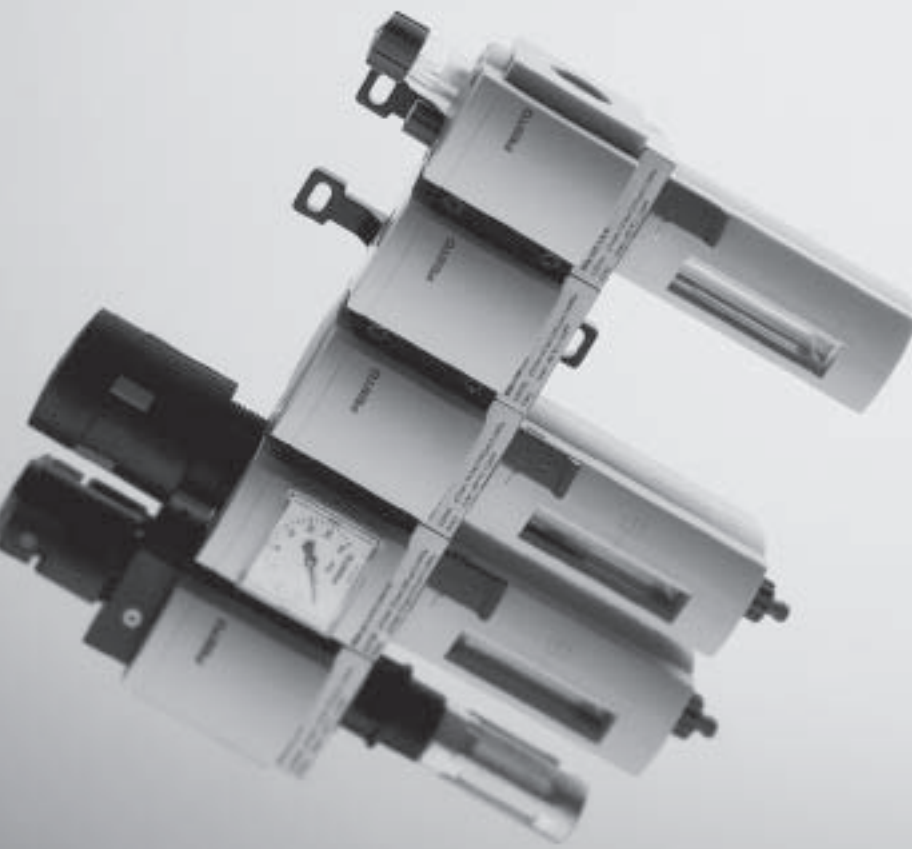


Wide range of configuration options
→ www.festo.com/en/engineering



- All variants available in two 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

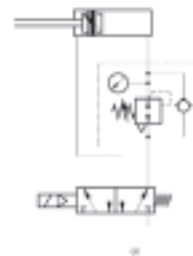
A breakthrough in compressed air preparation: the MS series



Lockable regulators for safety



Integrated return venting in the regulators as standard for high functionality



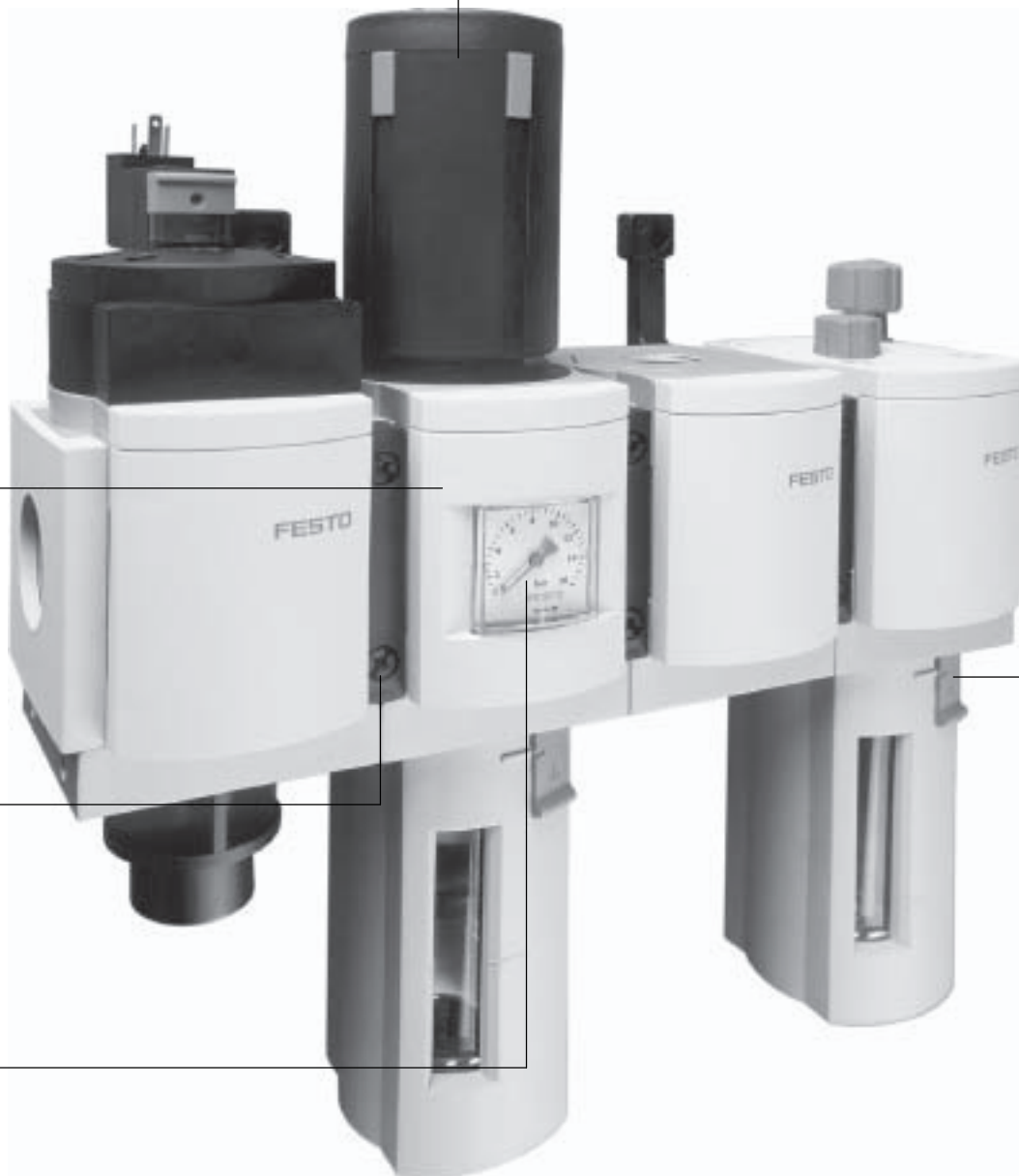
Straightforward module connectors for fast installation



Integrated pressure gauges save space and are less prone to interference

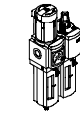
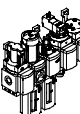
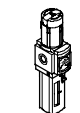
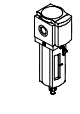
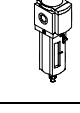
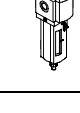


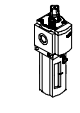


Latching filter bowls for safety



MS series service units

Product range overview

Type	Size	Pneumatic connection in housing	Connecting plate (A)	Pressure regulation range [bar]				Grade of filtration [µm]				Bowl guard	
				0.3 ... 4	0.3 ... 7	0.5 ... 12	0.5 ... 16	0.01 A	1 B	5 C	40 E	Plastic bowl guard R	Metal bowl guard U
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 units													
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, G1 ¹ / ₄ , G1 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, G1 ¹ / ₄ , G1 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, G1 ¹ / ₄ , G1 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, G1 ¹ / ₄ , G1 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, G1 ¹ / ₄ , G1 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, G1 ¹ / ₄ , G1 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	Without pressure gauge	Integrated pressure gauge	Adapter plate for EN pressure gauge G ¹ / ₈	Adapter plate for EN pressure gauge G ¹ / 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 units																	
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

Product range overview

Type	Size	Pneumatic connection in housing	Connecting plate (A)	Bowl guard		Supply voltage			
				Plastic bowl guard	Metal bowl guard	24 V DC	110 V AC	230 V AC	
				R	U	A	B	C	
Individual units									
On-off valves MS-EM		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	-	-	-	-	-	-	-
On-off valves MS-EE		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	-	-	-	-	-	-	-
Soft-start valves MS-DL		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	-	-	-	-	-	-	-
Soft-start valves MS-DE		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	-	-	-	-	-	-	-
Membrane dryers MS-LDM		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	-	-	-	-	-	-	-
Branching modules MS-FRM		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	-	-	-	-	-	-	-

MS series service units

Product range overview

Type	Size	Actuator lock		Pressure display				Options		→ Page
		Rotary knob, lockable	Rotary knob, long	Without pressure gauge	Integrated pressure gauge	Adapter plate for EN pressure gauge G ¹ / ₈	Adapter plate for EN pressure gauge G ¹ / ₄	Silencer	Flow direction from right to left	
		AS	LD	VS	AG	A8	A4	S	Z	
Individual units										
On-off valves MS-EM	4	-	-	■	■	■	■	■	■	3/2.16-1, 3/2.16-5
	6	-	-	■	■	-	■	■	■	
	12	-	-	-	-	-	-	-	-	
On-off valves MS-EE	4	-	-	■	■	■	■	■	■	3/2.16-1, 3/2.16-10
	6	-	-	■	■	-	■	■	■	
	12	-	-	-	-	-	-	-	-	
Soft-start valves MS-DL	4	-	-	■	■	■	■	-	■	3/2.16-1, 3/2.16-16
	6	-	-	■	■	-	■	-	■	
	12	-	-	-	-	-	-	-	-	
Soft-start valves MS-DE	4	-	-	■	■	■	■	-	■	3/2.16-1, 3/2.16-21
	6	-	-	■	■	-	■	-	■	
	12	-	-	-	-	-	-	-	-	
Membrane dryers MS-LDM	4	-	-	-	-	-	-	-	■	3/2.17-0
	6	-	-	-	-	-	-	-	■	
	12	-	-	-	-	-	-	-	-	
Branching modules MS-FRM	4	-	-	■	■	■	■	-	■	3/2.18-0
	6	-	-	■	■	-	■	-	■	
	12	-	-	-	-	-	-	-	-	

Service units MSB4/MSB6-FRC, MS series

Type codes



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:

- 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

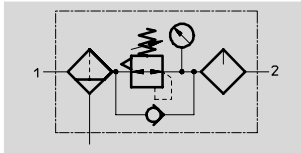
	Flow direction from left to right
Z	Flow direction from right to left

Service units MSB4/MSB6-FRC, MS series

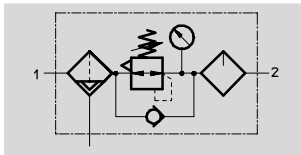
Technical data




Function

Condensate drain
manual rotary



fully automatic



-  - Flow rate
800 ... 4800 l/min
-  - Temperature range
-10 ... +60 °C
-  - Input pressure
1.5 ... 20 bar



- 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

General technical data					
		MSB4		MSB6	
Pneumatic connection		G ¹ / ₈	G ¹ / ₄	G ¹ / ₄	G ³ / ₈ G ¹ / ₂
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 [cm ³]					
Plastic bowl guard		30		75	
Metal bowl		-		80	

Service units MSB4/MSB6-FRC, MS series

Technical data



MS4/MS6 series service units
Service units

2.11

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

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

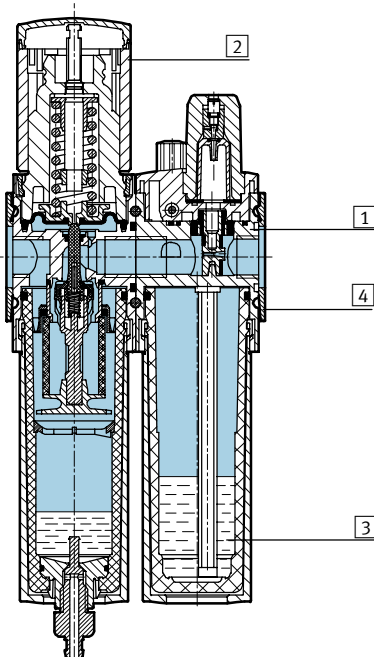
1) Corrosion resistance class 2 according to Festo standard 940 070

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



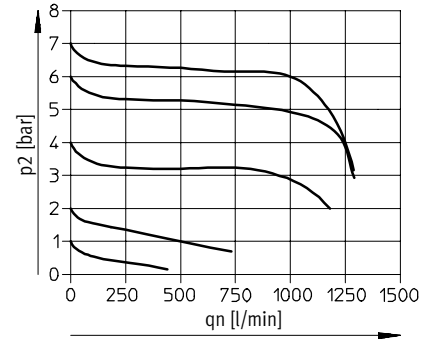
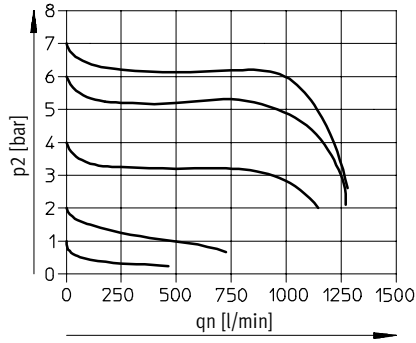
Service unit		
1	Body	Die-cast aluminium
2	Regulating knob	Polyamide/polyacetate
3	Bowl	Polycarbonate
4	Cover plates	Polyamide
-	Seals	Nitrile rubber

Service units MSB4/MSB6-FRC, MS series

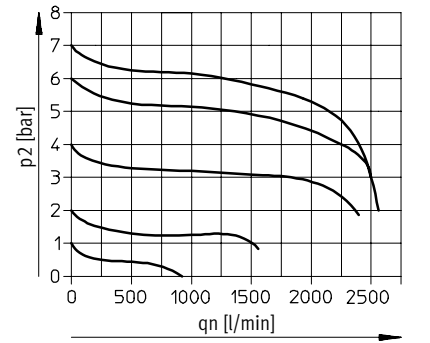
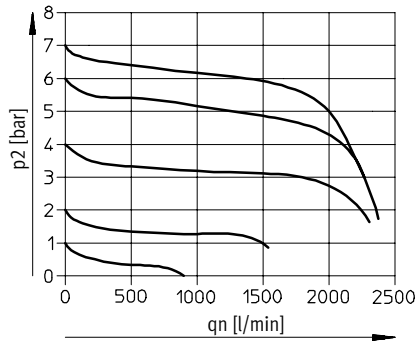
Technical data

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

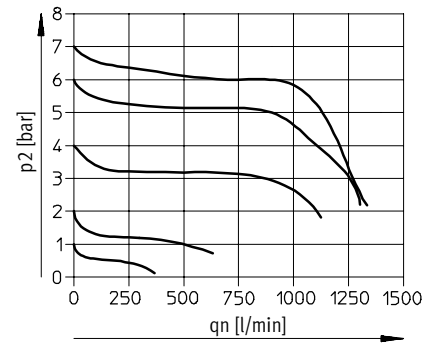
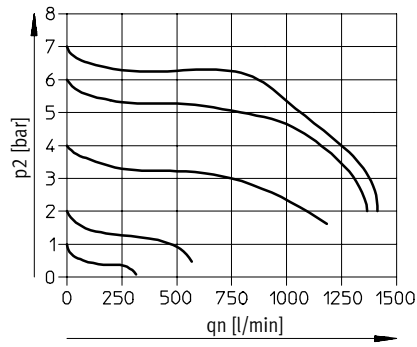
Pressure regulation range

Grade of filtration 5 μm

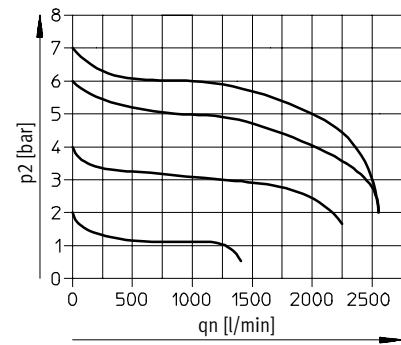
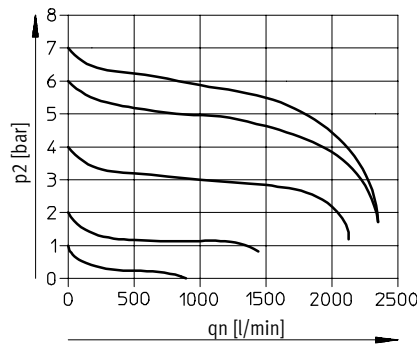
Grade of filtration 40 μm

0.5 ... 12 bar

MSB4-1/8



MSB4-1/4



Primary pressure $p_1 = 10$ bar

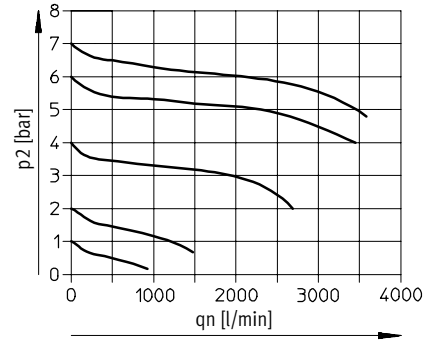
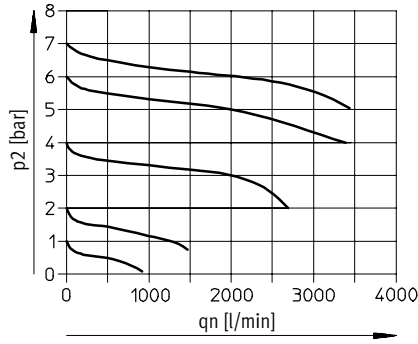
Service units MSB4/MSB6-FRC, MS series



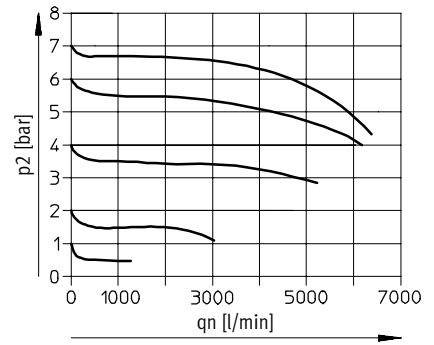
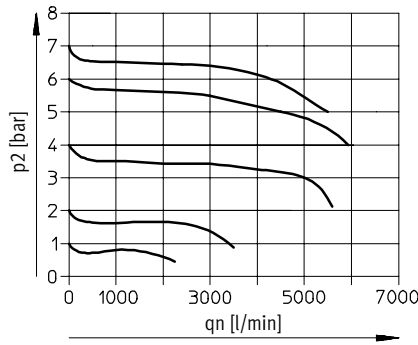
Technical data

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		

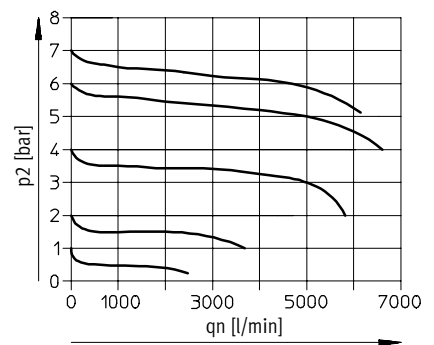
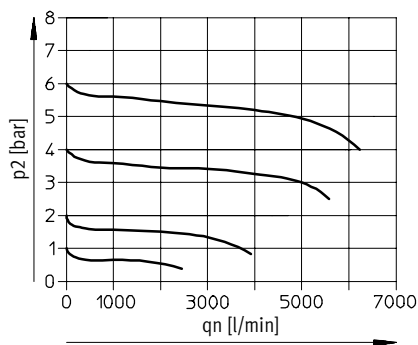
MSB6-1/4



MSB6-3/8



MSB6-1/2



Primary pressure $p_1 = 10$ bar

MS4/MS6 series service units
Service units

2.11

Service units MSB4/MSB6-FRC, MS series

Technical data



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

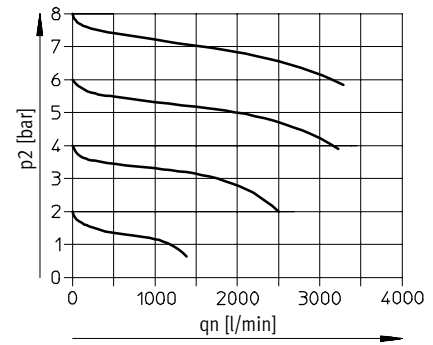
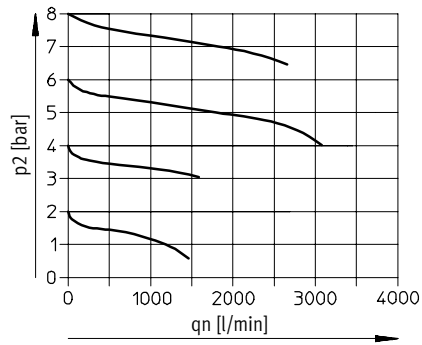
Pressure regulation range

Grade of filtration $5\ \mu\text{m}$

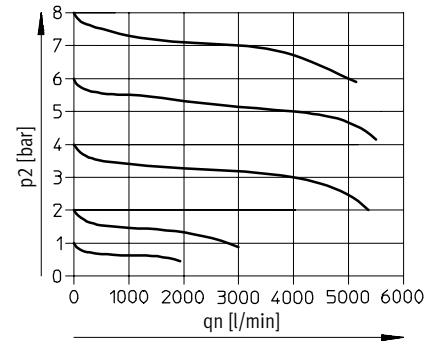
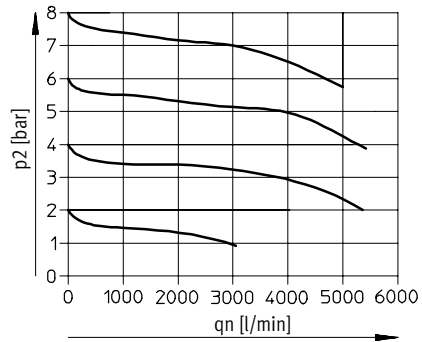
Grade of filtration $40\ \mu\text{m}$

0.5 ... 12 bar

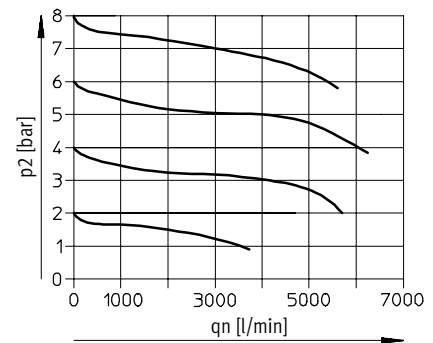
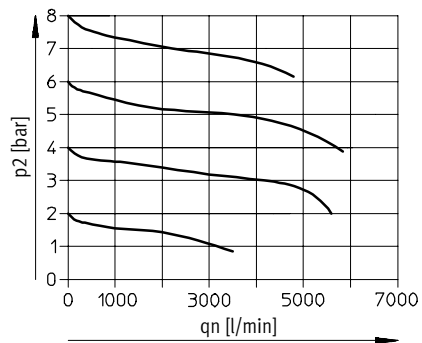
MSB6-1/4



MSB6-3/8



MSB6-1/2



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

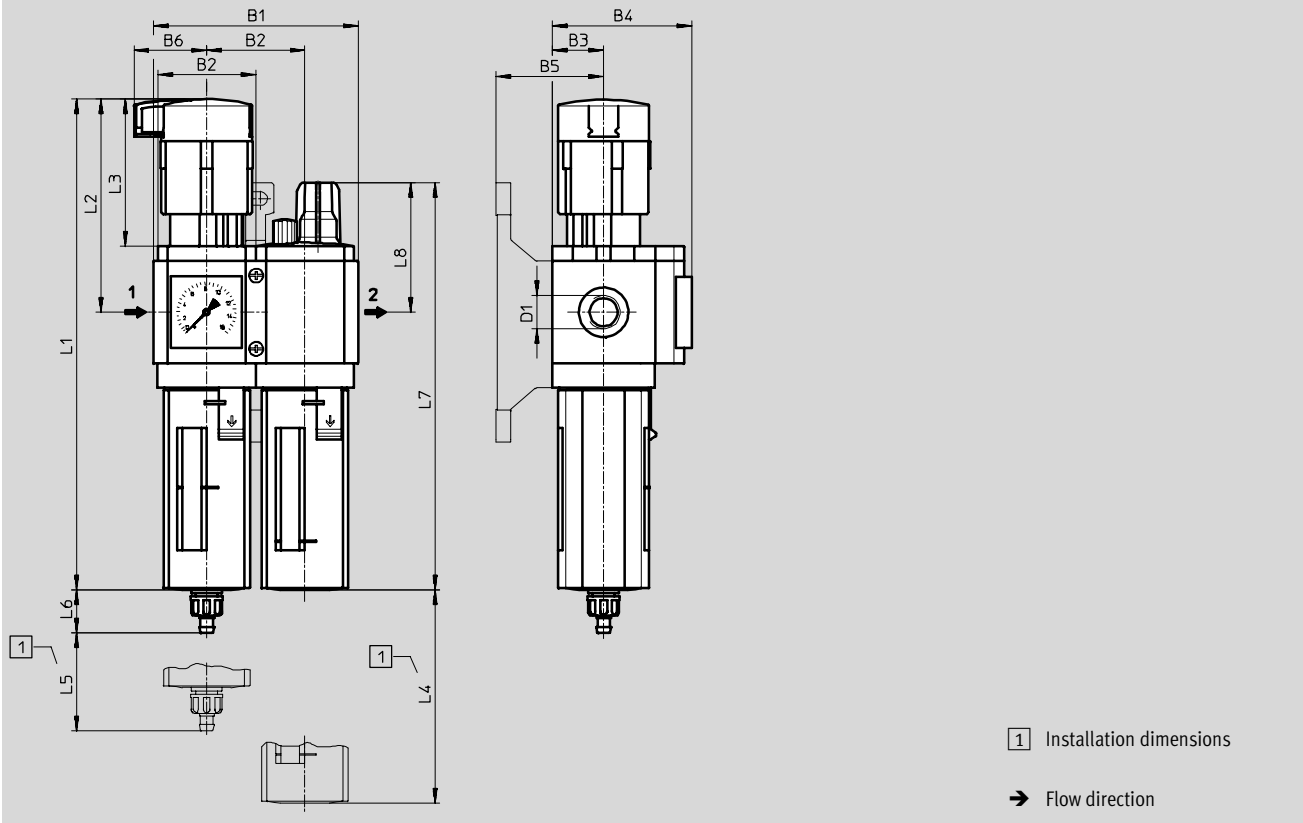
Service units MSB4/MSB6-FRC, MS series

Technical data



Dimensions

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	Condensate drain 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



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



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 $\frac{1}{8}$	531 137	MSB4- $\frac{1}{8}$ -FRC7:J3M1	531 133	MSB4- $\frac{1}{8}$ -FRC5:J1M1
		G $\frac{1}{4}$	531 121	MSB4- $\frac{1}{4}$ -FRC7:J3M1	531 117	MSB4- $\frac{1}{4}$ -FRC5:J1M1
	MSB6	G $\frac{1}{4}$	530 272	MSB6- $\frac{1}{4}$ -FRC7:J3M1	530 268	MSB6- $\frac{1}{4}$ -FRC5:J1M1
		G $\frac{3}{8}$	530 296	MSB6- $\frac{3}{8}$ -FRC7:J3M1	530 292	MSB6- $\frac{3}{8}$ -FRC5:J1M1
		G $\frac{1}{2}$	530 248	MSB6- $\frac{1}{2}$ -FRC7:J3M1	530 244	MSB6- $\frac{1}{2}$ -FRC5:J1M1
fully automatic	MSB4	G $\frac{1}{8}$	531 139	MSB4- $\frac{1}{8}$ -FRC8:J4M1	531 135	MSB4- $\frac{1}{8}$ -FRC6:J2M1
		G $\frac{1}{4}$	531 123	MSB4- $\frac{1}{4}$ -FRC8:J4M1	531 119	MSB4- $\frac{1}{4}$ -FRC6:J2M1
	MSB6	G $\frac{1}{4}$	530 274	MSB6- $\frac{1}{4}$ -FRC8:J4M1	530 270	MSB6- $\frac{1}{4}$ -FRC6:J2M1
		G $\frac{3}{8}$	530 298	MSB6- $\frac{3}{8}$ -FRC8:J4M1	530 294	MSB6- $\frac{3}{8}$ -FRC6:J2M1
		G $\frac{1}{2}$	530 250	MSB6- $\frac{1}{2}$ -FRC8:J4M1	530 246	MSB6- $\frac{1}{2}$ -FRC6:J2M1
Flow direction from right to left						
manual rotary	MSB4	G $\frac{1}{8}$	531 138	MSB4- $\frac{1}{8}$ -FRC7:J3M1-Z	531 134	MSB4- $\frac{1}{8}$ -FRC5:J1M1-Z
		G $\frac{1}{4}$	531 122	MSB4- $\frac{1}{4}$ -FRC7:J3M1-Z	531 118	MSB4- $\frac{1}{4}$ -FRC5:J1M1-Z
	MSB6	G $\frac{1}{4}$	530 273	MSB6- $\frac{1}{4}$ -FRC7:J3M1-Z	530 269	MSB6- $\frac{1}{4}$ -FRC5:J1M1-Z
		G $\frac{3}{8}$	530 297	MSB6- $\frac{3}{8}$ -FRC7:J3M1-Z	530 293	MSB6- $\frac{3}{8}$ -FRC5:J1M1-Z
		G $\frac{1}{2}$	530 249	MSB6- $\frac{1}{2}$ -FRC7:J3M1-Z	530 245	MSB6- $\frac{1}{2}$ -FRC5:J1M1-Z
fully automatic	MSB4	G $\frac{1}{8}$	531 140	MSB4- $\frac{1}{8}$ -FRC8:J4M1-Z	531 136	MSB4- $\frac{1}{8}$ -FRC6:J2M1-Z
		G $\frac{1}{4}$	531 124	MSB4- $\frac{1}{4}$ -FRC8:J4M1-Z	531 120	MSB4- $\frac{1}{4}$ -FRC6:J2M1-Z
	MSB6	G $\frac{1}{4}$	530 275	MSB6- $\frac{1}{4}$ -FRC8:J4M1-Z	530 271	MSB6- $\frac{1}{4}$ -FRC6:J2M1-Z
		G $\frac{3}{8}$	530 299	MSB6- $\frac{3}{8}$ -FRC8:J4M1-Z	530 295	MSB6- $\frac{3}{8}$ -FRC6:J2M1-Z
		G $\frac{1}{2}$	530 251	MSB6- $\frac{1}{2}$ -FRC8:J4M1-Z	530 247	MSB6- $\frac{1}{2}$ -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 $\frac{1}{4}$	530 258	MSB6- $\frac{1}{4}$ -FRC11:J9M2	530 276	MSB6- $\frac{1}{4}$ -FRC9:J11M2
		G $\frac{3}{8}$	530 282	MSB6- $\frac{3}{8}$ -FRC11:J9M2	530 300	MSB6- $\frac{3}{8}$ -FRC9:J11M2
		G $\frac{1}{2}$	530 234	MSB6- $\frac{1}{2}$ -FRC11:J9M2	530 252	MSB6- $\frac{1}{2}$ -FRC9:J11M2
fully automatic	MSB6	G $\frac{1}{4}$	530 260	MSB6- $\frac{1}{4}$ -FRC12:J10M2	530 256	MSB6- $\frac{1}{4}$ -FRC10:J12M2
		G $\frac{3}{8}$	530 284	MSB6- $\frac{3}{8}$ -FRC12:J10M2	530 280	MSB6- $\frac{3}{8}$ -FRC10:J12M2
		G $\frac{1}{2}$	530 236	MSB6- $\frac{1}{2}$ -FRC12:J10M2	530 232	MSB6- $\frac{1}{2}$ -FRC10:J12M2
Flow direction from right to left						
manual rotary	MSB6	G $\frac{1}{4}$	530 259	MSB6- $\frac{1}{4}$ -FRC11:J9M2-Z	530 277	MSB6- $\frac{1}{4}$ -FRC9:J11M2-Z
		G $\frac{3}{8}$	530 283	MSB6- $\frac{3}{8}$ -FRC11:J9M2-Z	530 301	MSB6- $\frac{3}{8}$ -FRC9:J11M2-Z
		G $\frac{1}{2}$	530 235	MSB6- $\frac{1}{2}$ -FRC11:J9M2-Z	530 253	MSB6- $\frac{1}{2}$ -FRC9:J11M2-Z
fully automatic	MSB6	G $\frac{1}{4}$	530 261	MSB6- $\frac{1}{4}$ -FRC12:J10M2-Z	530 257	MSB6- $\frac{1}{4}$ -FRC10:J12M2-Z
		G $\frac{3}{8}$	530 285	MSB6- $\frac{3}{8}$ -FRC12:J10M2-Z	530 281	MSB6- $\frac{3}{8}$ -FRC10:J12M2-Z
		G $\frac{1}{2}$	530 237	MSB6- $\frac{1}{2}$ -FRC12:J10M2-Z	530 233	MSB6- $\frac{1}{2}$ -FRC10:J12M2-Z

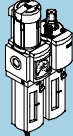
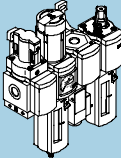
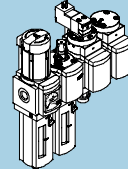
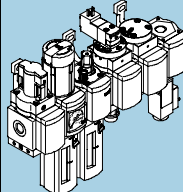
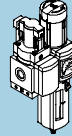
Service unit combinations MSB4/MSB6, MS series

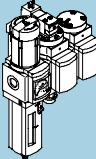
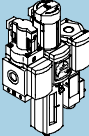
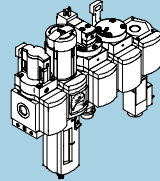
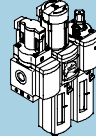
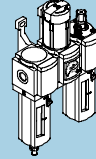
Product range overview



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

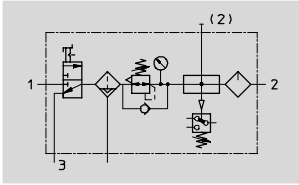
- Connection size
- Connecting plates
- Service unit equipment

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	900
	40 µm	950
		3200
		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

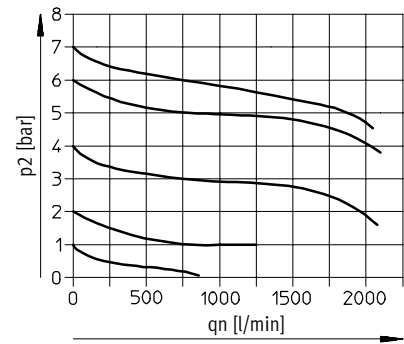
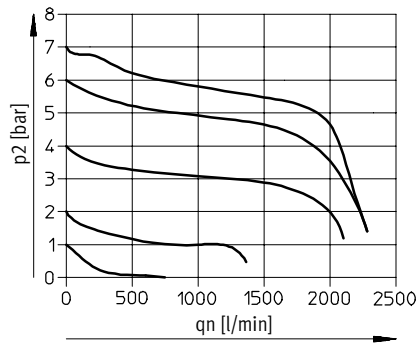
Technical data

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

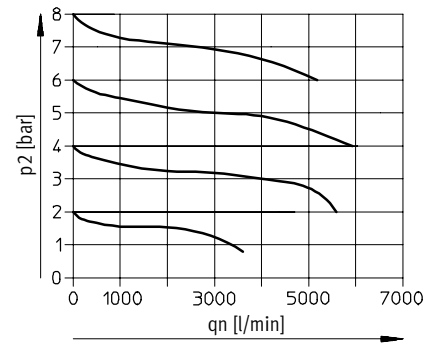
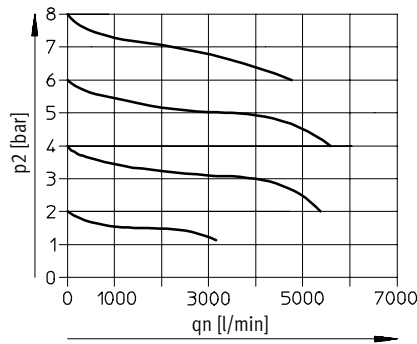
-  - Note
 Materials → Technical data of the individual units

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

MSB4-1/4



MSB6-1/2



Primary pressure $p_1 = 10$ bar

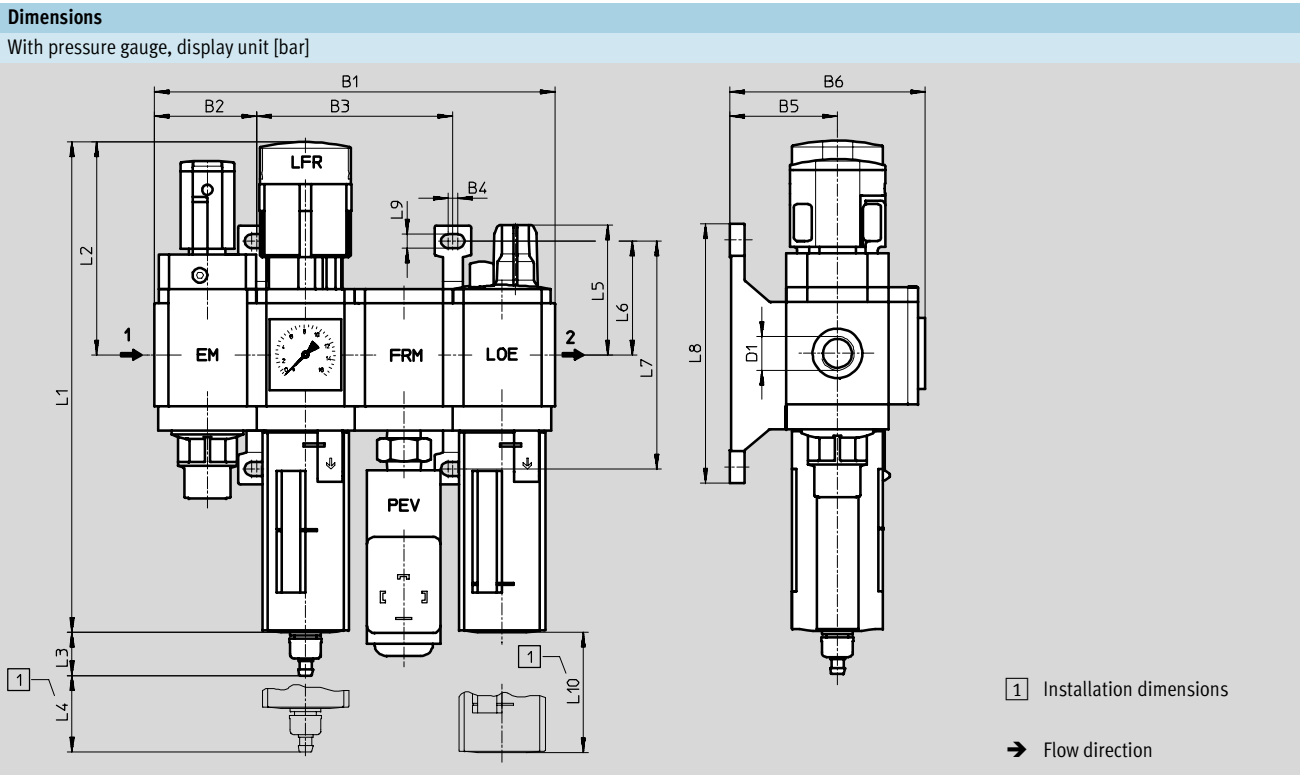
Service unit combinations MSB4/MSB6, MS series

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	G $\frac{1}{4}$	201	87
MSB6	253	64.5	124	4.5	54	100	G $\frac{1}{2}$	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

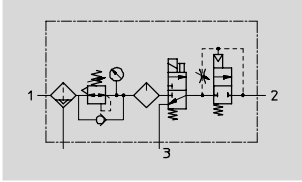
Ordering data						
Pressure regulation range 1 ... 12 bar, plastic bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MSB4	G $\frac{1}{4}$	531 076	MSB4-$\frac{1}{4}$:C1J3F3M1-WP	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

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	G $\frac{1}{4}$	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	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

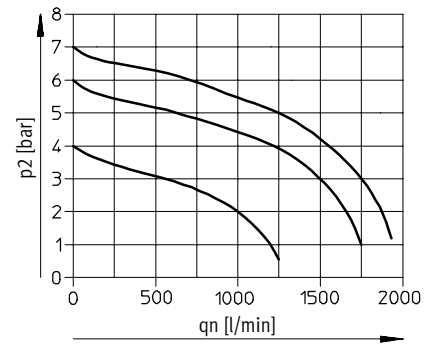
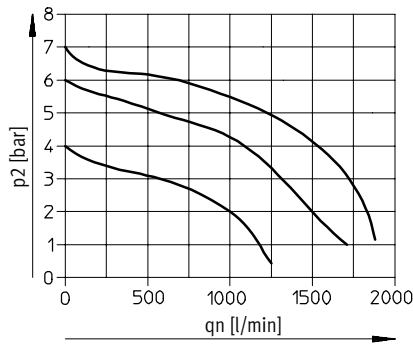
Technical data

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

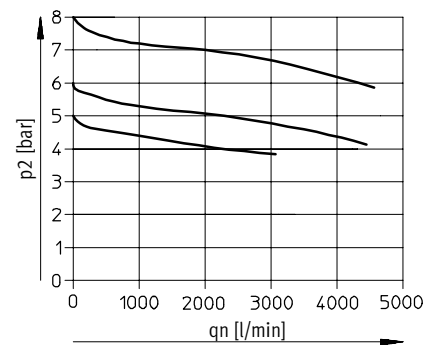
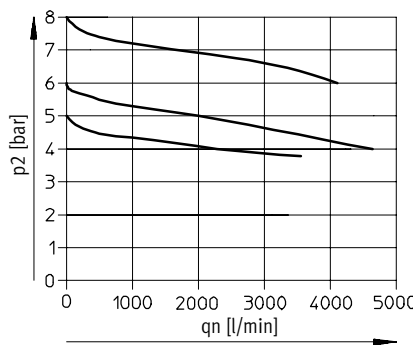
-  - Note
 Materials → Technical data of the individual units

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

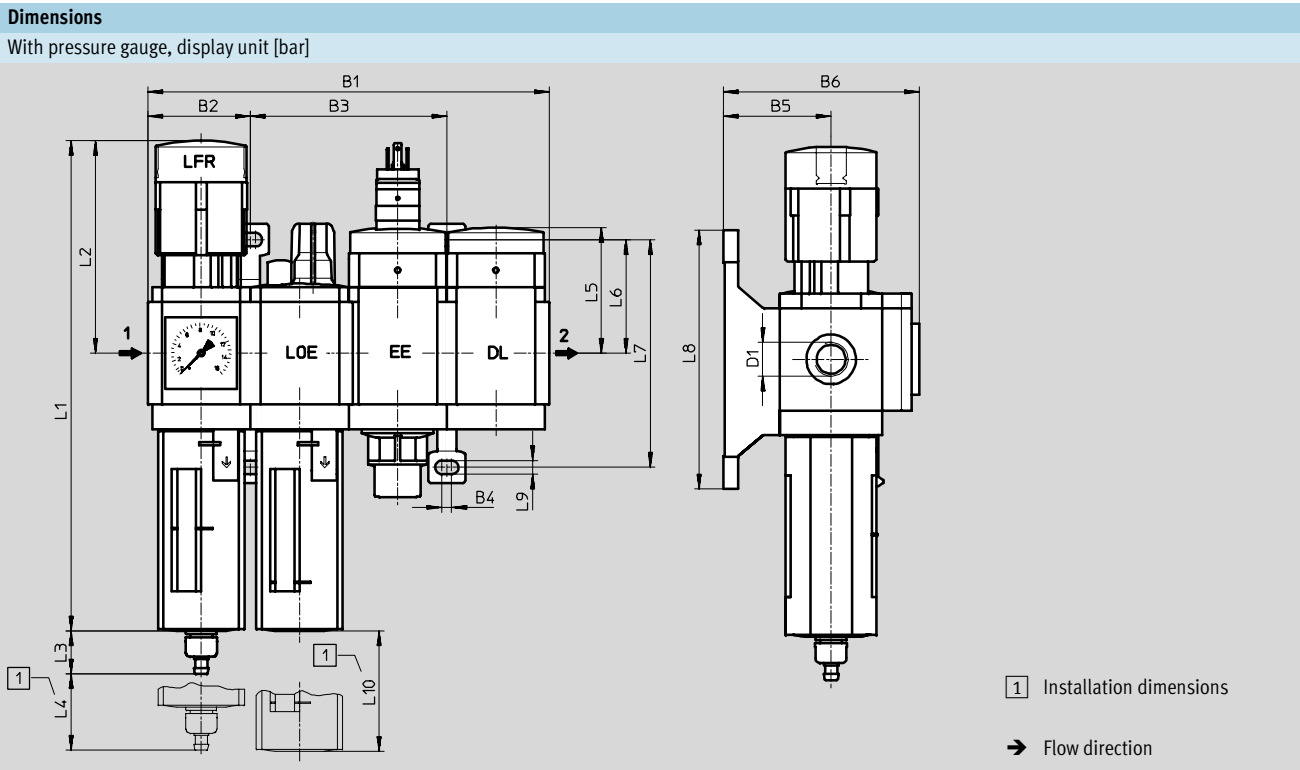
Service unit combinations MSB4/MSB6, MS series

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	G $\frac{1}{4}$	201	87
MSB6	253	64.5	124	4.5	54	100	G $\frac{1}{2}$	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

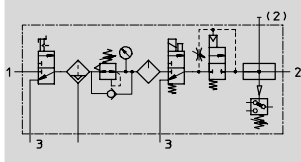
Ordering data						
Pressure regulation range 4 ... 12 bar, plastic bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MSB4	G $\frac{1}{4}$	531 106	MSB4-$\frac{1}{4}$:J3M1D1A1-WP	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



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	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
		2100
		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

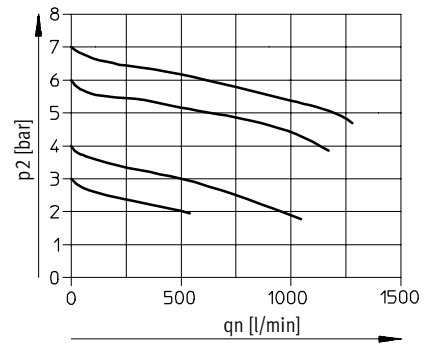
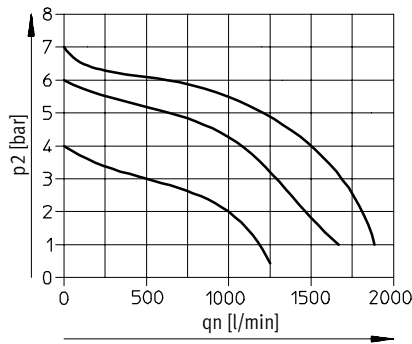
Technical data

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

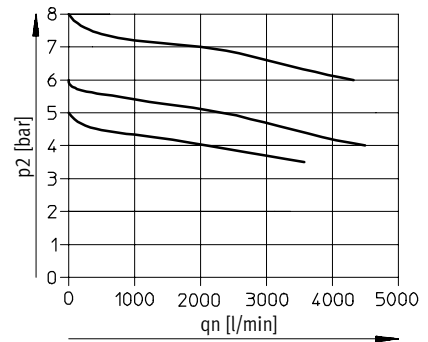
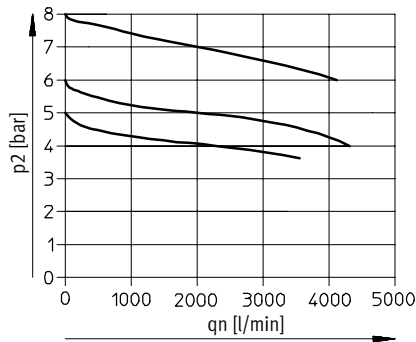
-  - Note
 Materials → Technical data of the individual units

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

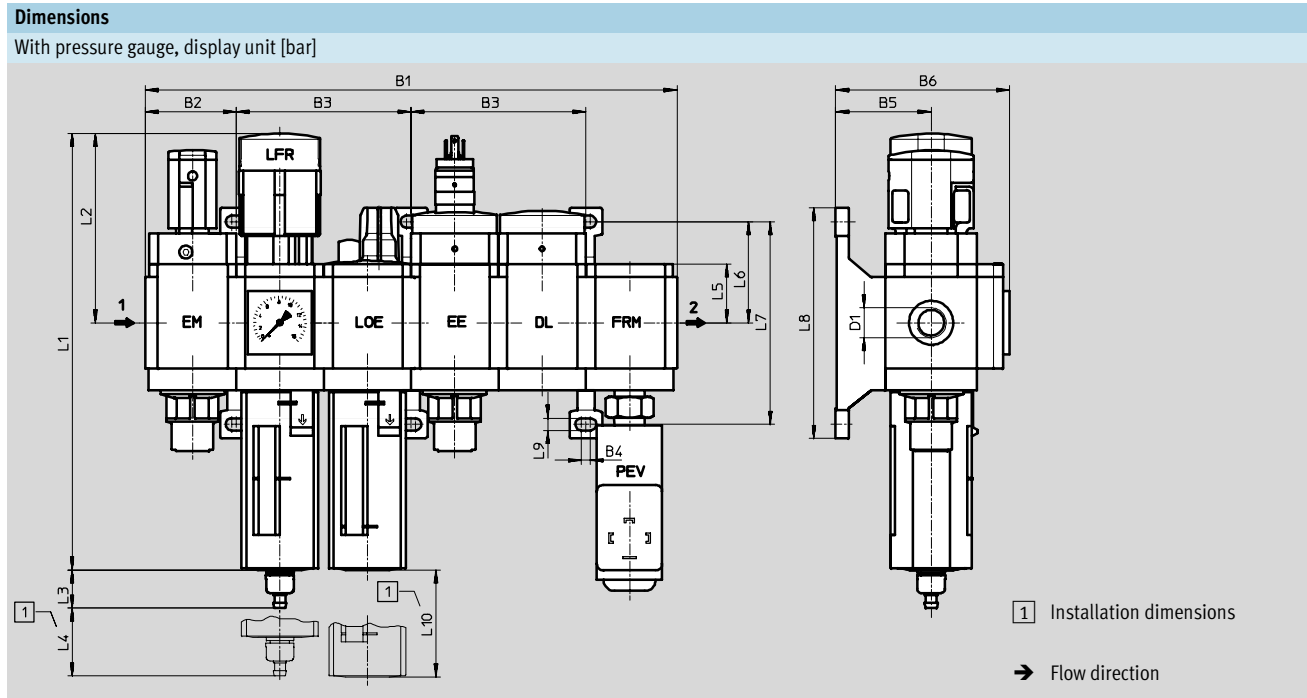
Service unit combinations MSB4/MSB6, MS series

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	G $\frac{1}{4}$	201	87
MSB6	377	64.5	124	4.5	54	100	G $\frac{1}{2}$	285	134.5

Type	L3 Condensate drain		L4	L5	L6	L7	L8	L9	L10
	manual rotary	fully automatic							
MSB4	17.7	20.4	25	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

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Technical data

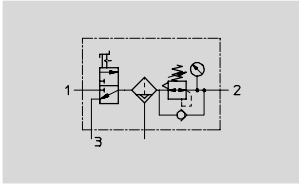
Ordering data						
Pressure regulation range 4 ... 12 bar, plastic bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MSB4	G $\frac{1}{4}$	531 078	MSB4- $\frac{1}{4}$:C1J3M1D1A1F3-WP	531 066	MSB4- $\frac{1}{4}$:C1J1M1D1A1F3-WP
	MSB6	G $\frac{1}{2}$	530 199	MSB6- $\frac{1}{2}$:C1J3M1D1A1F3-WP	530 187	MSB6- $\frac{1}{2}$:C1J1M1D1A1F3-WP
fully automatic	MSB4	G $\frac{1}{4}$	531 084	MSB4- $\frac{1}{4}$:C1J4M1D1A1F3-WP	531 072	MSB4- $\frac{1}{4}$:C1J2M1D1A1F3-WP
	MSB6	G $\frac{1}{2}$	530 205	MSB6- $\frac{1}{2}$:C1J4M1D1A1F3-WP	530 193	MSB6- $\frac{1}{2}$: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	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	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

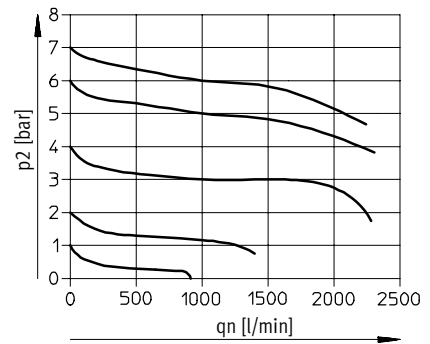
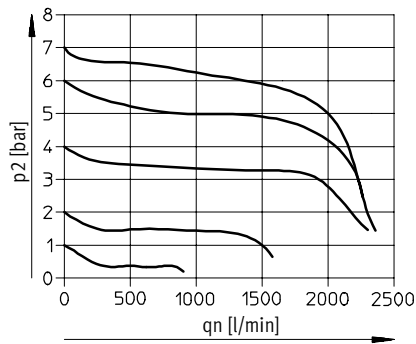
Technical data

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

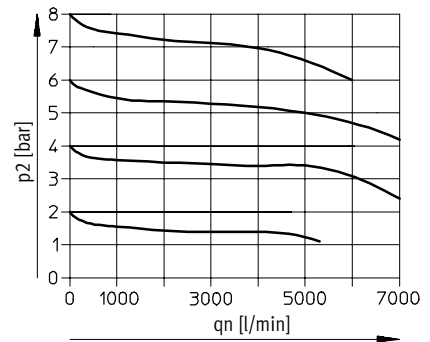
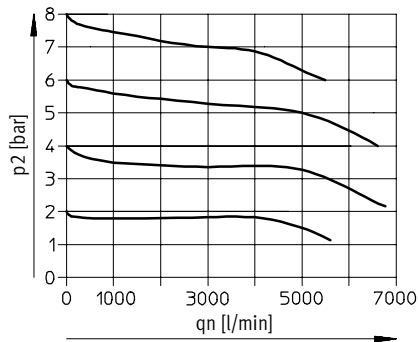
-  - Note
 Materials → Technical data of the individual units

Standard flow rate qn as a function of the output pressure p2
 Pressure regulation range 0.5 ... 12 bar
 Grade of filtration 5 µm
 Grade of filtration 40 µm

MSB4-1/4



MSB6-1/2



Primary pressure p1 = 10 bar

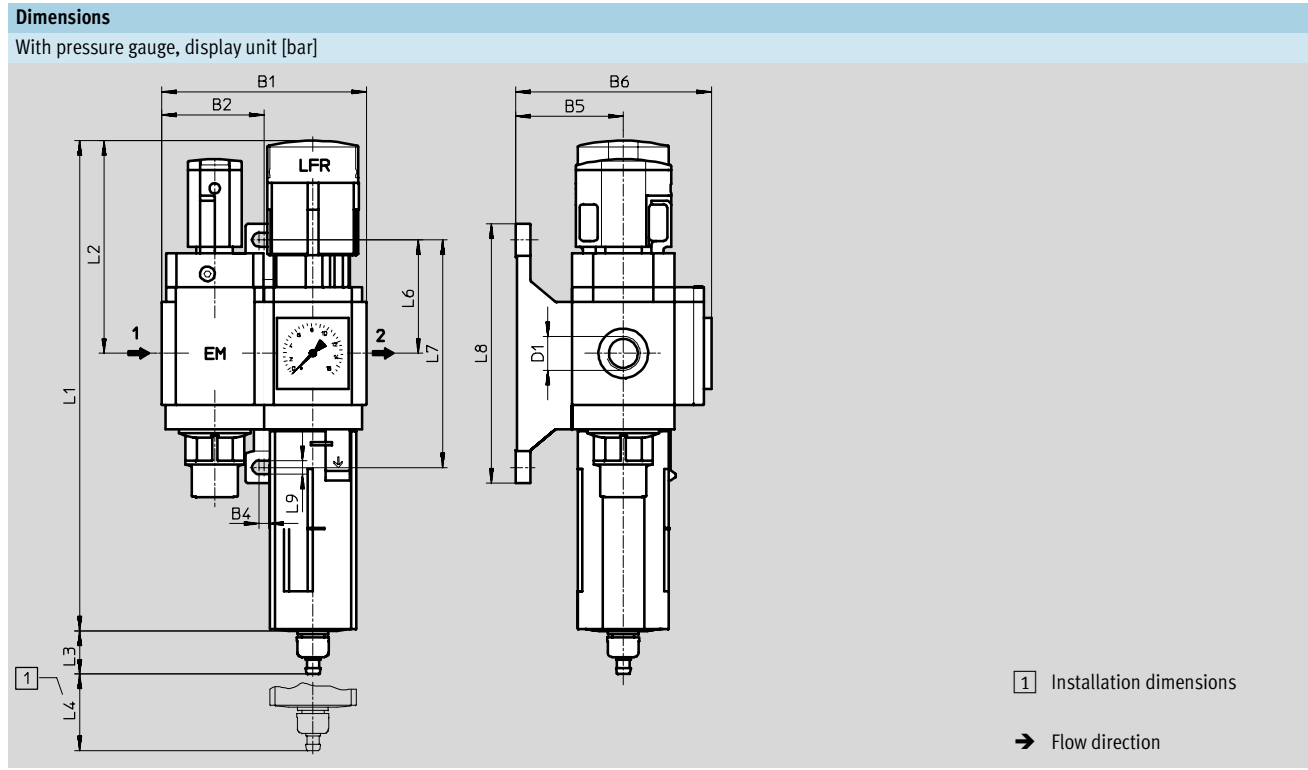
Service unit combinations MSB4/MSB6, MS series



Technical data

MS4/MS6 series service units
Service units

2.11



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

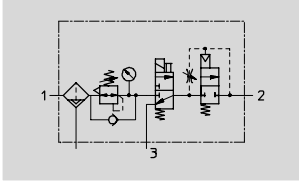
Ordering data						
Pressure regulation range 0.5 ... 12 bar, plastic bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MSB4	G $\frac{1}{4}$	531 073	MSB4-$\frac{1}{4}$:C1J3-WP	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

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	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
		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

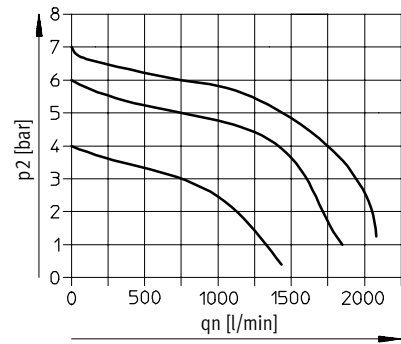
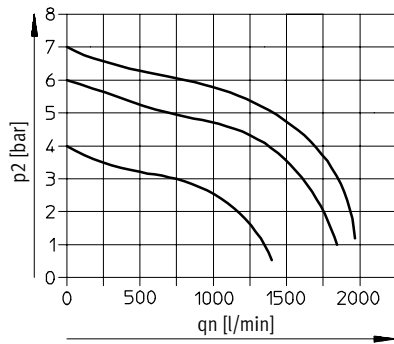
Technical data

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

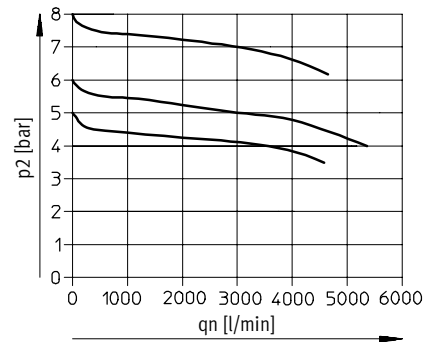
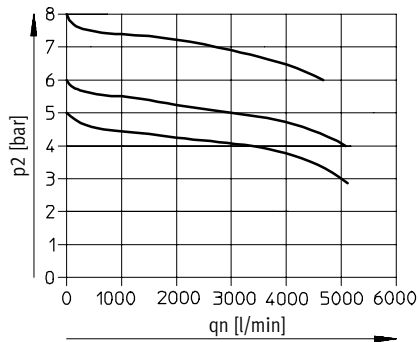
-  - Note
 Materials → Technical data of the individual units

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

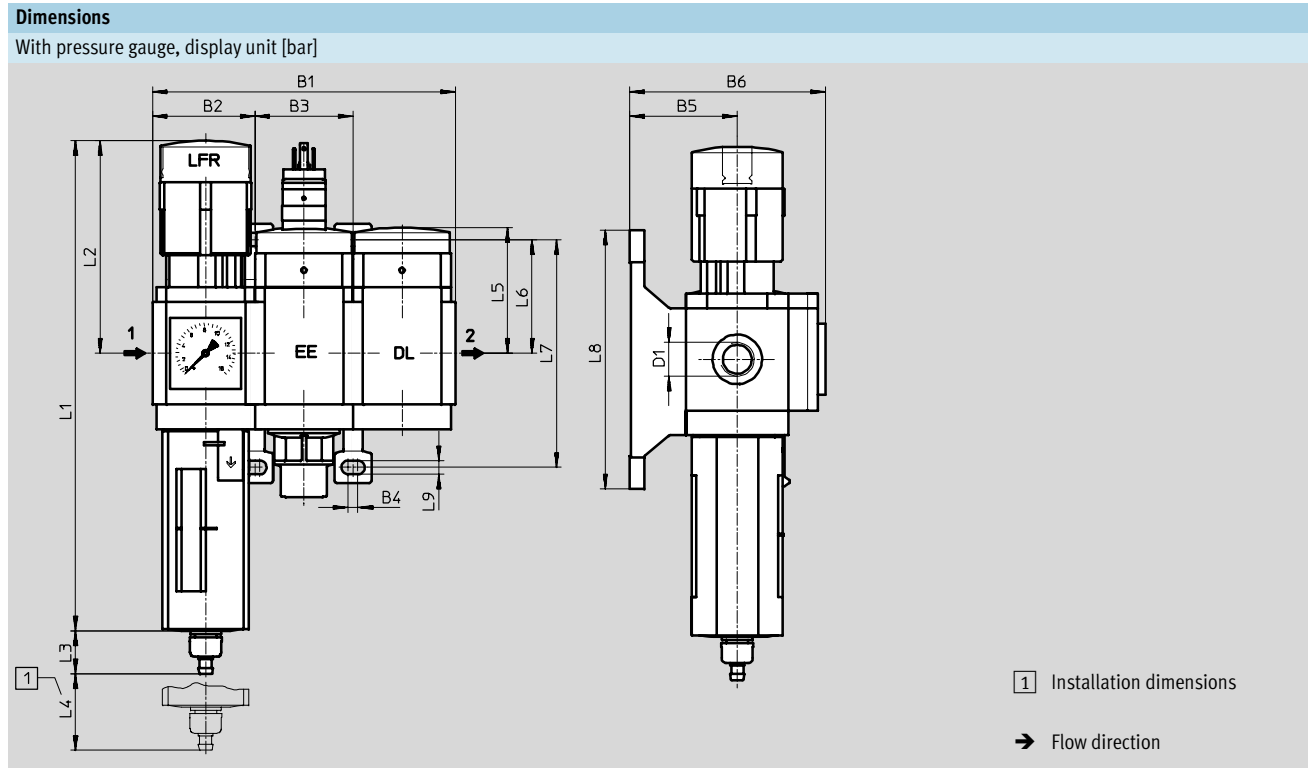
Service unit combinations MSB4/MSB6, MS series



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	G $\frac{1}{4}$	201	87
MSB6	191	64.5	62	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	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

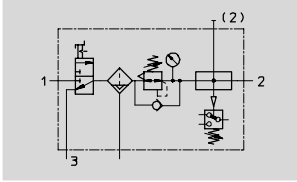
Ordering data						
Pressure regulation range 4 ... 12 bar, plastic bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MSB4	G $\frac{1}{4}$	531 105	MSB4-$\frac{1}{4}$:J3D1A1-WP	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

Technical data



Function



- Flow rate
1200 ... 1300 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
- Branching module MS...-FRM-Y
 - pressure switch without display
- Wall mounting plate MS...-WP

- 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	4400
	40 µm	1300	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

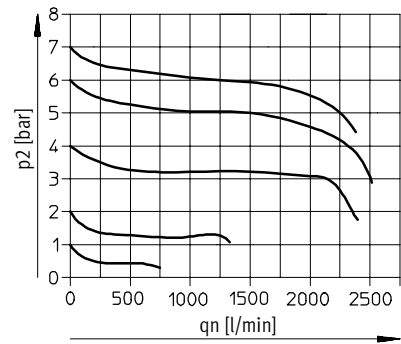
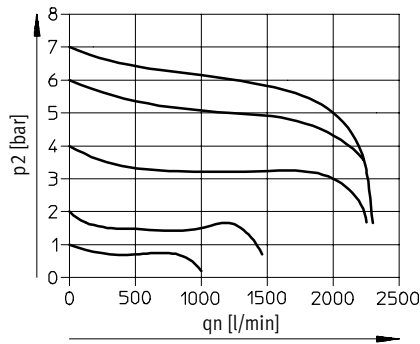
Technical data

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

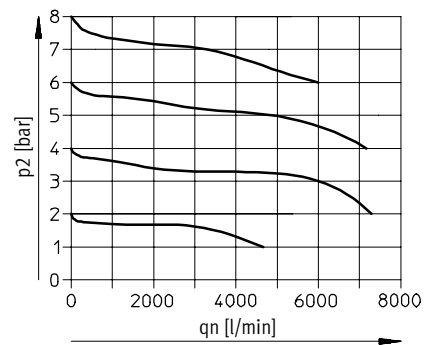
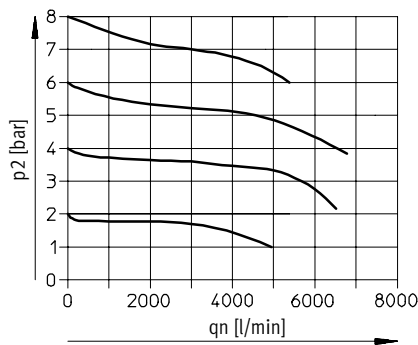
-  - Note
 Materials → Technical data of the individual units

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

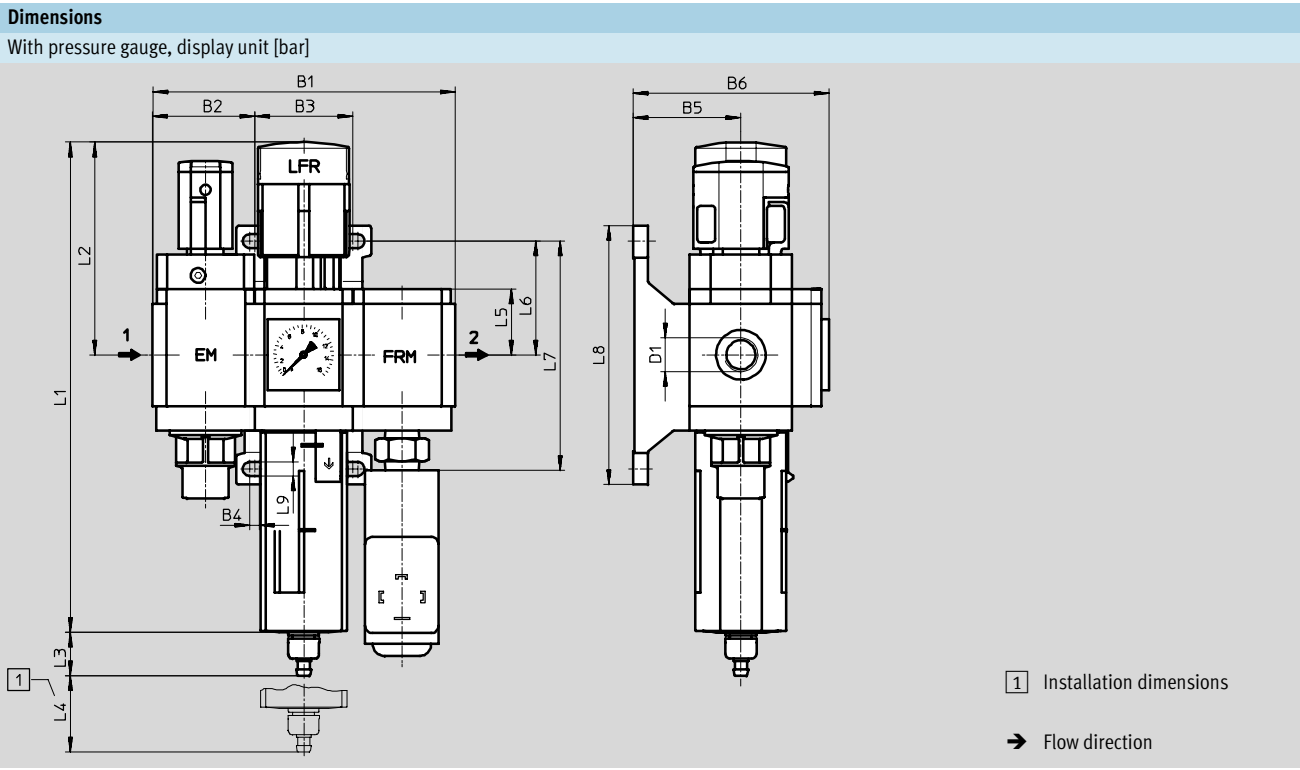
Service unit combinations MSB4/MSB6, MS series

Technical data



MS4/MS6 series service units
Service units

2.11



Type	B1	B2	B3	B4	B5	B6	D1	L1	L2
MSB4	124	41.9	40.2	4	44	80	G $\frac{1}{4}$	201	87
MSB6	191	64.5	62	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

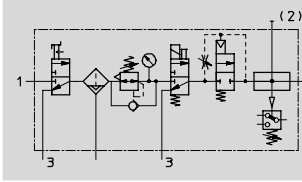
Ordering data						
Pressure regulation range 0.5 ... 12 bar, plastic bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MSB4	G $\frac{1}{4}$	531 075	MSB4-$\frac{1}{4}$:C1J3F3-WP	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

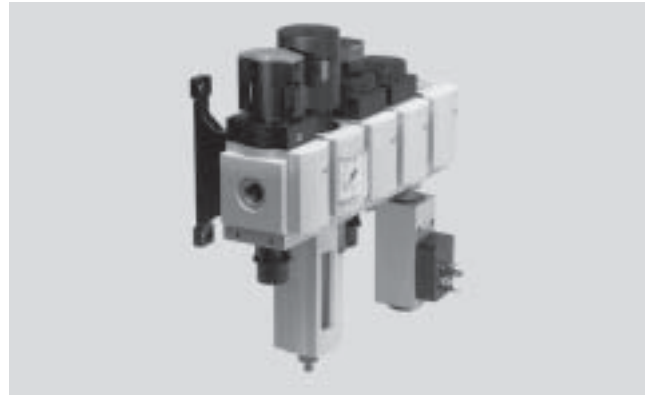
Technical data



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	G $\frac{1}{4}$	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	700
	40 µm	750
		3000
		3100


Ambient conditions		
		Condensate drain
		manual rotary
		fully automatic
Ambient temperature [°C]		-10 ... +60
Ambient temperature [°C]		+5 ... +60
Temperature of medium [°C]		-10 ... +60
Temperature of medium [°C]		+5 ... +60
Storage temperature [°C]		-10 ... +60
Storage temperature [°C]		+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

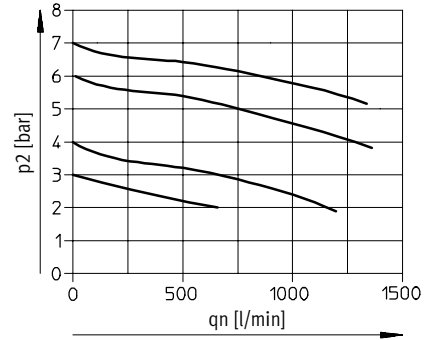
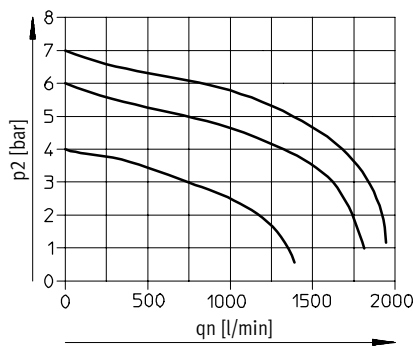
Technical data

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

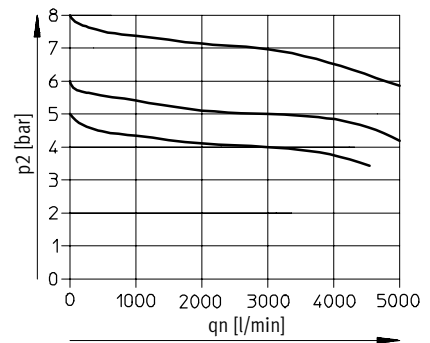
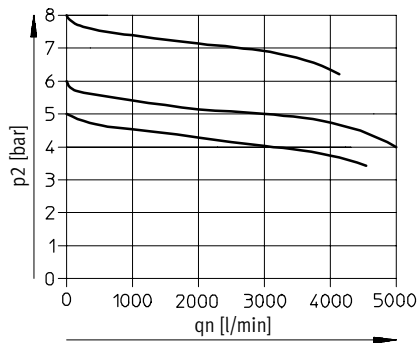
-  - Note
 Materials → Technical data of the individual units

Standard flow rate q_n as a function of the output pressure p_2		
Pressure regulation range	Grade of filtration $5 \mu\text{m}$	Grade of filtration $40 \mu\text{m}$
4 ... 12 bar		

MSB4-1/4



MSB6-1/2



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

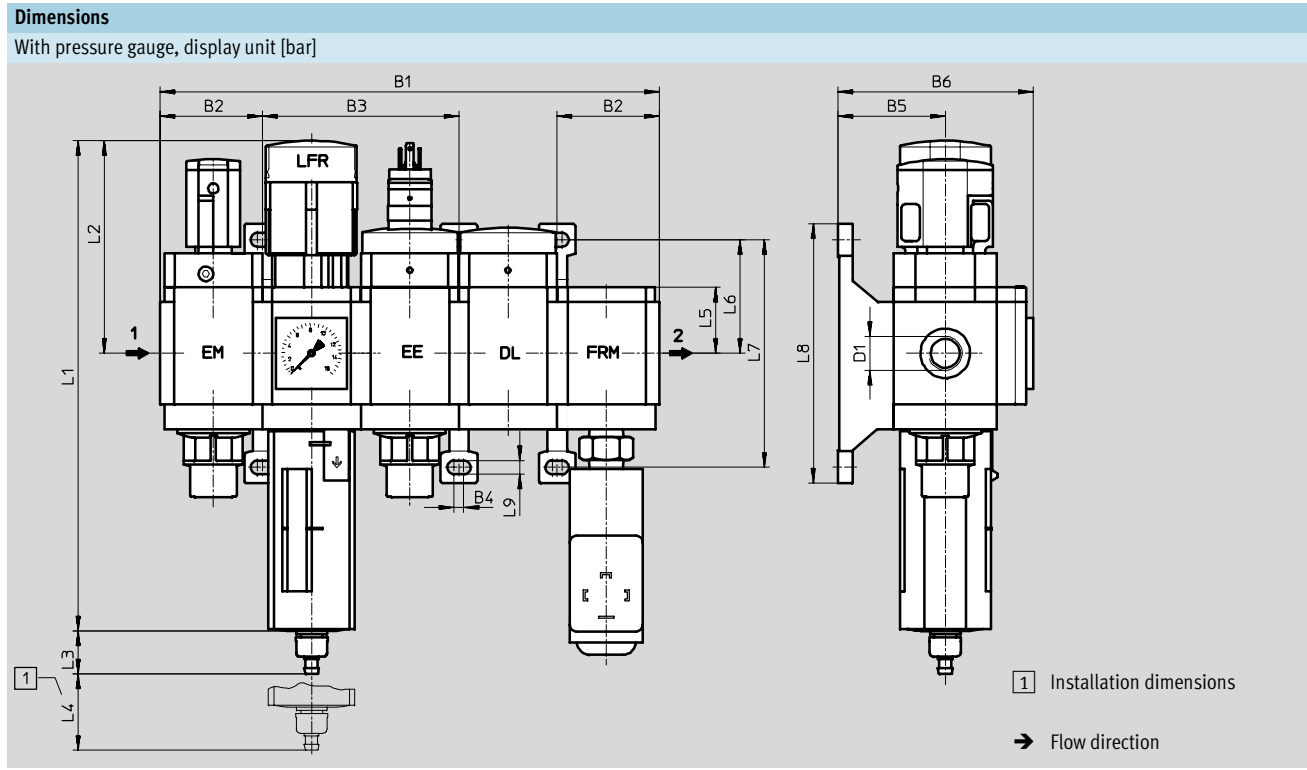
Service unit combinations MSB4/MSB6, MS series

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

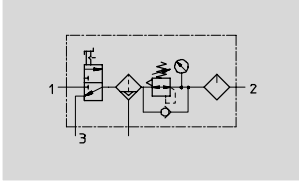
Ordering data						
Pressure regulation range 4 ... 12 bar, plastic bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MSB4	G $\frac{1}{4}$	531 074	MSB4-$\frac{1}{4}$:C1J3D1A1F3-WP	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

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	3000
	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

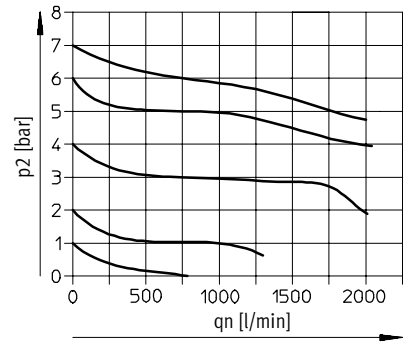
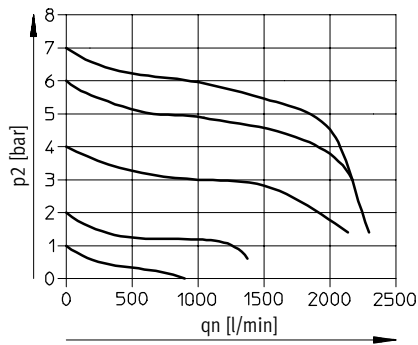
Technical data

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

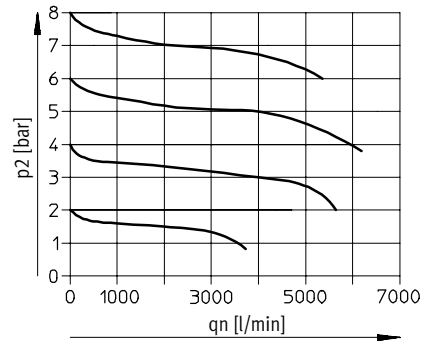
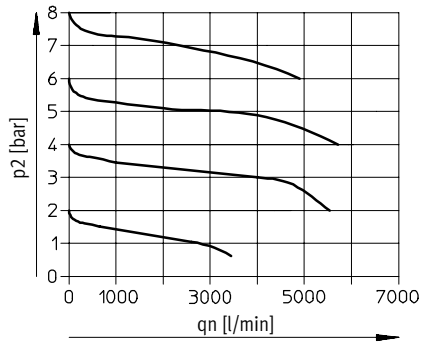
- Note
Materials → Technical data of the individual units

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

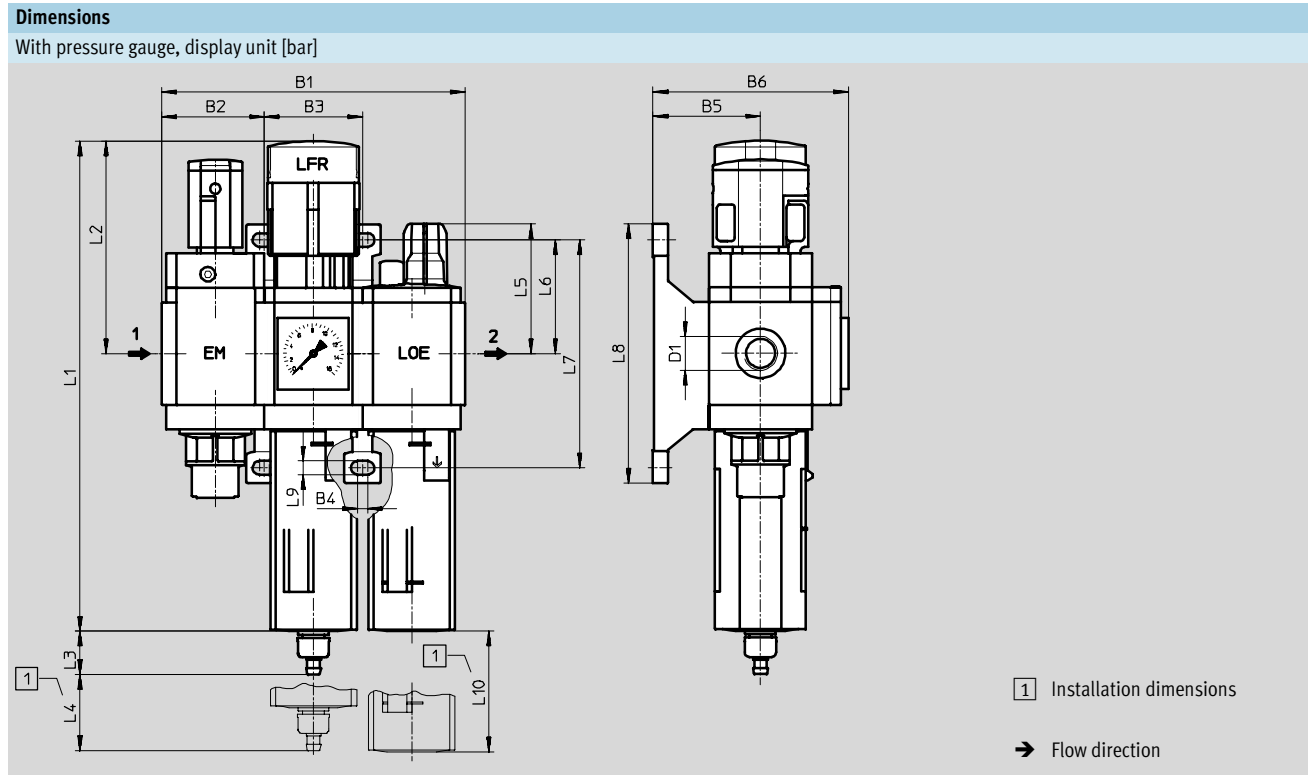
Service unit combinations MSB4/MSB6, MS series



Technical data

MS4/MS6 series service units
Service units

2.11



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

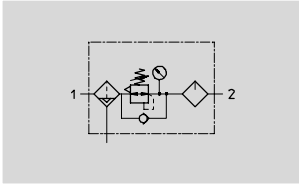
Ordering data						
Pressure regulation range 1 ... 12 bar, plastic bowl guard						
Condensate drain	Size	Connection	Grade of filtration 5 µm		Grade of filtration 40 µm	
			Part No.	Type	Part No.	Type
Flow direction from left to right						
manual rotary	MSB4	G $\frac{1}{4}$	531 077	MSB4-$\frac{1}{4}$:C1J3M1-WP	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	G1/4	G1/2
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

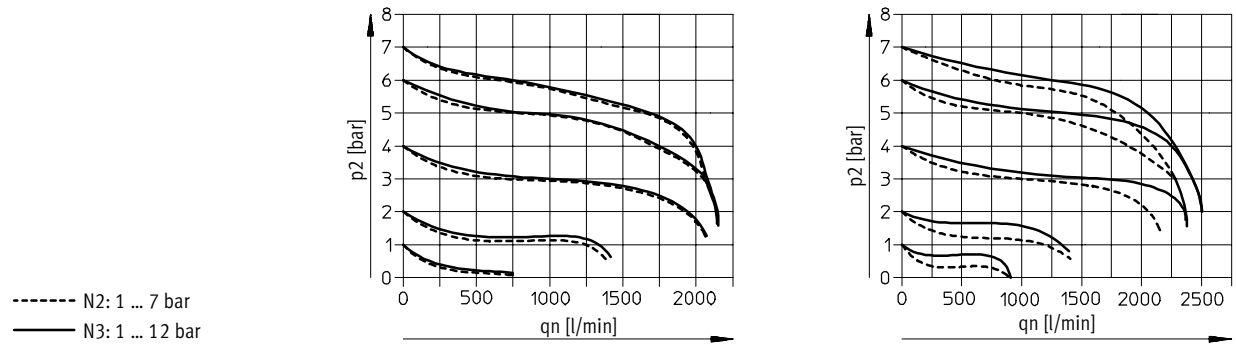
Technical data

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

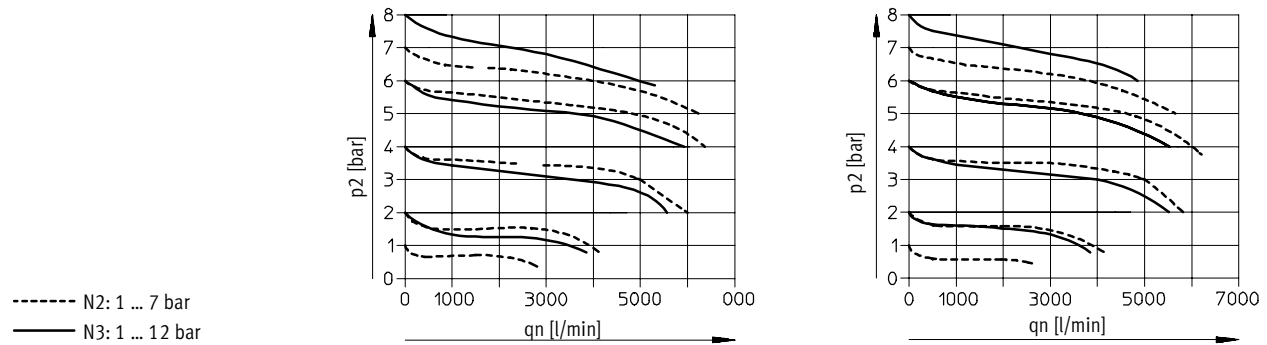
- Note
Materials → Technical data of the individual units

Standard flow rate q_n as a function of the output pressure p_2
 Pressure regulation range N2 or N3 Grade of filtration 5 μm Grade of filtration 40 μm

MSB4-1/4



MSB6-1/2



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

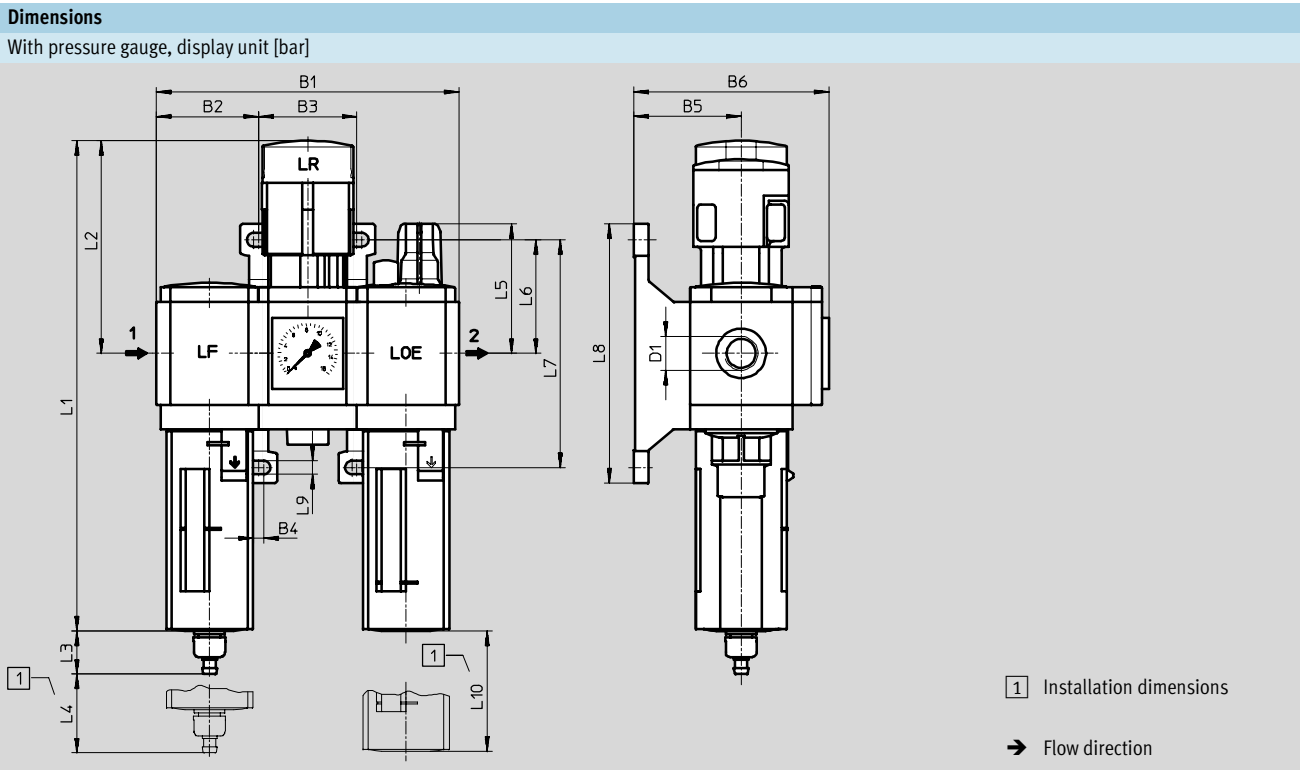
Service unit combinations MSB4/MSB6, MS series

Technical data



MS4/MS6 series service units
Service units

2.11



Type	B1	B2	B3	B4	B5	B6	D1	L1	L2
MSB4	124	41.9	40.2	4	44	80	G $\frac{1}{4}$	201	87
MSB6	191	64.5	62	4.5	54	100	G $\frac{1}{2}$	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

FESTO

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 ¹ / ₄	531 091	MSB4- ¹ / ₄ :H2N2M1-WP
	MSB6	G ¹ / ₂	530 212	MSB6- ¹ / ₂ :H2N2M1-WP
fully automatic	MSB4	G ¹ / ₄	531 085	MSB4- ¹ / ₄ :H1N2M1-WP
	MSB6	G ¹ / ₂	530 206	MSB6- ¹ / ₂ :H1N2M1-WP
Flow direction from right to left				
manual rotary	MSB4	G ¹ / ₄	531 092	MSB4- ¹ / ₄ :H2N2M1-WP-Z
	MSB6	G ¹ / ₂	530 213	MSB6- ¹ / ₂ :H2N2M1-WP-Z
fully automatic	MSB4	G ¹ / ₄	531 086	MSB4- ¹ / ₄ :H1N2M1-WP-Z
	MSB6	G ¹ / ₂	530 207	MSB6- 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 ¹ / ₄	531 097	MSB4- ¹ / ₄ :H3N3M1-WP	531 093	MSB4- ¹ / ₄ :H2N3M1-WP
	MSB6	G ¹ / ₂	530 218	MSB6- ¹ / ₂ :H3N3M1-WP	530 214	MSB6- ¹ / ₂ :H2N3M1-WP
fully automatic	MSB4	G ¹ / ₄	531 099	MSB4- ¹ / ₄ :H4N3M1-WP	531 087	MSB4- ¹ / ₄ :H1N3M1-WP
	MSB6	G ¹ / ₂	530 220	MSB6- ¹ / ₂ :H4N3M1-WP	530 208	MSB6- ¹ / ₂ :H1N3M1-WP
Flow direction from right to left						
manual rotary	MSB4	G ¹ / ₄	531 098	MSB4- ¹ / ₄ :H3N3M1-WP-Z	531 094	MSB4- ¹ / ₄ :H2N3M1-WP-Z
	MSB6	G ¹ / ₂	530 219	MSB6- ¹ / ₂ :H3N3M1-WP-Z	530 215	MSB6- ¹ / ₂ :H2N3M1-WP-Z
fully automatic	MSB4	G ¹ / ₄	531 100	MSB4- ¹ / ₄ :H4N3M1-WP-Z	531 088	MSB4- ¹ / ₄ :H1N3M1-WP-Z
	MSB6	G ¹ / ₂	530 221	MSB6- ¹ / ₂ :H4N3M1-WP-Z	530 209	MSB6- 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 ¹ / ₄	531 095	MSB4- ¹ / ₄ :H8N3M2-WP
	MSB6	G ¹ / ₂	530 216	MSB6- ¹ / ₂ :H8N3M2-WP
fully automatic	MSB4	G ¹ / ₄	531 089	MSB4- ¹ / ₄ :H7N3M2-WP
	MSB6	G ¹ / ₂	530 210	MSB6- ¹ / ₂ :H7N3M2-WP
Flow direction from right to left				
manual rotary	MSB4	G ¹ / ₄	531 096	MSB4- ¹ / ₄ :H8N3M2-WP-Z
	MSB6	G ¹ / ₂	530 217	MSB6- ¹ / ₂ :H8N3M2-WP-Z
fully automatic	MSB4	G ¹ / ₄	531 090	MSB4- ¹ / ₄ :H7N3M2-WP-Z
	MSB6	G ¹ / ₂	530 211	MSB6- ¹ / ₂ :H7N3M2-WP-Z

MS4/MS6 series service units
Service units

2.11

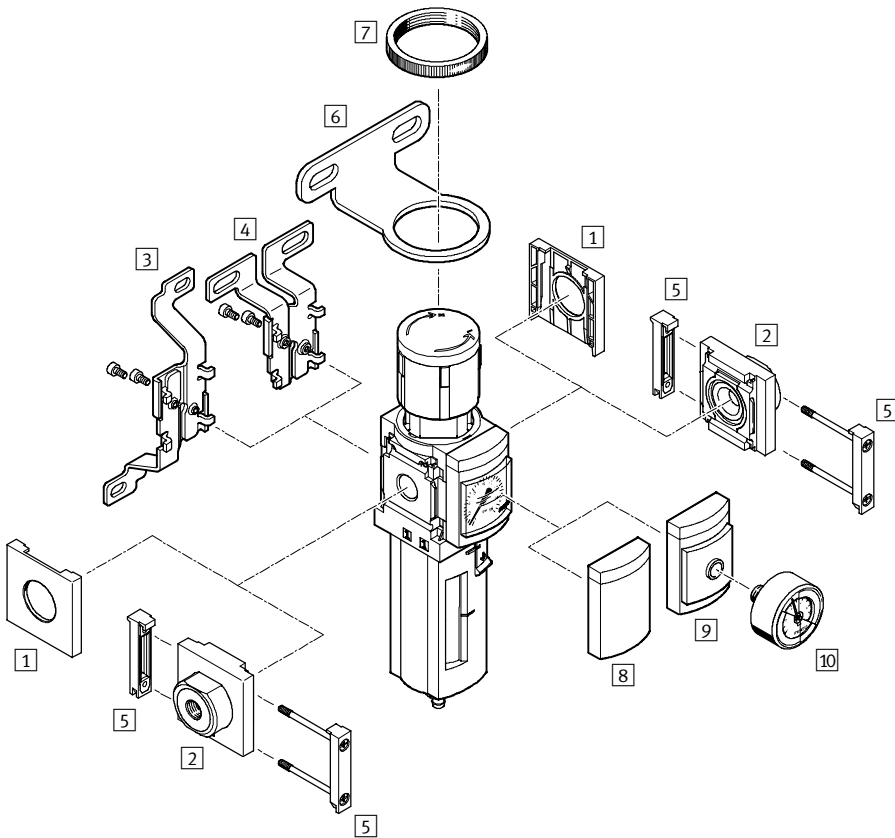
Filter regulators MS4/MS6-LFR, MS series

Peripherals overview



MS4/MS6 series service units
Filter regulators

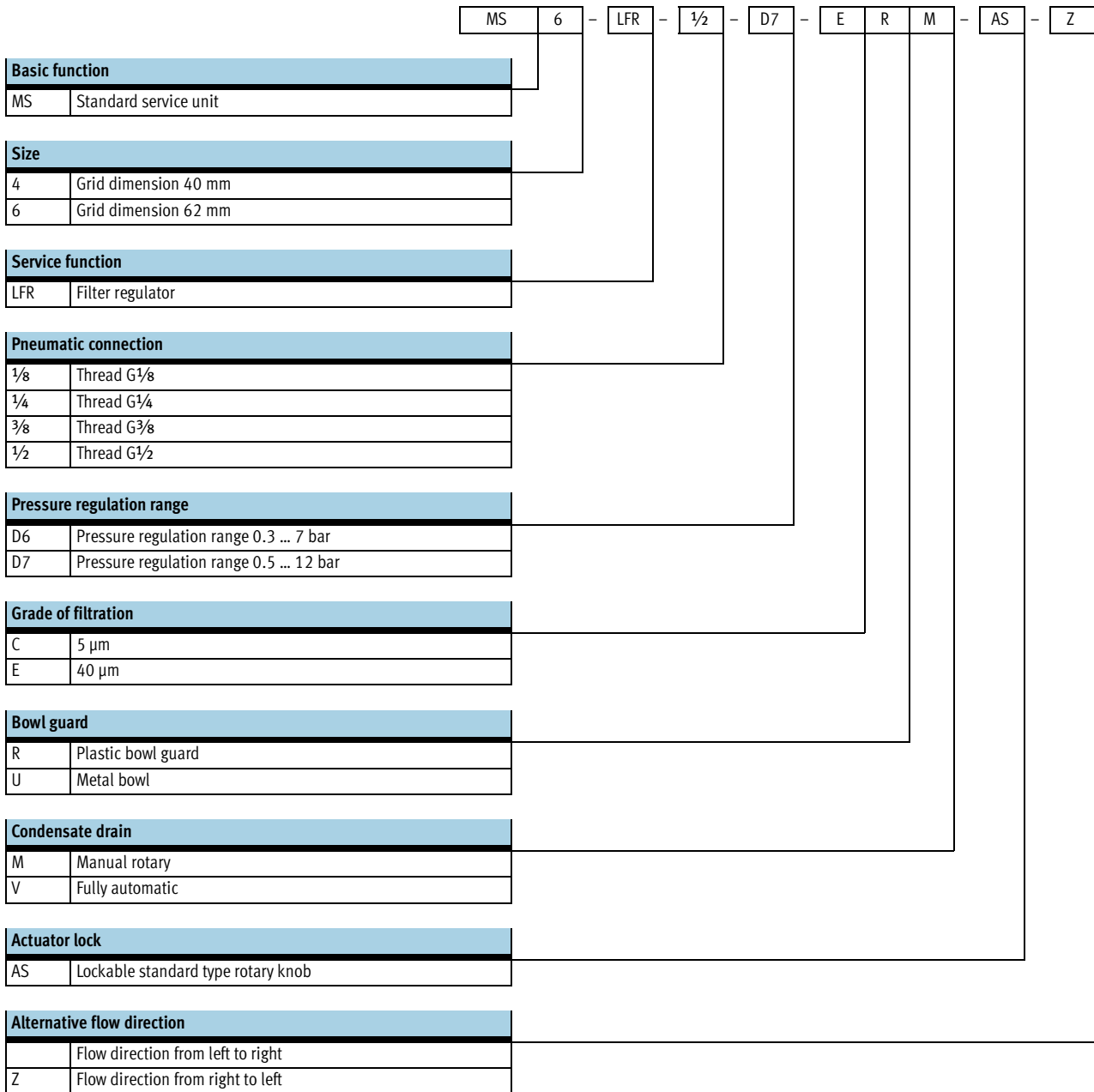
2.12



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	Knurled nut (included in scope of delivery) MS-LR	■	■	-	-	-
8	Cover plate VS	■	■	■	■	3/2.12-12
9	Adapter plate for pressure gauge to EN 837 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



Further variants can be ordered using the modular system

Filter regulators LFR → 3/2.12-12

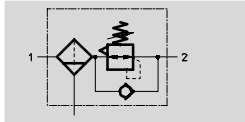
- Connecting plates
- Pressure regulation range
- Condensate drain
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Rotary knob
- Type of mounting

Filter regulators MS4/MS6-LFR, MS series

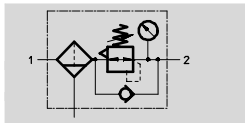
Technical data

Function

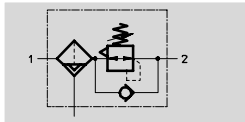
Condensate drain
 manual rotary
 without pressure gauge



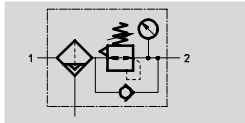
with pressure gauge






Condensate drain
 semi- or fully automatic
 without pressure gauge



with pressure gauge



-  - Flow rate
850 ... 7200 l/min
-  - Temperature range
-10 ... +60 °C
-  - 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.



- 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
- Lockable rotary knob
- Available with or without secondary venting
- Setting values are secured by locking the 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		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		Filter regulator with pressure gauge			
Type of mounting		Via accessories In-line installation Front panel mounting			
Assembly position		Vertical $\pm 5^\circ$			
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 [cm 3]					
Plastic bowl guard		19		38	
Metal bowl		25		38	

Filter regulators MS4/MS6-LFR, MS series

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 qnN [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

New
Variants H and E1 ... E4

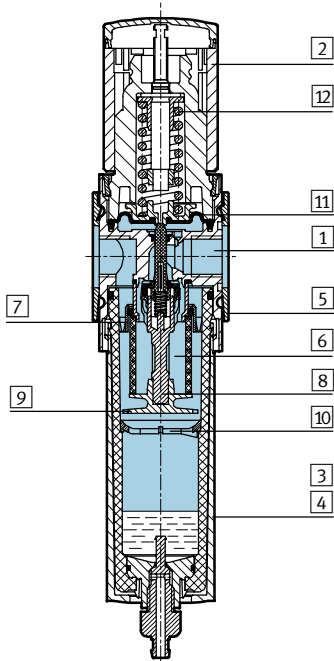
Filter regulators MS4/MS6-LFR, MS series

Technical data



Materials

Sectional view



Filter regulator		
1	Body	Die-cast aluminium
2	Regulating knob	Polyamide/polyacetate
3	Plastic bowl guard	Polycarbonate/polyamide
4	Metal bowl	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

MS4/MS6 series service units
 Filter regulators

2.12

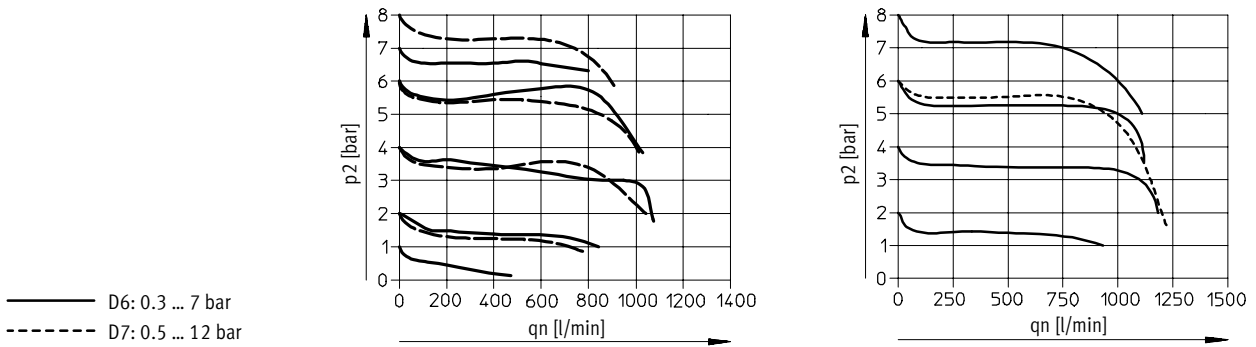
Standard flow rate q_n as a function of the output pressure p_2

Pressure regulation range D6 or D7

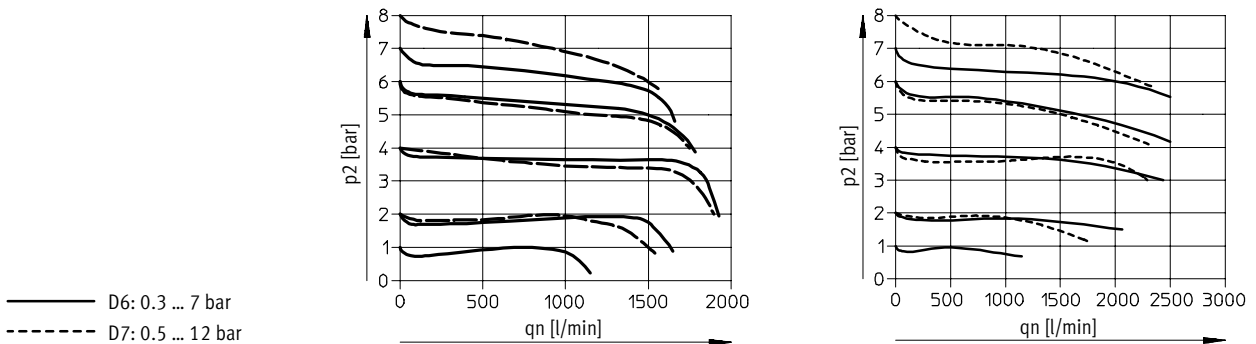
Grade of filtration 5 μ m

Grade of filtration 40 μ m

MS4-LFR-1/8



MS4-LFR-1/4



Primary pressure $p_1 = 10$ bar

Filter regulators MS4/MS6-LFR, MS series

Technical data



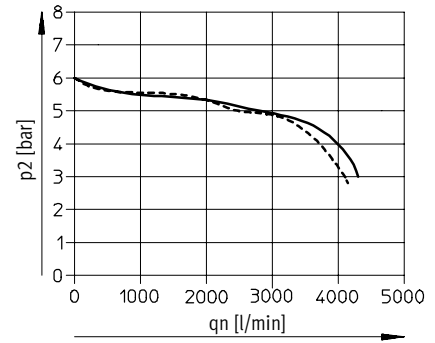
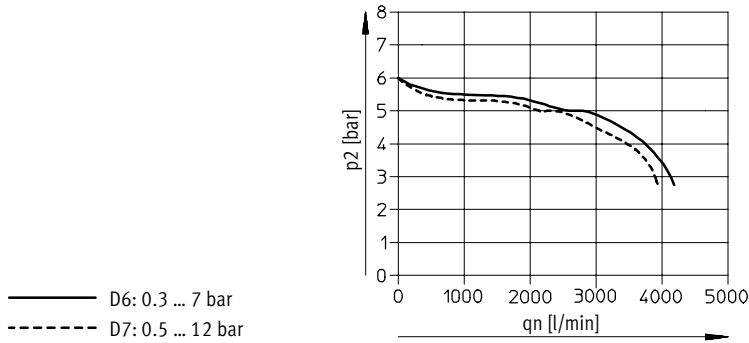
Standard flow rate q_n as a function of the output pressure p_2

Pressure regulation range D6 or D7

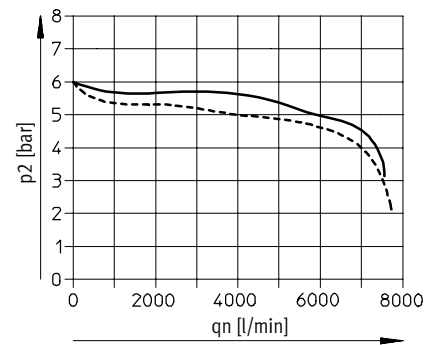
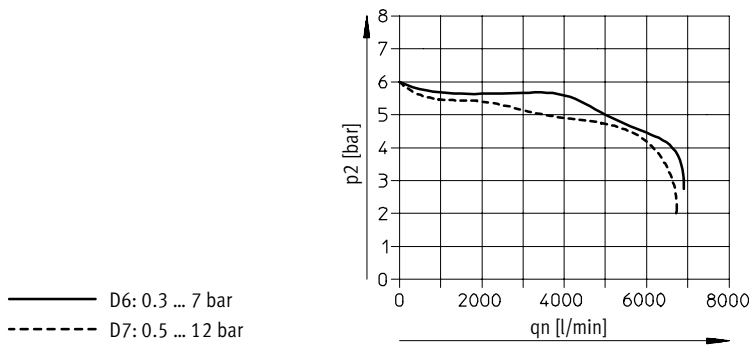
Grade of filtration 5 μm

Grade of filtration 40 μm

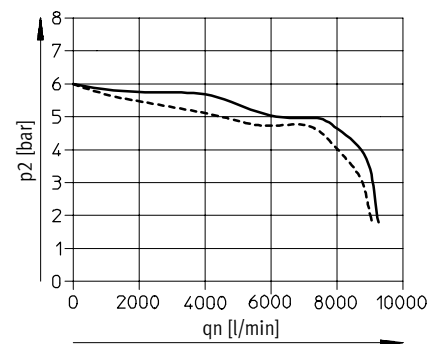
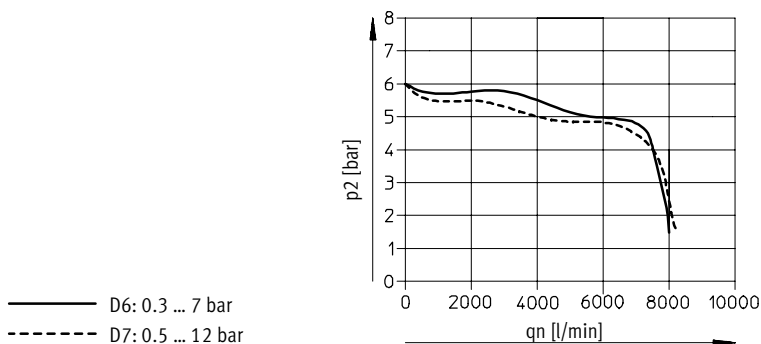
MS6-LFR-1/4



MS6-LFR-3/8



MS6-LFR-1/2



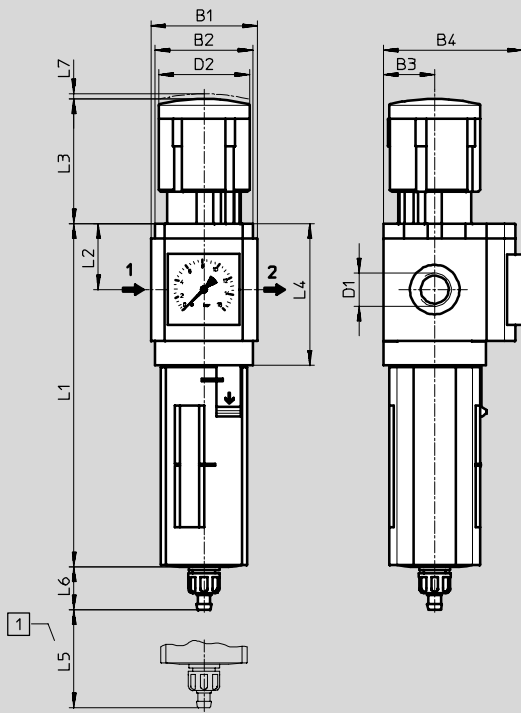
Primary pressure $p_1 = 10 \text{ bar}$

Filter regulators MS4/MS6-LFR, MS series

Technical data

Dimensions – Standard

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



1) Installation dimensions

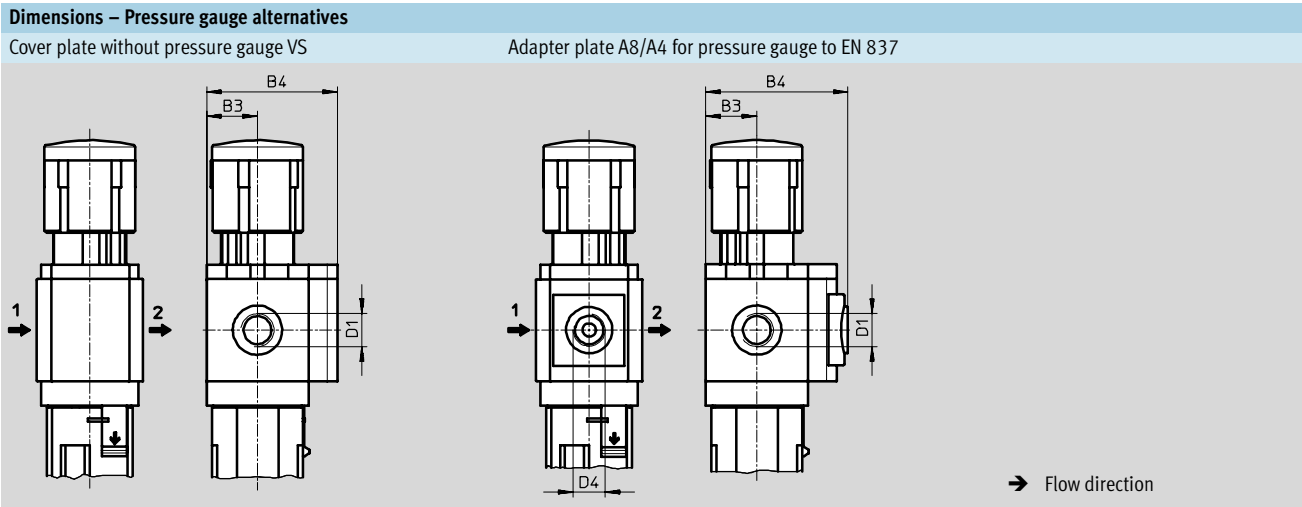
➔ Flow direction

Type	B1 ¹⁾	B2	B3	B4	D1	D2	L1		L2	L3	L4	L5	L6		L7
							plastic	metal					plastic	metal	
MS4-LFR-1/8	43.3	40	21	57	G1/8	37.2	140.6	158.2	27	51.1	58	25	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



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	

New
Variants H and E1 ... E4

Filter regulators MS4/MS6-LFR, MS series

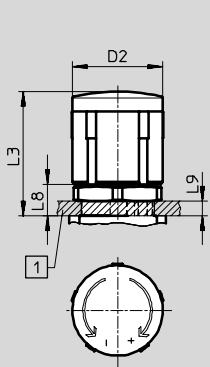
Technical data



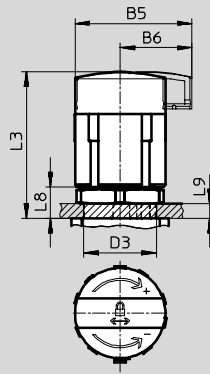
Dimensions – Rotary knob

For installation into control panel

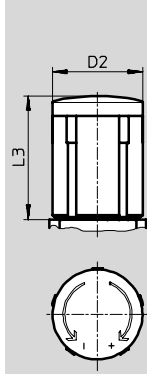
Standard



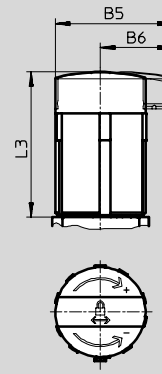
Standard, lockable
AS



Long
LD



Long, lockable
LD-AS



1 Max. control panel thickness
6 mm

MS4/MS6 series service units
Filter regulators

2.12

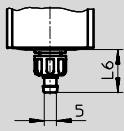
Type	B5	B6	D2	D3 +1	L3	L8	L9
MS4-LFR-...	-	-	37.2	30	51.1	13	6
MS4-LFR-...-AS	48.3	29.7			60.2		
MS4-LFR-...-LD	-	-	37.2	30	51.1	-	-
MS4-LFR-...-LD-AS	48.3	29.7			60.2		
MS6-LFR-...	-	-	51	44	86	22	14
MS6-LFR-...-AS	64.4	39			95.5		
MS6-LFR-...-LD	-	-	51	44	86	-	-
MS6-LFR-...-LD-AS	64.4	39			95.5		

Filter regulators MS4/MS6-LFR, MS series

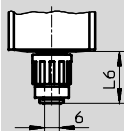
Technical data

Dimensions – Condensate drain

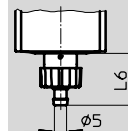
Manual rotary
M



Semi-automatic
H



Fully automatic
V

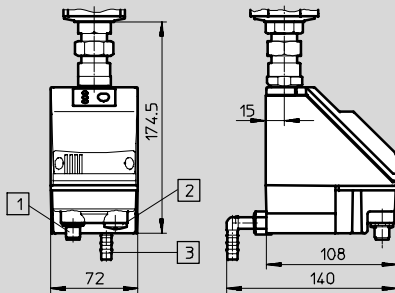


Type	L6
Plastic bowl guard	
MS4-LFR-...-M	17.7
MS6-LFR-...-M	15.8
Metal bowl	
MS4-LFR-...-M	–
MS6-LFR-...-M	19

Type	L6
Plastic bowl guard	
MS4-LFR-...-H	22.1
MS6-LFR-...-H	20.2
Metal bowl	
MS4-LFR-...-H	–
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, electrical
E1 ... E4



- 1 MS6-LFR-...-E1
M12x1 plug, 5-pin
for SIM-M12-5GD-...
- 2 MS6-LFR-...-E2/E3/E4
Cable conduit fitting Pg9
- 3 Connection 360° rotatable for
plastic tubing PUN-H-12x2-...

Filter regulators MS4/MS6-LFR, MS series

Technical data

FESTO

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	G $\frac{1}{8}$	529 160	MS4-LFR- $\frac{1}{8}$ -D6-CRM-AS	529 164	MS4-LFR- $\frac{1}{8}$ -D6-ERM-AS
		G $\frac{1}{4}$	529 144	MS4-LFR- $\frac{1}{4}$ -D6-CRM-AS	529 148	MS4-LFR- $\frac{1}{4}$ -D6-ERM-AS
	MS6	G $\frac{1}{4}$	529 196	MS6-LFR- $\frac{1}{4}$ -D6-CRM-AS	529 200	MS6-LFR- $\frac{1}{4}$ -D6-ERM-AS
		G $\frac{3}{8}$	529 216	MS6-LFR- $\frac{3}{8}$ -D6-CRM-AS	529 220	MS6-LFR- $\frac{3}{8}$ -D6-ERM-AS
		G $\frac{1}{2}$	529 176	MS6-LFR- $\frac{1}{2}$ -D6-CRM-AS	529 180	MS6-LFR- $\frac{1}{2}$ -D6-ERM-AS
fully automatic	MS4	G $\frac{1}{8}$	529 162	MS4-LFR- $\frac{1}{8}$ -D6-CRV-AS	529 166	MS4-LFR- $\frac{1}{8}$ -D6-ERV-AS
		G $\frac{1}{4}$	529 146	MS4-LFR- $\frac{1}{4}$ -D6-CRV-AS	529 150	MS4-LFR- $\frac{1}{4}$ -D6-ERV-AS
	MS6	G $\frac{1}{4}$	529 198	MS6-LFR- $\frac{1}{4}$ -D6-CRV-AS	529 202	MS6-LFR- $\frac{1}{4}$ -D6-ERV-AS
		G $\frac{3}{8}$	529 218	MS6-LFR- $\frac{3}{8}$ -D6-CRV-AS	529 222	MS6-LFR- $\frac{3}{8}$ -D6-ERV-AS
		G $\frac{1}{2}$	529 178	MS6-LFR- $\frac{1}{2}$ -D6-CRV-AS	529 182	MS6-LFR- $\frac{1}{2}$ -D6-ERV-AS
Flow direction from right to left						
manual rotary	MS4	G $\frac{1}{8}$	529 161	MS4-LFR- $\frac{1}{8}$ -D6-CRM-AS-Z	529 165	MS4-LFR- $\frac{1}{8}$ -D6-ERM-AS-Z
		G $\frac{1}{4}$	529 145	MS4-LFR- $\frac{1}{4}$ -D6-CRM-AS-Z	529 149	MS4-LFR- $\frac{1}{4}$ -D6-ERM-AS-Z
	MS6	G $\frac{1}{4}$	529 197	MS6-LFR- $\frac{1}{4}$ -D6-CRM-AS-Z	529 201	MS6-LFR- $\frac{1}{4}$ -D6-ERM-AS-Z
		G $\frac{3}{8}$	529 217	MS6-LFR- $\frac{3}{8}$ -D6-CRM-AS-Z	529 221	MS6-LFR- $\frac{3}{8}$ -D6-ERM-AS-Z
		G $\frac{1}{2}$	529 177	MS6-LFR- $\frac{1}{2}$ -D6-CRM-AS-Z	529 181	MS6-LFR- $\frac{1}{2}$ -D6-ERM-AS-Z
fully automatic	MS4	G $\frac{1}{8}$	529 163	MS4-LFR- $\frac{1}{8}$ -D6-CRV-AS-Z	529 167	MS4-LFR- $\frac{1}{8}$ -D6-ERV-AS-Z
		G $\frac{1}{4}$	529 147	MS4-LFR- $\frac{1}{4}$ -D6-CRV-AS-Z	529 151	MS4-LFR- $\frac{1}{4}$ -D6-ERV-AS-Z
	MS6	G $\frac{1}{4}$	529 199	MS6-LFR- $\frac{1}{4}$ -D6-CRV-AS-Z	529 203	MS6-LFR- $\frac{1}{4}$ -D6-ERV-AS-Z
		G $\frac{3}{8}$	529 219	MS6-LFR- $\frac{3}{8}$ -D6-CRV-AS-Z	529 223	MS6-LFR- $\frac{3}{8}$ -D6-ERV-AS-Z
		G $\frac{1}{2}$	529 179	MS6-LFR- $\frac{1}{2}$ -D6-CRV-AS-Z	529 183	MS6-LFR- $\frac{1}{2}$ -D6-ERV-AS-Z

Filter regulators MS4/MS6-LFR, MS series

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	G $\frac{1}{8}$	529 168	MS4-LFR- $\frac{1}{8}$ -D7-CRM-AS	529 172	MS4-LFR- $\frac{1}{8}$ -D7-ERM-AS
		G $\frac{1}{4}$	529 152	MS4-LFR- $\frac{1}{4}$ -D7-CRM-AS	529 156	MS4-LFR- $\frac{1}{4}$ -D7-ERM-AS
	MS6	G $\frac{1}{4}$	529 204	MS6-LFR- $\frac{1}{4}$ -D7-CRM-AS	529 208	MS6-LFR- $\frac{1}{4}$ -D7-ERM-AS
		G $\frac{3}{8}$	529 224	MS6-LFR- $\frac{3}{8}$ -D7-CRM-AS	529 228	MS6-LFR- $\frac{3}{8}$ -D7-ERM-AS
		G $\frac{1}{2}$	529 184	MS6-LFR- $\frac{1}{2}$ -D7-CRM-AS	529 188	MS6-LFR- $\frac{1}{2}$ -D7-ERM-AS
fully automatic	MS4	G $\frac{1}{8}$	529 170	MS4-LFR- $\frac{1}{8}$ -D7-CRV-AS	529 174	MS4-LFR- $\frac{1}{8}$ -D7-ERV-AS
		G $\frac{1}{4}$	529 154	MS4-LFR- $\frac{1}{4}$ -D7-CRV-AS	529 158	MS4-LFR- $\frac{1}{4}$ -D7-ERV-AS
	MS6	G $\frac{1}{4}$	529 206	MS6-LFR- $\frac{1}{4}$ -D7-CRV-AS	529 210	MS6-LFR- $\frac{1}{4}$ -D7-ERV-AS
		G $\frac{3}{8}$	529 226	MS6-LFR- $\frac{3}{8}$ -D7-CRV-AS	529 230	MS6-LFR- $\frac{3}{8}$ -D7-ERV-AS
		G $\frac{1}{2}$	529 186	MS6-LFR- $\frac{1}{2}$ -D7-CRV-AS	529 190	MS6-LFR- $\frac{1}{2}$ -D7-ERV-AS
Flow direction from right to left						
manual rotary	MS4	G $\frac{1}{8}$	529 169	MS4-LFR- $\frac{1}{8}$ -D7-CRM-AS-Z	529 173	MS4-LFR- $\frac{1}{8}$ -D7-ERM-AS-Z
		G $\frac{1}{4}$	529 153	MS4-LFR- $\frac{1}{4}$ -D7-CRM-AS-Z	529 157	MS4-LFR- $\frac{1}{4}$ -D7-ERM-AS-Z
	MS6	G $\frac{1}{4}$	529 205	MS6-LFR- $\frac{1}{4}$ -D7-CRM-AS-Z	529 209	MS6-LFR- $\frac{1}{4}$ -D7-ERM-AS-Z
		G $\frac{3}{8}$	529 225	MS6-LFR- $\frac{3}{8}$ -D7-CRM-AS-Z	529 229	MS6-LFR- $\frac{3}{8}$ -D7-ERM-AS-Z
		G $\frac{1}{2}$	529 185	MS6-LFR- $\frac{1}{2}$ -D7-CRM-AS-Z	529 189	MS6-LFR- $\frac{1}{2}$ -D7-ERM-AS-Z
fully automatic	MS4	G $\frac{1}{8}$	529 171	MS4-LFR- $\frac{1}{8}$ -D7-CRV-AS-Z	529 175	MS4-LFR- $\frac{1}{8}$ -D7-ERV-AS-Z
		G $\frac{1}{4}$	529 155	MS4-LFR- $\frac{1}{4}$ -D7-CRV-AS-Z	529 159	MS4-LFR- $\frac{1}{4}$ -D7-ERV-AS-Z
	MS6	G $\frac{1}{4}$	529 207	MS6-LFR- $\frac{1}{4}$ -D7-CRV-AS-Z	529 211	MS6-LFR- $\frac{1}{4}$ -D7-ERV-AS-Z
		G $\frac{3}{8}$	529 227	MS6-LFR- $\frac{3}{8}$ -D7-CRV-AS-Z	529 231	MS6-LFR- $\frac{3}{8}$ -D7-ERV-AS-Z
		G $\frac{1}{2}$	529 187	MS6-LFR- $\frac{1}{2}$ -D7-CRV-AS-Z	529 191	MS6-LFR- $\frac{1}{2}$ -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	MS6	G $\frac{1}{4}$	530 342	MS6-LFR- $\frac{1}{4}$ -D7-CUM-AS	529 212	MS6-LFR- $\frac{1}{4}$ -D7-EUM-AS
		G $\frac{3}{8}$	530 346	MS6-LFR- $\frac{3}{8}$ -D7-CUM-AS	529 232	MS6-LFR- $\frac{3}{8}$ -D7-EUM-AS
		G $\frac{1}{2}$	530 338	MS6-LFR- $\frac{1}{2}$ -D7-CUM-AS	529 192	MS6-LFR- $\frac{1}{2}$ -D7-EUM-AS
fully automatic	MS4	G $\frac{1}{8}$	535 704	MS4-LFR- $\frac{1}{8}$ -D7-CUV-AS	535 706	MS4-LFR- $\frac{1}{8}$ -D7-EUV-AS
		G $\frac{1}{4}$	535 720	MS4-LFR- $\frac{1}{4}$ -D7-CUV-AS	535 722	MS4-LFR- $\frac{1}{4}$ -D7-EUV-AS
	MS6	G $\frac{1}{4}$	530 344	MS6-LFR- $\frac{1}{4}$ -D7-CUV-AS	529 214	MS6-LFR- $\frac{1}{4}$ -D7-EUV-AS
		G $\frac{3}{8}$	530 348	MS6-LFR- $\frac{3}{8}$ -D7-CUV-AS	529 234	MS6-LFR- $\frac{3}{8}$ -D7-EUV-AS
		G $\frac{1}{2}$	530 340	MS6-LFR- $\frac{1}{2}$ -D7-CUV-AS	529 194	MS6-LFR- $\frac{1}{2}$ -D7-EUV-AS
Flow direction from right to left						
manual rotary	MS6	G $\frac{1}{4}$	530 343	MS6-LFR- $\frac{1}{4}$ -D7-CUM-AS-Z	529 213	MS6-LFR- $\frac{1}{4}$ -D7-EUM-AS-Z
		G $\frac{3}{8}$	530 347	MS6-LFR- $\frac{3}{8}$ -D7-CUM-AS-Z	529 233	MS6-LFR- $\frac{3}{8}$ -D7-EUM-AS-Z
		G $\frac{1}{2}$	530 339	MS6-LFR- $\frac{1}{2}$ -D7-CUM-AS-Z	529 193	MS6-LFR- $\frac{1}{2}$ -D7-EUM-AS-Z
fully automatic	MS4	G $\frac{1}{8}$	535 705	MS4-LFR- $\frac{1}{8}$ -D7-CUV-AS-Z	535 707	MS4-LFR- $\frac{1}{8}$ -D7-EUV-AS-Z
		G $\frac{1}{4}$	535 721	MS4-LFR- $\frac{1}{4}$ -D7-CUV-AS-Z	535 723	MS4-LFR- $\frac{1}{4}$ -D7-EUV-AS-Z
	MS6	G $\frac{1}{4}$	530 345	MS6-LFR- $\frac{1}{4}$ -D7-CUV-AS-Z	529 215	MS6-LFR- $\frac{1}{4}$ -D7-EUV-AS-Z
		G $\frac{3}{8}$	530 349	MS6-LFR- $\frac{3}{8}$ -D7-CUV-AS-Z	529 235	MS6-LFR- $\frac{3}{8}$ -D7-EUV-AS-Z
		G $\frac{1}{2}$	530 341	MS6-LFR- $\frac{1}{2}$ -D7-CUV-AS-Z	529 195	MS6-LFR- $\frac{1}{2}$ -D7-EUV-AS-Z

New
Variants H and E1 ... E4

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	MS	4	LFR	1/8, 1/4, 3/8, 1/2, AGA, AGB, AGC, AGD, AGE	D5 D6 D7 D8	E C	R U
526 490		6					
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		
	-	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		
	Grade of filtration	40 µm			-E		
		5 µm			-C		
	Bowl	Plastic bowl with plastic bowl guard			-R		
		Metal bowl			-U		

1 U For size 4 only with fully automatic condensate drain V.

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	Condi- tions	Code	Enter code	
M Condensate drain Manual Semi-automatic Fully automatic External fully automatic condensate drain, electrical, 24 V DC, M12 External fully automatic condensate drain, electrical, 110 V DC, terminals External fully automatic condensate drain, electrical, 230 V DC, terminals External fully automatic condensate drain, electrical, 24 V DC, terminals				[2]	-M -H -V -E1 -E2 -E3 -E4		
	0 Pressure gauge alternatives No pressure gauge mounting Adapter plate for EN pressure gauge 1/8, without pressure gauge Adapter plate for EN pressure gauge 1/4, without pressure gauge					-VS -A8 -A4	
		Alternative pressure gauge scale psi MPa			[3]	-PSI -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 Wall mounting plate Wall mounting plate (dimensions for M series) Wall mounting bracket Wall mounting bracket (dimensions for M series)				[4]	-WR -WP -WPM -WB -WBM	
Alternative flow direction Flow direction from right to left					-Z		

[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**

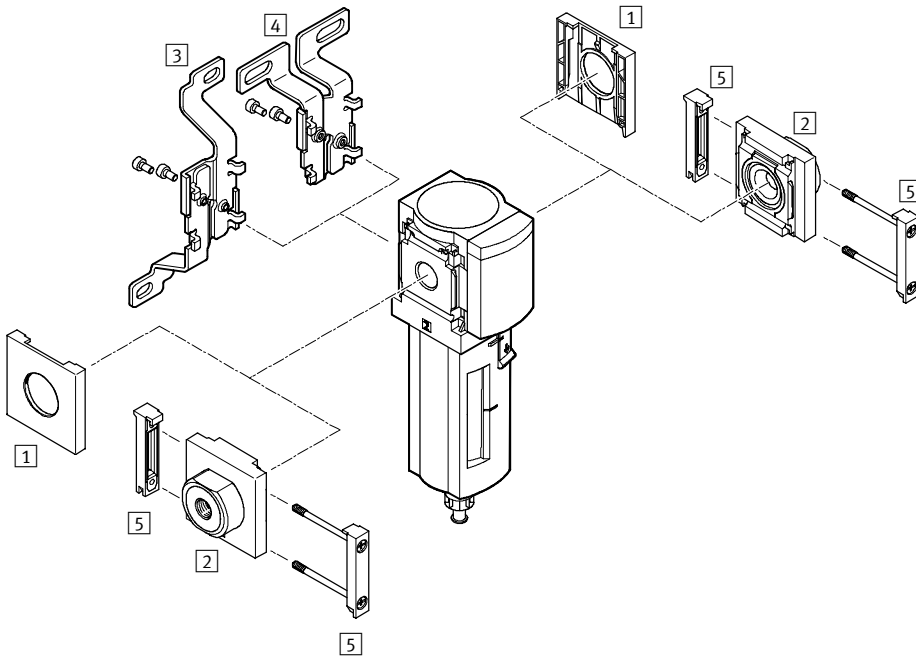
Only with connection size AGA, AGB, AGC, AGD or AGE.

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

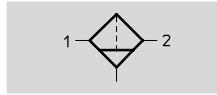
- Connecting plates
- Condensate drain
- Type of mounting

Filters MS4/MS6-LF, MS series

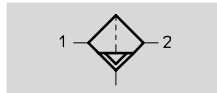
Technical data


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		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 _{nN} ¹⁾ [l/min]					
		MS4		MS6	
		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$ G $\frac{1}{2}$
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

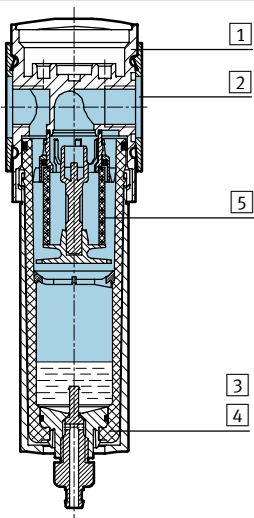
Technical data

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

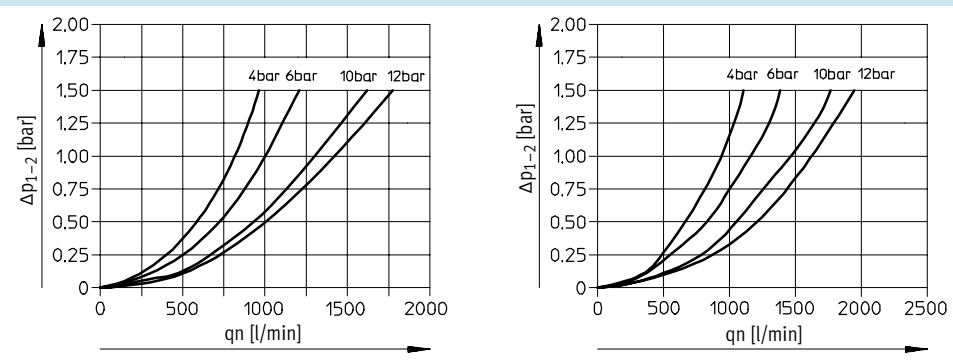
Materials
 Sectional view



Filter	
1	Body Die-cast aluminium
2	Cover plates Polyamide
3	Plastic bowl guard Polyamide
4	Metal bowl Wrought aluminium alloy
5	Filter element Polyethylene
-	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}
 Grade of filtration 5 μm Grade of filtration 40 μm

MS4-LF-1/8



Filters MS4/MS6-LF, MS series

Technical data

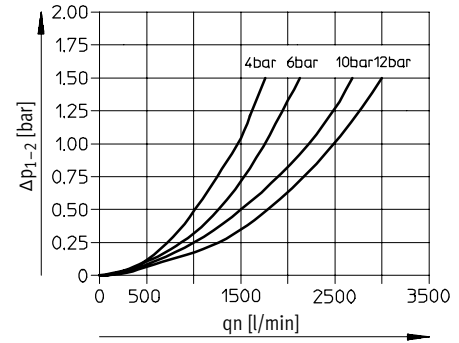
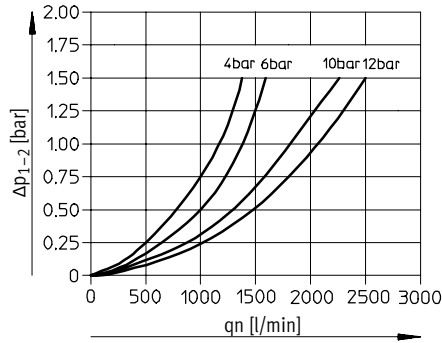


Standard flow rate q_n as a function of the differential pressure Δp_{1-2}

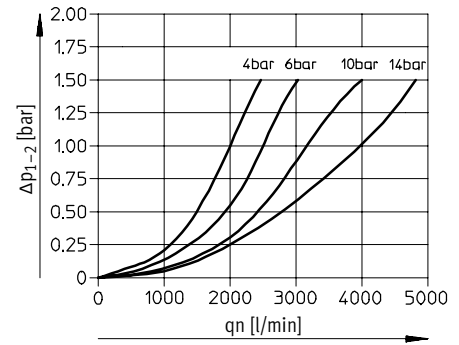
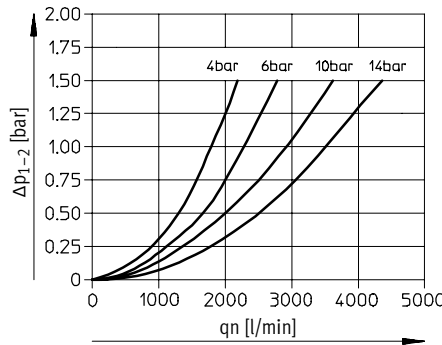
Grade of filtration 5 μm

Grade of filtration 40 μm

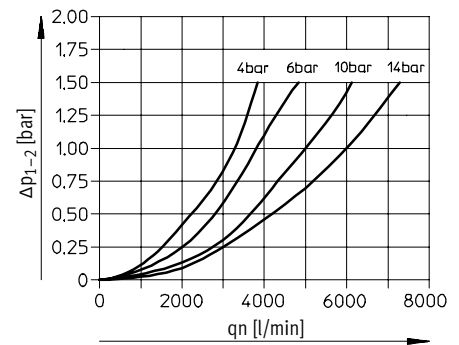
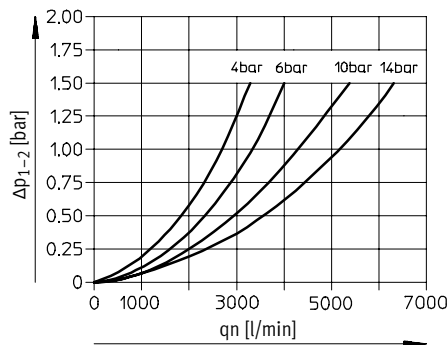
MS4-LF-1/4



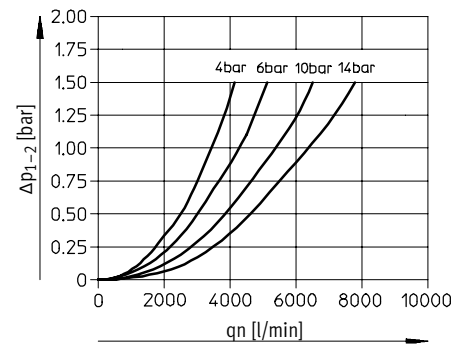
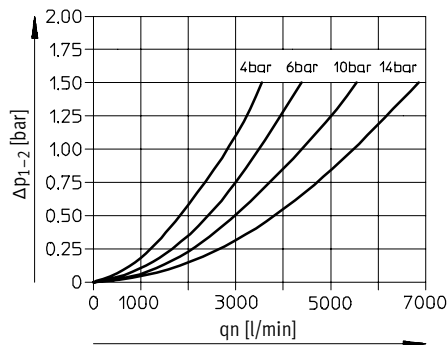
MS6-LF-1/4



MS6-LF-3/8



MS6-LF-1/2



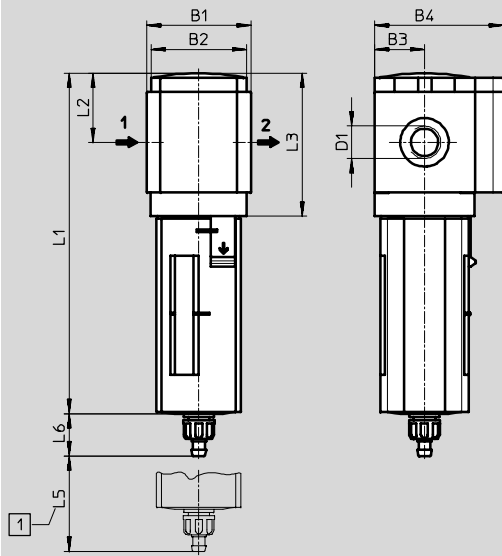
Primary pressure $p_1 = 10 \text{ bar}$

Filters MS4/MS6-LF, MS series

Technical data

Dimensions – Standard

Manual rotary condensate drain



1 Installation dimensions

→ Flow direction

Type	B1 ¹⁾	B2	B3	B4	D1	L1		L2	L3	L5	L6	
						Bowl guard					plastic	metal
						plastic	metal					
MS4-LF-1/8	43.6	40.2	21	54	G1/8	141.8	159.4	29	60	25	18	-
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

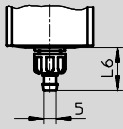
Filters MS4/MS6-LF, MS series

Technical data

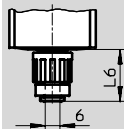


Dimensions – Condensate drain

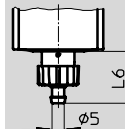
Manual rotary
M



Semi-automatic
H



Fully automatic
V



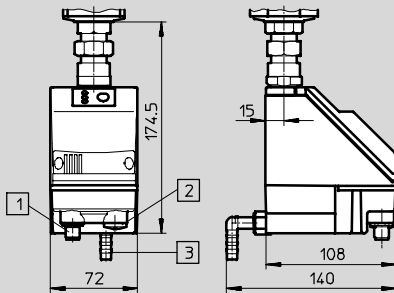
Type	L6
Plastic bowl guard	
MS4-LF-...-M	18
MS6-LF-...-M	15.8
Metal bowl	
MS4-LF-...-M	–
MS6-LF-...-M	19

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



- 1 MS6-LF-...-E1
M12x1 plug, 5-pin
for SIM-M12-5GD-...
- 2 MS6-LF-...-E2/E3/E4
Cable conduit fitting Pg9
- 3 Connection 360° rotatable for
plastic tubing PUN-H-12x2-...

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	G $\frac{1}{8}$	529 403	MS4-LF- $\frac{1}{8}$ -CRM	529 407	MS4-LF- $\frac{1}{8}$ -ERM
		G $\frac{1}{4}$	529 395	MS4-LF- $\frac{1}{4}$ -CRM	529 399	MS4-LF- $\frac{1}{4}$ -ERM
	MS6	G $\frac{1}{4}$	529 623	MS6-LF- $\frac{1}{4}$ -CRM	529 631	MS6-LF- $\frac{1}{4}$ -ERM
		G $\frac{3}{8}$	529 639	MS6-LF- $\frac{3}{8}$ -CRM	529 647	MS6-LF- $\frac{3}{8}$ -ERM
		G $\frac{1}{2}$	529 607	MS6-LF- $\frac{1}{2}$ -CRM	529 615	MS6-LF- $\frac{1}{2}$ -ERM
fully automatic	MS4	G $\frac{1}{8}$	529 405	MS4-LF- $\frac{1}{8}$ -CRV	529 409	MS4-LF- $\frac{1}{8}$ -ERV
		G $\frac{1}{4}$	529 397	MS4-LF- $\frac{1}{4}$ -CRV	529 401	MS4-LF- $\frac{1}{4}$ -ERV
	MS6	G $\frac{1}{4}$	529 625	MS6-LF- $\frac{1}{4}$ -CRV	529 633	MS6-LF- $\frac{1}{4}$ -ERV
		G $\frac{3}{8}$	529 641	MS6-LF- $\frac{3}{8}$ -CRV	529 649	MS6-LF- $\frac{3}{8}$ -ERV
		G $\frac{1}{2}$	529 609	MS6-LF- $\frac{1}{2}$ -CRV	529 617	MS6-LF- $\frac{1}{2}$ -ERV
Flow direction from right to left						
manual rotary	MS4	G $\frac{1}{8}$	529 404	MS4-LF- $\frac{1}{8}$ -CRM-Z	529 408	MS4-LF- $\frac{1}{8}$ -ERM-Z
		G $\frac{1}{4}$	529 396	MS4-LF- $\frac{1}{4}$ -CRM-Z	529 400	MS4-LF- $\frac{1}{4}$ -ERM-Z
	MS6	G $\frac{1}{4}$	529 624	MS6-LF- $\frac{1}{4}$ -CRM-Z	529 632	MS6-LF- $\frac{1}{4}$ -ERM-Z
		G $\frac{3}{8}$	529 640	MS6-LF- $\frac{3}{8}$ -CRM-Z	529 648	MS6-LF- $\frac{3}{8}$ -ERM-Z
		G $\frac{1}{2}$	529 608	MS6-LF- $\frac{1}{2}$ -CRM-Z	529 616	MS6-LF- $\frac{1}{2}$ -ERM-Z
fully automatic	MS4	G $\frac{1}{8}$	529 406	MS4-LF- $\frac{1}{8}$ -CRV-Z	529 410	MS4-LF- $\frac{1}{8}$ -ERV-Z
		G $\frac{1}{4}$	529 398	MS4-LF- $\frac{1}{4}$ -CRV-Z	529 402	MS4-LF- $\frac{1}{4}$ -ERV-Z
	MS6	G $\frac{1}{4}$	529 626	MS6-LF- $\frac{1}{4}$ -CRV-Z	529 634	MS6-LF- $\frac{1}{4}$ -ERV-Z
		G $\frac{3}{8}$	529 642	MS6-LF- $\frac{3}{8}$ -CRV-Z	529 650	MS6-LF- $\frac{3}{8}$ -ERV-Z
		G $\frac{1}{2}$	529 610	MS6-LF- $\frac{1}{2}$ -CRV-Z	529 618	MS6-LF- $\frac{1}{2}$ -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	MS6	G $\frac{1}{4}$	529 627	MS6-LF- $\frac{1}{4}$ -CUM	529 635	MS6-LF- $\frac{1}{4}$ -EUM
		G $\frac{3}{8}$	529 643	MS6-LF- $\frac{3}{8}$ -CUM	529 651	MS6-LF- $\frac{3}{8}$ -EUM
		G $\frac{1}{2}$	529 611	MS6-LF- $\frac{1}{2}$ -CUM	529 619	MS6-LF- $\frac{1}{2}$ -EUM
fully automatic	MS4	G $\frac{1}{8}$	535 640	MS4-LF- $\frac{1}{8}$ -CUV	535 642	MS4-LF- $\frac{1}{8}$ -EUV
		G $\frac{1}{4}$	535 656	MS4-LF- $\frac{1}{4}$ -CUV	535 658	MS4-LF- $\frac{1}{4}$ -EUV
	MS6	G $\frac{1}{4}$	529 629	MS6-LF- $\frac{1}{4}$ -CUV	529 637	MS6-LF- $\frac{1}{4}$ -EUV
		G $\frac{3}{8}$	529 645	MS6-LF- $\frac{3}{8}$ -CUV	529 653	MS6-LF- $\frac{3}{8}$ -EUV
		G $\frac{1}{2}$	529 613	MS6-LF- $\frac{1}{2}$ -CUV	529 621	MS6-LF- $\frac{1}{2}$ -EUV
Flow direction from right to left						
manual rotary	MS6	G $\frac{1}{4}$	529 628	MS6-LF- $\frac{1}{4}$ -CUM-Z	529 636	MS6-LF- $\frac{1}{4}$ -EUM-Z
		G $\frac{3}{8}$	529 644	MS6-LF- $\frac{3}{8}$ -CUM-Z	529 652	MS6-LF- $\frac{3}{8}$ -EUM-Z
		G $\frac{1}{2}$	529 612	MS6-LF- $\frac{1}{2}$ -CUM-Z	529 620	MS6-LF- $\frac{1}{2}$ -EUM-Z
fully automatic	MS4	G $\frac{1}{8}$	535 641	MS4-LF- $\frac{1}{8}$ -CUV-Z	535 643	MS4-LF- $\frac{1}{8}$ -EUV-Z
		G $\frac{1}{4}$	535 657	MS4-LF- $\frac{1}{4}$ -CUV-Z	535 659	MS4-LF- $\frac{1}{4}$ -EUV-Z
	MS6	G $\frac{1}{4}$	529 630	MS6-LF- $\frac{1}{4}$ -CUV-Z	529 638	MS6-LF- $\frac{1}{4}$ -EUV-Z
		G $\frac{3}{8}$	529 646	MS6-LF- $\frac{3}{8}$ -CUV-Z	529 654	MS6-LF- $\frac{3}{8}$ -EUV-Z
		G $\frac{1}{2}$	529 614	MS6-LF- $\frac{1}{2}$ -CUV-Z	529 622	MS6-LF- $\frac{1}{2}$ -EUV-Z

New
Variants H and E1 ... E4

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			¹	-U	

¹ U For size 4 only with fully automatic condensate drain V.

Transfer order code

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

Filters MS4/MS6-LF, MS series

Ordering data – Modular products

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

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
↓ [M] Condensate drain	Manual				-M	
	Semi-automatic				-H	
	Fully automatic				-V	
	-	External fully automatic condensate drain, electrical, 24 V DC, M12		[2]	-E1	
	-	External fully automatic condensate drain, electrical, 110 V DC, terminals		[2]	-E2	
	-	External fully automatic condensate drain, electrical, 230 V DC, terminals		[2]	-E3	
	-	External fully automatic condensate drain, electrical, 24 V DC, terminals		[2]	-E4	
[O] Type of mounting	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	

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

[3] **WP, WPM** Only with connection size AGA, AGB, AGC, AGD or AGE.


Transfer order code

- - -


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

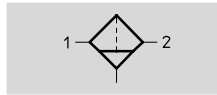
Technical data


Function

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

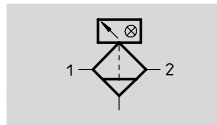
Condensate drain
manual rotary
without differential pressure indicator

-  - Temperature range
-10 ... +60 °C

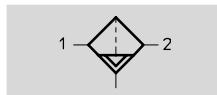


-  - Input pressure
0 ... 20 bar

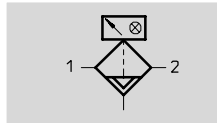
with differential pressure indicator



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%

General technical data					
	MS4		MS6		
Pneumatic connection	G ¹ / ₈	G ¹ / ₄	G ¹ / ₄	G ³ / ₈	G ¹ / ₂
Design	Fibre filter				
Type of mounting	Via accessories In-line installation				
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			
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 $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
Micro filter LFM-A					
$q_{nN} 1 \rightarrow 2$	120	120	380	430	480
q_n min	54	54	135	135	135
q_n max	360	360	900	900	900
Fine filter LFM-B					
$q_{nN} 1 \rightarrow 2$	180	180	550	700	850
q_n min	54	54	140	140	140
q_n max	360	360	950	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

New
Variants DA, H and E1 ... E4

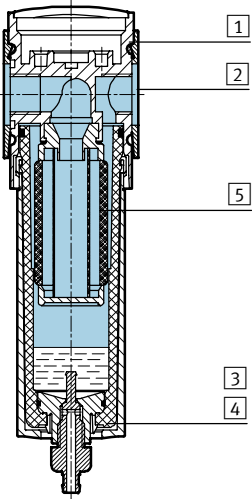
Fine and micro filters MS4/MS6-LFM, MS series

Technical data



Materials

Sectional view



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

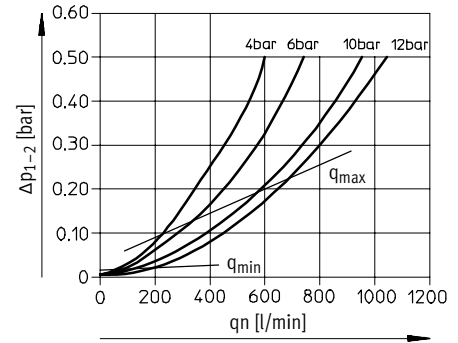
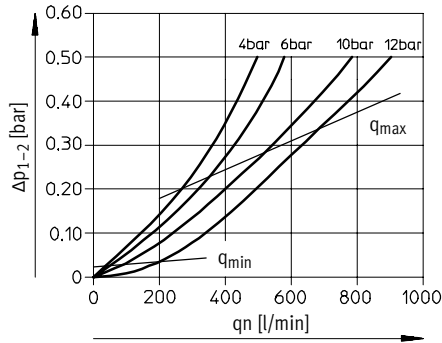
Fine and micro filters MS4/MS6-LFM, MS series

Technical data

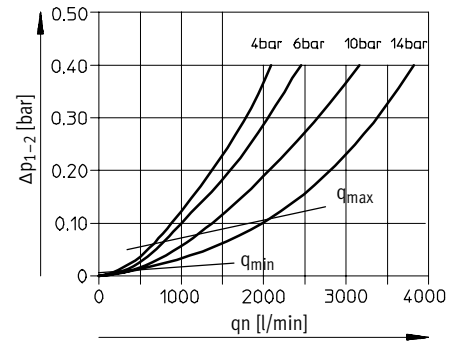
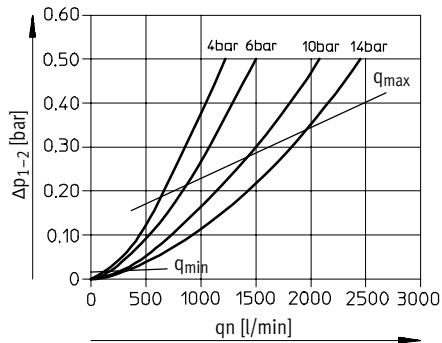


Standard flow rate q_n as a function of the differential pressure Δp_{1-2}
 Grade of filtration 0.01 μm Grade of filtration 1 μm

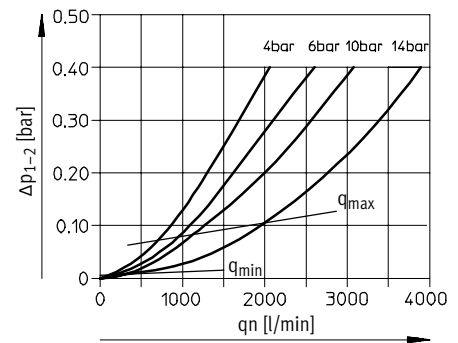
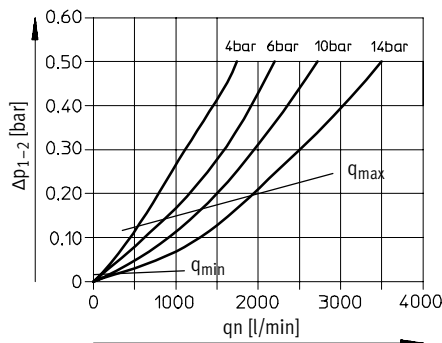
MS4-LFM-1/8 and MS4-LFM-1/4



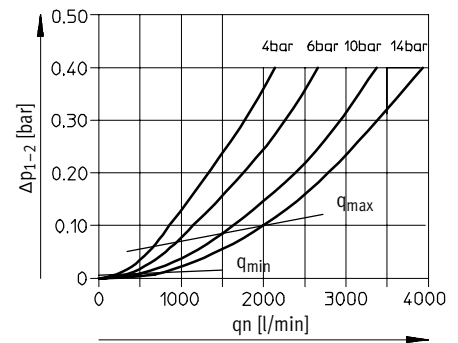
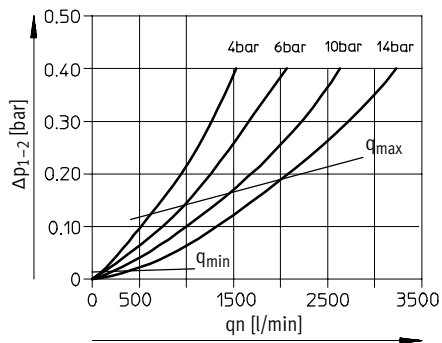
MS6-LFM-1/4



MS6-LFM-3/8



MS6-LFM-1/2

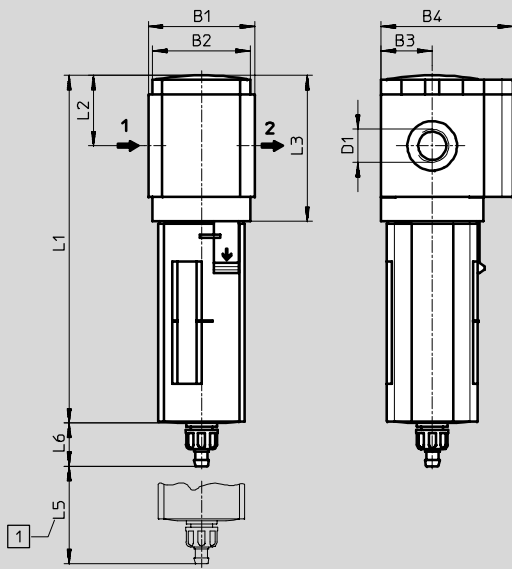


Fine and micro filters MS4/MS6-LFM, MS series

Technical data

Dimensions – Standard

Manual rotary condensate drain



1 Installation dimensions

→ Flow direction

Type	B1 ¹⁾	B2	B3	B4	D1	L1		L2	L3	L5	L6	
						Bowl guard					plastic	metal
						plastic	metal					
MS4-LFM-1/8	43.6	40	21	54	G1/8	142	160	29	60	25	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							

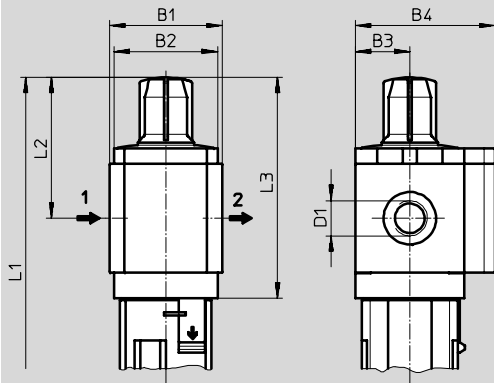
1) With accessory cover cap MS...-END

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

Technical data



Dimensions – Differential pressure indicator



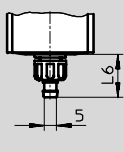
→ Flow direction

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				

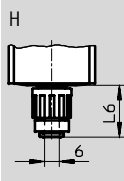
1) With accessory cover cap MS...-END

Dimensions – Condensate drain

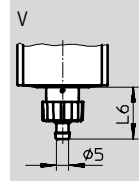
Manual rotary
M



Semi-automatic
H



Fully automatic
V



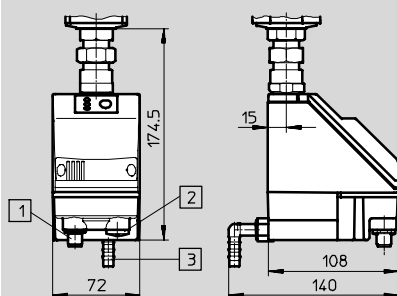
Type	L6
Plastic bowl guard	
MS4-LFM-...-M	17.7
MS6-LFM-...-M	15.8
Metal bowl	
MS4-LFM-...-M	–
MS6-LFM-...-M	19

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



- 1 MS6-LFM-...-E1
M12x1 plug, 5-pin
for SIM-M12-5GD-...
- 2 MS6-LFM-...-E2/E3/E4
Cable conduit fitting Pg9
- 3 Connection 360° rotatable for
plastic tubing PUN-H-12x2-...

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

Technical data





















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	G ¹ / ₈	529 463	MS4-LFM-1/8-ARM	529 465	MS4-LFM-1/8-BRM
		G ¹ / ₄	529 459	MS4-LFM-1/4-ARM	529 461	MS4-LFM-1/4-BRM
	MS6	G ¹ / ₄	529 663	MS6-LFM-1/4-ARM	529 667	MS6-LFM-1/4-BRM
		G ³ / ₈	529 671	MS6-LFM-3/8-ARM	529 675	MS6-LFM-3/8-BRM
		G ¹ / ₂	529 655	MS6-LFM-1/2-ARM	529 659	MS6-LFM-1/2-BRM
fully automatic	MS6	G ¹ / ₄	530 510	MS6-LFM-1/4-ARV	530 514	MS6-LFM-1/4-BRV
		G ³ / ₈	530 518	MS6-LFM-3/8-ARV	530 522	MS6-LFM-3/8-BRV
		G ¹ / ₂	530 502	MS6-LFM-1/2-ARV	530 506	MS6-LFM-1/2-BRV
Flow direction from right to left						
manual rotary	MS4	G ¹ / ₈	529 464	MS4-LFM-1/8-ARM-Z	529 466	MS4-LFM-1/8-BRM-Z
		G ¹ / ₄	529 460	MS4-LFM-1/4-ARM-Z	529 462	MS4-LFM-1/4-BRM-Z
	MS6	G ¹ / ₄	529 664	MS6-LFM-1/4-ARM-Z	529 668	MS6-LFM-1/4-BRM-Z
		G ³ / ₈	529 672	MS6-LFM-3/8-ARM-Z	529 676	MS6-LFM-3/8-BRM-Z
		G ¹ / ₂	529 656	MS6-LFM-1/2-ARM-Z	529 660	MS6-LFM-1/2-BRM-Z
fully automatic	MS6	G ¹ / ₄	530 512	MS6-LFM-1/4-ARV-Z	530 516	MS6-LFM-1/4-BRV-Z
		G ³ / ₈	530 520	MS6-LFM-3/8-ARV-Z	530 524	MS6-LFM-3/8-BRV-Z
		G ¹ / 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	G ¹ / ₈	536 821	MS4-LFM-1/8-ARM-DA	536 817	MS4-LFM-1/8-BRM-DA
		G ¹ / ₄	536 822	MS4-LFM-1/4-ARM-DA	536 818	MS4-LFM-1/4-BRM-DA
	MS6	G ¹ / ₄	536 869	MS6-LFM-1/4-ARM-DA	536 833	MS6-LFM-1/4-BRM-DA
		G ³ / ₈	536 870	MS6-LFM-3/8-ARM-DA	536 834	MS6-LFM-3/8-BRM-DA
		G ¹ / ₂	536 871	MS6-LFM-1/2-ARM-DA	536 835	MS6-LFM-1/2-BRM-DA
fully automatic	MS6	G ¹ / ₄	536 875	MS6-LFM-1/4-ARV-DA	536 839	MS6-LFM-1/4-BRV-DA
		G ³ / ₈	536 876	MS6-LFM-3/8-ARV-DA	536 840	MS6-LFM-3/8-BRV-DA
		G ¹ / 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	G ¹ / ₈	536 823	MS4-LFM-1/8-ARM-DA-Z	536 819	MS4-LFM-1/8-BRM-DA-Z
		G ¹ / ₄	536 824	MS4-LFM-1/4-ARM-DA-Z	536 820	MS4-LFM-1/4-BRM-DA-Z
	MS6	G ¹ / ₄	536 872	MS6-LFM-1/4-ARM-DA-Z	536 836	MS6-LFM-1/4-BRM-DA-Z
		G ³ / ₈	536 873	MS6-LFM-3/8-ARM-DA-Z	536 837	MS6-LFM-3/8-BRM-DA-Z
		G ¹ / ₂	536 874	MS6-LFM-1/2-ARM-DA-Z	536 838	MS6-LFM-1/2-BRM-DA-Z
fully automatic	MS6	G ¹ / ₄	536 878	MS6-LFM-1/4-ARV-DA-Z	536 842	MS6-LFM-1/4-BRV-DA-Z
		G ³ / ₈	536 879	MS6-LFM-3/8-ARV-DA-Z	536 843	MS6-LFM-3/8-BRV-DA-Z
		G ¹ / 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

Technical data

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

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

New
Variants DA, H and E1 ... E4

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

Ordering data – Modular products



Mandatory data →

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

1 **U** For size 4 only with fully automatic condensate drain V.

Transfer order code

	MS		- LFM				
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New
Variants DA, H and E1 ... E4

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

Ordering data – Modular products



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

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
Condensate drain M	Manual				-M	
	Semi-automatic				-H	
	Fully automatic				-V	
	-	External fully automatic condensate drain, electrical, 24 V DC, M12	[2]	-E1		
	-	External fully automatic condensate drain, electrical, 110 V DC, terminals	[2]	-E2		
	-	External fully automatic condensate drain, electrical, 230 V DC, terminals	[2]	-E3		
-	External fully automatic condensate drain, electrical, 24 V DC, terminals	[2]	-E4			
Filter change sensor	Differential pressure indicator, optical				-DA	
Type of mounting	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				

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

[3] WP, WPM Only with connection size AGA, AGB, AGC, AGD or AGE.

Transfer order code

- [] - [] - []

New
Connection size G¹/₈

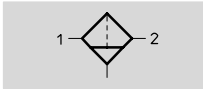
Active carbon filters MS4/MS6-LFX, MS series

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		G ¹ / ₈	G ¹ / ₄	G ¹ / ₄	G ³ / ₈ G ¹ / ₂
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			
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 ¹ / ₈	G ¹ / ₄	G ¹ / ₄	G ³ / ₈ G ¹ / ₂
qnN 1 → 2		250	250	700	1000 1200
qn max		360	360	900	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.

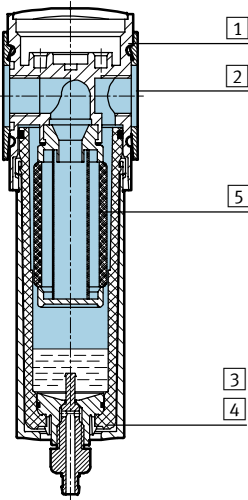
Active carbon filters MS4/MS6-LFX, MS series

Technical data

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

Materials

Sectional view

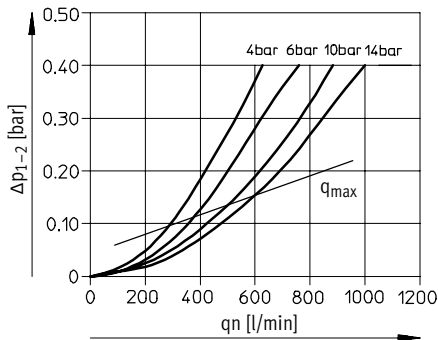


Active carbon filter

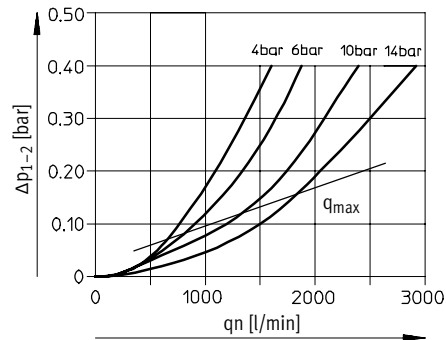
1	Body	Die-cast aluminium
2	Cover plates	Polyamide
3	Plastic bowl guard	Polycarbonate
4	Metal bowl	Wrought aluminium alloy
5	Filter element	Active carbon
-	Seals	Nitrile rubber
Note on materials		Free of copper, PTFE and silicone

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

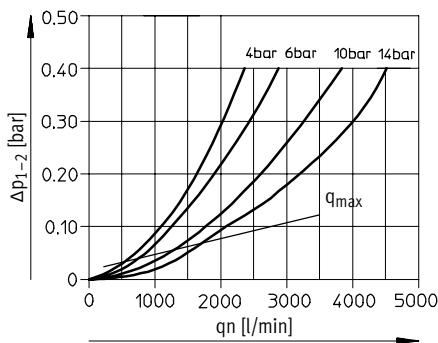
MS4-LFX-¹/₈ and MS4-LFX-¹/₄



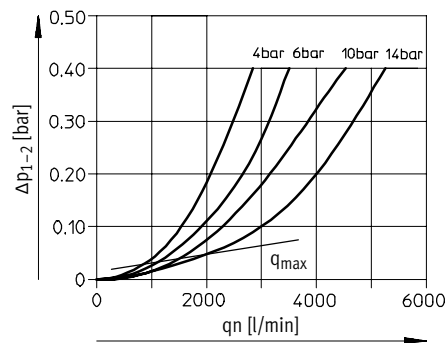
MS6-LFX-¹/₄



MS6-LFX-³/₈



MS6-LFX-¹/₂

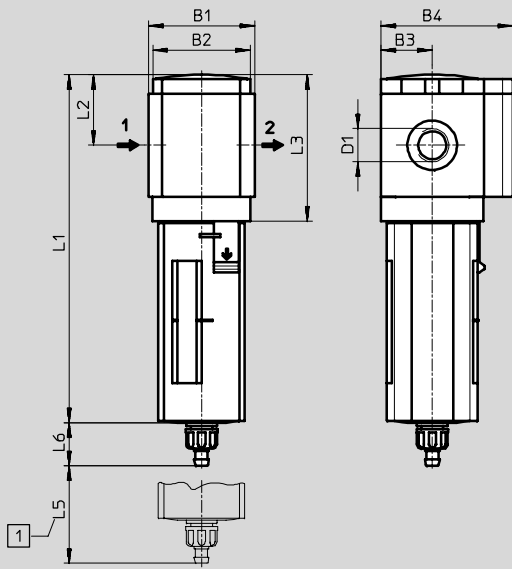


Active carbon filters MS4/MS6-LFX, MS series

Technical data

Dimensions – Standard

Manual rotary condensate drain



1 Installation dimensions

→ Flow direction

Type	B1 ¹⁾	B2	B3	B4	D1	L1		L2	L3	L5	L6	
						Bowl guard					plastic	metal
						plastic	metal					
MS4-LFX-1/8	43.6	40	21	54	G ¹ / ₈	142	160	29	60	75	17.7	-
MS4-LFX-1/4					G ¹ / ₄							
MS6-LFX-1/4	67	62	31	76	G ¹ / ₄	192	198	42	87	100	15.8	19
MS6-LFX-3/8					G ³ / ₈							
MS6-LFX-1/2					G ¹ / ₂							

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

Active carbon filters MS4/MS6-LFX, MS series

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	G ¹ / ₈	536 707	MS4-LFX-¹/₈-R	536 709	MS4-LFX-¹/₈-U
		G ¹ / ₄	529 467	MS4-LFX-¹/₄-R	535 782	MS4-LFX-¹/₄-U
	MS6	G ¹ / ₄	529 683	MS6-LFX-¹/₄-R	529 685	MS6-LFX-¹/₄-U
		G ³ / ₈	529 687	MS6-LFX-³/₈-R	529 689	MS6-LFX-³/₈-U
		G ¹ / ₂	529 679	MS6-LFX-¹/₂-R	529 681	MS6-LFX-¹/₂-U
Flow direction from right to left						
manual rotary	MS4	G ¹ / ₈	536 708	MS4-LFX-¹/₈-R-Z	536 710	MS4-LFX-¹/₈-U-Z
		G ¹ / ₄	529 468	MS4-LFX-¹/₄-R-Z	535 783	MS4-LFX-¹/₄-U-Z
	MS6	G ¹ / ₄	529 684	MS6-LFX-¹/₄-R-Z	529 686	MS6-LFX-¹/₄-U-Z
		G ³ / ₈	529 688	MS6-LFX-³/₈-R-Z	529 690	MS6-LFX-³/₈-U-Z
		G ¹ / ₂	529 680	MS6-LFX-¹/₂-R-Z	529 682	MS6-LFX-¹/₂-U-Z

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 G ¹ / ₈	-		-1/8		
		Thread G ¹ / ₄	Thread G ¹ / ₄		-1/4		
		-	Thread G ³ / ₈		-3/8		
		-	Thread G ¹ / ₂		-1/2		
		Connecting plate G ¹ / ₈	-		-AGA		
		Connecting plate G ¹ / ₄	Connecting plate G ¹ / ₄		-AGB		
		Connecting plate G ³ / ₈	Connecting plate G ³ / ₈		-AGC		
		-	Connecting plate G ¹ / ₂		-AGD		
	-	Connecting plate G ³ / ₄		-AGE			
	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 connection size AGA, AGB, AGC, AGD or AGE.

Transfer order code

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

FESTO

Accessories

Filter cartridge LF...



MS...-LFM



MS...-LFP



MS...-LFX

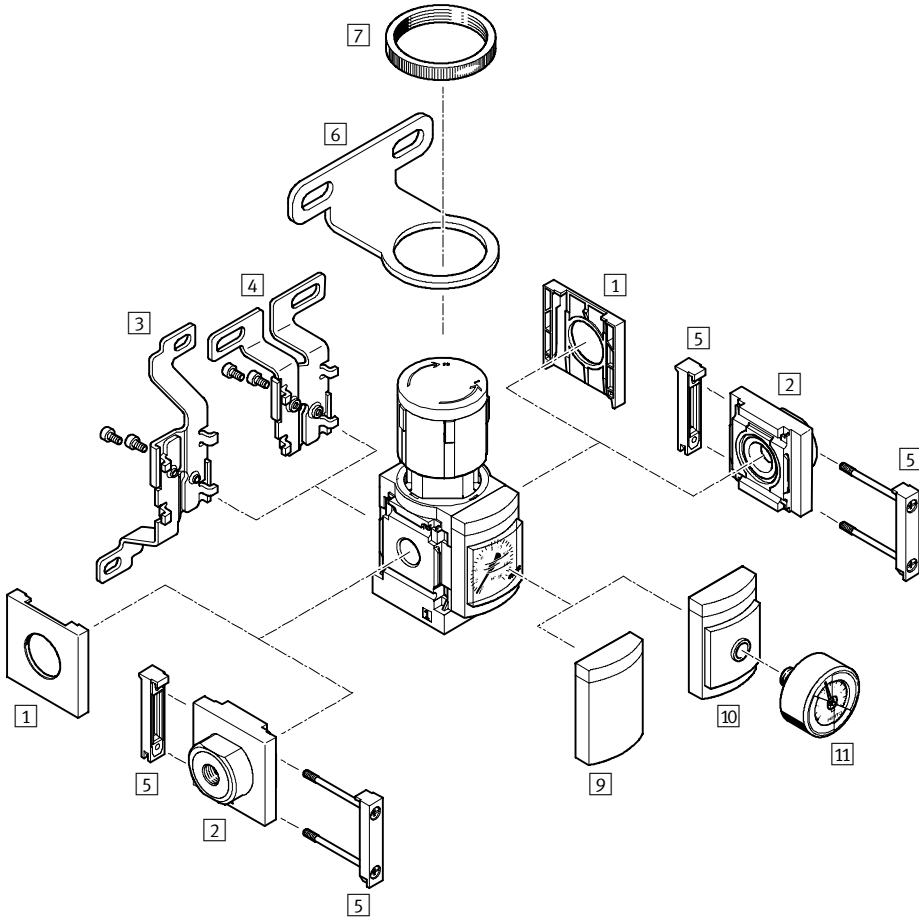
Ordering data				
Size		Grade of filtration [μm]	Part No.	Type
MS4	Micro-filter cartridge	0.01	162 674	MS4/D-MINI-LFM-A
MS4	Fine-filter cartridge	1	162 677	MS4/D-MINI-LFM-B
MS4	Filter cartridge	5	534 501	MS4-LFP-C
MS4	Filter cartridge	40	534 502	MS4-LFP-E
MS4	Active carbon filter cartridge	Residual oil 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

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 plate for pressure gauge to EN 837 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

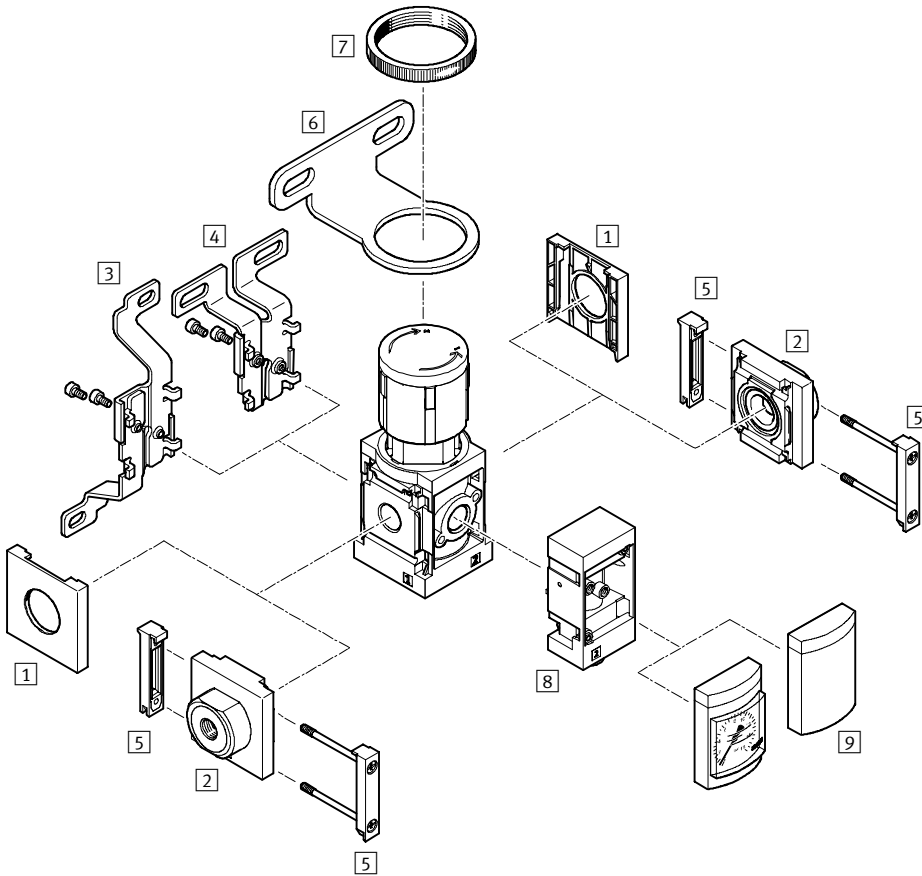
Pressure regulators MS4/MS6-LR/LRB, MS series

Peripherals overview

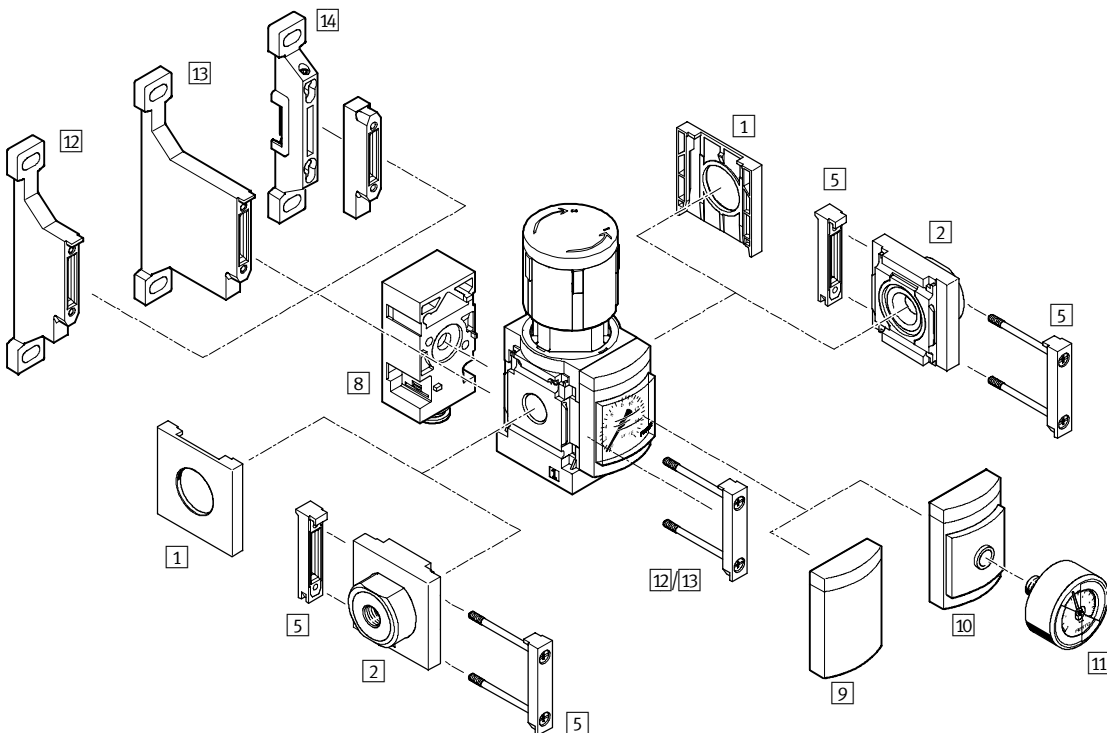


Pressure regulator LRB

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



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 plate for pressure gauge to EN 837 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.

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

Type codes



MS4/MS6 series service units
Pressure regulators

2.14

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 (without pressure gauge)

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

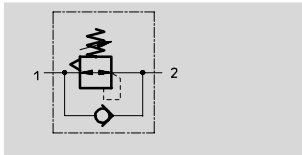
- Connecting plates
- Pressure regulation range
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Actuator lock
- Rotary knob
- Pressure output (LRB only)
- Type of mounting

Pressure regulators MS4/MS6-LR, MS series

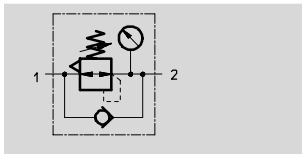
Technical data

Function

Without pressure gauge



With pressure gauge



- - Flow rate
1000 ... 7500 l/min

- - Temperature range
-10 ... +60 °C

- - Input pressure
0.8 ... 20 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
- Lockable rotary knob
- Setting values are secured by locking the rotary knob
- Available with or without secondary venting
- 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	G ¹ / ₈	G ¹ / ₄	G ¹ / ₄	G ³ / ₈	G ¹ / 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 q _N [l/min] ¹⁾					
	MS4		MS6		
	G ¹ / ₈	G ¹ / ₄	G ¹ / ₄	G ³ / ₈	G ¹ / 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



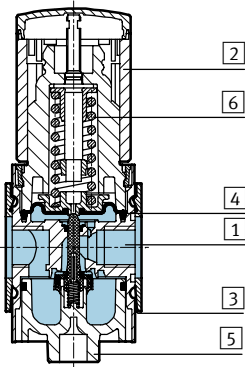
Ambient conditions		
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	-10 ... +60
Storage temperature	[°C]	-10 ... +60
Corrosion resistance class	CRC ¹⁾	2

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

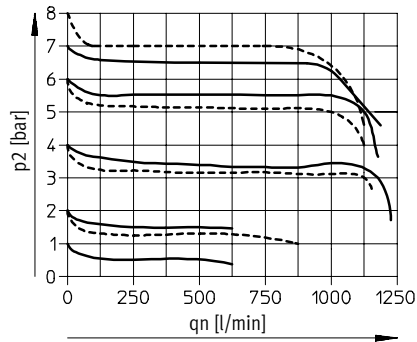
Pressure regulators MS4/MS6-LR, MS series

Technical data



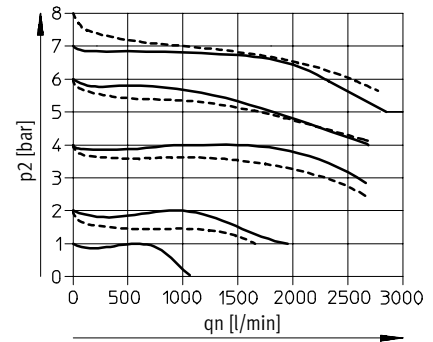
Standard flow rate q_n as a function of the output pressure p_2

MS4-LR-1/8

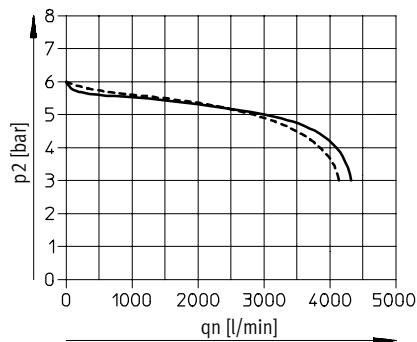


— D6: 0.3 ... 7 bar
- - - D7: 0.5 ... 12 bar

MS4-LR-1/4

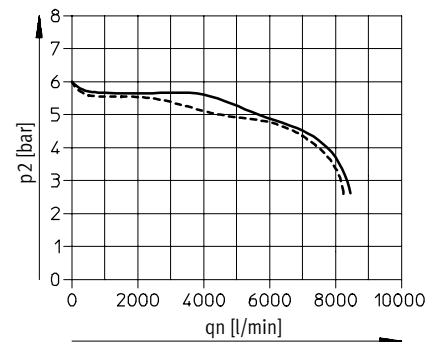


MS6-LR-1/4

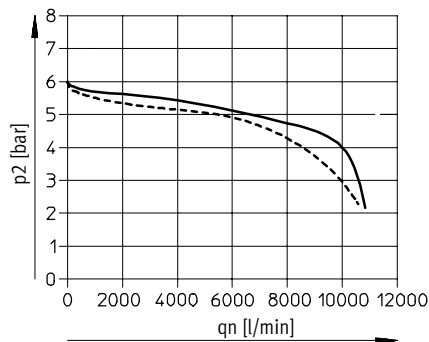


— D6: 0.3 ... 7 bar
- - - D7: 0.5 ... 12 bar

MS6-LR-3/8



MS6-LR-1/2



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

Primary pressure $p_1 = 10$ bar

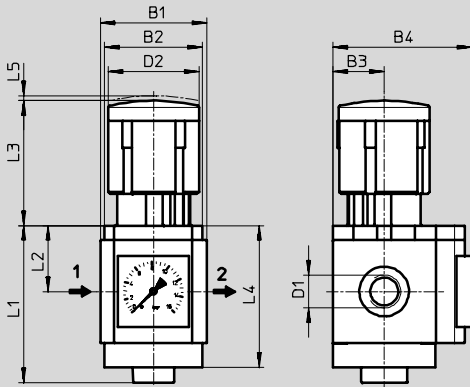
Pressure regulators MS4/MS6-LR, MS series

Technical data



Dimensions – Standard

With pressure gauge, display unit [bar]



→ Flow direction

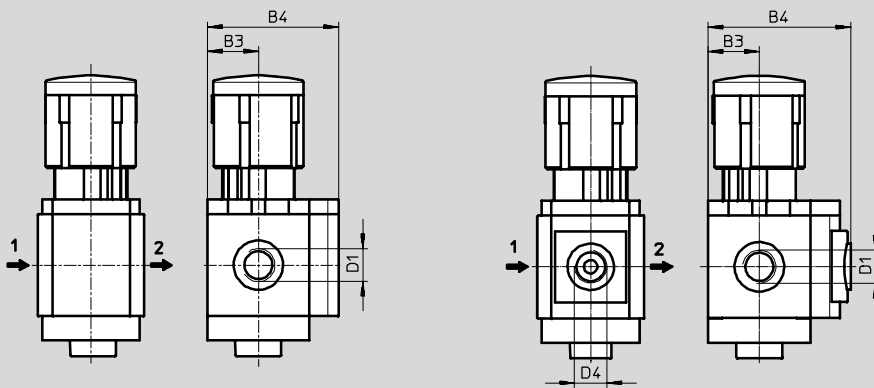
Type	B1 ¹⁾	B2	B3	B4	D1	D2	L1	L2	L3	L4	L5
MS4-LR-1/8	43.6	40	21	57	G1/8	37.2	64.4	27	51.1	58	2
MS4-LR-1/4					G1/4						
MS6-LR-1/4	67	62	31	77	G1/4	51	93	39	86	84	5
MS6-LR-3/8					G3/8						
MS6-LR-1/2					G1/2						

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

Dimensions – Pressure gauge alternatives

Cover plate without pressure gauge VS

Adapter plate A8/A4 for pressure gauge to EN 837

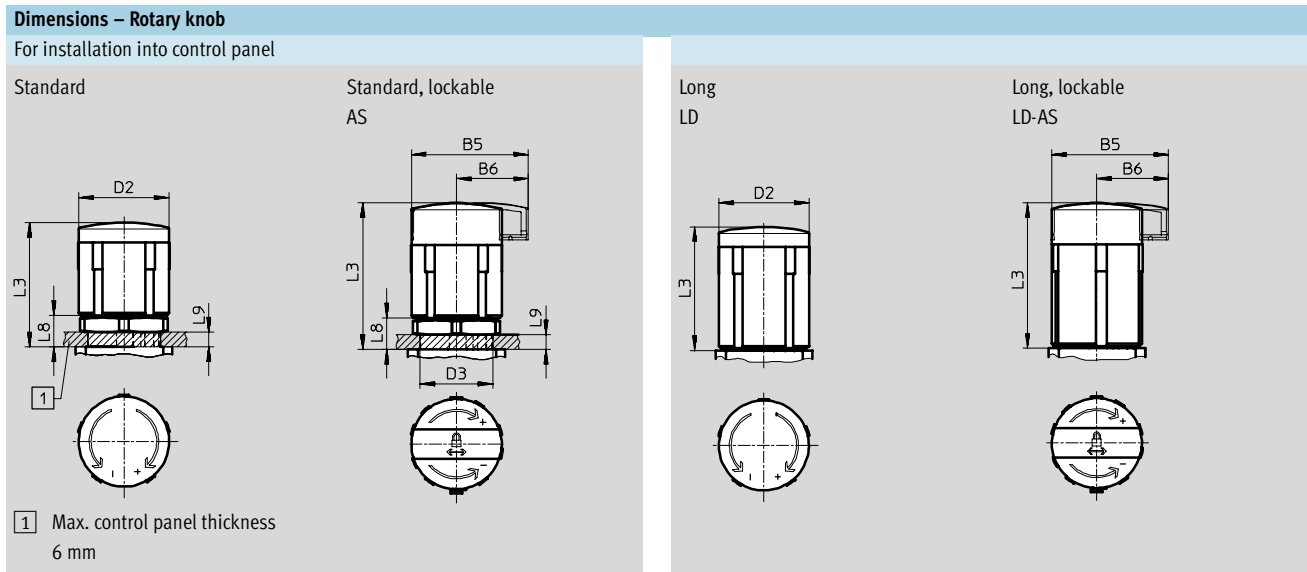


→ Flow direction

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

Technical data



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

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		-		
--	----	--	---	----	--	---	--	--

Pressure regulators MS4/MS6-LR, MS series



Ordering data – Modular products

0 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	No pressure gauge mounting				-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.

3 **WP, WPM** Only with connection size AGA, AGB, AGC, AGD or AGE.

2 **WR** Not with long rotary knob LD.

Transfer order code

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

Pressure regulators MS4/MS6-LRB, MS series

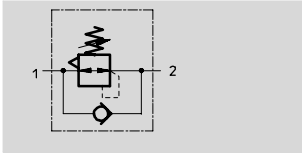
Technical data



Function

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

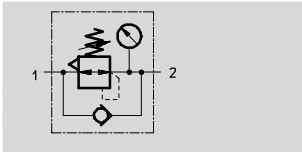
Without pressure gauge



- - Temperature range
-10 ... +60 °C

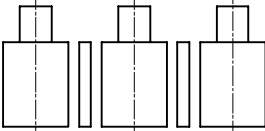
- - Input pressure
0.8 ... 20 bar

With pressure gauge



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.

LRB-manifold with through pressure supply for manifold assembly



- 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
- Lockable rotary knob
- Available with or without secondary venting
- Setting values are secured by locking the 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	G $\frac{1}{4}$	G $\frac{1}{2}$
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_{nN} [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 $p_1 = 10$ bar and $p_2 = 6$ bar, $\Delta p = 1$ bar
 2) measured at $p_1 = 10$ bar and $p_2 = 3$ bar, $\Delta p = 1$ bar

Pressure regulators MS4/MS6-LRB, MS series



Technical data

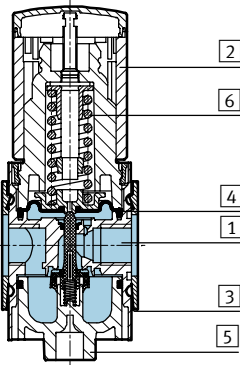
Ambient conditions		
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	-10 ... +60
Storage temperature	[°C]	-10 ... +60
Corrosion resistance class	CRC ¹⁾	2

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

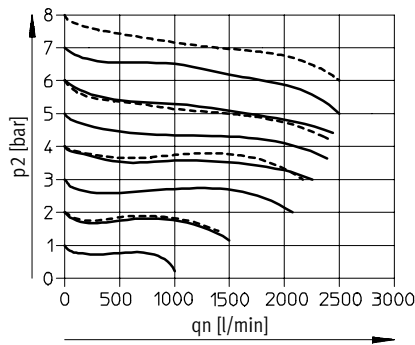
Sectional view



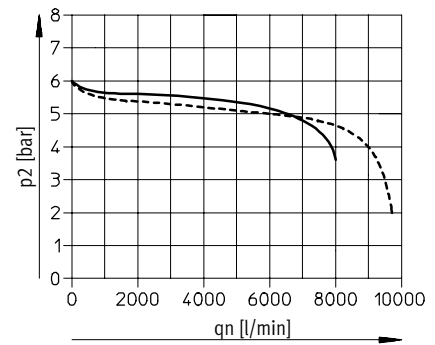
Pressure regulator (manifold assembly)		
1	Body	Die-cast aluminium
2	Regulating knob	Polyamide/polyacetate
3	Cover plates	Polyamide
4	Diaphragm	Nitrile rubber
5	Bottom cap	Polyester, fibreglass reinforced
6	Springs	Steel
-	Seals	Nitrile rubber
Note on materials		Free of copper, PTFE and silicone only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

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

MS4-LRB-1/4



MS6-LRB-1/2



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

Primary pressure p1 = 10 bar

MS4/MS6 series service units
Pressure regulators

2.14

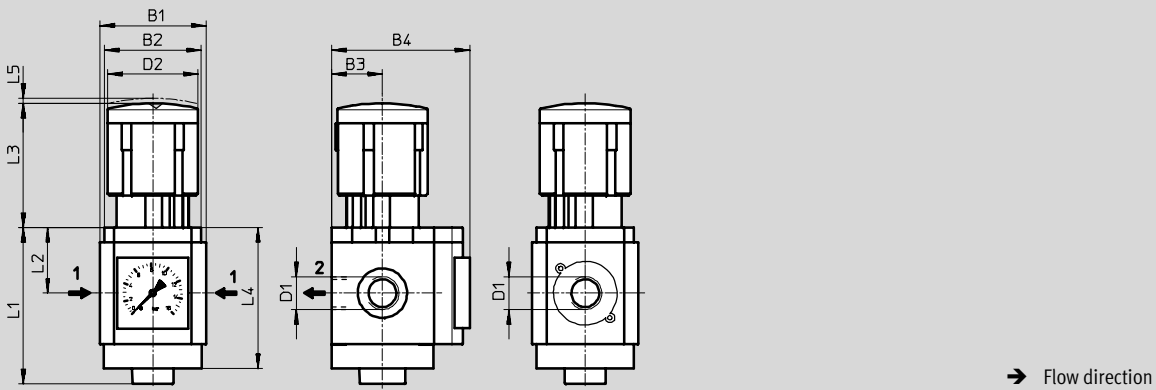
Pressure regulators MS4/MS6-LRB, MS series

Technical data



Dimensions – Standard

With pressure gauge, display unit [bar]



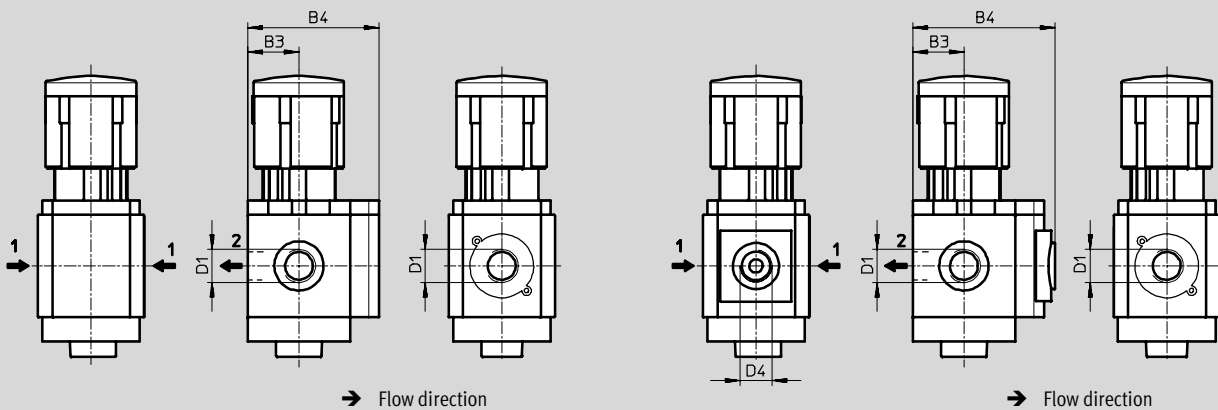
Type	B1 ¹⁾	B2	B3	B4	D1	D2	L1	L2	L3	L4	L5
MS4-LRB-1/4	43.6	40	21	57	G1/4	37.2	64.4	27	51.1	58	2
MS6-LRB-1/2	67	62	31	77	G1/2	51	93	39	86	84	5

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

Dimensions – Pressure gauge alternatives

Cover plate without pressure gauge VS

Adapter plate A8/A4 for pressure gauge to EN 837



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

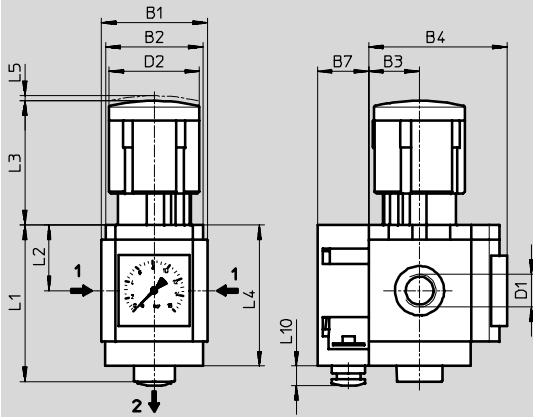
Technical data



Dimensions – Angled outlet block

Pressure output to rear

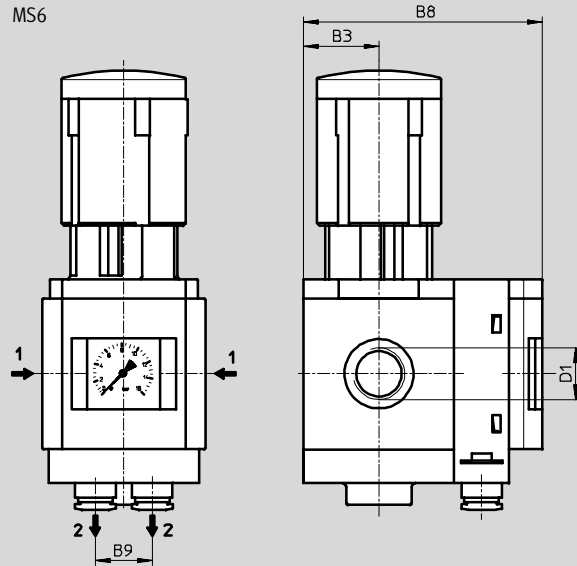
MS4
MS6 (not illustrated)



→ Flow direction

Pressure output to front Z

MS4 (not illustrated)
MS6



→ 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

Pressure regulators MS4/MS6-LRB, MS series

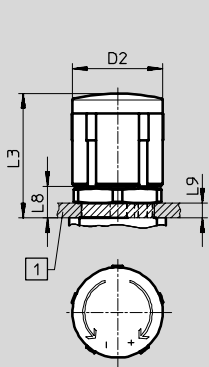
Technical data



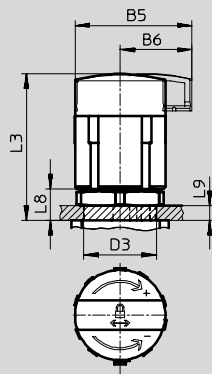
Dimensions – Rotary knob

For installation into control panel

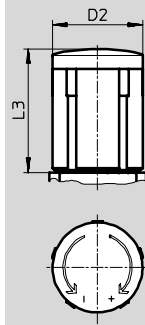
Standard



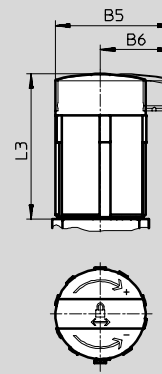
Standard, lockable
AS



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		

Pressure regulators MS4/MS6-LRB, MS series

Technical data

Ordering data							
Lockable standard type rotary knob							
Size	Conne- ction	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 without pressure gauge, 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 plate G $\frac{1}{8}$ for pressure gauge to EN 837, 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 plate G $\frac{1}{4}$ for pressure gauge to EN 837, 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	Conne- ction	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



M Mandatory data →

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

0 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	No pressure gauge mounting				-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		

- 1 **A8, A4** Not in combination with alternative flow direction Z and alternative pressure output BC, BD, BE in parallel.
- 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.
- 3 **WR, WPM, WB, WBM** Only in combination with alternative flow direction Z.
- 4 **WR** Not in combination with rotary knob LD.

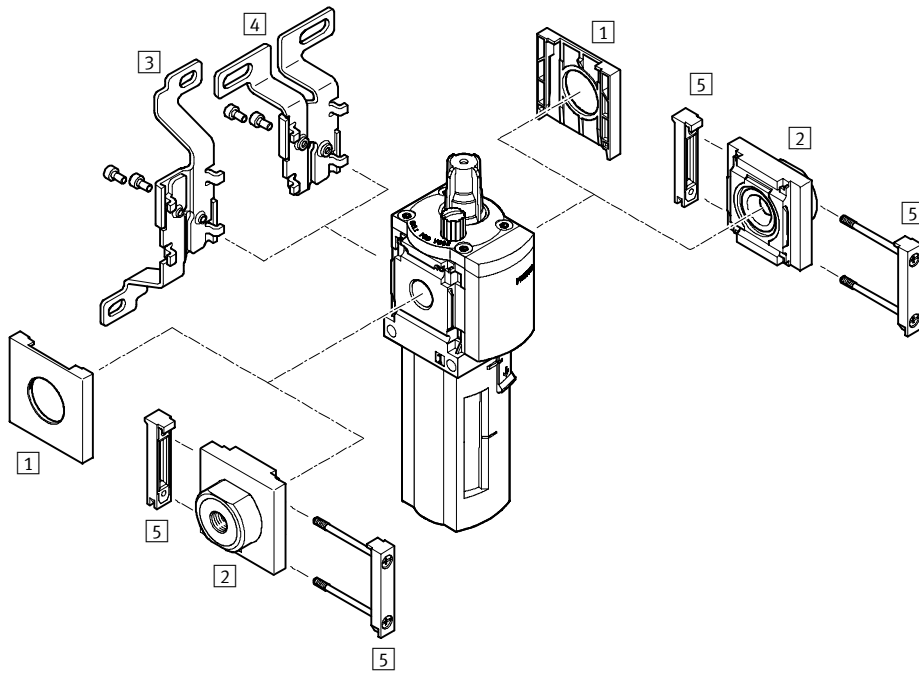
- 5 **WP, WPM, WPB** Only permissible in combination with connection size AGA, AGB, AGC, AGD or AGE.
- 6 **WP** Only in combination with alternative flow direction Z or only in combination with alternative pressure output BC, BD, BE if alternative flow direction Z not selected.
- 7 **WPB** Not in combination with alternative flow direction Z and with alternative pressure output BC, BD, BE.
- 8 **Z** Pressure gauge alternative VS must be selected if no alternative pressure output BC, BD, BE is selected.

Transfer order code

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

Lubricators MS4/MS6-LOE, MS series

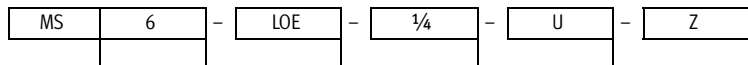
Peripherals overview



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

Lubricators MS4/MS6-LOE, MS series

Type codes



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

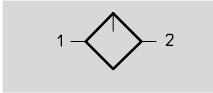
- Connecting plates
- Type of mounting




Lubricators MS4/MS6-LOE, MS series

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)
- Plastic bowl guard

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	G ¹ / ₈	G ¹ / ₄	G ¹ / ₄	G ³ / ₈	G ¹ / 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 qnN [l/min]					
	MS4		MS6		
	G ¹ / ₈	G ¹ / ₄	G ¹ / ₄	G ³ / ₈	G ¹ / 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.

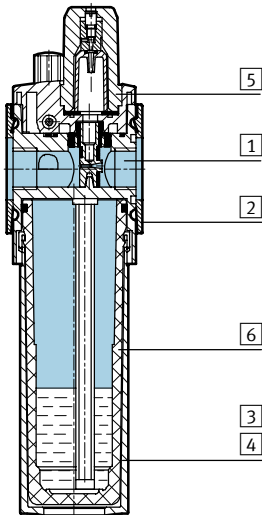
Lubricators MS4/MS6-LOE, MS series

Technical data

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

Materials

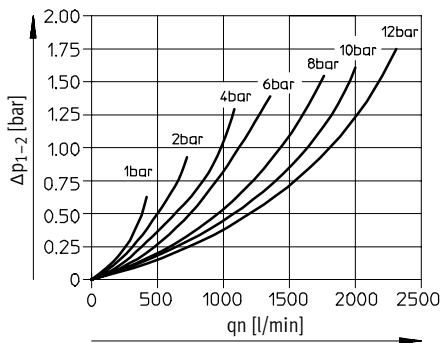
Sectional view



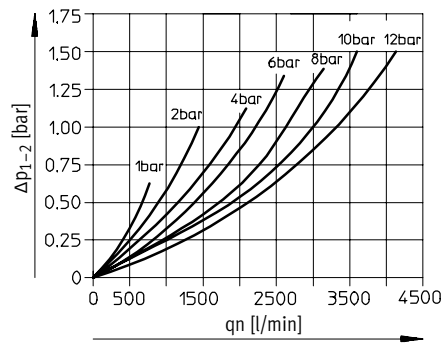
Lubricator		
1	Body	Die-cast aluminium
2	Cover plates	Polyamide
3	Plastic bowl guard	Polycarbonate/polyamide
4	Metal bowl	Aluminium/polyamide
5	Lubricator dome	Polycarbonate
6	Metal bowl sight glass	Polyamide
-	Seals	Nitrile rubber

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

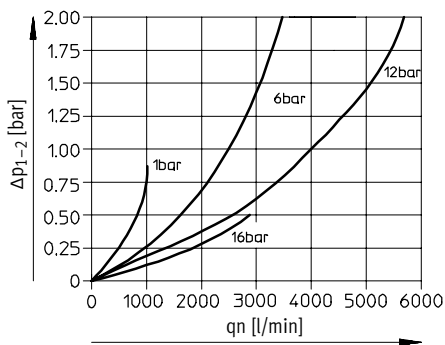
MS4-LOE-1/8



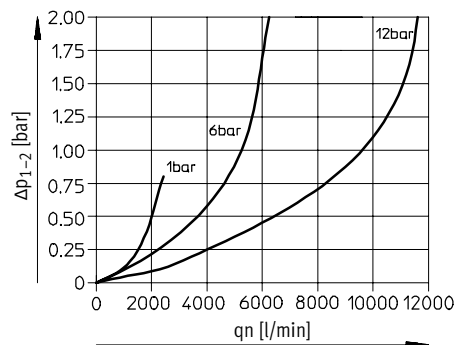
MS4-LOE-1/4



MS6-LOE-1/4



MS6-LOE-3/8



Primary pressure $p_1 = 10$ bar

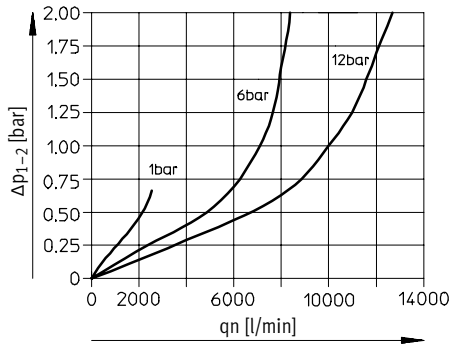
Lubricators MS4/MS6-LOE, MS series

Technical data

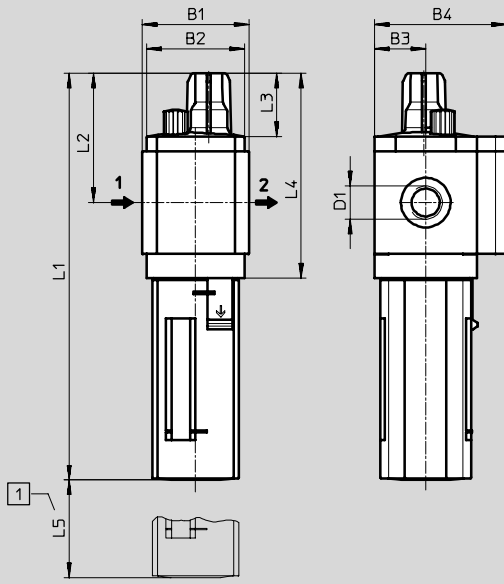


Standard flow rate q_n as a function of the differential pressure Δp_{1-2}

MS6-LOE-1/2



Dimensions – Standard



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

Lubricators MS4/MS6-LOE, MS series

Technical data

FESTO

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



MS4/MS6 series service units
Lubricators

2.15

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

Transfer order code

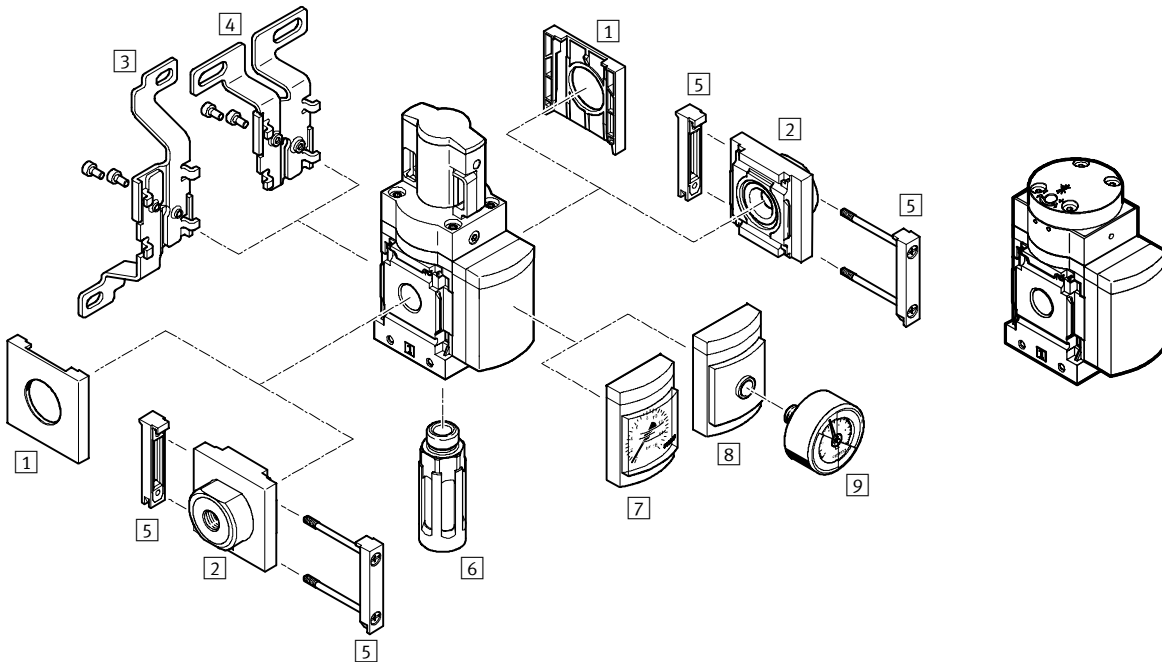
	MS		- LOE		-		-		-		-	
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On-off/soft-start valves MS4/MS6-EM/EE/DL/DE, MS series

Peripherals overview



On-off valve EM manually actuated	Soft-start valve DL pneumatically actuated
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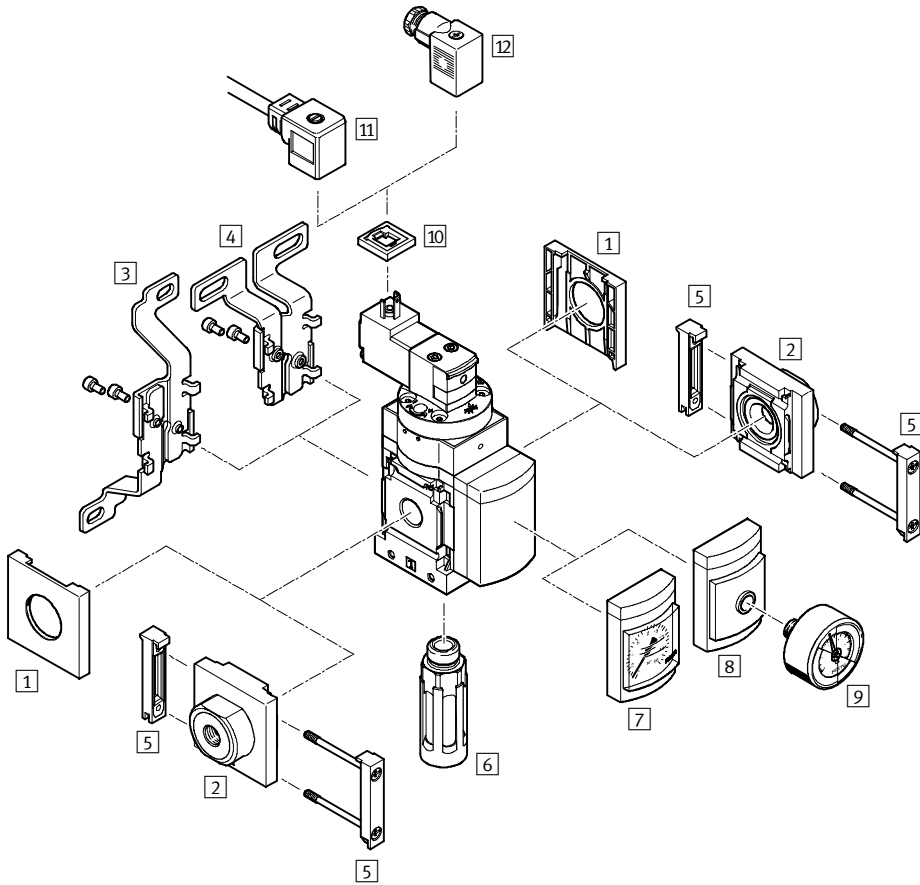
Mounting attachments and accessories						
		Individual unit		Combination → 3/2.11-10		→ Page
		without connecting plate	with connecting plate	without connecting plate	with connecting plate	
1	Cover cap MS4/6-END	■	-	■	-	3/2.31-3
2	Connecting plate MS4/6-AG...	-	■	-	■	3/2.31-0
3	Wall mounting bracket 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	Pressure gauge AG	■	■	■	■	EM 3/2.16-9 DL 3/2.16-20
8	Adapter plate for pressure gauge to EN 837 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

Peripherals overview



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



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

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 AG	■	■	■	■	EE 3/2.16-15 DE 3/2.16-25
8	Adapter plate for pressure gauge to EN 837 A8/A4	■	■	■	■	EE 3/2.16-15 DE 3/2.16-25
9	Pressure gauge MA	■	■	■	■	3/2.31-8
10	Illuminating seal MEB	■	■	■	■	3/2.31-9
11	Plug socket with cable KMEB	■	■	■	■	3/2.31-9
12	Plug socket MSSD	■	■	■	■	3/2.31-9
-	Wall mounting plate MS4/6-WP → Combination	-	■	■	■	3/2.31-5
-	Wall mounting plate MS4/6-WPM → Combination	-	■	■	■	3/2.31-6

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

Type codes



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

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

Further variants can be ordered using the modular system

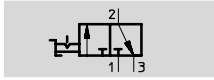
On-off valves EM	→ 3/2.16-9
On-off valves EE	→ 3/2.16-15
Soft-start valves DL	→ 3/2.16-20
Soft-start valves DE	→ 3/2.16-25

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

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

Technical data

Function



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



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

General technical data					
	MS4		MS6		
Pneumatic connection	G ¹ / ₈	G ¹ / ₄	G ¹ / ₄	G ³ / ₈	G ¹ / ₂
Operating medium	Compressed air				
Design	Piston spool valve				
Type of mounting	Via accessories In-line installation				
Assembly position	Any				
Input 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 _N ¹⁾ [l/min]						
		MS4		MS6		
		G ¹ / ₈	G ¹ / ₄	G ¹ / ₄	G ³ / ₈	G ¹ / 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 p₁ = 6 bar and p₂ = 5 bar, Δp = 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.

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

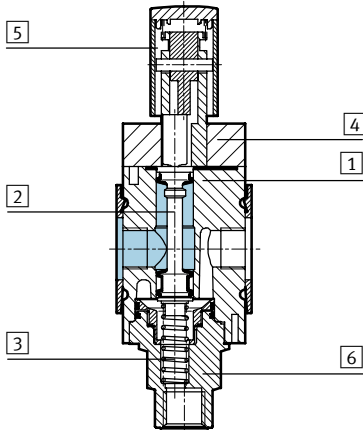
Technical data



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

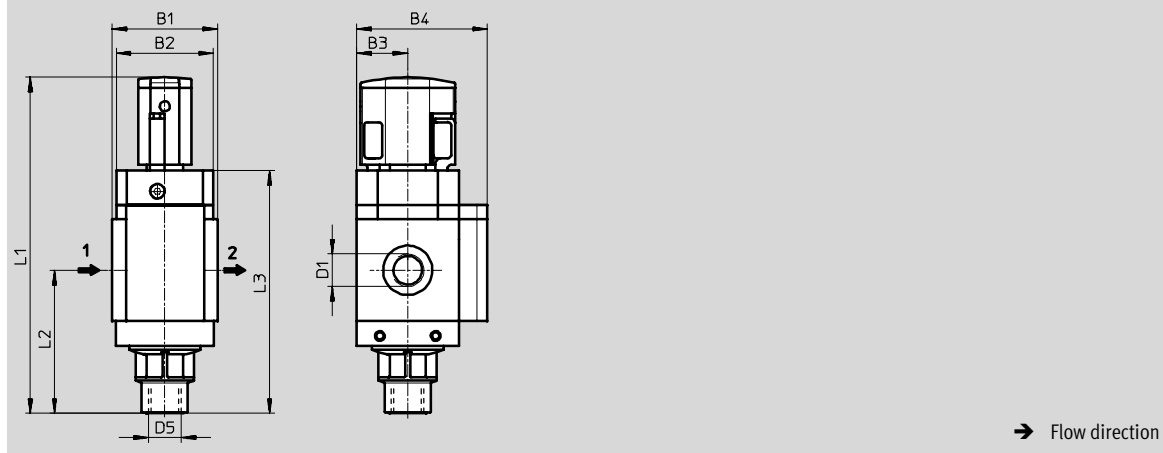
Materials

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 pressure gauge)	

Dimensions – Standard



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				

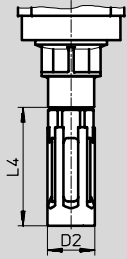
1) With accessory cover cap MS...-END

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

Technical data



Dimensions – Silencer

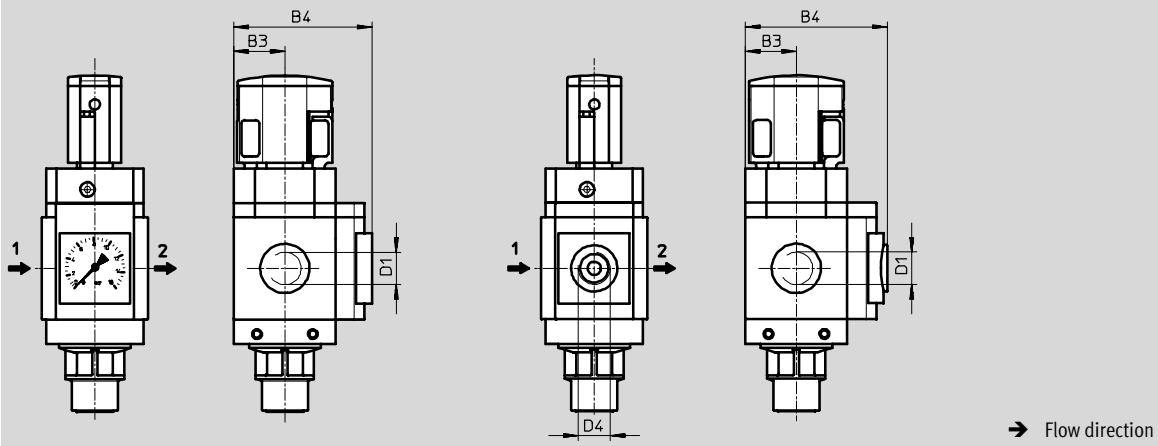


Type	D2	L4
MS4-EM-...-S	19.5	48.5
MS6-EM-...-S	28	106

Dimensions – Pressure gauge alternatives

Integrated pressure gauge, display unit [bar]

Adapter plate A8/A4 for pressure gauge to EN 837



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



Technical data

Ordering data					
Size	Connection	Without silencer		With silencer	
		Part No.	Type	Part No.	Type
Flow direction from left to right					
MS4	G1/8	529 551	MS4-EM-1/8 ¹⁾	529 552	MS4-EM-1/8-S ¹⁾
	G1/4	529 547	MS4-EM-1/4 ¹⁾	529 548	MS4-EM-1/4-S ¹⁾
MS6	G1/4	529 845	MS6-EM-1/4 ¹⁾	529 846	MS6-EM-1/4-S ¹⁾
	G3/8	529 849	MS6-EM-3/8 ¹⁾	529 850	MS6-EM-3/8-S ¹⁾
	G1/2	529 841	MS6-EM-1/2 ¹⁾	529 842	MS6-EM-1/2-S ¹⁾
Flow direction from right to left					
MS4	G1/8	529 554	MS4-EM-1/8-Z ¹⁾	529 553	MS4-EM-1/8-S-Z ¹⁾
	G1/4	529 550	MS4-EM-1/4-Z ¹⁾	529 549	MS4-EM-1/4-S-Z ¹⁾
MS6	G1/4	529 848	MS6-EM-1/4-Z ¹⁾	529 847	MS6-EM-1/4-S-Z ¹⁾
	G3/8	529 852	MS6-EM-3/8-Z ¹⁾	529 851	MS6-EM-3/8-S-Z ¹⁾
	G1/2	529 844	MS6-EM-1/2-Z ¹⁾	529 843	MS6-EM-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 alternatives	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 alternatives	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 alternatives AG.

2 WP, WPM Only with connection size AGA, AGB, AGC, AGD or AGE.

Transfer order code

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

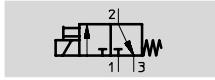
2.16

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

Technical data



Function



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



- Electrical on-off valve for pressurising and exhausting pneumatic installations
- With solenoid coil without plug socket
- 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	G $\frac{3}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
Operating medium	Compressed air				
Design	Piston spool valve				
Type of mounting	Via accessories In-line installation				
Assembly position	Any				
Input pressure [bar]	4 ... 14		4 ... 18		
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				
Coil characteristics					
V24	24 V DC				
V110	110 V AC				
V230	230 V AC				

Standard nominal flow rate q_{nN^1} [l/min]					
	MS4		MS6		
	G $\frac{3}{8}$	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

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

Technical data

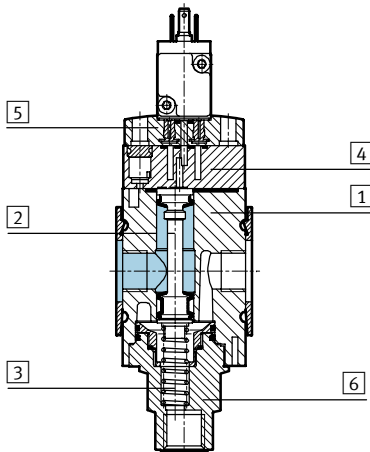
Ambient conditions		
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	-10 ... +60
Corrosion resistance class	CRC ¹⁾	2

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
Without silencer	273	740
With silencer	289	816

Materials

Sectional view



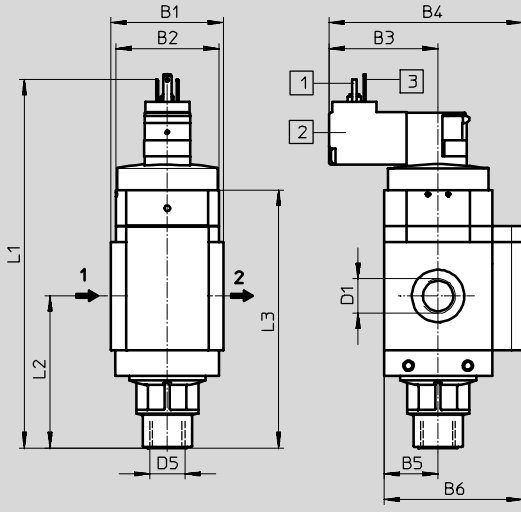
On-off valve		
1	Body	Die-cast aluminium
2	Piston	Nitrile rubber/aluminium
3	Springs	High-alloy stainless steel
4	End cap	Polyamide
5	Top plate	Polyamide
6	Bush end connection	Polyamide
-	Seals	Nitrile rubber
Note on materials		Free of copper, PTFE and silicone only with cover plate (without pressure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

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

Technical data



Dimensions – Standard



- 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				

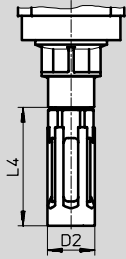
1) With accessory cover cap MS...-END

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

Technical data



Dimensions – Silencer

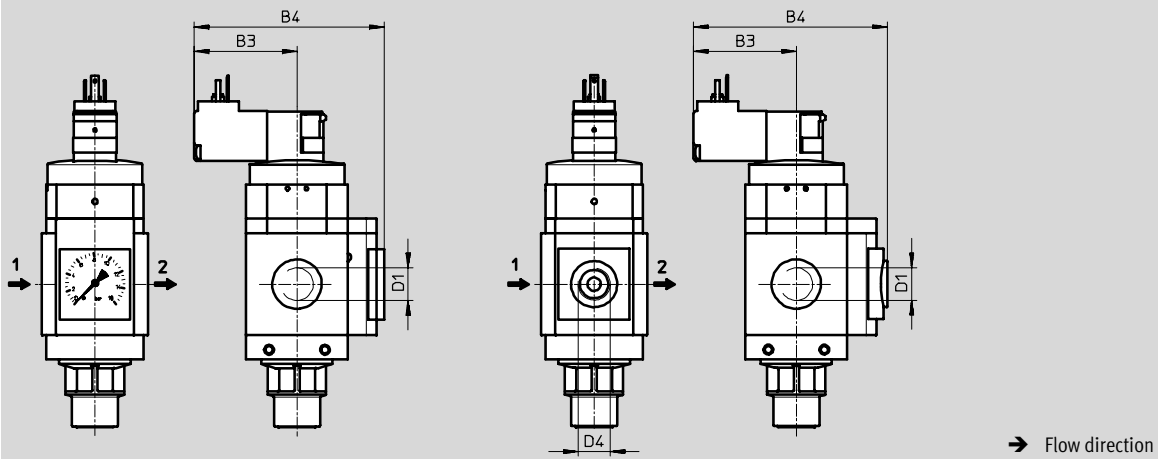


Type	D2	L4
MS4-EE-...-S	19.5	48.5
MS6-EE-...-S	28	106

Dimensions – Pressure gauge alternatives

Integrated pressure gauge, display unit [bar]

Adapter plate A8/A4 for pressure gauge to EN 837



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	

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

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

Technical data

FESTO

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 alternatives	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	Conditions	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			-V24		
		110 V AC			-V110		
		230 V AC			-V230		
		-	Connecting plate G3/4		-AGE		
O	Silencer	Silencer				-S	
	Pressure gauge alternatives	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 alternatives AG.

2 WP, WPM Only with connection size AGA, AGB, AGC, AGD or AGE.

Transfer order code

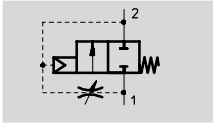
	MS		-	EE	-		-		-		-		-		-		-		-	
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Soft-start valves MS4/MS6-DL, MS series

Technical data



Function



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



- Soft-start valve for gradual pressure build-up (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	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				
Input 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 $q_{nN}^{1)}$ [l/min]						
		MS4		MS6		
		G1/8	G1/4	G1/4	G3/8	G1/2
In main flow direction	1 → 2	1000	2000	2800	5050	6450
In relief direction	2 → 1	1000	2000	2800	5050	6400

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.

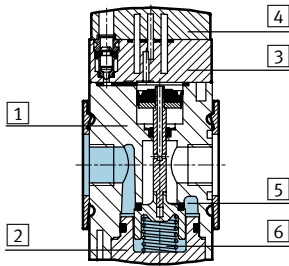
Soft-start valves MS4/MS6-DL, MS series

Technical data

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

Materials

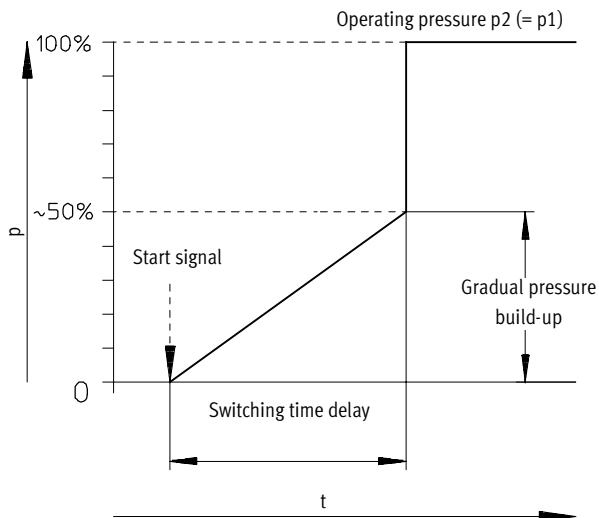
Sectional view



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 pressure gauge)

Switching point

Pressure p as a function of time t

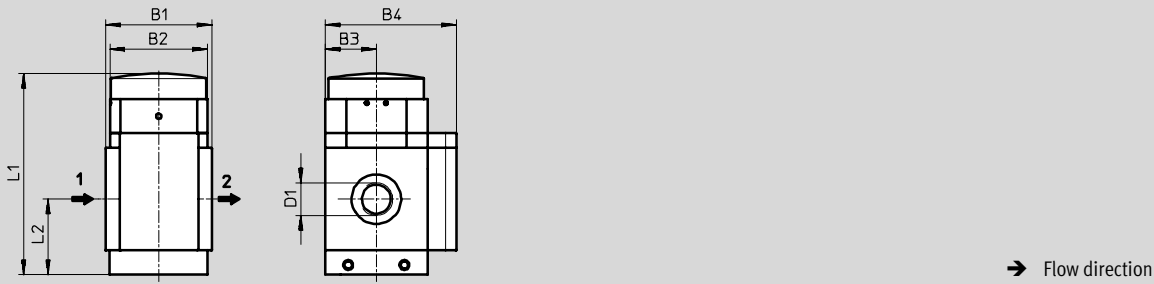


Soft-start valves MS4/MS6-DL, MS series

Technical data



Dimensions – Standard



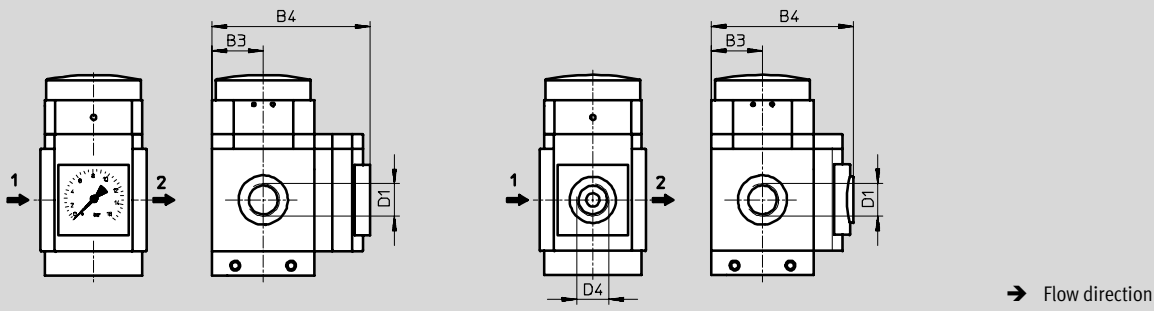
Type	B1 ¹⁾	B2	B3	B4	D1	L1	L2
MS4-DL-1/8	43.6	40	21	54	G1/8	82.7	31
MS4-DL-1/4					G1/4		
MS6-DL-1/4	67	62	31	76	G1/4	116	45
MS6-DL-3/8					G3/8		
MS6-DL-1/2					G1/2		

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

Dimensions – Pressure gauge alternatives

Integrated pressure gauge, display unit [bar]

Adapter plate A8/A4 for pressure gauge to EN 837



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	

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	G $\frac{1}{8}$	529 533	MS4-DL- $\frac{1}{8}$ -Z ¹⁾	529 534	MS4-DL- $\frac{1}{8}$ -Z ¹⁾
	G $\frac{1}{4}$	529 531	MS4-DL- $\frac{1}{4}$ -Z ¹⁾	529 532	MS4-DL- $\frac{1}{4}$ -Z ¹⁾
MS6	G $\frac{1}{4}$	529 819	MS6-DL- $\frac{1}{4}$ -Z ¹⁾	529 820	MS6-DL- $\frac{1}{4}$ -Z ¹⁾
	G $\frac{3}{8}$	529 821	MS6-DL- $\frac{3}{8}$ -Z ¹⁾	529 822	MS6-DL- $\frac{3}{8}$ -Z ¹⁾
	G $\frac{1}{2}$	529 817	MS6-DL- $\frac{1}{2}$ -Z ¹⁾	529 818	MS6-DL- $\frac{1}{2}$ -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 alternatives	Alternative pressure gauge scale	Type of mounting	Alternative flow direction
527 711	MS	4	DL	1/8, 1/4, 3/8, 1/2 AGA, AGB, AGC, AGD, AGE	AG A8 A4	PSI MPA	WP WPM WB WBM	Z
527 684		6						
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 alternatives	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 alternatives AG.

2 WP, WPM Only with connection size AGA, AGB, AGC, AGD or AGE.

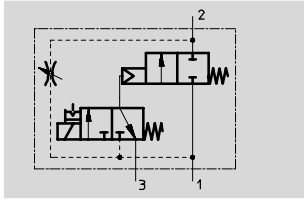
Transfer order code

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

Technical data

Function



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



Pressure build-up at p2 takes place via an adjustable flow control valve. The main seat is 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.

- Sudden and erratic movements are avoided
- Switch-through pressure can be exactly controlled using a solenoid valve
- Adjustable switching time delay
- Pushing and detenting manual override (detenting is locked on delivery)
- Solenoid actuator can be repositioned by 180°

General technical data					
	MS4		MS6		
Pneumatic connection	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	Piston poppet valve				
Type of mounting	Via accessories In-line installation				
Assembly position	Any				
Input 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				
Coil characteristics					
V24	24 V DC				
V110	110 V AC				
V230	230 V AC				

Standard nominal flow rate qn 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 → 2	1000	2000	2700	5050	6450
In relief direction ²⁾ 2 → 1	1000	2000	2600	5050	6400

1) measured at p1 = 6 bar and p2 = 5 bar, Δp = 1 bar
 2) For energised solenoid valve.

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

Technical data



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

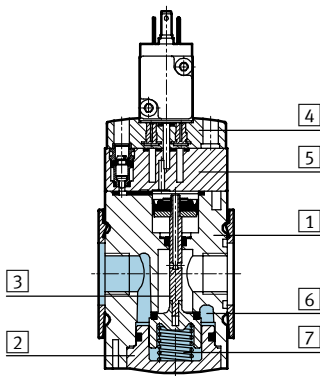
1) Corrosion resistance class 2 according to Festo standard 940 070

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	263	680

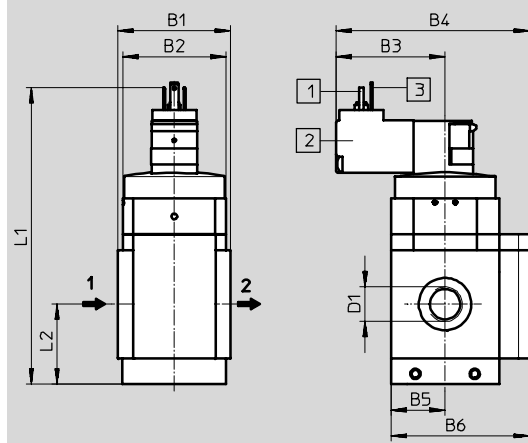
Materials

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 pressure gauge)

Dimensions – Standard



- 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	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

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

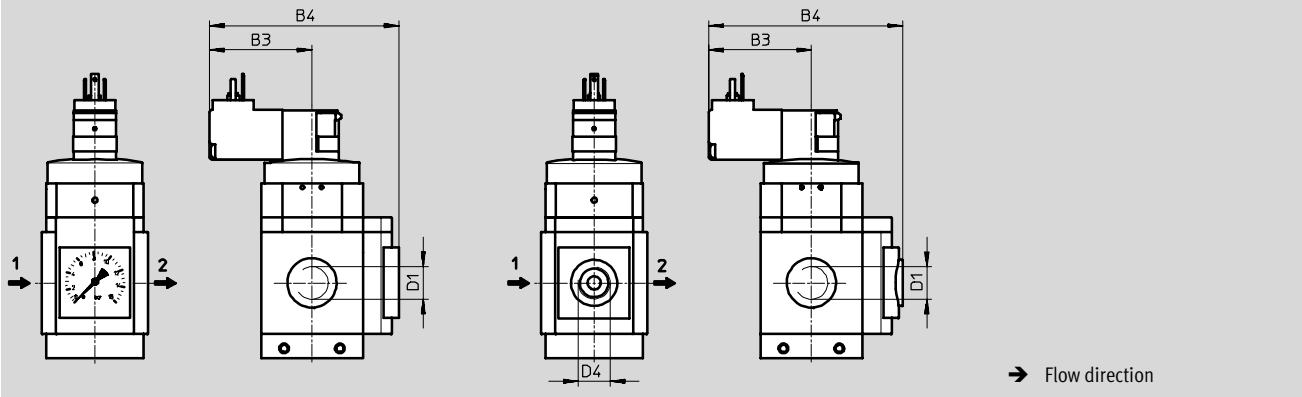
Technical data



Dimensions – Pressure gauge alternatives

Integrated pressure gauge, display unit [bar]

Adapter plate A8/A4 for pressure gauge to EN 837



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



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 alternatives	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		
	Supply voltage	24 V DC			-V24		
		110 V AC			-V110		
		230 V AC			-V230		
O	Pressure gauge alternatives	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 alternatives AG.

2 **WP, WPM** Only with connection size AGA, AGB, AGC, AGD or AGE.

Transfer order code

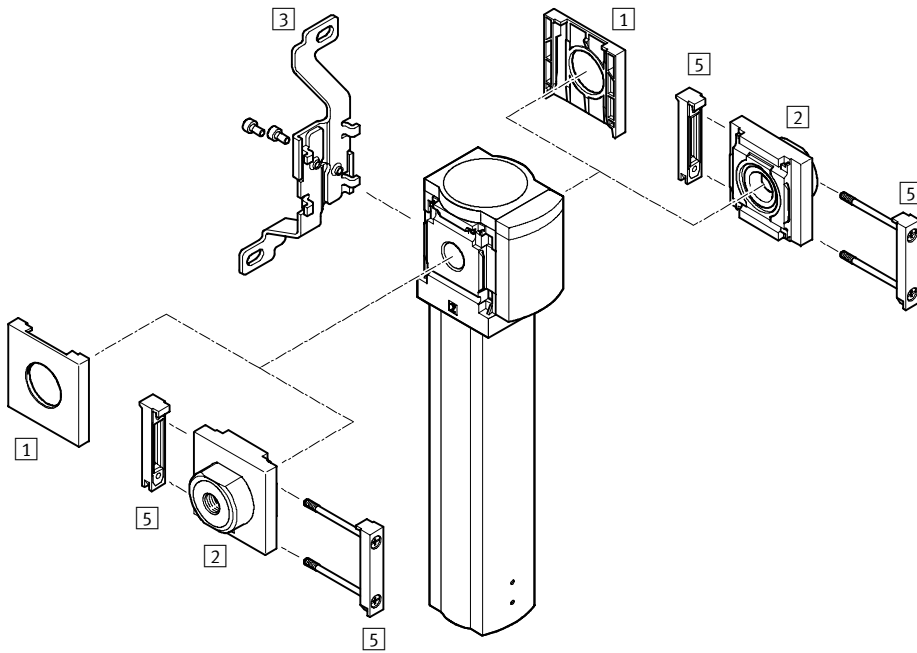
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MS4/MS6 series service units
Start-up and exhaust valves

2.16

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

		MS	6	-	LDM	-	1/2	-	RD	-	P2	-	Z
Basic function													
MS	Standard service unit												
Size													
4	Grid dimension 40 mm												
6	Grid dimension 62 mm												
Service function													
LDM	Membrane dryer												
Connection size													
1/8	Thread G1/8												
1/4	Thread G1/4												
3/8	Thread G3/8												
1/2	Thread G1/2												
Pressure dew point reduction													
RD	Reduced pressure dew point												
Flow cartridge													
P2	Cartridge 2												
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

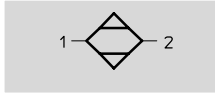
Membrane dryers LDM → 3/2.17-5

- Connecting plates
- Flow cartridge
- Type of mounting

Membrane dryers MS4/MS6-LDM, MS series

Technical data

Function



- - Flow rate
100 ... 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		
Pneumatic connection	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
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 $\pm 5^\circ$				
Input pressure [bar]	3 ... 8.5				
Pressure dew point reduction [°C]	13				

Standard flow rate $q_n^{(1)}$ [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 $p_1 = 6,9$ bar, $T_{pd\ On} = 20$ °C, $T_{pA\ Off} = -20$ °C +15% ($T_{pd\ Off} = 7$ °C + 15%), $T_{amb} = 20$ °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.

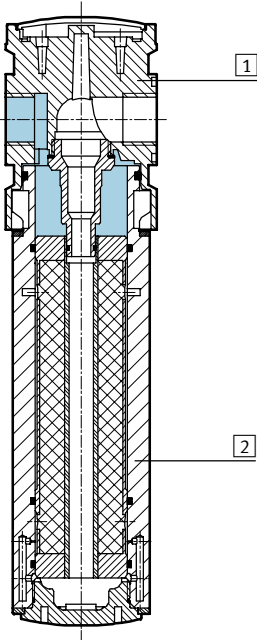
Weight [g]	
	MS4
With flow cartridge	640
	MS6
	1410

Membrane dryers MS4/MS6-LDM, MS series

Technical data

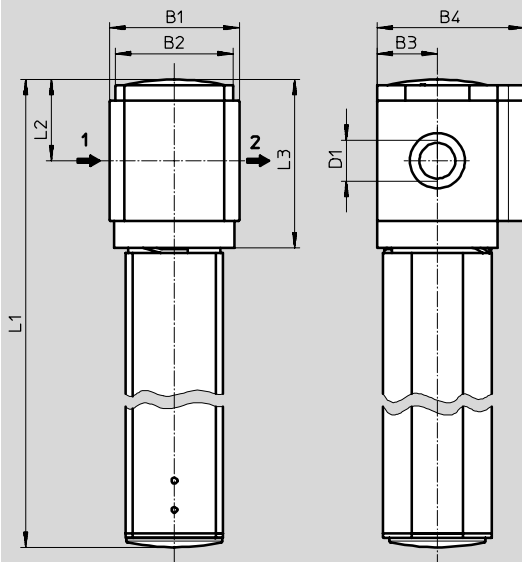
Materials

Sectional view



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

Dimensions – Standard



→ 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

Technical data

FESTO

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	G1/8	537 862	MS4-LDM-1/8-RD-P2	537 863	MS4-LDM-1/8-RD-P2-Z
	G1/4	537 860	MS4-LDM-1/4-RD-P2	537 861	MS4-LDM-1/4-RD-P2-Z
MS6	G1/4	531 016	MS6-LDM-1/4-RD-P2	531 017	MS6-LDM-1/4-RD-P2-Z
	G3/8	531 018	MS6-LDM-3/8-RD-P2	531 019	MS6-LDM-3/8-RD-P2-Z
	G1/2	531 014	MS6-LDM-1/2-RD-P2	531 015	MS6-LDM-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 Flow rate at output (50 l/min)	1 (200 l/min)		-P1	
		2 Flow rate at output (100 l/min)	(400 l/min)		-P2	
	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	

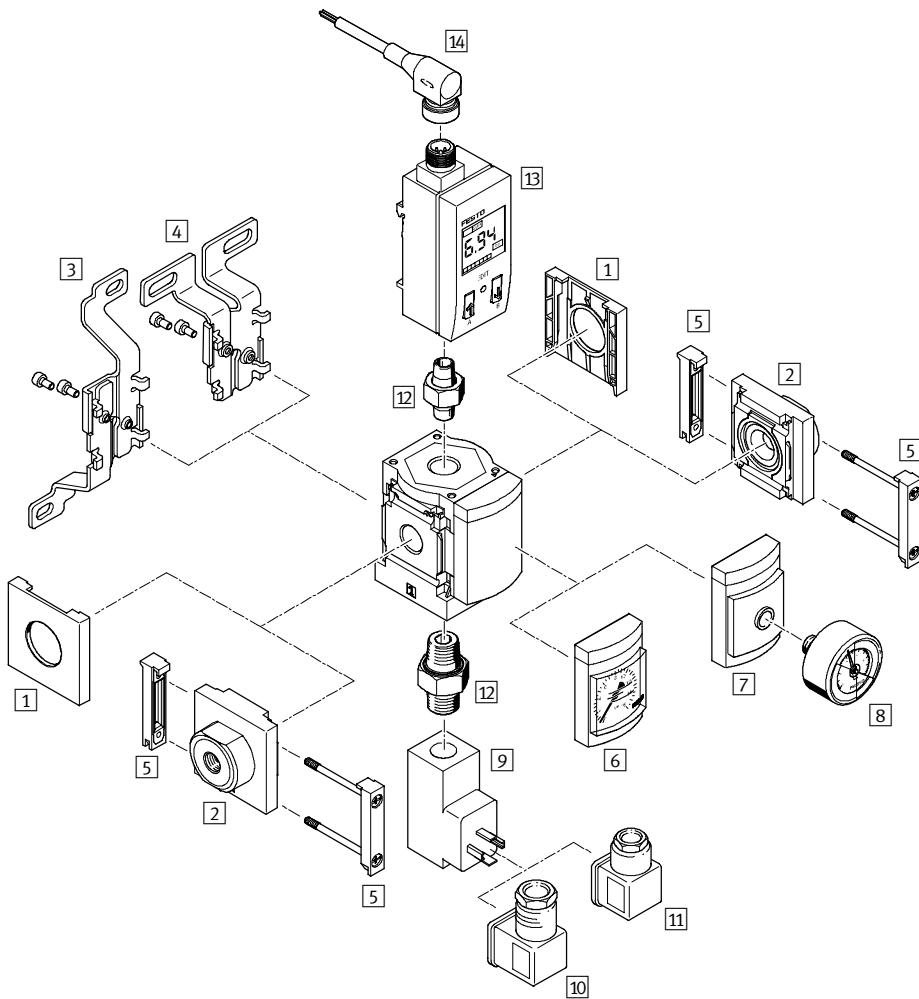
1 WP, WPM Only with connection size AGA, AGB, AGC, AGD or AGE.

Transfer order code

	MS		-	LDM		-		-	RD		-		-	
--	----	--	---	-----	--	---	--	---	----	--	---	--	---	--

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	Pressure gauge AG	■	■	■	■	3/2.18-8
7	Adapter plate for pressure gauge to EN 837 A8/A4	■	■	■	■	3/2.18-8
8	Pressure gauge MA	■	■	■	■	3/2.31-8
9	Pressure switch PEV	■	■	■	■	3/2.31-10
10	Angled socket PEV-¼-WD-LED-...	■	■	■	■	3/2.31-10
11	Plug socket MSSD-C-4P	■	■	■	■	3/2.31-10
12	Double nipple ESK	■	■	■	■	3/2.31-11
13	Pressure sensor SDE1	■	■	■	■	3/2.31-11 Volume 4
14	Plug socket with cable SIM	■	■	■	■	3/2.31-12
-	Wall mounting plate MS4/6-WP	-	■	■	■	3/2.31-5
-	Wall mounting plate MS4/6-WPM	-	■	■	■	3/2.31-6

New
Variants AD5 and AD6

Branching modules MS4/MS6-FRM, MS series

Type codes

FESTO

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 without display

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 sensor
- Pressure gauge
- Alternative pressure gauge scale
- Pressure switch
- Type of mounting

MS4/MS6 series service units
 Branching modules

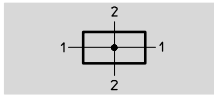
2.18




Branching modules MS4/MS6-FRM, MS series

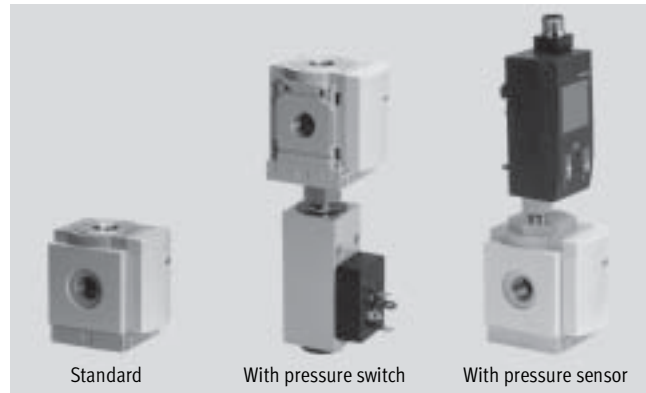
Technical data

FESTO

Function



-  Flow rate
1300 ... 13000 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	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
Operating medium	Compressed air				
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	1300	3500	3300	8350	13000
Outlet at top	2200	2300	6570	7800	6700
Outlet at bottom	2300	2500	6800	8750	8000

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

Ambient conditions		
Variant	Standard/with pressure switch	
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.

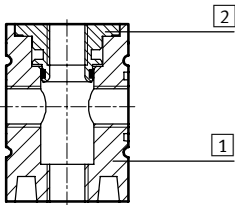
Weight [g]		
	MS4	MS6
Standard	160	500
With pressure switch	400	778
With pressure sensor	250	570

Branching modules MS4/MS6-FRM, MS series

Technical data

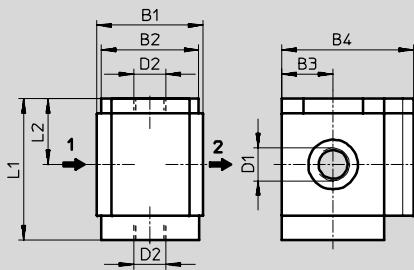
FESTO

Materials



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

Dimensions – Standard



→ 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

New
Variants AD5 and AD6

Branching modules MS4/MS6-FRM, MS series

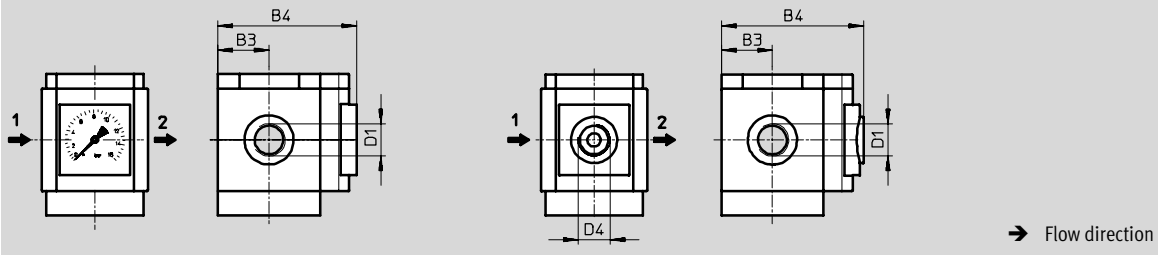
Technical data



Dimensions – Pressure gauge alternatives

Integrated pressure gauge, display unit [bar]

Adapter plate A8/A4 for pressure gauge to EN 837



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	

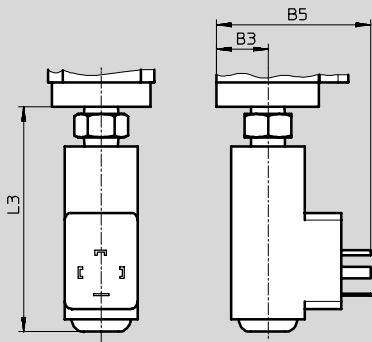
Branching modules MS4/MS6-FRM, MS series

Technical data

FESTO

Dimensions – Pressure switch

Technical data → Volume 4



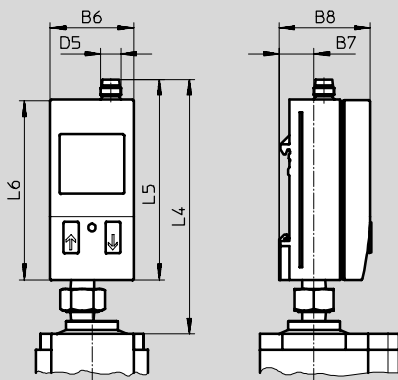
Variant X:
 Pressure switch PEV-1/4-SC-0D with adjustable pressure switching point and visual scale

Variant Y:
 Pressure switch PEV-1/4-B-0D with adjustable pressure switching point

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

Dimensions – Pressure sensor

Technical data → Volume 4



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

Variant AD6:
 Pressure sensor 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		

Branching modules MS4/MS6-FRM, MS series

Technical data

Ordering data					
Size	Connection	Without pressure switch		With pressure switch without display	
		Part No.	Type	Part No.	Type
Flow direction from left to right					
MS4	G $\frac{1}{8}$	529 559	MS4-FRM- $\frac{1}{8}$ -Y ¹⁾	529 560	MS4-FRM- $\frac{1}{8}$ -Y ¹⁾
	G $\frac{1}{4}$	529 555	MS4-FRM- $\frac{1}{4}$ -Y ¹⁾	529 556	MS4-FRM- $\frac{1}{4}$ -Y ¹⁾
MS6	G $\frac{1}{4}$	529 857	MS6-FRM- $\frac{1}{4}$ -Y ¹⁾	529 858	MS6-FRM- $\frac{1}{4}$ -Y ¹⁾
	G $\frac{3}{8}$	529 861	MS6-FRM- $\frac{3}{8}$ -Y ¹⁾	529 862	MS6-FRM- $\frac{3}{8}$ -Y ¹⁾
	G $\frac{1}{2}$	529 853	MS6-FRM- $\frac{1}{2}$ -Y ¹⁾	529 854	MS6-FRM- $\frac{1}{2}$ -Y ¹⁾
Flow direction from right to left					
MS4	G $\frac{1}{8}$	529 562	MS4-FRM- $\frac{1}{8}$ -Y-Z ¹⁾	529 561	MS4-FRM- $\frac{1}{8}$ -Y-Z ¹⁾
	G $\frac{1}{4}$	529 558	MS4-FRM- $\frac{1}{4}$ -Y-Z ¹⁾	529 557	MS4-FRM- $\frac{1}{4}$ -Y-Z ¹⁾
MS6	G $\frac{1}{4}$	529 860	MS6-FRM- $\frac{1}{4}$ -Y-Z ¹⁾	529 859	MS6-FRM- $\frac{1}{4}$ -Y-Z ¹⁾
	G $\frac{3}{8}$	529 864	MS6-FRM- $\frac{3}{8}$ -Y-Z ¹⁾	529 863	MS6-FRM- $\frac{3}{8}$ -Y-Z ¹⁾
	G $\frac{1}{2}$	529 856	MS6-FRM- $\frac{1}{2}$ -Y-Z ¹⁾	529 855	MS6-FRM- $\frac{1}{2}$ -Y-Z ¹⁾

1) Free of copper, PTFE and silicone

New
Variants AD5 and AD6

Branching modules MS4/MS6-FRM, MS series

Ordering data – Modular products



M Mandatory data					O Options				
Module No.	Series	Size	Function	Connection size	Pressure gauge alternatives	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	WP WPM WB WBM	Z
Ordering 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	
O	Pressure gauge alternatives	-				-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			3	-X	
		Pressure switch PEV without display			3	-Y	
	Type of mounting	Wall mounting plate			4	-WP	
		Wall mounting plate (dimensions for M series)			4	-WPM	
		Wall mounting bracket				-WB	
		Wall mounting bracket (dimensions for M series)	-			-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 alternatives AG.

3 **X, Y** Max. permissible input pressure P1 = 12 bar.

Not in combination with pressure gauge alternatives AD5 or AD6.

4 **WP, WPM** Only with connection size AGA, AGB, AGC, AGD or AGE.

Transfer order code

	MS		- FRM						
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MS4/MS6 series service units
Branching modules

2.18

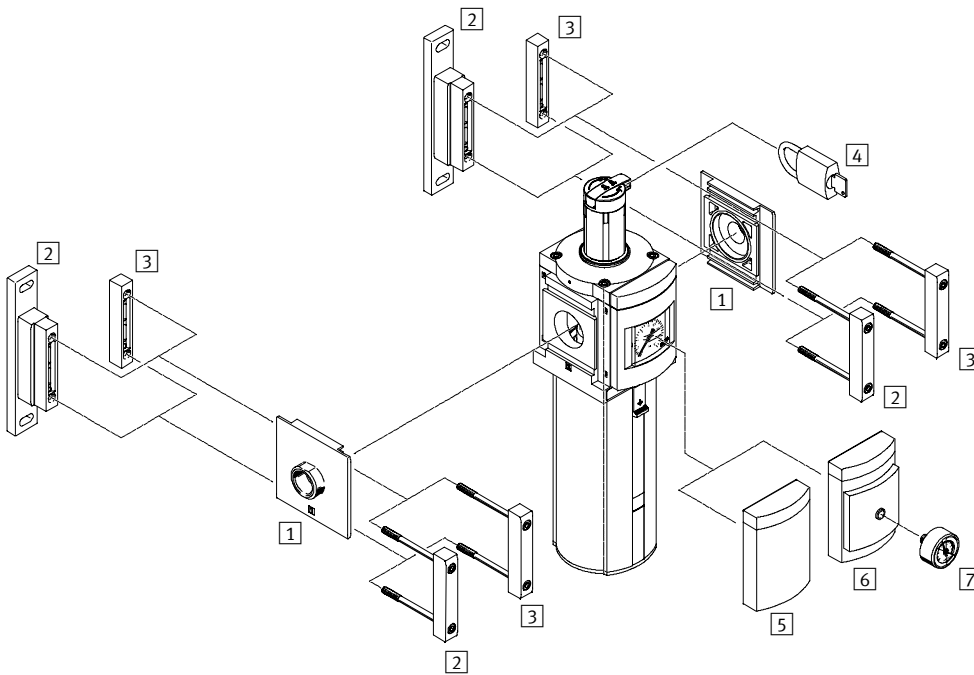
MS12 series service units

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



Filter regulators MS12-LFR, MS series

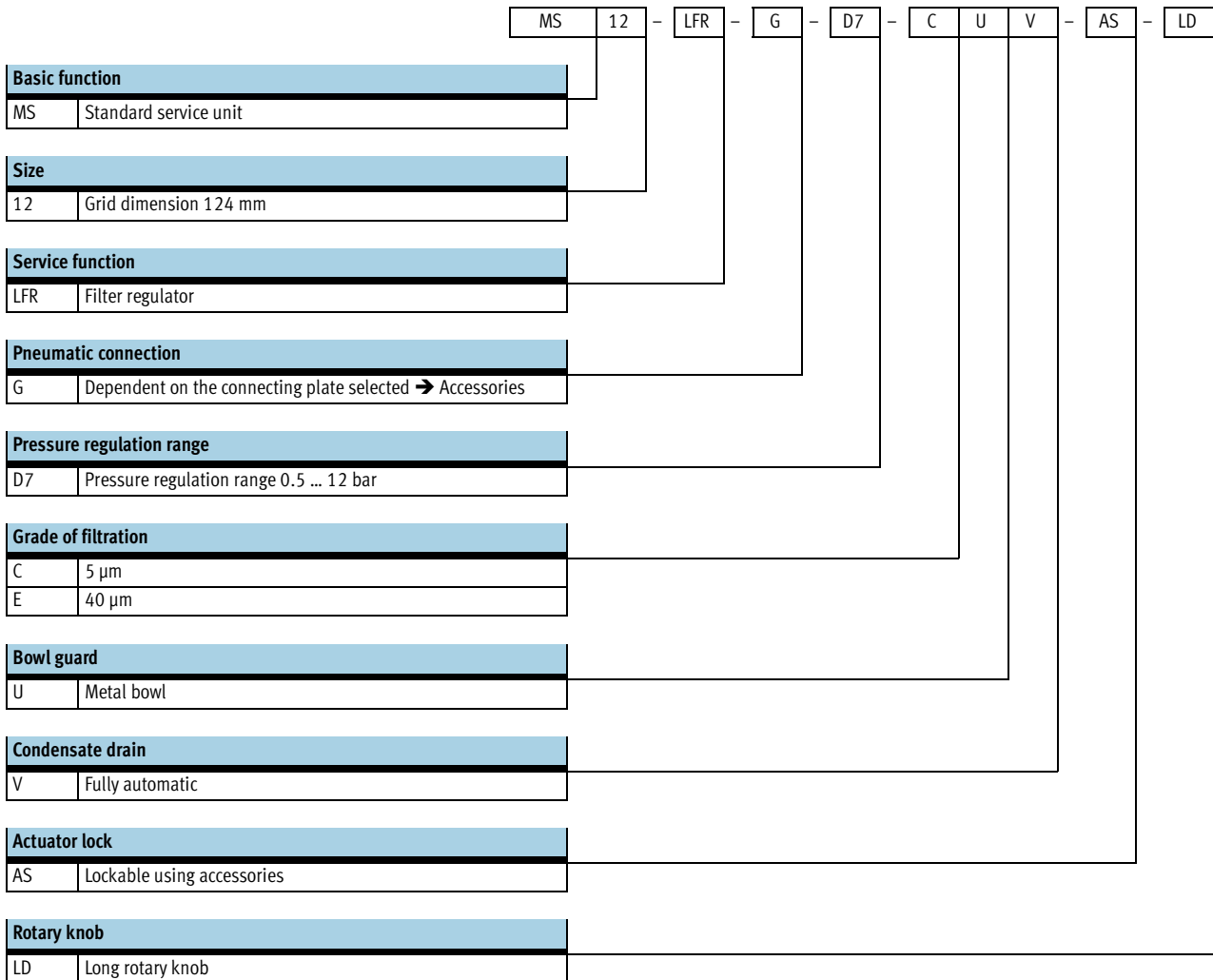
Peripherals overview



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	Padlock LRVS-D	3/2.31-13
5	Cover plate VS	3/2.22-8
6	Adapter plate for pressure gauge to EN 837 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

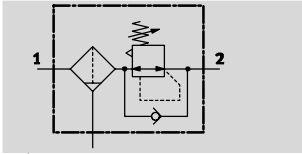
- Connecting plates
- Pressure regulation range
- Condensate drain
- Rotary knob
- Type of mounting
- Alternative flow direction

Filter regulators MS12-LFR, MS series

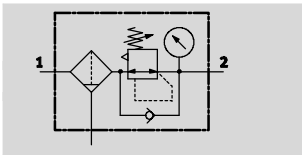
Technical data

Function

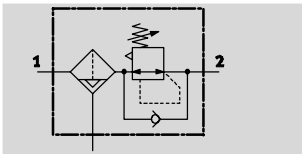
Condensate drain
manual rotary
without pressure gauge



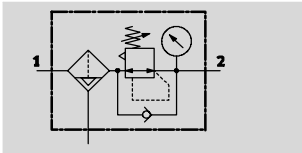
with pressure gauge



Condensate drain
fully automatic
without pressure gauge



with pressure gauge



- - Flow rate
11000 ... 17000 l/min
- - Temperature range
-10 ... +60 °C
- - 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.



- 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: 0.5 ... 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	[cm ³]				
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	0.5 ... 7	
D7	0.5 ... 12	
D8	0.5 ... 16	

Standard nominal flow rate q _N [(l/min) ¹]					
		MS12			
		G1	G1¼	G1½	G2
Grade of filtration	5 µm	11000	11500	12000	14000
	40 µm	12000	12500	13000	17000

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.

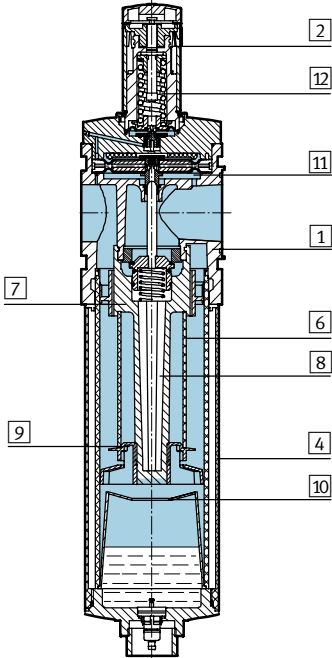
Weight [g]	
MS12	
With metal bowl	7000
With metal bowl and fully automatic, electrically actuated condensate drain	7700

Filter regulators MS12-LFR, MS series

Technical data

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

MS12 series service units
Filter regulators

2.22

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

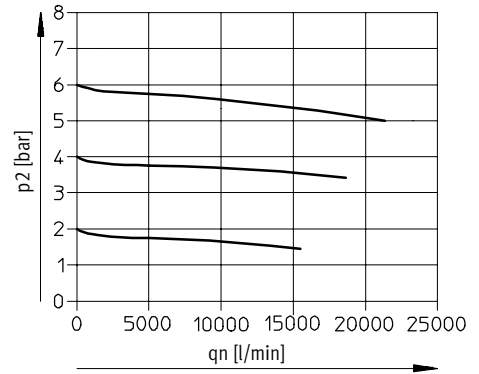
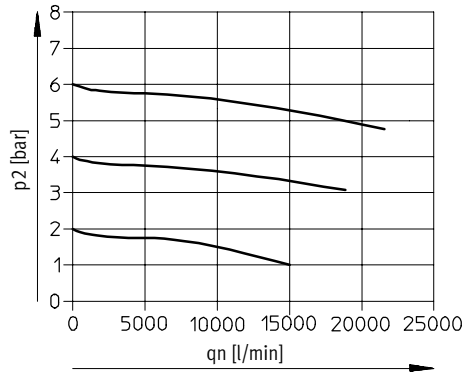
Grade of filtration 40 μm

With connecting plate MS12-AGF

Pneumatic connection G1

With connecting plate MS12-AGG

Pneumatic connection G1 $\frac{1}{4}$



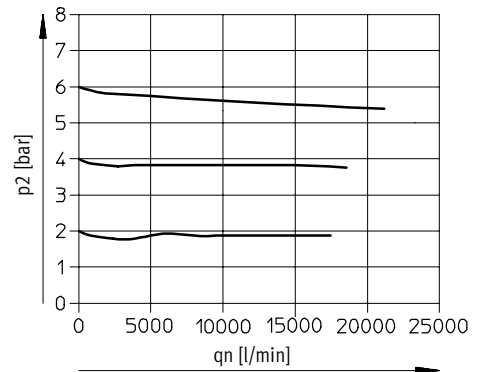
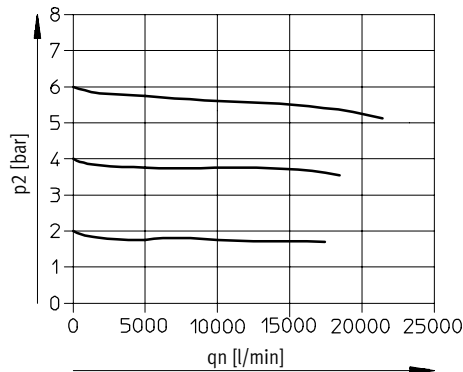
Primary pressure $p_1 = 10$ bar

With connecting plate MS12-AGH

Pneumatic connection G1 $\frac{1}{2}$

With connecting plate MS12-AGI

Pneumatic connection G2



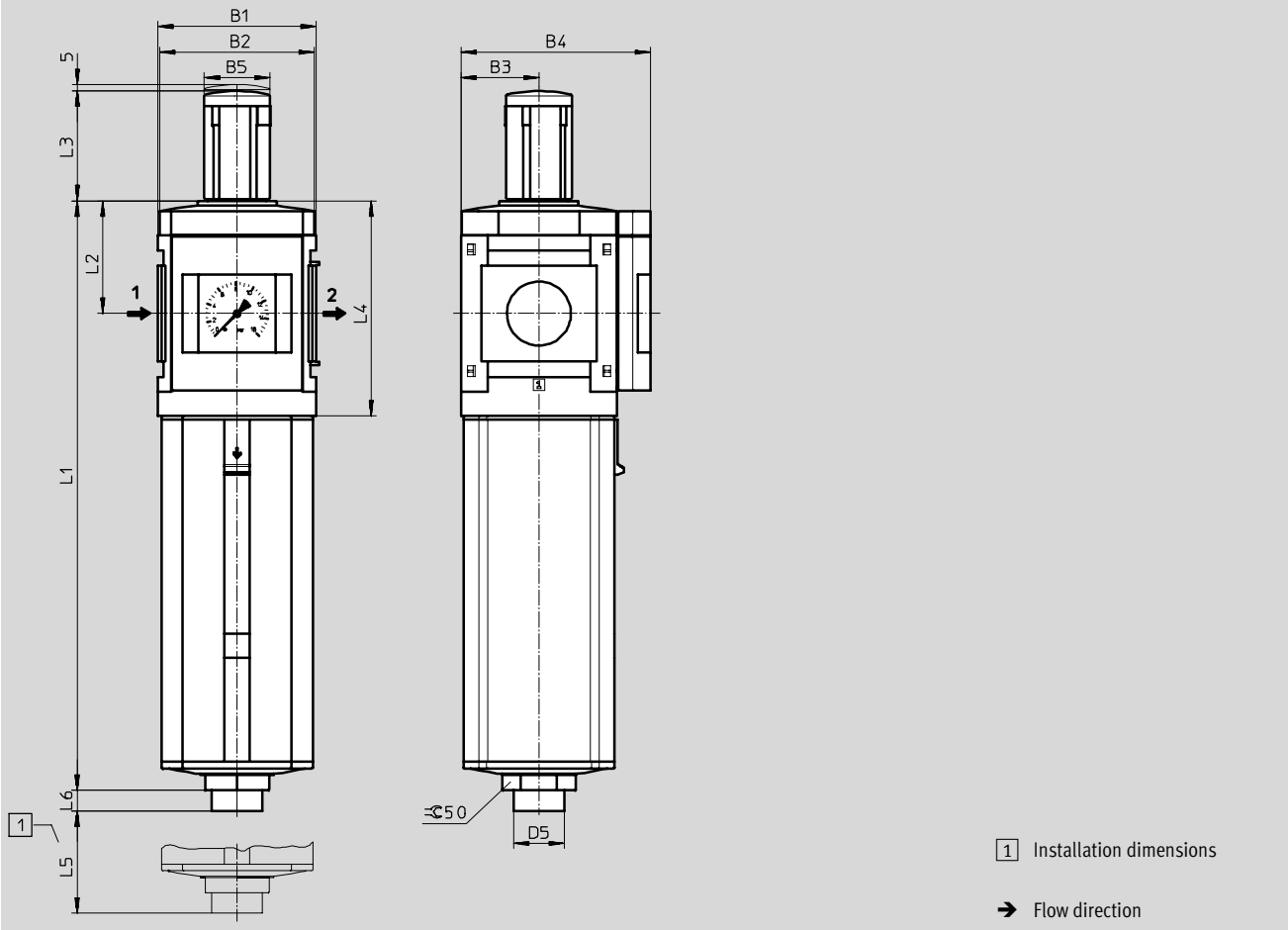
Primary pressure $p_1 = 10$ bar

Filter regulators MS12-LFR, MS series

Technical data

Dimensions – Standard

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

Filter regulators MS12-LFR, MS series

Technical data

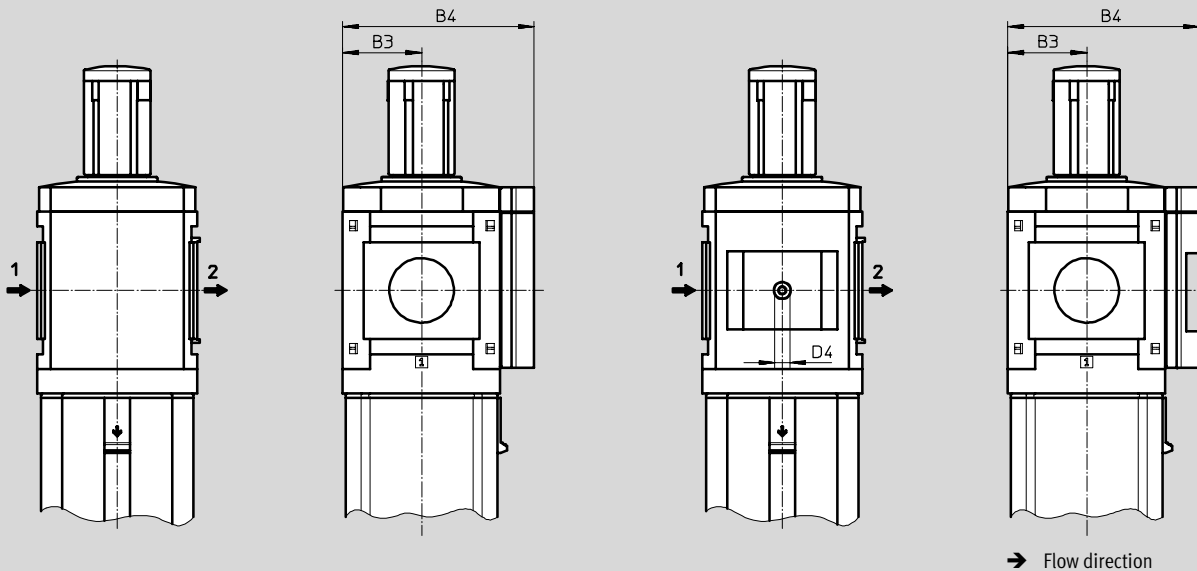
MS12 series service units
Filter regulators

2.22

Dimensions – Pressure gauge alternatives

Cover plate without pressure gauge VS

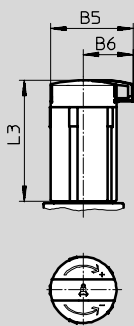
Adapter plate A4 for pressure gauge to EN 837



Type	B3	B4	D4
MS12-LFR-...-VS	61	148	–
MS12-LFR-...-A4	61	148	G¼

Dimensions – Rotary knob

Long, lockable
LD-AS



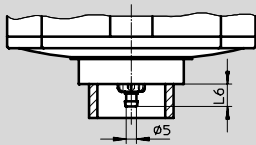
Type	B5	B6	L3
MS12-LFR-...-LD-AS	64.4	39	95.5

Filter regulators MS12-LFR, MS series

Technical data

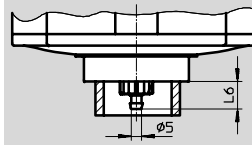
Dimensions – Condensate drain

Manual rotary
M



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

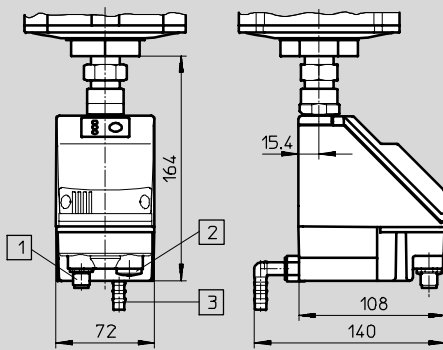
Fully automatic
V



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

Fully automatic, electrically actuated

E1 ... E4



- 1 MS12-LFR-...-E1
M12x1 plug, 5-pin
for SIM-M12-5GD-...
- 2 MS12-LFR-...-E2/E3/E4
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-AS-LD	537 149	MS12-LFR-G-D7-EUV-AS-LD

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

Filter regulators MS12-LFR, MS series

Ordering data – Modular products

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	D5 D6 D7 D8	E C	U
Ordering 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 ... 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	Metal bowl			-U	-U

Transfer order code

535 022	MS	12	- LFR	-	-	-	- U
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Filter regulators MS12-LFR, MS series

Ordering data – Modular products

Options						
M Condensate drain	O 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	
M Condensate drain	Manual			-M		
	Fully automatic			-V		
	External fully automatic condensate drain, electrical, 24 V DC, M12			-E1		
	External fully automatic condensate drain, electrical, 110 V DC, terminals			-E2		
	External fully automatic condensate drain, electrical, 230 V DC, terminals			-E3		
	External fully automatic condensate drain, electrical, 24 V DC, terminals			-E4		
O Pressure gauge alternatives	No pressure gauge mounting			-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		
Type of mounting	Mounting plate		2	-WP		
Alternative flow direction	Flow direction from right to left			-Z		

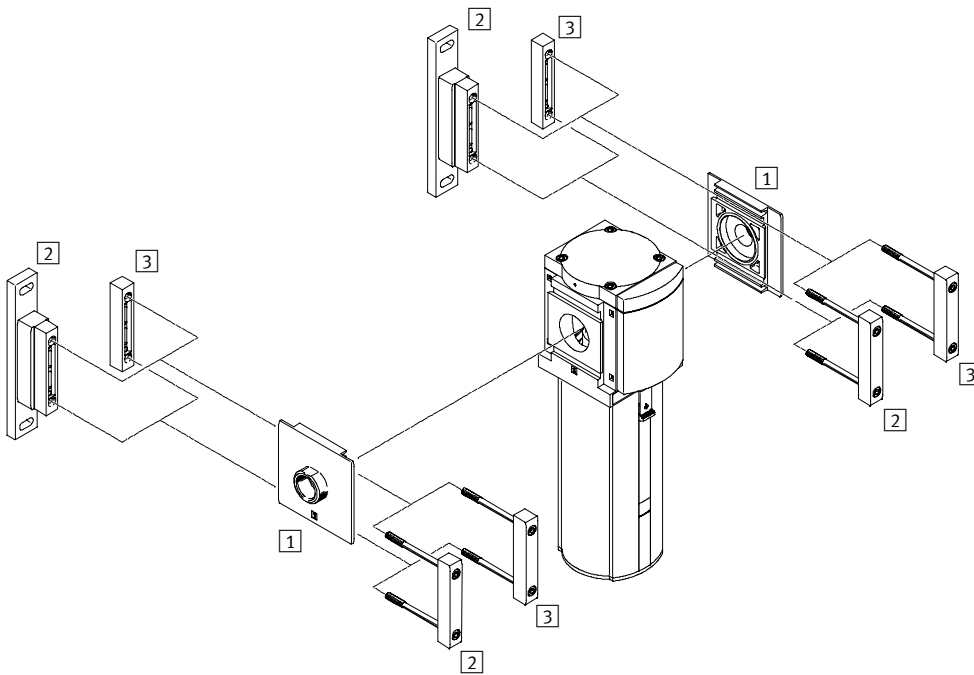
- 1 **PSI, MPA** Not with pressure gauge alternatives VS, A4.
- 2 **WP** Only with connection size AGF, AGG, AGH or AGI.

Transfer order code

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

Filters MS12-LF/LFM/LFX, 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

Filters MS12-LF/LFM/LFX, MS series

Type codes

	MS	12	-	LF	-	G	-	C	U	V
Basic function										
MS	Standard service unit									
Size										
12	Grid dimension 124 mm									
Service function										
LF	Filter									
LFM	Fine and micro filter									
LFX	Active carbon filter									
Pneumatic connection										
G	Dependent on the connecting plate selected → Accessories									
Grade of filtration (for LF and LFM only)										
A	0.01 µm									
B	1 µm									
C	5 µm									
E	40 µm									
Bowl guard										
U	Metal bowl									
Condensate drain (for LF and LFM only)										
V	Fully automatic									

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

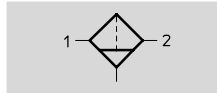
- Connecting plates
- Condensate drain (LF/LFM only)
- Type of mounting
- Alternative flow direction

Filters MS12-LF, MS series

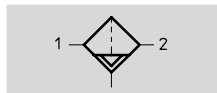
Technical data


Function


Condensate drain
manual rotary




fully automatic



 Flow rate
11500 ... 16000 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]	400			
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	11500	12500	13500	14000
	40 µm	12500	13000	14000	16000

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

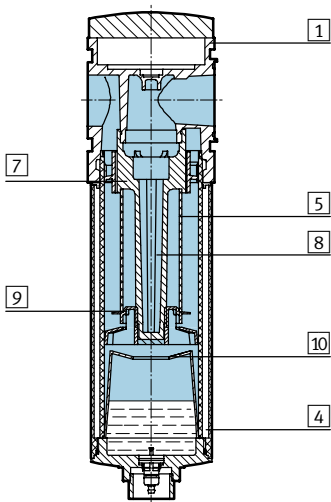
Ambient conditions		Condensate drain		
		manual rotary	fully automatic	fully automatic, electrically actuated
Ambient temperature	[°C]	-10 ... +60	+5 ... +60	+1 ... +60
Temperature of medium	[°C]	-10 ... +60	+5 ... +60	+1 ... +60
Storage temperature	[°C]	-10 ... +60	-10 ... +60	+1 ... +60
Corrosion resistance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

Weight [g]	MS12
With metal bowl	6500
With metal bowl and fully automatic, electrically actuated condensate drain	7200

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

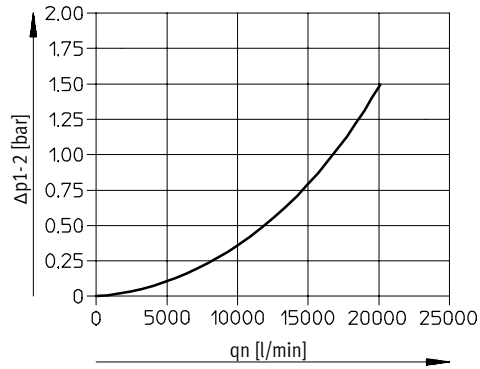
Technical data

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

Grade of filtration 5 μm

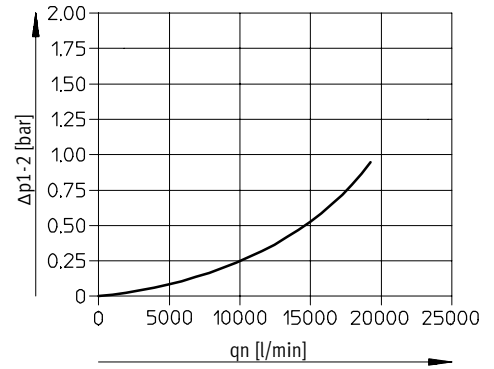
With connecting plate MS12-AGF

Pneumatic connection G1



With connecting plate MS12-AGI

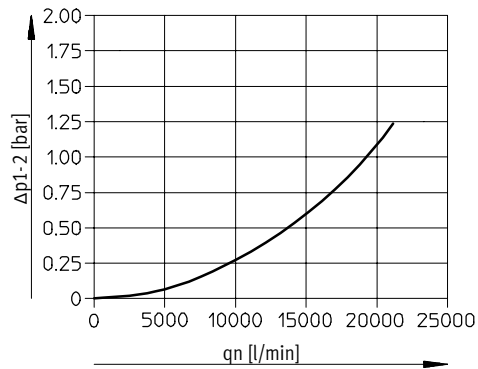
Pneumatic connection G2



Grade of filtration 40 μm

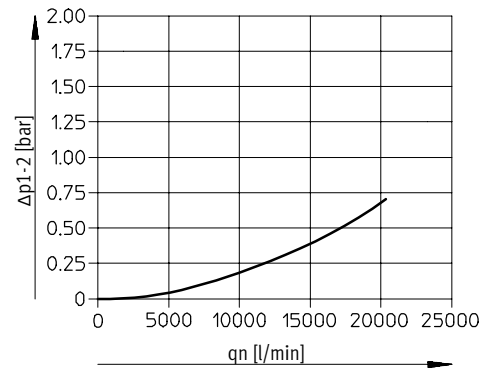
With connecting plate MS12-AGF

Pneumatic connection G1



With connecting plate MS12-AGI

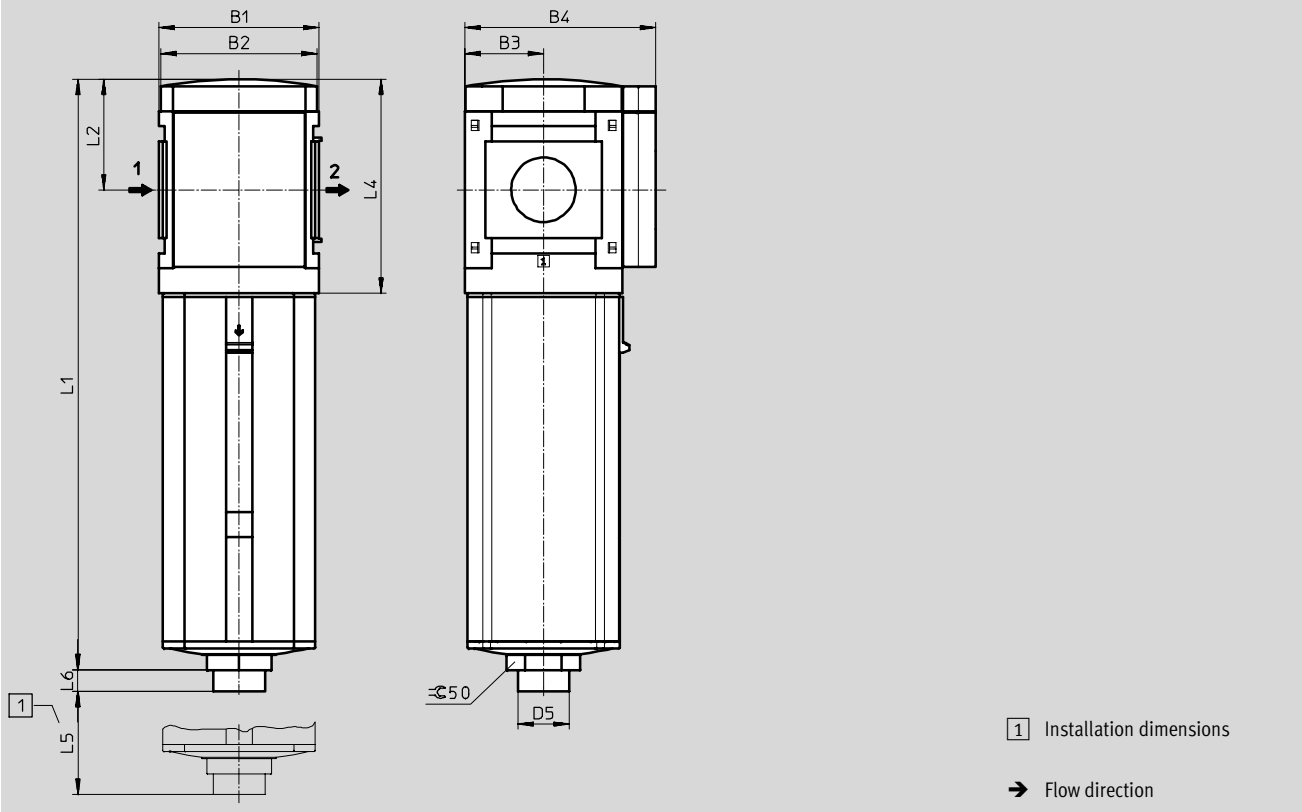
Pneumatic connection G2



Filters MS12-LF, MS series

Technical data

Dimensions – Standard



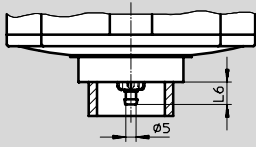
Type	B1	B2	B3	B4	D5	L1	L2	L4	L5	L6
MS12-LF	124	122	61	148	40	458	86	166	250	16

Filters MS12-LF, MS series

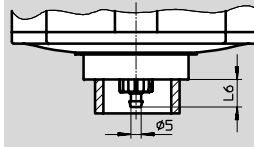
Technical data

Dimensions – Condensate drain

Manual rotary
M



Fully automatic
V

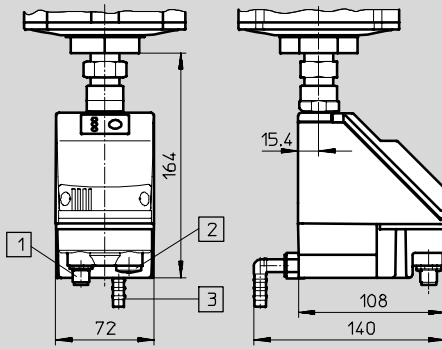


Type	L6
MS12-LF-...-M	11

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

Fully automatic, electrically actuated

E1 ... E4



- 1 MS12-LF-...-E1
M12x1 plug, 5-pin
for SIM-M12-5GD-...
- 2 MS12-LF-...-E2/E3/E4
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	Connec- tion size	Grade of filtration	Bowl	Conden- sate 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
Ordering 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			-V	
	External fully automatic condensate drain, electrical, 24 V DC, M12			-E1	
	External fully automatic condensate drain, electrical, 110 V DC, terminals			-E2	
	External fully automatic condensate drain, electrical, 230 V DC, 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 connection size 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

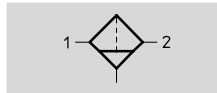
Technical data

Function

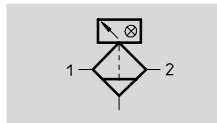
Condensate drain

manual rotary

without differential pressure indicator



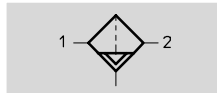
with differential pressure indicator



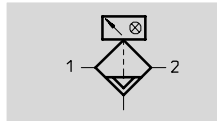
Condensate drain


fully automatic


without differential pressure indicator




with differential pressure indicator



 Flow rate
5000 ... 7600 l/min

 Temperature range
-10 ... +60 °C

 Input pressure
0.8 ... 20 bar



- 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%

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 qnN and standard flow rate qn [l/min] ¹⁾					
		MS12			
		G1	G1¼	G1½	G2
Micro filter LFM-A					
qnN 1 → 2		5000	6000	6500	7000
qn min		700	700	700	700
qn max		23000	23000	23000	23000
Fine filter LFM-B					
qnN 1 → 2		5200	6200	7500	7600
qn min		950	950	950	950
qn max		23000	23000	23000	23000

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.

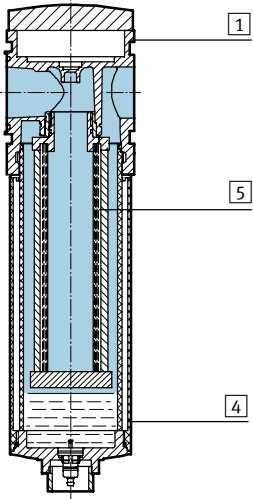
Weight [g]	
MS12	
With metal bowl	7000
With metal bowl and fully automatic, electrically actuated condensate drain	7700

Fine and micro filters MS12-LFM, MS series

Technical data

Materials

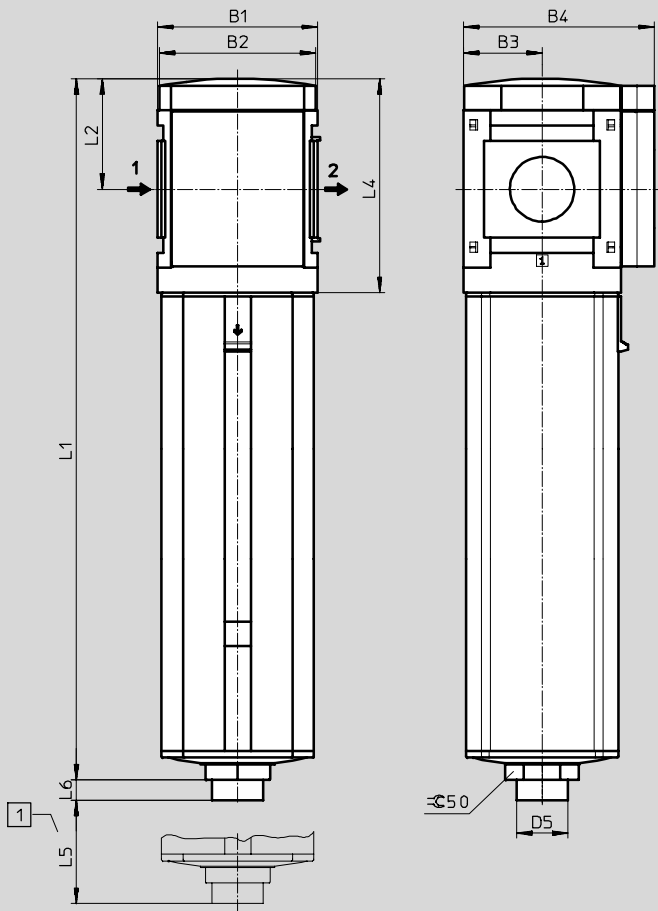
Sectional view



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



1 Installation dimensions

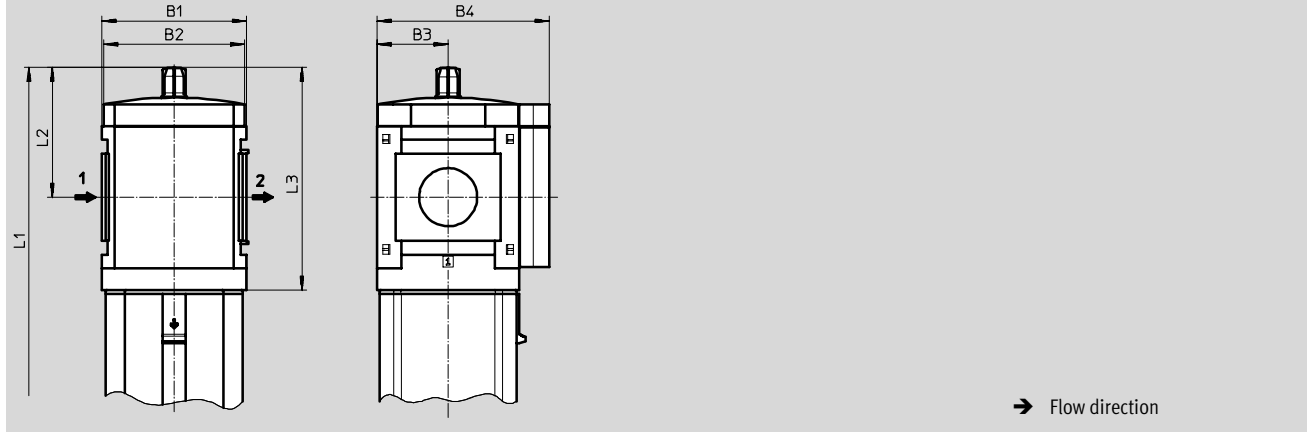
2 Flow direction

Type	B1	B2	B3	B4	D5	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

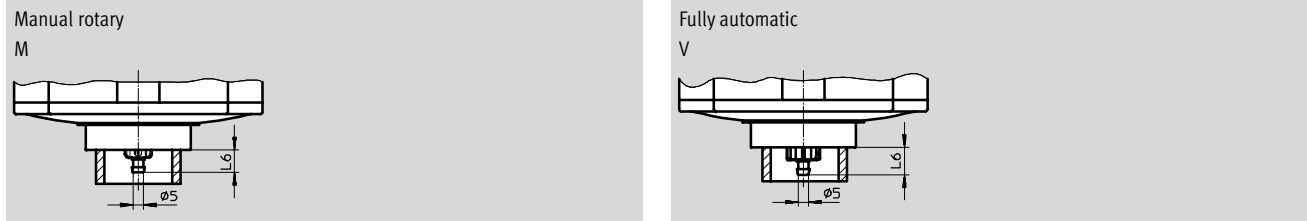
Technical data

Dimensions – Differential pressure indicator



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

Dimensions – Condensate drain



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

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

Fully automatic, electrically actuated



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.	
Flow direction from left to right							
fully automatic	MS12	G1 ... G2 ¹⁾	537 154	MS12-LFM-G-AUV	537 153	MS12-LFM-G-BUV	

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

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
Ordering example										
535 042	MS	12	- LFM	- AGI	- A	- U	- M	-	-	-

Ordering table			
Grid dimension	[mm]	124	Condi- tions
Module No.	535 042		Code
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		-V
	External fully automatic condensate drain, electrical, 24 V DC, M12		-E1
	External fully automatic condensate drain, electrical, 110 V DC, terminals		-E2
	External fully automatic condensate drain, electrical, 230 V DC, terminals		-E3
External fully automatic condensate drain, electrical, 24 V DC, terminals		-E4	
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 connection size AGF, AGG, AGH or AGI.

Transfer order code

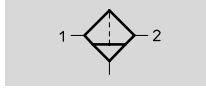
535 042	MS	12	- LFM	-	-	- U	-	-	-
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Active carbon filters MS12-LFX, MS series


Technical data


Function

Condensate drain
manual rotary



 Flow rate
4800 ... 6000 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				
		MS12		
Pneumatic connection 1 ¹⁾		G1	G1¼	G1½
Pneumatic connection 2 ¹⁾		G1	G1¼	G1½
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 at the output				
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 qnN [l/min] ¹⁾				
		MS12		
		G1	G1¼	G1½
		4800	5000	5500
				G2
				6000

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

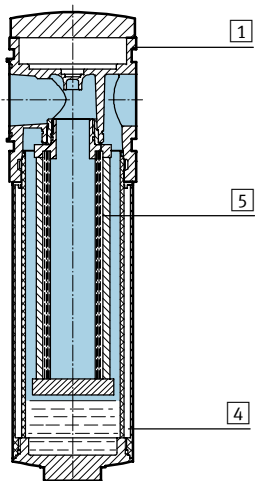
1) Corrosion resistance class 2 according to Festo standard 940 070

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.

Weight [g]	
	MS12
With metal bowl	7000

Materials

Sectional view



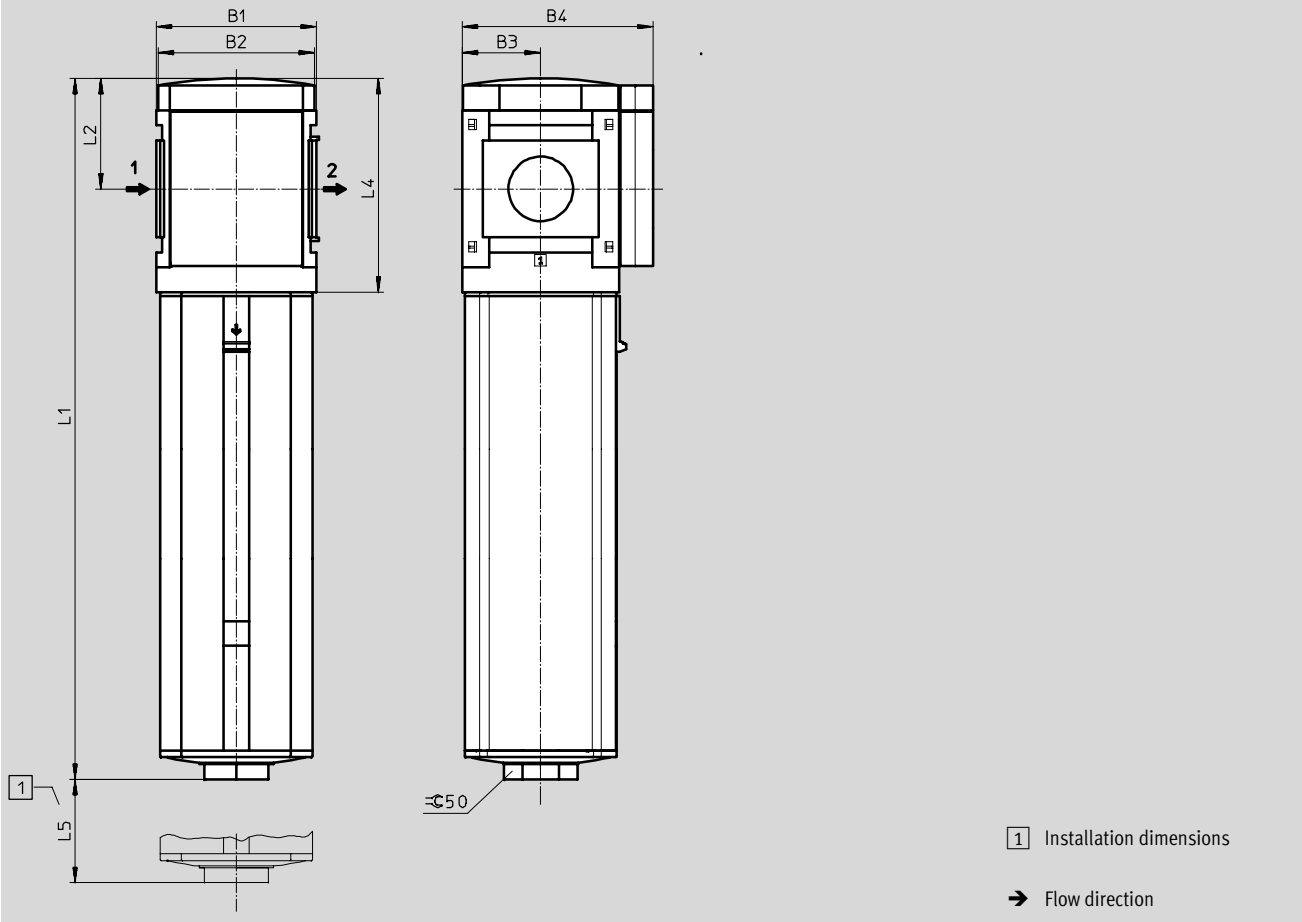
Active carbon filter		
1	Body	Die-cast aluminium
4	Metal bowl	Wrought aluminium alloy
5	Filter element	Active carbon
-	Seals	Nitrile rubber
	Note on materials	Free of copper, PTFE and silicone

Active carbon filters MS12-LFX, MS series

Technical data

Dimensions – Standard

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

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
Ordering example							
535 043	MS	12	- LFX	- AGF	- U	- WP	- Z

Ordering table			
Grid dimension	[mm]	124	Condi-tions
[M] Module No.	535 043		
Series	Standard		MS
Size	12		12
Function	Active carbon filter		-LFX
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 connection size 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

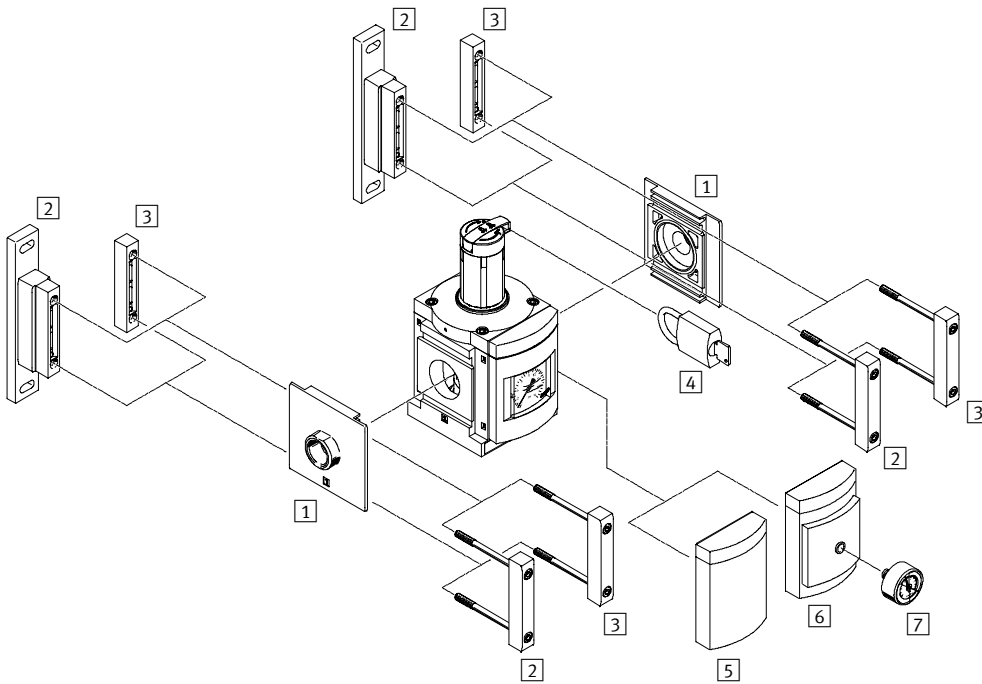
Filter cartridge MS12-LF...



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



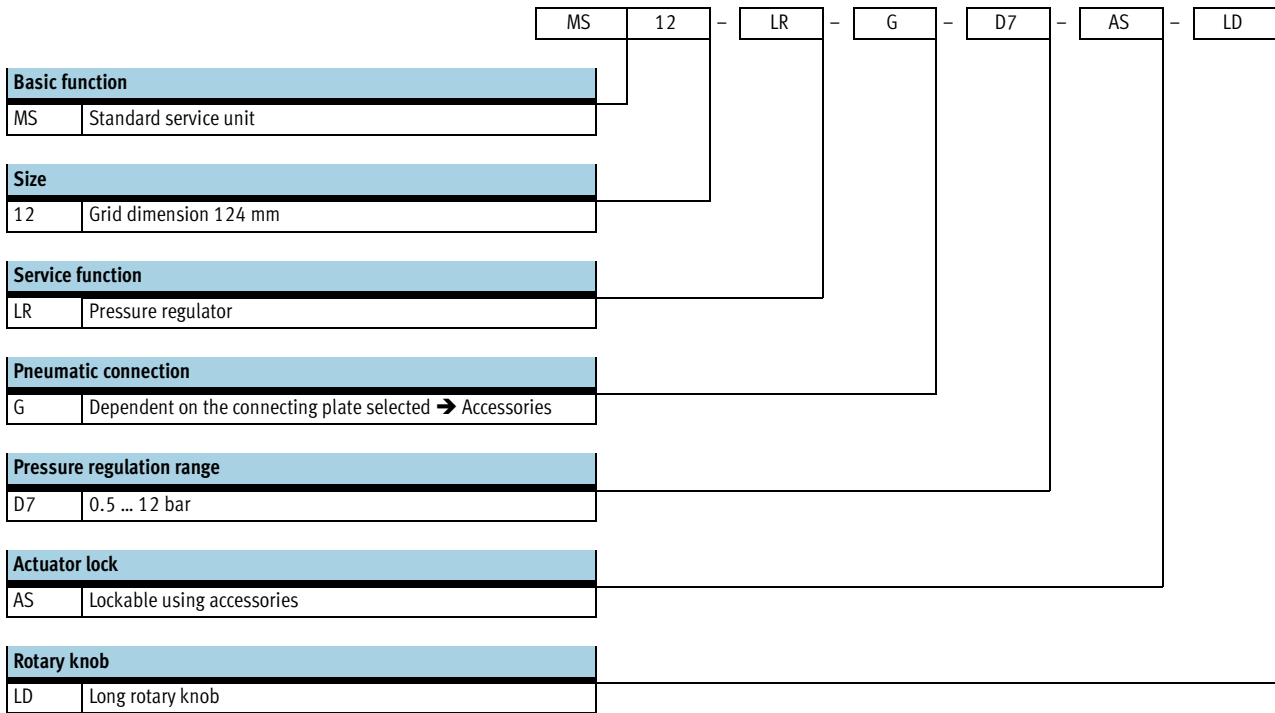
MS12 series service units
Pressure regulators

2.24

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	3/2.31-13
5	Cover plate VS	3/2.24-6
6	Adapter plate for pressure gauge to EN 837 A4	3/2.24-6
7	Pressure gauge MA	3/2.31-8

Pressure regulators MS12-LR, MS series

Type codes



Further variants can be ordered using the modular system

Pressure regulators LR → 3/2.24-6

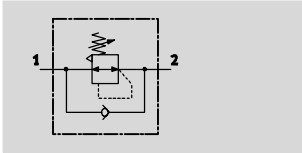
- Connecting plates
- Pressure regulation range
- Actuator lock
- Rotary knob
- Type of mounting
- Alternative flow direction

Pressure regulators MS12-LR, MS series

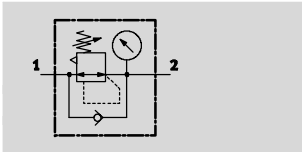
Technical data




Function

without pressure gauge



with pressure gauge



-  - Flow rate
13000 ... 22000 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
- Rotary knob can be locked using accessories
- Setting values are secured by locking the rotary knob
- 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
Operating medium		Compressed air			
Design		Pressure regulator with pressure gauge			
		Pilot actuated diaphragm regulator			
Type of mounting		Via accessories			
		In-line installation			
Assembly position		Any			
Max. hysteresis	[bar]	0.4			
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 qnN [l/min] ¹⁾					
		MS12			
		G1	G1¼	G1½	G2
		13000	13500	16000	22000

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

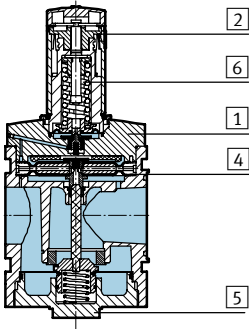
Ambient conditions		
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	-10 ... +60
Storage temperature	[°C]	-10 ... +60
Corrosion resistance class	CRC ¹⁾	2

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.

Weight [g]	
	MS12
Pressure regulator	4000

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, PTFE and silicone only with cover plate VS

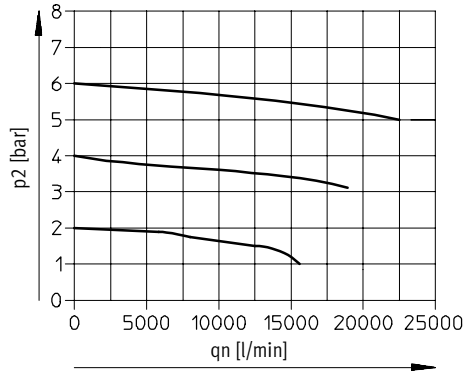
Pressure regulators MS12-LR, MS series

Technical data



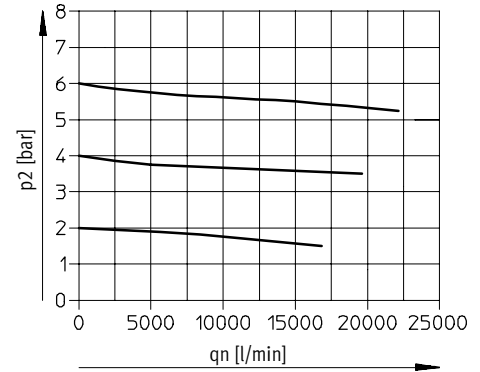
Standard flow rate q_n as a function of the output pressure p_2

With connecting plate MS12-AGF
Pneumatic connection G1

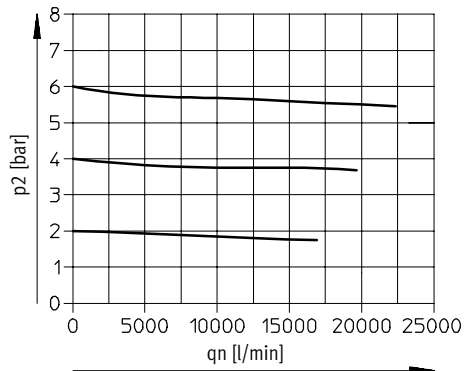


Primary pressure $p_1 = 10$ bar

With connecting plate MS12-AGG
Pneumatic connection G1¼

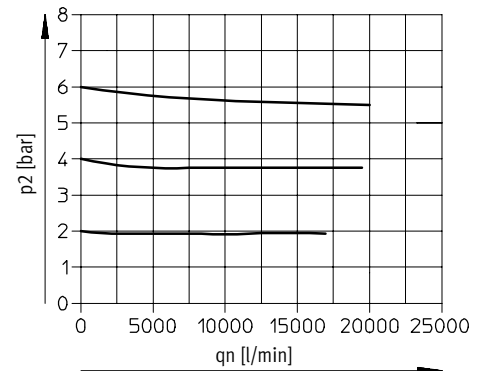


With connecting plate MS12-AGH
Pneumatic connection G1½



Primary pressure $p_1 = 10$ bar

With connecting plate MS12-AGI
Pneumatic connection G2

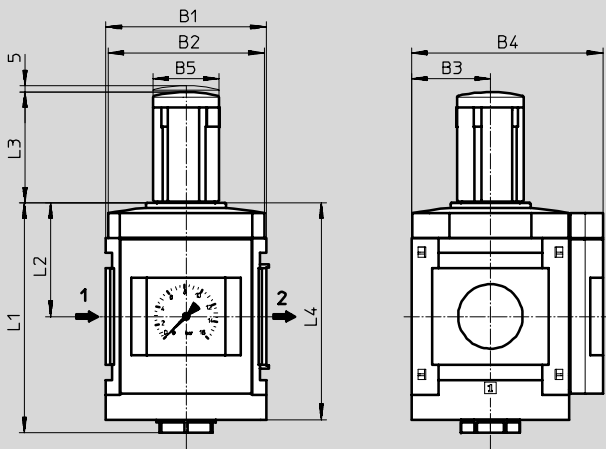


MS12 series service units
Pressure regulators

2.24

Dimensions – Standard

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



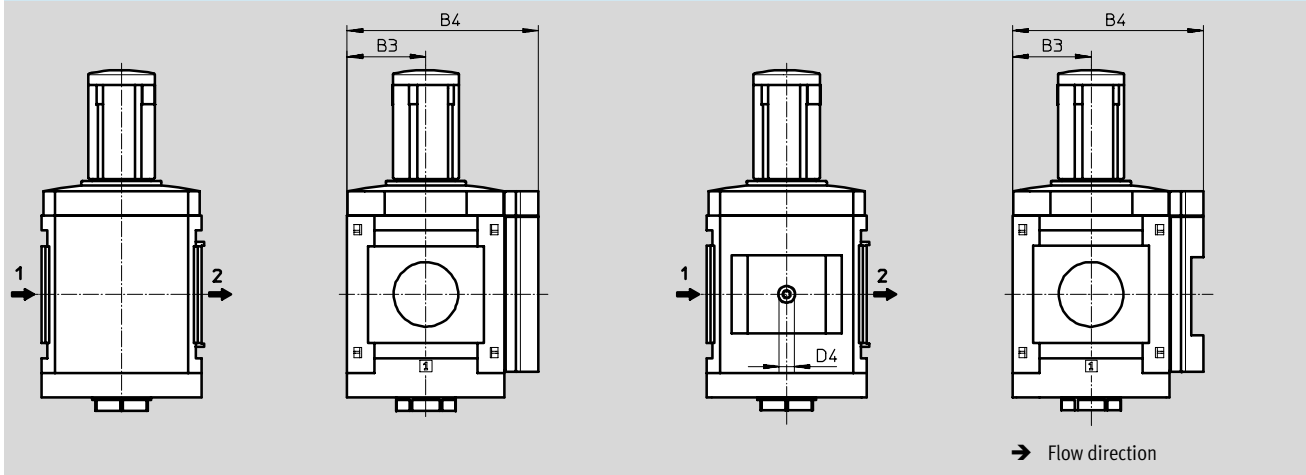
➔ Flow direction

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

Pressure regulators MS12-LR, MS series

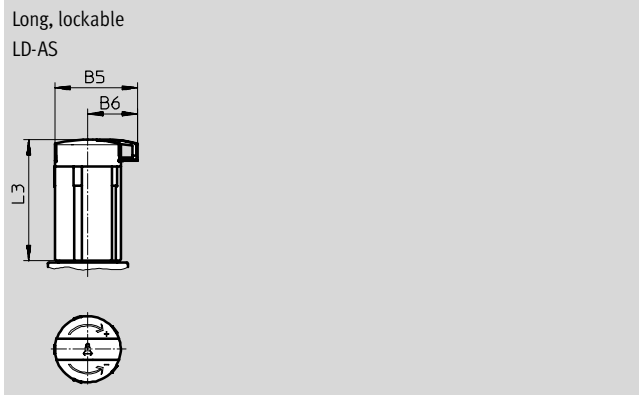
Technical data

Dimensions – Pressure gauge alternatives
 Cover plate without pressure gauge VS Adapter plate A4 for pressure gauge to EN 837



Type	B3	B4	D4
MS12-LR-...-VS	61	148	-
MS12-LR-...-A4	61	148	G $\frac{1}{4}$

Dimensions – Rotary knob



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

Ordering data

Pressure gauge, lockable standard type rotary knob		
Size	Connection	Pressure regulation range 0.5 ... 12 bar
		Part No. Type
Flow direction from left to right		
MS12	G1 ... G2 ¹⁾	537 148 MS12-LR-G-D7-AS-LD

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
Ordering 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	

MS12 series service units
Pressure regulators

2.24

Transfer order code

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

Ordering data – Modular products

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

Ordering table					
Grid dimension	[mm]	124	Condi- tions	Code	Enter code
0 Pressure gauge alternatives	No pressure gauge mounting			-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	
Type of mounting	Wall mounting plate		2	-WP	
Alternative flow direction	Flow direction from right to left			-Z	

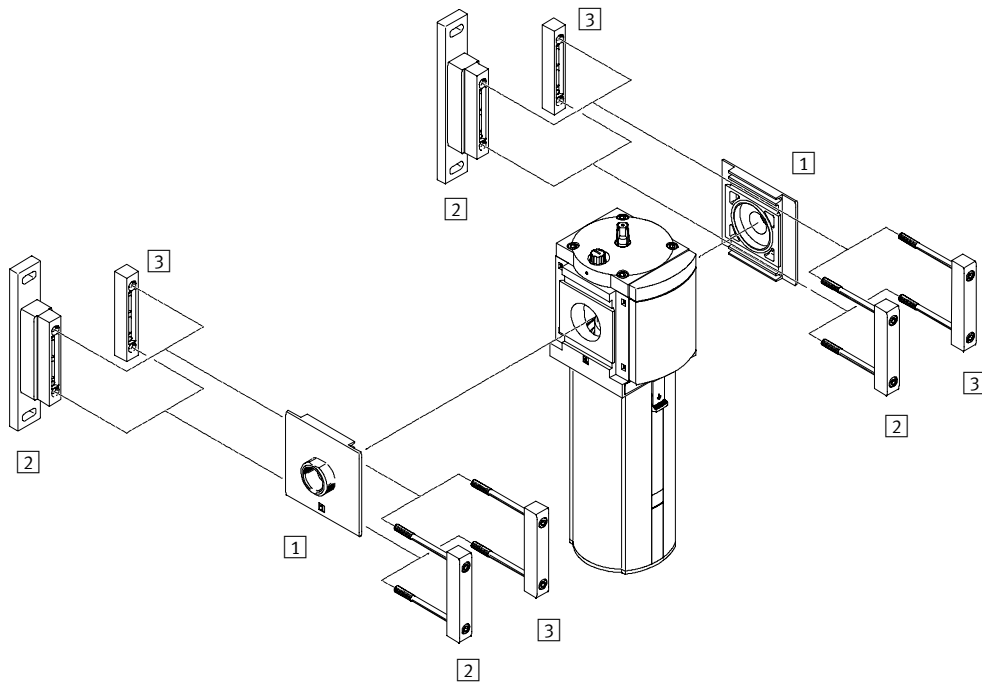
- 1 **PSI, MPA** Not with pressure gauge alternatives VS, A4.
- 2 **WP** Only with connection size AGF, AGG, AGH or AGI.

Transfer order code

- - - - - -

Lubricators MS12-LOE, MS series

Peripherals overview

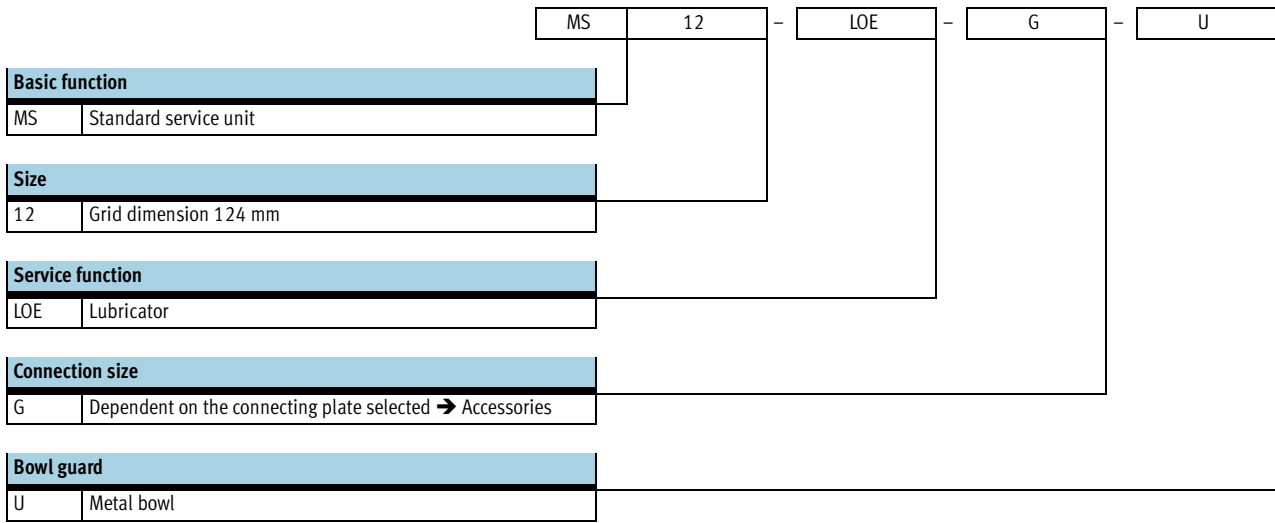


Mounting attachments and accessories		→ Page
1	Connecting plate MS12-AG...	3/2.31-0
2	Wall mounting plate MS12-WP	3/2.31-7
3	Module connector MS12-MV	3/2.31-3

MS12 series service units
Lubricators

Lubricators MS12-LOE, MS series

Type codes



Further variants can be ordered using the modular system

Lubricators LOE → 3/2.25-6

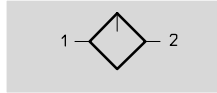
- Connecting plates
- Type of mounting
- Alternative flow direction

Lubricators MS12-LOE, MS series

Technical data



Function



- - Flow rate
20000 ... 22000 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	1500			

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

Standard nominal flow rate qnN [l/min] ¹⁾				
	MS12			
	G1	G1¼	G1½	G2
	20000	20500	21000	22000

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

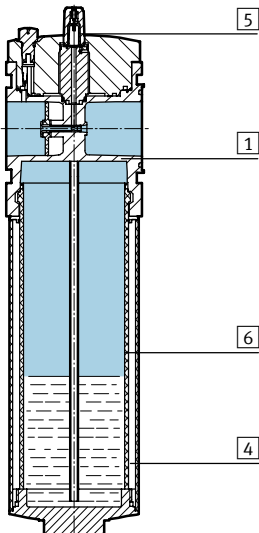
Ambient conditions		
		MS12
Ambient temperature	[°C]	0 ... +60
Temperature of medium	[°C]	0 ... +60
Storage temperature	[°C]	-10 ... +60
Corrosion resistance class	CRC ¹⁾	2

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.

Weight [g]		MS12
With metal bowl		6500

Materials

Sectional view



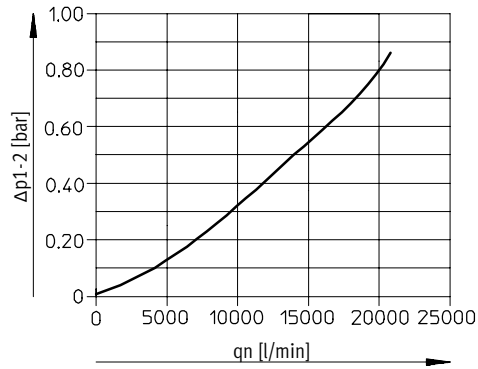
Lubricator		
1	Body	Die-cast aluminium
4	Metal bowl	Aluminium/polyamide
5	Lubricator dome	Polycarbonate
6	Metal bowl sight glass	Polyamide
-	Seals	Nitrile rubber

Lubricators MS12-LOE, MS series

Technical data

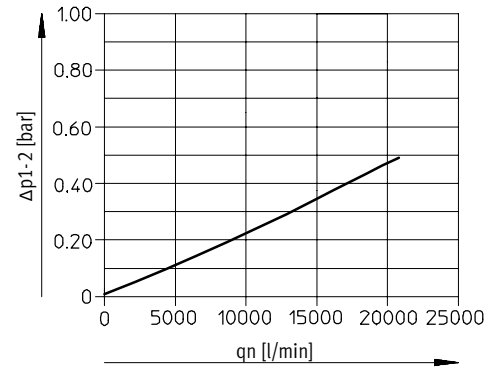
Standard flow rate q_n as a function of the differential pressure Δp_{1-2}

With connecting plate MS12-AGF
Pneumatic connection G1

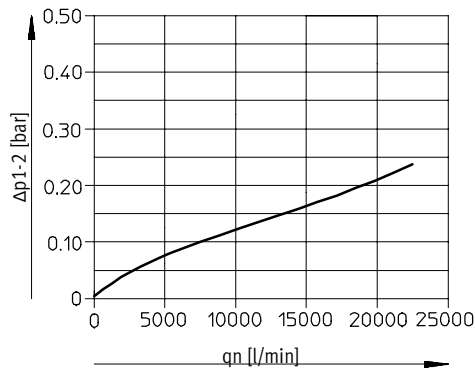


Primary pressure $p_1 = 6$ bar

With connecting plate MS12-AGG
Pneumatic connection G1¼

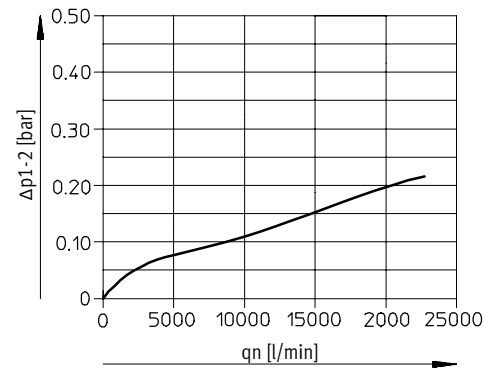


With connecting plate MS12-AGH
Pneumatic connection G1½



Primary pressure $p_1 = 6$ bar

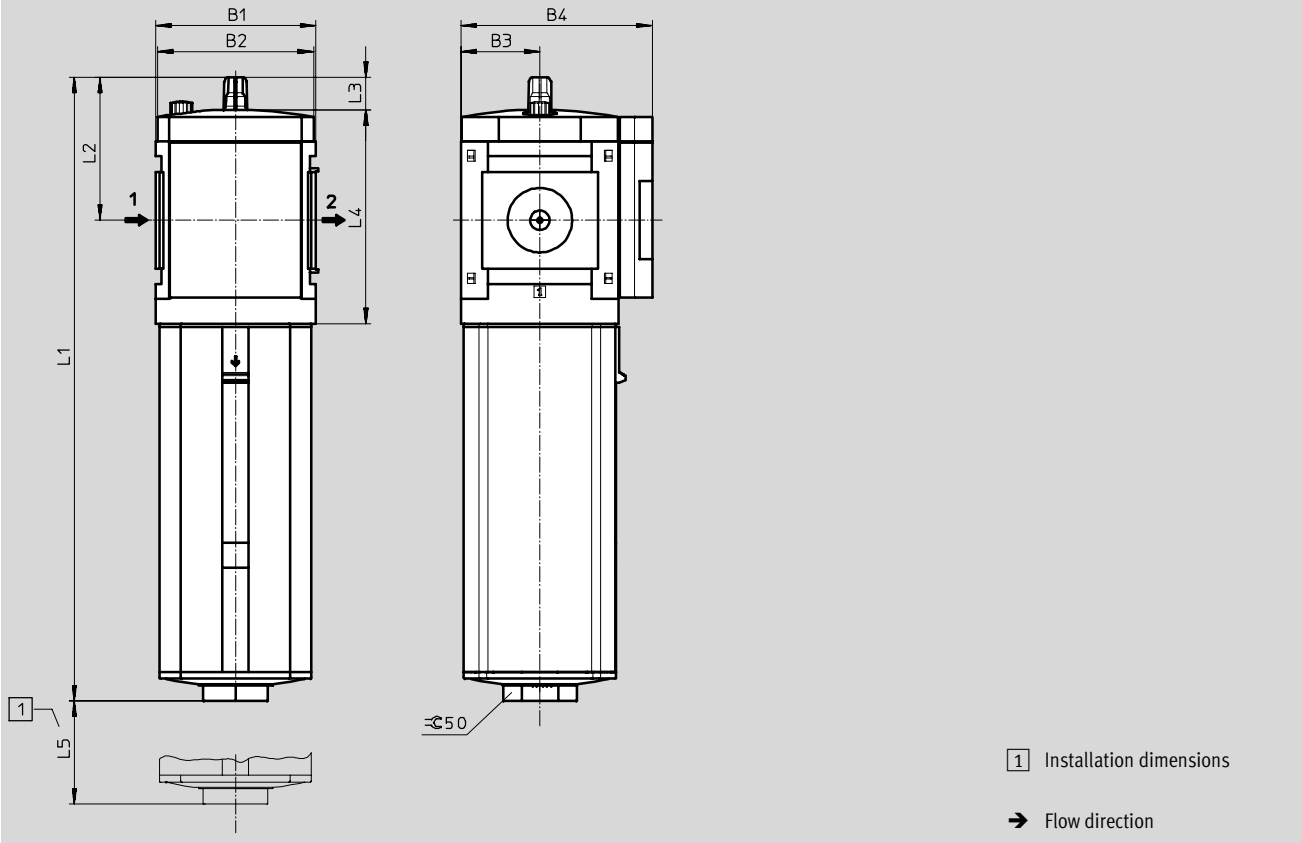
With connecting plate MS12-AGI
Pneumatic connection G2



Lubricators MS12-LOE, MS series

Technical data

Dimensions – Standard




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

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
Ordering 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 connection size AGF, AGG, AGH or AGI.

Transfer order code

535 041	MS	12	- LOE	-	U	-	-	-
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MS series service units

Accessories

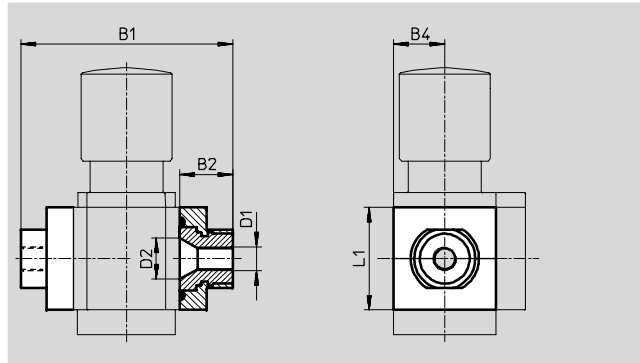


Connecting plate MS4/6-AG...

(order code: AG...)

- Adapter for pneumatic connection
- MS6-AGE for implementing threaded connection G $\frac{3}{4}$

Material:
Aluminium



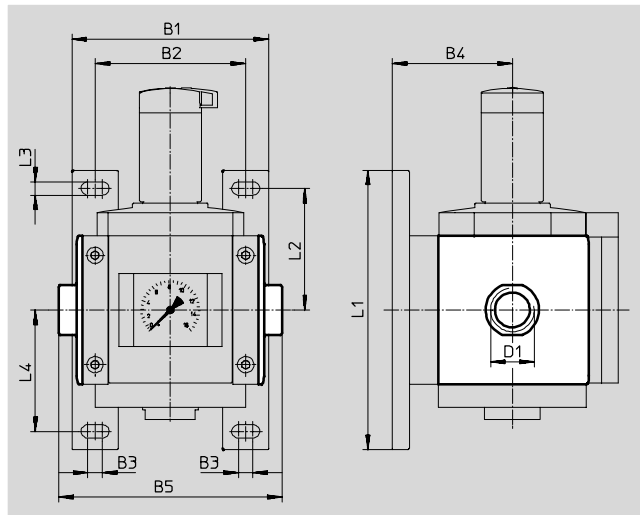
Dimensions and ordering data									
Size	B1	B2	B4	D1	D2	L1	Weight [g]	Part No.	Type
MS4	83.5	21.5	21	G $\frac{1}{8}$	16.8	42	128	526 068	MS4-AGA
				G $\frac{1}{4}$				526 069	MS4-AGB
				G $\frac{3}{8}$				526 070	MS4-AGC
MS6	115	26.5	31	G $\frac{1}{4}$	24	62	300	526 080	MS6-AGB
				G $\frac{3}{8}$				526 081	MS6-AGC
				G $\frac{1}{2}$				526 082	MS6-AGD
				G $\frac{3}{4}$				526 083	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	1300	537 135	MS12-AGF
					184	G $\frac{1}{4}$						537 136	MS12-AGG
					184	G $\frac{1}{2}$						537 137	MS12-AGH
					196	G2						537 138	MS12-AGI

MS series service units

Accessories



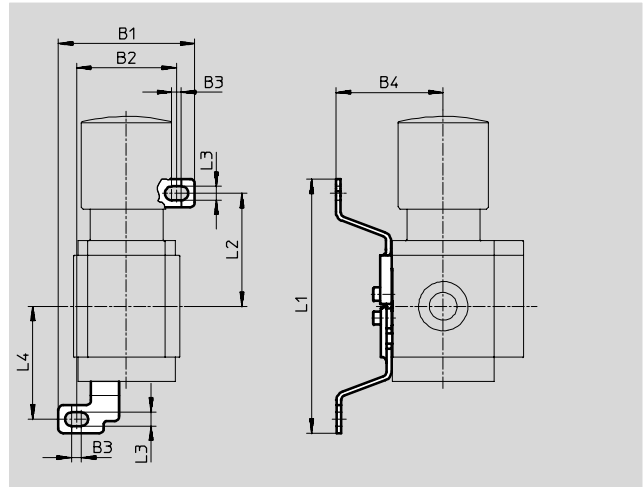
Wall mounting bracket MS4/6-WB

(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

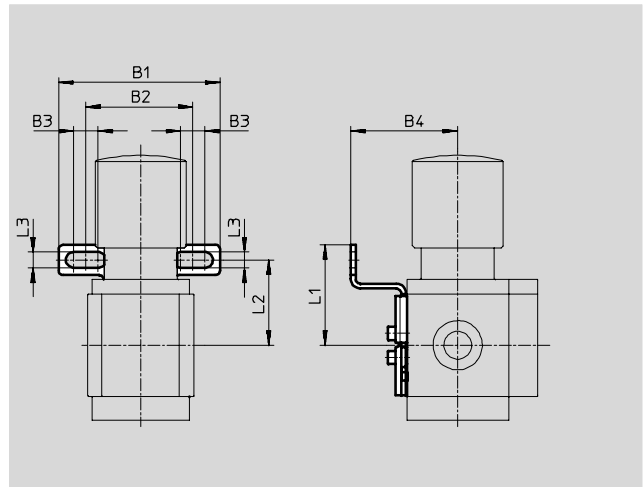
Wall mounting bracket MS4-WBM

(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




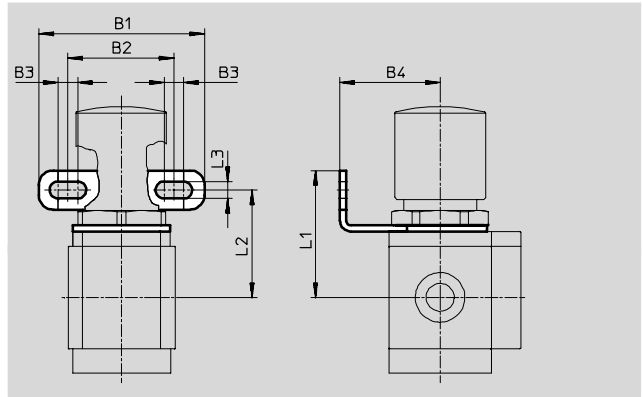
Regulator wall bracket MS4/6-WR

(order code: WR)

- For wall mounting
- For filter regulator, pressure regulator

Material:
Steel

 Note
The hex nut for attaching this bracket must be ordered separately.

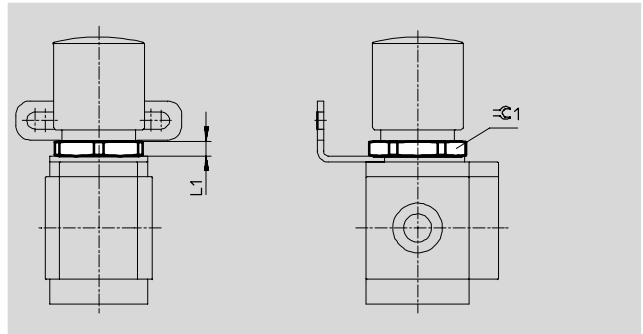


Dimensions and ordering data										
Size	B1	B2	B3	B4	L1	L2	L3	Weight [g]	Part No.	Type
MS4	68	44	8	41	52	44	7	49	526 064	MS4-WR
MS6	70	42	8.2	40	67	57	7.1	90	526 075	MS6-WR

Hex nut MS4/6-WRS

- For front panel mounting
- For attaching the regulator wall bracket MS...-WR

Material:
Aluminium



Dimensions and ordering data					
Size	L1	± 0.1	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
Accessories

2.31

MS series service units

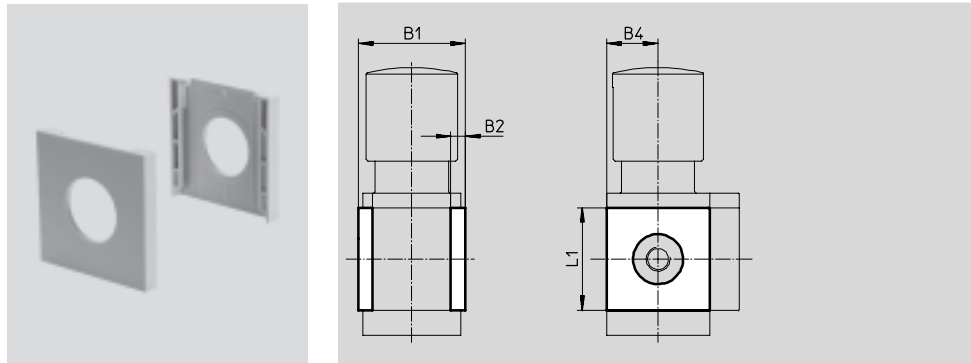
Accessories



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



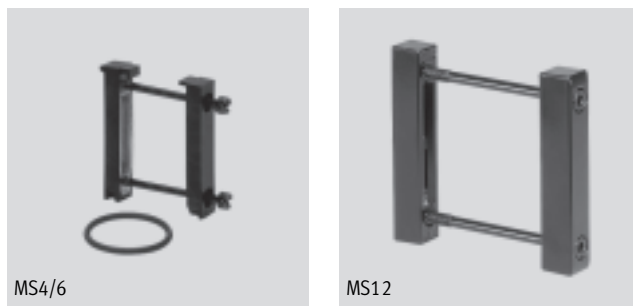
Dimensions and ordering data						
Size	B1	B2	B4	L1	Part No.	Type
MS4	43.6	6	21	42	538 779	MS4-END
MS6	67	8	31	62	538 780	MS6-END

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



Wall mounting plate MS4/6-WP...

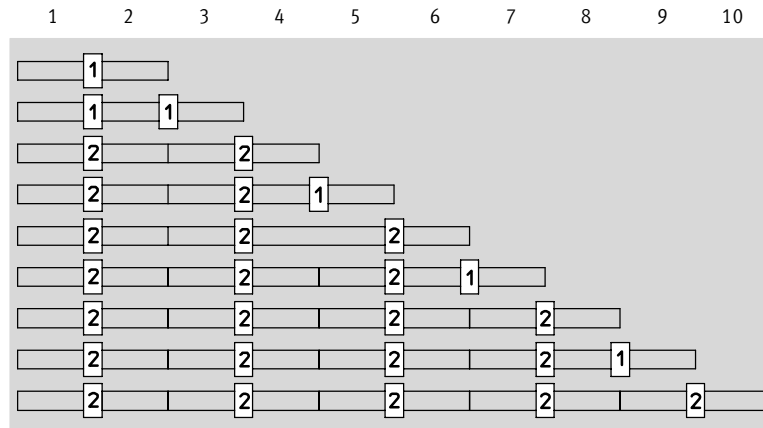
Clearances for mounting service unit combinations

1 unit
MS4-...: 40 mm
MS6-...: 62 mm

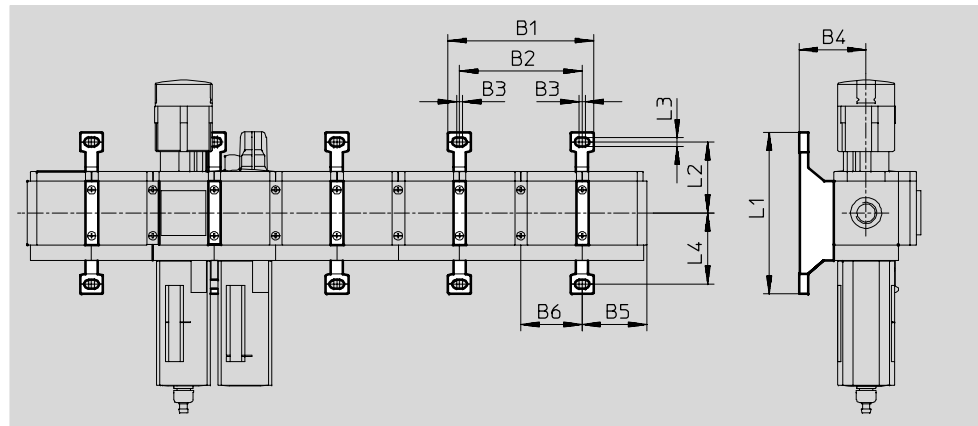
2 units
MS4-...: 80 mm
MS6-...: 124 mm with WP, WPB
138 mm with WPM-2D

- 1 Wall mounting plate WP, WPB or WPM-D
- 2 Wall mounting plate WP, WPB or WPM-2D

Number of units



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						40	
MS4-WPM-...D				44						92.8	34.8
MS6-WP	141	124	4.5	54	64.5	62	158	71	6.6	71	
MS6-WPB				90.5						69	41.3
MS6-WPM-...D				168						138	17.5

MS series service units

Accessories



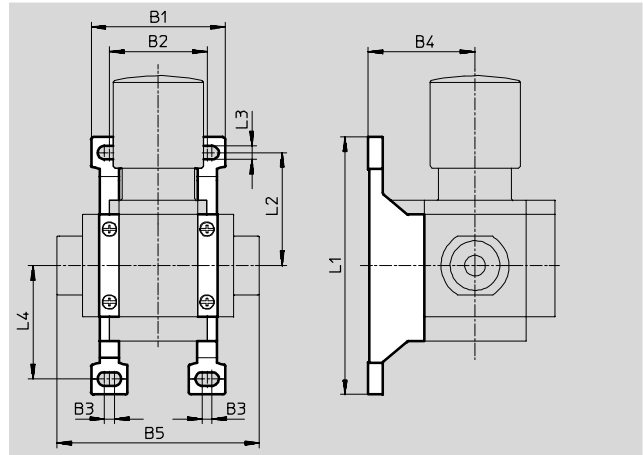
Wall mounting plate MS4/6-WP

(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

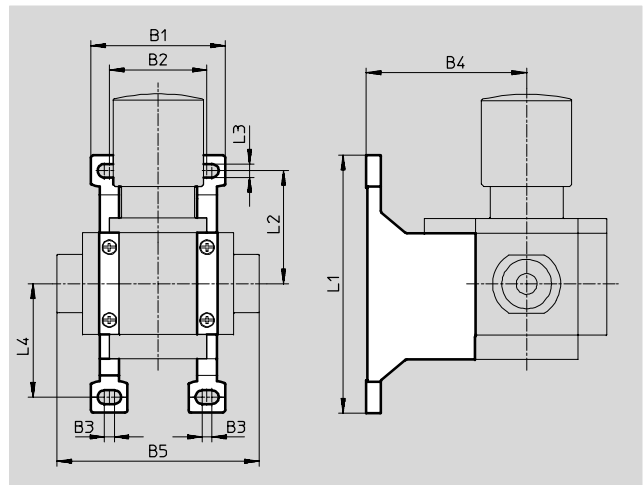
Wall mounting plate MS4/6-WPB

(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



MS series service units
Accessories

2.31

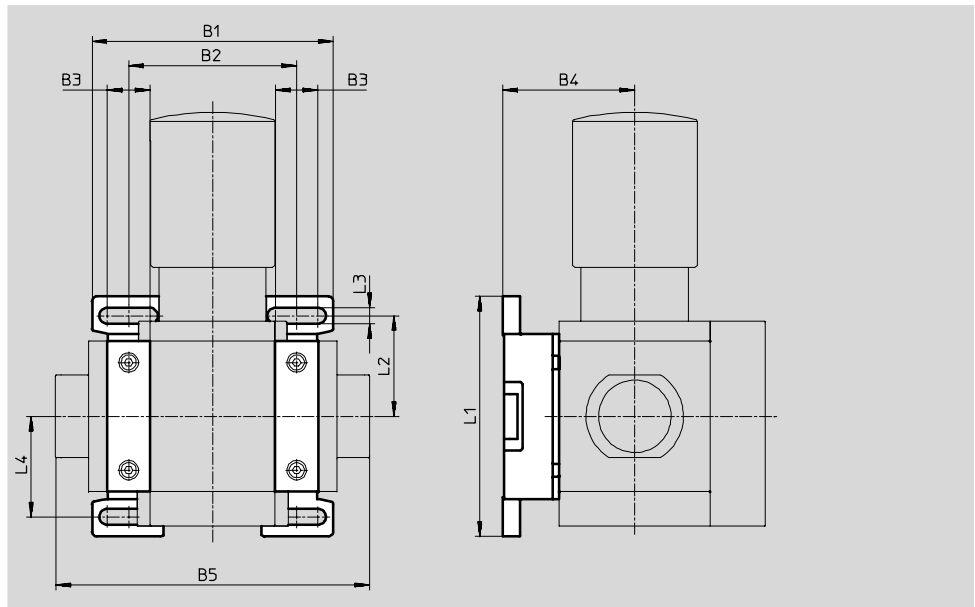
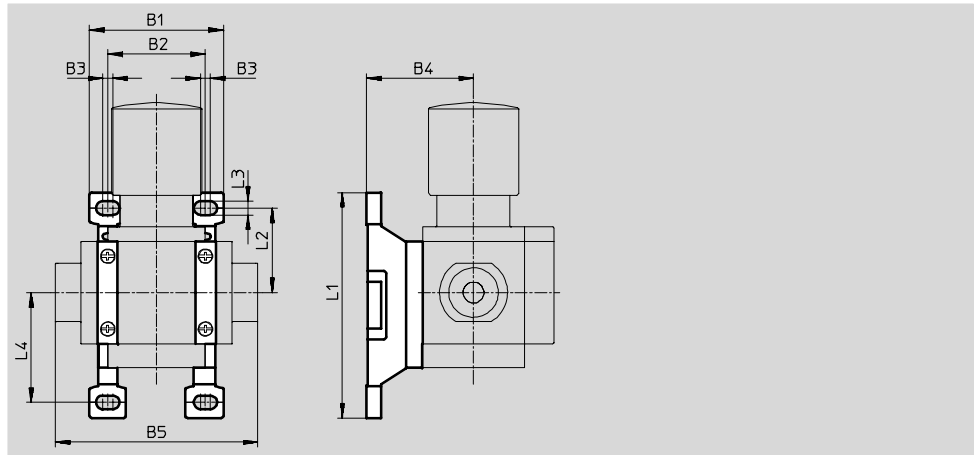
Wall mounting plate MS4/6-WPM (order code: WPM)

- 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 included in the scope of delivery 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

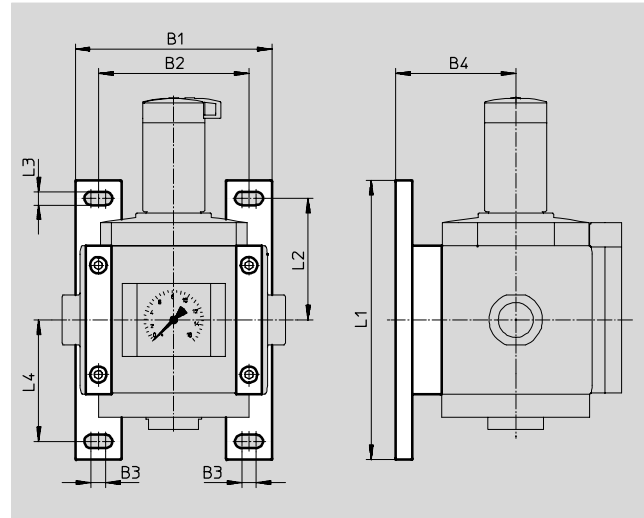
(order code: WP)

- 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

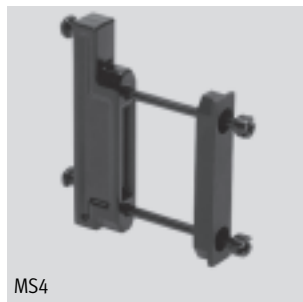
Size	B1	B2	B3	B4	L1	L2	L3	L4	Weight [g]	Part No.	Type
MS12	162	124	12	99	230	100	11	100	700	537 133	MS12-WP

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

FESTO

Pressure gauge MA

Further pressure gauges

→ 3 / 4.0-3



Ordering data		Technical data → 3 / 4.8-4	
Pneumatic connection	Part No.	Type	
R $\frac{1}{8}$	525 726	MA-40-16-R $\frac{1}{8}$ -EN-RG	
R $\frac{1}{4}$	525 729	MA-40-16-R $\frac{1}{4}$ -EN-RG	
G $\frac{1}{4}$	183 901	MA-40-16-G $\frac{1}{4}$ -EN	

Silencer U

Further silencers

→ 3 / 6.1-2



Ordering data		Technical data → 3 / 6.1-2	
Pneumatic connection	Part No.	Type	
G $\frac{1}{4}$	6 842	U- $\frac{1}{4}$ -B	
G $\frac{1}{2}$	6 844	U- $\frac{1}{2}$ -B	

MS series service units

Accessories

FESTO

Plug socket with cable KMEB and LED

For on-off valve MS...-EE and soft-start valve MS...-DE



Ordering data			Technical data → Volume 2	
Operating voltage range	Switching status display	Cable length [m]	Part No.	Type
24 V DC	Yellow LED	2.5	151 688	KMEB-1-24-2,5-LED
24 V DC	Yellow LED	5	151 689	KMEB-1-24-5-LED
24 V DC	Yellow LED	10	193 457	KMEB-1-24-10-LED
230 V AC	Yellow LED	2.5	151 690	KMEB-1-230AC-2,5
230 V AC	Yellow LED	5	151 691	KMEB-1-230AC-5

Plug socket MSSD

For on-off valve MS...-EE and soft-start valve MS...-DE



Ordering data		Technical data → Volume 2	
Type of mounting	Part No.	Type	
Connections via screw system	151 687	MSSD-EB	
Insulation displacement technology	192 745	MSSD-EB-S-M14	

Illuminating seal MEB

For plug socket with cable KMEB and plug socket MSSD



Ordering data		Technical data → Volume 2	
Operating voltage range	Part No.	Type	
12 ... 24 V DC/AC	151 717	MEB-LD-12-24DC	
230 V ±10% DC/AC	151 718	MEB-LD-230AC	

MS series service units

Accessories

FESTO

Pressure switch PEV
(order code: X/Y)



PEV-1/4-SC-OD



PEV-1/4-B-OD



PEV-1/4-B

Ordering data			Technical data → Volume 4	
Pneumatic connection	Pressure switching point	Ordering code	Part No.	Type
G ¹ / ₄	Adjustable with visual scale	X	161 760	PEV-1/4-SC-OD
	Adjustable	Y	175 250	PEV-1/4-B-OD
	Adjustable	–	10 773	PEV-1/4-B

Plug socket

■ For pressure switch PEV



Ordering data		Technical data → Volume 2	
Operating voltage range		Part No.	Type
AC	DC	171 157	MSSD-C-4P
≤ 250 V	≤ 250 V		

Angled socket

■ For pressure switch PEV



Ordering data			Technical data → Volume 4	
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



Pressure sensor SDE1
(order code: AD5/AD6)

Further pressure sensors
→ Volume 4

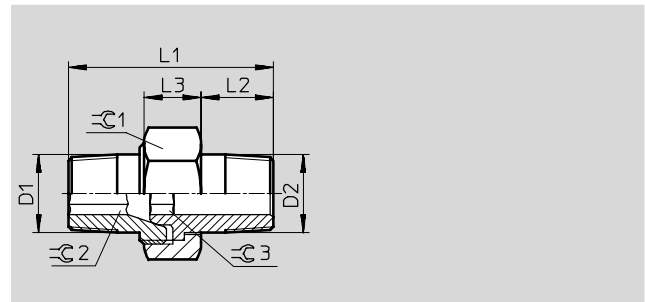


Ordering data				Technical data → Volume 4	
Electrical output	Electrical connection	Ordering code	Part No.	Type	
Pressure range 0 ... 10 bar					
1 switch output PNP	Plug M8x1, 3-pin	AD5	192 030	SDE1-D10-G2-H18-C-P1-M8	
2 switch outputs PNP and 4 ... 20 mA analogue	Plug M12x1, 5-pin	AD6	534 062	SDE1-D10-G2-W18-L-2I-M12	

Double nipple ESK

Adjustable for angular compensation
■ For retro-fitting pressure switch PEV or pressure sensor SDE1 to branching module MS-FRM

Material:
Brass



Dimensions and ordering data										
Connection		L1	L2	L3	⌀1	⌀2	⌀3	Part No.	Type	PU*
D1	D2									
R1/8	R1/4	30.6	12	9.5	19	5	6	534 151	ESK-1/8-1/4	New 1
R1/4	R1/4	34	12	9.5	19	6	6	151 521	ESK-1/4-1/4	New 1
	R1/2	40.5	16	12	27	6	12	534 153	ESK-1/4-1/2	New 1

* Packaging unit quantity

Core Range

MS series service units

Accessories

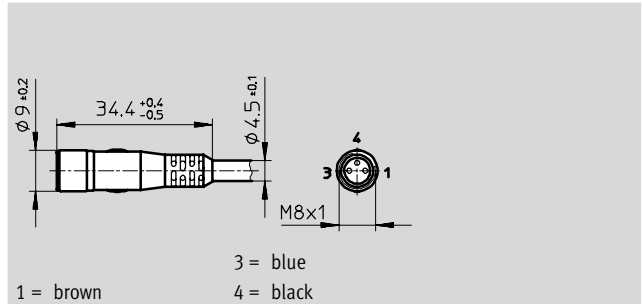
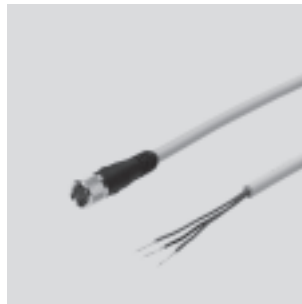


MS series service units
Accessories

Plug socket with cable SIM

Push-in/screwed fitting
M8, 3-pin
straight socket without LED

Material:
Polyurethane

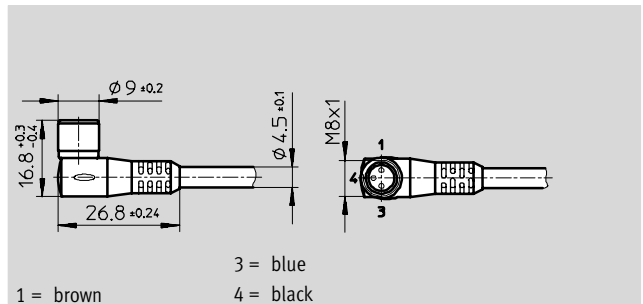


Ordering data		Technical data → Volume 4	
Length [m]	Part No.	Type	
2.5	159 420	SIM-M8-3GD-2,5-PU	
5	159 421	SIM-M8-3GD-5-PU	
10	192 964	SIM-M8-3GD-10-PU	

Plug socket with cable SIM

Push-in/screwed fitting
M8, 3-pin
angled plug socket without LED

Material:
Polyurethane

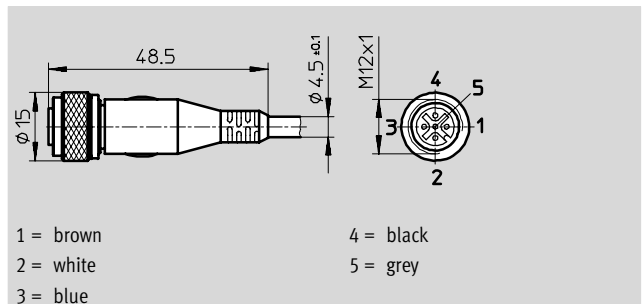


Ordering data		Technical data → Volume 4	
Length [m]	Part No.	Type	
2.5	159 422	SIM-M8-3WD-2,5-PU	
5	159 423	SIM-M8-3WD-5-PU	
10	192 965	SIM-M8-3WD-10-PU	

Plug socket with cable SIM

Push-in/screwed fitting
M12, 5-pin
straight socket without LED

Material:
Polyurethane



Ordering data		Technical data → Volume 4	
Length [m]	Part No.	Type	
2.5	175 715	SIM-M12-5GD-2,5-PU	
5	175 716	SIM-M12-5GD-5-PU	

Core Range

MS series service units

Accessories

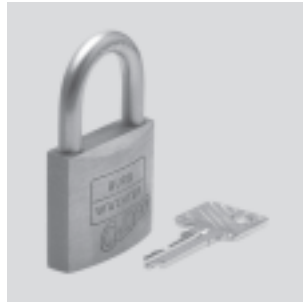


Padlock LRVS-D

For filter or pressure regulators

Material:

Housing: Brass



Ordering data		
Weight [g]	Part No.	Type
120	193 786	LRVS-D