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

Key features

Service unit components of the MS series

Solutions for every application

With its large product range, highly effective components and a wide choice of functions, the MS series from Festo offers a complete concept for compressed air preparation. It is suitable for simple standard applications as well as for application-specific solutions with very high-quality requirements.
Available as individual components, pre-assembled combinations ex-stock, application-specific combinations or complete ready-to-install solutions. The five sizes of the MS series achieve maximum flow rates with minimum space requirements.

Freely combinable functional modules

Pressure regulators, on/off and soft-start valves with safety function, filters, pressure and flow sensors, dryers, sensors and lubricators can be assembled into a suitable solution for every task. Thanks to the modular structure the components can be combined as required. The simple connection system saves time because there is no need to disassemble the entire combination when replacing individual modules.
Many of the components are also UL and ATEX certified.

CAD models and configurator

Convenient tools for planning and selecting application-specific individual devices and combinations. The product configurator can be used to configure customised solutions quickly and to transfer the order data without any hassle.

Engineering tools

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

Integrated sensors

Pressure and flow sensors

- Maximum machine availability thanks to controlled processes
- Reliable air preparation and system supply
- Integrated or stand-alone
- Easy to connect with M8/M12 plug

Safety functions

Soft-start/quick exhaust valves MS6-SV/MS9-SV

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

Saving energy

Service unit combinations MSE6

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

Intelligent mix of sizes

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

Size differences

Size		MS4	MS6	MS9	MS12
Grid dimension	[mm]	40	62	90	124
Connection sizes		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]	1800	6500	20000	22000

1) Using pressure regulator MS-LR as an example

Key features

Note

Information

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

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

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

Designing a service unit combination

The order of the individual components within a service unit combination is relevant for safety and functionality. The service unit components cannot be combined in any order in the flow direction. There are restrictions and rules.

The configurator for the service unit combination MSB is a reliable and convenient way of combining the individual service unit components and ensures compliance with the applicable rules. As a result, you get a fully assembled combination with UL or ATEX certification, if necessary.
When combining a unit from individually configured and ordered service unit components, the points on the right must be adhered to under all circumstances.

- Regulators MS-LFR/LR/LRP 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 in the flow direction upstream of an activated carbon filter MS-LFX or membrane air dryer MS-LDM1
- 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

Product range for service unit components MS series

Type	Description	Size	Pneumatic connection					
			Push-in connector	Female thread			Connecting plate with thread	
				M	G	NPT	G	NPT
Combinations								
Service unit combinations MSB-FRC								Datasheets ➔ Internet: msb
	Combinations of filter regulator and lubricator	4	–	–	1/8, 1/4	–	–	–
		6	–	–	1/4, 3/8, 1/2	–	–	–
Service unit combinations MSB								Datasheets ➔ Internet: msb
	Certain predefined combinations	4	–	–	1/4	–	–	–
		6	–	–	1/2	–	–	–
	Freely configurable combinations	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 unit combinations MSE6								Datasheets ➔ Internet: mse6
	Combinations with fieldbus connection for measuring pressure, flow rate and consumption	6	–	–	–	–	1/2	–

Key features

Product range for service unit components MS series

Type	Description	Size	Pneumatic connection					
			Push-in connector	Female thread			Connecting plate with thread	
				M	G	NPT	G	NPT
Individual devices								
Filter regulators MS-LFR							Datasheets ➔ Internet: ms2-lfr; ms4-lfr; ms6-lfr; ms9-lfr; ms12-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	–
Filter regulators MS-LFR-B							Datasheets ➔ Internet: ms4-lfr-b; ms6-lfr-b	
	Filter and pressure regulator in a single device in polymer housing, grade of filtration 5 or 40 µm	4	–	–	1/4	–	–	–
		6	–	–	1/2	–	–	–
Filters MS-LF							Datasheets ➔ Internet: ms4-lf; ms6-lf; ms9-lf; ms12-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							Datasheets ➔ Internet: ms4-lfm; ms6-lfm; ms9-lfm; ms12-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							Datasheets ➔ Internet: ms4-lfx; ms6-lfx; ms9-lfx; ms12-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 separator MS-LWS							Datasheets ➔ Internet: ms6-lws; ms9-lws; ms12-lws	
	Removes condensate 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	–

Key features

Product range for service unit components MS series

Type	Description	Size	Pneumatic connection					
			Push-in connector	Female thread			Connecting plate with thread	
				M	G	NPT	G	NPT
Individual devices								
Pressure regulators MS-LR								Datasheets ➔ Internet: ms2-lr; ms4-lr; ms6-lr; ms9-lr; ms12-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-LR-B								Datasheets ➔ Internet: ms4-lr-b; ms6-lr-b
	For setting the required operating pressure, in polymer housing	4	–	–	1/4	–	–	–
		6	–	–	1/2	–	–	–
Pressure regulators MS-LRB								Datasheets ➔ Internet: ms4-lrb; ms6-lrb
	For configuring a regulator manifold with independent pressure regulation ranges. Pressure output is at 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								Datasheets ➔ Internet: ms6-lrp
	For precisely setting 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								Datasheets ➔ Internet: ms6-lrpb
	For configuring a regulator manifold with independent pressure regulation ranges. Pressure output is at the front or rear.	6	–	–	1/2	–	1/4, 3/8, 1/2, 3/4	–
Lubricators MS-LOE								Datasheets ➔ Internet: ms4-loe; ms6-loe; ms9-loe; ms12-loe
	Add a precisely dosed amount of oil to the compressed air. The amount of oil mist 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	–

Key features

Product range for service unit components MS series

Type	Description	Size	Pneumatic connection					
			Push-in connector	Female thread			Connecting plate with thread	
				M	G	NPT	G	NPT
Individual devices								
On/off valves MS-EM							Datasheets ➔ Internet: ms4-em; ms6-em; ms9-em; ms12-em	
	Manually actuated on/off valve for pressurising and exhausting pneumatic systems.	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							Datasheets ➔ Internet: ms4-ee; ms6-ee; ms9-ee; ms12-ee	
	Electrically actuated on/off valve for pressurising and exhausting pneumatic systems.	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-B							Datasheets ➔ Internet: ms4-ee-b; ms6-ee-b	
	Electrically actuated on/off valve in polymer housing for pressurising and exhausting pneumatic systems.	4	–	–	1/4	–	–	–
		6	–	–	1/2	–	–	–
Soft-start valves MS-DL							Datasheets ➔ Internet: ms4-dl; ms6-dl; ms12-dl	
	Pneumatically actuated soft-start valve for slowly pressurising pneumatic systems.	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							Datasheets ➔ Internet: ms4-de; ms6-de; ms12-de	
	Electrically actuated soft-start valve for slowly pressurising pneumatic systems.	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	–
On/off valves MS-EDE-B							Datasheets ➔ Internet: ms4-ede-b; ms6-ede-b	
	Electrically actuated soft-start valve in polymer housing for slowly pressurising and exhausting pneumatic systems.	4	–	–	1/4	–	–	–
		6	–	–	1/2	–	–	–
Soft-start/quick exhaust valves MS-SV							Datasheets ➔ Internet: ms6-sv; ms9-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
	Up to category 4, PL e.	6	–	–	1/2	–	1/4, 3/8, 1/2, 3/4	–

Key features

Product range for service unit components MS series

Type	Description	Size	Pneumatic connection					
			Push-in connector	Female thread			Connecting plate with thread	
				M	G	NPT	G	NPT
Individual devices								
Membrane air dryer MS-LDM1								Datasheets ➔ Internet: ms4-ldm; ms6-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								Datasheets ➔ Internet: ms4-frm; ms6-frm; ms9-frm; ms12-frm
	Compressed air distributors 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								Datasheets ➔ Internet: ms4-frm-frz; ms6-frm-frz
	Compressed air distributors with 4 connections and half the grid width	4	–	–	–	–	–	–
		6	–	–	–	–	–	–
Flow sensors SFAM								Datasheets ➔ Internet: sfam
	For absolute flow rate information and cumulative air consumption measurement	6	–	–	–	–	1/2	1/2
		9	–	–	–	–	1, 1 1/2	1, 1 1/2
Proportional-pressure regulator VPPE								Datasheets ➔ Internet: vppe
	Piloted pressure regulator with or without display	6	–	–	–	–	–	–
		9	–	–	–	–	–	–

Peripherals overview

Pressure regulator MS4/MS6-LR

Note

Additional accessories:

- Module connectors for combination with size MS4/MS6 or size MS9
  ➔ Internet: amv, rmv, armv
- Adapters 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

Peripherals overview

Mounting attachments and accessories[1]		Individual device		Combination		→ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
[1]	Pressure regulator MS4/MS6-LR	■	■	■	■	8
[2]	Mounting bracket MS4/6-WB	■	■	–	–	ms4-wb, ms6-wb
[3]	Mounting bracket MS4-WBM	■	■	–	–	ms4-wbm
[4]	Mounting bracket MS4/6-WR	■	■	–	–	ms4-wr, ms6-wr
[5]	Knurled nut (included in the scope of delivery) MS-LR	■	■	–	–	–
[6]	Padlock LRVS-D	■	■	■	■	106
[7]	Cover cap MS4/6-END	■	–	■	–	ms4-end, ms6-end
[8]	Module connector MS4/6-MV	–	■	■	■	ms4-mv, ms6-mv
[9]	Connecting plate SET MS4/6-AG...	–	■	–	■	ms4-ag, ms6-ag
	Connecting plate SET MS4/6-AQ...	–	■	–	■	ms4-aq, ms6-aq
[10]	Pressure sensor with LCD display AD11/AD12	■	■	■	■	26
[11]	Connecting cable NEBA-M8...-LE4/NEBA-M12...-LE4	■	■	■	■	106
[12]	Pressure sensor without display AD7 ... AD10	■	■	■	■	26
[13]	Connecting cable NEBA-M8...-LE3	■	■	■	■	106
[14]	Adapter for EN pressure gauge 1/8, 1/4 A8/A4	■	■	■	■	26
[15]	Pressure gauge MA	■	■	■	■	106
[16]	Cover plate VS	■	■	■	■	26
–	Mounting bracket MS4/6-WP/WPB/WPE/WPM	–	■	■	■	ms4-wp, ms6-wp

1) Connecting plates and certain mounting brackets can also be ordered via the modular product system → page 26

Type codes

001	Series	
MS	MS series	

002	Size	
4	Grid dimension 40 mm	

003	Function	
LR	Pressure regulator	

004	Pneumatic connection	
1/8	Female thread G1/8	
1/4	Female thread G1/4	
AGA	Sub-base G1/8	
AGB	Sub-base G1/4	
AGC	Sub-base G3/8	
AQK	Sub-base 1/8 NPT	
AQN	Sub-base 1/4 NPT	
AQP	Sub-base 3/8 NPT	

005	Pressure range/actuation	
D5	0.3 ... 4 bar, manually actuated	
D6	0.3 ... 7 bar, manually actuated	
D7	0.5 ... 12 bar, manually actuated	

006	Pressure gauge alternatives	
	None	
A4	Adapter for EN pressure gauge 1/4, without pressure gauge	
A8	Adapter for EN pressure gauge 1/8, without pressure gauge	
AD7	Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/O	
AD8	Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/C	
AD9	Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O	
AD10	Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, N/C	
AD11	Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA	
AD12	Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA	
RG	Integrated pressure gauge, red/green scale	
VS	Cover plate	

007	Alternative pressure gauge scale	
	MS pressure gauge	
PSI	psi	
MPA	MPa	

008	Secondary exhausting	
	With secondary exhausting	
OS	Without secondary exhaust	

009	Rotary knob alternative	
	None	
LD	Long rotary knob	
DM1	Rotary knob pressure gauge, small	
DM2	Rotary knob pressure gauge, large	

010	Alternative mounting position	
	None	
KD	Rotary knob underneath	

011	Lockability	
	None	
AS	Can be locked using accessories	
E11	With integrated lock	

012	Type of mounting	
	Without mounting bracket	
WR	Mounting bracket with knurled nut on regulator knob	
WP	Mounting bracket basic design	
WPM	Mounting bracket for hooking in service unit components	
WB	Mounting centrally at rear (wall mounting top and bottom), connecting plates not required	
WBM	Mounting centrally at rear (wall mounting top), connecting plates not required	

013	EU certification	
	None	
EX4	II 2GD	

014	UL certification	
	None	
UL1	cULus ordinary location for Canada and USA	

015	Flow direction	
	Flow direction from left to right	
Z	Flow direction from right to left	

Type codes

001	Series	
MS	MS series	

002	Size	
6	Grid dimension 62 mm	

003	Function	
LR	Pressure regulator	

004	Pneumatic connection	
1/4	Female thread G1/4	
3/8	Female thread G3/8	
1/2	Female thread G1/2	
AGB	Sub-base G1/4	
AGC	Sub-base G3/8	
AGD	Sub-base G1/2	
AGE	Sub-base G3/4	
AQN	Sub-base 1/4 NPT	
AQP	Sub-base 3/8 NPT	
AQR	Sub-base 1/2 NPT	
AQS	Sub-base 3/4 NPT	

005	Pressure range/actuation	
D5	0.3 ... 4 bar, manually actuated	
D6	0.3 ... 7 bar, manually actuated	
D7	0.5 ... 12 bar, manually actuated	
D8	0.5 ... 16 bar, manually actuated	

006	Pressure gauge alternatives	
	None	
A4	Adapter for EN pressure gauge 1/4, without pressure gauge	
A8	Adapter for EN pressure gauge 1/8, without pressure gauge	
AD7	Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/O	
AD8	Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/C	
AD9	Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O	
AD10	Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, N/C	
AD11	Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA	
AD12	Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA	
RG	Integrated pressure gauge, red/green scale	
VS	Cover plate	

007	Alternative pressure gauge scale	
	MS pressure gauge	
PSI	psi	
MPA	MPa	

008	Secondary exhausting	
	With secondary exhausting	
OS	Without secondary exhaust	

009	Rotary knob alternative	
	None	
LD	Long rotary knob	
DM2	Rotary knob pressure gauge, large	

010	Alternative mounting position	
	None	
KD	Rotary knob underneath	

011	Lockability	
	None	
AS	Can be locked using accessories	
E11	With integrated lock	

012	Type of mounting	
	Without mounting bracket	
WR	Mounting bracket with knurled nut on regulator knob	
WP	Mounting bracket basic design	
WPM	Mounting bracket for hooking in service unit components	
WB	Mounting centrally at rear (wall mounting top and bottom), connecting plates not required	

013	EU certification	
	None	
EX4	II 2GD	

014	UL certification	
	None	
UL1	cULus ordinary location for Canada and USA	

015	Flow direction	
	Flow direction from left to right	
Z	Flow direction from right to left	

Datasheet

With pressure gauge

Flow rate
1000 ... 7500 l/min

Temperature range
–10 ... +60 °C

Operating pressure
0.8 ... 20 bar

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

- Good regulation characteristics with minimal hysteresis and input pressure compensation
- High flow rate with minimal pressure drop
- Available with and without secondary exhausting
- Actuator lock to protect the set values from being adjusted
- 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 installation 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			G1/8 or G1/4	G1/4, G3/8 or G1/2
Connecting plate	[AG...]		G1/8, G1/4 or G3/8	G1/4, G3/8, G1/2 or G3/4
	[AQ...]		1/8 NPT, 1/4 NPT or 3/8 NPT	1/4 NPT, 3/8 NPT, 1/2 NPT or 3/4 NPT
Design			Directly actuated diaphragm regulator	
Regulator function			Output pressure constant, with input pressure compensation, with return flow, with/without secondary exhausting	
Type of mounting			With accessories	
			In-line installation	
			Front panel mounting	
Mounting position			Any	
Actuator lock			Rotary knob with latch	
			Rotary knob with latch, can be locked using accessories	
			Rotary knob with integrated lock	
Pressure regulation range/ actuation	[D5]	[bar]	0.3 ... 4, manually actuated[1)]	
	[D6]	[bar]	0.3 ... 7, manually actuated[1)]	
	[D7]	[bar]	0.5 ... 12, manually actuated (0.5 ... 10 with pressure sensor or with UL certification)[1)]	
	[D8]	[bar]	–	0.5 ... 16, manually actuated (0.5 ... 10 with UL certification)
Max. pressure hysteresis		[bar]	0.25 (0.4 with rotary knob pressure gauge)	
Pressure indication			With pressure sensor for indicating the output pressure via LCD display and electrical output	
			With pressure sensor for indicating the output pressure via the switching status indicator and electrical output	
			Via pressure gauge for displaying the output pressure	
			With pressure gauge with red/green scale for indicating the output pressure	
			Via pressure gauge in the rotary knob for displaying the output pressure	
			Prepared for G1/8	–
			Prepared for G1/4	

1) MS4: the pressure regulation range for pressure regulators with rotary knob pressure gauge starts at 0.8 bar.

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

Datasheet

Standard nominal flow rate qnN[1] [l/min]						
Size		MS4		MS6		
Pneumatic connection		G1/8	G1/4	G1/4	G3/8	G1/2
Pressure regulation range	[D5]	1200[2]	2100[2]	2400[2]	5500[2]	7500[2]
	[D6]	1150	1800	3000	5800	6500
	[D7]	1000	1700[3]	2700	4500	5500
	[D8]	–	–	2200	4000	4500

1) Measured at p1 = 10 bar and p2 = 6 bar, Δp = 1 bar
2) Measured at p1 = 10 bar and p2 = 3 bar, Δp = 1 bar
3) With a rotary knob pressure gauge, q_nN = 800 l/min, $q_{n\ max}$ = 2200 l/min

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 to ISO 8573-1:2010 [7:4:4]	
	Inert gases	
Note on the operating/pilot medium	Lubricated operation 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]	c UL us - 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.
3) More information www.festo.com/x/topic/crc
4) More information: www.festo.com/catalogue/ms-lr ➔ Support/Downloads.

ATEX	
EU certification	[EX4]
ATEX category for gas	II 2G
Type of ignition protection for gas	Ex h IIC T6 Gb X
ATEX category for dust	II 2D
Type of ignition protection for dust	Ex h IIIC T60°C Db X
Explosion-proof ambient temperature	–10 °C ≤ Ta ≤ +60 °C
Explosion protection certification outside the EU	EPL Db (GB) EPL Gb (GB)
CE marking (see declaration of conformity)[1]	To EU Explosion Protection Directive (ATEX)
UKCA marking (see declaration of conformity)[1]	To UK explosion regulations

1) More information: www.festo.com/catalogue/ms-lr ➔ Support/Downloads.

Weight [g]			
Size		MS4	MS6
Pressure regulator		225	730
Pressure regulator with rotary knob with integrated lock		350	1000
Connecting plates	[AG...]/[AQ...]	128	300
Mounting bracket	[WBM]	48	–
	[WB]	46	121
	[WR]	49	90
	[WP]	39	76
	[WPM]	45	144

Datasheet

Materials

Sectional view

Pressure regulator		
[1]	Housing	Die-cast aluminium
[2]	Rotary knob	PA, POM
	Rotary knob with integrated lock	Aluminium
[3]	Diaphragms	NBR
[4]	Bottom cover	PET
[5]	Springs	Steel
–	Seals	NBR
Note on materials		RoHS-compliant
LABS (PWIS) conformity		VDMA24364-B1/B2-L

Standard flow rate qn as a function of output pressure p2 (p1 = 10 bar)

MS4-LR-1/8

Input pressure p1 = 10 bar

MS4-LR-1/4

D6: 0.3 ... 7 bar
D7: 0.5 ... 12 bar[1)]

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

MS6-LR-1/4

Input pressure p1 = 10 bar

MS6-LR-3/8

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

MS6-LR-1/2

Input pressure p1 = 10 bar

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

Datasheet

Dimensions – Basic version Download CAD data ➔ www.festo.com

[ ] Integrated MS pressure gauge with standard scale
[RG] Integrated MS pressure gauge with red/green scale
[AS] Rotary knob with latch, can be locked using accessories

MS4

MS6

➔ Flow direction

Type	B1	B2	B3 Pressure gauge		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 ISO 228-1.

Datasheet

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

[KD] Rotary knob underneath

MS4

MS6

➔ Flow direction

Type	B1	B2	B3 Pressure gauge		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 ISO 228-1.

Datasheet

Dimensions – Pressure gauge alternatives

Download CAD data ➔ www.festo.com

[VS] Cover plate

[A8] Adapter for EN pressure gauge 1/8, without pressure gauge

[A4] Adapter for EN pressure gauge 1/4, without pressure gauge

➔ Flow direction

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 ISO 228-1.

Datasheet

Dimensions – Pressure gauge alternatives

Download CAD data ➔ www.festo.com

[AD7 ... 10] Pressure sensor without LCD display (switching status indicator only)

Datasheets ➔ Internet: sde5

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

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

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

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

➔ Flow direction

Type	B2	B3	B5	B6	D6
MS4-LR-...-AD7/AD8/AD9/AD10	21	59.1	32	16	M8x1
MS6-LR-...-AD7/AD8/AD9/AD10	31	79.1	51	16	M8x1

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

Datasheet

Dimensions – Pressure gauge alternatives

Download CAD data ➔ www.festo.com

[AD11/AD12] Pressure sensor with LCD display

Datasheets ➔ Internet: spau

Variant AD11:
SPAU-P10R-MS-L-PNLK-M12 with plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA

Variant AD12:
SPAU-P10R-MS-L-PNLK-M8 with plug M8, 4-pin, IO-Link®®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA

➔ Flow direction

Type	B2	B3	B4	B5	B6	D6	L5	L6
MS4-LR-...-AD11	21	81.2	73.3	32	32	M12x1	41.2	39
MS4-LR-...-AD12	21	81.2	73.3	32	32	M8x1	37.9	39
MS6-LR-...-AD11	31	101.8	93.7	51	32	M12x1	41.2	39
MS6-LR-...-AD12	31	101.8	93.7	51	32	M8x1	37.9	39

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

Datasheet

Dimensions – Pneumatic connection Download CAD data ➔ www.festo.com

[AG...]/[AQ...] Connecting plate

[1] Earthing screw M4x8
(only with MS4/6-...-EX)

Type	B1	B2	B3	B4	B5	D1	D2	L1	L2	⌀1
MS4-LR-...-AGA	83.4	21.5	12.5	21	72.5	G1/8	16.8	42	14.5	24
MS4-LR-...-AGB						G1/4				21
MS4-LR-...-AGC						G3/8				24
MS4-LR-...-AQK						1/8-27 NPT				24
MS4-LR-...-AQN						1/4-18 NPT				24
MS4-LR-...-AQP						3/8-18 NPT				24
MS6-LR-...-AGB	115	26.5	20.5	31	98.3	G1/4	24	62	15.5	34
MS6-LR-...-AGC						G3/8				34
MS6-LR-...-AGD						G1/2				26
MS6-LR-...-AGE						G3/4				34
MS6-LR-...-AQN						1/4-18 NPT				34
MS6-LR-...-AQP						3/8-18 NPT				34
MS6-LR-...-AQR						1/2-14 NPT				34
MS6-LR-...-AQS						3/4-14 NPT				34

Dimensions – Type of mounting Download CAD data ➔ www.festo.com

[WB] Mounting bracket

[WBM] Mounting bracket

Type	B1	B2	B3	B4	L1	L2	L3	L4
MS4-LR-...-WB	56	41	4	44.2	104.6	46.6	5.6	46.5
MS4-LR-...-WBM	66.5	44	10	44	41.3	35	6.5	–
MS6-LR-...-WB	79.4	62	4.5	53.8	157.6	71	6.6	71

Datasheet

Dimensions – Type of mounting Download CAD data ➔ www.festo.com

[WR] Mounting bracket

[WP] Mounting bracket

Type	B1	B2	B3	B4	B5	L1	L2	L3	L4
MS4-LR-...-WR	68	44	8	41	–	52	44	7	–
MS4-LR-...-WP	55.2	40.2	4	44	83.4	106	46.5	5.6	46.7
MS6-LR-...-WR	70	42	8.2	40	–	67	57	7.1	–
MS6-LR-...-WP	79	62	4.5	54	115	158	71	6.6	71

Dimensions – Type of mounting Download CAD data ➔ www.festo.com

[WPM] Mounting bracket

MS4

MS6

Type	B1	B2	B3	B4	B5	L1	L2	L3	L4
MS4-LR-...-WPM	55.2	40.2	4	44	83.4	92.8	34.8	5.6	45.2
MS6-LR-...-WPM	99	69	17.5	54	129	98.6	41.3	6.6	41.3

Datasheet

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

For control panel installation

[ ] Rotary knob with latch

[AS] Rotary knob with latch, can be locked using accessories

[E11] Rotary knob with integrated lock

[1] Max. panel thickness
[2] Installation dimension

[LD] Rotary knob, long, with latch

[LD-AS] Rotary knob, long, with latch, can be locked using accessories

[3] For pressure adjustment: fully pull out telescopic rotary knob

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

Datasheet

Dimensions – Rotary knob pressure gauge

Download CAD data ➔ www.festo.com

[DM1] Rotary knob pressure gauge, small

MS4

[DM2] Rotary knob pressure gauge, large

MS4

MS6

Note

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

➔ Flow direction

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

Datasheet

Ordering data				
Pneumatic connection 1	Pressure regulation range	Flow direction	Part no.	Type
MS4-LR...				
G1/8	0.3 ... 4 bar	From left to right	**611432**	**MS4-LR-1/8-D5-VS-DM1**
			595546	**MS4-LR-1/8-D5-VS-DM2**
			8190232	**MS4-LR-1/8-D5-VS-OS**
			8190233	**MS4-LR-1/8-D5-VS-OS-WR**
			529421	**MS4-LR-1/8-D5-AS**
		From right to left	**529422**	**MS4-LR-1/8-D5-AS-Z**
	0.3 ... 7 bar	From left to right	**543520**	**MS4-LR-1/8-D6-WR**
			543519	**MS4-LR-1/8-D6-A8**
			8190234	**MS4-LR-1/8-D6**
			596080	**MS4-LR-1/8-D6-RG**
			564918	**MS4-LR-1/8-D6-VS-DM1**
			575246	**MS4-LR-1/8-D6-VS-DM2**
			529423	**MS4-LR-1/8-D6-AS**
		From right to left	**529424**	**MS4-LR-1/8-D6-AS-Z**
	0.5 ... 12 bar	From left to right	**611577**	**MS4-LR-1/8-D7**
			563993	**MS4-LR-1/8-D7-VS-DM1**
			529425	**MS4-LR-1/8-D7-AS**
		From right to left	**529426**	**MS4-LR-1/8-D7-AS-Z**
G1/4	0.3 ... 4 bar	From left to right	**589482**	**MS4-LR-1/4-D5**
			578556	**MS4-LR-1/4-D5-A8**
			579184	**MS4-LR-1/4-D5-RG**
			611015	**MS4-LR-1/4-D5-VS-DM1**
			594803	**MS4-LR-1/4-D5-VS-DM2**
			8190235	**MS4-LR-1/4-D5-WR**
			529415	**MS4-LR-1/4-D5-AS**
		From right to left	**529416**	**MS4-LR-1/4-D5-AS-Z**
	0.3 ... 7 bar	From left to right	**611578**	**MS4-LR-1/4-D6**
			589294	**MS4-LR-1/4-D6-A8**
			8190236	**MS4-LR-1/4-D6-A8-E11**
			8190237	**MS4-LR-1/4-D6-E11**
			8190238	**MS4-LR-1/4-D6-E11-WR**
			567523	**MS4-LR-1/4-D6-RG**
			8190239	**MS4-LR-1/4-D6-RG-E11**
			8190240	**MS4-LR-1/4-D6-RG-WR**
			555873	**MS4-LR-1/4-D6-VS-DM1**
			555874	**MS4-LR-1/4-D6-VS-DM2**
			607246	**MS4-LR-1/4-D6-WR**
			529417	**MS4-LR-1/4-D6-AS**
		From right to left	**529418**	**MS4-LR-1/4-D6-AS-Z**
	0.5 ... 12 bar	From left to right	**8190241**	**MS4-LR-1/4-D7**
			610772	**MS4-LR-1/4-D7-A8**
			8190242	**MS4-LR-1/4-D7-VS-DM1**
			578847	**MS4-LR-1/4-D7-VS-DM2**
			8190243	**MS4-LR-1/4-D7-WR**
			529419	**MS4-LR-1/4-D7-AS**
		From right to left	**529420**	**MS4-LR-1/4-D7-AS-Z**

Datasheet

Ordering data				
Pneumatic connection 1	Pressure regulation range	Flow direction	Part no.	Type
MS6-LR...				
G1/4	0.3 ... 4 bar	From left to right	**529995**	**MS6-LR-1/4-D5-AS**
	0.3 ... 7 bar		**529997**	**MS6-LR-1/4-D6-AS**
	0.5 ... 12 bar		**529999**	**MS6-LR-1/4-D7-AS**
G3/8	0.3 ... 4 bar	From left to right	**530001**	**MS6-LR-3/8-D5-AS**
	0.3 ... 7 bar		**530003**	**MS6-LR-3/8-D6-AS**
		From right to left	**530004**	**MS6-LR-3/8-D6-AS-Z**
	0.5 ... 12 bar	From left to right	**530005**	**MS6-LR-3/8-D7-AS**
G1/2	0.3 ... 4 bar	From left to right	**529989**	**MS6-LR-1/2-D5-AS**
	0.3 ... 7 bar		**529991**	**MS6-LR-1/2-D6-AS**
		From right to left	**529992**	**MS6-LR-1/2-D6-AS-Z**
	0.5 ... 12 bar	From left to right	**529993**	**MS6-LR-1/2-D7-AS**
		From right to left	**529994**	**MS6-LR-1/2-D7-AS-Z**

Ordering data – Modular product system

Ordering table Grid dimension [mm]	40	62	Conditions	Code	Enter code
Module no.	**527690**	**527663**			
Series	Standard			**MS**	MS
Size	4	6		**...**	
Function	Pressure regulator			**-LR**	-LR
Pneumatic connection	Female thread G1/8	–	[1]	**-1/8**	
	Female thread G1/4	Female thread G1/4	[1]	**-1/4**	
	–	Female thread G3/8	[1]	**-3/8**	
	–	Female thread G1/2	[1]	**-1/2**	
	Connecting plate G1/8	–		**-AGA**	
	Connecting plate G1/4	Connecting plate G1/4		**-AGB**	
	Connecting plate G3/8	Connecting plate G3/8		**-AGC**	
	–	Connecting plate G1/2		**-AGD**	
	–	Connecting plate G3/4		**-AGE**	
	–	Connecting plate G1		**-AGF**	
	Connecting plate 1/8 NPT	–	[1]	**-AQK**	
	Connecting plate 1/4 NPT	Connecting plate 1/4 NPT	[1]	**-AQN**	
	Connecting plate 3/8 NPT	Connecting plate 3/8 NPT	[1]	**-AQP**	
	–	Connecting plate 1/2 NPT	[1]	**-AQR**	
	–	Connecting plate 3/4 NPT	[1]	**-AQS**	
Pressure regulation range/actuation	0.3 ... 4 bar, manually actuated			**-D5**	
	0.3 ... 7 bar, manually actuated			**-D6**	
	0.5 ... 12 bar, manually actuated			**-D7**	
	–	0.5 ... 16 bar, manually actuated	[1] [4]	**-D8**	
Pressure gauge alternatives	MS pressure gauge				
	Cover plate			**-VS**	
	Adapter for EN pressure gauge 1/8, without pressure gauge	–		**-A8**	
	Adapter for EN pressure gauge 1/4, without pressure gauge			**-A4**	
	Integrated pressure gauge, red/green scale		[2] [3] [4]	**-RG**	
	Pressure sensor with switching status indicator, plug M8, threshold value comparator, PNP, N/O contact		[1] [2] [5]	**-AD7**	
	Pressure sensor with switching status indicator, plug M8, threshold value comparator, PNP, N/C contact		[1] [2] [5]	**-AD8**	
	Pressure sensor with switching status indicator, M8 plug, window comparator, PNP, N/O contact		[1] [2] [5]	**-AD9**	
	Pressure sensor with switching status indicator, M8 plug, window comparator, PNP, N/C contact		[1] [2] [5]	**-AD10**	
	Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA		[2] [5]	**-AD11**	
	Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA		[2] [5]	**-AD12**	

[1]	1/8, 1/4, 3/8, 1/2, AQK, AQN, AQP, AQR, AQS, D8, AD7 ... AD10, DM1, DM2, KD, E11, WPM	Not with EU EX4 certification.
[2]	RG, AD7 ... AD10, AD11/AD12, 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.
[5]	AD7 ... AD10, AD11/AD12	Measuring range max. 10 bar. Not with pressure regulation range D8

Ordering data – Modular product system

Ordering table Grid dimension [mm]	40	62	Conditions	Code		Enter code
Alternative pressure gauge scale	MS pressure gauge, bar					
	psi		[6]	**-PSI**		
	MPa		[7]	**-MPA**		
Secondary exhausting	With secondary exhausting					
	Without secondary exhausting		[2] [3] [4]	**-OS**		
Rotary knob alternative	None					
	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	None					
	Rotary knob underneath		[1] [2] [3] [4] [10]	**-KD**		
Locking option	None					
	Lockable using accessories		[2] [3] [4]	**-AS**		
	With integrated lock		[1]	**-E11**		
Type of mounting	Without mounting bracket					
	Mounting bracket with knurled nut for regulator head		[2] [11]	**-WR**		
	Mounting bracket standard design		[12]	**-WP**		
	Mounting bracket for hooking in service unit components		[1] [12]	**-WPM**		
	Mounting bracket centrally at the rear (wall mounting top and bottom), connecting plates not required		[2]	**-WB**		
	Mounting bracket centrally at the rear (wall mounting top), connecting plates not required	–		**-WBM**		
EU certification	None					
	II 2GD to EU Explosion Protection Directive (ATEX)			**-EX4**		
UL certification	None					
	cULus, ordinary location for Canada and USA			**-UL1**		
Flow direction	Flow direction from left to right					
	Flow direction from right to left			**-Z**		

[6] PSI — Not with pressure gauge alternatives VS, A8, A4, RG, AD7 ... AD10.
[7] MPA — Not with pressure gauge alternatives VS, A8, A4, AD7 ... AD10.
Not with rotary knob alternative DM1, DM2.
[8] LD, DM1, DM2 — Not with locking option E11.
[9] DM1, DM2 — Can only be combined with pressure gauge alternatives VS, A8, A4, 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 or rotary knob alternative DM2.
[12] WP, WPM — Only with connecting plate AGA, AGB, AGC, AGD, AGE, AQK, AQN, AQP, AQR or AQS.

Peripherals overview

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

Note

Additional accessories:

- Module connectors for combination with size MS4/MS6 or size MS9
  ➔ Internet: amv, rmv, armv
- Adapters 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

Peripherals overview

Mounting attachments and accessories		Individual device		Combination		→ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
[1]	Pressure regulator MS4/MS6-LRB	■	■	■	■	28
[2]	Angled outlet block B...	■	■	■	■	46
[3]	Mounting bracket MS4/6-WP	–	■	■	■	ms4-wp, ms6-wp
[4]	Mounting bracket MS4/6-WPB	–	■	■	■	ms4-wp, ms6-wp
[5]	Mounting bracket MS4/6-WPE	–	■	■	■	ms4-wp, ms6-wp
[6]	Mounting bracket MS4/6-WPM	–	■	■	■	ms4-wp, ms6-wp
[7]	Padlock LRVS-D	■	■	■	■	106
[8]	Cover cap MS4/6-END	■	–	■	–	ms4-end, ms6-end
[9]	Module connector MS4/6-MV	–	■	■	■	ms4-mv, ms6-mv
[10]	Connecting plate SET MS4/6-AG...	–	■	–	■	ms4-ag, ms6-ag
[11]	Pressure sensor with LCD display AD11/AD12	■	■	■	■	46
[12]	Connecting cable NEBA-M8...-LE4/NEBA-M12...-LE4	■	■	■	■	106
[13]	Pressure sensor without display AD7 ... AD10	■	■	■	■	46
[14]	Connecting cable NEBA-M8...-LE3	■	■	■	■	106
[15]	Adapter for EN pressure gauge 1/8, 1/4 A8/A4	■	■	■	■	46
[16]	Pressure gauge MA	■	■	■	■	106
[17]	Cover plate VS	■	■	■	■	46

Peripherals overview

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

Note

Additional accessories:

- Module connectors for combination with size MS4/MS6 or size MS9
  ➔ Internet: amv, rmv, armv
- Adapters for mounting on profiles
  ➔ Internet: ipm-80, ipm-40-80, ipm-80-80

Peripherals overview

Mounting attachments and accessories		Individual device		Combination		➔ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
[1]	Pressure regulator MS4/MS6-LRB	■	■	■	■	30
[2]	Mounting bracket MS4/6-WB	■	■	–	–	ms4-wb, ms6-wb
[3]	Mounting bracket MS4-WBM	■	■	–	–	ms4-wbm
[4]	Mounting bracket MS4/6-WR	■	■	–	–	ms4-wr, ms6-wr
[5]	Knurled nut (included in the scope of delivery) MS-LR	■	■	–	–	–
[6]	Padlock LRVS-D	■	■	■	■	106
[7]	Cover cap MS4/6-END	■	–	■	–	ms4-end, ms6-end
[8]	Module connector MS4/6-MV	–	■	■	■	ms4-mv, ms6-mv
[9]	Connecting plate SET MS4/6-AG...	–	■	–	■	ms4-ag, ms6-ag
[10]	Angled outlet block B...	■	■	■	■	46
[11]	Pressure sensor without display AD7 ... AD10	■	■	■	■	46
[12]	Connecting cable NEBA-M8...-LE3	■	■	■	■	106
[13]	Cover plate VS	■	■	■	■	46
[14]	MS pressure gauge (included in the scope of delivery)	■	■	■	■	–

Type codes

001	Series	
MS	MS series	

002	Size	
4	Grid dimension 40 mm	

003	Function	
LRB	Pressure regulator for manifold assembly	

004	Pneumatic connection	
1/4	Female thread G1/4	
AGA	Sub-base G1/8	
AGB	Sub-base G1/4	
AGC	Sub-base G3/8	

005	Pressure regulation range	
D5	0.3 ... 4 bar	
D6	0.3 ... 7 bar	
D7	0.5 ... 12 bar	

006	Pressure gauge alternatives	
	None	
A4	Adapter for EN pressure gauge 1/4, without pressure gauge	
A8	Adapter for EN pressure gauge 1/8, without pressure gauge	
AD7	Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/O	
AD8	Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/C	
AD9	Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O	
AD10	Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, N/C	
AD11	Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA	
AD12	Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA	
RG	Integrated pressure gauge, red/green scale	
VS	Cover plate	

007	Alternative pressure gauge scale	
	MS pressure gauge	
PSI	psi	
MPA	MPa	

008	Secondary exhausting	
	With secondary exhausting	
OS	Without secondary exhaust	

009	Rotary knob alternative	
	None	
LD	Long rotary knob	
DM1	Rotary knob pressure gauge, small	

010	Alternative mounting position	
	None	
KD	Rotary knob underneath	

011	Lockability	
	None	
AS	Can be locked using accessories	
E11	With integrated lock	

012	Alternative pressure outlet	
	None	
BC	Angled outlet block QS-6	
BD	Angled outlet block QS-8	

013	Type of mounting	
	Without mounting bracket	
WR	Mounting bracket with knurled nut on regulator knob	
WP	Mounting bracket basic design	
WPB	Mounting bracket for large wall gap	
WPM	Mounting bracket for hooking in service unit components	
WB	Mounting centrally at rear (wall mounting top and bottom), connecting plates not required	
WBM	Mounting centrally at rear (wall mounting top), connecting plates not required	

014	EU certification	
	None	
EX4	II 2GD	

015	UL certification	
	None	
UL1	cULus ordinary location for Canada and USA	

016	Outlet direction	
	Pressure output to the rear	
Z	Pressure output to the front	

Type codes

001	Series	
MS	MS series	

002	Size	
6	Grid dimension 62 mm	

003	Function	
LRB	Pressure regulator for manifold assembly	

004	Pneumatic connection	
1/2	Female thread G1/2	
AGB	Sub-base G1/4	
AGC	Sub-base G3/8	
AGD	Sub-base G1/2	
AGE	Sub-base G3/4	

005	Pressure regulation range	
D5	0.3 ... 4 bar	
D6	0.3 ... 7 bar	
D7	0.5 ... 12 bar	
D8	0.5 ... 16 bar	

006	Pressure gauge alternatives	
	None	
A4	Adapter for EN pressure gauge 1/4, without pressure gauge	
A8	Adapter for EN pressure gauge 1/8, without pressure gauge	
AD7	Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/O	
AD8	Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/C	
AD9	Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O	
AD10	Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, N/C	
AD11	Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA	
AD12	Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA	
RG	Integrated pressure gauge, red/green scale	
VS	Cover plate	

007	Alternative pressure gauge scale	
	MS pressure gauge	
PSI	psi	
MPA	MPa	

008	Secondary exhausting	
	With secondary exhausting	
OS	Without secondary exhaust	

009	Rotary knob alternative	
	None	
LD	Long rotary knob	
DM2	Rotary knob pressure gauge, large	

010	Alternative mounting position	
	None	
KD	Rotary knob underneath	

011	Lockability	
	None	
AS	Can be locked using accessories	
E11	With integrated lock	

012	Alternative pressure outlet	
	None	
BD	Angled outlet block QS-8	
BE	Angled outlet block QS-10	

013	Type of mounting	
	Without mounting bracket	
WR	Mounting bracket with knurled nut on regulator knob	
WP	Mounting bracket basic design	
WPM	Mounting bracket for hooking in service unit components	
WB	Mounting centrally at rear (wall mounting top and bottom), connecting plates not required	
WBM	Mounting centrally at rear (wall mounting top), connecting plates not required	

014	EU certification	
	None	
EX4	II 2GD	

015	UL certification	
	None	
UL1	cULus ordinary location for Canada and USA	

016	Outlet direction	
	Pressure output to the rear	
Z	Pressure output to the front	

Datasheet

Without pressure gauge

With pressure gauge

Flow rate
300 ... 7300 l/min

Temperature range
–10 ... +60 °C

Operating pressure
0.8 ... 20 bar

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Several pressure regulators mounted next to one another to form a regulator manifold:

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

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

General technical data				
Size			MS4	MS6
Pneumatic connection 1				
Female thread			G1/4	G1/2
Connecting plate	[AG...]		G1/8, G1/4 or G3/8	G1/4, G3/8, G1/2 or G3/4
Pneumatic connection 2				
Female thread			G1/4	G1/2
Angled outlet block	[BC]		QS-6	–
	[BD]		QS-8	QS-8
	[BE]		–	QS-10
Design			Directly actuated diaphragm regulator with through compressed air supply	
Regulator function			Output pressure constant, with input pressure compensation, with return flow, with/without secondary exhausting	
Type of mounting			With accessories	
			In-line installation	
			Front panel mounting	
Mounting position			Any	
Actuator lock			Rotary knob with latch	
			Rotary knob with latch, can be locked using accessories	
			Rotary knob with integrated lock	
Pressure regulation range/ actuation	[D5]	[bar]	0.3 ... 4, manually actuated[1)]	
	[D6]	[bar]	0.3 ... 7, manually actuated[1)]	
	[D7]	[bar]	0.5 ... 12, manually actuated (0.5 ... 10 with pressure sensor or with UL certification)[1)]	
	[D8]	[bar]	–	0.5 ... 16, manually actuated (0.5 ... 10 with UL certification)
Max. pressure hysteresis		[bar]	0.25	0.25 (0.4 with rotary knob pressure gauge)
Pressure indication			With pressure sensor for indicating the output pressure via LCD display and electrical output	
			With pressure sensor for indicating the output pressure via the switching status indicator and electrical output	
			Via pressure gauge for displaying the output pressure	
			With pressure gauge with red/green scale for indicating the output pressure	
			Via pressure gauge in the rotary knob for displaying the output pressure	
			Prepared for G1/8	–
			Prepared for G1/4	

1) MS4: the pressure regulation range for pressure regulators with rotary knob pressure gauge starts at 0.8 bar.

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

Datasheet

Standard nominal flow rate qnN[1] [l/min]							
Size		MS4			MS6		
		Standard	Angled outlet block		Standard	Angled outlet block	
			[BC]: QS-6	[BD]: QS-8		[BD]: QS-8	[BE]: QS-10
Pressure regulation range	[D5]	1900[2]	300[2]	650[2]	7300[2]	600[2]	750[2]
	[D6]	1700	350	840	6300	880	1000
	[D7]	1500[3]	350	640	5500	800	950
	[D8]	–	–	–	4500	750	850

1) Measured at p1 = 10 bar and p2 = 6 bar, Δp = 1 bar
2) Measured at p1 = 10 bar and p2 = 3 bar, Δp = 1 bar
3) With a rotary knob pressure gauge, q_nN = 800 l/min, $q_{n\,max}$ = 2200 l/min

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 to ISO 8573-1:2010 [7:4:4]	
		Inert gases	
Note on the operating/pilot medium		Lubricated operation 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]		c UL us - 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.
3) More information www.festo.com/x/topic/crc
4) More information: www.festo.com/catalogue/ms-lrb → Support/Downloads.

ATEX	
EU certification	[EX4]
ATEX category for gas	II 2G
Type of ignition protection for gas	Ex h IIC T6 Gb X
ATEX category for dust	II 2D
Type of ignition protection for dust	Ex h IIIC T60°C Db X
Explosion-proof ambient temperature	–10 °C ≤ Ta ≤ +60 °C
Explosion protection certification outside the EU	EPL Db (GB) EPL Gb (GB)
CE marking (see declaration of conformity)[1]	To EU Explosion Protection Directive (ATEX)
UKCA marking (see declaration of conformity)[1]	To UK explosion regulations

1) More information: www.festo.com/catalogue/ms-lrb → Support/Downloads.

Weight [g]		
Size	MS4	MS6
Pressure regulator	222	747
Pressure regulator with rotary knob with integrated lock	347	1017

Datasheet

Materials

Sectional view

Pressure regulator (manifold assembly)		
[1]	Housing	Die-cast aluminium
[2]	Rotary knob	PA, POM
	Rotary knob with integrated lock	Aluminium
[3]	Diaphragm	NBR
[4]	Bottom cover	PET
[5]	Springs	Steel
–	Seals	NBR
Note on materials		RoHS-compliant
LABS (PWIS) conformity		VDMA24364-B1/B2-L

Standard flow rate qn as a function of output pressure p2 (p1 = 10 bar)

Input pressure p1 = 10 bar

MS4-LRB-1/4

MS6-LRB-1/2

[D6]: 0.3 ... 7 bar

[D7]: 0.5 ... 12 bar[1)]

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

Datasheet

Dimensions – Basic version Download CAD data ➔ www.festo.com

[ ] Integrated MS pressure gauge with standard scale
[RG] Integrated MS pressure gauge with red/green scale
[ ] Rotary knob with latch

Type	B1	B2	B3 Pressure gauge		D1	D2	L1	L2	L3	L4	L5
			Standard scale	Red/green scale							
MS4-LRB-1/4	40	21	57	58.5	G1/4	37.2	64.4	27	60.3	58.5	2
MS6-LRB-1/2	62	31	77	78.5	G1/2	51.2	94	39	95.1	85	5

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

Datasheet

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

[KD] Rotary knob underneath

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 ISO 228-1.

Datasheet

Dimensions – Angled outlet block Download CAD data ➔ www.festo.com

[BC]/[BD]/[BE] Angled outlet block

[ ] Pressure output at the rear

MS4

MS6

[1] Push-in connector QS ➔ Flow direction

Type	B1	B2	B3	B6	B8	D1	D2 ø	L1	L2	L3	L4	L6
MS4-LRB-1/4-...-BC/BD	40	21	57	21	–	G1/4	37.2	66.5	27	60.3	58.5	8
MS6-LRB-1/2-...-BD/BE	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 ISO 228-1.

Datasheet

Dimensions – Angled outlet block Download CAD data ➔ www.festo.com

[BC]/[BD]/[BE] Angled outlet block
[Z] Pressure output to front

MS4 (not shown)
MS6

➔ Flow direction

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

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

Datasheet

Dimensions – Pressure gauge alternatives

Download CAD data ➔ www.festo.com

[VS] Cover plate

[A8] Adapter for EN pressure gauge 1/8, without pressure gauge

[A4] Adapter for EN pressure gauge 1/4, without pressure gauge

➔ Flow direction

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 ISO 228-1.

Datasheet

Dimensions – Pressure gauge alternatives

Download CAD data ➔ www.festo.com

[AD7 ... 10] Pressure sensor without LCD display (switching status indicator only)

Datasheets ➔ Internet: sde5

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

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

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

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

➔ Flow direction

Type	B2	B3	B5	B6	D6
MS4-LR-...-AD7/AD8/AD9/AD10	21	59.1	32	16	M8x1
MS6-LR-...-AD7/AD8/AD9/AD10	31	79.1	51	16	M8x1

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

Datasheet

Dimensions – Pressure gauge alternatives

Download CAD data ➔ www.festo.com

[AD11/AD12] Pressure sensor with LCD display

Datasheets ➔ Internet: spau

Variant AD11:
SPAU-P10R-MS-L-PNLK-M12 with plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA

Variant AD12:
SPAU-P10R-MS-L-PNLK-M8 with plug M8, 4-pin, IO-Link®®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA

➔ Flow direction

Type	B2	B3	B4	B5	B6	D6	L5	L6
MS4-LR-...-AD11	21	81.2	73.3	32	32	M12x1	41.2	39
MS4-LR-...-AD12	21	81.2	73.3	32	32	M8x1	37.9	39
MS6-LR-...-AD11	31	101.8	93.7	51	32	M12x1	41.2	39
MS6-LR-...-AD12	31	101.8	93.7	51	32	M8x1	37.9	39

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

Datasheet

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

For control panel installation

[ ] Rotary knob with latch

[AS] Rotary knob with latch, can be locked using accessories

[E11] Rotary knob with integrated lock

[1] Max. panel thickness
[2] Installation dimension

[LD] Rotary knob, long, with latch

[LD-AS] Rotary knob, long, with latch, can be locked using accessories

[3] For pressure adjustment: fully pull out telescopic rotary knob

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

Datasheet

Dimensions – Rotary knob pressure gauge Download CAD data ➔ www.festo.com

[DM1] Rotary knob pressure gauge, small

[DM2] Rotary knob pressure gauge, large

➔ Flow direction

Type	D2	D3	L3	L4	L8	L9
MS4-LRB-...-DM1	37.2	M30x1.5	54	58.5	13	6.7
MS6-LRB-...-DM2	51	M44x1	84	94	25	18

Ordering data

Pneumatic connection 1	Pressure regulation range	Flow direction	Part no.	Type
MS4-LRB...				
G1/4	0.3 ... 4 bar	From left to right	**529471**	**MS4-LRB-1/4-D5-A8-AS**
		From left to right	**529473**	**MS4-LRB-1/4-D5-AS**
		From left to right	**529474**	**MS4-LRB-1/4-D5-AS-BD**
	0.3 ... 7 bar	From left to right	**529477**	**MS4-LRB-1/4-D6-A8-AS**
		From left to right	**529479**	**MS4-LRB-1/4-D6-AS**
		From left to right	**529480**	**MS4-LRB-1/4-D6-AS-BD**
		From right to left	**529481**	**MS4-LRB-1/4-D6-AS-BD-Z**
		From right to left	**529482**	**MS4-LRB-1/4-D6-VS-AS-Z**
	0.5 ... 12 bar	From left to right	**529483**	**MS4-LRB-1/4-D7-A8-AS**
		From left to right	**529485**	**MS4-LRB-1/4-D7-AS**
		From left to right	**529486**	**MS4-LRB-1/4-D7-AS-BD**
MS6-LRB...				
G1/2	0.3 ... 4 bar	From left to right	**530322**	**MS6-LRB-1/2-D5-AS**
		From left to right	**530320**	**MS6-LRB-1/2-D5-A4-AS**
	0.3 ... 7 bar	From left to right	**530326**	**MS6-LRB-1/2-D6-A4-AS**
		From left to right	**530328**	**MS6-LRB-1/2-D6-AS**
		From left to right	**530329**	**MS6-LRB-1/2-D6-AS-BD**
		From right to left	**530330**	**MS6-LRB-1/2-D6-AS-BD-Z**
	0.5 ... 12 bar	From left to right	**530332**	**MS6-LRB-1/2-D7-A4-AS**
		From left to right	**530334**	**MS6-LRB-1/2-D7-AS**
		From left to right	**530335**	**MS6-LRB-1/2-D7-AS-BD**

Ordering data – Modular product system

Ordering table					
Grid dimension [mm]	40	62	Conditions	Code	Enter code
Module no.	**527692**	**527665**			
Series	Standard			**MS**	MS
Size	4	6		**...**	
Function	Pressure regulator for manifold assembly			**-LRB**	-LRB
Pneumatic connection	Female thread G1/4	–	[1]	**-1/4**	
	–	Female thread G1/2	[1]	**-1/2**	
	Connecting plate G1/8	–		**-AGA**	
	Connecting plate G1/4	Connecting plate G1/4		**-AGB**	
	Connecting plate G3/8	Connecting plate G3/8		**-AGC**	
	–	Connecting plate G1/2		**-AGD**	
	–	Connecting plate G3/4		**-AGE**	
	–	Connecting plate G1		**-AGF**	
Pressure regulation range/actuation	0.3 ... 4 bar, manually actuated			**-D5**	
	0.3 ... 7 bar, manually actuated			**-D6**	
	0.5 ... 12 bar, manually actuated			**-D7**	
	–	0.5 ... 16 bar, manually actuated	[1] [2]	**-D8**	
Pressure gauge alternatives	MS pressure gauge				
	Cover plate		[3]	**-VS**	
	Adapter for EN pressure gauge 1/8, without pressure gauge	–	[4]	**-A8**	
	Adapter for EN pressure gauge 1/4, without pressure gauge		[4]	**-A4**	
	Integrated pressure gauge, red/green scale		[2]	**-RG**	
	Pressure sensor with switching status indicator, plug M8, threshold value comparator, PNP, N/O contact		[1] [5] [6]	**-AD7**	
	Pressure sensor with switching status indicator, plug M8, threshold value comparator, PNP, N/C contact		[1] [5] [6]	**-AD8**	
	Pressure sensor with switching status indicator, M8 plug, window comparator, PNP, N/O contact		[1] [5] [6]	**-AD9**	
	Pressure sensor with switching status indicator, M8 plug, window comparator, PNP, N/C contact		[1] [5] [6]	**-AD10**	
	Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA		[1] [4] [5]	**-AD11**	
	Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA		[1] [4] [5]	**-AD12**	
Alternative pressure gauge scale	MS pressure gauge, bar				
	psi		[7]	**-PSI**	
	MPa		[8]	**-MPA**	

[1]	1/4, 1/2, D8, AD7 ... AD10, AD11/AD12, DM1, DM2, KD, E11, WPM	Not with EU EX4 certification.
[2]	D8, RG, OS, KD, AS	Not with rotary knob pressure gauge DM1, DM2.
[3]	VS	Must be selected if outlet 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 outlet direction Z and without pressure output BC, BD, BE.
[4]	A8, A4, AD11/AD12	Not with outlet direction Z. In combination with outlet direction Z only with alternative mounting position KD.
[5]	AD7 ... AD10, AD11/AD12	Measuring range max. 10 bar. Not with pressure regulation range D8.
[6]	AD7 ... AD10	In combination with outlet direction Z only with pressure output BC, BD, BE or in combination with outlet direction Z only with alternative mounting position KD.
[7]	PSI	Not with pressure gauge alternatives VS, A8, A4, RG, AD7 ... AD10. In combination with outlet direction Z only with pressure output BC, BD, BE.
[8]	MPA	Not with pressure gauge alternatives VS, A8, A4, AD7 ... AD10. Not with alternative mounting position KD. Not with rotary knob alternative DM1, DM2. In combination with outlet direction Z only with pressure output BC, BD, BE.

Ordering data – Modular product system

Ordering table

Grid dimension [mm]	40	62	Conditions	Code		Enter code
Secondary exhausting	With secondary exhausting					
	Without secondary exhausting		[2]	**-OS**		
Rotary knob alternative	None					
	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	None					
	Rotary knob underneath		[1] [2] [11]	**-KD**		
Locking option	None					
	Lockable using accessories		[2]	**-AS**		
	With integrated lock		[1]	**-E11**		
Pressure output (p_{max} = 10 bar)	None					
	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	Without mounting bracket					
	Mounting bracket with knurled nut for regulator head		[12] [13]	**-WR**		
	Mounting bracket standard design		[14] [15]	**-WP**		
	Mounting bracket for hooking in service unit components		[1] [12] [14]	**-WPM**		
	Mounting bracket for large wall gap		[14] [16]	**-WPB**		
	Mounting bracket centrally at the rear (wall mounting top and bottom), connecting plates not required		[12]	**-WB**		
	Mounting bracket centrally at the rear (wall mounting top), connecting plates not required	–	[12]	**-WBM**		
EU certification	None					
	II 2GD to EU Explosion Protection Directive (ATEX)			**-EX4**		
UL certification	None					
	cULus, ordinary location for Canada and USA			**-UL1**		
Outlet direction	Pressure output at the rear					
	Pressure output at the front (without angled outlet block, no pressure gauge)			**-Z**		

[9] LD, DM1, DM2 — Not with locking option E11.
[10] DM1, DM2 — Can only be selected in combination with pressure gauge alternatives VS, A4, AD7 ... AD10.
[11] KD — Not with alternative pressure gauge scale MPa.
In combination with alternative pressure gauge scale PSI only with outlet 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 outlet direction Z.
Not with pressure gauge alternative RG.
In combination with pressure gauge alternatives A8, A4, only with outlet direction Z.
[12] WR, WPM, WB, WBM — In combination with outlet direction Z not with alternative mounting position KD.
[13] WR — Only with outlet direction Z.
Not with long rotary knob LD or rotary knob alternative DM2.
[14] WP, WPM, WPB — Only with connecting plate AGA, AGB, AGC, AGD, AGE.
[15] WP — Only with outlet direction Z and/or only with pressure output BC, BD, BE.
[16] WPB — Not with outlet direction Z.
Not with pressure output BC, BD, BE.

Peripherals overview

Precision pressure regulator MS6-LRP

Note

Additional accessories:

- Module connectors for combination with size MS4/MS6 or size MS9
  ➔ Internet: amv, rmv, armv
- Adapters for mounting on profiles
  ➔ Internet: ipm-80, ipm-40-80, ipm-80-80

Manually actuated	Pneumatically actuated	Electrically actuated

Peripherals overview

Mounting attachments and accessories		Individual device		Combination		→ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
[1]	Precision pressure regulator MS6-LRP	■	■	■	■	48
[2]	Mounting bracket MS6-WB	■	■	–	–	ms6-wb
[3]	Cover cap MS6-END	■	–	■	–	ms6-end
[4]	Module connector MS6-MV	–	■	■	■	ms6-mv
[5]	Connecting plate SET MS6-AG...	–	■	–	■	ms6-ag
	Connecting plate SET MS6-AQ...	–	■	–	■	ms6-aq
[6]	Pressure sensor with LCD display AD11/AD12	■	■	■	■	62
[7]	Connecting cable NEBA-M8...-LE4/NEBA-M12...-LE4	■	■	■	■	106
[8]	Pressure sensor without display AD7 ... AD10	■	■	■	■	62
[9]	Connecting cable NEBA-M8...-LE3	■	■	■	■	106
[10]	Pressure sensor without display AD7 ... AD10	■	■	■	■	79
[11]	Precision pressure gauge A8M/MAP	■	■	■	■	62, 106
[12]	Cover plate VS	■	■	■	■	62
[13]	Knurled nut (included in the scope of delivery) MS-LR	■	■	–	–	–
[14]	Mounting bracket MS6-WR	■	■	–	–	ms6-wr
[15]	Padlock LRVS-D	■	■	■	■	106
–	Mounting bracket MS6-WP/WPB/WPE/WPM	–	■	■	■	ms6-wp

Type codes

001	Series	
MS	MS series	

002	Size	
6	Grid dimension 62 mm	

003	Function	
LRP	Precision pressure regulator	

004	Pneumatic connection	
1/4	Female thread G1/4	
3/8	Female thread G3/8	
1/2	Female thread G1/2	
AGB	Sub-base G1/4	
AGC	Sub-base G3/8	
AGD	Sub-base G1/2	
AGE	Sub-base G3/4	

005	Pressure regulation range	
D2	0.05 ... 0.7 bar	
D4	0.05 ... 2.5 bar	
D5	0.1 ... 4 bar	
D7	0.1 ... 12 bar	
PE10	0.1 ... 10 bar electrically actuated (pilot control using proportional-pressure regulator with LED indicator, 7-segment), set-point 0 ... 10V	
PI10	0.1 ... 10 bar electrically actuated (pilot control using proportional-pressure regulator with LED indicator, 7-segment), set-point 4 ... 20mA	
PO	Max. 12 bar, pneumatically actuated (pressure range determined by pilot regulator)	

006	Pressure gauge alternatives	
A4	Adapter for EN pressure gauge 1/4, without pressure gauge	
A8	Adapter for EN pressure gauge 1/8, without pressure gauge	
A8M	Adapter for EN pressure gauge 1/8, with precision pressure gauge	
AD7	Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/O	
AD8	Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/C	
AD9	Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O	
AD10	Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, N/C	
AD11	Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA	
AD12	Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA	
VS	Cover plate	

007	Rotary knob alternative	
	None	
LD	Long rotary knob	

008	Alternative mounting position	
	None	
KD	Rotary knob underneath	

009	Lockability	
	None	
AS	Can be locked using accessories	
E11	With integrated lock	

010	Type of mounting	
	Without mounting bracket	
WR	Mounting bracket with knurled nut on regulator knob	
WP	Mounting bracket basic design	
WPM	Mounting bracket for hooking in service unit components	
WB	Mounting centrally at rear (wall mounting top and bottom), connecting plates not required	

011	EU certification	
	None	
EX4	II 2GD	

012	UL certification	
	None	
UL1	cULus ordinary location for Canada and USA	

013	Flow direction	
	Flow direction from left to right	
Z	Flow direction from right to left	

Datasheet

Pressure regulation range/actuation, manually actuated

Pressure regulation range/actuation, pneumatically actuated

Flow rate
800 ... 5000 l/min

Temperature range
–10 ... +60 °C

Operating pressure
1 ... 14 bar

www.festo.com

The precision pressure regulator is suitable for sensitive applications requiring a pressure 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 pilot pressure p12 by an external pilot regulator (where possible using a precision pressure regulator). When the input pressure p1 is switched off, the output pressure p2 is exhausted via port 3 (secondary exhausting).

- Good regulation characteristics with minimal hysteresis and input pressure compensation
- High flow rate with minimal pressure drop
- High secondary exhausting for ultra-fast reaction times
- Actuator lock to protect the set values from being adjusted
- Four pressure regulation ranges: 0.05 ... 0.7 bar, 0.05 ... 2.5 bar, 0.1 ... 4 bar and 0.1 ... 12 bar
- Optional pressure sensor
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

General technical data			
Size			MS6
Pneumatic connection 1, 2			
Female thread			G1/4, G3/8 or G1/2
Connecting plate	[AG...]		G1/4, G3/8, G1/2 or G3/4
	[AQ...]		1/4 NPT, 3/8 NPT, 1/2 NPT or 3/4 NPT
Pneumatic connection 3 (secondary exhausting)			G1/4
Pilot air port 12			G1/8 (MS6-LRP-...-PO)
Design			Piloted precision diaphragm regulator
Regulator function			Output pressure constant, with secondary exhausting
Type of mounting			With accessories
			In-line installation
			Front panel mounting
Mounting position			Any
Actuator lock			Rotary knob with latch
			Rotary knob with latch, can be locked using accessories
			Rotary knob with integrated lock
Pressure regulation range/ actuation[1]	[D2]	[bar]	0.05 ... 0.7, manually actuated
	[D4]	[bar]	0.05 ... 2.5, manually actuated
	[D5]	[bar]	0.1 ... 4, manually actuated
	[D7]	[bar]	0.1 ... 12, manually actuated (0.1 ... 10 with pressure sensor or with UL certification)
	[PO]	[bar]	0.1 ... 12, pneumatically actuated (0.1 ... 10 with pressure sensor or with UL certification)
Max. pressure hysteresis		[bar]	0.02
Pressure indication			With pressure sensor for indicating the output pressure via LCD display and electrical output
			With pressure sensor for indicating the output pressure via the switching status indicator and electrical output
			Via precision pressure gauge for indicating the output pressure
			Prepared for G1/8
			Prepared for G1/4

1) [D2]/[D4]/[D5]/[D7]: input pressure p1 ≥ output pressure p2 + 1 bar.
[PO]: pilot pressure p12 = output pressure p2 + max. 0.5 bar

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

Datasheet

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 qnN [l/min]					
$q_{nN\ 1 \rightarrow 2}$	G1/4	800[1)]	1100[2)]	1400[3)]	3000[4)]
	G3/8	1100[1)]	1400[2)]	1700[3)]	3300[4)]
	G1/2	1600[1)]	2300[2)]	3000[3)]	5000[4)]
Secondary exhaust flow rate [l/min]					
$q_{n\ 2 \rightarrow 3}$		≥ 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 to ISO 8573-1:2010 [7:4:4]
		Inert gases
Note on the operating/pilot medium		Lubricated operation 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)]		c UL us - Recognized (OL)

1) Value in brackets applies to MS6-LRP with UL certification.
2) Value in brackets applies to MS6-LRP with pressure sensor.
3) More information www.festo.com/x/topic/crc
4) More information: www.festo.com/catalogue/ms6-lrp → Support/Downloads.

Electrical data			
Pressure regulation range		[PE10]	[PI10]
Operating voltage range DC	[V]	21.6 ... 26.4	
Max. electrical power consumption	[W]	4.2	
Max. current consumption	[A]	0.16	
Nominal operating voltage DC	[V]	24 (Plug connector, M12x1, 5-pin, A-coded)	
Residual ripple		10%	
Analogue input signal range			
	[V]	0 ... 10	–
	[mA]	–	4 ... 20

ATEX	
EU certification	[EX4]
ATEX category for gas	II 2G
Type of ignition protection for gas	Ex h IIC T6 Gb X
ATEX category for dust	II 2D
Type of ignition protection for dust	Ex h IIIC T60°C Db X
Explosion-proof ambient temperature	–10 °C ≤ Ta ≤ +60 °C
Explosion protection certification outside the EU	EPL Db (GB) EPL Gb (GB)
CE marking (see declaration of conformity)[1)]	To EU Explosion Protection Directive (ATEX)
UKCA marking (see declaration of conformity)[1)]	To UK explosion regulations

1) More information: www.festo.com/catalogue/ms6-lrp → Support/Downloads.

Weight [g]	
Precision pressure regulator	1000
Precision pressure regulator with rotary knob with integrated lock	1120

Datasheet

Materials

Sectional view

Precision pressure regulator		
[1]	Housing	Die-cast aluminium
[2]	Rotary knob	PA, POM
	Rotary knob with integrated lock	Aluminium
[3]	Diaphragms	NBR
[4]	Bottom cover	PC
[5]	Springs	Steel
–	Seals	NBR
Note on materials		RoHS-compliant
LABS (PWIS) conformity		VDMA24364-B1/B2-L

Standard flow rate qn as a function of output pressure p2 (p1 = 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

Datasheet

Standard flow rate qn as a function of output pressure p2 (p1 = 10 bar)

MS6-LRP-3/8-D4/D5

[D4]: 0.05 ... 2.5 bar
[D5]: 0.1 ... 4 bar

MS6-LRP-1/2-D4/D5

[D4]: 0.05 ... 2.5 bar
[D5]: 0.1 ... 4 bar

MS6-LRP-1/4-D7/PO

[D7]/[PO]: 0.1 ... 12 bar

MS6-LRP-3/8-D7/PO

[D7]/[PO]: 0.1 ... 12 bar

MS6-LRP-1/2-D7/PO

[D7]/[PO]: 0.1 ... 12 bar

MS6-LRP-1/2-PE10/PI10

[PE10]/[PI10]: 0.01 ... 1 MPa

Datasheet

Internal air consumption qn as a function of input pressure p1

MS6-LRP-...-D2/D4

MS6-LRP-...-D5/D7/PO/PE10/PI10

Dimensions

Download CAD data ➔ www.festo.com

[D2]/[D4]/[D5]/[D7] Pressure regulation range, manually actuated

[A8M] Adapter for EN pressure gauge 1/8, with precision pressure gauge

[AS] Rotary knob with latch, can be locked using accessories

➔ Flow direction

Type	B1	B2	B3	B7	D1	D2 ⌀	D4 ⌀	L1	L2	L3	L4
MS6-LRP-1/4-D2/D4/D5/D7-A8M-AS	62	31	76	116	G1/4	51.2	40	123	68	95.5	114
MS6-LRP-3/8-D2/D4/D5/D7-A8M-AS					G3/8						
MS6-LRP-1/2-D2/D4/D5/D7-A8M-AS					G1/2						

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

Datasheet

Dimensions Download CAD data ➔ www.festo.com

[PO] Pressure regulation range, pneumatically actuated
[VS] Cover plate

➔ Flow direction

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 ISO 228-1.

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

[KD] Rotary knob underneath

➔ Flow direction

Type	B1	B2	B3	D1	D2 ⌀	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 ISO 228-1.

Datasheet

Dimensions – Pressure gauge alternatives

Download CAD data ➔ www.festo.com

[VS] Cover plate

[A8] Adapter for EN pressure gauge 1/8, without pressure gauge

[A4] Adapter for EN pressure gauge 1/4, without pressure gauge

➔ Flow direction

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 ISO 228-1.

Datasheet

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

[AD7 ... 10] Pressure sensor without LCD display (switching status indicator only) Datasheets ➔ Internet: sde5

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

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

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

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

➔ Flow direction

Type	B2	B3	B5	B6	D6
MS6-LRP-...-AD7/AD8/AD9/AD10	31	79.1	51	16	M8x1

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

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

[AD11/AD12] Pressure sensor with LCD display Datasheets ➔ Internet: spau

Variant AD11:
SPAU-P10R-MS-L-PNLK-M12 with plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA

Variant AD12:
SPAU-P10R-MS-L-PNLK-M8 with plug M8, 4-pin, IO-Link®®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA

➔ Flow direction

Type	B2	B3	B4	B5	B6	D6	L5	L6
MS6-LRP-...-AD11	31	101.8	93.7	51	32	M12x1	41.2	39
MS6-LRP-...-AD12	31	101.8	93.7	51	32	M8x1	37.9	39

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

Datasheet

Dimensions – Electrically actuated VPPE pilot control

Download CAD data ➔ www.festo.com

[PE10/PI10] Proportional-pressure regulator with LED display

Datasheets ➔ Internet: vppe

Variant PE10:
electrically actuated (pilot control using proportional-pressure regulator with LED display, 7-segment) 0 ... 10 V

Variant PI10:
electrically actuated (pilot control using proportional-pressure regulator with LED display, 7-segment)
setpoint value 4 ... 20 mA

Plug connector, M12x1, 5-pin, A-coded

➔ Flow direction

Type	B1	B2	B3	B4	L1	L2	L3	L6
MS6-LRP-...-PE10/PI10	62	31	76	62	161	106	10	9

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

Datasheet

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

For control panel installation

[ ] Rotary knob with latch

[AS] Rotary knob with latch, can be locked using accessories

[E11] Rotary knob with integrated lock

[1] Max. panel thickness
[2] Installation dimension

[LD] Rotary knob, long, with latch

[LD-AS] Rotary knob, long, with latch, can be locked using accessories

[3] For pressure adjustment: fully pull out telescopic rotary knob

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	60
MS6-LRP-...-LD	–	–		–	86	–	–	139
MS6-LRP-...-LD-AS	64.4	38.8			95.5			148.5

Datasheet

Ordering data					
Pneumatic connection 1	Pressure regulation range	Analogue input signal range	Flow direction	Part no.	Type
Manually actuated					
G1/4	0.05 ... 0.7 bar	–	From left to right	**538004**	**MS6-LRP-1/4-D2-A8**
	0.05 ... 2.5 bar	–	From left to right	**538006**	**MS6-LRP-1/4-D4-A8**
	0.1 ... 4 bar	–	From left to right	**538008**	**MS6-LRP-1/4-D5-A8**
	0.1 ... 12 bar	–	From left to right	**538010**	**MS6-LRP-1/4-D7-A8**
G3/8	0.05 ... 0.7 bar	–	From left to right	**538012**	**MS6-LRP-3/8-D2-A8**
	0.05 ... 2.5 bar	–	From left to right	**538014**	**MS6-LRP-3/8-D4-A8**
	0.1 ... 4 bar	–	From left to right	**538016**	**MS6-LRP-3/8-D5-A8**
	0.1 ... 12 bar	–	From left to right	**538018**	**MS6-LRP-3/8-D7-A8**
G1/2	0.05 ... 0.7 bar	–	From left to right	**538020**	**MS6-LRP-1/2-D2-A8**
	0.05 ... 2.5 bar	–	From left to right	**538022**	**MS6-LRP-1/2-D4-A8**
	0.1 ... 4 bar	–	From left to right	**538024**	**MS6-LRP-1/2-D5-A8**
	0.1 ... 12 bar	–	From left to right	**538026**	**MS6-LRP-1/2-D7-A8**
Electrically actuated					
G1/2	0.01 ... 1 MPa	0 ... 10 V	From left to right	**8203861**	**MS6-LRP-1/2-PE10-VS**
	0.01 ... 1 MPa	4 ... 20 mA	From left to right	**8203862**	**MS6-LRP-1/2-PI10-VS**

Ordering data – Modular product system

Ordering table Grid dimension [mm]	62	Conditions	Code		Enter code
Module no.	**538028**				
Series	Standard		**MS**		MS
Size	6		**6**		6
Function	Precision pressure regulator		**-LRP**		-LRP
Pneumatic connection	Female thread G1/4	[1]	**- 1/4**		
	Female thread G3/8	[1]	**-3/8**		
	Female thread G1/2	[1]	**- 1/2**		
	Connecting plate G1/4		**-AGB**		
	Connecting plate G3/8		**-AGC**		
	Connecting plate G1/2		**-AGD**		
	Connecting plate G3/4		**-AGE**		
	Connecting plate G1		**-AGF**		
	Connecting plate NPT1/4	[1]	**-AQN**		
	Connecting plate NPT3/8	[1]	**-AQP**		
	Connecting plate NPT1/2	[1]	**-AQR**		
	Connecting plate NPT3/4	[1]	**-AQS**		
Pressure regulation range/actuation	0.05 ... 0.7 bar, manually actuated		**-D2**		
	0.05 ... 2.5 bar, manually actuated		**-D4**		
	0.1 ... 4 bar, manually actuated		**-D5**		
	0.1 ... 12 bar, manually actuated		**-D7**		
	0.1 ... 12 bar, pneumatically actuated (pressure range determined by pilot regulator)	[1] [2]	**-PO**		
	0.01 ... 1 MPa, electrically actuated (pilot control using proportional-pressure regulator with LED display, 7-segment) 0 ... 10 V	[3]	**-PE10**		
	0.01 ... 1 MPa, electrically actuated (pilot control using proportional-pressure regulator with LED display, 7-segment) setpoint value 4 ... 20 mA	[3]	**-PI10**		
Pressure gauge alternatives	Cover plate		**-VS**		
	Adapter for EN pressure gauge 1/8, without pressure gauge		**-A8**		
	Adapter for EN pressure gauge 1/8, with precision pressure gauge		**-A8M**		
	Adapter for EN pressure gauge 1/4, without pressure gauge		**-A4**		
	Pressure sensor with switching status indicator, plug M8, threshold value comparator, PNP, N/O contact	[1] [5]	**-AD7**		
	Pressure sensor with switching status indicator, plug M8, threshold value comparator, PNP, N/C contact	[1] [5]	**-AD8**		
	Pressure sensor with switching status indicator, M8 plug, window comparator, PNP, N/O contact	[1] [5]	**-AD9**		
	Pressure sensor with switching status indicator, M8 plug, window comparator, PNP, N/C contact	[1] [5]	**-AD10**		
	Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA	[4]	**-AD11**		
	Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA	[4]	**-AD12**		

[1]	1/4, 3/8, 1/2, AQN, AQP, AQR, AQS, PO, AD7 ... AD10, KD, E11, WPM	Not with EU EX4 certification.
[2]	PO	Not with rotary knob alternative LD. Not with locking options AS, E11. Not with mounting type WR.
[3]	PE10, PI10	Not with WR, AS, E11, EX4, UL1, LD
[4]	AD11/AD12	Measuring range max. 10 bar. Not with pressure regulation range/actuation D2, D4.
[5]	AD7 ... AD10	Measuring range max. 10 bar. Not with pressure regulation range/actuation D2.

Ordering data – Modular product system

Ordering table					
Grid dimension [mm]	62	Conditions	Code		Enter code
Rotary knob alternative	None				
	Long rotary knob	[6]	**-LD**		
Alternative mounting position	None				
	Rotary knob underneath	[1] [7]	**-KD**		
Locking option	None				
	Lockable using accessories		**-AS**		
	With integrated lock	[1]	**-E11**		
Type of mounting	Without mounting bracket				
	Mounting bracket with knurled nut for regulator head	[8]	**-WR**		
	Mounting bracket standard design	[9]	**-WP**		
	Mounting bracket for hooking in service unit components	[1] [9]	**-WPM**		
	Mounting bracket centrally at the rear (wall mounting top and bottom), connecting plates not required		**-WB**		
EU certification	None				
	II 2GD to EU Explosion Protection Directive (ATEX)		**-EX4**		
UL certification	None				
	cULus, ordinary location for Canada and USA		**-UL1**		
Flow direction	Flow direction from left to right				
	Flow direction from right to left		**-Z**		

[6] LD Not with locking option E11.
[7] KD Not with mounting type WP.
[8] WR Not with rotary knob alternative LD.
[9] WP, WPM Only with connecting plate AGB, AGC, AGD, AGE, AQN, AQP, AQR or AQS.

Peripherals overview

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

Manually actuated	Pneumatically actuated	Electrically actuated

Peripherals overview

Mounting attachments and accessories		Individual device		Combination		➔ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
[1]	Precision pressure regulator MS6-LRPB	■	■	■	■	64
[2]	Angled outlet block B...	■	■	■	■	79
[3]	Mounting bracket MS6-WP	–	■	■	■	ms6-wp
[4]	Mounting bracket MS6-WPB	–	■	■	■	ms6-wp
[5]	Mounting bracket MS6-WPE	–	■	■	■	ms6-wp
[6]	Mounting bracket MS6-WPM	–	■	■	■	ms6-wp
[7]	Cover cap MS6-END	■	–	■	–	ms6-end
[8]	Module connector MS6-MV	–	■	■	■	ms6-mv
[9]	Connecting plate SET MS6-AG...	–	■	–	■	ms6-ag
[10]	Pressure sensor with LCD display AD11/AD12	■	■	■	■	79
[11]	Connecting cable NEBA-M8...-LE4/NEBA-M12...-LE4	■	■	■	■	106
[12]	Pressure sensor without display AD7 ... AD10	■	■	■	■	79
[13]	Connecting cable NEBA-M8...-LE3	■	■	■	■	106
[14]	Adapter for EN pressure gauge 1/8, 1/4 A8/A4	■	■	■	■	79
[15]	Precision pressure gauge A8M/MAP	■	■	■	■	79, 106
[16]	Cover plate VS	■	■	■	■	79
[17]	Padlock LRVS-D	■	■	■	■	106

Note

Additional accessories:

- Module connectors for combination with size MS4/MS6 or size MS9
  ➔ Internet: amv, rmv, armv
- Adapters for mounting on profiles
  ➔ Internet: ipm-80, ipm-40-80, ipm-80-80

Peripherals overview

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

Note

Additional accessories:

- Module connectors for combination with size MS4/MS6 or size MS9
  ➔ Internet: amv, rmv, armv
- Adapters for mounting on profiles
  ➔ Internet: ipm-80, ipm-40-80, ipm-80-80

Manually actuated	Pneumatically actuated	Electrically actuated

Peripherals overview

Mounting attachments and accessories		Individual device		Combination		→ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
[1]	Precision pressure regulator MS6-LRPB	■	■	■	■	64
[2]	Mounting bracket MS6-WB	■	■	–	–	ms6-wb
[3]	Cover cap MS6-END	■	–	■	–	ms6-end
[4]	Module connector MS6-MV	–	■	■	■	ms6-mv
[5]	Connecting plate SET MS6-AG...	–	■	–	■	ms6-ag
[6]	Angled outlet block B...	■	■	■	■	79
[7]	Pressure sensor without display AD7 ... AD10	■	■	■	■	79
[8]	Connecting cable NEBA-M8...-LE3	■	■	■	■	106
[9]	Cover plate VS	■	■	■	■	79
[10]	Mounting bracket MS6-WR	■	■	–	–	ms6-wr
[11]	Knurled nut (included in the scope of delivery) MS-LR	■	■	–	–	–
[12]	Padlock LRVS-D	■	■	■	■	106

Type codes

001	Series	
MS	MS series	

002	Size	
6	Grid dimension 62 mm	

003	Function	
LRPB	Precision pressure regulator for manifold installation	

004	Pneumatic connection	
1/2	Female thread G1/2	
AGB	Sub-base G1/4	
AGC	Sub-base G3/8	
AGD	Sub-base G1/2	
AGE	Sub-base G3/4	

005	Pressure regulation range	
D2	0.05 ... 0.7 bar	
D4	0.05 ... 2.5 bar	
D5	0.1 ... 4 bar	
D7	0.1 ... 12 bar	
PE10	0.1 ... 10 bar electrically actuated (pilot control using proportional-pressure regulator with LED indicator, 7-segment), setpoint 0 ... 10V	
PI10	0.1 ... 10 bar electrically actuated (pilot control using proportional-pressure regulator with LED indicator, 7-segment), setpoint 4 ... 20mA	
PO	Max. 12 bar, pneumatically actuated (pressure range determined by pilot regulator)	

006	Pressure gauge alternatives	
A4	Adapter for EN pressure gauge 1/4, without pressure gauge	
A8	Adapter for EN pressure gauge 1/8, without pressure gauge	
A8M	Adapter for EN pressure gauge 1/8, with precision pressure gauge	
AD7	Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/O	
AD8	Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/C	
AD9	Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O	
AD10	Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, N/C	
AD11	Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA	
AD12	Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA	
VS	Cover plate	

007	Rotary knob alternative	
	None	
LD	Long rotary knob	

008	Alternative mounting position	
	None	
KD	Rotary knob underneath	

009	Lockability	
	None	
AS	Can be locked using accessories	
E11	With integrated lock	

010	Alternative pressure outlet	
	None	
BD	Angled outlet block QS-8	
BE	Angled outlet block QS-10	

011	Type of mounting	
	Without mounting bracket	
WR	Mounting bracket with knurled nut on regulator knob	
WP	Mounting bracket basic design	
WPB	Mounting bracket for large wall gap	
WPM	Mounting bracket for hooking in service unit components	
WB	Mounting centrally at rear (wall mounting top and bottom), connecting plates not required	

012	EU certification	
	None	
EX4	II 2GD	

013	UL certification	
	None	
UL1	cULus ordinary location for Canada and USA	

014	Outlet direction	
	Pressure output to the rear	
Z	Pressure output to the front	

Datasheet

Pressure regulation range/actuation, manually actuated

Pressure regulation range/actuation, pneumatically actuated

Flow rate
1600 ... 5000 l/min

Temperature range
–10 ... +60 °C

Operating pressure
1 ... 14 bar

www.festo.com

Several precision pressure regulators mounted next to one another to form a regulator manifold:

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 pilot pressure p12 by an external pilot regulator (where possible using a precision pressure regulator). When the input pressure p1 is switched off, the output pressure p2 is exhausted via port 3 (secondary exhausting).

- Good regulation characteristics with minimal hysteresis and input pressure compensation
- Manifold assembly with through air supply
- For configuring a regulator manifold with independent pressure regulation ranges
- Actuator lock to protect the set values from being adjusted
- Four pressure regulation ranges: 0.05 ... 0.7 bar, 0.05 ... 2.5 bar, 0.1 ... 4 bar and 0.1 ... 12 bar
- Optional pressure sensor
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

General technical data			
Size			MS6
Pneumatic connection 1			
Female thread			G1/2
Connecting plate	[AG...]		G1/4, G3/8, G1/2 or G3/4
Pneumatic connection 2			
Female thread			G1/2
Angled outlet block	[BD]		QS-8
	[BE]		QS-10
Pneumatic connection 3			G1/4
Pilot air port 12			G1/8 (MS6-LRPB-...-PO)
Design			Piloted precision diaphragm regulator with through compressed air supply
Regulator function			Output pressure constant, with secondary exhausting
Type of mounting			With accessories
			In-line installation
			Front panel mounting
Mounting position			Any
Actuator lock			Rotary knob with latch
			Rotary knob with latch, can be locked using accessories
			Rotary knob with integrated lock
Pressure regulation range/ actuation[1]	[D2]	[bar]	0.05 ... 0.7, manually actuated
	[D4]	[bar]	0.05 ... 2.5, manually actuated
	[D5]	[bar]	0.1 ... 4, manually actuated
	[D7]	[bar]	0.1 ... 12, manually actuated (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. pressure hysteresis		[bar]	0.02

1) [D2]/[D4]/[D5]/[D7]: input pressure p1 ≥ output pressure p2 + 1 bar.
[PO]: pilot pressure p12 = output pressure p2 + max. 0.5 bar

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

Datasheet

General technical data	
Size	MS6
Pressure indication	With pressure sensor for indicating the output pressure via LCD display and electrical output
	With pressure sensor for indicating the output pressure via the switching status indicator and electrical output
	Via pressure gauge for displaying the output pressure
	Prepared for G1/8
	Prepared for G1/4

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 qnN [l/min]					
$q_{nN\ 1 \rightarrow 2}$	G1/2	1600[1]	2300[2]	3000[3]	5000[4]
Secondary exhaust flow rate [l/min]					
$q_{n\ 2 \rightarrow 3}$		≥ 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 to ISO 8573-1:2010 [7:4:4]
		Inert gases
Note on the operating/pilot medium		Lubricated operation 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]		c UL us - Recognized (OL)

1) Value in brackets applies to MS6-LRPB with UL certification.
2) Value in brackets applies to MS6-LRPB with pressure sensor.
3) More information www.festo.com/x/topic/crc
4) More information: www.festo.com/catalogue/ms6-lrpb → Support/Downloads.

Electrical data			
Pressure regulation range		[PE10]	[PI10]
Operating voltage range DC	[V]	21.6 ... 26.4	
Max. electrical power consumption	[W]	4.2	
Max. current consumption	[A]	0.16	
Nominal operating voltage DC	[V]	24 (Plug connector, M12x1, 5-pin, A-coded)	
Residual ripple		10%	
Analogue input signal range			
	[V]	0 ... 10	–
	[mA]	–	4 ... 20

ATEX	
EU certification	[EX4]
ATEX category for gas	II 2G
Type of ignition protection for gas	Ex h IIC T6 Gb X
ATEX category for dust	II 2D
Type of ignition protection for dust	Ex h IIIC T60°C Db X
Explosion-proof ambient temperature	–10 °C ≤ Ta ≤ +60 °C
Explosion protection certification outside the EU	EPL Db (GB) EPL Gb (GB)
CE marking (see declaration of conformity)[1]	To EU Explosion Protection Directive (ATEX)
UKCA marking (see declaration of conformity)[1]	To UK explosion regulations

1) More information: www.festo.com/catalogue/ms6-lrpb → Support/Downloads.

Datasheet

Weight [g]	
Precision pressure regulator	1000
Precision pressure regulator with rotary knob with integrated lock	1120

Materials

Sectional view

Precision pressure regulator (manifold assembly)		
[1]	Housing	Die-cast aluminium
[2]	Rotary knob	PA, POM
	Rotary knob with integrated lock	Aluminium
[3]	Diaphragm	NBR
[4]	Bottom cover	PC
[5]	Springs	Steel
–	Seals	NBR
Note on materials		RoHS-compliant
LABS (PWIS) conformity		VDMA24364-B1/B2-L

Standard flow rate qn as a function of output pressure p2 (p1 = 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

Datasheet

Internal air consumption qn as a function of input pressure p1

MS6-LRPB-...-D2/D4

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

Dimensions

Download CAD data ➔ www.festo.com

[D2]/[D4]/[D5]/[D7] Pressure regulation range, manually actuated

[A8M] Adapter for EN pressure gauge 1/8, with precision pressure gauge

[BD]/[BE] Angled outlet block

[AS] Rotary knob with latch, can be locked using accessories

[1] Push-in connector

➔ Flow direction

Type	B1	B2	B3	B6	B7	B8	D1	D2 ø	D4 ø	L1	L2	L3	L4	L6
MS6-LRPB-1/2-D2/D4/D5/D7-A8M-BD/BE-AS	62	31	76	23	115	23.4	G1/2	51.2	40	124	68	95.1	114	10

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

Datasheet

Dimensions Download CAD data ➔ www.festo.com

[PO] Pressure regulation range, pneumatically actuated
[VS] Cover plate
[BD]/[BE] Angled outlet block

Type	B1	B2	B3	B6	D1	D2	L1	L2	L4
MS6-LRPB-1/2-PO-VS-BD/BE	62	31	76	23	G1/2	G1/8	137	81	127

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

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

[KD] Rotary knob underneath

Type	B1	B2	B3	B7	B8	D1	D2 ⌀	D4 ⌀	L1	L2	L3	L4	L6
MS6-LRPB-1/2-...-KD	62	31	99	138	23.4	G1/2	51.2	40	124	68	95.1	114	10

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

Datasheet

Dimensions – Pressure gauge alternatives

Download CAD data ➔ www.festo.com

[VS] Cover plate

[A8] Adapter for EN pressure gauge 1/8, without pressure gauge

[A4] Adapter for EN pressure gauge 1/4, without pressure gauge

[1] Push-in connector

➔ Flow direction

Type	B2	B3	B6	D1	D4
MS6-LRPB-1/2-...-VS	31	76	23	G1/2	–
MS6-LRPB-1/2-...-A8		78.5			G1/8
MS6-LRPB-1/2-...-A4		78.5			G1/4

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

Datasheet

Dimensions – Pressure gauge alternatives

Download CAD data ➔ www.festo.com

[AD7 ... 10] Pressure sensor without LCD display (switching status indicator only)

Datasheets ➔ Internet: sde5

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

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

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

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

➔ Flow direction

Type	B2	B3	B5	B6	D6
MS6-LRPB-...-AD7/AD8/AD9/AD10	31	79.1	51	16	M8x1

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

[AD11/AD12] Pressure sensor with LCD display

Datasheets ➔ Internet: spau

Variant AD11:
SPAU-P10R-MS-L-PNLK-M12 with plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA

Variant AD12:
SPAU-P10R-MS-L-PNLK-M8 with plug M8, 4-pin, IO-Link®®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA

➔ Flow direction

Type	B2	B3	B4	B5	B6	D6	L5	L6
MS6-LRPB-...-AD11	31	101.8	93.7	51	32	M12x1	41.2	39
MS6-LRPB-...-AD12	31	101.8	93.7	51	32	M8x1	37.9	39

Datasheet

Dimensions – Electrically actuated VPPE pilot control Download CAD data ➔ www.festo.com

[PE10/PI10] Proportional-pressure regulator with LED display
(with pressure output)

Datasheets ➔ Internet: vppe

Variant PE10:
electrically actuated (pilot control using proportional-pressure regulator with LED display, 7-segment) 0 ... 10 V

Variant PI10:
electrically actuated (pilot control using proportional-pressure regulator with LED display, 7-segment)
setpoint value 4 ... 20 mA

Plug connector, M12x1, 5-pin, A-coded

➔ Flow direction

Type	B1	B2	B3	B4	B6	L1	L2	L3	L6
MS6-LRPB-...-PE10/PI10	62	31	76	62	23	162	106	10	9

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

Dimensions – Electrically actuated VPPE pilot control Download CAD data ➔ www.festo.com

[PE10/PI10] Proportional-pressure regulator with LED display
(without pressure output)

Datasheets ➔ Internet: vppe

Variant PE10:
electrically actuated (pilot control using proportional-pressure regulator with LED display, 7-segment)
0 ... 10 V

Variant PI10:
electrically actuated (pilot control using proportional-pressure regulator with LED display, 7-segment)
setpoint value 4 ... 20 mA

➔ Flow direction

Type	B1	B2	B3	B4	L1	L2	L3	L6
MS6-LRPB-...-PE10/PI10	62	31	76	62	161	106	10	9

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

Datasheet

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

For control panel installation

[ ] Rotary knob with latch

[AS] Rotary knob with latch, can be locked using accessories

[E11] Rotary knob with integrated lock

[1] Max. panel thickness
[2] Installation dimension

[LD] Rotary knob, long, with latch

[LD-AS] Rotary knob, long, with latch, can be locked using accessories

[3] For pressure adjustment: fully pull out telescopic rotary knob

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

Datasheet

Ordering data					
Pneumatic connection 1	Pressure regulation range	Analogue input signal range	Flow direction	Part no.	Type
Manually actuated					
G1/2	0.05 ... 0.7 bar	–	From left to right	**534865**	**MS6-LRPB-1/2-D2-A8-BD**
	0.05 ... 2.5 bar	–	From left to right	**534914**	**MS6-LRPB-1/2-D4-A8**
	0.1 ... 4 bar	–	From left to right	**534917**	**MS6-LRPB-1/2-D5-A8**
	0.1 ... 12 bar	–	From left to right	**534874**	**MS6-LRPB-1/2-D7-A8-BD**
Electrically actuated					
G1/2	0.01 ... 1 MPa	0 ... 10 V	From left to right	**8203863**	**MS6-LRPB-1/2-PE10-VS**
	0.01 ... 1 MPa	4 ... 20 mA	From left to right	**8203864**	**MS6-LRPB-1/2-PI10-VS**

Ordering data – Modular product system

Ordering table				
Grid dimension [mm]	62	Conditions	Code	Enter code
Module no.	**535007**			
Series	Standard		**MS**	MS
Size	6		**6**	6
Function	Precision pressure regulator for manifold assembly		**-LRPB**	-LRPB
Pneumatic connection	Female thread G1/2	[1]	**- 1/2**	
	Connecting plate G1/4		**-AGB**	
	Connecting plate G3/8		**-AGC**	
	Connecting plate G1/2		**-AGD**	
	Connecting plate G3/4		**-AGE**	
	Connecting plate G1		**-AGF**	
Pressure regulation range/actuation	0.05 ... 0.7 bar, manually actuated		**-D2**	
	0.05 ... 2.5 bar, manually actuated		**-D4**	
	0.1 ... 4 bar, manually actuated		**-D5**	
	0.1 ... 12 bar, manually actuated		**-D7**	
	0.1 ... 12 bar, pneumatically actuated (pressure range determined by pilot regulator)	[1] [2]	**-PO**	
	0.01 ... 1 MPa, electrically actuated (pilot control using proportional-pressure regulator with LED display, 7-segment) 0 ... 10 V	[3]	**-PE10**	
	0.01 ... 1 MPa, electrically actuated (pilot control using proportional-pressure regulator with LED display, 7-segment) setpoint value 4 ... 20 mA	[3]	**-PI10**	
Pressure gauge alternatives	Cover plate	[4]	**-VS**	
	Adapter for EN pressure gauge 1/8, without pressure gauge	[5]	**-A8**	
	Adapter for EN pressure gauge 1/8, with precision pressure gauge	[5]	**-A8M**	
	Adapter for EN pressure gauge 1/4, without pressure gauge	[5]	**-A4**	
	Pressure sensor with switching status indicator, plug M8, threshold value comparator, PNP, N/O contact	[1] [6] [7]	**-AD7**	
	Pressure sensor with switching status indicator, plug M8, threshold value comparator, PNP, N/C contact	[1] [6] [7]	**-AD8**	
	Pressure sensor with switching status indicator, M8 plug, window comparator, PNP, N/O contact	[1] [6] [7]	**-AD9**	
	Pressure sensor with switching status indicator, M8 plug, window comparator, PNP, N/C contact	[1] [6] [7]	**-AD10**	
	Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA	[1] [5] [6]	**-AD11**	
	Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA	[1] [5] [6]	**-AD12**	

[1]	1/2, PO, AD7 ... AD10, AD11/AD12, KD, E11, WPM	Not with EU EX4 certification.
[2]	PO	Not with long rotary knob LD. Not with locking options AS, E11. Not with mounting type WR.
[3]	PE10, PI10	Not with LD, WR, AS, E11, EX4, UL1
[4]	VS	Must be selected with outlet direction Z without alternative mounting position KD or without alternative pressure output BD, BE. Must be selected with alternative mounting position KD without outlet direction Z or without alternative pressure output BD, BE.
[5]	A8, A8M, A4, AD11/AD12	In combination with outlet direction Z only with alternative mounting position KD.
[6]	AD7 ... AD10, AD11/AD12	Measuring range max. 10 bar. Not with pressure regulation range/actuation D2, D4.
[7]	AD7 ... AD10	In combination with outlet direction Z only with alternative pressure output BD, BE or in combination with outlet direction Z only with alternative mounting position KD

Ordering data – Modular product system

Ordering table					
Grid dimension [mm]	62	Conditions	Code		Enter code
Rotary knob	Standard				
	Long rotary knob	[8]	**-LD**		
Alternative mounting position	None				
	Rotary knob underneath	[1] [9]	**-KD**		
Locking option	None				
	Lockable using accessories		**-AS**		
	With integrated lock	[1]	**-E11**		
Alternative pressure output (p max = 10 bar)	None				
	Angled outlet block QS-8		**-BD**		
	Angled outlet block QS-10		**-BE**		
Type of mounting	Without mounting bracket				
	Mounting bracket with knurled nut for regulator head	[8] [11]	**-WR**		
	Mounting bracket standard design	[12] [13]	**-WP**		
	Mounting bracket for hooking in service unit components	[1] [8] [12]	**-WPM**		
	Mounting bracket for large wall gap	[12] [14]	**-WPB**		
	Mounting bracket centrally at the rear (wall mounting top and bottom), connecting plates not required	[8]	**-WB**		
EU certification	None				
	II 2GD to EU Explosion Protection Directive (ATEX)		**-EX4**		
UL certification	None				
	cULus, ordinary location for Canada and USA		**-UL1**		
Outlet direction	Pressure output at the rear				
	Pressure output at the front (without angled outlet block, no pressure gauge)		**-Z**		

[8] LD — Not with locking option E11.
[9] KD — In combination with pressure gauge alternatives A8, A4, AD7 ... AD10 only with outlet direction Z.
[10] WR, WB, WPM — Only with outlet direction Z.
Not with alternative mounting position KD.
[11] WR — Only with outlet direction Z.
Not with long rotary knob LD.
[12] WP, WPM, WPB — Only with connecting plate AGB, AGC, AGD or AGE.
[13] WP — Not with alternative mounting position KD.
Either only with outlet direction Z or only with alternative pressure output BD, BE.
[14] WPB — Not with alternative mounting position KD.
Not with alternative pressure output BD, BE.
Not with outlet direction Z.

Peripherals overview

Pressure regulator MS9-LR

Note

Additional accessories:

- Module connectors for combination with size MS6, MS9 or MS12
  ➔ Internet: rmv, armv

Manually actuated	Pneumatically actuated	Electrically actuated

Peripherals overview

Mounting attachments and accessories		Individual device			Combination	→ Page/ Internet
		With female thread	With connecting plate		Module without connecting thread, without connecting plate	
			Without EU certification	With EU certification		
[1]	Pressure regulator MS9-LR	■	■	■	■	82
[2]	Connecting plate SET MS9-AG...	–	■	■	■	ms9-ag
	Connecting plate SET MS9-AQ...	–	■	–	■	ms9-aq
[3]	Module connector MS9-MV	–	–	–	■	ms9-mv
[4]	Mounting bracket MS9-WP	■	■	■	■	ms9-wp
[5]	Mounting bracket MS9-WPB	■	■	■	■	ms9-wp
[6]	Mounting bracket MS9-WPM	■	■	–	■	ms9-wp
[7]	Adapter for EN pressure gauge 1/4 A4	■	■	■	■	94
[8]	Pressure gauge MA	■	■	■	■	106
[9]	Pressure sensor without display AD7 ... AD10	■	■	–	■	94
[10]	Connecting cable NEBA-M8...-LE3	■	■	–	■	106
[11]	MS pressure gauge AG	■	■	■	■	94
[12]	Cover plate VS	■	■	■	■	94
[13]	Padlock LRVS-D	■	■	■	■	106

Type codes

001	Series	
MS	MS series	

002	Size	
9	Grid dimension 90 mm	

003	Function	
LR	Pressure regulator	

004	Pneumatic connection	
3/4	Female thread G3/4	
1	Female thread G1	
AGD	Sub-base G1/2	
AGE	Sub-base G3/4	
AGF	Sub-base G1	
AGG	Connecting plate G1 1/4	
AGH	Connecting plate G1 1/2	
N3/4	Female thread 3/4 NPT	
N1	Female thread 1 NPT	
AQR	Sub-base 1/2 NPT	
AQS	Sub-base 3/4 NPT	
AQT	Sub-base 1 NPT	
AQU	Sub-base 1 1/4 NPT	
AQV	Sub-base 1 1/2 NPT	
G	Module without connecting thread, without sub-base	
NG	Module without connecting thread, without sub-base (inch)	

005	Pressure regulation range	
D5	0.3 ... 4 bar	
D6	0.3 ... 7 bar	
D7	0.5 ... 12 bar	
D8	0.5 ... 16 bar	
PE	0.1 ... 10 bar electrically actuated (pilot control using proportional-pressure regulator with LED indicator, 7-segment), setpoint 0 ... 10V	
PI	0.1 ... 10 bar electrically actuated (pilot control using proportional-pressure regulator with LED indicator, 7-segment), setpoint 4 ... 20mA	
PO	Max. 16 bar, pneumatically actuated (pressure range determined by pilot regulator)	

006	Regulator type	
	Pilot actuated	
DI	Directly actuated	

007	Pressure gauge alternatives	
A4	Adapter for EN pressure gauge 1/4, without pressure gauge	
AD7	Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/O	
AD8	Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/C	
AD9	Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O	
AD10	Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, N/C	
AG	MS pressure gauge	
RG	Integrated pressure gauge, red/green scale	
VS	Cover plate	

008	Alternative pressure gauge scale	
	MS pressure gauge	
PSI	psi	
BAR	bar	
MPA	MPa	

009	Secondary exhausting	
	With secondary exhausting	
OS	Without secondary exhaust	

010	Alternative mounting position	
	None	
KD	Rotary knob underneath	

011	Lockability	
	None	
AS	Can be locked using accessories	
E11	With integrated lock	

012	Type of mounting	
	Without mounting bracket	
WP	Mounting bracket basic design	
WPB	Mounting bracket for large wall gap	
WPM	Mounting bracket for hooking in service unit components	

013	EU certification	
	None	
EX4	II 2GD	

014	UL certification	
	None	
UL1	cULus ordinary location for Canada and USA	

015	Flow direction	
	Flow direction from left to right	
Z	Flow direction from right to left	

Datasheet

Pressure regulation range/actuation, manually actuated

Pressure regulation range/actuation, pneumatically actuated

Pressure regulation range/actuation, electrically actuated

Flow rate
11000 ... 26000 l/min

Temperature range
–10 ... +60 °C

Operating pressure
1 ... 20 bar

www.festo.com

The pressure regulator maintains a constant output pressure p2, independently 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 pilot pressure p12 by an external pilot regulator. When the operating pressure is switched off, the output pressure p2 is exhausted via port 3 (secondary exhausting).

- Good regulation characteristics with minimal hysteresis and input pressure compensation
- High flow rate with minimal pressure drop
- Piloted or directly actuated diaphragm regulator or piloted precision piston 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 exhausting
- Actuator lock to protect the set values from being adjusted
- Return flow option for exhausting from output 2 to output 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
	[AQ...]		1/2 NPT, 3/4 NPT, 1 NPT, 1 1/4 NPT or 1 1/2 NPT
Module without connecting thread/connecting plate	[G]/[NG]		–
Pilot air port 12			G1/4 (MS9-LR-...-PO)
Design			Piloted diaphragm regulator
			Directly actuated diaphragm regulator
			Piloted precision piston regulator
Regulator function	Piloted		Output pressure constant, with return flow, with input pressure compensation, with secondary exhausting
	Directly actuated		Output pressure constant, with return flow, with/without secondary exhausting
Type of mounting			With accessories
			In-line installation
			Front panel mounting
Mounting position			Any[1]
Actuator lock			Rotary knob with latch, can be locked using accessories
			Rotary knob with integrated lock
Pressure regulation range/actuation	[D5]	[bar]	0.5 ... 4, manually actuated
	[D6]	[bar]	0.5 ... 7, manually actuated
	[D7]	[bar]	0.5 ... 12, manually actuated (0.5 ... 10 with pressure sensor)
	[D8]	[bar]	0.5 ... 16, manually actuated (0.5 ... 10 with pressure sensor)
	[PO]	[bar]	0.5 ... 16, pneumatically actuated[2]
	[PE10]	[MPa]	0.01 ... 1, electrically actuated (piloted using proportional pressure regulator), 0 ... 10 V
	[PI10]	[MPa]	0.01 ... 1, electrically actuated (piloted using proportional-pressure regulator), setpoint value 4 ... 20 mA
Max. pressure hysteresis	[...]	[bar]	0.4
	[PE/PI10]	[bar]	0.05

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 ISO 228-1.

Datasheet

General technical data	
Pressure indication	With pressure sensor for indicating the output pressure via the switching status indicator and electrical output
	Via pressure gauge for displaying the output pressure
	With pressure gauge with red/green scale for indicating the output pressure
	Prepared for G1/4

Standard nominal flow rate qnN[1)2)] [l/min]							
Design		Piloted diaphragm regulator		Directly actuated diaphragm regulator DI		Piloted precision piston regulator	
Pneumatic connection		G3/4, NPT3/4	G1, NPT1	G3/4, NPT3/4	G1, NPT1	G3/4, NPT3/4	G1, NPT1
Pressure regulation range	[D5]	19000[3)]	26000[3)]	14000[3)]	20000[3)]	–	–
	[D6]	17000	20000	14000	11000	–	–
	[D7]	17000	20000	–	–	–	–
	[D8]	17000	20000	–	–	–	–
	[PO]	21000	25000	–	–	–	–
	[PE10]	–	–	–	–	–	–
	[PI10]	–	–	–	–	–	–

1) All values ±15%
2) Measured at p1 = 10 bar and p2 = 6 bar, Δp = 1 bar
3) Measured at p1 = 10 bar and p2 = 4 bar, Δp = 1 bar

Operating and environmental conditions				
EU certification / actuation		[ ]	[EX4]	Electrically actuated
Operating pressure	[bar]	1 ... 20		6 ... 11
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]		
		Inert gases		
Note on the operating/ pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)	Lubricated operation not possible	
Ambient temperature	[°C]	–10 ... +60 (0 ... +50)[1)]		0 ... +60
Temperature of medium	[°C]	–10 ... +60 (0 ... +50)[1)]		+10 ... +50
Storage temperature	[°C]	–10 ... +60		
Corrosion resistance class CRC[2)]		2 - Moderate corrosion stress		
UL certification[3)]		c UL us - Recognized (OL)		

1) Value in brackets applies to MS9-LR with pressure sensor.
2) More information www.festo.com/x/topic/crc
3) More information: www.festo.com/catalogue/ms9-lr ➔ Support/Downloads.

Electrical data			
Pressure regulation range		[PE10]	[PI10]
Operating voltage range DC	[V]	21.6 ... 26.4	
Max. electrical power consumption	[W]	4.2	
Max. current consumption	[A]	0.16	
Nominal operating voltage DC	[V]	24 (Plug connector, M12x1, 5-pin, A-coded)	
Residual ripple		10%	
Analogue input signal range			
	[V]	0 ... 10	–
	[mA]	–	4 ... 20

Datasheet

ATEX EU certification	[EX4]
ATEX category for gas	II 2G
Type of ignition protection for gas	Ex h IIC T6 Gb X
ATEX category for dust	II 2D
Type of ignition protection for dust	Ex h IIIC T60°C Db X
Explosion-proof ambient temperature	–10 °C ≤ Ta ≤ +60 °C
Explosion protection certification outside the EU	EPL Db (GB) EPL Gb (GB)
CE marking (see declaration of conformity)[1)]	To EU Explosion Protection Directive (ATEX)
UKCA marking (see declaration of conformity)[1)]	To UK explosion regulations

1) More information: www.festo.com/catalogue/ms9-lr → Support/Downloads.

Weight [g]	
Pressure regulator	1400
Pressure regulator with rotary knob with integrated lock	1700

Datasheet

Materials

Sectional view

Pressure regulator		
[1]	Housing	Die-cast aluminium
[2]	Rotary knob	PA
	Rotary knob with integrated lock	Aluminium
[3]	Diaphragm	NBR
[4]	Valve tappet	Wrought aluminium alloy, NBR, POM
–	Covering	Reinforced PA
–	Connecting plate, module connector, mounting bracket	Die-cast aluminium
–	Seals	NBR
Note on materials		RoHS-compliant
LABS (PWIS) conformity		VDMA24364-B1/B2-L

Standard flow rate qn as a function of output pressure p2 (p1 = 10 bar)

Piloted diaphragm regulator

Pneumatic connection G3/4, NPT3/4

Pneumatic connection G1, NPT1

[D5]: 0.5 ... 4 bar
[D6]: 0.5 ... 7 bar
[D7]: 0.5 ... 12 bar
[D8]: 0.5 ... 16 bar

Directly actuated diaphragm regulator

Pneumatic connection G3/4, NPT3/4

Pneumatic connection G1, NPT1

[D5]: 0.5 ... 4 bar
[D6]: 0.5 ... 7 bar

Datasheet

Standard flow rate qn as a function of output pressure p2 (p1 = 10 bar)

External pilot regulator
Pressure regulation range, pneumatically actuated
Pneumatic connection G3/4, NPT3/4

Pneumatic connection G1, NPT1

Electrically actuated VPPE pilot control
Pneumatic connection G1, NPT1

MS9-LR-1-PE/PI (6 bar)

Datasheet

Dimensions – Basic version Download CAD data ➔ www.festo.com

[D5]/[D6]/[D7]/[D8] Pressure regulation range, manually actuated
[G]/[NG] Module without connecting thread, without connecting plate
[VS] Cover plate
[AS] Rotary knob with latch, can be locked using accessories

[PO] Pressure regulation range, pneumatically actuated
[G]/[NG] Module without connecting thread, without connecting plate
[VS] Cover plate

➔ Flow direction

Type	B1	B2	B3	D3	L1		L2		L3
					Piloted	Directly actuated	Piloted	Directly actuated	
MS9-LR-G/NG-D5/D6/D7/D8	90	45	109	–	129	122	71.4	64	94.5
MS9-LR-G/NG-PO				G1/4	120	–	62	–	–

Dimensions – Electrically actuated VPPE pilot control Download CAD data ➔ www.festo.com

[PE10/PI10] Proportional-pressure regulator with LED display
(without pressure output)

Datasheets ➔ Internet: vppe

Variant PE10:
electrically actuated (pilot control using proportional-pressure regulator with LED display, 7-segment) 0 ... 10 V

Variant PI10:
electrically actuated (pilot control using proportional-pressure regulator with LED display, 7-segment)
setpoint value 4 ... 20 mA

Plug connector, M12x1, 5-pin, A-coded

➔ Flow direction

Type	B1	B2	B3	L1	L2	L3
MS9-LR-...-PE10/PI10	90	45	109	168	~110	10

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

Datasheet

Dimensions – Pressure gauge alternatives

Download CAD data ➔ www.festo.com

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

[A4] Adapter for EN pressure gauge 1/4, without pressure gauge

➔ Flow direction

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

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

Dimensions – Pressure gauge alternatives

Download CAD data ➔ www.festo.com
Datasheets ➔ Internet: sde5

[AD7 ... 10] Pressure sensor without LCD display (switching status indicator only)

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

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

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

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

➔ Flow direction

Type	B2	B3	D3
MS9-LR-...-AD7/AD8/AD9/AD10	45	112	M8

Datasheet

Dimensions – Connecting thread/connecting plate Download CAD data ➔ www.festo.com

[3/4]/[1]/[N3/4]/[N1] Female thread

[AG...]/[AQ...] Connecting plate

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

[3] Earthing screw M4x8 (only with MS9-...-EX4)

➔ Flow direction

Type	B4	B5	B6	B7		B8	D1	D4	D5	L4	L5	T1	⬡ 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	–	–	–	3/4 NPT	11	6.5	66	–	6	–
MS9-LR-N1							1 NPT						
MS9-LR-AQR	–	–	–	112	122	132	1/2 NPT	–	–	–	35	–	30
MS9-LR-AQS						132	3/4 NPT						36
MS9-LR-AQT						142	1 NPT						41
MS9-LR-AQU						162	1 1/4 NPT						50
MS9-LR-AQV						176	1 1/2 NPT						55

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

Datasheet

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

[AS] Rotary knob with latch, can be locked using accessories

[E11] Rotary knob with integrated lock

[2] Installation dimension

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

Design	Pressure regulation range	Analogue input signal range	Flow direction	Part no.	Type
Manually actuated					
Piloted diaphragm regulator	0.5 ... 4 bar	–	From left to right	**564134**	**MS9-LR-G-D5-AG-BAR-AS**
	0.5 ... 7 bar	–	From left to right	**564136**	**MS9-LR-G-D6-AG-BAR-AS**
	0.5 ... 12 bar	–	From left to right	**564138**	**MS9-LR-G-D7-AG-BAR-AS**
Directly actuated diaphragm regulator	0.5 ... 4 bar	–	From left to right	**564135**	**MS9-LR-G-D5-DI-AG-BAR-AS**
		–	From left to right	**564140**	**MS9-LR-NG-D5-DI-AG-PSI-AS**
	0.5 ... 7 bar	–	From left to right	**564137**	**MS9-LR-G-D6-DI-AG-BAR-AS**
		–	From left to right	**564142**	**MS9-LR-NG-D6-DI-AG-PSI-AS**
Electrically actuated					
Piloted precision piston regulator	0.01 ... 1 MPa	0 ... 10 V	From left to right	**8203866**	**MS9-LR-G-PE10-VS**
	0.01 ... 1 MPa	4 ... 20 mA	From left to right	**8203865**	**MS9-LR-G-PI10-VS**

Ordering data – Modular product system

Ordering table Grid dimension [mm]	90	Conditions	Code		Enter code
Module no.	**562530**				
Series	Standard		**MS**		MS
Size	9		**9**		9
Function	Pressure regulator		**-LR**		-LR
Pneumatic connection	Female thread G3/4	[1]	**-3/4**		
	Female thread G1	[1]	**-1**		
	Connecting plate G1/2		**-AGD**		
	Connecting plate G3/4		**-AGE**		
	Connecting plate G1		**-AGF**		
	Connecting plate G1 1/4		**-AGG**		
	Connecting plate G1 1/2		**-AGH**		
	Female thread 3/4 NPT	[1]	**-N3/4**		
	Female thread 1 NPT	[1]	**-N1**		
	Connecting plate 1/2 NPT	[1]	**-AQR**		
	Connecting plate 3/4 NPT	[1]	**-AQS**		
	Connecting plate 1 NPT	[1]	**-AQT**		
	Connecting plate 1 1/4 NPT	[1]	**-AQU**		
	Connecting plate 1 1/2 NPT	[1]	**-AQV**		
	Module without connecting thread, without connecting plate	[1]	**-G**		
	Module without connecting thread, without connecting plate (inch)	[1]	**-NG**		
Pressure regulation range/actuation	0.5 ... 4 bar, manually actuated		**-D5**		
	0.5 ... 7 bar, manually actuated		**-D6**		
	0.5 ... 12 bar, manually actuated		**-D7**		
	0.5 ... 16 bar, manually actuated	[1]	**-D8**		
	Max. 16 bar, pneumatically actuated (pressure range determined by pilot regulator)	[2]	**-PO**		
	0.01 ... 1 MPa, electrically actuated (pilot control using proportional-pressure regulator with LED display, 7-segment) 0 ... 10 V	[3]	**-PE10**		
	0.01 ... 1 MPa, electrically actuated (pilot control using proportional-pressure regulator with LED display, 7-segment) setpoint value 4 ... 20 mA	[3]	**-PI10**		
Regulator type	Piloted				
	Directly actuated	[4]	**-DI**		
Pressure gauge/pressure gauge alternatives	MS pressure gauge		**-AG**		
	Cover plate		**-VS**		
	Adapter for EN pressure gauge 1/4, without pressure gauge		**-A4**		
	Integrated pressure gauge, red/green scale	[5]	**-RG**		
	Pressure sensor with switching status indicator, plug M8, threshold value comparator, PNP, N/O contact	[1] [6]	**-AD7**		
	Pressure sensor with switching status indicator, plug M8, threshold value comparator, PNP, N/C contact	[1] [6]	**-AD8**		
	Pressure sensor with switching status indicator, M8 plug, window comparator, PNP, N/O contact	[1] [6]	**-AD9**		
	Pressure sensor with switching status indicator, M8 plug, window comparator, PNP, N/C contact	[1] [6]	**-AD10**		

[1] 3/4, 1, N3/4, N1, AQR, AQS, AQT, AQU, AQV, G, NG, D8, AD7, AD8, AD9, AD10, E11, WPM — Not with EU EX4 certification

[2] PO — Not with regulator type DI.
Not with locking options AS, E11.

[3] PE10, PI10 — Not with DI, OS, E11, AS, EX4, UL1

[4] DI — Not with pressure regulation range D7, D8.

[5] RG — Not with alternative pressure gauge scale PSI, PSI scale is only used as an auxiliary scale.

[6] AD7 ... AD10 — Measuring range max. 10 bar.

Ordering data – Modular product system

Ordering table					
Grid dimension [mm]	90	Conditions	Code		Enter code
Alternative pressure gauge scale	psi	[7]	**-PSI**		
	MPa	[7]	**-MPA**		
	bar	[7]	**-BAR**		
Secondary exhausting	With secondary exhausting				
	Without secondary exhausting	[8]	**-OS**		
Alternative mounting position	None				
	Rotary knob underneath (connection underneath with PO)		**-KD**		
Locking option	Without (locking option AS is predefined)				
	Lockable using accessories		**-AS**		
	With integrated lock	[1]	**-E11**		
Type of mounting	Without mounting bracket				
	Mounting bracket standard design	[9]	**-WP**		
	Mounting bracket for hooking in service unit components	[1] [9]	**-WPM**		
	Mounting bracket for large wall gap	[9]	**-WPB**		
EU certification	None				
	II 2GD to EU Explosion Protection Directive (ATEX)		**-EX4**		
UL certification	None				
	cULus, ordinary location for Canada and USA		**-UL1**		
Flow direction	Flow direction from left to right				
	Flow direction from right to left		**-Z**		

[7] **PSI, MPA, BAR**
Not with pressure gauge alternatives VS, A4, AD7, AD8, AD9, AD10

[8] **OS** Only with regulator type DI

[9] **WP, WPM, WPB**
Not with pneumatic connection G, NG

Peripherals overview

Pressure regulator MS12-LR

Note

Additional accessories:

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

Manually actuated	Pneumatically actuated	Electrically actuated

Peripherals overview

Mounting attachments and accessories		→ Page/Internet
[1]	Pressure regulator MS12-LR	96
[2]	Connecting plate SET MS12-AG...	ms12-ag
[3]	Mounting bracket MS12-WP	ms12-wp
[4]	Module connector MS12-MV	ms12-mv
[5]	Cover plate VS	105
[6]	Adapter for EN pressure gauge 1/4 A4	105
[7]	Pressure gauge MA	106
[8]	Padlock LRVS-D	106
[9]	Connecting cable NEBA-M12G...-LE4	106
[10]	Connecting cable NEBA-M12W...-LE4	106
[11]	Sensor socket NECB-M12G4-C2	106
[12]	Angled plug socket NECB-M12W4-C2	106

Type codes

001	Series	
MS	MS series	

002	Size	
12	Grid dimension 124 mm	

003	Function	
LR	Pressure regulator	

004	Pneumatic connection	
AGF	Sub-base G1	
AGG	Connecting plate G1 1/4	
AGH	Connecting plate G1 1/2	
AGI	Sub-base G2	
G	Module without connecting thread, without sub-base	

005	Pressure range/actuation	
D6	0.3 ... 7 bar, manually actuated	
D7	0.5 ... 12 bar, manually actuated	
D8	0.5 ... 16 bar, manually actuated	
PE6	0.15 ... 6 bar, solenoid actuated (pilot control by proportional-pressure regulator)	
PO	Max. 16 bar, pneumatically actuated (pressure range determined by pilot regulator)	

006	Pressure gauge alternatives	
	None	
A4	Adapter for EN pressure gauge 1/4, without pressure gauge	
VS	Cover plate	

007	Alternative pressure gauge scale	
	MS pressure gauge	
PSI	psi	
MPA	MPa	

008	Rotary knob alternative	
	None	
LD	Long rotary knob	

009	Type of mounting	
	Without mounting bracket	
WP	Mounting bracket basic design	

010	Flow direction	
	Flow direction from left to right	
Z	Flow direction from right to left	

Datasheet

Pressure regulation range/actuation, manually actuated

Pressure regulation range/actuation, pneumatically actuated

Pressure regulation range/actuation, electrically actuated

Flow rate
12000 ... 22000 l/min

Temperature range
–10 ... +60 °C

Operating pressure
0.08 ... 2.1 MPa

www.festo.com

MS12-LR-...-D6/D7/D8 MS12-LR-...-PO MS12-LR-...-PE6

The pressure regulator maintains a constant output pressure p2, independently 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 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 exhausted via port 3 (secondary exhausting).

- Good regulation characteristics with minimal hysteresis and input pressure compensation
- High flow rate with minimal pressure drop
- Actuator lock to protect the set values from being adjusted
- With secondary exhausting
- Pressure gauge connection for different fitting options

General technical data						
Pressure regulation range/actuation		[D6]	[D7]	[D8]	[PO]	[PE6]
Pneumatic connection 1, 2						
Connecting plate [AG...]		G1, G1 1/4, G1 1/2 or G2				
Module without connecting thread/ connecting plate [G]		–				
Pilot air port 12		G1/4 (MS12-LR-...-PO)				
Design		Pressure regulator with/without pressure gauge				
		Piloted diaphragm regulator (MS12-LR-...-D6/D7/D8/PE6)				
		Diaphragm regulator (MS12-LR-...-PO)				
Regulator function		Output pressure constant, with primary pressure compensation, with return flow, with secondary exhausting				
Type of mounting		With accessories				
		In-line installation				
Mounting position		Any				
Actuator lock		Rotary knob with latch, can be locked using accessories				
		Rotary knob with integrated lock				
Pressure regulation range	[MPa]	0.03 ... 0.7	0.05 ... 1.2	0.05 ... 1.6	0.05 ... 1.6	0.015 ... 0.6
	[bar]	0.3 ... 7	0.5 ... 12	0.5 ... 16	0.5 ... 16	0.15 ... 6
	[psi]	4.35 ... 102	7.25 ... 174	7.25 ... 232	7.25 ... 232	2.175 ... 87
Actuation		Manually actuated[1)]	Manually actuated[1)]	Manually actuated[1)]	Pneumatically actuated[1)]	Electrically actuated
Max. pressure hysteresis	[MPa]	0.04				0.004
	[bar]	0.4				0.04
	[psi]	5.8				0.58
Pressure indication		With pressure gauge				

1) Prerequisite: $P_1 = P_2 + 1$ bar.

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

Datasheet

Flow rates			
Pressure regulation range/actuation		[D6]/[D7]/[D8]/[PO][1]	[PE6][2]
Standard nominal flow rate qnN[3] [l/min]			
$q_{nN\ 1 \rightarrow 2}$	G1	13000	12000
	G1 1/4	13500	12500
	G1 1/2	16000	15000
	G2	22000	21000
Secondary exhaust flow rate [l/min]			
$q_{n\ 2 \rightarrow 3}$		≤ 600	≤ 600

1) Measured at p1 = 10 bar and p2 = 6 bar, Δp = 0.5 bar
2) Measured at p1 = 7 bar and p2 = 6 bar, Δp = 0.5 bar
3) Dependent on the selected connecting plate; must be ordered separately as an accessory ➔ Internet: ms12-ag

Electrical data		
Pressure regulation range/actuation		[PE6]
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
Degree of protection		IP65

Operating and environmental conditions			
Pressure regulation range/actuation		[D6]/[D7]/[D8]/[PO]	[PE6]
Operating pressure	[MPa]	0.08 ... 2.1	0.115 ... 0.8
	[bar]	0.8 ... 21	1.15 ... 8
	[psi]	11.6 ... 304.5	16.675 ... 116
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]	
		Inert gases	
Ambient temperature	[°C]	–10 ... +60	+10 ... +50
Temperature of medium	[°C]	–10 ... +60	+10 ... +50
Storage temperature	[°C]	–10 ... +60	
Corrosion resistance class CRC[1]		2	
CE marking (see declaration of conformity)[2]		–	To EU EMC Directive To EU RoHS Directive
UKCA marking (see declaration of conformity)[2]			To UK EMC regulations To UK RoHS regulations
KC marking		–	KC EMC

1) More information www.festo.com/x/topic/crc
2) More information: www.festo.com/catalogue/ms12-lr ➔ Support/Downloads.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Weight [g]	
Pressure regulator	4000
Pressure regulator with rotary knob with integrated lock	4300

Datasheet

Materials

Sectional view

Pressure regulator		
[1]	Housing	Die-cast aluminium
[2]	Rotary knob	Reinforced PA, POM
	Rotary knob with integrated lock	Wrought aluminium alloy
[3]	Bottom cover	Wrought aluminium alloy
[4]	Spring	Spring steel
[5]	Valve tappet	Wrought aluminium alloy, NBR, high-alloy stainless steel
–	Seals, diaphragm	NBR
Note on materials		RoHS-compliant
LABS (PWIS) conformity		VDMA24364-B1/B2-L

Standard flow rate qn as a function of output pressure p2 (p1 = 10 bar) (MS12-LR-...-D6/D7/D8/PO only)

Input pressure p1 = 10 bar

Pneumatic connection G1 with connecting plate
MS12-AGF

Pneumatic connection G1 1/4 with connecting plate
MS12-AGG

Input pressure p1 = 10 bar

Pneumatic connection G1 1/2 with connecting plate
MS12-AGH

Pneumatic connection G2 with connecting plate
MS12-AGI

Datasheet

Standard flow rate qn as a function of output pressure p2 (p1 = 10 bar) (MS12-LR-...-PE6 only)

Pneumatic connection G1 1/2 with connecting plate MS12-AGH

Dimensions – Basic version

Download CAD data ➔ www.festo.com

[D6]/[D7]/[D8] Pressure regulation range, manually actuated

[G] Module without connecting thread, without connecting plate

[ ] Integrated MS pressure gauge with standard scale

[LD-AS] Rotary knob, long, with latch, can be locked using accessories

Type	B1	B2	B3	B4	D2 ø	L1	L2	L3	L4
MS12-LR-...-D6/D7/D8	124	122	61	148	51.2	178	88	95	168

Datasheet

Dimensions – Pressure regulation range Download CAD data ➔ www.festo.com

[PO] Pressure regulation range, pneumatically actuated
[G] Module without connecting thread, without connecting plate
[ ] Integrated MS pressure gauge with standard scale

[PE6] Pressure regulation range, electrically actuated
[G] Module without connecting thread, without connecting plate
[ ] Integrated MS pressure gauge with standard scale

[1] Suitable for
– Connecting cable NEBA-M12G...-LE4/ NEBA-M12W...-LE4
– Sensor socket NECB-M12G4-C2
– Angled plug socket NECB-M12W4-C2

➔ Flow direction

Type	B1	B2	B3	B4	B5	D3	L1	L2	L3	L4
MS12-LR-...-PO	124	122	61	148	–	G1/4	181	91	–	171
MS12-LR-...-PE6					50	M12	172	82	62.7	162

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

[VS] Cover plate

[A4] Adapter 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 ISO 228-1.

Datasheet

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

[LD-AS] Rotary knob, long, with latch, can be locked using accessories

[E11] Rotary knob with integrated lock

[2] Installation dimension

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

Design	Pressure regulation range	Flow direction	Part no.	Type
MS12-LR...				
Piloted diaphragm regulator	0.15 ... 6 bar	From left to right	**564888**	**MS12-LR-G-PE6**
	0.5 ... 12 bar	From left to right	**537148**	**MS12-LR-G-D7-LD-AS**
Diaphragm regulator	0.5 ... 16 bar	From left to right	**541680**	**MS12-LR-G-PO**

Ordering data – Modular product system

Ordering table					
Grid dimension [mm]	124	Conditions	Code		Enter code
Module no.	**535021**				
Series	Standard		**MS**		MS
Size	12		**12**		12
Function	Pressure regulator		**-LR**		-LR
Pneumatic connection	Connecting plate G1		**-AGF**		
	Connecting plate G1 1/4		**-AGG**		
	Connecting plate G1 1/2		**-AGH**		
	Connecting plate G2		**-AGI**		
	Module without connecting thread, without connecting plate		**-G**		
Pressure regulation range/actuation	0.3 ... 7 bar, manually actuated		**-D6**		
	0.5 ... 12 bar, manually actuated		**-D7**		
	0.5 ... 16 bar, manually actuated		**-D8**		
	Max. 16 bar, pneumatically actuated (pressure range determined by pilot regulator)	[1] [2]	**-PO**		
	0.15... 6 bar, electrically actuated (pilot control using proportional pressure regulator)	[1] [2]	**-PE6**		
Pressure gauge alternatives	MS pressure gauge				
	Cover plate		**-VS**		
	Adapter for EN pressure gauge 1/4, without pressure gauge		**-A4**		
Alternative pressure gauge scale	MS pressure gauge, bar				
	psi	[3]	**-PSI**		
	MPa	[3]	**-MPA**		
Rotary knob alternative	None				
	Long rotary knob	[2]	**-LD**		
Locking option	None	[4]			
	Lockable using accessories	[5]	**-AS**		
	With integrated lock		**-E11**		
Type of mounting	Without mounting bracket				
	Mounting bracket standard design	[6]	**-WP**		
Flow direction	Flow direction from left to right				
	Flow direction from right to left		**-Z**		

[1] PO, PE6 Not with rotary knob alternative LD.
Not with locking option AS.
[2] PO, PE6, LD Not with locking option E11.
[3] PSI, MPA Not with pressure gauge alternatives VS, A4.
[4] Must be selected if pressure regulation range/actuation PO, PE6 is selected.
Not with pressure regulation range/actuation D6, D7, D8.
Not with rotary knob alternative LD.
[5] AS Only with rotary knob alternative LD.
[6] WP Only with connecting plate AGF, AGG, AGH or AGI.

Accessories

Ordering data – Pressure gauge MA

Nominal size	Pneumatic connection	Display range [bar]	Display range [psi]	Part no.	Type
Pressure gauge MA, EN 837-1				Datasheets → Internet: ma	
40	R1/4	0 ... 16	0 ... 232	**187080**	**MA-40-16-R1/4-EN**
	G1/4	0 ... 16	0 ... 232	**183901**	**MA-40-16-G1/4-EN**
Pressure gauge MA, EN 837-1, with red/green range				Datasheets → Internet: ma	
40	R1/8	0 ... 16	–	**525726**	**MA-40-16-R1/8-E-RG**
50	R1/4	0 ... 16	–	**525729**	**MA-50-16-R1/4-E-RG**
Precision pressure gauge MAP, EN 837-1				Datasheets → Internet: map	
40	R1/8	0 ... 1	0 ... 15	**161126**	**MAP-40-1-1/8-EN**
		0 ... 4	0 ... 58	**162842**	**MAP-40-4-1/8-EN**
		0 ... 6	0 ... 87	**161127**	**MAP-40-6-1/8-EN**
		0 ... 16	0 ... 232	**161128**	**MAP-40-16-1/8-EN**

Ordering data – Connecting cable NEBA-M8

Datasheets → Internet: neba

Electrical connection	Number of cores	Cable length [m]	Part no.	Type
M8x1, straight socket	3	2.5	★ **8078223**	**NEBA-M8G3-U-2.5-N-LE3**
		5	★ **8078224**	**NEBA-M8G3-U-5-N-LE3**
	4	2.5	★ **8078227**	**NEBA-M8G4-U-2.5-N-LE4**
M8x1, angled socket	3	2.5	★ **8078230**	**NEBA-M8W3-U-2.5-N-LE3**
		5	★ **8078231**	**NEBA-M8W3-U-5-N-LE3**
	4	2.5	★ **8078233**	**NEBA-M8W4-U-2.5-N-LE4**

Ordering data – Connecting cable NEBA-M12

Datasheets → Internet: neba

Electrical connection	Number of cores	Cable length [m]	Part no.	Type
M12x1, straight socket	4	2.5	★ **8078239**	**NEBA-M12G5-U-2.5-N-LE4**
		5	★ **8078240**	**NEBA-M12G5-U-5-N-LE4**
	5	2.5	**8078242**	**NEBA-M12G5-U-2.5-N-LE5**
		5	**8078243**	**NEBA-M12G5-U-5-N-LE5**
M12x1, angled socket	4	2.5	**8078248**	**NEBA-M12W5-U-2.5-N-LE4**
		5	**8078249**	**NEBA-M12W5-U-5-N-LE4**

Ordering data – Sensor socket NECB

Datasheets → Internet: necb

Electrical connection	Part no.	Type
M12x1, A-coded to EN 61076-2-101	**8162290**	**NECB-M12G4-C2**

Ordering data – Angled plug socket NECB

Datasheets → Internet: necb

Electrical connection	Part no.	Type
M12x1, A-coded to EN 61076-2-101	**8162292**	**NECB-M12W4-C2**

Ordering data – Padlock LRVS-D

Weight [g]	Part no.	Type
120	**193786**	**LRVS-D**