

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

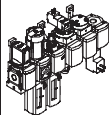
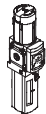
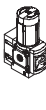
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Pressure regulators MS-LR/LRB/LRP/LRPB/LRE, MS series

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Product range overview – MS series service units

Type		Size			Pressure regulation range						Grade of filtration					
					[bar]						[µm]					
					0.05 ... 0.7	0.05 ... 2.5	0.1 ... 4	0.3 ... 7	0.1 ... 12	0.5 ... 16						
Code			Pneumatic connection in housing	Connecting plate	AG...	D2	D4	D5	D6	D7	D8	A	B	C	E	
Service units																
MSB-FRC		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	■	■	–	–	–	■	■		
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	■	■	–	–	–	■	■		
		9	–													
		12	–													
Service unit combinations (further variants can be ordered using the configurator → Internet: msb4, msb6 or msb9)																
MSB		4	G1/4	G1/8, G1/4, G3/8	–	–	–	■	■	–	–	–	■	■		
		6	G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	■	■	–	–	–	■	■		
		9	–													
		12	–													
Individual devices																
Filter regulators MS-LFR		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	■	■	■	–	–	–	■	■		
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	■	■	■	■	–	–	■	■		
		9	–													
		12	–	G1, G1¼, G1½, G2	–	–	–	■	■	■	–	–	■	■		
Filter MS-LF		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–	–	■	■		
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	■	■		
		9	–													
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–	■	■		
Fine and micro filters MS-LFM		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	■	■	–	–		
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	■	■	–	–		
		9	G3/4, G1	G1/2, G3/4, G1, G1¼, G1½	–	–	–	–	–	–	■	■	–	–		
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	■	■	–	–		
Activated carbon filters MS-LFX		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–	–	–	–		
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–	–	–	–		
		9	G3/4, G1	G1/2, G3/4, G1, G1¼, G1½	–	–	–	–	–	–	–	–	–	–		
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–	–	–		
Pressure regulators MS-LR		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	■	■	■	–	–	–	–	–		
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	■	■	■	■	–	–	–	–		
		9	–													
		12	–	G1, G1¼, G1½, G2	–	–	–	■	■	■	–	–	–	–		
Pressure regulators MS-LRB		4	G1/4	G1/8, G1/4, G3/8	–	–	■	■	■	–	–	–	–	–		
		6	G1/2	G1/4, G3/8, G1/2, G3/4	–	–	■	■	■	■	–	–	–	–		
		9	–													
		12	–													
Precision pressure regulators MS-LRP		4	–													
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	■	■	■	–	■	–	–	–	–	–		
		9	–													
		12	–													
Precision pressure regulators MS-LRPB		4	–													
		6	G1/2	G1/4, G3/8, G1/2, G3/4	■	■	■	–	■	–	–	–	–	–		
		9	–													
		12	–													

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

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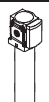
Product range overview – MS series service units

Type	Size	Bowl guard		Condensate drains				Pressure indicator					Actuator lock		Options		→ Page/ Internet
		Plastic bowl with plastic bowl guard	Metal bowl	Manual rotary	Semi-automatic	Fully automatic	External, fully automatic, electrical	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor with display	Rotary knob, lockable	Rotary knob, long	Silencer	Flow direction from right to left	
Code		R	U	M	H	V	E ...	VS	AG	A8	A4	AD...	AS	LD	S	Z	
Service units																	
MSB-FRC	4	■	–	■	–	■	–	–	■	–	–	–	■	–	–	■	msb4
	6	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb6
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Service unit combinations																	
MSB	4	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb4
	6	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb6
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Individual devices																	
Filter regulators MS-LFR	4	■	■	■	■	■	–	■	■	■	■	■	■	■	–	■	ms4-lfr
	6	■	■	■	■	■	■	■	■	–	■	■	■	■	–	■	ms6-lfr
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	■	■	–	■	■	■	■	–	■	–	■	■	–	■	ms12-lfr
Filters MS-LF	4	■	■	■	■	■	–	–	–	–	–	–	–	–	–	■	ms4-lf
	6	■	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms6-lf
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	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
Pressure regulators MS-LR	4	–	–	–	–	–	–	■	■	■	■	■	■	■	–	■	8
	6	–	–	–	–	–	–	■	■	–	■	■	■	■	–	■	8
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	■	■	–	■	–	■	■	–	■	72
Pressure regulators MS-LRB	4	–	–	–	–	–	–	■	■	■	■	■	■	■	–	■	20
	6	–	–	–	–	–	–	■	■	–	■	■	■	■	–	■	20
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Precision pressure regulators MS-LRP	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	6	–	–	–	–	–	–	■	–	■	■	■	■	■	–	■	34
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Precision pressure regulators MS-LRPB	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	6	–	–	–	–	–	–	■	–	■	■	■	■	■	–	■	48
	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

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

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Product range overview – MS series service units

Type	Size	Pneumatic connection in housing	Connecting plate	Pressure regulation range [bar]				Supply voltage			
				0.3 ... 4	0.3 ... 7	0.5 ... 12	0.5 ... 16	24 V DC, connection pattern to EN 175301	24 V DC, connection pattern M12 to DESINA	110 V AC, connection pattern to EN 175301	230 V AC, connection pattern to EN 175301
Code			AG...	D5	D6	D7	D8	V24	V24P	V110	V230
Individual devices											
Electrical pressure regulators MS-LRE		4	–					–	–	–	–
		6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	■	■	■	■	–	–	–
		9	–								
		12	–								
Lubricators MS-LOE		4	G ¹ / ₈ , G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	–	–	–	–	–	–	–
		6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	–	–	–	–	–	–	–
		9	–								
		12	–	G1, G1 ¹ / ₄ , G1 ¹ / ₂ , G2	–	–	–	–	–	–	–
Electrical on-off valves MS-EM(1)		4	G ¹ / ₈ , G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	–	–	–	–	–	–	–
		6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	–	–	–	–	–	–	–
		9	–								
		12	–	G1, G1 ¹ / ₄ , G1 ¹ / ₂ , G2	–	–	–	–	–	–	–
Electrical on-off valves MS-EE		4	G ¹ / ₈ , G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	–	–	–	–	■	–	■
		6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	–	–	–	–	■	–	■
		9	–								
		12	–	G1, G1 ¹ / ₄ , G1 ¹ / ₂ , G2	–	–	–	–	■	■	■
Electrical soft-start valves MS-DL		4	G ¹ / ₈ , G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	–	–	–	–	–	–	–
		6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	–	–	–	–	–	–	–
		9	–								
		12	–	G1, G1 ¹ / ₄ , G1 ¹ / ₂ , G2	–	–	–	–	–	–	–
Electrical soft-start valves MS-DE		4	G ¹ / ₈ , G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	–	–	–	–	■	–	■
		6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	–	–	–	–	■	–	■
		9	–								
		12	–	G1, G1 ¹ / ₄ , G1 ¹ / ₂ , G2	–	–	–	–	■	■	■
Soft start and exhaust valves MS-SV		4	–								
		6	G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	–	–	–	–	■	–	–
		9	–								
		12	–								
Membrane air dryers MS-LDM1		4	G ¹ / ₈ , G ¹ / ₄	G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈	–	–	–	–	–	–	–
		6	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	–	–	–	–	–	–	–
		9	–								
		12	–								

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

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Product range overview – MS series service units

Type	Size	Bowl guard		Pressure indicator					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 with display	Silencer	Flow direction from right to left	
Individual devices											
Electrical pressure regulators MS-LRE	4	-									-
	6	-	-	■	■	-	■	-	-	■	62
	9	-									-
	12	-									-
Lubricators MS-LOE	4	■	■	-	-	-	-	-	-	■	ms4-loe
	6	■	■	-	-	-	-	-	-	■	ms6-loe
	9	-									-
	12	-	■	-	-	-	-	-	-	■	ms12-loe
Electrical on-off valves MS-EM(1)	4	-	-	■	■	■	■	■	■	■	ms4-em1
	6	-	-	■	■	-	■	■	■	■	ms6-em1
	9	-									-
	12	-	-	■	■	-	■	-	■	■	ms12-em
Electrical on-off valves MS-EE	4	-	-	■	■	■	■	■	■	■	ms4-ee
	6	-	-	■	■	-	■	■	■	■	ms6-ee
	9	-									-
	12	-	-	■	■	-	■	-	■	■	ms12-ee
Electrical soft-start valves MS-DL	4	-	-	■	■	■	■	■	-	■	ms4-dl
	6	-	-	■	■	-	■	■	-	■	ms6-dl
	9	-									-
	12	-	-	■	■	-	■	-	-	■	ms12-dl
Electrical soft-start valves MS-DE	4	-	-	■	■	■	■	■	-	■	ms4-de
	6	-	-	■	■	-	■	■	-	■	ms6-de
	9	-									-
	12	-	-	■	■	-	■	-	-	■	ms12-de
Soft start and exhaust valves MS-SV	4	-									-
	6	-	-	■	■	-	■	■	■	■	ms6-sv
	9	-									-
	12	-									-
Membrane air dryers MS-LDM1	4	-	■	-	-	-	-	-	-	■	ms4-ldm1
	6	-	■	-	-	-	-	-	-	■	ms6-ldm1
	9	-									-
	12	-									-

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Product range overview – MS series service units

Type	Size				Pressure regulation range [bar]				Supply voltage			
					0.3 ... 4	0.3 ... 7	0.5 ... 12	0.5 ... 16	24 V DC, connection pattern to EN 175301	24 V DC, connection pattern M12 to DESINA	110 V AC, connection pattern to EN 175301	230 V AC, connection pattern to EN 175301
Code			Connecting plate	AG...	D5	D6	D7	D8	V24	V24P	V110	V230
Individual devices												
Branching modules MS-FRM		4	G1⁄8, G1⁄4	G1⁄8, G1⁄4, G3⁄8	–	–	–	–	–	–	–	–
		6	G1⁄4, G3⁄8, G1⁄2	G1⁄4, G3⁄8, G1⁄2, G3⁄4	–	–	–	–	–	–	–	–
		9	–									
		12	–	G1, G11⁄4, G11⁄2, G2	–	–	–	–	–	–	–	–
Distributor blocks MS-FRM-FRZ		4	G1⁄4	–	–	–	–	–	–	–	–	–
		6	G1⁄2	–	–	–	–	–	–	–	–	–
		9	–									
		12	–									
Flow sensors MS-SFE		4	–									
		6	G1⁄2	G1⁄2	–	–	–	–	–	–	–	–
		9	–									
		12	–									

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



Product range overview – MS series service units

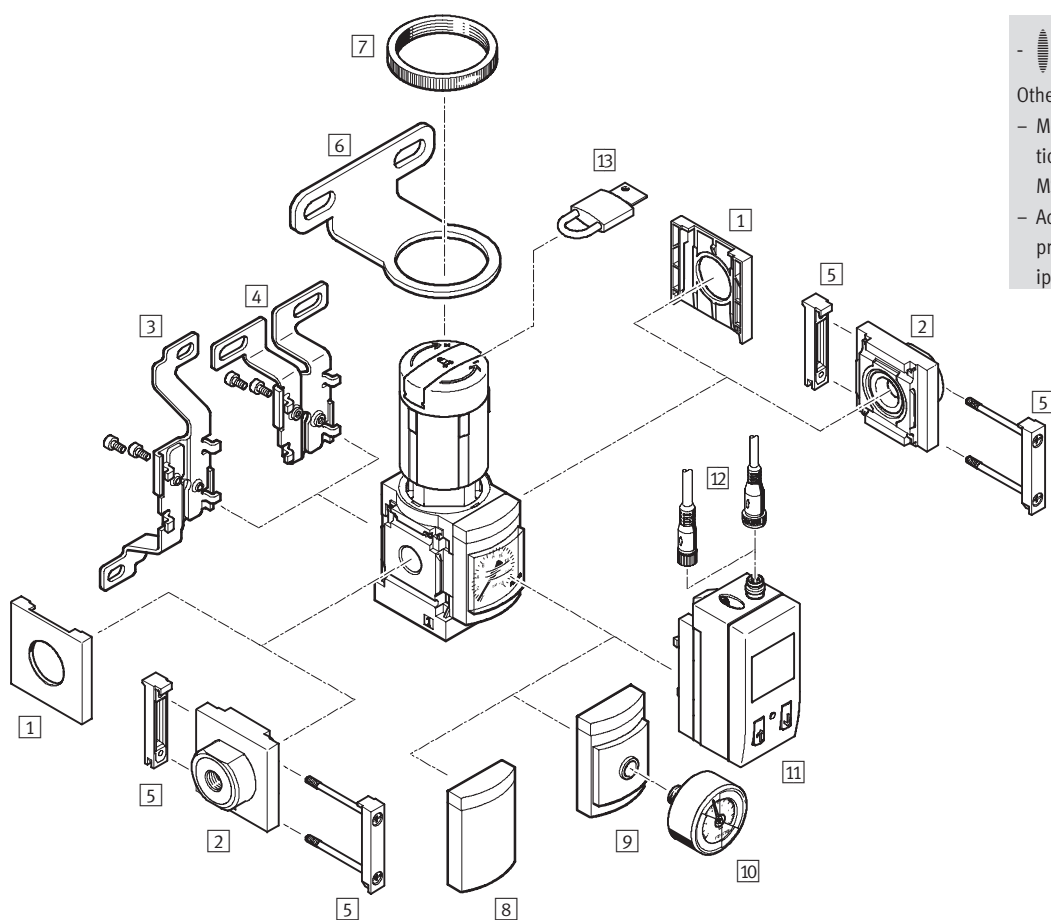
Type	Size	Pressure indicator					Switch output		Options		→ Page/ Internet
		Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor with display	2x PNP	2x NPN	Silencer	Flow direction from right to left	
VS	AG	A8	A4	AD...	P2	N2	S	Z			
Individual devices											
Branching modules MS-FRM	4	■	■	■	■	■	-	-	-	■	ms4-frm
	6	■	■	-	■	■	-	-	-	■	ms6-frm
	9	-									-
	12	■	-	-	-	-	-	-	-	-	ms12-frm
Distributor blocks MS-FRM-FRZ	4	-	-	-	-	-	-	-	-	-	ms4-frm
	6	-	-	-	-	-	-	-	-	-	ms6-frm
	9	-									-
	12	-									-
Flow sensors MS-SFE	4	-									-
	6	-	-	-	-	-	■	■	-	■ ¹⁾	ms6-sfe
	9	-									-
	12	-									-

1) Can only be ordered using the configurator → Internet: ms6-sfe

Pressure regulators MS4/MS6-LR, MS series

Peripherals overview

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Note

Other 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

Pressure regulators MS4/MS6-LR, MS series

Peripherals overview

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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	Mounting bracket MS4/6-WB	■	■	–	–	ms4-wb, ms6-wb
4	Mounting bracket MS4-WBM	■	■	–	–	ms4-wbm
5	Module connector MS4/6-MV	–	■	■	■	ms4-mv, ms6-mv
6	Mounting bracket MS4/6-WR	■	■	–	–	ms4-wr, ms6-wr
7	Knurled nut (included in scope of delivery) MS-LR	■	■	–	–	–
8	Cover plate VS	■	■	■	■	18
9	Adapter plate for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	18
10	Pressure gauge MA	■	■	■	■	80
11	Pressure sensor SDE1-...-MS AD1 ... AD4	■	■	■	■	18
12	Plug sockets with cable SIM-M8-3.../SIM-M12-4...	■	■	■	■	sim
13	Padlock LRVS-D	■	■	■	■	80
–	Mounting bracket MS4/6-WP/WPB/WPM	–	■	■	■	ms4-wp, ms6-wp

Pressure regulators MS4/MS6-LR, MS series

Type codes

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		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 sizes											
1/8	Thread G1/8										
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	Lockable rotary knob as standard										

Further variants can be ordered using the modular system

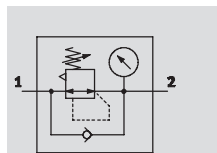
Pressure regulators LR → 18

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

Pressure regulators MS4/MS6-LR, MS series

Technical data

Function
With pressure gauge



 Flow rate
1,000 ... 7,500 l/min

 Temperature range
-10 ... +60 °C

 Input pressure
0.8 ... 20 bar

 www.festo.com

Wearing parts kits
→ 17

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
- Setting values are secured by locking the rotary knob
- Lockable rotary knob
- 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
- Optional pressure sensor with display
- Optional rotary knob pressure gauge

General technical data						
Size		MS4		MS6		
Pneumatic connection 1, 2		G1/8	G1/4	G1/4	G3/8 G1/2	
Design		Directly actuated diaphragm regulator				
Regulating function		Via primary pressure compensation				
		With/without secondary venting				
		Output pressure constant				
Type of mounting		Via accessories				
		In-line installation				
		Front panel mounting				
Assembly position		Any				
Actuator lock		Rotary knob with detent				
		Rotary knob with integrated lock				
		Lockable with accessories				
Pressure regulation range	D5 [bar]	0.3 ... 4				
		0.8 ... 4 with rotary knob pressure gauge variant DM...		–		
	D6 [bar]	0.3 ... 7				
		0.8 ... 7 with rotary knob pressure gauge variant DM...		–		
	D7 [bar]	0.5 ... 12				
		0.8 ... 12 with rotary knob pressure gauge variant DM...		–		
		0.5 ... 10 with pressure sensor variant AD...				
	D8 [bar]	–		0.5 ... 16		
	Max. hysteresis	[bar]	0.25			
		[bar]	–		0.4 with rotary knob pressure gauge variant DM2	
	Pressure display		Via pressure sensor for displaying output pressure and electrical output			
			Via pressure gauge for displaying output pressure			
Via pressure gauge in the rotary knob for displaying output pressure						

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

Pressure regulators MS4/MS6-LR, MS series

Technical data

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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 $\frac{3}{8}$
Pressure regulation range	D5	1,200 ²⁾	2,100 ²⁾	2,400 ²⁾	5,500 ²⁾
	D6	1,150	1,800	3,000	5,800
	D7	1,000	1,700	2,700	4,500
	D8	–	–	2,200	4,000

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

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

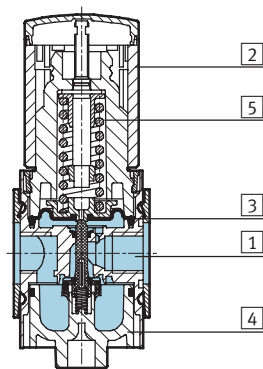
1) Corrosion resistance class 2 to Festo standard 940 070

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]		
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	Polyamide/polyacetate
	Rotary knob with integrated lock E11	Aluminium
3	Diaphragm	Nitrile rubber
4	Bottom cap	Polyester, fibreglass reinforced
5	Springs	Steel
–	Seals	Nitrile rubber
	Note on materials	Free of copper and PTFE only with cover plate VS

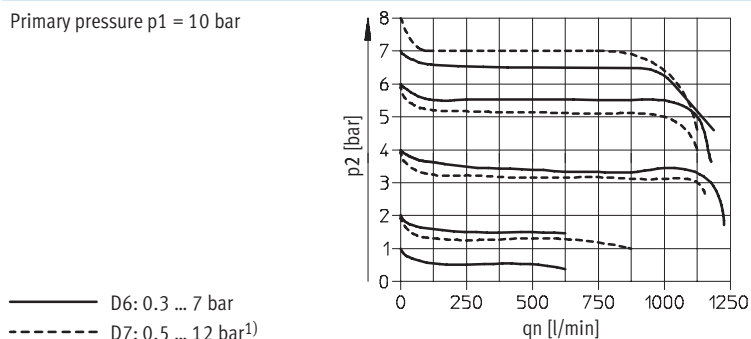
Pressure regulators MS4/MS6-LR, MS series

Technical data

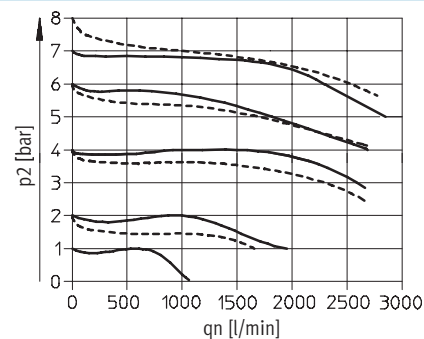
Standard flow rate q_n as a function of output pressure p_2

MS4-LR-1/8

Primary pressure $p_1 = 10$ bar



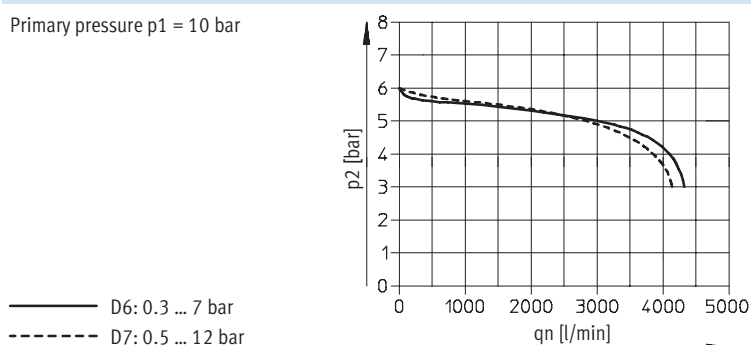
MS4-LR-1/4



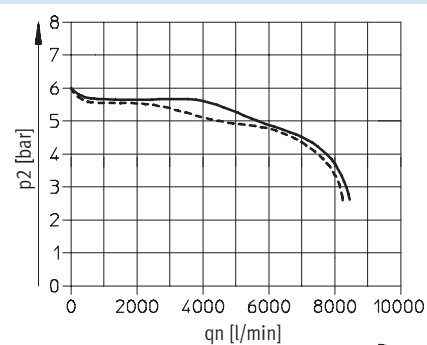
1) There is a higher initial pressure drop for the characteristic curve of the DM1/DM2 variant.

MS6-LR-1/4

Primary pressure $p_1 = 10$ bar

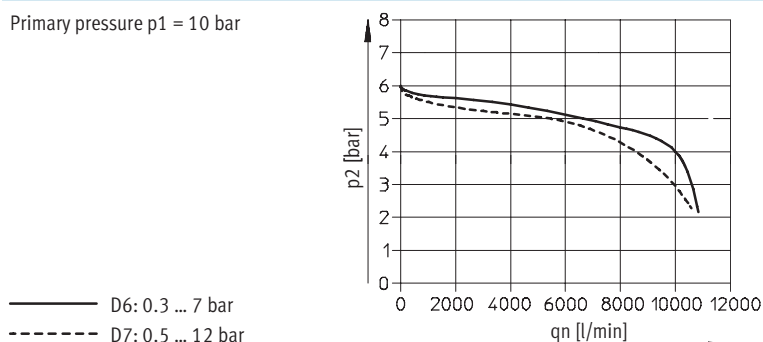


MS6-LR-3/8



MS6-LR-1/2

Primary pressure $p_1 = 10$ bar



Pressure regulators MS4/MS6-LR, MS series

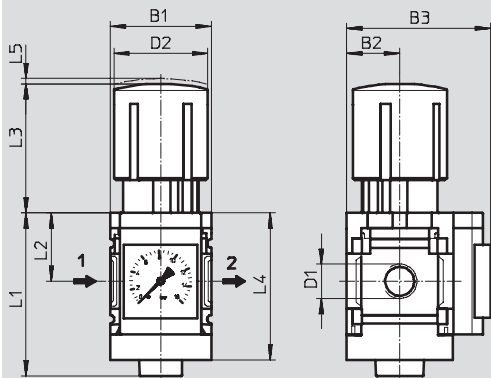
Technical data

FESTO

Dimensions – Standard

Download CAD data → www.festo.com

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



→ Flow direction

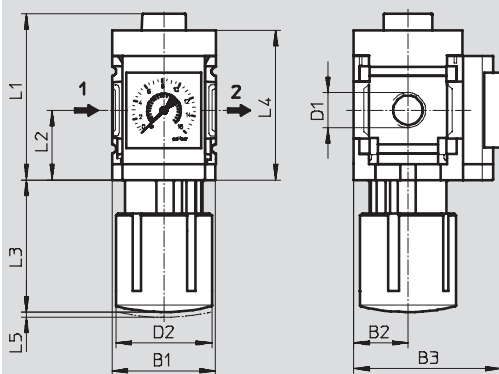
Type	B1	B2	B3		D1	D2	L1	L2	L3	L4	L5
			Stan- dard scale	Red- green scale							
MS4-LR-1/8	40	21	57	58.5	G1/8	37.2	64.4	27	51.1	58	2
MS4-LR-1/4					G1/4						
MS6-LR-1/4	62	31	77	78.5	G1/4	51	93	39	86	84	5
MS6-LR-3/8					G3/8						
MS6-LR-1/2					G1/2						

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

Dimensions – Alternative mounting position

Download CAD data → www.festo.com

Rotary knob at bottom KD



→ Flow direction

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

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

Pressure regulators MS4/MS6-LR, MS series

Technical data

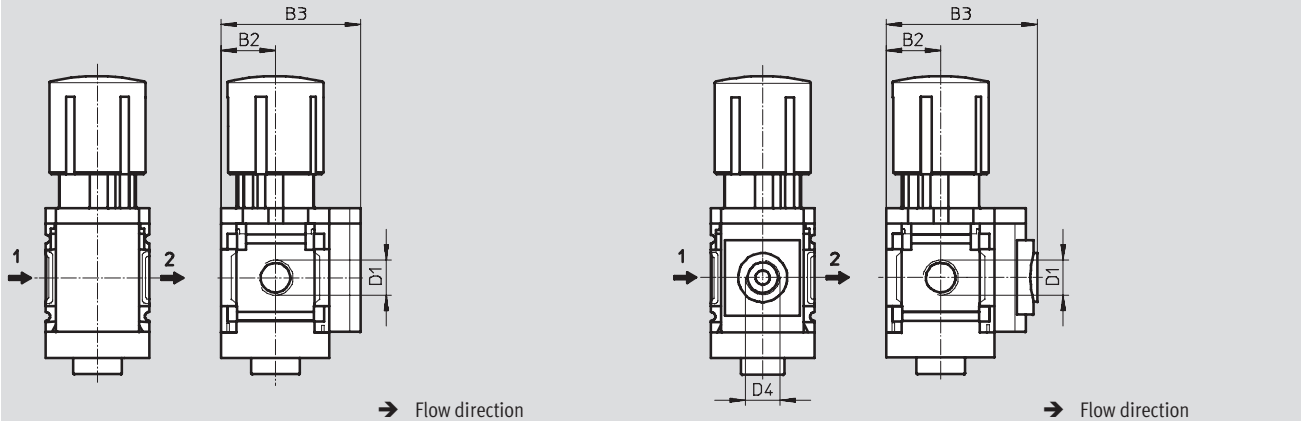
FESTO

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

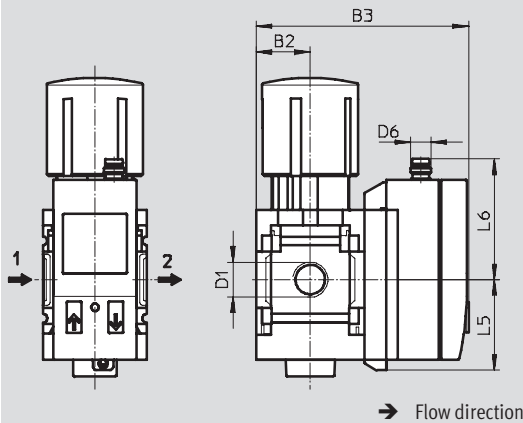
Cover plate VS

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



Pressure sensor with display AD1 ... AD4

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



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

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

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

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

Type	B2	B3	D1	D4	D6	L5	L6
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				
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				
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				
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				

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

Pressure regulators MS4/MS6-LR, MS series

Technical data

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Dimensions – Rotary knob

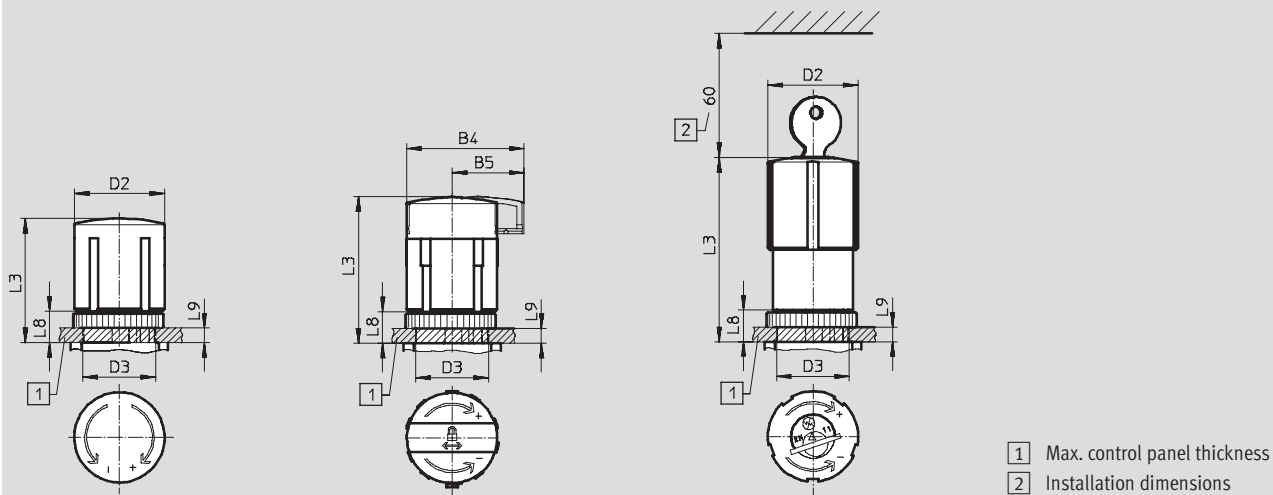
Download CAD data → www.festo.com

For installation into control panel

Standard

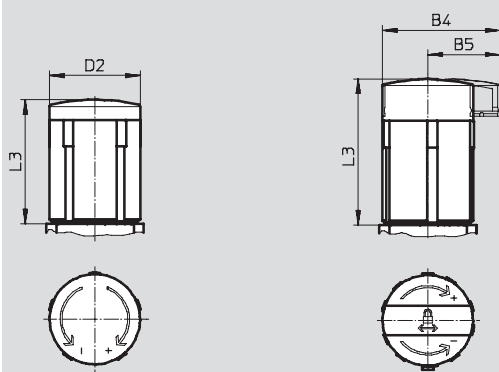
Standard, lockable AS

With integrated lock E11



Long LD

Long, lockable LD-AS



Type	B4	B5	D2	D3 +1	L3	L8	L9
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	–	–
MS4-LR-...-LD-AS	48.3	29.7			60.2		
MS6-LR-...	–	–	51	44	86	22	14
MS6-LR-...-AS	67.7	42			95.5		
MS6-LR-...-E11	–	–			112.1		
MS6-LR-...-LD	–	–	51	–	86	–	–
MS6-LR-...-LD-AS	67.7	42			95.5		

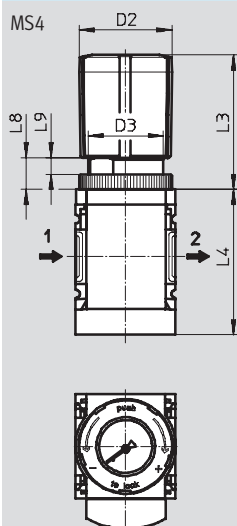
Pressure regulators MS4/MS6-LR, MS series

Technical data

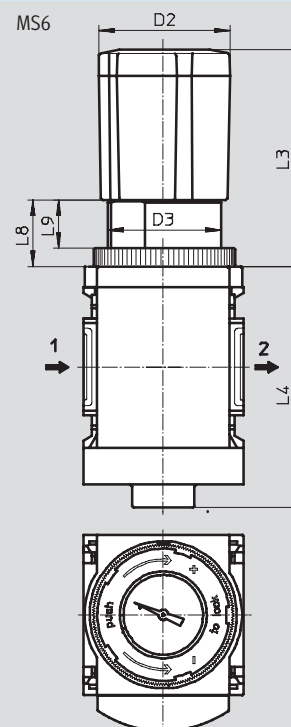
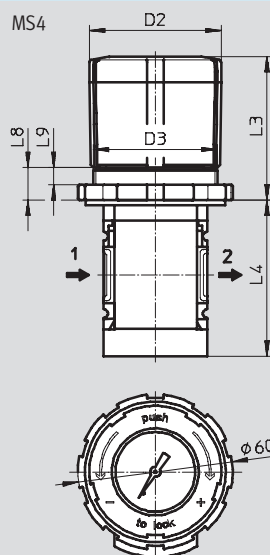
Dimensions – Rotary knob with pressure gauge

Download CAD data → www.festo.com

Small DM1



Large DM2



Note

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

→ Flow direction

Type	D2	D3	L3	L4	L8	L9
MS4-LR-...-DM1	37.2	M30x1.5	54	58.5	13	6.7
MS4-LR-...-DM2	51.1	M48x1.5	55.7	60.5	13	6.6
MS6-LR-...-DM2	51	M44x1	84	93	26	19

Ordering data

Pressure gauge, lockable standard type rotary knob

Size	Connection	Pressure regulation range 0.3 ... 4 bar		Pressure regulation range 0.3 ... 7 bar		Pressure regulation range 0.5 ... 12 bar	
		Part No.	Type	Part No.	Type	Part No.	Type
MS4	G1/8	529 421	MS4-LR-1/8-D5-AS	529 423	MS4-LR-1/8-D6-AS	529 425	MS4-LR-1/8-D7-AS
	G1/4	529 415	MS4-LR-1/4-D5-AS	529 417	MS4-LR-1/4-D6-AS	529 419	MS4-LR-1/4-D7-AS
MS6	G1/4	529 995	MS6-LR-1/4-D5-AS	529 997	MS6-LR-1/4-D6-AS	529 999	MS6-LR-1/4-D7-AS
	G3/8	530 001	MS6-LR-3/8-D5-AS	530 003	MS6-LR-3/8-D6-AS	530 005	MS6-LR-3/8-D7-AS
	G1/2	529 989	MS6-LR-1/2-D5-AS	529 991	MS6-LR-1/2-D6-AS	529 993	MS6-LR-1/2-D7-AS

Ordering data – Wearing parts kits

Size	Part No.	Type
MS4	673 649	MS4-LR/LRB
MS6	673 650	MS6-LR/LRB

Pressure regulators MS4/MS6-LR, MS series

Ordering data – Modular products

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M Mandatory data						O Options →
Module No.	Series	Size	Function	Connection size	Pressure regulation range	Pressure gauge alternatives
527 690 527 663	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
Order example						
527 690	MS	4	LR	AGB	D6	AD3

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
M Module No.		527 690	527 663			
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 regulation range	0.3 ... 4 bar				-D5	
	0.3 ... 7 bar				-D6	
	0.5 ... 12 bar				-D7	
	–	0.5 ... 16 bar		3	-D8	
O Pressure gauge alternatives	Cover plate				-VS	
	Adapter for EN pressure gauge 1/8, without pressure gauge	–			-A8	
	Adapter 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 switch output PNP, 3-pin			1 4	-AD1	
	Pressure sensor with display, plug M8, 1 switch output NPN, 3-pin			1 4	-AD2	
	Pressure sensor with display, plug M12, 1 switch output PNP, 4-pin, analogue output 4 ... 20 mA			1 4	-AD3	
	Pressure sensor with display, plug M12, 1 switch output NPN, 4-pin, analogue output 4 ... 20 mA			1 4	-AD4	

1 RG, AD1 ... AD4, 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

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

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

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
0 ↓	Alternative pressure gauge scale	psi (not for pressure gauge in rotary knob DM1 and DM2)		5	-PSI	
		MPa (not for pressure gauge in rotary knob DM1 and DM2)		5	-MPA	
	Secondary venting	Without secondary venting		1 2 3	-OS	
	Rotary knob alternatives	Long rotary knob		6	-LD	
		Rotary knob pressure gauge, small	-	6 7	-DM1	
		Rotary knob pressure gauge, large		6 7	-DM2	
	Alternative mounting position	Rotary knob, below		1 2 3 8	-KD	
	Security	Lockable rotary knob		1 2 3	-AS	
		With integrated lock		3	-E11	
	Type of mounting	Mounting bracket with knurled nut for regulator head		1 9	-WR	
		Mounting bracket		10	-WP	
		Mounting bracket		10	-WPM	
		Mounting bracket		1	-WB	
		Mounting bracket		-	-WBM	
	Alternative flow direction	Flow direction from right to left			-Z	

- | | |
|---|--|
| <p>1, RG, AD1 ... AD4, OS, KD, AS, WR, WB
MS4: Not with rotary knob alternative DM2</p> <p>2, RG, OS, KD, AS
Not with rotary knob alternative DM1</p> <p>3, D8, RG, OS, KD, AS
MS6: Not with rotary knob alternative DM2</p> <p>4, AD1 ... AD4 Measuring range max. 10 bar.
Not with pressure regulation range D8</p> <p>5, PSI, MPA Not with pressure gauge alternatives VS, A8, A4, AD1, AD2, AD3, AD4.
Not with rotary knob alternatives DM1, DM2</p> <p>6, LD, DM1, DM2
Not with security E11</p> | <p>7, DM1, DM2 Can only be combined with one pressure gauge alternative VS, A8, A4, AD1, AD2, AD3, AD4</p> <p>8, KD Not with pressure gauge alternative RG
Not with alternative pressure gauge scaling MPA
Not with mounting type WP
Not with long rotary knob LD</p> <p>9, WR</p> <p>10, WP, WPM Only with connecting plate AGA, AGB, AGC, AGD, AGE</p> |
|---|--|

Transfer order code

- - - - - - -

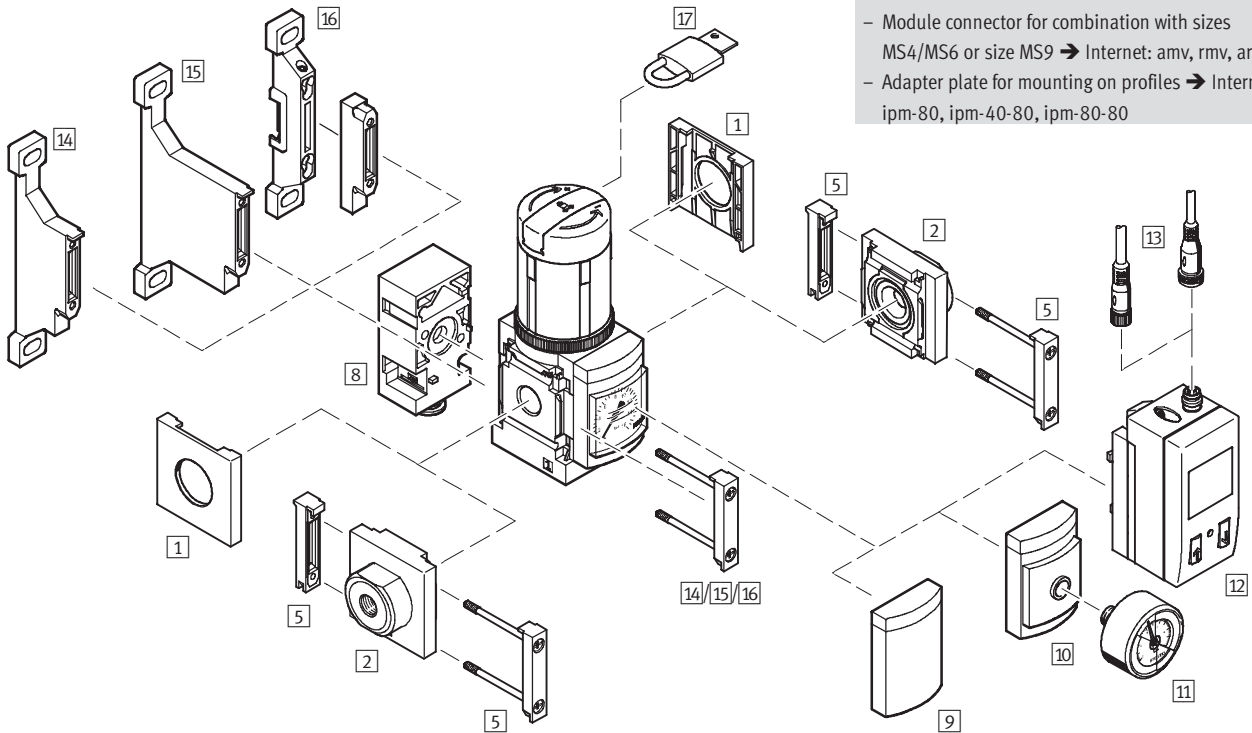
Pressure regulators MS4/MS6-LRB, MS series

Peripherals overview

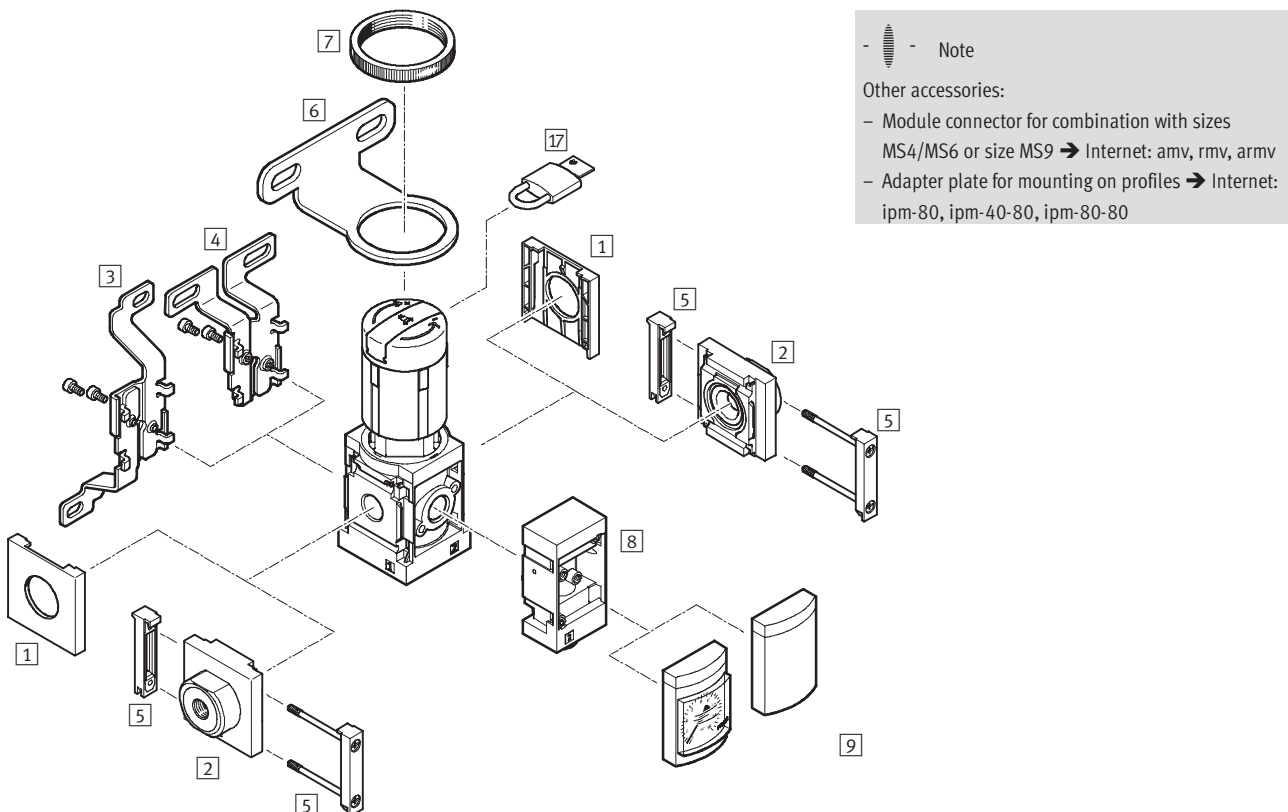
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Pressure output

Rear



Front Z



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	Mounting bracket MS4/6-WB	■	■	–	–	ms4-wb, ms6-wb
4	Mounting bracket MS4-WBM	■	■	–	–	ms4-wbm
5	Module connector MS4/6-MV	–	■	■	■	ms4-mv, ms6-mv
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...	■	■	■	■	32
9	Cover plate VS	■	■	■	■	32
10	Adapter plate for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	32
11	Pressure gauge MA	■	■	■	■	80
12	Pressure sensor SDE1-...-MS AD1 ... AD4	■	■	■	■	32
13	Plug sockets with cable SIM-M8-3.../SIM-M12-4...	■	■	■	■	sim
14	Mounting bracket MS4/6-WP	–	■	■	■	ms4-wp, ms6-wp
15	Mounting bracket MS4/6-WPB	–	■	■	■	ms4-wp, ms6-wp
16	Mounting bracket (for retro-fitting M-series) MS4/6-WPM	–	■	■	■	ms4-wp, ms6-wp
17	Padlock LRVS-D	■	■	■	■	80

Pressure regulators MS4/MS6-LRB, MS series

Type codes

FESTO

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

Further variants can be ordered using the modular system

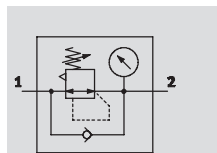
Pressure regulators LRB → 32

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

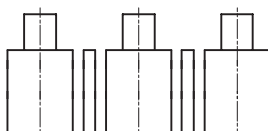
Pressure regulators MS4/MS6-LRB, MS series

Technical data

Function
With pressure gauge



LRB-manifold
with through pressure supply for
manifold assembly



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

 Temperature range
-10 ... +60 °C

 Input pressure
0.8 ... 20 bar

 www.festo.com

Wearing parts kits
→ 31

The pressure regulator is suitable for manifold assemblies with through air supply on both sides, for configuring a regulator manifold with separate, independent pressure regulation ranges. Pressure output is at 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
- Available with and without secondary venting
- Setting values are secured by locking the rotary knob
- Lockable rotary knob
- 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
- Optional pressure sensor with display
- Optional rotary knob pressure gauge for size MS6

General technical data			
Size		MS4	MS6
Pneumatic connection 1		G1/4	G1/2
Pneumatic connection 2		G1/4	G1/2
		QS-6	QS-8
		QS-8	QS-10
Design		Directly actuated diaphragm regulator with through pressure supply	
Regulating function		Via primary pressure compensation	
		With/without secondary venting	
		Output pressure constant	
Type of mounting		Via accessories	
		In-line installation	
		Front panel mounting	
Assembly position		Any	
Actuator lock		Rotary knob with detent	
		Rotary knob with integrated lock	
		Lockable with accessories	
Pressure regulation range	D5 [bar]	0.3 ... 4	
	D6 [bar]	0.3 ... 7	
	D7 [bar]	0.5 ... 12 (0.5 ... 10 with pressure sensor variant AD...)	
	D8 [bar]	–	0.5 ... 16
Max. hysteresis	[bar]	0.25	
	[bar]	–	0.4 with rotary knob pressure gauge variant DM2
Pressure display		Via pressure sensor for displaying output pressure and electrical output	
		Via pressure gauge for displaying output pressure	
		–	Via pressure gauge in the rotary knob for displaying output pressure

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

Pressure regulators MS4/MS6-LRB, MS series

Technical data

FESTO

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

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

1) Corrosion resistance class 2 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]		
Size		MS6
Pressure regulator		747
Pressure regulator with rotary knob with integrated lock E11		1,017

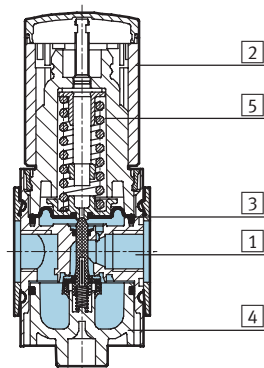
Pressure regulators MS4/MS6-LRB, MS series

Technical data

FESTO

Materials

Sectional view



Pressure regulator (manifold assembly)

1	Housing	Die-cast aluminium
2	Rotary knob	Polyamide/polyacetate
	Rotary knob with integrated lock E11	Aluminium
3	Diaphragm	Nitrile rubber
4	Bottom cap	Polyester, fibreglass reinforced
5	Springs	Steel
-	Seals	Nitrile rubber
	Note on materials	Free of copper and PTFE only with cover plate VS

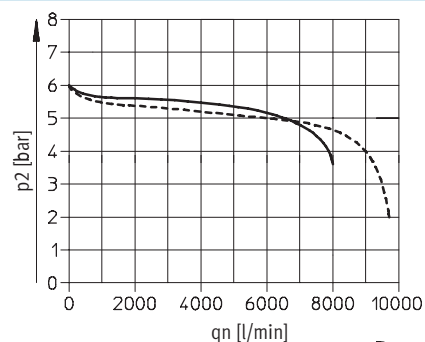
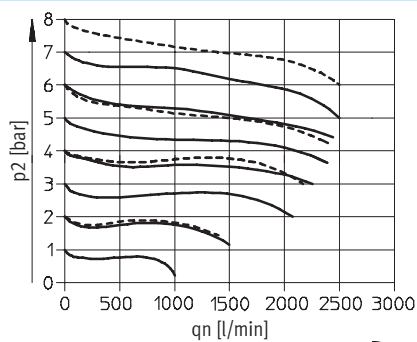
Standard flow rate q_n as a function of output pressure p_2

MS4-LRB-1/4

MS6-LRB-1/2

Primary pressure $p_1 = 10$ bar

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



Pressure regulators MS4/MS6-LRB, MS series

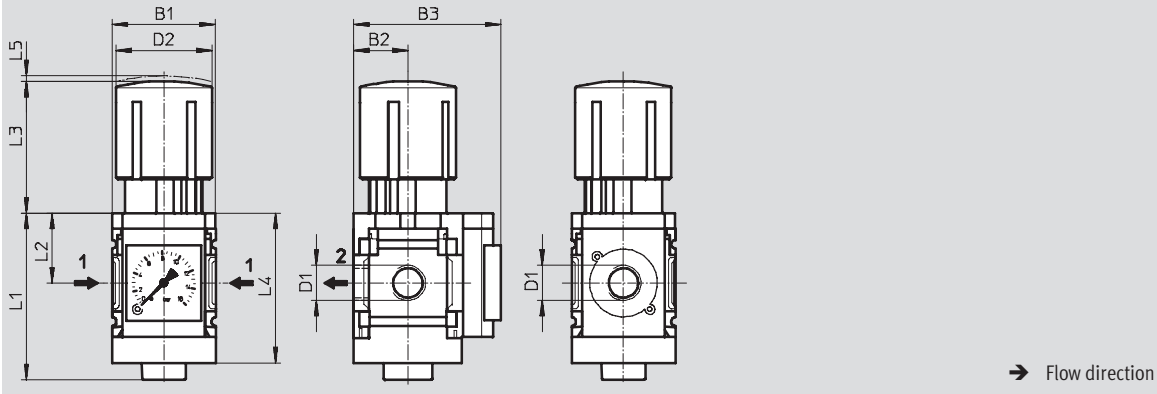
Technical data

FESTO

Dimensions – Standard

Download CAD data → www.festo.com

With pressure gauge, display unit [bar]



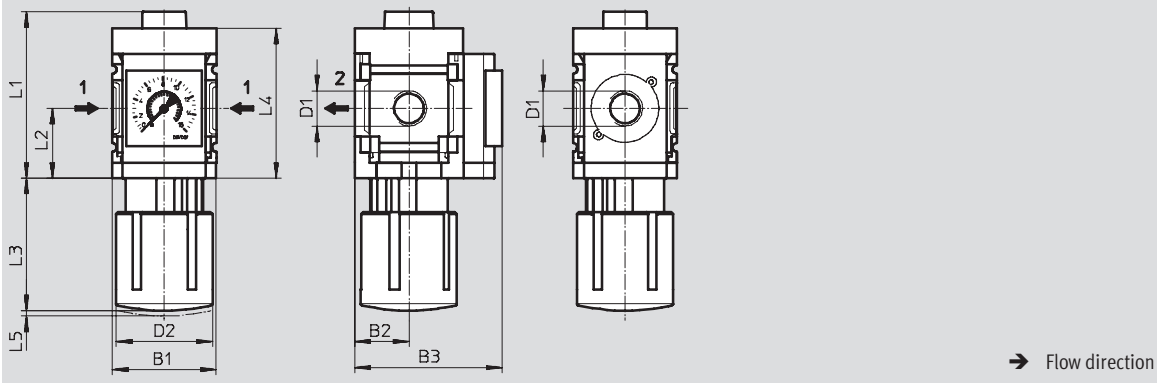
Type	B1	B2	B3 Pressure gauge		D1	D2	L1	L2	L3	L4	L5
			Stan- dard scale	Red- green scale							
MS4-LRB-1/4	40	21	57	58.5	G1/4	37.2	64.4	27	51.1	58	2
MS6-LRB-1/2	62	31	77	78.5	G1/2	51	93	39	86	84	5

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

Dimensions – Alternative mounting position

Download CAD data → www.festo.com

Rotary knob underneath KD, standard rotary knob, with pressure gauge



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

Pressure regulators MS4/MS6-LRB, MS series

Technical data

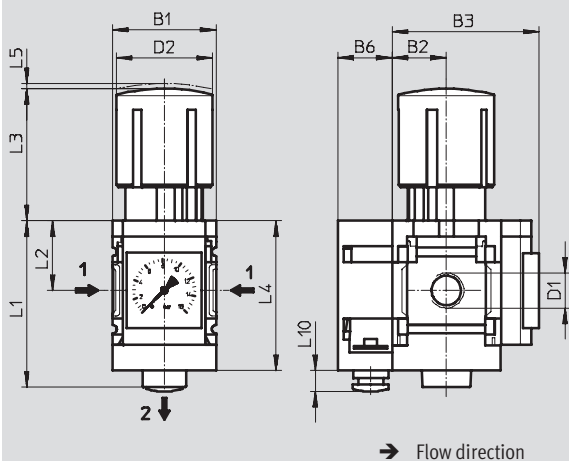
Dimensions – Angled outlet block BC/BD/BE

Download CAD data → www.festo.com

Pressure output at rear

MS4

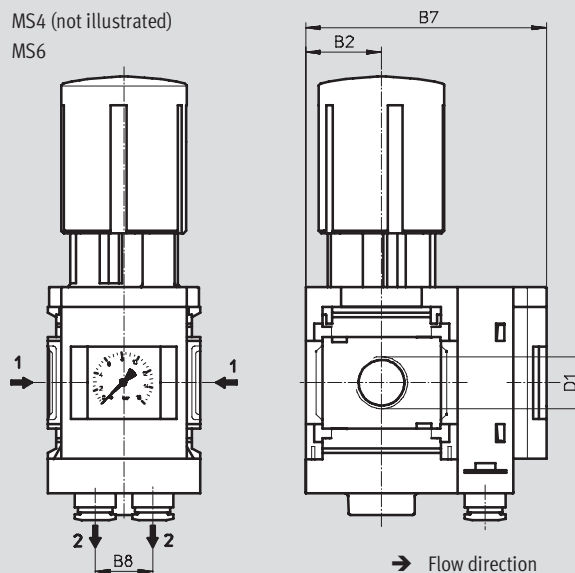
MS6 (not illustrated)



Pressure output to front Z

MS4 (not illustrated)

MS6



Type	B1	B2	B3	B6	B7	B8	D1	D2	L1	L2	L3	L4	L5	L10
MS4-LRB-1/4-...-B...	40	21	57	21	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 with the ISO 1179-1 standard and the ISO 228-1 standard.

Pressure regulators MS4/MS6-LRB, MS series

Technical data

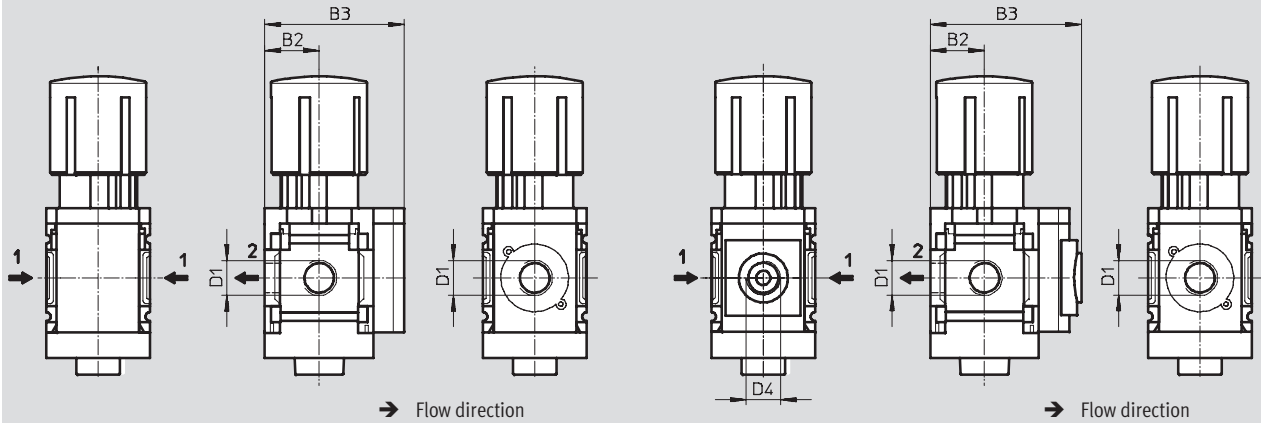
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Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

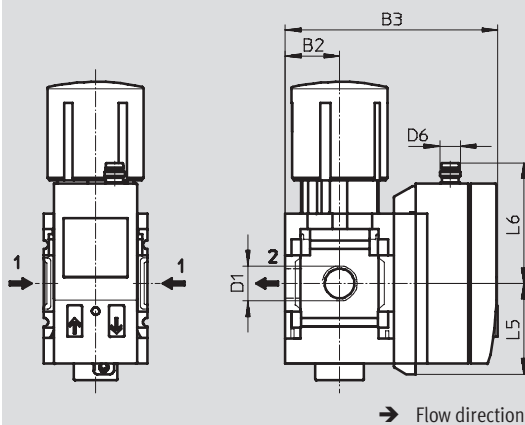
Cover plate VS

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



Pressure sensor with display AD1 ... AD4

Technical data → Internet: sde1



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

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

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

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

Type	B2	B3	D1	D4	D6	L5	L6
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	–	–	–
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
MS6-LRB-1/2-...-VS	31	76	G1/2	–	–	–	–
MS6-LRB-1/2-...-A4	31	78.5	G1/2	G1/4	–	–	–
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

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

Pressure regulators MS4/MS6-LRB, MS series

Technical data

Dimensions – Rotary knob

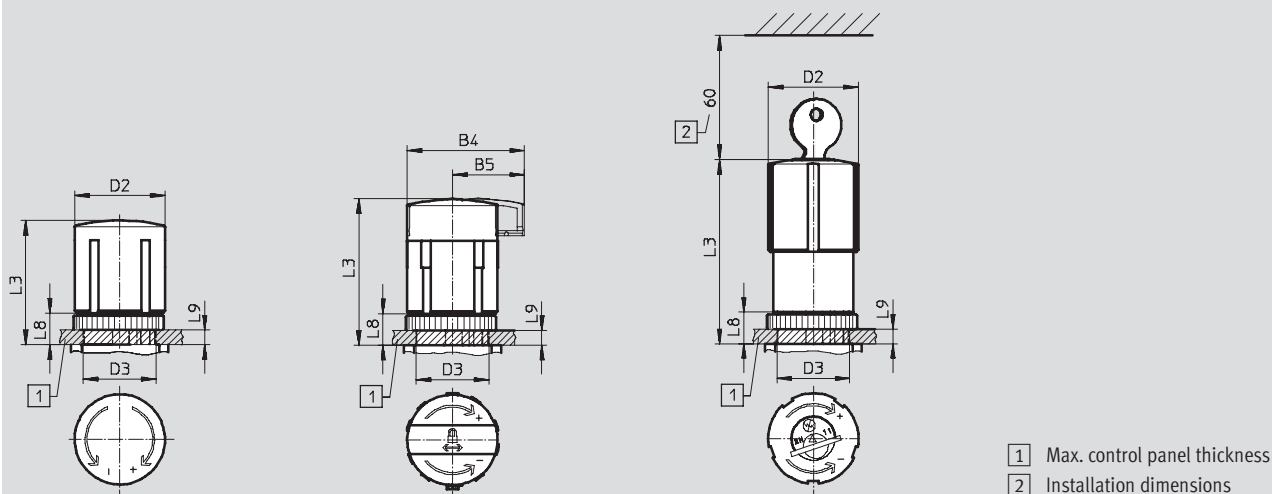
Download CAD data → www.festo.com

For installation into control panel

Standard

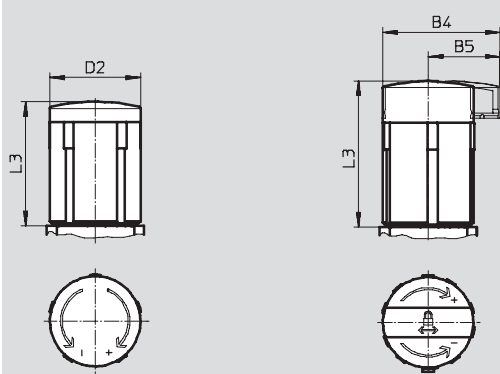
Standard, lockable AS

With integrated lock E11



Long LD

Long, lockable LD-AS



Type	B4	B5	D2	D3 +1	L3	L8	L9
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	–	–
MS4-LRB-...-LD-AS	48.3	29.7			60.2		
MS6-LRB-...	–	–	51	44	86	22	14
MS6-LRB-...-AS	67.7	42			95.5		
MS6-LRB-...-E11	–	–			112.1		
MS6-LRB-...-LD	–	–	51	–	86	–	–
MS6-LRB-...-LD-AS	67.7	42			95.5		

 New
Variant DM2

Pressure regulators MS4/MS6-LRB, MS series

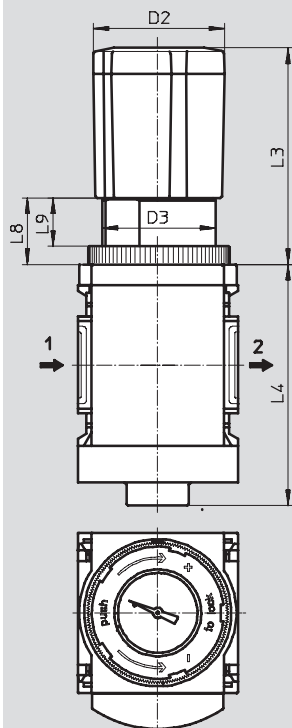
Technical data

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Dimensions – Rotary knob with pressure gauge

Download CAD data → www.festo.com

Large DM2



→ Flow direction

Type	D2	D3	L3	L4	L8	L9
MS6-LRB-...-DM2	51	M44x1	84	93	26	19

Pressure regulators MS4/MS6-LRB, MS series

Technical data

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Ordering data					
Pressure gauge, lockable standard type rotary knob					
Size	Connection	Pressure output to rear without angled outlet block		Pressure output to rear with angled outlet block QS-8	
		Part No.	Type	Part No.	Type
Pressure regulation range 0.3 ... 4 bar					
MS4	G1/4	529 473	MS4-LRB-1/4-D5-AS	529 474	MS4-LRB-1/4-D5-AS-BD
MS6	G1/2	530 322	MS6-LRB-1/2-D5-AS	530 323	MS6-LRB-1/2-D5-AS-BD
Pressure regulation range 0.3 ... 7 bar					
MS4	G1/4	529 479	MS4-LRB-1/4-D6-AS	529 480	MS4-LRB-1/4-D6-AS-BD
MS6	G1/2	530 328	MS6-LRB-1/2-D6-AS	530 329	MS6-LRB-1/2-D6-AS-BD
Pressure regulation range 0.5 ... 12 bar					
MS4	G1/4	529 485	MS4-LRB-1/4-D7-AS	529 486	MS4-LRB-1/4-D7-AS-BD
MS6	G1/2	530 334	MS6-LRB-1/2-D7-AS	530 335	MS6-LRB-1/2-D7-AS-BD

Ordering data			
Adapter plate A8 for EN pressure gauge 1/8, lockable standard-type rotary knob			
Size	Connection	Pressure output to rear without angled outlet block	
		Part No.	Type
Pressure regulation range 0.3 ... 4 bar			
MS4	G1/4	529 471	MS4-LRB-1/4-D5-A8-AS
Pressure regulation range 0.3 ... 7 bar			
MS4	G1/4	529 477	MS4-LRB-1/4-D6-A8-AS
Pressure regulation range 0.5 ... 12 bar			
MS4	G1/4	529 483	MS4-LRB-1/4-D7-A8-AS

Ordering data			
Adapter plate A4 for EN pressure gauge 1/4, lockable standard-type rotary knob			
Size	Connection	Pressure output to rear without angled outlet block	
		Part No.	Type
Pressure regulation range 0.3 ... 4 bar			
MS6	G1/2	530 320	MS6-LRB-1/2-D5-A4-AS
Pressure regulation range 0.3 ... 7 bar			
MS6	G1/2	530 326	MS6-LRB-1/2-D6-A4-AS
Pressure regulation range 0.5 ... 12 bar			
MS6	G1/2	530 332	MS6-LRB-1/2-D7-A4-AS

Ordering data – Wearing parts kits			
Size	Part No.	Type	
MS4	673 649	MS4-LR/LRB	
MS6	673 650	MS6-LR/LRB	

Pressure regulators MS4/MS6-LRB, MS series

Ordering data – Modular products

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M Mandatory data						O Options →
Module No.	Series	Size	Function	Connection size	Pressure regulation range	Pressure gauge alternatives
527 692 527 665	MS	4 6	LRB	1/4 1/2 AGA AGB AGC AGD AGE	D5 D6 D7 D8	VS, A8, A4, RG, AD1, AD2, AD3, AD4
Order example						
527 692	MS	4	- LRB	- AGC	- D5	- A4

Ordering table						
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code
M Module No.		527 692	527 665			
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 regulation range		0.3 ... 4 bar			-D5	
		0.3 ... 7 bar			-D6	
		0.5 ... 12 bar			-D7	
		–	0.5 ... 16 bar	1	-D8	
O Pressure gauge alternatives		Cover plate		2	-VS	
		Adapter for EN pressure gauge 1/8, without pressure gauge	–	3	-A8	
		Adapter 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 switch output PNP, 3-pin		3 4	-AD1	
		Pressure sensor with display, plug M8, 1 switch output NPN, 3-pin		3 4	-AD2	
		Pressure sensor with display, plug M12, 1 switch output PNP, 4-pin, analogue output 4 ... 20 mA		3 4	-AD3	
		Pressure sensor with display, plug M12, 1 switch output NPN, 4-pin, analogue output 4 ... 20 mA		3 4	-AD4	

1 D8, RG, OS, KD, AS

2 VS

MS6: Not with DM2

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

Measuring range max. 10 bar.

Not with pressure regulation range D8

Transfer order code

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

Pressure regulators MS4/MS6-LRB, MS series

Ordering data – Modular products

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

Ordering table							
Grid dimension [mm]		40	62	Condi- tions	Code		Enter code
↓ 0	Alternative pressure gauge scale	psi		5	-PSI		
		MPa		5 6	-MPA		
	Secondary venting	Without secondary venting		1	-OS		
	Rotary knob alternatives	Long rotary knob		7	-LD		
		-	Rotary knob pressure gauge, large	7 8	-DM2		
	Alternative mounting position	Rotary knob, below		1 9	-KD		
	Security	Lockable rotary knob		1	-AS		
		With integrated lock			-E11		
	Pressure output	Angled outlet block QS-6			-BC		
	(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		10 11	-WR		
		Mounting bracket		12 13	-WP		
		Mounting bracket		10 12	-WPM		
		Wall mounting bracket for large wall gap		12 14	-WPB		
		Mounting bracket		10	-WB		
		Mounting bracket		10	-WBM		
	Alternative flow direction	Pressure outlet to front (without pressure outlet, no pressure gauge)			-Z		

1 D8, RG, OS, KD, AS

MS6: Not with DM2

5 PSI, MPA

Not with pressure gauge alternatives VS, A8, A4, AD1, AD2, AD3, AD4

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

Not with rotary knob alternative DM2

6 MPA

Not with alternative mounting position KD

7 LD, DM2

Not with security E11

8 DM2

Only in combination with pressure gauge alternatives VS, A4, AD1, AD2, AD3, AD4

9 KD

Not with alternative pressure gauge scale MPA.

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

Not with mounting type WP, WPB.

Combination with mounting type WR, WPM, WB, WBM not possible with alternative flow direction Z.

Not with pressure gauge alternative RG.

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

10 WR, WPM, WB, WBM

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

11 WR

Only with alternative flow direction Z.

Not with rotary knob alternative LD

12 WP, WPM, WPB

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

13 WP

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

14 WPB

Not with alternative flow direction Z.

Not with pressure output BC, BD, BE.

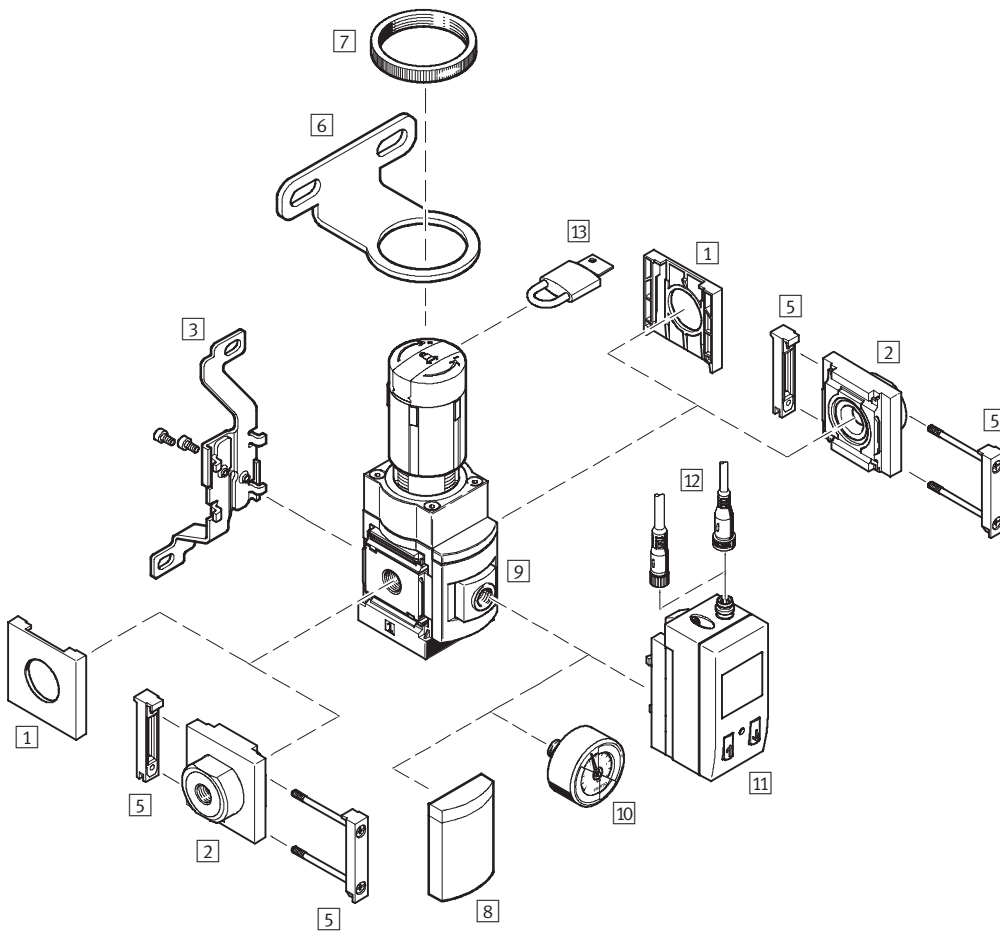
Transfer order code

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Precision pressure regulators MS6-LRP, MS series

Peripherals overview

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-  - Note

Other 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

Precision pressure regulators MS6-LRP, MS series

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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	Mounting bracket MS6-WB	■	■	–	–	ms6-wb
5	Module connector MS6-MV	–	■	■	■	ms6-mv
6	Mounting bracket MS6-WR	■	■	–	–	ms6-wr
7	Knurled nut (included in scope of delivery) MS-LR	■	■	–	–	–
8	Cover plate VS	■	■	■	■	46
9	Adapter plate for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	46
10	Precision pressure gauge A8M/MAP	■	■	■	■	46, 80
11	Pressure sensor SDE1-...-MS AD1 ... AD4	■	■	■	■	46
12	Plug sockets with cable SIM-M8-3.../SIM-M12-4...	■	■	■	■	sim
13	Padlock LRVS-D	■	■	■	■	80
–	Mounting bracket MS6-WP/WPB/WPM	–	■	■	■	ms6-wp

Precision pressure regulators MS6-LRP, MS series

FESTO

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 sizes											
1/4	Thread G1/4										
3/8	Thread G3/8										
1/2	Thread G1/2										
Pressure regulation range											
D2	0.05 ... 0.7 bar										
D4	0.05 ... 2.5 bar										
D5	0.1 ... 4 bar										
D7	0.1 ... 12 bar										
Pressure gauge alternatives											
A8	Adapter plate for EN pressure gauge 1/8, without pressure gauge										

Further variants can be ordered using the modular system

Precision pressure regulators LRP → 46

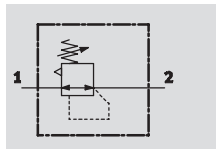
- Connecting plates
- Pressure gauge alternatives
- Rotary knob alternative
- Alternative assembly position
- Security
- Type of mounting
- Alternative flow direction

Precision pressure regulators MS6-LRP, MS series

FESTO

Technical data

Function



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



The precision pressure regulator is suitable for sensitive applications with a required pressure hysteresis of 0.02 bar.

- Good regulation characteristics with low hysteresis and primary pressure compensation
- High flow rate with minimal pressure drop
- Setting values are secured by locking the rotary knob

- 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 with display

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 $\frac{1}{4}$		
Design		Pilot actuated precision diaphragm regulator		
Regulating function		Via secondary venting		
		Output pressure constant		
Type of mounting		Via accessories		
		In-line installation		
		Front panel mounting		
Assembly position		Any		
Actuator lock		Rotary knob with detent		
		Rotary knob with integrated lock		
		Lockable with accessories		
Pressure regulation range	D2 [bar]	0.05 ... 0.7		
	D4 [bar]	0.05 ... 2.5		
	D5 [bar]	0.1 ... 4		
	D7 [bar]	0.1 ... 12 (0.1 ... 10 with pressure sensor variant AD...)		
Max. hysteresis [bar]		0.02		
Pressure display		Via pressure sensor for displaying output pressure and electrical output		
		Via precision pressure gauge for displaying output pressure		
		G $\frac{1}{8}$ prepared		
		G $\frac{1}{4}$ prepared		
Flow rate of secondary venting [l/min]		≥ 220 with pressure regulation range D2		
		≥ 450 with pressure regulation range D4		
		≥ 650 with pressure regulation range D5		
		≥ 900 with pressure regulation range D7		

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

Precision pressure regulators MS6-LRP, MS series

FESTO

Technical data

Standard nominal flow rate q _N [l/min]				
Pneumatic connection		G¼	G¾	G½
Pressure regulation range	D2	800 ¹⁾	1,100 ¹⁾	1,600 ¹⁾
	D4	1,100 ²⁾	1,400 ²⁾	2,300 ²⁾
	D5	1,400 ³⁾	1,700 ³⁾	3,000 ³⁾
	D7	3,000 ⁴⁾	3,300 ⁴⁾	5,000 ⁴⁾

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

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

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

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

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

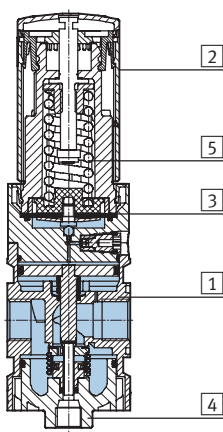
1) Corrosion resistance class 2 to Festo standard 940 070

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]	
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	Polyamide/polyacetate
	Rotary knob with integrated lock E11	Aluminium
3	Diaphragm	Nitrile rubber
4	Bottom cap	Polycarbonate
5	Springs	Steel
–	Seals	Nitrile rubber
	Note on materials	Free of copper and PTFE (not with variant A8M or AD...)

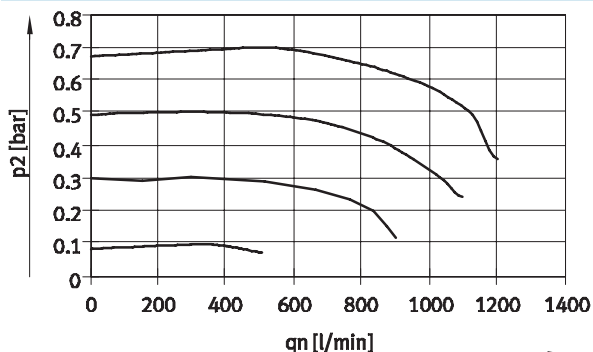
Precision pressure regulators MS6-LRP, MS series

FESTO

Technical data

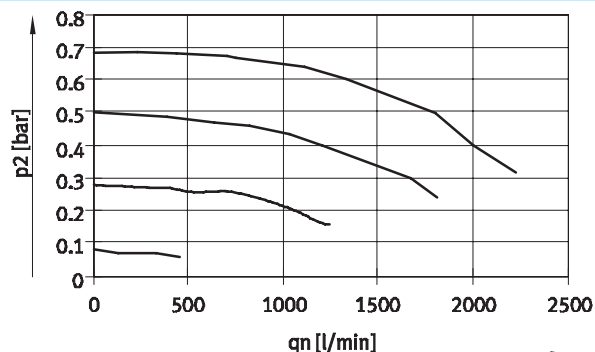
Standard flow rate q_n as a function of the output pressure p_2 ($p_1 = 10$ bar)

MS6-LRP-1/4-D2



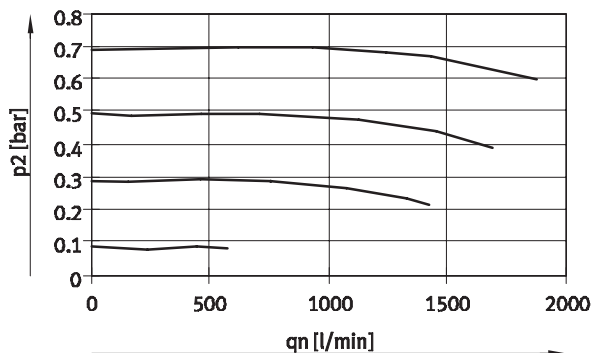
D2: 0.05...0.7 bar

MS6-LRP-3/8-D2



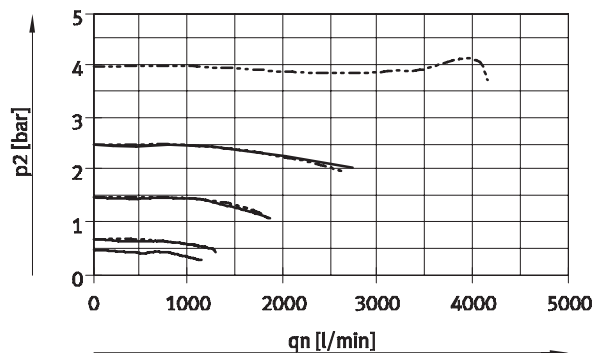
D2: 0.05...0.7 bar

MS6-LRP-1/2-D2



D2: 0.05...0.7 bar

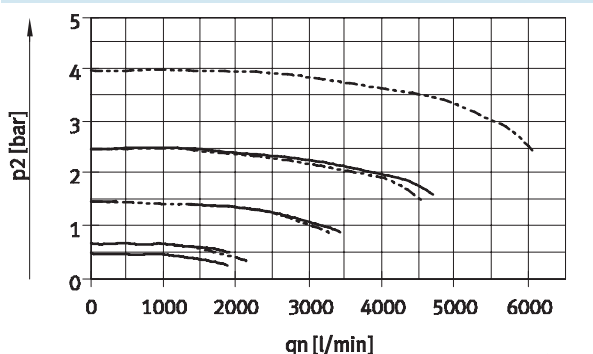
MS6-LRP-1/4-D4/D5



D4: 0.05...2.5 bar

D5: 0.1...4 bar

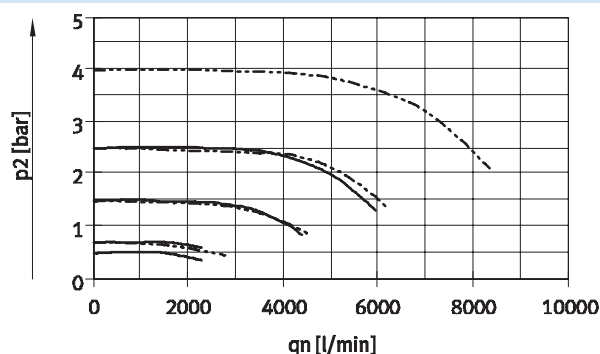
MS6-LRP-3/8-D4/D5



D4: 0.05...2.5 bar

D5: 0.1...4 bar

MS6-LRP-1/2-D4/D5



D4: 0.05...2.5 bar

D5: 0.1...4 bar

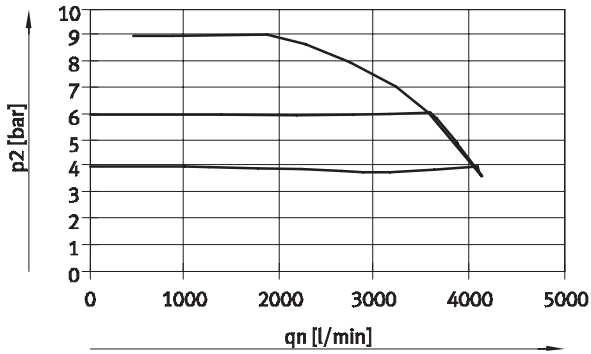
Precision pressure regulators MS6-LRP, MS series

FESTO

Technical data

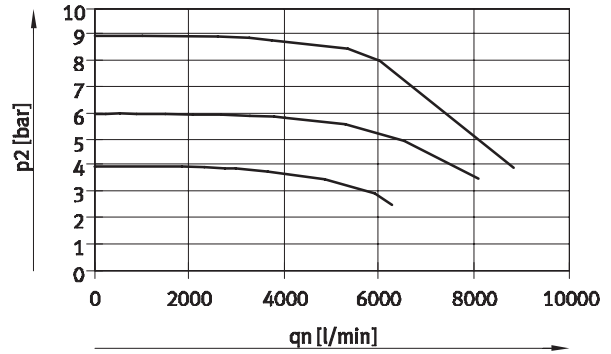
Standard flow rate q_n as a function of the output pressure p_2 ($p_1 = 10$ bar)

MS6-LRP-1/4-D7



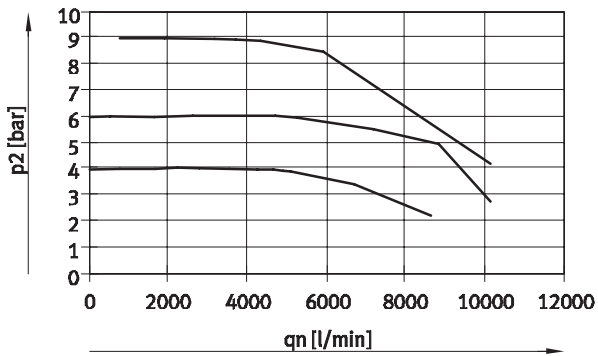
D7: 0.1...12 bar

MS6-LRP-3/8-D7



D7: 0.1...12 bar

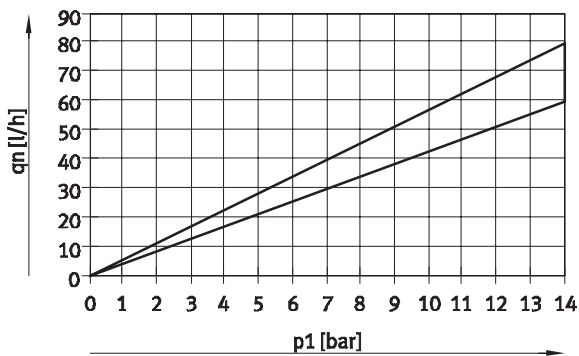
MS6-LRP-1/2-D7



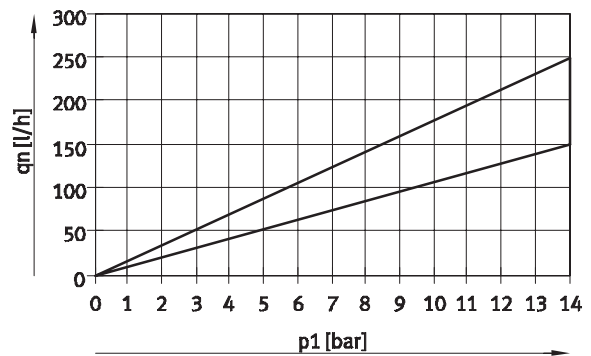
D7: 0.1...12 bar

Internal air consumption q_n as a function of supply pressure p_1

MS6-LRP-...-D2/D4



MS6-LRP-...-D5/D7



Precision pressure regulators MS6-LRP, MS series

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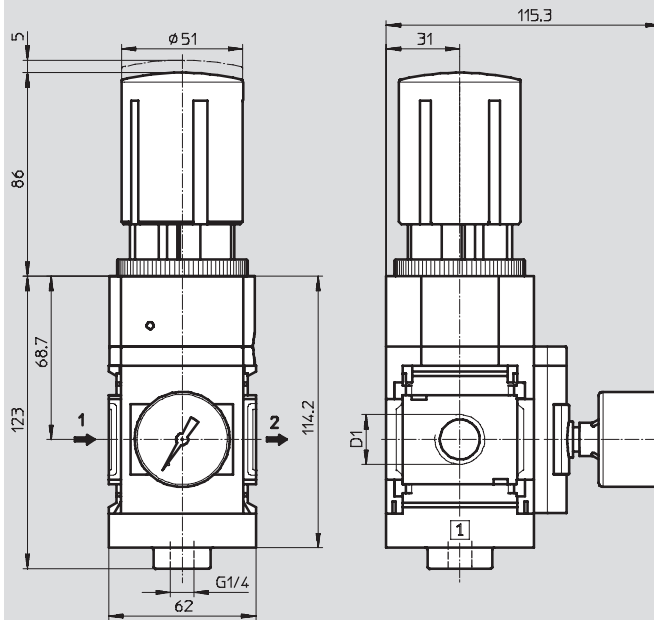
Technical data

Dimensions

Download CAD data → www.festo.com

Adapter plate A8M for EN pressure gauge 1/8, with precision pressure gauge MAP

Technical data → Internet: map



→ Flow direction

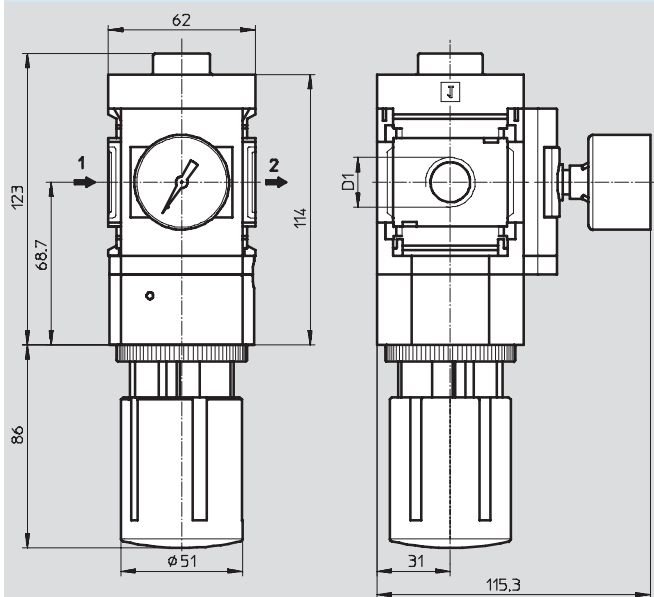
Type	D1
MS6-LRP-1/4-...-A8M	G1/4
MS6-LRP-3/8-...-A8M	G3/8
MS6-LRP-1/2-...-A8M	G1/2

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

Dimensions – Alternative mounting position

Download CAD data → www.festo.com

Rotary knob at bottom KD



→ Flow direction

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

Precision pressure regulators MS6-LRP, MS series

Technical data

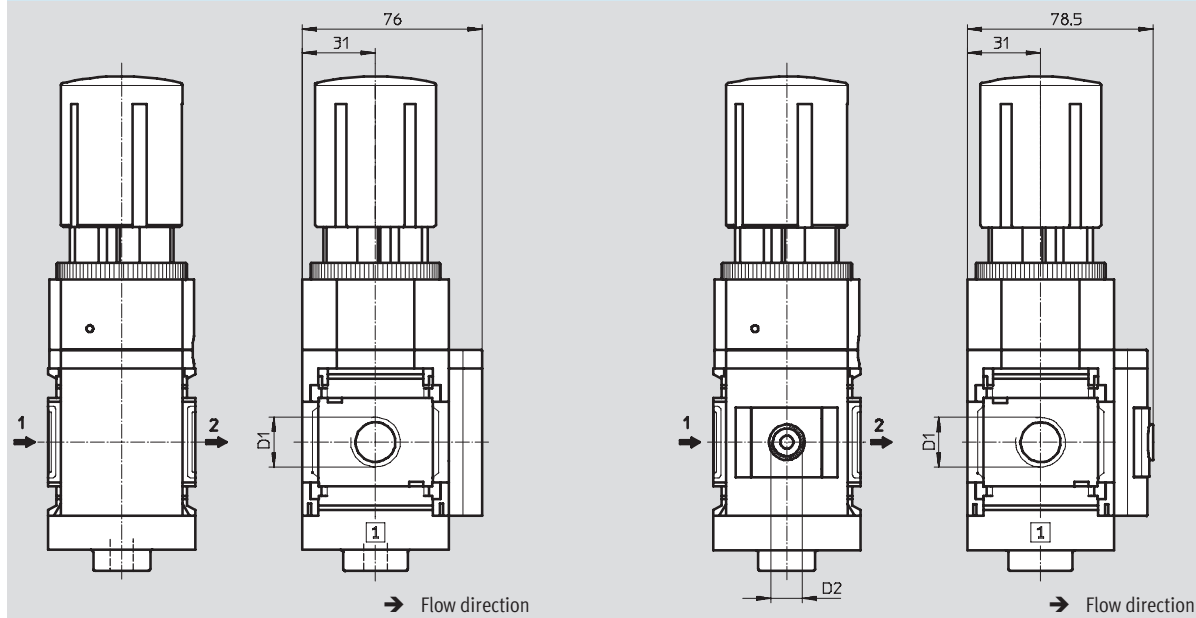
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Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Cover plate VS

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



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

Precision pressure regulators MS6-LRP, MS series

FESTO

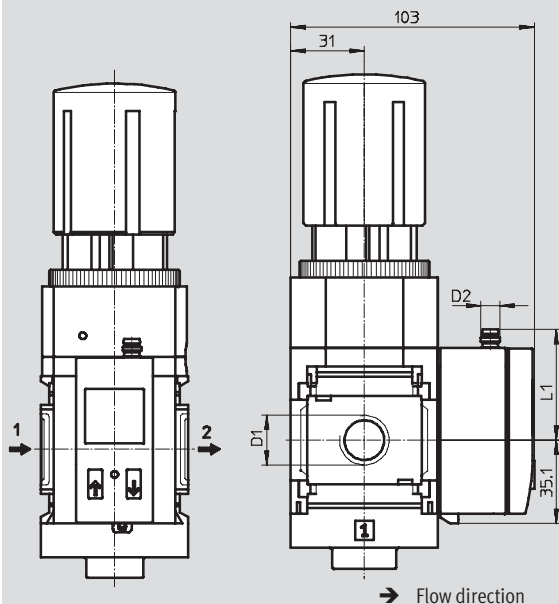
Technical data

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Pressure sensor with display AD1 ... AD4

Technical data → Internet: [sde1](#)



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

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

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

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

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		

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

Precision pressure regulators MS6-LRP, MS series

Technical data

FESTO

Dimensions – Rotary knob

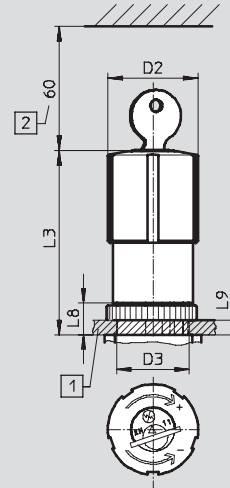
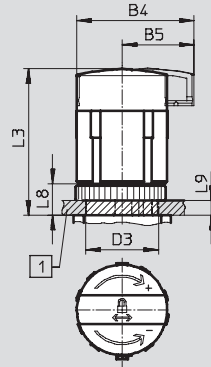
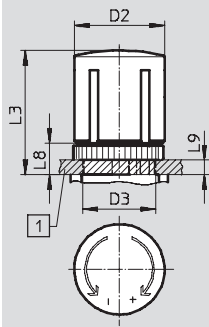
Download CAD data → www.festo.com

For installation into control panel

Standard

Standard, lockable AS

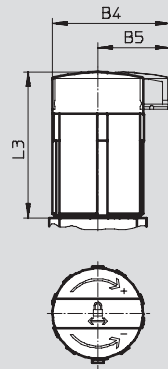
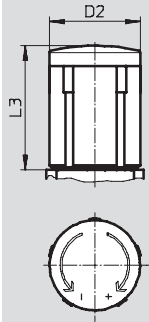
With integrated lock E11



- 1 Max. control panel thickness
- 2 Installation dimensions

Long LD

Long, lockable LD-AS



Type	B4	B5	D2	D3 +1	L3	L8	L9
MS6-LRP-...	–	–	51	44	86	22	14
MS6-LRP-...-AS	67.7	42			95.5		
MS6-LRP-...-E11	–	–			112.1		
MS6-LRP-...-LD	–	–	51	–	86	–	–
MS6-LRP-...-LD-AS	67.7	42			95.5		

Precision pressure regulators MS6-LRP, MS series

FESTO

Technical data

Ordering data			
Adapter plate for EN pressure gauge 1/8, standard rotary knob			
Size	Connection	Part No.	Type
Pressure regulation range 0.05 ... 0.7 bar			
MS6	G1/4	538 004	MS6-LRP-1/4-D2-A8 ¹⁾
	G3/8	538 012	MS6-LRP-3/8-D2-A8 ¹⁾
	G1/2	538 020	MS6-LRP-1/2-D2-A8 ¹⁾
Pressure regulation range 0.05 ... 2.5 bar			
MS6	G1/4	538 006	MS6-LRP-1/4-D4-A8 ¹⁾
	G3/8	538 014	MS6-LRP-3/8-D4-A8 ¹⁾
	G1/2	538 022	MS6-LRP-1/2-D4-A8 ¹⁾
Pressure regulation range 0.1 ... 4 bar			
MS6	G1/4	538 008	MS6-LRP-1/4-D5-A8 ¹⁾
	G3/8	538 016	MS6-LRP-3/8-D5-A8 ¹⁾
	G1/2	538 024	MS6-LRP-1/2-D5-A8 ¹⁾
Pressure regulation range 0.1 ... 12 bar			
MS6	G1/4	538 010	MS6-LRP-1/4-D7-A8 ¹⁾
	G3/8	538 018	MS6-LRP-3/8-D7-A8 ¹⁾
	G1/2	538 026	MS6-LRP-1/2-D7-A8 ¹⁾

1) Free of copper and PTFE

Precision pressure regulators MS6-LRP, MS series

Ordering data – Modular products

FESTO

M Mandatory data →						
Module No.	Series	Size	Function	Connection sizes	Pressure regulation range	Pressure gauge alternatives
538 028	MS	6	LRP	1/4, 3/8, 1/2, AGB, AGC, AGD, AGE	D2 D4 D5 D7	VS A8 A8M A4 AD1 AD2 AD3 AD4
Order example						
538 028	MS	6	LRP	1/2	D4	A4

Ordering table						
Grid dimension	[mm]	62		Condi- tions	Code	Enter code
M Module No.	538 028					
Series	Standard				MS	MS
Size	6				6	6
Function	Precision pressure regulator				-LRP	-LRP
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	0.05 ... 0.7 bar				-D2	
	0.05 ... 2.5 bar				-D4	
	0.3 ... 4 bar				-D5	
	0.5 ... 12 bar				-D7	
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 switch output PNP, 3-pin			1	-AD1	
	Pressure sensor with display, plug M8, 1 switch output NPN, 3-pin			1	-AD2	
	Pressure sensor with display, plug M12, 1 switch output PNP, 4-pin, analogue output 4 ... 20 mA			1	-AD3	
	Pressure sensor with display, plug M12, 1 switch output NPN, 4-pin, analogue output 4 ... 20 mA			1	-AD4	

1 AD1 ... AD4 Measuring range max. 10 bar.
Not with pressure regulation range D2, D4.

Transfer order code

538 028	MS	6	LRP			
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Precision pressure regulators MS6-LRP, MS series

Ordering data – Modular products

FESTO

→ **0 Options**

Rotary knob alternative	Alternative assembly 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		2	-LD	
Alternative assembly position	Rotary knob underneath		3	-KD	
Security	Lockable rotary knob			-AS	
	With integrated lock			-E11	
Type of mounting	Wall mounting bracket with knurled nut for regulator head		4	-WR	
	Mounting bracket		5	-WP	
	Mounting bracket (for retro-fitting M-series)		5	-WPM	
	Mounting bracket			-WB	
Alternative flow direction	Flow direction from right to left (without pressure output, no pressure gauge)			-Z	

- 2 LD** Not with security E11
3 KD Not with mounting type WP.

- 4 WR** Not with rotary knob alternative LD.
5 WP, WPM Only with connecting plate AGB, AGC, AGD or AGE.

Transfer order code

- - - - -

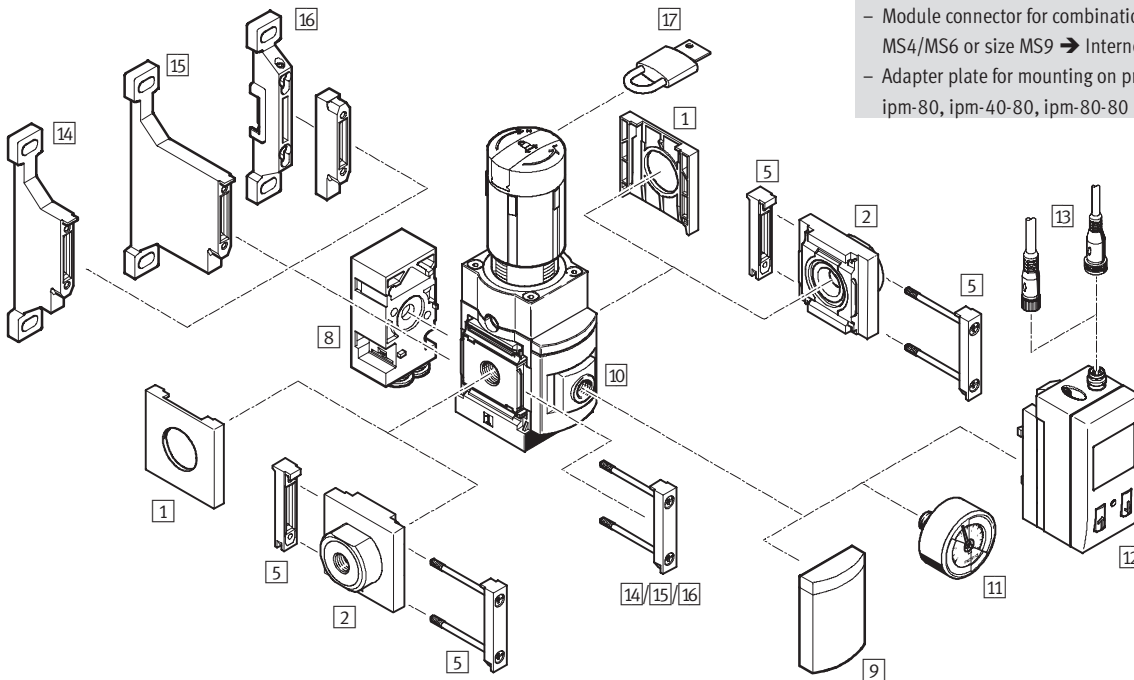
Precision pressure regulators MS6-LRPB, MS series

Peripherals overview

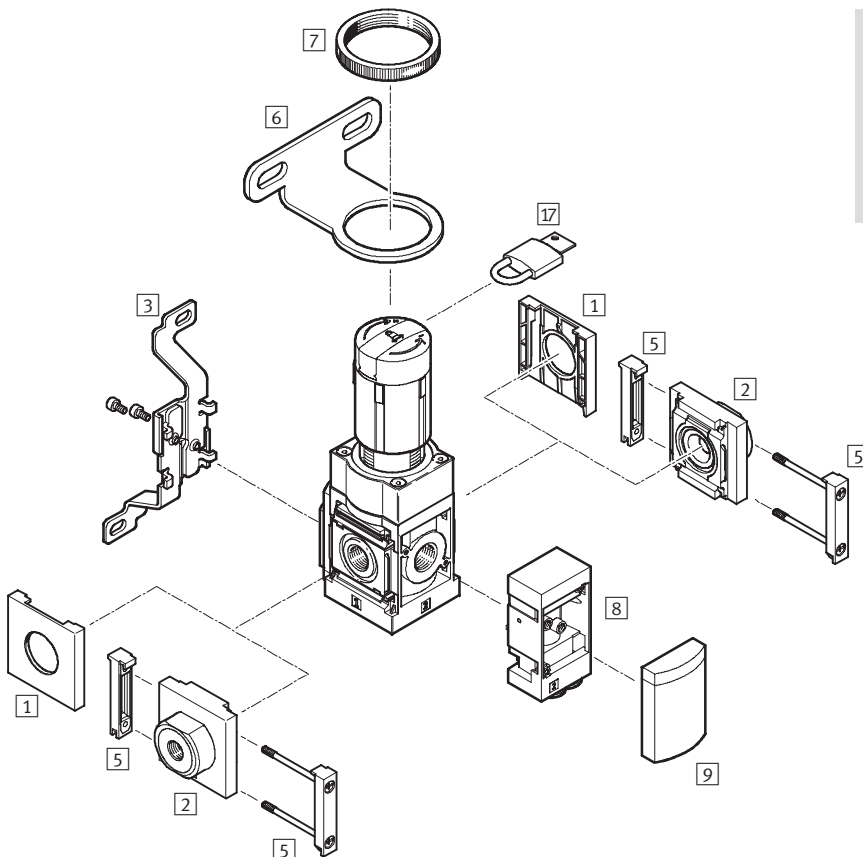
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Pressure output

Rear



Front Z



Precision pressure regulators MS6-LRPB, MS series

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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	Mounting bracket MS6-WB	■	■	–	–	ms6-wb
5	Module connector MS6-MV	–	■	■	■	ms6-mv
6	Mounting bracket MS6-WR	■	■	–	–	ms6-wr
7	Knurled nut (included in scope of delivery) MS-LR	■	■	–	–	–
8	Angled outlet block B...	■	■	■	■	60
9	Cover plate VS	■	■	■	■	60
10	Adapter plate for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	60
11	Precision pressure gauge A8M/MAP	■	■	■	■	60, 80
12	Pressure sensor SDE1-...-MS AD1 ... AD4	■	■	■	■	60
13	Plug sockets with cable SIM-M8-3.../SIM-M12-4...	■	■	■	■	sim
14	Mounting bracket MS6-WP	–	■	■	■	ms6-wp
15	Mounting bracket MS6-WPB	–	■	■	■	ms6-wp
16	Mounting bracket (for retro-fitting M-series) MS6-WPM	–	■	■	■	ms6-wp
17	Padlock LRVS-D	■	■	■	■	80

Precision pressure regulators MS6-LRPB, MS series

FESTO

Type codes

		MS	6	-	LRPB	-	1/2	-	D7	-	A8	-	BD
Series													
MS	Standard service unit												
Size													
6	Grid dimension 62 mm												
Service function													
LRPB	Precision pressure regulator for manifold assembly												
Connection sizes													
1/2	Thread G1/2												
Pressure regulation range													
D2	0.05 ... 0.7 bar												
D4	0.05 ... 2.5 bar												
D5	0.1 ... 4 bar												
D7	0.1 ... 12 bar												
Pressure gauge alternatives													
A8	Adapter plate for EN pressure gauge 1/8, without pressure gauge												
Pressure output													
	Without angled outlet block												
BD	Angled outlet block QS-8												
BE	Angled outlet block QS-10												

Further variants can be ordered using the modular system

Precision pressure regulators LRPB → 60

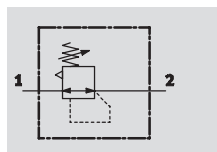
- Connecting plates
- Pressure gauge alternatives
- Rotary knob alternative
- Alternative assembly position
- Security
- Type of mounting
- Alternative flow direction

Precision pressure regulators MS6-LRPB, MS series

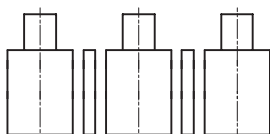
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Technical data

Function



LRPB combination
with through pressure supply for
manifold assembly



- - Flow rate
1,600 ... 5,000 l/min

- - Temperature range
-10 ... +60 °C

- - Input pressure
1 ... 14 bar

- - www.festo.com



The precision pressure regulator is
suitable for sensitive applications
with a required pressure hysteresis of
0.02 bar.

- 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
- Setting values are secured by
locking the rotary knob
- 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 with
display

General technical data			
Size		MS6	
Pneumatic connection 1		G $\frac{1}{2}$	
Pneumatic connection 2		G $\frac{1}{2}$	
		QS-8	
		QS-10	
Pneumatic connection 3 (Secondary venting)		G $\frac{1}{4}$	
Design		Pilot actuated precision diaphragm regulator with through pressure supply	
Regulating function		Via secondary venting	
		Output pressure constant	
Type of mounting		Via accessories	
		In-line installation	
		Front panel mounting	
Assembly position		Any	
Actuator lock		Rotary knob with detent	
		Rotary knob with integrated lock	
		Lockable with accessories	
Pressure regulation range	D2 [bar]	0.05 ... 0.7	
	D4 [bar]	0.05 ... 2.5	
	D5 [bar]	0.1 ... 4	
	D7 [bar]	0.1 ... 12 (0.1 ... 10 with pressure sensor variant AD...)	
Max. hysteresis [bar]		0.02	
Pressure display		Via pressure sensor for displaying output pressure and electrical output	
		Via pressure gauge for displaying output pressure	
		G $\frac{1}{8}$ prepared	
		G $\frac{1}{4}$ prepared	
Flow rate of secondary venting [l/min]		≥ 220 with pressure regulation range D2	
		≥ 450 with pressure regulation range D4	
		≥ 650 with pressure regulation range D5	
		≥ 900 with pressure regulation range D7	

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

Precision pressure regulators MS6-LRPB, MS series

FESTO

Technical data

Standard nominal flow rate q_{nN} [l/min]		
Pressure regulation range	D2	1,600 ¹⁾
	D4	2,300 ²⁾
	D5	3,000 ³⁾
	D7	5,000 ⁴⁾

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

Operating and environmental conditions		
Variant	Standard	Pressure sensor with display AD...
Input pressure [bar]	1 ... 14	1 ... 14
Operating medium	Filtered compressed air, unlubricated, grade of filtration 40 μ m	
Ambient temperature [°C]	-10 ... +60	0 ... +50
Temperature of medium [°C]	-10 ... +60	0 ... +50
Storage temperature [°C]	-10 ... +60	-10 ... +60
Corrosion resistance class CRC ¹⁾	2	

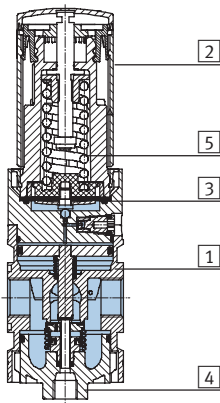
1) Corrosion resistance class 2 to Festo standard 940 070

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]	
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	Polyamide/polyacetate
	Rotary knob with integrated lock E11	Aluminium
3	Diaphragm	Nitrile rubber
4	Bottom cap	Polycarbonate
5	Springs	Steel
-	Seals	Nitrile rubber
	Note on materials	Free of copper and PTFE (not with variant A8M or AD...)

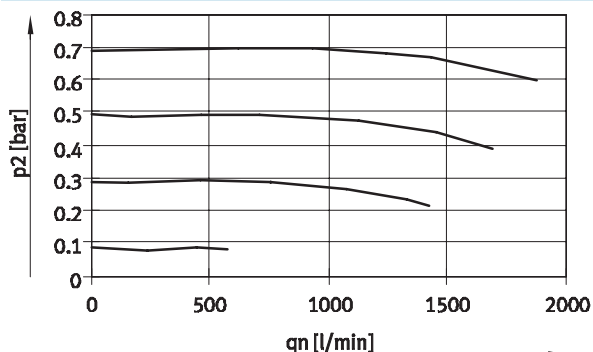
Precision pressure regulators MS6-LRPB, MS series

FESTO

Technical data

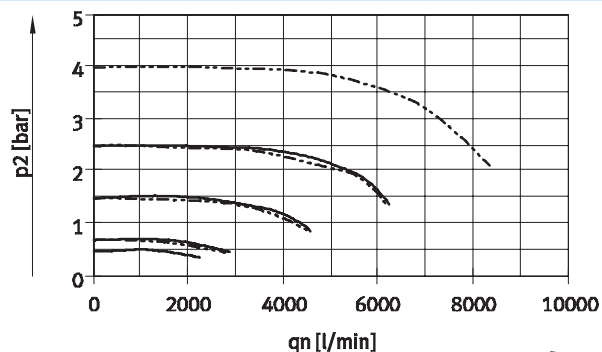
Standard flow rate q_n as a function of the output pressure p_2 ($p_1 = 10$ bar)

MS6-LRPB-1/2-D2



D2: 0.05...0.7 bar

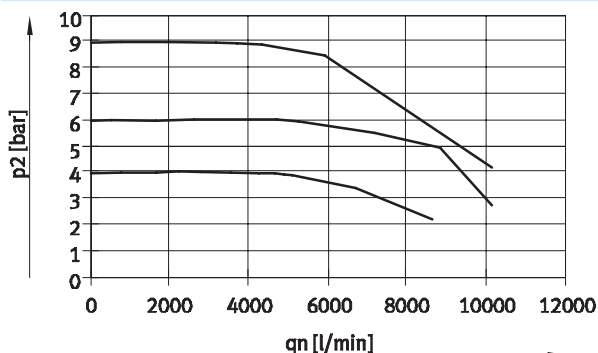
MS6-LRPB-1/2-D4/D5



D4: 0.05...2.5 bar

D5: 0.1...4 bar

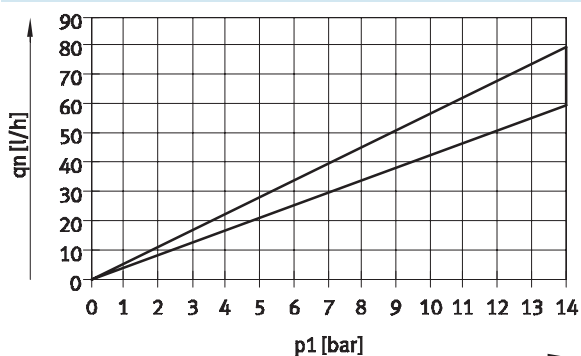
MS6-LRPB-1/2-D7



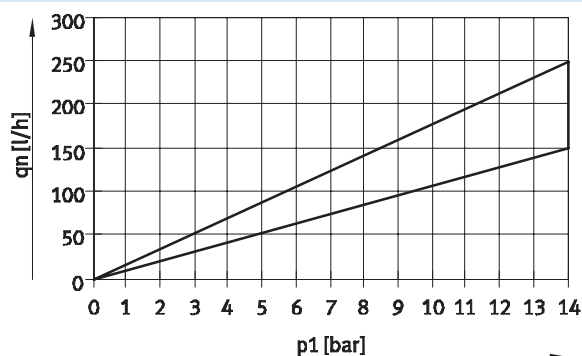
D7: 0.1...12 bar

Internal air consumption q_n as a function of supply pressure p_1

MS6-LRPB-...-D2/D4



MS6-LRPB-...-D5/D7



Precision pressure regulators MS6-LRPB, MS series

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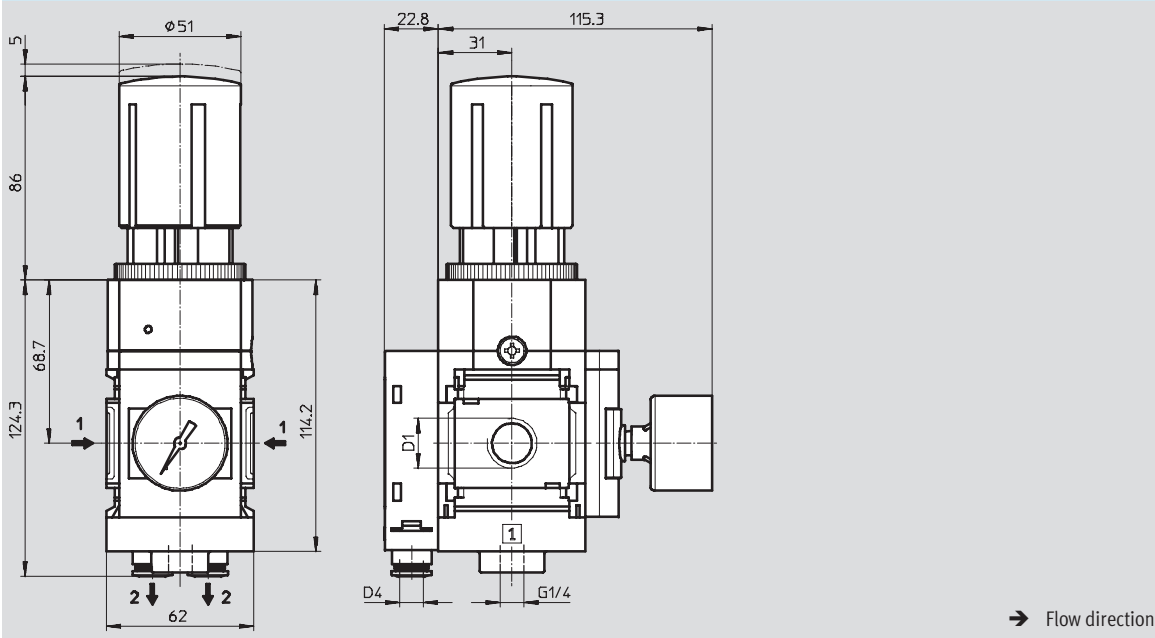
Technical data

Dimensions

Download CAD data → www.festo.com

Adapter plate A8M for EN pressure gauge 1/8, with precision pressure gauge, angled outlet block BD/BE

Technical data → Internet: map



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

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

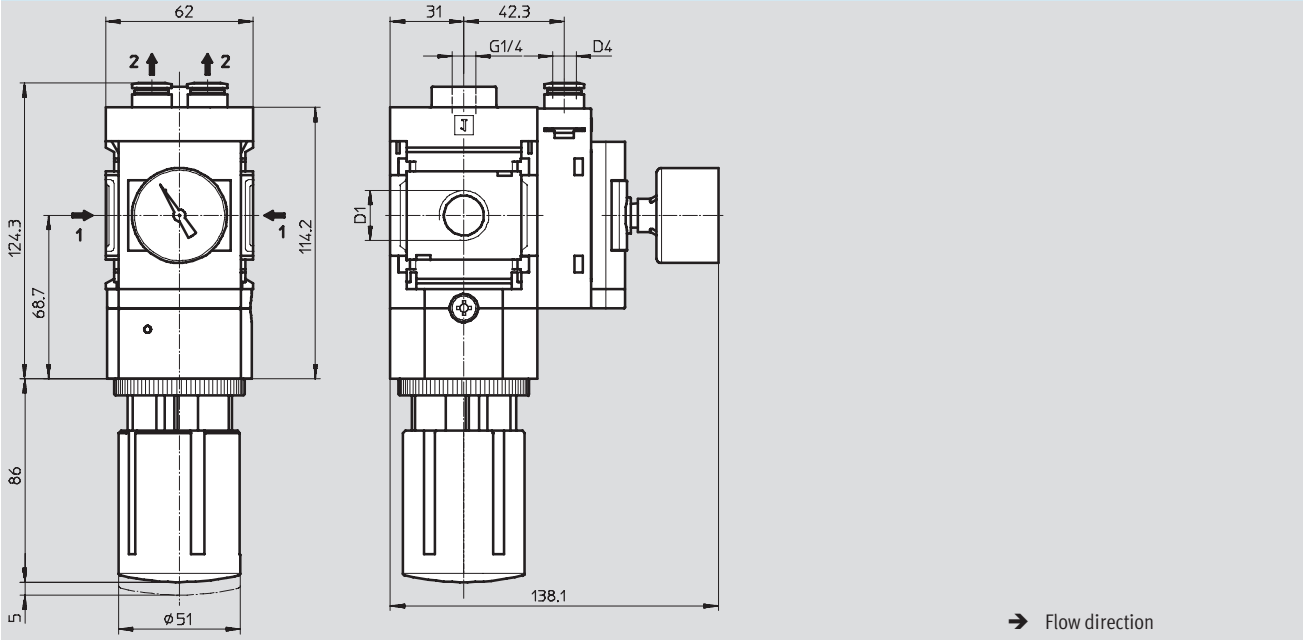
Precision pressure regulators MS6-LRPB, MS series

Technical data



Dimensions – Alternative mounting position
Download CAD data → www.festo.com

Rotary knob underneath KD, angled outlet block BD/BE



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

Precision pressure regulators MS6-LRPB, MS series

Technical data

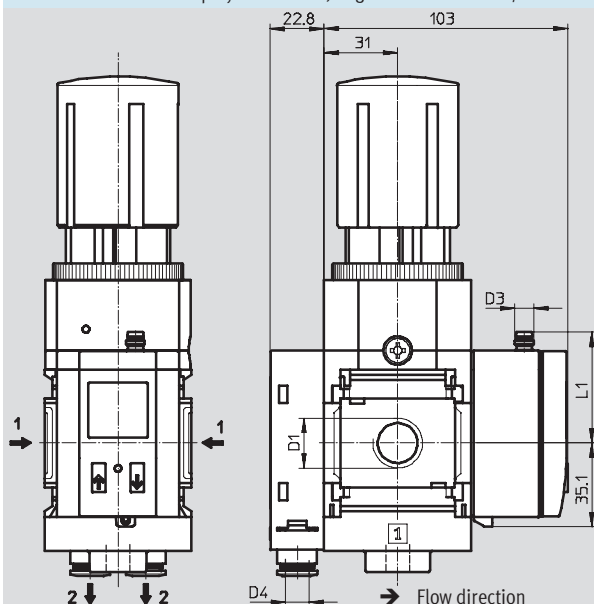
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Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Pressure sensor with 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 switch output
PNP

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

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

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

Type	D1	D3	D4	L1
MS6-LRPB-1/2-...-AD1/AD2-BD	G $\frac{1}{2}$	M8x1	QS-8	46.7
MS6-LRPB-1/2-...-AD1/AD2-BE			QS-10	
MS6-LRPB-1/2-...-AD3/AD4-BD	G $\frac{1}{2}$	M12x1	QS-8	55.8
MS6-LRPB-1/2-...-AD3/AD4-BE			QS-10	

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

Precision pressure regulators MS6-LRPB, MS series

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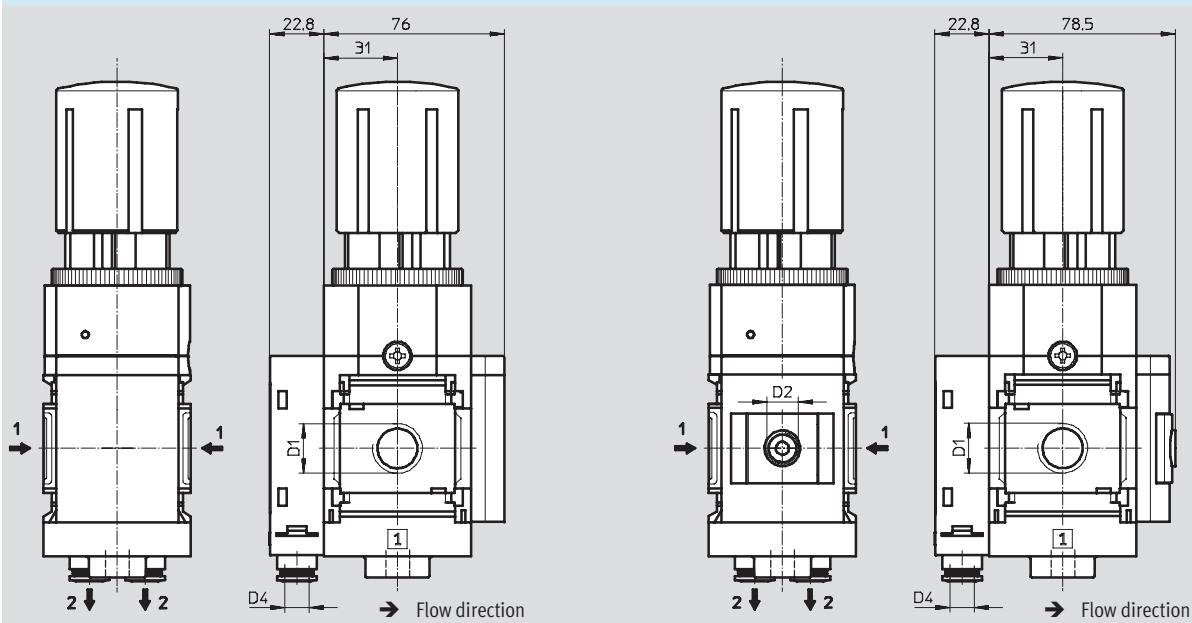
Technical data

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Cover plate VS, angled outlet block BD/BE

Adapter plate A8/A4 for EN pressure gauge $\frac{1}{8}/\frac{1}{4}$, without pressure gauge, angled outlet block BD/BE



Type	D1	D2	D4
MS6-LRPB-1/2-...-VS-BD	G $\frac{1}{2}$	-	QS-8
MS6-LRPB-1/2-...-VS-BE			QS-10
MS6-LRPB-1/2-...-A8-BD	G $\frac{1}{2}$	G $\frac{1}{8}$	QS-8
MS6-LRPB-1/2-...-A8-BE			QS-10
MS6-LRPB-1/2-...-A4-BD	G $\frac{1}{2}$	G $\frac{1}{4}$	QS-8
MS6-LRPB-1/2-...-A4-BE			QS-10

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

Precision pressure regulators MS6-LRPB, MS series

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Technical data

Dimensions – Rotary knob

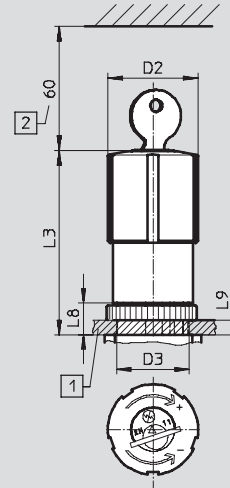
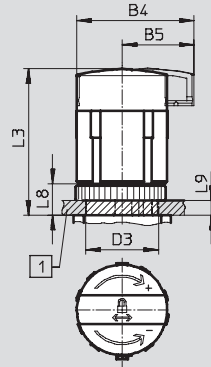
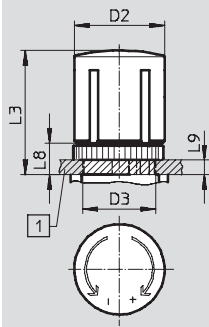
Download CAD data → www.festo.com

For installation into control panel

Standard

Standard, lockable AS

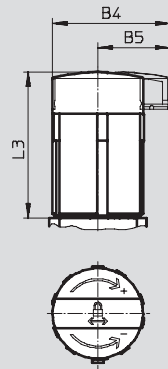
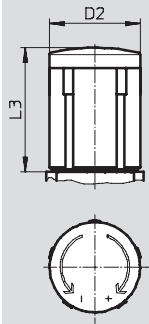
With integrated lock E11



- 1 Max. control panel thickness
- 2 Installation dimensions

Long LD

Long, lockable LD-AS



Type	B4	B5	D2	D3 +1	L3	L8	L9
MS6-LRPB-...	–	–	51	44	86	22	14
MS6-LRPB-...-AS	67.7	42			95.5		
MS6-LRPB-...-E11	–	–			112.1		
MS6-LRPB-...-LD	–	–	51	–	86	–	–
MS6-LRPB-...-LD-AS	67.7	42			95.5		

Precision pressure regulators MS6-LRPB, MS series

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Technical data

Ordering data			
Adapter plate A8 for EN pressure gauge 1/8, standard rotary knob			
Size	Connection	Pressure output to rear without angled outlet block	
		Part No.	Type
Pressure regulation range 0.05 ... 0.7 bar			
MS6	G1/2	534 911	MS6-LRPB-1/2-D2-A8 ¹⁾
Pressure regulation range 0.05 ... 2.5 bar			
MS6	G1/2	534 914	MS6-LRPB-1/2-D4-A8 ¹⁾
Pressure regulation range 0.1 ... 4 bar			
MS6	G1/2	534 917	MS6-LRPB-1/2-D5-A8 ¹⁾
Pressure regulation range 0.1 ... 12 bar			
MS6	G1/2	534 920	MS6-LRPB-1/2-D7-A8 ¹⁾

1) Free of copper and PTFE

Ordering data			
Adapter plate A8 for EN pressure gauge 1/8, standard rotary knob			
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			
MS6	G1/2	534 865 MS6-LRPB-1/2-D2-A8-BD ¹⁾	534 913 MS6-LRPB-1/2-D2-A8-BE ¹⁾
Pressure regulation range 0.05 ... 2.5 bar			
MS6	G1/2	534 868 MS6-LRPB-1/2-D4-A8-BD ¹⁾	534 916 MS6-LRPB-1/2-D4-A8-BE ¹⁾
Pressure regulation range 0.1 ... 4 bar			
MS6	G1/2	534 871 MS6-LRPB-1/2-D5-A8-BD ¹⁾	534 919 MS6-LRPB-1/2-D5-A8-BE ¹⁾
Pressure regulation range 0.1 ... 12 bar			
MS6	G1/2	534 874 MS6-LRPB-1/2-D7-A8-BD ¹⁾	534 922 MS6-LRPB-1/2-D7-A8-BE ¹⁾

1) Free of copper and PTFE

Precision pressure regulators MS6-LRPB, MS series

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Ordering data – Modular products

Mandatory data →						
Module No.	Series	Size	Function	Connection sizes	Pressure regulation range	Pressure gauge alternatives
535 007	MS	6	LRPB	1/2, AGB, AGC, AGD, AGE	D2 D4 D5 D7	VS A8 A8M A4 AD1 AD2 AD3 AD4
Order example						
535 007	MS	6	- LRPB	- AGD	- D5	- VS

Ordering table						
Grid dimension	[mm]	62		Condi- tions	Code	Enter code
M Module No.	535 007					
Series	Standard				MS	MS
Size	6				6	6
Function	Precision pressure regulator for manifold assembly				-LRPB	-LRPB
Connection sizes	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	0.05 ... 0.7 bar				-D2	
	0.05 ... 2.5 bar				-D4	
	0.1 ... 4 bar				-D5	
	0.1 ... 12 bar				-D7	
Pressure gauge alternatives	Cover plate			1	-VS	
	Adapter plate for EN pressure gauge 1/8, without pressure gauge			2	-A8	
	Adapter plate for EN pressure gauge 1/8, with precision pressure gauge			2	-A8M	
	Adapter plate for EN pressure gauge 1/4, without pressure gauge			2	-A4	
	Pressure sensor with display, plug M8, 1 switch output PNP, 3-pin			2 3	-AD1	
	Pressure sensor with display, plug M8, 1 switch output NPN, 3-pin			2 3	-AD2	
	Pressure sensor with display, plug M12, 1 switch output PNP, 4-pin, analogue output 4 ... 20 mA			2 3	-AD3	
	Pressure sensor with display, plug M12, 1 switch output NPN, 4-pin, analogue output 4 ... 20 mA			2 3	-AD4	

- 1 VS Must be selected with alternative flow direction Z without alternative assembly position KD or without alternative pressure output BD, BE.
Must be selected with alternative assembly position KD without alternative flow direction Z or without alternative pressure output BD, BE.

- 2 A8, A8M, A4, AD1 ... AD4 In combination with alternative flow direction Z only with alternative assembly position KD.
3 AD1 ... AD4 Measuring range max. 10 bar.
Not with pressure regulation range D2, D4.

Transfer order code

535 007	MS	6	-	LRPB	-		-		-	
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Precision pressure regulators MS6-LRPB, MS series

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Ordering data – Modular products

Options					
Rotary knob alternative	Alternative assembly 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	4	-LD	
	Alternative assembly position	Rotary knob underneath	5	-KD	
	Security	Lockable rotary knob		-AS	
		With integrated lock		-E11	
	Alternative pressure output	Angled outlet block QS-8		-BD	
		Angled outlet block QS-10		-BE	
	Type of mounting	Wall mounting bracket with knurled nut for regulator head	6	-WR	
		Mounting bracket	7 8	-WP	
		Mounting bracket (for retro-fitting M-series)	7 9	-WPM	
		Wall mounting plate for large wall gap	7 10	-WPB	
		Mounting bracket	9	-WB	
	Alternative flow direction	Pressure output to front (without pressure output, no pressure gauge)		-Z	

- | | |
|--|---|
| <p>4 LD Not with security E11</p> <p>5 KD In combination with pressure gauge alternatives A8, A4, AD1, AD2, AD3, AD4 only with alternative flow direction Z.</p> <p>6 WR Only with alternative flow direction Z.
Not with long rotary knob LD.
Not with alternative assembly position KD.</p> <p>7 WP, WPM, WPB Only with connecting plate AGB, AGC, AGD or AGE.</p> | <p>8 WP Not with alternative assembly position KD.
Either only with alternative flow direction Z or only with alternative pressure output BD, BE.</p> <p>9 WPM, WB Either only with alternative flow direction Z or only with alternative assembly position KD</p> <p>10 WPB Not with alternative assembly position KD.
Not with alternative pressure output BD, BE.
Not with alternative flow direction Z.</p> |
|--|---|

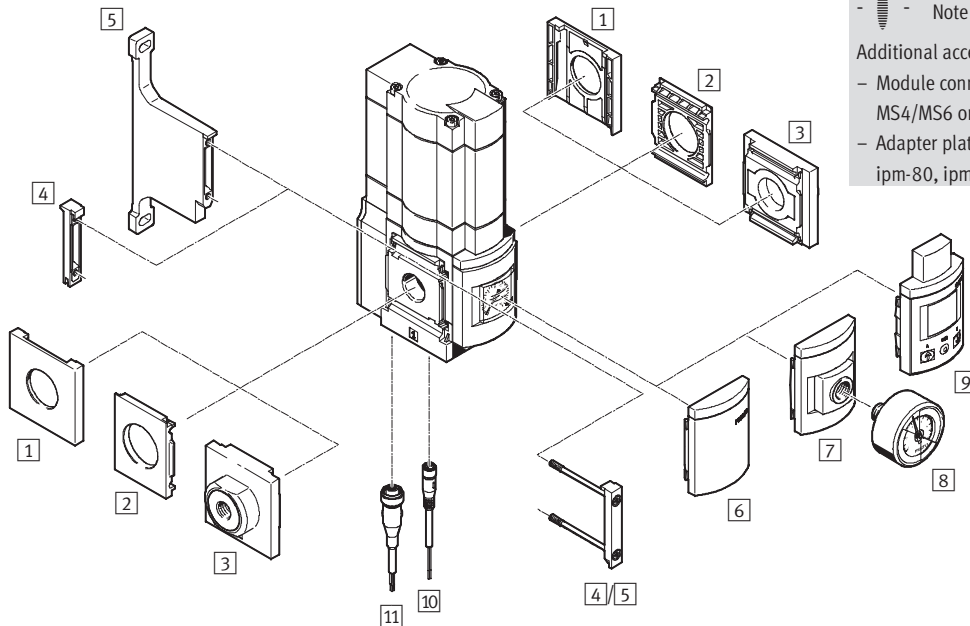
Transfer order code

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Electrical pressure regulators MS6-LRE, MS series

Peripherals overview

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- Note

Additional accessories:

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

Mounting attachments and accessories						
		Individual unit		Combination		➔ Page/Internet
		Without connect- ing plate	With connecting plate	Without connect- ing plate	With connecting plate	
1	Cover cap MS6-END	–	–	■	–	ms6-end
2	Mounting plate MS6-AEND	■ ¹⁾	–	■ ²⁾	–	ms6-aend
3	Connecting plate MS6-AG...	–	■ ¹⁾	–	■ ²⁾	ms6-ag
4	Module connector MS6-MV	–	–	■	■	ms6-mv
5	Mounting bracket MS6-WPB	■	■	■	■	ms6-wpb
6	Cover plate VS	■	■	■	■	70
7	Adapter plate for EN pressure gauge 1/4 A4	■	■	■	■	70
8	Pressure gauge MA	■	■	■	■	80
9	Control unit with display OP	■	■	■	■	70
10	Plug socket with cable SIM-M8-3...	■	■	■	■	sim
11	Plug socket with cable SIM-M12-5...	■	■	■	■	sim

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

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

Electrical pressure regulators MS6-LRE, MS series

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Type codes

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

Further variants can be ordered using the modular system

Electrical pressure regulator LRE → 70

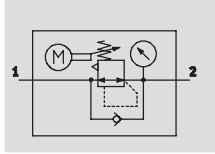
- Connecting plates
- Pressure regulation range
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Sensor cables
- Supply cables
- Type of mounting
- Alternative flow direction

Electrical pressure regulators MS6-LRE, MS series

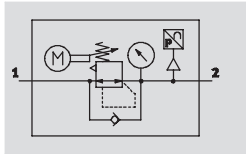
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Technical data

Function
with pressure gauge



with pressure gauge and integrated
pressure sensor



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

 Flow rate
2,200 ... 7,500 l/min

 Temperature range
0 ... +50 °C

 Input pressure
0.8 ... 20 bar



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

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

using the optional control and display unit.

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

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

General technical data				
Size		MS6		
Pneumatic connection 1, 2		G1/4	G3/8	G1/2
Design		Electrically adjustable pressure regulator		
Regulating function		With primary pressure compensation		
		With/without secondary venting		
		Output pressure constant		
Type of mounting		Via accessories		
		In-line installation		
Assembly position		Any, preferably vertical		
Pressure regulation range	D5 [bar]	0.3 ... 4		
	D6 [bar]	0.3 ... 7		
	D7 [bar]	0.5 ... 12		
	D8 [bar]	0.5 ... 16		
Max. hysteresis [bar]		0.25		
Pressure indicator		With pressure gauge		
		With control unit		

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

Electrical pressure regulators MS6-LRE, MS series

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Technical data

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

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

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

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

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

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

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

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

Weights [g]	
Electrical pressure regulator	1,280

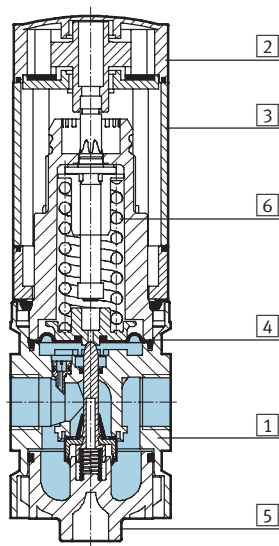
Electrical pressure regulators MS6-LRE, MS series

Technical data

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Materials

Sectional view



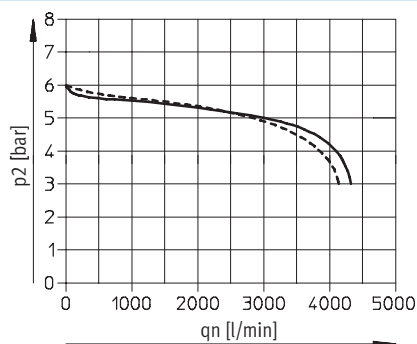
Electrical pressure regulator

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

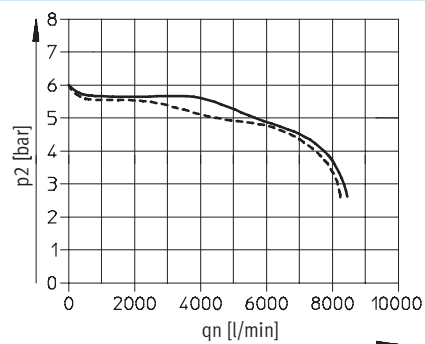
Standard flow rate q_n as a function of output pressure p_2

MS6-LRE-1/4

Primary pressure $p_1 = 10$ bar

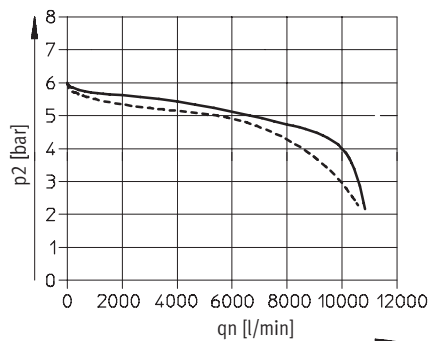


MS6-LRE-3/8



MS6-LRE-1/2

Primary pressure $p_1 = 10$ bar



Electrical pressure regulators MS6-LRE, MS series

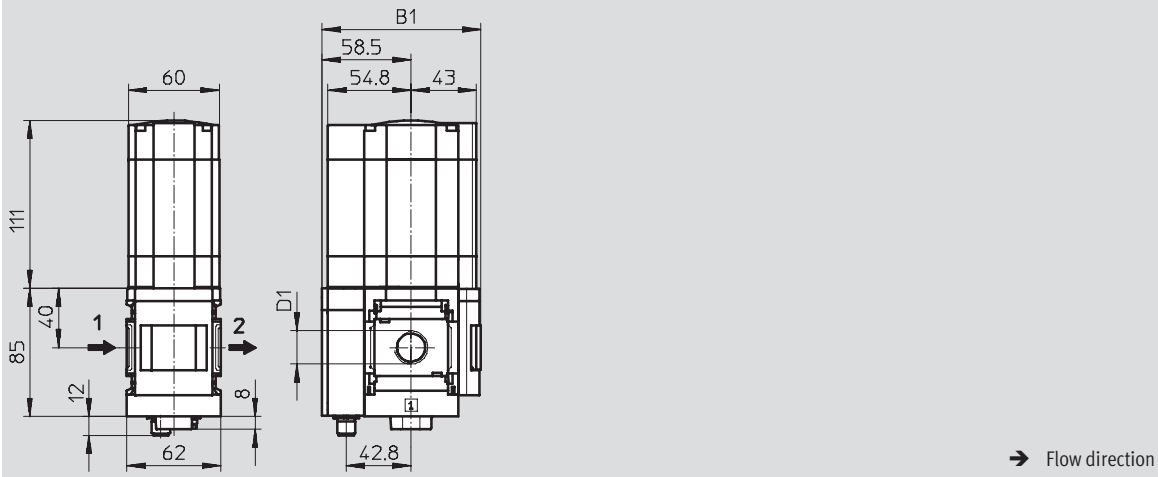
Technical data

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Dimensions – Standard

Download CAD data → www.festo.com

With pressure gauge, display unit [bar]



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

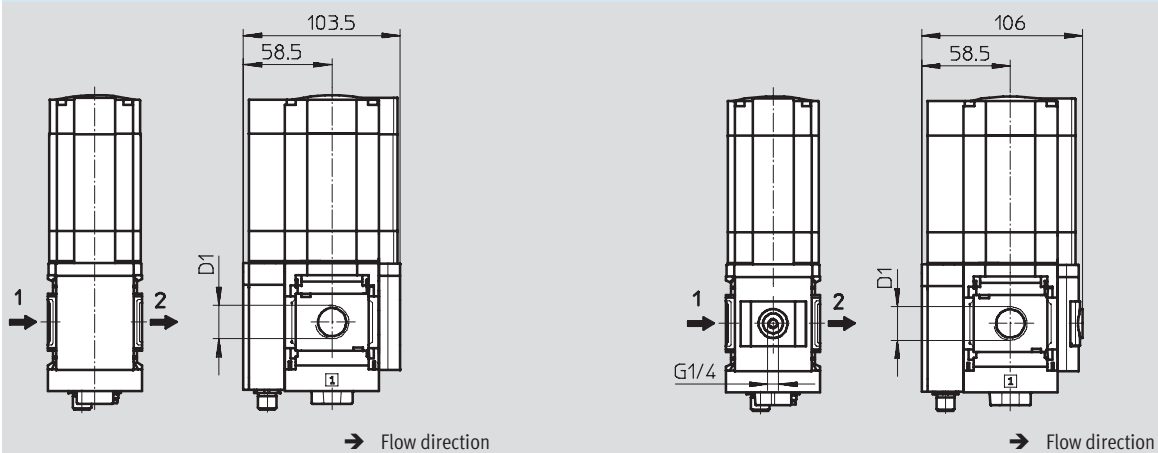
• Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Cover plate VS

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



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

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

Electrical pressure regulators MS6-LRE, MS series

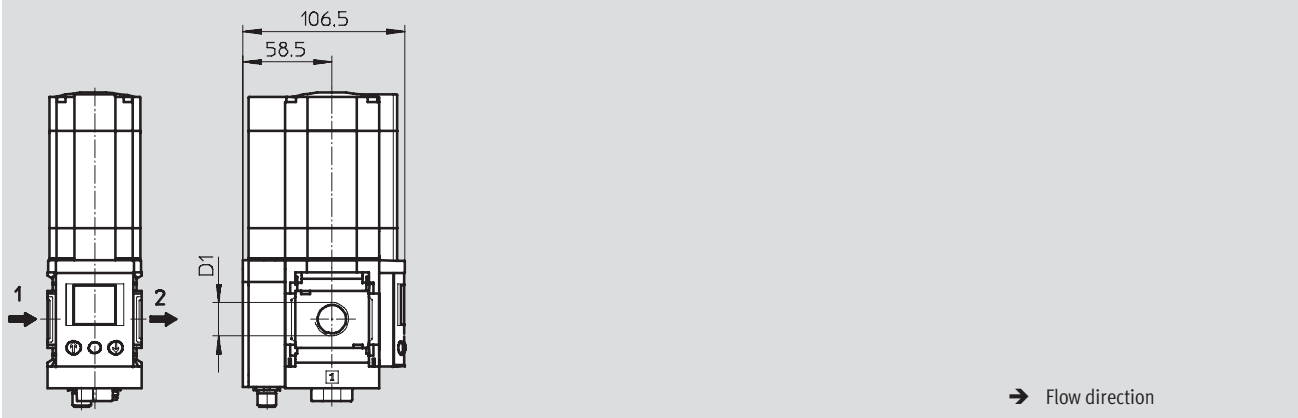
FESTO

Technical data

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Control unit with display OP



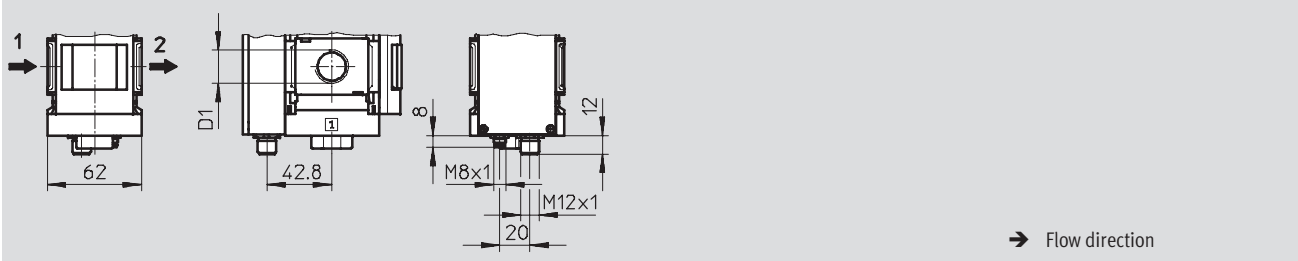
Type	D1
MS6-LRE-1/4	G1/4
MS6-LRE-3/8	G3/8
MS6-LRE-1/2	G1/2

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

Dimensions – Electrically controlled pressure output

Download CAD data → www.festo.com

Integrated pressure sensor with electrical output PI/PU



Electrical pressure regulators MS6-LRE, MS series

FESTO

Technical data

Ordering data					
Pressure gauge					
Size	Connection	Pressure regulation range 0.3... 7 bar		Pressure regulation range 0.5... 12 bar	
		Part No.	Type	Part No.	Type
Standard					
MS6	G1¼	535 358	MS6-LRE-1¼-D6	535 364	MS6-LRE-1¼-D7
	G3⁄8	535 372	MS6-LRE-3⁄8-D6	535 378	MS6-LRE-3⁄8-D7
	G1⁄2	535 348	MS6-LRE-1⁄2-D6	535 354	MS6-LRE-1⁄2-D7
Electrically controlled pressure output (integrated pressure sensor with voltage output), M8x1 plug, 3-pin					
MS6	G1¼	535 360	MS6-LRE-1¼-D6-PI	535 366	MS6-LRE-1¼-D7-PI
	G3⁄8	535 374	MS6-LRE-3⁄8-D6-PI	535 380	MS6-LRE-3⁄8-D7-PI
	G1⁄2	535 350	MS6-LRE-1⁄2-D6-PI	535 356	MS6-LRE-1⁄2-D7-PI
Electrically controlled pressure output (integrated pressure sensor with voltage output), M8x1 plug, 3-pin					
MS6	G1¼	535 362	MS6-LRE-1¼-D6-PU	535 369	MS6-LRE-1¼-D7-PU
	G3⁄8	535 376	MS6-LRE-3⁄8-D6-PU	535 382	MS6-LRE-3⁄8-D7-PU
	G1⁄2	535 352	MS6-LRE-1⁄2-D6-PU	535 357	MS6-LRE-1⁄2-D7-PU

Electrical pressure regulators MS6-LRE, MS series

Ordering data – Modular products

FESTO

M Mandatory data →					
Module No.	Series	Size	Function	Connection sizes	Pressure regulation range
535 191	MS	6	LRE	1/4, 3/8, 1/2, AGB, AGC, AGD, AGE	D5 D6 D7 D8
Order example					
535 191	MS	6	- LRE	- AGC	- D6

Ordering table					
Grid dimension [mm]		62	Condi- tions	Code	Enter code
M	Module No.	535 191			
	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

535 191	MS	6	-	LRE	-		-	
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Electrical pressure regulators MS6-LRE, MS series

FESTO

Ordering data – Modular products

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

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

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

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

Transfer order code

- - - - - - - -

Pressure regulators MS12-LR, MS series

Peripherals overview

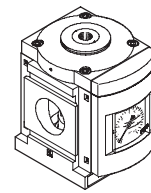
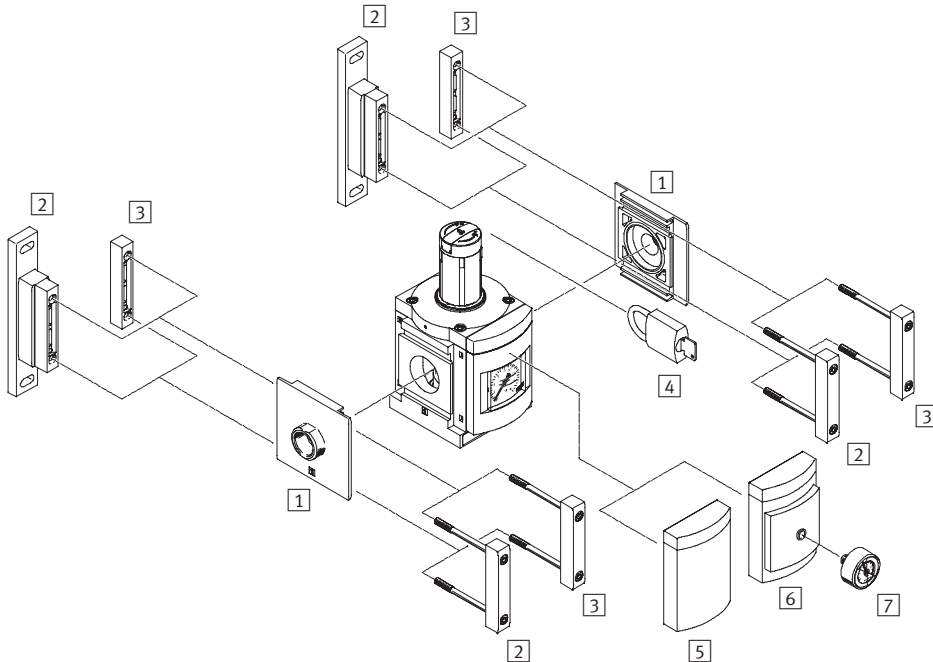
FESTO

Pressure regulator LR

Standard

Variant PO

pneumatically actuated



- - Note

Additional accessories:

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

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	Padlock (except variant PO) LRVS-D	80
5	Cover plate VS	78
6	Adapter for EN pressure gauge 1/4 A4	78
7	Pressure gauge MA	80

Pressure regulators MS12-LR, MS series

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Type codes

		MS	12	-	LR	-	G	-	D7	-		-	LD	-	AS
Series															
MS	Standard service unit														
Size															
12	Grid dimension 124 mm														
Service function															
LR	Pressure regulator														
Connection size															
G	Module without connecting thread, without connecting plate Connecting plates → Accessories														
Pressure regulation range															
D7	0.5 ... 12 bar														
D8	0.5 ... 16 bar														
Alternative operating principle															
	No alternative operating principle														
PO	With pneumatic setpoint specification														
Rotary knob															
	No rotary knob														
LD	Long rotary knob														
Security															
	No lockable rotary knob														
AS	Lockable rotary knob														

Further variants can be ordered using the modular system

Pressure regulators LR → 78

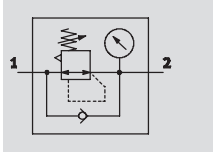
- Connecting plates
- Pressure regulation range
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Rotary knob
- Security
- Type of mounting
- Alternative flow direction

Pressure regulators MS12-LR, MS series

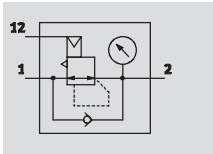
Technical data

FESTO

Function
with pressure gauge



with pressure gauge and pneumatic
setpoint specification PO



- - Flow rate
13,000 ... 22,000 l/min

- - Temperature range
-10 ... +60 °C

- - Input pressure
0.8 ... 21 bar

- - www.festo.com

Wearing parts kits
➔ 77

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 control characteristics with low hysteresis and primary pressure compensation
- High flow rate with minimal pressure drop
- Setting values are secured by locking the rotary knob
- Rotary knob can be locked using accessories
- With secondary venting
- Three pressure regulation ranges: 0.3 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Pressure gauge connection for different fitting options

General technical data				
Pneumatic connection 1, 2 ¹⁾		G1	G1¼	G1½
Pilot air connection 12 for variant PO		G¼		
Design		Pressure regulator with/without pressure gauge		
		Pilot actuated diaphragm regulator (except variant PO)		
		Diaphragm regulator (variant PO)		
Regulating function		With primary pressure compensation		
		With secondary venting		
		Output pressure constant		
Type of mounting		Via accessories		
		In-line installation		
Assembly position		Any		
Actuator lock		Rotary knob with detent		
		Rotary knob with integrated lock		
		Lockable with accessories		
Pressure regulation range	D6 [bar]	0.3 ... 7		
	D7 [bar]	0.5 ... 12		
	D8 [bar]	0.5 ... 16		
Max. hysteresis [bar]		0.4		
Pressure indicator		With pressure gauge		
Flow rate of secondary venting [l/min]		≤ 600		

1) Dependent on connecting plate selected, must be ordered separately as an accessory ➔ Internet: ms12-ag
- - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Standard nominal flow rate q _N ¹⁾ [l/min]				
Pneumatic connection	G1	G1¼	G1½	G2
In main flow direction 1 ➔ 2	13,000	13,500	16,000	22,000

1) Dependent on connecting plate selected, must be ordered separately as an accessory ➔ Internet: ms12-ag
Measured at p₁ = 10 bar and p₂ = 6 bar, Δp = 0.5 bar

Pressure regulators MS12-LR, MS series

FESTO

Technical data

Operating and environmental conditions		
Input pressure	[bar]	0.8 ... 21
Operating medium		Compressed air, air quality class 5.7.- to DIN ISO 8573-1
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	-10 ... +60
Storage temperature	[°C]	-10 ... +60
Corrosion resistance	CRC ¹⁾	2

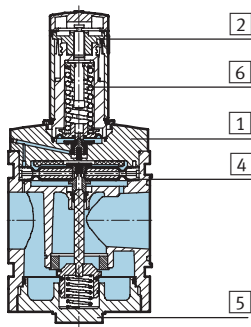
1) Corrosion resistance class 2 according to Festo standard 940 070

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

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

Materials

Sectional view



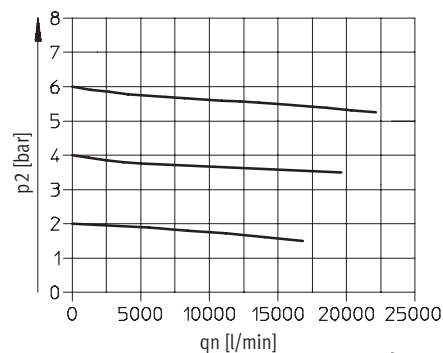
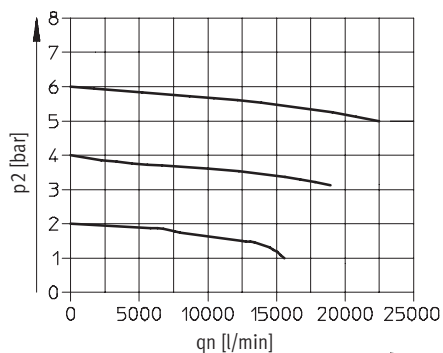
Pressure regulator		
1	Body	Die-cast aluminium
2	Rotary knob	Polyamide/polyacetate
	Rotary knob with integrated lock E11	Aluminium
4	Diaphragm	Nitrile rubber
5	Bottom cap	Wrought aluminium alloy
6	Springs	Steel
-	Seals	Nitrile rubber
	Note on materials	Free of copper and PTFE only with cover plate VS

Standard flow rate q_n as a function of output pressure p_2

With connecting plate MS12-AGF
Pneumatic connection G1

With connecting plate MS12-AGG
Pneumatic connection G1¼

Primary pressure $p_1 = 10$ bar



Pressure regulators MS12-LR, MS series

Technical data

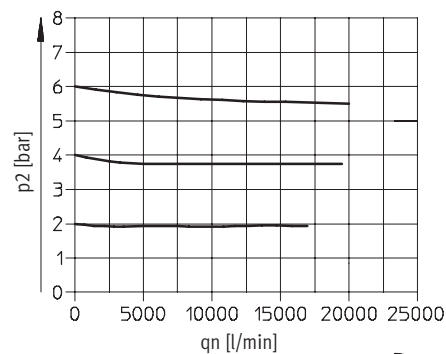
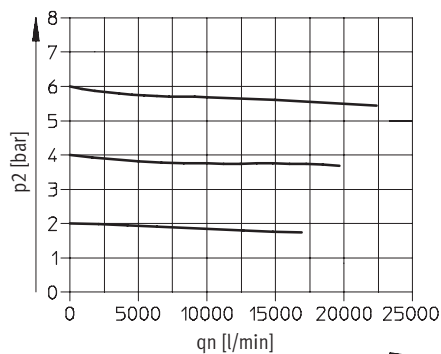
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Standard flow rate q_n as a function of output pressure p_2

With connecting plate MS12-AGH
Pneumatic connection G1½

With connecting plate MS12-AGI
Pneumatic connection G2

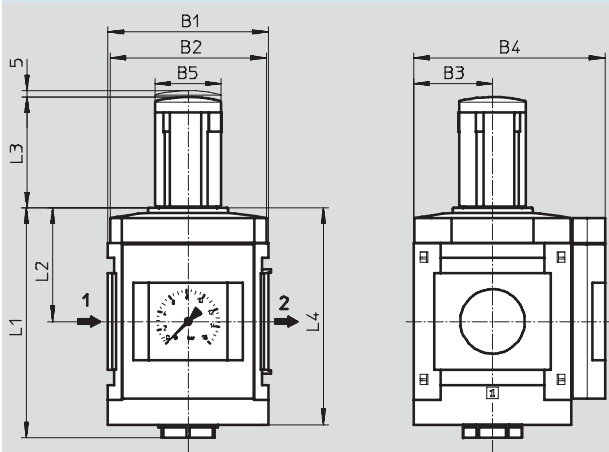
Primary pressure $p_1 = 10$ bar



Dimensions – Standard

Download CAD data → www.festo.com

With pressure gauge, display unit [bar], long rotary knob



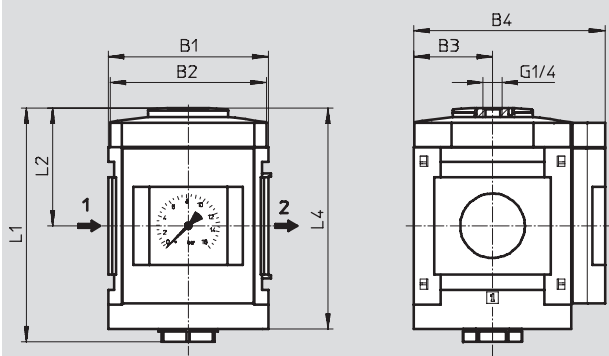
→ Flow direction

Type	B1	B2	B3	B4	B5	L1	L2	L3	L4
MS12-LR	124	122	61	148	51	178	88	86	168

Dimensions – Alternative operating principle

Download CAD data → www.festo.com

Pneumatically actuated PO, with pressure gauge, display unit [bar]



→ Flow direction

Type	B1	B2	B3	B4	L1	L2	L4
MS12-LR-...-PO	124	122	61	148	181	91	171

Pressure regulators MS12-LR, MS series

Technical data

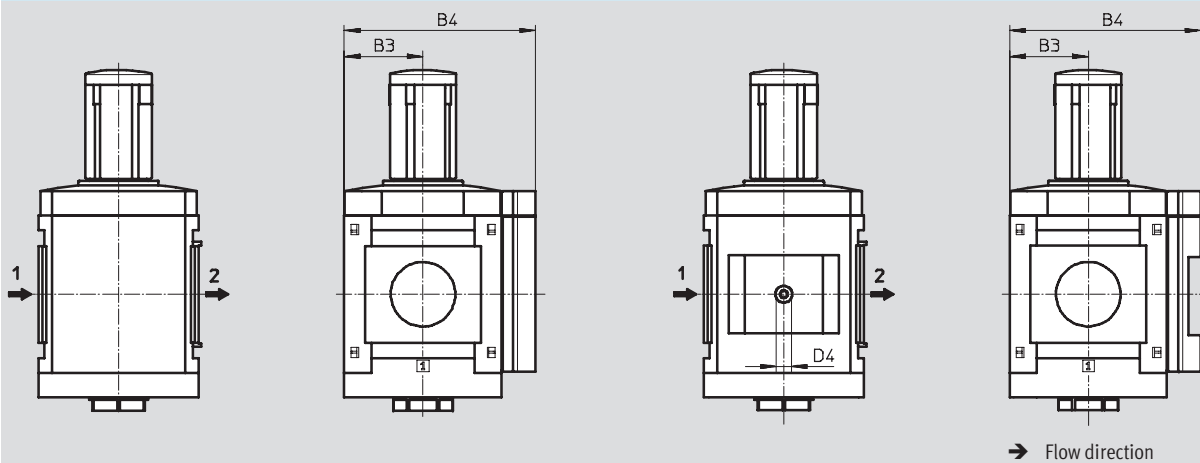
FESTO

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Cover plate VS

Adapter 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

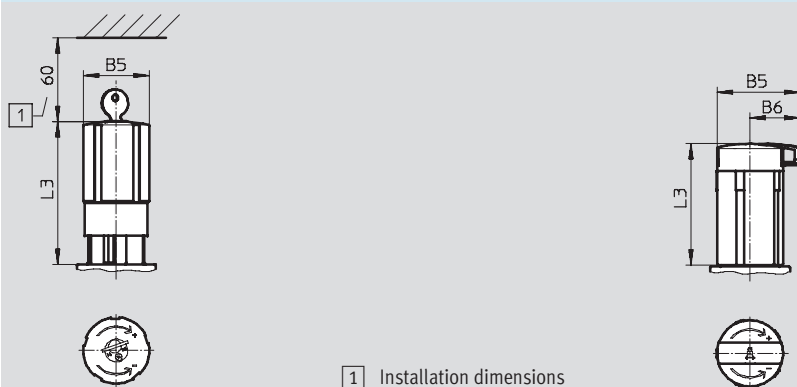
– † – Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Dimensions – Security

Download CAD data → www.festo.com

With integrated lock E11

Long, lockable LD-AS



Type	B5	B6	L3
MS12-LR-...-E11	51.8	–	112
MS12-LR-...-LD-AS	64.4	39	95.5

Ordering data

Pressure gauge

Size	Connection	Long rotary knob, can be locked using accessories, pressure regulation range 0.5... 12 bar	Alternative operating principle, pressure regulation range 0.5... 16 bar
		Part No. Type	Part No. Type
MS12	G1 ... G2 ¹⁾	537 148 MS12-LR-G-D7-LD-AS	541 680 MS12-LR-G-D8-PO

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

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

Ordering data – Wearing parts kits

Size	Part No. Type
MS12	673 586 MS12-LR/LFR

Pressure regulators MS12-LR, MS series

Ordering data – Modular products

FESTO

Mandatory data →					
Module No.	Series	Size	Function	Connection sizes	Pressure regulation range
535 021	MS	12	LR	AGF AGG AGH AGI G	D6 D7 D8
Order example					
535 021	MS	12	- LR	- G	- D8

Ordering table					
Grid dimension [mm]		124	Condi- tions	Code	Enter code
M	Module No.	535 021			
	Series	Standard		MS	MS
	Size	12		12	12
	Function	Pressure regulator		-LR	-LR
	Connection sizes	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	0.3 ... 7 bar		-D6	
		0.5 ... 12 bar		-D7	
		0.5 ... 16 bar		-D8	

Transfer order code

535 021	MS	12	- LR	-		-	
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Pressure regulators MS12-LR, MS series

FESTO

Ordering data – Modular products

Options						
Pressure gauge alternatives	Alternative pressure gauge scale	Rotary knob alternative	Security	Alternative operating principle	Type of mounting	Alternative flow direction
VS A4	PSI MPa	LD	AS E11	PO	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 rotary knob			-AS		
	With integrated lock		2	-E11		
Alternative operating principle	Pneumatically actuated		2 4	-PO		
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, PO** Either rotary knob alternative LD, security E11 or alternative function principle PO must be selected

3 **LD** Not with security E11

4 **PO** Not with rotary knob LD.

Not with security AS, E11

5 **WP** Only with connecting plate AGF, AGG, AGH or AGI

Transfer order code

- - - - - - -

Pressure regulators, MS series

Accessories

FESTO

Ordering data – Pressure gauge MA					
	Nominal size	Pneumatic connection	Indicating range		Part No. Type
			[bar]	[psi]	
	Pressure gauge MA, DIN EN 837-1				Technical data ➔ Internet: ma
	40	G1/4	0 ... 16	0 ... 232	183 901 MA-40-16-G1/4-EN
	Pressure gauge MA, DIN EN 837-1, with red-green range				Technical data ➔ Internet: ma
	40	R1/8	0 ... 16	–	525 726 MA-40-16-R1/8-E-RG
	50	R1/4	0 ... 16	–	525 729 MA-50-16-R1/4-E-RG
	Precision pressure gauge MAP, DIN EN 837-1				Technical data ➔ Internet: map
	40	R1/8	0 ... 1	0 ... 15	161 126 MAP-40-1-1/8-EN
			0 ... 4	0 ... 58	162 842 MAP-40-4-1/8-EN
0 ... 6			0 ... 87	161 127 MAP-40-6-1/8-EN	
0 ... 16			0 ... 232	161 128 MAP-40-16-1/8-EN	

Ordering data – Padlock LRVS-D				
	Weight [g]	Part No.	Type	
	120	193 786	LRVS-D	