

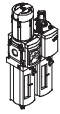
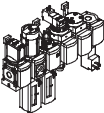




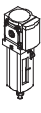
Pressure regulators MS-LR/LRB/LRP/LRPB/LRE, MS series



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

FESTO

Product range overview – MS series service units

Type	Size	Pneumatic connection in housing	Connecting plate	Pressure regulation range [bar]						Grade of filtration [µm]			
				0.05	0.05	0.1	0.3	0.1	0.5				
				...	...	...	...	...	...	0.01	1	5	40
Code			AG...	D2	D4	D5	D6	D7	D8	A	B	C	E
<b>Service units</b>													
<b>MSB-FRC</b> 	4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	■	■	-	-	-	■	■
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	■	■	-	-	-	■	■
	9	-											
	12	-											
<b>Service unit combinations (further variants can be ordered using the configurator → Internet: msb4, msb6 or msb9)</b>													
<b>MSB</b> 	4	G1/4	G1/8, G1/4, G3/8	-	-	-	■	■	-	-	-	■	■
	6	G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	■	■	-	-	-	■	■
	9	-											
	12	-											
<b>Individual devices</b>													
Filter regulators <b>MS-LFR</b> 	4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	■	■	■	-	-	-	■	■
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	■	■	■	■	-	-	■	■
	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 <b>MS-LF</b> 	4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	-	-	■	■
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	-	-	■	■
	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 <b>MS-LFM</b> 	4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	■	■	-	-
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	■	■	-	-
	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 <b>MS-LFX</b> 	4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	-	-	-	-
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	-	-	-	-
	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 <b>MS-LWS</b> 	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

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	
<b>Service units</b>																	
MSB-FRC	4	■	-	■	-	■	-	-	■	-	-	-	■	-	-	■	msb4
	6	■	■	■	-	■	-	-	■	-	-	-	■	-	-	■	msb6
	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Service unit combinations</b>																	
MSB	4	■	■	■	-	■	-	-	■	-	-	-	■	-	-	■	msb4
	6	■	■	■	-	■	-	-	■	-	-	-	■	-	-	■	msb6
	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Individual devices</b>																	
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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



Product range overview – MS series service units

Type	Size	Pneumatic connection in housing	Connecting plate	Pressure regulation range [bar]						Supply voltage			
				0.05 ... 0.7	0.05 ... 2.5	0.1 ... 4	0.3 ... 7	0.1 ... 12	0.5 ... 16	24 V DC, connection pattern to EN 175301	24 V DC, connection 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
<b>Individual devices</b>													
Pressure regulators <b>MS-LR</b>		4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	■	■	■	-	-	-	-
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	■	■	■	■	-	-	-
		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 <b>MS-LRB</b>		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 <b>MS-LRP</b>		4	-	-	-	-	-	-	-	-	-	-	-
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	■	■	■	-	■	-	-	-	-
		9	-	-	-	-	-	-	-	-	-	-	-
		12	-	-	-	-	-	-	-	-	-	-	-
Precision pressure regulators <b>MS-LRPB</b>		4	-	-	-	-	-	-	-	-	-	-	-
		6	G1/2	G1/4, G3/8, G1/2, G3/4	■	■	■	-	■	-	-	-	-
		9	-	-	-	-	-	-	-	-	-	-	-
		12	-	-	-	-	-	-	-	-	-	-	-
Electrical pressure regulators <b>MS-LRE</b>		4	-	-	-	-	-	-	-	-	-	-	-
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	■	■	■	■	-	-	-
		9	-	-	-	-	-	-	-	-	-	-	-
		12	-	-	-	-	-	-	-	-	-	-	-
Lubricators <b>MS-LOE</b>		4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	-	-	-
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	-	-	-
		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 <b>MS-EM(1)</b>		4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	-	-	-
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	-	-	-
		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 <b>MS-EE</b>		4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	■	-	■
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	■	-	■
		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 <b>MS-DL</b>		4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	-	-	-
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	-	-	-
		9	-	-	-	-	-	-	-	-	-	-	-
		12	-	G1, G1 1/4, G1 1/2, G2	-	-	-	-	-	-	-	-	-
Electrical soft-start valves <b>MS-DE</b>		4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	■	-	■
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	■	-	■
		9	-	-	-	-	-	-	-	-	-	-	-
		12	-	G1, G1 1/4, G1 1/2, G2	-	-	-	-	-	-	■	■	■
Soft start and exhaust valves <b>MS-SV</b>		4	-	-	-	-	-	-	-	-	-	-	-
		6	G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	■	-	-
		9	-	-	-	-	-	-	-	-	-	-	-
		12	-	-	-	-	-	-	-	-	-	-	-

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





Product range overview – MS series service units

Type	Size	Bowl guard		Pressure indicator				Security		Options		→ Page/ Internet	
		Plastic bowl with plastic bowl guard	Metal bowl	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor	Rotary knob with detent, lockable via accessories	Rotary knob with integrated lock	Silencer		Flow direction from right to left
Code		R	U	VS	AG	A8	A4	AD...	AS	E11	S	Z	
<b>Individual devices</b>													
Pressure regulators <b>MS-LR</b>	4	-	-	■	■	■	■	■	■	■	-	■	8
	6	-	-	■	■	-	■	■	■	■	-	■	8
	9	-	-	■	■	-	■	■	■	■	-	■	76
	12	-	-	■	■	-	■	-	■	■	-	■	86
Pressure regulators <b>MS-LRB</b>	4	-	-	■	■	■	■	■	■	■	-	■	22
	6	-	-	■	■	-	■	■	■	■	-	■	22
	9	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-
Precision pressure regulators <b>MS-LRP</b>	4	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	■	-	■	■	■	■	■	-	■	36
	9	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-
Precision pressure regulators <b>MS-LRPB</b>	4	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	■	-	■	■	■	■	■	-	■	50
	9	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-
Electrical pressure regulators <b>MS-LRE</b>	4	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	■	■	-	■	-	-	-	-	■	66
	9	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-
Lubricators <b>MS-LOE</b>	4	■	■	-	-	-	-	-	-	-	-	■	ms4-loe
	6	■	■	-	-	-	-	-	-	-	-	■	ms6-loe
	9	-	■	-	-	-	-	-	-	-	-	■	ms9-loe
	12	-	■	-	-	-	-	-	-	-	-	■	ms12-loe
Electrical on-off valves <b>MS-EM(1)</b>	4	-	-	■	■	■	■	■	-	-	■	■	ms4-em1
	6	-	-	■	■	-	■	■	-	-	■	■	ms6-em1
	9	-	-	■	■	-	■	-	-	-	■	■	ms9-em
	12	-	-	■	■	-	■	-	-	-	■	■	ms12-em
Electrical on-off valves <b>MS-EE</b>	4	-	-	■	■	■	■	■	-	-	■	■	ms4-ee
	6	-	-	■	■	-	■	■	-	-	■	■	ms6-ee
	9	-	-	■	■	-	■	-	-	-	■	■	ms9-ee
	12	-	-	■	■	-	■	-	-	-	■	■	ms12-ee
Electrical soft-start valves <b>MS-DL</b>	4	-	-	■	■	■	■	■	-	-	-	■	ms4-dl
	6	-	-	■	■	-	■	■	-	-	-	■	ms6-dl
	9	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	■	■	-	■	-	-	-	-	■	ms12-dl
Electrical soft-start valves <b>MS-DE</b>	4	-	-	■	■	■	■	■	-	-	-	■	ms4-de
	6	-	-	■	■	-	■	■	-	-	-	■	ms6-de
	9	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	■	■	-	■	-	-	-	-	■	ms12-de
Soft start and exhaust valves <b>MS-SV</b>	4	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	■	■	-	■	■	-	-	■	■	ms6-sv
	9	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-

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



Product range overview – MS series service units

Type	Size	Pneumatic connection in housing	Connecting plate	Pressure regulation range [bar]				Supply voltage			
				0.1	0.3	0.1	0.5	24 V DC, connection pattern to EN 175301	24 V DC, connection pattern M12 to DESINA	110 V AC, connection pattern to EN 175301	230 V AC, connection pattern to EN 175301
Code			AG...	D5	D6	D7	D8	V24	V24P	V110	V230
<b>Individual devices</b>											
Membrane air dryers <b>MS-LDM1</b>		4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	-
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	-
		9	-								
		12	-								
Branching modules <b>MS-FRM</b>		4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	-
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	-
		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 <b>MS-FRM-FRZ</b>		4	G1/4	-	-	-	-	-	-	-	-
		6	G1/2	-	-	-	-	-	-	-	-
		9	-								
		12	-								
Flow sensors <b>SFAM</b>		4	-								
		6	G1/2	G1/2	-	-	-	-	-	-	-
		9	-	G1, G1 1/2	-	-	-	-	-	-	-
		12	-								

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

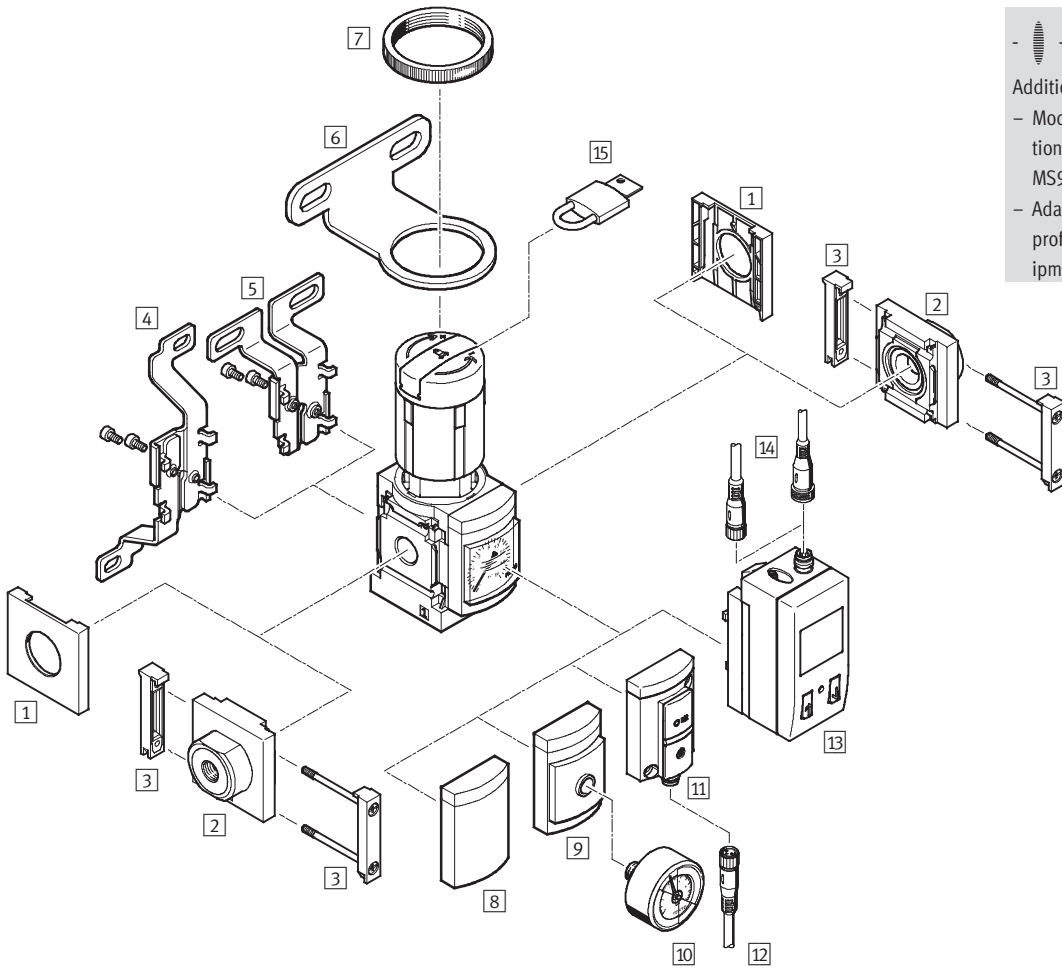
Product range overview – MS series service units

Type	Size	Bowl guard		Pressure indicator					Switch output		Options		→ Page/ Internet
		Plastic bowl with plastic bowl guard	Metal bowl	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge 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	
<b>Individual devices</b>													
Membrane air dryers <b>MS-LDM1</b>	4	-	■	-	-	-	-	-	-	-	-	■	ms4-ldm1
	6	-	■	-	-	-	-	-	-	-	-	■	ms6-ldm1
	9	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-
Branching modules <b>MS-FRM</b>	4	-	-	■	■	■	■	■	-	-	-	■	ms4-frm
	6	-	-	■	■	-	■	■	-	-	-	■	ms6-frm
	9	-	-	■	■	-	■	■	-	-	-	■	ms9-frm
	12	-	-	■	-	-	-	-	-	-	-	-	ms12-frm
Distributor blocks <b>MS-FRM-FRZ</b>	4	-	-	-	-	-	-	-	-	-	-	■	ms4-frm
	6	-	-	-	-	-	-	-	-	-	-	■	ms6-frm
	9	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-
Flow sensors <b>SFAM</b>	4	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	-	-	-	-	-	■	■	-	■	sfam-62
	9	-	-	-	-	-	-	-	■	■	-	■	sfam-90
	12	-	-	-	-	-	-	-	-	-	-	-	-

# Pressure regulators MS4/MS6-LR, MS series

Peripherals overview

## Pressure regulator MS4/MS6-LR



Note

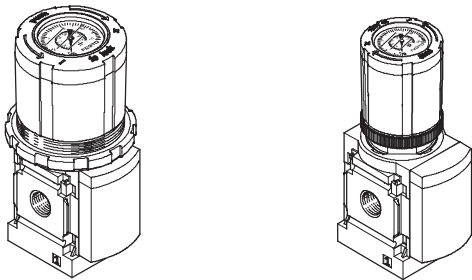
Additional accessories:

- 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

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

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
----	--

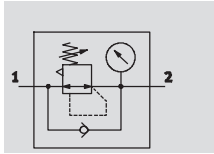
**Additional variants can be ordered using the modular system → 20**

- 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

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](http://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		MS4		MS6	
Size					
Pneumatic connection 1, 2		G <sup>1</sup> / <sub>8</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>1</sup> / <sub>4</sub>	G <sup>3</sup> / <sub>8</sub> / G <sup>1</sup> / <sub>2</sub>
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 <sup>1)</sup>			
	D6 [bar]	0.3 ... 7, manually operated <sup>1)</sup>			
	D7 [bar]	0.5 ... 12, manually operated (0.5 ... 10 with pressure sensor variant AD...) <sup>1)</sup>			
	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			
			G <sup>1</sup> / <sub>8</sub> prepared		-
		G <sup>1</sup> / <sub>4</sub> 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 <sup>2)</sup>	2,100 <sup>2)</sup>	2,400 <sup>2)</sup>	5,500 <sup>2)</sup>	7,500 <sup>2)</sup>
	D6	1,150	1,800	3,000	5,800	6,500
	D7	1,000	1,700 <sup>3)</sup>	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.

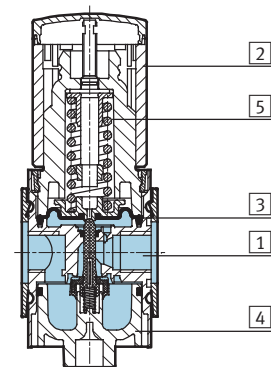
Operating and environmental conditions					
Variant		Standard		Pressure sensor AD...	
Size		MS4	MS6	MS4	MS6
Supply pressure	[bar]	0.8 ... 14	0.8 ... 20	0.8 ... 14	0.8 ... 20
Operating medium		Filtered compressed air or inert gases, lubricated or unlubricated, grade of filtration 40 $\mu$ m			
Ambient 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 <sup>1)</sup>	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	

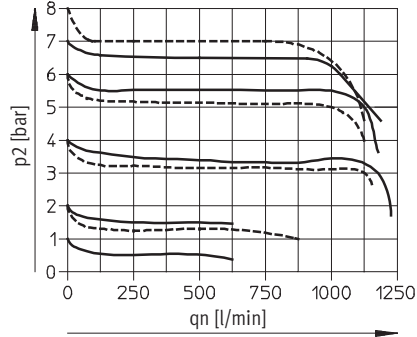
# Pressure regulators MS4/MS6-LR, MS series

Technical data

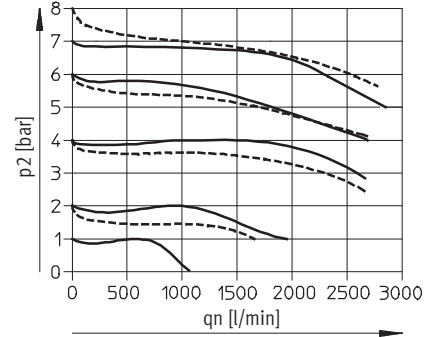
## Standard flow rate $q_n$ as a function of output pressure $p_2$

MS4-LR-1/8

Primary pressure  $p_1 = 10$  bar



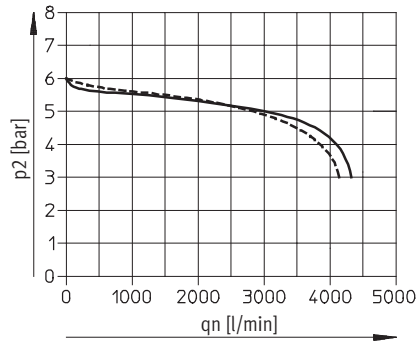
MS4-LR-1/4



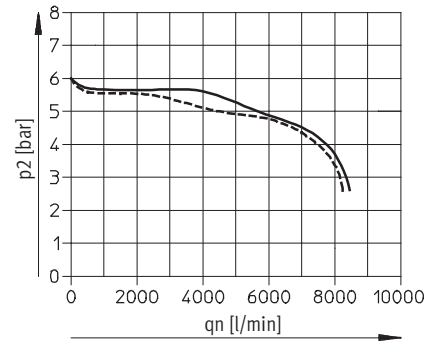
1) There is a higher initial pressure drop for the characteristic curve of the DM1/DM2 variant.

MS6-LR-1/4

Primary pressure  $p_1 = 10$  bar

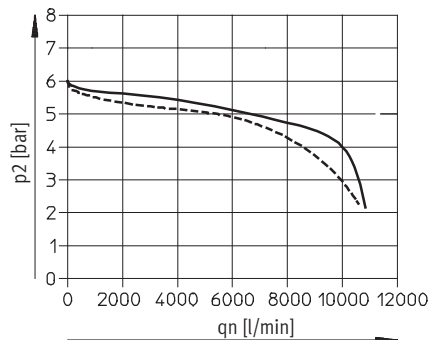


MS6-LR-3/8



MS6-LR-1/2

Primary pressure  $p_1 = 10$  bar

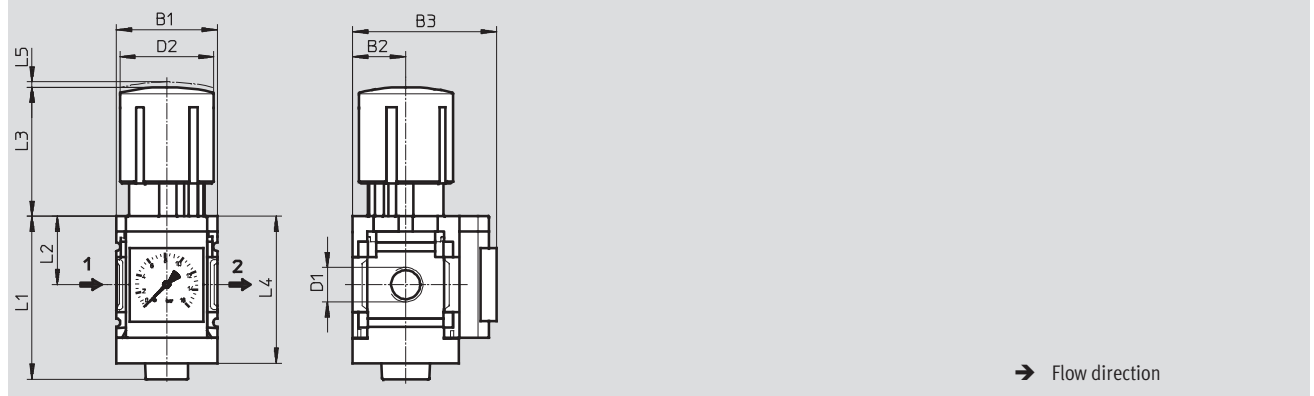


# Pressure regulators MS4/MS6-LR, MS series

Technical data

## Dimensions – Standard Download CAD data → [www.festo.com](http://www.festo.com)

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

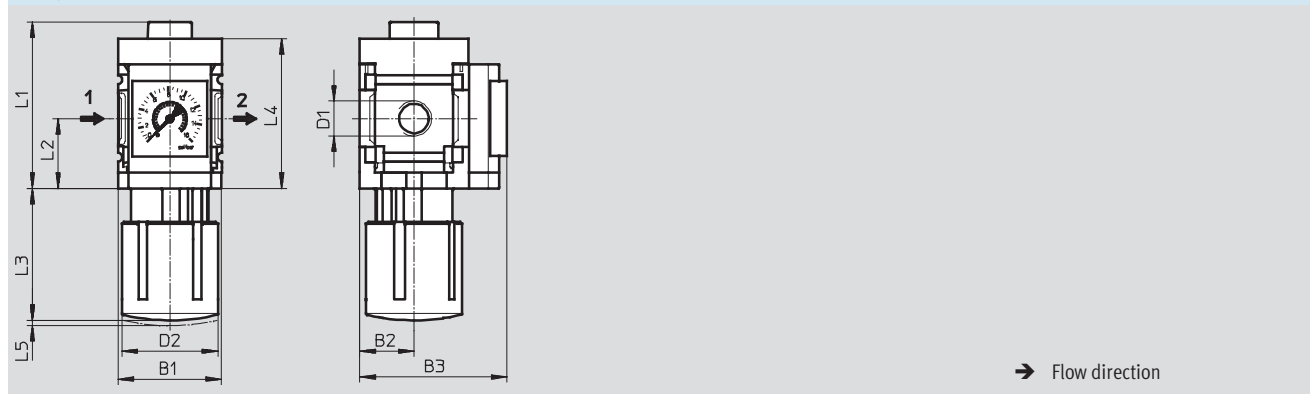


Type	B1	B2	B3		D1	D2	L1	L2	L3	L4	L5
			Standard scale	Red-green scale							
MS4-LR-1/8	40	21	57	58.5	G1/8	37.2	64.4	27	51.1	58	2
MS4-LR-1/4					G1/4						
MS6-LR-1/4	62	31	77	78.5	G1/4	51	93	39	86	84	5
MS6-LR-3/8					G3/8						
MS6-LR-1/2					G1/2						

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

## Dimensions – Alternative mounting position Download CAD data → [www.festo.com](http://www.festo.com)

Rotary knob underneath KD



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

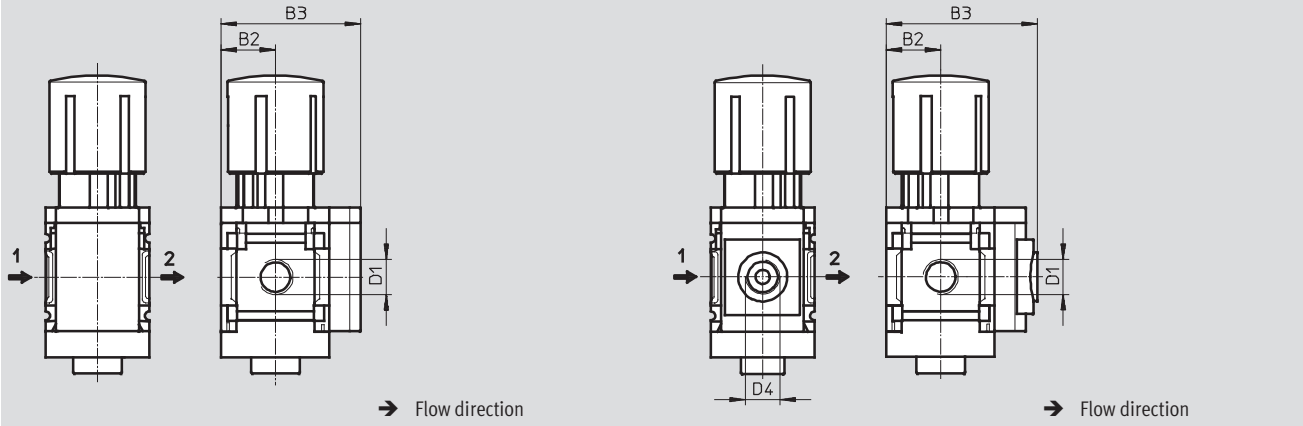
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## Dimensions – Pressure gauge alternatives

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

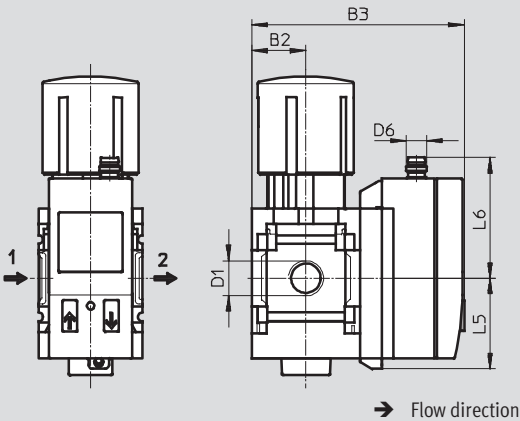
· | · Note: This product conforms to ISO 1179-1 and to ISO 228-1

# Pressure regulators MS4/MS6-LR, MS series

Technical data

**Dimensions – Pressure gauge alternatives** Download CAD data → [www.festo.com](http://www.festo.com)

Pressure sensor with LCD display AD1 ... AD4 Technical data → Internet: [sde1](#)



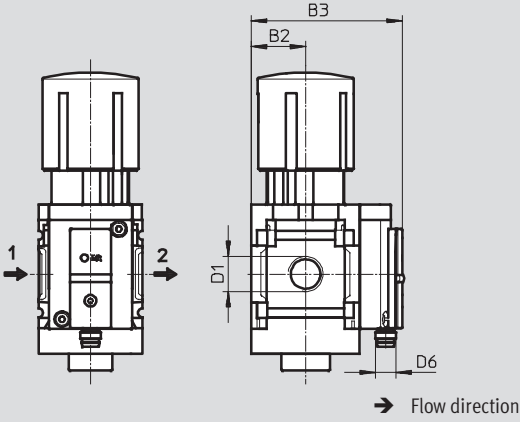
Variant AD1:  
SDE1-D10-G2-MS-L-P1-M8 with 3-pin plug M8x1, 1 switching output PNP

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-LR-1/8-...-AD1/AD2	21	82.6	G1/8	M8x1	35.1	46.7
MS4-LR-1/4-...-AD1/AD2			G1/4			
MS4-LR-1/8-...-AD3/AD4	21	82.6	G1/8	M12x1	35.1	55.8
MS4-LR-1/4-...-AD3/AD4			G1/4			
MS4-LR-1/8-...-AD7/AD8/AD9/AD10	21	59.1	G1/8	M8x1	-	-
MS4-LR-1/4-...-AD7/AD8/AD9/AD10			G1/4			
MS6-LR-1/4-...-AD1/AD2	31	103	G1/4	M8x1	35.1	46.7
MS6-LR-3/8-...-AD1/AD2			G3/8			
MS6-LR-1/2-...-AD1/AD2			G1/2			
MS6-LR-1/4-...-AD3/AD4	31	103	G1/4	M12x1	35.1	55.8
MS6-LR-3/8-...-AD3/AD4			G3/8			
MS6-LR-1/2-...-AD3/AD4			G1/2			
MS6-LR-1/4-...-AD7/AD8/AD9/AD10	31	79	G1/4	M8x1	-	-
MS6-LR-3/8-...-AD7/AD8/AD9/AD10			G3/8			
MS6-LR-1/2-...-AD7/AD8/AD9/AD10			G1/2			

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



# Pressure regulators MS4/MS6-LR, MS series

Technical data

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## Dimensions – Rotary knob

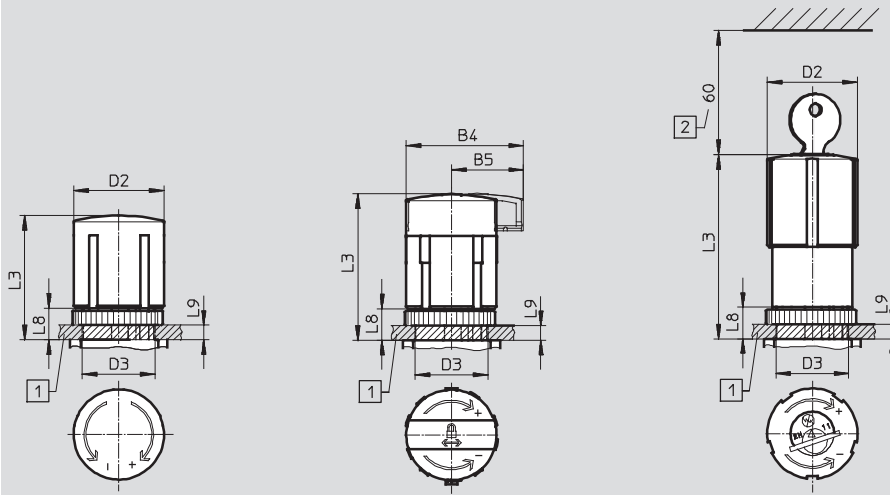
Download CAD data → [www.festo.com](http://www.festo.com)

For installation into control panel

Standard rotary knob with detent

Standard rotary knob with detent,  
lockable via accessories AS

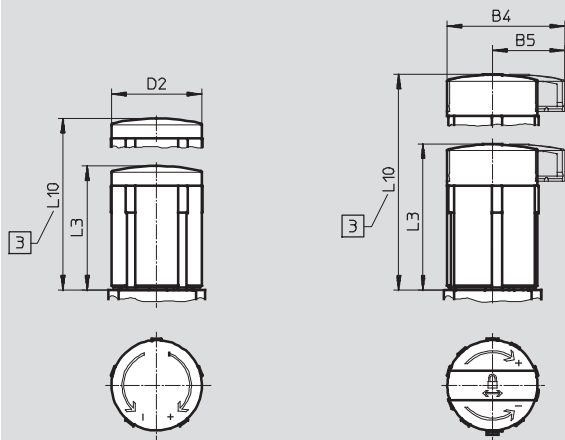
Rotary knob with integrated lock  
E11



- 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-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

FESTO

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

**Dimensions – Rotary knob with pressure gauge**

Small DM1 Large DM2

MS4 MS4 MS6

→ Flow direction

- 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.

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

FESTO

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	G $\frac{1}{8}$	529421	MS4-LR- $\frac{1}{8}$ -D5-AS	529423	MS4-LR- $\frac{1}{8}$ -D6-AS	529425	MS4-LR- $\frac{1}{8}$ -D7-AS
	G $\frac{1}{4}$	529415	MS4-LR- $\frac{1}{4}$ -D5-AS	529417	MS4-LR- $\frac{1}{4}$ -D6-AS	529419	MS4-LR- $\frac{1}{4}$ -D7-AS
MS6	G $\frac{1}{4}$	529995	MS6-LR- $\frac{1}{4}$ -D5-AS	529997	MS6-LR- $\frac{1}{4}$ -D6-AS	529999	MS6-LR- $\frac{1}{4}$ -D7-AS
	G $\frac{3}{8}$	530001	MS6-LR- $\frac{3}{8}$ -D5-AS	530003	MS6-LR- $\frac{3}{8}$ -D6-AS	530005	MS6-LR- $\frac{3}{8}$ -D7-AS
	G $\frac{1}{2}$	529989	MS6-LR- $\frac{1}{2}$ -D5-AS	529991	MS6-LR- $\frac{1}{2}$ -D6-AS	529993	MS6-LR- $\frac{1}{2}$ -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

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
<b>Order example</b>						
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		
	-	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		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

Ordering data – Modular products

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
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 3 9	-KD	
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

10 WR Not with long rotary knob LD

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

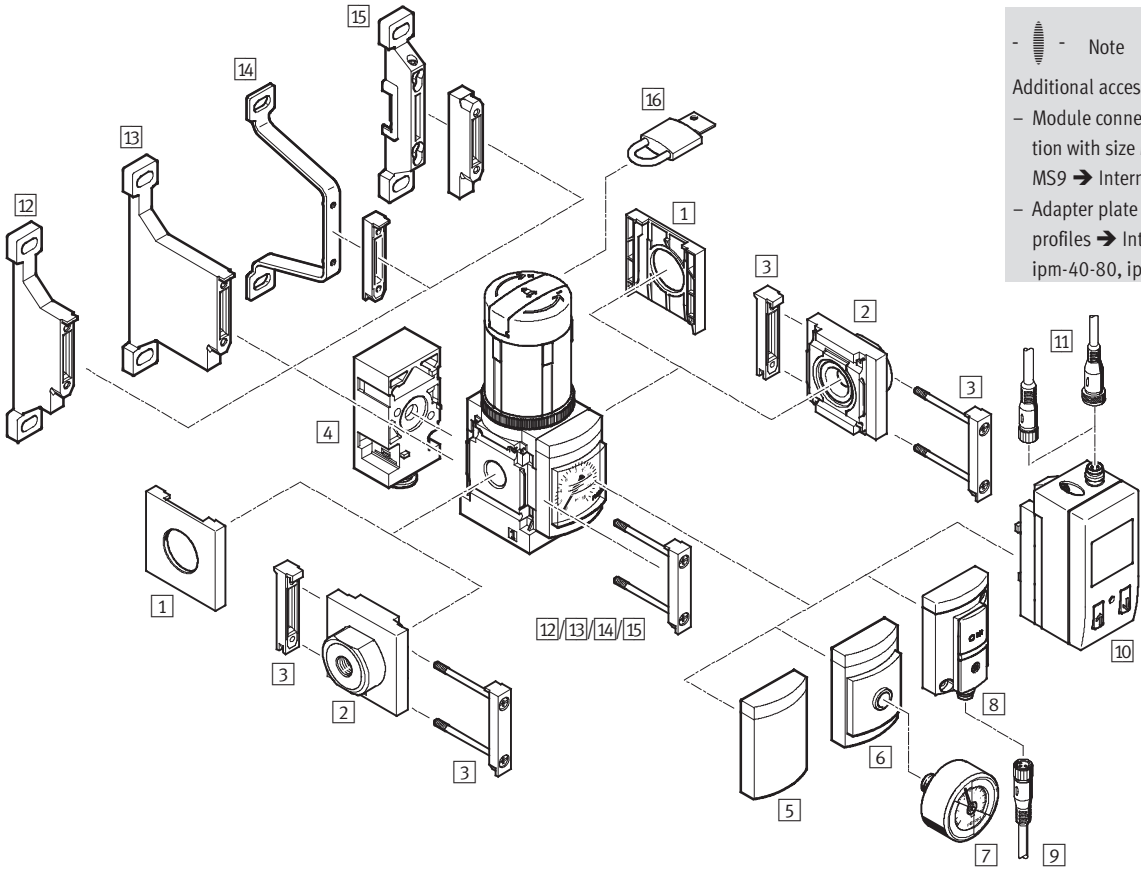
Transfer order code

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

# Pressure regulators MS4/MS6-LRB, MS series

Peripherals overview

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



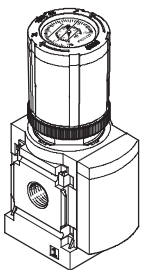
Note

Additional accessories:

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

## Pressure regulator with rotary knob pressure gauge

MS4-LRB...-DM1/  
MS6-LRB...-DM2



# Pressure regulators MS4/MS6-LRB, MS series

Peripherals overview

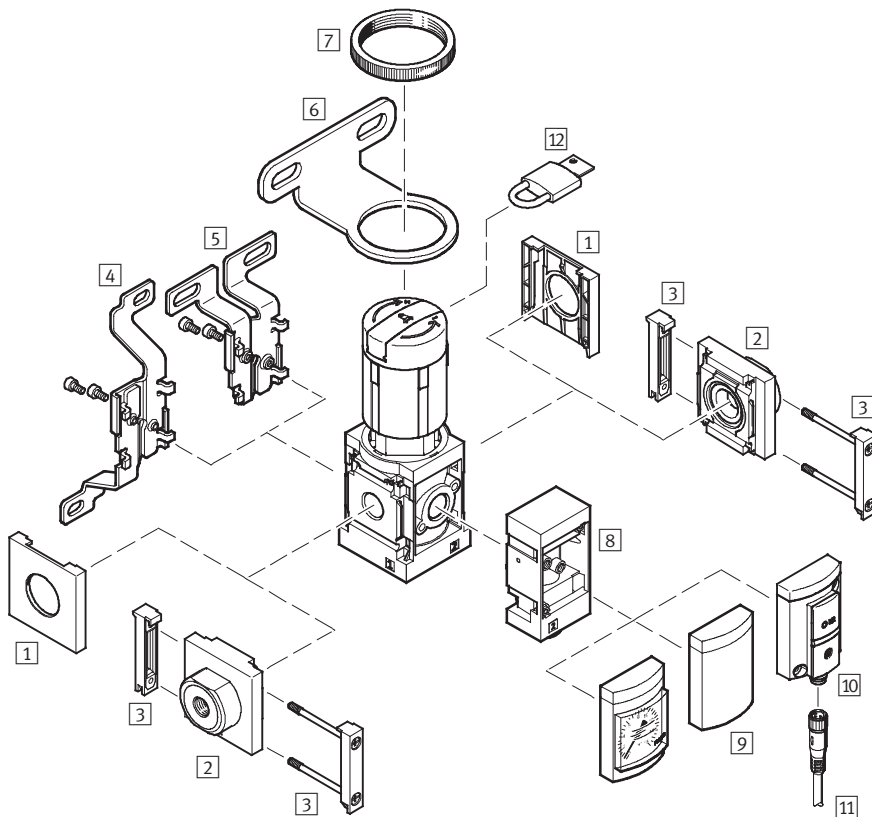
Mounting attachments and accessories						
		Individual device		Combination		→ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
1	Cover cap MS4/6-END	■	-	■	-	ms4-end, ms6-end
2	Connecting plate MS4/6-AG...	-	■	-	■	ms4-ag, ms6-ag
3	Module connector 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

Type codes

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

**Additional variants can be ordered using the modular system → 34**

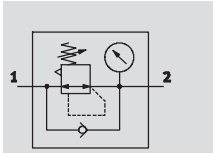
- Connecting plates
- Pressure regulation range
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Rotary knob alternative
- Alternative mounting position
- Security
- Pressure output
- Type of mounting
- Alternative flow direction





# Pressure regulators MS4/MS6-LRB, MS series

Technical data

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With pressure gauge

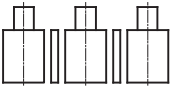


-  - Flow rate  
300 ... 7,300 l/min
-  - Temperature range  
-10 ... +60 °C
-  - Supply pressure  
0.8 ... 20 bar
-  - [www.festo.com](http://www.festo.com)

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

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

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

# Pressure regulators MS4/MS6-LRB, MS series

Technical data

Standard nominal flow rate $q_{nN}^{1)}$ [l/min]							
Size		MS4			MS6		
		Standard	Angled outlet block		Standard	Angled outlet block	
			QS-6	QS-8		QS-8	QS-10
Pressure regulation range	D5	1,900 <sup>2)</sup>	300 <sup>2)</sup>	650 <sup>2)</sup>	7,300 <sup>2)</sup>	600 <sup>2)</sup>	750 <sup>2)</sup>
	D6	1,700	350	840	6,300	880	1,000
	D7	1,500 <sup>3)</sup>	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 $\mu$ 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 <sup>1)</sup>	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

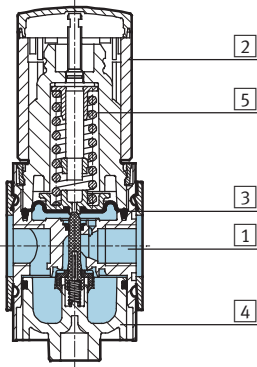
# Pressure regulators MS4/MS6-LRB, MS series

Technical data

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## Materials

Sectional view



Pressure regulator (manifold assembly)

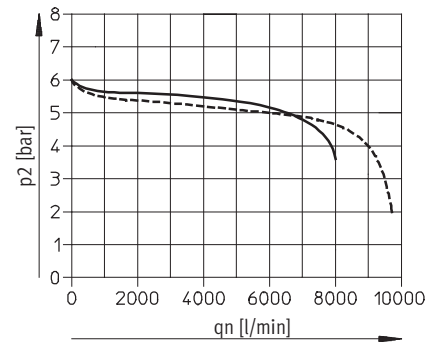
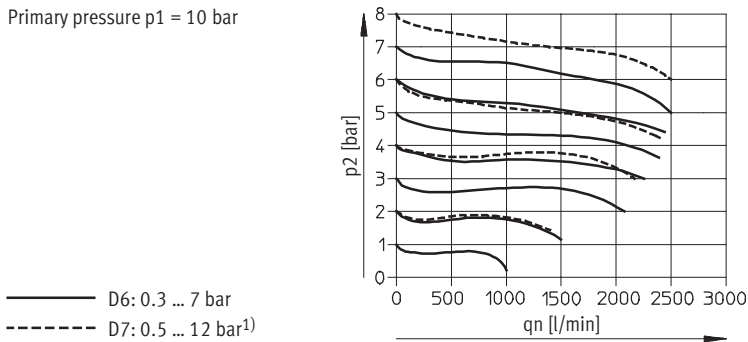
1	Housing	Die-cast aluminium
2	Rotary knob	PA/POM
	Rotary knob with integrated lock E11	Aluminium
3	Diaphragm	NBR
4	Cap, bottom	PET
5	Springs	Steel
-	Seals	NBR
Note on materials		RoHS-compliant
		Free of copper and PTFE only with cover plate VS

## 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.

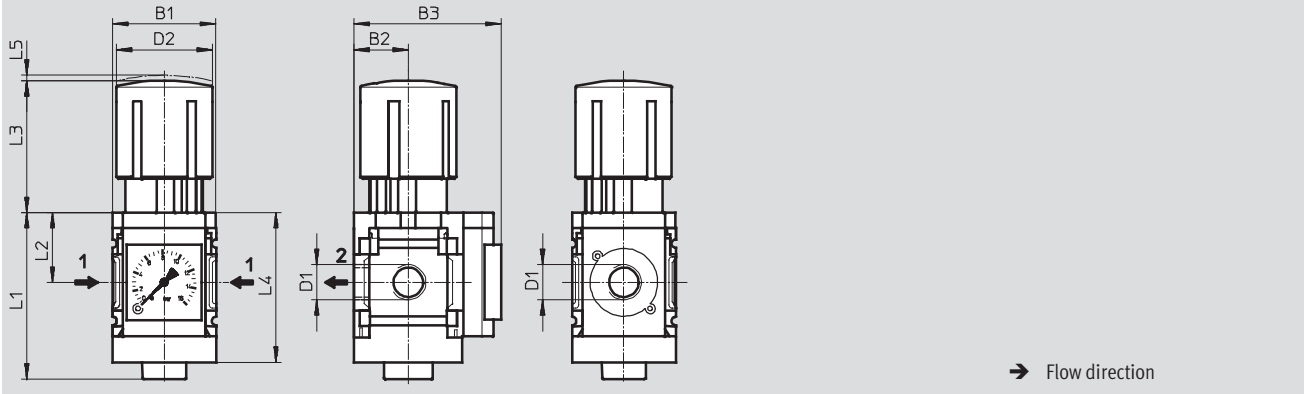
# Pressure regulators MS4/MS6-LRB, MS series

Technical data

## Dimensions – Standard

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

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



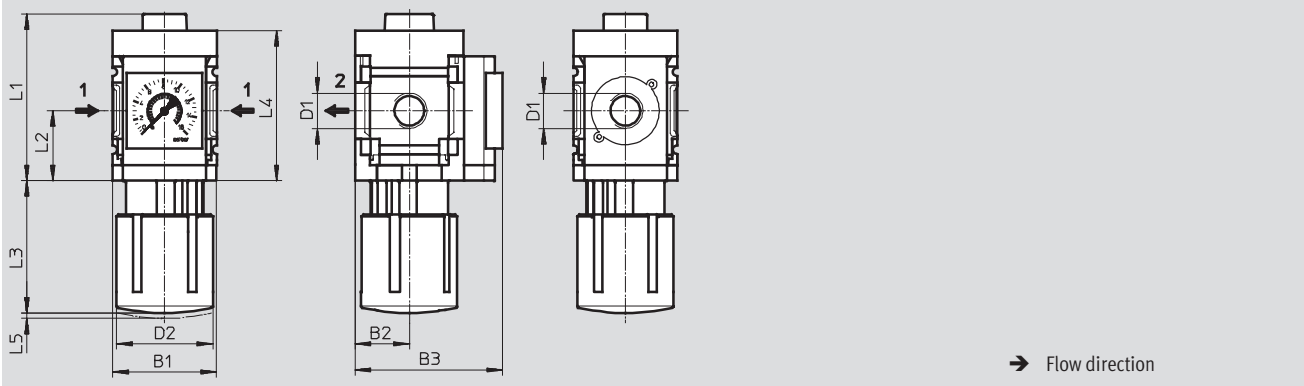
Type	B1	B2	B3		D1	D2	L1	L2	L3	L4	L5
			Standard scale	Red-green scale							
MS4-LRB-1/4	40	21	57	58.5	G1/4	37.2	64.4	27	51.1	58	2
MS6-LRB-1/2	62	31	77	78.5	G1/2	51	93	39	86	84	5

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

## Dimensions – Alternative mounting position

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

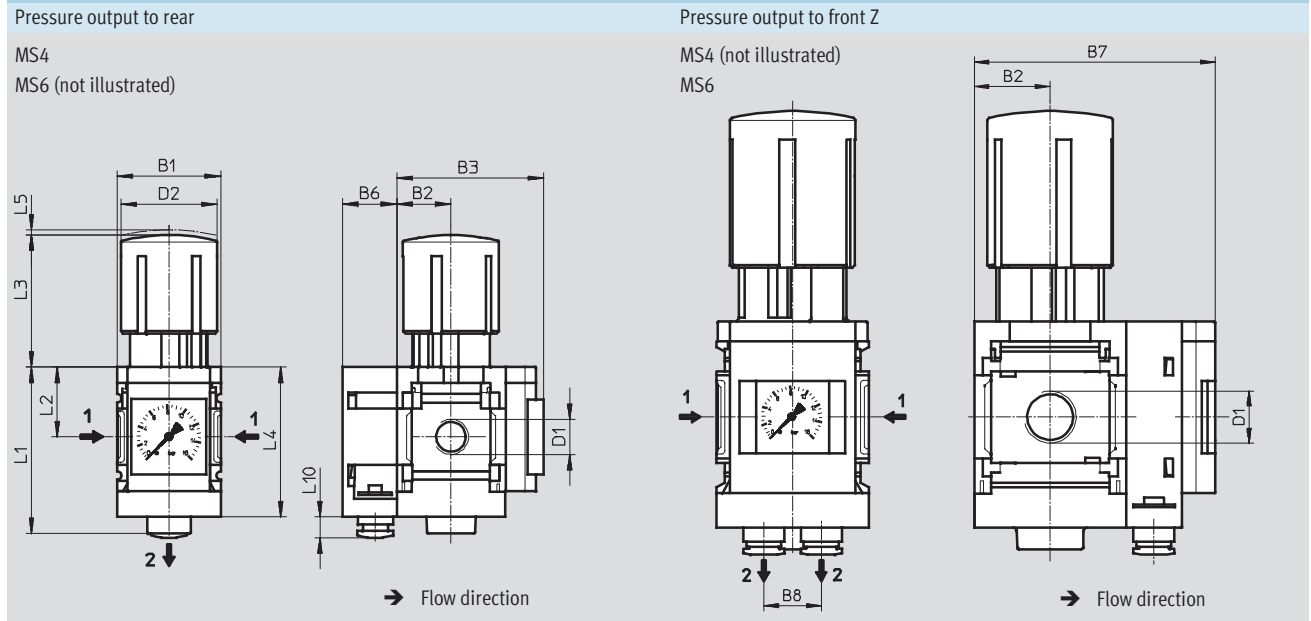
# Pressure regulators MS4/MS6-LRB, MS series

Technical data

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## Dimensions – Angled outlet block BC/BD/BE

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

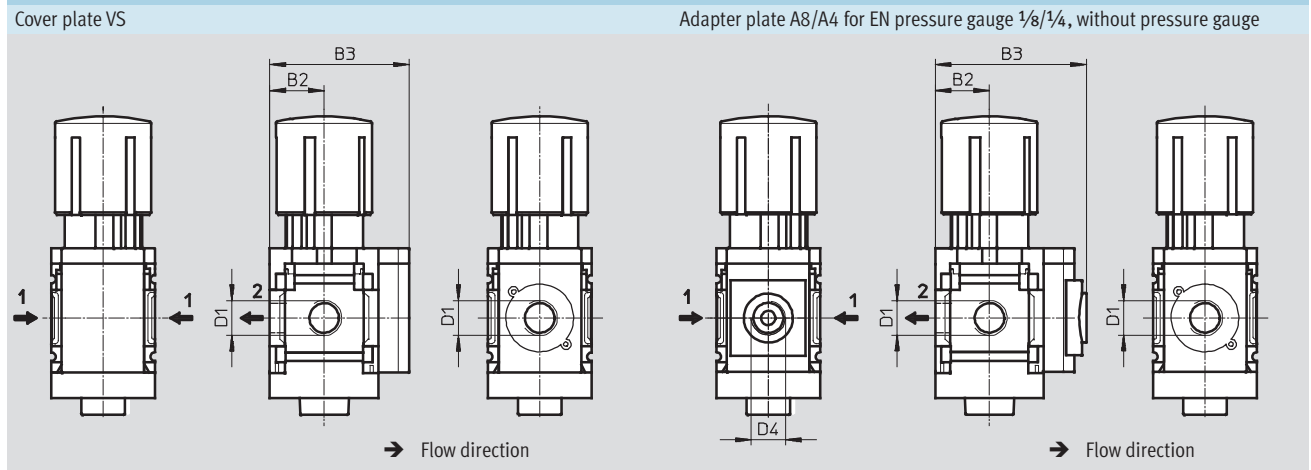


Type	B1	B2	B3	B6	B7	B8	D1	D2	L1	L2	L3	L4	L5	L10
MS4-LRB-1/4-...-B...	40	21	57	21	78	-	G1/4	37.2	64.4	27	51.1	58	2	8
MS6-LRB-1/2-...-B...	62	31	77	22.6	99.6	23.4	G1/2	51	93	39	86	84	5	11

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

## Dimensions – Pressure gauge alternatives

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



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

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

# Pressure regulators MS4/MS6-LRB, MS series

Technical data

**Dimensions – Pressure gauge alternatives** Download CAD data → [www.festo.com](http://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

**Dimensions – Rotary knob** Download CAD data → [www.festo.com](http://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	-	-			51.8			
MS6-LRB-...-LD	-	-	51	-	86	-	-	139
MS6-LRB-...-LD-AS	64.4	39			95.5			148.5



# Pressure regulators MS4/MS6-LRB, MS series

Technical data

**Dimensions – Rotary knob pressure gauge** Download CAD data → [www.festo.com](http://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
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

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
<b>Order example</b>						
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		-		-	
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# Pressure regulators MS4/MS6-LRB, MS series

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	Conditions	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 <sub>max</sub> = 10 bar)	Angled outlet block QS-6	-			-BC	
	Angled outlet block QS-8	Angled outlet block QS-8			-BD	
	-	Angled outlet block QS-10			-BE	
Type of mounting	Mounting bracket with knurled nut for regulator head			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**

- 6 PSI, MPA** Not with rotary knob pressure gauge DM1, DM2  
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
- 9 DM1, DM2** Can only be selected in combination with pressure gauge alternative VS, A4, AD1 ... AD4, AD7 ... AD10
- 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

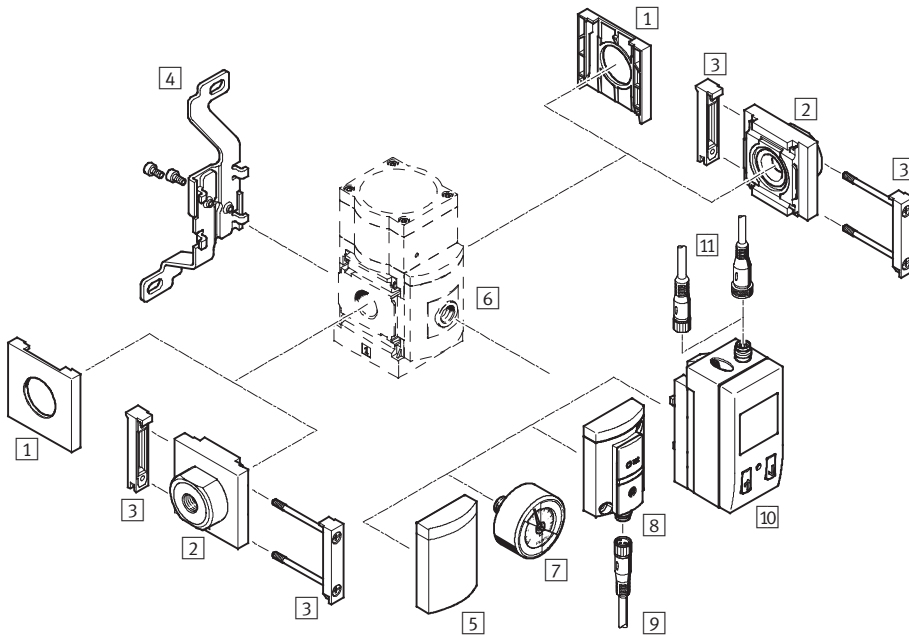
Transfer order code

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

# Precision pressure regulators MS6-LRP, MS series

Peripherals overview

## Precision pressure regulator MS6-LRP



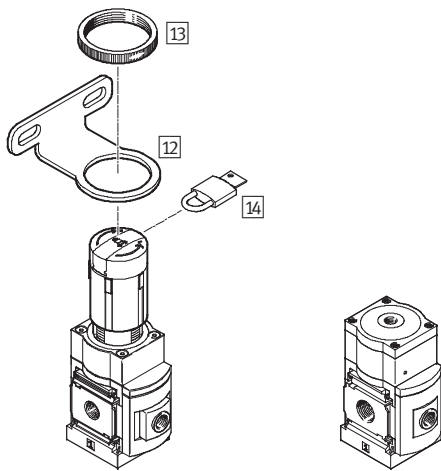
Note

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

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

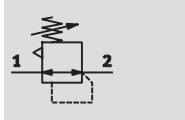
**Further variants can be ordered using the modular system → 48**

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

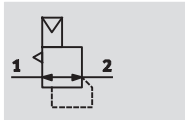
# Precision pressure regulators MS6-LRP, MS series

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](http://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 <sup>1)</sup>	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

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 <sub>nN</sub> [l/min]				
q <sub>nN</sub> 1 → 2	G <sup>1</sup> / <sub>4</sub>	800 <sup>1)</sup>	1,100 <sup>2)</sup>	1,400 <sup>3)</sup>
	G <sup>3</sup> / <sub>8</sub>	1,100 <sup>1)</sup>	1,400 <sup>2)</sup>	1,700 <sup>3)</sup>
	G <sup>1</sup> / <sub>2</sub>	1,600 <sup>1)</sup>	2,300 <sup>2)</sup>	3,000 <sup>3)</sup>
Secondary venting flow rate [l/min]				
q <sub>n</sub> 2 → 3	≥ 220 <sup>5)</sup>	≥ 450 <sup>6)</sup>	≥ 650 <sup>7)</sup>	≥ 900 <sup>8)</sup>

- 1) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 0.5 bar, Δp = 0.1 bar
- 2) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 1.5 bar, Δp = 0.1 bar
- 3) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 2.5 bar, Δp = 0.1 bar
- 4) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 6.0 bar, Δp = 0.1 bar

- 5) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 0.7 bar, Δp<sub>2</sub> = 0.1 bar
- 6) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 2.5 bar, Δp<sub>2</sub> = 0.1 bar
- 7) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 4.0 bar, Δp<sub>2</sub> = 0.1 bar
- 8) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 6.0 bar, Δp<sub>2</sub> = 0.1 bar

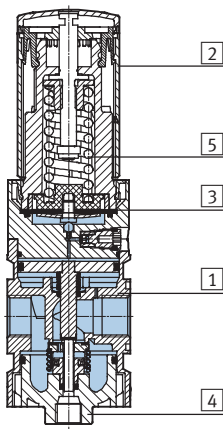
Operating and environmental conditions		
Variant	Standard	Pressure sensor AD...
Supply pressure [bar]	1 ... 14	1 ... 14
Operating medium	Filtered compressed air or inert gases, grade of filtration 40 μm	
Ambient temperature [°C]	-10 ... +60	0 ... +50
Temperature of medium [°C]	-10 ... +60	0 ... +50
Storage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

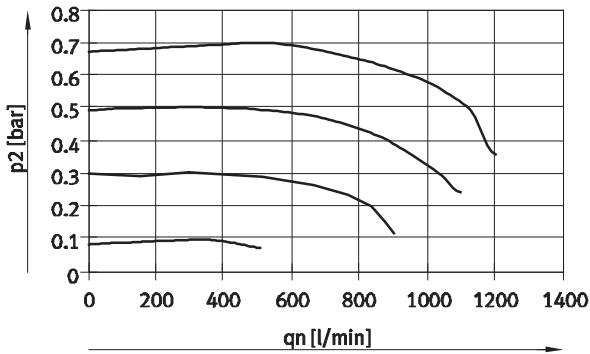


# Precision pressure regulators MS6-LRP, MS series

Technical data

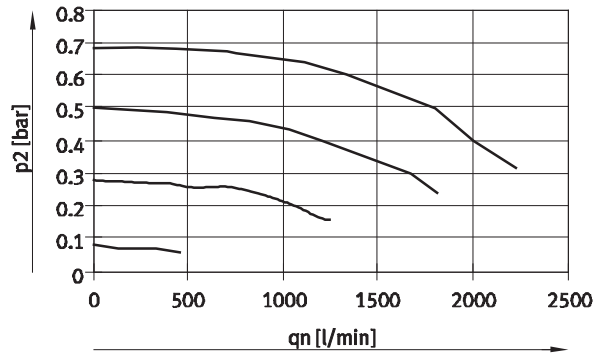
## Standard flow rate $q_n$ as a function of output pressure $p_2$ ( $p_1 = 10$ bar)

MS6-LRP-1/4-D2



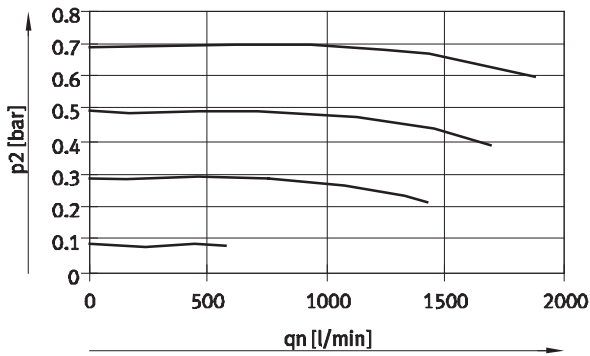
D2: 0.05...0.7 bar

MS6-LRP-3/8-D2



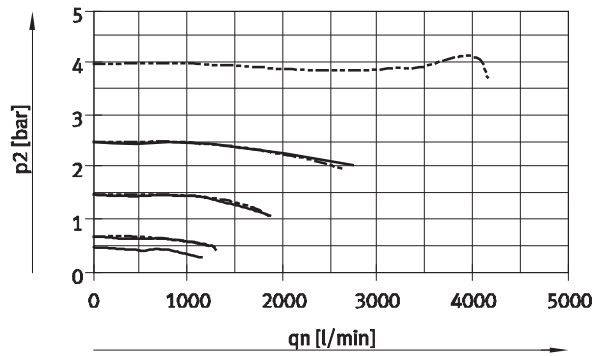
D2: 0.05...0.7 bar

MS6-LRP-1/2-D2



D2: 0.05...0.7 bar

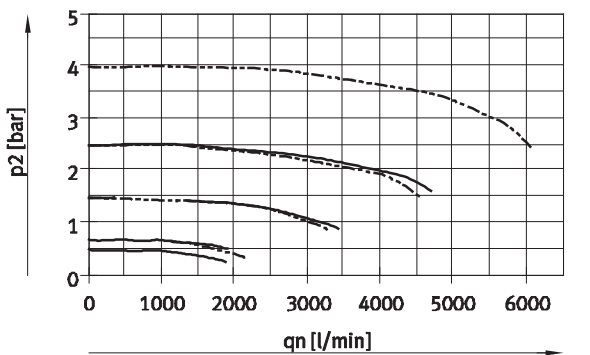
MS6-LRP-1/4-D4/D5



D4: 0.05...2.5 bar

D5: 0.1...4 bar

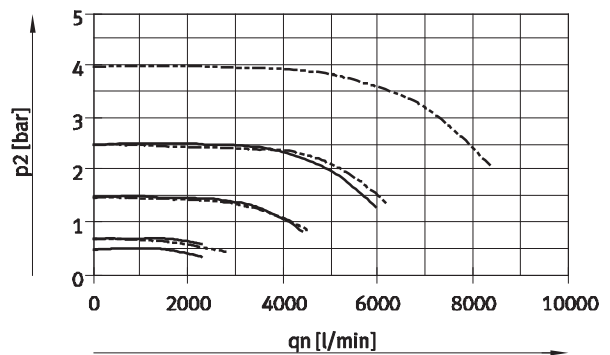
MS6-LRP-3/8-D4/D5



D4: 0.05...2.5 bar

D5: 0.1...4 bar

MS6-LRP-1/2-D4/D5



D4: 0.05...2.5 bar

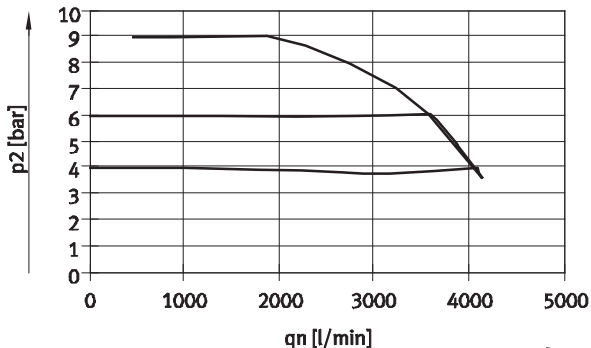
D5: 0.1...4 bar

# Precision pressure regulators MS6-LRP, MS series

Technical data

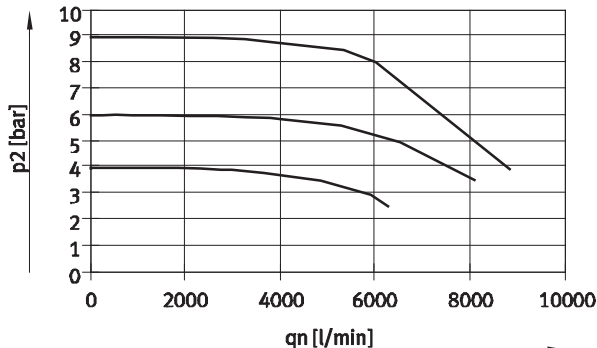
## Standard flow rate $q_n$ as a function of output pressure $p_2$ ( $p_1 = 10$ bar)

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



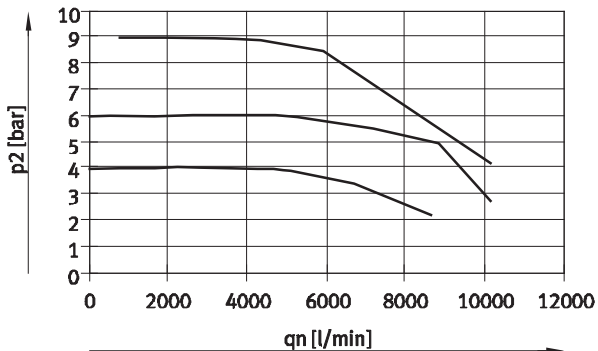
— D7/PO: 0.1...12 bar

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



— D7/PO: 0.1...12 bar

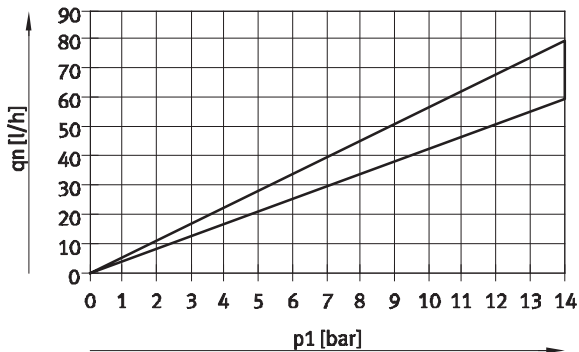
MS6-LRP- $\frac{1}{2}$ -D7/PO



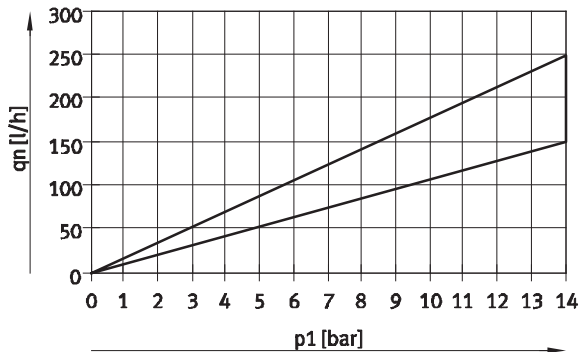
— D7/PO: 0.1...12 bar

## Internal air consumption $q_n$ as a function of supply pressure $p_1$

MS6-LRP-...-D2/D4



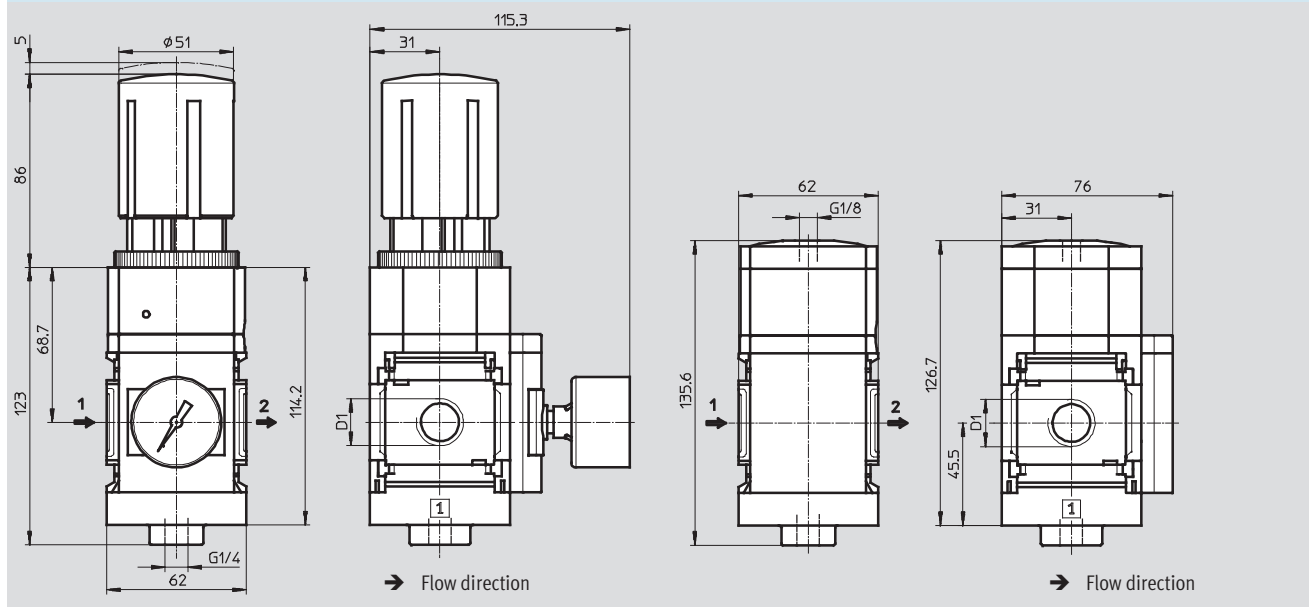
MS6-LRP-...-D5/D7/PO



# Precision pressure regulators MS6-LRP, MS series

Technical data

**Dimensions** Download CAD data → [www.festo.com](http://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

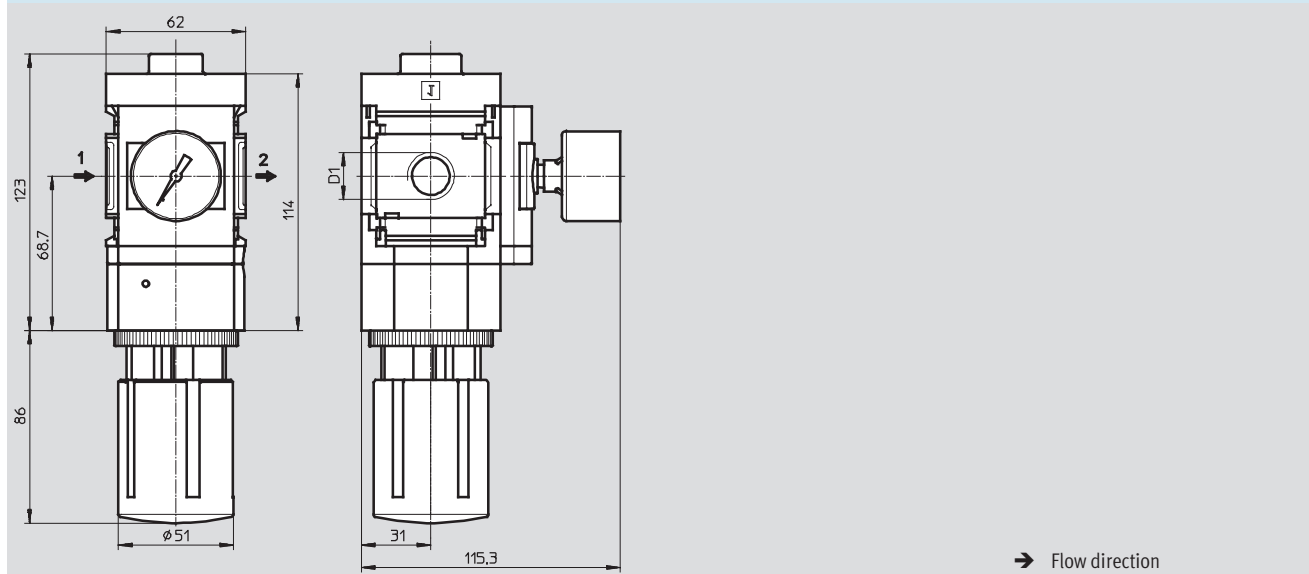


Type	D1
MS6-LRP-1/4-D2/D4/D5/D7-A8M	G1/4
MS6-LRP-3/8-D2/D4/D5/D7-A8M	G3/8
MS6-LRP-1/2-D2/D4/D5/D7-A8M	G1/2

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](http://www.festo.com)  
 Rotary knob at bottom KD



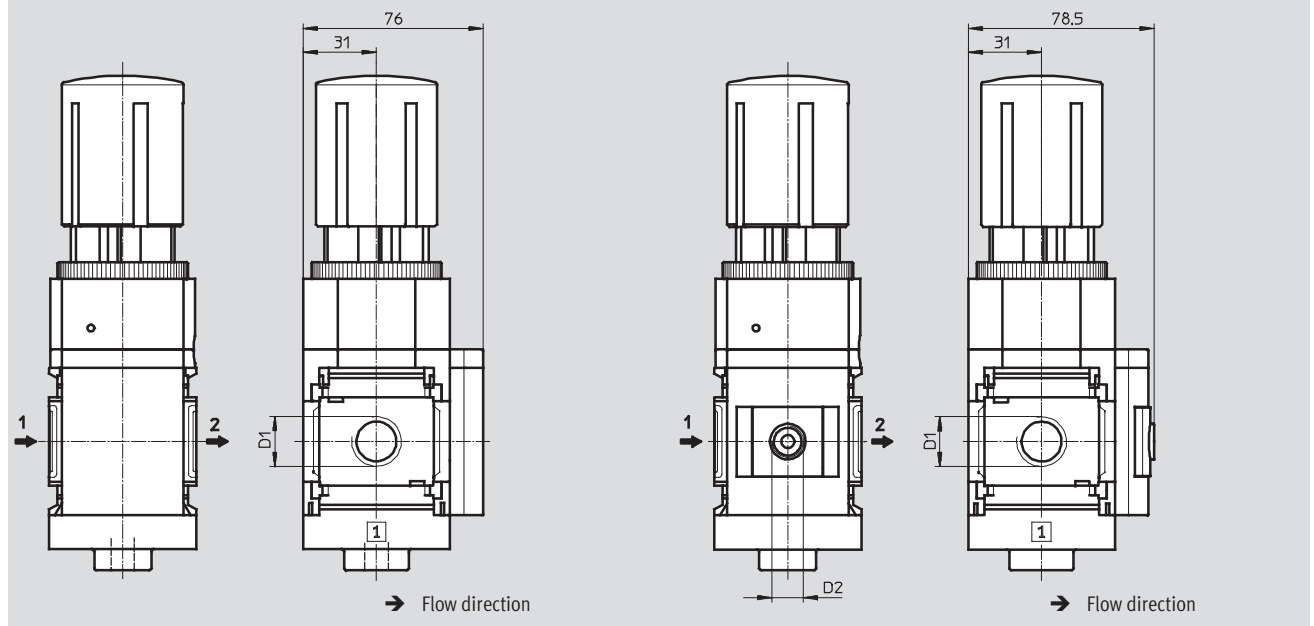
Type	D1
MS6-LRP-1/4-...-KD	G1/4
MS6-LRP-3/8-...-KD	G3/8
MS6-LRP-1/2-...-KD	G1/2

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

# Precision pressure regulators MS6-LRP, MS series

Technical data

Dimensions – Pressure gauge alternatives Download CAD data → [www.festo.com](http://www.festo.com)  
 Cover plate VS Adapter plate A8/A4 for EN pressure gauge 1/8/1/4, without pressure gauge



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

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

# Precision pressure regulators MS6-LRP, MS series

Technical data

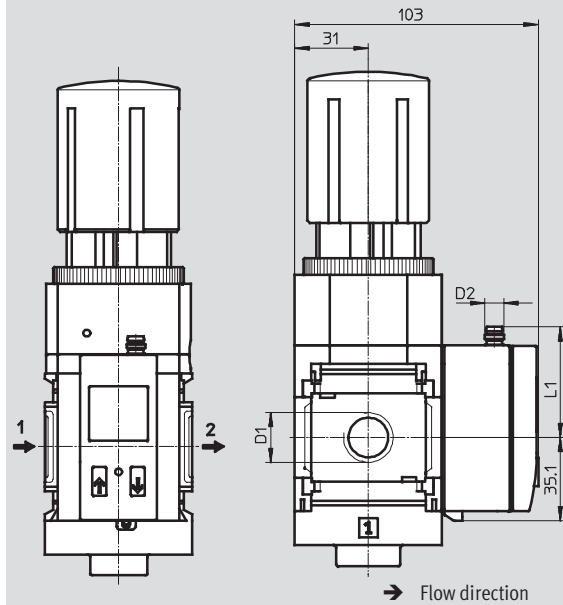


## Dimensions – Pressure gauge alternatives

Pressure sensor with LCD display AD1 ... AD4

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

Technical data → Internet: [sde1](http://sde1)



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

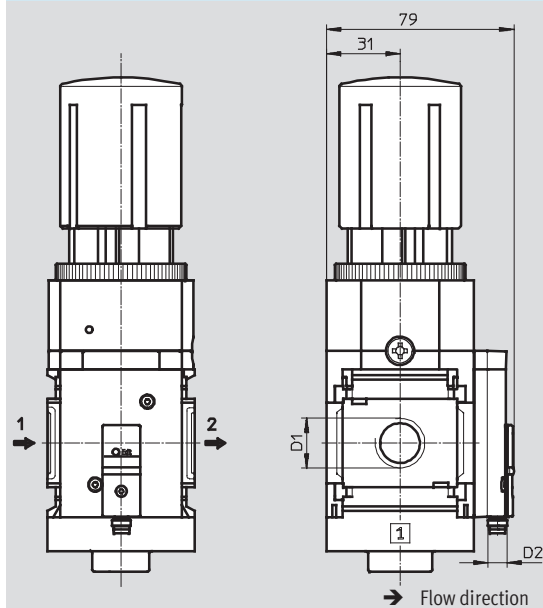
Variant AD2:  
SDE1-D10-G2-MS-L-N1-M8 with  
3-pin plug M8x1, 1 switching  
output NPN

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

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

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

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



Variant AD7:  
SDE5-D10-0-...-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-D10-03-...-P-M8 with 3-pin  
plug M8x1, window comparator,  
1 switching output PNP, N/O contact

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

Type	D1	D2	L1
MS6-LRP-1/4-...-AD1/AD2	G1/4	M8x1	46.7
MS6-LRP-3/8-...-AD1/AD2	G3/8		
MS6-LRP-1/2-...-AD1/AD2	G1/2		
MS6-LRP-1/4-...-AD3/AD4	G1/4	M12x1	55.8
MS6-LRP-3/8-...-AD3/AD4	G3/8		
MS6-LRP-1/2-...-AD3/AD4	G1/2		
MS6-LRP-1/4-...-AD7/AD8/AD9/AD10	G1/4	M8x1	-
MS6-LRP-3/8-...-AD7/AD8/AD9/AD10	G3/8		
MS6-LRP-1/2-...-AD7/AD8/AD9/AD10	G1/2		

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

# Precision pressure regulators MS6-LRP, MS series

Technical data



## Dimensions – Rotary knob

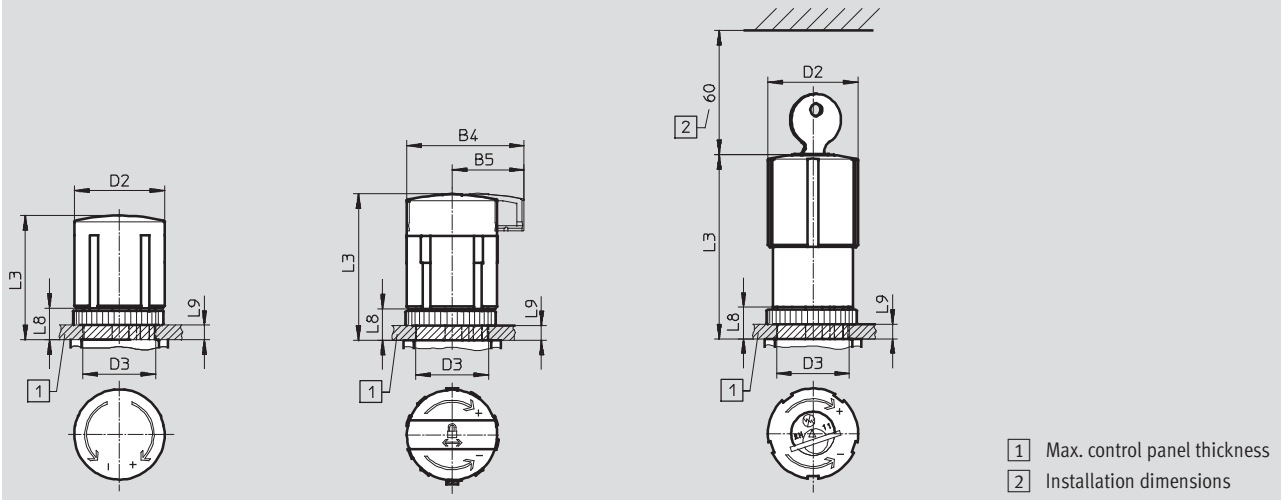
Download CAD data → [www.festo.com](http://www.festo.com)

For installation into control panel

Standard rotary knob with detent

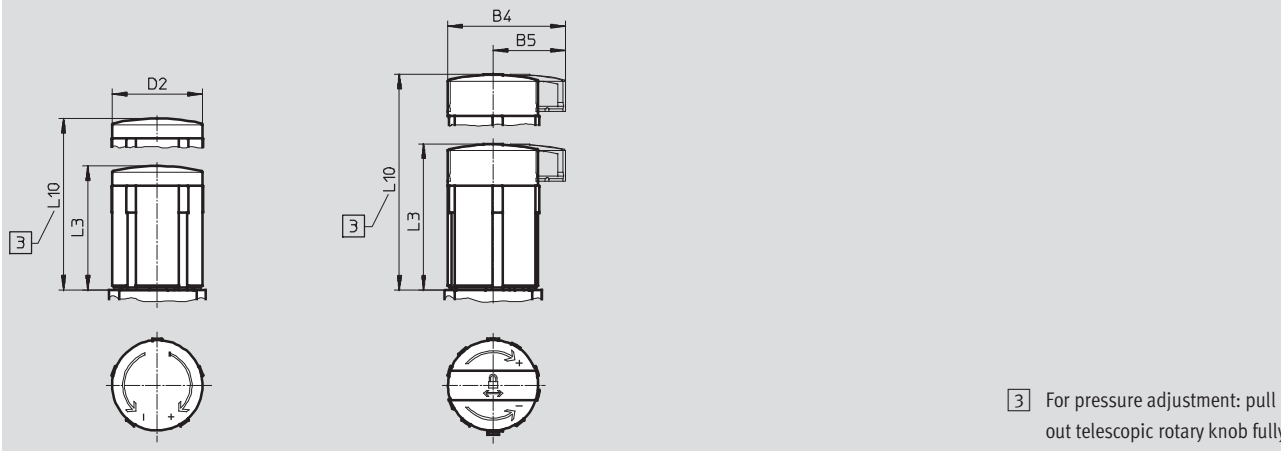
Standard rotary knob with detent,  
lockable via accessories AS

Rotary knob with integrated lock  
E11



Long rotary knob with detent LD

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



Type	B4	B5	D2	D3 +1	L3	L8	L9	L10
MS6-LRP-...	-	-	51	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

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

1) Free of copper and PTFE

# Precision pressure regulators MS6-LRP, MS series

Ordering data – Modular products

**M** Mandatory data →

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

Ordering table		Grid dimension [mm]	62	Condi- tions	Code	Enter code
<b>M</b>	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 (pressure range determined by means of pilot regulator)		1	-PO	
	Pressure gauge alternatives	Cover plate			-VS	
		Adapter plate for EN pressure gauge 1/8, without pressure gauge			-A8	
		Adapter plate for EN pressure gauge 1/8, with precision pressure gauge			-A8M	
		Adapter plate for EN pressure gauge 1/4, without pressure gauge			-A4	
		Pressure sensor with display, plug M8, 1 switching output PNP, 3-pin		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

Ordering data – Modular products

→ **0 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

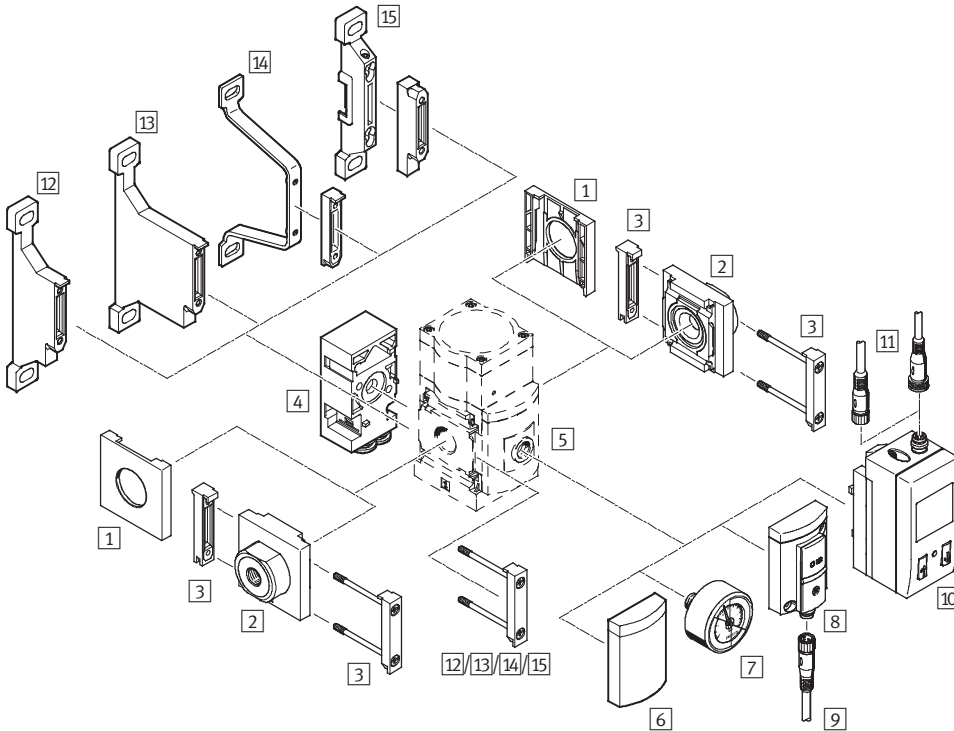
-  -  -  -  -

# Precision pressure regulators MS6-LRPB, MS series

Peripherals overview

FESTO

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



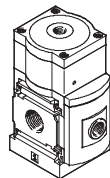
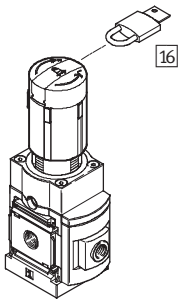
Note

Additional accessories:

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

Manually operated

Pneumatically actuated



## Precision pressure regulators MS6-LRPB, MS series

Peripherals overview

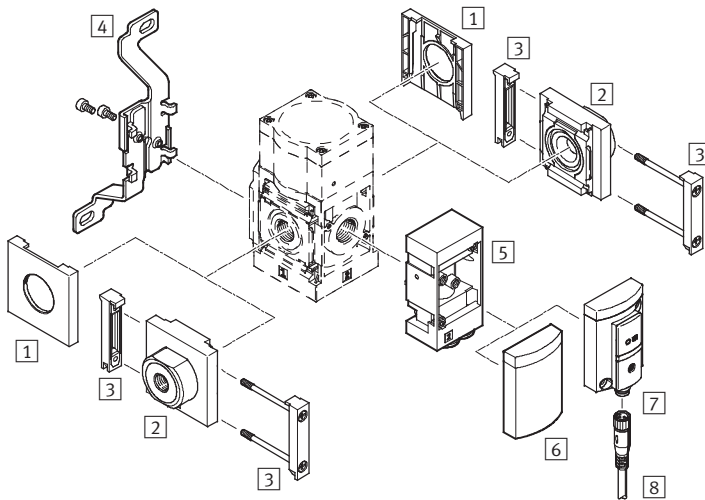
Mounting attachments and accessories						
		Individual device		Combination		→ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
1	Cover cap MS6-END	■	-	■	-	ms6-end
2	Connecting plate MS6-AG...	-	■	-	■	ms6-ag
3	Module connector MS6-MV	-	■	■	■	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



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



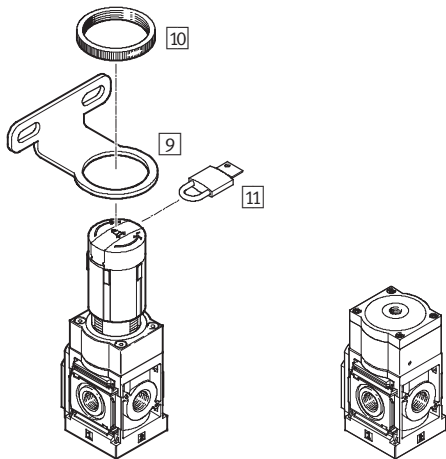
Note

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

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

Type codes

		MS	6	-	LRPB	-	1/2	-	D7	-	A8	-	BD
<b>Series</b>													
MS	Standard service unit												
<b>Size</b>													
6	Grid dimension 62 mm												
<b>Service function</b>													
LRPB	Precision pressure regulator for manifold assembly												
<b>Connection size</b>													
1/2	G1/2 thread												
<b>Pressure regulation range/operation</b>													
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												
<b>Pressure gauge alternatives</b>													
A8	Adapter plate for EN pressure gauge 1/8, without pressure gauge												
<b>Pressure output</b>													
	Without angled outlet block												
BD	Angled outlet block QS-8												
BE	Angled outlet block QS-10												

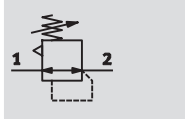
Further variants can be ordered using the modular system → 64

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

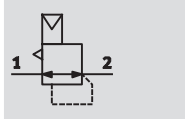
# Precision pressure regulators MS6-LRPB, MS series





Technical data

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



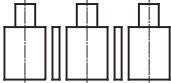
pneumatically actuated PO



-  - Flow rate  
1,600 ... 5,000 l/min
-  - Temperature range  
-10 ... +60 °C
-  - Supply pressure  
1 ... 14 bar
-  - [www.festo.com](http://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		MS6
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 <sup>1)</sup>	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 $q_{nN}$ [l/min]				
$q_{nN} 1 \rightarrow 2$	G $\frac{1}{2}$	1,600 <sup>1)</sup>	2,300 <sup>2)</sup>	3,000 <sup>3)</sup>
Secondary venting flow rate [l/min]				
$q_{n2} 2 \rightarrow 3$	$\geq 220$ <sup>5)</sup>	$\geq 450$ <sup>6)</sup>	$\geq 650$ <sup>7)</sup>	$\geq 900$ <sup>8)</sup>

- 1) Measured at  $p_1 = 10$  bar and  $p_2 = 0.5$  bar,  $\Delta p = 0.1$  bar  
 2) Measured at  $p_1 = 10$  bar and  $p_2 = 1.5$  bar,  $\Delta p = 0.1$  bar  
 3) Measured at  $p_1 = 10$  bar and  $p_2 = 2.5$  bar,  $\Delta p = 0.1$  bar  
 4) Measured at  $p_1 = 10$  bar and  $p_2 = 6.0$  bar,  $\Delta p = 0.1$  bar

- 5) Measured at  $p_1 = 10$  bar and  $p_2 = 0.7$  bar,  $\Delta p_2 = 0.1$  bar  
 6) Measured at  $p_1 = 10$  bar and  $p_2 = 2.5$  bar,  $\Delta p_2 = 0.1$  bar  
 7) Measured at  $p_1 = 10$  bar and  $p_2 = 4.0$  bar,  $\Delta p_2 = 0.1$  bar  
 8) Measured at  $p_1 = 10$  bar and  $p_2 = 6.0$  bar,  $\Delta p_2 = 0.1$  bar

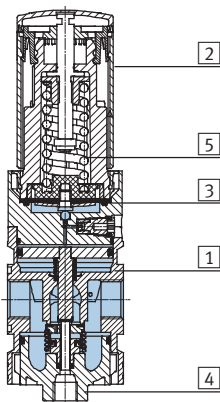
Operating and environmental conditions		
Variant	Standard	Pressure sensor AD...
Supply pressure [bar]	1 ... 14	1 ... 14
Operating medium	Filtered compressed air or inert gases, grade of filtration 40 $\mu$ m	
Ambient temperature [°C]	-10 ... +60	0 ... +50
Temperature of medium [°C]	-10 ... +60	0 ... +50
Storage temperature [°C]	-10 ... +60	-10 ... +60
Corrosion resistance class CRC <sup>1)</sup>	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...)

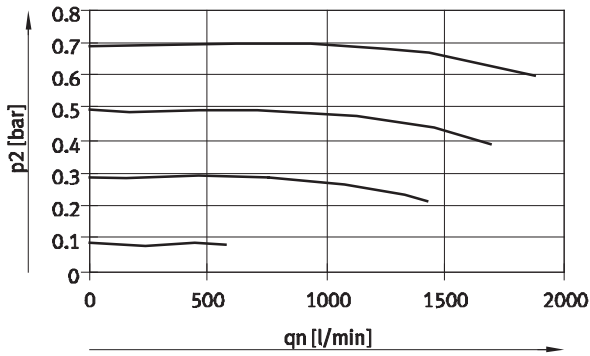


# Precision pressure regulators MS6-LRPB, MS series

Technical data

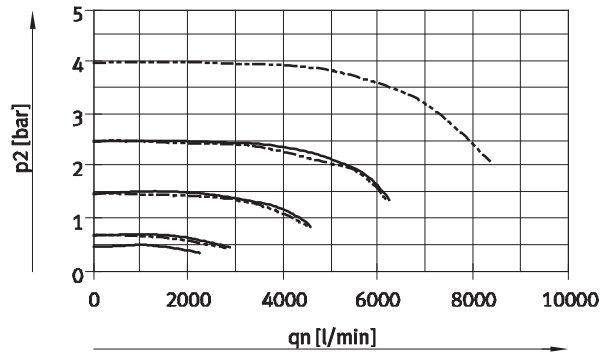
## Standard flow rate $q_n$ as a function of output pressure $p_2$ ( $p_1 = 10$ bar)

MS6-LRPB-1/2-D2



— D2: 0.05...0.7 bar

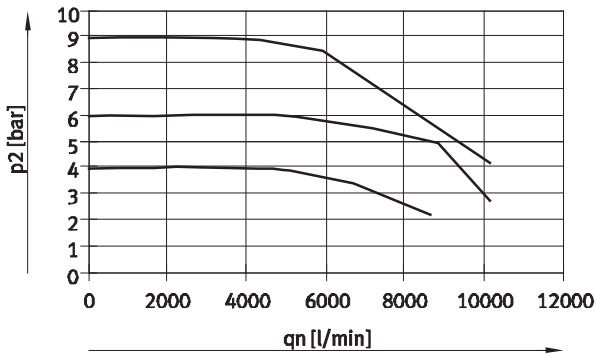
MS6-LRPB-1/2-D4/D5



— D4: 0.05...2.5 bar

- - - D5: 0.1...4 bar

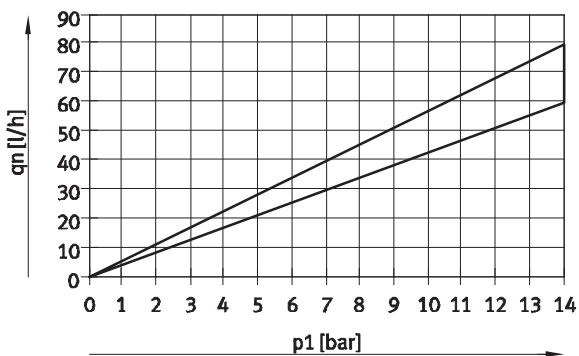
MS6-LRPB-1/2-D7/PO



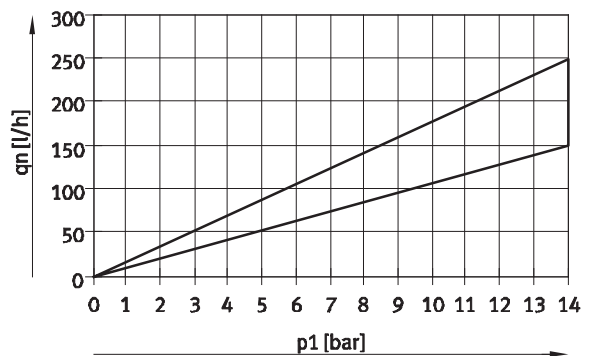
— D7/PO: 0.1...12 bar

## Internal air consumption $q_n$ as a function of supply pressure $p_1$

MS6-LRPB-...-D2/D4



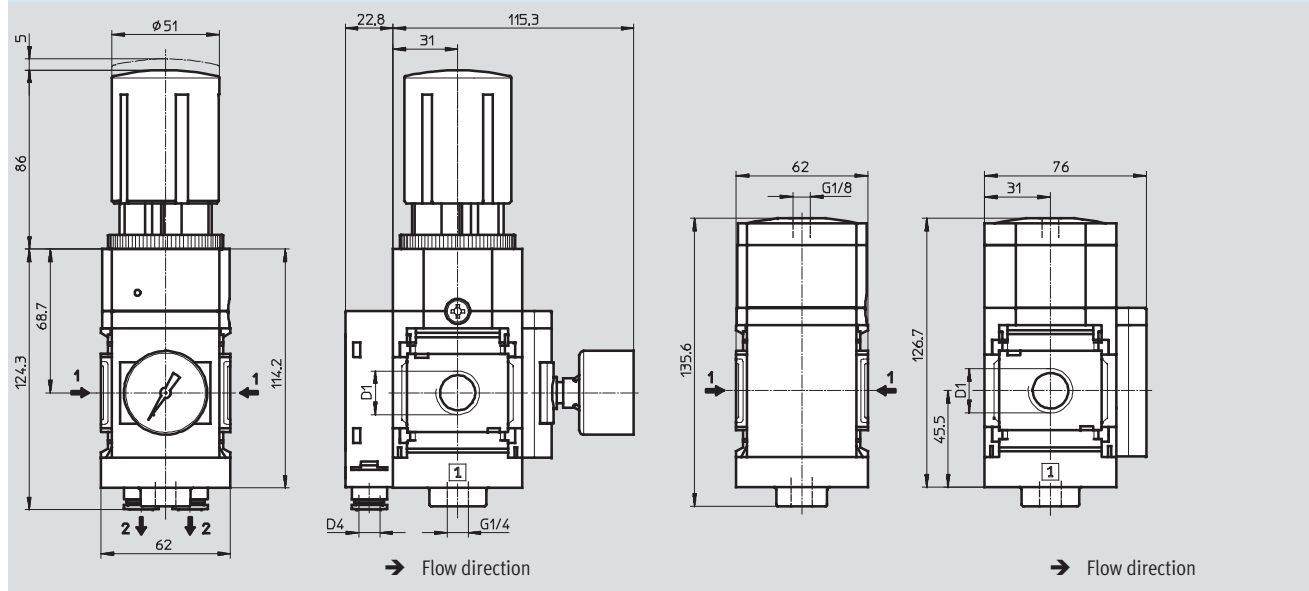
MS6-LRPB-...-D5/D7/PO



# Precision pressure regulators MS6-LRPB, MS series

Technical data

**Dimensions** Download CAD data → [www.festo.com](http://www.festo.com)  
 manually operated D2/D4/D5/D7, pneumatically actuated PO,  
 with adapter plate A8M for EN pressure gauge 1/8 as pressure gauge alternative, with cover plate VS as pressure gauge alternative,  
 with precision pressure gauge MAP, with angled outlet block BD/BE



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

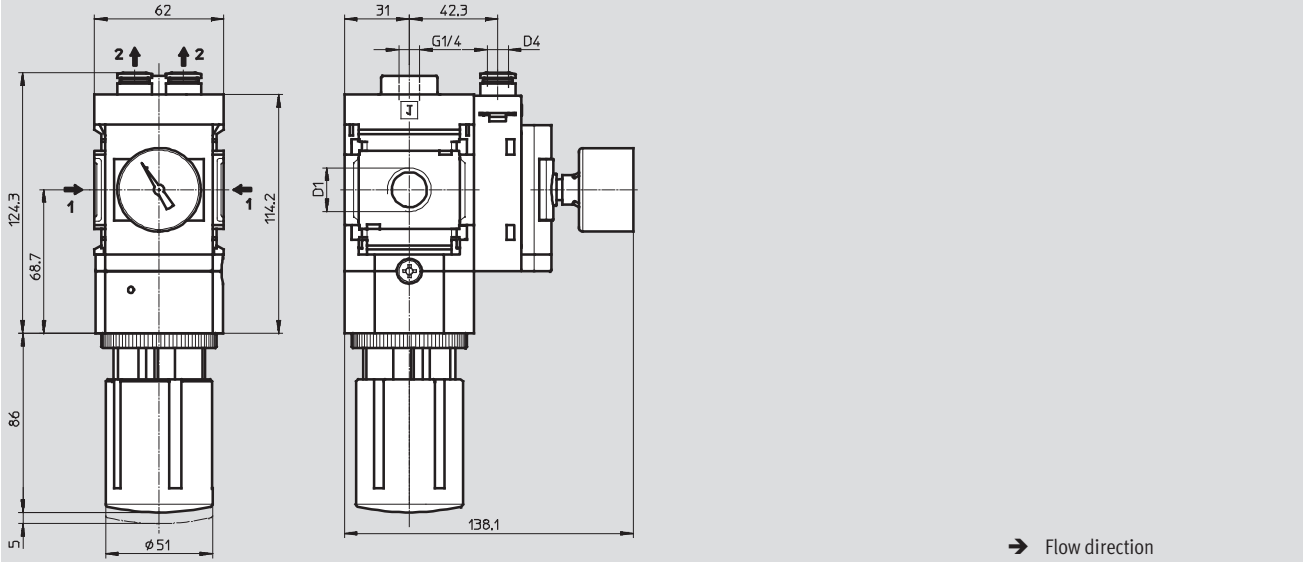
Technical data

FESTO

## Dimensions – Alternative mounting position

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

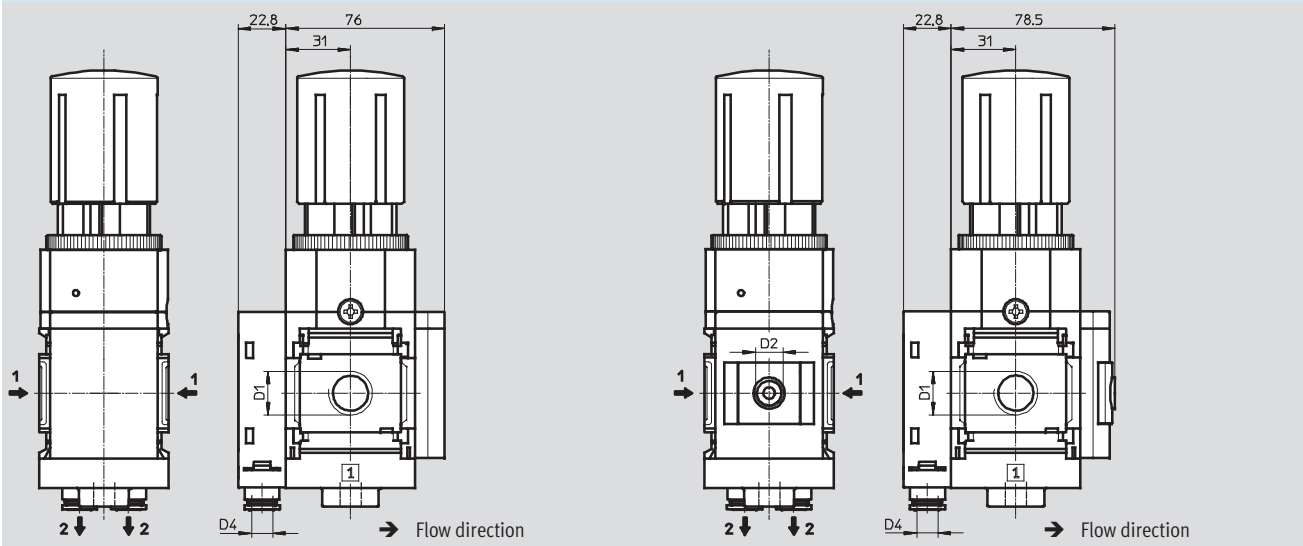
Technical data

## Dimensions – Pressure gauge alternatives

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

**Dimensions – Pressure gauge alternatives** Download CAD data → [www.festo.com](http://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 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, 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	G1/2	M8x1	QS-8	46.7
MS6-LRPB-1/2-...-AD1/AD2-BE			QS-10	
MS6-LRPB-1/2-...-AD3/AD4-BD	G1/2	M12x1	QS-8	55.8
MS6-LRPB-1/2-...-AD3/AD4-BE			QS-10	
MS6-LRPB-1/2-...-AD7/AD8/AD9/AD10-BD	G1/2	M8x1	QS-8	-
MS6-LRPB-1/2-...-AD7/AD8/AD9/AD10-BE			QS-10	

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

# Precision pressure regulators MS6-LRPB, MS series

Technical data

**Dimensions – Rotary knob** Download CAD data → [www.festo.com](http://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			95.5			
MS6-LRPB-...-E11	-	-	51.8	-	112.1	-	-	-
MS6-LRPB-...-LD	-	-	51	-	86	-	-	139
MS6-LRPB-...-LD-AS	64.4	39			95.5			148.5

# Precision pressure regulators MS6-LRPB, MS series

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	G1/2	534911	MS6-LRPB-1/2-D2-A8 <sup>1)</sup>
Pressure regulation range 0.05 ... 2.5 bar, manually operated			
MS6	G1/2	534914	MS6-LRPB-1/2-D4-A8 <sup>1)</sup>
Pressure regulation range 0.1 ... 4 bar, manually operated			
MS6	G1/2	534917	MS6-LRPB-1/2-D5-A8 <sup>1)</sup>
Pressure regulation range 0.1 ... 12 bar, manually operated			
MS6	G1/2	534920	MS6-LRPB-1/2-D7-A8 <sup>1)</sup>

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 <sup>1)</sup>	534913	MS6-LRPB-1/2-D2-A8-BE <sup>1)</sup>
Pressure regulation range 0.05 ... 2.5 bar, manually operated					
MS6	G1/2	534868	MS6-LRPB-1/2-D4-A8-BD <sup>1)</sup>	534916	MS6-LRPB-1/2-D4-A8-BE <sup>1)</sup>
Pressure regulation range 0.1 ... 4 bar, manually operated					
MS6	G1/2	534871	MS6-LRPB-1/2-D5-A8-BD <sup>1)</sup>	534919	MS6-LRPB-1/2-D5-A8-BE <sup>1)</sup>
Pressure regulation range 0.1 ... 12 bar, manually operated					
MS6	G1/2	534874	MS6-LRPB-1/2-D7-A8-BD <sup>1)</sup>	534922	MS6-LRPB-1/2-D7-A8-BE <sup>1)</sup>

1) Free of copper and PTFE

# Precision pressure regulators MS6-LRPB, MS series

Ordering data – Modular products

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

Ordering table			
Grid dimension	[mm]	62	
Condi- tions	Code	Enter code	
M	Module No.	535007	
	Series	Standard	MS
	Size	6	6
	Function	Precision pressure regulator for manifold assembly	-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, E11  
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

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

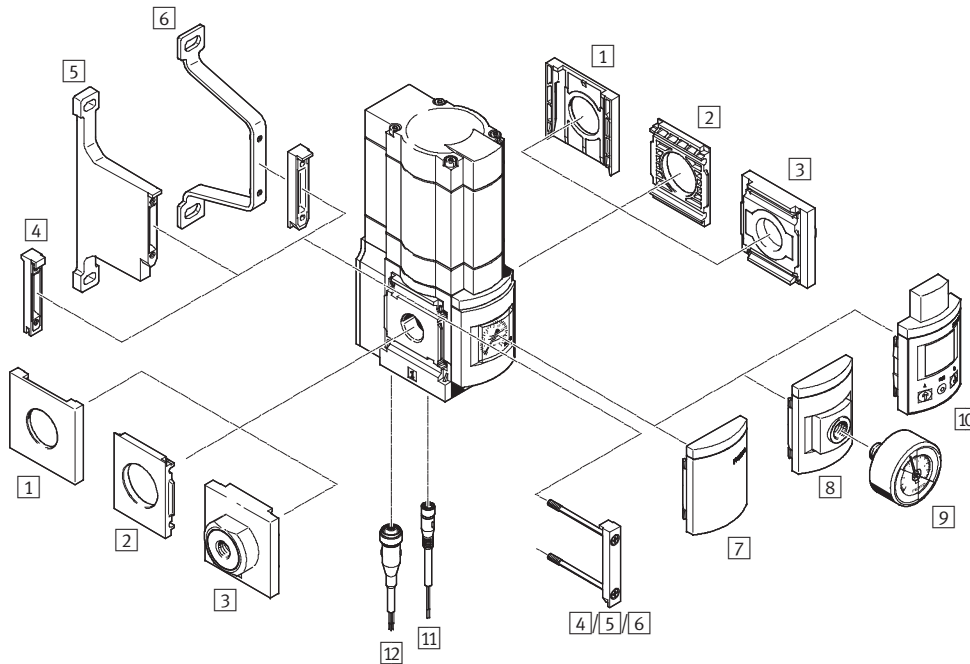
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# Electrical pressure regulators MS6-LRE, MS series

Peripherals overview



## Electrical pressure regulators MS6-LRE



Note

Additional accessories:

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

### Mounting attachments and accessories

		Individual unit		Combination		→ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
1	Cover cap MS6-END	-	-	■	-	ms6-end
2	Mounting plate MS6-AEND	■ <sup>1)</sup>	-	■ <sup>2)</sup>	-	ms6-aend
3	Connecting plate MS6-AG...	-	■ <sup>1)</sup>	-	■ <sup>2)</sup>	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

Type codes

		MS	6	-	LRE	-	1/2	-	D7	-	PI
<b>Series</b>											
MS	Standard service unit										
<b>Size</b>											
6	Grid dimension 62 mm										
<b>Service function</b>											
LRE	Electrical pressure regulator										
<b>Pneumatic connection</b>											
1/4	Thread G1/4										
3/8	Thread G3/8										
1/2	Thread G1/2										
<b>Pressure regulation range</b>											
D6	Pressure regulation range 0.3 ... 7 bar										
D7	Pressure regulation range 0.5 ... 12 bar										
<b>Electrically controlled pressure output (integrated pressure sensor with electrical output)</b>											
	None										
PI	Plug, M8, 3-pin, I out										
PU	Plug, M8, 3-pin, V out										

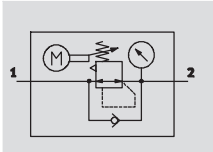
Further variants can be ordered using the modular system → 74

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

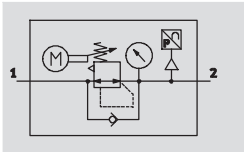
# Electrical pressure regulators MS6-LRE, MS series




Technical data

with pressure gauge




with pressure gauge and integrated pressure sensor



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




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

The electrical pressure regulator maintains incoming compressed air at the set output pressure. It also maintains a constant output pressure independent of pressure fluctuations and air consumption.  
The output pressure is set indirectly via an integrated electrical drive unit. The drive unit can be operated either with digital inputs via the M12 plug or

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

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

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

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

# Electrical pressure regulators MS6-LRE, MS series

Technical data

Standard nominal flow rate $q_{nN}^{1)}$ [l/min]				
Pneumatic connection		G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
Pressure regulation range	D5	2,400 <sup>2)</sup>	5,500 <sup>2)</sup>	7,500 <sup>2)</sup>
	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 <sup>1)</sup>		
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 <sup>1)</sup>	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

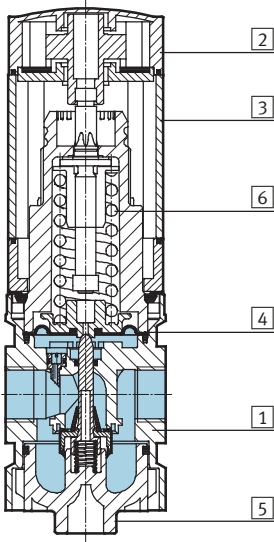
# Electrical pressure regulators MS6-LRE, MS series

Technical data

FESTO

## Materials

Sectional view



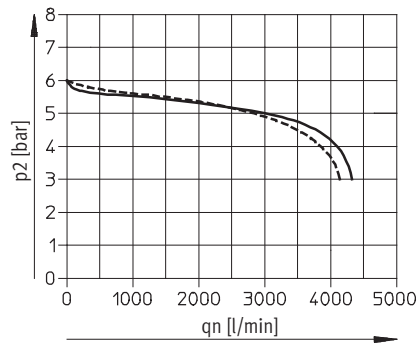
Electrical pressure regulator

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 $p_2$

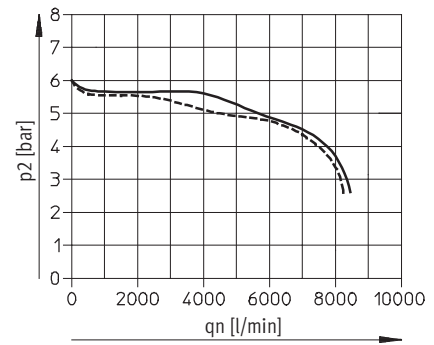
MS6-LRE-1/4

Primary pressure  $p_1 = 10$  bar



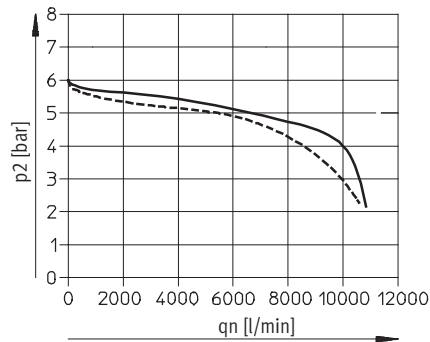
— D6: 0.3 ... 7 bar  
 - - - D7: 0.5 ... 12 bar

MS6-LRE-3/8



MS6-LRE-1/2

Primary pressure  $p_1 = 10$  bar



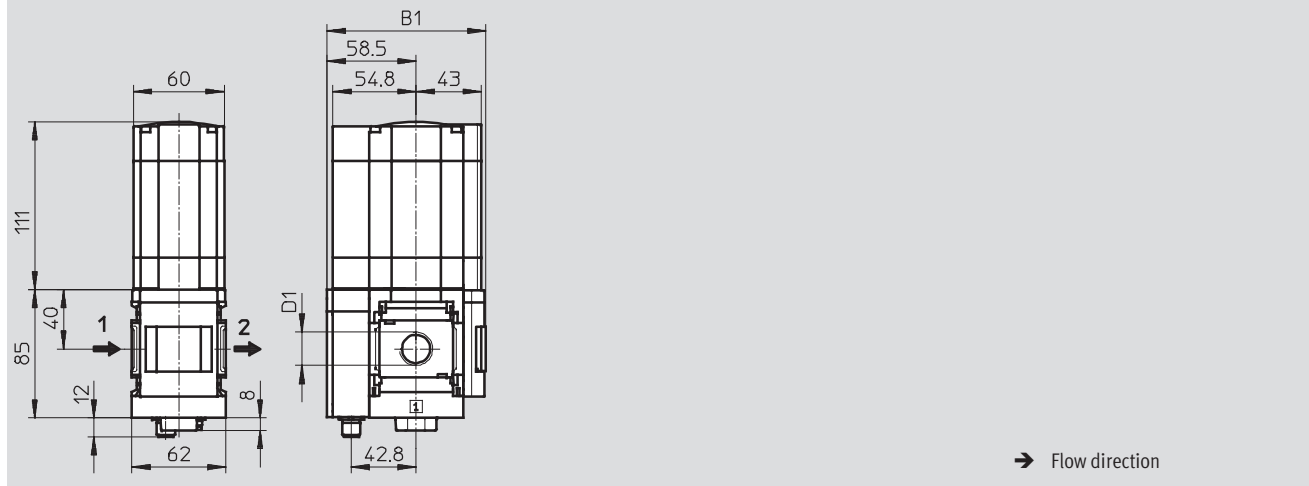
— D6: 0.3 ... 7 bar  
 - - - D7: 0.5 ... 12 bar

# Electrical pressure regulators MS6-LRE, MS series

Technical data

**Dimensions – Standard** Download CAD data → [www.festo.com](http://www.festo.com)

With pressure gauge, display unit [bar]

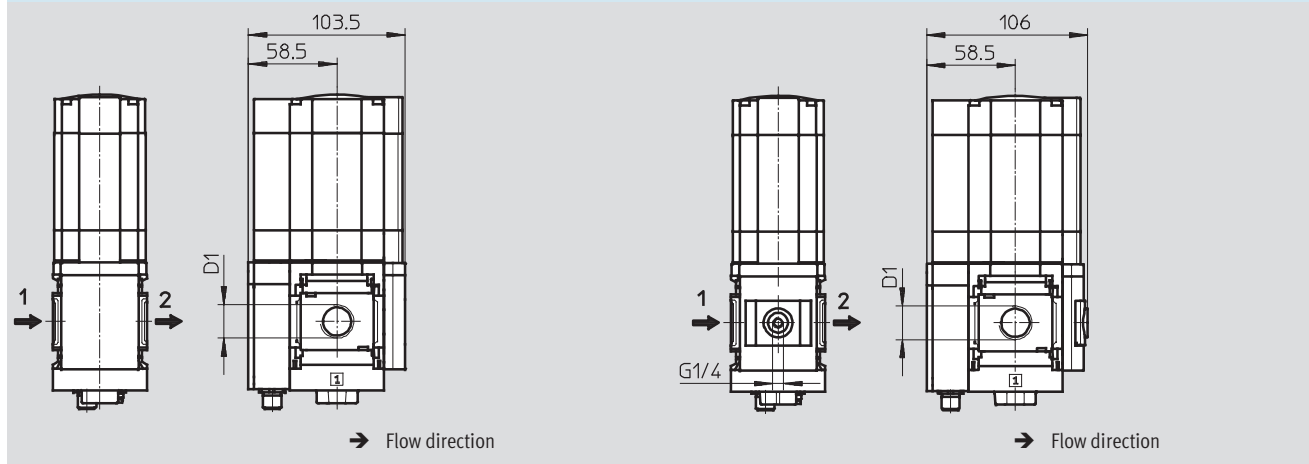


Type	B1 Pressure gauge		D1
	Standard scale	Red-green scale	
MS6-LRE-1/4	104.5	106	G1/4
MS6-LRE-3/8			G3/8
MS6-LRE-1/2			G1/2

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

**Dimensions – Pressure gauge alternatives** Download CAD data → [www.festo.com](http://www.festo.com)

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



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

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

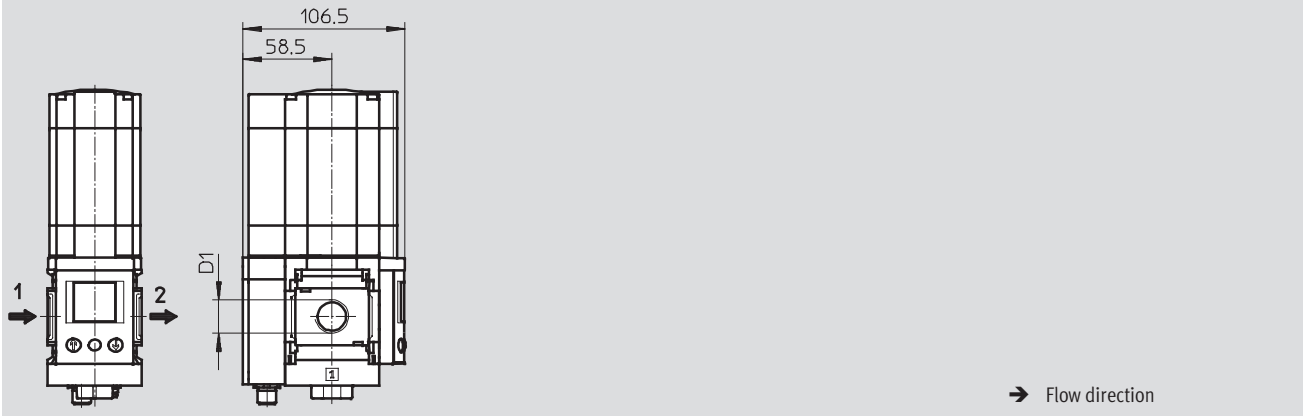
# Electrical pressure regulators MS6-LRE, MS series

Technical data

## Dimensions – Pressure gauge alternatives

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

Control unit with display OP



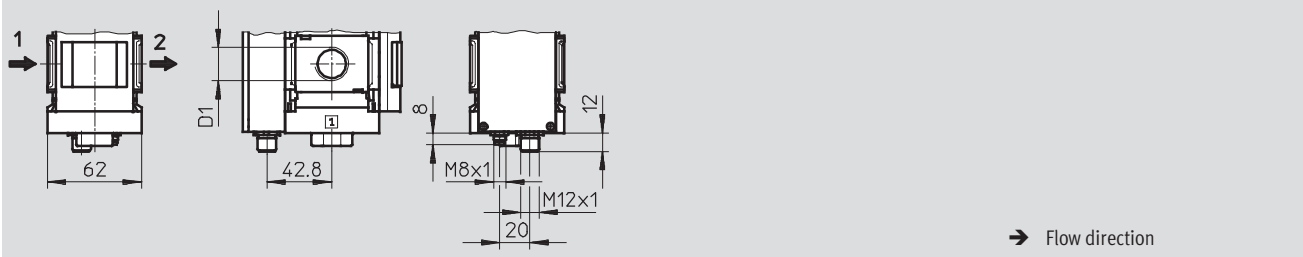
Type	D1
MS6-LRE-1/4	G1/4
MS6-LRE-3/8	G3/8
MS6-LRE-1/2	G1/2

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

## Dimensions – Electrically controlled pressure output

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

Integrated pressure sensor with electrical output PI/PU





# Electrical pressure regulators MS6-LRE, MS series

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

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
<b>Order example</b>					
535191	MS	6	- LRE	- AGC	- D6

**Ordering table**

Grid dimension	[mm]	62	Condi- tions	Code	Enter code
<b>M</b>	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

Ordering data – Modular products

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

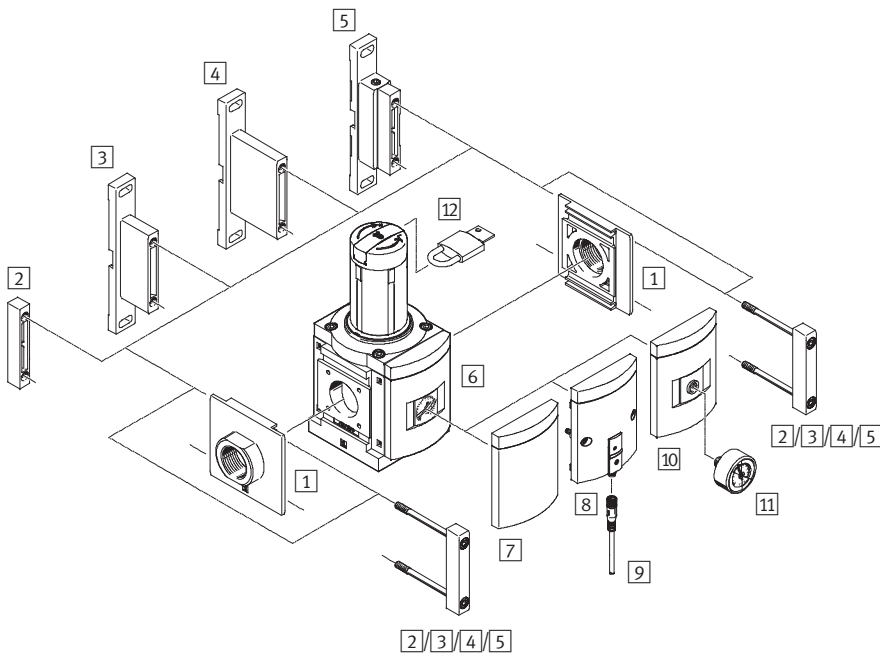
- 3 WBE Only with connection thread size 1/4, 3/8, 1/2
- 4 WPB Only with connecting plate size AGB, AGC, AGD, AGE


Transfer order code

-  -  -  -  -  -  -  -

**Pressure regulators MS9-LR, MS series**

Peripherals overview



 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 3/4 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 3/4 A4	■	■	■	84
11	Pressure gauge MA	■	■	■	96
12	Padlock LRVS-D	■	■	■	96

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

 **New**

**Pressure regulators MS9-LR, MS series**

**FESTO**

Type codes

		MS	9	-	LR	-	G	-	D5	-	DI	-	AG	-	BAR	-	AS	
<b>Series</b>																		
MS	Standard service unit																	
<b>Size</b>																		
9	Grid dimension 90 mm																	
<b>Service function</b>																		
LR	Pressure regulator																	
<b>Connection size</b>																		
G	Module without connecting thread, without connecting plate																	
<b>Pressure regulation range/operation</b>																		
D5	0.3 ... 4 bar, manually operated																	
D6	0.3 ... 7 bar, manually operated																	
D7	0.5 ... 12 bar, manually operated																	
<b>Alternative actuation principle</b>																		
	Piloted																	
DI	Directly actuated (only with pressure regulation range D5/D6)																	
<b>Pressure gauge</b>																		
AG	MS pressure gauge																	
<b>Pressure gauge scale</b>																		
BAR	Bar																	
<b>Security</b>																		
AS	Rotary knob with detent, can be locked using accessories																	

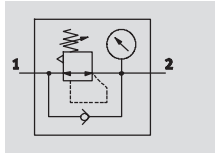
**Additional variants can be ordered using the modular product system → 84**




- 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



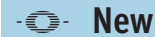
The pressure regulator maintains a constant working pressure (secondary side), regardless of the pressure variations in the system (primary side) and the air consumption.

- 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 <sup>1)</sup>			
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 2<sup>nd</sup> quarter 2011**



**Pressure regulators MS9-LR, MS series**



Technical data

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

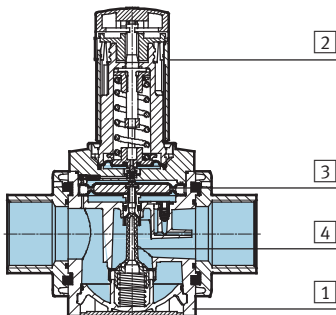
Operating and environmental conditions		
Variant	Standard	Pressure sensor AD...
Supply pressure [bar]	0.8 ... 20	0.8 ... 20
Operating medium	Air quality class 5:7:- to DIN ISO 8573-1	Filtered compressed air, lubricated or unlubricated, grade of filtration 40 $\mu$ m
Ambient temperature [°C]	-10 ... +60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

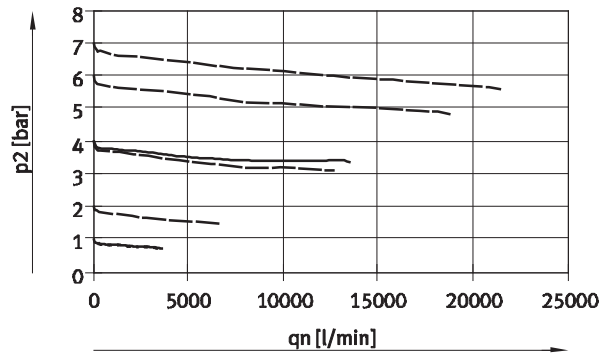
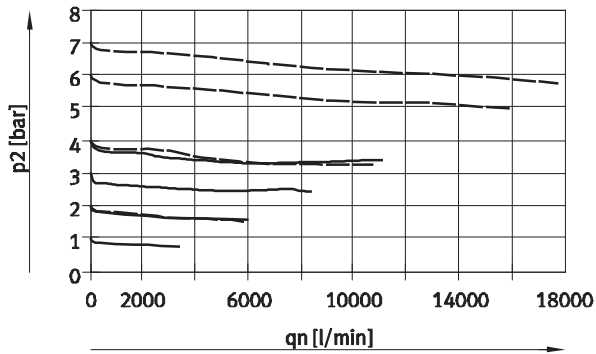
**Pressure regulators MS9-LR, MS series**

Technical data

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

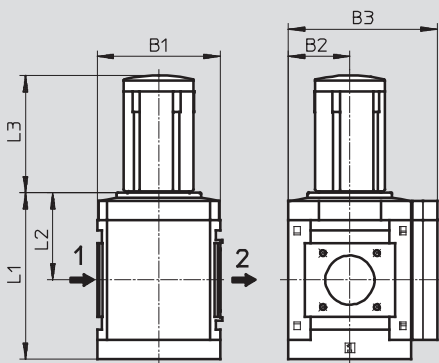


— D5: 0.3 ... 4 bar  
 - - - D6: 0.3 ... 7 bar

**Dimensions – Basic version**

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

Without connecting thread G, rotary knob with detent



→ Flow direction

Type	B1	B2	B3	L1		L2		L3
				pilot actuated	directly actuated DI	pilot actuated	directly actuated DI	
MS9-LR-G	90	45	109	129	122	71.4	64	86



**Variants D7, D8, P0, pilot actuated regulator:**  
**Available from 2<sup>nd</sup> quarter 2011**

 **New**

**Pressure regulators MS9-LR, MS series**

**FESTO**

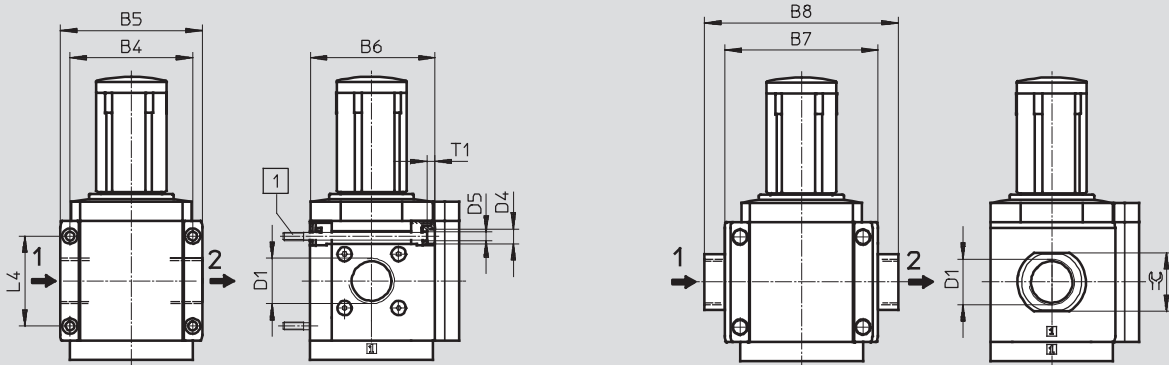
Technical data

**Dimensions – Connecting thread/connecting plate**

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

With connecting thread 3/4 or 1

With connecting plate AG...



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

→ Flow direction

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**

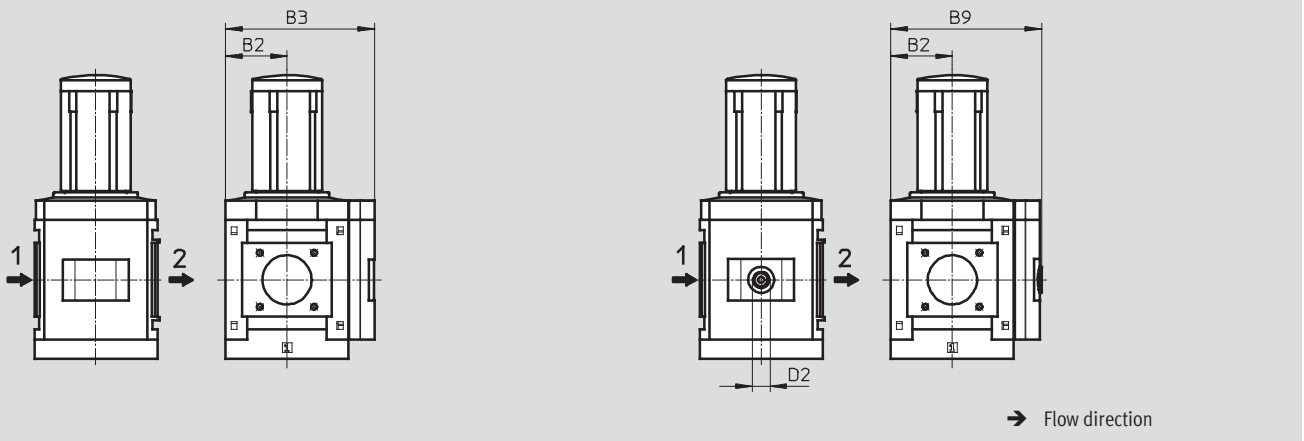
Technical data

**Dimensions – Pressure gauge alternatives**

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

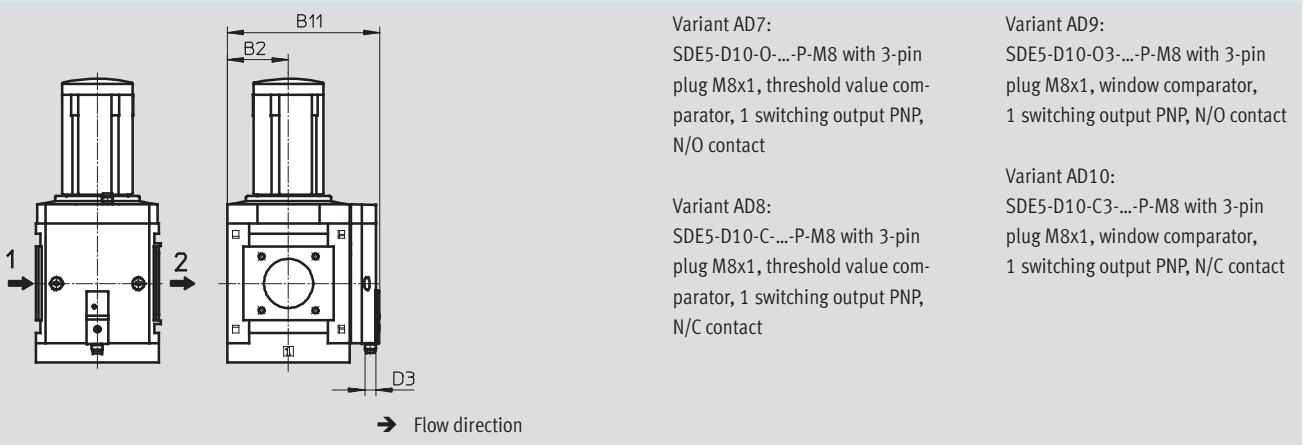
– † – Note: This product conforms to ISO 1179-1 and to ISO 228-1

**Dimensions – Pressure gauge alternatives**

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

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

Technical data → Internet: [sde5](http://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	B11	D3
MS9-LR-...-AD7/AD8/AD9/AD10	45	112	M8

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

 **New**

**Pressure regulators MS9-LR, MS series**

**FESTO**

Technical data

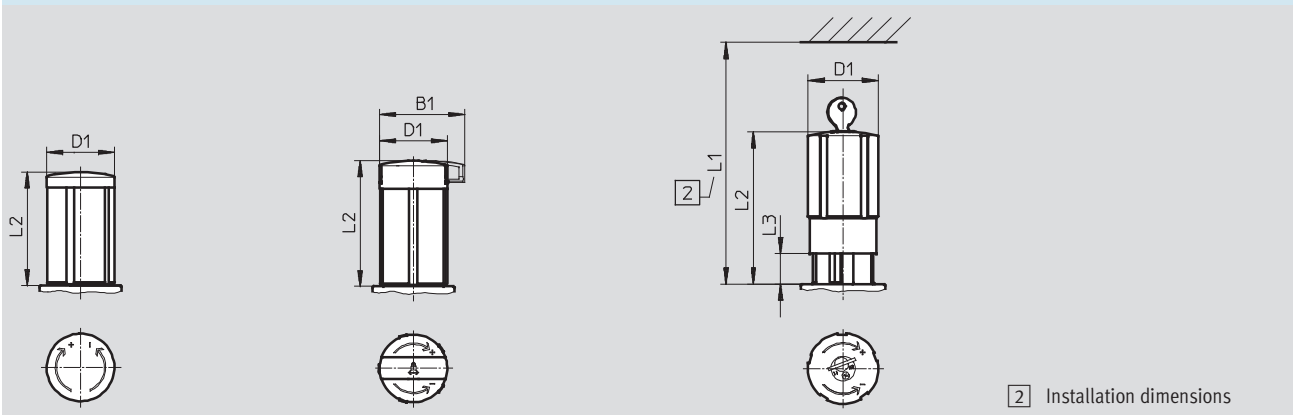
**Dimensions – Rotary knob**

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



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
<b>Ordering example</b>						
<b>562530</b>	<b>MS</b>	<b>9</b>	<b>-LR</b>	<b>-G</b>	<b>-D5</b>	

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 2<sup>nd</sup> quarter 2011

 **New**

**Pressure regulators MS9-LR, MS series**

**FESTO**

Ordering data – Modular products

M Mandatory data		O Options				
Pressure gauge/pressure gauge alternatives	Alternative pressure 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

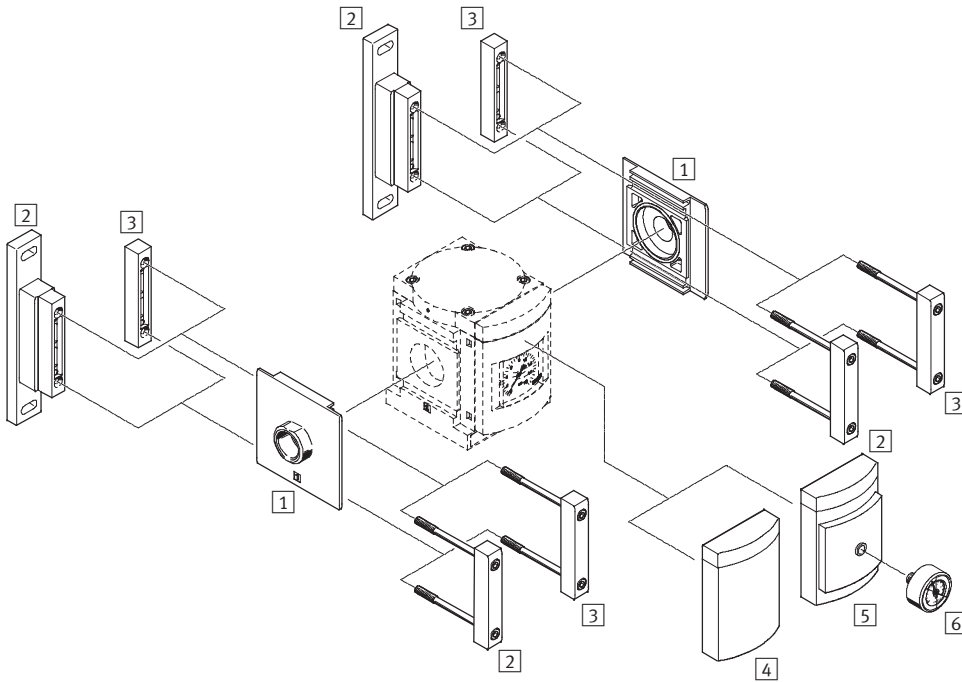
Transfer order code

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## Pressure regulators MS12-LR, MS series

Peripherals overview

### Pressure regulator MS12-LR



-  - Note

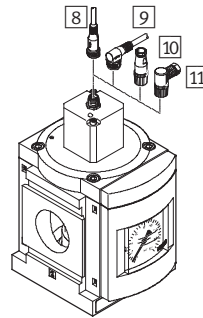
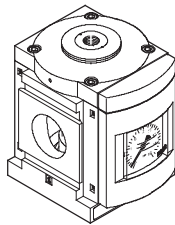
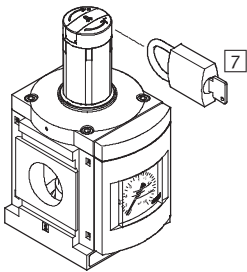
Additional accessories:

- 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

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

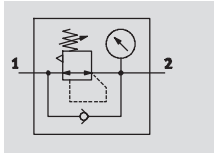


## Pressure regulators MS12-LR, MS series

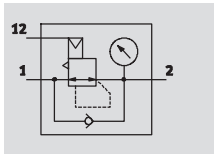
Technical data

Pressure regulation range/actuation mode

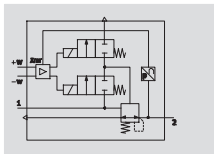
D6/D7/D8, manually operated





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](http://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) <sup>1)</sup>	G1 ¼ (with sub-base AGG) <sup>1)</sup>	G1 ½ (with sub-base AGH) <sup>1)</sup>	G2 (with sub-base AGI) <sup>1)</sup>	– (without connecting thread G)
Pilot air connection 12 with pressure regulation range/actuation mode PO	G ¼				
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 <sup>2)</sup>			
	PE6 [bar]	0.15 ... 6, solenoid actuated			
Max. hysteresis	[bar]	0.4 with pressure regulation range/actuation mode D6/D7/D8/PO			
	[bar]	0.04 with pressure regulation range/actuation mode PE6			
Pressure display	Via pressure gauge				

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

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

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

## Pressure regulators MS12-LR, MS series

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Technical data

Flow rates		
Pressure regulation range/ actuation mode	D6/D7/D8/PO <sup>1)</sup>	PE6 <sup>2)</sup>
Standard nominal flow rate $q_{nN}^{3)}$ [l/min]		
$q_{nN} 1 \rightarrow 2$	G1	13,000
	G1 $\frac{1}{4}$	13,500
	G1 $\frac{1}{2}$	16,000
	G2	22,000
Secondary venting flow rate [l/min]		
$q_{nN} 2 \rightarrow 3$	$\leq 600$	$\leq 600$

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		1.15 ... 8
Operating medium		Compressed air, air quality class 5.7.- to DIN ISO 8573-1
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	+10 ... +50
Storage temperature	[°C]	-10 ... +60
Corrosion resistance class	CRC <sup>1)</sup>	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

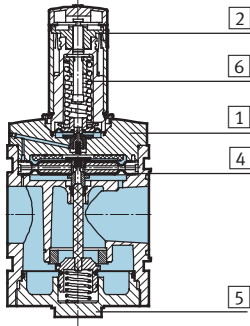
# Pressure regulators MS12-LR, MS series

Technical data

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## Materials

Sectional view

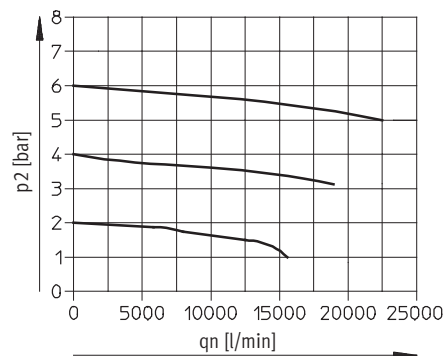


Pressure regulator		
1	Housing	Die-cast aluminium
2	Rotary knob	Reinforced polyamide/polyacetate
	Rotary knob with integrated lock E11	Wrought aluminium alloy
4	Diaphragm	Nitrile rubber
5	Cap (bottom)	Wrought aluminium alloy
6	Spring	Spring steel
-	Seals	Nitrile rubber
Note on materials		RoHS-compliant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

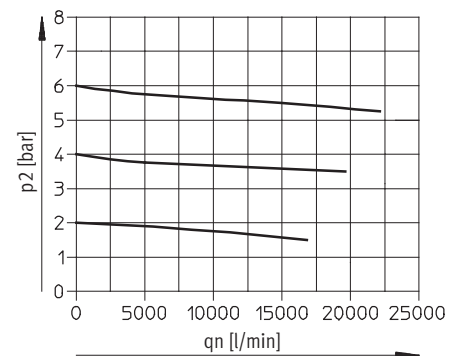
## Standard flow rate $q_n$ as a function of output pressure $p_2$ (MS12-LR-...-D6/D7/D8/PO only)

With connecting plate MS12-AGF  
Pneumatic connection G1

Supply pressure  $p_1 = 10$  bar

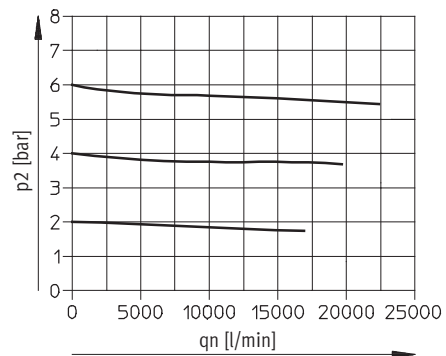


With connecting plate MS12-AGG  
Pneumatic connection G1¼

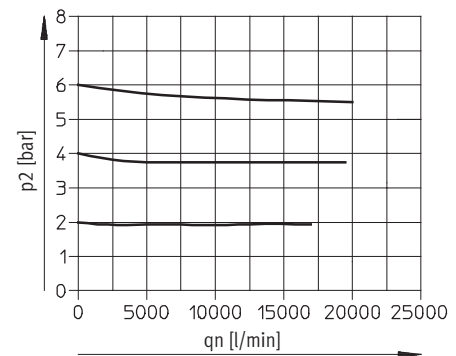


With connecting plate MS12-AGH  
Pneumatic connection G1½

Supply pressure  $p_1 = 10$  bar



With connecting plate MS12-AGI  
Pneumatic connection G2



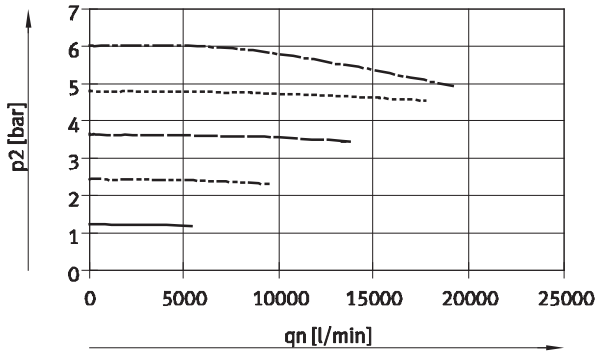
## Pressure regulators MS12-LR, MS series

Technical data

### 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

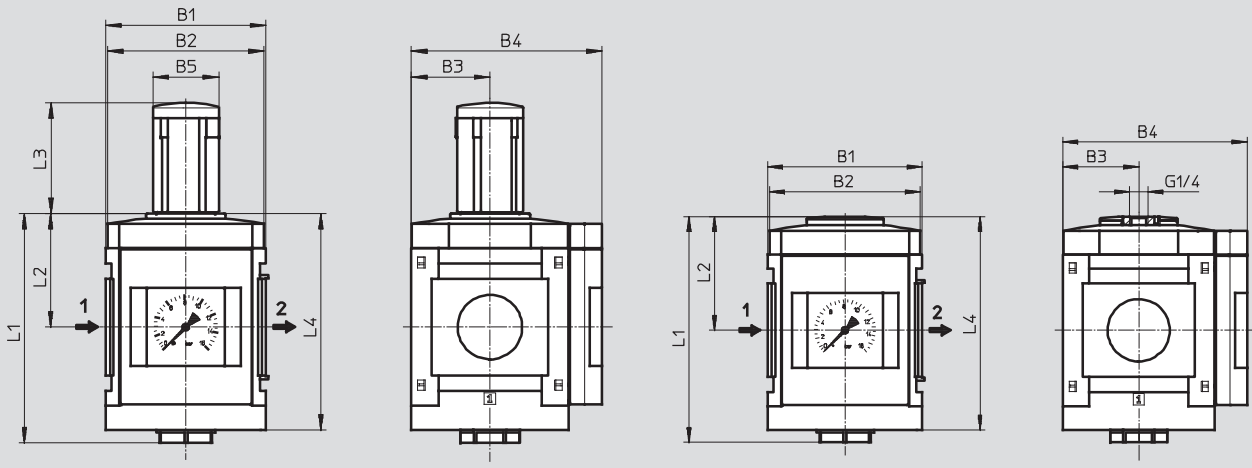
- 2 volts
- - - 4 volts
- · - 6 volts
- · · 8 volts
- - - - 10 volts

### Dimensions

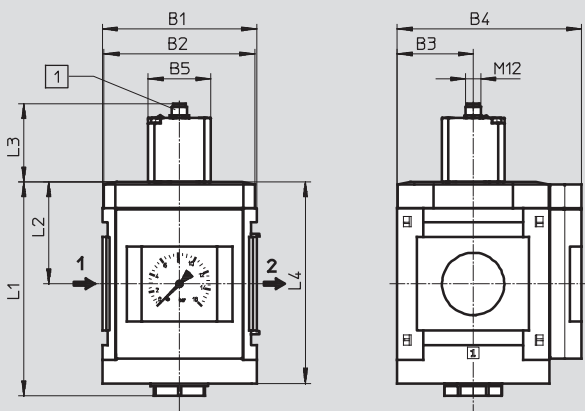
Download CAD data → [www.festo.com](http://www.festo.com)

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					52	178	88	86	168
MS12-LR...-PO	124	122	61	148	-	181	91	-	171
MS12-LR...-PE6					50	172	82	62.7	162

## Pressure regulators MS12-LR, MS series

Technical data

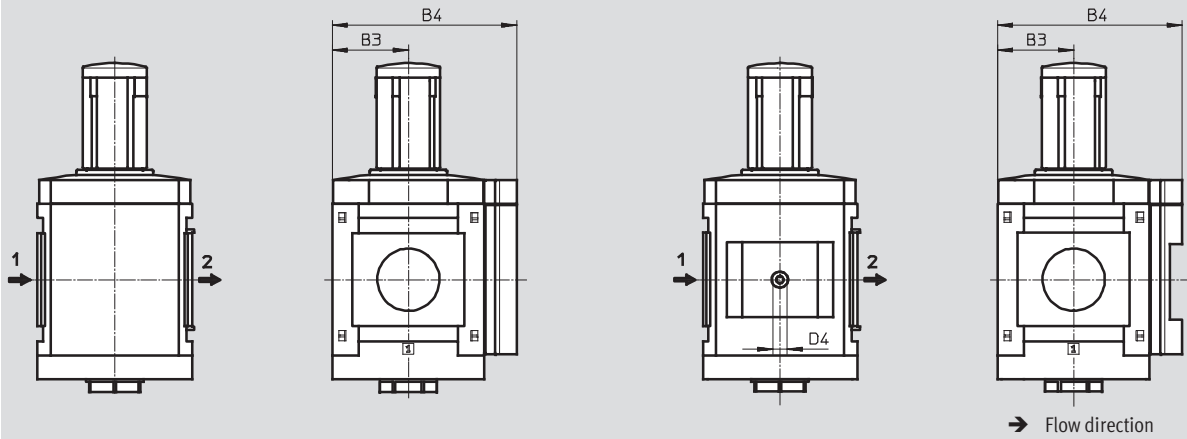
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### Dimensions – Pressure gauge alternatives

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

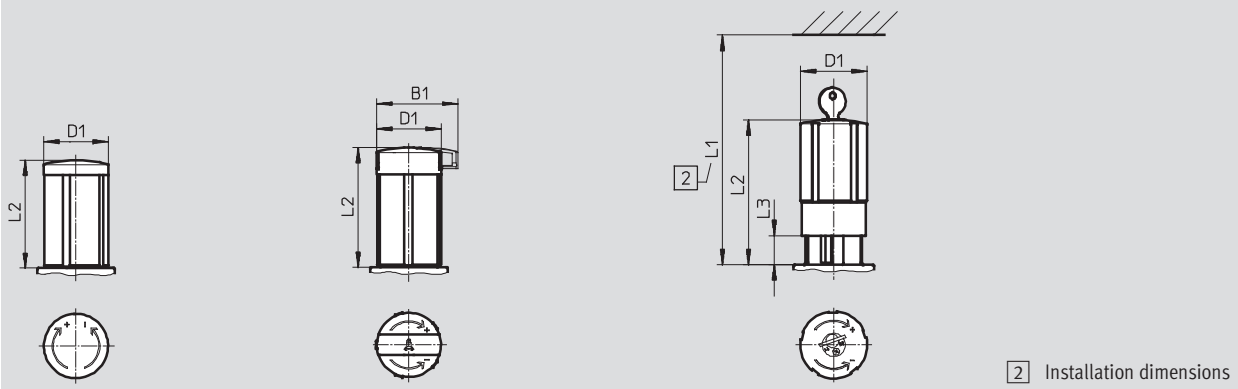
### Dimensions – Rotary knob

Download CAD data → [www.festo.com](http://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 <sup>1)</sup>	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

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
<b>Order example</b>					
535021	MS	12	- LR	- G	- D8

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

3 LD, PO, PE6 Not with integrated lock E11

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

Transfer order code

535021 MS 12 - LR - -

## Pressure regulators MS12-LR, MS series

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Ordering data – Modular products

Options					
<b>Pressure gauge alternatives</b>	<b>Alternative pressure gauge scale</b>	<b>Rotary knob alternative</b>	<b>Security</b>	<b>Type of mounting</b>	<b>Alternative flow direction</b>
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


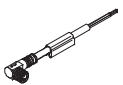
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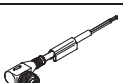
# Pressure regulators MS-LR/LRB/LRP/LRPB/LRE, MS series

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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 <span style="float:right">Technical data → Internet: ma</span>					
	40	R $\frac{1}{4}$	0 ... 16	0 ... 232	187080	MA-40-16-R $\frac{1}{4}$ -EN
			0 ... 25	0 ... 360	187081	MA-40-25-R $\frac{1}{4}$ -EN
		G $\frac{1}{4}$	0 ... 16	0 ... 232	183901	MA-40-16-G $\frac{1}{4}$ -EN
			0 ... 25	0 ... 360	183902	MA-40-25-G $\frac{1}{4}$ -EN
	Pressure gauge MA, EN 837-1, with red/green range <span style="float:right">Technical data → Internet: ma</span>					
	40	R $\frac{1}{8}$	0 ... 16	–	525726	MA-40-16-R $\frac{1}{8}$ -E-RG
	50	R $\frac{1}{4}$	0 ... 16	–	525729	MA-50-16-R $\frac{1}{4}$ -E-RG
Precision pressure gauge MAP, EN 837-1 <span style="float:right">Technical data → Internet: map</span>						
40	R $\frac{1}{8}$	0 ... 1	0 ... 15	161126	MAP-40-1- $\frac{1}{8}$ -EN	
		0 ... 4	0 ... 58	162842	MAP-40-4- $\frac{1}{8}$ -EN	
		0 ... 6	0 ... 87	161127	MAP-40-6- $\frac{1}{8}$ -EN	
		0 ... 16	0 ... 232	161128	MAP-40-16- $\frac{1}{8}$ -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		