS9-LFM-1-AUM		553004	MS9-LFM-1-BUM
		–	564047	MS9-LFM-G-AUM		564039	MS9-LFM-G-BUM
	Fully automatic	G¾	553072	MS9-LFM-¾-AUV		553076	MS9-LFM-¾-BUV
		G1	553002	MS9-LFM-1-AUV		553006	MS9-LFM-1-BUV
		–	564049	MS9-LFM-G-AUV		564041	MS9-LFM-G-BUV
High flow rate							
MS9	Manual rotary	G¾	552964	MS9-LFM-¾-AUM-HF		552968	MS9-LFM-¾-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	G¾	552966	MS9-LFM-¾-AUV-HF		552970	MS9-LFM-¾-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	
Standard								
MS9	Manual rotary	G¾	553078	MS9-LFM-¾-AUM-DA		553082	MS9-LFM-¾-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	G¾	553080	MS9-LFM-¾-AUV-DA		553084	MS9-LFM-¾-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	
	High flow rate							
	MS9	Manual rotary	G¾	552972	MS9-LFM-¾-AUM-HF-DA		552976	MS9-LFM-¾-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		G¾	552974	MS9-LFM-¾-AUV-HF-DA		552978	MS9-LFM-¾-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

FESTO

Ordering data – Modular products

Ordering table					
Grid dimension	[mm]	90	Condi- tions	Code	Enter code
M Module No.	552940				
Series	Standard service unit			MS	MS
Size	9			9	9
Function	Fine and micro filter			-LFM	-LFM
Pneumatic connection	Female thread G $\frac{3}{4}$		1	-$\frac{3}{4}$	
	Female thread G1		1	-1	
	Connecting plate G $\frac{1}{2}$			-AGD	
	Connecting plate G $\frac{3}{4}$			-AGE	
	Connecting plate G1			-AGF	
	Connecting plate G1 $\frac{1}{4}$			-AGG	
	Connecting plate G1 $\frac{1}{2}$			-AGH	
	Female thread NPT $\frac{3}{4}$		1	-N$\frac{3}{4}$	
	Female thread NPT1		1	-N1	
	Connecting plate NPT $\frac{1}{2}$		1	-AQR	
	Connecting plate NPT $\frac{3}{4}$		1	-AQS	
	Connecting plate NPT1		1	-AQT	
	Connecting plate NPT1 $\frac{1}{4}$		1	-AQU	
	Connecting plate NPT1 $\frac{1}{2}$		1	-AQV	
	Module without connecting thread, without connecting plate		1	-G	
Grade of filtration	1 μ m			-B	
	0.01 μ m			-A	
Bowl	Metal bowl			-U	-U
Condensate drain	Manual			-M	
	Semi-automatic (P1 max. 12 bar)			-H	
	Fully automatic (P1 max. 12 bar)			-V	
	External, fully automatic, electric	115 V AC, terminal strip (P1 max. 16 bar)	1	-E2	
		230 V AC, terminal strip (P1 max. 16 bar)	1	-E3	
		24 V DC, terminal strip (P1 max. 16 bar)	1	-E4	
O Flow rate	High flow rate			-HF	
Filter contamination sensor	Differential pressure indicator, visual			-DA	
Type of mounting	Mounting bracket standard design		2	-WP	
	Mounting bracket for attaching the service units		1 2	-WPM	
	Wall mounting bracket for large wall gap		2	-WPB	
EU certification	II 2GD to EU Explosion Protection Directive (ATEX)			-EX4	
UL certification	cULus, ordinary location for Canada and USA			-UL1	
Flow direction	Flow direction from right to left			-Z	

1 $\frac{3}{4}$, 1, N $\frac{3}{4}$, N1, AQR, AQS, AQT, AQU, AQV, G, E2, E3, E4, WPM

Not with EU certification EX4

2 WP, WPM, WPB Not with pneumatic connection G

M Mandatory data

O Options

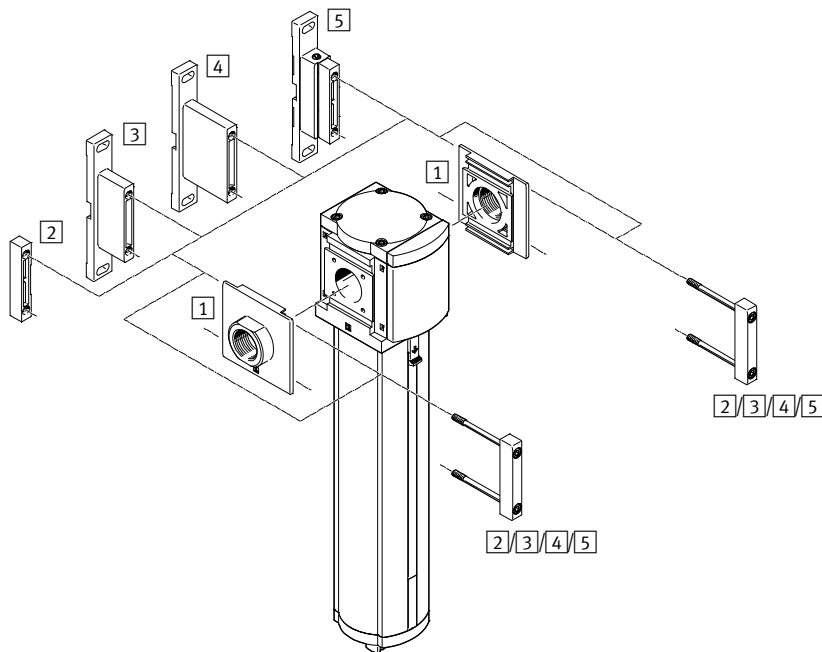
Transfer order code

552940 MS 9 - LFM - - - U - - - - - - - - - -

Activated carbon filters MS9-LFX, MS series

Peripherals overview

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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
		With female thread ¾/1/N¾/N1	With connecting plate AG.../AQ...		Module without connect- ing thread, without connecting plate G	
			Without EU certification EX4	With EU certification EX4		
1	Connecting plate-SET MS9-AG...	–	■	■	■	ms9-ag
	Connecting plate-SET MS9-AQ...	–	■	–	■	ms9-aq
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

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Type codes

		MS	9	-	LFX	-	3/4	-	U
Series									
MS	Standard service unit								
Size									
9	Grid dimension 90 mm								
Service function									
LFX	Activated carbon filter								
Pneumatic connection									
3/4	Thread G3/4								
1	Thread G1								
G	Module without connecting thread, without connecting plate								
Bowl guard									
U	Integrated as metal bowl								

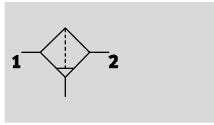
Further variants can be ordered using the modular system → 66

- Pneumatic connection
- Type of mounting
- EU certification
- UL certification
- Flow direction

Activated carbon filters MS9-LFX, MS series

FESTO

Technical data



-  Flow rate
max. 6,500 l/min
-  Temperature range
-10 ... +60 °C
-  Operating 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
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22
- New filter cartridges → 90

General technical data	
Size	MS9
Pneumatic connection 1, 2	
Female thread	G3/4, G1, NPT3/4 or NPT1
Connecting plate AG...	G1/2, G3/4, G1, G1 1/4 or G1 1/2
Connecting plate AQ...	NPT1/2, NPT3/4, NPT1, NPT1 1/4 or NPT1 1/2
Module without connecting thread/plate G	–
Constructional design	Activated carbon filter
Type of mounting	Via accessories
	In-line installation
Installation position	Vertical ±5°
Air purity class at the output ¹⁾	Compressed air in accordance with ISO 8573-1:2010 [1:4:1]
Bowl guard	Integrated as metal bowl
Residual oil content [mg/m³]	≤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 $q_n^{1)}$ [l/min]	
Max. standard flow rate for air purity class q_n max	6,500

- 1) Measured at $p_1 = 6$ bar

Operating and environmental conditions		
Operating pressure	[bar]	0 ... 20
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [1:4:2]
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	+5 ... +30
Storage temperature	[°C]	-10 ... +60
Corrosion resistance class CRC ¹⁾		2
UL certification ²⁾		cULus recognized (OL)

- 1) Corrosion resistance class CRC 2 to Festo standard FN 940070
 Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.
 2) Additional information www.festo.com/sp → Certificates.

Activated carbon filters MS9-LFX, MS series

Technical data

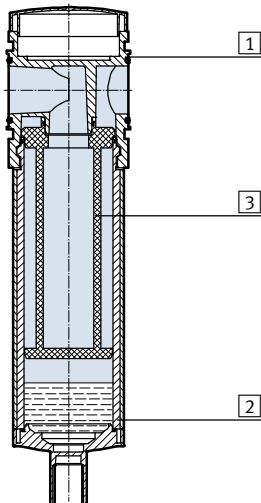
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ATEX	
EU certification	EX4
ATEX category gas	II 2G
Ex-ignition protection type gas	Ex h IIC T6 Gb X
ATEX category dust	II 2D
Ex-ignition protection type dust	Ex h IIIC T60°C Db X
ATEX ambient temperature	-10 °C ≤ Ta ≤ +60 °C
CE mark (see declaration of conformity) ¹⁾	To EU Explosion Protection Directive (ATEX)

1) Additional information www.festo.com/sp → Certificates.

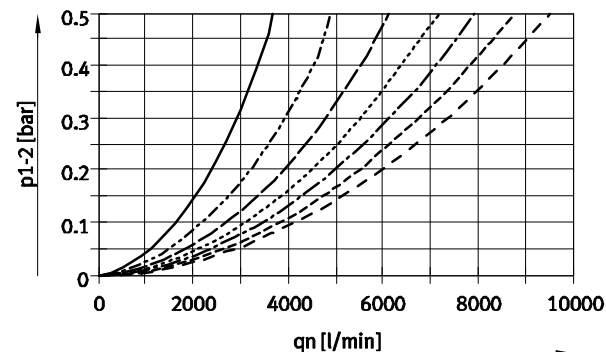
Weights [g]	
Activated carbon filter	2,000

Materials	
Sectional view	

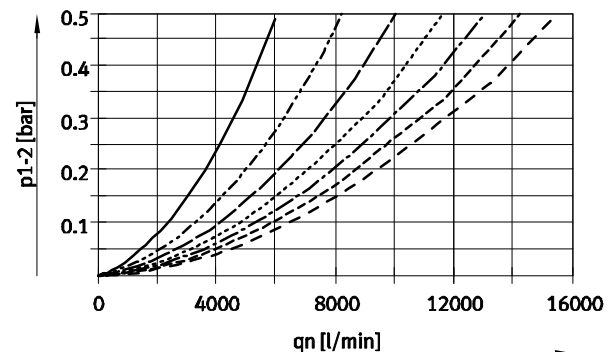


Activated carbon filter		
1	Housing	Die-cast aluminium
2	Bowl	Wrought aluminium alloy
	Inspection window	PA
3	Filter	Activated carbon
	Cover	PA reinforced
	Connecting plate, module connector, mounting bracket	Die-cast aluminium
	Seals	NBR
Note on materials		Free of copper and PTFE

Standard flow rate qn as a function of the differential pressure p1-2	
Pneumatic connection G1½/NPT½	Pneumatic connection G¾/NPT¾



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



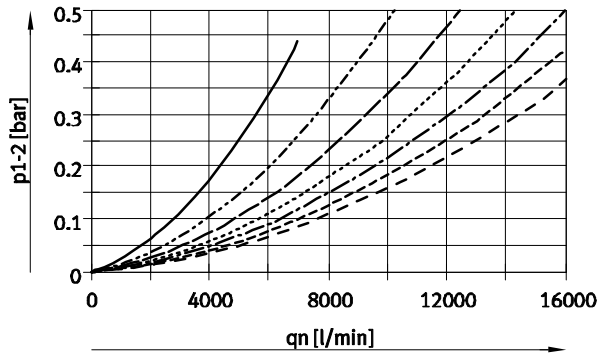
Activated carbon filters MS9-LFX, MS series

Technical data

FESTO

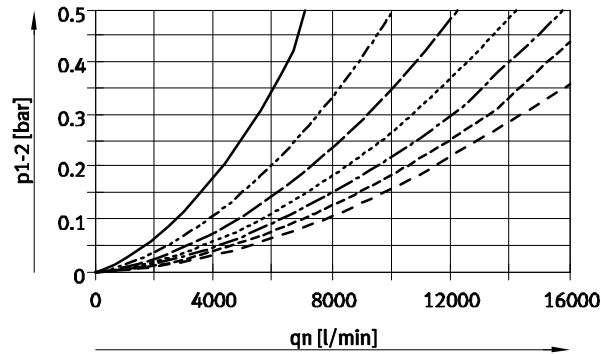
Standard flow rate q_n as a function of the differential pressure p_{1-2}

Pneumatic connection G1/NPT1



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

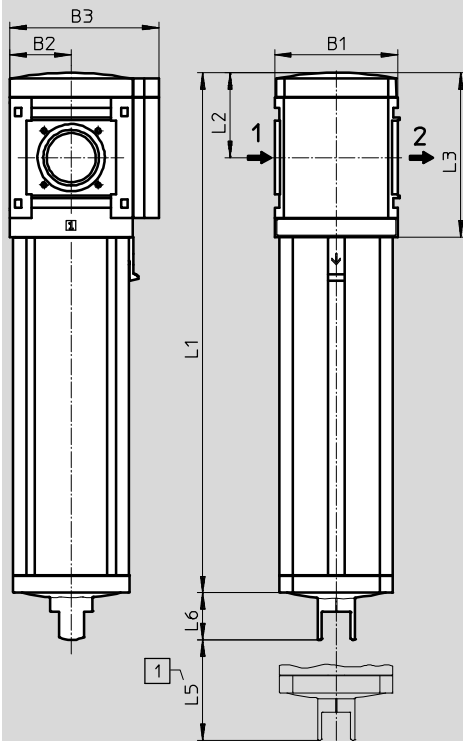
Pneumatic connection G1½/NPT1½



Dimensions – Basic version

Download CAD data → www.festo.com

Module without connecting thread, without connecting plate G



1 Installation dimensions

→ Flow direction

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

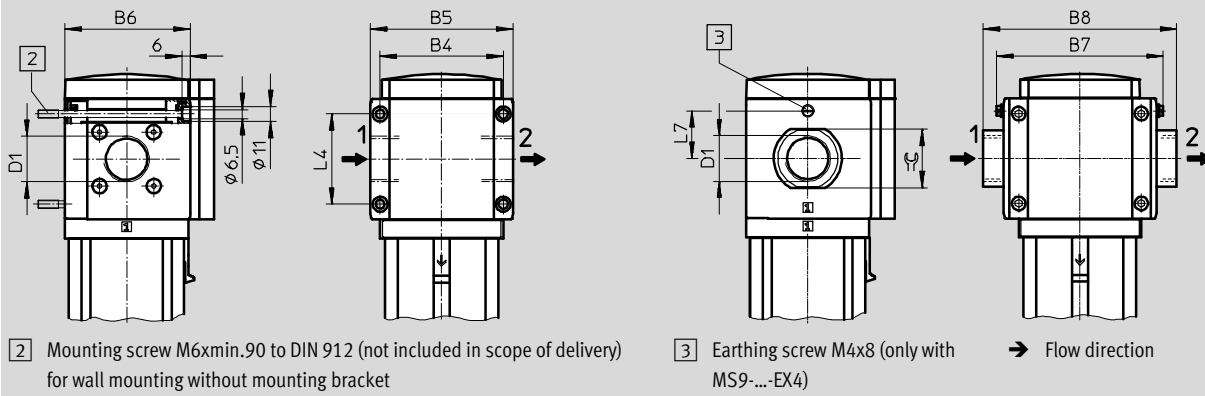
FESTO

Dimensions – Connecting thread/connecting plate

Download CAD data → www.festo.com

With female thread 3/4"/1 1/8"/N1

With connecting plate AG.../AQ...



Type	B4	B5	B6	B7		B8	D1	L4	L7	≡
					EX4				EX4	
MS9-LFX-3/4	90	104	91.5	-	-	-	G3/4	66	-	-
MS9-LFX-1							G1			
MS9-LFX-AGD	-	-	-	112	122	132	G1 1/2	-	35	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
MS9-LFX-N3/4	90	104	91.5	-	-	-	NPT3/4-14	66	-	-
MS9-LFX-N1							NPT1-11 1/2			
MS9-LFX-AQR	-	-	-	112	122	132	NPT1/2-14	-	35	30
MS9-LFX-AQS						132	NPT3/4-14			36
MS9-LFX-AQT						142	NPT1-11 1/2			41
MS9-LFX-AQU						162	NPT1 1/4-11 1/2			50
MS9-LFX-AQV						176	NPT1 1/2-11 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

FESTO

Ordering data – Modular products

Ordering table					
Grid dimension	[mm]	90	Condi- tions	Code	Enter code
M Module No.	552942				
Series	Standard service unit			MS	MS
Size	9			9	9
Function	Activated carbon filter			-LFX	-LFX
Pneumatic connection	Female thread G $\frac{3}{4}$		1	-$\frac{3}{4}$	
	Female thread G1		1	-1	
	Connecting plate G $\frac{1}{2}$			-AGD	
	Connecting plate G $\frac{3}{4}$			-AGE	
	Connecting plate G1			-AGF	
	Connecting plate G1 $\frac{1}{4}$			-AGG	
	Connecting plate G1 $\frac{1}{2}$			-AGH	
	Female thread NPT $\frac{3}{4}$		1	-N$\frac{3}{4}$	
	Female thread NPT1		1	-N1	
	Connecting plate NPT $\frac{1}{2}$		1	-AQR	
	Connecting plate NPT $\frac{3}{4}$		1	-AQS	
	Connecting plate NPT1		1	-AQT	
	Connecting plate NPT1 $\frac{1}{4}$		1	-AQU	
	Connecting plate NPT1 $\frac{1}{2}$		1	-AQV	
	Module without connecting thread, without connecting plate		1	-G	
Bowl	Metal bowl			-U	-U
O Type of mounting	Mounting bracket standard design		2	-WP	
	Mounting bracket for attaching the service units		1 2	-WPM	
	Wall mounting bracket for large wall gap		2	-WPB	
EU certification	II 2GD to EU Explosion Protection Directive (ATEX)			-EX4	
UL certification	cULus, ordinary location for Canada and USA			-UL1	
Flow direction	Flow direction from right to left			-Z	

1 $\frac{3}{4}$, 1, N $\frac{3}{4}$, N1, AQR, AQS, AQT, AQU, AQV, G, WPM

Not with EU certification EX4

2 **WP, WPM, WPB** Not with pneumatic connection G

M Mandatory data

O Options

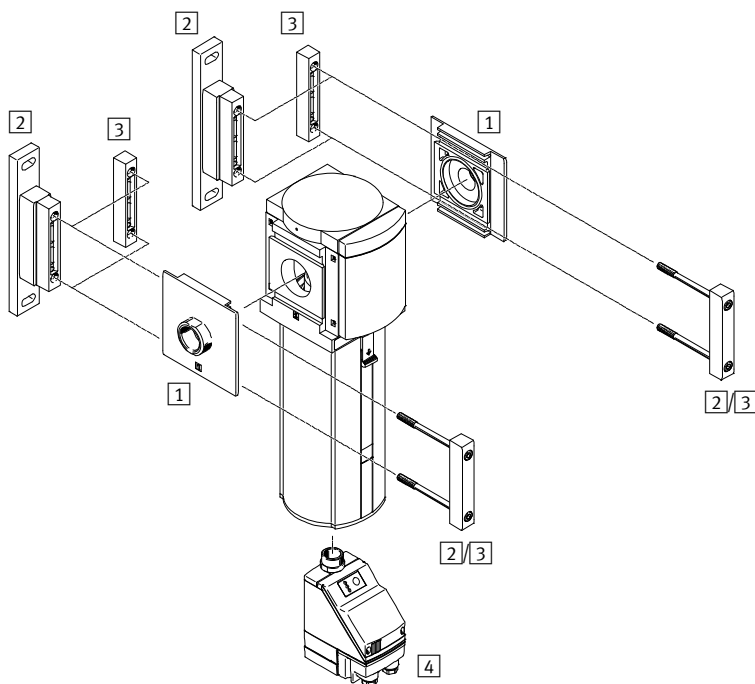
Transfer order code

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

Filters MS12-LF, MS series

Peripherals overview

FESTO



-  - Note

Additional accessories:

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

Mounting attachments and accessories		→ Page/Internet
1	Connecting plate-SET MS12-AG...	ms12-ag
2	Mounting bracket MS12-WP	ms12-wp
3	Module connector MS12-MV	ms12-mv
4	Condensate drain, fully automatic, electrically actuated E2/E3/E4	73

Filters MS12-LF, MS series

Type codes

FESTO

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

Further variants can be ordered using the modular system → 73

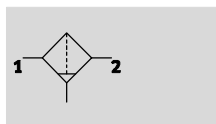
- Pneumatic connection
- Condensate drain
- Type of mounting
- Flow direction

Filters MS12-LF, MS series

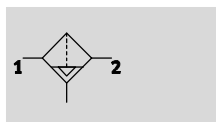
FESTO

Technical data

Function
Condensate drain
manual rotary



fully automatic



- Flow rate
11,500 ... 16,000 l/min
- Temperature range
-10 ... +60 °C
- Operating 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 → 91

General technical data	
Pneumatic connection 1, 2	
Connecting plate AG...	G1, G1¼, G1½ or G2
Module without connecting thread/plate G	–
Design	Sintered filter with centrifugal separation
Type of mounting	Via accessories
	In-line installation
Assembly position	Vertical ±5°
Grade of filtration [µm]	5
	40
Air purity class at the output	Compressed air in accordance with ISO 8573-1:2010 [6:8:4] (Grade of filtration 5 µm)
	Compressed air in accordance with ISO 8573-1:2010 [7:8:4] (Grade of filtration 40 µm)
Bowl guard	Integrated as metal bowl
Condensate drain	Manual rotary
	Fully automatic
	Fully automatic, electrical actuated
Max. condensate volume [cm³]	400

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

Standard nominal flow rate q _N ¹⁾ [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 p₁ = 6 bar and Δp = 0.5 bar

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

Filters MS12-LF, MS series

FESTO

Technical data

Operating and environmental conditions			
Condensate drain	Manual rotary M	Fully automatic V	Fully automatic, electrical actuated E2/E3/E4
Operating pressure [bar]	0.8 ... 20	2 ... 12	0.8 ... 16
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [–:9:–]	Compressed air in accordance with ISO 8573-1:2010 [7:9:–]	Compressed air in accordance with ISO 8573-1:2010 [–:9:–]
	Inert gases		
Ambient temperature [°C]	–10 ... +60	+5 ... +60	+1 ... +60
Temperature of medium [°C]	–10 ... +60	+5 ... +60	+1 ... +60
Storage temperature [°C]	–10 ... +60	–10 ... +60	+1 ... +60
Corrosion resistance CRC ¹⁾	2		

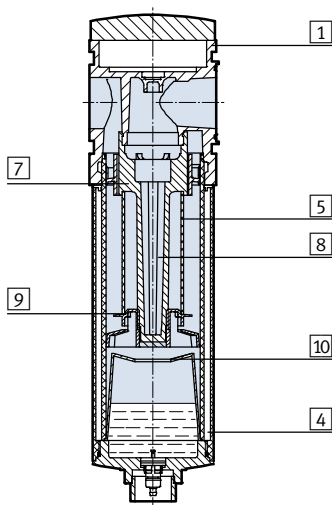
1) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Weights [g]	
Filter with metal bowl U	6,500
Filter with metal bowl U and fully automatic, electrically actuated condensate drain E2/E3/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	POM
8	Filter holder	POM
9	Separating plate	POM
10	Stabilising disc	POM
–	Seals	NBR

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

Grade of filtration 5 μm

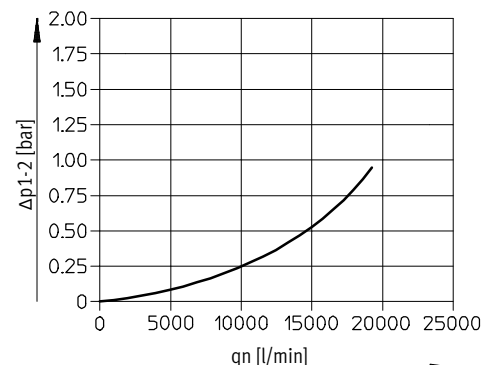
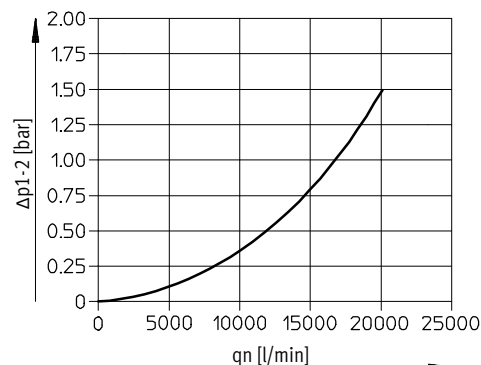
With connecting plate MS12-AGF

Pneumatic connection G1

With connecting plate MS12-AGI

Pneumatic connection G2

$p_1 = 6 \text{ bar}$



Filters MS12-LF, MS series

FESTO

Technical data

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

Grade of filtration 40 μm

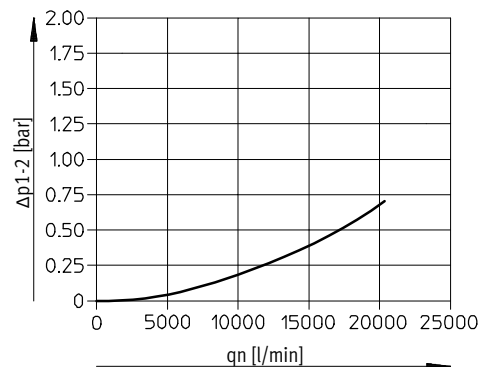
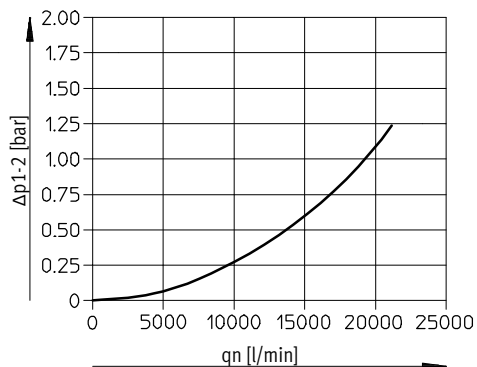
With connecting plate MS12-AGF

Pneumatic connection G1

With connecting plate MS12-AGI

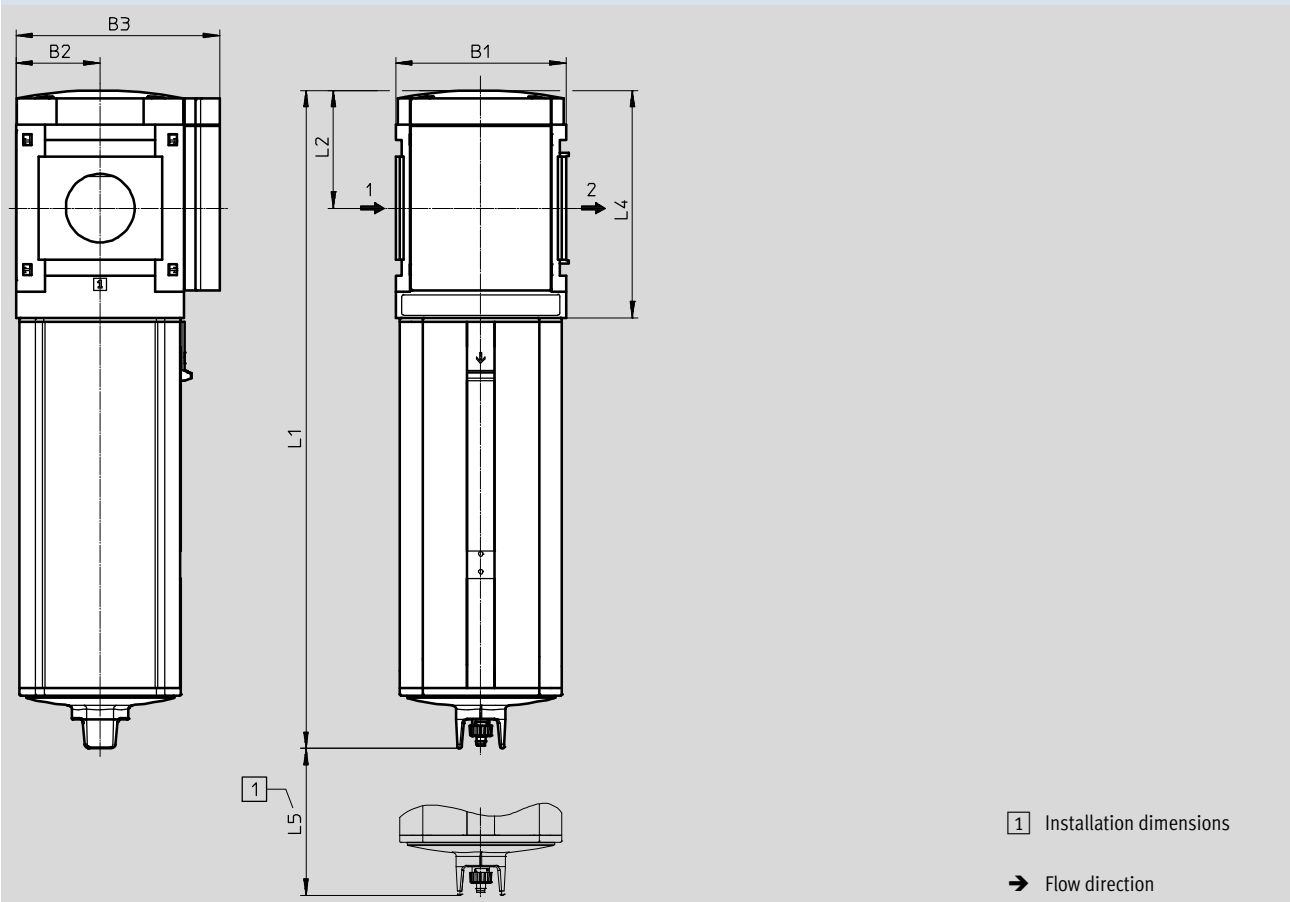
Pneumatic connection G2

$p_1 = 6 \text{ bar}$



Dimensions – Basic version

Download CAD data → www.festo.com



Type	B1	B2	B3	L1	L2	L4	L5
MS12-LF	124	61	148	480	86	166	250

Filters MS12-LF, MS series

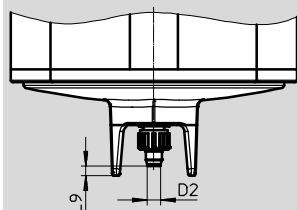
Technical data

FESTO

Dimensions – Condensate drain

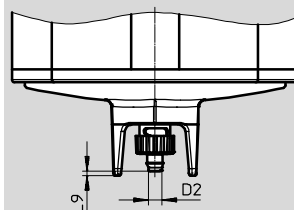
Download CAD data → www.festo.com

Manual rotary M



Barbed connector for plastic tubing PUN(-H)-8x1,25

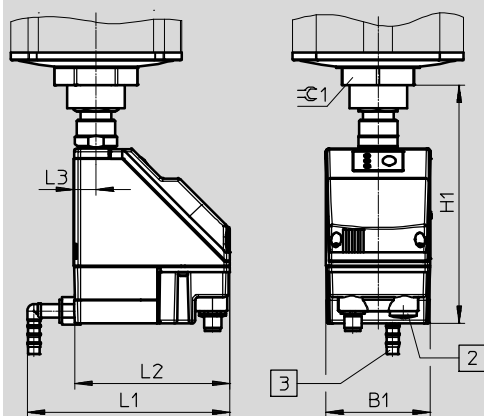
Fully automatic V



Barbed connector for plastic tubing PUN(-H)-8x1,25

Fully automatic, electrically actuated E2/E3/E4

Technical data → Internet: pwea



Condensate drain PWEA:

- 2 Electrical connection: Screw terminal PG9
- 3 Connection 360° rotatable for plastic tubing PUN-H-12x2

Type	B1	D2 Ø	H1	L1	L2	L3	L9	≅ 1
MS12-LF-...-M	–	5.6	–	–	–	–	4	–
MS12-LF-...-V	–	5.6	–	–	–	–	2	–
MS12-LF-...-E2/E3/E4	72	–	164	140	108	15	–	50

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 ¹⁾	537152	MS12-LF-G-CUV	537151	MS12-LF-G-EUV

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

Filters MS12-LF, MS series

FESTO

Ordering data – Modular products

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
Pneumatic connection	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, electric	115 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 standard design		1	-WP	
Flow direction	Flow direction from right to left			-Z	

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

M Mandatory data

O Options

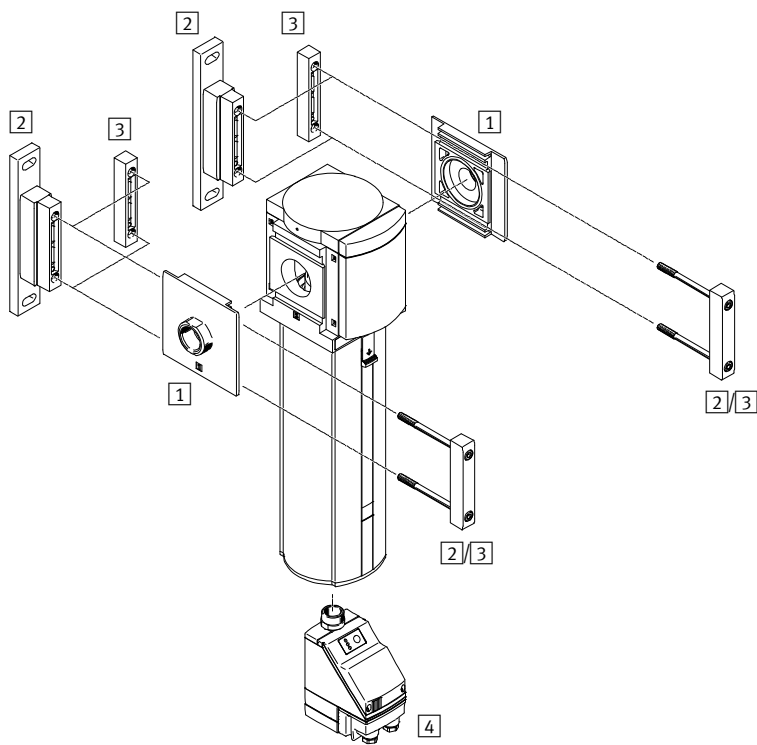
Transfer order code

535023 MS 12 - LF - - U - - -

Fine and micro filters MS12-LFM, MS series

Peripherals overview

FESTO



Note

Additional accessories:

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

Mounting attachments and accessories		→ Page/Internet
1	Connecting plate-SET MS12-AG...	ms12-ag
2	Mounting bracket MS12-WP	ms12-wp
3	Module connector MS12-MV	ms12-mv
4	Condensate drain, fully automatic, electrically actuated E2/E3/E4	82

Fine and micro filters MS12-LFM, MS series

FESTO

Type codes

		MS	12	-	LFM	-	G	-	B	U	V
Series											
MS	Standard service unit										
Size											
12	Grid dimension 124 mm										
Service function											
LFM	Fine and micro filter										
Connection size											
G	Module without connecting thread, without connecting plate Connecting plates → Accessories										
Grade of filtration											
A	0.01 µm										
B	1 µm										
Bowl guard											
U	Integrated as metal bowl										
Condensate drain											
V	Fully automatic										

Further variants can be ordered using the modular system → 82

- Pneumatic connection
- Condensate drain
- Filter change sensor
- Type of mounting
- Flow direction

Fine and micro filters MS12-LFM, MS series

FESTO

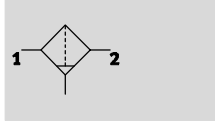
Technical data

Function

Condensate drain

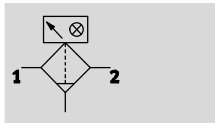
manual rotary

without differential pressure indicator



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

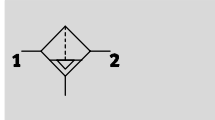
with differential pressure indicator



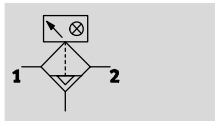
Condensate drain

fully automatic

without differential pressure indicator



with differential pressure indicator



- High-performance filter for exceptionally clean compressed air
- Air quality to ISO 8573-1:2010
- 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 → 91

General technical data	
Pneumatic connection 1, 2	
Connecting plate AG...	G1, G1¼, G1½ or G2
Module without connecting thread/plate G	–
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)
	1 (fine filter MS12-LFM-B)
Air purity class at the output	Compressed air in accordance with ISO 8573-1:2010 [1:7:2] (Grade of filtration 0.01µm, micro filter MS12-LFM-A)
	Compressed air in accordance with ISO 8573-1:2010 [5:7:3] (Grade of filtration 1µm, fine filter MS12-LFM-B)
Filter efficiency [%]	99.9999 (Grade of filtration 0.01µm, micro filter MS12-LFM-A)
	99.99 (Grade of filtration 1µm, fine filter MS12-LFM-B)
Bowl guard	Integrated as metal bowl
Condensate drain	Manual rotary
	Fully automatic
	Fully automatic, electrical actuated
Max. condensate volume [cm³]	400

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

Fine and micro filters MS12-LFM, MS series

FESTO

Technical data

Standard flow rate q_n [l/min]				
Operating pressure	4 bar	6 bar	10 bar	14 bar
Micro filter MS12-LFM-A				
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
Fine filter MS12-LFM-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

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

Operating and environmental conditions			
Condensate drain	Manual rotary M	Fully automatic V	Fully automatic, electrical actuated E2/E3/E4
Operating pressure [bar]	0.8 ... 20	2 ... 12	0.8 ... 16
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [6:8:4] ¹⁾		
	Inert gases		
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 ²⁾	2		

1) It is recommended to prefilter the compressed air for the micro filter MS-LFM-A using a fine filter MS-LFM-B (grade of filtration 1 µm).

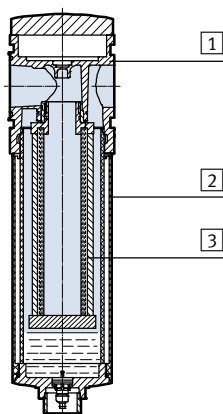
2) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

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 E2/E3/E4	7,700

Materials

Sectional view



Fine and micro filter		
1	Body	Die-cast aluminium
2	Metal bowl	Wrought aluminium alloy
	Viewing window	PC
3	Filter element	Borosilicate mesh
-	Seals	NBR
Note on materials		RoHS-compliant
		Free of copper and PTFE

Fine and micro filters MS12-LFM, MS series

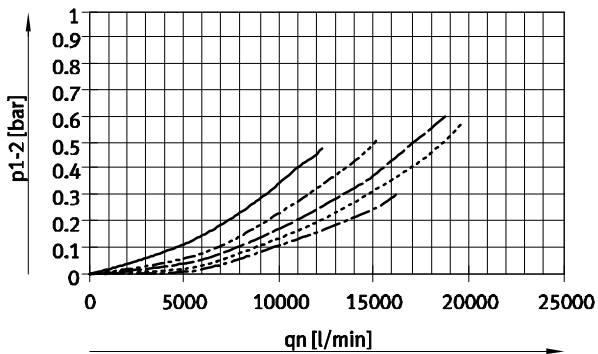
Technical data

FESTO

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

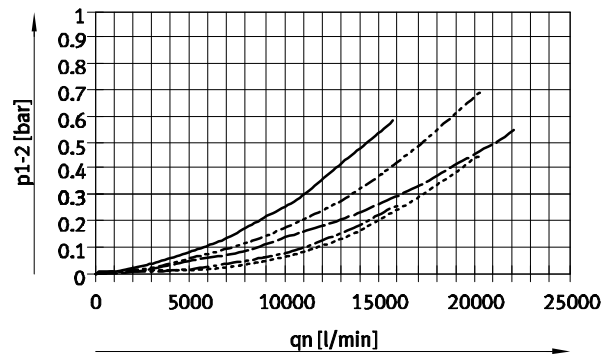
Grade of filtration 0.01 μm

With connecting plate MS12-AGF, Pneumatic connection G1



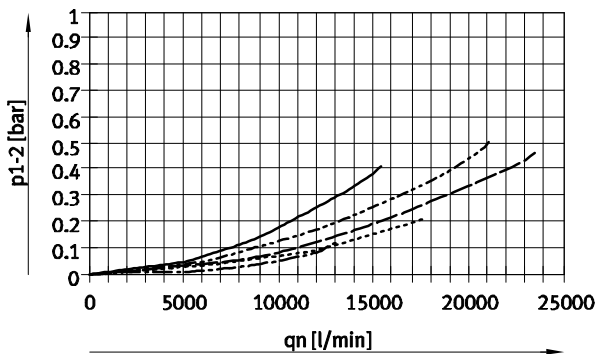
Grade of filtration 0.01 μm

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



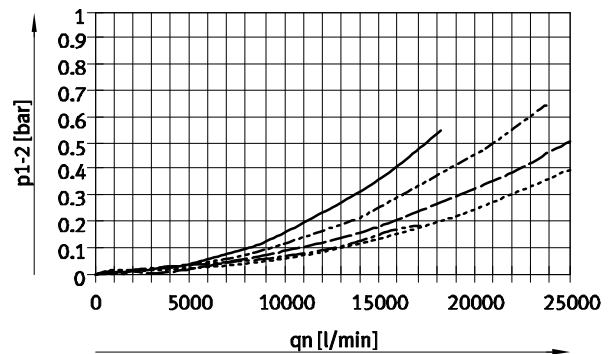
Grade of filtration 0.01 μm

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



Grade of filtration 0.01 μm

With connecting plate MS12-AGI, Pneumatic connection G2



- p_1 : 4 bar
- - - p_1 : 6 bar
- · - p_1 : 8 bar
- · · p_1 : 10 bar
- - - p_1 : 12 bar

Fine and micro filters MS12-LFM, MS series

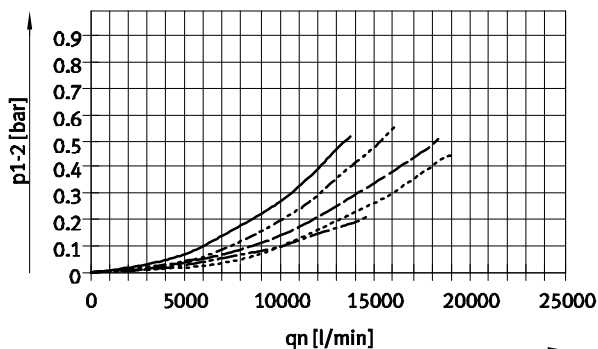
FESTO

Technical data

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

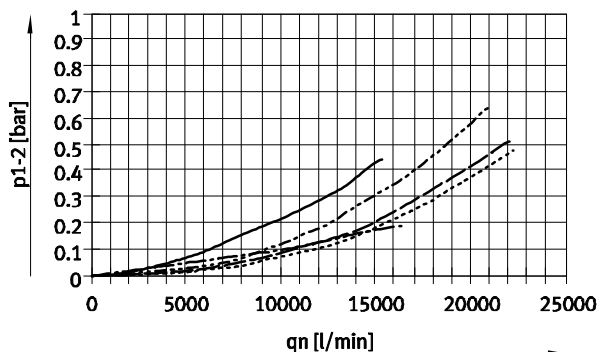
Grade of filtration $1\ \mu\text{m}$

With connecting plate MS12-AGF, Pneumatic connection G1



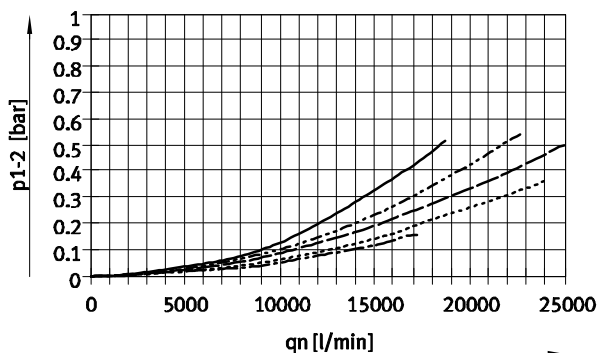
Grade of filtration $1\ \mu\text{m}$

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



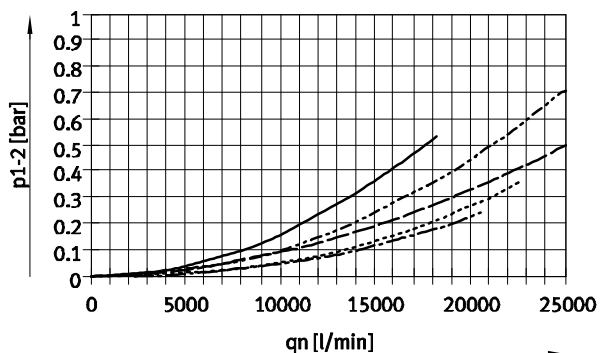
Grade of filtration $1\ \mu\text{m}$

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



- p_1 : 4 bar
- - - p_1 : 6 bar
- - - - p_1 : 8 bar
- p_1 : 10 bar
- . - . - p_1 : 12 bar

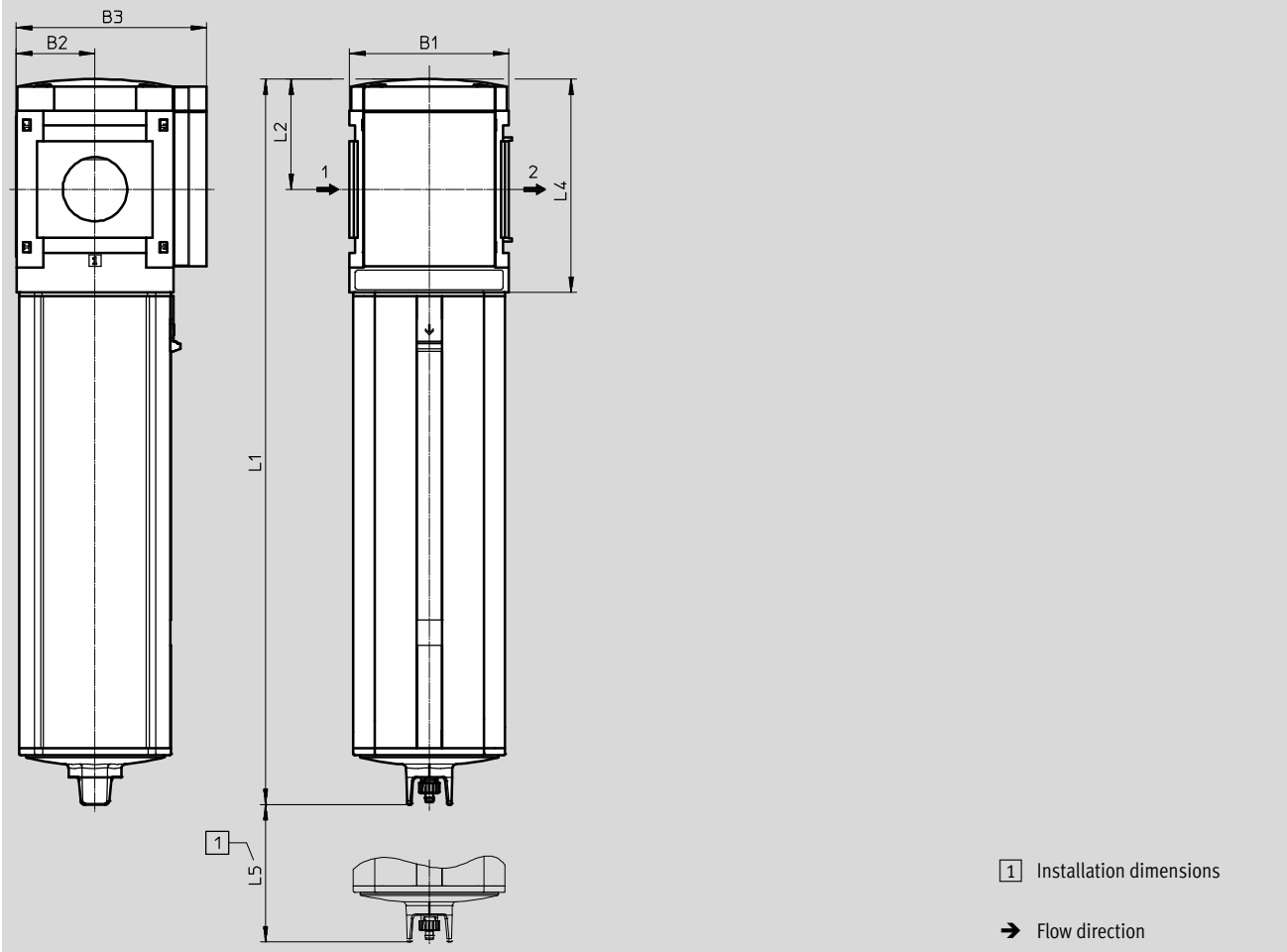
Fine and micro filters MS12-LFM, MS series

Technical data

FESTO

Dimensions – Basic version

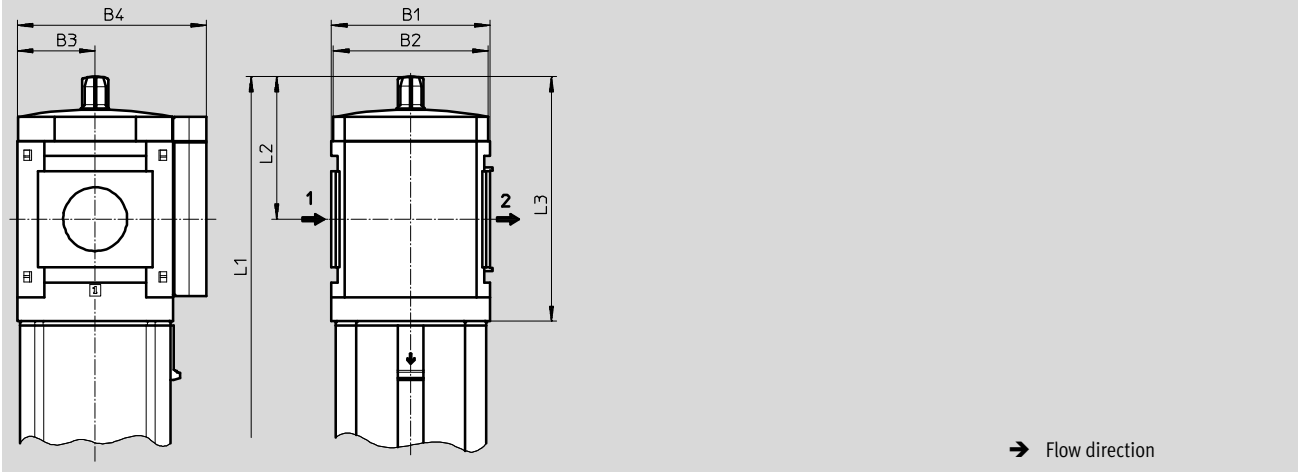
Download CAD data → www.festo.com



Type	B1	B2	B3	L1	L2	L4	L5
MS12-LFM	124	61	148	565	86	166	350

Dimensions – Differential pressure indicator

Download CAD data → www.festo.com



Type	B1	B2	B3	B4	L1	L2	L3
MS12-LFM-...-DA	124	122	61	148	590	112	192

Fine and micro filters MS12-LFM, MS series

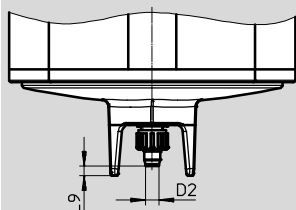
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Technical data

Dimensions – Condensate drain

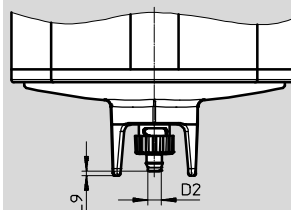
Download CAD data → www.festo.com

Manual rotary M



Barbed connector for plastic tubing PUN(-H)-8x1,25

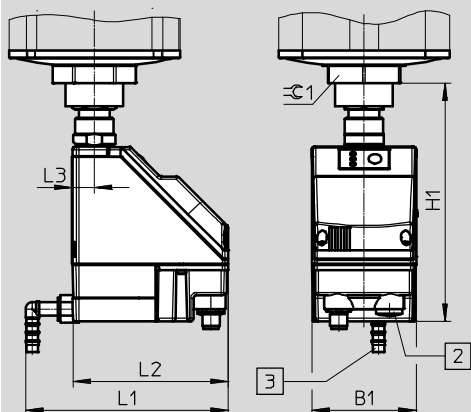
Fully automatic V



Barbed connector for plastic tubing PUN(-H)-8x1,25

Fully automatic, electrically actuated E2/E3/E4

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



Condensate drain PWEA:

- 2 Electrical connection: Screw terminal PG9
- 3 Connection 360° rotatable for plastic tubing PUN-H-12x2

Type	B1	D2 Ø	H1	L1	L2	L3	L9	⌀ 1
MS12-LFM-...-M	–	5.6	–	–	–	–	4	–
MS12-LFM-...-V	–	5.6	–	–	–	–	2	–
MS12-LFM-...-E2/E3/E4	72	–	164	140	108	15	–	50

Ordering data

Metal bowl

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
MS12	fully automatic	G1 ... G2 ¹⁾	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.festo.com)

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

Fine and micro filters MS12-LFM, MS series

FESTO

Ordering data – Modular products

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
	Pneumatic connection	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, 115 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	Filter change sensor	Differential pressure indicator, optical		-DA	
	Type of mounting	Mounting bracket standard design	1	-WP	
	Flow direction	Flow direction from right to left		-Z	

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

M Mandatory data

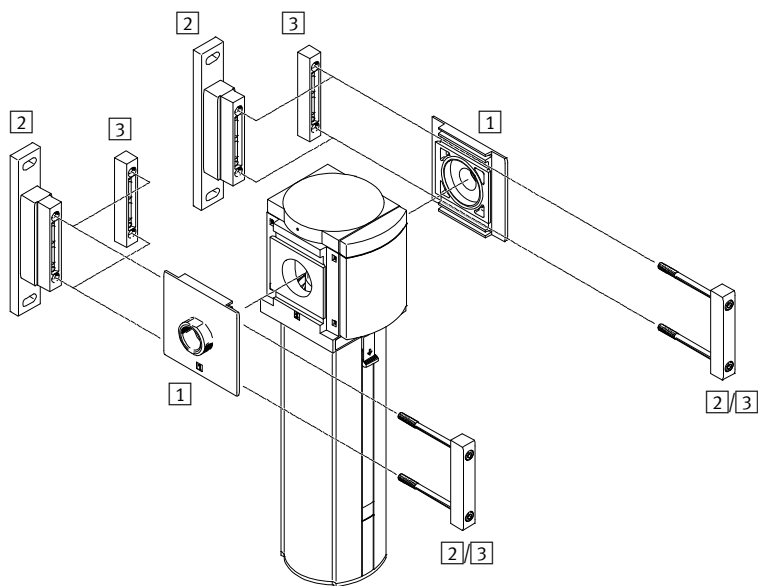
O Options

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-SET 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

FESTO

Type codes

		MS	12	-	LFX	-	G	-	U
Series									
MS	Standard service unit								
Size									
12	Grid dimension 124 mm								
Service function									
LFX	Active carbon filter								
Connection size									
G	Module without connecting thread, without connecting plate Connecting plates → Accessories								
Bowl guard									
U	Integrated as metal bowl								

Further variants can be ordered using the modular system → 88

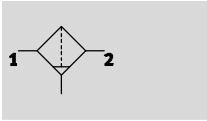
- Pneumatic connection
- Type of mounting
- Flow direction

Active carbon filters MS12-LFX, MS series

FESTO

Technical data

Function



- - Flow rate
5,065 ... 15,190 l/min
- - Temperature range
-10 ... +60 °C
- - Operating 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 → 91

General technical data	
Pneumatic connection 1, 2	
Connecting plate AG...	G1, G1¼, G1½ or G2
Module without connecting thread/plate G	–
Design	Active carbon filter
Type of mounting	Via accessories
	In-line installation
Assembly position	Vertical ±5°
Air purity class at the output ¹⁾	Compressed air in accordance with ISO 8573-1:2010 [1:4:1]
Bowl guard	Integrated as metal bowl
Residual oil content [mg/m³]	≤ 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 [l/min]				
Operating pressure	4 bar	6 bar	10 bar	14 bar
Max. standard flow rate for air purity class $q_{n \max}$	5,065	7,090	11,150	15,190

Operating and environmental conditions	
Operating pressure [bar]	0 ... 20
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [1:4:2]
	Inert gases
Ambient temperature [°C]	-10 ... +60
Temperature of medium [°C]	+5 ... +30
Storage temperature [°C]	-10 ... +60
Corrosion resistance CRC ¹⁾	2

1) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

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

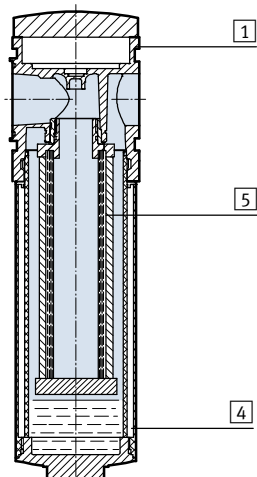
Active carbon filters MS12-LFX, MS series

Technical data

FESTO

Materials

Sectional view

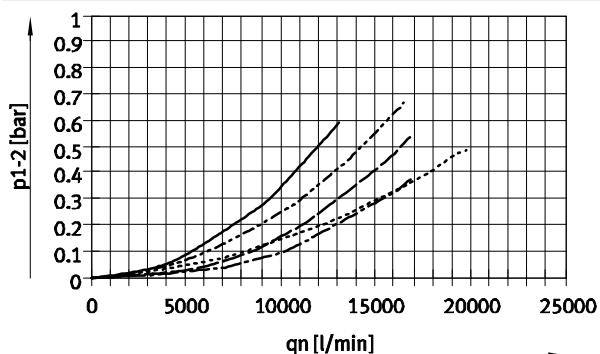


Active carbon filter

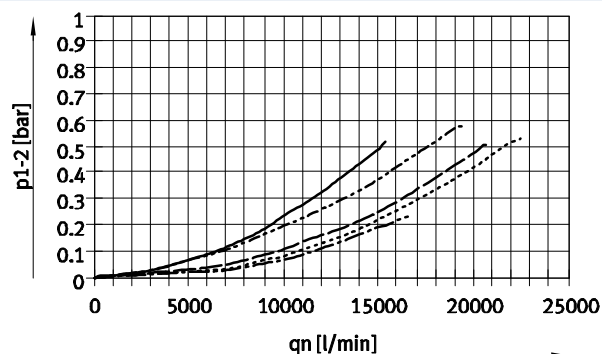
1	Body	Die-cast aluminium
4	Metal bowl	Wrought aluminium alloy
	Viewing window	PC
5	Filter	Active carbon
-	Seals	NBR
Note on materials		RoHS-compliant
		Free of copper and PTFE

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

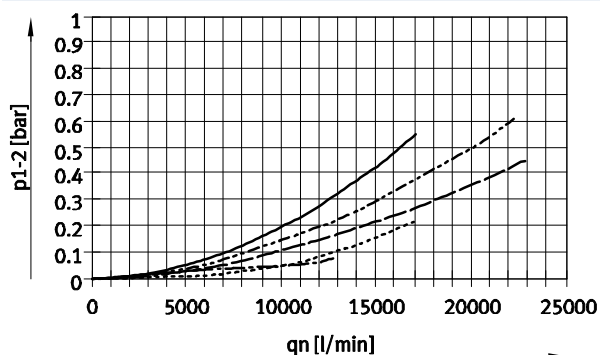
With connecting plate MS12-AGF, Pneumatic connection G1



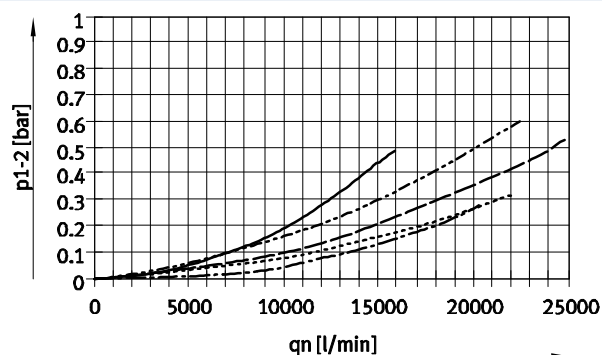
With connecting plate MS12-AGG, Pneumatic connection G1^{1/4}



With connecting plate MS12-AGH, Pneumatic connection G1^{1/2}



With connecting plate MS12-AGI, Pneumatic connection G2



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

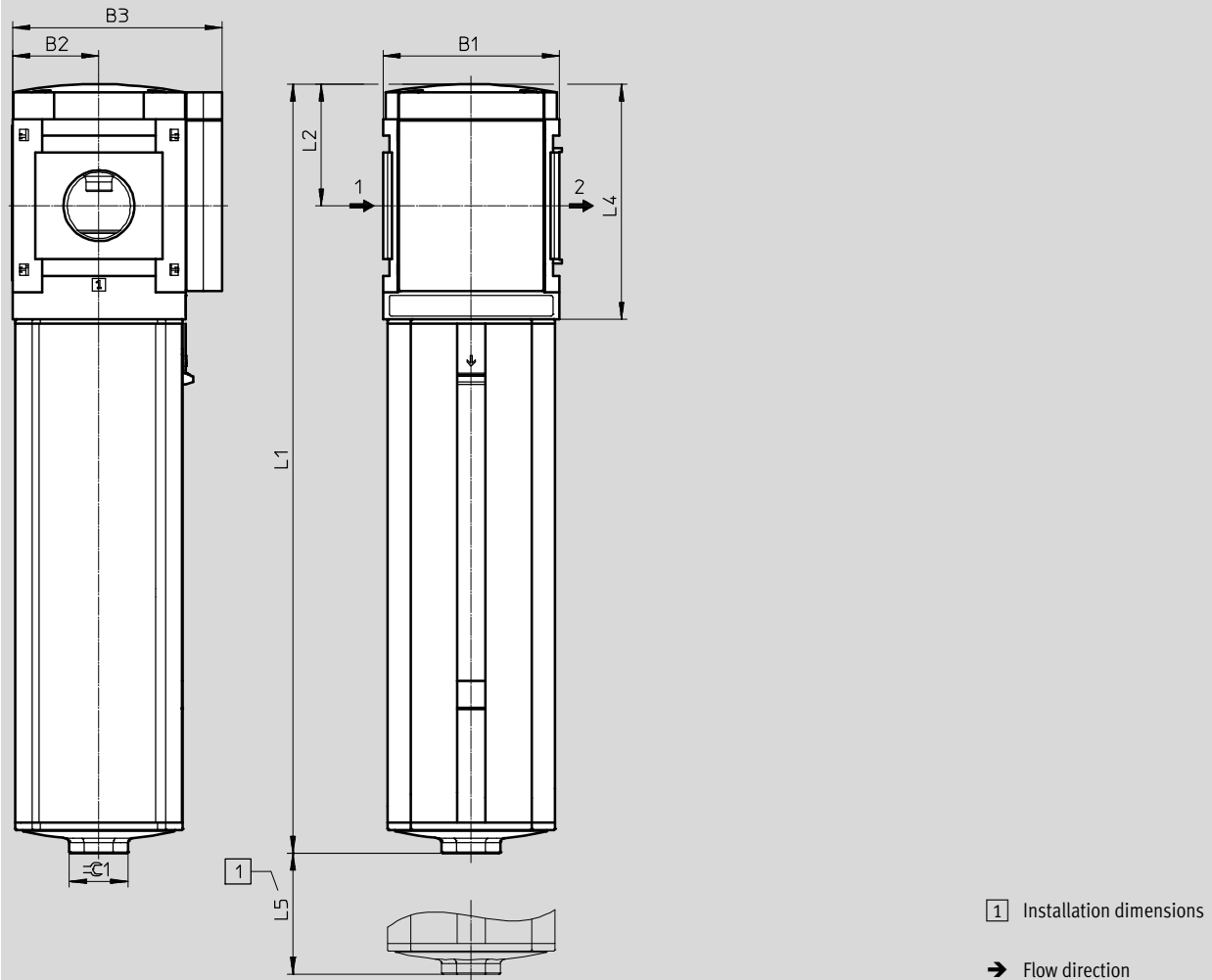
Active carbon filters MS12-LFX, MS series

Technical data

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Dimensions – Basic version

Download CAD data → www.festo.com



Type	B1	B2	B3	L1	L2	L4	L5	≈ 1
MS12-LFX	124	61	148	542	86	166	350	36

Ordering data

Metal bowl

Size	Connection	Part No.	Type
MS12	G1 ... G2 ¹⁾	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

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Ordering data – Modular products

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
	Pneumatic connection	Connecting plate G1		-AGF	
		Connecting plate G1¼		-AGG	
		Connecting plate G1½		-AGH	
		Connecting plate G2		-AGI	
		Module without connecting thread, without connecting plate		-G	
	Bowl	Metal bowl		-U	-U
O	Type of mounting	Mounting bracket standard design	1	-WP	
	Flow direction	Flow direction from right to left		-Z	

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

M Mandatory data

O Options

Transfer order code

535043 MS 12 - LFX - - U - -

Filters MS-LF/LFM/LFX, MS series

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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

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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

Accessories

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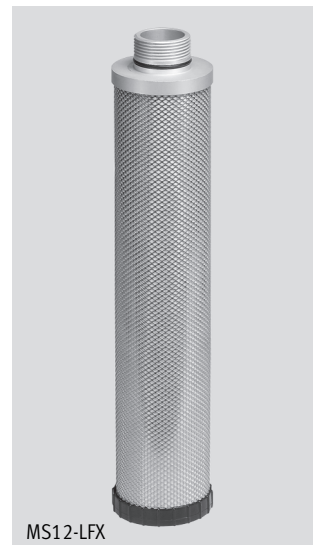
Filter cartridges, MS12 series



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

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