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

★/☆	Festo core product range Covers 80% of your automation tasks
Worldwide:	Always in stock
Superb:	Festo quality at an attractive price
Easy:	Reduces procurement and storing complexity

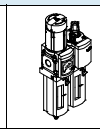
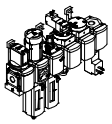
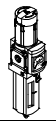
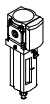
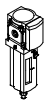
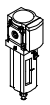
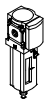
★ Ready for dispatch from the Festo factory in 24 hours
Held in stock in 13 service centres worldwide
More than 2200 products

☆ Ready for dispatch in 5 days maximum from stock
Assembled for you in 4 service centres worldwide
Up to 6 x 10^{12} variants per product series

Look for the star!

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

Product range overview – MS series service units

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.../AQ...	D2	D4	D5	D6	D7	D8	A	B	C	E
Service unit combinations														
MSB-FRC		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	■	■	–	–	–	■	■
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	■	■	–	–	–	■	■
		9	–											
		12	–											
Service unit combinations (further variants can be ordered using the configurator ➔ Internet: msb4, msb6 or msb9)														
MSB		4	G¼	G⅛, G¼, G⅜	–	–	–	■	■	–	–	–	■	■
		6	G½	G¼, G⅜, G½, G¾	–	–	–	■	■	–	–	–	■	■
		9	–											
		12	–											
Individual devices														
Filter regulators **MS-LFR**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	■	■	■	–	–	–	■	■
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	■	■	■	■	–	–	■	■
		9	G¾, G1	G½, G¾, G1, G1¼, G1½	–	–	■	■	■	■	–	–	■	■
		12	–	G1, G1¼, G1½, G2	–	–	–	■	■	■	–	–	■	■
Filters **MS-LF**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	–	–	■	■
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	–	–	■	■
		9	G¾, G1	G½, G¾, G1, G1¼, G1½	–	–	–	–	–	–	–	–	■	■
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–	■	■
Fine and micro filters **MS-LFM**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	■	■	–	–
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	■	■	–	–
		9	G¾, G1	G½, G¾, G1, G1¼, G1½	–	–	–	–	–	–	■	■	–	–
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	■	■	–	–
Activated carbon filters **MS-LFX**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	–	–	–	–
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	–	–	–	–
		9	G¾, G1	G½, G¾, G1, G1¼, G1½	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–	–	–
Water separators **MS-LWS**		4	–											
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	–	–	–	–
		9	G¾, G1	G½, G¾, G1, G1¼, G1½	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–	–	–

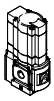
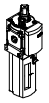
On-off/soft-start valves MS-EM/EE/DL/DE, MS series

Product range overview – MS series service units

Type	Size	Bowl guard		Condensate drains				Pressure indicator					Security		Options		→ Page/ Internet
		Plastic bowl with 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 G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor	Rotary knob with detent, lockable via accessories	Rotary knob with integrated lock	Silencer	Flow direction from right to left	
Code		R	U	M	H	V	E...	VS	AG	A8	A4	AD...	AS	E11	S	Z	
Service unit combinations																	
MSB-FRC	4	■	–	■	–	■	–	–	■	–	–	–	■	–	–	■	msb4
	6	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb6
	9	–															–
	12	–															–
Service unit combinations																	
MSB	4	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb4
	6	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb6
	9	–															–
	12	–															–
Individual devices																	
Filter regulators	4	■	■	■	■	■	–	■	■	■	■	■	■	■	–	■	ms4-lfr
MS-LFR	6	■	■	■	■	■	■	■	■	–	■	■	■	■	–	■	ms6-lfr
	9	–	■	■	■	■	■	■	■	–	■	■	■	■	–	■	ms9-lfr
	12	–	■	■	–	■	■	■	■	–	■	–	■	■	–	■	ms12-lfr
Filters	4	■	■	■	■	■	–	–	–	–	–	–	–	–	–	■	ms4-lf
MS-LF	6	■	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms6-lf
	9	–	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms9-lf
	12	–	■	■	–	■	■	–	–	–	–	–	–	–	–	■	ms12-lf
Fine and micro	4	■	■	■	■	■	–	–	–	–	–	–	–	–	–	■	ms4-lfm
filters	6	■	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms6-lfm
MS-LFM	9	–	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms9-lfm
	12	–	■	■	–	■	■	–	–	–	–	–	–	–	–	■	ms12-lfm
Activated carbon	4	■	■	–	–	–	–	–	–	–	–	–	–	–	–	■	ms4-lfx
filters	6	■	■	–	–	–	–	–	–	–	–	–	–	–	–	■	ms6-lfx
MS-LFX	9	–	■	–	–	–	–	–	–	–	–	–	–	–	–	■	ms9-lfx
	12	–	■	–	–	–	–	–	–	–	–	–	–	–	–	■	ms12-lfx
Water separators	4	–															–
MS-LWS	6	–	■	–	–	■	■	–	–	–	–	–	–	–	–	■	ms6-lws
	9	–	■	–	–	■	■	–	–	–	–	–	–	–	–	■	ms9-lws
	12	–	■	–	–	■	■	–	–	–	–	–	–	–	–	■	ms12-lws

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

Product range overview – MS series service units

Type		Size	Pneumatic connection in housing	Connecting plate	Pressure regulation range [bar]						Supply voltage			
					0.05 ... 0.7	0.05 ... 2.5	0.1 ... 4	0.3 ... 7	0.1 ... 12	0.5 ... 16	24 V DC, connection pattern to EN 175301	24 V DC, connection M12 to IEC 61076-2-101	110 V AC, connection pattern to EN 175301	230 V AC, connection pattern to EN 175301
Code				AG.../AQ...	D2	D4	D5	D6	D7	D8	V24	V24P	V110	V230
Individual devices														
Pressure regulators **MS-LR**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	■	■	■	–	–	–	–	–
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	■	■	■	■	–	–	–	–
		9	G¾, G1	G½, G¾, G1, G1¼, G1½	–	–	■	■	■	■	–	–	–	–
		12	–	G1, G1¼, G1½, G2	–	–	–	■	■	■	–	–	–	–
Pressure regulators **MS-LRB**		4	G¼	G⅛, G¼, G⅜	–	–	■	■	■	–	–	–	–	–
		6	G½	G¼, G⅜, G½, G¾	–	–	■	■	■	■	–	–	–	–
		9	–											
		12	–											
Precision pressure regulators **MS-LRP**		4	–											
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	■	■	■	–	■	–	–	–	–	–
		9	–											
		12	–											
Precision pressure regulators **MS-LRPB**		4	–											
		6	G½	G¼, G⅜, G½, G¾	■	■	■	–	■	–	–	–	–	–
		9	–											
		12	–											
Electrical pressure regulators **MS-LRE**		4	–											
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	■	■	■	■	–	–	–	–
		9	–											
		12	–											
Lubricators **MS-LOE**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	–	–	–	–
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	–	–	–	–
		9	G¾, G1	G½, G¾, G1, G1¼, G1½	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–	–	–
On-off valves, manually actuated **MS-EM(1)**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	–	–	–	–
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	–	–	–	–
		9	G¾, G1	G½, G¾, G1, G1¼, G1½	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–	–	–
On-off valves, electrically actuated **MS-EE**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	■	–	■	■
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	■	–	■	■
		9	G¾, G1	G½, G¾, G1, G1¼, G1½	–	–	–	–	–	–	■	■	■	■
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	■	■	■	■
Soft-start valves, pneumatically actuated **MS-DL**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	–	–	–	–
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	–	–	–	–
		9	–											
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–	–	–
Soft-start valves, electrically actuated **MS-DE**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	■	–	■	■
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	■	–	■	■
		9	–											
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	■	■	■	■

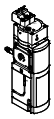
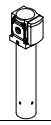
On-off/soft-start valves MS-EM/EE/DL/DE, MS series

Product range overview – MS series service units

Type	Size	Bowl guard		Pressure indicator					Security		Options		→ Page/ Internet
		Plastic bowl with plastic bowl guard	Metal bowl	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor	Rotary knob with detent, lockable via accessories	Rotary knob with integrated lock	Silencer	Flow direction from right to left	
Code		R	U	VS	AG	A8	A4	AD...	AS	E11	S	Z	
Individual devices													
Pressure regulators **MS-LR**	4	–	–	■	■	■	■	■	■	■	–	■	ms4-lr
	6	–	–	■	■	–	■	■	■	■	–	■	ms6-lr
	9	–	–	■	■	–	■	■	■	■	–	■	ms9-lr
	12	–	–	■	■	–	■	–	■	■	–	■	ms12-lr
Pressure regulators **MS-LRB**	4	–	–	■	■	■	■	■	■	■	–	■	ms4-lrb
	6	–	–	■	■	–	■	■	■	■	–	■	ms6-lrb
	9	–											–
	12	–											–
Precision pressure regulators **MS-LRP**	4	–											–
	6	–	–	■	–	■	■	■	■	■	–	■	ms6-lrp
	9	–											–
	12	–											–
Precision pressure regulators **MS-LRPB**	4	–											–
	6	–	–	■	–	■	■	■	■	■	–	■	ms6-lrpb
	9	–											–
	12	–											–
Electrical pressure regulators **MS-LRE**	4	–											–
	6	–	–	■	■	–	■	–	–	–	–	■	ms6-lre
	9	–											–
	12	–											–
Lubricators **MS-LOE**	4	■	■	–	–	–	–	–	–	–	–	■	ms4-loe
	6	■	■	–	–	–	–	–	–	–	–	■	ms6-loe
	9	–	■	–	–	–	–	–	–	–	–	■	ms9-loe
	12	–	■	–	–	–	–	–	–	–	–	■	ms12-loe
On-off valves, manually actuated **MS-EM(1)**	4	–	–	■	■	■	■	■	–	–	■	■	8
	6	–	–	■	■	–	■	■	–	–	■	■	8
	9	–	–	■	■	–	■	–	–	–	■	■	52
	12	–	–	■	■	–	■	–	–	–	■	■	70
On-off valves, electrically actuated **MS-EE**	4	–	–	■	■	■	■	■	–	–	■	■	18
	6	–	–	■	■	–	■	■	–	–	■	■	18
	9	–	–	■	■	–	■	■	–	–	■	■	60
	12	–	–	■	■	–	■	–	–	–	■	■	76
Soft-start valves, pneumatically actuated **MS-DL**	4	–	–	■	■	■	■	■	–	–	–	■	30
	6	–	–	■	■	–	■	■	–	–	–	■	30
	9	–											–
	12	–	–	■	■	–	■	–	–	–	–	■	82
Soft-start valves, electrically actuated **MS-DE**	4	–	–	■	■	■	■	■	–	–	–	■	40
	6	–	–	■	■	–	■	■	–	–	–	■	40
	9	–											–
	12	–	–	■	■	–	■	–	–	–	–	■	88

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

Product range overview – MS series service units

Type		Size	Pneumatic connection in housing	Connecting plate	Performance Level			Supply voltage				
					Category 1, 1-channel	Category 3, 2-channel	Category 4, 2-channel with self-monitoring	24 V DC, Sub-D, 9-pin	24 V DC, connection pattern to EN 175301	24 V DC, connection M12 to IEC 61076-2-101	110/230 V AC, connection pattern to EN 175301	22 ... 31.6 V DC, connection M12, AS-i Safety at Work
Code				AG.../AQ...	C	D	E	10V24	10V24/ V24	10V24P	V110/ V230	ASIS
Individual devices												
Soft start and exhaust valves **MS-SV-C**		4	–									
		6	G1/2	G1/4, G3/8, G1/2, G3/4	■	–	–	–	■	■	–	–
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	■	–	–	–	■	■	■	–
		12	–									
Soft start and exhaust valves **MS-SV-D**		4	–									
		6	G1/2	G1/4, G3/8, G1/2, G3/4	–	■	–	–	■	■	–	–
		9	–									
		12	–									
Soft start and exhaust valves **MS-SV-E**		4	–									
		6	G1/2	G1/4, G3/8, G1/2, G3/4	–	–	■	■	–	–	–	■
		9	–									
		12	–									
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	–	–	–	–	–	–	–	–
		9	–									
		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	–	–	–	–	–	–	–	–
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	–	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–	–
Distributor blocks **MS-FRM-FRZ**		4	G1/4	–	–	–	–	–	–	–	–	–
		6	G1/2	–	–	–	–	–	–	–	–	–
		9	–									
		12	–									
Flow sensors **SFAM**		4	–									
		6	G1/2	G1/2	–	–	–	–	–	–	–	–
		9	–	G1, G1 1/2	–	–	–	–	–	–	–	–
		12	–									

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

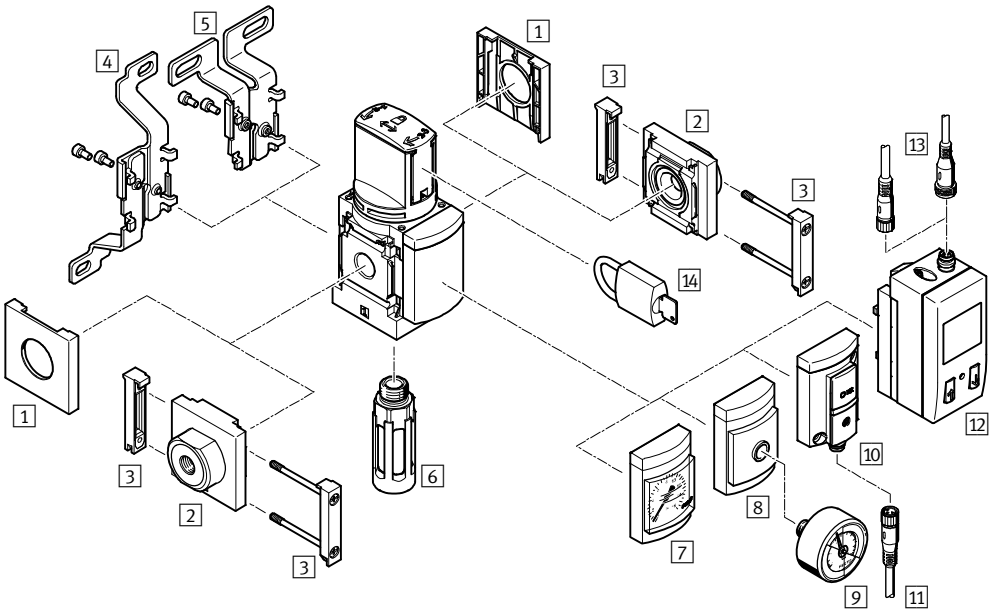
Product range overview – MS series service units

Type	Size	Bowl guard		Pressure indicator					Switch output		Options		➔ Page/ Internet
		Plastic bowl with plastic bowl guard	Metal bowl	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor	2x PNP or NPN, 1 analogue output 4 ... 20 mA	2x PNP or NPN, 1 analogue output 0 ... 10 V	Silencer	Flow direction from right to left	
Code		R	U	VS	AG	A8	A4	AD...	2SA	2SV	S	Z/R	
Individual devices													
Soft start and exhaust valves **MS-SV-C**	4	–											–
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-sv
	9	–	–	■	■	–	■	■	–	–	■	■	ms9-sv
	12	–											–
Soft start and exhaust valves **MS-SV-D**	4	–											–
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-sv
	9	–											–
	12	–											–
Soft start and exhaust valves **MS-SV-E**	4	–											–
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-sv
	9	–											–
	12	–											–
Membrane air dryers **MS-LDM1**	4	–	■	–	–	–	–	–	–	–	–	■	ms4-ldm1
	6	–	■	–	–	–	–	–	–	–	–	■	ms6-ldm1
	9	–											–
	12	–											–
Branching modules **MS-FRM**	4	–	–	■	■	■	■	■	–	–	–	■	ms4-frm
	6	–	–	■	■	–	■	■	–	–	–	■	ms6-frm
	9	–	–	■	■	–	■	■	–	–	–	■	ms9-frm
	12	–	–	■	–	–	–	–	–	–	–	–	ms12-frm
Distributor blocks **MS-FRM-FRZ**	4	–	–	–	–	–	–	–	–	–	–	■	ms4-frm
	6	–	–	–	–	–	–	–	–	–	–	■	ms6-frm
	9	–											–
	12	–											–
Flow sensors **SFAM**	4	–											–
	6	–	–	–	–	–	–	–	■	■	–	■	sfam-62
	9	–	–	–	–	–	–	–	■	■	–	■	sfam-90
	12	–											–

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

Peripherals overview

On-off valve MS4/MS6-EM1



- Note

Additional accessories:

- Module connector for combination with size MS4/MS6 or size MS9 ➔ Internet: amv, rmv, armv
- Adapter plate for mounting on profiles ➔ Internet: ipm-80, ipm-40-80, ipm-80-80

Mounting attachments and accessories

		Individual device		Combination		➔ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
1	Cover cap MS4/6-END	■	–	■	–	ms4-end, ms6-end
2	Connecting plate-SET MS4/6-AG...	–	■	–	■	ms4-ag, ms6-ag
	Connecting plate-SET MS4/6-AQ...	–	■	–	■	ms4-aq, ms6-aq
3	Module connector MS4/6-MV	–	■	■	■	ms4-mv, ms6-mv
4	Mounting bracket MS4/6-WB	■	■	–	–	ms4-wb, ms6-wb
5	Mounting bracket MS4-WBM	■	■	–	–	ms4-wbm
6	Silencer U	■	■	■	■	95
7	MS pressure gauge AG/RG	■	■	■	■	16
8	Adapter plate for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	16
9	Pressure gauge MA	■	■	■	■	95
10	Pressure sensor without display AD7 ... AD10	■	■	■	■	16
11	Connecting cable NEBU-M8...-LE3	■	■	■	■	95
12	Pressure sensor with display AD1 ... AD4	■	■	■	■	16
13	Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4	■	■	■	■	95
14	Padlock LRVS-D	■	■	■	■	95
–	Mounting bracket MS4/6-WP/WPB/WPE/WPM	–	■	■	■	ms4-wp, ms6-wp

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

Type codes

MS	6	–	EM1	–	½	–	S

Series	
MS	Standard service unit

Size	
4	Grid dimension 40 mm
6	Grid dimension 62 mm

Service function	
EM1	Manually operated on-off valve

Pneumatic connection	
MS4	
⅛	Female thread G⅛
¼	Female thread G¼
MS6	
¼	Female thread G¼
⅜	Female thread G⅜
½	Female thread G½

Silencer	
	Without silencer
S	Silencer

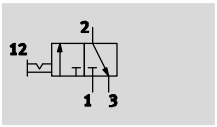
Additional variants can be ordered using the modular system ➔ 16

- Connecting plates
- Pressure gauge/pressure gauge alternatives
- Alternative pressure gauge scale
- Type of mounting
- EU certification
- UL certification
- 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
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

General technical data			
Size	MS4	MS6	
Pneumatic connection 1, 2			
Female thread	G⅛ or G¼	G¼, G⅜ or G½	
Connecting plate AG...	G⅛, G¼ or G⅜	G¼, G⅜, G½ or G¾	
Connecting plate AQ...	NPT⅛, NPT¼ or NPT⅜	NPT¼, NPT⅜, NPT½ or NPT¾	
Pneumatic connection 3	G¼	G½	
Design	Rotary slide valve		
Type of mounting	Via accessories		
	In-line installation		
Assembly position	Any		
Pressure indicator	Via pressure sensor for displaying output pressure via LCD display and electrical output		
	Via pressure sensor for displaying output pressure via operational status indicator and electrical output		
	Via pressure gauge for displaying output pressure		
	Via pressure gauge with red/green scale for displaying output pressure		
	G¼ prepared		
	G⅛ prepared	–	
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		

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Flow rate characteristic values					
Size	MS4		MS6		
Pneumatic connection	G⅛	G¼	G¼	G⅜	G½
Standard nominal flow rate qnN[1] [l/min]					
In main flow direction 1 → 2	1,200	2,200	3,000	5,500	8,700
In relief direction 2 → 3	1,900	1,700	6,800	6,600	6,200
C value [l/s*min]					
In main flow direction 1 → 2	4.6	9.0	10.7	21.2	30.8
b value					
In main flow direction 1 → 2	0.51	0.39	0.56	0.49	0.57

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

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

Technical data

Operating and environmental conditions			
Size		MS4	MS6
Operating pressure	[bar]	0 ... 14 (0 ... 10)[1]	0 ... 18 (0 ... 10)[1]
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]	
		Inert gases	
Note on operating/pilot medium		Operation with lubricated medium possible (in which case lubricated operation will always be required)	
Ambient temperature	[°C]	–10 ... +60 (0 ... +50)[2]	–10 ... +60 (0 ... +50)[2]
Temperature of medium	[°C]	–10 ... +60 (0 ... +50)[2]	–10 ... +60 (0 ... +50)[2]
Corrosion resistance class CRC[3]		2	
UL certification		cULus recognized (OL)	

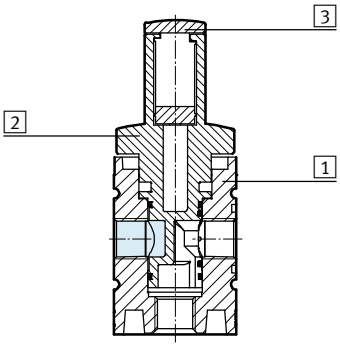
1) Value in brackets applies to MS4/MS6-EM1 with pressure sensor AD... or with UL certification.
2) Value in brackets applies to MS4/MS6-EM1 with pressure sensor AD... .
3) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

ATEX		
EU certification		EX4
ATEX category gas		II 2G
Ex-ignition protection type gas		c T6 X
ATEX category dust		II 2D
EX-ignition protection type dust		c 60 °C X
ATEX ambient temperature		–10 °C ≤ Ta ≤ +60 °C
CE mark (see declaration of conformity)		To EU Explosion Protection Directive (ATEX)

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

Materials

Sectional view

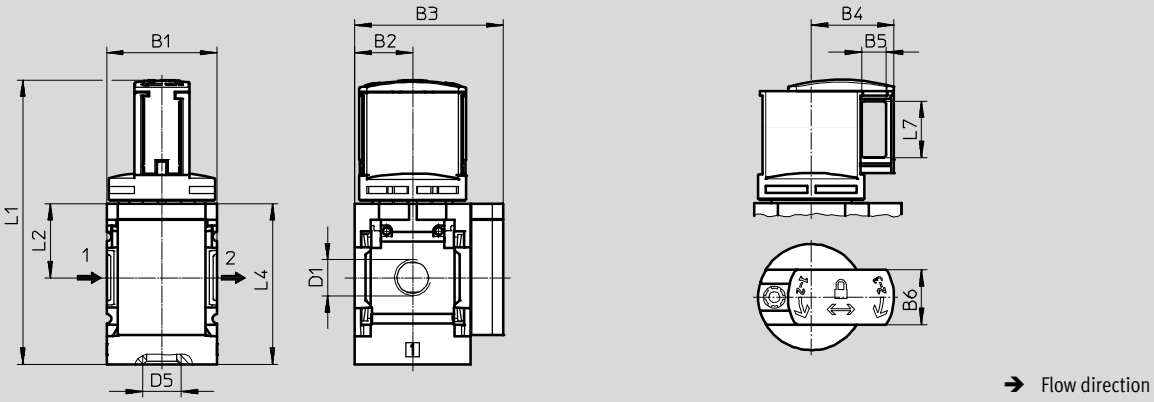


On-off valve		
1	Body	Die-cast aluminium
2	Rotary valve	PA reinforced
3	Lock slide	PA reinforced
–	Seals	NBR, TPE-U(PU)
Note on materials		RoHS-compliant
		Free of copper and PTFE (not with variants AG or AD...)

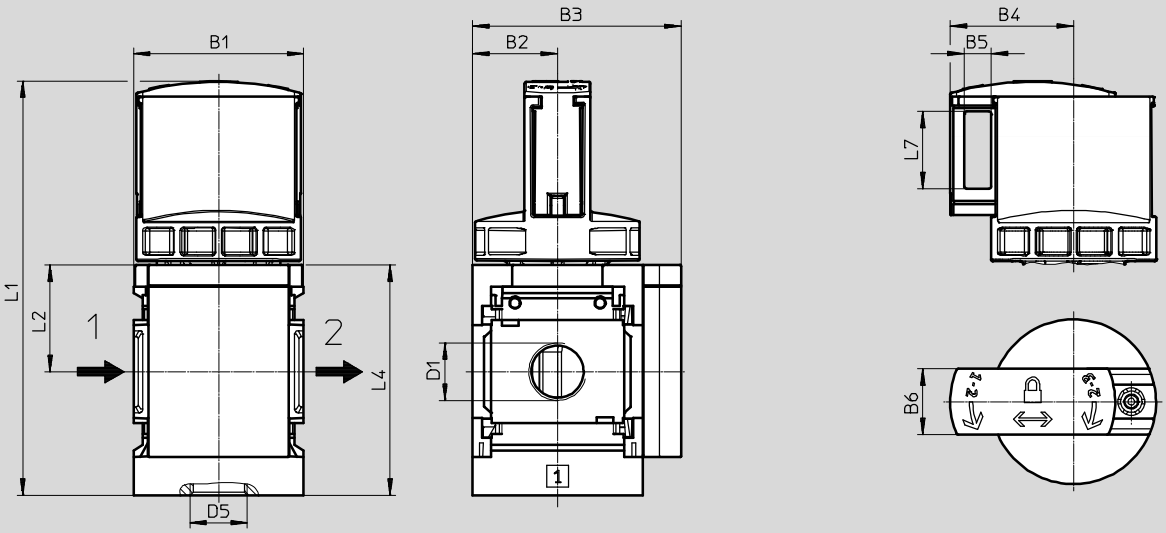
Dimensions – Basic version Download CAD data ➔ **www.festo.com**

With female thread, with cover plate

MS4



MS6

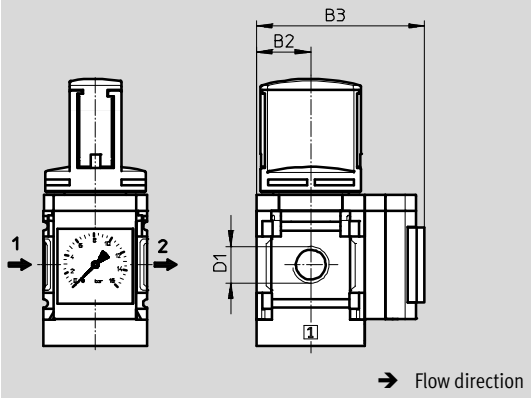


Type	B1	B2	B3	B4	B5	B6	D1	D5	L1	L2	L4	L7
MS4-EM1-⅛	40	21	54	30	9	20	G⅛	G¼	104	27	59	21
MS4-EM1-¼							G¼					
MS6-EM1-¼	62	31	76	45	10	24	G¼	G½	150.7	39	84.5	28.2
MS6-EM1-⅜							G⅜					
MS6-EM1-½							G½					

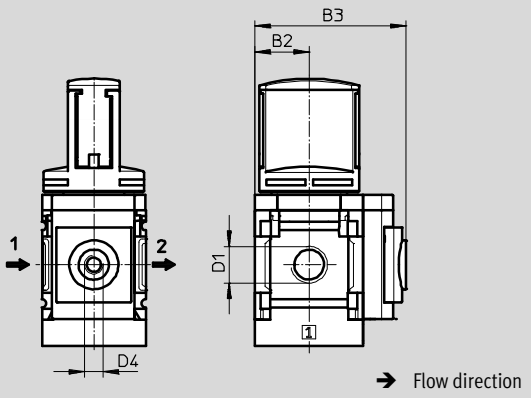
Note: This product conforms to ISO 1179-1 and to ISO 228-1

Dimensions – Pressure gauge/pressure gauge alternatives Download CAD data ➔ **www.festo.com**

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



Adapter plate A8/A4 for EN pressure gauge ⅛/¼, without pressure gauge

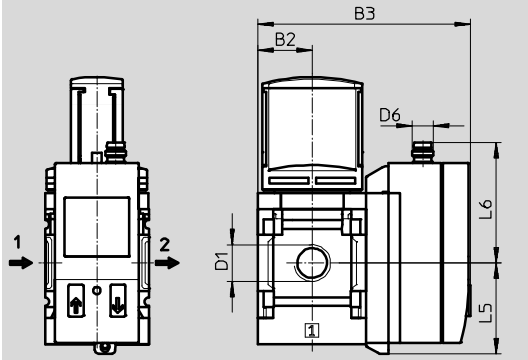


Type	B2	B3	D1	D4
MS4-EM1-⅛-...-AG	21	57	G⅛	–
MS4-EM1-¼-...-AG			G¼	
MS4-EM1-⅛-...-RG	21	58.5	G⅛	–
MS4-EM1-¼-...-RG			G¼	
MS4-EM1-⅛-...-A8	21	58.5	G⅛	G⅛
MS4-EM1-¼-...-A8			G¼	
MS4-EM1-⅛-...-A4	21	58.5	G⅛	G¼
MS4-EM1-¼-...-A4			G¼	
MS6-EM1-¼-...-AG	31	77	G¼	–
MS6-EM1-⅜-...-AG			G⅜	
MS6-EM1-½-...-AG			G½	
MS6-EM1-¼-...-RG	31	78.5	G¼	–
MS6-EM1-⅜-...-RG			G⅜	
MS6-EM1-½-...-RG			G½	
MS6-EM1-¼-...-A4	31	78.5	G¼	G¼
MS6-EM1-⅜-...-A4			G⅜	
MS6-EM1-½-...-A4			G½	

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Dimensions – Pressure gauge/pressure gauge alternatives Download CAD data ➔ **www.festo.com**

Pressure sensor with LCD display AD1 ... AD4 Technical data ➔ Internet: sde1



➔ Flow direction

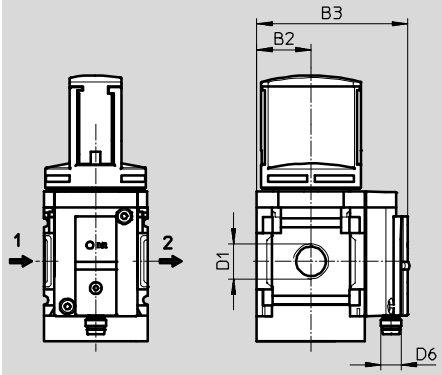
Variant AD1:
SDE1-D10-G2-MS-L-P1-M8 with 3-pin plug M8x1, 1 switching output PNP

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

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

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

Pressure sensor with operational status indicator AD7 ... AD10 Technical data ➔ Internet: sde5



➔ Flow direction

Variant AD7:
SDE5-D10-O-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/O contact

Variant AD8:
SDE5-D10-C-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/C contact

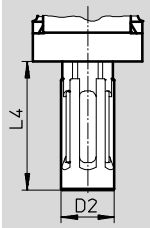
Variant AD9:
SDE5-D10-O3-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/O contact

Variant AD10:
SDE5-D10-C3-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/C contact

Type	B2	B3	D1	D6	L5	L6
MS4-EM1-⅛-...-AD1/AD2	21	82.6	G⅛	M8x1	35.1	46.7
MS4-EM1-¼-...-AD1/AD2			G¼			
MS4-EM1-⅛-...-AD3/AD4	21	82.6	G⅛	M12x1	35.1	55.8
MS4-EM1-¼-...-AD3/AD4			G¼			
MS4-EM1-⅛-...-AD7/AD8/AD9/AD10	21	59.1	G⅛	M8x1	–	–
MS4-EM1-¼-...-AD7/AD8/AD9/AD10			G¼			
MS6-EM1-¼-...-AD1/AD2	31	103	G¼	M8x1	35.1	46.7
MS6-EM1-⅜-...-AD1/AD2			G⅜			
MS6-EM1-½-...-AD1/AD2			G½			
MS6-EM1-¼-...-AD3/AD4	31	103	G¼	M12x1	35.1	55.8
MS6-EM1-⅜-...-AD3/AD4			G⅜			
MS6-EM1-½-...-AD3/AD4			G½			
MS6-EM1-¼-...-AD7/AD8/AD9/AD10	31	79	G¼	M8x1	–	–
MS6-EM1-⅜-...-AD7/AD8/AD9/AD10			G⅜			
MS6-EM1-½-...-AD7/AD8/AD9/AD10			G½			

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Dimensions – Silencer Download CAD data ➔ **www.festo.com**



Type	D2	L4
MS4-EM1-...-S	20	49
MS6-EM1-...-S	28	109

★ Core product range

Ordering data						
Size	Connection	Standard			With silencer	
		Part No.	Type		Part No.	Type
MS4	G¼	★ **541258**	**MS4-EM1-¼**		★ **541259**	**MS4-EM1-¼-S**
MS6	G½	★ **541267**	**MS6-EM1-½**		★ **541268**	**MS6-EM1-½-S**

Ordering data						
Size	Connection	Standard			With silencer	
		Part No.	Type		Part No.	Type
MS4	G⅛	**541262**	**MS4-EM1-⅛**		**541263**	**MS4-EM1-⅛-S**
MS6	G¼	**541271**	**MS6-EM1-¼**		**541272**	**MS6-EM1-¼-S**
	G⅜	**541275**	**MS6-EM1-⅜**		**541276**	**MS6-EM1-⅜-S**

Festo core product range
★ Ready for dispatch from the Festo factory in 24 hours
☆ Ready for dispatch in 5 days maximum from stock

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

Ordering data – Modular products

Ordering table

	Grid dimension [mm]	40	62	Condi-tions	Code		Enter code
M	Module No.	**541266**	**541279**				
	Series	Standard			**MS**		MS
	Size	4	6		**...**		
	Function	On-off valve, manual			**-EM1**		-EM1
	Pneumatic connection	Female thread G1/8	–	1	**-1/8**		
		Female thread G1/4	Female thread G1/4	1	**-1/4**		
		–	Female thread G3/8	1	**-3/8**		
		–	Female thread G1/2	1	**-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**		
		Connecting plate NPT1/8	–	1	**-AQK**		
		Connecting plate NPT1/4	Connecting plate NPT1/4	1	**-AQN**		
		Connecting plate NPT3/8	Connecting plate NPT3/8	1	**-AQP**		
		–	Connecting plate NPT1/2	1	**-AQR**		
↓		–	Connecting plate NPT3/4	1	**-AQS**		

1 **1/8, 1/4, 3/8, 1/2, AQK, AQN, AQP, AQR, AQS, AD1 ... AD4, AD7 ... AD10, WPM**
Not with EU certification EX4

M Mandatory data
O Options

Transfer order code

	MS		–	**EM1**	–	

Ordering table

	Grid dimension [mm]	40	62	Condi-tions	Code		Enter code
O	Silencer	Silencer			-S		
	Pressure gauge/pressure gauge alternatives	MS pressure gauge, bar			-AG		
		Adapter plate for EN pressure gauge ⅛, without pressure gauge	–		-A8		
		Adapter plate for EN pressure gauge ¼, without pressure gauge			-A4		
		Integrated pressure gauge, red-green scale			-RG		
		Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin		1 2	-AD1		
		Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin		1 2	-AD2		
		Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA		1 2	-AD3		
		Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA		1 2	-AD4		
		Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact		1 2	-AD7		
		Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact		1 2	-AD8		
		Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact		1 2	-AD9		
		Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact		1 2	-AD10		
	Alternative pressure gauge scale	psi		3	-PSI		
		MPa		4	-MPA		
	Type of mounting	Mounting bracket standard design		5	-WP		
		Mounting bracket for attaching the service units		1 5	-WPM		
		Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required			-WB		
		Mounting bracket centrally at rear (wall mounting top), connecting plates not required	–		-WBM		
	EU certification	II 2GD to EU Explosion Protection Directive (ATEX)			-EX4		
	UL certification	cULus, ordinary location for Canada and USA			-UL1		
	Flow direction	Flow direction from right to left			-Z		

2 **AD1 ... AD4, AD7 ... AD10** Measuring range max. 10 bar

3 **PSI** Only with pressure gauge AG

4 **MPA** Only with pressure gauge AG or RG

5 **WP, WPM** Only with connecting plate AGA, AGB, AGC, AGD, AGE, AQK, AQN, AQP, AQR or AQS

M Mandatory data

O Options

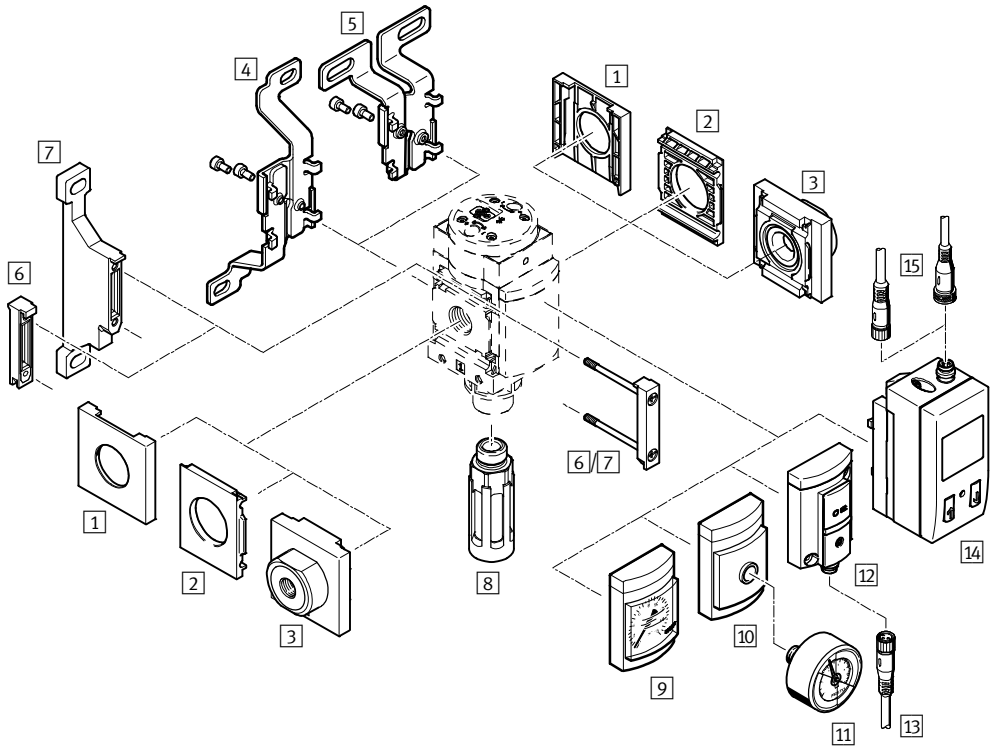
Transfer order code

– [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ]

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

Peripherals overview

On-off valve MS4/MS6-EE

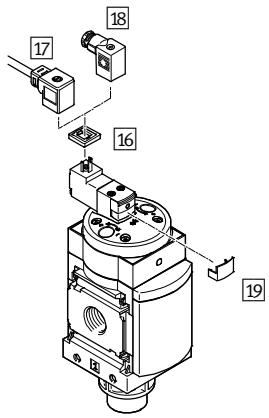


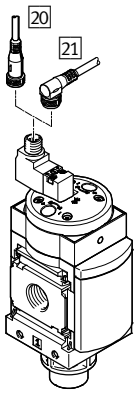
- Note

Additional accessories:

- Module connector for combination with size MS4/MS6 or size MS9 ➔ Internet: amv, rmv, armv
- Adapter plate for mounting on profiles ➔ Internet: ipm-80, ipm-40-80, ipm-80-80

Supply voltage V24/10V24/V110/V230	Supply voltage 10V24P





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

Peripherals overview

Mounting attachments and accessories						
		Individual device		Combination		➔ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
1	Cover cap MS4/6-END	■	–	■	–	ms4-end, ms6-end
2	Mounting plate MS4/6-AEND	■[1)]	–	■[1)]	–	ms4-aend, ms6-aend
3	Connecting plate-SET MS4/6-AG...	–	■[1)]	–	■[1)]	ms4-ag, ms6-ag
	Connecting plate-SET MS4/6-AQ...	–	■[1)]	–	■[1)]	ms4-aq, ms6-aq
4	Mounting bracket MS4/6-WB	■	■	–	–	ms4-wb, ms6-wb
5	Mounting bracket MS4-WBM	■	■	–	–	ms4-wbm
6	Module connector MS4/6-MV	–	■	■	■	ms4-mv, ms6-mv
7	Mounting bracket MS4/6-WP	■	■	■	■	ms4-wp, ms6-wp
	Mounting bracket (not illustrated) MS4/6-WPB/WPE/WPM	■	■	■	■	ms4-wp, ms6-wp
8	Silencer U	■	■	■	■	95
9	MS pressure gauge AG/RG	■	■	■	■	28
10	Adapter plate for EN pressure gauge ⅛/¼ A8/A4	■	■	■	■	28
11	Pressure gauge MA	■	■	■	■	95
12	Pressure sensor without display AD7 ... AD10	■	■	■	■	28
13	Connecting cable NEBU-M8...-LE3	■	■	■	■	95
14	Pressure sensor with display AD1 ... AD4	■	■	■	■	28
15	Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4	■	■	■	■	95
16	Illuminating seal MEB-LD	■	■	■	■	94
17	Plug socket with cable KMEB	■	■	■	■	94
18	Plug socket MSSD-EB	■	■	■	■	94
19	Locking clip CPV18-HV	■	■	■	■	94
20	Connecting cable NEBU-M12G5	■	■	■	■	95
21	Connecting cable NEBU-M12W5	■	■	■	■	95

1) Module connector MS4/6-MV 6 or mounting bracket MS4/6-WP/WPB/WPE/WPM 7 is required for mounting.

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

Type codes

MS	6	–	EE	–	½	–	V110	–	

Series	
MS	Standard service unit

Size	
4	Grid dimension 40 mm
6	Grid dimension 62 mm

Service function	
EE	Solenoid actuated on-off valve

Pneumatic connection	
MS4	
⅛	Female thread G⅛
¼	Female thread G¼
MS6	
¼	Female thread G¼
⅜	Female thread G⅜
½	Female thread G½

Supply voltage	
10V24	Supply voltage 24 V DC
V110	Supply voltage 110 V AC
V230	Supply voltage 230 V AC

Silencer	
	Without silencer
S	Silencer

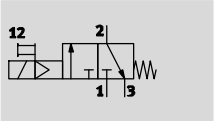
Additional variants can be ordered using the modular system ➔ 28

- Connecting plates
- Supply voltage
- Pressure gauge/pressure gauge alternatives
- Alternative pressure gauge scale
- Type of mounting
- EU certification
- UL certification
- Flow direction

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

Technical data

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
- Non-detenting and detenting manual override (variant 10V24: only non-detenting)
- Solenoid actuator can be repositioned by 180°
- Optional pressure sensor
- Optional device variant EX2 for use in potentially explosive areas in zones 2 and 22

General technical data			
Size		MS4	MS6
Pneumatic connection 1, 2			
	Female thread	G1⁄8 or G1⁄4	G1⁄4, G3⁄8 or G1⁄2
	Connecting plate AG...	G1⁄8, G1⁄4 or G3⁄8	G1⁄4, G3⁄8, G1⁄2 or G3⁄4
	Connecting plate AQ...	NPT1⁄8, NPT1⁄4 or NPT3⁄8	NPT1⁄4, NPT3⁄8, NPT1⁄2 or NPT3⁄4
Pneumatic connection 3		G1⁄4	G1⁄2
Design		Piston spool valve	
Type of mounting		Via accessories	
		In-line installation	
Assembly position		Any	
Pressure indicator		Via pressure sensor for displaying output pressure via LCD display and electrical output	
		Via pressure sensor for displaying output pressure via operational status indicator and electrical output	
		Via pressure gauge for displaying output pressure	
		Via pressure gauge with red/green scale for displaying output pressure	
		G1⁄4 prepared	
		G1⁄8 prepared	–
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		Piloted	
Pilot air supply		Internal	
Direction of flow		Non-reversible	

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Electrical data		
Coil characteristics	V24	24 V DC: 1.5 W; perm. voltage fluctuations –25%/+10%
	10V24, 10V24P	24 V DC: 1.8 W; perm. voltage fluctuations –15%/+10%
	V110	110 V AC: 50/60 Hz; pick-up power 3.0 VA; holding power 2.4 VA; perm. voltage fluctuations ±10%
	V230	230 V AC: 50/60 Hz; pick-up power 3.0 VA; holding power 2.4 VA; perm. voltage fluctuations –14%/+10%
Electrical connection	V24, 10V24, V110, V230	Plug, square design to EN 175301-803, type C
	10V24P	M12x1 to IEC 61076-2-101
Protection class for solenoid coil		IP65
Duty cycle [%]		100

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

Technical data

Flow rate characteristic values					
Size	MS4		MS6		
Pneumatic connection	G⅛	G¼	G¼	G⅜	G½
Standard nominal flow rate qnN[1] [l/min]					
In main flow direction 1 → 2	1,000	2,000	2,600	5,500	7,000
In relief direction 2 → 3	1,600	1,600	7,000	6,200	5,500
C value [l/s*min]					
In main flow direction 1 → 2	4.5	9.5	11.0	22.0	29.0
b value					
In main flow direction 1 → 2	0.5	0.44	0.5	0.5	0.4

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

Operating and environmental conditions					
Size		MS4		MS6	
Supply voltage		V24/V110/V230	10V24/10V24P	V24/V110/V230	10V24/10V24P
Operating pressure	[bar]	4 … 14 (4 … 10)[1]	4 … 10	4 … 18 (4 … 10)[1]	4 … 10
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]			
		Inert gases			
Note on operating/pilot medium		Operation with lubricated medium possible (in which case lubricated operation will always be required)			
Ambient temperature	[°C]	–10 … +60 (0 … +50)[2]	–10 … +50 (0 … +50)[2]	–10 … +60 (0 … +50)[2]	–10 … +50 (0 … +50)[2]
Temperature of medium	[°C]	–10 … +60 (0 … +50)[2]	–10 … +50 (0 … +50)[2]	–10 … +60 (0 … +50)[2]	–10 … +50 (0 … +50)[2]
Corrosion resistance class CRC[3]		2			
UL certification		cULus recognized (OL)			

1) Value in brackets applies to MS4/MS6-EE with pressure sensor AD..., with UL certification or with silencer S in combination with EU certification EX2.
2) Value in brackets applies to MS4/MS6-EE with pressure sensor AD... .
3) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

ATEX	
EU certification	EX2
ATEX category gas	II 3G
Ex-ignition protection type gas	Ex nA IIC T4 X Gc
ATEX category dust	II 3D
EX-ignition protection type dust	Ex tc IIIC T105°C X Dc IP65
ATEX ambient temperature	–10 °C ≤ Ta ≤ +60 °C
CE mark (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)
	To EU EMC Directive
	To EU Low Voltage Directive

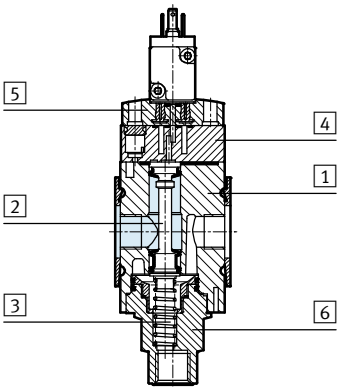
On-off valves MS4/MS6-EE, MS series

Technical data

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

Materials

Sectional view

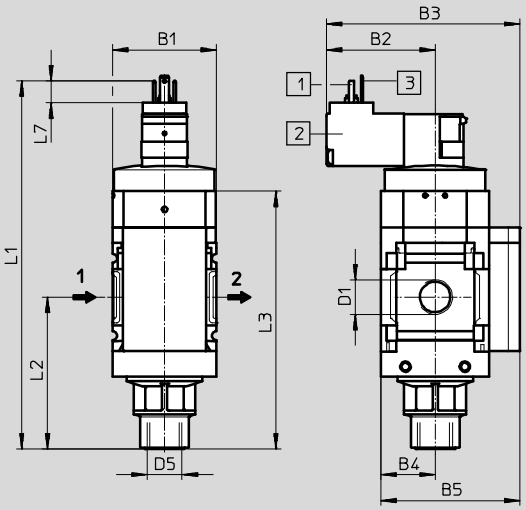


On-off valve		
1	Body	Die-cast aluminium
2	Piston spool	NBR/aluminium
3	Springs	High-alloy stainless steel
4	End cap	PA
5	Top plate	PA
6	Socket end connection	PA
–	Seals	NBR
Note on materials		RoHS-compliant
		Free of copper and PTFE (not with variants AG, 10V24, 10V24P or AD...)

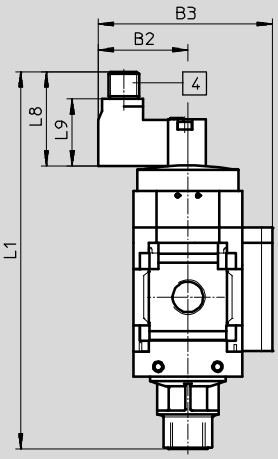
Dimensions – Basic version Download CAD data ➔ **www.festo.com**

With female thread, with cover plate

Supply voltage V24/10V24/V110/V230



Supply voltage 10V24P

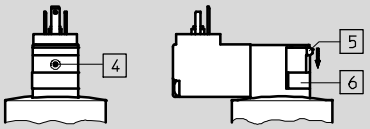


1 = Unused
2 = Unused
3 = com (–)
4 = Signal (+) solenoid 14

1 Plug connection to EN 175301-803
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
4 Electrical connection to IEC 61076-2-101, plug M12x1, 2 pin for connecting cable NEBU-M12

➔ Flow direction

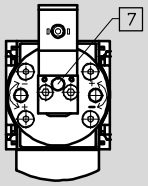
Supply voltage V24/V110/V230



Note

For detenting manual override remove the grey cover plate 6 and press the slide 5 downwards.

Supply voltage 10V24/10V24P



4 Manual override, non-detenting (delivery status)
5 Slide
6 Cover plate
7 Non-detenting and detenting manual override (variant 10V24: only non-detenting)

Type	B1	B2		B3		B4	B5	D1	D5
		V24/V110/V230	10V24/10V24P	V24/V110/V230	10V24/10V24P				
MS4-EE-1/8	40	42.2	34.9	75.2	67.9	21	54	G1/8	G1/4
MS4-EE-1/4								G1/4	
MS6-EE-1/4	62	52	44	97	89	31	76	G1/4	G1/2
MS6-EE-3/8								G3/8	
MS6-EE-1/2								G1/2	

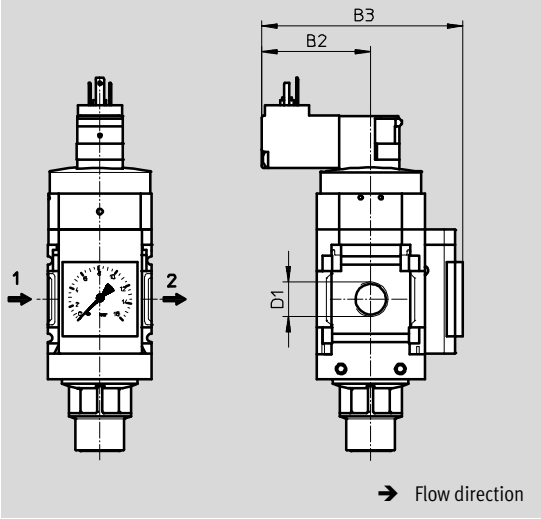
Type	L1			L2	L3	L7	L8	L9
	V24/V110/V230	10V24	10V24P					
MS4-EE-1/8	142.8	140.4	145.2	58.9	100	8.6	36.7	26.1
MS4-EE-1/4								
MS6-EE-1/4	186	183	188	84	143	8.6	37	26.5
MS6-EE-3/8								
MS6-EE-1/2								

Note: This product conforms to ISO 1179-1 and to ISO 228-1

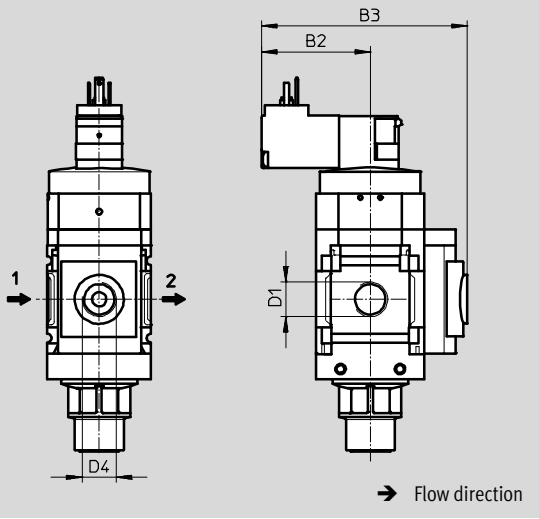
Dimensions – Pressure gauge/pressure gauge alternatives

Download CAD data ➔ **www.festo.com**

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

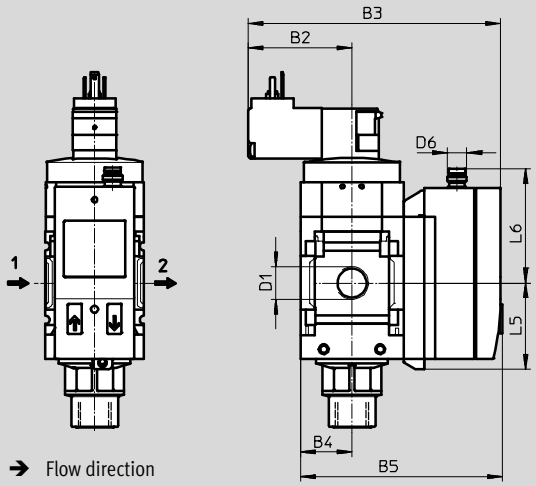


Type	B2	B2	B3	B3	D1	D4
	V24/V110/V230	10V24/10V24P	V24/V110/V230	10V24/10V24P		
MS4-EE-1⁄8-...-AG	42.2	34.9	78.2	70.9	G1⁄8	–
MS4-EE-1⁄4-...-AG					G1⁄4	
MS4-EE-1⁄8-...-RG	42.2	34.9	79.7	72.4	G1⁄8	–
MS4-EE-1⁄4-...-RG					G1⁄4	
MS4-EE-1⁄8-...-A8	42.2	34.9	79.7	72.4	G1⁄8	G1⁄8
MS4-EE-1⁄4-...-A8					G1⁄4	
MS4-EE-1⁄8-...-A4	42.2	34.9	79.7	72.4	G1⁄8	G1⁄4
MS4-EE-1⁄4-...-A4					G1⁄4	
MS6-EE-1⁄4-...-AG	52	44	98	90	G1⁄4	–
MS6-EE-3⁄8-...-AG					G3⁄8	
MS6-EE-1⁄2-...-AG					G1⁄2	
MS6-EE-1⁄4-...-RG	52	44	99.5	91.5	G1⁄4	–
MS6-EE-3⁄8-...-RG					G3⁄8	
MS6-EE-1⁄2-...-RG					G1⁄2	
MS6-EE-1⁄4-...-A4	52	44	99.5	91.5	G1⁄4	G1⁄4
MS6-EE-3⁄8-...-A4					G3⁄8	
MS6-EE-1⁄2-...-A4					G1⁄2	

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Dimensions – Pressure gauge/pressure gauge alternatives Download CAD data ➔ **www.festo.com**

Pressure sensor with LCD display AD1 ... AD4 Technical data ➔ Internet: sde1



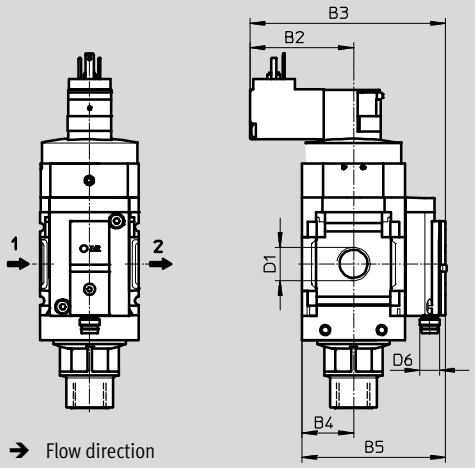
Variant AD1:
SDE1-D10-G2-MS-L-P1-M8 with 3-pin plug M8x1, 1 switching output PNP

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

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

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

Pressure sensor with operational status indicator AD7 ... AD10 Technical data ➔ Internet: sde5



Variant AD7:
SDE5-D10-O-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/O contact

Variant AD8:
SDE5-D10-C-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/C contact

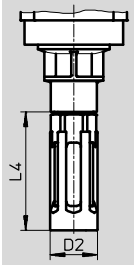
Variant AD9:
SDE5-D10-O3-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/O contact

Variant AD10:
SDE5-D10-C3-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/C contact

Type	B2		B3		B4	B5	D1	D6	L5	L6
	V24/ V110/ V230	10V24/ 10V24P	V24/ V110/ V230	10V24/ 10V24P						
MS4-EE-⅛-...-AD1/AD2	42.2	34.9	103.8	96.5	21	82.6	G⅛	M8x1	35.1	46.7
MS4-EE-¼-...-AD1/AD2							G¼			
MS4-EE-⅛-...-AD3/AD4	42.2	34.9	103.8	96.5	21	82.6	G⅛	M12x1	35.1	55.8
MS4-EE-¼-...-AD3/AD4							G¼			
MS4-EE-⅛-...-AD7/AD8/AD9/AD10	42.2	34.9	80.3	73	21	59.1	G⅛	M8x1	–	–
MS4-EE-¼-...-AD7/AD8/AD9/AD10							G¼			
MS6-EE-¼-...-AD1/AD2	52	44	124	116	31	103	G¼	M8x1	35.1	46.7
MS6-EE-⅜-...-AD1/AD2							G⅜			
MS6-EE-½-...-AD1/AD2							G½			
MS6-EE-¼-...-AD3/AD4	52	44	124	116	31	103	G¼	M12x1	35.1	55.8
MS6-EE-⅜-...-AD3/AD4							G⅜			
MS6-EE-½-...-AD3/AD4							G½			
MS6-EE-¼-...-AD7/AD8/AD9/AD10	52	44	100	92	31	79	G¼	M8x1	–	–
MS6-EE-⅜-...-AD7/AD8/AD9/AD10							G⅜			
MS6-EE-½-...-AD7/AD8/AD9/AD10							G½			

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Dimensions – Silencer Download CAD data ➔ **www.festo.com**



Type	D2	L4
MS4-EE-...-S	19.5	48.5
MS6-EE-...-S	28	108

★ Core product range

Ordering data						
Size	Connection	Without silencer			With silencer	
		Part No.	Type		Part No.	Type
Supply voltage 24 V DC						
MS4	G¼	★ **542578**	**MS4-EE-¼-10V24**		★ **542598**	**MS4-EE-¼-10V24-S**
MS6	G½	★ **542582**	**MS6-EE-½-10V24**		★ **542602**	**MS6-EE-½-10V24-S**

Ordering data						
Size	Connection	Without silencer			With silencer	
		Part No.	Type		Part No.	Type
Supply voltage 24 V DC						
MS4	G⅛	**542580**	**MS4-EE-⅛-10V24**		**542600**	**MS4-EE-⅛-10V24-S**
MS6	G¼	**542584**	**MS6-EE-¼-10V24**		**542604**	**MS6-EE-¼-10V24-S**
	G⅜	**542586**	**MS6-EE-⅜-10V24**		**542606**	**MS6-EE-⅜-10V24-S**
Supply voltage 110 V AC						
MS4	G¼	**529535**	**MS4-EE-¼-V110**		**538719**	**MS4-EE-¼-V110-S**
MS6	G½	**529823**	**MS6-EE-½-V110**		**538731**	**MS6-EE-½-V110-S**
Supply voltage 230 V AC						
MS4	G¼	**529537**	**MS4-EE-¼-V230**		–	–
MS6	G½	**529825**	**MS6-EE-½-V230**		–	–

Festo core product range
★ Ready for dispatch from the Festo factory in 24 hours
☆ Ready for dispatch in 5 days maximum from stock

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

Ordering data – Modular products

Ordering table

	Grid dimension [mm]	40	62	Condi-tions	Code	Enter code
M	Module No.	**527709**	**527682**			
	Series	Standard			**MS**	MS
	Size	4	6		**...**	
	Function	On-off valve, electrical			**-EE**	-EE
	Pneumatic connection	Female thread G1/8	–	1	**-1/8**	
		Female thread G1/4	Female thread G1/4	1	**-1/4**	
		–	Female thread G3/8	1	**-3/8**	
		–	Female thread G1/2	1	**-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**	
		Connecting plate NPT1/8	–	1	**-AQK**	
		Connecting plate NPT1/4	Connecting plate NPT1/4	1	**-AQN**	
		Connecting plate NPT3/8	Connecting plate NPT3/8	1	**-AQP**	
		–	Connecting plate NPT1/2	1	**-AQR**	
		–	Connecting plate NPT3/4	1	**-AQS**	
	Supply voltage	24 V DC (pin allocation to EN 175301) 4 ... 14 bar	4 ... 18 bar		**-V24**	
		24 V DC (pin allocation to EN 175301) 4 ... 10 bar	4 ... 10 bar	1 2	**-10V24**	
		24 V DC, M12 to IEC 61076-2-101 4 ... 10 bar	4 ... 10 bar	1 2	**-10V24P**	
		110 V AC (pin allocation to EN 175301) 4 ... 14 bar	4 ... 18 bar	1	**-V110**	
↓		230 V AC (pin allocation to EN 175301) 4 ... 14 bar	4 ... 18 bar	1	**-V230**	

1 **1/8, 1/4, 3/8, 1/2, AQK, AQN, AQP, AQR, AQS, 10V24, 10V24P, V110, V230, AD1 ... AD4, AD7 ... AD10, WPM**
Not with EU certification EX2

2 **10V24, 10V24P**
Max. operating pressure 10 bar

M Mandatory data
O Options

Transfer order code

	MS		–	**EE**	–		–	

Ordering table

	Grid dimension [mm]	40	62	Conditions	Code		Enter code
O	Silencer	Silencer		3	**-S**		
	Pressure gauge/pressure gauge alternatives	MS pressure gauge, bar			**-AG**		
		Adapter plate for EN pressure gauge ⅛, without pressure gauge	–		**-A8**		
		Adapter plate for EN pressure gauge ¼, without pressure gauge			**-A4**		
		Integrated pressure gauge, red-green scale			**-RG**		
		Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin		1 4	**-AD1**		
		Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin		1 4	**-AD2**		
		Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA		1 4	**-AD3**		
		Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA		1 4	**-AD4**		
		Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact		1 4	**-AD7**		
		Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact		1 4	**-AD8**		
		Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact		1 4	**-AD9**		
		Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact		1 4	**-AD10**		
	Alternative pressure gauge scale	psi		5	**-PSI**		
		MPa		6	**-MPA**		
	Type of mounting	Mounting bracket standard design		7	**-WP**		
		Mounting bracket for attaching the service units		1 7	**-WPM**		
		Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required			**-WB**		
		Mounting bracket centrally at rear (wall mounting top), connecting plates not required	–		**-WBM**		
	EU certification	II 3GD to EU Explosion Protection Directive (ATEX)			**-EX2**		
	UL certification	cULus, ordinary location for Canada and USA		8	**-UL1**		
	Flow direction	Flow direction from right to left			**-Z**		

3 **S** Max. operating pressure 10 bar in combination with EU certification EX2

4 **AD1** ... **AD4**, **AD7** ... **AD10** Measuring range max. 10 bar

5 **PSI** Only in combination with pressure gauge AG

6 **MPA** Only in combination with pressure gauge AG or RG

7 **WP, WPM** Only with connecting plate AGA, AGB, AGC, AGD, AGE, AQK, AQN, AQP, AQR or AQS

8 **UL1** Not with supply voltage V110, V230

M Mandatory data

O Options

Transfer order code

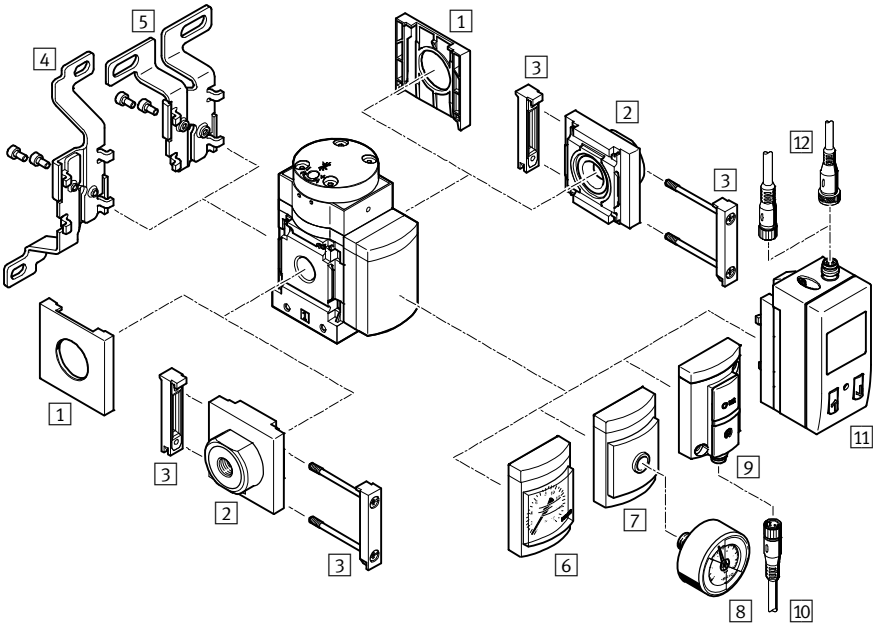
– | | – | | – | | – | | – | | – | |

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

Peripherals overview

FESTO

Soft-start valve MS4/MS6-DL



- Note

Additional accessories:

- Module connector for combination with size MS4/MS6 or size MS9 ➔ Internet: amv, rmv, armv
- Adapter plate for mounting on profiles ➔ Internet: ipm-80, ipm-40-80, ipm-80-80

Mounting attachments and accessories

		Individual device		Combination		➔ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
1	Cover cap MS4/6-END	■	–	■	–	ms4-end, ms6-end
2	Connecting plate-SET MS4/6-AG...	–	■	–	■	ms4-ag, ms6-ag
	Connecting plate-SET MS4/6-AQ...	–	■	–	■	ms4-aq, ms6-aq
3	Module connector MS4/6-MV	–	■	■	■	ms4-mv, ms6-mv
4	Mounting bracket MS4/6-WB	■	■	–	–	ms4-wb, ms6-wb
5	Mounting bracket MS4-WBM	■	■	–	–	ms4-wbm
6	MS pressure gauge AG/RG	■	■	■	■	38
7	Adapter plate for EN pressure gauge 1⁄8/1⁄4 A8/A4	■	■	■	■	38
8	Pressure gauge MA	■	■	■	■	95
9	Pressure sensor without display AD7 ... AD10	■	■	■	■	38
10	Connecting cable NEBU-M8...-LE3	■	■	■	■	95
11	Pressure sensor with display AD1 ... AD4	■	■	■	■	38
12	Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4	■	■	■	■	95
–	Mounting bracket MS4/6-WP/WPB/WPE/WPM	–	■	■	■	ms4-wp, ms6-wp

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

Type codes

MS	6	–	DL	–	½

Series	
MS	Standard service unit

Size	
4	Grid dimension 40 mm
6	Grid dimension 62 mm

Service function	
DL	Pneumatically actuated soft-start valve

Pneumatic connection	
MS4	
⅛	Female thread G⅛
¼	Female thread G¼
MS6	
¼	Female thread G¼
⅜	Female thread G⅜
½	Female thread G½

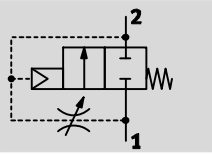
Additional variants can be ordered using the modular system ➔ 38

- Connecting plates
- Pressure gauge/pressure gauge alternatives
- Alternative pressure gauge scale
- Type of mounting
- EU certification
- UL certification
- Flow direction

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 operating pressure
- Adjustable switching time delay
- Optional pressure sensor
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

General technical data			
Size		MS4	MS6
Pneumatic connection 1, 2			
	Female thread	G1/8 or G1/4	G1/4, G3/8 or G1/2
	Connecting plate AG...	G1/8, G1/4 or G3/8	G1/4, G3/8, G1/2 or G3/4
	Connecting plate AQ...	NPT1/8, NPT1/4 or NPT3/8	NPT1/4, NPT3/8, NPT1/2 or NPT3/4
Design		Piston poppet valve	
Type of mounting		Via accessories	
		In-line installation	
Assembly position		Any	
Pressure indicator		Via pressure sensor for displaying output pressure via LCD display and electrical output	
		Via pressure sensor for displaying output pressure via operational status indicator and electrical output	
		Via pressure gauge for displaying output pressure	
		Via pressure gauge with red/green scale for displaying output pressure	
		G1/4 prepared	
		G1/8 prepared	–
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	

Note: This product conforms to ISO 1179-1 and to ISO 228-1

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

Technical data

Flow rate characteristic values					
Size	MS4		MS6		
Pneumatic connection	G⅛	G¼	G¼	G⅜	G½
Standard nominal flow rate qnN[1] [l/min]					
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
C value [l/s*min]					
In main flow direction 1 → 2	4.6	9.6	11.22	21.05	28.97
b value					
In main flow direction 1 → 2	0.5	0.45	0.54	0.48	0.39

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

Operating and environmental conditions		
Size	MS4	MS6
Operating pressure [bar]	4 … 14 (4 … 10)[1]	4 … 18 (4 … 10)[1]
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]	
	Inert gases	
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)	
Ambient temperature [°C]	−10 … +60 (0 … +50)[2]	−10 … +60 (0 … +50)[2]
Temperature of medium [°C]	−10 … +60 (0 … +50)[2]	−10 … +60 (0 … +50)[2]
Corrosion resistance class CRC[3]	2	
UL certification	cULus recognized (OL)	

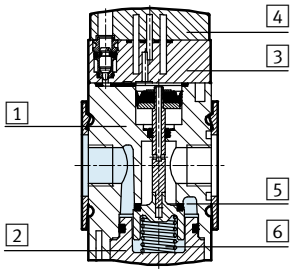
1) Value in brackets applies to MS4/MS6-DL with pressure sensor AD... or with UL certification.
2) Value in brackets applies to MS4/MS6-DL with pressure sensor AD... .
3) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

ATEX	
EU certification	EX4
ATEX category gas	II 2G
Ex-ignition protection type gas	c T6 X
ATEX category dust	II 2D
EX-ignition protection type dust	c 60 °C X
ATEX ambient temperature	−10 °C ≤ Ta ≤ +60 °C
CE mark (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)

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

Materials

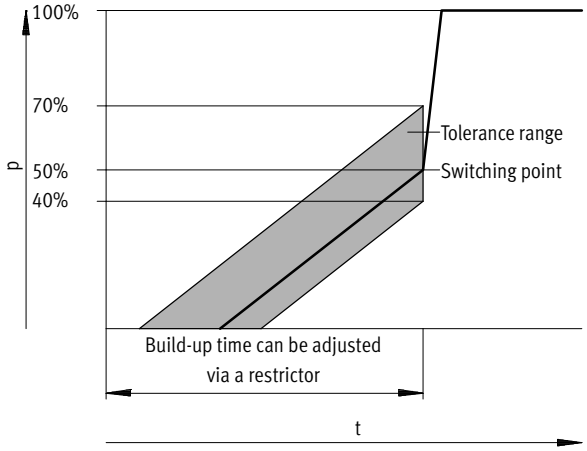
Sectional view



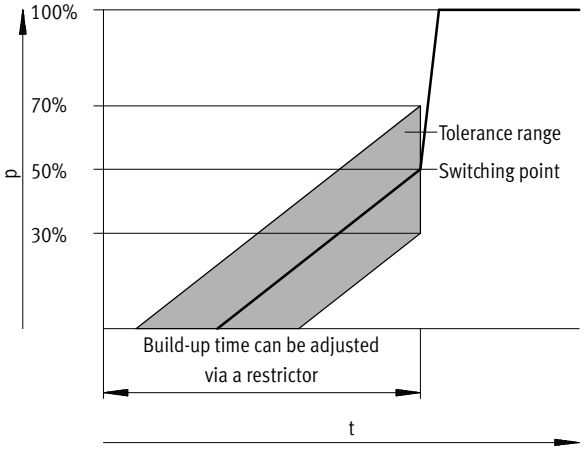
Soft-start valve		
1	Body	Die-cast aluminium
2	Base	PET
3	End cap	PA
4	Top plate	PA
5	Seat	Aluminium
6	Springs	Spring steel
–	Seals	NBR
Note on materials		RoHS-compliant
		Free of copper and PTFE (not with variants AG or AD...)

Switching point – Pressure p as a function of time t

MS4



MS6



Note

The tolerance specification +20%/–10% of the switching point refers to the operating pressure p1.

Example: at an operating pressure of 4 bar a switching point of 1.6 bar to 2.8 bar is permitted.

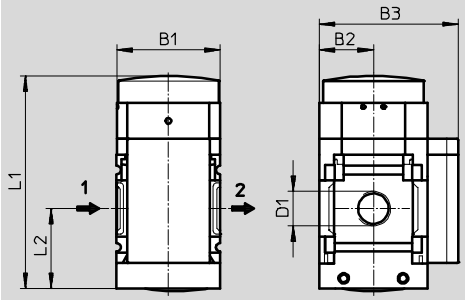
Note

The tolerance specification +20%/–20% of the switching point refers to the operating pressure p1.

Example: at an operating pressure of 4 bar a switching point of 1.2 bar to 2.8 bar is permitted.

Dimensions – Basic version Download CAD data ➔ **www.festo.com**

With female thread, with cover plate



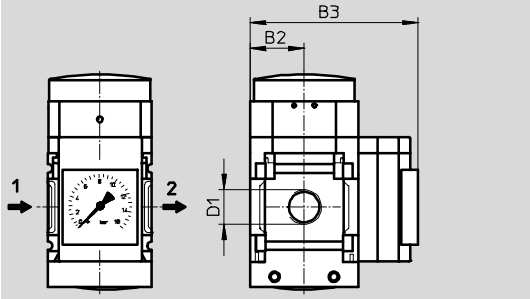
➔ Flow direction

Type	B1	B2	B3	D1	L1	L2
MS4-DL-⅛	40	21	54	G⅛	83.2	31.5
MS4-DL-¼				G¼		
MS6-DL-¼	62	31	76	G¼	108	46
MS6-DL-⅜				G⅜		
MS6-DL-½				G½		

Note: This product conforms to ISO 1179-1 and to ISO 228-1

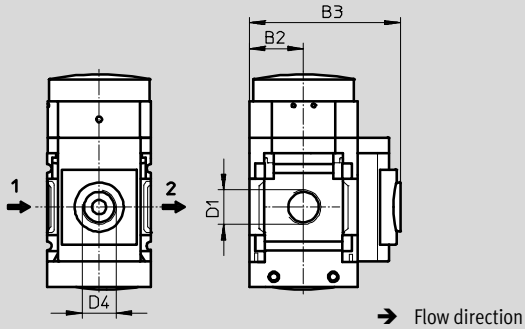
Dimensions – Pressure gauge/pressure gauge alternatives Download CAD data ➔ **www.festo.com**

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



➔ Flow direction

Adapter plate A8/A4 for EN pressure gauge ⅛/¼, without pressure gauge



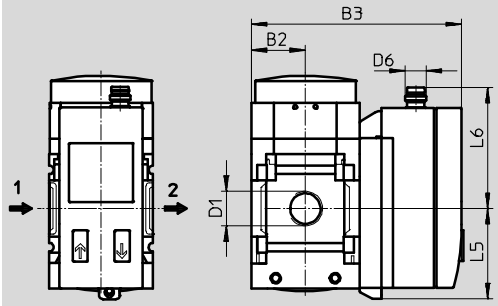
➔ Flow direction

Type	B2	B3	D1	D4
MS4-DL-⅛-...-AG	21	57	G⅛	–
MS4-DL-¼-...-AG			G¼	
MS4-DL-⅛-...-RG	21	58.5	G⅛	–
MS4-DL-¼-...-RG			G¼	
MS4-DL-⅛-...-A8	21	58.5	G⅛	G⅛
MS4-DL-¼-...-A8			G¼	
MS4-DL-⅛-...-A4	21	58.5	G⅛	G¼
MS4-DL-¼-...-A4			G¼	
MS6-DL-¼-...-AG	31	77	G¼	–
MS6-DL-⅜-...-AG			G⅜	
MS6-DL-½-...-AG			G½	
MS6-DL-¼-...-RG	31	78.5	G¼	–
MS6-DL-⅜-...-RG			G⅜	
MS6-DL-½-...-RG			G½	
MS6-DL-¼-...-A4	31	78.5	G¼	G¼
MS6-DL-⅜-...-A4			G⅜	
MS6-DL-½-...-A4			G½	

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Dimensions – Pressure gauge/pressure gauge alternatives Download CAD data ➔ **www.festo.com**

Pressure sensor with LCD display AD1 ... AD4 Technical data ➔ Internet: sde1



➔ Flow direction

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

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

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

Variant AD4:
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-⅛-...-AD1/AD2	21	82.6	G⅛	M8x1	35.1	46.7
MS4-DL-¼-...-AD1/AD2			G¼			
MS4-DL-⅛-...-AD3/AD4	21	82.6	G⅛	M12x1	35.1	55.8
MS4-DL-¼-...-AD3/AD4			G¼			
MS6-DL-¼-...-AD1/AD2	31	103	G¼	M8x1	35.1	46.7
MS6-DL-⅜-...-AD1/AD2			G⅜			
MS6-DL-½-...-AD1/AD2			G½			
MS6-DL-¼-...-AD3/AD4	31	103	G¼	M12x1	35.1	55.8
MS6-DL-⅜-...-AD3/AD4			G⅜			
MS6-DL-½-...-AD3/AD4			G½			

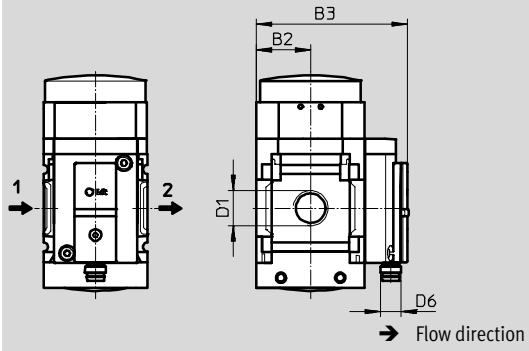
Note: This product conforms to ISO 1179-1 and to ISO 228-1

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

Technical data

Dimensions – Pressure gauge/pressure gauge alternatives Download CAD data ➔ **www.festo.com**

Pressure sensor with operational status indicator AD7 ... AD10 Technical data ➔ Internet: sde5



Variant AD7:
SDE5-D10-O-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/O contact

Variant AD8:
SDE5-D10-C-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/C contact

Variant AD9:
SDE5-D10-O3-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/O contact

Variant AD10:
SDE5-D10-C3-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/C contact

Type	B2	B3	D1	D6
MS4-DL-⅛-...-AD7/AD8/AD9/AD10	21	59.1	G⅛	M8x1
MS4-DL-¼-...-AD7/AD8/AD9/AD10			G¼	
MS6-DL-¼-...-AD7/AD8/AD9/AD10	31	79	G¼	M8x1
MS6-DL-⅜-...-AD7/AD8/AD9/AD10			G⅜	
MS6-DL-½-...-AD7/AD8/AD9/AD10			G½	

Note: This product conforms to ISO 1179-1 and to ISO 228-1

★ Core product range

Ordering data

Size	Connection	Part No.	Type
MS4	G¼	★ **529531**	**MS4-DL-¼**
MS6	G½	★ **529817**	**MS6-DL-½**

Ordering data

Size	Connection	Part No.	Type
MS4	G⅛	**529533**	**MS4-DL-⅛**
MS6	G¼	**529819**	**MS6-DL-¼**
	G⅜	**529821**	**MS6-DL-⅜**

Festo core product range
★ Ready for dispatch from the Festo factory in 24 hours
☆ Ready for dispatch in 5 days maximum from stock

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

Ordering data – Modular products

Ordering table

Grid dimension [mm]		40	62	Condi-tions	Code		Enter code
M	Module No.	**527711**	**527684**				
	Series	Standard			**MS**		MS
	Size	4	6		**...**		
	Function	Soft-start valve, pneumatic			**-DL**		-DL
	Pneumatic connection	Female thread G⅛	–	1	**-⅛**		
		Female thread G¼	Female thread G¼	1	**-¼**		
		–	Female thread G⅜	1	**-⅜**		
		–	Female thread G½	1	**-½**		
		Connecting plate G⅛	–		**-AGA**		
		Connecting plate G¼	Connecting plate G¼		**-AGB**		
		Connecting plate G⅜	Connecting plate G⅜		**-AGC**		
		–	Connecting plate G½		**-AGD**		
		–	Connecting plate G¾		**-AGE**		
		Connecting plate NPT⅛	–	1	**-AQK**		
		Connecting plate NPT¼	Connecting plate NPT¼	1	**-AQN**		
		Connecting plate NPT⅜	Connecting plate NPT⅜	1	**-AQP**		
		–	Connecting plate NPT½	1	**-AQR**		
↓		–	Connecting plate NPT¾	1	**-AQS**		

1 **⅛, ¼, ⅜, ½, AQK, AQN, AQP, AQR, AQS, AD1 ... AD4, AD7 ... AD10, WPM**
Not with EU certification EX4

M Mandatory data
O Options

Transfer order code

	MS		–	**DL**	–	

Ordering table

	Grid dimension [mm]	40	62	Conditions	Code		Enter code
O	Pressure gauge/pressure gauge alternatives	MS pressure gauge, bar			**-AG**		
		Adapter plate for EN pressure gauge ⅛, without pressure gauge	–		**-A8**		
		Adapter plate for EN pressure gauge ¼, without pressure gauge			**-A4**		
		Integrated pressure gauge, red-green scale			**-RG**		
		Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin		1 2	**-AD1**		
		Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin		1 2	**-AD2**		
		Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA		1 2	**-AD3**		
		Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA		1 2	**-AD4**		
		Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact		1 2	**-AD7**		
		Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact		1 2	**-AD8**		
		Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact		1 2	**-AD9**		
		Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact		1 2	**-AD10**		
	Alternative pressure gauge scale	psi		3	**-PSI**		
		MPa		4	**-MPA**		
	Type of mounting	Mounting bracket standard design		5	**-WP**		
		Mounting bracket for attaching the service units		1 5	**-WPM**		
		Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required			**-WB**		
		Mounting bracket centrally at rear (wall mounting top), connecting plates not required	–		**-WBM**		
	EU certification	II 2GD to EU Explosion Protection Directive (ATEX)			**-EX4**		
	UL certification	cULus, ordinary location for Canada and USA			**-UL1**		
	Flow direction	Flow direction from right to left			**-Z**		

2 **AD1 ... AD4, AD7 ... AD10** Measuring range max. 10 bar

3 **PSI** Only with pressure gauge AG

4 **MPA** Only with pressure gauge AG or RG

5 **WP, WPM** Only with connecting plate AGA, AGB, AGC, AGD, AGE, AQK, AQN, AQP, AQR or AQS

M Mandatory data

O Options

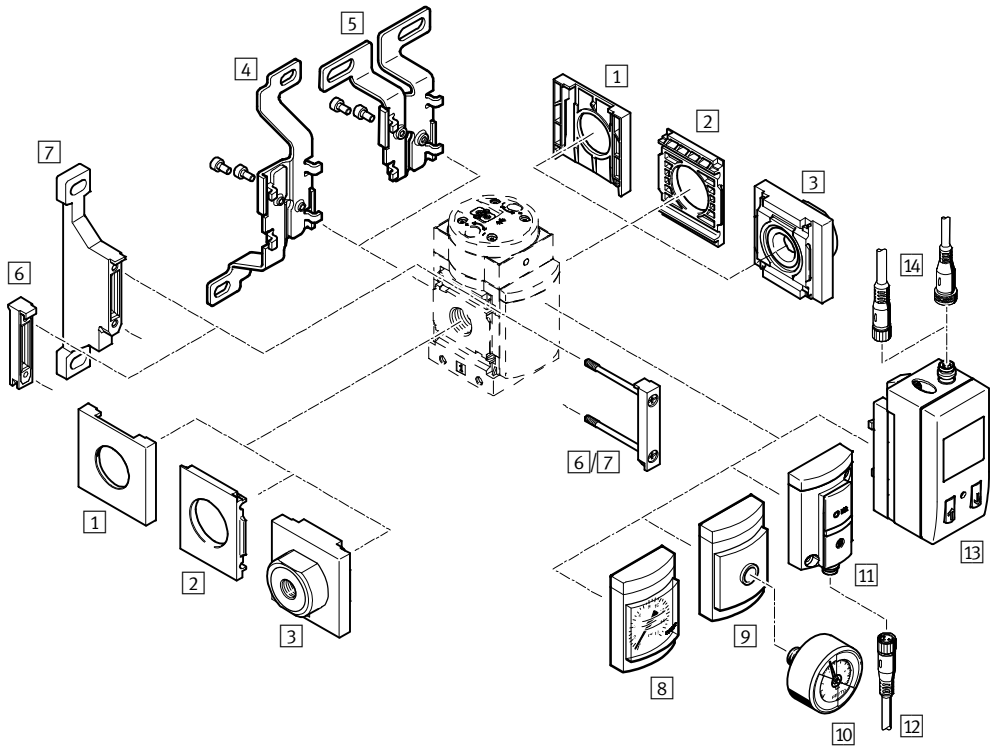
Transfer order code

– [ ] – [ ] – [ ] – [ ] – [ ] – [ ]

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

Peripherals overview

Soft-start valve MS4/MS6-DE

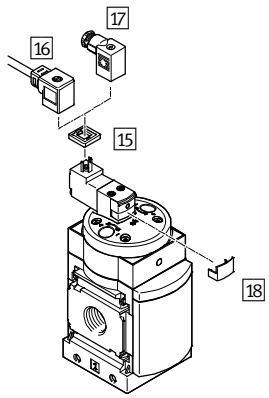


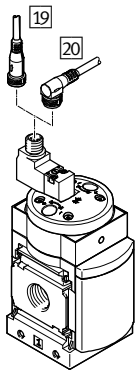
- Note

Additional accessories:

- Module connector for combination with size MS4/MS6 or size MS9 ➔ Internet: amv, rmv, armv
- Adapter plate for mounting on profiles ➔ Internet: ipm-80, ipm-40-80, ipm-80-80

Supply voltage V24/10V24/V110/V230	Supply voltage 10V24P





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

Peripherals overview

FESTO

Mounting attachments and accessories						
		Individual device		Combination		→ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
1	Cover cap MS4/6-END	■	–	■	–	ms4-end, ms6-end
2	Mounting plate MS4/6-AEND	■[1)]	–	■[1)]	–	ms4-aend, ms6-aend
3	Connecting plate-SET MS4/6-AG...	–	■[1)]	–	■[1)]	ms4-ag, ms6-ag
	Connecting plate-SET MS4/6-AQ...	–	■[1)]	–	■[1)]	ms4-aq, ms6-aq
4	Mounting bracket MS4/6-WB	■	■	–	–	ms4-wb, ms6-wb
5	Mounting bracket MS4-WBM	■	■	–	–	ms4-wbm
6	Module connector MS4/6-MV	–	■	■	■	ms4-mv, ms6-mv
7	Mounting bracket MS4/6-WP	■	■	■	■	ms4-wp, ms6-wp
	Mounting bracket (not illustrated) MS4/6-WPB/WPE/WPM	■	■	■	■	ms4-wp, ms6-wp
8	MS pressure gauge AG/RG	■	■	■	■	50
9	Adapter plate for EN pressure gauge ⅛/¼ A8/A4	■	■	■	■	50
10	Pressure gauge MA	■	■	■	■	95
11	Pressure sensor without display AD7 ... AD10	■	■	■	■	50
12	Connecting cable NEBU-M8...-LE3	■	■	■	■	95
13	Pressure sensor with display AD1 ... AD4	■	■	■	■	50
14	Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4	■	■	■	■	95
15	Illuminating seal MEB-LD	■	■	■	■	94
16	Plug socket with cable KMEB	■	■	■	■	94
17	Plug socket MSSD-EB	■	■	■	■	94
18	Locking clip CPV18-HV	■	■	■	■	94
19	Connecting cable NEBU-M12G5	■	■	■	■	95
20	Connecting cable NEBU-M12W5	■	■	■	■	95

1) Module connector MS4/6-MV 6 or mounting bracket MS4/6-WP/WPB/WPE/WPM 7 is required for mounting.

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

Type codes

MS	6	–	DE	–	½	–	V110

Series	
MS	Standard service unit

Size	
4	Grid dimension 40 mm
6	Grid dimension 62 mm

Service function	
DE	Solenoid actuated soft-start valve

Pneumatic connection	
MS4	
¼	Female thread G¼
MS6	
¼	Female thread G¼
⅜	Female thread G⅜
½	Female thread G½

Supply voltage	
10V24	Supply voltage 24 V DC
V110	Supply voltage 110 V AC
V230	Supply voltage 230 V AC

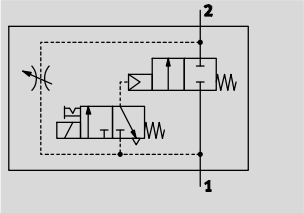
Additional variants can be ordered using the modular system ➔ 50

- Female thread
- Connecting plates
- Supply voltage
- Pressure gauge/pressure gauge alternatives
- Alternative pressure gauge scale
- Type of mounting
- EU certification
- UL certification
- Flow direction

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
- Non-detenting and detenting manual override (variant 10V24: only non-detenting)
- Solenoid actuator can be repositioned by 180°
- Optional pressure sensor
- Optional device variant EX2 for use in potentially explosive areas in zones 2 and 22

General technical data			
Size		MS4	MS6
Pneumatic connection 1, 2			
	Female thread	G⅛ or G¼	G¼, G⅜ or G½
	Connecting plate AG...	G⅛, G¼ or G⅜	G¼, G⅜, G½ or G¾
	Connecting plate AQ...	NPT⅛, NPT¼ or NPT⅜	NPT¼, NPT⅜, NPT½ or NPT¾
Design		Piston poppet valve	
Type of mounting		Via accessories	
		In-line installation	
Assembly position		Any	
Pressure indicator		Via pressure sensor for displaying output pressure via LCD display and electrical output	
		Via pressure sensor for displaying output pressure via operational status indicator and electrical output	
		Via pressure gauge for displaying output pressure	
		Via pressure gauge with red/green scale for displaying output pressure	
		G¼ prepared	
		G⅛ prepared	–
Valve function		2/2-way valve	
Signal status display		Via accessories	
Type of reset		Mechanical spring	
Pilot control mode		Piloted	
Pilot air supply		Internal	
Direction of flow		Non-reversible	

Note: This product conforms to ISO 1179-1 and to ISO 228-1

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

Technical data

Electrical data		
Coil characteristics	V24	24 V DC: 1.5 W; perm. voltage fluctuations –25%/+10%
	10V24, 10V24P	24 V DC: 1.8 W; perm. voltage fluctuations –15%/+10%
	V110	110 V AC: 50/60 Hz; pick-up power 3.0 VA; holding power 2.4 VA; perm. voltage fluctuations ±10%
	V230	230 V AC: 50/60 Hz; pick-up power 3.0 VA; holding power 2.4 VA; perm. voltage fluctuations –14%/+10%
Electrical connection	V24, 10V24, V110, V230	Plug, square design to EN 175301-803, type C
	10V24P	M12x1 to IEC 61076-2-101
Protection class solenoid coil		IP65
Duty cycle [%]		100

Flow rate characteristic values					
Size	MS4		MS6		
Pneumatic connection	G⅛	G¼	G¼	G⅜	G½
Standard nominal flow rate qnN[1] [l/min]					
In main flow direction 1 → 2	1,000	2,000	2,700	5,050	6,450
In relief direction 2 → 1[2]	1,000	2,000	2,600	5,050	6,400
C value [l/s*min]					
In main flow direction 1 → 2	4.6	9.6	11.22	21.05	28.97
b value					
In main flow direction 1 → 2	0.5	0.45	0.54	0.48	0.39

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

Operating and environmental conditions				
Size	MS4		MS6	
Supply voltage	V24/V110/V230	10V24/10V24P	V24/V110/V230	10V24/10V24P
Operating pressure [bar]	4 … 14 (4 … 10)[1]	4 … 10	4 … 18 (4 … 10)[1]	4 … 10
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]			
	Inert gases			
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)			
Ambient temperature [°C]	–10 … +60 (0 … +50)[2]	–10 … +50 (0 … +50)[2]	–10 … +60 (0 … +50)[2]	–10 … +50 (0 … +50)[2]
Temperature of medium [°C]	–10 … +60 (0 … +50)[2]	–10 … +50 (0 … +50)[2]	–10 … +60 (0 … +50)[2]	–10 … +50 (0 … +50)[2]
Corrosion resistance class CRC[3]	2			
UL certification	cULus recognized (OL)			

1) Value in brackets applies to MS4/MS6-DE with pressure sensor AD... or with UL certification.
2) Value in brackets applies to MS4/MS6-DE with pressure sensor AD... .
3) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

ATEX	
EU certification	EX2
ATEX category gas	II 3G
Ex-ignition protection type gas	Ex nA IIC T4 X Gc
ATEX category dust	II 3D
EX-ignition protection type dust	Ex tc IIIC T105°C X Dc IP65
ATEX ambient temperature	–10 °C ≤ Ta ≤ +60 °C
CE mark (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)
	To EU EMC Directive
	To EU Low Voltage Directive

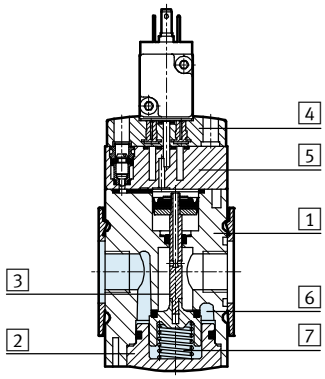
Soft-start valves MS4/MS6-DE, MS series

Technical data

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

Materials

Sectional view



Soft-start valve	
1 Body	Die-cast aluminium
2 Base	PET
3 Valve stem	Aluminium
4 End cap	PA
5 Top plate	PA
6 Seat	Aluminium
7 Springs	Spring steel
– Seals	NBR
Note on materials	RoHS-compliant
	Free of copper and PTFE (not with variants AG, 10V24, 10V24P or AD...)

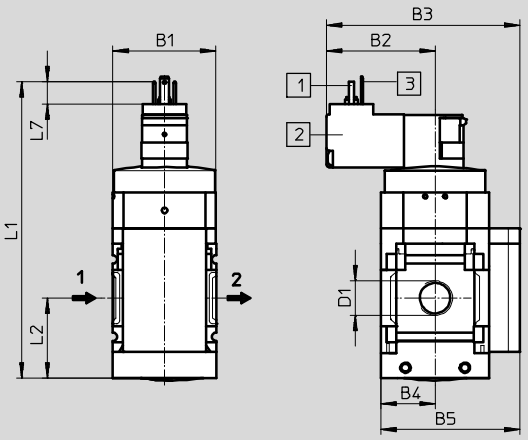
Soft-start valves MS4/MS6-DE, MS series

Technical data

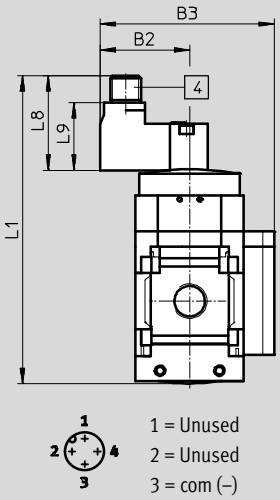
Dimensions – Basic version Download CAD data ➔ **www.festo.com**

With female thread, with cover plate

Supply voltage V24/10V24/V110/V230



Supply voltage 10V24P

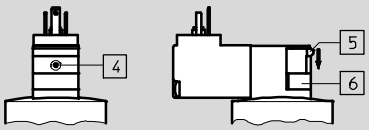


1 = Unused
2 = Unused
3 = com (–)
4 = Signal (+) solenoid 14

1 Plug connection to EN 175301-803
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
4 Electrical connection to IEC 61076-2-101, plug M12x1, 2 pin for connecting cable NEBU-M12

➔ Flow direction

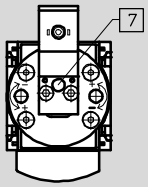
Supply voltage V24/V110/V230



Note

For detenting manual override remove the grey cover plate 6 and press the slide 5 downwards.

Supply voltage 10V24/10V24P



4 Manual override, non-detenting (delivery status)
5 Slide
6 Cover plate
7 Non-detenting and detenting manual override (variant 10V24: only non-detenting)

Type	B1	B2		B3		B4	B5	D1
		V24/ V110/ V230	10V24/ 10V24P	V24/ V110/ V230	10V24/ 10V24P			
MS4-DE-⅛	40	42.2	34.9	75.2	67.9	21	54	G⅛
MS4-DE-¼								G¼
MS6-DE-¼	62	52	44	97	89	31	76	G¼
MS6-DE-⅜								G⅜
MS6-DE-½								G½

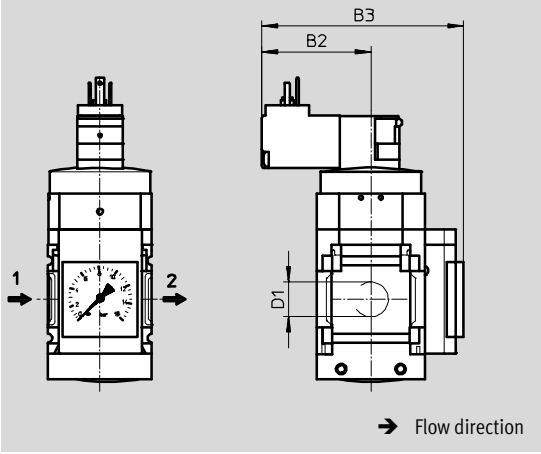
Type	L1			L2	L7	L8	L9
	V24/ V110/ V230	10V24	10V24P				
MS4-DE-⅛	115.4	112.9	117.8	31.5	8.6	36.7	26.1
MS4-DE-¼							
MS6-DE-¼	149	147	152	46	8.6	37	26
MS6-DE-⅜							
MS6-DE-½							

Note: This product conforms to ISO 1179-1 and to ISO 228-1

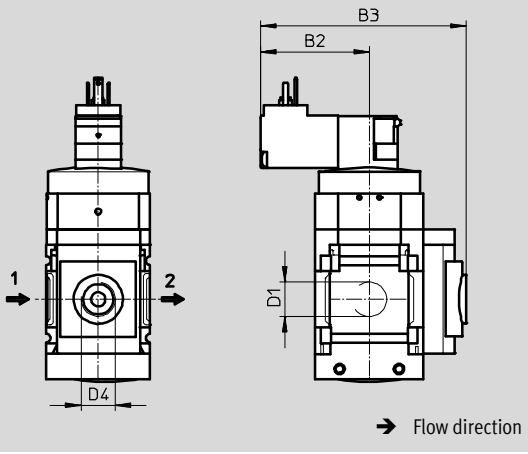
Dimensions – Pressure gauge/pressure gauge alternatives

Download CAD data ➔ **www.festo.com**

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



Adapter plate A8/A4 for EN pressure gauge ⅛/¼, without pressure gauge

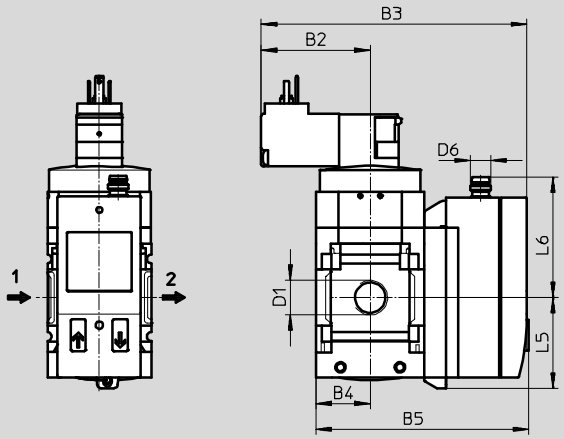


Type	B2		B3		D1	D4
	V24/V110/V230	10V24/10V24P	V24/V110/V230	10V24/10V24P		
MS4-DE-⅛-...-AG	42.2	34.9	78.2	70.9	G⅛	–
MS4-DE-¼-...-AG					G¼	
MS4-DE-⅛-...-RG	42.2	34.9	79.7	72.4	G⅛	–
MS4-DE-¼-...-RG					G¼	
MS4-DE-⅛-...-A8	42.2	34.9	79.7	72.4	G⅛	G⅛
MS4-DE-¼-...-A8					G¼	
MS4-DE-⅛-...-A4	42.2	34.9	79.7	72.4	G⅛	G¼
MS4-DE-¼-...-A4					G¼	
MS6-DE-¼-...-AG	52	44	98	90	G¼	–
MS6-DE-⅜-...-AG					G⅜	
MS6-DE-½-...-AG					G½	
MS6-DE-¼-...-RG	52	44	99.5	91.5	G¼	–
MS6-DE-⅜-...-RG					G⅜	
MS6-DE-½-...-RG					G½	
MS6-DE-¼-...-A4	52	44	99.5	91.5	G¼	G¼
MS6-DE-⅜-...-A4					G⅜	
MS6-DE-½-...-A4					G½	

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Dimensions – Pressure gauge/pressure gauge alternatives Download CAD data ➔ **www.festo.com**

Pressure sensor with LCD display AD1 ... AD4 Technical data ➔ Internet: sde1



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

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

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

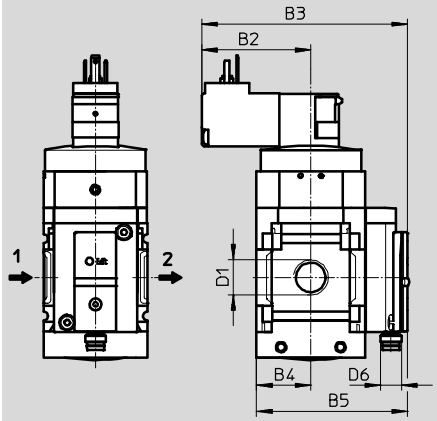
Variant AD4:
SDE1-D10-G2-MS-L-NI-M12 with 4-pin plug M12x1, 1 switching output NPN and 4 ... 20 mA analogue

Type	B2		B3		B4	B5	D1	D6	L5	L6
	V24/ V110/ V230	10V24/ 10V24P	V24/ V110/ V230	10V24/ 10V24P						
MS4-DE-⅛-...-AD1/AD2	42.2	34.9	103.8	96.5	21	82.6	G⅛	M8x1	35.1	46.7
MS4-DE-¼-...-AD1/AD2							G¼			
MS4-DE-⅛-...-AD3/AD4	42.2	34.9	103.8	96.5	21	82.6	G⅛	M12x1	35.1	55.8
MS4-DE-¼-...-AD3/AD4							G¼			
MS6-DE-¼-...-AD1/AD2	52	44	124	116	31	103	G¼	M8x1	35.1	46.7
MS6-DE-⅜-...-AD1/AD2							G⅜			
MS6-DE-½-...-AD1/AD2							G½			
MS6-DE-¼-...-AD3/AD4	52	44	124	116	31	103	G¼	M12x1	35.1	55.8
MS6-DE-⅜-...-AD3/AD4							G⅜			
MS6-DE-½-...-AD3/AD4							G½			

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Dimensions – Pressure gauge/pressure gauge alternatives Download CAD data ➔ **www.festo.com**

Pressure sensor with operational status indicator AD7 ... AD10 Technical data ➔ Internet: sde5



➔ Flow direction

Variant AD7:
SDE5-D10-O-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/O contact

Variant AD8:
SDE5-D10-C-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/C contact

Variant AD9:
SDE5-D10-O3-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/O contact

Variant AD10:
SDE5-D10-C3-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/C contact

Type	B2		B3		B4	B5	D1	D6
	V24/ V110/ V230	10V24/ 10V24P	V24/ V110/ V230	10V24/ 10V24P				
MS4-DE-⅛-...-AD7/AD8/AD9/AD10	42.2	34.9	80.3	73	21	59.1	G⅛	M8x1
MS4-DE-¼-...-AD7/AD8/AD9/AD10							G¼	
MS6-DE-¼-...-AD7/AD8/AD9/AD10	52	44	100	92	31	79	G¼	M8x1
MS6-DE-⅜-...-AD7/AD8/AD9/AD10							G⅜	
MS6-DE-½-...-AD7/AD8/AD9/AD10							G½	

Note: This product conforms to ISO 1179-1 and to ISO 228-1

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	G¼	**542558**	**MS4-DE-¼-10V24**	**529519**	**MS4-DE-¼-V110**	**529521**	**MS4-DE-¼-V230**
MS6	G¼	**542564**	**MS6-DE-¼-10V24**	–	–	–	–
	G⅜	**542566**	**MS6-DE-⅜-10V24**	–	–	–	–
	G½	**542562**	**MS6-DE-½-10V24**	**529799**	**MS6-DE-½-V110**	**529801**	**MS6-DE-½-V230**

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

Ordering data – Modular products

Ordering table

	Grid dimension [mm]	40	62	Condi-tions	Code	Enter code
M	Module No.	**527713**	**527686**			
	Series	Standard			**MS**	MS
	Size	4	6		**...**	
	Function	Soft-start valve, electrical			**-DE**	-DE
	Pneumatic connection	Female thread G1/8	–	1	**-1/8**	
		Female thread G1/4	Female thread G1/4	1	**-1/4**	
		–	Female thread G3/8	1	**-3/8**	
		–	Female thread G1/2	1	**-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**	
		Connecting plate NPT1/8	–	1	**-AQK**	
		Connecting plate NPT1/4	Connecting plate NPT1/4	1	**-AQN**	
		Connecting plate NPT3/8	Connecting plate NPT3/8	1	**-AQP**	
		–	Connecting plate NPT1/2	1	**-AQR**	
		–	Connecting plate NPT3/4	1	**-AQS**	
	Supply voltage	24 V DC (pin allocation to EN 175301) 4 ... 14 bar	4 ... 18 bar		**-V24**	
		24 V DC (pin allocation to EN 175301) 4 ... 10 bar	4 ... 10 bar	1 2	**-10V24**	
		24 V DC, M12 to IEC 61076-2-101 4 ... 10 bar	4 ... 10 bar	1 2	**-10V24P**	
		110 V AC (pin allocation to EN 175301) 4 ... 14 bar	4 ... 18 bar	1	**-V110**	
		230 V AC (pin allocation to EN 175301) 4 ... 14 bar	4 ... 18 bar	1	**-V230**	

1 **1/8, 1/4, 3/8, 1/2, AQK, AQN, AQP, AQR, AQS, 10V24, 10V24P, V110, V230, AD1 ... AD4, AD7 ... AD10, WPM**
Not with EU certification EX2

2 **10V24, 10V24P**
Max. operating pressure 10 bar

M Mandatory data
O Options

Transfer order code

	MS		–	**DE**	–		–	

Ordering table

Grid dimension [mm]		40	62	Conditions	Code		Enter code
O	Pressure gauge/pressure gauge alternatives	MS pressure gauge, bar			-AG		
		Adapter plate for EN pressure gauge 1/8, without pressure gauge	–		-A8		
		Adapter plate for EN pressure gauge 1/4, without pressure gauge			-A4		
		Integrated pressure gauge, red-green scale			-RG		
		Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin		1 3	-AD1		
		Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin		1 3	-AD2		
		Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA		1 3	-AD3		
		Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA		1 3	-AD4		
		Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact		1 3	-AD7		
		Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact		1 3	-AD8		
		Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact		1 3	-AD9		
		Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact		1 3	-AD10		
	Alternative pressure gauge scale	psi		4	-PSI		
		MPa		5	-MPA		
	Type of mounting	Mounting bracket standard design		6	-WP		
		Mounting bracket for attaching the service units		1 6	-WPM		
		Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required			-WB		
		Mounting bracket centrally at rear (wall mounting top), connecting plates not required	–		-WBM		
	EU certification	II 3GD to EU Explosion Protection Directive (ATEX)			-EX2		
	UL certification	cULus, ordinary location for Canada and USA		7	-UL1		
	Flow direction	Flow direction from right to left			-Z		

3 **AD1 ... AD4,AD7 ... AD10**
Measuring range max. 10 bar

4 **PSI** Only in combination with pressure gauge AG

5 **MPA** Only in combination with pressure gauge AG or RG

6 **WP, WPM** Only with connecting plate AGA, AGB, AGC, AGD, AGE, AQK, AQN, AQP, AQR or AQS

7 **UL1** Not with supply voltage V110, V230

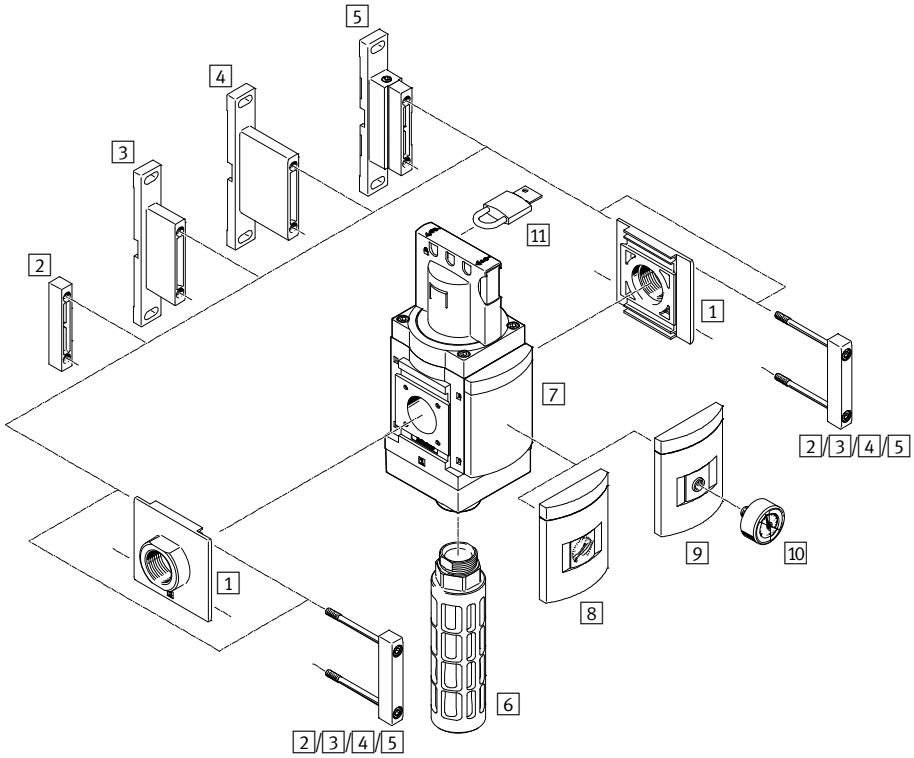
M Mandatory data
O Options

Transfer order code

– [ ] – [ ] – [ ] – [ ] – [ ] – [ ]

On-off valves MS9-EM, MS series

Peripherals overview



- Note

Additional accessories:

– Module connector for combinations with size MS6, MS9 or size MS12
➔ Internet: rmv, armv

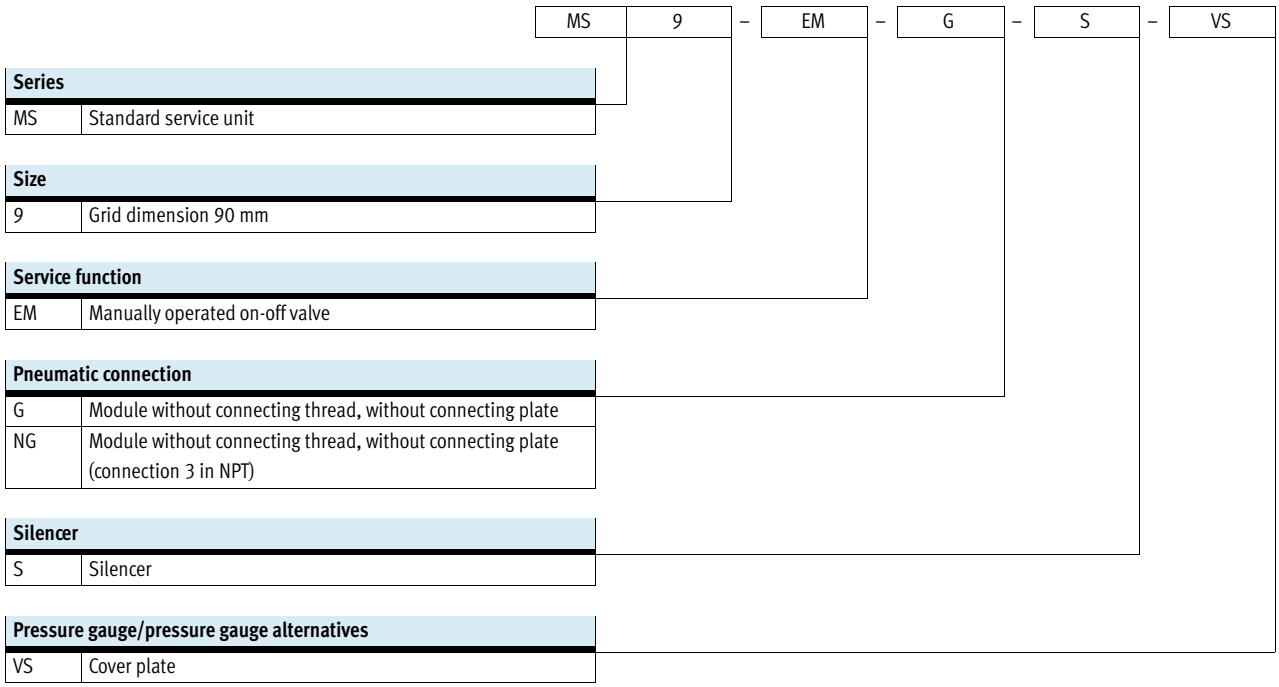
Mounting attachments and accessories

		Individual component			Combination	➔ Page/ Internet
		With female thread ¾/1/N¾/N1	With connecting plate AG.../AQ...		Module without connecting thread, without connecting plate G/NG	
			Without EU certification EX4	With EU certification EX4		
1	Connecting plate-SET MS9-AG...	–	■	■	■	ms9-ag
	Connecting plate-SET MS9-AQ...	–	■	–	■	ms9-aq
2	Module connector MS9-MV	–	–	–	■	ms9-mv
3	Mounting bracket MS9-WP	■	■	■	■[1)]	ms9-wp
4	Mounting bracket MS9-WPB	■	■	■	■[1)]	ms9-wp
5	Mounting bracket MS9-WPM	■	■	–	■	ms9-wp
6	Silencer U	■	■	■	■	95
7	Cover plate VS	■	■	■	■	59
8	MS pressure gauge AG/RG	■	■	■	■	59
9	Adapter plate for EN pressure gauge ¼ A4	■	■	■	■	59
10	Pressure gauge MA	■	■	■	■	95
11	Padlock LRVS-D	■	■	■	■	95

1) The screws for the wall bracket on the reverse side are partially covered by the housing of this service unit. Depending on the configuration of the service unit combination, the screws will no longer be accessible. The mounting bracket MS9-WPM is therefore recommended for wall mounting. It can be used to attach a fully assembled combination to the pre-mounted wall bracket.

On-off valves MS9-EM, MS series

Type codes



Series	
MS	Standard service unit

Size	
9	Grid dimension 90 mm

Service function	
EM	Manually operated on-off valve

Pneumatic connection	
G	Module without connecting thread, without connecting plate
NG	Module without connecting thread, without connecting plate (connection 3 in NPT)

Silencer	
S	Silencer

Pressure gauge/pressure gauge alternatives	
VS	Cover plate

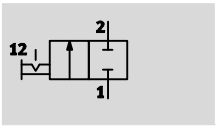
Additional variants can be ordered using the modular system ➔ 59

- Pneumatic connection
- Silencer
- Pressure gauge/pressure gauge alternatives
- Alternative pressure gauge scale
- Valve function
- Type of mounting
- EU certification
- UL certification
- Flow direction

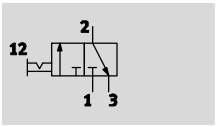
On-off valves MS9-EM, MS series

Technical data

2/2-way valve, double solenoid



3/2-way valve, double solenoid



Flow rate
8,000 ... 18,000 l/min

Temperature range
–10 ... +60 °C

Operating pressure
0 ... 20 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
- Optional pressure gauge
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

General technical data	
Pneumatic connection 1, 2	
Female thread	G¾, G1, NPT¾ or NPT1
Connecting plate AG...	G½, G¾, G1, G1¼ or G1½
Connecting plate AQ...	NPT½, NPT¾, NPT1, NPT1¼ or NPT1½
Module without connecting thread/plate G/NG	–
Pneumatic connection 3	G1 (pneumatic connection 1, 2: ¾/1/AG.../G)
	NPT1-11½ (pneumatic connection 1, 2: N¾/N1/AQ.../NG)
Design	Piston spool valve
Type of mounting	Via accessories
	In-line installation
Mounting position	Any
Regulator lock	Rotary knob with detent
Pressure display	Via pressure gauge for displaying output pressure
	Via pressure gauge with red/green scale for displaying output pressure
	G¼ prepared
Valve function	2/2-way valve, double solenoid
	3/2-way valve, double solenoid
Exhaust air function	No flow control
Reset method	Forced
Type of control	Direct
Sealing principle	Soft

Note: This product conforms to ISO 1179-1 and to ISO 228-1

On-off valves MS9-EM, MS series

Technical data

Flow rate characteristic values								
Pneumatic connection	Female thread		Connecting plate					None
	G¾/NPT¾	G1/NPT1	AGD/AQR	AGE/AQS	AGF/AQT	AGG/AQU	AGH/AQV	G/NG
Standard nominal flow rate qnN[1] [l/min]								
In main flow direction 1 ⇢ 2	14,500	18,000	8,000	14,000	18,000	18,000	18,000	18,000
In relief direction 2 ⇢ 3	14,900	14,100	16,500	14,400	13,800	13,200	13,200	14,100
C value [l/s*min]								
In main flow direction 1 ⇢ 2	59.59	76.90	32.75	57.50	75.65	75.51	75.17	–
In relief direction 2 ⇢ 3	55.11	53.54	56.22	54.07	52.73	51.06	51.36	–
b value								
In main flow direction 1 ⇢ 2	0.41	0.37	0.45	0.39	0.38	0.39	0.38	–
In relief direction 2 ⇢ 3	0.50	0.48	0.60	0.49	0.47	0.45	0.44	–

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

Operating and environmental conditions		
Operating pressure	[bar]	0 ... 20
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium		Operation with lubricated medium possible (in which case lubricated operation will always be required)
Ambient temperature	[°C]	–10 ... +60
Temperature of medium	[°C]	–10 ... +60
Corrosion resistance class CRC[1]		2
Noise level	[dB (A)]	93[2] with silencer
Certification (variant UL1)		cULus recognized (OL)

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.
2) Venting at 10 bar at a distance of 1 m.

ATEX	
EU certification	EX4
ATEX category gas	II 2G
Ex-ignition protection type gas	c T6 X
ATEX category dust	II 2D
EX-ignition protection type dust	c 60 °C X
ATEX ambient temperature	–10 °C ≤ Ta ≤ +60 °C
CE mark (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)

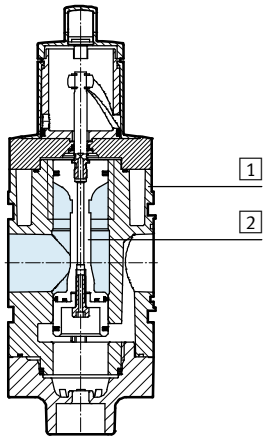
Weight [g]	
On-off valve	2,200
On-off valve with silencer S	2,400

On-off valves MS9-EM, MS series

Technical data

Materials

Sectional view

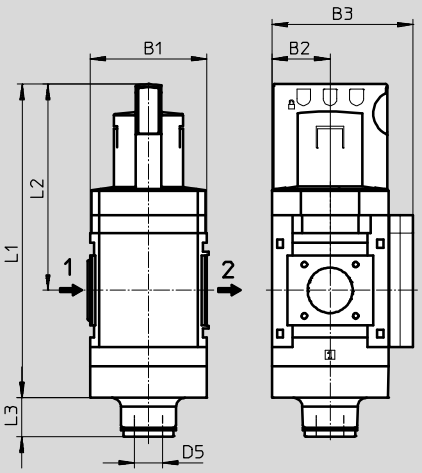


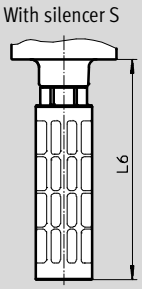
On-off valve	
1 Housing	Die-cast aluminium
2 Piston spool	POM
– Seals	NBR
Note on materials	RoHS-compliant

Dimensions – Basic version

Download CAD data ➔ **www.festo.com**

Module without connecting thread, without connecting plate G/NG, cover plate VS



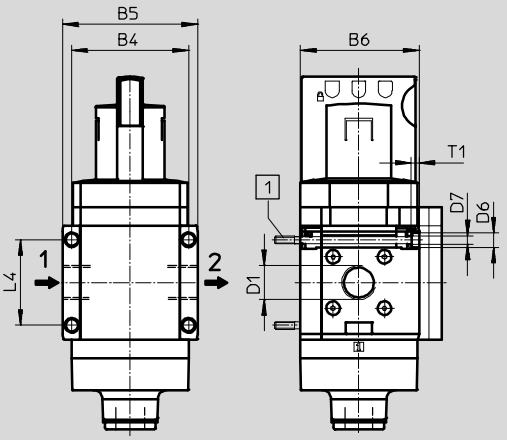


➔ Flow direction

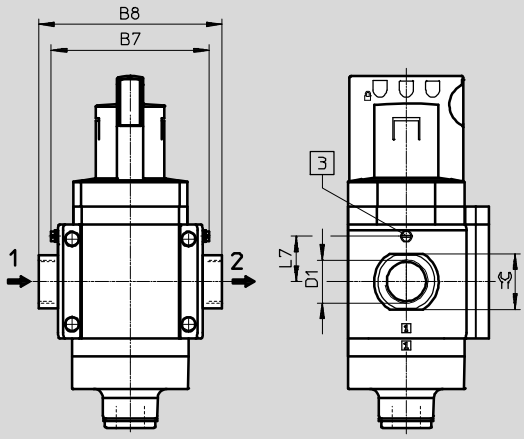
Type	B1	B2	B3	D5	L1	L2	L3		L6
							2/2-way valve	3/2-way valve	
MS9-EM-G	90	45	109	G1	242	159	30	23	189
MS9-EM-NG				NPT1-11½					

Dimensions – Connecting thread/connecting plate Download CAD data ➔ **www.festo.com**

With female thread ¾/1/N¾/N1



With connecting plate AG.../AQ...



[1] Mounting screw M6xmin.90 to DIN 912 (not included in the scope of delivery) for wall mounting without mounting bracket

[3] Earthing screw M4x8 (only with MS9-...-EX4)

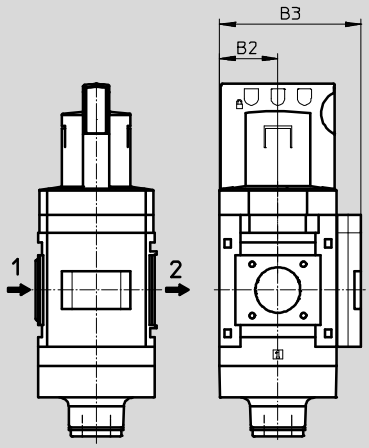
➔ Flow direction

Type	B4	B5	B6	B7		B8	D1	D6	D7	L4	L7	T1	⌀
					EX4						EX4		
MS9-EM-¾	90	104	91.5	–	–	–	G¾	11	6.5	66	–	6	–
MS9-EM-1							G1						
MS9-EM-AGD	–	–	–	112	122	132	G½	–	–	–	35	–	30
MS9-EM-AGE						132	G¾						36
MS9-EM-AGF						142	G1						41
MS9-EM-AGG						162	G1¼						50
MS9-EM-AGH						176	G1½						55
MS9-EM-N¾	90	104	91.5	–	–	–	NPT¾-14	11	6.5	66	–	6	–
MS9-EM-N1							NPT1-11½						
MS9-EM-AQR	–	–	–	112	–	132	NPT½-14	–	–	–	–	–	30
MS9-EM-AQS						132	NPT¾-14						36
MS9-EM-AQT						142	NPT1-11½						41
MS9-EM-AQU						162	NPT1¼-11½						50
MS9-EM-AQV						176	NPT1½-11½						55

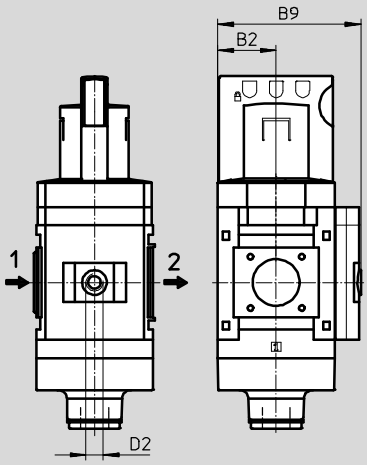
Note: This product conforms to ISO 1179-1 and to ISO 228-1

Dimensions – Pressure gauge/pressure gauge alternatives Download CAD data ➔ **www.festo.com**

Integrated MS pressure gauge with standard scale AG or red/green scale RG



Adapter plate A4 for EN pressure gauge ¼, without pressure gauge



➔ Flow direction

Type	B2	B3	B9	D2
MS9-EM-...-AG/RG	45	109	–	–
MS9-EM-...-A4		–	110	G¼

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Ordering data		
3/2-way valve, with silencer		
Size	Part No.	Type
Cover plate		
MS9	**562952**	**MS9-EM-G-S-VS**
Pneumatic connection 3 in NPT, cover plate		
MS9	**562954**	**MS9-EM-NG-S-VS**

On-off valves MS9-EM, MS series

Ordering data – Modular products

Ordering table

	Grid dimension [mm]	90	Condi-tions	Code		Enter code
M	Module No.	**562178**				
	Series	Standard		**MS**		MS
	Size	9		**9**		9
	Function	Manual on-off valve		**-EM**		-EM
	Pneumatic connection	Female thread G¾	1	**-¾**		
		Female thread G1	1	**-1**		
		Connecting plate G½		**-AGD**		
		Connecting plate G¾		**-AGE**		
		Connecting plate G1		**-AGF**		
		Connecting plate G1¼		**-AGG**		
		Connecting plate G1½		**-AGH**		
		Female thread NPT¾	1	**-N¾**		
		Female thread NPT1	1	**-N1**		
		Connecting plate NPT½	1	**-AQR**		
		Connecting plate NPT¾	1	**-AQS**		
		Connecting plate NPT1	1	**-AQT**		
		Connecting plate NPT1¼	1	**-AQU**		
		Connecting plate NPT1½	1	**-AQV**		
		Module without connecting thread, without connecting plate	1	**-G**		
		Module without connecting thread, without connecting plate (connection 3 in NPT)	1	**-NG**		
O	Silencer	Silencer		**-S**		
M	Pressure gauge/pressure gauge alternatives	MS pressure gauge, bar		**-AG**		
		Cover plate		**-VS**		
		Adapter plate for EN pressure gauge ¼, without pressure gauge		**-A4**		
		Integrated pressure gauge, red/green scale	2	**-RG**		
O	Alternative pressure gauge scale	psi	3	**-PSI**		
		MPa	3	**-MPA**		
		bar	3	**-BAR**		
	Valve function	Standard (3/2-way valve)		**-**		
		2/2-way valve	4	**-2**		
	Type of mounting	Mounting bracket standard design	5	**-WP**		
		Mounting bracket for attaching the service units	1 5	**-WPM**		
		Mounting bracket for large wall gap	5	**-WPB**		
	EU certification	II 2GD to EU Explosion Protection Directive (ATEX)		**-EX4**		
	UL certification	cULus, ordinary location for Canada and USA		**-UL1**		
	Flow direction	Flow direction from right to left		**-Z**		

1 **¾, 1, N¾, N1, AQR, AQS, AQT, AQU, AQV, G, NG, WPM** Not with EU certification EX4

2 **RG** Not with alternative pressure gauge scale PSI
PSI scale serves only as an auxiliary scale

3 **PSI, MPA, BAR** Not with pressure gauge/pressure gauge alternatives VS, A4

4 **2** Not with silencer S

5 **WP, WPM, WPB** Not with pneumatic connection G, NG

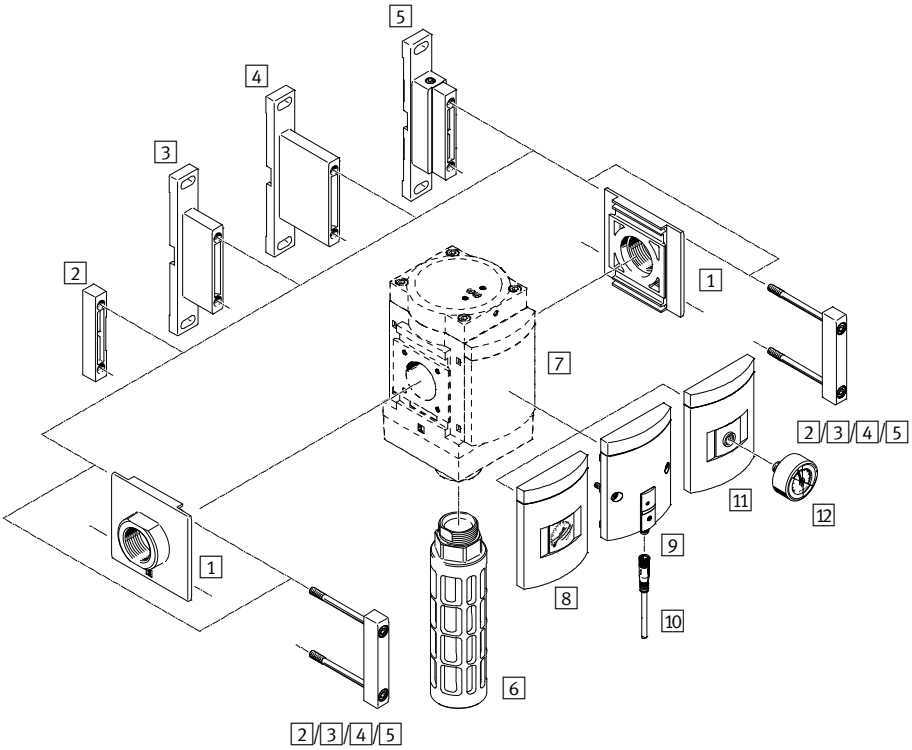
M Mandatory data
O Options

Transfer order code

562178	MS	9	–	EM	–		–		–		–		–		–		–		–		–	

On-off valves MS9-EE, MS series

Peripherals overview

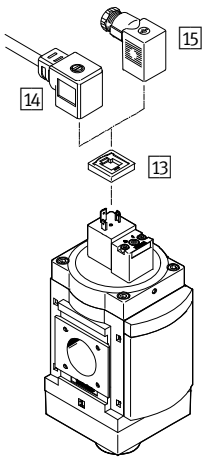


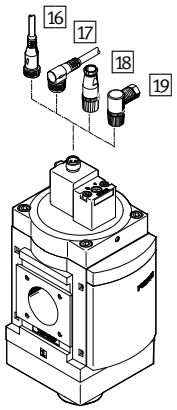
- Note

Additional accessories:

– Module connector for combinations with size MS6, MS9 or size MS12
➔ Internet: rmv, armv

Supply voltage	Supply voltage
V24/V110/V230	V24P





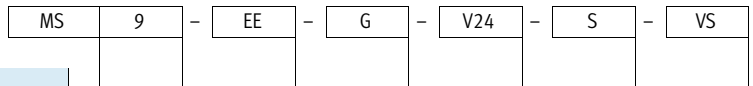
Mounting attachments and accessories

		Individual component			Combination	➔ Page/ Internet
		With female thread ¾/1/N¾/N1	With connecting plate AG.../AQ...		Module without connecting thread, without connecting plate G/NG	
			Without EU certification EX2	With EU certification EX2		
1	Connecting plate-SET MS9-AG...	–	■	■	■	ms9-ag
	Connecting plate-SET MS9-AQ...	–	■	–	■	ms9-aq
2	Module connector MS9-MV	–	–	–	■	ms9-mv
3	Mounting bracket MS9-WP	■	■	■	■[1)]	ms9-wp
4	Mounting bracket MS9-WPB	■	■	■	■[1)]	ms9-wp
5	Mounting bracket MS9-WPM	■	■	–	■	ms9-wp
6	Silencer U	■	■	■	■	95
7	Cover plate VS	■	■	■	■	68
8	MS pressure gauge AG/RG	■	■	■	■	68
9	Pressure sensor without display AD7	■	■	■	■	68
10	Connecting cable NEBU-M8...-LE3	■	■	■	■	95
11	Adapter plate for EN pressure gauge ¼ A4	■	■	■	■	68
12	Pressure gauge MA	■	■	■	■	95
13	Illuminating seal MC-LD	■	■	–	■	94
14	Connecting cable KMC	■	■	–	■	94
15	Plug socket MSSD-C	■	■	■ Included in scope of delivery	■	94
16	Connecting cable NEBU-M12G5	■	■	–	■	95
17	Connecting cable NEBU-M12W5	■	■	–	■	95
18	Sensor socket SIE-GD	■	■	–	■	95
19	Angled plug socket SIE-WD	■	■	–	■	95

1) The screws for the wall bracket on the reverse side are partially covered by the housing of this service unit. Depending on the configuration of the service unit combination, the screws will no longer be accessible. The mounting bracket MS9-WPM is therefore recommended for wall mounting. It can be used to attach a fully assembled combination to the pre-mounted wall bracket.

On-off valves MS9-EE, MS series

Type codes



Series	
MS	Standard service unit

Size	
9	Grid dimension 90 mm

Service function	
EE	Solenoid actuated on-off valve

Pneumatic connection	
G	Module without connecting thread, without connecting plate
NG	Module without connecting thread, without connecting plate (connection 3 in NPT)

Supply voltage	
V24	Supply voltage 24 V DC

Silencer	
S	Silencer

Pressure gauge/pressure gauge alternatives	
VS	Cover plate

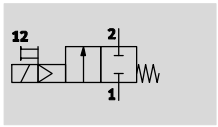
Additional variants can be ordered using the modular system ➔ 68

- Pneumatic connection
- Supply voltage
- Silencer
- Pressure gauge/pressure gauge alternatives
- Alternative pressure gauge scale
- Valve function
- Type of mounting
- EU certification
- UL certification
- Flow direction

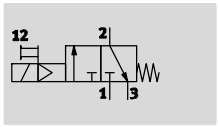
On-off valves MS9-EE, MS series

Technical data

2/2-way valve, single solenoid, closed



3/2-way valve, single solenoid, closed



Flow rate
8,000 ... 18,000 l/min

Temperature range
–10 ... +60 °C

Operating pressure
3.5 ... 16 bar

- Solenoid actuated on-off valve for pressurising and venting pneumatic installations
- Ducted exhaust possible via a threaded connection with silencer
- With solenoid coil without plug socket
- 3 voltage ranges can be selected
- Non-detenting or detenting manual override
- Optional pressure gauge
- Optional device variant EX2 for use in potentially explosive areas in zones 2 and 22 (plug socket MSSD-C-24V-EX is included in the scope of delivery)

General technical data		
Pneumatic connection 1, 2		
	Female thread	G¾, G1, NPT¾ or NPT1
	Connecting plate AG...	G½, G¾, G1, G1¼ or G1½
	Connecting plate AQ...	NPT½, NPT¾, NPT1, NPT1¼ or NPT1½
	Module without connecting thread/plate G/NG	–
Pneumatic connection 3		G1 (pneumatic connection 1, 2: ¾/1/AG.../G)
		NPT1-11½ (pneumatic connection 1, 2: N¾/N1/AQ.../NG)
Design		Piston spool valve
Type of mounting		Via accessories
		In-line installation
Mounting position		Any
Pressure display		Via pressure sensor for displaying output pressure via operational status indicator and electrical output
		Via pressure gauge for displaying output pressure
		Via pressure gauge with red/green scale for displaying output pressure
		G¼ prepared
Valve function		2/2-way valve, single solenoid, closed
		3/2-way valve, single solenoid, closed
Exhaust air function		No flow control
Reset method		Mechanical spring
Type of control		Piloted
Pilot air supply		Internal
Sealing principle		Soft

Note: This product conforms to ISO 1179-1 and to ISO 228-1

On-off valves MS9-EE, MS series

Technical data

Electrical data		
Coil characteristics	V24/V24P	24 V DC: 4.5 W; perm. voltage fluctuations ±10%
	V110	110 V AC: 50 Hz; pick-up power 11.5 W; holding power 8.9 W; perm. voltage fluctuations ±10%
		110 V AC: 60 Hz; pick-up power 9.5 W; holding power 6.2 W; perm. voltage fluctuations ±10%
	V230	230 V AC: 50 Hz; pick-up power 11.5 W; holding power 9.1 W; perm. voltage fluctuations ±10%
		230 V AC: 60 Hz; pick-up power 9.5 W; holding power 6.4 W; perm. voltage fluctuations ±10%
Electrical connection	V24/V110/V230	Plug socket, square design to EN 175301-803, type A
	V24P	Plug M12, 4-pin to DESINA
Protection class for solenoid coil		IP65
Duty cycle [%]		100

Flow rate characteristic values								
Pneumatic connection	Female thread		Connecting plate					None
	G¾/NPT¾	G1/NPT1	AGD/AQR	AGE/AQS	AGF/AQT	AGG/AQU	AGH/AQV	G/NG
Standard nominal flow rate qnN[1] [l/min]								
In main flow direction 1 → 2	14,500	18,000	8,000	14,000	18,000	18,000	18,000	18,000
In relief direction 2 → 3	14,900	14,100	16,500	14,400	13,800	13,200	13,200	14,100
C value [l/s*min]								
In main flow direction 1 → 2	59.59	76.90	32.75	57.50	75.65	75.51	75.17	–
In relief direction 2 → 3	55.11	53.54	56.22	54.07	52.73	51.06	51.36	–
b value								
In main flow direction 1 → 2	0.41	0.37	0.45	0.39	0.38	0.39	0.38	–
In relief direction 2 → 3	0.50	0.48	0.60	0.49	0.47	0.45	0.44	–

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

Operating and environmental conditions		
Operating pressure	[bar]	3.5 ... 16
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium		Operation with lubricated medium possible (in which case lubricated operation will always be required)
Ambient temperature	[°C]	–10 ... +60
Temperature of medium	[°C]	–10 ... +60
Corrosion resistance class CRC[1]		2
Noise level	[dB (A)]	93[2] with silencer
Certification (variant UL1)		cULus recognized (OL)

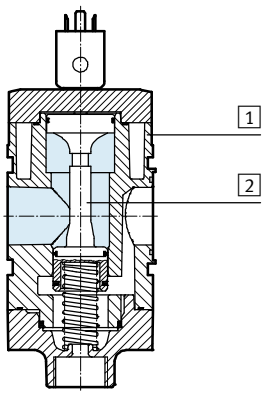
1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.
2) Venting at 10 bar at a distance of 1 m.

ATEX	
EU certification	EX2
ATEX category gas	II 3G
Ex-ignition protection type gas	Ex nA IIC T5 X Gc
ATEX category dust	II 3D
EX-ignition protection type dust	Ex tc IIIC T85°C X Dc IP65
ATEX ambient temperature	–10 °C ≤ Ta ≤ +50 °C
CE mark (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)

Weight [g]	
On-off valve	2,100
On-off valve with silencer S	2,300

Materials

Sectional view



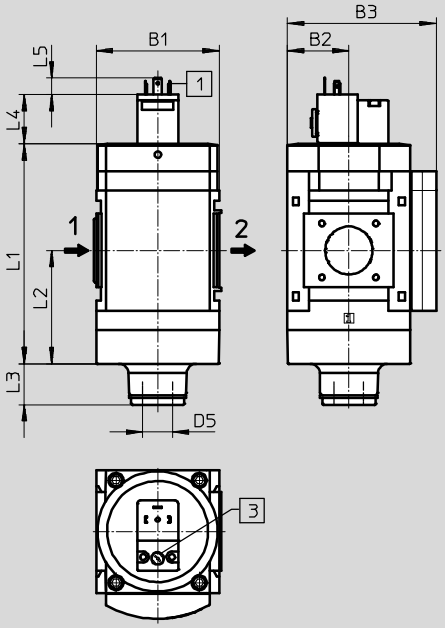
On-off valve	
1 Housing	Die-cast aluminium
2 Piston spool	POM
– Seals	NBR
Note on materials	RoHS-compliant

Dimensions – Basic version

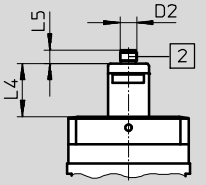
Download CAD data ➔ **www.festo.com**

Module without connecting thread, without connecting plate G/NG, cover plate VS

Supply voltage V24/V110/V230

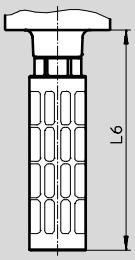


Supply voltage V24P



1 = Unused
2 = Unused
3 = com (–)
4 = Signal (+) solenoid 14

With silencer S



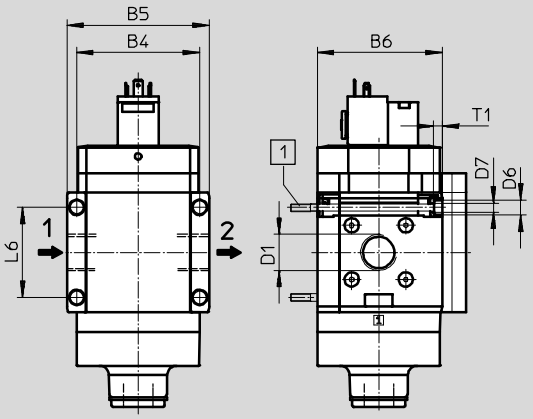
1 Plug connection to EN 175301-803
2 Plug connection M12, 4-pin to DESINA for connecting cable NEBU-M12
3 Manual override

➔ Flow direction

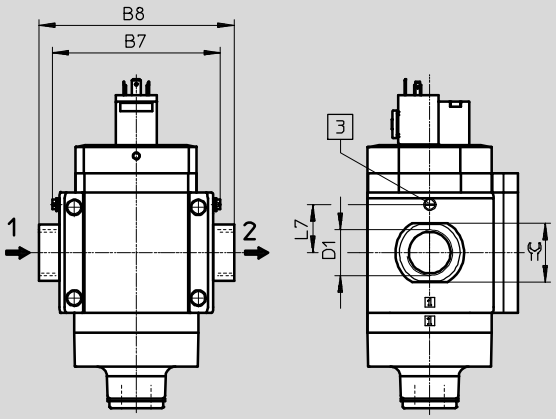
Type	B1	B2	B3	D2	D5	L1	L2	L3		L4	L5	L6
								2/2-way valve	3/2-way valve			
MS9-EE-G-V24/V110/V230	90	45	109	–	G1	161	83	30	23	36	12	189
MS9-EE-G-V24P				M12x1						39	10	
MS9-EE-NG-V24/V110/V230	90	45	109	–	NPT1-11½	161	83	30	23	36	12	189
MS9-EE-NG-V24P				M12x1						39	10	

Dimensions – Connecting thread/connecting plate Download CAD data ➔ **www.festo.com**

With female thread ¾/1/N¾/N1



With connecting plate AG.../AQ...



[1] Mounting screw M6xmin.90 to DIN 912 (not included in the scope of delivery) for wall mounting without mounting bracket

[3] Earthing screw M4x8 (only with MS9-...-EX2)

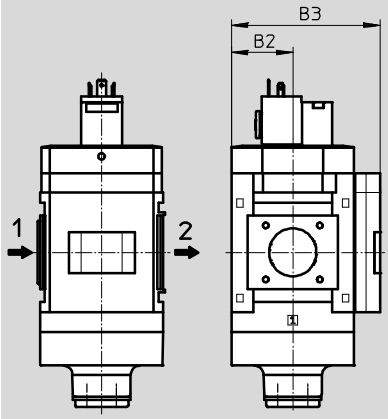
➔ Flow direction

Type	B4	B5	B6	B7		B8	D1	D6	D7	L6	L7	T1	⌀
					EX2						EX2		
MS9-EE-¾	90	104	91.5	–	–	–	G¾	11	6.5	66	–	6	–
MS9-EE-1							G1						
MS9-EE-AGD	–	–	–	112	122	132	G½	–	–	–	35	–	30
MS9-EE-AGE						132	G¾						36
MS9-EE-AGF						142	G1						41
MS9-EE-AGG						162	G1¼						50
MS9-EE-AGH						176	G1½						55
MS9-EE-N¾	90	104	91.5	–	–	–	NPT¾-14	11	6.5	66	–	6	–
MS9-EE-N1							NPT1-11½						
MS9-EE-AQR	–	–	–	112	–	132	NPT½-14	–	–	–	–	–	30
MS9-EE-AQS						132	NPT¾-14						36
MS9-EE-AQT						142	NPT1-11½						41
MS9-EE-AQU						162	NPT1¼-11½						50
MS9-EE-AQV						176	NPT1½-11½						55

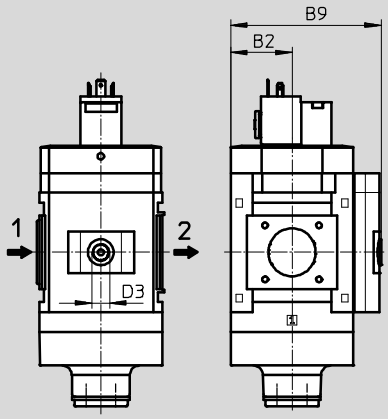
Note: This product conforms to ISO 1179-1 and to ISO 228-1

Dimensions – Pressure gauge/pressure gauge alternatives Download CAD data ➔ **www.festo.com**

Integrated MS pressure gauge with standard scale AG or red/green scale RG



Adapter plate A4 for EN pressure gauge ¼, without pressure gauge



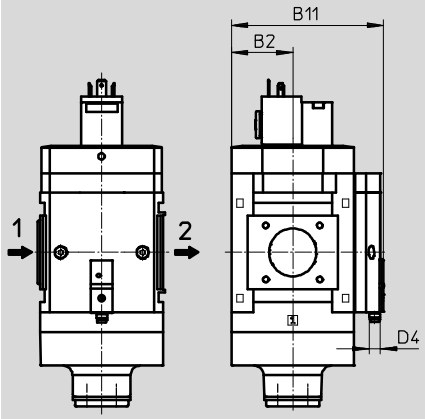
➔ Flow direction

Type	B2	B3	B9	D3
MS9-EE-...-AG/RG	45	109	–	–
MS9-EE-...-A4		–	110	G¼

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Dimensions – Pressure gauge/pressure gauge alternatives Download CAD data ➔ **www.festo.com**

Pressure sensor with operational status indicator AD7



Variant AD7:
SDE5-D10-O-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/O contact

➔ Flow direction

Type	B2	B11	D4
MS9-EE-...-AD7	45	112	M8x1

Ordering data

3/2-way valve, with silencer, supply voltage 24 V DC

Size	Part No.	Type
Cover plate		
MS9	**562940**	**MS9-EE-G-V24-S-VS**
Pneumatic connection 3 in NPT, cover plate		
MS9	**562946**	**MS9-EE-NG-V24-S-VS**

On-off valves MS9-EE, MS series

Ordering data – Modular products

Ordering table

	Grid dimension [mm]	90	Condi-tions	Code	Enter code
M	Module No.	**562177**			
	Series	Standard		**MS**	MS
	Size	9		**9**	9
	Function	Electrical on-off valve		**-EE**	-EE
	Pneumatic connection	Female thread G¾	1	**-¾**	
		Female thread G1	1	**-1**	
		Connecting plate G½		**-AGD**	
		Connecting plate G¾		**-AGE**	
		Connecting plate G1		**-AGF**	
		Connecting plate G1¼		**-AGG**	
		Connecting plate G1½		**-AGH**	
		Female thread NPT¾	1	**-N¾**	
		Female thread NPT1	1	**-N1**	
		Connecting plate NPT½	1	**-AQR**	
		Connecting plate NPT¾	1	**-AQS**	
		Connecting plate NPT1	1	**-AQT**	
		Connecting plate NPT1¼	1	**-AQU**	
		Connecting plate NPT1½	1	**-AQV**	
		Module without connecting thread, without connecting plate	1	**-G**	
		Module without connecting thread, without connecting plate (connection 3 in NPT)	1	**-NG**	
	Supply voltage	24 V DC (pin allocation to EN 175301), 16 bar		**-V24**	
		24 V DC plug (connection pattern M12 to DESINA), 16 bar	1	**-V24P**	
		110 V AC (pin allocation to EN 175301), 16 bar	1	**-V110**	
↓		230 V AC (pin allocation to EN 175301), 16 bar	1	**-V230**	

1 **¾, 1, N¾, N1, AQR, AQS, AQT, AQU, AQV, G, NG, V24P, V110, V230, AD7, WPM**
Not with EU certification EX2

M Mandatory data
O Options

Transfer order code

562177	**MS**	**9**	–	**EE**	–		–	

On-off valves MS9-EE, MS series

Ordering data – Modular products

Ordering table

Grid dimension [mm]		90	Conditions	Code		Enter code
O	Silencer	Silencer		-S		
M	Pressure gauge/pressure gauge alternatives	MS pressure gauge		-AG		
		Cover plate		-VS		
		Adapter plate for EN pressure gauge ¼, without pressure gauge		-A4		
		Integrated pressure gauge, red/green scale	2	-RG		
		Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact	1 3	-AD7		
O	Alternative pressure gauge scale	psi	4	-PSI		
		MPa	4	-MPA		
		bar	4	-BAR		
	Valve function	Standard (3/2-way valve)		-		
		2/2-way valve	5	-2		
	Type of mounting	Mounting bracket standard design	6	-WP		
		Mounting bracket for attaching the service units	1 6	-WPM		
		Mounting bracket for large wall gap	6	-WPB		
	EU certification	II 3GD to EU Explosion Protection Directive (ATEX)		-EX2		
	UL certification	cULus, ordinary location for Canada and USA	7	-UL1		
	Flow direction	Flow direction from right to left		-Z		

1 **¾, 1, N¾, N1, AQR, AQS, AQT, AQU, AQV, G, NG, V24P, V110, V230, AD7, WPM** Not with EU certification EX2

2 **RG** Not with alternative pressure gauge scale PSI
PSI scale serves only as an auxiliary scale

3 **AD7** Measuring range max. 10 bar

4 **PSI, MPA, BAR** Not with pressure gauge/pressure gauge alternatives VS, A4, AD7

5 **2** Not with silencer S

6 **WP, WPM, WPB** Not with pneumatic connection G, NG

7 **UL1** Not with supply voltage V110, V230

M Mandatory data
O Options

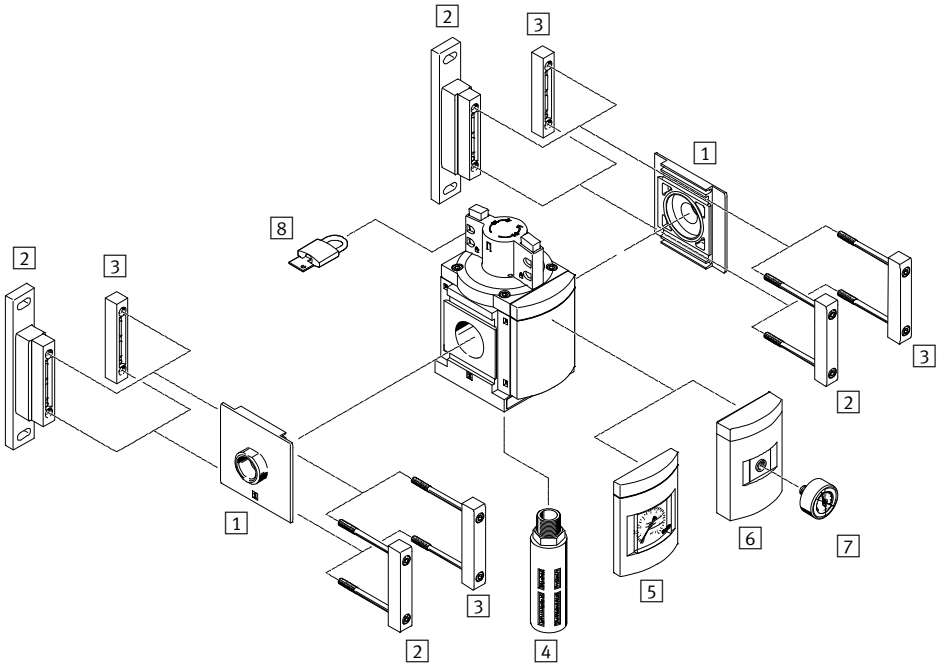
Transfer order code

– | | | – | | – | | – | | – | | – | | – | |

On-off valves MS12-EM, MS series

Peripherals overview

On-off valves MS12-EM



- Note

Additional accessories:

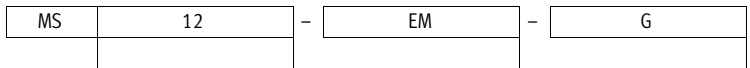
– Module connector for combination with size MS9 ➔ Internet: armv

Mounting attachments and accessories

		➔ Page/Internet
1	Connecting plate-SET MS12-AG...	ms12-ag
2	Mounting bracket MS12-WP	ms12-wp
3	Module connector MS12-MV	ms12-mv
4	Silencer U	95
5	MS pressure gauge AG	75
6	Adapter for EN pressure gauge ¼ A4	75
7	Pressure gauge MA	95
8	Padlock LRVS-D	95

On-off valves MS12-EM, MS series

Type codes



Series	
MS	Standard service unit

Size	
12	Grid dimension 124 mm

Service function	
EM	On-off valve, manually operated

Pneumatic connection	
G	Module without connecting thread, without connecting plate Connecting plates ➔ Accessories

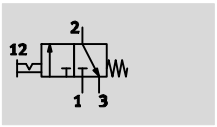
Further variants can be ordered using the modular system ➔ 75

- Pneumatic connection
- Silencer
- Pressure gauge/pressure gauge alternatives
- Alternative pressure gauge scale
- Type of mounting
- 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 ... 20 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	
Connecting plate AG...	G1, G1¼, G1½ or G2
Module without connecting thread/plate G	–
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
Direction of flow	Non-reversible

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Standard nominal flow rate qnN[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 ... 20
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [–:–:–]
Ambient temperature	[°C]	–10 ... +60
Temperature of medium	[°C]	–10 ... +60
Corrosion resistance	CRC[1]	2

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

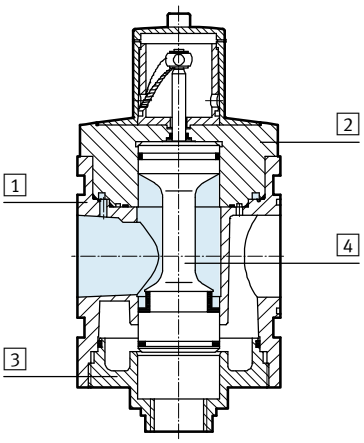
On-off valves MS12-EM, MS series

Technical data

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

Materials

Sectional view

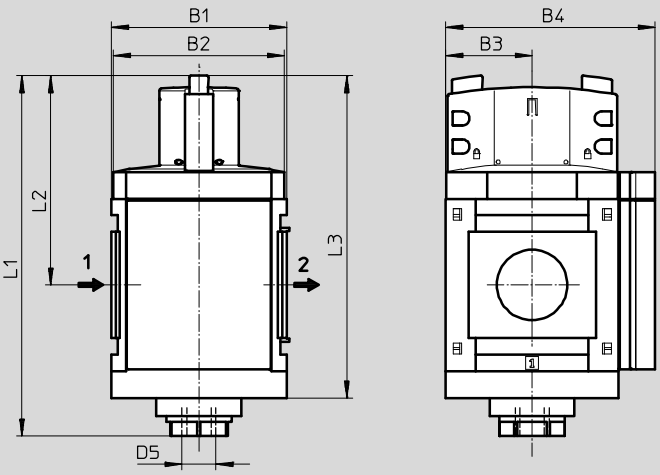


On-off valve		
1	Body	Die-cast aluminium
2	Cap, top	Aluminium
3	Cap, bottom	Aluminium
4	Valve spool	Stainless steel, POM, NBR
–	Springs	Steel
–	Covers/cover plates	PA
–	Seals	NBR
–	Connecting plate, module connector, mounting bracket	Die-cast aluminium
Note on materials		Free of copper and PTFE (not with variant AG)

Dimensions – Basic version

Download CAD data ➔ **www.festo.com**

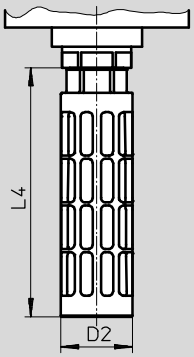
Module without connecting thread, without connecting plate G, with cover plate



➔ Flow direction

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

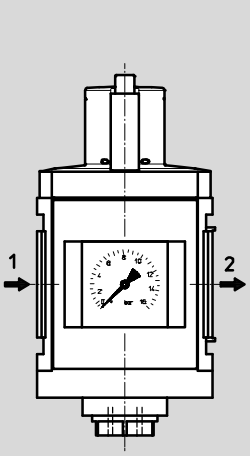
Dimensions – Silencer Download CAD data ➔ **www.festo.com**

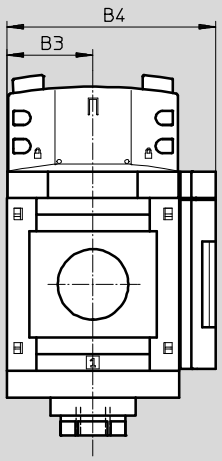


Type	D2 ∅	L4
MS12-EM-...-S	47.8	165.5

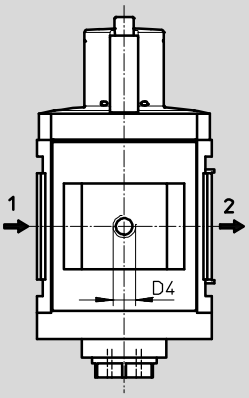
Dimensions – Pressure gauge/pressure gauge alternatives Download CAD data ➔ **www.festo.com**

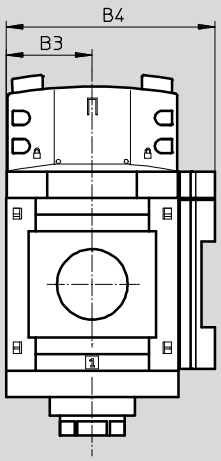
Integrated MS pressure gauge AG, display unit [bar]





Adapter A4 for EN pressure gauge ¼, without pressure gauge





➔ Flow direction

Type	B3	B4	D4
MS12-EM-...-AG	61	148	–
MS12-EM-...-A4	61	148	G¼

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Ordering data

Size	Part No.	Type
MS12	**541495**	**MS12-EM-G**

On-off valves MS12-EM, MS series

Ordering data – Modular products

Ordering table

	Grid dimension [mm]	124	Condi-tions	Code		Enter code
M	Module No.	**535031**				
	Series	Standard		**MS**		MS
	Size	12		**12**		12
	Function	On-off valve, manual		**-EM**		-EM
	Pneumatic connection	Connecting plate G1		**-AGF**		
		Connecting plate G1¼		**-AGG**		
		Connecting plate G1½		**-AGH**		
		Connecting plate G2		**-AGI**		
		Module without connecting thread, without connecting plate		**-G**		
O	Silencer	Silencer		**-S**		
	Pressure gauge/pressure gauge alternatives	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 standard design	[2]	**-WP**		
	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.

M Mandatory data
O Options

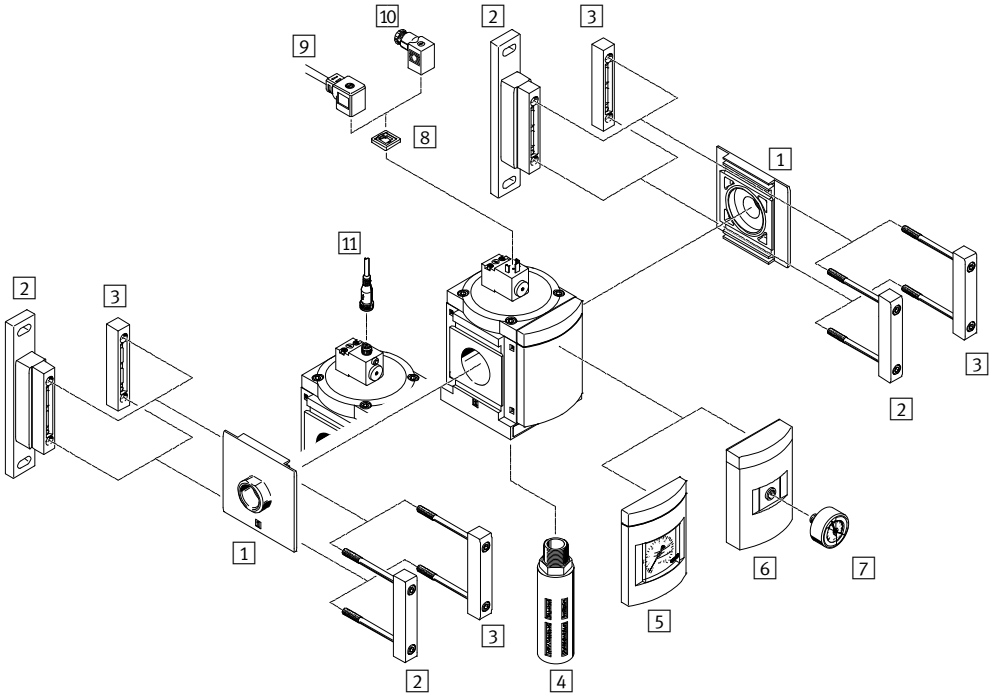
Transfer order code

535031	MS	12	–	EM	–		–		–		–		–		–	

On-off valves MS12-EE, MS series

Peripherals overview

On-off valves MS12-EE



- Note

Additional accessories:

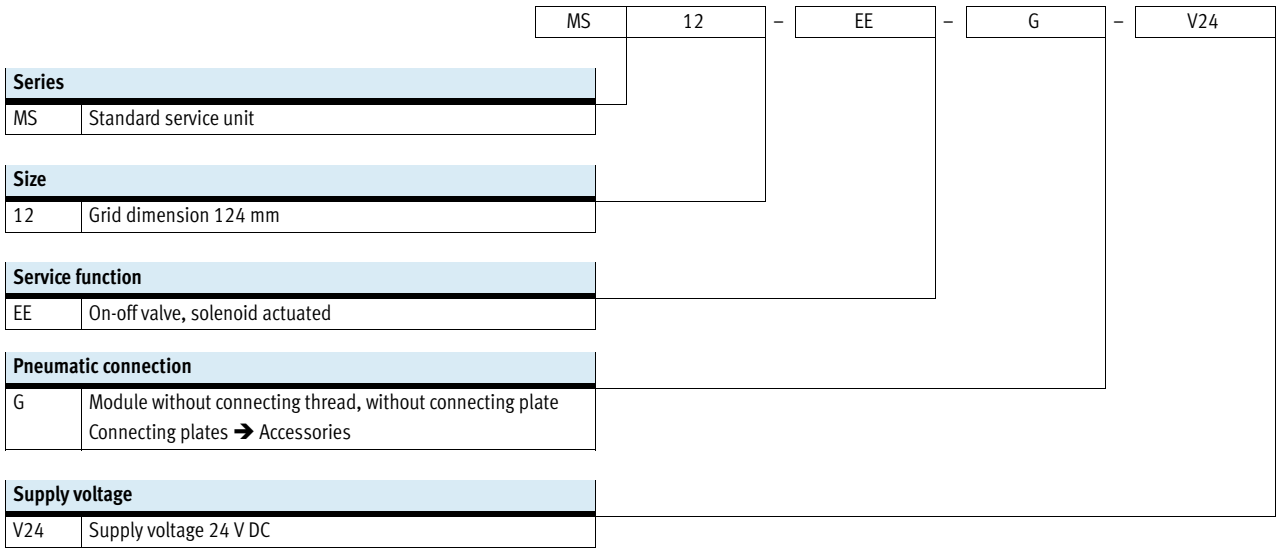
– Module connector for combination with size MS9 ➔ Internet: armv

Mounting attachments and accessories

		➔ Page/Internet
1	Connecting plate-SET MS12-AG...	ms12-ag
2	Mounting bracket MS12-WP	ms12-wp
3	Module connector MS12-MV	ms12-mv
4	Silencer U	95
5	MS pressure gauge AG	81
6	Adapter for EN pressure gauge ¼ A4	81
7	Pressure gauge MA	95
8	Illuminating seal MC-LD	94
9	Connecting cable KMC	94
10	Plug socket MSSD-C	94
11	Connecting cable NEBU-M12...-LE4	95

On-off valves MS12-EE, MS series

Type codes



Series	
MS	Standard service unit

Size	
12	Grid dimension 124 mm

Service function	
EE	On-off valve, solenoid actuated

Pneumatic connection	
G	Module without connecting thread, without connecting plate Connecting plates ➔ Accessories

Supply voltage	
V24	Supply voltage 24 V DC

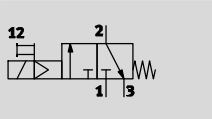
Further variants can be ordered using the modular system ➔ 81

- Pneumatic connection
- Supply voltage
- Silencer
- Pressure gauge/pressure gauge alternatives
- Alternative pressure gauge scale
- Type of mounting
- Flow direction

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 and detenting manual override

General technical data	
Pneumatic connection 1, 2	
Connecting plate AG...	G1, G1¼, G1½ or G2
Module without connecting thread/plate G	–
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	Piloted
Pilot air supply	Internal
Direction of flow	Non-reversible

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Electrical data		
Coil characteristics	V24/V24P	24 V DC: 4.5 W; perm. voltage fluctuations ±10%
	V110	110 V AC: 50 Hz; pick-up power 11.5 W; holding power 8.9 W; perm. voltage fluctuations ±10% 110 V AC: 60 Hz; pick-up power 9.5 W; holding power 6.2 W; perm. voltage fluctuations ±10%
	V230	230 V AC: 50 Hz; pick-up power 11.5 W; holding power 9.1 W; perm. voltage fluctuations ±10% 230 V AC: 60 Hz; pick-up power 9.5 W; holding power 6.4 W; perm. voltage fluctuations ±10%
Electrical connection	V24/V110/V230	Plug, square design to EN 175301-803, type A
	V24P	Plug M12, 4-pin to DESINA
Protection class for solenoid coil		IP65
Duty cycle [%]		100

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

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

On-off valves MS12-EE, MS series

Technical data

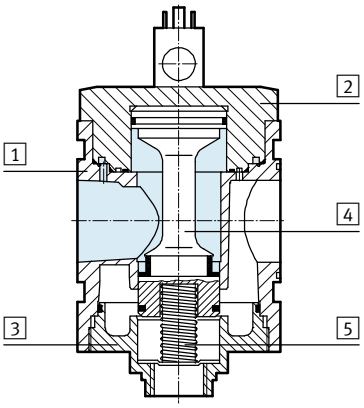
Operating and environmental conditions		
Operating pressure	[bar]	3 ... 16
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
		Inert gases
Note on operating/pilot medium		Operation with lubricated medium possible (in which case lubricated operation will always be required)
Ambient temperature	[°C]	–10 ... +50
Temperature of medium	[°C]	–10 ... +50
Corrosion resistance	CRC[1)]	2

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Weights [g]	
On-off valve	3,800
On-off valve with silencer S	3,900

Materials

Sectional view



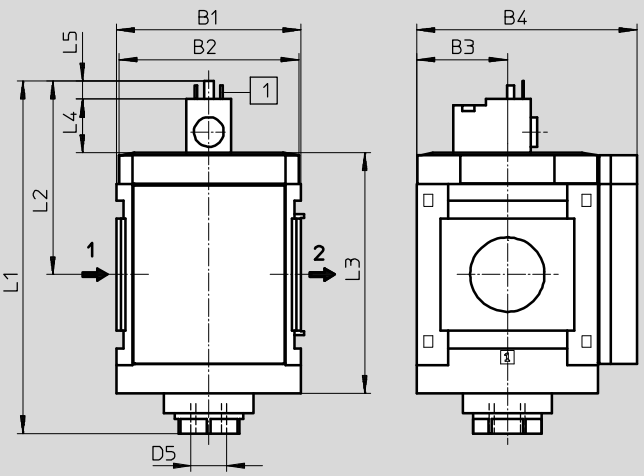
On-off valve		
1	Body	Die-cast aluminium
2	Cap, top	Aluminium
3	Cap, bottom	Aluminium
4	Valve spool	Stainless steel, POM, NBR
5	Springs	Steel
–	Covers/cover plates	PA
–	Seals	NBR
–	Connecting plate, module connector, mounting bracket	Die-cast aluminium
Note on materials		Free of copper and PTFE (not with variant AG)

Dimensions – Basic version

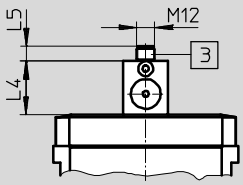
Download CAD data ➔ **www.festo.com**

Module without connecting thread, without connecting plate G, with cover plate

MS12-EE-G-V24/V110/V230



MS12-EE-G-V24P



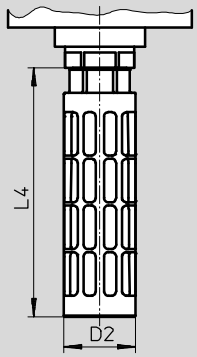
1 = Unused
2 = Unused
3 = com (–)
4 = Signal (+) solenoid 14

1 Plug connection to EN 175301-803
3 Plug connection M12, 4-pin to DESINA for connecting cable NEBU-M12

➔ Flow direction

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

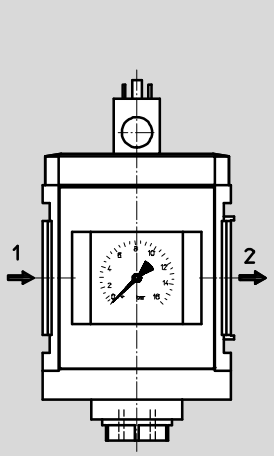
Dimensions – Silencer Download CAD data ➔ **www.festo.com**

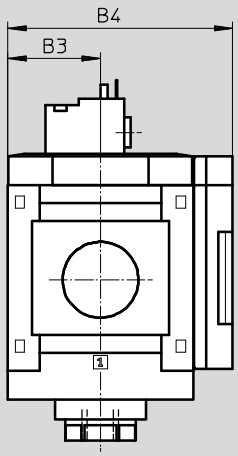


Type	D2 ∅	L4
MS12-EE-...-S	47.8	165.5

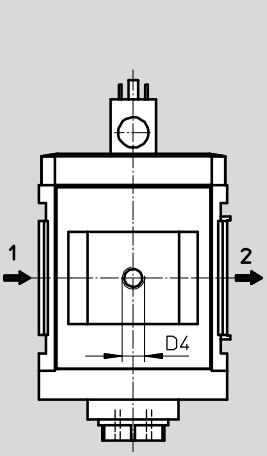
Dimensions – Pressure gauge/pressure gauge alternatives Download CAD data ➔ **www.festo.com**

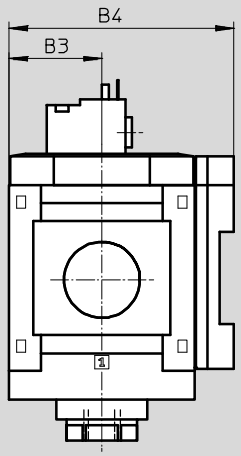
Integrated MS pressure gauge AG, display unit [bar]





Adapter A4 for EN pressure gauge ¼, without pressure gauge





➔ Flow direction

Type	B3	B4	D4
MS12-EE-...-AG	61	148	–
MS12-EE-...-A4	61	148	G¼

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Ordering data

Size	Supply voltage 24 V DC	
	Part No.	Type
MS12	**541496**	**MS12-EE-G-V24**

On-off valves MS12-EE, MS series

Ordering data – Modular products

Ordering table

	Grid dimension [mm]	124	Condi-tions	Code		Enter code
M	Module No.	**535032**				
	Series	Standard		**MS**		MS
	Size	12		**12**		12
	Function	On-off valve, electrical		**-EE**		-EE
	Pneumatic connection	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/pressure gauge alternatives	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 standard design	2	**-WP**		
	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.

M Mandatory data
O Options

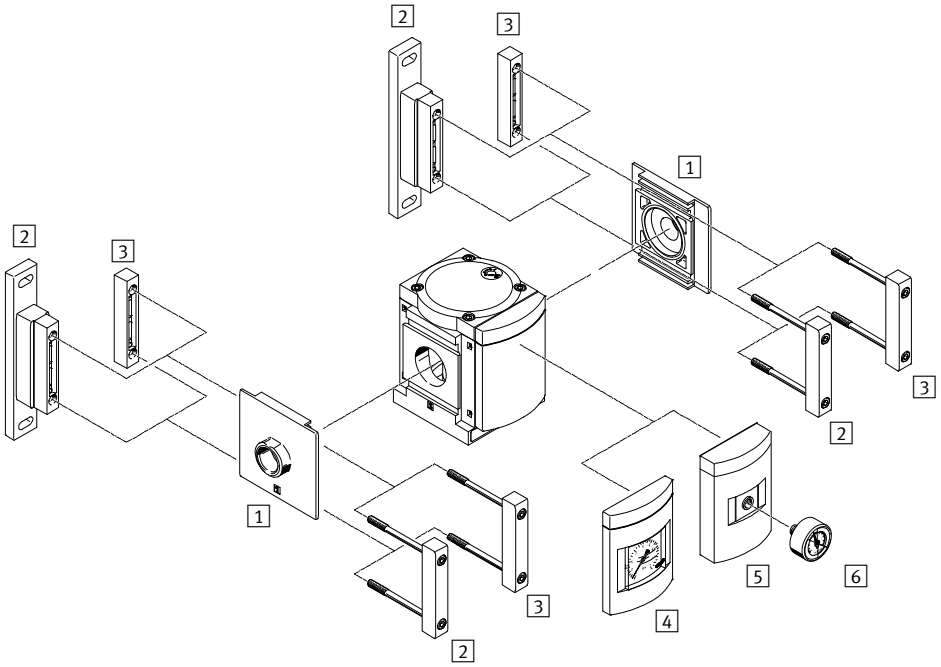
Transfer order code

535032	MS	12	–	EE	–		–		–		–		–		–		–	

Soft-start valves MS12-DL, MS series

Peripherals overview

Soft-start valves MS12-DL



- Note

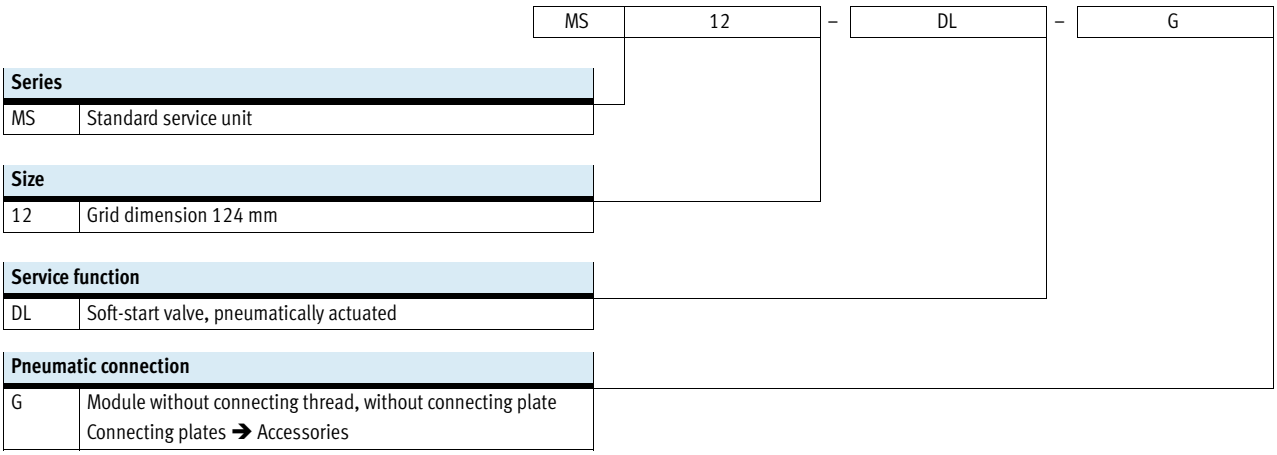
Additional accessories:

– Module connector for combination with size MS9 ➔ Internet: armv

Mounting attachments and accessories		
		➔ Page/Internet
1	Connecting plate-SET MS12-AG...	ms12-ag
2	Mounting bracket MS12-WP	ms12-wp
3	Module connector MS12-MV	ms12-mv
4	MS pressure gauge AG	87
5	Adapter for EN pressure gauge ¼ A4	87
6	Pressure gauge MA	95

Soft-start valves MS12-DL, MS series

Type codes



Series	
MS	Standard service unit

Size	
12	Grid dimension 124 mm

Service function	
DL	Soft-start valve, pneumatically actuated

Pneumatic connection	
G	Module without connecting thread, without connecting plate Connecting plates ➔ Accessories

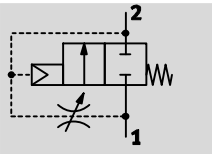
Further variants can be ordered using the modular system ➔ 87

- Pneumatic connection
- Pressure gauge/pressure gauge alternatives
- Alternative pressure gauge scale
- Type of mounting
- Flow direction

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 ... 20 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 operating pressure
- Adjustable switching time delay

General technical data	
Pneumatic connection 1, 2	
Connecting plate AG...	G1, G1¼, G1½ or G2
Module without connecting thread/plate G	–
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

Note: This product conforms to ISO 1179-1 and to ISO 228-1

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

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

Soft-start valves MS12-DL, MS series

Technical data

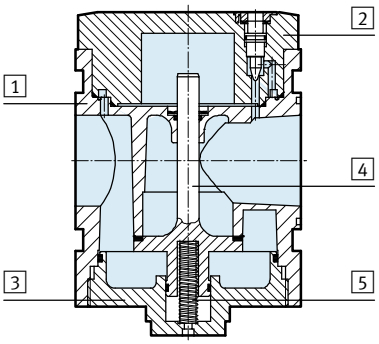
Operating and environmental conditions		
Operating pressure	[bar]	2 ... 20
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:–:–]
Ambient temperature	[°C]	–10 ... +60
Temperature of medium	[°C]	–10 ... +60
Corrosion resistance	CRC[1)]	2

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Weights [g]	
Soft-start valve	3,600

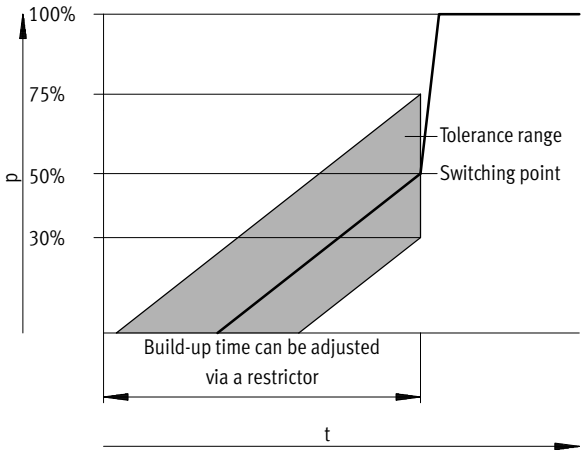
Materials

Sectional view



Soft-start valve		
1	Body	Die-cast aluminium
2	Cap, top	Aluminium
3	Cap, bottom	Aluminium
4	Valve stem	Aluminium, NBR
5	Springs	Steel
–	Covers/cover plates	PA
–	Seals	NBR
–	Connecting plate, module connector, mounting bracket	Die-cast aluminium
Note on materials		Free of copper and PTFE (not with variant AG)

Switching point – Pressure p as a function of time t



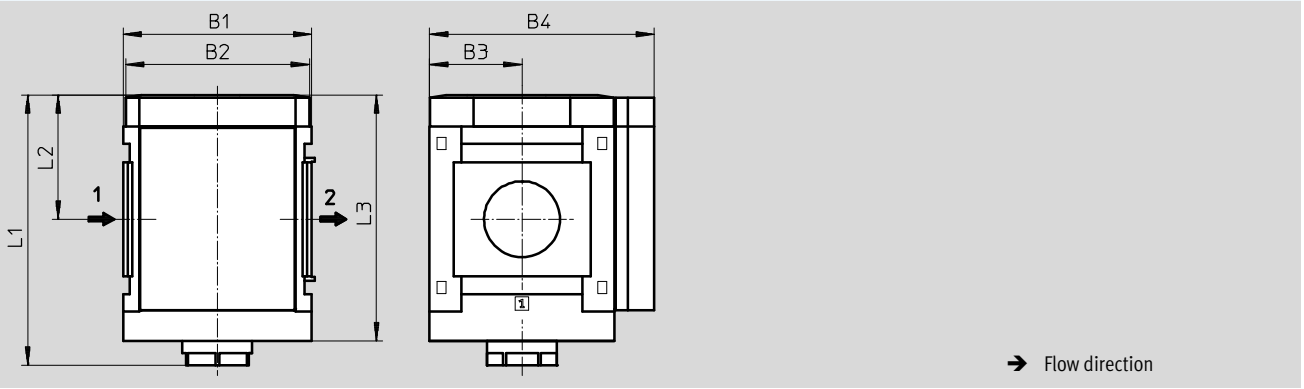
Note

The tolerance specification +25%/–20% of the switching point refers to the operating pressure p1.

Example: at an operating pressure of 4 bar a switching point of 1.2 bar to 3.0 bar is permitted.

Dimensions – Basic version Download CAD data ➔ **www.festo.com**

Module without connecting thread, without connecting plate G, with cover plate

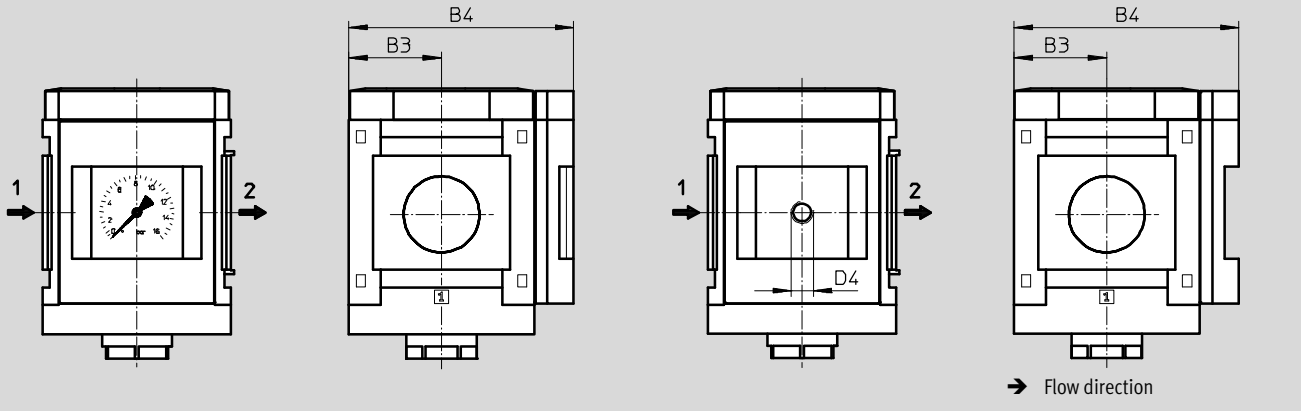


Type	B1	B2	B3	B4	L1	L2	L3
MS12-DL-G	124	122	61	148	178	82	162

Dimensions – Pressure gauge/pressure gauge alternatives Download CAD data ➔ **www.festo.com**

Integrated MS pressure gauge AG, display unit [bar]

Adapter A4 for EN pressure gauge ¼, without pressure gauge



Type	B3	B4	D4
MS12-DL-...-AG	61	148	–
MS12-DL-...-A4	61	148	G¼

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Ordering data

Size	Part No.	Type
MS12	**541497**	**MS12-DL-G**

Soft-start valves MS12-DL, MS series

Ordering data – Modular products

Ordering table

	Grid dimension [mm]	124	Condi-tions	Code		Enter code
M	Module No.	**535033**				
	Series	Standard		**MS**		MS
	Size	12		**12**		12
	Function	Soft-start valve, pneumatic		**-DL**		-DL
	Pneumatic connection	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/pressure gauge alternatives	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 standard design	2	**-WP**		
	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.

M Mandatory data
O Options

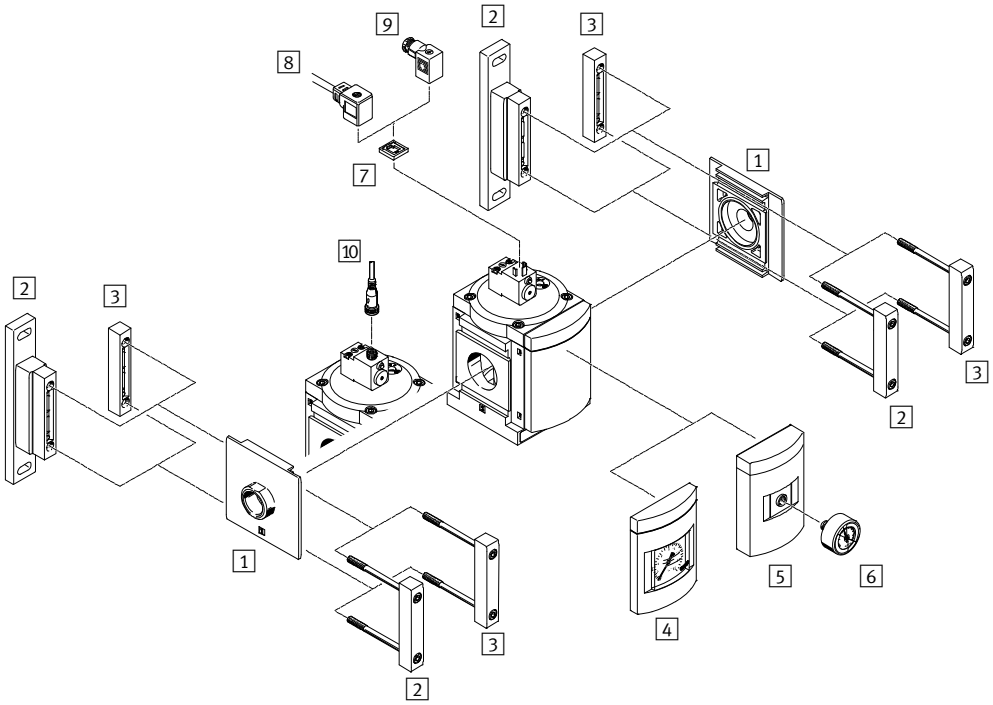
Transfer order code

535033	MS	12	–	DL	–		–		–		–		–	

Soft-start valves MS12-DE, MS series

Peripherals overview

Soft-start valves MS12-DE



- Note

Additional accessories:

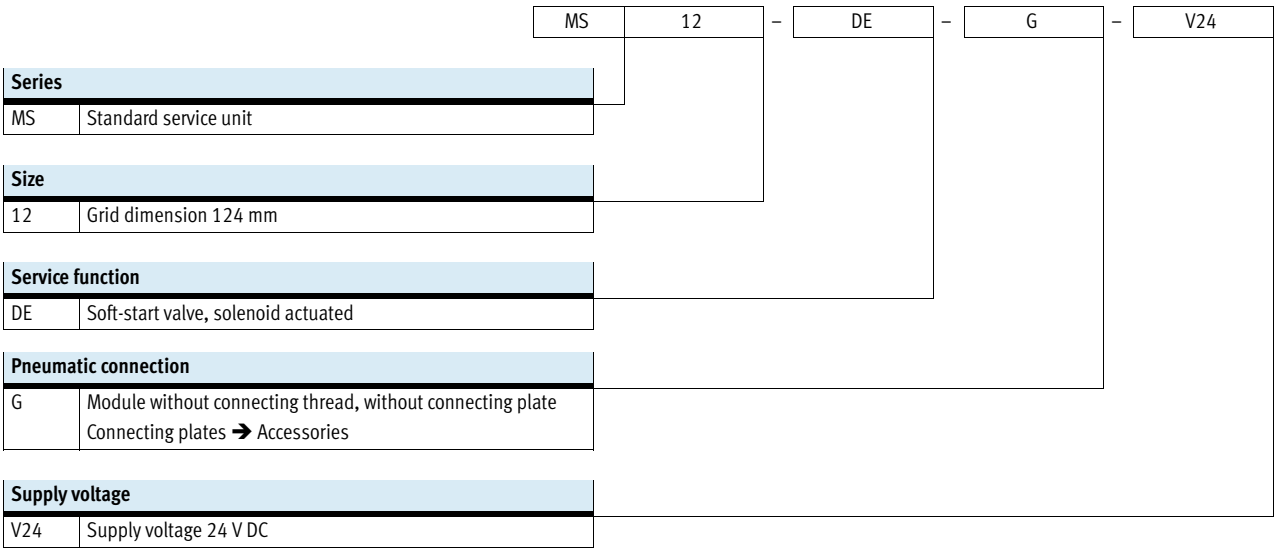
– Module connector for combination with size MS9 ➔ Internet: armv

Mounting attachments and accessories

		➔ Page/Internet
1	Connecting plate-SET MS12-AG...	ms12-ag
2	Mounting bracket MS12-WP	ms12-wp
3	Module connector MS12-MV	ms12-mv
4	MS pressure gauge AG	93
5	Adapter for EN pressure gauge ¼ A4	93
6	Pressure gauge MA	95
7	Illuminating seal MC-LD	94
8	Connecting cable KMC	94
9	Plug socket MSSD-C	94
10	Connecting cable NEBU-M12...-LE4	95

Soft-start valves MS12-DE, MS series

Type codes



Series	
MS	Standard service unit

Size	
12	Grid dimension 124 mm

Service function	
DE	Soft-start valve, solenoid actuated

Pneumatic connection	
G	Module without connecting thread, without connecting plate Connecting plates ➔ Accessories

Supply voltage	
V24	Supply voltage 24 V DC

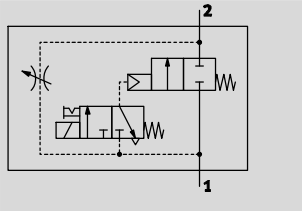
Further variants can be ordered using the modular system ➔ 93

- Pneumatic connection
- Supply voltage
- Pressure gauge/pressure gauge alternatives
- Alternative pressure gauge scale
- Type of mounting
- Flow direction

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 and detenting manual override

General technical data		
Pneumatic connection 1, 2		
	Connecting plate AG...	G1, G1¼, G1½ or G2
	Module without connecting thread/plate G	–
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
Signal status display		Via accessories
		LED (with variant V24P)
Type of actuation		Piloted
Pilot air supply		Internal
Direction of flow		Non-reversible

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Electrical data		
Coil characteristics	V24	24 V DC: 8.4 W
		42 V AC: 50 Hz, pick-up power 14 VA, holding power 10 VA
		42 V AC: 60 Hz, pick-up power 12 VA, holding power 7 VA
	V24P	24 V DC
	V110	110 V AC
	V230	230 V AC
Electrical connection	V24/V110/V230	Plug, square design to EN 175301-803, type A
	V24P	Plug M12, 4-pin to DESINA
Protection class for solenoid coil		IP65
Duty cycle	[%]	100

Soft-start valves MS12-DE, MS series

Technical data

Standard nominal flow rate qnN[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 p1 = 6 bar and p2 = 5 bar, Δp = 1 bar
2) For energised solenoid valve

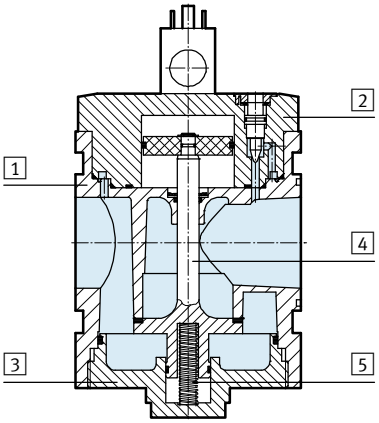
Operating and environmental conditions		
Operating pressure	[bar]	3 … 16
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [–:–:–]
Ambient temperature	[°C]	–10 … +50
Temperature of medium	[°C]	–10 … +50
Corrosion resistance	CRC[1]	2

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

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, NBR
5	Springs	Steel
–	Covers/cover plates	PA
–	Seals	NBR
–	Connecting plate, module connector, mounting bracket	Die-cast aluminium
Note on materials		Free of copper and PTFE (not with variant AG)

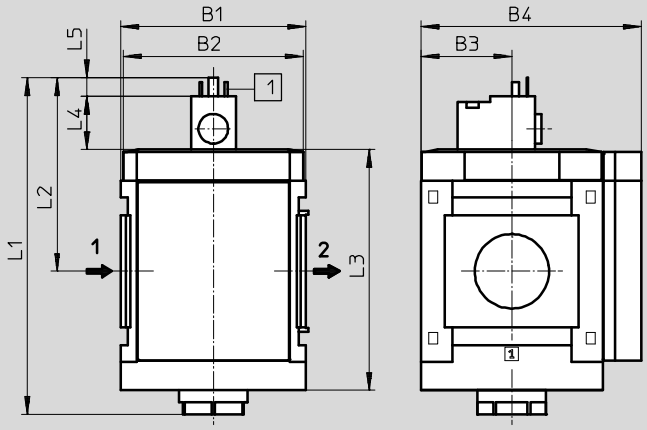
Soft-start valves MS12-DE, MS series

Technical data

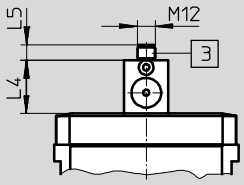
Dimensions – Basic version Download CAD data ➔ **www.festo.com**

Module without connecting thread, without connecting plate G, with cover plate

MS12-DE-G-V24/V110/V230



MS12-DE-G-V24P



1 = Unused
2 = Unused
3 = com (–)
4 = Signal (+) solenoid 14

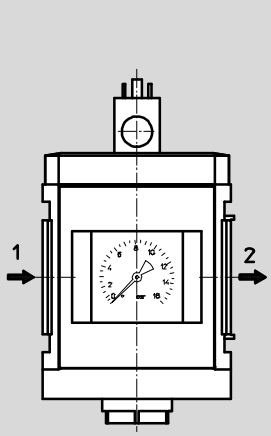
1 Plug connection to EN 175301-803
3 Plug connection M12, 4-pin to DESINA for connecting cable NEBU-M12

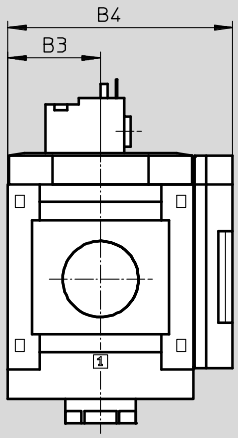
➔ Flow direction

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

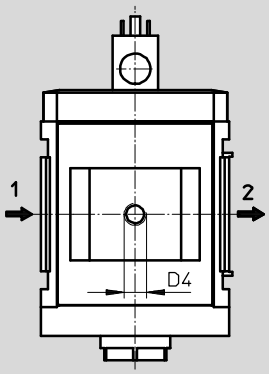
Dimensions – Pressure gauge/pressure gauge alternatives Download CAD data ➔ **www.festo.com**

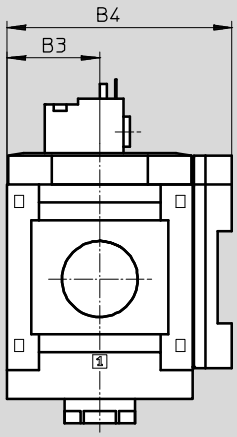
Integrated MS pressure gauge AG, display unit [bar]





Adapter A4 for EN pressure gauge ¼, without pressure gauge





➔ Flow direction

Type	B3	B4	D4
MS12-DE-...-AG	61	148	–
MS12-DE-...-A4	61	148	G¼

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Ordering data

Size	Supply voltage 24 V DC	
	Part No.	Type
MS12	**541498**	**MS12-DE-G-V24**

Soft-start valves MS12-DE, MS series

Ordering data – Modular products

Ordering table						
Grid dimension [mm]		124	Condi-tions	Code		Enter code
M	Module No.	**535034**				
	Series	Standard		**MS**		MS
	Size	12		**12**		12
	Function	Soft-start valve, electrical		**-DE**		-DE
	Pneumatic connection	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/pressure gauge alternatives	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 standard design	2	**-WP**		
	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.

M Mandatory data
O Options

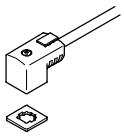
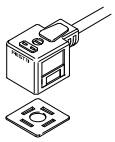
Transfer order code

535034	MS	12	–	DE	–		–		–		–		–		–	

Ordering data – Plug socket MSSD — Technical data ➔ Internet: mssd

	Description		Electrical connection	Cable connection	Part No.	Type
	for MS4/6-EE/DE	–	3-pin	Screw terminal	★ **151687**	**MSSD-EB**
			4-pin	Insulation displacement connector	**192745**	**MSSD-EB-S-M14**
		For use in the explosion protection area	3-pin	Screw terminal	**570367**	**MSSD-EB-M12-24VDC-SD-EX**
	for MS9-EE, for MS12-EE/DE	–	3-pin	Screw terminal	**34583**	**MSSD-C**
			4-pin	Insulation displacement connector	**192748**	**MSSD-C-S-M16**

Ordering data – Plug socket with cable KMEB/connecting cable KMC — Technical data ➔ Internet: kmeb, kmc

	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	**547268**	**KMEB-3-24-2,5-LED**
					5	**547269**	**KMEB-3-24-5-LED**
				–	2.5	**547270**	**KMEB-3-24-2,5**
					5	**547271**	**KMEB-3-24-5**
			3-pin	LED	2.5	**151688**	**KMEB-1-24-2,5-LED**
					5	**151689**	**KMEB-1-24-5-LED**
					10	**193457**	**KMEB-1-24-10-LED**
		230 V AC	3-pin	–	2.5	**151690**	**KMEB-1-230AC-2,5**
					5	**151691**	**KMEB-1-230AC-5**
	for MS9-EE, for MS12-EE/DE	24 V DC	3-pin	LED	2.5	**30931**	**KMC-1-24DC-2,5-LED**
					5	**30933**	**KMC-1-24DC-5-LED**
					10	**193459**	**KMC-1-24-10-LED**
		230 V AC	3-pin	–	2.5	**30932**	**KMC-1-230AC-2,5**
					5	**30934**	**KMC-1-230AC-5**

Ordering data – Illuminating seal MEB-LD/MC-LD — Technical data ➔ Internet: meb, mc

	Description	Operating voltage range	Part No.	Type
	for plug socket with cable KMEB and plug socket MSSD-EB	12 … 24 V DC	**151717**	**MEB-LD-12-24DC**
		230 V DC/AC ±10%	**151718**	**MEB-LD-230AC**
	for connecting cable KMC and plug socket MSSD-C	12 … 24 V DC	**19145**	**MC-LD-12-24DC**
		230 V DC/AC ±10%	**19146**	**MC-LD-230AC**

Ordering data – Locking clip CPV18-HV — Technical data ➔ Internet: cpv18-hv

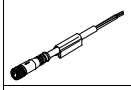
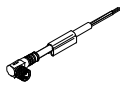
	Description		Part No.	Type	PU[1]
	for MS4/6-EE/DE-…-V24	Cover for manual override, the clip prevents actuation	**530056**	**CPV18-HV**	**10**

1) Packaging unit quantity

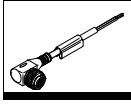
Festo core product range

★ Ready for dispatch from the Festo factory in 24 hours
☆ Ready for dispatch in 5 days maximum from stock

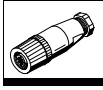
Ordering data – Connecting cable NEBU-M8 — Technical data ➔ Internet: nebu

	Electrical connection	Number of wires	Cable length [m]	Part No.	Type
	M8x1, straight socket	3	2.5	★ 541333	NEBU-M8G3-K-2.5-LE3
			5	★ 541334	NEBU-M8G3-K-5-LE3
	M8x1, angled socket	3	2.5	★ 541338	NEBU-M8W3-K-2.5-LE3
			5	★ 541341	NEBU-M8W3-K-5-LE3

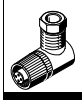
Ordering data – Connecting cable NEBU-M12 — Technical data ➔ Internet: nebu

	Electrical connection	Number of wires	Cable length [m]	Part No.	Type
	M12x1, straight socket	4	2.5	★ 550326	NEBU-M12G5-K-2.5-LE4
			5	★ 541328	NEBU-M12G5-K-5-LE4
	M12x1, angled socket	4	2.5	550325	NEBU-M12W5-K-2.5-LE4
			5	541329	NEBU-M12W5-K-5-LE4

Ordering data – Sensor socket SIE-GD — Technical data ➔ Internet: sie-gd

	Electrical connection	Part No.	Type
	M12x1, 4-pin	18494	SIE-GD

Ordering data – Angled plug socket SIE-WD — Technical data ➔ Internet: sie-wd

	Electrical connection	Part No.	Type
	M12x1, 4-pin	12956	SIE-WD-TR

Ordering data – Silencer U — Technical data ➔ Internet: u

	Description	Pneumatic connection	Part No.	Type
	for MS4-EM1/EE	G¼	★ 6842	U-¼-B
	for MS6-EM1/EE	G½	★ 6844	U-½-B
	for MS9/12-EM/EE	G1	151990	U-1-B

Ordering data – Pressure gauge MA

	Nominal size	Pneumatic connection	Indicating range [bar]	Indicating range [psi]	Part No.	Type
	Pressure gauge MA, EN 837-1					Technical data ➔ Internet: ma
	40	R¼	0 … 16	0 … 232	187080	MA-40-16-R¼-EN
		G¼	0 … 16	0 … 232	183901	MA-40-16-G¼-EN
	Pressure gauge MA, EN 837-1, with red-green range					Technical data ➔ Internet: ma
	40	R⅛	0 … 16	–	525726	MA-40-16-R⅛-E-RG
	50	R¼	0 … 16	–	525729	MA-50-16-R¼-E-RG

Ordering data – Padlock LRVS-D

	Weight [g]	Part No.	Type
	120	193786	LRVS-D

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☆ Ready for dispatch in 5 days maximum from stock