

# Filter Regulators MS12N-LFR – Inch Series



A filter regulator combines a filter and a pressure regulator into a single unit. The sintered filter with water separator removes contamination, pipe sinter, rust and condensate from the compressed air. The pressure setting can be adjusted with the regulator.

- Pneumatic connection: 1 NPT, 1¼ NPT, 1½ NPT, 2 NPT
- Filtration grade: 5 µm, 40 µm
- Supply pressure
  - for manual drain: 12 ... 294 psi
  - for fully automatic drain: 29 ... 176 psi
  - for fully automatic drain, electrically actuated: 12 ... 235 psi
- Controlled pressure range: 4.4 ... 235 psi
- Flow rate: 388.3 ... 600.1 scfm

Product Range Overview																			
Type	Pneumatic connections		Pressure regulation range [psi]			Filtration grade [µm]		Bowl guard	Bowl drain						Pressure indicator		Pressure adjustment		Reverse flow
	Body thread	Port plate	D6	D7	D8	C	E		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	Cover plate (without pressure gauge)	Adapter for pressure gauge ¼ NPT	Rotary knob, lockable	Rotary knob, long	
MS12N		AG...						U	M	V	E1	E2	E3	E4	VS	A4	AS	LD	Z
LFR	-	1 NPT, 1¼ NPT, 1½ NPT, 2 NPT	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

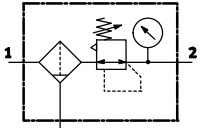
- | Features  |   |  |
|---|---|--|
| <ul style="list-style-type: none"> <li>• Good control characteristics with low hysteresis and primary pressure compensation</li> <li>• High flow rates</li> </ul> | <ul style="list-style-type: none"> <li>• Pilot actuated diaphragm regulator without intrinsic air consumption</li> <li>• Three pressure regulation ranges</li> <li>• Pressure gauge connection for different fitting options</li> </ul> | <ul style="list-style-type: none"> <li>• Setting values are secured by locking the rotary knob</li> <li>• Rotary knob can be locked using accessories</li> </ul> |

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

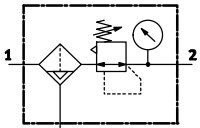
# Filter Regulators MS12N-LFR – Inch Series

Technical Data

ISO Symbol



Manual bowl drain



Fully automatic bowl drain



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]	5 (air purity class at the output 3.7.– to DIN ISO 8573-1) 40 (air purity class at the output 5.7.– 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)			
Pressure regulation range	D6 [psi]	4.4 ... 103			
	D7 [psi]	7.4 ... 176			
	D8 [psi]	7.4 ... 235			
Max. hysteresis	[psi]	5.9			

1) Dependent on port plate selected, must be ordered separately as an accessory → 1075

Standard Nominal Flow Rate qnN <sup>1)</sup> [scfm]		1 NPT	1¼ NPT	1½ NPT	2 NPT
Filtration grade	5 µm	388.3	406.0	423.6	494.2
	40 µm	423.6	441.3	458.9	600.1

1) Dependent on port plate selected, must be ordered separately as an accessory → 1075  
measured at p1 = 147 psi and p2 = 88 psi, Δp = 7.4 psi

# Filter Regulators MS12N-LFR – Inch Series

Technical Data

FESTO

Operating and Environmental Conditions			
Bowl drain	Manual M	Fully automatic V	Fully automatic, electrically actuated E...
Operating medium	Compressed air, air quality class 5.7.– to DIN ISO 8573-1		
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

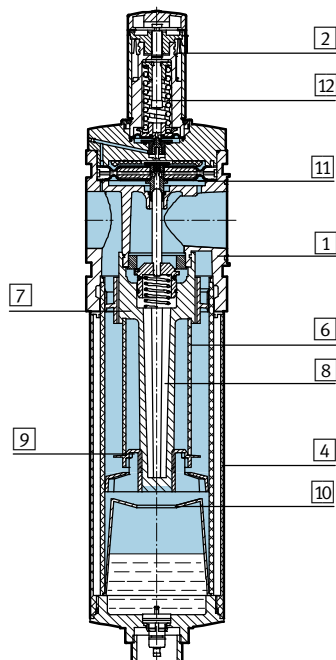
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

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

- Wearing parts kits → 1077
- Filter cartridges → 1077
- For spare parts go to: [www.festo.com/en/spare\\_parts\\_service](http://www.festo.com/en/spare_parts_service)

## Materials

Sectional view



Filter regulator		
1	Body	Die-cast aluminum
2	Regulating knob	Polyamide
4	Metal bowl	Wrought aluminum alloy
6	Filter element	Sintered bronze
7	Spin disk	Polyacetate
8	Filter holder	Polyacetate
9	Separating plate	Polyacetate
10	Stabilizing disk	Polyacetate
11	Diaphragm	Nitrile rubber
12	Spring	Steel
-	Seals	Nitrile rubber

# Filter Regulators MS12N-LFR – Inch Series

Technical Data

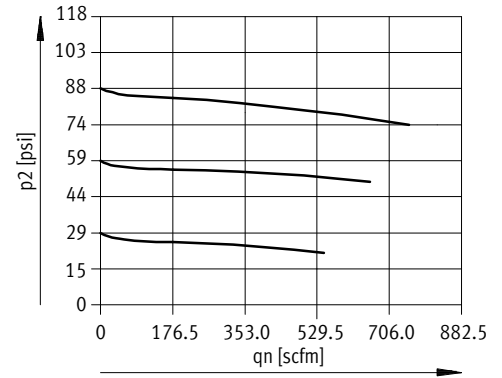
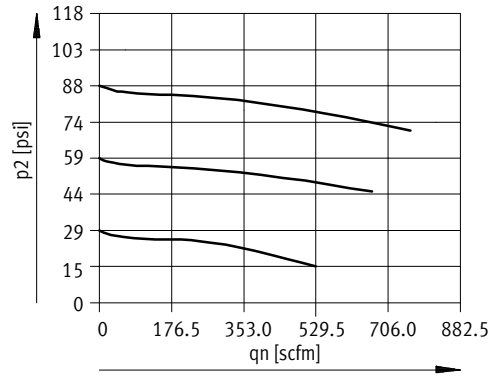
## Standard Flow Rate $q_n$ as a Function of Output Pressure $p_2$

Filtration grade  $40\ \mu\text{m}$

With port plate MS12-AGF  
Pneumatic connection 1 NPT

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

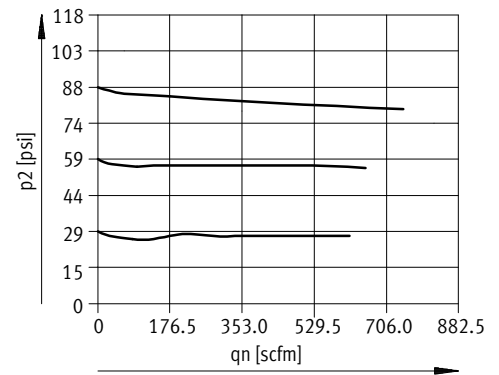
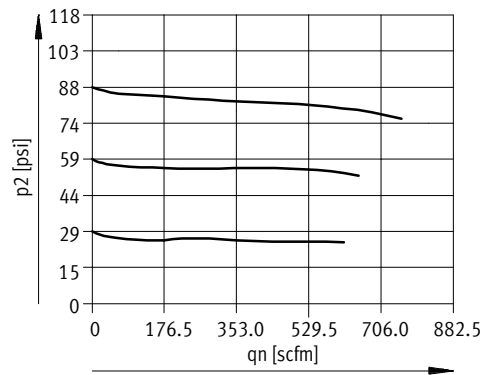
Primary pressure  $p_1 = 147\ \text{psi}$



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

With port plate MS12-AGI  
Pneumatic connection 2 NPT

Primary pressure  $p_1 = 147\ \text{psi}$

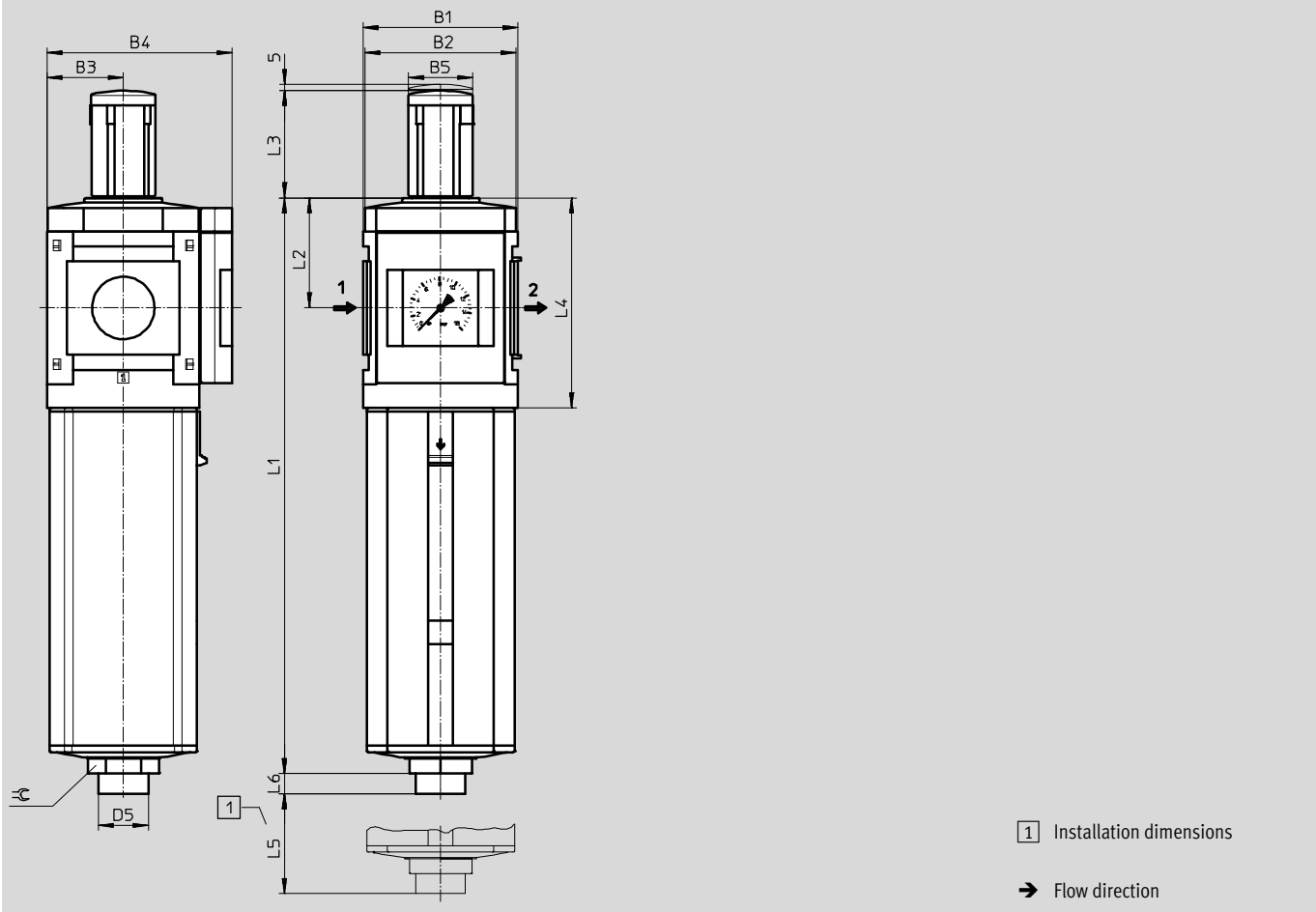


# Filter Regulators MS12N-LFR – Inch Series

Dimensional Drawings

Dimensions<sup>1)</sup> – Standard Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

With pressure gauge, display unit [psi], long rotary knob



B1	B2	B3	B4	B5	D5 Ø	L1	L2	L3	L4	L5	L6	≈
4.88	4.80	2.40	5.83	2.01	1.57	18.11	3.46	3.39	6.61	9.84	0.63	1.97

1) Dimensions are in inches, unless otherwise noted.

# Filter Regulators MS12N-LFR – Inch Series

Dimensional Drawings

**Dimensions<sup>1)</sup> – Pressure Gauge Alternatives** Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

Cover plate VS Adapter A4 for EN pressure gauge 1/4, without pressure gauge

→ Flow direction

Type	B3	B4	D4
MS12-LFR-...-VS	2.40	5.83	–
MS12-LFR-...-A4	2.40	5.83	G1/4

1) Dimensions are in inches, unless otherwise noted.

**Dimensions<sup>1)</sup> – Rotary Knob**

Long, lockable LD-AS

Type	B5	B6	L3
MS12-LFR-...-LD-AS	2.54	1.54	3.76

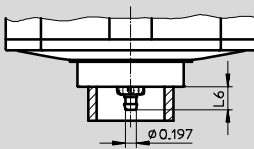
1) Dimensions are in inches, unless otherwise noted.

# Filter Regulators MS12N-LFR – Inch Series

Dimensional Drawings, Ordering Data – Pre-configured Products

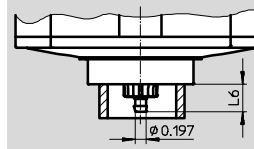
**Dimensions<sup>1)</sup> – Bowl Drain** Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

**Manual M**



Barbed fitting for plastic tubing  
PCN-4

**Fully automatic V**

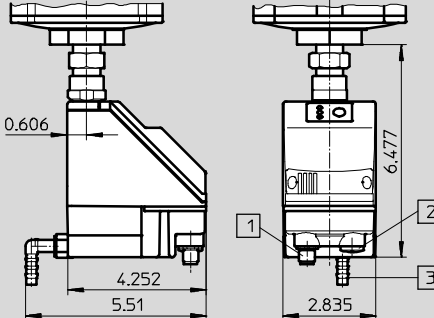


Barbed fitting for plastic tubing  
PCN-4

Type	L6
MS12-LFR-...-M	0.43

Type	L6
MS12-LFR-...-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.

Ordering Data							
Pressure regulation range 7.4 ... 176 psi, metal bowl, long rotary knob, can be locked using accessories							
Bowl drain	Connection	Filtration grade 5 µm			Filtration grade 40 µm		
		Part No.	Type	LT	Part No.	Type	LT
Fully automatic	1 NPT ... 2 NPT <sup>2)</sup>	537150	MS12-LFR-G-D7-CUV-LD-AS	1D	537149	MS12-LFR-G-D7-EUV-LD-AS	1D

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

2) Port plate must be ordered separately as an accessory → 1075

# Filter Regulators MS12N-LFR – Inch Series



Ordering Data – Configurable Products

**M** Mandatory Data →

Part No.	Series	Size	Thread	Function	Connection size	Pressure regulation range	Filtration grade	Bowl
535025	MS	12	N	LFR	AQT AQU AQV AQW G	D6 D7 D8	E C	U
<b>Order example</b>								
<b>535025</b>	<b>MS</b>	<b>12</b>	<b>N</b>	<b>- LFR</b>	<b>- AQT</b>	<b>- D6</b>	<b>- C</b>	<b>- U</b>

**Ordering Table**

Grid dimension	[mm]	124	Conditions	Code	Enter code
<b>M</b> Part No.	<b>535025</b>				
Series	Standard			<b>MS</b>	MS
Size	12			<b>12</b>	12
Thread	NPT thread			<b>N</b>	N
Function	Filter regulator			<b>-LFR</b>	-LFR
Connection size	Port plate 1 NPT (dimensions → 1075)			<b>-AQT</b>	
	Port plate 1¼ NPT (dimensions → 1075)			<b>-AQU</b>	
	Port plate 1½ NPT (dimensions → 1075)			<b>-AQV</b>	
	Port plate 2 NPT (dimensions → 1075)			<b>-AQW</b>	
	Module without connecting thread, without port plate			<b>-G</b>	
Pressure regulation range	4.4 ... 103 psi			<b>-D6</b>	
	7.4 ... 176 psi			<b>-D7</b>	
	7.4 ... 235 psi			<b>-D8</b>	
Filtration grade	40 µm			<b>-E</b>	
	5 µm			<b>-C</b>	
<b>↓</b> Bowl	Metal bowl			<b>-U</b>	-U

**Transfer order code**

<b>535025</b>	<b>MS</b>	<b>12</b>	<b>N</b>	<b>- LFR</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>U</b>
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# Filter Regulators MS12N-LFR – Inch Series



Ordering Data – Configurable Products

Options						
<b>Bowl drain</b>	<b>Pressure gauge alternatives</b>	<b>Alternative pressure gauge scale</b>	<b>Rotary knob</b>	<b>Security</b>	<b>Type of mounting</b>	<b>Reverse flow direction</b>
M V E1 E2 E3 E4	VS A4	BAR MPA	LD	AS	WP	Z
- <b>E1</b>	-	-	- <b>LD</b>	- <b>AS</b>	- <b>WP</b>	- <b>Z</b>

Ordering Table		Grid dimension [mm]	124	Conditions	Code	Enter code
M	Bowl drain	Manual			-M	
		Fully automatic (P1 max. 176 psi)		1	-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	Pressure gauge alternatives	Cover plate			-VS	
		Adapter plate for EN pressure gauge 1/4, without pressure gauge			-A4	
	Alternative pressure gauge scale	bar		2	-BAR	
		MPa		2	-MPA	
	Rotary knob	Long rotary knob			-LD	-LD
	Security	Lockable rotary knob			-AS	
	Type of mounting	Mounting bracket (dimensions → 1076)		3	-WP	
	Reverse flow direction	Flow direction from right to left			-Z	

- 1 V Not with pressure regulation range D8
- 2 BAR, MPA Not with pressure gauge alternatives VS, A4
- 3 WP Only with port plate AQT, AQU, AQV or AQW

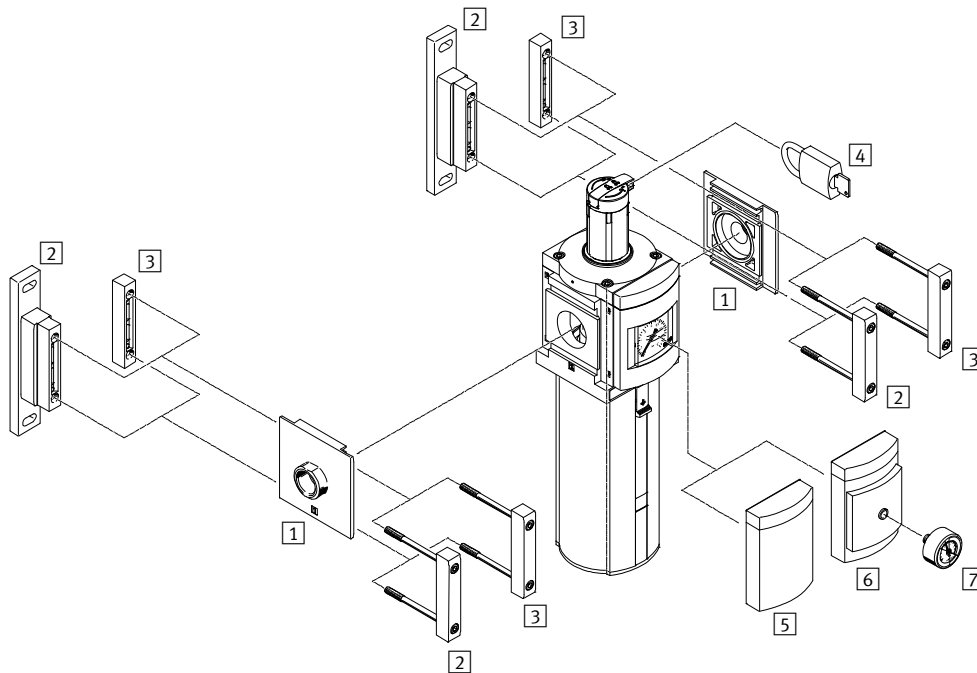
Transfer order code

- [ ] - [ ] - [ ] - **LD** - [ ] - [ ] - [ ] - [ ]

# Filter Regulators MS12N-LFR – Inch Series

Accessories Overview

## Mounting Attachments and Accessories



## Mounting Attachments and Accessories

		→ Page
1	Port plate MS12-AQ...	1075
2	Mounting bracket MS12-WP	1076
3	Body connector MS12-MV	1075
4	Padlock LRVS-D	1076
5	Cover plate VS	1072
6	Adapter for EN pressure gauge 1/4 A4	1072
7	Pressure gauge MA	1076

# Filter Regulators MS12N-LFR – Inch Series

Accessories

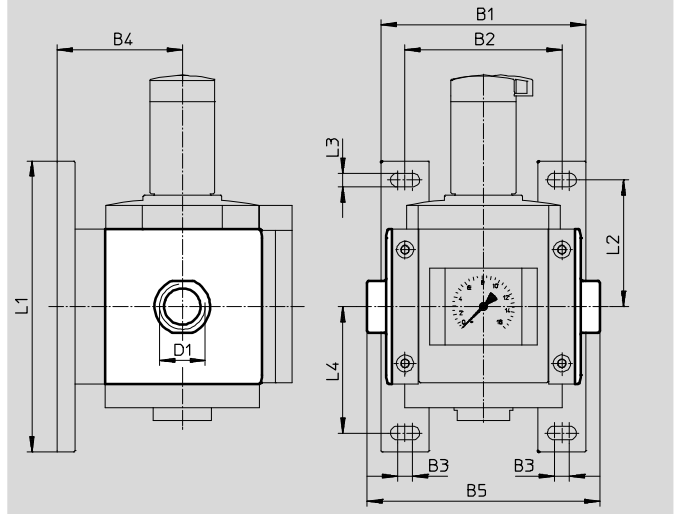
## 1 Port plate MS12-AQ...

- 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

# Filter Regulators MS12N-LFR – Inch Series



Accessories

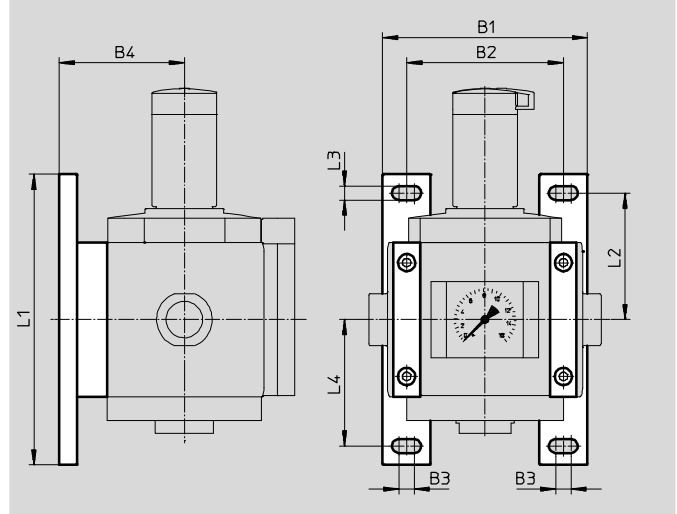
## 2 Mounting bracket MS12-WP

- 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 [lb]	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

### 7 Ordering Data – Pressure Gauge MA

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

	Nominal size	Pneumatic connection	Indicating range		Part No.	Type
			[bar]	[psi]		
	Pressure gauge MA, DIN EN 837-1					
	1.57	R $\frac{1}{4}$	0 ... 16	0 ... 232	187080	MA-40-16-R $\frac{1}{4}$ -EN
	Pressure gauge MA, DIN EN 837-1, with red-green range					
	1.97	R $\frac{1}{4}$	–	0 ... 232	526790	MA-50-232-R $\frac{1}{4}$ -PSI-E-RG

### 4 Ordering Data – Padlock LRVS-D

	Description	Weight [lb]	Part No.	Type
	for regulators, filter/regulators and manual on-off valves	0.24	193786	LRVS-D

## Filter Regulators MS12N-LFR – Inch Series

FESTO

Replacement Parts

Ordering Data – Wearing Parts Kits			
Size	Description	Part No.	Type
MS12	Snap-ring, membrane, bellows, O-rings, screws, stem	673586	MS12-LR/LFR

Ordering Data – Filter Cartridges			
Size	Filtration grade [µm]	Part No.	Type
MS12	5	537143	MS12-LFP-C
	40	537144	MS12-LFP-E

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



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