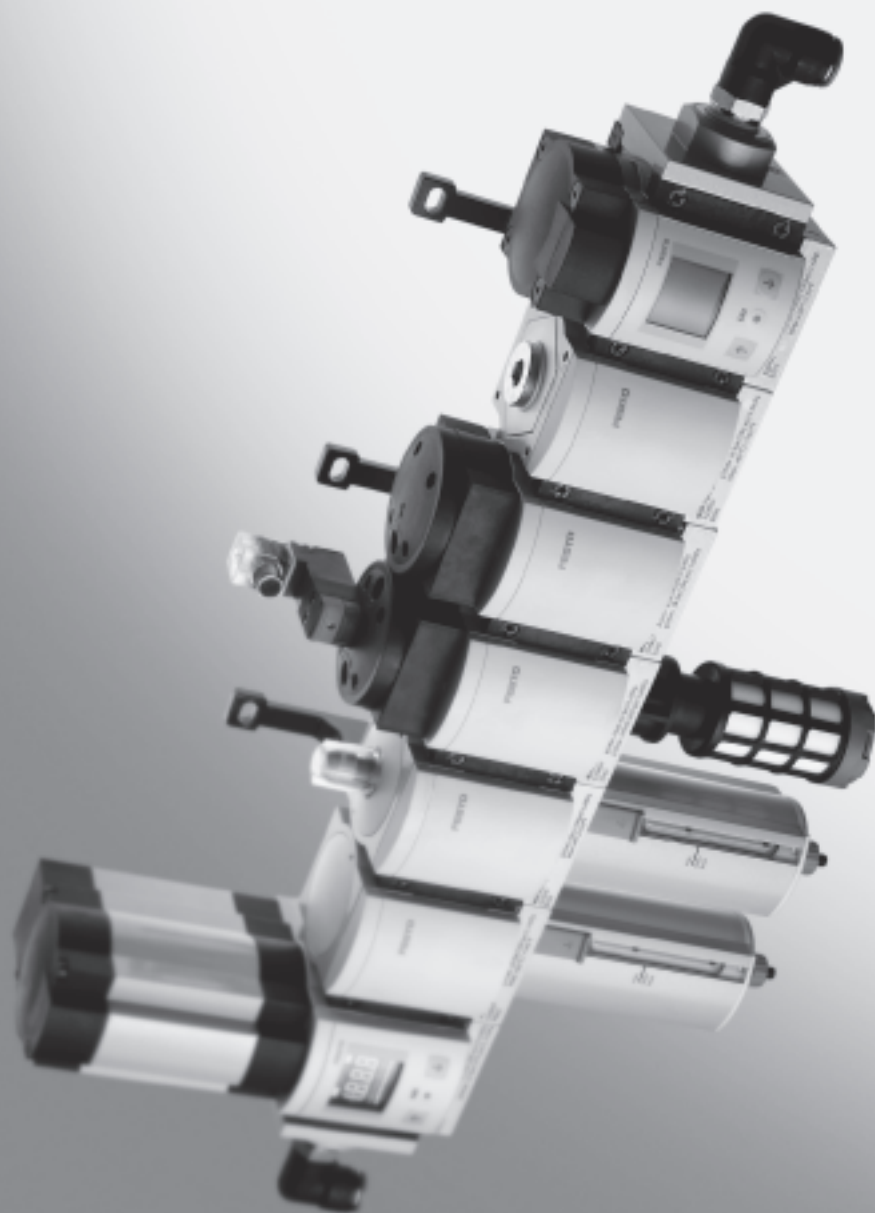


Wide range of configuration options

→ www.festo.com/en/engineering



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

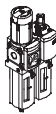
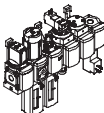
Specified types in accordance with
ATEX directive for potentially
explosive atmospheres

→ www.festo.com/en/ex

MS series service units

Product range overview

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Type	Size			Pneumatic connection in housing	Connecting plate	Pressure regulation range [bar]						Grade of filtration [µm]					
						0.05 ... 0.7	0.05 ... 2.5	0.1 ... 4	0.3 ... 7	0.1 ... 12	0.5 ... 16	0.01	1	5	40		
Code					AG...	D2	D4	D5	D6	D7	D8	A	B	C	E		
Service units																	
MSB-FRC		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	■	■	–	–	–	■	■			
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	■	■	–	–	–	■	■			
		12	–														
Service unit combinations (further variants can be ordered using the configurator → www.festo.com/en/engineering)																	
MSB		4	G1/4	G1/8, G1/4, G3/8	–	–	–	■	■	–	–	–	■	■			
		6	G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	■	■	–	–	–	■	■			
		12	–														
Individual devices																	
Filter regulators MS-LFR		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	■	■	■	–	–	–	■	■			
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	■	■	■	■	–	–	■	■			
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	■	■	■	–	–	■	■			
Filters MS-LF		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–	–	■	■			
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	■	■			
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–	–	■	■			
Fine and micro filters MS-LFM		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	■	■	–	–			
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	■	■	–	–			
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	■	■	–	–			
Activated carbon filters MS-LFX		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–	–	–	–			
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	–	–			
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–	–	–	–			
Pressure regulators MS-LR		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	■	■	■	–	–	–	–	–			
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	■	■	■	■	–	–	–	–			
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	■	■	■	–	–	–	–			
Pressure regulators MS-LRB		4	G1/4	G1/8, G1/4, G3/8	–	–	■	■	■	–	–	–	–	–			
		6	G1/2	G1/4, G3/8, G1/2, G3/4	–	–	■	■	■	■	–	–	–	–			
		12	–														
Precision pressure regulators MS-LRP		4	–														
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	■	■	■	–	■	–	–	–	–	–			
		12	–														
Precision pressure regulators MS-LRPB		4	–														
		6	G1/2	G1/4, G3/8, G1/2, G3/4	■	■	■	–	■	–	–	–	–	–			
		12	–														

MS series service units

Product range overview

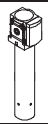
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Type	Size	Bowl guard		Condensate drains				Pressure indicator					Actuator lock		Options		→ Page
		Plastic bowl guard	Metal bowl	Manual rotary	Semi-automatic	Fully automatic	External, fully-automatic, electrical	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter for EN pressure gauge G1/8	Adapter for EN pressure gauge G1/4	Pressure sensor with display	Rotary knob, lockable	Rotary knob, long	Silencer	Flow direction from right to left	
Code		R	U	M	H	V	E...	VS	AG	A8	A4	AD...	AS	LD	S	Z	
Service units																	
MSB-FRC	4	■	–	■	–	■	–	–	■	–	–	–	■	–	–	■	2-2
	6	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Service unit combinations																	
MSB	4	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	2-2
	6	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Individual devices																	
Filter regulators MS-LFR	4	■	■	■	■	■	–	■	■	■	■	■	■	■	–	■	3-2
	6	■	■	■	■	■	■	■	■	–	■	■	■	■	–	■	
	12	–	■	■	–	■	■	■	■	–	■	–	■	■	–	■	3-18
Filters MS-LF	4	■	■	■	■	■	–	–	–	–	–	–	–	–	–	■	4-2, 4-4
	6	■	■	■	■	■	■	–	–	–	–	–	–	–	–	■	
	12	–	■	■	–	■	■	–	–	–	–	–	–	–	–	■	4-26, 4-28
Fine and micro filters MS-LFM	4	■	■	■	■	■	–	–	–	–	–	–	–	–	–	■	4-2, 4-12
	6	■	■	■	■	■	■	–	–	–	–	–	–	–	–	■	
	12	–	■	■	–	■	■	–	–	–	–	–	–	–	–	■	4-26, 4-33
Activated carbon filters MS-LFX	4	■	■	■	–	–	–	–	–	–	–	–	–	–	–	■	4-2, 4-20
	6	■	■	■	–	–	–	–	–	–	–	–	–	–	–	■	
	12	–	■	–	–	–	–	–	–	–	–	–	–	–	–	■	4-26, 4-40
Pressure regulators MS-LR	4	–	–	–	–	–	–	■	■	■	■	■	■	■	–	■	5-2, 5-7
	6	–	–	–	–	–	–	■	■	–	■	■	■	■	–	■	
	12	–	–	–	–	–	–	■	■	–	■	–	■	■	–	■	5-58
Pressure regulators MS-LRB	4	–	–	–	–	–	–	■	■	■	■	■	■	■	–	■	5-2, 5-16
	6	–	–	–	–	–	–	■	■	–	■	■	■	■	–	■	
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Precision pressure regulators MS-LRP	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5-24, 5-29
	6	–	–	–	–	–	–	■	–	–	■	■	■	■	–	■	
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Precision pressure regulators MS-LRPB	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5-24, 5-38
	6	–	–	–	–	–	–	■	–	–	■	■	■	■	–	■	
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	

MS series service units

Product range overview

FESTO

Type	Size	Pneumatic connection in housing	Connecting plate	Pressure regulation range [bar]				Supply voltage			
				0.3 ... 4	0.3 ... 7	0.5 ... 12	0.5 ... 16	24 V DC (connection pattern to EN 175301)	24 V DC (connection pattern M12 to DESINA)	110 V AC (connection pattern to EN 175301)	230 V AC (connection pattern to EN 175301)
Code			AG...	D5	D6	D7	D8	V24	V24P	V110	V230
Individual devices											
Electrical pressure regulators MS-LRE		4	–					–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	■	■	■	■	–	–	–
		12	–								
Lubricators MS-LOE		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–
On-off valves MS-EM(1)		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–
On-off valves MS-EE		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	■	–	■
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	■	–	■
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	■	■	■
Soft-start valves MS-DL		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–
Soft-start valves MS-DE		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	■	–	■
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	■	–	■
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	■	■	■
Membrane air dryers MS-LDM1		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–
		12	–								
Branching modules MS-FRM		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–
Flow sensors MS-SFE		4	–								
		6	G1/2	G1/2	–	–	–	–	–	–	–
		12	–								

MS series service units

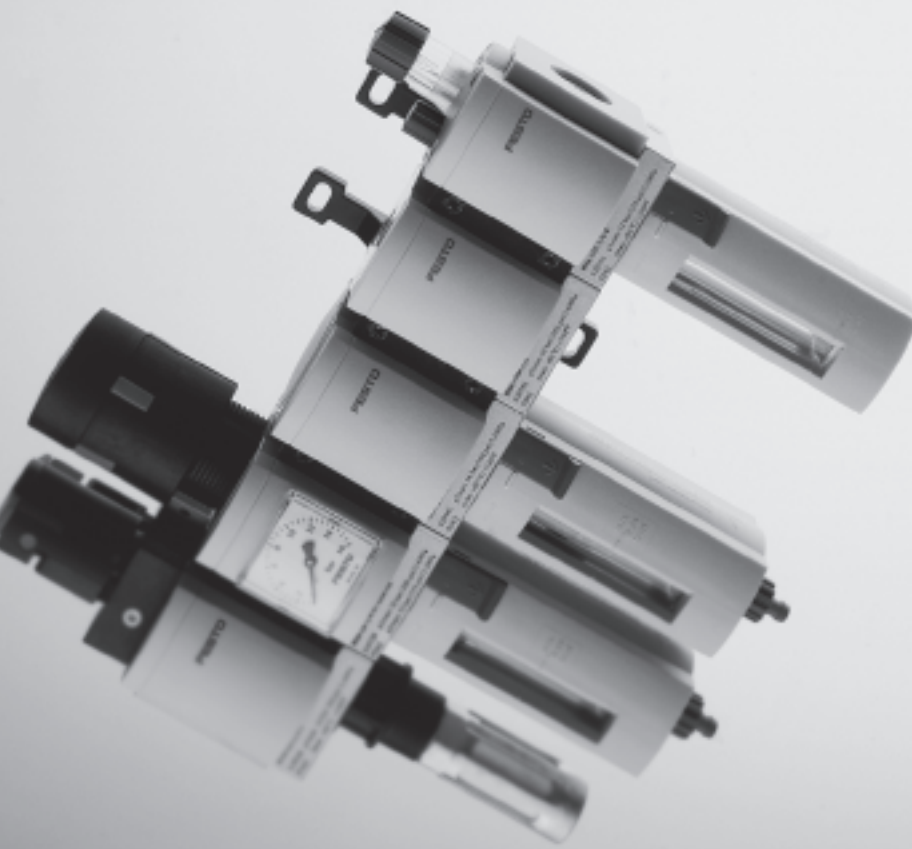
Product range overview

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Type	Size	Bowl guard		Pressure indicator					Switch output		Options		→ Page
		Plastic bowl guard	Metal bowl	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter for EN pressure gauge G1/8	Adapter for EN pressure gauge G1/4	Pressure sensor with display	2x PNP	2x NPN	Silencer	Flow direction from right to left	
Individual devices													
Electrical pressure regulators MS-LRE	4	-											5-46
	6	-	-	■	■	-	■	-	-	-	-	■	
	12	-											
Lubricators MS-LOE	4	■	■	-	-	-	-	-	-	-	-	■	6-2
	6	■	■	-	-	-	-	-	-	-	-	■	
	12	-	■	-	-	-	-	-	-	-	-	-	■
On-off valves MS-EM(1)	4	-	-	■	■	■	■	■	-	-	■	■	7-2, 7-5
	6	-	-	■	■	-	■	■	-	-	■	■	
	12	-	-	■	■	-	■	-	-	-	■	■	7-30, 7-33
On-off valves MS-EE	4	-	-	■	■	■	■	■	-	-	■	■	7-2, 7-10
	6	-	-	■	■	-	■	■	-	-	■	■	
	12	-	-	■	■	-	■	-	-	-	■	■	7-30, 7-37
Soft-start valves MS-DL	4	-	-	■	■	■	■	■	-	-	-	■	7-2, 7-18
	6	-	-	■	■	-	■	■	-	-	-	■	
	12	-	-	■	■	-	■	-	-	-	-	■	7-30, 7-41
Soft-start valves MS-DE	4	-	-	■	■	■	■	■	-	-	-	■	7-2, 7-23
	6	-	-	■	■	-	■	■	-	-	-	■	
	12	-	-	■	■	-	■	-	-	-	-	■	7-30, 7-45
Membrane air dryers MS-LDM1	4	-	■	-	-	-	-	-	-	-	-	■	8-2
	6	-	■	-	-	-	-	-	-	-	-	■	
	12	-											
Branching modules MS-FRM	4	-	-	■	■	■	■	■	-	-	-	■	9-2
	6	-	-	■	■	-	■	■	-	-	-	■	
	12	-	-	■	-	-	-	-	-	-	-	-	9-14
Flow sensors MS-SFE	4	-											10-2
	6	-	-	-	-	-	-	-	■	■	-	■ ¹⁾	
	12	-											

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

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



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

Specified types in accordance with
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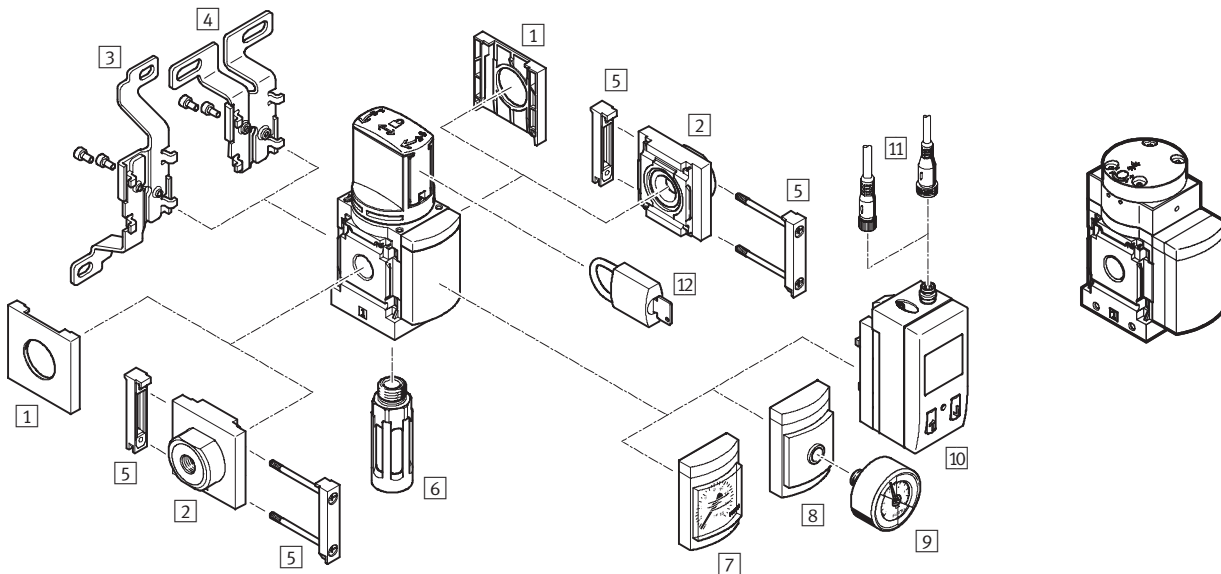
On-off/soft-start valves MS4/MS6-EM1/EE/DL/DE, MS series

FESTO

Peripherals overview

On-off valve EM1
manually actuated

Soft-start valve DL
pneumatically actuated



Mounting attachments and accessories

	Individual unit		Combination → 3/2.11-0		→ Page
	without connect- ing plate	with connecting plate	without connect- ing 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	11-11
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	■	■	■	■	11-10
10 Pressure sensor SDE1-...-MS AD1 ... AD4	■	■	■	■	EM1 7-9 DL 7-22
11 Plug socket with cable SIM-M8-3.../SIM-M12-4...	■	■	■	■	11-10
12 Padlock LRVS-D	■	■	■	■	11-11
– Mounting bracket MS4/6-WP/WPB/WPM	–	■	■	■	11-6, 11-7

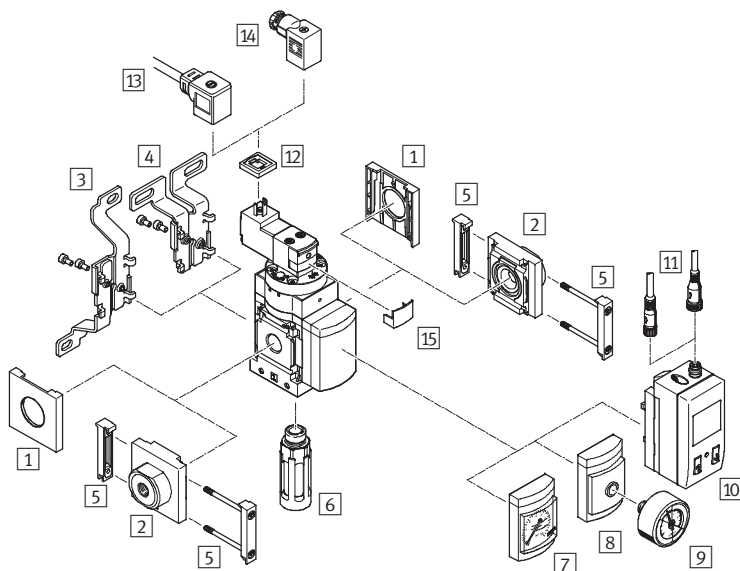
On-off/soft-start valves MS4/MS6-EM1/EE/DL/DE, MS series

Peripherals overview

FESTO

On-off/soft-start valve EE/DE

solenoid actuated



Mounting attachments and accessories						
		Individual unit		Combination → 3/2.11-0		→ Page
		without connect- ing plate	with connecting plate	without connect- ing 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	11-11
7	Pressure gauge MS AG	■	■	■	■	EE 7-16 DE 7-27
8	Adapter for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	EE 7-16 DE 7-27
9	Pressure gauge MA	■	■	■	■	11-10
10	Pressure sensor SDE1-...-MS AD1 ... AD4	■	■	■	■	EE 7-16 DE 7-27
11	Plug socket with cable SIM-M8-3.../SIM-M12-4...	■	■	■	■	11-10
12	Illuminating seal MEB-LD	■	■	■	■	11-10
13	Plug socket with cable KMEB	■	■	■	■	11-9
14	Plug socket MSSD-EB	■	■	■	■	11-9
15	Locking clip CPV18-HV	■	■	■	■	11-9
–	Mounting bracket MS4/6-WP/WPB/WPM	–	■	■	■	11-6, 11-7

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

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Type codes

MS	6	-	EE	-	1/2	-	V110	-	

Further variants can be ordered using the modular system

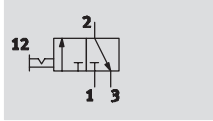
On-off valves EM1	→ 7-9
On-off valves EE	→ 7-16
Soft-start valves DL	→ 7-22
Soft-start valves DE	→ 7-27

- 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	G1/8	G1/4	G1/4	G3/8	G1/2
Pneumatic connection 3	G1/4		G1/2		
Design	Rotary slide valve				
Type of mounting	Via accessories				
	In-line installation				
Assembly position	Any				
Pressure indicator	With pressure sensor for the output pressure display and with electric output				
	With pressure gauge for the output pressure display				
Valve function	3/2-way valve, double solenoid				
Exhaust function	No flow control				
Switching position display	Knob actuator direction = flow direction				
Pilot control mode	Direct				
Direction of flow	Non-reversible				
C value [l/sbar]	4.6	9.0	10.7	21.2	30.8
b value	0.51	0.39	0.56	0.49	0.57

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

FESTO

Technical data

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

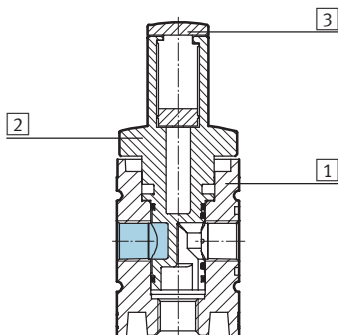
1) Corrosion resistance class 2 according to Festo standard 940 070

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

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

Materials

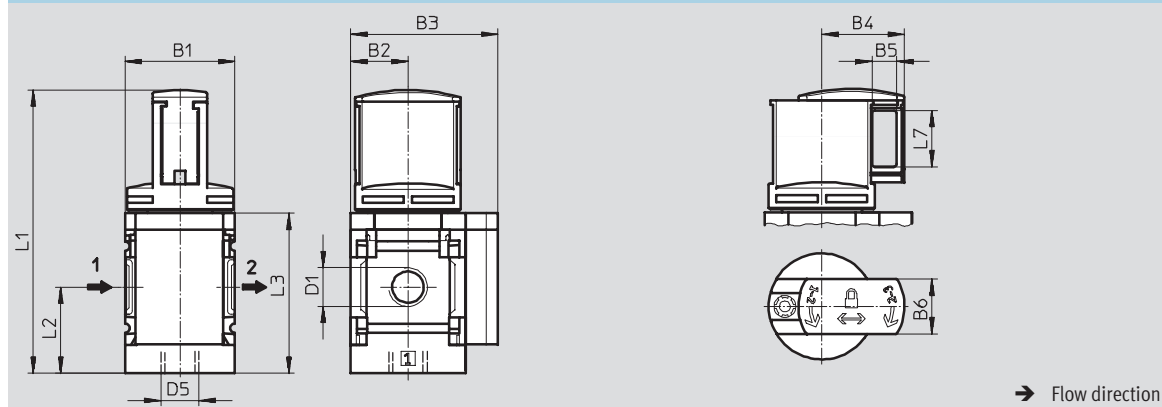
Sectional view



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

Dimensions – Standard

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



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

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

Technical data

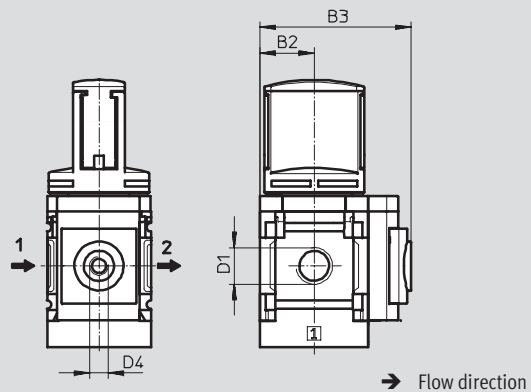
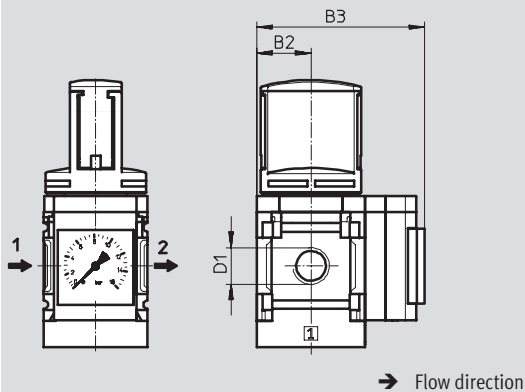
FESTO

Dimensions – Pressure gauge alternatives

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

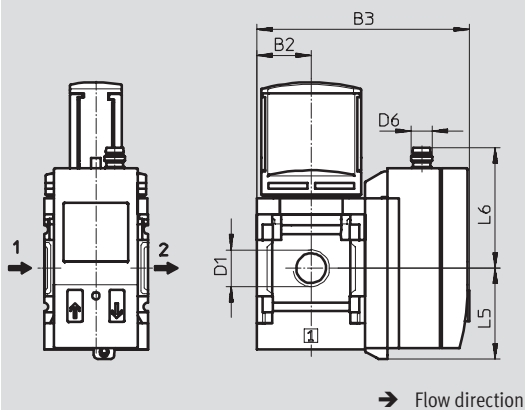
Integrated MS pressure gauge AG, display unit [bar]

Adapter plate A8/A4 for EN pressure gauge $\frac{1}{8}/\frac{1}{4}$, without pressure gauge



Pressure sensor with display AD1 ... AD4

Technical data SDE1 → www.festo.com



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

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

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

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

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

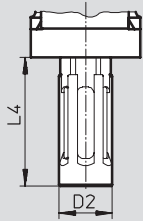
On-off valves MS4/MS6-EM1, MS series

Technical data

FESTO

Dimensions – Silencer

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



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

Ordering data

Size	Connection	Standard		With silencer	
		Part No.	Type	Part No.	Type
MS4	G1/8	541 262	MS4-EM1-1/8 ¹⁾	541 263	MS4-EM1-1/8-S ¹⁾
	G1/4	541 258	MS4-EM1-1/4 ¹⁾	541 259	MS4-EM1-1/4-S ¹⁾
MS6	G1/4	541 271	MS6-EM1-1/4 ¹⁾	541 272	MS6-EM1-1/4-S ¹⁾
	G3/8	541 275	MS6-EM1-3/8 ¹⁾	541 276	MS6-EM1-3/8-S ¹⁾
	G1/2	541 267	MS6-EM1-1/2 ¹⁾	541 268	MS6-EM1-1/2-S ¹⁾

1) Free of copper and PTFE

FESTO

Ordering data – Modular products

Options

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code

M	Module No.	541 266	541 279			
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Series	Standard		MS	MS
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0	Silencer	Silencer	-S
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Pressure gauge alternatives	MS pressure gauge, bar (with adapter)	MS pressure gauge, bar	-AG
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Adapter plate for EN pressure gauge 1/8,	-	-	-A8
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without pressure gauge			
Adapted template for EM pressure gauge 1/2" with ext. pressure gauge			A 4

Adapter plate for EN pressure gauge 1/4", without pressure gauge		-A4
Pressure sensor with display, M8 plug, 1 switching output PNP, 3-pin	1	-AD1

Pressure sensor with display, M8 plug, 1 switching output PNP, 3-pin	2	AD1
Pressure sensor with display, M8 plug, 1 switching output NPN, 3-pin	1	-AD2

Pressure sensor with display, M12 plug, 1 switching output PNP, 4-pin, analogue output	1	-AD3
--	---	------

	4 ... 20 mA			
--	-------------	--	--	--

Pressure sensor with display, M12 plug, 1 switching output NPN, 4-pin, analogue output	1	-AD4
--	---	------

	4 ... 20 mA		
Alternating pressure range scale	no	2	BCI

Alternative pressure gauge scale	psi	2	-PSI
	MPa	2	-MPa

Type of mounting	Mounting bracket	3	-WP
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Mounting bracket	3	-WPM
------------------	---	------

Mounting bracket	-WB
------------------	-----

	Mounting bracket	—	-WBM
--	------------------	---	------

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

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

	MS		-	EM1	-		-		-		-		-	
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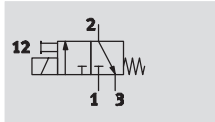
New
Variants AD..., 10V24

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	G1/8	G1/4	G1/4	G3/8	G1/2
Pneumatic connection 3	G1/4		G1/2		
Design	Piston spool valve				
Type of mounting	Via accessories				
	In-line installation				
Assembly position	Any				
Pressure indicator	With pressure sensor for the output pressure display and with electric output				
	With pressure gauge for the output pressure display				
Valve function	3/2-way valve, single solenoid, closed				
Exhaust function	Without flow control				
Type of reset	Mechanical spring				
Switching position display	Via accessories				
Pilot control mode	Direct				
Pilot air supply	External				
Direction of flow	Non-reversible				
C value	[l/sbar]	4.5	9.5	11.0	22.0
b value		0.5	0.44	0.5	0.4
Coil characteristics	V24	24 V DC			
	10V24	24 V DC			
	V110	110 V AC			
	V230	230 V AC			

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

Technical data

FESTO

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

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

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

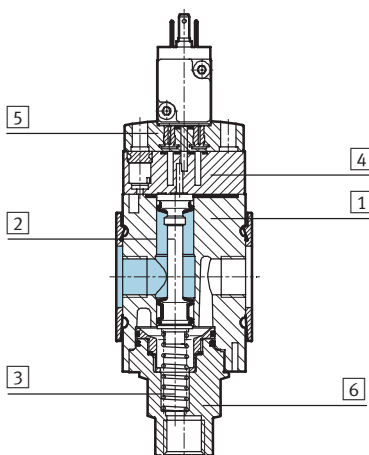
1) Corrosion resistance class 2 according to Festo standard 940 070

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

Weights [g]	
Size	MS4
Standard	273
With silencer	289

Materials

Sectional view



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

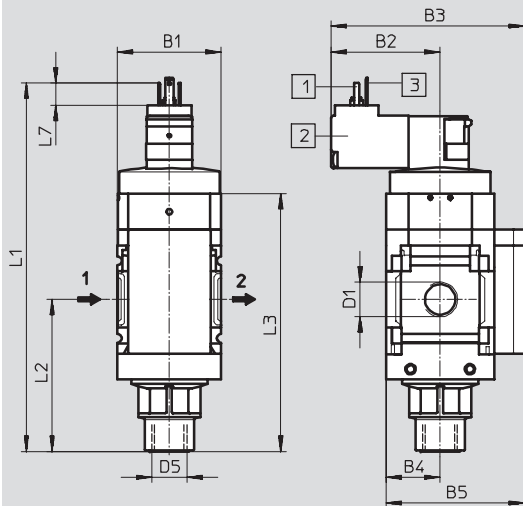
On-off valves MS4/MS6-EE, MS series

Technical data

FESTO

Dimensions – Standard

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



- 1 Plug connection to DIN EN 175 301-803
- 2 Solenoid actuator can be 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	D5	L1	L2	L3	L7
MS4-EE-1/8	40	42.2	75.2	21	54	G1/8	G1/4	142.8	58.9	100	8.6
MS4-EE-1/4						G1/4					
MS6-EE-1/4	62	52	97	31	76	G1/4	G1/2	185.6	84	143	8.6
MS6-EE-3/8						G3/8					
MS6-EE-1/2						G1/2					

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

Technical data

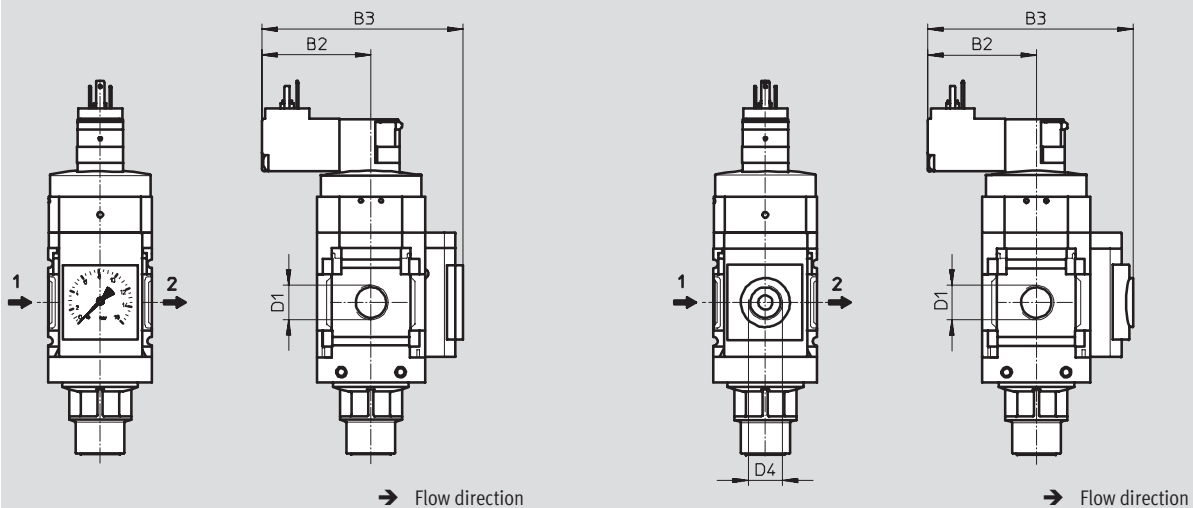
FESTO

Dimensions – Pressure gauge alternatives

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

Integrated MS pressure gauge AG, display unit [bar]

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



Type	B2	B3	D1	D4
MS4-EE-1/8-...-AG	42.2	86.2	G1/8	–
MS4-EE-1/4-...-AG			G1/4	
MS4-EE-1/8-...-A8	42.2	79.7	G1/8	G1/8
MS4-EE-1/4-...-A8			G1/4	
MS4-EE-1/8-...-A4	42.2	79.7	G1/8	G1/4
MS4-EE-1/4-...-A4			G1/4	
MS6-EE-1/4-...-AG	52	106	G1/4	–
MS6-EE-3/8-...-AG			G3/8	
MS6-EE-1/2-...-AG			G1/2	
MS6-EE-1/4-...-A4	52	99.6	G1/4	G1/4
MS6-EE-3/8-...-A4			G3/8	
MS6-EE-1/2-...-A4			G1/2	

New
Variants AD..., 10V24

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

Technical data

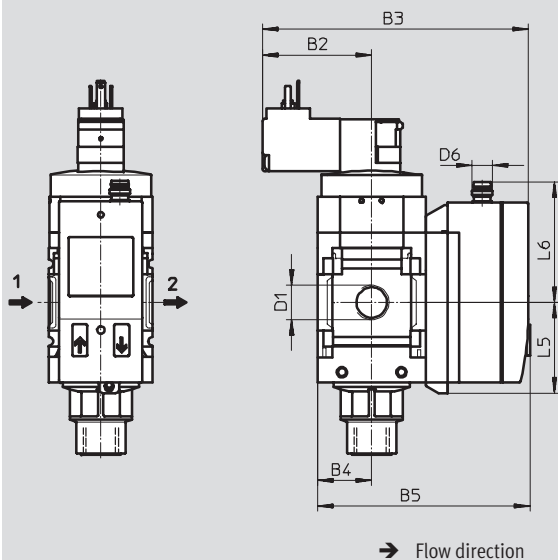
FESTO

Dimensions – Pressure gauge alternatives

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

Pressure sensor with display AD1 ... AD4

Technical data SDE1 → www.festo.com



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

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

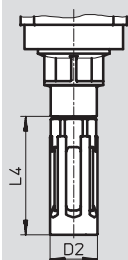
AD3 variants:
SDE1-D10-G2-MS-L-PI-M12 with
4-pin plug M12x1, 1 switching out-
put PNP and 4 ... 20 mA analogue

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

Type	B2	B3	B4	B5	D1	D6	L5	L6
MS4-EE-1/8-...-AD1/AD2	42.2	103.8	21	82.6	G ¹ / ₈	M8x1	35.1	46.7
MS4-EE-1/4-...-AD1/AD2					G ¹ / ₄			
MS4-EE-1/8-...-AD3/AD4	42.2	103.8	21	82.6	G ¹ / ₈	M12x1	35.1	55.8
MS4-EE-1/4-...-AD3/AD4					G ¹ / ₄			
MS6-EE-1/4-...-AD1/AD2	52	124	31	103	G ¹ / ₄	M8x1	35.1	46.7
MS6-EE-3/8-...-AD1/AD2					G ³ / ₈			
MS6-EE-1/2-...-AD1/AD2					G ¹ / ₂			
MS6-EE-1/4-...-AD3/AD4	52	124	31	103	G ¹ / ₄	M12x1	35.1	55.8
MS6-EE-3/8-...-AD3/AD4					G ³ / ₈			
MS6-EE-1/2-...-AD3/AD4					G ¹ / ₂			

Dimensions – Silencer

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



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

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

Technical data

FESTO

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

1) Free of copper and PTFE

 New
Variants AD..., 10V24

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

Ordering data – Modular products

FESTO

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

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

Transfer order code

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

Ordering data – Modular products

FESTO

→ 0 Options

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

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

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

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

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

MS series service units
Start-up and exhaust valves

7

Transfer order code

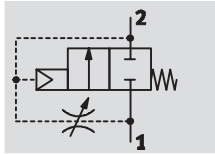
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Soft-start valves MS4/MS6-DL, MS series

Technical data

FESTO

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.

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

- Pneumatically actuated soft-start valve for slowly pressurising and venting pneumatic installations (for use with on-off valves EM1 and EE)
- The drives advance slowly and reliably into the initial position
- Sudden and erratic movements are avoided
- Pressure switching approx. 50% of input pressure
- Adjustable switching time delay
- Optional pressure sensor with display

General technical data					
Size	MS4		MS6		
Pneumatic connection 1, 2	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
Design	Piston poppet valve				
Type of mounting	Via accessories				
	In-line installation				
Assembly position	Any				
Pressure indicator	With pressure sensor for the output pressure display and with electric output				
	With pressure gauge for the output pressure display				
Valve function	2/2-way valve				
Exhaust function	Flow control				
Type of reset	Mechanical spring				
Pilot control mode	Direct				
Pilot air supply	External				
Direction of flow	Non-reversible				
C value [l/sbar]	4.6	9.6	11.22	21.05	28.97
b value	0.5	0.45	0.54	0.48	0.39

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	2,800	5,050	6,450
In relief direction 2 $\rightarrow$ 1	1,000	2,000	2,800	5,050	6,400

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

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

Technical data

FESTO

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

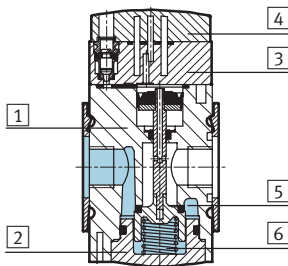
1) Corrosion resistance class 2 according to Festo standard 940 070

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

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

Materials

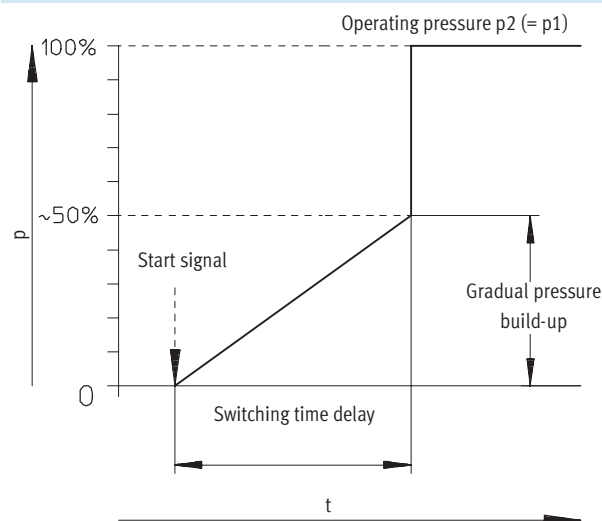
Sectional view



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

Switching point

Pressure p as a function of time t



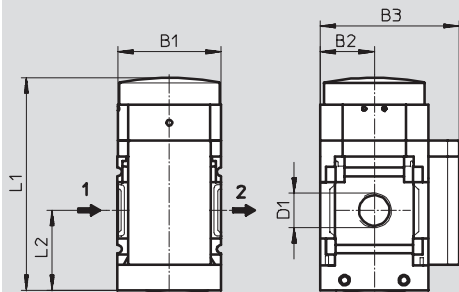
Soft-start valves MS4/MS6-DL, MS series

Technical data

FESTO

Dimensions – Standard

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



→ Flow direction

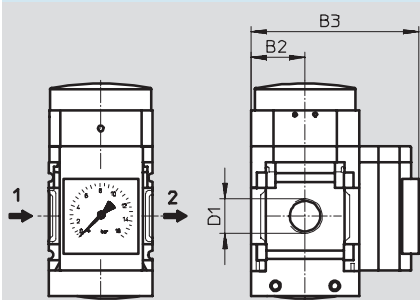
Type	B1	B2	B3	D1	L1	L2
MS4-DL-1/8	40	21	54	G1/8	82.7	31
MS4-DL-1/4				G1/4		
MS6-DL-1/4	62	31	76	G1/4	116	45
MS6-DL-3/8				G3/8		
MS6-DL-1/2				G1/2		

Dimensions – Pressure gauge alternatives

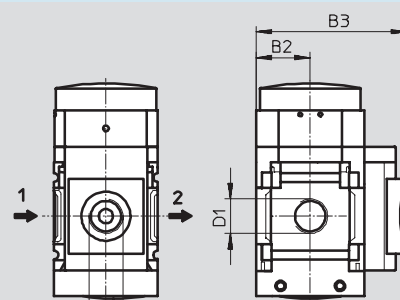
Download CAD data → www.festo.com/en/engineering

Integrated MS pressure gauge AG, display unit [bar]

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



→ Flow direction



→ Flow direction

Type	B2	B3	D1	D4
MS4-DL-1/8-...-AG	21	65	G1/8	-
MS4-DL-1/4-...-AG			G1/4	
MS4-DL-1/8-...-A8	21	58.5	G1/8	G1/8
MS4-DL-1/4-...-A8			G1/4	
MS4-DL-1/8-...-A4	21	58.5	G1/8	G1/4
MS4-DL-1/4-...-A4			G1/4	
MS6-DL-1/4-...-AG	31	85	G1/4	-
MS6-DL-3/8-...-AG			G3/8	
MS6-DL-1/2-...-AG			G1/2	
MS6-DL-1/4-...-A4	31	78.5	G1/4	G1/4
MS6-DL-3/8-...-A4			G3/8	
MS6-DL-1/2-...-A4			G1/2	

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

Technical data

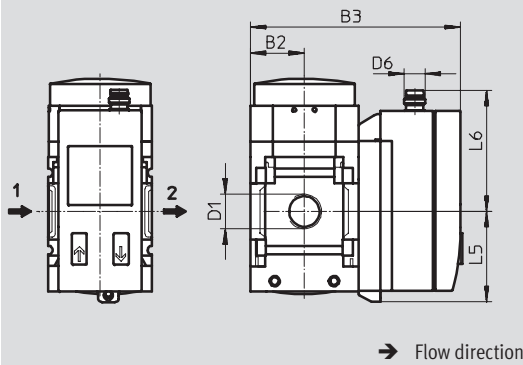
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Dimensions – Pressure gauge alternatives

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

Pressure sensor with display AD1 ... AD4

Technical data SDE1 → www.festo.com



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	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			

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

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 size	Pressure gauge alternatives	Alternative pressure gauge scale	Type of mounting	Alternative flow direction
527 711 527 684	MS	4 6	DL	1/8, 1/4, 3/8, 1/2 AGA, AGB, AGC, AGD, AGE	AG, A8, A4, AD1, AD2, AD3, AD4	PSI MPa	WP WPM WB WBM	Z
Order example								
527 711	MS	4	- DL	- AGA	- AG	- PSI	- WB	- Z

Ordering table							
Grid dimension		[mm]	40	62	Condi- tions	Code	Enter code
M	Module No.		527 711	527 684			
	Series		Standard			MS	MS
	Size		4	6		...	
	Function		Soft-start valve, pneumatic			-DL	-DL
	Connection size		Thread G1/8	–		-1/8	
			Thread G1/4	Thread G1/4		-1/4	
			–	Thread G3/8		-3/8	
			–	Thread G1/2		-1/2	
			Connecting plate G1/8	–		-AGA	
			Connecting plate G1/4	Connecting plate G1/4		-AGB	
			Connecting plate G3/8	Connecting plate G3/8		-AGC	
			–	Connecting plate G1/2		-AGD	
			–	Connecting plate G3/4		-AGE	
O	Pressure gauge alternatives		MS pressure gauge, bar (with adapter)	MS pressure gauge, bar		-AG	
			Adapter plate for EN pressure gauge 1/8, without pressure gauge	–		-A8	
			Adapter plate for EN pressure gauge 1/4, without pressure gauge			-A4	
			Pressure sensor with display, M8 plug, 1 switching output PNP, 3-pin		1	-AD1	
			Pressure sensor with display, M8 plug, 1 switching output NPN, 3-pin		1	-AD2	
			Pressure sensor with display, M12 plug, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA		1	-AD3	
			Pressure sensor with display, M12 plug, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA		1	-AD4	
	Alternative pressure gauge scale		psi		2	-PSI	
			MPa		2	-MPA	
	Type of mounting		Mounting bracket		3	-WP	
			Mounting bracket		3	-WPM	
			Mounting bracket			-WB	
			Mounting bracket	–		-WBM	
	Alternative flow direction		Flow direction from right to left			-Z	

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

2 PSI, MPA Only with pressure gauge AG.

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

Transfer order code

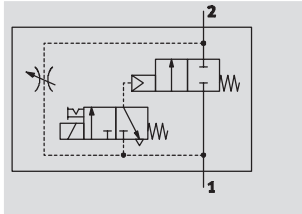
	MS		-	DL	-		-		-		-		-	
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Soft-start valves MS4/MS6-DE, MS series

Technical data

FESTO

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	G1/8	G1/4	G1/4	G3/8	G1/2
Design	Piston poppet valve				
Type of mounting	Via accessories				
	In-line installation				
Assembly position	Any				
Pressure indicator	With pressure sensor for the output pressure display and with electric output				
	With pressure gauge for the output pressure display				
Valve function	2/2-way valve				
Exhaust function	Flow control				
Type of reset	Mechanical spring				
Switching position display	Via accessories				
Pilot control mode	Piloted				
Pilot air supply	External				
Direction of flow	Non-reversible				
C value [l/sbar]	4.6	9.6	11.22	21.05	28.97
b value	0.5	0.45	0.54	0.48	0.39
Coil characteristics	V24	24 V DC			
	10V24	24 V DC			
	V110	110 V AC			
	V230	230 V AC			

New Variants AD..., 10V24

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

Technical data

FESTO

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

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

2) For energised solenoid valve.

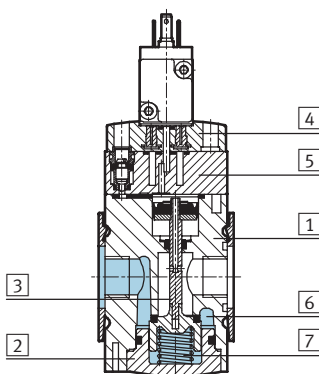
Operating and environmental conditions						
Variant	Coil parameter V24, V110, V230		Coil parameter 10V24		Pressure sensor with display AD...	
Size	MS4	MS6	MS4	MS6	MS4	MS6
Operating pressure [bar]	4 ... 14	4 ... 18	4 ... 10	4 ... 10	4 ... 10	4 ... 10
Operating medium	Compressed air				Filtered compressed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

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

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

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

Materials
Sectional view



Soft-start valve	
1	Body
2	Base
3	Valve stem
4	End cap
5	Top plate
6	Seat
7	Springs
–	Seals
Note on materials	
Free of copper and PTFE (not with variants AG, 10V24 or AD...)	

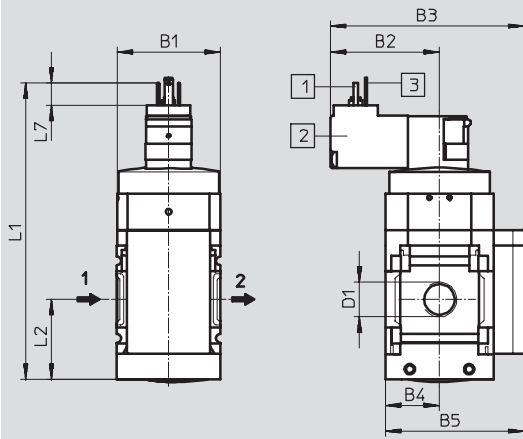
Soft-start valves MS4/MS6-DE, MS series

Technical data

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Dimensions – Standard

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



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

→ Flow direction

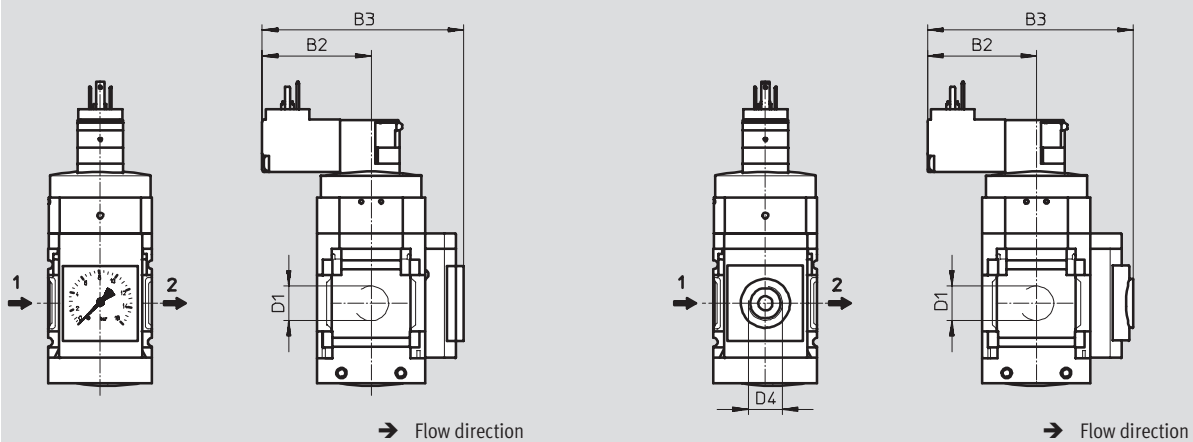
Type	B1	B2	B3	B4	B5	D1	L1	L2	L7
MS4-DE-1/8	40	42.2	75.2	21	54	G1/8	115.4	31.5	8.6
MS4-DE-1/4						G1/4			
MS6-DE-1/4	62	52	97	31	76	G1/4	147	45.5	8.6
MS6-DE-3/8						G3/8			
MS6-DE-1/2						G1/2			

Dimensions – Pressure gauge alternatives

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

Integrated MS pressure gauge AG, display unit [bar]

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



Type	B2	B3	D1	D4
MS4-DE-1/8-...-AG	42.2	86.2	G1/8	-
MS4-DE-1/4-...-AG			G1/4	
MS4-DE-1/8-...-A8	42.2	79.7	G1/8	G1/8
MS4-DE-1/4-...-A8			G1/4	
MS4-DE-1/8-...-A4	42.2	79.7	G1/8	G1/4
MS4-DE-1/4-...-A4			G1/4	
MS6-DE-1/4-...-AG	52	106	G1/4	-
MS6-DE-3/8-...-AG			G3/8	
MS6-DE-1/2-...-AG			G1/2	
MS6-DE-1/4-...-A4	52	99.6	G1/4	G1/4
MS6-DE-3/8-...-A4			G3/8	
MS6-DE-1/2-...-A4			G1/2	

New
Variants AD..., 10V24

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

Technical data

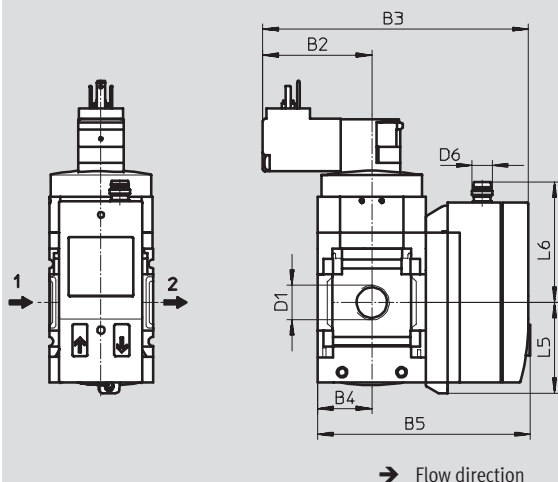
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Dimensions – Pressure gauge alternatives

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

Pressure sensor with display AD1 ... AD4

Technical data SDE1 → www.festo.com



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

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

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

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

Type	B2	B3	B4	B5	D1	D6	L5	L6
MS4-DE-1/8-...-AD1/AD2	42.2	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	42.2	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	52	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	52	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			

Ordering data

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

1) Free of copper and PTFE

FESTO

Ordering data – Modular products

Mandatory data

Options

Ordering table						
Grid dimension [mm]		40	62	Condi- tions	Code	Enter code
M	Module No.	527 713	527 686			
	Series	Standard			MS	MS
	Size	4	6		...	
	Function	Soft-start valve, electrical			-DE	-DE
	Connection size	Thread G1/8	–		-1/8	
		Thread G3/4	Thread G1/4		-1/4	
		–	Thread G3/8		-3/8	
		–	Thread G1/2		-1/2	
		Connecting plate G1/8	–		-AGA	
		Connecting plate G1/4	Connecting plate G1/4		-AGB	
		Connecting plate G3/8	Connecting plate G3/8		-AGC	
		–	Connecting plate G1/2		-AGD	
		–	Connecting plate G3/4		-AGE	
	Supply voltage	24 V DC (connection pattern to EN 175301), 18 bar			-V24	
		24 V DC (connection pattern to EN 175301), 10 bar			-10V24	
		110 V AC (connection pattern to EN 175301), 18 bar			-V110	
		230 V AC (connection pattern to EN 175301), 18 bar			-V230	
O	Pressure gauge alternatives	MS pressure gauge, bar (with adapter)	MS pressure gauge, bar		-AG	
		Adapter plate for EN pressure gauge 1/8, without pressure gauge	–		-A8	
		Adapter plate for EN pressure gauge 1/4, without pressure gauge			-A4	
		Pressure sensor with display, M8 plug, 1 switching output PNP, 3-pin		1	-AD1	
		Pressure sensor with display, M8 plug, 1 switching output NPN, 3-pin		1	-AD2	
		Pressure sensor with display, M12 plug, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA		1	-AD3	
		Pressure sensor with display, M12 plug, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA		1	-AD4	
		Alternative pressure gauge scale	psi		2	-PSI
	MPa			2	-MPA	
	Type of mounting	Mounting bracket		3	-WP	
		Mounting bracket		3	-WPM	
		Mounting bracket			-WB	
		Mounting bracket	–		-WBM	
	Alternative flow direction	Flow direction from right to left			-Z	

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

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

Transfer order code

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

FESTO

Wide range of configuration options

→ www.festo.com/en/engineering



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



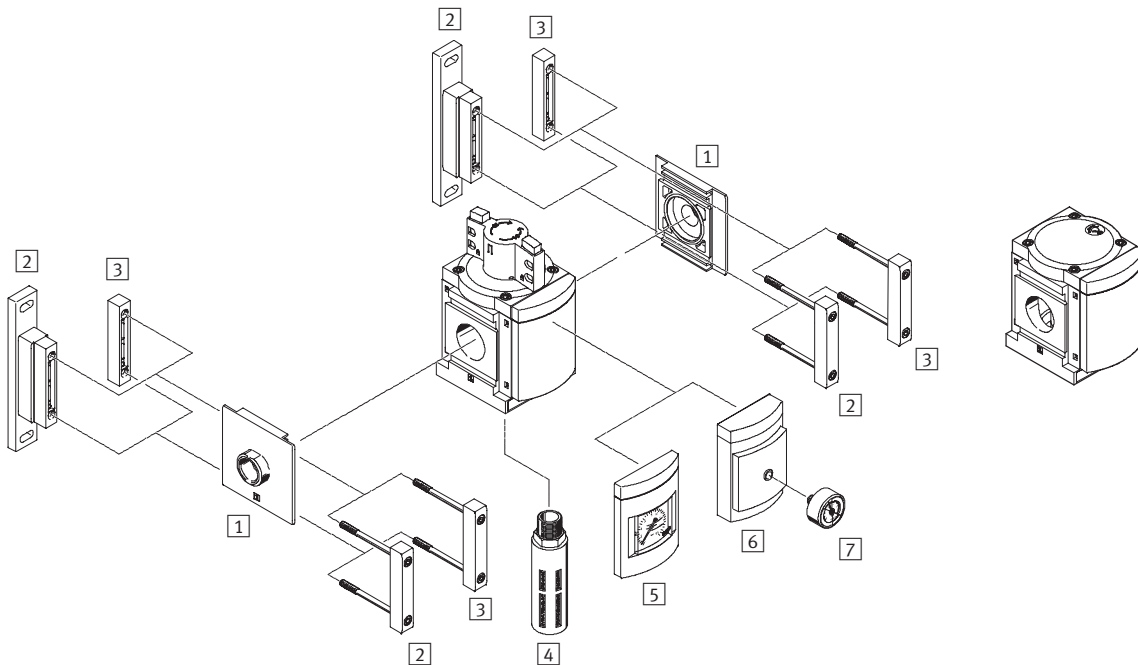
On-off/soft-start valves MS12-EM/EE/DL/DE, MS series

Peripherals overview

FESTO

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	11-11
5 MS pressure gauge AG	EM 7-36 DL 7-44
6 Adapter for EN pressure gauge 1/4 A4	EM 7-36 DL 7-44
7 Pressure gauge MA	11-10

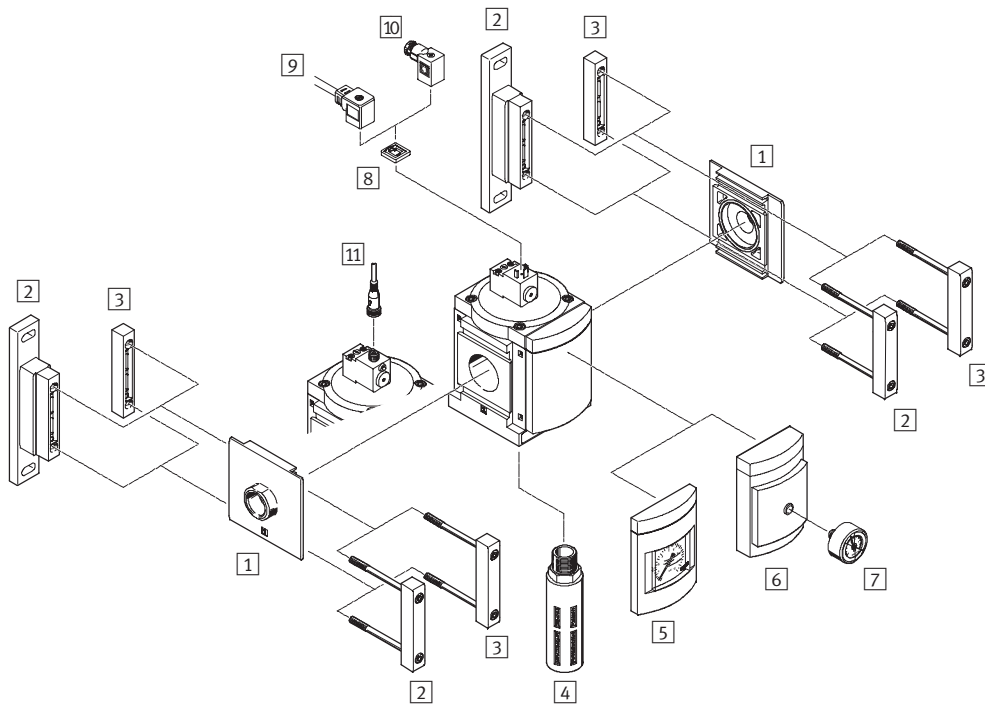
On-off/soft-start valves MS12-EM/EE/DL/DE, MS series

Peripherals overview

FESTO

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	11-11
5	MS pressure gauge AG	EE 7-40 DE 7-48
6	Adapter for EN pressure gauge 1/4 A4	EE 7-40 DE 7-48
7	Pressure gauge MA	11-10
8	Illuminating seal MC-LD	11-9
9	Plug socket with cable KMC	11-9
10	Plug socket MSSD-C	11-9
11	Plug socket with cable SIM-M12-4...	11-10

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

FESTO

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	→ 7-36
On-off valves EE	→ 7-40
Soft-start valves DL	→ 7-44
Soft-start valves DE	→ 7-48

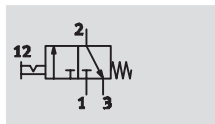
- Connecting plates
- Supply voltage (for EE and DE only)
- Silencer (for EM and EE only)
- Pressure gauge/adaptor
- Alternative pressure gauge scale
- Type of mounting
- Alternative flow direction

On-off valves MS12-EM, MS series

FESTO

Technical data

Function



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



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

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

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 11-2

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

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

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

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

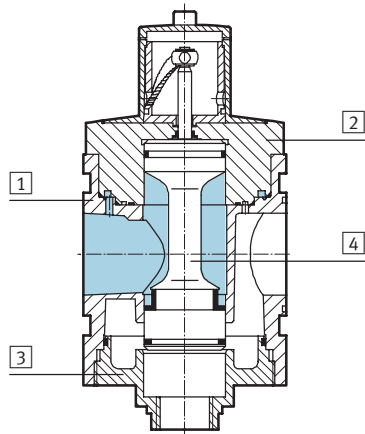
On-off valves MS12-EM, MS series

FESTO

Technical data

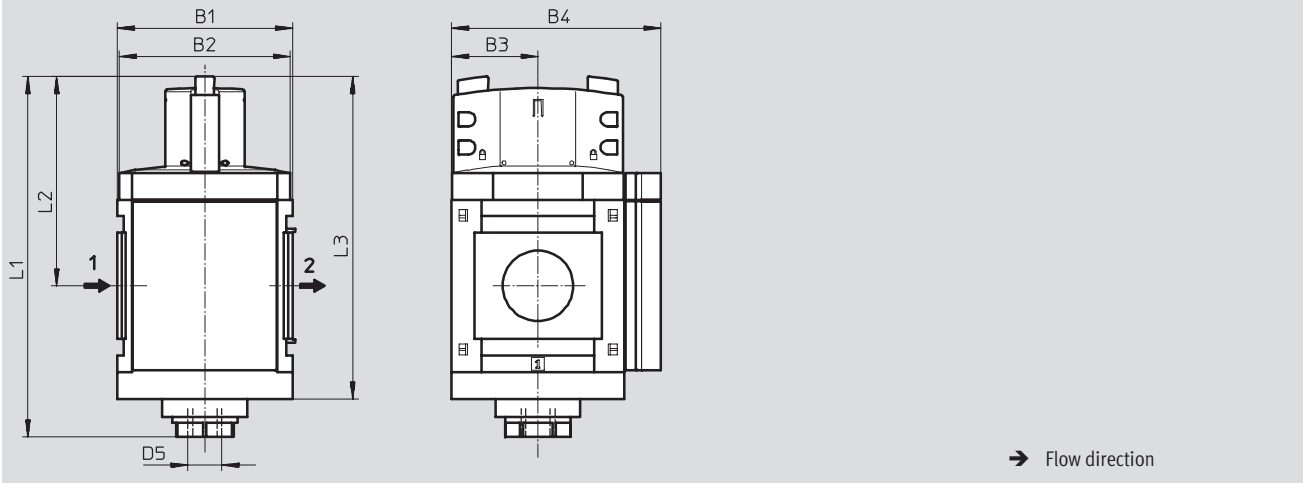
Weights [g]	
Standard	3,900
With silencer	4,000

Materials	
Sectional view	



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

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

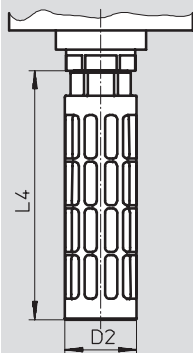
On-off valves MS12-EM, MS series

Technical data

FESTO

Dimensions – Silencer

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



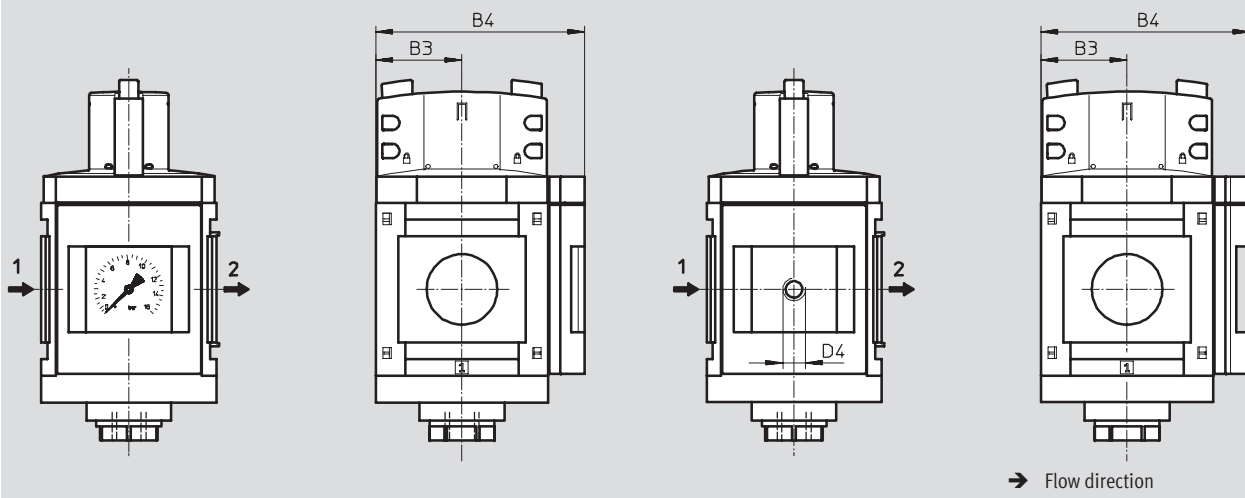
Type	D2 Ø	L4
MS12-EM-...-S	47.8	165.5

Dimensions – Pressure gauges/adapters

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

Integrated MS pressure gauge AG, display unit [bar]

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



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

Ordering data

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

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

2) Free of copper and PTFE

On-off valves MS12-EM, MS series

Ordering data – Modular products

FESTO

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

Ordering table					Grid dimension	[mm]	124	Condi- tions	Code	Enter code
M	Module No.	535 031								
	Series	Standard							MS	MS
	Size	12							12	12
	Function	On-off valve, manual							-EM	-EM
	Connection size	Connecting plate G1							-AGF	
		Connecting plate G1 1/4							-AGG	
		Connecting plate G1 1/2							-AGH	
		Connecting plate G2							-AGI	
		Module without connecting thread, without connecting plate							-G	
O	Silencer	Silencer							-S	
	Pressure gauge/adapter	MS pressure gauge, bar							-AG	
		Adapter plate for EN pressure gauge 1/4, without pressure gauge							-A4	
	Alternative pressure gauge scale	psi						1	-PSI	
		MPa						1	-MPA	
	Type of mounting	Mounting bracket						2	-WP	
	Alternative flow direction	Flow direction from right to left							-Z	

1 PSI, MPA Only with pressure gauge AG.

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

Transfer order code

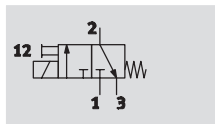
535 031	MS	12	- EM	-		-		-		-		-	
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On-off valves MS12-EE, MS series

FESTO

Technical data

Function



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



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

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

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 11-2

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

FESTO

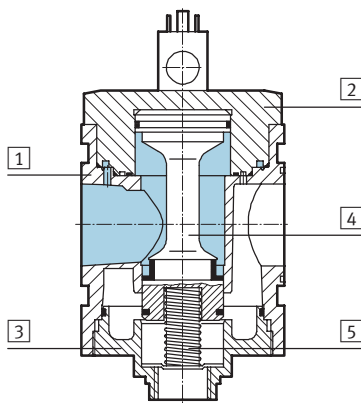
Operating and environmental conditions		
Operating pressure	[bar]	3 ... 16
Operating medium		Compressed air
Ambient temperature	[°C]	-10 ... +50
Temperature of medium	[°C]	-10 ... +50
Corrosion resistance	CRC ¹⁾	2

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

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

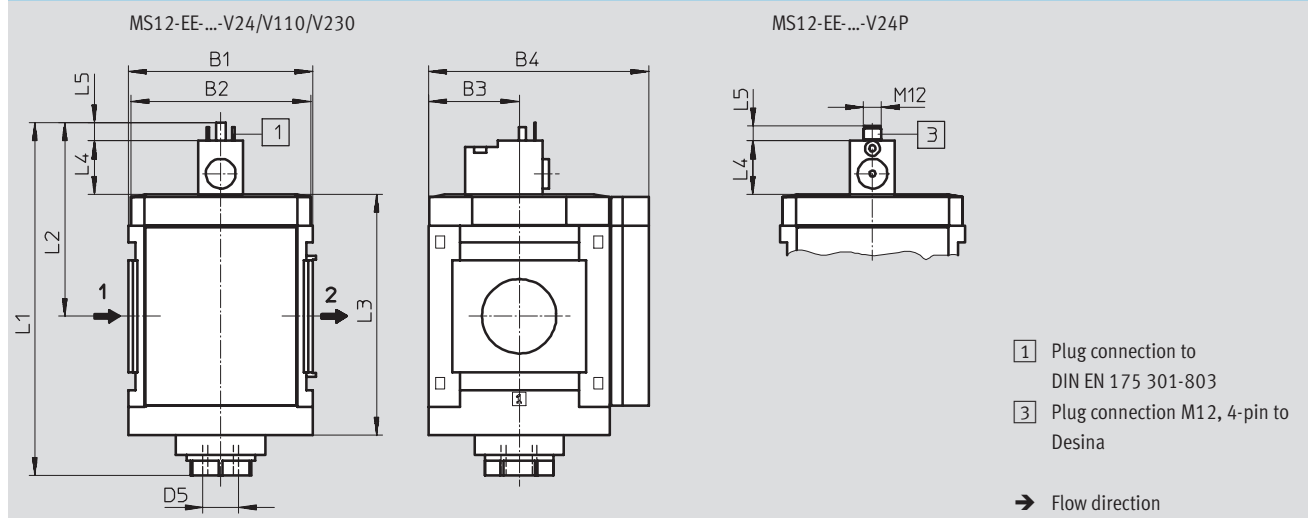
Weights [g]	
Standard	3,800
With silencer	3,900

Materials
Sectional view



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

Dimensions – Standard	Download CAD data → www.festo.com/en/engineering
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Type	B1	B2	B3	B4	L1	L2	L3	L4	L5	D5
MS12-EE-...-V24/V110/V230	124	122	61	148	237	130	162	35.7	12.3	G1
MS12-EE-...-V24P								36	10	

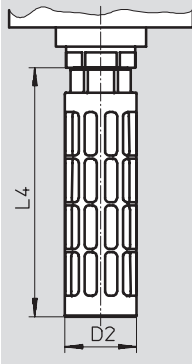
On-off valves MS12-EE, MS series

Technical data

FESTO

Dimensions – Silencer

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



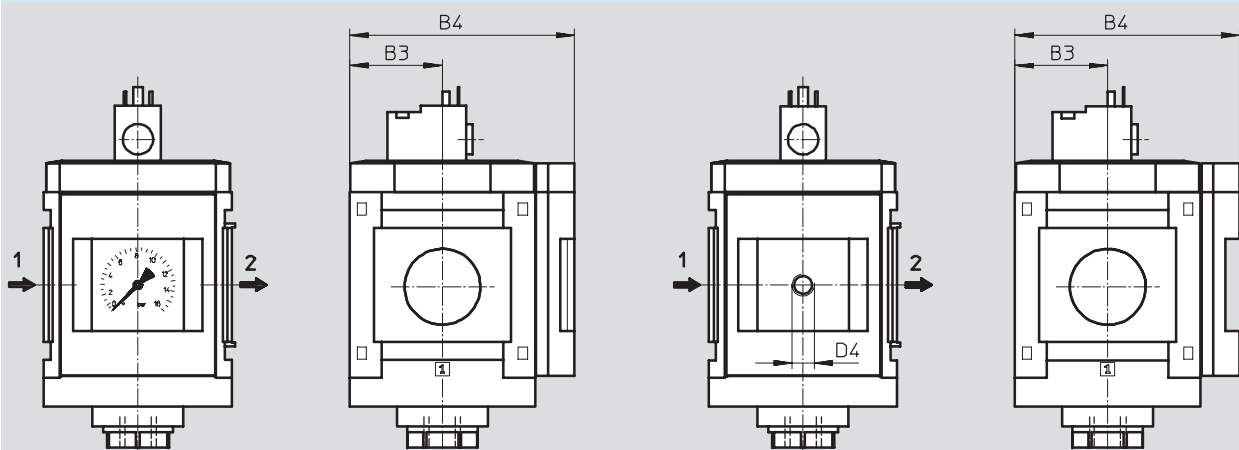
Type	D2 Ø	L4
MS12-EE-...-S	47.8	165.5

Dimensions – Pressure gauges/adapters

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

Integrated MS pressure gauge AG, display unit [bar]

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



→ Flow direction

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

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

1) Connecting plate must be ordered separately as an accessory → 11-2
2) Free of copper and PTFE

MS series service units
Start-up and exhaust valves
7

On-off valves MS12-EE, MS series

Ordering data – Modular products

FESTO

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

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

1 PSI, MPA Only with pressure gauge AG.

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

Transfer order code

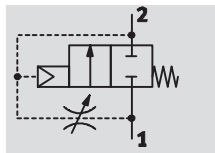
535 032	MS	12	- EE	-		-		-		-		-		-	
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Soft-start valves MS12-DL, MS series

FESTO

Technical data

Function



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



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

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

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

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

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 11-2

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

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

Soft-start valves MS12-DL, MS series

Technical data



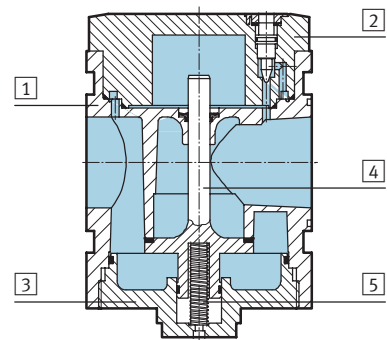
Operating and environmental conditions		
Operating pressure	[bar]	2 ... 21
Operating medium		Compressed air
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	-10 ... +60
Corrosion resistance	CRC ¹⁾	2

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

Weights [g]	
Soft-start valve	3,600

Materials

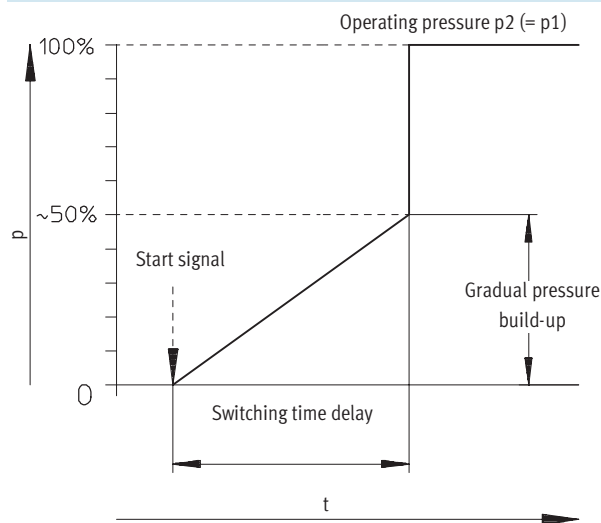
Sectional view



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

Switching point

Pressure p as a function of time t



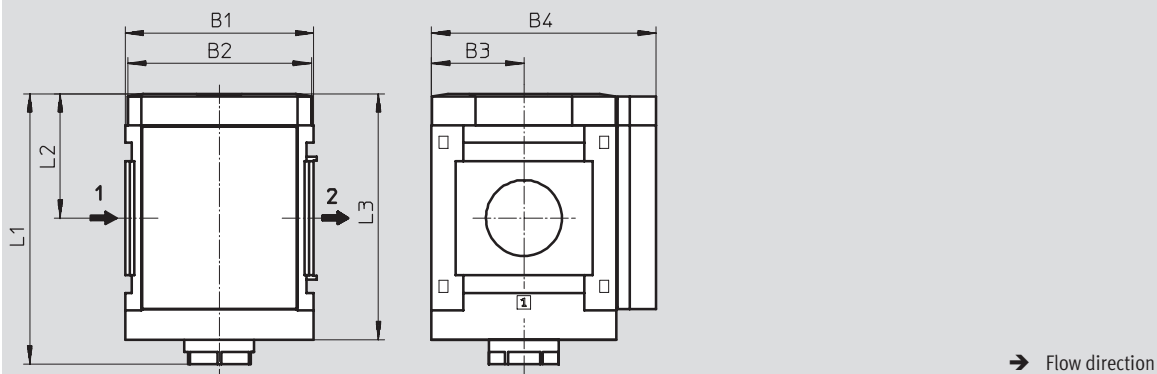
Soft-start valves MS12-DL, MS series

Technical data

FESTO

Dimensions – Standard

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



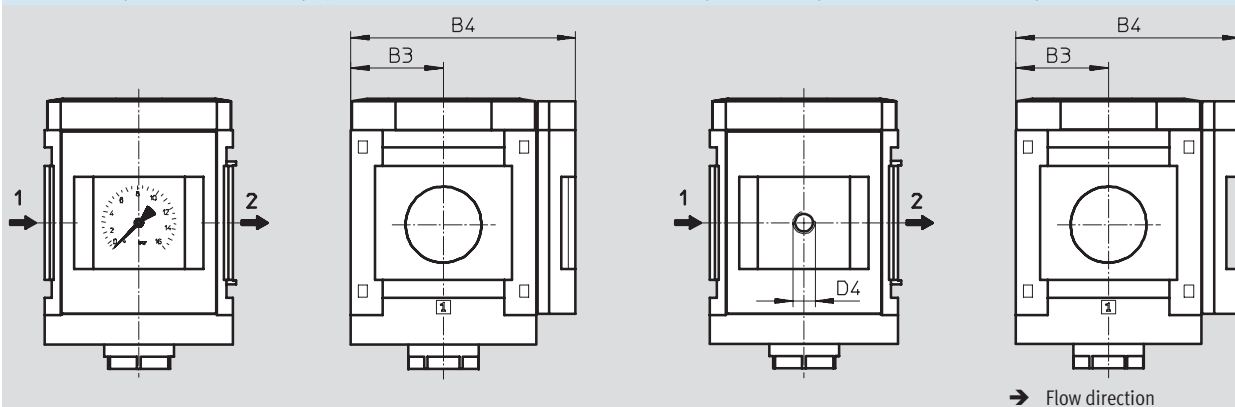
Type	B1	B2	B3	B4	L1	L2	L3
MS12-DL	124	122	61	148	178	82	162

Dimensions – Pressure gauges/adapters

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

Integrated MS pressure gauge AG, display unit [bar]

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



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

Ordering data

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

- 1) Connecting plate must be ordered separately as an accessory → 11-2
 2) Free of copper and PTFE

Soft-start valves MS12-DL, MS series

Ordering data – Modular products

FESTO

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

Ordering table				
Grid dimension	[mm]	124	Condi- tions	Code
M Module No.	535 033			
Series	Standard			MS
Size	12			12
Function	Soft-start valve, pneumatic			-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.

Transfer order code

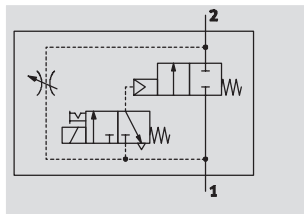
535 033	MS	12	- DL	-	-	-	-	-
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Soft-start valves MS12-DE, MS series

Technical data

FESTO

Function



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



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

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

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

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

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 11-2

Soft-start valves MS12-DE, MS series

Technical data

FESTO

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

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

2) For energised solenoid valve

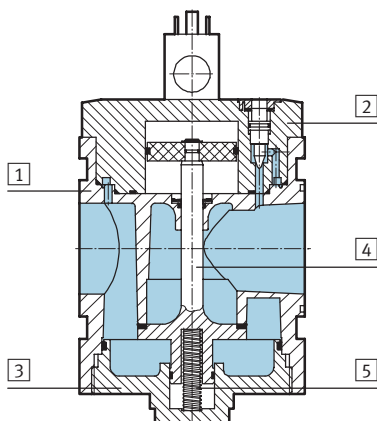
Operating and environmental conditions	
Operating pressure [bar]	3 ... 16
Operating medium	Compressed air
Ambient temperature [°C]	-10 ... +50
Temperature of medium [°C]	-10 ... +50
Corrosion resistance CRC ¹⁾	2

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

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

Weights [g]	
Soft-start valve	3,800

Materials	
Sectional view	



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

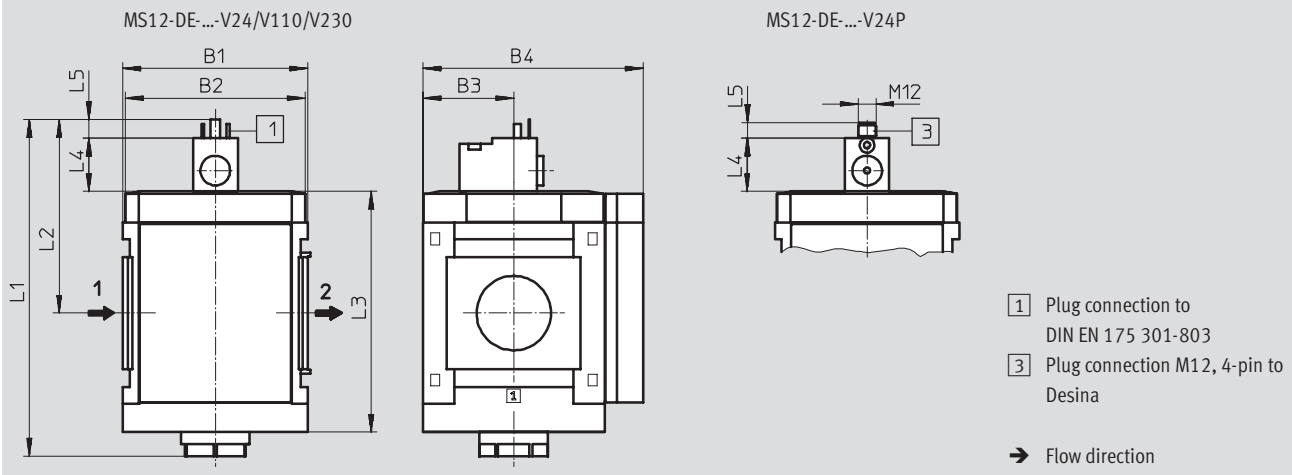
Soft-start valves MS12-DE, MS series

Technical data

FESTO

Dimensions – Standard

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



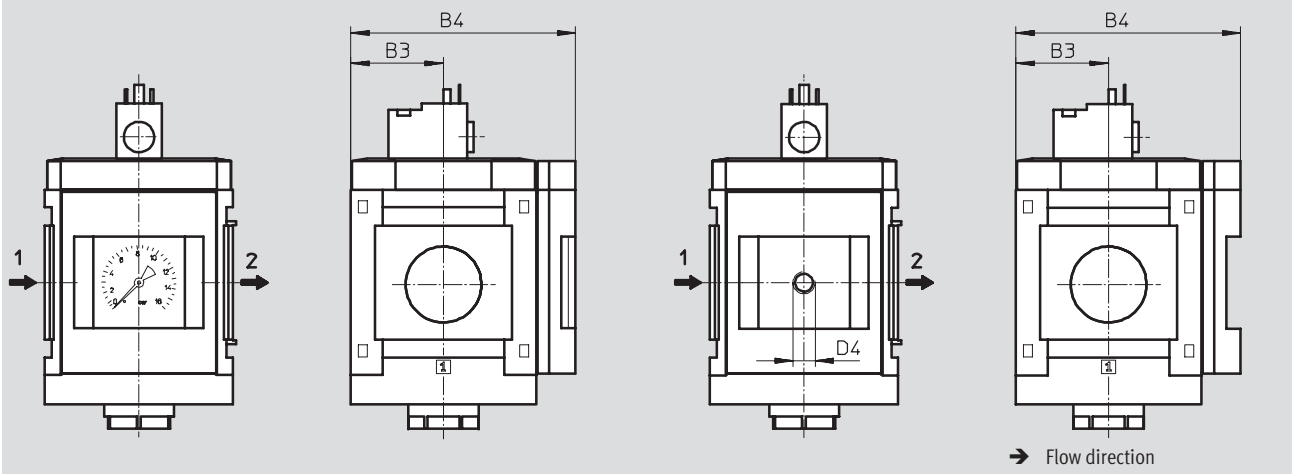
Type	B1	B2	B3	B4	L1	L2	L3	L4	L5
MS12-DE-...-V24/V110/V230	124	122	61	148	226	130	162	35.7	12.3
MS12-DE-...-V24P								36	10

Dimensions – Pressure gauges/adapters

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

Integrated MS pressure gauge AG, display unit [bar]

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



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

Ordering data

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

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

2) Free of copper and PTFE

MS series service units
Start-up and exhaust valves

7

Soft-start valves MS12-DE, MS series

Ordering data – Modular products

FESTO

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

Ordering table						Condi- tions	Code	Enter code
Grid dimension	[mm]	124						
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 - - - - -



MS series service units

Accessories

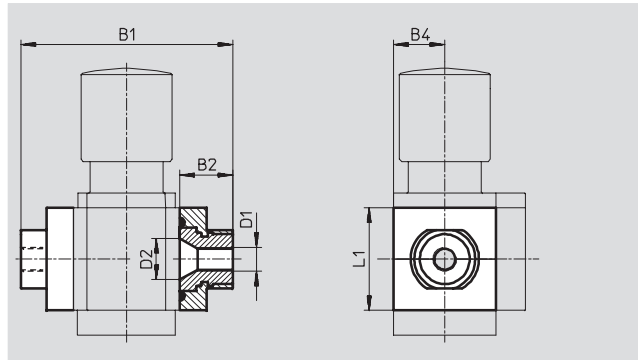
FESTO

Connecting plate MS4/6-AG...

(order code: AG...)

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

Material:
Aluminium



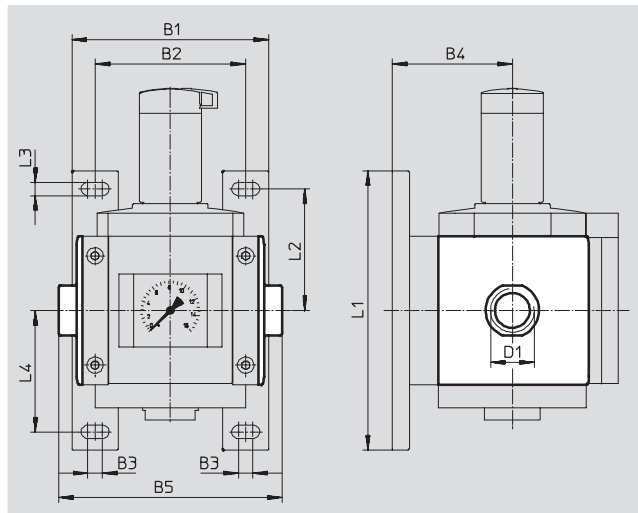
Dimensions and ordering data									
Size	B1	B2	B4	D1	D2	L1	Weight [g]	Part No.	Type
MS4	83.5	21.5	21	G $\frac{1}{8}$	16.8	42	128	526 068	MS4-AGA
				G $\frac{1}{4}$				526 069	MS4-AGB
				G $\frac{3}{8}$				526 070	MS4-AGC
MS6	115	26.5	31	G $\frac{1}{4}$	24	62	300	526 080	MS6-AGB
				G $\frac{3}{8}$				526 081	MS6-AGC
				G $\frac{1}{2}$				526 082	MS6-AGD
				G $\frac{3}{4}$				526 083	MS6-AGE

Connecting plate MS12-AG...

(order code: AG...)

- Adapter for pneumatic connection

Material:
Die-cast aluminium
Free of copper 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	G1 $\frac{1}{4}$						537 136 MS12-AGG
					184	G1 $\frac{1}{2}$						537 137 MS12-AGH
					196	G2						537 138 MS12-AGI

MS series service units

Accessories

FESTO

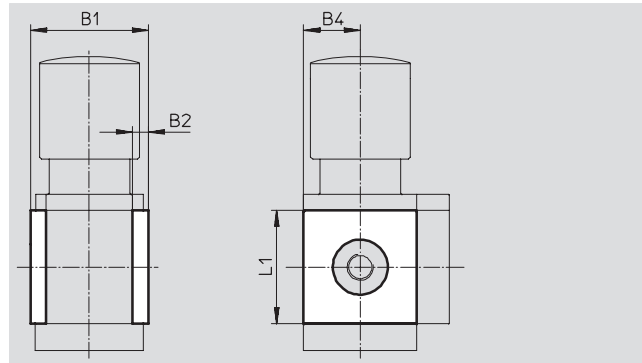
Cover cap MS4/6-END

- 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

Mounting plate MS6-AEND

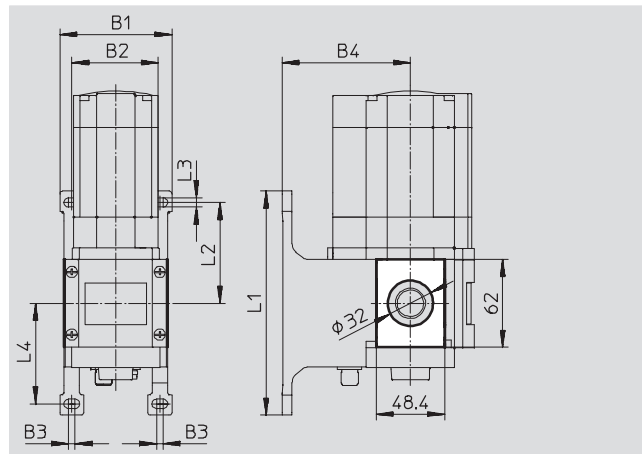
(order code: WBE; scope of delivery includes wall mounting plate MS6-WPB)

- In combination with wall mounting plate MS6-WP or MS6-WPB for mounting an individual unit on a wall with direct thread

Material:

Reinforced polyamide

Free of copper and PTFE



Dimensions and ordering data											
Size	B1	B2	B3	B4	L1	L2	L3	L4	CRC ¹⁾	Weight [g]	Part No. Type
MS6	79	62	4.5	90.5	158	71	6.6	71	2	17	535 408 MS6-AEND  New

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

FESTO

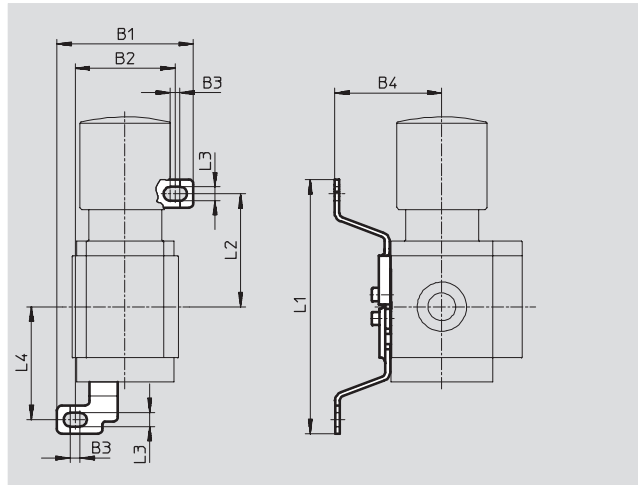
Mounting bracket MS4/6-WB

(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

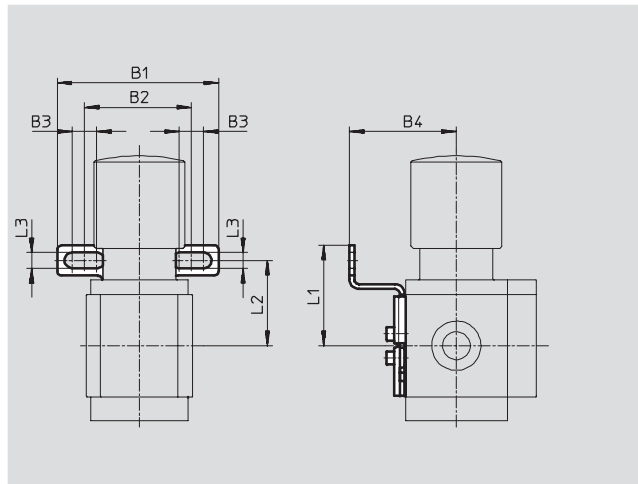
Mounting bracket MS4-WBM

(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

FESTO

Mounting bracket MS4/6-WP...

Clearances for mounting service unit combinations

1 unit

MS4-...: 40 mm

MS6-...: 62 mm

2 units

MS4-...: 80 mm

MS6-...: 124 mm with WP, WPB

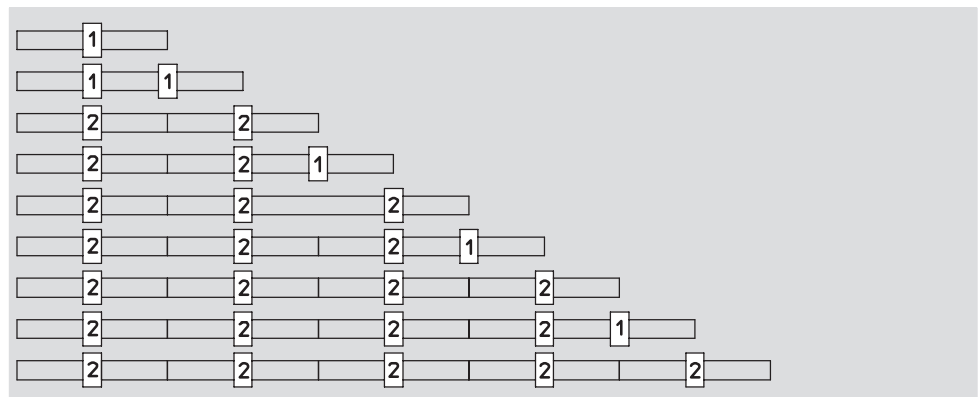
138 mm with WPM-2D

1 Mounting bracket WP, WPB or WPM-D

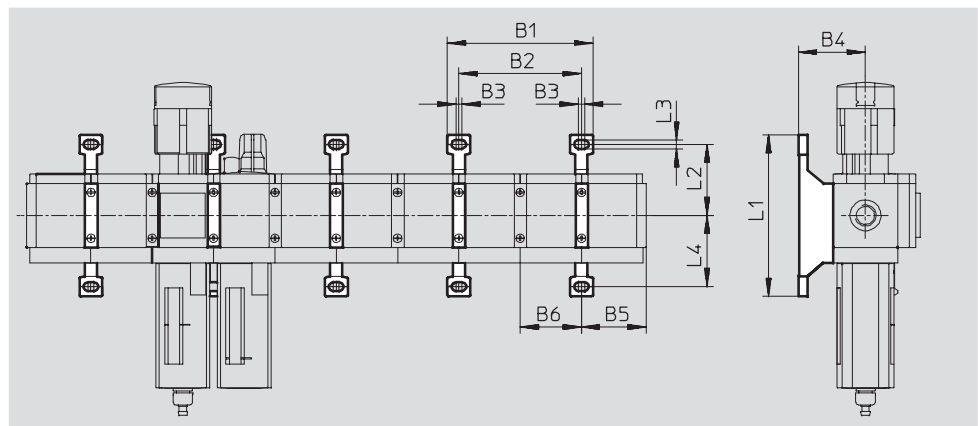
2 Mounting bracket WP, WPB or WPM-2D

Number of units

1 2 3 4 5 6 7 8 9 10



Mounting dimensions



Type	B1	B2	B3	B4	B5	B6	L1	L2	L3	L4
MS4-WP	95.2	80	4	44	41.9	40	106	46.5	5.6	46.7
MS4-WPB				66						
MS4-WPM-...D				44			92.8	34.8		40
MS6-WP	141	124	4.5	54	64.5	62	158	71	6.6	71
MS6-WPB				90.5						
MS6-WPM-...D				54			98.6	41.3		41.3

MS series service units

Accessories

FESTO

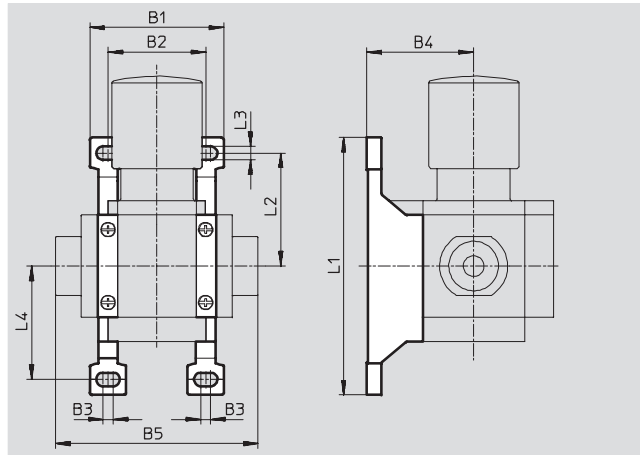
Mounting bracket MS4/6-WP

(order code: WP)

- For connecting the modules for wall mounting
- In combination with a connecting plate MS4/6-AG... for mounting an individual unit on a wall
- In combination with mounting plate MS6-AEND or for mounting an individual unit with direct thread on a wall
- For pressure regulator LRB with angled outlet block B... at rear

Material:

Die-cast aluminium



Dimensions and ordering data												
Size	B1	B2	B3	B4	B5	L1	L2	L3	L4	Weight [g]	Part No.	Type
MS4	55.2	40.2	4	44	83.4	106	46.5	5.6	46.7	39	532 184	MS4-WP
MS6	79	62	4.5	54	115	158	71	6.6	71	76	532 195	MS6-WP

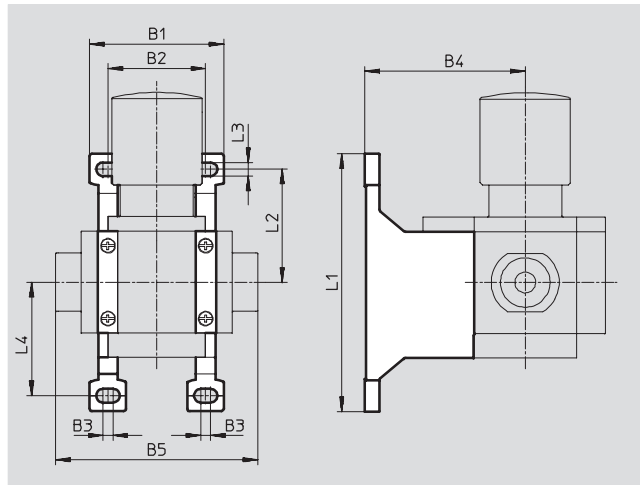
Mounting bracket MS4/6-WPB

(order code: WPB)

- For connecting the modules for wall mounting
- In combination with a connecting plate MS4/6-AG... for mounting an individual unit on a wall
- In combination with mounting plate MS6-AEND or for mounting an individual unit with direct thread on a wall
- Provides large wall gap for pressure regulator

Material:

Die-cast aluminium



Dimensions and ordering data												
Size	B1	B2	B3	B4	B5	L1	L2	L3	L4	Weight [g]	Part No.	Type
MS4	55.2	40.2	4	66	83.4	106	46.5	5.6	46.7	55	526 063	MS4-WPB
MS6	79	62	4.5	90.5	115	158	71	6.6	71	115	526 074	MS6-WPB

MS series service units

Accessories

FESTO

Mounting bracket MS4/6-WPM

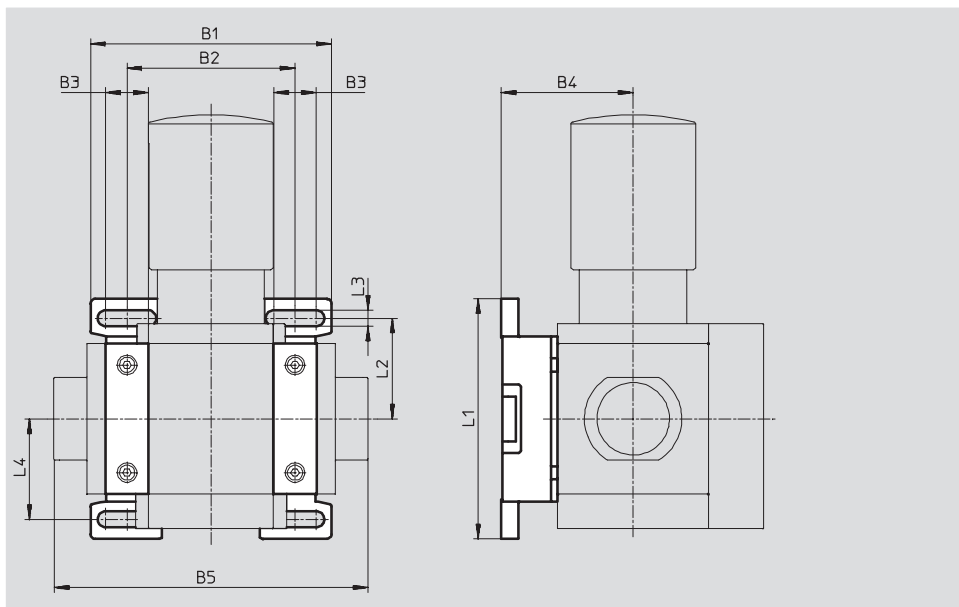
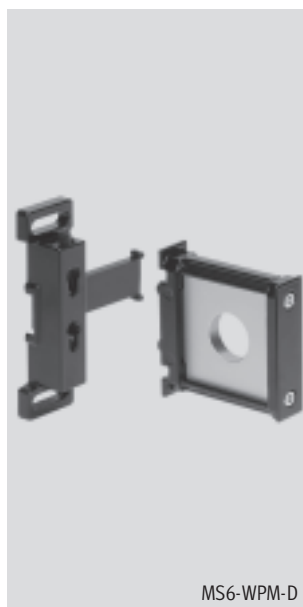
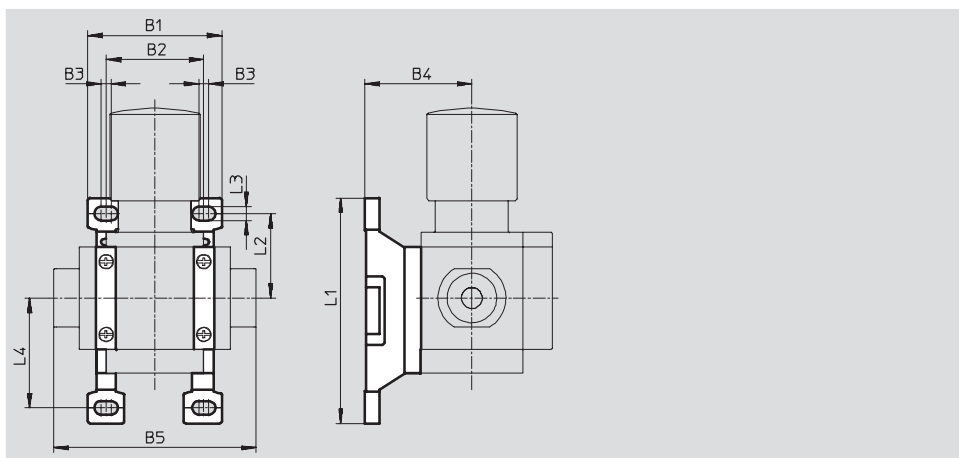
(order code: WPM)

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

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

Material:

Die-cast aluminium



Dimensions and ordering data													
Size	B1	B2	B3	B4	B5	L1	L2	L3	L4	Clearance	Weight [g]	Part No.	Type
MS4	55.2	40	4	44	83.4	92.8	34.8	5.6	45.2	40	45	526 060	MS4-WPM-D
	95.2	80			123.4					80	55	526 061	MS4-WPM-2D
MS6	99	69	17.5	54	129	98.6	41.3	6.6	41.3	62	144	526 073	MS6-WPM-D
	168	138			198					124	154	532 186	MS6-WPM-2D

MS series service units

Accessories

FESTO

Wall mounting plate MS12-WP

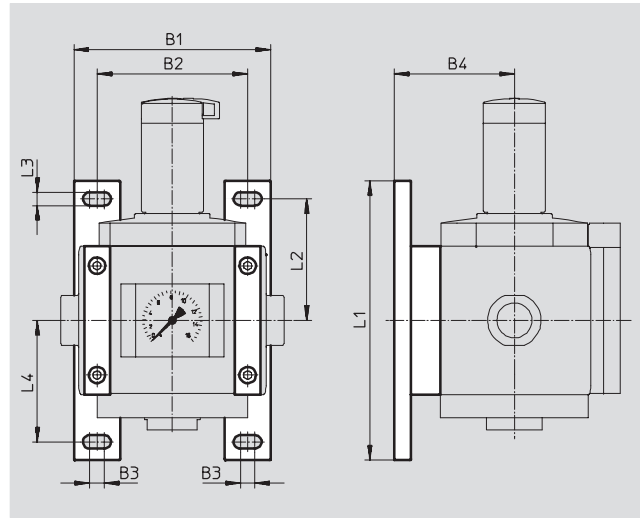
(order code: WP)

- 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

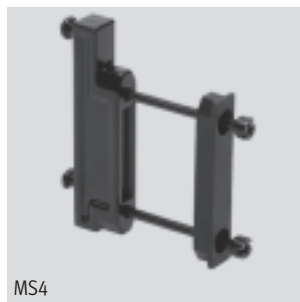
Size	Weight [g]	Part No.	Type
MS4	36	532 798	MS4-MV
MS6	54	532 799	MS6-MV
MS12	500	537 134	MS12-MV

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

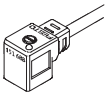
MS series service units

Accessories

FESTO

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

Ordering data – Plug socket MSSD					Technical data → www.festo.com	
	Description	Operating voltage range	Electrical connection	Type of mounting cable connection	Part No.	Type
	for PEV-1/4-...-OD	≤ 250 V AC/DC	3-pin	Clamping screws	171 157	MSSD-C-4P
	for MS4/6-EE/DE	≤ 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 → www.festo.com	
	Description	Operating voltage range	Switching status display	Cable length [m]	Part No.	Type
	for MS4/6-EE/DE	24 V DC	LED	2.5	151 688	KMEB-1-24-2,5-LED
		24 V DC	LED	5	151 689	KMEB-1-24-5-LED
		24 V DC	LED	10	193 457	KMEB-1-24-10-LED
		230 V AC	–	2.5	151 690	KMEB-1-230AC-2,5
		230 V AC	–	5	151 691	KMEB-1-230AC-5
		230 V AC	–	10	193 459	KMEB-1-230AC-10
	for MS12-EE/DE	24 V DC	LED	2.5	30 931	KMC-1-24DC-2,5-LED
		24 V DC	LED	5	30 933	KMC-1-24DC-5-LED
		24 V DC	LED	10	193 459	KMC-1-24-10-LED
		230 V AC	–	2.5	30 932	KMC-1-230AC-2,5
		230 V AC	–	5	30 934	KMC-1-230AC-5

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

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

1) Packaging unit quantity

MS series service units

Accessories

FESTO

Ordering data – Plug socket with cable SIM-M8				Technical data → www.festo.com	
	Electrical connection	Cable length [m]	Part No.	Type	
	M8x1, 3-pin	2.5	159 420	SIM-M8-3GD-2,5-PU	
		5	159 421	SIM-M8-3GD-5-PU	
		10	192 964	SIM-M8-3GD-10-PU	
	M8x1, 4-pin	2.5	158 960	SIM-M8-4GD-2,5-PU	
		5	158 961	SIM-M8-4GD-5-PU	
	M8x1, 3-pin	2.5	159 422	SIM-M8-3WD-2,5-PU	
		5	159 423	SIM-M8-3WD-5-PU	
		10	192 965	SIM-M8-3WD-10-PU	
	M8x1, 4-pin	2.5	158 962	SIM-M8-4WD-2,5-PU	
		5	158 963	SIM-M8-4WD-5-PU	

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

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

MS series service units

Accessories

FESTO

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

Ordering data – Double nipple ESK				
	Description	Pneumatic connection		Part No. Type
	Adjustable for angular compensation • For retro-fitting pressure switch PEV or pressure sensor SDE1 to branching module MS-FRM	R1/8	R1/4	534 151 ESK-1/8-1/4
		R1/4	R1/4	151 521 ESK-1/4-1/4
			R1/2	534 153 ESK-1/4-1/2

Ordering data – Padlock LRV5-D				
	Description	Weight [g]	Part No.	Type
	for filter or pressure regulators	120	193 786	LRVS-D

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