Lubricators MS-LOE, MS series

FESTO

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

Freely combinable function 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. With the modular structure the components can be combined as required. The simple connection system saves time because the entire combination doesn't need to be disassembled 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 lets you configure customised solutions quickly and 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/service unit**

Integrated sensors

Pressure and flow sensors

- Maximum machine availability thanks to controlled processes
- Reliable air preparation and supply for systems
- 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
- Automatic shut-off of the compressed air 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		MS2	MS4	MS6	MS9	MS12
Grid dimension	[mm]	25	40	62	90	124
Connection sizes		M5, QS-6	G1/8, G1/4, G3/8	G1/4, G3/8, G1/2, G3/4	G1/2, G3/4, G1, G1 1/4, G1 1/2	G1, G1 1/4, G1 1/2, G2
Standard nominal flow rate qnN[1)]	[l/min]	350	1800	6500	20000	22000

1) Using pressure regulator MS-LR as an example

Key features

Note

Information

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

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.

Design of a service unit combination

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

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

- Regulators MS-LFR/LR/LRP/LRE are only permissible in the flow direction with the same or decreasing pressure regulation range
- Filters MS-LFR/LF/LFM/LFX are only permissible in the flow direction with an increasing grade of filtration
- Lubricators MS-LOE are not permitted in the flow direction upstream of a filter MS-LFR/LFM/LF/LFX, water separator MS-LWS or membrane air dryer MS-LDM1
- A micro filter MS-LFM must be installed 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 MS series service unit components

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 MS series service unit components

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 separators MS-LWS							Datasheets → Internet: ms6-lws; ms9-lws; ms12-lws	
	Remove 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 MS series service unit components

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 to the front or rear.	4	–	–	1/4	–	1/8, 1/4, 3/8	–
		6	–	–	1/2	–	1/4, 3/8, 1/2, 3/4	–
Precision pressure regulators MS-LRP							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 to 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 adjustable 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 MS series service unit components

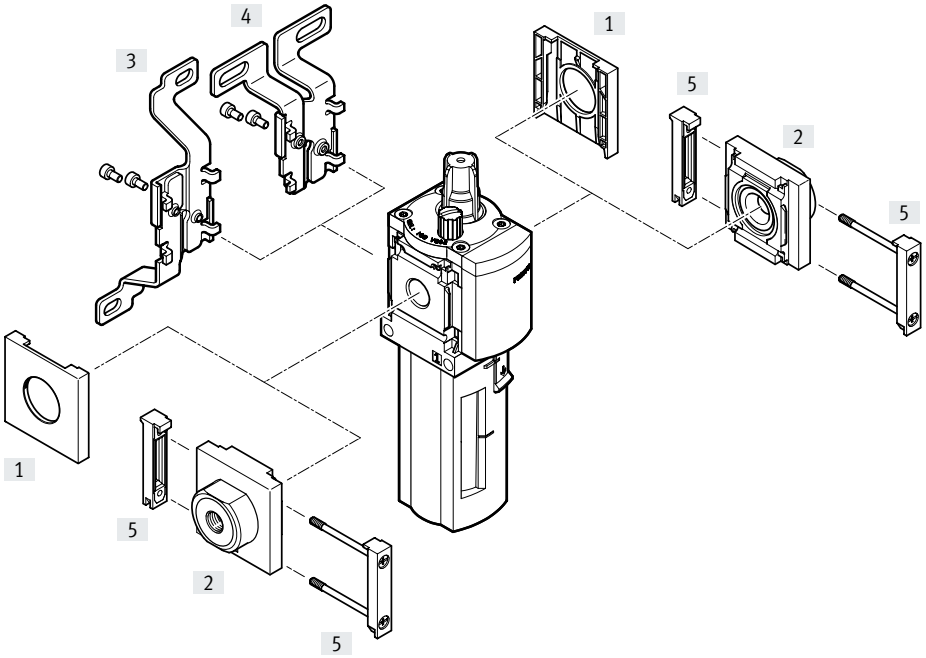
Type	Description	Size	Pneumatic connection					
			Push-in connector	Female thread			Connecting plate with thread	
				M	G	NPT	G	NPT
Individual devices								
On/off valves MS-EM							Datasheets → Internet: ms4-em; ms6-em; ms9-em; ms12-em	
	Manually actuated on/off valve for pressurising and exhausting 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 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
		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 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
		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 gradually increasing pressurisation and quick, safe pressure reduction 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 MS series service unit components

Type	Description	Size	Pneumatic connection					
			Push-in connector	Female thread			Connecting plate with thread	
				M	G	NPT	G	NPT
Individual devices								
Membrane air dryers 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

Peripherals overview



Note

Additional accessories:

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

Mounting attachments and accessories

		Individual device		Combination		→ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
[1]	Cover cap MS4/6-END	■	–	■	–	ms4-end, ms6-end
[2]	Connecting plate SET MS4/6-AG...	–	■	–	■	ms4-ag, ms6-ag
	Connecting plate SET MS4/6-AQ...	–	■	–	■	ms4-aq, ms6-aq
[3]	Mounting bracket MS4/6-WB	■	■	–	–	ms4-wb, ms6-wb
[4]	Mounting bracket MS4-WBM	■	■	–	–	ms4-wbm
[5]	Module connector MS4/6-MV	–	■	■	■	ms4-mv, ms6-mv
–	Mounting bracket MS4/6-WP/WPB/WPE/WPM	–	■	■	■	ms4-wp, ms6-wp

Type codes

MS4-LOE

001	Series	
MS	MS series	

002	Size	
4	Grid dimension 40 mm	

003	Function	
LOE	Compressed air lubricator	

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	Bowl type	
R	Plastic tray with plastic basket	
U	Metal bowl	

006	Type of mounting	
	Without mounting bracket	
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	

007	EU certification	
	None	
EX4	II 2GD	

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

009	Flow direction	
	Flow direction from left to right	
Z	Flow direction from right to left	

MS6-LOE

001	Series	
MS	MS series	

002	Size	
6	Grid dimension 62 mm	

003	Function	
LOE	Compressed air lubricator	

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	Bowl type	
R	Plastic tray with plastic basket	
U	Metal bowl	

006	Type of mounting	
	Without mounting bracket	
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	

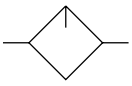
007	EU certification	
	None	
EX4	II 2GD	

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

009	Flow direction	
	Flow direction from left to right	
Z	Flow direction from right to left	

Datasheet

Function



- Flow rate
  1100 ... 7200 l/min
- Temperature range
  –10 ... +60°C
- Operating pressure
  1 ... 16 bar
- Spare parts management

The proportional lubricator adds a precisely adjustable amount of oil to the compressed air.
The pressure drop that occurs when air flows through a Venturi nozzle is used to feed oil from the reservoir to the drip cap.

From here, the oil drips into the air duct directly behind the proportional valve, where it is atomised. The amount of oil mist is proportional to the compressed air flow rate.

- Proportional lubricator with precision oil metering
- Reduces wear on drive units subject to high loads
- High flow rate
- Quick and easy oil top-up even during operation (under pressure)
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

The following oils are recommended for Festo components:
Viscosity range to ISO 3448, ISO class VG 32
32 mm^2/s (= cSt) at 40 °C

- Festo special oil OFSW-32 ➔ 29
- Castrol HySpin ZZ 32
- BP Energol HLP 32
- Mobil Nuto H 32
- Mobil DTE 24
- Shell Tellus S2 MA 32

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		Proportional standard mist lubricator	
Type of mounting		Via accessories	
		In-line installation	
Mounting position		Vertical ±5°	
Bowl guard		Plastic bowl guard	
		Integrated as metal bowl	
Minimum flow rate for lubricator function	[l/min]	40	50
Max. oil capacity	[cm^3]	30 (with plastic bowl guard) 36 (with metal bowl)	75 (with plastic bowl guard) 80 (with metal bowl)

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

Standard nominal flow rate qnN [l/min]

Size	MS4		MS6		
Pneumatic connection 1, 2	G1/8	G1/4	G1/4	G3/8	G1/2
In main flow direction 1 > 2	1100	2200	2500	5300	7200

Datasheet

Operating and environmental conditions			
Size		MS4	MS6
Operating pressure	[bar]	1 ... 12 (1 ... 10)[1]	1 ... 16 (1 ... 10)[1]
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]	
		Inert gases	
Note on the operating/pilot medium		Operation with lubricated medium possible	
Ambient temperature	[°C]	–10 ... +60	
Temperature of medium	[°C]	–10 ... +60	
Storage temperature	[°C]	–10 ... +60	
Corrosion resistance class CRC[2]		2	
Food-safe[3]		See supplementary material information	
UL certification[3]		c UL us - Recognized (OL)	

1) Value in brackets applies to MS4/MS6-LOE with UL certification.
2) More information www.festo.com/x/topic/crc
3) More information: www.festo.com/catalogue/ms-loe → Support/Downloads.

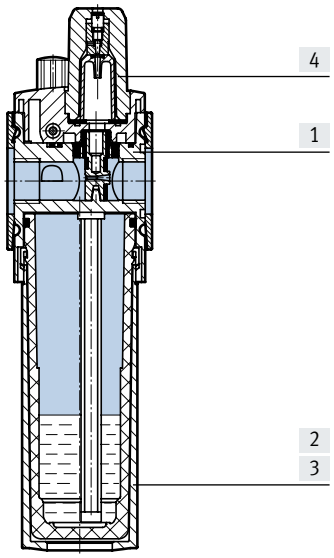
ATEX	
EU certification	EX4
ATEX category for gas	II 2G
Type of (ignition) protection for gas	Ex h IIC T6 Gb X
ATEX category for dust	II 2D
Type of (ignition) protection for dust	Ex h IIIC T60°C Db X
Explosion ambient temperature	–10°C ≤ Ta ≤ +60°C
Explosion protection certification outside the EU	EPL 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 regulations for explosions

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

Weight [g]		
Size	MS4	MS6
Lubricator with plastic bowl guard	194	600
Lubricator with metal bowl	354	810

Materials

Sectional view

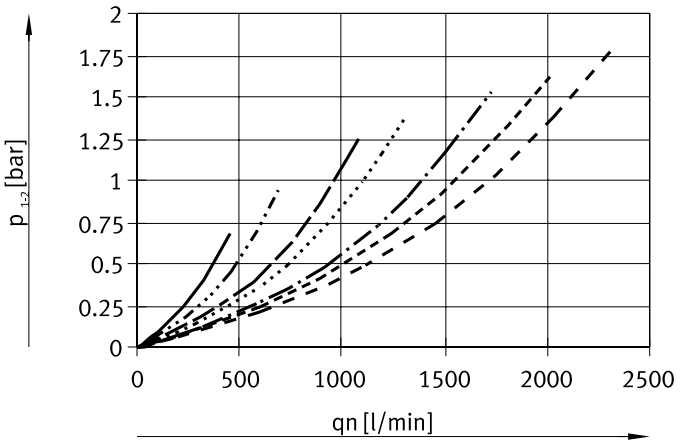


Lubricators		
[1]	Housing	Die-cast aluminium
[2]	Plastic bowl guard	PC
[3]	Metal bowl Inspection window	Wrought aluminium alloy PA
[4]	Lubricator dome	PC
–	Seals	NBR
Note on materials		RoHS-compliant
LABS (PWIS) conformity		VDMA24364-B1/B2-L

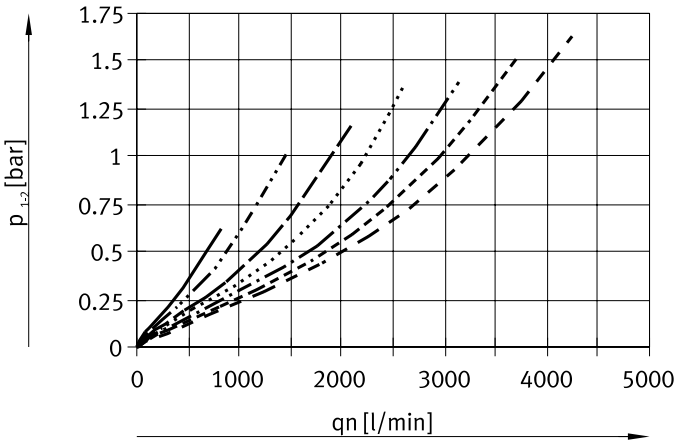
Datasheet

Standard flow rate qn as a function of differential pressure p_{1-2}

MS4-LOE-1/8

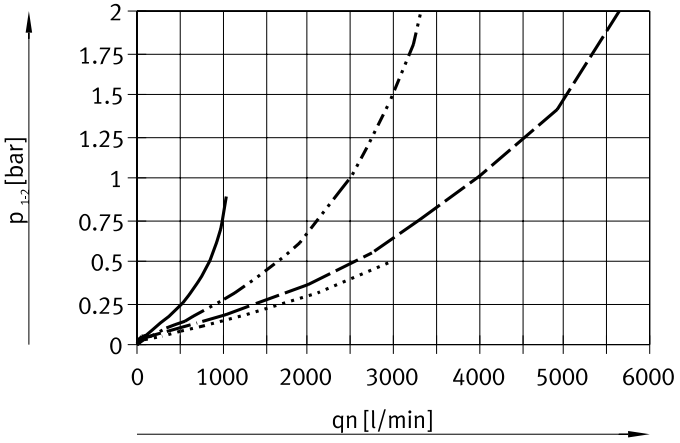


MS4-LOE-1/4

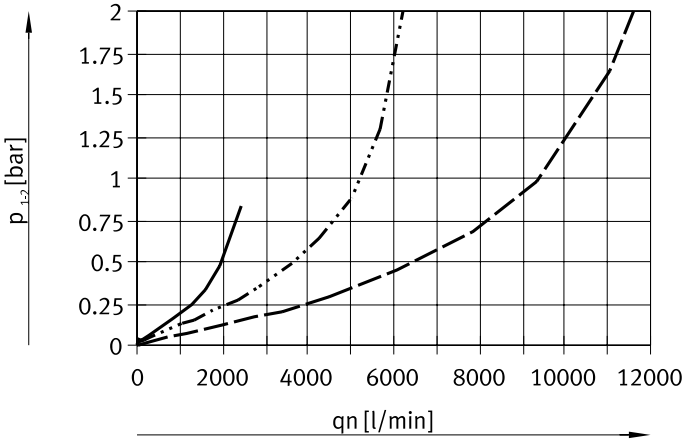


1 bar
2 bar
4 bar
6 bar
8 bar
10 bar
12 bar

MS6-LOE-1/4

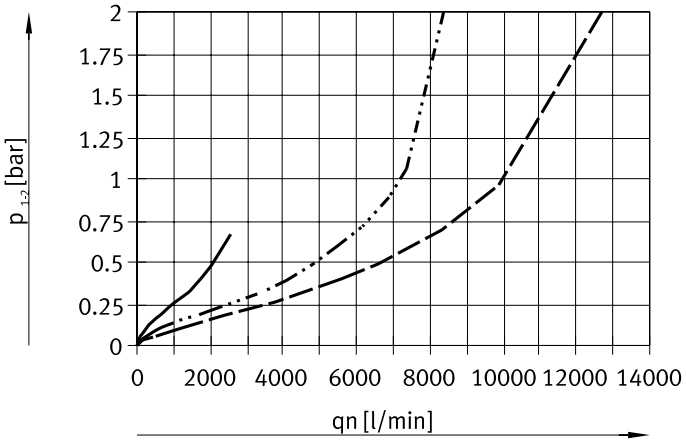


MS6-LOE-3/8



1 bar
6 bar
12 bar
16 bar

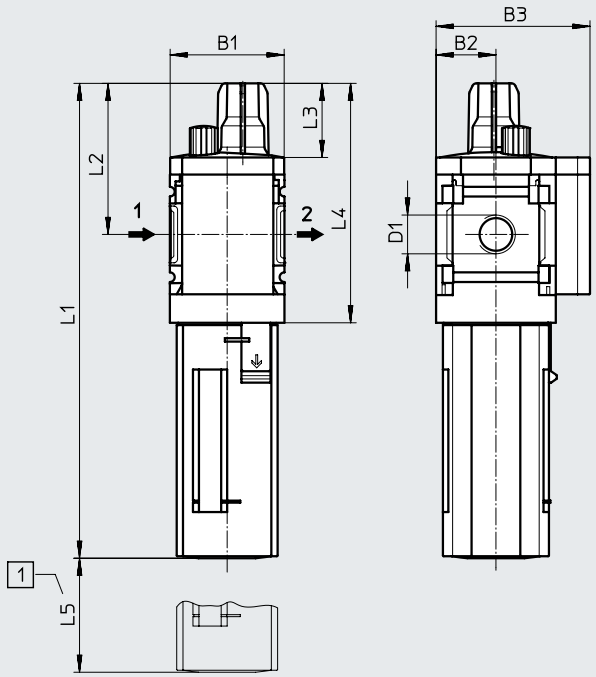
MS6-LOE-1/2



1 bar
6 bar
12 bar

Datasheet

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



[1] Installation dimension

➔ Flow direction

Type	B1	B2	B3	D1	L1 Bowl guard		L2	L3	L4	L5
					Plastic	Metal				
MS4-LOE-1/8	42	21	54	G1/8	166.6	184.9	53	26	84.5	80
MS4-LOE-1/4				G1/4						
MS6-LOE-1/4	62	31	76	G1/4	218	223	66	27	112	130
MS6-LOE-3/8				G3/8						
MS6-LOE-1/2				G1/2						

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

Ordering data

Size	Connection	Flow direction	Part no.	Type
Plastic bowl guard				
MS4	G1/8	From left to right	**529413**	**MS4-LOE-1/8-R**
	G1/4	From left to right	**529411**	**MS4-LOE-1/4-R**
MS6	G1/4	From left to right	**529779**	**MS6-LOE-1/4-R**
	G3/8	From left to right	**529783**	**MS6-LOE-3/8-R**
	G1/2	From left to right	**529775**	**MS6-LOE-1/2-R**
		From right to left	**529776**	**MS6-LOE-1/2-R-Z**
Metal bowl				
MS4	G1/4	From left to right	**535790**	**MS4-LOE-1/4-U**
MS6	G1/4	From left to right	**529781**	**MS6-LOE-1/4-U**
	G3/8	From left to right	**529785**	**MS6-LOE-3/8-U**
	G1/2	From left to right	**529777**	**MS6-LOE-1/2-U**

Ordering data – Modular product system

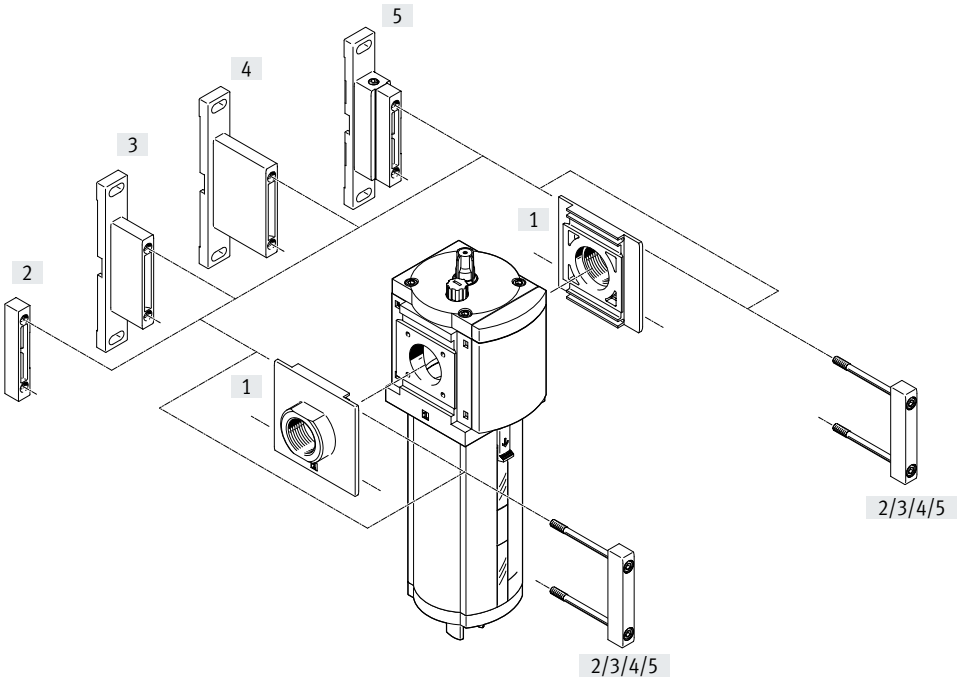
Ordering table

Grid dimension [mm]	40	62	Conditions	Code	Enter code
Module no.	**527701**	**527674**			
Series	Standard			**MS**	MS
Size	4	6		**...**	
Function	Lubricators			**-LOE**	-LOE
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 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**	
Bowl	Plastic bowl with plastic bowl guard			**-R**	
	Metal bowl			**-U**	
Type of mounting	Without mounting bracket				
	Mounting bracket standard design		[2]	**-WP**	
	Mounting bracket for hooking in service unit components		[1] [2]	**-WPM**	
	Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required			**-WB**	
	Mounting bracket centrally at 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**	

[1] 1/8, 1/4, 3/8, 1/2, AQK, AQN, AQP, AQR, AQS, WPM — Not with EU EX4 certification.

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

Peripherals overview



Note

Additional accessories:
- Module connector for combination with size MS6, MS9 or MS12
  → Internet: rmv, armv

Mounting attachments and accessories

		Individual device		Combination	→ Page/ Internet
		With female thread	With connecting plate	Module without connecting thread, without connecting plate	
[1]	Connecting plate SET MS9-AG...	–	■	■	ms9-ag
	Connecting plate SET MS9-AQ...	–	■	■	ms9-aq
[2]	Module connector MS9-MV	–	–	■	ms9-mv
[3]	Mounting bracket MS9-WP	■	■	■	ms9-wp
[4]	Mounting bracket MS9-WPB	■	■	■	ms9-wp
[5]	Mounting bracket MS9-WPM	■	■	■	ms9-wp

Type codes

001	Series	
MS	MS series	

002	Size	
9	Grid dimension 90 mm	

003	Function	
LOE	Compressed air lubricator	

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	Sub-base G1 1/4	
AGH	Sub-base 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	

005	Bowl type	
U	Metal bowl	

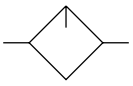
006	Type of mounting	
	Without mounting bracket	
WP	Mounting bracket basic design	
WPM	Mounting bracket for hooking in service unit components	
WPB	Mounting bracket for large wall gap	

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

008	Flow direction	
	Flow direction from left to right	
Z	Flow direction from right to left	

Datasheet

Function



Flow rate
8500 ... 27000 l/min

Temperature range
–10 ... +60°C

Operating pressure
1 ... 16 bar

Spare parts management

The proportional lubricator adds a precisely adjustable amount of oil to the compressed air.
The pressure drop that occurs when air flows through a Venturi nozzle is used to feed oil from the reservoir to the drip cap.

From here, the oil drips into the air duct directly behind the proportional valve, where it is atomised. The amount of oil mist is proportional to the compressed air flow rate.

- Proportional lubricator with precision oil metering
- Integrated sintered filter for filtering the oil
- Reduces wear on drive units subject to high loads
- High flow rate
- Quick and easy oil top-up even during operation (under pressure)

The following oils are recommended for Festo components:
Viscosity range to ISO 3448, ISO class VG 32
32 mm^2/s (= cSt) at 40 °C
- Festo special oil OFSW-32 ➔ 29
- Castrol HySpin ZZ 32
- BP Energol HLP 32
- Mobil Nuto H 32
- Mobil DTE 24
- Shell Tellus S2 MA 32

General technical data

Pneumatic connection 1, 2		
Female thread		G3/4, G1, 3/4 NPT or 1 NPT
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]	–
Design		Proportional standard mist lubricator
Type of mounting		Via accessories
		In-line installation
Mounting position		Vertical ±5°
Bowl guard		Integrated as metal bowl
Minimum flow rate for lubricator function	[l/min]	100
Max. oil capacity	[ml]	490

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

Standard nominal flow rate qnN[1] [l/min]

Pneumatic connection 1, 2	G1/2, 1/2 NPT	G3/4, 3/4 NPT	G1, 1 NPT	G1 1/4, 1 1/4 NPT	G1 1/2, 1 1/2 NPT
In main flow direction 1 > 2	8500	15000	23000	26000	27000

1) Measured at p1 = 6 bar and Δp = 1 bar.

Datasheet

Operating and environmental conditions		
Operating pressure	[bar]	1 ... 16
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
		Inert gases
Ambient temperature	[°C]	–10 ... +60
Temperature of medium	[°C]	–10 ... +60
Storage temperature	[°C]	–10 ... +60
Corrosion resistance class CRC[1)]		2
UL certification[2)]		c UL us - Recognized (OL)

1) More information www.festo.com/x/topic/crc

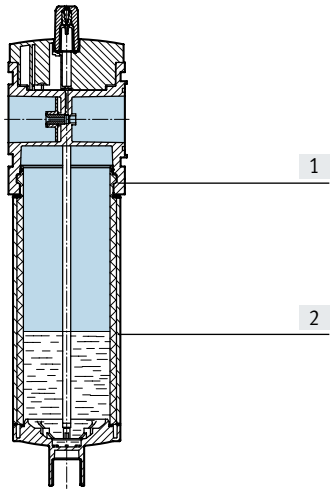
2) More information: www.festo.com/catalogue/ms-loe ➔ Support/Downloads.

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 ambient temperature	–10°C ≤ Ta ≤ +60°C

Weight [g]	
Lubricators	2000

Materials

Sectional view

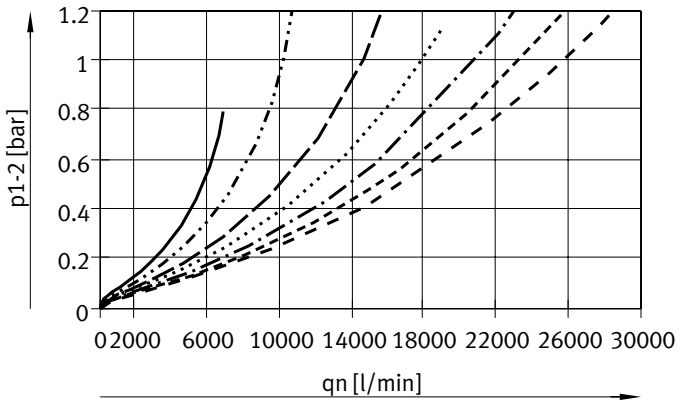


Lubricators		
[1]	Housing	Die-cast aluminium
[2]	Bowl	Wrought aluminium alloy
	Inspection window	PA
–	Covering	Reinforced PA
–	Connecting plate, module connector, mounting bracket	Die-cast aluminium
–	Seals	NBR
Note on materials		RoHS-compliant
LABS (PWIS) conformity		VDMA24364-B1/B2-L

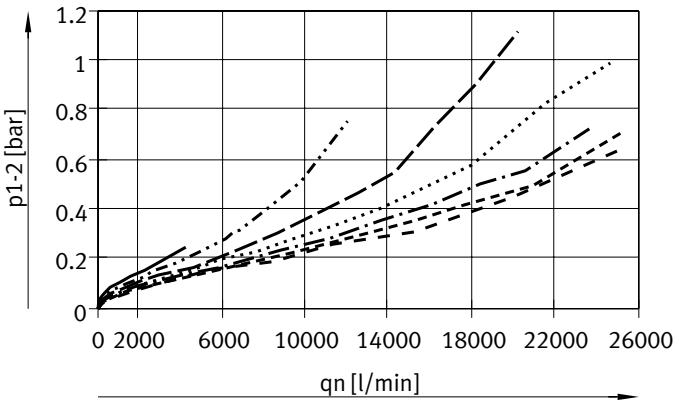
Datasheet

Standard flow rate qn as a function of differential pressure p1-2

Pneumatic connection G3/4, 3/4 NPT



Pneumatic connection G1, 1 NPT

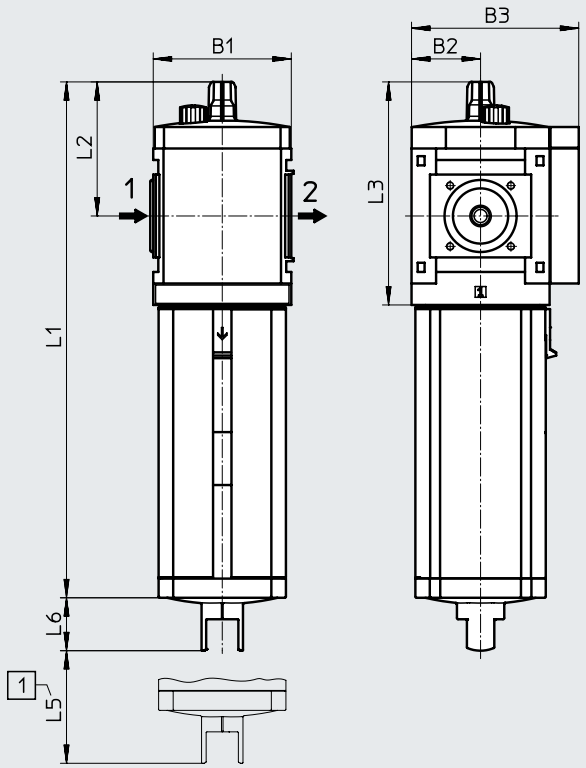


- 1 bar
- 2 bar
- 4 bar
- 6 bar
- 8 bar
- 10 bar
- 12 bar

Dimensions – Basic version

Download CAD data ➔ www.festo.com

[G] Module without connecting thread, without connecting plate



[1] Installation dimension

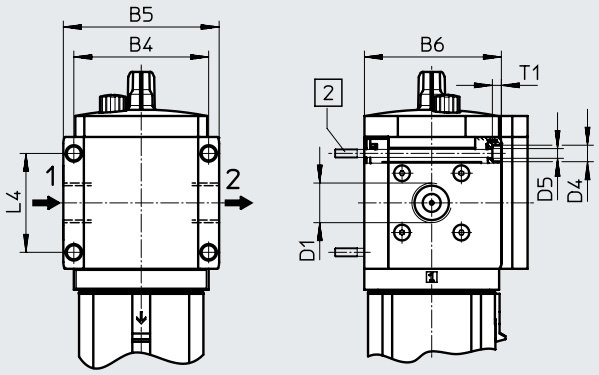
➔ Flow direction

Type	B1	B2	B3	L1	L2	L3	L5 min.	L6
MS9-LOE-G	90	45	109	336.3	87	145	225	34.5

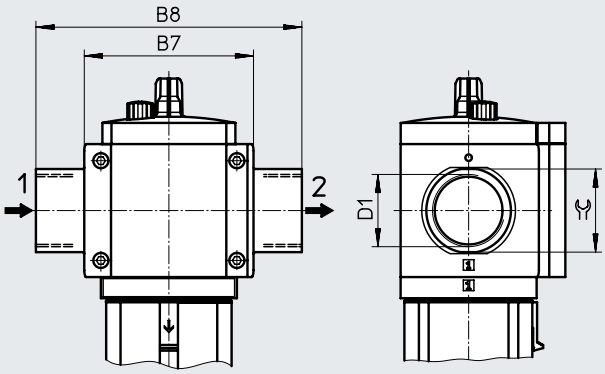
Datasheet

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

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



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



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

➔ Flow direction

Type	B4	B5	B6	B7	B8	D1	D4 ø	D5 ø	L4	T1	⌀
MS9-LOE-3/4	90	104	91.5	–	–	G3/4	11	6.5	66	6	–
MS9-LOE-1						G1					
MS9-LOE-AGD	–	–	–	112	132	G1/2	–	–	–	–	30
MS9-LOE-AGE					132	G3/4					36
MS9-LOE-AGF					142	G1					41
MS9-LOE-AGG					162	G1 1/4					50
MS9-LOE-AGH					176	G1 1/2					55
MS9-LOE-N3/4	90	104	91.5	–	–	3/4 NPT	11	6.5	66	6	–
MS9-LOE-N1						1 NPT					
MS9-LOE-AQR	–	–	–	112	132	1/2 NPT	–	–	–	–	30
MS9-LOE-AQS					132	3/4 NPT					36
MS9-LOE-AQT					142	1 NPT					41
MS9-LOE-AQU					162	1 1/4 NPT					50
MS9-LOE-AQV					176	1 1/2 NPT					55

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

Ordering data

Size	Connection	Flow direction	Part no.	Type
Metal bowl				
MS9	Without connecting thread	From left to right	**564144**	**MS9-LOE-G-U**

Ordering data – Modular product system

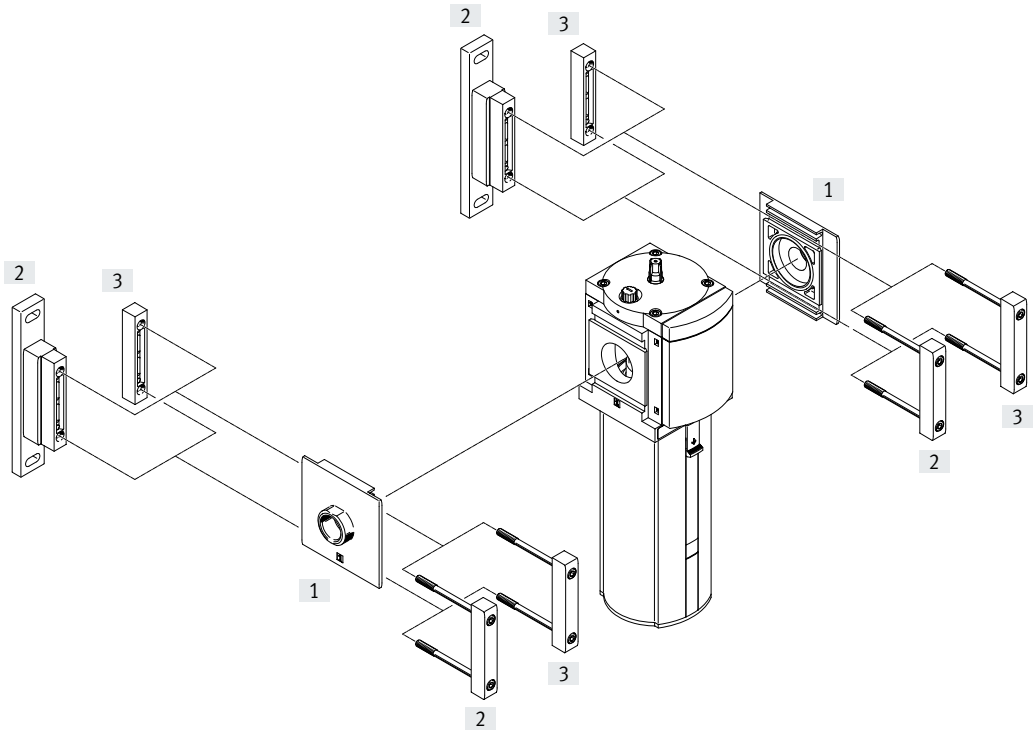
Ordering table

Grid dimension [mm]	90	Conditions	Code		Enter code
Module no.	**562533**				
Series	Standard service unit		**MS**		MS
Size	9		**9**		9
Function	Lubricators		**-LOE**		-LOE
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**		
Bowl	Metal bowl		**-U**		-U
Type of mounting	Without mounting bracket				
	Mounting bracket standard design	[2]	**-WP**		
	Mounting bracket for hooking in service unit components	[2]	**-WPM**		
	Mounting bracket for large wall gap	[2]	**-WPB**		
EU certification	None				
	II 2GD in accordance with EU Directive 94/9/EC		**-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**		

[1] 3/4, 1, N3/4, N1, AQR, AQS, AQT, AQU, AQV, G — Not with EX4

[2] WP, WPM, WPB — Not with pneumatic connection G.

Peripherals overview



Note

Additional accessories:

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

Mounting attachments and accessories

		→ Page/ Internet
[1]	Connecting plate SET MS12-AG...	ms12-ag
[2]	Mounting bracket MS12-WP	ms12-wp
[3]	Module connector MS12-MV	ms12-mv

Type codes

001	Series	
MS	MS series	

002	Size	
12	Grid dimension 124 mm	

003	Function	
LOE	Compressed air lubricator	

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

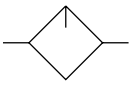
005	Bowl type	
U	Metal bowl	

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

007	Flow direction	
	Flow direction from left to right	
Z	Flow direction from right to left	

Datasheet

Function



- Flow rate
  20000 ... 22000 l/min
- Temperature range
  0 ... 60°C
- Operating pressure
  1 ... 16 bar
- Spare parts management

The proportional lubricator adds a precisely adjustable amount of oil to the compressed air.
The pressure drop that occurs when air flows through a Venturi nozzle is used to feed oil from the reservoir to the drip cap.

From here, the oil drips into the air duct directly behind the proportional valve, where it is atomised. The amount of oil mist is proportional to the compressed air flow rate.

- Proportional lubricator with precision oil metering
- Reduces wear on drive units subject to high loads
- High flow rate
- Quick and easy oil top-up even during operation (under pressure)

The following oils are recommended for Festo components:
Viscosity range to ISO 3448, ISO class VG 32
32 mm²/s (= cSt) at 40 °C

- Festo special oil OFSW-32 ➔ 29
- Castrol HySpin ZZ 32
- BP Energol HLP 32
- Mobil Nuto H 32
- Mobil DTE 24
- Shell Tellus S2 MA 32

General technical data

Pneumatic connection 1, 2		
Connecting plate	[AG...]	G1, G1 1/4, G1 1/2 or G2
Module without connecting thread/connecting plate	[G]	–
Design		Proportional standard mist lubricator
Type of mounting		Via accessories
		In-line installation
Mounting position		Vertical ±5°
Bowl guard		Metal bowl
Minimum flow rate for lubricator function	[l/min]	400
Max. oil capacity	[cm³]	1500

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

Standard nominal flow rate qnN[1] [l/min]

Pneumatic connection 1, 2	G1	G1 1/4	G1 1/2	G2
In main flow direction 1 > 2	20000	20500	21000	22000

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

Datasheet

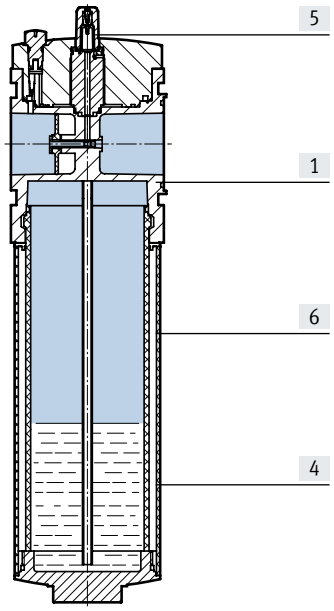
Operating and environmental conditions		
Operating pressure	[bar]	1 ... 16
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Ambient temperature	[°C]	0 ... +60
Temperature of medium	[°C]	0 ... +60
Storage temperature	[°C]	–10 ... +60
Corrosion resistance class CRC[1)]		2

1) More information www.festo.com/x/topic/crc

Weight [g]	
Lubricator with metal bowl	6500

Materials

Sectional view

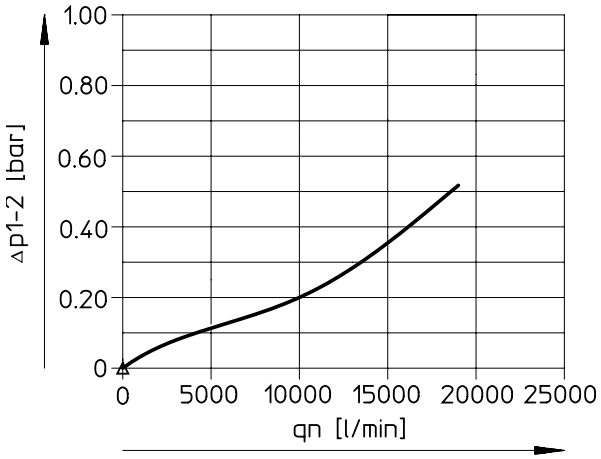


Lubricators		
[1]	Housing	Die-cast aluminium
[4]	Metal bowl	Aluminium
[5]	Lubricator dome	PC
[6]	Metal bowl sight glass	PA
–	Seals	NBR

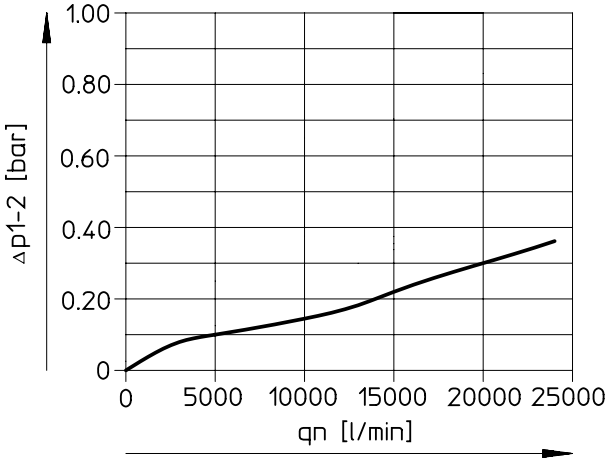
Datasheet

Standard flow rate qn as a function of differential pressure Δp1–2

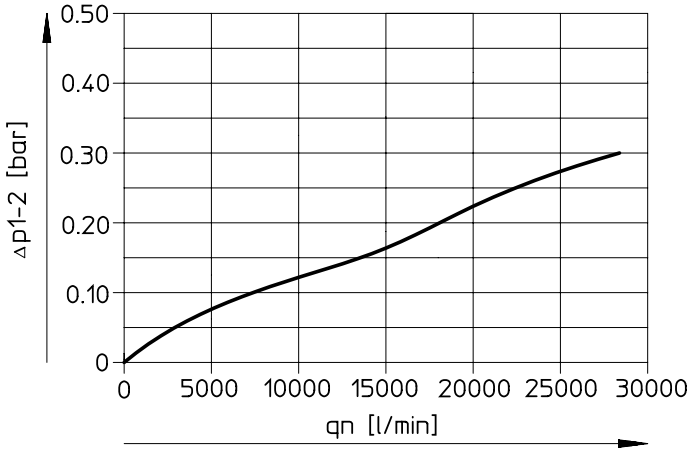
Pneumatic connection G1 with connecting plate MS12-AGF



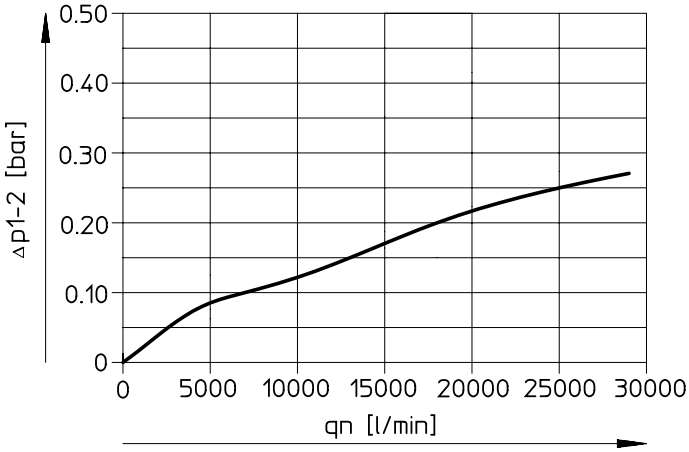
Pneumatic connection G1 1/4 with connecting plate MS12-AGG



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

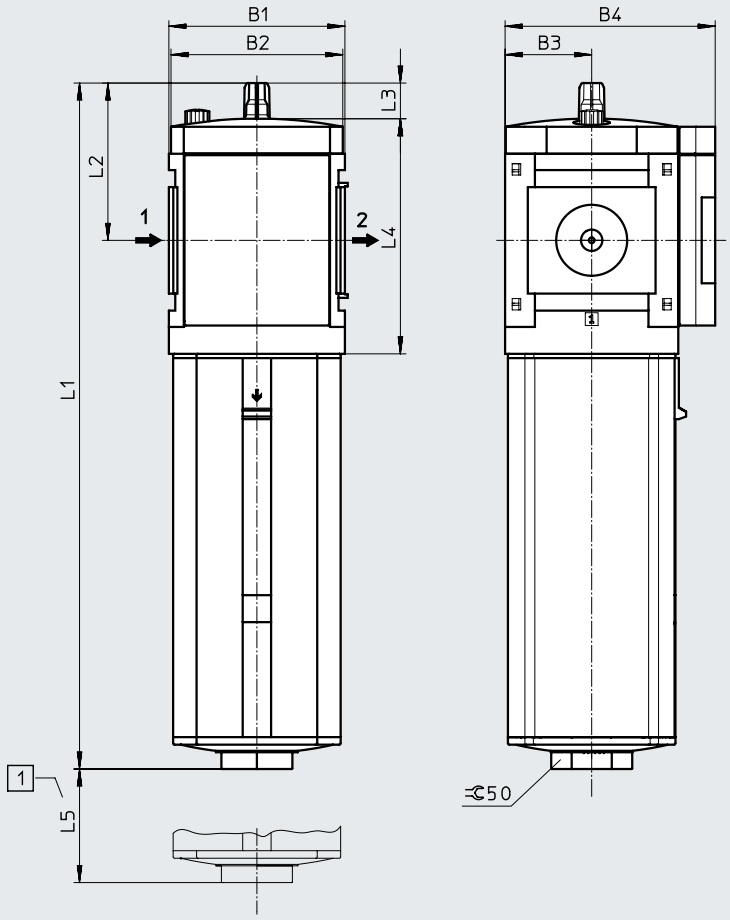


Pneumatic connection G2 with connecting plate MS12-AGI



Datasheet

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



[1] Installation dimension

➔ Flow direction

Type	B1	B2	B3	B4	L1	L2	L3	L4	L5
MS12-LOE	124	122	61	148	483	111	25	166	300

Ordering data

Size	Connection	Flow direction	Part no.	Type
Metal bowl				
MS12	Without connecting thread	From left to right	**537156**	**MS12-LOE-G-U**

Ordering data – Modular product system

Ordering table

Grid dimension [mm]	124	Conditions	Code		Enter code
Module no.	**535041**				
Series	Standard		**MS**		MS
Size	12		**12**		12
Function	Lubricators		**-LOE**		-LOE
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**		
Bowl	Metal bowl		**-U**		-U
Type of mounting	Without mounting bracket				
	Mounting bracket standard design	[1]	**-WP**		
Flow direction	Flow direction from left to right				
	Flow direction from right to left		**-Z**		

[1] WP Only with connecting plate AGF, AGG, AGH or AGI.

Accessories

Special oil OFSW

Ordering data

Scope of delivery	Part no.	Type
1 litre	**152811**	**OFSW-32**