

Pressure regulators MS-LR/LRB/LRP/LRPB/LRE, MS series

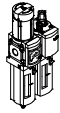
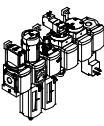
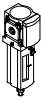
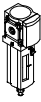
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Pressure regulators MS-LR/LRB/LRP/LRPB/LRE, MS series

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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...	D2	D4	D5	D6	D7	D8	A	B	C	E
Service units													
MSB-FRC 	4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	■	■	–	–	–	■	■
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	■	■	–	–	–	■	■
	9	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–
Service unit combinations (further variants can be ordered using the configurator → Internet: msb4, msb6 or msb9)													
MSB 	4	G1/4	G1/8, G1/4, G3/8	–	–	–	■	■	–	–	–	■	■
	6	G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	■	■	–	–	–	■	■
	9	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–
Individual devices													
Filter regulators MS-LFR 	4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	■	■	■	–	–	–	■	■
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	■	■	■	–	–	–	■	■
	9	G3/4, G1	G1/2, G3/4, G1, G11/4, G11/2	–	–	■	■	■	–	–	–	■	■
	12	–	G1, G11/4, G11/2, G2	–	–	■	■	■	–	–	–	■	■
Filters MS-LF 	4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–	–	■	■
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	■	■
	9	G3/4, G1	G1/2, G3/4, G1, G11/4, G11/2	–	–	–	–	–	–	–	–	■	■
	12	–	G1, G11/4, G11/2, G2	–	–	–	–	–	–	–	–	■	■
Fine and micro filters MS-LFM 	4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	■	■	–	–
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	■	■	–	–
	9	G3/4, G1	G1/2, G3/4, G1, G11/4, G11/2	–	–	–	–	–	–	■	■	–	–
	12	–	G1, G11/4, G11/2, G2	–	–	–	–	–	–	■	■	–	–
Activated carbon filters MS-LFX 	4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–	–	–	–
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	–	–
	9	G3/4, G1	G1/2, G3/4, G1, G11/4, G11/2	–	–	–	–	–	–	–	–	–	–
	12	–	G1, G11/4, G11/2, G2	–	–	–	–	–	–	–	–	–	–
Water separators MS-LWS 	4	–	–	–	–	–	–	–	–	–	–	–	–
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	–	–
	9	G3/4, G1	G1/2, G3/4, G1, G11/4, G11/2	–	–	–	–	–	–	–	–	–	–
	12	–	G1, G11/4, G11/2, G2	–	–	–	–	–	–	–	–	–	–

Pressure regulators MS-LR/LRB/LRP/LRPB/LRE, MS series

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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 units																	
MSB-FRC	4	■	–	■	–	■	–	–	■	–	–	–	■	–	–	■	msb4
	6	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb6
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Service unit combinations																	
MSB	4	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb4
	6	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb6
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Individual devices																	
Filter regulators MS-LFR	4	■	■	■	■	■	–	■	■	■	■	■	■	■	–	■	ms4-lfr
	6	■	■	■	■	■	■	■	■	■	■	■	■	■	–	■	ms6-lfr
	9	–	■	■	■	■	■	■	■	■	■	■	■	■	–	■	ms9-lfr
	12	–	■	■	–	■	■	■	■	–	■	–	■	■	–	■	ms12-lfr
Filters MS-LF	4	■	■	■	■	■	–	–	–	–	–	–	–	–	–	■	ms4-lf
	6	■	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms6-lf
	9	–	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms9-lf
	12	–	■	■	–	■	■	–	–	–	–	–	–	–	–	■	ms12-lf
Fine and micro filters MS-LFM	4	■	■	■	■	■	–	–	–	–	–	–	–	–	–	■	ms4-lfm
	6	■	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms6-lfm
	9	–	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms9-lfm
	12	–	■	■	–	■	■	–	–	–	–	–	–	–	–	■	ms12-lfm
Activated carbon filters MS-LFX	4	■	■	–	–	–	–	–	–	–	–	–	–	–	–	■	ms4-lfx
	6	■	■	–	–	–	–	–	–	–	–	–	–	–	–	■	ms6-lfx
	9	–	■	–	–	–	–	–	–	–	–	–	–	–	–	■	ms9-lfx
	12	–	■	–	–	–	–	–	–	–	–	–	–	–	–	■	ms12-lfx
Water separators MS-LWS	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	6	–	■	–	–	■	■	–	–	–	–	–	–	–	–	■	ms6-lws
	9	–	■	–	–	■	■	–	–	–	–	–	–	–	–	■	ms9-lws
	12	–	■	–	–	■	■	–	–	–	–	–	–	–	–	■	ms12-lws

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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...	D2	D4	D5	D6	D7	D8	V24	V24P	V110	V230
Individual devices													
Pressure regulators MS-LR		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	■	■	■	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	■	■	■	–	–	–	–
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	–	–	■	■	■	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	■	■	–	–	–	–
Pressure regulators MS-LRB		4	G1/4	G1/8, G1/4, G3/8	–	–	■	■	■	–	–	–	–
		6	G1/2	G1/4, G3/8, G1/2, G3/4	–	–	■	■	■	–	–	–	–
		9	–	–	–	–	–	–	–	–	–	–	–
		12	–	–	–	–	–	–	–	–	–	–	–
Precision pressure regulators MS-LRP		4	–	–	–	–	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	■	■	■	–	■	–	–	–	–
		9	–	–	–	–	–	–	–	–	–	–	–
		12	–	–	–	–	–	–	–	–	–	–	–
Precision pressure regulators MS-LRPB		4	–	–	–	–	–	–	–	–	–	–	–
		6	G1/2	G1/4, G3/8, G1/2, G3/4	■	■	■	–	■	–	–	–	–
		9	–	–	–	–	–	–	–	–	–	–	–
		12	–	–	–	–	–	–	–	–	–	–	–
Electrical pressure regulators MS-LRE		4	–	–	–	–	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	■	■	■	–	–	–	–
		9	–	–	–	–	–	–	–	–	–	–	–
		12	–	–	–	–	–	–	–	–	–	–	–
Lubricators MS-LOE		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	–
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	–	–	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–	–	–
On-off valves, manually actuated MS-EM(1)		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	–
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	–	–	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–	–	–
On-off valves, electrically actuated MS-EE		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	■	–	■	■
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	■	–	■	■
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	–	–	–	–	–	■	■	■	■
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	■	■	■	■
Soft-start valves, pneumatically actuated MS-DL		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	–
		9	–	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–	–	–
Soft-start valves, electrically actuated MS-DE		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	■	–	■	■
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	■	–	■	■
		9	–	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	■	■	■	■

Pressure regulators MS-LR/LRB/LRP/LRPB/LRE, MS series

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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	–	–	■	■	■	■	■	■	■	–	■	8
	6	–	–	■	■	–	■	■	■	■	–	■	8
	9	–	–	■	■	–	■	■	■	■	–	■	76
	12	–	–	■	■	–	■	–	■	■	–	■	88
Pressure regulators MS-LRB	4	–	–	■	■	■	■	■	■	■	–	■	22
	6	–	–	■	■	–	■	■	■	■	–	■	22
	9	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–
Precision pressure regulators MS-LRP	4	–	–	–	–	–	–	–	–	–	–	–	–
	6	–	–	■	–	■	■	■	■	■	–	■	36
	9	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–
Precision pressure regulators MS-LRPB	4	–	–	–	–	–	–	–	–	–	–	–	–
	6	–	–	■	–	■	■	■	■	■	–	■	50
	9	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–
Electrical pressure regulators MS-LRE	4	–	–	–	–	–	–	–	–	–	–	–	–
	6	–	–	■	■	–	■	–	–	–	–	■	66
	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	–	–	■	■	■	■	■	–	–	■	■	ms4-em1
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-em1
	9	–	–	■	■	–	■	–	–	–	■	■	ms9-em
	12	–	–	■	■	–	■	–	–	–	■	■	ms12-em
On-off valves, electrically actuated MS-EE	4	–	–	■	■	■	■	■	–	–	■	■	ms4-ee
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-ee
	9	–	–	■	■	–	■	–	–	–	■	■	ms9-ee
	12	–	–	■	■	–	■	–	–	–	■	■	ms12-ee
Soft-start valves, pneumatically actuated MS-DL	4	–	–	■	■	■	■	■	–	–	–	■	ms4-dl
	6	–	–	■	■	–	■	■	–	–	–	■	ms6-dl
	9	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	■	■	–	■	–	–	–	–	■	ms12-dl
Soft-start valves, electrically actuated MS-DE	4	–	–	■	■	■	■	■	–	–	–	■	ms4-de
	6	–	–	■	■	–	■	■	–	–	–	■	ms6-de
	9	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	■	■	–	■	–	–	–	–	■	ms12-de

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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, connection pattern to EN 175301	24 V DC, connection M12 to IEC 61076-2-101 / to EN 60947-5-2	110 V AC, connection pattern to EN 175301	230 V AC, connection pattern to EN 175301
Code			AG...	C	D	E	V24	V24P	V110	V230
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	–							

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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	–											–

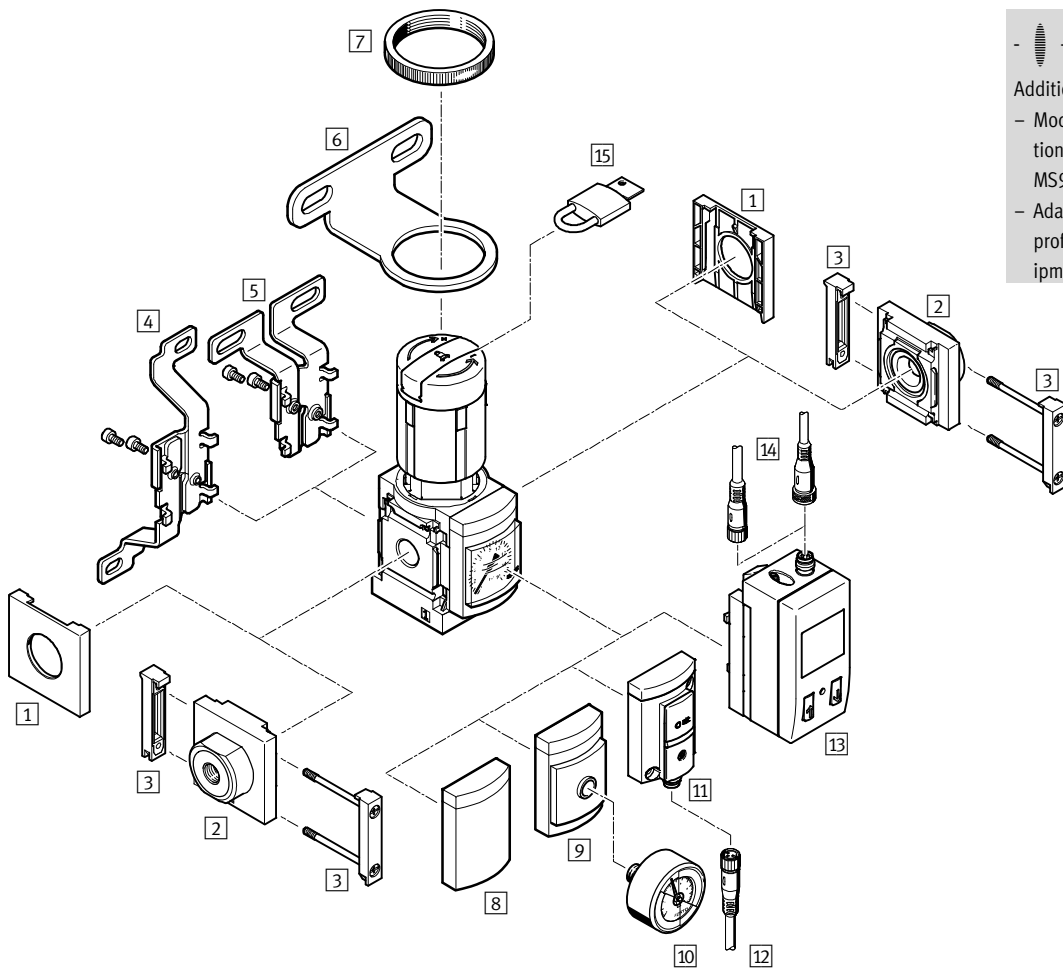
New
Variant EX4, UL1

Pressure regulators MS4/MS6-LR, MS series

Peripherals overview

FESTO

Pressure regulator MS4/MS6-LR



Note

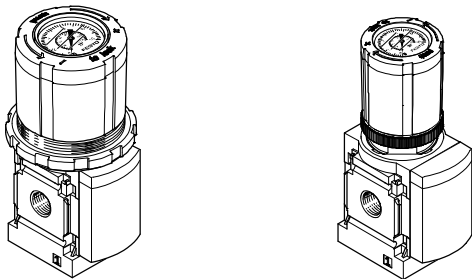
Additional accessories:

- 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

Pressure regulator with rotary knob pressure gauge

MS4-LR-...-DM2

MS4-LR-...-DM1/MS6-LR-...-DM2



Pressure regulators MS4/MS6-LR, 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	Connecting plate-SET MS4/6-AG...	–	■	–	■	ms4-ag, ms6-ag
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	Mounting bracket MS4/6-WR	■	■	–	–	ms4-wr, ms6-wr
7	Knurled nut (included in scope of delivery) MS-LR	■	■	–	–	–
8	Cover plate VS	■	■	■	■	20
9	Adapter plate for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	20
10	Pressure gauge MA	■	■	■	■	98
11	Pressure sensor without display AD7 ... AD10	■	■	■	■	20
12	Connecting cable NEBU-M8...-LE3	■	■	■	■	98
13	Pressure sensor with display AD1 ... AD4	■	■	■	■	20
14	Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4	■	■	■	■	98
15	Padlock LRVS-D	■	■	■	■	98
–	Mounting bracket MS4/6-WP/WPB/WPE/WPM	–	■	■	■	ms4-wp, ms6-wp

 New
Variant EX4, UL1

Pressure regulators MS4/MS6-LR, MS series

Type codes

FESTO

		MS	6	-	LR	-	1/2	-	D5	-	AS
Series											
MS	Standard service unit										
Size											
4	Grid dimension 40 mm										
6	Grid dimension 62 mm										
Service function											
LR	Pressure regulator										
Connection size											
MS4											
1/8	Thread G1/8										
1/4	Thread G1/4										
MS6											
1/4	Thread G1/4										
3/8	Thread G3/8										
1/2	Thread G1/2										
Pressure regulation range											
D5	0.3 ... 4 bar										
D6	0.3 ... 7 bar										
D7	0.5 ... 12 bar										
Security											
AS	Standard rotary knob with detent, lockable via accessories										

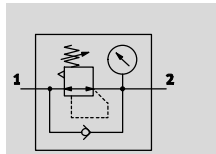
Additional variants can be ordered using the modular system → 20

- Connecting plates
- Pressure regulation range
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Rotary knob alternative
- Alternative mounting position
- Security
- Type of mounting
- EU certification
- UL certification
- Alternative flow direction

Pressure regulators MS4/MS6-LR, MS series

Technical data

With pressure gauge



-  Flow rate
1,000 ... 7,500 l/min
-  Temperature range
-10 ... +60 °C
-  Operating pressure
0.8 ... 20 bar
-  www.festo.com

Wearing parts kits

→ 19



The pressure regulator maintains a constant working pressure (secondary side), regardless of the pressure variations in the system (primary side) and the air consumption.

- Good regulation characteristics with low hysteresis and primary pressure compensation
- High flow rate with minimal pressure drop
- Available with and without secondary venting
- Regulator lock for protecting the values against adjustment
- Four pressure regulation ranges: 0.3 ... 4 bar, 0.3 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Two pressure gauge connections for different fitting options
- Return flow option for exhausting from output 2 to output 1 already integrated
- Optional pressure sensor
- Optional rotary knob pressure gauge
- 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		G1/8	G1/4	G1/4	G3/8 G1/2
Constructional design		Directly-actuated diaphragm regulator			
Regulating function		Output pressure constant, with primary pressure compensation, with return flow action, with/without secondary venting			
Type of mounting		Via accessories			
		In-line installation			
		Front panel mounting			
Mounting position		Any			
Regulator lock		Rotary knob with detent			
		Rotary knob with detent, lockable via accessories			
		Rotary knob with integrated lock			
Pressure regulation range/operation	D5 [bar]	0.3 ... 4, manually operated ¹⁾			
	D6 [bar]	0.3 ... 7, manually operated ¹⁾			
	D7 [bar]	0.5 ... 12, manually operated (0.5 ... 10 with pressure sensor AD... or with UL certification) ¹⁾			
	D8 [bar]	–		0.5 ... 16, manually operated (0.5 ... 10 with UL certification)	
Max. hysteresis	[bar]	0.25 (0.4 with rotary knob pressure gauge DM1/DM2)		0.25 (0.4 with rotary knob pressure gauge DM2)	
Pressure display		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			
		Via pressure gauge in rotary knob for displaying output pressure			
		G1/8 prepared		–	
		G1/4 prepared			

¹⁾ MS4: For pressure regulators with rotary knob pressure gauge DM..., the pressure regulation range begins at 0.8 bar.

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

New Variant EX4, UL1

Pressure regulators MS4/MS6-LR, MS series

Technical data

FESTO

Standard nominal flow rate $q_{nN}^{1)}$ [l/min]						
Size		MS4		MS6		
Pneumatic connection		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
Pressure regulation range	D5	1,200 ²⁾	2,100 ²⁾	2,400 ²⁾	5,500 ²⁾	7,500 ²⁾
	D6	1,150	1,800	3,000	5,800	6,500
	D7	1,000	1,700 ³⁾	2,700	4,500	5,500
	D8	–	–	2,200	4,000	4,500

1) Measured at $p_1 = 10$ bar and $p_2 = 6$ bar, $\Delta p = 1$ bar

2) Measured at $p_1 = 10$ bar and $p_2 = 3$ bar, $\Delta p = 1$ bar

3) In the case of the DM1/DM2 pressure regulator/gauge with rotary knob, q_{nN} is equal to 800 litres per minute and $q_{n \max}$ amounts to 2,200 litres per minute.

Operating and environmental conditions		
Size	MS4	MS6
Operating pressure [bar]	0.8 ... 14 (0.8 ... 10) ¹⁾	0.8 ... 20 (0.8 ... 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⁾	
Temperature of medium [°C]	−10 ... +60 (0 ... +50) ²⁾	
Storage temperature [°C]	−10 ... +60	
Corrosion resistance class CRC ³⁾	2	
UL certification	cULus recognized (OL)	

1) Value in brackets applies to MS4/MS6-LR with UL certification.

2) Value in brackets applies to MS4/MS6-LR 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)

Weight [g]		
Size	MS4	MS6
Pressure regulator	225	730
Pressure regulator with rotary knob with integrated lock E11	350	1,000

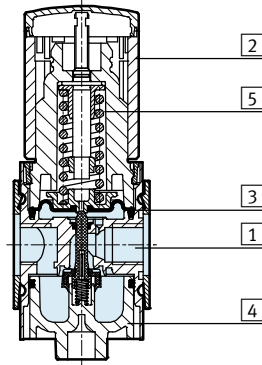
Pressure regulators MS4/MS6-LR, MS series

Technical data

FESTO

Materials

Sectional view



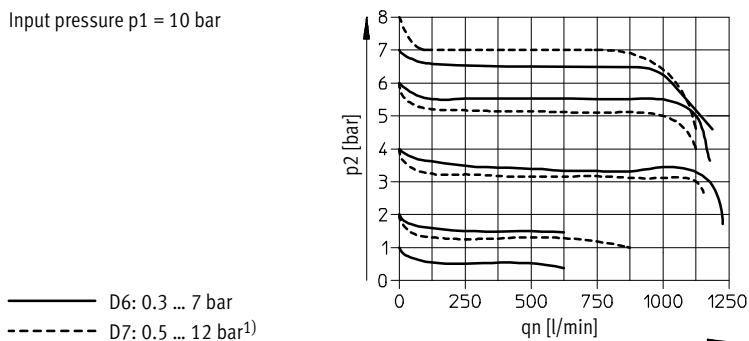
Pressure regulator

1	Housing	Die-cast aluminium
2	Rotary knob	PA/POM
	Rotary knob with integrated lock E11	Aluminium
3	Diaphragm	NBR
4	Cap, bottom	PET
5	Springs	Steel
–	Seals	NBR
Note on materials		RoHS-compliant
		Free of copper and PTFE only with cover plate VS

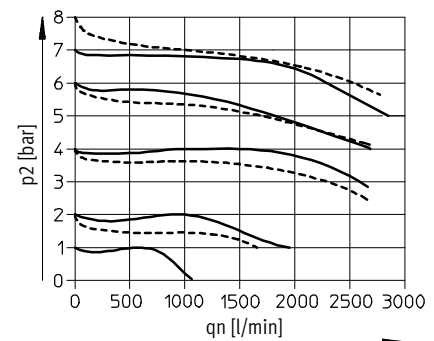
Standard flow rate q_n as a function of output pressure p_2

MS4-LR-1/8

Input pressure $p_1 = 10$ bar



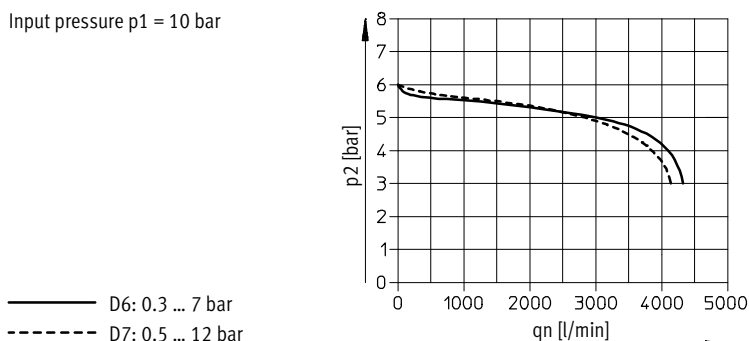
MS4-LR-1/4



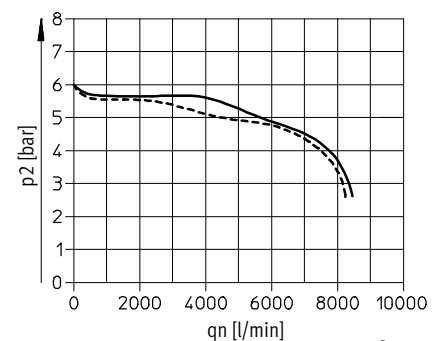
1) There is a higher initial pressure drop for the characteristic curve of the DM1/DM2 variant.

MS6-LR-1/4

Input pressure $p_1 = 10$ bar

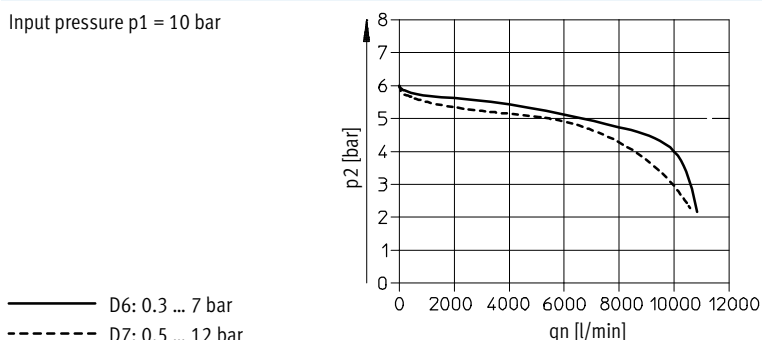


MS6-LR-3/8



MS6-LR-1/2

Input pressure $p_1 = 10$ bar



 New
Variant EX4, UL1

Pressure regulators MS4/MS6-LR, MS series

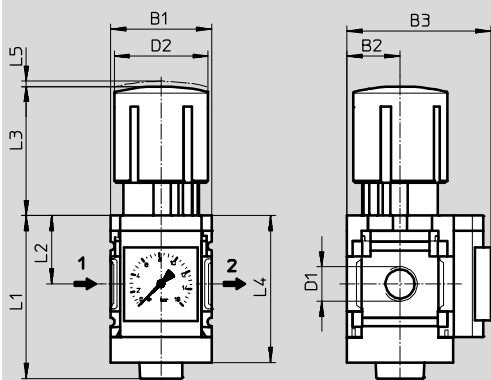
Technical data

FESTO

Dimensions – Basic version

Download CAD data → www.festo.com

Integrated pressure gauge, display unit [bar], standard rotary knob with detent



→ Flow direction

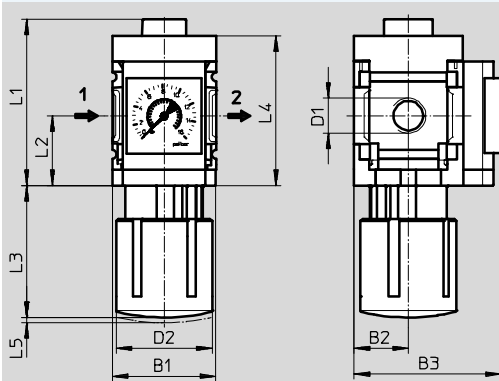
Type	B1	B2	B3		D1	D2	L1	L2	L3	L4	L5
			Stan- dard scale	Red- green scale							
MS4-LR-1/8	40	21	57	58.5	G1/8	37.2	64.4	27	51.1	58.5	2
MS4-LR-1/4					G1/4						
MS6-LR-1/4	62	31	77	78.5	G1/4	51.2	94	39	86	85	5
MS6-LR-3/8					G3/8						
MS6-LR-1/2					G1/2						

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

Dimensions – Alternative mounting position

Download CAD data → www.festo.com

Rotary knob underneath KD



→ Flow direction

Type	B1	B2	B3	D1	D2	L1	L2	L3	L4	L5
MS4-LR-1/8-...-KD	40	21	57	G1/8	37.2	64.4	27	51.1	58.5	2
MS4-LR-1/4-...-KD				G1/4						
MS6-LR-1/4-...-KD	62	31	77	G1/4	51.2	94	39	86	85	5
MS6-LR-3/8-...-KD				G3/8						
MS6-LR-1/2-...-KD				G1/2						

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

Pressure regulators MS4/MS6-LR, MS series

Technical data

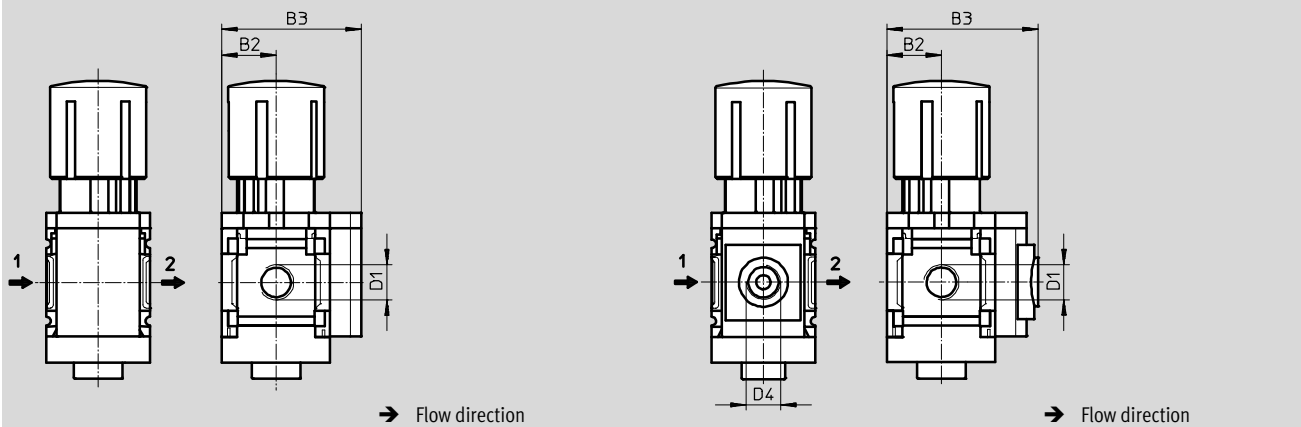
FESTO

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Cover plate VS

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



Type	B2	B3	D1	D4
MS4-LR-1/8-...-VS	21	54	G1/8	–
MS4-LR-1/4-...-VS			G1/4	
MS4-LR-1/8-...-A8	21	58.5	G1/8	G1/8
MS4-LR-1/4-...-A8			G1/4	
MS4-LR-1/8-...-A4	21	58.5	G1/8	G1/4
MS4-LR-1/4-...-A4			G1/4	
MS6-LR-1/4-...-VS	31	76	G1/4	–
MS6-LR-3/8-...-VS			G3/8	
MS6-LR-1/2-...-VS			G1/2	
MS6-LR-1/4-...-A4	31	78.5	G1/4	G1/4
MS6-LR-3/8-...-A4			G3/8	
MS6-LR-1/2-...-A4			G1/2	

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

New
Variant EX4, UL1

Pressure regulators MS4/MS6-LR, MS series

Technical data

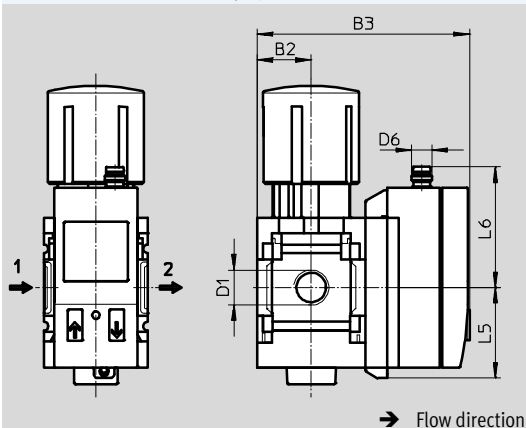
FESTO

Dimensions – Pressure gauge alternatives

Pressure sensor with LCD display AD1 ... AD4

Download CAD data → www.festo.com

Technical data → Internet: [sde1](#)



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

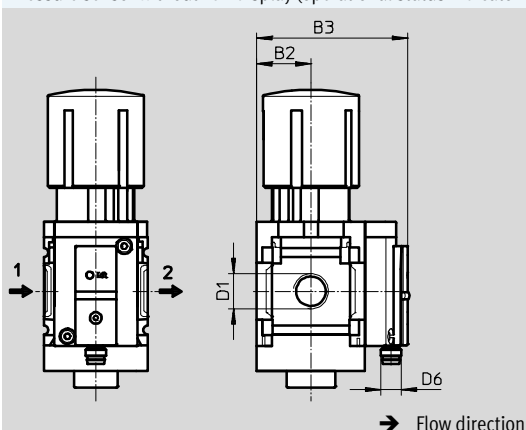
Variant AD2:
SDE1-D10-G2-MS-L-N1-M8 with
3-pin plug M8x1, 1 switching
output NPN

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 without LCD display (operational status indicator only) 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	L5	L6
MS4-LR-1/8-...-AD1/AD2	21	82.6	G1/8	M8x1	35.1	46.7
MS4-LR-1/4-...-AD1/AD2			G1/4			
MS4-LR-1/8-...-AD3/AD4	21	82.6	G1/8	M12x1	35.1	55.8
MS4-LR-1/4-...-AD3/AD4			G1/4			
MS4-LR-1/8-...-AD7/AD8/AD9/AD10	21	59.1	G1/8	M8x1	–	–
MS4-LR-1/4-...-AD7/AD8/AD9/AD10			G1/4			
MS6-LR-1/4-...-AD1/AD2	31	103	G1/4	M8x1	35.1	46.7
MS6-LR-3/8-...-AD1/AD2			G3/8			
MS6-LR-1/2-...-AD1/AD2			G1/2			
MS6-LR-1/4-...-AD3/AD4	31	103	G1/4	M12x1	35.1	55.8
MS6-LR-3/8-...-AD3/AD4			G3/8			
MS6-LR-1/2-...-AD3/AD4			G1/2			
MS6-LR-1/4-...-AD7/AD8/AD9/AD10	31	79	G1/4	M8x1	–	–
MS6-LR-3/8-...-AD7/AD8/AD9/AD10			G3/8			
MS6-LR-1/2-...-AD7/AD8/AD9/AD10			G1/2			

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

Pressure regulators MS4/MS6-LR, MS series

Technical data

Dimensions – Rotary knob

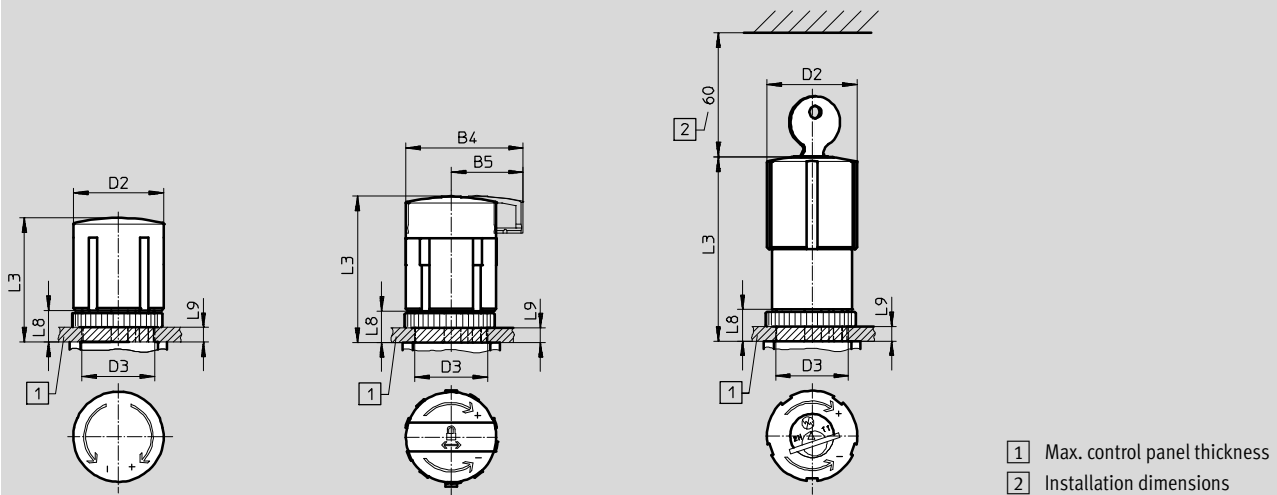
Download CAD data → www.festo.com

For installation into control panel

Standard rotary knob with detent

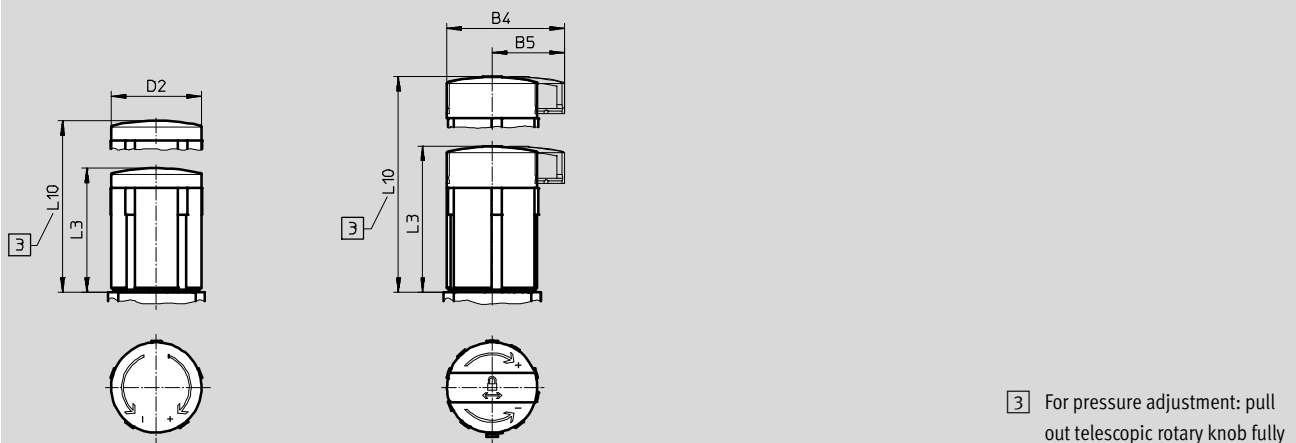
Standard rotary knob with detent,
lockable via accessories AS

Rotary knob with integrated lock
E11



Long rotary knob with detent LD

Long rotary knob with detent,
lockable via accessories LD-AS



Type	B4	B5	D2	D3 +1	L3	L8	L9	L10
MS4-LR-...	–	–	37.2	30	51.1	13	6	–
MS4-LR-...-AS	48.6	30			60.2			
MS4-LR-...-E11	–	–			76			
MS4-LR-...-LD	–	–	37.2	–	51.1	–	–	76.8
MS4-LR-...-LD-AS	48.6	30			60			85.7
MS6-LR-...	–	–	51.2	44	86	22	14	–
MS6-LR-...-AS	64.4	38.8			93			
MS6-LR-...-E11	–	–			110			
MS6-LR-...-LD	–	–	51.2	–	86	–	–	139
MS6-LR-...-LD-AS	64.4	38.8			95.5			148.5

New
Variant EX4, UL1

Pressure regulators MS4/MS6-LR, MS series

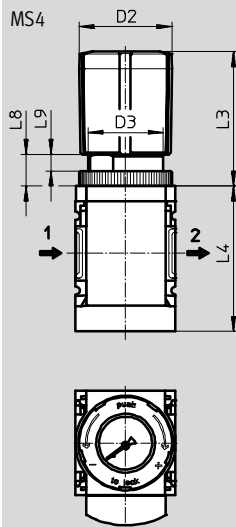
Technical data

FESTO

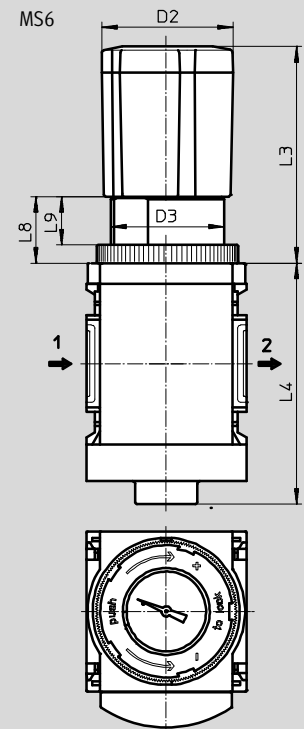
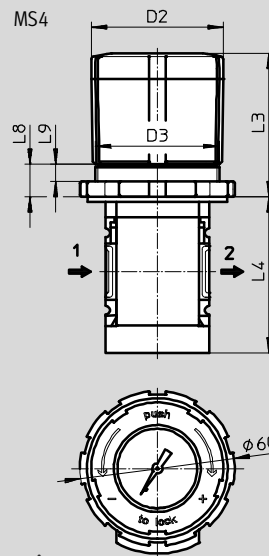
Dimensions – Rotary knob with pressure gauge

Download CAD data → www.festo.com

Small DM1



Large DM2



Note

Due to the protruding rotary knob, only a distributor block MS4-FRM-FRZ or a branching module MS4-FRM can be connected as a directly adjacent service unit component.

→ Flow direction

Type	D2	D3	L3	L4	L8	L9
MS4-LR-...-DM1	37.2	M30x1.5	54	58.5	13	6.7
MS4-LR-...-DM2	51.2	M48x1.5	56	60.5	13	7
MS6-LR-...-DM2	51	M44x1	84	94	25	18

Pressure regulators MS4/MS6-LR, MS series

Technical data

Ordering data							
Integrated pressure gauge, display unit [bar], standard rotary knob with detent, lockable via accessories							
Size	Connection	Pressure regulation range 0.3 ... 4 bar		Pressure regulation range 0.3 ... 7 bar		Pressure regulation range 0.5 ... 12 bar	
		Part No.	Type	Part No.	Type	Part No.	Type
MS4	G1/8	529421	MS4-LR-1/8-D5-AS	529423	MS4-LR-1/8-D6-AS	529425	MS4-LR-1/8-D7-AS
	G1/4	529415	MS4-LR-1/4-D5-AS	529417	MS4-LR-1/4-D6-AS	529419	MS4-LR-1/4-D7-AS
MS6	G1/4	529995	MS6-LR-1/4-D5-AS	529997	MS6-LR-1/4-D6-AS	529999	MS6-LR-1/4-D7-AS
	G3/8	530001	MS6-LR-3/8-D5-AS	530003	MS6-LR-3/8-D6-AS	530005	MS6-LR-3/8-D7-AS
	G1/2	529989	MS6-LR-1/2-D5-AS	529991	MS6-LR-1/2-D6-AS	529993	MS6-LR-1/2-D7-AS

Ordering data – Wearing parts kits		
Size	Part No.	Type
MS4	673649	MS4-LR/LRB
MS6	673650	MS6-LR/LRB

 New
Variant EX4, UL1

Pressure regulators MS4/MS6-LR, MS series

Ordering data – Modular products

FESTO

M Mandatory data						O Options →
Module No.	Series	Size	Function	Connection size	Pressure range/operation	Pressure gauge alternatives
527690 527663	MS	4 6	LR	1/8, 1/4, 3/8, 1/2, AGA, AGB, AGC, AGD, AGE	D5 D6 D7 D8	VS, A8, A4, RG, AD1, AD2, AD3, AD4, AD7, AD8, AD9, AD10
Order example						
527690	MS	4	- LR	- AGB	- D6	AD3

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
M Module No.	527690		527663			
Series	Standard				MS	MS
Size	4		6		...	
Function	Pressure regulator				-LR	-LR
Connection size	Thread G1/8	-		1	-1/8	
	Thread G1/4	Thread G1/4		1	-1/4	
	-	Thread G3/8		1	-3/8	
	-	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	
Pressure range/operation	0.3 ... 4 bar, manually operated				-D5	
	0.3 ... 7 bar, manually operated				-D6	
	0.5 ... 12 bar, manually operated				-D7	
	-	0.5 ... 16 bar, manually operated		1 4	-D8	
O Pressure gauge alternatives	Cover plate				-VS	
	Adapter plate for EN pressure gauge 1/8, without pressure gauge	-			-A8	
	Adapter plate for EN pressure gauge 1/4, without pressure gauge				-A4	
	Integrated pressure gauge, red-green scale			2 3 4	-RG	
	Pressure sensor with display, plug M8, 1 switching output PNP, 3-pin			1 2 5	-AD1	
	Pressure sensor with display, plug M8, 1 switching output NPN, 3-pin			1 2 5	-AD2	
	Pressure sensor with display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA			1 2 5	-AD3	
	Pressure sensor with display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA			1 2 5	-AD4	
	Pressure sensor without display, plug M8, threshold value comparator, PNP, N/O contact			1 2 5	-AD7	
	Pressure sensor without display, plug M8, threshold value comparator, PNP, N/C contact			1 2 5	-AD8	
	Pressure sensor without display, plug M8, window comparator, PNP, N/O contact			1 2 5	-AD9	
	Pressure sensor without display, plug M8, window comparator, PNP, N/C contact			1 2 5	-AD10	

1 1/8, 1/4, 3/8, 1/2, D8, AD1 ... AD4, AD7 ... AD10, DM1, DM2, KD, E11, WPM

Not with EU certification EX4

2 RG, AD1 ... AD4, AD7 ... AD10, OS, KD, AS, WR, WB

MS4: Not with rotary knob alternative DM2

3 RG, OS, KD, AS

Not with rotary knob alternative DM1

4 D8, RG, OS, KD, AS

MS6: Not with rotary knob alternative DM2

Transfer order code

	MS		-	LR		-		-		-	
--	----	--	---	----	--	---	--	---	--	---	--

Pressure regulators MS4/MS6-LR, MS series

Ordering data – Modular products

FESTO

→ 0 Options

Alternative pressure gauge scale	Secondary venting	Rotary knob alternative	Alternative mounting position	Security	Type of mounting	EU certification	UL certification	Flow direction
PSI MPA	OS	LD DM1 DM2	KD	AS E11	WR WP, WPM WB, WBM	EX4	UL1	Z
-	-	-	-	- AS -	-	-	-	-

Ordering table		Grid dimension [mm]	40	62	Condi- tions	Code	Enter code
0 ↓	Alternative pressure gauge scale	psi			6	-PSI	
		MPa			7	-MPA	
	Secondary venting	Without secondary venting			2 3 4	-OS	
	Rotary knob alternative	Long rotary knob			8	-LD	
		Rotary knob pressure gauge, small	-		1 8 9	-DM1	
		Rotary knob pressure gauge, large			1 8 9	-DM2	
	Alternative mounting position	Rotary knob underneath			1 2 3	-KD	
					4 10		
	Security	Lockable via accessories			2 3 4	-AS	
		With integrated lock			1	-E11	
	Type of mounting	Mounting bracket with knurled nut for regulator head			2 11	-WR	
		Mounting bracket			12	-WP	
		Mounting bracket			1 12	-WPM	
		Mounting bracket			2	-WB	
		Mounting bracket	-			-WBM	
	EU certification	II 2GD to EU Directive 94/9/EG				-EX4	
	UL certification	cULus, ordinary location for Canada and USA				-UL1	
	Flow direction	Flow direction from right to left				-Z	

5 AD1 ... AD4, AD7 ... AD10

Measuring range max. 10 bar

Not with pressure regulation range D8

6 **PSI** Not with pressure gauge alternatives VS, A8, A4, RG, AD1 ... AD4, AD7 ... AD10

7 **MPA** Not with pressure gauge alternatives VS, A8, A4, AD1 ... AD4, AD7 ... AD10

Not with rotary knob alternative DM1, DM2

8 LD, DM1, DM2

Not with integrated lock E11

9 **DM1, DM2** Can only be combined with one pressure gauge alternative VS, A8, A4, AD1 ... AD4, AD7 ... AD10

10 **KD** Not with pressure gauge alternative RG

Not with alternative pressure gauge scale MPA

Not with mounting type WP

11 **WR** Not with long rotary knob LD

12 **WP, WPM** Only with connecting plate AGA, AGB, AGC, AGD, AGE

Transfer order code

- - - - - - - - - -

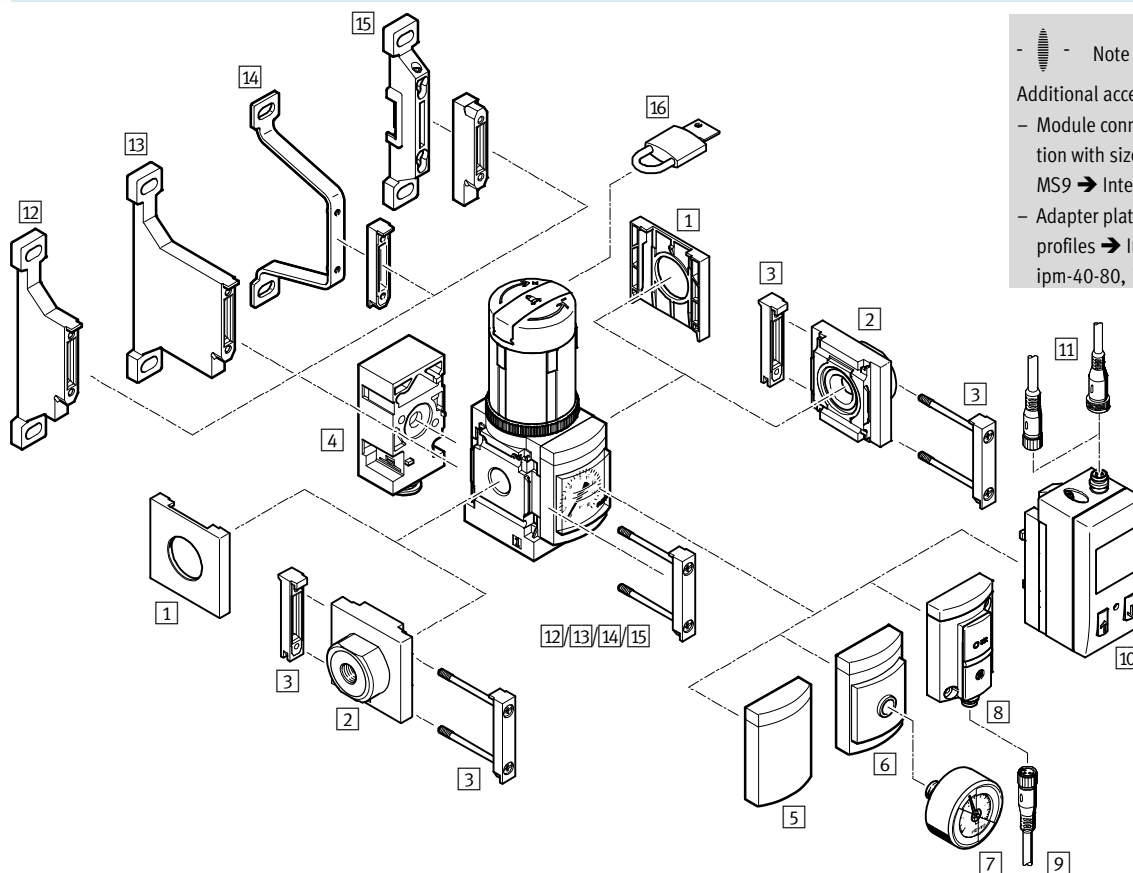
New
Variant EX4, UL1

Pressure regulators MS4/MS6-LRB, MS series

Peripherals overview

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Pressure regulator MS4/MS6-LRB with pressure output to the rear



Note

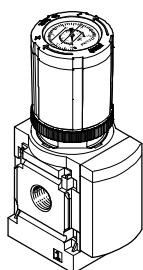
Additional accessories:

- 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

Pressure regulator with rotary knob pressure gauge

MS4-LRB-...-DM1/

MS6-LRB-...-DM2



Pressure regulators MS4/MS6-LRB, MS series

Peripherals overview

FESTO

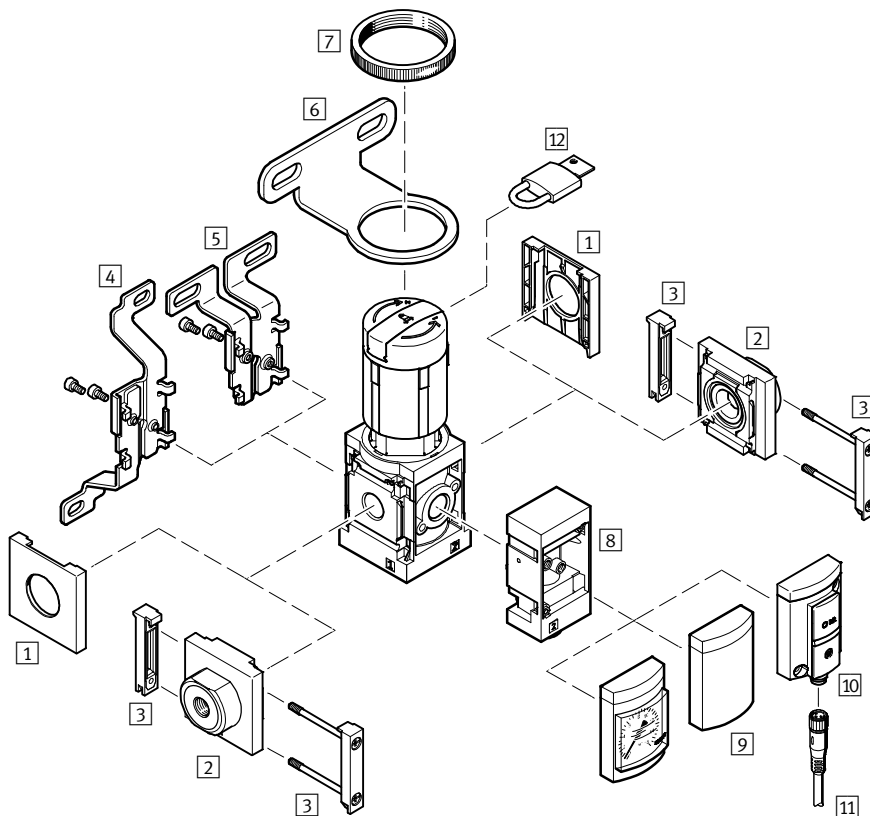
Mounting attachments and accessories		Individual device		Combination		➔ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
1	Cover cap MS4/6-END	■	–	■	–	ms4-end, ms6-end
2	Connecting plate-SET MS4/6-AG...	–	■	–	■	ms4-ag, ms6-ag
3	Module connector MS4/6-MV	–	■	■	■	ms4-mv, ms6-mv
4	Angled outlet block B...	■	■	■	■	34
5	Cover plate VS	■	■	■	■	34
6	Adapter plate for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	34
7	Pressure gauge MA	■	■	■	■	98
8	Pressure sensor without display AD7 ... AD10	■	■	■	■	34
9	Connecting cable NEBU-M8...-LE3	■	■	■	■	98
10	Pressure sensor with display AD1 ... AD4	■	■	■	■	34
11	Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4	■	■	■	■	98
12	Mounting bracket MS4/6-WP	–	■	■	■	ms4-wp, ms6-wp
13	Mounting bracket MS4/6-WPB	–	■	■	■	ms4-wp, ms6-wp
14	Mounting bracket MS4/6-WPE	–	■	■	■	ms4-wp, ms6-wp
15	Mounting bracket MS4/6-WPM	–	■	■	■	ms4-wp, ms6-wp
16	Padlock LRVS-D	■	■	■	■	98

Pressure regulators MS4/MS6-LRB, MS series

Peripherals overview

FESTO

Pressure regulator MS4/MS6-LRB with pressure output to the front



 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
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	Mounting bracket MS4/6-WR	■	■	–	–	ms4-wr, ms6-wr
7	Knurled nut (included in scope of delivery) MS-LR	■	■	–	–	–
8	Angled outlet block B...	■	■	■	■	34
9	Cover plate VS	■	■	■	■	34
10	Pressure sensor without display AD7 ... AD10	■	■	■	■	34
11	Connecting cable NEBU-M8...-LE3	■	■	■	■	98
12	Padlock LRVS-D	■	■	■	■	98

Pressure regulators MS4/MS6-LRB, MS series

Type codes

		MS	6	-	LRB	-	1/2	-	D7	-		-	AS	-	BD
Series															
MS	Standard service unit														
Size															
4	Grid dimension 40 mm														
6	Grid dimension 62 mm														
Service function															
LRB	Pressure regulator for manifold assembly														
Connection size															
MS4															
1/4	Thread G1/4														
MS6															
1/2	Thread G1/2														
Pressure regulation range															
D5	0.3 ... 4 bar														
D6	0.3 ... 7 bar														
D7	0.5 ... 12 bar														
Pressure gauge alternatives															
	Integrated pressure gauge														
A8	Adapter plate for EN pressure gauge 1/8, without pressure gauge														
A4	Adapter plate for EN pressure gauge 1/4, without pressure gauge														
Security															
AS	Standard rotary knob with detent, lockable via accessories														
Pressure output															
	Without angled outlet block														
BD	Angled outlet block QS-8														

Additional variants can be ordered using the modular system → 34

- Connecting plates
- Pressure regulation range
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Rotary knob alternative
- Alternative mounting position
- Security
- Pressure output
- Type of mounting
- EU certification
- UL certification
- Alternative flow direction

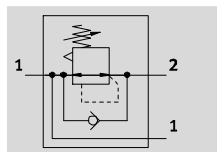
New Variant EX4, UL1

Pressure regulators MS4/MS6-LRB, MS series

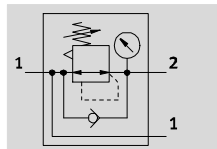
Technical data

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Without pressure gauge



With pressure gauge



-  - Flow rate
300 ... 7,300 l/min

-  - Temperature range
-10 ... +60 °C

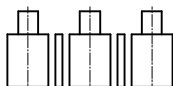
-  - Operating pressure
0.8 ... 20 bar

-  - www.festo.com

Wearing parts kits
→ 33



The pressure regulator is suitable for manifold assemblies with through air supply, for configuring a regulator manifold with separate, independent pressure regulation ranges. Pressure output is to the front or rear.



- Good regulation characteristics with low hysteresis and primary pressure compensation
- Manifold assembly with through air supply
- For configuring a regulator manifold with independent pressure regulation ranges
- Regulator lock for protecting the values against adjustment

- Available with and without secondary venting
- Four pressure regulation ranges: 0.3 ... 4 bar, 0.3 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Return flow option for exhausting from output 2 to output 1 already integrated

- Optional pressure sensor
- Optional rotary knob pressure gauge
- 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	G $\frac{1}{4}$	G $\frac{1}{2}$
Pneumatic connection 2	G $\frac{1}{4}$	G $\frac{1}{2}$
	QS-6	QS-8
	QS-8	QS-10
Constructional design	Directly-actuated diaphragm regulator with through compressed air supply	
Regulating function	Output pressure constant, with primary pressure compensation, with return flow action, with/without secondary venting	
Type of mounting	Via accessories In-line installation Front panel mounting	
Mounting position	Any	
Regulator lock	Rotary knob with detent Rotary knob with detent, lockable via accessories Rotary knob with integrated lock	
Pressure regulation range/operation	D5 [bar]	0.3 ... 4, manually operated ¹⁾
	D6 [bar]	0.3 ... 7, manually operated ¹⁾
	D7 [bar]	0.5 ... 12, manually operated (0.5 ... 10 with pressure sensor AD... or with UL certification) ¹⁾
	D8 [bar]	–
Max. hysteresis [bar]	0.25	0.25 (0.4 with rotary knob pressure gauge DM2)
Pressure display	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	
	Via pressure gauge in rotary knob for displaying output pressure	
	G $\frac{1}{8}$ prepared	–
	G $\frac{1}{4}$ prepared	

¹⁾ MS4: For pressure regulators with rotary knob pressure gauge DM1, the pressure regulation range begins at 0.8 bar.

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

Pressure regulators MS4/MS6-LRB, MS series

Technical data

Standard nominal flow rate $q_{nN}^{1)}$ [l/min]							
Size		MS4			MS6		
		Standard	Angled outlet block		Standard	Angled outlet block	
			QS-6	QS-8		QS-8	QS-10
Pressure regulation range	D5	1,900 ²⁾	300 ²⁾	650 ²⁾	7,300 ²⁾	600 ²⁾	750 ²⁾
	D6	1,700	350	840	6,300	880	1,000
	D7	1,500 ³⁾	350	640	5,500	800	950
	D8	–	–	–	4,500	750	850

1) Measured at $p_1 = 10$ bar and $p_2 = 6$ bar, $\Delta p = 1$ bar

2) Measured at $p_1 = 10$ bar and $p_2 = 3$ bar, $\Delta p = 1$ bar

3) In the case of the DM1/DM2 pressure regulator/gauge with rotary knob, q_{nN} is equal to 800 litres per minute and $q_{n \max}$ amounts to 2,200 litres per minute.

Operating and environmental conditions		
Size	MS4	MS6
Operating pressure [bar]	0.8 ... 14 (0.8 ... 10) ¹⁾	0.8 ... 20 (0.8 ... 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⁾	
Temperature of medium [°C]	–10 ... +60 (0 ... +50) ²⁾	
Storage temperature [°C]	–10 ... +60	
Corrosion resistance class CRC ³⁾	2	
UL certification	cULus recognized (OL)	

1) Value in brackets applies to MS4/MS6-LRB with UL certification.

2) Value in brackets applies to MS4/MS6-LRB 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)

Weight [g]		
Size	MS4	MS6
Pressure regulator	222	747
Pressure regulator with rotary knob with integrated lock E11	347	1,017

New Variant EX4, UL1

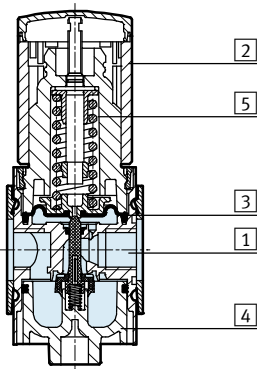
Pressure regulators MS4/MS6-LRB, MS series

Technical data

FESTO

Materials

Sectional view



Pressure regulator (manifold assembly)

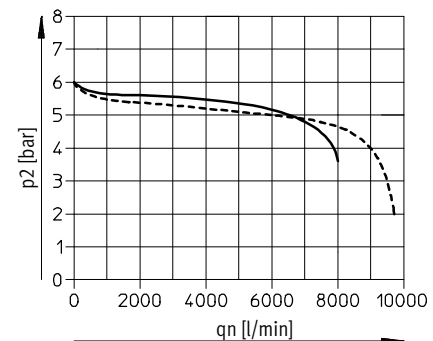
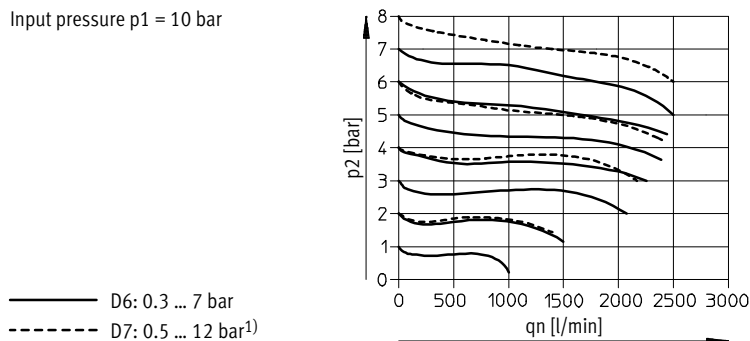
1	Housing	Die-cast aluminium
2	Rotary knob	PA/POM
	Rotary knob with integrated lock E11	Aluminium
3	Diaphragm	NBR
4	Cap, bottom	PET
5	Springs	Steel
-	Seals	NBR
Note on materials		RoHS-compliant
		Free of copper and PTFE only with cover plate VS

Standard flow rate q_n as a function of output pressure p_2

MS4-LRB-1/4

MS6-LRB-1/2

Input pressure $p_1 = 10$ bar



1) There is a higher initial pressure drop for the characteristic curve of the DM1 variant.

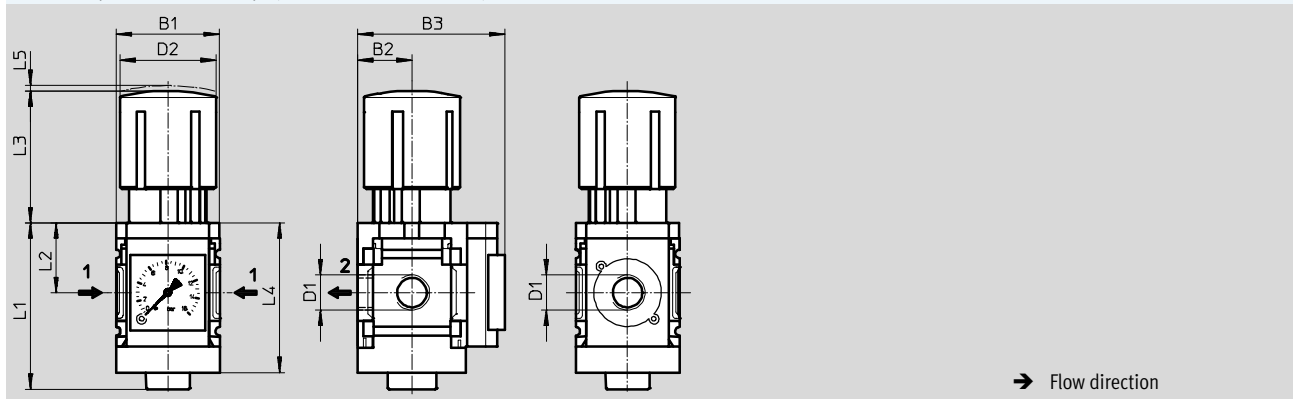
Pressure regulators MS4/MS6-LRB, MS series

Technical data

Dimensions – Basic version

Download CAD data → www.festo.com

Integrated pressure gauge, display unit [bar], standard rotary knob with detent



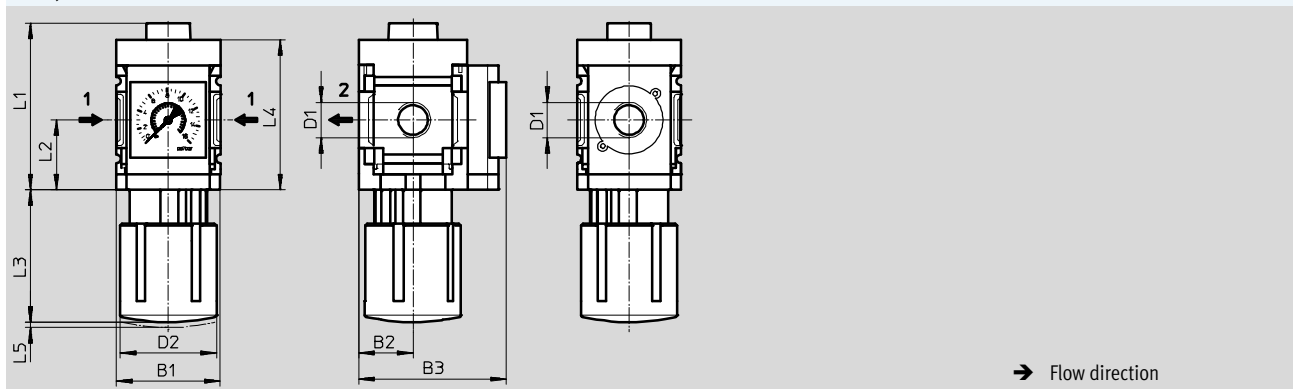
Type	B1	B2	B3		D1	D2	L1	L2	L3	L4	L5
			Pressure gauge								
			Standard scale	Red-green scale							
MS4-LRB-1/4	40	21	57	58.5	G1/4	37.2	64.4	27	51.1	58.5	2
MS6-LRB-1/2	62	31	77	78.5	G1/2	51.3	94	39	86	85	5

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

Dimensions – Alternative mounting position

Download CAD data → www.festo.com

Rotary knob underneath KD



Type	B1	B2	B3	D1	D2	L1	L2	L3	L4	L5
MS4-LRB-1/4-...-KD	40	21	57	G1/4	37.2	64.4	27	51.1	58.5	2
MS6-LRB-1/2-...-KD	62	31	77	G1/2	51.2	94	39	86	85	5

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

New
Variant EX4, UL1

Pressure regulators MS4/MS6-LRB, MS series

Technical data

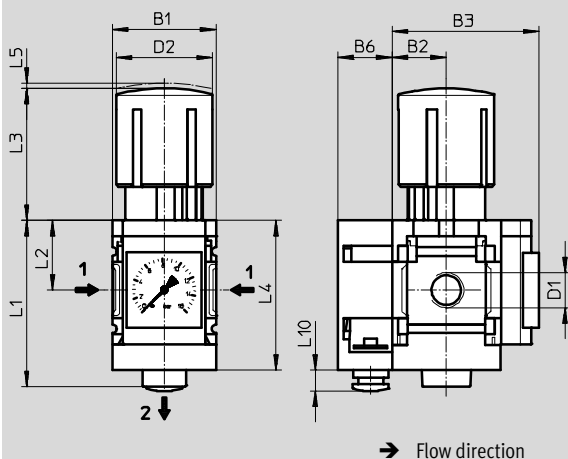
FESTO

Dimensions – Angled outlet block BC/BD/BE

Download CAD data → www.festo.com

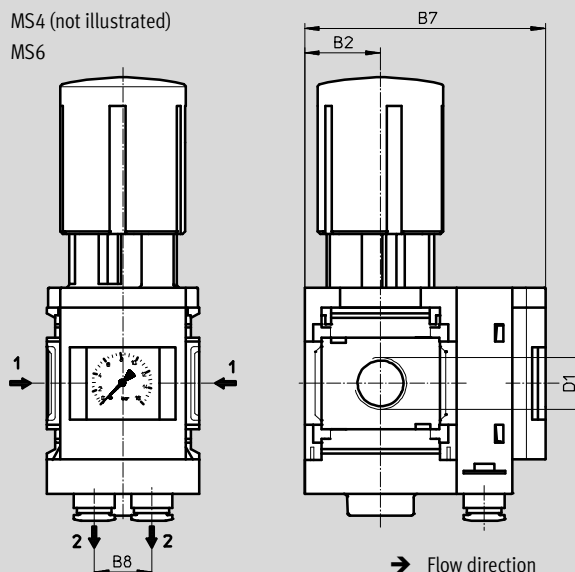
Pressure output to rear

MS4
MS6 (not illustrated)



Pressure output to front Z

MS4 (not illustrated)
MS6



Type	B1	B2	B3	B6	B7	B8	D1	D2	L1	L2	L3	L4	L5	L10
MS4-LRB-1/4-...-B...	40	21	57	21	75	–	G1/4	37.2	64.4	27	51.1	58.5	2	8
MS6-LRB-1/2-...-B...	62	31	77	23	99	23.4	G1/2	51.2	94	39	86	85	5	11

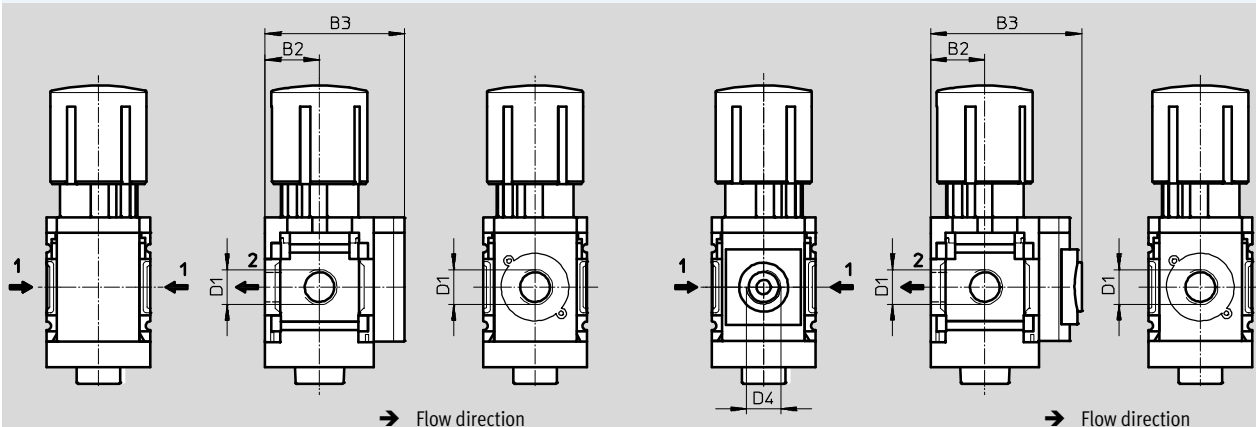
– Note: This product conforms to ISO 1179-1 and to ISO 228-1

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Cover plate VS

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



Type	B2	B3	D1	D4
MS4-LRB-1/4-...-VS	21	54	G1/4	–
MS4-LRB-1/4-...-A8	21	58.5	G1/4	G1/8
MS4-LRB-1/4-...-A4	21	58.5	G1/4	G1/4
MS6-LRB-1/2-...-VS	31	76	G1/2	–
MS6-LRB-1/2-...-A4	31	78.5	G1/2	G1/4

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

Pressure regulators MS4/MS6-LRB, MS series

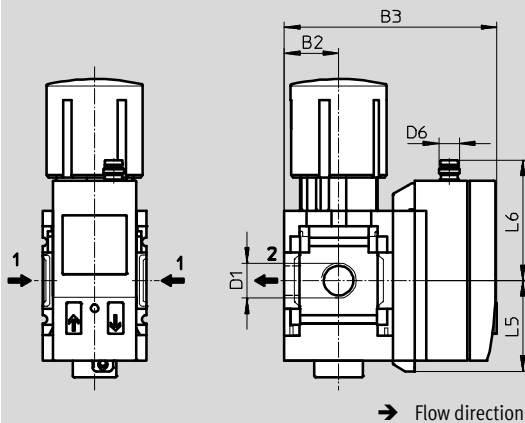
Technical data

Dimensions – Pressure gauge alternatives

Pressure sensor with LCD display AD1 ... AD4

Download CAD data → www.festo.com

Technical data → Internet: [sde1](#)



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

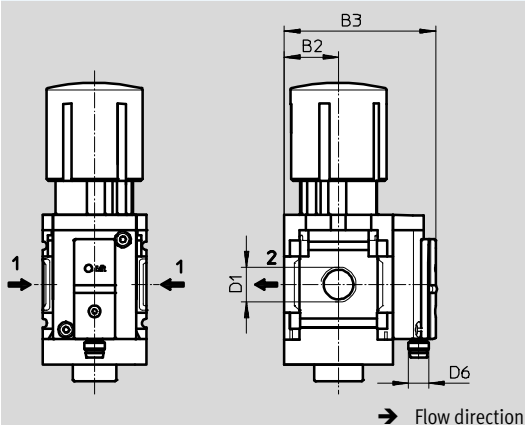
Variant AD2:
SDE1-D10-G2-MS-L-N1-M8 with
3-pin plug M8x1, 1 switching
output NPN

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 without LCD display (operational status indicator only) 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	L5	L6
MS4-LRB-1/4-...-AD1/AD2	21	82.6	G1/4	M8x1	35.1	46.7
MS4-LRB-1/4-...-AD3/AD4	21	82.6	G1/4	M12x1	35.1	55.8
MS4-LRB-1/4-...-AD7/AD8/AD9/AD10	21	59.1	G1/4	M8x1	–	–
MS6-LRB-1/2-...-AD1/AD2	31	103	G1/2	M8x1	35.1	46.7
MS6-LRB-1/2-...-AD3/AD4	31	103	G1/2	M12x1	35.1	55.8
MS6-LRB-1/2-...-AD7/AD8/AD9/AD10	31	79	G1/2	M8x1	–	–

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

New Variant EX4, UL1

Pressure regulators MS4/MS6-LRB, MS series

Technical data

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Dimensions – Rotary knob

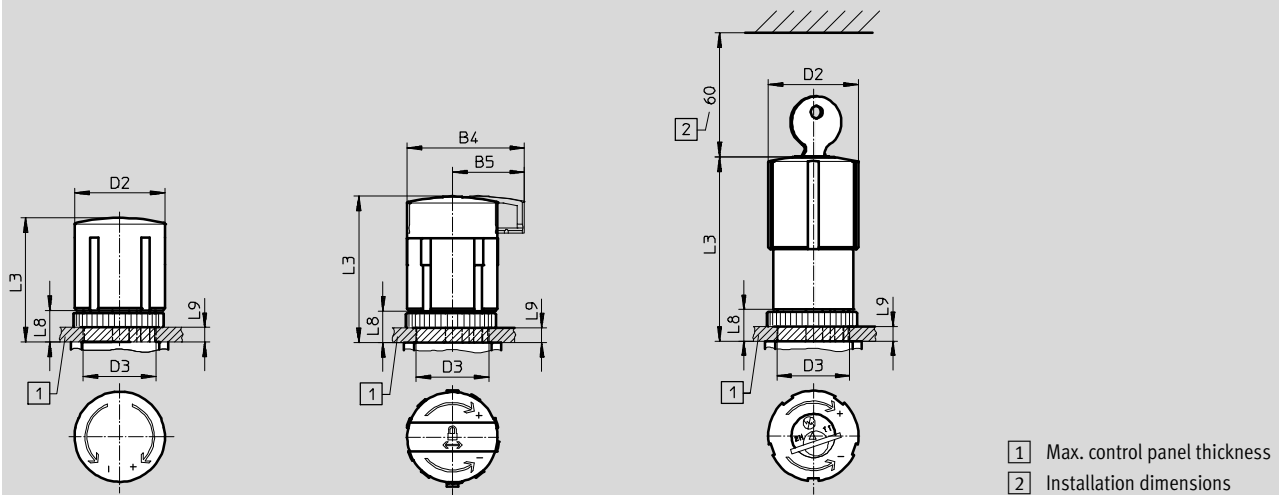
Download CAD data → www.festo.com

For installation into control panel

Standard rotary knob with detent

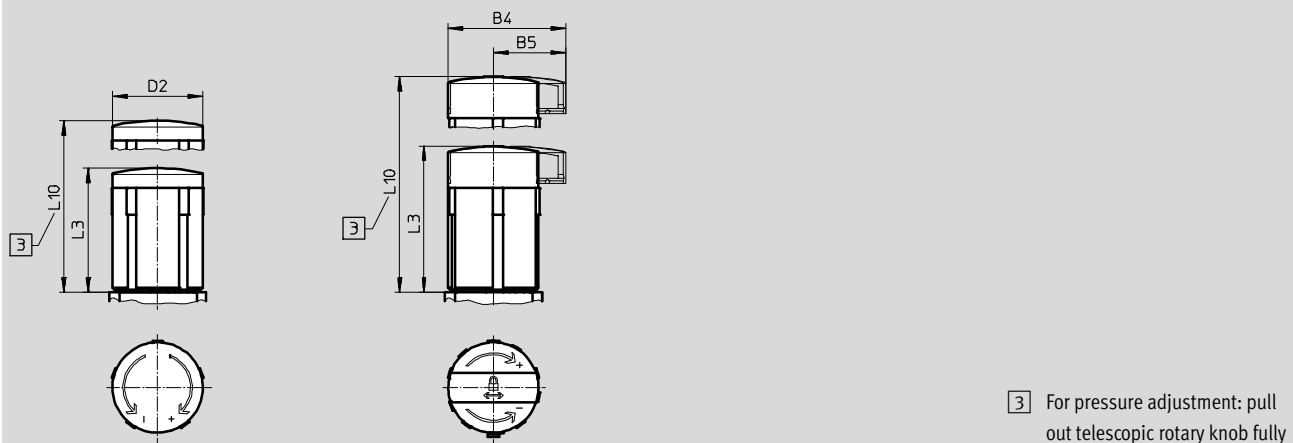
Standard rotary knob with detent,
lockable via accessories AS

Rotary knob with integrated lock
E11



Long rotary knob with detent LD

Long rotary knob with detent,
lockable via accessories LD-AS



Type	B4	B5	D2	D3 +1	L3	L8	L9	L10
MS4-LRB-...	–	–	37.2	30	51.1	13	6	–
MS4-LRB-...-AS	48.6	30			60.2			
MS4-LRB-...-E11	–	–			76			
MS4-LRB-...-LD	–	–	37.2	–	51.1	–	–	76.8
MS4-LRB-...-LD-AS	48.6	30			60			85.7
MS6-LRB-...	–	–	51.2	44	86	22	14	–
MS6-LRB-...-AS	64.4	38.8			93			
MS6-LRB-...-E11	–	–			110			
MS6-LRB-...-LD	–	–	51.2	–	86	–	–	139
MS6-LRB-...-LD-AS	64.4	38.8			95.5			148.5

Pressure regulators MS4/MS6-LRB, MS series

Technical data

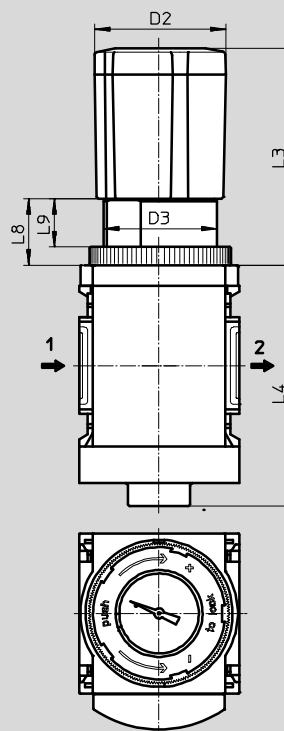
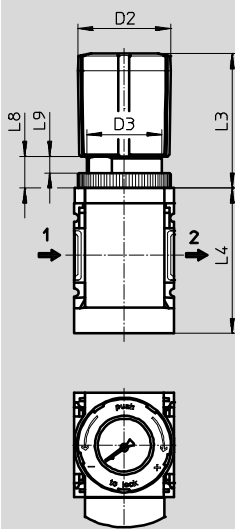
FESTO

Dimensions – Rotary knob pressure gauge

Download CAD data → www.festo.com

Small DM1

Large DM2



→ Flow direction

Type	D2	D3	L3	L4	L8	L9
MS4-LRB-...-DM1	37.2	M30x1.5	56	58.5	13	6.7
MS6-LRB-...-DM2	51	M44x1	84	94	25	18

Ordering data

Standard rotary knob with detent, lockable via accessories

Size	Connection	Pressure regulation range 0.3 ... 4 bar		Pressure regulation range 0.3 ... 7 bar		Pressure regulation range 0.5 ... 12 bar	
		Part No.	Type	Part No.	Type	Part No.	Type

Integrated pressure gauge, display unit [bar], pressure output to rear without angled outlet block

MS4	G1/4	529473	MS4-LRB-1/4-D5-AS	529479	MS4-LRB-1/4-D6-AS	529485	MS4-LRB-1/4-D7-AS
MS6	G1/2	530322	MS6-LRB-1/2-D5-AS	530328	MS6-LRB-1/2-D6-AS	530334	MS6-LRB-1/2-D7-AS

Integrated pressure gauge, display unit [bar], pressure output to rear with angled outlet block QS-8

MS4	G1/4	529474	MS4-LRB-1/4-D5-AS-BD	529480	MS4-LRB-1/4-D6-AS-BD	529486	MS4-LRB-1/4-D7-AS-BD
MS6	G1/2	—	—	530329	MS6-LRB-1/2-D6-AS-BD	530335	MS6-LRB-1/2-D7-AS-BD

Adapter plate A8 for EN pressure gauge 1/8, pressure output to rear without angled outlet block

MS4	G1/4	529471	MS4-LRB-1/4-D5-A8-AS	529477	MS4-LRB-1/4-D6-A8-AS	529483	MS4-LRB-1/4-D7-A8-AS
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Adapter plate A4 for EN pressure gauge 1/4, pressure output to rear without angled outlet block

MS6	G1/2	530320	MS6-LRB-1/2-D5-A4-AS	530326	MS6-LRB-1/2-D6-A4-AS	530332	MS6-LRB-1/2-D7-A4-AS
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Ordering data – Wearing parts kits

Size	Part No.	Type
MS4	673649	MS4-LR/LRB
MS6	673650	MS6-LR/LRB

New Variant EX4, UL1

Pressure regulators MS4/MS6-LRB, MS series

Ordering data – Modular products

FESTO

M Mandatory data						O Options		→
Module No.	Series	Size	Function	Connection size	Pressure regulation range	Pressure gauge alternatives	Alternative pressure gauge scale	
527692 527665	MS	4 6	LRB	1/4, 1/2, AGA, AGB, AGC, AGD, AGE	D5, D6, D7, D8	VS, A8, A4, RG, AD1 ... AD4, AD7 ... AD10	PSI, MPA	
Order example 527692	MS	4	- LRB	- AGC	- D5	- A4	-	

Ordering table							
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code	
M Module No.	527692		527665				
Series	Standard				MS		MS
Size	4		6		...		
Function	Pressure regulator for manifold assembly				-LRB		-LRB
Connection size	Thread G1/4		-	1	-1/4		
	-		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		
	Pressure range/operation						
	0.3 ... 4 bar, manually operated				-D5		
	0.3 ... 7 bar, manually operated				-D6		
	0.5 ... 12 bar, manually operated				-D7		
	-		0.5 ... 16 bar, manually operated	1 2	-D8		
O Pressure gauge alternatives	Cover plate			3	-VS		
	Adapter plate for EN pressure gauge 1/8, without pressure gauge		-	4	-A8		
	Adapter plate for EN pressure gauge 1/4, without pressure gauge			4	-A4		
	Integrated pressure gauge, red-green scale			2	-RG		
	Pressure sensor with display, plug M8, 1 switching output PNP, 3-pin			1 4 5	-AD1		
	Pressure sensor with display, plug M8, 1 switching output NPN, 3-pin			1 4 5	-AD2		
	Pressure sensor with display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA			1 4 5	-AD3		
	Pressure sensor with display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA			1 4 5	-AD4		
	Pressure sensor without display, plug M8, threshold value comparator, PNP, N/O contact			1 5 6	-AD7		
	Pressure sensor without display, plug M8, threshold value comparator, PNP, N/C contact			1 5 6	-AD8		
	Pressure sensor without display, plug M8, window comparator, PNP, N/O contact			1 5 6	-AD9		
	Pressure sensor without display, plug M8, window comparator, PNP, N/C contact			1 5 6	-AD10		
	Alternative pressure gauge scale						
	psi			7	-PSI		
	MPa			8	-MPA		

1 1/4, 1/2, D8, AD1 ... AD4, AD7 ... AD10, DM1, DM2, KD, E11, WPM
Not with EU certification EX4

2 D8, RG, OS, KD, AS
Not with rotary knob pressure gauge DM1, DM2

3 VS

Must be selected if flow direction Z is selected without alternative mounting position KD and without pressure output BC, BD, BE.

Must be selected if alternative mounting position KD is selected without flow direction Z and without pressure output BC, BD, BE

Transfer order code

	MS		-	LRB	-		-		-		-	
--	----	--	---	-----	---	--	---	--	---	--	---	--

Pressure regulators MS4/MS6-LRB, MS series

Ordering data – Modular products

FESTO

→ 0 Options

Secondary venting	Rotary knob alternative	Alternative mounting position	Security	Pressure output	Type of mounting	EU certification	UL certification	Flow direction
OS	LD, DM1, DM2	KD	AS, E11	BC, BD, BE	WR, WP, WPM, WPB, WB, WBM	EX4	UL1	Z
- OS	- LD	-	- AS	- BC	- WP	-	-	-

Ordering table		Grid dimension [mm]	40	62	Condi- tions	Code	Enter code
↓ Secondary venting	Without secondary venting				2	-OS	
0 Rotary knob alternative	Long rotary knob				9	-LD	
	Rotary knob pressure gauge, small		-		1 9 10	-DM1	
	-		Rotary knob pressure gauge, large		1 9 10	-DM2	
Alternative mounting position	Rotary knob underneath				1 2 11	-KD	
Security	Lockable via accessories				2	-AS	
	With integrated lock				1	-E11	
Pressure output (p _{max} = 10 bar)	Angled outlet block QS-6		-			-BC	
	Angled outlet block QS-8		Angled outlet block QS-8			-BD	
	-		Angled outlet block QS-10			-BE	
Type of mounting	Mounting bracket with knurled nut for regulator head				12 13	-WR	
	Mounting bracket				14 15	-WP	
	Mounting bracket				1 12 14	-WPM	
	Mounting bracket for large wall gap				14 16	-WPB	
	Mounting bracket				12	-WB	
	Mounting bracket		-		12	-WBM	
EU certification	II 2GD to EU Directive 94/9/EG					-EX4	
UL certification	cULus, ordinary location for Canada and USA					-UL1	
Flow direction	Pressure output to front (without pressure output, no pressure gauge)					-Z	

4 A8, A4, AD1 ... AD4

Not with flow direction Z.

In combination with flow direction Z only with alternative mounting position KD

5 AD1 ... AD4, AD7 ... AD10

Measuring range max. 10 bar

Not with pressure regulation range D8

6 AD7 ... AD10

In combination with flow direction Z only with pressure output BC, BD, BE or

In combination with flow direction Z only with alternative mounting position KD

7 PSI

Not with pressure gauge alternatives VS, A8, A4, RG, AD1 ... AD4, AD7 ... AD10

In combination with flow direction Z only with pressure output BC, BD, BE

8 MPA

Not with pressure gauge alternatives VS, A8, A4, AD1 ... AD4, AD7 ... AD10

Not with alternative mounting position KD.

Not with rotary knob alternative DM1, DM2

In combination with flow direction Z only with pressure output BC, BD, BE

9 LD, DM1, DM2

Not with integrated lock E11

10 DM1, DM2

Can only be selected in combination with pressure gauge alternative VS, A4,

AD1 ... AD4, AD7 ... AD10

11 KD

Not with alternative pressure gauge scale MPA.

In combination with alternative pressure gauge scale PSI only with flow direction Z and/or only with pressure output BC, BD, BE

Not with mounting type WP, WPB.

In combination with mounting type WR, WPM, WB, WBM not with flow direction Z.

Not with pressure gauge alternative RG.

In combination with pressure gauge alternatives A8, A4, AD1, AD2, AD3, AD4 only with flow direction Z.

12 WR, WPM, WB, WBM

In combination with flow direction Z not with alternative mounting position KD

13 WR

Only with flow direction Z.

Not with rotary knob alternative LD

14 WP, WPM, WPB

Only with connecting plate AGA, AGB, AGC, AGD, AGE

Only with flow direction Z and/or only with pressure output BC, BD, BE

15 WP

Not with flow direction Z.

16 WPB

Not with pressure output BC, BD, BE

Transfer order code

- - - - - - - - - -

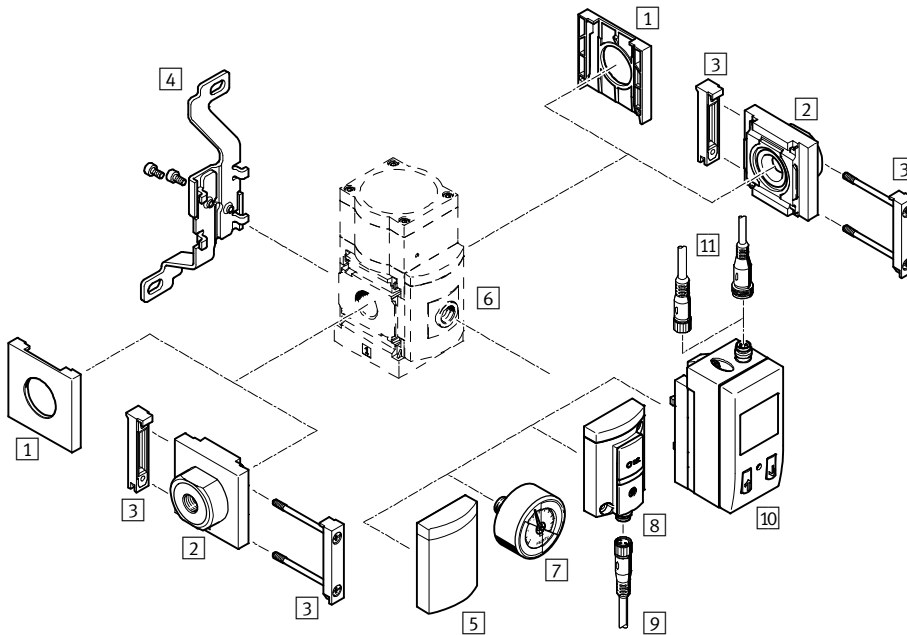
New
Variant EX4, UL1

Precision pressure regulators MS6-LRP, MS series

Peripherals overview

FESTO

Precision pressure regulator MS6-LRP



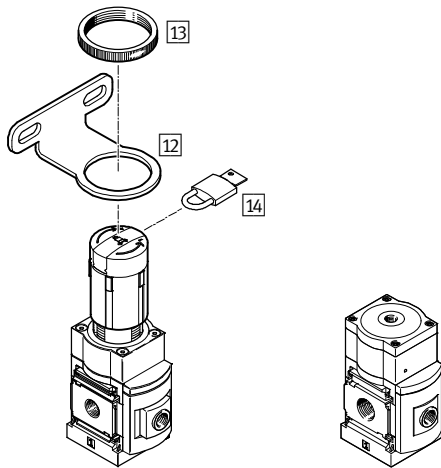
Note

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

Manually operated

Pneumatically actuated



Precision pressure regulators MS6-LRP, 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 MS6-END	■	–	■	–	ms6-end
2	Connecting plate-SET MS6-AG...	–	■	–	■	ms6-ag
3	Module connector MS6-MV	–	■	■	■	ms6-mv
4	Mounting bracket MS6-WB	■	■	–	–	ms6-wb
5	Cover plate VS	■	■	■	■	48
6	Adapter plate for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	48
7	Precision pressure gauge A8M/MAP	■	■	■	■	48, 98
8	Pressure sensor without display AD7 ... AD10	■	■	■	■	48
9	Connecting cable NEBU-M8...-LE3	■	■	■	■	98
10	Pressure sensor with display AD1 ... AD4	■	■	■	■	48
11	Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4	■	■	■	■	98
12	Mounting bracket MS6-WR	■	■	–	–	ms6-wr
13	Knurled nut (included in scope of delivery) MS-LR	■	■	–	–	–
14	Padlock LRVS-D	■	■	■	■	98
–	Mounting bracket MS6-WP/WPB/WPE/WPM	–	■	■	■	ms6-wp

 New
Variant EX4, UL1

Precision pressure regulators MS6-LRP, MS series

Type codes

FESTO

		MS	6	-	LRP	-	1/2	-	D7	-	A8
Series											
MS	Standard service unit										
Size											
6	Grid dimension 62 mm										
Service function											
LRP	Precision pressure regulator										
Connection size											
1/4	G1/4 thread										
3/8	G3/8 thread										
1/2	G1/2 thread										
Pressure regulation range/operation											
D2	0.05 ... 0.7 bar, manually operated										
D4	0.05 ... 2.5 bar, manually operated										
D5	0.1 ... 4 bar, manually operated										
D7	0.1 ... 12 bar, manually operated										
Pressure gauge alternatives											
A8	Adapter plate for EN pressure gauge 1/8, without pressure gauge										

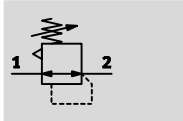
Further variants can be ordered using the modular system → 48

- Connecting plates
- Pressure regulation range/operation
- Pressure gauge alternatives
- Rotary knob alternatives
- Alternative mounting position
- Security
- Type of mounting
- EU certification
- UL certification
- Alternative flow direction

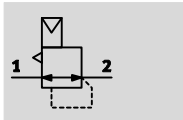
Precision pressure regulators MS6-LRP, MS series

Technical data

Pressure regulation range/operation
manually operated D2/D4/D5/D7



pneumatically actuated PO



-  - Flow rate
800 ... 5,000 l/min
-  - Temperature range
-10 ... +60 °C
-  - Operating pressure
1 ... 14 bar
-  - www.festo.com



The precision pressure regulator is suitable for sensitive applications with a required hysteresis of 0.02 bar. The output pressure p2 can be set within the pressure regulation range either manually using the rotary knob or pneumatically via a pilot pressure p12

by an external pilot regulator (if possible using a precision pressure regulator). When switching off the input pressure p1, the output pressure p2 is vented via the connection 3 (secondary venting).

- Good regulation characteristics with low hysteresis and primary pressure compensation
- High flow rate with minimal pressure drop
- High secondary venting for fast response times
- Regulator lock for protecting the values against adjustment
- Four pressure regulation ranges: 0.05 ... 0.7 bar, 0.05 ... 2.5 bar, 0.1 ... 4 bar and 0.1 ... 12 bar
- Optional pressure sensor
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

General technical data				
Size		MS6		
Pneumatic connection 1, 2		G1/4	G3/8	G1/2
Pneumatic connection 3 (secondary venting)		G1/4		
Pilot air connection 12 with variant PO		G1/8		
Constructional design		Piloted precision diaphragm regulator		
Regulating function		Output pressure constant, via secondary venting		
Type of mounting		Via accessories		
		In-line installation		
		Front panel mounting		
Mounting position		Any		
Regulator lock		Rotary knob with detent		
		Rotary knob with detent, lockable via accessories		
		Rotary knob with integrated lock		
Pressure regulation range/operation ¹⁾	D2 [bar]	0.05 ... 0.7, manually operated		
	D4 [bar]	0.05 ... 2.5, manually operated		
	D5 [bar]	0.1 ... 4, manually operated		
	D7 [bar]	0.1 ... 12, manually operated (0.1 ... 10 with pressure sensor AD... or with UL certification)		
	PO [bar]	0.1 ... 12, pneumatically actuated (0.1 ... 10 with pressure sensor AD... or with UL certification)		
Max. hysteresis [bar]		0.02		
Pressure indication		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 precision pressure gauge for displaying output pressure		
		G1/8 prepared		
		G1/4 prepared		

¹⁾ Variant D2/D4/D5/D7: Supply pressure p1 ≥ output pressure p2 + 1 bar. Variant PO: Output pressure p2 = pilot pressure p12 + max. 0.5 bar.

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

New Variant EX4, UL1

Precision pressure regulators MS6-LRP, MS series

Technical data

FESTO

Flow rates					
Pressure regulation range		D2 (0.05 ... 0.7 bar)	D4 (0.05 ... 2.5 bar)	D5 (0.1 ... 4 bar)	D7/PO (0.1 ... 12 bar)
Standard nominal flow rate q _N [l/min]					
q _N 1 → 2	G ¹ / ₄	800 ¹⁾	1,100 ²⁾	1,400 ³⁾	3,000 ⁴⁾
	G ³ / ₈	1,100 ¹⁾	1,400 ²⁾	1,700 ³⁾	3,300 ⁴⁾
	G ¹ / ₂	1,600 ¹⁾	2,300 ²⁾	3,000 ³⁾	5,000 ⁴⁾
Secondary venting flow rate [l/min]					
q _N 2 → 3		≥ 220 ⁵⁾	≥ 450 ⁶⁾	≥ 650 ⁷⁾	≥ 900 ⁸⁾

1) Measured at p₁ = 10 bar and p₂ = 0.5 bar, Δp = 0.1 bar

2) Measured at p₁ = 10 bar and p₂ = 1.5 bar, Δp = 0.1 bar

3) Measured at p₁ = 10 bar and p₂ = 2.5 bar, Δp = 0.1 bar

4) Measured at p₁ = 10 bar and p₂ = 6.0 bar, Δp = 0.1 bar

5) Measured at p₁ = 10 bar and p₂ = 0.7 bar, Δp₂ = 0.1 bar

6) Measured at p₁ = 10 bar and p₂ = 2.5 bar, Δp₂ = 0.1 bar

7) Measured at p₁ = 10 bar and p₂ = 4.0 bar, Δp₂ = 0.1 bar

8) Measured at p₁ = 10 bar and p₂ = 6.0 bar, Δp₂ = 0.1 bar

Operating and environmental conditions	
Operating pressure [bar]	1 ... 14 (1 ... 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 not possible
Ambient temperature [°C]	−10 ... +60 (0 ... +50) ²⁾
Temperature of medium [°C]	−10 ... +60 (0 ... +50) ²⁾
Storage temperature [°C]	−10 ... +60
Corrosion resistance class CRC ³⁾	2
UL certification	cULus recognized (OL)

1) Value in brackets applies to MS6-LRP with UL certification.

2) Value in brackets applies to MS6-LRP with pressure sensor AD...

3) Corrosion resistance class CRC 2 to Festo standard FN 940070

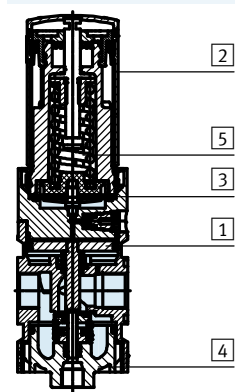
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

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 ≤ T _a ≤ +60 °C
CE mark (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)

Weight [g]	
Precision pressure regulator	1,000
Precision pressure regulator with rotary knob with integrated lock E11	1,120

Materials

Sectional view



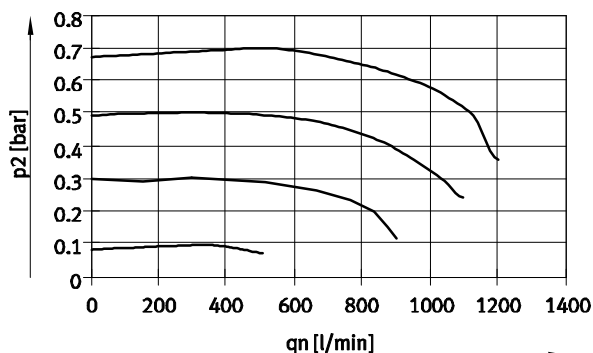
Precision pressure regulator		
1	Housing	Die-cast aluminium
2	Rotary knob	PA/POM
	Rotary knob with integrated lock E11	Aluminium
3	Diaphragm	NBR
4	Cap, bottom	PC
5	Springs	Steel
–	Seals	NBR
Note on materials		RoHS-compliant Free of copper and PTFE (not with variant A8M or AD...)

Precision pressure regulators MS6-LRP, MS series

Technical data

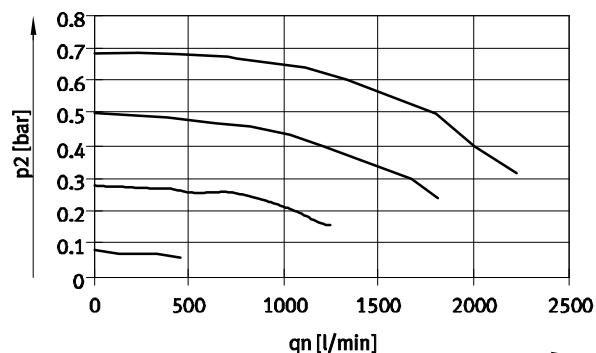
Standard flow rate q_n as a function of output pressure p_2 ($p_1 = 10$ bar)

MS6-LRP-1/4-D2



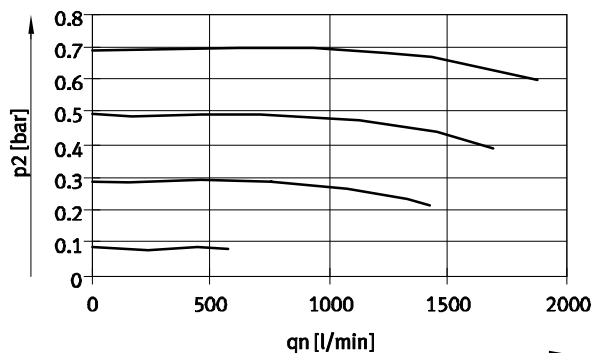
D2: 0.05...0.7 bar

MS6-LRP-3/8-D2



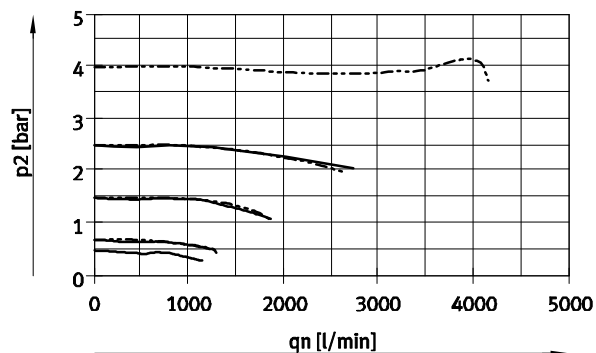
D2: 0.05...0.7 bar

MS6-LRP-1/2-D2



D2: 0.05...0.7 bar

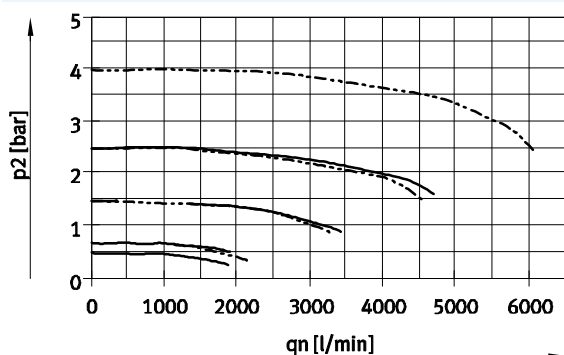
MS6-LRP-1/4-D4/D5



D4: 0.05...2.5 bar

D5: 0.1...4 bar

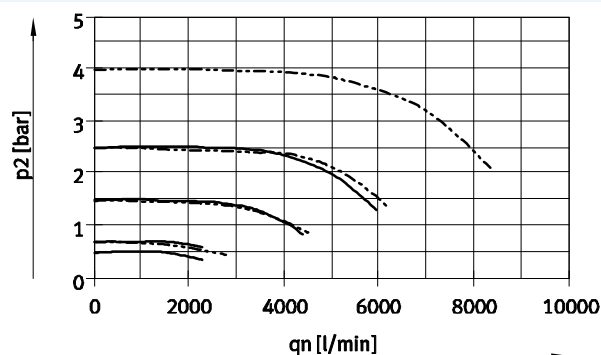
MS6-LRP-3/8-D4/D5



D4: 0.05...2.5 bar

D5: 0.1...4 bar

MS6-LRP-1/2-D4/D5



D4: 0.05...2.5 bar

D5: 0.1...4 bar

 New
Variant EX4, UL1

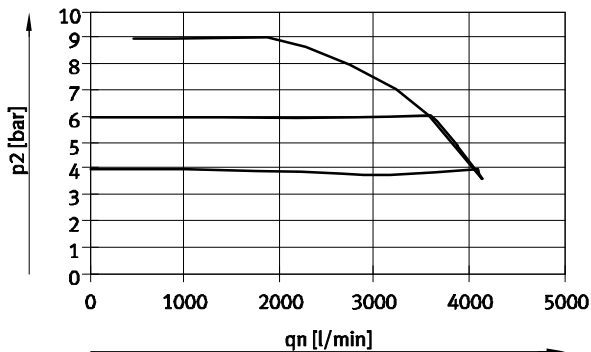
Precision pressure regulators MS6-LRP, MS series

Technical data

FESTO

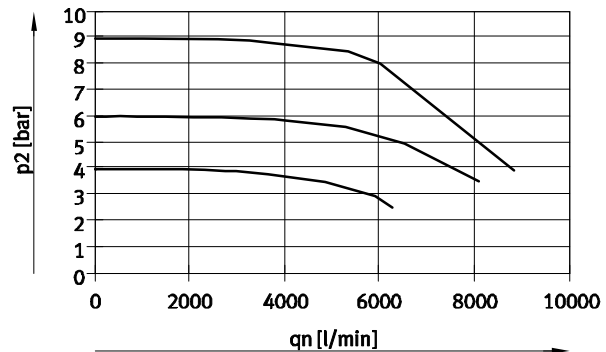
Standard flow rate q_n as a function of output pressure p_2 ($p_1 = 10$ bar)

MS6-LRP- $\frac{1}{4}$ -D7/PO



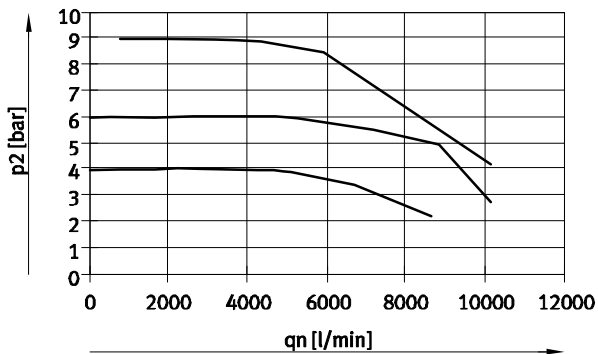
D7/PO: 0.1...12 bar

MS6-LRP- $\frac{3}{8}$ -D7/PO



D7/PO: 0.1...12 bar

MS6-LRP- $\frac{1}{2}$ -D7/PO



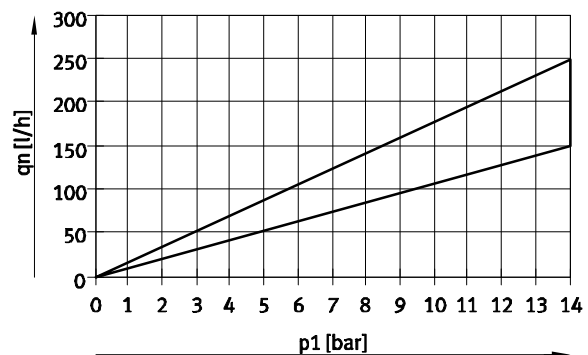
D7/PO: 0.1...12 bar

Internal air consumption q_n as a function of input pressure p_1

MS6-LRP-...-D2/D4



MS6-LRP-...-D5/D7/PO



Precision pressure regulators MS6-LRP, MS series

Technical data

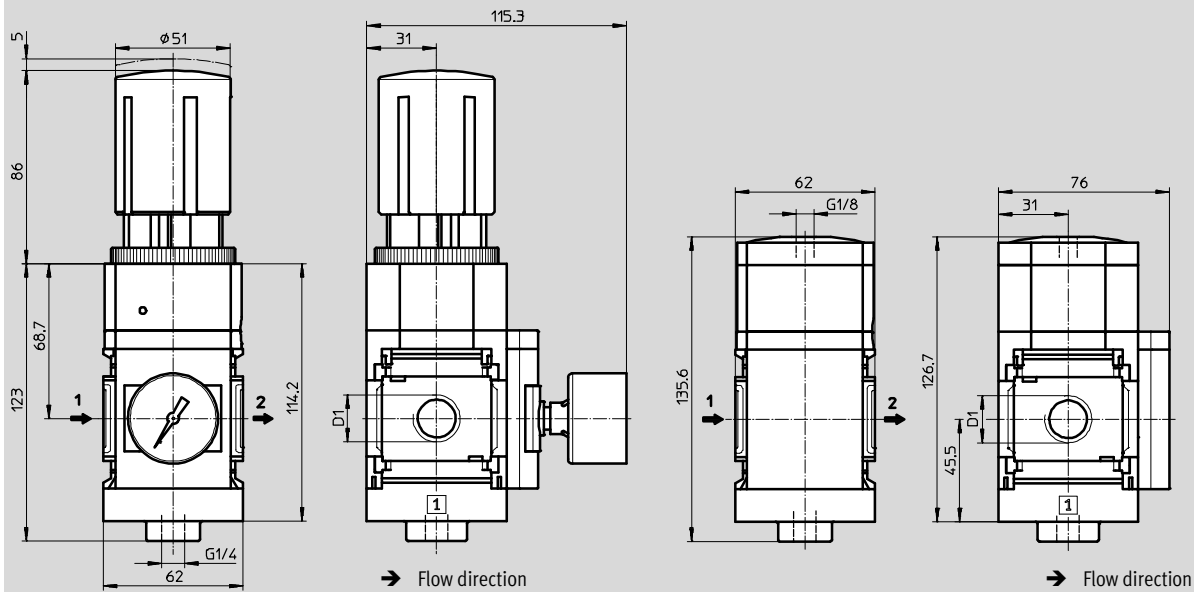
FESTO

Dimensions

Download CAD data → www.festo.com

manually operated D2/D4/D5/D7,
with adapter plate A8M for EN pressure gauge 1/8 as pressure gauge alternative
with precision pressure gauge MAP

pneumatically actuated PO,
with cover plate VS as pressure gauge alternative



Type	D1
MS6-LRP-1/4-D2/D4/D5/D7-A8M	G1/4
MS6-LRP-3/8-D2/D4/D5/D7-A8M	G3/8
MS6-LRP-1/2-D2/D4/D5/D7-A8M	G1/2

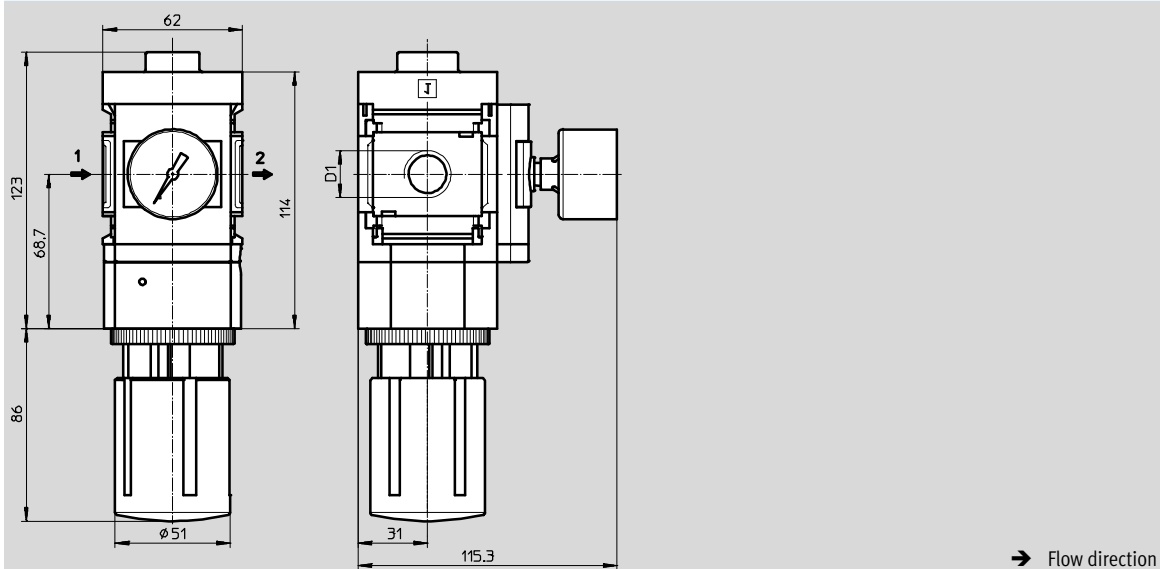
Type	D1
MS6-LRP-1/4-PO-VS	G1/4
MS6-LRP-3/8-PO-VS	G3/8
MS6-LRP-1/2-PO-VS	G1/2

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

Dimensions – Alternative mounting position

Download CAD data → www.festo.com

Rotary knob at bottom KD



Type	D1
MS6-LRP-1/4-...-KD	G1/4
MS6-LRP-3/8-...-KD	G3/8
MS6-LRP-1/2-...-KD	G1/2

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

New
Variant EX4, UL1

Precision pressure regulators MS6-LRP, MS series

Technical data

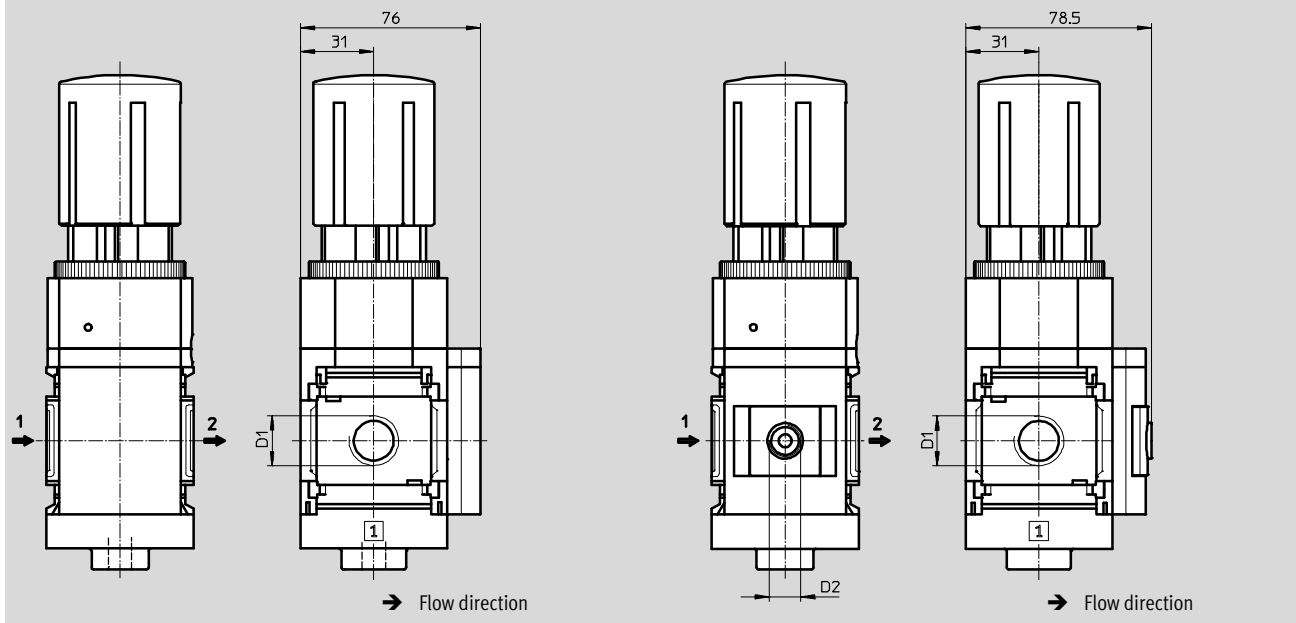
FESTO

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Cover plate VS

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



Type	D1	D2
MS6-LRP-1/4-...-VS	G1/4	-
MS6-LRP-3/8-...-VS	G3/8	
MS6-LRP-1/2-...-VS	G1/2	
MS6-LRP-1/4-...-A8	G1/4	G1/8
MS6-LRP-3/8-...-A8	G3/8	
MS6-LRP-1/2-...-A8	G1/2	
MS6-LRP-1/4-...-A4	G1/4	G1/4
MS6-LRP-3/8-...-A4	G3/8	
MS6-LRP-1/2-...-A4	G1/2	

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

Precision pressure regulators MS6-LRP, MS series

Technical data

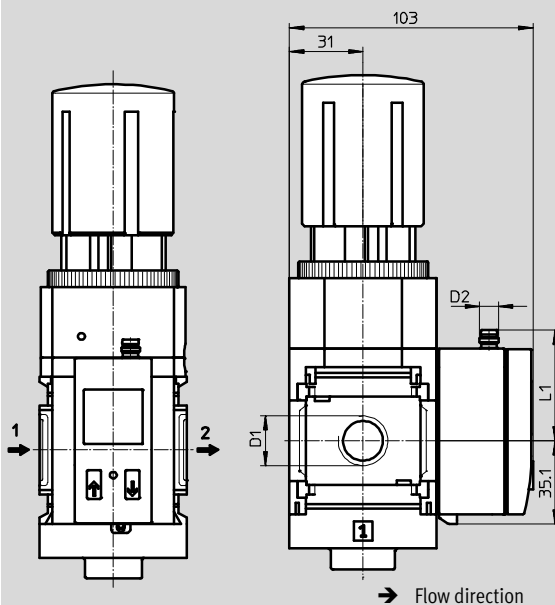
FESTO

Dimensions – Pressure gauge alternatives

Pressure sensor with LCD display AD1 ... AD4

Download CAD data → www.festo.com

Technical data → Internet: sde1



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

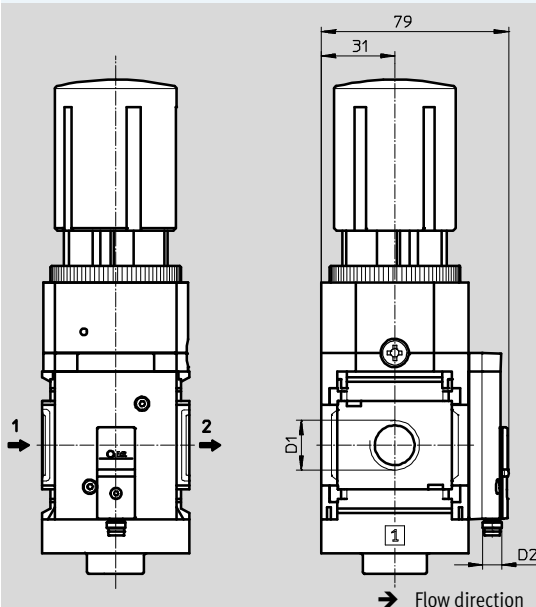
Variant AD2:
SDE1-D10-G2-MS-L-N1-M8 with
3-pin plug M8x1, 1 switching
output NPN

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

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

Pressure sensor without LCD display (operational status indicator only) 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	D1	D2	L1
MS6-LRP-1/4-...-AD1/AD2	G1/4	M8x1	46.7
MS6-LRP-3/8-...-AD1/AD2	G3/8		
MS6-LRP-1/2-...-AD1/AD2	G1/2		
MS6-LRP-1/4-...-AD3/AD4	G1/4	M12x1	55.8
MS6-LRP-3/8-...-AD3/AD4	G3/8		
MS6-LRP-1/2-...-AD3/AD4	G1/2		
MS6-LRP-1/4-...-AD7/AD8/AD9/AD10	G1/4	M8x1	—
MS6-LRP-3/8-...-AD7/AD8/AD9/AD10	G3/8		
MS6-LRP-1/2-...-AD7/AD8/AD9/AD10	G1/2		

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

New
Variant EX4, UL1

Precision pressure regulators MS6-LRP, MS series

Technical data

FESTO

Dimensions – Rotary knob

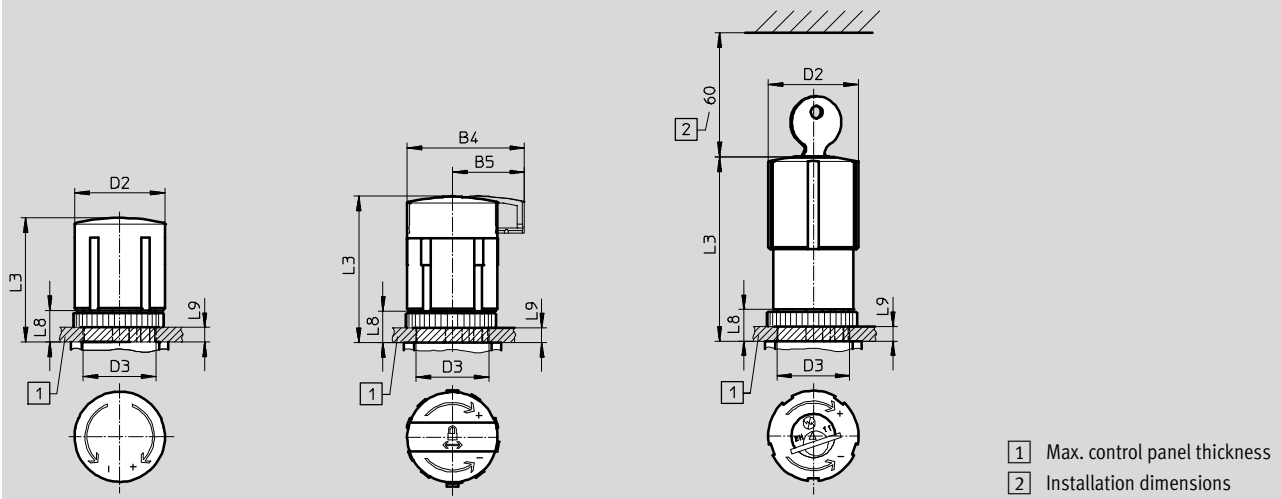
Download CAD data → www.festo.com

For installation into control panel

Standard rotary knob with detent

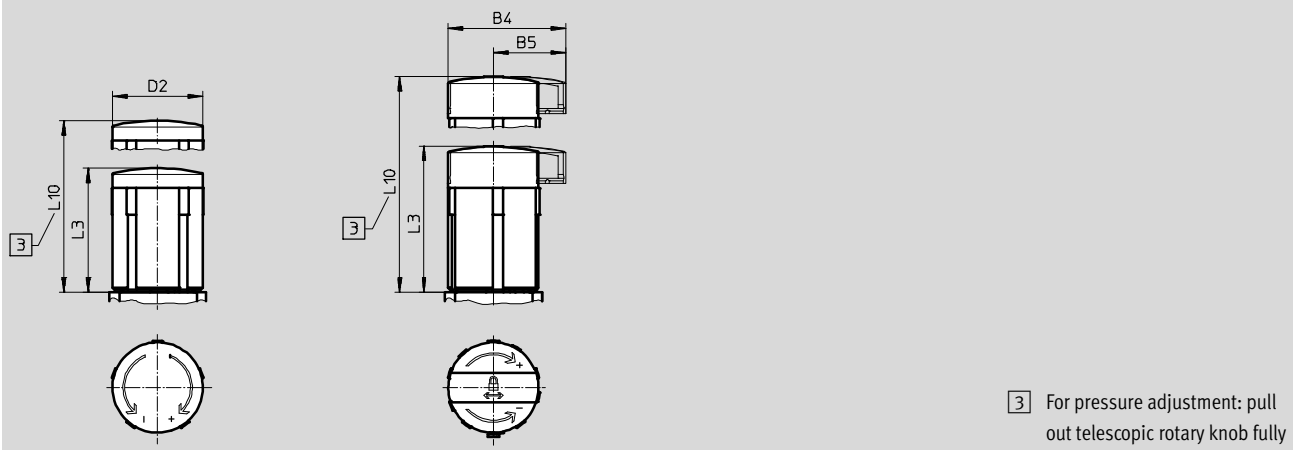
Standard rotary knob with detent,
lockable via accessories AS

Rotary knob with integrated lock
E11



Long rotary knob with detent LD

Long rotary knob with detent,
lockable via accessories LD-AS



Type	B4	B5	D2	D3 +1	L3	L8	L9	L10
MS6-LRP-...	–	–	51.2	44	86	22	14	–
MS6-LRP-...-AS	64.4	38.8			93			
MS6-LRP-...-E11	–	–	51.8		110			
MS6-LRP-...-LD	–	–	51.2	–	86	–	–	139
MS6-LRP-...-LD-AS	64.4	38.8			95.5			148.5

Precision pressure regulators MS6-LRP, MS series

Technical data

Ordering data			
Adapter plate for EN pressure gauge 1/8, standard rotary knob with detent			
Size	Connection	Part No.	Type
Pressure regulation range 0.05 ... 0.7 bar, manually operated			
MS6	G1/4	538004	MS6-LRP-1/4-D2-A8¹⁾
	G3/8	538012	MS6-LRP-3/8-D2-A8¹⁾
	G1/2	538020	MS6-LRP-1/2-D2-A8¹⁾
Pressure regulation range 0.05 ... 2.5 bar, manually operated			
MS6	G1/4	538006	MS6-LRP-1/4-D4-A8¹⁾
	G3/8	538014	MS6-LRP-3/8-D4-A8¹⁾
	G1/2	538022	MS6-LRP-1/2-D4-A8¹⁾
Pressure regulation range 0.1 ... 4 bar, manually operated			
MS6	G1/4	538008	MS6-LRP-1/4-D5-A8¹⁾
	G3/8	538016	MS6-LRP-3/8-D5-A8¹⁾
	G1/2	538024	MS6-LRP-1/2-D5-A8¹⁾
Pressure regulation range 0.1 ... 12 bar, manually operated			
MS6	G1/4	538010	MS6-LRP-1/4-D7-A8¹⁾
	G3/8	538018	MS6-LRP-3/8-D7-A8¹⁾
	G1/2	538026	MS6-LRP-1/2-D7-A8¹⁾

1) Free of copper and PTFE

 New
Variant EX4, UL1

Precision pressure regulators MS6-LRP, MS series

Ordering data – Modular products

FESTO

M Mandatory data							→
Module No.	Series	Size	Function	Connection size	Pressure regulation range/operation	Pressure gauge alternatives	
538028	MS	6	LRP	1/4, 3/8, 1/2, AGB, AGC, AGD, AGE	D2, D4, D5, D7, PO	VS, A8, A8M, A4, AD1 ... AD4, AD7 ... AD10	
Order example							
538028	MS	6	- LRP	- 1/2	- D4	- A4	

Ordering table						
Grid dimension	[mm]	62		Condi- tions	Code	Enter code
M Module No.	538028					
Series	Standard				MS	MS
Size	6				6	6
Function	Precision pressure regulator				-LRP	-LRP
Connection size	Thread G1/4			1	- 1/4	
	Thread G3/8			1	- 3/8	
	Thread G1/2			1	- 1/2	
	Connecting plate G1/4				-AGB	
	Connecting plate G3/8				-AGC	
	Connecting plate G1/2				-AGD	
	Connecting plate G3/4				-AGE	
Pressure regulation range/ operation	0.05 ... 0.7 bar, manually operated				-D2	
	0.05 ... 2.5 bar, manually operated				-D4	
	0.1 ... 4 bar, manually operated				-D5	
	0.1 ... 12 bar, manually operated				-D7	
	0.1 ... 12 bar, pneumatically actuated (pressure range determined by means of pilot regulator)			1 2	-PO	
Pressure gauge alternatives	Cover plate				-VS	
	Adapter plate for EN pressure gauge 1/8, without pressure gauge				-A8	
	Adapter plate for EN pressure gauge 1/8, with precision pressure gauge				-A8M	
	Adapter plate for EN pressure gauge 1/4, without pressure gauge				-A4	
	Pressure sensor with display, plug M8, 1 switching output PNP, 3-pin			1 3	-AD1	
	Pressure sensor with display, plug M8, 1 switching output NPN, 3-pin			1 3	-AD2	
	Pressure sensor with display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA			1 3	-AD3	
	Pressure sensor with display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA			1 3	-AD4	
	Pressure sensor without display, plug M8, threshold value comparator, PNP, N/O contact			1 4	-AD7	
	Pressure sensor without display, plug M8, threshold value comparator, PNP, N/C contact			1 4	-AD8	
	Pressure sensor without display, plug M8, window comparator, PNP, N/O contact			1 4	-AD9	
	Pressure sensor without display, plug M8, window comparator, PNP, N/C contact			1 4	-AD10	

1 1/4, 3/8, 1/2, PO, AD1 ... AD4, AD7 ... AD10, KD, E11, WPM
Not with EU certification EX4

2 PO
Not with rotary knob alternative LD
Not with security AS, E11
Not with mounting type WR

Transfer order code

538028	MS	6	-	LRP	-		-		-	
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Precision pressure regulators MS6-LRP, MS series

Ordering data – Modular products

FESTO

→ 0 Options

Rotary knob alternative	Alternative mounting position	Security	Type of mounting	EU certification	UL certification	Alternative flow direction
LD	KD	AS, E11	WR, WP, WPM, WB	EX4	UL1	Z
- LD	-	- AS	-	-	-	-

Ordering table						
Grid dimension	[mm]	62	Condi- tions	Code		Enter code
0 Rotary knob alternative	Long rotary knob		5	-LD		
Alternative mounting position	Rotary knob underneath		1 6	-KD		
Security	Lockable via accessories			-AS		
	With integrated lock		1	-E11		
Type of mounting	Mounting bracket with knurled nut for regulator head		7	-WR		
	Mounting bracket		8	-WP		
	Mounting bracket		1 8	-WPM		
	Mounting bracket			-WB		
EU certification	II 2GD to EU Directive 94/9/EG			-EX4		
UL certification	cULus, ordinary location for Canada and USA			-UL1		
Alternative flow direction	Flow direction from right to left (without pressure output, no pressure gauge)			-Z		

- 3 **AD1 ... AD4** Measuring range max. 10 bar.
Not with pressure regulation range/operation D2, D4
- 4 **AD7 ... AD10** Measuring range max. 10 bar.
Not with pressure regulation range/operation D2
- 5 **LD** Not with integrated lock E11

- 6 **KD** Not with mounting type WP
- 7 **WR** Not with rotary knob alternative LD
- 8 **WP, WPM** Only with connecting plate AGB, AGC, AGD or AGE

Transfer order code

- - - - - - -

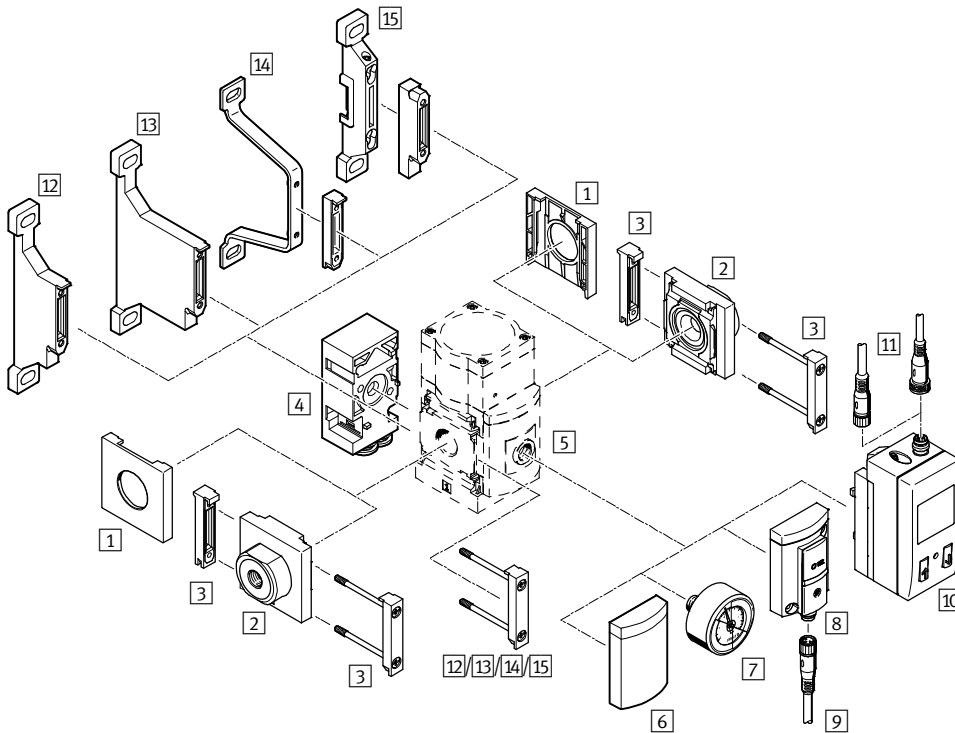
New
Variant EX4, UL1

Precision pressure regulators MS6-LRPB, MS series

Peripherals overview

FESTO

Precision pressure regulator MS6-LRPB with pressure output to the rear



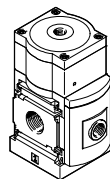
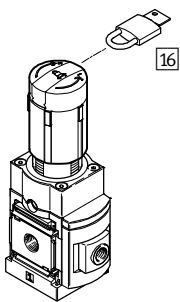
Note

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

Manually operated

Pneumatically actuated



Precision pressure regulators MS6-LRPB, 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 MS6-END	■	–	■	–	ms6-end
2	Connecting plate-SET MS6-AG...	–	■	–	■	ms6-ag
3	Module connector MS6-MV	–	■	■	■	ms6-mv
4	Angled outlet block B...	■	■	■	■	64
5	Adapter plate for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	64
6	Cover plate VS	■	■	■	■	64
7	Precision pressure gauge A8M/MAP	■	■	■	■	64, 98
8	Pressure sensor without display AD7 ... AD10	■	■	■	■	64
9	Connecting cable NEBU-M8...-LE3	■	■	■	■	98
10	Pressure sensor with display AD1 ... AD4	■	■	■	■	64
11	Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4	■	■	■	■	98
12	Mounting bracket MS6-WP	–	■	■	■	ms6-wp
13	Mounting bracket MS6-WPB	–	■	■	■	ms6-wp
14	Mounting bracket MS6-WPE	–	■	■	■	ms6-wp
15	Mounting bracket MS6-WPM	–	■	■	■	ms6-wp
16	Padlock LRVS-D	■	■	■	■	98

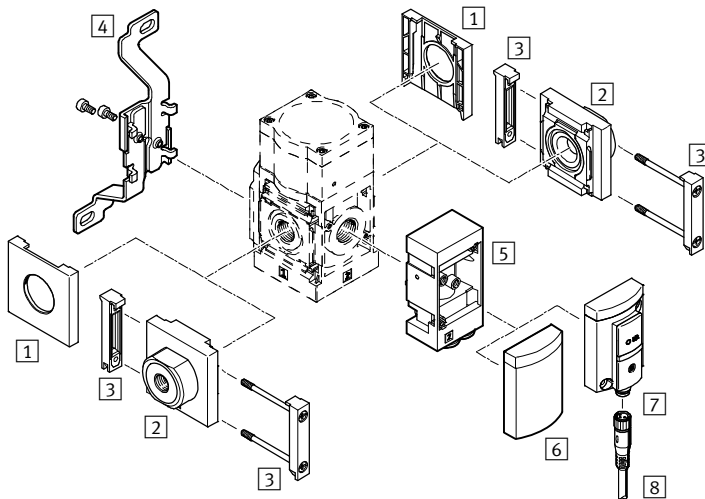
New
Variant EX4, UL1

Precision pressure regulators MS6-LRPB, MS series

Peripherals overview

FESTO

Precision pressure regulator MS6-LRPB with pressure output to the front



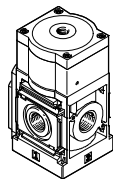
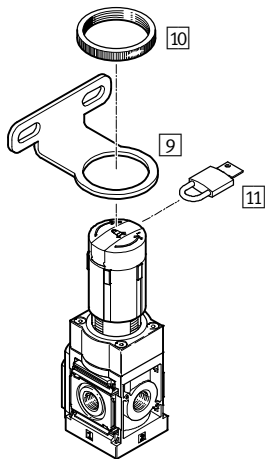
 Note

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

Manually operated

Pneumatically actuated



Precision pressure regulators MS6-LRPB, 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 MS6-END	■	–	■	–	ms6-end
2	Connecting plate-SET MS6-AG...	–	■	–	■	ms6-ag
3	Module connector MS6-MV	–	■	■	■	ms6-mv
4	Mounting bracket MS6-WB	■	■	–	–	ms6-wb
5	Angled outlet block B...	■	■	■	■	64
6	Cover plate VS	■	■	■	■	64
7	Pressure sensor without display AD7 ... AD10	■	■	■	■	64
8	Connecting cable NEBU-M8...-LE3	■	■	■	■	98
9	Mounting bracket MS6-WR	■	■	–	–	ms6-wr
10	Knurled nut (included in scope of delivery) MS-LR	■	■	–	–	–
11	Padlock LRVS-D	■	■	■	■	98

 New
Variant EX4, UL1

Precision pressure regulators MS6-LRPB, MS series

Type codes

FESTO

		MS	6	-	LRPB	-	1/2	-	D7	-	A8	-	BD
Series													
MS	Standard service unit												
Size													
6	Grid dimension 62 mm												
Service function													
LRPB	Precision pressure regulator for manifold assembly												
Connection size													
1/2	G1/2 thread												
Pressure regulation range/operation													
D2	0.05 ... 0.7 bar, manually operated												
D4	0.05 ... 2.5 bar, manually operated												
D5	0.1 ... 4 bar, manually operated												
D7	0.1 ... 12 bar, manually operated												
Pressure gauge alternatives													
A8	Adapter plate for EN pressure gauge 1/8, without pressure gauge												
Pressure output													
	Without angled outlet block												
BD	Angled outlet block QS-8												

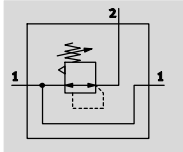
Further variants can be ordered using the modular system → 64

- Connecting plates
- Pressure regulation range/operation
- Pressure gauge alternatives
- Rotary knob alternatives
- Alternative mounting position
- Security
- Alternative pressure output
- Type of mounting
- EU certification
- UL certification
- Alternative flow direction

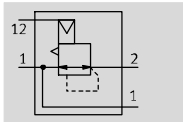
Precision pressure regulators MS6-LRPB, MS series

Technical data

Pressure regulation range/operation manually operated D2/D4/D5/D7



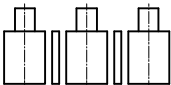
pneumatically actuated PO



-  - Flow rate
1,600 ... 5,000 l/min
-  - Temperature range
-10 ... +60 °C
-  - Operating pressure
1 ... 14 bar
-  - www.festo.com



Precision pressure regulator for manifold assembly:



The precision pressure regulator is suitable for sensitive applications requiring a hysteresis of 0.02 bar. The output pressure p2 can be set within

the pressure regulation range either manually using the rotary knob or pneumatically via a pilot pressure p12 by an external pilot regulator (if possible using a precision pressure regulator). When switching off the input pressure p1, the output pressure p2 is vented via connection 3 (secondary venting).

- Good regulation characteristics with low hysteresis and primary pressure compensation
- Manifold assembly with through air supply
- For configuring a regulator manifold with independent pressure regulation ranges
- Regulator lock for protecting the values against adjustment
- Four pressure regulation ranges: 0.05 ... 0.7 bar, 0.05 ... 2.5 bar, 0.1 ... 4 bar and 0.1 ... 12 bar
- Optional pressure sensor
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

General technical data		
Size		MS6
Pneumatic connection 1		G½
Pneumatic connection 2		G½
		QS-8 with angled outlet block BD
		QS-10 with angled outlet block BE
Pneumatic connection 3		G¼
Pilot air connection 12 with variant PO		G⅛
Constructional design		Piloted precision diaphragm regulator with through pressure supply
Regulating function		Output pressure constant, via secondary venting
Type of mounting		Via accessories
		In-line installation
		Front panel mounting
Mounting position		Any
Regulator lock		Rotary knob with detent
		Rotary knob with detent, lockable via accessories
		Rotary knob with integrated lock
Pressure regulation range/operation ¹⁾	D2 [bar]	0.05 ... 0.7, manually operated
	D4 [bar]	0.05 ... 2.5, manually operated
	D5 [bar]	0.1 ... 4, manually operated
	D7 [bar]	0.1 ... 12, manually operated (0.1 ... 10 with pressure sensor AD... or with UL certification)
	PO [bar]	0.1 ... 12, pneumatically actuated (0.1 ... 10 with pressure sensor AD... or with UL certification)
Max. hysteresis	[bar]	0.02
Pressure indication		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
		G⅛ prepared
		G¼ prepared

1) Variant D2/D4/D5/D7: Supply pressure p1 ≥ output pressure p2 + 1 bar. Variant PO: Output pressure p2 = pilot pressure p12 + max. 0.5 bar.

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

New Variant EX4, UL1

Precision pressure regulators MS6-LRPB, MS series

Technical data

FESTO

Flow rates				
Pressure regulation range	D2 (0.05 ... 0.7 bar)	D4 (0.05 ... 2.5 bar)	D5 (0.1 ... 4 bar)	D7/PO (0.1 ... 12 bar)
Standard nominal flow rate q _N [l/min]				
q _N 1 → 2	G ^{1/2}	1,600 ¹⁾	2,300 ²⁾	3,000 ³⁾
Secondary venting flow rate [l/min]				
q _N 2 → 3	≥ 220 ⁵⁾	≥ 450 ⁶⁾	≥ 650 ⁷⁾	≥ 900 ⁸⁾

- 1) Measured at p₁ = 10 bar and p₂ = 0.5 bar, Δp = 0.1 bar
2) Measured at p₁ = 10 bar and p₂ = 1.5 bar, Δp = 0.1 bar
3) Measured at p₁ = 10 bar and p₂ = 2.5 bar, Δp = 0.1 bar
4) Measured at p₁ = 10 bar and p₂ = 6.0 bar, Δp = 0.1 bar

- 5) Measured at p₁ = 10 bar and p₂ = 0.7 bar, Δp₂ = 0.1 bar
6) Measured at p₁ = 10 bar and p₂ = 2.5 bar, Δp₂ = 0.1 bar
7) Measured at p₁ = 10 bar and p₂ = 4.0 bar, Δp₂ = 0.1 bar
8) Measured at p₁ = 10 bar and p₂ = 6.0 bar, Δp₂ = 0.1 bar

Operating and environmental conditions	
Operating pressure [bar]	1 ... 14 (1 ... 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 not possible
Ambient temperature [°C]	−10 ... +60 (0 ... +50) ²⁾
Temperature of medium [°C]	−10 ... +60 (0 ... +50) ²⁾
Storage temperature [°C]	−10 ... +60
Corrosion resistance class CRC ³⁾	2
UL certification	cULus recognized (OL)

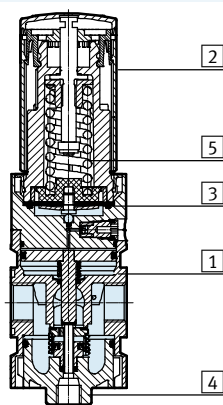
- 1) Value in brackets applies to MS6-LRPB with UL certification.
2) Value in brackets applies to MS6-LRPB with pressure sensor AD...
3) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts 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)

Weight [g]	
Precision pressure regulator	1,000
Precision pressure regulator with rotary knob with integrated lock E11	1,120

Materials

Sectional view



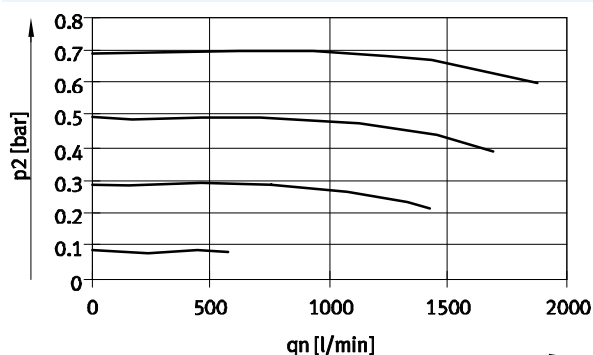
Precision pressure regulator (manifold assembly)		
1	Housing	Die-cast aluminium
2	Rotary knob	PA/POM
	Rotary knob with integrated lock E11	Aluminium
3	Diaphragm	NBR
4	Cap, bottom	PC
5	Springs	Steel
–	Seals	NBR
Note on materials		RoHS-compliant
		Free of copper and PTFE (not with variant A8M or AD...)

Precision pressure regulators MS6-LRPB, MS series

Technical data

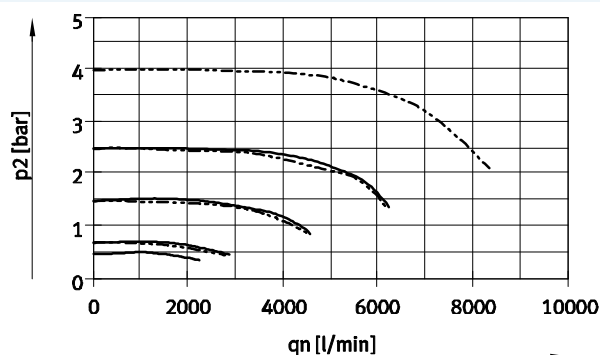
Standard flow rate q_n as a function of output pressure p_2 ($p_1 = 10$ bar)

MS6-LRPB-1/2-D2



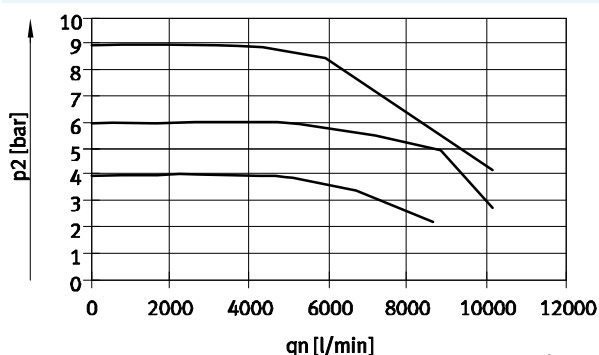
— D2: 0.05...0.7 bar

MS6-LRPB-1/2-D4/D5



— D4: 0.05...2.5 bar
- - - D5: 0.1...4 bar

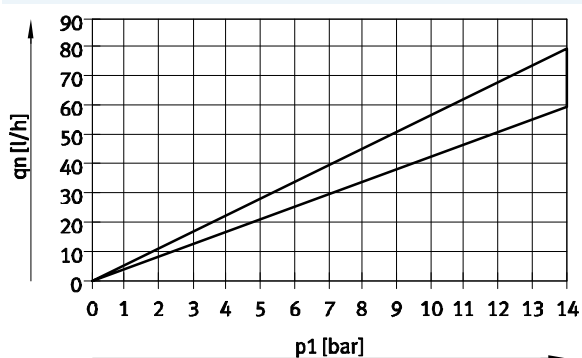
MS6-LRPB-1/2-D7/PO



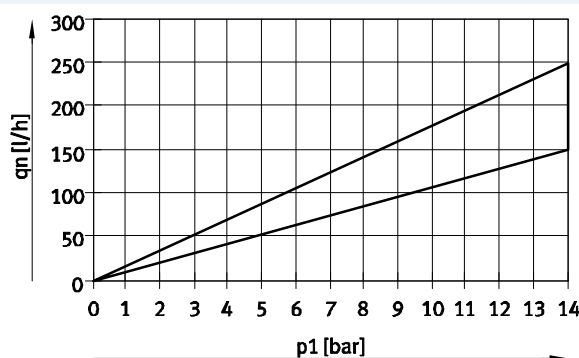
— D7/PO: 0.1...12 bar

Internal air consumption q_n as a function of input pressure p_1

MS6-LRPB-...-D2/D4



MS6-LRPB-...-D5/D7/PO



New
Variant EX4, UL1

Precision pressure regulators MS6-LRPB, MS series

Technical data

FESTO

Dimensions

Download CAD data → www.festo.com

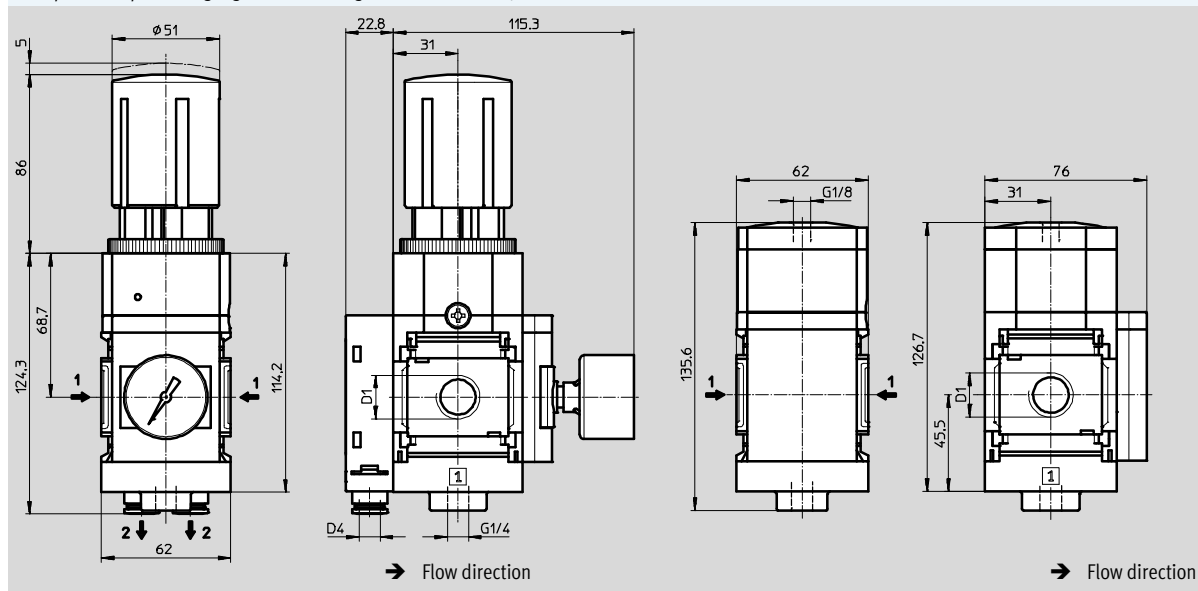
manually operated D2/D4/D5/D7,

with adapter plate A8M for EN pressure gauge 1/8 as pressure gauge alternative,

with precision pressure gauge MAP, with angled outlet block BD/BE

pneumatically actuated PO,

with cover plate VS as pressure gauge alternative



Type	D1	D4
MS6-LRPB-1/2-D2/D4/D5/D7-A8M-BD	G1/2	QS-8
MS6-LRPB-1/2-D2/D4/D5/D7-A8M-BE		QS-10

Type	D1
MS6-LRPB-1/2-PO-VS	G1/2

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

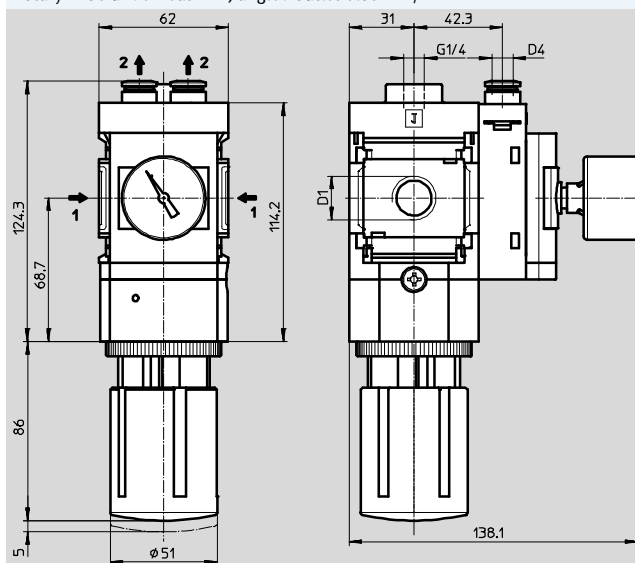
Precision pressure regulators MS6-LRPB, MS series

Technical data

Dimensions – Alternative mounting position

Download CAD data → www.festo.com

Rotary knob underneath KD, angled outlet block BD/BE



→ Flow direction

Type	D1	D4
MS6-LRPB-1/2-...-KD-BD	G1/2	QS-8
MS6-LRPB-1/2-...-KD-BE		QS-10

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

New
Variant EX4, UL1

Precision pressure regulators MS6-LRPB, MS series

Technical data

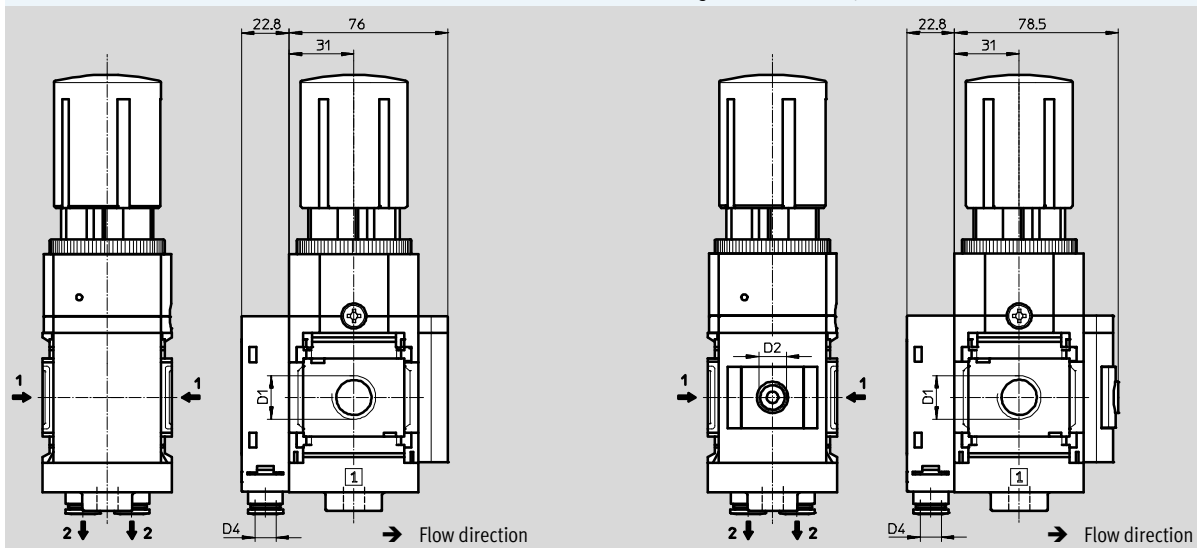
FESTO

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Cover plate VS, angled outlet block BD/BE

Adapter plate A8/A4 for EN pressure gauge 1/8/1/4, without pressure gauge, angled outlet block BD/BE



Type	D1	D2	D4
MS6-LRPB-1/2-...-VS-BD	G1/2	–	QS-8
MS6-LRPB-1/2-...-VS-BE			QS-10
MS6-LRPB-1/2-...-A8-BD	G1/2	G1/8	QS-8
MS6-LRPB-1/2-...-A8-BE			QS-10
MS6-LRPB-1/2-...-A4-BD	G1/2	G1/4	QS-8
MS6-LRPB-1/2-...-A4-BE			QS-10

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

Precision pressure regulators MS6-LRPB, MS series

Technical data

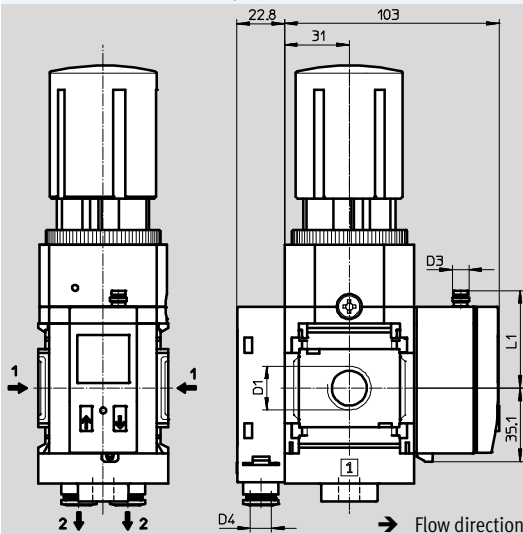
FESTO

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Pressure sensor with LCD display AD1 ... AD4, angled outlet block BD/BE

Technical data → Internet: [sde1](#)



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

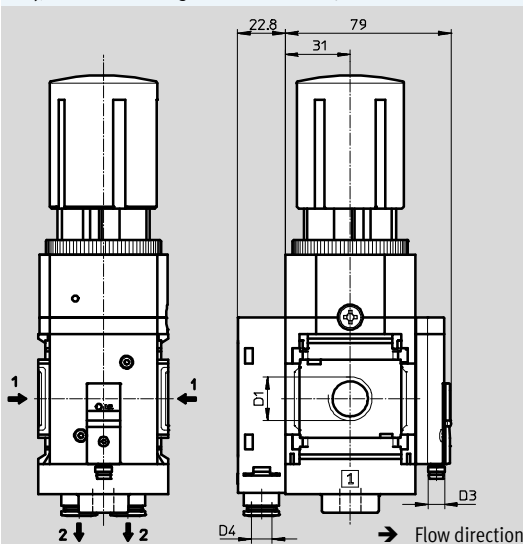
Variant AD3:
SDE1-D10-G2-MS-L-PI-M12 with
4-pin plug M12x1, 1 switching out-
put PNP and 4 ... 20 mA analogue

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

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

Pressure sensor without LCD display (operational status indicator
only) AD7 ... AD10, angled outlet block BD/BE

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 AD9:
SDE5-D10-O3-...-P-M8 with 3-pin
plug M8x1, window 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 AD10:
SDE5-D10-C3-...-P-M8 with 3-pin
plug M8x1, window comparator,
1 switching output PNP, N/C contact

Type	D1	D3	D4	L1
MS6-LRPB-1/2-...-AD1/AD2-BD	G1/2	M8x1	QS-8	46.7
MS6-LRPB-1/2-...-AD1/AD2-BE			QS-10	
MS6-LRPB-1/2-...-AD3/AD4-BD	G1/2	M12x1	QS-8	55.8
MS6-LRPB-1/2-...-AD3/AD4-BE			QS-10	
MS6-LRPB-1/2-...-AD7/AD8/AD9/AD10-BD	G1/2	M8x1	QS-8	–
MS6-LRPB-1/2-...-AD7/AD8/AD9/AD10-BE			QS-10	

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

New
Variant EX4, UL1

Precision pressure regulators MS6-LRPB, MS series

Technical data

FESTO

Dimensions – Rotary knob

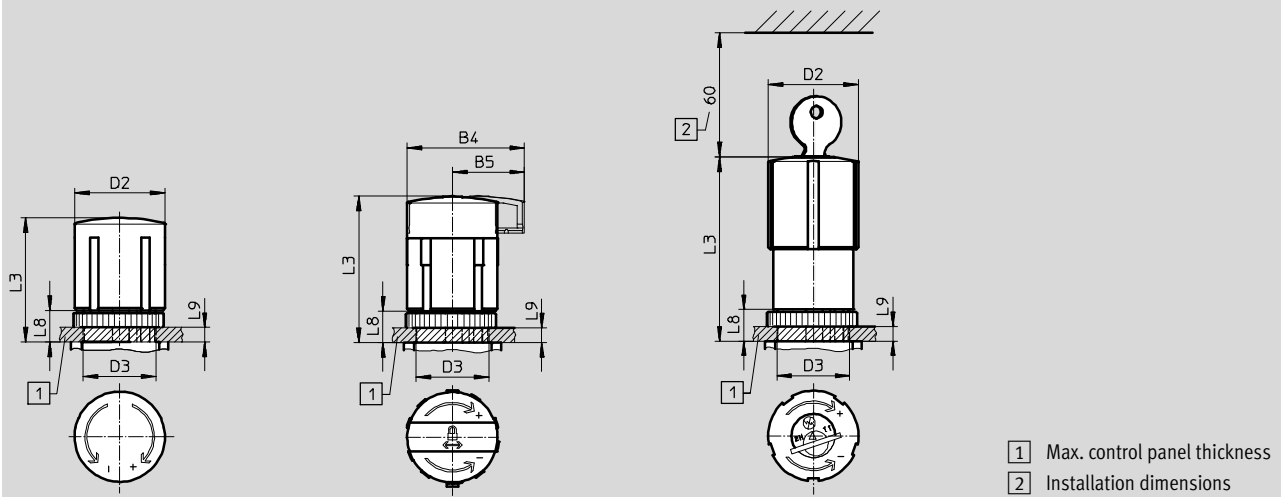
Download CAD data → www.festo.com

For installation into control panel

Standard rotary knob with detent

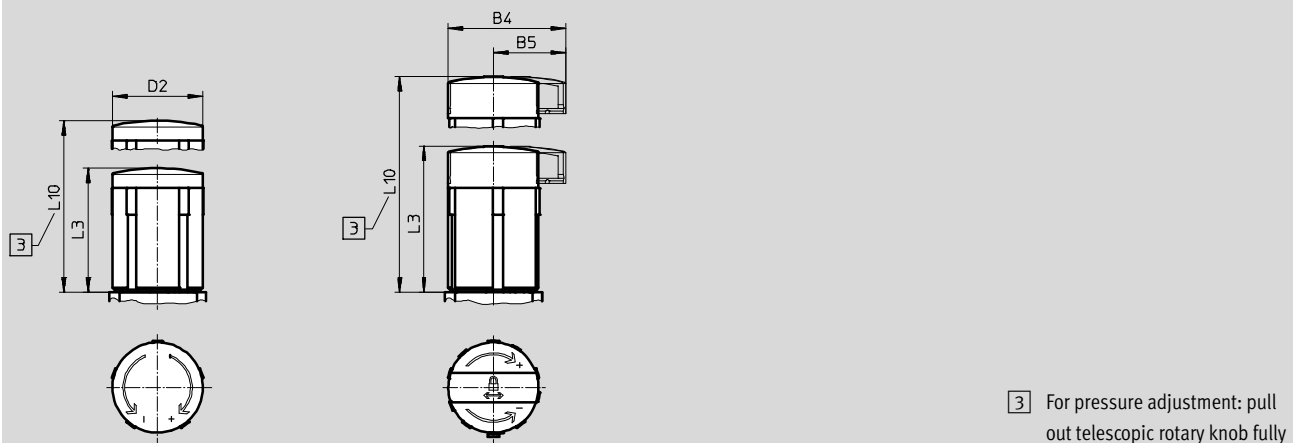
Standard rotary knob with detent,
lockable via accessories AS

Rotary knob with integrated lock
E11



Long rotary knob with detent LD

Long rotary knob with detent,
lockable via accessories LD-AS



Type	B4	B5	D2	D3 +1	L3	L8	L9	L10
MS6-LRPB-...	–	–	51.2	44	86	22	14	–
MS6-LRPB-...-AS	64.4	38.8			93			
MS6-LRPB-...-E11	–	–	51.8	–	110	–	–	–
MS6-LRPB-...-LD	–	–	51.2	–	86	–	–	139
MS6-LRPB-...-LD-AS	64.4	38.8			95.5			148.5

Precision pressure regulators MS6-LRPB, MS series

FESTO

Technical data

Ordering data			
Adapter plate A8 for EN pressure gauge 1/8, standard rotary knob with detent, pressure output to rear without angled outlet block			
Size	Connection	Part No.	Type
Pressure regulation range 0.05 ... 2.5 bar, manually operated			
MS6	G1/2	534914	MS6-LRPB-1/2-D4-A8¹⁾
Pressure regulation range 0.1 ... 4 bar, manually operated			
MS6	G1/2	534917	MS6-LRPB-1/2-D5-A8¹⁾

1) Free of copper and PTFE

Ordering data			
Adapter plate A8 for EN pressure gauge 1/8, standard rotary knob with detent, pressure output to rear with angled outlet block QS-8			
Size	Connection	Part No.	Type
Pressure regulation range 0.05 ... 0.7 bar, manually operated			
MS6	G1/2	534865	MS6-LRPB-1/2-D2-A8-BD¹⁾
Pressure regulation range 0.1 ... 12 bar, manually operated			
MS6	G1/2	534874	MS6-LRPB-1/2-D7-A8-BD¹⁾

1) Free of copper and PTFE

 New
Variant EX4, UL1

Precision pressure regulators MS6-LRPB, MS series

Ordering data – Modular products

FESTO

M Mandatory data							→
Module No.	Series	Size	Function	Connection size	Pressure regulation range/operation	Pressure gauge alternatives	
535007	MS	6	LRPB	1/2, AGB, AGC, AGD, AGE	D2, D4, D5, D7, PO	VS, A8, A8M, A4, AD1 ... AD4, AD7 ... AD10	
Order example							
535007	MS	6	- LRPB	- AGD	- D5	- VS	

Ordering table						
Grid dimension	[mm]	62		Condi- tions	Code	Enter code
M Module No.	535007					
Series	Standard				MS	MS
Size	6				6	6
Function	Precision pressure regulator for manifold assembly				-LRPB	-LRPB
Connection size	Thread G1/2			1	- 1/2	
	Connecting plate G1/4				-AGB	
	Connecting plate G3/8				-AGC	
	Connecting plate G1/2				-AGD	
	Connecting plate G3/4				-AGE	
Pressure regulation range/ operation	0.05 ... 0.7 bar, manually operated				-D2	
	0.05 ... 2.5 bar, manually operated				-D4	
	0.1 ... 4 bar, manually operated				-D5	
	0.1 ... 12 bar, manually operated				-D7	
	0.1 ... 12 bar, pneumatically actuated			1 2	-PO	
	(pressure range determined by means of pilot regulator)					
Pressure gauge alternatives	Cover plate			3	-VS	
	Adapter plate for EN pressure gauge 1/8, without pressure gauge			4	-A8	
	Adapter plate for EN pressure gauge 1/8, with precision pressure gauge			4	-A8M	
	Adapter plate for EN pressure gauge 1/4, without pressure gauge			4	-A4	
	Pressure sensor with display, plug M8, 1 switching output PNP, 3-pin			1 4 5	-AD1	
	Pressure sensor with display, plug M8, 1 switching output NPN, 3-pin			1 4 5	-AD2	
	Pressure sensor with display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA			1 4 5	-AD3	
	Pressure sensor with display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA			1 4 5	-AD4	
	Pressure sensor without display, plug M8, threshold value comparator, PNP, N/O contact			1 5 6	-AD7	
	Pressure sensor without display, plug M8, threshold value comparator, PNP, N/C contact			1 5 6	-AD8	
	Pressure sensor without display, plug M8, window comparator, PNP, N/O contact			1 5 6	-AD9	
	Pressure sensor without display, plug M8, window comparator, PNP, N/C contact			1 5 6	-AD10	

1 1/2, PO, AD1 ... AD4, AD7 ... AD10, KD, E11, WPM

Not with EU certification EX4

2 PO

Not with long rotary knob LD

Not with security AS, E11

Not with mounting type WR

3 VS

Must be selected with flow direction Z without alternative mounting position KD or without alternative pressure output BD, BE

Must be selected with alternative mounting position KD without flow direction Z or without alternative pressure output BD, BE

4 A8, A8M, A4, AD1 ... AD4

In combination with flow direction Z only with alternative mounting position KD

5 AD1 ... AD4, AD7 ... AD10

Measuring range max. 10 bar

Not with pressure regulation range/operation D2, D4

6 AD7 ... AD10

In combination with flow direction Z only with alternative pressure output BD, BE or In combination with flow direction Z only with alternative mounting position KD

Transfer order code

535007	MS	6	-	LRPB	-		-		-	
--------	----	---	---	------	---	--	---	--	---	--

Precision pressure regulators MS6-LRPB, MS series

Ordering data – Modular products

FESTO

→ 0 Options

Rotary knob alternative	Alternative mounting position	Security	Alternative pressure output	Type of mounting	EU certification	UL certification	Flow direction
LD	KD	AS, E11	BD, BE	WR, WP, WPM, WPB, WB	EX4	UL1	Z
- LD	-	- AS	- BE	-	-	-	-

Ordering table		Grid dimension [mm]	62	Condi- tions	Code	Enter code
0	Rotary knob alternative	Long rotary knob		7	-LD	
	Alternative mounting position	Rotary knob underneath		1 8	-KD	
	Security	Lockable via accessories			-AS	
		With integrated lock		1	-E11	
	Alternative pressure output (p max = 10 bar)	Angled outlet block QS-8			-BD	
		Angled outlet block QS-10			-BE	
	Type of mounting	Mounting bracket with knurled nut for regulator head		9 10	-WR	
		Mounting bracket		11 12	-WP	
		Mounting bracket		1 9 11	-WPM	
		Mounting bracket for large wall gap		11 13	-WPB	
		Mounting bracket		9	-WB	
	EU certification	II 2GD to EU Directive 94/9/EG			-EX4	
	UL certification	cULus, ordinary location for Canada and USA			-UL1	
	Flow direction	Pressure output to front (without pressure output, no pressure gauge)			-Z	

- 7 **LD** Not with integrated lock E11
- 8 **KD** In combination with pressure gauge alternatives A8, A4, AD1 ... AD4, AD7 ... AD10 only with flow direction Z
- 9 **WR, WB, WPM**
Only with flow direction Z
Not with alternative mounting position KD
- 10 **WR** Only with flow direction Z
Not with long rotary knob LD

- 11 **WP, WPM, WPB** Only with connecting plate AGB, AGC, AGD or AGE
- 12 **WP** Not with alternative mounting position KD
Either only with flow direction Z
or only with alternative pressure output BD, BE
- 13 **WPB** Not with alternative mounting position KD
Not with alternative pressure output BD, BE
Not with flow direction Z

Transfer order code

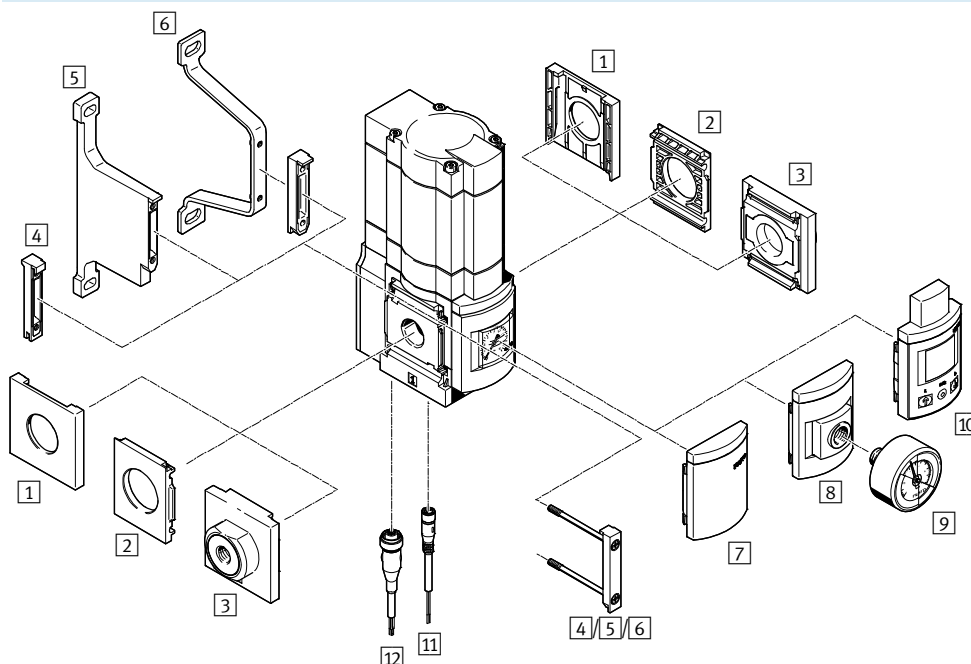
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Electrical pressure regulators MS6-LRE, MS series

Peripherals overview

FESTO

Electrical pressure regulators MS6-LRE



Note

Additional accessories:

- Module connector for combination with sizes 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 unit		Combination		→ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
1	Cover cap MS6-END	–	–	■	–	ms6-end
2	Mounting plate MS6-AEND	■ ¹⁾	–	■ ²⁾	–	ms6-aend
3	Connecting plate-SET MS6-AG...	–	■ ¹⁾	–	■ ²⁾	ms6-ag
4	Module connector MS6-MV	–	–	■	■	ms6-mv
5	Mounting bracket MS6-WPB	■	■	■	■	ms6-wpb
6	Mounting bracket MS6-WPE	■	■	■	■	ms6-wpe
7	Cover plate VS	■	■	■	■	74
8	Adapter plate for EN pressure gauge 1/4 A4	■	■	■	■	74
9	Pressure gauge MA	■	■	■	■	98
10	Control unit with display OP	■	■	■	■	74
11	Connecting cable NEBU-M8...-LE3	■	■	■	■	98
12	Connecting cable NEBU-M12...-LE5	■	■	■	■	98

1) Mounting bracket MS6-WPB/WPE is required for mounting.

2) Module connector MS6-MV or mounting bracket MS6-WPB/WPE is required for mounting.

Electrical pressure regulators MS6-LRE, MS series

Type codes

		MS	6	-	LRE	-	1/4	-	D6	-	PU
Series											
MS	Standard service unit										
Size											
6	Grid dimension 62 mm										
Service function											
LRE	Electrical pressure regulator										
Pneumatic connection											
1/4	Thread G1/4										
1/2	Thread G1/2										
Pressure regulation range											
D6	Pressure regulation range 0.3 ... 7 bar										
D7	Pressure regulation range 0.5 ... 12 bar										
Electrically controlled pressure output (integrated pressure sensor with electrical output)											
	None										
PU	Plug, M8, 3-pin, V out										

Further variants can be ordered using the modular system → 74

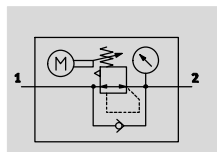
- Female thread
- Connecting plates
- Pressure regulation range
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Electrically controlled pressure output
- Sensor cables
- Supply cables
- Type of mounting
- UL certification
- Alternative flow direction

Electrical pressure regulators MS6-LRE, MS series

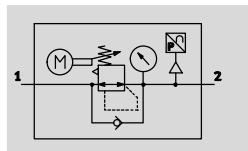
Technical data

FESTO

with pressure gauge



with pressure gauge and integrated pressure sensor



-  - Note

The electrical pressure regulator is not suitable for the set-up of closed control loops.

-  - Flow rate
2,200 ... 7,500 l/min
-  - Temperature range
0 ... +50 °C
-  - Operating pressure
0.8 ... 20 bar



The electrical pressure regulator maintains incoming compressed air at the set output pressure. It also maintains a constant output pressure independent of pressure fluctuations and air consumption.

The output pressure is set indirectly via an integrated electrical drive unit. The drive unit can be operated either with digital inputs via the M12 plug or

using the optional control and display unit.

The direction of rotation of the drive unit is thus pre-set, which makes adjustment of the output pressure in the rising or falling direction possible. In the event of a power failure, the last drive unit or output pressure setting is saved. Pneumatic pressure regulation continues to function.

- Four pressure regulation ranges: 0.3 ... 4 bar, 0.3 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Optional control unit with display
- Optional integrated pressure sensor with electrical output
- Constant output pressure even in the event of a power failure thanks to the fail-safe function
- Available with or without secondary venting

General technical data				
Size		MS6		
Pneumatic connection 1, 2		G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
Design		Electrically adjustable pressure regulator		
Regulating function		Output pressure constant, with primary pressure compensation, with/without secondary venting		
Type of mounting		Via accessories		
		In-line installation		
Assembly position		Any, preferably vertical		
Pressure regulation range	D5 [bar]	0.3 ... 4		
	D6 [bar]	0.3 ... 7		
	D7 [bar]	0.5 ... 12		
	D8 [bar]	0.5 ... 16		
Max. hysteresis [bar]		0.25		
Pressure indicator		With pressure gauge		
		With control unit		

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

Electrical pressure regulators MS6-LRE, MS series

Technical data

Standard nominal flow rate $q_{nN}^{1)}$ [l/min]				
Pneumatic connection		G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
Pressure regulation range	D5	2,400 ²⁾	5,500 ²⁾	7,500 ²⁾
	D6	3,000	5,800	6,500
	D7	2,700	4,500	5,500
	D8	2,200	4,000	4,500

1) Measured at $p_1 = 10$ bar and $p_2 = 6$ bar, $\Delta p = 1$ bar

2) Measured at $p_1 = 10$ bar and $p_2 = 3$ bar, $\Delta p = 1$ bar

Electrical data				
		Without integrated pressure sensor	With integrated pressure sensor	
			PI (I out)	PU (V out)
Analogue output	[V]	–	–	0 ... 10
	[mA]	–	4 ... 20	–
Analogue outputs, absolute accuracy at 25 °C	[%]	–	±3	±3
Cable interface	Inputs	Plug M12x1, 5-pin		
	Outputs	–	Plug M8x1, 3-pin	
Design of inputs		To IEC 61131-2, no electrical isolation		
Nominal operating voltage	[V DC]	24		
Permissible voltage fluctuations	[%]	±10		
Current consumption at 24 V DC	[A]	Max. 3.5		
Current consumption at nominal operating voltage	[A]	Max. 1		
Duration of actuation at 25°C	[s]	Max. 90 ¹⁾		
Protection against short circuit		For all electrical connections		
Protection class		IP65		

1) In order to prevent the drive from overheating, a control/pause ratio of 1:3 must be observed.

Operating and environmental conditions	
Operating pressure	[bar] 0.8 ... 20 (0.8 ... 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] 0 ... +50
Temperature of medium	[°C] 0 ... +50
Storage temperature	[°C] –10 ... +50
Corrosion resistance class CRC ²⁾	2
CE symbol (declaration of conformance)	In accordance with EU EMC Directive ³⁾
UL certification	cULus recognized (OL)
Certification	C-Tick

1) Value in brackets applies to MS6-LRE with UL certification.

2) 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.

3) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp → User documentation.

If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.

 New
Variant UL1

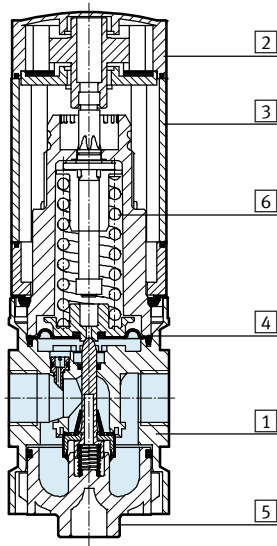
Electrical pressure regulators MS6-LRE, MS series

FESTO

Technical data

Weights [g]	
Electrical pressure regulator	1,280

Materials	
Sectional view	



Electrical pressure regulator		
1	Body	Die-cast aluminium
2	Drive housing	Reinforced polyamide
3	Profile housing	Wrought aluminium alloy
4	Diaphragm	Nitrile rubber
5	Bottom cap	Polyester, fibreglass reinforced
6	Springs	Steel
–	Display and control unit	Polyamide
–	Seals	Nitrile rubber

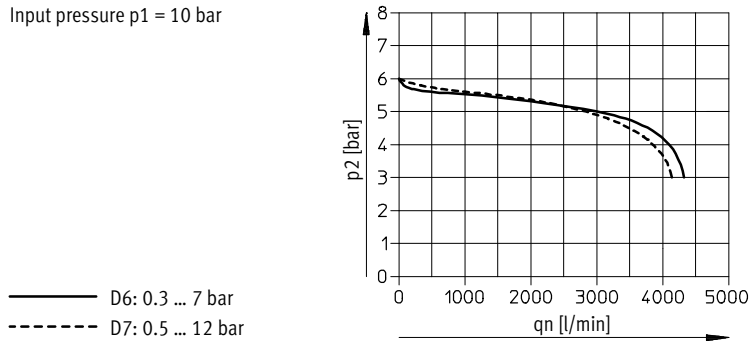
Electrical pressure regulators MS6-LRE, MS series

Technical data

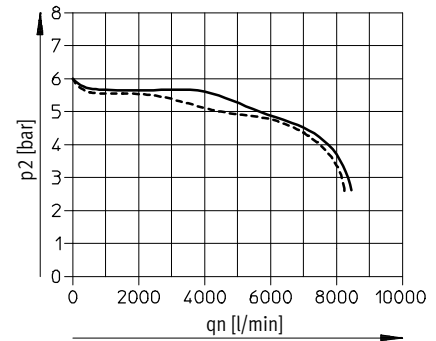
Standard flow rate q_n as a function of output pressure p_2

MS6-LRE-1/4

Input pressure $p_1 = 10$ bar

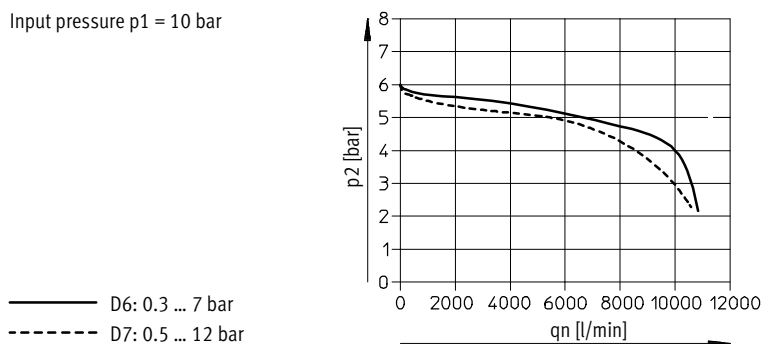


MS6-LRE-3/8



MS6-LRE-1/2

Input pressure $p_1 = 10$ bar



Electrical pressure regulators MS6-LRE, MS series

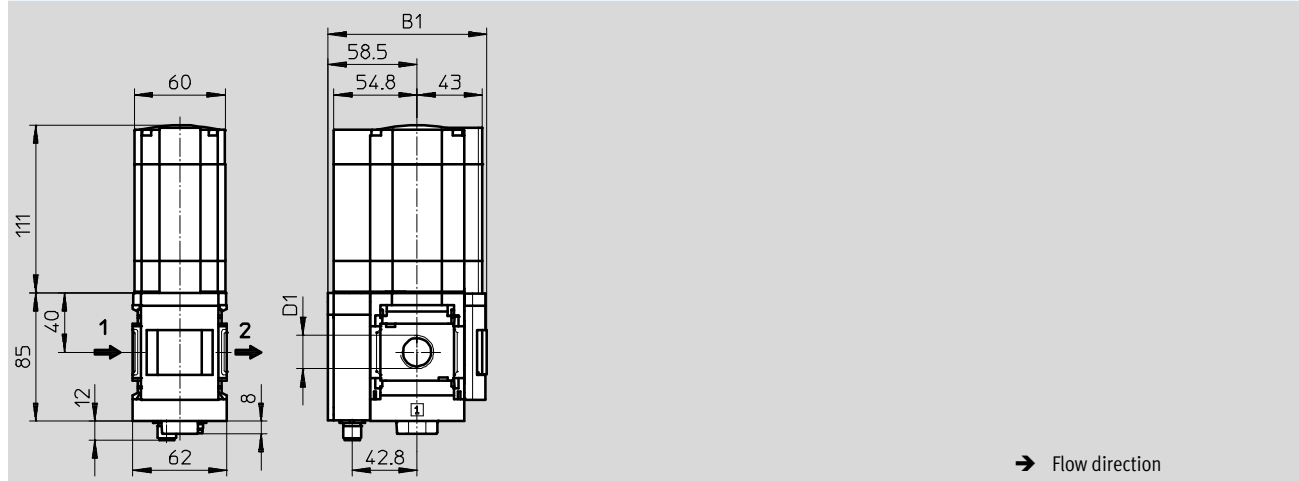
Technical data

FESTO

Dimensions – Standard

Download CAD data → www.festo.com

With pressure gauge, display unit [bar]



Type	B1 Pressure gauge		D1
	Standard scale	Red-green scale	
MS6-LRE-1/4	104.5	106	G1/4
MS6-LRE-3/8			G3/8
MS6-LRE-1/2			G1/2

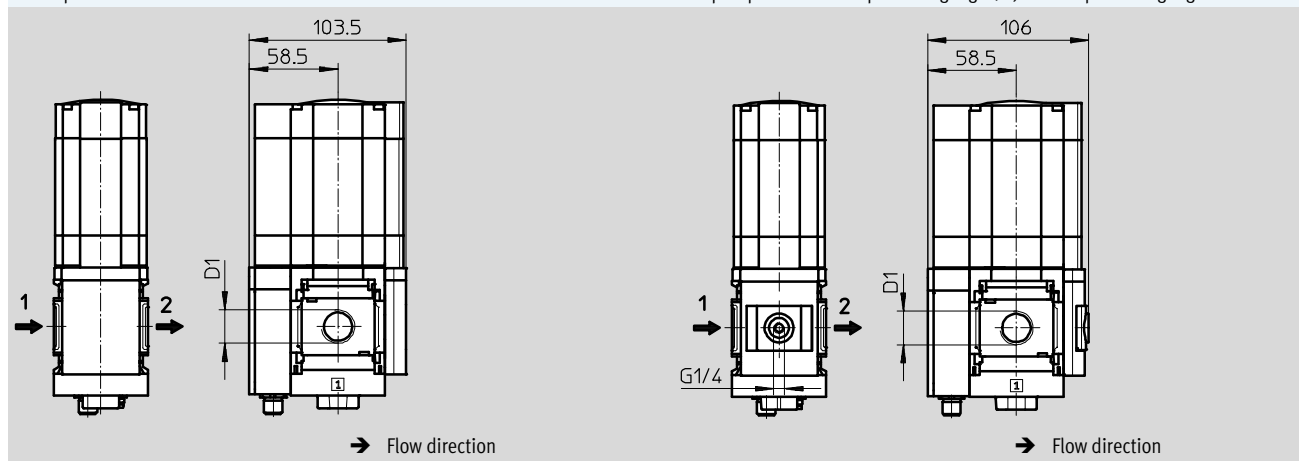
• Note: This product conforms to ISO 1179-1 and to ISO 228-1

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Cover plate VS

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



Type	D1
MS6-LRE-1/4	G1/4
MS6-LRE-3/8	G3/8
MS6-LRE-1/2	G1/2

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

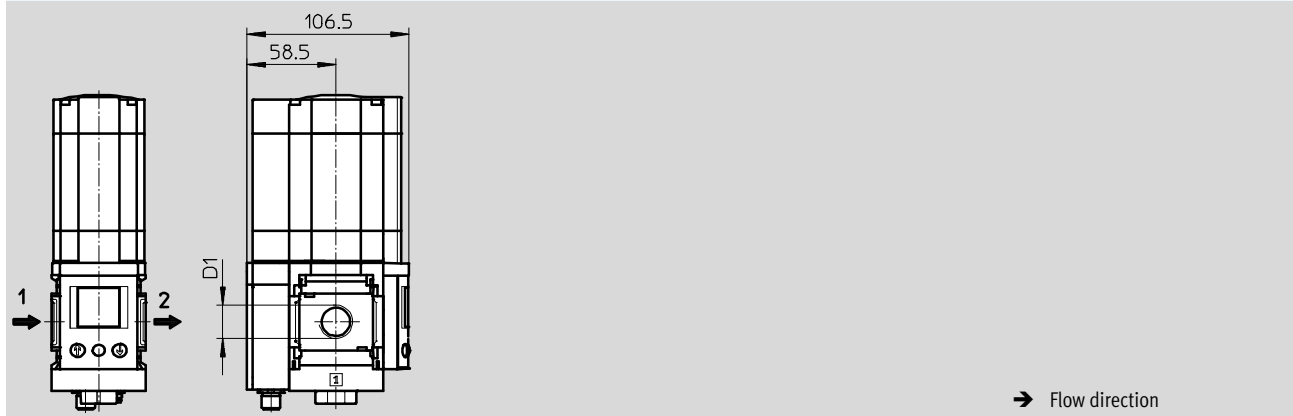
Electrical pressure regulators MS6-LRE, MS series

Technical data

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Control unit with display OP



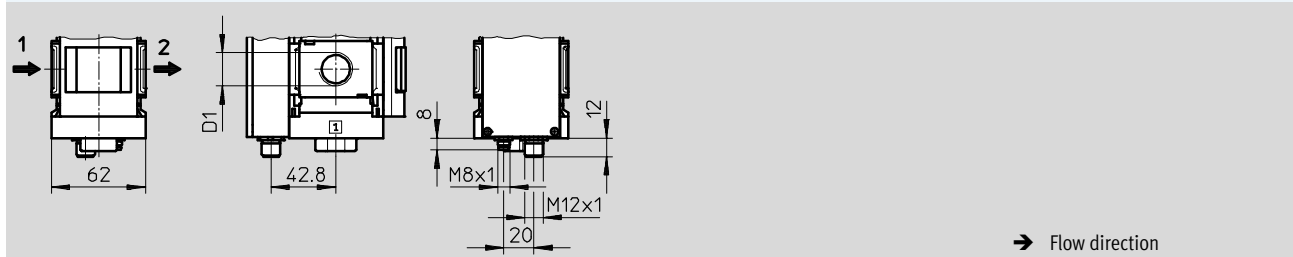
Type	D1
MS6-LRE-1/4	G1/4
MS6-LRE-3/8	G3/8
MS6-LRE-1/2	G1/2

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

Dimensions – Electrically controlled pressure output

Download CAD data → www.festo.com

Integrated pressure sensor with electrical output PI/PU



Ordering data

Pressure gauge

Size	Connection	Pressure regulation range 0.3... 7 bar		Pressure regulation range 0.5... 12 bar	
		Part No.	Type	Part No.	Type
Standard					
MS6	G¼	–	–	535364	MS6-LRE-¼-D7
	G½	535348	MS6-LRE-½-D6	–	–
Electrically controlled pressure output (integrated pressure sensor with voltage output), M8x1 plug, 3-pin					
MS6	G¼	535362	MS6-LRE-¼-D6-PU	–	–

Electrical pressure regulators MS6-LRE, MS series

Ordering data – Modular products

FESTO

M Mandatory data →					
Module No.	Series	Size	Function	Connection sizes	Pressure regulation range
535191	MS	6	LRE	1/4, 3/8, 1/2, AGB, AGC, AGD, AGE	D5, D6, D7, D8
Order example					
535191	MS	6	- LRE	- AGC	- D6

Ordering table					
Grid dimension	[mm]	62	Condi- tions	Code	Enter code
M Module No.	535191				
Series	Standard			MS	MS
Size	6			6	6
Function	Electrical pressure regulator			-LRE	-LRE
Connection sizes	Thread G1/4			-1/4	
	Thread G3/8			-3/8	
	Thread G1/2			-1/2	
	Connecting plate G1/4			-AGB	
	Connecting plate G3/8			-AGC	
	Connecting plate G1/2			-AGD	
	Connecting plate G3/4			-AGE	
Pressure regulation range	0.3 ... 4 bar			-D5	
	0.3 ... 7 bar			-D6	
	0.5 ... 12 bar			-D7	
	0.5 ... 16 bar			-D8	

Transfer order code

535191	MS	6	-	LRE	-		-	
--------	----	---	---	-----	---	--	---	--

Electrical pressure regulators MS6-LRE, MS series

Ordering data – Modular products

0 Options								
Pressure gauge alternatives	Alternative pressure gauge scale	Secondary venting	Electrically controlled pressure output	Sensor cables	Supply cable	Type of mounting	UL certification	Flow direction
VS, A4, RG, OP	PSI, MPA	OS	PI, PU	SK2, SK5	VK2, VK5	WBE, WPB	UL1	Z
- OP	-	- OS	- PU	- SK5	-	-	-	-

Ordering table					
Grid dimension [mm]		62	Condi- tions	Code	Enter code
0 Pressure gauge alternatives	Cover plate			-VS	
	Adapter plate for EN pressure gauge 1/4, without pressure gauge			-A4	
	Integrated pressure gauge, red-green scale			-RG	
	Control unit with display		1	-OP	
Alternative pressure gauge scale	psi		2	-PSI	
	MPa		2	-MPA	
Secondary venting	Without secondary venting			-OS	
Electrically controlled pressure output	Plug, M8, 3-pin, I out			-PI	
	Plug, M8, 3-pin, V out			-PU	
Sensor cables	Plug socket, M8, with cable, 2.5 m		1	-SK2	
	Plug socket, M8, with cable, 5 m		1	-SK5	
Supply cable	Plug socket, M12, with cable, 2.5 m			-VK2	
	Plug socket, M12, with cable, 5 m			-VK5	
Type of mounting	Connecting plate for direct thread		3	-WBE	
	Wall mounting plate for large wall gap		4	-WPB	
UL certification	cULus, ordinary location for Canada and USA			-UL1	
Flow direction	Flow direction from right to left			-Z	

- 1 **OP, SK2, SK5** Only with electrical pressure output PI, PU
2 **PSI, MPA** Not with pressure gauge alternatives VS, A4, RG, OP

- 3 **WBE** Only with connection thread size 1/4, 3/8, 1/2
4 **WPB** Only with connecting plate size AGB, AGC, AGD, AGE

Transfer order code

- - - - - - - - - -

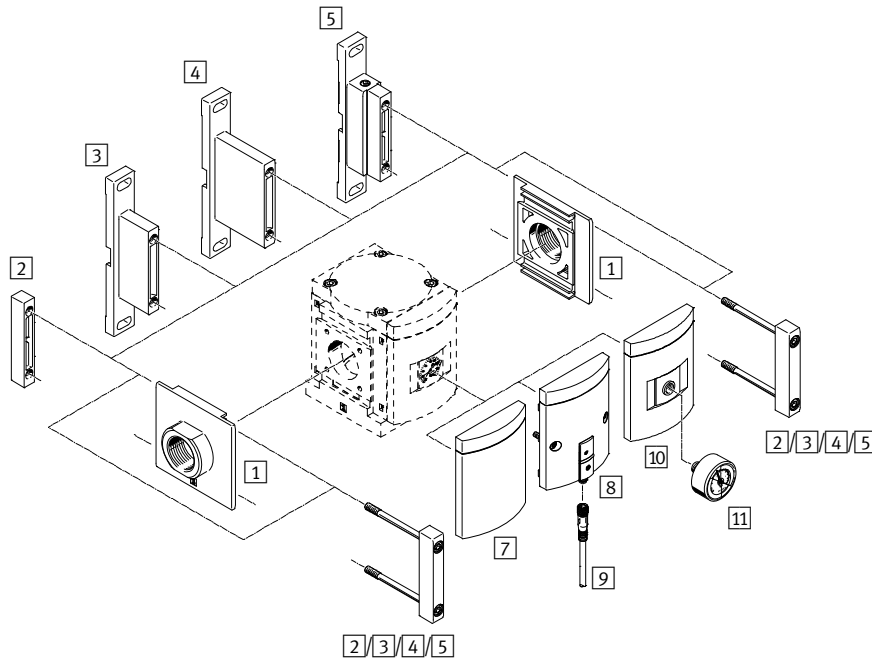
New
Variant EX4, UL1

Pressure regulators MS9-LR, MS series

Peripherals overview

FESTO

Pressure regulator MS9-LR



Note

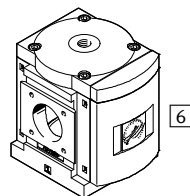
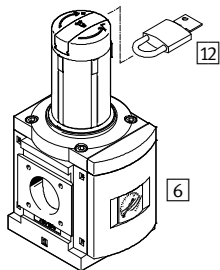
Additional accessories:

- Module connector for combinations with size MS6, MS9 or MS12

→ Internet: rmv, armv

manually operated

pneumatically actuated



Pressure regulators MS9-LR, MS series

Peripherals overview

FESTO

Mounting attachments and accessories					
		Individual unit		Combination	→ Page/ Internet
		With female thread 3/4 or 1	With connecting plate AG... Without EU certification EX4	With EU certification EX4 Module without connect- ing thread, without connecting plate G	
1	Connecting plate-SET MS9-AG...	–	■	■	ms9-ag
2	Module connector MS9-MV	–	–	–	ms9-mv
3	Mounting bracket MS9-WP	■	■	■	ms9-wp
4	Mounting bracket MS9-WPB	■	■	■	ms9-wp
5	Mounting bracket MS9-WPM	■	■	–	ms9-wp
6	MS pressure gauge AG	■	■	■	86
7	Cover plate VS	■	■	■	86
8	Pressure sensor without display AD7 ... AD10	■	■	–	86
9	Connecting cable NEBU-M8...-LE3	■	■	–	98
10	Adapter plate for EN pressure gauge 1/4 A4	■	■	■	86
11	Pressure gauge MA	■	■	■	98
12	Padlock LRVS-D	■	■	■	98

 New
Variant EX4, UL1

Pressure regulators MS9-LR, MS series

Type codes

FESTO

		MS	9	-	LR	-	G	-	D5	-	DI	-	AG	-	BAR	-	AS
Series																	
MS	Standard service unit																
Size																	
9	Grid dimension 90 mm																
Service function																	
LR	Pressure regulator																
Connection size																	
G	Module without connecting thread, without connecting plate																
Pressure regulation range/operation																	
D5	0.5 ... 4 bar, manually operated																
D6	0.5 ... 7 bar, manually operated																
D7	0.5 ... 12 bar, manually operated																
Alternative actuation principle																	
	Piloted																
DI	Directly actuated (only with pressure regulation range D5/D6)																
Pressure gauge																	
AG	MS pressure gauge																
Pressure gauge scale																	
BAR	Bar																
Security																	
AS	Rotary knob with detent, can be locked using accessories																

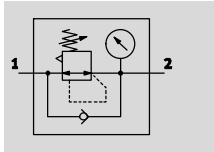
Additional variants can be ordered using the modular product system → 86

- Connecting plates
- Pressure regulation range/operation
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Security lock
- Type of mounting
- EU certification
- UL certification
- Alternative flow direction

Pressure regulators MS9-LR, MS series

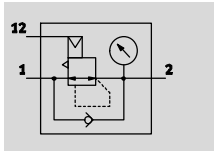
Technical data

Pressure regulation range/operation
D5/D6/D7/D8, manually operated



-  - Flow rate
6,500 ... 33,000 l/min
-  - Temperature range
-10 ... +60 °C
-  - Operating pressure
1 ... 20 bar

P0, pneumatically actuated



The pressure regulator maintains an essentially constant output pressure p2 independent of pressure fluctuations in the system and air consumption. The output pressure p2 can be set within the pressure regulation range either manually using the rotary

knob or pneumatically via a pilot pressure p12 by an external pilot regulator. When switching off the operating pressure, the output pressure p2 is vented via connection 3 (secondary venting).

- Good regulation characteristics with low hysteresis and primary pressure compensation
- High flow rate with minimal pressure drop
- Piloted or directly actuated diaphragm regulator
- Four pressure regulation ranges: 0.5 ... 4 bar, 0.5 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Available with or without secondary venting
- Actuator lock to protect set values against adjustment
- Return flow option for exhausting from output port 2 to output port 1 already integrated
- Optional pressure sensor
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

General technical data				
Pneumatic connection 1, 2		G3/4	G1	G1/2 ... G1 1/2 (with connecting plate AG...)
Pilot air connection 12 with pressure regulation range/operation P0		G1/4		- (without connecting thread G)
Design		Piloted diaphragm regulator		
		Directly actuated diaphragm regulator		
Regulator type	Piloted	Output pressure constant, with return flow action, with primary pressure compensation, with secondary venting		
	Directly actuated	Output pressure constant, with return flow action, with/without secondary venting		
Type of mounting		Via accessories		
		In-line installation		
		Front panel mounting		
Mounting position		Any ¹⁾		
Actuation security		Rotary knob with detent		
		Rotary knob with detent, can be locked using accessories		
		Rotary knob with integrated lock		
Pressure regulation range/operation	D5 [bar]	0.5 ... 4, manually operated		
	D6 [bar]	0.5 ... 7, manually operated		
	D7 [bar]	0.5 ... 12, manually operated (0.5 ... 10 with pressure sensor variant AD...)		
	D8 [bar]	0.5 ... 16, manually operated (0.5 ... 10 with pressure sensor variant AD...)		
	P0 [bar]	0.5 ... 16, pneumatically actuated ²⁾		
Max. pressure hysteresis [bar]		0.4		
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		
		G1/4 prepared		

¹⁾ The pressure regulator must be mounted vertically when combined with a pressure sensor as condensate must not collect in the pressure sensor.

²⁾ Output pressure p2 corresponds roughly to the applied pilot pressure p12.

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

 New
Variant EX4, UL1

Pressure regulators MS9-LR, MS series

Technical data

FESTO

Standard nominal flow rate $q_{nN}^{1)2)}$ [l/min]					
Design		Pilot diaphragm regulator		Directly actuated diaphragm regulator DI	
Pneumatic connection		G $\frac{3}{4}$	G1	G $\frac{3}{4}$	G1
Pressure regulation range	D5	19,000 ³⁾	26,000 ³⁾	14,000 ³⁾	20,000 ³⁾
	D6	17,000	20,000	14,000	11,000
	D7	17,000	20,000	–	–
	D8	17,000	20,000	–	–
	P0	21,000	25,000	–	–

1) All values $\pm 15\%$

2) Measured at $p_1 = 10$ bar and $p_2 = 6$ bar, $\Delta p = 1$ bar

3) Measured at $p_1 = 10$ bar and $p_2 = 4$ bar, $\Delta p = 1$ bar

Operating and environmental conditions		
EU certification	–	EX4
Operating pressure [bar]	1 ... 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)	Operation with lubricated medium not possible
Ambient temperature [°C]	–10 ... +60 (0 ... +50) ¹⁾	
Temperature of medium [°C]	–10 ... +60 (0 ... +50) ¹⁾	
Storage temperature [°C]	–10 ... +60	
Corrosion resistance class CRC ²⁾	2	
UL certification	cULus recognized (OL)	

1) Value in brackets applies to MS9-LR with pressure sensor AD...

2) 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 T60 °C X
ATEX ambient temperature	–10 °C $\leq$ Ta $\leq$ +60 °C
CE mark (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)

Pressure regulators MS9-LR, MS series

Technical data

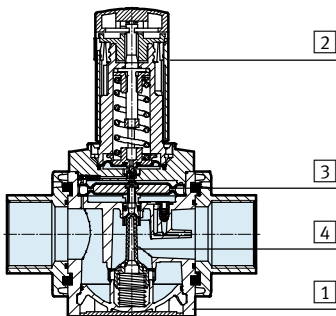
FESTO

Weight [g]

Pressure regulator	1,400
Pressure regulator with rotary knob with integrated lock E11	1,700

Materials

Sectional view



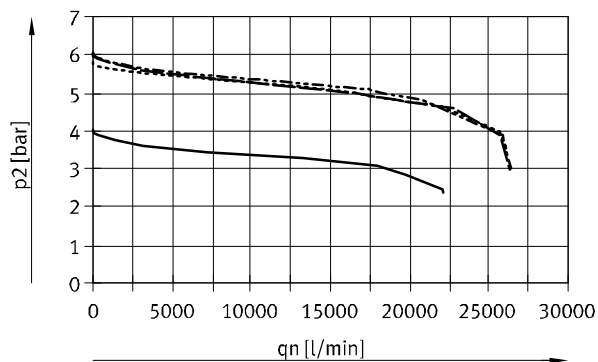
Pressure regulator

1	Housing	Die-cast aluminium
2	Rotary knob	PA
	Rotary knob with integrated lock E11	Aluminium
3	Diaphragm	NBR
4	Valve stem	Wrought aluminium alloy, NBR, POM
-	Cover	PA, reinforced
-	Connecting plate, module connector, mounting bracket	Die-cast aluminium
-	Seals	NBR
Note on materials		RoHS-compliant

Standard flow rate q_n as a function of output pressure p_2 at operating pressure $p_1 = 10$ bar

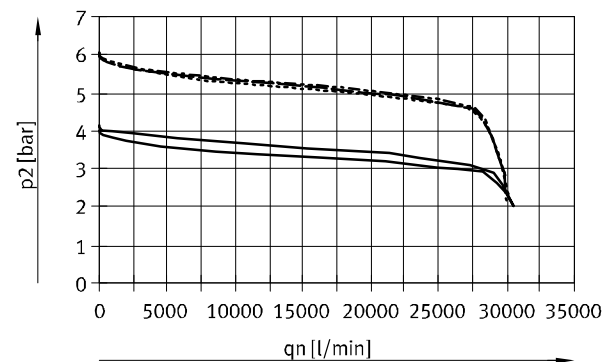
Piloted diaphragm regulator

Pneumatic connection $G\frac{3}{4}$



— D5: 0.5 ... 4 bar - · - · - D7: 0.5 ... 12 bar
- - - - - D6: 0.5 ... 7 bar · · · · · D8: 0.5 ... 16 bar

Pneumatic connection G1



New
Variant EX4, UL1

Pressure regulators MS9-LR, MS series

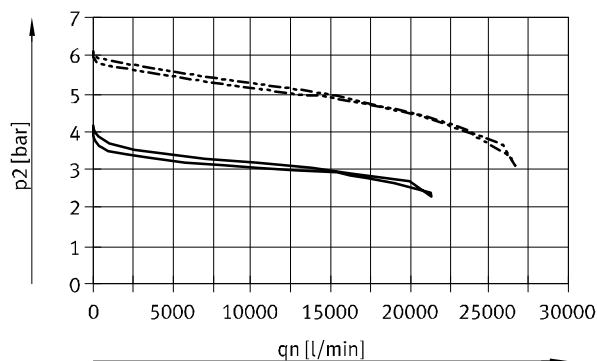
Technical data

FESTO

Standard flow rate q_n as a function of output pressure p_2 at operating pressure $p_1 = 10$ bar

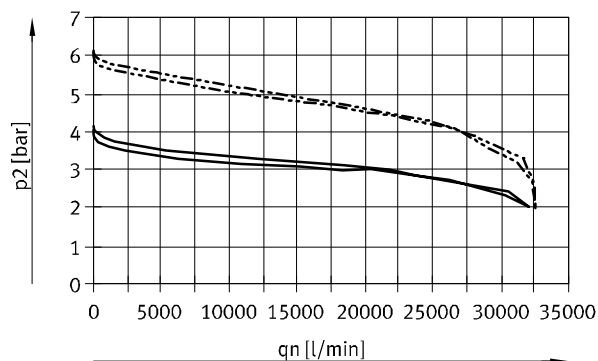
Directly actuated diaphragm regulator DI

Pneumatic connection $G\frac{3}{4}$



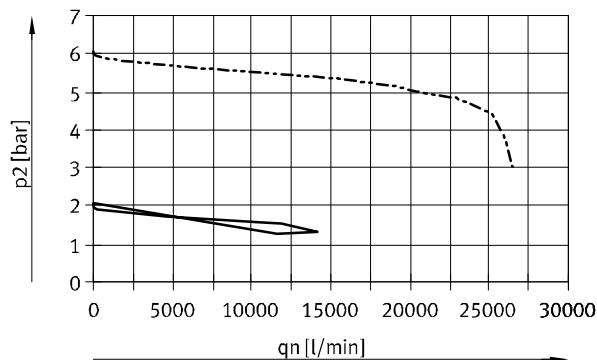
— D5: 0.5 ... 4 bar
- - - D6: 0.5 ... 7 bar

Pneumatic connection $G1$

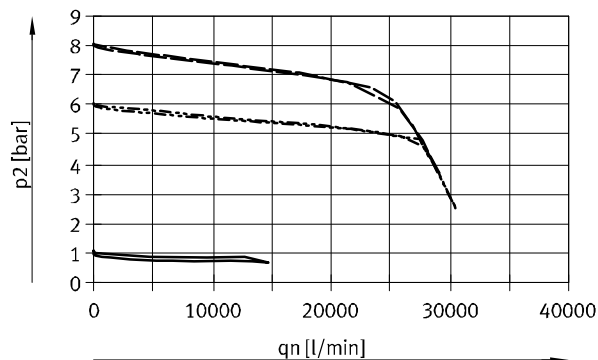


External pilot regulator, pressure regulation range/operation P0

Pneumatic connection $G\frac{3}{4}$



Pneumatic connection $G1$



Pressure regulators MS9-LR, MS series

Technical data

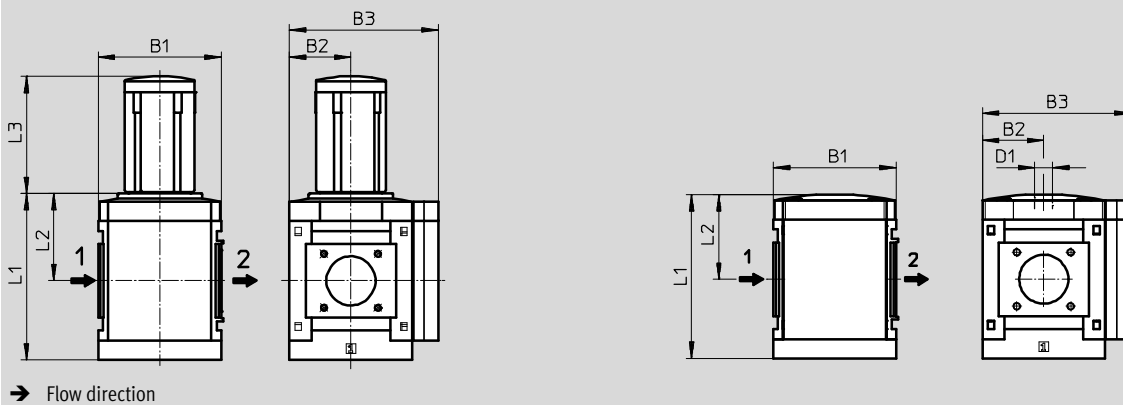
FESTO

Dimensions – Basic version

Download CAD data → www.festo.com

Pressure regulation range/operation D5/D6/D7/D8, manually operated, without connecting thread G, cover plate VS, rotary knob with detent

Pressure regulation range/operation PO, pneumatically actuated, without connecting thread G, cover plate VS



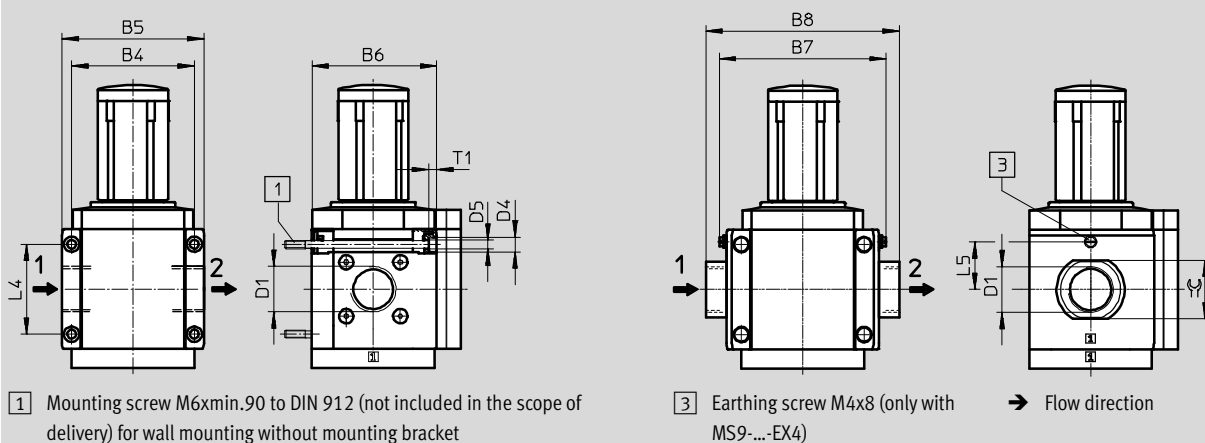
Type	B1	B2	B3	D1	L1		L2		L3
					Piloted	Directly actuated DI	Piloted	Directly actuated DI	
MS9-LR-G-D5/D6/D7/D8	90	45	109	–	129	122	71.4	64	86
MS9-LR-G-PO				G $\frac{1}{4}$	120	–	62	–	–

Dimensions – Connecting thread/connecting plate

Download CAD data → www.festo.com

With connecting thread $\frac{3}{4}$ or 1

With connecting plate AG...



Type	B4	B5	B6	B7		B8	D1	D4	D5	L4	L5	T1	≙
					EX4								
MS9-LR- $\frac{3}{4}$	90	104	91.5	–	–	–	G $\frac{3}{4}$	11	6.5	66	–	6	–
MS9-LR-1							G1						
MS9-LR-AGD	–	–	–	112	122	132	G $\frac{1}{2}$	–	–	–	35	–	30
MS9-LR-AGE						132	G $\frac{3}{4}$						36
MS9-LR-AGF						142	G1						41
MS9-LR-AGG						162	G $\frac{1}{4}$						50
MS9-LR-AGH						176	G $\frac{1}{2}$						55

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

New
Variant EX4, UL1

Pressure regulators MS9-LR, MS series

Technical data

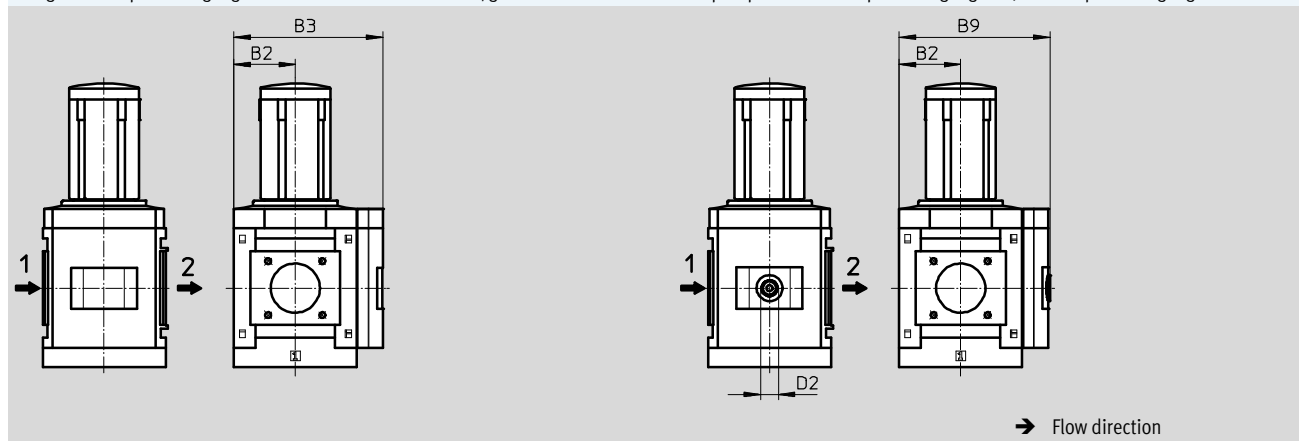
FESTO

Dimensions – 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 1/4, without pressure gauge



Type	B2	B3	B9	D2
MS9-LR-...-AG/RG	45	109	–	–
MS9-LR-...-A4		–	110	G1/4

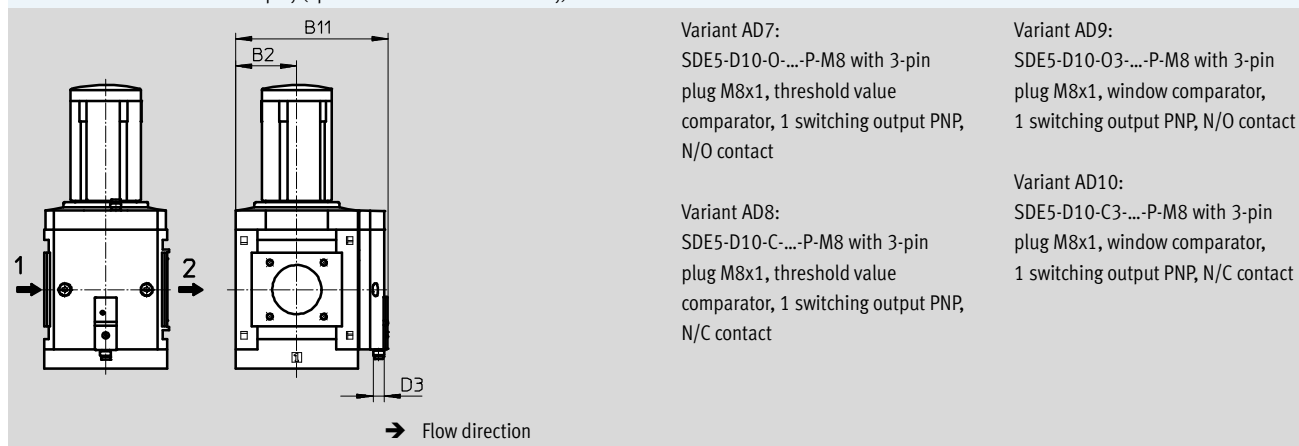
– || – Note: This product conforms to ISO 1179-1 and to ISO 228-1

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Pressure sensor without LCD display (operational status indicator only) AD7...AD10

Technical data → Internet: [sde5](http://sde5.festo.com)



Type	B2	B11	D3
MS9-LR-...-AD7/AD8/AD9/AD10	45	112	M8

Pressure regulators MS9-LR, MS series

Technical data

FESTO

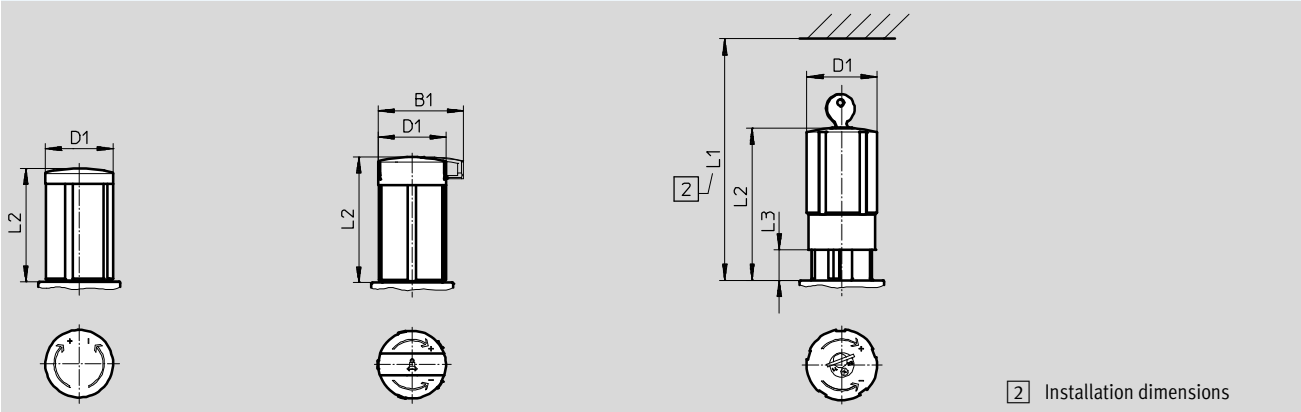
Dimensions – Rotary knob

Download CAD data → www.festo.com

Rotary knob with detent

Rotary knob with detent,
can be locked using accessories AS

Rotary knob with integrated lock
E11



Type	B1	D1	L1	L2	L3
MS9-LR	–	52	–	86	–
MS9-LR-...-AS	65	52	–	96	–
MS9-LR-...-E11	–	52	174	114	25

Ordering data

Integrated pressure gauge, display unit [bar], rotary knob with detent, can be locked using accessories

Size	Connection	Piloted diaphragm regulator		Directly actuated diaphragm regulator	
		Part No.	Type	Part No.	Type
Pressure regulation range 0.5 ... 4 bar, manually operated					
MS9	–	564134	MS9-LR-G-D5-AG-BAR-AS	564135	MS9-LR-G-D5-DI-AG-BAR-AS
Pressure regulation range 0.5 ... 7 bar, manually operated					
MS9	–	564136	MS9-LR-G-D6-AG-BAR-AS	564137	MS9-LR-G-D6-DI-AG-BAR-AS
Pressure regulation range 0.5 ... 12 bar, manually operated					
MS9	–	564138	MS9-LR-G-D7-AG-BAR-AS	–	–

New Variant EX4, UL1

Pressure regulators MS9-LR, MS series

Ordering data – Modular products

FESTO

M Mandatory data						O Options	M
Module No.	Series	Size	Function	Connection size	Pressure range/operation	Regulator type	Pressure gauge/pressure gauge alternatives
562530	MS	9	LR	3/4, 1, AGD, AGE, AGF, AGG, AGH, G	D5, D6, D7, D8, PO	DI	AG, VS, A4, RG, AD7 ... AD10
Ordering example							
562530	MS	9	- LR	- G	- D5	-	- AG

Ordering table						Grid dimension	[mm]	90	Condi- tions	Code	Enter code
M	Module No.	562530									
	Series	Standard								MS	MS
	Size	9								9	9
	Function	Pressure regulator								-LR	-LR
	Connection size	Thread G3/4								1	-3/4
		Thread G1								1	-1
		Connecting plate G1/2									-AGD
		Connecting plate G3/4									-AGE
		Connecting plate G1									-AGF
		Connecting plate G1 1/4									-AGG
		Connecting plate G1 1/2									-AGH
		Module without connecting thread, without connecting plate								1	-G
	Pressure range/operation	0.5 ... 4 bar, manually operated									-D5
		0.5 ... 7 bar, manually operated									-D6
		0.5 ... 12 bar, manually operated									-D7
		0.5 ... 16 bar, manually operated								1	-D8
		Max. 16 bar, pneumatically actuated (pressure range defined by means of pilot regulator)								2	-PO
O	Regulator type	Directly actuated								3	-DI
M	Pressure gauge/pressure gauge alternatives	MS pressure gauge									-AG
		Cover plate									-VS
		Adapter plate for EN pressure gauge 1/4, without pressure gauge									-A4
		Integrated pressure gauge, red/green scale								4	-RG
		Pressure sensor without display, plug M8, threshold value comparator, PNP, N/O contact								1 5	-AD7
		Pressure sensor without display, plug M8, threshold value comparator, PNP, N/C contact								1 5	-AD8
		Pressure sensor without display, plug M8, window comparator, PNP, N/O contact								1 5	-AD9
		Pressure sensor without display, plug M8, window comparator, PNP, N/C contact								1 5	-AD10

1 3/4, 1, G, D8, AD7, AD8, AD9, AD10, E11, WPM

Not with EU certification EX4

2 PO

Not with regulator type DI

Not with security AS, E11

3 DI

Not with pressure range D7, D8

4 RG

Not with alternative pressure gauge scale PSI,

PSI scale serves only as an auxiliary scale

5 AD7 ... AD10

Measuring range max. 10 bar

Transfer order code

562530 MS 9 - LR - - - - -

Pressure regulators MS9-LR, MS series

Ordering data – Modular products

→ 0 Options

Alternative pressure gauge scale	Secondary venting	Alternative mounting position	Security	Type of mounting	EU certification	UL certification	Alternative flow direction
PSI, MPA, BAR	OS	KD	AS, E11	WP, WPM, WPB	EX4	UL1	Z
- BAR	-	-	- AS	-	-	-	-

Ordering table		Grid dimension [mm]	90	Condi- tions	Code	Enter code
0	Alternative pressure gauge scale	Psi		6	-PSI	
		MPa		6	-MPA	
		Bar		6	-BAR	
	Secondary venting	Without secondary venting		7	-OS	
	Alternative mounting position	Rotary knob underneath (connection underneath with P0)			-KD	
	Security	Can be locked using accessories			-AS	
		With integrated lock	1		-E11	
	Type of mounting	Mounting bracket	8		-WP	
		Mounting bracket	1 8		-WPM	
		Mounting bracket for large wall gap	8		-WPB	
	EU certification	II 2GD to EU Directive 94/9/EG			-EX4	
	UL certification	cULus, ordinary location for Canada and USA			-UL1	
	Alternative flow direction	Flow direction from right to left			-Z	

1 3/4, 1, G, D8, AD7, AD8, AD9, AD10, E11, WPM

Not with EU certification EX4

7 OS

Only with regulator type DI

8 WP, WPM, WPB

Not with module G

6 PSI, MPA, BAR

Not with pressure gauge alternatives VS, A4, AD7, AD8, AD9, AD10

Transfer order code

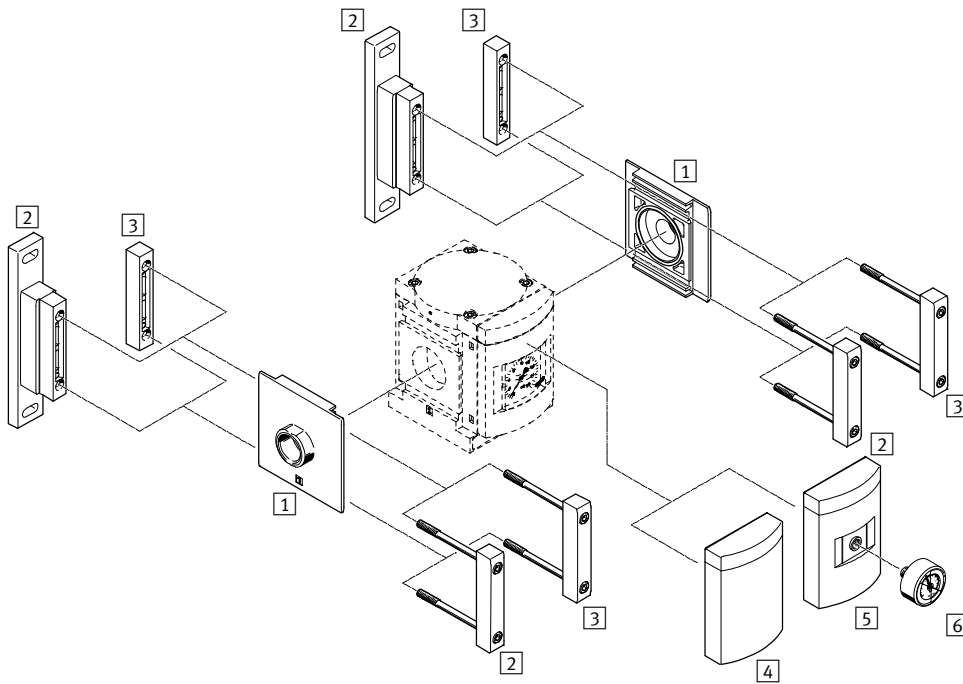
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Pressure regulators MS12-LR, MS series

Peripherals overview

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Pressure regulator MS12-LR



-  - Note

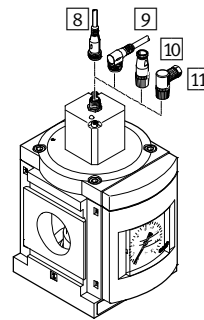
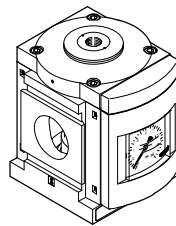
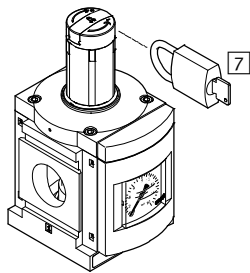
Additional accessories:

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

manually operated

pneumatically actuated

solenoid actuated



Pressure regulators MS12-LR, MS series

Peripherals overview

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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	Cover plate VS	96
5	Adapter plate for EN pressure gauge 1/4 A4	96
6	Pressure gauge MA	98
7	Padlock LRVS-D	98
8	Connecting cable NEBU-M12G...-LE4	98
9	Connecting cable NEBU-M12W...-LE4	98
10	Sensor socket SIE-GD	98
11	Angled plug socket SIE-WD	98

Pressure regulators MS12-LR, MS series

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Type codes

		MS	12	-	LR	-	G	-	D7	-	LD	-	AS
Series													
MS	Standard service unit												
Size													
12	Grid dimension 124 mm												
Service function													
LR	Pressure regulator												
Connection size													
G	Module without connecting thread, without connecting plate Connecting plates → Accessories												
Pressure regulation range/actuation mode													
D7	0.5 ... 12 bar, manually operated												
PO	0.5 ... 16 bar, pneumatically actuated												
PE6	0.15 ... 6 bar, solenoid actuated												
Rotary knob													
Pressure regulation range/actuation mode D7													
LD	Long rotary knob												
Pressure regulation range/actuation mode PO/PE6													
	No rotary knob												
Security													
Pressure regulation range/actuation mode D7													
AS	Rotary knob with detent, lockable via accessories												
Pressure regulation range/actuation mode PO/PE6													
	No rotary knob												

Further variants can be ordered using the modular system → 96

- Connecting plates
- Pressure regulation range/actuation mode
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Security
- Type of mounting
- Alternative flow direction

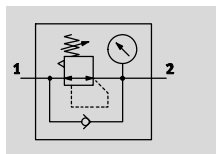
Pressure regulators MS12-LR, MS series

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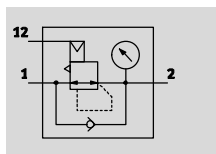
Technical data

Pressure regulation range/actuation mode

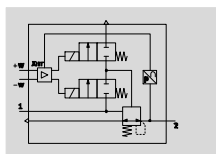
D6/D7/D8, manually operated



P0, pneumatically actuated



PE6, solenoid actuated



- Flow rate
12,000 ... 22,000 l/min
- Temperature range
-10 ... +60 °C
- Operating pressure
0.8 ... 21 bar
- www.festo.com

Wearing parts kits
→ 95



The pressure regulator maintains an essentially constant output pressure p2 independent of pressure fluctuations in the system and air consumption. The output pressure p2 can be set within the pressure regulation range either manually using the rotary knob, pneumatically via a pilot

pressure p12 by an external pilot regulator or electrically via setpoint signals. When the operating pressure or the voltage for the setpoint signals is switched off, the output pressure p2 is vented via connection 3 (secondary venting).

- Good regulation characteristics with low hysteresis and primary pressure compensation
- High flow rate with minimal pressure drop
- Regulator lock for protecting the values against adjustment
- With secondary venting
- Pressure gauge connection for different fitting options

General technical data						
Pneumatic connection 1, 2		G1 (with sub-base AGF) ¹⁾	G1¼ (with sub-base AGG) ¹⁾	G1½ (with sub-base AGH) ¹⁾	G2 (with sub-base AGI) ¹⁾	– (without connecting thread G)
Pilot air connection 12 with pressure regulation range/actuation mode PO		G1¼				
Constructional design		Pressure regulator with/without pressure gauge				
		Pilot actuated diaphragm regulator (except pressure regulation range/actuation mode PO)				
		Diaphragm regulator (with pressure regulation range/actuation mode PO)				
Regulating function		Output pressure constant, via primary pressure compensation, via return flow function, via secondary venting				
Type of mounting		Via accessories				
		In-line installation				
Mounting position		Any				
Regulator lock		Rotary knob with detent				
		Rotary knob with detent, lockable via accessories				
		Rotary knob with integrated lock				
Pressure regulation range/actuation mode	D6	[bar]	0.3 ... 7, manually operated			
	D7	[bar]	0.5 ... 12, manually operated			
	D8	[bar]	0.5 ... 16, manually operated			
	PO	[bar]	0.5 ... 16, pneumatically actuated ²⁾			
	PE6	[bar]	0.15 ... 6, solenoid actuated			
Max. hysteresis		[bar]	0.4 with pressure regulation range/actuation mode D6/D7/D8/PO			
		[bar]	0.04 with pressure regulation range/actuation mode PE6			
Pressure display		Via pressure gauge				

1) Connecting plate must be ordered separately as an accessory → Internet: ms12-ag

2) Output pressure p2 corresponds roughly to the applied pilot pressure p12.

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

Pressure regulators MS12-LR, MS series

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Technical data

Flow rates		
Pressure regulation range/ actuation mode	D6/D7/D8/PO ¹⁾	PE6 ²⁾
Standard nominal flow rate $q_{nN}^{3)}$ [l/min]		
$q_{nN} 1 \rightarrow 2$	G1	13,000
	G1¼	13,500
	G1½	16,000
	G2	22,000
Secondary venting flow rate [l/min]		
$q_n 2 \rightarrow 3$	≤ 600	≤ 600

1) Measured at $p_1 = 10$ bar and $p_2 = 6$ bar, $\Delta p = 0.5$ bar

2) Measured at $p_1 = 7$ bar and $p_2 = 6$ bar, $\Delta p = 0.5$ bar

3) Dependent on connecting plate selected, must be ordered separately as an accessory → Internet: ms12-ag

Electrical data (pressure regulation range/actuation mode PE6 only)		
Operating voltage range	[V DC]	21.6 ... 26.4
Nominal operating voltage	[V DC]	24
Residual ripple	[%]	10
Analogue input signal range	[V]	0 ... 10
Max. current consumption	[A]	0.15
Max. electrical power consumption	[W]	3.6
Protection class		IP65

Operating and environmental conditions		
Pressure regulation range/ actuation mode	D6/D7/D8/PO	PE6
Operating pressure	[bar]	0.8 ... 21
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Ambient temperature	[°C]	−10 ... +60
Temperature of medium	[°C]	−10 ... +60
Storage temperature	[°C]	−10 ... +60
Corrosion resistance class	CRC ¹⁾	2
CE mark (see declaration of conformity)	–	To EU EMC Directive

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.

Weight [g]	
Pressure regulator	4,000
Pressure regulator with rotary knob with integrated lock E11	4,300

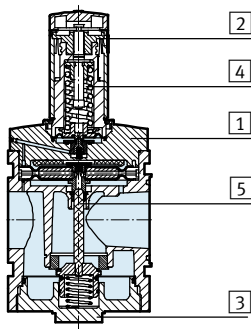
Pressure regulators MS12-LR, MS series

FESTO

Technical data

Materials

Sectional view

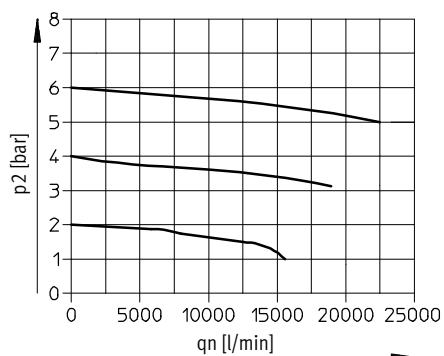


Pressure regulator		
1	Housing	Die-cast aluminium
2	Rotary knob	PA-reinforced, POM
	Rotary knob with integrated lock E11	Wrought aluminium alloy
3	Cap (bottom)	Wrought aluminium alloy
4	Spring	Spring steel
5	Valve stem	Wrought aluminium alloy, NBR, high alloy steel non-corrosive
–	Seals, diaphragm	NBR
Note on materials		RoHS-compliant
		Free of copper and PTFE only with cover plate VS

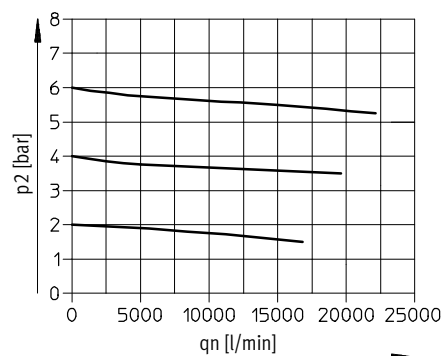
Standard flow rate q_n as a function of output pressure p_2 (MS12-LR-...-D6/D7/D8/PO only)

With connecting plate MS12-AGF
Pneumatic connection G1

Input pressure $p_1 = 10$ bar

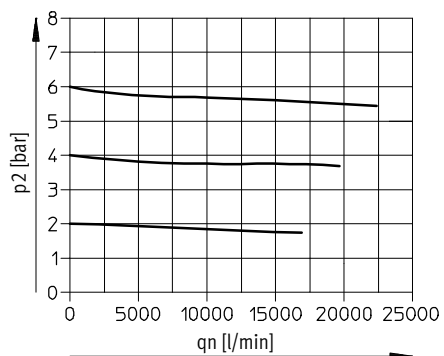


With connecting plate MS12-AGG
Pneumatic connection G1¼

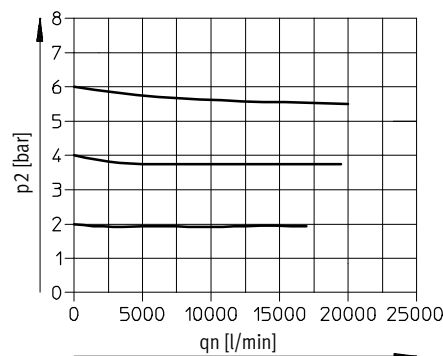


With connecting plate MS12-AGH
Pneumatic connection G1½

Input pressure $p_1 = 10$ bar



With connecting plate MS12-AGI
Pneumatic connection G2



Pressure regulators MS12-LR, MS series

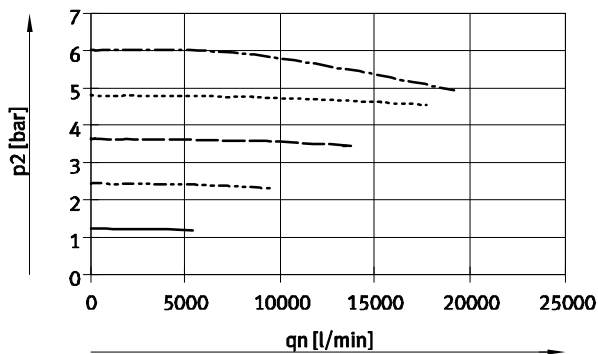
Technical data

FESTO

Standard flow rate q_n as a function of output pressure p_2 (MS12-LR-...-PE6 only)

With connecting plate MS12-AGH

Pneumatic connection G1½



Input pressure $p_1 = 7$ bar

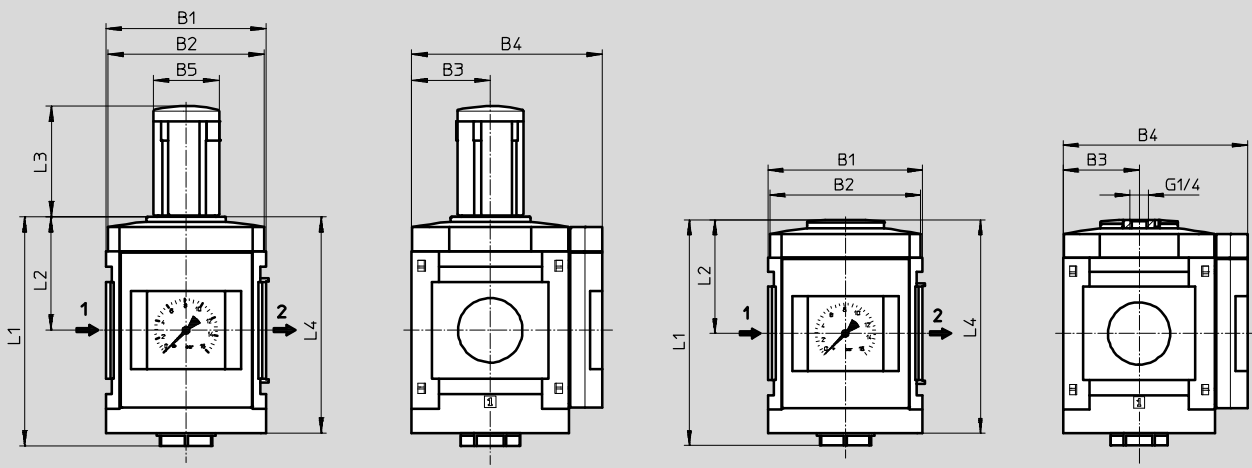
— 2 volts
- - - 4 volts
- · - 6 volts
· · · 8 volts
- - - 10 volts

Dimensions

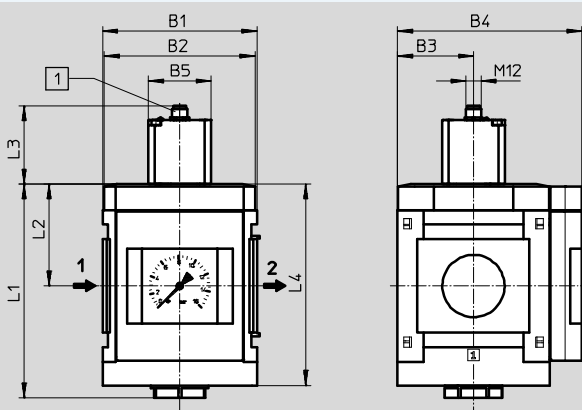
Pressure regulation range/actuation mode D6/D7/D8, manually operated, integrated pressure gauge, display unit [bar], long rotary knob

Download CAD data → www.festo.com

Pressure regulation range/actuation mode PO, pneumatically actuated, integrated pressure gauge, display unit [bar]



Pressure regulation range/actuation mode PE6, solenoid actuated, integrated pressure gauge, display unit [bar]



- 1 Suitable for
- Connecting cable NEBU-M12G...-LE4/NEBU-M12W...-LE4
 - Sensor socket SIE-GD
 - Angled plug socket SIE-WD-TR

→ Flow direction

Type	B1	B2	B3	B4	B5	L1	L2	L3	L4
MS12-LR-...-D6/D7/D8	124	122	61	148	52	178	88	86	168
MS12-LR-...-PO					–	181	91	–	171
MS12-LR-...-PE6					50	172	82	62.7	162

Pressure regulators MS12-LR, MS series

Technical data

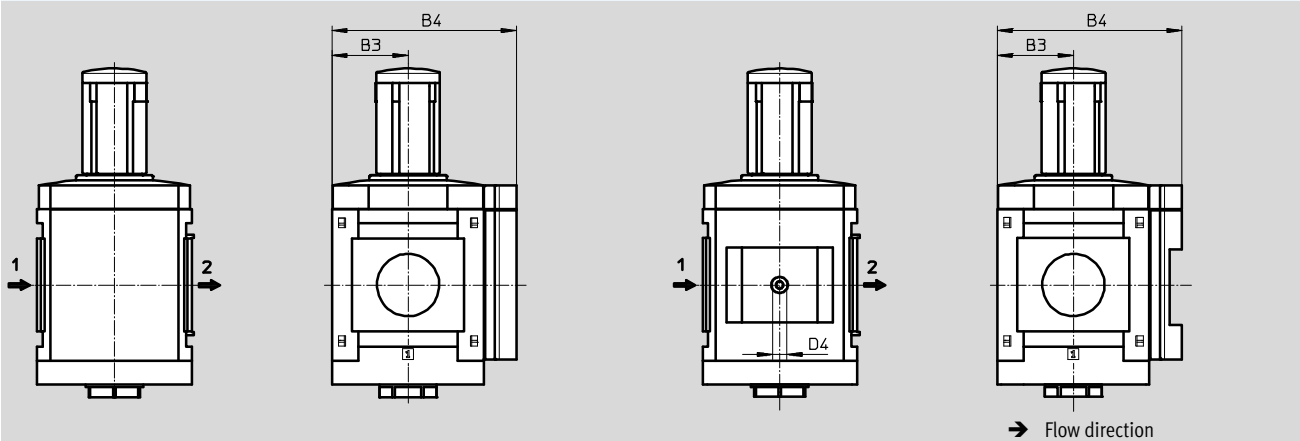
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Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Cover plate VS

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



Type	B3	B4	D4
MS12-LR-...-VS	61	148	–
MS12-LR-...-A4	61	148	G1/4

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

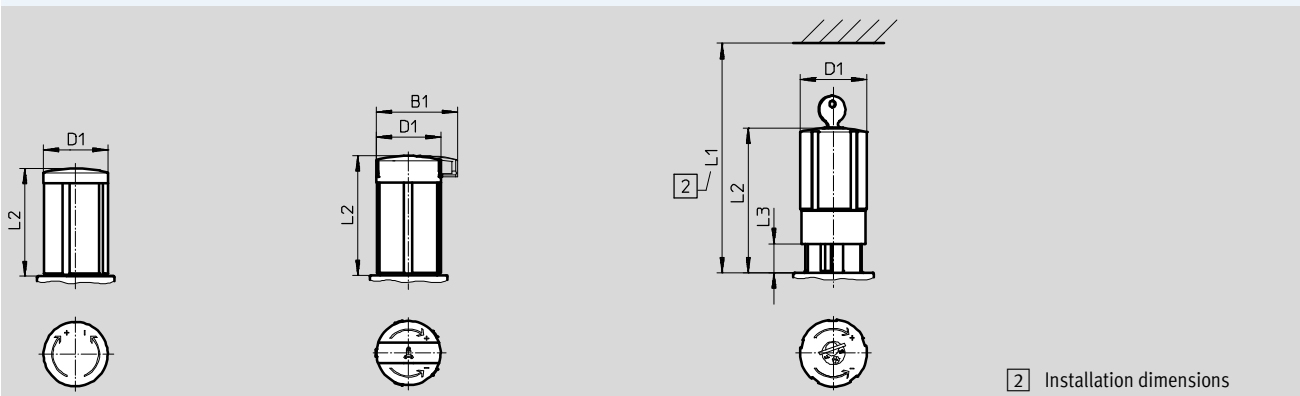
Dimensions – Rotary knob

Download CAD data → www.festo.com

Long rotary knob with detent LD

Long rotary knob with detent,
lockable via accessories LD-AS

Rotary knob with integrated lock
E11



Type	B1	D1	L1	L2	L3
MS12-LR-...-LD	–	52	–	86	–
MS12-LR-...-LD-AS	65	52	–	96	–
MS12-LR-...-E11	–	52	174	114	25

Ordering data

Integrated pressure gauge, display unit [bar]

Size	Connection	Pressure regulation range 0.5 ... 12 bar, manually actuated, long rotary knob with detent, lock- able via accessories	Pressure regulation range 0.5 ... 16 bar, pneumatically actuated	Pressure regulation range 0.15 ... 6 bar, solenoid actuated
		Part No. Type	Part No. Type	Part No. Type
MS12	G1 ... G2 ¹⁾	537148 MS12-LR-G-D7-LD-AS	541680 MS12-LR-G-PO	564888 MS12-LR-G-PE6

1) Connecting plate must be ordered separately as an accessory → Internet: ms12-ag

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

Ordering data – Wearing parts kits

Size	Part No. Type
MS12	673586 MS12-LR/LFR

Pressure regulators MS12-LR, MS series

Ordering data – Modular products

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M Mandatory data →

Module No.	Series	Size	Function	Connection size	Pressure regulation range/ actuation mode
535021	MS	12	LR	AGF AGG AGH AGI G	D6 D7 D8 PO PE6
Order example					
535021	MS	12	- LR	- G	- D8

Ordering table					
Grid dimension	[mm]	124	Condi- tions	Code	Enter code
M	Module No.	535021			
	Series	Standard		MS	MS
	Size	12		12	12
	Function	Pressure regulator		-LR	-LR
	Connection size	Connecting plate G1		-AGF	
		Connecting plate G1¼		-AGG	
		Connecting plate G1½		-AGH	
		Connecting plate G2		-AGI	
		Module without connecting thread, without connecting plate		-G	
	Pressure regulation range/ actuation mode	0.3 ... 7 bar, manually operated		-D6	
		0.5 ... 12 bar, manually operated		-D7	
		0.5 ... 16 bar, manually operated		-D8	
		Max. 16 bar, pneumatically actuated (pressure range defined by means of pilot regulator)	3 4	-PO	
		0.15 ... 6 bar, solenoid actuated (pilot control via proportional pressure regulator)	3 4	-PE6	

3 LD, PO, PE6 Not with integrated lock E11

4 PO, PE6 Not with rotary knob alternative LD
Not with integrated lock AS

Transfer order code

535021	MS	12	- LR	-		-	
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Pressure regulators MS12-LR, MS series

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Ordering data – Modular products

0 Options					
Pressure gauge alternatives	Alternative pressure gauge scale	Rotary knob alternative	Security	Type of mounting	Alternative flow direction
VS A4	PSI MPa	LD	AS E11	WP	Z
- VS	-	- LD	- AS	-	- Z

Ordering table					
Grid dimension	[mm]	124	Condi- tions	Code	Enter code
0 Pressure gauge alternatives	Cover plate			-VS	
	Adapter plate for EN pressure gauge 1/4, without pressure gauge			-A4	
Alternative pressure gauge scale	psi		1	-PSI	
	MPa		1	-MPa	
Rotary knob alternative	Long rotary knob		2 3	-LD	
Security	Lockable via accessories			-AS	
	With integrated lock		2	-E11	
Type of mounting	Mounting bracket		5	-WP	
Alternative flow direction	Flow direction from right to left			-Z	

1 PSI, MPa Not with pressure gauge alternatives VS, A4

2 LD, E11 When selecting D6/D7/D8, rotary knob alternative LD or integrated lock E11 must be selected

3 LD, PO, PE6 Not with integrated lock E11

5 WP Only with sub-base AGF, AGG, AGH or AGI

Transfer order code

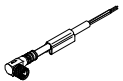
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Pressure regulators MS-LR/LRB/LRP/LRPB/LRE, MS series

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Accessories

Ordering data – Pressure gauge MA						
	Nominal size	Pneumatic connection	Indicating range		Part No.	Type
			[bar]	[psi]		
	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
	Precision pressure gauge MAP, EN 837-1				Technical data → Internet: map	
	40	R⅛	0 ... 1	0 ... 15	161126	MAP-40-1-⅛-EN
			0 ... 4	0 ... 58	162842	MAP-40-4-⅛-EN
			0 ... 6	0 ... 87	161127	MAP-40-6-⅛-EN
0 ... 16			0 ... 232	161128	MAP-40-16-⅛-EN	

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
		5	2.5	541330	NEBU-M12G5-K-2.5-LE5
			5	541331	NEBU-M12G5-K-5-LE5
	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 – Padlock LRVS-D					
	Weight [g]	Part No.	Type		
	120	193786	LRVS-D		