

## Fine and Micro Filters MS12N-LFM – Inch Series



Fine and micro filters, with 1 micron or 0.01 micron filtration grades, remove submicronic water or oil droplets and dirt particles for exceptionally clean compressed air.

- Pneumatic connection: 1 NPT, 1¼ NPT, 1½ NPT, 2 NPT
- Supply pressure
  - For manual drain: 12 ... 294 psi
  - For fully automatic drain: 29 ... 176 psi
  - For fully automatic drain, electrically actuated: 12 ... 235 psi
- Flow rate: 176.5 ... 268.3 scfm

Product Range Overview														
Type	Pneumatic connections	Filtration grade [µm]				Bowl guard	Bowl drain						Contamination control	Reverse flow
		0.01	1	5	40		Manual	Fully automatic	Electrical 24 V DC M12	Electrical 110 V AC with terminals	Electrical 230 V AC with terminals	Electrical 24 V DC with terminals		
MS12N	AG...	A	B	C	E	U	M	V	E1	E2	E3	E4	DA	Z
LFM	1 NPT, 1¼ NPT, 1½ NPT, 2 NPT	■	■	-	-	■	■	■	■	■	■	■	■	■

### Features

- High-performance filter for exceptionally clean compressed air
- Air quality to DIN ISO 8573-1
- Available with differential pressure indicator for optical indication of filter contamination
- LFM-A:
  - ISO class 1 for particles: max. particle density 0.1 mg/m<sup>3</sup>
  - ISO class 2 for oil aerosols: max. oil concentration 0.1 mg/m<sup>3</sup>
  - Filter efficiency 99.9999%
- LFM-B:
  - ISO class 2 for particles: max. particle density 1 mg/m<sup>3</sup>
  - ISO class 3 for oil aerosols: max. oil concentration 1 mg/m<sup>3</sup>
  - Filter efficiency 99.99%

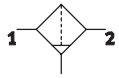
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→ <a href="http://www.festo.com/catalog/ms12n-lfm">www.festo.com/catalog/ms12n-lfm</a>	

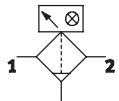
# Fine and Micro Filters MS12N-LFM – Inch Series

## Technical Data

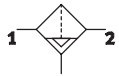
### ISO Symbol



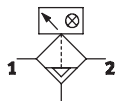
Manual bowl drain  
without differential pressure indicator



With differential pressure indicator



Fully automatic bowl drain  
without differential pressure indicator



With differential pressure indicator



General Technical Data		1 NPT	1¼ NPT	1½ NPT	2 NPT
Pneumatic connection 1, 2 <sup>1)</sup>		1 NPT	1¼ NPT	1½ NPT	2 NPT
Filtration grade	[µm]	0.01 (micro filter LFM-A, air purity class at the output 1.7.2 to DIN ISO 8573-1) 1 (fine filter LFM-B, air purity class at the output 2.7.3 to DIN ISO 8573-1)			
Supply pressure	M [psi]	12 ... 294 (manual drain)			
	V [psi]	29 ... 176 (fully automatic drain)			
	E... [psi]	12 ... 235 (fully automatic drain, electrically actuated)			

1) Dependent on port plate selected, must be ordered separately as an accessory → 1147

Standard Nominal Flow Rate qnN <sup>2)</sup> and Standard Flow Rate qn <sup>2)</sup> [scfm]		1 NPT	1¼ NPT	1½ NPT	2 NPT
Pneumatic connection 1, 2		1 NPT	1¼ NPT	1½ NPT	2 NPT
Micro filter LFM-A					
qnN 1 → 2		176.5	211.8	229.5	247.1
qn min		24.7	24.7	24.7	24.7
qn max		811.9	811.9	811.9	811.9
Fine filter LFM-B					
qnN 1 → 2		183.6	218.9	264.8	268.3
qn min		33.5	33.5	33.5	33.5
qn max		811.9	811.9	811.9	811.9

2) Dependent on port plate selected, must be ordered separately as an accessory → 1147  
Measured at p<sub>1</sub> = 88 psi and Δp = 1.0 psi

# Fine and Micro Filters MS12N-LFM – Inch Series

Technical Data

Operating and Environmental Conditions			
Bowl drain	Manual M	Fully automatic V	Fully automatic, electrically actuated E...
Operating medium micro filter LFM-A	Compressed air, filtered, unlubricated, filtration grade 1 µm		
Operating medium fine filter LFM-B	Compressed air, filtered, unlubricated, filtration grade 5 µm		
Max. condensate volume [in <sup>3</sup> ]	24.40		
Bowl guard	Metal bowl		
Ambient temperature [°F]	14 ... 140	41 ... 140	34 ... 140
Temperature of medium [°F]	14 ... 140	41 ... 140	34 ... 140
Storage temperature [°F]	14 ... 140	14 ... 140	34 ... 140
Assembly position	Vertical ±5°		
Corrosion resistance CRC <sup>1)</sup>	2		

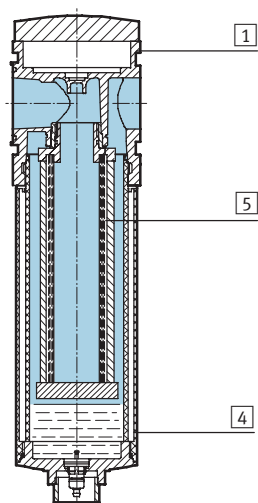
1) Corrosion resistance class 2 according to Festo standard 940 070  
 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating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

Weights [lb]	
With metal bowl	14.00
With metal bowl and fully automatic, electrically actuated bowl drain	15.40

- Filter cartridges → 1149
- For spare parts go to: [www.festo.com/en/spare\\_parts\\_service](http://www.festo.com/en/spare_parts_service)

## Materials

Sectional view



Fine and micro filter		
1	Body	Die-cast aluminum
4	Metal bowl	Wrought aluminum alloy
5	Filter element	Borosilicate mesh
-	Seals	Nitrile rubber

# Fine and Micro Filters MS12N-LFM – Inch Series

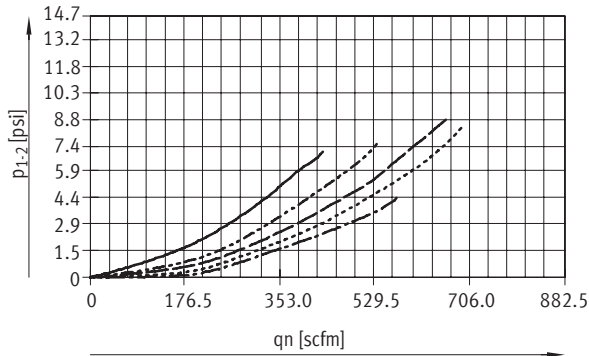
Technical Data



## Standard Flow Rate $q_n$ as a Function of the Differential Pressure $p_{1-2}$

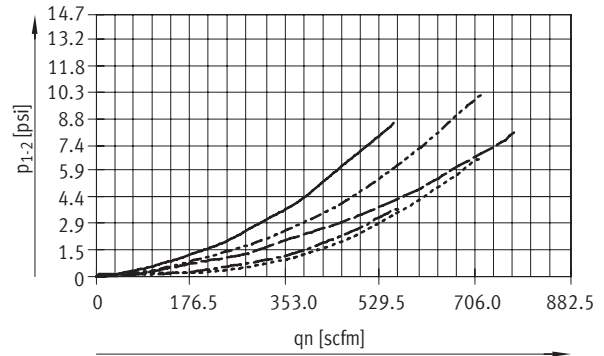
Filtration grade 0.01  $\mu\text{m}$

With port plate MS12-AGF, Pneumatic connection 1 NPT



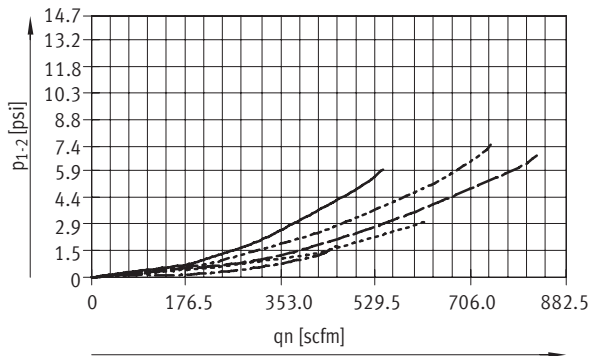
Filtration grade 0.01  $\mu\text{m}$

With port plate MS12-AGG, Pneumatic connection 1 1/4 NPT



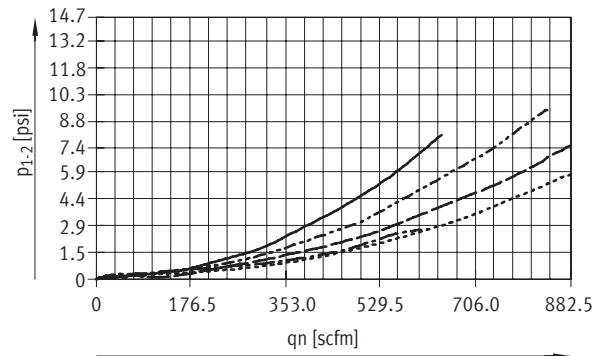
Filtration grade 0.01  $\mu\text{m}$

With port plate MS12-AGH, Pneumatic connection 1 1/2 NPT



Filtration grade 0.01  $\mu\text{m}$

With port plate MS12-AGI, Pneumatic connection 2 NPT



- p1: 59 psi
- - - p1: 88 psi
- · - p1: 118 psi
- · · p1: 147 psi
- - - p1: 176 psi

# Fine and Micro Filters MS12N-LFM – Inch Series

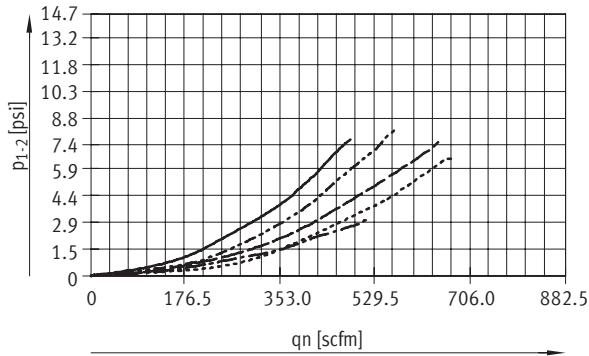
Technical Data



## Standard Flow Rate $q_n$ as a Function of the Differential Pressure $p_{1-2}$

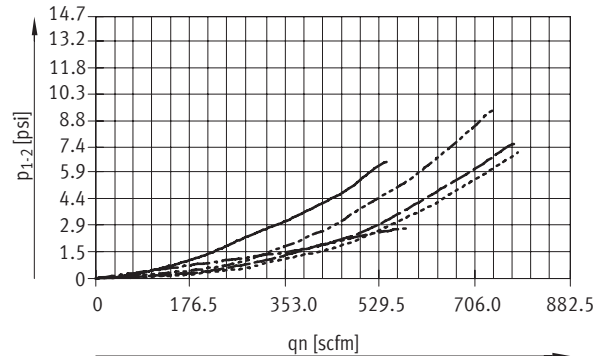
Filtration grade  $1\ \mu\text{m}$

With port plate MS12-AGF, Pneumatic connection 1 NPT



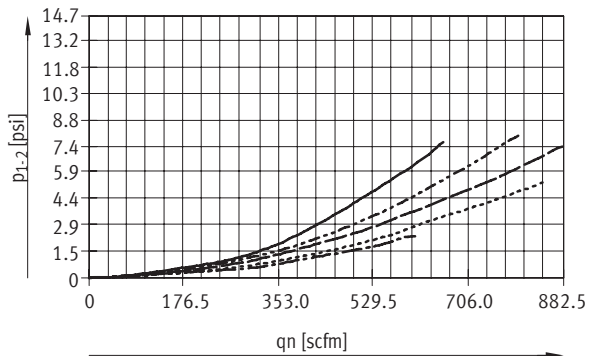
Filtration grade  $1\ \mu\text{m}$

With port plate MS12-AGG, Pneumatic connection  $1\frac{1}{4}$  NPT



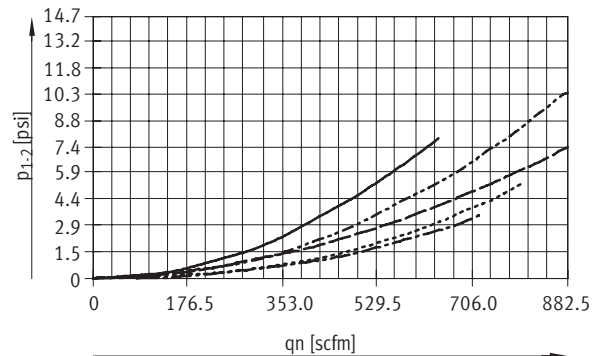
Filtration grade  $1\ \mu\text{m}$

With port plate MS12-AGH, Pneumatic connection  $1\frac{1}{2}$  NPT



Filtration grade  $1\ \mu\text{m}$

With port plate MS12-AGI, Pneumatic connection 2 NPT



- p1: 59 psi
- - - p1: 88 psi
- · - p1: 118 psi
- · · p1: 147 psi
- - - p1: 176 psi

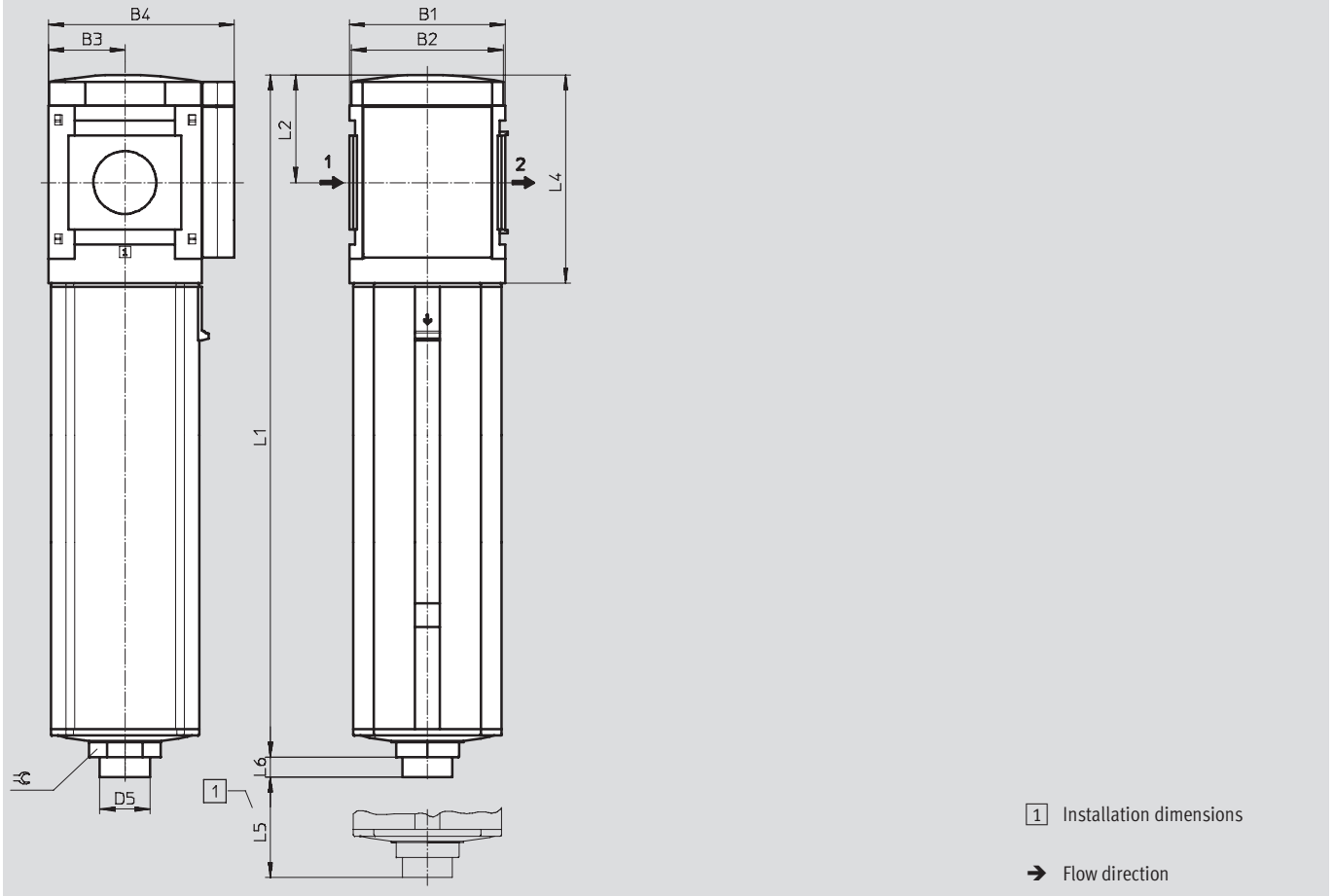
# Fine and Micro Filters MS12N-LFM – Inch Series

Dimensional Drawings



Dimensions<sup>1)</sup> – Standard

Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)



B1	B2	B3	B4	D5 ∅	L1	L2	L4	L5	L6	⌀
4.88	4.80	2.40	5.83	1.57	21.38	3.39	6.54	13.78	0.63	1.97

1) Dimensions are in inches, unless otherwise noted.

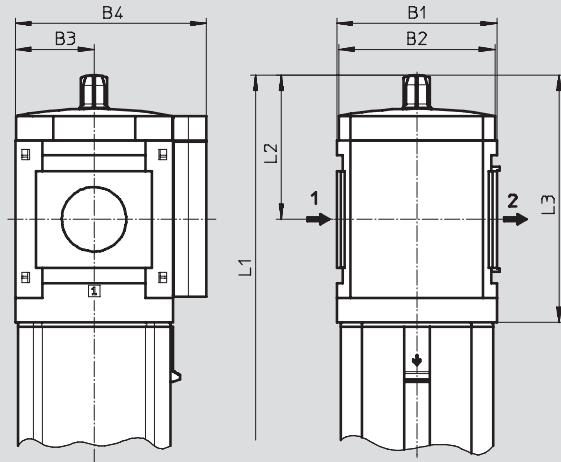
# Fine and Micro Filters MS12N-LFM – Inch Series

Dimensional Drawings



## Dimensions<sup>1)</sup> – Differential Pressure Indicator

Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)



→ Flow direction

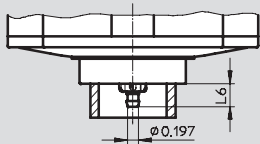
Type	B1	B2	B3	B4	L1	L2	L3
MS12-LFM-...-DA	4.88	4.80	2.40	5.83	22.40	4.41	7.56

1) Dimensions are in inches, unless otherwise noted.

## Dimensions<sup>1)</sup> – Bowl Drain

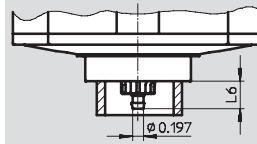
Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

Manual M



Barbed fitting for plastic tubing  
PCN-4

Fully automatic V



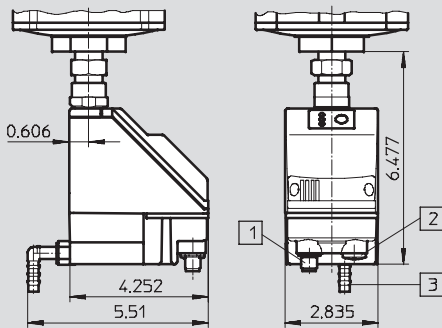
Barbed fitting for plastic tubing  
PCN-4

Type	L6
MS12-LFM-...-M	0.43

Type	L6
MS12-LFM-...-V	0.51

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

Technical data PWEA → [www.festo.com/catalog/pwea](http://www.festo.com/catalog/pwea)



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

1) Dimensions are in inches, unless otherwise noted.

# Fine and Micro Filters MS12N-LFM – Inch Series

Ordering Data – Pre-configured Products

Ordering Data							
Metal bowl							
Bowl drain	Connection	Micro filter			Fine filter		
		Filtration grade 0.01 µm			Filtration grade 1 µm		
		Part No.	Type	LT	Part No.	Type	LT
Fully automatic	1 NPT... 2 NPT <sup>1)</sup>	<b>537154</b>	<b>MS12-LFM-G-AUV</b>	1D	<b>537153</b>	<b>MS12-LFM-G-BUV</b>	1D

**LT** = Lead time      **1D** typically ships same day/next day      **1W** typically ships within 1 week      **Q** request a quote for lead time

1) Port plate must be ordered separately as an accessory → 1147



# Fine and Micro Filters MS12N-LFM – Inch Series



Ordering Data – Configurable Products

M Mandatory data									O Options		
Part No.	Series	Size	Thread	Function	Connection size	Filtration grade	Bowl	Bowl drain	Filter change sensor	Type of mounting	Reverse flow direction
535045	MS	12	N	LFM	AQT AQU AQV AQW G	B A	U	M V E1 E2 E3 E4	DA	WP	Z
<b>Order example</b>											
<b>535045</b>	<b>MS</b>	<b>12</b>	<b>N</b>	<b>- LFM</b>	<b>- AQW</b>	<b>- A</b>	<b>- U</b>	<b>- M</b>	<b>-</b>	<b>-</b>	<b>-</b>

Ordering Table		Grid dimension [mm]	124	Conditions	Code	Enter code
M	Part No.	535045				
	Series	Standard			MS	MS
	Size	12			12	12
	Thread	NPT thread			N	N
	Function	Fine and micro filter			-LFM	-LFM
	Connection size	Port plate 1 NPT (dimensions → 1147)			-AQT	
		Port plate 1¼ NPT (dimensions → 1147)			-AQU	
		Port plate 1½ NPT (dimensions → 1147)			-AQV	
		Port plate 2 NPT (dimensions → 1147)			-AQW	
		Module without connecting thread, without port plate			-G	
	Filtration grade	1 µm			-B	
		0.01 µm			-A	
	Bowl	Metal bowl			-U	-U
	Bowl drain	Manual			-M	
		Fully automatic (P1 max. 176 psi)			-V	
		External fully automatic bowl drain, electrical, 24 V DC, M12			-E1	
		External fully automatic bowl drain, electrical, 110 V AC, terminals			-E2	
		External fully automatic bowl drain, electrical, 230 V AC, terminals			-E3	
		External fully automatic bowl drain, electrical, 24 V DC, terminals			-E4	
O	Filter change sensor	Differential pressure indicator, optical			-DA	
	Type of mounting	Mounting bracket (dimensions → 1148)		1	-WP	
	Reverse flow direction	Flow direction from right to left			-Z	

1 WP Only with port plate AQT, AQU, AQV or AQW

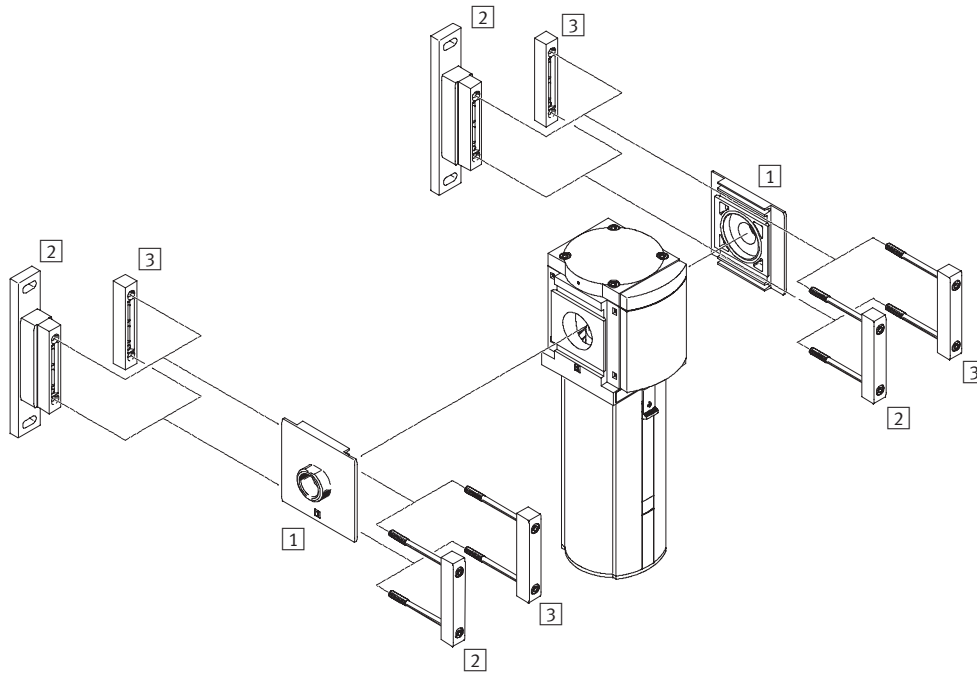
### Transfer order code

535045	MS	12	N	- LFM	-	-	- U	-	-	-	-
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# Fine and Micro Filters MS12N-LFM – Inch Series

Accessories Overview

## Mounting Attachments and Accessories



## Mounting Attachments and Accessories

		→ Page
1	Port plate MS12-AQ...	1147
2	Mounting bracket MS12-WP	1148
3	Body connector MS12-MV	1147

## Fine and Micro Filters MS12N-LFM – Inch Series

Accessories

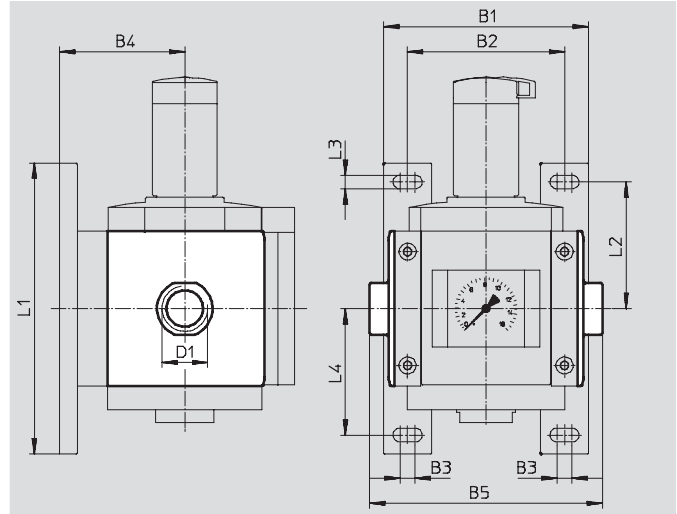
### 1 Port plate MS12-AQ...

- Adapter for pneumatic connection

Material:

Die-cast aluminum

Free of copper and PTFE



Dimensions and Ordering Data											
B1	B2	B3	B4	B5	D1	L1	L2	L3	L4	Weight [[lb]	Part No. Type
6.38	4.88	0.47	3.90	7.24	1 NPT	9.06	3.94	0.43	3.94	2.60	537139 MS12-AQT
				7.24	1¼ NPT						537140 MS12-AQU
				7.24	1½ NPT						537141 MS12-AQV
				7.72	2 NPT						537142 MS12-AQW

### 3 Body connector MS12-MV

- For connecting modules

Material:

Die-cast aluminum,

Free of copper and PTFE



Ordering Data			
Size	Weight [[lb]	Part No.	Type
MS12	1.00	537134	MS12-MV

## Fine and Micro Filters MS12N-LFM – Inch Series

Accessories

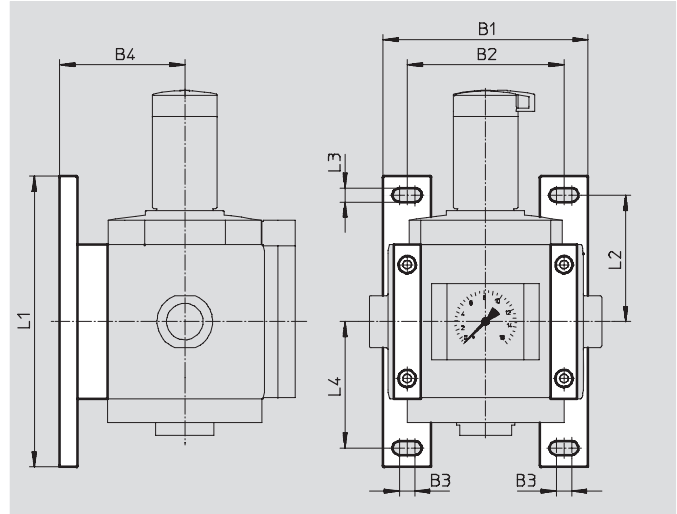
### 2 Mounting bracket MS12-WP

- To connect the modules for wall mounting
- In combination with a port plate for mounting an individual unit on a wall

Material:

Die-cast aluminum

Free of copper and PTFE



#### Dimensions and Ordering Data

Size	B1	B2	B3	B4	L1	L2	L3	L4	Weight [[b]	Part No.	Type
MS12	6.38	4.88	0.47	3.90	9.06	3.94	0.43	3.94	1.40	537133	MS12-WP

## Fine and Micro Filters MS12N-LFM – Inch Series

Replacement Parts

FESTO



Ordering Data – Filter Cartridges			
Size	Filtration grade [ $\mu\text{m}$ ]	Part No.	Type
MS12	0.01	537146	MS12-LFM-A
	1	537145	MS12-LFM-B

- For spare parts go to: [www.festo.com/en/spare\\_parts\\_service](http://www.festo.com/en/spare_parts_service)

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## A Complete Suite of Automation Services

Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.



**Custom Automation Components**  
Complete custom engineered solutions



**Custom Control Cabinets**  
Comprehensive engineering support and on-site services



**Complete Systems**  
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## The Broadest Range of Automation Components

With a comprehensive line of more than 30,000 automation components, Festo is capable of solving the most complex automation requirements.



**Electromechanical**  
Electromechanical actuators, motors, controllers & drives



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Pneumatic linear and rotary actuators, valves, and air supply



**PLCs and I/O Devices**  
PLC's, operator interfaces, sensors and I/O devices

## Supporting Advanced Automation... As No One Else Can!

Festo is a leading global manufacturer of pneumatic and electromechanical systems, components and controls for industrial automation, with more than 12,000 employees in 56 national headquarters serving more than 180 countries. For more than 80 years, Festo has continuously elevated the state of manufacturing with innovations and optimized motion control solutions that deliver higher performing, more profitable automated manufacturing and processing equipment. Our dedication to the advancement of automation extends beyond technology to the education and development of current and future automation and robotics designers with simulation tools, teaching programs, and on-site services.

## Quality Assurance, ISO 9001 and ISO 14001 Certifications

Festo Corporation is committed to supply all Festo products and services that will meet or exceed our customers' requirements in product quality, delivery, customer service and satisfaction.

To meet this commitment, we strive to ensure a consistent, integrated, and systematic approach to management that will meet or exceed the requirements of the ISO 9001 standard for Quality Management and the ISO 14001 standard for Environmental Management.



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**Email:** customer.service@us.festo.com

For technical support,  
**Call:** 1.866.GO.FESTO (1.866.463.3786)  
**Fax:** 1.800.96.FESTO (1.800.963.3786)  
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