

Micro filter MS9N-LFM-A

FESTO



Characteristics

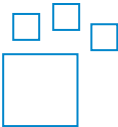
At a glance

High-efficiency filter for exceptionally clean compressed air.

- With NPT connection thread
- Removal of oil aerosols from compressed air
- Air quality according to ISO 8573-1:2010
- Available with differential pressure gauge to indicate contamination
- Available with electronic filter clogging indicator

Ordering data - modular system

Link [ms9-lfm-a](#)



Configurable product

This product and all its product options can be ordered online via the configurator.

Size

Width dimension: 90 mm

Standard nominal flow rate:

- 325 ... 7800 l/min

Pneumatic connection

The installation of connection plates makes it easier to replace the module if necessary (e.g., when using piping).

Bowl type

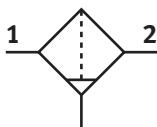
Shell protection by means of integrated metal shell.

Condensate drains

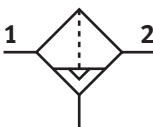
The following functions can be selected:

- Manual
- Semi-automatic
- Fully automatic
- Fully automatic, normally closed

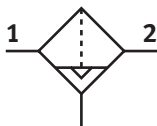
[M] Manual



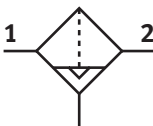
[H] Semi-automatic



[V] Automatic



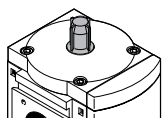
[VC] Fully automatic, normally closed



Filter change sensing

Optionally available with differential pressure display for filter contamination.

[DA] Differential pressure display, visual



Characteristics

Type of mounting

[WP] Mounting bracket standard design



- Mounting attachment and connector for air preparation unit combination or for individual device with port plates
- In conjunction with connection plate MS9-AQ... for wall mounting of a single appliance

[WPB] Mounting bracket for large wall gap



- For connecting the modules for wall mounting
- In conjunction with connection plate MS9-AQ... for wall mounting of a single appliance

[WPM] Mounting bracket for hooking in air preparation units



- Mounting attachment and connector for air preparation unit combination
- Mount and dismount the service unit combination quickly
- Spacer for maintaining the mounting gap
- Same wall distance for mixing combination with series MS6 when using mounting bracket MS6-WPB

EX certification EU

Optional device variant EX4 for use in potentially explosive areas of zones 1, 2, 21 and 22

UL certification

Optional device variant UL1, which meets the safety requirements for the Canadian and US markets.

Flow direction

Available with opposite flow direction.

Type code

001	Series	
MS	MS series	
002	Size	
9	Width dimension 90 mm	
003	Function	
LFM	Fine and micro filters	
004	Pneumatic connection	
3/4	Internal thread G3/4	
1	Internal thread G1	
AGD	Sub-base G1/2	
AGE	Sub-base G3/4	
AGF	Sub-base G1	
AGG	Sub-base G1 1/4	
AGH	Sub-base G1 1/2	
AQR	Sub-base 1/2 NPT	
AQS	Sub-base 3/4 NPT	
AQT	Sub-base 1 NPT	
AQU	Sub-base 1 1/4 NPT	
AQV	Sub-base 1 1/2 NPT	
G	Module without connecting thread, without sub-base	
N3/4	Internal thread 3/4 NPT	
N1	Internal thread 1 NPT	
005	Filter design	
A	0.01 µm	
B	1 µm	
006	Bowl type	
U	Aluminum	

007	Condensate drains	
E2	External fully automatic condensate drain, electric, 110 V AC, terminals	
E3	External fully automatic condensate drain, electric, 230 V AC, terminals	
E4	External fully automatic condensate drain, electric, 24 V DC, terminals	
H	Semi-automatic	
M	Manual	
V	Automatic	
VC	Fully automatic, normally closed	
008	Flow rate	
	Standard	
HF	High flow rate	
009	Filter change sensing	
	Without	
DA	Differential pressure display, visual	
DN	Filter contamination indicator, M8 plug, NPN, 3-pin	
DNI	Filter contamination indicator, M12 plug, NPN, 4-pin, analog output 4...20 mA	
DP	Filter contamination indicator, M8 plug, PNP, 3-pin	
DPI	Filter contamination indicator, M12 plug, PNP, 4-pin, analog output 4...20 mA	
010	Type of mounting	
	Without mounting bracket	
WP	Mounting bracket standard design	
WPB	Mounting bracket for large wall gap	
WPM	Mounting bracket for hooking in air preparation units	
011	EX certification EU	
	None	
EX4	II 2GD	
012	UL certification	
	None	
UL1	cULus ordinary location for Canada and USA	
013	Flow direction	
	Flow direction from left to right	
Z	Flow direction from right to left	

Datasheet

General technical data				
Flow rate	Standard [L]		High flow rate [HF]	
Pneumatic connection 1	3/4 NPT	1 NPT	3/4 NPT	1 NPT
Pneumatic connection 2	3/4 NPT	1 NPT	3/4 NPT	1 NPT
Size	9			
Structural design	Fiber filter			
Grade of filtration	0.01 µm			
Type of mounting	Alternatively: In-line installation With accessories			
Mounting position	Vertical ±5°			
Air quality class at the output	Compressed air according to ISO 8573-1:2010 [3:4:2]			
Filter efficiency	99.9999%			
Condensate drain	Fully automatic, Manual, non-detenting, Manual, rotating			Manual, rotating
Max. condensate volume	225 ml			
Filter efficiency, fine particles	99.995%			
Filter efficiency, oil aerosol	99%			
MPPS	0.08 µm		0.1 µm	
MPPS filter efficiency	99.981%		99.968%	

Standard nominal flow rate qnN		
Flow rate	Standard [L]	High flow rate [HF]
Min. standard flow rate for air quality class	325 l/min	390 l/min
Max. standard flow rate for air quality class	6,500 l/min	7,800 l/min

Operating and environmental conditions		
Condensate drain	Fully automatic, Manual, non-detenting	Manual, rotating
Operating pressure	0.2 ... 1.2 MPa	0 ... 2 MPa
Operating pressure	2 ... 12 bar	0 ... 20 bar
Operating pressure	29 ... 174 psi	0 ... 290 psi
Operating medium ¹⁾	Compressed air as per ISO 8573-1:2010 [6:4:4]	
Ambient temperature	5 ... 60°C	-10 ... 60°C
Temperature of medium	5 ... 60°C	-10 ... 60°C
Storage temperature	-10 ... 60°C	
Corrosion resistance class (CRC) ²⁾	2 - Moderate corrosion stress	

1) It is recommended to pre-filter the compressed air for the micro filter MS-LFM-A with a fine filter MS-LFM-B (filter fineness 1 µm).

2) For more information, visit www.festo.com/x/topic/kbk

ATEX	
ATEX category gas	II 2G
Type of ignition protection for gas	Ex h IIC T6 Gb X
ATEX category for dust	II 2D
Type of (ignition) protection for dust	Ex h IIIC T60°C Db X
Explosive ambient temperature	+5°C ≤ Ta ≤ +60°C
CE marking (see declaration of conformity) ¹⁾	as per EU explosion protection directive (ATEX)
UKCA marking (see declaration of conformity) ²⁾	acc. to UK EX instructions

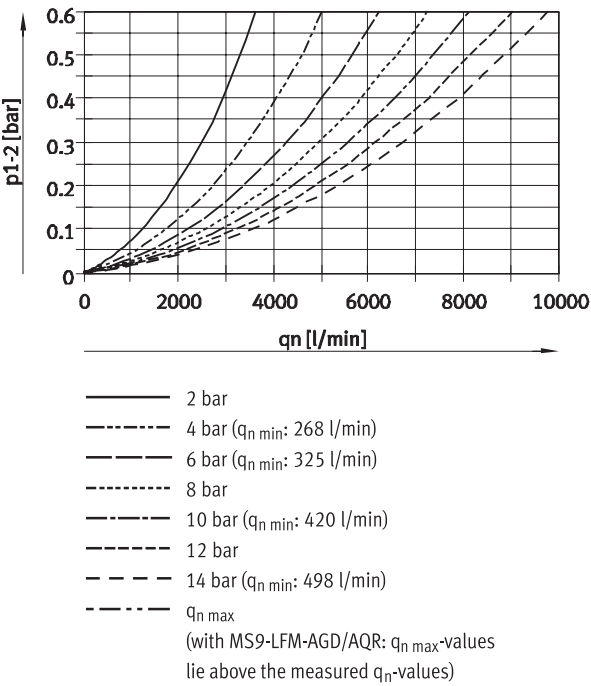
1) Further information www.festo.com/catalogue/ms-lfm → Support/Downloads.

2) Further information www.festo.com/catalogue/ms-lfm → Support/Downloads.

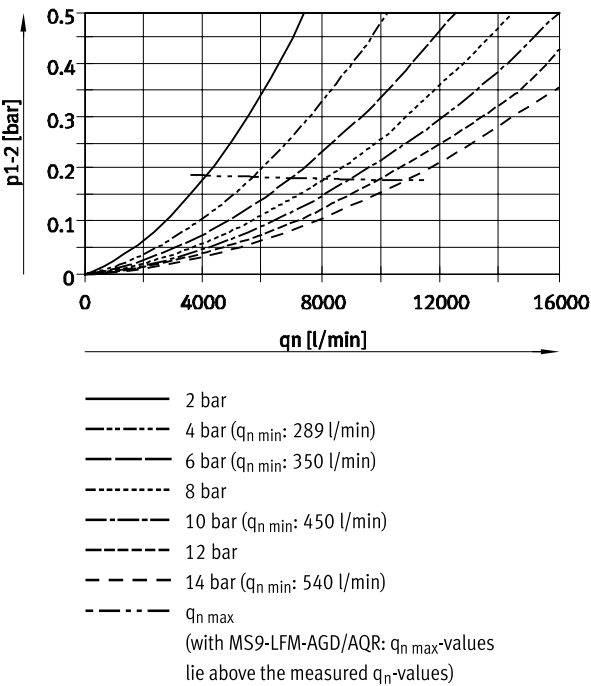
Datasheet

Materials	
Housing material	Die-cast aluminum
Material of bowl	Wrought aluminum alloy
Inspection window material	PA
Compressed air filter material	Borosilicate glass fiber
Seals material	NBR
LABS (PWIS) conformity	VDMA24364-B1/B2-L

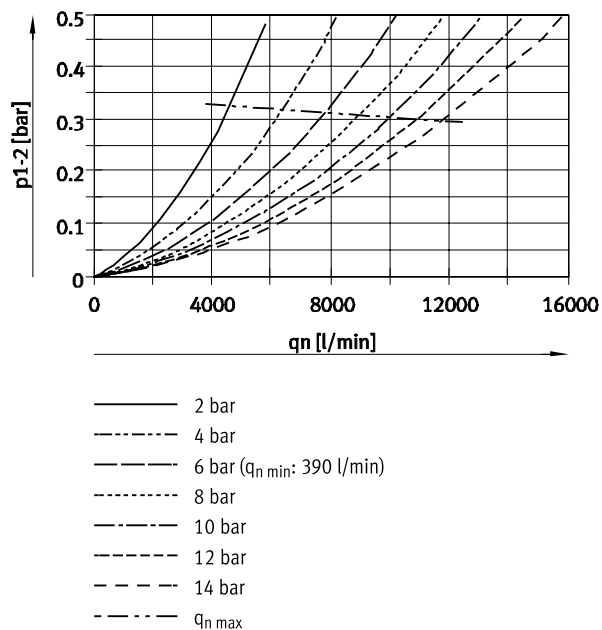
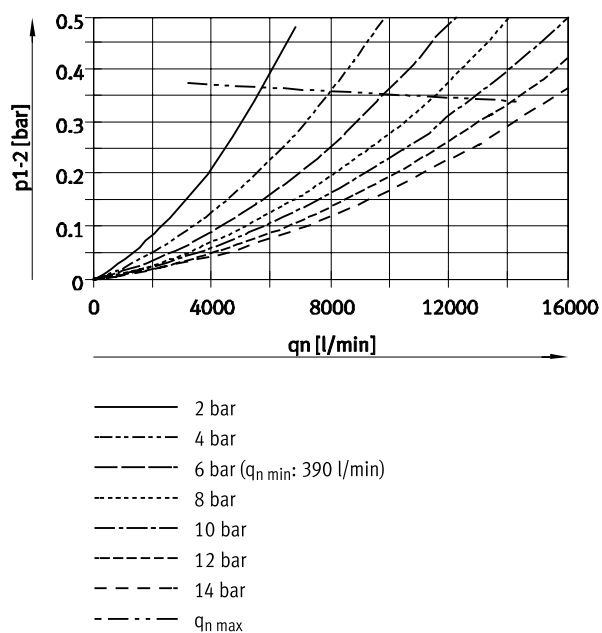
Standard flow rate q_n as a function of differential pressure Δp_{1-2} – (pneumatic connection G1/2 NPT)



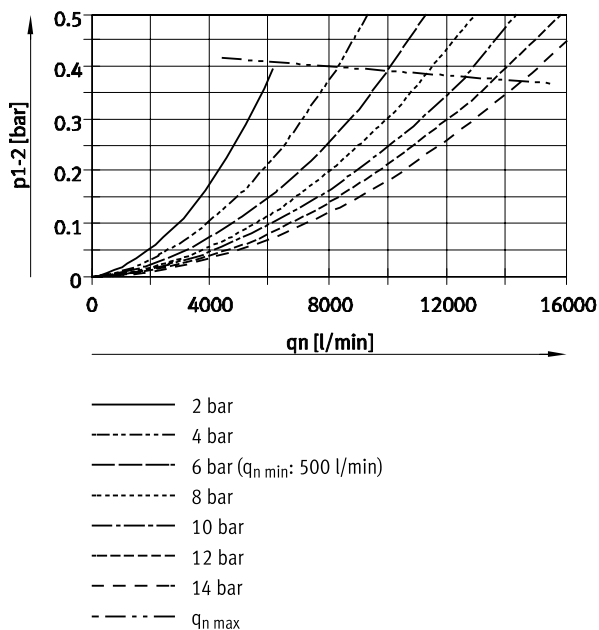
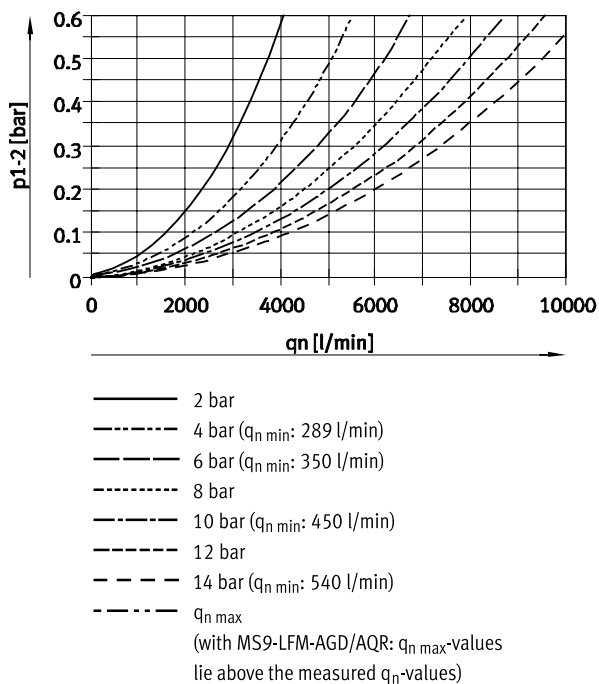
Standard flow rate q_n as a function of differential pressure Δp_{1-2} – (pneumatic connection G3/4 NPT)



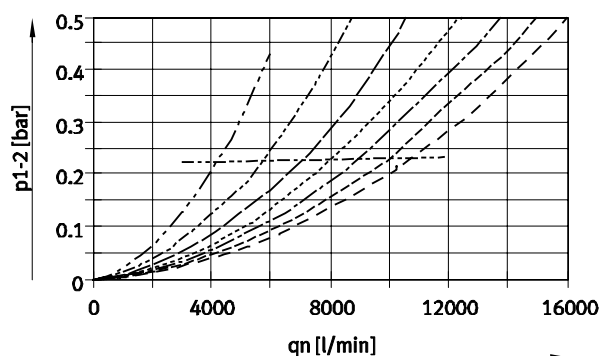
Datasheet

Standard flow rate q_n as a function of differential pressure Δp_{1-2} – (pneumatic connection G1 NPT)Standard flow rate q_n as a function of differential pressure Δp_{1-2} – (pneumatic connection 1 1/4 NPT)

Datasheet

Standard flow rate q_n as a function of differential pressure Δp_{1-2} – (pneumatic connection 1 1/2 NPT)Standard flow rate q_n as a function of differential pressure Δp_{1-2} (pneumatic connection 3/4 NPT – high flow rate HF)

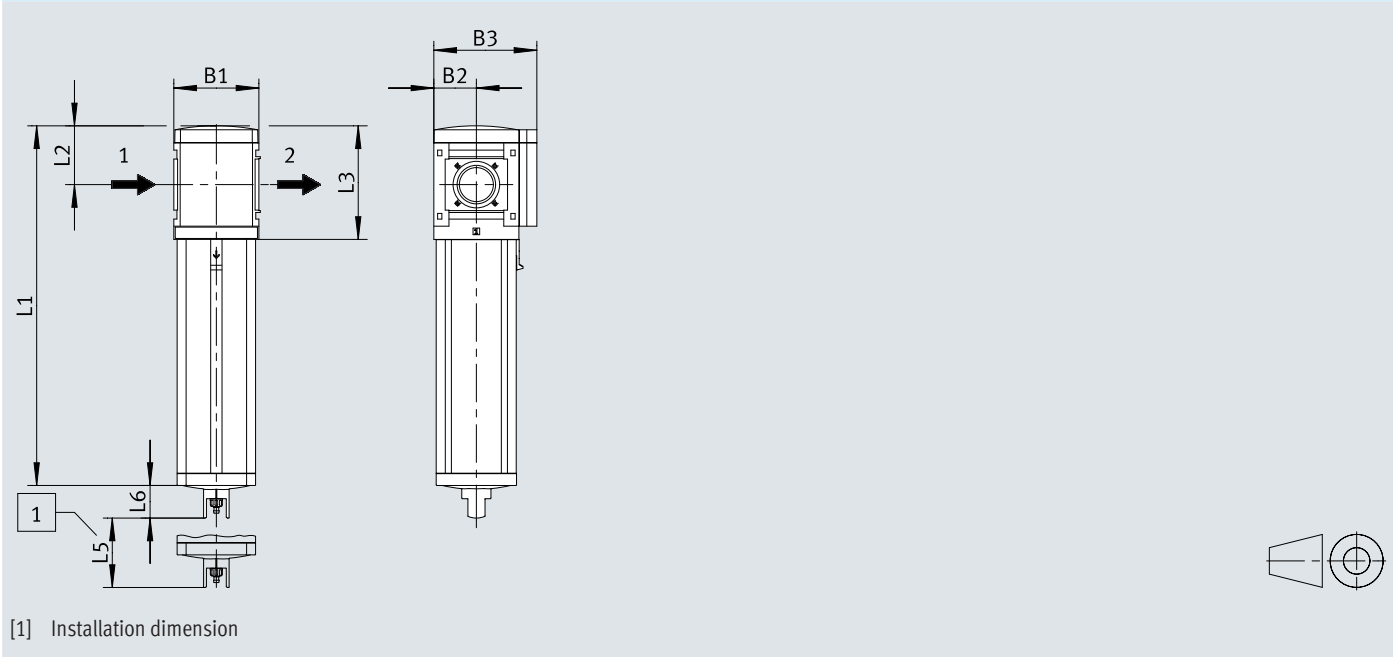
Datasheet

Standard flow rate q_n as a function of differential pressure Δp_{1-2} (pneumatic connection 1 NPT – high flow rate HF)

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

Dimensions

Dimensions – Module without connecting thread, without connecting plate G Download CAD data www.festo.com



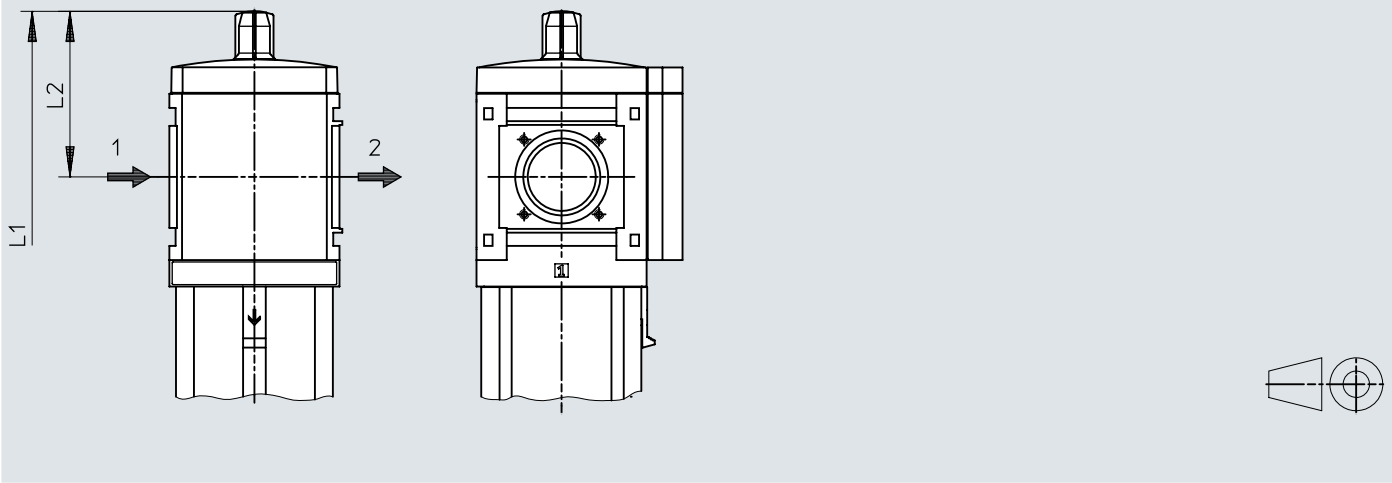
	B1	B2	B3	L1		L2	L3	L5	L6
				1)	2)				
MS9-LFM-G	90	45	109	380,5	480,5	62	120	50	34,5

1) Standard
2) High flow rate HF

Dimensions

Dimensions – Module without connecting thread, without connecting plate
G, with differential pressure display DA

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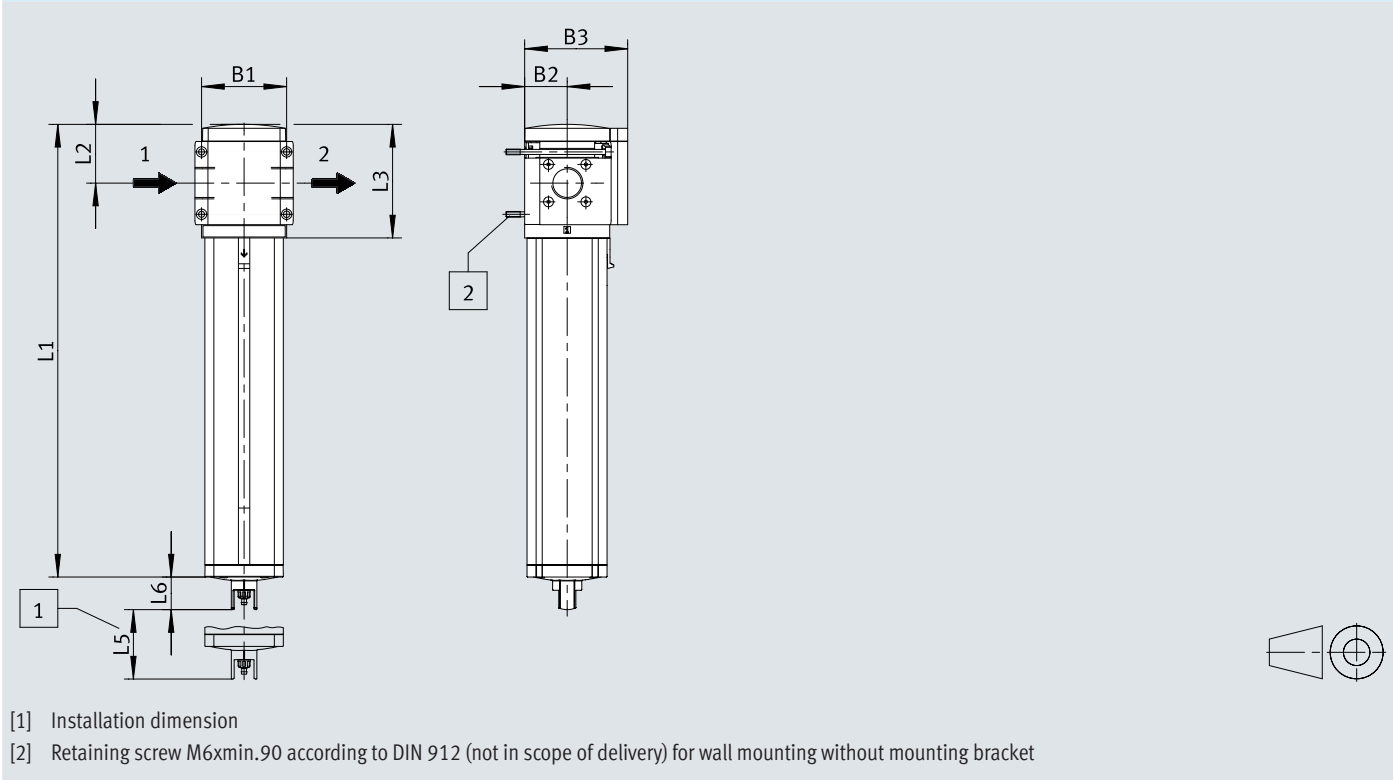
	B1	B2	B3	L1		L2	L3	L5	L6
				1)	2)				
MS9-LFM-G-...-DA	90	45	109	405,5	505,5	88	120	50	34,5

- 1) Standard
2) High flow rate HF

Dimensions

Dimensions – Connecting thread/connecting plate with internal thread 3/4, 1, N3/4, N1

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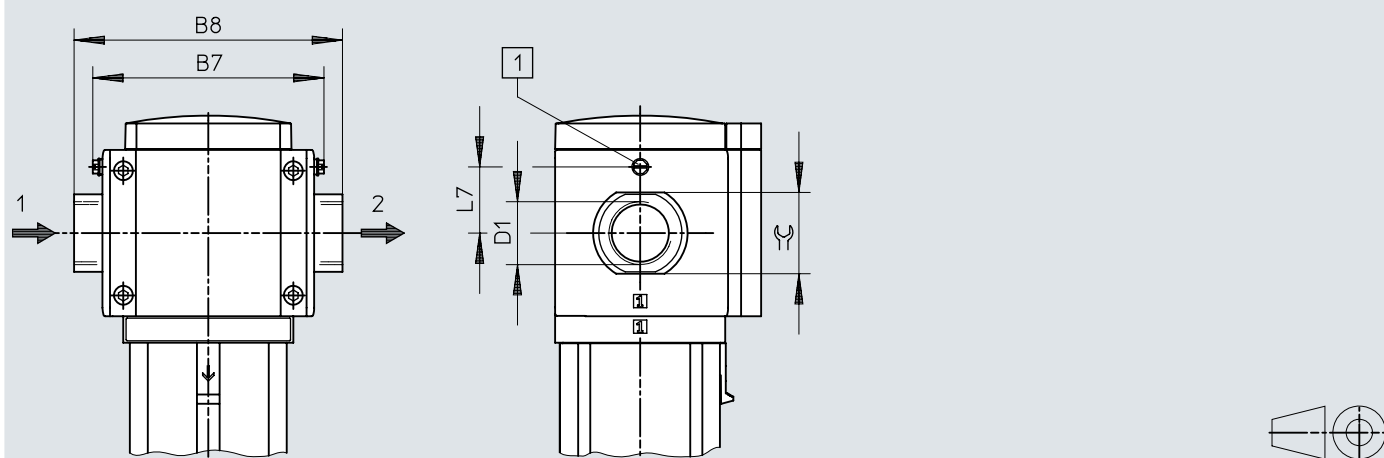


	B4	B5	B6	D1	L4
MS9-LFM-3/4	90	104	91,5	G3/4	66
MS9-LFM-1				G1	
MS9-LFM-N3/4	90	104	91,5	3/4 NPT	66
MS9-LFM-N1				1 NPT	

Dimensions

Dimensions – Connecting thread/connecting plate with connecting plate
AG.../AQ...

Download CAD data www.festo.com

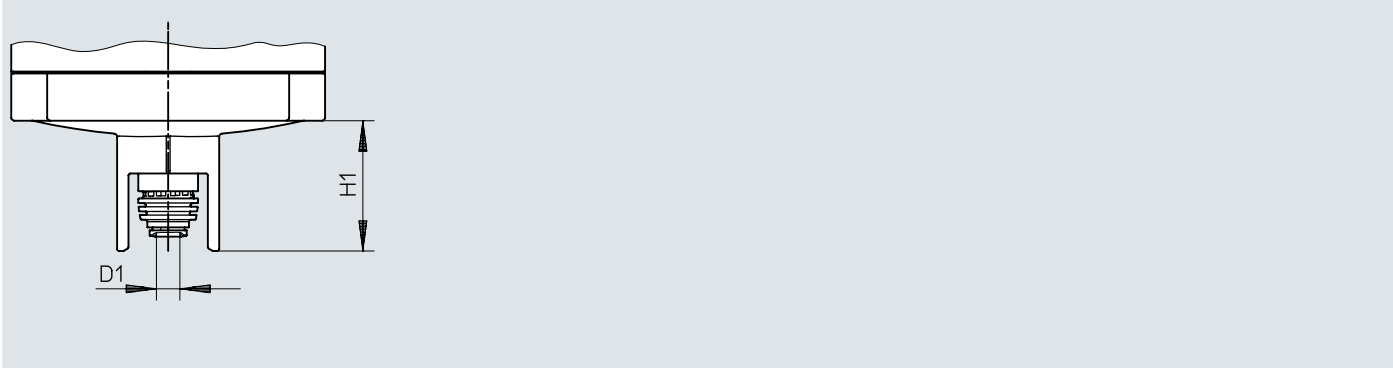


[1] Grounding screw M4x8 (only for MS9-...-EX4)

	B7		B8	D1	L7	≈G
		EX4			EX4	
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-AQR	112	122	132	1/2 NPT	35	30
MS9-LFM-AQS			132	3/4 NPT		36
MS9-LFM-AQT			142	1 NPT		41
MS9-LFM-AQU			162	1 1/4 NPT		50
MS9-LFM-AQV			176	1 1/2 NPT		55

Dimensions

Dimensions – Condensate drain, manual rotary, fully automatic [Download CAD data](#) www.festo.com

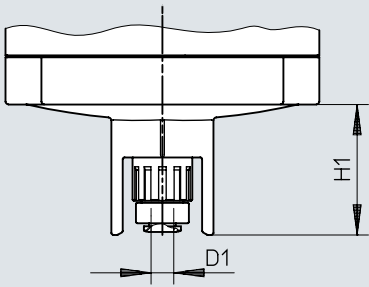


	D1	H1
MS9-LF-...-M/V	5,6	34,5

Dimensions

Dimensions – Condensate drain, semiautomatic

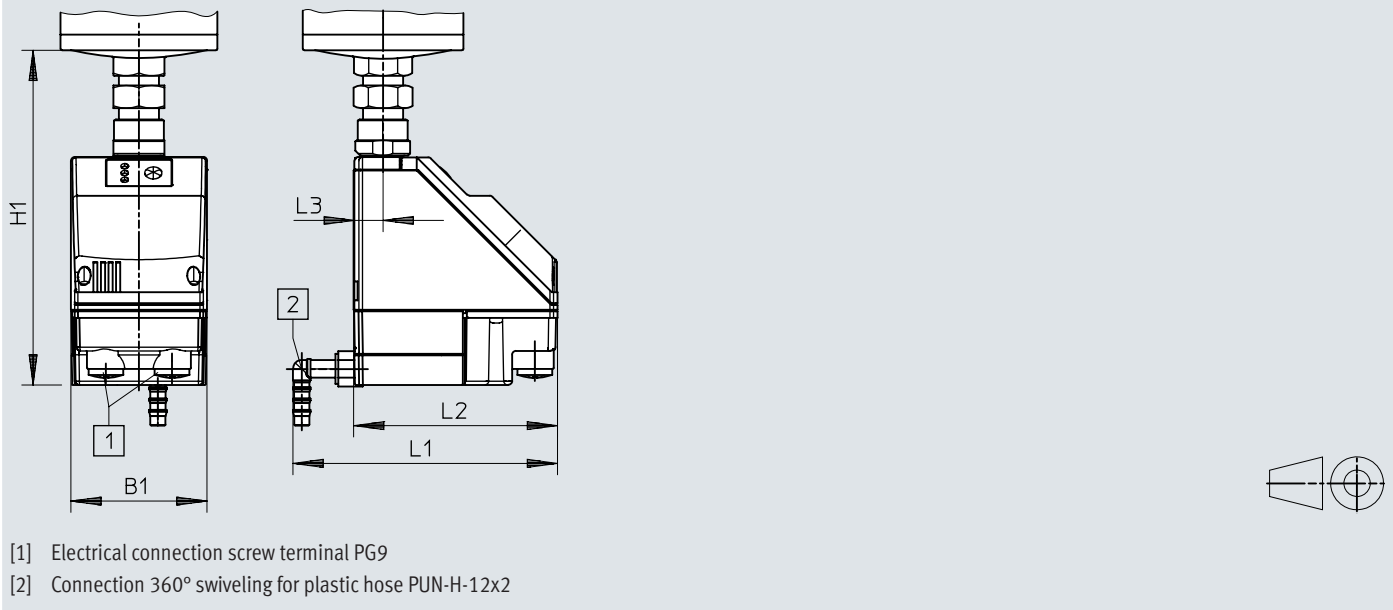
Download CAD data www.festo.com



	D1	H1
MS9-LF-...-H	6,2	34,5

Dimensions

Dimensions – Condensate drain fully automatic, electrically controlled Download CAD data www.festo.com

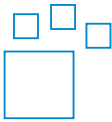


	B1	H1	L1	L2	L3
MS9-LF-...-E2, E3, E4	72	178	140	108	15

Ordering data

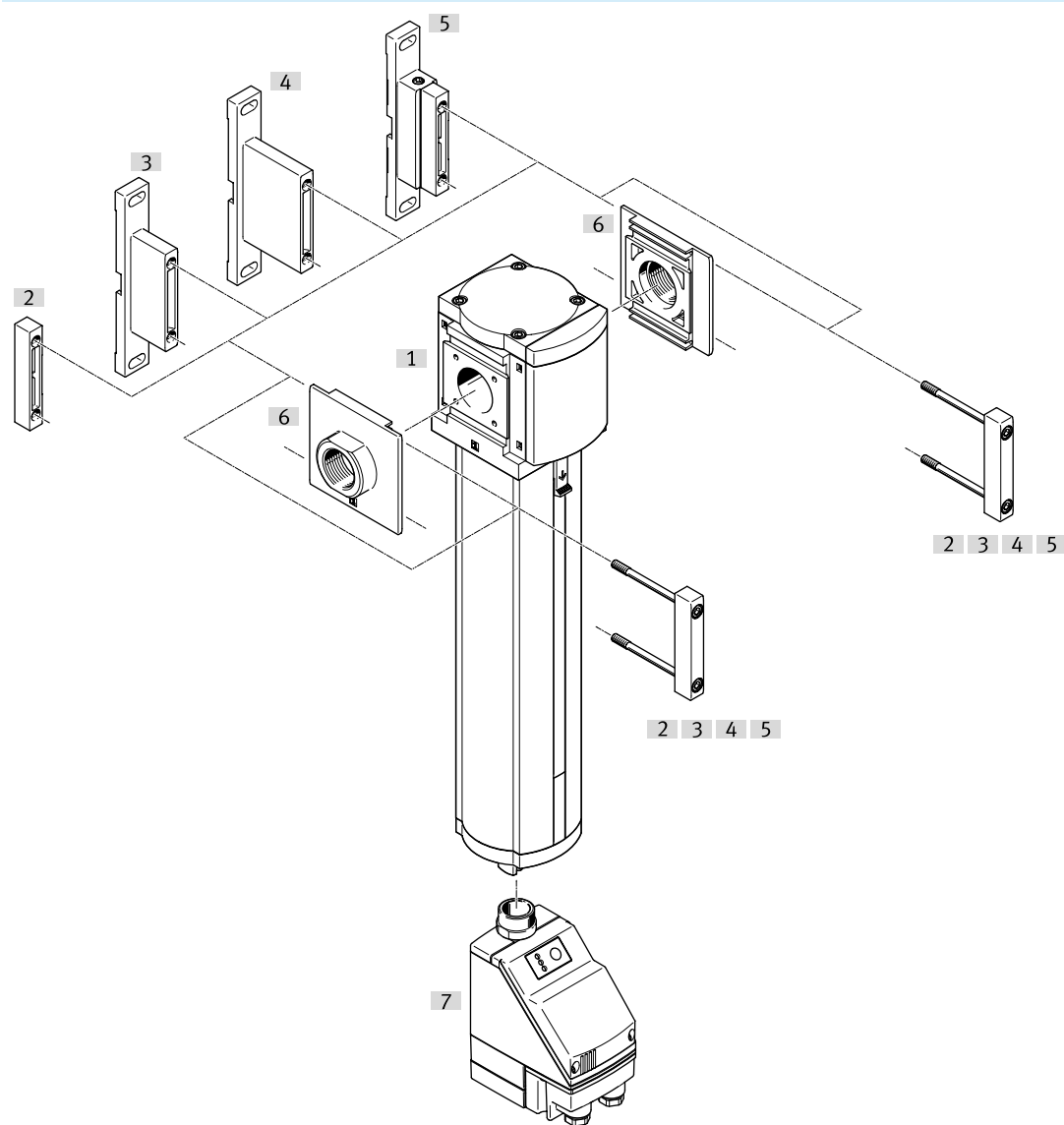
Ordering data						
	Pneumatic connection 1	Grade of filtration	Condensate drain	Product weight	Part no.	Type
	3/4 NPT	0.01 µm	Fully automatic, Manual, non-de-tenting	2,000 g	553088	MS9-LFM-N3/4-AUV
				2,500 g	552990	MS9-LFM-N3/4-AUV-HF-DA
			Manual, rotating	2,000 g	553086	MS9-LFM-N3/4-AUM
					553094	MS9-LFM-N3/4-AUM-DA
				2,500 g	552980	MS9-LFM-N3/4-AUM-HF
	1 NPT		Fully automatic, Manual, non-de-tenting	2,000 g	553026	MS9-LFM-N1-AUV-DA
					553018	MS9-LFM-N1-AUV
			Manual, rotating		553024	MS9-LFM-N1-AUM-DA
				2,500 g	553054	MS9-LFM-N1-AUM-HF
553062		MS9-LFM-N1-AUM-HF-DA				

Ordering data– Modular product system

	Type code	Part no.	Type
	MS9-LFM	552940	MS9-LFM

Peripherals overview

Peripherals overview



Accessories		→ Page/Internet
Type/order code	Description	
[1] Micro filter MS9N-LFM-A		ms9-lfm
[2] Sub-base-SET MS9-AQ...	for device combinations	19
[3] Module connector MS9-MV	for appliance combinations and individual appliances with connection plate	19
[4] Mounting bracket MS9-WP	for single device	19
[5] Mounting bracket MS9-WPB	for single device	20
[6] Mounting bracket MS9-WPM	for single device	20
[7] Condensate drain fully automatic, electrically controlled E2, E3, E4		pwea
[8] Ultra-fine filter cartridge MS9-LFM-A	Not shown	19

Accessories

MS9-LFM-A Micro-filter cartridges					
	Grade of filtration	Compressed air filter material	LABS (PWIS) conformity	Part no.	Type
	0.01 µm	Borosilicate glass fiber	VDMA24364-B1/B2-L	553036	MS9-LFM-A
				552944	MS9-LFM-A-HF

Sub-base-SET MS9-AG...						
	Pneumatic connection 1	Material of sub-base	LABS (PWIS) conformity	Product weight	Part no.	Type
	1/2 NPT	Die-cast aluminum	VDMA24364-B1/B2-L	300 g	552959	MS9-AQR
	3/4 NPT				552960	MS9-AQS
	1 NPT				552961	MS9-AQT
	1 1/4 NPT			400 g	552962	MS9-AQU
	1 1/2 NPT				552963	MS9-AQV

Module connector MS9-MV					
	Module connector material	LABS (PWIS) conformity	Product weight	Part no.	Type
	Die-cast aluminum	VDMA24364-B1/B2-L	110 g	552950	MS9-MV

Mounting bracket MS9-WP					
	Bracket material	LABS (PWIS) conformity	Product weight	Part no.	Type
	Die-cast aluminum	VDMA24364-B1/B2-L	180 g	552947	MS9-WP

Accessories

Mounting bracket MS9-WPB					
	Bracket material	LABS (PWIS) conformity	Product weight	Part no.	Type
	Die-cast aluminum	VDMA24364-B1/B2-L	210 g	552949	MS9-WPB

Mounting bracket MS9-WP					
	Bracket material	LABS (PWIS) conformity	Product weight	Part no.	Type
	Die-cast aluminum	VDMA24364-B1/B2-L	220 g	552948	MS9-WPM