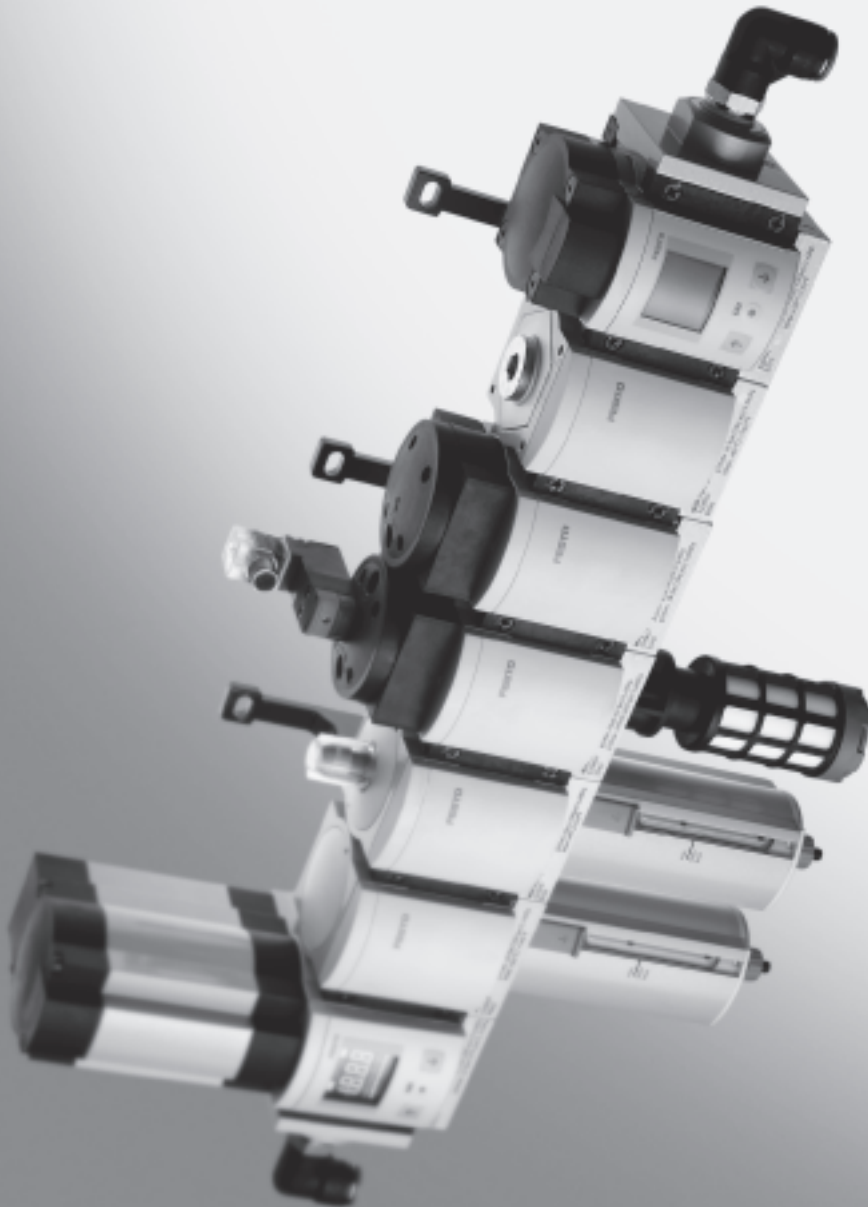


Wide range of configuration options

→ [www.festo.com/en/engineering](http://www.festo.com/en/engineering)



- Easy to assemble thanks to a modular structure
- Three sizes:
  - MS4 – grid dimension 40 mm
  - MS6 – grid dimension 62 mm
  - MS12 – grid dimension 124 mm
- 8 connection sizes: G<sup>1</sup>/<sub>8</sub> to G2
- Modern design
- Compact with high flow rates: up to 22,000 l/min with size MS12
- Integrated safety functions
- Broad range of functions: Individual components, preassembled combinations ex-stock, application-specific combinations or complete turnkey solutions

Specified types in accordance with ATEX directive for potentially explosive atmospheres

→ [www.festo.com/en/ex](http://www.festo.com/en/ex)

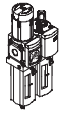
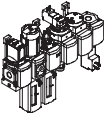








# MS series service units

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
<b>Service units</b>													
<b>MSB-FRC</b> 	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	-											
<b>Service unit combinations (further variants can be ordered using the configurator → <a href="http://www.festo.com/en/engineering">www.festo.com/en/engineering</a>)</b>													
<b>MSB</b> 	4	G1/4	G1/8, G1/4, G3/8	-	-	-	■	■	-	-	-	■	■
	6	G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	■	■	-	-	-	■	■
	12	-											
<b>Individual devices</b>													
Filter regulators <b>MS-LFR</b> 	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 <b>MS-LF</b> 	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 <b>MS-LFM</b> 	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	-	-	-	-	-	-	■	■	-	-
Active carbon filter <b>MS-LFX</b> 	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 <b>MS-LR</b> 	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 <b>MS-LRB</b> 	4	G1/4	G1/8, G1/4, G3/8	-	-	■	■	■	-	-	-	-	-
	6	G1/2	G1/4, G3/8, G1/2, G3/4	-	-	■	■	■	■	-	-	-	-
	12	-											
Precision pressure regulators <b>MS-LRP</b> 	4	-											
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	■	■	■	-	■	-	-	-	-	-
	12	-											
Precision pressure regulators <b>MS-LRPB</b> 	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 drain				Pressure display				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 plate for EN pressure gauge G 1/8	Adapter plate 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	
<b>Service units</b>																	
MSB-FRC	4	■	-	■	-	■	-	-	■	-	-	-	■	-	-	■	2-2
	6	■	■	■	-	■	-	-	■	-	-	-	■	-	-	■	
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Service unit combinations</b>																	
MSB	4	■	■	■	-	■	-	-	■	-	-	-	■	-	-	■	2-2
	6	■	■	■	-	■	-	-	■	-	-	-	■	-	-	■	
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Individual devices</b>																	
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	■	■	■	■	■	■	-	-	-	-	-	-	-	-	■	4-32, 4-39
	12	-	■	■	-	■	■	-	-	-	-	-	-	-	-	■	
Active carbon filter MS-LFX	4	■	■	-	-	-	-	-	-	-	-	-	-	-	-	■	4-2, 4-24
	6	■	■	-	-	-	-	-	-	-	-	-	-	-	-	■	
	12	-	■	-	-	-	-	-	-	-	-	-	-	-	-	■	4-32, 4-46
Pressure regulators MS-LR	4	-	-	-	-	-	-	■	■	■	■	■	■	■	-	■	5-2
	6	-	-	-	-	-	-	■	■	-	■	■	■	■	-	■	
	12	-	-	-	-	-	-	■	■	-	■	-	■	■	-	■	5-66
Pressure regulators MS-LRB	4	-	-	-	-	-	-	■	■	■	■	■	■	■	-	■	5-14
	6	-	-	-	-	-	-	■	■	-	■	■	■	■	-	■	
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Precision pressure regulators MS-LRP	4	-	-	-	-	-	-	■	-	■	■	■	■	■	-	■	5-26
	6	-	-	-	-	-	-	■	-	■	■	■	■	■	-	■	
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Precision pressure regulators MS-LRPB	4	-	-	-	-	-	-	■	-	■	■	■	■	■	-	■	5-40
	6	-	-	-	-	-	-	■	-	■	■	■	■	■	-	■	
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

# MS series service units

Product range overview



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	
<b>Individual devices</b>												
Electrical pressure regulators <b>MS-LRE</b>		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	–									
Lubricator <b>MS-LOE</b>		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	–	–	–	–	–	–	–	–
Manual on-off valves <b>MS-EM(1)</b>		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	–	–	–	–	–	–	–	–
Electrical on-off valves <b>MS-EE</b>		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	–	–	–	–	■	■	■	■
Pneumatic soft-start valves <b>MS-DL</b>		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	–	–	–	–	–	–	–	–
Electrical soft-start valves <b>MS-DE</b>		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 and exhaust valves <b>MS-SV</b>		4	–									
		6	G $\frac{1}{2}$	G $\frac{1}{4}$ , G $\frac{3}{8}$ , G $\frac{1}{2}$ , G $\frac{3}{4}$	–	–	–	–	■	–	–	–
		12	–									
Membrane air dryers <b>MS-LDM1</b>		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	–									

# MS series service units

Product range overview



Type	Size	Bowl guard		Pressure display					Options		→Page
		Plastic bowl guard	Metal bowl	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G 1/8	Adapter plate for EN pressure gauge G 1/4	Pressure sensor with display	Silencer	Flow direction from right to left	
<b>Individual devices</b>											
Electrical pressure regulators <b>MS-LRE</b>	4	-									5-54
	6	-	-	■	■	-	■	-	-	■	
	12	-									
Lubricator <b>MS-LOE</b>	4	■	■	-	-	-	-	-	-	■	6-2
	6	■	■	-	-	-	-	-	-	■	
	12	-	■	-	-	-	-	-	-	■	6-10
Manual on-off valves <b>MS-EM(1)</b>	4	-	-	■	■	■	■	■	■	■	7-2, 7-5
	6	-	-	■	■	-	■	■	■	■	
	12	-	-	■	■	-	■	-	■	■	7-40, 7-43
Electrical on-off valves <b>MS-EE</b>	4	-	-	■	■	■	■	■	■	■	7-2, 7-10
	6	-	-	■	■	-	■	■	■	■	
	12	-	-	■	■	-	■	-	■	■	7-40, 7-47
Pneumatic soft-start valves <b>MS-DL</b>	4	-	-	■	■	■	■	■	-	■	7-2, 7-18
	6	-	-	■	■	-	■	■	-	■	
	12	-	-	■	■	-	■	-	-	■	7-40, 7-51
Electrical soft-start valves <b>MS-DE</b>	4	-	-	■	■	■	■	■	-	■	7-2, 7-23
	6	-	-	■	■	-	■	■	-	■	
	12	-	-	■	■	-	■	-	-	■	7-40, 7-55
Soft start and exhaust valves <b>MS-SV</b>	4	-									7-30
	6	-	-	■	■	-	■	■	■	■	
	12	-									
Membrane air dryers <b>MS-LDM1</b>	4	-	■	-	-	-	-	-	-	■	8-2
	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	0.3	0.5	0.5	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	
<b>Individual devices</b>												
Branching modules <b>MS-FRM</b>		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	-	-	-	-	-	-	-	-
Distributor blocks <b>MS-FRM-FRZ</b>		4	G1/4	-	-	-	-	-	-	-	-	-
		6	G1/2	-	-	-	-	-	-	-	-	-
		12	-	-	-	-	-	-	-	-	-	-
Flow sensors <b>MS-SFE</b>		4	-	-	-	-	-	-	-	-	-	-
		6	G1/2	G1/2	-	-	-	-	-	-	-	-
		12	-	-	-	-	-	-	-	-	-	-

# MS series service units

Product range overview



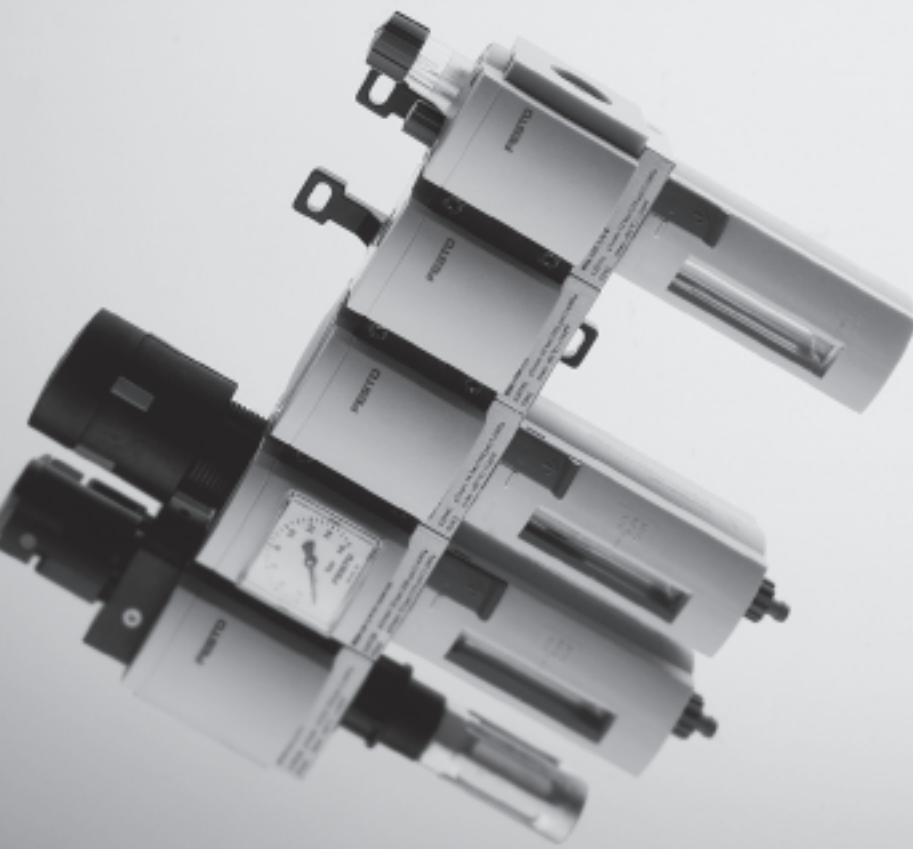
Type	Size	Pressure display					Switch output		Options		→Page
		Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G 1/8	Adapter plate for EN pressure gauge G 1/4	Pressure sensor with display	2x PNP	2x NPN	Silencer	Flow direction from right to left	
<b>Individual devices</b>											
Branching modules <b>MS-FRM</b>	4	■	■	■	■	■	-	-	-	■	9-2
	6	■	■	-	■	■	-	-	-	■	
	12	■	-	-	-	-	-	-	-	-	9-16
Distributor blocks <b>MS-FRM-FRZ</b>	4	-	-	-	-	-	-	-	-	-	9-12
	6	-	-	-	-	-	-	-	-	-	
	12	-	-	-	-	-	-	-	-	-	
Flow sensors <b>MS-SFE</b>	4	-	-	-	-	-	-	-	-	-	10-2
	6	-	-	-	-	-	■	■	-	■ <sup>1)</sup>	
	12	-	-	-	-	-	-	-	-	-	

1) Can only be ordered using the configurator → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)





Wide range of configuration options  
→ [www.festo.com/en/engineering](http://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  
→ [www.festo.com/en/ex](http://www.festo.com/en/ex)

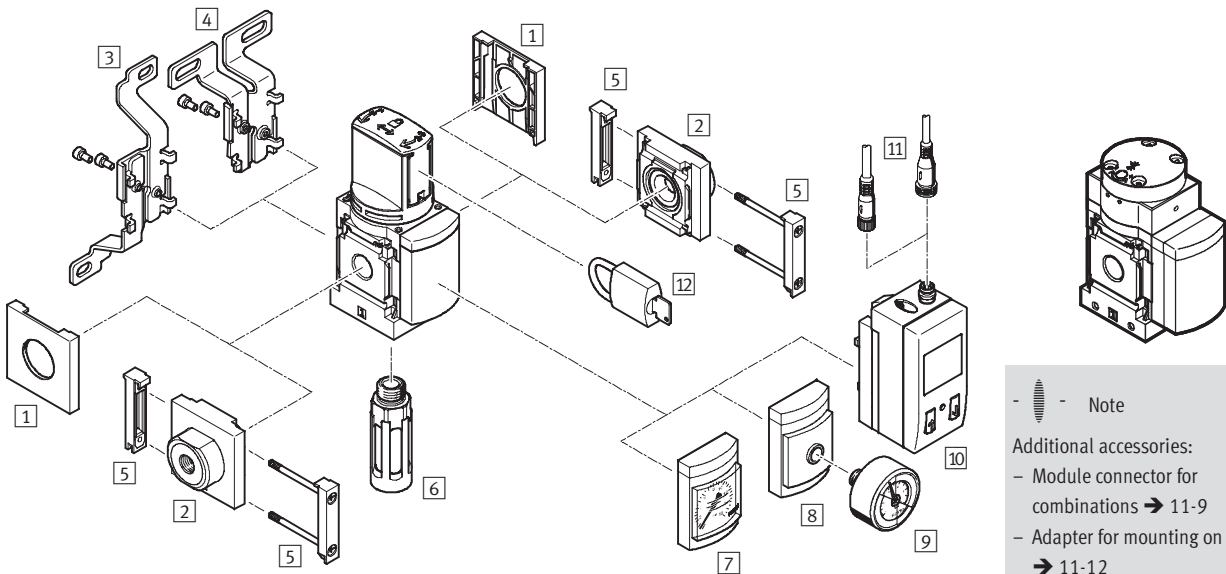
## On-off/soft-start valves MS4/MS6-EM1/EE/DL/DE, MS series

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

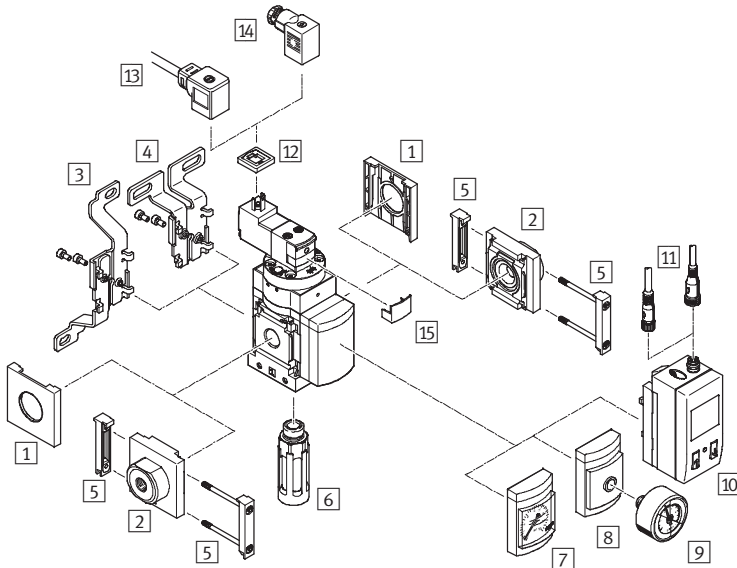
	Individual unit		Combination → 3/2.11-0		→ Page
	without connecting plate	with connecting plate	without connecting plate	with connecting plate	
1 Cover cap MS4/6-END	■	-	■	-	11-3
2 Connecting plate MS4/6-AG...	-	■	-	■	11-2
3 Mounting bracket MS4/6-WB	■	■	-	-	11-4
4 Mounting bracket MS4-WBM	■	■	-	-	11-4
5 Module connector MS4/6-MV	-	■	■	■	11-8
6 Silencer U	■ with EM1	■ with EM1	■ with EM1	■ with EM1	11-22
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	■	■	■	■	11-21
10 Pressure sensor SDE1-...-MS AD1 ... AD4	■	■	■	■	EM1 7-9 DL 7-22
11 Plug socket with cable SIM-M8-3.../SIM-M12-4...	■	■	■	■	11-21
12 Padlock LRVS-D	■	■	■	■	11-22
- 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	11-22
7	Pressure gauge MS AG	■	■	■	■	EE 7-16 DE 7-28
8	Adapter for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	EE 7-16 DE 7-28
9	Pressure gauge MA	■	■	■	■	11-21
10	Pressure sensor SDE1-...-MS AD1 ... AD4	■	■	■	■	EE 7-16 DE 7-28
11	Plug socket with cable SIM-M8-3.../SIM-M12-4...	■	■	■	■	11-21
12	Illuminating seal MEB-LD	■	■	■	■	11-21
13	Plug socket with cable KMEB	■	■	■	■	11-20
14	Plug socket MSSD-EB	■	■	■	■	11-20
15	Locking clip CPV18-HV	■	■	■	■	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

**FESTO**

Type codes

MS		6		EE		1/2		V110			
<b>Series</b>											
MS		Standard service unit									
<b>Size</b>											
4		Grid dimension 40 mm									
6		Grid dimension 62 mm									
<b>Service function</b>											
EM1		On-off valve, manually operated									
EE		On-off valve, solenoid actuated									
DL		Soft-start valve, pneumatically actuated									
DE		Soft-start valve, solenoid actuated									
<b>Connection size</b>											
1/8		Thread G1/8									
1/4		Thread G1/4									
3/8		Thread G3/8									
1/2		Thread G1/2									
<b>Supply voltage (for EE and DE only)</b>											
10V24		Supply voltage 24 V DC									
V110		Supply voltage 110 V AC									
V230		Supply voltage 230 V AC									
<b>Silencer (for EM1 and EE only)</b>											
		Without silencer									
S		Silencer									

### Further variants can be ordered using the modular system

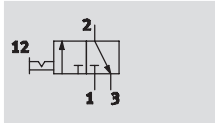
On-off valves EM1	→ 7-9
On-off valves EE	→ 7-16
Soft-start valves DL	→ 7-22
Soft-start valves DE	→ 7-28

- 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/(s*bar)]	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 <sup>1)</sup>	2			

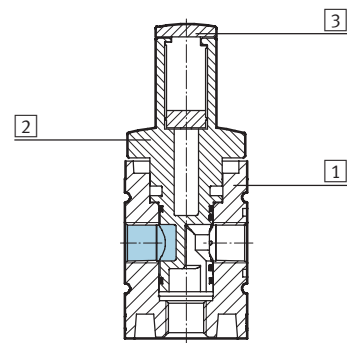
1) Corrosion resistance class 2 according to Festo standard 940 070

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

Weights [g]		
Size	MS4	MS6
On-off valve	190	580
On-off valve with silencer S	210	655

### Materials

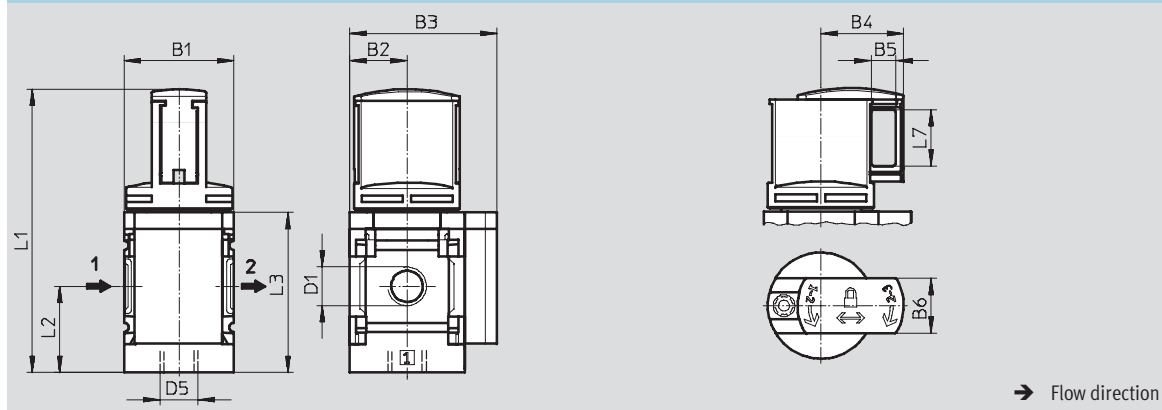
Sectional view



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](http://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

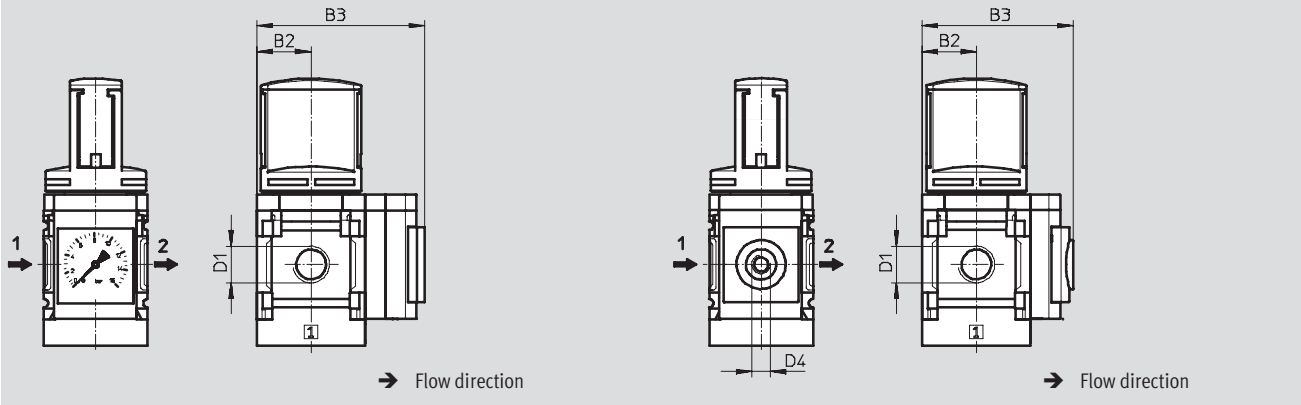
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### Dimensions – Pressure gauge alternatives

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

Integrated MS pressure gauge with standard scale AG or red-green scale RG, display unit [bar]

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



Type	B2	B3	D1	D4
MS4-EM1-1/8-...-AG	21	65	G1/8	-
MS4-EM1-1/4-...-AG			G1/4	
MS4-EM1-1/8-...-RG	21	66.5	G1/8	-
MS4-EM1-1/4-...-RG			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	
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-...-RG	31	86.5	G1/4	-
MS6-EM1-3/8-...-RG			G3/8	
MS6-EM1-1/2-...-RG			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	

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

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

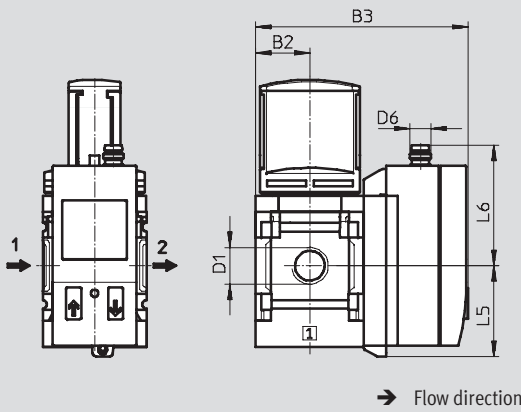
Technical data

### Dimensions – Pressure gauge alternatives

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

Pressure sensor with display AD1 ... AD4

Technical data SDE1 → [www.festo.com](http://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

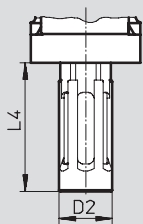
AD4 variants:  
SDE1-D10-G2-MS-L-NI-M12 with  
4-pin plug M12x1, 1 switching out-  
put NPN and 4 ... 20 mA analogue

Type	B2	B3	D1	D6	L5	L6
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-...-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.

### Dimensions – Silencer

Download CAD data → [www.festo.com/en/engineering](http://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	G1/8	541 262	MS4-EM1-1/8 <sup>1)</sup>	541 263	MS4-EM1-1/8-S <sup>1)</sup>
	G1/4	541 258	MS4-EM1-1/4 <sup>1)</sup>	541 259	MS4-EM1-1/4-S <sup>1)</sup>
MS6	G1/4	541 271	MS6-EM1-1/4 <sup>1)</sup>	541 272	MS6-EM1-1/4-S <sup>1)</sup>
	G3/8	541 275	MS6-EM1-3/8 <sup>1)</sup>	541 276	MS6-EM1-3/8-S <sup>1)</sup>
	G1/2	541 267	MS6-EM1-1/2 <sup>1)</sup>	541 268	MS6-EM1-1/2-S <sup>1)</sup>

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 sizes	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, RG, AD1, AD2, AD3, AD4	PSI MPA	WP WPM WB WBM	Z
<b>Order example</b> 527 705	<b>MS</b>	<b>4</b>	<b>- EM1</b>	<b>- 1/4</b>	<b>- S</b>	<b>- AG</b>	<b>- PSI</b>	<b>- WB</b>	<b>- Z</b>

Ordering table							
Grid dimension	[mm]	40	62	Condi- tions	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 sizes	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		
		Integrated pressure gauge, red-green scale			-RG		
		Pressure sensor with display, plug M8, 1 switch output PNP, 3-pin			[1]	-AD1	
		Pressure sensor with display, plug M8, 1 switch output NPN, 3-pin			[1]	-AD2	
		Pressure sensor with display, plug M12, 1 switch output PNP, 4-pin, analogue output 4 ... 20 mA			[1]	-AD3	
		Pressure sensor with display, plug M12, 1 switch 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 (for retro-fitting M-series)		[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 alternatives AG or RG

Transfer order code

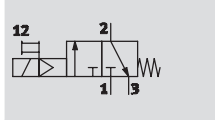
	MS		-	EM1	-		-		-		-		-		-	
--	----	--	---	-----	---	--	---	--	---	--	---	--	---	--	---	--




## 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/(s*bar)]	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

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 $\mu$ 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 <sup>1)</sup>	2					

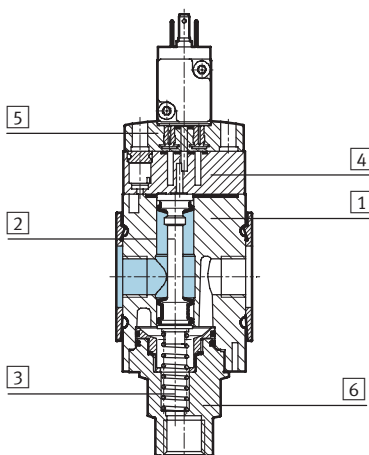
1) Corrosion resistance class 2 according to Festo standard 940 070

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

Weights [g]		
Size	MS4	MS6
On-off valve	273	740
On-off valve with silencer S	289	816

### Materials

Sectional view



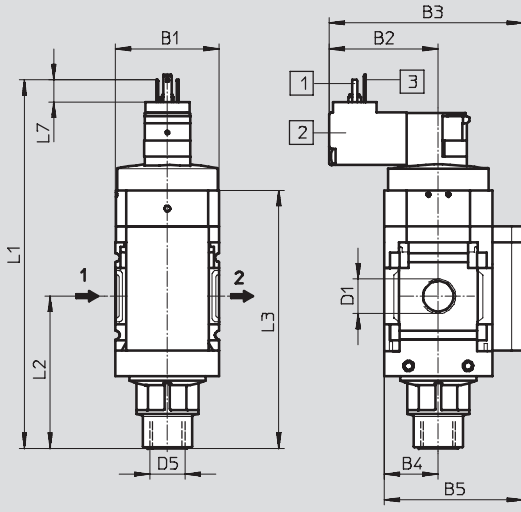
On-off valve	
1	Body Die-cast aluminium
2	Piston spool Nitrile rubber/aluminium
3	Springs High-alloy stainless steel
4	End cap Polyamide
5	Top plate Polyamide
6	Socket end connection Polyamide
-	Seals Nitrile rubber
Note on materials Free of copper and PTFE (not with variants AG, 10V24 or AD...)	

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

Technical data

### Dimensions – Standard

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

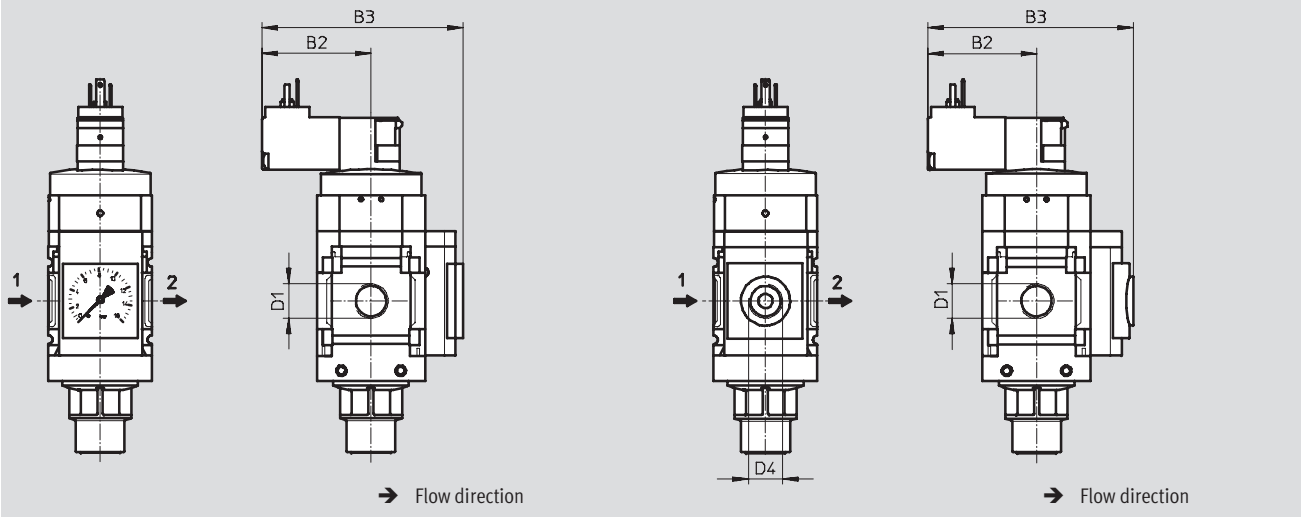
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### Dimensions – Pressure gauge alternatives

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

Integrated MS pressure gauge with standard scale AG or red-green scale RG, 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-...-RG	34.9	42.2	80.4	87.7	G1/8	-
MS4-EE-1/4-...-RG			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-...-RG	44.7	52	100.2	107.5	G1/4	-
MS6-EE-3/8-...-RG					G3/8	
MS6-EE-1/2-...-RG					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

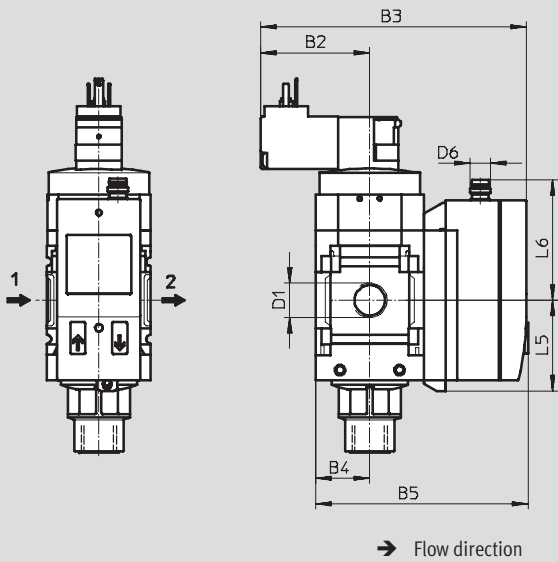
Technical data

### Dimensions – Pressure gauge alternatives

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

Pressure sensor with display AD1 ... AD4

Technical data SDE1 → [www.festo.com](http://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

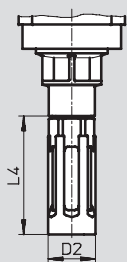
AD4 variants:  
SDE1-D10-G2-MS-L-NI-M12 with  
4-pin plug M12x1, 1 switching out-  
put NPN and 4 ... 20 mA analogue

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](http://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

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 <sup>1)</sup>	538 725	MS4-EE-1/8-V110-S <sup>1)</sup>
	G1/4	529 535	MS4-EE-1/4-V110 <sup>1)</sup>	538 719	MS4-EE-1/4-V110-S <sup>1)</sup>
MS6	G1/4	529 829	MS6-EE-1/4-V110 <sup>1)</sup>	538 737	MS6-EE-1/4-V110-S <sup>1)</sup>
	G3/8	529 835	MS6-EE-3/8-V110 <sup>1)</sup>	538 743	MS6-EE-3/8-V110-S <sup>1)</sup>
	G1/2	529 823	MS6-EE-1/2-V110 <sup>1)</sup>	538 731	MS6-EE-1/2-V110-S <sup>1)</sup>
Supply voltage 230 V AC					
MS4	G1/8	529 543	MS4-EE-1/8-V230 <sup>1)</sup>	538 727	MS4-EE-1/8-V230-S <sup>1)</sup>
	G1/4	529 537	MS4-EE-1/4-V230 <sup>1)</sup>	538 721	MS4-EE-1/4-V230-S <sup>1)</sup>
MS6	G1/4	529 831	MS6-EE-1/4-V230 <sup>1)</sup>	538 739	MS6-EE-1/4-V230-S <sup>1)</sup>
	G3/8	529 837	MS6-EE-3/8-V230 <sup>1)</sup>	538 745	MS6-EE-3/8-V230-S <sup>1)</sup>
	G1/2	529 825	MS6-EE-1/2-V230 <sup>1)</sup>	538 733	MS6-EE-1/2-V230-S <sup>1)</sup>

1) Free of copper and PTFE

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

Ordering data – Modular products

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**M** **Mandatory data** →

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

**Ordering table**

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

**1** **10V24** Max. supply pressure 10 bar

**Transfer order code**

	<b>MS</b>		<b>- EE</b>			
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# On-off valves MS4/MS6-EE, MS series

Ordering data – Modular products

→ **0 Options**

Silencer	Pressure gauge alternatives	Alternative pressure gauge scale	Type of mounting	Alternative flow direction
S	AG, A8, A4, RG, 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	
0	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	
		Integrated pressure gauge, red-green scale			-RG	
		Pressure sensor with display, plug M8, 1 switch output PNP, 3-pin		[2]	-AD1	
		Pressure sensor with display, plug M8, 1 switch output NPN, 3-pin		[2]	-AD2	
		Pressure sensor with display, plug M12, 1 switch output PNP, 4-pin, analogue output 4 ... 20 mA		[2]	-AD3	
		Pressure sensor with display, plug M12, 1 switch output NPN, 4-pin, analogue output 4 ... 20 mA		[2]	-AD4	
Alternative pressure gauge scale	psi		[3]	-PSI		
	MPa		[3]	-MPA		
Type of mounting	Mounting bracket		[4]	-WP		
	Mounting bracket (for retro-fitting M-series)		[4]	-WPM		
	Mounting bracket			-WB		
	Mounting bracket	-		-WBM		
Alternative flow direction	Flow direction from right to left			-Z		

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

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

[3] **PSI, MPA** Only with pressure gauge alternatives AG or RG

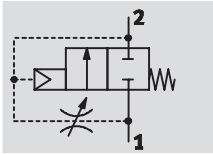
Transfer order code




-  -  -  -  -

## 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/(s*bar)]	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 qnN <sup>1)</sup> [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

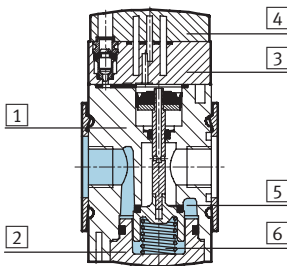
Operating and environmental conditions				
Variant	Standard		Pressure sensor with display AD...	
Size	MS4	MS6	MS4	MS6
Operating pressure [bar]	4 ... 14	4 ... 18	4 ... 10	4 ... 10
Operating medium	Compressed air		Filtered compressed air, lubricated or unlubricated, grade of filtration 40 µm	
Ambient temperature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

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

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

### Materials

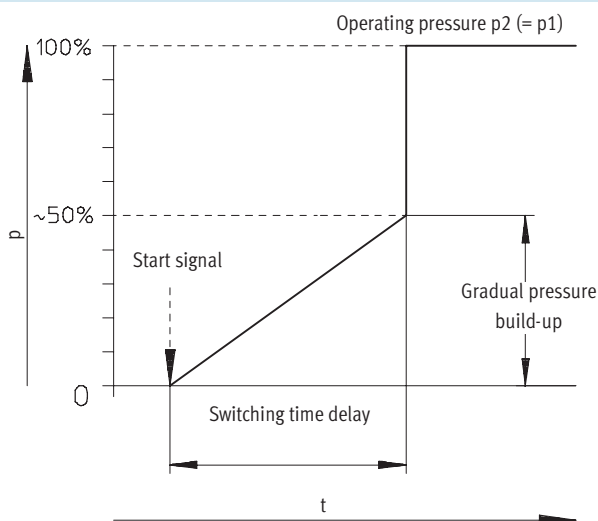
Sectional view



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

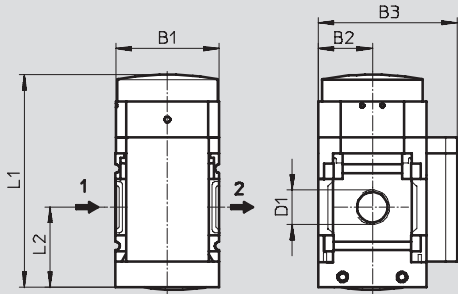


## Soft-start valves MS4/MS6-DL, MS series

Technical data

### Dimensions – Standard

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

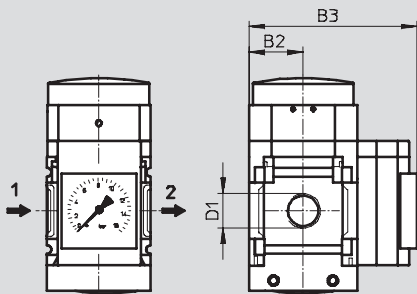
– † – Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

### Dimensions – Pressure gauge alternatives

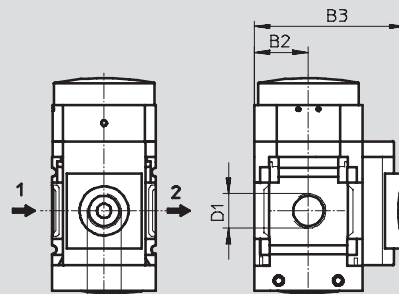
Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Integrated MS pressure gauge with standard scale AG or red-green scale RG, 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-...-RG	21	66.5	G1/8	-
MS4-DL-1/4-...-RG			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-...-RG	31	86.5	G1/4	-
MS6-DL-3/8-...-RG			G3/8	
MS6-DL-1/2-...-RG			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

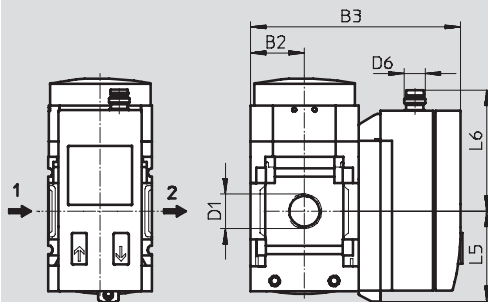
**FESTO**

### Dimensions – Pressure gauge alternatives

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

Pressure sensor with display AD1 ... AD4

Technical data SDE1 → [www.festo.com](http://www.festo.com)



→ Flow direction

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

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

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

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	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	<b>529 533</b>	<b>MS4-DL-1/8<sup>1)</sup></b>
	G1/4	<b>529 531</b>	<b>MS4-DL-1/4<sup>1)</sup></b>
MS6	G1/4	<b>529 819</b>	<b>MS6-DL-1/4<sup>1)</sup></b>
	G3/8	<b>529 821</b>	<b>MS6-DL-3/8<sup>1)</sup></b>
	G1/2	<b>529 817</b>	<b>MS6-DL-1/2<sup>1)</sup></b>

1) Free of copper and PTFE

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

Ordering data – Modular products

**FESTO**

M Mandatory data					O Options			
Module No.	Series	Size	Function	Connection sizes	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, RG, AD1, AD2, AD3, AD4	PSI MPA	WP WPM WB WBM	Z
<b>Order example</b>								
527 711	MS	4	- DL	- AGA	- AG	- PSI	- WB	- Z

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
<b>M</b> Module No.		527 711	527 684			
Series		Standard			MS	MS
Size		4	6		...	
Function		Soft-start valve, pneumatic			-DL	-DL
Connection sizes		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	
<b>O</b> 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	
		Integrated pressure gauge, red-green scale			-RG	
		Pressure sensor with display, plug M8, 1 switch output PNP, 3-pin		1	-AD1	
		Pressure sensor with display, plug M8, 1 switch output NPN, 3-pin		1	-AD2	
		Pressure sensor with display, plug M12, 1 switch output PNP, 4-pin, analogue output 4 ... 20 mA		1	-AD3	
		Pressure sensor with display, plug M12, 1 switch 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 (for retro-fitting M-series)		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 alternatives AG or RG

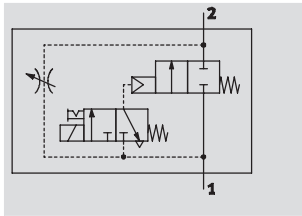
### Transfer order code




	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/(s*bar)]	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

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 <sup>2)</sup>	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 $\mu$ 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 <sup>1)</sup>	2					

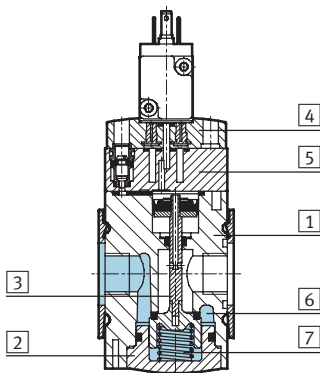
1) Corrosion resistance class 2 according to Festo standard 940 070

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

Weights [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...)	

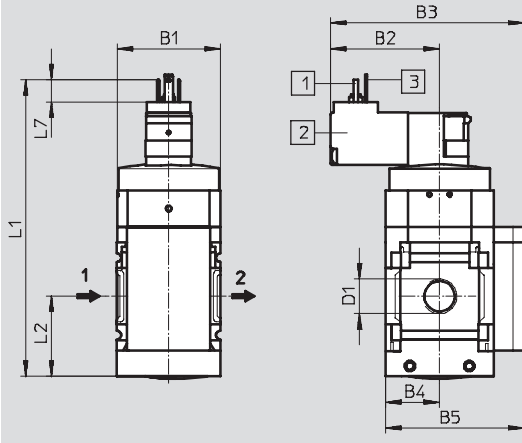


## Soft-start valves MS4/MS6-DE, MS series

Technical data

### Dimensions – Standard

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

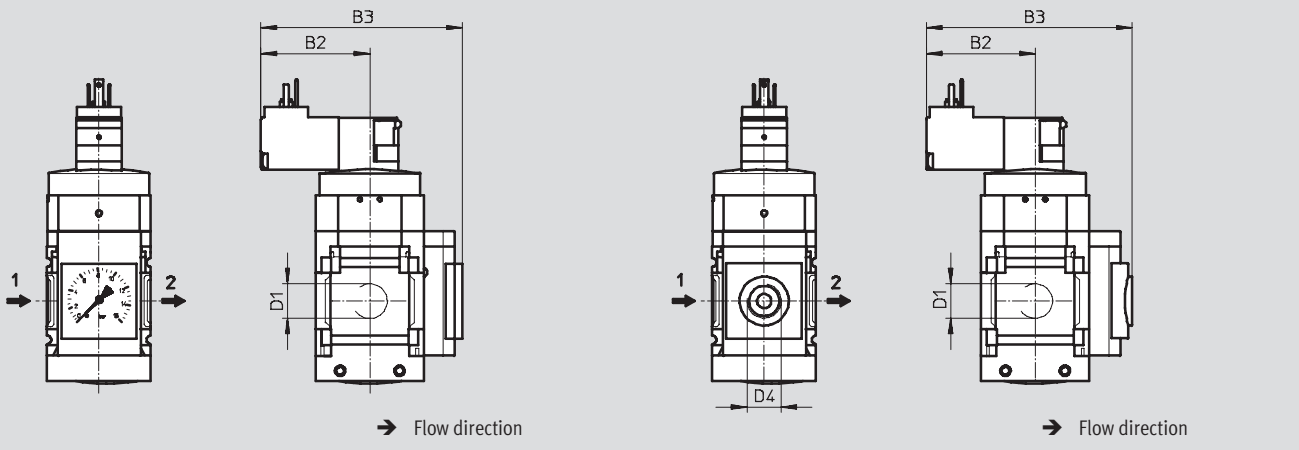
Technical data

### Dimensions – Pressure gauge alternatives

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

Integrated MS pressure gauge with standard scale AG or red-green scale RG, 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-...-RG	34.9	42.2	80.4	87.7	G1/8	-
MS4-DE-1/4-...-RG					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-...-RG	44.7	52	100.2	107.5	G1/4	-
MS6-DE-3/8-...-RG					G3/8	
MS6-DE-1/2-...-RG					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

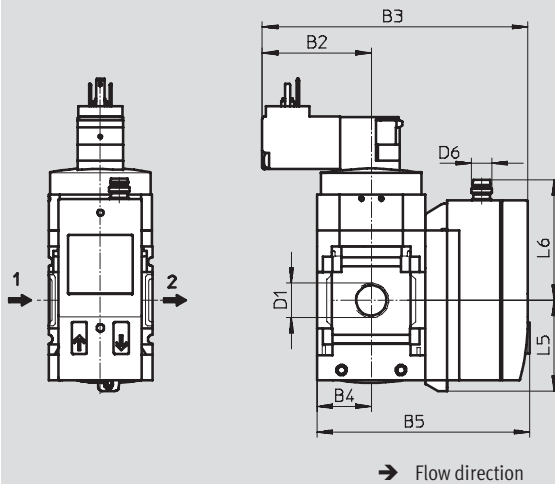
Technical data

### Dimensions – Pressure gauge alternatives

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

Pressure sensor with display AD1 ... AD4

Technical data SDE1 → [www.festo.com](http://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.

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

1) Free of copper and PTFE

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

Ordering data – Modular products

**M** Mandatory data →

Module No.	Series	Size	Function	Connection sizes	Supply voltage
527 713	MS	4	DE	1/8, 1/4, 3/8, 1/2 AGA, AGB, AGC, AGD, AGE	V24 10V24 V110 V230
527 686		6			
<b>Order example</b>					
527 713	MS	4	- DE	- AGA	- V110

**Ordering table**

Grid dimension [mm]	40	62	Condi-tions	Code	Enter code
<b>M</b> Module No.	527 713	527 686			
Series	Standard			MS	MS
Size	4	6		...	
Function	Soft-start valve, electrical			-DE	-DE
Connection sizes	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		<sup>1</sup>	-10V24	
	110 V AC (connection pattern to EN 175301), 18 bar			-V110	
	230 V AC (connection pattern to EN 175301), 18 bar			-V230	

<sup>1</sup> 10V24 Max. supply pressure 10 bar

**Transfer order code**

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

Ordering data – Modular products

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

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
0	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	
		Integrated pressure gauge, red-green scale			-RG	
		Pressure sensor with display, plug M8, 1 switch output PNP, 3-pin		2	-AD1	
		Pressure sensor with display, plug M8, 1 switch output NPN, 3-pin		2	-AD2	
		Pressure sensor with display, plug M12, 1 switch output PNP, 4-pin, analogue output 4 ... 20 mA		2	-AD3	
		Pressure sensor with display, plug M12, 1 switch output NPN, 4-pin, analogue output 4 ... 20 mA		2	-AD4	
		Alternative pressure gauge scale	psi		3	
MPa			3	-MPA		
Type of mounting	Mounting bracket		4	-WP		
	Mounting bracket (for retro-fitting M-series)		4	-WPM		
	Mounting bracket			-WB		
	Mounting bracket	-		-WBM		
Alternative flow direction	Flow direction from right to left				-Z	

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

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

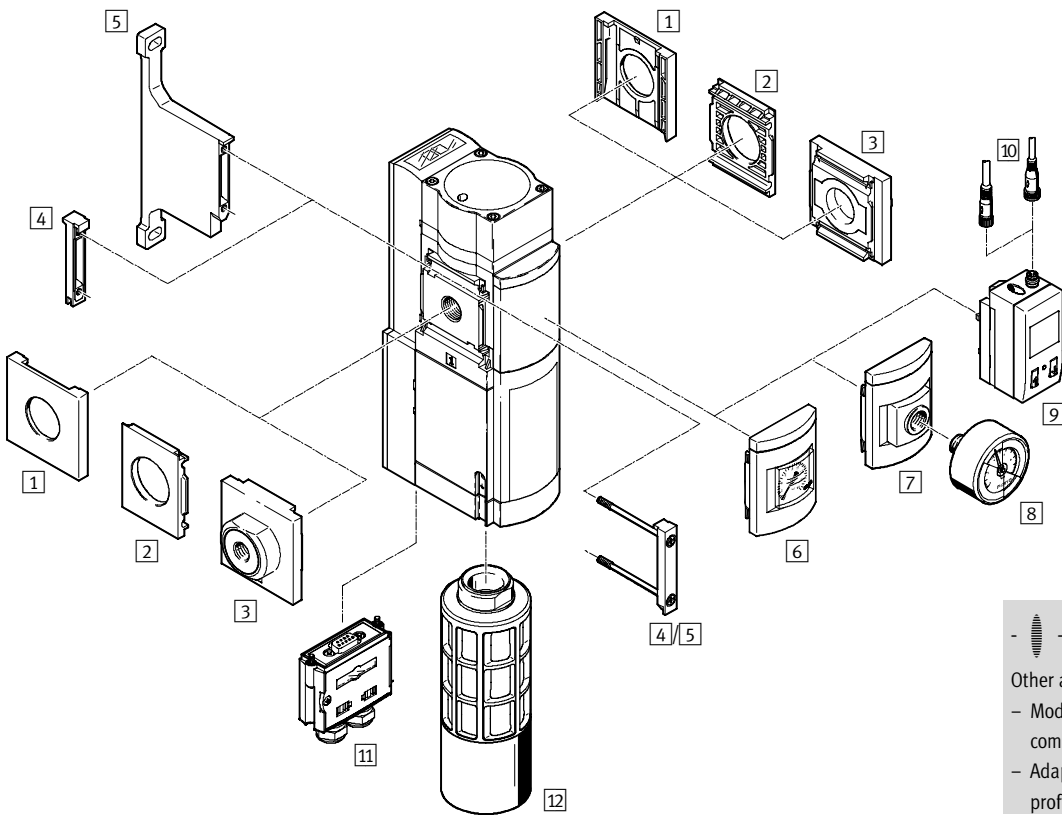
3 PSI, MPA Only with pressure gauge alternatives AG or RG


Transfer order code

-  -  -  -

## Soft start and exhaust valves MS6-SV, MS series

Peripherals overview



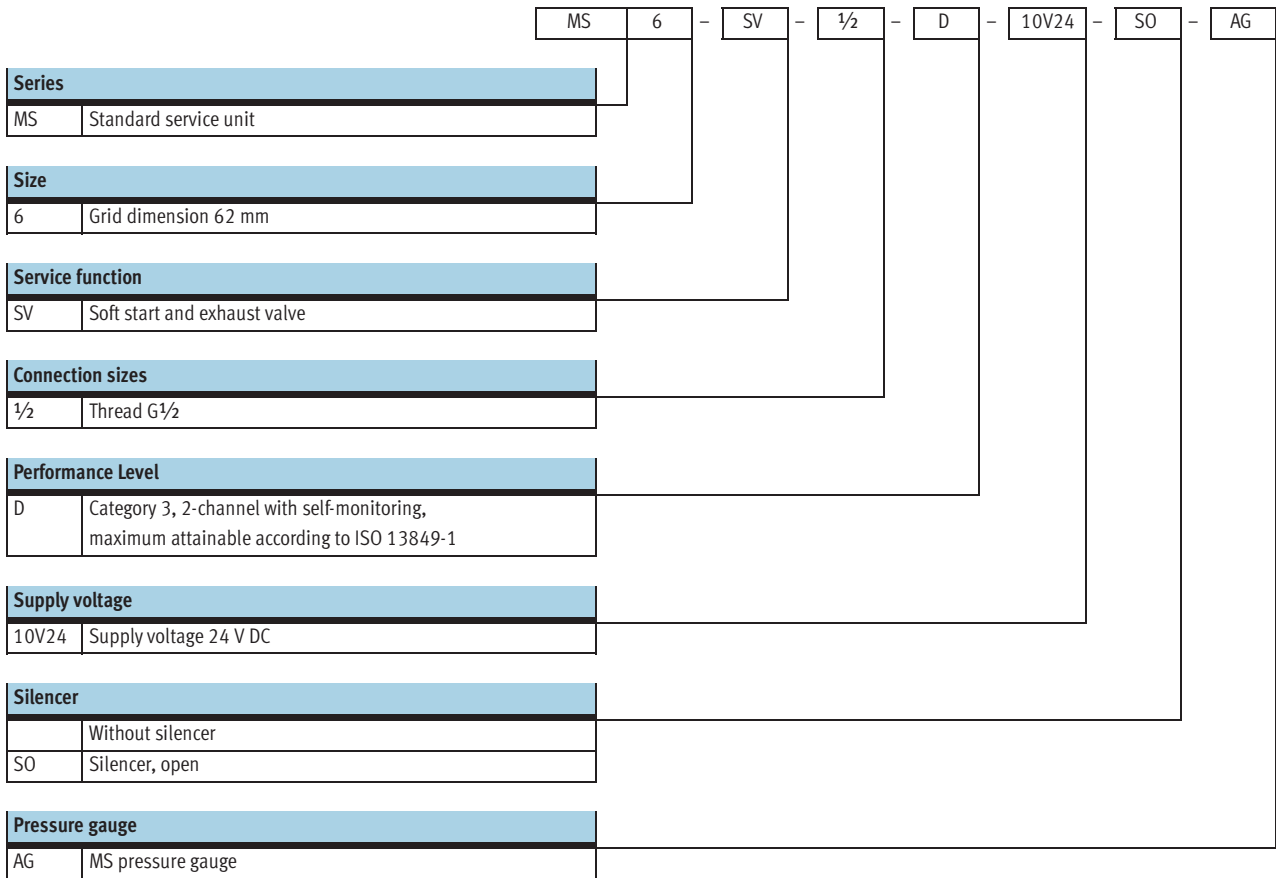
 Note  
 Other accessories:  
 – Module connector for combinations → 11-9  
 – Adapter plate for mounting on profiles → 11-12

Mounting attachments and accessories						
		Individual device		Combination → 1.1-0		→Page
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
1	Cover cap MS6-END	-	-	■	-	11-3
2	Mounting plate MS6-AEND	■ <sup>1)</sup>	-	■ <sup>2)</sup>	-	11-3
3	Connecting plate MS6-AG...	-	■ <sup>1)</sup>	-	■ <sup>2)</sup>	11-2
4	Module connector MS6-MV	-	-	■	■	11-8
5	Mounting bracket MS6-WPB	■	■	■	■	11-6
6	MS pressure gauge AG	■	■	■	■	7-37
7	Adapter plate for EN pressure gauge 1/4 A4	■	■	■	■	7-37
8	Pressure gauge MA	■	■	■	■	11-21
9	Pressure sensor SDE1-...-MS AD1 ... AD4	■	■	■	■	7-37
10	Plug sockets with cable SIM-M8-3.../SIM-M12-4...	■	■	■	■	11-21
11	Multi-pin plug socket NECA	■	■	■	■	11-18
12	Silencer UOS-1	■	■	■	■	11-19

1) Mounting bracket MS6-WPB is required for mounting.  
 2) Module connector MS6-MV or mounting bracket MS6-WPB is required for mounting.

## Soft start and exhaust valves MS6-SV, MS series

Type codes



**Further variants can be ordered using the modular system**

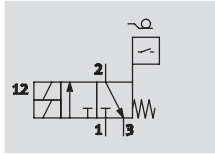
Soft start and exhaust valve SV → 7-37




- Connecting plates
- Pressure gauge/adaptor plate
- Alternative pressure gauge scale
- Multi-pin plug socket
- Type of mounting
- Alternative flow direction

## Soft start and exhaust valves MS6-SV, MS series

Technical data

### Function



-  - Flow rate  
4300 l/min
-  - Temperature range  
-10 ... +50 °C
-  - Operating pressure  
3.5 ... 10 bar





The electropneumatic soft-start and exhaust valve is used to reduce pressure quickly and reliably and to build up pressure gradually in pneumatic systems and following devices in industry. The device is a self-testing, redundant mechatronic system in accordance


with the requirements of DIN EN ISO 13849-1, for which the safety-related pneumatic protection objective and safe venting, even in the case of failures within a valve (e.g. caused by wear, contamination) are guaranteed. With the 2-channel design and its monitoring, the device

fulfils controller category 3 requirements. Thus, with correct installation and consideration of the specific application data, a performance level of max. “d” can be attained. Via the electrical connection (multi-pin plug socket NECA Sub-D, 9-pin), the device receives the secure enable

signals (EN1/EN2) from commercially available electronic or electromechanical protective switchgear, which monitor the protective equipment of the machine (e.g. emergency stop, light curtain, electrical door switch of the protective enclosure etc.).

 - Note  
The device may only be used together with the multi-pin plug socket NECA approved for it. The multi-pin plug socket can be ordered via the modular product system (MP... → 7-37) or as an accessory (NECA → 11-18).

 - Note  
To avoid back pressures, it is recommended that the device be operated together with the silencer UOS-1. The silencer can be ordered via the modular product system (SO → 7-37) or as an accessory (UOS-1 → 11-19).

 - Note  
Only devices that do not impair the pneumatic protective measure – safe venting – may be placed after the MS6-SV.

- Conforms to DIN EN ISO 13849-1
- Max. achievable performance level “d”
- A switching time delay adjusted via a flow control valve for gradual pressure build-up
- Optional pressure sensor with display

General technical data	
Pneumatic connection 1, 2	G1/2
Pneumatic connection 3	G1
Design	Piston seat
Type of mounting	Via accessories
	In-line installation
Assembly position	Any
Pressure display	Via pressure sensor for displaying output pressure and electrical output
	Via pressure gauge for displaying output pressure
Performance Level	Max. “d”
Position sensing principle	Solenoid piston principle
Valve function	3/2-way valve, single solenoid, closed
Manual override	None
Reset method	Mechanical spring
Switching position display	LED and floating contact
Type of actuation	Direct
Pilot air supply	Internal
Direction of flow	Non-reversible
C value	[l/(s*bar)] 19.3
b value	0.21

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



## Soft start and exhaust valves MS6-SV, MS series

**FESTO**

Technical data

Standard nominal flow rate $q_{nN}^{1)}$ [l/min]	
In main flow direction 1 $\rightarrow$ 2	4,300
In relief direction 2 $\rightarrow$ 3	9,000 <sup>2)</sup>
	6,000 <sup>2)</sup> (in the event of a critical error)

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

2) Measured with respect to atmosphere with silencer UOS-1.

Electrical data	
Electrical connection	Sub-D 9-pin
Operating voltage range [V DC]	21.6 ... 26.4
Nominal operating voltage [V DC]	24
Duty cycle [%]	100
Response time off [ms]	40
Response time on [ms]	130
Protection class	IP65 with multi-pin plug socket NECA

Operating and environmental conditions		
Variant	Standard	Pressure sensor with display AD...
Operating pressure [bar]	3.5 ... 10	3.5 ... 10
Operating medium	Compressed air	Filtered compressed air, lubricated or unlubricated, grade of filtration 40 $\mu$ m
Ambient temperature [°C]	-10 ... +50	0 ... +50
Temperature of medium [°C]	-10 ... +50	0 ... +50
Corrosion resistance class CRC <sup>1)</sup>	2	
Noise level [dB (A)]	75 (with silencer UOS-1)	
CE mark (see declaration of conformity)	In accordance with EU EMC directive	
Fire protection classification to UL 94	V0-V2	

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.

Weight [g]	
Soft start and exhaust valve	2,000
Soft start and exhaust valve with silencer UOS-1	2,200

Materials	
Housing	Die-cast aluminium
Seals	Nitrile rubber

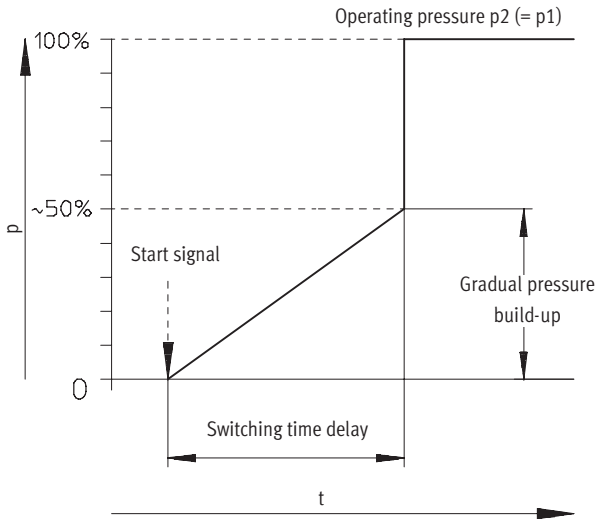
# Soft start and exhaust valves MS6-SV, MS series

Technical data



## Switching point

Pressure p as a function of time t



## Multi-pin plug socket

Type	Enable signals (EN1/EN2)	Example of connection
<b>NECA-S1G9-P9-MP1</b> <ul style="list-style-type: none"> <li>Static enable signals (EN1 = 24 V, EN2 = 24 V)</li> </ul>		
<b>NECA-S1G9-P9-MP2</b> <ul style="list-style-type: none"> <li>Dynamic enable signals (EN1 = 0 ... 24 V, EN2 = 0 ... 24 V)</li> <li>Short-circuit monitoring possible</li> </ul>		
<b>NECA-S1G9-P9-MP3</b> <ul style="list-style-type: none"> <li>Static enable signals (EN1 = 0 V, EN2 = 24 V)</li> <li>Short-circuit monitoring possible</li> </ul>		

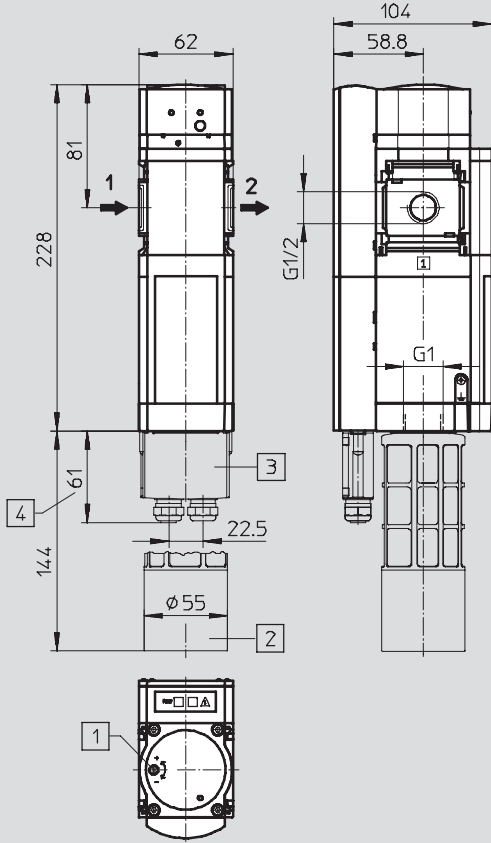
# Soft start and exhaust valves MS6-SV, MS series

Technical data

**FESTO**

## Dimensions – Standard

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



- 1 Regulating screw for flow control valve
- 2 Silencer UOS-1
- 3 Multi-pin plug socket NECA
- 4 Dimension without cable

→ Flow direction

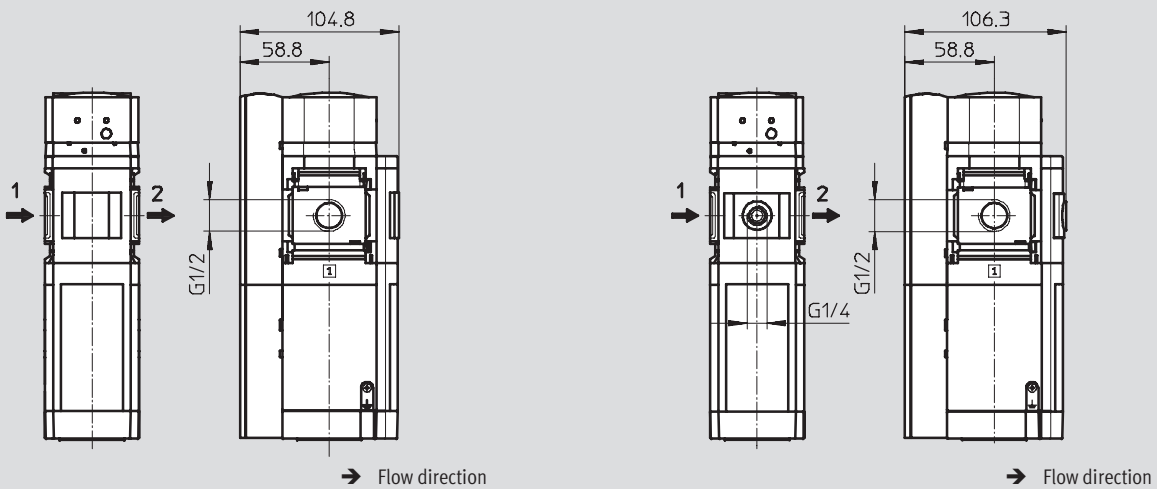
Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

## Dimensions – Pressure gauge alternatives

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

Integrated MS pressure gauge AG, display unit [bar]

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



→ Flow direction

→ Flow direction

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

# Soft start and exhaust valves MS6-SV, MS series

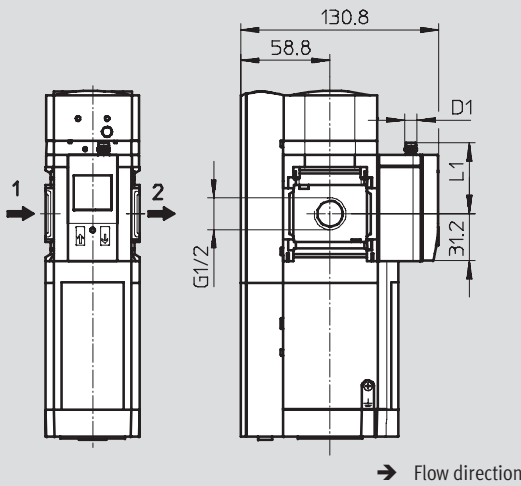
Technical data

## Dimensions – Pressure gauge alternatives

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

Pressure sensor with display AD1 ... AD4

Technical data SDE1 → [www.festo.com](http://www.festo.com)



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

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

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

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

Type	D1	L1
MS6-SV-...-AD1/AD2	M8x1	46.7
MS6-SV-...-AD3/AD4	M12x1	55.8

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

## Ordering data

MS pressure gauge, display unit [bar]

Size	Connection	Without silencer		With silencer	
		Part No.	Type	Part No.	Type
MS6	G1/2	548 715	MS6-SV-1/2-D-10V24-AG	548 717	MS6-SV-1/2-D-10V24-SO-AG

# Soft start and exhaust valves MS6-SV, MS series

Ordering data – Modular products

M Mandatory data				O Options					
Module No.	Series	Function	Performance Level	Silencer		Alternative pressure gauge scale		Type of mounting	
548 713	Size 6	Connection sizes SV 1/2 AGB AGC AGD AGE	Supply voltage D 10V24	Pressure gauge/adaptor plate SO AG A4 AD1 AD2 AD3 AD4		Multi-pin plug socket PSI MPA MP1 MP2 MP3		Alternative flow direction WPB Z	
<b>Order example</b> 548 713	<b>MS</b> <b>6</b>	<b>-SV</b> <b>-AGB</b>	<b>-D</b> <b>-10V24</b>	<b>-SO</b> <b>-AG</b>	<b>-MP2</b>	<b>-WPB</b>	<b>-Z</b>		

Ordering table					
Grid dimension	[mm]	62	Condi-tions	Code	Enter code
M	Module No.	548 713			
	Series	Standard		MS	MS
	Size	6		6	6
	Function	Soft start and exhaust valve		-SV	-SV
	Connection sizes	Thread G1/2		-1/2	
		Connecting plate G1/4		-AGB	
		Connecting plate G3/8		-AGC	
		Connecting plate G1/2		-AGD	
		Connecting plate G3/4		-AGE	
	Performance Level	Category 3, 2-channel with self-monitoring, maximum attainable according to ISO 13849-1		-D	-D
	Supply voltage	24 V DC, 10 bar		-10V24	-10V24
O	Silencer	Silencer, open		-SO	
	Pressure gauge/adaptor plate	Pressure gauge		-AG	
		Adapter plates	For EN pressure gauge 1/4, without pressure gauge		-A4
	Pressure sensor	With display, plug M8, PNP, 3-pin		-AD1	
		With display, plug M8, NPN, 3-pin		-AD2	
		With display, plug M12, PNP, 4-pin, analogue output 4 ... 20 mA		-AD3	
		With display, plug M12, NPN, 4-pin, analogue output 4 ... 20 mA		-AD4	
	Alternative pressure gauge scale	psi	1	-PSI	
		MPa	1	-MPA	
	Multi-pin plug socket	Sub-D, 9-pin, screw terminal	Without cable, enable signals static (EN1 = 24 V, EN2 = 24 V)		-MP1
		Without cable, enable signals dynamic (EN1 = 0 ... 24 V, EN2 = 0 ... 24 V), short-circuit detection possible		-MP2	
		Without cable, enable signals static (EN1 = 0 V, EN2 = 24 V), short-circuit detection possible		-MP3	
	Type of mounting	Wall mounting plate, large clearance		-WPB	
	Alternative flow direction	Flow direction from right to left		-Z	

1 PSI, MPA Not with pressure gauge/adaptor plate A4, AD1, AD2, AD3, AD4

### Transfer order code

548 713 MS 6 - SV - D - 10V24 - MP2 - WPB - Z



## MS12 series service units

FESTO

Wide range of configuration options  
→ [www.festo.com/en/engineering](http://www.festo.com/en/engineering)



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



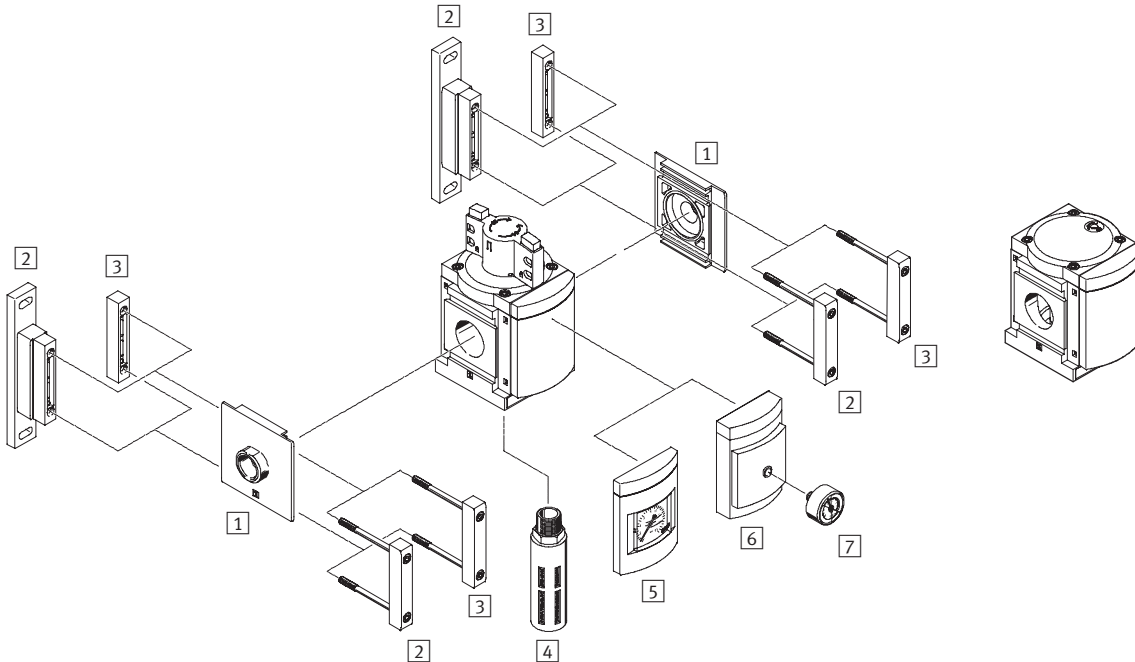
# On-off/soft-start valves MS12-EM/EE/DL/DE, MS series

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	11-22
5	MS pressure gauge AG	EM 7-46 DL 7-54
6	Adapter for EN pressure gauge 1/4 A4	EM 7-46 DL 7-54
7	Pressure gauge MA	11-21

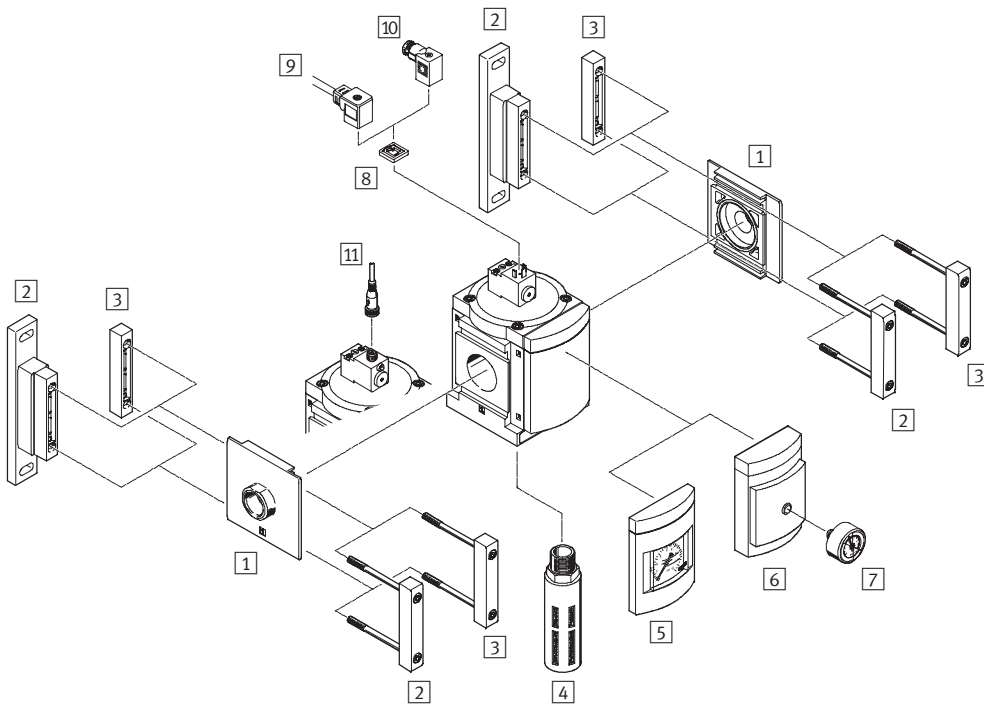


# On-off/soft-start valves MS12-EM/EE/DL/DE, MS series

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	11-22
5	MS pressure gauge AG	EE 7-50 DE 7-58
6	Adapter for EN pressure gauge 1/4 A4	EE 7-50 DE 7-58
7	Pressure gauge MA	11-21
8	Illuminating seal MC-LD	11-20
9	Plug socket with cable KMC	11-20
10	Plug socket MSSD-C	11-20
11	Plug socket with cable SIM-M12-4...	11-21

# 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

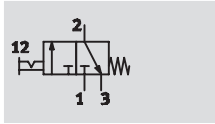
On-off valves EM	→ 7-46
On-off valves EE	→ 7-50
Soft-start valves DL	→ 7-54
Soft-start valves DE	→ 7-58

- 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 <sup>1)</sup>	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 <sub>N</sub> <sup>1)</sup> [l/min]	
In main flow direction 1 → 2	25,000 ... 32,000
In relief direction 2 → 3	13,000

1) Measured at p<sub>1</sub> = 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 <sup>1)</sup>	2

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

# On-off valves MS12-EM, MS series

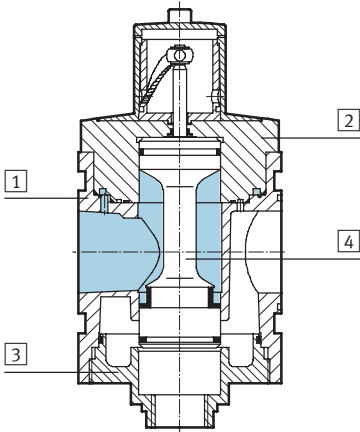
Technical data



Weights [g]	
On-off valve	3,900
On-off valve with silencer S	4,000

## Materials

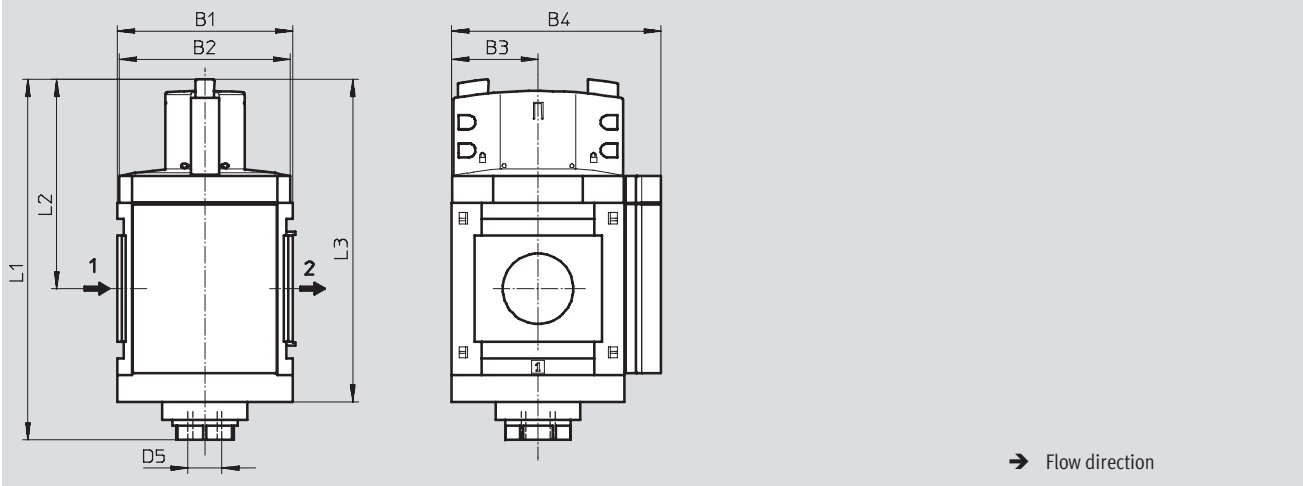
Sectional view



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](http://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

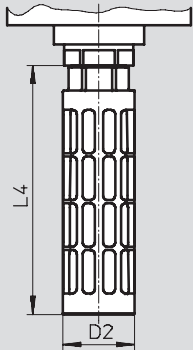
# On-off valves MS12-EM, MS series

Technical data



## Dimensions – Silencer

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



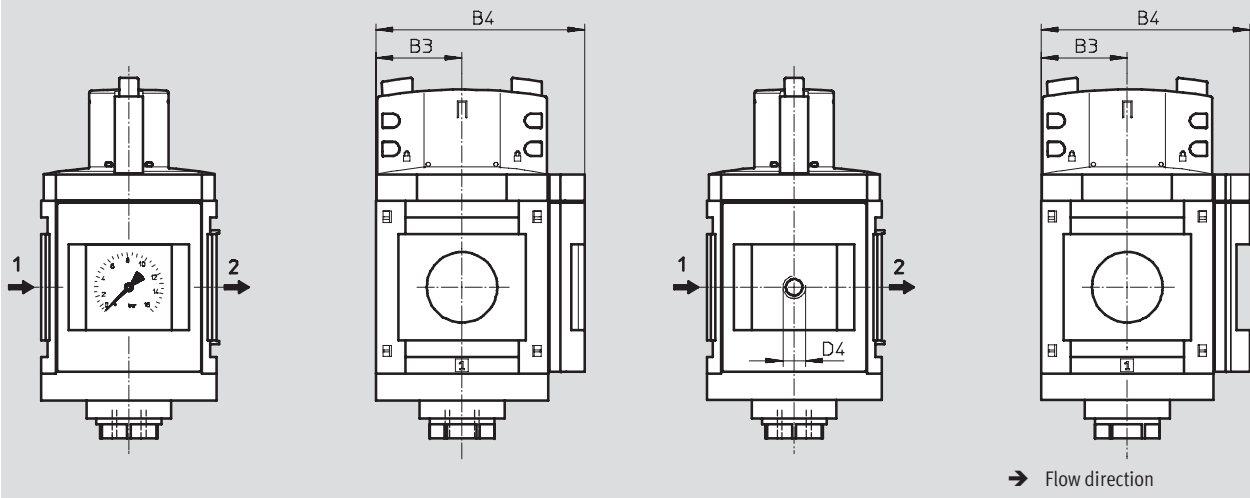
Type	D2 ∅	L4
MS12-EM-...-S	47.8	165.5

## Dimensions – Pressure gauges/adapters

Download CAD data → [www.festo.com/en/engineering](http://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 <sup>1)</sup>	541 495	MS12-EM-G <sup>2)</sup>

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
<b>Order example</b>									
535 031	MS	12	- EM	- G	- S	- AG	- PSI	-	- Z

Ordering table			Condi- tions	Code	Enter code
Grid dimension	[mm]	124			
<b>M</b> 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	
<b>O</b> 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

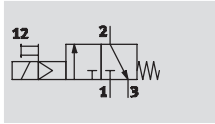
535 031 MS 12 - EM - - - - - - - - - -

# 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 <sup>1)</sup>	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 $q_{nN}^{1)}$ [l/min]	
In main flow direction 1 → 2	25,000 ... 32,000
In relief direction 2 → 3	8,900

1) Measured at  $p_1 = 6$  bar and  $\Delta p = 1$  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 <sup>1)</sup>	2

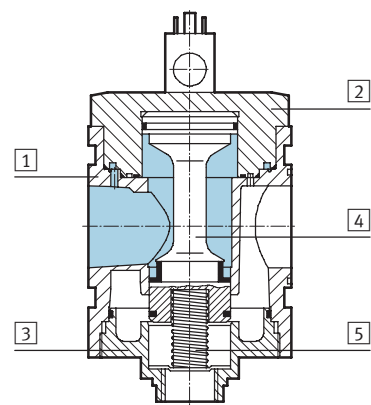
1) Corrosion resistance class 2 according to Festo standard 940 070

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

Weights [g]	
On-off valve	3,800
On-off valve with silencer S	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](http://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



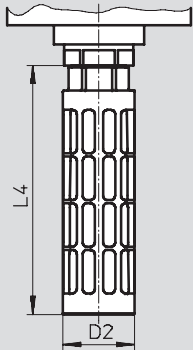
# On-off valves MS12-EE, MS series

Technical data



## Dimensions – Silencer

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



Type	D2 Ø	L4
MS12-EE-...-S	47.8	165.5

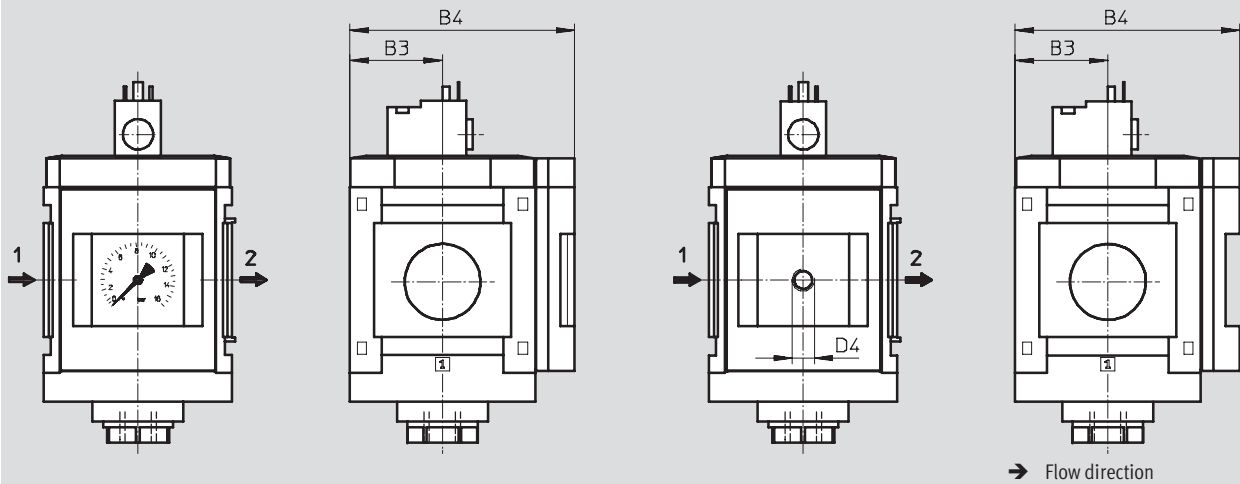
• † - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

## Dimensions – Pressure gauges/adapters

Download CAD data → [www.festo.com/en/engineering](http://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 <sup>1)</sup>	541 496	MS12-EE-G-V24 <sup>2)</sup>

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
<b>Order example</b>										
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.

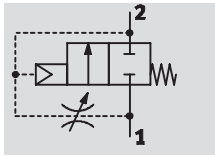
### Transfer order code




535 032	MS	12	- EE	-	-	-	-	-	-	-
---------	----	----	------	---	---	---	---	---	---	---

# 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 <sup>1)</sup>	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 <sup>1)</sup> [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 <sup>1)</sup>	2

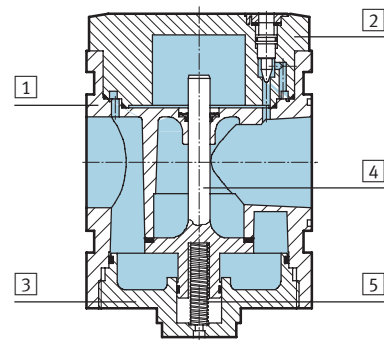
1) Corrosion resistance class 2 according to Festo standard 940 070

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

Weights [g]	
Soft-start valve	3,600

## Materials

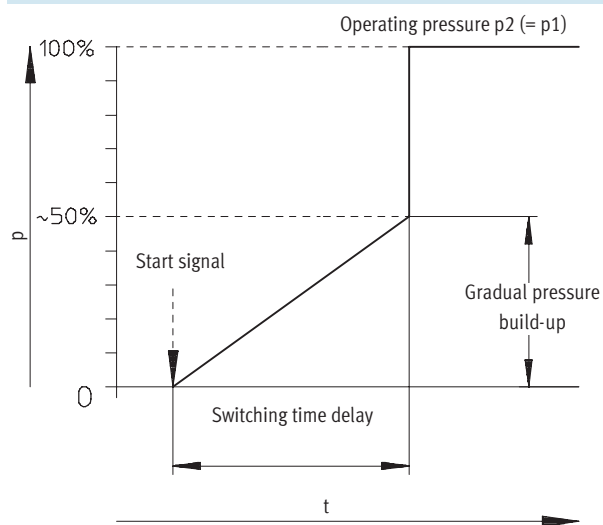
Sectional view



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



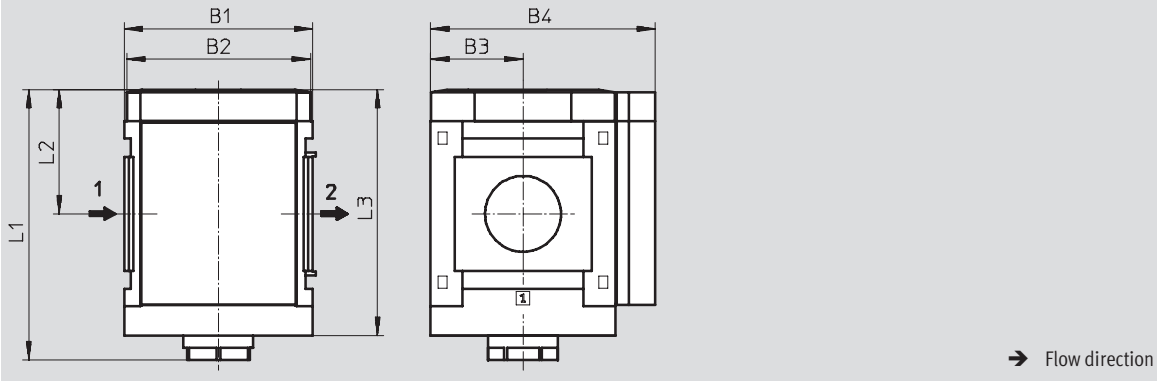
# Soft-start valves MS12-DL, MS series

Technical data



## Dimensions – Standard

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



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

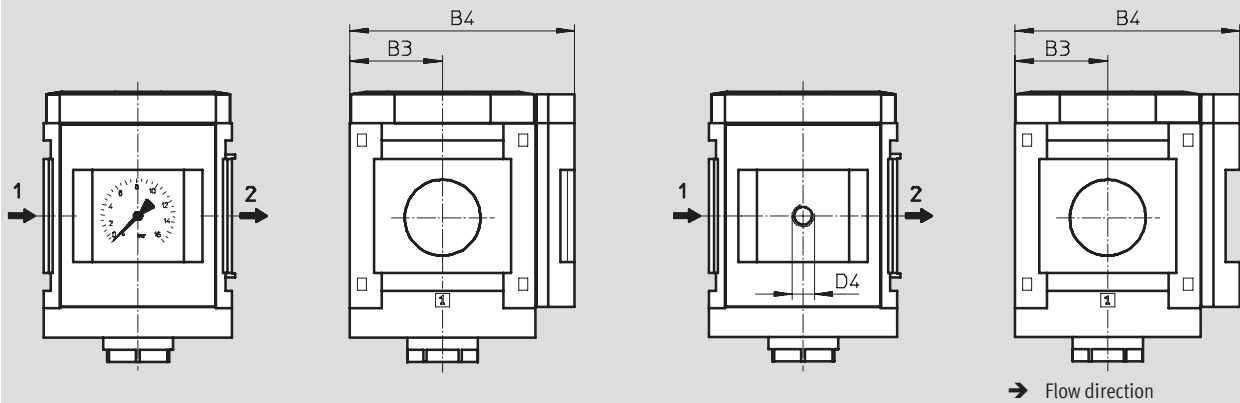
• † - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

## Dimensions – Pressure gauges/adapters

Download CAD data → [www.festo.com/en/engineering](http://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	G $\frac{1}{4}$

## Ordering data

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

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
<b>Order example</b>								
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

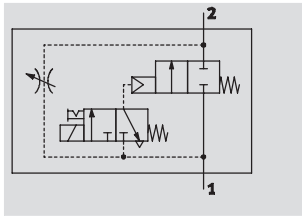
535 033 MS 12 - DL - - - - -

# 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 <sup>1)</sup>	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 <sup>2)</sup>	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

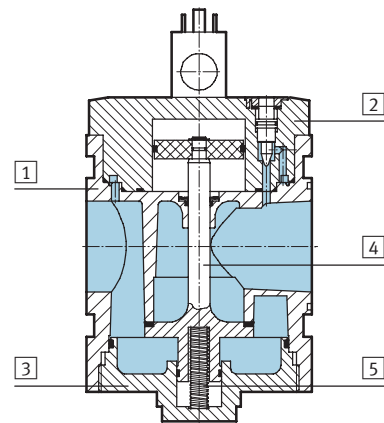
Operating and environmental conditions		
Operating pressure	[bar]	3 ... 16
Operating medium		Compressed air
Ambient temperature	[°C]	-10 ... +50
Temperature of medium	[°C]	-10 ... +50
Corrosion resistance	CRC <sup>1)</sup>	2

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

Weights [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)



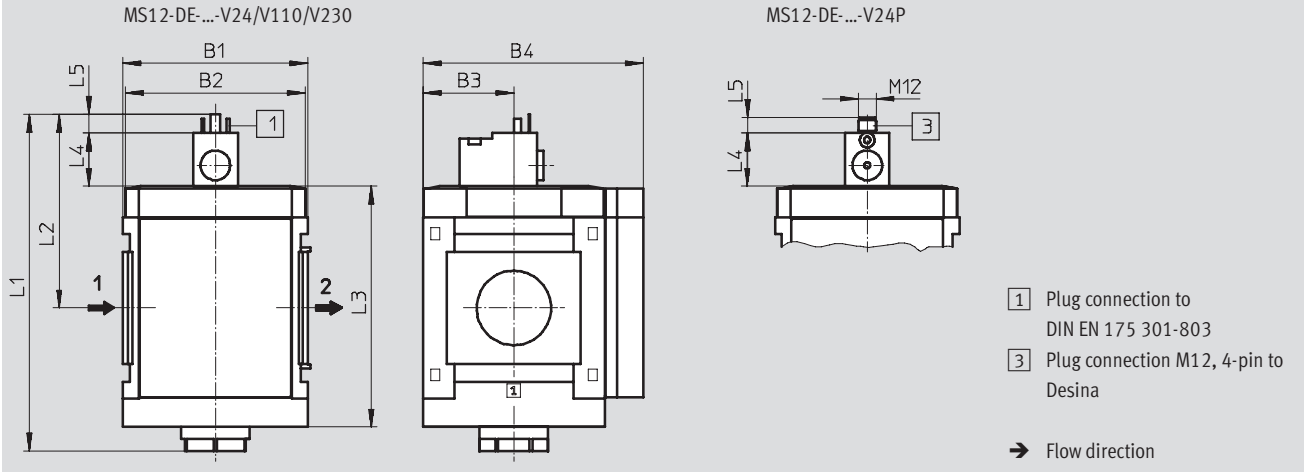
# Soft-start valves MS12-DE, MS series

Technical data



## Dimensions – Standard

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



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

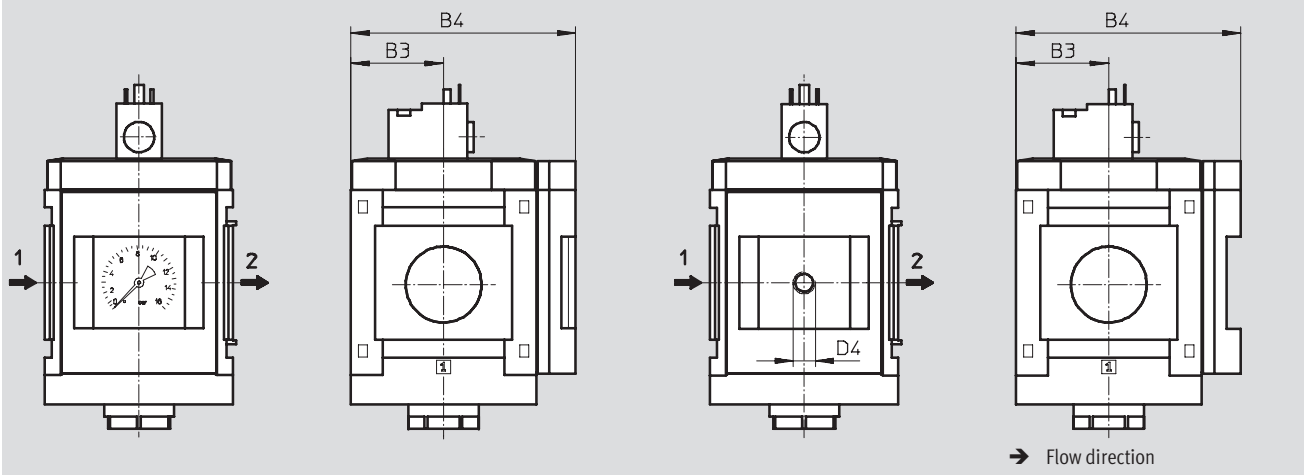
• Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

## Dimensions – Pressure gauges/adapters

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

Integrated MS pressure gauge AG, display unit [bar]

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



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

## Ordering data

Size	Connection	Supply voltage 24 V DC	
		Part No.	Type
MS12	G1 ... G2 <sup>1)</sup>	541 498	MS12-DE-G-V24 <sup>2)</sup>

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-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
<b>Order example</b>									
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	
O	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

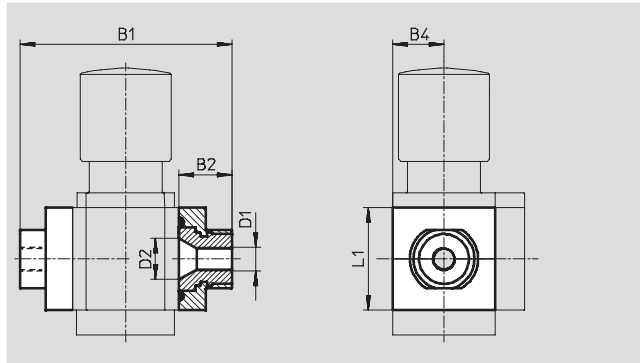


## Connecting plate MS4/6-AG...

(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

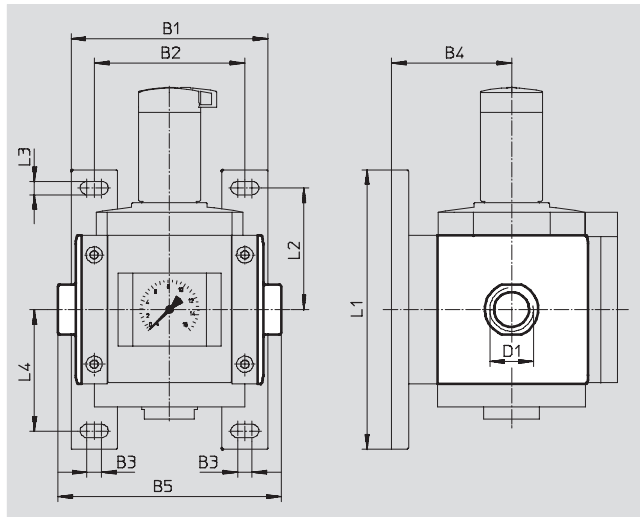
-||- Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

## 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.

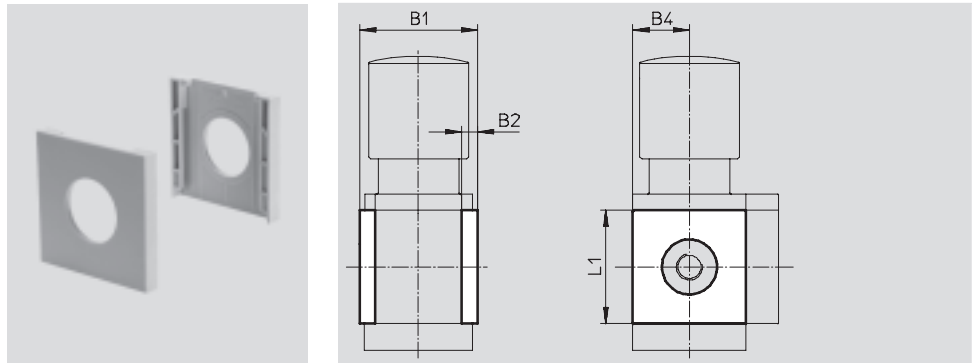
## MS series service units

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

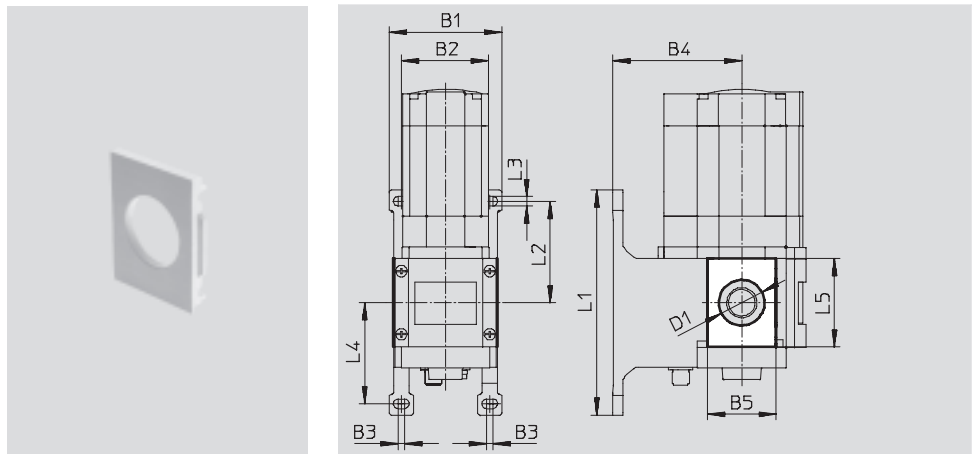
• Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

### 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 <sup>1)</sup>				
				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



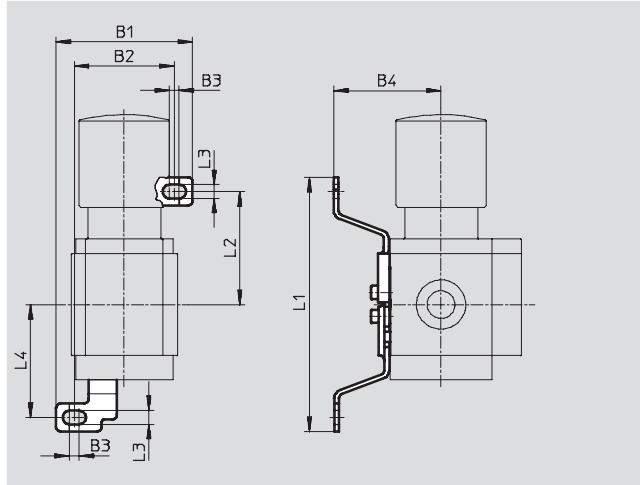
## Mounting bracket MS4/6-WB

(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

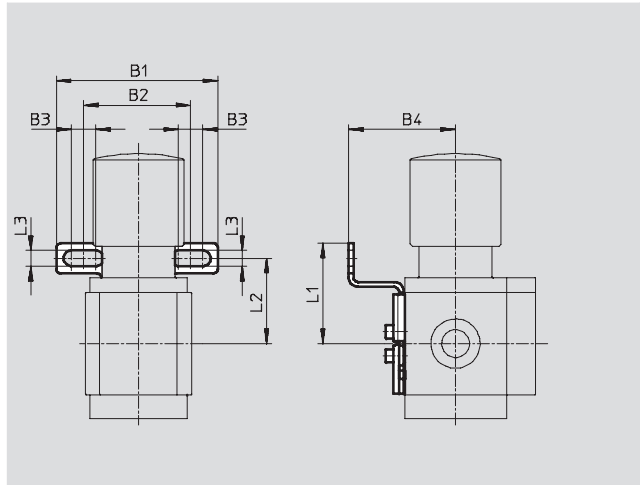
## Mounting bracket MS4-WBM

(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



## Wall mounting plate MS4/6-WP...

Clearances for mounting service unit combinations

1 service unit

MS4: with WP/WPB/WPM-D:  
40.2 mm (20.1 mm at MS4-FRM-FRZ)

MS6: with WP, WPB: 62 mm (31 mm at MS4-FRM-FRZ)  
with WPM-D: 69 mm (38 mm at MS6-FRM-FRZ)

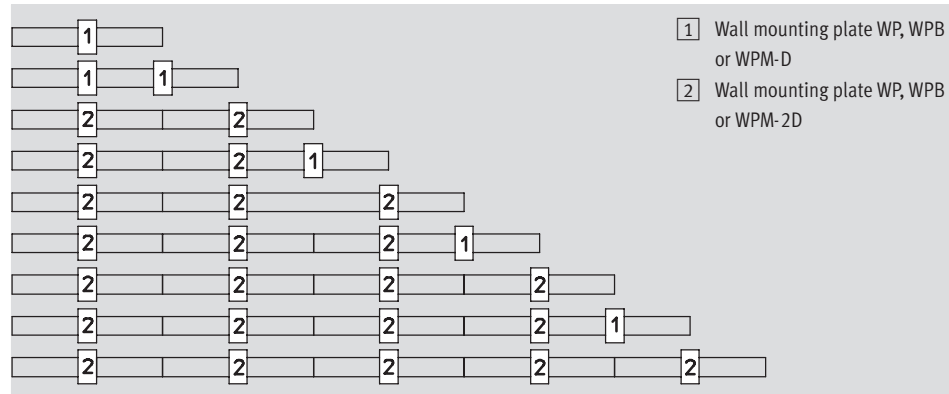
2 service units

MS4: with WP/WPB/WPM-2D:  
80.4 mm (40.2 mm at MS4-FRM-FRZ)

MS6: with WP, WPB: 124 mm (62 mm at MS6-FRM-FRZ)  
with WPM-2D: 138 mm (76 mm at MS6-FRM-FRZ)

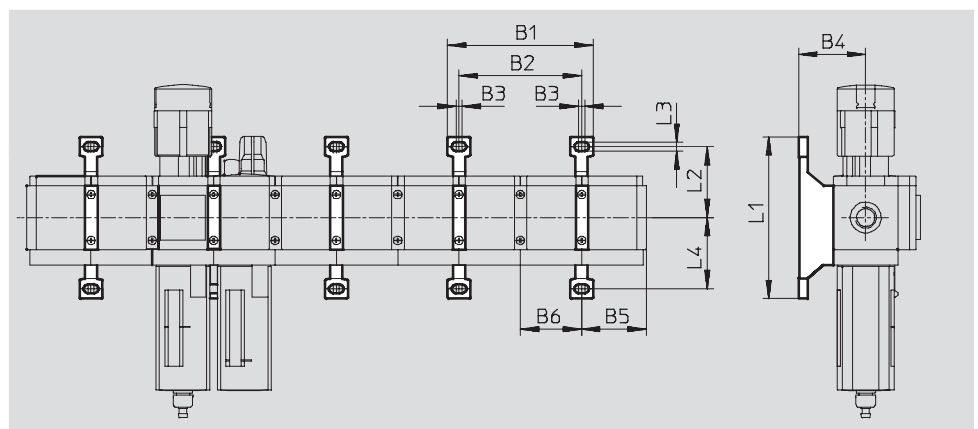
Number of units

1 2 3 4 5 6 7 8 9 10



## Mounting dimensions

Note  
The distributor block MS4/6-FRM-FRZ has a half grid dimension width.



Type	2 service units with grid dimension		1 service unit with grid dimension and 1 distributor block MS-FRM-FRZ		2 distributor blocks MS-FRM-FRZ		B3	B4	Service unit with grid dimension		Distributor block MS-FRM-FRZ		L1	L2	L3	L4
	B1	B2	B1	B2	B1	B2			B5 <sup>1)</sup>	B6	B5 <sup>1)</sup>	B6				
MS4-WP	95.4	80.4	75.3	60.3	55.2	40.2	4	44	41.9	40.2	21.8	20.1	106	46.5	5.6	46.7
MS4-WPB								66								45.2
MS4-WPM-...D								44								45.2
MS6-WP	141	124	110	93	79	62	4.5	54.1	64.5	62	33.5	31	158	71	6.6	71
MS6-WPB								90.5								41.3
MS6-WPM-...D								168								138

1) With accessory cover cap MS-END

# MS series service units

Accessories



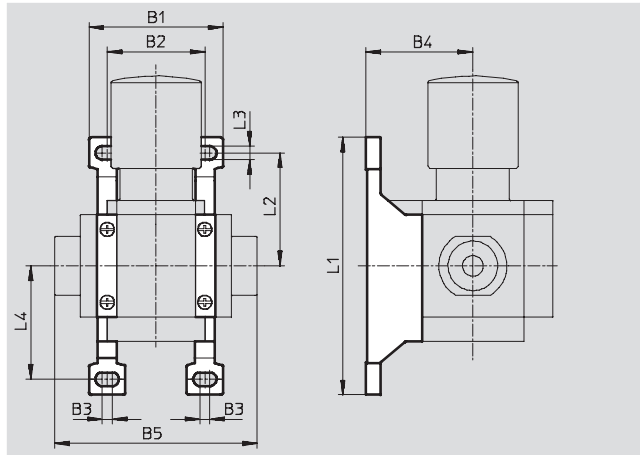
## Wall mounting plate MS4/6-WP

(order code: WP)

- For connecting the modules for wall mounting
- In combination with a connecting plate MS4/6-AG... for mounting an individual unit on a wall
- In combination with mounting plate MS-AEND 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	54.1	115	158	71	6.6	71	76	532 195	MS6-WP

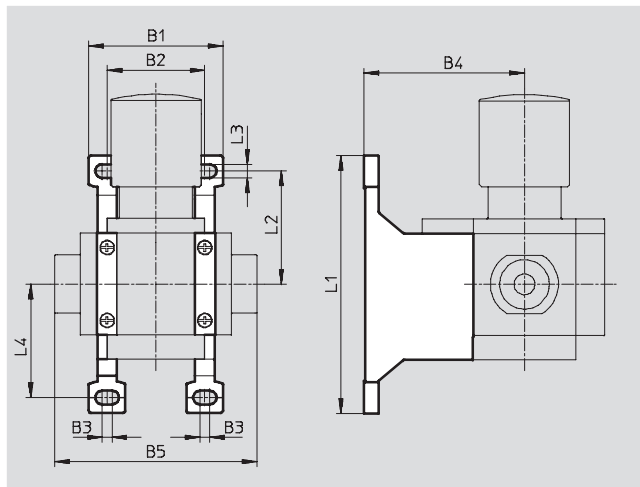
## Wall mounting plate MS4/6-WPB

(order code: WPB)

- For connecting the modules for wall mounting
- In combination with a connecting plate MS4/6-AG... for mounting an individual unit on a wall
- In combination with mounting plate MS-AEND 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



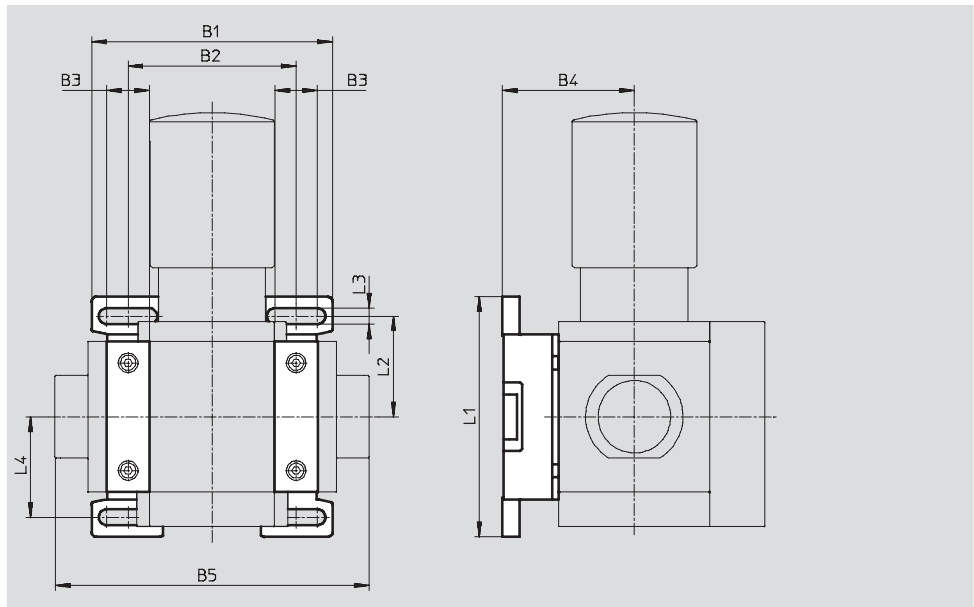
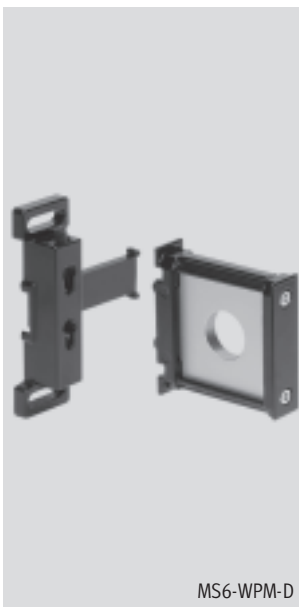
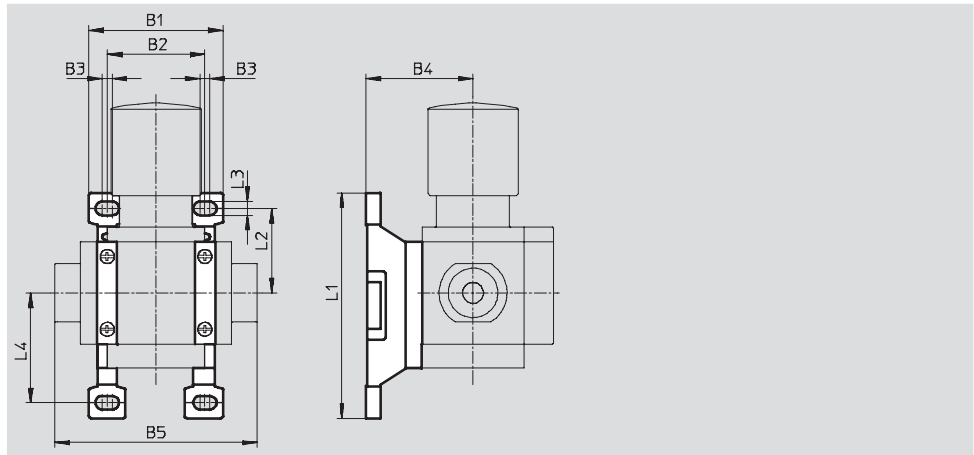
## Wall mounting plate MS4/6-WPM

(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	40.2	4	44	83.4	92.8	34.8	5.6	45.2	40.2	45	526 060	MS4-WPM-D
	95.4	80.4			80.4					55	526 061	MS4-WPM-2D	
MS6	99	69	17.5	54.1	129	98.6	41.3	6.6	41.3	69	144	526 073	MS6-WPM-D
	168	138			138					154	532 186	MS6-WPM-2D	

# MS series service units

Accessories

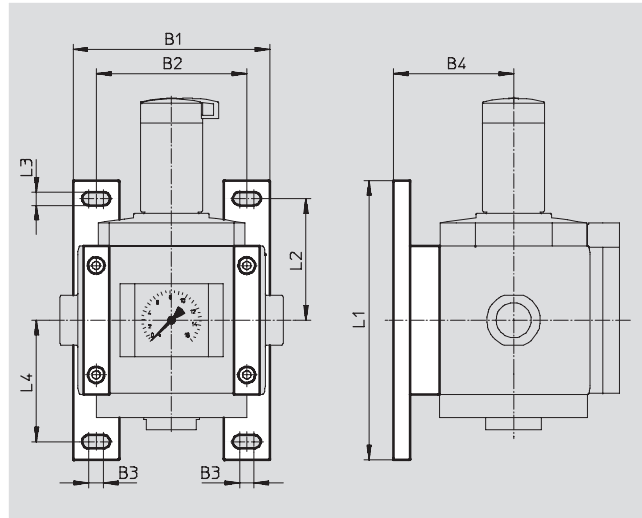


## Wall mounting plate MS12-WP

(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



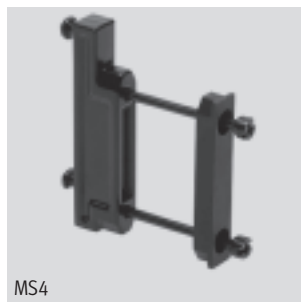
MS12

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

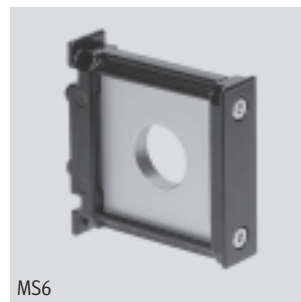
## Module connector MS4/6-MVM

- For installation of modules with regulating knob pointing downwards

Material:  
Die-cast aluminium



MS4

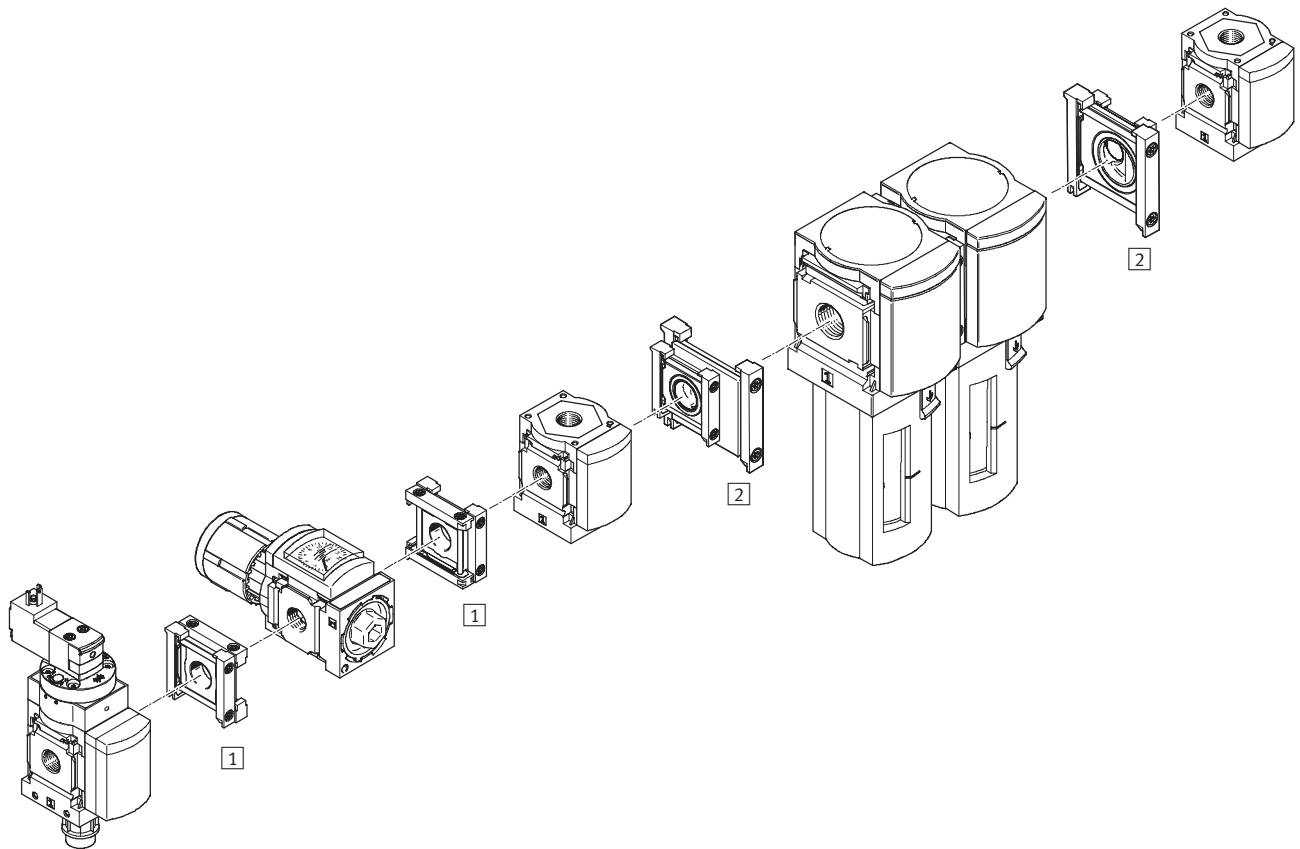


MS6


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:

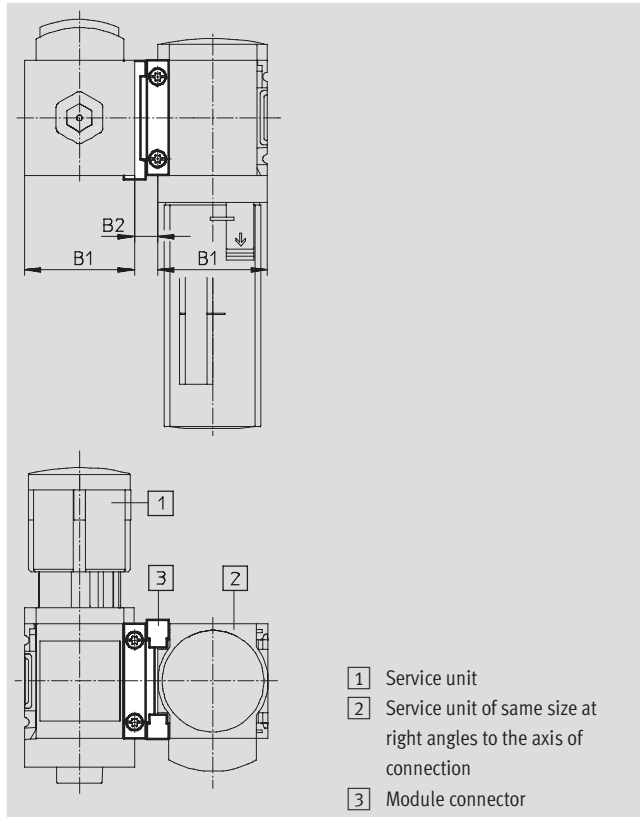
Die-cast aluminium

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 <sup>1)</sup>	Weight [g]	Part No.	Type
MS4	40.2	8.5	2	42	543 490	MS4-RMV
MS6	62	11	2	112	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:

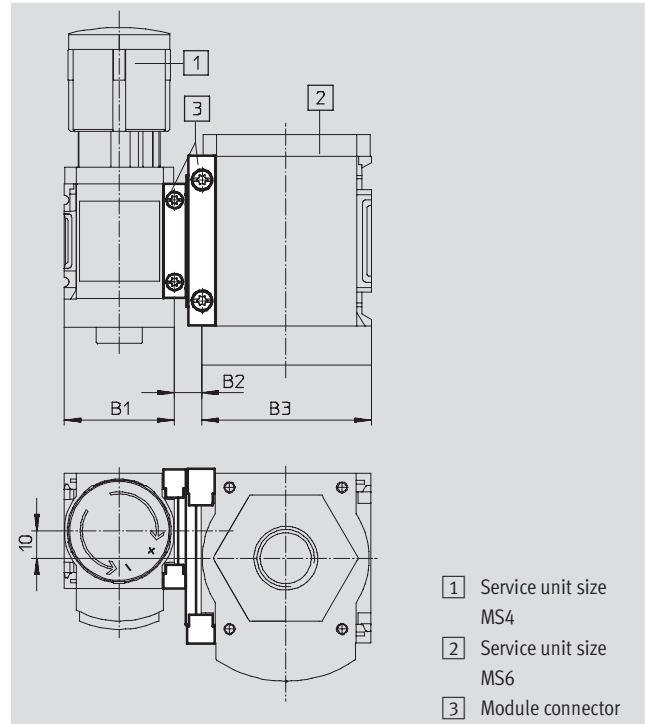
Die-cast aluminium

Sealing ring: Nitrile rubber

Conforms to RoHS

Temperature of medium:

-10 ... +60 °C



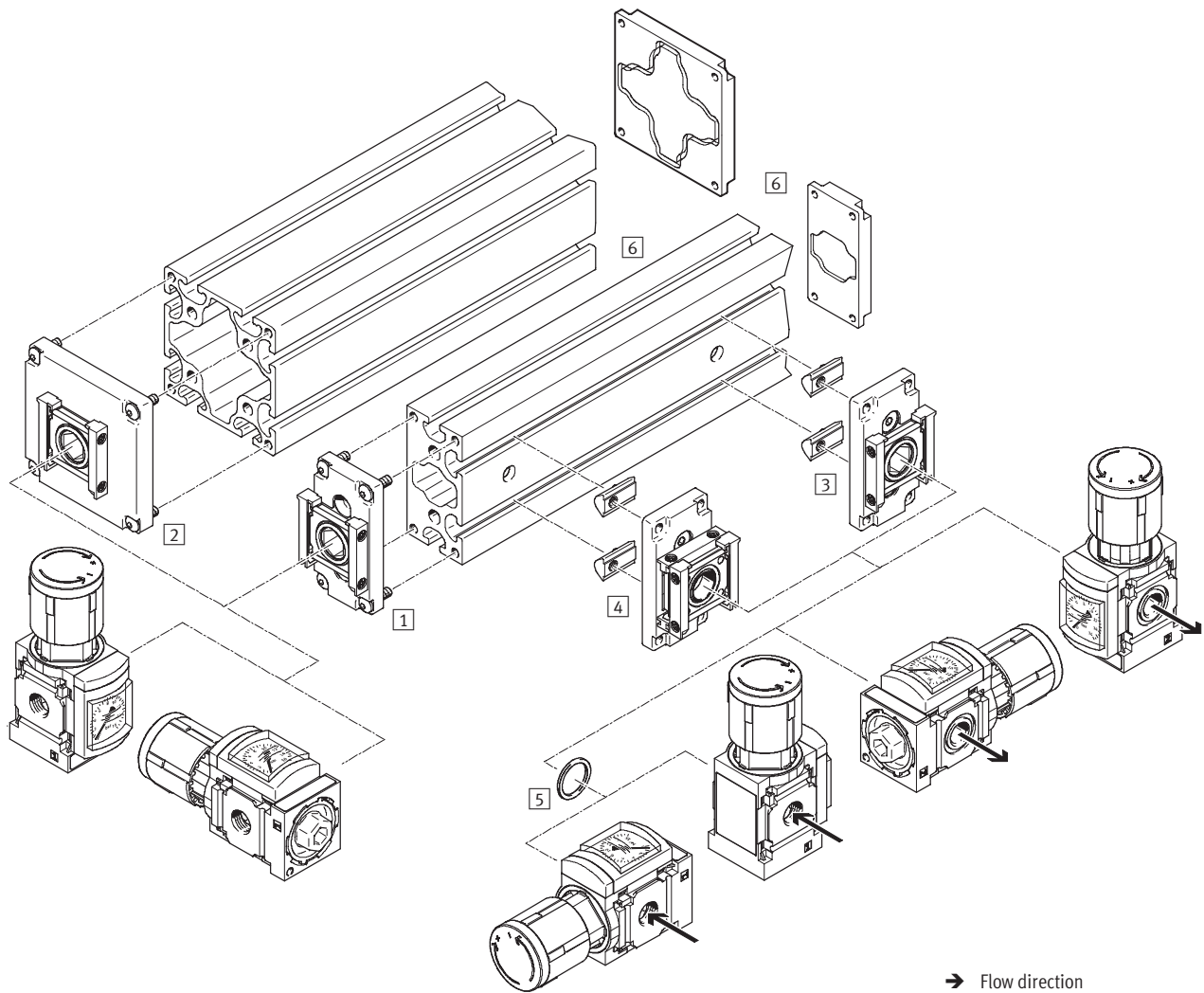
- 1 Service unit size MS4
- 2 Service unit size MS6
- 3 Module connector

Dimensions and ordering data							
Size	B1	B2	B3	CRC <sup>1)</sup>	Weight [g]	Part No.	Type
MS4/6	40.2	10	62	2	77	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

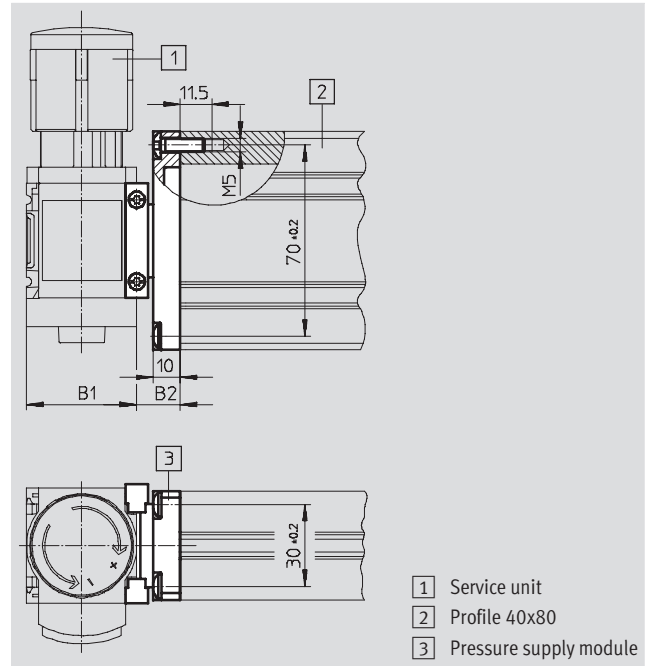
Screws: Steel

Seals: Nitrile rubber

Conforms to RoHS

Temperature of medium:

-10 ... +60 °C



Dimensions and ordering data						
Size	B1	B2	CRC <sup>1)</sup>	Weight [g]	Part No.	Type
MS4	40.2	16	2	109	543 494	MS4-E-IPM-40-80
MS6	62	16	2	141	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

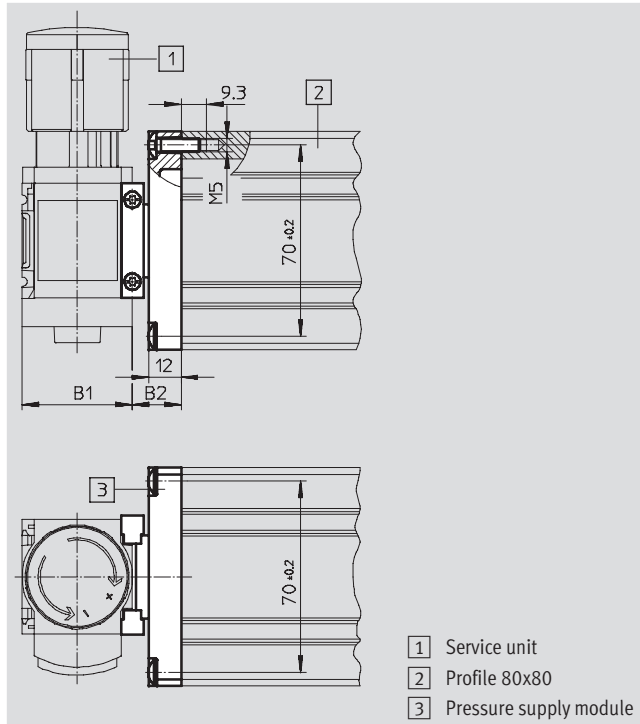
Screws: Steel

Seals: Nitrile rubber

Conforms to RoHS

Temperature of medium:

-10 ... +60 °C



### Dimensions and ordering data

Size	B1	B2	CRC <sup>1)</sup>	Weight [g]	Part No.	Type
MS4	40.2	18	2	186	543 495	MS4-E-IPM-80-80
MS6	62	18	2	218	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

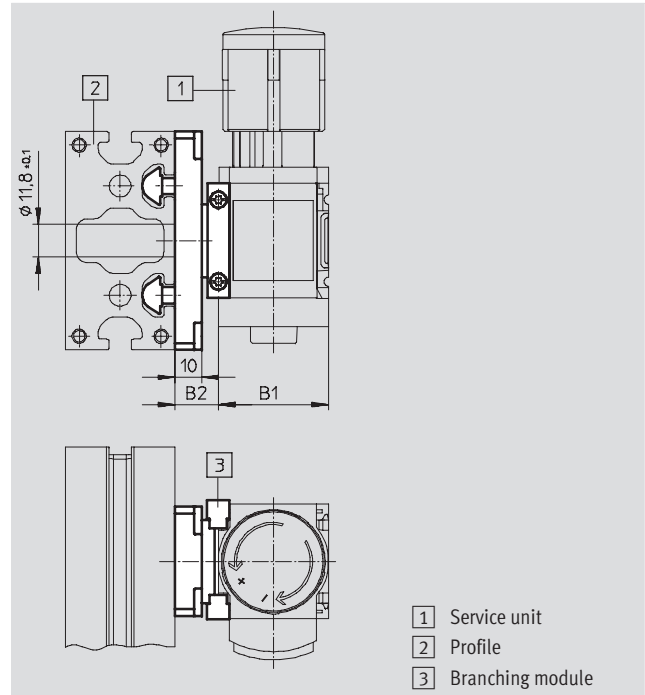
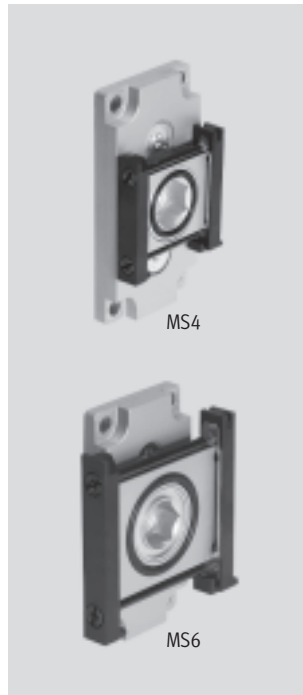
Screws: Steel

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 <sup>1)</sup>	Weight [g]	Part No.	Type
MS4	40.2	16	2	124	543 498	MS4-A-IPM-80
MS6	62	16	2	156	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

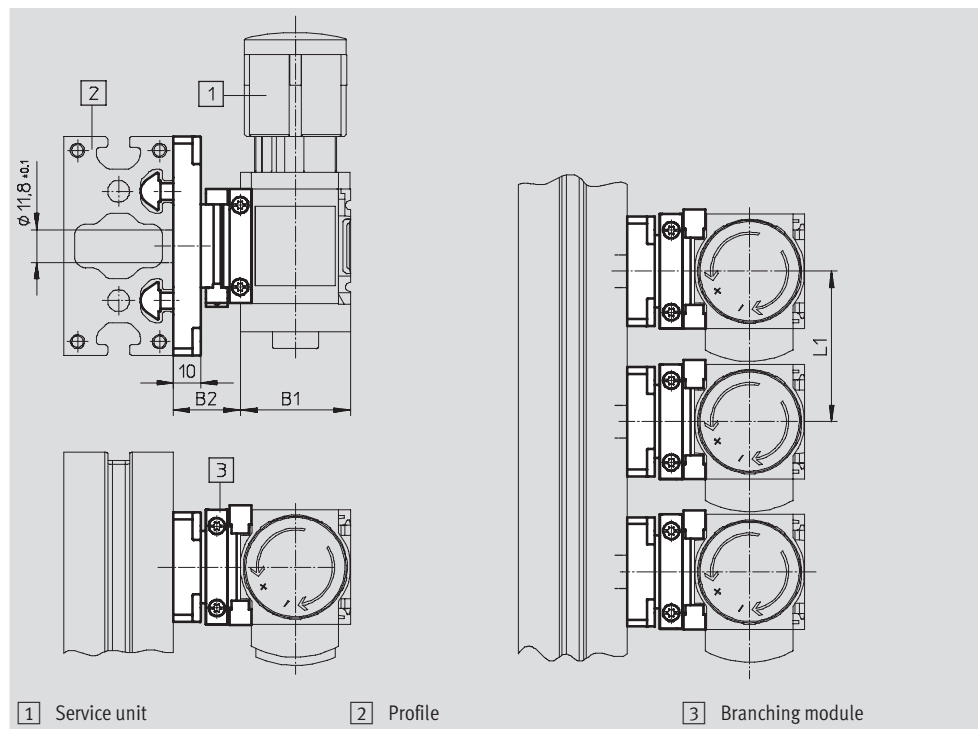
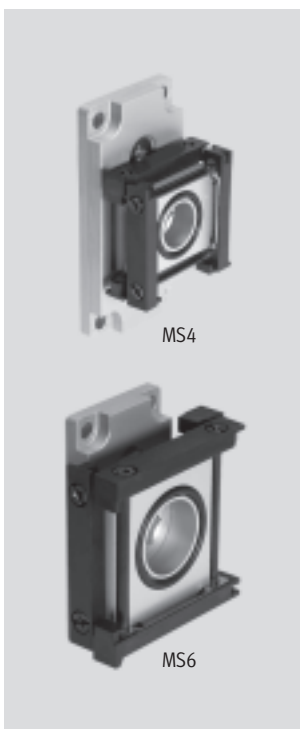
### Branching module

#### 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 <sup>1)</sup>	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	236	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 <sup>1)</sup>	Part No.	Type
MS4	2	543 492	MS4-NNR
MS6	2	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**

### Multi-pin plug socket NECA

(order code: MP1/MP2/MP3)

- For soft start and exhaust valve  
MS6-SV

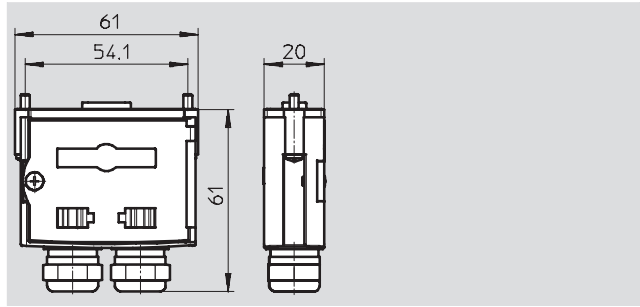
Material:

Housing: Reinforced polyamide

Screws: Steel

Union nut: Brass

Seals: Nitrile rubber



Technical data	
Type of mounting	Via through-holes
Electrical connection	Sub-D, 9-pin, screw terminal 9-pin
Operating voltage range [V DC]	21.6 ... 26.4
Nominal operating voltage [V DC]	24
Current-carrying capacity [A]	1
Connection cross section [mm <sup>2</sup> ]	0.34 ... 1 without wire end sleeves
	0.34 ... 0.5 with wire end sleeves
Permissible cable diameter [mm]	5 ... 10
Protection class to IEC 60529	IP65

Operating and environmental conditions	
Relative air humidity	95%, non-condensing
Ambient temperature [°C]	0 ... +50
Storage temperature [°C]	-20 ... +70
Corrosion resistance class CRC <sup>1)</sup>	2

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.

Ordering data				
Size	Connection	Weight [g]	Part No.	Type
MS6	Without cable, enable signals static (EN1 = 24 V, EN2 = 24 V)	60	548 719	NECA-S1G9-P9-MP1
	Without cable, enable signals dynamic (EN1 = 0 ... 24 V, EN2 = 0 ... 24 V), short-circuit detection possible	60	548 720	NECA-S1G9-P9-MP2
	Without cable, enable signals static (EN1 = 0 V, EN2 = 24 V), short-circuit detection possible	60	552 703	NECA-S1G9-P9-MP3

## MS series service units

Accessories

### Silencer UOS-1

(order code: SO)

- For soft start and exhaust valve  
MS6-SV

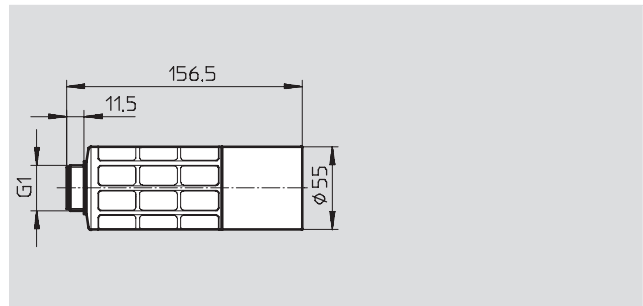
Materials:

Housing: Polyacetate

Sleeve: Wrought aluminium alloy

Silencer insert: Polyethylene

Free of copper and PTFE



Technical data	
Pneumatic connection	G1
Design	Silencer, open
Type of mounting	Via male thread
Assembly position	Any
Type of seal on threaded collar	No seal

Operating and environmental conditions		
Operating pressure	[bar]	0 ... 10
Operating medium		Compressed air
Ambient temperature	[°C]	-10 ... +50
Corrosion resistance class CRC <sup>1)</sup>		2

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.


Ordering data			
Size	Weight [g]	Part No.	Type
MS6	200	552 252	UOS-1

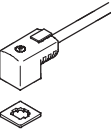
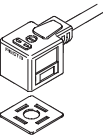
# MS series service units


Accessories


FESTO

Ordering data – Angled socket PEV						Technical data → <a href="http://www.festo.com">www.festo.com</a>	
	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 → <a href="http://www.festo.com">www.festo.com</a>	
	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	≤ 250 V AC/DC	3-pin	Clamping screws	151 687	MSSD-EB	
			4-pin	Insulation displacement technology	192 745	MSSD-EB-S-M14	
	for MS12-EE/DE	≤ 250 V AC/DC	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 → <a href="http://www.festo.com">www.festo.com</a>	
	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	
			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	KMEB-1-230AC-2,5	
			–	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 → <a href="http://www.festo.com">www.festo.com</a>	
	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 → <a href="http://www.festo.com">www.festo.com</a>	
	Description			Part No.	Type	PU <sup>1)</sup>
	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

FESTO

Ordering data – Plug socket with cable SIM-M8			Technical data → <a href="http://www.festo.com">www.festo.com</a>	
	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 → <a href="http://www.festo.com">www.festo.com</a>	
	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 → <a href="http://www.festo.com">www.festo.com</a>	
	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 → <a href="http://www.festo.com">www.festo.com</a>	
	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 → <a href="http://www.festo.com">www.festo.com</a>		
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 → <a href="http://www.festo.com">www.festo.com</a>	
	Description	Pneumatic connection	Part No.	Type
	for MS4-EM1/EE	G $\frac{1}{4}$	<b>6 842</b>	<b>U-<math>\frac{1}{4}</math>-B</b>
	for MS6-EM1/EE	G $\frac{1}{2}$	<b>6 844</b>	<b>U-<math>\frac{1}{2}</math>-B</b>
	for MS12-EM/EE	G1	<b>151 990</b>	<b>U-1-B</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 $\frac{1}{4}$	<b>534 151</b>	<b>ESK-<math>\frac{1}{8}</math>-<math>\frac{1}{4}</math></b>
		R $\frac{1}{4}$	R $\frac{1}{4}$	<b>151 521</b>	<b>ESK-<math>\frac{1}{4}</math>-<math>\frac{1}{4}</math></b>
			R $\frac{1}{2}$	<b>534 153</b>	<b>ESK-<math>\frac{1}{4}</math>-<math>\frac{1}{2}</math></b>

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

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