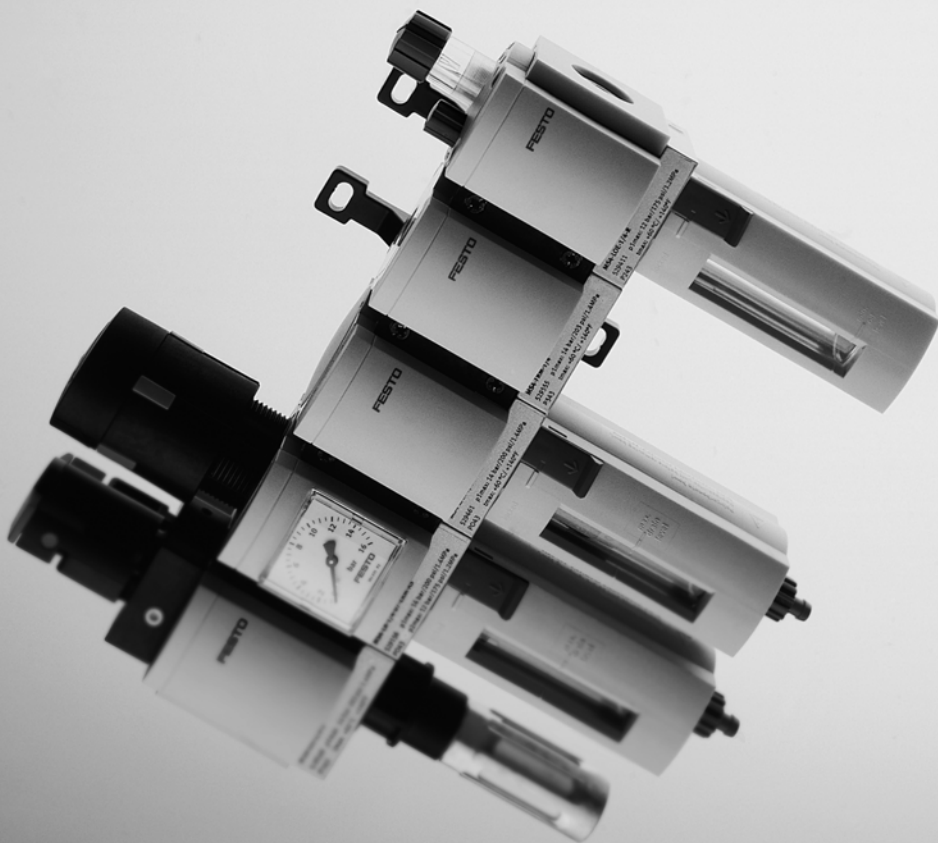


Wide range of configuration options
→ www.festo.com/en/engineering



- All variants available in three sizes:
 - MS4 – grid dimension 40 mm
 - MS6 – grid dimension 62 mm
 - MS12 – grid dimension 124 mm
- Modular
- Easy to assemble
- Broad range of functions
- Compact with high flow rates
- Modern design
- Wide choice of variants
- Integrated safety functions



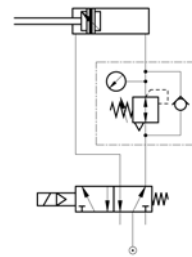
A breakthrough in compressed air preparation: the MS series



Lockable regulators for safety



Integrated return venting in the regulators as standard for high functionality



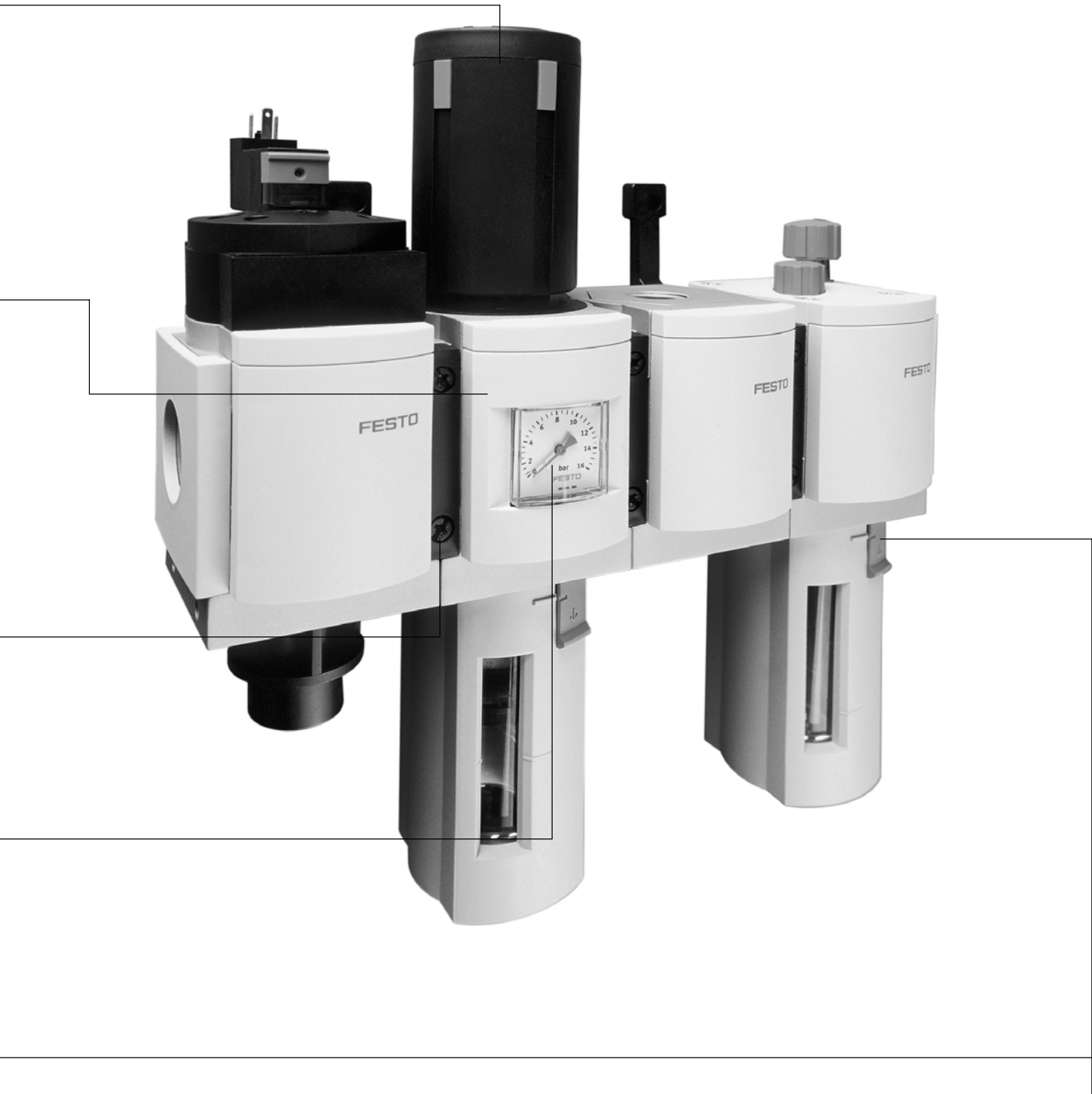
Straightforward module connectors for fast installation



Integrated pressure gauges save space and are less prone to interference



Latching filter bowls for safety



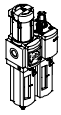
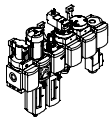
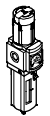

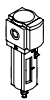
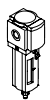



MS series service units

Product range overview



MS series service units

2.0

Type	Size	Pneumatic connection in housing	Connecting plate (A)	Pressure regulation range [bar]				Grade of filtration [µm]				Bowl guard	
				0.3	0.3	0.5	0.5	0.01	1	5	40	Plastic bowl guard	Metal bowl
				A	B	C	E		
Code				D5	D6	D7	D8	A	B	C	E	R	U
Service units													
MSB-FRC 	4	G ¹ / ₈ , G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	-	■	■	-	-	-	■	■	■	-
	6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	-	■	■	-	-	-	■	■	■	■
	12	-											
Service unit combinations													
MSB 	4	G ¹ / ₈ , G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	-	■	■	-	-	-	■	■	■	■
	6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	-	■	■	-	-	-	■	■	■	■
	12	-											
Individual devices													
Filter regulators MS-LFR 	4	G ¹ / ₈ , G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	■	■	■	-	-	-	■	■	■	■
	6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	■	■	■	■	-	-	■	■	■	■
	12	-	G1, G ¹ / ₄ , G ¹ / ₂ , G2	-	■	■	■	-	-	■	■	-	■
Filters MS-LF 	4	G ¹ / ₈ , G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	-	-	-	-	-	-	■	■	■	■
	6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	-	-	-	-	-	-	■	■	■	■
	12	-	G1, G ¹ / ₄ , G ¹ / ₂ , G2	-	-	-	-	-	-	■	■	-	■
Fine and micro filters MS-LFM 	4	G ¹ / ₈ , G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	-	-	-	-	■	■	-	-	■	■
	6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	-	-	-	-	■	■	-	-	■	■
	12	-	G1, G ¹ / ₄ , G ¹ / ₂ , G2	-	-	-	-	■	■	-	-	-	■
Active carbon filters MS-LFX 	4	G ¹ / ₈ , G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	-	-	-	-	-	-	-	-	■	■
	6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	-	-	-	-	-	-	-	-	■	■
	12	-	G1, G ¹ / ₄ , G ¹ / ₂ , G2	-	-	-	-	-	-	-	-	-	■
Pressure regulators MS-LR 	4	G ¹ / ₈ , G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	■	■	■	-	-	-	-	-	-	-
	6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	■	■	■	■	-	-	-	-	-	-
	12	-	G1, G ¹ / ₄ , G ¹ / ₂ , G2	-	■	■	■	-	-	-	-	-	-
Pressure regulators MS-LRB 	4	G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	■	■	■	-	-	-	-	-	-	-
	6	G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	■	■	■	■	-	-	-	-	-	-
	12	-											
Lubricators MS-LOE 	4	G ¹ / ₈ , G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	-	-	-	-	-	-	-	-	■	■
	6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	-	-	-	-	-	-	-	-	■	■
	12	-	G1, G ¹ / ₄ , G ¹ / ₂ , G2	-	-	-	-	-	-	-	-	-	■

MS series service units

Product range overview



Type	Size	Condensate drain						Actuator lock		Pressure display				Options		→ Page	
		Manual rotary	Semi-automatic	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	Rotary knob, lockable	Rotary knob, long	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	Silencer		Flow direction from right to left
Code		M	H	V	E1	E2	E3	E4	AS	LD	VS	AG	A8	A4	S	Z	
Service units																	
MSB-FRC	4	■	-	■	-	-	-	-	■	-	-	■	-	-	-	■	3/2.11-0
	6	■	-	■	-	-	-	-	■	-	-	■	-	-	-	■	
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Service unit combinations																	
MSB	4	■	-	■	-	-	-	-	■	-	-	■	-	-	■	■	3/2.11-10
	6	■	-	■	-	-	-	-	■	-	-	■	-	-	■	■	
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Individual devices																	
Filter regulators MS-LFR	4	■	■	■	-	-	-	-	■	■	■	■	■	■	-	■	3/2.12-0
	6	■	■	■	■	■	■	■	■	■	■	■	-	■	-	■	
	12	■	-	■	■	■	■	■	■	■	■	■	-	■	-	■	3/2.22-0
Filters MS-LF	4	■	■	■	-	-	-	-	-	-	-	-	-	-	-	■	3/2.13-0, 3/2.13-2
	6	■	■	■	■	■	■	■	-	-	-	-	-	-	-	■	
	12	■	-	■	■	■	■	■	-	-	-	-	-	-	-	■	3/2.23-0, 3/2.23-2
Fine and micro filters MS-LFM	4	■	■	■	-	-	-	-	-	-	-	-	-	-	-	■	3/2.13-0, 3/2.13-10
	6	■	■	■	■	■	■	■	-	-	-	-	-	-	-	■	
	12	■	-	■	■	■	■	■	-	-	-	-	-	-	-	■	3/2.23-0, 3/2.23-8
Active carbon filters MS-LFX	4	■	-	-	-	-	-	-	-	-	-	-	-	-	-	■	3/2.13-0, 3/2.13-20
	6	■	-	-	-	-	-	-	-	-	-	-	-	-	-	■	
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	3/2.23-0, 3/2.23-13
Pressure regulators MS-LR	4	-	-	-	-	-	-	-	■	■	■	■	■	■	-	■	3/2.14-0, 3/2.14-4
	6	-	-	-	-	-	-	-	■	■	■	■	-	■	-	■	
	12	-	-	-	-	-	-	-	■	■	■	-	-	■	-	■	3/2.24-0
Pressure regulators MS-LRB	4	-	-	-	-	-	-	-	■	■	■	■	■	■	-	■	3/2.14-0, 3/2.14-12
	6	-	-	-	-	-	-	-	■	■	■	■	-	■	-	■	
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lubricators MS-LOE	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	3/2.15-0
	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	3/2.25-0

MS series service units

2.0

MS series service units

Product range overview



MS series service units

2.0

Type	Size	Pneumatic connection in housing	Connecting plate (A)	Bowl guard		Supply voltage				
				Plastic bowl guard	Metal bowl	24 V DC (connection pattern to EN 175301)	24 V DC (connection pattern M12 to DESINA)	110 V AC (connection pattern to EN 175301)	230 V AC (connection pattern to EN 175301)	
				R	U	V24	V24P	V110	V230	
Individual devices										
On-off valves MS-EM		4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-
		12	-	G1, G1 1/4, G1 1/2, G2	-	-	-	-	-	-
On-off valves MS-EE		4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	■	-	■	■
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	■	-	■	■
		12	-	G1, G1 1/4, G1 1/2, G2	-	-	■	■	■	■
Soft-start valves MS-DL		4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-
		12	-	G1, G1 1/4, G1 1/2, G2	-	-	-	-	-	-
Soft-start valves MS-DE		4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	■	-	■	■
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	■	-	■	■
		12	-	G1, G1 1/4, G1 1/2, G2	-	-	■	■	■	■
Membrane dryers MS-LDM		4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-
		12	-							
Branching modules MS-FRM		4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-
		12	-	G1, G1 1/4, G1 1/2, G2	-	-	-	-	-	-
Flow sensors MS-SFE		4	-							
		6	G1/2	G1/2, G3/4	-	-	-	-	-	-
		12	-							

MS series service units

Product range overview



Type	Size	Actuator lock		Pressure display				Switch output		Options		→ Page
		Rotary knob, lockable	Rotary knob, long	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	2x PNP	2x NPN	Silencer	Flow direction from right to left	
Individual devices												
On-off valves MS-EM	4	-	-	■	■	■	■	-	-	■	■	3/2.16-1, 3/2.16-5
	6	-	-	■	■	-	■	-	-	■	■	
	12	-	-	■	■	-	■	-	-	■	■	3 / 2.26-1, 3 / 2.26-4
Electrical on-off valves MS-EE	4	-	-	■	■	■	■	-	-	■	■	3/2.16-1, 3/2.16-10
	6	-	-	■	■	-	■	-	-	■	■	
	12	-	-	■	■	-	■	-	-	■	■	3 / 2.26-1, 3 / 2.26-8
Soft-start valves MS-DL	4	-	-	■	■	■	■	-	-	-	■	3/2.16-1, 3/2.16-16
	6	-	-	■	■	-	■	-	-	-	■	
	12	-	-	■	■	-	■	-	-	-	■	3 / 2.26-1, 3 / 2.26-12
Soft-start valves MS-DE	4	-	-	■	■	■	■	-	-	-	■	3/2.16-1, 3/2.16-21
	6	-	-	■	■	-	■	-	-	-	■	
	12	-	-	■	■	-	■	-	-	-	■	3 / 2.26-1, 3 / 2.26-16
Membrane dryers MS-LDM	4	-	-	-	-	-	-	-	-	-	■	3/2.17-0
	6	-	-	-	-	-	-	-	-	-	■	
	12	-	-	-	-	-	-	-	-	-	-	
Branching modules MS-FRM	4	-	-	■	■	■	■	-	-	-	■	3/2.18-0
	6	-	-	■	■	-	■	-	-	-	■	
	12	-	-	■	-	-	-	-	-	-	-	3 / 2.28-0
Flow sensors MS-SFE	4	-	-	-	-	-	-	-	-	-	-	3 / 2.19-1
	6	-	-	-	-	-	-	■	■	-	-	
	12	-	-	-	-	-	-	-	-	-	-	

MS series service units

2.0

Service units MSB4/MSB6-FRC, MS series

Type codes

FESTO

MS4/MS6 series service units
Service units

2.11

MSB 6 - 3/8 - FRC2:J6 M1 - Z

Basic function	
MSB	Service unit

Size	
4	Grid dimension 40 mm
6	Grid dimension 62 mm

Pneumatic connection	
1/8	Thread G1/8
1/4	Thread G1/4
3/8	Thread G3/8
1/2	Thread G1/2

Service unit consisting of:	
<ul style="list-style-type: none"> ■ Filter regulator with pressure gauge, lockable standard type rotary knob ■ Lubricator 	

Pressure regulation range 0.3 ... 7 bar	
Plastic bowl guard	
FRC3:J7	Grade of filtration 5 µm, manual rotary condensate drain
FRC4:J8	Grade of filtration 5 µm, fully automatic condensate drain
FRC1:J5	Grade of filtration 40 µm, manual rotary condensate drain
FRC2:J6	Grade of filtration 40 µm, fully automatic condensate drain

Pressure regulation range 0.5 ... 12 bar	
Plastic bowl guard	
FRC7:J3	Grade of filtration 5 µm, manual rotary condensate drain
FRC8:J4	Grade of filtration 5 µm, fully automatic condensate drain
FRC5:J1	Grade of filtration 40 µm, manual rotary condensate drain
FRC6:J2	Grade of filtration 40 µm, fully automatic condensate drain

Metal bowl	
FRC11:J9	Grade of filtration 5 µm, manual rotary condensate drain
FRC12:J10	Grade of filtration 5 µm, fully automatic condensate drain
FRC9:J11	Grade of filtration 40 µm, manual rotary condensate drain
FRC10:J12	Grade of filtration 40 µm, fully automatic condensate drain

Lubricator	
M1	Plastic bowl guard
M2	Metal bowl


Alternative flow direction	
	Flow direction from left to right
Z	Flow direction from right to left

Service units MSB4/MSB6-FRC, MS series

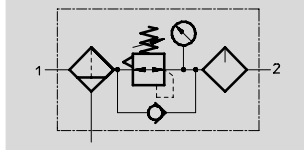
FESTO


Technical data


Function

-  - Flow rate
800 ... 4800 l/min

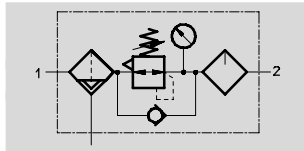
Condensate drain
manual rotary



-  - Temperature range
-10 ... +60 °C

-  - Input pressure
1.5 ... 20 bar

fully automatic



- Filter, regulator and lubricator functions in a single unit
- High flow rate and highly efficient removal of contaminants
- Good regulating characteristics with minimal pressure hysteresis
- Setting values are secured by locking the rotary knob
- Lockable rotary knob
- Two pressure regulation ranges: 0.3 ... 7 bar and 0.5 ... 12 bar
- Two pressure gauge connections for different fitting options
- Choice of filter cartridges: 5 µm or 40 µm
- With manual or integrated, fully automatic condensate drain

MS4/MS6 series service units
Service units

2.11

General technical data					
	MSB4		MSB6		
Pneumatic connection		G1/8	G1/4	G1/4	G3/8
Design	Filter regulator with pressure gauge				
	Proportional standard mist lubricator				
Type of mounting	Via accessories				
Assembly position	Vertical ±5°				
Max. hysteresis [bar]		0.25		0.25	
Grade of filtration [µm]		5 or 40		5 or 40	
Air purity class at the output					
Grade of filtration	5 µm	3.7.- to DIN ISO 8573-1			
	40 µm	5.7.- to DIN ISO 8573-1			
Pressure regulation range [bar]					
FRC1 ... FRC4		1 ... 7		0.3 ... 7	
FRC5 ... FRC12		1 ... 12		0.5 ... 12	
Input pressure [bar]					
Manual rotary condensate drain		1.5 ... 14		1.5 ... 20	
Fully automatic condensate drain		1.5 ... 12		1.5 ... 12	
Max. condensate volume [ml]					
Plastic bowl guard		19		38	
Metal bowl		-		38	
Max. oil capacity [cm³]					
Plastic bowl guard		30		75	
Metal bowl		-		80	

Service units MSB4/MSB6-FRC, MS series

FESTO

Technical data

MS4/MS6 series service units
Service units

2.11

Standard nominal flow rate q_{nN} [l/min] ¹⁾						
	MSB4			MSB6		
	G $\frac{1}{8}$	G $\frac{1}{4}$		G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
Pressure regulation range 0.3 ... 7 bar						
Grade of filtration	5 μ m	900	1300	2000	4400	4600
	40 μ m	950	1400	2100	4600	4800
Pressure regulation range 0.5 ... 12 bar						
Grade of filtration	5 μ m	800	850	1700	3400	3600
	40 μ m	850	900	1900	3500	3700

1) measured at $p_1 = 10$ bar and $p_2 = 6$ bar, $\Delta p = 1$ bar

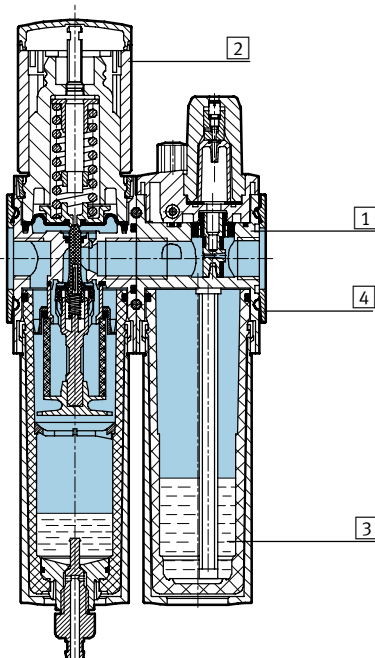
Ambient conditions		
	Condensate drain	
	manual rotary	fully automatic
Ambient temperature [°C]	-10 ... +60	+5 ... +60
Temperature of medium [°C]	-10 ... +60	+5 ... +60
Storage temperature [°C]	-10 ... +60	-10 ... +60
Corrosion resistance class CRC ¹⁾	2	

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.

Weight [g]		
	MSB4	MSB6
With plastic bowl guard	500	1495
With metal bowl	–	1713

Materials

Sectional view



Service unit		
1	Body	Die-cast aluminium
2	Regulating knob	Polyamide/polyacetate
3	Bowl	Polycarbonate
4	Cover plates	Polyamide
–	Seals	Nitrile rubber

Service units MSB4/MSB6-FRC, MS series

Technical data

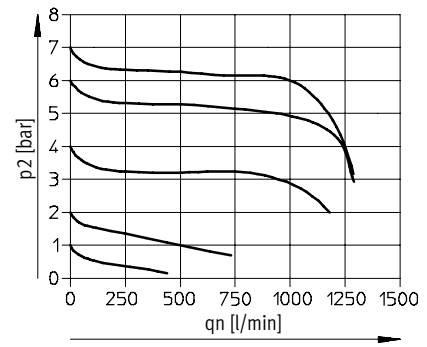
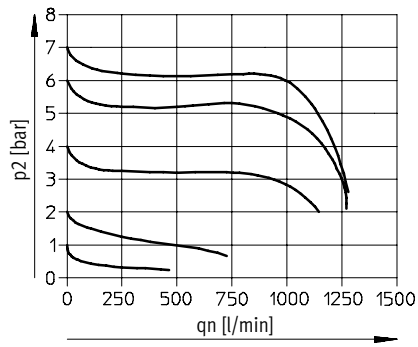
Standard flow rate q_n as a function of the output pressure p_2

Pressure regulation range
0.3 ... 7 bar

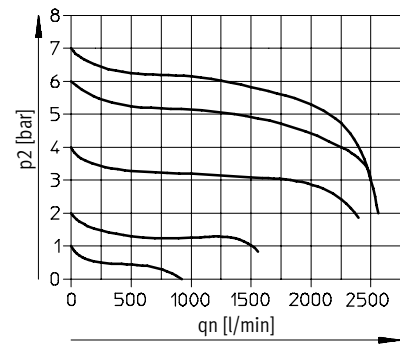
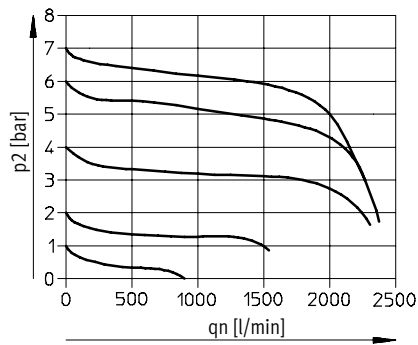
Grade of filtration 5 μm

Grade of filtration 40 μm

MSB4-1/8



MSB4-1/4



Primary pressure $p_1 = 10$ bar

Service units MSB4/MSB6-FRC, MS series



Technical data

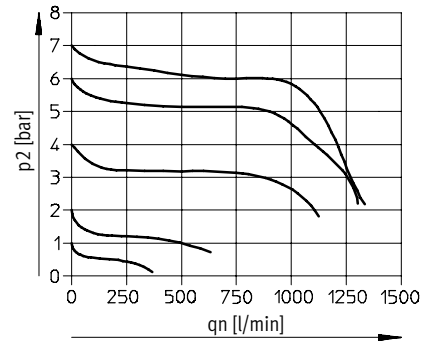
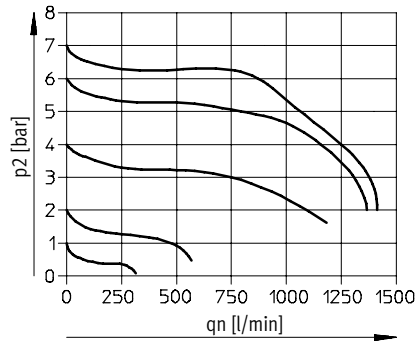
Standard flow rate q_n as a function of the output pressure p_2

Pressure regulation range
0.5 ... 12 bar

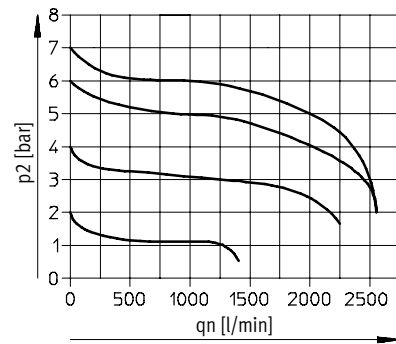
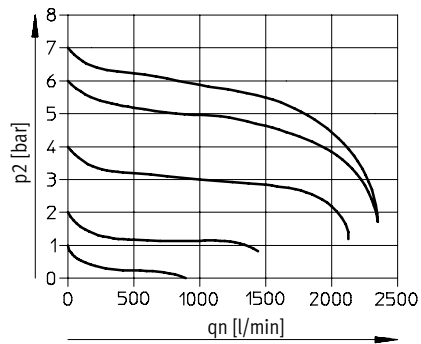
Grade of filtration 5 μm

Grade of filtration 40 μm

MSB4-1/8



MSB4-1/4



Primary pressure $p_1 = 10$ bar

Service units MSB4/MSB6-FRC, MS series

Technical data

Standard flow rate q_n as a function of the output pressure p_2

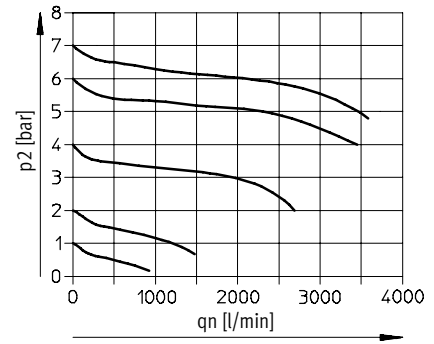
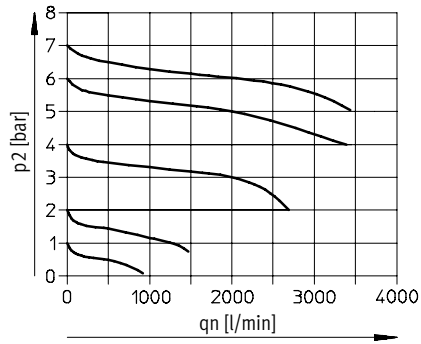
Pressure regulation range

Grade of filtration 5 μm

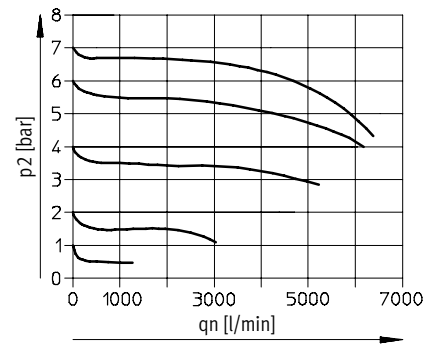
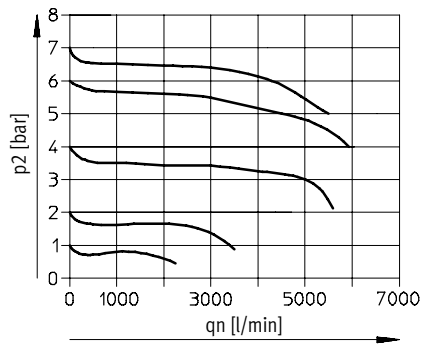
Grade of filtration 40 μm

0.3 ... 7 bar

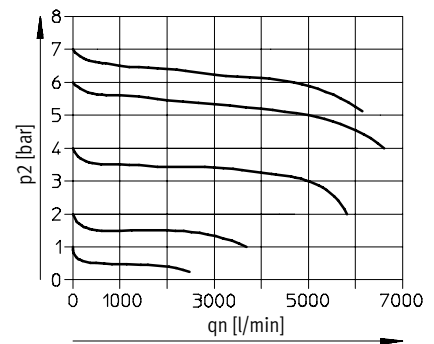
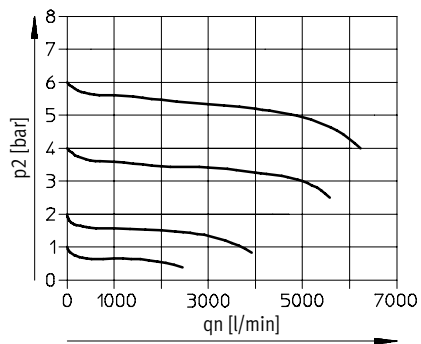
MSB6-1/4



MSB6-3/8



MSB6-1/2



Primary pressure $p_1 = 10$ bar

Service units MSB4/MSB6-FRC, MS series



Technical data

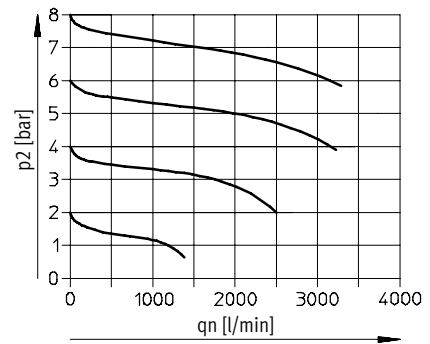
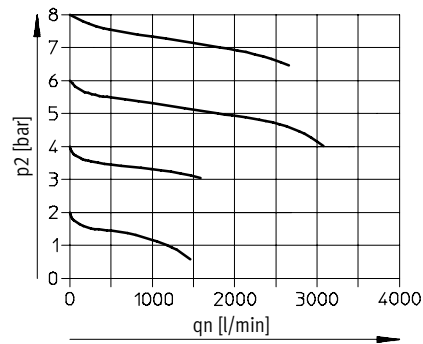
Standard flow rate q_n as a function of the output pressure p_2

Pressure regulation range
0.5 ... 12 bar

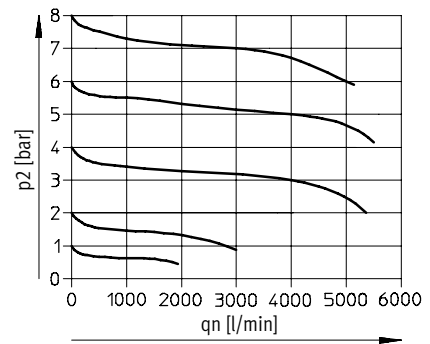
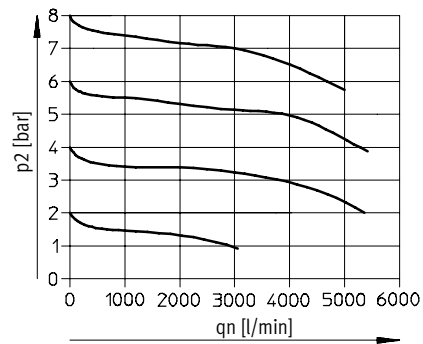
Grade of filtration 5 μm

Grade of filtration 40 μm

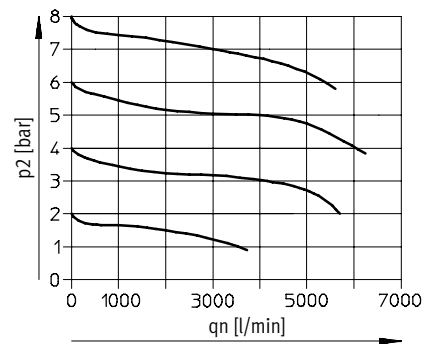
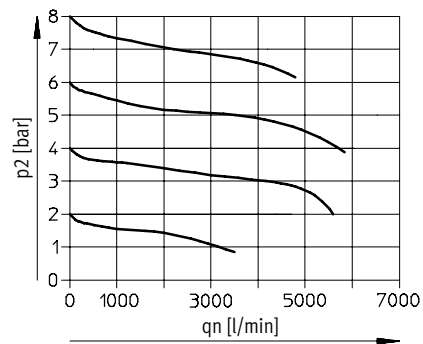
MSB6-1/4



MSB6-3/8



MSB6-1/2



Primary pressure $p_1 = 10$ bar

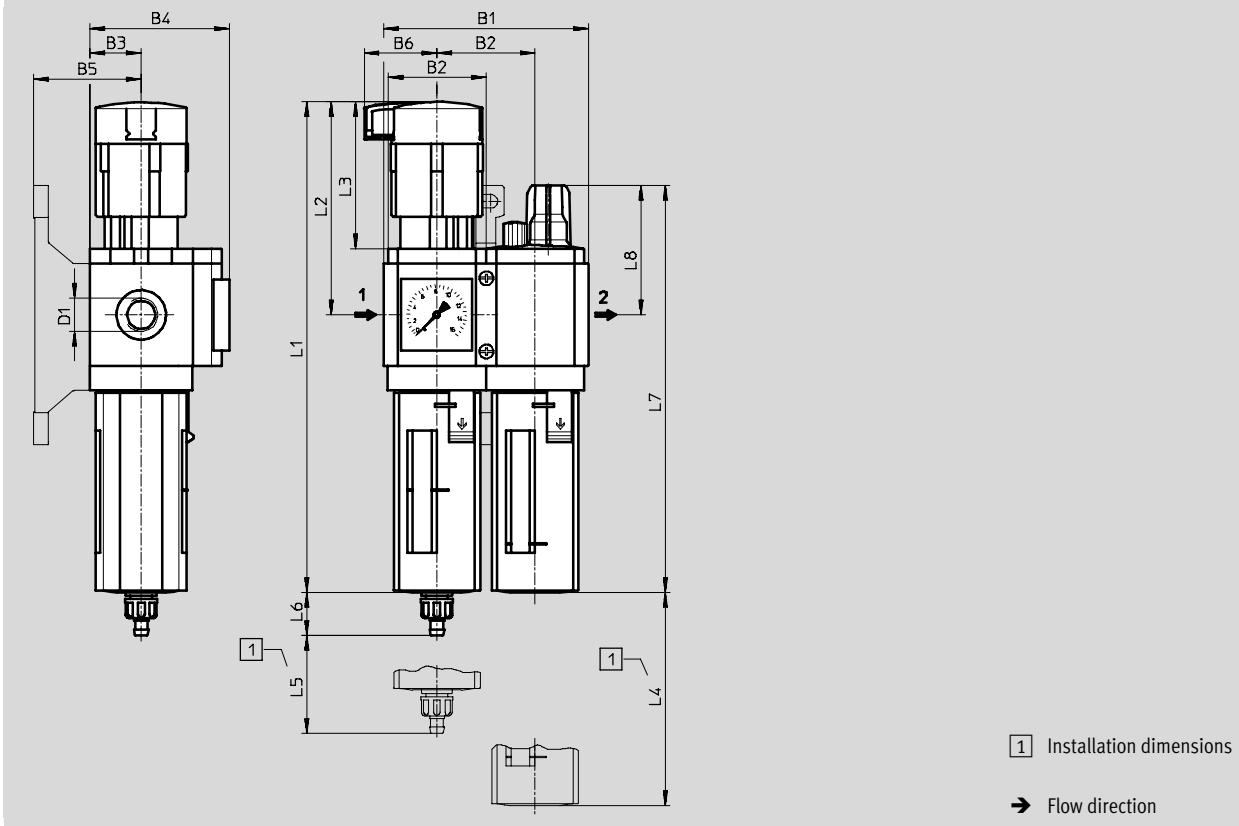
Service units MSB4/MSB6-FRC, MS series

Technical data

Dimensions

Download CAD data → www.festo.com/en/engineering

With pressure gauge, display unit [bar]



Type	B1	B2	B3	B4	B5	B6	D1	L1	L2	L3	L4	L5	L6		L7	L8
													Condensate drain manual rotary	fully automatic		
MSB4-1/8	83.6	40	21	57	44	29.7	G1/8	201	87	60	80	25	17.7	20.4	167	53
MSB4-1/4							G1/4									
MSB6-1/4	129	62	31	77	54	38.8	G1/4	284.8	134.5	95.5	130	68	15.8	18.5	215.3	65.6
MSB6-3/8							G3/8									
MSB6-1/2							G1/2									

Service units MSB4/MSB6-FRC, MS series

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Technical data

MS4/MS6 series service units
Service units

2.11

Ordering data						
Pressure regulation range 0.3 ... 7 bar, plastic bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MSB4	G $\frac{1}{8}$	531 129	MSB4- $\frac{1}{8}$ -FRC3:J7M1	531 125	MSB4- $\frac{1}{8}$ -FRC1:J5M1
		G $\frac{1}{4}$	531 113	MSB4- $\frac{1}{4}$ -FRC3:J7M1	531 109	MSB4- $\frac{1}{4}$ -FRC1:J5M1
	MSB6	G $\frac{1}{4}$	530 264	MSB6- $\frac{1}{4}$ -FRC3:J7M1	530 254	MSB6- $\frac{1}{4}$ -FRC1:J5M1
		G $\frac{3}{8}$	530 288	MSB6- $\frac{3}{8}$ -FRC3:J7M1	530 278	MSB6- $\frac{3}{8}$ -FRC1:J5M1
		G $\frac{1}{2}$	530 240	MSB6- $\frac{1}{2}$ -FRC3:J7M1	530 230	MSB6- $\frac{1}{2}$ -FRC1:J5M1
fully automatic	MSB4	G $\frac{1}{8}$	531 131	MSB4- $\frac{1}{8}$ -FRC4:J8M1	531 127	MSB4- $\frac{1}{8}$ -FRC2:J6M1
		G $\frac{1}{4}$	531 115	MSB4- $\frac{1}{4}$ -FRC4:J8M1	531 111	MSB4- $\frac{1}{4}$ -FRC2:J6M1
	MSB6	G $\frac{1}{4}$	530 266	MSB6- $\frac{1}{4}$ -FRC4:J8M1	530 262	MSB6- $\frac{1}{4}$ -FRC2:J6M1
		G $\frac{3}{8}$	530 290	MSB6- $\frac{3}{8}$ -FRC4:J8M1	530 286	MSB6- $\frac{3}{8}$ -FRC2:J6M1
		G $\frac{1}{2}$	530 242	MSB6- $\frac{1}{2}$ -FRC4:J8M1	530 238	MSB6- $\frac{1}{2}$ -FRC2:J6M1
Flow direction from right to left						
manual rotary	MSB4	G $\frac{1}{8}$	531 130	MSB4- $\frac{1}{8}$ -FRC3:J7M1-Z	531 126	MSB4- $\frac{1}{8}$ -FRC1:J5M1-Z
		G $\frac{1}{4}$	531 114	MSB4- $\frac{1}{4}$ -FRC3:J7M1-Z	531 110	MSB4- $\frac{1}{4}$ -FRC1:J5M1-Z
	MSB6	G $\frac{1}{4}$	530 265	MSB6- $\frac{1}{4}$ -FRC3:J7M1-Z	530 255	MSB6- $\frac{1}{4}$ -FRC1:J5M1-Z
		G $\frac{3}{8}$	530 289	MSB6- $\frac{3}{8}$ -FRC3:J7M1-Z	530 279	MSB6- $\frac{3}{8}$ -FRC1:J5M1-Z
		G $\frac{1}{2}$	530 241	MSB6- $\frac{1}{2}$ -FRC3:J7M1-Z	530 231	MSB6- $\frac{1}{2}$ -FRC1:J5M1-Z
fully automatic	MSB4	G $\frac{1}{8}$	531 132	MSB4- $\frac{1}{8}$ -FRC4:J8M1-Z	531 128	MSB4- $\frac{1}{8}$ -FRC2:J6M1-Z
		G $\frac{1}{4}$	531 116	MSB4- $\frac{1}{4}$ -FRC4:J8M1-Z	531 112	MSB4- $\frac{1}{4}$ -FRC2:J6M1-Z
	MSB6	G $\frac{1}{4}$	530 267	MSB6- $\frac{1}{4}$ -FRC4:J8M1-Z	530 263	MSB6- $\frac{1}{4}$ -FRC2:J6M1-Z
		G $\frac{3}{8}$	530 291	MSB6- $\frac{3}{8}$ -FRC4:J8M1-Z	530 287	MSB6- $\frac{3}{8}$ -FRC2:J6M1-Z
		G $\frac{1}{2}$	530 243	MSB6- $\frac{1}{2}$ -FRC4:J8M1-Z	530 239	MSB6- $\frac{1}{2}$ -FRC2:J6M1-Z

Service units MSB4/MSB6-FRC, MS series

FESTO

Technical data

Ordering data						
Pressure regulation range 0.5 ... 12 bar, plastic bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MSB4	G ¹ / ₈	531 137	MSB4- ¹ / ₈ -FRC7:J3M1	531 133	MSB4- ¹ / ₈ -FRC5:J1M1
		G ¹ / ₄	531 121	MSB4- ¹ / ₄ -FRC7:J3M1	531 117	MSB4- ¹ / ₄ -FRC5:J1M1
	MSB6	G ¹ / ₄	530 272	MSB6- ¹ / ₄ -FRC7:J3M1	530 268	MSB6- ¹ / ₄ -FRC5:J1M1
		G ³ / ₈	530 296	MSB6- ³ / ₈ -FRC7:J3M1	530 292	MSB6- ³ / ₈ -FRC5:J1M1
		G ¹ / ₂	530 248	MSB6- ¹ / ₂ -FRC7:J3M1	530 244	MSB6- ¹ / ₂ -FRC5:J1M1
fully automatic	MSB4	G ¹ / ₈	531 139	MSB4- ¹ / ₈ -FRC8:J4M1	531 135	MSB4- ¹ / ₈ -FRC6:J2M1
		G ¹ / ₄	531 123	MSB4- ¹ / ₄ -FRC8:J4M1	531 119	MSB4- ¹ / ₄ -FRC6:J2M1
	MSB6	G ¹ / ₄	530 274	MSB6- ¹ / ₄ -FRC8:J4M1	530 270	MSB6- ¹ / ₄ -FRC6:J2M1
		G ³ / ₈	530 298	MSB6- ³ / ₈ -FRC8:J4M1	530 294	MSB6- ³ / ₈ -FRC6:J2M1
		G ¹ / ₂	530 250	MSB6- ¹ / ₂ -FRC8:J4M1	530 246	MSB6- ¹ / ₂ -FRC6:J2M1
Flow direction from right to left						
manual rotary	MSB4	G ¹ / ₈	531 138	MSB4- ¹ / ₈ -FRC7:J3M1-Z	531 134	MSB4- ¹ / ₈ -FRC5:J1M1-Z
		G ¹ / ₄	531 122	MSB4- ¹ / ₄ -FRC7:J3M1-Z	531 118	MSB4- ¹ / ₄ -FRC5:J1M1-Z
	MSB6	G ¹ / ₄	530 273	MSB6- ¹ / ₄ -FRC7:J3M1-Z	530 269	MSB6- ¹ / ₄ -FRC5:J1M1-Z
		G ³ / ₈	530 297	MSB6- ³ / ₈ -FRC7:J3M1-Z	530 293	MSB6- ³ / ₈ -FRC5:J1M1-Z
		G ¹ / ₂	530 249	MSB6- ¹ / ₂ -FRC7:J3M1-Z	530 245	MSB6- ¹ / ₂ -FRC5:J1M1-Z
fully automatic	MSB4	G ¹ / ₈	531 140	MSB4- ¹ / ₈ -FRC8:J4M1-Z	531 136	MSB4- ¹ / ₈ -FRC6:J2M1-Z
		G ¹ / ₄	531 124	MSB4- ¹ / ₄ -FRC8:J4M1-Z	531 120	MSB4- ¹ / ₄ -FRC6:J2M1-Z
	MSB6	G ¹ / ₄	530 275	MSB6- ¹ / ₄ -FRC8:J4M1-Z	530 271	MSB6- ¹ / ₄ -FRC6:J2M1-Z
		G ³ / ₈	530 299	MSB6- ³ / ₈ -FRC8:J4M1-Z	530 295	MSB6- ³ / ₈ -FRC6:J2M1-Z
		G ¹ / ₂	530 251	MSB6- ¹ / ₂ -FRC8:J4M1-Z	530 247	MSB6- ¹ / ₂ -FRC6:J2M1-Z

Ordering data						
Pressure regulation range 0.5 ... 12 bar, metal bowl						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MSB6	G ¹ / ₄	530 258	MSB6- ¹ / ₄ -FRC11:J9M2	530 276	MSB6- ¹ / ₄ -FRC9:J11M2
		G ³ / ₈	530 282	MSB6- ³ / ₈ -FRC11:J9M2	530 300	MSB6- ³ / ₈ -FRC9:J11M2
		G ¹ / ₂	530 234	MSB6- ¹ / ₂ -FRC11:J9M2	530 252	MSB6- ¹ / ₂ -FRC9:J11M2
fully automatic	MSB6	G ¹ / ₄	530 260	MSB6- ¹ / ₄ -FRC12:J10M2	530 256	MSB6- ¹ / ₄ -FRC10:J12M2
		G ³ / ₈	530 284	MSB6- ³ / ₈ -FRC12:J10M2	530 280	MSB6- ³ / ₈ -FRC10:J12M2
		G ¹ / ₂	530 236	MSB6- ¹ / ₂ -FRC12:J10M2	530 232	MSB6- ¹ / ₂ -FRC10:J12M2
Flow direction from right to left						
manual rotary	MSB6	G ¹ / ₄	530 259	MSB6- ¹ / ₄ -FRC11:J9M2-Z	530 277	MSB6- ¹ / ₄ -FRC9:J11M2-Z
		G ³ / ₈	530 283	MSB6- ³ / ₈ -FRC11:J9M2-Z	530 301	MSB6- ³ / ₈ -FRC9:J11M2-Z
		G ¹ / ₂	530 235	MSB6- ¹ / ₂ -FRC11:J9M2-Z	530 253	MSB6- ¹ / ₂ -FRC9:J11M2-Z
fully automatic	MSB6	G ¹ / ₄	530 261	MSB6- ¹ / ₄ -FRC12:J10M2-Z	530 257	MSB6- ¹ / ₄ -FRC10:J12M2-Z
		G ³ / ₈	530 285	MSB6- ³ / ₈ -FRC12:J10M2-Z	530 281	MSB6- ³ / ₈ -FRC10:J12M2-Z
		G ¹ / ₂	530 237	MSB6- ¹ / ₂ -FRC12:J10M2-Z	530 233	MSB6- ¹ / ₂ -FRC10:J12M2-Z

MS4/MS6 series service units
Service units

2.11

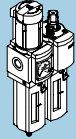
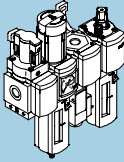
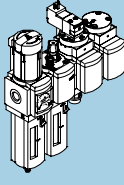
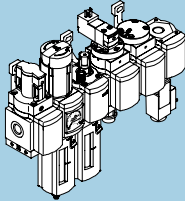
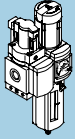
Service unit combinations MSB4/MSB6, MS series

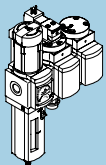
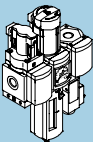
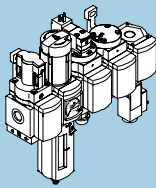
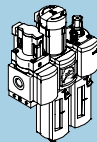
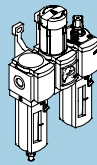


Product range overview

MS4/MS6 series service units
Service units

2.11

Combinations						
consisting of:						
On-off valve, manually actuated	EM	-	■	-	■	■
Filter regulator with pressure gauge, lockable	LFR	■	■	■	■	■
Pressure regulator with pressure gauge, lockable	LR	-	-	-	-	-
Filter	LF	-	-	-	-	-
Lubricator	LOE	■	■	■	■	-
On-off valve, solenoid actuated	EE	-	-	■	■	-
Soft-start valve, pneumatically actuated	DL	-	-	■	■	-
Branching module with pressure switch	FRM	-	■	-	■	-
Wall mounting plate	WP	-	■	■	■	■
→ Page		3/2.11-1	3/2.11-12	3/2.11-16	3/2.11-20	3/2.11-24

Combinations						
consisting of:						
On-off valve, manually actuated	EM	-	■	■	■	-
Filter regulator with pressure gauge, lockable	LFR	■	■	■	■	-
Pressure regulator with pressure gauge, lockable	LR	-	-	-	-	■
Filter	LF	-	-	-	-	■
Lubricator	LOE	-	-	-	■	■
On-off valve, solenoid actuated	EE	■	-	■	-	-
Soft-start valve, pneumatically actuated	DL	■	-	■	-	-
Branching module with pressure switch	FRM	-	■	■	-	-
Wall mounting plate	WP	■	■	■	■	■
→ Page		3/2.11-28	3/2.11-32	3/2.11-36	3/2.11-40	3/2.11-44

Service unit combinations MSB4/MSB6, MS series

Type codes

MSB 6 - 1/2 : H7 N3 M2 - WP - Z

Basic function

MSB	Service unit combination
-----	--------------------------

Size

4	Grid dimension 40 mm
6	Grid dimension 62 mm

Pneumatic connection

1/4	Thread G1/4
1/2	Thread G1/2

Service unit combination

On-off valve → 3/2.16-4

C1	MS...-EM
----	----------

Filter → 3/2.13-1

H1	MS...-LF-ERV
H2	MS...-LF-ERM
H3	MS...-LF-CRM
H4	MS...-LF-CRV
H7	MS...-LF-EUV
H8	MS...-LF-EUM

Filter regulator → 3/2.12-1

J1	MS...-LFR-D7-ERM-AS
J2	MS...-LFR-D7-ERV-AS
J3	MS...-LFR-D7-CRM-AS
J4	MS...-LFR-D7-CRV-AS

Pressure regulator → 3/2.14-4

N2	MS...-LR-D6-AS
N3	MS...-LR-D7-AS

Soft-start valve → 3/2.16-4

A1	MS...-DL
----	----------

Lubricator → 3/2.15-1

M1	MS...-LOE-R
M2	MS...-LOE-U

On-off valve → 3/2.16-4

D1	MS...-EE-V24
----	--------------

Branching module → 3/2.18-2

F3	MS...-FRM-Y
----	-------------

Type of mounting

WP	Wall mounting plate
----	---------------------

Alternative flow direction

	Flow direction from left to right
Z	Flow direction from right to left

Further variants can be ordered using the modular system

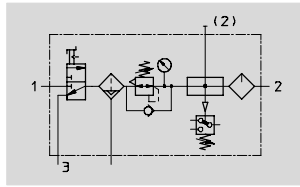
Service unit combinations → www.festo.com/en/engineering

- Connection size
- Service unit equipment
- Connecting plates

Service unit combinations MSB4/MSB6, MS series

Technical data

Function



- Flow rate
900 ... 3300 l/min
- Temperature range
-10 ... +60 °C
- Pressure regulation range
1 ... 12 bar

- On-off valve MS...-EM
 - manually actuated
- Filter regulator MS...-LFR-D7
 - grade of filtration 5 or 40µm
 - plastic bowl guard
 - manual rotary or fully automatic condensate drain
 - lockable standard type rotary knob
 - pressure gauge
- Branching module MS...-FRM-Y
 - pressure switch without display
- Lubricator MS...-LOE-R
 - plastic bowl guard
- Wall mounting plate MS...-WP



- The unit is vented when switched off
- To ensure safe venting of the system, an additional quick exhaust valve is necessary at the output of the service unit combination
- Supply pressure can be opened and closed
- Electrical pressure monitoring with adjustable switching pressure

General technical data

Type	MSB4	MSB6
Pneumatic connection	G1/4	G1/2
Grade of filtration [µm]	5 or 40	5 or 40
Pressure regulation range [bar]	1 ... 12	1 ... 12
Input pressure [bar]		
Manual rotary condensate drain	1.5 ... 14	1.5 ... 18
Fully automatic condensate drain	1.5 ... 12	1.5 ... 12

Standard nominal flow rate

Type	MSB4	MSB6
Grade of filtration	5 µm	3200
	40 µm	3300

Ambient conditions


	Condensate drain	
	manual rotary	fully automatic
Ambient temperature [°C]	-10 ... +60	+5 ... +60
Temperature of medium [°C]	-10 ... +60	+5 ... +60
Storage temperature [°C]	-10 ... +60	-10 ... +60
Corrosion resistance class CRC ¹⁾	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.

Service unit combinations MSB4/MSB6, MS series

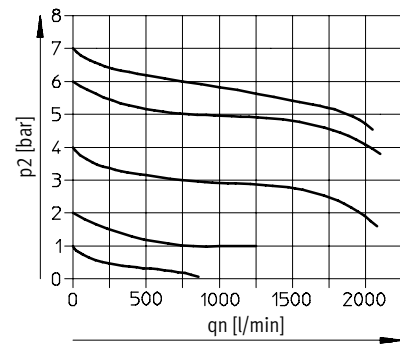
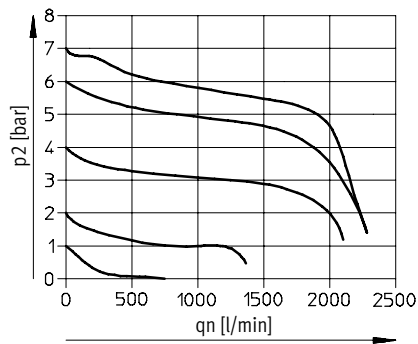
Technical data

Weight [g]	MSB4	MSB6
Service unit combination	1800	2950
Wall mounting plate	40	76

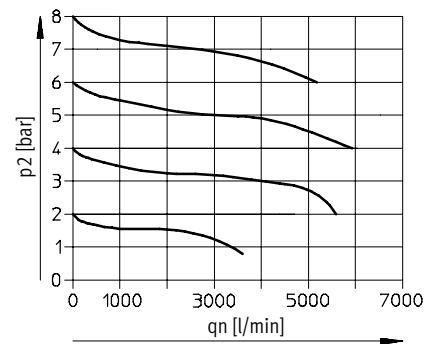
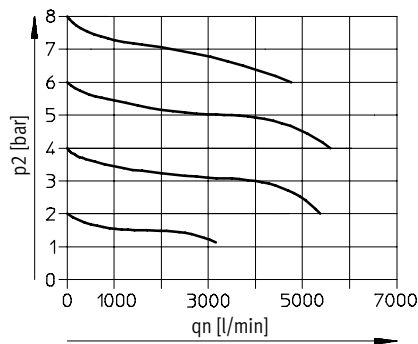
-  - Note
 Materials → Technical data of the individual units

Standard flow rate q_n as a function of the output pressure p_2		
Pressure regulation range	Grade of filtration 5 μm	Grade of filtration 40 μm
1 ... 12 bar		

MSB4-1/4



MSB6-1/2



Primary pressure $p_1 = 10 \text{ bar}$

Service unit combinations MSB4/MSB6, MS series

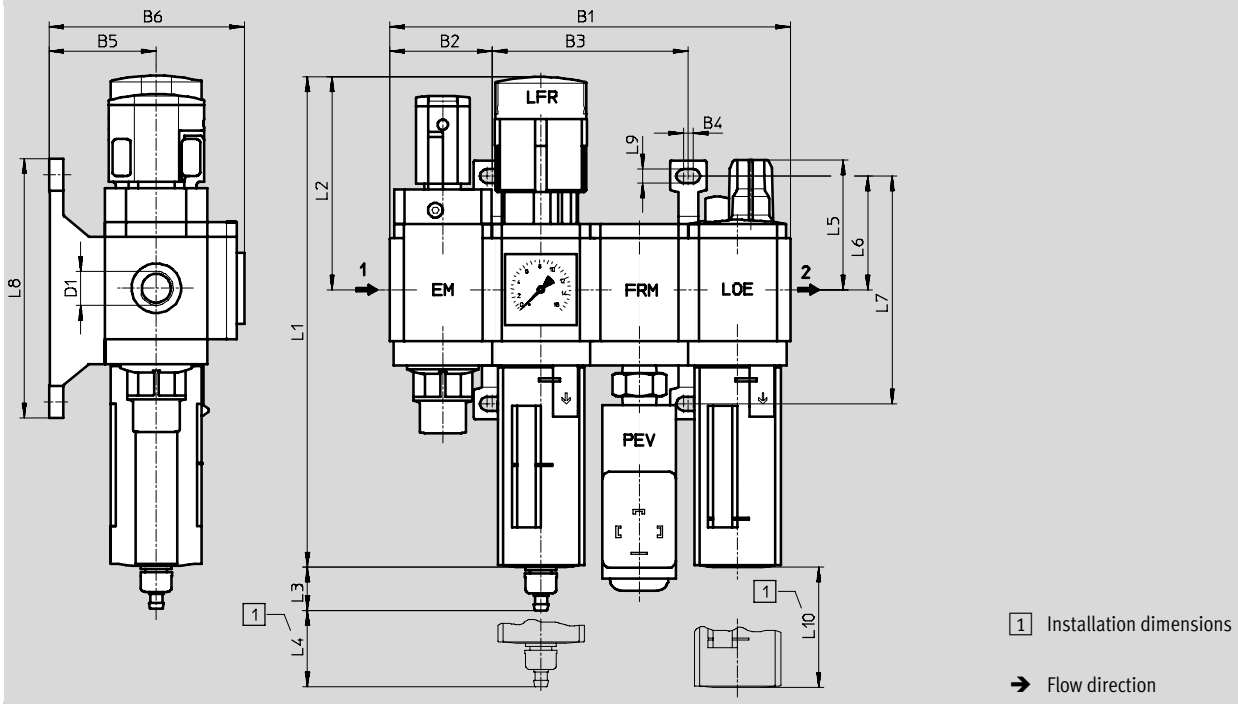
Technical data

MS4/MS6 series service units
Service units

2.11

Dimensions Download CAD data → www.festo.com/en/engineering

With pressure gauge, display unit [bar]



Type	B1	B2	B3	B4	B5	B6	D1	L1	L2
MSB4	164.2	41.9	80.4	4	44	80	G1/4	201	87
MSB6	253	64.5	124	4.5	54	100	G1/2	285	134.5

Type	L3 Condensate drain		L4	L5	L6	L7	L8	L9	L10
	manual rotary	fully automatic							
MSB4	17.7	20.4	25	53	46.5	93.2	106	5.6	80
MSB6	15.8	18.5	68	66	71	142	158	6.6	130

Service unit combinations MSB4/MSB6, MS series

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Technical data

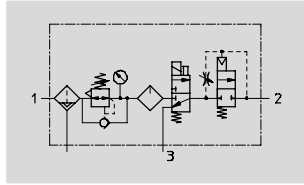
Ordering data						
Pressure regulation range 1 ... 12 bar, plastic bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MSB4	G $\frac{1}{4}$	531 076	MSB4- $\frac{1}{4}$:C1J3F3M1-WP	531 064	MSB4- $\frac{1}{4}$:C1J1F3M1-WP
	MSB6	G $\frac{1}{2}$	530 197	MSB6- $\frac{1}{2}$:C1J3F3M1-WP	530 185	MSB6- $\frac{1}{2}$:C1J1F3M1-WP
fully automatic	MSB4	G $\frac{1}{4}$	531 082	MSB4- $\frac{1}{4}$:C1J4F3M1-WP	531 070	MSB4- $\frac{1}{4}$:C1J2F3M1-WP
	MSB6	G $\frac{1}{2}$	530 203	MSB6- $\frac{1}{2}$:C1J4F3M1-WP	530 191	MSB6- $\frac{1}{2}$:C1J2F3M1-WP




Service unit combinations MSB4/MSB6, MS series

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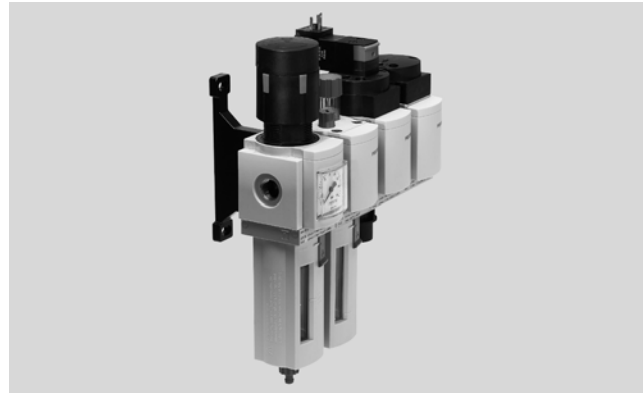
Technical data

Function



-  Flow rate
550 ... 2000 l/min
-  Temperature range
-10 ... +60 °C
-  Pressure regulation range
4 ... 12 bar

- Filter regulator MS...-LFR-D7
 - grade of filtration 5 or 40µm
 - plastic bowl guard
 - manual rotary or fully automatic condensate drain
 - lockable standard type rotary knob
 - pressure gauge
- Lubricator MS...-LOE-R
 - plastic bowl guard
- On-off valve MS...-EE-V24
 - solenoid actuated
 - 24 V DC
- Soft-start valve MS...-DL
 - pneumatically actuated
- Wall mounting plate MS...-WP



- For lubricated compressed air
- Gradual pressure build-up prevents sudden, unpredictable movements
- When supply pressure is closed, quick exhausting ensures rapid pressure reduction

General technical data		
Type	MSB4	MSB6
Pneumatic connection	G1/4	G1/2
Grade of filtration [µm]	5 or 40	5 or 40
Pressure regulation range [bar]	4 ... 12	4 ... 12
Input pressure [bar]		
Manual rotary condensate drain	4.5 ... 14	4.5 ... 18
Fully automatic condensate drain	4.5 ... 12	4.5 ... 12
Supply voltage [V DC]	24	24

Standard nominal flow rate		
Type	MSB4	MSB6
Grade of filtration	5 µm	550
	40 µm	600
		1900
		2000


Ambient conditions		
	Condensate drain	
	manual rotary	fully automatic
Ambient temperature [°C]	-10 ... +60	+5 ... +60
Temperature of medium [°C]	-10 ... +60	+5 ... +60
Storage temperature [°C]	-10 ... +60	-10 ... +60
Corrosion resistance class CRC ¹⁾	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.

Service unit combinations MSB4/MSB6, MS series

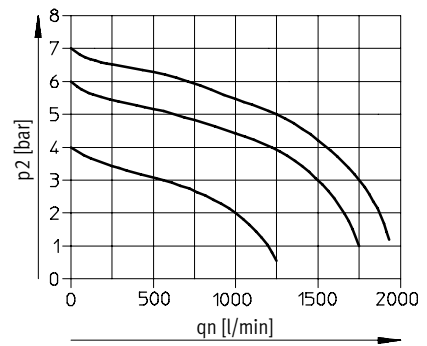
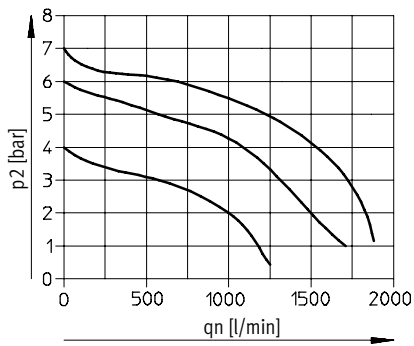
Technical data

Weight [g]	MSB4	MSB6
Service unit combination	1800	3000
Wall mounting plate	40	76

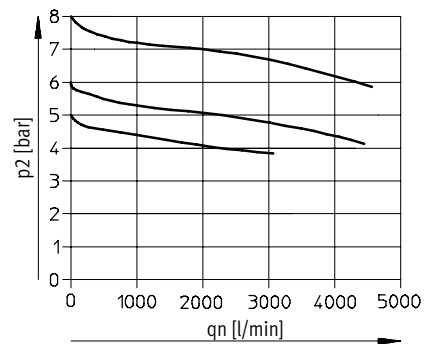
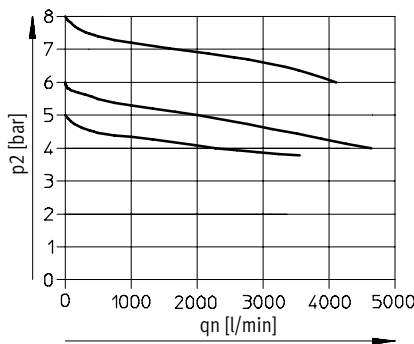
-  - Note
 Materials → Technical data of the individual units

Standard flow rate q_n as a function of the output pressure p_2		
Pressure regulation range	Grade of filtration 5 μm	Grade of filtration 40 μm
4 ... 12 bar		

MSB4-1/4



MSB6-1/2



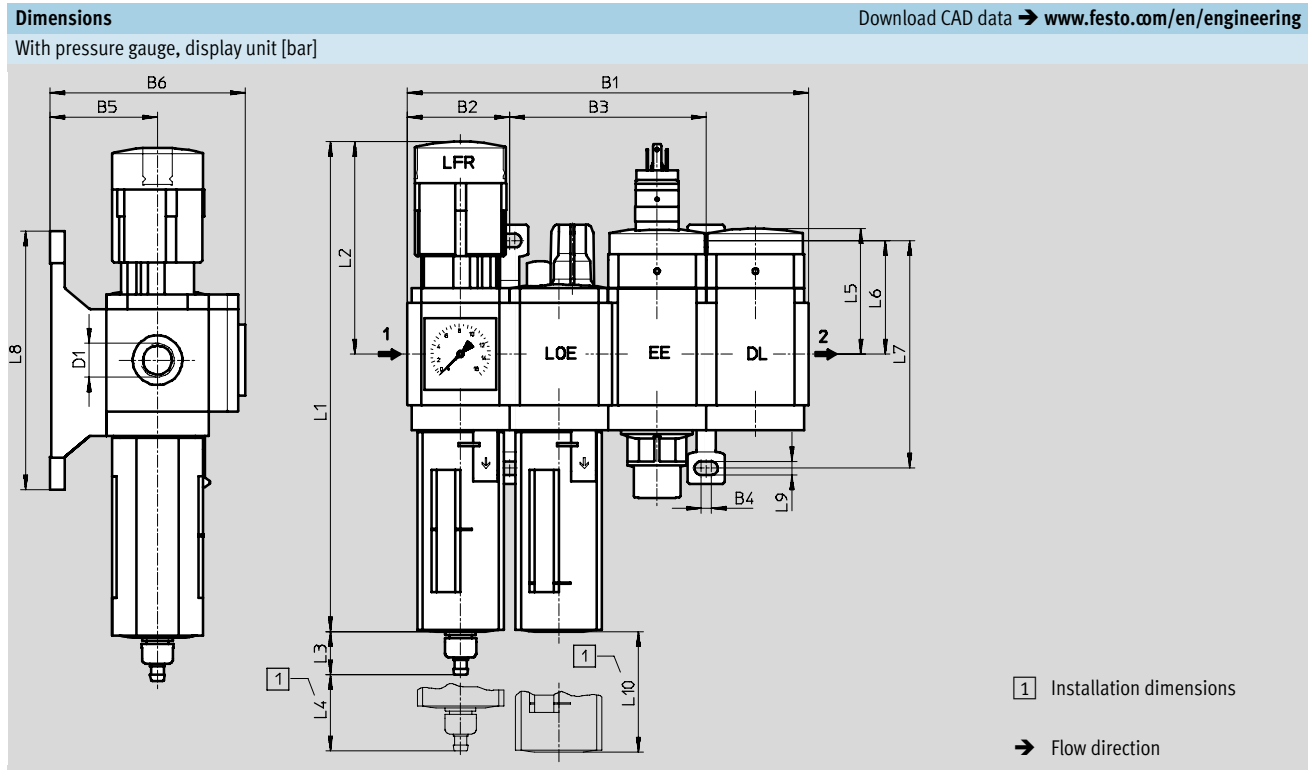
Primary pressure $p_1 = 10$ bar

Service unit combinations MSB4/MSB6, MS series

Technical data

MS4/MS6 series service units
Service units

2.11



Type	B1	B2	B3	B4	B5	B6	D1	L1	L2
MSB4	164.2	41.9	80.4	4	44	80	G1/4	201	87
MSB6	253	64.5	124	4.5	54	100	G1/2	285	134.5

Type	L3 Condensate drain		L4	L5	L6	L7	L8	L9	L10
	manual rotary	fully automatic							
MSB4	17.7	20.4	25	51.7	46.5	93.2	106	5.6	80
MSB6	15.8	18.5	68	71	71	142	158	6.6	130

Service unit combinations MSB4/MSB6, MS series

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Technical data

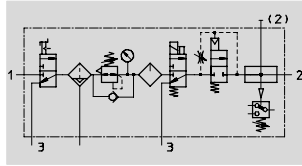
Ordering data						
Pressure regulation range 4 ... 12 bar, plastic bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MSB4	G $\frac{1}{4}$	531 106	MSB4- $\frac{1}{4}$:j3M1D1A1-WP	531 102	MSB4- $\frac{1}{4}$:j1M1D1A1-WP
	MSB6	G $\frac{1}{2}$	530 227	MSB6- $\frac{1}{2}$:j3M1D1A1-WP	530 223	MSB6- $\frac{1}{2}$:j1M1D1A1-WP
fully automatic	MSB4	G $\frac{1}{4}$	531 108	MSB4- $\frac{1}{4}$:j4M1D1A1-WP	531 104	MSB4- $\frac{1}{4}$:j2M1D1A1-WP
	MSB6	G $\frac{1}{2}$	530 229	MSB6- $\frac{1}{2}$:j4M1D1A1-WP	530 225	MSB6- $\frac{1}{2}$:j2M1D1A1-WP

Service unit combinations MSB4/MSB6, MS series

Technical data

FESTO

Function



- Flow rate
550 ... 2300 l/min
- Temperature range
-10 ... +60 °C
- Pressure regulation range
4 ... 12 bar

- On-off valve MS...-EM
 - manually actuated
- Filter regulator MS...-LFR-D7
 - grade of filtration 5 or 40µm
 - plastic bowl guard
 - manual rotary or fully automatic condensate drain
 - lockable standard type rotary knob
 - pressure gauge
- Lubricator MS...-LOE-R
 - plastic bowl guard
- On-off valve MS...-EE-V24
 - solenoid actuated
 - 24 V DC
- Soft-start valve MS...-DL
 - pneumatically actuated
- Branching module MS...-FRM-Y
 - pressure switch without display
- Wall mounting plate MS...-WP



- For lubricated compressed air
- Supply pressure can be opened and closed
- Gradual pressure build-up prevents sudden, unpredictable movements
- To ensure safe venting of the system, an additional quick exhaust valve is necessary at the output of the service unit combination

General technical data		
Type	MSB4	MSB6
Pneumatic connection	G $\frac{3}{4}$	G $\frac{1}{2}$
Grade of filtration [µm]	5 or 40	5 or 40
Pressure regulation range [bar]	4 ... 12	4 ... 12
Input pressure [bar]		
Manual rotary condensate drain	4.5 ... 14	4.5 ... 18
Fully automatic condensate drain	4.5 ... 12	4.5 ... 12
Supply voltage [V DC]		
	24	24

Standard nominal flow rate		
Type	MSB4	MSB6
Grade of filtration	5 µm	2100
	40 µm	2300


Ambient conditions		
	Condensate drain	
	manual rotary	fully automatic
Ambient temperature [°C]	-10 ... +60	+5 ... +60
Temperature of medium [°C]	-10 ... +60	+5 ... +60
Storage temperature [°C]	-10 ... +60	-10 ... +60
Corrosion resistance class CRC ¹⁾	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.

Service unit combinations MSB4/MSB6, MS series

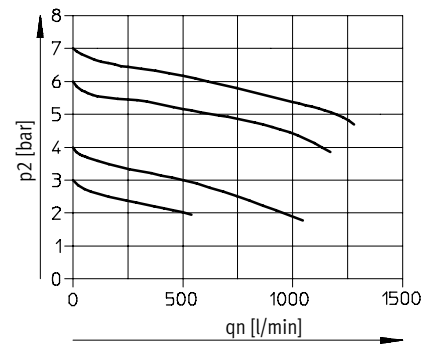
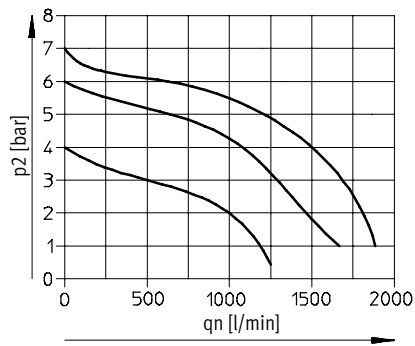
Technical data

Weight [g]	MSB4	MSB6
Service unit combination	2300	4400
Wall mounting plate	40	76

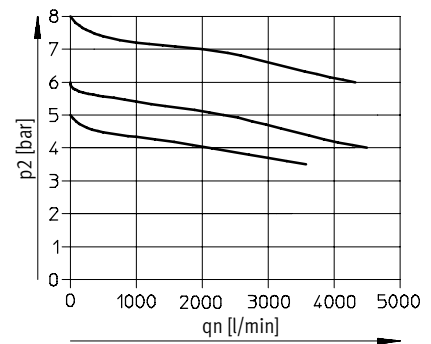
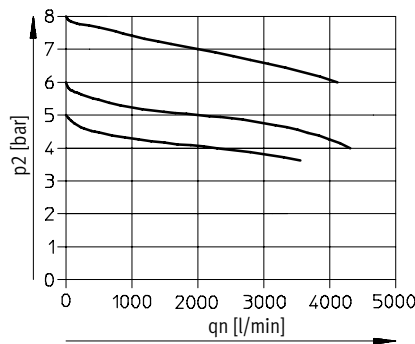
-  - Note
 Materials → Technical data of the individual units

Standard flow rate q_n as a function of the output pressure p_2		
Pressure regulation range	Grade of filtration 5 μm	Grade of filtration 40 μm
4 ... 12 bar		

MSB4-1/4



MSB6-1/2



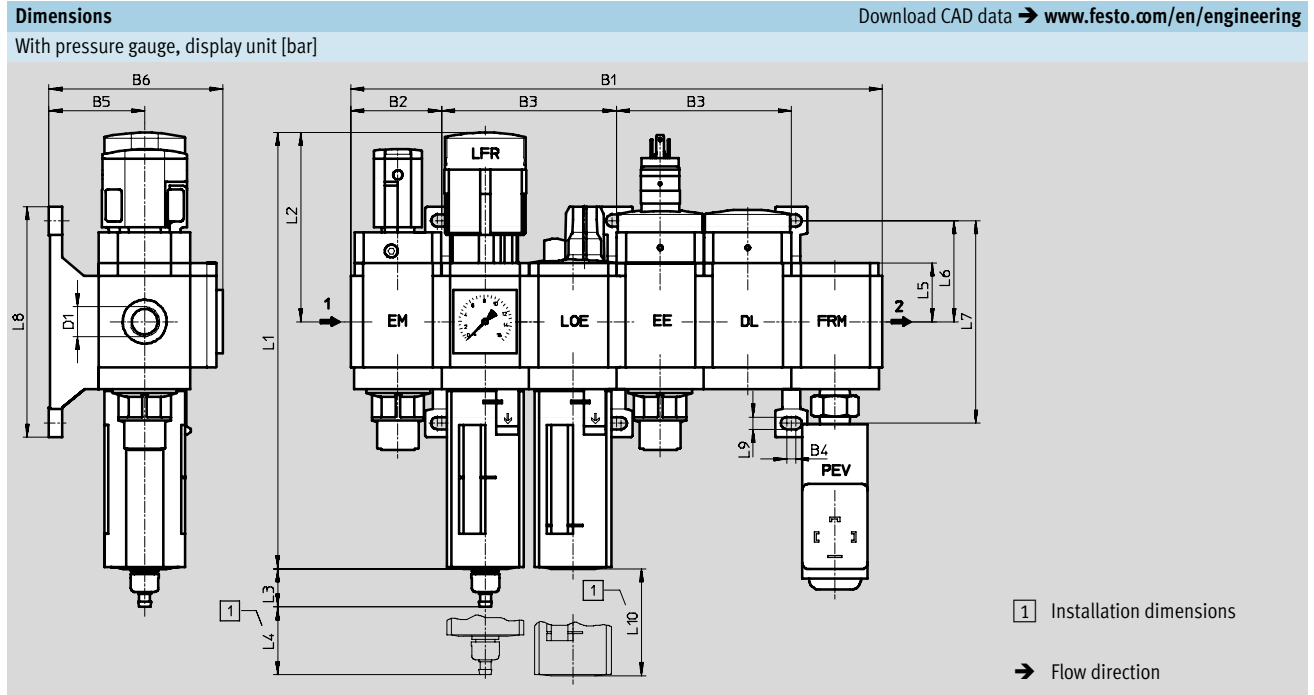
Primary pressure $p_1 = 10$ bar

Service unit combinations MSB4/MSB6, MS series

Technical data

MS4/MS6 series service units
Service units

2.11



Type	B1	B2	B3	B4	B5	B6	D1	L1	L2
MSB4	244.6	41.9	80.4	4	44	80	G¼	201	87
MSB6	377	64.5	124	4.5	54	100	G½	285	134.5

Type	L3 Condensate drain		L4	L5	L6	L7	L8	L9	L10
	manual rotary	fully automatic							
MSB4	17.7	20.4	25	27	46.5	93.2	106	5.6	80
MSB6	15.8	18.5	68	39	71	142	158	6.6	130

Service unit combinations MSB4/MSB6, MS series



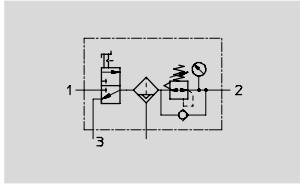
Technical data

Ordering data						
Pressure regulation range 4 ... 12 bar, plastic bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MSB4	G¼	531 078	MSB4-¼:C1J3M1D1A1F3-WP	531 066	MSB4-¼:C1J1M1D1A1F3-WP
	MSB6	G½	530 199	MSB6-½:C1J3M1D1A1F3-WP	530 187	MSB6-½:C1J1M1D1A1F3-WP
fully automatic	MSB4	G¼	531 084	MSB4-¼:C1J4M1D1A1F3-WP	531 072	MSB4-¼:C1J2M1D1A1F3-WP
	MSB6	G½	530 205	MSB6-½:C1J4M1D1A1F3-WP	530 193	MSB6-½:C1J2M1D1A1F3-WP

Service unit combinations MSB4/MSB6, MS series

Technical data

Function



- Flow rate
950 ... 5100 l/min
- Temperature range
-10 ... +60 °C
- Pressure regulation range
0.5 ... 12 bar

- On-off valve MS...-EM
 - manually actuated
- Filter regulator MS...-LFR-D7
 - grade of filtration 5 or 40µm
 - plastic bowl guard
 - manual rotary or fully automatic condensate drain
 - lockable standard type rotary knob
 - pressure gauge
- Wall mounting plate MS...-WP



- For unlubricated compressed air
- Supply pressure can be opened and closed
- To ensure safe venting of the system, an additional quick exhaust valve is necessary at the output of the service unit combination

General technical data		
Type	MSB4	MSB6
Pneumatic connection	G $\frac{1}{4}$	G $\frac{1}{2}$
Grade of filtration [µm]	5 or 40	5 or 40
Pressure regulation range [bar]	0.5 ... 12	0.5 ... 12
Input pressure [bar]		
Manual rotary condensate drain	0.8 ... 14	0.8 ... 18
Fully automatic condensate drain	1.5 ... 12	1.5 ... 12

Standard nominal flow rate		
Type	MSB4	MSB6
Grade of filtration	5 µm	950
	40 µm	1000
		4800
		5100


Ambient conditions		
	Condensate drain	
	manual rotary	fully automatic
Ambient temperature [°C]	-10 ... +60	+5 ... +60
Temperature of medium [°C]	-10 ... +60	+5 ... +60
Storage temperature [°C]	-10 ... +60	-10 ... +60
Corrosion resistance class CRC ¹⁾	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.

Service unit combinations MSB4/MSB6, MS series

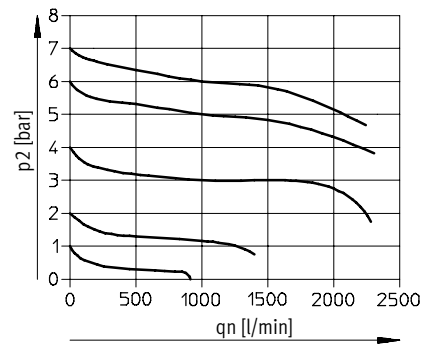
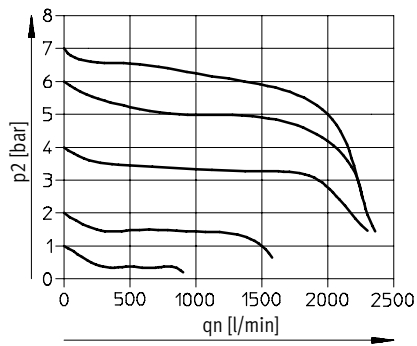
Technical data

Weight [g]	MSB4	MSB6
Service unit combination	1400	1500
Wall mounting plate	40	76

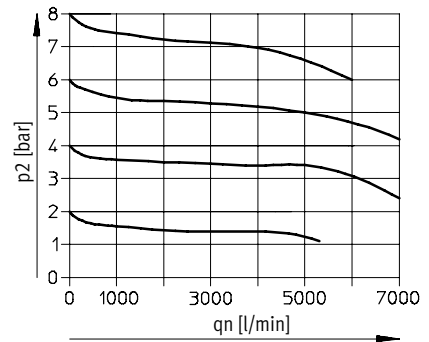
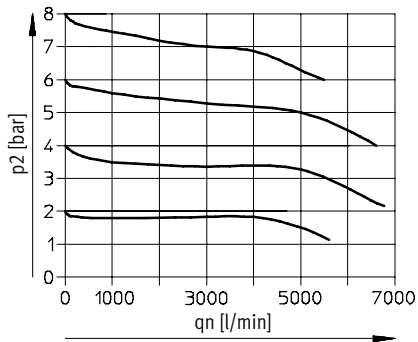
-  - Note
 Materials → Technical data of the individual units

Standard flow rate q_n as a function of the output pressure p_2		
Pressure regulation range	Grade of filtration 5 μm	Grade of filtration 40 μm
0.5 ... 12 bar		

MSB4-1/4



MSB6-1/2



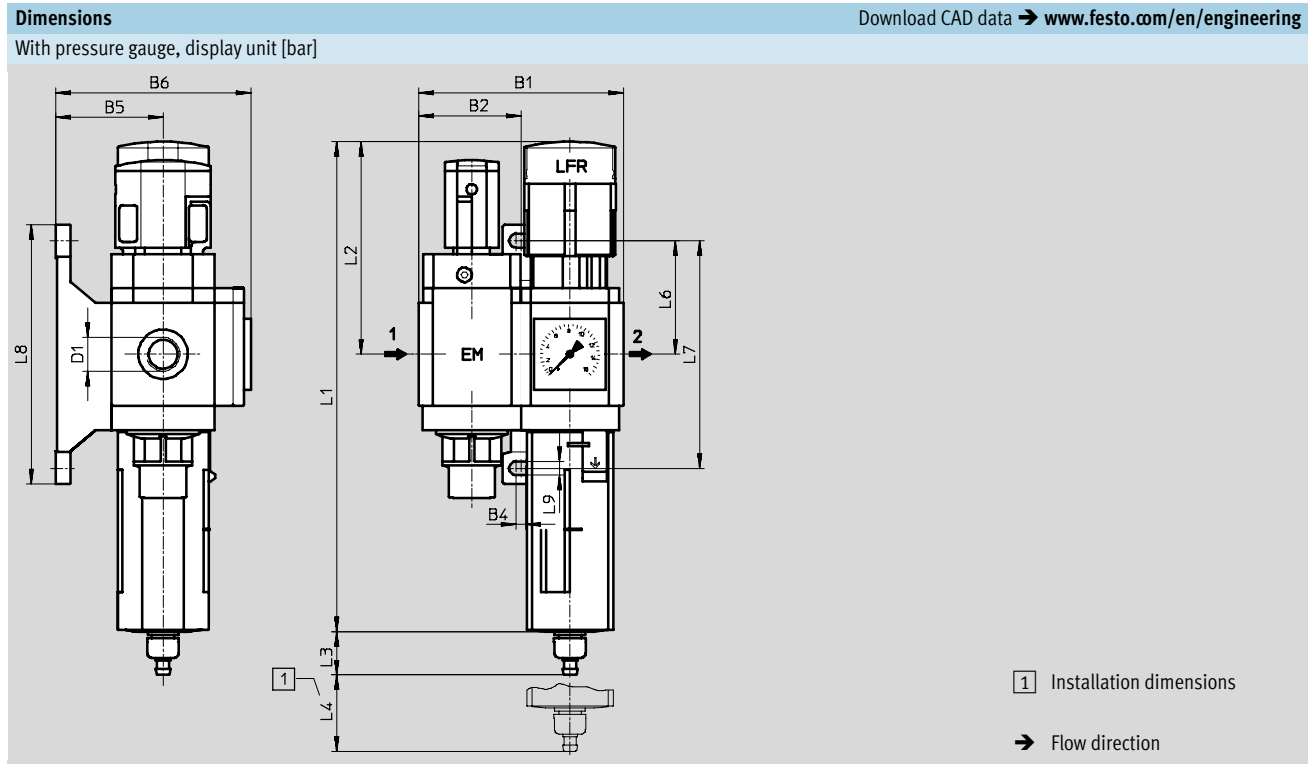
Primary pressure $p_1 = 10$ bar

Service unit combinations MSB4/MSB6, MS series

Technical data

MS4/MS6 series service units
Service units

2.11



Type	B1	B2	B4	B5	B6	D1	L1	L2
MSB4	83.8	41.9	4	44	80	G $\frac{1}{4}$	201	87
MSB6	129	64.5	4.5	54	100	G $\frac{1}{2}$	285	134.5

Type	L3 Condensate drain		L4	L6	L7	L8	L9
	manual rotary	fully automatic					
MSB4	17.7	20.4	25	46.5	93.2	106	5.6
MSB6	15.8	18.5	68	71	142	158	6.6

Service unit combinations MSB4/MSB6, MS series

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Technical data

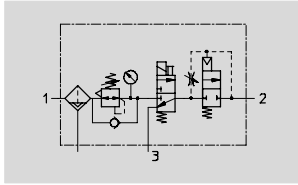
Ordering data						
Pressure regulation range 0.5 ... 12 bar, plastic bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MSB4	G $\frac{1}{4}$	531 073	MSB4- $\frac{1}{4}$:C1J3-WP	531 061	MSB4- $\frac{1}{4}$:C1J1-WP
	MSB6	G $\frac{1}{2}$	530 194	MSB6- $\frac{1}{2}$:C1J3-WP	530 182	MSB6- $\frac{1}{2}$:C1J1-WP
fully automatic	MSB4	G $\frac{1}{4}$	531 079	MSB4- $\frac{1}{4}$:C1J4-WP	531 067	MSB4- $\frac{1}{4}$:C1J2-WP
	MSB6	G $\frac{1}{2}$	530 200	MSB6- $\frac{1}{2}$:C1J4-WP	530 188	MSB6- $\frac{1}{2}$:C1J2-WP




Service unit combinations MSB4/MSB6, MS series

FESTO

Technical data

Function



-  Flow rate
700 ... 3100 l/min
-  Temperature range
-10 ... +60 °C
-  Pressure regulation range
4 ... 12 bar

- Filter regulator MS...-LFR-D7
 - grade of filtration 5 or 40µm
 - plastic bowl guard
 - manual rotary or fully automatic condensate drain
 - lockable standard type rotary knob
 - pressure gauge
- On-off valve MS...-EE-V24
 - solenoid actuated
 - 24 V DC
- Soft-start valve MS...-DL
 - pneumatically actuated
- Wall mounting plate MS...-WP



- For unlubricated compressed air
- Gradual pressure build-up prevents sudden, unpredictable movements
- When supply pressure is closed, quick exhausting ensures rapid pressure reduction

General technical data		
Type	MSB4	MSB6
Pneumatic connection	G1/4	G3/2
Grade of filtration [µm]	5 or 40	5 or 40
Pressure regulation range [bar]	4 ... 12	4 ... 12
Input pressure [bar]		
Manual rotary condensate drain	4.5 ... 14	4.5 ... 18
Fully automatic condensate drain	4.5 ... 12	4.5 ... 12
Supply voltage [V DC]	24	24

Standard nominal flow rate		
Type	MSB4	MSB6
Grade of filtration	5 µm	700
	40 µm	750
		3100


Ambient conditions		
	Condensate drain	
	manual rotary	fully automatic
Ambient temperature [°C]	-10 ... +60	+5 ... +60
Temperature of medium [°C]	-10 ... +60	+5 ... +60
Storage temperature [°C]	-10 ... +60	-10 ... +60
Corrosion resistance class CRC ¹⁾	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.

Service unit combinations MSB4/MSB6, MS series

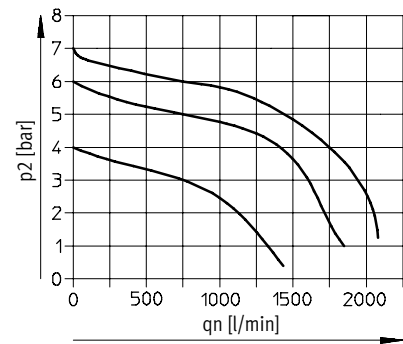
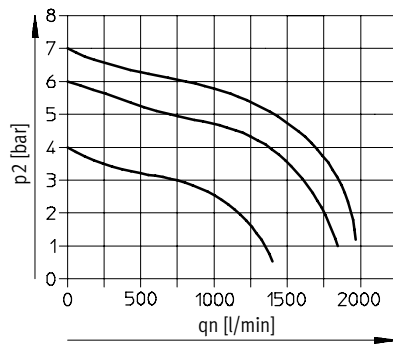
Technical data

Weight [g]	MSB4	MSB6
Service unit combination	1600	2400
Wall mounting plate	40	76

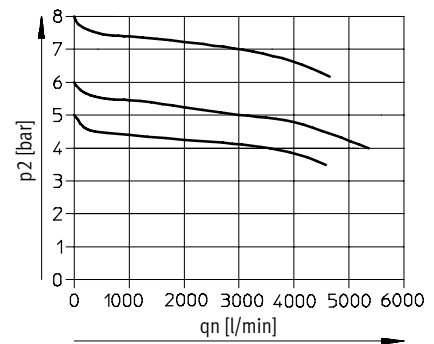
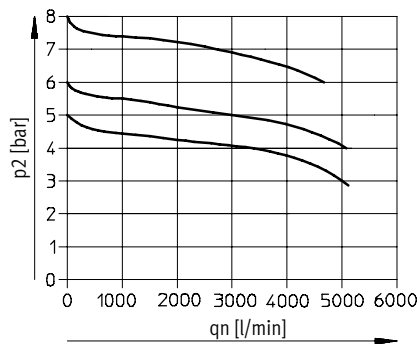
-  - Note
 Materials → Technical data of the individual units

Standard flow rate q_n as a function of the output pressure p_2		
Pressure regulation range	Grade of filtration 5 μm	Grade of filtration 40 μm
4 ... 12 bar		

MSB4-1/4



MSB6-1/2



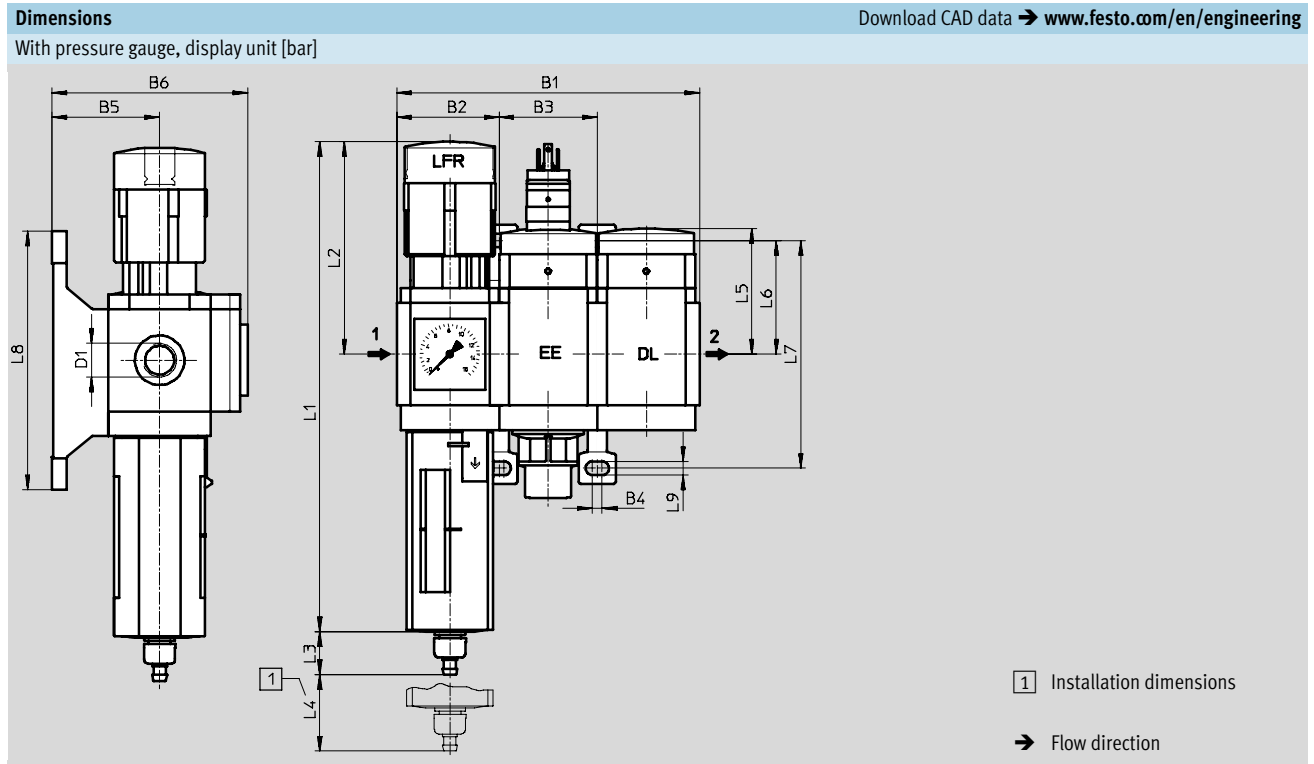
Primary pressure $p_1 = 10$ bar

Service unit combinations MSB4/MSB6, MS series

Technical data

MS4/MS6 series service units
Service units

2.11



Type	B1	B2	B3	B4	B5	B6	D1	L1	L2
MSB4	124	41.9	40.2	4	44	80	G1/4	201	87
MSB6	191	64.5	62	4.5	54	100	G1/2	285	134.5

Type	L3 Condensate drain		L4	L5	L6	L7	L8	L9
	manual rotary	fully automatic						
MSB4	17.7	20.4	25	51.7	46.5	93.2	106	5.6
MSB6	15.8	18.5	68	71	71	142	158	6.6

Service unit combinations MSB4/MSB6, MS series

FESTO

Technical data

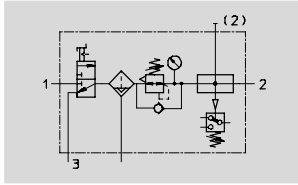
Ordering data						
Pressure regulation range 4 ... 12 bar, plastic bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MSB4	G $\frac{1}{4}$	531 105	MSB4- $\frac{1}{4}$:j3D1A1-WP	531 101	MSB4- $\frac{1}{4}$:j1D1A1-WP
	MSB6	G $\frac{1}{2}$	530 226	MSB6- $\frac{1}{2}$:j3D1A1-WP	530 222	MSB6- $\frac{1}{2}$:j1D1A1-WP
fully automatic	MSB4	G $\frac{1}{4}$	531 107	MSB4- $\frac{1}{4}$:j4D1A1-WP	531 103	MSB4- $\frac{1}{4}$:j2D1A1-WP
	MSB6	G $\frac{1}{2}$	530 228	MSB6- $\frac{1}{2}$:j4D1A1-WP	530 224	MSB6- $\frac{1}{2}$:j2D1A1-WP

Service unit combinations MSB4/MSB6, MS series

FESTO

Technical data

Function



- On-off valve MS...-EM
 - manually actuated
- Filter regulator MS...-LFR-D7
 - grade of filtration 5 or 40µm
 - plastic bowl guard
 - manual rotary or fully automatic condensate drain
 - lockable standard type rotary knob
 - pressure gauge
- Branching module MS...-FRM-Y
 - pressure switch without display
- Wall mounting plate MS...-WP

- Flow rate
1200 ... 1300 l/min
- Temperature range
-10 ... +60 °C
- Pressure regulation range
0.5 ... 12 bar



- For unlubricated compressed air
- Supply pressure can be opened and closed
- Electrical pressure monitoring with adjustable switching pressure
- To ensure safe venting of the system, an additional quick exhaust valve is necessary at the output of the service unit combination

General technical data		
Type	MSB4	MSB6
Pneumatic connection	G1/4	G1/2
Grade of filtration [µm]	5 or 40	5 or 40
Pressure regulation range [bar]	0.5 ... 12	0.5 ... 12
Input pressure [bar]		
Manual rotary condensate drain	0.8 ... 14	0.8 ... 18
Fully automatic condensate drain	1.5 ... 12	1.5 ... 12

Standard nominal flow rate		
Type	MSB4	MSB6
Grade of filtration	5 µm	1250
	40 µm	1300
		4400
		4500


Ambient conditions		
	Condensate drain	
	manual rotary	fully automatic
Ambient temperature [°C]	-10 ... +60	+5 ... +60
Temperature of medium [°C]	-10 ... +60	+5 ... +60
Storage temperature [°C]	-10 ... +60	-10 ... +60
Corrosion resistance class CRC ¹⁾	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.

Service unit combinations MSB4/MSB6, MS series

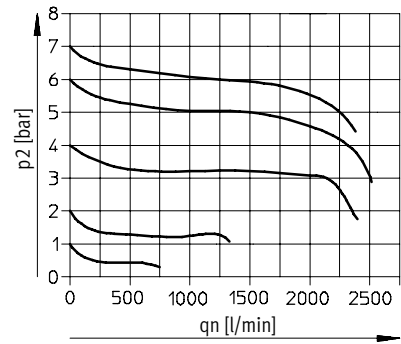
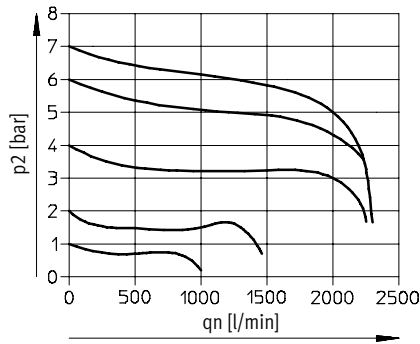
Technical data

Weight [g]	MSB4	MSB6
Service unit combination	1600	2400
Wall mounting plate	40	76

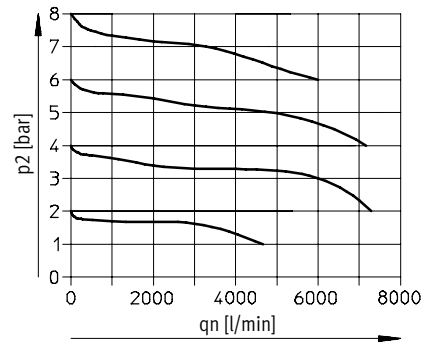
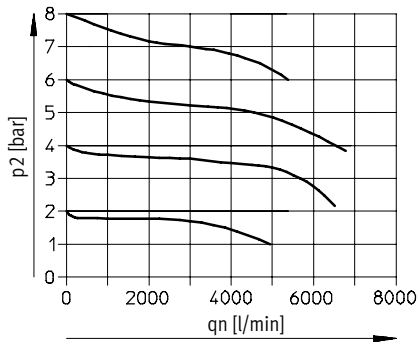
-  - Note
 Materials → Technical data of the individual units

Standard flow rate q_n as a function of the output pressure p_2		
Pressure regulation range	Grade of filtration 5 μm	Grade of filtration 40 μm
0.5 ... 12 bar		

MSB4-1/4



MSB6-1/2



Primary pressure $p_1 = 10$ bar

Service unit combinations MSB4/MSB6, MS series

Technical data

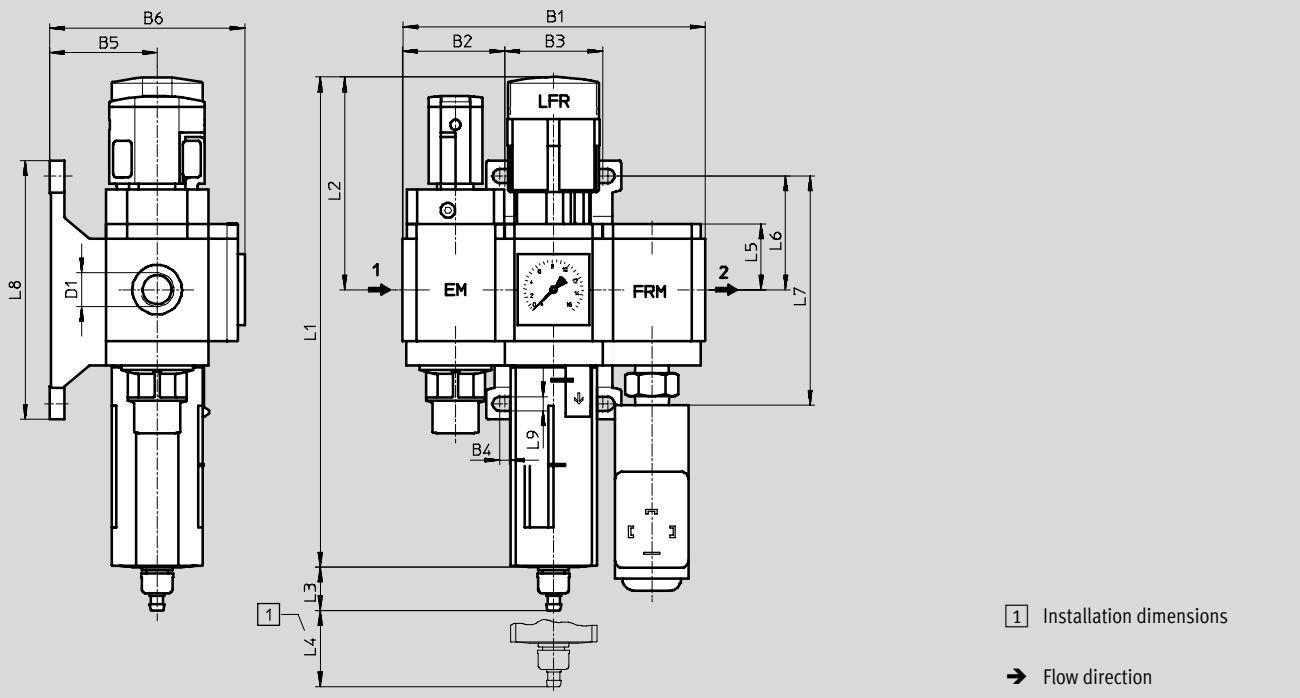
MS4/MS6 series service units
Service units

2.11

Dimensions

Download CAD data → www.festo.com/en/engineering

With pressure gauge, display unit [bar]



1 Installation dimensions

→ Flow direction

Type	B1	B2	B3	B4	B5	B6	D1	L1	L2
MSB4	124	41.9	40.2	4	44	80	G1/4	201	87
MSB6	191	64.5	62	4.5	54	100	G1/2	285	134.5

Type	L3 Condensate drain		L4	L5	L6	L7	L8	L9
	manual rotary	fully automatic						
MSB4	17.7	20.4	25	27	46.5	93.2	106	5.6
MSB6	15.8	18.5	68	39	71	142	158	6.6

Service unit combinations MSB4/MSB6, MS series

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Technical data

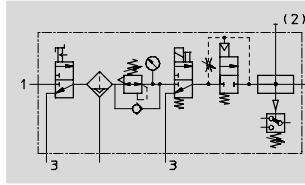
Ordering data						
Pressure regulation range 0.5 ... 12 bar, plastic bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MSB4	G $\frac{1}{4}$	531 075	MSB4- $\frac{1}{4}$:C1J3F3-WP	531 063	MSB4- $\frac{1}{4}$:C1J1F3-WP
	MSB6	G $\frac{1}{2}$	530 196	MSB6- $\frac{1}{2}$:C1J3F3-WP	530 184	MSB6- $\frac{1}{2}$:C1J1F3-WP
fully automatic	MSB4	G $\frac{1}{4}$	531 081	MSB4- $\frac{1}{4}$:C1J4F3-WP	531 069	MSB4- $\frac{1}{4}$:C1J2F3-WP
	MSB6	G $\frac{1}{2}$	530 202	MSB6- $\frac{1}{2}$:C1J4F3-WP	530 190	MSB6- $\frac{1}{2}$:C1J2F3-WP

Service unit combinations MSB4/MSB6, MS series

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Technical data

Function



- Flow rate
700 ... 3100 l/min
- Temperature range
-10 ... +60 °C
- Pressure regulation range
4 ... 12 bar

- On-off valve MS...-EM
 - manually actuated
- Filter regulator MS...-LFR-D7
 - grade of filtration 5 or 40µm
 - plastic bowl guard
 - manual rotary or fully automatic condensate drain
 - lockable standard type rotary knob
 - pressure gauge
- On-off valve MS...-EE-V24
 - solenoid actuated
 - 24 V DC
- Soft-start valve MS...-DL
 - pneumatically actuated
- Branching module MS...-FRM-Y
 - pressure switch without display
- Wall mounting plate MS...-WP



- For unlubricated compressed air
- To ensure safe venting of the system, an additional quick exhaust valve is necessary at the output of the service unit combination
- Gradual pressure build-up prevents sudden, unpredictable movements
- Electrical pressure monitoring with adjustable switching pressure

General technical data		
Type	MSB4	MSB6
Pneumatic connection	G1/4	G1/2
Grade of filtration [µm]	5 or 40	5 or 40
Pressure regulation range [bar]	4 ... 12	4 ... 12
Input pressure [bar]		
Manual rotary condensate drain	4.5 ... 14	4.5 ... 18
Fully automatic condensate drain	4.5 ... 12	4.5 ... 12
Supply voltage [V DC]	24	24

Standard nominal flow rate		
Type	MSB4	MSB6
Grade of filtration	5 µm	700
	40 µm	750
		3100


Ambient conditions		
	Condensate drain	
	manual rotary	fully automatic
Ambient temperature [°C]	-10 ... +60	+5 ... +60
Temperature of medium [°C]	-10 ... +60	+5 ... +60
Storage temperature [°C]	-10 ... +60	-10 ... +60
Corrosion resistance class CRC ¹⁾	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.

Service unit combinations MSB4/MSB6, MS series

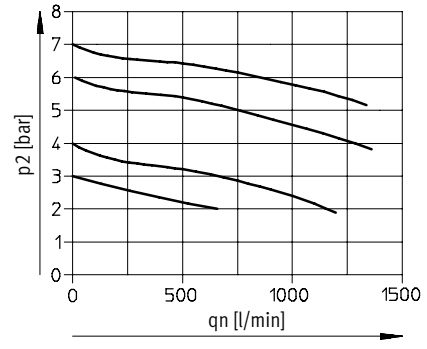
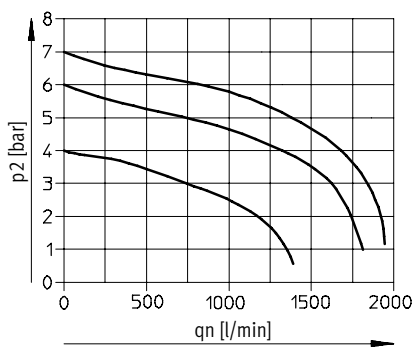
Technical data

Weight [g]	MSB4	MSB6
Service unit combination	2100	3900
Wall mounting plate	40	76

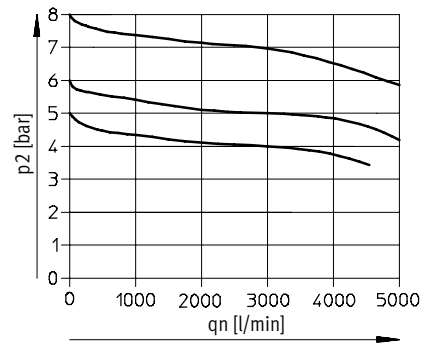
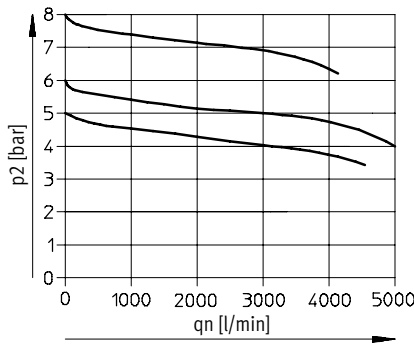
-  - Note
 Materials → Technical data of the individual units

Standard flow rate q_n as a function of the output pressure p_2		
Pressure regulation range	Grade of filtration 5 μm	Grade of filtration 40 μm
4 ... 12 bar		

MSB4-1/4



MSB6-1/2



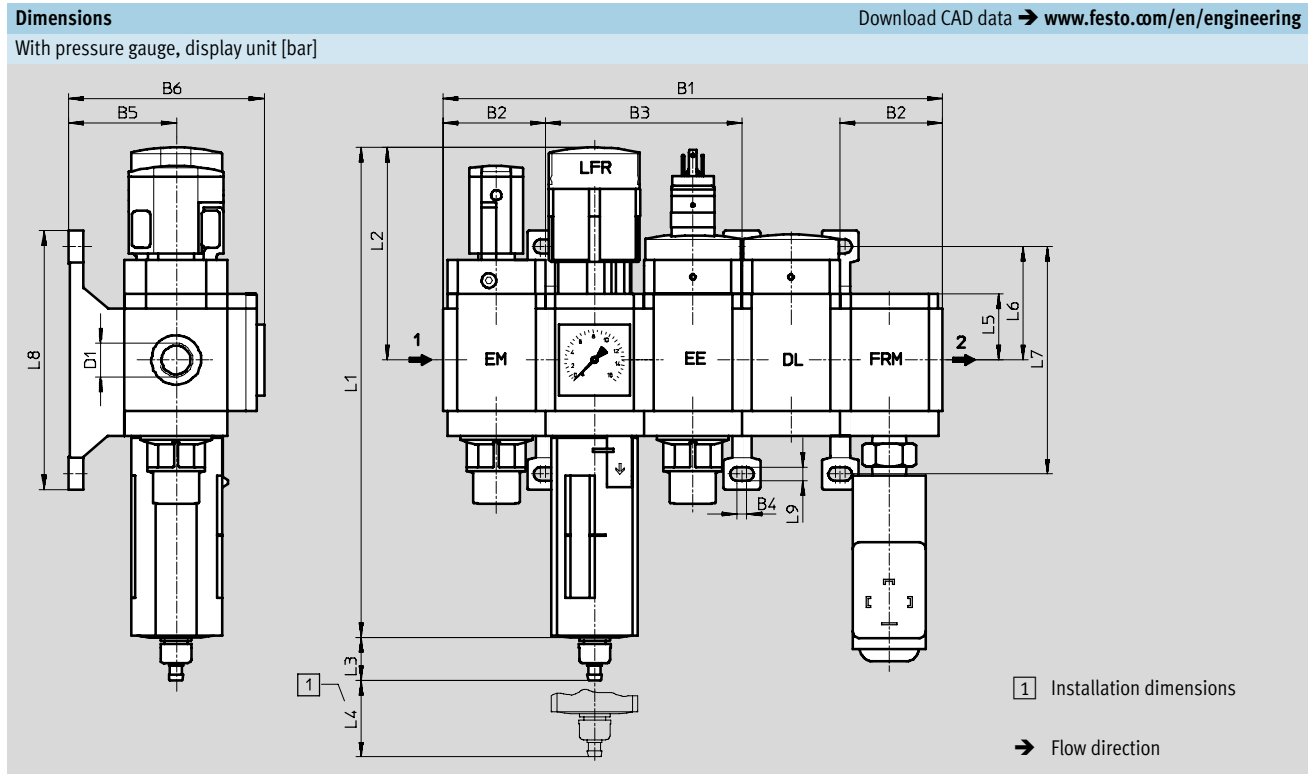
Primary pressure $p_1 = 10 \text{ bar}$

Service unit combinations MSB4/MSB6, MS series

Technical data

MS4/MS6 series service units
Service units

2.11



Type	B1	B2	B3	B4	B5	B6	D1	L1	L2
MSB4	204.4	41.9	80.4	4	44	80	G $\frac{1}{4}$	201	87
MSB6	315	64.5	124	4.5	54	100	G $\frac{1}{2}$	285	134.5

Type	L3 Condensate drain		L4	L5	L6	L7	L8	L9
	manual rotary	fully automatic						
MSB4	17.7	20.4	25	27	46.5	93.2	106	5.6
MSB6	15.8	18.5	68	39	71	142	158	6.6

Service unit combinations MSB4/MSB6, MS series

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Technical data

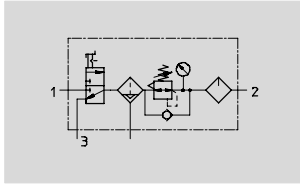
Ordering data						
Pressure regulation range 4 ... 12 bar, plastic bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MSB4	G $\frac{1}{4}$	531 074	MSB4- $\frac{1}{4}$:C1J3D1A1F3-WP	531 062	MSB4- $\frac{1}{4}$:C1J1D1A1F3-WP
	MSB6	G $\frac{1}{2}$	530 195	MSB6- $\frac{1}{2}$:C1J3D1A1F3-WP	530 183	MSB6- $\frac{1}{2}$:C1J1D1A1F3-WP
fully automatic	MSB4	G $\frac{1}{4}$	531 080	MSB4- $\frac{1}{4}$:C1J4D1A1F3-WP	531 068	MSB4- $\frac{1}{4}$:C1J2D1A1F3-WP
	MSB6	G $\frac{1}{2}$	530 201	MSB6- $\frac{1}{2}$:C1J4D1A1F3-WP	530 189	MSB6- $\frac{1}{2}$:C1J2D1A1F3-WP

Service unit combinations MSB4/MSB6, MS series

FESTO

Technical data

Function



- Flow rate
700 ... 3100 l/min
- Temperature range
-10 ... +60 °C
- Pressure regulation range
1 ... 12 bar

- On-off valve MS...-EM
 - manually actuated
- Filter regulator MS...-LFR-D7
 - grade of filtration 5 or 40µm
 - plastic bowl guard
 - manual rotary or fully automatic condensate drain
 - lockable standard type rotary knob
 - pressure gauge
- Lubricator MS...-LOE-R
 - plastic bowl guard
- Wall mounting plate MS...-WP



- For lubricated and unlubricated compressed air
- Supply pressure can be opened and closed
- To ensure safe venting of the system, an additional quick exhaust valve is necessary at the output of the service unit combination

General technical data		
Type	MSB4	MSB6
Pneumatic connection	G1/4	G1/2
Grade of filtration [µm]	5 or 40	5 or 40
Pressure regulation range [bar]	1 ... 12	1 ... 12
Input pressure [bar]		
Manual rotary condensate drain	1.5 ... 14	1.5 ... 18
Fully automatic condensate drain	1.5 ... 12	1.5 ... 12

Standard nominal flow rate		
Type	MSB4	MSB6
Grade of filtration	5 µm	700
	40 µm	750
		3000
		3100


Ambient conditions		
	Condensate drain	
	manual rotary	fully automatic
Ambient temperature [°C]	-10 ... +60	+5 ... +60
Temperature of medium [°C]	-10 ... +60	+5 ... +60
Storage temperature [°C]	-10 ... +60	-10 ... +60
Corrosion resistance class CRC ¹⁾	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.

Service unit combinations MSB4/MSB6, MS series

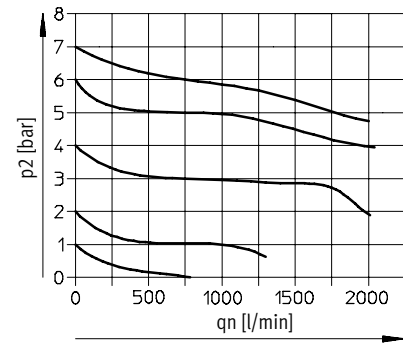
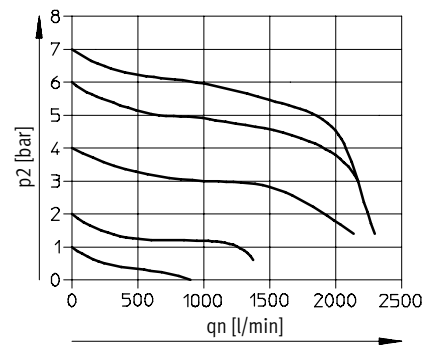
Technical data

Weight [g]	MSB4	MSB6
Service unit combination	1600	2150
Wall mounting plate	40	76

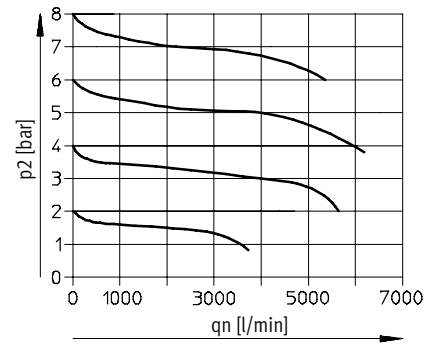
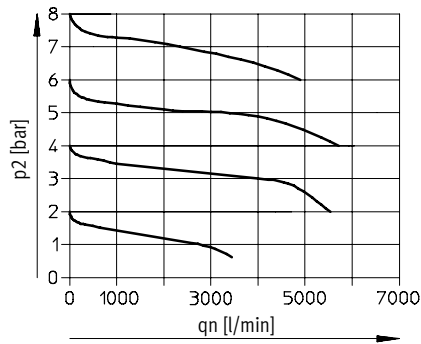
-  - Note
 Materials → Technical data of the individual units

Standard flow rate q_n as a function of the output pressure p_2		
Pressure regulation range	Grade of filtration 5 μm	Grade of filtration 40 μm
1 ... 12 bar		

MSB4-1/4



MSB6-1/2



Primary pressure $p_1 = 10$ bar

Service unit combinations MSB4/MSB6, MS series

Technical data

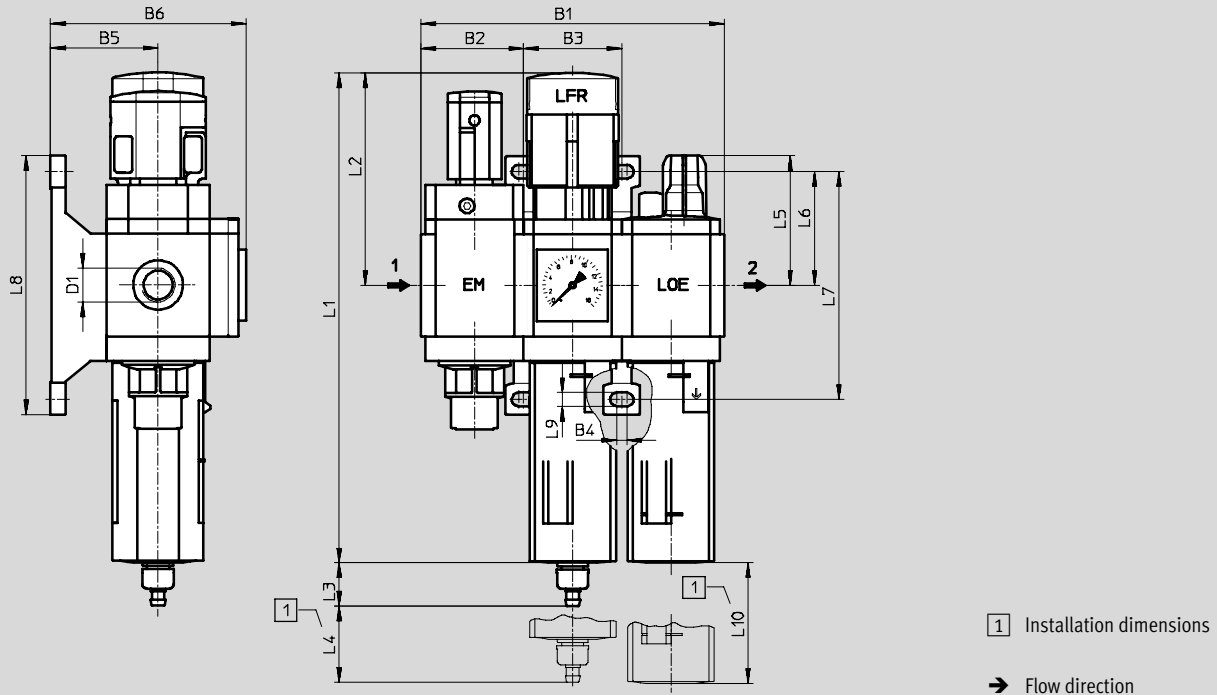
MS4/MS6 series service units
Service units

2.11

Dimensions

Download CAD data → www.festo.com/en/engineering

With pressure gauge, display unit [bar]



Type	B1	B2	B3	B4	B5	B6	D1	L1	L2
MSB4	124	41.9	40.2	4	44	80	G1/4	201	87
MSB6	191	64.5	62	4.5	54	100	G1/2	285	134.5

Type	L3 Condensate drain		L4	L5	L6	L7	L8	L9	L10
	manual rotary	fully automatic							
MSB4	17.7	20.4	25	53	46.5	93.2	106	5.6	80
MSB6	15.8	18.5	68	66	71	142	158	6.6	130

Service unit combinations MSB4/MSB6, MS series

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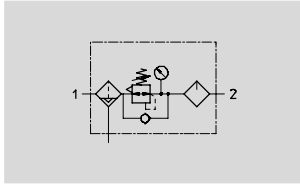
Technical data

Ordering data						
Pressure regulation range 1 ... 12 bar, plastic bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MSB4	G $\frac{1}{4}$	531 077	MSB4- $\frac{1}{4}$:C1J3M1-WP	531 065	MSB4- $\frac{1}{4}$:C1J1M1-WP
	MSB6	G $\frac{1}{2}$	530 198	MSB6- $\frac{1}{2}$:C1J3M1-WP	530 186	MSB6- $\frac{1}{2}$:C1J1M1-WP
fully automatic	MSB4	G $\frac{1}{4}$	531 083	MSB4- $\frac{1}{4}$:C1J4M1-WP	531 071	MSB4- $\frac{1}{4}$:C1J2M1-WP
	MSB6	G $\frac{1}{2}$	530 204	MSB6- $\frac{1}{2}$:C1J4M1-WP	530 192	MSB6- $\frac{1}{2}$:C1J2M1-WP

Service unit combinations MSB4/MSB6, MS series

Technical data

Function



- - Flow rate
700 ... 4700 l/min
- - Temperature range
-10 ... +60 °C
- - Pressure regulation range
1 ... 12 bar

- Filter MS...-LF
 - grade of filtration 5 or 40 µm
 - plastic bowl guard or metal bowl
 - manual rotary or fully automatic condensate drain
- Pressure regulator MS...-LR
 - pressure regulation range
1 ... 7 bar or 1 ... 12 bar
 - lockable standard type rotary knob
- Lubricator MS...-LOE
 - plastic bowl guard or metal bowl
- Wall mounting plate MS...-WP



- For lubricated and unlubricated compressed air
- Supply pressure can be opened and closed

General technical data		
Type	MSB4	MSB6
Pneumatic connection	G $\frac{1}{4}$	G $\frac{1}{2}$
Grade of filtration [µm]	5 or 40	5 or 40
Pressure regulation range [bar]		
N2	1 ... 7	1 ... 7
N3	1 ... 12	1 ... 12
Input pressure [bar]		
Manual rotary condensate drain	1.5 ... 14	1.5 ... 18
Fully automatic condensate drain	1.5 ... 12	1.5 ... 12

Standard nominal flow rate		
Type	MSB4	MSB6
N2 – Pressure regulation range 1 ... 7 bar		
Grade of filtration 40 µm	1300	4700
N3 – Pressure regulation range 1 ... 12 bar		
Grade of filtration 5 µm	700	3500
Grade of filtration 40 µm	800	3500


Ambient conditions		
	Condensate drain	
	manual rotary	fully automatic
Ambient temperature [°C]	-10 ... +60	+5 ... +60
Corrosion resistance class CRC ¹⁾	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.

Service unit combinations MSB4/MSB6, MS series

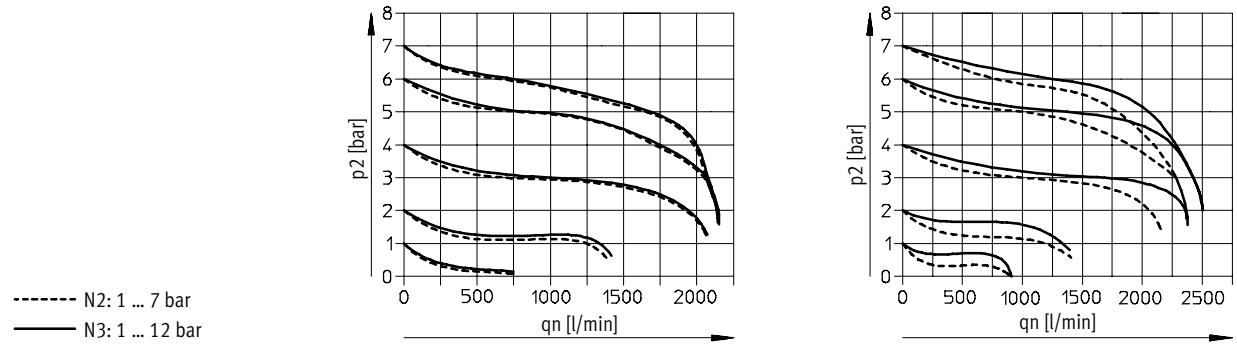
Technical data

Weight [g]		
	MSB4	MSB6
Service unit combination		
With plastic bowl guard	1000	2000
With metal bowl	-	2400
Wall mounting plate		
	40	76

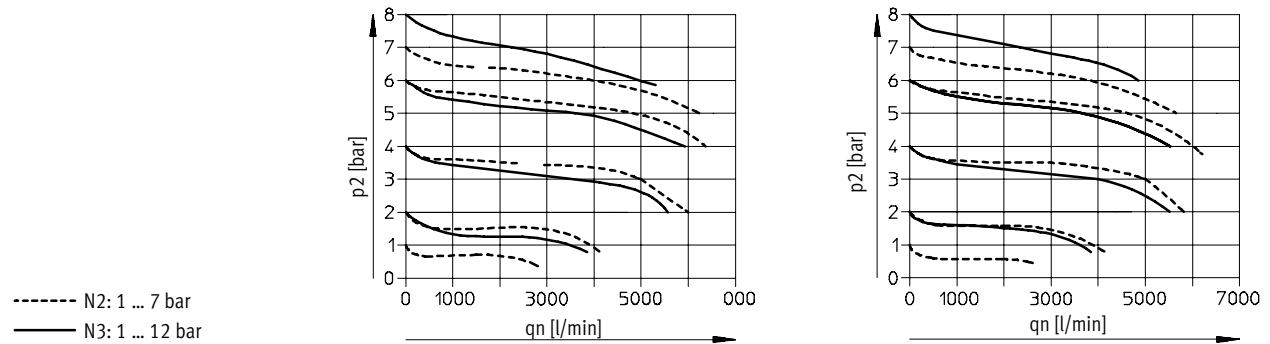
-  - Note
 Materials → Technical data of the individual units

Standard flow rate qn as a function of the output pressure p2
 Pressure regulation range N2 or N3 Grade of filtration 5 µm Grade of filtration 40 µm

MSB4-1/4



MSB6-1/2



Primary pressure p1 = 10 bar

Service unit combinations MSB4/MSB6, MS series

Technical data

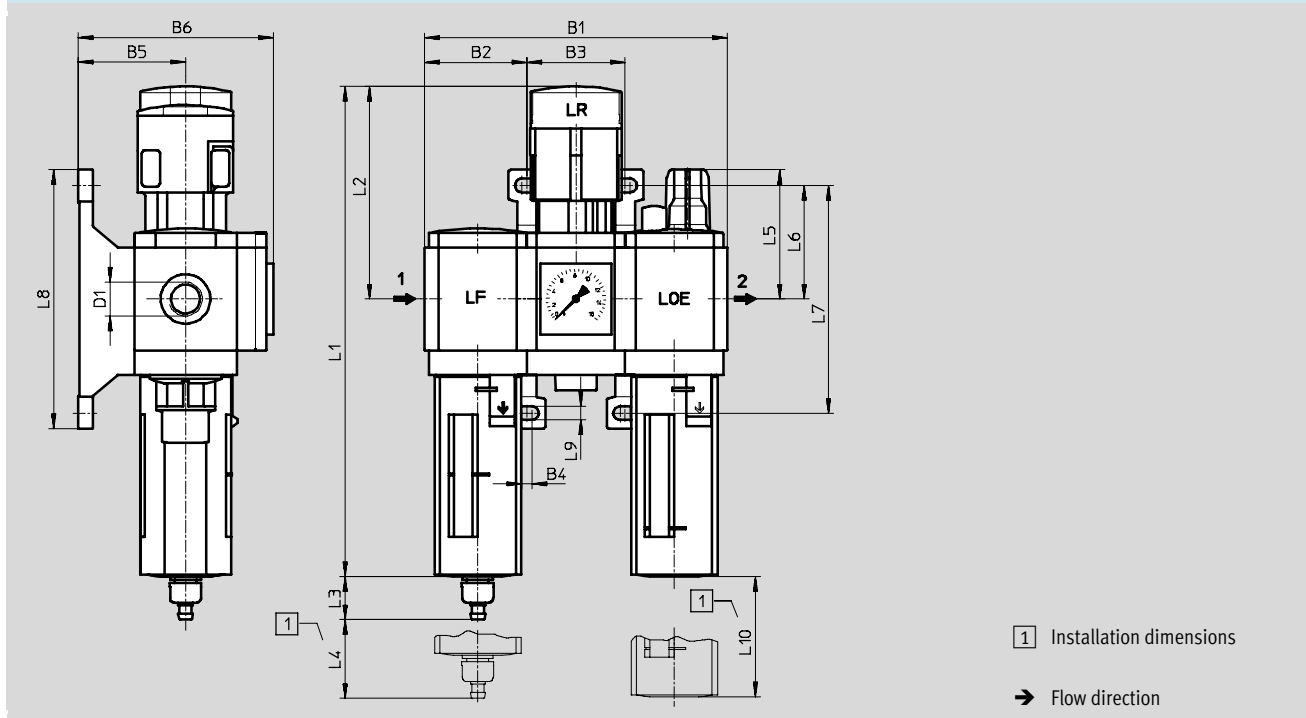
MS4/MS6 series service units
Service units

2.11

Dimensions

Download CAD data → www.festo.com/en/engineering

With pressure gauge, display unit [bar]



1 Installation dimensions

→ Flow direction

Type	B1	B2	B3	B4	B5	B6	D1	L1	L2
MSB4	124	41.9	40.2	4	44	80	G1/4	201	87
MSB6	191	64.5	62	4.5	54	100	G1/2	285	134.5

Type	L3 Condensate drain		L4	L5	L6	L7	L8	L9	L10
	manual rotary	fully automatic							
MSB4	17.7	20.4	25	53	46.5	93.2	106	5.6	80
MSB6	15.8	18.5	68	66	71	142	158	6.6	130

Service unit combinations MSB4/MSB6, MS series

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Technical data

Ordering data				
Pressure regulation range 1 ... 7 bar, plastic bowl guard				
Condensate drain	Size	Connection	Grade of filtration 40 µm	
			Part No.	Type
Flow direction from left to right				
manual rotary	MSB4	G $\frac{1}{4}$	531 091	MSB4- $\frac{1}{4}$:H2N2M1-WP
	MSB6	G $\frac{1}{2}$	530 212	MSB6- $\frac{1}{2}$:H2N2M1-WP
fully automatic	MSB4	G $\frac{1}{4}$	531 085	MSB4- $\frac{1}{4}$:H1N2M1-WP
	MSB6	G $\frac{1}{2}$	530 206	MSB6- $\frac{1}{2}$:H1N2M1-WP
Flow direction from right to left				
manual rotary	MSB4	G $\frac{1}{4}$	531 092	MSB4- $\frac{1}{4}$:H2N2M1-WP-Z
	MSB6	G $\frac{1}{2}$	530 213	MSB6- $\frac{1}{2}$:H2N2M1-WP-Z
fully automatic	MSB4	G $\frac{1}{4}$	531 086	MSB4- $\frac{1}{4}$:H1N2M1-WP-Z
	MSB6	G $\frac{1}{2}$	530 207	MSB6- $\frac{1}{2}$:H1N2M1-WP-Z

Ordering data						
Pressure regulation range 1 ... 12 bar, plastic bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MSB4	G $\frac{1}{4}$	531 097	MSB4- $\frac{1}{4}$:H3N3M1-WP	531 093	MSB4- $\frac{1}{4}$:H2N3M1-WP
	MSB6	G $\frac{1}{2}$	530 218	MSB6- $\frac{1}{2}$:H3N3M1-WP	530 214	MSB6- $\frac{1}{2}$:H2N3M1-WP
fully automatic	MSB4	G $\frac{1}{4}$	531 099	MSB4- $\frac{1}{4}$:H4N3M1-WP	531 087	MSB4- $\frac{1}{4}$:H1N3M1-WP
	MSB6	G $\frac{1}{2}$	530 220	MSB6- $\frac{1}{2}$:H4N3M1-WP	530 208	MSB6- $\frac{1}{2}$:H1N3M1-WP
Flow direction from right to left						
manual rotary	MSB4	G $\frac{1}{4}$	531 098	MSB4- $\frac{1}{4}$:H3N3M1-WP-Z	531 094	MSB4- $\frac{1}{4}$:H2N3M1-WP-Z
	MSB6	G $\frac{1}{2}$	530 219	MSB6- $\frac{1}{2}$:H3N3M1-WP-Z	530 215	MSB6- $\frac{1}{2}$:H2N3M1-WP-Z
fully automatic	MSB4	G $\frac{1}{4}$	531 100	MSB4- $\frac{1}{4}$:H4N3M1-WP-Z	531 088	MSB4- $\frac{1}{4}$:H1N3M1-WP-Z
	MSB6	G $\frac{1}{2}$	530 221	MSB6- $\frac{1}{2}$:H4N3M1-WP-Z	530 209	MSB6- $\frac{1}{2}$:H1N3M1-WP-Z

Ordering data				
Pressure regulation range 1 ... 12 bar, metal bowl				
Condensate drain	Size	Connection	Grade of filtration 40 µm	
			Part No.	Type
Flow direction from left to right				
manual rotary	MSB4	G $\frac{1}{4}$	531 095	MSB4- $\frac{1}{4}$:H8N3M2-WP
	MSB6	G $\frac{1}{2}$	530 216	MSB6- $\frac{1}{2}$:H8N3M2-WP
fully automatic	MSB4	G $\frac{1}{4}$	531 089	MSB4- $\frac{1}{4}$:H7N3M2-WP
	MSB6	G $\frac{1}{2}$	530 210	MSB6- $\frac{1}{2}$:H7N3M2-WP
Flow direction from right to left				
manual rotary	MSB4	G $\frac{1}{4}$	531 096	MSB4- $\frac{1}{4}$:H8N3M2-WP-Z
	MSB6	G $\frac{1}{2}$	530 217	MSB6- $\frac{1}{2}$:H8N3M2-WP-Z
fully automatic	MSB4	G $\frac{1}{4}$	531 090	MSB4- $\frac{1}{4}$:H7N3M2-WP-Z
	MSB6	G $\frac{1}{2}$	530 211	MSB6- $\frac{1}{2}$:H7N3M2-WP-Z

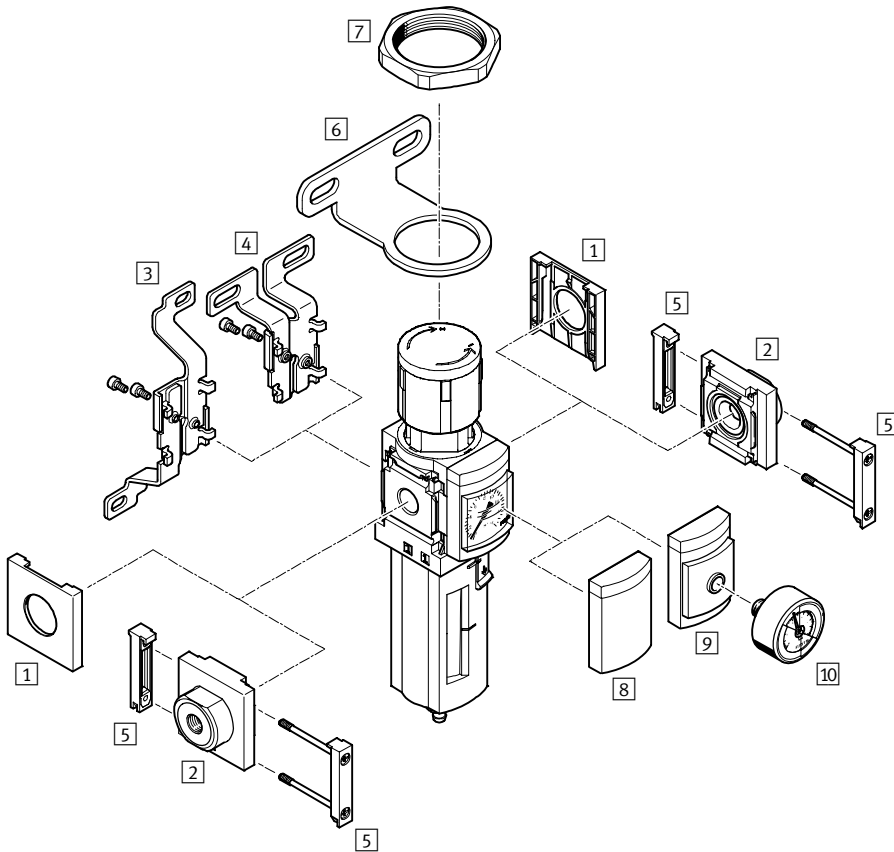
Filter regulators MS4/MS6-LFR, MS series

Peripherals overview

FESTO

MS4/MS6 series service units
Filter regulators

2.12



Mounting attachments and accessories						
	Individual unit		Combination → 3/2.11-10		→ Page	
	without connecting plate	with connecting plate	without connecting plate	with connecting plate		
1	Cover cap MS4/6-END	■	-	■	-	3/2.31-3
2	Connecting plate MS4/6-AG...	-	■	-	■	3/2.31-0
3	Wall mounting bracket MS4/6-WB	■	■	-	-	3/2.31-1
4	Wall mounting bracket MS4-WBM	■	■	-	-	3/2.31-1
5	Module connector MS4/6-MV	-	■	■	■	3/2.31-3
6	Regulator wall bracket MS4/6-WR	■	■	-	-	3/2.31-2
7	Hex nut MS4/6-WRS	■	■	■	■	3/2.31-2
8	Cover plate VS	■	■	■	■	3/2.12-12
9	Adapter for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	3/2.12-12
10	Pressure gauge MA	■	■	■	■	3/2.31-8
-	Wall mounting plate MS4/6-WP	-	■	■	■	3/2.31-5
-	Wall mounting plate MS4/6-WPM	-	■	■	■	3/2.31-6

Filter regulators MS4/MS6-LFR, MS series

Type codes

MS 6 - LFR - 1/2 - D7 - E R M - AS - Z

Basic function

MS	Standard service unit
----	-----------------------

Size

4	Grid dimension 40 mm
6	Grid dimension 62 mm

Service function

LFR	Filter regulator
-----	------------------

Pneumatic connection

1/8	Thread G1/8
1/4	Thread G1/4
3/8	Thread G3/8
1/2	Thread G1/2

Pressure regulation range

D6	Pressure regulation range 0.3 ... 7 bar
D7	Pressure regulation range 0.5 ... 12 bar

Grade of filtration

C	5 µm
E	40 µm

Bowl guard

R	Plastic bowl guard
U	Metal bowl

Condensate drain

M	Manual rotary
V	Fully automatic

Actuator lock

AS	Lockable standard type rotary knob
----	------------------------------------

Alternative flow direction

	Flow direction from left to right
Z	Flow direction from right to left

Further variants can be ordered using the modular system

Filter regulators LFR

→ 3/2.12-12


- Connecting plates
- Pressure regulation range
- Condensate drain
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Rotary knob
- Type of mounting

Filter regulators MS4/MS6-LFR, MS series


Technical data

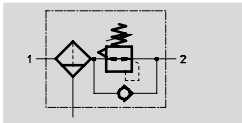
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Function

-  - Flow rate
850 ... 7200 l/min

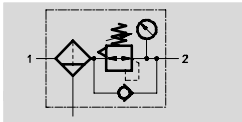
Condensate drain
manual rotary
without pressure gauge

-  - Temperature range
-10 ... +60 °C

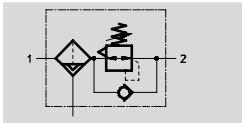


-  - Input pressure
0.8 ... 20 bar

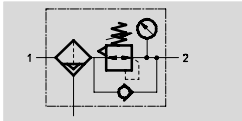
with pressure gauge



Condensate drain
semi- or fully automatic
without pressure gauge



with pressure gauge



With this device, the filter and pressure regulator are combined into a single unit. The sintered filter with water separator removes contamination, pipe sinter, rust and condensate from the compressed air.



- Good control characteristics with low hysteresis and primary pressure compensation
- Good particle and condensate separation
- High flow rates
- Choice of filter cartridges: 5 µm or 40 µm
- Available with manual, semi-automatic, fully automatic or fully automatic, electrically actuated condensate drain
- Directly actuated diaphragm regulator
- Available with or without secondary venting
- Setting values are secured by locking the rotary knob
- Lockable rotary knob
- Four pressure regulation ranges: 0.3 ... 4 bar, 0.3 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Two pressure gauge connections for different fitting options
- Return flow option for exhausting from output 2 to output 1

MS4/MS6 series service units
Filter regulators

2.12

General technical data					
	MS4		MS6		
Pneumatic connection 1	G3/8	G1/4	G1/4	G3/8	G1/2
Pneumatic connection 2	G3/8	G1/4	G1/4	G3/8	G1/2
Operating medium	Compressed air				
Design	Filter regulator with pressure gauge				
Type of mounting	Via accessories In-line installation Front panel mounting				
Assembly position	Vertical ±5°				
Grade of filtration [µm]	5 or 40		5 or 40		
Max. hysteresis [bar]	0.25		0.25		
Air purity class at the output					
Grade of filtration	5 µm	3.7.- to DIN ISO 8573-1			
	40 µm	5.7.- to DIN ISO 8573-1			
Max. condensate volume [cm³]					
Plastic bowl guard	19		38		
Metal bowl	25		38		

Filter regulators MS4/MS6-LFR, MS series

FESTO

Technical data

Input pressure and pressure regulation range [bar]			
		MS4	MS6
Input pressure			
Condensate drain	manual rotary	0.8 ... 14	0.8 ... 20
	semi-automatic	1.5 ... 12	1.5 ... 12
	fully automatic	2 ... 12	2 ... 12
	fully automatic, electrical	–	0.8 ... 16
Pressure regulation range			
D5		0.3 ... 4	0.3 ... 4
D6		0.3 ... 7	0.3 ... 7
D7		0.5 ... 12	0.5 ... 12
D8		–	0.5 ... 16

Standard nominal flow rate q _n [l/min] ¹⁾						
		MS4		MS6		
		G ¹ / ₈	G ¹ / ₄	G ¹ / ₄	G ³ / ₈	G ¹ / ₂
D5 – Pressure regulation range 0.3 ... 4 bar						
Grade of filtration	5 µm	900 ²⁾	1800 ²⁾	2000 ²⁾	5500 ²⁾	6900 ²⁾
	40 µm	1100 ²⁾	1900 ²⁾	2200 ²⁾	6000 ²⁾	7200 ²⁾
D6 – Pressure regulation range 0.3 ... 7 bar						
Grade of filtration	5 µm	900	1500	2700	5000	5600
	40 µm	1000	1700	2800	5700	6200
D7 – Pressure regulation range 0.5 ... 12 bar						
Grade of filtration	5 µm	850	1200	2200	3500	4000
	40 µm	900	1500	2500	4000	4500
D8 – Pressure regulation range 0.5 ... 16 bar						
Grade of filtration	5 µm	–	–	2000	3300	3800
	40 µm	–	–	2300	3500	4000

1) measured at p₁ = 10 bar and p₂ = 6 bar, Δp = 1 bar

2) measured at p₁ = 10 bar and p₂ = 3 bar, Δp = 1 bar

Ambient conditions				
		Condensate drain		
		manual rotary	semi- or fully automatic	fully automatic, electrical
Ambient temperature	[°C]	–10 ... +60	+5 ... +60	+1 ... +60
Temperature of medium	[°C]	–10 ... +60	+5 ... +60	+1 ... +60
Storage temperature	[°C]	–10 ... +60	–10 ... +60	+1 ... +60
Corrosion resistance class	CRC ¹⁾	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.

Weight [g]		
	MS4	MS6
With plastic bowl guard	275	875
With metal bowl	475	1087
With metal bowl and fully automatic, electrically actuated condensate drain	–	1800

MS4/MS6 series service units
Filter regulators

2.12

Filter regulators MS4/MS6-LFR, MS series

Technical data

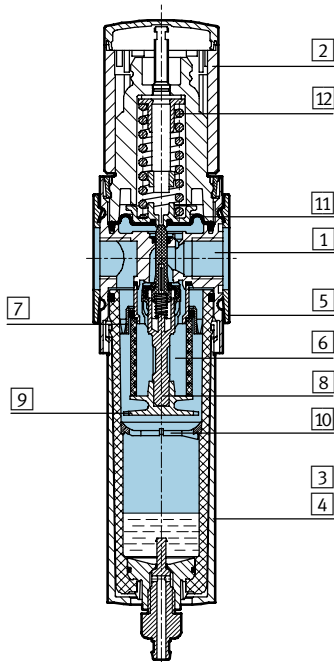
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MS4/MS6 series service units
Filter regulators

2.12

Materials

Sectional view



Filter regulator

1	Body	Die-cast aluminium
2	Regulating knob	Polyamide/polyacetate
3	Plastic bowl guard	Polycarbonate/polyamide
4	Metal bowl Window shield	Aluminium Polyamide
5	Cover plates	Polyamide
6	Filter element	Polyethylene
7	Spin disc	Polyacetate
8	Filter holder	Polyacetate
9	Separating plate	Polyacetate
10	Stabilising disc	Polyacetate
11	Diaphragm	Nitrile rubber
12	Spring	Steel
-	Seals	Nitrile rubber
Note on materials		Free of copper, PTFE and silicone only with cover plate VS

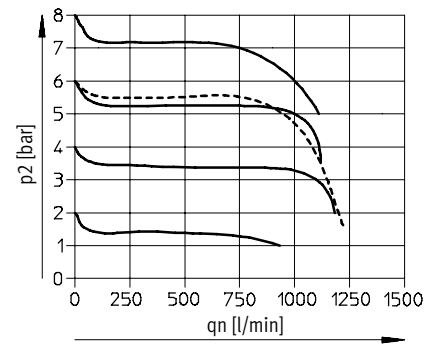
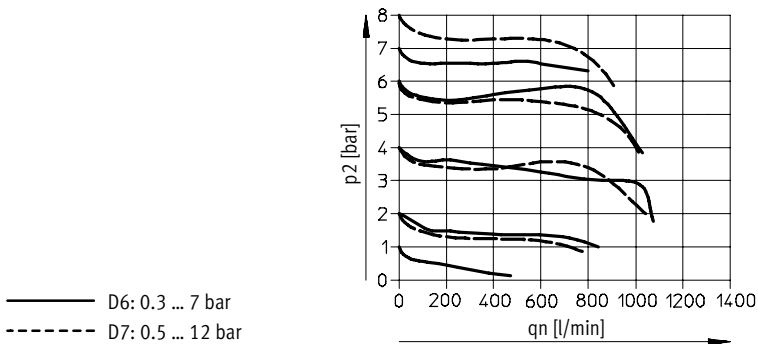
Standard flow rate q_n as a function of the output pressure p_2

Pressure regulation range D6 or D7

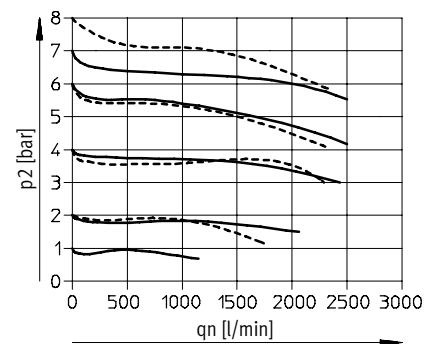
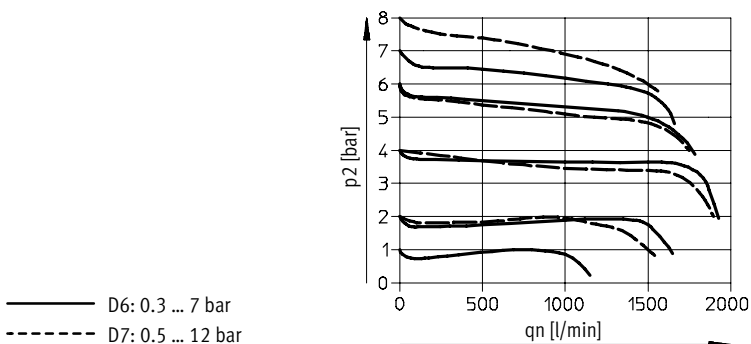
Grade of filtration 5 μm

Grade of filtration 40 μm

MS4-LFR-1/8



MS4-LFR-1/4



Primary pressure $p_1 = 10$ bar

Filter regulators MS4/MS6-LFR, MS series

Technical data

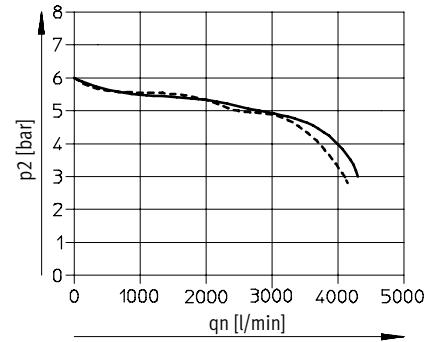
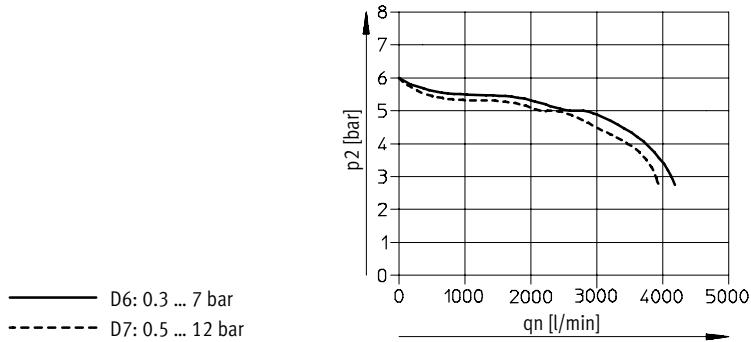
Standard flow rate q_n as a function of the output pressure p_2

Pressure regulation range D6 or D7

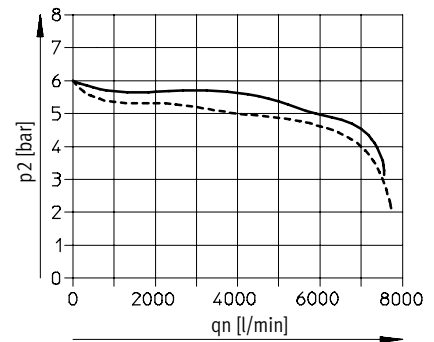
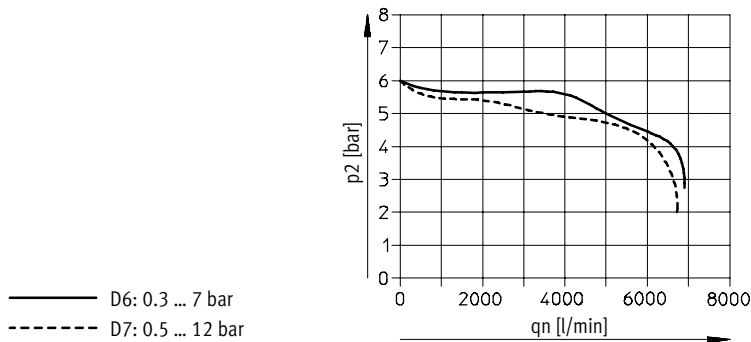
Grade of filtration 5 μm

Grade of filtration 40 μm

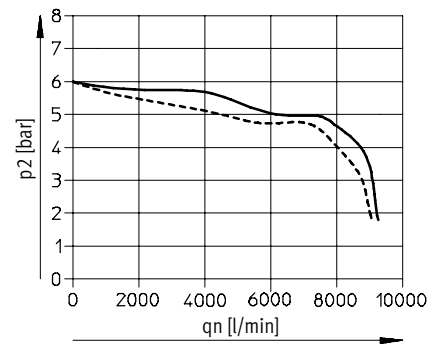
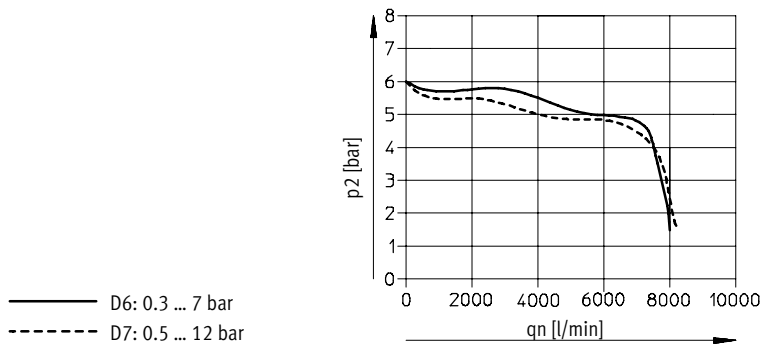
MS6-LFR-1/4



MS6-LFR-3/8



MS6-LFR-1/2



Primary pressure $p_1 = 10 \text{ bar}$

Filter regulators MS4/MS6-LFR, MS series

Technical data



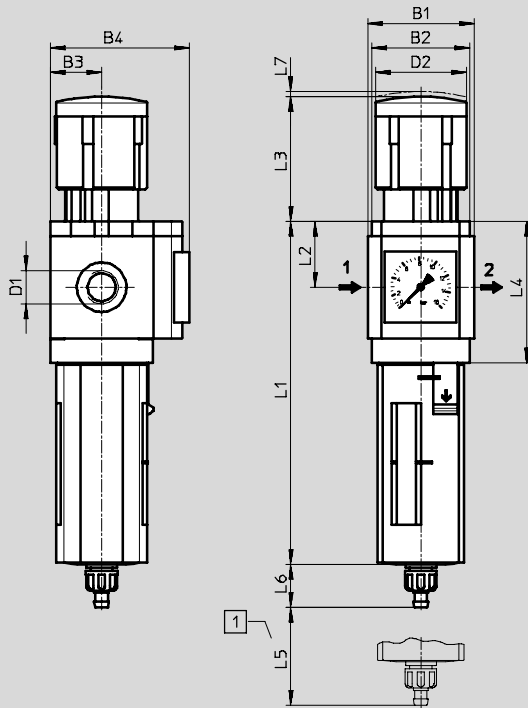
MS4/MS6 series service units
Filter regulators

2.12

Dimensions – Standard

Download CAD data → www.festo.com/en/engineering

With pressure gauge, display unit [bar], manual rotary condensate drain



1 Installation dimensions

→ Flow direction

Type	B1 ¹⁾	B2	B3	B4	D1	D2	L1		L2	L3	L4	L5	L6		L7
							Bowl guard						plastic	metal	
							plastic	metal							
MS4-LFR-1/8	43.6	40.2	21	57	G1/8	37.2	140.6	158.2	27	51.1	58.5	25	17.7	17.7	2
MS4-LFR-1/4					G1/4										
MS6-LFR-1/4	67	62	31	77	G1/4	51	189	194.4	39	86	84	68	15.8	19	5
MS6-LFR-3/8					G3/8										
MS6-LFR-1/2					G1/2										

1) With accessory cover cap MS...-END

Filter regulators MS4/MS6-LFR, MS series

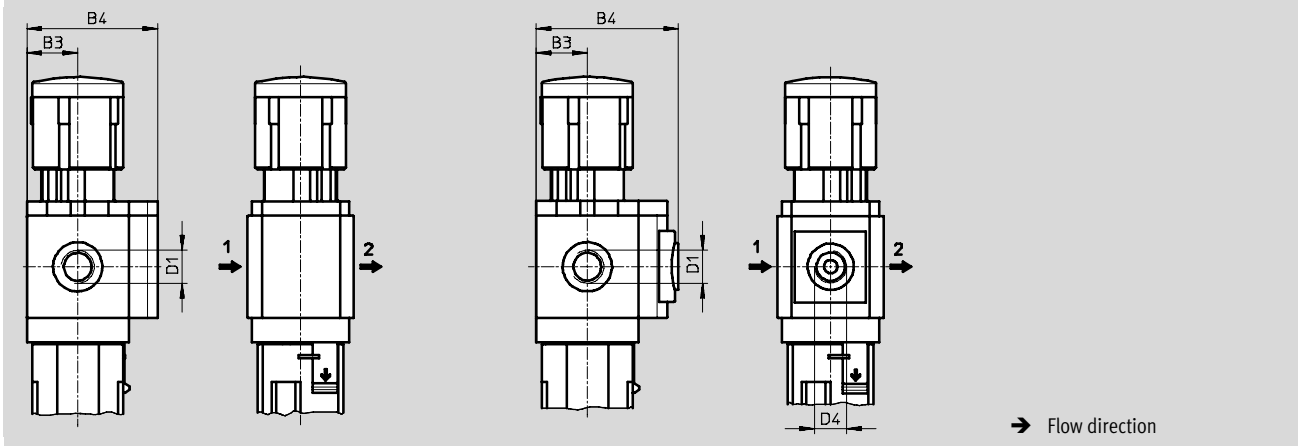
Technical data

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com/en/engineering

Cover plate VS

Adapter A8/A4 for EN pressure gauge 1/8/1/4, without pressure gauge



Type	B3	B4	D1	D4
MS4-LFR-1/8-VS	21	54	G1/8	-
MS4-LFR-1/4-VS			G1/4	
MS4-LFR-1/8-A8	21	58.5	G1/8	G1/8
MS4-LFR-1/4-A8			G1/4	
MS4-LFR-1/8-A4	21	58.5	G1/8	G1/4
MS4-LFR-1/4-A4			G1/4	
MS6-LFR-1/4-VS	31	76	G1/4	-
MS6-LFR-3/8-VS			G3/8	
MS6-LFR-1/2-VS			G1/2	
MS6-LFR-1/4-A4	31	78.5	G1/4	G1/4
MS6-LFR-3/8-A4			G3/8	
MS6-LFR-1/2-A4			G1/2	

Filter regulators MS4/MS6-LFR, MS series

Technical data



MS4/MS6 series service units
Filter regulators

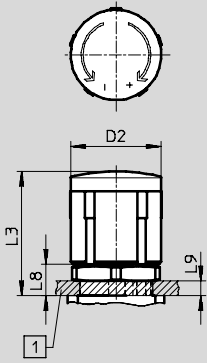
2.12

Dimensions – Rotary knob

Download CAD data → www.festo.com/en/engineering

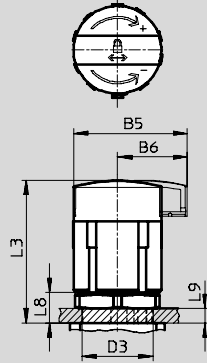
For installation into control panel

Standard

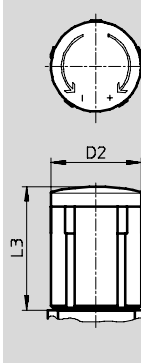


1 Max. control panel thickness
6 mm

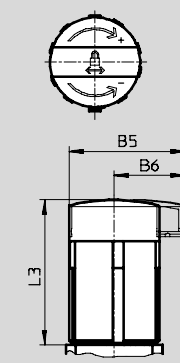
Standard, lockable
AS



Long
LD



Long, lockable
LD-AS



Type	B5	B6	D2	D3 +1	L3	L8	L9
MS4-LFR-...	–	–	37.2	30	51.1	13	6
MS4-LFR-...-AS	48.3	29.7			60.2		
MS4-LFR-...-LD	–	–	37.2	30	51.1	–	–
MS4-LFR-...-LD-AS	48.3	29.7			60.2		
MS6-LFR-...	–	–	51	44	86	22	14
MS6-LFR-...-AS	64.4	39			95.5		
MS6-LFR-...-LD	–	–	51	44	86	–	–
MS6-LFR-...-LD-AS	64.4	39			95.5		

Filter regulators MS4/MS6-LFR, MS series



Technical data

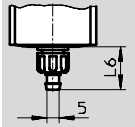
Dimensions – Condensate drain

Download CAD data → www.festo.com/en/engineering

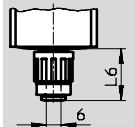
Manual rotary M

Semi-automatic H

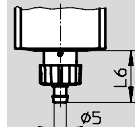
Fully automatic V



Barbed fitting for plastic tubing PCN-4



Connection QS for plastic tubing PUN-6/PAN-6



Barbed fitting for plastic tubing PCN-4

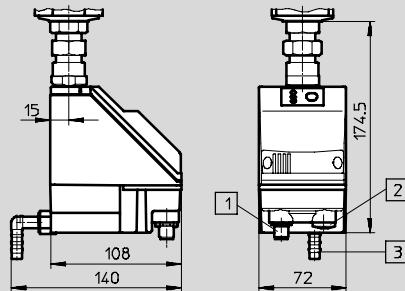
Type	L6
Plastic bowl guard	
MS4-LFR-...-M	17.7
MS6-LFR-...-M	15.8
Metal bowl	
MS4-LFR-...-M	17.7
MS6-LFR-...-M	19

Type	L6
Plastic bowl guard	
MS4-LFR-...-H	22.1
MS6-LFR-...-H	20.2
Metal bowl	
MS4-LFR-...-H	22.1
MS6-LFR-...-H	22.8

Type	L6
Plastic bowl guard	
MS4-LFR-...-V	20.4
MS6-LFR-...-V	18.5
Metal bowl	
MS4-LFR-...-V	20.4
MS6-LFR-...-V	22

Fully automatic, electrically actuated E1 ... E4

Technical data PWEA → NO TAG
 Technical data PWEA → www.festo.com



- 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-...

MS4/MS6 series service units
Filter regulators

2.12

Filter regulators MS4/MS6-LFR, MS series

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Technical data

MS4/MS6 series service units
Filter regulators

2.12

Ordering data						
Pressure regulation range 0.3 ... 7 bar, plastic bowl guard, lockable standard type rotary knob						
Condensate drain	Size	Connection	5 µm filter cartridge		40 µm filter cartridge	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MS4	G1/8	529 160	MS4-LFR-1/8-D6-CRM-AS	529 164	MS4-LFR-1/8-D6-ERM-AS
		G1/4	529 144	MS4-LFR-1/4-D6-CRM-AS	529 148	MS4-LFR-1/4-D6-ERM-AS
	MS6	G1/4	529 196	MS6-LFR-1/4-D6-CRM-AS	529 200	MS6-LFR-1/4-D6-ERM-AS
		G3/8	529 216	MS6-LFR-3/8-D6-CRM-AS	529 220	MS6-LFR-3/8-D6-ERM-AS
		G1/2	529 176	MS6-LFR-1/2-D6-CRM-AS	529 180	MS6-LFR-1/2-D6-ERM-AS
fully automatic	MS4	G1/8	529 162	MS4-LFR-1/8-D6-CRV-AS	529 166	MS4-LFR-1/8-D6-ERV-AS
		G1/4	529 146	MS4-LFR-1/4-D6-CRV-AS	529 150	MS4-LFR-1/4-D6-ERV-AS
	MS6	G1/4	529 198	MS6-LFR-1/4-D6-CRV-AS	529 202	MS6-LFR-1/4-D6-ERV-AS
		G3/8	529 218	MS6-LFR-3/8-D6-CRV-AS	529 222	MS6-LFR-3/8-D6-ERV-AS
		G1/2	529 178	MS6-LFR-1/2-D6-CRV-AS	529 182	MS6-LFR-1/2-D6-ERV-AS
Flow direction from right to left						
manual rotary	MS4	G1/8	529 161	MS4-LFR-1/8-D6-CRM-AS-Z	529 165	MS4-LFR-1/8-D6-ERM-AS-Z
		G1/4	529 145	MS4-LFR-1/4-D6-CRM-AS-Z	529 149	MS4-LFR-1/4-D6-ERM-AS-Z
	MS6	G1/4	529 197	MS6-LFR-1/4-D6-CRM-AS-Z	529 201	MS6-LFR-1/4-D6-ERM-AS-Z
		G3/8	529 217	MS6-LFR-3/8-D6-CRM-AS-Z	529 221	MS6-LFR-3/8-D6-ERM-AS-Z
		G1/2	529 177	MS6-LFR-1/2-D6-CRM-AS-Z	529 181	MS6-LFR-1/2-D6-ERM-AS-Z
fully automatic	MS4	G1/8	529 163	MS4-LFR-1/8-D6-CRV-AS-Z	529 167	MS4-LFR-1/8-D6-ERV-AS-Z
		G1/4	529 147	MS4-LFR-1/4-D6-CRV-AS-Z	529 151	MS4-LFR-1/4-D6-ERV-AS-Z
	MS6	G1/4	529 199	MS6-LFR-1/4-D6-CRV-AS-Z	529 203	MS6-LFR-1/4-D6-ERV-AS-Z
		G3/8	529 219	MS6-LFR-3/8-D6-CRV-AS-Z	529 223	MS6-LFR-3/8-D6-ERV-AS-Z
		G1/2	529 179	MS6-LFR-1/2-D6-CRV-AS-Z	529 183	MS6-LFR-1/2-D6-ERV-AS-Z

Filter regulators MS4/MS6-LFR, MS series

FESTO

Technical data

Ordering data						
Pressure regulation range 0.5 ... 12 bar, plastic bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MS4	G1/8	529 168	MS4-LFR-1/8-D7-CRM-AS	529 172	MS4-LFR-1/8-D7-ERM-AS
		G1/4	529 152	MS4-LFR-1/4-D7-CRM-AS	529 156	MS4-LFR-1/4-D7-ERM-AS
	MS6	G1/4	529 204	MS6-LFR-1/4-D7-CRM-AS	529 208	MS6-LFR-1/4-D7-ERM-AS
		G3/8	529 224	MS6-LFR-3/8-D7-CRM-AS	529 228	MS6-LFR-3/8-D7-ERM-AS
		G1/2	529 184	MS6-LFR-1/2-D7-CRM-AS	529 188	MS6-LFR-1/2-D7-ERM-AS
fully automatic	MS4	G1/8	529 170	MS4-LFR-1/8-D7-CRV-AS	529 174	MS4-LFR-1/8-D7-ERV-AS
		G1/4	529 154	MS4-LFR-1/4-D7-CRV-AS	529 158	MS4-LFR-1/4-D7-ERV-AS
	MS6	G1/4	529 206	MS6-LFR-1/4-D7-CRV-AS	529 210	MS6-LFR-1/4-D7-ERV-AS
		G3/8	529 226	MS6-LFR-3/8-D7-CRV-AS	529 230	MS6-LFR-3/8-D7-ERV-AS
		G1/2	529 186	MS6-LFR-1/2-D7-CRV-AS	529 190	MS6-LFR-1/2-D7-ERV-AS
Flow direction from right to left						
manual rotary	MS4	G1/8	529 169	MS4-LFR-1/8-D7-CRM-AS-Z	529 173	MS4-LFR-1/8-D7-ERM-AS-Z
		G1/4	529 153	MS4-LFR-1/4-D7-CRM-AS-Z	529 157	MS4-LFR-1/4-D7-ERM-AS-Z
	MS6	G1/4	529 205	MS6-LFR-1/4-D7-CRM-AS-Z	529 209	MS6-LFR-1/4-D7-ERM-AS-Z
		G3/8	529 225	MS6-LFR-3/8-D7-CRM-AS-Z	529 229	MS6-LFR-3/8-D7-ERM-AS-Z
		G1/2	529 185	MS6-LFR-1/2-D7-CRM-AS-Z	529 189	MS6-LFR-1/2-D7-ERM-AS-Z
fully automatic	MS4	G1/8	529 171	MS4-LFR-1/8-D7-CRV-AS-Z	529 175	MS4-LFR-1/8-D7-ERV-AS-Z
		G1/4	529 155	MS4-LFR-1/4-D7-CRV-AS-Z	529 159	MS4-LFR-1/4-D7-ERV-AS-Z
	MS6	G1/4	529 207	MS6-LFR-1/4-D7-CRV-AS-Z	529 211	MS6-LFR-1/4-D7-ERV-AS-Z
		G3/8	529 227	MS6-LFR-3/8-D7-CRV-AS-Z	529 231	MS6-LFR-3/8-D7-ERV-AS-Z
		G1/2	529 187	MS6-LFR-1/2-D7-CRV-AS-Z	529 191	MS6-LFR-1/2-D7-ERV-AS-Z

Ordering data						
Pressure regulation range 0.5 ... 12 bar, metal bowl						
Condensate drain	Size	Connection	5 µm filter cartridge		40 µm filter cartridge	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MS4	G1/8	535 702	MS4-LFR-1/8-D7-CUM-AS	☉ New	535 708 MS4-LFR-1/8-D7-EUM-AS ☉ New
		G1/4	535 718	MS4-LFR-1/4-D7-CUM-AS	☉ New	535 724 MS4-LFR-1/4-D7-EUM-AS ☉ New
	MS6	G1/4	530 342	MS6-LFR-1/4-D7-CUM-AS		529 212 MS6-LFR-1/4-D7-EUM-AS
		G3/8	530 346	MS6-LFR-3/8-D7-CUM-AS		529 232 MS6-LFR-3/8-D7-EUM-AS
		G1/2	530 338	MS6-LFR-1/2-D7-CUM-AS		529 192 MS6-LFR-1/2-D7-EUM-AS
fully automatic	MS4	G1/8	535 704	MS4-LFR-1/8-D7-CUV-AS		535 706 MS4-LFR-1/8-D7-EUV-AS
		G1/4	535 720	MS4-LFR-1/4-D7-CUV-AS		535 722 MS4-LFR-1/4-D7-EUV-AS
	MS6	G1/4	530 344	MS6-LFR-1/4-D7-CUV-AS		529 214 MS6-LFR-1/4-D7-EUV-AS
		G3/8	530 348	MS6-LFR-3/8-D7-CUV-AS		529 234 MS6-LFR-3/8-D7-EUV-AS
		G1/2	530 340	MS6-LFR-1/2-D7-CUV-AS		529 194 MS6-LFR-1/2-D7-EUV-AS
Flow direction from right to left						
manual rotary	MS4	G1/8	535 703	MS4-LFR-1/8-D7-CUM-AS-Z	☉ New	535 709 MS4-LFR-1/8-D7-EUM-AS-Z ☉ New
		G1/4	535 719	MS4-LFR-1/4-D7-CUM-AS-Z	☉ New	535 725 MS4-LFR-1/4-D7-EUM-AS-Z ☉ New
	MS6	G1/4	530 343	MS6-LFR-1/4-D7-CUM-AS-Z		529 213 MS6-LFR-1/4-D7-EUM-AS-Z
		G3/8	530 347	MS6-LFR-3/8-D7-CUM-AS-Z		529 233 MS6-LFR-3/8-D7-EUM-AS-Z
		G1/2	530 339	MS6-LFR-1/2-D7-CUM-AS-Z		529 193 MS6-LFR-1/2-D7-EUM-AS-Z
fully automatic	MS4	G1/8	535 705	MS4-LFR-1/8-D7-CUV-AS-Z		535 707 MS4-LFR-1/8-D7-EUV-AS-Z
		G1/4	535 721	MS4-LFR-1/4-D7-CUV-AS-Z		535 723 MS4-LFR-1/4-D7-EUV-AS-Z
	MS6	G1/4	530 345	MS6-LFR-1/4-D7-CUV-AS-Z		529 215 MS6-LFR-1/4-D7-EUV-AS-Z
		G3/8	530 349	MS6-LFR-3/8-D7-CUV-AS-Z		529 235 MS6-LFR-3/8-D7-EUV-AS-Z
		G1/2	530 341	MS6-LFR-1/2-D7-CUV-AS-Z		529 195 MS6-LFR-1/2-D7-EUV-AS-Z

MS4/MS6 series service units
Filter regulators

2.12

Filter regulators MS4/MS6-LFR, MS series



Ordering data – Modular products

MS4/MS6 series service units
Filter regulators

2.12

M Mandatory data →

Module No.	Series	Size	Function	Connection size	Pressure regulation range	Grade of filtration	Bowl
526 489 526 490	MS	4 6	LFR	1/8, 1/4, 3/8, 1/2, AGA, AGB, AGC, AGD, AGE	D5 D6 D7 D8	E C	R U
Ordering example							
526 489	MS	4	- LFR	- AGA	- D6	- C	- R

Ordering table							
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code	
M Module No.		526 489	526 490				
Series		Standard			MS		MS
Size		4	6		...		
Function		Filter regulator			-LFR		-LFR
Connection size	Thread G1/8				-1/8		
	Thread G1/4		Thread G1/4		-1/4		
	-		Thread G3/8		-3/8		
	-		Thread G1/2		-1/2		
	Connecting plate G1/8				-AGA		
	Connecting plate G1/4		Connecting plate G1/4		-AGB		
	Connecting plate G3/8		Connecting plate G3/8		-AGC		
	-		Connecting plate G1/2		-AGD		
Pressure regulation range	0.3 ... 4 bar				-D5		
	0.3 ... 7 bar				-D6		
	0.5 ... 12 bar				-D7		
	-		0.5 ... 16 bar		-D8		
Grade of filtration	40 µm				-E		
	5 µm				-C		
Bowl	Plastic bowl with plastic bowl guard				-R		
	Metal bowl				-U		

Transfer order code

	MS		-	LFR		-		-		-	
--	----	--	---	-----	--	---	--	---	--	---	--

Filter regulators MS4/MS6-LFR, MS series

Ordering data – Modular products

Options							
Condensate drain	Pressure gauge alternatives	Alternative pressure gauge scale	Secondary venting	Rotary knob	Security	Type of mounting	Alternative flow direction
M H V E1 E2 E3 E4	VS A8 A4	PSI MPA	OS	LD	AS	WR WP WPM WB WBM	Z
- M	- A8	-	-	- LD	- AS	- WPM	- Z

Ordering table							
Grid dimension	[mm]	40	62	Conditions	Code	Enter code	
↓ Condensate drain [M]	Manual				-M		
	Semi-automatic (P1 max. 12 bar)			[1]	-H		
	Fully automatic (P1 max. 12 bar)			[1]	-V		
	-	External fully automatic condensate drain, electrical, 24 V DC, M12		[2]	-E1		
	-	External fully automatic condensate drain, electrical, 110 V AC, terminals		[2]	-E2		
	-	External fully automatic condensate drain, electrical, 230 V AC, terminals		[2]	-E3		
	-	External fully automatic condensate drain, electrical, 24 V DC, terminals		[2]	-E4		
[O] Pressure gauge alternatives	Cover plate				-VS		
	Adapter plate for EN pressure gauge 1/8, without pressure gauge				-A8		
	Adapter plate for EN pressure gauge 1/4, without pressure gauge				-A4		
Alternative pressure gauge scale	psi			[3]	-PSI		
	MPa			[3]	-MPA		
Secondary venting	Without secondary venting				-OS		
Rotary knob	Long rotary knob				-LD		
Security	Lockable rotary knob				-AS		
Type of mounting	Mounting bracket with hex nut for regulator head			[4]	-WR		
	Wall mounting plate			[5]	-WP		
	Wall mounting plate (dimensions for M series)			[5]	-WPM		
	Wall mounting bracket				-WB		
	Wall mounting bracket (dimensions for M series)				-WBM		
Alternative flow direction	Flow direction from right to left				-Z		

[1] H, V Not with pressure regulation range D8.

[2] E1, E2, E3, E4 Only with metal bowl U.

[3] PSI, MPA Not with pressure gauge alternatives VS, A8, A4.

[4] WR Not with long rotary knob LD.

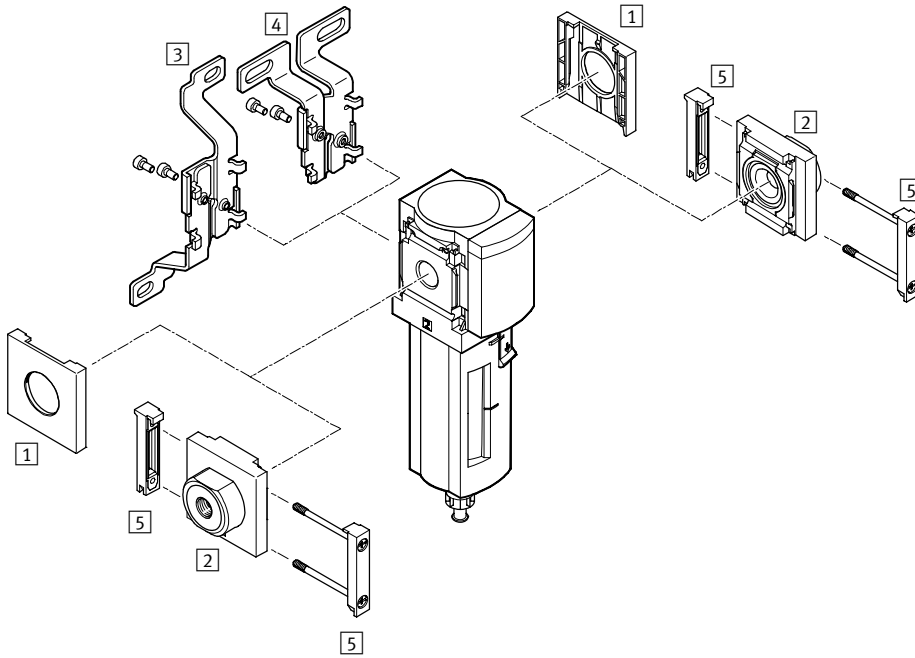
[5] WP, WPM Only with sub-base AGA, AGB, AGC, AGD or AGE.

Transfer order code

- [] - [] - [] - [] - [] - [] - [] - []

Filters MS4/MS6-LF/LFM/LFX, MS series

Peripherals overview



MS4/MS6 series service units
Filters

2.13

Mounting attachments and accessories						
	Individual unit		Combination → 3/2.11-10		→ Page	
	without connecting plate	with connecting plate	without connecting plate	with connecting plate		
1	Cover cap MS4/6-END	■	-	■	-	3/2.31-3
2	Connecting plate MS4/6-AG...	-	■	-	■	3/2.31-0
3	Wall mounting bracket MS4/6-WB	■	■	-	-	3/2.31-1
4	Wall mounting bracket MS4-WBM	■	■	-	-	3/2.31-1
5	Module connector MS4/6-MV	-	■	■	■	3/2.31-3
-	Wall mounting bracket MS4/6-WP	-	■	■	■	3/2.31-5
-	Wall mounting bracket MS4/6-WPM	-	■	■	■	3/2.31-6

Filters MS4/MS6-LF/LFM/LFX, MS series

Type codes

MS 6 - LFM - 1/4 - A R M - DA - Z

Basic function

MS	Standard service unit
----	-----------------------

Size

4	Grid dimension 40 mm
6	Grid dimension 62 mm

Service function

LF	Filter
LFM	Fine and micro filter
LFX	Active carbon filter

Pneumatic connection

1/8	Thread G1/8
1/4	Thread G1/4
3/8	Thread G3/8
1/2	Thread G1/2

Grade of filtration (for LF and LFM only)

A	0.01 µm
B	1 µm
C	5 µm
E	40 µm

Bowl guard

R	Plastic bowl guard
U	Metal bowl

Condensate drain (for LF and LFM only)

M	Manual rotary
V	Fully automatic

Filter change sensor (for LFM only)

	Without differential pressure indicator
DA	Differential pressure indicator

Alternative flow direction

	Flow direction from left to right
Z	Flow direction from right to left

Further variants can be ordered using the modular system

Filters LF	→ 3/2.13-8
Fine and micro filters LFM	→ 3/2.13-18
Active carbon filters LFX	→ 3/2.13-24

- Connecting plates
- Condensate drain
- Type of mounting

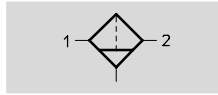
Filters MS4/MS6-LF, MS series

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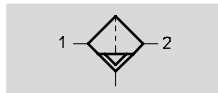
Technical data




Function

Condensate drain
manual rotary



semi- or fully automatic



-  - Flow rate
1000 ... 4100 l/min
-  - Temperature range
-10 ... +60 °C
-  - Input pressure
0 ... 20 bar



The sintered filter with centrifugal separation removes contamination, rust and condensate from the compressed air. The filter cartridges are replaceable.

- Good particle and condensate separation
- High flow rate with minimal pressure drop
- Choice of filter cartridges: 5 µm or 40 µm
- Available with manual, semi-automatic, fully automatic or fully automatic, electrically actuated condensate drain

General technical data					
		MS4		MS6	
Pneumatic connection 1		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$ G $\frac{1}{2}$
Pneumatic connection 2		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$ G $\frac{1}{2}$
Operating medium		Compressed air			
Design		Sintered filter with centrifugal separation			
Type of mounting		Via accessories In-line installation			
Assembly position		Vertical $\pm 5^\circ$			
Grade of filtration	[µm]	5 or 40		5 or 40	
Air purity class at the output					
Grade of filtration	5 µm	3.7.- to DIN ISO 8573-1			
	40 µm	5.7.- to DIN ISO 8573-1			
Max. condensate volume [cm ³]					
Plastic bowl guard		19		38	
Metal bowl		25		38	

Input pressure [bar]			
		MS4	MS6
Condensate drain	manual rotary	0 ... 14	0 ... 20
	semi-automatic	1.5 ... 12	1.5 ... 12
	fully automatic	2 ... 12	2 ... 12
	fully automatic, electrical	-	0.8 ... 16

Standard nominal flow rate q _N ¹⁾ [l/min]					
		MS4		MS6	
		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$ G $\frac{1}{2}$
Grade of filtration	5 µm	1000	1300	2000	3000 3200
	40 µm	1100	1700	2500	3800 4100

1) measured at p₁ = 6 bar and Δp = 1 bar

Filters MS4/MS6-LF, MS series

Technical data

Operating and environmental conditions				
		Condensate drain		
		manual rotary	semi- or fully automatic	fully automatic, electrical
Ambient temperature	[°C]	-10 ... +60	+5 ... +60	+1 ... +60
Temperature of medium	[°C]	-10 ... +60	+5 ... +60	+1 ... +60
Storage temperature	[°C]	-10 ... +60	-10 ... +60	+1 ... +60
Corrosion resistance class	CRC ¹⁾	2		

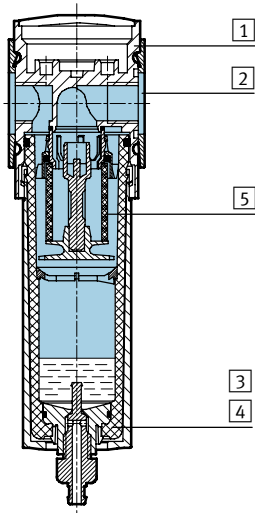
1) Corrosion resistance class 2 according to Festo standard 940 070

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.

Weight [g]	MS4	MS6
With plastic bowl guard	190	600
With metal bowl	350	820
With metal bowl and fully automatic, electrically actuated condensate drain	-	1800

Materials

Sectional view

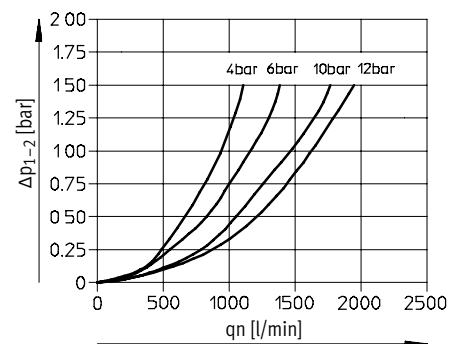
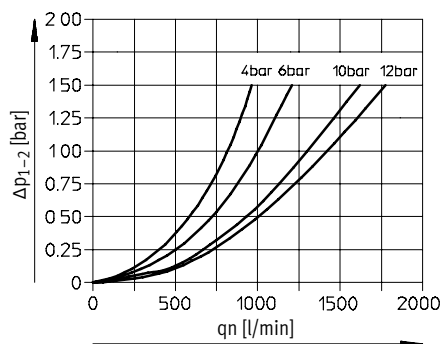


Filter		
1	Body	Die-cast aluminium
2	Cover plates	Polyamide
3	Plastic bowl guard	Polyamide
4	Metal bowl	Aluminium
	Window shield	Polyamide
5	Filter element	Polyethylene
-	Seals	Nitrile rubber
	Note on materials	Free of copper, PTFE and silicone

Standard flow rate qn as a function of the differential pressure Δp1-2

Grade of filtration 5 μm Grade of filtration 40 μm

MS4-LF-1/8



Filters MS4/MS6-LF, MS series

Technical data

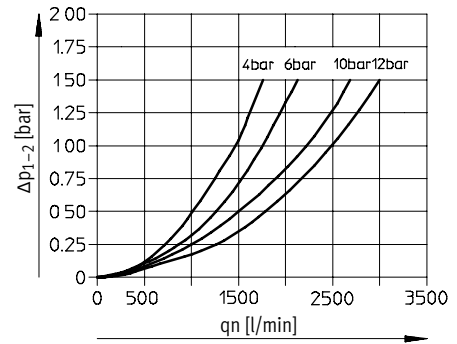
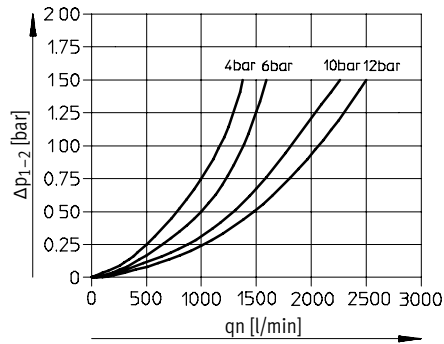


Standard flow rate q_n as a function of the differential pressure Δp_{1-2}

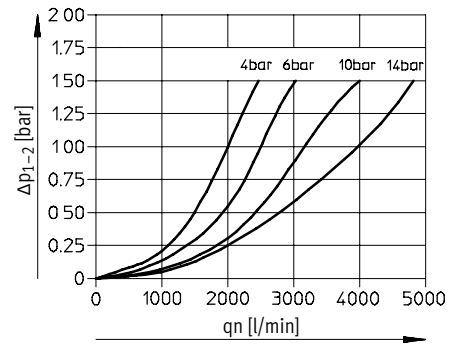
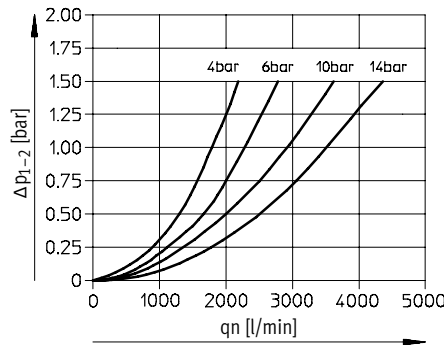
Grade of filtration 5 μm

Grade of filtration 40 μm

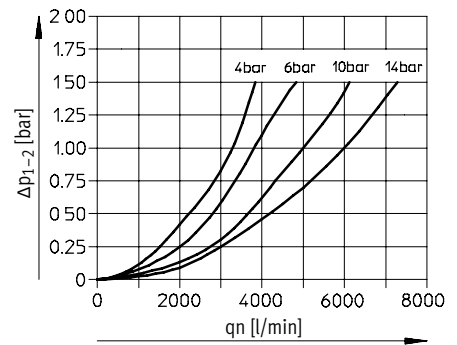
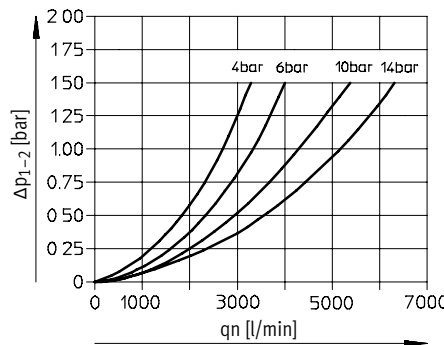
MS4-LF-1/4



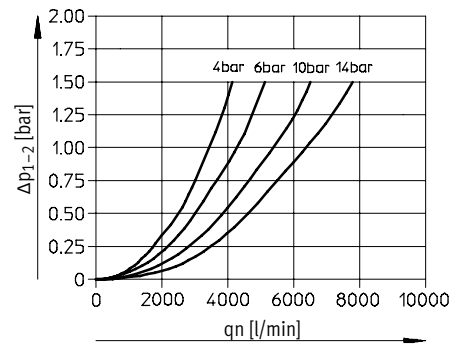
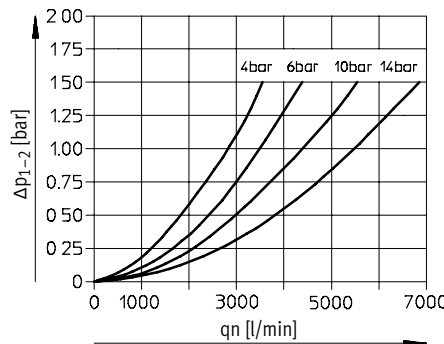
MS6-LF-1/4



MS6-LF-3/8



MS6-LF-1/2



Primary pressure $p_1 = 10 \text{ bar}$

Filters MS4/MS6-LF, MS series

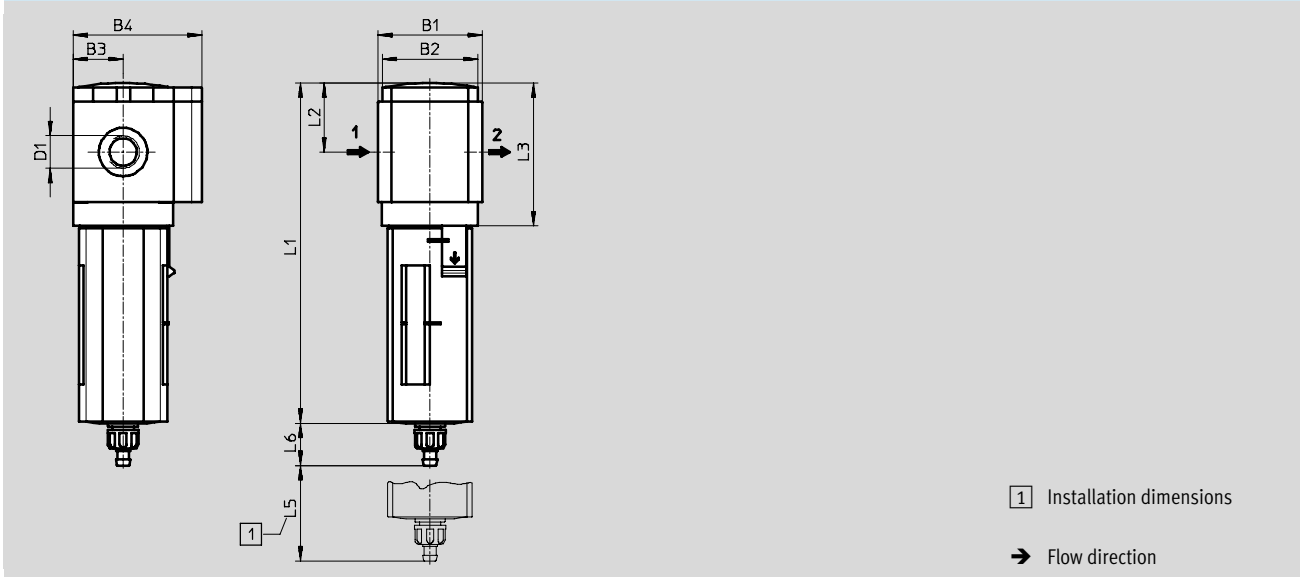
Technical data



Dimensions – Standard

Download CAD data → www.festo.com/en/engineering

Manual rotary condensate drain



Type	B1 ¹⁾	B2	B3	B4	D1	L1		L2	L3	L5	L6	
						Bowl guard					Bowl guard	
						plastic	metal				plastic	metal
MS4-LF-1/8	43.6	40.2	21	54	G1/8	142.8	159.4	29	60.5	25	17.7	17.7
MS4-LF-1/4					G1/4							
MS6-LF-1/4	67	62	31	76	G1/4	192	198	42	87	68	15.8	19
MS6-LF-3/8					G3/8							
MS6-LF-1/2					G1/2							

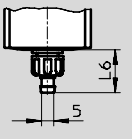
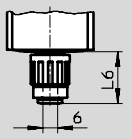
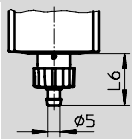
1) With accessory cover cap MS...-END

Filters MS4/MS6-LF, MS series



Technical data

Dimensions – Condensate drain Download CAD data → www.festo.com/en/engineering

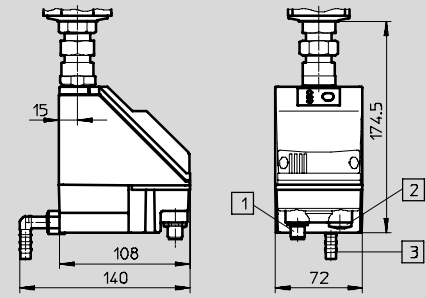
Manual rotary M	Semi-automatic H	Fully automatic V
 <p>Barbed fitting for plastic tubing PCN-4</p>	 <p>Connection QS for plastic tubing PUN-6/PAN-6</p>	 <p>Barbed fitting for plastic tubing PCN-4</p>

Type	L6
Plastic bowl guard	
MS4-LF-...-M	17.7
MS6-LF-...-M	15.8
Metal bowl	
MS4-LF-...-M	17.7
MS6-LF-...-M	19

Type	L6
Plastic bowl guard	
MS4-LF-...-H	22.1
MS6-LF-...-H	20.2
Metal bowl	
MS4-LF-...-H	22.1
MS6-LF-...-H	22.8

Type	L6
Plastic bowl guard	
MS4-LF-...-V	20.4
MS6-LF-...-V	18.5
Metal bowl	
MS4-LF-...-V	20.4
MS6-LF-...-V	22

Fully automatic, electrically actuated E1 ... E4 Technical data PWEA → NO TAG Technical data PWEA → www.festo.com



- 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-...

MS4/MS6 series service units
Filters

2.13

Filters MS4/MS6-LF, MS series

Technical data

Ordering data							
Plastic bowl guard							
Condensate drain	Size	Connection	Grade of filtration 5 µm			Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type	
Flow direction from left to right							
manual rotary	MS4	G1/8	529 403	MS4-LF-1/8-CRM		529 407	MS4-LF-1/8-ERM
		G1/4	529 395	MS4-LF-1/4-CRM		529 399	MS4-LF-1/4-ERM
	MS6	G1/4	529 623	MS6-LF-1/4-CRM		529 631	MS6-LF-1/4-ERM
		G3/8	529 639	MS6-LF-3/8-CRM		529 647	MS6-LF-3/8-ERM
		G1/2	529 607	MS6-LF-1/2-CRM		529 615	MS6-LF-1/2-ERM
fully automatic	MS4	G1/8	529 405	MS4-LF-1/8-CRV		529 409	MS4-LF-1/8-ERV
		G1/4	529 397	MS4-LF-1/4-CRV		529 401	MS4-LF-1/4-ERV
	MS6	G1/4	529 625	MS6-LF-1/4-CRV		529 633	MS6-LF-1/4-ERV
		G3/8	529 641	MS6-LF-3/8-CRV		529 649	MS6-LF-3/8-ERV
		G1/2	529 609	MS6-LF-1/2-CRV		529 617	MS6-LF-1/2-ERV
Flow direction from right to left							
manual rotary	MS4	G1/8	529 404	MS4-LF-1/8-CRM-Z		529 408	MS4-LF-1/8-ERM-Z
		G1/4	529 396	MS4-LF-1/4-CRM-Z		529 400	MS4-LF-1/4-ERM-Z
	MS6	G1/4	529 624	MS6-LF-1/4-CRM-Z		529 632	MS6-LF-1/4-ERM-Z
		G3/8	529 640	MS6-LF-3/8-CRM-Z		529 648	MS6-LF-3/8-ERM-Z
		G1/2	529 608	MS6-LF-1/2-CRM-Z		529 616	MS6-LF-1/2-ERM-Z
fully automatic	MS4	G1/8	529 406	MS4-LF-1/8-CRV-Z		529 410	MS4-LF-1/8-ERV-Z
		G1/4	529 398	MS4-LF-1/4-CRV-Z		529 402	MS4-LF-1/4-ERV-Z
	MS6	G1/4	529 626	MS6-LF-1/4-CRV-Z		529 634	MS6-LF-1/4-ERV-Z
		G3/8	529 642	MS6-LF-3/8-CRV-Z		529 650	MS6-LF-3/8-ERV-Z
		G1/2	529 610	MS6-LF-1/2-CRV-Z		529 618	MS6-LF-1/2-ERV-Z

Ordering data							
Metal bowl							
Condensate drain	Size	Connection	Grade of filtration 5 µm			Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type	
Flow direction from left to right							
manual rotary	MS4	G1/8	535 638	MS4-LF-1/8-CUM	⊖ Neu	535 644	MS4-LF-1/8-EUM
		G1/4	535 654	MS4-LF-1/4-CUM	⊖ Neu	535 660	MS4-LF-1/4-EUM
	MS6	G1/4	529 627	MS6-LF-1/4-CUM		529 635	MS6-LF-1/4-EUM
		G3/8	529 643	MS6-LF-3/8-CUM		529 651	MS6-LF-3/8-EUM
		G1/2	529 611	MS6-LF-1/2-CUM		529 619	MS6-LF-1/2-EUM
fully automatic	MS4	G1/8	535 640	MS4-LF-1/8-CUV		535 642	MS4-LF-1/8-EUV
		G1/4	535 656	MS4-LF-1/4-CUV		535 658	MS4-LF-1/4-EUV
	MS6	G1/4	529 629	MS6-LF-1/4-CUV		529 637	MS6-LF-1/4-EUV
		G3/8	529 645	MS6-LF-3/8-CUV		529 653	MS6-LF-3/8-EUV
		G1/2	529 613	MS6-LF-1/2-CUV		529 621	MS6-LF-1/2-EUV
Flow direction from right to left							
manual rotary	MS4	G1/8	535 639	MS4-LF-1/8-CUM-Z	⊖ Neu	535 645	MS4-LF-1/8-EUM-Z
		G1/4	535 655	MS4-LF-1/4-CUM-Z	⊖ Neu	535 661	MS4-LF-1/4-EUM-Z
	MS6	G1/4	529 628	MS6-LF-1/4-CUM-Z		529 636	MS6-LF-1/4-EUM-Z
		G3/8	529 644	MS6-LF-3/8-CUM-Z		529 652	MS6-LF-3/8-EUM-Z
		G1/2	529 612	MS6-LF-1/2-CUM-Z		529 620	MS6-LF-1/2-EUM-Z
fully automatic	MS4	G1/8	535 641	MS4-LF-1/8-CUV-Z		535 643	MS4-LF-1/8-EUV-Z
		G1/4	535 657	MS4-LF-1/4-CUV-Z		535 659	MS4-LF-1/4-EUV-Z
	MS6	G1/4	529 630	MS6-LF-1/4-CUV-Z		529 638	MS6-LF-1/4-EUV-Z
		G3/8	529 646	MS6-LF-3/8-CUV-Z		529 654	MS6-LF-3/8-EUV-Z
		G1/2	529 614	MS6-LF-1/2-CUV-Z		529 622	MS6-LF-1/2-EUV-Z

Filters MS4/MS6-LF, MS series

Ordering data – Modular products



M Mandatory data →

Module No.	Series	Size	Function	Connection size	Grade of filtration	Bowl
527 695	MS	4	LF	1/8, 1/4, 3/8, 1/2, AGA, AGB, AGC, AGD, AGE	E C	R U
527 668		6				
Ordering example						
527 695	MS	4	- LF	- AGB	- E	- R

Ordering table

Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
M Module No.		527 695	527 668			
Series		Standard			MS	MS
Size		4	6		...	
Function		Filter			-LF	-LF
Connection size	Thread G1/8		-		-1/8	
	Thread G1/4		Thread G1/4		-1/4	
	-		Thread G3/8		-3/8	
	-		Thread G1/2		-1/2	
	Connecting plate G1/8		-		-AGA	
	Connecting plate G1/4		Connecting plate G1/4		-AGB	
	Connecting plate G3/8		Connecting plate G3/8		-AGC	
	-		Connecting plate G1/2		-AGD	
	-		Connecting plate G3/4		-AGE	
Grade of filtration	40 µm				-E	
	5 µm				-C	
Bowl	Plastic bowl with plastic bowl guard				-R	
	Metal bowl				-U	

MS4/MS6 series service units
Filters

2.13

Transfer order code

	MS		-	LF		-		-	
--	----	--	---	----	--	---	--	---	--

Filters MS4/MS6-LF, MS series

Ordering data – Modular products



→ M Mandatory data	O Options	
Condensate drain M H V E1 E2 E3 E4	Type of mounting WP WPM WB WBM	Alternative flow direction Z
- M	- WP	- Z

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
↓ M	Condensate drain	Manual			-M	
		Semi-automatic (P1 max. 12 bar)			-H	
		Fully automatic (P1 max. 12 bar)			-V	
		-	External fully automatic condensate drain, electrical, 24 V DC, M12	1	-E1	
		-	External fully automatic condensate drain, electrical, 110 V AC, terminals	1	-E2	
		-	External fully automatic condensate drain, electrical, 230 V AC, terminals	1	-E3	
-	External fully automatic condensate drain, electrical, 24 V DC, terminals	1	-E4			
O	Type of mounting	Wall mounting plate		2	-WP	
		Wall mounting plate (dimensions for M series)		2	-WPM	
		Wall mounting bracket			-WB	
		Wall mounting bracket (dimensions for M series)		-	-WBM	
Alternative flow direction		Flow direction from right to left			-Z	

1 E1, E2, E3, E4
Only with metal bowl U.

2 WP, WPM Only with sub-base AGA, AGB, AGC, AGD or AGE.

Transfer order code


- - -

Fine and micro filters MS4/MS6-LFM, MS series


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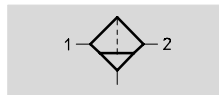
Technical data


Function

-  - Flow rate
120 ... 850 l/min

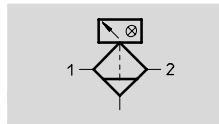
Condensate drain
manual rotary
without differential pressure indicator

-  - Temperature range
-10 ... +60 °C

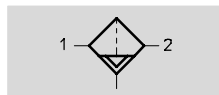


-  - Input pressure
0 ... 20 bar

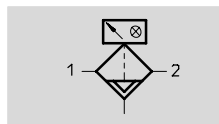
with differential pressure indicator



Condensate drain
semi- or fully automatic
without differential pressure indicator



with differential pressure indicator



- High-performance filter for exceptionally clean compressed air
- Choice of filter cartridges: 0.01 µm or 1 µm
- Air quality to DIN ISO 8573-1
- Available with manual, semi-automatic, fully automatic or fully automatic, electrically actuated condensate drain
- Available with differential pressure indicator for optical indication of filter contamination

LFM-A:
ISO class 1 for particles:
max. particle density 0.1 mg/m³
ISO class 2 for oil aerosols:
max. oil concentration 0.1 mg/m³
Filter efficiency 99.9999%

LFM-B:
ISO class 2 for particles:
max. particle density 1 mg/m³
ISO class 3 for oil aerosols:
max. oil concentration 1 mg/m³
Filter efficiency 99.99%

MS4/MS6 series service units
Filters

2.13

General technical data					
	MS4		MS6		
Pneumatic connection 1	G $\frac{3}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
Pneumatic connection 2	G $\frac{3}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
Design	Fibre filter				
Type of mounting	Via accessories In-line installation				
Assembly position	Vertical $\pm 5^\circ$				
Operating medium					
Micro filter LFM-A	Compressed air, filtered, unlubricated, grade of filtration 1 µm				
Fine filter LFM-B	Compressed air, filtered, unlubricated, grade of filtration 5 µm				
Grade of filtration [µm]					
Micro filter LFM-A	0.01				
Fine filter LFM-B	1				
Air purity class at the output					
Grade of filtration	0.01 µm	1.7.2 to DIN ISO 8573-1			
	1 µm	2.7.3 to DIN ISO 8573-1			
Residual oil content [mg/m ³]					
Micro filter LFM-A	≤0.01				
Fine filter LFM-B	≤0.5				
Max. condensate volume [cm ³]					
Plastic bowl guard	19		38		
Metal bowl	25		38		

Fine and micro filters MS4/MS6-LFM, MS series

FESTO

Technical data

Input pressure [bar]			
		MS4	MS6
Condensate drain	manual rotary	0 ... 14	0 ... 20
	semi-automatic	1.5 ... 12	1.5 ... 12
	fully automatic	2 ... 12	2 ... 12
	fully automatic, electrical	–	0.8 ... 16

Standard nominal flow rate $q_{nN}^{1)}$ and standard flow rate q_n [l/min]					
		MS4		MS6	
		G $\frac{3}{8}$	G $\frac{1}{4}$	G $\frac{3}{4}$	G $\frac{1}{2}$
Micro filter LFM-A					
$q_{nN} 1 \rightarrow 2$		120	120	380	480
q_n min		54	54	135	135
q_n max		360	360	900	900
Fine filter LFM-B					
$q_{nN} 1 \rightarrow 2$		180	180	550	850
q_n min		54	54	140	140
q_n max		360	360	950	950

1) measured at $p_1 = 6$ bar and $\Delta p = 70$ mbar

Ambient conditions				
		Condensate drain		
		manual rotary	semi- or fully automatic	fully automatic, electrical
Ambient temperature	[°C]	-10 ... +60	+5 ... +60	+1 ... +60
Temperature of medium	[°C]	-10 ... +60	+5 ... +60	+1 ... +60
Storage temperature	[°C]	-10 ... +60	-10 ... +60	+1 ... +60
Corrosion resistance class	CRC ¹⁾	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.

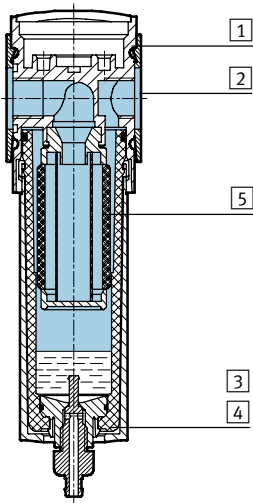
Weight [g]		
	MS4	MS6
With plastic bowl guard	190	600
With metal bowl	350	820
With metal bowl and fully automatic, electrically actuated condensate drain	–	1800

Fine and micro filters MS4/MS6-LFM, MS series

Technical data

Materials

Sectional view



Fine and micro filter		
1	Body	Die-cast aluminium
2	Cover plates	Polyamide
3	Plastic bowl guard	Polycarbonate/Polyamide
4	Metal bowl Window shield	Aluminium Polyamide
5	Filter element	Borosilicate mesh
-	Seals	Nitrile rubber
	Note on materials	Free of copper, PTFE and silicone

Fine and micro filters MS4/MS6-LFM, MS series

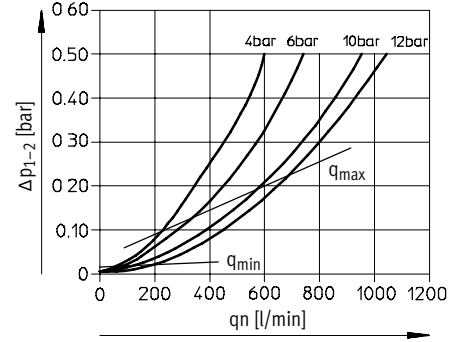
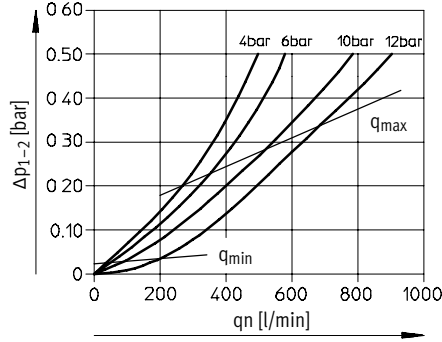
Technical data

Standard flow rate q_n as a function of the differential pressure Δp_{1-2}

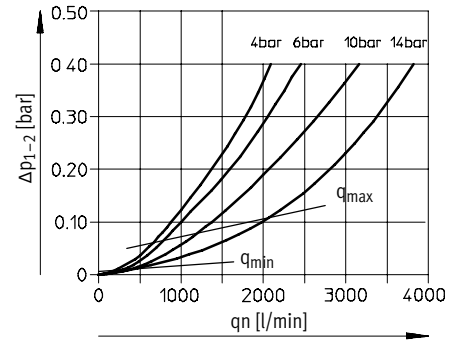
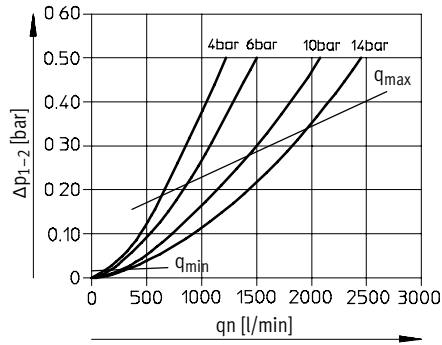
Grade of filtration 0.01 μm

Grade of filtration 1 μm

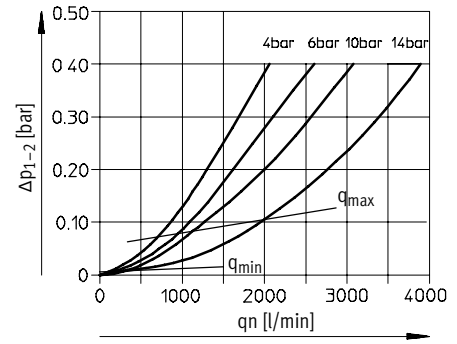
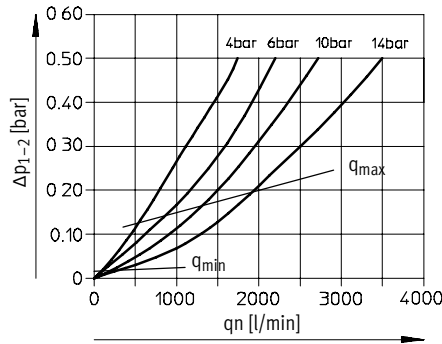
MS4-LFM-1/8 and MS4-LFM-1/4



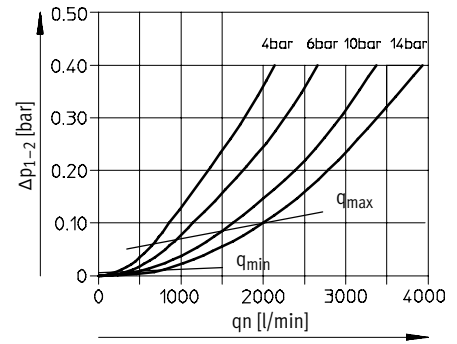
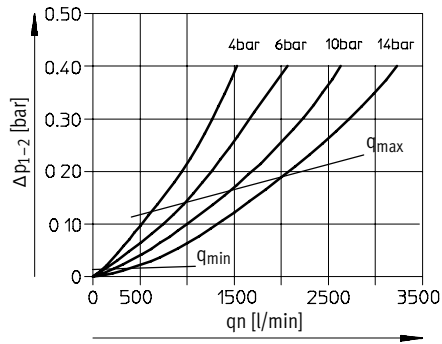
MS6-LFM-1/4



MS6-LFM-3/8



MS6-LFM-1/2



Fine and micro filters MS4/MS6-LFM, MS series

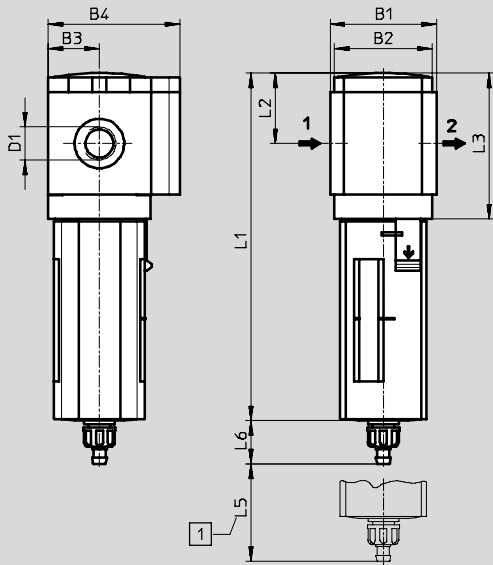
Technical data



Dimensions – Standard

Download CAD data → www.festo.com/en/engineering

Manual rotary condensate drain



1 Installation dimensions

→ Flow direction

Type	B1 ¹⁾	B2	B3	B4	D1	L1		L2	L3	L5	L6	
						Bowl guard					Bowl guard	
						plastic	metal				plastic	metal
MS4-LFM-1/8	43.6	40	21	54	G1/8	142	160	29	60	25	17.7	17.7
MS4-LFM-1/4					G1/4							
MS6-LFM-1/4	67	62	31	76	G1/4	189	198	42	87	75	15.8	19
MS6-LFM-3/8					G3/8							
MS6-LFM-1/2					G1/2							

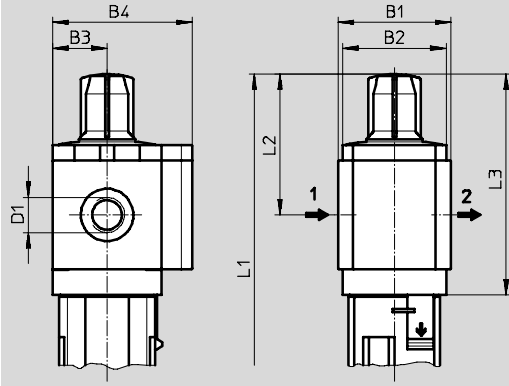
1) With accessory cover cap MS...-END

Fine and micro filters MS4/MS6-LFM, MS series

Technical data

Dimensions – Differential pressure indicator

Download CAD data → www.festo.com/en/engineering



→ Flow direction

Type	B1 ¹⁾	B2	B3	B4	D1	L1 Bowl guard		L2	L3
						plastic	metal		
MS4-LFM-1/8-...-DA	43.6	40	21	54	G1/8	168	186	55	86
MS4-LFM-1/4-...-DA					G1/4				
MS6-LFM-1/4-...-DA	67	62	31	76	G1/4	218	224	68	113
MS6-LFM-3/8-...-DA					G3/8				
MS6-LFM-1/2-...-DA					G1/2				

1) With accessory cover cap MS...-END

Dimensions – Condensate drain

Download CAD data → www.festo.com/en/engineering

Manual rotary M

Barbed fitting for plastic tubing PCN-4

Semi-automatic H

Connection QS for plastic tubing PUN-6/PAN-6

Fully automatic V

Barbed fitting for plastic tubing PCN-4

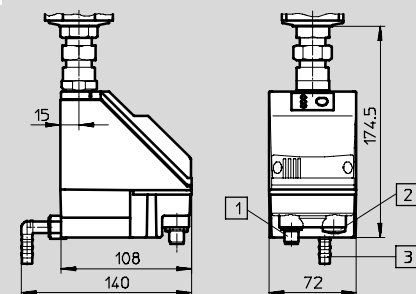
Type	L6
Plastic bowl guard	
MS4-LFM-...-M	17.7
MS6-LFM-...-M	15.8
Metal bowl	
MS4-LFM-...-M	17.7
MS6-LFM-...-M	19

Type	L6
Plastic bowl guard	
MS4-LFM-...-H	22.1
MS6-LFM-...-H	20.2
Metal bowl	
MS4-LFM-...-H	22.1
MS6-LFM-...-H	22.8

Type	L6
Plastic bowl guard	
MS4-LFM-...-V	20.4
MS6-LFM-...-V	18.5
Metal bowl	
MS4-LFM-...-V	20.4
MS6-LFM-...-V	22

Fully automatic, electrically actuated E1 ... E4

Technical data PWEA → NO TAG
Technical data PWEA → www.festo.com



- 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-...

Fine and micro filters MS4/MS6-LFM, MS series

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Technical data

MS4/MS6 series service units
Filters

2.13

Ordering data						
Plastic bowl guard, without differential pressure indicator						
Condensate drain	Size	Connection	Micro filter		Fine filter	
			Grade of filtration 0.01 µm		Grade of filtration 1 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MS4	G1/8	529 463	MS4-LFM-1/8-ARM	529 465	MS4-LFM-1/8-BRM
		G1/4	529 459	MS4-LFM-1/4-ARM	529 461	MS4-LFM-1/4-BRM
	MS6	G1/4	529 663	MS6-LFM-1/4-ARM	529 667	MS6-LFM-1/4-BRM
		G3/8	529 671	MS6-LFM-3/8-ARM	529 675	MS6-LFM-3/8-BRM
		G1/2	529 655	MS6-LFM-1/2-ARM	529 659	MS6-LFM-1/2-BRM
fully automatic	MS6	G1/4	530 510	MS6-LFM-1/4-ARV	530 514	MS6-LFM-1/4-BRV
		G3/8	530 518	MS6-LFM-3/8-ARV	530 522	MS6-LFM-3/8-BRV
		G1/2	530 502	MS6-LFM-1/2-ARV	530 506	MS6-LFM-1/2-BRV
Flow direction from right to left						
manual rotary	MS4	G1/8	529 464	MS4-LFM-1/8-ARM-Z	529 466	MS4-LFM-1/8-BRM-Z
		G1/4	529 460	MS4-LFM-1/4-ARM-Z	529 462	MS4-LFM-1/4-BRM-Z
	MS6	G1/4	529 664	MS6-LFM-1/4-ARM-Z	529 668	MS6-LFM-1/4-BRM-Z
		G3/8	529 672	MS6-LFM-3/8-ARM-Z	529 676	MS6-LFM-3/8-BRM-Z
		G1/2	529 656	MS6-LFM-1/2-ARM-Z	529 660	MS6-LFM-1/2-BRM-Z
fully automatic	MS6	G1/4	530 512	MS6-LFM-1/4-ARV-Z	530 516	MS6-LFM-1/4-BRV-Z
		G3/8	530 520	MS6-LFM-3/8-ARV-Z	530 524	MS6-LFM-3/8-BRV-Z
		G1/2	530 504	MS6-LFM-1/2-ARV-Z	530 508	MS6-LFM-1/2-BRV-Z

Ordering data						
Plastic bowl guard, with differential pressure indicator						
Condensate drain	Size	Connection	Micro filter		Fine filter	
			Grade of filtration 0.01 µm		Grade of filtration 1 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MS4	G1/8	536 821	MS4-LFM-1/8-ARM-DA	536 817	MS4-LFM-1/8-BRM-DA
		G1/4	536 822	MS4-LFM-1/4-ARM-DA	536 818	MS4-LFM-1/4-BRM-DA
	MS6	G1/4	536 869	MS6-LFM-1/4-ARM-DA	536 833	MS6-LFM-1/4-BRM-DA
		G3/8	536 870	MS6-LFM-3/8-ARM-DA	536 834	MS6-LFM-3/8-BRM-DA
		G1/2	536 871	MS6-LFM-1/2-ARM-DA	536 835	MS6-LFM-1/2-BRM-DA
fully automatic	MS6	G1/4	536 875	MS6-LFM-1/4-ARV-DA	536 839	MS6-LFM-1/4-BRV-DA
		G3/8	536 876	MS6-LFM-3/8-ARV-DA	536 840	MS6-LFM-3/8-BRV-DA
		G1/2	536 877	MS6-LFM-1/2-ARV-DA	536 841	MS6-LFM-1/2-BRV-DA
Flow direction from right to left						
manual rotary	MS4	G1/8	536 823	MS4-LFM-1/8-ARM-DA-Z	536 819	MS4-LFM-1/8-BRM-DA-Z
		G1/4	536 824	MS4-LFM-1/4-ARM-DA-Z	536 820	MS4-LFM-1/4-BRM-DA-Z
	MS6	G1/4	536 872	MS6-LFM-1/4-ARM-DA-Z	536 836	MS6-LFM-1/4-BRM-DA-Z
		G3/8	536 873	MS6-LFM-3/8-ARM-DA-Z	536 837	MS6-LFM-3/8-BRM-DA-Z
		G1/2	536 874	MS6-LFM-1/2-ARM-DA-Z	536 838	MS6-LFM-1/2-BRM-DA-Z
fully automatic	MS6	G1/4	536 878	MS6-LFM-1/4-ARV-DA-Z	536 842	MS6-LFM-1/4-BRV-DA-Z
		G3/8	536 879	MS6-LFM-3/8-ARV-DA-Z	536 843	MS6-LFM-3/8-BRV-DA-Z
		G1/2	536 880	MS6-LFM-1/2-ARV-DA-Z	536 844	MS6-LFM-1/2-BRV-DA-Z

Fine and micro filters MS4/MS6-LFM, MS series

FESTO

Technical data

Ordering data						
Metal bowl, without differential pressure indicator						
Condensate drain	Size	Connection	Micro filter		Fine filter	
			Grade of filtration 0.01 µm		Grade of filtration 1 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
fully automatic	MS4	G1/8	539 208	MS4-LFM-1/8-AUV	539 204	MS4-LFM-1/8-BUV
		G1/4	535 768	MS4-LFM-1/4-AUV	535 766	MS4-LFM-1/4-BUV
	MS6	G1/4	529 665	MS6-LFM-1/4-AUV	529 669	MS6-LFM-1/4-BUV
		G3/8	529 673	MS6-LFM-3/8-AUV	529 677	MS6-LFM-3/8-BUV
		G1/2	529 657	MS6-LFM-1/2-AUV	529 661	MS6-LFM-1/2-BUV
Flow direction from right to left						
fully automatic	MS4	G1/8	539 209	MS4-LFM-1/8-AUV-Z	539 205	MS4-LFM-1/8-BUV-Z
		G1/4	535 769	MS4-LFM-1/4-AUV-Z	535 767	MS4-LFM-1/4-BUV-Z
	MS6	G1/4	529 666	MS6-LFM-1/4-AUV-Z	529 670	MS6-LFM-1/4-BUV-Z
		G3/8	529 674	MS6-LFM-3/8-AUV-Z	529 678	MS6-LFM-3/8-BUV-Z
		G1/2	529 658	MS6-LFM-1/2-AUV-Z	529 662	MS6-LFM-1/2-BUV-Z

Ordering data						
Metal bowl, with differential pressure indicator						
Condensate drain	Size	Connection	Micro filter		Fine filter	
			Grade of filtration 0.01 µm		Grade of filtration 1 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
fully automatic	MS4	G1/8	537 213	MS4-LFM-1/8-AUV-DA	537 209	MS4-LFM-1/8-BUV-DA
		G1/4	537 214	MS4-LFM-1/4-AUV-DA	537 210	MS4-LFM-1/4-BUV-DA
	MS6	G1/4	536 881	MS6-LFM-1/4-AUV-DA	536 845	MS6-LFM-1/4-BUV-DA
		G3/8	536 882	MS6-LFM-3/8-AUV-DA	536 846	MS6-LFM-3/8-BUV-DA
		G1/2	536 883	MS6-LFM-1/2-AUV-DA	536 847	MS6-LFM-1/2-BUV-DA
Flow direction from right to left						
fully automatic	MS4	G1/8	537 215	MS4-LFM-1/8-AUV-DA-Z	537 211	MS4-LFM-1/8-BUV-DA-Z
		G1/4	537 216	MS4-LFM-1/4-AUV-DA-Z	537 212	MS4-LFM-1/4-BUV-DA-Z
	MS6	G1/4	536 884	MS6-LFM-1/4-AUV-DA-Z	536 848	MS6-LFM-1/4-BUV-DA-Z
		G3/8	536 885	MS6-LFM-3/8-AUV-DA-Z	536 849	MS6-LFM-3/8-BUV-DA-Z
		G1/2	536 886	MS6-LFM-1/2-AUV-DA-Z	536 850	MS6-LFM-1/2-BUV-DA-Z

MS4/MS6 series service units
Filters

2.13

Fine and micro filters MS4/MS6-LFM, MS series



Ordering data – Modular products

M Mandatory data →

Module No.	Series	Size	Function	Connection size	Grade of filtration	Bowl
527 697	MS	4	LFM	1/8, 1/4, 3/8, 1/2, AGA, AGB, AGC, AGD, AGE	B A	R U
527 670		6				
Ordering example	MS	4	- LFM	- AGB	- B	- R

Ordering table

Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
M Module No.		527 697	527 670			
Series		Standard			MS	MS
Size		4	6		...	
Function		Fine and micro filter			-LFM	-LFM
Connection size	Thread G1/8		-		-1/8	
	Thread G1/4		Thread G1/4		-1/4	
	-		Thread G3/8		-3/8	
	-		Thread G1/2		-1/2	
	Connecting plate G1/8		-		-AGA	
	Connecting plate G1/4		Connecting plate G1/4		-AGB	
	Connecting plate G3/8		Connecting plate G3/8		-AGC	
	-		Connecting plate G1/2		-AGD	
	-		Connecting plate G3/4		-AGE	
Grade of filtration	1 µm				-B	
	0.01 µm				-A	
Bowl	Plastic bowl with plastic bowl guard				-R	
	Metal bowl				-U	

MS4/MS6 series service units
Filters

2.13

Transfer order code

-

 -

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Fine and micro filters MS4/MS6-LFM, MS series

Ordering data – Modular products

M Mandatory data		O Options	
Condensate drain		Filter change sensor	Type of mounting
M H V E1 E2 E3 E4		DA	WP WPM WB WBM
- M		-	- WP
			- Z

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
↓ Condensate drain M	Manual				-M	
	Semi-automatic (P1 max. 12 bar)				-H	
	Fully automatic (P1 max. 12 bar)				-V	
	-	External fully automatic condensate drain, electrical, 24 V DC, M12		1	-E1	
	-	External fully automatic condensate drain, electrical, 110 V AC, terminals		1	-E2	
	-	External fully automatic condensate drain, electrical, 230 V AC, terminals		1	-E3	
	-	External fully automatic condensate drain, electrical, 24 V DC, terminals		1	-E4	
O	Filter change sensor	Differential pressure indicator, optical			-DA	
	Type of mounting	Wall mounting plate		2	-WP	
		Wall mounting plate (dimensions for M series)		2	-WPM	
		Wall mounting bracket			-WB	
		Wall mounting bracket (dimensions for M series)	-		-WBM	
	Alternative flow direction	Flow direction from right to left			-Z	

1 E1, E2, E3, E4
Only with metal bowl U.

2 WP, WPM Only with sub-base AGA, AGB, AGC, AGD or AGE.

Transfer order code

- - -

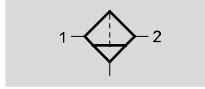
Active carbon filters MS4/MS6-LFX, MS series

FESTO

Technical data

Function

Condensate drain
manual rotary



- - Flow rate
250 ... 1200 l/min
- - Temperature range
-10 ... +60 °C
- - Input pressure
0 ... 20 bar



- Removal of liquid and gaseous oil particles from compressed air using active carbon
- Removal of odour and taste
- Prefiltration with micro filter MS-LFM-A, grade of filtration 0.01 µm, recommended

General technical data					
		MS4		MS6	
Pneumatic connection 1		G $\frac{3}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$
Pneumatic connection 2		G $\frac{3}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{1}{2}$
Operating medium		Compressed air, filtered, unlubricated, grade of filtration 0.01 µm			
Design		Activated carbon filter			
Type of mounting		Via accessories In-line installation			
Assembly position		Vertical ±5°			
Residual oil content	[mg/m ³]	≤ 0.003			
Air purity class at the output					
Air purity class at the output ¹⁾		1.7.1 to DIN ISO 8573-1			
Input pressure					
Input pressure	[bar]	0 ... 14		0 ... 20	

1) It is recommended to replace filter cartridges after 1000 operating hours.

Standard nominal flow rate qnN ¹⁾ and standard flow rate qn [l/min]					
		MS4		MS6	
		G $\frac{3}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$
qnN 1 \rightarrow 2		250	250	700	1000
qn max		360	360	900	900

1) measured at p₁ = 6 bar and Δp = 70 mbar

Ambient conditions		
		MS4
		MS6
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	+5 ... +30
Storage temperature	[°C]	-10 ... +60
Corrosion resistance class	CRC ¹⁾	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.

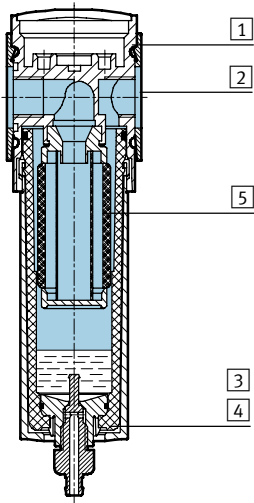
Active carbon filters MS4/MS6-LFX, MS series

Technical data

Weight [g]	MS4	MS6
With plastic bowl guard	190	600
With metal bowl	350	820

Materials

Sectional view

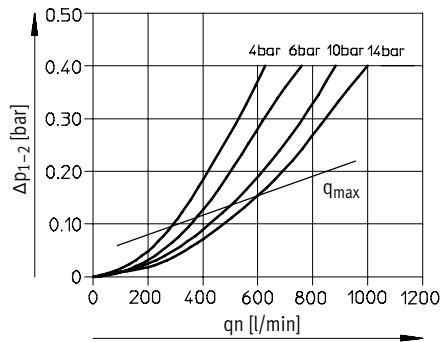


Active carbon filter

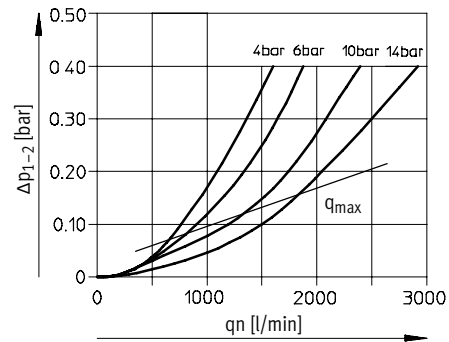
1	Body	Die-cast aluminium
2	Cover plates	Polyamide
3	Plastic bowl guard	Polycarbonate/Polyamide
4	Metal bowl Window shield	Aluminium Polyamide
5	Filter element	Active carbon
-	Seals	Nitrile rubber
Note on materials		Free of copper, PTFE and silicone

Standard flow rate q_n as a function of the differential pressure Δp_{1-2}

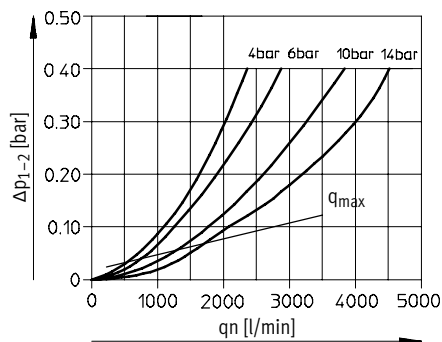
MS4-LFX-1/8 and MS4-LFX-1/4



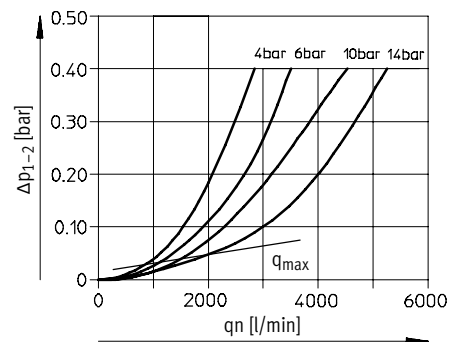
MS6-LFX-1/4



MS6-LFX-3/8



MS6-LFX-1/2



Active carbon filters MS4/MS6-LFX, MS series

Technical data



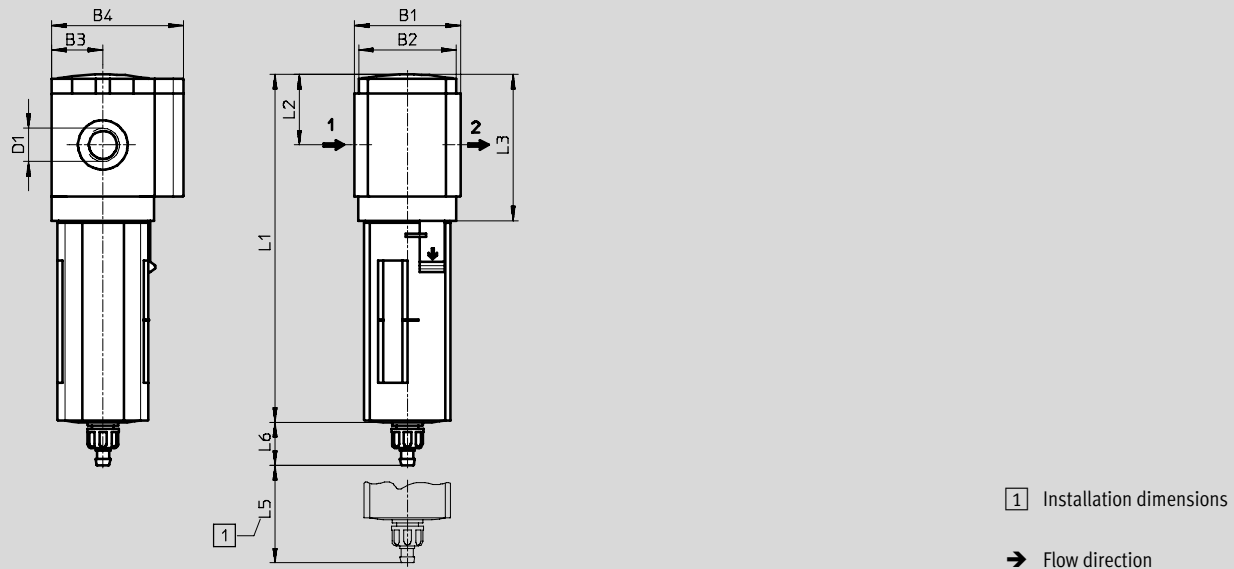
MS4/MS6 series service units
Filters

2.13

Dimensions – Standard

Download CAD data → www.festo.com/en/engineering

Manual rotary condensate drain



Type	B1 ¹⁾	B2	B3	B4	D1	L1		L2	L3	L5	L6	
						Bowl guard					Bowl guard	
						plastic	metal				plastic	metal
MS4-LFX-1/8	43.6	40.2	21	54	G1/8	142.8	160.4	29	60	75	17.7	18
MS4-LFX-1/4					G1/4							
MS6-LFX-1/4	67	62	31	76	G1/4	192	198	42	87	100	15.8	19
MS6-LFX-3/8					G3/8							
MS6-LFX-1/2					G1/2							

1) With accessory cover cap MS...-END

Active carbon filters MS4/MS6-LFX, MS series

FESTO

Technical data

Ordering data						
Condensate drain	Size	Connection	Plastic bowl guard		Metal bowl	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MS4	G1/8	536 707	MS4-LFX-1/8-R	536 709	MS4-LFX-1/8-U
		G1/4	529 467	MS4-LFX-1/4-R	535 782	MS4-LFX-1/4-U
	MS6	G1/4	529 683	MS6-LFX-1/4-R	529 685	MS6-LFX-1/4-U
		G3/8	529 687	MS6-LFX-3/8-R	529 689	MS6-LFX-3/8-U
		G1/2	529 679	MS6-LFX-1/2-R	529 681	MS6-LFX-1/2-U
Flow direction from right to left						
manual rotary	MS4	G1/8	536 708	MS4-LFX-1/8-R-Z	536 710	MS4-LFX-1/8-U-Z
		G1/4	529 468	MS4-LFX-1/4-R-Z	535 783	MS4-LFX-1/4-U-Z
	MS6	G1/4	529 684	MS6-LFX-1/4-R-Z	529 686	MS6-LFX-1/4-U-Z
		G3/8	529 688	MS6-LFX-3/8-R-Z	529 690	MS6-LFX-3/8-U-Z
		G1/2	529 680	MS6-LFX-1/2-R-Z	529 682	MS6-LFX-1/2-U-Z

MS4/MS6 series service units
Filters

2.13

Active carbon filters MS4/MS6-LFX, MS series



Ordering data – Modular products

M Mandatory data						O Options	
Module No.	Series	Size	Function	Connection size	Bowl	Type of mounting	Alternative flow direction
527 699	MS	4	LFX	1/8, 1/4, 3/8, 1/2, AGA, AGB, AGC, AGD, AGE	R	WP WPM WB WBM	Z
527 672		6			U		
Ordering example							
527 699	MS	4	- LFX	- AGB	- R	- WP	- Z

Ordering table							
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code	
M Module No.		527 699	527 672				
Series		Standard			MS		MS
Size		4	6		...		
Function		Active carbon filter			-LFX		-LFX
Connection size	Thread G1/8		-		-1/8		
	Thread G1/4		Thread G1/4		-1/4		
	-		Thread G3/8		-3/8		
	-		Thread G1/2		-1/2		
	Connecting plate G1/8		-		-AGA		
	Connecting plate G1/4		Connecting plate G1/4		-AGB		
	Connecting plate G3/8		Connecting plate G3/8		-AGC		
	-		Connecting plate G1/2		-AGD		
Bowl	Plastic bowl with plastic bowl guard				-R		
	Metal bowl				-U		
O Type of mounting	Wall mounting plate			<input type="checkbox"/>	-WP		
	Wall mounting plate (dimensions for M series)			<input type="checkbox"/>	-WPM		
	Wall mounting bracket				-WB		
	Wall mounting bracket (dimensions for M series)		-		-WBM		
Alternative flow direction		Flow direction from right to left			-Z		

1 WP, WPM Only with sub-base AGA, AGB, AGC, AGD or AGE.

Transfer order code

	MS		- LFX						
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Filters MS4/MS6-LF/LFM/LFX, MS series

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Accessories

Filter cartridge LF...



MS...-LFM



MS...-LFP



MS...-LFX

Ordering data				
Size		Grade of filtration [μm]	Part No.	Type
MS4	Micro-filter cartridge	0.01	162 674	MS4/D-MINI-LFM-A
MS4	Fine-filter cartridge	1	162 677	MS4/D-MINI-LFM-B
MS4	Filter cartridge	5	534 501	MS4-LFP-C
MS4	Filter cartridge	40	534 502	MS4-LFP-E
MS4	Active carbon filter cartridge	Residual oil content ≤ 0.003 mg/m ³	532 912	MS4/D-MINI-LFX
MS6	Micro-filter cartridge	0.01	532 909	MS6-LFM-A
MS6	Fine-filter cartridge	1	532 910	MS6-LFM-B
MS6	Filter cartridge	5	534 499	MS6-LFP-C
MS6	Filter cartridge	40	534 500	MS6-LFP-E
MS6	Active carbon filter cartridge	Residual oil content ≤ 0.003 mg/m ³	532 911	MS6-LFX

MS4/MS6 series service units
Filters

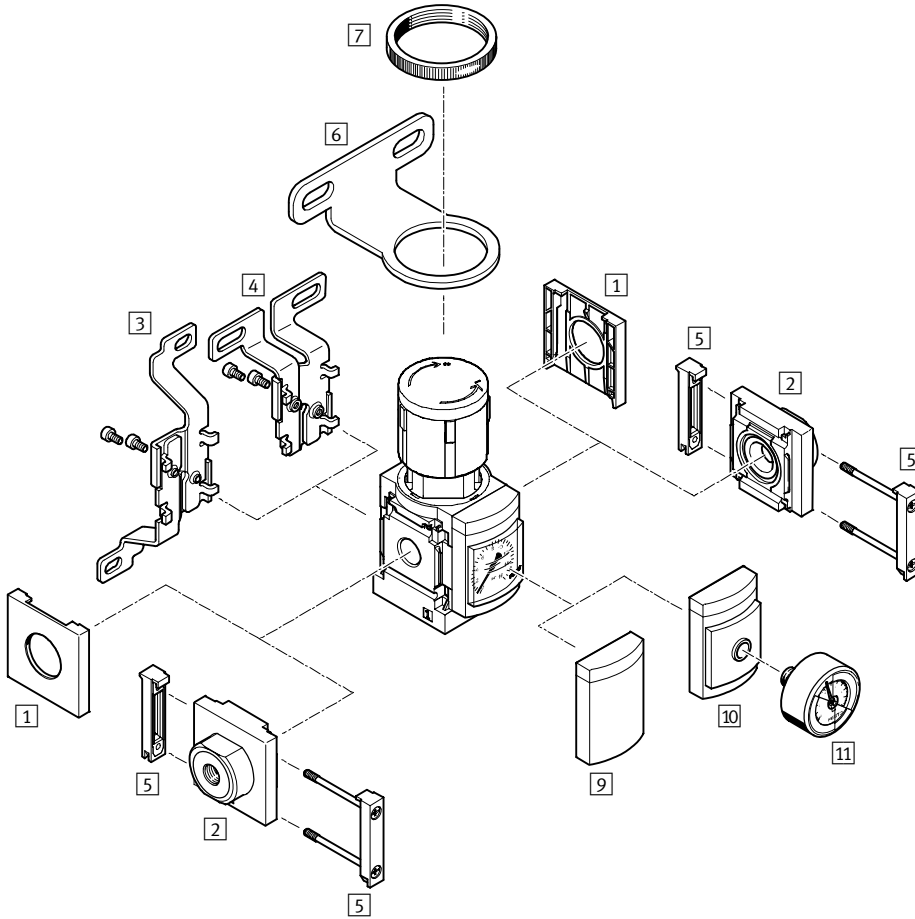
2.13

Pressure regulators MS4/MS6-LR/LRB, MS series

Peripherals overview



Pressure regulator LR



MS4/MS6 series service units
Pressure regulators

2.14

Pressure regulators MS4/MS6-LR/LRB, MS series

Peripherals overview

Mounting attachments and accessories – LR						
		Individual unit		Combination		→ Page
		without connecting plate	with connecting plate	without connecting plate	with connecting plate	
1	Cover cap MS4/6-END	■	-	■	-	3/2.31-3
2	Connecting plate MS4/6-AG...	-	■	-	■	3/2.31-0
3	Wall mounting bracket MS4/6-WB	■	■	-	-	3/2.31-1
4	Wall mounting bracket MS4-WBM	■	■	-	-	3/2.31-1
5	Module connector MS4/6-MV	-	■	-	■	3/2.31-3
6	Regulator wall bracket MS4/6-WR	■	■	-	-	3/2.31-2
7	Knurled nut (included in scope of delivery) MS-LR	■	■	-	-	-
9	Cover plate VS	■	■	■	■	3/2.14-10
10	Adapter for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	3/2.14-10
11	Pressure gauge MA	■	■	■	■	3/2.31-8
-	Wall mounting plate MS4/6-WP	-	■	■	■	3/2.31-5
-	Wall mounting plate MS4/6-WPB	-	■	■	■	3/2.31-6
-	Wall mounting plate MS4/6-WPM	-	■	■	■	3/2.31-6

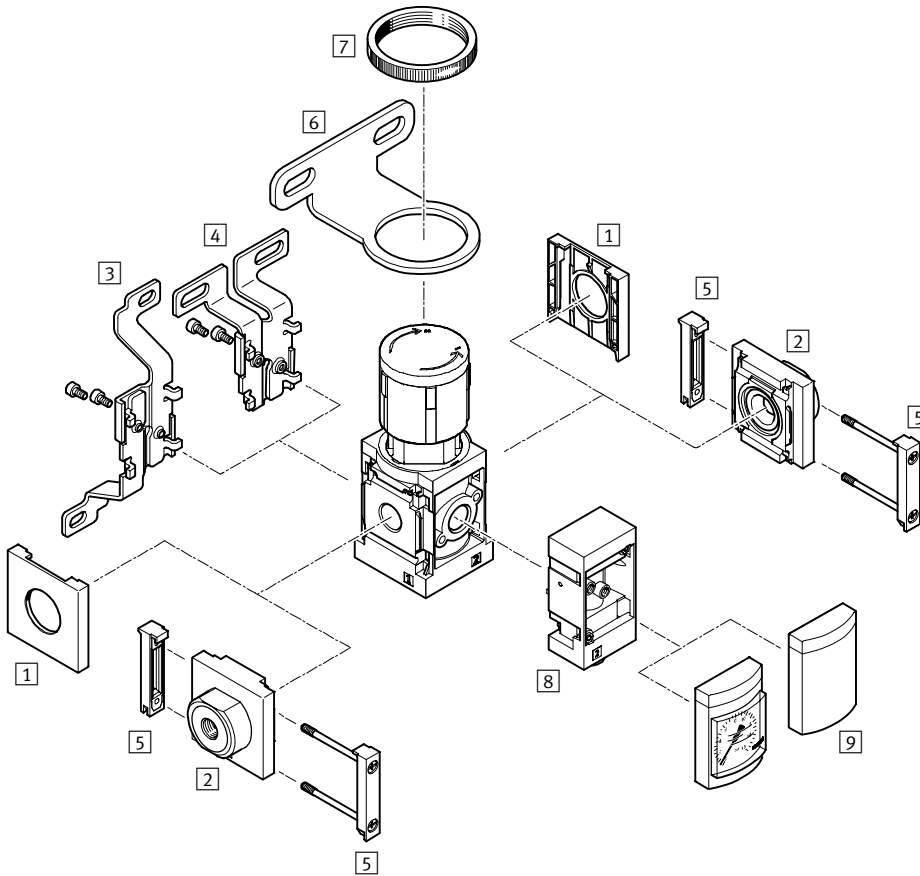
Pressure regulators MS4/MS6-LR/LRB, MS series

Peripherals overview

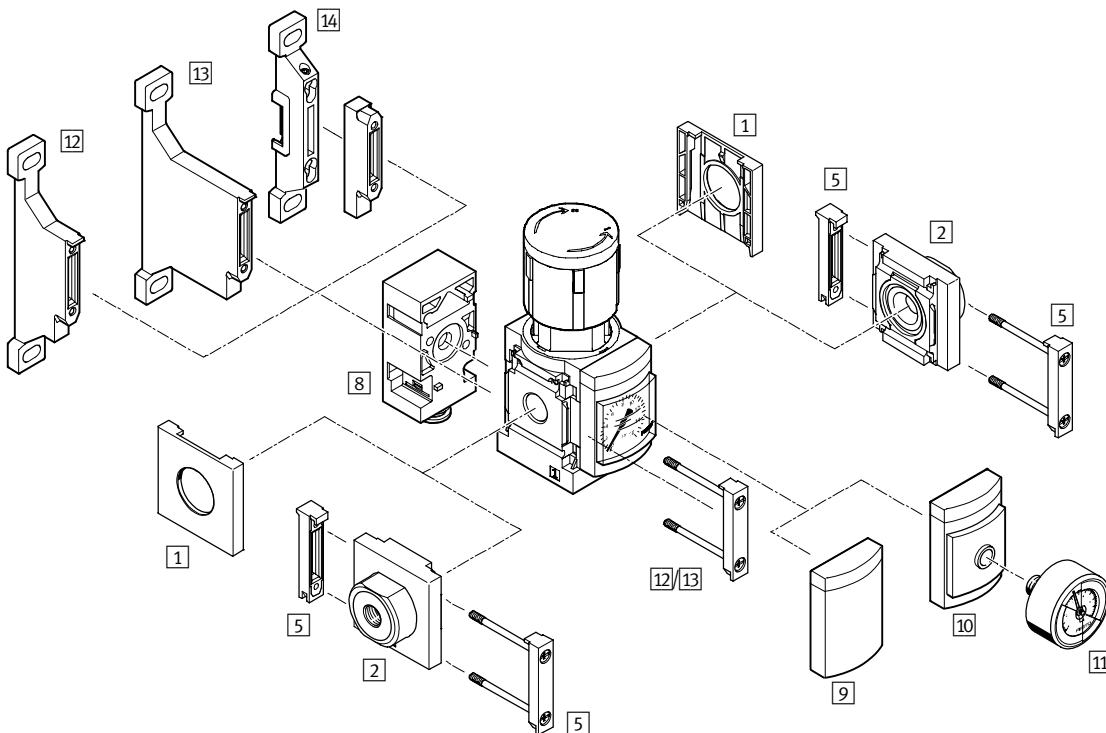
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Pressure regulator LRB

Without angled outlet block or angled outlet block at front



Angled outlet block at rear



Pressure regulators MS4/MS6-LR/LRB, MS series

Peripherals overview

FESTO

Mounting attachments and accessories – LRB						
		Individual unit		Combination → 3/2.11-10		→ Page
		without connecting plate	with connecting plate	without connecting plate	with connecting plate	
1	Cover cap MS4/6-END	■	–	■	–	3/2.31-3
2	Connecting plate MS4/6-AG...	–	■	–	■	3/2.31-0
3	Wall mounting bracket MS4/6-WB	■ with variant Z	■ with variant Z	–	–	3/2.31-1
4	Wall mounting bracket MS4-WBM	■ with variant Z	■ with variant Z	–	–	3/2.31-1
5	Module connector MS4/6-MV	–	■	–	■	3/2.31-3
6	Regulator wall bracket MS4/6-WR	■ with variant Z	■ with variant Z	–	–	3/2.31-2
7	Knurled nut (included in scope of delivery) MS-LR	■	■	–	–	–
8	Angled outlet block B...	■	■	■	■	3/2.14-18
9	Cover plate VS	■	■	■	■	3/2.14-18
10	Adapter for EN pressure gauge 1/8/1/4 A8/A4	■ 1)	■ 1)	■ 1)	■ 1)	3/2.14-18
11	Pressure gauge MA	■	■	■	■	3/2.31-8
12	Wall mounting plate MS4/6-WP	–	■ with variant Z	■ with variant Z	■ with variant Z	3/2.31-5
13	Wall mounting plate MS4/6-WPB	–	■ 2)	■ 2)	■ 2)	3/2.31-6
14	Wall mounting plate MS4/6-WPM	–	■ with variant Z	■ with variant Z	■ with variant Z	3/2.31-6

- 1) Not in combination with alternative flow direction Z and pressure output BC, BD, BE in parallel.
2) Not in combination with alternative flow direction Z and pressure output BC, BD, BE.

MS4/MS6 series service units
Pressure regulators

2.14

Pressure regulators MS4/MS6-LR/LRB, MS series

Type codes

MS 6 - LRB - 1/2 - D7 - AS - - BD - Z

Basic function

MS	Standard service unit
----	-----------------------

Size

4	Grid dimension 40 mm
6	Grid dimension 62 mm

Service function

LR	Pressure regulator
LRB	Pressure regulator for manifold assembly

Connection size

1/8	Thread G1/8
1/4	Thread G1/4
3/8	Thread G3/8
1/2	Thread G1/2

Pressure regulation range

D5	0.3 ... 4 bar
D6	0.3 ... 7 bar
D7	0.5 ... 12 bar

Actuator lock

AS	Lockable standard type rotary knob
----	------------------------------------

Pressure gauge alternatives (LRB only)

	Integrated pressure gauge
VS	Cover plate

Pressure output (LRB only)

	Without angled outlet block QS8
BD	Angled outlet block QS8

Alternative flow direction

	LR: Flow direction from left to right
	LRB: Pressure output to rear
Z	LR: Flow direction from right to left
	LRB: Pressure output to front

Further variants can be ordered using the modular system




Pressure regulators LR	→ 3/2.14-10
Pressure regulators LRB	→ 3/2.14-18

- Connecting plates
- Pressure regulation range
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Actuator lock
- Rotary knob
- Pressure output (LRB only)
- Type of mounting

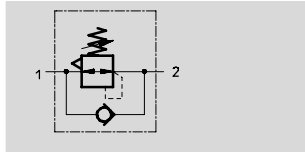
Pressure regulators MS4/MS6-LR, MS series

Technical data

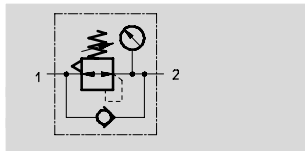
Function

-  - Flow rate
1000 ... 7500 l/min
-  - Temperature range
-10 ... +60 °C
-  - Input pressure
0.8 ... 20 bar

Without pressure gauge



With pressure gauge



The pressure regulator maintains a constant working pressure (secondary side), regardless of the pressure variations in the system (primary side) and the air consumption.

- Good control characteristics with low hysteresis and primary pressure compensation
- High flow rate with minimal pressure drop
- Available with or without secondary venting
- Setting values are secured by locking the rotary knob
- Lockable rotary knob
- Four pressure regulation ranges: 0.3 ... 4 bar, 0.3 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Two pressure gauge connections for different fitting options
- Return flow option for exhausting from output 2 to output 1

General technical data					
	MS4		MS6		
Pneumatic connection 1	G1/8	G1/4	G1/4	G3/8	G1/2
Pneumatic connection 2	G1/8	G1/4	G1/4	G3/8	G1/2
Operating medium	Compressed air				
Design	Directly actuated diaphragm regulator				
Type of mounting	Via accessories				
	In-line installation				
	Front panel mounting				
Assembly position	Any				
Max. hysteresis [bar]	0.25		0.25		
Input pressure [bar]	0.8 ... 14		0.8 ... 20		
Pressure regulation range [bar]					
D5	0.3 ... 4		0.3 ... 4		
D6	0.3 ... 7		0.3 ... 7		
D7	0.5 ... 12		0.5 ... 12		
D8	-		0.5 ... 16		

Standard nominal flow rate qnN [l/min] ¹⁾					
	MS4		MS6		
	G1/8	G1/4	G1/4	G3/8	G1/2
D5	1200 ²⁾	2100 ²⁾	2400 ²⁾	5500 ²⁾	7500 ²⁾
D6	1150	1800	3000	5800	6500
D7	1000	1700	2700	4500	5500
D8	-	-	2200	4000	4 500

1) measured at p1 = 10 bar and p2 = 6 bar, Δp = 1 bar
 2) measured at p1 = 10 bar and p2 = 3 bar, Δp = 1 bar

Pressure regulators MS4/MS6-LR, MS series



Technical data

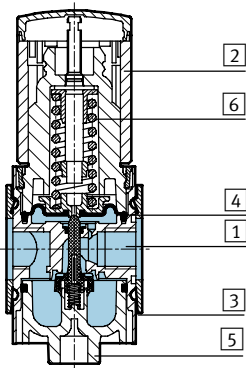
Ambient conditions		
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	-10 ... +60
Storage temperature	[°C]	-10 ... +60
Corrosion resistance class	CRC ¹⁾	2

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.

Weight [g]	MS4	MS6
Pressure regulator	225	730

Materials

Sectional view



Pressure regulator		
1	Body	Die-cast aluminium
2	Regulating knob	Polyamide/polyacetate
3	Cover plates	Polyamide
4	Diaphragm	Nitrile rubber
5	Bottom cap	Polyester, fibreglass reinforced
6	Springs	Steel
-	Seals	Nitrile rubber
Note on materials		Free of copper, PTFE and silicone only with cover plate VS

MS4/MS6 series service units
 Pressure regulators

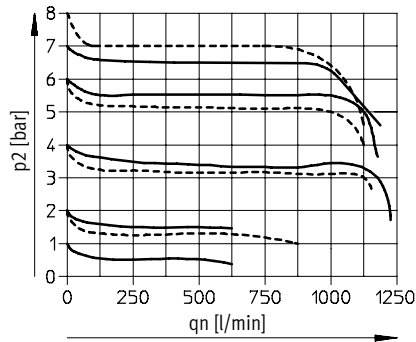
2.14

Pressure regulators MS4/MS6-LR, MS series

Technical data

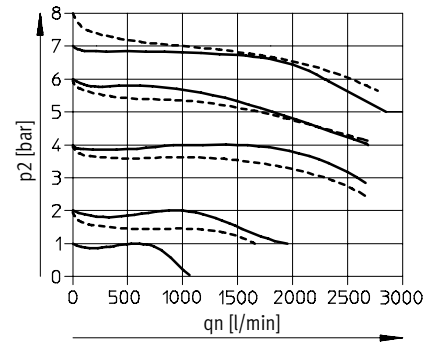
Standard flow rate q_n as a function of the output pressure p_2

MS4-LR-1/8

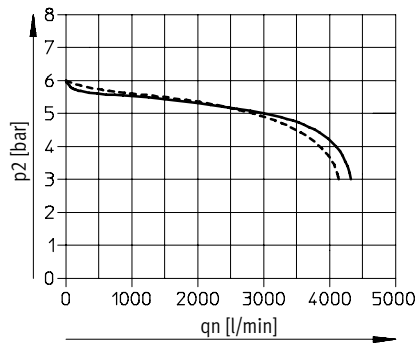


— D6: 0.3 ... 7 bar
 - - - D7: 0.5 ... 12 bar

MS4-LR-1/4

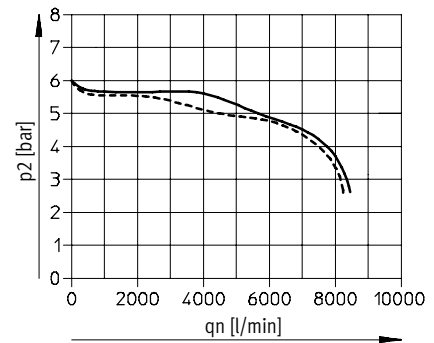


MS6-LR-1/4

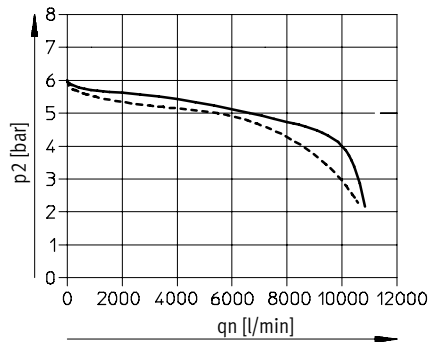


— D6: 0.3 ... 7 bar
 - - - D7: 0.5 ... 12 bar

MS6-LR-3/8



MS6-LR-1/2



— D6: 0.3 ... 7 bar
 - - - D7: 0.5 ... 12 bar

Primary pressure $p_1 = 10$ bar

Pressure regulators MS4/MS6-LR, MS series

Technical data

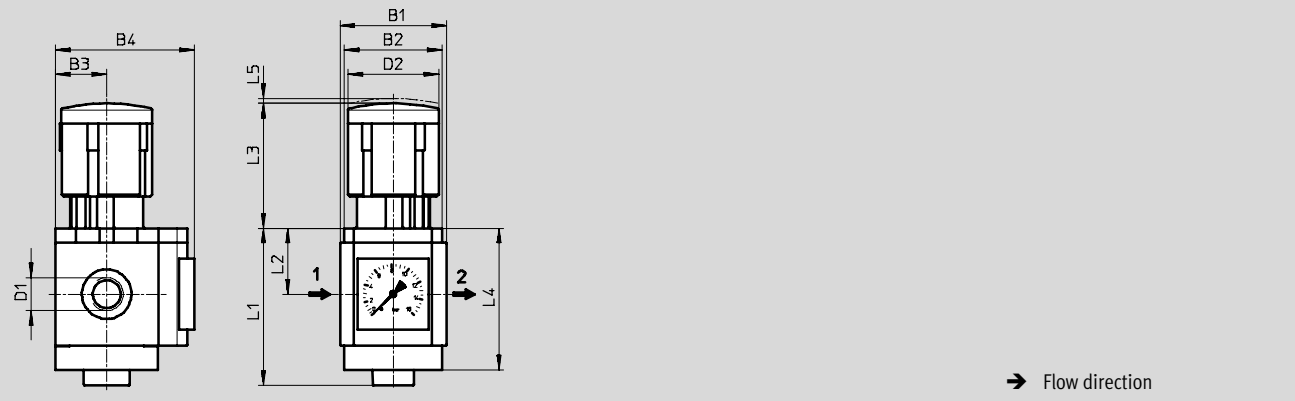
MS4/MS6 series service units
Pressure regulators

2.14

Dimensions – Standard

Download CAD data → www.festo.com/en/engineering

With pressure gauge, display unit [bar]



Type	B1 ¹⁾	B2	B3	B4	D1	D2	L1	L2	L3	L4	L5
MS4-LR-1/8	43.6	40	21	57	G1/8	37.2	64.4	27	51.1	58	2
MS4-LR-1/4					G1/4						
MS6-LR-1/4	67	62	31	77	G1/4	51	93	39	86	84	5
MS6-LR-3/8					G3/8						
MS6-LR-1/2					G1/2						

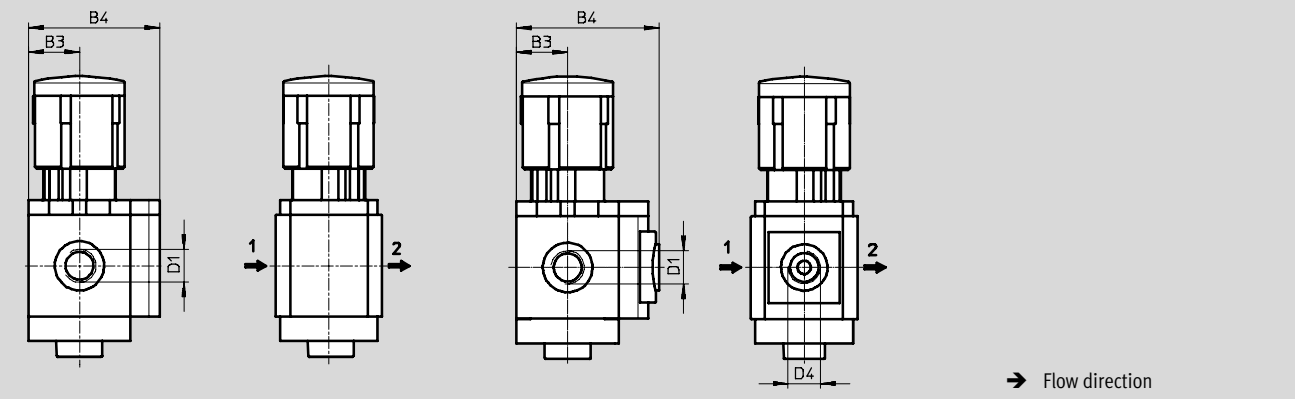
1) With accessory cover cap MS...-END

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com/en/engineering

Cover plate VS

Adapter A8/A4 for EN pressure gauge 1/8/1/4, without pressure gauge



Type	B3	B4	D1	D4
MS4-LR-1/8-VS	21	54	G1/8	-
MS4-LR-1/4-VS			G1/4	
MS4-LR-1/8-A8	21	58.5	G1/8	G1/8
MS4-LR-1/4-A8			G1/4	
MS4-LR-1/8-A4	21	58.5	G1/8	G1/4
MS4-LR-1/4-A4			G1/4	
MS6-LR-1/4-VS	31	76	G1/4	-
MS6-LR-3/8-VS			G3/8	
MS6-LR-1/2-VS			G1/2	
MS6-LR-1/4-A4	31	78.5	G1/4	G1/4
MS6-LR-3/8-A4			G3/8	
MS6-LR-1/2-A4			G1/2	

Pressure regulators MS4/MS6-LR, MS series

FESTO

Technical data

Dimensions – Rotary knob

Download CAD data → www.festo.com/en/engineering

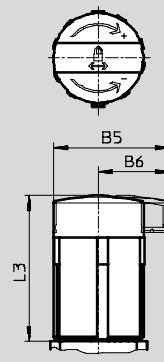
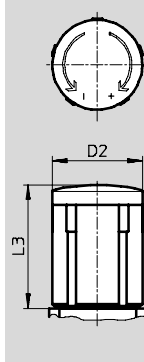
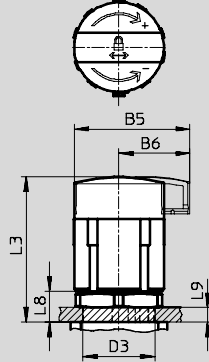
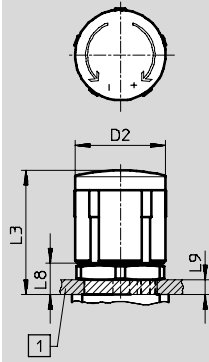
For installation into control panel

Standard

Standard, lockable
AS

Long
LD

Long, lockable
LD-AS



1 Max. control panel thickness
6 mm

Type	B5	B6	D2	D3 +1	L3	L8	L9
MS4-LFR-...	-	-	37.2	30	51.1	13	6
MS4-LFR-...-AS	48.3	29.7			60.2		
MS4-LFR-...-LD	-	-	37.2	30	51.1	-	-
MS4-LFR-...-LD-AS	48.3	29.7			60.2		
MS6-LFR-...	-	-	51	44	86	22	14
MS6-LFR-...-AS	64.4	39			95.5		
MS6-LFR-...-LD	-	-	51	44	86	-	-
MS6-LFR-...-LD-AS	64.4	39			95.5		

Ordering data

Pressure gauge, lockable standard type rotary knob

Size	Connection	Pressure regulation range 0.3 ... 4 bar		Pressure regulation range 0.3 ... 7 bar		Pressure regulation range 0.5 ... 12 bar	
		Part No.	Type	Part No.	Type	Part No.	Type
Flow direction from left to right							
MS4	G $\frac{1}{8}$	529 421	MS4-LR- $\frac{1}{8}$ -D5-AS	529 423	MS4-LR- $\frac{1}{8}$ -D6-AS	529 425	MS4-LR- $\frac{1}{8}$ -D7-AS
	G $\frac{1}{4}$	529 415	MS4-LR- $\frac{1}{4}$ -D5-AS	529 417	MS4-LR- $\frac{1}{4}$ -D6-AS	529 419	MS4-LR- $\frac{1}{4}$ -D7-AS
MS6	G $\frac{1}{4}$	529 995	MS6-LR- $\frac{1}{4}$ -D5-AS	529 997	MS6-LR- $\frac{1}{4}$ -D6-AS	529 999	MS6-LR- $\frac{1}{4}$ -D7-AS
	G $\frac{3}{8}$	530 001	MS6-LR- $\frac{3}{8}$ -D5-AS	530 003	MS6-LR- $\frac{3}{8}$ -D6-AS	530 005	MS6-LR- $\frac{3}{8}$ -D7-AS
	G $\frac{1}{2}$	529 989	MS6-LR- $\frac{1}{2}$ -D5-AS	529 991	MS6-LR- $\frac{1}{2}$ -D6-AS	529 993	MS6-LR- $\frac{1}{2}$ -D7-AS
Flow direction from right to left							
MS4	G $\frac{1}{8}$	529 422	MS4-LR- $\frac{1}{8}$ -D5-AS-Z	529 424	MS4-LR- $\frac{1}{8}$ -D6-AS-Z	529 426	MS4-LR- $\frac{1}{8}$ -D7-AS-Z
	G $\frac{1}{4}$	529 416	MS4-LR- $\frac{1}{4}$ -D5-AS-Z	529 418	MS4-LR- $\frac{1}{4}$ -D6-AS-Z	529 420	MS4-LR- $\frac{1}{4}$ -D7-AS-Z
MS6	G $\frac{1}{4}$	529 996	MS6-LR- $\frac{1}{4}$ -D5-AS-Z	529 998	MS6-LR- $\frac{1}{4}$ -D6-AS-Z	530 000	MS6-LR- $\frac{1}{4}$ -D7-AS-Z
	G $\frac{3}{8}$	530 002	MS6-LR- $\frac{3}{8}$ -D5-AS-Z	530 004	MS6-LR- $\frac{3}{8}$ -D6-AS-Z	530 006	MS6-LR- $\frac{3}{8}$ -D7-AS-Z
	G $\frac{1}{2}$	529 990	MS6-LR- $\frac{1}{2}$ -D5-AS-Z	529 992	MS6-LR- $\frac{1}{2}$ -D6-AS-Z	529 994	MS6-LR- $\frac{1}{2}$ -D7-AS-Z

MS4/MS6 series service units
Pressure regulators

2.14

Pressure regulators MS4/MS6-LR, MS series



Ordering data – Modular products

M Mandatory data →

Module No.	Series	Size	Function	Connection size	Pressure regulation range
527 690 527 663	MS	4 6	LR	1/8, 1/4, 3/8, 1/2, AGA, AGB, AGC, AGD, AGE	D5 D6 D7 D8
Ordering example 527 690	MS	4	- LR	- AGB	- D6

Ordering table

Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
M Module No.		527 690	527 663			
Series		Standard			MS	MS
Size		4	6		...	
Function		Pressure regulator			-LR	-LR
Connection size	Thread G1/8		-		-1/8	
	Thread G1/4		Thread G1/4		-1/4	
	-		Thread G3/8		-3/8	
	-		Thread G1/2		-1/2	
	Connecting plate G1/8		-		-AGA	
	Connecting plate G1/4		Connecting plate G1/4		-AGB	
	Connecting plate G3/8		Connecting plate G3/8		-AGC	
	-		Connecting plate G1/2		-AGD	
	-		Connecting plate G3/4		-AGE	
Pressure regulation range	0.3 ... 4 bar				-D5	
	0.3 ... 7 bar				-D6	
	0.5 ... 12 bar				-D7	
	-		0.5 ... 16 bar		-D8	

MS4/MS6 series service units
Pressure regulators

2.14

Transfer order code

	MS		- LR			
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Pressure regulators MS4/MS6-LR, MS series



Ordering data – Modular products

Options

Pressure gauge alternatives	Alternative pressure gauge scale	Secondary venting	Rotary knob	Security	Type of mounting	Alternative flow direction
VS A8 A4	PSI MPA	OS	LD	AS	WR WP WPM WB WBM	Z
- A4	-	- OS	- LD	- AS	- WB	- Z

Ordering table		Grid dimension [mm]	40	62	Condi- tions	Code	Enter code	
0	Pressure gauge alternatives	Cover plate				-VS		
		Adapter plate for EN pressure gauge 1/8, without pressure gauge	-			-A8		
		Adapter plate for EN pressure gauge 1/4, without pressure gauge				-A4		
	Alternative pressure gauge scale	psi			1	-PSI		
		MPa			1	-MPA		
	Secondary venting	Without secondary venting				-OS		
	Rotary knob	Long rotary knob				-LD		
	Security	Lockable rotary knob				-AS		
	Type of mounting	Mounting bracket with hex nut for regulator head				2		-WR
		Wall mounting plate				3		-WP
Wall mounting plate (dimensions for M series)					3	-WPM		
Wall mounting bracket						-WB		
Wall mounting bracket (dimensions for M series)		-				-WBM		
Alternative flow direction	Flow direction from right to left					-Z		

1 **PSI, MPA** Not with pressure gauge alternatives VS, A8, A4.
 2 **WR** Not with long rotary knob LD.

3 **WP, WPM** Only with sub-base AGA, AGB, AGC, AGD or AGE.

MS4/MS6 series service units
Pressure regulators

2.14


Transfer order code

- [] - [] - [] - [] - [] - [] - []

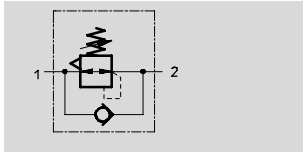
Pressure regulators MS4/MS6-LRB, MS series


Technical data


Function

-  - Flow rate
300 ... 7300 l/min

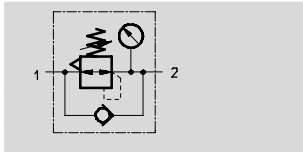
Without pressure gauge



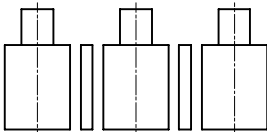
-  - Temperature range
-10 ... +60 °C

-  - Input pressure
0.8 ... 20 bar

With pressure gauge



LRB-manifold with through pressure supply for manifold assembly



The pressure regulator is suitable for manifold assemblies with through air supply on both sides, for configuring of a regulator manifold with separate, independent pressure regulation ranges. Pressure output is at the front or rear.



- Good control characteristics with low hysteresis and primary pressure compensation
- Manifold assembly with through air supply
- For configuring a regulator manifold with independent pressure regulation ranges
- Available with or without secondary venting
- Setting values are secured by locking the rotary knob
- Lockable rotary knob
- Four pressure regulation ranges: 0.3 ... 4 bar, 0.3 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Return flow option for exhausting from output 2 to output 1

General technical data		
	MS4	MS6
Pneumatic connection 1	G $\frac{1}{4}$	G $\frac{1}{2}$
Pneumatic connection 2	G $\frac{1}{4}$	G $\frac{1}{2}$
	QS6	QS8
	QS8	QS10
Operating medium	Compressed air	
Design	Directly actuated diaphragm regulator with through pressure supply	
Type of mounting	Via accessories	
	In-line installation	
	Front panel mounting	
Assembly position	Any	
Max. hysteresis [bar]	0.25	0.25
Input pressure [bar]	0.8 ... 14	0.8 ... 20
Pressure regulation range [bar]		
D5	0.3 ... 4	0.3 ... 4
D6	0.3 ... 7	0.3 ... 7
D7	0.5 ... 12	0.5 ... 12
D8	-	0.5 ... 16

	Standard nominal flow rate q _N [l/min] ¹⁾					
	MS4			MS6		
	Standard	Angled outlet block		Standard	Angled outlet block	
		QS6	QS8		QS8	QS10
D5	1900 ²⁾	300 ²⁾	650 ²⁾	7300 ²⁾	600 ²⁾	750 ²⁾
D6	1700	350	840	6300	880	1000
D7	1500	350	640	5500	800	950
D8	-	-	-	4500	750	850

1) measured at p₁ = 10 bar and p₂ = 6 bar, Δp = 1 bar
2) measured at p₁ = 10 bar and p₂ = 3 bar, Δp = 1 bar

Pressure regulators MS4/MS6-LRB, MS series

Technical data

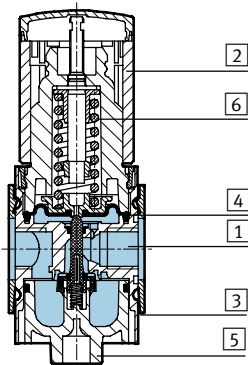
Ambient conditions		
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	-10 ... +60
Storage temperature	[°C]	-10 ... +60
Corrosion resistance class	CRC ¹⁾	2

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.

Weight [g]	MS4	MS6
Pressure regulator	222	747

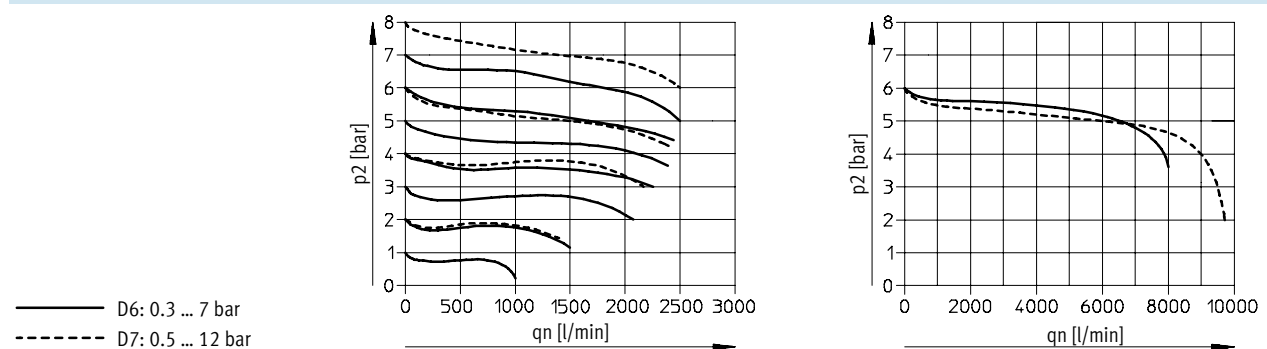
Materials

Sectional view



Pressure regulator (manifold assembly)		
1	Body	Die-cast aluminium
2	Regulating knob	Polyamide/polyacetate
3	Cover plates	Polyamide
4	Diaphragm	Nitrile rubber
5	Bottom cap	Polyester, fibreglass reinforced
6	Springs	Steel
-	Seals	Nitrile rubber
Note on materials		Free of copper, PTFE and silicone only with cover plate VS

Standard flow rate qn as a function of the output pressure p2



Primary pressure p1 = 10 bar

Pressure regulators MS4/MS6-LRB, MS series

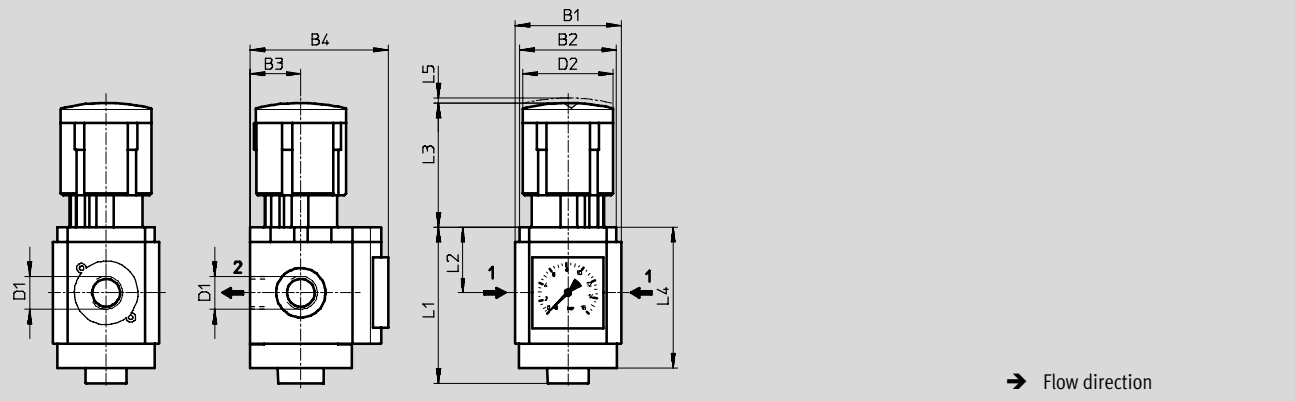


Technical data

Dimensions – Standard

Download CAD data → www.festo.com/en/engineering

With pressure gauge, display unit [bar]



Type	B1 ¹⁾	B2	B3	B4	D1	D2	L1	L2	L3	L4	L5
MS4-LRB-1/4	43.6	40	21	57	G1/4	37.2	64.4	27	51.1	58	2
MS6-LRB-1/2	67	62	31	77	G1/2	51	93	39	86	84	5

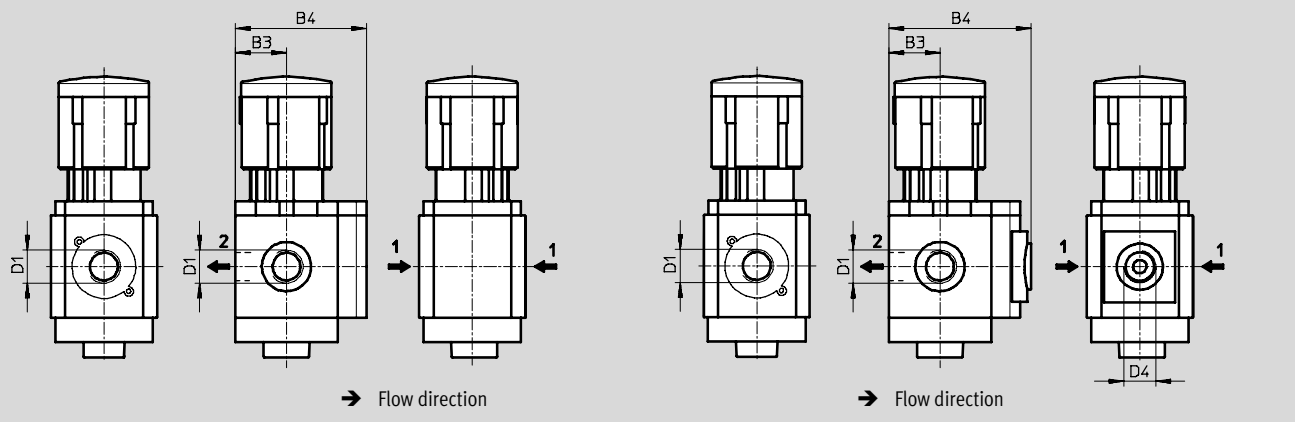
1) With accessory cover cap MS...-END

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com/en/engineering

Cover plate VS

Adapter A8/A4 for EN pressure gauge 1/8/1/4, without pressure gauge



Type	B3	B4	D1	D4
MS4-LRB-1/4-VS	21	54	G1/4	-
MS4-LRB-1/4-A8	21	58.5		G1/8
MS4-LRB-1/4-A4	21	58.5		G1/4
MS6-LRB-1/2-VS	31	76	G1/2	-
MS6-LRB-1/2-A4	31	78.5		G1/4

Pressure regulators MS4/MS6-LRB, MS series



Technical data

Dimensions – Angled outlet block

Download CAD data → www.festo.com/en/engineering

Pressure output to rear

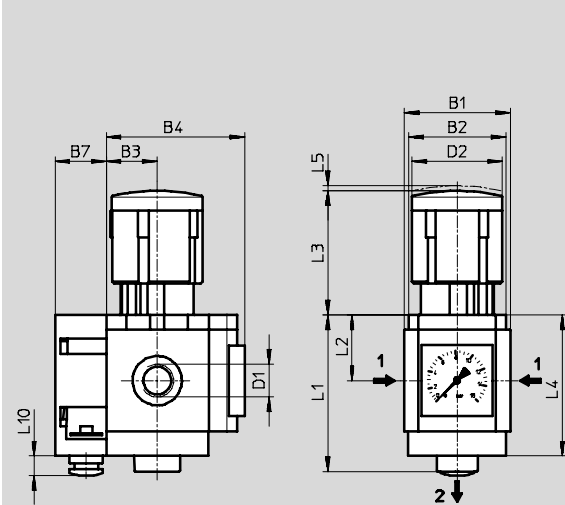
Pressure output to front Z

MS4

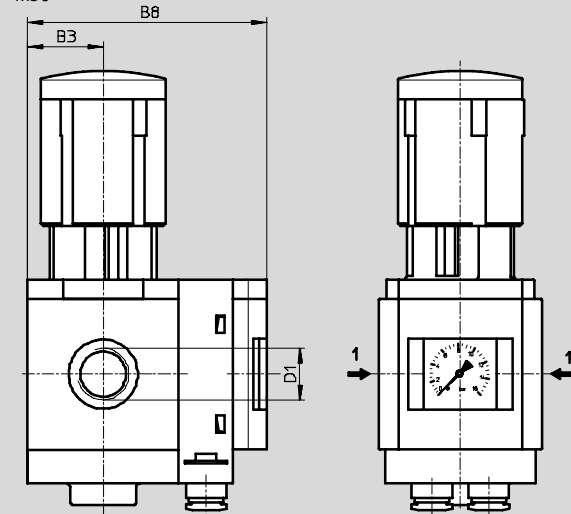
MS4 (not illustrated)

MS6 (not illustrated)

MS6



→ Flow direction



→ Flow direction

Type	B1 ¹⁾	B2	B3	B4	B7	B8	B9	D1	D2	L1	L2	L3	L4	L5	L10
MS4-LRB-1/4-...-B...	43.6	40	21	57	21	78	-	G1/4	37.2	64.4	27	51.1	58	2	8
MS6-LRB-1/2-...-B...	67	62	31	77	22.6	99.6	23.4	G1/2	51	93	39	86	84	5	11

1) With accessory cover cap MS...-END

MS4/MS6 series service units
Pressure regulators

2.14

Pressure regulators MS4/MS6-LRB, MS series



Technical data

Dimensions – Rotary knob

Download CAD data → www.festo.com/en/engineering

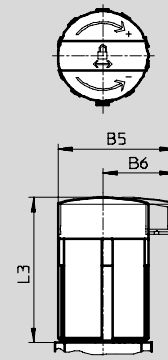
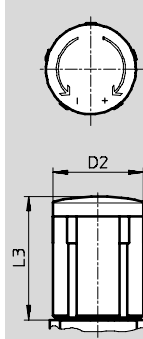
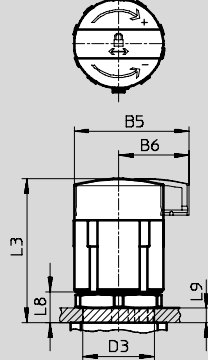
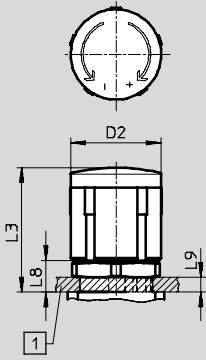
For installation into control panel

Standard

Standard, lockable
AS

Long
LD

Long, lockable
LD-AS



1 Max. control panel thickness
6 mm

Type	B5	B6	D2	D3 +1	L3	L8	L9
MS4-LRB-...	-	-	37.2	30	51.1	13	6
MS4-LRB-...-AS	48.3	29.7			60.2		
MS4-LRB-...-LD	-	-	37.2	30	51.1	-	-
MS4-LRB-...-LD-AS	48.3	29.7			60.2		
MS6-LRB-...	-	-	51	44	86	22	14
MS6-LRB-...-AS	64.4	39			95.5		
MS6-LRB-...-LD	-	-	51	44	86	-	-
MS6-LRB-...-LD-AS	64.4	39			95.5		

MS4/MS6 series service units
Pressure regulators

2.14

Pressure regulators MS4/MS6-LRB, MS series

FESTO

Technical data

Ordering data							
Lockable standard type rotary knob							
Size	Connec- tion	Pressure regulation range 0.3 ... 4 bar		Pressure regulation range 0.3 ... 7 bar		Pressure regulation range 0.5 ... 12 bar	
		Part No.	Type	Part No.	Type	Part No.	Type
Pressure gauge, pressure output to rear							
MS4	G $\frac{1}{4}$	529 473	MS4-LRB- $\frac{1}{4}$ -D5-AS	529 479	MS4-LRB- $\frac{1}{4}$ -D6-AS	529 485	MS4-LRB- $\frac{1}{4}$ -D7-AS
MS6	G $\frac{1}{2}$	530 322	MS6-LRB- $\frac{1}{2}$ -D5-AS	530 328	MS6-LRB- $\frac{1}{2}$ -D6-AS	530 334	MS6-LRB- $\frac{1}{2}$ -D7-AS
Cover plate VS, pressure output to front							
MS4	G $\frac{1}{4}$	529 476	MS4-LRB- $\frac{1}{4}$ -D5-AS-VS-Z ¹⁾	529 482	MS4-LRB- $\frac{1}{4}$ -D6-AS-VS-Z ¹⁾	529 488	MS4-LRB- $\frac{1}{4}$ -D7-AS-VS-Z ¹⁾
MS6	G $\frac{1}{2}$	530 325	MS6-LRB- $\frac{1}{2}$ -D5-AS-VS-Z ¹⁾	530 331	MS6-LRB- $\frac{1}{2}$ -D6-AS-VS-Z ¹⁾	530 337	MS6-LRB- $\frac{1}{2}$ -D7-AS-VS-Z ¹⁾
Adapter A8 for EN pressure gauge $\frac{1}{8}$, pressure output to rear							
MS4	G $\frac{1}{4}$	529 471	MS4-LRB- $\frac{1}{4}$ -D5-A8-AS	529 477	MS4-LRB- $\frac{1}{4}$ -D6-A8-AS	529 483	MS4-LRB- $\frac{1}{4}$ -D7-A8-AS
Adapter A4 for EN pressure gauge $\frac{1}{4}$, pressure output to rear							
MS6	G $\frac{1}{2}$	530 320	MS6-LRB- $\frac{1}{2}$ -D5-A4-AS	530 326	MS6-LRB- $\frac{1}{2}$ -D6-A4-AS	530 332	MS6-LRB- $\frac{1}{2}$ -D7-A4-AS

1) Free of copper, PTFE and silicone

Ordering data							
Angled outlet block QS8, lockable standard type rotary knob							
Size	Connec- tion	Pressure regulation range 0.3 ... 4 bar		Pressure regulation range 0.3 ... 7 bar		Pressure regulation range 0.5 ... 12 bar	
		Part No.	Type	Part No.	Type	Part No.	Type
Pressure gauge, pressure output to rear							
MS4	G $\frac{1}{4}$	529 474	MS4-LRB- $\frac{1}{4}$ -D5-AS-BD	529 480	MS4-LRB- $\frac{1}{4}$ -D6-AS-BD	529 486	MS4-LRB- $\frac{1}{4}$ -D7-AS-BD
MS6	G $\frac{1}{2}$	530 323	MS6-LRB- $\frac{1}{2}$ -D5-AS-BD	530 329	MS6-LRB- $\frac{1}{2}$ -D6-AS-BD	530 335	MS6-LRB- $\frac{1}{2}$ -D7-AS-BD
Pressure gauge, pressure output to front							
MS4	G $\frac{1}{4}$	529 475	MS4-LRB- $\frac{1}{4}$ -D5-AS-BD-Z	529 481	MS4-LRB- $\frac{1}{4}$ -D6-AS-BD-Z	529 487	MS4-LRB- $\frac{1}{4}$ -D7-AS-BD-Z
MS6	G $\frac{1}{2}$	530 324	MS6-LRB- $\frac{1}{2}$ -D5-AS-BD-Z	530 330	MS6-LRB- $\frac{1}{2}$ -D6-AS-BD-Z	530 336	MS6-LRB- $\frac{1}{2}$ -D7-AS-BD-Z

Pressure regulators MS4/MS6-LRB, MS series



Ordering data – Modular products

Mandatory data

Module No.	Series	Size	Function	Connection size	Pressure regulation range
527 692 527 665	MS	4 6	LRB	1/4 1/2 AGA AGB AGC AGD AGE	D5 D6 D7 D8
Ordering example					
527 692	MS	4	- LRB	- AGC	- D5

Ordering table

Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
M	Module No.	527 692	527 665			
	Series	Standard			MS	MS
	Size	4	6		...	
	Function	Pressure regulator for manifold assembly			-LRB	-LRB
	Connection size	Thread G1/4	-		-1/4	
		-	Thread G1/2		-1/2	
		Connecting plate G1/8	-		-AGA	
		Connecting plate G1/4	Connecting plate G1/4		-AGB	
		Connecting plate G3/8	Connecting plate G3/8		-AGC	
		-	Connecting plate G1/2		-AGD	
		-	Connecting plate G3/4		-AGE	
	Pressure regulation range	0.3 ... 4 bar			-D5	
		0.3 ... 7 bar			-D6	
		0.5 ... 12 bar			-D7	
		-	0.5 ... 16 bar		-D8	

MS4/MS6 series service units
Pressure regulators

2.14

Transfer order code

	MS		-	LRB		-	
--	----	--	---	-----	--	---	--

Pressure regulators MS4/MS6-LRB, MS series



Ordering data – Modular products

Options							
Pressure gauge alternatives	Alternative pressure gauge scale	Secondary venting	Rotary knob	Security	Pressure output	Type of mounting	Alternative flow direction
VS A8 A4	PSI MPA	OS	LD	AS	BC BD BE	WR WP WPM WPB WB WBM	Z
- A4	-	- OS	- LD	- AS	- BC	- WPB	- Z

Ordering table							
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code	
0 Pressure gauge alternatives	Cover plate				-VS		
	Adapter plate for EN pressure gauge 1/8, without pressure gauge	-		1	-A8		
	Adapter plate for EN pressure gauge 1/4, without pressure gauge			1	-A4		
Alternative pressure gauge scale	psi			2	-PSI		
	MPa			2	-MPA		
Secondary venting	Without secondary venting				-OS		
Rotary knob	Long rotary knob				-LD		
Security	Lockable rotary knob				-AS		
Alternative pressure output (p _{max} = 10 bar)	Angled outlet block QS-6	-			-BC		
	Angled outlet block QS-8	Angled outlet block QS-8			-BD		
	-	Angled outlet block QS-10			-BE		
Type of mounting	Mounting bracket with hex nut for regulator head			3 4	-WR		
	Wall mounting plate			5 6	-WP		
	Wall mounting plate (dimensions for M series)			3 5	-WPM		
	Wall mounting plate for large wall gap			5 7	-WPB		
	Wall mounting bracket			3	-WB		
	Wall mounting bracket (dimensions for M series)	-		3	-WBM		
Alternative flow direction	Pressure output to front			8	-Z		

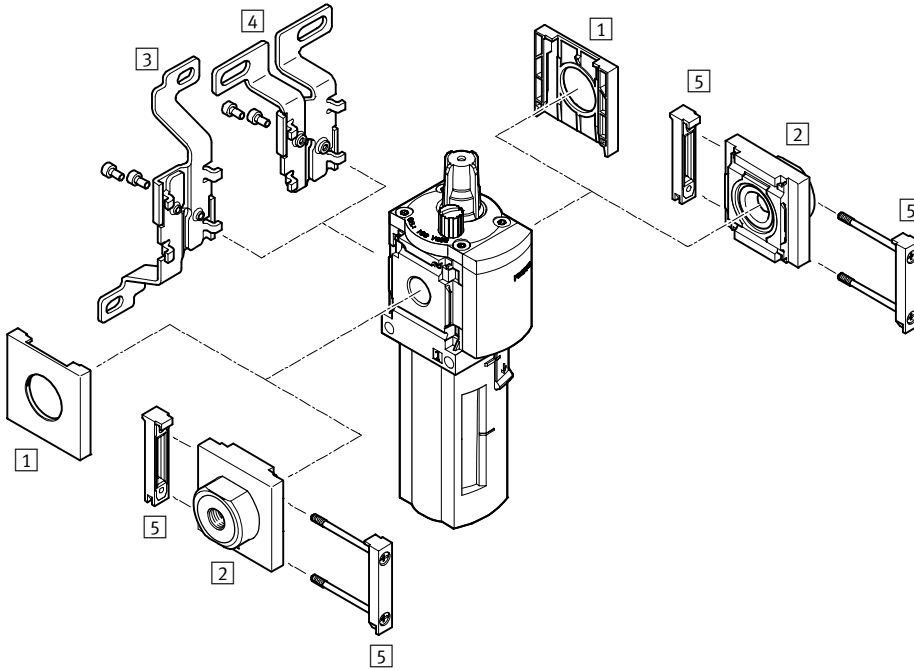
- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1 A8, A4 Not in combination with alternative flow direction Z and alternative pressure output BC, BD, BE in parallel.</p> <p>2 PSI, MPA Not in combination with pressure gauge alternatives VS, A8, A4. Combination with alternative flow direction Z only possible if alternative pressure output BC, BD, BE also selected.</p> <p>3 WR, WPM, WB, WBM Only in combination with alternative flow direction Z.</p> <p>4 WR Not in combination with rotary knob LD.</p> | <p>5 WP, WPM, WPB Only permissible in combination with sub-base AGA, AGB, AGC, AGD or AGE.</p> <p>6 WP Only in combination with alternative flow direction Z or only in combination with alternative pressure output BC, BD, BE if alternative flow direction Z not selected.</p> <p>7 WPB Not in combination with alternative flow direction Z and with alternative pressure output BC, BD, BE.</p> <p>8 Z Pressure gauge alternative VS must be selected if no alternative pressure output BC, BD, BE is selected.</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Transfer order code

- [] - [] - [] - [] - [] - [] - [] - []

Lubricators MS4/MS6-LOE, MS series

Peripherals overview



Mounting attachments and accessories						
	Individual unit		Combination → 3/2.11-10		→ Page	
	without connecting plate	with connecting plate	without connecting plate	with connecting plate		
1	Cover cap MS4/6-END	■	-	■	-	3/2.31-3
2	Connecting plate MS4/6-AG...	-	■	-	■	3/2.31-0
3	Wall mounting bracket MS4/6-WB	■	■	-	-	3/2.31-1
4	Wall mounting bracket MS4-WBM	■	■	-	-	3/2.31-1
5	Module connector MS4/6-MV	-	■	■	■	3/2.31-3
-	Wall mounting plate MS4/6-WP	-	■	■	■	3/2.31-5
-	Wall mounting plate MS4/6-WPM	-	■	■	■	3/2.31-6

MS4/MS6 series service units
Lubricators

2.15

Lubricators MS4/MS6-LOE, MS series

Type codes

MS 6 - LOE - 1/4 - U - Z

Basic function

MS	Standard service unit
----	-----------------------

Size

4	Grid dimension 40 mm
6	Grid dimension 62 mm

Service function

LOE	Lubricator
-----	------------

Connection size

1/8	Thread G1/8
1/4	Thread G1/4
3/8	Thread G3/8
1/2	Thread G1/2

Bowl guard

R	Plastic bowl guard
U	Metal bowl

Alternative flow direction

	Flow direction from left to right
Z	Flow direction from right to left

Further variants can be ordered using the modular system

Lubricators LOE → 3/2.15-6

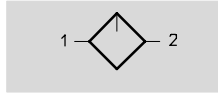
- Connecting plates
- Type of mounting

Lubricators MS4/MS6-LOE, MS series

FESTO

Technical data

Function



- - Flow rate
1100 ... 7200 l/min
- - Temperature range
-10 ... +60 °C
- - Input pressure
1 ... 16 bar



The proportional lubricator adds a precision adjustable quantity of oil to the compressed air stream.

The pressure drop that occurs when air flows through a Venturi nozzle is used to convey oil from the container to the drip cap. From here, the oil drips into the air duct directly behind the proportional valve, where it is atomised. The oil mist component is

proportional to the compressed air flow rate.

- Proportional lubricator with precision oil metering
- Reduces wear on drive units subject to high loading
- High flow rate
- Quick and easy oil top-up even during operation (under pressure)

The following oils are recommended for Festo components:

Viscosity range to ISO 3448, ISO class VG 32
32 mm²/s (= cSt) at 40°C

- Festo special oil OFSW-32
→ 3/2.15-5
- ARAL Vitam GF 32
- BP Energol HLP 32
- Esso Nuto H 32
- Mobil DTE 24
- Shell Tellus Oil DO 32

General technical data					
	MS4		MS6		
Pneumatic connection 1	G1/8	G1/4	G1/4	G3/8	G1/2
Pneumatic connection 2	G1/8	G1/4	G1/4	G3/8	G1/2
Operating medium	Compressed air				
Design	Proportional standard mist lubricator				
Type of mounting	Via accessories In-line installation				
Assembly position	Vertical ±5°				
Input pressure [bar]	1 ... 12		1 ... 16		
Minimum flow for lubricator operation [l/min]	40		50		
Max. oil capacity [cm ³]					
Plastic bowl guard	30		75		
Metal bowl	36		80		

Standard nominal flow rate q _n [l/min]					
	MS4		MS6		
	G1/8	G1/4	G1/4	G3/8	G1/2
	1100	2200	2500	5300	7200

Ambient conditions		
	MS4	MS6
Ambient temperature [°C]	-10 ... +60	0 ... +60
Temperature of medium [°C]	-10 ... +60	0 ... +60
Storage temperature [°C]	-10 ... +60	
Corrosion resistance class CRC ¹⁾	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.

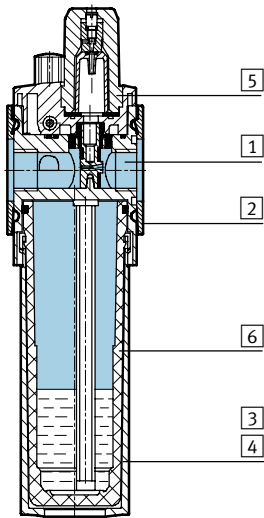
Lubricators MS4/MS6-LOE, MS series

Technical data

Weight [g]	MS4	MS6
With plastic bowl guard	194	600
With metal bowl	354	810

Materials

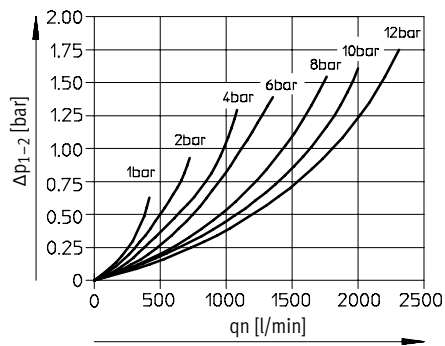
Sectional view



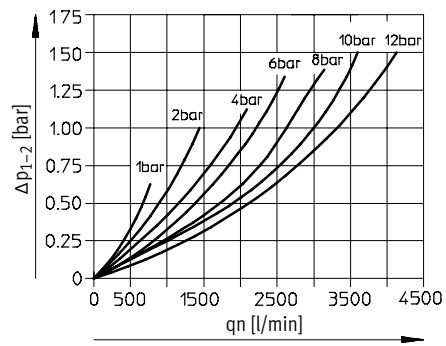
Lubricator		
1	Body	Die-cast aluminium
2	Cover plates	Polyamide
3	Plastic bowl guard	Polycarbonate/polyamide
4	Metal bowl Window shield	Aluminium Polyamide
5	Lubricator dome	Polycarbonate
6	Metal bowl sight glass	Polyamide
-	Seals	Nitrile rubber

Standard flow rate q_n as a function of the differential pressure Δp_{1-2}

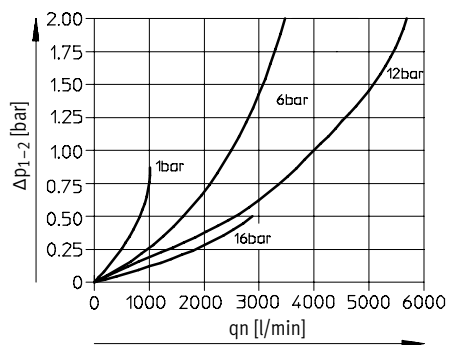
MS4-LOE-1/8



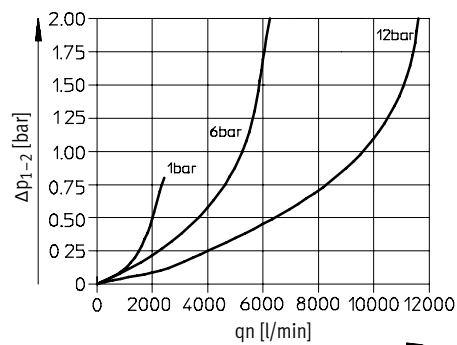
MS4-LOE-1/4



MS6-LOE-1/4



MS6-LOE-3/8



Primary pressure $p_1 = 10 \text{ bar}$

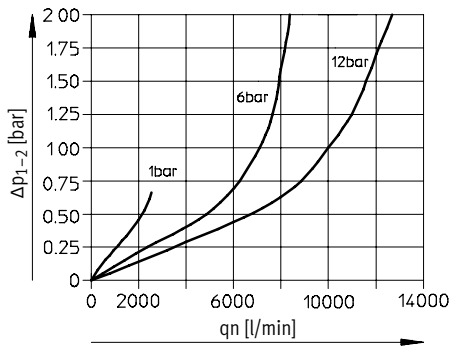
Lubricators MS4/MS6-LOE, MS series

Technical data



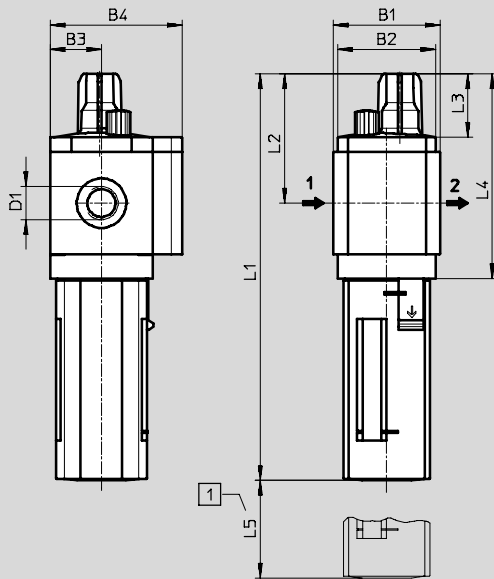
Standard flow rate q_n as a function of the differential pressure Δp_{1-2}

MS6-LOE-1/2



Dimensions – Standard

Download CAD data → www.festo.com/en/engineering



1) Installation dimensions

→ Flow direction

Type	B1 ¹⁾	B2	B3	B4	D1	L1 Bowl guard		L2	L3	L4	L5
						plastic	metal				
MS4-LOE-1/8	43.6	42	21	54	G1/8	166.6	184.9	53	26	84	80
MS4-LOE-1/4					G1/4						
MS6-LOE-1/4	67	62	31	76	G1/4	215.7	222	66	27	111	130
MS6-LOE-3/8					G3/8						
MS6-LOE-1/2					G1/2						

1) With accessory cover cap MS...-END

MS4/MS6 series service units
Lubricators

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Lubricators MS4/MS6-LOE, MS series

FESTO

Technical data

Ordering data					
Size	Connection	Plastic bowl guard		Metal bowl	
		Part No.	Type	Part No.	Type
Flow direction from left to right					
MS4	G1/8	529 413	MS4-LOE-1/8-R	535 791	MS4-LOE-1/8-U
	G1/4	529 411	MS4-LOE-1/4-R	535 790	MS4-LOE-1/4-U
MS6	G1/4	529 779	MS6-LOE-1/4-R	529 781	MS6-LOE-1/4-U
	G3/8	529 783	MS6-LOE-3/8-R	529 785	MS6-LOE-3/8-U
	G1/2	529 775	MS6-LOE-1/2-R	529 777	MS6-LOE-1/2-U
Flow direction from right to left					
MS4	G1/8	529 414	MS4-LOE-1/8-R-Z	535 793	MS4-LOE-1/8-U-Z
	G1/4	529 412	MS4-LOE-1/4-R-Z	535 792	MS4-LOE-1/4-U-Z
MS6	G1/4	529 780	MS6-LOE-1/4-R-Z	529 782	MS6-LOE-1/4-U-Z
	G3/8	529 784	MS6-LOE-3/8-R-Z	529 786	MS6-LOE-3/8-U-Z
	G1/2	529 776	MS6-LOE-1/2-R-Z	529 778	MS6-LOE-1/2-U-Z

Ordering data – Special oil			
	Scope of delivery	Part No.	Type
	1 litre	152 811	OFSW-32

Lubricators MS4/MS6-LOE, MS series



Ordering data – Modular products

M Mandatory data						O Options	
Module No.	Series	Size	Function	Connection size	Bowl	Type of mounting	Alternative flow direction
527 701 527 674	MS	4 6	LOE	1/8, 1/4, 3/8, 1/2, AGA, AGB, AGC, AGD, AGE	R U	WP WPM WB WBM	Z
Ordering example 527 701	MS	4	- LOE	- AGB	- R	- WP	- Z

Ordering table							
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code	
M	Module No.	527 701	527 674				
	Series	Standard			MS		MS
	Size	4	6		...		
	Function	Lubricator			-LOE		-LOE
	Connection size	Thread G1/8	-		-1/8		
		Thread G1/4	Thread G1/4		-1/4		
		-	Thread G3/8		-3/8		
		-	Thread G1/2		-1/2		
		Connecting plate G1/8	-		-AGA		
		Connecting plate G1/4	Connecting plate G1/4		-AGB		
		Connecting plate G3/8	Connecting plate G3/8		-AGC		
		-	Connecting plate G1/2		-AGD		
	Bowl	Plastic bowl with plastic bowl guard			-R		
		Metal bowl			-U		
	O Type of mounting	Wall mounting plate		1	-WP		
		Wall mounting plate (dimensions for M series)		1	-WPM		
		Wall mounting bracket			-WB		
		Wall mounting bracket (dimensions for M series)	-		-WBM		
	Alternative flow direction	Flow direction from right to left			-Z		

1 WP, WPM Only with connecting plate AGA, AGB, AGC, AGD or AGE.

Transfer order code

	MS		-	LOE		-		-		-		-	
--	----	--	---	-----	--	---	--	---	--	---	--	---	--

On-off/soft-start valves MS4/MS6-EM/EE/DL/DE, MS series

FESTO

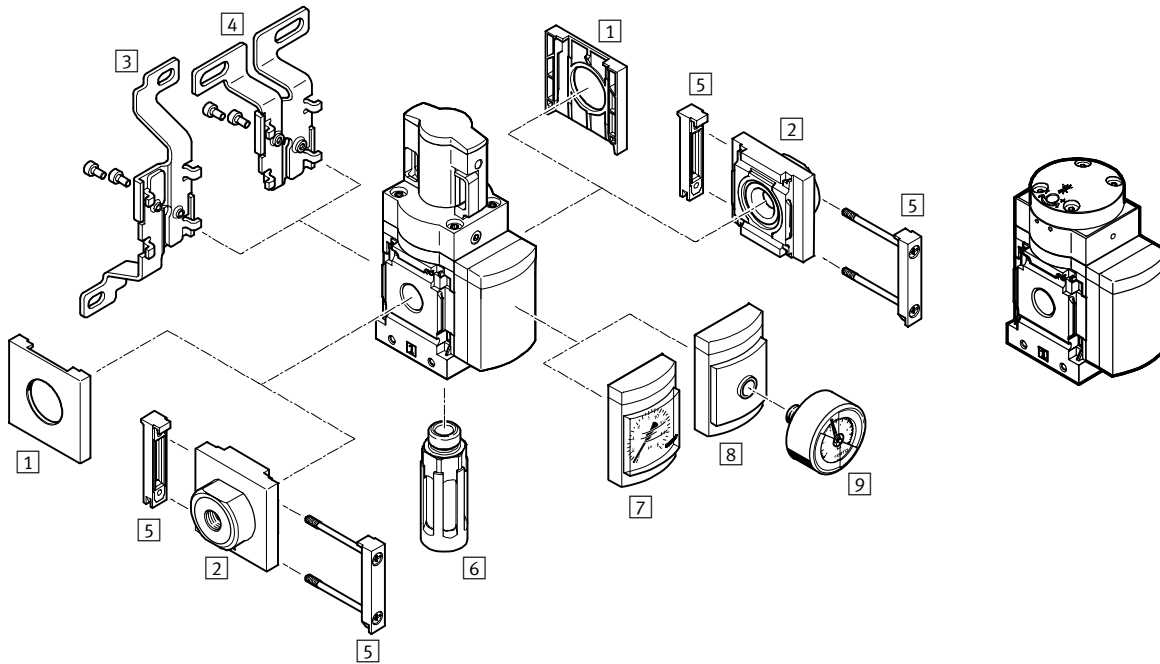
Peripherals overview

On-off valve EM

manually actuated

Soft-start valve DL

pneumatically actuated



Mounting attachments and accessories

		Individual unit		Combination → 3/2.11-10		→ Page
		without connecting plate	with connecting plate	without connecting plate	with connecting plate	
1	Cover cap MS4/6-END	■	-	■	-	3/2.31-3
2	Connecting plate MS4/6-AG...	-	■	-	■	3/2.31-0
3	Wall mounting bracket MS4/6-WB	■	■	-	-	3/2.31-1
4	Wall mounting bracket MS4-WBM	■	■	-	-	3/2.31-1
5	Module connector MS4/6-MV	-	■	■	■	3/2.31-3
6	Silencer U	■ with EM	■ with EM	■ with EM	■ with EM	3/2.31-8
7	MS pressure gauge AG	■	■	■	■	EM 3/2.16-9 DL 3/2.16-20
8	Adapter for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	EM 3/2.16-9 DL 3/2.16-20
9	Pressure gauge MA	■	■	■	■	3/2.31-8
-	Wall mounting plate MS4/6-WP	-	■	■	■	3/2.31-5
-	Wall mounting plate MS4/6-WPM	-	■	■	■	3/2.31-6

On-off/soft-start valves MS4/MS6-EM/EE/DL/DE, MS series

FESTO

Peripherals overview

Mounting attachments and accessories						
		Individual unit		Combination → 3/2.11-10		→ Page
		without connecting plate	with connecting plate	without connecting plate	with connecting plate	
1	Cover cap MS4/6-END	■	-	■	-	3/2.31-3
2	Connecting plate MS4/6-AG...	-	■	-	■	3/2.31-0
3	Wall mounting bracket MS4/6-WB	■	■	-	-	3/2.31-1
4	Wall mounting bracket MS4-WBM	■	■	-	-	3/2.31-1
5	Module connector MS4/6-MV	-	■	■	■	3/2.31-3
6	Silencer U	■ with EE	■ with EE	■ with EE	■ with EE	3/2.31-8
7	Pressure gauge MS AG	■	■	■	■	EE 3/2.16-15 DE 3/2.16-25
8	Adapter for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	EE 3/2.16-15 DE 3/2.16-25
9	Pressure gauge MA	■	■	■	■	3/2.31-8
10	Illuminating seal MEB-LD	■	■	■	■	3/2.31-10
11	Plug socket with cable KMEB	■	■	■	■	3/2.31-10
12	Plug socket MSSD-EB	■	■	■	■	3/2.31-8
-	Wall mounting plate MS4/6-WP → Combination	-	■	■	■	3/2.31-5
-	Wall mounting plate MS4/6-WPM → Combination	-	■	■	■	3/2.31-6

MS4/MS6 series service units
Start-up and exhaust valves

2.16

On-off/soft-start valves MS4/MS6-EM/EE/DL/DE, MS series

Type codes

MS 6 - EE - 1/2 - V110 - - Z

Basic function

MS	Standard service unit
----	-----------------------

Size

4	Grid dimension 40 mm
6	Grid dimension 62 mm

Service function

EM	On-off valve, manually operated
EE	On-off valve, solenoid actuated
DL	Soft-start valve, pneumatically actuated
DE	Soft-start valve, solenoid actuated

Connection size

1/8	Thread G1/8
1/4	Thread G1/4
3/8	Thread G3/8
1/2	Thread G1/2

Supply voltage (for EE and DE only)

V24	Supply voltage 24 V DC
V110	Supply voltage 110 V AC
V230	Supply voltage 230 V AC

Silencer (for EM and EE only)

	Without silencer
S	Silencer

Alternative flow direction

	Flow direction from left to right
Z	Flow direction from right to left

MS4/MS6 series service units
Start-up and exhaust valves

2.16

Further variants can be ordered using the modular system

On-off valves EM	→ 3/2.16-9
On-off valves EE	→ 3/2.16-15
Soft-start valves DL	→ 3/2.16-20
Soft-start valves DE	→ 3/2.16-25

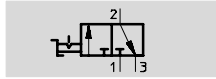
- Connecting plates
- Pressure gauge/adaptor
- Alternative pressure gauge scale
- Type of mounting

On-off valves MS4/MS6-EM, MS series

FESTO

Technical data

Function



- - Flow rate
1000 ... 7000 l/min
- - Temperature range
-10 ... +60 °C
- - Operating pressure
0 ... 18 bar



- Manually operated on-off valve for pressurising and venting pneumatic installations
- The unit is vented when switched off
- Ducted exhaust possible via a threaded connection with silencer
- The switching position is immediately recognisable
- Commercially available padlock can be used for security

General technical data					
	MS4		MS6		
Pneumatic connection 1	G1/8	G1/4	G1/4	G3/8	G1/2
Pneumatic connection 2	G1/8	G1/4	G1/4	G3/8	G1/2
Pneumatic connection 3	G1/4		G1/2		
Operating medium	Compressed air				
Design	Piston spool valve				
Type of mounting	Via accessories In-line installation				
Assembly position	Any				
Operating pressure [bar]	0 ... 14		0 ... 18		
Valve function	3/2-way valve, double solenoid				
Exhaust function	Without flow control				
C value [l/sbar]	4.5	9.0	11.0	22.0	29.0
b value	0.5	0.4	0.5	0.5	0.4
Switching position display	Knob actuator direction = flow direction				
Type of actuation	Direct				
Pilot air supply	Internal				
Direction of flow	Non-reversible				

Standard nominal flow rate q_{nN}^1 [l/min]						
		MS4		MS6		
		G1/8	G1/4	G1/4	G3/8	G1/2
In main flow direction	1 → 2	1000	2000	2600	5500	7000
In relief direction	2 → 3	1800	1500	6000	6000	6000

1) measured at $p_1 = 6$ bar and $p_2 = 5$ bar, $\Delta p = 1$ bar

MS4/MS6 series service units
Start-up and exhaust valves

2.16

On-off valves MS4/MS6-EM, MS series

FESTO

Technical data

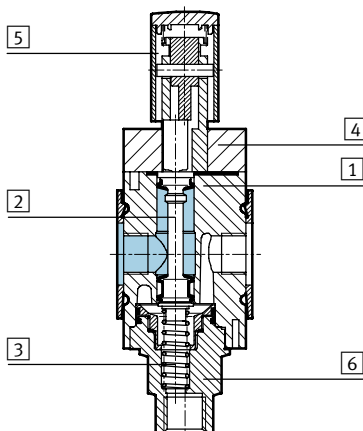
Ambient conditions		
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	-10 ... +60
Corrosion resistance class CRC ¹⁾		2

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.

Weight [g]		
	MS4	MS6
Without silencer	290	985
With silencer	310	1060

Materials

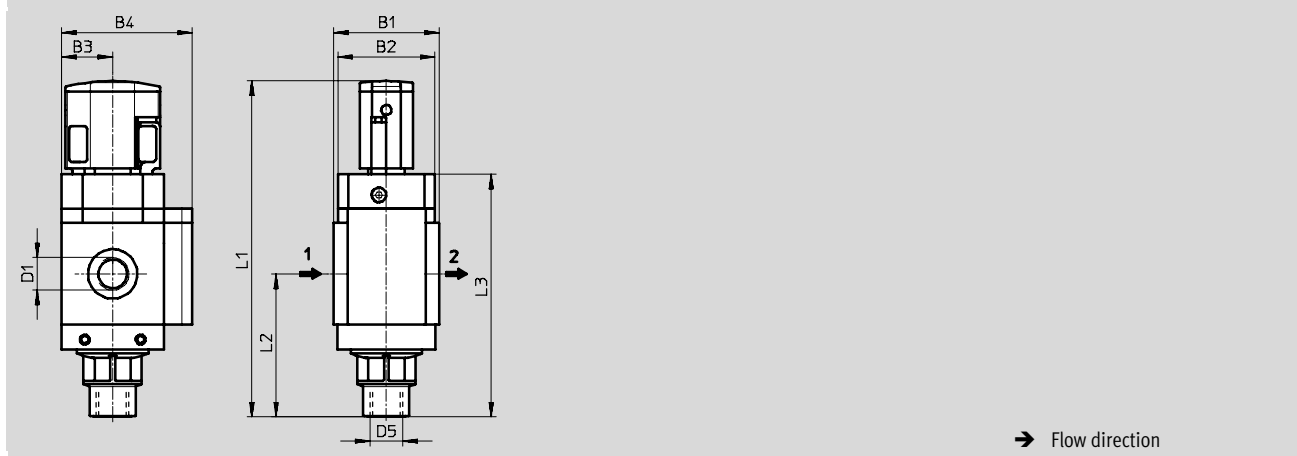
Sectional view



On-off valve		
1	Body	Die-cast aluminium
2	Piston	Nitrile rubber/aluminium
3	Springs	High-alloy stainless steel
4	End cap	Aluminium
5	Button	Aluminium
6	Bush end connection	Polyamide
-	Seals	Nitrile rubber
Note on materials		Free of copper, PTFE and silicone only with cover plate (without MS pressure gauge AG)

Dimensions – Standard

Download CAD data → www.festo.com/en/engineering



Type	B1 ¹⁾	B2	B3	B4	D1	D5	L1	L2	L3
MS4-EM-1/8	43.6	40	21	54	G1/8	G1/4	138.3	58.9	100
MS4-EM-1/4					G1/4				
MS6-EM-1/4	67	62	31	76	G1/4	G1/2	194	84	143
MS6-EM-3/8					G3/8				
MS6-EM-1/2					G1/2				

1) With accessory cover cap MS...-END

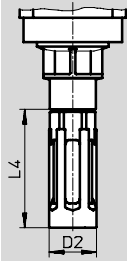
On-off valves MS4/MS6-EM, MS series

FESTO

Technical data

Dimensions – Silencer

Download CAD data → www.festo.com/en/engineering



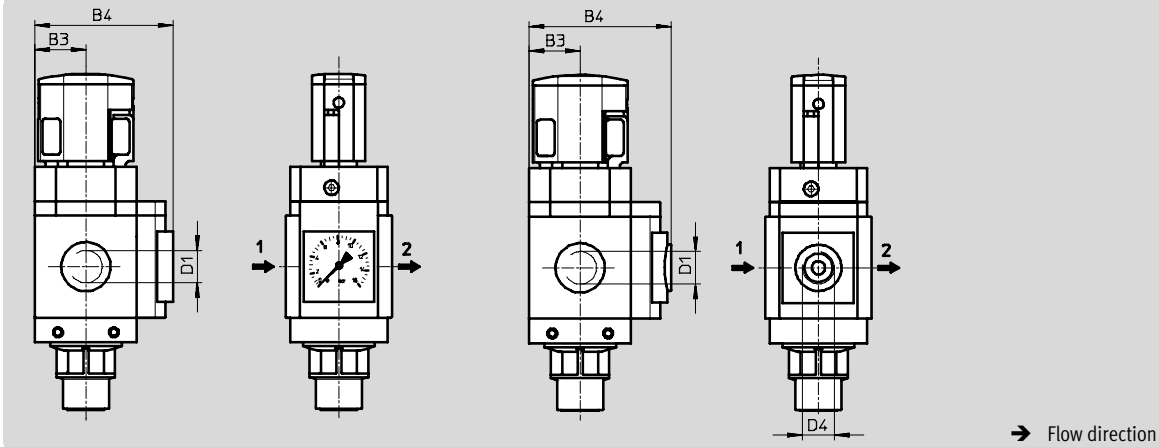
Type	D2	L4
MS4-EM-...-S	19.5	48.5
MS6-EM-...-S	28	106

Dimensions – Pressure gauges/adapters

Download CAD data → www.festo.com/en/engineering

Integrated MS pressure gauge AG, display unit [bar]

Adapter A8/A4 for EN pressure gauge 1/8 1/4, without pressure gauge



Type	B3	B4	D1	D4
MS4-EM-1/8-AG	21	65	G1/8	-
MS4-EM-1/4-AG			G1/4	
MS4-EM-1/8-A8	21	58.5	G1/8	G1/8
MS4-EM-1/4-A8			G1/4	
MS4-EM-1/8-A4	21	58.5	G1/8	G1/4
MS4-EM-1/4-A4			G1/4	
MS6-EM-1/4-AG	31	85	G1/4	-
MS6-EM-3/8-AG			G3/8	
MS6-EM-1/2-AG			G1/2	
MS6-EM-1/4-A4	31	78.5	G1/4	G1/4
MS6-EM-3/8-A4			G3/8	
MS6-EM-1/2-A4			G1/2	

MS4/MS6 series service units
Start-up and exhaust valves

2.16

On-off valves MS4/MS6-EM, MS series

FESTO

Technical data

Ordering data					
Size	Connection	Without silencer		With silencer	
		Part No.	Type	Part No.	Type
Flow direction from left to right					
MS4	G $\frac{1}{8}$	529 551	MS4-EM- $\frac{1}{8}$ -Z ¹⁾	529 552	MS4-EM- $\frac{1}{8}$ -S ¹⁾
	G $\frac{1}{4}$	529 547	MS4-EM- $\frac{1}{4}$ -Z ¹⁾	529 548	MS4-EM- $\frac{1}{4}$ -S ¹⁾
MS6	G $\frac{1}{4}$	529 845	MS6-EM- $\frac{1}{4}$ -Z ¹⁾	529 846	MS6-EM- $\frac{1}{4}$ -S ¹⁾
	G $\frac{3}{8}$	529 849	MS6-EM- $\frac{3}{8}$ -Z ¹⁾	529 850	MS6-EM- $\frac{3}{8}$ -S ¹⁾
	G $\frac{1}{2}$	529 841	MS6-EM- $\frac{1}{2}$ -Z ¹⁾	529 842	MS6-EM- $\frac{1}{2}$ -S ¹⁾
Flow direction from right to left					
MS4	G $\frac{1}{8}$	529 554	MS4-EM- $\frac{1}{8}$ -Z ¹⁾	529 553	MS4-EM- $\frac{1}{8}$ -S-Z ¹⁾
	G $\frac{1}{4}$	529 550	MS4-EM- $\frac{1}{4}$ -Z ¹⁾	529 549	MS4-EM- $\frac{1}{4}$ -S-Z ¹⁾
MS6	G $\frac{1}{4}$	529 848	MS6-EM- $\frac{1}{4}$ -Z ¹⁾	529 847	MS6-EM- $\frac{1}{4}$ -S-Z ¹⁾
	G $\frac{3}{8}$	529 852	MS6-EM- $\frac{3}{8}$ -Z ¹⁾	529 851	MS6-EM- $\frac{3}{8}$ -S-Z ¹⁾
	G $\frac{1}{2}$	529 844	MS6-EM- $\frac{1}{2}$ -Z ¹⁾	529 843	MS6-EM- $\frac{1}{2}$ -S-Z ¹⁾

1) Free of copper, PTFE and silicone

On-off valves MS4/MS6-EM, MS series

Ordering data – Modular products

M Mandatory data					O Options				
Module No.	Series	Size	Function	Connection size	Silencer	Pressure gauge/ adapter	Alternative pressure gauge scale	Type of mounting	Alternative flow direction
527 705 527 678	MS	4 6	EM	1/8, 1/4, 3/8, 1/2 AGA, AGB, AGC, AGD, AGE	S	AG A8 A4	PSI MPA	WP WPM WB WBM	Z
Ordering example									
527 705	MS	4	- EM	- 1/4	- S	- AG	- PSI	- WB	- Z

Ordering table							
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code	
M	Module No.	527 705	527 678				
	Series	Standard			MS	MS	
	Size	4	6		...		
	Function	On-off valve, manual			-EM	-EM	
	Connection size	Thread G1/8	-		-1/8		
		Thread G1/4	Thread G1/4		-1/4		
		-	Thread G3/8		-3/8		
		-	Thread G1/2		-1/2		
		Connecting plate G1/8	-		-AGA		
		Connecting plate G1/4	Connecting plate G1/4		-AGB		
		Connecting plate G3/8	Connecting plate G3/8		-AGC		
		-	Connecting plate G1/2		-AGD		
		-	Connecting plate G3/4		-AGE		
O	Silencer	Silencer			-S		
	Pressure gauge/adapter	MS pressure gauge, bar (with adapter)	MS pressure gauge, bar		-AG		
		Adapter plate for EN pressure gauge 1/8, without pressure gauge	-		-A8		
		Adapter plate for EN pressure gauge 1/4, without pressure gauge			-A4		
	Alternative pressure gauge scale	psi		1	-PSI		
		MPa		1	-MPA		
	Type of mounting	Wall mounting plate		2	-WP		
		Wall mounting plate (dimensions for M series)		2	-WPM		
		Wall mounting bracket				-WB	
		Wall mounting bracket (dimensions for M series)	-			-WBM	
	Alternative flow direction	Flow direction from right to left			-Z		

1 PSI, MPA Only with pressure gauge AG.

2 WP, WPM Only with sub-base AGA, AGB, AGC, AGD or AGE.

Transfer order code

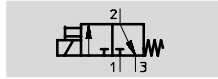
	MS		-	EM	-		-		-		-		-		-	
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On-off valves MS4/MS6-EE, MS series

FESTO

Technical data

Function



- - Flow rate
1000 ... 7000 l/min
- - Temperature range
-10 ... +60 °C
- - Operating pressure
4 ... 18 bar



- Solenoid actuated on-off valve for pressurising and venting pneumatic installations
- With solenoid coil without plug socket
- Three voltage ranges can be selected
- Ducted exhaust possible via a threaded connection with silencer
- Pushing and detenting manual override (detenting is locked on delivery)
- Solenoid actuator can be repositioned by 180°

General technical data					
	MS4		MS6		
Pneumatic connection 1	G1/8	G1/4	G1/4	G3/8	G1/2
Pneumatic connection 2	G1/8	G1/4	G1/4	G3/8	G1/2
Pneumatic connection 3	G1/4		G1/2		
Operating medium	Compressed air				
Design	Piston spool valve				
Type of mounting	Via accessories In-line installation				
Assembly position	Any				
Valve function	3/2-way valve, single solenoid, closed				
Exhaust function	Without flow control				
Type of actuation	Mechanical spring				
C value [l/sbar]	4.5	9.5	11.0	22.0	29.0
b value	0.5	0.44	0.5	0.5	0.4
Switching position display	Via accessories				
Type of actuation	Direct				
Pilot air supply	External				
Direction of flow	Non-reversible				
Operating pressure [bar]					
Without silencer	4 ... 14		4 ... 18		
With silencer	4 ... 10		4 ... 16		
Supply voltage					
Coil characteristics	V24	24 V DC			
	V110	110 V AC			
	V230	230 V AC			

On-off valves MS4/MS6-EE, MS series

Technical data

Standard nominal flow rate $q_{nN}^{1)}$ [l/min]					
	MS4		MS6		
	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
In main flow direction	1000	2000	2600	5500	7000
In relief direction	1600	1600	7000	6200	5500

1) measured at $p_1 = 6$ bar and $p_2 = 5$ bar, $\Delta p = 1$ bar

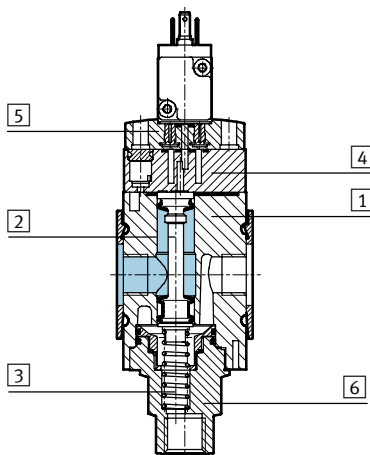
Ambient conditions		
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	-10 ... +60
Corrosion resistance class	CRC ¹⁾	2

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.

Weight [g]		
	MS4	MS6
Without silencer	273	740
With silencer	289	816

Materials

Sectional view



On-off valve		
1	Body	Die-cast aluminium
2	Piston	Nitrile rubber/aluminium
3	Springs	High-alloy stainless steel
4	End cap	Polyamide
5	Top plate	Polyamide
6	Bush end connection	Polyamide
-	Seals	Nitrile rubber
Note on materials		Free of copper, PTFE and silicone only with cover plate (without MS pressure gauge AG)

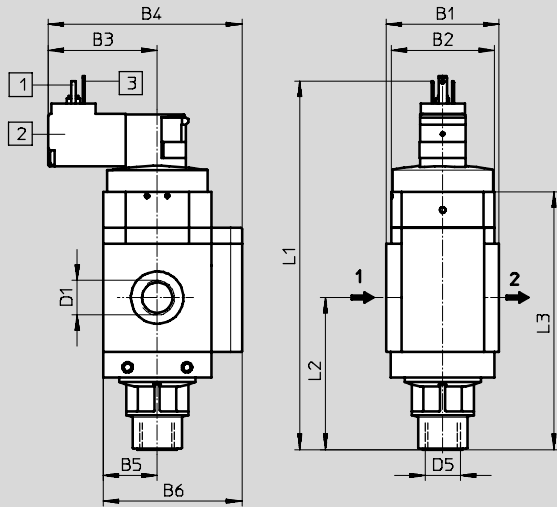
On-off valves MS4/MS6-EE, MS series

Technical data



Dimensions – Standard

Download CAD data → www.festo.com/en/engineering



- 1 Plug connection to DIN EN 175 301-803
- 2 Solenoid actuator can be repositioned by 180°, i.e. solenoid points to the front
- 3 PIN only with solenoid actuators 110 V and 230 V

→ Flow direction

Type	B1 ¹⁾	B2	B3	B4	B5	B6	D1	D5	L1	L2	L3
MS4-EE-1/8	43.6	40	42.2	75.2	21	54	G1/8	G1/4	142.8	58.9	100
MS4-EE-1/4							G1/4				
MS6-EE-1/4	67	62	52	97	31	76	G1/4	G1/2	185.6	84	143
MS6-EE-3/8							G3/8				
MS6-EE-1/2							G1/2				

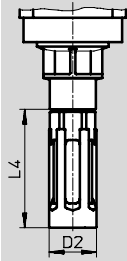
1) With accessory cover cap MS...-END

On-off valves MS4/MS6-EE, MS series

Technical data

Dimensions – Silencer

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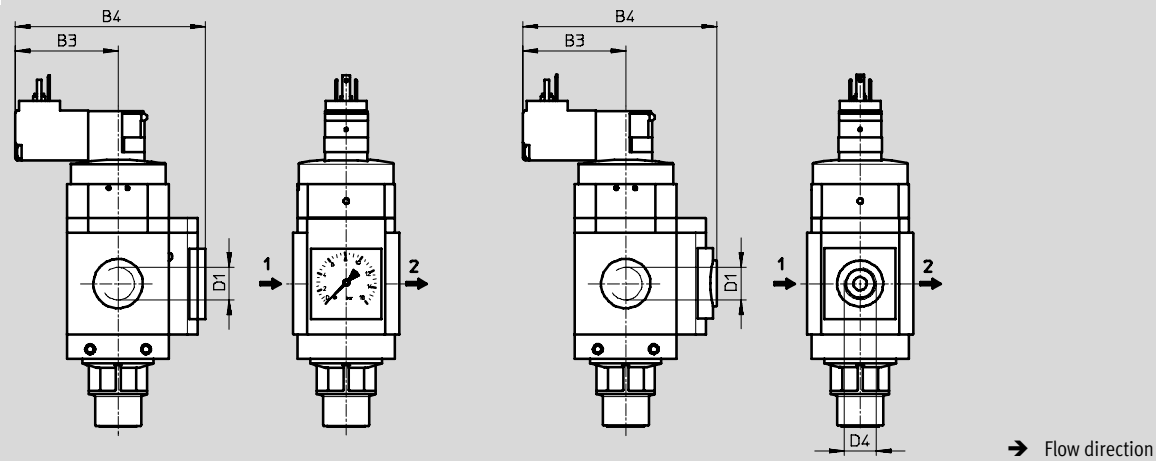
Type	D2	L4
MS4-EE-...-S	19.5	48.5
MS6-EE-...-S	28	106

Dimensions – Pressure gauges/adapters

Download CAD data → www.festo.com/en/engineering

Integrated MS pressure gauge AG, display unit [bar]

Adapter A8/A4 for EN pressure gauge 1/8 1/4, without pressure gauge



Type	B3	B4	D1	D4
MS4-EE-1/8-AG	42.2	86.2	G1/8	-
MS4-EE-1/4-AG			G1/4	
MS4-EE-1/8-A8	42.2	79.7	G1/8	G1/8
MS4-EE-1/4-A8			G1/4	
MS4-EE-1/8-A4	42.2	79.7	G1/8	G1/4
MS4-EE-1/4-A4			G1/4	
MS6-EE-1/4-AG	52	106	G1/4	-
MS6-EE-3/8-AG			G3/8	
MS6-EE-1/2-AG			G1/2	
MS6-EE-1/4-A4	52	99.6	G1/4	G1/4
MS6-EE-3/8-A4			G3/8	
MS6-EE-1/2-A4			G1/2	

On-off valves MS4/MS6-EE, MS series

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Technical data

Ordering data							
Without silencer							
Size	Connection	Supply voltage 24 V DC		Supply voltage 110 V AC		Supply voltage 230 V AC	
		Part No.	Type	Part No.	Type	Part No.	Type
Flow direction from left to right							
MS4	G $\frac{1}{8}$	529 545	MS4-EE- $\frac{1}{8}$ -V24 ¹⁾	529 541	MS4-EE- $\frac{1}{8}$ -V110 ¹⁾	529 543	MS4-EE- $\frac{1}{8}$ -V230 ¹⁾
	G $\frac{1}{4}$	529 539	MS4-EE- $\frac{1}{4}$ -V24 ¹⁾	529 535	MS4-EE- $\frac{1}{4}$ -V110 ¹⁾	529 537	MS4-EE- $\frac{1}{4}$ -V230 ¹⁾
MS6	G $\frac{1}{4}$	529 833	MS6-EE- $\frac{1}{4}$ -V24 ¹⁾	529 829	MS6-EE- $\frac{1}{4}$ -V110 ¹⁾	529 831	MS6-EE- $\frac{1}{4}$ -V230 ¹⁾
	G $\frac{3}{8}$	529 839	MS6-EE- $\frac{3}{8}$ -V24 ¹⁾	529 835	MS6-EE- $\frac{3}{8}$ -V110 ¹⁾	529 837	MS6-EE- $\frac{3}{8}$ -V230 ¹⁾
	G $\frac{1}{2}$	529 827	MS6-EE- $\frac{1}{2}$ -V24 ¹⁾	529 823	MS6-EE- $\frac{1}{2}$ -V110 ¹⁾	529 825	MS6-EE- $\frac{1}{2}$ -V230 ¹⁾
Flow direction from right to left							
MS4	G $\frac{1}{8}$	529 546	MS4-EE- $\frac{1}{8}$ -V24-Z ¹⁾	529 542	MS4-EE- $\frac{1}{8}$ -V110-Z ¹⁾	529 544	MS4-EE- $\frac{1}{8}$ -V230-Z ¹⁾
	G $\frac{1}{4}$	529 540	MS4-EE- $\frac{1}{4}$ -V24-Z ¹⁾	529 536	MS4-EE- $\frac{1}{4}$ -V110-Z ¹⁾	529 538	MS4-EE- $\frac{1}{4}$ -V230-Z ¹⁾
MS6	G $\frac{1}{4}$	529 834	MS6-EE- $\frac{1}{4}$ -V24-Z ¹⁾	529 830	MS6-EE- $\frac{1}{4}$ -V110-Z ¹⁾	529 832	MS6-EE- $\frac{1}{4}$ -V230-Z ¹⁾
	G $\frac{3}{8}$	529 840	MS6-EE- $\frac{3}{8}$ -V24-Z ¹⁾	529 836	MS6-EE- $\frac{3}{8}$ -V110-Z ¹⁾	529 838	MS6-EE- $\frac{3}{8}$ -V230-Z ¹⁾
	G $\frac{1}{2}$	529 828	MS6-EE- $\frac{1}{2}$ -V24-Z ¹⁾	529 824	MS6-EE- $\frac{1}{2}$ -V110-Z ¹⁾	529 826	MS6-EE- $\frac{1}{2}$ -V230-Z ¹⁾

1) Free of copper, PTFE and silicone

Ordering data							
With silencer							
Size	Connection	Supply voltage 24 V DC		Supply voltage 110 V AC		Supply voltage 230 V AC	
		Part No.	Type	Part No.	Type	Part No.	Type
Flow direction from left to right							
MS4	G $\frac{1}{8}$	538 729	MS4-EE- $\frac{1}{8}$ -V24-S ¹⁾	538 725	MS4-EE- $\frac{1}{8}$ -V110-S ¹⁾	538 727	MS4-EE- $\frac{1}{8}$ -V230-S ¹⁾
	G $\frac{1}{4}$	538 723	MS4-EE- $\frac{1}{4}$ -V24-S ¹⁾	538 719	MS4-EE- $\frac{1}{4}$ -V110-S ¹⁾	538 721	MS4-EE- $\frac{1}{4}$ -V230-S ¹⁾
MS6	G $\frac{1}{4}$	538 741	MS6-EE- $\frac{1}{4}$ -V24-S ¹⁾	538 737	MS6-EE- $\frac{1}{4}$ -V110-S ¹⁾	538 739	MS6-EE- $\frac{1}{4}$ -V230-S ¹⁾
	G $\frac{3}{8}$	538 747	MS6-EE- $\frac{3}{8}$ -V24-S ¹⁾	538 743	MS6-EE- $\frac{3}{8}$ -V110-S ¹⁾	538 745	MS6-EE- $\frac{3}{8}$ -V230-S ¹⁾
	G $\frac{1}{2}$	538 735	MS6-EE- $\frac{1}{2}$ -V24-S ¹⁾	538 731	MS6-EE- $\frac{1}{2}$ -V110-S ¹⁾	538 733	MS6-EE- $\frac{1}{2}$ -V230-S ¹⁾
Flow direction from right to left							
MS4	G $\frac{1}{8}$	538 730	MS4-EE- $\frac{1}{8}$ -V24-S-Z ¹⁾	538 726	MS4-EE- $\frac{1}{8}$ -V110-S-Z ¹⁾	538 728	MS4-EE- $\frac{1}{8}$ -V230-S-Z ¹⁾
	G $\frac{1}{4}$	538 724	MS4-EE- $\frac{1}{4}$ -V24-S-Z ¹⁾	538 720	MS4-EE- $\frac{1}{4}$ -V110-S-Z ¹⁾	538 722	MS4-EE- $\frac{1}{4}$ -V230-S-Z ¹⁾
MS6	G $\frac{1}{4}$	538 742	MS6-EE- $\frac{1}{4}$ -V24-S-Z ¹⁾	538 738	MS6-EE- $\frac{1}{4}$ -V110-S-Z ¹⁾	538 740	MS6-EE- $\frac{1}{4}$ -V230-S-Z ¹⁾
	G $\frac{3}{8}$	538 748	MS6-EE- $\frac{3}{8}$ -V24-S-Z ¹⁾	538 744	MS6-EE- $\frac{3}{8}$ -V110-S-Z ¹⁾	538 746	MS6-EE- $\frac{3}{8}$ -V230-S-Z ¹⁾
	G $\frac{1}{2}$	538 736	MS6-EE- $\frac{1}{2}$ -V24-S-Z ¹⁾	538 732	MS6-EE- $\frac{1}{2}$ -V110-S-Z ¹⁾	538 734	MS6-EE- $\frac{1}{2}$ -V230-S-Z ¹⁾

1) Free of copper, PTFE and silicone

On-off valves MS4/MS6-EE, MS series



Ordering data – Modular products

M Mandatory data						O Options				
Module No.	Series	Size	Function	Connection size	Supply voltage	Silencer	Pressure gauge/adaptor	Alternative pressure gauge scale	Type of mounting	Alternative flow direction
527 709 527 682	MS	4 6	EE	1/8, 1/4, 3/8, 1/2 AGA, AGB, AGC, AGD, AGE	V24 V110 V230	S	AG A8 A4	PSI MPA	WP WPM WB WBM	Z
Ordering example 527 709	MS	4	- EE	- AGB	- V24	- S	- AG	- PSI	- WP	- Z

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
M	Module No.	527 709		527 682		
	Series	Standard		MS		MS
	Size	4	6	...		
	Function	On-off valve, electrical		-EE		-EE
	Connection size	Thread G1/8	-	-1/8		
		Thread G1/4	Thread G1/4	-1/4		
		-	Thread G3/8	-3/8		
		-	Thread G1/2	-1/2		
		Connecting plate G1/8	-	-AGA		
		Connecting plate G1/4	Connecting plate G1/4	-AGB		
		Connecting plate G3/8	Connecting plate G3/8	-AGC		
		-	Connecting plate G1/2	-AGD		
	Supply voltage	24 V DC (connection pattern to EN 175301)		-V24		
		14 bar	18 bar			
		110 V AC (connection pattern to EN 175301)		-V110		
		14 bar	18 bar			
	Supply voltage	230 V AC (connection pattern to EN 175301)		-V230		
		14 bar	18 bar			
O	Silencer	Silencer		-S		
	Pressure gauge/adaptor	MS pressure gauge, bar (with adapter)		MS pressure gauge, bar		-AG
		Adapter plate for EN pressure gauge 1/8, without pressure gauge		-		-A8
		Adapter plate for EN pressure gauge 1/4, without pressure gauge		-		-A4
	Alternative pressure gauge scale	psi		[1]	-PSI	
		MPa		[1]	-MPA	
	Type of mounting	Wall mounting plate		[2]	-WP	
		Wall mounting plate (dimensions for M series)		[2]	-WPM	
		Wall mounting bracket			-WB	
		Wall mounting bracket (dimensions for M series)		-	-WBM	
	Alternative flow direction	Flow direction from right to left		-Z		

[1] **PSI, MPA** Only in combination with pressure gauge AG.

[2] **WP, WPM** Only with sub-base AGA, AGB, AGC, AGD or AGE.

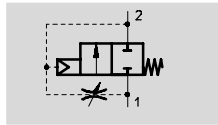
Transfer order code

	MS		- EE								
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Soft-start valves MS4/MS6-DL, MS series

Technical data

Function



- - Flow rate
1000 ... 6450 l/min
- - Temperature range
-10 ... +60 °C
- - Operating pressure
4 ... 18 bar



The duration of the pressure build-up is adjusted using the restrictor attached to the valve cap. The output pressure p2 rises slowly in accordance with the restrictor setting. The main seat opens when the switch-through pressure is reached.

When the valve is exhausted, the main seat remains open until the switch-through pressure is reached. The rest of the exhaust procedure is performed using the restrictor.

- Pneumatically actuated soft-start valve for slowly pressurising and venting pneumatic installations (for use with on-off valves EM and EE)
- The drives advance slowly and reliably into the initial position
- Sudden and erratic movements are avoided
- Pressure switching approx. 50% of input pressure
- Adjustable switching time delay

General technical data					
	MS4		MS6		
Pneumatic connection 1	G1/8	G1/4	G1/4	G3/8	G1/2
Pneumatic connection 2	G1/8	G1/4	G1/4	G3/8	G1/2
Operating medium	Compressed air				
Design	Piston poppet valve				
Type of mounting	Via accessories In-line installation				
Assembly position	Any				
Operating pressure [bar]	4 ... 14		4 ... 18		
Valve function	2/2-way valve				
Exhaust function	Flow control				
Type of actuation	Mechanical spring				
C value [l/sbar]	4.6	9.6	11.22	21.05	28.97
b value	0.5	0.45	0.54	0.48	0.39
Type of actuation	Direct				
Pilot air supply	External				
Direction of flow	Non-reversible				

Standard nominal flow rate qnN ¹⁾ [l/min]						
		MS4		MS6		
		G1/8	G1/4	G1/4	G3/8	G1/2
In main flow direction	1 → 2	1000	2000	2800	5050	6450
In relief direction	2 → 1	1000	2000	2800	5050	6400

1) measured at p1 = 6 bar and p2 = 5 bar, Δp = 1 bar

Soft-start valves MS4/MS6-DL, MS series

Technical data

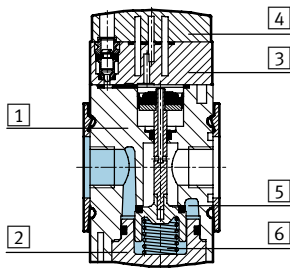
Ambient conditions		
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	-10 ... +60
Corrosion resistance class	CRC ¹⁾	2

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.

Weight [g]	MS4	MS6
Soft-start valve	213	650

Materials

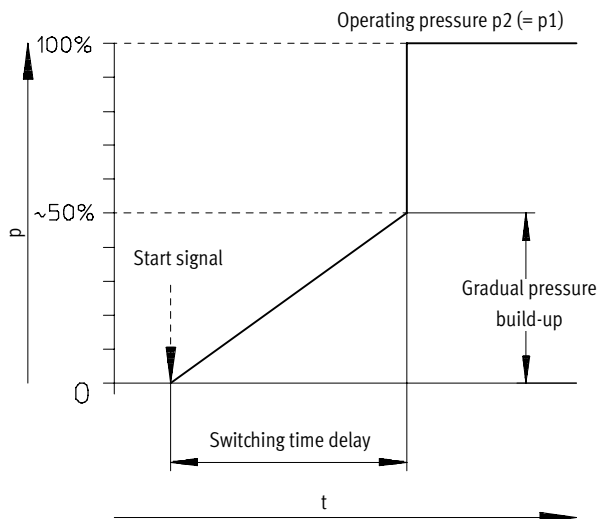
Sectional view



Soft-start valve		
1	Body	Die-cast aluminium
2	Base	Polyester
3	End cap	Polyamide
4	Top plate	Polyamide
5	Seat	Die-cast aluminium
6	Springs	Spring steel
-	Seals	Nitrile rubber
Note on materials		Free of copper, PTFE and silicone only with cover plate (without MS pressure gauge AG)

Switching point

Pressure p as a function of time t



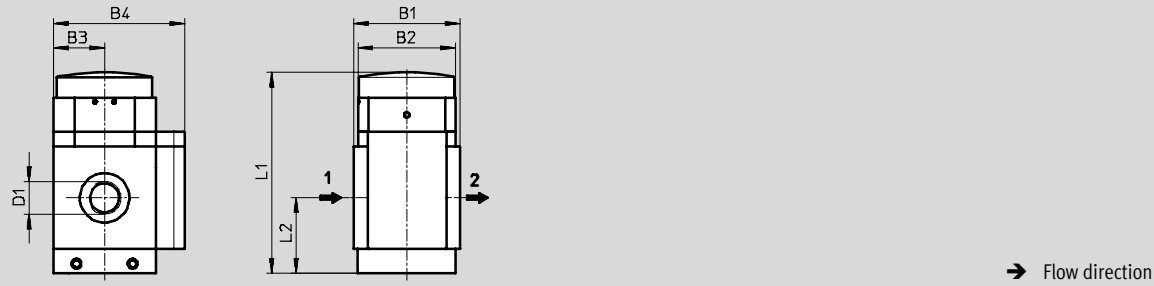
Soft-start valves MS4/MS6-DL, MS series

Technical data



Dimensions – Standard

Download CAD data → www.festo.com/en/engineering



Type	B1 ¹⁾	B2	B3	B4	D1	L1	L2
MS4-DL-1/8	43.6	40	21	54	G1/8	82.7	31
MS4-DL-1/4					G1/4		
MS6-DL-1/4	67	62	31	76	G1/4	116	45
MS6-DL-3/8					G3/8		
MS6-DL-1/2					G1/2		

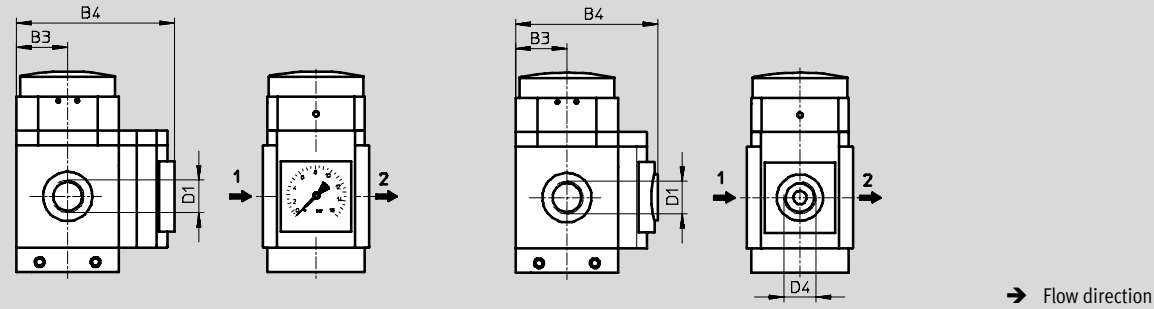
1) With accessory cover cap MS...-END

Dimensions – Pressure gauges/adapters

Download CAD data → www.festo.com/en/engineering

Integrated MS pressure gauge AG, display unit [bar]

Adapter A8/A4 for EN pressure gauge 1/8/1/4, without pressure gauge



Type	B3	B4	D1	D4
MS4-DL-1/8-AG	21	65	G1/8	-
MS4-DL-1/4-AG			G1/4	
MS4-DL-1/8-A8	21	58.5	G1/8	G1/8
MS4-DL-1/4-A8			G1/4	
MS4-DL-1/8-A4	21	58.5	G1/8	G1/4
MS4-DL-1/4-A4			G1/4	
MS6-DL-1/4-AG	31	85	G1/4	-
MS6-DL-3/8-AG			G3/8	
MS6-DL-1/2-AG			G1/2	
MS6-DL-1/4-A4	31	78.5	G1/4	G1/4
MS6-DL-3/8-A4			G3/8	
MS6-DL-1/2-A4			G1/2	

MS4/MS6 series service units
Start-up and exhaust valves

2.16

Soft-start valves MS4/MS6-DL, MS series

FESTO

Technical data

Ordering data					
Size	Connection	Flow direction from left to right		Flow direction from right to left	
		Part No.	Type	Part No.	Type
MS4	G1/8	529 533	MS4-DL-1/8 ¹⁾	529 534	MS4-DL-1/8-Z ¹⁾
	G1/4	529 531	MS4-DL-1/4 ¹⁾	529 532	MS4-DL-1/4-Z ¹⁾
MS6	G1/4	529 819	MS6-DL-1/4 ¹⁾	529 820	MS6-DL-1/4-Z ¹⁾
	G3/8	529 821	MS6-DL-3/8 ¹⁾	529 822	MS6-DL-3/8-Z ¹⁾
	G1/2	529 817	MS6-DL-1/2 ¹⁾	529 818	MS6-DL-1/2-Z ¹⁾

1) Free of copper, PTFE and silicone

Soft-start valves MS4/MS6-DL, MS series



Ordering data – Modular products

M Mandatory data				O Options				
Module No.	Series	Size	Function	Connection size	Pressure gauge/adapter	Alternative pressure gauge scale	Type of mounting	Alternative flow direction
527 711 527 684	MS	4 6	DL	1/8, 1/4, 3/8, 1/2 AGA, AGB, AGC, AGD, AGE	AG A8 A4	PSI MPA	WP WPM WB WBM	Z
Ordering example 527 711	MS	4	- DL	- AGA	- AG	- PSI	- WB	- Z

Ordering table							
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code	
M	Module No.	527 711	527 684				
	Series	Standard			MS		MS
	Size	4	6		...		
	Function	Soft-start valve, pneumatic			-DL		-DL
	Connection size	Thread G1/8	-		-1/8		
		Thread G1/4	Thread G1/4		-1/4		
		-	Thread G3/8		-3/8		
		-	Thread G1/2		-1/2		
		Connecting plate G1/8	-		-AGA		
		Connecting plate G1/4	Connecting plate G1/4		-AGB		
		Connecting plate G3/8	Connecting plate G3/8		-AGC		
		-	Connecting plate G1/2		-AGD		
	-	Connecting plate G3/4		-AGE			
	Pressure gauge/adapter	MS pressure gauge, bar (with adapter)	MS pressure gauge, bar		-AG		
		Adapter plate for EN pressure gauge 1/8, without pressure gauge	-		-A8		
		Adapter plate for EN pressure gauge 1/4, without pressure gauge			-A4		
	Alternative pressure gauge scale	psi		1	-PSI		
		MPa		1	-MPA		
	Type of mounting	Wall mounting plate		2	-WP		
		Wall mounting plate (dimensions for M series)		2	-WPM		
		Wall mounting bracket				-WB	
		Wall mounting bracket (dimensions for M series)	-			-WBM	
	Alternative flow direction	Flow direction from right to left			-Z		

1 **PSI, MPA** Only with pressure gauge AG.

2 **WP, WPM** Only with sub-base AGA, AGB, AGC, AGD or AGE.

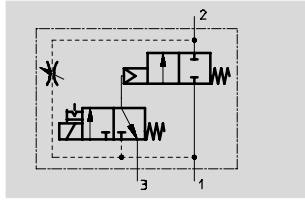
Transfer order code




	MS		-	DL		-			-			-			
--	----	--	---	----	--	---	--	--	---	--	--	---	--	--	--

Soft-start valves MS4/MS6-DE, MS series

Technical data

Function



-  Flow rate
1000 ... 6450 l/min
-  Temperature range
-10 ... +60 °C
-  Operating pressure
4 ... 18 bar



The duration of the pressure build-up is adjusted using the restrictor attached to the valve cap. The output pressure p2 rises slowly in accordance with the restrictor setting. Only the air flow from the restrictor is available when the solenoid valve is not actuated. The main seat is only opened by energising the solenoid valve.

When the solenoid valve is switched off, the main seat is closed and only the air flow from the flow control valve is available.

The solenoid valve should remain switched on in order to vent a system as this increases the flow rate from 2 and 1 and reduces the exhaust time.

- Solenoid actuated soft-start valve for slowly pressurising and venting pneumatic installations
- The drives advance slowly and reliably into the initial position
- Sudden and erratic movements are avoided
- With solenoid coil without plug socket
- Switch-through pressure can be exactly controlled using a solenoid valve
- Adjustable switching time delay
- Three voltage ranges can be selected
- Pushing and detenting manual override (detenting is locked on delivery)
- Solenoid actuator can be repositioned by 180°

General technical data					
	MS4		MS6		
Pneumatic connection 1	G1/8	G1/4	G1/4	G3/8	G1/2
Pneumatic connection 2	G1/8	G1/4	G1/4	G3/8	G1/2
Operating medium	Compressed air				
Design	Piston poppet valve				
Type of mounting	Via accessories				
	In-line installation				
Assembly position	Any				
Operating pressure [bar]	4 ... 14		4 ... 18		
Valve function	2/2-way valve				
Exhaust function	Flow control				
Type of actuation	Mechanical spring				
C value [l/sbar]	4.6	9.6	11.22	21.05	28.97
b value	0.5	0.45	0.54	0.48	0.39
Switching position display	Via accessories				
Type of actuation	Piloted				
Pilot air supply	External				
Direction of flow	Non-reversible				
Supply voltage					
Coil characteristics	V24	24 V DC			
	V110	110 V AC			
	V230	230 V AC			

Soft-start valves MS4/MS6-DE, MS series

Technical data

Standard nominal flow rate $q_{nN}^{1)}$ [l/min]						
		MS4		MS6		
		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
In main flow direction	1 \rightarrow 2	1000	2000	2700	5050	6450
In relief direction ²⁾	2 \rightarrow 1	1000	2000	2600	5050	6400

- 1) measured at $p_1 = 6$ bar and $p_2 = 5$ bar, $\Delta p = 1$ bar
- 2) For energised solenoid valve.

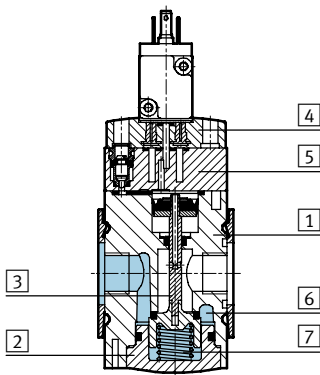
Ambient conditions		
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	-10 ... +60
Corrosion resistance class	CRC ¹⁾	2

- 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.

Weight [g]		
	MS4	MS6
Soft-start valve	263	680

Materials

Sectional view



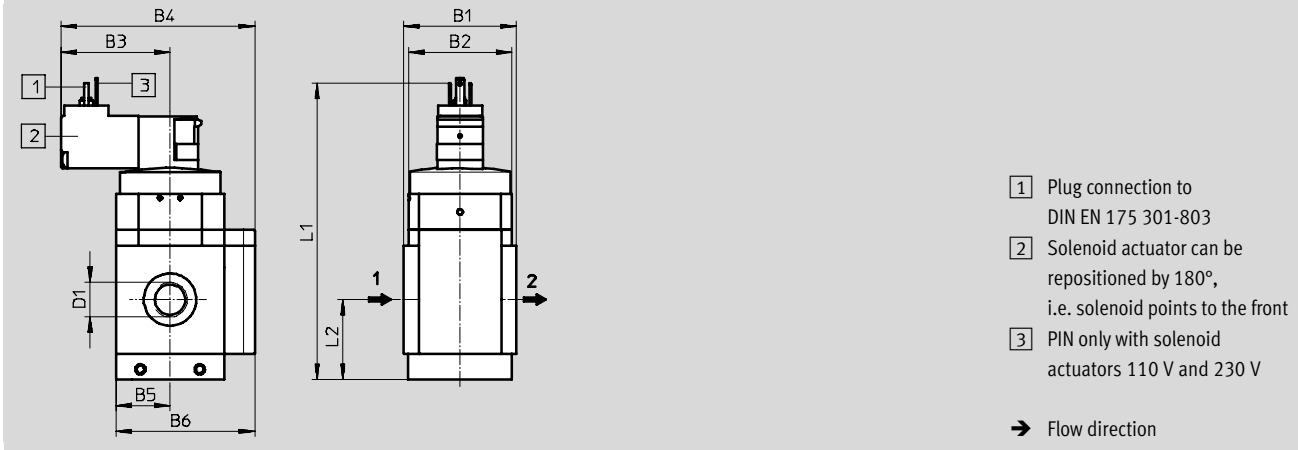
Soft-start valve		
1	Body	Die-cast aluminium
2	Base	Polyamide
3	Valve stem	Steel
4	End cap	Polyamide
5	Top plate	Polyamide
6	Seat	Aluminium/nitrile rubber
7	Springs	Spring steel
-	Seals	Nitrile rubber
Note on materials		Free of copper, PTFE and silicone only with cover plate (without MS pressure gauge AG)

Soft-start valves MS4/MS6-DE, MS series

Technical data

Dimensions – Standard

Download CAD data → www.festo.com/en/engineering



Type	B1 ¹⁾	B2	B3	B4	B5	B6	D1	L1	L2
MS4-DE-1/8	43.6	40	42.2	75.2	21	54	G1/8	114.9	31
MS4-DE-1/4							G1/4		
MS6-DE-1/4	67	62	52	97	31	76	G1/4	147	45
MS6-DE-3/8							G3/8		
MS6-DE-1/2							G1/2		

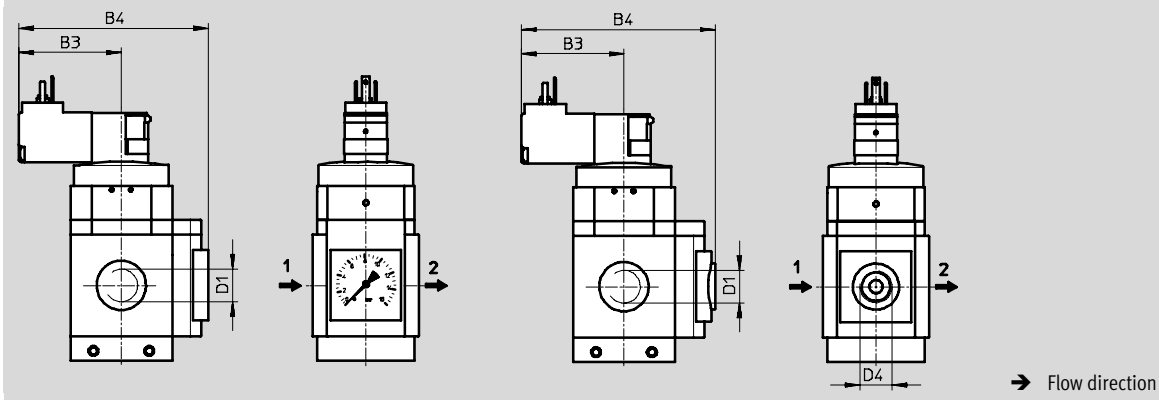
1) With accessory cover cap MS...-END

Dimensions – Pressure gauges/adapters

Download CAD data → www.festo.com/en/engineering

Integrated MS pressure gauge AG, display unit [bar]

Adapter A8/A4 for EN pressure gauge 1/8 1/4, without pressure gauge



Type	B3	B4	D1	D4
MS4-DE-1/8-AG	42.2	86.2	G1/8	-
MS4-DE-1/4-AG			G1/4	
MS4-DE-1/8-A8	42.2	79.7	G1/8	G1/8
MS4-DE-1/4-A8			G1/4	
MS4-DE-1/8-A4	42.2	79.7	G1/8	G1/4
MS4-DE-1/4-A4			G1/4	
MS6-DE-1/4-AG	52	106	G1/4	-
MS6-DE-3/8-AG			G3/8	
MS6-DE-1/2-AG			G1/2	
MS6-DE-1/4-A4	52	99.6	G1/4	G1/4
MS6-DE-3/8-A4			G3/8	
MS6-DE-1/2-A4			G1/2	

Soft-start valves MS4/MS6-DE, MS series

FESTO

Technical data

Ordering data							
Size	Connection	Supply voltage 24 V DC		Supply voltage 110 V AC		Supply voltage 230 V AC	
		Part No.	Type	Part No.	Type	Part No.	Type
Flow direction from left to right							
MS4	G $\frac{1}{8}$	529 529	MS4-DE- $\frac{1}{8}$ -V24 ¹⁾	529 525	MS4-DE- $\frac{1}{8}$ -V110 ¹⁾	529 527	MS4-DE- $\frac{1}{8}$ -V230 ¹⁾
	G $\frac{1}{4}$	529 523	MS4-DE- $\frac{1}{4}$ -V24 ¹⁾	529 519	MS4-DE- $\frac{1}{4}$ -V110 ¹⁾	529 521	MS4-DE- $\frac{1}{4}$ -V230 ¹⁾
MS6	G $\frac{1}{4}$	529 809	MS6-DE- $\frac{1}{4}$ -V24 ¹⁾	529 805	MS6-DE- $\frac{1}{4}$ -V110 ¹⁾	529 807	MS6-DE- $\frac{1}{4}$ -V230 ¹⁾
	G $\frac{3}{8}$	529 815	MS6-DE- $\frac{3}{8}$ -V24 ¹⁾	529 811	MS6-DE- $\frac{3}{8}$ -V110 ¹⁾	529 813	MS6-DE- $\frac{3}{8}$ -V230 ¹⁾
	G $\frac{1}{2}$	529 803	MS6-DE- $\frac{1}{2}$ -V24 ¹⁾	529 799	MS6-DE- $\frac{1}{2}$ -V110 ¹⁾	529 801	MS6-DE- $\frac{1}{2}$ -V230 ¹⁾
Flow direction from right to left							
MS4	G $\frac{1}{8}$	529 530	MS4-DE- $\frac{1}{8}$ -V24-Z ¹⁾	529 526	MS4-DE- $\frac{1}{8}$ -V110-Z ¹⁾	529 528	MS4-DE- $\frac{1}{8}$ -V230-Z ¹⁾
	G $\frac{1}{4}$	529 524	MS4-DE- $\frac{1}{4}$ -V24-Z ¹⁾	529 520	MS4-DE- $\frac{1}{4}$ -V110-Z ¹⁾	529 522	MS4-DE- $\frac{1}{4}$ -V230-Z ¹⁾
MS6	G $\frac{1}{4}$	529 810	MS6-DE- $\frac{1}{4}$ -V24-Z ¹⁾	529 806	MS6-DE- $\frac{1}{4}$ -V110-Z ¹⁾	529 808	MS6-DE- $\frac{1}{4}$ -V230-Z ¹⁾
	G $\frac{3}{8}$	529 816	MS6-DE- $\frac{3}{8}$ -V24-Z ¹⁾	529 812	MS6-DE- $\frac{3}{8}$ -V110-Z ¹⁾	529 814	MS6-DE- $\frac{3}{8}$ -V230-Z ¹⁾
	G $\frac{1}{2}$	529 804	MS6-DE- $\frac{1}{2}$ -V24-Z ¹⁾	529 800	MS6-DE- $\frac{1}{2}$ -V110-Z ¹⁾	529 802	MS6-DE- $\frac{1}{2}$ -V230-Z ¹⁾

1) Free of copper, PTFE and silicone

Soft-start valves MS4/MS6-DE, MS series



Ordering data – Modular products

M Mandatory data					O Options				
Module No.	Series	Size	Function	Connection size	Supply voltage	Pressure gauge/ adapter	Alternative pressure gauge scale	Type of mounting	Alternative flow direction
527 713 527 686	MS	4 6	DE	1/8, 1/4, 3/8, 1/2 AGA, AGB, AGC, AGD, AGE	V24 V110 V230	AG A8 A4	PSI MPA	WP WPM WB WBM	Z
Ordering example									
527 713	MS	4	- DE	- AGA	- V110	- AG	- PSI	- WP	- Z

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
M	Module No.	527 713	527 686			
	Series	Standard			MS	MS
	Size	4	6		...	
	Function	Soft-start valve, electrical			-DE	-DE
	Connection size	Thread G1/8	-		-1/8	
		Thread G1/4	Thread G1/4		-1/4	
		-	Thread G3/8		-3/8	
		-	Thread G1/2		-1/2	
		Connecting plate G1/8	-		-AGA	
		Connecting plate G1/4	Connecting plate G1/4		-AGB	
		Connecting plate G3/8	Connecting plate G3/8		-AGC	
		-	Connecting plate G1/2		-AGD	
	-	Connecting plate G3/4		-AGE		
	Supply voltage	24 V DC (connection pattern to EN 175301)			-V24	
		14 bar	18 bar			
		110 V AC (connection pattern to EN 175301)			-V110	
		14 bar	18 bar			
	230 V AC (connection pattern to EN 175301)				-V230	
		14 bar	18 bar			
	Pressure gauge/adapter	MS pressure gauge, bar (with adapter)		MS pressure gauge, bar	-AG	
		Adapter plate for EN pressure gauge 1/8, without pressure gauge		-	-A8	
		Adapter plate for EN pressure gauge 1/4, without pressure gauge			-A4	
	Alternative pressure gauge scale	psi			[1] -PSI	
		MPa			[1] -MPA	
	Type of mounting	Wall mounting plate			[2] -WP	
		Wall mounting plate (dimensions for M series)			[2] -WPM	
		Wall mounting bracket			-WB	
		Wall mounting bracket (dimensions for M series)		-	-WBM	
	Alternative flow direction	Flow direction from right to left			-Z	

[1] **PSI, MPA** Only in combination with pressure gauge AG.

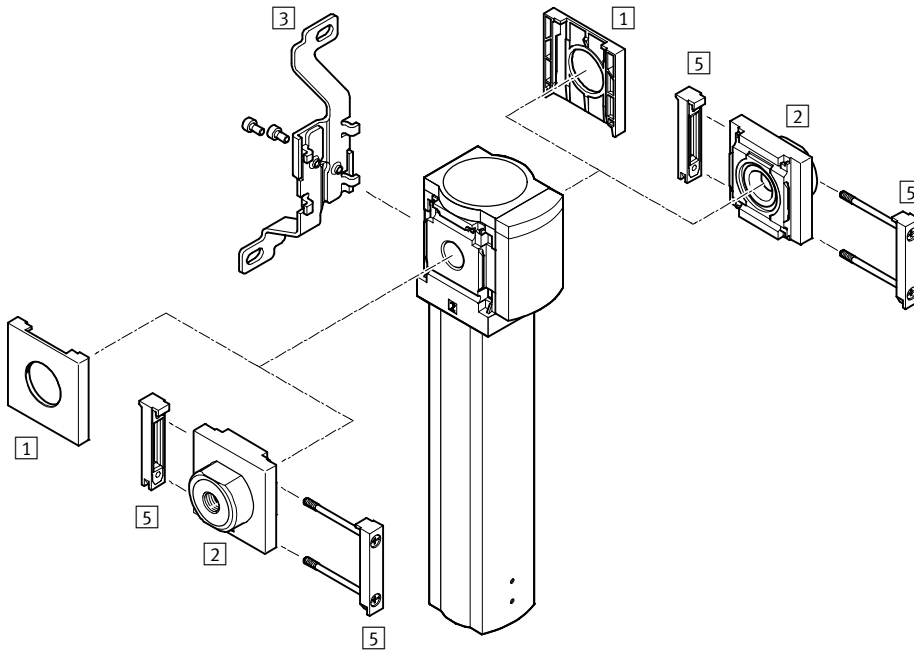
[2] **WP, WPM** Only with sub-base AGA, AGB, AGC, AGD or AGE.

Transfer order code

	MS		-	DE	-		-		-		-		-		-	
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Membrane dryers MS4/MS6-LDM, MS series

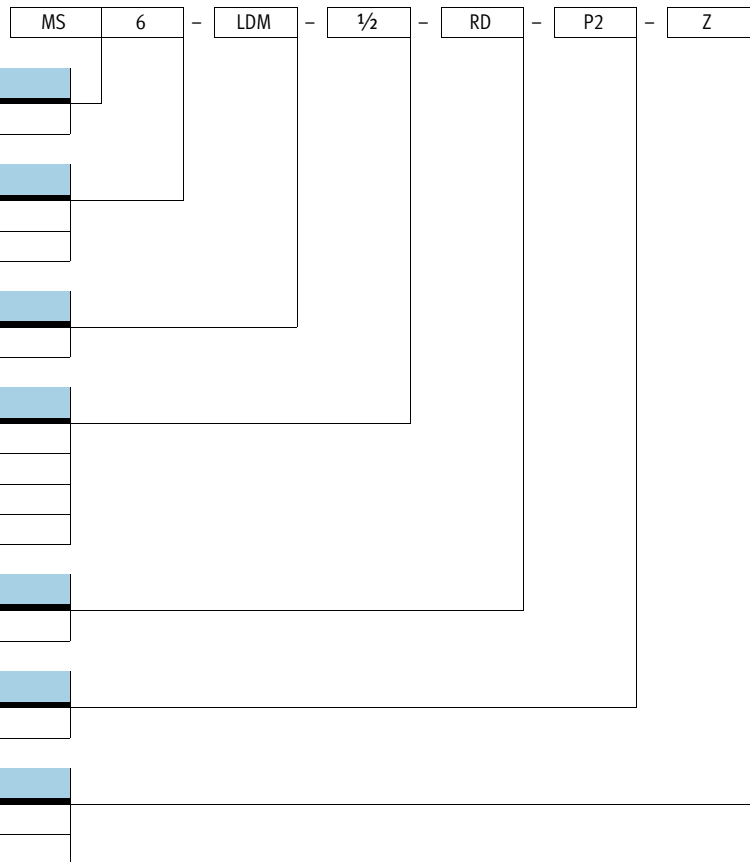
Peripherals overview



Mounting attachments and accessories					
	Individual unit		Combination → 3/2.11-10		→ Page
	without connecting plate	with connecting plate	without connecting plate	with connecting plate	
1 Cover cap MS4/6-END	■	-	■	-	3/2.31-3
2 Connecting plate MS4/6-AG...	-	■	-	■	3/2.31-0
3 Wall mounting bracket MS4/6-WB	■	■	-	-	3/2.31-1
5 Module connector MS4/6-MV	-	■	■	■	3/2.31-3
- Wall mounting bracket MS4-WBM	■	■	-	-	3/2.31-1
- Wall mounting plate MS4/6-WP	-	■	■	■	3/2.31-5
- Wall mounting plate MS4/6-WPM	-	■	■	■	3/2.31-6

Membrane dryers MS4/MS6-LDM, MS series

Type codes



Further variants can be ordered using the modular system

Membrane dryers LDM

→ 3/2.17-5

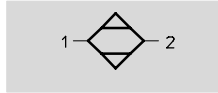
- Connecting plates
- Flow cartridge
- Type of mounting

Membrane dryers MS4/MS6-LDM, MS series

FESTO

Technical data

Function



- - Flow rate
50 ... 400 l/min

- - Temperature range
+5 ... +55 °C

- - Input pressure
3 ... 8.5 bar

Compressed air always contains moisture. A characteristic measure of moisture content is the dew point.



- Optimum final dryer with excellent operational reliability
- Suitable for use as an individual device or for integration in existing service unit combinations

- Flow rate-dependent dew point reduction
- Wear-free function requiring no external energy

Typical areas of application:

- Drying, cleaning of precision parts
- Measuring technology
- Paper and packaging machines

- - Note
To ensure operational safety, it is necessary to prefilter the compressed air with a micro filter LFM (0.01 µm)

General technical data

	MS4		MS6		
	G1/8	G1/4	G1/4	G3/8	G1/2
Pneumatic connection 1	G1/8	G1/4	G1/4	G3/8	G1/2
Pneumatic connection 2	G1/8	G1/4	G1/4	G3/8	G1/2
Operating medium	Compressed air, air quality class 1.7.2 to DIN ISO 8573-1				
Design	Membrane dryer with intrinsic air consumption				
Type of mounting	Via accessories In-line installation				
Assembly position	Vertical ±5°				
Input pressure [bar]	3 ... 8.5				
Pressure dew point reduction [°C]	13				

Standard flow rate qn¹⁾ [l/min]

	MS4		MS6	
	Cartridge size 1	Cartridge size 2	Cartridge size 1	Cartridge size 2
Input	62.5	125	250	500
Output	50	100	200	400
Purge air	12.5	25	50	100

1) measured at p1 = 6,9 bar, Tpd On = 20 °C, TpA Off = -20 °C +15% (Tpd Off = 7 °C + 15%), Tamb = 20 °C

Ambient conditions

Ambient temperature [°C]	+5 ... +55
Temperature of medium [°C]	+5 ... +55
Storage temperature [°C]	-20 ... +55
Corrosion resistance class CRC ¹⁾	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.

Weight [g]

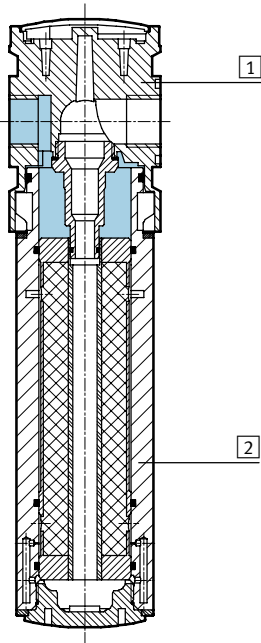
	MS4	MS6
With flow cartridge	640	1410

Membrane dryers MS4/MS6-LDM, MS series

Technical data

Materials

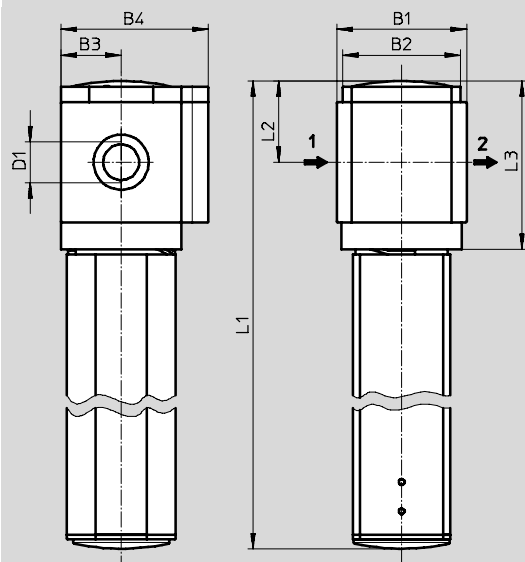
Sectional view



Membrane dryer		
1	Body	Die-cast aluminium
2	Protective sleeve for membrane cartridge	Aluminium
-	Seals	Nitrile rubber

Dimensions – Standard

Download CAD data → www.festo.com/en/engineering



→ Flow direction

Type	B1 ¹⁾	B2	B3	B4	D1	L1	L2	L3
MS4-LDM-1/8	44	40	21	54	G1/8	336	29	60
MS4-LDM-1/4					G1/4			
MS6-LDM-1/4	67	62	31	76	G1/4	359	42	87
MS6-LDM-3/8					G3/8			
MS6-LDM-1/2					G1/2			

1) With accessory cover cap MS...-END

Membrane dryers MS4/MS6-LDM, MS series

FESTO

Technical data

Ordering data					
Reduced pressure dew point, flow cartridge 2					
Size	Connection	Flow direction from left to right		Flow direction from right to left	
		Part No.	Type	Part No.	Type
MS4	G $\frac{1}{8}$	537 862	MS4-LDM- $\frac{1}{8}$ -RD-P2	537 863	MS4-LDM- $\frac{1}{8}$ -RD-P2-Z
	G $\frac{1}{4}$	537 860	MS4-LDM- $\frac{1}{4}$ -RD-P2	537 861	MS4-LDM- $\frac{1}{4}$ -RD-P2-Z
MS6	G $\frac{1}{4}$	531 016	MS6-LDM- $\frac{1}{4}$ -RD-P2	531 017	MS6-LDM- $\frac{1}{4}$ -RD-P2-Z
	G $\frac{3}{8}$	531 018	MS6-LDM- $\frac{3}{8}$ -RD-P2	531 019	MS6-LDM- $\frac{3}{8}$ -RD-P2-Z
	G $\frac{1}{2}$	531 014	MS6-LDM- $\frac{1}{2}$ -RD-P2	531 015	MS6-LDM- $\frac{1}{2}$ -RD-P2-Z

Membrane dryers MS4/MS6-LDM, MS series



Ordering data – Modular products

M Mandatory data						O Options		
Module No.	Series	Size	Function	Connection size	Pressure dew point reduction	Flow cartridge	Type of mounting	Alternative flow direction
527 715 527 688	MS	4 6	LDM	1/8, 1/4, 3/8, 1/2 AGA, AGB, AGC, AGD, AGE	RD	P1 P2	WP WPM WB WBM	Z
Ordering example 527 688	MS	6	- LDM	- 1/4	- RD	P2	- WB	- Z

Ordering table		Grid dimension [mm]	40	62	Condi- tions	Code	Enter code
M	Module No.	527 715	527 688				
	Series	Standard				MS	MS
	Size	4	6			...	
	Function	Membrane dryer				-LDM	-LDM
	Connection size	Thread G1/8	-			-1/8	
		Thread G1/4	Thread G1/4			-1/4	
		-	Thread G3/8			-3/8	
		-	Thread G1/2			-1/2	
		Connecting plate G1/8	-			-AGA	
		Connecting plate G1/4	Connecting plate G1/4			-AGB	
		Connecting plate G3/8	Connecting plate G3/8			-AGC	
		-	Connecting plate G1/2			-AGD	
		-	Connecting plate G3/4			-AGE	
	Pressure dew point reduction	Reduced pressure dew point				-RD	-RD
	Flow cartridge	1	1			-P1	
		Flow rate at output (50 l/min)	(200 l/min)				
	Flow rate at output	2	(400 l/min)			-P2	
		(100 l/min)					
O	Type of mounting	Wall mounting plate			<input type="checkbox"/>	-WP	
		Wall mounting plate (dimensions for M series)			<input type="checkbox"/>	-WPM	
		Wall mounting bracket					-WB
		Wall mounting bracket (dimensions for M series)	-				-WBM
	Alternative flow direction	Flow direction from right to left				-Z	

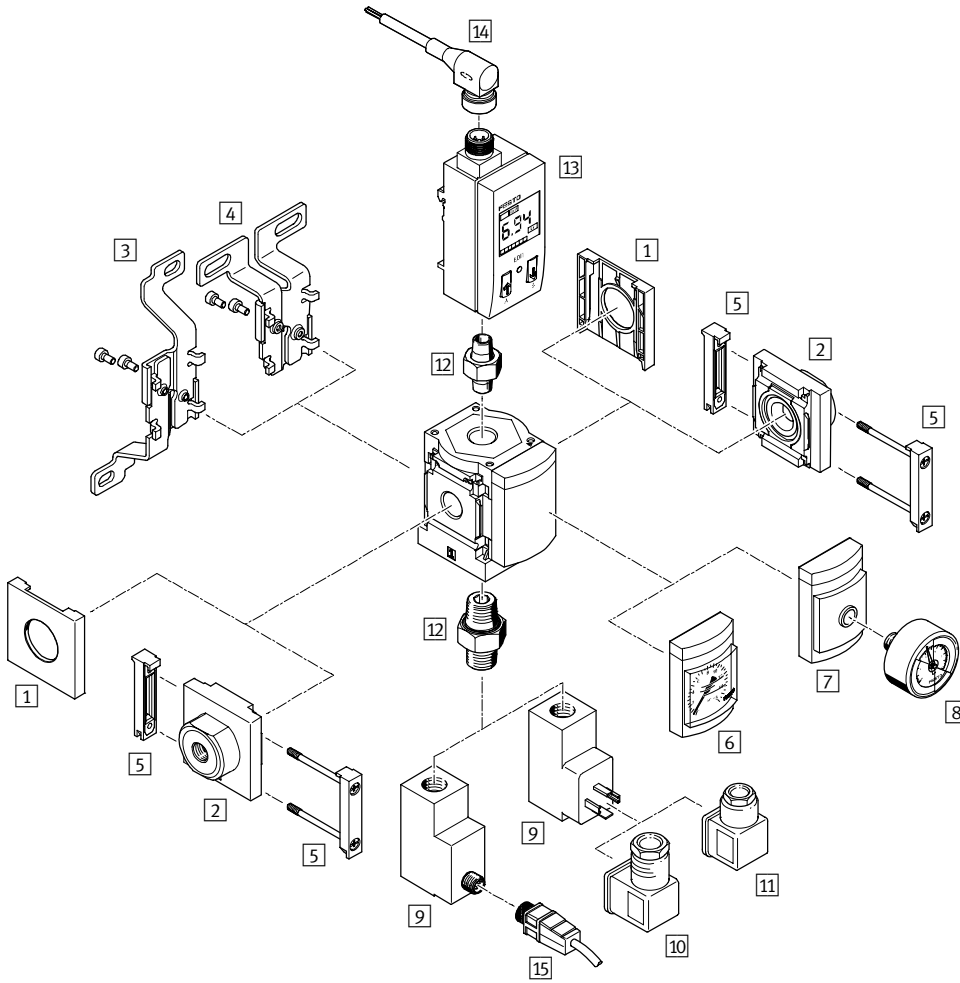
WP, WPM Only with connecting plate AGA, AGB, AGC, AGD or AGE.

Transfer order code

<input type="text"/>	MS	<input type="text"/>	- LDM	<input type="text"/>	- RD	<input type="text"/>	<input type="text"/>	<input type="text"/>
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Branching modules MS4/MS6-FRM, MS series

Peripherals overview



Branching modules MS4/MS6-FRM, MS series

Peripherals overview

Mounting attachments and accessories						
		Individual unit		Combination → 3/2.11-10		→ Page
		without connecting plate	with connecting plate	without connecting plate	with connecting plate	
1	Cover cap MS4/6-END	■	-	■	-	3/2.31-3
2	Connecting plate MS4/6-AG...	-	■	-	■	3/2.31-0
3	Wall mounting bracket MS4/6-WB	■	■	-	-	3/2.31-1
4	Wall mounting bracket MS4-WBM	■	■	-	-	3/2.31-1
5	Module connector MS4/6-MV	-	■	■	■	3/2.31-3
6	MS pressure gauge AG	■	■	■	■	3/2.18-8
7	Adapter for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	3/2.18-8
8	Pressure gauge MA	■	■	■	■	3/2.31-8
9	Pressure switch PEV	■	■	■	■	3/2.31-11 Volume 4
10	Angled socket PEV-1/4-WD-LED-...	■	■	■	■	3/2.31-11
11	Plug socket MSSD-C-4P	■	■	■	■	3/2.31-11
12	Double nipple ESK	■	■	■	■	3/2.31-16
13	Pressure sensor SDE1-...-H18/W18	■	■	■	■	3/2.31-12 Volume 4
14	Plug socket with cable SIM-M8-3.../SIM-M12-5...	■	■	■	■	3/2.31-13
15	Plug socket with cable SIM-M12-4...	■	■	■	■	3/2.31-14
-	Wall mounting plate MS4/6-WP	-	■	■	■	3/2.31-5
-	Wall mounting plate MS4/6-WPM	-	■	■	■	3/2.31-6

 **New**
Variant M12

Branching modules MS4/MS6-FRM, MS series

FESTO

Type codes

MS 4 - FRM - 1/8 - Y - Z

Basic function

MS	Standard service unit
----	-----------------------

Size

4	Grid dimension 40 mm
6	Grid dimension 62 mm

Service function

FRM	Branching module
-----	------------------

Connection size

1/8	Thread G1/8
1/4	Thread G1/4
3/8	Thread G3/8
1/2	Thread G1/2

Pressure switch

	Without pressure switch
Y	With pressure switch

Alternative flow direction

	Flow direction from left to right
Z	Flow direction from right to left

Further variants can be ordered using the modular system

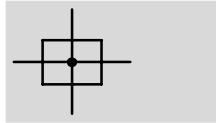
Branching modules FRM → 3/2.18-8




- Connecting plates
- Pressure sensors
- Pressure gauges/adapters
- Alternative pressure gauge scale
- Pressure switches
- Type of mounting

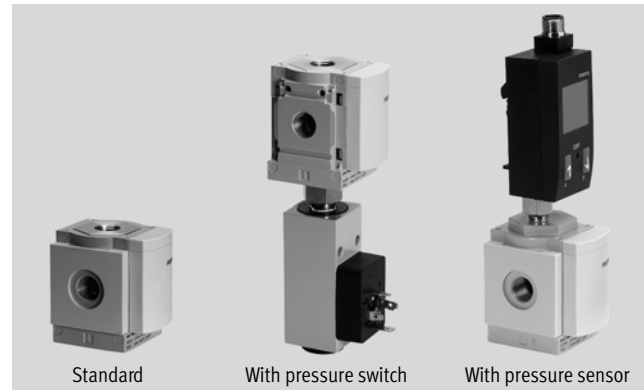
Branching modules MS4/MS6-FRM, MS series

Technical data

Function



-  - Flow rate
1,300 ... 13,000 l/min
-  - Temperature range
-10 ... +60 °C
-  - Input pressure
0 ... 20 bar



- Pneumatic manifold with 4 connections
- Attachment facility for auxiliary modules
- Outlet top and bottom
- Can be used as an intermediate distributor for varying air qualities

General technical data					
		MS4		MS6	
Pneumatic connection 1		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$ G $\frac{1}{2}$
Pneumatic connection 2		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$ G $\frac{1}{2}$
Pneumatic connection 3		G $\frac{1}{4}$		G $\frac{1}{2}$	
Pneumatic connection 4		G $\frac{1}{4}$		G $\frac{1}{2}$	
Operating medium		Compressed air			
Design		Branching module			
Type of mounting		Via accessories In-line installation			
Assembly position		Any ¹⁾			
Input pressure [bar]	Standard	0 ... 14		0 ... 20	
	With pressure switch	0 ... 12			
	With pressure sensor	0 ... 10			

1) The branching module must be mounted vertically when combined with a pressure switch or pressure sensor as condensate must not collect in the pressure switch or pressure sensor.

Standard nominal flow rate $q_{nN}^{1)}$ [l/min]					
		MS4		MS6	
		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$ G $\frac{1}{2}$
In main flow direction		1,300	3,500	3,300	8,350 13,000
Outlet at top		2,200	2,300	6,570	7,800 6,700
Outlet at bottom		2,300	2,500	6,800	8,750 8,000

1) Measured at $p_1 = 6$ bar and $p_2 = 5$ bar, $\Delta p = 1$ bar

Ambient conditions			
		Standard/with pressure switch	With pressure sensor
Ambient temperature	[°C]	-10 ... +60	0 ... +50
Temperature of medium	[°C]	-10 ... +60	0 ... +50
Storage temperature	[°C]	-10 ... +60	
Corrosion resistance class CRC ¹⁾		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.

New
Variant M12

Branching modules MS4/MS6-FRM, MS series

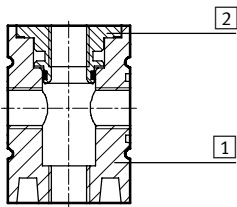
FESTO

Technical data

Weights [g]		
	MS4	MS6
Standard	160	500
With pressure switch	400	778
With pressure sensor	250	570

Materials

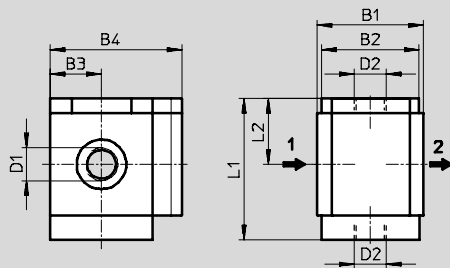
Sectional view



Branching module		
1	Body	Die-cast aluminium
2	Threaded insert	Aluminium
-	Seals	Nitrile rubber
Note on materials		Free of copper and PTFE only with cover plate (without MS pressure gauge) and without pressure sensor

Dimensions – Standard

Download CAD data → www.festo.com/en/engineering



→ Flow direction

Type	B1 ¹⁾	B2	B3	B4	D1	D2	L1	L2
MS4-FRM-1/8	43.6	40	21	54	G1/8	G1/4	58	27
MS4-FRM-1/4					G1/4			
MS6-FRM-1/4	67	62	31	76	G1/4	G1/2	84	39
MS6-FRM-3/8					G3/8			
MS6-FRM-1/2					G1/2			

1) With accessory cover cap MS...-END

Branching modules MS4/MS6-FRM, MS series

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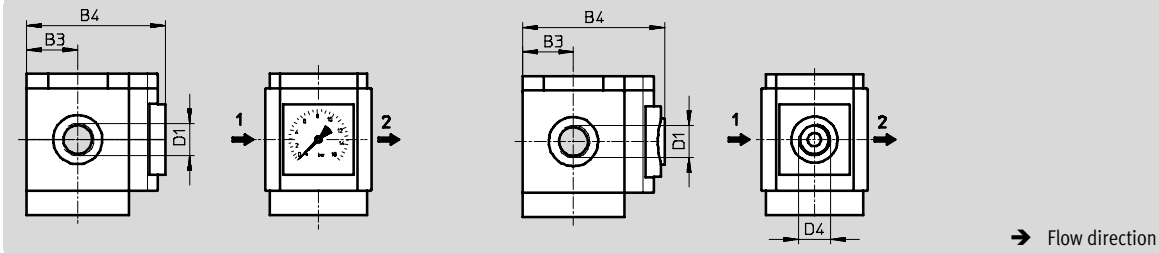
Technical data

Dimensions – Pressure gauge/adaptor

Download CAD data → www.festo.com/en/engineering

Integrated MS pressure gauge AG, display unit [bar]

Adapter plate A8/A4 for EN pressure gauge 1/8/1/4, without pressure gauge



Type	B3	B4	D1	D4
MS4-FRM-1/8-AG	21	57	G1/8	-
MS4-FRM-1/4-AG			G1/4	
MS4-FRM-1/8-A8	21	58.5	G1/8	G1/8
MS4-FRM-1/4-A8			G1/4	
MS4-FRM-1/8-A4	21	58.5	G1/8	G1/4
MS4-FRM-1/4-A4			G1/4	
MS6-FRM-1/4-AG	31	77	G1/4	-
MS6-FRM-3/8-AG			G3/8	
MS6-FRM-1/2-AG			G1/2	
MS6-FRM-1/4-A4	31	78.5	G1/4	G1/4
MS6-FRM-3/8-A4			G3/8	
MS6-FRM-1/2-A4			G1/2	

New
Variant M12

Branching modules MS4/MS6-FRM, MS series

Technical data

FESTO

Dimensions – Pressure switch PEV

Technical data → Volume 4

Technical data → www.festo.com

with adjustable pressure switching point

Variant X: PEV-1/4-SC-0D with display, plug, square design to DIN EN 175 301, type A

Variant Y: PEV-1/4-B-0D, plug, square design to DIN EN 175 301, type A

Variant M12: PEV-1/4-B-M12 with 4-pin plug M12x1

Type	B3	B5	L3
MS4-FRM-...-X/Y	21	63	92.3
MS4-FRM-...-M12	21	61	92.3
MS6-FRM-...-X/Y	31	73	99.5
MS6-FRM-...-M12	31	71	99.5

Dimensions – Pressure sensor SDE1

Technical data → Volume 4

Technical data → www.festo.com

Variant AD5: SDE1-D10-G2-H18-C-P1-M8 with 3-pin plug M8x1, 1 switch output PNP

Variant AD6: SDE1-D10-G2-W18-L-2I-M12 with 5-pin plug M12x1, 2 switch outputs PNP and 4 ... 20 mA analogue

Type	B6	B7	B8	D5	L4	L5	L6
MS4-FRM-...-AD5	32.3	13.5	35.2	M8	99	87	70
MS4-FRM-...-AD6				M12	108		
MS6-FRM-...-AD5	32.3	13.5	35.2	M8	94	87	70
MS6-FRM-...-AD6				M12	103		

MS4/MS6 series service units
Branching modules

2.18

Branching modules MS4/MS6-FRM, MS series

FESTO

Technical data

Ordering data					
Size	Connection	Without pressure switch		With pressure switch PEV-1/4-B-OD (variant Y)	
		Part No.	Type	Part No.	Type
Flow direction from left to right					
MS4	G1/8	529 559	MS4-FRM-1/8 ¹⁾	529 560	MS4-FRM-1/8-Y ¹⁾
	G1/4	529 555	MS4-FRM-1/4 ¹⁾	529 556	MS4-FRM-1/4-Y ¹⁾
MS6	G1/4	529 857	MS6-FRM-1/4 ¹⁾	529 858	MS6-FRM-1/4-Y ¹⁾
	G3/8	529 861	MS6-FRM-3/8 ¹⁾	529 862	MS6-FRM-3/8-Y ¹⁾
	G1/2	529 853	MS6-FRM-1/2 ¹⁾	529 854	MS6-FRM-1/2-Y ¹⁾
Flow direction from right to left					
MS4	G1/8	529 562	MS4-FRM-1/8-Z ¹⁾	529 561	MS4-FRM-1/8-Y-Z ¹⁾
	G1/4	529 558	MS4-FRM-1/4-Z ¹⁾	529 557	MS4-FRM-1/4-Y-Z ¹⁾
MS6	G1/4	529 860	MS6-FRM-1/4-Z ¹⁾	529 859	MS6-FRM-1/4-Y-Z ¹⁾
	G3/8	529 864	MS6-FRM-3/8-Z ¹⁾	529 863	MS6-FRM-3/8-Y-Z ¹⁾
	G1/2	529 856	MS6-FRM-1/2-Z ¹⁾	529 855	MS6-FRM-1/2-Y-Z ¹⁾

1) Free of copper and PTFE

New
Variant M12

Branching modules MS4/MS6-FRM, MS series

FESTO

Ordering data – Modular products

M Mandatory data					O Options				
Module No.	Series	Size	Function	Connection size	Pressure gauge/ adapter	Alternative pressure gauge scale	Pressure switch	Type of mounting	Alternative flow direction
527 703 527 676	MS	4 6	FRM	1/8, 1/4, 3/8, 1/2 AGA, AGB, AGC, AGD, AGE	AG A8 A4 AD5 AD6	PSI MPA	X Y M12	WP WPM WB WBM	Z
Order example	MS		- FRM	- 1/8	- AG	- PSI	-	- WB	- Z

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
M	Module No.	527 703		527 676		
	Series	Standard			MS	MS
	Size	4	6		...	
	Function	Branching module			-FRM	-FRM
	Connection size	Thread G1/8	-		-1/8	
		Thread G1/4	Thread G1/4		-1/4	
		-	Thread G3/8		-3/8	
		-	Thread G1/2		-1/2	
		Connecting plate G1/8	-		-AGA	
		Connecting plate G1/4	Connecting plate G1/4		-AGB	
		Connecting plate G3/8	Connecting plate G3/8		-AGC	
		-	Connecting plate G1/2		-AGD	
		-	Connecting plate G3/4		-AGE	
	Pressure gauge/adapter	MS pressure gauge, bar (with adapter)	MS pressure gauge, bar		-AG	
		Adapter plate for EN pressure gauge 1/8, without pressure gauge	-		-A8	
		Adapter plate for EN pressure gauge 1/4, without pressure gauge			-A4	
		Adapter with pressure sensor, SDE1, M8		1	-AD5	
		Adapter with pressure sensor, SDE1, M12		1	-AD6	
	Alternative pressure gauge scale	psi		2	-PSI	
		MPa		2	-MPA	
	Pressure switch	Pressure switch PEV with display, socket, EN 175301, type A, cube		3	-X	
		Pressure switch PEV without display, socket, EN 175301, type A, cube		3	-Y	
		Pressure switch PEV without display, socket, round, M12, 4-pin		3	-M12	
	Type of mounting	Wall mounting plate		4	-WP	
		Wall mounting plate (dimensions for M series)		4	-WPM	
		Wall mounting bracket			-WB	
		Wall mounting bracket (M series dimensions)	-		-WBM	
	Alternative flow direction	Flow direction from right to left			-Z	

- 1 **AD5, AD6** Measuring range max. 10 bar.
- 2 **PSI, MPA** Only in combination with pressure gauge AG.

- 3 **X, Y, M12** Max. permissible input pressure P1 = 12 bar.
Not in combination with adapters AD5 or AD6.
- 4 **WP, WPM** Only with connecting plate AGA, AGB, AGC, AGD or AGE.

Transfer order code

	MS		- FRM							
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MS4/MS6 series service units
Branching modules

2.18

Flow sensors MS6-SFE, MS series

Peripherals overview

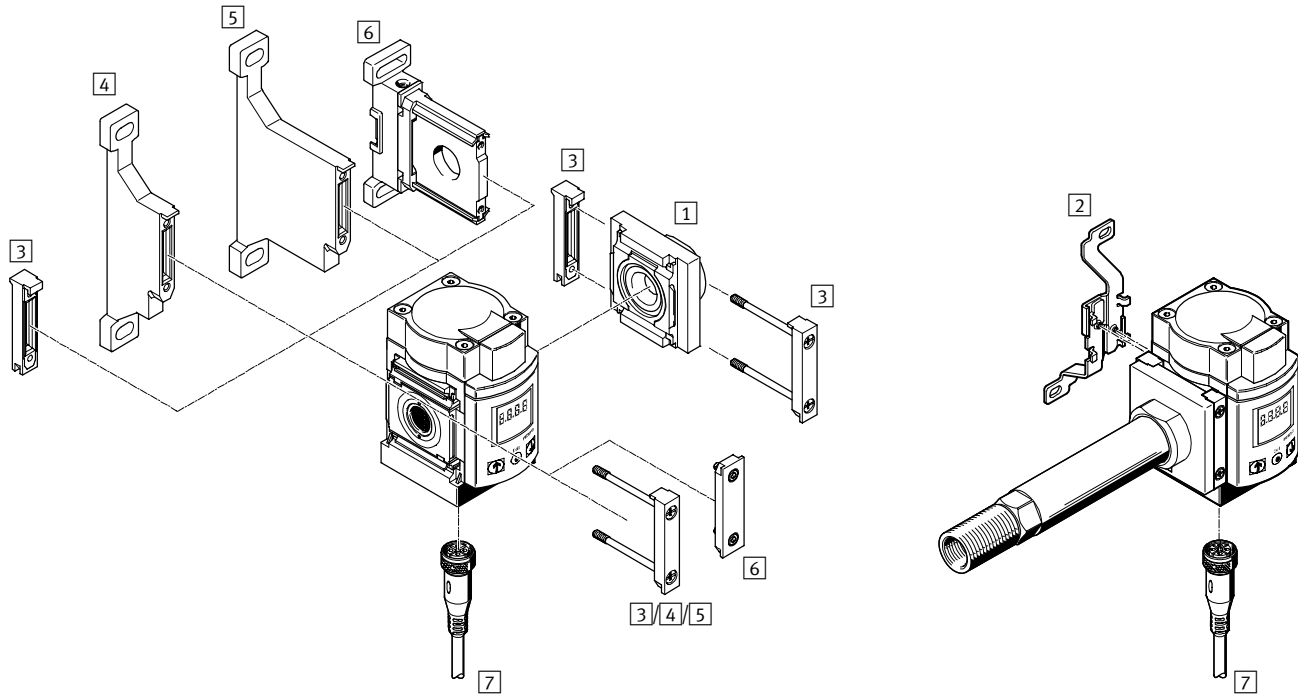
Flow sensor MS6-SFE-F5-... for service unit combinations

with filter cartridge

Flow sensor MS6-SFE-F5-AGD-...

for individual mounting

with connecting plates and inlet section



Mounting attachments and accessories		
Accessories	Brief description	→ Page
1 Connecting plate MS6-AG...	With MS6-SFE-F5-AGD- ... included in scope of delivery and with inlet section assembled	3/2.31-0 Volume 3 www.festo.com
2 Wall mounting bracket MS6-WB	Included in scope of delivery	3/2.31-1 NO TAG
3 Module connector MS6-MV	-	3/2.31-3 Volume 3 www.festo.com
4 Wall mounting plate MS6-WP	-	3/2.31-5 Volume 3 www.festo.com
5 Wall mounting bracket MS6-WPB	-	3/2.31-5 Volume 3 www.festo.com
6 Wall mounting plate MS6-WPM	-	3/2.31-6 Volume 3 www.festo.com
7 Plug socket with cable SIM-M12-5GD...	Straight socket, M12x1, 5-pin	3/2.31-14 NO TAG

Flow sensors MS6-SFE, MS series

Type codes

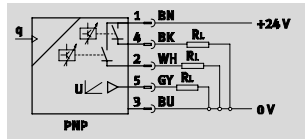
MS 6 - SFE - F5 - - P2 I - M12

Basic function	
MS	Standard service unit
Size	
6	Grid dimension 62 mm
Service function	
SFE	Flow sensor
Flow measuring range [l/min]	
F5	200 ... 5 000
Type of mounting	
	Mounting on MS series service units
AGD	Wall mounting with connecting plate and inlet section
Switch output	
P2	2x PNP
N2	2x NPN
Analogue output	
U	0 ... 10 V
I	4 ... 20 mA
Electrical connection	
M12	Plug M12x1, 5-pin

Flow sensors MS6-SFE, MS series

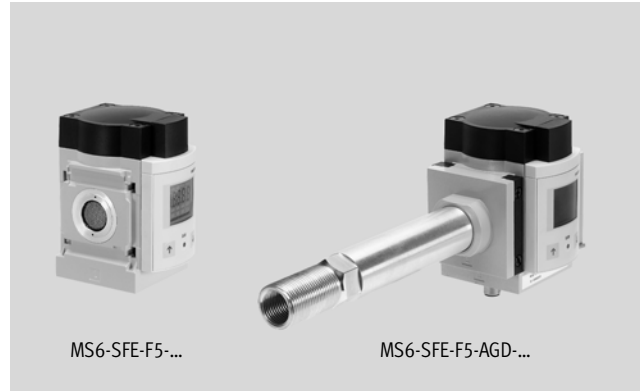
Technical data

Function¹⁾



1) For example with 2 switch outputs PNP and 0 ... 10 V analogue

- - Flow rate
200 ... 5,000 l/min
- - Temperature range
0 ... +50 °C
- - Operating pressure
0 ... 16 bar



- 2 digital outputs and 1 analogue output
- Suitable for flow and consumption measurement
- Available with mounting bracket, connecting plate and inlet section for individual operation or with filter cartridge for installation in a service unit combination.
- Switching points for measurement are freely programmable
- Prefiltration with filter MS-LF, grade of filtration 5 µm, recommended for compliance with air quality class

- Note
To comply with the specified accuracies, the MS6-SFE-F5-AGD-... must be supplied via a connection inside diameter of at least 10 mm and the MS6-SFE-F5-... must be supplied via a pneumatic connection of at least G1/2.

- Note
For installation directly after a filter regulator MS6-LFR or pressure regulator MS6-LR, the branching module MS6-FRM must be installed between these service units to comply with the specified accuracies.

General technical data		
Type	MS6-SFE-F5-...	MS6-SFE-F5-AGD-...
Flow measuring range [l/min]	200 ... 5,000 ¹⁾	
Pneumatic connection	Connecting plate	Female thread G1/2
Measuring principle	Thermal	
Method of measurement	Heat Loss	
Measured variable	Flow rate	
	Consumption	
Direction of flow	Unidirectional P1 → P2	
Type of display	Illuminated LCD (optimised display)	
Displayable unit(s)	l, m ³	
	l/min	
Reproducibility of switching point	±(0.8% o.m.v. + 0.2% FS) ²⁾	
Reproducibility of analogue value	±(0.8% o.m.v. + 0.2% FS) ²⁾	
Accuracy	±(3% o.m.v. + 0.3% FS) ²⁾	
Type of mounting	On service unit	On a wall/surface bracket
Assembly position	Horizontal	
Product weight [g]	600	1,100

1) Restricted at operating pressure < 5 bar, diagram → 3 / 2.19-4
 2) % o.m.v. = % of measured value
 % FS = % of measuring range's final value (full scale)

Flow sensors MS6-SFE, MS series

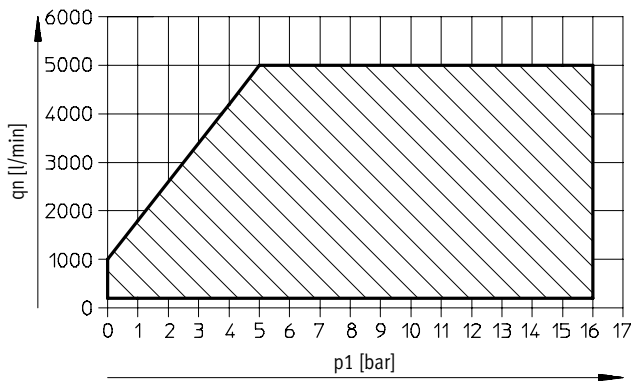
Technical data

Electrical data					
Type		MS6-SFE-...-P2U	MS6-SFE-...-P2I	MS6-SFE-...-N2U	MS6-SFE-...-N2I
Switch output		2x PNP	2x PNP	2x NPN	2x NPN
Analogue output	[V]	0 ... 10	-	0 ... 10	-
	[mA]	-	4 ... 20	-	4 ... 20
Switching element function		NC contact			
		NO contact			
Switching function		Window comparator			
		Threshold value with variable hysteresis			
Operating voltage	[V DC]	15 ... 30			
Load resistance	[Ω]	≥ 10,000	≤ 500	≥ 10,000	≤ 500
Max. output current	[mA]	≤ 100			
Residual current	[mA]	≤ 0.05			
Electrical connection		Straight plug, M12x1, 5-pin			
Pin allocation in accordance with standards		EN 60947-5-2			
Protection against short circuit		Yes			
Protection class to EN 60 529		IP65			
CE symbol		89/336/EEC (EMC)			

Operating and environmental conditions	
Operating pressure	[bar] 0 ... 16
Operating medium	Compressed air, air quality class 3.4.1 to DIN ISO 8573-1
	Nitrogen
Ambient temperature	[°C] 0 ... +50
Temperature of medium	[°C] 0 ... +50
Nominal temperature	[°C] 23
Corrosion resistance class CRC ¹⁾	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.

Flow measuring range q_n as a function of operating pressure p_1



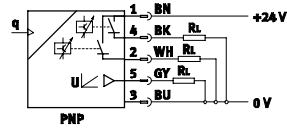
Flow sensors MS6-SFE, MS series

Technical data

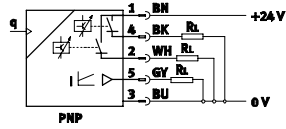
Electrical outputs¹⁾

2 switch outputs PNP

0 ... 10 V analogue

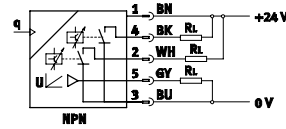


4 ... 20 mA analogue

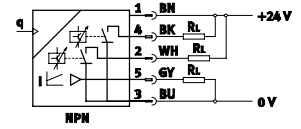


2 switch outputs NPN

0 ... 10 V analogue



4 ... 20 mA analogue



Terminal allocation

1 = +24 V

2 = Digital output B

3 = 0 V

4 = Digital output A

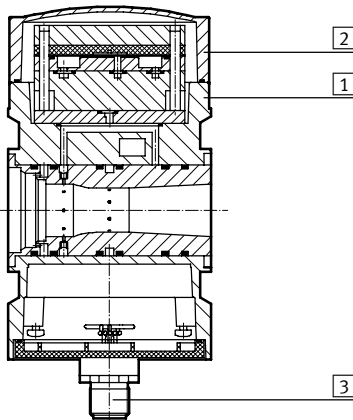
5 = Analogue output C



1) Core colours indicated apply when using plug sockets with cable SIM-M12-5GD...

Materials

Sectional view



Flow sensor

1	Body	Die-cast aluminium, polyamide, reinforced
2	Plug contacts	Gold-plated brass
3	Inspection glass	Polycarbonate

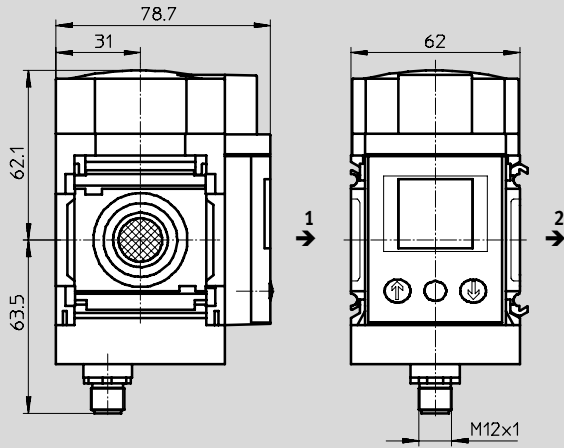
Flow sensors MS6-SFE, MS series

Technical data

Dimensions

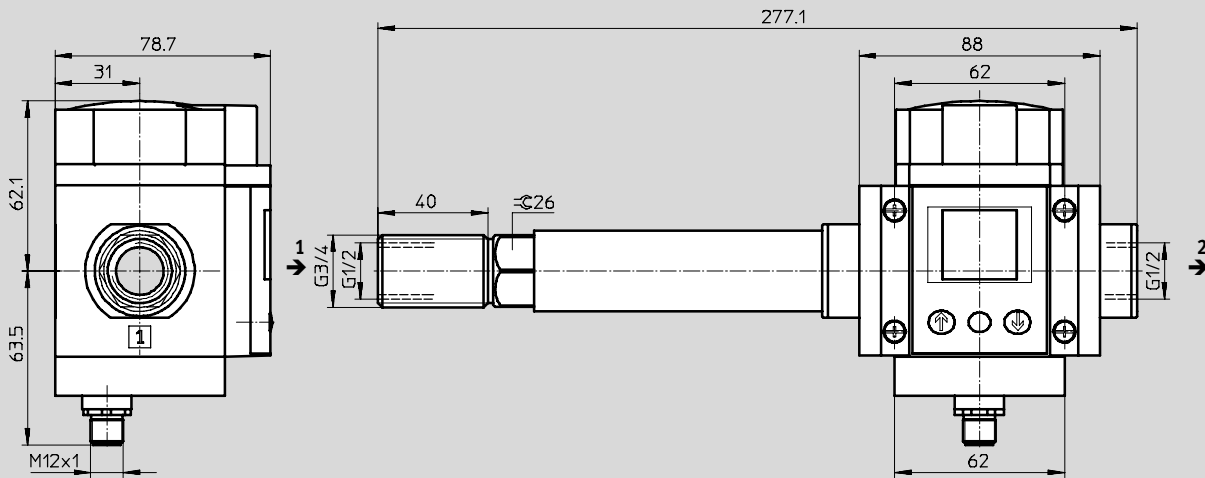
Download CAD data → www.festo.com/en/engineering

MS6-SFE-F5-...



→ Flow direction

MS6-SFE-F5-AGD-...



→ Flow direction

Ordering data

Size	Switching function		Analogue output		Mounting on MS series service units		Individual mounting with connecting plate and inlet section	
	2x PNP	2x NPN	4 ... 20 mA	0 ... 10 V	Part No.	Type	Part No.	Type
MS6	■	-	■	-	538 421	MS6-SFE-F5-P2I-M12	538 417	MS6-SFE-F5-AGD-P2I-M12
	■	-	-	■	538 422	MS6-SFE-F5-P2U-M12	538 418	MS6-SFE-F5-AGD-P2U-M12
	-	■	■	-	538 423	MS6-SFE-F5-N2I-M12	538 419	MS6-SFE-F5-AGD-N2I-M12
	-	■	-	■	538 424	MS6-SFE-F5-N2U-M12	538 420	MS6-SFE-F5-AGD-N2U-M12

MS12 series service units

FESTO

Wide range of configuration options
→ www.festo.com/en/engineering

MS12 series service units

2.20



■ Grid dimension 124 mm

■ High flow rates

■ Modern design



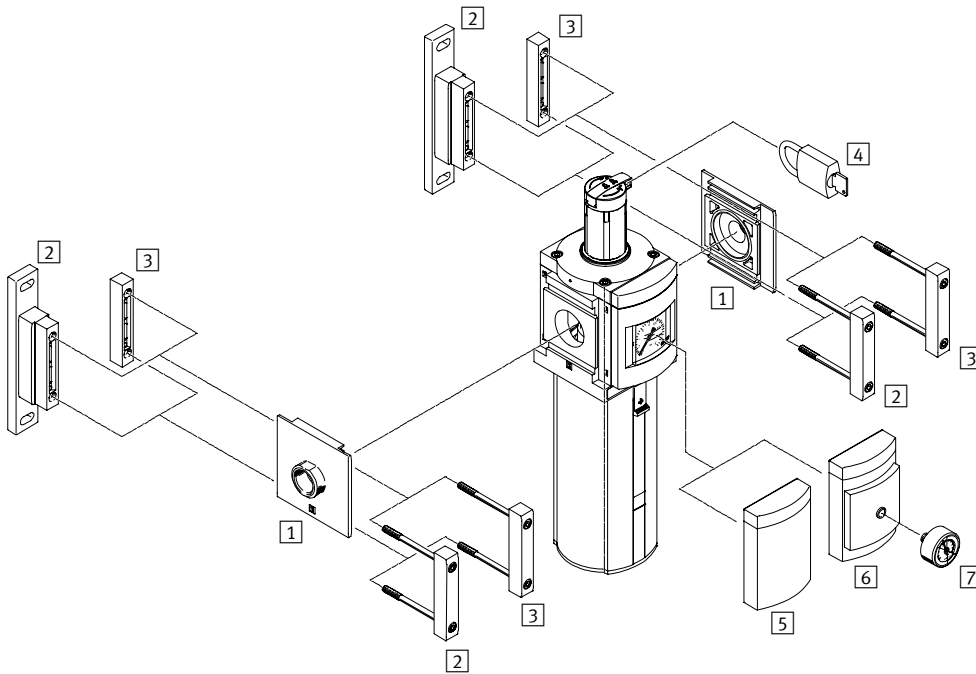
Filter regulators MS12-LFR, MS series

Peripherals overview

FESTO

MS12 series service units
Filter regulators

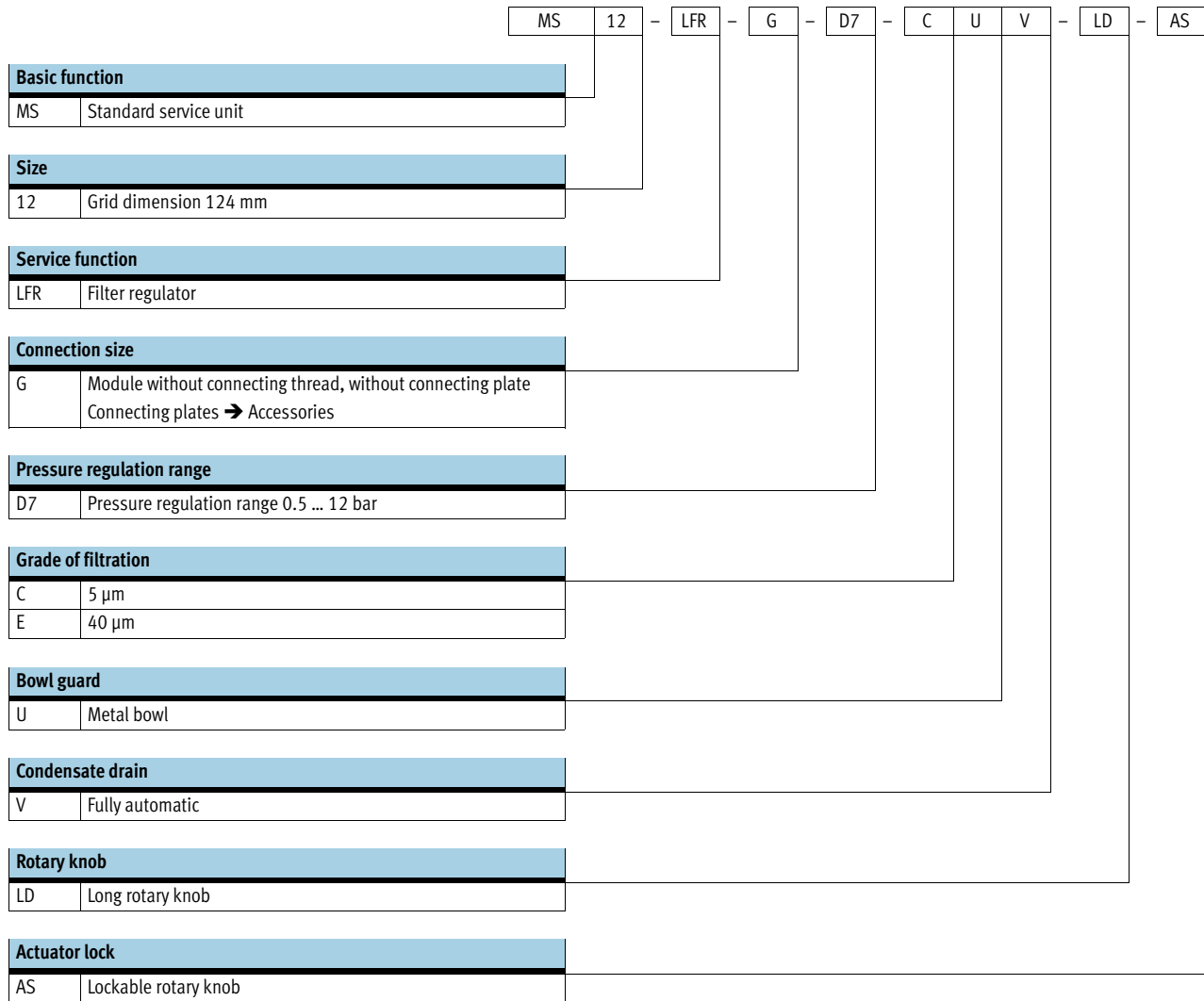
2.22



Mounting attachments and accessories		→ Page
1	Connecting plate MS12-AG...	3/2.31-0
2	Wall mounting plate MS12-WP	3/2.31-7
3	Module connector MS12-MV	3/2.31-3
4	Padlock LRVS-D	3/2.31-16
5	Cover plate VS	3/2.22-8
6	Adapter for EN pressure gauge 1/4 A4	3/2.22-8
7	Pressure gauge MA	3/2.31-8

Filter regulators MS12-LFR, MS series

Type codes



Further variants can be ordered using the modular system

Filter regulators LFR → 3/2.22-8

- Connecting plates
- Pressure regulation range
- Condensate drain
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Actuator lock
- Type of mounting
- Alternative flow direction

Filter regulators MS12-LFR, MS series


Technical data

FESTO


MS12 series service units
Filter regulators

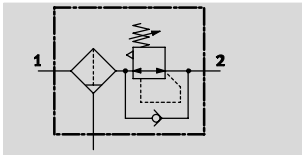
2.22

Function

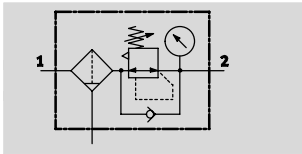
-  - Flow rate
11,000 ... 17,000 l/min

Condensate drain
manual rotary
without pressure gauge


-  - Temperature range
-10 ... +60 °C



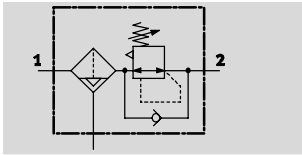
with pressure gauge



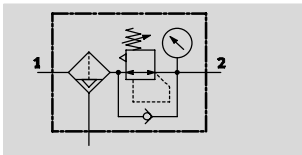
Condensate drain
fully automatic
without pressure gauge

-  - Input pressure
0.8 ... 20 bar

With this device, the filter and pressure regulator are combined into a single unit. The sintered filter with water separator removes contamination, pipe sinter, rust and condensate from the compressed air.



with pressure gauge



- Good control characteristics with low hysteresis and primary pressure compensation
- Good particle and condensate separation
- High flow rates
- Choice of filter cartridges: 5 µm or 40 µm
- Available with manual, fully automatic or fully automatic, electrically actuated condensate drain
- Pilot actuated diaphragm regulator without intrinsic air consumption
- Pressure gauge connection for different fitting options
- Three pressure regulation ranges: 0.3 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Setting values are secured by locking the rotary knob
- Rotary knob can be locked using accessories

General technical data		MS12			
Pneumatic connection 1 ¹⁾		G1	G1¼	G1½	G2
Pneumatic connection 2 ¹⁾		G1	G1¼	G1½	G2
Operating medium		Compressed air			
Design		Filter regulator with pressure gauge			
		Sintered filter with centrifugal separation			
		Pilot actuated diaphragm regulator			
		With condensate drain			
		With secondary venting			
Type of mounting		Via accessories			
		In-line installation			
Assembly position		Vertical ±5°			
Grade of filtration	[µm]	5 or 40			
Max. hysteresis	[bar]	0.4			
Air purity class at the output					
Grade of filtration	5 µm	3.7.- to DIN ISO 8573-1			
	40 µm	5.7.- to DIN ISO 8573-1			
Max. condensate volume	[cm³]				
Metal bowl		400			

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 3/2.31-0

Filter regulators MS12-LFR, MS series

Technical data

Input pressure and pressure regulation range [bar]		
MS12		
Input pressure		
Condensate drain	manual rotary	0.8 ... 20
	fully automatic	2 ... 12
	fully automatic, electrically actuated	0.8 ... 16
Pressure regulation range		
D6	0.3 ... 7	
D7	0.5 ... 12	
D8	0.5 ... 16	

Standard nominal flow rate qnN [l/min] ¹⁾					
		MS12			
		G1	G1¼	G1½	G2
Grade of filtration	5 µm	11,000	11,500	12,000	14,000
	40 µm	12,000	12,500	13,000	17,000

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 3/2.31-0 measured at p1 = 10 bar and p2 = 6 bar, Δp = 0.5 bar

Ambient conditions				
		Condensate drain		
		manual rotary	fully automatic	fully automatic, electrical
Ambient temperature	[°C]	-10 ... +60	+5 ... +60	+1 ... +60
Temperature of medium	[°C]	-10 ... +60	+5 ... +60	+1 ... +60
Storage temperature	[°C]	-10 ... +60	-10 ... +60	+1 ... +60
Corrosion resistance class	CRC ¹⁾	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 [g]	
MS12	
With metal bowl	7 000
With metal bowl and fully automatic, electrically actuated condensate drain	7 700

Filter regulators MS12-LFR, MS series

Technical data

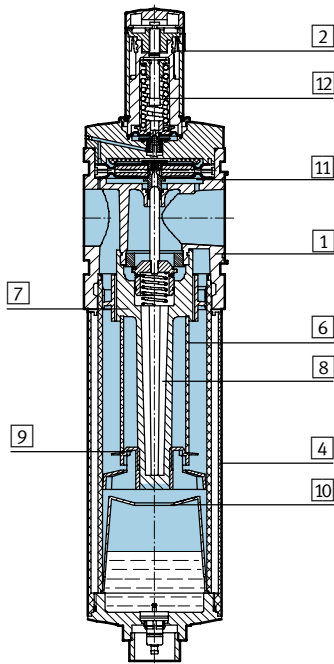


MS12 series service units
Filter regulators

2.22

Materials

Sectional view



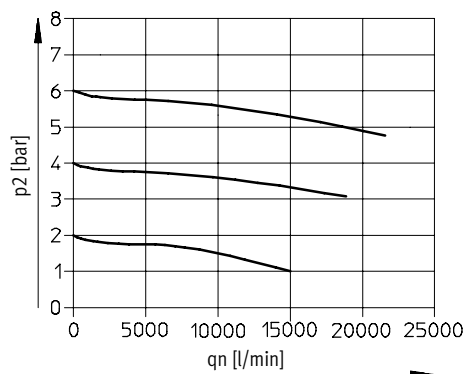
Filter regulator

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

Standard flow rate q_n as a function of output pressure p_2

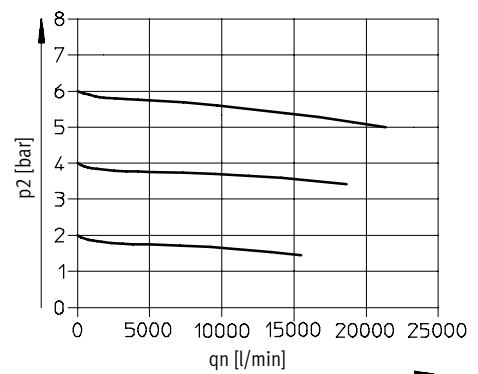
Grade of filtration 40 μm

With connecting plate MS12-AGF
Pneumatic connection G1

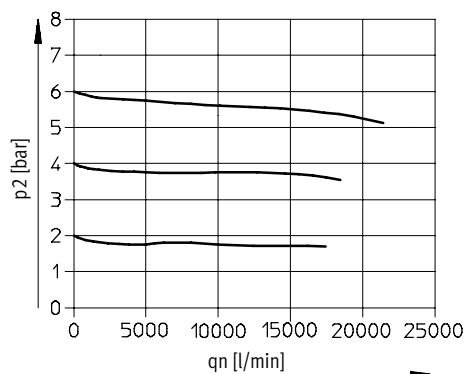


Primary pressure $p_1 = 10$ bar

With connecting plate MS12-AGG
Pneumatic connection G1¼

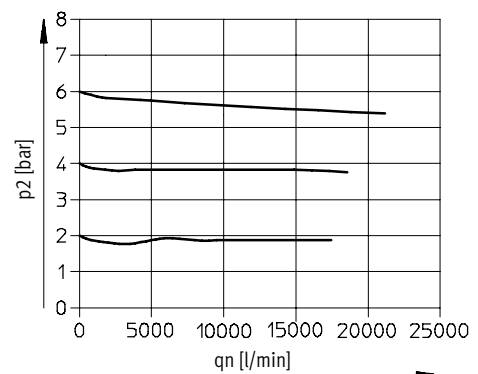


With connecting plate MS12-AGH
Pneumatic connection G1½



Primary pressure $p_1 = 10$ bar

With connecting plate MS12-AGI
Pneumatic connection G2



Filter regulators MS12-LFR, MS series

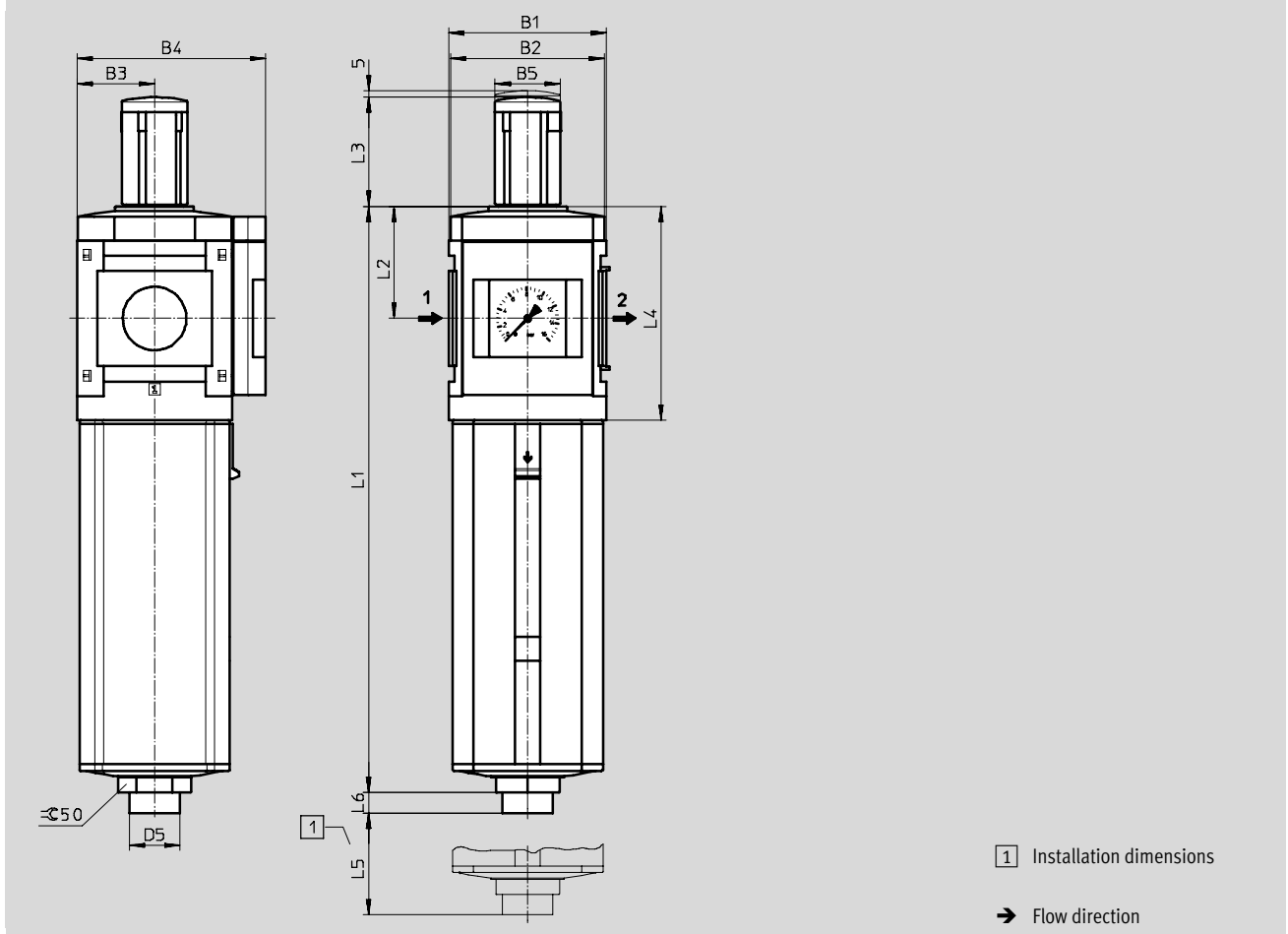
Technical data



Dimensions – Standard

Download CAD data → www.festo.com/en/engineering

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



Type	B1	B2	B3	B4	B5	D5	L1	L2	L3	L4	L5	L6
MS12-LFR	124	122	61	148	51	40	460	88	86	168	250	16

MS12 series service units
Filter regulators

2.22

Filter regulators MS12-LFR, MS series

Technical data

FESTO

MS12 series service units
Filter regulators

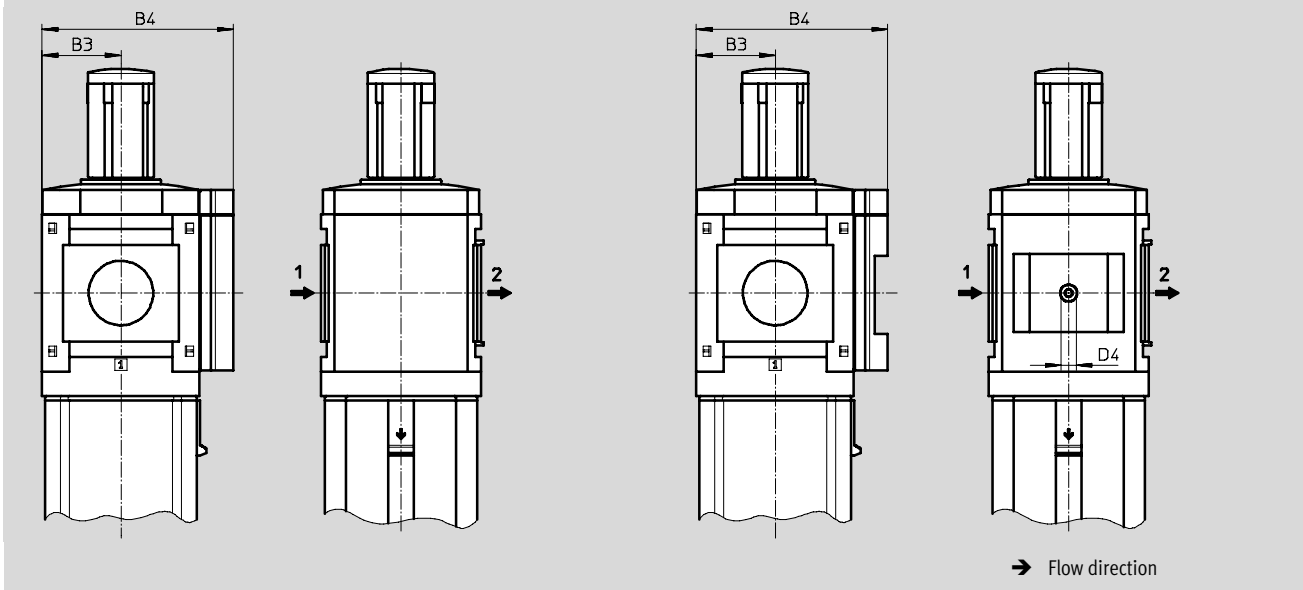
2.22

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com/en/engineering

Cover plate VS

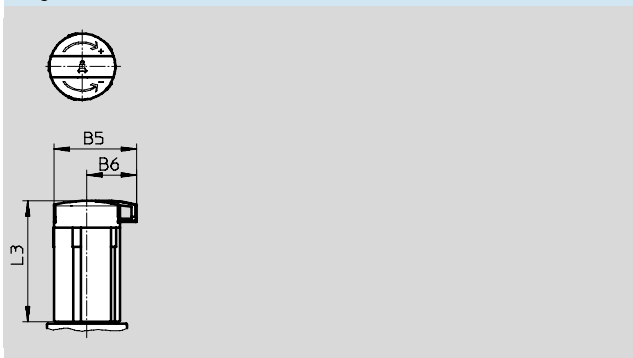
Adapter A4 for EN pressure gauge 1/4, without pressure gauge



Type	B3	B4	D4
MS12-LFR-...-VS	61	148	-
MS12-LFR-...-A4	61	148	G1/4

Dimensions – Rotary knob

Long, lockable LD-AS



Type	B5	B6	L3
MS12-LFR-...-LD-AS	64.4	39	95.5

Filter regulators MS12-LFR, MS series

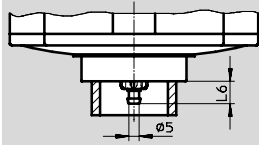


Technical data

Dimensions – Condensate drain

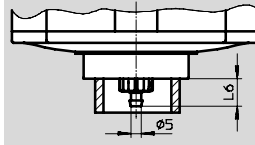
Download CAD data → www.festo.com/en/engineering

Manual rotary M



Barbed fitting for plastic tubing
PCN-4

Fully automatic V



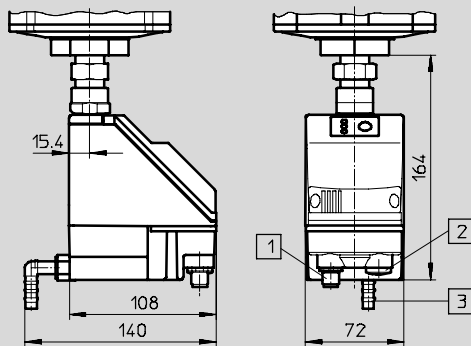
Barbed fitting for plastic tubing
PCN-4

Type	L6
MS12-LFR-...-M	11

Type	L6
MS12-LFR-...-V	13

Fully automatic, electrically actuated E1 ... E4

Technical data PWEA → NO TAG
Technical data PWEA → www.festo.com



- 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-...

Ordering data

Pressure regulation range 0.5 ... 12 bar, metal bowl, long rotary knob, can be locked using accessories

Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
fully automatic	MS12	G1 ... G2 ¹⁾	537 150	MS12-LFR-G-D7-CUV-LD-AS	537 149	MS12-LFR-G-D7-EUV-LD-AS

1) Connecting plate must be ordered separately as an accessory → 3/2.31-0

Filter regulators MS12-LFR, MS series



Ordering data – Modular products

MS12 series service units
Filter regulators

2.22

M Mandatory data →

Module No.	Series	Size	Function	Connection size	Pressure regulation range	Grade of filtration	Bowl
535 022	MS	12	LFR	AGF AGG AGH AGI G	D6 D7 D8	E C	U
Order example							
535 022	MS	12	- LFR	- AGF	- D6	- C	- U

Ordering table

Grid dimension	[mm]	124	Condi- tions	Code	Enter code
M Module No.	535 022				
Series	Standard			MS	MS
Size	12			12	12
Function	Filter regulator			-LFR	-LFR
Connection size	Connecting plate G1			-AGF	
	Connecting plate G1¼			-AGG	
	Connecting plate G1½			-AGH	
	Connecting plate G2			-AGI	
	Module without connecting thread, without connecting plate			-G	
Pressure regulation range	0.3 ... 7 bar			-D6	
	0.5 ... 12 bar			-D7	
	0.5 ... 16 bar			-D8	
Grade of filtration	40 µm			-E	
	5 µm			-C	
↓ Bowl	Metal bowl			-U	-U

Transfer order code

535 022	MS	12	- LFR	-		-		-		-	U
---------	----	----	-------	---	--	---	--	---	--	---	---

Filter regulators MS12-LFR, MS series

Ordering data – Modular products

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

Ordering table					
Grid dimension	[mm]	124	Condi-tions	Code	Enter code
↓ Condensate drain [M]	Manual			-M	
	Fully automatic (P1 max. 12 bar)		1	-V	
	External fully automatic condensate drain, electrical, 24 V DC, M12			-E1	
	External fully automatic condensate drain, electrical, 110 V AC, terminals			-E2	
	External fully automatic condensate drain, electrical, 230 V AC, terminals			-E3	
	External fully automatic condensate 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	psi		2	-PSI	
	MPa		2	-MPA	
Rotary knob	Long rotary knob			-LD	-LD
Security	Lockable rotary knob			-AS	
Type of mounting	Wall mounting plate		3	-WP	
Alternative flow direction	Flow direction from right to left			-Z	

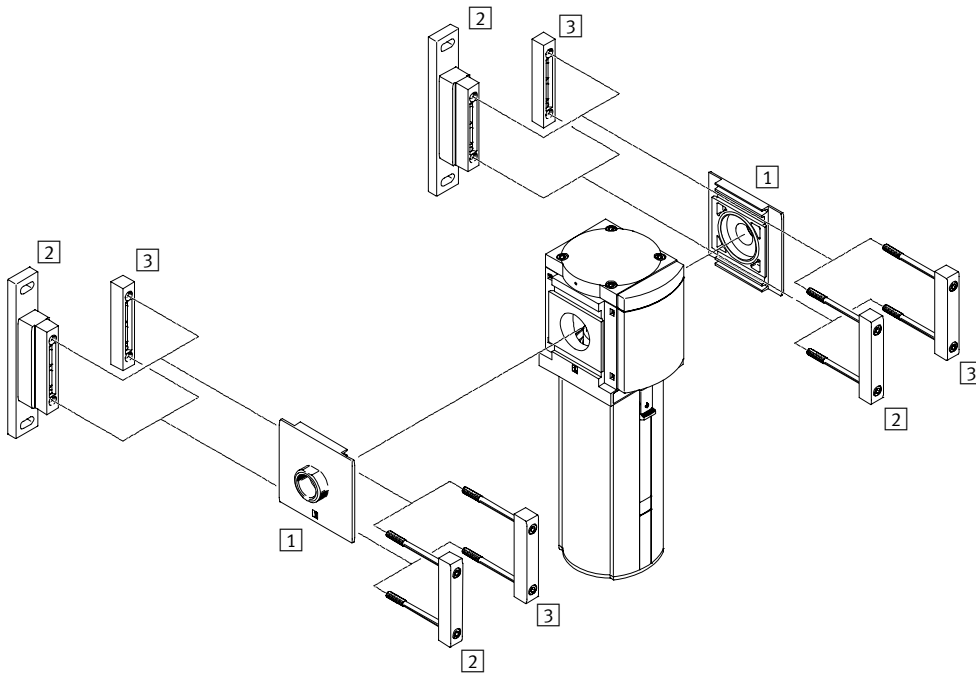
- 1 V Not with pressure regulation range D8.
- 2 PSI, MPA Not with pressure gauge alternatives VS, A4.
- 3 WP Only with connecting plate AGF, AGG, AGH or AGI.

Transfer order code

- - - - - - -

Filters MS12-LF/LFM/LFX, MS series

Peripherals overview



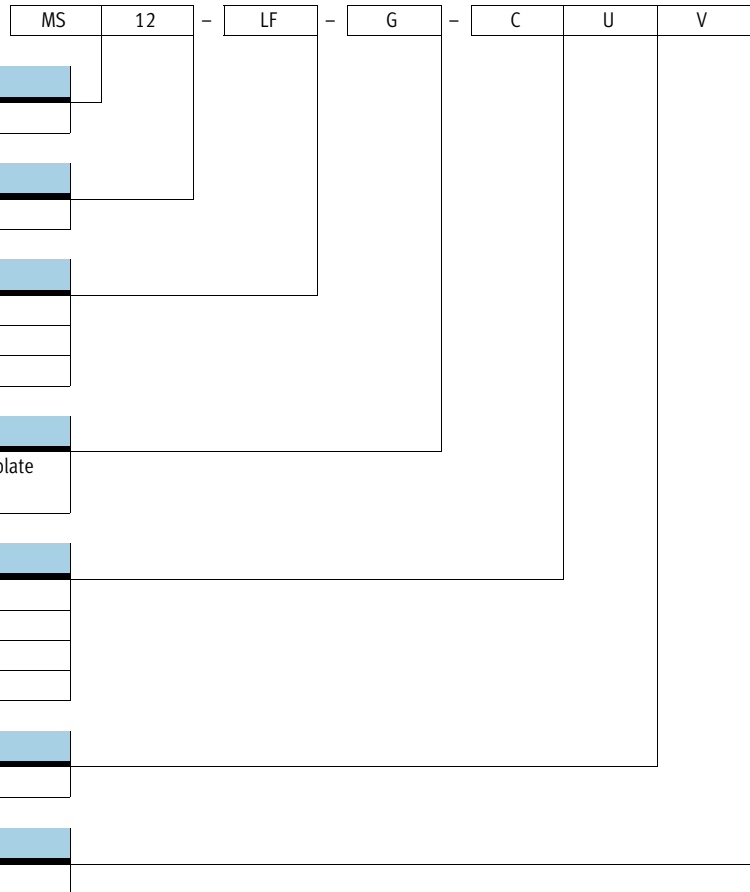
MS12 series service units
Filters

2.23

Mounting attachments and accessories		→ Page
1	Connecting plate MS12-AG...	3/2.31-0
2	Wall mounting plate MS12-WP	3/2.31-7
3	Module connector MS12-MV	3/2.31-3

Filters MS12-LF/LFM/LFX, MS series

Type codes



Further variants can be ordered using the modular system

Filters LF	→ 3/2.23-7
Fine and micro filters LFM	→ 3/2.23-12
Active carbon filters LFX	→ 3/2.23-16

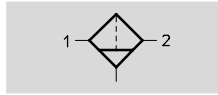
- Connecting plates
- Condensate drain (LF/LFM only)
- Filter change sensor (for LFM only)
- Type of mounting
- Alternative flow direction

Filters MS12-LF, MS series

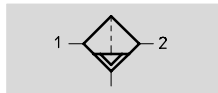
Technical data


Function


Condensate drain
manual rotary




fully automatic



-  - Flow rate
11,500 ... 16,000 l/min

-  - Temperature range
-10 ... +60 °C

-  - Input pressure
0.8 ... 20 bar

The sintered filter with centrifugal separation removes contamination, rust and condensate from the compressed air. The filter cartridges are replaceable.



- Good particle and condensate separation
- High flow rate with minimal pressure drop
- Choice of filter cartridges: 5 µm or 40 µm
- Available with manual, fully automatic or fully automatic, electrically actuated condensate drain

General technical data					
		MS12			
Pneumatic connection 1 ¹⁾		G1	G1¼	G1½	G2
Pneumatic connection 2 ¹⁾		G1	G1¼	G1½	G2
Operating medium		Compressed air			
Design		Sintered filter with centrifugal separation			
Type of mounting		Via accessories In-line installation			
Assembly position		Vertical ±5°			
Grade of filtration	[µm]	5 or 40			
Air purity class at the output					
Grade of filtration	5 µm	3.7.- to DIN ISO 8573-1			
	40 µm	5.7.- to DIN ISO 8573-1			
Max. condensate volume [cm³]					
Metal bowl		400			

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 3/2.31-0

Input pressure [bar]		
		MS12
Condensate drain	manual rotary	0.8 ... 20
	fully automatic	2 ... 12
	fully automatic, electrically actuated	0.8 ... 16

Standard nominal flow rate qnN [l/min] ¹⁾					
		MS12			
		G1	G1¼	G1½	G2
Grade of filtration	5 µm	11 500	12 500	13 500	14 000
	40 µm	12 500	13 000	14 000	16 000

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 3/2.31-0
Measured at p1 = 6 bar and Δp = 0.5 bar

Filters MS12-LF, MS series

Technical data

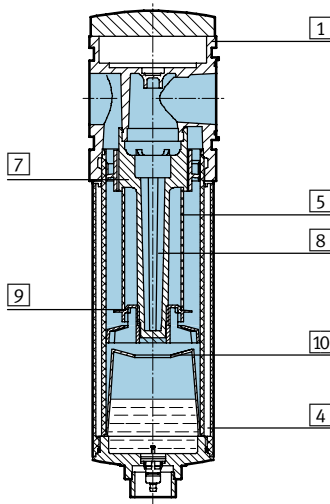
Ambient conditions				
		Condensate drain		
		manual rotary	fully automatic	fully automatic, electrically actuated
Ambient temperature	[°C]	-10 ... +60	+5 ... +60	+1 ... +60
Temperature of medium	[°C]	-10 ... +60	+5 ... +60	+1 ... +60
Storage temperature	[°C]	-10 ... +60	-10 ... +60	+1 ... +60
Corrosion resistance class	CRC ¹⁾	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 [g]	
	MS12
With metal bowl	6 500
With metal bowl and fully automatic, electrically actuated condensate drain	7 200

Materials

Sectional view



Filter		
1	Body	Die-cast aluminium
4	Metal bowl	Wrought aluminium alloy
5	Filter element	Sintered bronze
7	Spin disc	Polyacetate
8	Filter holder	Polyacetate
9	Separating plate	Polyacetate
10	Stabilising disc	Polyacetate
-	Seals	Nitrile rubber

Filters MS12-LF, MS series

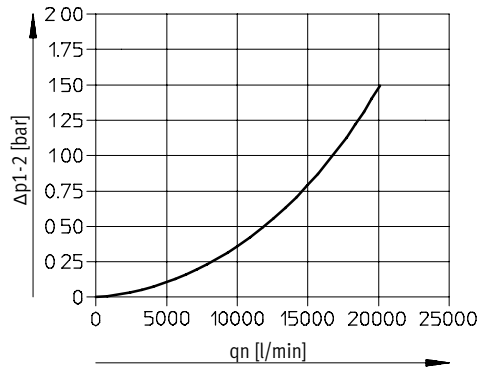
Technical data



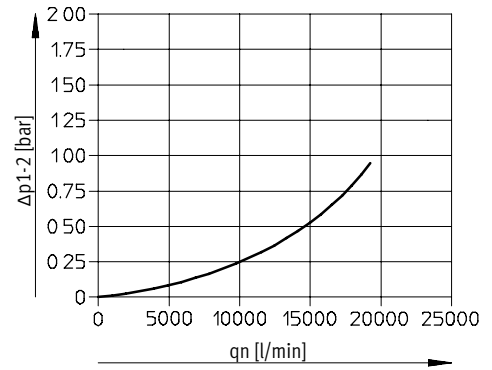
Standard flow rate q_n as a function of the differential pressure Δp_{1-2}

Grade of filtration 5 μm

With connecting plate MS12-AGF
Pneumatic connection G1

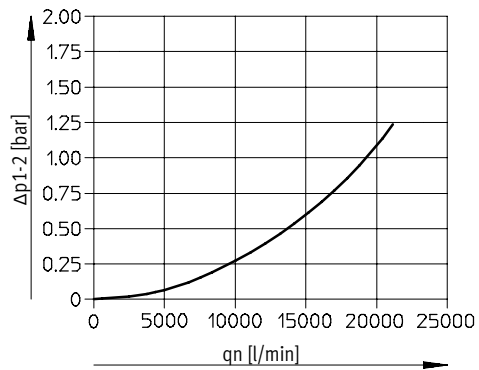


With connecting plate MS12-AGI
Pneumatic connection G2

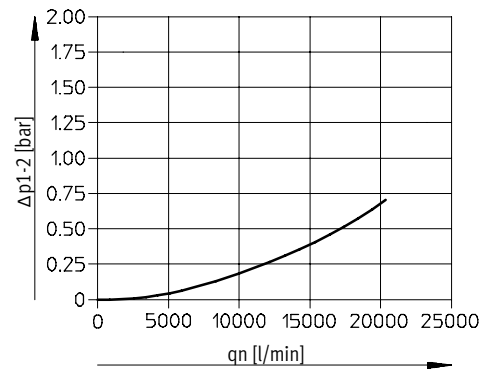


Grade of filtration 40 μm

With connecting plate MS12-AGF
Pneumatic connection G1



With connecting plate MS12-AGI
Pneumatic connection G2



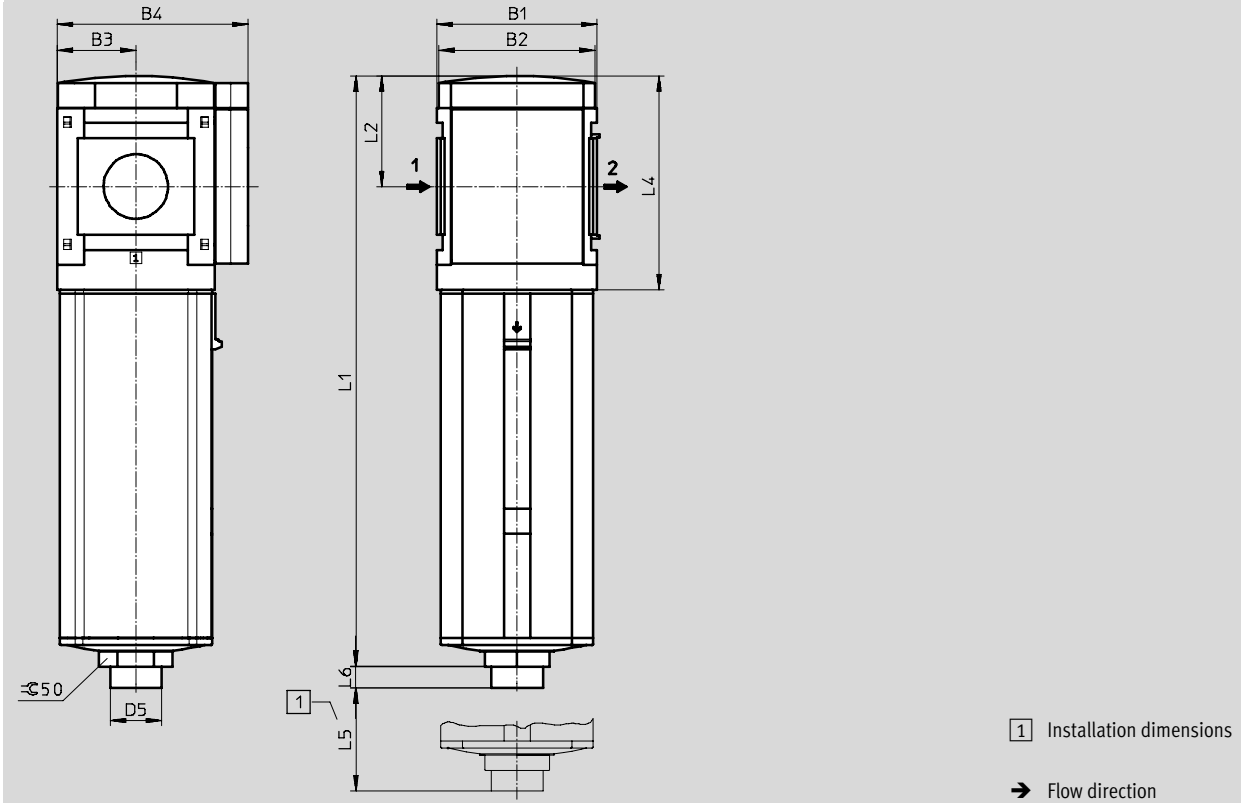
Filters MS12-LF, MS series

Technical data



Dimensions – Standard

Download CAD data → www.festo.com/en/engineering



Type	B1	B2	B3	B4	D5 ∅	L1	L2	L4	L5	L6
MS12-LF	124	122	61	148	40	458	86	166	250	16

Filters MS12-LF, MS series



Technical data

Dimensions – Condensate drain Download CAD data → www.festo.com/en/engineering

Manual rotary M

Barbed fitting for plastic tubing
PCN-4

Type	L6
MS12-LF-...-M	11

Fully automatic V

Barbed fitting for plastic tubing
PCN-4

Type	L6
MS12-LF-...-V	13

Fully automatic, electrically actuated E1 ... E4 Technical data PWEA → NO TAG
Technical data PWEA → www.festo.com

- 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-...

Ordering data						
Metal bowl						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
fully automatic	MS12	G1 ... G2 ¹⁾	537 152	MS12-LF-G-CUV	537 151	MS12-LF-G-EUV

1) Connecting plate must be ordered separately as an accessory → 3/2.31-0

Filters MS12-LF, MS series



Ordering data – Modular products

M Mandatory data								O Options	
Module No.	Series	Size	Function	Connection size	Grade of filtration	Bowl	Condensate drain	Type of mounting	Alternative flow direction
535 023	MS	12	LF	AGF AGG AGH AGI G	E C	U	M V E1 E2 E3 E4	WP	Z
Order example									
535 023	MS	12	- LF	- G	- E	- U	- V	-	-

Ordering table			Condi- tions	Code	Enter code
Grid dimension	[mm]	124			
M Module No.	535 023				
Series	Standard			MS	MS
Size	12			12	12
Function	Filter			-LF	-LF
Connection size	Connecting plate G1			-AGF	
	Connecting plate G1¼			-AGG	
	Connecting plate G1½			-AGH	
	Connecting plate G2			-AGI	
	Module without connecting thread, without connecting plate			-G	
Grade of filtration	40 µm			-E	
	5 µm			-C	
Bowl	Metal bowl			-U	-U
Condensate drain	Manual			-M	
	Fully automatic (P1 max. 12 bar)			-V	
	External fully automatic condensate drain, electrical, 24 V DC, M12			-E1	
	External fully automatic condensate drain, electrical, 110 V AC, terminals			-E2	
	External fully automatic condensate drain, electrical, 230 V AC, terminals			-E3	
	External fully automatic condensate drain, electrical, 24 V DC, terminals			-E4	
O Type of mounting	Wall mounting plate		1	-WP	
Alternative flow direction	Flow direction from right to left			-Z	

1 WP Only with connecting plate AGF, AGG, AGH or AGI.

Transfer order code


535 023	MS	12	- LF	-	-	- U	-	-	-
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Fine and micro filters MS12-LFM, MS series


FESTO

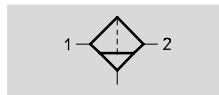
Technical data


Function

-  - Flow rate
5,000 ... 7,600 l/min

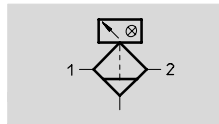
Condensate drain
manual rotary
without differential pressure indicator

-  - Temperature range
-10 ... +60 °C

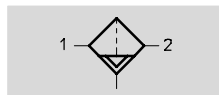


-  - Input pressure
0.8 ... 20 bar

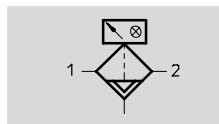
with differential pressure indicator



Condensate drain
fully automatic
without differential pressure indicator



with differential pressure indicator



- High-performance filter for exceptionally clean compressed air
- Choice of filter cartridges: 0.01 µm or 1 µm
- Air quality to DIN ISO 8573-1
- Available with manual, fully automatic or fully automatic, electrically actuated condensate drain
- Available with differential pressure indicator for optical indication of filter contamination

LFM-A:
ISO class 1 for particles:
max. particle density 0.1 mg/m³
ISO class 2 for oil aerosols:
max. oil concentration 0.1 mg/m³
Filter efficiency 99.9999%

LFM-B:
ISO class 2 for particles:
max. particle density 1 mg/m³
ISO class 3 for oil aerosols:
max. oil concentration 1 mg/m³
Filter efficiency 99.99%

MS12 series service units
Filters

2.23

General technical data					
		MS12			
Pneumatic connection 1 ¹⁾		G1	G1¼	G1½	G2
Pneumatic connection 2 ¹⁾		G1	G1¼	G1½	G2
Design		Fibre filter			
Type of mounting		In-line installation Via accessories			
Assembly position		Vertical ±5°			
Operating medium					
Micro filter LFM-A		Compressed air, filtered, unlubricated, grade of filtration 1 µm			
Fine filter LFM-B		Compressed air, filtered, unlubricated, grade of filtration 5 µm			
Grade of filtration [µm]					
Micro filter LFM-A		0.01			
Fine filter LFM-B		1			
Air purity class at the output					
Grade of filtration	0.01 µm	1.7.2 to DIN ISO 8573-1			
	1 µm	2.7.3 to DIN ISO 8573-1			
Max. condensate volume [cm ³]					
Metal bowl		400			

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 3/2.31-0

Fine and micro filters MS12-LFM, MS series

Technical data

Input pressure [bar]		
		MS12
Condensate drain	manual rotary	0.8 ... 20
	fully automatic	2 ... 12
	fully automatic, electrically actuated	0.8 ... 16

Standard nominal flow rate q _N and standard flow rate q _n [(l/min) ¹]					
		MS12			
		G1	G1¼	G1½	G2
Micro filter LFM-A					
q _N 1 → 2		5,000	6,000	6,500	7,000
q _n min		700	700	700	700
q _n max		23,000	23,000	23,000	23,000
Fine filter LFM-B					
q _N 1 → 2		5,200	6,200	7,500	7,600
q _n min		950	950	950	950
q _n max		23,000	23,000	23,000	23,000

- 1) Dependent on connecting plate selected, must be ordered separately as an accessory → 3/2.31-0
Measured at p₁ = 6 bar and Δp = 70 mbar.

Ambient conditions				
		Condensate drain		
		manual rotary	fully automatic	fully automatic, electrical
Ambient temperature	[°C]	-10 ... +60	+5 ... +60	+1 ... +60
Temperature of medium	[°C]	-10 ... +60	+5 ... +60	+1 ... +60
Storage temperature	[°C]	-10 ... +60	-10 ... +60	+1 ... +60
Corrosion resistance class	CRC ¹	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 [g]	
MS12	
With metal bowl	7 000
With metal bowl and fully automatic, electrically actuated condensate drain	7 700

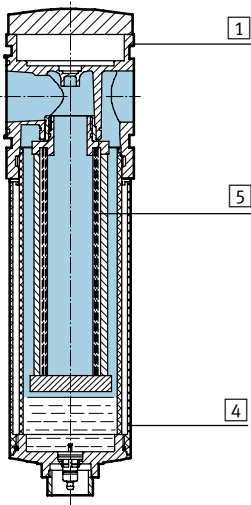
Fine and micro filters MS12-LFM, MS series

Technical data



Materials

Sectional view

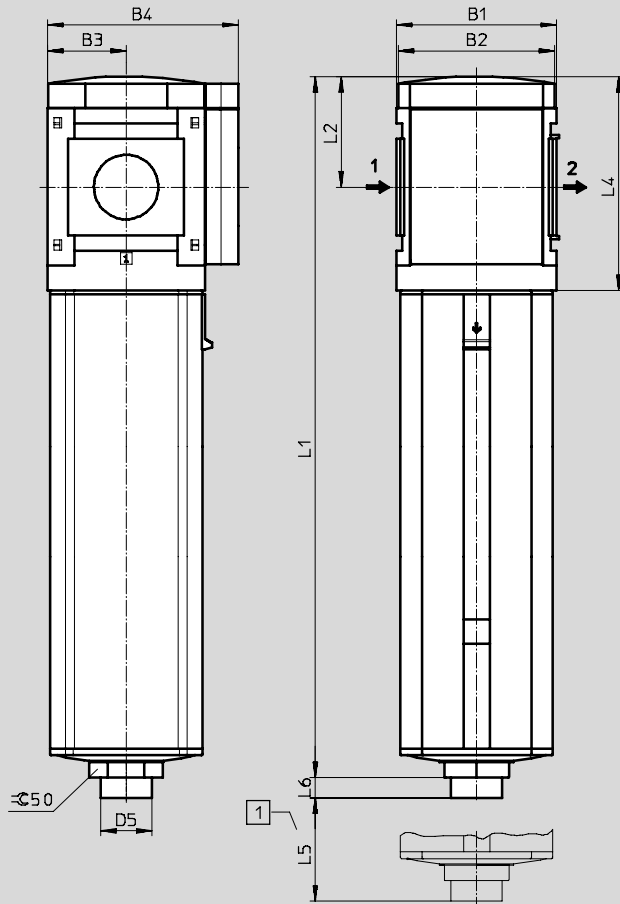


Fine and micro filter

1	Body	Die-cast aluminium
4	Metal bowl	Wrought aluminium alloy
5	Filter element	Borosilicate mesh
-	Seals	Nitrile rubber

Dimensions – Standard

Download CAD data → www.festo.com/en/engineering



1 Installation dimensions

→ Flow direction

Type	B1	B2	B3	B4	D5 Ø	L1	L2	L4	L5	L6
MS12-LFM	124	122	61	148	40	543	86	166	350	16

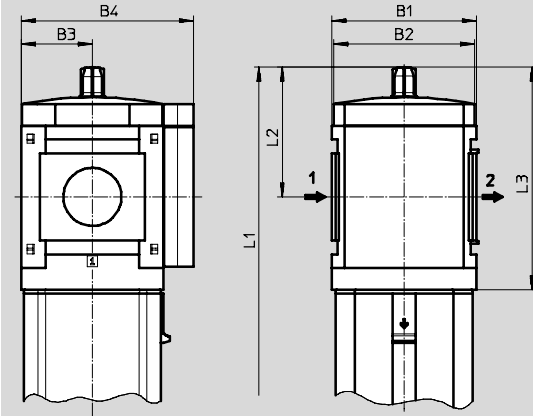
Fine and micro filters MS12-LFM, MS series



Technical data

Dimensions – Differential pressure indicator

Download CAD data → www.festo.com/en/engineering



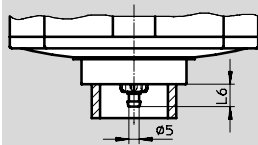
→ Flow direction

Type	B1	B2	B3	B4	L1	L2	L3
MS12-LFM-...-DA	124	122	61	148	569	112	192

Dimensions – Condensate drain

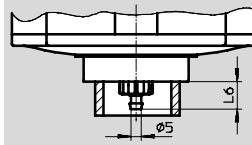
Download CAD data → www.festo.com/en/engineering

Manual rotary M



Barbed fitting for plastic tubing
PCN-4

Fully automatic V



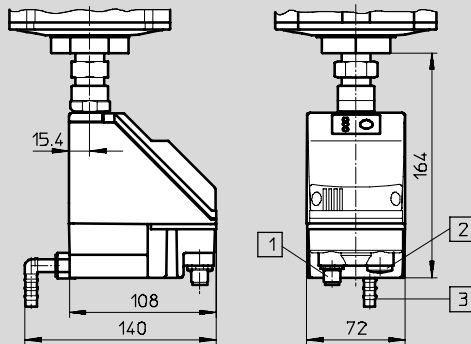
Barbed fitting for plastic tubing
PCN-4

Type	L6
MS12-LFM-...-M	11

Type	L6
MS12-LFM-...-V	13

Fully automatic, electrically actuated E1 ... E4

Technical data PWEA → NO TAG
Technical data PWEA → www.festo.com



- 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-...

Ordering data

Metal bowl

Condensate drain	Size	Connection	Micro filter		Fine filter	
			Grade of filtration 0.01 µm	Part No.	Grade of filtration 1 µm	Part No.
			Part No.	Type	Part No.	Type

Flow direction from left to right

fully automatic	MS12	G1 ... G2 ¹⁾	537 154	MS12-LFM-G-AUV	537 153	MS12-LFM-G-BUV
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1) Connecting plate must be ordered separately as an accessory → 3/2.31-0

Fine and micro filters MS12-LFM, MS series



Ordering data – Modular products

MS12 series service units
Filters
2.23

M Mandatory data								O Options		
Module No.	Series	Size	Function	Connection size	Grade of filtration	Bowl	Condensate drain	Filter change sensor	Type of mounting	Alternative flow direction
535 042	MS	12	LFM	AGF AGG AGH AGI G	B A	U	M V E1 E2 E3 E4	DA	WP	Z
Order example										
535 042	MS	12	- LFM	- AGI	- A	- U	- M	-	-	-

Ordering table			
Grid dimension	[mm]	124	Condi- tions
M	Module No.	535 042	
	Series	Standard	MS
	Size	12	12
	Function	Fine and micro filter	-LFM
	Connection size	Connecting plate G1	-AGF
		Connecting plate G1¼	-AGG
		Connecting plate G1½	-AGH
		Connecting plate G2	-AGI
		Module without connecting thread, without connecting plate	-G
	Grade of filtration	1 µm	-B
		0.01 µm	-A
	Bowl	Metal bowl	-U
	Condensate drain	Manual	-M
		Fully automatic (P1 max. 12 bar)	-V
		External fully automatic condensate drain, electrical, 24 V DC, M12	-E1
		External fully automatic condensate drain, electrical, 110 V AC, terminals	-E2
		External fully automatic condensate drain, electrical, 230 V AC, terminals	-E3
		External fully automatic condensate drain, electrical, 24 V DC, terminals	-E4
O	Filter change sensor	Differential pressure indicator, optical	-DA
	Type of mounting	Wall mounting plate	1 -WP
	Alternative flow direction	Flow direction from right to left	-Z

1 WP Only with connecting plate AGF, AGG, AGH or AGI.

Transfer order code

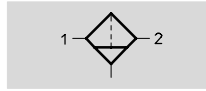
535 042 MS 12 - LFM - - U - - -

Active carbon filters MS12-LFX, MS series

Technical data

Function

Condensate drain
manual rotary



- - Flow rate
4,800 ... 6,000 l/min
- - Temperature range
-10 ... +60 °C
- - Input pressure
0 ... 20 bar



- Removal of liquid and gaseous oil particles from compressed air using active carbon
- Eliminates odours and vapours
- Prefiltration with micro filter MS-LFM-A, grade of filtration 0.01 µm, recommended

General technical data				
	MS12			
Pneumatic connection 1 ¹⁾	G1	G1¼	G1½	G2
Pneumatic connection 2 ¹⁾	G1	G1¼	G1½	G2
Operating medium	Compressed air, filtered, unlubricated, grade of filtration 0.01 µm			
Design	Fibre filter			
Type of mounting	Via accessories In-line installation			
Assembly position	Vertical ±5°			
Residual oil content	[mg/m ³]	≤ 0.003		
Input pressure				
Input pressure	[bar]	0 ... 20		
Air purity class				
Air purity class at the output	1.7.1 to DIN ISO 8573-1			
Max. condensate volume [cm ³]				
Metal bowl	400			

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 3/2.31-0

Standard nominal flow rate q _N [l/min] ¹⁾				
	MS12			
	G1	G1¼	G1½	G2
	4 800	5 000	5 500	6 000

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 3/2.31-0
Measured at p₁ = 6 bar and Δp = 70 mbar

Active carbon filters MS12-LFX, MS series

Technical data

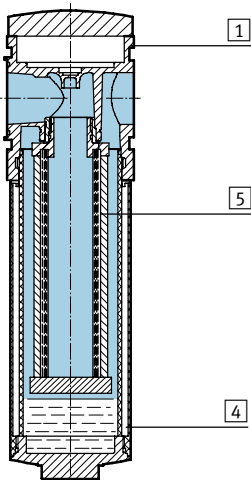
Ambient conditions		
MS12		
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	+5 ... +30
Storage temperature	[°C]	-10 ... +60
Corrosion resistance class	CRC ¹⁾	2

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 [g]	
MS12	
With metal bowl	7 000

Materials

Sectional view



Active carbon filter		
1	Body	Die-cast aluminium
4	Metal bowl	Wrought aluminium alloy
5	Filter element	Active carbon
-	Seals	Nitrile rubber
	Note on materials	Free of copper and PTFE

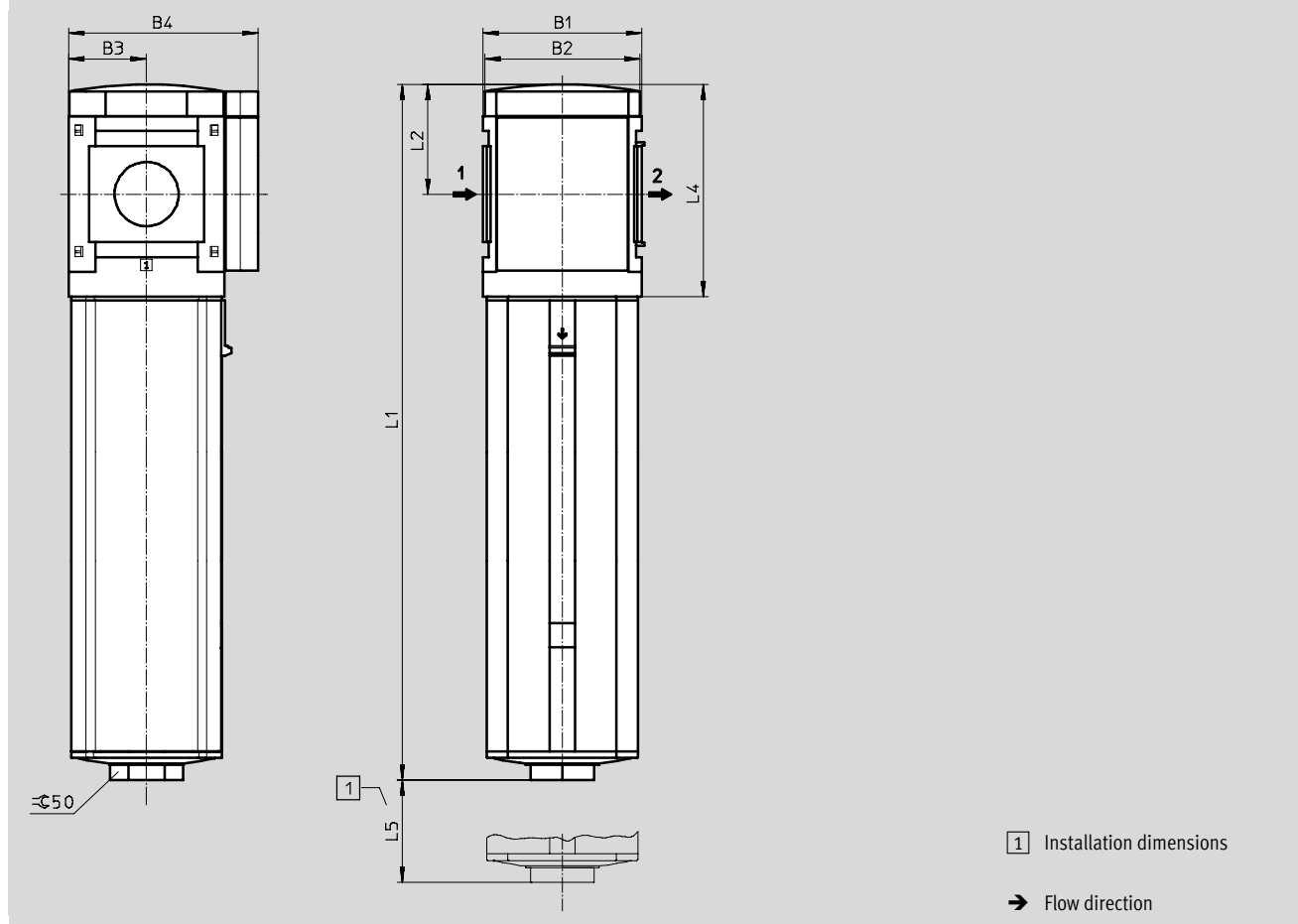
Active carbon filters MS12-LFX, MS series

Technical data

Dimensions – Standard

Download CAD data → www.festo.com/en/engineering

Manual rotary condensate drain



Type	B1	B2	B3	B4	L1	L2	L4	L5
MS12-LFX	124	122	61	148	543	86	166	350

Ordering data

Metal bowl

Size	Connection	Part No.	Type
------	------------	----------	------

Flow direction from left to right

MS12	G1 ... G2 ¹⁾	537 155	MS12-LFX-G-U
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1) Connecting plate must be ordered separately as an accessory → 3/2.31-0

Active carbon filters MS12-LFX, MS series



Ordering data – Modular products

M Mandatory data						O Options	
Module No.	Series	Size	Function	Connection size	Bowl	Type of mounting	Alternative flow direction
535 043	MS	12	LFX	AGF AGG AGH AGI G	U	WP	Z
Order example							
535 043	MS	12	- LFX	- AGF	- U	- WP	- Z

Ordering table			
Grid dimension	[mm]	124	
Module No.	Series	Size	Enter code
M 535 043	Standard	12	MS
	Active carbon filter		12
	Connecting plate G1		-LFX
	Connecting plate G1¼		-AGF
	Connecting plate G1½		-AGG
	Connecting plate G2		-AGH
	Module without connecting thread, without connecting plate		-AGI
	Metal bowl		-G
			-U
O Type of mounting	Wall mounting plate	1	-U
	Flow direction from right to left		-WP
			-Z

1 WP Only with connecting plate AGF, AGG, AGH or AGI.

Transfer order code

535 043	MS	12	- LFX	-		- U	-		-	
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Filters MS12-LF/LFM/LFX, MS series

Accessories

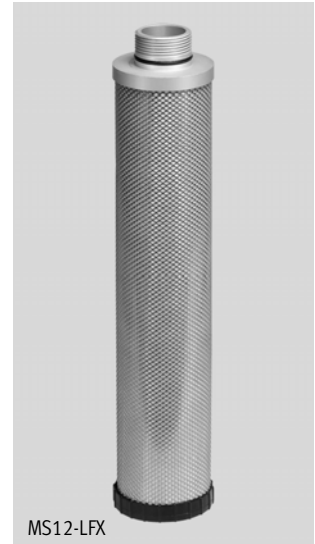
Filter cartridge MS12-LF...



MS12-LFM-B



MS12-LFM-A



MS12-LFX

Ordering data				
Size		Grade of filtration [µm]	Part No.	Type
MS12	Filter cartridge	5	537 143	MS12-LFP-C
	Filter cartridge	40	537 144	MS12-LFP-E
	Micro-filter cartridge	0.01	537 146	MS12-LFM-A
	Fine-filter cartridge	1	537 145	MS12-LFM-B
	Active carbon filter cartridge	Residual oil content ≤ 0.003 mg/m ³	537 147	MS12-LFX

Pressure regulators MS12-LR, MS series

Peripherals overview

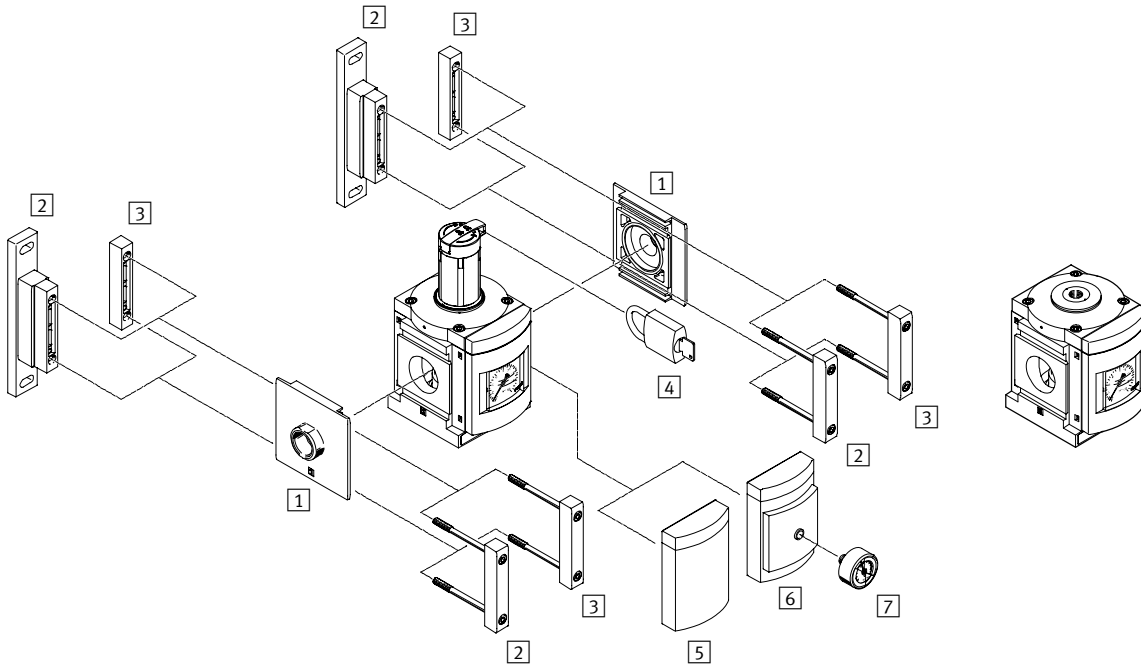
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Pressure regulator LR

Standard

Variant PO

pneumatically actuated



Mounting attachments and accessories

		→ Page
1	Connecting plate MS12-AG...	3/2.31-0
2	Wall mounting plate MS12-WP	3/2.31-7
3	Module connector MS12-MV	3/2.31-3
4	Padlock (except variant PO) LRVS-D	3/2.31-16
5	Cover plate VS	3/2.24-6
6	Adapter for EN pressure gauge 1/4 A4	3/2.24-6
7	Pressure gauge MA	3/2.31-8

Pressure regulators MS12-LR, MS series

Type codes

		MS	12	-	LR	-	G	-	D7	-		-	LD	-	AS
Basic function															
MS	Standard service unit														
Size															
12	Grid dimension 124 mm														
Service function															
LR	Pressure regulator														
Connection size															
G	Module without connecting thread, without connecting plate Connecting plates → Accessories														
Pressure regulation range															
D7	0.5 ... 12 bar														
D8	0.5 ... 16 bar														
Alternative operating principle															
	No alternative operating principle														
PO	With pneumatic setpoint specification														
Rotary knob															
	No rotary knob														
LD	Long rotary knob														
Actuator lock															
	No actuator lock														
AS	Lockable rotary knob														

Further variants can be ordered using the modular system

Pressure regulators LR → 3/2.24-6

- Connecting plates
- Pressure regulation range
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Rotary knob
- Actuator lock
- Type of mounting
- Alternative flow direction

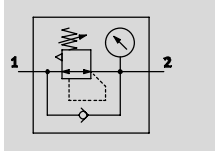
Pressure regulators MS12-LR, MS series

Technical data

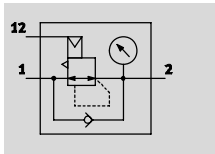
FESTO




Function

with pressure gauge



with pressure gauge and pneumatic setpoint specification PO



-  Flow rate
13,000 ... 22,000 l/min
-  Temperature range
-10 ... +60 °C
-  Input pressure
0.8 ... 21 bar

The pressure regulator maintains a constant working pressure (secondary side), regardless of the pressure variations in the system (primary side) and the air consumption.



- Good control characteristics with low hysteresis and primary pressure compensation
- High flow rate with minimal pressure drop
- Setting values are secured by locking the rotary knob
- Rotary knob can be locked using accessories
- With secondary venting
- Three pressure regulation ranges: 0.3 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Pressure gauge connection for different fitting options
- Return flow option for exhausting from output 2 to output 1

General technical data				
MS12				
Pneumatic connection 1 ¹⁾	G1	G1¼	G1½	G2
Pneumatic connection 2 ¹⁾	G1	G1¼	G1½	G2
Pilot air connection 12 for variant PO	G¾			
Operating medium	Compressed air, air quality class 5.7.- to DIN ISO 8573-1			
Design	Pressure regulator with pressure gauge			
	Pilot actuated diaphragm regulator (except variant PO)			
	Diaphragm regulator (variant PO)			
Type of mounting	Via accessories			
	In-line installation			
Assembly position	Any			
Max. hysteresis [bar]	0.4			
Flow rate of secondary venting [l/min]	≤ 600			
Input pressure [bar]	0.8 ... 21			
Pressure regulation range [bar]				
D6	0.3 ... 7			
D7	0.5 ... 12			
D8	0.5 ... 16			

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 3/2.31-0

Standard nominal flow rate q _N [l/min] ¹⁾				
MS12				
G1				
G1¼				
G1½				
G2				
	13 000	13 500	16 000	22 000

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 3/2.31-0
Measured at p₁ = 10 bar and p₂ = 6 bar, Δp = 0.5 bar

Pressure regulators MS12-LR, MS series

Technical data

Ambient conditions		
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	-10 ... +60
Storage temperature	[°C]	-10 ... +60
Corrosion resistance class	CRC ¹⁾	2

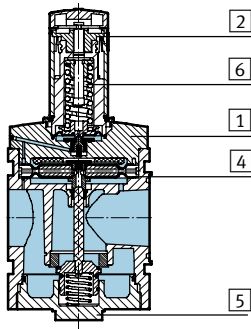
1) Corrosion resistance class 2 according to Festo standard 940 070

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 [g]	
	MS12
Pressure regulator	4,000

Materials

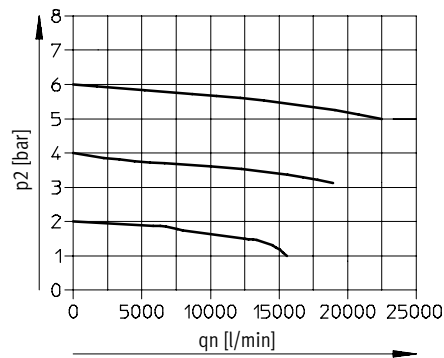
Sectional view



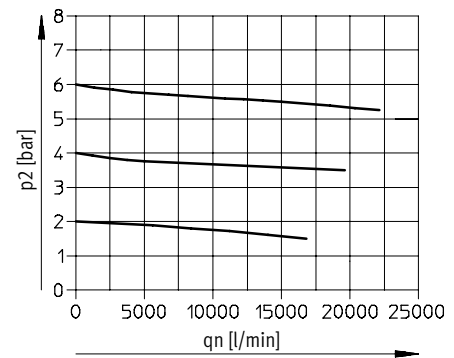
Pressure regulator		
1	Body	Die-cast aluminium
2	Regulating knob	Polyamide/polyacetate
4	Diaphragm	Nitrile rubber
5	Bottom cap	Wrought aluminium alloy
6	Springs	Steel
-	Seals	Nitrile rubber
Note on materials		Free of copper and PTFE only with cover plate VS

Standard flow rate q_n as a function of output pressure p_2

With connecting plate MS12-AGF
Pneumatic connection G1

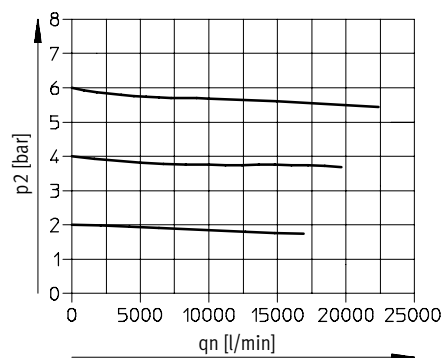


With connecting plate MS12-AGG
Pneumatic connection G1¼

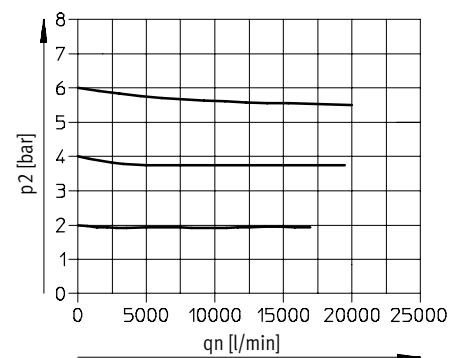


Primary pressure $p_1 = 10$ bar

With connecting plate MS12-AGH
Pneumatic connection G1½



With connecting plate MS12-AGI
Pneumatic connection G2



Primary pressure $p_1 = 10$ bar

Pressure regulators MS12-LR, MS series

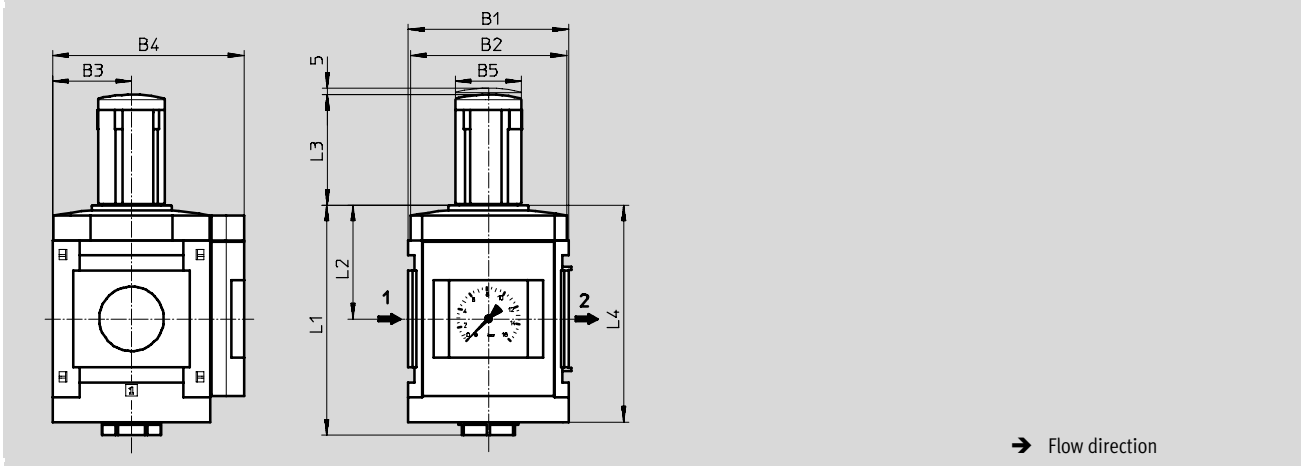
Technical data

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Dimensions – Standard

Download CAD data → www.festo.com/en/engineering

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



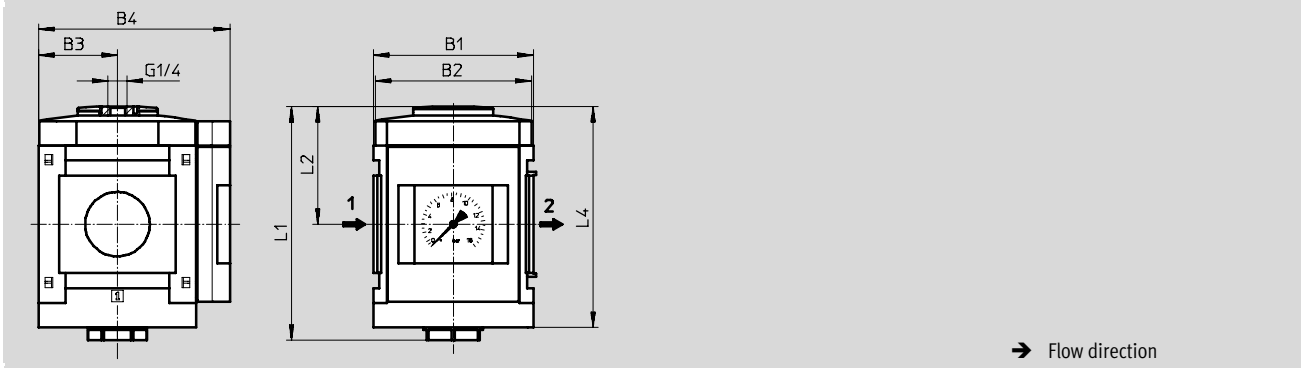
→ Flow direction

Type	B1	B2	B3	B4	B5	L1	L2	L3	L4
MS12-LR	124	122	61	148	51	178	88	86	168

Dimensions – Alternative operating principle

Download CAD data → www.festo.com/en/engineering

Pneumatically actuated PO, with pressure gauge, display unit [bar]



→ Flow direction

Type	B1	B2	B3	B4	L1	L2	L4
MS12-LR-...-PO	124	122	61	148	181	91	171

Pressure regulators MS12-LR, MS series

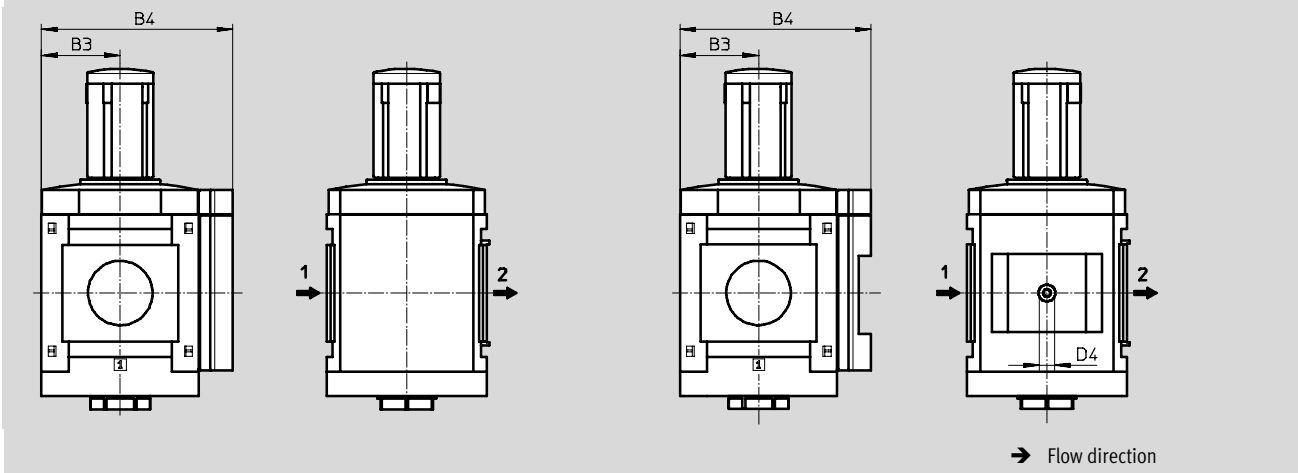
Technical data

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com/en/engineering

Cover plate VS

Adapter A4 for EN pressure gauge 1/4, without pressure gauge



Type	B3	B4	D4
MS12-LR-...-VS	61	148	–
MS12-LR-...-A4	61	148	G1/4

Dimensions – Rotary knob

Long, lockable LD-AS



Type	B5	B6	L3
MS12-LR-...-LD-AS	64.4	39	95.5

Ordering data

Pressure gauge

Size	Connection	Long rotary knob, can be locked using accessories, pressure regulation range 0.5... 12 bar	Alternative operating principle, pressure regulation range 0.5... 16 bar
		Part No. Type	Part No. Type
Flow direction from left to right			
MS12	G1 ... G2 ¹⁾	537 148 MS12-LR-G-D7-LD-AS	541 680 MS12-LR-G-D8-PO

1) Connecting plate must be ordered separately as an accessory → 3/2.31-0

Pressure regulators MS12-LR, MS series

Ordering data – Modular products

M **Mandatory data** →

Module No.	Series	Size	Function	Connection size	Pressure regulation range
535 021	MS	12	LR	AGF AGG AGH AGI G	D6 D7 D8
Order example					
535 021	MS	12	- LR	- G	- D8

Ordering table

Grid dimension	[mm]	124	Condi- tions	Code	Enter code
M Module No.	535 021				
Series	Standard			MS	MS
Size	12			12	12
Function	Pressure regulator			-LR	-LR
Connection size	Connecting plate G1			-AGF	
	Connecting plate G1¼			-AGG	
	Connecting plate G1½			-AGH	
	Connecting plate G2			-AGI	
	Module without connecting thread, without connecting plate			-G	
Pressure regulation range	0.3 ... 7 bar			-D6	
	0.5 ... 12 bar			-D7	
	0.5 ... 16 bar			-D8	

Transfer order code

535 021	MS	12	-	LF	-		-	
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Pressure regulators MS12-LR, MS series

Ordering data – Modular products

Options						
Pressure gauge alternatives	Alternative pressure gauge scale	Rotary knob	Security	Alternative operating principle	Type of mounting	Alternative flow direction
VS A4	PSI MPA	LD	AS	PO	WP	Z
- VS	-	- LD	- AS	- PO	-	- Z

Ordering table		Grid dimension [mm]	124	Condi- tions	Code	Enter code
0	Pressure gauge alternatives	Cover plate			-VS	
		Adapter plate for EN pressure gauge 1/4, without pressure gauge			-A4	
	Alternative pressure gauge scale	psi		1	-PSI	
		MPa		1	-MPA	
	Rotary knob	Long rotary knob			-LD	-LD
	Security	Lockable rotary knob			-AS	
	Alternative operating principle	Pneumatically actuated			-PO	
	Type of mounting	Wall mounting plate		2	-WP	
	Alternative flow direction	Flow direction from right to left			-Z	

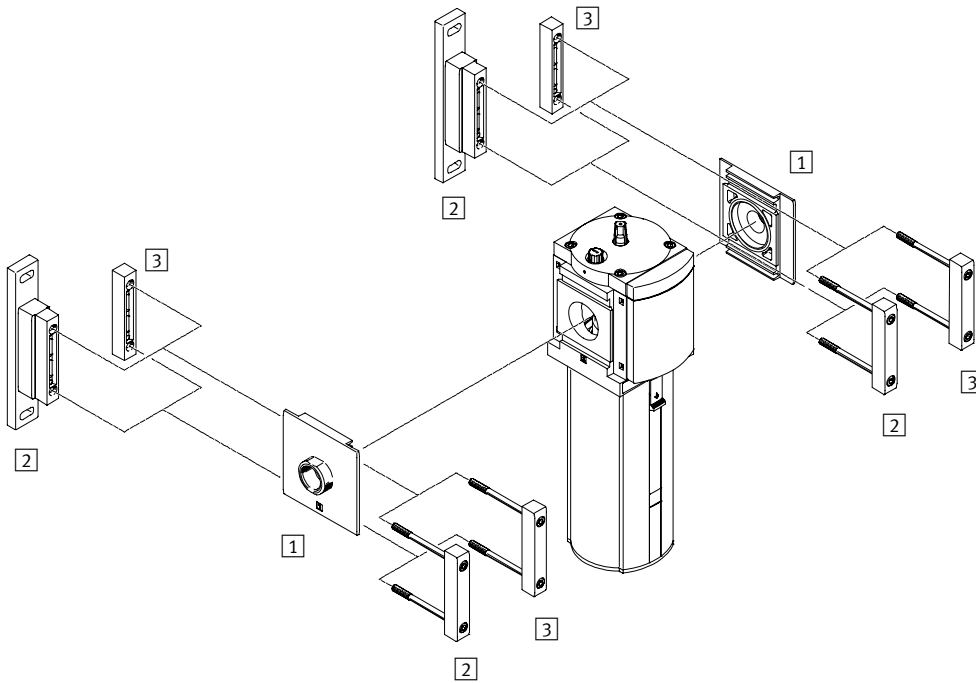
- 1 **PSI, MPA** Not with pressure gauge alternatives VS, A4.
2 **WP** Only with connecting plate AGF, AGG, AGH or AGI.

Transfer order code

- - - **LD** - - - -

Lubricators MS12-LOE, MS series

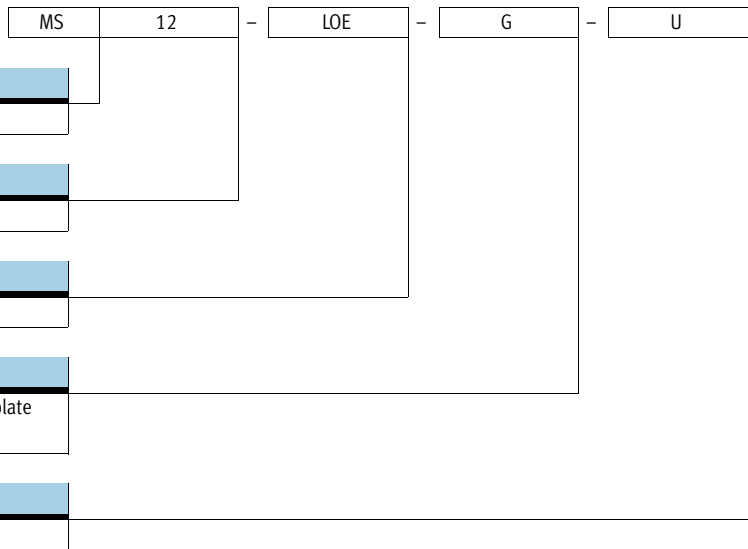
Peripherals overview



Mounting attachments and accessories		→ Page
1	Connecting plate MS12-AG...	3/2.31-0
2	Wall mounting plate MS12-WP	3/2.31-7
3	Module connector MS12-MV	3/2.31-3

Lubricators MS12-LOE, MS series

Type codes



Further variants can be ordered using the modular system

Lubricators LOE → 3/2.25-6

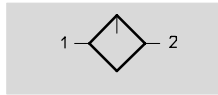
- Connecting plates
- Type of mounting
- Alternative flow direction




Lubricators MS12-LOE, MS series

FESTO

Technical data

Function



-  Flow rate
20,000 ... 22,000 l/min
-  Temperature range
0 ... 60 °C
-  Input pressure
1 ... 16 bar

The proportional lubricator adds a precision adjustable quantity of oil to the compressed air stream.

The pressure drop that occurs when air flows through a Venturi nozzle is used to convey oil from the container to the drip cap. From here, the oil drips into the air duct directly behind the proportional valve, where it is atomised. The oil mist component is proportional to the compressed air flow rate.



- Proportional lubricator with precision oil metering
- Reduces wear on drive units subject to high loading
- High flow rate
- Quick and easy oil top-up even during operation (under pressure)

The following oils are recommended for Festo components:

Viscosity range to ISO 3448, ISO class VG 32
32 mm²/s (= cSt) at 40°C

- Festo special oil OFSW-32
→ 3/2.25-5
- ARAL Vitam GF 32
- BP Energol HLP 32
- Esso Nuto H 32
- Mobil DTE 24
- Shell Tellus Oil DO 32

General technical data				
		MS12		
Pneumatic connection 1 ¹⁾	G1	G1¼	G1½	G2
Pneumatic connection 2 ¹⁾	G1	G1¼	G1½	G2
Operating medium	Compressed air			
Design	Proportional standard mist lubricator			
Type of mounting	Via accessories In-line installation			
Assembly position	Vertical ±5°			
Input pressure [bar]	1 ... 16			
Minimum flow for lubricator operation [l/min]	≤400			
Max. oil capacity [cm ³]				
Metal bowl	1 500			

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 3/2.31-0

Standard nominal flow rate q _N [l/min] ¹⁾					
		MS12			
		G1	G1¼	G1½	G2
		20 000	20 500	21 000	22 000

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 3/2.31-0
Measured at p₁ = 6 bar and Δp = 0.5 bar

Lubricators MS12-LOE, MS series

Technical data

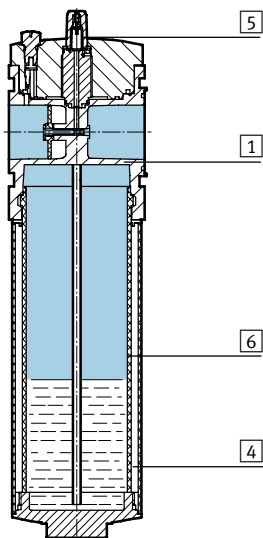
Ambient conditions		
		MS12
Ambient temperature	[°C]	0 ... +60
Temperature of medium	[°C]	0 ... +60
Storage temperature	[°C]	-10 ... +60
Corrosion resistance class	CRC ¹⁾	2

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 [g]	
MS12	
With metal bowl	6 500

Materials

Sectional view



Lubricator		
1	Body	Die-cast aluminium
4	Metal bowl	Aluminium/polyamide
5	Lubricator dome	Polycarbonate
6	Metal bowl sight glass	Polyamide
-	Seals	Nitrile rubber

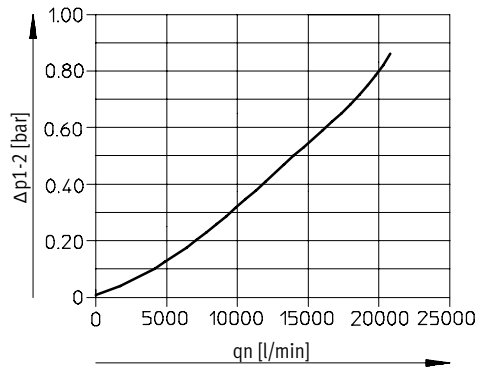
Lubricators MS12-LOE, MS series

Technical data



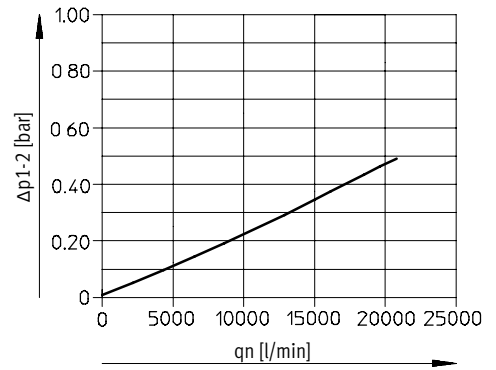
Standard flow rate q_n as a function of the differential pressure Δp_{1-2}

With connecting plate MS12-AGF
Pneumatic connection G1

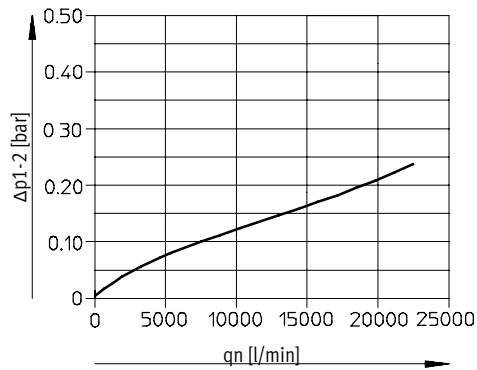


Primary pressure $p_1 = 6$ bar

With connecting plate MS12-AGG
Pneumatic connection G1¼

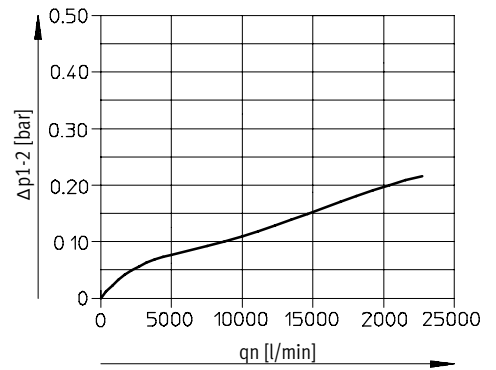


With connecting plate MS12-AGH
Pneumatic connection G1½



Primary pressure $p_1 = 6$ bar

With connecting plate MS12-AGI
Pneumatic connection G2



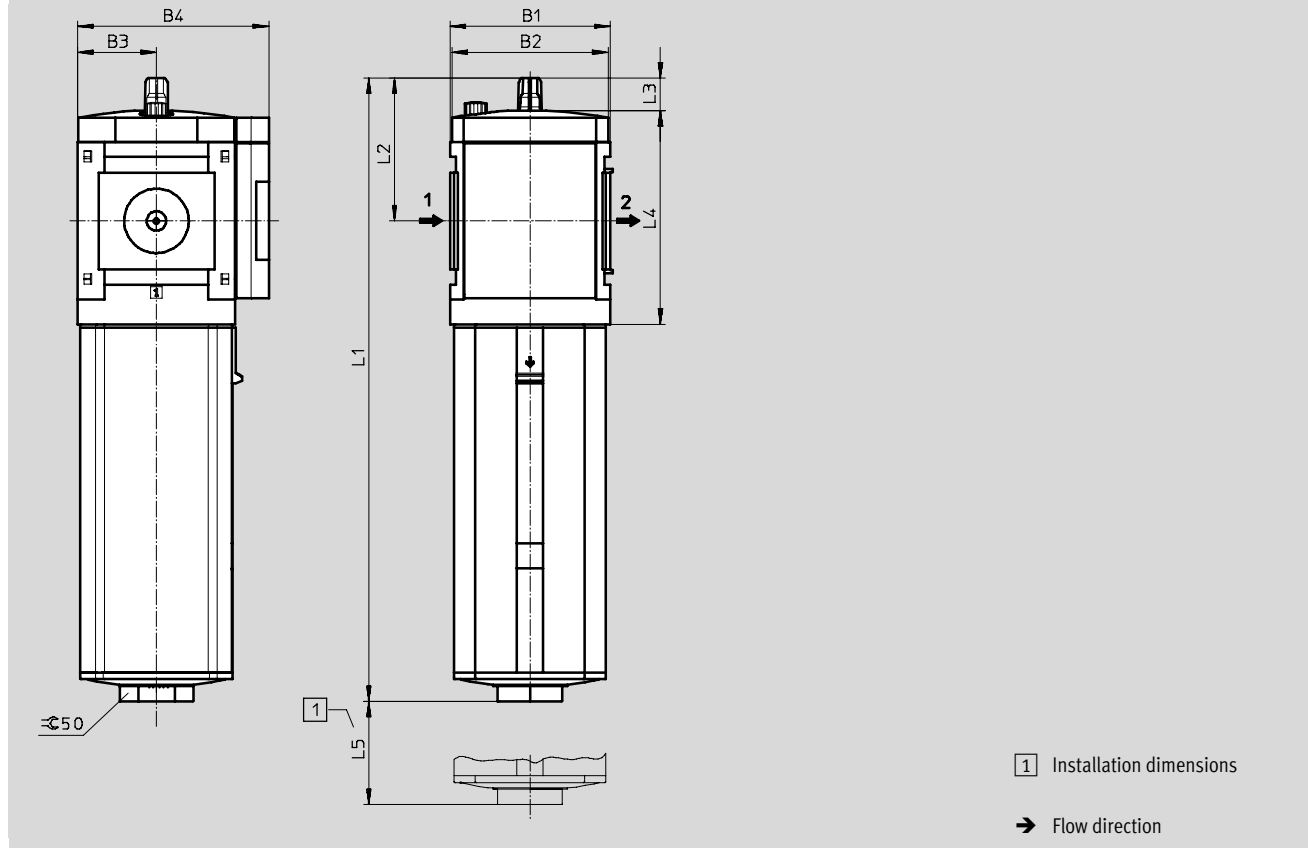
Lubricators MS12-LOE, MS series

Technical data



Dimensions – Standard

Download CAD data → www.festo.com/en/engineering



Type	B1	B2	B3	B4	L1	L2	L3	L4	L5
MS12-LOE	124	122	61	148	483	111	25	166	300

Ordering data			
Metal bowl			
Size	Connection	Part No.	Type
Flow direction from left to right			
MS12	G1 ... G2 ¹⁾	537 156	MS12-LOE-G-U

1) Connecting plate must be ordered separately as an accessory → 3/2.31-0

Ordering data – Special oil			
	Scope of delivery	Part No.	Type
	1 litre	152 811	OFSW-32

MS12 series service units
Lubricators

2.25

Lubricators MS12-LOE, MS series



Ordering data – Modular products

M Mandatory data						O Options	
Module No.	Series	Size	Function	Connection size	Bowl	Type of mounting	Alternative flow direction
535 041	MS		LOE	AGF AGG AGH AGI G	U	WP	Z
Order example							
535 041	MS	12	- LOE	- AGI	- U	- WP	- Z

Ordering table			
Grid dimension	[mm]	124	Condi- tions
M	Module No.	535 041	
	Series	Standard	MS
	Size	12	12
	Function	Lubricator	-LOE
	Connection size	Connecting plate G1	-AGF
		Connecting plate G1¼	-AGG
		Connecting plate G1½	-AGH
		Connecting plate G2	-AGI
		Module without connecting thread, without connecting plate	-G
	Bowl	Metal bowl	-U
O	Type of mounting	Wall mounting plate	1 -WP
	Alternative flow direction	Flow direction from right to left	-Z

1 WP Only with connecting plate AGF, AGG, AGH or AGI.

MS12 series service units
Lubricators

2.25

Transfer order code

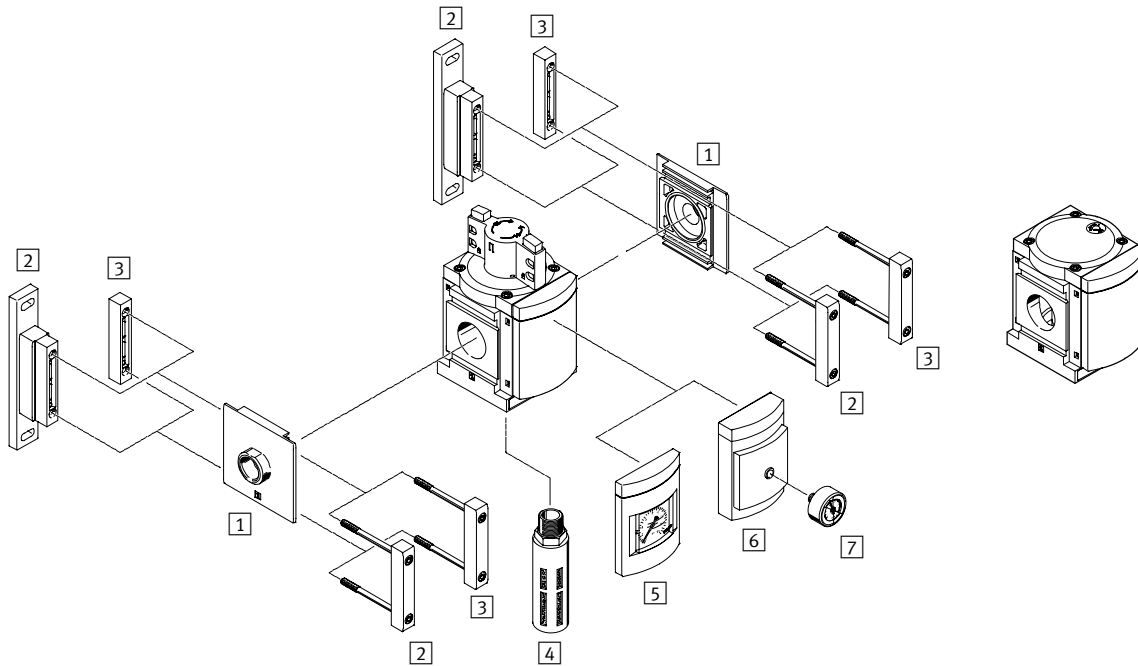
535 041 MS 12 - LOE - - U - - -

On-off/soft-start valves MS12-EM/EE/DL/DE, MS series

Peripherals overview

On-off valve EM
manually actuated

Soft-start valve DL
pneumatically actuated

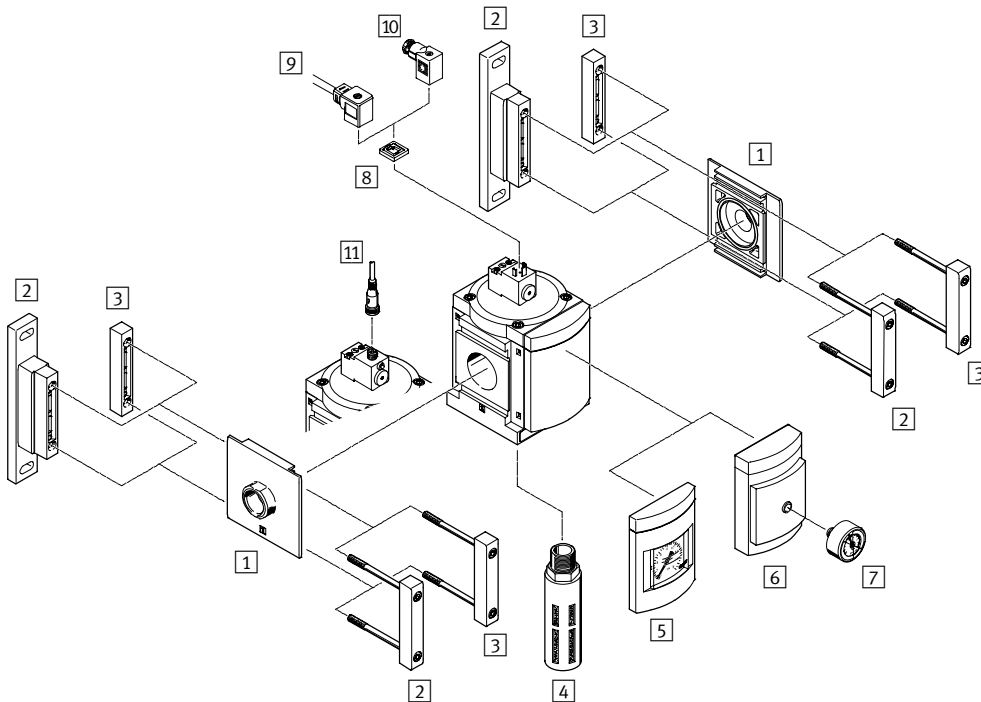


Mounting attachments and accessories		→ Page
1	Connecting plate MS12-AG...	3/2.31-0
2	Wall mounting plate MS12-WP	3/2.31-7
3	Module connector MS12-MV	3/2.31-3
4	Silencer (with EM) U	3/2.31-8
5	MS pressure gauge AG	EM 3 / 2.26-7 DL 3 / 2.26-15
6	Adapter for EN pressure gauge 1/4 A4	EM 3 / 2.26-7 DL 3 / 2.26-15
7	Pressure gauge MA	3/2.31-8

On-off/soft-start valves MS12-EM/EE/DL/DE, MS series

Peripherals overview

On-off/soft-start valve EE/DE
solenoid actuated



Mounting attachments and accessories

		→ Page
1	Connecting plate MS12-AG...	3/2.31-0
2	Wall mounting plate MS12-WP	3/2.31-7
3	Module connector MS12-MV	3/2.31-3
4	Silencer (with EE) U	3/2.31-8
5	MS pressure gauge AG	EE 3 / 2.26-11 DE 3 / 2.26-19
6	Adapter for EN pressure gauge 1/4 A4	EE 3 / 2.26-11 DE 3 / 2.26-19
7	Pressure gauge MA	3/2.31-8
8	Illuminating seal MC-LD	3/2.31-10
9	Plug socket with cable KMC	3/2.31-10
10	Plug socket MSSD-C	3/2.31-8
11	Plug socket with cable SIM-M12-4...	3/2.31-14

On-off/soft-start valves MS12-EM/EE/DL/DE, MS series

FESTO

Type codes

		MS	12	-	EE	-	G	-	V24
Basic function									
MS	Standard service unit								
Size									
12	Grid dimension 124 mm								
Service function									
EM	On-off valve, manually operated								
EE	On-off valve, solenoid actuated								
DL	Soft-start valve, pneumatically actuated								
DE	Soft-start valve, solenoid actuated								
Connection size									
G	Module without connecting thread, without connecting plate Connecting plates → Accessories								
Supply voltage (for EE and DE only)									
V24	Supply voltage 24 V DC								

Further variants can be ordered using the modular system

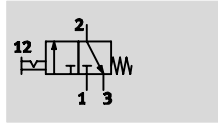
On-off valves EM	→ 3 / 2.26-7
On-off valves EE	→ 3 / 2.26-11
Soft-start valves DL	→ 3 / 2.26-15
Soft-start valves DE	→ 3 / 2.26-19




- Connecting plates
- Supply voltage (for EE and DE only)
- Silencer (for EM and EE only)
- Pressure gauge/adaptor
- Alternative pressure gauge scale
- Type of mounting
- Alternative flow direction

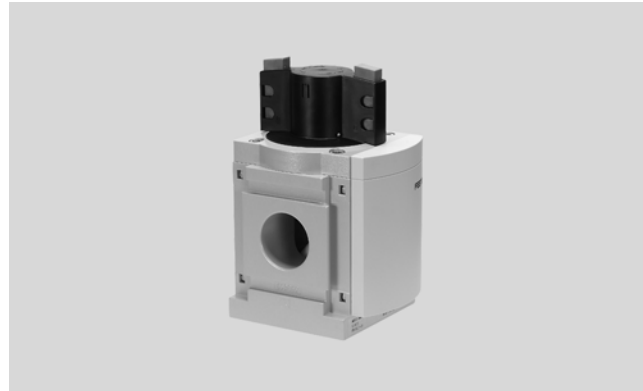
On-off valves MS12-EM, MS series

Technical data

Function



-  Flow rate
25,000 ... 32,000 l/min
-  Temperature range
-10 ... +60 °C
-  Operating pressure
0 ... 21 bar



- Manually operated on-off valve for pressurising and venting pneumatic installations
- Ducted exhaust possible via a threaded connection with silencer
- The switching position is immediately recognisable
- Actuator secured by locking the rotary knob
- Commercially available padlock can be used for security

General technical data		MS12			
Pneumatic connection 1 ¹⁾		G1	G1¼	G1½	G2
Pneumatic connection 2 ¹⁾		G1	G1¼	G1½	G2
Pneumatic connection 3		G1			
Operating medium		Compressed air			
Design		Piston spool valve			
Type of mounting		Via accessories			
		In-line installation			
Assembly position		Any			
Operating pressure	[bar]	0 ... 21			
Valve function		3/2-way valve, double solenoid			
Exhaust function		Without flow control			
Switching position display		Knob actuator direction = flow direction			
Type of actuation		Direct			
Pilot air supply		Internal			
Direction of flow		Non-reversible			

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 3/2.31-0

Standard nominal flow rate q _N ¹⁾ [l/min]		MS12
In main flow direction	1 → 2	25,000 ... 32,000
In relief direction	2 → 3	13,000

1) Measured at p₁ = 6 bar and Δp = 1 bar

Ambient conditions		MS12
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	-10 ... +60
Corrosion resistance class CRC ¹⁾		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.

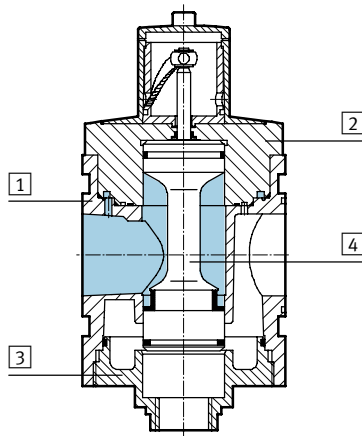
On-off valves MS12-EM, MS series

Technical data

Weights [g]	
	MS12
Without silencer	3 900
With silencer	4 000

Materials

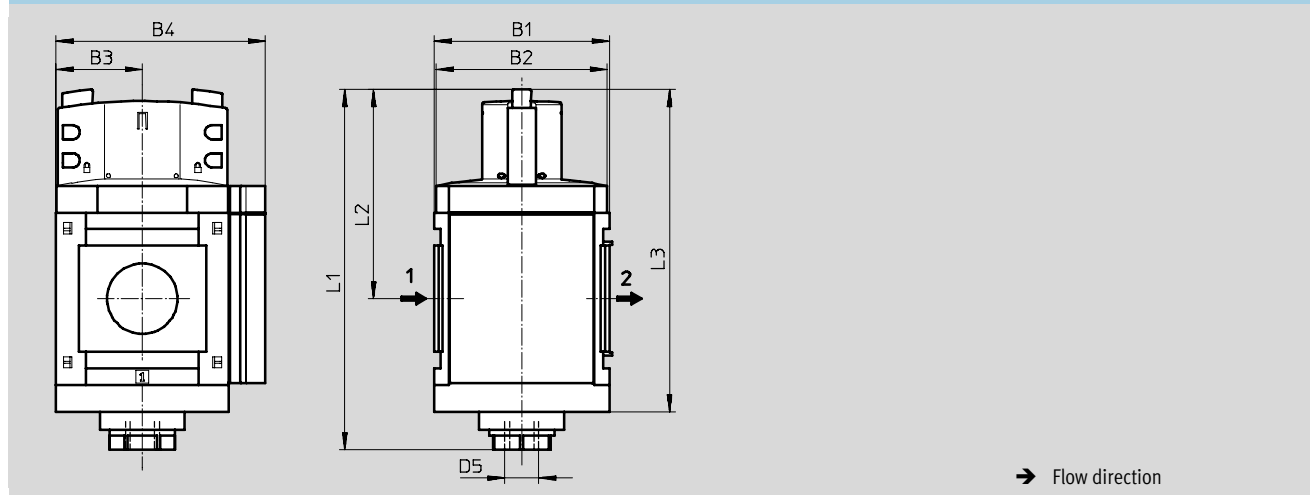
Sectional view



On-off valve		
1	Body	Die-cast aluminium
2	Cap, top	Aluminium
3	Cap, bottom	Aluminium
4	Valve spool	Stainless steel, polyacetate, nitrile rubber
-	Springs	Steel
-	Covers/cover plates	Polyamide
-	Seals	Nitrile rubber
Note on materials		Free of copper and PTFE only with cover plate (without pressure gauge AG)

Dimensions – Standard

Download CAD data → www.festo.com/en/engineering



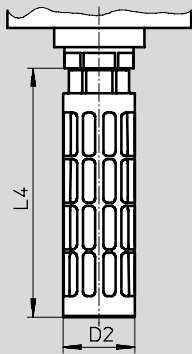
Type	B1	B2	B3	B4	L1	L2	L3	D5
MS12-EM	124	122	61	148	255	148	228	G1

On-off valves MS12-EM, MS series

Technical data

Dimensions – Silencer

Download CAD data → www.festo.com/en/engineering



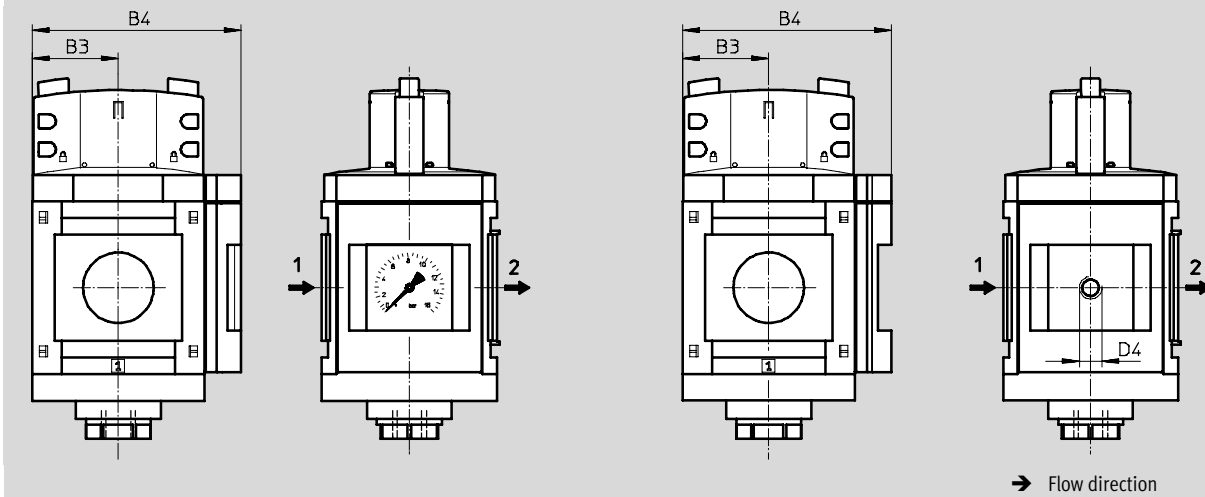
Type	D2 Ø	L4
MS12-EM-...-S	47.8	165.5

Dimensions – Pressure gauges/adapters

Download CAD data → www.festo.com/en/engineering

Integrated MS pressure gauge AG, display unit [bar]

Adapter A4 for EN pressure gauge 1/4, without pressure gauge



Type	B3	B4	D4
MS12-EM-...-AG	61	148	-
MS12-EM-...-A4	61	148	G1/4

Ordering data

Size	Connection	Part No.	Type
Flow direction from left to right			
MS12	G1 ... G2 ¹⁾	541 495	MS12-EM-G ²⁾

- 1) Connecting plate must be ordered separately as an accessory → 3/2.31-0
 2) Free of copper and PTFE

On-off valves MS12-EM, MS series

Ordering data – Modular products

M Mandatory data					O Options				
Module No.	Series	Size	Function	Connection size	Silencer	Pressure gauge/adapter	Alternative pressure gauge scale	Type of mounting	Alternative flow direction
535 031	MS	12	EM	AGF AGG AGH AGI G	S	AG A4	PSI MPA	WP	Z
Order example									
535 031	MS	12	- EM	- G	- S	- AG	- PSI	-	- Z

Ordering table					
Grid dimension	[mm]	124	Condi- tions	Code	Enter code
M	Module No.	535 031			
	Series	Standard		MS	MS
	Size	12		12	12
	Function	On-off valve, manual		-EM	-EM
	Connection size	Connecting plate G1		-AGF	
		Connecting plate G1¼		-AGG	
		Connecting plate G1½		-AGH	
		Connecting plate G2		-AGI	
		Module without connecting thread, without connecting plate		-G	
O	Silencer	Silencer		-S	
	Pressure gauge/adapter	MS pressure gauge, bar		-AG	
		Adapter plate for EN pressure gauge ¼, without pressure gauge		-A4	
	Alternative pressure gauge scale	psi	1	-PSI	
		MPa	1	-MPA	
	Type of mounting	Wall mounting plate	2	-WP	
	Alternative flow direction	Flow direction from right to left		-Z	

1 PSI, MPA Only with pressure gauge AG.

2 WP Only with connecting plate AGF, AGG, AGH or AGI.

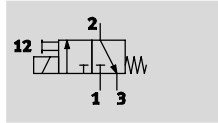
Transfer order code




535 031 MS 12 - EM - - - - -

On-off valves MS12-EE, MS series

Technical data

Function



-  - Flow rate
25,000 ... 32,000 l/min
-  - Temperature range
-10 ... +50 °C
-  - Operating pressure
3 ... 16 bar



- Solenoid actuated on-off valve for pressurising and venting pneumatic installations
- With solenoid coil without plug socket
- Three voltage ranges can be selected
- Ducted exhaust possible via a threaded connection with silencer
- Non-detenting manual override (except variant V24P)

General technical data		MS12			
Pneumatic connection 1 ¹⁾		G1	G1¼	G1½	G2
Pneumatic connection 2 ¹⁾		G1	G1¼	G1½	G2
Pneumatic connection 3		G1			
Operating medium		Compressed air			
Design		Piston spool valve			
Type of mounting		Via accessories In-line installation			
Assembly position		Any			
Operating pressure	[bar]	3 ... 16			
Valve function		3/2-way valve, single solenoid, closed			
Exhaust function		Without flow control			
Type of reset		Mechanical spring			
Switching position display		Via accessories LED (with variant V24P)			
Type of actuation		Direct			
Pilot air supply		Internal			
Direction of flow		Non-reversible			
Supply voltage					
Coil characteristics	V24	24 V DC			
	V110	110 V AC			
	V230	230 V AC			

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 3/2.31-0

Standard nominal flow rate q _N ¹⁾ [l/min]		MS12
In main flow direction	1 → 2	25,000 ... 32,000
In relief direction	2 → 3	8,900

1) Measured at p₁ = 6 bar and Δp = 1 bar

On-off valves MS12-EE, MS series

Technical data

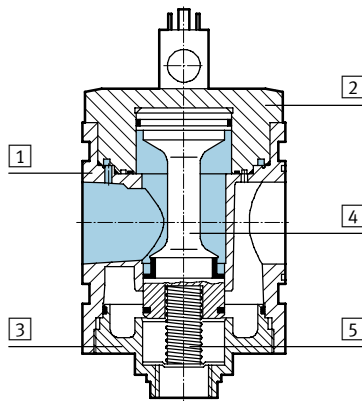
Ambient conditions		
		MS12
Ambient temperature	[°C]	-10 ... +50
Temperature of medium	[°C]	-10 ... +50
Corrosion resistance class CRC ¹⁾		2

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 [g]	
MS12	
Without silencer	3 800
With silencer	3 900

Materials

Sectional view



On-off valve		
1	Body	Die-cast aluminium
2	Cap, top	Aluminium
3	Cap, bottom	Aluminium
4	Valve spool	Stainless steel, polyacetate, nitrile rubber
5	Springs	Steel
-	Covers/cover plates	Polyamide
-	Seals	Nitrile rubber
Note on materials		Free of copper and PTFE only with cover plate (without pressure gauge AG)

Dimensions – Standard

Download CAD data → www.festo.com/en/engineering

MS12-EE-...-V24/V110/V230

MS12-EE-...-V24P

1 Plug connection to DIN EN 175 301-803

3 Plug connection M12, 4-pin to Desina

→ Flow direction

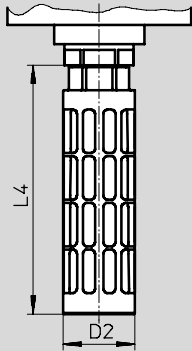
Type	B1	B2	B3	B4	L1	L2	L3	L4	L5	D5
MS12-EE-...-V24/V110/V230	124	122	61	148	237	130	162	35.7	12.3	G1
MS12-EE-...-V24P								36	10	

On-off valves MS12-EE, MS series

Technical data

Dimensions – Silencer

Download CAD data → www.festo.com/en/engineering



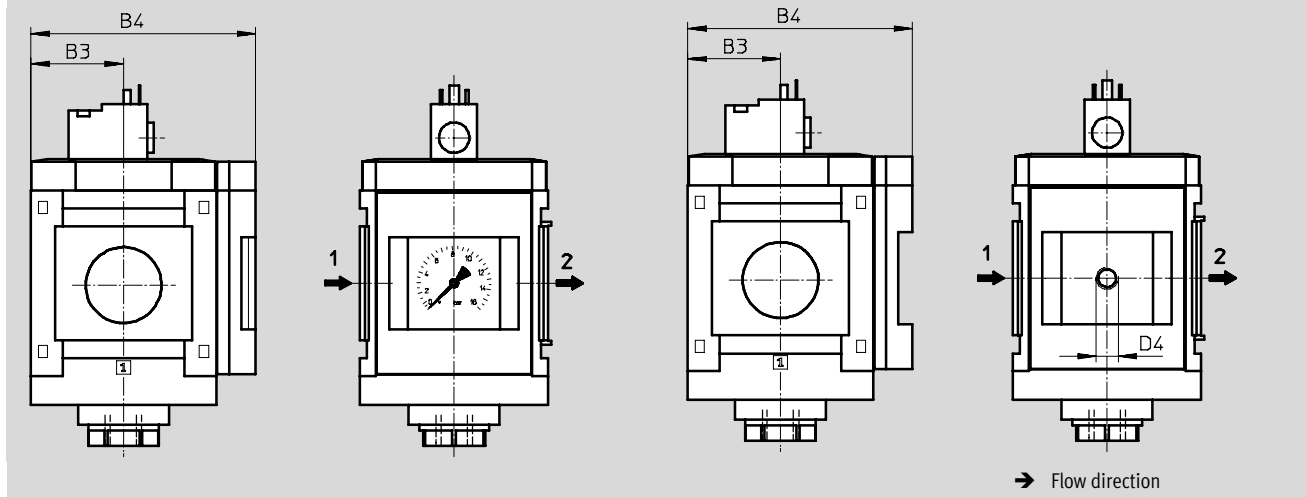
Type	D2 Ø	L4
MS12-EE-...-S	47.8	165.5

Dimensions – Pressure gauges/adapters

Download CAD data → www.festo.com/en/engineering

Integrated MS pressure gauge AG, display unit [bar]

Adapter A4 for EN pressure gauge 1/4, without pressure gauge



Type	B3	B4	D4
MS12-EE-...-AG	61	148	–
MS12-EE-...-A4	61	148	G1/4

Ordering data

Size	Connection	Supply voltage 24 V DC	
		Part No.	Type
Flow direction from left to right			
MS12	G1 ... G2 ¹⁾	541 496	MS12-EE-G-V24 ²⁾

- 1) Connecting plate must be ordered separately as an accessory → 3/2.31-0
- 2) Free of copper and PTFE

On-off valves MS12-EE, MS series

Ordering data – Modular products

M Mandatory data						O Options				
Module No.	Series	Size	Function	Connection size	Supply voltage	Silencer	Pressure gauge/ adapter	Alternative pressure gauge scale	Type of mounting	Alternative flow direction
535 032	MS	12	EE	AGF AGG AGH AGI G	V24 V24P V110 V230	S	AG A4	PSI MPA	WP	Z
Order example										
535 032	MS	12	- EE	- AGI	- V110	- S	- AG	- MPA	- WP	-

Ordering table		Grid dimension	[mm]	124	Condi- tions	Code	Enter code
M	Module No.	535 032					
	Series	Standard				MS	MS
	Size	12				12	12
	Function	On-off valve, electrical				-EE	-EE
	Connection size	Connecting plate G1				-AGF	
		Connecting plate G1¼				-AGG	
		Connecting plate G1½				-AGH	
		Connecting plate G2				-AGI	
		Module without connecting thread, without connecting plate				G	
	Supply voltage	24 V DC (connection pattern to EN 175301), 16 bar				-V24	
		24 V DC plug (connection pattern M12 to DESINA), 16 bar				-V24P	
		110 V AC (connection pattern to EN 175301), 16 bar				-V110	
		230 V AC (connection pattern to EN 175301), 16 bar				-V230	
O	Silencer	Silencer				-S	
	Pressure gauge/adapter	MS pressure gauge, bar				-AG	
		Adapter plate for EN pressure gauge ¼, without pressure gauge				-A4	
	Alternative pressure gauge scale	psi			1	-PSI	
		MPa			1	-MPA	
	Type of mounting	Wall mounting plate			2	-WP	
	Alternative flow direction	Flow direction from right to left				-Z	

1 **PSI, MPA** Only with pressure gauge AG.

2 **WP** Only with connecting plate AGF, AGG, AGH or AGI.

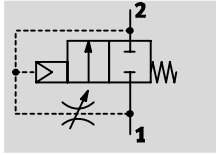
Transfer order code




535 032	MS	12	- EE	-		-		-		-		-		-	
----------------	-----------	-----------	-------------	---	--	---	--	---	--	---	--	---	--	---	--

Soft-start valves MS12-DL, MS series

Technical data

Function



-  Flow rate
25,000 ... 42,000 l/min
-  Temperature range
-10 ... +60 °C
-  Operating pressure
2 ... 21 bar



The duration of the pressure build-up is adjusted using the restrictor attached to the valve cap. The output pressure p2 rises slowly in accordance with the restrictor setting. The main seat opens when the switch-through pressure is reached.

When the valve is exhausted, the main seat remains open until the switch-through pressure is reached. The rest of the exhaust procedure is performed using the restrictor.

- Pneumatically actuated soft-start valve for slowly pressurising and venting pneumatic installations (for use with on-off valves EM and EE)
- The drives advance slowly and reliably into the initial position
- Sudden and erratic movements are avoided
- Pressure switching approx. 75% of input pressure
- Adjustable switching time delay

General technical data					
		MS12			
Pneumatic connection 1 ¹⁾		G1	G1¼	G1½	G2
Pneumatic connection 2 ¹⁾		G1	G1¼	G1½	G2
Operating medium		Compressed air			
Design		Piston poppet valve			
Type of mounting		Via accessories			
		In-line installation			
Assembly position		Any			
Operating pressure	[bar]	2 ... 21			
Valve function		2/2-way valve			
Exhaust function		Flow control			
Type of reset		Mechanical spring			
Type of actuation		Direct			
Pilot air supply		Internal			
Direction of flow		Non-reversible			

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 3/2.31-0

Standard nominal flow rate qnN ¹⁾ [l/min]		
		MS12
In main flow direction	1 → 2	25,000 ... 42,000
In relief direction	2 → 1	25,000 ... 42,000

1) Measured at p1 = 6 bar and p2 = 5 bar, Δp = 1 bar

Soft-start valves MS12-DL, MS series

Technical data

Ambient conditions		
		MS12
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	-10 ... +60
Corrosion resistance class CRC ¹⁾		2

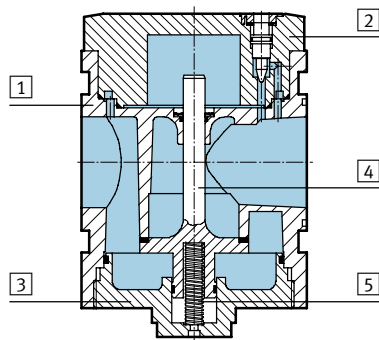
1) Corrosion resistance class 2 according to Festo standard 940 070

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 [g]	
MS12	
Soft-start valve	3 600

Materials

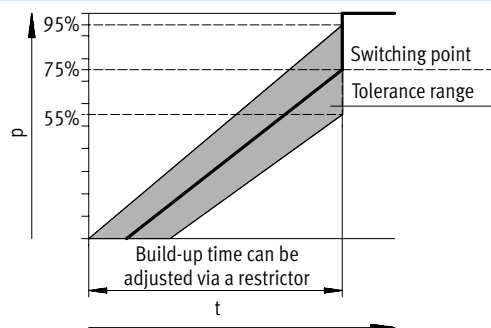
Sectional view



Soft-start valve		
1	Body	Die-cast aluminium
2	Cap, top	Aluminium
3	Cap, bottom	Aluminium
4	Valve stem	Aluminium, nitrile rubber
5	Springs	Steel
-	Covers/cover plates	Polyamide
-	Seals	Nitrile rubber
	Note on materials	Free of copper and PTFE only with cover plate (without pressure gauge AG)

Switching point

Pressure p as a function of time t

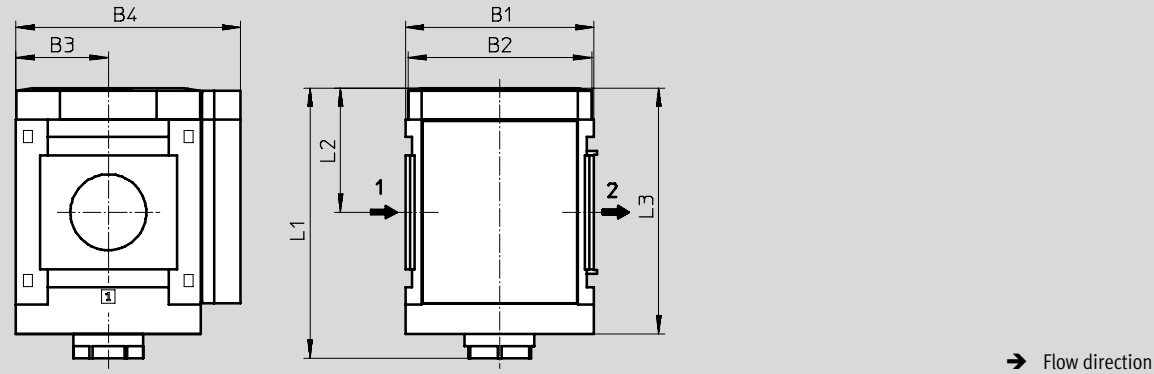


Soft-start valves MS12-DL, MS series

Technical data

Dimensions – Standard

Download CAD data → www.festo.com/en/engineering



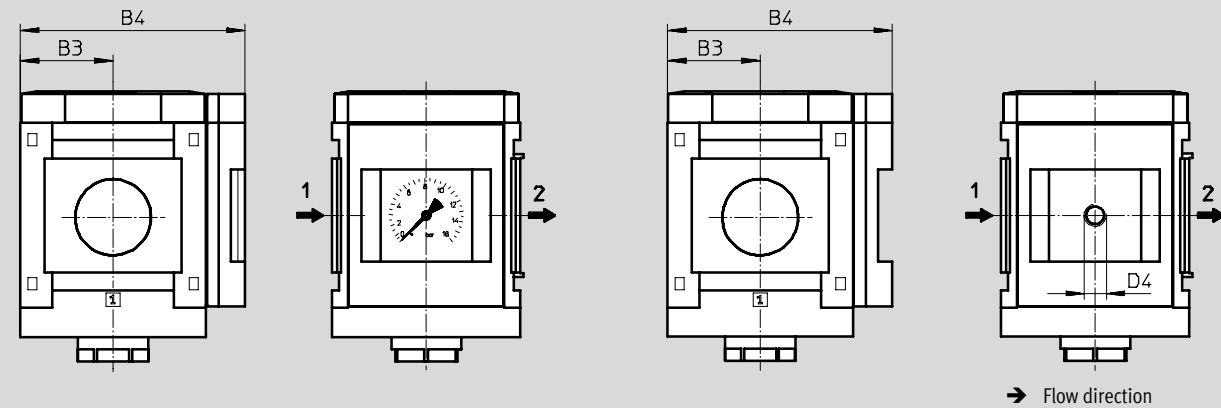
Type	B1	B2	B3	B4	L1	L2	L3
MS12-DL	124	122	61	148	178	82	162

Dimensions – Pressure gauges/adapters

Download CAD data → www.festo.com/en/engineering

Integrated MS pressure gauge AG, display unit [bar]

Adapter A4 for EN pressure gauge 1/4, without pressure gauge



Type	B3	B4	D4
MS12-DL-...-AG	61	148	-
MS12-DL-...-A4	61	148	G1/4

Ordering data

Size	Connection	Part No.	Type
Flow direction from left to right			
MS12	G1 ... G2 ¹⁾	541 497	MS12-DL-G²⁾

- 1) Connecting plate must be ordered separately as an accessory → 3/2.31-0
 2) Free of copper and PTFE

Soft-start valves MS12-DL, MS series

Ordering data – Modular products

M Mandatory data					O Options			
Module No.	Series	Size	Function	Connection size	Pressure gauge/adaptor	Alternative pressure gauge scale	Type of mounting	Alternative flow direction
535 033	MS	12	DL	AGF AGG AGH AGI G	AG A4	PSI MPA	WP	Z
Order example								
535 033	MS	12	- DL	- AGI	- AG	- MPA	- WP	- Z

Ordering table		Grid dimension	[mm]	124	Condi- tions	Code	Enter code
M	Module No.	535 033					
	Series	Standard				MS	MS
	Size	12				12	12
	Function	Soft-start valve, pneumatic				-DL	-DL
	Connection size	Connecting plate G1				-AGF	
		Connecting plate G1¼				-AGG	
		Connecting plate G1½				-AGH	
		Connecting plate G2				-AGI	
		Module without connecting thread, without connecting plate				-G	
O	Pressure gauge/adaptor	MS pressure gauge, bar				-AG	
		Adapter plate for EN pressure gauge ¼, without pressure gauge				-A4	
	Alternative pressure gauge scale	psi			1	-PSI	
		MPa			1	-MPA	
	Type of mounting	Wall mounting plate			2	-WP	
	Alternative flow direction	Flow direction from right to left				-Z	

1 PSI, MPA Only with pressure gauge AG.

2 WP Only with connecting plate AGF, AGG, AGH or AGI.

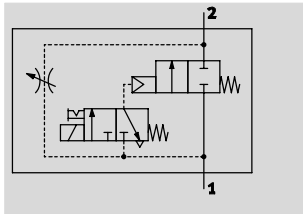
Transfer order code




535 033 MS 12 - DL - - - - -

Soft-start valves MS12-DE, MS series

Technical data

Function



-  Flow rate
25,000 ... 42,000 l/min
-  Temperature range
-10 ... +50 °C
-  Operating pressure
3 ... 16 bar



The duration of the pressure build-up is adjusted using the restrictor attached to the valve cap.

The output pressure p2 rises slowly in accordance with the restrictor setting. Only the air flow from the restrictor is available when the solenoid valve is not actuated. The main seat is only opened by energising the solenoid valve.

When the solenoid valve is switched off, the main seat is closed and only the air flow from the flow control valve is available.

The solenoid valve should remain switched on in order to vent a system as this increases the flow rate from 2 and 1 and reduces the exhaust time.

- Solenoid actuated soft-start valve for slowly pressurising and venting pneumatic installations
- The drives advance slowly and reliably into the initial position
- Sudden and erratic movements are avoided
- With solenoid coil without plug socket
- Switch-through pressure can be exactly controlled using a solenoid valve
- Adjustable switching time delay
- Three voltage ranges can be selected
- Non-detenting manual override (except variant V24P)

General technical data		MS12			
Pneumatic connection 1 ¹⁾		G1	G1¼	G1½	G2
Pneumatic connection 2 ¹⁾		G1	G1¼	G1½	G2
Operating medium		Compressed air			
Design		Piston poppet valve			
Type of mounting		Via accessories			
		In-line installation			
Assembly position		Any			
Operating pressure	[bar]	3 ... 16			
Valve function		2/2-way valve			
Exhaust function		Flow control			
Type of reset		Mechanical spring			
Switching position display		Via accessories			
		LED (with variant V24P)			
Type of actuation		Piloted			
Pilot air supply		Internal			
Direction of flow		Non-reversible			
Supply voltage					
Coil characteristics	V24	24 V DC			
	V110	110 V AC			
	V230	230 V AC			

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 3/2.31-0

Soft-start valves MS12-DE, MS series

Technical data

Standard nominal flow rate $q_{nN}^{1)}$ [l/min]		
		MS12
In main flow direction	1 → 2	25,000 ... 42,000
In relief direction ²⁾	2 → 1	25,000 ... 42,000

1) Measured at $p_1 = 6$ bar and $p_2 = 5$ bar, $\Delta p = 1$ bar

2) For energised solenoid valve

Ambient conditions		
		MS12
Ambient temperature	[°C]	-10 ... +50
Temperature of medium	[°C]	-10 ... +50
Corrosion resistance class CRC ¹⁾		2

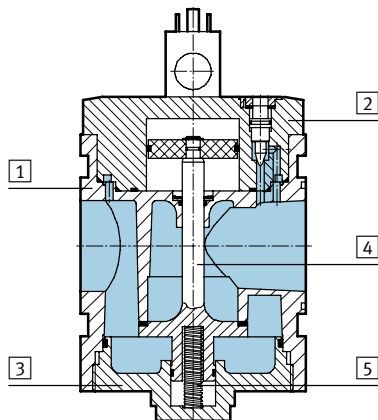
1) Corrosion resistance class 2 according to Festo standard 940 070

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 [g]	
MS12	
Soft-start valve	3,800

Materials

Sectional view



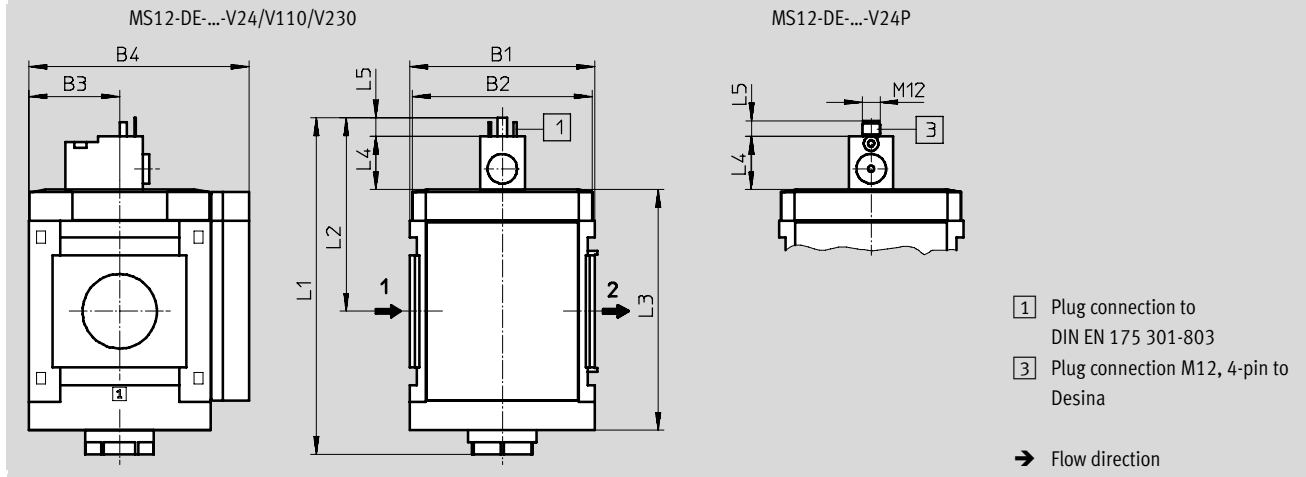
Soft-start valve		
1	Body	Die-cast aluminium
2	Cap, top	Aluminium
3	Cap, bottom	Aluminium
4	Valve stem	Aluminium, nitrile rubber
5	Springs	Steel
-	Covers/cover plates	Polyamide
-	Seals	Nitrile rubber
Note on materials		Free of copper and PTFE only with cover plate (without pressure gauge AG)

Soft-start valves MS12-DE, MS series

Technical data

Dimensions – Standard

Download CAD data → www.festo.com/en/engineering



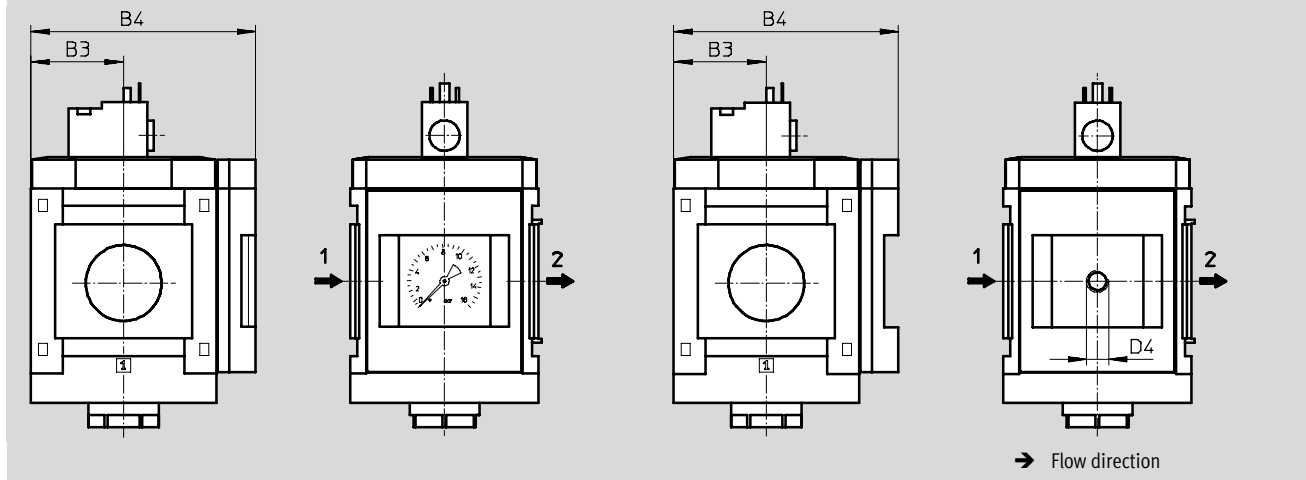
Type	B1	B2	B3	B4	L1	L2	L3	L4	L5
MS12-DE-...-V24/V110/V230	124	122	61	148	226	130	162	35.7	12.3
MS12-DE-...-V24P								36	10

Dimensions – Pressure gauges/adapters

Download CAD data → www.festo.com/en/engineering

Integrated MS pressure gauge AG, display unit [bar]

Adapter A4 for EN pressure gauge 1/4, without pressure gauge



Type	B3	B4	D4
MS12-DE-...-AG	61	148	-
MS12-DE-...-A4	61	148	G1/4

Ordering data

Size	Connection	Supply voltage 24 V DC
		Part No. Type
Flow direction from left to right		
MS12	G1 ... G2 ¹⁾	541 498 MS12-DE-G-V24 ²⁾

1) Connecting plate must be ordered separately as an accessory → 3/2.31-0

2) Free of copper and PTFE

Soft-start valves MS12-DE, MS series

Ordering data – Modular products

Mandatory data						Options			
Module No.	Series	Size	Function	Connection size	Supply voltage	Pressure gauge/adapter	Alternative pressure gauge scale	Type of mounting	Alternative flow direction
535 034	MS	12	DE	AGF AGG AGH AGI G	V24 V24P V110 V230	AG A4	PSI MPA	WP	Z
Order example									
535 034	MS	12	- DE	- AGH	- V230	- A4	-	- WP	- Z

Ordering table		Grid dimension [mm]	124	Condi-tions	Code	Enter code
M	Module No.	535 034				
	Series	Standard			MS	MS
	Size	12			12	12
	Function	Soft-start valve, electrical			-DE	-DE
	Connection size	Connecting plate G1			-AGF	
		Connecting plate G1¼			-AGG	
		Connecting plate G1½			-AGH	
		Connecting plate G2			-AGI	
		Module without connecting thread, without connecting plate			-G	
	Supply voltage	24 V DC (connection pattern to EN 175301), 16 bar			-V24	
		24 V DC plug (connection pattern M12 to DESINA), 16 bar			-V24P	
		110 V AC (connection pattern to EN 175301), 16 bar			-V110	
		230 V AC (connection pattern to EN 175301), 16 bar			-V230	
	Pressure gauge/adapter	MS pressure gauge, bar			-AG	
		Adapter plate for EN pressure gauge ¼, without pressure gauge			-A4	
	Alternative pressure gauge scale	psi		1	-PSI	
		MPa		1	-MPA	
	Type of mounting	Wall mounting plate		2	-WP	
	Alternative flow direction	Flow direction from right to left			-Z	

1 PSI, MPA Only with pressure gauge AG.

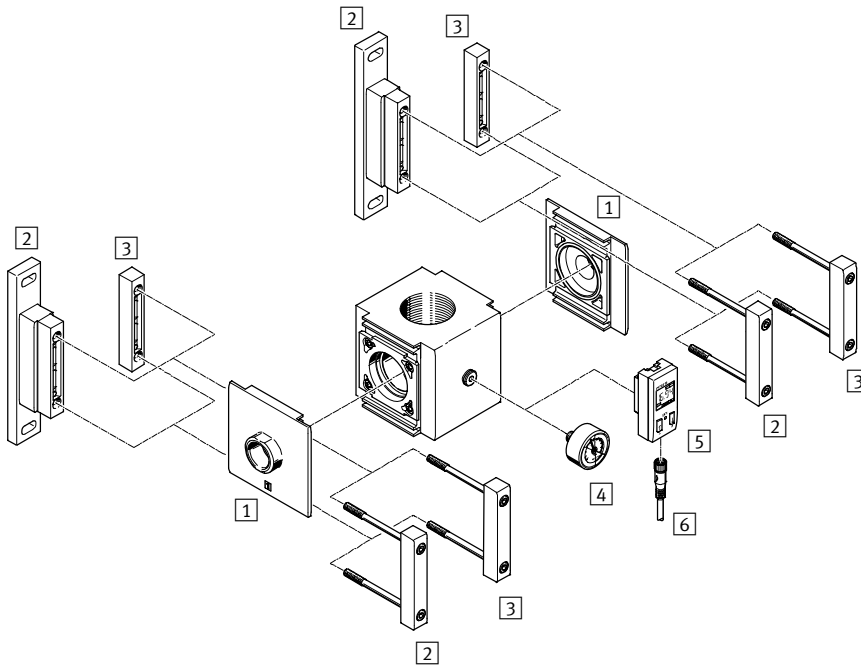
2 WP Only with connecting plate AGF, AGG, AGH or AGI.

Transfer order code

535 034 MS 12 - DE - - - - -

Branching modules MS12-FRM, MS series

Peripherals overview



Mounting attachments and accessories		→ Page
1	Connecting plate MS12-AG...	3/2.31-0
2	Wall mounting plate MS12-WP	3/2.31-7
3	Module connector MS12-MV	3/2.31-3
4	Pressure gauge MA	3/2.31-8
5	Pressure sensor SDE1...-R14/R18	3/2.31-12 Volume 4
6	Plug socket with cable SIM-M8-3.../SIM-M8-4.../SIM-M12-3...	3/2.31-13

Branching modules MS12-FRM, MS series

Type codes

		MS	12	-	FRM	-	G
Basic function							
MS	Standard service unit						
Size							
12	Grid dimension 124 mm						
Service function							
FRM	Branching module						
Connection size							
G	Module without connecting thread, without connecting plate Connecting plates → Accessories						

Further variants can be ordered using the modular system

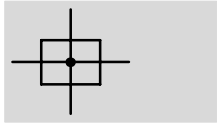
Branching modules FRM → 3 / 2.28-4




- Connecting plates
- Type of mounting

Branching modules MS12-FRM, MS series

Technical data

Function



-  - Flow rate
25,000 ... 42,000 l/min
-  - Temperature range
-10 ... +60 °C
-  - Operating pressure
0 ... 21 bar



- Pneumatic manifold with 4 connections
- Attachment facility for auxiliary modules
- Outlet top and bottom
- Can be used as an intermediate distributor for varying air qualities

General technical data					
		MS12			
Pneumatic connection 1 ¹⁾		G1	G1¼	G1½	G2
Pneumatic connection 2 ¹⁾		G1	G1¼	G1½	G2
Pneumatic connection 3		G2			
Pneumatic connection 4		G1			
Operating medium		Compressed air			
Design		Branching module			
Type of mounting		Via accessories			
		In-line installation			
Assembly position		Any			
Operating pressure	[bar]	0 ... 21			

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 3/2.31-0

Standard nominal flow rate q _N ¹⁾ [l/min]		
		MS12
In main flow direction	1 → 2	25,000 ... 42,000

1) Measured at p₁ = 6 bar and p₂ = 5 bar, Δp = 1 bar

Ambient conditions		
		MS12
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	-10 ... +60
Storage temperature	[°C]	-10 ... +60
Corrosion resistance class CRC ¹⁾		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.

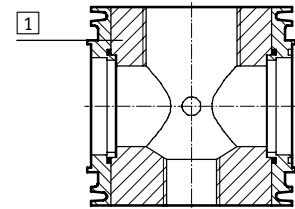
Branching modules MS12-FRM, MS series

Technical data

Weights [g]	
	MS12
Branching module	3,000

Materials

Sectional view



Branching module		
1	Body	Die-cast aluminium
-	Seals	Nitrile rubber
	Note on materials	Free of copper and PTFE

Dimensions – Standard

Download CAD data → www.festo.com/en/engineering

1) G $\frac{1}{4}$ Female thread in body, sealed with cover plate by default

→ Flow direction

Type	B1	B2	B3	D2	D3	D4	L1	L2
MS12-FRM	124	124	134	G2	G1	G $\frac{1}{4}$	122	61

Ordering data			
Size	Connection	Part No.	Type
Flow direction from left to right			
MS12	G1 ... G2 ¹⁾	541 681	MS12-FRM-G ²⁾

1) Connecting plate must be ordered separately as an accessory → 3/2.31-0
 2) Free of copper and PTFE

Branching modules MS12-FRM, MS series

Ordering data – Modular products

M Mandatory data				O Options	
Module No.	Series	Size	Function	Connection size	Type of mounting
535 035	MS	12	FRM	AGF AGG AGH AGI G	WP
Order example					
535 035	MS	12	- FRM	- AGF	- WP

Ordering table					
Grid dimension	[mm]	124	Condi- tions	Code	Enter code
M	Module No.	535 035			
	Series	Standard		MS	MS
	Size	12		12	12
	Function	Branching module		-FRM	-FRM
	Connection size	Connecting plate G1		-AGF	
		Connecting plate G1¼		-AGG	
		Connecting plate G1½		-AGH	
		Connecting plate G2		-AGI	
		Module without connecting thread, without connecting plate		-G	
O	Type of mounting	Wall mounting plate	1	-WP	

1 WP Only with connecting plate AGF, AGG, AGH or AGI.

Transfer order code

535 035	MS	12	- FRM	-		-	
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MS series service units

Accessories

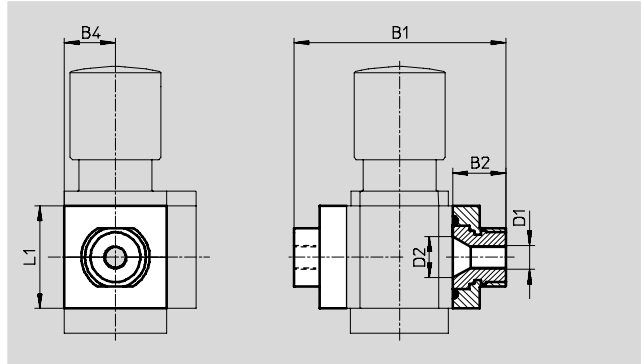
FESTO

Connecting plate MS4/6-AG...

(order code: AG...)

- Adapter for pneumatic connection
- MS6-AGE for implementing threaded connection G $\frac{3}{4}$

Material:
Aluminium



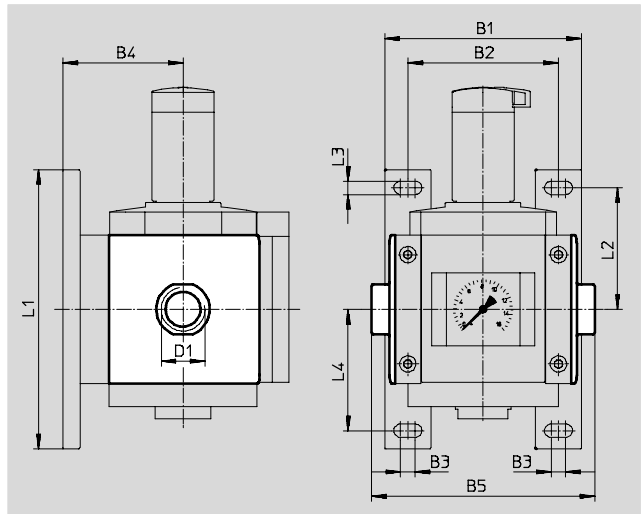
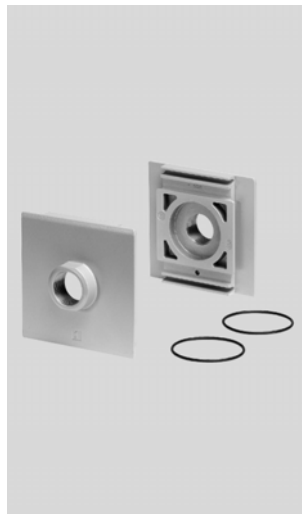
Dimensions and ordering data										
Size	B1	B2	B4	D1	D2	L1	Weight [g]	Part No.	Type	
MS4	83.5	21.5	21	G $\frac{1}{8}$	16.8	42	128	526 068	MS4-AGA	
				G $\frac{1}{4}$					MS4-AGB	
				G $\frac{3}{8}$					MS4-AGC	
MS6	115	26.5	31	G $\frac{1}{4}$	24	62	300	526 080	MS6-AGB	
				G $\frac{3}{8}$					MS6-AGC	
				G $\frac{1}{2}$					MS6-AGD	
				G $\frac{3}{4}$					MS6-AGE	

Connecting plate MS12-AG...

(order code: AG...)

- Adapter for pneumatic connection

Material:
Die-cast aluminium
Free of copper, PTFE and silicone



Dimensions and ordering data													
Size	B1	B2	B3	B4	B5	D1	L1	L2	L3	L4	Weight [g]	Part No.	Type
MS12	162	124	12	99	184	G1	230	100	11	100	1 300	537 135	MS12-AGF
					184	G1 $\frac{1}{4}$							MS12-AGG
					184	G1 $\frac{1}{2}$							MS12-AGH
					196	G2							MS12-AGI

MS series service units

Accessories



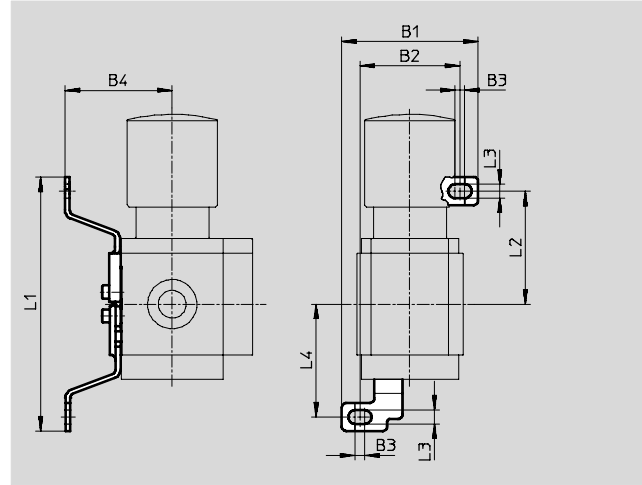
Wall mounting bracket MS4/6-WB

(order code: WB)

■ For wall mounting

Material:

Steel



Dimensions and ordering data											
Size	B1	B2	B3	B4	L1	L2	L3	L4	Weight [g]	Part No.	Type
MS4	56.2	41.2	4	44.2	104.6	46.6	5.6	46.5	46	532 185	MS4-WB
MS6	79.4	61.9	4.5	55	157.6	71	6.6	71	121	532 196	MS6-WB

Wall mounting bracket MS4-WBM

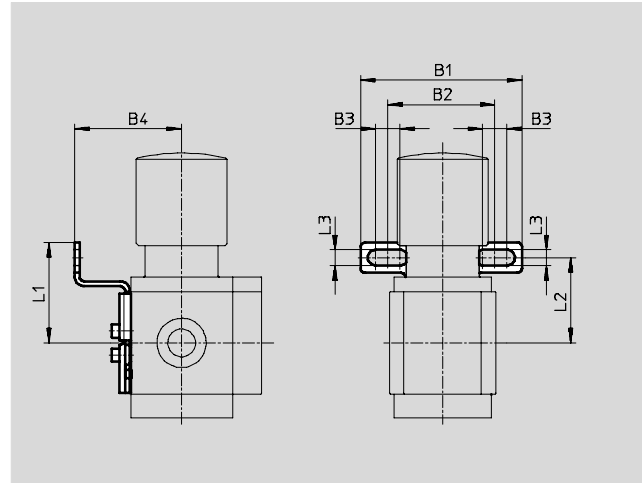
(order code: WBM)

■ For wall mounting

■ Also matches the hole pattern of M series service units for retrofitting

Material:

Steel



Dimensions and ordering data											
Size	B1	B2	B3	B4	L1	L2	L3	Weight [g]	Part No.	Type	
MS4	66.5	44	10	44	41.3	35	6.5	48	526 062	MS4-WBM	

MS series service units

Accessories



Regulator wall bracket MS4/6-WR

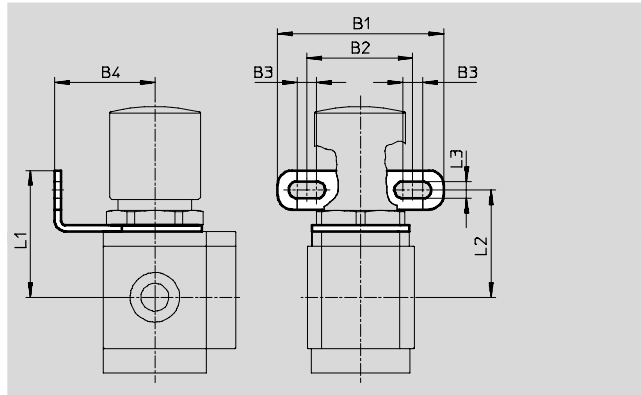
(order code: WR)

- For wall mounting
- For filter regulator, pressure regulator

Material:
Steel

- Note

The hex nut for attaching components to this bracket must be ordered separately.

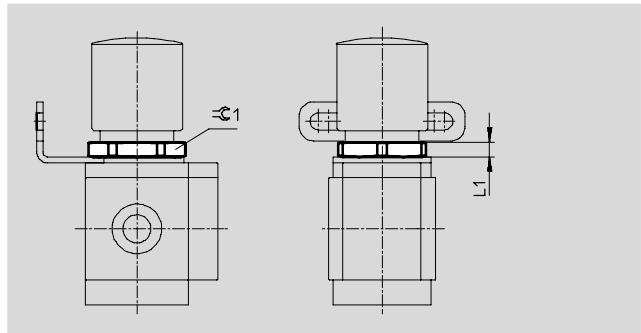


Dimensions and ordering data										
Size	B1	B2	B3	B4	L1	L2	L3	Weight [g]	Part No.	Type
MS4	68	44	8	41	52	44	7	49	526 064	MS4-WR
MS6	70	42	8.2	40	67	57	7.1	90	526 075	MS6-WR

Hex nut MS4/6-WRS

- For front panel mounting
- For attaching components to the regulator wall bracket MS...-WR

Material:
Aluminium



Dimensions and ordering data					
Size	L1	⌀ 1	Weight [g]	Part No.	Type
MS4	6	36	6.9	532 187	MS4-WRS
MS6	7	55	20.9	532 188	MS6-WRS

MS series service units

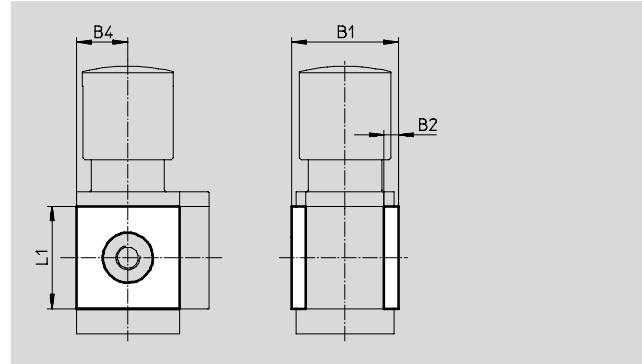
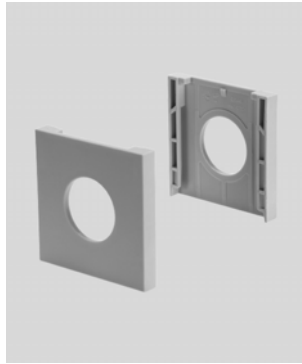
FESTO

Accessories

Cover cap MS4/6-END

- Can be used to cover the body sides of the first and last module if connecting plates are not used

Material:
Polyamide, reinforced



Dimensions and ordering data						
Size	B1	B2	B4	L1	Part No.	Type
MS4	43.6	6	21	42	538 779	MS4-END
MS6	67	8	31	62	538 780	MS6-END

Module connector MS...-MV

- For connecting modules

Material:
MS4/6: Stainless steel/polyacetate

MS12: Die-cast aluminium,
free of copper, PTFE and silicone



Ordering data			
Size	Weight [g]	Part No.	Type
MS4	36	532 798	MS4-MV
MS6	54	532 799	MS6-MV
MS12	500	537 134	MS12-MV

MS series service units

Accessories



MS series service units
Accessories

2.31

Wall mounting plate MS4/6-WP...

Clearances for mounting service unit combinations

1 unit

MS4-...: 40 mm

MS6-...: 62 mm

2 units

MS4-...: 80 mm

MS6-...: 124 mm with WP, WPB

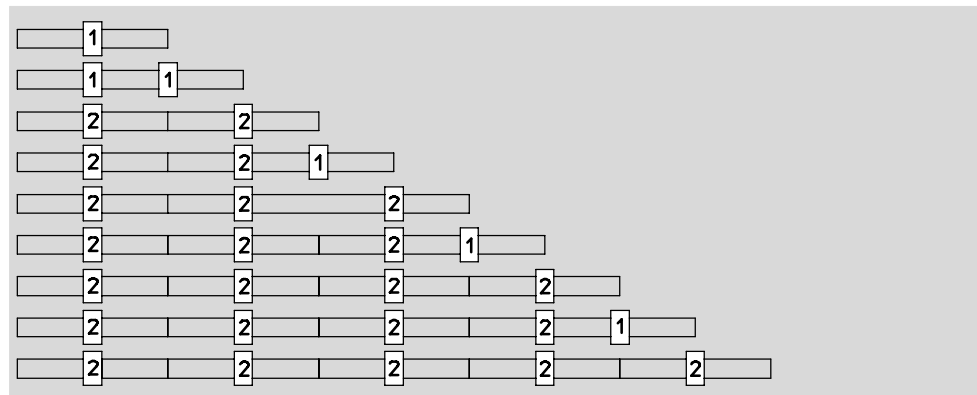
138 mm with WPM-2D

1 Wall mounting plate WP, WPB or WPM-D

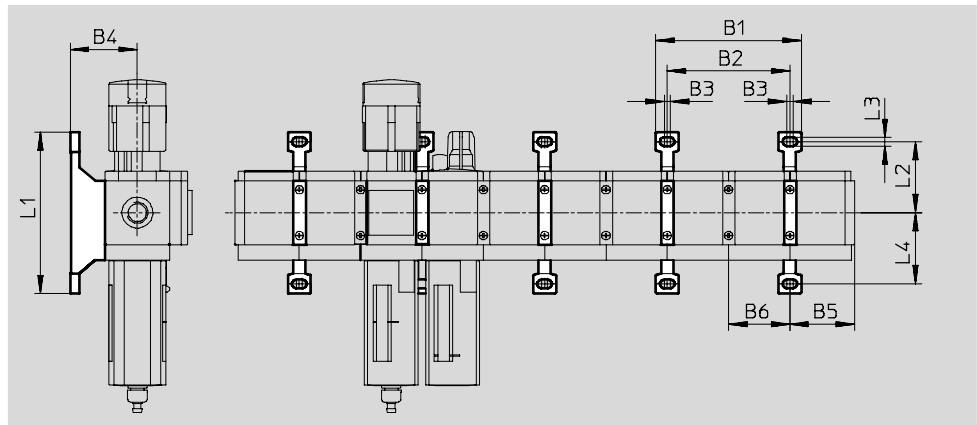
2 Wall mounting plate WP, WPB or WPM-2D

Number of units

1 2 3 4 5 6 7 8 9 10



Mounting dimensions



Type	B1	B2	B3	B4	B5	B6	L1	L2	L3	L4
MS4-WP	95.2	80	4	44	41.9	40	106	46.5	5.6	46.7
MS4-WPB				66						
MS4-WPM-...D				44						
MS6-WP	141	124	4.5	54	64.5	62	158	71	6.6	71
MS6-WPB				90.5						
MS6-WPM-...D				54						
MS6-WPM-...D	168	138	17.5	54	65.5	69	98.6	41.3		41.3

MS series service units

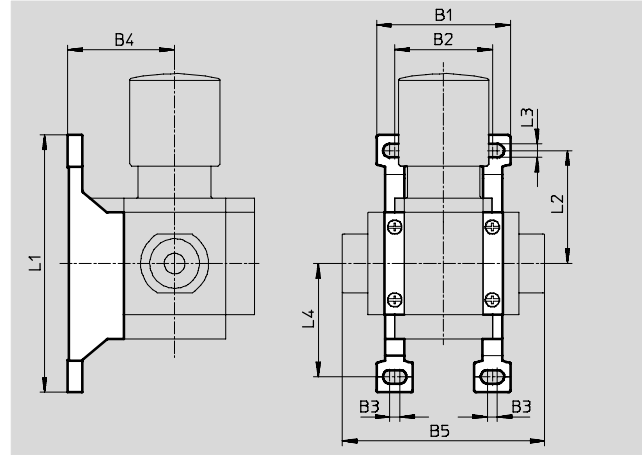
Accessories

Wall mounting plate MS4/6-WP

(order code: WP)

- For connecting the modules for wall mounting
- In combination with a connecting plate for mounting an individual unit on a wall
- For pressure regulator LRB with angled outlet block B... at rear

Material:
Die-cast aluminium



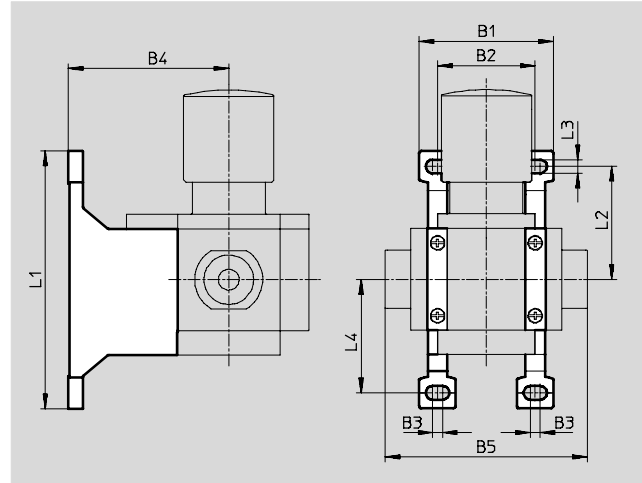
Dimensions and ordering data												
Size	B1	B2	B3	B4	B5	L1	L2	L3	L4	Weight [g]	Part No.	Type
MS4	55.2	40.2	4	44	83.4	106	46.5	5.6	46.7	39	532 184	MS4-WP
MS6	79	62	4.5	54	115	158	71	6.6	71	76	532 195	MS6-WP

Wall mounting plate MS4/6-WPB

(order code: WPB)

- For connecting the modules for wall mounting
- In combination with a connecting plate for mounting an individual unit on a wall
- Provides large wall gap for pressure regulator LRB

Material:
Die-cast aluminium



Dimensions and ordering data												
Size	B1	B2	B3	B4	B5	L1	L2	L3	L4	Weight [g]	Part No.	Type
MS4	55.2	40.2	4	66	83.4	106	46.5	5.6	46.7	55	526 063	MS4-WPB
MS6	79	62	4.5	90.5	115	158	71	6.6	71	115	526 074	MS6-WPB

MS series service units

Accessories

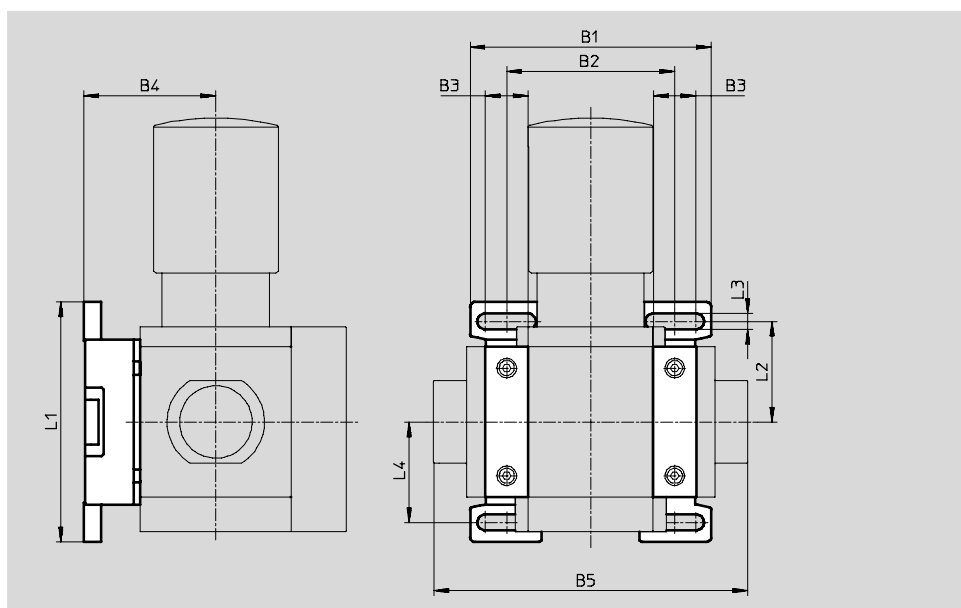
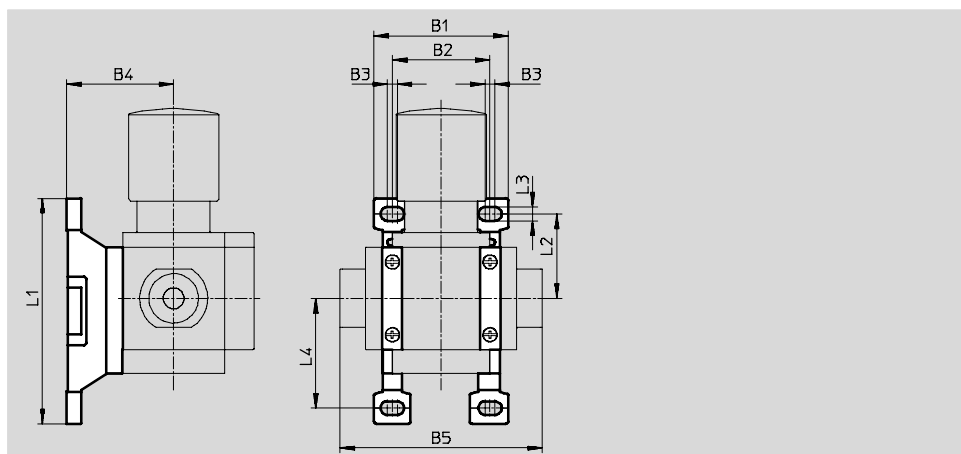
Wall mounting plate MS4/6-WPM (order code: WPM)

- For connecting the modules for wall mounting
- In combination with a connecting plate for mounting an individual unit on a wall
- Speedy attachment and detachment
- For installation of modules with regulating knob pointing downwards

- Also matches the hole pattern of M series service units for retrofitting

The distance piece D or 2D (designated in the type code) is included in the scope of delivery and ensures the correct clearance.

Material:
Die-cast aluminium



Dimensions and ordering data													
Size	B1	B2	B3	B4	B5	L1	L2	L3	L4	Clearance	Weight [g]	Part No.	Type
MS4	55.2	40	4	44	83.4	92.8	34.8	5.6	40	40	45	526 060	MS4-WPM-D
	95.2	80			123.4					80	55	526 061	MS4-WPM-2D
MS6	99	69	17.5	54	129	98.6	41.3	6.6	41.3	62	144	526 073	MS6-WPM-D
	168	138			198					124	154	532 186	MS6-WPM-2D

MS series service units

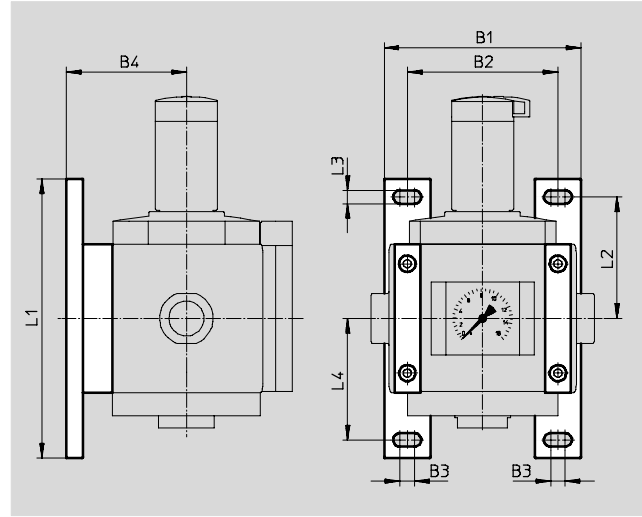
Accessories

Wall mounting plate MS12-WP

(order code: WP)

- For connecting the modules for wall mounting
- In combination with a connecting plate for mounting an individual unit on a wall

Material:
Die-cast aluminium
Free of copper, PTFE and silicone



Dimensions and ordering data											
Size	B1	B2	B3	B4	L1	L2	L3	L4	Weight [g]	Part No.	Type
MS12	162	124	12	99	230	100	11	100	700	537 133	MS12-WP

Module connector MS4/6-MVM

- For installation of modules with regulating knob pointing downwards
- As a spacer when exchanging M series service units

Material:
Die-cast aluminium



Ordering data		
Size	Part No.	Type
MS4	532 800	MS4-MVM
MS6	532 801	MS6-MVM

MS series service units

Accessories



Pressure gauge MA

Further pressure gauges
 → NO TAG
 → www.festo.com



Ordering data		Technical data → NO TAG	
Ordering data		Technical data → www.festo.com	
Pneumatic connection	Part No.	Type	
R ¹ / ₈	525 726	MA-40-16-R ¹ / ₈ -EN-RG	
R ³ / ₄	525 729	MA-40-16-R ³ / ₄ -EN-RG	
G ¹ / ₄	183 901	MA-40-16-G ¹ / ₄ -EN	

Silencer U

Further silencers
 → NO TAG
 → www.festo.com



Ordering data		Technical data → NO TAG	
Ordering data		Technical data → www.festo.com	
Size	Pneumatic connection	Part No.	Type
MS4	G ¹ / ₄	6 842	U- ¹ / ₄ -B
MS6	G ¹ / ₂	6 844	U- ¹ / ₂ -B
MS12	G1	151 990	U-1-B

Plug socket MSSD-EB


For on-off valve MS4/6-EE and soft-start valve MS4/6-DE

Plug socket MSSD-C

For on-off valve MS12-EE and soft-start valve MS12-DE



Ordering data		Technical data → Volume 2	
Ordering data		Technical data → www.festo.com	
Size	Type of mounting	Part No.	Type
MS4/6	Connections via screw system	151 687	MSSD-EB
	Insulation displacement technology	192 745	MSSD-EB-S-M14
MS12	Connections via screw system	34 583	MSSD-C
	Insulation displacement technology	192 748	MSSD-C-S-M16

 Core Range

MS series service units

Accessories

FESTO

Plug socket with cable KMEB with LED

For on-off valve MS4/6-EE and soft-start valve MS4/6-DE



Plug socket with cable KMC with LED

For on-off valve MS12-EE and soft-start valve MS12-DE

Ordering data				Technical data → Volume 2 Technical data → www.festo.com	
Size	Operating voltage range	Switching status display	Cable length [m]	Part No.	Type
MS4/6	24 V DC	LED	2.5	151 688	KMEB-1-24-2,5-LED
	24 V DC	LED	5	151 689	KMEB-1-24-5-LED
	24 V DC	LED	10	193 457	KMEB-1-24-10-LED
	230 V AC	–	2.5	151 690	KMEB-1-230AC-2,5
	230 V AC	–	5	151 691	KMEB-1-230AC-5
MS12	24 V DC	LED	2.5	30 931	KMC-1-24DC-2,5-LED
	24 V DC	LED	5	30 933	KMC-1-24DC-5-LED
	24 V DC	LED	10	193 459	KMC-1-24-10-LED
	230 V AC	–	2.5	30 932	KMC-1-230AC-2,5
	230 V AC	–	5	30 934	KMC-1-230AC-5

Illuminating seal MEB-LD

For plug socket with cable KMEB and plug socket MSSD-EB



Illuminating seal MC-LD

For plug socket with cable KMC and plug socket MSSD-C

Ordering data			Technical data → Volume 2 Technical data → www.festo.com	
Size	Operating voltage range	Part No.	Type	
MS4/6	12 ... 24 V DC	151 717	MEB-LD-12-24DC	
	230 V DC/AC ±10%	151 718	MEB-LD-230AC	
MS12	12 ... 24 V DC	19 145	MC-LD-12-24DC	
	230 V DC/AC ±10%	19 146	MC-LD-230AC	

Core Range

MS series service units



Accessories

Pressure switch PEV
(order code: X/Y/M12)

Other pressure switches
 → Volume 4
 → www.festo.com



PEV-1/4-SC-OD



PEV-1/4-B-OD



PEV-1/4-B-M12

Ordering data				Technical data → Volume 4	
Ordering data				Technical data → www.festo.com	
Pneumatic connection	Pressure switching point	Electrical connection	Order code	Part No.	Type
G ¹ / ₄	Adjustable with visual scale	Plug, square design to DIN EN 175 301, type A	X	161 760	PEV-1/4-SC-OD
	Adjustable		Y	175 250	PEV-1/4-B-OD
	Adjustable	Plug M12x1, 4-pin	M12	192 488	PEV-1/4-B-M12

Angled socket

For pressure switch PEV-1/4-...-OD



Ordering data		Technical data → Volume 2	
Ordering data		Technical data → www.festo.com	
Operating voltage range		Part No.	Type
AC	DC	171 157	MSSD-C-4P
≤ 250 V	≤ 250 V		

Angled socket

With LED for pressure switch PEV-1/4-...-OD



Ordering data			Technical data → Volume 4	
Ordering data			Technical data → www.festo.com	
Operating voltage range		Switching status display	Part No.	Type
AC	DC	Yellow LED	164 274	PEV-1/4-WD-LED-24
-	15 ... 30 V			
≤ 230 V	≤ 180 V	Yellow LED	164 275	PEV-1/4-WD-LED-230

MS series service units

Accessories

FESTO

Pressure sensor SDE1-...-H18/W18

(order code: AD5/AD6)

with female thread

Pressure sensor SDE1-...-R14/R18

With male thread for direct mounting on the service unit with pressure gauge connection

Further pressure sensors

→ Volume 4

→ www.festo.com



Ordering data					Technical data → Volume 4	
Ordering data					Technical data → www.festo.com	
Electrical output	Electrical connection	Display	Order code	Part No.	Type	
Female thread G1/8, pressure measuring range 0 ... 10 bar, relative pressure measurement						
1 switch output PNP	M8x1, 3-pin	LCD	AD5	192 030	SDE1-D10-G2-H18-C-P1-M8	
2 switch outputs PNP and 4 ... 20 mA analogue	M12x1, 5-pin	Illuminated LCD	AD6	534 062	SDE1-D10-G2-W18-L-2I-M12	
Male thread R1/4, pressure measuring range 0 ... 10 bar, relative pressure measurement						
1 switch output PNP	M8x1, 3-pin	LCD	-	192 026	SDE1-D10-G2-R18-C-P1-M8	
	M8x1, 3-pin	Illuminated LCD	-	529 970	SDE1-D10-G2-R18-L-P1-M8	
	M12x1, 3-pin	Illuminated LCD	-	534 064	SDE1-D10-G2-R18-L-P1-M12	
2 switch outputs PNP	M8x1, 4-pin	LCD	-	192 027	SDE1-D10-G2-R18-C-P2-M8	
	M8x1, 4-pin	Illuminated LCD	-	529 971	SDE1-D10-G2-R18-L-P2-M8	
1 switch output PNP and 0 ... 10 V analogue	M8x1, 4-pin	LCD	-	529 958	SDE1-D10-G2-R18-C-PU-M8	
	M8x1, 4-pin	Illuminated LCD	-	529 972	SDE1-D10-G2-R18-L-PU-M8	
Male thread R1/4, pressure measuring range 0 ... 10 bar, relative pressure measurement						
1 switch output PNP	M8x1, 3-pin	LCD	-	192 028	SDE1-D10-G2-R14-C-P1-M8	
	M8x1, 3-pin	Illuminated LCD	-	529 967	SDE1-D10-G2-R14-L-P1-M8	
	M12x1, 3-pin	Illuminated LCD	-	534 157	SDE1-D10-G2-R14-L-P1-M12	
2 switch outputs PNP	M8x1, 4-pin	LCD	-	192 029	SDE1-D10-G2-R14-C-P2-M8	
	M8x1, 4-pin	Illuminated LCD	-	529 968	SDE1-D10-G2-R14-L-P2-M8	
1 switch output PNP and 0 ... 10 V analogue	M8x1, 4-pin	LCD	-	529 957	SDE1-D10-G2-R14-C-PU-M8	
	M8x1, 4-pin	Illuminated LCD	-	529 969	SDE1-D10-G2-R14-L-PU-M8	

MS series service units

Accessories

Plug socket with cable SIM-M8-3...
For pressure sensor SDE1

Material:
Polyurethane



Ordering data				Technical data → Volume 4	
Ordering data				Technical data → www.festo.com	
Electrical connection	Cable length [m]	Connection direction		Part No.	Type
		In-line	Lateral		
M8x1, 3-pin	2.5	■	–	159 420	SIM-M8-3GD-2,5-PU
		–	■	159 422	SIM-M8-3WD-2,5-PU
	5	■	–	159 421	SIM-M8-3GD-5-PU
		–	■	159 423	SIM-M8-3WD-5-PU
	10	■	–	192 964	SIM-M8-3GD-10-PU
		–	■	192 965	SIM-M8-3WD-10-PU

Plug socket with cable SIM-M8-4...
For pressure sensor SDE1

Material:
Polyurethane



Ordering data				Technical data → Volume 4	
Ordering data				Technical data → www.festo.com	
Electrical connection	Cable length [m]	Connection direction		Part No.	Type
		In-line	Lateral		
M8x1, 4-pin	2.5	■	–	158 960	SIM-M8-4GD-2,5-PU
		–	■	158 962	SIM-M8-4WD-2,5-PU
	5	■	–	158 961	SIM-M8-4GD-5-PU
		–	■	158 963	SIM-M8-4WD-5-PU

Core Range

MS series service units

Accessories

FESTO

Plug socket with cable SIM-M12-3...

For pressure sensor SDE1

Material:
Polyurethane



Ordering data				Technical data → Volume 4	
Ordering data				Technical data → www.festo.com	
Electrical connection	Cable length [m]	Connection direction		Part No.	Type
		In-line	Lateral		
M12x1, 3-pin	2.5	■	–	159 428	SIM-M12-3GD-2,5-PU
		–	■	159 430	SIM-M12-3WD-2,5-PU
	5	■	–	159 429	SIM-M12-3GD-5-PU
		–	■	159 431	SIM-M12-3WD-5-PU

Plug socket with cable SIM-M12-4...

For on-off/soft-start valve MS12-EE/
DE-...-V24P and
pressure switch PEV-1/4-B-M12

Material:
Polyurethane



Ordering data				Technical data → Volume 4	
Ordering data				Technical data → www.festo.com	
Electrical connection	Cable length [m]	Connection direction		Part No.	Type
		In-line	Lateral		
M12x1, 4-pin	5	■	–	164 259	SIM-M12-4GD-5-PU
		–	■	164 258	SIM-M12-4WD-5-PU

MS series service units

Accessories

FESTO

Plug socket with cable SIM-M12-5...

For flow sensor MS6-SFE and pressure sensor SDE1

Material:
Polyurethane



Ordering data				Technical data → Volume 4	
Ordering data				Technical data → www.festo.com	
Electrical connection	Cable length [m]	Connection direction		Part No.	Type
		In-line	Lateral		
M12x1, 5-pin	2.5	■	–	175 715	SIM-M12-5GD-2,5-PU
	5	■	–	175 716	SIM-M12-5GD-5-PU

MS series service units

Accessories

Double nipple ESK

Adjustable for angular compensation

- For retro-fitting pressure switch PEV or pressure sensor SDE1 to branching module MS-FRM

Material:

Brass



Ordering data				
Connection 1	Connection 2	Part No.	Type	PU*
R ¹ / ₈	R ³ / ₄	534 151	ESK-1/8-1/4	1
R ³ / ₄	R ³ / ₄	151 521	ESK-1/4-1/4	1
	R ¹ / ₂	534 153	ESK-1/4-1/2	1

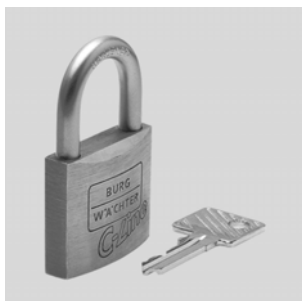
* Packaging unit quantity

Padlock LRVS-D

For filter or pressure regulators

Material:

Housing: Brass



Ordering data		
Weight [g]	Part No.	Type
120	193 786	LRVS-D