

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

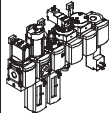
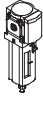
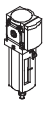
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Pressure regulators MS-LR/LRB/LRP/LRPB/LRE, MS series

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Product range overview – MS series service units

Type	Size				Pressure regulation range						Grade of filtration			
					[bar]						[µm]			
Code		Pneumatic connection in housing	Connecting plate	0.05	0.05	0.1	0.3	0.1	0.5					
				...	...	...	...	...	...					
				0.7	2.5	4	7	12	16	0.01	1	5	40	
			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, G1 1/4, G1 1/2	–	–	■	■	■	■	–	–	■	■
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	■	■	■	–	–	■	■
Filters MS-LF		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–	–	■	■
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	■	■
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	–	–	–	–	–	–	–	–	■	■
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–	–	■	■
Fine and micro filters MS-LFM		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	■	■	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	■	■	–	–
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	–	–	–	–	–	–	■	■	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	■	■	–	–
Activated carbon filters MS-LFX		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	–	–
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–	–	–	–
Water separators MS-LWS		4	–											
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	–	–
		9	–											
		12	–											

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 G 1/8	Adapter plate for EN pressure gauge G 1/4	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	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

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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 pattern M12 to DESINA	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	–	–	–	–	–	–	–	–	–	–
Electrical on-off valves MS-EM(1)		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	–	–
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–	–	–	–
Electrical on-off valves MS-EE		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	■	–	■	■	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	■	–	■	■	–
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	–	–	–	–	–	■	■	■	■	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	■	■	■	■	–
Electrical soft-start valves MS-DL		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	–	–
		9	–	–	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–	–	–	–	–
Electrical soft-start valves MS-DE		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	■	–	■	■	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	■	–	■	■	–
		9	–	–	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	■	■	■	■	–
Soft start and exhaust valves MS-SV		4	–	–	–	–	–	–	–	–	–	–	–	–
		6	G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	■	–	–	–	–
		9	–	–	–	–	–	–	–	–	–	–	–	–
		12	–	–	–	–	–	–	–	–	–	–	–	–

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 G 1/8	Adapter plate for EN pressure gauge G 1/4	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	–	–	■	■	–	■	–	■	■	–	■	86
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
Electrical on-off valves MS-EM(1)	4	–	–	■	■	■	■	■	–	–	■	■	ms4-em1
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-em1
	9	–	–	■	■	–	■	–	–	–	■	■	ms9-em
	12	–	–	■	■	–	■	–	–	–	■	■	ms12-em
Electrical on-off valves MS-EE	4	–	–	■	■	■	■	■	–	–	■	■	ms4-ee
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-ee
	9	–	–	■	■	–	■	–	–	–	■	■	ms9-ee
	12	–	–	■	■	–	■	–	–	–	■	■	ms12-ee
Electrical soft-start valves MS-DL	4	–	–	■	■	■	■	■	–	–	–	■	ms4-dl
	6	–	–	■	■	–	■	■	–	–	–	■	ms6-dl
	9	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	■	■	–	■	–	–	–	–	■	ms12-dl
Electrical soft-start valves MS-DE	4	–	–	■	■	■	■	■	–	–	–	■	ms4-de
	6	–	–	■	■	–	■	■	–	–	–	■	ms6-de
	9	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	■	■	–	■	–	–	–	–	■	ms12-de
Soft start and exhaust valves MS-SV	4	–	–	–	–	–	–	–	–	–	–	–	–
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-sv
	9	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–

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Product range overview – MS series service units

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				0.1 ... 4	0.3 ... 7	0.1 ... 12	0.5 ... 16	24 V DC, connection pattern to EN 175301	24 V DC, connection pattern M12 to DESINA	110 V AC, connection pattern to EN 175301	230 V AC, connection pattern to EN 175301
Code			AG...	D5	D6	D7	D8	V24	V24P	V110	V230
Individual devices											
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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Product range overview – MS series service units

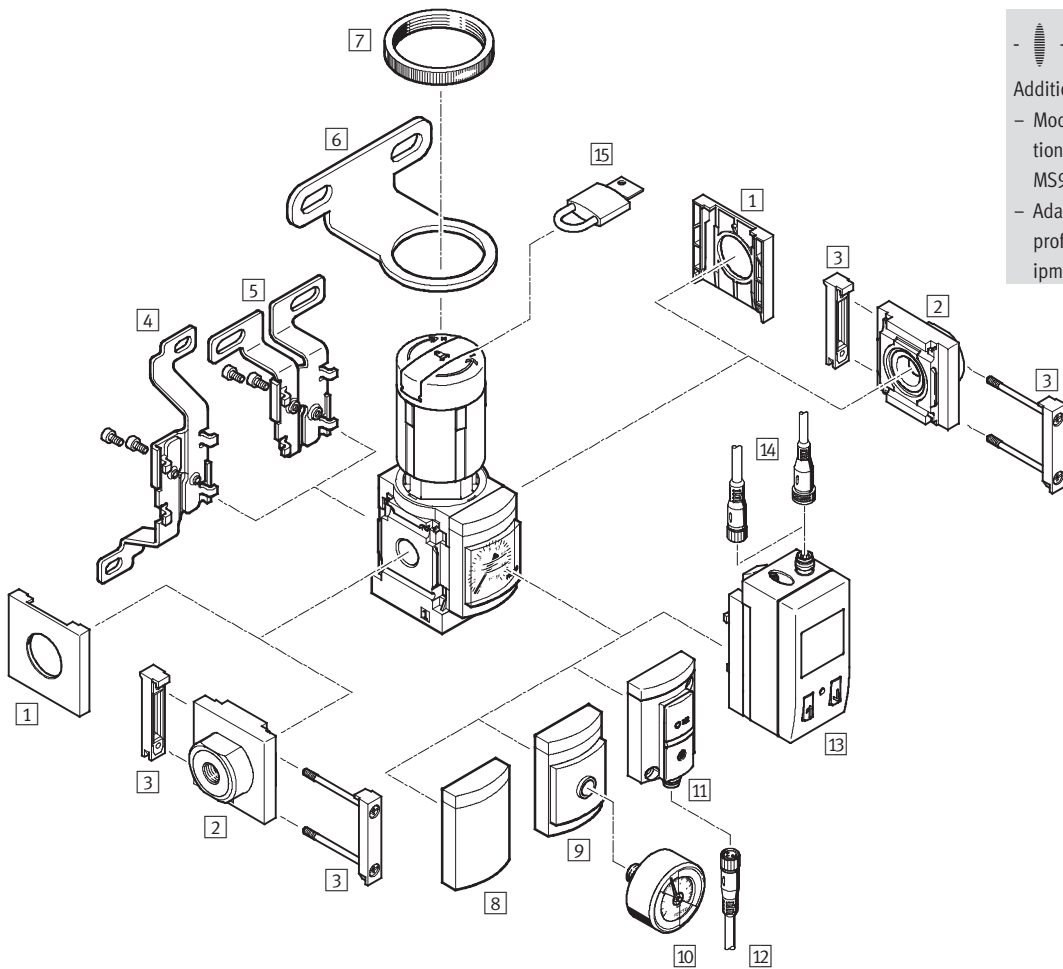
Type	Size	Bowl guard		Pressure indicator					Switch output		Options		→ Page/ Internet
		Plastic bowl with plastic bowl guard	Metal bowl	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G 1/8	Adapter plate for EN pressure gauge G 1/4	Pressure sensor	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													
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	–	–	–	–	–	–	–	–	–	–	–	–

Pressure regulators MS4/MS6-LR, MS series

Peripherals overview

FESTO

Pressure regulator MS4/MS6-LR



Note

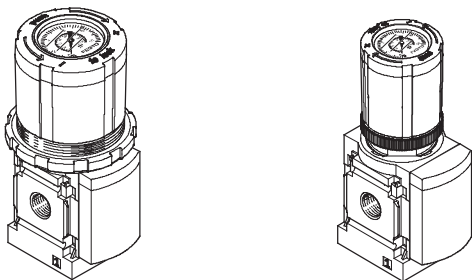
Additional accessories:

- 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 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	■	■	■	■	96
11	Pressure sensor without display AD7 ... AD10	■	■	■	■	20
12	Connecting cable NEBU-M8...-LE3	■	■	■	■	96
13	Pressure sensor with display AD1 ... AD4	■	■	■	■	20
14	Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4	■	■	■	■	96
15	Padlock LRVS-D	■	■	■	■	96
–	Mounting bracket MS4/6-WP/WPB/WPE/WPM	–	■	■	■	ms4-wp, ms6-wp

Pressure regulators MS4/MS6-LR, MS series

FESTO

Type codes

		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

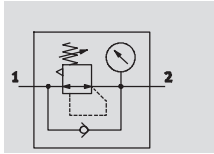
- Connecting plates
- Pressure regulation range
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Rotary knob alternative
- Alternative mounting position
- Security
- Type of mounting
- Alternative flow direction

Pressure regulators MS4/MS6-LR, MS series

Technical data

FESTO

With pressure gauge



-  Flow rate
1,000 ... 7,500 l/min
-  Temperature range
-10 ... +60 °C
-  Supply 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

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 variant AD... ¹⁾		
	D8	[bar]	–		0.5 ... 16, manually operated
Max. hysteresis	[bar]	0.25			
	[bar]	–		0.4 with rotary knob pressure gauge variant 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

Pressure regulators MS4/MS6-LR, MS series

FESTO

Technical data

Standard nominal flow rate $q_{nN}^{1)}$ [l/min]						
Size		MS4		MS6		
Pneumatic connection		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
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				
Variant		Standard		Pressure sensor AD...
Size		MS4	MS6	MS4 MS6
Supply pressure	[bar]	0.8 ... 14	0.8 ... 20	0.8 ... 14 0.8 ... 20
Operating medium		Filtered compressed air or inert gases, lubricated or unlubricated, grade of filtration 40 μ m		
Ambient temperature	[°C]	–10 ... +60	–10 ... +60	0 ... +50 0 ... +50
Temperature of medium	[°C]	–10 ... +60	–10 ... +60	0 ... +50 0 ... +50
Storage temperature	[°C]	–10 ... +60	–10 ... +60	–10 ... +60 –10 ... +60
Corrosion resistance class	CRC ¹⁾	2		

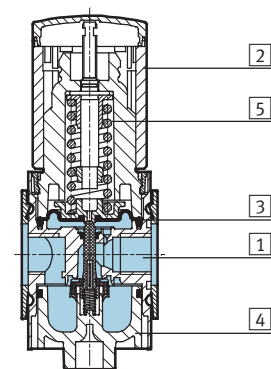
1) Corrosion resistance class 2 as per Festo standard 940 070

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

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

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

Pressure regulators MS4/MS6-LR, MS series

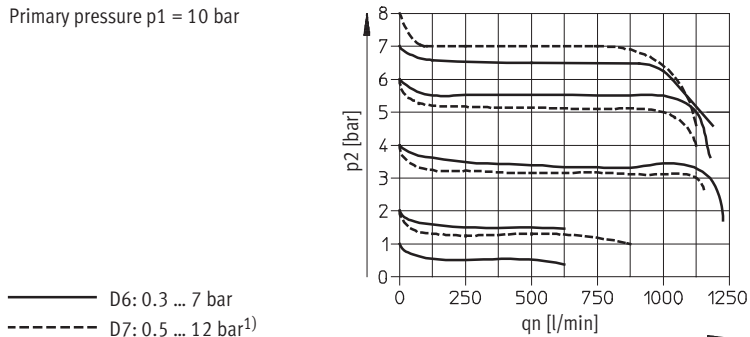
Technical data

FESTO

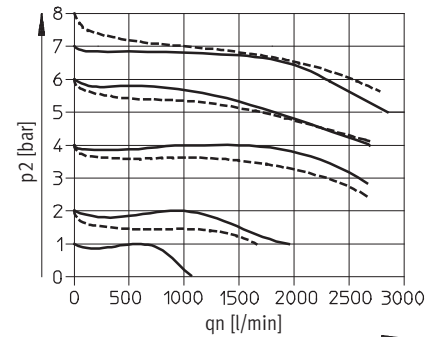
Standard flow rate q_n as a function of output pressure p_2

MS4-LR-1/8

Primary pressure $p_1 = 10$ bar



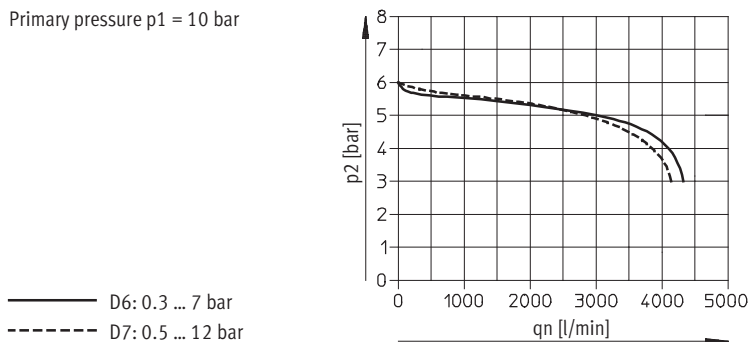
MS4-LR-1/4



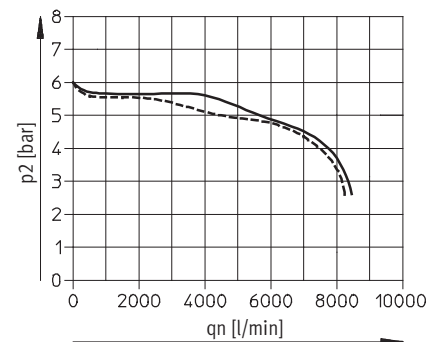
1) There is a higher initial pressure drop for the characteristic curve of the DM1/DM2 variant.

MS6-LR-1/4

Primary pressure $p_1 = 10$ bar

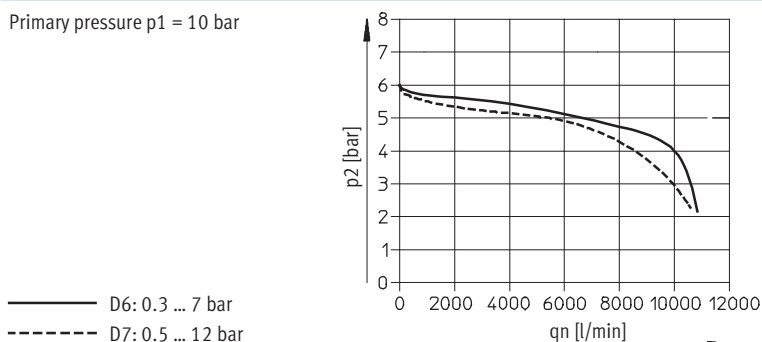


MS6-LR-3/8



MS6-LR-1/2

Primary pressure $p_1 = 10$ bar



Pressure regulators MS4/MS6-LR, MS series

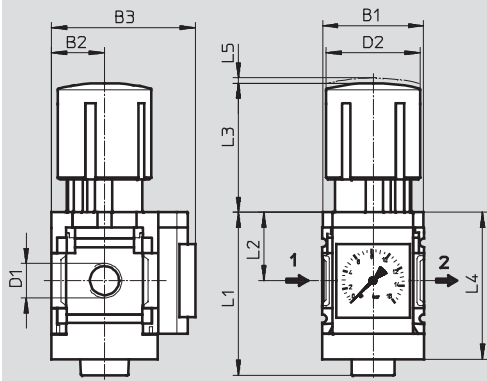
Technical data

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Dimensions – Standard

Download CAD data → www.festo.com

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



→ Flow direction

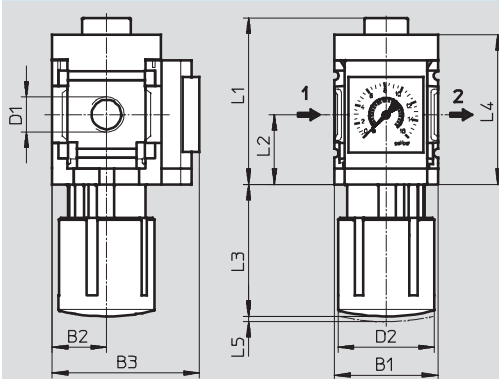
Type	B1	B2	B3		D1	D2	L1	L2	L3	L4	L5
			Standard scale	Red-green scale							
MS4-LR-1/8	40	21	57	58.5	G1/8	37.2	64.4	27	51.1	58	2
MS4-LR-1/4					G1/4						
MS6-LR-1/4	62	31	77	78.5	G1/4	51	93	39	86	84	5
MS6-LR-3/8					G3/8						
MS6-LR-1/2					G1/2						

• 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	2
MS4-LR-1/4-...-KD				G1/4						
MS6-LR-1/4-...-KD	62	31	77	G1/4	51	93	39	86	84	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

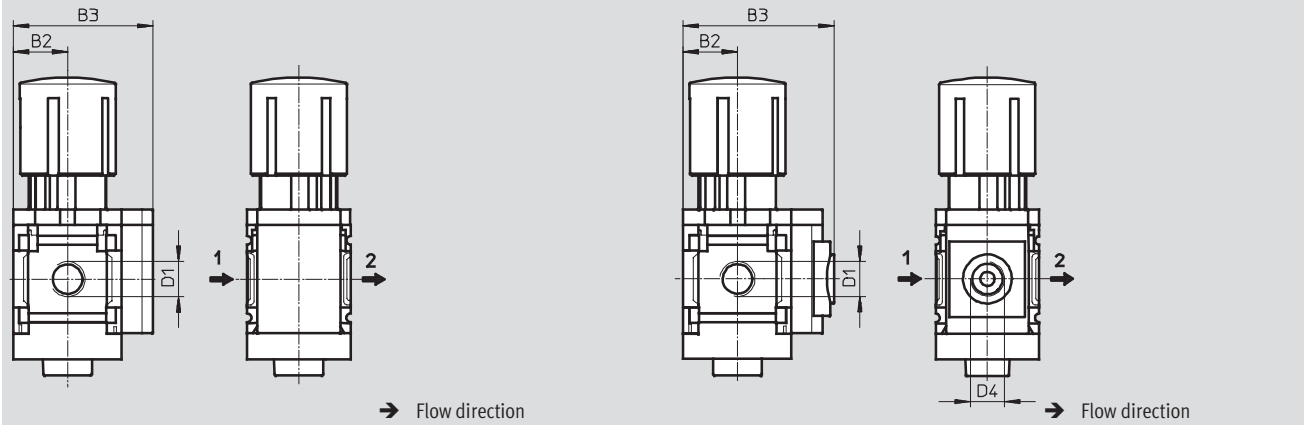
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Dimensions – Pressure gauge alternatives

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

Pressure regulators MS4/MS6-LR, MS series

Technical data

FESTO

Dimensions – Pressure gauge alternatives		Download CAD data → www.festo.com
Pressure sensor with LCD display AD1 ... AD4		Technical data → Internet: sde1
	Variant AD1: SDE1-D10-G2-MS-L-P1-M8 with 3-pin plug M8x1, 1 switching output PNP	Variant AD3: SDE1-D10-G2-MS-L-PI-M12 with 4-pin plug M12x1, 1 switching output 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 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 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	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			G1/8			
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

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Dimensions – Rotary knob

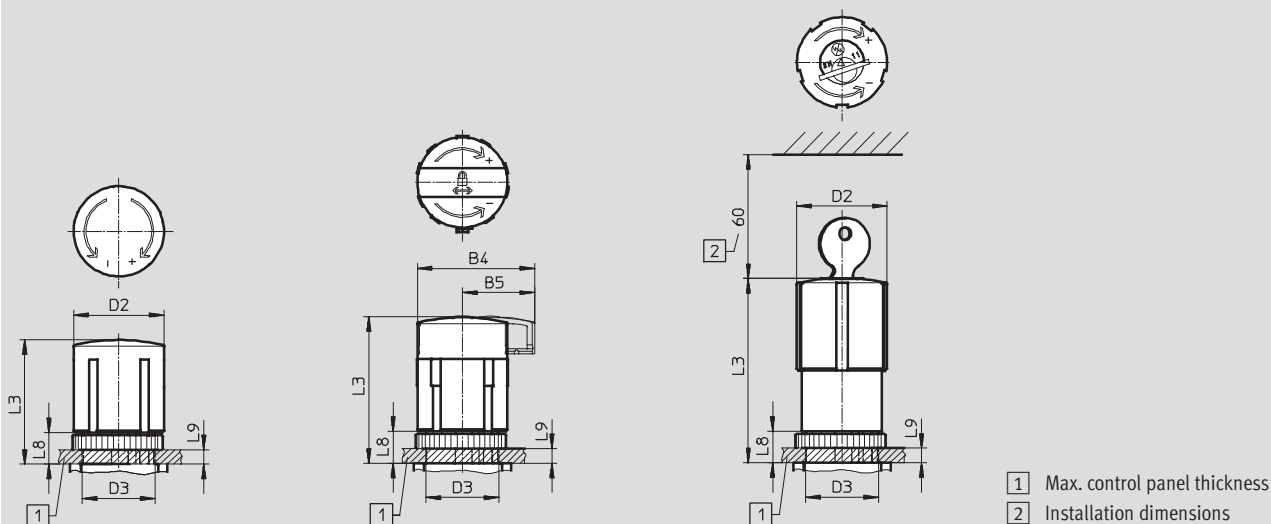
Download CAD data → www.festo.com

For installation into control panel

Standard rotary knob with detent

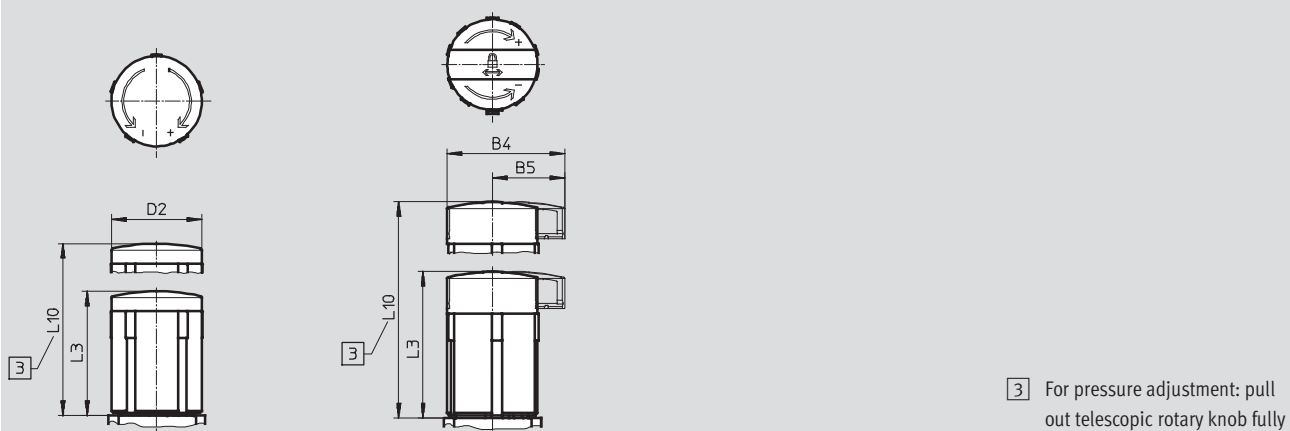
Standard rotary knob with detent,
lockable via accessories AS

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-LR-...	–	–	37.2	30	51.1	13	6	–
MS4-LR-...-AS	48.3	29.7			60.2			
MS4-LR-...-E11	–	–			76			
MS4-LR-...-LD	–	–	37.2	–	51.1	–	–	76.8
MS4-LR-...-LD-AS	48.3	29.7			60.2			85.7
MS6-LR-...	–	–	51	44	86	22	14	–
MS6-LR-...-AS	64.4	39			95.5			
MS6-LR-...-E11	–	–			112.1			
MS6-LR-...-LD	–	–	51	–	86	–	–	139
MS6-LR-...-LD-AS	64.4	39			95.5			148.5

Pressure regulators MS4/MS6-LR, MS series

Technical data

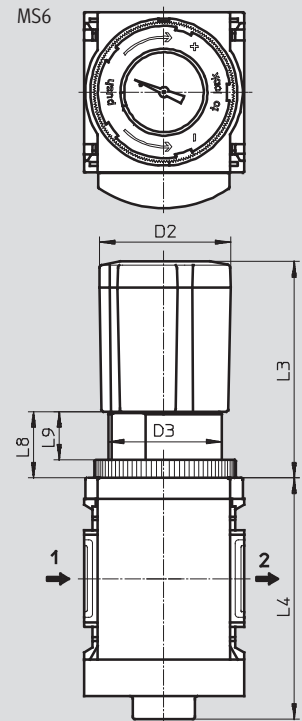
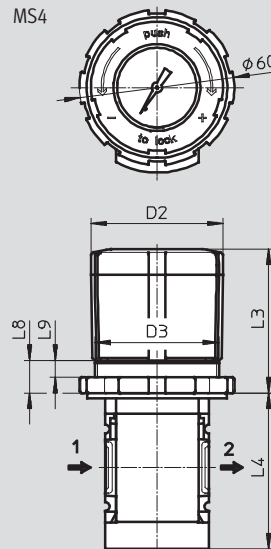
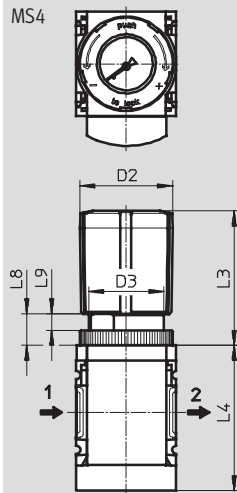
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Dimensions – Rotary knob with pressure gauge

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	51.1	M48x1.5	55.7	60.5	13	6.6
MS6-LR-...-DM2	51	M44x1	84	93	26	19

Pressure regulators MS4/MS6-LR, MS series

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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

Pressure regulators MS4/MS6-LR, MS series

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Ordering data – Modular products

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	-			-1/8	
	Thread G1/4	Thread G1/4			-1/4	
	-	Thread G3/8			-3/8	
	-	Thread G1/2			-1/2	
	Connecting plate G1/8	-			-AGA	
	Connecting plate G1/4	Connecting plate G1/4			-AGB	
	Connecting plate G3/8	Connecting plate G3/8			-AGC	
	-	Connecting plate G1/2			-AGD	
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		3	-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			1 2 3	-RG	
	Pressure sensor with display, plug M8, 1 switching output PNP, 3-pin			1 4	-AD1	
	Pressure sensor with display, plug M8, 1 switching output NPN, 3-pin			1 4	-AD2	
	Pressure sensor with display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA			1 4	-AD3	
	Pressure sensor with display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA			1 4	-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 RG, AD1 ... AD4, AD7 ... AD10, OS, KD, AS, WR, WB
MS4: Not with rotary knob alternative DM2

2 RG, OS, KD, AS
Not with rotary knob alternative DM1

3 D8, RG, OS, KD, AS
MS6: Not with rotary knob alternative DM2

4 AD1 ... AD4, AD7 ... AD10
Measuring range max. 10 bar
Not with pressure regulation range D8

Transfer order code

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

Pressure regulators MS4/MS6-LR, MS series

FESTO

Ordering data – Modular products

→ 0 Options						
Alternative pressure gauge scale	Secondary venting	Rotary knob alternative	Alternative mounting position	Security	Type of mounting	Alternative flow direction
PSI MPA	OS	LD DM1 DM2	KD	AS E11	WR WP, WPM WB, WBM	Z
- PSI	- OS	- LD	- KD	- AS	- WB	- Z

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
0 ↓	Alternative pressure gauge scale	psi		5	-PSI	
		MPa		5 6	-MPA	
	Secondary venting	Without secondary venting		1 2 3	-OS	
	Rotary knob alternative	Long rotary knob		7	-LD	
		Rotary knob pressure gauge, small	-	7 8	-DM1	
		Rotary knob pressure gauge, large		7 8	-DM2	
	Alternative mounting position	Rotary knob underneath		1 2	-KD	
				3 9		
	Security	Lockable via accessories		1 2 3	-AS	
		With integrated lock			-E11	
	Type of mounting	Mounting bracket with knurled nut for regulator head		1 10	-WR	
		Mounting bracket		11	-WP	
		Mounting bracket		11	-WPM	
		Mounting bracket		1	-WB	
		Mounting bracket	-		-WBM	
	Alternative flow direction	Flow direction from right to left			-Z	

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

MS4: Not with rotary knob alternative DM2

2 RG, OS, KD, AS

Not with rotary knob alternative DM1

3 D8, RG, OS, KD, AS

MS6: Not with rotary knob alternative DM2

5 PSI, MPA

Not with pressure gauge alternatives VS, A8, A4, RG

AD1, AD2, AD3, AD4, AD7, AD8, AD9, AD10

6 MPA

Not with rotary knob alternative DM1, DM2

7 LD, DM1, DM2

Not with integrated lock E11

8 DM1, DM2

Can only be combined with one pressure gauge alternative VS, A8, A4, AD1, AD2, AD3, AD4, AD7, AD8, AD9, AD10

9 KD

Not with pressure gauge alternative RG

Not with alternative pressure gauge scale MPA

Not with mounting type WP

10 WR

Not with long rotary knob LD

11 WP, WPM

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

Transfer order code

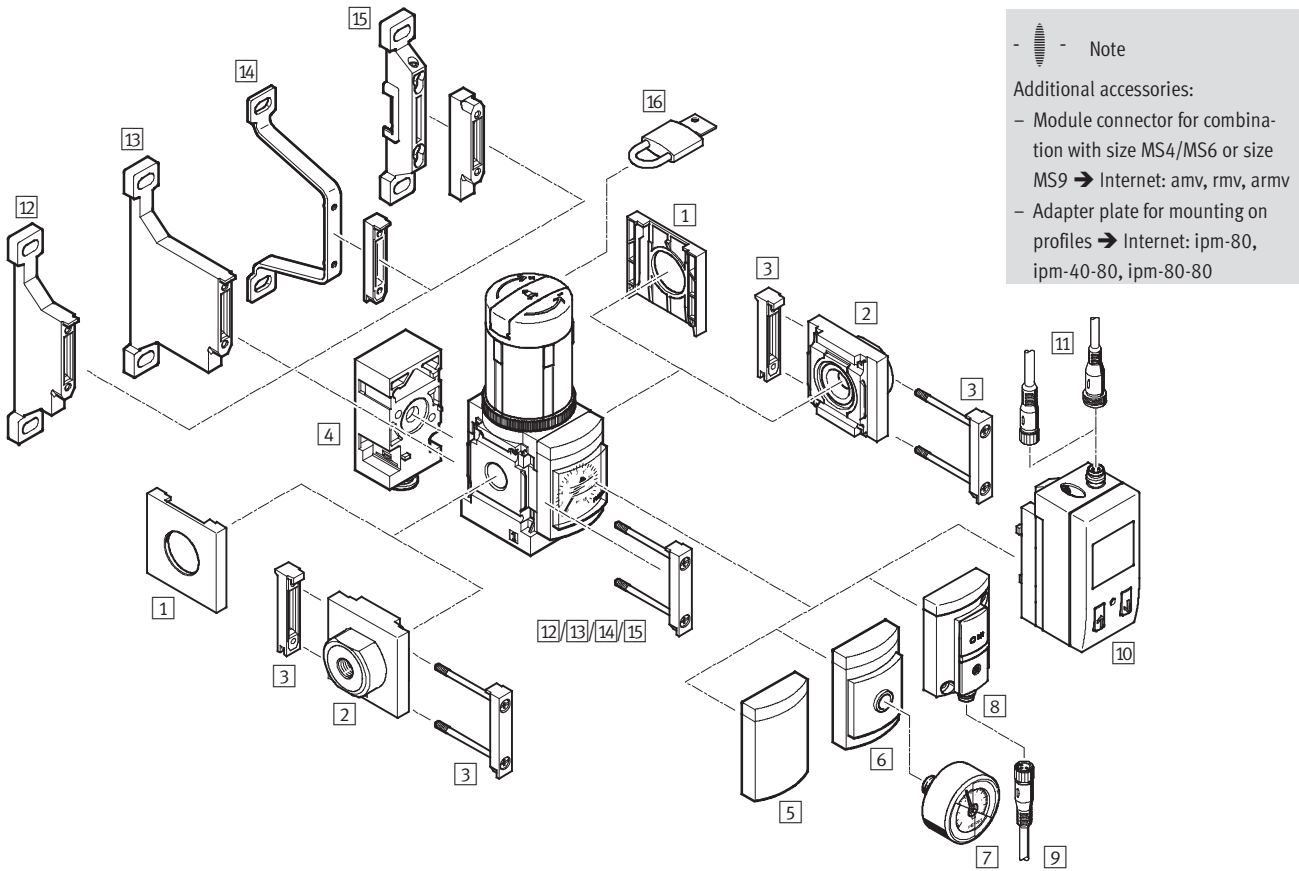
- [] - [] - [] - [] - [] - [] - []

Pressure regulators MS4/MS6-LRB, MS series

Peripherals overview

FESTO

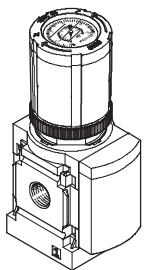
Pressure regulator MS4/MS6-LRB with pressure output to the rear



Pressure regulator with rotary knob pressure gauge

MS4-LRB-...-DM1/

MS6-LRB-...-DM2



Pressure regulators MS4/MS6-LRB, MS series

FESTO

Peripherals overview

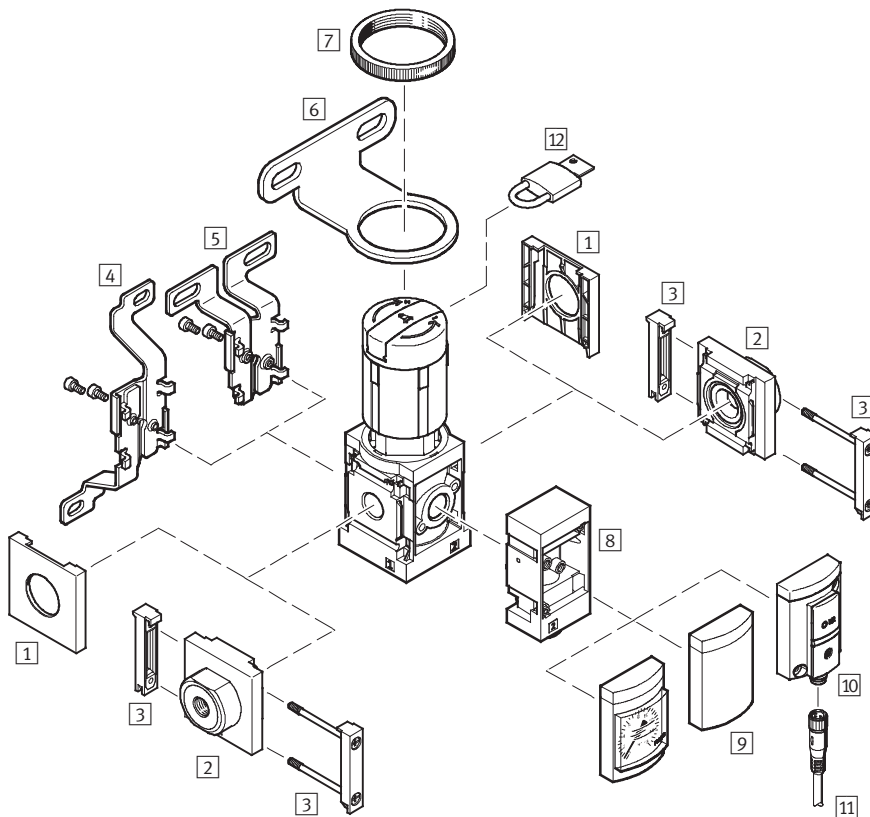
Mounting attachments and accessories						
		Individual device		Combination		➔ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
1	Cover cap MS4/6-END	■	–	■	–	ms4-end, ms6-end
2	Connecting plate MS4/6-AG...	–	■	–	■	ms4-ag, ms6-ag
3	Module connector 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	■	■	■	■	96
8	Pressure sensor without display AD7 ... AD10	■	■	■	■	34
9	Connecting cable NEBU-M8...-LE3	■	■	■	■	96
10	Pressure sensor with display AD1 ... AD4	■	■	■	■	34
11	Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4	■	■	■	■	96
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	■	■	■	■	96

Pressure regulators MS4/MS6-LRB, MS series

Peripherals overview

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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 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	■	■	■	■	96
12	Padlock LRVS-D	■	■	■	■	96

Pressure regulators MS4/MS6-LRB, MS series

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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

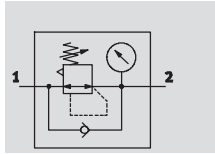
- Connecting plates
- Pressure regulation range
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Rotary knob alternative
- Alternative mounting position
- Security
- Pressure output
- Type of mounting
- Alternative flow direction

Pressure regulators MS4/MS6-LRB, MS series

FESTO

Technical data

With pressure gauge

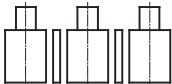


-  Flow rate
300 ... 7,300 l/min
-  Temperature range
-10 ... +60 °C
-  Supply pressure
0.8 ... 20 bar
-  www.festo.com

Wearing parts kits
→ 33



Pressure regulator for manifold assembly:



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

General technical data		
Size	MS4	MS6
Pneumatic connection 1	G1/4	G1/2
Pneumatic connection 2	G1/4	G1/2
	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 variant AD...) ¹⁾
	D8 [bar]	–
Max. hysteresis [bar]	0.25	0.5 ... 16, manually operated
	–	0.4 with rotary knob pressure gauge variant 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 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

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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				
Variant		Standard		Pressure sensor AD...
Size		MS4	MS6	MS4 MS6
Supply pressure	[bar]	0.8 ... 14	0.8 ... 20	0.8 ... 14 0.8 ... 20
Operating medium		Filtered compressed air or inert gases, lubricated or unlubricated, grade of filtration 40 μ m		
Ambient temperature	[°C]	–10 ... +60	–10 ... +60	0 ... +50 0 ... +50
Temperature of medium	[°C]	–10 ... +60	–10 ... +60	0 ... +50 0 ... +50
Storage temperature	[°C]	–10 ... +60	–10 ... +60	–10 ... +60 –10 ... +60
Corrosion resistance class	CRC ¹⁾	2		

1) Corrosion resistance class 2 as per Festo standard 940 070

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

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

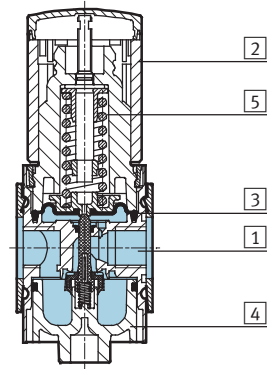
Pressure regulators MS4/MS6-LRB, MS series

FESTO

Technical data

Materials

Sectional view



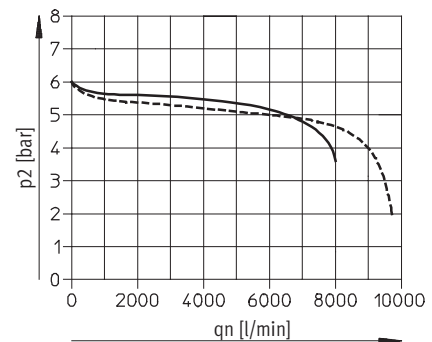
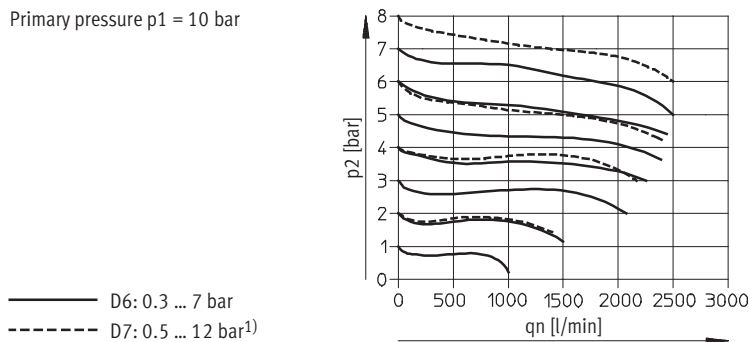
Pressure regulator (manifold assembly)		
1	Housing	Die-cast aluminium
2	Rotary knob	PA/POM
	Rotary knob with integrated lock E11	Aluminium
3	Diaphragm	NBR
4	Cap, bottom	PET
5	Springs	Steel
-	Seals	NBR
Note on materials		RoHS-compliant
		Free of copper and PTFE only with cover plate VS

Standard flow rate q_n as a function of output pressure p_2

MS4-LRB-1/4

MS6-LRB-1/2

Primary 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

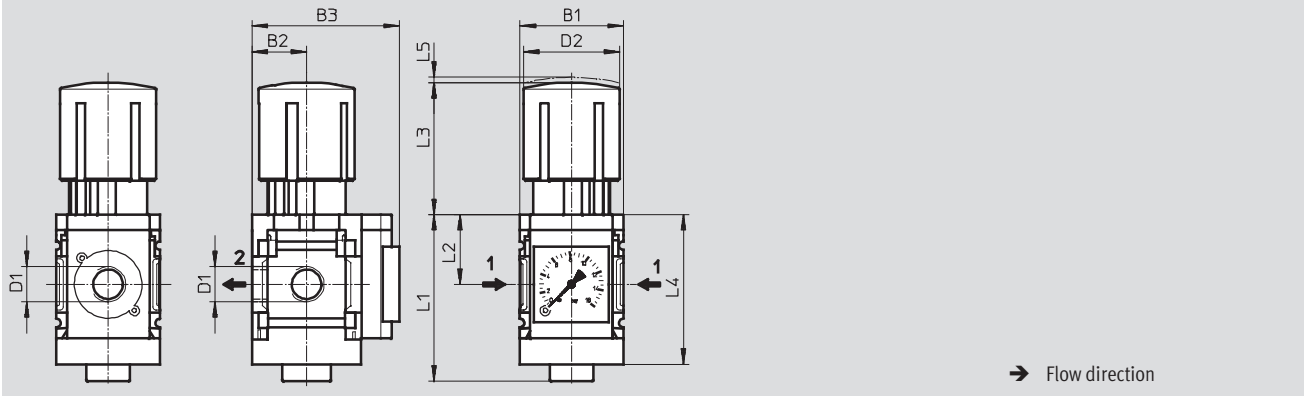
Technical data

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Dimensions – Standard

Download CAD data → www.festo.com

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



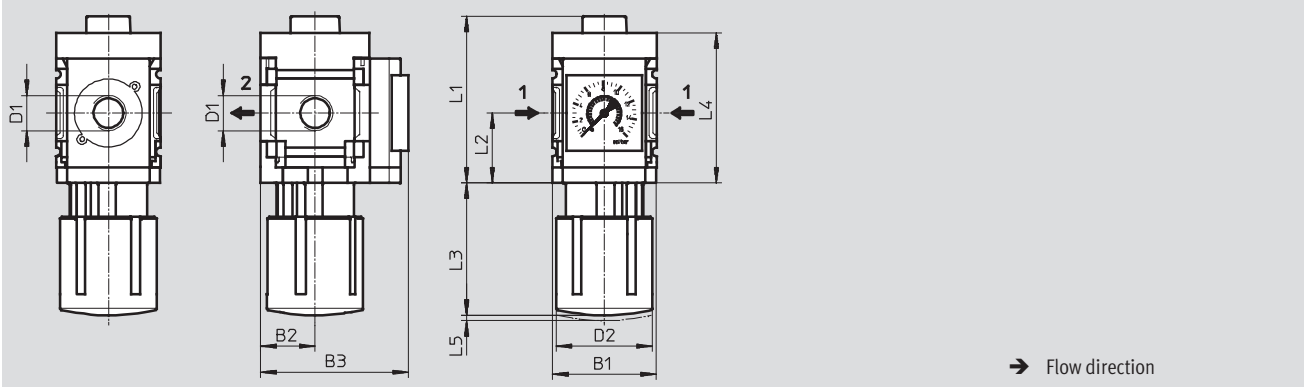
Type	B1	B2	B3		D1	D2	L1	L2	L3	L4	L5
			Standard scale	Red-green scale							
MS4-LRB-1/4	40	21	57	58.5	G1/4	37.2	64.4	27	51.1	58	2
MS6-LRB-1/2	62	31	77	78.5	G1/2	51	93	39	86	84	5

• 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



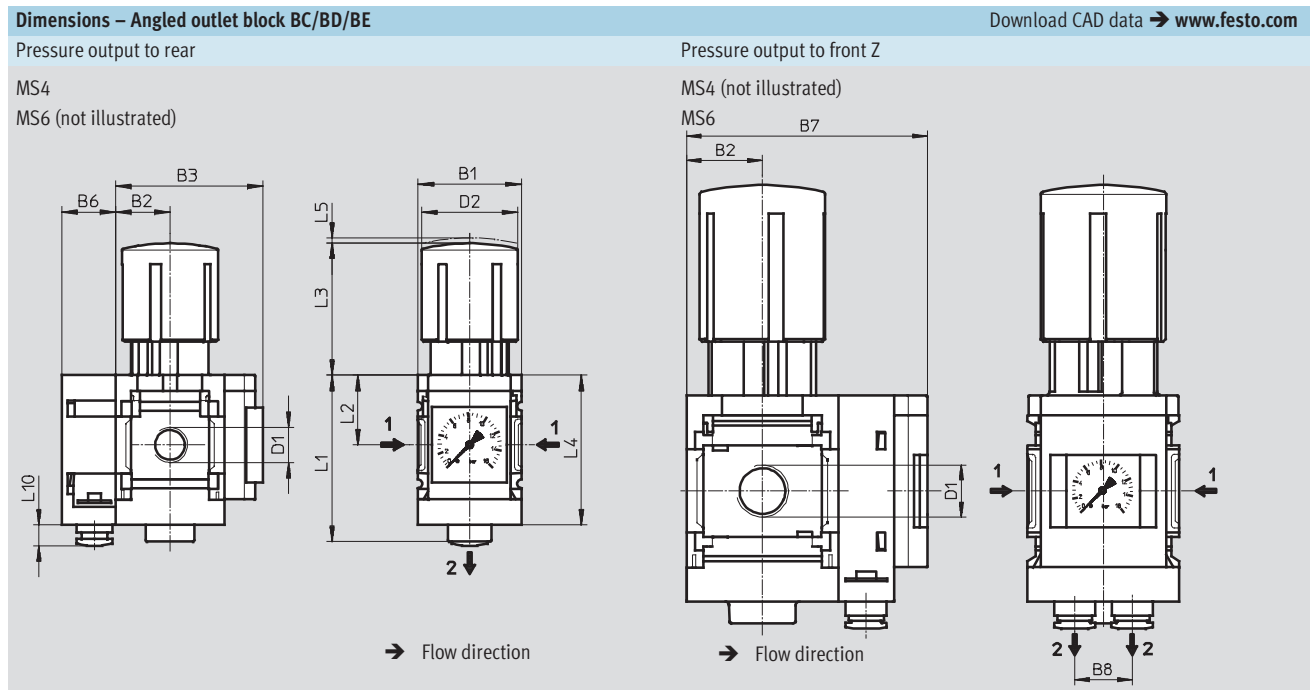
Type	B1	B2	B3	D1	D2	L1	L2	L3	L4	L5
MS4-LRB-1/4-...-KD	40	21	57	G1/4	37.2	64.4	27	51.1	58	2
MS6-LRB-1/2-...-KD	62	31	77	G1/2	51	93	39	86	84	5

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

Pressure regulators MS4/MS6-LRB, MS series

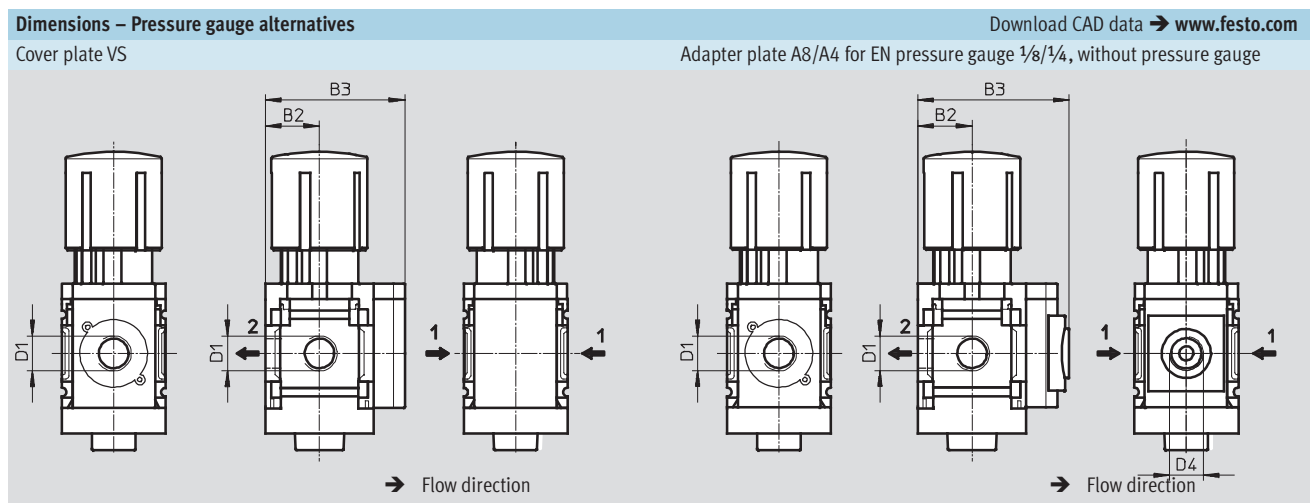
Technical data

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Type	B1	B2	B3	B6	B7	B8	D1	D2	L1	L2	L3	L4	L5	L10
MS4-LRB-1/4-...-B...	40	21	57	21	78	–	G1/4	37.2	64.4	27	51.1	58	2	8
MS6-LRB-1/2-...-B...	62	31	77	22.6	99.6	23.4	G1/2	51	93	39	86	84	5	11

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



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

FESTO

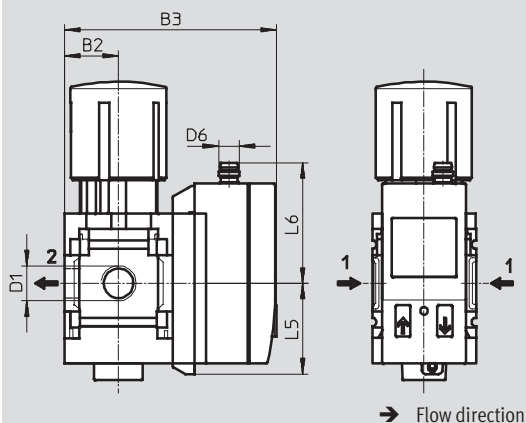
Technical data

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Pressure sensor with LCD display AD1 ... AD4

Technical data → Internet: sde1



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

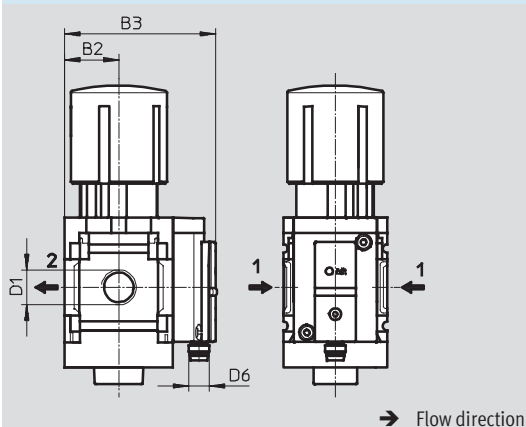
Variant AD2:
SDE1-D10-G2-MS-L-N1-M8 with
3-pin plug M8x1, 1 switching
output NPN

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

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

Pressure sensor 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

Pressure regulators MS4/MS6-LRB, MS series

Technical data

FESTO

Dimensions – Rotary knob

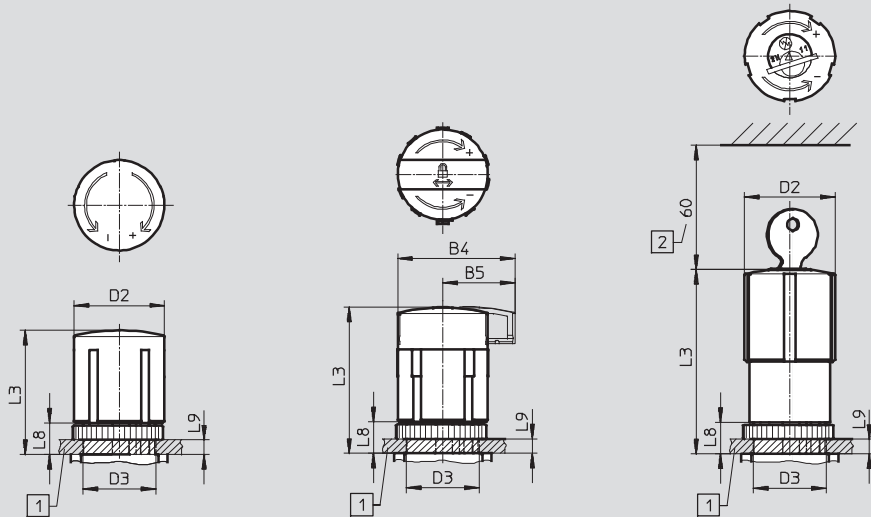
Download CAD data → www.festo.com

For installation into control panel

Standard rotary knob with detent

Standard rotary knob with detent,
lockable via accessories AS

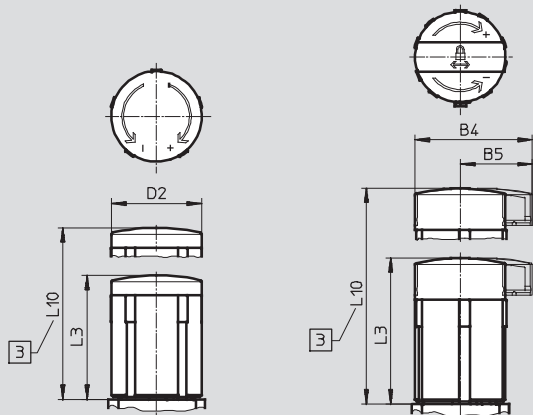
Rotary knob with integrated lock
E11



- 1 Max. control panel thickness
- 2 Installation dimensions

Long rotary knob with detent LD

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



- 3 For pressure adjustment: pull out telescopic rotary knob fully

Type	B4	B5	D2	D3 +1	L3	L8	L9	L10
MS4-LRB-...	–	–	37.2	30	51.1	13	6	–
MS4-LRB-...-AS	48.3	29.7			60.2			
MS4-LRB-...-E11	–	–			76			
MS4-LRB-...-LD	–	–	37.2	–	51.1	–	–	76.8
MS4-LRB-...-LD-AS	48.3	29.7			60.2			85.7
MS6-LRB-...	–	–	51	44	86	22	14	–
MS6-LRB-...-AS	64.4	39			95.5			
MS6-LRB-...-E11	–	–			112.1			
MS6-LRB-...-LD	–	–	51	–	86	–	–	139
MS6-LRB-...-LD-AS	64.4	39			95.5			148.5

Pressure regulators MS4/MS6-LRB, MS series

FESTO

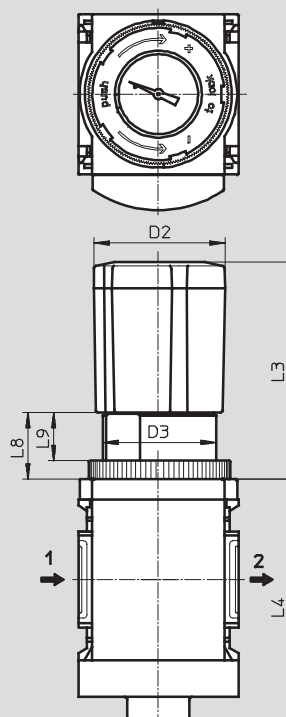
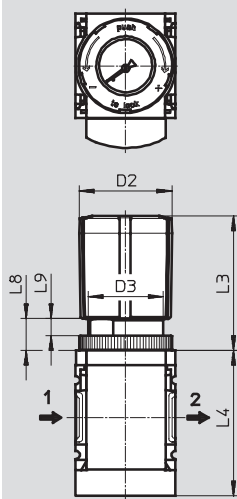
Technical data

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	M30x1	56	58,5	15	8,7
MS6-LRB-...-DM2	51	M44x1	84	93	26	19

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	530323	MS6-LRB-1/2-D5-AS-BD	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

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
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
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		-		-1/4	
	-		Thread G1/2		-1/2	
	Connecting plate G1/8		-		-AGA	
	Connecting plate G1/4		Connecting plate G1/4		-AGB	
	Connecting plate G3/8		Connecting plate G3/8		-AGC	
	-		Connecting plate G1/2		-AGD	
	-		Connecting plate G3/4		-AGE	
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	-D8	
O Pressure gauge alternatives	Cover plate			2	-VS	
	Adapter plate for EN pressure gauge 1/8, without pressure gauge		-	3	-A8	
	Adapter plate for EN pressure gauge 1/4, without pressure gauge			3	-A4	
	Integrated pressure gauge, red-green scale			1	-RG	
	Pressure sensor with display, plug M8, 1 switching output PNP, 3-pin			3 4	-AD1	
	Pressure sensor with display, plug M8, 1 switching output NPN, 3-pin			3 4	-AD2	
	Pressure sensor with display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA			3 4	-AD3	
	Pressure sensor with display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA			3 4	-AD4	
	Pressure sensor without display, plug M8, threshold value comparator, PNP, N/O contact			4 5	-AD7	
	Pressure sensor without display, plug M8, threshold value comparator, PNP, N/C contact			4 5	-AD8	
	Pressure sensor without display, plug M8, window comparator, PNP, N/O contact			4 5	-AD9	
	Pressure sensor without display, plug M8, window comparator, PNP, N/C contact			4 5	-AD10	

1 D8, RG, OS, KD, AS

Not with rotary knob pressure gauge DM1, DM2

2 VS

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

3 A8, A4, AD1 ... AD4

Not with alternative flow direction Z.

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

4 AD1 ... AD4, AD7 ... AD10

Measuring range max. 10 bar

Not with pressure regulation range D8

5 AD7 ... AD10

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

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

Transfer order code

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

Pressure regulators MS4/MS6-LRB, MS series

FESTO

Ordering data – Modular products

Options							
Alternative pressure gauge scale	Secondary venting	Rotary knob alternative	Alternative mounting position	Security	Pressure output	Type of mounting	Alternative flow direction
PSI MPA	OS	LD DM1 DM2	KD	AS E11	BC BD BE	WR WP, WPM WPB WB, WBM	Z
-	- OS	- LD	-	- AS	- BC	- WP	-

Ordering table							
Grid dimension	[mm]	40	62	Condi- tions	Code		Enter code
Alternative pressure gauge scale	psi			6	-PSI		
	MPa			6 7	-MPA		
Secondary venting	Without secondary venting			1	-OS		
Rotary knob alternative	Long rotary knob			8	-LD		
	Rotary knob pressure gauge, small			8 9	-DM1		
	- Rotary knob pressure gauge, large			8 9	-DM2		
Alternative mounting position	Rotary knob underneath			1 10	-KD		
Security	Lockable via accessories			1	-AS		
	With integrated lock				-E11		
Pressure output (p _{max} = 10 bar)	Angled outlet block QS-6				-BC		
	Angled outlet block QS-8				-BD		
	- Angled outlet block QS-10				-BE		
Type of mounting	Mounting bracket with knurled nut for regulator head			11 12	-WR		
	Mounting bracket			13 14	-WP		
	Mounting bracket			11 13	-WPM		
	Mounting bracket for large wall gap			13 15	-WPB		
	Mounting bracket			11	-WB		
	Mounting bracket			11	-WBM		
Alternative flow direction	Pressure output to front (without pressure output, no pressure gauge)				-Z		

1 D8, RG, OS, KD, AS

- Not with rotary knob pressure gauge DM1, DM2
- 6 **PSI, MPA** Not with pressure gauge alternatives VS, A8, A4, AD1 ... AD4, AD7 ... AD10
In combination with alternative flow direction Z only with pressure output BC, BD, BE
- 7 **MPA** Not with alternative mounting position KD.
Not with rotary knob alternative DM1, DM2
- 8 **LD, DM1, DM2** Not with integrated lock E11
Can only be selected in combination with pressure gauge alternative VS, A4, AD1 ... AD4, AD7 ... AD10
- 9 **DM1, DM2** Not with alternative pressure gauge scale MPA.
In combination with alternative pressure gauge scale PSI only with alternative 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 alternative flow direction Z.
Not with pressure gauge alternative RG.
In combination with pressure gauge alternatives A8, A4, AD1, AD2, AD3, AD4 only with alternative flow direction Z.
- 10 **KD** Not with alternative pressure gauge scale MPA.
In combination with alternative pressure gauge scale PSI only with alternative 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 alternative flow direction Z.
Not with pressure gauge alternative RG.
In combination with pressure gauge alternatives A8, A4, AD1, AD2, AD3, AD4 only with alternative flow direction Z.

11 WR, WPM, WB, WBM

- In combination with alternative flow direction Z not with alternative mounting position KD
- 12 **WR** Only with alternative flow direction Z.
Not with rotary knob alternative LD
- 13 **WP, WPM, WPB** Only with connecting plate AGA, AGB, AGC, AGD, AGE
- 14 **WP** Only with alternative flow direction Z and/or only with pressure output BC, BD, BE
- 15 **WPB** Not with alternative flow direction Z.
Not with pressure output BC, BD, BE

Transfer order code

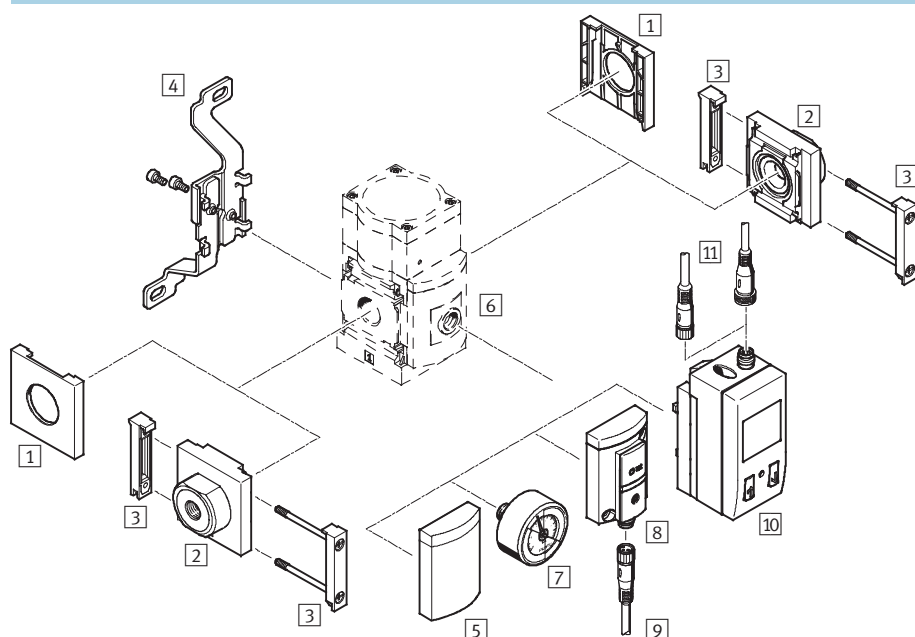
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Precision pressure regulators MS6-LRP, MS series

Peripherals overview

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Precision pressure regulator MS6-LRP



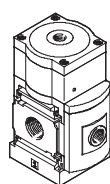
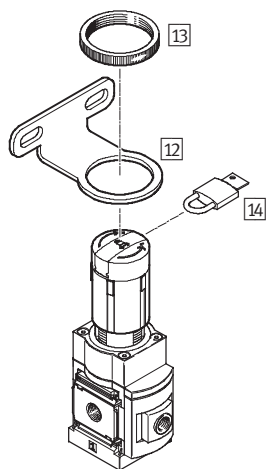
Note

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

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 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, 96
8	Pressure sensor without display AD7 ... AD10	■	■	■	■	48
9	Connecting cable NEBU-M8...-LE3	■	■	■	■	96
10	Pressure sensor with display AD1 ... AD4	■	■	■	■	48
11	Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4	■	■	■	■	96
12	Mounting bracket MS6-WR	■	■	–	–	ms6-wr
13	Knurled nut (included in scope of delivery) MS-LR	■	■	–	–	–
14	Padlock LRVS-D	■	■	■	■	96
–	Mounting bracket MS6-WP/WPB/WPE/WPM	–	■	■	■	ms6-wp

Precision pressure regulators MS6-LRP, MS series

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Type codes

		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

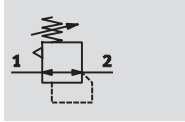
- Connecting plates
- Pressure regulation range/operation
- Pressure gauge alternatives
- Rotary knob alternatives
- Alternative mounting position
- Security
- Type of mounting
- Alternative flow direction

Precision pressure regulators MS6-LRP, MS series

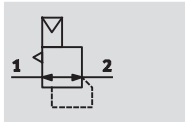
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Technical data

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
- - Supply 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 supply 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

General technical data			
Size		MS6	
Pneumatic connection 1, 2		G $\frac{1}{4}$	G $\frac{3}{8}$ G $\frac{1}{2}$
Pneumatic connection 3 (secondary venting)		G $\frac{1}{4}$	
Pilot air connection 12 with variant PO		G $\frac{1}{8}$	
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 variant AD...)	
	PO [bar]	0.1 ... 12, pneumatically actuated (0.1 ... 10 with pressure sensor variant AD...)	
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	
		G $\frac{1}{8}$ prepared	
		G $\frac{1}{4}$ 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

Precision pressure regulators MS6-LRP, MS series

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Technical data

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⁾
	G ³ / ₈	1,100 ¹⁾	1,400 ²⁾	1,700 ³⁾
	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		
Variant	Standard	Pressure sensor AD...
Supply pressure [bar]	1 ... 14	1 ... 14
Operating medium	Filtered compressed air or inert gases, grade of filtration 40 μm	
Ambient temperature [°C]	-10 ... +60	0 ... +50
Temperature of medium [°C]	-10 ... +60	0 ... +50
Storage temperature [°C]	-10 ... +60	-10 ... +60
Corrosion resistance class CRC ¹⁾	2	

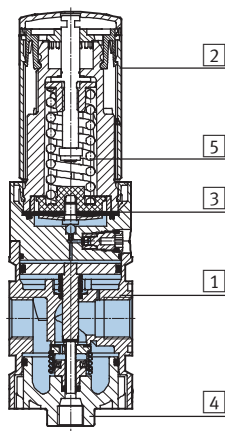
1) Corrosion resistance class 2 as per Festo standard 940 070

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

Weight [g]	
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...)

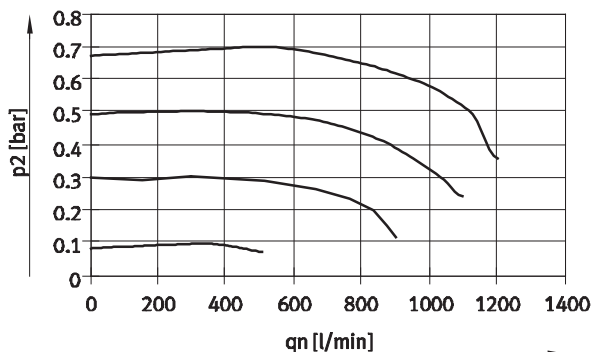
Precision pressure regulators MS6-LRP, MS series

FESTO

Technical data

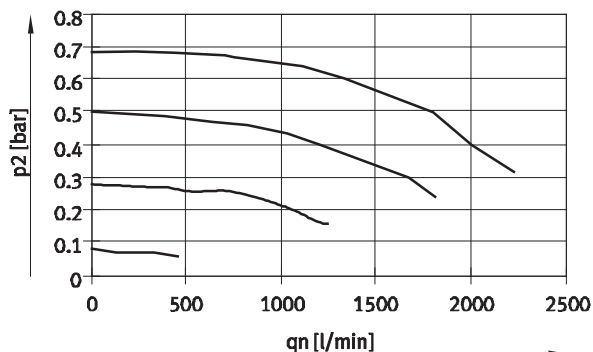
Standard flow rate q_n as a function of output pressure p_2 ($p_1 = 10$ bar)

MS6-LRP-1/4-D2



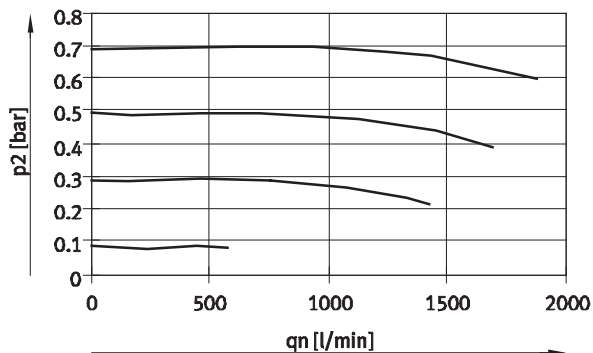
D2: 0.05...0.7 bar

MS6-LRP-3/8-D2



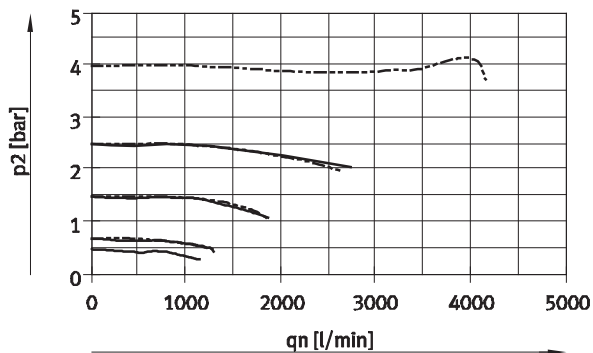
D2: 0.05...0.7 bar

MS6-LRP-1/2-D2



D2: 0.05...0.7 bar

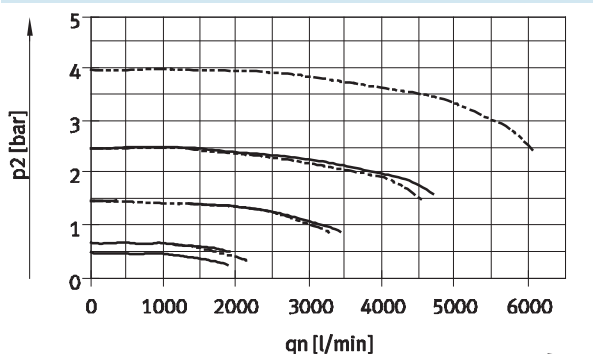
MS6-LRP-1/4-D4/D5



D4: 0.05...2.5 bar

D5: 0.1...4 bar

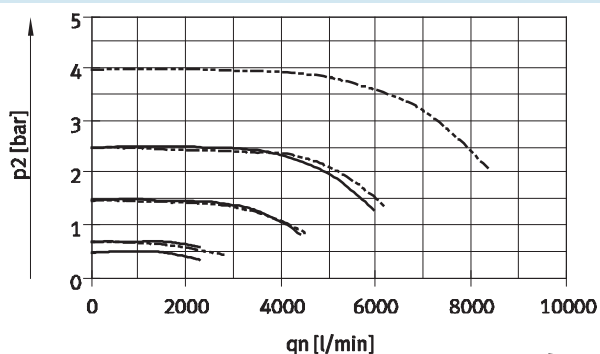
MS6-LRP-3/8-D4/D5



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

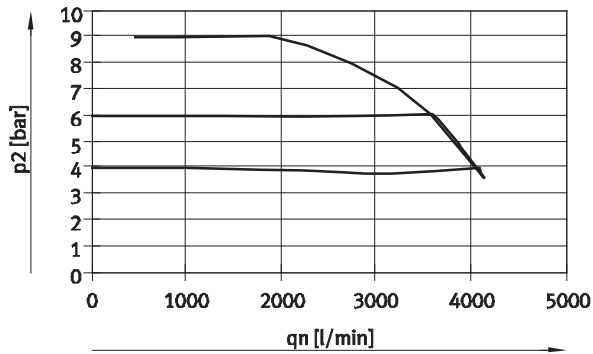
Precision pressure regulators MS6-LRP, MS series

FESTO

Technical data

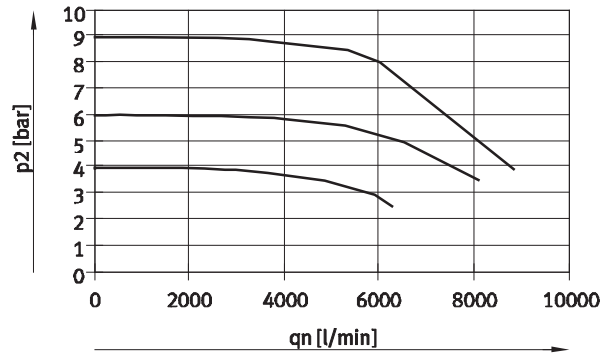
Standard flow rate q_n as a function of output pressure p_2 ($p_1 = 10$ bar)

MS6-LRP-1/4-D7/PO



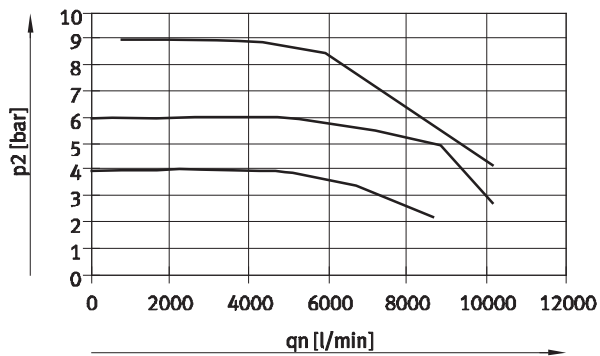
— D7/PO: 0.1...12 bar

MS6-LRP-3/8-D7/PO



— D7/PO: 0.1...12 bar

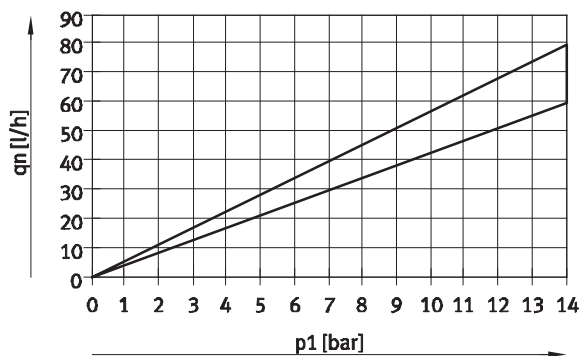
MS6-LRP-1/2-D7/PO



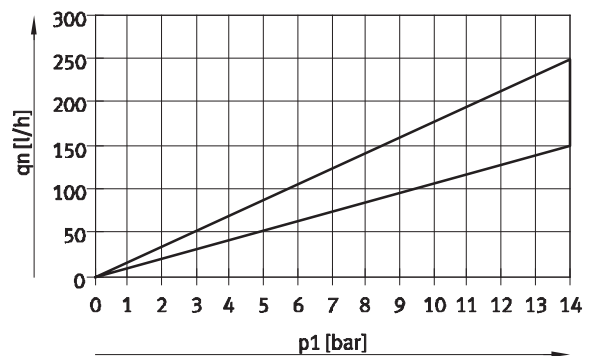
— D7/PO: 0.1...12 bar

Internal air consumption q_n as a function of supply pressure p_1

MS6-LRP-...-D2/D4



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



Precision pressure regulators MS6-LRP, MS series

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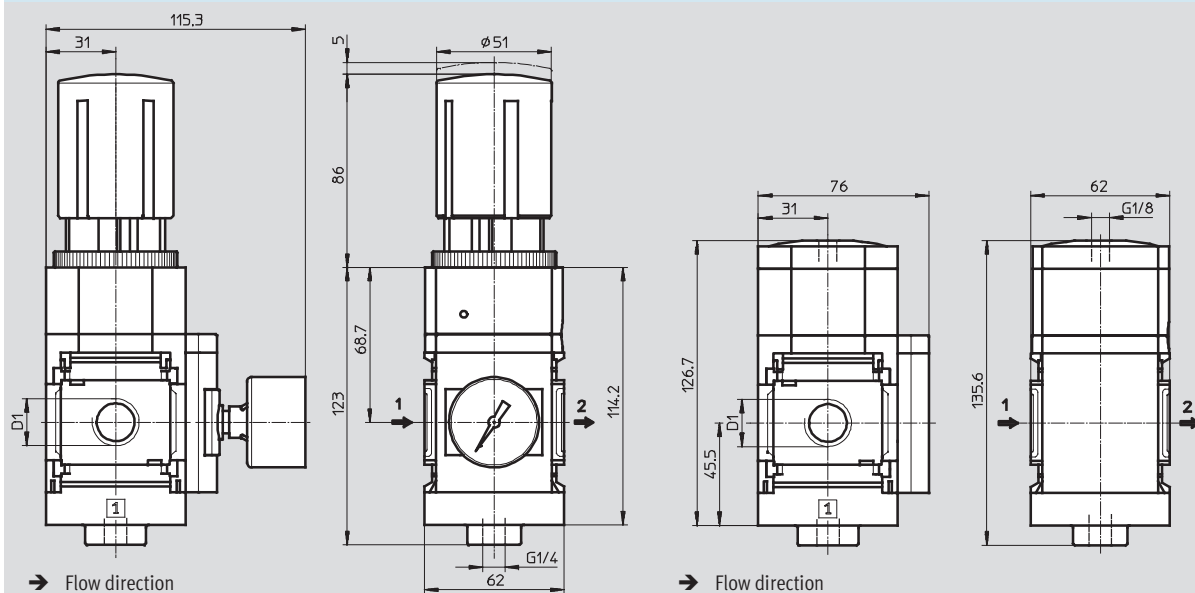
Technical data

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

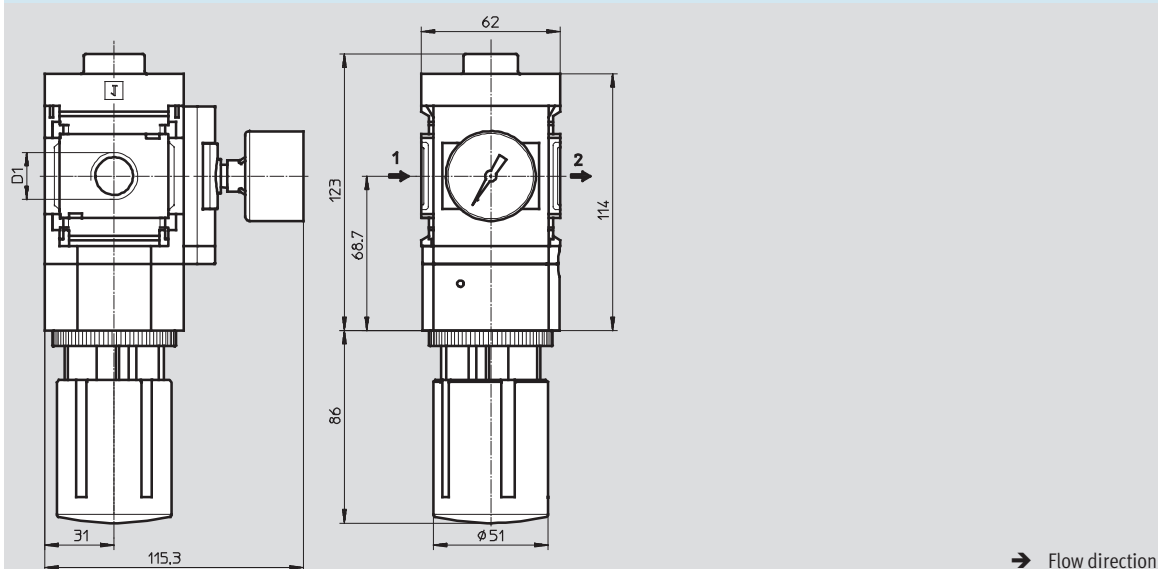
Type	D1
MS6-LRP-1/4-PO-VS	G1/4
MS6-LRP-3/8-PO-VS	G3/8
MS6-LRP-1/2-PO-VS	G1/2

• 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

Precision pressure regulators MS6-LRP, MS series

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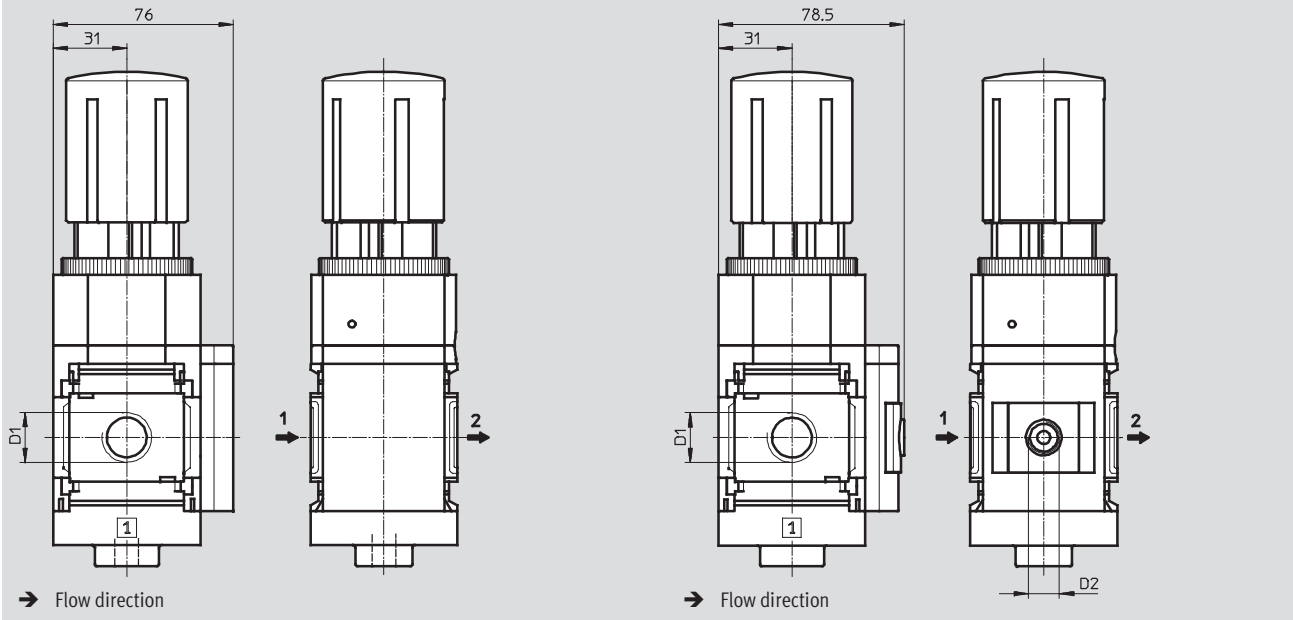
Technical data

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

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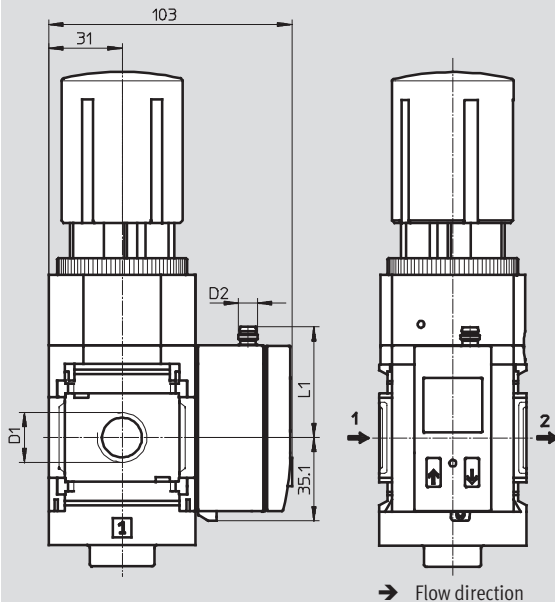
Technical data

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Pressure sensor with LCD display AD1 ... AD4

Technical data → Internet: [sde1](#)



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

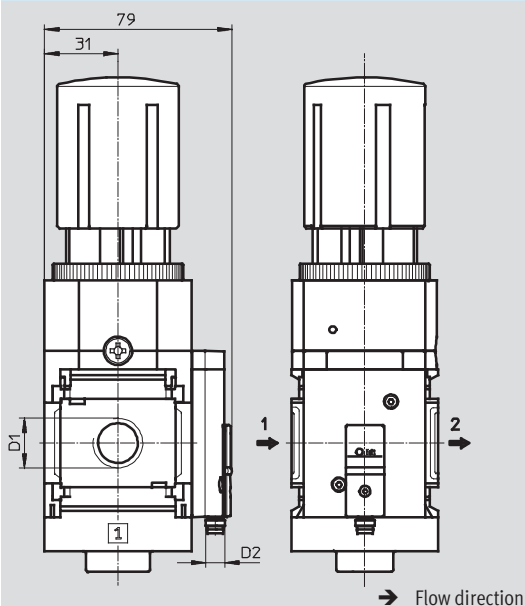
Variant AD3:
SDE1-D10-G2-MS-L-PI-M12 with
4-pin plug M12x1, 1 switching out-
put PNP and 4 ... 20 mA analogue

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

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	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

Precision pressure regulators MS6-LRP, MS series

Technical data

FESTO

Dimensions – Rotary knob

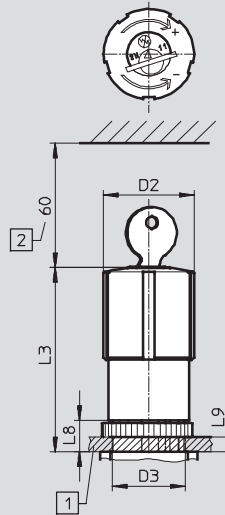
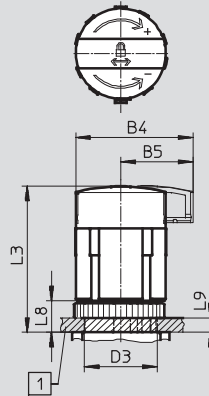
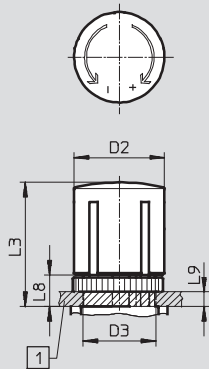
Download CAD data → www.festo.com

For installation into control panel

Standard rotary knob with detent

Standard rotary knob with detent,
lockable via accessories AS

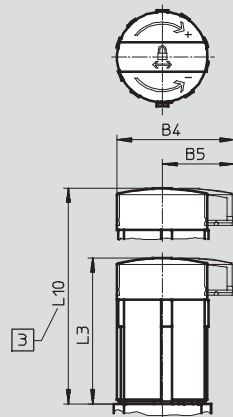
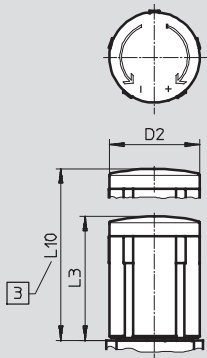
Rotary knob with integrated lock
E11



- 1 Max. control panel thickness
- 2 Installation dimensions

Long rotary knob with detent LD

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



- 3 For pressure adjustment: pull out telescopic rotary knob fully

Type	B4	B5	D2	D3 +1	L3	L8	L9	L10
MS6-LRP-...	–	–	51	44	86	22	14	–
MS6-LRP-...-AS	64.4	39			95.5			
MS6-LRP-...-E11	–	–	51.8		112.1			
MS6-LRP-...-LD	–	–	51	–	86	–	–	139
MS6-LRP-...-LD-AS	64.4	39			95.5			148.5

Precision pressure regulators MS6-LRP, MS series

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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-A8 ¹⁾
	G3/8	538012	MS6-LRP-3/8-D2-A8 ¹⁾
	G1/2	538020	MS6-LRP-1/2-D2-A8 ¹⁾
Pressure regulation range 0.05 ... 2.5 bar, manually operated			
MS6	G1/4	538006	MS6-LRP-1/4-D4-A8 ¹⁾
	G3/8	538014	MS6-LRP-3/8-D4-A8 ¹⁾
	G1/2	538022	MS6-LRP-1/2-D4-A8 ¹⁾
Pressure regulation range 0.1 ... 4 bar, manually operated			
MS6	G1/4	538008	MS6-LRP-1/4-D5-A8 ¹⁾
	G3/8	538016	MS6-LRP-3/8-D5-A8 ¹⁾
	G1/2	538024	MS6-LRP-1/2-D5-A8 ¹⁾
Pressure regulation range 0.1 ... 12 bar, manually operated			
MS6	G1/4	538010	MS6-LRP-1/4-D7-A8 ¹⁾
	G3/8	538018	MS6-LRP-3/8-D7-A8 ¹⁾
	G1/2	538026	MS6-LRP-1/2-D7-A8 ¹⁾

1) Free of copper and PTFE

Precision pressure regulators MS6-LRP, MS series

Ordering data – Modular products

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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				- 1/4	
	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/ 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	-PO	
	(pressure range determined by means of pilot regulator)					
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			2	-AD1	
	Pressure sensor with display, plug M8, 1 switching output NPN, 3-pin			2	-AD2	
	Pressure sensor with display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA			2	-AD3	
	Pressure sensor with display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA			2	-AD4	
	Pressure sensor without display, plug M8, threshold value comparator, PNP, N/O contact			3	-AD7	
	Pressure sensor without display, plug M8, threshold value comparator, PNP, N/C contact			3	-AD8	
	Pressure sensor without display, plug M8, window comparator, PNP, N/O contact			3	-AD9	
	Pressure sensor without display, plug M8, window comparator, PNP, N/C contact			3	-AD10	

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

2 AD1 ... AD4 Measuring range max. 10 bar.
Not with pressure regulation range/operation D2, D4
3 AD7 ... AD10 Measuring range max. 10 bar.
Not with pressure regulation range/operation D2

Transfer order code

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

FESTO

Ordering data – Modular products

→ **Options**

Rotary knob alternative	Alternative mounting position	Security	Type of mounting	Alternative flow direction
LD	KD	AS E11	WR WP WPM WB	Z
- LD	-	- AS	- WB	- Z

Ordering table					
Grid dimension	[mm]	62	Condi- tions	Code	Enter code
0	Rotary knob alternative	Long rotary knob	4	-LD	
	Alternative mounting position	Rotary knob underneath	5	-KD	
	Security	Lockable via accessories		-AS	
		With integrated lock		-E11	
	Type of mounting	Mounting bracket with knurled nut for regulator head	6	-WR	
		Mounting bracket	7	-WP	
		Mounting bracket	7	-WPM	
		Mounting bracket		-WB	
	Alternative flow direction	Flow direction from right to left (without pressure output, no pressure gauge)		-Z	

- 4 LD Not with integrated lock E11
5 KD Not with mounting type WP

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

Transfer order code

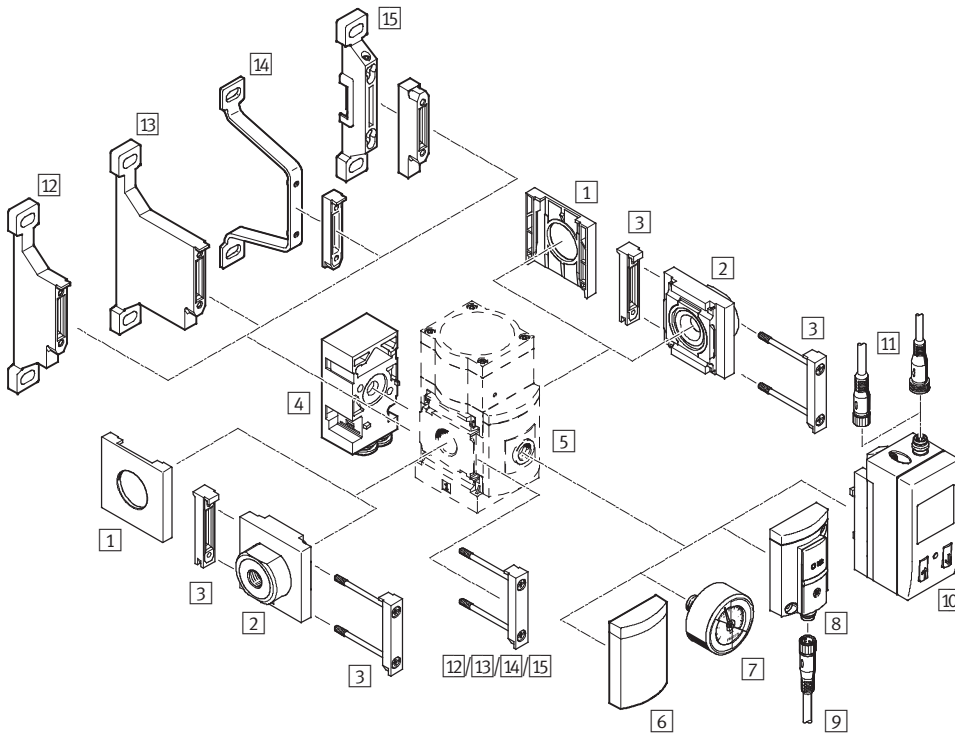
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Precision pressure regulators MS6-LRPB, MS series

Peripherals overview

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



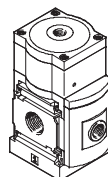
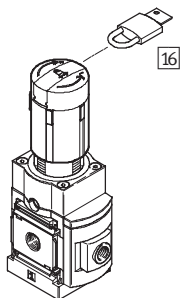
-  - Note

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

FESTO

Peripherals overview

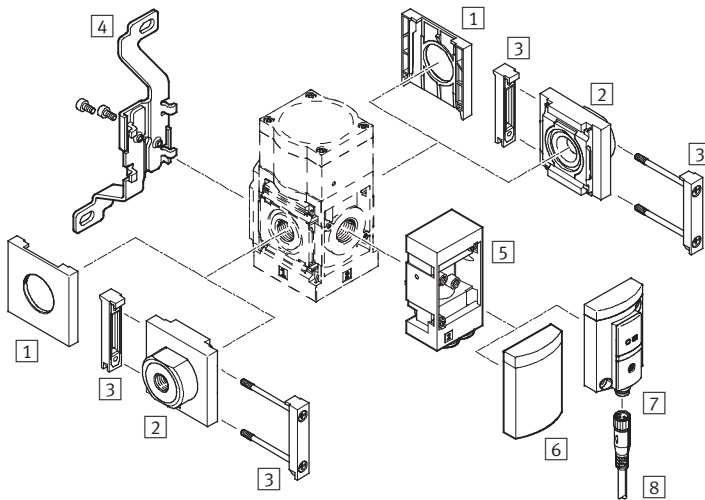
Mounting attachments and accessories						
		Individual device		Combination		➔ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
1	Cover cap MS6-END	■	–	■	–	ms6-end
2	Connecting plate MS6-AG...	–	■	–	■	ms6-ag
3	Module connector MS6-MV	–	■	■	■	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, 96
8	Pressure sensor without display AD7 ... AD10	■	■	■	■	64
9	Connecting cable NEBU-M8...-LE3	■	■	■	■	96
10	Pressure sensor with display AD1 ... AD4	■	■	■	■	64
11	Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4	■	■	■	■	96
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	■	■	■	■	96

Precision pressure regulators MS6-LRPB, MS series

Peripherals overview

FESTO

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



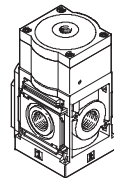
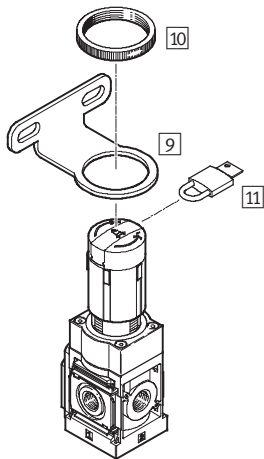
Note

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 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	■	■	■	■	96
9	Mounting bracket MS6-WR	■	■	–	–	ms6-wr
10	Knurled nut (included in scope of delivery) MS-LR	■	■	–	–	–
11	Padlock LRVS-D	■	■	■	■	96

Precision pressure regulators MS6-LRPB, MS series

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Type codes

		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												
BE	Angled outlet block QS-10												

Further variants can be ordered using the modular system → 64

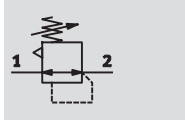
- Connecting plates
- Pressure regulation range/operation
- Pressure gauge alternatives
- Rotary knob alternatives
- Alternative mounting position
- Security
- Type of mounting
- Alternative flow direction

Precision pressure regulators MS6-LRPB, MS series

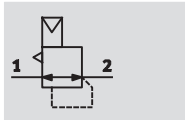
FESTO

Technical data

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



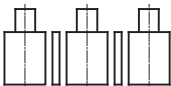
pneumatically actuated PO



-  Flow rate
1,600 ... 5,000 l/min
-  Temperature range
-10 ... +60 °C
-  Supply 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 supply 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

General technical data		
Size		MS6
Pneumatic connection 1		G $\frac{1}{2}$
Pneumatic connection 2		G $\frac{1}{2}$
		QS-8 with angled outlet block BD
		QS-10 with angled outlet block BE
Pneumatic connection 3 (secondary venting)		G $\frac{1}{4}$
Pilot air connection 12 with variant PO		G $\frac{1}{8}$
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 variant AD...)
	PO [bar]	0.1 ... 12, pneumatically actuated (0.1 ... 10 with pressure sensor variant AD...)
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
		G $\frac{1}{8}$ prepared
		G $\frac{1}{4}$ 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

Precision pressure regulators MS6-LRPB, MS series

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Technical data

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		
Variant	Standard	Pressure sensor AD...
Supply pressure [bar]	1 ... 14	1 ... 14
Operating medium	Filtered compressed air or inert gases, grade of filtration 40 μm	
Ambient temperature [°C]	-10 ... +60	0 ... +50
Temperature of medium [°C]	-10 ... +60	0 ... +50
Storage temperature [°C]	-10 ... +60	-10 ... +60
Corrosion resistance class CRC ¹⁾	2	

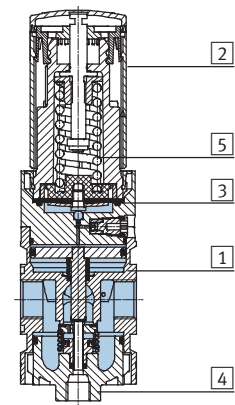
1) Corrosion resistance class 2 as per Festo standard 940 070

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

Weight [g]	
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...)

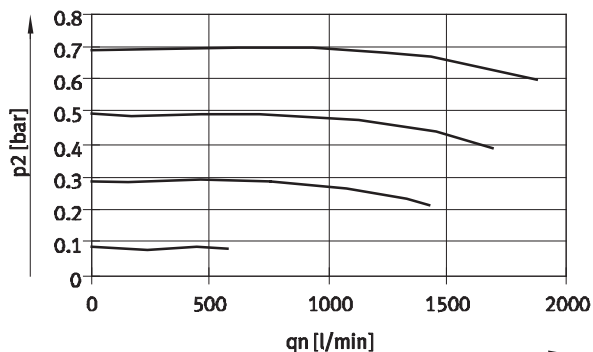
Precision pressure regulators MS6-LRPB, MS series

FESTO

Technical data

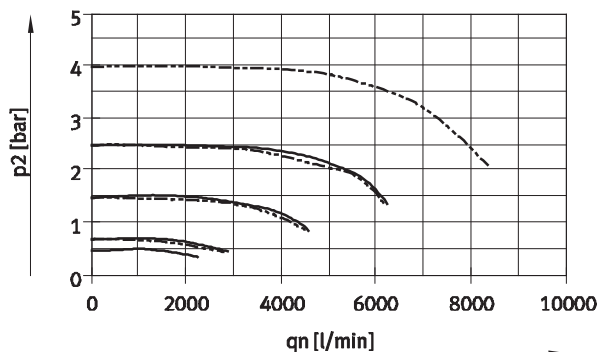
Standard flow rate q_n as a function of output pressure p_2 ($p_1 = 10$ bar)

MS6-LRPB-1/2-D2



— D2: 0.05...0.7 bar

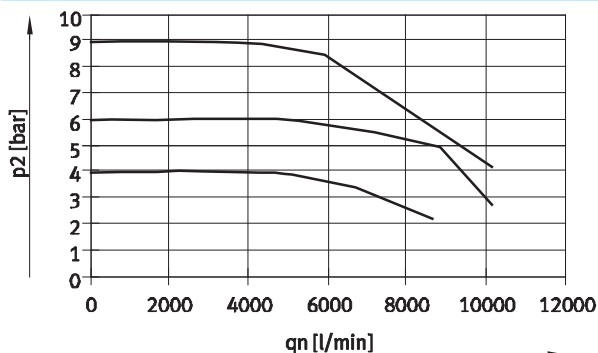
MS6-LRPB-1/2-D4/D5



— D4: 0.05...2.5 bar

- - - D5: 0.1...4 bar

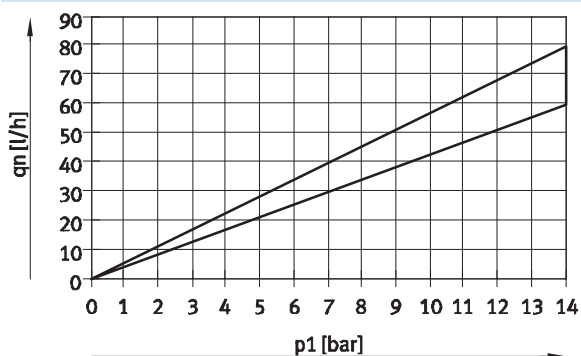
MS6-LRPB-1/2-D7/PO



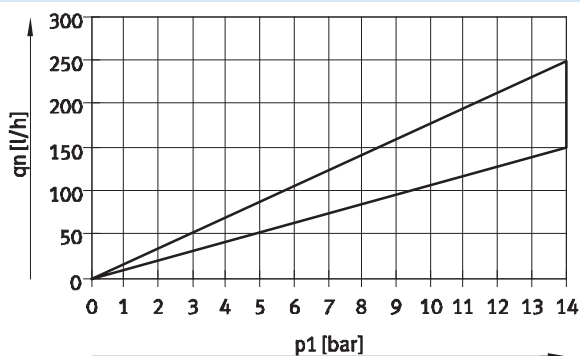
— D7/PO: 0.1...12 bar

Internal air consumption q_n as a function of supply pressure p_1

MS6-LRPB-...-D2/D4



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



Precision pressure regulators MS6-LRPB, MS series

Technical data

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Dimensions

Download CAD data → www.festo.com

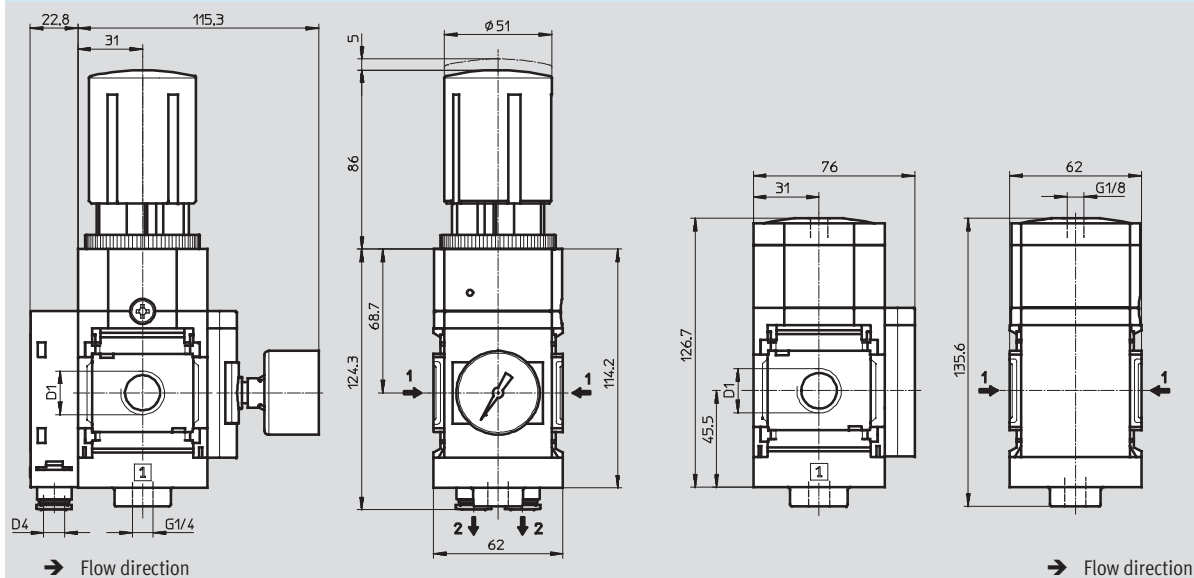
manually operated D2/D4/D5/D7,

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

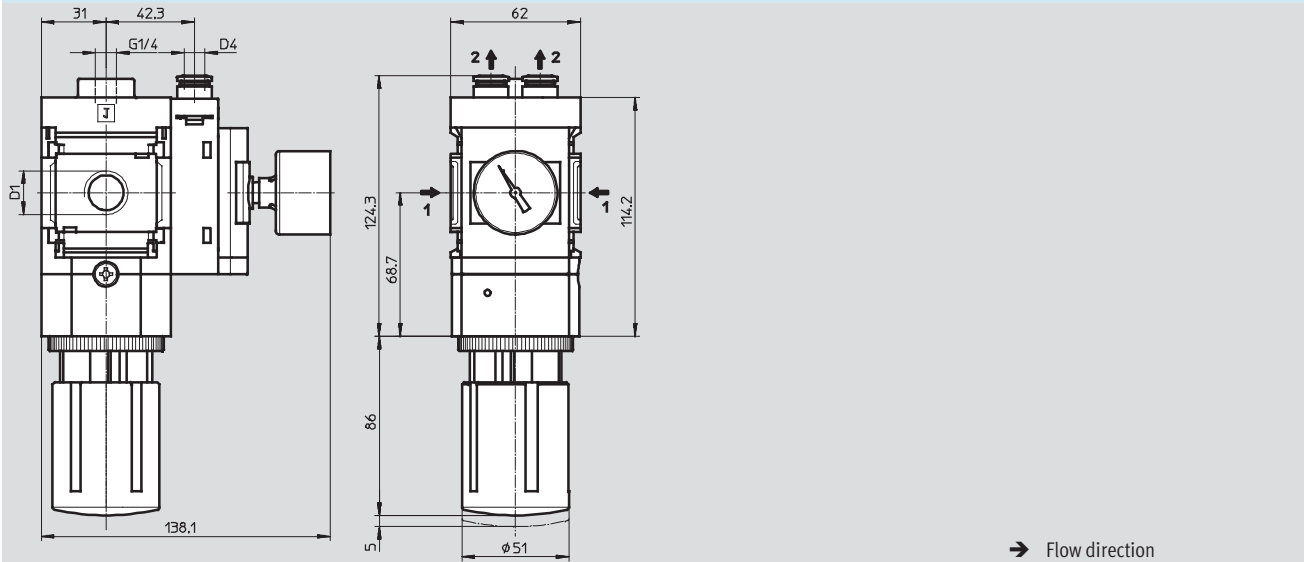
Technical data

FESTO

Dimensions – Alternative mounting position

Download CAD data → www.festo.com

Rotary knob underneath KD, angled outlet block BD/BE



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

Precision pressure regulators MS6-LRPB, MS series

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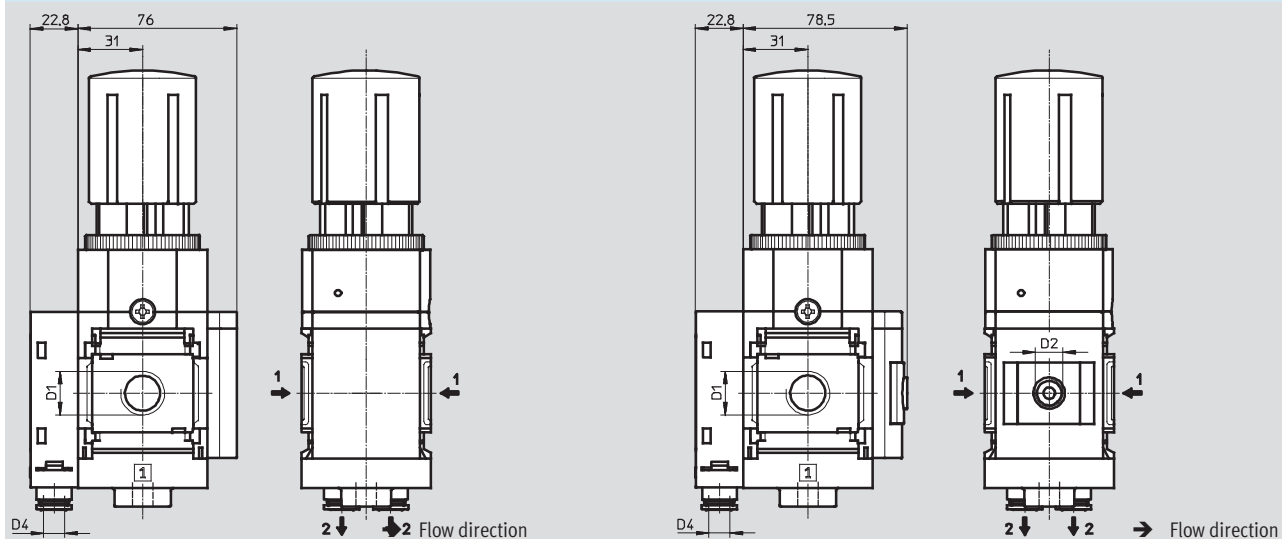
Technical data

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

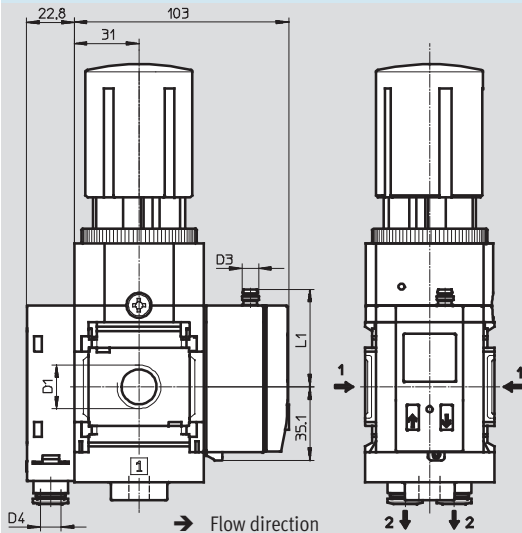
FESTO

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

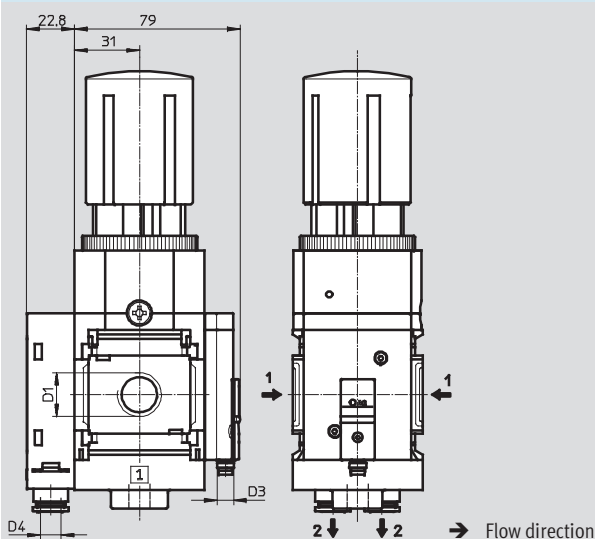
Variant AD2:
SDE1-D10-G2-MS-L-N1-M8 with
3-pin plug M8x1, 1 switching
output NPN

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, 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 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	D3	D4	L1
MS6-LRPB-1/2-...-AD1/AD2-BD	G $\frac{1}{2}$	M8x1	QS-8	46.7
MS6-LRPB-1/2-...-AD1/AD2-BE			QS-10	
MS6-LRPB-1/2-...-AD3/AD4-BD	G $\frac{1}{2}$	M12x1	QS-8	55.8
MS6-LRPB-1/2-...-AD3/AD4-BE			QS-10	
MS6-LRPB-1/2-...-AD7/AD8/AD9/AD10-BD	G $\frac{1}{2}$	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

Precision pressure regulators MS6-LRPB, MS series

Technical data

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Dimensions – Rotary knob

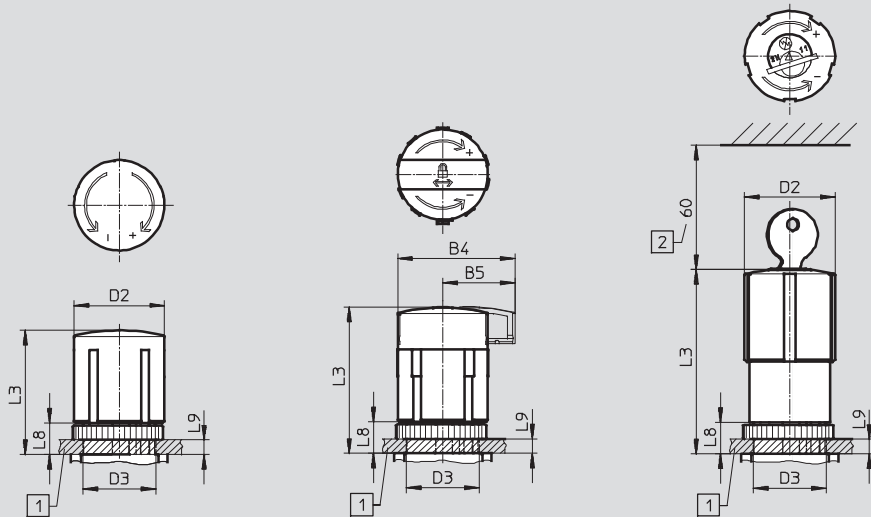
Download CAD data → www.festo.com

For installation into control panel

Standard rotary knob with detent

Standard rotary knob with detent,
lockable via accessories AS

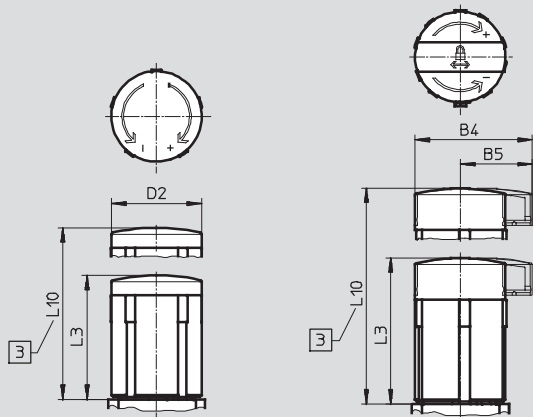
Rotary knob with integrated lock
E11



- 1 Max. control panel thickness
- 2 Installation dimensions

Long rotary knob with detent LD

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



- 3 For pressure adjustment: pull out telescopic rotary knob fully

Type	B4	B5	D2	D3 +1	L3	L8	L9	L10
MS6-LRPB-...	–	–	51	44	86	22	14	–
MS6-LRPB-...-AS	64.4	39	51.8	44	95.5	22	14	–
MS6-LRPB-...-E11	–	–	51.8	44	112.1	22	14	–
MS6-LRPB-...-LD	–	–	51	–	86	–	–	139
MS6-LRPB-...-LD-AS	64.4	39	51.8	–	95.5	–	–	148.5

Precision pressure regulators MS6-LRPB, MS series

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Technical data

Ordering data			
Adapter plate A8 for EN pressure gauge 1/8, standard rotary knob with detent			
Size	Connection	Pressure output to rear without angled outlet block	
		Part No.	Type
Pressure regulation range 0.05 ... 0.7 bar, manually operated			
MS6	G1½	534911	MS6-LRPB-1½-D2-A8 ¹⁾
Pressure regulation range 0.05 ... 2.5 bar, manually operated			
MS6	G1½	534914	MS6-LRPB-1½-D4-A8 ¹⁾
Pressure regulation range 0.1 ... 4 bar, manually operated			
MS6	G1½	534917	MS6-LRPB-1½-D5-A8 ¹⁾
Pressure regulation range 0.1 ... 12 bar, manually operated			
MS6	G1½	534920	MS6-LRPB-1½-D7-A8 ¹⁾

1) Free of copper and PTFE

Ordering data			
Adapter plate A8 for EN pressure gauge 1/8, standard rotary knob with detent			
Size	Connection	Pressure output to rear with angled outlet block QS-8	Pressure output to rear with angled outlet block QS-10
		Part No. Type	Part No. Type
Pressure regulation range 0.05 ... 0.7 bar, manually operated			
MS6	G1/2	534865 MS6-LRPB-1/2-D2-A8-BD ¹⁾	534913 MS6-LRPB-1/2-D2-A8-BE ¹⁾
Pressure regulation range 0.05 ... 2.5 bar, manually operated			
MS6	G1/2	534868 MS6-LRPB-1/2-D4-A8-BD ¹⁾	534916 MS6-LRPB-1/2-D4-A8-BE ¹⁾
Pressure regulation range 0.1 ... 4 bar, manually operated			
MS6	G1/2	534871 MS6-LRPB-1/2-D5-A8-BD ¹⁾	534919 MS6-LRPB-1/2-D5-A8-BE ¹⁾
Pressure regulation range 0.1 ... 12 bar, manually operated			
MS6	G1/2	534874 MS6-LRPB-1/2-D7-A8-BD ¹⁾	534922 MS6-LRPB-1/2-D7-A8-BE ¹⁾

1) Free of copper and PTFE

Precision pressure regulators MS6-LRPB, MS series

FESTO

Ordering data – Modular products

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		- 1/2	
		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	-PO	
	Pressure gauge alternatives	Cover plate	2	-VS	
		Adapter plate for EN pressure gauge 1/8, without pressure gauge	3	-A8	
		Adapter plate for EN pressure gauge 1/8, with precision pressure gauge	3	-A8M	
		Adapter plate for EN pressure gauge 1/4, without pressure gauge	3	-A4	
		Pressure sensor with display, plug M8, 1 switching output PNP, 3-pin	3 4	-AD1	
		Pressure sensor with display, plug M8, 1 switching output NPN, 3-pin	3 4	-AD2	
		Pressure sensor with display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA	3 4	-AD3	
		Pressure sensor with display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA	3 4	-AD4	
		Pressure sensor without display, plug M8, threshold value comparator, PNP, N/O contact	4 5	-AD7	
		Pressure sensor without display, plug M8, threshold value comparator, PNP, N/C contact	4 5	-AD8	
		Pressure sensor without display, plug M8, window comparator, PNP, N/O contact	4 5	-AD9	
		Pressure sensor without display, plug M8, window comparator, PNP, N/C contact	4 5	-AD10	

- 1 PO Not with long rotary knob LD
Not with security AS, E1 1
Not with mounting type WR
- 2 VS Must be selected with alternative flow direction Z without alternative mounting position KD or without alternative pressure output BD, BE
Must be selected with alternative mounting position KD without alternative flow direction Z or without alternative pressure output BD, BE
- 3 A8, A8M, A4, AD1 ... AD4 In combination with alternative flow direction Z only with alternative mounting position KD
- 4 AD1 ... AD4, AD7 ... AD10 Measuring range max. 10 bar
Not with pressure regulation range/operation D2, D4
- 5 AD7 ... AD10 In combination with alternative flow direction Z only with alternative pressure output BD, BE or
In combination with alternative flow direction Z only with alternative mounting position KD

Transfer order code

535007	MS	6	- LRPB	-		-		-	
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Precision pressure regulators MS6-LRPB, MS series

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Ordering data – Modular products

→ 0 Options

Rotary knob alternative	Alternative mounting position	Security	Alternative pressure output	Type of mounting	Alternative flow direction
LD	KD	AS E11	BD BE	WR WP WPM WPB WB	Z
- LD	-	- AS	- BE	- WB	- Z

Ordering table					
Grid dimension	[mm]	62	Condi- tions	Code	Enter code
0 Rotary knob alternative	Long rotary knob		6	-LD	
Alternative mounting position	Rotary knob underneath		7	-KD	
Security	Lockable via accessories			-AS	
	With integrated lock			-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		8 9	-WR	
	Mounting bracket		10 11	-WP	
	Mounting bracket		8 10	-WPM	
	Mounting bracket for large wall gap		10 12	-WPB	
	Mounting bracket		8	-WB	
Alternative flow direction	Pressure output to front (without pressure output, no pressure gauge)			-Z	

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

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

Transfer order code

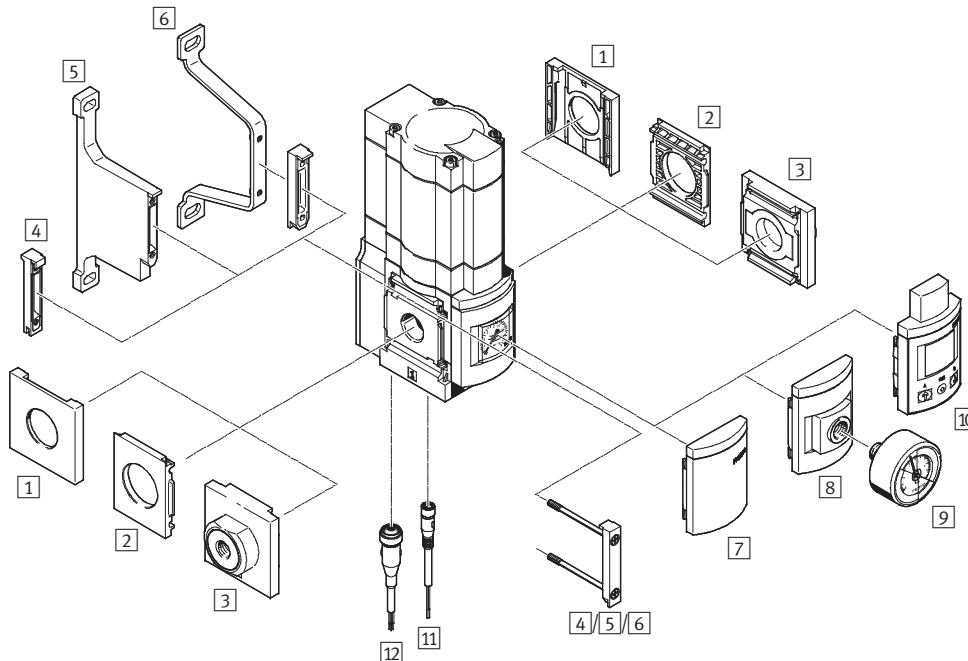
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Electrical pressure regulators MS6-LRE, MS series

Peripherals overview

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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 connect- ing plate	With connecting plate	Without connect- ing plate	With connecting plate	
1	Cover cap MS6-END	–	–	■	–	ms6-end
2	Mounting plate MS6-AEND	■ ¹⁾	–	■ ²⁾	–	ms6-aend
3	Connecting plate 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	■	■	■	■	96
10	Control unit with display OP	■	■	■	■	74
11	Connecting cable NEBU-M8...-LE3	■	■	■	■	96
12	Connecting cable NEBU-M12...-LE5	■	■	■	■	96

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

FESTO

Type codes

		MS	6	-	LRE	-	1/2	-	D7	-	PI
Series											
MS	Standard service unit										
Size											
6	Grid dimension 62 mm										
Service function											
LRE	Electrical pressure regulator										
Pneumatic connection											
1/4	Thread G1/4										
3/8	Thread G3/8										
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										
PI	Plug, M8, 3-pin, I out										
PU	Plug, M8, 3-pin, V out										

Further variants can be ordered using the modular system → 74

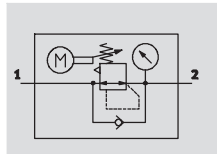
- Connecting plates
- Pressure regulation range
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Sensor cables
- Supply cables
- Type of mounting
- Alternative flow direction

Electrical pressure regulators MS6-LRE, MS series

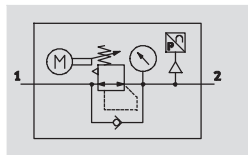
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Technical data

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
-  - Input 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 with the ISO 1179-1 standard and the ISO 228-1 standard.

Electrical pressure regulators MS6-LRE, MS series

FESTO

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	
Supply pressure	[bar] 0.8 ... 20
Operating medium	Compressed air, air quality class 5.4. – to DIN ISO 8573-1
Ambient temperature	[°C] 0 ... +50
Temperature of medium	[°C] 0 ... +50
Storage temperature	[°C] 0 ... +50
Corrosion resistance	CRC ¹⁾ 2
CE symbol (declaration of conformance)	In accordance with EU EMC Directive
Certification	C-Tick

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

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

Weights [g]	
Electrical pressure regulator	1,280

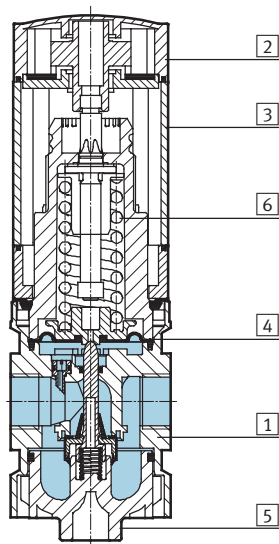
Electrical pressure regulators MS6-LRE, MS series

Technical data

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Materials

Sectional view



Electrical pressure regulator

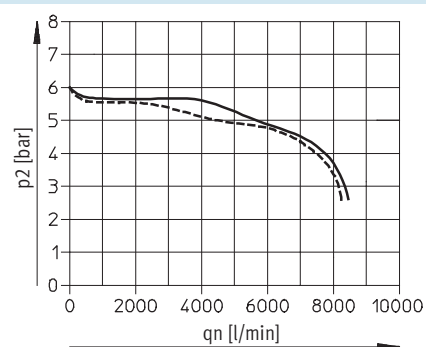
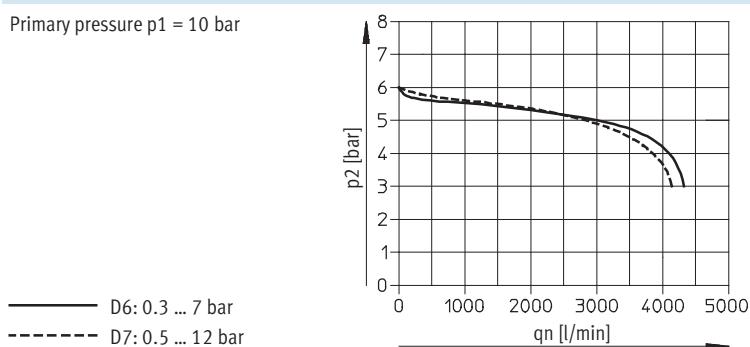
1	Body	Die-cast aluminium
2	Drive housing	Reinforced polyamide
3	Profile housing	Wrought aluminium alloy
4	Diaphragm	Nitrile rubber
5	Bottom cap	Polyester, fibreglass reinforced
6	Springs	Steel
-	Display and control unit	Polyamide
-	Seals	Nitrile rubber

Standard flow rate q_n as a function of output pressure p_2

MS6-LRE-1/4

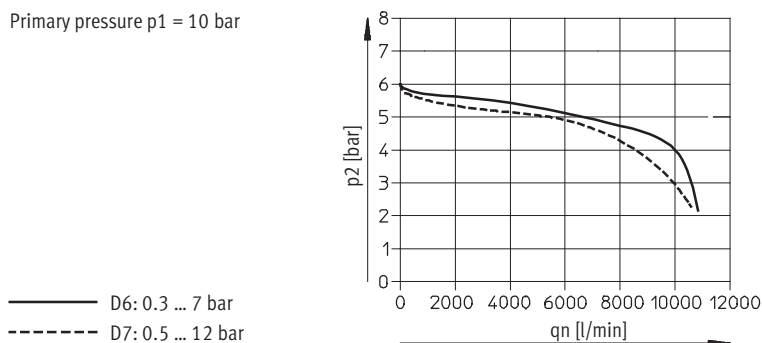
MS6-LRE-3/8

Primary pressure $p_1 = 10$ bar



MS6-LRE-1/2

Primary pressure $p_1 = 10$ bar



Electrical pressure regulators MS6-LRE, MS series

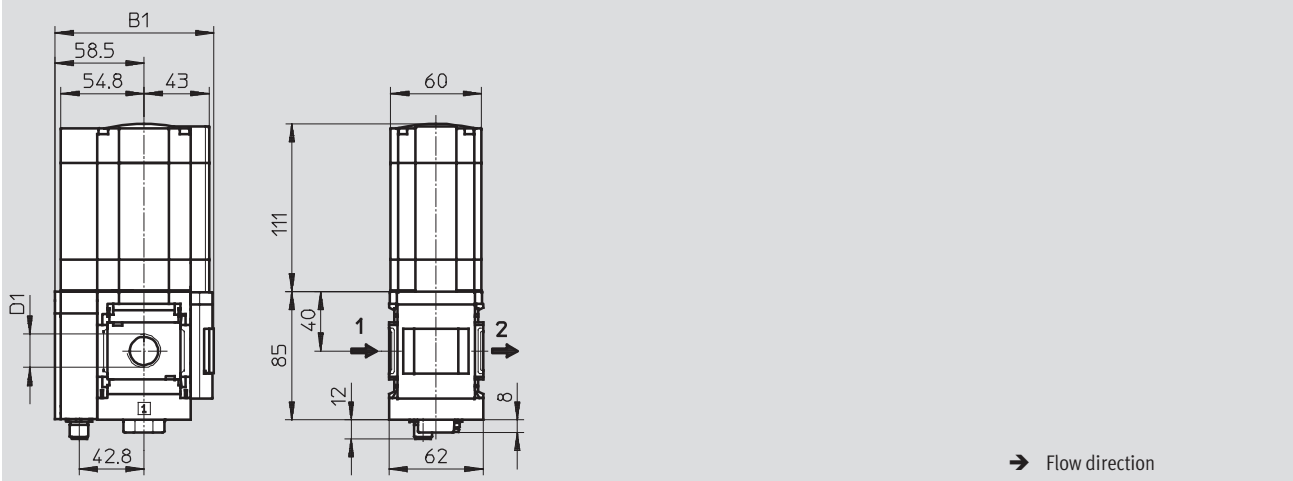
Technical data

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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

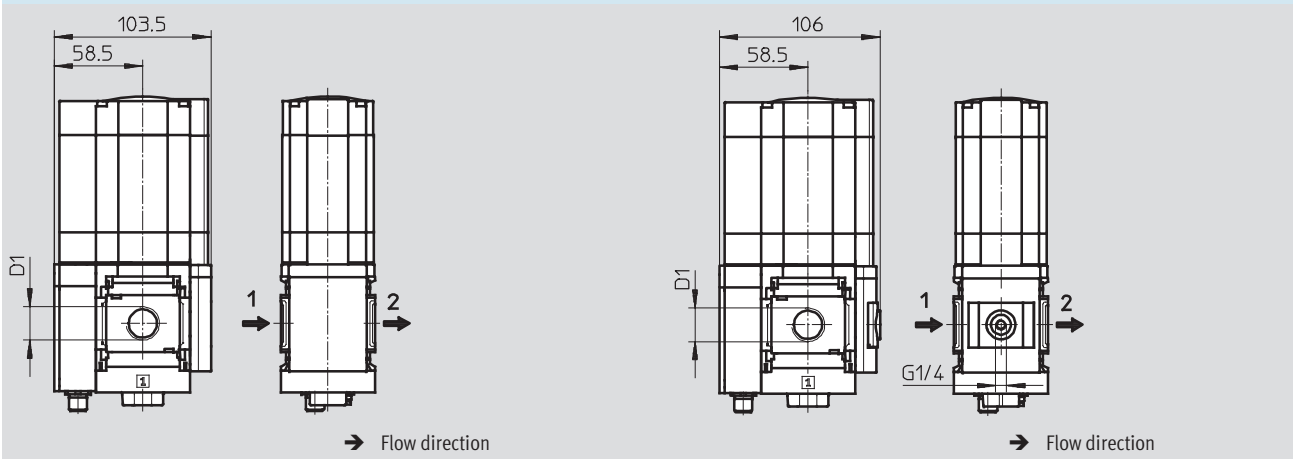
• Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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 with the ISO 1179-1 standard and the ISO 228-1 standard.

Electrical pressure regulators MS6-LRE, MS series

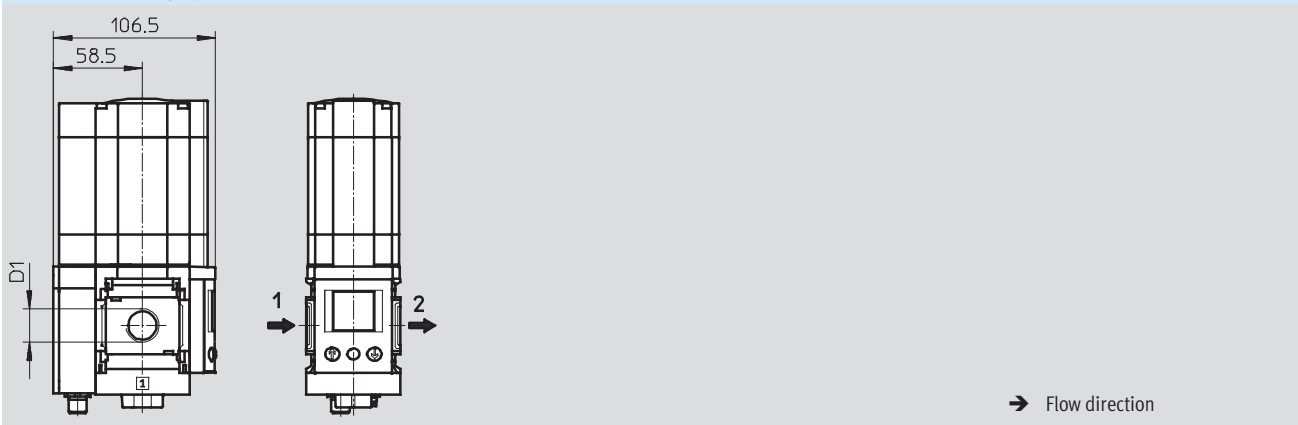
FESTO

Technical data

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Control unit with display OP



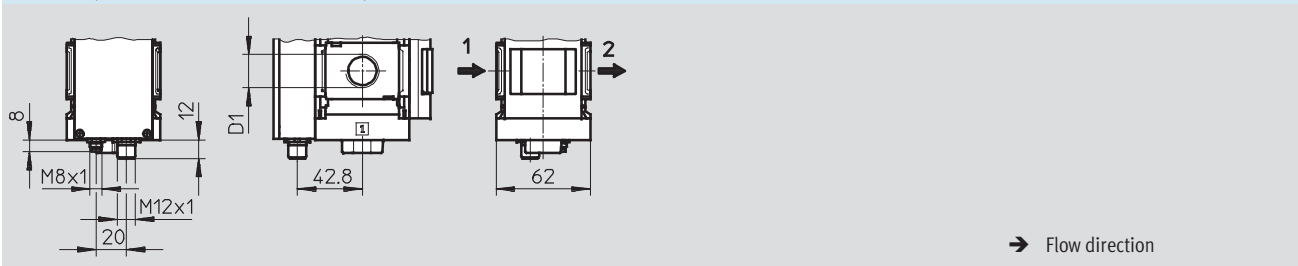
Type	D1
MS6-LRE-1/4	G1/4
MS6-LRE-3/8	G3/8
MS6-LRE-1/2	G1/2

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

Dimensions – Electrically controlled pressure output

Download CAD data → www.festo.com

Integrated pressure sensor with electrical output PI/PU



Electrical pressure regulators MS6-LRE, MS series

FESTO

Technical data

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	G1/4	535358	MS6-LRE-1/4-D6	535364	MS6-LRE-1/4-D7
	G3/8	535372	MS6-LRE-3/8-D6	535378	MS6-LRE-3/8-D7
	G1/2	535348	MS6-LRE-1/2-D6	535354	MS6-LRE-1/2-D7
Electrically controlled pressure output (integrated pressure sensor with current output), M8x1 plug, 3-pin					
MS6	G1/4	535360	MS6-LRE-1/4-D6-PI	535366	MS6-LRE-1/4-D7-PI
	G3/8	535374	MS6-LRE-3/8-D6-PI	535380	MS6-LRE-3/8-D7-PI
	G1/2	535350	MS6-LRE-1/2-D6-PI	535356	MS6-LRE-1/2-D7-PI
Electrically controlled pressure output (integrated pressure sensor with voltage output), M8x1 plug, 3-pin					
MS6	G1/4	535362	MS6-LRE-1/4-D6-PU	535369	MS6-LRE-1/4-D7-PU
	G3/8	535376	MS6-LRE-3/8-D6-PU	535382	MS6-LRE-3/8-D7-PU
	G1/2	535352	MS6-LRE-1/2-D6-PU	535357	MS6-LRE-1/2-D7-PU

Electrical pressure regulators MS6-LRE, MS series

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Ordering data – Modular products

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	-		-	
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Electrical pressure regulators MS6-LRE, MS series

FESTO

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	Alternative flow direction
VS A4 RG OP	PSI MPA	OS	PI PU	SK2 SK5	VK2 VK5	WBE WPB	Z
- OP	-	- OS	- PU	- SK5	-	-	- Z

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	
Alternative 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

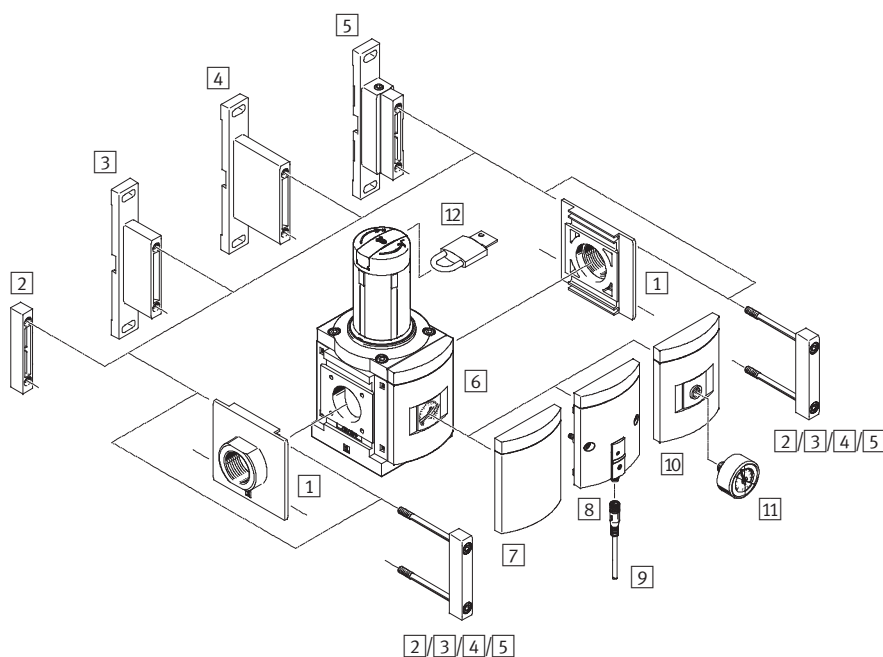
Transfer order code

- - - - - - - -

Pressure regulators MS9-LR, MS series

Peripherals overview

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 **Note**

Additional accessories:

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

Mounting attachments and accessories					
		Individual unit		Combination	➔ Page/Internet
		Without connecting thread	With connecting thread ¾ or 1		
1	Connecting plate 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	■	■	■	84
7	Cover plate VS	■	■	■	84
8	Pressure sensor without display AD7 ... AD10	■	■	■	84
9	Connecting cable NEBU-M8...-LE3	■	■	■	96
10	Adapter plate for EN pressure gauge ¾ A4	■	■	■	84
11	Pressure gauge MA	■	■	■	96
12	Padlock LRVS-D	■	■	■	96

**Variants D7, D8, PO, pilot actuated
regulator:
Available from 2nd quarter 2011**

 **New**

Pressure regulators MS9-LR, MS series

FESTO

Type codes

		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	0.3 ... 4 bar, manually operated																
D6	0.3 ... 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																

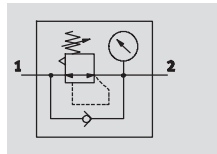
Additional variants can be ordered using the modular product system → 84

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

Pressure regulators MS9-LR, MS series

Technical data

With pressure gauge



-  - Flow rate
5,000 ... 26,500 l/min
-  - Temperature range
-10 ... +60 °C
-  - Supply pressure
0.8 ... 20 bar



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
- Piloted or directly actuated diaphragm regulator
- Four pressure regulation ranges: 0.3 ... 4 bar, 0.3 ... 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

General technical data				
Pneumatic connection 1, 2		G3/4	G1	G1/2 ... G1 1/2 (with connecting plate AG...) – (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⁾		
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]	0.3 ... 4, manually operated		
	D6 [bar]	0.3 ... 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...)		
	PO [bar]	Max. 16, pneumatically actuated		
Max. pressure hysteresis [bar]		0.3		
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 branching module must be mounted vertically when combined with a pressure sensor as condensate must not collect in the pressure sensor.

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

Variants D7, D8, PO, pilot actuated regulator: **Available from 2nd quarter 2011**

 **New**

Pressure regulators MS9-LR, MS series

FESTO

Technical data

Standard nominal flow rate $q_{nN}^{1)}$ [l/min]			
Pneumatic connection		With connecting thread G $\frac{3}{4}$ With connecting plate AGD, AGE	With connecting thread G1 With connecting plate AGF, AGG, AGH
Directly actuated diaphragm regulator DI			
Pressure regulation	D5	6,500 $\pm 15\%^{2)}$	12,000 $\pm 15\%^{2)}$
range	D6	6,500 $\pm 15\%$	9,000 $\pm 15\%$

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

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

Operating and environmental conditions		
Variant	Standard	Pressure sensor AD...
Supply pressure [bar]	0.8 ... 20	0.8 ... 20
Operating medium	Air quality class 5:7– to DIN ISO 8573-1	Filtered compressed air, lubricated or unlubricated, grade of filtration 40 μ m
Ambient temperature [°C]	–10 ... +60	0 ... +50
Temperature of medium [°C]	–10 ... +60	0 ... +50
Storage temperature [°C]	–10 ... +60	–10 ... +60
Corrosion resistance class CRC ¹⁾	2	

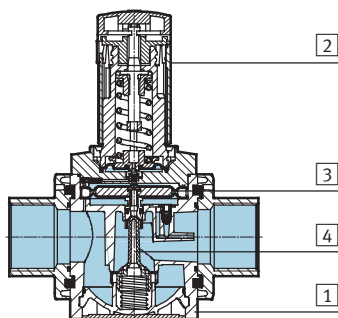
1) Corrosion resistance class 2 according to Festo standard 940 070

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

Weight [g]	
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

Pressure regulators MS9-LR, MS series

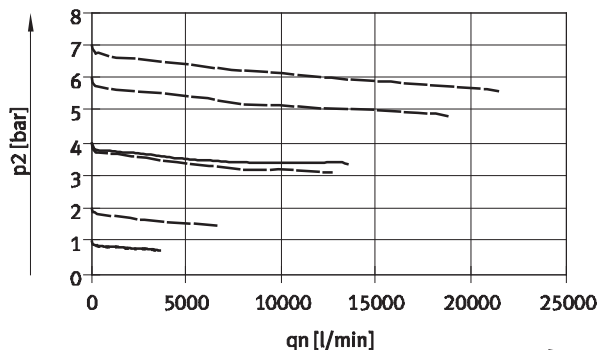
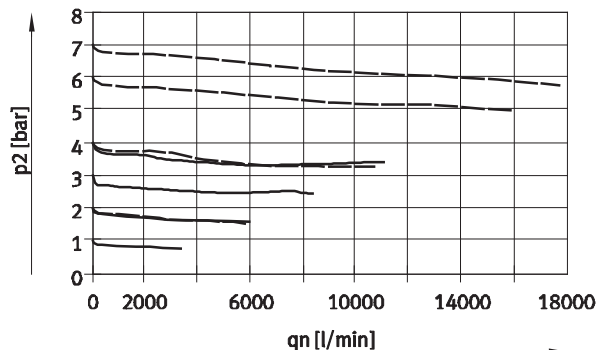
Technical data

FESTO

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

MS9-LR-3/4

MS9-LR-1

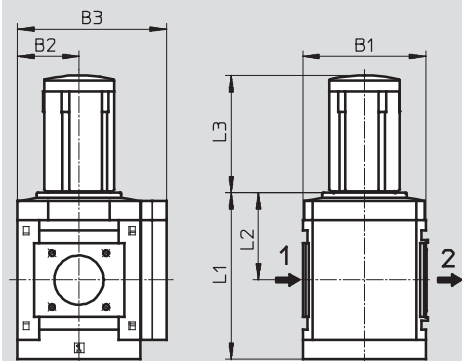


— D5: 0.3 ... 4 bar
- - - D6: 0.3 ... 7 bar

Dimensions – Basic version

Download CAD data → www.festo.com

Without connecting thread G, rotary knob with detent



→ Flow direction

Type	B1	B2	B3	L1	L2	L3
MS9-LR-G	90	45	109	122	64	86

**Variants D7, D8, PO, pilot actuated
regulator:
Available from 2nd quarter 2011**

 **New**

Pressure regulators MS9-LR, MS series

Technical data

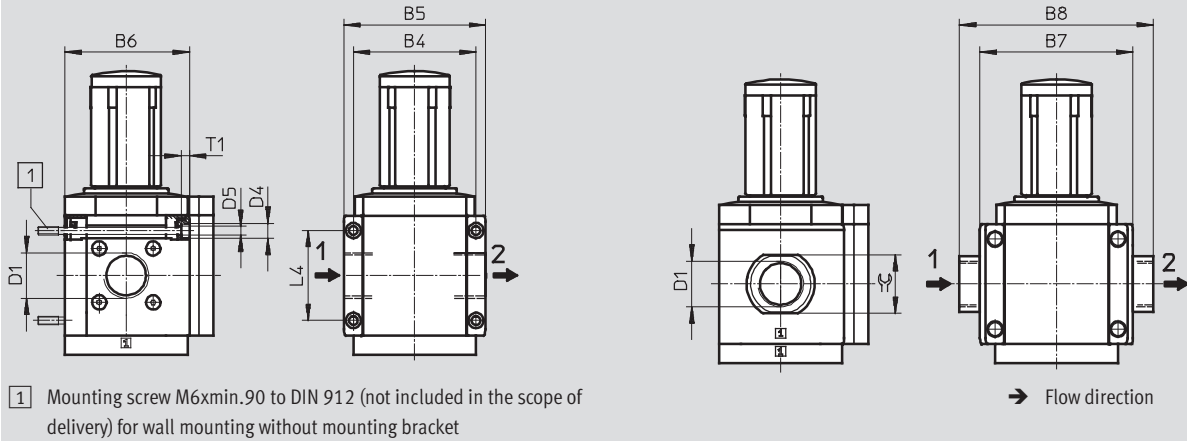
FESTO

Dimensions – Connecting thread/connecting plate

Download CAD data → www.festo.com

With connecting thread 3/4 or 1

With connecting plate AG...



Type	B4	B5	B6	B7	B8	D1	D4	D5	L4	T1	≙
MS9-LR-3/4	90	104	91.5	–	–	G3/4	11	6.5	66	6	–
MS9-LR-1						G1					
MS9-LR-AGD	–	–	–	112	132	G1/2	–	–	–	–	30
MS9-LR-AGE					132	G3/4					36
MS9-LR-AGF					142	G1					41
MS9-LR-AGG					162	G1 1/4					50
MS9-LR-AGH					176	G1 1/2					55

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

Pressure regulators MS9-LR, MS series

Technical data

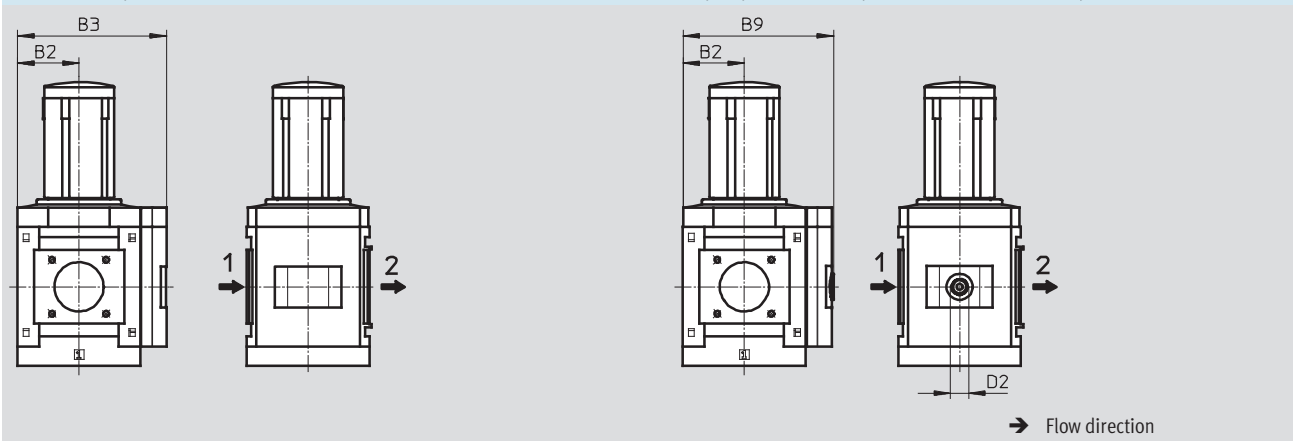
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Dimensions – Pressure gauge alternatives

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

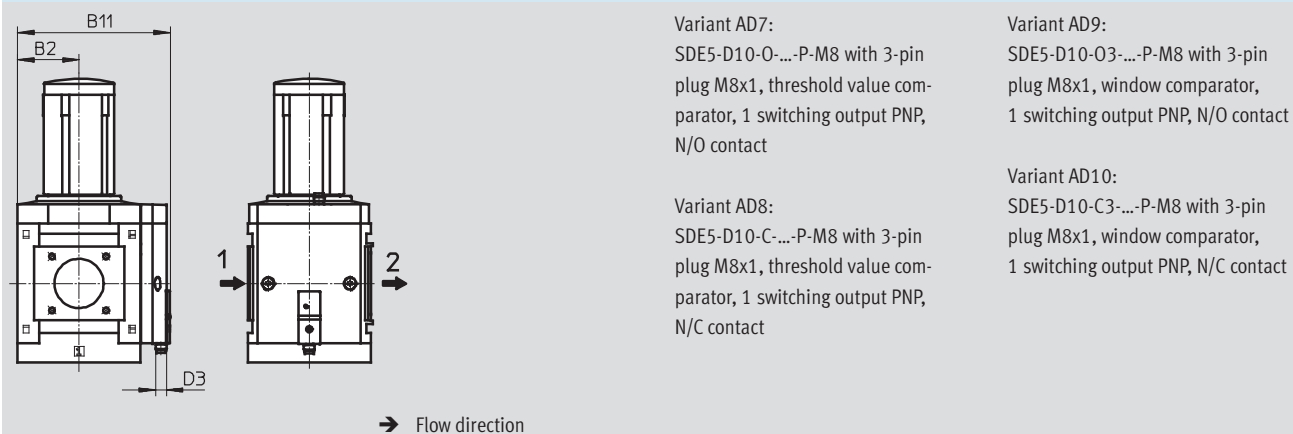
• Note: This product conforms to ISO 1179-1 and to ISO 228-1

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



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

**Variants D7, D8, PO, pilot actuated
regulator:
Available from 2nd quarter 2011**

 **New**

Pressure regulators MS9-LR, MS series

FESTO

Technical data

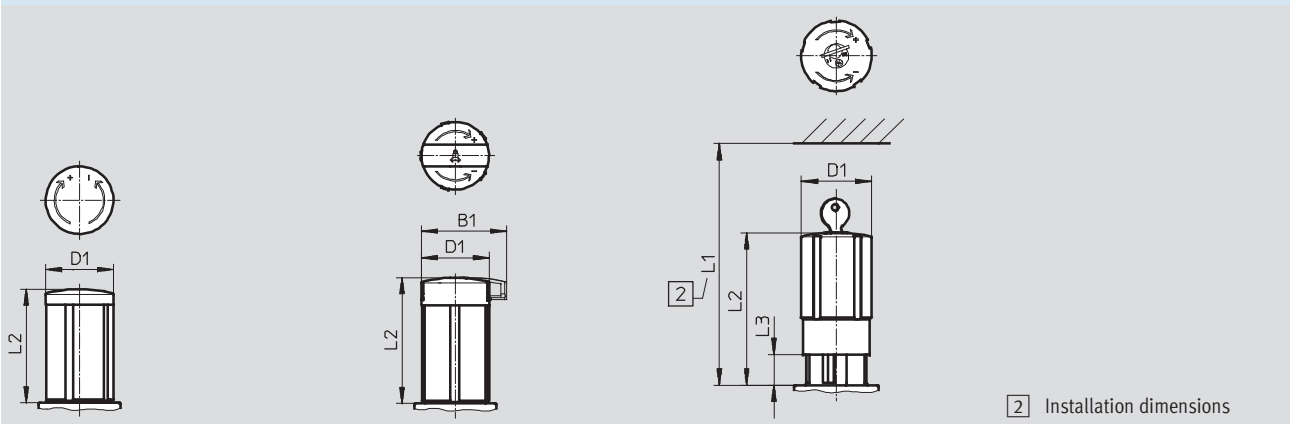
Dimensions – Rotary knob

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 0.3 ... 4 bar, manually actuated					
MS9	–	564134	MS9-LR-G-D5-AG-BAR-AS	564135	MS9-LR-G-D5-DI-AG-BAR-AS
Pressure regulation range 0.3 ... 7 bar, manually actuated					
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 actuated					
MS9	–	564138	MS9-LR-G-D7-AG-BAR-AS	–	–

Pressure regulators MS9-LR, MS series

Ordering data – Modular products

FESTO

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

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			-3/4	
	Thread G1			-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			-G	
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			-D8	
	Max. 16 bar, pneumatically actuated (pressure range defined by means of pilot regulator)		1	-PO	
O Regulator type	Directly actuated		2	-DI	

1 PO Not with regulator type DI
 Not with security AS, E11

2 DI Not with pressure range D7, D8

Transfer order code

562530 MS 9 - LR - - - -

**Variants D7, D8, PO, pilot actuated
regulator:
Available from 2nd quarter 2011**

 **New**

Pressure regulators MS9-LR, MS series

FESTO

Ordering data – Modular products

Mandatory data		Options				
Pressure gauge/ pressure gauge alternatives	Alternative pres- sure gauge scale	Secondary venting	Alternative mounting position	Security	Type of mounting	Alternative flow direction
AG, VS, A4, RG, AD7 ... AD10	PSI, MPa, BAR	OS	KD	AS, E11	WP, WPM, WPB	Z
- AG	- BAR	-	-	- AS	-	-

Ordering table						
Grid dimension	[mm]	90	Condi- tions	Code		Enter code
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	3	-RG		
		Pressure sensor without display, plug M8, threshold value comparator, PNP, N/O contact	4	-AD7		
		Pressure sensor without display, plug M8, threshold value comparator, PNP, N/C contact	4	-AD8		
		Pressure sensor without display, plug M8, window comparator, PNP, N/O contact	4	-AD9		
		Pressure sensor without display, plug M8, window comparator, PNP, N/C contact	4	-AD10		
	Alternative pressure gauge scale	Psi	5	-PSI		
		MPa	5	-MPA		
		Bar	5	-BAR		
O	Secondary venting	Without secondary venting	6	-OS		
	Alternative mounting position	Rotary knob underneath (connection underneath with PO)		-KD		
	Security	Can be locked using accessories		-AS		
		With integrated lock		-E11		
	Type of mounting	Mounting bracket	7	-WP		
		Mounting bracket	7	-WPM		
		Mounting bracket for large wall gap	7	-WPB		
	Alternative flow direction	Flow direction from right to left		-Z		

- 3 **RG** Not with alternative pressure gauge scale PSI,
PSI scale serves only as an auxiliary scale
- 4 **AD7 ... AD10** Measuring range max. 10 bar
- 5 **PSI, MPA, BAR** Not with pressure gauge alternatives VS, A4, AD7, AD8, AD9, AD10

- 6 **OS** Only with regulator type DI
- 7 **WP, WPM, WPB** Not with module G

Transfer order code

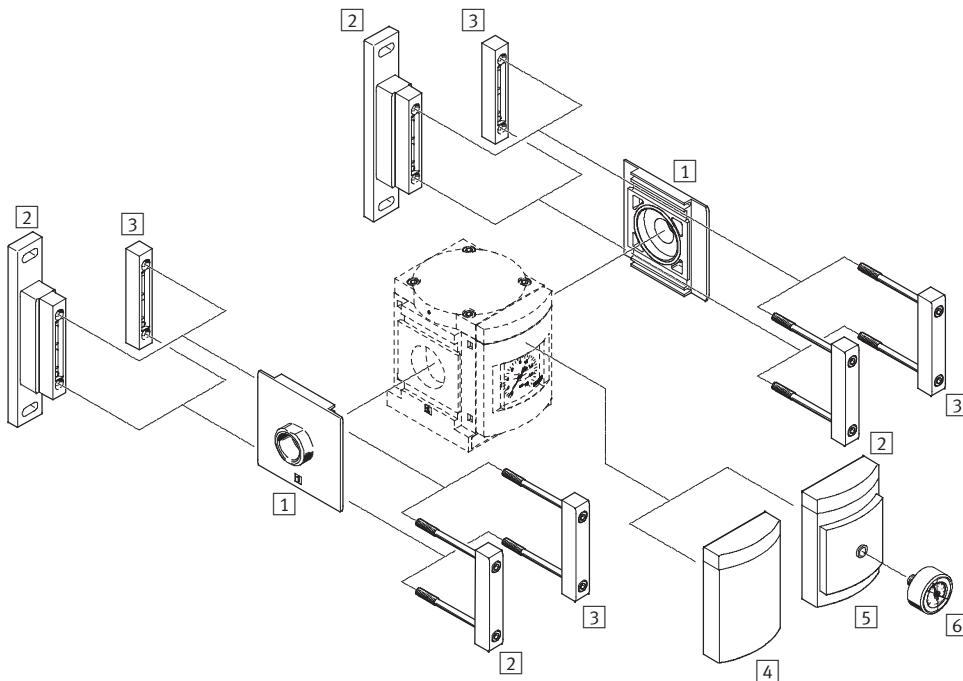
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Pressure regulators MS12-LR, MS series

Peripherals overview

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Pressure regulator MS12-LR



Note

Additional accessories:

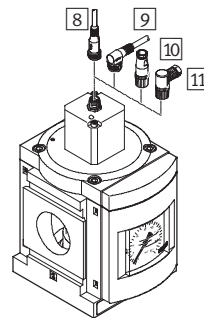
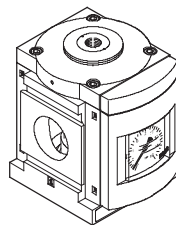
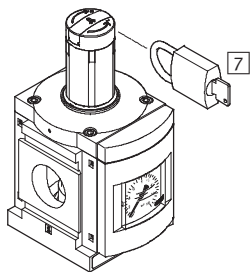
– Module connector
for combination with size MS9

→ Internet: armv

manually operated

pneumatically actuated

solenoid actuated



Pressure regulators MS12-LR, MS series

Peripherals overview

Mounting attachments and accessories		→ Page/Internet
1	Connecting plate MS12-AG...	ms12-ag
2	Mounting bracket MS12-WP	ms12-wp
3	Module connector MS12-MV	ms12-mv
4	Cover plate VS	94
5	Adapter plate for EN pressure gauge 1/4 A4	94
6	Pressure gauge MA	96
7	Padlock LRVS-D	96
8	Connecting cable NEBU-M12G...-LE4	96
9	Connecting cable NEBU-M12W...-LE4	96
10	Sensor socket SIE-GD	96
11	Angled plug socket SIE-WD	96

Pressure regulators MS12-LR, MS series

Type codes

FESTO

		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 → 94

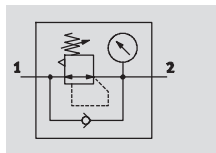
- Connecting plates
- Pressure regulation range/actuation mode
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Security
- Type of mounting
- Alternative flow direction

Pressure regulators MS12-LR, MS series

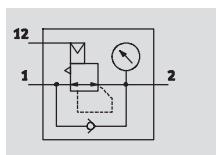
Technical data

Pressure regulation range/actuation mode

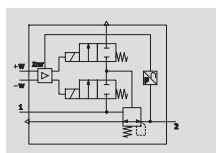
D6/D7/D8, manually operated



PO, pneumatically actuated



PE6, solenoid actuated



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

Wearing parts kits
→ 93



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 supply pressure p1 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⁾
Pilot air connection 12 with pressure regulation range/actuation mode PO		G¼			
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		0.4 with pressure regulation range/actuation mode D6/D7/D8/PO			
		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

Technical data

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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]		
$q_{nN} 2 \rightarrow 3$	≤ 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
Supply pressure p_1	[bar]	0.8 ... 21
Operating medium		Compressed air, air quality class 5.7.– to DIN ISO 8573-1
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 2 as per Festo standard 940 070

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

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

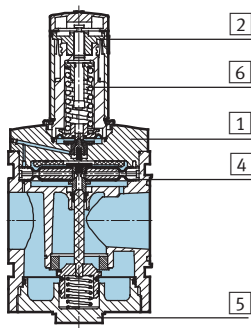
Pressure regulators MS12-LR, MS series

Technical data

FESTO

Materials

Sectional view



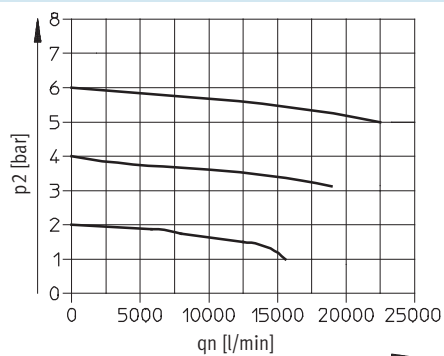
Pressure regulator

1	Housing	Die-cast aluminium
2	Rotary knob	Reinforced polyamide/polyacetate
	Rotary knob with integrated lock E11	Wrought aluminium alloy
4	Diaphragm	Nitrile rubber
5	Cap (bottom)	Wrought aluminium alloy
6	Spring	Spring steel
-	Seals	Nitrile rubber
Note on materials		RoHS-compliant
		Free of copper and PTFE only with cover plate VS

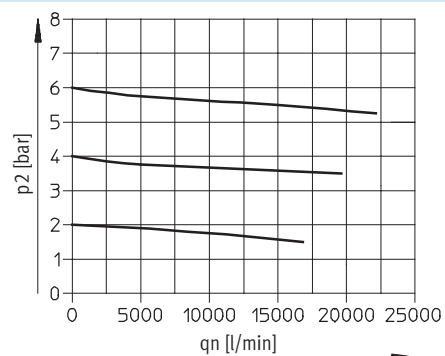
Standard flow rate q_n as a function of output pressure p_2 (MS12-LR-...-D6/D7/D8/PO only)

With connecting plate MS12-AGF
Pneumatic connection G1

Supply pressure $p_1 = 10$ bar

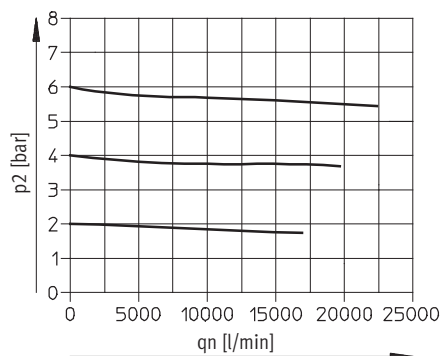


With connecting plate MS12-AGG
Pneumatic connection G1¼

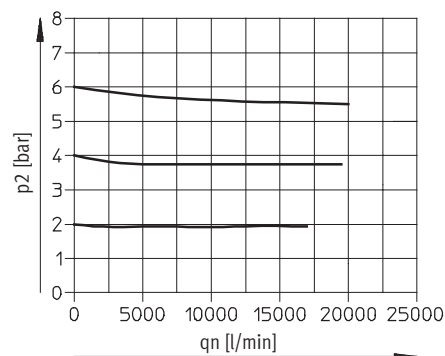


With connecting plate MS12-AGH
Pneumatic connection G1½

Supply pressure $p_1 = 10$ bar



With connecting plate MS12-AGI
Pneumatic connection G2



Pressure regulators MS12-LR, MS series

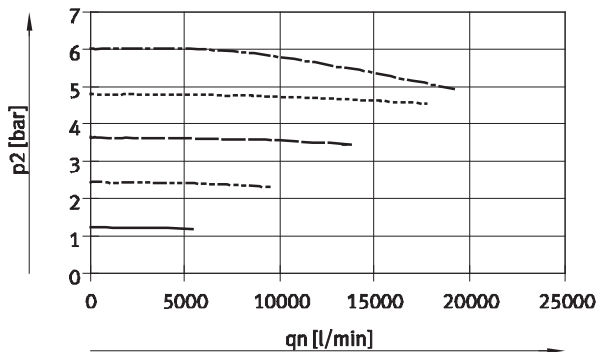
Technical data

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



Supply pressure $p_1 = 7$ bar

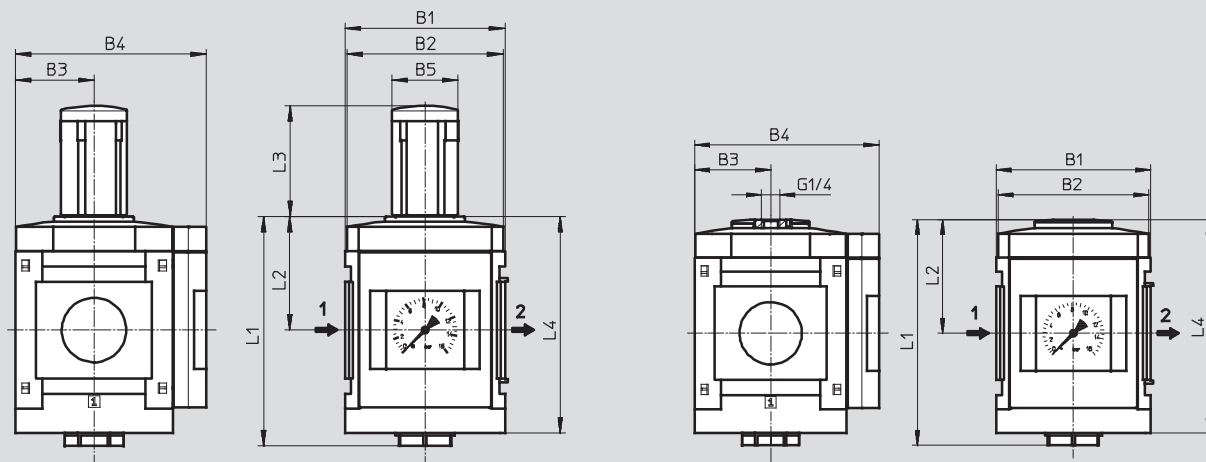
— 2 volts
- - - 4 volts
- · - 6 volts
· · · 8 volts
- - - 10 volts

Dimensions

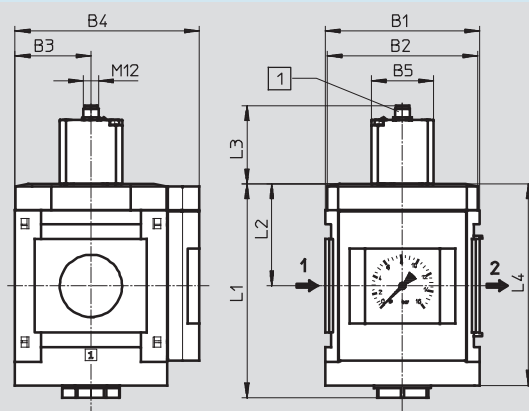
Download CAD data → www.festo.com

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

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

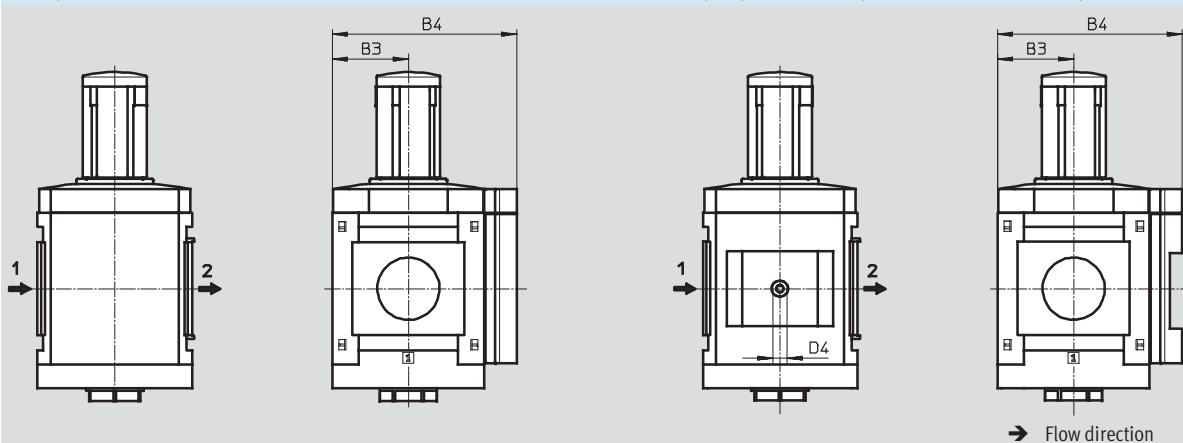
Technical data

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

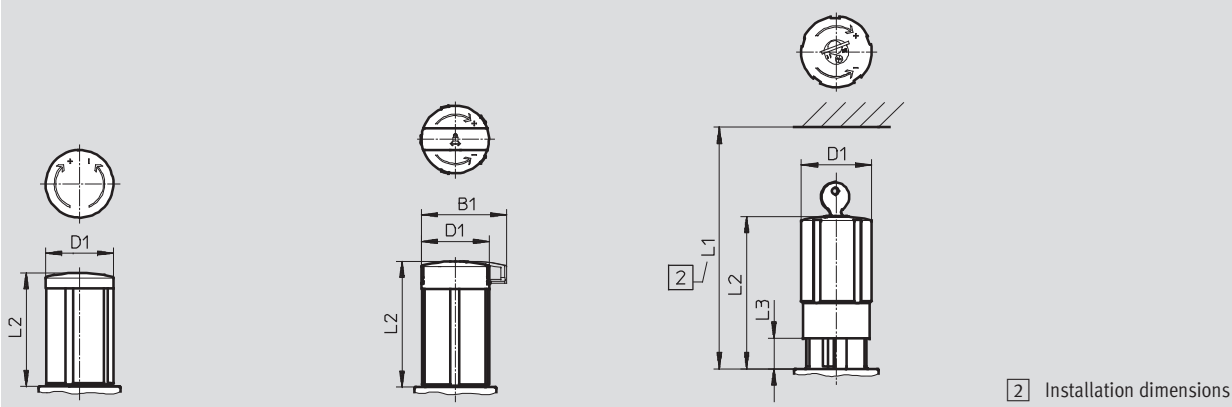
Dimensions – Rotary knob

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 G1 ¼			-AGG	
	Connecting plate G1 ½			-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 - -

Pressure regulators MS12-LR, MS series

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

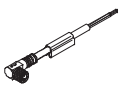
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Pressure regulators MS-LR/LRB/LRP/LRPB/LRE, MS series

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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
			0 ... 25	0 ... 360	187081	MA-40-25-R¼-EN
		G¼	0 ... 16	0 ... 232	183901	MA-40-16-G¼-EN
			0 ... 25	0 ... 360	183902	MA-40-25-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		

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