

Fine filter MS9N-LFM-B

FESTO

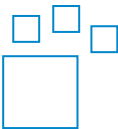


Characteristics

At a glance

- High-efficiency filter for exceptionally clean compressed air.
- With NPT connecting thread
 - Removing oil aerosols from compressed air
 - Air quality to ISO 8573-1:2010
 - Available with differential pressure gauge to indicate contamination
 - Available with electronic filter contamination indicator

Ordering data - modular system Link [ms9-lfm-b](#)



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

Size

- Grid dimension: 90 mm
Standard nominal flow rate:
- 350 ... 10000 l/min

Pneumatic connection

By installing connecting plates it is easier to replace the module if necessary (e.g. when using piping).

Bowl type

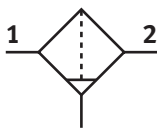
Bowl guard tanks to integrated metal bowl.

Condensate drain

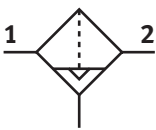
The following functions can be selected:

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

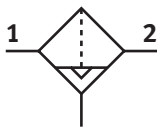
[M] Manually



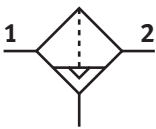
[H] Semi-automatic



[V] Automatic



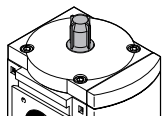
[VC] Fully automatic, normally closed



Filter change sensing

Optionally with differential pressure display for indicating filter contamination.

[DA] Differential pressure display, visual



Characteristics

Type of mounting

[WP] Mounting bracket basic design



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

[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 device
- Same wall distance for mixed combination with series MS12 when using the mounting bracket MS12-WP

[WPM] Mounting bracket for hooking in service unit components



- Mounting attachment and connector for service unit combination
- Mount and dismount the service unit combination quickly
- Spacer for maintaining the mounting gap
- Same wall gap for combination with MS6 series using the 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 flow in the opposite direction.

Type code

001	Series	
MS	MS series	

002	Size	
9	Grid dimension 90 mm	

003	Function	
LFM	Fine and micro filters	

004	Pneumatic connection	
3/4	Female thread G3/4	
1	Female thread G1	
AGD	Sub-base G1/2	
AGE	Sub-base G3/4	
AGF	Sub-base G1	
AGG	Connecting plate G1 1/4	
AGH	Connecting plate 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	Female thread 3/4 NPT	
N1	Female thread 1 NPT	

005	Filter design	
A	0.01 µm	
B	1 µm	

006	Bowl type	
U	Aluminium	

007	Condensate drain	
E2	External fully automatic condensate drain, electric, 110 V AC, connection terminals	
E3	External fully automatic condensate drain, electric, 230 V AC, connection terminals	
E4	External fully automatic condensate drain, electric, 24 V DC, connection terminals	
H	Semi-automatic	
M	Manual	
V	Fully automatic, normally open	
VC	Fully automatic, normally closed	

008	Flow rate	
	Standard	
HF	High flow rate	

009	Filter change sensing	
	None	
DA	Differential pressure display, visual	
DN	Filter contamination indicator, M8 plug, NPN, 3-pin	
DNI	Filter contamination indicator, M12 plug, NPN, 4-pin, analogue output 4...20 mA	
DP	Filter contamination indicator, M8 plug, PNP, 3-pin	
DPI	Filter contamination indicator, M12 plug, PNP, 4-pin, analogue output 4...20 mA	

010	Type of mounting	
	Without mounting bracket	
WP	Mounting bracket basic design	
WPB	Mounting bracket for large wall gap	
WPM	Mounting bracket for hooking in service unit components	

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		
Pneumatic connection, port 1	3/4 NPT	1 NPT
Pneumatic connection, port 2	3/4 NPT	1 NPT
Size	9	
Design	Fibre filter	
Grade of filtration	1 µm	
Type of mounting	Either: Inline installation With accessories	
Mounting position	Vertical +/-5°	
Air purity class at output	Compressed air to ISO 8573-1:2010 [5:4:3]	
Filter efficiency	99.99%	
Condensate drain	Fully automatic, Manual, non-detenting, Manual, rotating	
Max. condensate volume	225 ml	
Filter efficiency, fine particles	99%	
Filter efficiency, oil aerosol	90%	

Standard nominal flow rate q _N		
Flow rate	Standard [L]	High flow rate [HF]
Min. standard flow rate for clean air class	350 l/min	500 l/min
Max. standard flow rate for clean air class	7,000 l/min	10,000 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	Compressed air to ISO 8573-1:2010 [6:4:4]	
Ambient temperature	-10 ... 60°C	
Media temperature	-10 ... 60°C	
Storage temperature	-10 ... 60°C	
Corrosion resistance class CRC ¹⁾	2 - Moderate corrosion stress	

1) More information www.festo.com/x/topic/crc

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

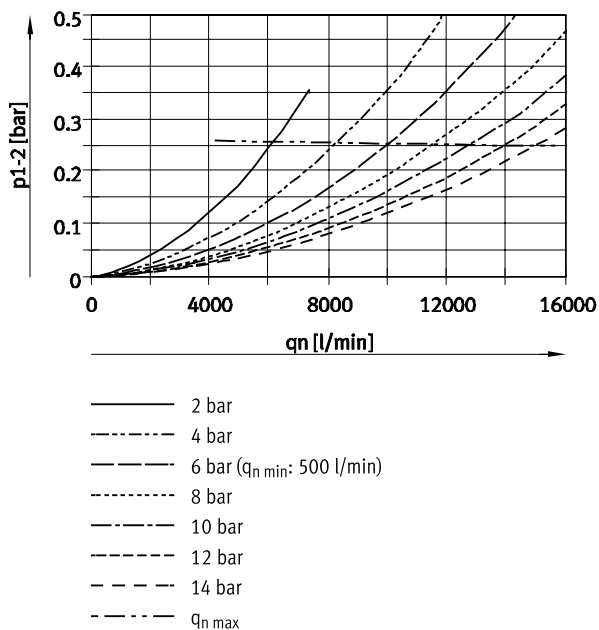
1) More information www.festo.com/catalogue/ms-lfm → Support/Downloads.

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

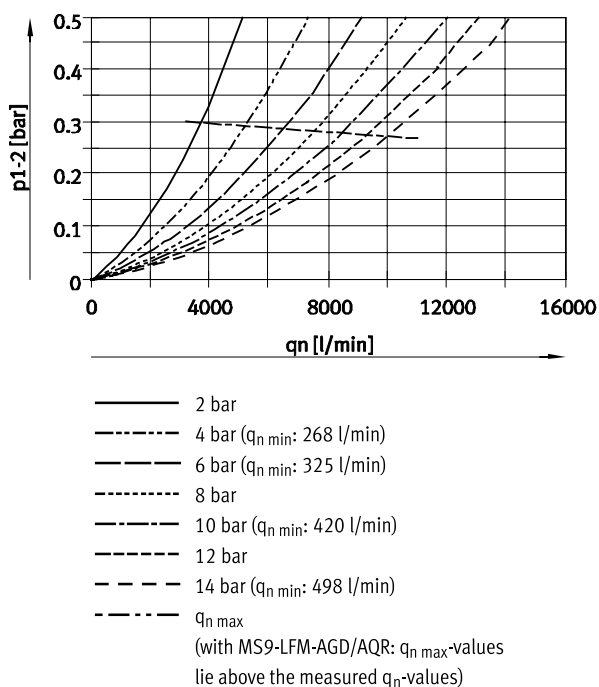
Materials	
Material housing	Die-cast aluminium
Material bowl	Wrought aluminium alloy
Material screen	Process automation
Material filter	Borosilicate fibre
Material seals	NBR
LABS (PWIS) conformity	VDMA24364-B1/B2-L

Datasheet

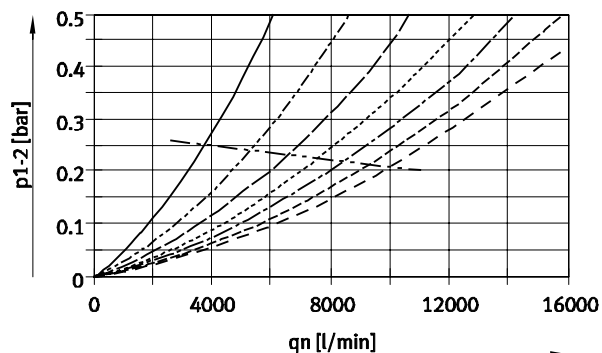
Standard flow rate q_n as a function of differential pressure Δp_{1-2} (pneumatic connection 1/2NPT)



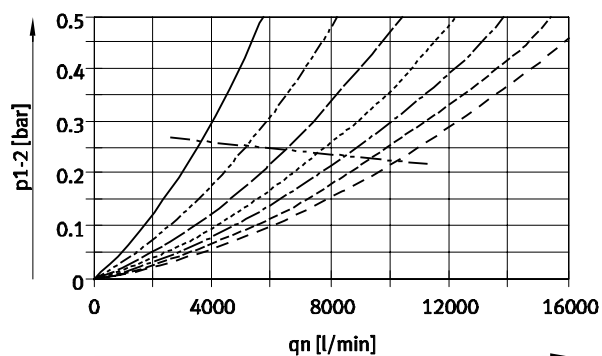
Standard flow rate q_n as a function of differential pressure Δp_{1-2} (pneumatic connection 3/4NPT)



Datasheet

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

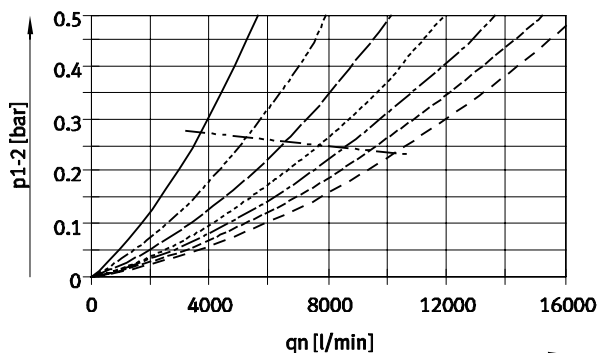
- 2 bar
- - - 4 bar ($q_{n \min}$: 268 l/min)
- · - 6 bar ($q_{n \min}$: 325 l/min)
- · · - 8 bar
- · · · - 10 bar ($q_{n \min}$: 420 l/min)
- · · · - 12 bar
- · · · - 14 bar ($q_{n \min}$: 498 l/min)
- · · · - $q_{n \max}$
(with MS9-LFM-AGD/AQR: $q_{n \max}$ -values
lie above the measured q_n -values)

Standard flow rate q_n as a function of differential pressure Δp_{1-2} (pneumatic connection 11/4NPT)

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

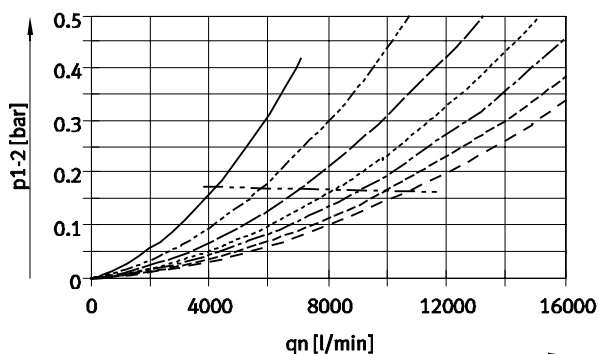
Datasheet

Standard flow rate q_n as a function of differential pressure Δp_{1-2} (pneumatic connection 11/2NPT)



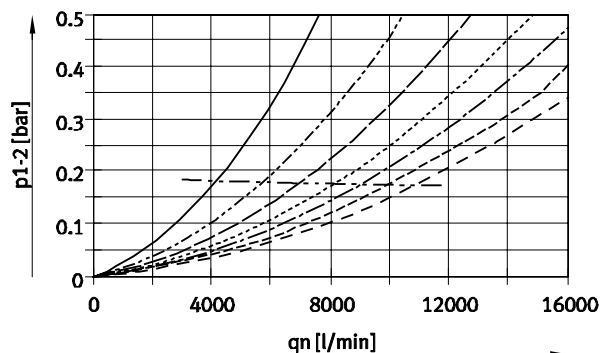
- 2 bar
- - - 4 bar ($q_{n \min}$: 268 l/min)
- · - 6 bar ($q_{n \min}$: 325 l/min)
- - - 8 bar
- · - 10 bar ($q_{n \min}$: 420 l/min)
- - - 12 bar
- - - 14 bar ($q_{n \min}$: 498 l/min)
- - - $q_{n \max}$
(with MS9-LFM-AGD/AQR: $q_{n \max}$ -values
lie above the measured q_n -values)

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

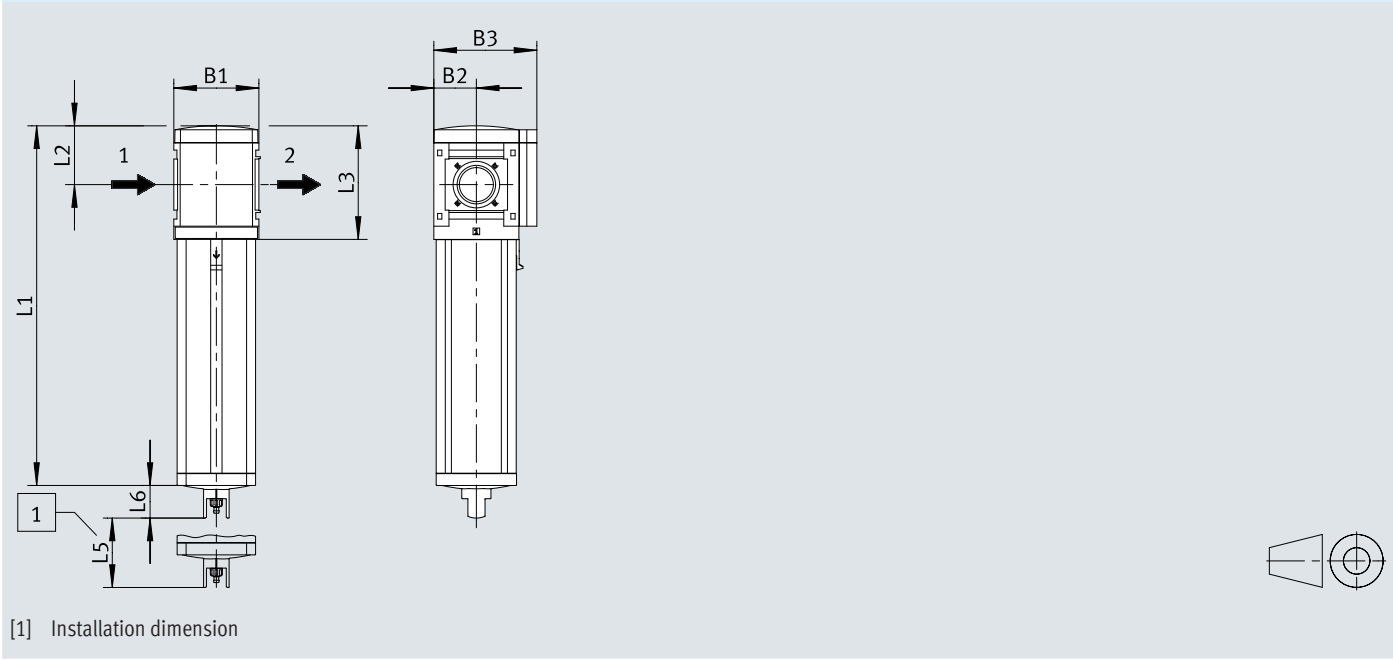
Datasheet

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 ($q_{n \text{ min}}$: 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)

Dimensions

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



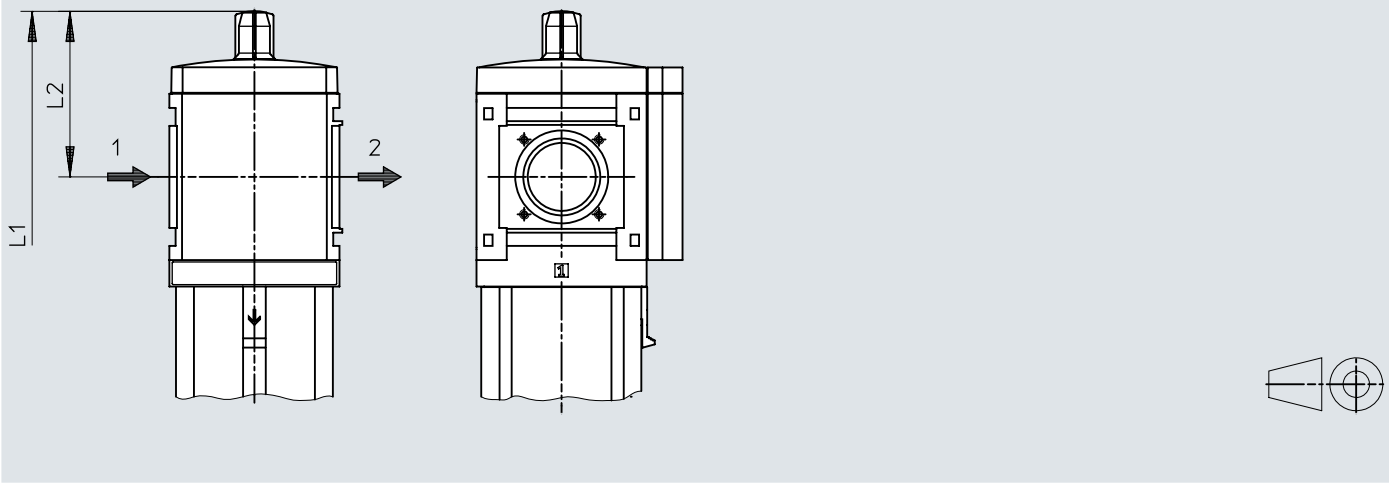
	B1	B2	B3	L1		L2	L3	L5	L6
				1)	2)				
MS9-LFM-G	90	45	109	380,5	480,5	62	120	50	34,5

1) Standard
2) High flow rate HF

Dimensions

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

Download CAD data www.festo.com



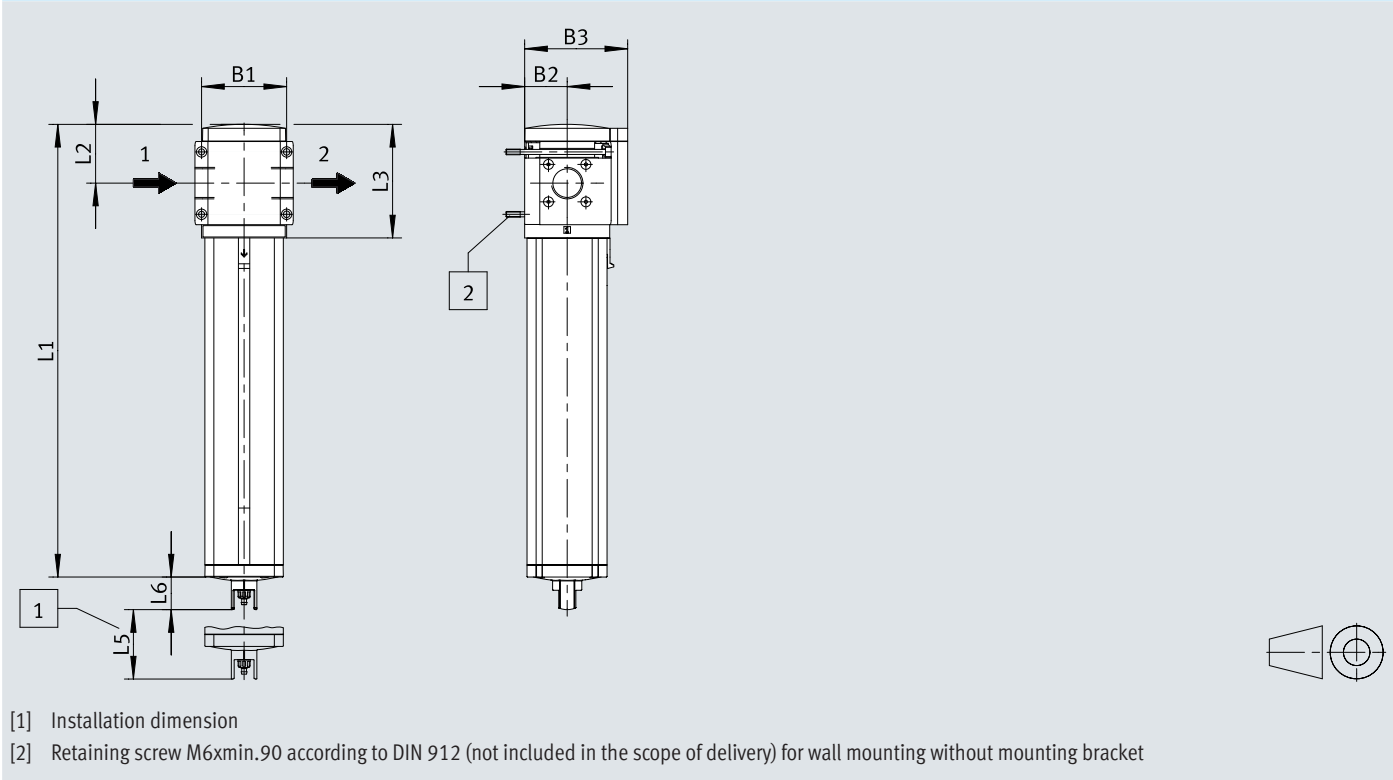
	B1	B2	B3	1)	L1	2)	L2	L3	L5	L6
MS9-LFM-G-...-DA	90	45	109	405,5	505,5		88	120	50	34,5

- 1) Standard
2) High flow rate HF

Dimensions

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

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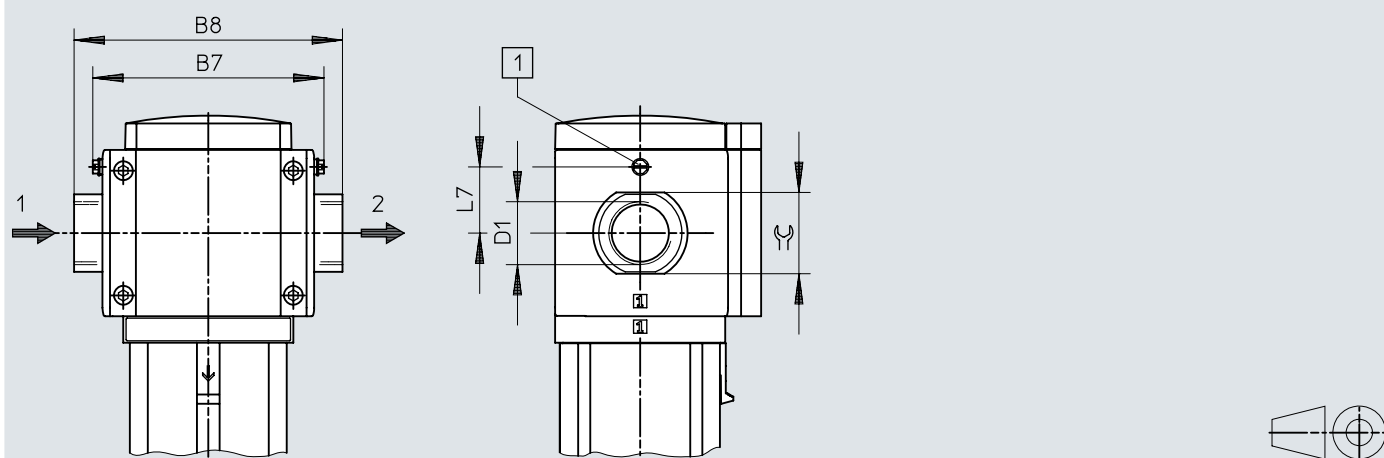


	B4	B5	B6	D1	L4
MS9-LFM-3/4	90	104	91,5	G3/4	66
MS9-LFM-1				G1	
MS9-LFM-N3/4	90	104	91,5	3/4 NPT	66
MS9-LFM-N1				1 NPT	

Dimensions

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

Download CAD data www.festo.com

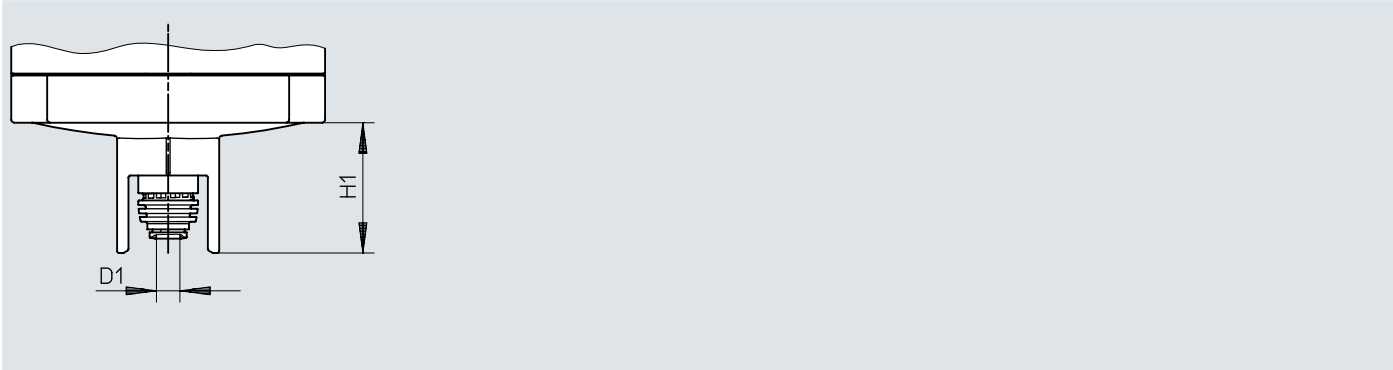


[1] Earthing screw M4x8 (only for MS9-...-EX4)

	B7		B8	D1	L7	≅
		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](http://www.festo.com)

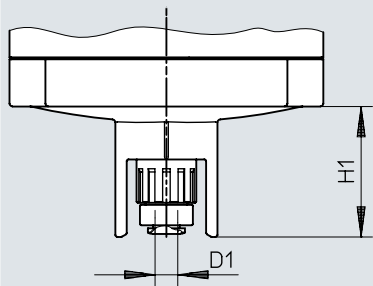


	D1	H1
MS9-LF-...-M/V	5,6	34,5

Dimensions

Dimensions – Condensate drain, semi-automatic

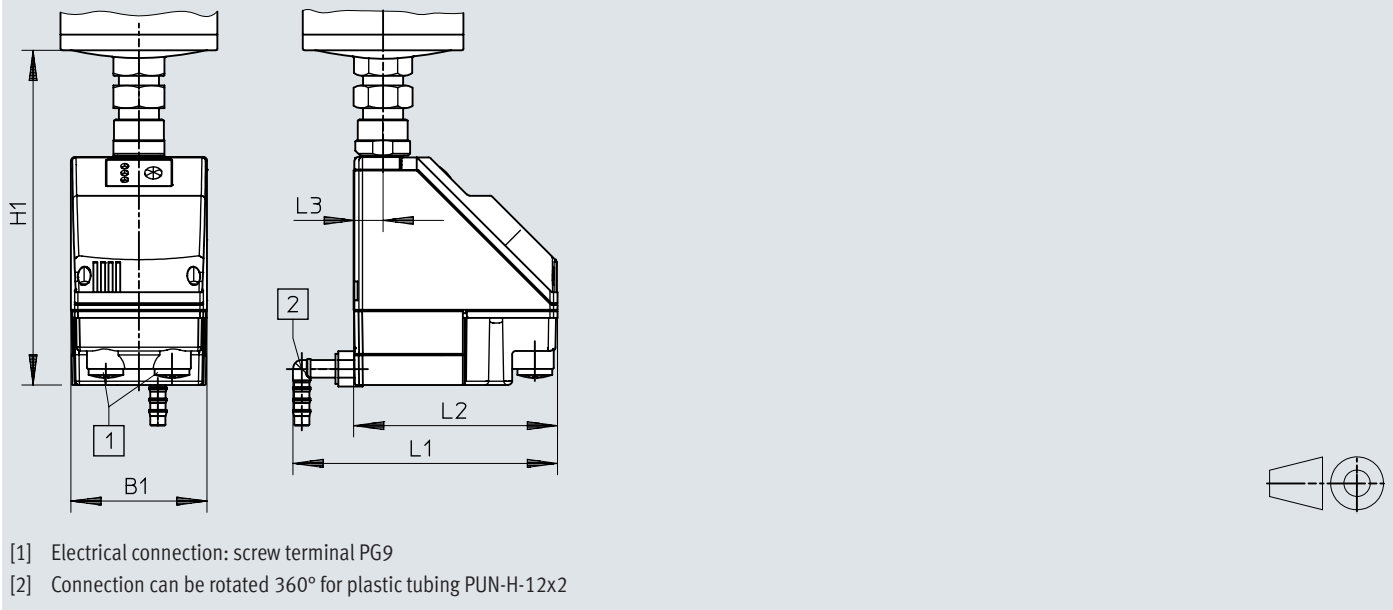
Download CAD data www.festo.com



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

Dimensions

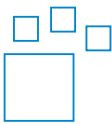
Dimensions – Condensate drain fully automatic, electrically controlled Download CAD data www.festo.com



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

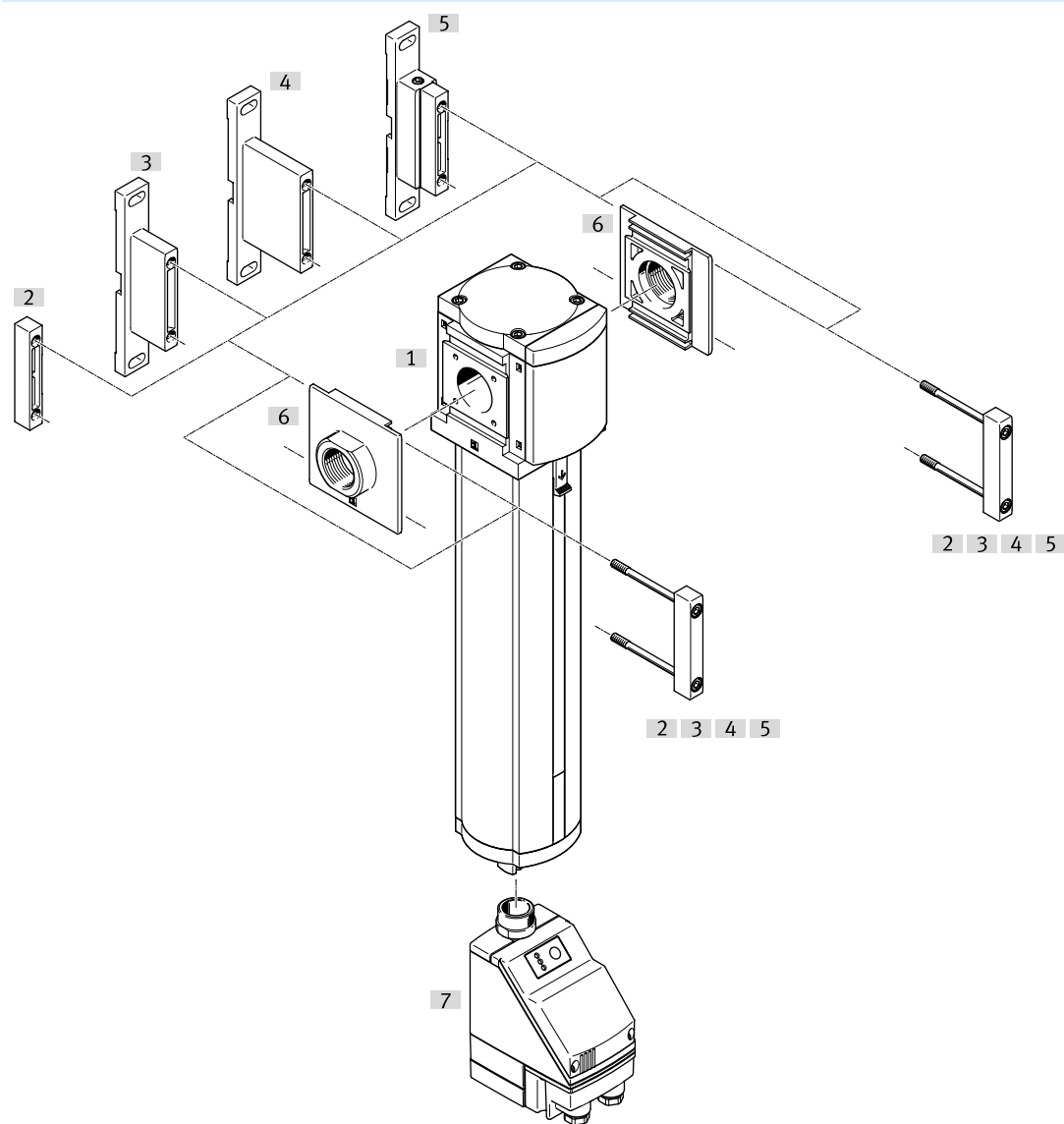
Ordering data

Ordering data						
	Pneumatic connection, port 1	Grade of filtration	Condensate drain	Product weight	Part no.	Type
	3/4 NPT	1 µm	Fully automatic, Manual, non-de-tenting	2,000 g	553100	MS9-LFM-N3/4-BUV-DA
			Manual, rotating		553090	MS9-LFM-N3/4-BUM
					553098	MS9-LFM-N3/4-BUM-DA
	1 NPT		Fully automatic, Manual, non-de-tenting	2,500 g	552984	MS9-LFM-N3/4-BUM-HF
				2,000 g	553022	MS9-LFM-N1-BUV
					553028	MS9-LFM-N1-BUM-DA
		Manual, rotating			2,500 g	553058

Ordering data – Modular product system			
	Short type code	Part no.	Type
	MS9-LFM	552940	MS9-LFM

Peripherals

Peripherals overview



Accessories		→ Link
Type/order code	Description	
[1] Fine filter M9N-LFM-B		ms9-lfr
[2] Connecting plate SET MS9-A...	For device combinations	19
[3] Module connector MS9-MV	For device combinations and individual devices with connecting plate	19
[4] Mounting bracket MS9-WP	For an individual device	19
[5] Mounting bracket MS9-WPB	For an individual device	20
[6] Mounting bracket MS9-WPM	For an individual device	20
[7] Fully automatic condensate drain, electrically actuated E2, E3, E4		pwea
[8] Fine-filter cartridge MS9-LFM-B	Not shown	ms9-lfm

Accessories

Fine-filter cartridges MS9-LFM-B					
	Grade of filtration	Material filter	LABS (PWIS) conformity	Part no.	Type
	1 µm	Borosilicate fibre	VDMA24364-B1/B2-L	552945	MS9-LFM-B-HF
				553037	MS9-LFM-B

Connecting plate SET MS9-A...						
	Pneumatic connection, port 1	Material sub-base	LABS (PWIS) conformity	Product weight	Part no.	Type
	1/2 NPT	Die-cast aluminium	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					
	Material module connector	LABS (PWIS) conformity	Product weight	Part no.	Type
	Die-cast aluminium	VDMA24364-B1/B2-L	110 g	552950	MS9-MV

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

Accessories

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

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