

## Filter Regulators MS12N-LFR – Inch Series

**FESTO**



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	4.4 ... 59	7.4 ... 103	7.4 ... 235	5	40	Metal bowl	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	Flow direction from right to left
MS12N		AG...	D6	D7	D8	C	E	U	M	V	E1	E2	E3	E4	VS	A4	AS	LD	Z
LFR	–	1 NPT, 1¼ NPT, 1½ NPT, 2 NPT	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

### Features

- Good control characteristics with low hysteresis and primary pressure compensation
- High flow rates
- Pilot actuated diaphragm regulator without intrinsic air consumption
- Three pressure regulation ranges
- Pressure gauge connection for different fitting options
- Setting values are secured by locking the rotary knob
- Rotary knob can be locked using accessories

### Contents

Technical Data	➔ 1062
Dimensional Drawings	➔ 1065
Ordering Data	➔ 1067
Accessories	➔ 1070
Replacement Parts	➔ 1073

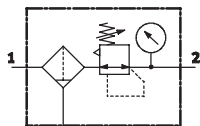
➔ [www.festo.com/catalog/ms12n-lfr](http://www.festo.com/catalog/ms12n-lfr)

# Filter Regulators MS12N-LFR – Inch Series

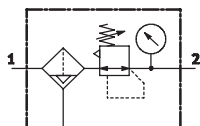
Technical Data

**FESTO**

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>					
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 → 1071

Standard Nominal Flow Rate q <sub>N</sub> <sup>1)</sup> [scfm]		1 NPT	1¼ NPT	1½ NPT	2 NPT
Pneumatic connection 1, 2					
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 → 1071  
measured at p<sub>1</sub> = 147 psi and p<sub>2</sub> = 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

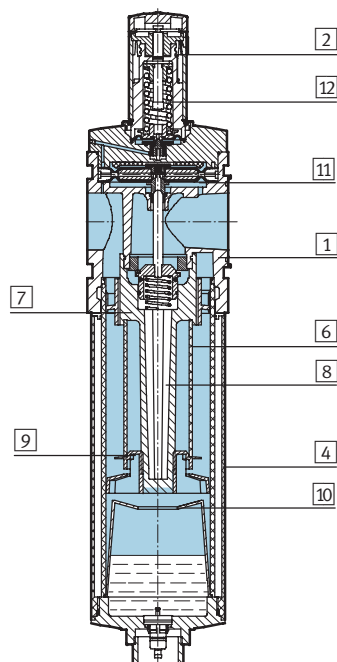
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

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

- Wearing parts kits → 1073
- Filter cartridges → 1073
- 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

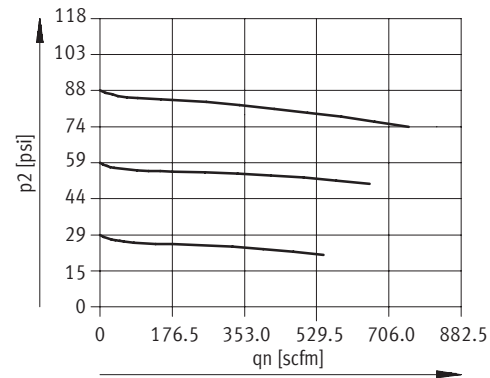
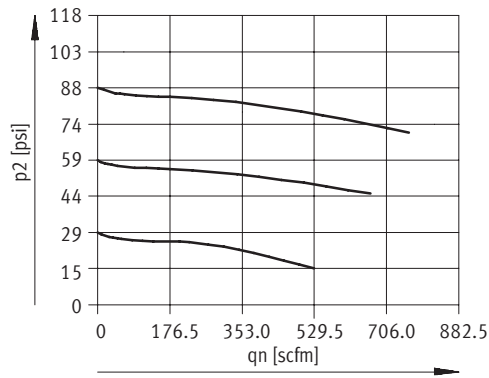
# Filter Regulators MS12N-LFR – Inch Series

Technical Data

FESTO

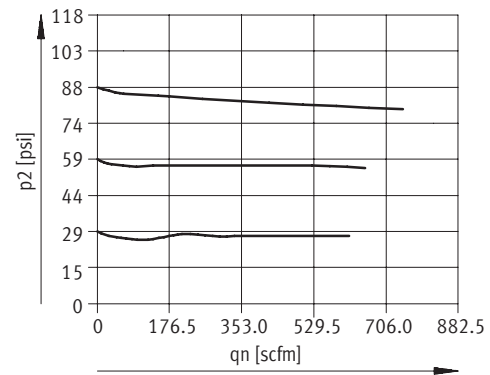
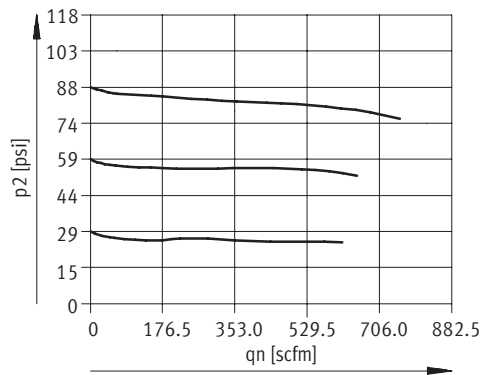
Standard Flow Rate $q_n$ as a Function of Output Pressure $p_2$		
Filtration grade 40 $\mu\text{m}$	With port plate MS12-AGF Pneumatic connection 1 NPT	With port plate MS12-AGG Pneumatic connection 1 1/4 NPT

Primary pressure  $p_1 = 147$  psi



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

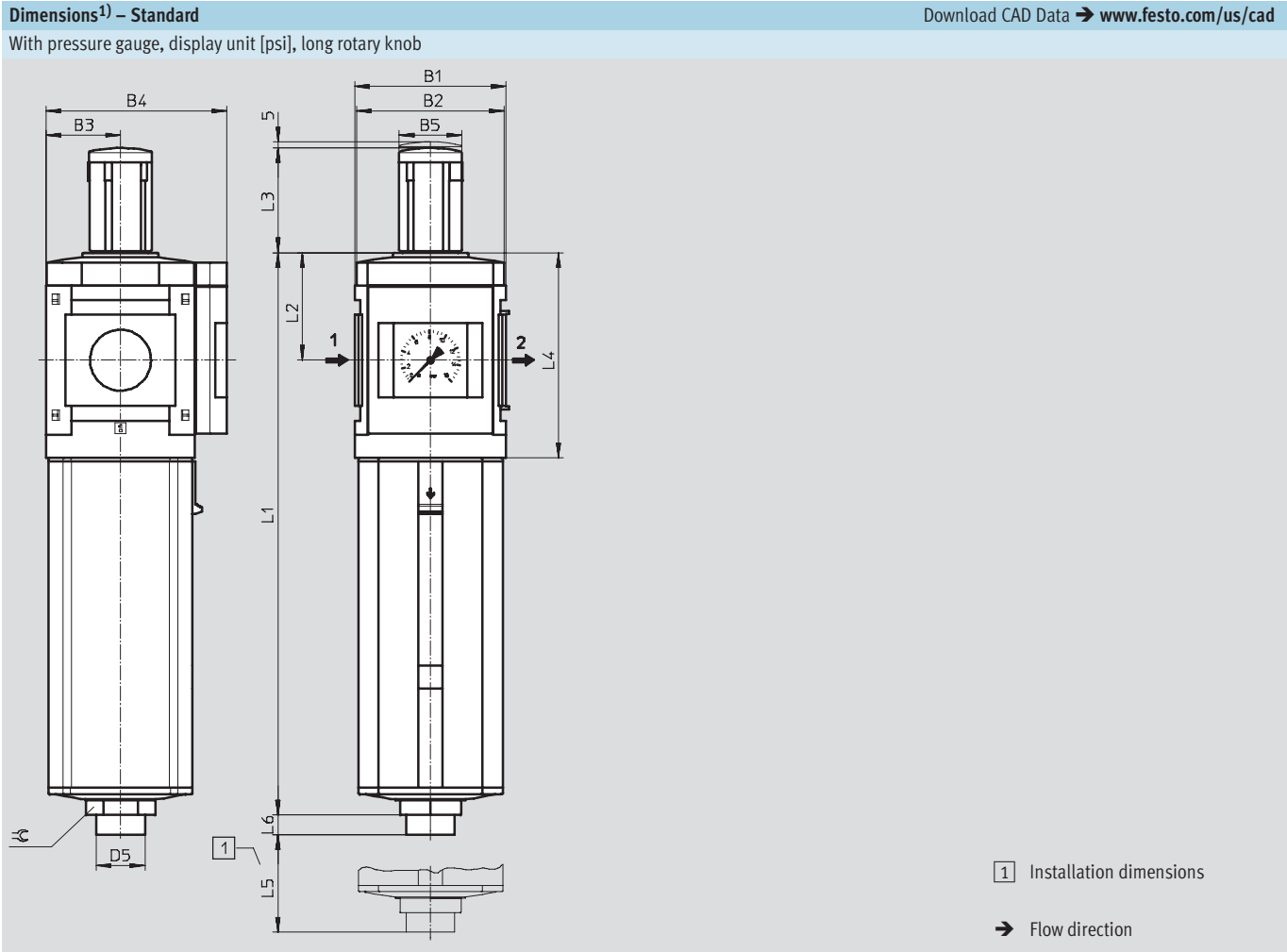
Primary pressure  $p_1 = 147$  psi



# Filter Regulators MS12N-LFR – Inch Series



Dimensional Drawings



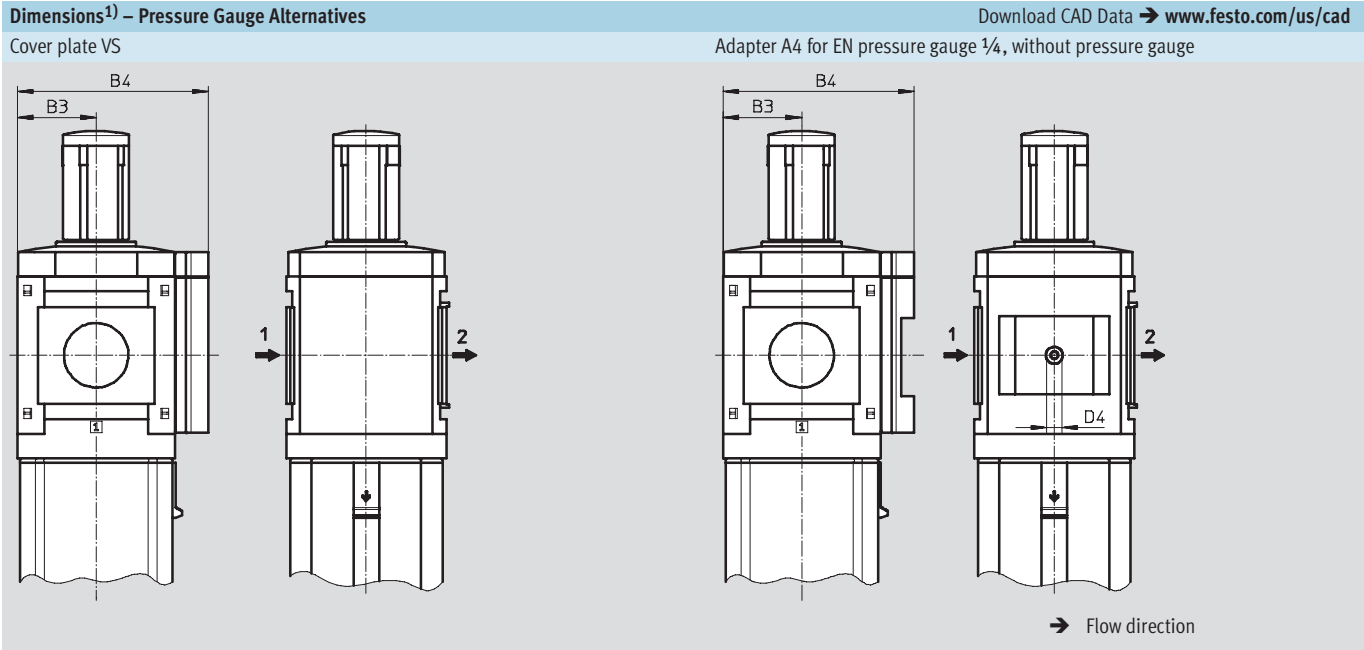
B1	B2	B3	B4	B5	D5 Ø	L1	L2	L3	L4	L5	L6	≅
4.88	4.80	2.40	5.83	2.01	1.57	18.11	3.46	3.39	6.61	9.84	0.63	1.97

1) Dimensions are in inches, unless otherwise noted.

# Filter Regulators MS12N-LFR – Inch Series

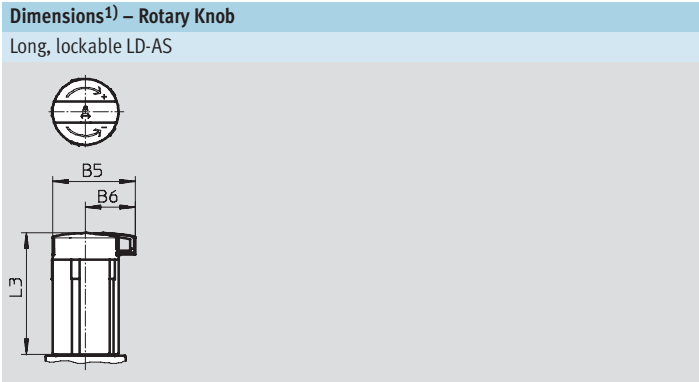
Dimensional Drawings

**FESTO**



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.



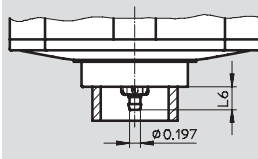
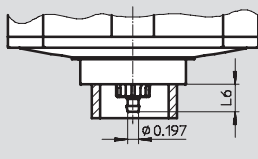
Type	B5	B6	L3
MS12-LFR-...-LD-AS	2.54	1.54	3.76

1) Dimensions are in inches, unless otherwise noted.

Filter Regulators MS12N-LFR – Inch Series

Dimensional Drawings, Ordering Data – Pre-configured Products

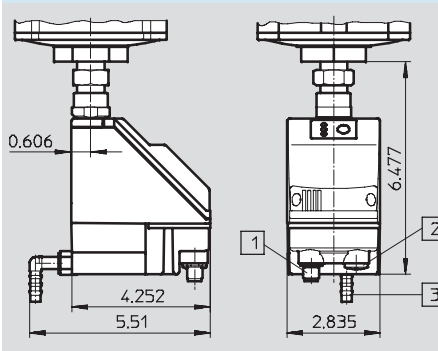
Dimensions<sup>1)</sup> – Bowl Drain Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

Manual M	Fully automatic V
	
Barbed fitting for plastic tubing PCN-4	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      **1W** typically ships within 1 week      **Q** request a quote for lead time

2) Port plate must be ordered separately as an accessory → 1071

# Filter Regulators MS12N-LFR – Inch Series

Ordering Data – Configurable Products

**FESTO**

## **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 → 1071)			<b>-AQT</b>	
	Port plate 1¼ NPT (dimensions → 1071)			<b>-AQU</b>	
	Port plate 1½ NPT (dimensions → 1071)			<b>-AQV</b>	
	Port plate 2 NPT (dimensions → 1071)			<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>	
↓ 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>
---------------	-----------	-----------	----------	--------------	----------	----------	----------	----------	------------



# Filter Regulators MS12N-LFR – Inch Series

Ordering Data – Configurable Products

**FESTO**

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

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 → 1072)	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

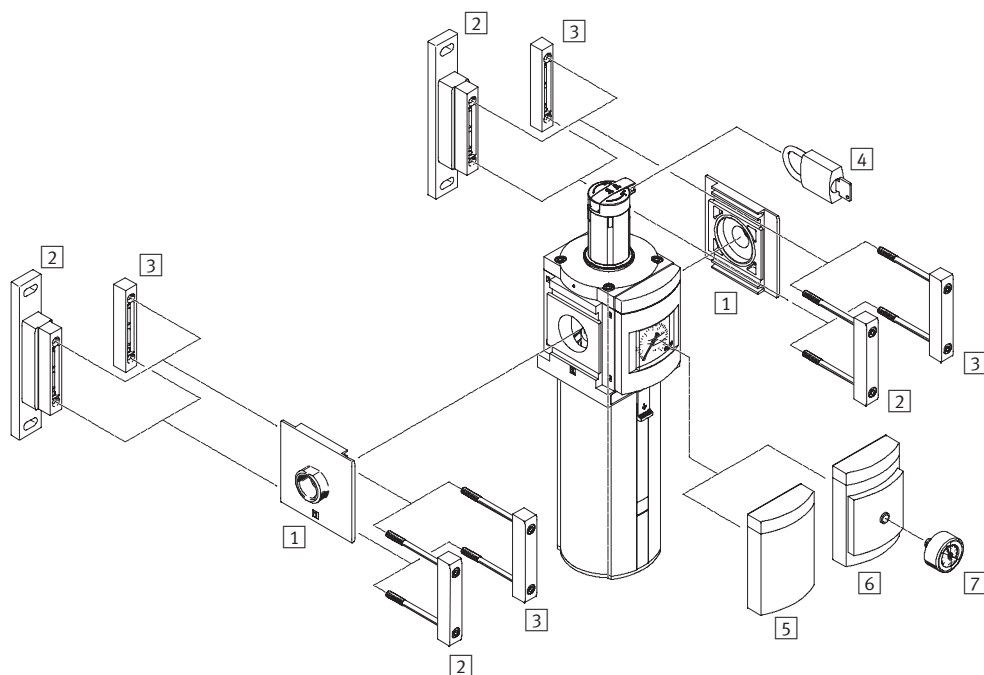
- - - LD - - -

# Filter Regulators MS12N-LFR – Inch Series

Accessories Overview

**FESTO**

## Mounting Attachments and Accessories



Mounting Attachments and Accessories		→ Page
<b>1</b>	Port plate MS12-AQ...	1071
<b>2</b>	Mounting bracket MS12-WP	1072
<b>3</b>	Body connector MS12-MV	1071
<b>4</b>	Padlock LRVS-D	1072
<b>5</b>	Cover plate VS	1068
<b>6</b>	Adapter for EN pressure gauge 1/4 A4	1068
<b>7</b>	Pressure gauge MA	1072

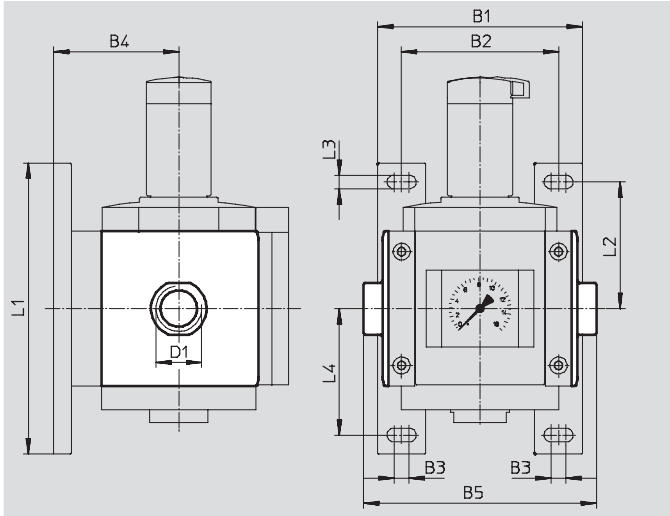
Filter Regulators MS12N-LFR – Inch Series

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

**FESTO**

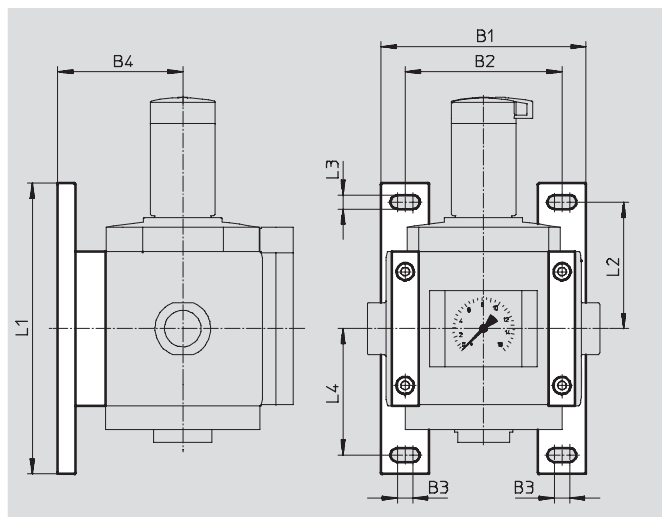
### 2 Mounting bracket MS12-WP

- 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	R1/4	0 ... 16	0 ... 232	187080	MA-40-16-R1/4-EN
	Pressure gauge MA, DIN EN 837-1, with red-green range					
	1.97	R1/4	–	0 ... 232	526790	MA-50-232-R1/4-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

Replacement Parts

**FESTO**

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

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

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



# Product Range and Company Overview

## 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**  
Shipment, stocking and storage services

## 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



**Pneumatics**  
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.



© Copyright 2008, Festo Corporation. While every effort is made to ensure that all dimensions and specifications are correct, Festo cannot guarantee that publications are completely free of any error, in particular typing or printing errors. Accordingly, Festo cannot be held responsible for the same. For Liability and Warranty conditions, refer to our "Terms and Conditions of Sale", available from your local Festo office. All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior written permission of Festo. All technical data subject to change according to technical update.



Printed on recycled paper at New Horizon Graphic, Inc., FSC certified as an environmentally friendly printing plant.

# Festo North America

## United States

### Customer Resource Center

502 Earth City Expy., Suite 125  
Earth City, MO 63045

For ordering assistance, or to find  
your nearest Festo Distributor,

**Call:** 1.800.99.FESTO

**Fax:** 1.800.96.FESTO

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

For technical support,

**Call:** 1.866.GO.FESTO

**Fax:** 1.800.96.FESTO

**Email:** product.support@us.festo.com

### Headquarters

Festo Corporation  
395 Moreland Road  
P.O. Box 18023  
Hauppauge, NY 11788  
[www.festo.com/us](http://www.festo.com/us)

### Sales Offices

#### Appleton

N. 922 Tower View Drive, Suite N  
Greenville, WI 54942

#### Boston

120 Presidential Way, Suite 330  
Woburn, MA 01801

#### Chicago

1441 East Business Center Drive  
Mt. Prospect, IL 60056

#### Dallas

1825 Lakeway Drive, Suite 600  
Lewisville, TX 75057

#### Detroit - Automotive Engineering Center

2601 Cambridge Court, Suite 320  
Auburn Hills, MI 48326

#### New York

395 Moreland Road  
Hauppauge, NY 11788

#### Silicon Valley

4935 Southfront Road, Suite F  
Livermore, CA 94550

## Design and Manufacturing Operations



**East:** 395 Moreland Road, Hauppauge, NY 11788



**Central:** 1441 East Business Center Drive, Mt. Prospect, IL 60056



**West:** 4935 Southfront Road, Suite F, Livermore, CA 94550

## Mexico

### Headquarters

Festo Pneumatic, S.A.  
Av. Ceylán 3, Col. Tequesquahuac  
54020 Tlalnepantla, Edo. de México  
Call: 011 52 [55] 53 21 66 00  
Fax: 011 52 [55] 53 21 66 65  
Email: festo.mexico@mx.festo.com  
[www.festo.com/mx](http://www.festo.com/mx)



## Canada

### Headquarters

Festo Inc.  
5300 Explorer Drive  
Mississauga, Ontario L4W 5G4  
Call: 1.905.624.9000  
Fax: 1.905.624.9001  
Email: info.ca@ca.festo.com  
[www.festo.com/ca](http://www.festo.com/ca)



## Festo Worldwide

Argentina Australia Austria Belarus Belgium Brazil Bulgaria Canada Chile China Colombia Croatia Czech Republic Denmark  
Estonia Finland France Germany Great Britain Greece Hong Kong Hungary India Indonesia Iran Ireland Israel Italy Japan  
Latvia Lithuania Malaysia Mexico Netherlands New Zealand Norway Peru Philippines Poland Romania Russia Serbia Singapore  
Slovakia Slovenia South Africa South Korea Spain Sweden Switzerland Taiwan Thailand Turkey Ukraine United States Venezuela

[www.festo.com](http://www.festo.com)