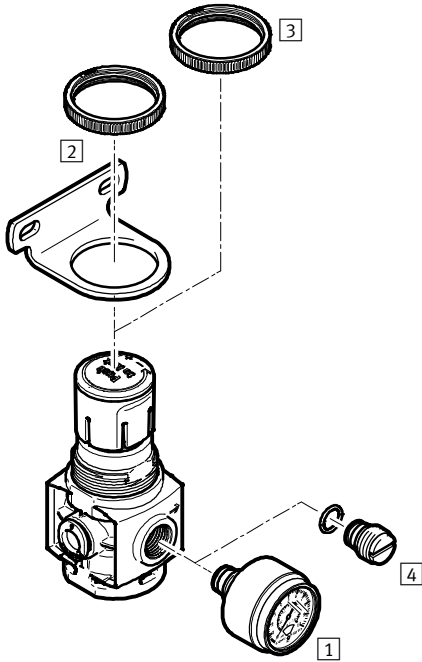


Pressure regulators MS2-LR, MS series

Peripherals overview

Pressure regulator MS2-LR



Mounting components and accessories		→ Page/Internet
1	Pressure gauge PAGN	LEERER MERKER
2	Mounting bracket MS2-WR	For wall mounting, knurled nut included in scope of delivery LEERER MERKER
3	Nut MS2-WRS	For front panel mounting LEERER MERKER
4	Plug screw MS2-G18S	LEERER MERKER

Pressure regulators MS2-LR, MS series

Type codes

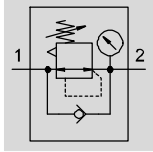
MS 2 - LR - M5 - D6 - A8 - - B

Series	
MS	Standard service unit
Size	
2	Grid dimension 25 mm
Service function	
LR	Pressure regulator
Pneumatic connection	
M5	Female thread M5
QS6	Push-in connector for tubing O.D. 6 mm
Pressure regulation range	
D6	Pressure regulation range 0.5 ... 7 bar
Pressure gauge/adapter	
AR	Pressure gauge
A8	Adapter for EN pressure gauge 1/8, without pressure gauge
Pressure gauge scale	
	None
BAR	Display unit [bar/psi]
MPA	Display unit [MPa]
Version	
B	Basic

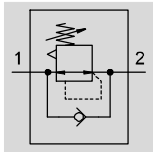
Pressure regulators MS2-LR, MS series




Technical data

With pressure gauge



Without pressure gauge



-  - Flow rate
170 ... 350 l/min
-  - Temperature range
-5 ... +50 °C
-  - Operating pressure
1 ... 10 bar



General technical data		
	With pressure gauge	With adapter for EN pressure gauge 1/8, without pressure gauge
Pneumatic connection 1, 2	M5	
	QS-6	
Design	Directly actuated diaphragm regulator	
Regulating function	Outlet pressure constant, with return flow action, with secondary venting	
Type of mounting	With accessories	
	In-line installation	
	Front panel mounting	
Mounting position	Optional	
Actuator lock	Rotary knob with detent	
Pressure regulation range [bar]	0.5 ... 7	
Max. pressure hysteresis [bar]	0.25	
Pressure indicator	With pressure gauge	G1/8 prepared

Characteristic flow rate values		
	M5	QS-6
Pneumatic connection 1, 2		
Standard nominal flow rate [l/min] q _{nN} ¹⁾	170	350

1) Measured at p₁ = 10 bar and p₂ = 6 bar, Δp = 1 bar

Pressure regulators MS2-LR, MS series

Technical data

Operating and environmental conditions		
Pneumatic connection 1, 2	M5	QS-6
Operating pressure [bar]	1 ... 10	1 ... 8
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]	
	Inert gases	
Ambient temperature [°C]	-5 ... +50	
Temperature of medium [°C]	-5 ... +50	
Storage temperature [°C]	-5 ... +50	
Corrosion resistance class CRC ¹⁾	1	

- 1) Corrosion resistance class CRC 1 to Festo standard FN 940070
 Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Weights [g]		
Pneumatic connection 1, 2	M5	QS-6
With pressure gauge	39.8	36.6
Without pressure gauge	30.8	27.6

Materials	
Housing	PA
Bottom cover	PA
Rotary knob	POM
Valve tappet	Wrought aluminium alloy, NBR
Diaphragm	NBR
Spring	High-alloy steel
Seals	NBR
Note on materials	RoHS-compliant

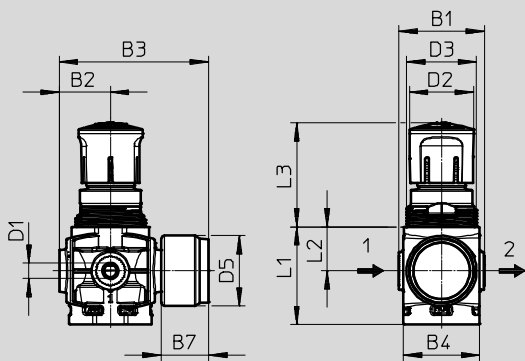
Pressure regulators MS2-LR, MS series

Technical data

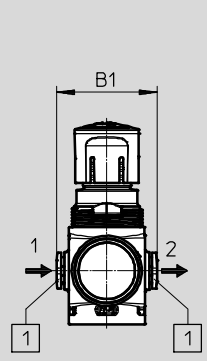
Dimensions Download CAD data → www.festo.com

With pressure gauge AR

MS2-LR-M5-...-AR



MS2-LR-QS6-...-AR

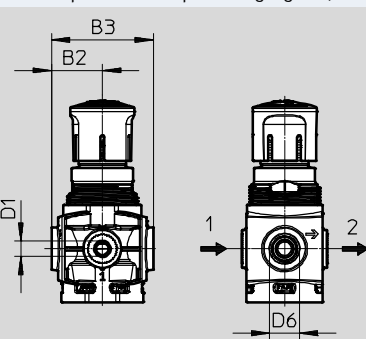


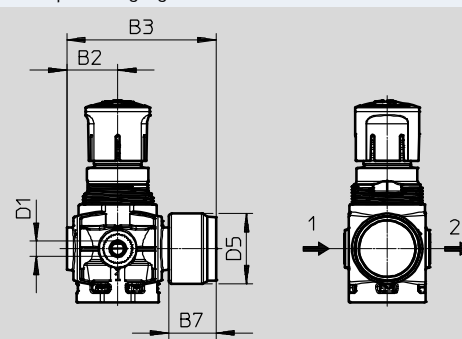
1 Pneumatic connection QS-6
 → Flow direction

Type	B1	B2	B3	B4	B7	D1	D2	D3	D5	L1	L2	L3
MS2-LR-M5-...-AR	28	16.7	49	25	15.5	M5	21	M23x1	23	31	14.4	34.1
MS2-LR-QS6-...-AR	33.1					QS-6						

Dimensions Download CAD data → www.festo.com

With adapter A8 for EN pressure gauge 1/8, without pressure gauge With pressure gauge AR





→ Flow direction

Type	B2	B3	B7	D1	D5	D6
MS2-LR-M5-...-A8	16.7	33.4	-	M5	-	G1/8
MS2-LR-QS6-...-A8				QS-6		
MS2-LR-M5-...-AR	16.7	49	15.5	M5	23	-
MS2-LR-QS6-...-AR				QS-6		

Pressure regulators MS2-LR, MS series

Technical data

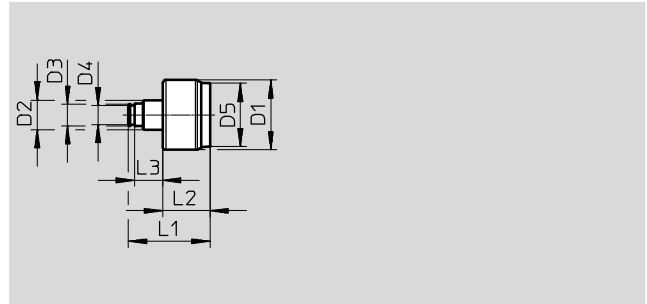
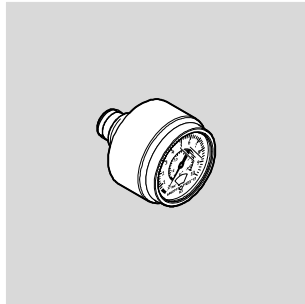
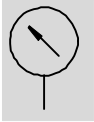
Ordering data			
Pressure regulation range 0.5 ... 7 bar, rotary knob with detent			
Size	Pneumatic connection 1, 2	Part No.	Type
Pressure gauge, display unit [bar/psi]			
MS2	M5	8086628	MS2-LR-M5-D6-AR-BAR-B
	QS-6	8086638	MS2-LR-QS6-D6-AR-BAR-B
Pressure gauge, display unit [MPa]			
MS2	M5	8086636	MS2-LR-M5-D6-AR-MPA-B
	QS-6	8086639	MS2-LR-QS6-D6-AR-MPA-B
Adapter for EN pressure gauge 1/8, without pressure gauge			
MS2	M5	8086637	MS2-LR-M5-D6-A8-B
	QS-6	8086640	MS2-LR-QS6-D6-A8-B

Pressure regulators MS2-LR, MS series

Accessories

FESTO

Pressure gauge PAGN



Dimensions							
D1	D2	D3	D4	D5	L1	L2	L3
∅		∅	∅	∅			
			±0.05				
23	G $\frac{1}{8}$	7.1	6.2	20.8	26.8	15.5	9.3

General technical data	
Nominal size	23
Pneumatic connection	G $\frac{1}{8}$ with sealing ring
Operating medium	Inert gases Neutral fluids
Note on operating/ pilot medium	No oxygen No acetylene
Design	Bourdon tube pressure gauge
Type of mounting	In-line installation
Connection position	Centred, rear side
Ambient temperature [°C]	-5 ... +50
Temperature of medium [°C]	-5 ... +50 ¹⁾
Storage temperature [°C]	-5 ... +50
Measurement accuracy class	4
Continuous load factor	0.75
Intermittent load factor	0.6
Degree of protection	IP44
Weight [g]	6

1) If the temperature of the medium used is below 0°C, ensure the operating medium is dry.

Materials	
Housing	ABS (colour: black)
Inspection window	PMMA
Screwed trunnion	ABS reinforced
Materials in contact with the medium	ABS reinforced, brass
Note on materials	RoHS-compliant

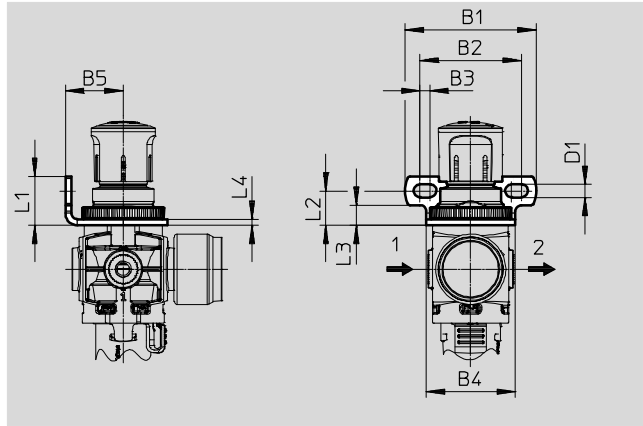
Ordering data						
Nominal size	Pneumatic connection	Operating pressure	Display range		Part No.	Type
			Outer scale	Inner scale		
23	G $\frac{1}{8}$ with sealing ring	0 ... 10 bar	0 ... 10 bar	0 ... 145 psi	8088991	PAGN-23-10-G18S
		0 ... 1 MPa	0 ... 1 MPa	-		

Pressure regulators MS2-LR, MS series

Accessories

Mounting bracket MS2-WR

- For wall mounting
- For filter regulator, pressure regulator
- Knurled nut included in scope of delivery



Dimensions									
B1	B2	B3	B4	B5	D1	L1	L2	L3	L4
±0.2			±0.15		±0.1		±0.5		
4.3	33.3	3.3	29.2	19	4.2	16	11.3	6.6	2

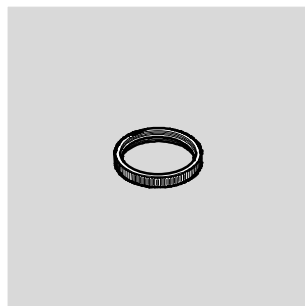
Materials	
Mounting bracket	Steel
Note on materials:	RoHS-compliant

Ordering data				
Size	CRC ¹⁾	Weight [g]	Part No.	Type
MS2	1	14.6	8087978	MS2-WR

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
 Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Nut MS2-WRS

- For front panel mounting



Materials	
Note on materials:	RoHS-compliant

Ordering data				
Size	CRC ¹⁾	Weight [g]	Part No.	Type
MS2	1	0.7	8098037	MS2-WRS

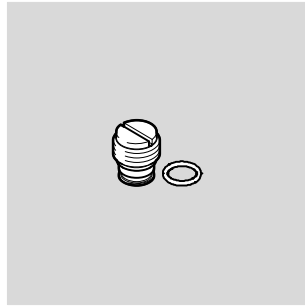
1) Corrosion resistance class CRC 1 to Festo standard FN 940070
 Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Pressure regulators MS2-LR, MS series

Accessories

FESTO

Plug screw MS2-G18S



Materials	
Note on materials:	RoHS-compliant

Ordering data				
Size	CRC ¹⁾	Weight [g]	Part No.	Type
MS2	1	4.6	8095766	MS2-G18S

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
 Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

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



Festo core product range
Covers 80% of your automation tasks

Worldwide:

Always in stock

Superb:

Festo quality at an attractive price

Easy:

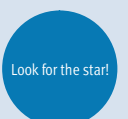
Reduces procurement and storing complexity



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



Ready for dispatch in 5 days maximum from stock
Assembled for you in 4 service centres worldwide
Up to 6 x 10¹² variants per product series



MS series service unit components

Key features



MS series service unit components

Solutions for every application | **Freely combinable function modules**

With its large product range, highly functional components and a wide choice of services, the MS series from Festo offers a complete concept for compressed air preparation. Suitable for simple standard applications as well as application-specific solutions to the highest quality standards.

Available as individual components, pre-assembled combinations ex-stock, application-specific combinations or complete turnkey solutions. The five sizes in the MS series achieve maximum flow rates with minimum space requirements.

Pressure regulators, on/off and soft-start valves with safety function, filter, pressure and flow sensors, dryers, sensors and lubricators. All these allow a suitable solution to be assembled for every task. Their modular structure means that the components are freely combinable. A simple connection system saves time when replacing individual modules without dismantling the entire combination. What's more, many of the components are certified to UL and ATEX.

CAD models and configurator | Engineering tools

Convenient aids for planning and selecting application-specific individual devices and combinations. The product configurator lets you configure customised solutions quickly and transfer the order data with no hassle.

Selection tool for choosing the right service unit without oversizing, and with the right air quality class:
→ www.festo.com/engineering/wartungseinheit

Air quality

This program supports configuring an appropriate service unit. Please insert the required air cleanliness either by your application or an ISO-code or by direct selection of air filters.

Selection criteria: Application

Filter combination is proposed based upon your selected application:

- standard pneumatics: operation of valves and cylinders, e.g. in automotive industry, secondary packaging
- mining and building industry: applications without special air-cleaning requirements
- application of pressure operated tools and machines: pneumatic hammer, air engine, positioning with proportional valve
- electronic, flatpanel and solar industry, textile and paper production: application with residual oil content <math>< 0.5 \text{ mg/m}^3</math>
- painting, powder coating, air bearing: application with residual oil content <math>< 0.01 \text{ mg/m}^3</math>
- food and beverage industry, optics: application with residual oil content <math>< 0.003 \text{ mg/m}^3</math> reduction of oil vapours and aerosols

Selection criteria: ISO-class

Filter combination is proposed based upon the air cleanliness class according to ISO 8573-1:2010

particle : 4 * : oil

Direct filter selection

Independent selection of filter combination:

- 40 µm Filter
- 5 µm Filter
- 1 µm Fine Filter
- 0.01 µm Micro Filter *
- Active Carbon Filter

ISO

* Downstream from the compressor the water content is assumed to be ISO class 4, better classes can be achieved by applying an adsorption dryer (PSD) or a membrane dryer (DM)

* To enhance the filter lifetime and in consequence the maintenance interval arrange a 1 µm Fine Filter in front of the 0.01 µm Micro Filter as a preliminary filter.

Integrated sensors | Safety functions | Energy savings | Intelligent mix of sizes



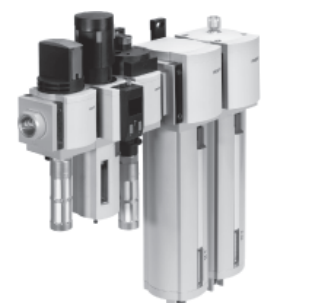
- Maximum machine availability through controlled processes
- Reliable compressed air preparation and supply for systems
- Integrable or stand-alone
- Easy to connect with M8/M12 plug



- Fast and reliable exhausting of systems up to Performance Level e, certified to EN ISO 13849-1
- Integrated soft-start function



- Fully automatic monitoring and regulation of compressed air supply
- Automatic shut-off of the compressed air in stand-by mode
- Detection and notification of leakages
- Condition monitoring of relevant process data



- Optimum flow rate with up to 18% smaller size
- Excellent energy efficiency
- Cost-optimised combinations – save up to 30%!

Size differences					
Size	MS2	MS4	MS6	MS9	MS12
Grid dimension [mm]	25	40	62	90	124
Port sizes	M5, QS-6	G1/8, G1/4, G3/8	G1/4, G3/8, G1/2, G3/4	G1/2, G3/4, G1, G1 1/4, G1 1/2	G1, G1 1/4, G1 1/2, G2
Standard nominal flow rate qnN ¹⁾ [l/min]	350	1800	6500	20000	22000

1) Using pressure regulator MS-LR as an example

MS series service unit components

Key features

Note
Information

The next few pages provide a brief overview of the complete product range for the MS series service unit components.

You can find detailed information and all of the technical data in the documentation for the corresponding service unit component.

Accessories such as connection plates or mounting brackets can be ordered either via the configurator or separately.





Structure of a service unit

The order of the individual components within a service unit is relevant for safety and functionality. It is not possible to assemble the service unit components in any order in the flow direction. There are restrictions and rules.

The configurator for service unit MSB is a reliable and convenient way of arranging individual service unit components. This ensures that the applicable rules are complied with. As a result, you get a completely assembled combination with UL or ATEX certification if you need it. When arranging a combination of individually configured and ordered service unit components, the points on the right must be adhered to under all circumstances.






- Regulators MS-LFR/LR/LRP/LRE are only permissible in the flow direction with the same or decreasing pressure regulation range
- Filters MS-LFR/LF/LFM/LFX are only permissible in the flow direction with an increasing grade of filtration
- Lubricators MS-LOE are not permitted in the flow direction upstream of a filter MS-LFR/LFM/LF/LFX, water separator MS-LWS or membrane air dryer MS-LDM1
- A micro filter MS-LFM must be installed upstream of an activated carbon filter MS-LFX or membrane air dryer MS-LDM1 in the flow direction
- A flow sensor SFAM cannot be installed directly downstream of a regulator MS-LFR/LR; a branching module MS-FRM must be positioned between them
- A soft-start/quick exhaust valve MS-SV must be the last service unit component in the flow direction

Total product range for MS series service unit components

Type	Description	Size	Pneumatic connection					
			Push-in connector	Female thread			Connection plate with thread	
				M	G	NPT	G	NPT
Combinations								
Service units MSB-FRC Technical data → Internet: msb								
	Combinations of filter regulator and lubricator	4	-	-	1/8, 1/4	-	-	-
		6	-	-	1/4, 3/8, 1/2	-	-	-
Service units MSB Technical data → Internet: msb								
	7 combinations, predefined	4	-	-	1/4	-	-	-
		6	-	-	1/2	-	-	-
	Combinations freely configurable	4	-	-	1/8, 1/4	-	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	-	-	1/4, 3/8, 1/2	-	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	-	-	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
Service units MSE6 Technical data → Internet: mse6								
	Combinations with fieldbus connection for measuring pressure, flow rate and consumption	6	-	-	-	-	1/2	-

MS series service unit components







Key features

Total product range for MS series service unit components								
Type	Description	Size	Pneumatic connection					
			Push-in connector	Female thread			Connection plate with thread	
				M	G	NPT	G	NPT
Individual devices								
Filter regulators MS-LFR							Technical data → Internet: ms-lfr	
	Filter and pressure regulator in a single device, grade of filtration 5 or 40 µm	2	QS-6	M5	–	–	–	–
		4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–
Filters MS-LF							Technical data → Internet: ms-lf	
	Grade of filtration 5 or 40 µm	4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–
Fine and micro filters MS-LFM							Technical data → Internet: ms-lfm	
	Grade of filtration 0.01 or 1 µm	4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–
Activated carbon filters MS-LFX							Technical data → Internet: ms-lfx	
	For removing liquid and gaseous oil particles	4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–
Water separators MS-LWS							Technical data → Internet: ms-lws	
	Remove condensed water from compressed air, maintenance-free	6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–

MS series service unit components








Key features



Total product range for MS series service unit components								
Type	Description	Size	Pneumatic connection					
			Push-in connector	Female thread			Connection plate with thread	
				M	G	NPT	G	NPT
Individual devices								
Pressure regulators MS-LR Technical data → Internet: ms-lr								
	For setting the required operating pressure, 4 pressure regulation ranges	2	QS-6	M5	–	–	–	–
		4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–
Pressure regulators MS-LRB Technical data → Internet: ms-lrb								
	For creating a regulator manifold with independent pressure regulation ranges. Pressure output is to the front or rear.	4	–	–	1/4	–	1/8, 1/4, 3/8	–
		6	–	–	1/2	–	1/4, 3/8, 1/2, 3/4	–
Precision pressure regulators MS-LRP Technical data → Internet: ms-lrp								
	For precise setting of the required operating pressure, 4 pressure regulation ranges, pressure hysteresis 0.02 bar	6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
Precision pressure regulators MS-LRPB Technical data → Internet: ms-lrpb								
	For configuring a regulator manifold with independent pressure regulation ranges. Pressure output is to the front or rear.	6	–	–	1/2	–	1/4, 3/8, 1/2, 3/4	–
Electrical pressure regulators MS-LRE Technical data → Internet: ms-lre								
	Electrically adjustable pressure regulator, 4 pressure regulation ranges	6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
Lubricators MS-LOE Technical data → Internet: ms-loe								
	Add a precisely adjustable amount of oil to the compressed air. The oil mist component is proportional to the compressed air flow rate.	4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–

MS series service unit components





Key features

Total product range for MS series service unit components								
Type	Description	Size	Pneumatic connection					
			Push-in connector	Female thread			Connection plate with thread	
				M	G	NPT	G	NPT
Individual devices								
On/off valves MS-EM							Technical data → Internet: ms-em	
	Manually operated on/off valve for pressurising and exhausting pneumatic installations.	4	-	-	1/8, 1/4	-	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	-	-	1/4, 3/8, 1/2	-	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	-	-	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	-	-	-	-	1, 1 1/4, 1 1/2, 2	-
On/off valves MS-EE								
On/off valves MS-EE							Technical data → Internet: ms-ee	
	Solenoid actuated on/off valve for pressurising and exhausting pneumatic installations.	4	-	-	1/8, 1/4	-	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	-	-	1/4, 3/8, 1/2	-	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	-	-	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	-	-	-	-	1, 1 1/4, 1 1/2, 2	-
Soft-start valves MS-DL								
Soft-start valves MS-DL							Technical data → Internet: ms-dl	
	Pneumatically actuated soft-start valve for slowly pressurising and exhausting pneumatic installations.	4	-	-	1/8, 1/4	-	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	-	-	1/4, 3/8, 1/2	-	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		12	-	-	-	-	1, 1 1/4, 1 1/2, 2	-
Soft-start valves MS-DE								
Soft-start valves MS-DE							Technical data → Internet: ms-de	
	Solenoid actuated soft-start valve for slowly pressurising and exhausting pneumatic installations.	4	-	-	1/8, 1/4	-	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	-	-	1/4, 3/8, 1/2	-	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		12	-	-	-	-	1, 1 1/4, 1 1/2, 2	-
Soft-start/quick exhaust valves MS-SV								
Soft-start/quick exhaust valves MS-SV							Technical data → Internet: ms-sv	
	For building up pressure gradually and reducing pressure quickly and safely in pneumatic piping systems. Up to category 1, PL c.	6	-	-	1/2	-	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	-	-	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
	Up to category 3, PL d. Up to category 4, PL e in the case of optional extension.	6	-	-	1/2	-	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		6	-	-	1/2	-	1/4, 3/8, 1/2, 3/4	-
	Up to category 4, PL e.	6	-	-	1/2	-	1/4, 3/8, 1/2, 3/4	-

MS series service unit components

Key features

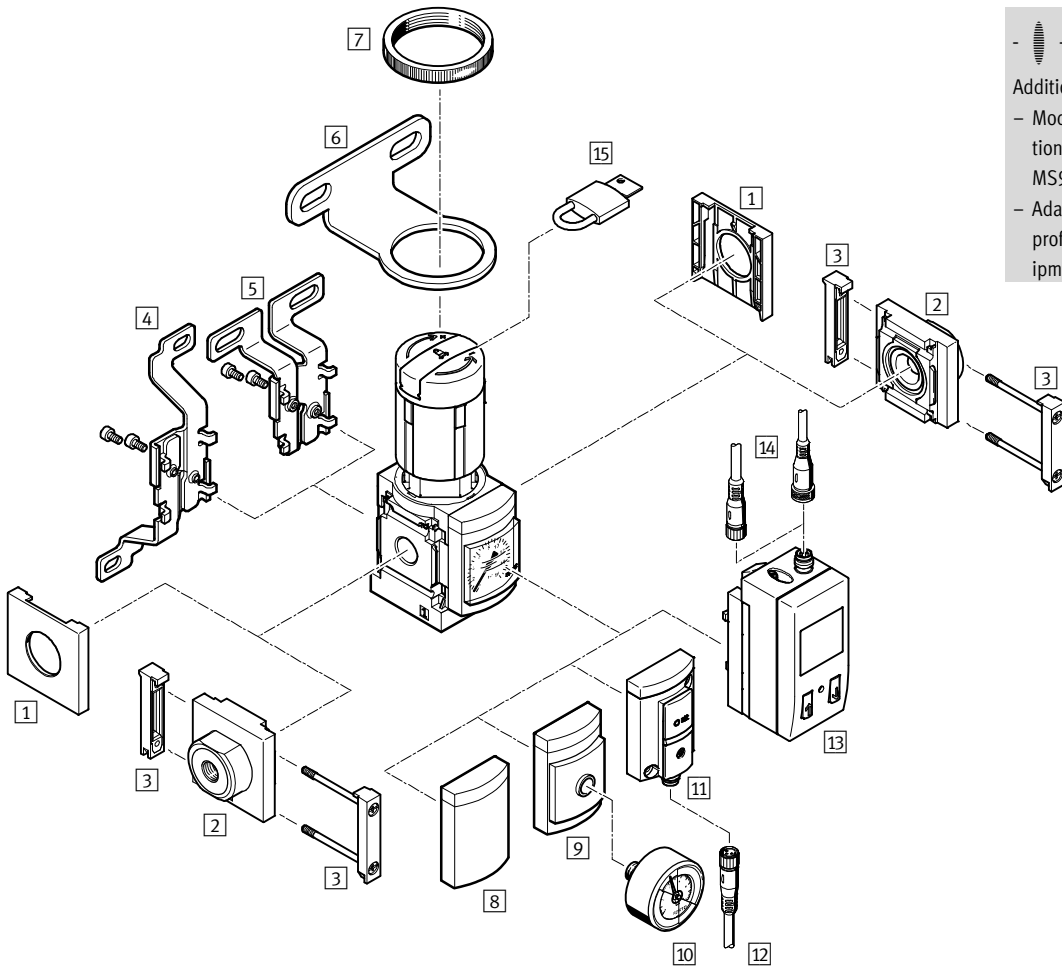
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Total product range for MS series service unit components								
Type	Description	Size	Pneumatic connection					
			Push-in connector	Female thread			Connection plate with thread	
				M	G	NPT	G	NPT
Individual devices								
Membrane air dryers MS-LDM1							Technical data → Internet: ms-ldm	
	Wear-free membrane dryer with internal air consumption	4	-	-	1/8, 1/4	-	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	-	-	1/4, 3/8, 1/2	-	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
Branching modules MS-FRM								
							Technical data → Internet: ms-frm	
	Compressed air distributor with 4 connections	4	-	-	1/8, 1/4	-	1/8, 1/4, 3/8	-
		6	-	-	1/4, 3/8, 1/2	-	1/4, 3/8, 1/2, 3/4	-
		9	-	-	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	-	-	-	-	1, 1 1/4, 1 1/2, 2	-
Distributor blocks MS-FRM-FRZ								
							Technical data → Internet: ms-frm-frz	
	Compressed air distributor with 4 connections and half the grid dimension width	4	-	-	-	-	-	-
		6	-	-	-	-	-	-
Flow sensors SFAM								
							Technical data → Internet: sfam	
	For absolute flow rate information and accumulated air consumption measurement	6	-	-	-	-	1/2	1/2
		9	-	-	-	-	1, 1 1/2	1, 1 1/2

Pressure regulators MS4/MS6-LR, MS series

Peripherals overview

Pressure regulator MS4/MS6-LR



Note

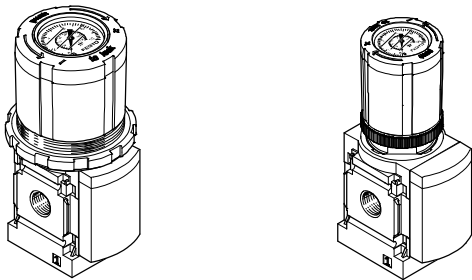
Additional accessories:

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

Pressure regulator with rotary knob pressure gauge

MS4-LR-...-DM2

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



Pressure regulators MS4/MS6-LR, MS series

Peripherals overview

Mounting attachments and accessories						
		Individual device		Combination		→ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
1	Cover cap MS4/6-END	■	-	■	-	ms4-end, ms6-end
2	Connecting plate-SET MS4/6-AG...	-	■	-	■	ms4-ag, ms6-ag
	Connecting plate-SET MS4/6-AQ...	-	■	-	■	ms4-aq, ms6-aq
3	Module connector MS4/6-MV	-	■	■	■	ms4-mv, ms6-mv
4	Mounting bracket MS4/6-WB	■	■	-	-	ms4-wb, ms6-wb
5	Mounting bracket MS4-WBM	■	■	-	-	ms4-wbm
6	Mounting bracket MS4/6-WR	■	■	-	-	ms4-wr, ms6-wr
7	Knurled nut (included in scope of delivery) MS-LR	■	■	-	-	-
8	Cover plate VS	■	■	■	■	20
9	Adapter plate for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	20
10	Pressure gauge MA	■	■	■	■	100
11	Pressure sensor without display AD7 ... AD10	■	■	■	■	20
12	Connecting cable NEBU-M8...-LE3	■	■	■	■	100
13	Pressure sensor with display AD1 ... AD4	■	■	■	■	20
14	Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4	■	■	■	■	100
15	Padlock LRVS-D	■	■	■	■	100
-	Mounting bracket MS4/6-WP/WPB/WPE/WPM	-	■	■	■	ms4-wp, ms6-wp

Pressure regulators MS4/MS6-LR, MS series

Type codes

MS 6 - LR - 1/2 - D5 - AS

Series	
MS	Standard service unit

Size	
4	Grid dimension 40 mm
6	Grid dimension 62 mm

Service function	
LR	Pressure regulator

Pneumatic connection	
MS4	
1/8	Female thread G1/8
1/4	Female thread G1/4
MS6	
1/4	Female thread G1/4
3/8	Female thread G3/8
1/2	Female thread G1/2

Pressure regulation range/operation	
D5	0.3 ... 4 bar, manually operated
D6	0.3 ... 7 bar, manually operated
D7	0.5 ... 12 bar, manually operated

Security	
AS	Rotary knob with detent, lockable via accessories

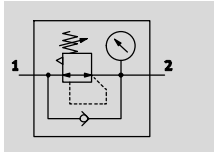
Additional variants can be ordered using the modular system → 20





- Pneumatic connection
- Pressure regulation range/opertaion
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Rotary knob alternative
- Alternative mounting position
- Security
- Type of mounting
- EU certification
- UL certification
- Flow direction

Pressure regulators MS4/MS6-LR, MS series

Technical data

With pressure gauge




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



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

- Good regulation characteristics with low hysteresis and primary pressure compensation
- High flow rate with minimal pressure drop
- Available with and without secondary venting
- Regulator lock for protecting the values against adjustment
- Four pressure regulation ranges: 0.3 ... 4 bar, 0.3 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Two pressure gauge connections for different fitting options
- Return flow option for exhausting from output 2 to output 1 already integrated
- Optional pressure sensor
- Optional rotary knob pressure gauge
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

General technical data		
Size	MS4	MS6
Pneumatic connection 1, 2		
Female thread	G $\frac{1}{8}$ or G $\frac{1}{4}$	G $\frac{1}{4}$, G $\frac{3}{8}$ or G $\frac{1}{2}$
Connecting plate AG...	G $\frac{1}{8}$, G $\frac{1}{4}$ or G $\frac{3}{8}$	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$ or G $\frac{3}{4}$
Connecting plate AQ...	NPT $\frac{1}{8}$, NPT $\frac{1}{4}$ or NPT $\frac{3}{8}$	NPT $\frac{1}{4}$, NPT $\frac{3}{8}$, NPT $\frac{1}{2}$ or NPT $\frac{3}{4}$
Constructional design	Directly-actuated diaphragm regulator	
Regulating function	Output pressure constant, with primary pressure compensation, with return flow action, with/without secondary venting	
Type of mounting	Via accessories In-line installation Front panel mounting	
Mounting position	Any	
Regulator lock	Rotary knob with detent Rotary knob with detent, lockable via accessories Rotary knob with integrated lock	
Pressure regulation range/operation	D5 [bar] D6 [bar] D7 [bar] D8 [bar]	0.3 ... 4, manually operated ¹⁾ 0.3 ... 7, manually operated ¹⁾ 0.5 ... 12, manually operated (0.5 ... 10 with pressure sensor AD... or with UL certification) ¹⁾ -
Max. hysteresis [bar]	0.25 (0.4 with rotary knob pressure gauge DM1/DM2)	0.25 (0.4 with rotary knob pressure gauge DM2)
Pressure display	Via pressure sensor for displaying output pressure via LCD display and electrical output Via pressure sensor for displaying output pressure via operational status indicator and electrical output Via pressure gauge for displaying output pressure Via pressure gauge with red/green scale for displaying output pressure Via pressure gauge in rotary knob for displaying output pressure G $\frac{1}{8}$ prepared G $\frac{1}{4}$ prepared	

1) MS4: For pressure regulators with rotary knob pressure gauge DM..., the pressure regulation range begins at 0.8 bar.
-  Note: This product conforms to ISO 1179-1 and to ISO 228-1

Pressure regulators MS4/MS6-LR, MS series

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Technical data

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

- 1) Measured at $p_1 = 10$ bar and $p_2 = 6$ bar, $\Delta p = 1$ bar
- 2) Measured at $p_1 = 10$ bar and $p_2 = 3$ bar, $\Delta p = 1$ bar
- 3) In the case of the DM1/DM2 pressure regulator/gauge with rotary knob, q_{nN} is equal to 800 litres per minute and $q_{n \max}$ amounts to 2,200 litres per minute.

Operating and environmental conditions		
Size	MS4	MS6
Operating pressure [bar]	0.8 ... 14 (0.8 ... 10) ¹⁾	
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]	
	Inert gases	
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)	
Ambient temperature [°C]	–10 ... +60 (0 ... +50) ²⁾	
Temperature of medium [°C]	–10 ... +60 (0 ... +50) ²⁾	
Storage temperature [°C]	–10 ... +60	
Corrosion resistance class CRC ³⁾	2	
Food-safe ⁴⁾	See supplementary material information	
UL certification ⁴⁾	cULus recognized (OL)	

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

ATEX	
EU certification	EX4
ATEX category gas	II 2G
Ex-ignition protection type gas	Ex h IIC T6 Gb X
ATEX category dust	II 2D
EX-ignition protection type dust	Ex h IIIC T60°C Db X
ATEX ambient temperature	–10 °C ≤ Ta ≤ +60 °C
CE mark (see declaration of conformity) ¹⁾	To EU Explosion Protection Directive (ATEX)

- 1) Additional information www.festo.com/sp → Certificates.

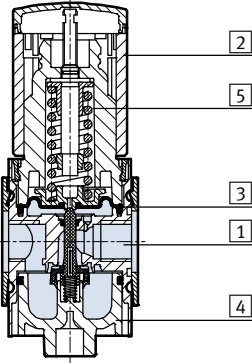
Weight [g]		
Size	MS4	MS6
Pressure regulator	225	730
Pressure regulator with rotary knob with integrated lock E11	350	1,000

Pressure regulators MS4/MS6-LR, MS series

Technical data

Materials

Sectional view



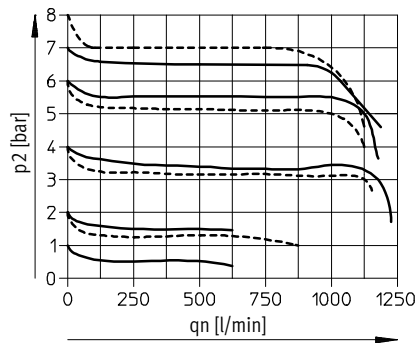
Pressure regulator

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

Standard flow rate q_n as a function of output pressure p_2

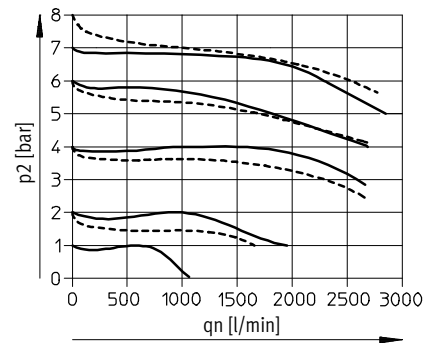
Input pressure $p_1 = 10$ bar

MS4-LR-1/8



— D6: 0.3 ... 7 bar
- - - D7: 0.5 ... 12 bar¹⁾

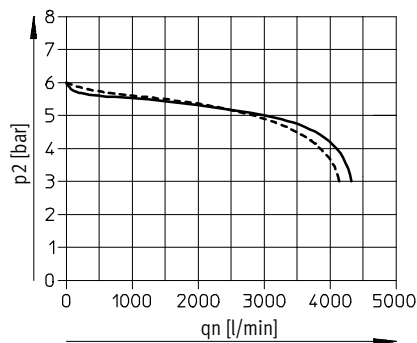
MS4-LR-1/4



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

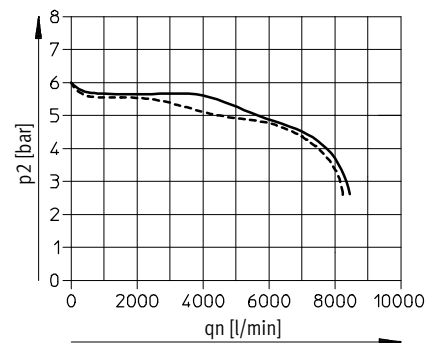
MS6-LR-1/4

Input pressure $p_1 = 10$ bar



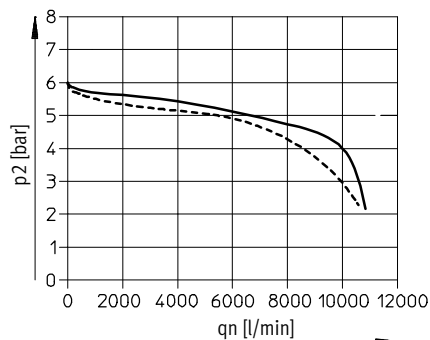
— D6: 0.3 ... 7 bar
- - - D7: 0.5 ... 12 bar

MS6-LR-3/8



MS6-LR-1/2

Input pressure $p_1 = 10$ bar



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

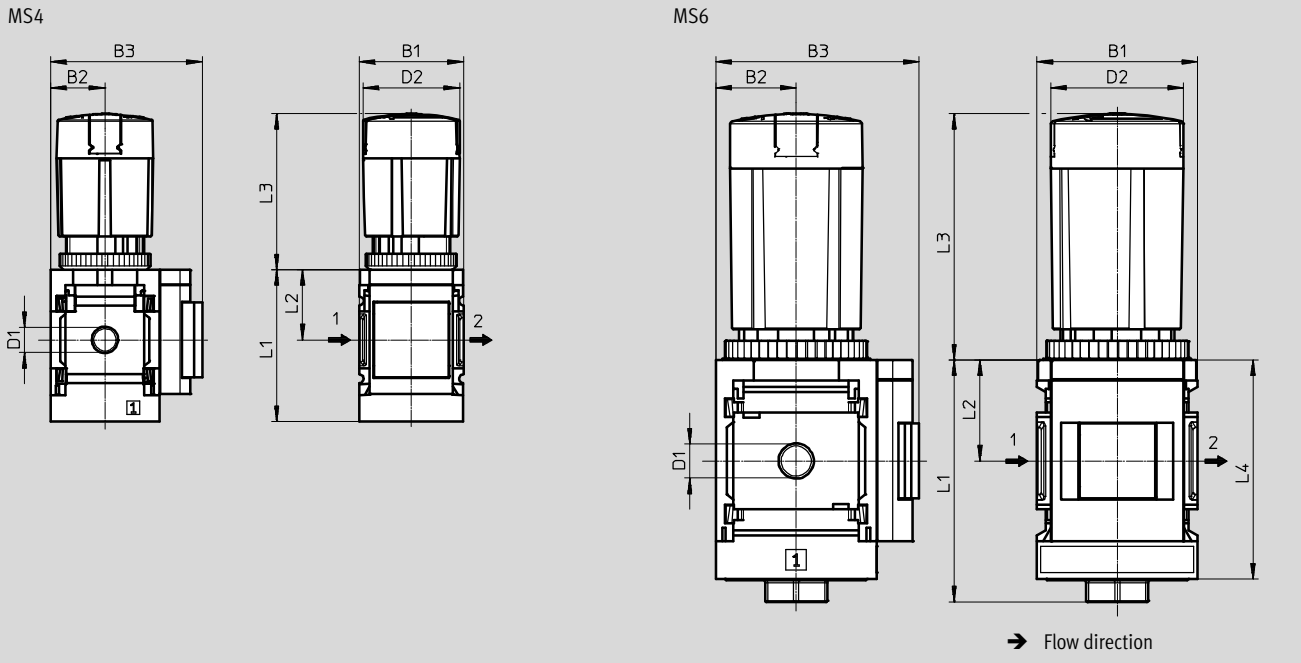
Pressure regulators MS4/MS6-LR, MS series

Technical data

Dimensions – Basic version

Download CAD data → www.festo.com

Integrated MS pressure gauge, rotary knob with detent, lockable via accessories AS



Type	B1	B2	B3		D1	D2 ∅	L1	L2	L3	L4
			Standard scale	Red-green scale						
MS4-LR-1/8	40	21	57	58.5	G1/8	37.2	59	27	60.2	-
MS4-LR-1/4					G1/4					
MS6-LR-1/4	62	31	77	78.5	G1/4	51.2	94	39	95.1	85
MS6-LR-3/8					G3/8					
MS6-LR-1/2					G1/2					

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

Pressure regulators MS4/MS6-LR, MS series

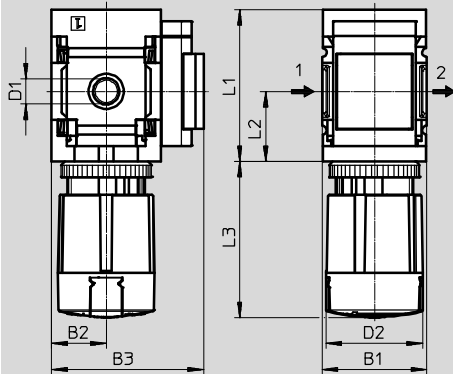
Technical data

Dimensions – Alternative mounting position

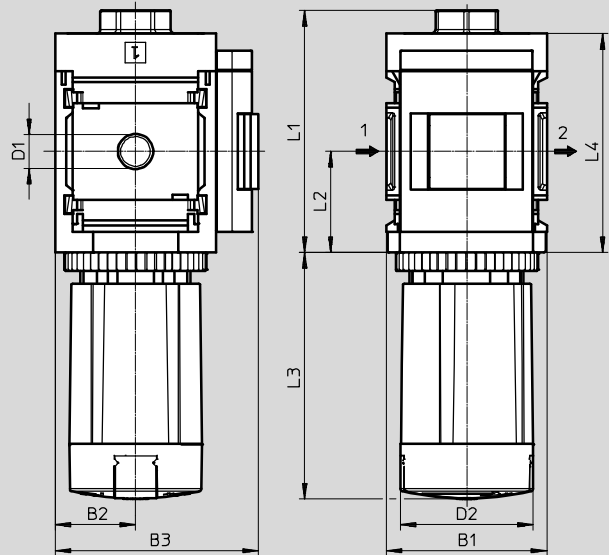
Download CAD data → www.festo.com

Rotary knob underneath KD

MS4



MS6



→ Flow direction

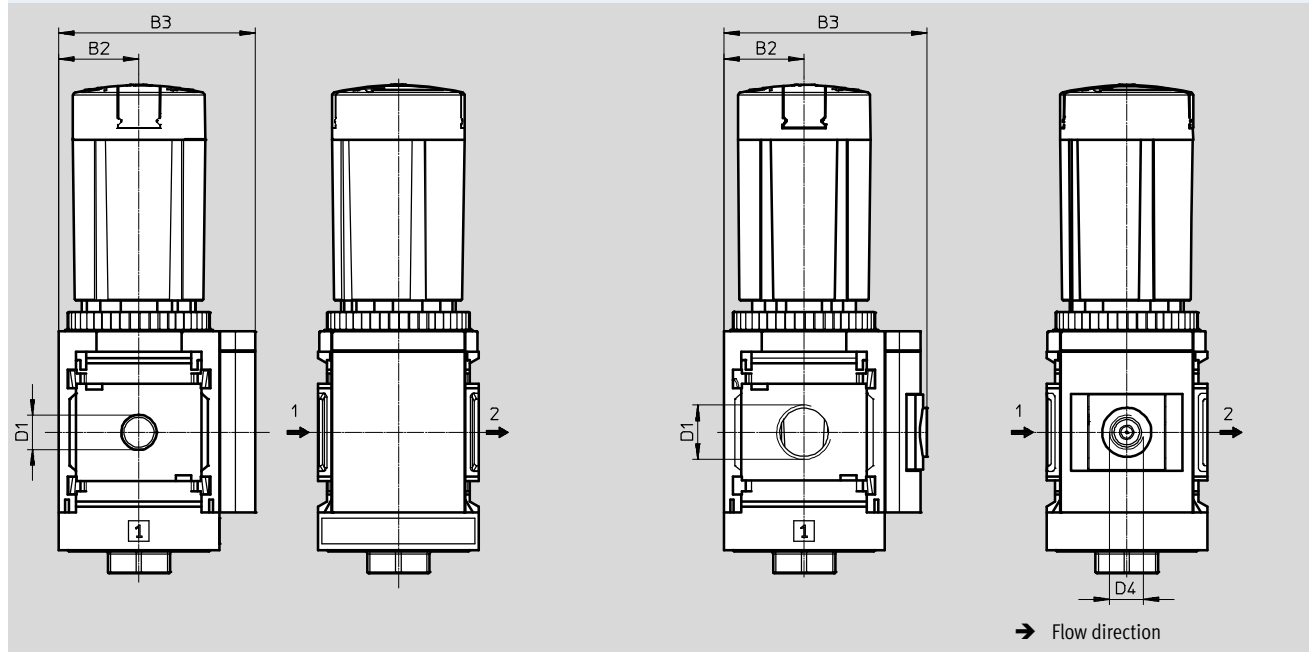
Type	B1	B2	B3		D1	D2 ∅	L1	L2	L3	L4
			Standard scale	Red-green scale						
MS4-LR-1/8-...-KD	40	21	57	58.5	G1/8	37.2	59	27	60.2	-
MS4-LR-1/4-...-KD					G1/4					
MS6-LR-1/4-...-KD	62	31	77	78.5	G1/4	51.2	94	39	95.1	85
MS6-LR-3/8-...-KD					G3/8					
MS6-LR-1/2-...-KD					G1/2					

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

Pressure regulators MS4/MS6-LR, MS series

Technical data

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



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

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

Pressure regulators MS4/MS6-LR, MS series

Technical data

Dimensions – Pressure gauge alternatives Download CAD data → www.festo.com

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

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

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

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

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

→ Flow direction

Pressure sensor without LCD display (operational status indicator only) AD7 ... AD10 Technical data → Internet: [sde5](#)

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

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

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

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

→ Flow direction

Type	B2	B3	D1	D6	L5	L6
MS4-LR-1/8-...-AD1/AD2	21	82.6	G1/8	M8x1	35.1	46.7
MS4-LR-1/4-...-AD1/AD2			G1/4			
MS4-LR-1/8-...-AD3/AD4	21	82.6	G1/8	M12x1	35.1	55.8
MS4-LR-1/4-...-AD3/AD4			G1/4			
MS4-LR-1/8-...-AD7/AD8/AD9/AD10	21	59.1	G1/8	M8x1	-	-
MS4-LR-1/4-...-AD7/AD8/AD9/AD10			G1/4			
MS6-LR-1/4-...-AD1/AD2	31	103	G1/4	M8x1	35.1	46.7
MS6-LR-3/8-...-AD1/AD2			G3/8			
MS6-LR-1/2-...-AD1/AD2			G1/2			
MS6-LR-1/4-...-AD3/AD4	31	103	G1/4	M12x1	35.1	55.8
MS6-LR-3/8-...-AD3/AD4			G3/8			
MS6-LR-1/2-...-AD3/AD4			G1/2			
MS6-LR-1/4-...-AD7/AD8/AD9/AD10	31	79	G1/4	M8x1	-	-
MS6-LR-3/8-...-AD7/AD8/AD9/AD10			G3/8			
MS6-LR-1/2-...-AD7/AD8/AD9/AD10			G1/2			

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

Pressure regulators MS4/MS6-LR, MS series

Technical data

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Dimensions – Rotary knob

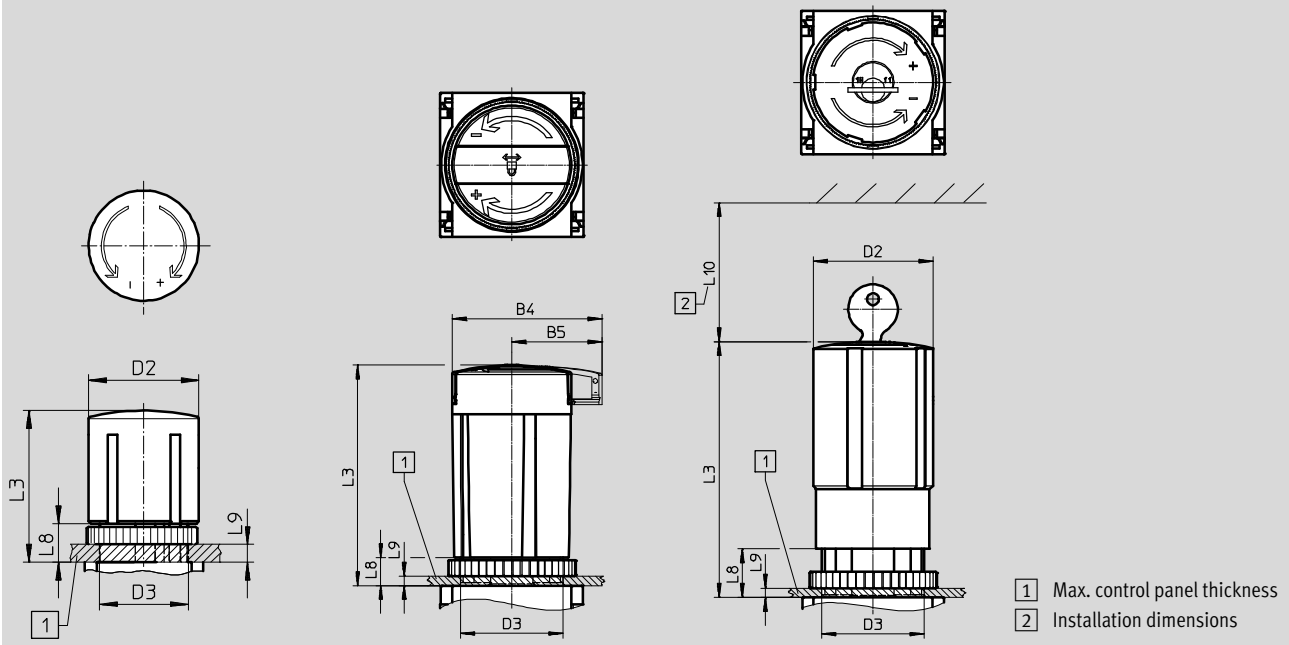
Download CAD data → www.festo.com

For installation into control panel

Rotary knob with detent

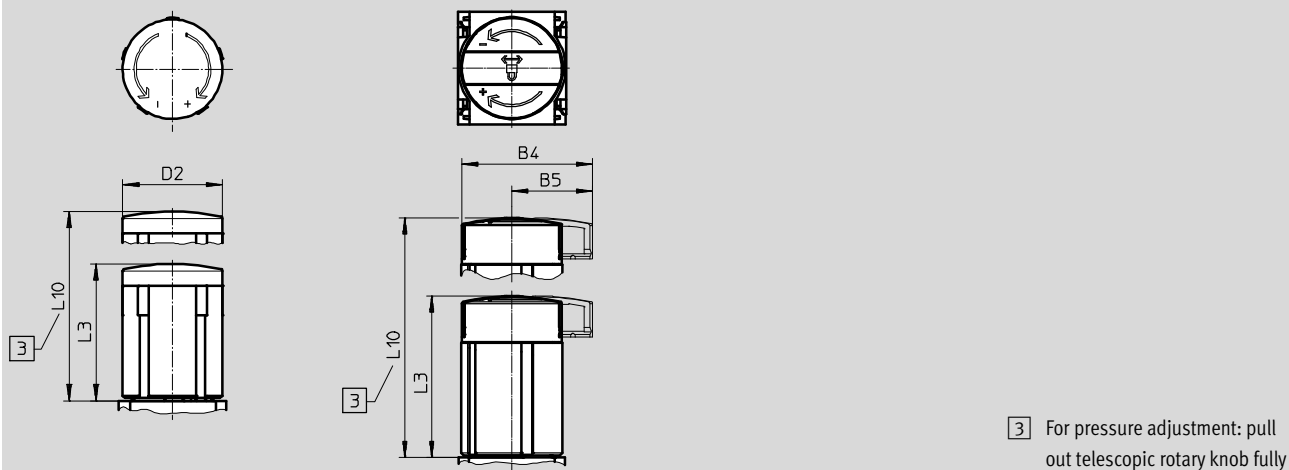
Rotary knob with detent, lockable via accessories AS

Rotary knob with integrated lock E11



Long rotary knob with detent LD

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



Type	B4	B5	D2	D3	L3	L8	L9	L10
MS4-LR-...	-	-	37.2	M30x1.5	51.1	13	5	-
MS4-LR-...-AS	48.6	30			60.2	13	5	-
MS4-LR-...-E11	-	-			76	14	6	60
MS4-LR-...-LD	-	-		-	51.1	-	-	76.8
MS4-LR-...-LD-AS	48.6	30		-	60	-	-	85.7
MS6-LR-...	-	-	51.2	M44x1	86	21	14	-
MS6-LR-...-AS	64.4	38.8			95.1	12	5	-
MS6-LR-...-E11	-	-			110	21	14	60
MS6-LR-...-LD	-	-		-	86	-	-	139
MS6-LR-...-LD-AS	64.4	38.8		-	95.5	-	-	148.5

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	
MS4	MS4	MS6
<p>→ Flow direction</p> <p>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.</p>		

Type	D2	D3	L3	L4	L8	L9
MS4-LR-...-DM1	37.2	M30x1.5	54	59	13	6.7
MS4-LR-...-DM2	51.2	M48x1.5	56	59	13	7
MS6-LR-...-DM2	51	M44x1	84	94	25.4	18.4

★ Core product range

Ordering data							
Size	Connection	Pressure regulation range 0.3 ... 4 bar		Pressure regulation range 0.3 ... 7 bar		Pressure regulation range 0.5 ... 12 bar	
		Part No.	Type	Part No.	Type	Part No.	Type
Integrated MS pressure gauge with standard scale, display unit [bar], rotary knob with detent, lockable via accessories							
MS4	G1/4	★ 529415	MS4-LR-1/4-D5-AS	★ 529417	MS4-LR-1/4-D6-AS	★ 529419	MS4-LR-1/4-D7-AS
MS6	G1/2	★ 529989	MS6-LR-1/2-D5-AS	★ 529991	MS6-LR-1/2-D6-AS	★ 529993	MS6-LR-1/2-D7-AS

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

Festo core product range

- ★ Generally ready for shipping ex works in 24 hours
- ☆ Generally ready for shipping ex works in 5 days

Pressure regulators MS4/MS6-LR, MS series

Ordering data – Modular products



Ordering table							
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code	
M	Module No.	527690	527663				
	Series	Standard			MS	MS	
	Size	4	6		...		
	Function	Pressure regulator			-LR	-LR	
	Pneumatic connection	Female thread G $\frac{1}{8}$	–	1	- $\frac{1}{8}$		
		Female thread G $\frac{1}{4}$	Female thread G $\frac{1}{4}$	1	★- $\frac{1}{4}$		
		–	Female thread G $\frac{3}{8}$	1	- $\frac{3}{8}$		
		–	Female thread G $\frac{1}{2}$	1	★- $\frac{1}{2}$		
		Connecting plate G $\frac{1}{8}$	–			-AGA	
		Connecting plate G $\frac{1}{4}$	Connecting plate G $\frac{1}{4}$			★-AGB	
		Connecting plate G $\frac{3}{8}$	Connecting plate G $\frac{3}{8}$			-AGC	
		–	Connecting plate G $\frac{1}{2}$			★-AGD	
		–	Connecting plate G $\frac{3}{4}$			-AGE	
		Connecting plate NPT $\frac{1}{8}$	–	1		-AQK	
		Connecting plate NPT $\frac{1}{4}$	Connecting plate NPT $\frac{1}{4}$	1		-AQN	
		Connecting plate NPT $\frac{3}{8}$	Connecting plate NPT $\frac{3}{8}$	1		-AQP	
		–	Connecting plate NPT $\frac{1}{2}$	1		-AQR	
		–	Connecting plate NPT $\frac{3}{4}$	1		-AQS	
	Pressure regulation range/ operation	0.3 ... 4 bar, manually operated			★-D5		
		0.3 ... 7 bar, manually operated			★-D6		
		0.5 ... 12 bar, manually operated			★-D7		
		–	0.5 ... 16 bar, manually operated	1 4		-D8	
O	Pressure gauge alternatives	Cover plate			★-VS		
		Adapter plate for EN pressure gauge $\frac{1}{8}$, without pressure gauge	–			-A8	
		Adapter plate for EN pressure gauge $\frac{1}{4}$, without pressure gauge				-A4	
		Integrated pressure gauge, red-green scale			2 3 4	-RG	
		Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin			1 2 5	-AD1	
		Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin			1 2 5	-AD2	
		Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA			1 2 5	-AD3	
		Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA			1 2 5	-AD4	
		Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact			1 2 5	-AD7	
		Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact			1 2 5	-AD8	
		Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact			1 2 5	-AD9	
		Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact			1 2 5	-AD10	

- 1** $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, AQK, AQN, AQP, AQR, AQS, D8, AD1 ... AD4, AD7 ... AD10, DM1, DM2, KD, E11, WPM
 Not with EU certification EX4
- 2** RG, AD1 ... AD4, AD7 ... AD10, OS, KD, AS, WR, WB
 MS4: Not with rotary knob alternative DM2
- 3** RG, OS, KD, AS
 Not with rotary knob alternative DM1
- 4** D8, RG, OS, KD, AS
 MS6: Not with rotary knob alternative DM2

M Mandatory data
O Options

Transfer order code

MS - **LR** - - -

Festo core product range

- ★ Generally ready for shipping ex works in 24 hours
- ☆ Generally ready for shipping ex works in 5 days

Pressure regulators MS4/MS6-LR, MS series

Ordering data – Modular products

Ordering table							
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code	
[O]	Alternative pressure gauge scale	psi		6	-PSI		
		MPa		7	-MPA		
	Secondary venting	Without secondary venting		2 3 4	-OS		
	Rotary knob alternative	Long rotary knob			8	-LD	
		Rotary knob pressure gauge, small	-		1 8 9	-DM1	
		Rotary knob pressure gauge, large			1 8 9	-DM2	
Alternative mounting position	Rotary knob underneath			1 2 3	-KD		
				4 10			
[M]	Security	Without					
		Lockable via accessories			2 3 4	★ -AS	
		With integrated lock			1	-E11	
[O]	Type of mounting	Mounting bracket with knurled nut for regulator head		2 11	★ -WR		
		Mounting bracket standard design		12	-WP		
		Mounting bracket for attaching the service units			1 12	-WPM	
		Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required			2	★ -WB	
		Mounting bracket centrally at rear (wall mounting top), connecting plates not required	-			-WBM	
	EU certification	II 2GD to EU Explosion Protection Directive (ATEX)				-EX4	
UL certification	cULus, ordinary location for Canada and USA				-UL1		
Flow direction	Flow direction from right to left				-Z		

[5] **AD1 ... AD4, AD7 ... AD10**

Measuring range max. 10 bar
Not with pressure regulation range D8

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

[7] **MPA** Not with pressure gauge alternatives VS, A8, A4, AD1 ... AD4, AD7 ... AD10
Not with rotary knob alternative DM1, DM2

[8] **LD, DM1, DM2**
Not with integrated lock E11

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

[10] **KD** Not with pressure gauge alternative RG
Not with alternative pressure gauge scale MPA
Not with mounting type WP

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

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

[M] Mandatory data

[O] Options

Transfer order code

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

Festo core product range

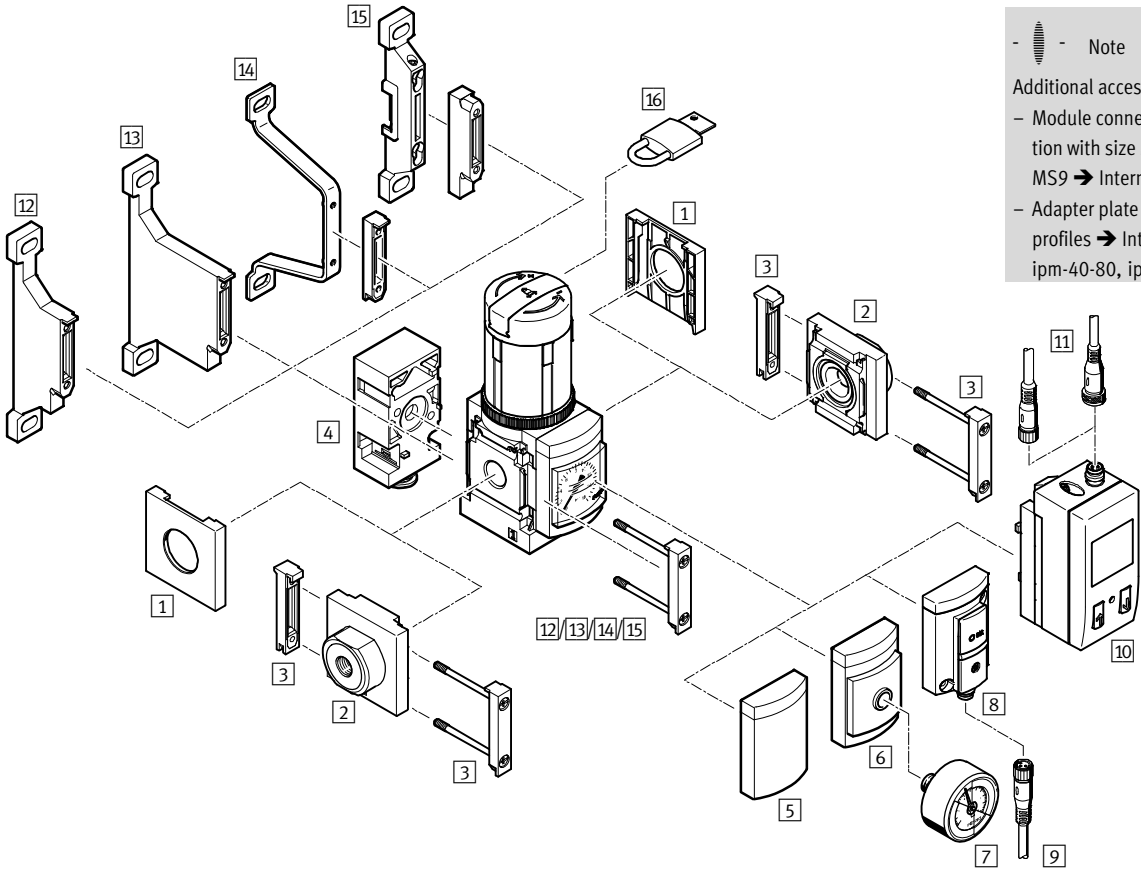
★ Generally ready for shipping ex works in 24 hours

☆ Generally ready for shipping ex works in 5 days

Pressure regulators MS4/MS6-LRB, MS series

Peripherals overview

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



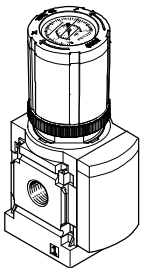
Note

Additional accessories:

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

Pressure regulator with rotary knob pressure gauge

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



Pressure regulators MS4/MS6-LRB, MS series

Peripherals overview

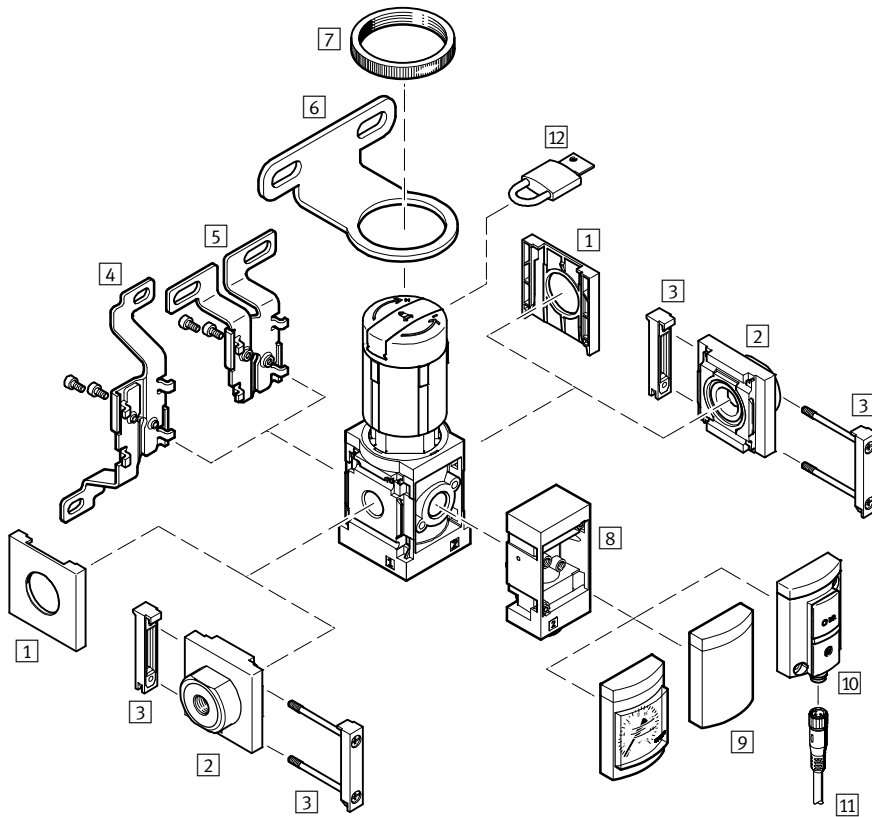
Mounting attachments and accessories						
		Individual device		Combination		→ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
1	Cover cap MS4/6-END	■	-	■	-	ms4-end, ms6-end
2	Connecting plate-SET MS4/6-AG...	-	■	-	■	ms4-ag, ms6-ag
3	Module connector MS4/6-MV	-	■	■	■	ms4-mv, ms6-mv
4	Angled outlet block B...	■	■	■	■	36
5	Cover plate VS	■	■	■	■	36
6	Adapter plate for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	36
7	Pressure gauge MA	■	■	■	■	100
8	Pressure sensor without display AD7 ... AD10	■	■	■	■	36
9	Connecting cable NEBU-M8...-LE3	■	■	■	■	100
10	Pressure sensor with display AD1 ... AD4	■	■	■	■	36
11	Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4	■	■	■	■	100
12	Mounting bracket MS4/6-WP	-	■	■	■	ms4-wp, ms6-wp
13	Mounting bracket MS4/6-WPB	-	■	■	■	ms4-wp, ms6-wp
14	Mounting bracket MS4/6-WPE	-	■	■	■	ms4-wp, ms6-wp
15	Mounting bracket MS4/6-WPM	-	■	■	■	ms4-wp, ms6-wp
16	Padlock LRVS-D	■	■	■	■	100

Pressure regulators MS4/MS6-LRB, MS series

Peripherals overview

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



Note

Additional accessories:

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

Mounting attachments and accessories						
		Individual device		Combination		→ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
1	Cover cap MS4/6-END	■	-	■	-	ms4-end, ms6-end
2	Connecting plate-SET MS4/6-AG...	-	■	-	■	ms4-ag, ms6-ag
3	Module connector MS4/6-MV	-	■	■	■	ms4-mv, ms6-mv
4	Mounting bracket MS4/6-WB	■	■	-	-	ms4-wb, ms6-wb
5	Mounting bracket MS4-WBM	■	■	-	-	ms4-wbm
6	Mounting bracket MS4/6-WR	■	■	-	-	ms4-wr, ms6-wr
7	Knurled nut (included in scope of delivery) MS-LR	■	■	-	-	-
8	Angled outlet block B...	■	■	■	■	36
9	Cover plate VS	■	■	■	■	36
10	Pressure sensor without display AD7 ... AD10	■	■	■	■	36
11	Connecting cable NEBU-M8...-LE3	■	■	■	■	100
12	Padlock LRVS-D	■	■	■	■	100

Pressure regulators MS4/MS6-LRB, MS series

Type codes

MS 6 - LRB - 1/2 - D7 - [] - AS - BD

Series

MS	Standard service unit
----	-----------------------

Size

4	Grid dimension 40 mm
6	Grid dimension 62 mm

Service function

LRB	Pressure regulator for manifold assembly
-----	--

Pneumatic connection

MS4	
1/4	Female thread G1/4
MS6	
1/2	Female thread G1/2

Pressure regulation range/operation

D5	0.3 ... 4 bar, manually operated
D6	0.3 ... 7 bar, manually operated
D7	0.5 ... 12 bar, manually operated

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	Rotary knob with detent, lockable via accessories
----	---

Pressure output

	Without angled outlet block
BD	Angled outlet block QS-8

Additional variants can be ordered using the modular system → 36

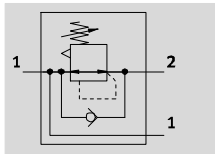
- Pneumatic connection
- Pressure regulation range/opertaion
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Rotary knob alternative
- Alternative mounting position
- Security
- Pressure output
- Type of mounting
- EU certification
- UL certification
- Flow direction

Pressure regulators MS4/MS6-LRB, MS series

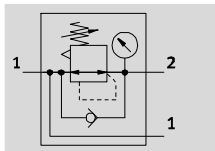
Technical data





FESTO

Without pressure gauge



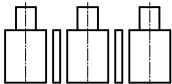
With pressure gauge



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




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



- Good regulation characteristics with low hysteresis and primary pressure compensation
- Manifold assembly with through air supply
- For configuring a regulator manifold with independent pressure regulation ranges
- Regulator lock for protecting the values against adjustment
- Available with and without secondary venting
- Four pressure regulation ranges: 0.3 ... 4 bar, 0.3 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Return flow option for exhausting from output 2 to output 1 already integrated
- Optional pressure sensor
- Optional rotary knob pressure gauge
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

General technical data		MS4	MS6
Size			
Pneumatic connection 1			
	Female thread	G $\frac{1}{4}$	G $\frac{1}{2}$
	Connecting plate AG...	G $\frac{1}{8}$, G $\frac{1}{4}$ or G $\frac{3}{8}$	G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$ or G $\frac{3}{4}$
Pneumatic connection 2			
		G $\frac{1}{4}$	G $\frac{1}{2}$
		QS-6	QS-8
		QS-8	QS-10
Constructional design		Directly-actuated diaphragm regulator with through compressed air supply	
Regulating function		Output pressure constant, with primary pressure compensation, with return flow action, with/without secondary venting	
Type of mounting		Via accessories	
		In-line installation	
		Front panel mounting	
Mounting position		Any	
Regulator lock		Rotary knob with detent	
		Rotary knob with detent, lockable via accessories	
		Rotary knob with integrated lock	
Pressure regulation range/operation	D5 [bar]	0.3 ... 4, manually operated ¹⁾	
	D6 [bar]	0.3 ... 7, manually operated ¹⁾	
	D7 [bar]	0.5 ... 12, manually operated (0.5 ... 10 with pressure sensor AD... or with UL certification) ¹⁾	
	D8 [bar]	-	0.5 ... 16, manually operated (0.5 ... 10 with UL certification)
Max. hysteresis	[bar]	0.25	0.25 (0.4 with rotary knob pressure gauge DM2)
Pressure display		Via pressure sensor for displaying output pressure via LCD display and electrical output	
		Via pressure sensor for displaying output pressure via operational status indicator and electrical output	
		Via pressure gauge for displaying output pressure	
		Via pressure gauge with red/green scale for displaying output pressure	
		Via pressure gauge in rotary knob for displaying output pressure	
		G $\frac{1}{8}$ prepared	-
		G $\frac{1}{4}$ prepared	-

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

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

Pressure regulators MS4/MS6-LRB, MS series

Technical data

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

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

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

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

Operating and environmental conditions		
Size	MS4	MS6
Operating pressure [bar]	0.8 ... 14 (0.8 ... 10) ¹⁾	0.8 ... 20 (0.8 ... 10) ¹⁾
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]	
	Inert gases	
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)	
Ambient temperature [°C]	–10 ... +60 (0 ... +50) ²⁾	
Temperature of medium [°C]	–10 ... +60 (0 ... +50) ²⁾	
Storage temperature [°C]	–10 ... +60	
Corrosion resistance class CRC ³⁾	2	
Food-safe ⁴⁾	See supplementary material information	
UL certification ⁴⁾	cULus recognized (OL)	

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

2) Value in brackets applies to MS4/MS6-LRB with pressure sensor AD...

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

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

4) Additional information www.festo.com/sp → Certificates.

ATEX	
EU certification	EX4
ATEX category gas	II 2G
Ex-ignition protection type gas	Ex h IIC T6 Gb X
ATEX category dust	II 2D
EX-ignition protection type dust	Ex h IIIC T60°C Db X
ATEX ambient temperature	–10 °C ≤ Ta ≤ +60 °C
CE mark (see declaration of conformity) ¹⁾	To EU Explosion Protection Directive (ATEX)

1) Additional information www.festo.com/sp → Certificates.

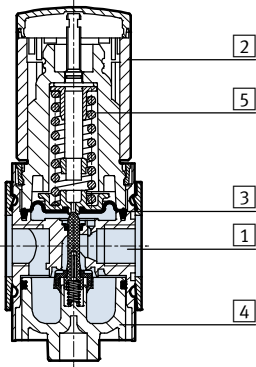
Weight [g]		
Size	MS4	MS6
Pressure regulator	222	747
Pressure regulator with rotary knob with integrated lock E11	347	1,017

Pressure regulators MS4/MS6-LRB, MS series

Technical data

Materials

Sectional view



Pressure regulator (manifold assembly)

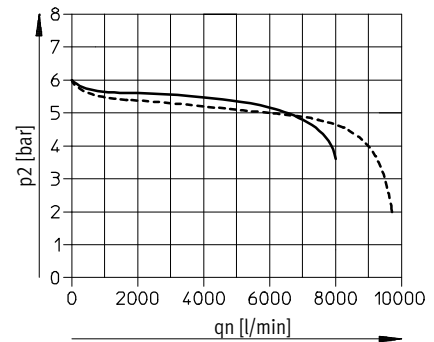
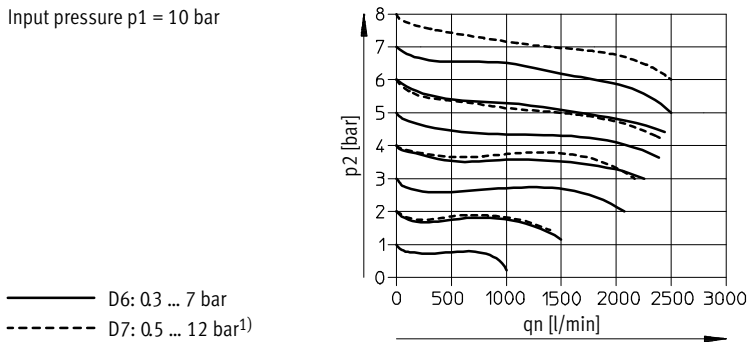
1	Housing	Die-cast aluminium
2	Rotary knob	PA/POM
	Rotary knob with integrated lock E11	Aluminium
3	Diaphragm	NBR
4	Cap, bottom	PET
5	Springs	Steel
-	Seals	NBR
Note on materials		RoHS-compliant
		Free of copper and PTFE only with cover plate VS

Standard flow rate qn as a function of output pressure p2

MS4-LRB-1/4

MS6-LRB-1/2

Input pressure p1 = 10 bar



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

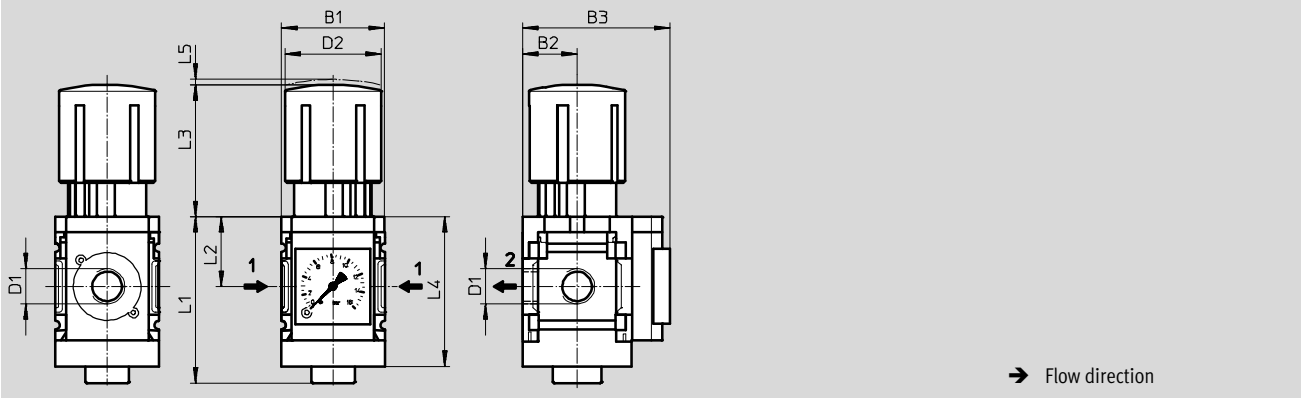
Pressure regulators MS4/MS6-LRB, MS series

Technical data

Dimensions – Basic version

Download CAD data → www.festo.com

Integrated MS pressure gauge, rotary knob with detent



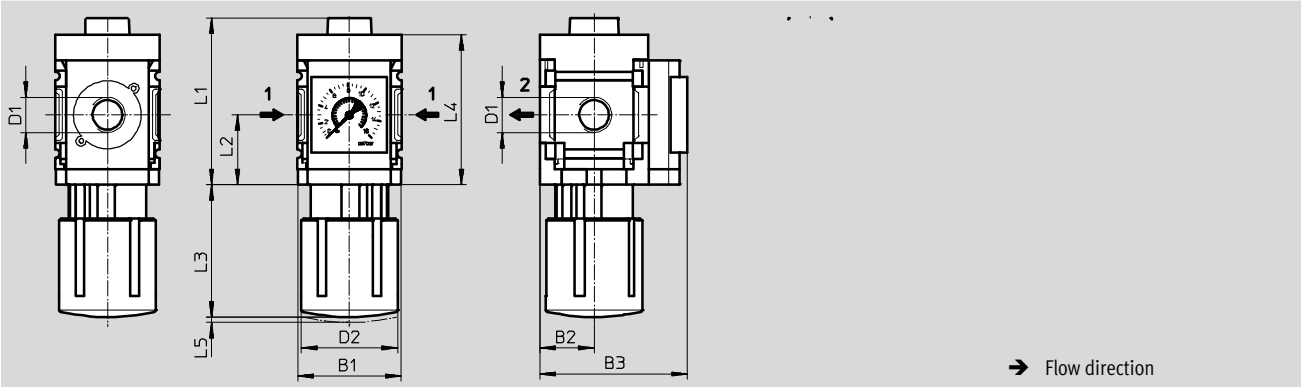
Type	B1	B2	B3		D1	D2	L1	L2	L3	L4	L5
			Pressure gauge	Standard scale							
MS4-LRB-1/4	40	21	57	58.5	G1/4	37.2	64.4	27	60.3	58.5	2
MS6-LRB-1/2	62	31	77	78.5	G1/2	51.3	94	39	95.1	85	5

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

Dimensions – Alternative mounting position

Download CAD data → www.festo.com

Rotary knob underneath KD



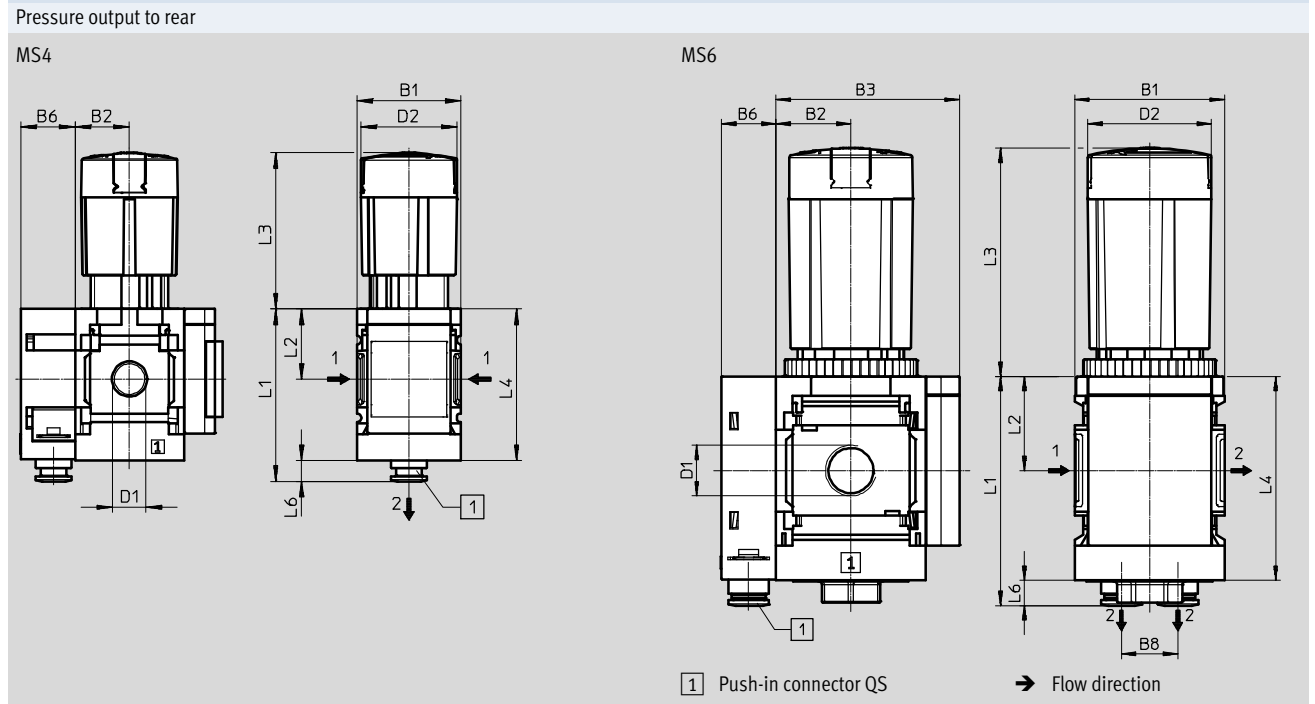
Type	B1	B2	B3	D1	D2	L1	L2	L3	L4	L5
MS4-LRB-1/4-...-KD	40	21	57	G1/4	37.2	64.4	27	60.3	58.5	2
MS6-LRB-1/2-...-KD	62	31	77	G1/2	51.2	94	39	95.1	85	5

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

Pressure regulators MS4/MS6-LRB, MS series

Technical data

Dimensions – Angled outlet block BC/BD/BE Download CAD data → www.festo.com



Type	B1	B2	B3	B6	B8	D1	D2 Ø	L1	L2	L3	L4	L6
MS4-LRB-1/4-...-B...	40	21	57	21	-	G1/4	37.2	66.5	27	60.3	58.5	8
MS6-LRB-1/2-...-B...	62	31	77	23	23.4	G1/2	51.2	94.9	39	95.1	85	10.4

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

Pressure regulators MS4/MS6-LRB, MS series

Technical data

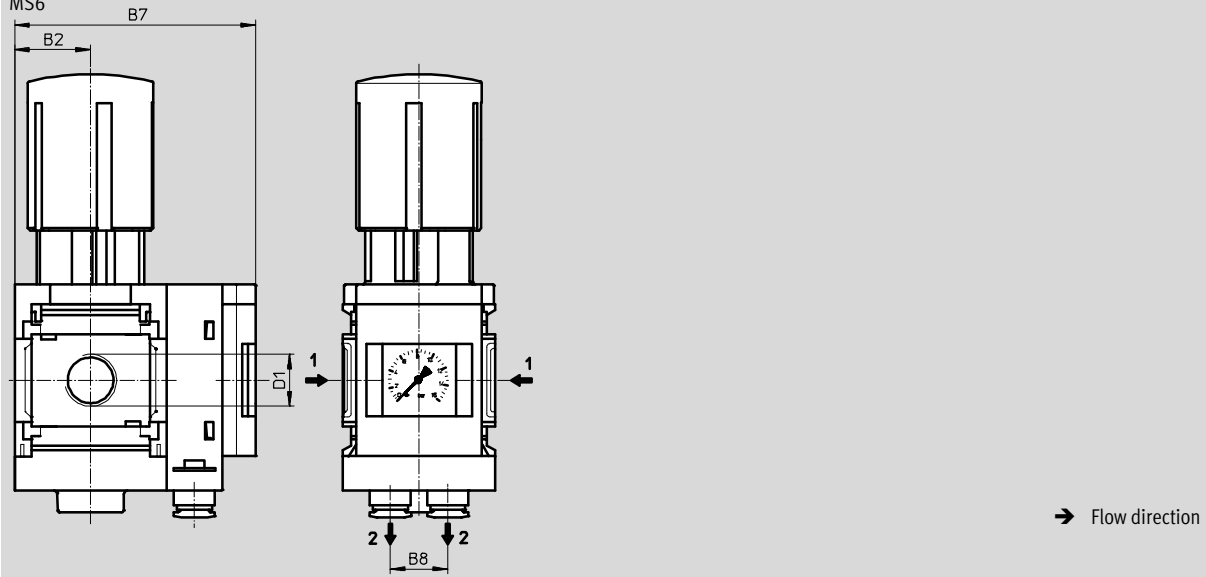
Dimensions – Angled outlet block BC/BD/BE

Download CAD data → www.festo.com

Pressure output to front Z

MS4 (not illustrated)

MS6



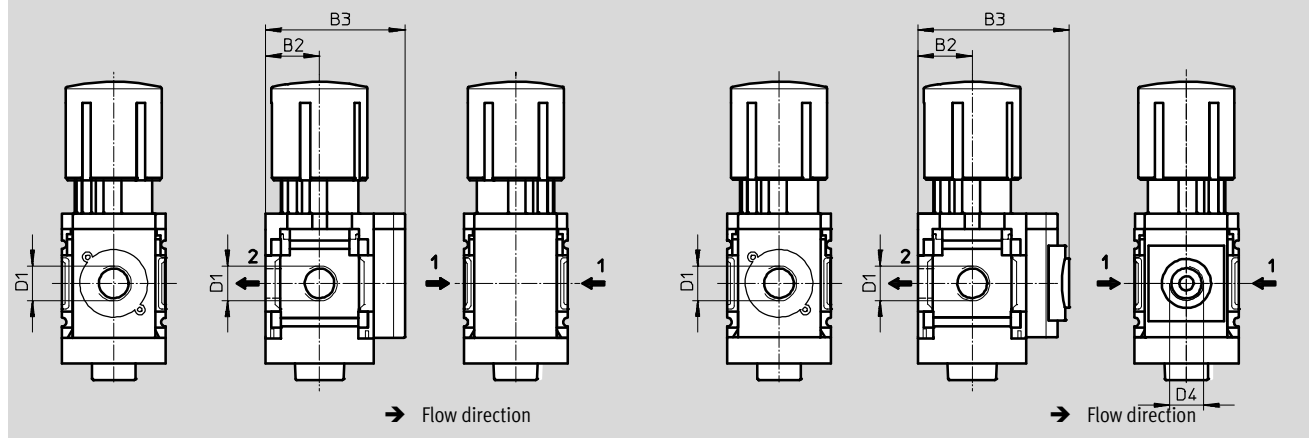
Type	B2	B7	B8	D1
MS4-LRB-1/4-...-B...	21	75	-	G1/4
MS6-LRB-1/2-...-B...	31	99	23.4	G1/2

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

Pressure regulators MS4/MS6-LRB, MS series

Technical data

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



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

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

Pressure regulators MS4/MS6-LRB, MS series

Technical data

Dimensions – Pressure gauge alternatives Download CAD data → www.festo.com
 Pressure sensor with LCD display AD1 ... AD4 Technical data → Internet: [sde1](#)

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

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

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

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

Pressure sensor without LCD display (operational status indicator only) AD7 ... AD10 Technical data → Internet: [sde5](#)

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

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

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

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

Type	B2	B3	D1	D6	L5	L6
MS4-LRB-1/4-...-AD1/AD2	21	82.6	G1/4	M8x1	35.1	46.7
MS4-LRB-1/4-...-AD3/AD4	21	82.6	G1/4	M12x1	35.1	55.8
MS4-LRB-1/4-...-AD7/AD8/AD9/AD10	21	59.1	G1/4	M8x1	–	–
MS6-LRB-1/2-...-AD1/AD2	31	103	G1/2	M8x1	35.1	46.7
MS6-LRB-1/2-...-AD3/AD4	31	103	G1/2	M12x1	35.1	55.8
MS6-LRB-1/2-...-AD7/AD8/AD9/AD10	31	79	G1/2	M8x1	–	–

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

Pressure regulators MS4/MS6-LRB, MS series

Technical data



Dimensions – Rotary knob

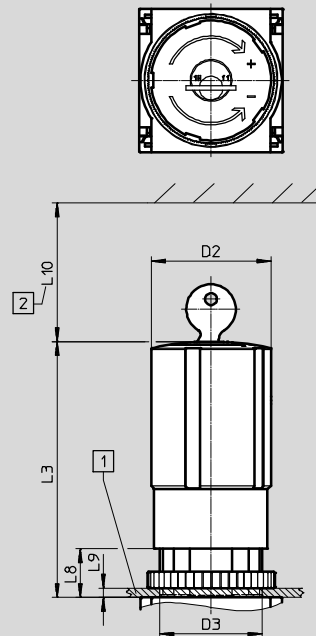
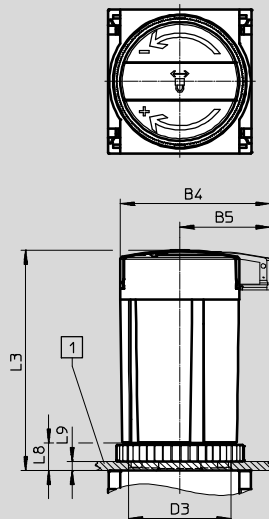
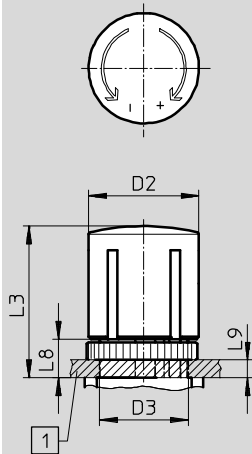
Download CAD data → www.festo.com

For installation into control panel

Rotary knob with detent

Rotary knob with detent, lockable via accessories AS

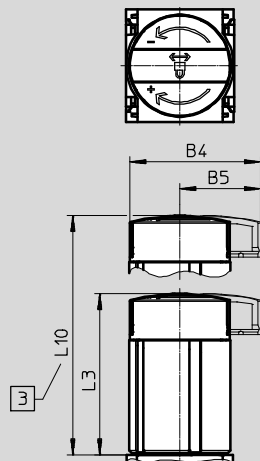
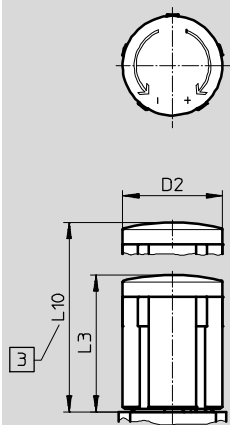
Rotary knob with integrated lock E11



- 1 Max. control panel thickness
- 2 Installation dimensions

Long rotary knob with detent LD

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

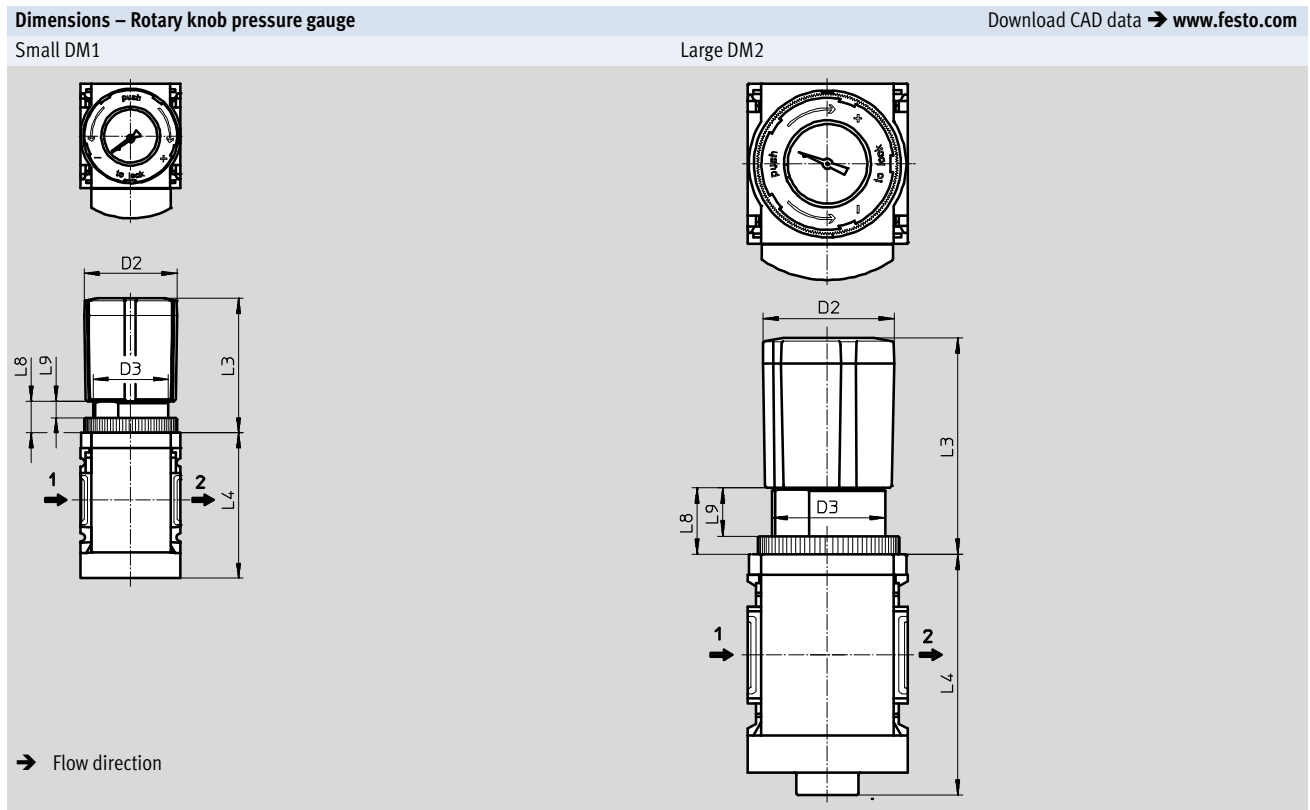


- 3 For pressure adjustment: pull out telescopic rotary knob fully

Type	B4	B5	D2	D3	L3	L8	L9	L10
MS4-LRB-...	-	-	37.2	M30x1.5	51.1	13	5	-
MS4-LRB-...-AS	48.6	30			60.2	13	5	-
MS4-LRB-...-E11	-	-			76	14	6	60
MS4-LRB-...-LD	-	-		-	51.1	-	-	76.8
MS4-LRB-...-LD-AS	48.6	30		-	60	-	-	85.7
MS6-LRB-...	-	-	51.2	M44x1	86	21	14	-
MS6-LRB-...-AS	64.4	38.8			95.1	12	5	-
MS6-LRB-...-E11	-	-			110	21	14	60
MS6-LRB-...-LD	-	-		-	86	-	-	139
MS6-LRB-...-LD-AS	64.4	38.8		-	95.5	-	-	148.5

Pressure regulators MS4/MS6-LRB, MS series

Technical data



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

Ordering data
Rotary knob with detent, lockable via accessories

Size	Connection	Pressure regulation range 0.3 ... 4 bar		Pressure regulation range 0.3 ... 7 bar		Pressure regulation range 0.5 ... 12 bar	
		Part No.	Type	Part No.	Type	Part No.	Type
Integrated MS pressure gauge, display unit [bar], pressure output to rear without angled outlet block							
MS4	G $\frac{1}{4}$	529473	MS4-LRB- $\frac{1}{4}$ -D5-AS	529479	MS4-LRB- $\frac{1}{4}$ -D6-AS	529485	MS4-LRB- $\frac{1}{4}$ -D7-AS
MS6	G $\frac{1}{2}$	530322	MS6-LRB- $\frac{1}{2}$ -D5-AS	530328	MS6-LRB- $\frac{1}{2}$ -D6-AS	530334	MS6-LRB- $\frac{1}{2}$ -D7-AS
Integrated MS pressure gauge, display unit [bar], pressure output to rear with angled outlet block QS-8							
MS4	G $\frac{1}{4}$	529474	MS4-LRB- $\frac{1}{4}$ -D5-AS-BD	529480	MS4-LRB- $\frac{1}{4}$ -D6-AS-BD	529486	MS4-LRB- $\frac{1}{4}$ -D7-AS-BD
MS6	G $\frac{1}{2}$	-	-	530329	MS6-LRB- $\frac{1}{2}$ -D6-AS-BD	530335	MS6-LRB- $\frac{1}{2}$ -D7-AS-BD
Adapter plate A8 for EN pressure gauge $\frac{1}{8}$, pressure output to rear without angled outlet block							
MS4	G $\frac{1}{4}$	529471	MS4-LRB- $\frac{1}{4}$ -D5-A8-AS	529477	MS4-LRB- $\frac{1}{4}$ -D6-A8-AS	529483	MS4-LRB- $\frac{1}{4}$ -D7-A8-AS
Adapter plate A4 for EN pressure gauge $\frac{1}{4}$, pressure output to rear without angled outlet block							
MS6	G $\frac{1}{2}$	530320	MS6-LRB- $\frac{1}{2}$ -D5-A4-AS	530326	MS6-LRB- $\frac{1}{2}$ -D6-A4-AS	530332	MS6-LRB- $\frac{1}{2}$ -D7-A4-AS

Pressure regulators MS4/MS6-LRB, MS series

Ordering data – Modular products

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

1 $\frac{1}{4}$, $\frac{1}{2}$, **D8**, **AD1 ... AD4**, **AD7 ... AD10**, **DM1**, **DM2**, **KD**, **E11**, **WPM**

Not with EU certification EX4

2 **D8**, **RG**, **OS**, **KD**, **AS**

Not with rotary knob pressure gauge DM1, DM2

3 **VS**

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

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

M Mandatory data

O Options

Transfer order code

MS - **LRB** - - - -

Pressure regulators MS4/MS6-LRB, MS series

Ordering data – Modular products

Ordering table							
Grid dimension	[mm]	40	62	Condi- tions	Code	Enter code	
[O]	Secondary venting	Without secondary venting		[2]	-OS		
	Rotary knob alternative	Long rotary knob		[9]	-LD		
		Rotary knob pressure gauge, small	-		[1] [9] [10]	-DM1	
		-	Rotary knob pressure gauge, large		[1] [9] [10]	-DM2	
	Alternative mounting position	Rotary knob underneath		[1] [2] [11]	-KD		
[M]	Security	Without					
		Lockable via accessories		[2]	-AS		
		With integrated lock		[1]	-E11		
[O]	Pressure output (p _{max} = 10 bar)	Angled outlet block QS-6		-	-BC		
		Angled outlet block QS-8		Angled outlet block QS-8	-BD		
		-		Angled outlet block QS-10	-BE		
	Type of mounting	Mounting bracket with knurled nut for regulator head		[12] [13]	-WR		
		Mounting bracket standard design		[14] [15]	-WP		
		Mounting bracket for attaching the service units		[1] [12] [14]	-WPM		
		Mounting bracket for large wall gap		[14] [16]	-WPB		
		Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required		[12]	-WB		
		Mounting bracket centrally at rear (wall mounting top), connecting plates not required		[12]	-WBM		
	EU certification	II 2GD to EU Explosion Protection Directive (ATEX)			-EX4		
UL certification	cULus, ordinary location for Canada and USA			-UL1			
Flow direction	Pressure output to front (without pressure output, no pressure gauge)			-Z			

- | | |
|---|--|
| <p>[4] A8, A4, AD1 ... AD4
Not with flow direction Z.
In combination with flow direction Z only with alternative mounting position KD</p> <p>[5] AD1 ... AD4, AD7 ... AD10
Measuring range max. 10 bar
Not with pressure regulation range D8</p> <p>[6] AD7 ... AD10 In combination with flow direction Z only with pressure output BC, BD, BE or
In combination with flow direction Z only with alternative mounting position KD</p> <p>[7] PSI
Not with pressure gauge alternatives VS, A8, A4, RG, AD1 ... AD4, AD7 ... AD10
In combination with flow direction Z only with pressure output BC, BD, BE</p> <p>[8] MPA
Not with pressure gauge alternatives VS, A8, A4, AD1 ... AD4, AD7 ... AD10
Not with alternative mounting position KD.
Not with rotary knob alternative DM1, DM2
In combination with flow direction Z only with pressure output BC, BD, BE</p> <p>[9] LD, DM1, DM2
Not with integrated lock E11</p> <p>[10] DM1, DM2 Can only be selected in combination with pressure gauge alternative VS, A4,
AD1 ... AD4, AD7 ... AD10</p> | <p>[11] KD
Not with alternative pressure gauge scale MPA.
In combination with alternative pressure gauge scale PSI only with flow direction Z
and/or only with pressure output BC, BD, BE
Not with mounting type WP, WPB.
In combination with mounting type WR, WPM, WB, WBM not with flow direction Z.
Not with pressure gauge alternative RG.
In combination with pressure gauge alternatives A8, A4, AD1, AD2, AD3, AD4 only with
flow direction Z.</p> <p>[12] WR, WPM, WB, WBM
In combination with flow direction Z not with alternative mounting position KD</p> <p>[13] WR
Only with flow direction Z.
Not with rotary knob alternative LD</p> <p>[14] WP, WPM, WPB
Only with connecting plate AGA, AGB, AGC, AGD, AGE</p> <p>[15] WP
Only with flow direction Z and/or only with pressure output BC, BD, BE</p> <p>[16] WPB
Not with flow direction Z.
Not with pressure output BC, BD, BE</p> |
|---|--|

- [M] Mandatory data
- [O] Options

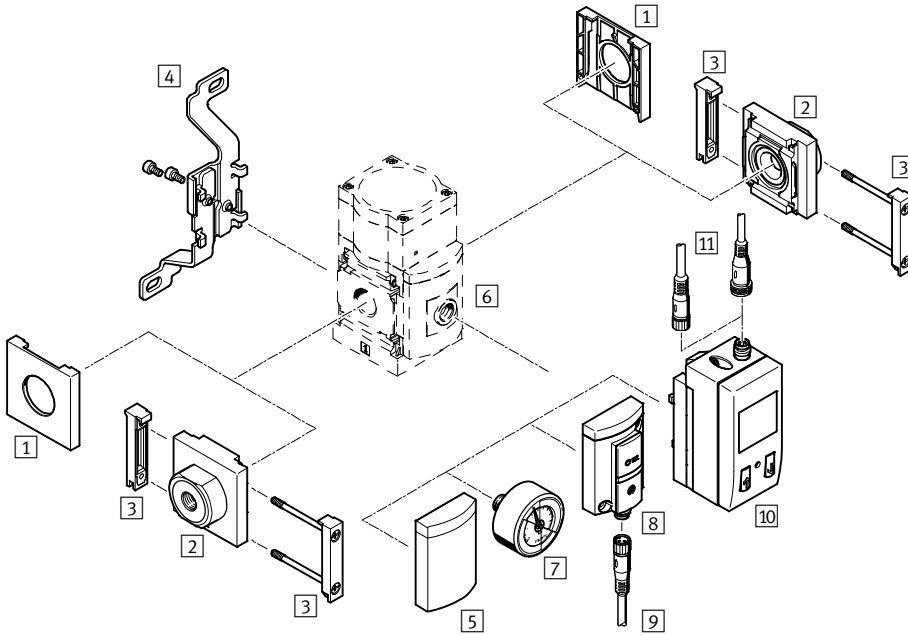
Transfer order code

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

Precision pressure regulators MS6-LRP, MS series

Peripherals overview

Precision pressure regulator MS6-LRP



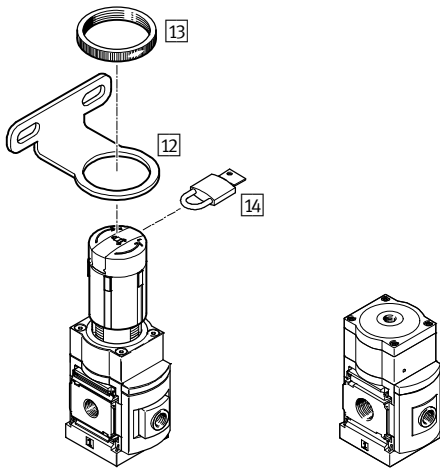
Note

Additional accessories:

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

Manually operated

Pneumatically actuated



Precision pressure regulators MS6-LRP, MS series

Peripherals overview

Mounting attachments and accessories						
		Individual device		Combination		→ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
1	Cover cap MS6-END	■	-	■	-	ms6-end
2	Connecting plate-SET MS6-AG...	-	■	-	■	ms6-ag
	Connecting plate-SET MS6-AQ...	-	■	-	■	ms6-aq
3	Module connector MS6-MV	-	■	■	■	ms6-mv
4	Mounting bracket MS6-WB	■	■	-	-	ms6-wb
5	Cover plate VS	■	■	■	■	52
6	Adapter plate for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	52
7	Precision pressure gauge A8M/MAP	■	■	■	■	52, 100
8	Pressure sensor without display AD7 ... AD10	■	■	■	■	52
9	Connecting cable NEBU-M8...-LE3	■	■	■	■	100
10	Pressure sensor with display AD1 ... AD4	■	■	■	■	52
11	Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4	■	■	■	■	100
12	Mounting bracket MS6-WR	■	■	-	-	ms6-wr
13	Knurled nut (included in scope of delivery) MS-LR	■	■	-	-	-
14	Padlock LRVS-D	■	■	■	■	100
-	Mounting bracket MS6-WP/WPB/WPE/WPM	-	■	■	■	ms6-wp

Precision pressure regulators MS6-LRP, MS series

Type codes

MS 6 - LRP - 1/2 - D7 - A8

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

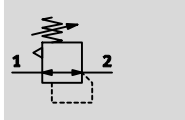
Further variants can be ordered using the modular system → 52

- Pneumatic connection
- Pressure regulation range/operation
- Pressure gauge alternatives
- Rotary knob alternatives
- Alternative mounting position
- Security
- Type of mounting
- EU certification
- UL certification
- Flow direction

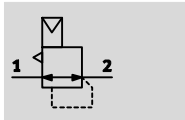
Precision pressure regulators MS6-LRP, MS series

Technical data

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



pneumatically actuated PO



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



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

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

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

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

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

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

Precision pressure regulators MS6-LRP, MS series

FESTO

Technical data

Flow rates					
Pressure regulation range		D2 (0.05 ... 0.7 bar)	D4 (0.05 ... 2.5 bar)	D5 (0.1 ... 4 bar)	D7/PO (0.1 ... 12 bar)
Standard nominal flow rate q_{nN} [l/min]					
$q_{nN} 1 \rightarrow 2$	G $\frac{1}{4}$	800 ¹⁾	1,100 ²⁾	1,400 ³⁾	3,000 ⁴⁾
	G $\frac{3}{8}$	1,100 ¹⁾	1,400 ²⁾	1,700 ³⁾	3,300 ⁴⁾
	G $\frac{1}{2}$	1,600 ¹⁾	2,300 ²⁾	3,000 ³⁾	5,000 ⁴⁾
Secondary venting flow rate [l/min]					
$q_{n2} 2 \rightarrow 3$		≥ 220 ⁵⁾	≥ 450 ⁶⁾	≥ 650 ⁷⁾	≥ 900 ⁸⁾

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

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

Operating and environmental conditions	
Operating pressure [bar]	1 ... 14 (1 ... 10) ¹⁾
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4] Inert gases
Note on operating/pilot medium	Operation with lubricated medium not possible
Ambient temperature [°C]	-10 ... +60 (0 ... +50) ²⁾
Temperature of medium [°C]	-10 ... +60 (0 ... +50) ²⁾
Storage temperature [°C]	-10 ... +60
Corrosion resistance class CRC ³⁾	2
UL certification ⁴⁾	cULus recognized (OL)

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

ATEX	
EU certification	EX4
ATEX category gas	II 2G
Ex-ignition protection type gas	Ex h IIC T6 Gb X
ATEX category dust	II 2D
EX-ignition protection type dust	Ex h IIIC T60°C Db X
ATEX ambient temperature	-10 °C \leq Ta \leq +60 °C
CE mark (see declaration of conformity) ¹⁾	To EU Explosion Protection Directive (ATEX)

- 1) Additional information www.festo.com/sp → Certificates.

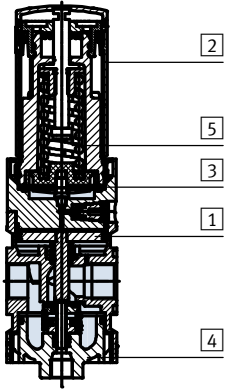
Weight [g]	
Precision pressure regulator	1,000
Precision pressure regulator with rotary knob with integrated lock E11	1,120

Precision pressure regulators MS6-LRP, MS series

Technical data

Materials

Sectional view

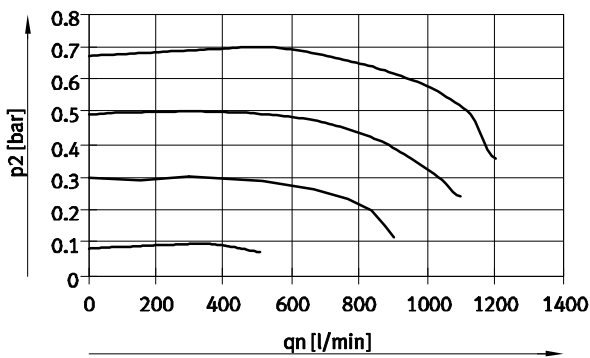


Precision pressure regulator

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

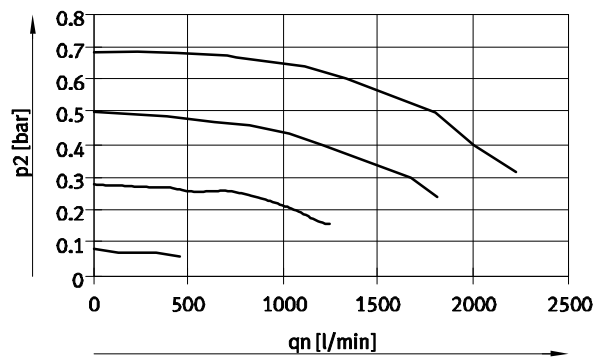
Standard flow rate q_n as a function of output pressure p_2 ($p_1 = 10$ bar)

MS6-LRP-1/4-D2



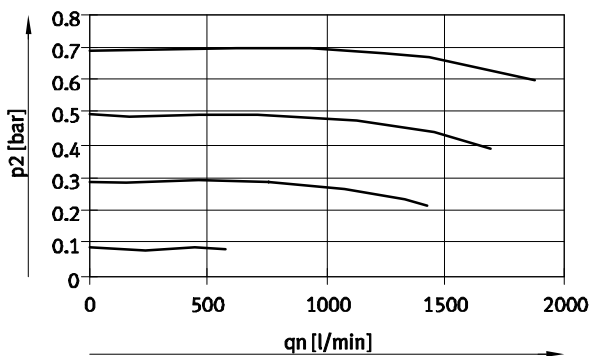
— D2: 0.05...0.7 bar

MS6-LRP-3/8-D2



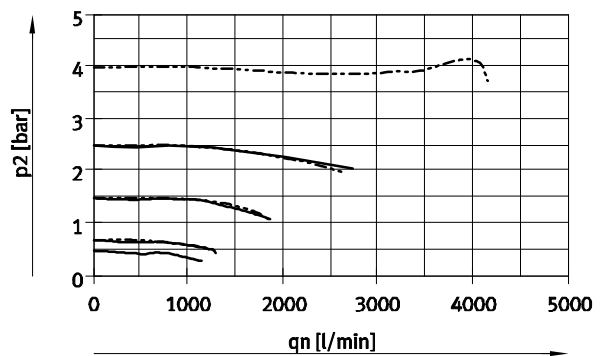
— D2: 0.05...0.7 bar

MS6-LRP-1/2-D2



— D2: 0.05...0.7 bar

MS6-LRP-1/4-D4/D5



— D4: 0.05...2.5 bar

- - - D5: 0.1...4 bar

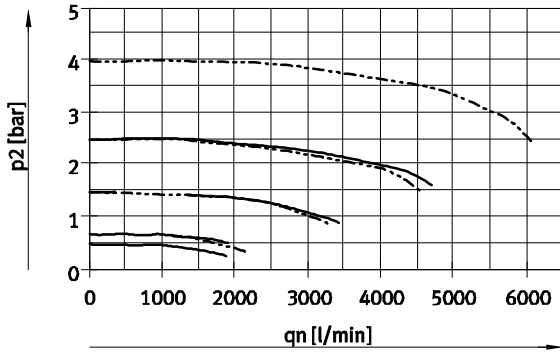
Precision pressure regulators MS6-LRP, MS series

Technical data

FESTO

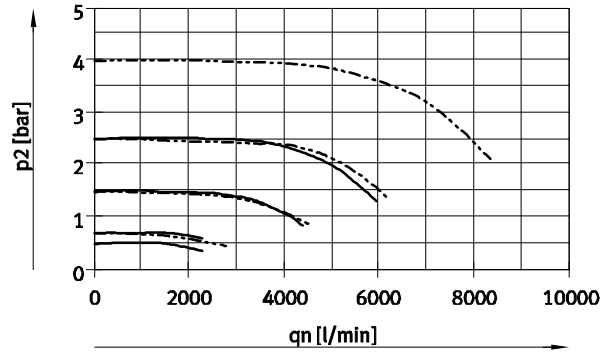
Standard flow rate q_n as a function of output pressure p_2 ($p_1 = 10$ bar)

MS6-LRP- $\frac{3}{8}$ -D4/D5



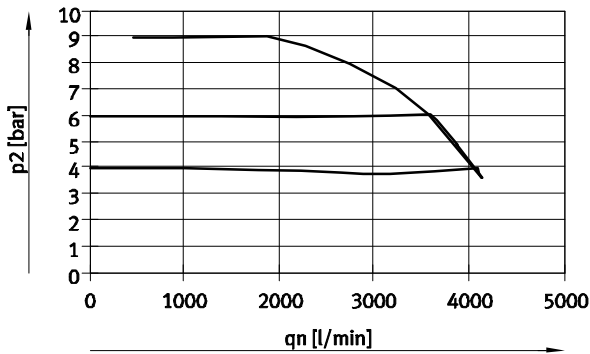
— D4: 0.05...2.5 bar
 - - - D5: 0.1...4 bar

MS6-LRP- $\frac{1}{2}$ -D4/D5



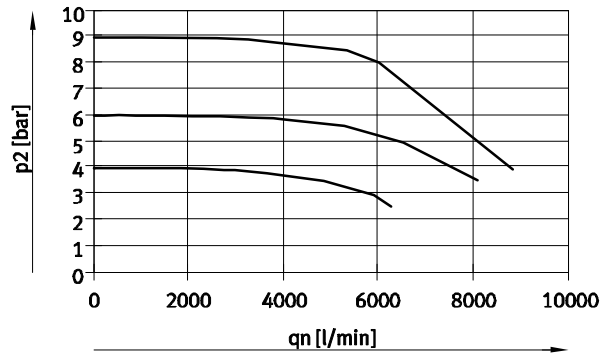
— D4: 0.05...2.5 bar
 - - - D5: 0.1...4 bar

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



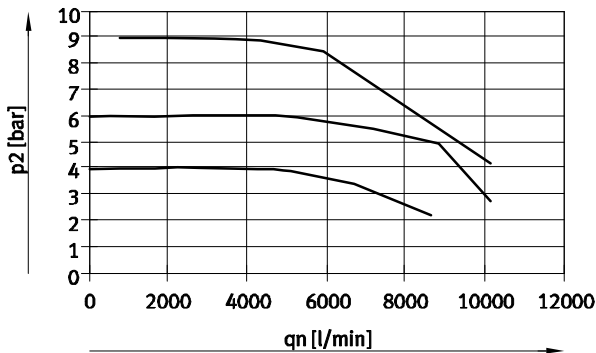
— D7/PO: 0.1...12 bar

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



— D7/PO: 0.1...12 bar

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



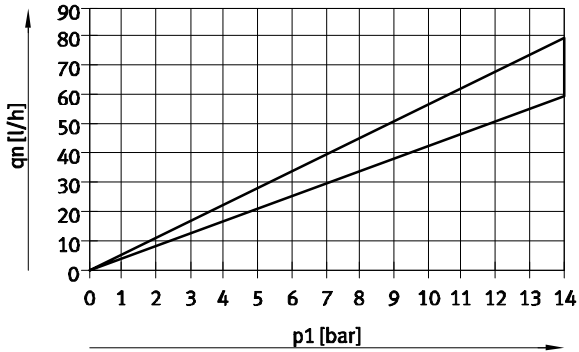
— D7/PO: 0.1...12 bar

Precision pressure regulators MS6-LRP, MS series

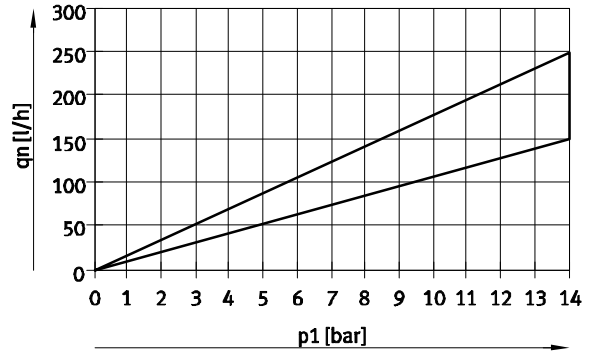
Technical data

Internal air consumption q_n as a function of input pressure p_1

MS6-LRP-...-D2/D4



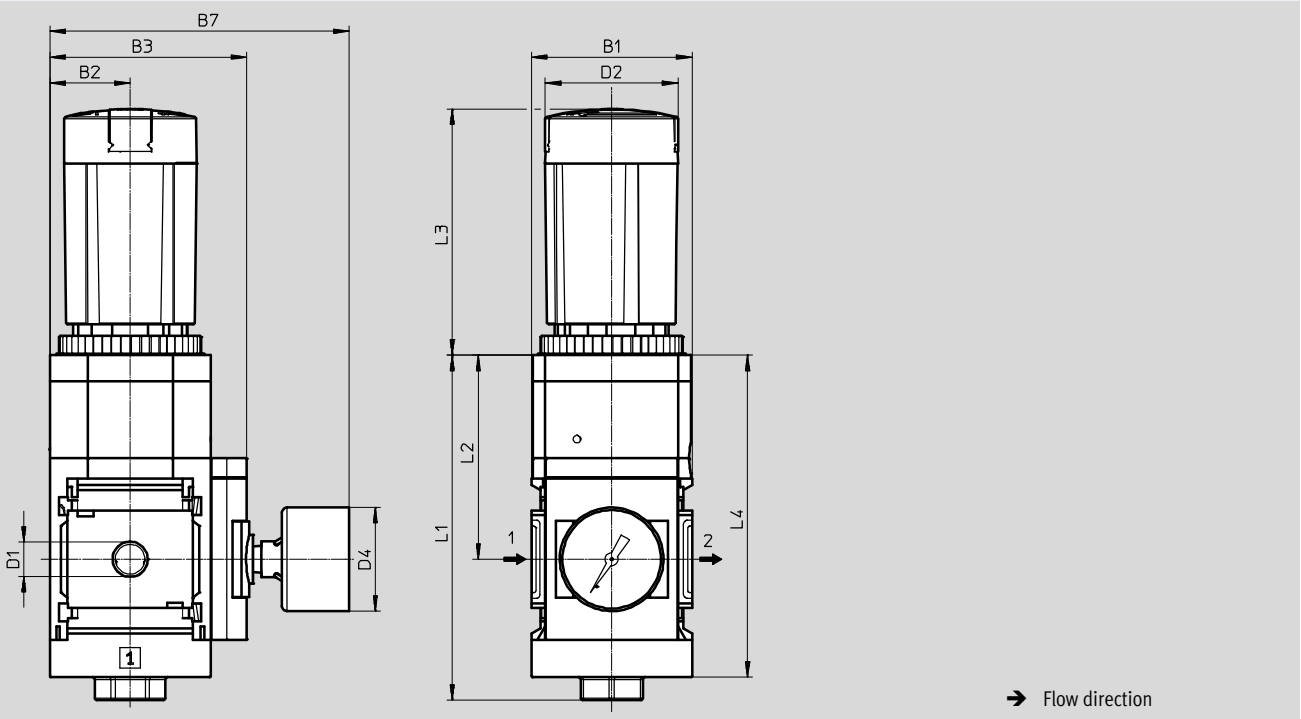
MS6-LRP-...-D5/D7/PO



Dimensions

Download CAD data → www.festo.com

Pressure regulation range D2/D4/D5/D7, manually operated, adapter plate for EN pressure gauge 1/8, with precision pressure gauge A8M, rotary knob with detent, lockable via accessories AS



Type	B1	B2	B3	B7	D1	D2 ∅	D4 ∅	L1	L2	L3	L4
MS6-LRP-1/4-D2/D4/D5/D7-A8M	62	31	76	116	G1/4	51.2	40	133	78	95.1	124
MS6-LRP-3/8-D2/D4/D5/D7-A8M					G3/8						
MS6-LRP-1/2-D2/D4/D5/D7-A8M					G1/2						

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

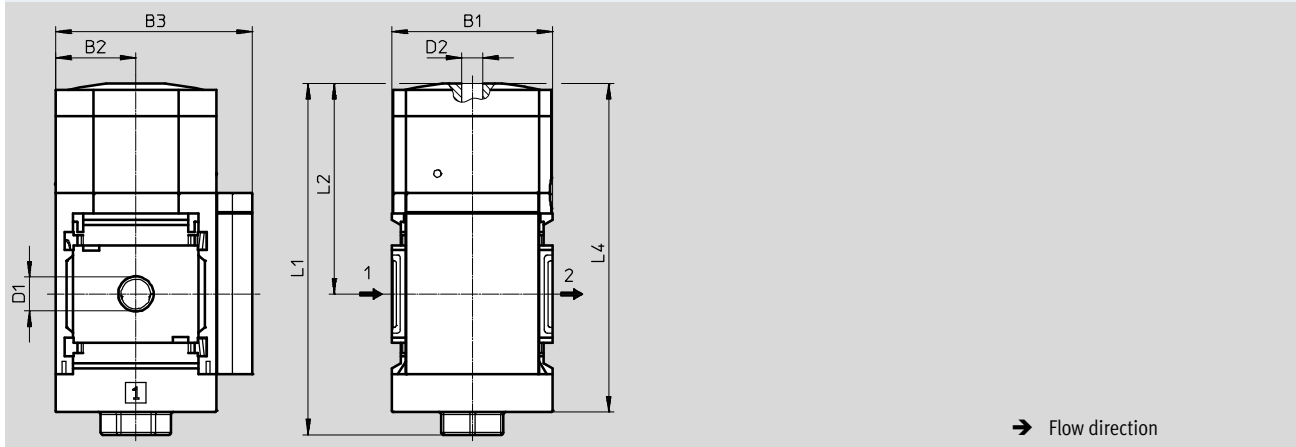
Precision pressure regulators MS6-LRP, MS series

Technical data

Dimensions

Download CAD data → www.festo.com

Pressure regulation range PO, pneumatically actuated, cover plate VS



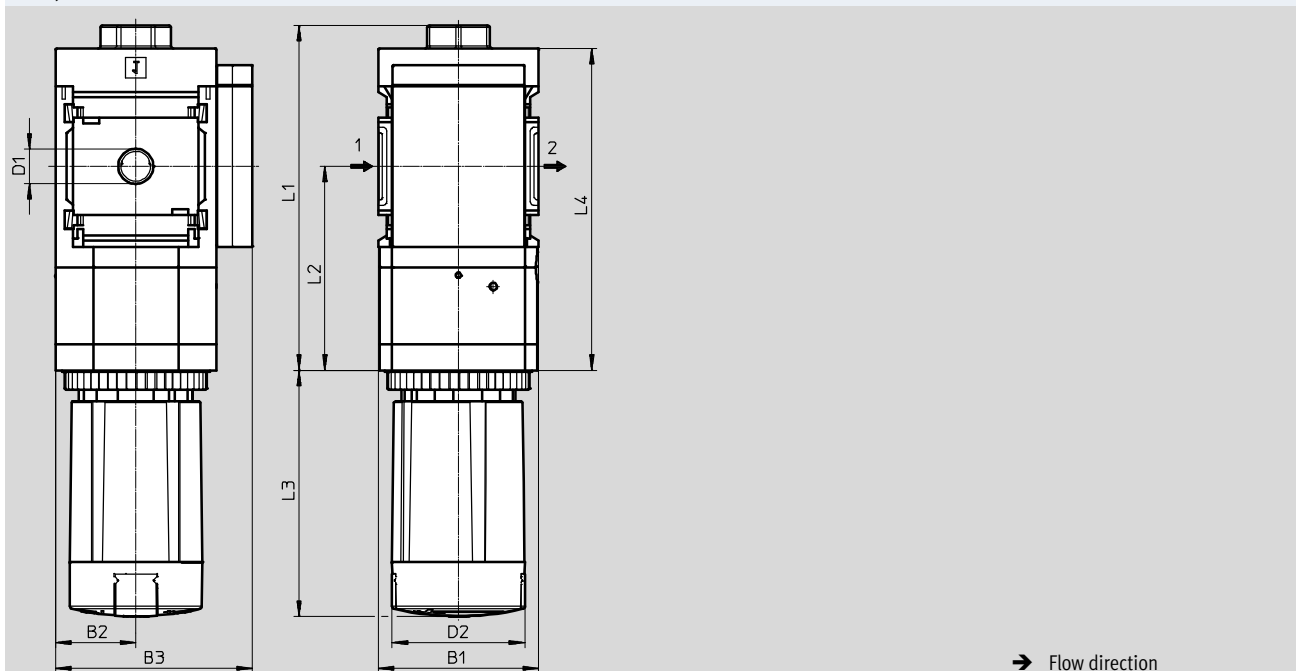
Type	B1	B2	B3	D1	D2	L1	L2	L4
MS6-LRP-1/4-PO-VS	62	31	76	G1/4	G1/8	136	81	127
MS6-LRP-3/8-PO-VS				G3/8				
MS6-LRP-1/2-PO-VS				G1/2				

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

Dimensions – Alternative mounting position

Download CAD data → www.festo.com

Rotary knob at bottom KD



Type	B1	B2	B3	D1	D2 Ø	L1	L2	L3	L4
MS6-LRP-1/4-...-KD	62	31	76	G1/4	51.2	133	78	95.1	124
MS6-LRP-3/8-...-KD				G3/8					
MS6-LRP-1/2-...-KD				G1/2					

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

Precision pressure regulators MS6-LRP, MS series

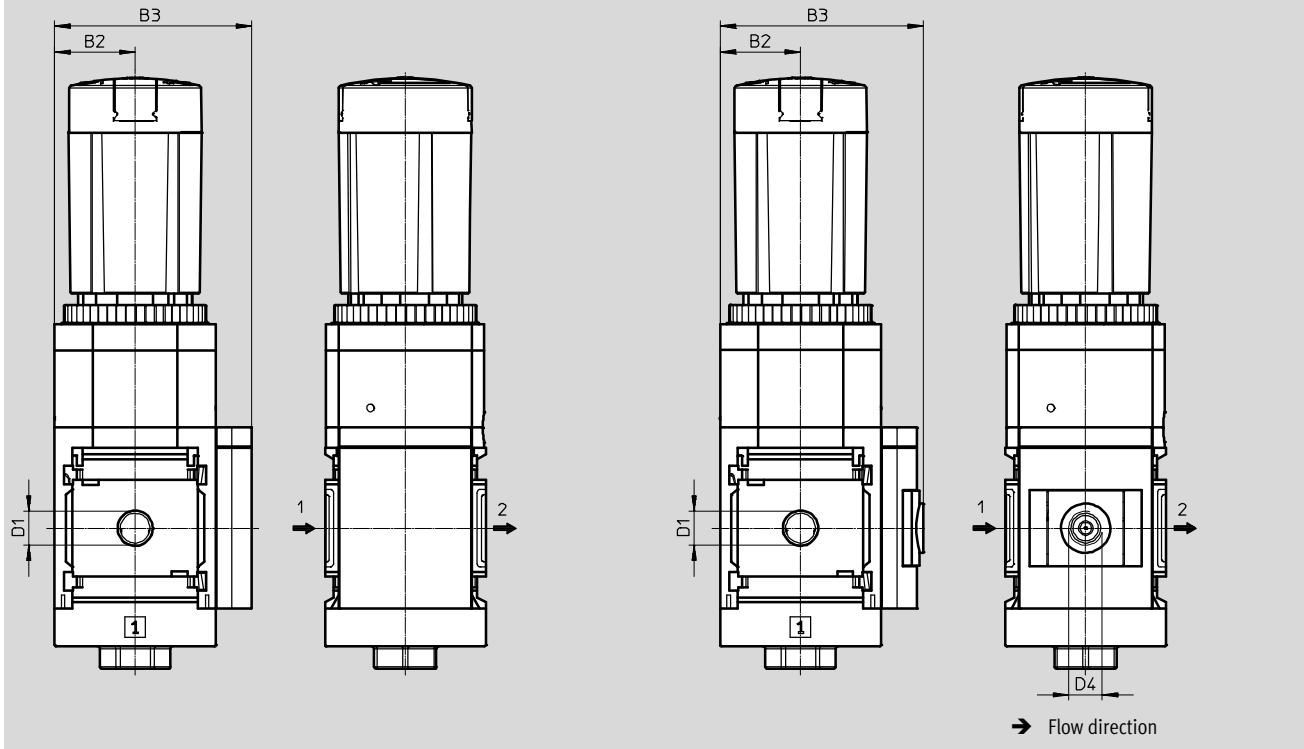
Technical data

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Cover plate VS

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



Type	B2	B3	D1	D4
MS6-LRP-1/4-...-VS	31	76	G1/4	-
MS6-LRP-3/8-...-VS			G3/8	
MS6-LRP-1/2-...-VS			G1/2	
MS6-LRP-1/4-...-A8	31	78.5	G1/4	G1/8
MS6-LRP-3/8-...-A8			G3/8	
MS6-LRP-1/2-...-A8			G1/2	
MS6-LRP-1/4-...-A4	31	78.5	G1/4	G1/4
MS6-LRP-3/8-...-A4			G3/8	
MS6-LRP-1/2-...-A4			G1/2	

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

Precision pressure regulators MS6-LRP, MS series

Technical data

Dimensions – Pressure gauge alternatives Download CAD data → www.festo.com
Technical data → Internet: sde1

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

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

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

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

→ Flow direction

Type	B2	B3	D1	D6	L5	L6
MS6-LRP-1/4-...-AD1/AD2	31	103	G1/4	M8x1	35.1	46.7
MS6-LRP-3/8-...-AD1/AD2			G3/8			
MS6-LRP-1/2-...-AD1/AD2			G1/2			
MS6-LRP-1/4-...-AD3/AD4	31	103	G1/4	M12x1	35.1	55.8
MS6-LRP-3/8-...-AD3/AD4			G3/8			
MS6-LRP-1/2-...-AD3/AD4			G1/2			

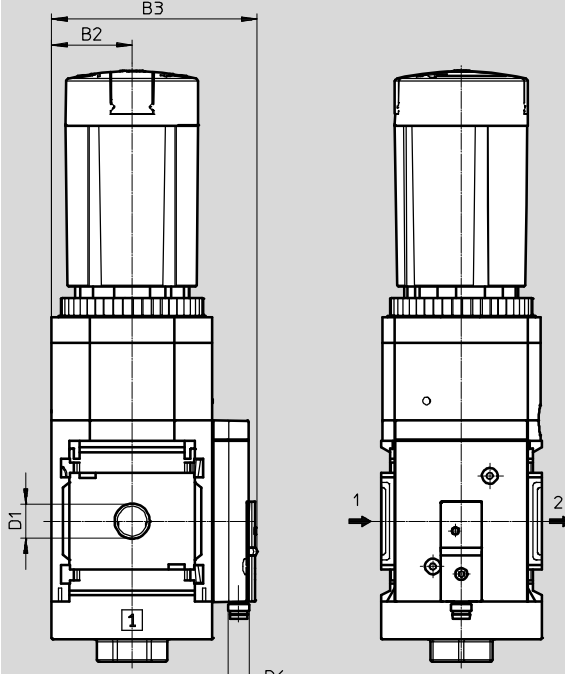
· || - Note: This product conforms to ISO 1179-1 and to ISO 228-1

Precision pressure regulators MS6-LRP, MS series

Technical data

Dimensions – Pressure gauge alternatives Download CAD data → www.festo.com

Pressure sensor without LCD display (operational status indicator only) AD7 ... AD10 Technical data → Internet: sde5



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

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

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

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

→ Flow direction

Type	B2	B3	D1	D6
MS6-LRP-1/4-...-AD7/AD8/AD9/AD10	31	79.1	G1/4	M8x1
MS6-LRP-3/8-...-AD7/AD8/AD9/AD10			G3/8	
MS6-LRP-1/2-...-AD7/AD8/AD9/AD10			G1/2	

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

Precision pressure regulators MS6-LRP, MS series

Technical data



Dimensions – Rotary knob

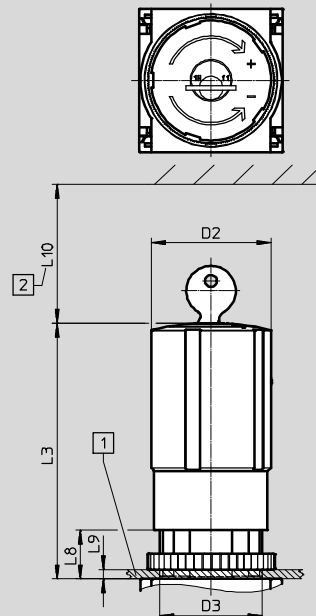
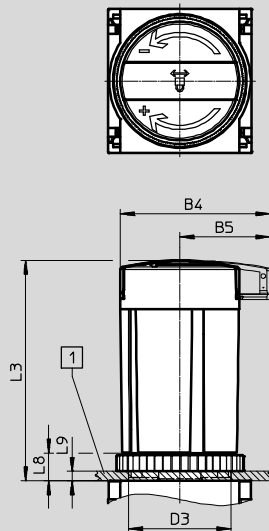
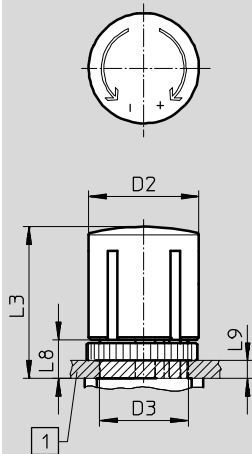
Download CAD data → www.festo.com

For installation into control panel

Rotary knob with detent

Rotary knob with detent, lockable via accessories AS

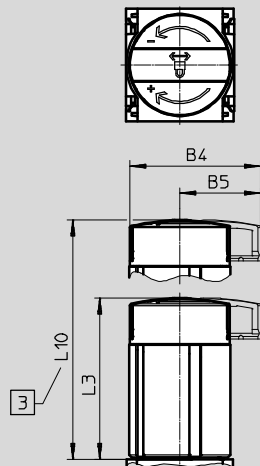
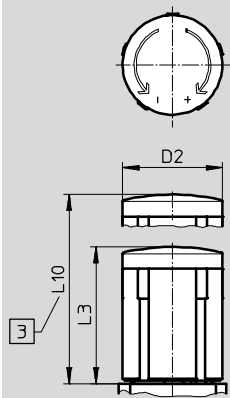
Rotary knob with integrated lock E11



- 1 Max. control panel thickness
- 2 Installation dimensions

Long rotary knob with detent LD

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



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

Type	B4	B5	D2	D3	L3	L8	L9	L10
MS6-LRP-...	-	-	51.2	M44x1	86	21	14	-
MS6-LRP-...-AS	64.4	38.8			95.1	12	5	
MS6-LRP-...-E11	-	-			110	21	14	
MS6-LRP-...-LD	-	-	-	-	86	-	-	139
MS6-LRP-...-LD-AS	64.4	38.8	-	-	95.5	-	-	148.5

Precision pressure regulators MS6-LRP, MS series

Technical data

Ordering data			
Adapter plate for EN pressure gauge 1/8, rotary knob with detent			
Size	Connection	Part No.	Type
Pressure regulation range 0.05 ... 0.7 bar, manually operated			
MS6	G1/4	538004	MS6-LRP-1/4-D2-A8
	G3/8	538012	MS6-LRP-3/8-D2-A8
	G1/2	538020	MS6-LRP-1/2-D2-A8
Pressure regulation range 0.05 ... 2.5 bar, manually operated			
MS6	G1/4	538006	MS6-LRP-1/4-D4-A8
	G3/8	538014	MS6-LRP-3/8-D4-A8
	G1/2	538022	MS6-LRP-1/2-D4-A8
Pressure regulation range 0.1 ... 4 bar, manually operated			
MS6	G1/4	538008	MS6-LRP-1/4-D5-A8
	G3/8	538016	MS6-LRP-3/8-D5-A8
	G1/2	538024	MS6-LRP-1/2-D5-A8
Pressure regulation range 0.1 ... 12 bar, manually operated			
MS6	G1/4	538010	MS6-LRP-1/4-D7-A8
	G3/8	538018	MS6-LRP-3/8-D7-A8
	G1/2	538026	MS6-LRP-1/2-D7-A8

Precision pressure regulators MS6-LRP, MS series

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Ordering data – Modular products

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

1 $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, **AQN, AQP, AQR, AQS, PO, AD1 ... AD4, AD7 ... AD10, KD, E11, WPM**

Not with EU certification EX4

2 **PO**

Not with rotary knob alternative LD

Not with security AS, E11

Not with mounting type WR

3 **AD1 ... AD4** Measuring range max. 10 bar.

Not with pressure regulation range/operation D2, D4

4 **AD7 ... AD10** Measuring range max. 10 bar.

Not with pressure regulation range/operation D2

M Mandatory data

O Options

Transfer order code

538028 **MS** **6** - **LRP** - - -

Precision pressure regulators MS6-LRP, MS series

Ordering data – Modular products

Ordering table					
Grid dimension	[mm]	62	Condi- tions	Code	Enter code
O	Rotary knob alternative	Long rotary knob	5	-LD	
	Alternative mounting position	Rotary knob underneath	1 6	-KD	
M	Security	Without			
		Lockable via accessories		-AS	
		With integrated lock	1	-E11	
O	Type of mounting	Mounting bracket with knurled nut for regulator head	7	-WR	
		Mounting bracket standard design	8	-WP	
		Mounting bracket for attaching the service units	1 8	-WPM	
		Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required		-WB	
		EU certification	II 2GD to EU Explosion Protection Directive (ATEX)		-EX4
	UL certification	cULus, ordinary location for Canada and USA		-UL1	
	Flow direction	Flow direction from right to left (without pressure output, no pressure gauge)		-Z	

- 5 LD Not with integrated lock E11
- 6 KD Not with mounting type WP
- 7 WR Not with rotary knob alternative LD
- 8 WP, WPM Only with connecting plate AGB, AGC, AGD, AGE, AQN, AQP, AQR or AQS

M Mandatory data
O Options

Transfer order code

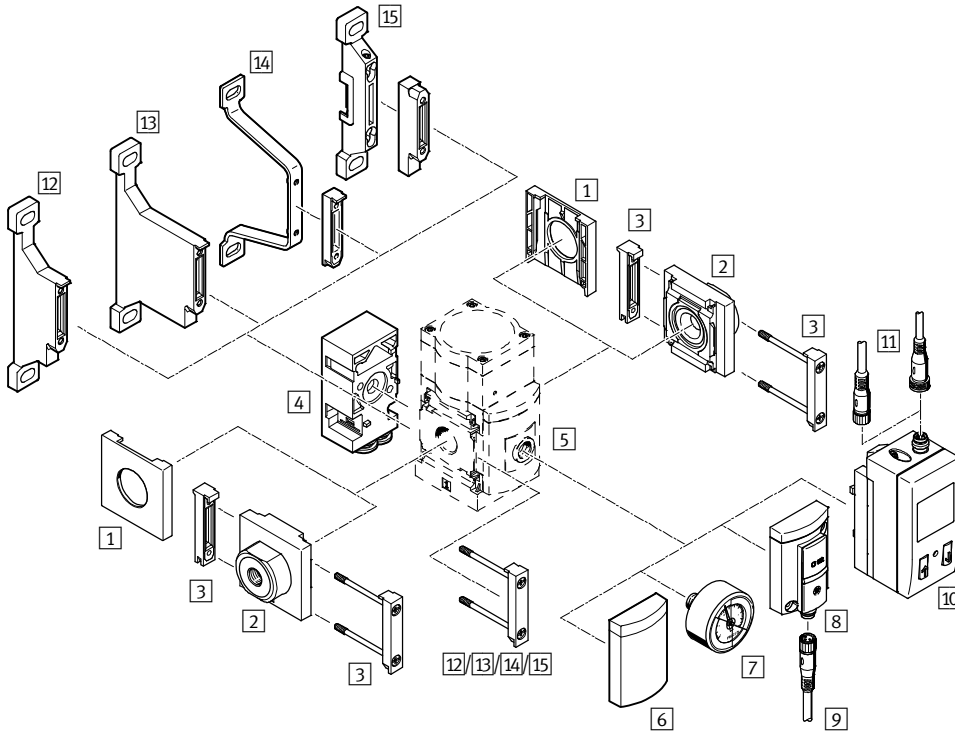
- [] - [] - [] - [] - [] - [] - []

Precision pressure regulators MS6-LRPB, MS series

Peripherals overview



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



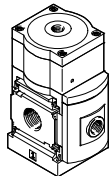
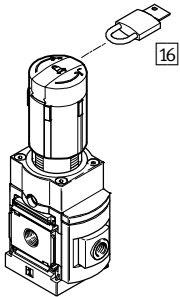
Note

Additional accessories:

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

Manually operated

Pneumatically actuated



Precision pressure regulators MS6-LRPB, MS series

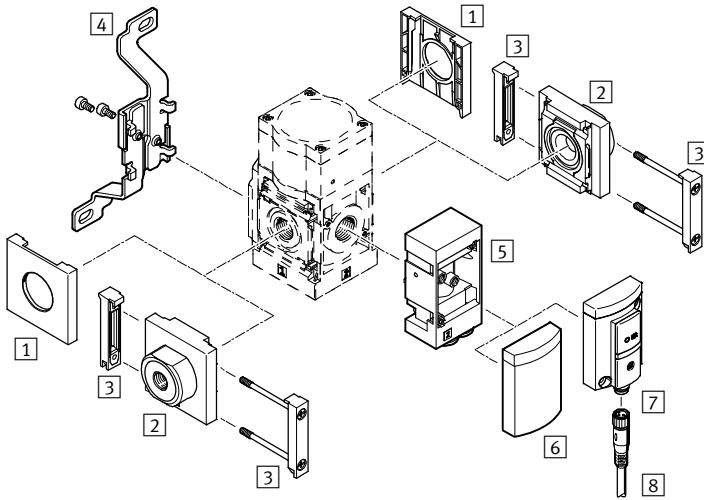
Peripherals overview

Mounting attachments and accessories						
		Individual device		Combination		→ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
1	Cover cap MS6-END	■	-	■	-	ms6-end
2	Connecting plate-SET MS6-AG...	-	■	-	■	ms6-ag
3	Module connector MS6-MV	-	■	■	■	ms6-mv
4	Angled outlet block B...	■	■	■	■	68
5	Adapter plate for EN pressure gauge 1/8/1/4 A8/A4	■	■	■	■	68
6	Cover plate VS	■	■	■	■	68
7	Precision pressure gauge A8M/MAP	■	■	■	■	68, 100
8	Pressure sensor without display AD7 ... AD10	■	■	■	■	68
9	Connecting cable NEBU-M8...-LE3	■	■	■	■	100
10	Pressure sensor with display AD1 ... AD4	■	■	■	■	68
11	Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4	■	■	■	■	100
12	Mounting bracket MS6-WP	-	■	■	■	ms6-wp
13	Mounting bracket MS6-WPB	-	■	■	■	ms6-wp
14	Mounting bracket MS6-WPE	-	■	■	■	ms6-wp
15	Mounting bracket MS6-WPM	-	■	■	■	ms6-wp
16	Padlock LRVS-D	■	■	■	■	100

Precision pressure regulators MS6-LRPB, MS series

Peripherals overview

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



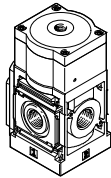
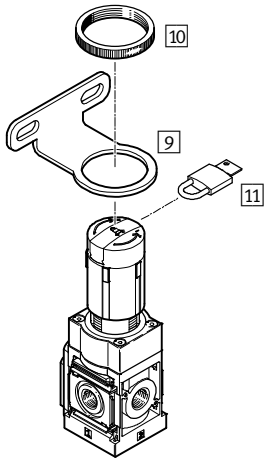
-  - Note

Additional accessories:

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

Manually operated

Pneumatically actuated



Precision pressure regulators MS6-LRPB, MS series

Peripherals overview

Mounting attachments and accessories						
		Individual device		Combination		→ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
1	Cover cap MS6-END	■	-	■	-	ms6-end
2	Connecting plate-SET MS6-AG...	-	■	-	■	ms6-ag
3	Module connector MS6-MV	-	■	■	■	ms6-mv
4	Mounting bracket MS6-WB	■	■	-	-	ms6-wb
5	Angled outlet block B...	■	■	■	■	68
6	Cover plate VS	■	■	■	■	68
7	Pressure sensor without display AD7 ... AD10	■	■	■	■	68
8	Connecting cable NEBU-M8...-LE3	■	■	■	■	100
9	Mounting bracket MS6-WR	■	■	-	-	ms6-wr
10	Knurled nut (included in scope of delivery) MS-LR	■	■	-	-	-
11	Padlock LRVS-D	■	■	■	■	100

Precision pressure regulators MS6-LRPB, MS series

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
Pneumatic connection	
1/2	Female thread G1/2
Pressure regulation range/operation	
D2	0.05 ... 0.7 bar, manually operated
D4	0.05 ... 2.5 bar, manually operated
D5	0.1 ... 4 bar, manually operated
D7	0.1 ... 12 bar, manually operated
Pressure gauge alternatives	
A8	Adapter plate for EN pressure gauge 1/8, without pressure gauge
Pressure output	
	Without angled outlet block
BD	Angled outlet block QS-8

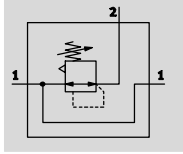
Further variants can be ordered using the modular system → 68

- Pneumatic connection
- Pressure regulation range/operation
- Pressure gauge alternatives
- Rotary knob alternatives
- Alternative mounting position
- Security
- Alternative pressure output
- Type of mounting
- EU certification
- UL certification
- Flow direction

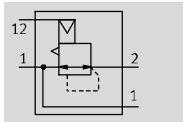
Precision pressure regulators MS6-LRPB, MS series

Technical data

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



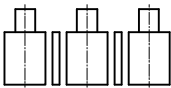
pneumatically actuated PO



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



Precision pressure regulator for manifold assembly:



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

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

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

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

1) Variant D2/D4/D5/D7: Supply pressure p1 \geq output pressure p2 + 1 bar. Variant PO: Pilot pressure p12 = output pressure p2 + max. 0.5 bar.
 - - Note: This product conforms to ISO 1179-1 and to ISO 228-1

Precision pressure regulators MS6-LRPB, MS series

FESTO

Technical data

General technical data	
Size	MS6
Pressure indication	Via pressure sensor for displaying output pressure via LCD display and electrical output
	Via pressure sensor for displaying output pressure via operational status indicator and electrical output
	Via pressure gauge for displaying output pressure
	G $\frac{1}{8}$ prepared
	G $\frac{1}{4}$ prepared

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

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

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

Operating and environmental conditions	
Operating pressure [bar]	1 ... 14 (1 ... 10) ¹⁾
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
	Inert gases
Note on operating/pilot medium	Operation with lubricated medium not possible
Ambient temperature [°C]	-10 ... +60 (0 ... +50) ²⁾
Temperature of medium [°C]	-10 ... +60 (0 ... +50) ²⁾
Storage temperature [°C]	-10 ... +60
Corrosion resistance class CRC ³⁾	2
UL certification ⁴⁾	cULus recognized (OL)

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

ATEX	
EU certification	EX4
ATEX category gas	II 2G
Ex-ignition protection type gas	Ex h IIC T6 Gb X
ATEX category dust	II 2D
EX-ignition protection type dust	Ex h IIIC T60°C Db X
ATEX ambient temperature	-10 °C ≤ Ta ≤ +60 °C
CE mark (see declaration of conformity) ¹⁾	To EU Explosion Protection Directive (ATEX)

- 1) Additional information www.festo.com/sp → Certificates.

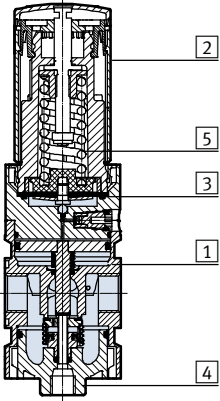
Weight [g]	
Precision pressure regulator	1,000
Precision pressure regulator with rotary knob with integrated lock E11	1,120

Precision pressure regulators MS6-LRPB, MS series

Technical data

Materials

Sectional view

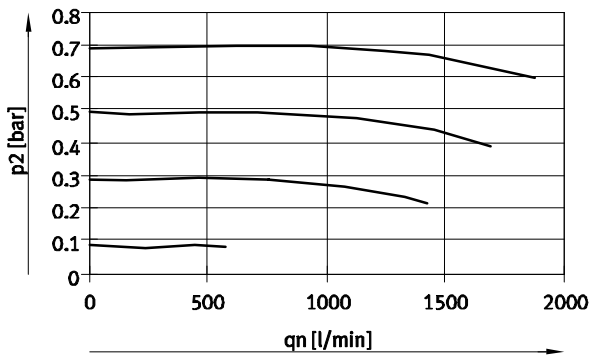


Precision pressure regulator (manifold assembly)

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

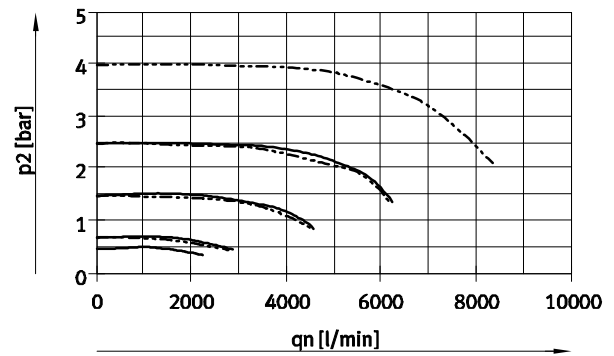
Standard flow rate q_n as a function of output pressure p_2 ($p_1 = 10$ bar)

MS6-LRPB-1/2-D2



— D2: 0.05...0.7 bar

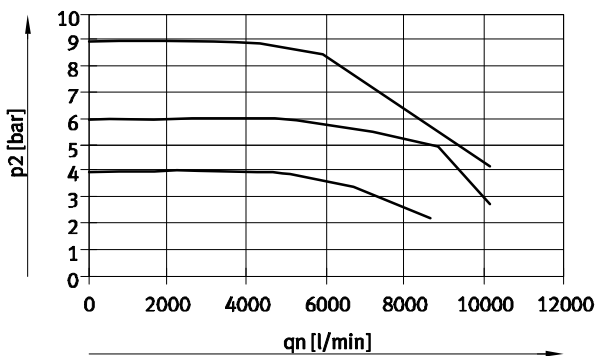
MS6-LRPB-1/2-D4/D5



— D4: 0.05...2.5 bar

- - - D5: 0.1...4 bar

MS6-LRPB-1/2-D7/PO



— D7/PO: 0.1...12 bar

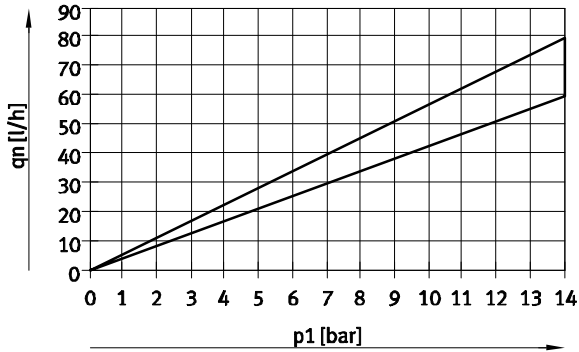
Precision pressure regulators MS6-LRPB, MS series

Technical data

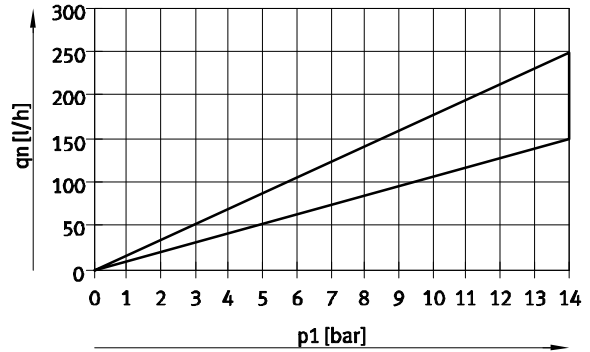


Internal air consumption q_n as a function of input pressure p_1

MS6-LRPB-...-D2/D4



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

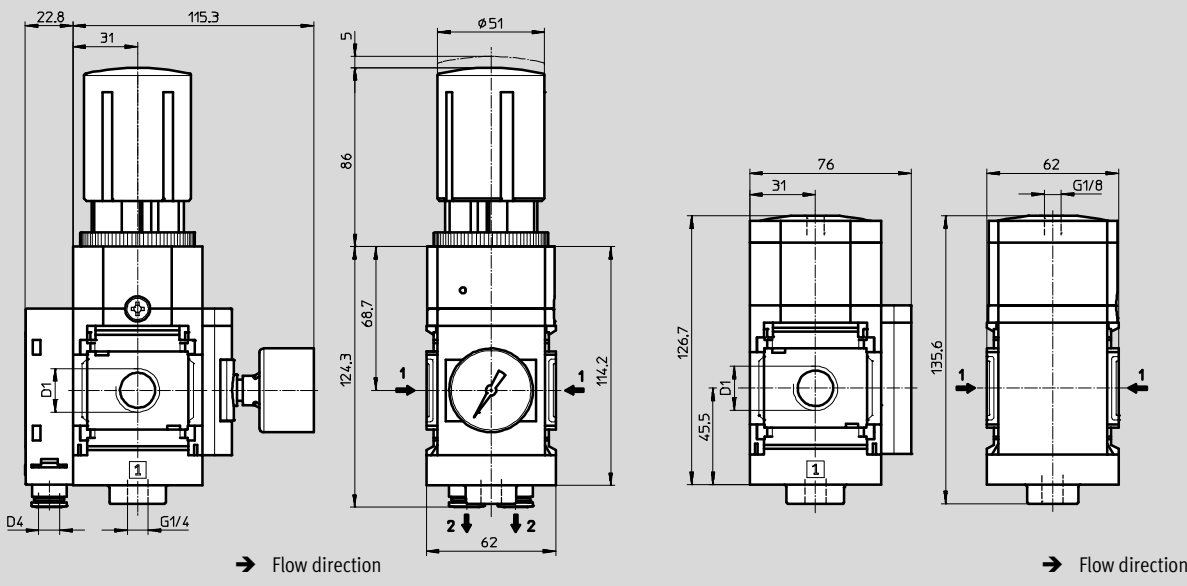


Dimensions

Pressure regulation range D2/D4/D5/D7, manually operated, adapter plate for EN pressure gauge $\frac{1}{8}$, with precision pressure gauge A8M, angled outlet block BD/BE, rotary knob with detent

Download CAD data → www.festo.com

Pressure regulation range PO, pneumatically actuated, cover plate VS



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

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

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

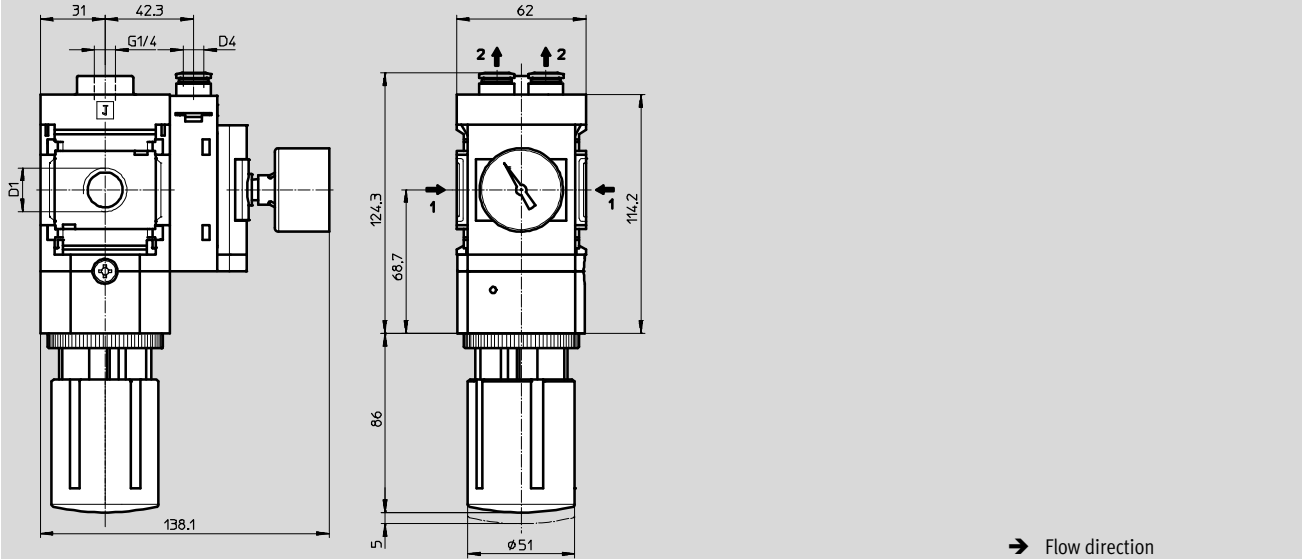
Precision pressure regulators MS6-LRPB, MS series

Technical data

Dimensions – Alternative mounting position

Download CAD data → www.festo.com

Rotary knob underneath KD, angled outlet block BD/BE



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

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

Precision pressure regulators MS6-LRPB, MS series

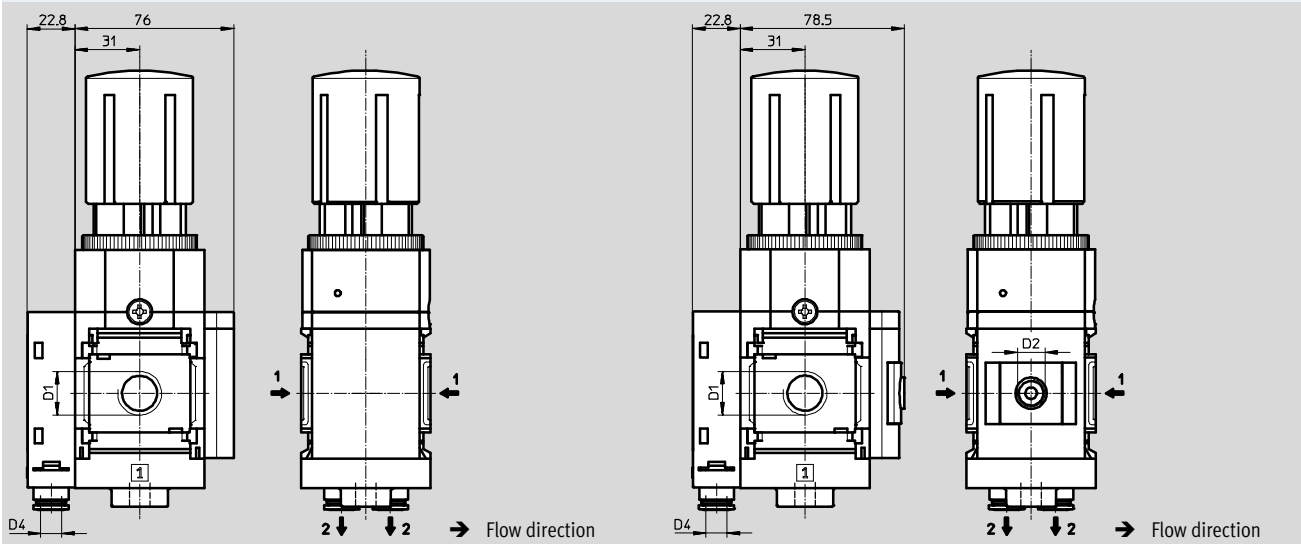
Technical data

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

Cover plate VS, angled outlet block BD/BE

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



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

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

Precision pressure regulators MS6-LRPB, MS series

Technical data

Dimensions – Pressure gauge alternatives Download CAD data → www.festo.com

Pressure sensor with LCD display AD1 ... AD4, angled outlet block BD/BE Technical data → Internet: [sde1](#)

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

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

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

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

Pressure sensor without LCD display (operational status indicator only) AD7 ... AD10, angled outlet block BD/BE Technical data → Internet: [sde5](#)

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

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

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

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

Type	D1	D3	D4	L1
MS6-LRPB-1/2-...-AD1/AD2-BD	G $\frac{1}{2}$	M8x1	QS-8	46.7
MS6-LRPB-1/2-...-AD1/AD2-BE			QS-10	
MS6-LRPB-1/2-...-AD3/AD4-BD	G $\frac{1}{2}$	M12x1	QS-8	55.8
MS6-LRPB-1/2-...-AD3/AD4-BE			QS-10	
MS6-LRPB-1/2-...-AD7/AD8/AD9/AD10-BD	G $\frac{1}{2}$	M8x1	QS-8	-
MS6-LRPB-1/2-...-AD7/AD8/AD9/AD10-BE			QS-10	

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

Precision pressure regulators MS6-LRPB, MS series

Technical data

Dimensions – Rotary knob Download CAD data → www.festo.com

For installation into control panel

Rotary knob with detent

Rotary knob with detent, lockable via accessories AS

Rotary knob with integrated lock E11

1 Max. control panel thickness
2 Installation dimensions

Long rotary knob with detent LD

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

3 For pressure adjustment: pull out telescopic rotary knob fully

Type	B4	B5	D2	D3	L3	L8	L9	L10
MS6-LRPB-...	-	-	51.2	M44x1	86	21	14	-
MS6-LRPB-...-AS	64.4	38.8			95.1	12	5	-
MS6-LRPB-...-E11	-	-			110	21	14	60
MS6-LRPB-...-LD	-	-	-	-	86	-	-	139
MS6-LRPB-...-LD-AS	64.4	38.8			95.5	-	-	148.5

Precision pressure regulators MS6-LRPB, MS series

Technical data

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

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

Precision pressure regulators MS6-LRPB, MS series

FESTO

Ordering data – Modular products

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

1 $\frac{1}{2}$, **PO**, **AD1 ... AD4**, **AD7 ... AD10**, **KD**, **E11**, **WPM**

Not with EU certification EX4

Not with long rotary knob LD

Not with security AS, E11

Not with mounting type WR

3 **VS** Must be selected with flow direction Z without alternative mounting position KD

or without alternative pressure output BD, BE

Must be selected with alternative mounting position KD without flow direction Z

or without alternative pressure output BD, BE

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

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

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

Measuring range max. 10 bar

Not with pressure regulation range/operation D2, D4

6 **AD7 ... AD10** In combination with flow direction Z only with alternative pressure output BD, BE or

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

M Mandatory data

O Options

Transfer order code

535007 MS 6 - LRPB - - -

Precision pressure regulators MS6-LRPB, MS series

Ordering data – Modular products

Ordering table					
Grid dimension	[mm]	62	Condi- tions	Code	Enter code
O	Rotary knob alternative	Long rotary knob	7	-LD	
	Alternative mounting position	Rotary knob underneath	1 8	-KD	
M	Security	Without			
		Lockable via accessories		-AS	
		With integrated lock	1	-E11	
O	Alternative pressure output (p max = 10 bar)	Angled outlet block QS-8		-BD	
		Angled outlet block QS-10		-BE	
	Type of mounting	Mounting bracket with knurled nut for regulator head	9 10	-WR	
		Mounting bracket standard design	11 12	-WP	
		Mounting bracket for attaching the service units	1 9 11	-WPM	
		Mounting bracket for large wall gap	11 13	-WPB	
		Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required	9	-WB	
	EU certification	II 2GD to EU Explosion Protection Directive (ATEX)		-EX4	
	UL certification	cULus, ordinary location for Canada and USA		-UL1	
	Flow direction	Pressure output to front (without pressure output, no pressure gauge)		-Z	

7 LD Not with integrated lock E11

8 KD In combination with pressure gauge alternatives A8, A4, AD1 ... AD4, AD7 ... AD10 only with flow direction Z

9 WR, WB, WPM

Only with flow direction Z

Not with alternative mounting position KD

10 WR

Only with flow direction Z

Not with long rotary knob LD

11 WP, WPM, WPB

Only with connecting plate AGB, AGC, AGD or AGE

12 WP

Not with alternative mounting position KD

Either only with flow direction Z

or only with alternative pressure output BD, BE

13 WPB

Not with alternative mounting position KD

Not with alternative pressure output BD, BE

Not with flow direction Z

M Mandatory data

O Options

Transfer order code

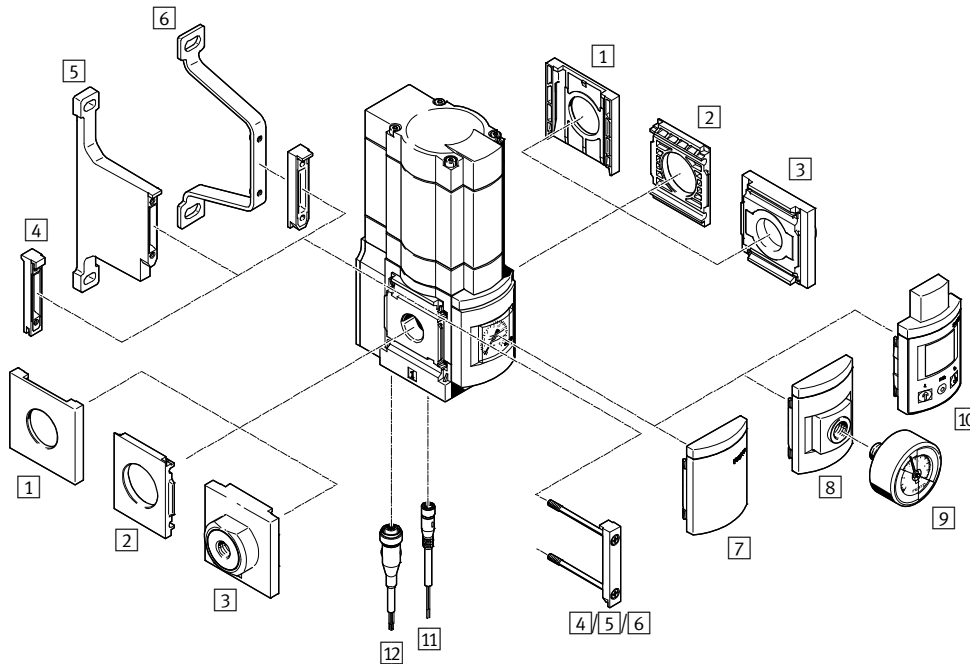
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Electrical pressure regulators MS6-LRE, MS series

Peripherals overview



Electrical pressure regulators MS6-LRE



Note

Additional accessories:

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

Mounting attachments and accessories

		Individual unit		Combination		→ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
1	Cover cap MS6-END	–	–	■	–	ms6-end
2	Mounting plate MS6-AEND	■ ¹⁾	–	■ ²⁾	–	ms6-aend
3	Connecting plate-SET MS6-AG...	–	■ ¹⁾	–	■ ²⁾	ms6-ag
	Connecting plate-SET MS6-AQ...	–	■ ¹⁾	–	■ ²⁾	ms6-aq
4	Module connector MS6-MV	–	–	■	■	ms6-mv
5	Mounting bracket MS6-WPB	■	■	■	■	ms6-wpb
6	Mounting bracket MS6-WPE	■	■	■	■	ms6-wpe
7	Cover plate VS	■	■	■	■	77
8	Adapter plate for EN pressure gauge 1/4 A4	■	■	■	■	77
9	Pressure gauge MA	■	■	■	■	100
10	Control unit with display OP	■	■	■	■	77
11	Connecting cable NEBU-M8...-LE3	■	■	■	■	100
12	Connecting cable NEBU-M12...-LE5	■	■	■	■	100

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

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

Electrical pressure regulators MS6-LRE, MS series

Type codes

MS 6 - LRE - 1/4 - D6 - PU

Series

MS	Standard service unit
----	-----------------------

Size

6	Grid dimension 62 mm
---	----------------------

Service function

LRE	Electrical pressure regulator
-----	-------------------------------

Pneumatic connection

1/4	Female thread G1/4
1/2	Female thread G1/2

Pressure regulation range

D6	Pressure regulation range 0.3 ... 7 bar
D7	Pressure regulation range 0.5 ... 12 bar

Electrically controlled pressure output (integrated pressure sensor with electrical output)

	None
PU	Plug, M8, 3-pin, V out

Further variants can be ordered using the modular system → 77

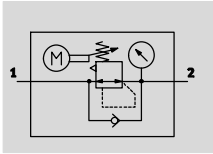
- Pneumatic connection
- Pressure regulation range
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Electrically controlled pressure output
- Sensor cables
- Supply cables
- Type of mounting
- UL certification
- Flow direction

Electrical pressure regulators MS6-LRE, MS series

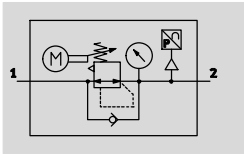
Technical data




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with pressure gauge



with pressure gauge and integrated pressure sensor



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



-  - Note

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

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


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

using the optional control and display unit.

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

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

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

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

Electrical pressure regulators MS6-LRE, MS series

Technical data

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

- 1) Measured at $p_1 = 10$ bar and $p_2 = 6$ bar, $\Delta p = 1$ bar
 2) Measured at $p_1 = 10$ bar and $p_2 = 3$ bar, $\Delta p = 1$ bar

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

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

Operating and environmental conditions	
Operating pressure	[bar] 0.8 ... 20 (0.8 ... 10) ¹⁾
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
	Inert gases
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)
Ambient temperature	[°C] 0 ... +50
Temperature of medium	[°C] 0 ... +50
Storage temperature	[°C] -10 ... +50
Corrosion resistance class CRC ²⁾	2
CE symbol (declaration of conformance) ³⁾	In accordance with EU EMC Directive
Food-safe ⁴⁾	See supplementary material information
UL certification ⁴⁾	cULus recognized (OL)

- 1) Value in brackets applies to MS6-LRE with UL certification.
 2) Corrosion resistance class CRC 2 to Festo standard FN 940070
 Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.
 3) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp → User documentation.
 If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.
 4) Additional information www.festo.com/sp → Certificates.

Electrical pressure regulators MS6-LRE, MS series

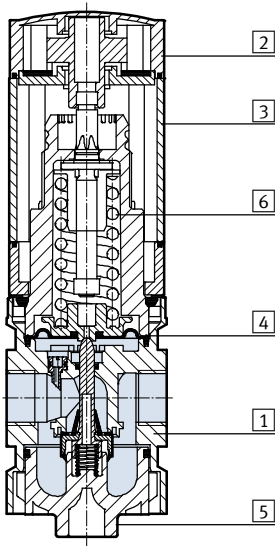
Technical data

FESTO

Weights [g]	
Electrical pressure regulator	1,280

Materials

Sectional view

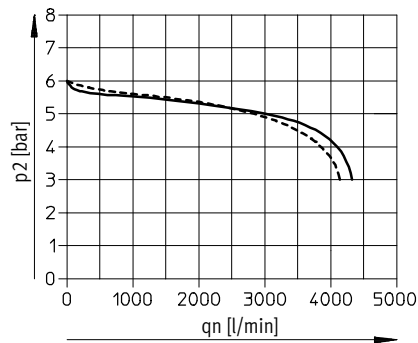


Electrical pressure regulator		
1	Body	Die-cast aluminium
2	Drive housing	PA, reinforced
3	Profile housing	Wrought aluminium alloy
4	Diaphragm	NBR
5	Bottom cap	PET, fibreglass reinforced
6	Springs	Steel
-	Display and control unit	PA
-	Seals	NBR

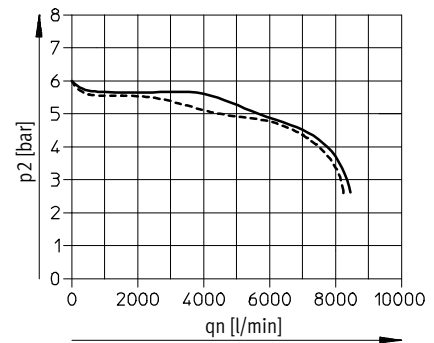
Standard flow rate q_n as a function of output pressure p_2

Input pressure $p_1 = 10$ bar

MS6-LRE-1/4

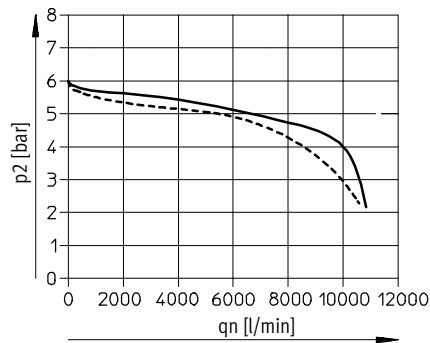


MS6-LRE-3/8



MS6-LRE-1/2

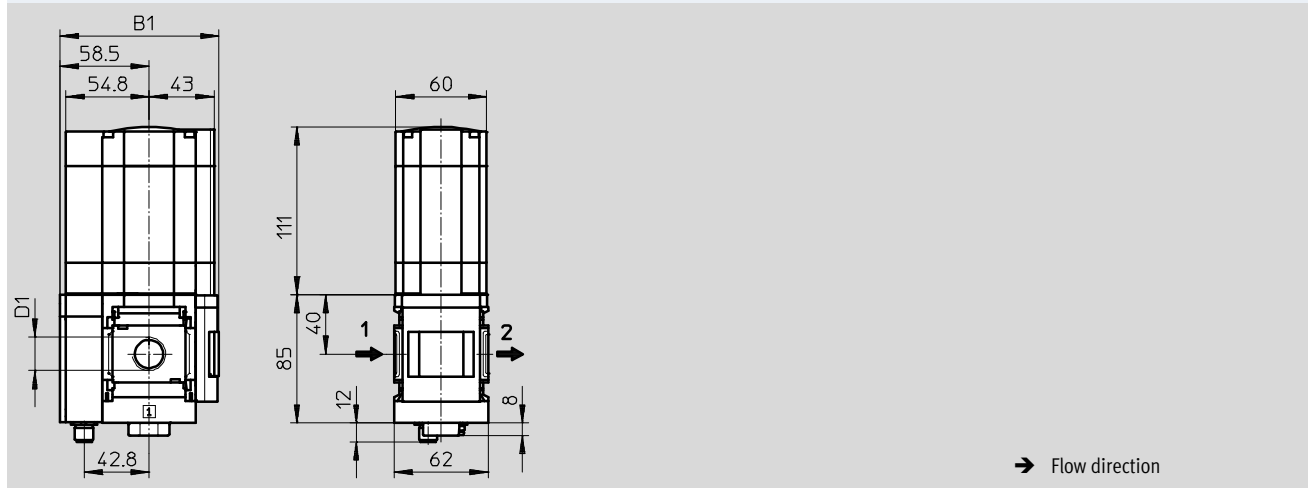
Input pressure $p_1 = 10$ bar



Electrical pressure regulators MS6-LRE, MS series

Technical data

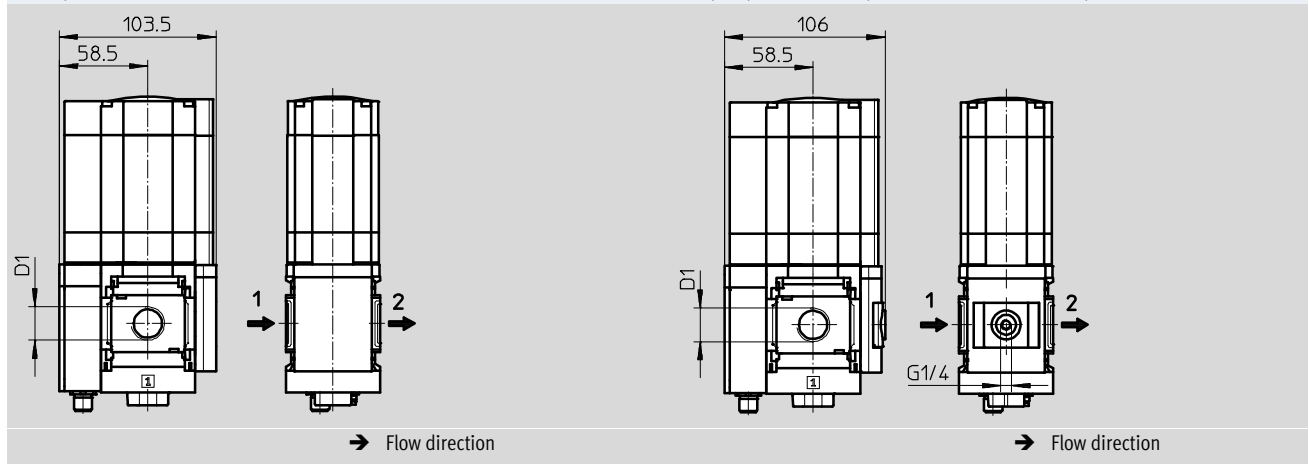
Dimensions – Basic version Download CAD data → www.festo.com
 Integrated MS pressure gauge



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

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

Dimensions – Pressure gauge alternatives Download CAD data → www.festo.com
 Cover plate VS Adapter plate A4 for EN pressure gauge 1/4, without pressure gauge



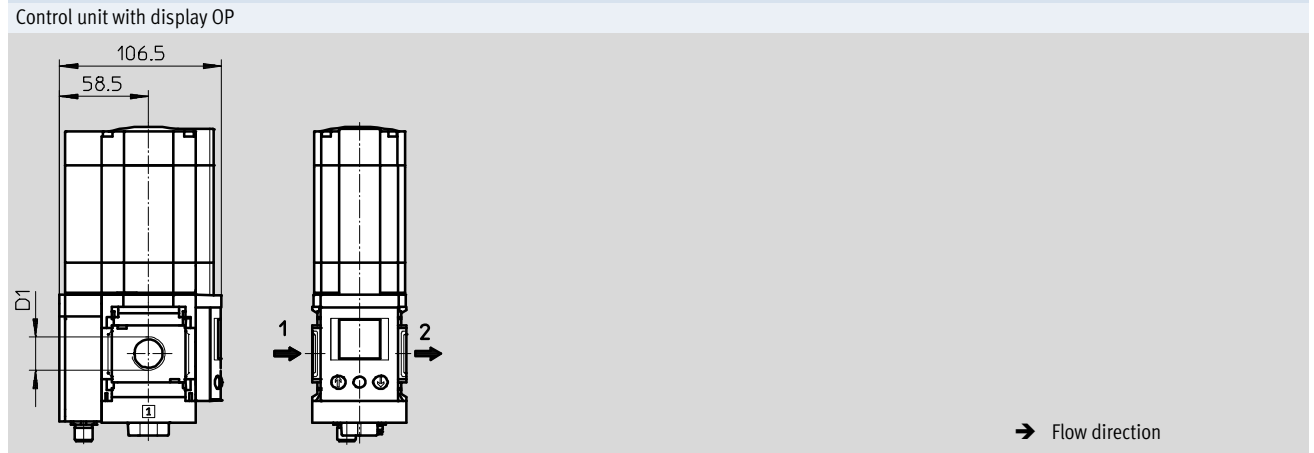
Type	D1
MS6-LRE-1/4	G1/4
MS6-LRE-3/8	G3/8
MS6-LRE-1/2	G1/2

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

Electrical pressure regulators MS6-LRE, MS series

Technical data

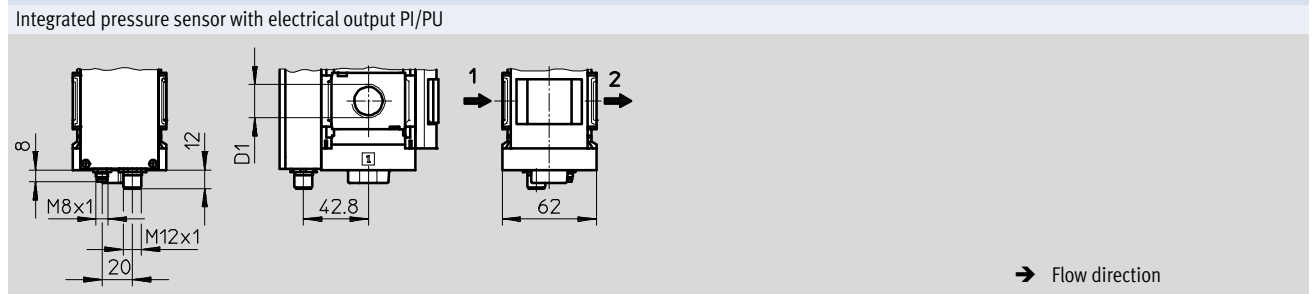
Dimensions – Pressure gauge alternatives Download CAD data → www.festo.com



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

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

Dimensions – Electrically controlled pressure output Download CAD data → www.festo.com



Ordering data					
Size	Connection	Pressure regulation range 0.3... 7 bar		Pressure regulation range 0.5... 12 bar	
		Part No.	Type	Part No.	Type
Integrated MS pressure gauge with standard scale, display unit [bar]					
MS6	G1/4	-	-	535364	MS6-LRE-1/4-D7
	G1/2	535348	MS6-LRE-1/2-D6	-	-
Integrated MS pressure gauge with standard scale, display unit [bar], electrically controlled pressure output (integrated pressure sensor with voltage output), M8x1 plug, 3-pin					
MS6	G1/4	535362	MS6-LRE-1/4-D6-PU	-	-

Pressure regulators MS9-LR, MS series

Peripherals overview

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Mounting attachments and accessories					
		Individual unit		Combination Module without connect- ing thread, without connecting plate G/NG	→ Page/ Internet
		With female thread 3/4/1/N3/4/N1	With connecting plate AG.../AQ... Without EU certification EX4		
1	Connecting plate-SET MS9-AG...	-	■	■	ms9-ag
	Connecting plate-SET MS9-AQ...	-	■	-	ms9-aq
2	Module connector MS9-MV	-	-	-	ms9-mv
3	Mounting bracket MS9-WP	■	■	■	ms9-wp
4	Mounting bracket MS9-WPB	■	■	■	ms9-wp
5	Mounting bracket MS9-WPM	■	■	-	ms9-wp
6	MS pressure gauge AG	■	■	■	88
7	Cover plate VS	■	■	■	88
8	Pressure sensor without display AD7 ... AD10	■	■	-	88
9	Connecting cable NEBU-M8...-LE3	■	■	-	100
10	Adapter plate for EN pressure gauge 1/4 A4	■	■	■	88
11	Pressure gauge MA	■	■	■	100
12	Padlock LRVS-D	■	■	■	100

Pressure regulators MS9-LR, MS series

Type codes

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

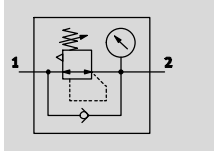
Additional variants can be ordered using the modular product system → 88

- Pneumatic connection
- Pressure regulation range/operation
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Security lock
- Type of mounting
- EU certification
- UL certification
- Flow direction

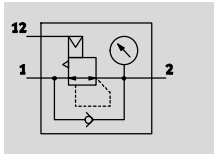
Pressure regulators MS9-LR, MS series

Technical data

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



PO, pneumatically actuated



- - Flow rate
11,000 ... 26,000 l/min
- - Temperature range
-10 ... +60 °C
- - Operating pressure
1 ... 20 bar
- - www.festo.com



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

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

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

General technical data		
Pneumatic connection 1, 2		
	Female thread	G3/4 or G1
	Connecting plate AG...	G1/2, G3/4, G1, G1 1/4 or G1 1/2
	Connecting plate AQ...	NPT1/2, NPT3/4, NPT1, NPT1 1/4 or NPT1 1/2
	Module without connecting thread/plate G/NG	-
Pilot air connection 12 with pressure regulation range/operation PO		
		G1/4
Design		
		Piloted diaphragm regulator
		Directly actuated diaphragm regulator
Regulator type		
	Piloted	Output pressure constant, with return flow action, with primary pressure compensation, with secondary venting
	Directly actuated	Output pressure constant, with return flow action, with/without secondary venting
Type of mounting		
		Via accessories
		In-line installation
		Front panel mounting
Mounting position		
		Any ¹⁾
Actuation security		
		Rotary knob with detent, lockable via accessories
		Rotary knob with integrated lock
Pressure regulation range/operation		
	D5 [bar]	0.5 ... 4, manually operated
	D6 [bar]	0.5 ... 7, manually operated
	D7 [bar]	0.5 ... 12, manually operated (0.5 ... 10 with pressure sensor variant AD...)
	D8 [bar]	0.5 ... 16, manually operated (0.5 ... 10 with pressure sensor variant AD...)
	PO [bar]	0.5 ... 16, pneumatically actuated ²⁾
Max. pressure hysteresis [bar]		
		0.4

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

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

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

Pressure regulators MS9-LR, MS series

FESTO

Technical data

General technical data	
Pressure display	Via pressure sensor for displaying output pressure via operational status indicator and electrical output
	Via pressure gauge for displaying output pressure
	Via pressure gauge with red/green scale for displaying output pressure
	G $\frac{1}{4}$ prepared

Standard nominal flow rate $q_{nN}^{1)2)}$ [l/min]					
Design		Piloted diaphragm regulator		Directly actuated diaphragm regulator DI	
Pneumatic connection		G $\frac{3}{4}$ /NPT $\frac{3}{4}$	G1/NPT1	G $\frac{3}{4}$ /NPT $\frac{3}{4}$	G1/NPT1
Pressure regulation range	D5	19,000 ³⁾	26,000 ³⁾	14,000 ³⁾	20,000 ³⁾
	D6	17,000	20,000	14,000	11,000
	D7	17,000	20,000	–	–
	D8	17,000	20,000	–	–
	P0	21,000	25,000	–	–

1) All values $\pm 15\%$

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

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

Operating and environmental conditions		
EU certification	–	EX4
Operating pressure [bar]	1 ... 20	
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]	
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)	Operation with lubricated medium not possible
Ambient temperature [°C]	–10 ... +60 (0 ... +50) ¹⁾	
Temperature of medium [°C]	–10 ... +60 (0 ... +50) ¹⁾	
Storage temperature [°C]	–10 ... +60	
Corrosion resistance class CRC ²⁾	2	
UL certification ³⁾	cULus recognized (OL)	

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

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

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

3) Additional information www.festo.com/sp → Certificates.

ATEX	
EU certification	EX4
ATEX category gas	II 2G
Ex-ignition protection type gas	Ex h IIC T6 Gb X
ATEX category dust	II 2D
Ex-ignition protection type dust	Ex h IIIC T60°C Db X
ATEX ambient temperature	–10 °C \leq Ta \leq +60 °C
CE mark (see declaration of conformity) ¹⁾	To EU Explosion Protection Directive (ATEX)

1) Additional information www.festo.com/sp → Certificates.

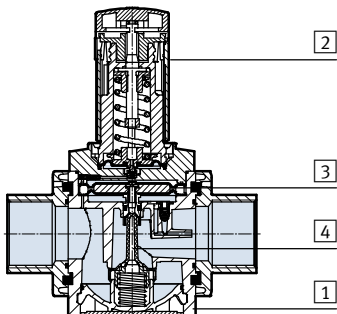
Weight [g]	
Pressure regulator	1,400
Pressure regulator with rotary knob with integrated lock E11	1,700

Pressure regulators MS9-LR, MS series

Technical data

Materials

Sectional view

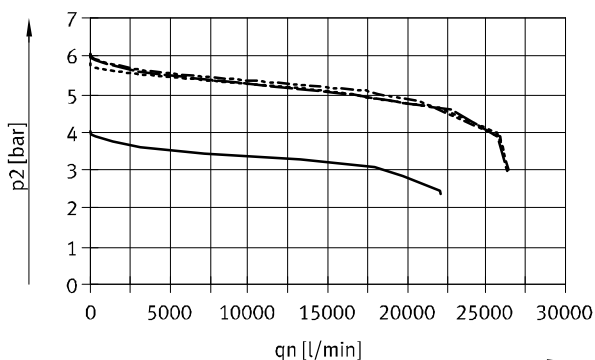


Pressure regulator		
1	Housing	Die-cast aluminium
2	Rotary knob	PA
	Rotary knob with integrated lock E11	Aluminium
3	Diaphragm	NBR
4	Valve stem	Wrought aluminium alloy, NBR, POM
-	Cover	PA, reinforced
-	Connecting plate, module connector, mounting bracket	Die-cast aluminium
-	Seals	NBR
Note on materials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

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

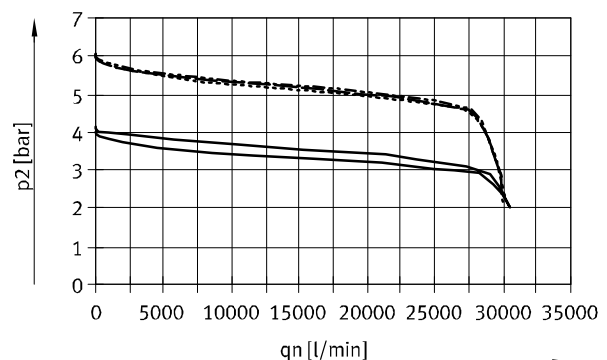
Piloted diaphragm regulator

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



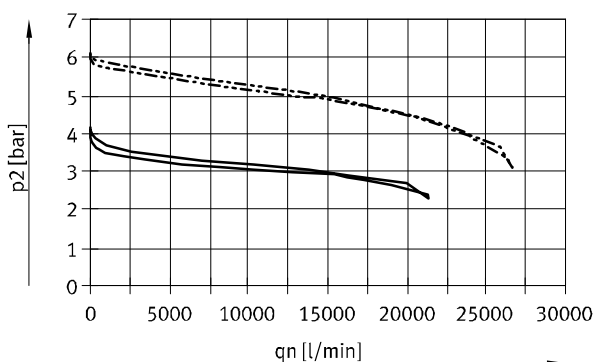
— D5: 0.5 ... 4 bar - - - - D7: 0.5 ... 12 bar
 - - - - D6: 0.5 ... 7 bar ······ D8: 0.5 ... 16 bar

Pneumatic connection G1/NPT1



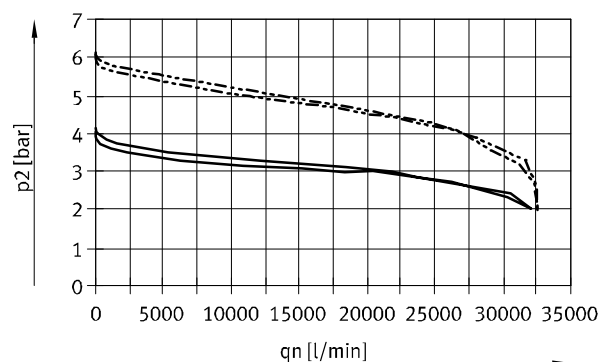
Directly actuated diaphragm regulator DI

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



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

Pneumatic connection G1/NPT1



Pressure regulators MS9-LR, MS series

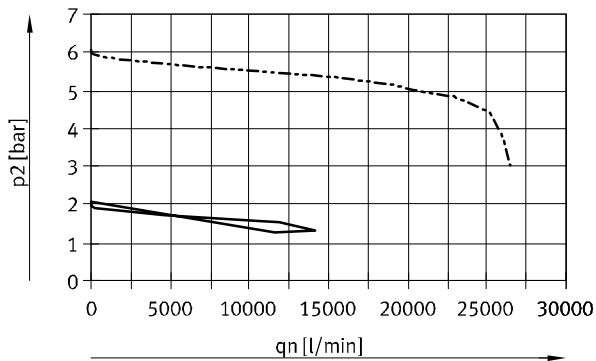


Technical data

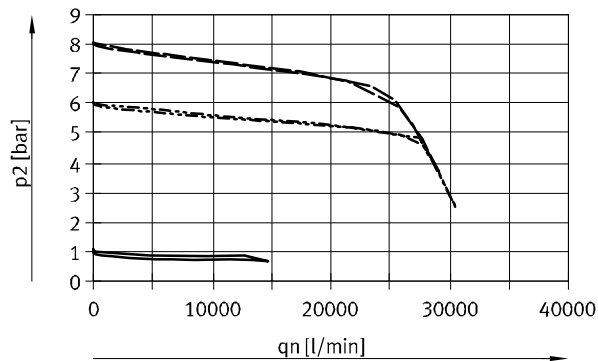
Standard flow rate q_n as a function of output pressure p_2 at operating pressure $p_1 = 10$ bar

External pilot regulator, pressure regulation range/operation PO

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



Pneumatic connection G1/NPT1

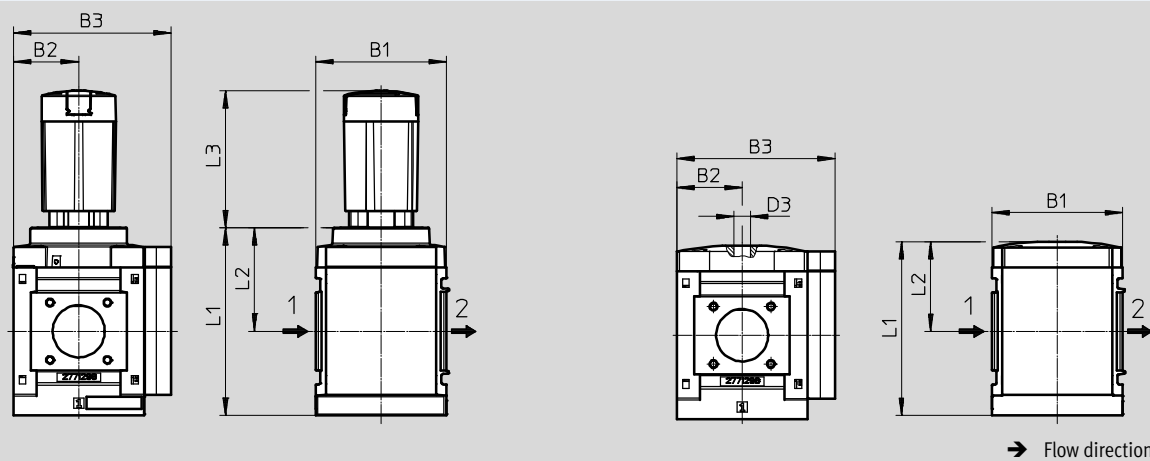


Dimensions – Basic version

Download CAD data → www.festo.com

Pressure regulation range D5/D6/D7/D8, manually operated, module without connecting thread, without connecting plate G/NG, cover plate VS, rotary knob with detent, lockable via accessories AS

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



Type	B1	B2	B3	D3	L1		L2		L3
					Piloted	Directly actuated DI	Piloted	Directly actuated DI	
MS9-LR-G/NG-D5/D6/D7/D8	90	45	109	–	129	122	71.4	64	94.5
MS9-LR-G/NG-PO				G $\frac{1}{4}$	120	–	62	–	–

Pressure regulators MS9-LR, MS series

Technical data

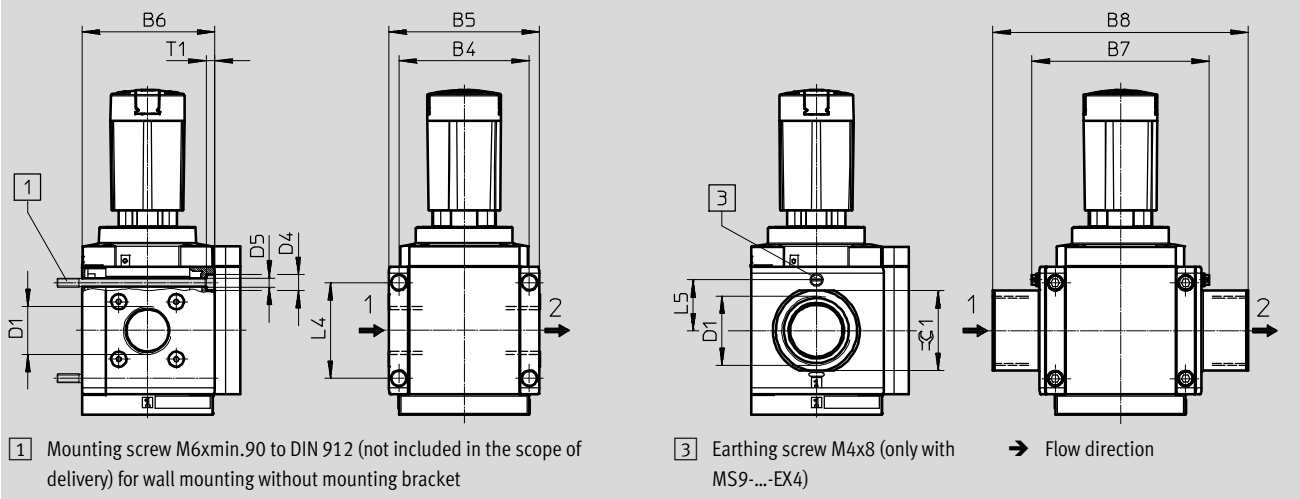
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Dimensions – Connecting thread/connecting plate

Download CAD data → www.festo.com

With female thread 3/4/1/N3/4/N1

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



Type	B4	B5	B6	B7		B8	D1	D4	D5	L4	L5		T1	≈C 1
					EX4							EX4		
MS9-LR-3/4	90	104	91.5	-	-	-	G3/4	11	6.5	66	-	6	-	
MS9-LR-1							G1							
MS9-LR-AGD	-	-	-	112	122	132	G1/2	-	-	-	35	-	30	
MS9-LR-AGE						132	G3/4						36	
MS9-LR-AGF						142	G1						41	
MS9-LR-AGG						162	G1 1/4						50	
MS9-LR-AGH						176	G1 1/2						55	
MS9-LR-N3/4	90	104	91.5	-	-	-	NPT3/4-14	11	6.5	66	-	6	-	
MS9-LR-N1							NPT1-11 1/2							
MS9-LR-AQR	-	-	-	112	122	132	NPT1/2-14	-	-	-	35	-	30	
MS9-LR-AQS						132	NPT3/4-14						36	
MS9-LR-AQT						142	NPT1-11 1/2						41	
MS9-LR-AQU						162	NPT1 1/4-11 1/2						50	
MS9-LR-AQV						176	NPT1 1/2-11 1/2						55	

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

Pressure regulators MS9-LR, MS series

Technical data

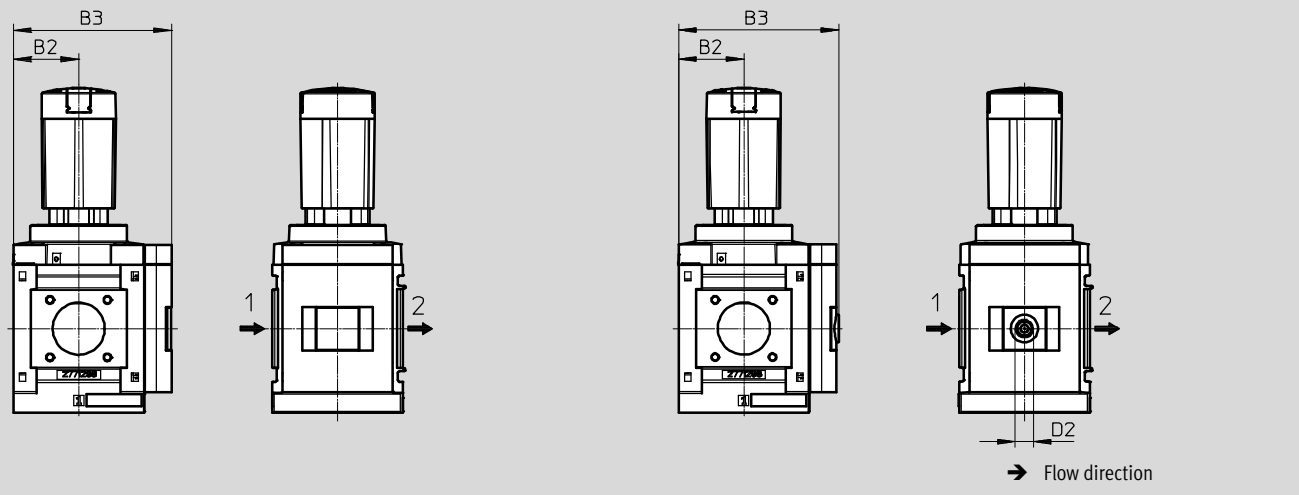
FESTO

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

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

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



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

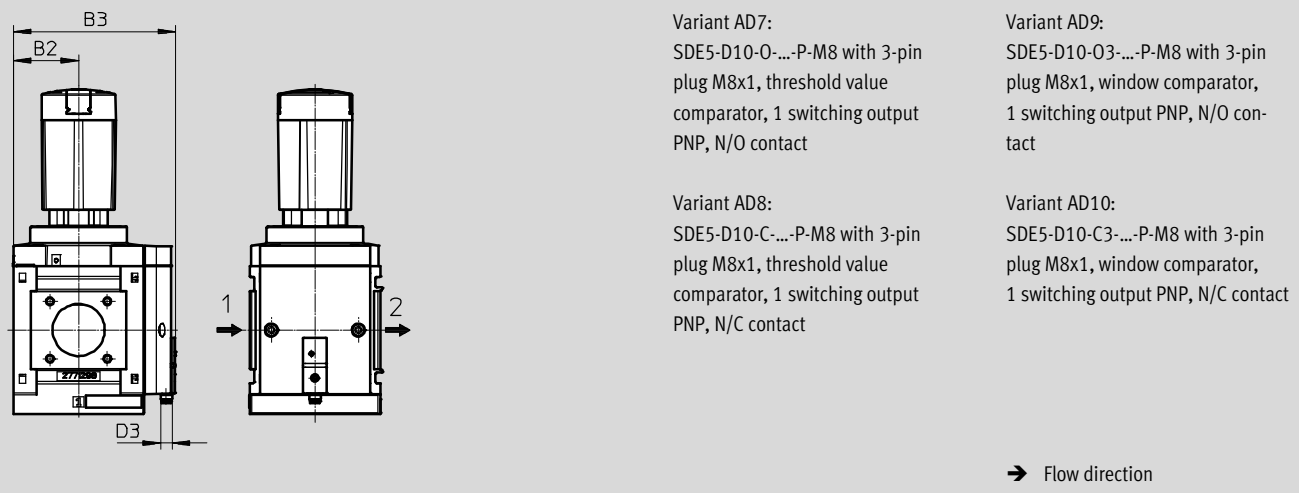
Note: This product conforms to ISO 1179-1 and to ISO 228-1

Dimensions – Pressure gauge alternatives

Download CAD data → www.festo.com

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

Technical data → Internet: sde5



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

Pressure regulators MS9-LR, MS series

Technical data

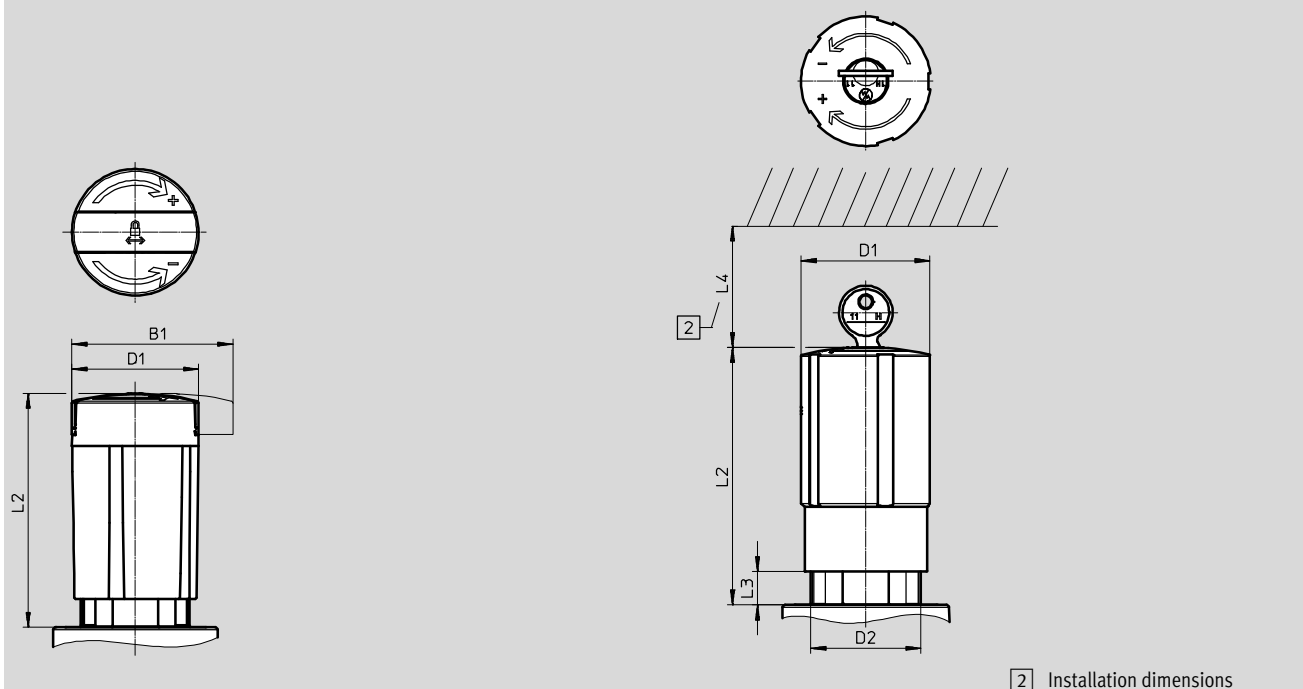
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Dimensions – Rotary knob

Download CAD data → www.festo.com

Rotary knob with detent, lockable via accessories AS

Rotary knob with integrated lock E11



2 Installation dimensions

Type	B1	D1	D2	L2	L3	L4
MS9-LR-...-AS	64.4	51.2	–	94.5	–	–
MS9-LR-...-E11	–		M44x1	103.5	13.5	60

Ordering data

Size	Piloted diaphragm regulator		Directly actuated diaphragm regulator	
	Part No.	Type	Part No.	Type
Pressure regulation range 0.5 ... 4 bar, manually operated, integrated MS pressure gauge with standard scale, display unit [bar], rotary knob with detent, lockable via accessories				
MS9	564134	MS9-LR-G-D5-AG-BAR-AS	564135	MS9-LR-G-D5-DI-AG-BAR-AS
Pressure regulation range 0.5 ... 4 bar, manually operated, integrated MS pressure gauge with standard scale, display unit [psi], rotary knob with detent, lockable via accessories				
MS9	–	–	564140	MS9-LR-NG-D5-DI-AG-PSI-AS
Pressure regulation range 0.5 ... 7 bar, manually operated, integrated MS pressure gauge with standard scale, display unit [bar], rotary knob with detent, lockable via accessories				
MS9	564136	MS9-LR-G-D6-AG-BAR-AS	564137	MS9-LR-G-D6-DI-AG-BAR-AS
Pressure regulation range 0.5 ... 7 bar, manually operated, integrated MS pressure gauge with standard scale, display unit [psi], rotary knob with detent, lockable via accessories				
MS9	–	–	564142	MS9-LR-NG-D6-DI-AG-PSI-AS
Pressure regulation range 0.5 ... 12 bar, manually operated, integrated MS pressure gauge with standard scale, display unit [bar], rotary knob with detent, lockable via accessories				
MS9	564138	MS9-LR-G-D7-AG-BAR-AS	–	–

Pressure regulators MS9-LR, MS series

Ordering data – Modular products

Ordering table		Grid dimension [mm]	90	Condi- tions	Code	Enter code	
M	Module No.	562530					
	Series	Standard			MS	MS	
	Size	9			9	9	
	Function	Pressure regulator			-LR	-LR	
	Pneumatic connection	Female thread G $\frac{3}{4}$		1	-$\frac{3}{4}$		
		Female thread G1		1	-1		
		Connecting plate G $\frac{1}{2}$				-AGD	
		Connecting plate G $\frac{3}{4}$				-AGE	
		Connecting plate G1				-AGF	
		Connecting plate G1 $\frac{1}{4}$				-AGG	
		Connecting plate G1 $\frac{1}{2}$				-AGH	
		Female thread NPT $\frac{3}{4}$		1		-N$\frac{3}{4}$	
		Female thread NPT1		1		-N1	
		Connecting plate NPT $\frac{1}{2}$		1		-AQR	
		Connecting plate NPT $\frac{3}{4}$		1		-AQS	
		Connecting plate NPT1		1		-AQT	
		Connecting plate NPT1 $\frac{1}{4}$		1		-AQU	
		Connecting plate NPT1 $\frac{1}{2}$		1		-AQV	
		Module without connecting thread, without connecting plate		1		-G	
		Module without connecting thread, without connecting plate (inch)		1		-NG	
		Pressure regulation range/ operation	0.5 ... 4 bar, manually operated			-D5	
	0.5 ... 7 bar, manually operated				-D6		
	0.5 ... 12 bar, manually operated				-D7		
	0.5 ... 16 bar, manually operated			1		-D8	
	Max. 16 bar, pneumatically actuated (pressure range defined by means of pilot regulator)			2		-PO	
O	Regulator type	Directly actuated		3	-DI		
M	Pressure gauge/pressure gauge alternatives	MS pressure gauge			-AG		
		Cover plate				-VS	
		Adapter plate for EN pressure gauge $\frac{1}{4}$, without pressure gauge				-A4	
		Integrated pressure gauge, red/green scale		4		-RG	
		Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact		1 5		-AD7	
		Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact		1 5		-AD8	
		Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact		1 5		-AD9	
		Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact		1 5		-AD10	

1 $\frac{3}{4}$, 1, N $\frac{3}{4}$, N1, AQR, AQS, AQT, AQU, AQV, G, NG, D8, AD7, AD8, AD9, AD10, E11, WPM

Not with EU certification EX4

2 PO

Not with regulator type DI

Not with security AS, E11

3 DI

Not with pressure regulation range D7, D8

4 RG

Not with alternative pressure gauge scale PSI,

PSI scale serves only as an auxiliary scale

5 AD7 ... AD10

Measuring range max. 10 bar

M Mandatory data

O Options

Transfer order code

562530 MS 9 - LR - - - - -

Pressure regulators MS9-LR, MS series

Ordering data – Modular products

Ordering table					
Grid dimension	[mm]	90	Condi- tions	Code	Enter code
[O]	Alternative pressure gauge scale	psi	[6]	-PSI	
		MPa	[6]	-MPA	
		bar	[6]	-BAR	
	Secondary venting	Without secondary venting	[7]	-OS	
	Alternative mounting position	Rotary knob underneath (connection underneath with PO)		-KD	
[M]	Security	Without (security AS is pre-assigned)			
		Lockable via accessories		-AS	
		With integrated lock	[1]	-E11	
[O]	Type of mounting	Mounting bracket standard design	[8]	-WP	
		Mounting bracket for attaching the service units	[1][8]	-WPM	
		Mounting bracket for large wall gap	[8]	-WPB	
	EU certification	II 2GD to EU Explosion Protection Directive (ATEX)		-EX4	
	UL certification	cULus, ordinary location for Canada and USA		-UL1	
	Flow direction	Flow direction from right to left		-Z	

- [1] ¾, 1, 1½, N1, AQR, AQS, AQT, AQU, AQV, G, NG, D8, AD7, AD8, AD9, AD10, E11, WPM [7] OS Only with regulator type DI
Not with EU certification EX4
- [6] PSI, MPA, BAR Not with pressure gauge alternatives VS, A4, AD7, AD8, AD9, AD10 [8] WP, WPM, WPB Not with pneumatic connection G, NG

[M] Mandatory data
 [O] Options

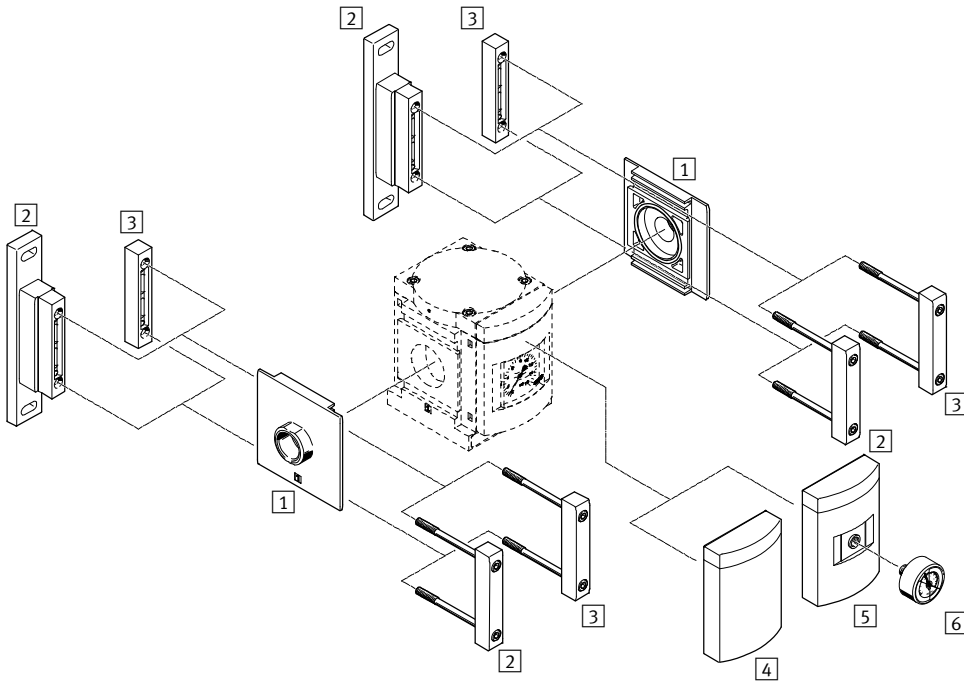
Transfer order code


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

Pressure regulators MS12-LR, MS series

Peripherals overview

Pressure regulator MS12-LR

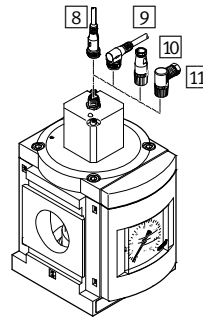
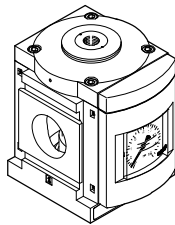
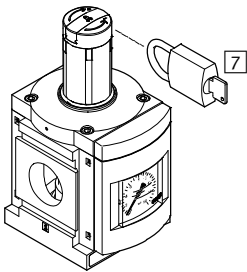


-  - Note
 Additional accessories:
 - Module connector
 for combination with size MS9
 → Internet: armv

manually operated

pneumatically actuated

solenoid actuated



Pressure regulators MS12-LR, MS series

Peripherals overview

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Mounting attachments and accessories		→ Page/Internet
1	Connecting plate-SET MS12-AG...	ms12-ag
2	Mounting bracket MS12-WP	ms12-wp
3	Module connector MS12-MV	ms12-mv
4	Cover plate VS	99
5	Adapter plate for EN pressure gauge 1/4 A4	99
6	Pressure gauge MA	100
7	Padlock LRVS-D	100
8	Connecting cable NEBU-M12G...-LE4	100
9	Connecting cable NEBU-M12W...-LE4	100
10	Sensor socket SIE-GD	100
11	Angled plug socket SIE-WD	100

Pressure regulators MS12-LR, MS series

Type codes

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MS 12 - LR - G - D7 - LD - AS

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

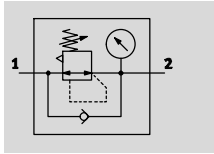
Further variants can be ordered using the modular system → 99

- Pneumatic connection
- Pressure regulation range/actuation mode
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Security
- Type of mounting
- Flow direction

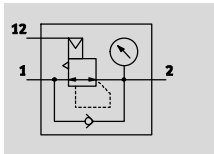
Pressure regulators MS12-LR, MS series

Technical data

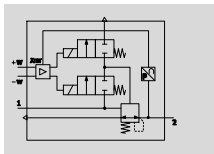
Pressure regulation range/actuation mode
D6/D7/D8, manually operated



PO, pneumatically actuated



PE6, solenoid actuated



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



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

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

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

General technical data			
Pneumatic connection 1, 2		Connecting plate AG... G1, G1¼, G1½ or G2	
		Module without connecting thread/plate G -	
Pilot air connection 12 with pressure regulation range/actuation mode PO		G¼	
Constructional design		Pressure regulator with/without pressure gauge Pilot actuated diaphragm regulator (except pressure regulation range/actuation mode PO) Diaphragm regulator (with pressure regulation range/actuation mode PO)	
Regulating function		Output pressure constant, via primary pressure compensation, via return flow function, via secondary venting	
Type of mounting		Via accessories In-line installation	
Mounting position		Any	
Regulator lock		Rotary knob with detent, lockable via accessories Rotary knob with integrated lock	
Pressure regulation range/operation	D6 [bar]	0.3 ... 7, manually operated ¹⁾	
	D7 [bar]	0.5 ... 12, manually operated ¹⁾	
	D8 [bar]	0.5 ... 16, manually operated ¹⁾	
	PO [bar]	0.5 ... 16, pneumatically actuated ¹⁾	
Max. hysteresis	[bar]	0.4 with pressure regulation range/actuation mode D6/D7/D8/PO	
	[bar]	0.04 with pressure regulation range/actuation mode PE6	
Pressure display		Via pressure gauge	

1) Required p₁ = p₂ + 1 bar

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

Pressure regulators MS12-LR, MS series

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Technical data

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

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

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

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

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

Operating and environmental conditions		
Pressure regulation range/ actuation mode	D6/D7/D8/PO	PE6
Operating pressure	[bar]	0.8 ... 21
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	-10 ... +60
Storage temperature	[°C]	-10 ... +60
Corrosion resistance class	CRC ¹⁾	2
CE mark (see declaration of conformity) ³⁾	-	In accordance with EU EMC directive ²⁾
KC marking	-	KC EMC

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

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

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

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

3) Additional information www.festo.com/sp → Certificates.

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

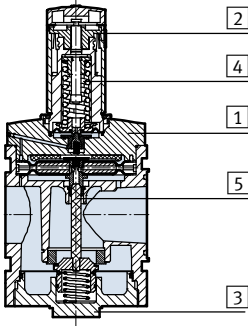
Pressure regulators MS12-LR, MS series

Technical data

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Materials

Sectional view

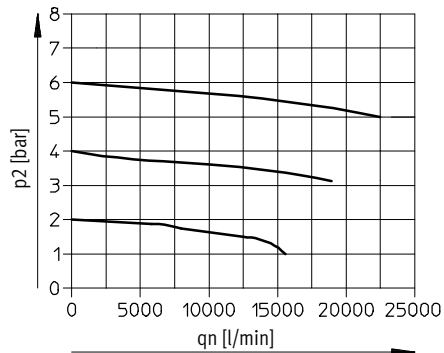


Pressure regulator		
1	Housing	Die-cast aluminium
2	Rotary knob	PA-reinforced, POM
	Rotary knob with integrated lock E11	Wrought aluminium alloy
3	Cap (bottom)	Wrought aluminium alloy
4	Spring	Spring steel
5	Valve stem	Wrought aluminium alloy, NBR, high alloy steel non-corrosive
-	Seals, diaphragm	NBR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

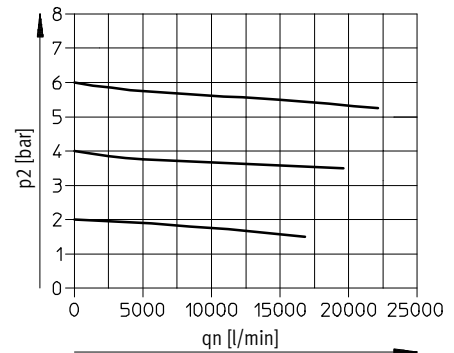
Standard flow rate q_n as a function of output pressure p_2 (MS12-LR-...-D6/D7/D8/PO only)

With connecting plate MS12-AGF
Pneumatic connection G1

Input pressure $p_1 = 10$ bar

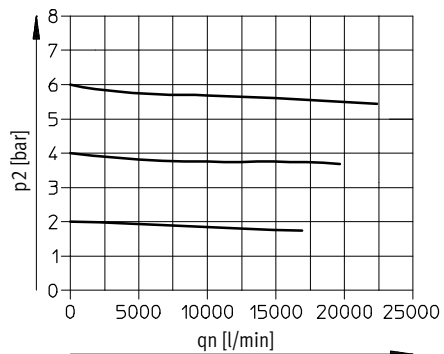


With connecting plate MS12-AGG
Pneumatic connection G1¼

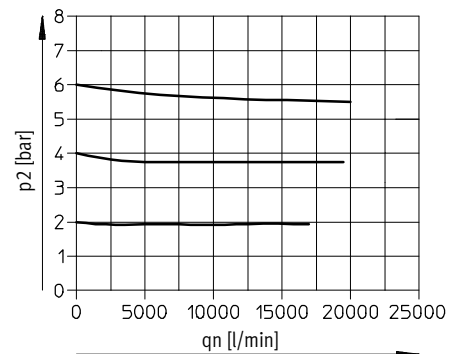


With connecting plate MS12-AGH
Pneumatic connection G1½

Input pressure $p_1 = 10$ bar



With connecting plate MS12-AGI
Pneumatic connection G2



Pressure regulators MS12-LR, MS series

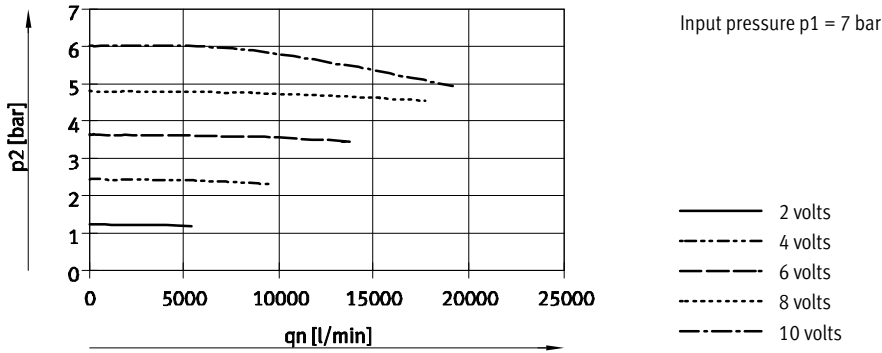
Technical data



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

With connecting plate MS12-AGH

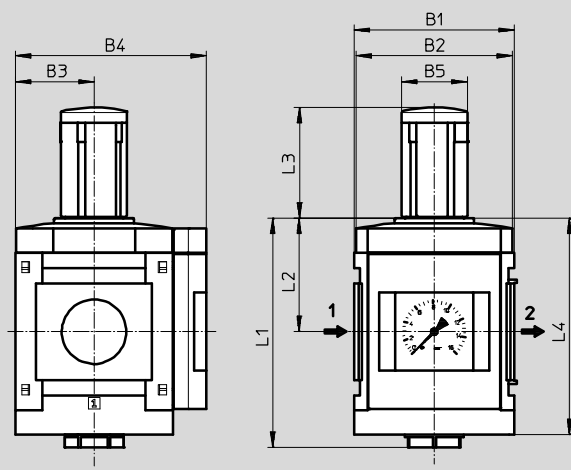
Pneumatic connection G1½



Dimensions – Basic version

Download CAD data → www.festo.com

Pressure regulation range D6/D7/D8, manually operated,
module without connecting thread, without connecting plate G,
integrated MS pressure gauge with standard scale,
long rotary knob with detent, lockable via accessories LD-AS



Type	B1	B2	B3	B4	B5	L1	L2	L3	L4
MS12-LR-...-D6/D7/D8	124	122	61	148	52	178	88	95	168

Pressure regulators MS12-LR, MS series

Technical data

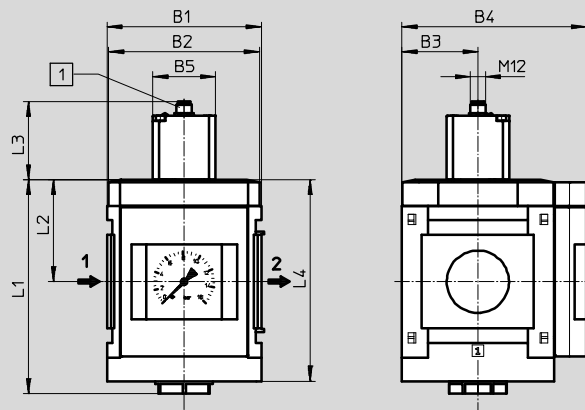
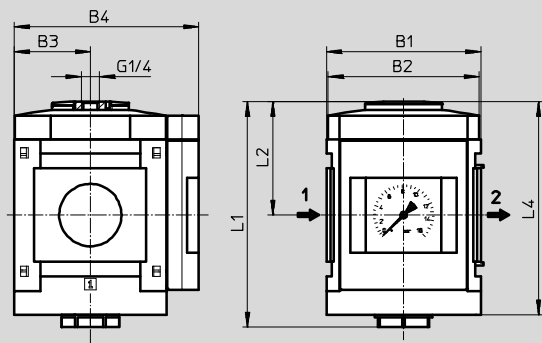
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Dimensions – Pressure regulation range

Download CAD data → www.festo.com

Pressure regulation range PO, pneumatically actuated, module without connecting thread, without connecting plate G, integrated MS pressure gauge with standard scale

Pressure regulation range PE6, solenoid actuated, module without connecting thread, without connecting plate G, integrated MS pressure gauge with standard scale



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

→ Flow direction

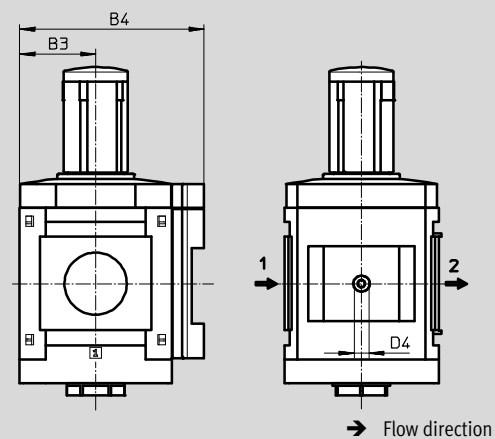
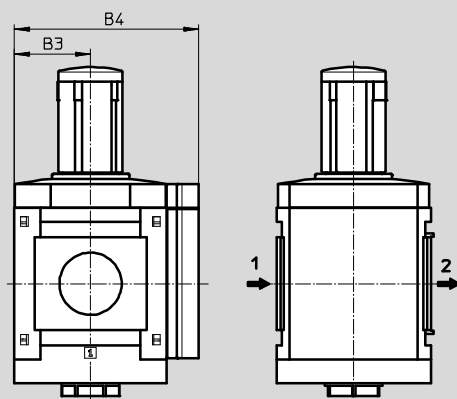
Type	B1	B2	B3	B4	B5	L1	L2	L3	L4
MS12-LR...-PO	124	122	61	148	-	181	91	-	171
MS12-LR...-PE6					50	172	82	62.7	162

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



→ Flow direction

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

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

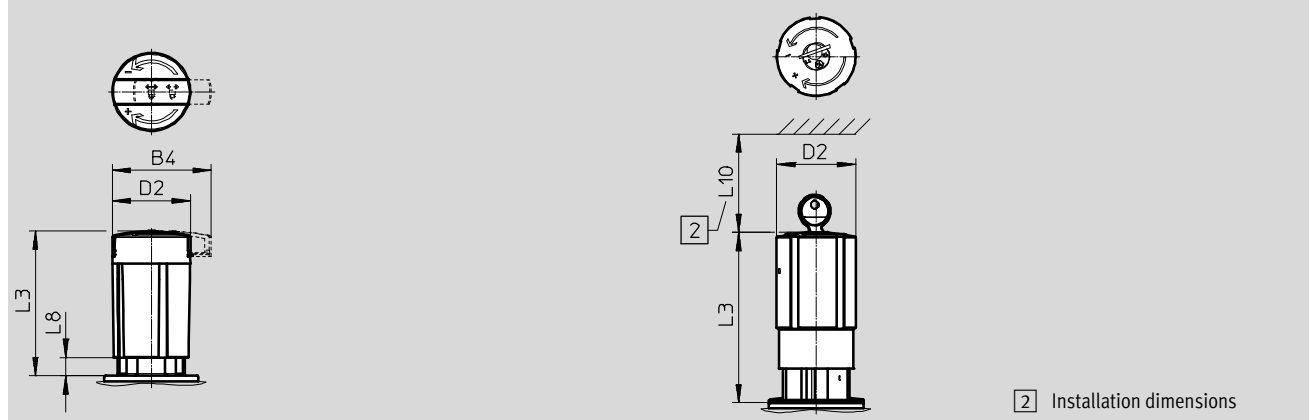
Pressure regulators MS12-LR, MS series

Technical data

Dimensions – Rotary knob Download CAD data → www.festo.com

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

Rotary knob with integrated lock E11



Type	B4	D2 Ø	L3	L8	L10
MS12-LR-...-LD-AS	64.4	51.2	95	12	-
MS12-LR-...-E11	-	51.8	112	-	60


Ordering data



Size	Part No.	Type
Pressure regulation range 0.5 ... 12 bar, manually actuated, integrated MS pressure gauge with standard scale, display unit [bar], long rotary knob with detent, lockable via accessories		
MS12	537148	MS12-LR-G-D7-LD-AS
Pressure regulation range 0.5 ... 16 bar, pneumatically actuated, integrated MS pressure gauge with standard scale, display unit [bar]		
MS12	541680	MS12-LR-G-PO
Pressure regulation range 0.15 ... 6 bar, solenoid actuated, integrated MS pressure gauge with standard scale, display unit [bar]		
MS12	564888	MS12-LR-G-PE6



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

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Accessories

Ordering data – Pressure gauge MA						
	Nominal size	Pneumatic connection	Indicating range		Part No.	Type
			[bar]	[psi]		
	Pressure gauge MA, EN 837-1					Technical data → Internet: ma
	40	R $\frac{1}{4}$	0 ... 16	0 ... 232	187080	MA-40-16-R$\frac{1}{4}$-EN
		G $\frac{1}{4}$	0 ... 16	0 ... 232	183901	MA-40-16-G$\frac{1}{4}$-EN
	Pressure gauge MA, EN 837-1, with red/green range					Technical data → Internet: ma
	40	R $\frac{1}{8}$	0 ... 16	–	525726	MA-40-16-R$\frac{1}{8}$-E-RG
	50	R $\frac{1}{4}$	0 ... 16	–	525729	MA-50-16-R$\frac{1}{4}$-E-RG
	Precision pressure gauge MAP, EN 837-1					Technical data → Internet: map
	40	R $\frac{1}{8}$	0 ... 1	0 ... 15	161126	MAP-40-1-$\frac{1}{8}$-EN
			0 ... 4	0 ... 58	162842	MAP-40-4-$\frac{1}{8}$-EN
			0 ... 6	0 ... 87	161127	MAP-40-6-$\frac{1}{8}$-EN
0 ... 16			0 ... 232	161128	MAP-40-16-$\frac{1}{8}$-EN	

Ordering data – Connecting cable NEBU-M8				Technical data → Internet: nebu	
	Electrical connection	Number of wires	Cable length [m]	Part No.	Type
	M8x1, straight socket	3	2.5	★ 541333	NEBU-M8G3-K-2.5-LE3
			5	★ 541334	NEBU-M8G3-K-5-LE3
	M8x1, angled socket	3	2.5	★ 541338	NEBU-M8W3-K-2.5-LE3
			5	★ 541341	NEBU-M8W3-K-5-LE3

Ordering data – Connecting cable NEBU-M12				Technical data → Internet: nebu	
	Electrical connection	Number of wires	Cable length [m]	Part No.	Type
	M12x1, straight socket	4	2.5	★ 550326	NEBU-M12G5-K-2.5-LE4
			5	★ 541328	NEBU-M12G5-K-5-LE4
		5	2.5	541330	NEBU-M12G5-K-2.5-LE5
			5	541331	NEBU-M12G5-K-5-LE5
	M12x1, angled socket	4	2.5	550325	NEBU-M12W5-K-2.5-LE4
			5	541329	NEBU-M12W5-K-5-LE4

Ordering data – Sensor socket SIE-GD			Technical data → Internet: sie-gd	
	Electrical connection		Part No.	Type
	M12x1, 4-pin		18494	SIE-GD

Ordering data – Angled plug socket SIE-WD			Technical data → Internet: sie-wd	
	Electrical connection		Part No.	Type
	M12x1, 4-pin		12956	SIE-WD-TR

Ordering data – Padlock LRVS-D				
	Weight [g]		Part No.	Type
	120		193786	LRVS-D

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- ★ Generally ready for shipping ex works in 24 hours
- ☆ Generally ready for shipping ex works in 5 days

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