

## Filter regulators MS-LFR-B

**FESTO**



## Key features

### At a glance

Very compact and extremely lightweight series for use close to the process directly in the machine.

- Stable control behaviour
- With secondary exhausting
- Integrated secondary and primary venting with return flow feature
- The rotary knob latches in order to prevent it from being turned unintentionally

### Function

- For continuously variable, precise adjustment of the required operating pressure
- The pressure regulator maintains a constant working pressure regardless of pressure fluctuations in the system and air consumption

### Pneumatic connection

Different connection types can be selected depending on size

- Individual fittings which are mounted via a female thread
- Integrated connections into which the tubing can be directly inserted

### Pressure regulation range [bar]

The following ranges can be set:

- With MS2-...: 0.5 ... 7 bar
- With MS4-... and MS6-...: 0.3 ... 7 bar

### Pressure gauge alternatives

The pressure regulator can be ordered with or without pressure gauge. The interface has a G1/8 thread.

### Display unit

The scale of the built-in pressure gauge can be selected. The units [MPa], [bar] and [psi] are available for selection.

### Grade of filtration [ $\mu\text{m}$ ]

Grade of filtration of 5  $\mu\text{m}$  or 40  $\mu\text{m}$  can be selected.

### Condensate drain

The following functions can be selected:

- Manual
- Fully automatic, normally closed

## Type codes

001	Series
MS	MS series

002	Size
2	Grid dimension 25 mm
4	Grid dimension 40 mm
6	Grid dimension 62 mm

003	Function
LFR	Filter regulator

004	Pneumatic connection
M5	Female thread M5
QS6	Push-in connector 6 mm
1/4	Female thread G1/4
1/2	Female thread G1/2

005	Pressure regulation range
D6	0.3 ... 7 bar

006	Grade of filtration
C	5 µm
E	40 µm

007	Bowl type
P	Polymer

008	Condensate drain
M	Manually
VC	Fully automatic, normally closed

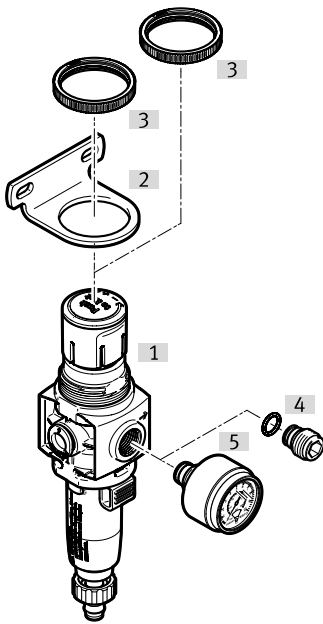
009	Pressure gauge alternatives
AR	With pressure gauge
AG	MS pressure gauge
AB	Adapter for EN pressure gauge 1/8, without pressure gauge

010	Alternative pressure gauge scale
	MS pressure gauge
BAR	bar
MPA	MPa

011	Version
B	Basic

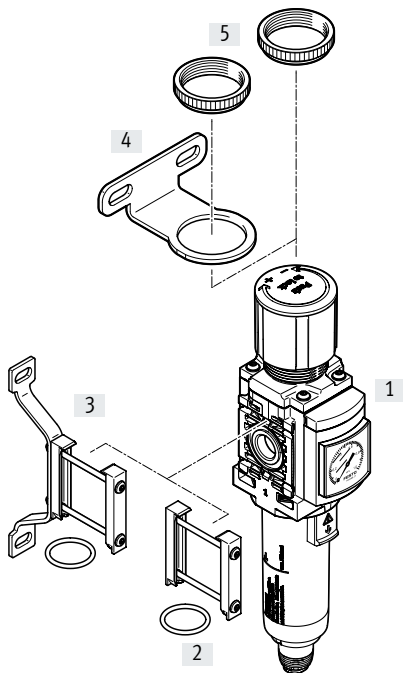
Peripherals overview

Size 2



Mounting attachments and accessories		→ Page/Internet
[1]	Filter regulator MS2-LFR...-B	5
[2]	Mounting bracket MS2-WR-B	For wall mounting, knurled nut included in the scope of delivery 11
[3]	Nut MS2-WRS	For front panel mounting 12
[4]	Plug screw MS2-G18S	12
[5]	Pressure gauge PAGN	10
-	Filter cartridge LFP	12

Size 4 and 6



Mounting attachments and accessories		→ Page/Internet
[1]	Filter regulator MS4/6-LFR...-B	5
[2]	Module connector MS...-MV1	For connecting the modules 12
[3]	Wall mounting kit MS...-WPE-B	For connecting the modules for wall mounting 11
[4]	Mounting bracket MS...-WR-B	For wall mounting, knurled nut included in the scope of delivery 11
[5]	Nut MS...WRS	For front panel mounting 12
-	Filter cartridge MS...-LFP	12

## Datasheet

General technical data				
Pneumatic connection 1	G1/2	G1/4	M5	QS-6
Size	6	4	2	
Pneumatic connection 2	G1/2	G1/4	M5	QS-6
Standard nominal flow rate	4750 ... 5300 l/min	1500 ... 1700 l/min	140 l/min	310 l/min
Pressure regulation range	0.03 ... 0.7 MPa		0.05 ... 0.7 MPa	
	4.35 ... 101.5 psi		7.25 ... 101.5 psi	
	0.3 ... 7 bar		0.5 ... 7 bar	
Max. pressure hysteresis	0.035 MPa	0.05 MPa	0.025 MPa	
	5.075 psi	7.25 psi	3.63 psi	
	0.35 bar	0.5 bar	0.25 bar	
Design	Filter regulator with pressure gauge, filter regulator without pressure gauge, directly actuated piston regulator		Filter regulator with pressure gauge, filter regulator without pressure gauge	
Regulator function	Outlet pressure constant, with secondary exhausting, with return flow action			
Type of mounting	Optional: front panel mounting, in-line installation, with accessories			
Mounting position	Vertical +/-5°			
Actuator lock	Rotary knob with detent			
Pressure indicator	G1/8 prepared, with pressure gauge			
Grade of filtration	5 µm, 40 µm		5 µm	
Air quality class at the output	Compressed air to ISO 8573-1:2010 [6:4:4], compressed air to ISO 8573-1:2010 [7:4:4]		Compressed air to ISO 8573-1:2010 [6:4:4]	
Condensate drain	Fully automatic, manual non-detenting, manual		Manual	

Operating and environmental conditions				
Pneumatic connection 1	G1/2	G1/4	M5	QS-6
Size	6	4	2	
Operating pressure	0.1 ... 1 MPa		0.1 ... 0.8 MPa	
	14.5 ... 145 psi		14.5 ... 116 psi	
	1 ... 10 bar		1 ... 8 bar	
Ambient temperature	-5 ... 50°C			
Temperature of medium	-5 ... 50°C			
Storage temperature	-5 ... 50°C			
Corrosion resistance class CRC <sup>1)</sup>	1 - Low corrosion stress			

1) Corrosion resistance class CRC 1 to Festo standard FN 940070.

Low corrosion stress. Dry internal application or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, or parts that are covered in the application (e.g. drive trunnions).

Weight				
Pneumatic connection 1	G1/2	G1/4	M5	QS-6
Size	6	4	2	
Product weight	578 ... 589 g	204 ... 216 g	42.3 ... 47.3 g	40 ... 45 g

Materials				
Pneumatic connection 1	G1/2	G1/4	M5	QS-6
Size	6	4	2	
Housing material	Reinforced PA		PA	
Rotary knob material	POM			
Valve tappet material	POM		Wrought aluminium alloy, NBR	
Diaphragm material	-		NBR	
Spring material	High-alloy steel, galvanised steel		High-alloy steel	
Filter material	PE			
Note on materials	RoHS-compliant			

Datasheet

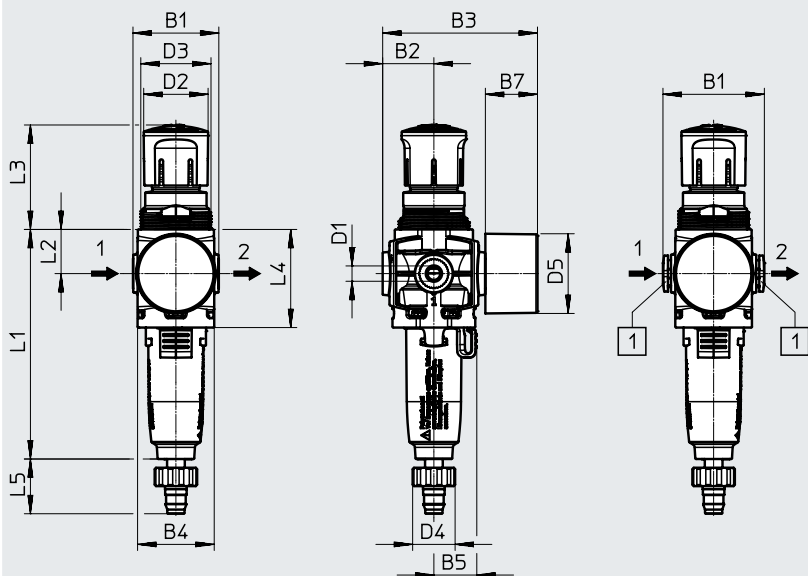
**Dimensions**

Download CAD data → [www.festo.com](http://www.festo.com)

[AR] With pressure gauge

MS2-LR-M5-...-AR

MS2-LR-QS6-...-AR



[1] Pneumatic connection QS-6  
→ Flow direction

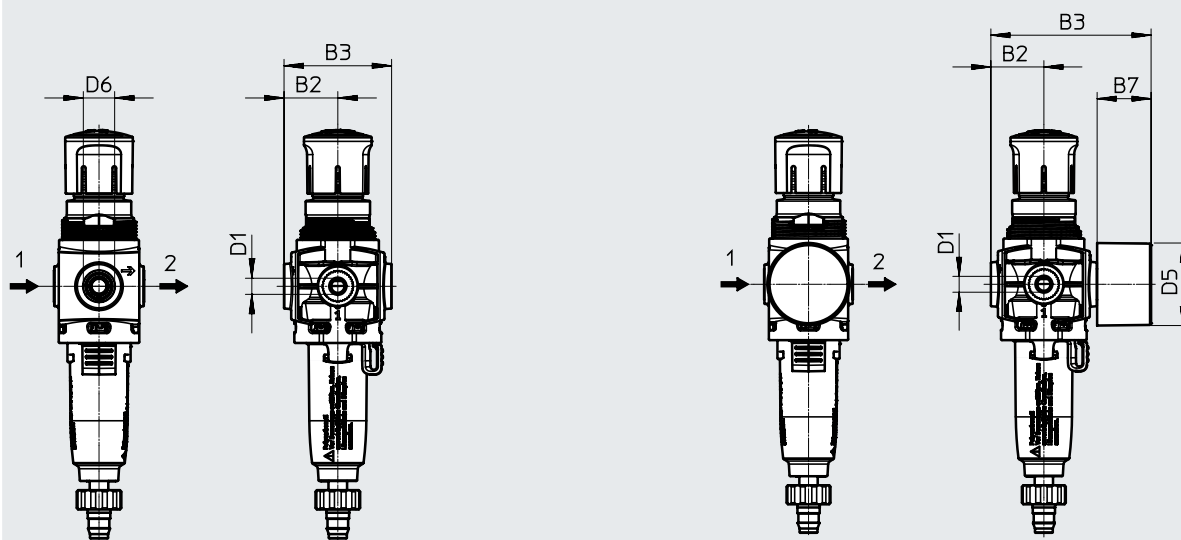
Type	B1	B2	B3	B4	B5	B7	D1	D2 ∅	D3 ∅	D4	D5 ∅	L1	L2	L3	L4	L5
MS2-LFR-M5-...-AR	28	16.7	49	25	14	15.5	M5	21	M23x1	13.8	23	74.9	14.4	34.1	32	17.9
MS2-LFR-QS6-...-AR	33.1						QS-6									

**Dimensions**

Download CAD data → [www.festo.com](http://www.festo.com)

[A8] Adapter for EN pressure gauge 1/8, without pressure gauge

[AR] Pressure gauge



→ Flow direction

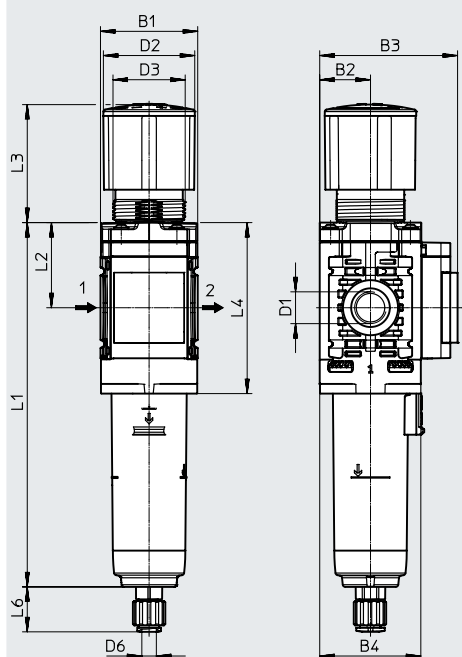
Type	B2	B3	B7	D1	D5 ∅	D6
MS2-LFR-M5-...-A8	16.7	33.4	-	M5	-	G1/8
MS2-LFR-QS6-...-A8				QS-6		
MS2-LFR-M5-...-AR	16.7	49	15.5	M5	23	-
MS2-LFR-QS6-...-AR				QS-6		

Datasheet

**Dimensions**

Download CAD data → [www.festo.com](http://www.festo.com)

[AG] With pressure gauge



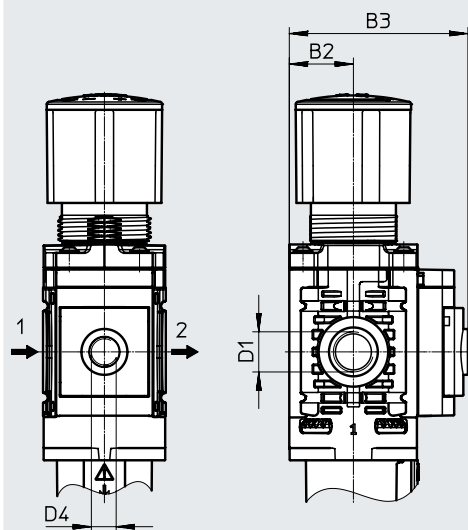
→ Flow direction

	B1	B2	B3	B4	D1	D2 ∅	D3	D6	L1	L2	L3	L4	L6
MS4-LFR-1/4-...-AG	40.2	21	57	41.8	G1/4	37.8	M30x1.5	QS6	150.6	34.9	49.4	70.7	18.6

**Dimensions**

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[A8] Without pressure gauge, adapter for EN pressure gauge 1/8



→ Flow direction

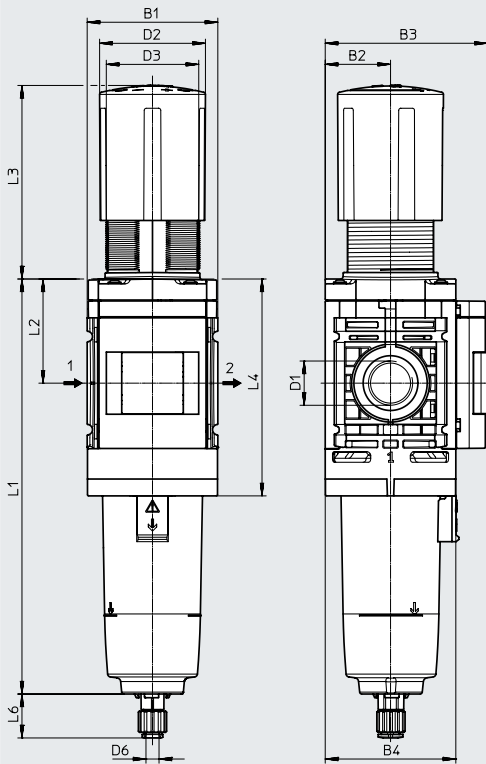
	B2	B3	D1	D4
MS4-LFR-1/4-...-A8	21	59.6	G1/4	G1/8

Datasheet

**Dimensions**

Download CAD data → [www.festo.com](http://www.festo.com)

[AG] With pressure gauge



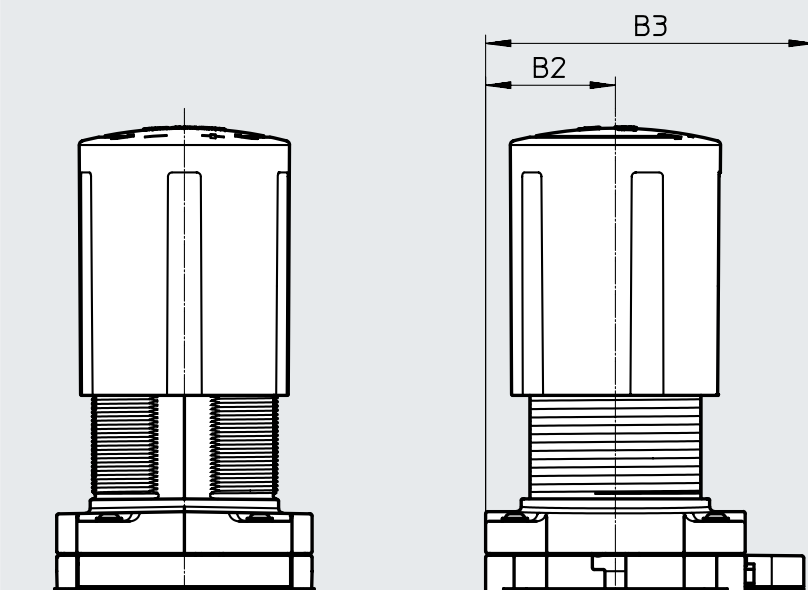
→ Flow direction

	B1	B2	B3	B4	D1	D2 ∅	D3 ∅	D6	L1	L2	L3	L4	L6
MS6-LFR-1/2-...AG-...M	62	31	77	62	G1/2	50.2	43.9	QS6	197	49.4	91.8	102.9	20.9
MS6-LFR-1/2-...AG-...VC													22.3

**Dimensions**

Download CAD data → [www.festo.com](http://www.festo.com)

[A8] Without pressure gauge, adapter for EN pressure gauge 1/8



→ Flow direction

	B2	B3	D1	D4
MS6-LFR-1/2-...A8	31	78.5	G1/2	G1/8

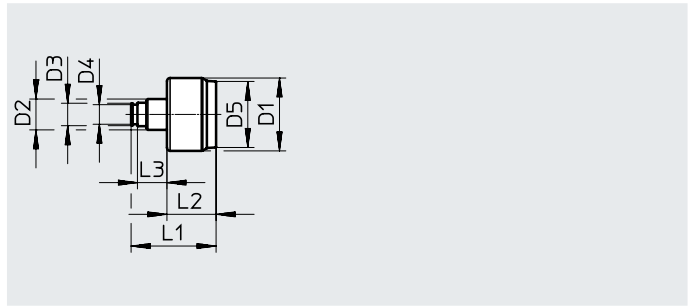
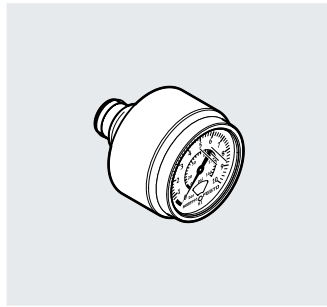


## Datasheet

Ordering data									
Size	Pneumatic connection	Pressure gauge	Pressure gauge scale	Grade of filtration [µm]	Condensate drain	Part no.	Type		
2	M5	Available	MPa	5	Manual	8086642	MS2-LFR-M5-D6-AR-MPA-C-M-B		
			bar	5	Manual	8086641	MS2-LFR-M5-D6-AR-BAR-C-M-B		
		None	–	5	Manual	8086643	MS2-LFR-M5-D6-A8-C-M-B		
	QS-6	Available	MPa	5	Manual	8086645	MS2-LFR-QS6-D6-AR-MPA-C-M-B		
			bar	5	Manual	8086644	MS2-LFR-QS6-D6-AR-BAR-C-M-B		
		None	–	5	Manual	8086646	MS2-LFR-QS6-D6-A8-C-M-B		
4	G1/4	Available	MPa	5	Manual	8098265	MS4-LFR-1/4-D6-C-P-M-AG-MPA-B		
			bar	5	Manual	8098257	MS4-LFR-1/4-D6-C-P-M-AG-BAR-B		
		None	–	5	Manual	8098260	MS4-LFR-1/4-D6-C-P-M-A8-B		
		Available	MPa	5	Fully automatic	8098266	MS4-LFR-1/4-D6-C-P-VC-AG-MPA-B		
			bar	5	Fully automatic	8098259	MS4-LFR-1/4-D6-C-P-VC-AG-BAR-B		
		None	–	5	Fully automatic	8098263	MS4-LFR-1/4-D6-C-P-VC-A8-B		
		Available	MPa	40	Manual	8098254	MS4-LFR-1/4-D6-E-P-M-AG-MPA-B		
			bar	40	Manual	8098258	MS4-LFR-1/4-D6-E-P-M-AG-BAR-B		
		None	–	40	Manual	8098255	MS4-LFR-1/4-D6-E-P-M-A8-B		
		Available	MPa	40	Fully automatic	8098256	MS4-LFR-1/4-D6-E-P-VC-AG-MPA-B		
			bar	40	Fully automatic	8098264	MS4-LFR-1/4-D6-E-P-VC-AG-BAR-B		
		None	–	40	Fully automatic	8098262	MS4-LFR-1/4-D6-E-P-VC-A8-B		
		6	G1/2	Available	MPa	5	Manual	8098310	MS6-LFR-1/2-D6-C-P-M-AG-MPA-B
					bar	5	Manual	8098300	MS6-LFR-1/2-D6-C-P-M-AG-BAR-B
None	–			5	Manual	8098301	MS6-LFR-1/2-D6-C-P-M-A8-B		
Available	MPa			5	Fully automatic	8098302	MS6-LFR-1/2-D6-C-P-VC-AG-MPA-B		
	bar			5	Fully automatic	8098309	MS6-LFR-1/2-D6-C-P-VC-AG-BAR-B		
None	–			5	Fully automatic	8098303	MS6-LFR-1/2-D6-C-P-VC-A8-B		
Available	MPa			40	Manual	8098307	MS6-LFR-1/2-D6-E-P-M-AG-MPA-B		
	bar			40	Manual	8098304	MS6-LFR-1/2-D6-E-P-M-AG-BAR-B		
None	–			40	Manual	8098311	MS6-LFR-1/2-D6-E-P-M-A8-B		
Available	MPa			40	Fully automatic	8098305	MS6-LFR-1/2-D6-E-P-VC-AG-MPA-B		
	bar			40	Fully automatic	8098312	MS6-LFR-1/2-D6-E-P-VC-AG-BAR-B		
None	–			40	Fully automatic	8098306	MS6-LFR-1/2-D6-E-P-VC-A8-B		

## Accessories

## Pressure gauge PAGN



## Dimensions

D1 ∅	D2	D3 ∅	D4 ∅ ±0.05	D5 ∅	L1	L2	L3
23	G1/8	7.1	6.2	20.8	26.8	15.5	9.3

## General technical data

Nominal size	23
Pneumatic connection	G1/8 with sealing ring
Operating medium	Inert gases Neutral fluids
Note on the operating/ pilot medium	No oxygen No acetylene
Design	Bourdon tube pressure gauge
Type of mounting	In-line installation
Connection position	Centred, rear
Ambient temperature [°C]	-5 ... +50
Temperature of medium [°C]	-5 ... +50 <sup>1)</sup>
Storage temperature [°C]	-5 ... +50
Measurement accuracy class	5
Continuous load factor	0.75
Intermittent load factor	0.6
Degree of protection	IP44
Weight [g]	6

1) If the temperature of the medium used is below 0°C, ensure the operating medium is dry.

## Materials

Housing	ABS (colour: black)
Inspection window	PMMA
Screwed trunnion	Reinforced ABS
Materials in contact with the media	Reinforced ABS, brass
Note on materials	RoHS-compliant

## Ordering data

Size	Pneumatic connection	Operating pressure	Display range		Part no.	Type
			Outer scale	Inner scale		
23	G1/8 with sealing ring	0 ... 1 MPa	0 ... 1 MPa	–	8088992	PAGN-23-1M-G18S
		0 ... 10 bar	0 ... 10 bar	0 ... 145 psi	8088991	PAGN-23-10-G18S

**Accessories**

**Mounting bracket**

**MS...-WR-B**

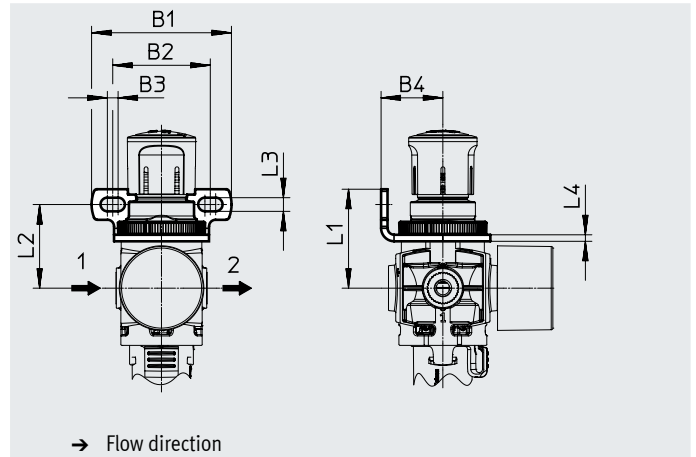
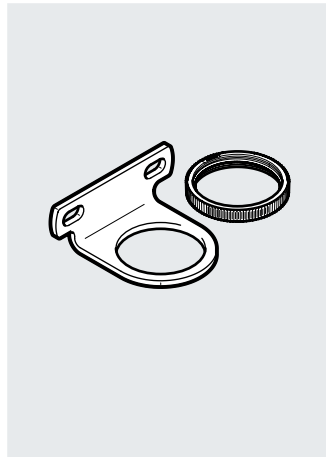
For sizes 2, 4 and 6

- For wall mounting
- Knurled nut included in the scope of delivery

Materials:

Steel

RoHS-compliant



**Dimensions and ordering data**

Size	B1 ±0.2	B2	B3	B4	L1	L2	L3 ±0.1	L4	Weight [g]	Part no.	Type
2	43	30	3.3	19	30.4	25.7	4.2	2	13.8	8087978	MS2-WR-B
4	68	44	8	41	52	44	7	2.5	49	8149680	MS4-WR-B
6	70	42	8.2	40	67	57	7.1	3	90	8149681	MS6-WR-B

**Wall mounting kit**

**MS...-WPE-B**

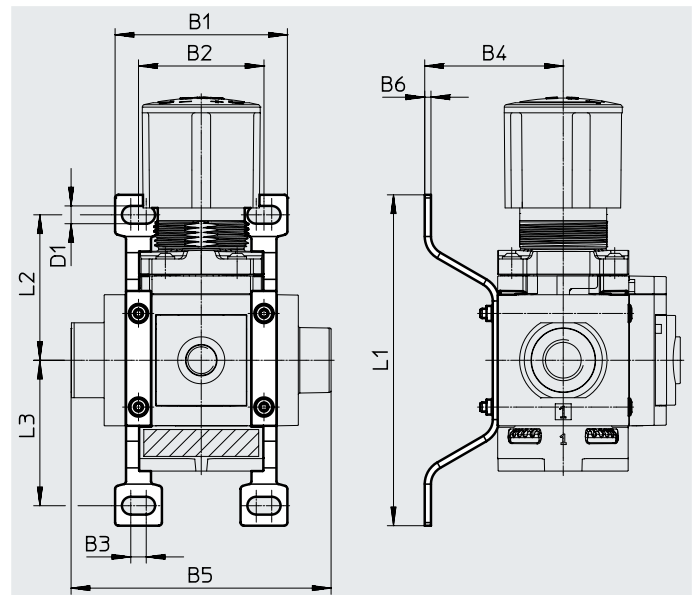
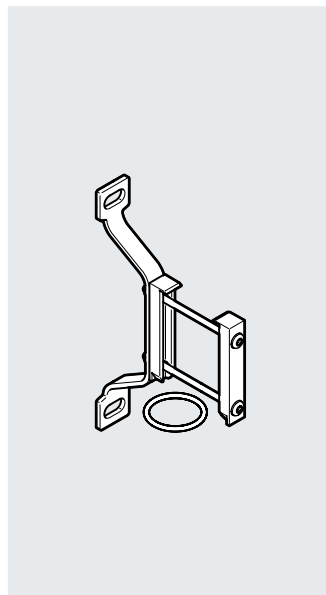
For sizes 4 and 6

- For wall mounting

Materials:

Steel


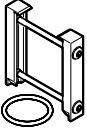


RoHS-compliant



**Dimensions and ordering data**

Size	B1	B2	B3	B4	B5	B6	D1 ∅	L1	L2	L3	Weight [g]	Part no.	Type
4	55.2	40.2	5	44.4	83.3	2	5.7	106	46.6	46.6	30	8118600	MS4-WPE-B
6	79	62	4.3	53.9	114.9	2	6.5	158	71	71	58	8118599	MS6-WPE-B

## Accessories

Cylinder mountings	Size	Description	Part no.	Type
<b>Filter cartridge</b>				
	2	Grade of filtration 5 µm	526818	MS2/LFP-D-MICRO-5M
	4	Grade of filtration 5 µm	8129064	MS4-LFP1-C
		Grade of filtration 40 µm	8129062	MS4-LFP1-E
	6	Grade of filtration 5 µm	8129063	MS6-LFP1-C
		Grade of filtration 40 µm	8129061	MS6-LFP1-E
<b>Module connector</b>				
	4	For connecting the modules for wall mounting	8119201	MS4-MV1
	6		8119204	MS6-MV1
<b>Nut</b>				
	2	For front panel mounting	8098037	MS2-WRS
	4		532187	MS4-WRS
	6		532188	MS6-WRS
<b>Plug screw</b>				
	2	For sealing the pressure gauge connection	8095766	MS2-G18S