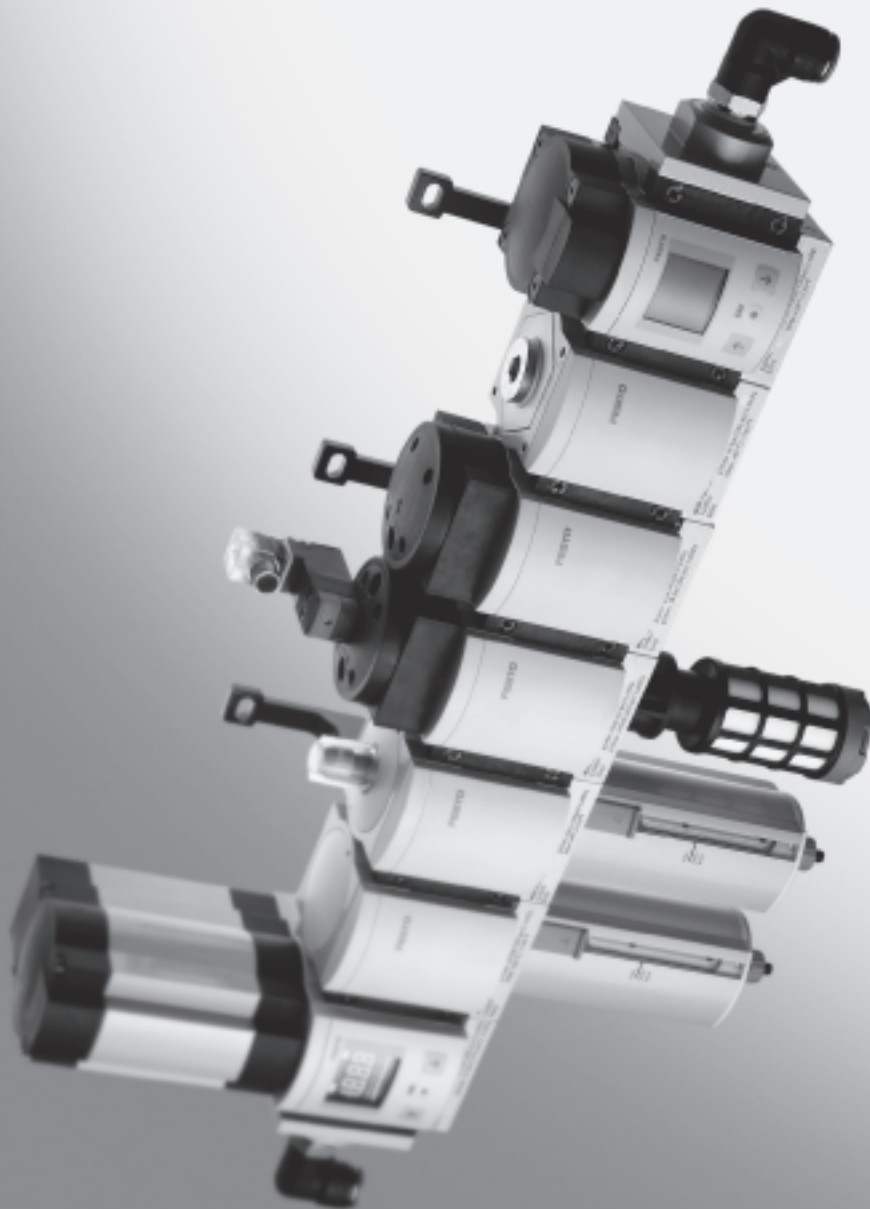


Wide range of configuration options

→ www.festo.com/en/engineering



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

Specified types in accordance with ATEX directive for potentially explosive atmospheres

→ www.festo.com/en/ex

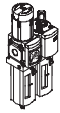
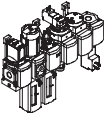








MS series service units

Product range overview



MS series service units

1

Type	Size	Pneumatic connection in housing	Connecting plate	Pressure regulation range [bar]						Grade of filtration [µm]			
				0.05	0.05	0.1	0.3	0.1	0.5	0.01	1	5	40
							
Code			AG...	D2	D4	D5	D6	D7	D8	A	B	C	E
Service units													
MSB-FRC 	4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	■	■	-	-	-	■	■
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	■	■	-	-	-	■	■
	12	-											
Service unit combinations (further variants can be ordered using the configurator → www.festo.com/en/engineering)													
MSB 	4	G1/4	G1/8, G1/4, G3/8	-	-	-	■	■	-	-	-	■	■
	6	G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	■	■	-	-	-	■	■
	12	-											
Individual devices													
Filter regulators MS-LFR 	4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	■	■	■	-	-	-	■	■
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	■	■	■	■	-	-	■	■
	12	-	G1, G1 1/4, G1 1/2, G2	-	-	-	■	■	■	-	-	■	■
Filters MS-LF 	4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	-	-	■	■
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	-	-	■	■
	12	-	G1, G1 1/4, G1 1/2, G2	-	-	-	-	-	-	-	-	■	■
Fine and micro filters MS-LFM 	4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	■	■	-	-
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	■	■	-	-
	12	-	G1, G1 1/4, G1 1/2, G2	-	-	-	-	-	-	■	■	-	-
Activated carbon filters MS-LFX 	4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	-	-	-	-
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	-	-	-	-
	12	-	G1, G1 1/4, G1 1/2, G2	-	-	-	-	-	-	-	-	-	-
Pressure regulators MS-LR 	4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	■	■	■	-	-	-	-	-
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	■	■	■	■	-	-	-	-
	12	-	G1, G1 1/4, G1 1/2, G2	-	-	-	■	■	■	-	-	-	-
Pressure regulators MS-LRB 	4	G1/4	G1/8, G1/4, G3/8	-	-	■	■	■	-	-	-	-	-
	6	G1/2	G1/4, G3/8, G1/2, G3/4	-	-	■	■	■	■	-	-	-	-
	12	-											
Precision pressure regulators MS-LRP 	4	-											
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	■	■	■	-	■	-	-	-	-	-
	12	-											
Precision pressure regulators MS-LRPB 	4	-											
	6	G1/2	G1/4, G3/8, G1/2, G3/4	■	■	■	-	■	-	-	-	-	-
	12	-											

MS series service units

Product range overview



Type	Size	Bowl guard		Condensate drains				Pressure indicator					Actuator lock		Options		→ Page
		Plastic bowl guard	Metal bowl	Manual rotary	Semi-automatic	Fully automatic	External, fully-automatic, electrical	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter for EN pressure gauge G 1/8	Adapter for EN pressure gauge G 1/4	Pressure sensor with display	Rotary knob, lockable	Rotary knob, long	Silencer	Flow direction from right to left	
Code		R	U	M	H	V	E...	VS	AG	A8	A4	AD...	AS	LD	S	Z	
Service units																	
MSB-FRC	4	■	-	■	-	■	-	-	■	-	-	-	■	-	-	■	2-2
	6	■	■	■	-	■	-	-	■	-	-	-	■	-	-	■	
	12	-															
Service unit combinations																	
MSB	4	■	■	■	-	■	-	-	■	-	-	-	■	-	-	■	2-2
	6	■	■	■	-	■	-	-	■	-	-	-	■	-	-	■	
	12	-															
Individual devices																	
Filter regulators MS-LFR	4	■	■	■	■	■	-	■	■	■	■	■	■	■	-	■	3-2
	6	■	■	■	■	■	■	■	■	-	■	■	■	■	-	■	
	12	-	■	■	-	■	■	■	■	-	■	-	■	■	-	■	3-18
Filters MS-LF	4	■	■	■	■	■	-	-	-	-	-	-	-	-	-	■	4-2, 4-4
	6	■	■	■	■	■	■	-	-	-	-	-	-	-	-	■	
	12	-	■	■	-	■	■	-	-	-	-	-	-	-	-	■	4-32, 4-34
Fine and micro filters MS-LFM	4	■	■	■	■	■	-	-	-	-	-	-	-	-	-	■	4-2, 4-12
	6	■	■	■	■	■	■	-	-	-	-	-	-	-	-	■	
	12	-	■	■	-	■	■	-	-	-	-	-	-	-	-	■	4-32, 4-39
Activated carbon filters MS-LFX	4	■	■	-	-	-	-	-	-	-	-	-	-	-	-	■	4-2, 4-24
	6	■	■	-	-	-	-	-	-	-	-	-	-	-	-	■	
	12	-	■	-	-	-	-	-	-	-	-	-	-	-	-	■	4-32, 4-46
Pressure regulators MS-LR	4	-	-	-	-	-	-	■	■	■	■	■	■	■	-	■	5-2, 5-7
	6	-	-	-	-	-	-	■	■	-	■	■	■	■	-	■	
	12	-	-	-	-	-	-	■	■	-	■	-	■	■	-	■	5-58
Pressure regulators MS-LRB	4	-	-	-	-	-	-	■	■	■	■	■	■	■	-	■	5-2, 5-16
	6	-	-	-	-	-	-	■	■	-	■	■	■	■	-	■	
	12	-															
Precision pressure regulators MS-LRP	4	-															5-24, 5-29
	6	-	-	-	-	-	-	■	-	■	■	■	■	■	-	■	
	12	-															
Precision pressure regulators MS-LRPB	4	-															5-24, 5-38
	6	-	-	-	-	-	-	■	-	■	■	■	■	■	-	■	
	12	-															

MS series service units

Product range overview



MS series service units

1

Type	Size	Pneumatic connection in housing	Connecting plate	Pressure regulation range [bar]				Supply voltage				
				0.3 ... 4	0.3 ... 7	0.5 ... 12	0.5 ... 16	24 V DC (connection pattern to EN 175301)	24 V DC (connection pattern M12 to DESINA)	110 V AC (connection pattern to EN 175301)	230 V AC (connection pattern to EN 175301)	
Code			AG...	D5	D6	D7	D8	V24	V24P	V110	V230	
Individual devices												
Electrical pressure regulators MS-LRE		4	–									
		6	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$, G $\frac{3}{4}$	■	■	■	■	–	–	–	–
		12	–									
Lubricators MS-LOE		4	G $\frac{1}{8}$, G $\frac{1}{4}$	G $\frac{1}{8}$, G $\frac{1}{4}$, G $\frac{3}{8}$	–	–	–	–	–	–	–	–
		6	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$, G $\frac{3}{4}$	–	–	–	–	–	–	–	–
		12	–	G1, G1 $\frac{1}{4}$, G1 $\frac{1}{2}$, G2	–	–	–	–	–	–	–	–
On-off valves MS-EM(1)		4	G $\frac{1}{8}$, G $\frac{1}{4}$	G $\frac{1}{8}$, G $\frac{1}{4}$, G $\frac{3}{8}$	–	–	–	–	–	–	–	–
		6	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$, G $\frac{3}{4}$	–	–	–	–	–	–	–	–
		12	–	G1, G1 $\frac{1}{4}$, G1 $\frac{1}{2}$, G2	–	–	–	–	–	–	–	–
On-off valves MS-EE		4	G $\frac{1}{8}$, G $\frac{1}{4}$	G $\frac{1}{8}$, G $\frac{1}{4}$, G $\frac{3}{8}$	–	–	–	–	■	–	■	■
		6	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$, G $\frac{3}{4}$	–	–	–	–	■	–	■	■
		12	–	G1, G1 $\frac{1}{4}$, G1 $\frac{1}{2}$, G2	–	–	–	–	■	■	■	■
Soft-start valves MS-DL		4	G $\frac{1}{8}$, G $\frac{1}{4}$	G $\frac{1}{8}$, G $\frac{1}{4}$, G $\frac{3}{8}$	–	–	–	–	–	–	–	–
		6	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$, G $\frac{3}{4}$	–	–	–	–	–	–	–	–
		12	–	G1, G1 $\frac{1}{4}$, G1 $\frac{1}{2}$, G2	–	–	–	–	–	–	–	–
Soft-start valves MS-DE		4	G $\frac{1}{8}$, G $\frac{1}{4}$	G $\frac{1}{8}$, G $\frac{1}{4}$, G $\frac{3}{8}$	–	–	–	–	■	–	■	■
		6	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$, G $\frac{3}{4}$	–	–	–	–	■	–	■	■
		12	–	G1, G1 $\frac{1}{4}$, G1 $\frac{1}{2}$, G2	–	–	–	–	■	■	■	■
Membrane air dryers MS-LDM1		4	G $\frac{1}{8}$, G $\frac{1}{4}$	G $\frac{1}{8}$, G $\frac{1}{4}$, G $\frac{3}{8}$	–	–	–	–	–	–	–	–
		6	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$, G $\frac{3}{4}$	–	–	–	–	–	–	–	–
		12	–									
Branching modules MS-FRM		4	G $\frac{1}{8}$, G $\frac{1}{4}$	G $\frac{1}{8}$, G $\frac{1}{4}$, G $\frac{3}{8}$	–	–	–	–	–	–	–	–
		6	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$, G $\frac{3}{4}$	–	–	–	–	–	–	–	–
		12	–	G1, G1 $\frac{1}{4}$, G1 $\frac{1}{2}$, G2	–	–	–	–	–	–	–	–
Flow sensors MS-SFE		4	–									
		6	G $\frac{1}{2}$	G $\frac{1}{2}$	–	–	–	–	–	–	–	–
		12	–									

MS series service units

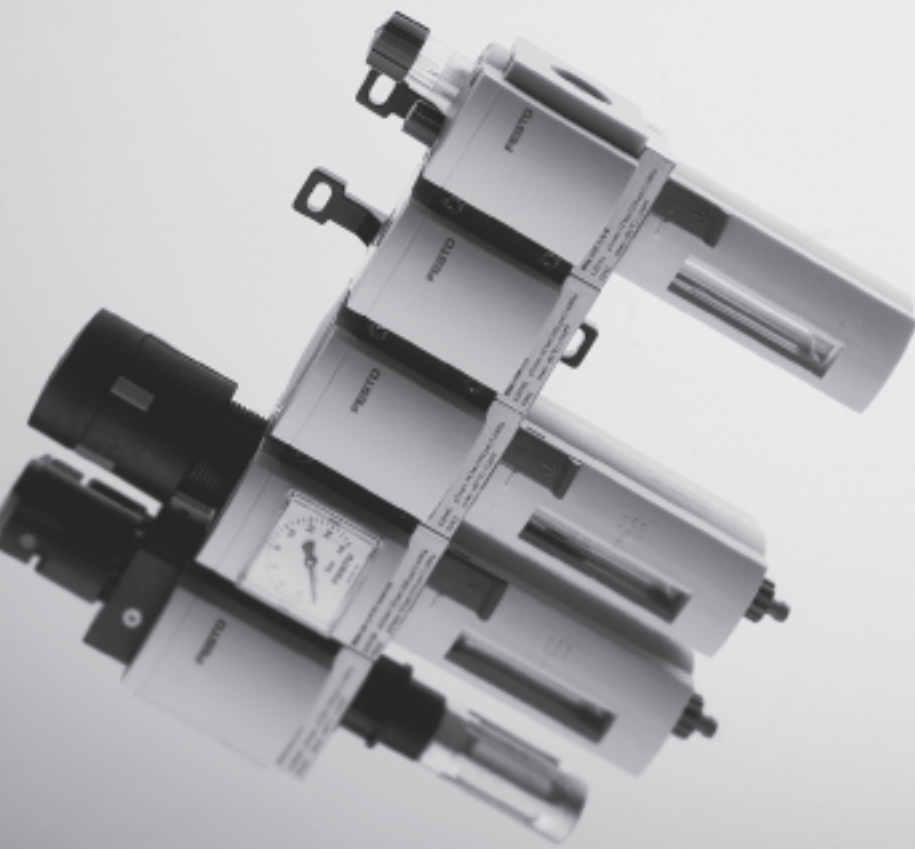
Product range overview



Type	Size	Bowl guard		Pressure indicator					Switch output		Options		→ Page	
		Plastic bowl guard	Metal bowl	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter for EN pressure gauge G 1/8	Adapter for EN pressure gauge G 1/4	Pressure sensor with display	2x PNP	2x NPN	Silencer	Flow direction from right to left		
														R
Individual devices														
Electrical pressure regulators MS-LRE	4	-												5-46
	6	-	-	■	■	-	■	-	-	-	-	-	■	
	12	-												
Lubricators MS-LOE	4	■	■	-	-	-	-	-	-	-	-	-	■	6-2
	6	■	■	-	-	-	-	-	-	-	-	-	■	
	12	-	■	-	-	-	-	-	-	-	-	-	■	6-10
On-off valves MS-EM(1)	4	-	-	■	■	■	■	■	-	-	■	■	7-2, 7-5	
	6	-	-	■	■	-	■	■	-	-	■	■		
	12	-	-	■	■	-	■	-	-	-	■	■	7-32, 7-35	
On-off valves MS-EE	4	-	-	■	■	■	■	■	-	-	■	■	7-2, 7-10	
	6	-	-	■	■	-	■	■	-	-	■	■		
	12	-	-	■	■	-	■	-	-	-	■	■	7-32, 7-39	
Soft-start valves MS-DL	4	-	-	■	■	■	■	■	-	-	-	■	7-2, 7-18	
	6	-	-	■	■	-	■	■	-	-	-	■		
	12	-	-	■	■	-	■	-	-	-	-	■	7-32, 7-43	
Soft-start valves MS-DE	4	-	-	■	■	■	■	■	-	-	-	■	7-2, 7-23	
	6	-	-	■	■	-	■	■	-	-	-	■		
	12	-	-	■	■	-	■	-	-	-	-	■	7-32, 7-47	
Membrane air dryers MS-LDM1	4	-	■	-	-	-	-	-	-	-	-	■	8-2	
	6	-	■	-	-	-	-	-	-	-	-	■		
	12	-												
Branching modules MS-FRM	4	-	-	■	■	■	■	■	-	-	-	■	9-2	
	6	-	-	■	■	-	■	■	-	-	-	■		
	12	-	-	■	-	-	-	-	-	-	-	-	9-14	
Flow sensors MS-SFE	4	-											10-2	
	6	-	-	-	-	-	-	-	■	■	-	■ ¹⁾		
	12	-												

1) To be ordered via configurator software only → www.festo.com/en/engineering

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



- MS4 – grid
dimension 40 mm
MS6 – grid
dimension 62 mm
- Modular
- Easy to assemble
- Broad range of functions
- Compact with high flow rates
- Modern design
- Wide choice of variants
- Integrated safety functions

Specified types in accordance with
ATEX directive for potentially
explosive atmospheres
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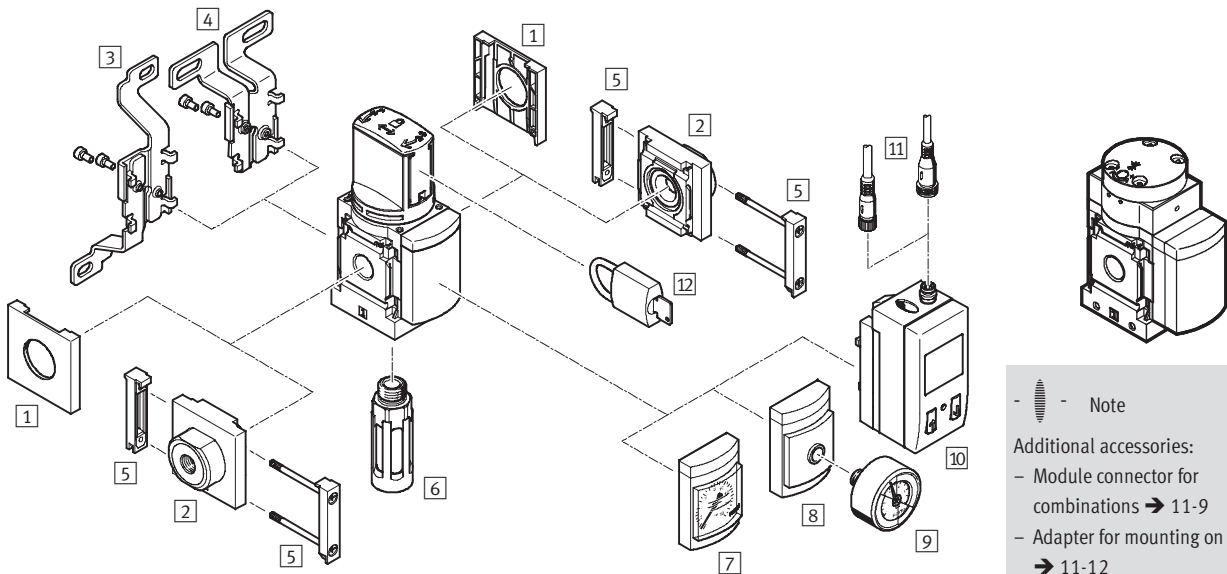
On-off/soft-start valves MS4/MS6-EM1/EE/DL/DE, MS series

Peripherals overview

FESTO

On-off valve EM1
manually actuated

Soft-start valve DL
pneumatically actuated



Note
Additional accessories:
– Module connector for combinations → 11-9
– Adapter for mounting on profiles → 11-12

Mounting attachments and accessories

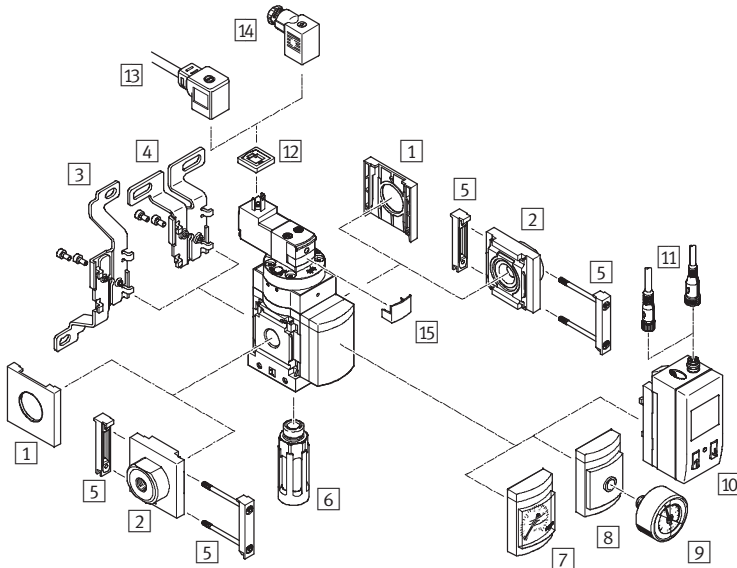
	Individual unit		Combination → 3/2.11-0		→ Page
	without connecting plate	with connecting plate	without connecting plate	with connecting plate	
1 Cover cap MS4/6-END	■	-	■	-	11-3
2 Connecting plate MS4/6-AG...	-	■	-	■	11-2
3 Mounting bracket MS4/6-WB	■	■	-	-	11-4
4 Mounting bracket MS4-WBM	■	■	-	-	11-4
5 Module connector MS4/6-MV	-	■	■	■	11-8
6 Silencer U	■ with EM1	■ with EM1	■ with EM1	■ with EM1	11-20
7 MS pressure gauge AG	■	■	■	■	EM1 7-9 DL 7-22
8 Adapter for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	EM1 7-9 DL 7-22
9 Pressure gauge MA	■	■	■	■	11-19
10 Pressure sensor SDE1-...-MS AD1 ... AD4	■	■	■	■	EM1 7-9 DL 7-22
11 Plug socket with cable SIM-M8-3.../SIM-M12-4...	■	■	■	■	11-19
12 Padlock LRVS-D	■	■	■	■	11-20
- Mounting bracket MS4/6-WP/WPB/WPM	-	■	■	■	11-6, 11-7


On-off/soft-start valves MS4/MS6-EM1/EE/DL/DE, MS series

Peripherals overview

On-off/soft-start valve EE/DE

solenoid actuated



-  - Note
Additional accessories:
- Module connector for combinations → 11-9
- Adapter for mounting on profiles → 11-12

Mounting attachments and accessories						
		Individual unit		Combination → 3/2.11-0		→ Page
		without connecting plate	with connecting plate	without connecting plate	with connecting plate	
1	Cover cap MS4/6-END	■	-	■	-	11-3
2	Connecting plate MS4/6-AG...	-	■	-	■	11-2
3	Mounting bracket MS4/6-WB	■	■	-	-	11-4
4	Mounting bracket MS4-WBM	■	■	-	-	11-4
5	Module connector MS4/6-MV	-	■	■	■	11-8
6	Silencer U	■ with EE	■ with EE	■ with EE	■ with EE	11-20
7	Pressure gauge MS AG	■	■	■	■	EE 7-16 DE 7-29
8	Adapter for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	EE 7-16 DE 7-29
9	Pressure gauge MA	■	■	■	■	11-19
10	Pressure sensor SDE1-...-MS AD1 ... AD4	■	■	■	■	EE 7-16 DE 7-29
11	Plug socket with cable SIM-M8-3.../SIM-M12-4...	■	■	■	■	11-19
12	Illuminating seal MEB-LD	■	■	■	■	11-19
13	Plug socket with cable KMEB	■	■	■	■	11-18
14	Plug socket MSSD-EB	■	■	■	■	11-18
15	Locking clip CPV18-HV	■	■	■	■	11-18
-	Mounting bracket MS4/6-WP/WPB/WPM	-	■	■	■	11-6, 11-7

On-off/soft-start valves MS4/MS6-EM1/EE/DL/DE, MS series

FESTO

Type codes

	MS	6	-	EE	-	1/2	-	V110	-	
Series										
MS	Standard service unit									
Size										
4	Grid dimension 40 mm									
6	Grid dimension 62 mm									
Service function										
EM1	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)										
10V24	Supply voltage 24 V DC									
V110	Supply voltage 110 V AC									
V230	Supply voltage 230 V AC									
Silencer (for EM1 and EE only)										
	Without silencer									
S	Silencer									

Further variants can be ordered using the modular system

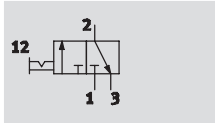
On-off valves EM1	→ 7-9
On-off valves EE	→ 7-16
Soft-start valves DL	→ 7-22
Soft-start valves DE	→ 7-29

- Connecting plates
- Supply voltage (EE and DE only)
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Type of mounting
- Alternative flow direction

On-off valves MS4/MS6-EM1, MS series

Technical data

Function



- - Flow rate
1,200 ... 8,700 l/min
- - Temperature range
-10 ... +60 °C
- - Operating pressure
0 ... 18 bar



- Manually operated on-off valve for pressurising and venting pneumatic installations
- The valve is activated by turning the rotary knob
- At connection 3 there is the facility to attach a silencer and/or to duct the exhaust air
- When the valve is closed, the rotary knob can be secured with a padlock
- Optional pressure gauge
- Optional pressure sensor with display

General technical data					
Size	MS4		MS6		
Pneumatic connection 1, 2	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
Pneumatic connection 3	G $\frac{1}{4}$		G $\frac{1}{2}$		
Design	Rotary slide valve				
Type of mounting	Via accessories In-line installation				
Assembly position	Any				
Pressure indicator	With pressure sensor for the output pressure display and with electric output With pressure gauge for the output pressure display				
Valve function	3/2-way valve, double solenoid				
Exhaust function	No flow control				
Switching position display	Knob actuator direction = flow direction				
Pilot control mode	Direct				
Direction of flow	Non-reversible				
C value [l/sbar]	4.6	9.0	10.7	21.2	30.8
b value	0.51	0.39	0.56	0.49	0.57

• Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Standard nominal flow rate $q_{nN}^{1)}$ [l/min]					
Size	MS4		MS6		
Pneumatic connection	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
In main flow direction 1 \rightarrow 2	1,200	2,200	3,000	5,500	8,700
In relief direction 2 \rightarrow 3	1,900	1,700	6,800	6,600	6,200

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

On-off valves MS4/MS6-EM1, MS series

Technical data

Operating and environmental conditions				
Variant	Standard		Pressure sensor with display AD...	
Size	MS4	MS6	MS4	MS6
Operating pressure [bar]	0 ... 14	0 ... 18	0 ... 10	0 ... 10
Operating medium	Compressed air		Filtered compressed air, lubricated or unlubricated, grade of filtration 40 µm	
Ambient temperature [°C]	-10 ... +60	-10 ... +60	0 ... +50	0 ... +50
Temperature of medium [°C]	-10 ... +60	-10 ... +60	0 ... +50	0 ... +50
Corrosion resistance CRC ¹⁾	2			

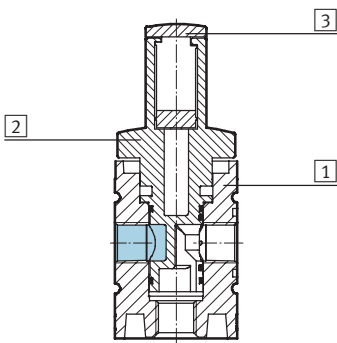
1) Corrosion resistance class 2 according to Festo standard 940 070

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

Weights [g]		
Size	MS4	MS6
Standard	190	580
With silencer	210	655

Materials

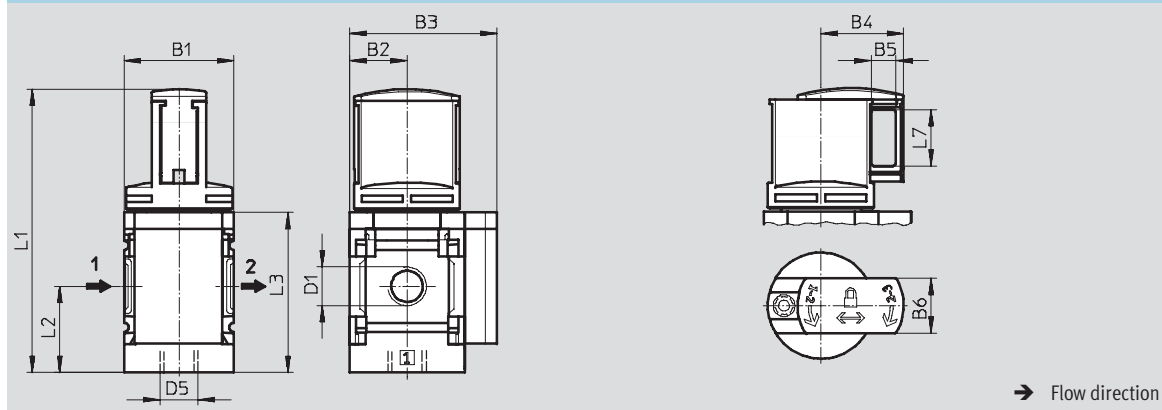
Sectional view



On-off valve		
1	Body	Die-cast aluminium
2	Rotary valve	Reinforced polyamide
3	Lock slide	Reinforced polyamide
-	Seals	Nitrile rubber, polyurethane
Note on materials		Free of copper and PTFE (not with variants AG or AD...)

Dimensions – Standard

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



Type	B1	B2	B3	B4	B5	B6	D1	D5	L1	L2	L3	L7
MS4-EM1-1/8	40	21	54	30	9	20	G1/8	G1/4	104	31.5	59	20.6
MS4-EM1-1/4							G1/4					
MS6-EM1-1/4	62	31	76	45	10	24	G1/4	G1/2	150.9	45.5	84.5	28.2
MS6-EM1-3/8							G3/8					
MS6-EM1-1/2							G1/2					

• Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

On-off valves MS4/MS6-EM1, MS series

Technical data

Dimensions – Pressure gauge alternatives Download CAD data → www.festo.com/en/engineering

Integrated MS pressure gauge AG, display unit [bar] Adapter plate A8/A4 for EN pressure gauge 1/8/1/4, without pressure gauge

→ Flow direction

Pressure sensor with display AD1 ... AD4 Technical data SDE1 → www.festo.com

→ Flow direction

AD1 variants:
SDE1-D10-G2-MS-L-P1-M8 with 3-pin plug M8x1, 1 switching output PNP

AD2 variants:
SDE1-D10-G2-MS-L-N1-M8 with 3-pin plug M8x1, 1 switching output NPN

AD3 variants:
SDE1-D10-G2-MS-L-PI-M12 with 4-pin plug M12x1, 1 switching output PNP and 4 ... 20 mA analogue

AD4 variants:
SDE1-D10-G2-MS-L-NI-M12 with 4-pin plug M12x1, 1 switching output NPN and 4 ... 20 mA analogue

Type	B2	B3	D1	D4	D6	L5	L6
MS4-EM1-1/8-...-AG	21	65	G1/8	-	-	-	-
MS4-EM1-1/4-...-AG			G1/4				
MS4-EM1-1/8-...-A8	21	58.5	G1/8	G1/8	-	-	-
MS4-EM1-1/4-...-A8			G1/4				
MS4-EM1-1/8-...-A4	21	58.5	G1/8	G1/4	-	-	-
MS4-EM1-1/4-...-A4			G1/4				
MS4-EM1-1/8-...-AD1/AD2	21	82.6	G1/8	-	M8x1	35.1	46.7
MS4-EM1-1/4-...-AD1/AD2			G1/4				
MS4-EM1-1/8-...-AD3/AD4	21	82.6	G1/8	-	M12x1	35.1	55.8
MS4-EM1-1/4-...-AD3/AD4			G1/4				
MS6-EM1-1/4-...-AG	31	85	G1/4	-	-	-	-
MS6-EM1-3/8-...-AG			G3/8				
MS6-EM1-1/2-...-AG			G1/2				
MS6-EM1-1/4-...-A4	31	78.5	G1/4	G1/4	-	-	-
MS6-EM1-3/8-...-A4			G3/8				
MS6-EM1-1/2-...-A4			G1/2				
MS6-EM1-1/4-...-AD1/AD2	31	103	G1/4	-	M8x1	35.1	46.7
MS6-EM1-3/8-...-AD1/AD2			G3/8				
MS6-EM1-1/2-...-AD1/AD2			G1/2				
MS6-EM1-1/4-...-AD3/AD4	31	103	G1/4	-	M12x1	35.1	55.8
MS6-EM1-3/8-...-AD3/AD4			G3/8				
MS6-EM1-1/2-...-AD3/AD4			G1/2				

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

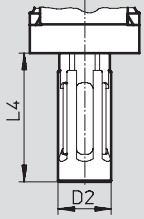
On-off valves MS4/MS6-EM1, MS series

Technical data

FESTO

Dimensions – Silencer

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



Type	D2	L4
MS4-EM1-...-S	19.5	47
MS6-EM1-...-S	28	106

Ordering data

Size	Connection	Standard		With silencer	
		Part No.	Type	Part No.	Type
MS4	G $\frac{1}{8}$	541 262	MS4-EM1- $\frac{1}{8}$ -S ¹⁾	541 263	MS4-EM1- $\frac{1}{8}$ -S ¹⁾
	G $\frac{1}{4}$	541 258	MS4-EM1- $\frac{1}{4}$ -S ¹⁾	541 259	MS4-EM1- $\frac{1}{4}$ -S ¹⁾
MS6	G $\frac{1}{4}$	541 271	MS6-EM1- $\frac{1}{4}$ -S ¹⁾	541 272	MS6-EM1- $\frac{1}{4}$ -S ¹⁾
	G $\frac{3}{8}$	541 275	MS6-EM1- $\frac{3}{8}$ -S ¹⁾	541 276	MS6-EM1- $\frac{3}{8}$ -S ¹⁾
	G $\frac{1}{2}$	541 267	MS6-EM1- $\frac{1}{2}$ -S ¹⁾	541 268	MS6-EM1- $\frac{1}{2}$ -S ¹⁾

1) Free of copper and PTFE

On-off valves MS4/MS6-EM1, 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
541 266 541 279	MS	4 6	EM1	1/8, 1/4, 3/8, 1/2 AGA, AGB, AGC, AGD, AGE	S	AG, A8, A4, AD1, AD2, AD3, AD4	PSI MPA	WP WPM WB WBM	Z
Order example									
527 705	MS	4	- EM1	- 1/4	- S	- AG	- PSI	- WB	- Z

Ordering table							
Grid dimension	[mm]	40	62	Conditions	Code	Enter code	
M	Module No.	541 266		541 279			
	Series	Standard			MS	MS	
	Size	4	6		...		
	Function	On-off valve, manual			-EM1	-EM1	
	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 (with adapter)	MS pressure gauge, bar		-AG		
		Adapter plate for EN pressure gauge 1/8, without pressure gauge	-		-A8		
		Adapter plate for EN pressure gauge 1/4, without pressure gauge			-A4		
		Pressure sensor with display, M8 plug, 1 switching output PNP, 3-pin		[1]	-AD1		
		Pressure sensor with display, M8 plug, 1 switching output NPN, 3-pin		[1]	-AD2		
		Pressure sensor with display, M12 plug, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA		[1]	-AD3		
		Pressure sensor with display, M12 plug, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA		[1]	-AD4		
		Alternative pressure gauge scale	psi		[2]	-PSI	
		MPa		[2]	-MPA		
	Type of mounting	Mounting bracket		[3]	-WP		
		Mounting bracket		[3]	-WPM		
		Mounting bracket				-WB	
		Mounting bracket	-			-WBM	
	Alternative flow direction	Flow direction from right to left			-Z		

[1] AD1 ... AD4 Measuring range max. 10 bar.

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

[2] PSI, MPA Only with pressure gauge AG.

Transfer order code

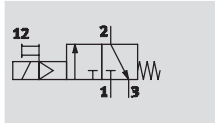
	MS		-	EM1	-		-		-		-		-		-		-	
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On-off valves MS4/MS6-EE, MS series

Technical data

FESTO

Function



-  - Flow rate
1,000 ... 7,000 l/min
-  - Temperature range
-10 ... +60 °C
-  - Operating pressure
4 ... 18 bar



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

General technical data						
Size	MS4		MS6			
Pneumatic connection 1, 2	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	
Pneumatic connection 3	G $\frac{1}{4}$		G $\frac{1}{2}$			
Design	Piston spool valve					
Type of mounting	Via accessories In-line installation					
Assembly position	Any					
Pressure indicator	With pressure sensor for the output pressure display and with electric output With pressure gauge for the output pressure display					
Valve function	3/2-way valve, single solenoid, closed					
Exhaust function	Without flow control					
Type of reset	Mechanical spring					
Switching position display	Via accessories					
Pilot control mode	Direct					
Pilot air supply	External					
Direction of flow	Non-reversible					
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
Coil characteristics	V24	24 V DC				
	10V24	24 V DC				
	V110	110 V AC				
	V230	230 V AC				

|| - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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

FESTO

Technical data

Standard nominal flow rate $q_{nN}^{1)}$ [l/min]					
Size	MS4		MS6		
Pneumatic connection	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
In main flow direction 1 \rightarrow 2	1,000	2,000	2,600	5,500	7,000
In relief direction 2 \rightarrow 3	1,600	1,600	7,000	6,200	5,500

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

Operating and environmental conditions						
Variant	Coil parameter V24, V110, V230		Coil parameter 10V24		Pressure sensor with display AD...	
Size	MS4	MS6	MS4	MS6	MS4	MS6
Operating pressure [bar]	4 ... 14	4 ... 18	4 ... 10	4 ... 10	4 ... 10	4 ... 10
Operating medium	Compressed air				Filtered compressed air, lubricated or unlubricated, grade of filtration 40 μ m	
Ambient temperature [°C]	-10 ... +60	-10 ... +60	-10 ... +50	-10 ... +50	0 ... +50	0 ... +50
Temperature of medium [°C]	-10 ... +60	-10 ... +60	-10 ... +50	-10 ... +50	0 ... +50	0 ... +50
Corrosion resistance CRC ¹⁾	2					

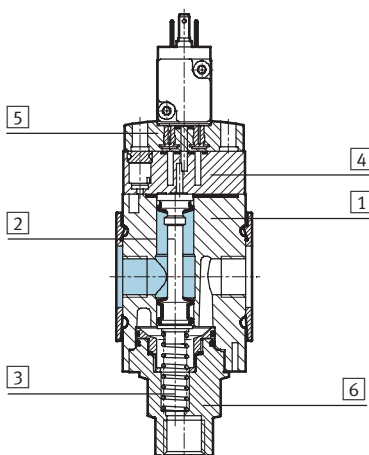
1) Corrosion resistance class 2 according to Festo standard 940 070

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

Weights [g]	
Size	MS6
Standard	740
With silencer	816

Materials

Sectional view



On-off valve	
1	Body Die-cast aluminium
2	Piston spool Nitrile rubber/aluminium
3	Springs High-alloy stainless steel
4	End cap Polyamide
5	Top plate Polyamide
6	Socket end connection Polyamide
-	Seals Nitrile rubber
Note on materials Free of copper and PTFE (not with variants AG, 10V24 or AD...)	

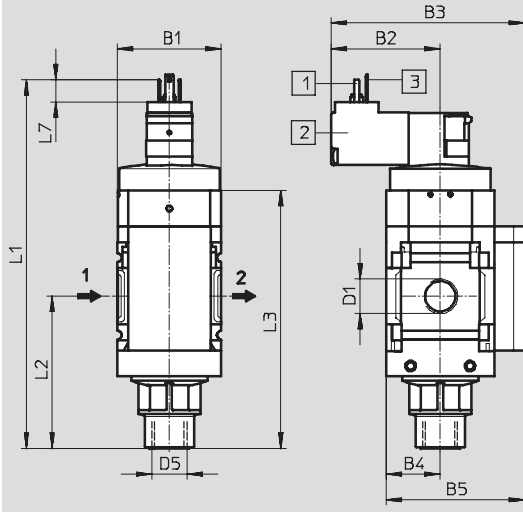
On-off valves MS4/MS6-EE, MS series

Technical data

FESTO

Dimensions – Standard

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



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

→ Flow direction

Type	B1	B2		B3		B4	B5	D1	D5	L1		L2	L3	L7
		10V24	V24/ V110/ V230	10V24	V24/ V110/ V230					10V24	V24/ V110/ V230			
MS4-EE-1/8	40	34.9	42.2	67.9	75.2	21	54	G1/8	G1/4	140.4	142.8	58.9	100	8.6
MS4-EE-1/4								G1/4						
MS6-EE-1/4	62	44.7	52	89.7	97	31	76	G1/4	G1/2	183.2	185.6	84	143	8.6
MS6-EE-3/8								G3/8						
MS6-EE-1/2								G1/2						

• Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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

Technical data

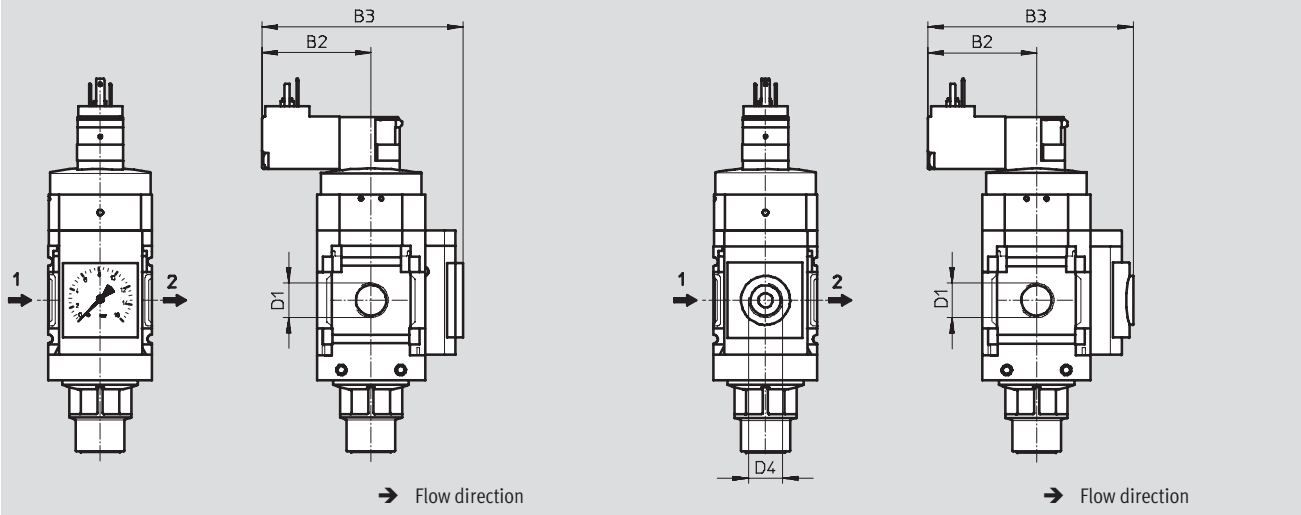
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Dimensions – Pressure gauge alternatives

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

Integrated MS pressure gauge AG, display unit [bar]

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



Type	B2		B3		D1	D4
	10V24	V24/V110/V230	10V24	V24/V110/V230		
MS4-EE-1/8-...-AG	34.9	42.2	78.9	86.2	G1/8	-
MS4-EE-1/4-...-AG			G1/4			
MS4-EE-1/8-...-A8	34.9	42.2	72.4	79.7	G1/8	G1/8
MS4-EE-1/4-...-A8			G1/4			
MS4-EE-1/8-...-A4	34.9	42.2	72.4	79.7	G1/8	G1/4
MS4-EE-1/4-...-A4					G1/4	
MS6-EE-1/4-...-AG	44.7	52	98.7	106	G1/4	-
MS6-EE-3/8-...-AG					G3/8	
MS6-EE-1/2-...-AG					G1/2	
MS6-EE-1/4-...-A4	44.7	52	92.3	99.6	G1/4	G1/4
MS6-EE-3/8-...-A4					G3/8	
MS6-EE-1/2-...-A4					G1/2	

• | • Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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

Technical data

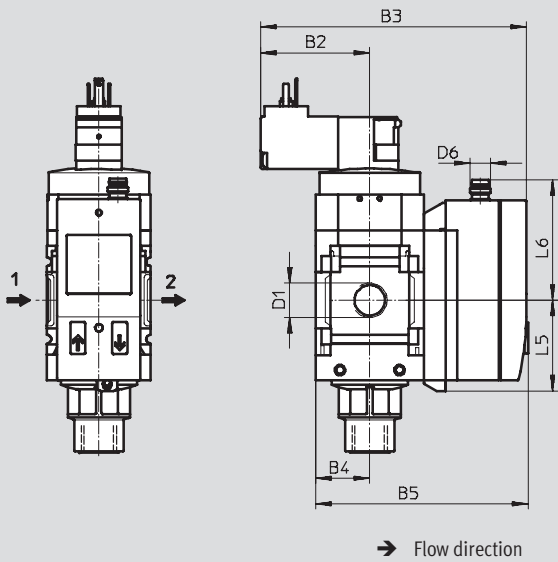


Dimensions – Pressure gauge alternatives

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

Pressure sensor with display AD1 ... AD4

Technical data SDE1 → www.festo.com



AD1 variants:
SDE1-D10-G2-MS-L-P1-M8 with
3-pin plug M8x1, 1 switching out-
put PNP

AD2 variants:
SDE1-D10-G2-MS-L-N1-M8 with
3-pin plug M8x1, 1 switching out-
put NPN

AD3 variants:
SDE1-D10-G2-MS-L-PI-M12 with
4-pin plug M12x1, 1 switching out-
put PNP and 4 ... 20 mA analogue

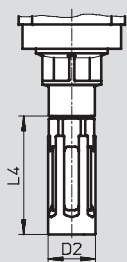
AD4 variants:
SDE1-D10-G2-MS-L-NI-M12 with
4-pin plug M12x1, 1 switching out-
put NPN and 4 ... 20 mA analogue

Type	B2		B3		B4	B5	D1	D6	L5	L6
	10V24	V24/ V110/ V230	10V24	V24/ V110/ V230						
MS4-EE-1/8-...-AD1/AD2	34.9	42.2	96.5	103.8	21	82.6	G1/8	M8x1	35.1	46.7
MS4-EE-1/4-...-AD1/AD2							G1/4			
MS4-EE-1/8-...-AD3/AD4	34.9	42.2	96.5	103.8	21	82.6	G1/8	M12x1	35.1	55.8
MS4-EE-1/4-...-AD3/AD4							G1/4			
MS6-EE-1/4-...-AD1/AD2	44.7	52	116.7	124	31	103	G1/4	M8x1	35.1	46.7
MS6-EE-3/8-...-AD1/AD2							G3/8			
MS6-EE-1/2-...-AD1/AD2							G1/2			
MS6-EE-1/4-...-AD3/AD4	44.7	52	116.7	124	31	103	G1/4	M12x1	35.1	55.8
MS6-EE-3/8-...-AD3/AD4							G3/8			
MS6-EE-1/2-...-AD3/AD4							G1/2			

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Dimensions – Silencer

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



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

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

Technical data

FESTO

Ordering data					
Size	Connection	Without silencer		With silencer	
		Part No.	Type	Part No.	Type
Supply voltage 24 V DC					
MS4	G1/8	542 580	MS4-EE-1/8-10V24	542 600	MS4-EE-1/8-10V24-S
	G1/4	542 578	MS4-EE-1/4-10V24	542 598	MS4-EE-1/4-10V24-S
MS6	G1/4	542 584	MS6-EE-1/4-10V24	542 604	MS6-EE-1/4-10V24-S
	G3/8	542 586	MS6-EE-3/8-10V24	542 606	MS6-EE-3/8-10V24-S
	G1/2	542 582	MS6-EE-1/2-10V24	542 602	MS6-EE-1/2-10V24-S
Supply voltage 110 V AC					
MS4	G1/8	529 541	MS4-EE-1/8-V110 ¹⁾	538 725	MS4-EE-1/8-V110-S ¹⁾
	G1/4	529 535	MS4-EE-1/4-V110 ¹⁾	538 719	MS4-EE-1/4-V110-S ¹⁾
MS6	G1/4	529 829	MS6-EE-1/4-V110 ¹⁾	538 737	MS6-EE-1/4-V110-S ¹⁾
	G3/8	529 835	MS6-EE-3/8-V110 ¹⁾	538 743	MS6-EE-3/8-V110-S ¹⁾
	G1/2	529 823	MS6-EE-1/2-V110 ¹⁾	538 731	MS6-EE-1/2-V110-S ¹⁾
Supply voltage 230 V AC					
MS4	G1/8	529 543	MS4-EE-1/8-V230 ¹⁾	538 727	MS4-EE-1/8-V230-S ¹⁾
	G1/4	529 537	MS4-EE-1/4-V230 ¹⁾	538 721	MS4-EE-1/4-V230-S ¹⁾
MS6	G1/4	529 831	MS6-EE-1/4-V230 ¹⁾	538 739	MS6-EE-1/4-V230-S ¹⁾
	G3/8	529 837	MS6-EE-3/8-V230 ¹⁾	538 745	MS6-EE-3/8-V230-S ¹⁾
	G1/2	529 825	MS6-EE-1/2-V230 ¹⁾	538 733	MS6-EE-1/2-V230-S ¹⁾

1) Free of copper and PTFE

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

Ordering data – Modular products

FESTO

M **Mandatory data** →

Module No.	Series	Size	Function	Connection size	Supply voltage
527 709	MS	4	EE	1/8	V24
527 682		6		1/4	10V24
				3/8	V110
				1/2	V230
				AGA	
				AGB	
				AGC	
				AGD	
				AGE	
Order example					
527 709	MS	4	- EE	- AGB	- V24

Ordering table		Grid dimension [mm]	40	62	Condi- tions	Code	Enter code
M	Module No.	527 709	527 682				
	Series	Standard				MS	MS
	Size	4	6			...	
	Function	On-off valve, electrical				-EE	-EE
	Connection size	Thread G1/8	-			-1/8	
		Thread G1/4	Thread G1/4			-1/4	
		-	Thread G3/8			-3/8	
		-	Thread G1/2			-1/2	
		Connecting plate G1/8	-			-AGA	
		Connecting plate G1/4	Connecting plate G1/4			-AGB	
		Connecting plate G3/8	Connecting plate G3/8			-AGC	
		-	Connecting plate G1/2			-AGD	
		-	Connecting plate G3/4			-AGE	
	Supply voltage	24 V DC (connection pattern to EN 175301), 18 bar				-V24	
		24 V DC (connection pattern to EN 175301), 10 bar				-10V24	
		110 V AC (connection pattern to EN 175301), 18 bar				-V110	
		230 V AC (connection pattern to EN 175301), 18 bar				-V230	

MS series service units
Start-up and exhaust valves

7

Transfer order code

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

Ordering data – Modular products

FESTO

Options				
Silencer	Pressure gauge alternatives	Alternative pressure gauge scale	Type of mounting	Alternative flow direction
S	AG A8 A4 AD1 AD2 AD3 AD4	PSI MPA	WP WPM WB WBM	Z
- S	- AG	- PSI	- WP	- Z

Ordering table							
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code	
0	Silencer	Silencer			-S		
	Pressure gauge alternatives	MS pressure gauge, bar (with adapter)	MS pressure gauge, bar		-AG		
		Adapter plate for EN pressure gauge 1/8, without pressure gauge	-		-A8		
		Adapter plate for EN pressure gauge 1/4, without pressure gauge				-A4	
		Pressure sensor with display, M8 plug, 1 switching output PNP, 3-pin			1	-AD1	
		Pressure sensor with display, M8 plug, 1 switching output NPN, 3-pin			1	-AD2	
		Pressure sensor with display, M12 plug, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA			1	-AD3	
		Pressure sensor with display, M12 plug, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA			1	-AD4	
	Alternative pressure gauge scale	psi		2	-PSI		
		MPa		2	-MPA		
	Type of mounting	Mounting bracket		3	-WP		
		Mounting bracket		3	-WPM		
		Mounting bracket				-WB	
		Mounting bracket	-			-WBM	
	Alternative flow direction	Flow direction from right to left			-Z		

1 AD1 ... AD4 Measuring range max. 10 bar.

2 PSI, MPA Only with pressure gauge AG.

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

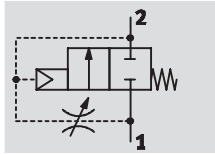
Transfer order code




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

Technical data

Function



-  Flow rate
1,000 ... 6,450 l/min
-  Temperature range
-10 ... +60 °C
-  Operating pressure
4 ... 18 bar



The duration of the pressure build-up is adjusted using the restrictor attached to the valve cap. The output pressure p2 rises slowly in

accordance with the restrictor setting. The main seat opens when the switch-through pressure is reached.

- Pneumatically actuated soft-start valve for slowly pressurising and venting pneumatic installations (for use with on-off valves EM1 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
- Optional pressure sensor with display

General technical data						
Size	MS4		MS6			
Pneumatic connection 1, 2	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	
Design	Piston poppet valve					
Type of mounting	Via accessories In-line installation					
Assembly position	Any					
Pressure indicator	With pressure sensor for the output pressure display and with electric output With pressure gauge for the output pressure display					
Valve function	2/2-way valve					
Exhaust function	Flow control					
Type of reset	Mechanical spring					
Pilot control mode	Direct					
Pilot air supply	External					
Direction of flow	Non-reversible					
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	

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Standard nominal flow rate q _{nN} ¹⁾ [l/min]						
Size	MS4		MS6			
Pneumatic connection	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	1,000	2,000	2,800	5,050	6,450	
In relief direction 2 → 1	1,000	2,000	2,800	5,050	6,400	

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

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

Technical data

FESTO

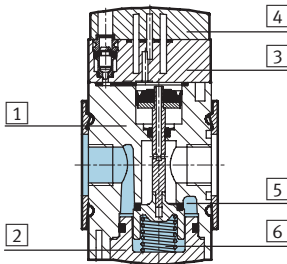
Operating and environmental conditions				
Variant	Standard		Pressure sensor with display AD...	
Size	MS4	MS6	MS4	MS6
Operating pressure [bar]	4 ... 14	4 ... 18	4 ... 10	4 ... 10
Operating medium	Compressed air		Filtered compressed air, lubricated or unlubricated, grade of filtration 40 µm	
Ambient temperature [°C]	-10 ... +60	-10 ... +60	0 ... +50	0 ... +50
Temperature of medium [°C]	-10 ... +60	-10 ... +60	0 ... +50	0 ... +50
Corrosion resistance CRC ¹⁾	2			

1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Weights [g]		
Size	MS4	MS6
Soft-start valve	213	650

Materials

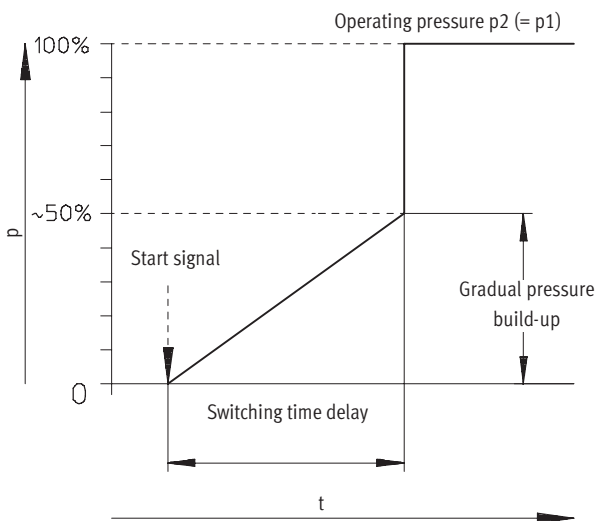
Sectional view



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 and PTFE (not with variants AG or AD...)	

Switching point

Pressure p as a function of time t



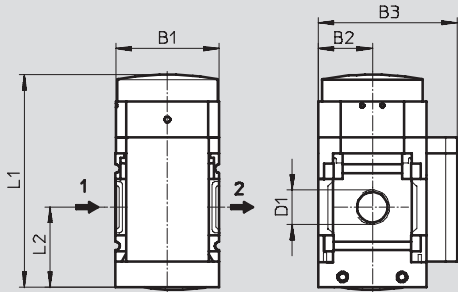
Soft-start valves MS4/MS6-DL, MS series

Technical data

FESTO

Dimensions – Standard

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



→ Flow direction

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

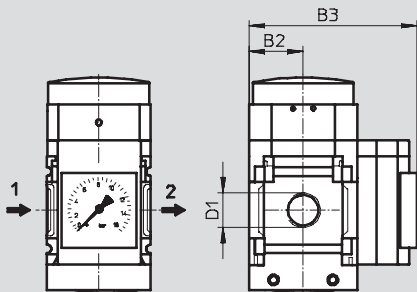
• Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Dimensions – Pressure gauge alternatives

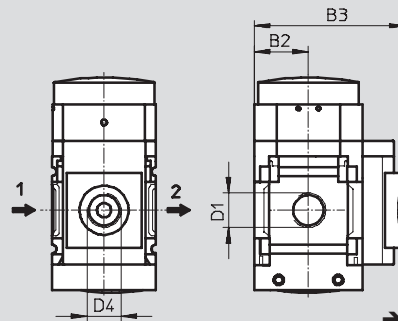
Download CAD data → www.festo.com/en/engineering

Integrated MS pressure gauge AG, display unit [bar]

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



→ Flow direction



→ Flow direction

Type	B2	B3	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	

• Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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

Technical data

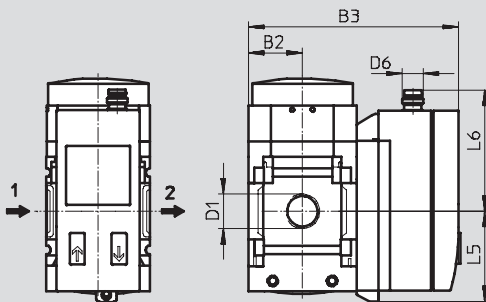
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Dimensions – Pressure gauge alternatives

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

Pressure sensor with display AD1 ... AD4

Technical data SDE1 → www.festo.com



→ Flow direction

AD1 variants:
SDE1-D10-G2-MS-L-P1-M8 with
3-pin plug M8x1, 1 switching out-
put PNP

AD3 variants:
SDE1-D10-G2-MS-L-PI-M12 with
4-pin plug M12x1, 1 switching out-
put PNP and 4 ... 20 mA analogue

AD2 variants:
SDE1-D10-G2-MS-L-N1-M8 with
3-pin plug M8x1, 1 switching out-
put NPN

AD4 variants:
SDE1-D10-G2-MS-L-NI-M12 with
4-pin plug M12x1, 1 switching out-
put NPN and 4 ... 20 mA analogue

Type	B2	B3	D1	D6	L5	L6
MS4-DL-1/8-...-AD1/AD2	21	82.6	G1/8	M8x1	35.1	46.7
MS4-DL-1/4-...-AD1/AD2			G1/4			
MS4-DL-1/8-...-AD3/AD4	21	82.6	G1/8	M12x1	35.1	55.8
MS4-DL-1/4-...-AD3/AD4			G1/4			
MS6-DL-1/4-...-AD1/AD2	31	103	G1/4	M8x1	35.1	46.7
MS6-DL-3/8-...-AD1/AD2			G3/8			
MS6-DL-1/2-...-AD1/AD2			G1/2			
MS6-DL-1/4-...-AD3/AD4	31	103	G1/4	M12x1	35.1	55.8
MS6-DL-3/8-...-AD3/AD4			G3/8			
MS6-DL-1/2-...-AD3/AD4			G1/2			

• | Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Ordering data

Size	Connection	Part No.	Type
MS4	G1/8	529 533	MS4-DL-1/8¹⁾
	G1/4	529 531	MS4-DL-1/4¹⁾
MS6	G1/4	529 819	MS6-DL-1/4¹⁾
	G3/8	529 821	MS6-DL-3/8¹⁾
	G1/2	529 817	MS6-DL-1/2¹⁾

1) Free of copper and PTFE

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
527 711 527 684	MS	4 6	DL	1/8, 1/4, 3/8, 1/2 AGA, AGB, AGC, AGD, AGE	AG, A8, A4, AD1, AD2, AD3, AD4	PSI MPA	WP WPM WB WBM	Z
Order 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	
O Pressure gauge alternatives	MS pressure gauge, bar (with adapter)	MS pressure gauge, bar			-AG	
	Adapter plate for EN pressure gauge 1/8, without pressure gauge	-			-A8	
	Adapter plate for EN pressure gauge 1/4, without pressure gauge	-			-A4	
	Pressure sensor with display, M8 plug, 1 switching output PNP, 3-pin	-		[1]	-AD1	
	Pressure sensor with display, M8 plug, 1 switching output NPN, 3-pin	-		[1]	-AD2	
	Pressure sensor with display, M12 plug, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA	-		[1]	-AD3	
	Pressure sensor with display, M12 plug, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA	-		[1]	-AD4	
	Alternative pressure gauge scale	psi	-		[2]	-PSI
MPa		-		[2]	-MPA	
Type of mounting	Mounting bracket	-		[3]	-WP	
	Mounting bracket	-		[3]	-WPM	
	Mounting bracket	-			-WB	
	Mounting bracket	-			-WBM	
Alternative flow direction		Flow direction from right to left			-Z	

[1] **AD1 ... AD4** Measuring range max. 10 bar.

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

[2] **PSI, MPA** Only with pressure gauge AG.

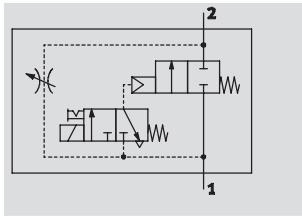
Transfer order code




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

Technical data

Function



-  Flow rate
1,000 ... 6,450 l/min
-  Temperature range
-10 ... +60 °C
-  Operating pressure
4 ... 18 bar



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

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

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

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

General technical data					
Size	MS4		MS6		
Pneumatic connection 1, 2	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
Design	Piston poppet valve				
Type of mounting	Via accessories In-line installation				
Assembly position	Any				
Pressure indicator	With pressure sensor for the output pressure display and with electric output With pressure gauge for the output pressure display				
Valve function	2/2-way valve				
Exhaust function	Flow control				
Type of reset	Mechanical spring				
Switching position display	Via accessories				
Pilot control mode	Piloted				
Pilot air supply	External				
Direction of flow	Non-reversible				
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
Coil characteristics	V24	24 V DC			
	10V24	24 V DC			
	V110	110 V AC			
	V230	230 V AC			

-  - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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

FESTO

Technical data

Standard nominal flow rate $q_{nN}^{1)}$ [l/min]					
Size	MS4		MS6		
Pneumatic connection	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
In main flow direction 1 \rightarrow 2	1,000	2,000	2,700	5,050	6,450
In relief direction 2 \rightarrow 1 ²⁾	1,000	2,000	2,600	5,050	6,400

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

2) For energised solenoid valve.

Operating and environmental conditions						
Variant	Coil parameter V24, V110, V230		Coil parameter 10V24		Pressure sensor with display AD...	
Size	MS4	MS6	MS4	MS6	MS4	MS6
Operating pressure [bar]	4 ... 14	4 ... 18	4 ... 10	4 ... 10	4 ... 10	4 ... 10
Operating medium	Compressed air				Filtered compressed air, lubricated or unlubricated, grade of filtration 40 μ m	
Ambient temperature [°C]	-10 ... +60	-10 ... +60	-10 ... +50	-10 ... +50	0 ... +50	0 ... +50
Temperature of medium [°C]	-10 ... +60	-10 ... +60	-10 ... +50	-10 ... +50	0 ... +50	0 ... +50
Corrosion resistance CRC ¹⁾	2					

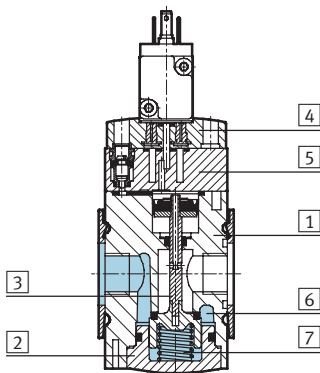
1) Corrosion resistance class 2 according to Festo standard 940 070

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

Weights [g]		
Size	MS4	MS6
Soft-start valve	263	680

Materials

Sectional view



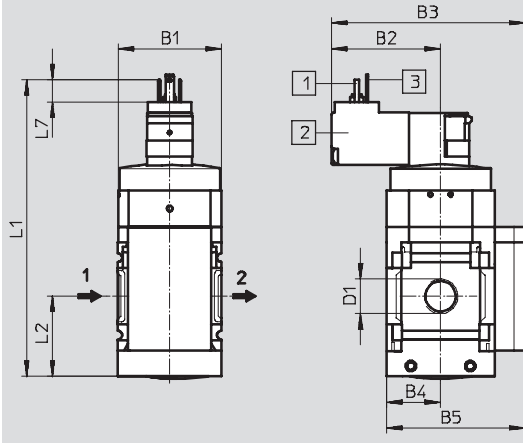
Soft-start valve	
1	Body Die-cast aluminium
2	Base Polyamide
3	Valve stem Steel
4	End cap Polyamide
5	Top plate Polyamide
6	Seat Aluminium/nitrile rubber
7	Springs Spring steel
-	Seals Nitrile rubber
Note on materials Free of copper and PTFE (not with variants AG, 10V24 or AD...)	

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

Technical data

Dimensions – Standard

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



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

→ Flow direction

Type	B1	B2		B3		B4	B5	D1	L1		L2	L7
		10V24	V24/ V110/ V230	10V24	V24/ V110/ V230				10V24	V24/ V110/ V230		
MS4-DE-1/8	40	34.9	42.2	67.9	75.2	21	54	G1/8	112.9	115.4	31.5	8.6
MS4-DE-1/4								G1/4				
MS6-DE-1/4	62	44.7	52	89.7	97	31	76	G1/4	144.9	147	45.5	8.6
MS6-DE-3/8								G3/8				
MS6-DE-1/2								G1/2				

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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

Technical data

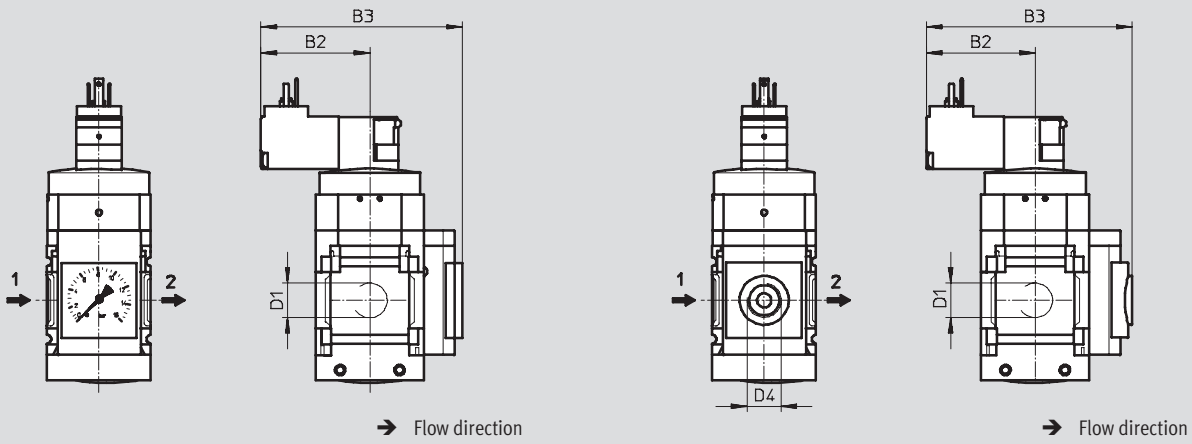
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Dimensions – Pressure gauge alternatives

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

Integrated MS pressure gauge AG, display unit [bar]

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



Type	B2		B3		D1	D4
	10V24	V24/V110/V230	10V24	V24/V110/V230		
MS4-DE-1/8-...-AG	34.9	42.2	78.9	86.2	G1/8	-
MS4-DE-1/4-...-AG					G1/4	
MS4-DE-1/8-...-A8	34.9	42.2	72.4	79.7	G1/8	G1/8
MS4-DE-1/4-...-A8					G1/4	
MS4-DE-1/8-...-A4	34.9	42.2	72.4	79.7	G1/8	G1/4
MS4-DE-1/4-...-A4					G1/4	
MS6-DE-1/4-...-AG	44.7	52	98.7	106	G1/4	-
MS6-DE-3/8-...-AG					G3/8	
MS6-DE-1/2-...-AG					G1/2	
MS6-DE-1/4-...-A4	44.7	52	92.3	99.6	G1/4	G1/4
MS6-DE-3/8-...-A4					G3/8	
MS6-DE-1/2-...-A4					G1/2	

• | • Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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

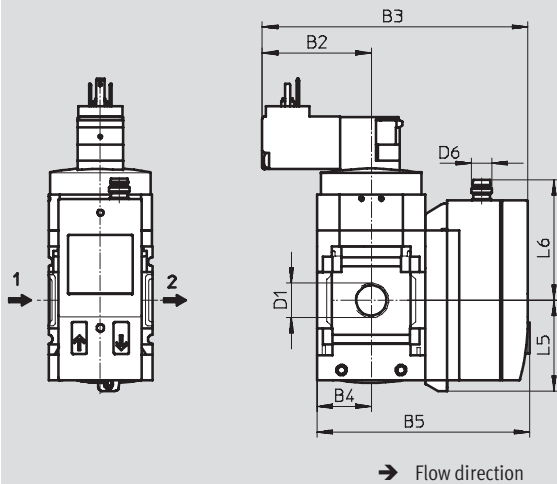
Technical data

Dimensions – Pressure gauge alternatives

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

Pressure sensor with display AD1 ... AD4

Technical data SDE1 → www.festo.com



AD1 variants:
SDE1-D10-G2-MS-L-P1-M8 with
3-pin plug M8x1, 1 switching out-
put PNP

AD3 variants:
SDE1-D10-G2-MS-L-PI-M12 with
4-pin plug M12x1, 1 switching out-
put PNP and 4 ... 20 mA analogue

AD2 variants:
SDE1-D10-G2-MS-L-N1-M8 with
3-pin plug M8x1, 1 switching out-
put NPN

AD4 variants:
SDE1-D10-G2-MS-L-NI-M12 with
4-pin plug M12x1, 1 switching out-
put NPN and 4 ... 20 mA analogue

Type	B2		B3		B4	B5	D1	D6	L5	L6
	10V24	V24/ V110/ V230	10V24	V24/ V110/ V230						
MS4-DE-1/8-...-AD1/AD2	34.9	42.2	96.5	103.8	21	82.6	G1/8	M8x1	35.1	46.7
MS4-DE-1/4-...-AD1/AD2							G1/4			
MS4-DE-1/8-...-AD3/AD4	34.9	42.2	96.5	103.8	21	82.6	G1/8	M12x1	35.1	55.8
MS4-DE-1/4-...-AD3/AD4							G1/4			
MS6-DE-1/4-...-AD1/AD2	44.7	52	116.7	124	31	103	G1/4	M8x1	35.1	46.7
MS6-DE-3/8-...-AD1/AD2							G3/8			
MS6-DE-1/2-...-AD1/AD2							G1/2			
MS6-DE-1/4-...-AD3/AD4	44.7	52	116.7	124	31	103	G1/4	M12x1	35.1	55.8
MS6-DE-3/8-...-AD3/AD4							G3/8			
MS6-DE-1/2-...-AD3/AD4							G1/2			

– † – Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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

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Technical data

Ordering data			
Size	Connection	Part No.	Type
Supply voltage 24 V DC			
MS4	G1/8	542 560	MS4-DE-1/8-10V24
	G1/4	542 558	MS4-DE-1/4-10V24
MS6	G1/4	542 564	MS6-DE-1/4-10V24
	G3/8	542 566	MS6-DE-3/8-10V24
	G1/2	542 562	MS6-DE-1/2-10V24
Supply voltage 110 V AC			
MS4	G1/8	529 525	MS4-DE-1/8-V110 ¹⁾
	G1/4	529 519	MS4-DE-1/4-V110 ¹⁾
MS6	G1/4	529 805	MS6-DE-1/4-V110 ¹⁾
	G3/8	529 811	MS6-DE-3/8-V110 ¹⁾
	G1/2	529 799	MS6-DE-1/2-V110 ¹⁾
Supply voltage 230 V AC			
MS4	G1/8	529 527	MS4-DE-1/8-V230 ¹⁾
	G1/4	529 521	MS4-DE-1/4-V230 ¹⁾
MS6	G1/4	529 807	MS6-DE-1/4-V230 ¹⁾
	G3/8	529 813	MS6-DE-3/8-V230 ¹⁾
	G1/2	529 801	MS6-DE-1/2-V230 ¹⁾

1) Free of copper and PTFE

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 10V24 V110 V230	AG, A8, A4, AD1, AD2, AD3, AD4	PSI MPA	WP WPM WB WBM	Z
Order example									
527 713	MS	4	- DE	- AGA	- V110	- AG	- PSI	- WP	- Z

Ordering table										
Grid dimension	[mm]	40	62	Conditions	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 (connection pattern to EN 175301), 18 bar			-V24					
		24 V DC (connection pattern to EN 175301), 10 bar			-10V24					
		110 V AC (connection pattern to EN 175301), 18 bar			-V110					
		230 V AC (connection pattern to EN 175301), 18 bar			-V230					
	Pressure gauge alternatives	MS pressure gauge, bar (with adapter)		MS pressure gauge, bar	-AG					
		Adapter plate for EN pressure gauge 1/8, without pressure gauge		-	-A8					
		Adapter plate for EN pressure gauge 1/4, without pressure gauge			-A4					
		Pressure sensor with display, M8 plug, 1 switching output PNP, 3-pin			[1] -AD1					
		Pressure sensor with display, M8 plug, 1 switching output NPN, 3-pin			[1] -AD2					
		Pressure sensor with display, M12 plug, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA			[1] -AD3					
		Pressure sensor with display, M12 plug, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA			[1] -AD4					
		Alternative pressure gauge scale	psi			[2] -PSI				
	MPa			[2] -MPA						
	Type of mounting	Mounting bracket			[3] -WP					
		Mounting bracket			[3] -WPM					
		Mounting bracket			-WB					
		Mounting bracket		-	-WBM					
	Alternative flow direction	Flow direction from right to left			-Z					

[1] AD1 ... AD4 Measuring range max. 10 bar.

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

[2] PSI, MPA Only with pressure gauge AG.

Transfer order code

	MS		-	DE	-		-		-		-		-		-		-		-	
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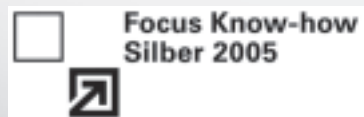
MS12 series service units

FESTO

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



- Grid dimension 124 mm
- High flow rates
- Modern design

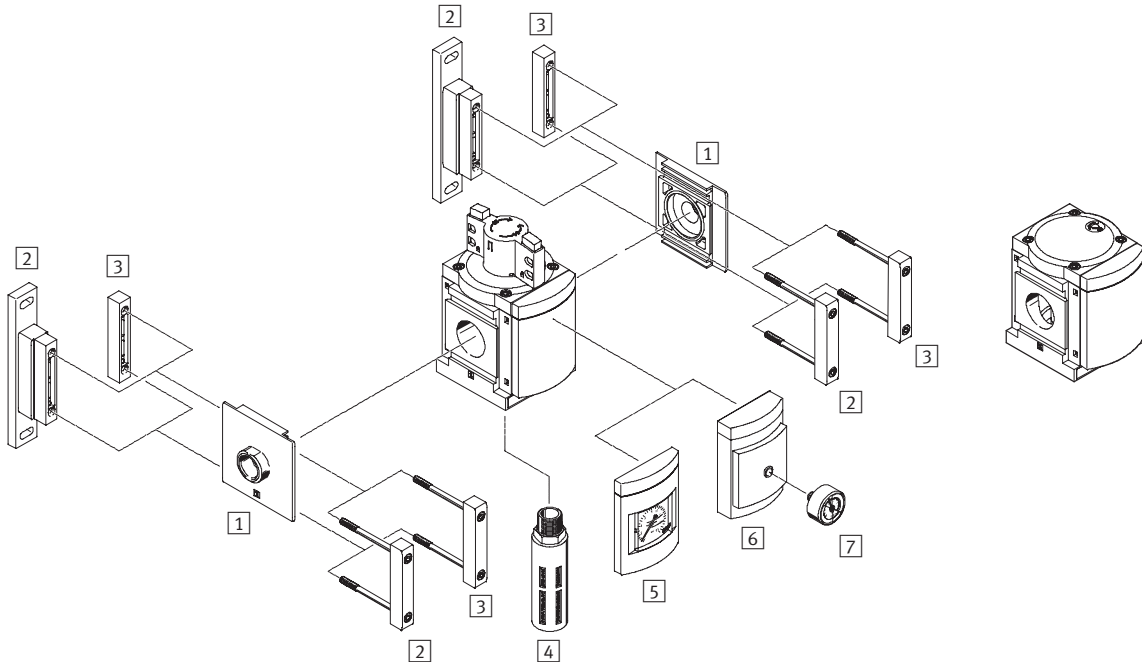


On-off/soft-start valves MS12-EM/EE/DL/DE, MS series



Peripherals overview

On-off valve EM manually actuated	Soft-start valve DL pneumatically actuated
---	--



Mounting attachments and accessories		→ Page
1	Connecting plate MS12-AG...	11-2
2	Mounting bracket MS12-WP	11-8
3	Module connector MS12-MV	11-8
4	Silencer (with EM) U	11-20
5	MS pressure gauge AG	EM 7-38 DL 7-46
6	Adapter for EN pressure gauge 1/4 A4	EM 7-38 DL 7-46
7	Pressure gauge MA	11-19

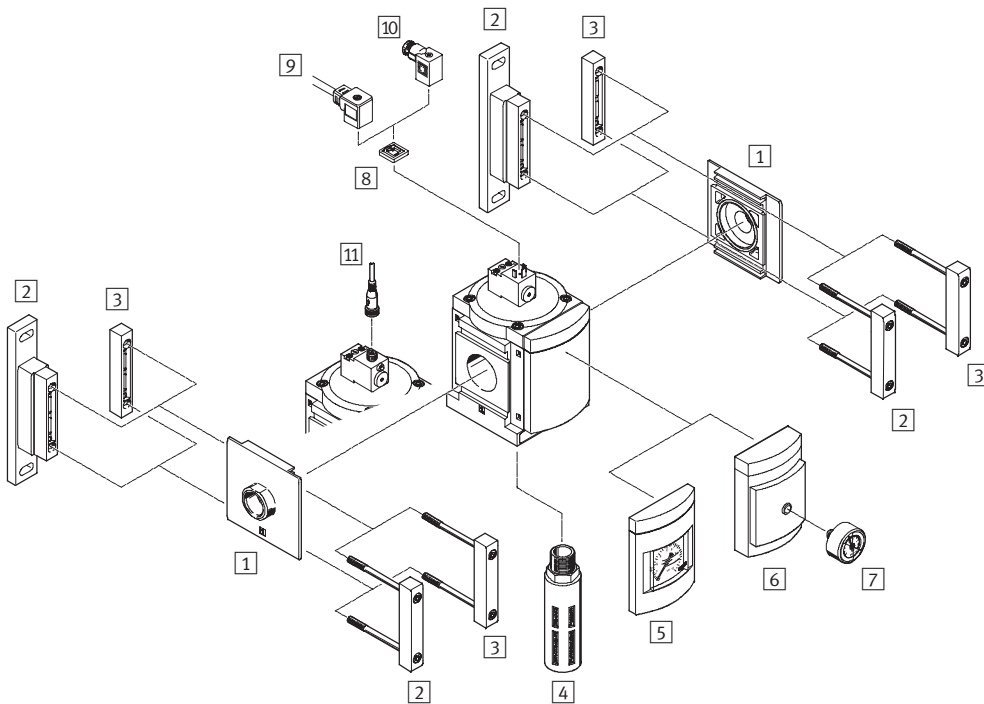
MS series service units
Start-up and exhaust valves

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

Peripherals overview



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



Mounting attachments and accessories		→ Page
1	Connecting plate MS12-AG...	11-2
2	Mounting bracket MS12-WP	11-8
3	Module connector MS12-MV	11-8
4	Silencer (with EE) U	11-20
5	MS pressure gauge AG	EE 7-42 DE 7-50
6	Adapter for EN pressure gauge 1/4 A4	EE 7-42 DE 7-50
7	Pressure gauge MA	11-19
8	Illuminating seal MC-LD	11-18
9	Plug socket with cable KMC	11-18
10	Plug socket MSSD-C	11-18
11	Plug socket with cable SIM-M12-4...	11-19

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

Type codes



MS 12 - EE - G - V24

Series

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

Size

12	Grid dimension 124 mm
----	-----------------------

Service function

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

Connection size

G	Module without connecting thread, without connecting plate Connecting plates → Accessories
---	---

Supply voltage (for EE and DE only)

V24	Supply voltage 24 V DC
-----	------------------------

Further variants can be ordered using the modular system

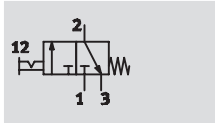
On-off valves EM	→ 7-38
On-off valves EE	→ 7-42
Soft-start valves DL	→ 7-46
Soft-start valves DE	→ 7-50

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

On-off valves MS12-EM, MS series

Technical data

Function



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



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

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

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 11-2
 - - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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

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

Operating and environmental conditions		
Operating pressure	[bar]	0 ... 21
Operating medium		Compressed air
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	-10 ... +60
Corrosion resistance	CRC ¹⁾	2

1) Corrosion resistance class 2 according to Festo standard 940 070
 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

On-off valves MS12-EM, MS series

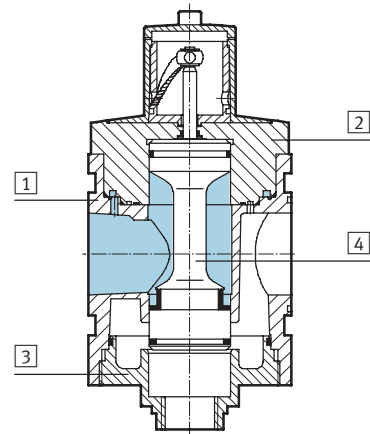
Technical data



Weights [g]	
Standard	3,900
With silencer	4,000

Materials

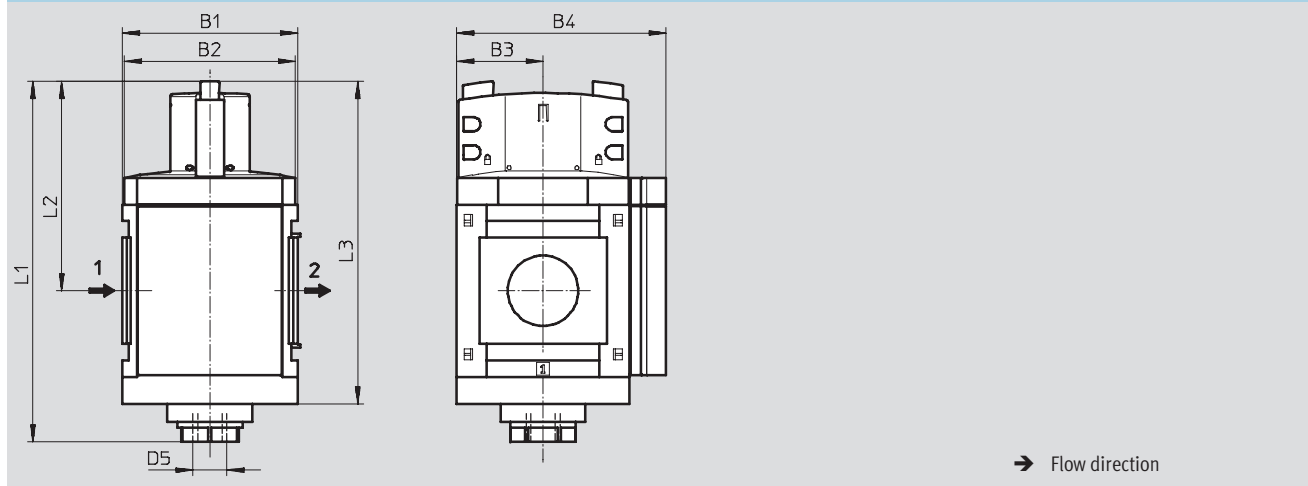
Sectional view



On-off valve		
1	Body	Die-cast aluminium
2	Cap, top	Aluminium
3	Cap, bottom	Aluminium
4	Valve spool	Stainless steel, polyacetate, nitrile rubber
-	Springs	Steel
-	Covers/cover plates	Polyamide
-	Seals	Nitrile rubber
Note on materials		Free of copper and PTFE (not with variant AG)

Dimensions – Standard

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



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

MS series service units
Start-up and exhaust valves

7

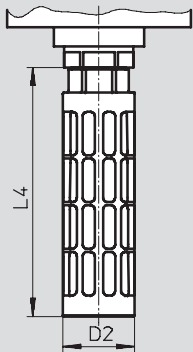
On-off valves MS12-EM, MS series

Technical data



Dimensions – Silencer

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



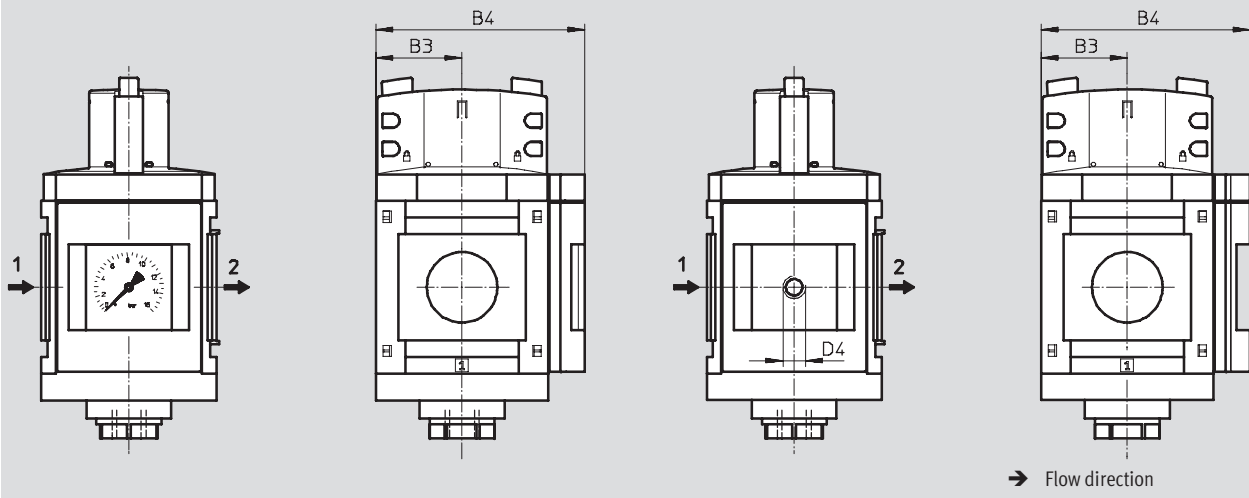
Type	D2 ∅	L4
MS12-EM-...-S	47.8	165.5

Dimensions – Pressure gauges/adapters

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

Integrated MS pressure gauge AG, display unit [bar]

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



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

· † - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Ordering data

Size	Connection	Part No.	Type
MS12	G1 ... G2 ¹⁾	541 495	MS12-EM-G ²⁾

1) Connecting plate must be ordered separately as an accessory → 11-2

2) Free of copper and PTFE

· † - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

On-off valves MS12-EM, MS series

Ordering data – Modular products



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

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

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

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

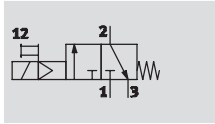
Transfer order code

535 031	MS	12	- EM	-	-	-	-	-	-	-
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On-off valves MS12-EE, MS series

Technical data

Function



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



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

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

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 11-2
 - - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Standard nominal flow rate q _N ¹⁾ [l/min]	
In main flow direction 1 → 2	25,000 ... 32,000
In relief direction 2 → 3	8,900

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

On-off valves MS12-EE, MS series

Technical data



Operating and environmental conditions		
Operating pressure	[bar]	3 ... 16
Operating medium		Compressed air
Ambient temperature	[°C]	-10 ... +50
Temperature of medium	[°C]	-10 ... +50
Corrosion resistance	CRC ¹⁾	2

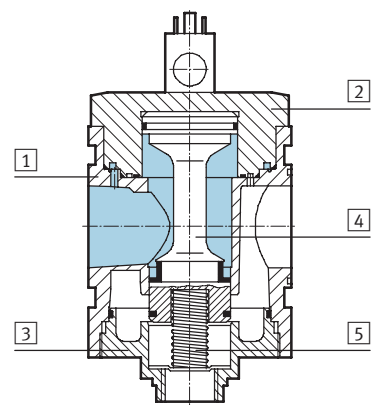
1) Corrosion resistance class 2 according to Festo standard 940 070

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

Weights [g]	
Standard	3,800
With silencer	3,900

Materials

Sectional view



On-off valve		
1	Body	Die-cast aluminium
2	Cap, top	Aluminium
3	Cap, bottom	Aluminium
4	Valve spool	Stainless steel, polyacetate, nitrile rubber
5	Springs	Steel
-	Covers/cover plates	Polyamide
-	Seals	Nitrile rubber
	Note on materials	Free of copper and PTFE (not with variant AG)

Dimensions – Standard

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

MS12-EE-...-V24/V110/V230

MS12-EE-...-V24P

1 Plug connection to DIN EN 175 301-803

3 Plug connection M12, 4-pin to Desina

→ Flow direction

Type	B1	B2	B3	B4	L1	L2	L3	L4	L5	D5
MS12-EE-...-V24/V110/V230	124	122	61	148	237	130	162	35.7	12.3	G1
MS12-EE-...-V24P								36	10	

MS series service units
Start-up and exhaust valves

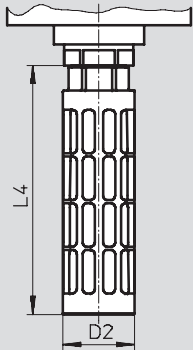
On-off valves MS12-EE, MS series

Technical data



Dimensions – Silencer

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



Type	D2 Ø	L4
MS12-EE-...-S	47.8	165.5

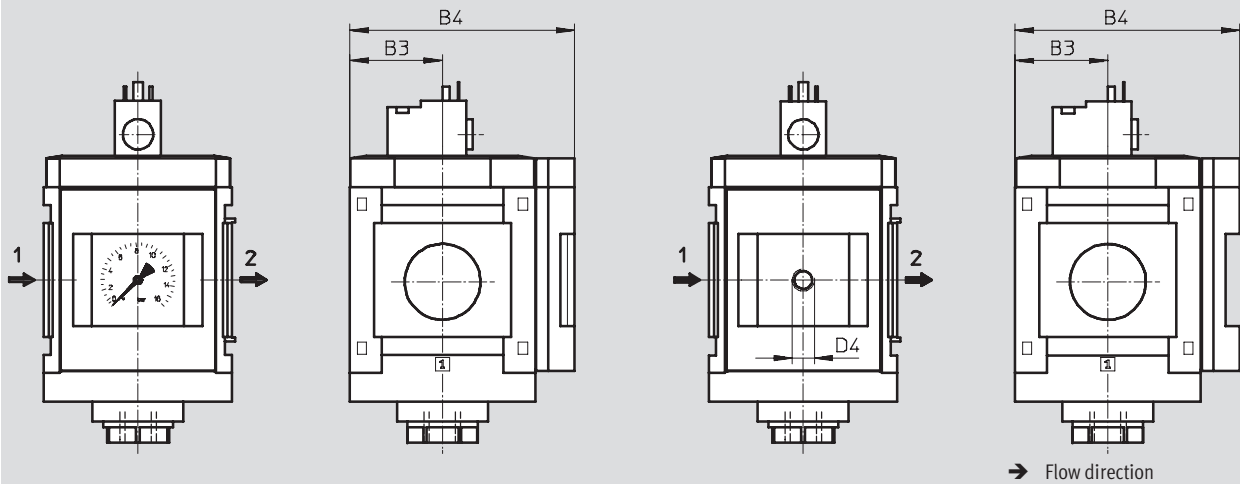
• † - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Dimensions – Pressure gauges/adapters

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

Integrated MS pressure gauge AG, display unit [bar]

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



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

Ordering data

Size	Connection	Supply voltage 24 V DC	
		Part No.	Type
MS12	G1 ... G2 ¹⁾	541 496	MS12-EE-G-V24 ²⁾

1) Connecting plate must be ordered separately as an accessory → 11-2

2) Free of copper and PTFE

• † - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

On-off valves MS12-EE, MS series

Ordering data – Modular products



MS series service units
Start-up and exhaust valves

7

M Mandatory data						O Options				
Module No.	Series	Size	Function	Connection size	Supply voltage	Silencer	Pressure gauge/ adapter	Alternative pressure gauge scale	Type of mounting	Alternative flow direction
535 032	MS	12	EE	AGF AGG AGH AGI G	V24 V24P V110 V230	S	AG A4	PSI MPA	WP	Z
Order example										
535 032	MS	12	- EE	- AGI	- V110	- S	- AG	- MPA	- WP	-

Ordering table		Grid dimension [mm]	124	Condi- tions	Code	Enter code
M	Module No.	535 032				
	Series	Standard			MS	MS
	Size	12			12	12
	Function	On-off valve, electrical			-EE	-EE
	Connection size	Connecting plate G1			-AGF	
		Connecting plate G1¼			-AGG	
		Connecting plate G1½			-AGH	
		Connecting plate G2			-AGI	
		Module without connecting thread, without connecting plate			G	
	Supply voltage	24 V DC (connection pattern to EN 175301), 16 bar			-V24	
		24 V DC plug (connection pattern M12 to DESINA), 16 bar			-V24P	
		110 V AC (connection pattern to EN 175301), 16 bar			-V110	
		230 V AC (connection pattern to EN 175301), 16 bar			-V230	
O	Silencer	Silencer			-S	
	Pressure gauge/adapter	MS pressure gauge, bar			-AG	
		Adapter plate for EN pressure gauge ¼, without pressure gauge			-A4	
	Alternative pressure gauge scale	psi		1	-PSI	
		MPa		1	-MPA	
	Type of mounting	Mounting bracket		2	-WP	
	Alternative flow direction	Flow direction from right to left			-Z	

1 PSI, MPA Only with pressure gauge AG.

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

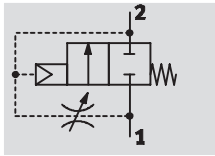
Transfer order code




535 032	MS	12	- EE	-	-	-	-	-	-	-
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Soft-start valves MS12-DL, MS series

Technical data

Function



-  - Flow rate
25,000 ... 42,000 l/min
-  - Temperature range
-10 ... +60 °C
-  - Operating pressure
2 ... 21 bar




The duration of the pressure build-up is adjusted using the restrictor attached to the valve cap. The output pressure p2 rises slowly in

accordance with the restrictor setting. The main seat opens when the switch-through pressure is reached.

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

General technical data				
Pneumatic connection 1, 2 ¹⁾	G1	G1¼	G1½	G2
Design	Piston poppet valve			
Type of mounting	Via accessories In-line installation			
Assembly position	Any			
Valve function	2/2-way valve			
Exhaust function	Flow control			
Type of reset	Mechanical spring			
Type of actuation	Direct			
Pilot air supply	Internal			
Direction of flow	Non-reversible			

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 11-2
 -  - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Standard nominal flow rate qnN ¹⁾ [l/min]	
In main flow direction 1 → 2	25,000 ... 42,000
In relief direction 2 → 1	25,000 ... 42,000

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

Soft-start valves MS12-DL, MS series

Technical data



Operating and environmental conditions		
Operating pressure	[bar]	2 ... 21
Operating medium		Compressed air
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	-10 ... +60
Corrosion resistance	CRC ¹⁾	2

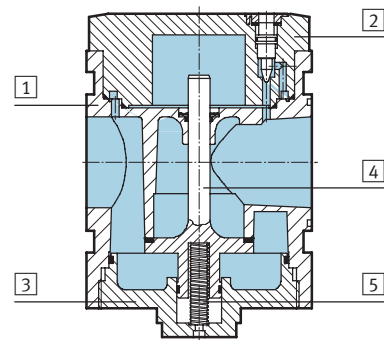
1) Corrosion resistance class 2 according to Festo standard 940 070

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

Weights [g]	
Soft-start valve	3,600

Materials

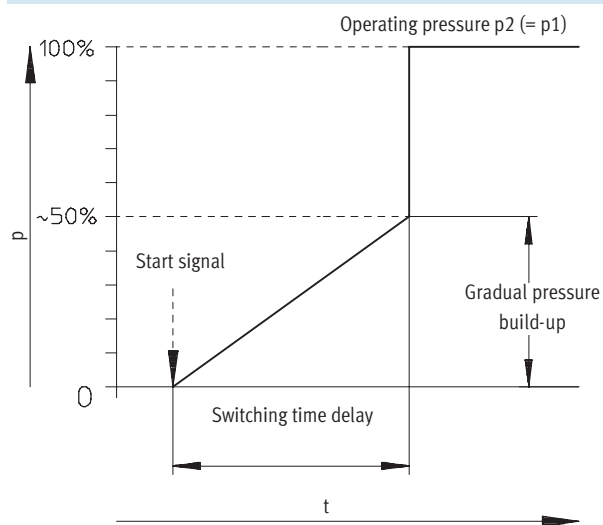
Sectional view



Soft-start valve		
1	Body	Die-cast aluminium
2	Cap, top	Aluminium
3	Cap, bottom	Aluminium
4	Valve stem	Aluminium, nitrile rubber
5	Springs	Steel
-	Covers/cover plates	Polyamide
-	Seals	Nitrile rubber
	Note on materials	Free of copper and PTFE (not with variant AG)

Switching point

Pressure p as a function of time t



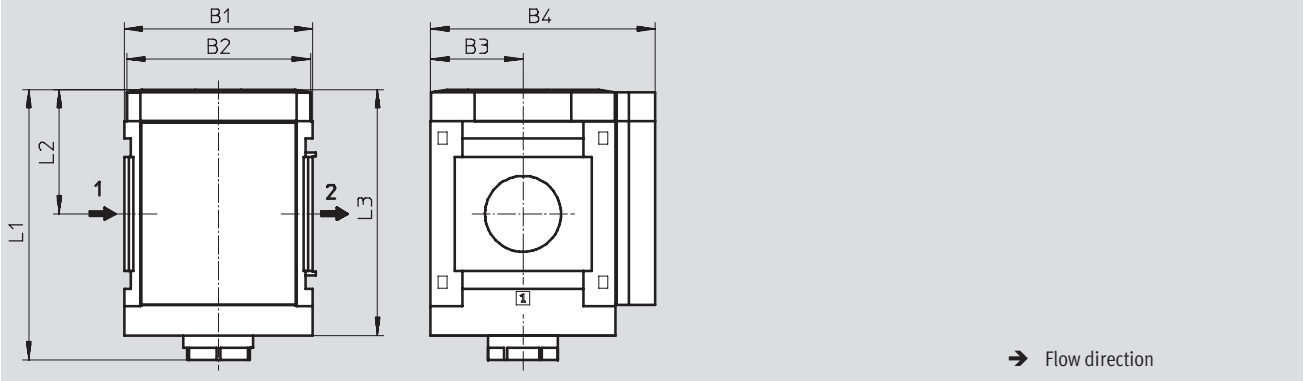
Soft-start valves MS12-DL, MS series

Technical data



Dimensions – Standard

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



Type	B1	B2	B3	B4	L1	L2	L3
MS12-DL	124	122	61	148	178	82	162

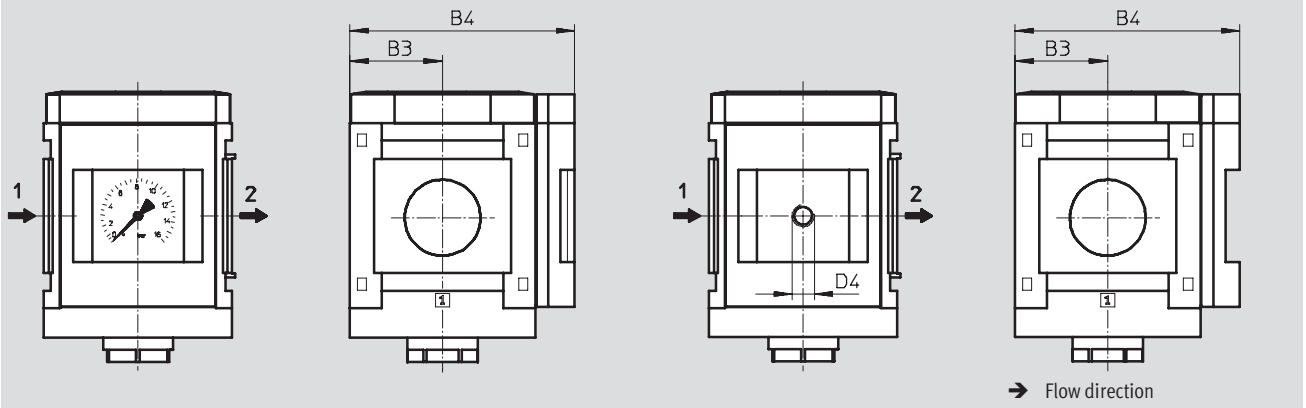
• † - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Dimensions – Pressure gauges/adapters

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

Integrated MS pressure gauge AG, display unit [bar]

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



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

Ordering data

Size	Connection	Part No.	Type
MS12	G1 ... G2 ¹⁾	541 497	MS12-DL-G ²⁾

1) Connecting plate must be ordered separately as an accessory → 11-2

2) Free of copper and PTFE

• † - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Soft-start valves MS12-DL, MS series

Ordering data – Modular products



M Mandatory data					O Options			
Module No.	Series	Size	Function	Connection size	Pressure gauge/adaptor	Alternative pressure gauge scale	Type of mounting	Alternative flow direction
535 033	MS	12	DL	AGF AGG AGH AGI G	AG A4	PSI MPA	WP	Z
Order example								
535 033	MS	12	- DL	- AGI	- AG	- MPA	- WP	- Z

Ordering table		Grid dimension [mm]	124	Condi-tions	Code	Enter code
M	Module No.	535 033				
	Series	Standard			MS	MS
	Size	12			12	12
	Function	Soft-start valve, pneumatic			-DL	-DL
	Connection size	Connecting plate G1			-AGF	
		Connecting plate G1¼			-AGG	
		Connecting plate G1½			-AGH	
		Connecting plate G2			-AGI	
		Module without connecting thread, without connecting plate			-G	
O	Pressure gauge/adaptor	MS pressure gauge, bar			-AG	
		Adapter plate for EN pressure gauge ¼, without pressure gauge			-A4	
	Alternative pressure gauge scale	psi		1	-PSI	
		MPa		1	-MPA	
	Type of mounting	Mounting bracket		2	-WP	
	Alternative flow direction	Flow direction from right to left			-Z	

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

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

MS series service units
Start-up and exhaust valves

Transfer order code

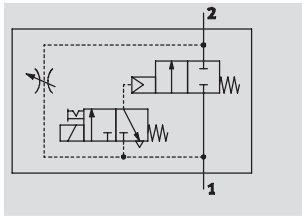
535 033 MS 12 - DL - - - - -

Soft-start valves MS12-DE, MS series

Technical data



Function



- Flow rate
25,000 ... 42,000 l/min
- Temperature range
-10 ... +50 °C
- Operating pressure
3 ... 16 bar



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

When the solenoid valve is switched off, the main seat is closed and only the air flow from the flow control valve is available. The solenoid valve should remain switched on in order to vent a system as this increases the flow rate from 2 and 1 and reduces the exhaust time.

- Solenoid actuated soft-start valve for slowly pressurising and venting pneumatic installations
- The drives advance slowly and reliably into the initial position
- Sudden and erratic movements are avoided
- With solenoid coil without plug socket
- Switch-through pressure can be exactly controlled using a solenoid valve
- Adjustable switching time delay
- Three voltage ranges can be selected
- Non-detenting manual override (except variant V24P)

General technical data				
Pneumatic connection 1, 2 ¹⁾	G1	G1¼	G1½	G2
Design	Piston poppet valve			
Type of mounting	Via accessories			
	In-line installation			
Assembly position	Any			
Valve function	2/2-way valve			
Exhaust function	Flow control			
Type of reset	Mechanical spring			
Switching position display	Via accessories			
	LED (with variant V24P)			
Type of actuation	Piloted			
Pilot air supply	Internal			
Direction of flow	Non-reversible			
Coil characteristics	V24	24 V DC		
	V110	110 V AC		
	V230	230 V AC		

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 11-2
 - - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Soft-start valves MS12-DE, MS series

Technical data



Standard nominal flow rate $q_{nN}^{1)}$ [l/min]	
In main flow direction 1 → 2	25,000 ... 42,000
In relief direction 2 → 1 ²⁾	25,000 ... 42,000

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

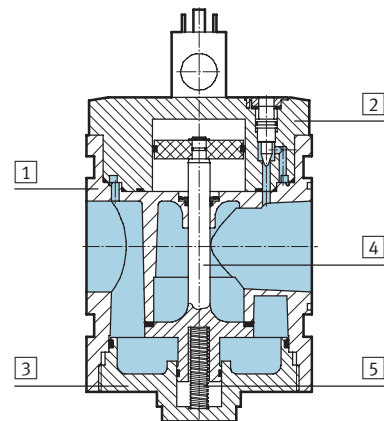
Operating and environmental conditions		
Operating pressure	[bar]	3 ... 16
Operating medium		Compressed air
Ambient temperature	[°C]	-10 ... +50
Temperature of medium	[°C]	-10 ... +50
Corrosion resistance	CRC ¹⁾	2

- 1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Weights [g]	
Soft-start valve	3,800

Materials

Sectional view



Soft-start valve		
1	Body	Die-cast aluminium
2	Cap, top	Aluminium
3	Cap, bottom	Aluminium
4	Valve stem	Aluminium, nitrile rubber
5	Springs	Steel
-	Covers/cover plates	Polyamide
-	Seals	Nitrile rubber
	Note on materials	Free of copper and PTFE (not with variant AG)

Soft-start valves MS12-DE, MS series

Technical data



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

MS12-DE-...-V24/V110/V230

MS12-DE-...-V24P

1) Plug connection to DIN EN 175 301-803

3) Plug connection M12, 4-pin to Desina

→ Flow direction

Type	B1	B2	B3	B4	L1	L2	L3	L4	L5
MS12-DE-...-V24/V110/V230	124	122	61	148	226	130	162	35.7	12.3
MS12-DE-...-V24P								36	10

• Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Dimensions – Pressure gauges/adapters Download CAD data → www.festo.com/en/engineering

Integrated MS pressure gauge AG, display unit [bar] Adapter A4 for EN pressure gauge 1/4, without pressure gauge

→ Flow direction

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

Ordering data		
Size	Connection	Supply voltage 24 V DC
		Part No. Type
MS12	G1 ... G2 ¹⁾	541 498 MS12-DE-G-V24 ²⁾

1) Connecting plate must be ordered separately as an accessory → 11-2
 2) Free of copper and PTFE
 • Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

MS series service units
Start-up and exhaust valves

Soft-start valves MS12-DE, MS series

Ordering data – Modular products



M Mandatory data						O Options			
Module No.	Series	Size	Function	Connection size	Supply voltage	Pressure gauge/adapter	Alternative pressure gauge scale	Type of mounting	Alternative flow direction
535 034	MS	12	DE	AGF AGG AGH AGI G	V24 V24P V110 V230	AG A4	PSI MPA	WP	Z
Order example									
535 034	MS	12	- DE	- AGH	- V230	- A4	-	- WP	- Z

Ordering table		Grid dimension [mm]	124	Condi-tions	Code	Enter code
M	Module No.	535 034				
	Series	Standard			MS	MS
	Size	12			12	12
	Function	Soft-start valve, electrical			-DE	-DE
	Connection size	Connecting plate G1			-AGF	
		Connecting plate G1¼			-AGG	
		Connecting plate G1½			-AGH	
		Connecting plate G2			-AGI	
		Module without connecting thread, without connecting plate			-G	
	Supply voltage	24 V DC (connection pattern to EN 175301), 16 bar			-V24	
		24 V DC plug (connection pattern M12 to DESINA), 16 bar			-V24P	
		110 V AC (connection pattern to EN 175301), 16 bar			-V110	
		230 V AC (connection pattern to EN 175301), 16 bar			-V230	
	Pressure gauge/adapter	MS pressure gauge, bar			-AG	
		Adapter plate for EN pressure gauge ¼, without pressure gauge			-A4	
	Alternative pressure gauge scale	psi		1	-PSI	
		MPa		1	-MPA	
	Type of mounting	Mounting bracket		2	-WP	
	Alternative flow direction	Flow direction from right to left			-Z	

1 PSI, MPA Only with pressure gauge AG.

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

Transfer order code

535 034	MS	12	- DE	-	-	-	-	-	-
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MS series service units

Accessories

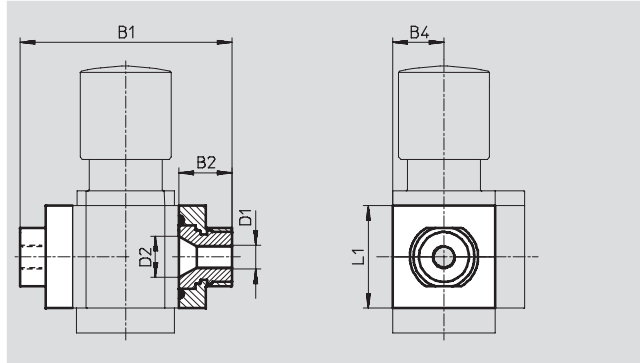


Connecting plate MS4/6-AG...

(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

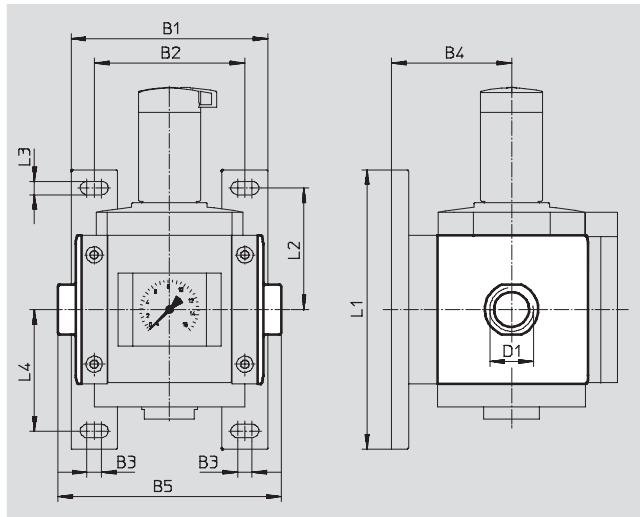
-||- Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Connecting plate MS12-AG...

(order code: AG...)

- Adapter for pneumatic connection

Material:
Die-cast aluminium
Free of copper and PTFE



Dimensions and ordering data													
Size	B1	B2	B3	B4	B5	D1	L1	L2	L3	L4	Weight [g]	Part No.	Type
MS12	162	124	12	99	184	G1	230	100	11	100	1,300	537 135	MS12-AGF
					184	G $\frac{1}{4}$						537 136	MS12-AGG
					184	G $\frac{1}{2}$						537 137	MS12-AGH
					196	G2						537 138	MS12-AGI

-||- Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

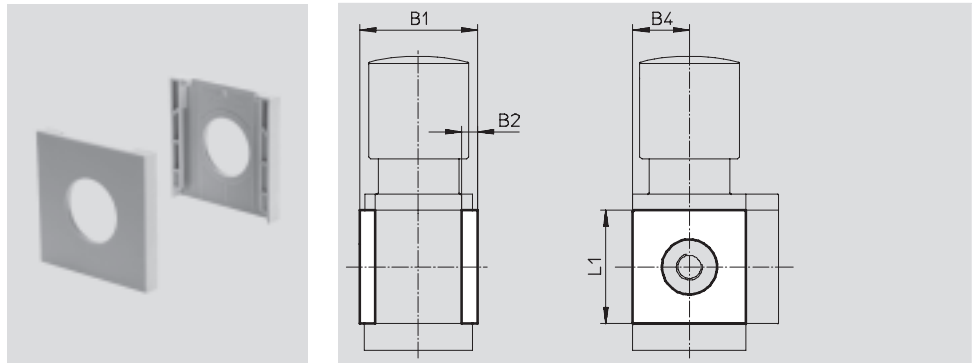
MS series service units

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:
Reinforced polyamide
Free of copper and PTFE



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

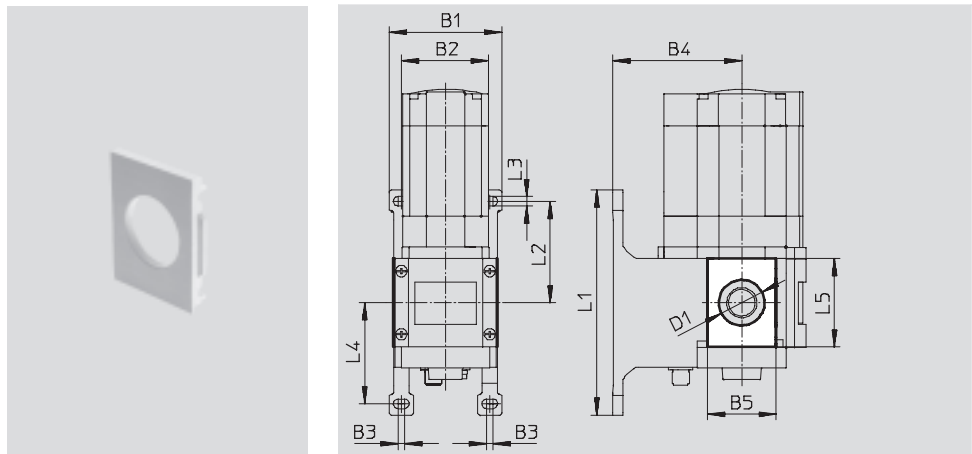
• Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Mounting plate MS4/6-AEND

(order code: WBE; scope of delivery includes wall mounting plate MS6-WPB)

- In combination with wall mounting plate MS-WP or MS-WPB for mounting an individual unit on a wall with direct thread

Material:
Reinforced polyamide
Conforms to RoHS
Free of copper and PTFE



Dimensions and ordering data														Weight [g]	Part No.	Type	
Size	B1	B2	B3	B4		B5	D1	L1	L2	L3	L4	L5	CRC ¹⁾				
				WP	WPB		∅										
MS4	55.2	40.2	4	44	66	30.4	20.3	106	46.5	5.6	46.7	42	2	4	542 966	MS4-AEND	New
MS6	79	62	4.5	54	90.5	48.4	32	158	71	6.6	71	62	2	17	535 408	MS6-AEND	

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.

MS series service units

Accessories



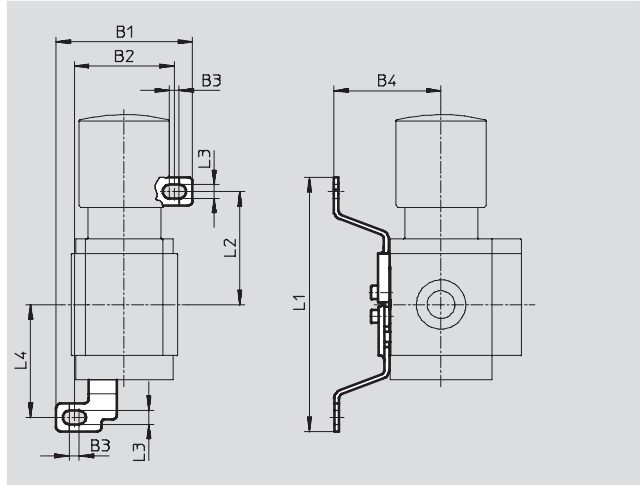
Mounting bracket MS4/6-WB

(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

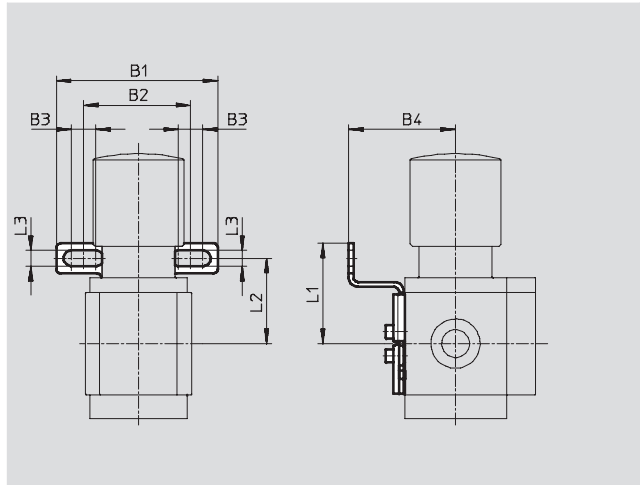
Mounting bracket MS4-WBM

(order code: WBM)

- For wall mounting

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



Mounting bracket 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

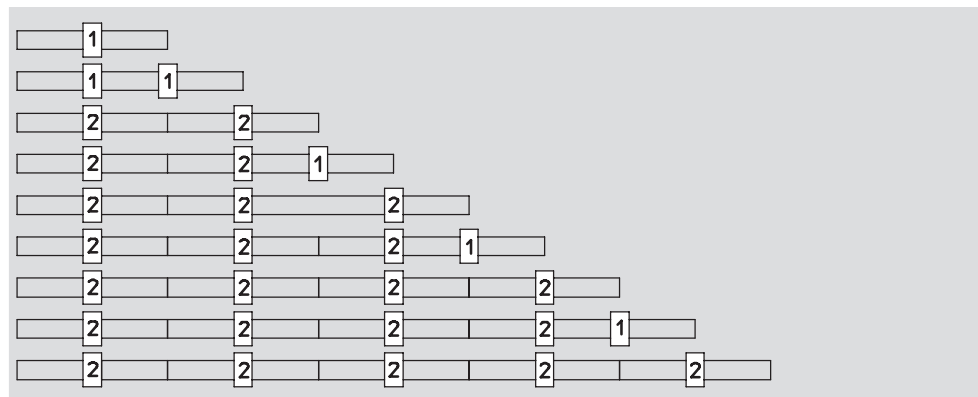
138 mm with WPM-2D

1 Mounting bracket WP, WPB or WPM-D

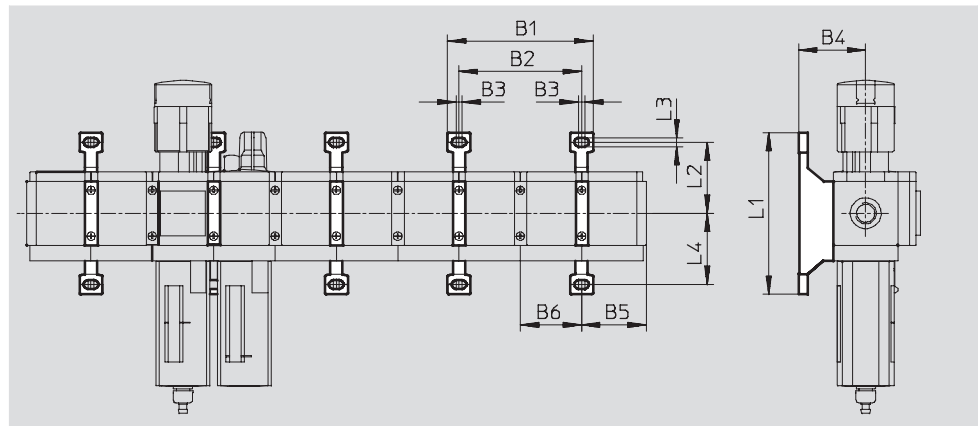
2 Mounting bracket WP, WPB or WPM-2D

Number of units

1 2 3 4 5 6 7 8 9 10



Mounting dimensions



Type	B1	B2	B3	B4	B5	B6	L1	L2	L3	L4
MS4-WP	95.2	80	4	44	41.9	40	106	46.5	5.6	46.7
MS4-WPB				66						
MS4-WPM-...D				44						
MS6-WP	141	124	4.5	54	64.5	62	158	71	6.6	71
MS6-WPB				90.5						
MS6-WPM-...D				54						
MS6-WPM-...D	168	138	17.5	54	65.5	69	98.6	41.3		41.3

MS series service units

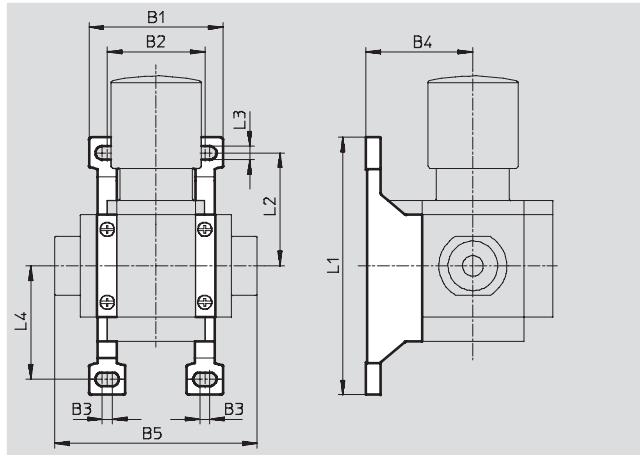
Accessories



Mounting bracket MS4/6-WP

(order code: WP)

- For connecting the modules for wall mounting
- In combination with a connecting plate MS4/6-AG... for mounting an individual unit on a wall
- In combination with mounting plate MS-AEND or for mounting an individual unit with direct thread on a wall
- For pressure regulator LRB with angled outlet block B... at rear



Material:

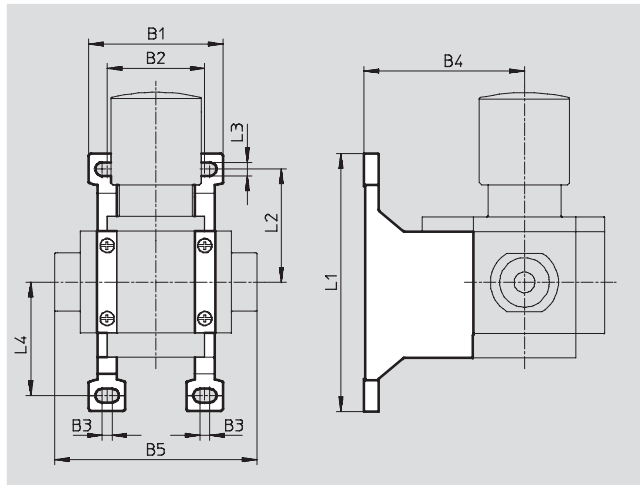
Die-cast aluminium

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

Mounting bracket MS4/6-WPB

(order code: WPB)

- For connecting the modules for wall mounting
- In combination with a connecting plate MS4/6-AG... for mounting an individual unit on a wall
- In combination with mounting plate MS-AEND or for mounting an individual unit with direct thread on a wall
- Provides large wall gap for pressure regulator



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



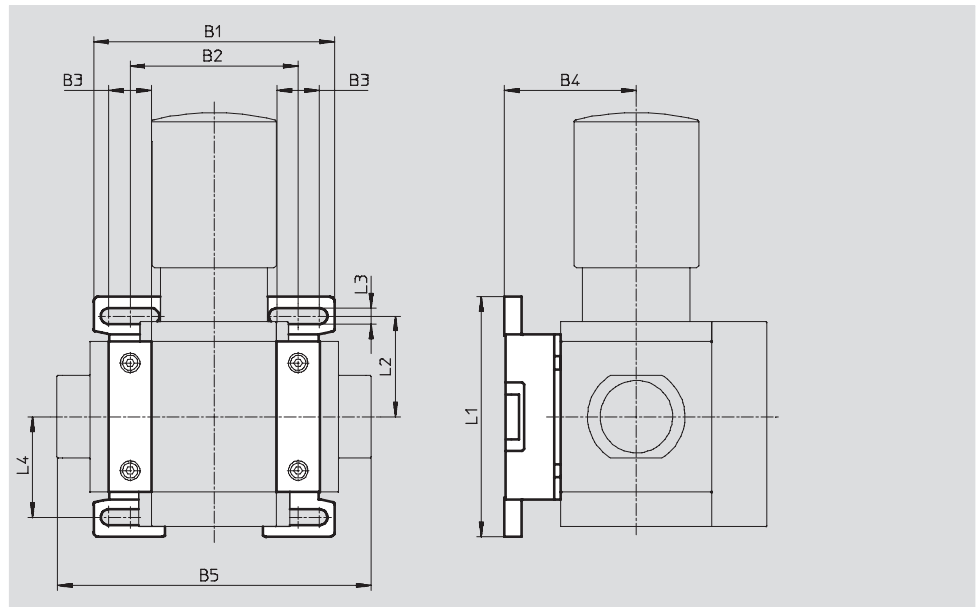
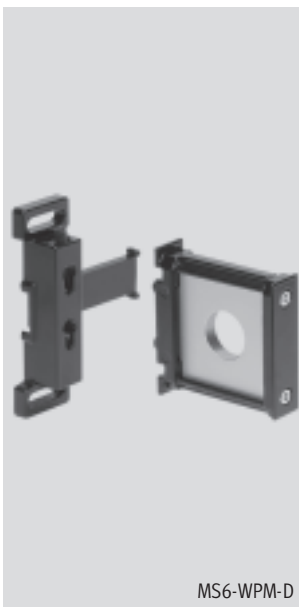
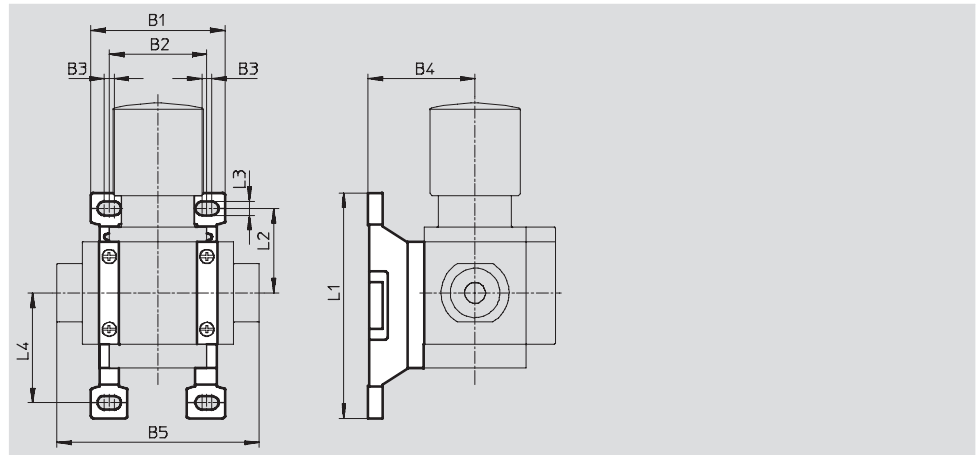
Mounting bracket MS4/6-WPM

(order code: WPM)

- For connecting the modules for wall mounting
- In combination with a connecting plate MS4/6-AG... for mounting an individual unit on a wall
- Speedy attachment and detachment
- For installation of modules with regulating knob pointing downwards

The distance piece D or 2D (designated in the type code) is included in the scope of delivery and ensures the correct clearance

Material:
Die-cast aluminium



Dimensions and ordering data													
Size	B1	B2	B3	B4	B5	L1	L2	L3	L4	Clearance	Weight [g]	Part No.	Type
MS4	55.2	40	4	44	83.4	92.8	34.8	5.6	45.2	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

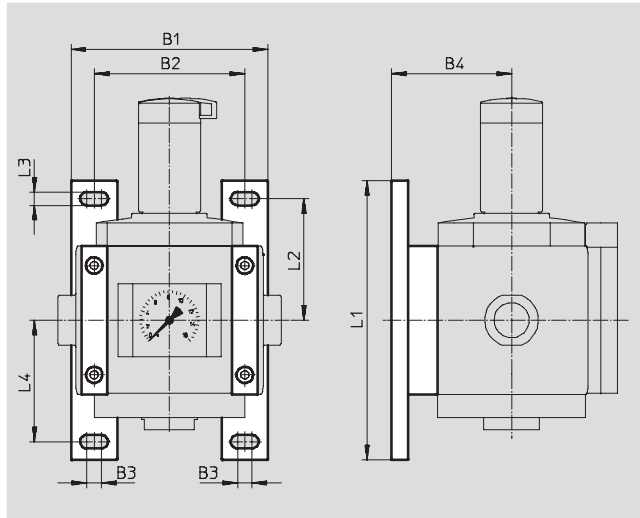


Wall mounting plate MS12-WP

(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 and PTFE



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 MS...-MV

- For connecting modules

Material:
MS4/6: Stainless steel/polyacetate

MS12: Die-cast aluminium,
free of copper and PTFE



MS4/6



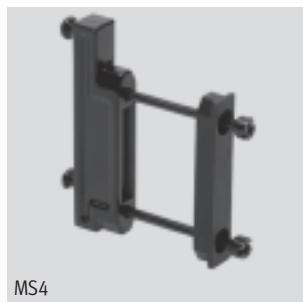
MS12

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

Module connector MS4/6-MVM

- For installation of modules with regulating knob pointing downwards

Material:
Die-cast aluminium



MS4

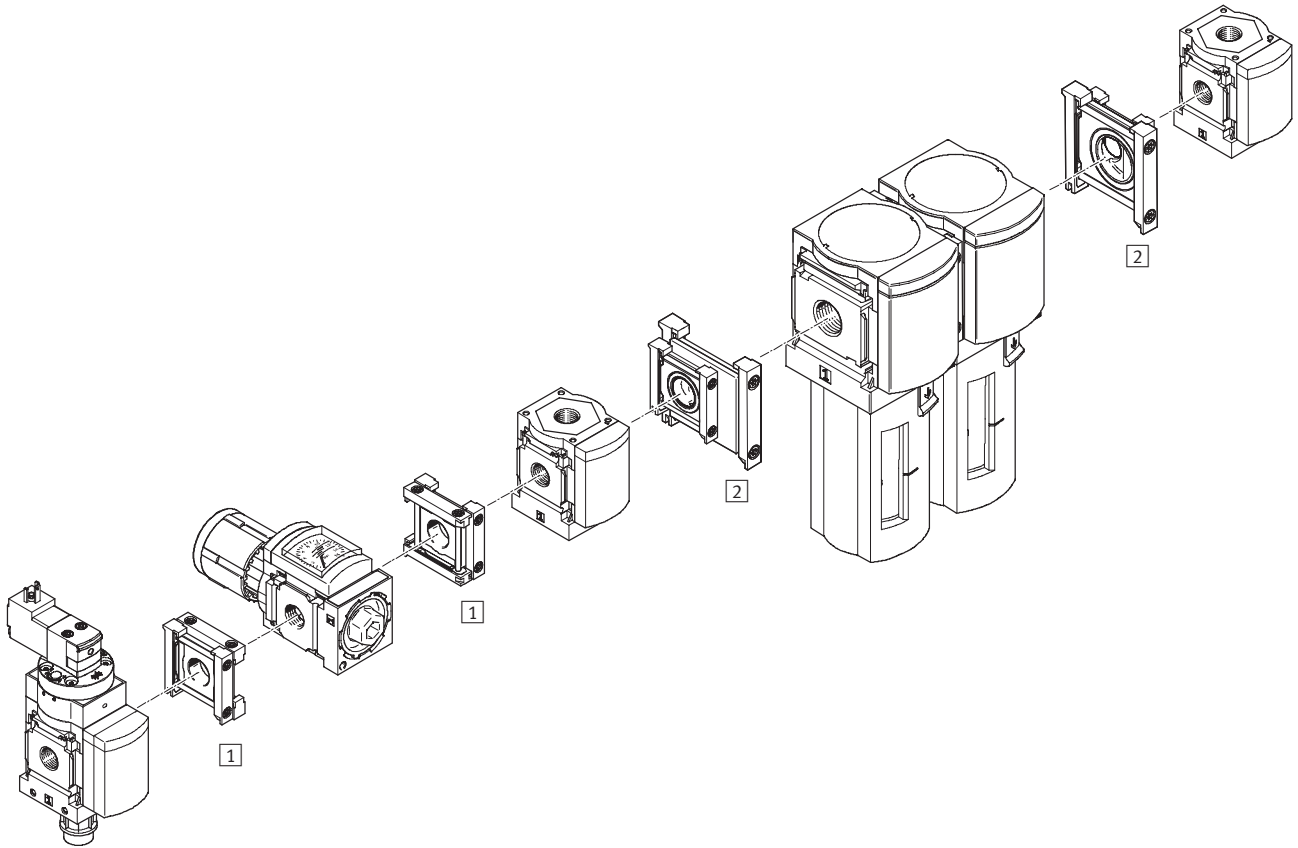


MS6


Ordering data		
Size	Part No.	Type
MS4	532 800	MS4-MVM
MS6	532 801	MS6-MVM

MS series service units

Accessories



Mounting attachments		→ Page
1	Module connector MS4/6-RMV	11-10
2	Module connector MS4-6-AMV	11-11

 Note
 Mounting attachments for wall
 mounting → 11-5

MS series service units

Accessories

Module connector MS4/6-RMV

- For connecting service units at right angles to the axis of connection

Material:

Connecting plate, module connector:

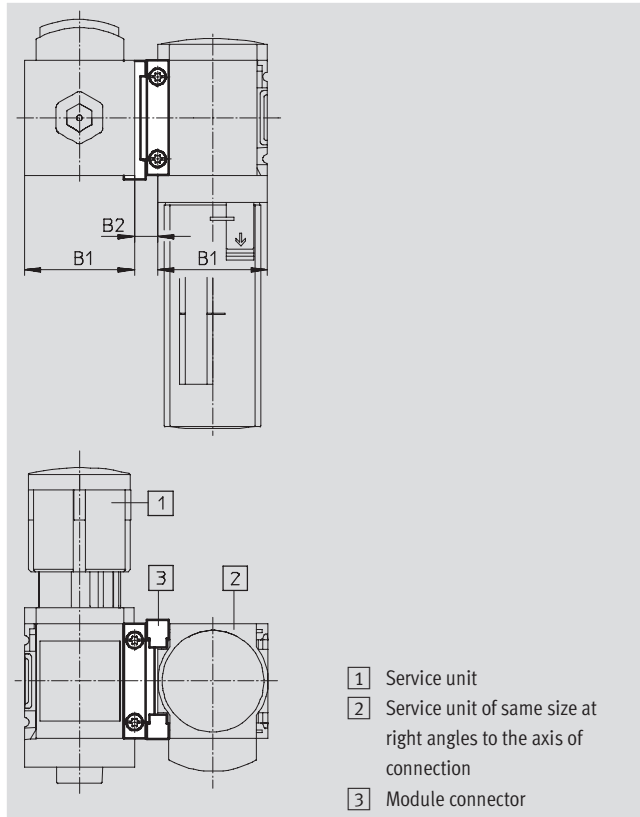
Die-cast aluminium

Sealing ring: Nitrile rubber

Conforms to RoHS

Temperature of medium:

-10 ... +60 °C



- 1 Service unit
- 2 Service unit of same size at right angles to the axis of connection
- 3 Module connector

Dimensions and ordering data

Size	B1	B2	CRC ¹⁾	Weight [g]	Part No.	Type
MS4	40.2	8.5	2	50	543 490	MS4-RMV
MS6	62	11	2	80	543 491	MS6-RMV

1) Corrosion resistance class 2 to Festo standard 940 070

Components subject to moderate corrosion stress. 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.

MS series service units

Accessories

Module connector MS4-6-AMV

- For connecting MS4 and MS6 service units as one unit

Material:

Connecting plate, module connector:

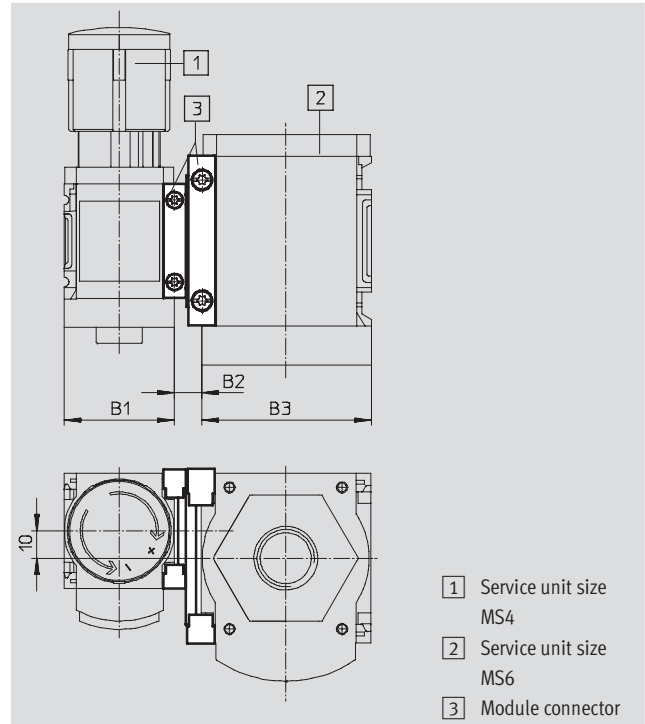
Die-cast aluminium

Sealing ring: Nitrile rubber

Conforms to RoHS

Temperature of medium:

-10 ... +60 °C



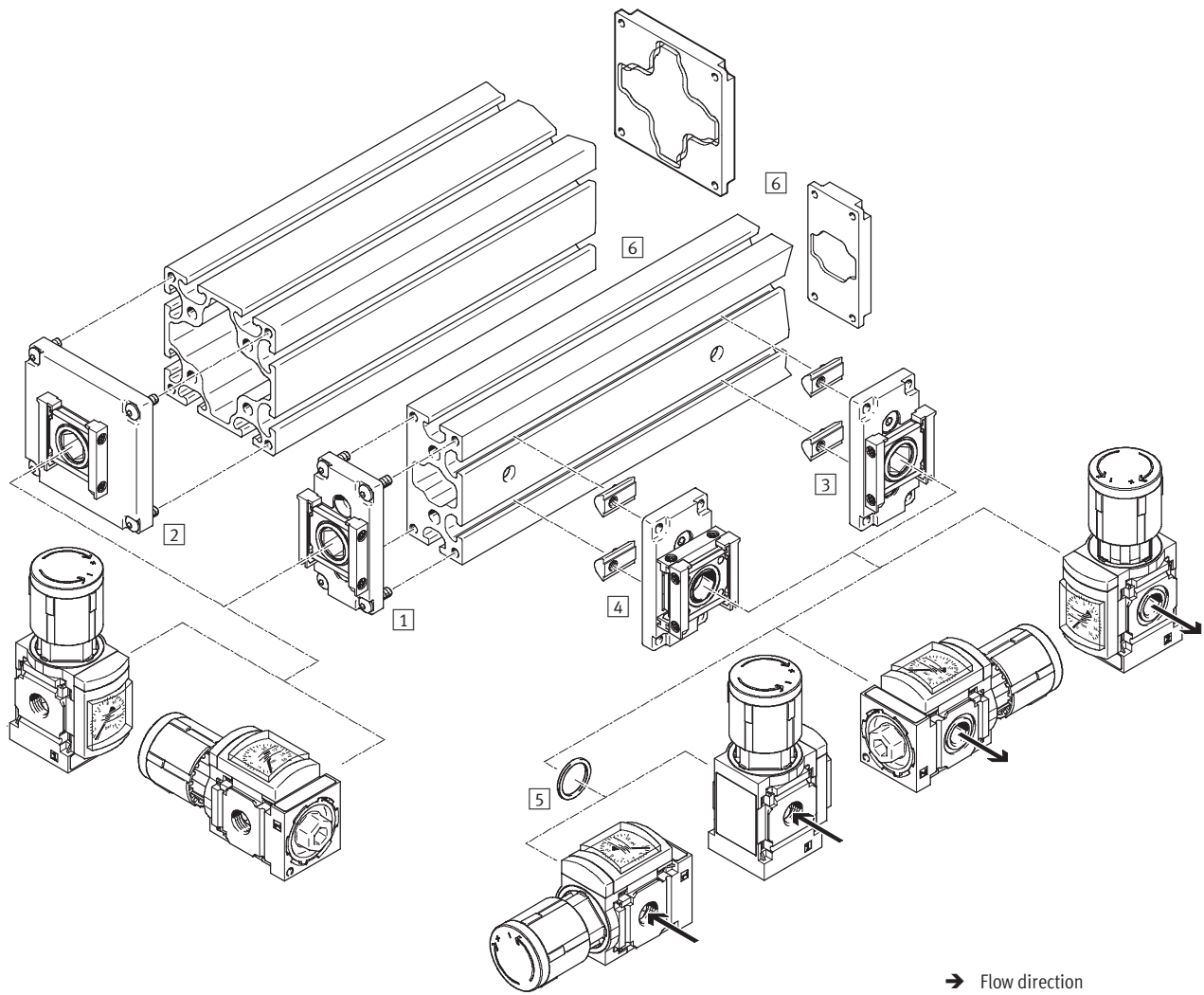
- 1 Service unit size MS4
- 2 Service unit size MS6
- 3 Module connector

Dimensions and ordering data							
Size	B1	B2	B3	CRC ¹⁾	Weight [g]	Part No.	Type
MS4/6	40.2	10	62	2	200	543 489	MS4-6-AMV

1) Corrosion resistance class 2 to Festo standard 940 070
 Components subject to moderate corrosion stress. 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.


MS series service units

Accessories



→ Flow direction

Mounting attachments		→ Page
1	Pressure supply module MS4/6-E-IPM-40-80	11-13
2	Pressure supply module MS4/6-E-IPM-80-80	11-14
3	Branching module MS4/6-A-IPM-80	11-15
4	Branching module MS4/6-A-RMV-IPM-80	11-16
5	Sealing ring MS4/6-NNR	11-17
6	Profiles 40x80/80x80, cover plates, supply plates, drilling jigs	On request

 Note

Further mounting attachments are required for mounting a service unit combination → 11-5

MS series service units

Accessories

Pressure supply module

MS4/6-E-IPM-40-80

- For mounting a service unit on the end of a profile of size 40x80
- Module connector can be repositioned by 90° for horizontal mounting of the service unit

Material:

Connecting plate, hollow bolt, module connector: Die-cast aluminium

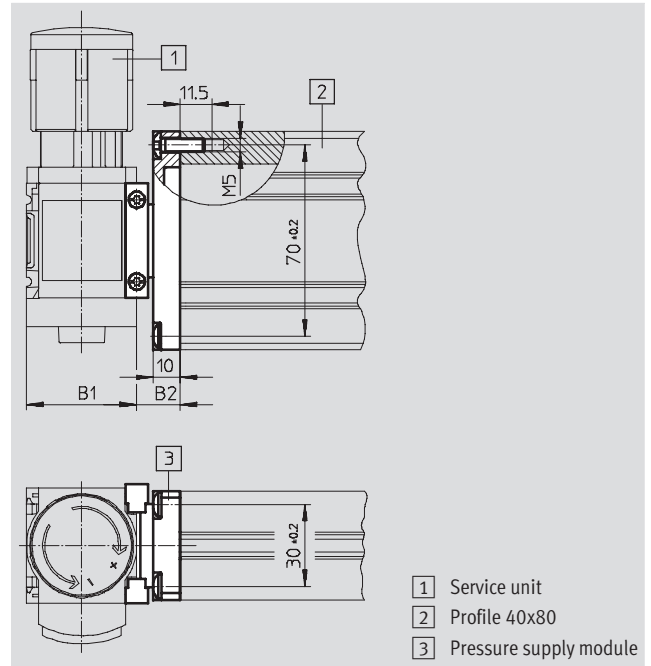
Screws: Steel

Seals: Nitrile rubber

Conforms to RoHS

Temperature of medium:

-10 ... +60 °C



Dimensions and ordering data						
Size	B1	B2	CRC ¹⁾	Weight [g]	Part No.	Type
MS4	40.2	16	2	90	543 494	MS4-E-IPM-40-80
MS6	62	16	2	210	543 496	MS6-E-IPM-40-80

1) Corrosion resistance class 2 to Festo standard 940 070
 Components subject to moderate corrosion stress. 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.

MS series service units

Accessories

Pressure supply module

MS4/6-E-IPM-80-80

- For mounting a service unit on the end of a profile of size 80x80
- Module connector can be repositioned by 90° for horizontal mounting of the service unit

Material:

Connecting plate, hollow bolt, module

connector: Die-cast aluminium

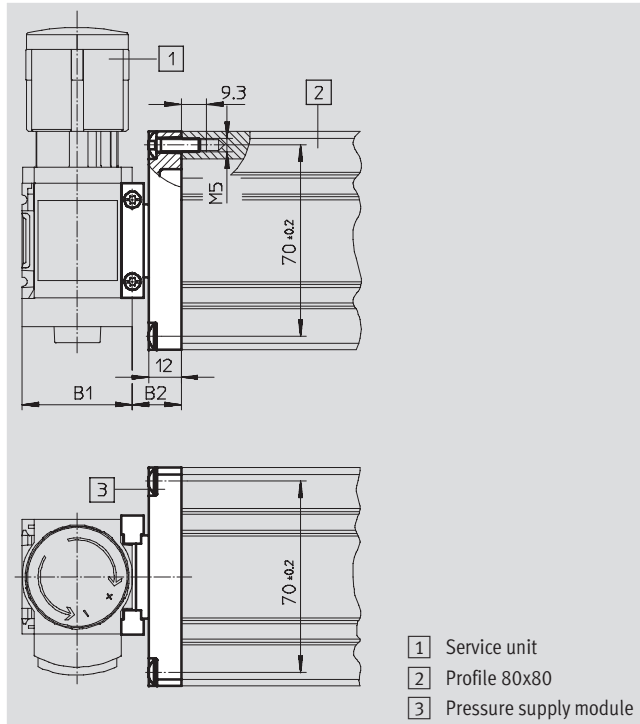
Screws: Steel

Seals: Nitrile rubber

Conforms to RoHS

Temperature of medium:

-10 ... +60 °C



Dimensions and ordering data						
Size	B1	B2	CRC ¹⁾	Weight [g]	Part No.	Type
MS4	40.2	18	2	100	543 495	MS4-E-IPM-80-80
MS6	62	18	2	240	543 497	MS6-E-IPM-80-80

1) Corrosion resistance class 2 to Festo standard 940 070

Components subject to moderate corrosion stress. 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.

MS series service units

Accessories

Branching module MS4/6-A-IPM-80

- For mounting a service unit on the long side of a profile
- Module connector can be repositioned by 90° for horizontal mounting of the service unit

Material:

Connecting plate, hollow bolt, module

connector: Die-cast aluminium

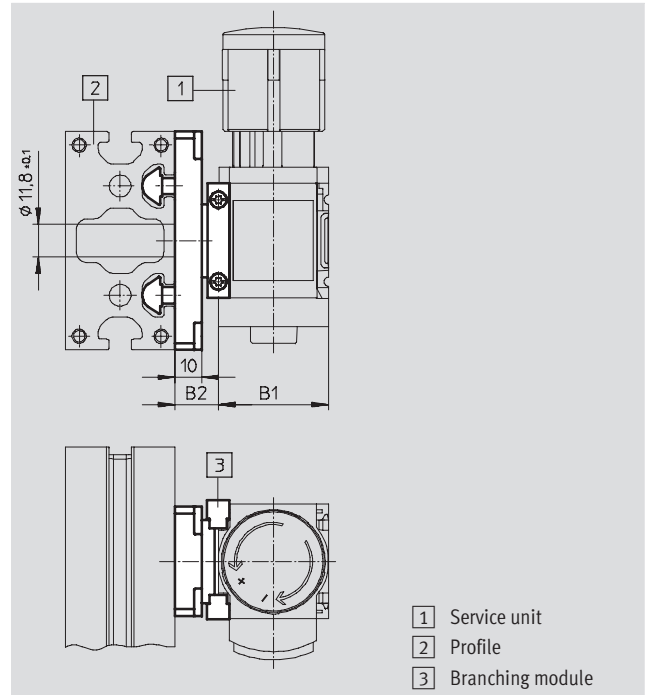
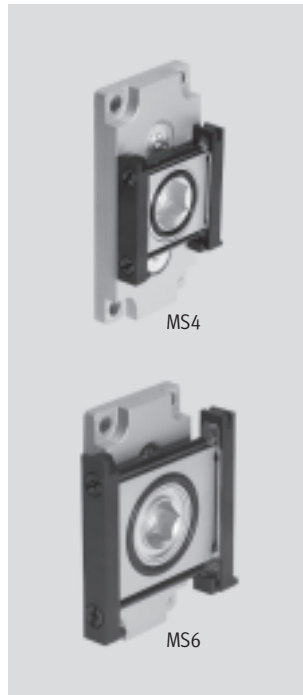
Screws: Steel

Seals: Nitrile rubber

Conforms to RoHS

Temperature of medium:

-10 ... +60 °C



- 1 Service unit
- 2 Profile
- 3 Branching module

Dimensions and ordering data						
Size	B1	B2	CRC ¹⁾	Weight [g]	Part No.	Type
MS4	40.2	16	2	90	543 498	MS4-A-IPM-80
MS6	62	16	2	200	543 499	MS6-A-IPM-80

1) Corrosion resistance class 2 to Festo standard 940 070

Components subject to moderate corrosion stress. 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.

MS series service units

Accessories

Branching module

MS4/6-A-RMV-IPM-80

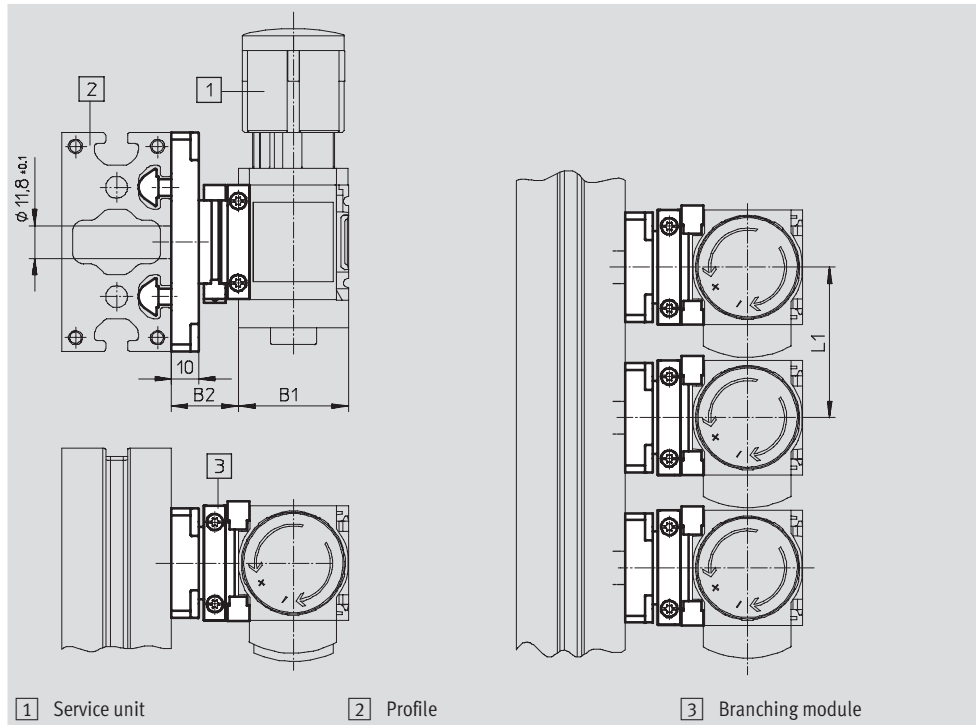
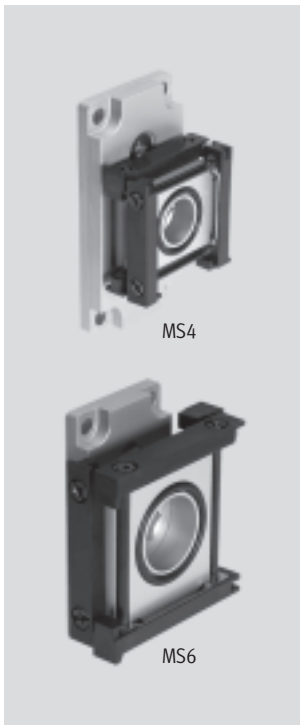
- For mounting a service unit on the long side of a profile
- Suitable for manifold mounting (the fittings on the module connector can be accessed from above for fast replacement of an individual component)
- Module connector can be repositioned by 90° for horizontal mounting of the service unit

Material:

Connecting plate, hollow bolt,
module connector: Die-cast
aluminium
Screws: Steel
Seals: Nitrile rubber
Conforms to RoHS

Temperature of medium:

-10 ... +60 °C



Dimensions and ordering data							
Size	B1	B2	L1	CRC ¹⁾	Weight [g]	Part No.	Type
MS4	40.2	24.5	55	2	150	543 500	MS4-A-RMV-IPM-80
MS6	62	27	77	2	220	543 501	MS6-A-RMV-IPM-80

1) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. 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.

MS series service units

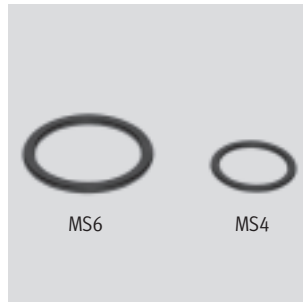
Accessories

Sealing ring MS4/6-NNR

- For sealing a branching module
MS-A-IPM when used as a pressure supply module

Material:
Nitrile rubber
Conforms to RoHS

Temperature of medium:
-10 ... +60 °C




Dimensions and ordering data				
Size	CRC ¹⁾	Weight [g]	Part No.	Type
MS4	2	1	543 492	MS4-NNR
MS6	2	1	543 493	MS6-NNR


1) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. 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.

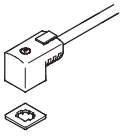
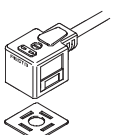
MS series service units


Accessories


FESTO

Ordering data – Angled socket PEV						Technical data → www.festo.com	
	Description	Operating voltage range	Electrical connection	Switching status display	Part No.	Type	
	for PEV-1/4-...-OD	15 ... 30 V DC	4-pin	Yellow LED	164 274	PEV-1/4-WD-LED-24	
		≤ 230 V AC ≤ 180 V DC	4-pin	Yellow LED	164 275	PEV-1/4-WD-LED-230	

Ordering data – Plug socket MSSD						Technical data → www.festo.com	
	Description	Operating voltage range	Electrical connection	Type of mounting cable connection	Part No.	Type	
	for PEV-1/4-...-OD	≤ 250 V AC/DC	3-pin	Clamping screws	171 157	MSSD-C-4P	
	for MS4/6-EE/DE		3-pin	Clamping screws	151 687	MSSD-EB	
	for MS12-EE/DE	≤ 250 V AC/DC	4-pin	Insulation displacement technology	192 745	MSSD-EB-S-M14	
			3-pin	Clamping screws	34 583	MSSD-C	
			4-pin	Insulation displacement technology	192 748	MSSD-C-S-M16	

Ordering data – Plug socket with cable KMEB/KMC							Technical data → www.festo.com	
	Description	Operating voltage range	Electrical connection	Switching status display	Cable length [m]	Part No.	Type	
	for MS4/6-EE/DE	24 V DC	2-pin	LED	2.5	547 268	KMEB-3-24-2,5-LED	
				–	5	547 269	KMEB-3-24-5-LED	
			–	2.5	547 270	KMEB-3-24-2,5		
				5	547 271	KMEB-3-24-5		
		3-pin	LED	2.5	151 688	KMEB-1-24-2,5-LED		
				5	151 689	KMEB-1-24-5-LED		
			–	10	193 457	KMEB-1-24-10-LED		
				230 V AC	3-pin	–	2.5	151 690
5	151 691	KMEB-1-230AC-5						
	for MS12-EE/DE	24 V DC	3-pin	LED	2.5	30 931	KMC-1-24DC-2,5-LED	
					5	30 933	KMC-1-24DC-5-LED	
					10	193 459	KMC-1-24-10-LED	
		230 V AC	3-pin	–	2.5	30 932	KMC-1-230AC-2,5	
					5	30 934	KMC-1-230AC-5	

Ordering data – Illuminating seal MEB-LD/MC-LD					Technical data → www.festo.com	
	Description	Operating voltage range		Part No.	Type	
	for plug socket with cable KMEB and plug socket MSSD-EB	12 ... 24 V DC		151 717	MEB-LD-12-24DC	
		230 V DC/AC ±10%		151 718	MEB-LD-230AC	
	for plug socket with cable KMC and plug socket MSSD-C	12 ... 24 V DC		19 145	MC-LD-12-24DC	
		230 V DC/AC ±10%		19 146	MC-LD-230AC	



Ordering data – Locking clip CPV18-HV					Technical data → www.festo.com	
	Description			Part No.	Type	PU ¹⁾
	for MS4/6-EE/DE-...-V24	Cover for manual override, the clip prevents actuation		530 056	CPV18-HV	10



1) Packaging unit quantity


MS series service units

Accessories



Ordering data – Plug socket with cable SIM-M8			Technical data → www.festo.com	
	Electrical connection	Cable length [m]	Part No.	Type
	M8x1, 3-pin	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
	M8x1, 4-pin	2.5	158 960	SIM-M8-4GD-2,5-PU
		5	158 961	SIM-M8-4GD-5-PU
	M8x1, 3-pin	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
	M8x1, 4-pin	2.5	158 962	SIM-M8-4WD-2,5-PU
		5	158 963	SIM-M8-4WD-5-PU


Ordering data – Plug socket with cable SIM-M12			Technical data → www.festo.com	
	Electrical connection	Cable length [m]	Part No.	Type
	M12x1, 3-pin	2.5	159 428	SIM-M12-3GD-2,5-PU
		5	159 429	SIM-M12-3GD-5-PU
		M12x1, 4-pin	5	164 259
M12x1, 5-pin			2.5	175 715
			5	175 716
	M12x1, 3-pin	2.5	159 430	SIM-M12-3WD-2,5-PU
		5	159 431	SIM-M12-3WD-5-PU
		M12x1, 4-pin	5	164 258


Ordering data – Pressure gauge MA							
	Nominal size	Pneumatic connection	Indicating range		Part No.	Type	
			[bar]	[psi]			
	Pressure gauge MA, DIN EN 837-1					Technical data → www.festo.com	
	40	G $\frac{1}{4}$	0 ... 16	0 ... 232	183 901	MA-40-16-G $\frac{1}{4}$ -EN	
	Pressure gauge MA, DIN EN 837-1, with red-green range					Technical data → www.festo.com	
	40	R $\frac{1}{8}$	0 ... 16	–	525 726	MA-40-16-R $\frac{1}{8}$ -E-RG	
	50	R $\frac{1}{4}$	0 ... 16	–	525 729	MA-50-16-R $\frac{1}{4}$ -E-RG	
Precision pressure gauge MAP, DIN EN 837-1					Technical data → www.festo.com		
	40	R $\frac{1}{8}$	0 ... 1	0 ... 15	161 126	MAP-40-1- $\frac{1}{8}$ -EN	
			0 ... 4	0 ... 58	162 842	MAP-40-4- $\frac{1}{8}$ -EN	
			0 ... 6	0 ... 87	161 127	MAP-40-6- $\frac{1}{8}$ -EN	
			0 ... 16	0 ... 232	161 128	MAP-40-16- $\frac{1}{8}$ -EN	


MS series service units

Accessories



Ordering data – Silencer U			Technical data → www.festo.com	
	Description	Pneumatic connection	Part No.	Type
	for MS4-EM1/EE	G $\frac{1}{4}$	6 842	U-$\frac{1}{4}$-B
	for MS6-EM1/EE	G $\frac{1}{2}$	6 844	U-$\frac{1}{2}$-B
	for MS12-EM/EE	G1	151 990	U-1-B

Ordering data – Double nipple ESK					
	Description	Pneumatic connection		Part No.	Type
	Adjustable for angular compensation • For retro-fitting pressure switch PEV or pressure sensor SDE1 to branching module MS-FRM	R $\frac{1}{8}$	R $\frac{1}{4}$	534 151	ESK-$\frac{1}{8}$-$\frac{1}{4}$
		R $\frac{1}{4}$	R $\frac{1}{4}$	151 521	ESK-$\frac{1}{4}$-$\frac{1}{4}$
			R $\frac{1}{2}$	534 153	ESK-$\frac{1}{4}$-$\frac{1}{2}$

Ordering data – Padlock LRVS-D				
	Description	Weight [g]	Part No.	Type
	for filter or pressure regulators	120	193 786	LRVS-D

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