

# MS series service unit components

Key features


FESTO

MS series service unit components		Freely combinable function modules	
Solutions for every application			
With its large product range, highly functional components and a wide choice of services, the MS series from Festo offers a complete concept for compressed air preparation. Suitable for simple standard applications as well as application-specific solutions to the highest quality standards.	Available as individual components, pre-assembled combinations ex-stock, application-specific combinations or complete turnkey solutions. The five sizes in the MS series achieve maximum flow rates with minimum space requirements.	Pressure regulators, on/off and soft-start valves with safety function, filter, pressure and flow sensors, dryers, sensors and lubricators. All these allow a suitable solution to be assembled for every task. Their modular structure means that the components	are freely combinable. A simple connection system saves time when replacing individual modules without dismantling the entire combination. What's more, many of the components are certified to UL and ATEX.

CAD models and configurator	Engineering tools
Convenient aids for planning and selecting application-specific individual devices and combinations. The product configurator lets you configure customised solutions quickly and transfer the order data with no hassle.	Selection tool for choosing the right service unit without oversizing, and with the right air quality class: → <a href="http://www.festo.com/engineering/wartungseinheit">www.festo.com/engineering/wartungseinheit</a>

## Air quality

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

Selection criteria: Application	Selection criteria: ISO-class	Direct filter selection
<p>Filter combination is proposed based upon your selected application</p> <p><input type="radio"/> standard pneumatics operation of valves and cylinders, e.g. in automotive industry, secondary packaging</p> <p><input type="radio"/> mining and building industry applications without special air cleanliness requirements</p> <p><input type="radio"/> application of pressure operated tools and machines: pneumatic hammer, air engine, positioning with proportional valve</p> <p><input type="radio"/> electronic, flatpanel and solar industry, textile and paper production application with residual oil content &lt;0.3 mg/m<sup>3</sup></p> <p><input type="radio"/> painting, powder coating, air bearing application with residual oil content &lt;0.01 mg/m<sup>3</sup></p> <p><input type="radio"/> food and beverage industry, optics application with residual oil content &lt;0.003 mg/m<sup>3</sup> reduction of oil vapours and aerosols</p>	<p>Filter combination is proposed based upon the air cleanliness class according to ISO 8573-1:2010</p> <p>particle    water    oil</p> <p>↓    ↓    ↓</p> <p>4    *</p> <p>ISO</p> <p><small>* Downstream from the compressor the water content is assumed to be ISO class 4, better classes can be achieved by applying an adsorption dryer PSD40 or a membrane dryer LDM1</small></p>	<p>Independent selection of filter combination</p> <p><input type="checkbox"/> 40 µm Filter</p> <p><input type="checkbox"/> 5 µm Filter</p> <p><input type="checkbox"/> 1 µm Fine Filter</p> <p><input type="checkbox"/> 0.01 µm Micro Filter *</p> <p><input type="checkbox"/> Active Carbon Filter</p> <p><small>* To enhance the filter lifetime and in consequence the maintenance interval arrange a 1 µm Fine Filter in front of the 0.01 µm Micro Filter as a preliminary filter.</small></p> 

Integrated sensors	Safety functions	Energy savings	
Pressure and flow sensors	Soft-start/quick exhaust valves MS6-SV/MS9-SV	Service units MSE6	Intelligent mix of sizes



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



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



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



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

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

1) Using pressure regulator MS-LR as an example

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## Note

### Information

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

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

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





## Structure of a service unit

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

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

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

## Total product range for MS series service unit components

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