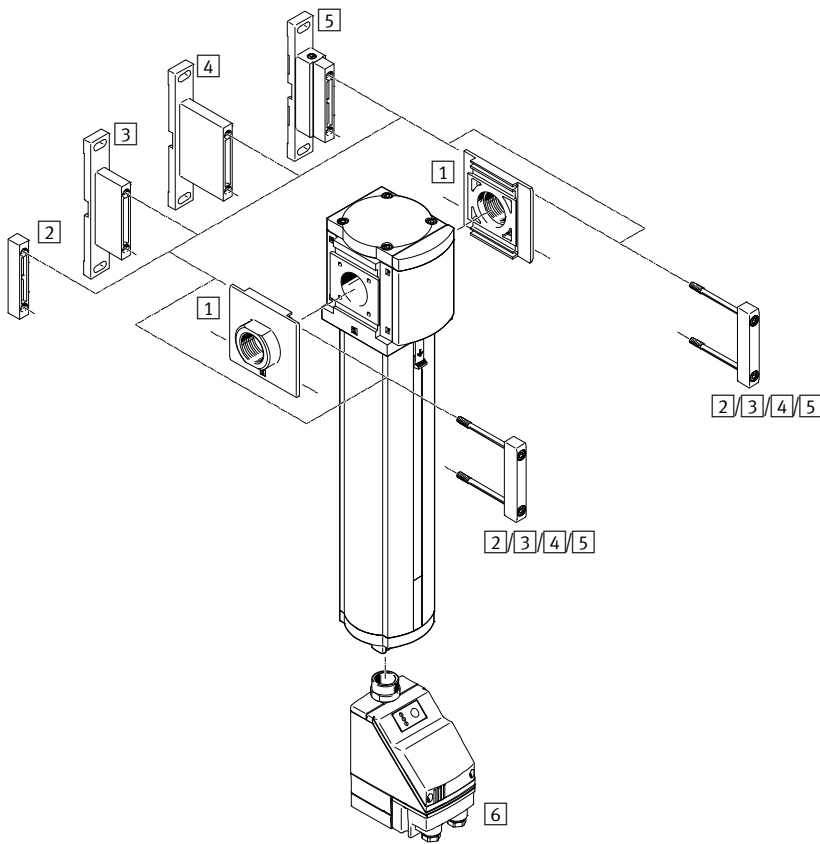



# Filters MS-LFM/LFX, MS series, NPT



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

Peripherals overview



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

Mounting attachments and accessories					
	Individual device	With connecting plate AG.../AQ...		Combination Module without connecting thread, without connecting plate G	→ Page/ Internet
		With female thread ¾/1/N¾/N1	Without 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	■	■	■	14

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

Type codes

MS 9 - LFM - N1 - 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**

N $\frac{3}{4}$	Thread NPT $\frac{3}{4}$
N1	Thread NPT1
G	Module without connecting thread, without connecting plate

**Grade of filtration**

A	0.01 $\mu$ m
B	1 $\mu$ m

**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

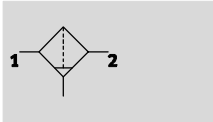
Further variants can be ordered using the modular system → 14




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

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

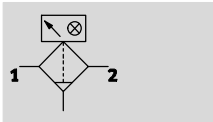
Technical data

Condensate drain  
Manual rotary  
Without differential pressure indicator

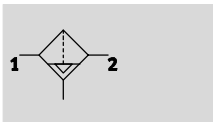


-  - Flow rate  
325 ... 10,000 l/min
-  - Temperature range  
-10 ... +60 °C
-  - Operating pressure  
0 ... 20 bar

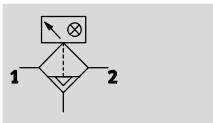
With differential pressure indicator



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 → 22
- 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]	0.01 (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 0.01 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, NPT

Technical data

Standard flow rate $q_n^{1)}$ [l/min]		
Version	Standard	High flow rate HF
<b>Micro filter MS9-LFM-A</b>		
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
<b>Fine filter MS9-LFM-B</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 M	Semi-automatic H	Fully automatic V	Fully automatic, electrically actuated 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] <sup>1)</sup>			
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 <sup>2)</sup>	2			
UL Certification <sup>3)</sup>	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  $\mu\text{m}$ ).

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](http://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) <sup>1)</sup>	To EU Explosion Protection Directive (ATEX)

1) Additional information [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

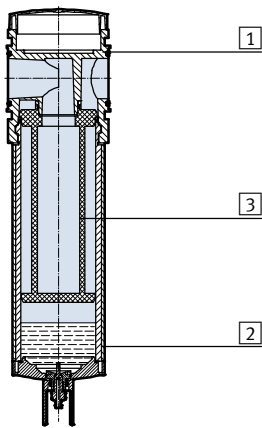
# Fine and micro filters MS9-LFM, MS series, NPT

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



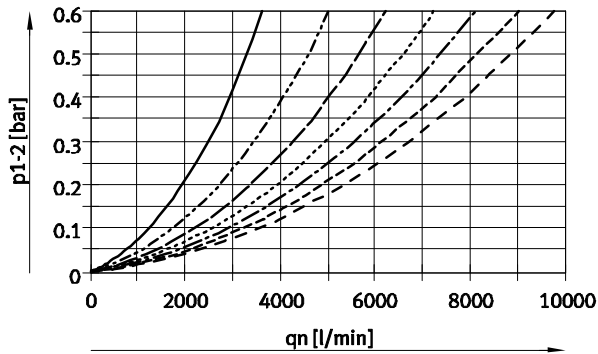
Fine and micro filters		
1	Housing	Die-cast aluminium
2	Bowl	Wrought aluminium alloy
	Inspection window	PA
3	Filter	Borosilicate fibre
-	Cover	PA reinforced
-	Connecting plate, module connector, mounting bracket	Die-cast aluminium
-	Seals	NBR
Note on materials		Free of copper and PTFE

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

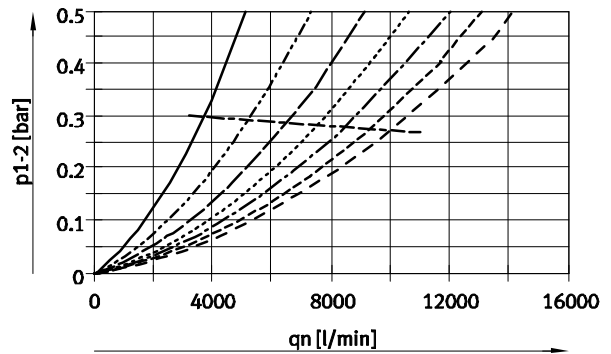
Technical data

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

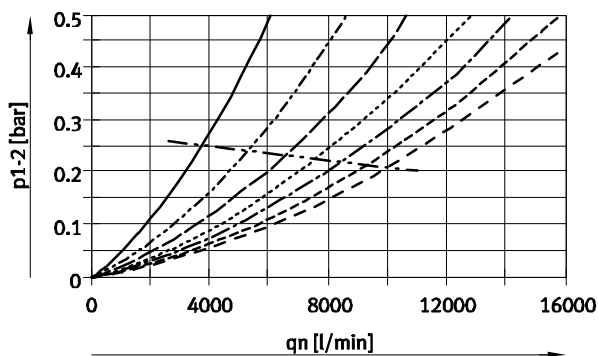
Grade of filtration 0.01  $\mu\text{m}$ , pneumatic connection G $\frac{1}{2}$ /NPT $\frac{1}{2}$



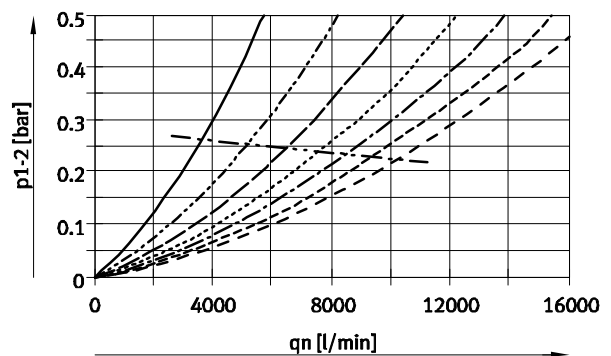
Grade of filtration 0.01  $\mu\text{m}$ , pneumatic connection G $\frac{3}{4}$ /NPT $\frac{3}{4}$



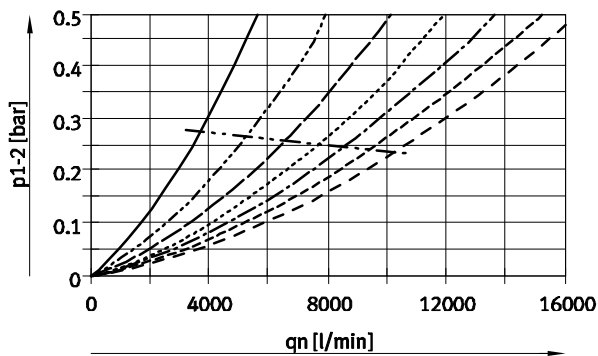
Grade of filtration 0.01  $\mu\text{m}$ , pneumatic connection G1/NPT1



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



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



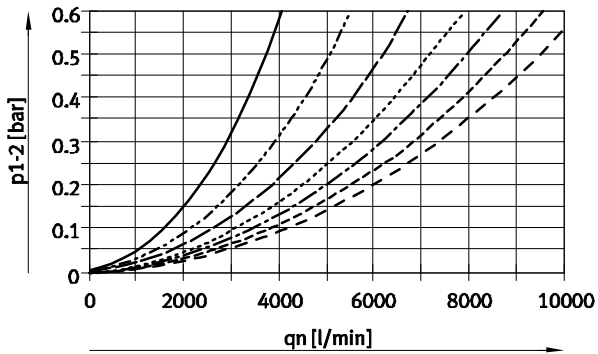
- 2 bar
- - - 4 bar ( $q_{n \text{ min}}$ : 268 l/min)
- · - · 6 bar ( $q_{n \text{ min}}$ : 325 l/min)
- · · · · 8 bar
- · · · · · 10 bar ( $q_{n \text{ min}}$ : 420 l/min)
- · · · · · · 12 bar
- · · · · · · · 14 bar ( $q_{n \text{ min}}$ : 498 l/min)
- · · · · · · · ·  $q_{n \text{ max}}$   
(with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

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

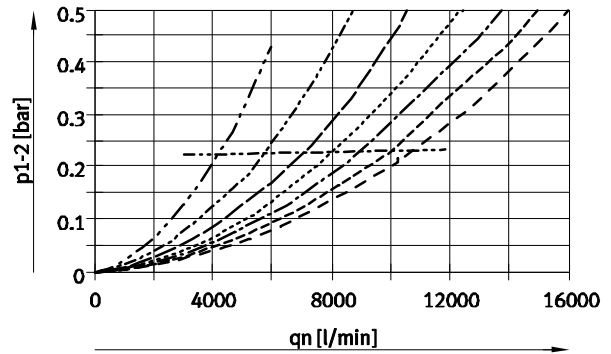
Technical data

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

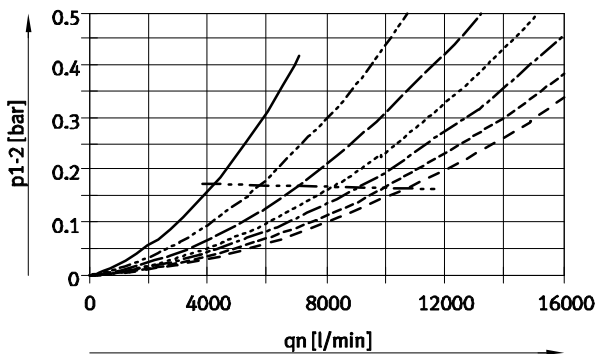
Grade of filtration 1  $\mu\text{m}$ , pneumatic connection  $G\frac{1}{2}/NPT\frac{1}{2}$



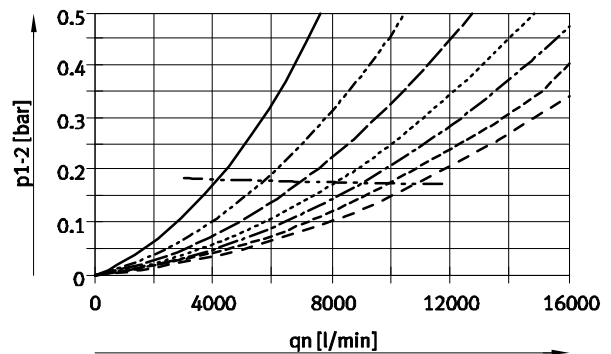
Grade of filtration 1  $\mu\text{m}$ , pneumatic connection  $G\frac{3}{4}/NPT\frac{3}{4}$



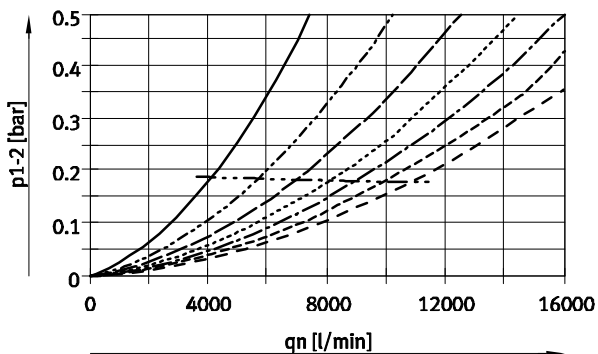
Grade of filtration 1  $\mu\text{m}$ , pneumatic connection  $G1/NPT1$



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



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



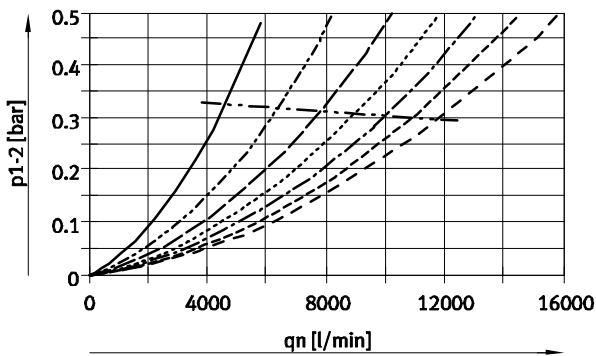
# Fine and micro filters MS9-LFM, MS series, NPT

Technical data

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

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

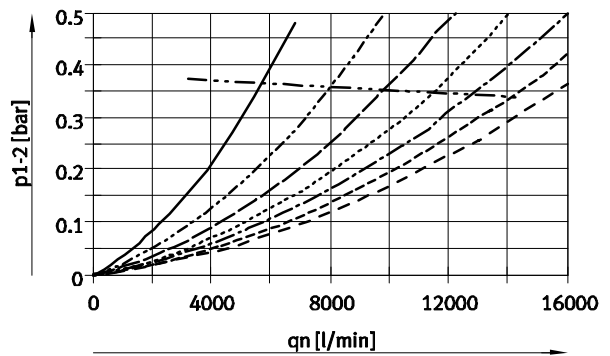
High flow rate HF



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

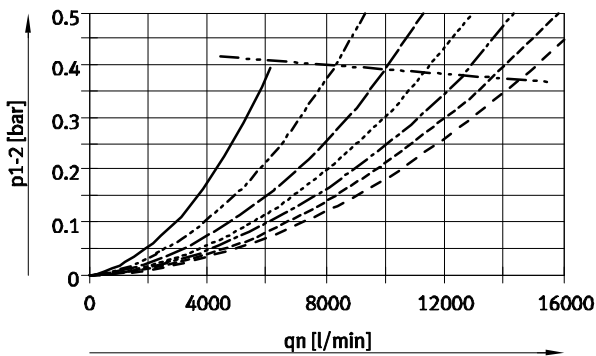
Grade of filtration 0.01  $\mu\text{m}$ , pneumatic connection G1/NPT1

High flow rate HF



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

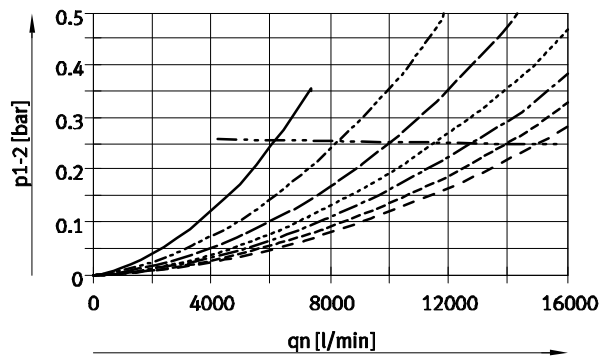
High flow rate HF



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

Grade of filtration 1  $\mu\text{m}$ , pneumatic connection G1/NPT1

High flow rate HF



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



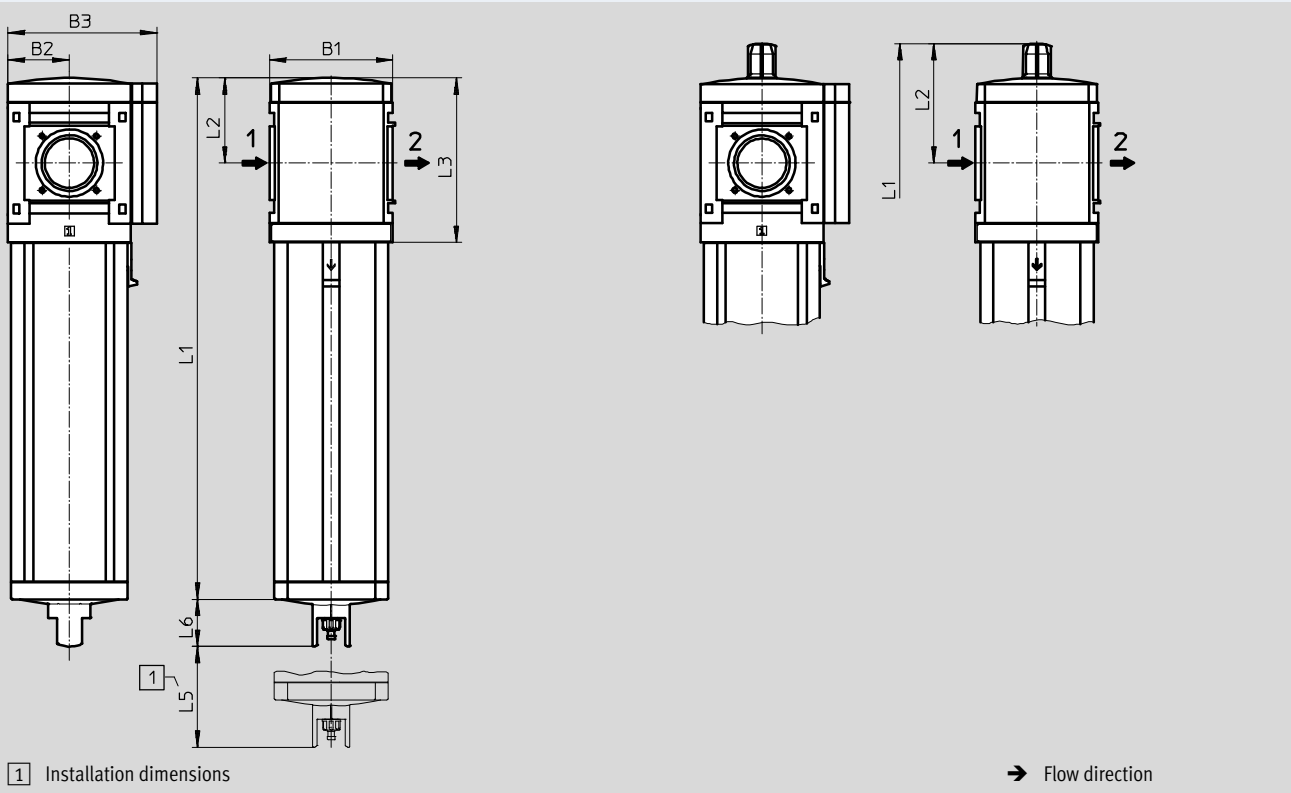
Technical data

## Dimensions – Basic version

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

Module without connecting thread, without connecting plate G

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



Type	B1	B2	B3	L1		L2	L3	L5	L6
				Standard	High flow rate HF				
MS9-LFM-G	90	45	109	380.5	480.5	62	120	50	34.5
MS9-LFM-G-...-DA				405.5	505.5	88			

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

Technical data

**Dimensions – Connecting thread/connecting plate** Download CAD data → [www.festo.com](http://www.festo.com)

With female thread 3/4/1/N3/4/N1 With connecting plate AG.../AQ...

2 Mounting screw M6xmin.90 to DIN 912 (not included in 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	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 1/2	-	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
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

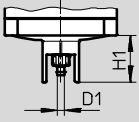
• Note: This product conforms to ISO 1179-1 and to ISO 228-1

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

Technical data

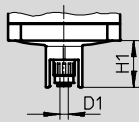
**Dimensions – Condensate drain** Download CAD data → [www.festo.com](http://www.festo.com)

Manual rotary M/fully automatic V



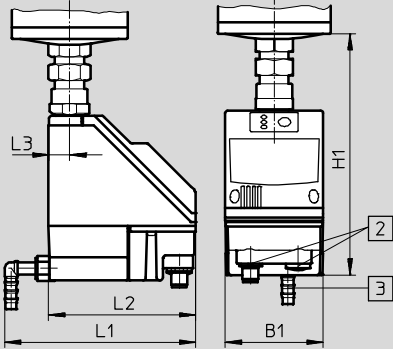
Barbed connector for plastic tubing PUN(-H)-8x1,25

Semi-automatic H



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

Fully automatic, electrically actuated E2/E3/E4 Technical data → Internet: [pwea](http://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, NPT

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	NPT $\frac{3}{4}$	553086	MS9-LFM-N $\frac{3}{4}$ -AUM	553090	MS9-LFM-N $\frac{3}{4}$ -BUM
		NPT1	553016	MS9-LFM-N1-AUM	553020	MS9-LFM-N1-BUM
		-	564047	MS9-LFM-G-AUM	564039	MS9-LFM-G-BUM
	Fully automatic	NPT $\frac{3}{4}$	553088	MS9-LFM-N $\frac{3}{4}$ -AUV	553092	MS9-LFM-N $\frac{3}{4}$ -BUV
		NPT1	553018	MS9-LFM-N1-AUV	553022	MS9-LFM-N1-BUV
		-	564049	MS9-LFM-G-AUV	564041	MS9-LFM-G-BUV
High flow rate						
MS9	Manual rotary	NPT $\frac{3}{4}$	552980	MS9-LFM-N $\frac{3}{4}$ -AUM-HF	552984	MS9-LFM-N $\frac{3}{4}$ -BUM-HF
		NPT1	553054	MS9-LFM-N1-AUM-HF	553058	MS9-LFM-N1-BUM-HF
		-	564051	MS9-LFM-G-AUM-HF	564043	MS9-LFM-G-BUM-HF
	Fully automatic	NPT $\frac{3}{4}$	552982	MS9-LFM-N $\frac{3}{4}$ -AUV-HF	552986	MS9-LFM-N $\frac{3}{4}$ -BUV-HF
		NPT1	553056	MS9-LFM-N1-AUV-HF	553060	MS9-LFM-N1-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	NPT $\frac{3}{4}$	553094	MS9-LFM-N $\frac{3}{4}$ -AUM-DA	553098	MS9-LFM-N $\frac{3}{4}$ -BUM-DA
		NPT1	553024	MS9-LFM-N1-AUM-DA	553028	MS9-LFM-N1-BUM-DA
		-	564048	MS9-LFM-G-AUM-DA	564040	MS9-LFM-G-BUM-DA
	Fully automatic	NPT $\frac{3}{4}$	553096	MS9-LFM-N $\frac{3}{4}$ -AUV-DA	553100	MS9-LFM-N $\frac{3}{4}$ -BUV-DA
		NPT1	553026	MS9-LFM-N1-AUV-DA	553030	MS9-LFM-N1-BUV-DA
		-	564050	MS9-LFM-G-AUV-DA	564042	MS9-LFM-G-BUV-DA
High flow rate						
MS9	Manual rotary	NPT $\frac{3}{4}$	552988	MS9-LFM-N $\frac{3}{4}$ -AUM-HF-DA	552992	MS9-LFM-N $\frac{3}{4}$ -BUM-HF-DA
		NPT1	553062	MS9-LFM-N1-AUM-HF-DA	553066	MS9-LFM-N1-BUM-HF-DA
		-	564052	MS9-LFM-G-AUM-HF-DA	564044	MS9-LFM-G-BUM-HF-DA
	Fully automatic	NPT $\frac{3}{4}$	552990	MS9-LFM-N $\frac{3}{4}$ -AUV-HF-DA	552994	MS9-LFM-N $\frac{3}{4}$ -BUV-HF-DA
		NPT1	553064	MS9-LFM-N1-AUV-HF-DA	553068	MS9-LFM-N1-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, NPT

Ordering data – Modular products

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

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

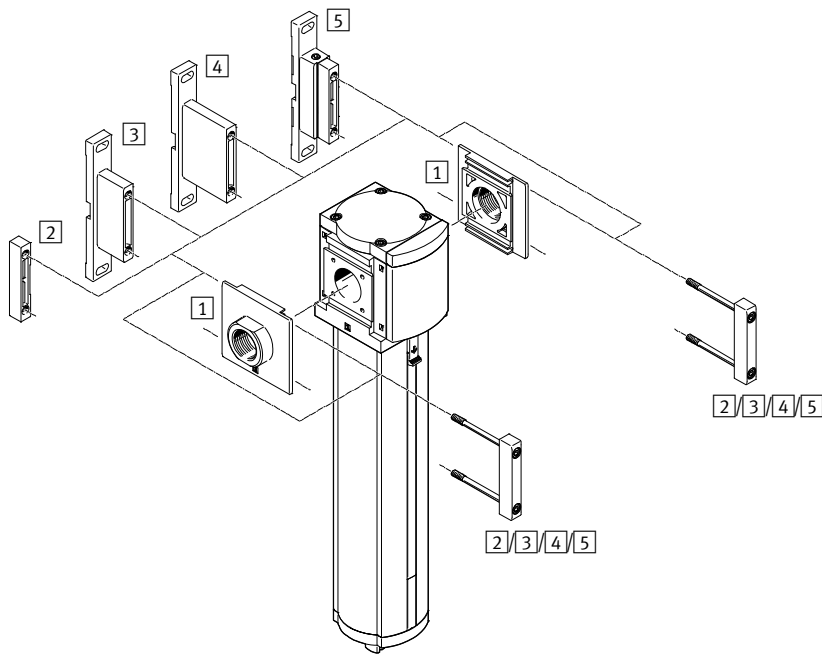
**O** Options

Transfer order code

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

# Activated carbon filters MS9-LFX, MS series, NPT

Peripherals overview



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

Mounting attachments and accessories					
		Individual device		Combination Module without connecting thread, without connecting plate G	→ Page/ Internet
		With female thread 3/4/1/N3/4/N1	With connecting plate AG.../AQ... Without 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, NPT

Type codes

		MS	9	-	LFX	-	N $\frac{3}{4}$	-	U
<b>Series</b>									
MS	Standard service unit								
<b>Size</b>									
9	Grid dimension 90 mm								
<b>Service function</b>									
LFX	Activated carbon filter								
<b>Pneumatic connection</b>									
N $\frac{3}{4}$	Thread NPT $\frac{3}{4}$								
N1	Thread NPT1								
G	Module without connecting thread, without connecting plate								
<b>Bowl guard</b>									
U	Integrated as metal bowl								

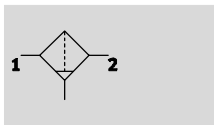
Further variants can be ordered using the modular system → 21

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



# Activated carbon filters MS9-LFX, MS series, NPT

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
- New filter cartridges → 22
- 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	Activated carbon filter
Type of mounting	Via accessories In-line installation
Installation position	Vertical ±5°
Air purity class at the output <sup>1)</sup>	Compressed air in accordance with ISO 8573-1:2010 [1:4:1]
Bowl guard	Integrated as metal bowl
Residual oil content [mg/m <sup>3</sup> ]	≤0.003

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

Standard flow rate q <sub>n</sub> <sup>1)</sup> [l/min]	
Max. standard flow rate for air purity class q <sub>n max</sub>	6,500

1) Measured at p<sub>1</sub> = 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 <sup>1)</sup>	2
UL Certification <sup>2)</sup>	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](http://www.festo.com/sp) → Certificates.

# Activated carbon filters MS9-LFX, MS series, NPT

Technical data

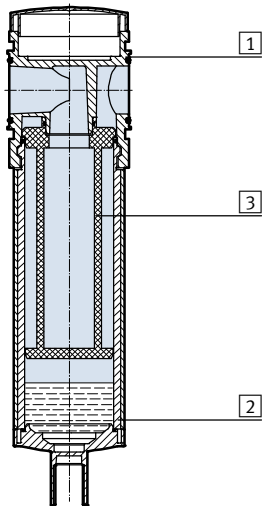
ATEX	
EU certification	EX4
ATEX category gas	II 2G
Ex-ignition protection type gas	Ex h IIC T6 Gb X
ATEX category dust	II 2D
EX-ignition protection type dust	Ex h IIIC T60°C Db X
ATEX ambient temperature	-10 °C ≤ Ta ≤ +60 °C
CE mark (see declaration of conformity) <sup>1)</sup>	To EU Explosion Protection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

1) Additional information [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

Weights [g]	
Activated carbon filter	2,000

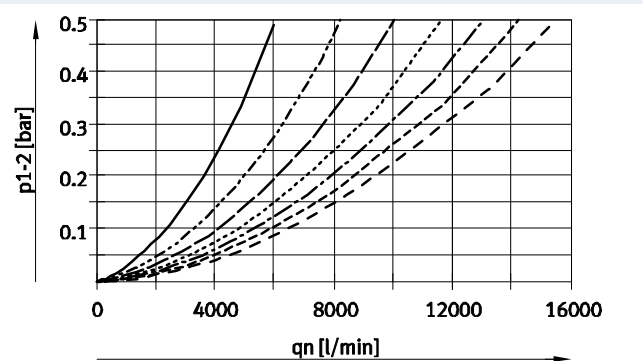
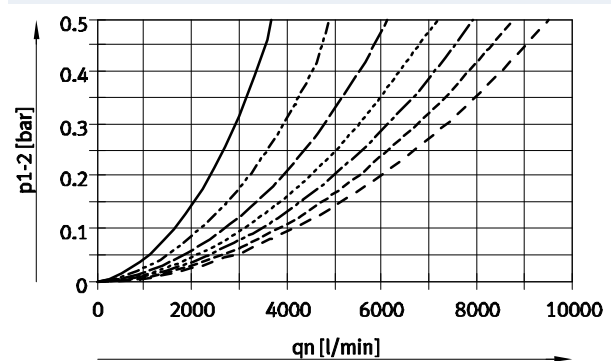
## Materials

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



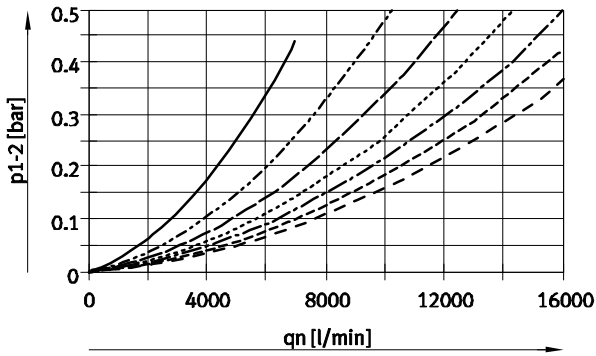
- 2 bar
- - - 4 bar
- - - - 6 bar
- - - - - 8 bar
- - - - - - 10 bar
- - - - - - - 12 bar
- - - - - - - - 14 bar

# Activated carbon filters MS9-LFX, MS series, NPT

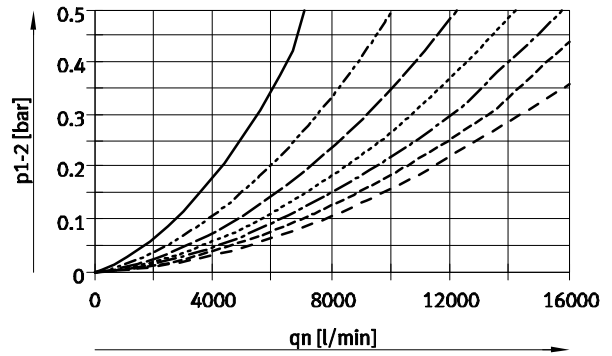
Technical data

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

Pneumatic connection G1/NPT1



Pneumatic connection G1½/NPT1½

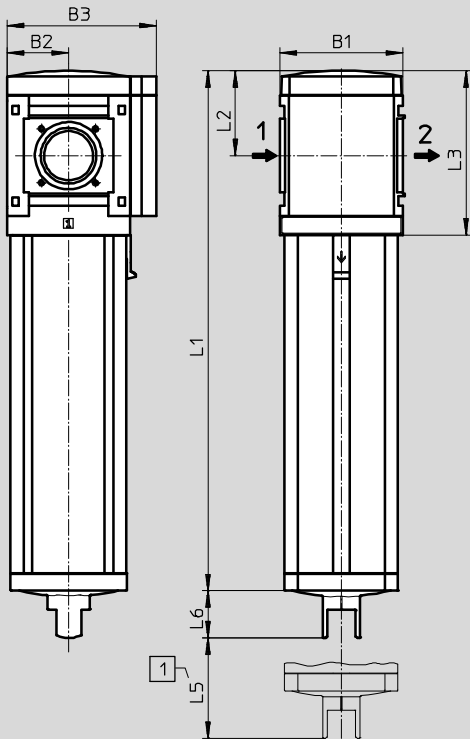


- 2 bar
- - - 4 bar
- · - 6 bar
- · · 8 bar
- - - - 10 bar
- · - · 12 bar
- · - · · 14 bar

## Dimensions – Basic version

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

Technical data

**Dimensions – Connecting thread/connecting plate** Download CAD data → [www.festo.com](http://www.festo.com)

With female thread 3/4"/1/N3/4/N1 With connecting plate AG.../AQ...

2 Mounting screw M6xmin.90 to DIN 912 (not included in 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	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	G1/2	-	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
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	NPT3/4	552998	MS9-LFX-N3/4-U
	NPT1	553034	MS9-LFX-N1-U
	-	564038	MS9-LFX-G-U

# Activated carbon filters MS9-LFX, MS series, NPT

Ordering data – Modular products

Ordering table					
Grid dimension	[mm]	90	Condi- tions	Code	Enter code
<b>M</b>	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
<b>O</b>	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

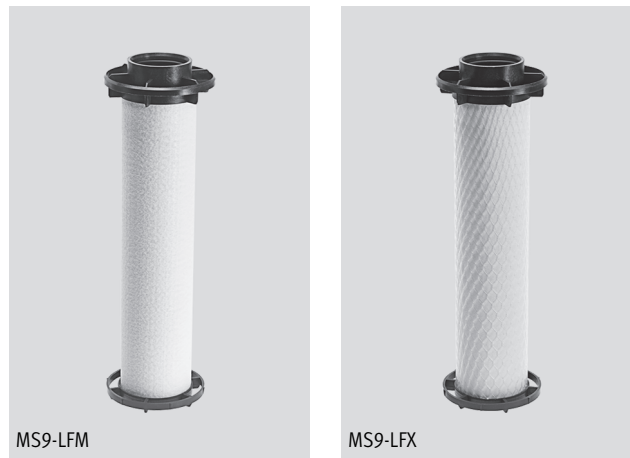
552942 MS 9 - LFX - [ ] - U - [ ] - [ ] - [ ] - [ ]

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

Accessories

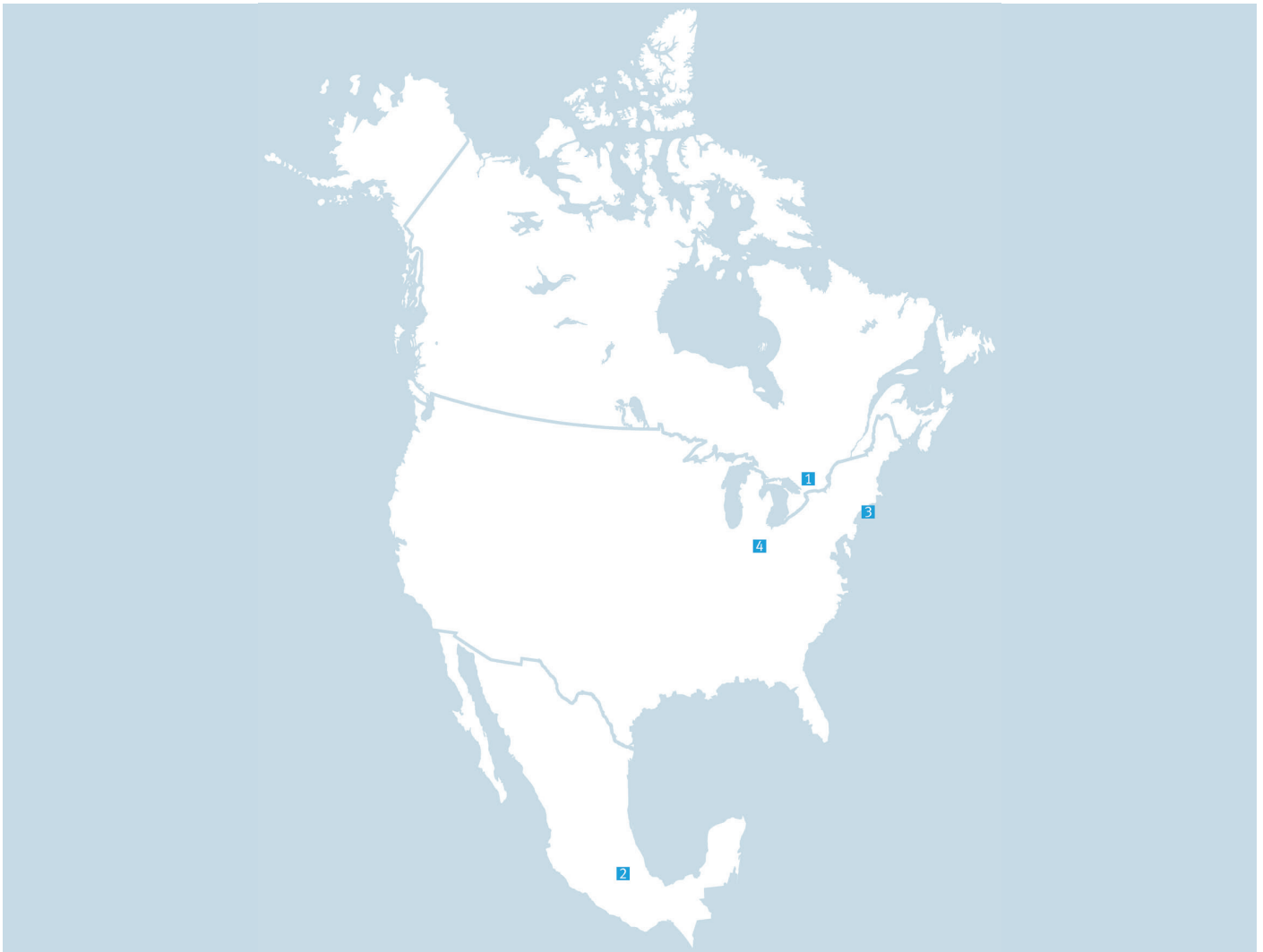
FESTO

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
	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

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