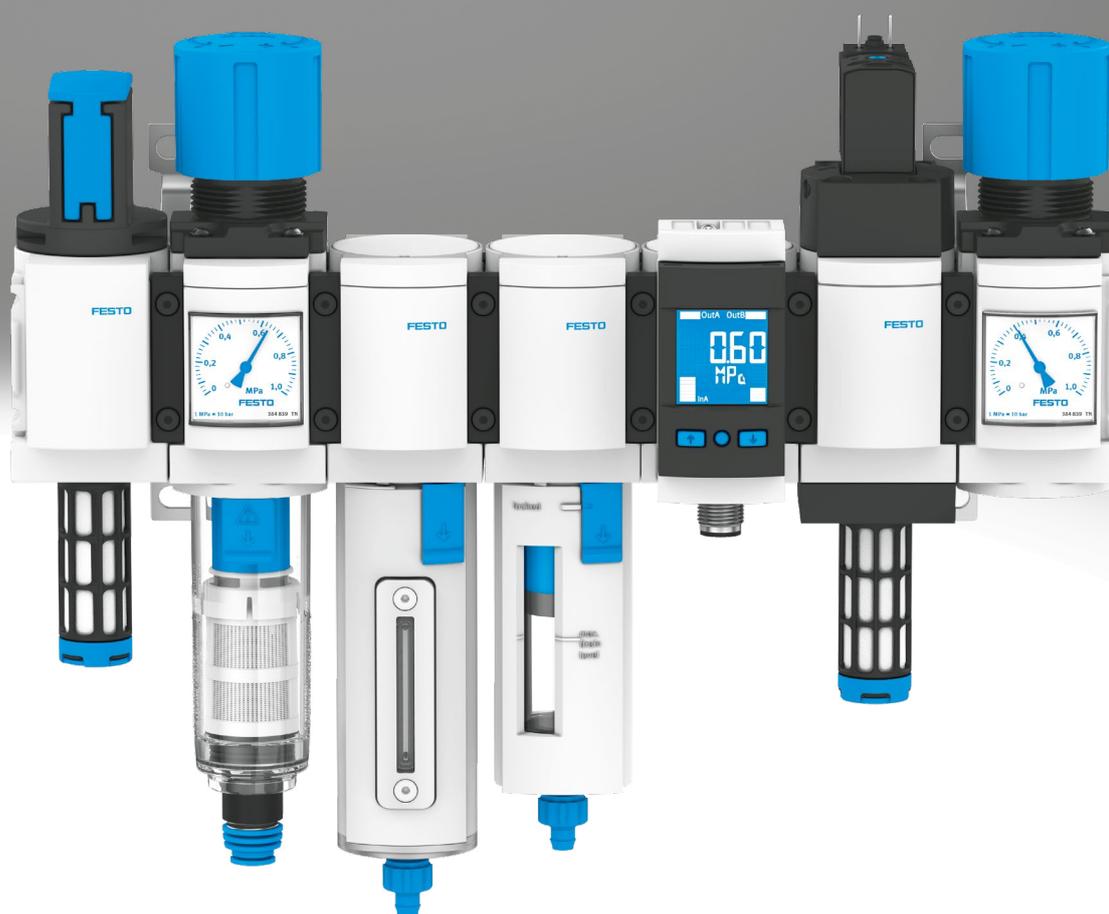


## Service unit combinations MSB, MS series

**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 Festo MS series 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/service-unit](http://www.festo.com/engineering/service-unit)

#### Air quality

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

**Selection criteria: Application**

Filter combination is proposed based upon your selected application

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

**Selection criteria: ISO-class**

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

particle : 4 \* : oil

**ISO**

\* Downstream from the compressor the water content is assumed to be ISO class 4. Better classes can be achieved by applying an adsorption dryer PDAD or a membrane dryer LDW1

**Direct filter selection**

Independent selection of filter combination

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



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

### Integrated sensors

Pressure and flow sensors

### Safety functions

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

### Saving energy

Service unit combinations MSE6

Intelligent mix of sizes



- Maximum machine availability thanks to controlled processes
- Reliable compressed air preparation and system supply
- Integrated 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
- Compressed air is automatically shut off in stand-by mode
- Detection and notification of leakages
- Condition monitoring of relevant process data

- 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 [l/min] qnN1)	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 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. They are subject to 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 unit, including 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
<b>Combinations</b>								
<b>Service unit combinations MSB-FRC</b>								Datasheets → Internet: msb
	Combinations of filter regulator and lubricator	4	–	–	1/8, 1/4	–	–	–
		6	–	–	1/4, 3/8, 1/2	–	–	–
<b>Service unit combinations MSB</b>								
<b>Service unit combinations MSB</b>								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
<b>Service unit combinations MSE6</b>								
<b>Service unit combinations MSE6</b>								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				Connecting plate with thread	
			Push-in connector	Female thread			G	NPT
			M	G	NPT	G	NPT	
<b>Individual devices</b>								
<b>Filter regulators MS-LFR</b>			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	–
<b>Filter regulators MS-LFR-B</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	–	–	–
<b>Filters MS-LF</b>			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	–
<b>Fine and micro filters MS-LFM</b>			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	–
<b>Activated carbon filters MS-LFX</b>			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	–
<b>Water separator MS-LWS</b>			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
<b>Individual devices</b>								
<b>Pressure regulators MS-LR</b> <span style="float: right;">Datasheets → Internet: ms2-lr; ms4-lr; ms6-lr; ms9-lr; ms12-lr</span>								
	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	–
<b>Pressure regulators MS-LR-B</b> <span style="float: right;">Datasheets → Internet: ms4-lr-b; ms6-lr-b</span>								
	For setting the required operating pressure, in polymer housing	4	–	–	1/4	–	–	–
		6	–	–	1/2	–	–	–
<b>Pressure regulators MS-LRB</b> <span style="float: right;">Datasheets → Internet: ms4-lrb; ms6-lrb</span>								
	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	–
<b>Precision pressure regulators MS-LRP</b> <span style="float: right;">Datasheets → Internet: ms6-lrp</span>								
	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
<b>Precision pressure regulators MS-LRPB</b> <span style="float: right;">Datasheets → Internet: ms6-lrpb</span>								
	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	–
<b>Lubricators MS-LOE</b> <span style="float: right;">Datasheets → Internet: ms4-loe; ms6-loe; ms9-loe; ms12-loe</span>								
	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			Connecting plate with thread		
			Push-in connector	Female thread		G		NPT
			M	G	NPT	G	NPT	
<b>Individual devices</b>								
<b>On/off valves MS-EM</b>						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	–
<b>On/off valves MS-EE</b>								
<b>On/off valves MS-EE</b>						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	–
<b>On/off valves MS-EE-B</b>								
<b>On/off valves MS-EE-B</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	–	–	–
<b>Soft-start valves MS-DL</b>								
<b>Soft-start valves MS-DL</b>						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	–
<b>Soft-start valves MS-DE</b>								
<b>Soft-start valves MS-DE</b>						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	–
<b>On/off valves MS-EDE-B</b>								
<b>On/off valves MS-EDE-B</b>						Datasheets → Internet: ms4-edeb; ms6-edeb		
	Electrically actuated soft-start valve in polymer housing for slowly pressurising and exhausting pneumatic systems.	4	–	–	1/4	–	–	–
		6	–	–	1/2	–	–	–
<b>Soft-start/quick exhaust valves MS-SV</b>								
<b>Soft-start/quick exhaust valves MS-SV</b>						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
<b>Individual devices</b>								
<b>Membrane air dryer MS-LDM1</b> <span style="float: right;">Datasheets → Internet: ms4-ldm; ms6-ldm</span>								
	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
<b>Branching modules MS-FRM</b> <span style="float: right;">Datasheets → Internet: ms4-frm; ms6-frm; ms9-frm; ms12-frm</span>								
	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	–
<b>Distributor blocks MS-FRM-FRZ</b> <span style="float: right;">Datasheets → Internet: ms4-frm-frz; ms6-frm-frz</span>								
	Compressed air distributors with 4 connections and half the grid width	4	–	–	–	–	–	–
		6	–	–	–	–	–	–
<b>Flow sensors SFAM</b> <span style="float: right;">Datasheets → Internet: sfam</span>								
	For absolute flow rate information and cumulative air consumption measurement	6	–	–	–	–	1/2	1/2
		9	–	–	–	–	1, 1 1/2	1, 1 1/2

## Key features

### Configurable service unit combinations MSB

#### Overview



- 3 sizes:  
MSB4 – grid dimension 40 mm,  
MSB6 – grid dimension 62 mm,  
MSB9 – grid dimension 90 mm
- Threaded connections in the product housing or with connecting plates
- Type of mounting and flow direction can be optionally selected
- Can be configured in accordance with the ATEX directive for explosive atmospheres
- Food-safe (MSB4/MSB6)



www.festo.com

#### Configurator

The configurator enables complex service unit combinations to be configured step by step. It is divided into a basic configuration and the individual service unit configurations. The technical parameters for the entire service unit combination are defined using the key features of the basic configuration. The service unit components

are defined by both the configuration and the general technical conditions. You can navigate through your configuration using the menu [1]. All the key features available for selection can be found in drop-down lists [2]. Missing or incomplete information is indicated by an exclamation mark. Features

shown against a grey background cannot be selected in the chosen configuration → "Conditions and excluded features" table. If you select a feature shown against a grey background, a red font will indicate that the configuration is incorrect. A dynamic graphic [3] and the order code [4] (a type codes) are created in

accordance with your current configuration.

## Service unit combination MSB6

Close

Select features
Product list
My favourites

MSB6-AGD:D4:A1:J1:F1:I5-WP
4

1

- Basic configuration
  - Basic function
  - Size
  - Connection size
  - Mounting type
  - EU certification
  - >>> Alternative flow direction
- Service unit 1
  - Service unit equipment position
  - >>> Supply voltage 1
  - >>> Silencer 1
- Service unit 2
- Service unit 3
- Service unit 4
- Service unit 5
- Service unit 6
- Service unit 7

**Basic configuration**

Basic function	MSB Standard manifold
Size	6 <span style="float: right;">2</span>
Connection size	AGD Connecting plate G1/2
Mounting type	WP Mounting bracket
EU certification	None <span style="float: right;">i</span>
>>> Alternative flow direction	Flow direction from left to right

Value Z: with LRB(O1-O6), LRPB(R1-R4) pressure output to the front

**Service unit 1**

Service unit equipment position 1	EE On-off valve, electrical
>>> Supply voltage 1	V24 24 V DC
>>> Silencer 1	S Silencer

Add to basket

- 2D/3D view
- Accessories
- Documentation
- Data Sheet
- Display Overview
- Save as
- Reset

---

Valid selection

request your price

# 531030

W - One week delivery time

Exemplary representation

3

## Key features

### Information

#### General

The adjacent columns and the complete product range of service unit components MS series → page 3 provide a brief overview of the service unit components that are available in a specific size.

The clarification of the short code for a service unit component that is transferred to the order can be found from page 13 for size MSB4/MSB6 and from page 48 for MSB9.

You can find detailed information and all the technical data in the documentation for the relevant service unit component. Enter the short code of the service unit component (e.g. MS6-EE) in the search window of the product catalogue and select the documentation.

#### Note

Individual devices with selected key features are available for the configurable service unit combinations

→ Overview lists.

Additional key feature options can be selected via the configurable individual device.

1) Not available in all markets.

2) Polymer service unit components series MS basic

#### 531029 MSB4 (ISO)

##### 532306 MSB4N (NPT)<sup>1)</sup>

- Filter regulator MS4-LFR
- Filter regulator MS4-LFR-...-B2)
- Pressure regulator MS4-LR
- Pressure regulator MS4-LR-...-B2)
- Pressure regulator for manifold assembly MS4-LRB
- Filter MS4-LF
- Fine and micro filter MS4-LFM
- Activated carbon filter MS4-LFX
- Lubricator MS4-LOE
- On/off valve, manual MS4-EM1
- On/off valve, electric MS4-EE
- On/off valve, electric MS4-EE-...-B2)
- Soft-start valve, pneumatic MS4-DL
- Soft-start valve, electric MS4-DE
- Soft-start valve, electric MS4-EDE-...-B2)
- Membrane air dryer MS4-LDM1
- Branching module MS4-FRM

#### 531030 MSB6 (ISO)

##### 532307 MSB6N (NPT)<sup>1)</sup>

- Filter regulator MS6-LFR
- Filter regulator MS6-LFR-...-B2)
- Pressure regulator MS6-LR
- Pressure regulator MS6-LR-...-B2)
- Pressure regulator for manifold assembly MS6-LRB
- Precision pressure regulator MS6-LRP
- Precision pressure regulator for manifold assembly MS6-LRPB
- Filter MS6-LF
- Fine and micro filter MS6-LFM
- Activated carbon filter MS6-LFX
- Water separator MS6-LWS
- Lubricator MS6-LOE
- On/off valve, manual MS6-EM1
- On/off valve, electric MS6-EE
- On/off valve, electric MS6-EE-...-B2)
- Soft-start valve, pneumatic MS6-DL
- Soft-start valve, electric MS6-DE
- Soft-start valve, electric MS6-EDE-...-B2)
- Soft-start/quick exhaust valve MS6-SV
- Membrane air dryer MS6-LDM1
- Branching module MS6-FRM
- Flow sensor SFAM-62

#### 552938 MSB9 (ISO + NPT)

- Filter regulator MS9-LFR
- Pressure regulator MS9-LR
- Filter MS9-LF
- Fine and micro filter MS9-LFM
- Activated carbon filter MS9-LFX
- Water separator MS9-LWS
- Lubricator MS9-LOE
- On/off valve, manual MS9-EM
- On/off valve, electric MS9-EE
- Soft-start/quick exhaust valve MS9-SV
- Branching module MS9-FRM
- Flow sensor SFAM-90

### Notes on individual service unit components and their key features

#### MS-LFR and MS-LF:

- Grade of filtration with key feature E (40 µm) or C (5 µm)

#### MS-LRB/LRPB:

- Pressure output is at the rear, the pressure output is at the front if key feature Z (alternative flow direction) is selected

#### MS-LFM:

- Grade of filtration with key feature B (1 µm) or A (0.01 µm)
- Filter contamination sensor with key feature DA is a visual differential pressure display with red/green range
- Filter contamination sensor with key feature DP is an electric filter contamination indicator with switching output

#### MS-EE and MS-DE:

- The supply voltage with key feature 10V24 is permissible only to a max. operating pressure of 10 bar.
- With the supply voltages with key feature V24/V110/V230 the solenoid actuator has a non-detenting/detenting manual override, with feature 10V24 just a non-detenting manual override

#### MS-LDM1:

- Flow cartridge with key feature P05, P10 only for MSB4; with key feature P20, P30, P40 only for MSB6

## Key features

### Conditions and exclusions of key features

#### Note

If a service unit combination is configured with ISO thread, the individual devices also have ISO thread (e.g. the outlets of the branching module MS-FRM), individual devices with integrated MS pressure gauge (e.g. the pressure regulator MS-LR) have a display scale in [bar].

If you configure a service unit combination with NPT thread, the other pneumatic connections have NPT threads and integrated MS pressure gauges with the display unit [psi].

In addition to the conditions and exclusions mentioned here, you can also obtain information by selecting the information button next to some of the selection lists in the configurator.

### General rules

- Selection of minimum 2 to maximum 10 service unit components
- 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
- Mounting bracket for large wall distance WPB must be selected if the combination includes the soft-start/quick exhaust valve MS-SV-E or the lockable regulator MS-LRB without angled outlet block
- 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

### Rules specific to the service unit component

#### MS-LFM:

- Only a manual condensate drain can be used with MS4-LFM with plastic bowl

#### MS-DL:

- No filter MS-LFR/LF/LFM with fully automatic condensate drain downstream of MS4-DL

#### SFAM:

- Connection size of the service unit combination with SFAM-62 must be at least G1/2, with SFAM-90 at least G3/4
- A SFAM cannot be installed immediately downstream of a regulator MS-LFR/LR; a branching module MS-FRM must be positioned between them
- SFAM-90 only in flow direction from left to right

#### MS-SV-D/E:

- Must be the last service unit component in the flow direction

### UL certification

Certified by UL as a component for the market in USA and Canada for a standard environment. Can be selected with code UL1 in the order section "UL certification".

- Operating pressure/pressure regulation range max. 10 bar
- Supply voltage with on/off valve MS-EE or soft-start valve MS-DE max. 24 V DC

## Key features

### ATEX certification

A configured service unit consisting of mechanical service unit components can be used in zones 1 and 2 of explosive gas atmospheres and in zones 21 and 22 of explosive dust atmospheres. The following service unit components are approved and can be selected using the code EX4 in the order section "EU certification":

- Filter regulator MS4/6/9-LFR
- Pressure regulator MS4/6/9-LR
- Pressure regulator for manifold assembly MS4/6-LRB

- Precision pressure regulator MS6-LRP
- Precision pressure regulator for manifold assembly MS6-LRPB
- Filter MS4/6/9-LF
- Fine and micro filter MS4/6/9-LFM
- Activated carbon filter MS4/6/9-LFX
- Water separator MS6/9-LWS
- Lubricator MS4/6-LOE
- On/off valve, manual MS4/6-EM1, MS9-EM
- Soft-start valve, pneumatic MS4/6-DL
- Membrane air dryer MS4/6-LDM1
- Branching module MS4/6/9-FRM

A configured service unit combination consisting of mechanical and electric service unit components can be used in zone 2 of explosive gas atmospheres and in zone 22 of explosive dust atmospheres. In this case, code EX2 must be selected in the order section "EU certification". The following electric service unit components are approved in addition to the mechanical service unit components:

- On/off valve, electric MS4/6/9-EE

- Soft-start valve, electric MS4/6-DE
- Flow sensor SFAM
- Supplied with special accessories, e.g. mounting brackets, module connectors, connecting plates with earthing screws
- Only connecting plates with G thread can be used
- Lubricated operation not permissible
- On/off valve MS-EE or soft-start valve MS-DE only with 24 V supply voltage

EU certification	EX2	EX4
<b>MSB4/6</b>		
ATEX category for gas	II 3G	II 2G
Type of (ignition) protection for gas	Ex nA IIC T4 X Gc	Ex h IIC T6 Gb X
ATEX category for dust	II 3D	II 2D
Type of ignition protection for dust	Ex tc IIIC T105°C X Dc IP65	Ex h IIIC T60°C Db X
Explosion-proof ambient temperature	-10 °C ≤ Ta ≤ +60 °C	
	+5 °C ≤ Ta ≤ +60 °C <sup>1)</sup>	
	+2 °C ≤ Ta ≤ +50 °C <sup>2)</sup>	
Explosion protection certification outside the EU	EPL Dc (GB) EPL Gc (GB)	EPL Db (GB) EPL Gb (GB)
CE marking (see declaration of conformity) <sup>3)</sup>	To EU Explosion Protection Directive (ATEX)	
	To EU EMC Directive	–
	To EU Low Voltage Directive	–
	To EU RoHS Directive	–
	To EU Machinery Directive	–
UKCA marking (see declaration of conformity) <sup>3)</sup>	To UK explosion regulations	
	To UK EMC regulations	–
	In accordance with UK electrical equipment	–
	To UK RoHS regulations	–
	According to UK regulations for machines	–
Certificate issuing authority <sup>3)</sup>	Intertek UK-MCR-0086	

1) When using a service unit component with manual, semi-automatic or fully automatic condensate drain.

2) When using a membrane air dryer MS4/6-LDM1.

3) More information: [www.festo.com/catalogue/MSB](http://www.festo.com/catalogue/MSB) → Support/Downloads.

## Key features

EU certification	EX2	EX4
<b>MSB9</b>		
ATEX category for gas	II 3G	II 2G
Type of (ignition) protection for gas	Ex nA IIC T5 X Gc	Ex h IIC T6 Gb X
ATEX category for dust	II 3D	II 2D
Type of ignition protection for dust	Ex tc IIIB T95°C X Dc IP54	Ex h IIIC T60°C Db X
Explosion-proof ambient temperature	-10 °C ≤ Ta ≤ +50 °C	-10 °C ≤ Ta ≤ +60 °C
	+5 °C ≤ Ta ≤ +50 °C <sup>1)</sup>	+5 °C ≤ Ta ≤ +60 °C <sup>1)</sup>
Explosion protection certification outside the EU	EPL Dc (GB) EPL Gc (GB)	EPL Db (GB) EPL Gb (GB)
CE marking (see declaration of conformity) <sup>2)</sup>	To EU Explosion Protection Directive (ATEX)	
	To EU EMC Directive	–
	To EU Machinery Directive	–
	To EU RoHS Directive	–
	To EU Low Voltage Directive	–
UKCA marking (see declaration of conformity) <sup>2)</sup>	To UK explosion regulations	
	To UK EMC regulations	–
	According to UK regulations for machines	–
	To UK RoHS regulations	–
	In accordance with UK electrical equipment	–

1) When using a service unit component with manual, semi-automatic or fully automatic condensate drain.

2) More information: [www.festo.com/catalogue/MSB](http://www.festo.com/catalogue/MSB) → Support/Downloads.

## Type codes

001	Baureihe
<b>MSB</b>	Wartungsgeräte-Kombination MS-Reihe
002	Baugröße
<b>4</b>	Rastermaß 40 mm
003	Pneumatischer Anschluss
<b>1/8</b>	Innengewinde G1/8
<b>1/4</b>	Innengewinde G1/4
<b>AGA</b>	Anschlussplatte G1/8
<b>AGB</b>	Anschlussplatte G1/4
<b>AGC</b>	Anschlussplatte G3/8
<b>AQK</b>	Anschlussplatte NPT1/8
<b>AQN</b>	Anschlussplatte NPT1/4
<b>AQP</b>	Anschlussplatte NPT3/8
004	Wartungsgeräte Bestückung
...	Auswahl siehe Übersichtsliste

005	Befestigungsart
	Ohne Befestigungswinkel
<b>WP</b>	Befestigungswinkel Grundauführung
<b>WPB</b>	Befestigungswinkel für großen Wandabstand
<b>WPM</b>	Befestigungswinkel zum Einhängen der Wartungsgeräte
006	Zulassung EU
	Keine
<b>EX2</b>	II 3GD nach EU-Ex-Schutz-Richtlinie (ATEX)
<b>EX4</b>	II 2GD nach EU-Ex-Schutz-Richtlinie (ATEX)
007	Zulassung UL
	Keine
<b>UL1</b>	cULus ordinary location for Canada and USA
008	Durchflussrichtung
	Durchflussrichtung von links nach rechts
<b>Z</b>	Durchflussrichtung von rechts nach links

## Type codes

<b>001</b>	<b>Baureihe</b>	
<b>MSB</b>	Wartungsgeräte-Kombination MS-Reihe	
<b>002</b>	<b>Baugröße</b>	
<b>6</b>	Rastermaß 62 mm	
<b>003</b>	<b>Pneumatischer Anschluss</b>	
<b>1/4</b>	Innengewinde G1/4	
<b>3/8</b>	Innengewinde G3/8	
<b>1/2</b>	Innengewinde G1/2	
<b>AGB</b>	Anschlussplatte G1/4	
<b>AGC</b>	Anschlussplatte G3/8	
<b>AGD</b>	Anschlussplatte G1/2	
<b>AGE</b>	Anschlussplatte G3/4	
<b>AQN</b>	Anschlussplatte NPT1/4	
<b>AQP</b>	Anschlussplatte NPT3/8	
<b>AQR</b>	Anschlussplatte NPT1/2	
<b>AQS</b>	Anschlussplatte NPT3/4	
<b>004</b>	<b>Wartungsgeräte Bestückung</b>	
<b>...</b>	Auswahl siehe Übersichtsliste	

<b>005</b>	<b>Befestigungsart</b>	
	Ohne Befestigungswinkel	
<b>WP</b>	Befestigungswinkel Grundauführung	
<b>WPB</b>	Befestigungswinkel für großen Wandabstand	
<b>WPM</b>	Befestigungswinkel zum Einhängen der Wartungsgeräte	
<b>006</b>	<b>Zulassung EU</b>	
	Keine	
<b>EX2</b>	II 3GD nach EU-Ex-Schutz-Richtlinie (ATEX)	
<b>EX4</b>	II 2GD nach EU-Ex-Schutz-Richtlinie (ATEX)	
<b>007</b>	<b>Zulassung UL</b>	
	Keine	
<b>UL1</b>	cULus ordinary location for Canada and USA	
<b>008</b>	<b>Durchflussrichtung</b>	
	Durchflussrichtung von links nach rechts	
<b>Z</b>	Durchflussrichtung von rechts nach links	

## Type codes

001	Baureihe	
<b>MSB</b>	Wartungsgeräte-Kombination MS-Reihe	

002	Baugröße	
<b>4</b>	Rastermaß 40 mm	

003	Gewindeart	
<b>N</b>	NPT-Gewinde	

004	Pneumatischer Anschluss [„]	
<b>1/8</b>	Innengewinde NPT 1/8	
<b>1/4</b>	Innengewinde NPT 1/4	
<b>AQK</b>	Anschlussplatte NPT1/8	
<b>AQN</b>	Anschlussplatte NPT1/4	
<b>AQP</b>	Anschlussplatte NPT3/8	

005	Wartungsgeräte Bestückung	
...	Auswahl siehe Übersichtsliste	

006	Befestigungsart	
	Ohne Befestigungswinkel	
<b>WP</b>	Befestigungswinkel Grundauführung	
<b>WPB</b>	Befestigungswinkel für großen Wandabstand	
<b>WPM</b>	Befestigungswinkel zum Einhängen der Wartungsgeräte	

007	Durchflussrichtung	
	Durchflussrichtung von links nach rechts	
<b>Z</b>	Durchflussrichtung von rechts nach links	

## Type codes

001	Baureihe	
<b>MSB</b>	Wartungsgeräte-Kombination MS-Reihe	

002	Baugröße	
<b>6</b>	Rastermaß 62 mm	

003	Gewindeart	
<b>N</b>	NPT-Gewinde	

004	Pneumatischer Anschluss [„]	
<b>1/4</b>	Innengewinde NPT 1/4	
<b>3/8</b>	Innengewinde NPT 3/8	
<b>1/2</b>	Innengewinde NPT 1/2	
<b>AQN</b>	Anschlussplatte NPT1/4	
<b>AQP</b>	Anschlussplatte NPT3/8	
<b>AQR</b>	Anschlussplatte NPT1/2	
<b>AQS</b>	Anschlussplatte NPT3/4	

005	Wartungsgeräte Bestückung	
...	Auswahl siehe Übersichtsliste	

006	Befestigungsart	
	Ohne Befestigungswinkel	
<b>WP</b>	Befestigungswinkel Grundauführung	
<b>WPB</b>	Befestigungswinkel für großen Wandabstand	
<b>WPM</b>	Befestigungswinkel zum Einhängen der Wartungsgeräte	

007	Durchflussrichtung	
	Durchflussrichtung von links nach rechts	
<b>Z</b>	Durchflussrichtung von rechts nach links	

## Type codes

Overview list – Service unit components MS4/6		
Code	Type	Description Size 4   Size: 6
<b>Soft-start valve MS-DL, pneumatically actuated</b>		
A1	MS-DL	Soft-start valve, pneumatic
A2	MS-DL-AD7 <sup>1)</sup>	Pneumatic soft-start valve, with pressure sensor with switching status indicator, plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa)
<b>Soft-start valve MS-DE, electrically actuated</b>		
B1	MS-DE-V24	Soft-start valve, electric, (plug pattern to EN 175301), MO (manual override) non-detenting/detenting, 24 V DC, input pressure 0.4 ... 1.4 MPa   input pressure 0.4 ... 1.8 MPa
B2	MS-DE-V110	Soft-start valve, electric, (plug pattern to EN 175301), MO (manual override) non-detenting/detenting, 110 V AC, input pressure 0.4 ... 1.4 MPa   input pressure 0.4 ... 1.8 MPa
B3	MS-DE-V230	Soft-start valve, electric, (plug pattern to EN 175301), MO (manual override) non-detenting/detenting, 230 V AC, input pressure 0.4 ... 1.4 MPa   input pressure 0.4 ... 1.8 MPa
B4	MS-DE-10V24	Soft-start valve, electric, (plug pattern to EN 175301), MO (manual override) non-detenting, 24 V DC, input pressure 0.4 ... 1.0 MPa
B5	MS-DE-V24-EX2 <sup>1)</sup>	Soft-start valve, electric, (plug pattern to EN 175301), MO (manual override) non-detenting/detenting, 24 V DC, ATEX certification, II 3GD, input pressure 0.4 ... 1.4 MPa   input pressure 0.4 ... 1.8 MPa
<b>Soft-start valve MS-EDE, electrically actuated</b>		
B20B	MS-EDE-V24-B <sup>2)</sup>	Soft-start valve (polymer) 3/2-way valve, electric, 24 V DC, MO non-detenting/detenting, input pressure 0.3 ... 0.7 MPa
B21B	MS-EDE-V24-F1A-B <sup>2)</sup>	Soft-start valve (polymer) 3/2-way valve, electric, 24 V DC, MO non-detenting/detenting. Recommended for production plants for the manufacture of lithium-ion batteries (Cu<=1%, Zn<=1%, Ni<=1%), input pressure 0.3 ... 0.7 MPa
B23B	MS-EDE-V24-AD7-B <sup>2)</sup>	Soft-start valve (polymer) 3/2-way valve, electric, 24 V DC, MO non-detenting/detenting, pressure sensor (SDE5) with switching status indicator, plug M8, threshold comparator, PNP, NO input pressure 0.3 ... 0.7 MPa
B24B	MS-EDE-V24-SP-B <sup>2)</sup>	Soft-start valve (polymer) 3/2-way valve, electric, 24 V DC, MO non-detenting/detenting, with silencer (polymer cage), input pressure 0.3 ... 0.7 MPa
<b>On/off valve MS-EM1, manually actuated</b>		
C3	MS-EM1	On/off valve, max. input pressure 1.4 MPa   max. input pressure 1.8 MPa
C4	MS-EM1-S	On/off valve with silencer, max. input pressure 1.4 MPa   max. input pressure 1.8 MPa
C6	MS-EM1-R	On/off valve, red rotary knob, max. input pressure 1.4 MPa   max. input pressure 1.8 MPa
C7	MS-EM1-R-S	On/off valve, red rotary knob, with silencer, max. input pressure 1.4 MPa   max. input pressure 1.8 MPa
C8	MS-EM1-F1A <sup>1)</sup>	Recommended for production plants for the manufacture of lithium-ion batteries (Cu<=1%, Zn<=1%, Ni<=1%), max. input pressure 1.4 MPa   max. input pressure 1.8 MPa
C9	MS-EM1-AD11 <sup>1)</sup>	On/off valve with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, max. input pressure 1.6 MPa
C10	MS-EM1-S-AD11 <sup>1)</sup>	On/off valve with silencer, pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, max. input pressure 1.6 MPa
C11	MS-EM1-AD12 <sup>1)</sup>	On/off valve with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, max. input pressure 1.6 MPa
C12	MS-EM1-S-AD12 <sup>1)</sup>	On/off valve with silencer, pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, max. input pressure 1.6 MPa
C13	MS-EM1-R-S-AD11 <sup>1)</sup>	On/off valve with silencer, red rotary knob, pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, max. input pressure 1.6 MPa
C14	MS-EM1-R-S-AD12 <sup>1)</sup>	On/off valve with silencer, red rotary knob, pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, max. input pressure 1.6 MPa

1) Female thread only with G1/4 (MS4) or G1/2 (MS6)

2) Polymer service unit components series MS Basic, female thread only with G1/4 (MS4) or G1/2 (MS6)

## Type codes

Overview list – Service unit components MS4/6		
Code	Type	Description Size 4   Size: 6
<b>On/off valve MS-EE, electrically actuated</b>		
D1	MS-EE-V24	On/off valve, electric, (plug pattern to EN 175301), MO (manual override) non-detenting/detenting, 24 V DC, input pressure 0.4 ... 1.4 MPa   input pressure 0.4 ... 1.8 MPa
D1B	MS-EE-V24-B <sup>2)</sup>	Soft-start valve (polymer) 3/2-way valve, electric, 24 V DC, MO non-detenting/detenting <sup>2)</sup> , input pressure 0.3 ... 0.7 MPa
D2	MS-EE-V110	On/off valve, electric, (plug pattern to EN 175301), MO (manual override) non-detenting/detenting, 110 V AC, input pressure 0.4 ... 1.4 MPa   input pressure 0.4 ... 1.8 MPa
D3	MS-EE-V230	On/off valve, electric, (plug pattern to EN 175301), MO (manual override) non-detenting/detenting, 230 V AC, input pressure 0.4 ... 1.4 MPa   input pressure 0.4 ... 1.8 MPa
D4	MS-EE-V24-S	On/off valve, with silencer, electric, (plug pattern to EN 175301), MO (manual override) non-detenting/detenting, 24 V DC, input pressure 0.4 ... 1.4 MPa   input pressure 0.4 ... 1.8 MPa
D5	MS-EE-V110-S	On/off valve, with silencer, electric, (plug pattern to EN 175301), MO (manual override) non-detenting/detenting, 110 V AC, input pressure 0.4 ... 1.4 MPa   input pressure 0.4 ... 1.8 MPa
D6	MS-EE-V230-S	On/off valve, with silencer, electric, (plug pattern to EN 175301), MO (manual override) non-detenting/detenting, 230 V AC, input pressure 0.4 ... 1.4 MPa   input pressure 0.4 ... 1.8 MPa
D7	MS-EE-10V24	On/off valve, electric, (plug pattern to EN 175301), MO (manual override) non-detenting, 24 V DC, input pressure 0.4 ... 1.0 MPa
D8	MS-EE-10V24-S	On/off valve, with silencer, electric, (plug pattern to EN 175301), MO (manual override) non-detenting, 24 V DC, input pressure 0.4 ... 1.0 MPa
D9	MS-EE-V24-EX2 <sup>1)</sup>	On/off valve, electric, (plug pattern to EN 175301), MO (manual override) non-detenting/detenting, 24 V DC, ATEX certification, II 3GD, input pressure 0.4 ... 1.4 MPa   input pressure 0.4 ... 1.8 MPa
D10	MS-EE-V24-S-EX2 <sup>1)</sup>	On/off valve, with silencer, electric, (plug pattern to EN 175301), MO (manual override) non-detenting/detenting, 24 V DC, ATEX certification, II 3GD, input pressure 0.4 ... 1.4 MPa   input pressure 0.4 ... 1.8 MPa
D12	MS-EE-10V24-AD7 <sup>1)</sup>	Electric on/off valve, electric, (plug pattern to EN 175301), MO (manual override) non-detenting, 24 V DC, pressure sensor with (SDE5), plug M8, threshold value comparator, PNP, NO, input pressure 0.4 ... 1.0 MPa
D13	MS-EE-10V24-S-AD7 <sup>1)</sup>	On/off valve, with silencer, electric, (plug pattern to EN 175301), MO (manual override) non-detenting, 24 V DC, pressure sensor with switching status indicator(SDE5), plug M8, threshold value comparator, PNP, N/O, input pressure 0.4 ... 1.0 MPa
D14	MS-EE-10V24P-AD7 <sup>1)</sup>	On/off valve, electric, M12 to IEC 61076-2-101, 24 V DC, pressure sensor with switching status indicator(SDE5), plug M8, threshold value comparator, PNP, NO input pressure 0.4 ... 1.0 MPa MO (manual override) non-detenting/detenting   MO (manual override) non-detenting
D15	MS-EE-10V24P-S-AD7 <sup>1)</sup>	On/off valve, with silencer, electric, M12 to IEC 61076-2-101, MO (manual override) non-detenting/detenting, 24 V DC, pressure sensor with switching status indicator(SDE5), plug M8, threshold value comparator, PNP, NO, input pressure 0.4 ... 1.0 MPa
D19	MS-EE-10V24P <sup>1)</sup>	On/off valve, electric, M12 to IEC 61076-2-101, MO (manual override) non-detenting/detenting, 24 V DC, input pressure 0.4 ... 1.0 MPa
D20	MS-EE-10V24P-S <sup>1)</sup>	On/off valve, with silencer, electric, M12 to IEC 61076-2-101, MO (manual override) non-detenting/detenting, 24 V DC, input pressure 0.4 ... 1.0 MPa
D21B	MS-EE-V24-F1A-B <sup>1)2)</sup>	On/off valve (polymer) 3/2-way valve, electric, 24 V DC, MO non-detenting/detenting, recommended for production plants for manufacturing Li-ion batteries (Cu<=1%, Zn<=1%, Ni<=1%), input pressure 0.3 ... 0.7 MPa
D23B	MS-EE-V24-AD7-B <sup>1)2)</sup>	On/off valve (polymer) 3/2-way valve, electric, 24 V DC, MO non-detenting/detenting, pressure sensor with switching status indicator, plug M8, threshold comparator, PNP, NO input pressure 0.3 ... 0.7 MPa
D24B	MS-EE-V24-SP-B <sup>1)2)</sup>	On/off valve (polymer) 3/2-way valve, electric, 24 V DC, MO non-detenting/detenting, with silencer (polymer cage) input pressure 0.3 ... 0.7 MPa

1) Female thread only with G1/4 (MS4) or G1/2 (MS6)

2) Polymer service unit components series MS Basic, female thread only with G1/4 (MS4) or G1/2 (MS6)

## Type codes

Overview list – Service unit components MS4/6		
Code	Type	Description Size 4   Size: 6
<b>On/off valve MS-EE, electrically actuated</b>		
D25	MS-EE-10V24-AD11 <sup>1)</sup>	On/off valve, electric, (plug pattern to EN 175301), MO (manual override) non-detenting, 24 V DC, with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V. 4 ... 20 mA (max. input pressure 1.0 MPa), max. input pressure 1.0 MPa
D26	MS-EE-10V24-S-AD11 <sup>1)</sup>	On/off valve, with silencer, electric, (plug pattern to EN 175301), MO (manual override) non-detenting, 24 V DC, pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V. 4 ... 20 mA (max. input pressure 1.0 MPa), max. input pressure 1.0 MPa
D27	MS-EE-10V24-AD12 <sup>1)</sup>	On/off valve, electric, (plug pattern to EN 175301), MO (manual override) non-detenting, 24 V DC, with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V. 4 ... 20 mA (max. input pressure 1.0 MPa), max. input pressure 1.0 MPa
D28	EE-10V24-S-AD12 <sup>1)</sup>	On/off valve, with silencer, electric, (plug pattern to EN 175301), MO (manual override) non-detenting, 24 V DC, pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V. 4 ... 20 mA (max. input pressure 1.0 MPa), max. input pressure 1.0 MPa
<b>Branching module MS-FRM/distributor block MS-FRM-FRZ</b>		
F1	MS-FRM	Branching module
F2	MS-FRM-I	Branching module with integrated non-return function
F3	MS-FRM-Y	Branching module with pressure switch PEV without display, plug socket, EN 175301, type A, square, max. input pressure 1.2 MPa
F8	MS-FRM-M12	Branching module pressure switch PEV without display, plug socket, round, M12, 4-pin, max. input pressure 1.2 MPa
F9	MS-FRM-I-M12	Branching module with non-return function, pressure switch PEV without display, plug socket, round, M12, 4-pin, max. input pressure 1.2 MPa
F10	MS-FRM-AD3	Branching module with pressure sensor with LCD display, M12 plug, PNP, 4-pin, analogue output 4 ... 20 mA, max. input pressure 1.0 MPa
F11	MS-FRM-I-AD3	Branching module with non-return function, with pressure sensor with LCD display, M12 plug, PNP, 4-pin, analogue output 4 ... 20 mA, max. input pressure 1.0 MPa
F12	MS-FRM-AD7	Branching module with pressure sensor with switching status indicator(SDE5), plug M8, threshold value comparator, PNP, NO, max. input pressure 1.0 MPa
F13	MS-FRM-I-AD7	Branching module with non-return function, with pressure sensor with switching status indicator(SDE5), plug M8, threshold value comparator, PNP, NO, max. input pressure 1.0 MPa
F14	MS-FRM-FRZ	Branching module, half grid dimension (20 mm)   Branching module, half grid dimension (31 mm)
F15	MS-FRM-AD12	Branching module with pressure sensor, with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, max. input pressure 1.4 MPa   max. input pressure 1.6 MPa
F16	MS-FRM-I-AD12	Branching module with non-return function, with pressure sensor, with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, max. input pressure 1.4 MPa   max. input pressure 1.6 MPa
F17	MS-FRM-AD11	Branching module with pressure sensor, with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA max. input pressure 1.4 MPa   max. input pressure 1.6 MPa
F18	MS-FRM-I-AD11	Branching module with non-return function, with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA max. input pressure 1.4 MPa   max. input pressure 1.6 MPa
F19	MS-FRM-F1A	Branching module, recommended for production facilities for the manufacture of lithium-ion batteries (Cu<=1%, Zn<=1%, Ni<=1%)

1) Female thread only with G1/4 (MS4) or G1/2 (MS6)

2) Polymer service unit components series MS Basic, female thread only with G1/4 (MS4) or G1/2 (MS6)

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description	Size 6
		Size 4	
<b>Soft-start valve MS-EDE, electrically actuated</b>			
G3	MS-LDM1-P05	Membrane air dryer, flow cartridge 50 l/min, input pressure 0.3 ... 1.25 MPa	–
G4	MS-LDM1-P10	Membrane air dryer, flow cartridge 100 l/min, input pressure 0.3 ... 1.25 MPa	–
G5	MS-LDM1-P20	–	Membrane air dryer, flow cartridge 200 l/min, input pressure 0.3 ... 1.25 MPa
G6	MS-LDM1-P30	–	Membrane air dryer, flow cartridge 300 l/min, input pressure 0.3 ... 1.25 MPa
G7	MS-LDM1-P40	–	Membrane air dryer, flow cartridge 400 l/min, input pressure 0.3 ... 1.25 MPa
<b>Filter MS-LF</b>			
H1	MS-LF-ERV	Filter, 40 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally closed), input pressure 0.2 ... 1.2 MPa	
H2	MS-LF-ERM	Filter, 40 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain	
H3	MS-LF-CRM	Filter, 5 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain	
H4	MS-LF-CRV	Filter, 5 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally closed), input pressure 0.2 ... 1.2 MPa	
H5	MS-LF-CUM	Filter, 5 µm grade of filtration, metal bowl, manual condensate drain	
H6	MS-LF-CUV	Filter, 5 µm grade of filtration, metal bowl, fully automatic condensate drain (normally closed), input pressure 0.2 ... 1.2 MPa	
H7	MS-LF-EUV	Filter, 40 µm grade of filtration, metal bowl, fully automatic condensate drain (normally closed), input pressure 0.2 ... 1.2 MPa	
H8	MS-LF-EUM	Filter, 40 µm grade of filtration, metal bowl, manual condensate drain	
<b>Fine and micro filter MS-LFM</b>			
I1	MS-LFM-BRM	Fine and micro filter, 1 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain	
I2	MS-LFM-BRV	–	Fine and micro filter, 1 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), input pressure 0.2 ... 1.2 MPa
I3	MS-LFM-ARM	Fine and micro filter, 0.01 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain	
I4	MS-LFM-ARV	–	Fine and micro filter, 0.01 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally closed), input pressure 0.2 ... 1.2 MPa
I5	MS-LFM-ARM-DA	Fine and micro filter, 0.01 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, optical differential pressure display	
I6	MS-LFM-ARV-DA	–	Fine and micro filter, 0.01 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), optical differential pressure display
I7	MS-LFM-BUV	Fine and micro filter, 1 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), input pressure 0.2 ... 1.2 MPa	
I8	MS-LFM-AUV	Fine and micro filter, 0.01 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), input pressure 0.2 ... 1.2 MPa	
I9	MS-LFM-BUV-DA	Fine and micro filter, 1 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), differential pressure display, input pressure 0.2 ... 1.2 MPa	
I10	MS-LFM-BRM-DA	Fine and micro filter, 1 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, optical differential pressure display	
I11	MS-LFM-BRV-DA	–	Fine and micro filter, 1 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), optical differential pressure display, input pressure 0.2 ... 1.2 MPa

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description	Size: 6
<b>Fine and micro filter MS-LFM</b>			
I12	MS-LFM-AUV-DA	Fine and micro filter, 0.01 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), optical differential pressure display, max. input pressure 1.2 MPa	
I13	MS-LFM-BRM-DP	Fine and micro filter, 1 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, filter contamination indicator, plug M8, positive switching output signal PNP, 3-pin, max. input pressure 1.0 MPa	
I14	MS-LFM-BRV-DP	–	Fine and micro filter, 1 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), differential pressure display, filter contamination indicator, plug M8, positive switching output signal PNP, 3-pin, max. input pressure 1.2 MPa
I15	MS-LFM-ARM-DP	Fine and micro filter, 0.01 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, filter contamination indicator, plug M8, positive switching output signal PNP, 3-pin, max. input pressure 1.0 MPa	
I16	MS-LFM-ARV-DP	–	Fine and micro filter, 0.01 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), differential pressure display, filter contamination indicator, plug M8, positive switching output signal PNP, 3-pin, max. input pressure 1.2 MPa
I17	MS-LFM-BUV-DP	Fine and micro filter, 1 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), differential pressure display, filter contamination indicator, plug M8, positive switching output signal PNP, 3-pin, max. input pressure 1.2 MPa	
I18	MS-LFM-AUV-DP	Fine and micro filter, 0.01 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), differential pressure display, filter contamination indicator, plug M8, positive switching output signal PNP, 3-pin, max. input pressure 1.2 MPa	
I23	MS-LFM-BUV-HF	–	Fine and micro filter, 1 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), high flow rate, max. input pressure 1.2 MPa
I24	MS-LFM-AUV-HF	–	Fine and micro filter, 0.01 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), high flow rate, max. input pressure 1.2 MPa
I25	MS-LFM-BUV-HF-DA	–	Fine and micro filter, 1 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), high flow rate, optical differential pressure display, max. input pressure 1.2 MPa
I26	MS-LFM-AUV-HF-DA	–	Fine and micro filter, 0.01 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), high flow rate, optical differential pressure display, max. input pressure 1.2 MPa
I27	MS-LFM-BUV-HF-DP	–	Fine and micro filter, 1 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), high flow rate, differential pressure display, filter contamination indicator, plug M8, positive switching output signal PNP, 3-pin, max. input pressure 1.2 MPa
I28	MS-LFM-AUV-HF-DP	–	Fine and micro filter, 0.01 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), high flow rate, differential pressure display, filter contamination indicator, plug M8, positive switching output signal PNP, 3-pin, max. input pressure 1.2 MPa

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description Size 4	Size: 6
<b>Fine and micro filter MS-LFM</b>			
I29	MS-LFM-ARV-HP <sup>1)</sup>	–	Fine and micro filter, 0.01 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), sealing and purge air application, max. input pressure 1.2 MPa
I30	MS-LFM-BRV-HP <sup>1)</sup>	–	Fine and micro filter, 1 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), sealing and purge air application, max. input pressure 1.2 MPa
I31	MS-LFM-ARV-HP-DP <sup>1)</sup>	–	Fine and micro filter, 0.01 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), sealing and purge air application, differential pressure display, filter contamination indicator, plug M8, positive switching output signal PNP, 3-pin max. input pressure 1.2 MPa
I32	MS-LFM-BRV-HP-DP <sup>1)</sup>	–	Fine and micro filter, 1 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), sealing and purge air application, differential pressure display, filter contamination indicator, plug M8, positive switching output signal PNP, 3-pin, max. input pressure 1.2 MPa
<b>Filter regulator MS-LFR</b>			
J1	MS-LFR-D7-ERM-AS	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
J2	MS-LFR-D7-ERV-AS	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), input pressure 0.2 ... 1.2 MPa, integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
J3	MS-LFR-D7-CRM-AS	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
J4	MS-LFR-D7-CRV-AS	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), input pressure 0.2 ... 1.2 MPa, integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
J5	MS-LFR-D6-ERM-AS	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
J5B	MS-LFR-D6-EPM-AG-BAR-B <sup>2)</sup>	Filter regulator, (polymer), 40 µm grade of filtration, plastic bowl, manual condensate drain, input pressure 1.0 MPa, integrated MS pressure gauge with outer scale in bar and inner scale in psi, pressure regulation range 0.05 ... 0.7 MPa	
J6	MS-LFR-D6-ERV-AS	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), input pressure 0.2 ... 1.2 MPa, integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
J6B	MS-LFR-D6-EPVC-AG-BAR-B <sup>2)</sup>	Filter regulator, (polymer), 40 µm grade of filtration, plastic bowl, fully automatic condensate drain (normally closed), input pressure 1.0 MPa, integrated MS pressure gauge with outer scale in bar and inner scale in psi, pressure regulation range 0.05 ... 0.7 MPa	
J7	MS-LFR-D6-CRM-AS	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
J7B	MS-LFR-D6-CPM-AG-BAR-B <sup>2)</sup>	Filter regulator, (polymer), 5 µm grade of filtration, plastic bowl, manual condensate drain, input pressure 1.0 MPa, integrated MS pressure gauge with outer scale in bar and inner scale in psi, pressure regulation range 0.05 ... 0.7 MPa	

1) Female thread only with G1/4 (MS4) or G1/2 (MS6)

2) Polymer service unit components series MS basic

## Type codes

Overview list – Service unit components MS4/6		
Code	Type	Description Size 4   Size: 6
<b>Filter regulator MS-LFR</b>		
J8	MS-LFR-D6-CRV-AS	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), input pressure 0.2 ... 1.2 MPa, integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa
J8B	MS-LFR-D6-CPVC-AG-BAR-B <sup>1)</sup>	Filter regulator, (polymer), 5 µm grade of filtration, plastic bowl, fully automatic condensate drain (normally closed), input pressure 1.0 MPa, integrated MS pressure gauge with outer scale in bar and inner scale in psi, pressure regulation range 0.05 ... 0.7 MPa
J9	MS-LFR-D7-CUM-AS	Filter regulator, 5 µm grade of filtration, metal bowl, manual condensate drain, integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa
J10	MS-LFR-D7-CUV-AS	Filter regulator, 5 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), input pressure 0.2 ... 1.2 MPa, integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa
J11	MS-LFR-D7-EUM-AS	Filter regulator, 40 µm grade of filtration, metal bowl, manual condensate drain, integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa
J12	MS-LFR-D7-EUV-AS	Filter regulator, 40 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), input pressure 0.2 ... 1.2 MPa, integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa
J35	MS-LFR-D7-ERM-AD7-AS	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, lockable rotary knob, pressure sensor with switching status indicator(SDE5), plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), pressure regulation range 0.05 ... 1.0 MPa
J36	MS-LFR-D7-ERV-AD7-AS	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), lockable rotary knob, pressure sensor with switching status indicator(SDE5), plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), pressure regulation range 0.05 ... 1.0 MPa
J37	MS-LFR-D7-CRM-AD7-AS	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, lockable rotary knob, pressure sensor with switching status indicator, M8 plug, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), pressure regulation range 0.05 ... 1.0 MPa
J38	MS-LFR-D7-CRV-AD7-AS	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), lockable rotary knob, pressure sensor with switching status indicator(SDE5), plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), pressure regulation range 0.05 ... 1.0 MPa
J39	MS-LFR-D6-ERM-AD7-AS	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, lockable rotary knob, pressure sensor with switching status indicator(SDE5), plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), pressure regulation range 0.05 ... 0.7 MPa
J40	MS-LFR-D6-ERV-AD7-AS	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), lockable rotary knob, pressure sensor with switching status indicator(SDE5), plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), pressure regulation range 0.05 ... 0.7 MPa

1) Polymer service unit components series MS basic

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description	Size: 6
<b>Filter regulator MS-LFR</b>			
J41	MS-LFR-D6-CRM-AD7-AS	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, lockable rotary knob, pressure sensor with switching status indicator(SDE5), plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), pressure regulation range 0.05 ... 0.7 MPa	
J42	MS-LFR-D6-CRV-AD7-AS	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), lockable rotary knob, pressure sensor with switching status indicator(SDE5), plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), pressure regulation range 0.05 ... 0.7 MPa	
J43	MS-LFR-D7-EUM-AD7-AS	Filter regulator, 40 µm grade of filtration, metal bowl, manual condensate drain, lockable rotary knob, pressure sensor with switching status indicator(SDE5), plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), pressure regulation range 0.05 ... 1.0 MPa	
J44	MS-LFR-D7-EUV-AD7-AS	Filter regulator, 40 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), lockable rotary knob, pressure sensor with switching status indicator(SDE5), plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), pressure regulation range 0.05 ... 1.0 MPa	
J45	MS-LFR-D7-CUM-AD7-AS	Filter regulator, 5 µm grade of filtration, metal bowl, manual condensate drain, lockable rotary knob, pressure sensor with switching status indicator(SDE5), plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), pressure regulation range 0.05 ... 1.0 MPa	
J46	MS-LFR-D7-CUV-AD7-AS	Filter regulator, 5 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), lockable rotary knob, pressure sensor with switching status indicator(SDE5), plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), pressure regulation range 0.05 ... 1.0 MPa	
J79	MS-LFR-D7-ERM-RG-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, integrated MS pressure gauge, red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
J80	MS-LFR-D7-ERV-RG-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), input pressure 0.2 ... 1.2 MPa, integrated MS pressure gauge, red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
J81	MS-LFR-D7-CRM-RG-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, integrated MS pressure gauge, red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
J82	MS-LFR-D7-CRM-RG-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), input pressure 0.2 ... 1.2 MPa, integrated MS pressure gauge, red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
J83	MS-LFR-D7-CRM-RG-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, integrated MS pressure gauge, red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 0.7 MPa	
J84	MS-LFR-D6-ERV-RG-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), input pressure 0.2 ... 1.2 MPa, integrated MS pressure gauge, red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 0.7 MPa	
J85	MS-LFR-D6-CRM-RG-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, integrated MS pressure gauge, red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 0.7 MPa	
J86	MS-LFR-D6-CRV-RG-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), input pressure 0.2 ... 1.2 MPa, integrated MS pressure gauge, red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 0.7 MPa	

1) Female thread only with G1/4 (MS4) or G1/2 (MS6)

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description Size 4	Size: 6
<b>Filter regulator MS-LFR</b>			
J87	MS-LFR-D7-EUM-RG-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, metal bowl, manual condensate drain, integrated MS pressure gauge, red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
J88	MS-LFR-D7-EUV-RG-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), input pressure 0.2 ... 1.2 MPa, integrated MS pressure gauge, red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
J89	MS-LFR-D7-CUM-RG-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, metal bowl, manual condensate drain, integrated MS pressure gauge, red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
J90	MS-LFR-D7-CUV-RG-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), input pressure 0.2 ... 1.2 MPa, integrated MS pressure gauge, red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
J91	MS-LFR-D7-ERM-A8-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, adapter for 1/8" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	–
	MS-LFR-D7-ERM-A4-AS <sup>1)</sup>	–	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, adapter for 1/4" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa
J92	MS-LFR-D7-ERV-A8-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), adapter for 1/8" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	–
	MS-LFR-D7-ERV-A4-AS <sup>1)</sup>	–	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), adapter for 1/4" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa
J93	MS-LFR-D7-CRM-A8-AS	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, adapter for 1/8" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	–
	MS-LFR-D7-CRM-A4-AS	–	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, adapter for 1/4" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa
J94	MS-LFR-D7-CRV-A8-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), adapter for 1/8" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	–
	MS-LFR-D7-CRV-A4-AS <sup>1)</sup>	–	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), adapter for 1/4" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa

1) Female thread only with G1/4 (MS4) or G1/2 (MS6)

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description Size 4	Size: 6
<b>Filter regulator MS-LFR</b>			
J95	MS-LFR-D6-ERM-A8-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, adapter for 1/8" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 0.7 MPa	–
	MS-LFR-D6-ERM-A4-AS <sup>1)</sup>	–	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, adapter for 1/4" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 0.7 MPa
J95B	MS-LFR-D6-EPM-A8-B <sup>1)2)</sup>	Filter regulator, (polymer), input pressure 1.0 MPa, 40 µm grade of filtration, plastic bowl, manual condensate drain, adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.05 ... 0.7 MPa	
J96	MS-LFR-D6-ERV-A8-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), adapter for 1/8" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 0.7 MPa	–
	MS-LFR-D6-ERV-A84-AS <sup>1)</sup>	–	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), adapter for 1/4" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 0.7 MPa
J96B	MS-LFR-D6-EPVC-A8-B <sup>1)2)</sup>	Filter regulator, (polymer), input pressure 1.0 MPa, 40 µm grade of filtration, plastic bowl, fully automatic condensate drain (normally closed), adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.05 ... 0.7 MPa	
J97	MS-LFR-D6-CRM-A8-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, adapter for 1/8" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 0.7 MPa	–
	MS-LFR-D6-CRM-A4-AS <sup>1)</sup>	–	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, adapter for 1/4" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 0.7 MPa
J97B	MS-LFR-D6-CPM-A8-B <sup>1)2)</sup>	Filter regulator, (polymer), input pressure 1.0 MPa, 5 µm, plastic bowl, manual condensate drain, adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.05 ... 0.7 MPa	
J98	MS-LFR-D6-CRV-A8-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), adapter for 1/8" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 0.7 MPa	–
	MS-LFR-D6-CRV-A4-AS <sup>1)</sup>	–	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), adapter for 1/4" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 0.7 MPa
J98B	MS-LFR-D6-CPVC-A8-B <sup>1)2)</sup>	Filter regulator, (polymer), input pressure 1.0 MPa, 5 µm grade of filtration, plastic bowl, fully automatic condensate drain (normally closed), adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.05 ... 0.7 MPa	

1) Female thread only with G1/4 (MS4) or G1/2 (MS6)

2) Polymer service unit components series MS basic

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description Size 4	Size: 6
<b>Filter regulator MS-LFR</b>			
J99	MS-LFR-D7-EUM-A8-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, metal bowl, manual condensate drain, adapter for 1/8" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	–
	MS-LFR-D7-EUM-A4-AS <sup>1)</sup>	–	Filter regulator, 40 µm grade of filtration, metal bowl, manual condensate drain, adapter for 1/4" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa
J100	MS-LFR-D7-EUV-A8-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), adapter for 1/8" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	–
	MS-LFR-D7-EUV-A4-AS <sup>1)</sup>	–	Filter regulator, 40 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), adapter for 1/8" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa
J101	MS-LFR-D7-CUM-A8-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, metal bowl, manual condensate drain, adapter for 1/8" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	–
	MS-LFR-D7-CUM-A4-AS <sup>1)</sup>	–	Filter regulator, 5 µm grade of filtration, metal bowl, manual condensate drain, adapter for 1/4" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa
J102	MS-LFR-D7-CUV-A8-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), adapter for 1/8" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	–
	MS-LFR-D7-CUV-A4-AS <sup>1)</sup>	–	Filter regulator, 5 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), adapter for 1/4" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa
J119	MS-LFR-D6-CRV-MPA-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), input pressure 0.2 ... 1.2 MPa, integrated MS pressure gauge with outer scale in MPa, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
J119B	MS-LFR-D6-CPVC-AG-MPA-B <sup>1)2)</sup>	Filter regulator, (polymer), 5 µm grade of filtration, plastic bowl, fully automatic condensate drain (normally closed), input pressure 1.0 MPa, integrated MS pressure gauge with outer scale in bar and inner scale in psi, pressure regulation range 0.05 ... 0.7 MPa	
J120	MS-LFR-D6-ERM-MPA-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, integrated MS pressure gauge with outer scale in MPa, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
J120B	MS-LFR-D6-EPM-AG-MPA-B <sup>1)2)</sup>	Filter regulator, (polymer), 40 µm grade of filtration, plastic bowl, fully automatic condensate drain, manual condensate drain, input pressure 1.0 MPa, integrated MS pressure gauge with outer scale in MPa, pressure regulation range 0.05 ... 0.7 MPa	

1) Female thread only with G1/4 (MS4) or G1/2 (MS6)

2) Polymer service unit components series MS basic

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description	Size: 6
<b>Filter regulator MS-LFR</b>			
J121	MS-LFR-D6-ERV-MPA-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), input pressure 0.2 ... 1.2 MPa, integrated MS pressure gauge with outer scale in MPa, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
J121B	MS-LFR-D6-EPVC-AG-MPA-B <sup>1)2)</sup>	Filter regulator, (polymer), 40 µm grade of filtration, plastic bowl, fully automatic condensate drain (normally closed), input pressure 1.0 MPa, integrated MS pressure gauge with outer scale in MPa, pressure regulation range 0.05 ... 0.7 MPa	
J124	MS-LFR-D6-CRM-MPA-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, integrated MS pressure gauge with outer scale in MPa, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
J124B	MS-LFR-D6-CPM-AG-MPA-B <sup>1)2)</sup>	Filter regulator, (polymer), 5 µm grade of filtration, plastic bowl, manual condensate drain, input pressure 1.0 MPa, integrated MS pressure gauge with outer scale in MPa, pressure regulation range 0.05 ... 0.7 MPa	
J125	MS-LFR-D7-ERM-AD12-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
J126	MS-LFR-D7-ERV-AD12-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
J127	MS-LFR-D7-CRM-AD12-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
J128	MS-LFR-D7-CRV-AD12-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
J129	MS-LFR-D6-ERM-AD12-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
J130	MS-LFR-D6-ERV-AD12-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
J131	MS-LFR-D6-CRM-AD12-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
J132	MS-LFR-D6-CRV-AD12-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), with pressure sensor, with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
J133	MS-LFR-D7-EUM-AD12-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, metal bowl, manual condensate drain, with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
J134	MS-LFR-D7-EUV-AD12-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
J135	MS-LFR-D7-CUM-AD12-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, metal bowl, manual condensate drain, with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
J136	MS-LFR-D7-CUV-AD12-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	

1) Female thread only with G1/4 (MS4) or G1/2 (MS6)

2) Polymer service unit components series MS basic

## Type codes

Overview list – Service unit components MS4/6		
Code	Type	Description Size 4   Size: 6
<b>Filter regulator MS-LFR</b>		
J139B	MS-LFR-D6-E-P-M-A8-F1A-B <sup>1)2)</sup>	Filter regulator, (polymer), input pressure 1.0MPa, 40 µm grade of filtration, plastic bowl, manual condensate drain, adapter for 1/8" EN pressure gauge (without pressure gauge), recommended for production plants for manufacturing Li-ion batteries (Cu<=1%, Zn<=1%, Ni<=1%), pressure regulation range 0.05 ... 0.7 MPa
J143B	MS-LFR-D6-E-P-M-AD13-B <sup>1)2)</sup>	Filter regulator (polymer), input pressure: 1 MPa, 40 µm grade of filtration, plastic bowl, manual condensate drain, with pressure sensor (SPAN-B) with LCD display, plug type L1, switching function window comparator/threshold value comparator, switching output PNP/NPN switchable, pressure regulation range 0.05 ... 0.7 MPa
J144B	MS-LFR-D6-E-P-VC-AD13-B <sup>1)2)</sup>	Filter regulator (polymer), input pressure: 1 MPa, 40 µm grade of filtration, plastic bowl, fully automatic condensate drain (normally closed), with pressure sensor (SPAN-B) with LCD display, plug type L1, switching function window comparator/threshold value comparator, switching output PNP/NPN switchable, pressure regulation range 0.05 ... 0.7 MPa
J145B	MS-LFR-D6-C-P-M-AD13-B <sup>1)2)</sup>	Filter regulator (polymer), input pressure: 1 MPa, 5 µm grade of filtration, plastic bowl, manual condensate drain, with pressure sensor (SPAN-B) with LCD display, plug type L1, switching function window comparator/threshold comparator, switching output PNP/NPN switchable, pressure regulation range 0.05 ... 0.7 MPa
J146	MS-LFR-D7-ERM-AD11-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, with pressure sensor (SPA), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa
J147	MS-LFR-D7-ERV-AD11-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), with pressure sensor (SPA), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa
J148	MS-LFR-D7-CRM-AD11-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, with pressure sensor (SPA), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa
J149	MS-LFR-D7-CRV-AD11-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), with pressure sensor (SPA), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa
J150	MS-LFR-D6-ERM-AD11-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, with pressure sensor (SPA), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa
J151	MS-LFR-D6-ERV-AD11-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), with pressure sensor (SPA), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa
J152	MS-LFR-D6-CRM-AD11-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, manual condensate drain, with pressure sensor (SPA), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa
J153	MS-LFR-D6-CRV-AD11-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, plastic bowl with plastic bowl guard, fully automatic condensate drain (normally open), with pressure sensor (SPA), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa
J154	MS-LFR-D7-EUM-AD11-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, metal bowl, manual condensate drain, with pressure sensor (SPA), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa
J155	MS-LFR-D7-EUV-AD11-AS <sup>1)</sup>	Filter regulator, 40 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), with pressure sensor (SPA), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa
J156	MS-LFR-D7-CUM-AD11-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, metal bowl, manual condensate drain, with pressure sensor (SPA), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa
J157	MS-LFR-D7-CUV-AD11-AS <sup>1)</sup>	Filter regulator, 5 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), with pressure sensor (SPA), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa
J182B	MS-LFR-D6-C-P-VC-AD13-B <sup>1)2)</sup>	Filter regulator, (polymer), input pressure: 1 MPa, 5 µm grade of filtration, plastic bowl, fully automatic condensate drain (normally closed), with pressure sensor (SPAN-B) with LCD display, plug type L1, switching function window comparator/threshold value comparator, switching output PNP/NPN switchable, pressure regulation range 0.05 ... 0.7 MPa

1) Female thread only with G1/4 (MS4) or G1/2 (MS6)

2) Polymer service unit components series MS basic

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description Size 4	Size 6
<b>Activated carbon filters MS-LFX</b>			
L1	MS-LFX-R	Activated carbon filter, plastic bowl with plastic bowl guard	
L2	MS-LFX-U	Activated carbon filter with metal bowl	
L3	MS-LFX-U-HF	–	Activated carbon filter with metal bowl, high flow rate
L4	MS-LFX-R-HP <sup>1)</sup>	–	Activated carbon filter, plastic bowl with plastic bowl guard, suitable for sealing air and purge air
<b>Lubricator MS-LOE</b>			
M1	MS-LOE-R	Compressed air lubricator, plastic bowl with plastic bowl guard, 0.1 ... 1.2 MPa	0.1 ... 1.6 MPa
M2	MS-LOE-U	Compressed air lubricator, metal bowl, 0.1 ... 1.2 MPa	0.1 ... 1.6 MPa
<b>Pressure regulator MS-LR</b>			
N1	MS-LR-D5-AS	Pressure regulator, integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	
N2	MS-LR-D6-AS	Pressure regulator, integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
N2B	MS-LR-D6-AG-BAR-B <sup>2)</sup>	Pressure regulator, (polymer), input pressure 1.0 MPa, integrated MS pressure gauge with outer scale in bar and inner scale in psi, pressure regulation range 0.05 ... 0.7 MPa	
N3	MS-LR-D7-AS	Pressure regulator, integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
N7	MS-LR-D5-KD-AS	Pressure regulator, integrated MS pressure gauge with outer scale in bar and inner scale in psi, rotary knob underneath, lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	
N8	MS-LR-D6-KD-AS	Pressure regulator, integrated MS pressure gauge with outer scale in bar and inner scale in psi, rotary knob underneath, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
N9	MS-LR-D7-KD-AS	Pressure regulator, integrated MS pressure gauge with outer scale in bar and inner scale in psi, rotary knob underneath, lockable rotary knob, pressure regulation range 0.03 ... 1.2 MPa	
N19	MS-LR-D5-AD7-AS	Pressure regulator, pressure sensor (SPAU) with switching status indicator, plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	
N20	MS-LR-D6-AD7-AS	Pressure regulator, pressure sensor (SPAU) with switching status indicator, plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
N21	MS-LR-D7-AD7-AS	Pressure regulator, pressure sensor (SPAU) with switching status indicator, plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	

1) Female thread only with G1/4 (MS4) or G1/2 (MS6)

2) Polymer service unit components series MS basic

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description	Size: 6
<b>Pressure regulator MS-LR</b>			
N22	MS-LR-D5-AD7-KD-AS	Pressure regulator, pressure sensor (SPAU) with switching status indicator, plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	
N23	MS-LR-D6-AD7-KD-AS	Pressure regulator, pressure sensor (SPAU) with switching status indicator, plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
N24	MS-LR-D7-AD7-KD-AS	Pressure regulator, pressure sensor (SPAU) with switching status indicator, plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
N28	MS-LR-D5-VS-DM2	–	Pressure regulator, pressure regulation range 0.03 ... 0.4 MPa, cover plate, MS pressure gauge integrated in the rotary knob (large), with outer scale in bar and inner scale in psi, pressure regulation range 0.03 ... 0.4 MPa
N29	MS-LR-D6-VS-DM2	–	Pressure regulator, pressure regulation range 0.03 ... 0.7 MPa, cover plate, MS pressure gauge integrated in the rotary knob (large), with outer scale in bar and inner scale in psi, pressure regulation range 0.03 ... 0.7 MPa
N30	MS-LR-D7-VS-DM2	–	Pressure regulator, pressure regulation range 0.05 ... 1.2 MPa, cover plate, MS pressure gauge integrated in the rotary knob (large), with outer scale in bar and inner scale in psi, pressure regulation range 0.05 ... 1.2 MPa
N31	MS-LR-D5-VS-DM1	Pressure regulator, pressure regulation range 0.03 ... 0.4 MPa, cover plate, MS pressure gauge integrated in the rotary knob, with outer scale in bar and inner scale in psi, pressure regulation range 0.03 ... 0.4 MPa	–
N32	MS-LR-D6-VS-DM1	Pressure regulator, pressure regulation range 0.03 ... 0.7 MPa, cover plate, MS pressure gauge integrated in the rotary knob, with outer scale in bar and inner scale in psi, pressure regulation range 0.03 ... 0.7 MPa	–
N33	MS-LR-D7-VS-DM1	Pressure regulator, pressure regulation range 0.05 ... 1.2 MPa, cover plate, MS pressure gauge integrated in the rotary knob, with outer scale in bar and inner scale in psi, pressure regulation range 0.05 ... 1.2 MPa	–
N47	MS-LR-D5-RG-AS <sup>1)</sup>	Pressure regulator, pressure regulation range 0.03 ... 0.4 MPa, integrated MS pressure gauge red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	
N48	MS-LR-D6-RG-AS <sup>1)</sup>	Pressure regulator, pressure regulation range 0.03 ... 0.7 MPa, integrated MS pressure gauge red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
N49	MS-LR-D7-RG-AS <sup>1)</sup>	Pressure regulator, pressure regulation range 0.05 ... 1.2 MPa, integrated MS pressure gauge red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
N50	MS-LR-D5-A8-AS <sup>1)</sup>	Pressure regulator, adapter for 1/8" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	–
	MS-LR-D5-A4-AS <sup>1)</sup>	–	Pressure regulator, adapter for 1/4" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa
N51	MS-LR-D6-A8-AS <sup>1)</sup>	Pressure regulator, adapter for 1/8" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	–
	MS-LR-D6-A4-AS <sup>1)</sup>	–	Pressure regulator, adapter for 1/4" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa
N51B	MS-LR-D6-A8-B <sup>1)2)</sup>	Pressure regulator, (polymer), input pressure 1.0 MPa, adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.05 ... 0.7 MPa	

1) Female thread only with G1/4 (MS4) or G1/2 (MS6)

2) Polymer service unit components series MS basic

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description Size 4	Size: 6
<b>Pressure regulator MS-LR</b>			
N52	MS-LR-D7-A8-AS <sup>1)</sup>	Pressure regulator, adapter for 1/8" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	–
	MS-LR-D7-A4-AS <sup>1)</sup>	–	Pressure regulator, adapter for 1/4" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa
N59	MS-LR-D5-MPA-AS <sup>1)</sup>	Pressure regulator, integrated MS pressure gauge with outer scale in MPa, lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	
N60	MS-LR-D6-MPA-AS <sup>1)</sup>	Pressure regulator, integrated MS pressure gauge with outer scale in MPa, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
N60B	MS-LR-D6-AG-MPA-B <sup>1)2)</sup>	Pressure regulator, (polymer), input pressure 1.0 MPa, integrated MS pressure gauge with outer scale in MPa, pressure regulation range 0.05 ... 0.7 MPa	
N61	MS-LR-D5-AD12-AS <sup>1)</sup>	Pressure regulator, with pressure sensor, with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	
N62	MS-LR-D6-AD12-AS <sup>1)</sup>	Pressure regulator, with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
N63	MS-LR-D7-AD12-AS <sup>1)</sup>	Pressure regulator, with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
N64	MS-LR-D5-AD12-KD-AS <sup>1)</sup>	Pressure regulator, with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA (max. input pressure 1.0 MPa), rotary knob underneath, lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	
N65	MS-LR-D6-AD12-KD-AS <sup>1)</sup>	Pressure regulator, with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA (max. input pressure 1.0 MPa), rotary knob underneath, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
N66	MS-LR-D7-AD12-KD-AS <sup>1)</sup>	Pressure regulator, with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA (max. input pressure 1.0 MPa), rotary knob underneath, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
N67B	MS-LR-D6-AG-BAR-F1A-B <sup>1)2)</sup>	Pressure regulator, (polymer), input pressure 1.0 MPa, integrated MS pressure gauge with outer scale in bar and inner scale in psi, recommended for production plants for manufacturing lithium-ion batteries (Cu<=1%, Zn<=1%, Ni<=1%), pressure regulation range 0.05 ... 0.7 MPa	
N68B	MS-LR-D6-A8-F1A-B <sup>1)2)</sup>	Pressure regulator, (polymer), input pressure 1.0 MPa, adapter for 1/8" EN pressure gauge (without pressure gauge), recommended for production plants for manufacturing lithium-ion batteries (Cu<=1%, Zn<=1%, Ni<=1%), pressure regulation range 0.05 ... 0.7 MPa	
N69B	MS-LR-D6-AG-MPA-F1A-B <sup>1)2)</sup>	Pressure regulator, (polymer), input pressure 1.0 MPa, integrated MS pressure gauge with outer scale in MPa, recommended for production plants for manufacturing lithium-ion batteries (Cu<=1%, Zn<=1%, Ni<=1%), pressure regulation range 0.05 ... 0.7 MPa	
N72	MS-LR-D5-AD11-AS <sup>1)</sup>	Pressure regulator, with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	
N73	MS-LR-D6-AD11-AS <sup>1)</sup>	Pressure regulator, with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
N74	MS-LR-D7-AD11-AS <sup>1)</sup>	Pressure regulator, with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
N75	MS-LR-D5-AD11-KD-AS <sup>1)</sup>	Pressure regulator, with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, rotary knob underneath, lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	
N76	MS-LR-D6-AD11-KD-AS <sup>1)v</sup>	Pressure regulator, with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, rotary knob underneath, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	

1) Female thread only with G1/4 (MS4) or G1/2 (MS6)

2) Polymer service unit components series MS basic

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description	Size: 6
<b>Pressure regulator MS-LR</b>			
N77	MS-LR-D7-AD11-KD-AS <sup>1)</sup>	Pressure regulator, with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, rotary knob underneath, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
N88B	MS-LR-D6-AD13-B <sup>1)2)</sup>	Pressure regulator (polymer), input pressure: 1.0 MPa, with pressure sensor (SPAN-B) with LCD display, plug type L1, switching function window comparator/threshold comparator, switching output PNP/NPN switchable, pressure regulation range 0.05 ... 0.7 MPa	
<b>Pressure regulator MS-LRB</b>			
01	MS-LRB-D5-AS <sup>1)</sup>	Pressure regulator for manifold assembly (pressure output port at the rear, pressure supply port on the left and right), integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	
02	MS-LRB-D6-AS <sup>1)</sup>	Pressure regulator for manifold assembly (pressure output port at the rear, pressure supply port on the left and right), integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
03	MS-LRB-D7-AS <sup>1)</sup>	Pressure regulator for manifold assembly (pressure output port at the rear, pressure supply port on the left and right), integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
04	MS-LRB-D5-AS-BD <sup>1)</sup>	Pressure regulator for manifold assembly, with angled outlet block at the rear (pressure output port 2xQS8 at the rear, pressure input port on the left and right), integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	
05	MS-LRB-D6-AS-BD <sup>1)</sup>	Pressure regulator for manifold assembly, with angled outlet block at the rear (pressure output port 1xQS8 at the rear, pressure input port on the left and right), integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
06	MS-LRB-D7-AS-BD <sup>1)</sup>	Pressure regulator for manifold assembly, with angled outlet block at the rear (pressure output port 1xQS8 at the rear, pressure input port on the left and right), integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
07	MS-LRB-D5-A8-AS <sup>1)</sup>	Pressure regulator for manifold assembly (pressure output port at the rear, pressure input port on the left and right), adapter for 1/8" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	–
08	MS-LRB-D6-A8-AS <sup>1)</sup>	Pressure regulator for manifold assembly (pressure output port at the rear, pressure input port on the left and right), adapter for 1/8" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	–
	MS-LRB-D6-A4-AS <sup>1)</sup>	–	Pressure regulator for manifold assembly (pressure output port at the rear, pressure input port on the left and right), adapter for 1/4" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa
09	MS-LRB-D7-A8-AS <sup>1)</sup>	Pressure regulator for manifold assembly (pressure output port at the rear, pressure input port on the left and right), adapter for 1/8" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	–
	MS-LRB-D7-A4-AS <sup>1)</sup>	–	Pressure regulator for manifold assembly (pressure output port at the rear, pressure input port on the left and right), adapter for 1/4" EN pressure gauge (without pressure gauge), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa

1) Female thread only with G1/4 (MS4) or G1/2 (MS6)

2) Polymer service unit components series MS basic

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description	Size: 6
<b>Pressure regulator MS-LRB</b>			
O16	MS-LRB-D5-VS-KD-AS <sup>1)</sup>	Pressure regulator for manifold assembly, cover plate, rotary knob underneath, lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	
O17	MS-LRB-D6-VS-KD-AS <sup>1)</sup>	Pressure regulator for manifold assembly, cover plate, rotary knob underneath, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
O18	MS-LRB-D7-VS-KD-AS <sup>1)</sup>	Pressure regulator for manifold assembly, cover plate, rotary knob underneath, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
O19	MS-LRB-D5-KD-AS-BD <sup>1)</sup>	Pressure regulator for manifold assembly, with angled outlet block at the rear (pressure output port 1xQS8 at the rear (MS4) 2x QS8 at the rear (MS6), pressure supply port on the left and right), rotary knob underneath, lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	
O20	MS-LRB-D6-KD-AS-BD <sup>1)</sup>	Pressure regulator for manifold assembly, with angled outlet block at the rear (pressure output port 1x QS8 at the rear (MS4) 2x QS8 at the rear (MS6), pressure supply port on the left and right), rotary knob underneath, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
O21	MS-LRB-D7-KD-AS-BD <sup>1)</sup>	Pressure regulator for manifold assembly, with angled outlet block at the rear (pressure output port 1x QS8 at the rear (MS4) 2x QS8 at the rear (MS6), pressure supply port on the left and right), rotary knob underneath, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
O22	MS-LRB-D5-AD7-AS <sup>1)</sup>	Pressure regulator for manifold assembly, pressure sensor (SDE5) with switching status indicator, plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	
O23	MS-LRB-D6-AD7-AS <sup>1)</sup>	Pressure regulator for manifold assembly, pressure sensor (SDE5) with switching status indicator, plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
O24	MS-LRB-D7-AD7-AS <sup>1)</sup>	Pressure regulator for manifold assembly, pressure sensor (SDE5) with switching status indicator, plug M8, threshold value comparator, PNP, NO (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
O25	MS-LRB-D5-AD7-AS-BD <sup>1)</sup>	Pressure regulator for manifold assembly, with angled outlet block at the rear (pressure output port 1x QS8 at the rear (MS4) 2x QS8 at the rear (MS6), pressure supply port on the left and right), pressure sensor (SDE5) with switching status display, plug M8, threshold value comparator PNP, NO (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	
O26	MS-LRB-D6-AD7-AS-BD <sup>1)</sup>	Pressure regulator for manifold assembly, with angled outlet block at the rear (pressure output port 1x QS8 at the rear (MS4) 2x QS8 at the rear (MS6), pressure supply port on the left and right), pressure sensor (SDE5) with switching status display, plug M8, threshold value comparator PNP, NO (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
O27	MS-LRB-D7-AD7-AS-BD <sup>1)</sup>	Pressure regulator for manifold assembly, with angled outlet block at the rear (pressure output port 1x QS8 at the rear (MS4) 2x QS8 at the rear (MS6), pressure supply port on the left and right), pressure sensor (SDE5) with switching status display, plug M8, threshold value comparator PNP, NO (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
O28	MS-LRB-D5-VS-DM2 <sup>1)</sup>	–	Pressure regulator for manifold assembly, cover plate, MS pressure gauge integrated in the rotary knob (large), with outer scale in bar and inner scale in psi, pressure regulation range 0.03 ... 0.4 MPa
O29	MS-LRB-D6-VS-DM2 <sup>1)</sup>	–	Pressure regulator for manifold assembly, cover plate, MS pressure gauge integrated in the rotary knob (large), with outer scale in bar and inner scale in psi, pressure regulation range 0.03 ... 0.7 MPa

1) Female thread only with G1/4 (MS4) or G1/2 (MS6)

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description Size 4	Size: 6
<b>Pressure regulator MS-LRB</b>			
O30	MS-LRB-D7-VS-DM2 <sup>1)</sup>	–	Pressure regulator for manifold assembly, cover plate, MS pressure gauge integrated in the rotary knob (large), with outer scale in bar and inner scale in psi, pressure regulation range 0.05 ... 1.2 MPa
O31	MS-LRB-D5-VS-DM1 <sup>1)</sup>	Pressure regulator for manifold assembly, cover plate, MS pressure gauge integrated in the rotary knob, with outer scale in bar and inner scale in psi, pressure regulation range 0.03 ... 0.4 MPa	–
O32	MS-LRB-D6-VS-DM1 <sup>1)</sup>	Pressure regulator for manifold assembly, cover plate, MS pressure gauge integrated in the rotary knob, with outer scale in bar and inner scale in psi, pressure regulation range 0.03 ... 0.7 MPa	–
O33	MS-LRB-D7-VS-DM1 <sup>1)</sup>	Pressure regulator for manifold assembly, cover plate, MS pressure gauge integrated in the rotary knob, with outer scale in bar and inner scale in psi, pressure regulation range 0.05 ... 1.2 MPa	–
O34	MS-LRB-D5-RG-AS <sup>1)</sup>	Pressure regulator for manifold assembly, integrated MS pressure gauge red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	
O35	MS-LRB-D6-RG-AS <sup>1)</sup>	Pressure regulator for manifold assembly, integrated MS pressure gauge red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
O36	MS-LRB-D7-RG-AS <sup>1)</sup>	Pressure regulator for manifold assembly, integrated MS pressure gauge red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
O37	MS-LRB-D5-RG-AS-BD <sup>1)</sup>	Pressure regulator for manifold assembly, with angled outlet block at the rear (pressure output port 1x QS8 at the rear (MS4), 2x QS8 at the rear (MS6), pressure supply port on the left and right), integrated MS pressure gauge red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	
O38	MS-LRB-D6-RG-AS-BD <sup>1)</sup>	Pressure regulator for manifold assembly, with angled outlet block at the rear (pressure output port 1x QS8 at the rear (MS4), 2x QS8 at the rear (MS6), pressure supply port on the left and right), integrated MS pressure gauge red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
O39	MS-LRB-D7-RG-AS-BD <sup>1)</sup>	Pressure regulator for manifold assembly, with angled outlet block at the rear (pressure output port 1x QS8 at rear (MS4), 2x QS8 at the rear (MS6), pressure supply port on the left and right), integrated MS pressure gauge red/green scale with outer scale in bar and inner scale in psi, lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
O40	MS-LRB-D5-MPA-AS <sup>1)</sup>	Pressure regulator for manifold assembly, lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	
O41	MS-LRB-D6-MPA-AS <sup>1)</sup>	Pressure regulator for manifold assembly, lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
O42	MS-LRB-D5-AD12-ASS <sup>1)</sup>	Pressure regulator for manifold assembly, with pressure sensor (SPA), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	
O43	MS-LRB-D6-AD12-AS <sup>1)</sup>	Pressure regulator for manifold assembly, with pressure sensor (SPA), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
O44	MS-LRB-D7-AD12-AS <sup>1)</sup>	Pressure regulator for manifold assembly, with pressure sensor (SPA), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
O46	MS-LRB-D5-AD12-AS-BD <sup>1)</sup>	Pressure regulator for manifold assembly with angled outlet block at the rear (pressure output port 1x QS8 at the rear (MS4) 2x QS8 at the rear (MS6), pressure supply port on the left and right), pressure sensor with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.03 ... 0.4 MPa	

1) Female thread only with G1/4 (MS4) or G1/2 (MS6)

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description	Size: 6
<b>Pressure regulator MS-LRB</b>			
O47	MS-LRB-D6-AD12-AS-BD <sup>1)</sup>	Pressure regulator for manifold assembly with angled outlet block at the rear (pressure output port 1x QS8 at the rear (MS4) 2x QS8 at the rear (MS6), pressure supply port on the left and right), pressure sensor with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.03 ... 0.7 MPa	
O48	MS-LRB-D7-AD12-AS-BD <sup>1)</sup>	Pressure regulator for manifold assembly with angled outlet block at the rear (pressure output port 1x QS8 at the rear (MS4) 2x QS8 at the rear (MS6), pressure supply port on the left and right), pressure sensor with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20mA (max. input pressure 1.0 MPa), lockable rotary knob, pressure regulation range 0.05 ... 1.2 MPa	
O49	MS-LRB-D5-AD11-AS <sup>1)</sup>	Pressure regulator for manifold assembly, with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA (max. input pressure 1.0 MPa), lockable rotary knob, continuous compressed air supply, 0.03 ... 0.4 MPa	
O50	MS-LRB-D6-AD11-AS <sup>1)</sup>	Pressure regulator for manifold assembly, with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA (max. input pressure 1.0 MPa), lockable rotary knob, continuous compressed air supply, 0.03 ... 0.7 MPa	
O51	MS-LRB-D7-AD11-AS <sup>1)</sup>	Pressure regulator for manifold assembly, with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA (max. input pressure 1.0 MPa), lockable rotary knob, continuous compressed air supply, 0.05 ... 1.2 MPa	
O52	MS-LRB-D5-AD11-AS-BD <sup>1)</sup>	Pressure regulator for manifold assembly, with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA (max. input pressure 1.0 MPa), lockable rotary knob, angled outlet block QS8, continuous compressed air supply, 0.03 ... 0.4 MPa	
O53	MS-LRB-D6-AD11-AS-BD <sup>1)</sup>	Pressure regulator for manifold assembly, with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA (max. input pressure 1.0 MPa), lockable rotary knob, angled outlet block QS8, continuous pressure supply, continuous pressure supply, 0.03 ... 0.7 MPa	
O54	MS-LRB-D7-AD11-AS-BD <sup>1)</sup>	Pressure regulator for manifold assembly, with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA (max. input pressure 1.0 MPa), lockable rotary knob, angled outlet block QS8, continuous compressed air supply, 0.05 ... 1.2 MPa	
<b>Precision pressure regulator MS-LRP</b>			
P1	MS-LRP-D2-A8	–	Precision pressure regulator, 0.005 to 0.07 MPa, adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.005 ... 0.07 MPa
P2	MS-LRP-D4-A8	–	Precision pressure regulator, 0.005 to 0.25 MPa, adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.005 ... 0.25 MPa
P3	MS-LRP-D5-A8	–	Precision pressure regulator, 0.03 to 0.4 MPa, adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.03 ... 0.4 MPa
P4	MS-LRP-D7-A8	–	Precision pressure regulator, 0.05 to 1.2 MPa, adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.05 ... 1.2 MPa
P5	MS-LRP-PE10-VS	–	Precision pressure regulator, electrically actuated (pilot control using proportional pressure regulator with LED display, 7-segment) 0...10 V, pressure regulation range 0.01 ... 1 MPa
P6	MS-LRP-PI10-VS	–	Precision pressure regulator, electrically actuated (pilot control using proportional pressure regulator with LED display, 7-segment) 4...20 mA, pressure regulation range 0.01 ... 1 MPa

1) Female thread only with G1/4 (MS4) or G1/2 (MS6)

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description Size 4	Size: 6
<b>Precision pressure regulator MS-LRPB</b>			
R1	MS-LRPB-D2-A8 <sup>1)</sup>	–	Precision pressure regulator for manifold assembly, adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.005 ... 0.07 MPa
R2	MS-LRPB-D4-A8 <sup>1)</sup>	–	Precision pressure regulator for manifold assembly, adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.005 ... 0.25 MPa
R3	MS-LRPB-D5-A8 <sup>1)</sup>	–	Precision pressure regulator for manifold assembly, adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.03 ... 0.4 MPa
R4	MS-LRPB-D7-A8 <sup>1)</sup>	–	Precision pressure regulator for manifold assembly, adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.05 ... 1.2 MPa
R5	MS-LRPB-D2-A8-BD <sup>1)</sup>	–	Precision pressure regulator for manifold assembly, with angled outlet block at the rear (pressure output port 2x QS8 at the rear, pressure supply port on the left and right), adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.005 ... 0.07 MPa
R6	MS-LRPB-D4-A8-BD <sup>1)</sup>	–	Precision pressure regulator for manifold assembly, with angled outlet block at the rear (pressure output port 2x QS8 at the rear, pressure supply port on the left and right), adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.005 ... 0.25 MPa
R7	MS-LRPB-D5-A8-BD <sup>1)</sup>	–	Precision pressure regulator for manifold assembly, with angled outlet block at the rear (pressure output port 2x QS8 at the rear, pressure supply port on the left and right), adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.03 ... 0.4 MPa
R8	MS-LRPB-D7-A8-BD <sup>1)</sup>	–	Precision pressure regulator for manifold assembly, with angled outlet block at the rear (pressure output port 2x QS8 at the rear, pressure supply port on the left and right), adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.05 ... 1.2 MPa
R9	MS-LRPB-D2-A8-BE <sup>1)</sup>	–	Precision pressure regulator for manifold assembly, with angled outlet block at the rear (pressure output port 2x QS10 at the rear, pressure supply port on the left and right), adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.005 ... 0.07 MPa
R10	MS-LRPB-D4-A8-BE <sup>1)</sup>	–	Precision pressure regulator for manifold assembly, with angled outlet block at the rear (pressure output port 2x QS10 at the rear, pressure supply port on the left and right), adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.005 ... 0.25 MPa
R11	MS-LRPB-D5-A8-BE <sup>1)</sup>	–	Precision pressure regulator for manifold assembly, with angled outlet block at the rear (pressure output port 2x QS10 at the rear, pressure supply port on the left and right), adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.01 ... 0.4 MPa
R12	MS-LRPB-D7-A8-BE <sup>1)</sup>	–	Precision pressure regulator for manifold assembly, with angled outlet block at the rear (pressure output port 2x QS10 at the rear, pressure supply port on the left and right), adapter for 1/8" EN pressure gauge (without pressure gauge), pressure regulation range 0.01 ... 1.2 MPa

1) Female thread only with G1/4 (MS4) or G1/2 (MS6)

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description Size 4	Size: 6
<b>Precision pressure regulator MS-LRPB</b>			
R13	MS-LRPB-PE10-VS <sup>1)</sup>	–	Precision pressure regulator, electrically actuated (pilot control using proportional pressure regulator with LED display, 7-segment) 0...10 V, pressure regulation range 0.01 ... 1 MPa
R14	MS-LRPB-PI10-VS <sup>1)</sup>	–	Precision pressure regulator, 0.01...1 MPa, electrically actuated (pilot control using proportional pressure regulator with LED display, 7-segment) 4...20 mA, pressure regulation range 0.01 ... 1 MPa
<b>Flow sensor SFAM</b>			
U5	SFAM-1000-M-2SA-M12	–	Flow sensor, max. 1000 l/min, manifold assembly, 2x PNP or NPN, 1 analogue output 4 ... 20 mA, M12 plug, A-coded
U6	SFAM-1000-M-2SV-M12	–	Flow sensor, max. 1000 l/min, manifold assembly, 2x PNP or NPN, 1 analogue output 0 ... 10 V, M12 plug, A-coded
U7	SFAM-3000-M-2SA-M12	–	Flow sensor, max. 3000 l/min, manifold assembly, 2x PNP or NPN, 1 analogue output 4 ... 20 mA, M12 plug, A-coded
U8	SFAM-3000-M-2SV-M12	–	Flow sensor, max. 3000 l/min, manifold assembly, 2x PNP or NPN, 1 analogue output 0 ... 10 V, M12 plug, A-coded
U9	SFAM-5000-M-2SA-M12	–	Flow sensor, max. 5000 l/min, manifold assembly, 2x PNP or NPN, 1 analogue output 4 ... 20 mA, M12 plug, A-coded
U10	SFAM-5000-M-2SV-M12	–	Flow sensor, max. 5000 l/min, manifold assembly, 2x PNP or NPN, 1 analogue output 0 ... 10 V, M12 plug, A-coded
U15	SFAM-1000L-M-PNLK-PN-VBA-M12	–	Flow sensor, max. 1000 l/min, manifold assembly, electrical output 1: PNP or NPN or IO-Link®, electrical output 2: PNP or NPN, electrical output 3: 0 ... 10 V or 1 ... 5 V or 4 ... 20 mA, plug M12, A-coded
U16	SFAM-3000L-M-PNLK-PN-VBA-M12	–	Flow sensor, max. 3000 l/min, manifold assembly, electrical output 1: PNP or NPN or IO-Link®, electrical output 2: PNP or NPN, electrical output 3: 0 ... 10 V or 1 ... 5 V or 4 ... 20 mA, plug M12, A-coded
U17	SFAM-5000L-M-PNLK-PN-VBA-M12	–	Flow sensor, max. 5000 l/min, manifold assembly, electrical output 1: PNP or NPN or IO-Link®, electrical output 2: PNP or NPN, electrical output 3: 0 ... 10 V or 1 ... 5 V or 4 ... 20 mA, plug M12, A-coded
U20	SFAM-1000L-M-PNLK-PN-VBA-M12-EMD	–	Flow sensor, max. 1000 l/min, manifold assembly, electrical output 1: PNP or NPN or IO-Link®, electrical output 2: PNP or NPN, electrical output 3: 0 ... 10 V or 1 ... 5 V or 4 ... 20 mA, plug M12, A-coded, additional function: energy efficiency and maintenance diagnostics
U21	SFAM-3000L-M-PNLK-PN-VBA-M12-EMD	–	Flow sensor, max. 3000 l/min, manifold assembly, electrical output 1: PNP or NPN or IO-Link®, electrical output 2: PNP or NPN, electrical output 3: 0 ... 10 V or 1 ... 5 V or 4 ... 20 mA, plug M12, A-coded, additional function: energy efficiency and maintenance diagnostics
U22	SFAM-5000L-M-PNLK-PN-VBA-M12-EMD	–	Flow sensor, max. 5000 l/min, manifold assembly, electrical output 1: PNP or NPN or IO-Link®, electrical output 2: PNP or NPN, electrical output 3: 0 ... 10 V or 1 ... 5 V or 4 ... 20 mA, plug M12, A-coded, additional function: energy efficiency and maintenance diagnostics

1) Female thread only with G1/4 (MS4) or G1/2 (MS6)

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description Size 4	Size: 6
<b>Soft-start/quick exhaust valve MS-SV (not with EU EX2/EX4 approval)</b>			
V1	MS-SV-E-10V24-SO-AG <sup>1)</sup>	–	Soft start/quick exhaust valve, category 4 with Performance Level E according to EN ISO13849-1, 2-channel with self-monitoring, 24 V DC, open silencer, MS pressure gauge with outer scale in bar and inner scale in psi, input pressure 0.35 ... 1.0 MPa
V2	MS-SV-E-10V24-AG <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 4 with Performance Level e to EN ISO 13849-1, 2-channel with self-monitoring, 24 V DC, MS pressure gauge with outer scale in bar and inner scale in psi, input pressure 0.35 ... 1.0 MPa
V5	MS-SV-E-10V24-SO-AG-MP1 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 4 with Performance Level e to EN ISO 13849-1, 2-channel with self-monitoring, 24 V DC, open silencer, MS pressure gauge with outer scale in bar and inner scale in psi, with multi-pin plug socket MP1, input pressure 0.35 ... 1.0 MPa
V6	MS-SV-E-10V24-AG-MP1 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 4 with Performance Level e to EN ISO 13849-1, 2-channel with self-monitoring, 24 V DC, MS pressure gauge with outer scale in bar and inner scale in psi, with multi-pin plug socket MP1, input pressure 0.35 ... 1.0 MPa
V12	MS-SV-C-10V24-S <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 1 with Performance Level C according to EN ISO 13849-1, single-channel, type C (plug pattern according to EN 175301-803), 24 V DC, (non-detenting manual override on pilot actuator and detenting on soft-start/quick exhaust valve, with silencer, input pressure 0.3 ... 1.0 MPa
V22	MS-SV-C-10V24-S-AD7 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 1 with Performance Level C according to EN ISO 13849-1, single-channel, type C (plug pattern according to EN 175301-803), 24 V DC, non-detenting manual override on the pilot actuator and detenting on the soft-start/quick exhaust valve, with silencer, pressure sensor (SDE5), with switching status indicator, plug M8, threshold comparator, PNP, 3-pin, input pressure 0.3 ... 1.0 MPa
V31	MS-SV-E-10V24-SO-AG-MP3 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 4 with Performance Level e to EN ISO 13849-1, 2-channel with self-monitoring, 24 V DC, open silencer, MS pressure gauge with outer scale in bar and inner scale in psi, with multi-pin plug socket MP3, input pressure 0.35 ... 1.0 MPa
V32	MS-SV-E-10V24-AG-MP3 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 4 with Performance Level e to EN ISO 13849-1, 2-channel with self-monitoring, 24 V DC, MS pressure gauge with outer scale in bar and inner scale in psi, with multi-pin plug socket MP3, input pressure 0.35 ... 1.0 MPa
V35	MS-SV-C-10V24P-S <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 1 with Performance Level C according to EN ISO13849-1, single-channel, M12 (plug pattern according to IEC 61076-2-101), 24 V DC, non-detenting/detenting manual override on the pilot actuator, and detenting on the soft-start/quick exhaust valve, with silencer, plug M12, input pressure 0.3 ... 1.0 MPa

1) Female thread only with G1/2 (MS6)

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description Size 4	Size: 6
<b>Soft-start/quick exhaust valve MS-SV (not with EU EX2/EX4 approval)</b>			
V36	MS-SV-C-10V24P-S-AD7 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 1 with Performance Level C according to EN ISO13849-1, single-channel, M12 (plug pattern according to IEC 61076-2-101), 24 V DC, non-detenting/detenting manual override on the pilot actuator and detenting on the soft-start/quick exhaust valve, with silencer, pressure sensor (SDE5), with switching status indicator, plug M8, threshold comparator, PNP, 3-pin, input pressure 0.3 ... 1.0 MPa
V37	MS-SV-D-10V24-2M8 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 3 with Performance Level D according to EN ISO 13849-1, 2-channel, type C (plug pattern according to EN 175301-803), 24 V DC, non-detenting manual override on the pilot actuator, 2 SMT proximity switches, 0.3 m, M8, input pressure 0.35 ... 1.0 MPa
V38	MS-SV-D-10V24-2M8-SO-AG <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 3 with Performance Level D according to EN ISO 13849-1, 2-channel, type C (plug pattern according to EN 175301-803), 24 V DC, non-detenting manual override on the pilot actuator, open silencer, 2 SMT proximity switches, 0.3 m, M8, MS pressure gauge with outer scale in bar and inner scale in psi, input pressure 0.35 ... 1.0 MPa
V39	MS-SV-D-10V24P-2M12-SO-AG <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 3 with Performance Level d to EN ISO 13849-1, 2-channel, M12 (plug pattern to IEC 61076-2-101), 24 V DC, non-detenting/detenting manual override on pilot actuator, open silencer, 2 proximity switches SMT, 0.3 m, M12, MS pressure gauge with outer scale in bar and inner scale in psi, input pressure 0.35 ... 1.0 MPa
V40	MS-SV-D-10V24P-2OE-SO-AG <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 3 with Performance Level d to EN ISO 13849-1, 2-channel, M12 (plug pattern to IEC 61076-2-101), 24 V DC, non-detenting/detenting manual override on pilot actuator, open silencer, 2 proximity switches SMT, 5 m, OE, MS pressure gauge with outer scale in bar and inner scale in psi, input pressure 0.35 ... 1.0 MPa
V41	MS-SV-E-10V24-SO-AG-MP5 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 4 with Performance Level E according to EN ISO13849-1, 2-channel with self-monitoring, 24 V DC, open silencer, MS pressure gauge with outer scale in bar and inner scale in psi, input pressure 0.35 ... 1.0 MPa
V42	MS-SV-E-10V24-AG-MP5 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 4 with Performance Level E according to EN ISO13849-1, 2-channel with self-monitoring, 24 V DC, MS pressure gauge with outer scale in bar and inner scale in psi, with multi-pin plug socket MP5, input pressure 0.35 ... 1.0 MPa

1) Female thread only with G1/2 (MS6)

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description Size 4	Size: 6
<b>Soft-start/quick exhaust valve MS-SV (not with EU EX2/EX4 approval)</b>			
V45	MS-SV-E-10V24-RG <sup>1)</sup>	–	Pressure build-up and vent valve, category 4 with Performance Level E according to EN ISO 13849-1, 2-channel with self-monitoring, 24 V DC, integrated pressure gauge with red-green scale with outer scale in bar and inner scale in psi, input pressure 0.35 ... 1.0 MPa
V46	MS-SV-E-10V24-SO-RG <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 4 with Performance Level E according to EN ISO 13849-1, 2-channel with self-monitoring, 24 V DC, open silencer, integrated pressure gauge with red/green scale with outer scale in bar and inner scale in psi, input pressure 0.35 ... 1.0 MPa
V47	MS-SV-D-10V24-2M8-SO-RG <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 3 with Performance Level D according to EN ISO 13849-1, 2-channel, type C (plug pattern according to EN 175301-803), 24 V DC, non-detenting manual override on the pilot actuator, open silencer, 2 SMT proximity switches, 0.3 m, M8, integrated pressure gauge with red/green scale with outer scale in bar and inner scale in psi, input pressure 0.35 ... 1.0 MPa
V48	MS-SV-D-10V24P-2M12-SO-RG <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 3 with Performance Level D according to EN ISO 13849-1, 2-channel, M12 (plug pattern according to EN 61076-2-101), 24 V DC, non-detenting/detenting manual override on the pilot actuator, open silencer, 2 SMT proximity switches, 0.3 m, M12, integrated pressure gauge with red/green scale with outer scale in bar and inner scale in psi, input pressure 0.35 ... 1.0 MPa
V49	MS-SV-D-10V24-20E-SO-RG <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 3 with Performance Level D according to EN ISO 13849-1, 2-channel, type C (plug pattern according to EN 175301-803), 24 V DC, non-detenting manual override on the pilot actuator, open silencer, 2 SMT proximity switches, 5 m, OE, integrated pressure gauge with red/green scale with outer scale in bar and inner scale in psi, input pressure 0.35 ... 1.0 MPa
V50	MS-SV-C-10V24-S-AD11 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 1 with Performance Level C according to EN ISO 13849-1, single-channel, type C (plug pattern according to EN 175301-803), 24 V DC, detenting manual override on the pilot actuator and non-detenting soft-start/quick exhaust valve, silencer, pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.3 ... 1.0 MPa
V51	MS-SV-C-10V24CS-AD11 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 1 with Performance Level C according to EN ISO 13849-1, single-channel, type C (plug pattern according to EN 175301-803), 24 V DC, without manual override on the pilot actuator and without soft-start/quick exhaust valve, silencer, pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.3 ... 1.0 MPa

1) Female thread only with G1/2 (MS6)

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description Size 4	Size: 6
<b>Soft-start/quick exhaust valve MS-SV (not with EU EX2/EX4 approval)</b>			
V52	MS-SV-C-10V24D-S-AD11 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 1 with Performance Level C according to EN ISO 13849-1, single-channel, plug pattern according to EN 61076-2-101, 24 V DC, without manual override on the pilot actuator and without on the soft-start/quick exhaust valve, silencer, pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.3 ... 1.0 MPa
V53	MS-SV-C-10V24E-S-AD11 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 1 with Performance Level C according to EN ISO 13849-1, single-channel, M12 (plug pattern according to IEC 61076-2-101), 24 V DC, without manual override on the pilot actuator and detenting on the soft-start/quick exhaust valve, silencer, pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.3 ... 1.0 MPa
V54	MS-SV-C-10V24F-S-AD11 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 1 with Performance Level C according to EN ISO 13849-1, single-channel, M12 (plug pattern according to IEC 61076-2-101), 24 V DC, non-detenting manual override on the pilot actuator and detenting on the soft-start/quick exhaust valve, silencer, pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.3 ... 1.0 MPa
V55	MS-SV-C-10V24P-S-AD11 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 1 with Performance Level C according to EN ISO 13849-1, single-channel, M12 (plug pattern according to IEC 61076-2-101), 24 V DC, non-detenting/detenting manual override on the pilot actuator and detenting on the soft-start/quick exhaust valve, silencer, pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.3 ... 1.0 MPa
V56	MS-SV-C-10V24-S-AD12 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 1 with Performance Level C according to EN ISO 13849-1, single-channel, type C (plug pattern according to EN 175301-803), non-detenting manual override on the pilot actuator and detenting on the soft-start/quick exhaust valve, 24 V DC, silencer, pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.3 ... 1.0 MPa
V57	MS-SV-C-10V24C-S-AD12 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 1 with Performance Level C according to EN ISO 13849-1, single-channel, type C (plug pattern according to EN 175301-803), 24 V DC, without manual override on the pilot actuator and without soft-start/quick exhaust valve, silencer, pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.3 ... 1.0 MPa

1) Female thread only with G1/2 (MS6)

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description Size 4	Size: 6
<b>Soft-start/quick exhaust valve MS-SV (not with EU EX2/EX4 approval)</b>			
V58	MS-SV-C-10V24D-S-AD12 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 1 with Performance Level C according to EN ISO 13849-1, single-channel, M12 (plug pattern according to IEC 61076-2-101), 24 V DC, without manual override on the pilot actuator and without on the soft-start/quick exhaust valve, silencer, pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.3 ... 1.0 MPa
V59	MS-SV-C-10V24E-S-AD12 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 1 with Performance Level C according to EN ISO 13849-1, single-channel, M12 (plug pattern according to IEC 61076-2-101), 24 V DC, without manual override on the pilot actuator and detenting on the soft-start/quick exhaust valve, silencer, pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.3 ... 1.0 MPa
V60	MS-SV-C-10V24F-S-AD12 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 1 with Performance Level C according to EN ISO 13849-1, single-channel, M12 (plug pattern according to IEC 61076-2-101), 24 V DC, non-detenting manual override on the pilot actuator and detenting on the soft-start/quick exhaust valve, silencer, pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.3 ... 1.0 MPa
V61	MS-SV-C-10V24P-S-AD12 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 1 with Performance Level C according to EN ISO 13849-1, single-channel, M12 (plug pattern according to IEC 61076-2-101), 24 V DC, non-detenting/detenting manual override on the pilot actuator and detenting on the soft-start/quick exhaust valve, silencer, pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.3 ... 1.0 MPa
V62	MS-SV-E-10V24-AD12 <sup>1)</sup>	–	Soft start/quick exhaust valve, category 4 with Performance Level E according to EN ISO 13849-1, 2-channel with self-monitoring, 24 V DC, pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.35 ... 1.0 MPa
V63	MS-SV-E-10V24-SO-AD12 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 4 with Performance Level E according to EN ISO 13849-1, 2-channel with self-monitoring, 24V DC, open silencer, pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.35 ... 1.0 MPa
V64	MS-SV-E-10V24-AD12-MP1 <sup>1)</sup>	–	Soft start/quick exhaust valve, category 4 with Performance Level E according to EN ISO 13849-1, 2-channel with self-monitoring, 24 V DC, pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, with multi-pin plug socket MP1 input pressure 0.35 ... 1.0 MPa

1) Female thread only with G1/2 (MS6)

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description Size 4	Size: 6
<b>Soft-start/quick exhaust valve MS-SV (not with EU EX2/EX4 approval)</b>			
V65	MS-SV-E-10V24-SO-AD12-MP1 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 4 with Performance Level E according to EN ISO 13849-1, 2-channel with self-monitoring, 24V DC, open silencer, pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, with multi-pin plug socket MP1, input pressure 0.35 ... 1.0 MPa
V66	MS-SV-E-10V24-AD12-MP3 <sup>1)</sup>	–	Soft start/quick exhaust valve, category 4 with Performance Level E according to EN ISO 13849-1, 2-channel with self-monitoring, 24 V DC, pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, with multi-pin plug socket MP3, input pressure 0.35 ... 1.0 MPa
V67	MS-SV-E-10V24-SO-AD12-MP3 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 4 with Performance Level E according to EN ISO 13849-1, 2-channel with self-monitoring, 24V DC, open silencer, pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, with multi-pin plug socket MP3, input pressure 0.35 ... 1.0 MPa
V68	MS-SV-E-10V24-AD12-MP5 <sup>1)</sup>	–	Soft start/quick exhaust valve, category 4 with Performance Level E according to EN ISO 13849-1, 2-channel with self-monitoring, 24 V DC, pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, with multi-pin plug socket MP5, input pressure 0.35 ... 1.0 MPa
V69	MS-SV-E-10V24-SO-AD12-MP5 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 4 with Performance Level E according to EN ISO 13849-1, 2-channel with self-monitoring, 24V DC, open silencer, pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, with multi-pin plug socket MP5, input pressure 0.35 ... 1.0 MPa
V70	MS-SV-D-10V24-2M8-SO-AD12 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 3 with Performance Level D according to EN ISO 13849-1, 2-channel, type C (plug pattern according to EN 175301-803), 24 V DC, non-detenting manual override on the pilot actuator, open silencer, pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, 2 SMT proximity switches (0.3 m, M8), input pressure 0.35 ... 1.0 MPa
V71	MS-SV-D-10V24-2M8-AD12 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 3 with Performance Level D according to EN ISO 13849-1, 2-channel, type C (plug pattern according to EN 175301-803), 24 V DC, non-detenting manual override on the pilot actuator, pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, 2 SMT proximity switches (0.3 m, M8), input pressure 0.35 ... 1.0 MPa
V72	MS-SV-D-10V24P-2M8-SO-AD11 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 3 with Performance Level D according to EN ISO 13849-1, 2-channel, M12 (plug pattern according to IEC 61076-2-101), 24 V DC, non-detenting/detenting manual override on the pilot actuator, open silencer, pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, 2 SMT proximity switches (0.3 m, M8), input pressure 0.35 ... 1.0 MPa

1) Female thread only with G1/2 (MS6)

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description Size 4	Size: 6
<b>Soft-start/quick exhaust valve MS-SV (not with EU EX2/EX4 approval)</b>			
V73	MS-SV-D-10V24P-2M8-AD11 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 3 with Performance Level D according to EN ISO 13849-1, 2-channel, M12 (plug pattern according to EN 61076-2-101), 24 V DC, non-detenting/detenting manual override on the pilot actuator, pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, 2 SMT proximity switches (0.3 m, M8), input pressure 0.35 ... 1.0 MPa
V74	MS-SV-D-10V24P-2M8-SO-AD12 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 3 with Performance Level D according to EN ISO 13849-1, 2-channel, M12 (plug pattern according to IEC 61076-2-101), 24 V DC, non-detenting/detenting manual override on the pilot actuator, open silencer, pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, 2 SMT proximity switches (0.3 m, M8), input pressure 0.35 ... 1.0 MPa
V75	MS-SV-D-10V24P-2M8-AD12 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 3 with Performance Level D according to EN ISO 13849-1, 2-channel, M12 (plug pattern according to EN 61076-2-101), 24 V DC, non-detenting/detenting manual override on the pilot actuator, pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, 2 SMT proximity switches (0.3 m, M8), input pressure 0.35 ... 1.0 MPa
V76	MS-SV-E-10V24-AD11 <sup>1)</sup>	–	Soft start/quick exhaust valve, category 4 with Performance Level E according to EN ISO 13849-1, 2-channel with self-monitoring, 24 V DC, pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.35 ... 1.0 MPa
V77	MS-SV-E-10V24-SO-AD11 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 4 with Performance Level E according to EN ISO 13849-1, 2-channel with self-monitoring, 24V DC, open silencer, with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.35 ... 1.0 MPa
V78	MS-SV-E-10V24-AD11-MP1 <sup>1)</sup>	–	Soft start/quick exhaust valve, category 4 with Performance Level E according to EN ISO 13849-1, 2-channel with self-monitoring, 24 V DC, pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, with multi-pin plug socket MP1, input pressure 0.35 ... 1.0 MPa
V79	MS-SV-E-10V24-SO-AD11-MP1 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 4 with Performance Level E according to EN ISO 13849-1, 2-channel with self-monitoring, 24V DC, open silencer, with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, with multi-pin plug socket MP1, input pressure 0.35 ... 1.0 MPa

1) Female thread only with G1/2 (MS6)

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description Size 4	Size: 6
<b>Soft-start/quick exhaust valve MS-SV (not with EU EX2/EX4 approval)</b>			
V80	MS-SV-E-10V24-AD11-MP3 <sup>1)</sup>	–	Soft start/quick exhaust valve, category 4 with Performance Level E according to EN ISO 13849-1, 2-channel with self-monitoring, 24 V DC, pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, with multi-pin plug socket MP3, input pressure 0.35 ... 1.0 MPa
V81	MS-SV-E-10V24-SO-AD11-MP3 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 4 with Performance Level E according to EN ISO 13849-1, 2-channel with self-monitoring, 24V DC, open silencer, with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, with multi-pin plug socket MP3, input pressure 0.35 ... 1.0 MPa
V82	MS-SV-E-10V24-AD11-MP5 <sup>1)</sup>	–	Soft start/quick exhaust valve, category 4 with Performance Level E according to EN ISO 13849-1, 2-channel with self-monitoring, 24 V DC, pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, with multi-pin plug socket MP5, input pressure 0.35 ... 1.0 MPa
V83	MS-SV-E-10V24-SO-AD11-MP5 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 4 with Performance Level E according to EN ISO 13849-1, 2-channel with self-monitoring, 24V DC, open silencer, with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, with multi-pin plug socket MP5, input pressure 0.35 ... 1.0 MPa
V84	MS-SV-D-10V24-2M12-SO-AD12 <sup>1)</sup>	–	Soft start/quick exhaust valve, category 3 with Performance Level D according to EN ISO 13849-1, 2-channel, 24 V DC, plug pattern according to EN 175301, 2 SMT proximity switches (0.3 m, M12), open silencer, with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.35 ... 1.0 MPa
V85	MS-SV-D-10V24-2M12-AD12 <sup>1)</sup>	–	Soft start/quick exhaust valve, category 3 with Performance Level D according to EN ISO 13849-1, 2-channel, 24 V DC, plug pattern according to EN 175301, 2 SMT proximity switches (0.3 m, M12), with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.35 ... 1.0 MPa
V86	MS-SV-D-10V24P-2M12-SO-AD11 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 3 with Performance Level D according to EN ISO 13849-1, 2-channel, 24 V DC, M12 to IEC 61076-2-101, 2 SMT proximity switches (0.3 m, M12), open silencer, with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.35 ... 1.0 MPa

1) Female thread only with G1/2 (MS6)

## Type codes

Overview list – Service unit components MS4/6			
Code	Type	Description Size 4	Size: 6
<b>Soft-start/quick exhaust valve MS-SV (not with EU EX2/EX4 approval)</b>			
V87	MS-SV-D-10V24P-2M12-AD11 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 3 with Performance Level D according to EN ISO 13849-1, 2-channel, 24 V DC, M12 to IEC 61076-2-101, 2 SMT proximity switches (0.3 m, M12), with pressure sensor (SPAU), with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA input pressure 0.35 ... 1.0 MPa
V88	MS-SV-D-10V24P-2M12-SO-AD12 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 3 with Performance Level D according to EN ISO 13849-1, 2-channel, 24 V DC, M12 to IEC 61076-2-101, 2 SMT proximity switches (0.3 m, M12), open silencer, with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.35 ... 1.0 MPa
V89	MS-SV-D-10V24P-2M12-AD12 <sup>1)</sup>	–	Soft-start/quick exhaust valve, category 3 with Performance Level D according to EN ISO 13849-1, 2-channel, 24 V DC, M12 to IEC 61076-2-101, 2 SMT proximity switches (0.3 m, M12), with pressure sensor (SPAU), with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA, input pressure 0.35 ... 1.0 MPa
<b>Water separator MS-LWS</b>			
W1	MS-LWS-U-V	–	Water separator, metal bowl, fully automatic condensate drain

1) Female thread only with G1/2 (MS6)

## Type codes

<b>001</b>	<b>Baureihe</b>
<b>MSB</b>	Wartungsgeräte-Kombination MS-Reihe
<b>002</b>	<b>Baugröße</b>
<b>9</b>	Rastermaß 90 mm
<b>003</b>	<b>Pneumatischer Anschluss</b>
<b>3/4</b>	Innengewinde G3/4
<b>1</b>	Innengewinde G1
<b>AGD</b>	Anschlussplatte G1/2
<b>AGE</b>	Anschlussplatte G3/4
<b>AGF</b>	Anschlussplatte G1
<b>AGG</b>	Anschlussplatte G11/4
<b>AGH</b>	Anschlussplatte G11/2
<b>N3/4</b>	Innengewinde N3/4
<b>N1</b>	Innengewinde N1
<b>AQR</b>	Anschlussplatte NPT1/2
<b>AQS</b>	Anschlussplatte NPT3/4
<b>AQT</b>	Anschlussplatte NPT1
<b>AQU</b>	Anschlussplatte NPT11/4
<b>AQV</b>	Anschlussplatte NPT11/2
<b>G</b>	Modul ohne Anschlussgewinde, ohne Anschlussplatte
<b>NG</b>	Modul ohne Anschlussgewinde, ohne Anschlussplatte (Inch)

<b>004</b>	<b>Wartungsgeräte Bestückung</b>
<b>...</b>	Auswahl siehe Übersichtsliste
<b>005</b>	<b>Befestigungsart</b>
	Ohne Befestigungswinkel
<b>WP</b>	Befestigungswinkel Grundausführung
<b>WPB</b>	Befestigungswinkel für großen Wandabstand
<b>WPM</b>	Befestigungswinkel zum Einhängen der Wartungsgeräte
<b>006</b>	<b>Zulassung EU</b>
	Keine
<b>EX2</b>	II 3GD nach EU-Ex-Schutz-Richtlinie (ATEX)
<b>EX4</b>	II 2GD nach EU-Ex-Schutz-Richtlinie (ATEX)
<b>007</b>	<b>Zulassung UL</b>
	Keine
<b>UL1</b>	cULus ordinary location for Canada and USA
<b>008</b>	<b>Durchflussrichtung</b>
	Durchflussrichtung von links nach rechts
<b>Z</b>	Durchflussrichtung von rechts nach links

## Type codes

Overview list – Service unit components MS9		
Code	Type	Description
<b>On/off valve MS-EM, manually actuated</b>		
C2)	MS-EM-S	On/off valve with silencer
C7)	MS-EM-RS	On/off valve, red rotary knob, silencer
<b>On/off valve MS-EE, electrically actuated</b>		
D4	MS-EE-V24-S	Electric on/off valve, 24 V, with silencer, 18 bar
D16	MS-EE-V24-S-AD7	Electric on/off valve, 24 V, silencer, pressure sensor with switching status indicator(SDE5), plug M8, threshold value comparator, PNP, NO
D17	MS-EE-V24P-S	Electric on/off valve, 24 V DC plug (plug pattern M12 to DESINA), silencer
D18	MS-EE-V24P-S-AD7	Electric on/off valve, 24 V DC plug (plug pattern M12 to DESINA), silencer, pressure sensor with switching status indicator(SDE5), plug M8, threshold value comparator, PNP, NO
<b>Branching module MS-FRM</b>		
F1	MS-FRM	Branching module
F3	MS-FRM-Y	Branching module with pressure switch, no display
F8	MS-FRM-M12	Branching module with pressure switch, no display, M12 plug, 4-pin
<b>Filter MS-LF</b>		
H5	MS-LF-C-U-M	Filter, 5 µm, metal bowl, manual condensate drain
H6	MS-LF-C-U-V	Filter, 5 µm, metal bowl, fully automatic condensate drain
H7	MS-LF-E-U-V	Filter, 40 µm, metal bowl, fully automatic condensate drain
H8	MS-LF-E-U-M	Filter, 40 µm, metal bowl, manual condensate drain
<b>Fine and micro filter MS-LFM</b>		
I7	MS-LFM-B-U-V	Fine and micro filter, 1 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), 0.2 ... 1.2 MPa
I8	MS-LFM-A-U-V	Fine and micro filter, 0.01 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), 0.2 ... 1.2 MPa
I9	MS-LFM-B-U-V-DA	Fine and micro filter, 1 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), optical differential pressure display, 0.2 ... 1.2 MPa
I12	MS-LFM-A-U-V-DA	Fine and micro filter, 0.01 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), optical differential pressure display, 0.2 ... 1.2 MPa
I23	MS-LFM-B-U-V-HF	Fine and micro filter, 1 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), high flow rate 0.2 ... 1.2 MPa
I24	MS-LFM-A-U-V-HF	Fine and micro filter, 0.01 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), high flow rate 0.2 ... 1.2 MPa
I25	MS-LFM-B-U-V-HF-DA	Fine and micro filter, 1 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), high flow rate, optical differential pressure display, 0.2 ... 1.2 MPa
I26	MS-LFM-A-U-V-HF-DA	Fine and micro filter, 0.01 µm grade of filtration, metal bowl, fully automatic condensate drain (normally open), high flow rate, optical differential pressure display, 0.2 ... 1.2 MPa

## Type codes

Overview list – Service unit components MS9		
Code	Type	Description
<b>Filter regulator MS-LFR</b>		
J47	MS-LFR-D6-E-U-M-DI-AS	Filter regulator, lockable, directly controlled, 40 µm, metal bowl, manual condensate drain, (MS pressure gauge with pressure gauge scale in bar or PSI), 0.05 ... 0.7 MPa
J50	MS-LFR-D6-E-U-V-DI-AS	Filter regulator, lockable, directly controlled, 40 µm, metal bowl, fully automatic condensate drain (normally open), (MS pressure gauge with pressure gauge scale in bar or PSI), 0.05 ... 0.7 MPa
J53	MS-LFR-D6-C-U-M-DI-AS	Filter regulator, lockable, directly controlled, 5 µm, metal bowl, manual condensate drain, (MS pressure gauge with pressure gauge scale in bar or PSI), 0.05 ... 0.7 MPa
J56	MS-LFR-D6-C-U-V-DI-AS	Filter regulator, lockable, directly controlled, 5 µm, metal bowl, fully automatic condensate drain (normally open), (MS pressure gauge with pressure gauge scale in bar or PSI), 0.05 ... 0.7 MPa
J59	MS-LFR-D6-E-U-M-AS	Filter regulator, lockable, piloted, 40 µm, metal bowl, manual condensate drain, (MS pressure gauge with pressure gauge scale in bar or PSI), 0.05 ... 0.7 MPa
J62	MS-LFR-D6-E-U-V-AS	Filter regulator, lockable, piloted, 40 µm, metal bowl, fully automatic condensate drain (normally open), (MS pressure gauge with pressure gauge scale in bar or PSI), 0.05 ... 0.7 MPa
J65	MS-LFR-D6-C-U-M-AS	Filter regulator, lockable, piloted, 5 µm, metal bowl, manual condensate drain, (MS pressure gauge with pressure gauge scale in bar or PSI), 0.05 ... 0.7 MPa
J68	MS-LFR-D6-C-U-V-AS	Filter regulator, lockable, piloted, 5 µm, metal bowl, fully automatic condensate drain (normally open), (MS pressure gauge with pressure gauge scale in bar or PSI), 0.05 ... 0.7 MPa
J71	MS-LFR-D7-C-U-M-AS	Filter regulator, lockable, piloted, 5 µm, metal bowl, manual condensate drain, (MS pressure gauge with pressure gauge scale in bar or PSI), 0.05 ... 1.2 MPa
J72	MS-LFR-D7-C-U-V-AS	Filter regulator, lockable, piloted, 5 µm, metal bowl, fully automatic condensate drain (normally open), (MS pressure gauge with pressure gauge scale in bar or PSI), 0.05 ... 1.2 MPa
J73	MS-LFR-D7-E-U-M-AS	Filter regulator, lockable, piloted, 40 µm, metal bowl, manual condensate drain, (MS pressure gauge with pressure gauge scale in bar or PSI), 0.05 ... 1.2 MPa
J74	MS-LFR-D7-E-U-V-AS	Filter regulator, lockable, piloted, 40 µm, metal bowl, fully automatic condensate drain (normally open), (MS pressure gauge with pressure gauge scale in bar or PSI), 0.05 ... 1.2 MPa
J103	MS-LFR-D7-E-U-M-RG-AS	Filter regulator, piloted, 40 µm, metal bowl, manual condensate drain, integrated pressure gauge with red/green scale, can be locked using accessories, 0.05 ... 1.2 MPa
J104	MS-LFR-D7-E-U-V-RG-AS	Filter regulator, piloted, 40 µm, metal bowl, fully automatic condensate drain (normally open), integrated pressure gauge with red/green scale, can be locked using accessories, 0.05 ... 1.2 MPa
J105	MS-LFR-D7-C-U-M-RG-AS	Filter regulator, piloted, 5 µm, metal bowl, manual condensate drain, integrated pressure gauge with red/green scale, can be locked using accessories, 0.05 ... 1.2 MPa
J106	MS-LFR-D7-C-U-V-RG-AS	Filter regulator, piloted, 5 µm, metal bowl, fully automatic condensate drain (normally open), integrated pressure gauge with red/green scale, can be locked using accessories, 0.05 ... 1.2 MPa
J107	MS-LFR-D6-E-U-M-RG-AS	Filter regulator, piloted, 40 µm, metal bowl, manual condensate drain, integrated pressure gauge with red/green scale, can be locked using accessories, 0.05 ... 0.7 MPa
J108	MS-LFR-D6-E-U-V-RG-AS	Filter regulator, piloted, 40 µm, metal bowl, fully automatic condensate drain (normally open), integrated pressure gauge with red/green scale, can be locked using accessories, 0.05 ... 0.7 MPa
J109	MS-LFR-D6-C-U-M-RG-AS	Filter regulator, piloted, 5 µm, metal bowl, manual condensate drain, integrated pressure gauge with red/green scale, can be locked using accessories, 0.05 ... 0.7 MPa
J110	MS-LFR-D6-C-U-V-RG-AS	Filter regulator, piloted, 5 µm, metal bowl, fully automatic condensate drain (normally open), integrated pressure gauge with red/green scale, can be locked using accessories, 0.05 ... 0.7 MPa

## Type codes

Overview list – Service unit components MS9		
Code	Type	Description
<b>Filter regulator MS-LFR</b>		
J111	MS-LFR-D7-E-U-M-A4-AS	Filter regulator, piloted, 40 µm, metal bowl, manual condensate drain, adapter for EN pressure gauge 1/4, can be locked using accessories, 0.05 ... 1.2 MPa
J112	MS-LFR-D7-E-U-V-A4-AS	Filter regulator, piloted, 40 µm, metal bowl, fully automatic condensate drain (normally open), adapter for EN pressure gauge 1/4, can be locked using accessories, 0.05 ... 1.2 MPa
J113	MS-LFR-D7-C-U-M-A4-AS	Filter regulator, piloted, 5 µm, metal bowl, manual condensate drain, adapter for EN pressure gauge 1/4, can be locked using accessories, 0.05 ... 1.2 MPa
J114	MS-LFR-D7-C-U-V-A4-AS	Filter regulator, piloted, 5 µm, metal bowl, fully automatic condensate drain (normally open), adapter for EN pressure gauge 1/4, can be locked using accessories, 0.05 ... 1.2 MPa
J115	MS-LFR-D6-E-U-M-A4-AS	Filter regulator, piloted, 40 µm, metal bowl, manual condensate drain, adapter for EN pressure gauge 1/4, can be locked using accessories, 0.03 ... 0.7 MPa
J116	MS-LFR-D6-E-U-V-A4-AS	Filter regulator, piloted, 40 µm, metal bowl, fully automatic condensate drain (normally open), adapter for EN pressure gauge 1/4, can be locked using accessories, 0.03 ... 0.7 MPa
J117	MS-LFR-D6-C-U-M-A4-AS	Filter regulator, piloted, 5 µm, metal bowl, manual condensate drain, adapter for EN pressure gauge 1/4, can be locked using accessories, 0.03 ... 0.7 MPa
J118	MS-LFR-D6-C-U-V-A4-AS	Filter regulator, piloted, 5 µm, metal bowl, fully automatic condensate drain (normally open), adapter for EN pressure gauge 1/4, can be locked using accessories, 0.03 ... 0.7 MPa
J122	MS-LFR-D6-E-U-M-AG-MPA-AS	Filter regulator, piloted, 40 µm, metal bowl, manual condensate drain, integrated pressure gauge with MPa scale, can be locked using accessories, 0.03 ... 0.7 MPa
J123	MS-LFR-D6-E-U-V-AG-MPA-AS	Filter regulator, piloted, 40 µm, metal bowl, fully automatic condensate drain (normally open), integrated pressure gauge with MPa scale, can be locked using accessories, 0.03 ... 0.7 MPa

## Type codes

Overview list – Service unit components MS9		
Code	Type	Description
<b>Activated carbon filters MS-LFX</b>		
L2	MS-LFX-U	Activated carbon filter with metal bowl
<b>Lubricator MS-LOE (not with EU EX2/EX4 certification)</b>		
M2	MS-LOE-U	Lubricator with metal bowl
<b>Pressure regulator MS-LR</b>		
N1	MS-LR-D5-DI-AG-BAR/PSI-AS	Pressure regulator, directly actuated, lockable rotary knob, pressure gauge 0.05 ... 0.4 MPa
N2	MS-LR-D6-DI-AG-BAR/PSI-AS	Pressure regulator, directly actuated, lockable rotary knob, pressure gauge 0.05 ... 0.7 MPa
N7	MS-LR-D5-DI-AG-BAR/PSI-KD-AS	Pressure regulator, directly actuated, lockable, rotary knob underneath, pressure gauge 0.05 ... 0.4 MPa
N8	MS-LR-D6-DI-AG-BAR/PSI-KD-AS	Pressure regulator, directly actuated, lockable, rotary knob underneath, pressure gauge 0.05 ... 0.7 MPa
N35	MS-LR-D5-AG-BAR/PSI-AS	Pressure regulator, piloted, integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, 0.05 ... 0.4 MPa
N36	MS-LR-D6-AG-BAR/PSI-AS	Pressure regulator, piloted, integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, 0.05 ... 0.7 MPa
N37	MS-LR-D7-AG-BAR/PSI-AS	Pressure regulator, piloted, integrated MS pressure gauge with outer scale in bar and inner scale in psi, lockable rotary knob, 0.05 ... 1.2 MPa
N38	MS-LR-D5-AG-BAR/PSI-KD-AS	Pressure regulator, piloted, integrated MS pressure gauge with outer scale in bar and inner scale in psi, rotary knob underneath, lockable rotary knob, 0.05 ... 0.4 MPa
N39	MS-LR-D6-AG-BAR/PSI-KD-AS	Pressure regulator, piloted, integrated MS pressure gauge with outer scale in bar and inner scale in psi, rotary knob underneath, lockable rotary knob, 0.05 ... 0.7 MPa
N40	MS-LR-D7-AG-BAR/PSI-KD-AS	Pressure regulator, piloted, integrated MS pressure gauge with outer scale in bar and inner scale in psi, rotary knob underneath, lockable rotary knob, 0.05 ... 1.2 MPa
N53	MS-LR-D5-RG-AS	Pressure regulator, integrated pressure gauge with red/green scale, can be unlocked with accessories, 0.05 ... 0.4 MPa
N54	MS-LR-D6-RG-AS	Pressure regulator, integrated pressure gauge with red/green scale, can be locked using accessories, 0.05 ... 0.7 MPa
N55	MS-LR-D7-RG-AS	Pressure regulator, integrated pressure gauge with red/green scale, can be locked using accessories, 0.05 ... 1.2 MPa
N56	MS-LR-D5-A4-AS	Pressure regulator, adapter for EN pressure gauge 1/4, can be locked using accessories, 0.05 ... 0.4 MPa
N57	MS-LR-D6-A4-AS	Pressure regulator, adapter for EN pressure gauge 1/4, can be locked using accessories, 0.05 ... 0.7 MPa
N58	MS-LR-D7-A4-AS	Pressure regulator, adapter for EN pressure gauge 1/4, can be locked using accessories, 0.05 ... 1.2 MPa
N61	MS-LR-D6-AG-MPA-AS	Pressure regulator, piloted, integrated pressure gauge with MPa scale, can be locked using accessories 0.05 ... 0.7 MPa
N70	MS-LR-PE10-VS	Precision pressure regulator, electrically actuated (pilot control using proportional pressure regulator with LED display, 7-segment) 0...10 V, 0.01 ... 1 MPa
N71	MS-LR-PI10-VS	Precision pressure regulator, electrically actuated (pilot control using proportional pressure regulator with LED display, 7-segment) 4...20 mA, 0.01 ... 1 MPa

## Type codes

Overview list – Service unit components MS9		
Code	Type	Description
<b>Flow sensor SFAM (only in flow direction from left to right)</b>		
U9	SFAM-5000-M-2SA-M12	Flow sensor, max. 5000 l/min, manifold assembly, 2x PNP or NPN, 1 analogue output 4 ... 20 mA, M12 plug, A-coded
U10	SFAM-5000-M-2SV-M12	Flow sensor, max. 5000 l/min, manifold assembly, 2x PNP or NPN, 1 analogue output 0 ... 10 V, M12 plug, A-coded
U11	SFAM-10000-M-2SA-M12	Flow sensor, max. 10000 l/min, manifold assembly, 2x PNP or NPN, 1 analogue output 4 ... 20 mA, M12 plug, A-coded
U12	SFAM-10000-M-2SV-M12	Flow sensor, max. 10000 l/min, manifold assembly, 2x PNP or NPN, 1 analogue output 0 ... 10 V, M12 plug, A-coded
U13	SFAM-15000-M-2SA-M12	Flow sensor, max. 15000 l/min, manifold assembly, 2x PNP or NPN, 1 analogue output 4 ... 20 mA, M12 plug, A-coded
U14	SFAM-15000-M-2SV-M12	Flow sensor, max. 15000 l/min, manifold assembly, 2x PNP or NPN, 1 analogue output 0 ... 10 V, M12 plug, A-coded
U17	SFAM-5000L-M-PNLK-PN-VBA-M12	Flow sensor, max. 5000 l/min, manifold assembly, electrical output 1: PNP or NPN or IO-Link®, electrical output 2: PNP or NPN, electrical output 3: 0 ... 10 V or 1 ... 5 V or 4 ... 20 mA, plug M12, A-coded
U18	SFAM-10000L-M-PNLK-PN-VBA-M12	Flow sensor, max. 10000 l/min, manifold assembly, electrical output 1: PNP or NPN or IO-Link®, electrical output 2: PNP or NPN, electrical output 3: 0 ... 10 V or 1 ... 5 V or 4 ... 20 mA, plug M12, A-coded
U19	SFAM-15000L-M-PNLK-PN-VBA-M12	Flow sensor, max. 15000 l/min, manifold assembly, electrical output 1: PNP or NPN or IO-Link®, electrical output 2: PNP or NPN, electrical output 3: 0 ... 10 V or 1 ... 5 V or 4 ... 20 mA, plug M12, A-coded
U22	SFAM-5000L-M-PNLK-PN-VBA-M12-EMD	Flow sensor, max. 5000 l/min, manifold assembly, electrical output 1: PNP or NPN or IO-Link®, electrical output 2: PNP or NPN, electrical output 3: 0 ... 10 V or 1 ... 5 V or 4 ... 20 mA, plug M12, A-coded, additional function: energy efficiency and maintenance diagnostics
<b>Soft-start/quick exhaust valve MS-SV (not with EU EX2/EX4 approval)</b>		
V12	MS-SV-C-V24-S	Soft-start/quick exhaust valve, category 1 with Performance Level C according to EN ISO 13849-1, single-channel, type C (plug pattern according to EN 175301-803), 24 V DC, (non-detenting manual override on pilot actuator and detenting on soft-start/quick exhaust valve, with silencer, 0.35 ... 1.6 MPa
V22	MS-SV-C-V24-S-AD7	Soft-start/quick exhaust valve, category 1 with Performance Level C according to EN ISO 13849-1, single-channel, type C (plug pattern according to EN 175301-803), 24 V DC, non-detenting manual override on the pilot actuator and detenting on the soft-start/quick exhaust valve, with silencer, pressure sensor (SDE5), with switching status indicator, plug M8, threshold comparator, PNP, 3-pin, 0.35 ... 1.6 MPa
V35	MS-SV-C-10V24P-S	Soft-start/quick exhaust valve, category 1 with Performance Level C according to EN ISO13849-1, single-channel, M12 (plug pattern according to IEC 61076-2-101), 24 V DC, non-detenting/detenting manual override on the pilot actuator, and detenting on the soft-start/quick exhaust valve, with silencer, plug M12, 0.35 ... 1 MPa
V36	MS-SV-C-10V24P-S-AD7	Soft-start/quick exhaust valve, category 1 with Performance Level C according to EN ISO13849-1, single-channel, M12 (plug pattern according to IEC 61076-2-101), 24 V DC, non-detenting/detenting manual override on the pilot actuator and detenting on the soft-start/quick exhaust valve, with silencer, pressure sensor (SDE5), with switching status indicator, plug M8, threshold comparator, PNP, 3-pin, 0.35 ... 1 MPa
<b>Water separator MS-LWS</b>		
W1	MS-LWS-U-V	Water separator, metal bowl, fully automatic condensate drain