

## Service unit combinations MSB, MS series

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## Key features

### MS series service unit components

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 application-specific solutions with very high quality requirements. Available as individual components, pre-assembled

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

### Freely combinable function modules

Pressure regulators, on/off and soft-start valves with safety function, filters, pressure and flow sensors, dryers, sensors and lubricators can be assembled into a suitable solution for every task. With the modular structure the components can be combined as required. The simple connection system saves time because replacing individu-

al modules does not require disassembling the entire combination. Many of the components are also UL and ATEX certified.

### CAD models and configurator

Convenient tools for planning and selecting application-specific individual components and combinations. The product configurator lets you configure customised solutions quickly and transfer the order data without any hassle.

### Engineering tools

Selection tool for choosing the right service unit combination without oversizing, and with the right air quality class:

→ [www.festo.com/engineering/wartungseinheit](http://www.festo.com/engineering/wartungseinheit)



### Integrated sensors

Pressure and flow sensors



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

### Safety functions

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



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

### Energy savings

Service unit combinations MSE6



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

Intelligent mix of sizes



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

### Size differences

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

1) Using pressure regulator MS-LR as an example

## Key features

### Note

#### Information

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

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

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

#### Design of a service unit combination

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

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

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

#### Total product range for MS series service unit components

Type	Description	Size	Pneumatic connection					
			Push-in connector	Female thread			Connecting plate with thread	
				M	G	NPT	G	NPT
<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
	7 combinations, predefined	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

Total product range for MS series service unit components								
Type	Description	Size	Pneumatic connection			Connecting plate with thread		
			Push-in connector	Female thread		Connecting plate with thread		
			M	G	NPT	G	NPT	
<b>Individual components</b>								
<b>Filter regulators MS-LFR</b> <span style="float: right;">Datasheets → Internet: ms-lfr</span>								
	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>Filters MS-LF</b> <span style="float: right;">Datasheets → Internet: ms-lf</span>								
	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> <span style="float: right;">Datasheets → Internet: ms-lfm</span>								
	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> <span style="float: right;">Datasheets → Internet: ms-lfx</span>								
	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 separators MS-LWS</b> <span style="float: right;">Datasheets → Internet: ms-lws</span>								
	Remove condensate from compressed air, maintenance-free	6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–

## Key features

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

## Key features

Total product range for MS series service unit components								
Type	Description	Size	Pneumatic connection			Connecting plate with thread		
			Push-in connector	Female thread		Connecting plate with thread		
			M	G	NPT	G	NPT	
<b>Individual components</b>								
<b>On/off valves MS-EM</b> <span style="float: right;">Datasheets → Internet: ms-em</span>								
	Manually actuated on/off valve for pressurising and exhausting pneumatic installations.	4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–
<b>On/off valves MS-EE</b> <span style="float: right;">Datasheets → Internet: ms-ee</span>								
	Electrically actuated on/off valve for pressurising and exhausting pneumatic installations.	4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–
<b>Soft-start valves MS-DL</b> <span style="float: right;">Datasheets → Internet: ms-dl</span>								
	Pneumatically actuated soft-start valve for slow pressurisation and exhaust of pneumatic installations.	4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–
<b>Soft-start valves MS-DE</b> <span style="float: right;">Datasheets → Internet: ms-de</span>								
	Electrically actuated soft-start valve for slow pressurisation and exhaust of pneumatic installations.	4	–	–	1/8, 1/4	–	1/8, 1/4, 3/8	1/8, 1/4, 3/8
		6	–	–	1/4, 3/8, 1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		12	–	–	–	–	1, 1 1/4, 1 1/2, 2	–
<b>Soft-start/quick exhaust valves MS-SV</b> <span style="float: right;">Datasheets → Internet: ms-sv</span>								
	For gradually increasing pressurisation and quick, safe pressure reduction in pneumatic piping systems. Up to category 1, PL c.	6	–	–	1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
		9	–	–	3/4, 1	3/4, 1	1/2, 3/4, 1, 1 1/4, 1 1/2	1/2, 3/4, 1, 1 1/4, 1 1/2
	Up to category 3, PL d. Up to category 4, PL e in the case of optional extension.	6	–	–	1/2	–	1/4, 3/8, 1/2, 3/4	1/4, 3/8, 1/2, 3/4
	Up to category 4, PL e.	6	–	–	1/2	–	1/4, 3/8, 1/2, 3/4	–

## Key features

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

## 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)



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### 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 structure [1]. All of the features available for selection are stored 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 → Table with "Conditions and excluded features". 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] (→ 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:IS-WP

1

Basic configuration

- Basic function
- Size
- Connection size
- Mounting type
- EU certification
- Alternative flow direction

Service unit 1

- Service unit equipment position 1
- Supply voltage 1
- Slencer 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

Connection size: AGD Connecting plate 01/2

Mounting type: WP Mounting bracket

EU certification: None

Alternative flow direction: Value 2: with LFB(01-06), LFRB(R1-R4) pressure output to the front

Flow direction from left to right

Service unit 1

Service unit equipment position 1: EE On-off valve, electrical

Supply voltage 1: V24 24 V DC

Slencer 1: S Slencer

2

3

EE DL LFR FRM LFM

D4 A1 J1 F1 IS

4

Add to basket

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- Data Sheet
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- Save as
- Reset
- Valid selection
- request your price
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- W - One week delivery time

## Key features

### Information

#### General

The adjacent columns and the total product range of service unit components MS series on page 3 provide a brief overview of the available service unit components of 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 12 for size MSB4/MSB6 and from page 33 for MSB9. You can find detailed information and all technical data in the documentation for the corresponding service unit component. Enter the short code of the service unit component (e.g. MS6-EE) into 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.

#### ★ 531029 MSB4 (ISO)

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

- Filter regulator MS4-LFR
- Pressure regulator MS4-LR
- 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
- Soft-start valve, pneumatic MS4-DL
- Soft-start valve, electric MS4-DE
- Membrane air dryer MS4-LDM1
- Branching module MS4-FRM

#### ★ 531030 MSB6 (ISO)

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

- Filter regulator MS6-LFR
- Pressure regulator MS6-LR
- Pressure regulator for manifold assembly MS6-LRB
- Precision pressure regulator MS6-LRP
- Precision pressure regulator for manifold assembly MS6-LRPB
- Electrical pressure regulator MS6-LRE
- 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
- Soft-start valve, pneumatic MS6-DL
- Soft-start valve, electric MS6-DE
- 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-LFM:

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

#### MS-LRB/LRPB:

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

#### 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 noted here, you can also obtain information by selecting the information button beside 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 clearance WPB must be selected if the combination includes the electrical pressure regulator MS-LRE, the soft-start/quick exhaust valve MS-SV-E or the block-mountable regulator MS-LRB without angled outlet block
- Regulators MS-LFR/LR/LRP/LRE are only permissible in the flow direction with the same or decreasing pressure regulation range
- Filters MS-LFR/LF/LFM/LFX are only permissible in the flow direction with an increasing grade of filtration

### Rules specific to the service unit component

#### MS-LFM:

- Only 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

## Key features

### ATEX certification

A configured service unit combination 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 separators MS6/9-LWS
- Lubricators 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 possible
- 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>	
CE mark (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)	
	To EU EMC Directive	-
	To EU Low Voltage Directive	-
<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>
CE mark (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)	

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

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

### UL certification

Certified by UL as a component for the market in USA and Canada for 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

## Type codes

001	Series
<b>MSB</b>	Service unit component MS series
002	Size
<b>4</b>	Grid dimension 40 mm
003	Pneumatic connection
<b>1/8</b>	Female thread G1/8
<b>1/4</b>	Female thread G1/4
<b>AGA</b>	Sub-base G1/8
<b>AGB</b>	Sub-base G1/4
<b>AGC</b>	Sub-base G3/8
<b>AQK</b>	Sub-base NPT1/8
<b>AQN</b>	Sub-base NPT1/4
<b>AQP</b>	Sub-base NPT3/8
004	Service unit component equipment
<b>...</b>	For selection, see overview list

005	Type of mounting
	Without mounting bracket
<b>WP</b>	Mounting bracket basic design
<b>WPB</b>	Mounting bracket for large wall gap
<b>WPM</b>	Mounting bracket for hooking in service unit components
006	EU certification
	None
<b>EX2</b>	II 3GD to EU Explosion Protection Directive (ATEX)
<b>EX4</b>	II 2GD
007	UL certification
	None
<b>UL1</b>	cULus ordinary location for Canada and USA
008	Flow direction
	Flow direction from left to right
<b>Z</b>	Flow direction from right to left

## Type codes

001	Series
<b>MSB</b>	Service unit component MS series
002	Size
<b>6</b>	Grid dimension 62 mm
003	Pneumatic connection
<b>1/4</b>	Female thread G1/4
<b>3/8</b>	Female thread G3/8
<b>1/2</b>	Female thread G1/2
<b>AGB</b>	Sub-base G1/4
<b>AGC</b>	Sub-base G3/8
<b>AGD</b>	Sub-base G1/2
<b>AGE</b>	Sub-base G3/4
<b>AQN</b>	Sub-base NPT1/4
<b>AQP</b>	Sub-base NPT3/8
<b>AQR</b>	Sub-base NPT1/2
<b>AQS</b>	Sub-base NPT3/4
004	Service unit component equipment
...	For selection, see overview list

005	Type of mounting
	Without mounting bracket
<b>WP</b>	Mounting bracket basic design
<b>WPB</b>	Mounting bracket for large wall gap
<b>WPM</b>	Mounting bracket for hooking in service unit components
006	EU certification
	None
<b>EX2</b>	II 3GD to EU Explosion Protection Directive (ATEX)
<b>EX4</b>	II 2GD
007	UL certification
	None
<b>UL1</b>	cULus ordinary location for Canada and USA
008	Flow direction
	Flow direction from left to right
<b>Z</b>	Flow direction from right to left

## Type codes

001	Series	
<b>MSB</b>	Service unit component MS series	

002	Size	
<b>4</b>	Grid dimension 40 mm	

003	Thread type	
<b>N</b>	NPT thread	

004	Pneumatic connection, inch	
<b>1/8</b>	Female thread NPT 1/8	
<b>1/4</b>	Female thread NPT 1/4	
<b>AQK</b>	Sub-base NPT1/8	
<b>AQN</b>	Sub-base NPT1/4	
<b>AQP</b>	Sub-base NPT3/8	

005	Service unit component equipment	
...	For selection, see overview list	

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

007	Flow direction	
	Flow direction from left to right	
<b>Z</b>	Flow direction from right to left	

## Type codes

001	Series	
<b>MSB</b>	Service unit component MS series	

002	Size	
<b>6</b>	Grid dimension 62 mm	

003	Thread type	
<b>N</b>	NPT thread	

004	Pneumatic connection, inch	
<b>1/4</b>	Female thread NPT 1/4	
<b>3/8</b>	Female thread NPT 3/8	
<b>1/2</b>	Female thread NPT 1/2	
<b>AQN</b>	Sub-base NPT1/4	
<b>AQP</b>	Sub-base NPT3/8	
<b>AQR</b>	Sub-base NPT1/2	
<b>AQS</b>	Sub-base NPT3/4	

005	Service unit component equipment	
...	For selection, see overview list	

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

007	Flow direction	
	Flow direction from left to right	
<b>Z</b>	Flow direction from right to left	

## Type codes

Overview list – Service unit components MS4/6				
Code	Size		Type	Description
	MS4	MS6		
<b>Soft-start valve MS-DL, pneumatically actuated</b>				
A1	■	■	MS-DL	Cover plate
A2	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-DL-AD7	Pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O)
1) Female thread only with G1/4 (MS4) or G1/2 (MS6)				
<b>Soft-start valve MS-DE, electrically actuated</b>				
B1	■	■	MS-DE-V24	Supply voltage 24 V DC, operating pressure 4 ... 14 bar (MS4)/4 ... 18 bar (MS6), electrical connection to EN 175301-803 (plug, type C), cover plate
B2	■	■	MS-DE-V110	Supply voltage 110 V AC, operating pressure 4 ... 14 bar (MS4)/4 ... 18 bar (MS6), electrical connection to EN 175301-803 (plug, type C), cover plate
B3	■	■	MS-DE-V230	Supply voltage 230 V AC, operating pressure 4 ... 14 bar (MS4)/4 ... 18 bar (MS6), electrical connection to EN 175301-803 (plug, type C), cover plate
B4	■	■	MS-DE-10V24	Supply voltage 24 V DC, operating pressure 4 ... 10 bar, electrical connection to EN 175301-803 (plug, type C), cover plate
B5	■	■	MS-DE-V24-EX2	Supply voltage 24 V DC, operating pressure 4 ... 14 bar (MS4)/4 ... 18 bar (MS6), electrical connection to EN 175301-803 (plug, type C), cover plate. to EU Ex Protection Directive (ATEX)
<b>On/off valve MS-EM1, manually actuated</b>				
C3	■	■	MS-EM1	Without silencer, cover plate
C4	■	■	MS-EM1-S	Silencer, cover plate
<b>On/off valve MS-EE, electrically actuated</b>				
D1	■	■	MS-EE-V24	Supply voltage 24 V DC, operating pressure 4 ... 14 bar (MS4)/4 ... 18 bar (MS6), electrical connection to EN 175301-803 (plug, type C), without silencer, cover plate
D2	■	■	MS-EE-V110	Supply voltage 110 V AC, operating pressure 4 ... 14 bar (MS4)/4 ... 18 bar (MS6), electrical connection to EN 175301-803 (plug, type C), without silencer, cover plate
D3	■	■	MS-EE-V230	Supply voltage 230 V AC, operating pressure 4 ... 14 bar (MS4)/4 ... 18 bar (MS6), electrical connection to EN 175301-803 (plug, type C), without silencer, cover plate
D4	■	■	MS-EE-V24-S	Supply voltage 24 V DC, operating pressure 4 ... 10 bar, electrical connection to EN 175301-803 (plug, type C), silencer, cover plate
D5	■	■	MS-EE-V110-S	Supply voltage 110 V AC, operating pressure 4 ... 10 bar, electrical connection to EN 175301-803 (plug, type C), silencer, cover plate
D6	■	■	MS-EE-V230-S	Supply voltage 230 V AC, operating pressure 4 ... 10 bar, electrical connection to EN 175301-803 (plug, type C), silencer, cover plate
D7	■	■	MS-EE-10V24	Supply voltage 24 V DC, operating pressure 4 ... 10 bar, electrical connection to EN 175301-803 (plug, type C), without silencer, cover plate
D8	■	■	MS-EE-10V24-S	Supply voltage 24 V DC, operating pressure 4 ... 10 bar, electrical connection to EN 175301-803 (plug, type C), silencer, cover plate
D9	■	■	MS-EE-V24-EX2	Supply voltage 24 V DC, operating pressure 4 ... 14 bar (MS4)/4 ... 18 bar (MS6), electrical connection to EN 175301-803 (plug, type C), without silencer, cover plate, to EU Ex Protection Directive (ATEX)
D10	■	■	MS-EE-V24-S-EX2	Supply voltage 24 V DC, operating pressure 4 ... 10 bar, electrical connection to EN 175301-803 (plug, type C), without silencer, cover plate, to EU Ex Protection Directive (ATEX)
D12	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-EE-10V24-AD7	Supply voltage 24 V DC, operating pressure 4 ... 10 bar, electrical connection to EN 175301-803 (plug, type C), without silencer, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O)
D13	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-EE-10V24-S-AD7	Supply voltage 24 V DC, operating pressure 4 ... 10 bar, electrical connection to EN 175301-803 (plug, type C), silencer, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O)

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

## Type codes

Overview list – Service unit components MS4/6				
Code	Size		Type	Description
	MS4	MS6		
<b>On/off valve MS-EE, electrically actuated</b>				
D14	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-EE-10V24P-AD7	Supply voltage 24 V DC, operating pressure 4 ... 10 bar, electrical connection to IEC 61076-2-101 (M12x1 plug, 2-pin), without silencer, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O)
D15	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-EE-10V24P-S-AD7	Supply voltage 24 V DC, operating pressure 4 ... 10 bar, electrical connection to IEC 61076-2-101 (M12x1 plug, 2-pin), silencer, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O)
D19	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-EE-10V24P	Supply voltage 24 V DC, operating pressure 4 ... 10 bar, electrical connection to IEC 61076-2-101 (M12x1 plug, 2-pin), without silencer, cover plate
D20	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-EE-10V24P-S	Supply voltage 24 V DC, operating pressure 4 ... 10 bar, electrical connection to IEC 61076-2-101 (M12x1 plug, 2-pin), silencer, cover plate
1) Female thread only with G1/4 (MS4) or G1/2 (MS6)				
<b>Branching module MS-FRM/distributor block MS-FRM-FRZ</b>				
F1	■	■	MS-FRM	Cover plate
F2	■	■	MS-FRM-I	Integrated non-return function, cover plate
F3	■	■	MS-FRM-Y	Pressure switch without display (plug socket, EN 175301, type A, cube), cover plate
F6	■	■	MS-FRM-AD1	Pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin)
F7	■	■	MS-FRM-I-AD1	Integrated non-return function, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin)
F8	■	■	MS-FRM-M12	Pressure switch without display (plug socket, round, M12, 4-pin), cover plate
F9	■	■	MS-FRM-I-M12	Integrated non-return function, pressure switch without display (plug socket, round, M12, 4-pin), cover plate
F10	■	■	MS-FRM-AD3	Pressure sensor with LCD display (M12 plug, 1 switching output PNP, 4-pin)
F11	■	■	MS-FRM-I-AD3	Integrated non-return function, pressure sensor with LCD display (M12 plug, 1 switching output PNP, 4-pin)
F12	■	■	MS-FRM-AD7	Pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O)
F13	■	■	MS-FRM-I-AD7	Integrated non-return function, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O)
F14	■	■	MS-FRM-FRZ	Half grid dimension 20/31 mm
F15	■	■	MS-FRM-AD12	Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA
F16	■	■	MS-FRM-I-AD12	Integrated non-return function, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA
F17	■	■	MS-FRM-AD11	Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA
F18	■	■	MS-FRM-I-AD11	Integrated non-return function, pressure sensor with LCD display, M12 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA
<b>Membrane air dryers MS-LDM1</b>				
G3	■	–	MS-LDM1-P05	Flow cartridge 50 l/min
G4	■	–	MS-LDM1-P10	Flow cartridge 100 l/min
G5	–	■	MS-LDM1-P20	Flow cartridge 200 l/min
G6	–	■	MS-LDM1-P30	Flow cartridge 300 l/min
G7	–	■	MS-LDM1-P40	Flow cartridge 400 l/min
<b>Filters MS-LF</b>				
H1	■	■	MS-LF-ERV	Grade of filtration 40 µm, plastic bowl guard, fully automatic condensate drain
H2	■	■	MS-LF-ERM	Grade of filtration 40 µm, plastic bowl guard, manual condensate drain
H3	■	■	MS-LF-CRM	Grade of filtration 5 µm, plastic bowl guard, manual condensate drain
H4	■	■	MS-LF-CRV	Grade of filtration 5 µm, plastic bowl guard, fully automatic condensate drain
H5	■	■	MS-LF-CUM	Grade of filtration 5 µm, metal bowl, manual condensate drain
H6	■	■	MS-LF-CUV	Grade of filtration 5 µm, metal bowl, fully automatic condensate drain
H7	■	■	MS-LF-EUV	Grade of filtration 40 µm, metal bowl, fully automatic condensate drain
H8	■	■	MS-LF-EUM	Grade of filtration 40 µm, metal bowl, manual condensate drain

## Type codes

Overview list – Service unit components MS4/6				
Code	Size		Type	Description
	MS4	MS6		
<b>Fine and micro filter MS-LFM</b>				
I1	■	■	MS-LFM-BRM	Grade of filtration 1 µm, plastic bowl guard, manual condensate drain
I2	–	■	MS-LFM-BRV	Grade of filtration 1 µm, plastic bowl guard, fully automatic condensate drain
I3	■	■	MS-LFM-ARM	Grade of filtration 0.01 µm, plastic bowl guard, manual condensate drain
I4	–	■	MS-LFM-ARV	Grade of filtration 0.01 µm, plastic bowl guard, fully automatic condensate drain
I5	■	■	MS-LFM-ARM-DA	Grade of filtration 0.01 µm, plastic bowl guard, manual condensate drain, optical differential pressure display
I6	–	■	MS-LFM-ARV-DA	Grade of filtration 0.01 µm, plastic bowl guard, fully automatic condensate drain, optical differential pressure display
I7	■	■	MS-LFM-BUV	Grade of filtration 1 µm, metal bowl, fully automatic condensate drain
I8	■	■	MS-LFM-AUV	Grade of filtration 0.01 µm, metal bowl, fully automatic condensate drain
I9	■	■	MS-LFM-BUV-DA	Grade of filtration 1 µm, metal bowl, fully automatic condensate drain, optical differential pressure display
I10	■	■	MS-LFM-BRM-DA	Grade of filtration 1 µm, plastic bowl guard, manual condensate drain, optical differential pressure display
I11	–	■	MS-LFM-BRV-DA	Grade of filtration 1 µm, plastic bowl guard, fully automatic condensate drain, optical differential pressure display
I12	■	■	MS-LFM-AUV-DA	Grade of filtration 0.01 µm, metal bowl, fully automatic condensate drain, optical differential pressure display
I13	■	■	MS-LFM-BRM-DP	Grade of filtration 1 µm, plastic bowl guard, manual condensate drain, filter contamination indicator (M8 plug, PNP, 3-pin)
I14	–	■	MS-LFM-BRV-DP	Grade of filtration 1 µm, plastic bowl guard, fully automatic condensate drain, filter contamination indicator (M8 plug, PNP, 3-pin)
I15	■	■	MS-LFM-ARM-DP	Grade of filtration 0.01 µm, plastic bowl guard, manual condensate drain, filter contamination indicator (M8 plug, PNP, 3-pin)
I16	–	■	MS-LFM-ARV-DP	Grade of filtration 0.01 µm, plastic bowl guard, fully automatic condensate drain, filter contamination indicator (M8 plug, PNP, 3-pin)
I17	■	■	MS-LFM-BUV-DP	Grade of filtration 1 µm, metal bowl, fully automatic condensate drain, filter contamination indicator (M8 plug, PNP, 3-pin)
I18	■	■	MS-LFM-AUV-DP	Grade of filtration 0.01 µm, metal bowl, fully automatic condensate drain, filter contamination indicator (M8 plug, PNP, 3-pin)
I23	–	■	MS-LFM-BUV-HF	Grade of filtration 1 µm, metal bowl, fully automatic condensate drain, high flow rate
I24	–	■	MS-LFM-AUV-HF	Grade of filtration 0.01 µm, metal bowl, fully automatic condensate drain, high flow rate
I25	–	■	MS-LFM-BUV-HF-DA	Grade of filtration 1 µm, metal bowl, fully automatic condensate drain, high flow rate, optical differential pressure display
I26	–	■	MS-LFM-AUV-HF-DA	Grade of filtration 0.01 µm, metal bowl, fully automatic condensate drain, high flow rate, optical differential pressure display
I27	–	■	MS-LFM-BUV-HF-DP	Grade of filtration 1 µm, metal bowl, fully automatic condensate drain, high flow rate, filter contamination indicator (M8 plug, PNP, 3-pin)
I28	–	■	MS-LFM-AUV-HF-DP	Grade of filtration 0.01 µm, metal bowl, fully automatic condensate drain, high flow rate, filter contamination indicator (M8 plug, PNP, 3-pin)
I29	–	■ <sup>1)</sup>	MS-LFM-ARV-HP	Grade of filtration 0.01 µm, plastic bowl guard, fully automatic condensate drain, low flow rate suitable for sealing air and purge air
I30	–	■ <sup>1)</sup>	MS-LFM-BRV-HP	Grade of filtration 1 µm, plastic bowl guard, fully automatic condensate drain, low flow rate suitable for sealing air and purge air
I31	–	■ <sup>1)</sup>	MS-LFM-ARV-HP-DP	Grade of filtration 0.01 µm, plastic bowl guard, fully automatic condensate drain, low flow rate suitable for sealing air and purge air, filter contamination indicator (M8 plug, PNP, 3-pin)
I32	–	■ <sup>1)</sup>	MS-LFM-BRV-HP-DP	Grade of filtration 1 µm, plastic bowl guard, fully automatic condensate drain, low flow rate suitable for sealing air and purge air, filter contamination indicator (M8 plug, PNP, 3-pin)

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

## Type codes

Overview list – Service unit components MS4/6				
Code	Size		Type	Description
	MS4	MS6		
<b>Filter regulator MS-LFR</b>				
J1	■	■	MS-LFR-D7-ERM-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, plastic bowl guard, manual condensate drain, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J2	■	■	MS-LFR-D7-ERV-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, plastic bowl guard, fully automatic condensate drain, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J3	■	■	MS-LFR-D7-CRM-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, plastic bowl guard, manual condensate drain, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J4	■	■	MS-LFR-D7-CRV-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, plastic bowl guard, fully automatic condensate drain, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J5	■	■	MS-LFR-D6-ERM-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, plastic bowl guard, manual condensate drain, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J6	■	■	MS-LFR-D6-ERV-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, plastic bowl guard, fully automatic condensate drain, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J7	■	■	MS-LFR-D6-CRM-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, plastic bowl guard, manual condensate drain, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J8	■	■	MS-LFR-D6-CRV-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, plastic bowl guard, fully automatic condensate drain, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J9	■	■	MS-LFR-D7-CUM-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, metal bowl, manual condensate drain, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J10	■	■	MS-LFR-D7-CUV-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, metal bowl, fully automatic condensate drain, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J11	■	■	MS-LFR-D7-EUM-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, metal bowl, manual condensate drain, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J12	■	■	MS-LFR-D7-EUV-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, metal bowl, fully automatic condensate drain, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J13	■	■	MS-LFR-D7-ERM-AD1-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, plastic bowl guard, manual condensate drain, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories
J14	■	■	MS-LFR-D7-ERV-AD1-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, plastic bowl guard, fully automatic condensate drain, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories
J15	■	■	MS-LFR-D7-CRM-AD1-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, plastic bowl guard, manual condensate drain, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories
J16	■	■	MS-LFR-D7-CRV-AD1-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, plastic bowl guard, fully automatic condensate drain, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories

## Type codes

Overview list – Service unit components MS4/6				
Code	Size		Type	Description
	MS4	MS6		
<b>Filter regulator MS-LFR</b>				
J17	■	■	MS-LFR-D6-ERM-AD1-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, plastic bowl guard, manual condensate drain, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories
J18	■	■	MS-LFR-D6-ERV-AD1-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, plastic bowl guard, fully automatic condensate drain, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories
J19	■	■	MS-LFR-D6-CRM-AD1-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, plastic bowl guard, manual condensate drain, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories
J20	■	■	MS-LFR-D6-CRV-AD1-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, plastic bowl guard, fully automatic condensate drain, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories
J21	■	■	MS-LFR-D7-EUM-AD1-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, metal bowl, manual condensate drain, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories
J22	■	■	MS-LFR-D7-EUV-AD1-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, metal bowl, fully automatic condensate drain, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories
J23	■	■	MS-LFR-D7-CUM-AD1-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, metal bowl, manual condensate drain, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories
J24	■	■	MS-LFR-D7-CUV-AD1-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, metal bowl, fully automatic condensate drain, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories
J35	■	■	MS-LFR-D7-ERM-AD7-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, plastic bowl guard, manual condensate drain, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories
J36	■	■	MS-LFR-D7-ERV-AD7-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, plastic bowl guard, fully automatic condensate drain, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories
J37	■	■	MS-LFR-D7-CRM-AD7-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, plastic bowl guard, manual condensate drain, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories
J38	■	■	MS-LFR-D7-CRV-AD7-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, plastic bowl guard, fully automatic condensate drain, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories
J39	■	■	MS-LFR-D6-ERM-AD7-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, plastic bowl guard, manual condensate drain, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories
J40	■	■	MS-LFR-D6-ERV-AD7-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, plastic bowl guard, fully automatic condensate drain, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories
J41	■	■	MS-LFR-D6-CRM-AD7-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, plastic bowl guard, manual condensate drain, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories
J42	■	■	MS-LFR-D6-CRV-AD7-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, plastic bowl guard, fully automatic condensate drain, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories

## Type codes

Overview list – Service unit components MS4/6				
Code	Size		Type	Description
	MS4	MS6		
<b>Filter regulator MS-LFR</b>				
J43	■	■	MS-LFR-D7-EUM-AD7-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, metal bowl, manual condensate drain, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories
J44	■	■	MS-LFR-D7-EUV-AD7-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, metal bowl, fully automatic condensate drain, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories
J45	■	■	MS-LFR-D7-CUM-AD7-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, metal bowl, manual condensate drain, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories
J46	■	■	MS-LFR-D7-CUV-AD7-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, metal bowl, fully automatic condensate drain, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories
J79	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D7-ERM-RG-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, plastic bowl guard, manual condensate drain, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J80	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D7-ERV-RG-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, plastic bowl guard, fully automatic condensate drain, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J81	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D7-CRM-RG-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, plastic bowl guard, manual condensate drain, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J82	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D7-CRV-RG-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, plastic bowl guard, fully automatic condensate drain, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J83	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D6-ERM-RG-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, plastic bowl guard, manual condensate drain, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J84	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D6-ERV-RG-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, plastic bowl guard, fully automatic condensate drain, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J85	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D6-CRM-RG-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, plastic bowl guard, manual condensate drain, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J86	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D6-CRV-RG-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, plastic bowl guard, fully automatic condensate drain, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J87	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D7-EUM-RG-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, metal bowl, manual condensate drain, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J88	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D7-EUV-RG-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, metal bowl, fully automatic condensate drain, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J89	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D7-CUM-RG-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, metal bowl, manual condensate drain, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J90	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D7-CUV-RG-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, metal bowl, fully automatic condensate drain, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories

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

## Type codes

Overview list – Service unit components MS4/6				
Code	Size		Type	Description
	MS4	MS6		
<b>Filter regulator MS-LFR</b>				
J91	■ <sup>1)</sup>	–	MS-LFR-D7-ERM-A8-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, plastic bowl guard, manual condensate drain, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
	–	■ <sup>1)</sup>	MS-LFR-D7-ERM-A4-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, plastic bowl guard, manual condensate drain, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
J92	■ <sup>1)</sup>	–	MS-LFR-D7-ERV-A8-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, plastic bowl guard, fully automatic condensate drain, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
	–	■ <sup>1)</sup>	MS-LFR-D7-ERV-A4-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, plastic bowl guard, fully automatic condensate drain, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
J93	■ <sup>1)</sup>	–	MS-LFR-D7-CRM-A8-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, plastic bowl guard, manual condensate drain, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
	–	■ <sup>1)</sup>	MS-LFR-D7-CRM-A4-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, plastic bowl guard, manual condensate drain, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
J94	■ <sup>1)</sup>	–	MS-LFR-D7-CRV-A8-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, plastic bowl guard, fully automatic condensate drain, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
	–	■ <sup>1)</sup>	MS-LFR-D7-CRV-A4-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, plastic bowl guard, fully automatic condensate drain, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
J95	■ <sup>1)</sup>	–	MS-LFR-D6-ERM-A8-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, plastic bowl guard, manual condensate drain, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
	–	■ <sup>1)</sup>	MS-LFR-D6-ERM-A4-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, plastic bowl guard, manual condensate drain, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
J96	■ <sup>1)</sup>	–	MS-LFR-D6-ERV-A8-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, plastic bowl guard, fully automatic condensate drain, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
	–	■ <sup>1)</sup>	MS-LFR-D6-ERV-A4-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, plastic bowl guard, fully automatic condensate drain, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
J97	■ <sup>1)</sup>	–	MS-LFR-D6-CRM-A8-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, plastic bowl guard, manual condensate drain, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
	–	■ <sup>1)</sup>	MS-LFR-D6-CRM-A4-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, plastic bowl guard, manual condensate drain, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
J98	■ <sup>1)</sup>	–	MS-LFR-D6-CRV-A8-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, plastic bowl guard, fully automatic condensate drain, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
	–	■ <sup>1)</sup>	MS-LFR-D6-CRV-A4-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, plastic bowl guard, fully automatic condensate drain, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories

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

## Type codes

Overview list – Service unit components MS4/6				
Code	Size		Type	Description
	MS4	MS6		
<b>Filter regulator MS-LFR</b>				
J99	■ <sup>1)</sup>	–	MS-LFR-D7-EUM-A8-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, metal bowl, manual condensate drain, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
	–	■ <sup>1)</sup>	MS-LFR-D7-EUM-A4-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, metal bowl, manual condensate drain, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
J100	■ <sup>1)</sup>	–	MS-LFR-D7-EUV-A8-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, metal bowl, fully automatic condensate drain, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
	–	■ <sup>1)</sup>	MS-LFR-D7-EUV-A4-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, metal bowl, fully automatic condensate drain, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
J101	■ <sup>1)</sup>	–	MS-LFR-D7-CUM-A8-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, metal bowl, manual condensate drain, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
	–	■ <sup>1)</sup>	MS-LFR-D7-CUM-A4-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, metal bowl, manual condensate drain, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
J102	■ <sup>1)</sup>	–	MS-LFR-D7-CUV-A8-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, metal bowl, fully automatic condensate drain, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
	–	■ <sup>1)</sup>	MS-LFR-D7-CUV-A4-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, metal bowl, fully automatic condensate drain, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
J119	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D6-CRV-MPA-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, plastic bowl guard, fully automatic condensate drain, integrated MS pressure gauge with outer scale in MPa, standard rotary knob with latch, can be locked with accessories
J120	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D6-ERM-MPA-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, plastic bowl guard, manual condensate drain, integrated MS pressure gauge with outer scale in MPa, standard rotary knob with latch, can be locked with accessories
J121	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D6-ERV-MPA-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, plastic bowl guard, fully automatic condensate drain, integrated MS pressure gauge with outer scale in MPa, standard rotary knob with latch, can be locked with accessories
J124	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D6-CRM-MPA-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, plastic bowl guard, manual condensate drain, integrated MS pressure gauge with outer scale in MPa, standard rotary knob with latch, can be locked with accessories
J125	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D7-ERM-AD12-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, plastic bowl guard, manual condensate drain, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0°... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories
J126	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D7-ERV-AD12-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, plastic bowl guard, fully automatic condensate drain, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0°... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories
J127	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D7-CRM-AD12-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, plastic bowl guard, manual condensate drain, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0°... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories
J128	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D7-CRV-AD12-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, plastic bowl guard, fully automatic condensate drain, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0°... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories
J129	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D6-ERM-AD12-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, plastic bowl guard, manual condensate drain, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0°... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories
J130	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D6-ERV-AD12-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, plastic bowl guard, fully automatic condensate drain, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0°... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories
J131	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D6-CRM-AD12-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, plastic bowl guard, manual condensate drain, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0°... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories
J132	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D6-CRV-AD12-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, plastic bowl guard, fully automatic condensate drain, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0°... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories

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

## Type codes

Overview list – Service unit components MS4/6				
Code	Size		Type	Description
	MS4	MS6		
<b>Filter regulator MS-LFR</b>				
J133	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D7-EUM-AD12-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, metal bowl, manual condensate drain, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0°... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories
J134	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D7-EUV-AD12-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, metal bowl, fully automatic condensate drain, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0°... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories
J135	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D7-CUM-AD12-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, metal bowl, manual condensate drain, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0°... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories
J136	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LFR-D7-CUV-AD12-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, metal bowl, fully automatic condensate drain, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0°... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories
<b>Activated carbon filters MS-LFX</b>				
L1	■	■	MS-LFX-R	Plastic bowl guard
L2	■	■	MS-LFX-U	Metal bowl
L3	–	■	MS-LFX-U-HF	Metal bowl, high flow rate
L4	–	■ <sup>1)</sup>	MS-LFX-R-HP	Plastic bowl guard, low flow rate suitable for sealing air and cleaning air
1) Female thread only with G1/2 (MS6)				
<b>Lubricators MS-LOE</b>				
M1	■	■	MS-LOE-R	Plastic bowl guard
M2	■	■	MS-LOE-U	Metal bowl
<b>Pressure regulator MS-LR</b>				
N1	■	■	MS-LR-D5-AS	Pressure regulation range 0.3 ... 4 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
N2	■	■	MS-LR-D6-AS	Pressure regulation range 0.3 ... 7 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
N3	■	■	MS-LR-D7-AS	Pressure regulation range 0.5 ... 12 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
N4	■	■	MS-LR-D5-AD1-AS	Pressure regulation range 0.3 ... 4 bar, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories
N5	■	■	MS-LR-D6-AD1-AS	Pressure regulation range 0.3 ... 7 bar, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories
N6	■	■	MS-LR-D7-AD1-AS	Pressure regulation range 0.5 ... 12 bar, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories
N7	■	■	MS-LR-D5-KD-AS	Pressure regulation range 0.3 ... 4 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi, rotary knob underneath, standard rotary knob with latch, can be locked with accessories
N8	■	■	MS-LR-D6-KD-AS	Pressure regulation range 0.3 ... 7 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi, rotary knob underneath, standard rotary knob with latch, can be locked with accessories
N9	■	■	MS-LR-D7-KD-AS	Pressure regulation range 0.5 ... 12 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi, rotary knob underneath, standard rotary knob with latch, can be locked with accessories
N10	■	■	MS-LR-D5-AD1-KD-AS	Pressure regulation range 0.3 ... 4 bar, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), rotary knob underneath, standard rotary knob with latch, can be locked with accessories
N11	■	■	MS-LR-D6-AD1-KD-AS	Pressure regulation range 0.3 ... 7 bar, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), rotary knob underneath, standard rotary knob with latch, can be locked with accessories
N12	■	■	MS-LR-D7-AD1-KD-AS	Pressure regulation range 0.5 ... 12 bar, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), rotary knob underneath, standard rotary knob with latch, can be locked with accessories
N19	■	■	MS-LR-D5-AD7-AS	Pressure regulation range 0.3 ... 4 bar, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories
N20	■	■	MS-LR-D6-AD7-AS	Pressure regulation range 0.3 ... 7 bar, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories
N21	■	■	MS-LR-D7-AD7-AS	Pressure regulation range 0.5 ... 12 bar, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories
N22	■	■	MS-LR-D5-AD7-KD-AS	Pressure regulation range 0.3 ... 4 bar, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), rotary knob underneath, standard rotary knob with latch, can be locked with accessories
N23	■	■	MS-LR-D6-AD7-KD-AS	Pressure regulation range 0.3 ... 7 bar, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), rotary knob underneath, standard rotary knob with latch, can be locked with accessories
N24	■	■	MS-LR-D7-AD7-KD-AS	Pressure regulation range 0.5 ... 12 bar, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), rotary knob underneath, standard rotary knob with latch, can be locked with accessories

## Type codes

Overview list – Service unit components MS4/6				
Code	Size		Type	Description
	MS4	MS6		
<b>Pressure regulator MS-LR</b>				
N28	–	■ <sup>1)</sup>	MS-LR-D5-VS-DM2	Pressure regulation range 0.3 ... 4 bar, cover plate, large rotary knob pressure gauge
N29	–	■ <sup>1)</sup>	MS-LR-D6-VS-DM2	Pressure regulation range 0.3 ... 7 bar, cover plate, large rotary knob pressure gauge
N30	–	■ <sup>1)</sup>	MS-LR-D7-VS-DM2	Pressure regulation range 0.5 ... 12 bar, cover plate, large rotary knob pressure gauge
N31	■ <sup>1)</sup>	–	MS-LR-D5-VS-DM1	Pressure regulation range 0.3 ... 4 bar, cover plate, small rotary knob pressure gauge
N32	■ <sup>1)</sup>	–	MS-LR-D6-VS-DM1	Pressure regulation range 0.3 ... 7 bar, cover plate, small rotary knob pressure gauge
N33	■ <sup>1)</sup>	–	MS-LR-D7-VS-DM1	Pressure regulation range 0.5 ... 12 bar, cover plate, small rotary knob pressure gauge
N47	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LR-D5-RG-AS	Pressure regulation range 0.3 ... 4 bar, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
N48	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LR-D6-RG-AS	Pressure regulation range 0.3 ... 7 bar, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
N49	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LR-D7-RG-AS	Pressure regulation range 0.5 ... 12 bar, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
N50	■ <sup>1)</sup>	–	MS-LR-D5-A8-AS	Pressure regulation range 0.3 ... 4 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
	–	■ <sup>1)</sup>	MS-LR-D5-A4-AS	Pressure regulation range 0.3 ... 4 bar, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
N51	■ <sup>1)</sup>	–	MS-LR-D6-A8-AS	Pressure regulation range 0.3 ... 7 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
	–	■ <sup>1)</sup>	MS-LR-D6-A4-AS	Pressure regulation range 0.3 ... 7 bar, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
N52	■ <sup>1)</sup>	–	MS-LR-D7-A8-AS	Pressure regulation range 0.5 ... 12 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
	–	■ <sup>1)</sup>	MS-LR-D7-A4-AS	Pressure regulation range 0.5 ... 12 bar, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
N59	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LR-D5-MPA-AS	Pressure regulation range 0.3 ... 4 bar, integrated MS pressure gauge with outer scale in MPa, standard rotary knob with latch, can be locked with accessories
N60	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LR-D6-MPA-AS	Pressure regulation range 0.3 ... 7 bar, integrated MS pressure gauge with outer scale in MPa, standard rotary knob with latch, can be locked with accessories
N61	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LR-D5-AD12-AS	Pressure regulation range 0.3 ... 4 bar, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories
N62	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LR-D6-AD12-AS	Pressure regulation range 0.3 ... 7 bar, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories
N63	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LR-D7-AD12-AS	Pressure regulation range 0.3 ... 12 bar, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories
N64	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LR-D5-AD12-KD-AS	Pressure regulation range 0.3 ... 4 bar, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, integrated MS pressure gauge with outer scale in bar and inner scale in psi, rotary knob underneath, standard rotary knob with latch, can be locked with accessories
N65	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LR-D6-AD12-KD-AS	Pressure regulation range 0.3 ... 7 bar, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, integrated MS pressure gauge with outer scale in bar and inner scale in psi, rotary knob underneath, standard rotary knob with latch, can be locked with accessories
N66	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LR-D7-AD12-KD-AS	Pressure regulation range 0.3 ... 12 bar, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, integrated MS pressure gauge with outer scale in bar and inner scale in psi, rotary knob underneath, standard rotary knob with latch, can be locked with accessories
<b>Pressure regulator MS-LRB</b>				
O1	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D5-AS	Pressure regulation range 0.3 ... 4 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
O2	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D6-AS	Pressure regulation range 0.3 ... 7 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
O3	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D7-AS	Pressure regulation range 0.5 ... 12 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block

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

## Type codes

Overview list – Service unit components MS4/6				
Code	Size		Type	Description
	MS4	MS6		
<b>Pressure regulator MS-LRB</b>				
O4	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D5-AS-BD	Pressure regulation range 0.3 ... 4 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories, pressure output rear/front with angled outlet block QS-8
O5	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D6-AS-BD	Pressure regulation range 0.3 ... 7 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories, pressure output rear/front with angled outlet block QS-8
O6	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D7-AS-BD	Pressure regulation range 0.5 ... 12 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories, pressure output rear/front with angled outlet block QS-8
O7	■ <sup>1)</sup>	–	MS-LRB-D5-A8-AS	Pressure regulation range 0.3 ... 4 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
	–	■ <sup>1)</sup>	MS-LRB-D5-A4-AS	Pressure regulation range 0.3 ... 4 bar, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
O8	■ <sup>1)</sup>	–	MS-LRB-D6-A8-AS	Pressure regulation range 0.3 ... 7 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
	–	■ <sup>1)</sup>	MS-LRB-D6-A4-AS	Pressure regulation range 0.3 ... 7 bar, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
O9	■ <sup>1)</sup>	–	MS-LRB-D7-A8-AS	Pressure regulation range 0.5 ... 12 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
	–	■ <sup>1)</sup>	MS-LRB-D7-A4-AS	Pressure regulation range 0.5 ... 12 bar, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
O10	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D5-AD1-AS	Pressure regulation range 0.3 ... 4 bar, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
O11	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D6-AD1-AS	Pressure regulation range 0.3 ... 7 bar, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
O12	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D7-AD1-AS	Pressure regulation range 0.5 ... 12 bar, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
O13	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D5-AD1-AS-BD	Pressure regulation range 0.3 ... 4 bar, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories, pressure output rear/front with angled outlet block QS-8
O14	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D6-AD1-AS-BD	Pressure regulation range 0.3 ... 7 bar, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories, pressure output rear/front with angled outlet block QS-8
O15	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D7-AD1-AS-BD	Pressure regulation range 0.5 ... 12 bar, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), standard rotary knob with latch, can be locked with accessories, pressure output rear/front with angled outlet block QS-8
O16	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D5-VS-KD-AS	Pressure regulation range 0.3 ... 4 bar, cover plate, rotary knob underneath, standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
O17	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D6-VS-KD-AS	Pressure regulation range 0.3 ... 7 bar, cover plate, rotary knob underneath, standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
O18	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D7-VS-KD-AS	Pressure regulation range 0.5 ... 12 bar, cover plate, rotary knob underneath, standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
O19	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D5-KD-AS-BD	Pressure regulation range 0.3 ... 4 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories, pressure output rear/front with angled outlet block QS-8
O20	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D6-KD-AS-BD	Pressure regulation range 0.3 ... 7 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories, pressure output rear/front with angled outlet block QS-8
O21	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D7-KD-AS-BD	Pressure regulation range 0.5 ... 12 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories, pressure output rear/front with angled outlet block QS-8

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

## Type codes

Overview list – Service unit components MS4/6				
Code	Size		Type	Description
	MS4	MS6		
<b>Pressure regulator MS-LRB</b>				
022	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D5-AD7-AS	Pressure regulation range 0.3 ... 4 bar, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
023	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D6-AD7-AS	Pressure regulation range 0.3 ... 7 bar, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
024	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D7-AD7-AS	Pressure regulation range 0.5 ... 12 bar, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
025	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D5-AD7-AS-BD	Pressure regulation range 0.3 ... 4 bar, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories, pressure output rear/front with angled outlet block QS-8
026	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D6-AD7-AS-BD	Pressure regulation range 0.3 ... 7 bar, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories, pressure output rear/front with angled outlet block QS-8
027	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D7-AD7-AS-BD	Pressure regulation range 0.5 ... 12 bar, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O), standard rotary knob with latch, can be locked with accessories, pressure output rear/front with angled outlet block QS-8
028	–	■ <sup>1)</sup>	MS-LRB-D5-VS-DM2	Pressure regulation range 0.3 ... 4 bar, cover plate, large rotary knob pressure gauge, pressure output rear/front without angled outlet block
029	–	■ <sup>1)</sup>	MS-LRB-D6-VS-DM2	Pressure regulation range 0.3 ... 7 bar, cover plate, large rotary knob pressure gauge, pressure output rear/front without angled outlet block
030	–	■ <sup>1)</sup>	MS-LRB-D7-VS-DM2	Pressure regulation range 0.5 ... 12 bar, cover plate, large rotary knob pressure gauge, pressure output rear/front without angled outlet block
031	■ <sup>1)</sup>	–	MS-LRB-D5-VS-DM1	Pressure regulation range 0.3 ... 4 bar, cover plate, large rotary knob pressure gauge, pressure output rear/front without angled outlet block
032	■ <sup>1)</sup>	–	MS-LRB-D6-VS-DM1	Pressure regulation range 0.3 ... 7 bar, cover plate, large rotary knob pressure gauge, pressure output rear/front without angled outlet block
033	■ <sup>1)</sup>	–	MS-LRB-D7-VS-DM1	Pressure regulation range 0.5 ... 12 bar, cover plate, large rotary knob pressure gauge, pressure output rear/front without angled outlet block
034	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D5-RG-AS	Pressure regulation range 0.3 ... 4 bar, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
035	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D6-RG-AS	Pressure regulation range 0.3 ... 7 bar, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
036	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D7-RG-AS	Pressure regulation range 0.5 ... 12 bar, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
037	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D5-RG-AS-BD	Pressure regulation range 0.3 ... 4 bar, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories, pressure output rear/front with angled outlet block QS-8
038	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D6-RG-AS-BD	Pressure regulation range 0.3 ... 7 bar, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories, pressure output rear/front with angled outlet block QS-8
039	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D7-RG-AS-BD	Pressure regulation range 0.5 ... 12 bar, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories, pressure output rear/front with angled outlet block QS-8
040	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D5-MPA-AS	Pressure regulation range 0.3 ... 4 bar, integrated MS pressure gauge with outer scale in MPa, standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
041	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D6-MPA-AS	Pressure regulation range 0.3 ... 7 bar, integrated MS pressure gauge with outer scale in MPa, standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block

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

## Type codes

Overview list – Service unit components MS4/6				
Code	Size		Type	Description
	MS4	MS6		
<b>Pressure regulator MS-LRB</b>				
O42	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D5-AD12-AS	Pressure regulation range 0.3 ... 4 bar, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
O43	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D6-AD12-AS	Pressure regulation range 0.3 ... 7 bar, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
O44	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D7-AD12-AS	Pressure regulation range 0.3 ... 12 bar, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories, pressure output rear/front without angled outlet block
O46	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D5-AD12-AS-BD	Pressure regulation range 0.3 ... 4 bar, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories, pressure output rear/front with angled outlet block QS-8
O47	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D6-AD12-AS-BD	Pressure regulation range 0.3 ... 7 bar, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories, pressure output rear/front with angled outlet block QS-8
O48	■ <sup>1)</sup>	■ <sup>1)</sup>	MS-LRB-D7-AD12-AS-BD	Pressure regulation range 0.3 ... 12 bar, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA, standard rotary knob with latch, can be locked with accessories, pressure output rear/front with angled outlet block QS-8
<b>Precision pressure regulator MS-LRP</b>				
P1	–	■	MS-LRP-D2-A8	Pressure regulation range 0.05 ... 0.7 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch
P2	–	■	MS-LRP-D4-A8	Pressure regulation range 0.05 ... 2.5 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch
P3	–	■	MS-LRP-D5-A8	Pressure regulation range 0.1 ... 4 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch
P4	–	■	MS-LRP-D7-A8	Pressure regulation range 0.1 ... 12 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch
<b>Precision pressure regulator MS-LRPB</b>				
R1	–	■ <sup>1)</sup>	MS-LRPB-D2-A8	Pressure regulation range 0.05 ... 0.7 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, pressure output rear/front without angled outlet block
R2	–	■ <sup>1)</sup>	MS-LRPB-D4-A8	Pressure regulation range 0.05 ... 2.5 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, pressure output rear/front without angled outlet block
R3	–	■ <sup>1)</sup>	MS-LRPB-D5-A8	Pressure regulation range 0.1 ... 4 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, pressure output rear/front without angled outlet block
R4	–	■ <sup>1)</sup>	MS-LRPB-D7-A8	Pressure regulation range 0.1 ... 12 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, pressure output rear/front without angled outlet block
R5	–	■ <sup>1)</sup>	MS-LRPB-D2-A8-BD	Pressure regulation range 0.05 ... 0.7 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, pressure output rear/front with angled outlet block QS-8
R6	–	■ <sup>1)</sup>	MS-LRPB-D4-A8-BD	Pressure regulation range 0.05 ... 2.5 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, pressure output rear/front with angled outlet block QS-8
R7	–	■ <sup>1)</sup>	MS-LRPB-D5-A8-BD	Pressure regulation range 0.1 ... 4 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, pressure output rear/front with angled outlet block QS-8
R8	–	■ <sup>1)</sup>	MS-LRPB-D7-A8-BD	Pressure regulation range 0.1 ... 12 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, pressure output rear/front with angled outlet block QS-8
R9	–	■ <sup>1)</sup>	MS-LRPB-D2-A8-BE	Pressure regulation range 0.05 ... 0.7 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, pressure output rear/front with angled outlet block QS-10
R10	–	■ <sup>1)</sup>	MS-LRPB-D4-A8-BE	Pressure regulation range 0.05 ... 2.5 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, pressure output rear/front with angled outlet block QS-10
R11	–	■ <sup>1)</sup>	MS-LRPB-D5-A8-BE	Pressure regulation range 0.1 ... 4 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, pressure output rear/front with angled outlet block QS-10
R12	–	■ <sup>1)</sup>	MS-LRPB-D7-A8-BE	Pressure regulation range 0.1 ... 12 bar, adapter for EN pressure gauge 1/8 (without pressure gauge), standard rotary knob with latch, pressure output rear/front with angled outlet block QS-10

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

## Type codes

Overview list – Service unit components MS4/6				
Code	Size		Type	Description
	MS4	MS6		
<b>Electrical pressure regulator MS-LRE (not with EU EX2/EX4 certification)</b>				
S1	–	■	MS-LRE-D6	Pressure regulation range 0.3 ... 7 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi
S2	–	■	MS-LRE-D7	Pressure regulation range 0.5 ... 12 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi
S3	–	■	MS-LRE-D6-PI	Pressure regulation range 0.3 ... 7 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi, electrical pressure output (integrated pressure sensor with current output, plug M8x1, 3-pin)
S4	–	■	MS-LRE-D7-PI	Pressure regulation range 0.5 ... 12 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi, electrical pressure output (integrated pressure sensor with current output, plug M8x1, 3-pin)
S5	–	■	MS-LRE-D6-PU	Pressure regulation range 0.3 ... 7 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi, electrical pressure output (integrated pressure sensor with voltage output, plug M8x1, 3-pin)
S6	–	■	MS-LRE-D7-PU	Pressure regulation range 0.5 ... 12 bar, integrated MS pressure gauge with outer scale in bar and inner scale in psi, electrical pressure output (integrated pressure sensor with voltage output, plug M8x1, 3-pin)
<b>Flow sensor SFAM</b>				
U5	–	■	SFAM-1000-M-2SA-M12	Flow measuring range 10 ... 1000 l/min, electrical output (2x PNP or NPN, 1 analogue output 4 ... 20 mA), electrical connection (M12x1 plug, 5-pin)
U6	–	■	SFAM-1000-M-2SV-M12	Flow measuring range 10 ... 1000 l/min, electrical output (2x PNP or NPN, 1 analogue output 0 ... 10 V), electrical connection (M12x1 plug, 5-pin)
U7	–	■	SFAM-3000-M-2SA-M12	Flow measuring range 30 ... 3000 l/min, electrical output (2x PNP or NPN, 1 analogue output 4 ... 20 mA), electrical connection (M12x1 plug, 5-pin)
U8	–	■	SFAM-3000-M-2SV-M12	Flow measuring range 30 ... 3000 l/min, electrical output (2x PNP or NPN, 1 analogue output 0 ... 10 V), electrical connection (M12x1 plug, 5-pin)
U9	–	■	SFAM-5000-M-2SA-M12	Flow measuring range 50 ... 5000 l/min, electrical output (2x PNP or NPN, 1 analogue output 4 ... 20 mA), electrical connection (M12x1 plug, 5-pin)
U10	–	■	SFAM-5000-M-2SV-M12	Flow measuring range 50 ... 5000 l/min, electrical output (2x PNP or NPN, 1 analogue output 0 ... 10 V), electrical connection (M12x1 plug, 5-pin)
<b>Soft-start/quick exhaust valve MS-SV (not with EX2/EX4 EU certification)</b>				
V1	–	■ <sup>1)</sup>	MS-SV-E-10V24-SO-AG	Performance Level "e", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, open silencer, integrated MS pressure gauge with outer scale in bar and inner scale in psi, without multi-pin plug socket
V2	–	■ <sup>1)</sup>	MS-SV-E-10V24-AG	Performance Level "e", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, without silencer, integrated MS pressure gauge with outer scale in bar and inner scale in psi, without multi-pin plug socket
V3	–	■ <sup>1)</sup>	MS-SV-E-10V24-AD1	Performance Level "e", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, without silencer, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), without multi-pin plug socket
V4	–	■ <sup>1)</sup>	MS-SV-E-10V24-SO-AD1	Performance Level "e", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, open silencer, pressure sensor with LCD display (M8 plug, 1 switching output PNP, 3-pin), without multi-pin plug socket
V5	–	■ <sup>1)</sup>	MS-SV-E-10V24-SO-AG-MP1	Performance Level "e", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, open silencer, integrated MS pressure gauge with outer scale in bar and inner scale in psi, multi-pin plug socket (Sub-D, 9-pin, screw terminal, without cable, static enable signal)
V6	–	■ <sup>1)</sup>	MS-SV-E-10V24-AG-MP1	Performance Level "e", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, without silencer, integrated MS pressure gauge with outer scale in bar and inner scale in psi, multi-pin plug socket (Sub-D, 9-pin, screw terminal, without cable, static enable signal)

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

## Type codes

Overview list – Service unit components MS4/6				
Code	Size		Type	Description
	MS4	MS6		
<b>Soft-start/quick exhaust valve MS-SV (not with EX2/EX4 EU certification)</b>				
V7	–	■ <sup>1)</sup>	MS-SV-E-10V24-AD1-MP1	Performance Level "e", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, without silencer, pressure sensor with LCD display (plug M8, 1 switching output PNP, 3-pin), multi-pin plug socket (Sub-D, 9-pin, screw terminal, without cable, enable signals static)
V8	–	■ <sup>1)</sup>	MS-SV-E-10V24-SO-AD1-MP1	Performance Level "e", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, open silencer, pressure sensor with LCD display (plug M8, 1 switching output PNP, 3-pin), multi-pin plug socket (Sub-D, 9-pin, screw terminal, without cable, enable signals static)
V12	–	■ <sup>1)</sup>	MS-SV-C-10V24-S	Performance Level "c", supply voltage 24 V DC, operating pressure 3 ... 10 bar, electrical connection to EN 175301-803 (plug, 2-pin, type C), silencer, cover plate
V22	–	■ <sup>1)</sup>	MS-SV-C-10V24-S-AD7	Performance Level "c", supply voltage 24 V DC, operating pressure 3 ... 10 bar, electrical connection to EN 175301-803 (plug, 2-pin, type C), silencer, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O)
V31	–	■ <sup>1)</sup>	MS-SV-E-10V24-SO-AG-MP3	Performance Level "e", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, open silencer, integrated MS pressure gauge with outer scale in bar and inner scale in psi, multi-pin plug socket (Sub-D, 9-pin, screw terminal, without cable, static enable signal, detection of cross-circuit possible)
V32	–	■ <sup>1)</sup>	MS-SV-E-10V24-AG-MP3	Performance Level "e", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, without silencer, integrated MS pressure gauge with outer scale in bar and inner scale in psi, multi-pin plug socket (Sub-D, 9-pin, screw terminal, without cable, static enable signal, detection of cross-circuit possible)
V33	–	■ <sup>1)</sup>	MS-SV-E-10V24-AD1-MP3	Performance Level "e", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, without silencer, pressure sensor with LCD display (plug M8, 1 switching output PNP, 3-pin), multi-pin plug socket (Sub-D, 9-pin, screw terminal, without cable, enable signals static, detection of cross-circuit possible)
V34	–	■ <sup>1)</sup>	MS-SV-E-10V24-SO-AD1-MP3	Performance Level "e", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, open silencer, pressure sensor with LCD display (plug M8, 1 switching output PNP, 3-pin), multi-pin plug socket (Sub-D, 9-pin, screw terminal, without cable, enable signals static, detection of cross-circuit possible)
V35	–	■ <sup>1)</sup>	MS-SV-C-10V24PS	Performance Level "c", supply voltage 24 V DC, operating pressure 3 ... 10 bar, electrical connection to IEC 61076-2-101 (M12x1 plug, 2-pin), silencer, cover plate
V36	–	■ <sup>1)</sup>	MS-SV-C-10V24PS-AD7	Performance Level "c", supply voltage 24 V DC, operating pressure 3 ... 10 bar, electrical connection to IEC 61076-2-101 (M12x1 plug, 2-pin), silencer, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O)
V37	–	■ <sup>1)</sup>	MS-SV-D-10V24-2M8	Performance Level "d", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, electrical connection to EN 175301-803 (2x plugs, 2-pin, type C), 2 proximity switches SMT with cable (M8x1 plug, 3-pin, rotatable thread, cable length 0.3 m), without silencer, cover plate
V38	–	■ <sup>1)</sup>	MS-SV-D-10V24-2M8-SO-AG	Performance Level "d", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, electrical connection to EN 175301-803 (2x plugs, 2-pin, type C), 2 proximity switches SMT with cable (M8x1 plug, 3-pin, rotatable thread, cable length 0.3 m), open silencer, integrated MS pressure gauge with outer scale in bar and inner scale in psi

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

## Type codes

Overview list – Service unit components MS4/6				
Code	Size		Type	Description
	MS4	MS6		
<b>Soft-start/quick exhaust valve MS-SV (not with EX2/EX4 EU certification)</b>				
V39	–	■ <sup>1)</sup>	MS-SV-D-10V24P-2M12-SO-AG	Performance Level "d", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, electrical connection to IEC 61076-2-101 (2x M12x1 plugs, 2-pin), 2 proximity switches SMT with cable (M12x1 plug, 3-pin, rotatable thread, cable length 0.3 m), open silencer, integrated MS pressure gauge with outer scale in bar and inner scale in psi
V40	–	■ <sup>1)</sup>	MS-SV-D-10V24P-20E-SO-AG	Performance Level "d", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, electrical connection to IEC 61076-2-101 (2x M12x1 plugs, 2-pin), 2 proximity switches SMT with cable (open end, 3-wire, cable length 5 m), open silencer, integrated MS pressure gauge with outer scale in bar and inner scale in psi
V41	–	■ <sup>1)</sup>	MS-SV-E-10V24-SO-AG-MP5	Performance Level "e", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, open silencer, integrated MS pressure gauge with outer scale in bar and inner scale in psi, multi-pin plug socket (Sub-D, 9-pin, screw terminal, without cable, static enable signal, galvanic isolation of enable signals from the supply voltage)
V42	–	■ <sup>1)</sup>	MS-SV-E-10V24-AG-MP5	Performance Level "e", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, without silencer, integrated MS pressure gauge with outer scale in bar and inner scale in psi, multi-pin plug socket (Sub-D, 9-pin, screw terminal, without cable, static enable signal, galvanic isolation of enable signals from the supply voltage)
V43	–	■ <sup>1)</sup>	MS-SV-E-10V24-AD1-MP5	Performance Level "e", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, without silencer, pressure sensor with LCD display (plug M8, 1 switching output PNP, 3-pin), multi-pin plug socket (Sub-D, 9-pin, screw terminal, without cable, enable signals static, galvanic isolation of enable signals from the supply voltage)
V44	–	■ <sup>1)</sup>	MS-SV-E-10V24-SO-AD1-MP5	Performance Level "e", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, open silencer, pressure sensor with LCD display (plug M8, 1 switching output PNP, 3-pin), multi-pin plug socket (Sub-D, 9-pin, screw terminal, without cable, enable signals static, galvanic isolation of enable signals from the supply voltage)
V45	–	■ <sup>1)</sup>	MS-SV-E-10V24-RG	Performance Level "e", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, without silencer, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, without multi-pin plug socket
V46	–	■ <sup>1)</sup>	MS-SV-E-10V24-SO-RG	Performance Level "e", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, open silencer, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, without multi-pin plug socket
V47	–	■ <sup>1)</sup>	MS-SV-D-10V24-2M8-SO-RG	Performance Level "d", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, electrical connection to EN 175301-803 (2x plugs, 2-pin, type C), 2 proximity switches SMT with cable (M8x1 plug, 3-pin, rotatable thread, cable length 0.3 m), open silencer, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi
V48	–	■ <sup>1)</sup>	MS-SV-D-10V24P-2M12-SO-RG	Performance Level "d", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, electrical connection to IEC 61076-2-101 (2x M12x1 plugs, 2-pin), 2 proximity switches SMT with cable (M12x1 plug, 3-pin, rotatable thread, cable length 0.3 m), open silencer, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi
V49	–	■ <sup>1)</sup>	MS-SV-D-10V24-20E-SO-RG	Performance Level "d", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, electrical connection to EN 175301-803 (2x plugs, 2-pin, type C), 2 proximity switches SMT with cable (open end, 3-wire, cable length 5 m), open silencer, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi

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

## Type codes

Overview list – Service unit components MS4/6				
Code	Size		Type	Description
	MS4	MS6		
<b>Soft-start/quick exhaust valve MS-SV (not with EX2/EX4 EU certification)</b>				
V50	–	■ <sup>1)</sup>	MS-SV-C-10V24-S-AD11	Performance Level "c", supply voltage 24 V DC, operating pressure 3 ... 10 bar, plug pattern to EN 175301, silencer, pressure sensor with LCD display, M12 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA
V51	–	■ <sup>1)</sup>	MS-SV-C-10V24CS-AD11	Performance Level "c", supply voltage 24 V DC, operating pressure 3 ... 10 bar, plug pattern to EN 175301, without manual override, silencer, pressure sensor with LCD display, M12 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA
V52	–	■ <sup>1)</sup>	MS-SV-C-10V24D-S-AD11	Performance Level "c", supply voltage 24 V DC, operating pressure 3 ... 10 bar, plug pattern to EN 61076-2-101, without manual override, silencer, pressure sensor with LCD display, M12 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA
V53	–	■ <sup>1)</sup>	MS-SV-C-10V24ES-AD11	Performance Level "c", supply voltage 24 V DC, operating pressure 3 ... 10 bar, plug pattern to EN 61076-2-101, without manual override on the pilot actuator. With detenting internal manual override (can only be reset via 24 V), silencer, pressure sensor with LCD display, M12 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA
V54	–	■ <sup>1)</sup>	MS-SV-C-10V24FS-AD11	Performance Level "c", supply voltage 24 V DC, operating pressure 3 ... 10 bar, plug pattern to EN 61076-2-101, manual override on pilot actuator non-detenting, internally detenting, silencer, pressure sensor with LCD display, M12 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA
V55	–	■ <sup>1)</sup>	MS-SV-C-10V24PS-AD11	Performance Level "c", supply voltage 24 V DC, operating pressure 3 ... 10 bar, plug pattern to EN 61076-2-101, silencer, pressure sensor with LCD display, M12 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA
V56	–	■ <sup>1)</sup>	MS-SV-C-10V24-S-AD12	Performance Level "c", supply voltage 24 V DC, operating pressure 3 ... 10 bar, plug pattern to EN 175301, silencer, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA
V57	–	■ <sup>1)</sup>	MS-SV-C-10V24CS-AD12	Performance Level "c", supply voltage 24 V DC, operating pressure 3 ... 10 bar, plug pattern to EN 175301, without manual override, silencer, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA
V58	–	■ <sup>1)</sup>	MS-SV-C-10V24D-S-AD12	Performance Level "c", supply voltage 24 V DC, operating pressure 3 ... 10 bar, plug pattern to EN 61076-2-101, without manual override, silencer, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA
V59	–	■ <sup>1)</sup>	MS-SV-C-10V24ES-AD12	Performance Level "c", supply voltage 24 V DC, operating pressure 3 ... 10 bar, plug pattern to EN 61076-2-101, without manual override on the pilot actuator. With detenting internal manual override (can only be reset via 24 V), silencer, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA
V60	–	■ <sup>1)</sup>	MS-SV-C-10V24FS-AD12	Performance Level "c", supply voltage 24 V DC, operating pressure 3 ... 10 bar, plug pattern to EN 61076-2-101, manual override on pilot actuator non-detenting, internally detenting, silencer, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA
V61	–	■ <sup>1)</sup>	MS-SV-C-10V24PS-AD12	Performance Level "c", supply voltage 24 V DC, operating pressure 3 ... 10 bar, plug pattern to EN 61076-2-101, silencer, pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA
<b>Water separators MS-LWS</b>				
W1	–	■	MS-LWS-U-V	Metal bowl, fully automatic condensate drain

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

## Type codes

001	Series
<b>MSB</b>	Service unit component MS series
002	Size
<b>9</b>	Grid dimension 90 mm
003	Pneumatic connection
<b>3/4</b>	Female thread G3/4
<b>1</b>	Female thread G1
<b>AGD</b>	Sub-base G1/2
<b>AGE</b>	Sub-base G3/4
<b>AGF</b>	Sub-base G1
<b>AGG</b>	Sub-base G11/4
<b>AGH</b>	Sub-base G11/2
<b>N3/4</b>	Female thread N3/4
<b>N1</b>	Female thread N1
<b>AQR</b>	Sub-base NPT1/2
<b>AQS</b>	Sub-base NPT3/4
<b>AQT</b>	Sub-base NPT1
<b>AQU</b>	Sub-base NPT11/4
<b>AQV</b>	Sub-base NPT11/2
<b>G</b>	Module without connecting thread, without sub-base
<b>NG</b>	Module without connecting thread, without sub-base (inch)

004	Service unit component equipment
...	For selection, see overview list
005	Type of mounting
	Without mounting bracket
<b>WP</b>	Mounting bracket basic design
<b>WPB</b>	Mounting bracket for large wall gap
<b>WPM</b>	Mounting bracket for hooking in service unit components
006	EU certification
	None
<b>EX2</b>	II 3GD to EU Explosion Protection Directive (ATEX)
<b>EX4</b>	II 2GD
007	UL certification
	None
<b>UL1</b>	cULus ordinary location for Canada and USA
008	Flow direction
	Flow direction from left to right
<b>Z</b>	Flow direction from right to left

## Type codes

Overview list – Service unit components MS9		
Code	Type	Description
<b>On/off valve MS-EM, manually actuated</b>		
C2	MS-EM-S-VS	Silencer, cover plate
<b>On/off valve MS-EE, electrically actuated</b>		
D4	MS-EE-V24-S-VS	Supply voltage 24 V DC, operating pressure 3.5 ... 16 bar, electrical connection to EN 175301-803 (plug, type A), silencer, cover plate
D16	MS-EE-V24-S-AD7	Supply voltage 24 V DC, operating pressure 3.5 ... 16 bar, electrical connection to EN 175301-803 (plug, type C), silencer, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O)
D17	MS-EE-V24P-S-VS	Supply voltage 24 V DC, operating pressure 3.5 ... 16 bar, electrical connection to IEC 61076-2-101 (M12x1 plug, 4-pin to DESINA), silencer, cover plate
D18	MS-EE-V24P-S-AD7	Supply voltage 24 V DC, operating pressure 3.5 ... 16 bar, electrical connection to IEC 61076-2-101 (M12x1 plug, 4-pin to DESINA), silencer, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O)
<b>Branching module MS-FRM</b>		
F1	MS-FRM-VS	Cover plate
F3	MS-FRM-VS-Y	Cover plate, pressure switch PEV without display (plug socket, EN 175301, type A, cube)
F8	MS-FRM-VS-M12	Cover plate, pressure switch PEV without display (plug socket, round, M12, 4-pin)
<b>Filters MS-LF</b>		
H5	MS-LF-CUM	Grade of filtration 5 µm, metal bowl, manual condensate drain
H6	MS-LF-CUV	Grade of filtration 5 µm, metal bowl, fully automatic condensate drain
H7	MS-LF-EUV	Grade of filtration 40 µm, metal bowl, fully automatic condensate drain
H8	MS-LF-EUM	Grade of filtration 40 µm, metal bowl, manual condensate drain
<b>Fine and micro filter MS-LFM</b>		
I7	MS-LFM-BUV	Grade of filtration 1 µm, metal bowl, fully automatic condensate drain
I8	MS-LFM-AUV	Grade of filtration 0.01 µm, metal bowl, fully automatic condensate drain
I9	MS-LFM-BUV-DA	Grade of filtration 1 µm, metal bowl, fully automatic condensate drain, optical differential pressure display
I12	MS-LFM-AUV-DA	Grade of filtration 0.01 µm, metal bowl, fully automatic condensate drain, optical differential pressure display
I23	MS-LFM-BUV-HF	Grade of filtration 1 µm, metal bowl, fully automatic condensate drain, high flow rate
I24	MS-LFM-AUV-HF	Grade of filtration 0.01 µm, metal bowl, fully automatic condensate drain, high flow rate
I25	MS-LFM-BUV-HF-DA	Grade of filtration 1 µm, metal bowl, fully automatic condensate drain, high flow rate, optical differential pressure display
I26	MS-LFM-AUV-HF-DA	Grade of filtration 0.01 µm, metal bowl, fully automatic condensate drain, high flow rate, optical differential pressure display
<b>Filter regulator MS-LFR</b>		
J47	MS-LFR-D6-EUM-DI-AG-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, metal bowl, manual condensate drain, direct-controlled filter diaphragm control valve, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J50	MS-LFR-D6-EUV-DI-AG-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, metal bowl, fully automatic condensate drain, direct-controlled filter diaphragm control valve, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J53	MS-LFR-D6-CUM-DI-AG-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, metal bowl, manual condensate drain, direct-controlled filter diaphragm control valve, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J56	MS-LFR-D6-CUV-DI-AG-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, metal bowl, fully automatic condensate drain, direct-controlled filter diaphragm control valve, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories

## Type codes

Overview list – Service unit components MS9		
Code	Type	Description
<b>Filter regulator MS-LFR</b>		
J59	MS-LFR-D6-EUM-AG-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, metal bowl, manual condensate drain, pilot-controlled filter diaphragm control valve, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J62	MS-LFR-D6-EUV-AG-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, metal bowl, fully automatic condensate drain, pilot-controlled filter diaphragm control valve, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J65	MS-LFR-D6-CUM-AG-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, metal bowl, manual condensate drain, pilot-controlled filter diaphragm control valve, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J68	MS-LFR-D6-CUV-AG-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, metal bowl, fully automatic condensate drain, pilot-controlled filter diaphragm control valve, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J71	MS-LFR-D7-CUM-AG-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, metal bowl, manual condensate drain, pilot-controlled filter diaphragm control valve, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J72	MS-LFR-D7-CUV-AG-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, metal bowl, fully automatic condensate drain, pilot-controlled filter diaphragm control valve, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J73	MS-LFR-D7-EUM-AG-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, metal bowl, manual condensate drain, pilot-controlled filter diaphragm control valve, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J74	MS-LFR-D7-EUV-AG-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, metal bowl, fully automatic condensate drain, pilot-controlled filter diaphragm control valve, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J103	MS-LFR-D7-EUM-RG-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, metal bowl, manual condensate drain, pilot-controlled filter diaphragm control valve, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J104	MS-LFR-D7-EUV-RG-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, metal bowl, fully automatic condensate drain, pilot-controlled filter diaphragm control valve, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J105	MS-LFR-D7-CUM-RG-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, metal bowl, manual condensate drain, pilot-controlled filter diaphragm control valve, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J106	MS-LFR-D7-CUV-RG-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, metal bowl, fully automatic condensate drain, pilot-controlled filter diaphragm control valve, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J107	MS-LFR-D6-EUM-RG-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, metal bowl, manual condensate drain, pilot-controlled filter diaphragm control valve, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J108	MS-LFR-D6-EUV-RG-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, metal bowl, fully automatic condensate drain, pilot-controlled filter diaphragm control valve, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J109	MS-LFR-D6-CUM-RG-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, metal bowl, manual condensate drain, pilot-controlled filter diaphragm control valve, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
J110	MS-LFR-D6-CUV-RG-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, metal bowl, fully automatic condensate drain, pilot-controlled filter diaphragm control valve, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories

## Type codes

Overview list – Service unit components MS9		
Code	Type	Description
<b>Filter regulator MS-LFR</b>		
J111	MS-LFR-D7-EUM-A4-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, metal bowl, manual condensate drain, pilot-controlled filter diaphragm control valve, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
J112	MS-LFR-D7-EUV-A4-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 40 µm, metal bowl, fully automatic condensate drain, pilot-controlled filter diaphragm control valve, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
J113	MS-LFR-D7-CUM-A4-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, metal bowl, manual condensate drain, pilot-controlled filter diaphragm control valve, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
J114	MS-LFR-D7-CUV-A4-AS	Pressure regulation range 0.5 ... 12 bar, grade of filtration 5 µm, metal bowl, fully automatic condensate drain, pilot-controlled filter diaphragm control valve, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
J115	MS-LFR-D6-EUM-A4-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, metal bowl, manual condensate drain, pilot-controlled filter diaphragm control valve, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
J116	MS-LFR-D6-EUV-A4-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, metal bowl, fully automatic condensate drain, pilot-controlled filter diaphragm control valve, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
J117	MS-LFR-D6-CUM-A4-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, metal bowl, manual condensate drain, pilot-controlled filter diaphragm control valve, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
J118	MS-LFR-D6-CUV-A4-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 5 µm, metal bowl, fully automatic condensate drain, pilot-controlled filter diaphragm control valve, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
J122	MS-LFR-D6-EUM-AG-MPA-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, metal bowl, manual condensate drain, pilot-controlled filter diaphragm control valve, integrated MS pressure gauge with outer scale in MPa, standard rotary knob with latch, can be locked with accessories
J123	MS-LFR-D6-EUV-AG-MPA-AS	Pressure regulation range 0.3 ... 7 bar, grade of filtration 40 µm, metal bowl, manual condensate drain, pilot-controlled filter diaphragm control valve, integrated MS pressure gauge with outer scale in MPa, standard rotary knob with latch, can be locked with accessories
<b>Activated carbon filters MS-LFX</b>		
L2	MS-LFX-U	Metal bowl
<b>Lubricator MS-LOE (not with EU EX2/EX4 certification)</b>		
M2	MS-LOE-U	Metal bowl
<b>Pressure regulator MS-LR</b>		
N1	MS-LR-D5-DI-AG-AS	Pressure regulation range 0.3 ... 4 bar, direct-controlled diaphragm control valve integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
N2	MS-LR-D6-DI-AG-AS	Pressure regulation range 0.3 ... 7 bar, direct-controlled diaphragm control valve integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
N7	MS-LR-D5-DI-AG-KD-AS	Pressure regulation range 0.3 ... 4 bar, direct-controlled diaphragm control valve integrated MS pressure gauge with outer scale in bar and inner scale in psi, rotary knob underneath, standard rotary knob with latch, can be locked with accessories
N8	MS-LR-D6-DI-AG-KD-AS	Pressure regulation range 0.3 ... 7 bar, direct-controlled diaphragm control valve integrated MS pressure gauge with outer scale in bar and inner scale in psi, rotary knob underneath, standard rotary knob with latch, can be locked with accessories

## Type codes

Overview list – Service unit components MS9		
Code	Type	Description
<b>Pressure regulator MS-LR</b>		
N35	MS-LR-D5-AG-AS	Pressure regulation range 0.3 ... 4 bar, pilot-controlled diaphragm control valve, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
N36	MS-LR-D6-AG-AS	Pressure regulation range 0.3 ... 7 bar, pilot-controlled diaphragm control valve, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
N37	MS-LR-D7-AG-AS	Pressure regulation range 0.5 ... 12 bar, pilot-controlled diaphragm control valve, integrated MS pressure gauge with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
N53	MS-LR-D5-RG-AS	Pressure regulation range 0.3 ... 4 bar, pilot-controlled diaphragm control valve, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
N54	MS-LR-D6-RG-AS	Pressure regulation range 0.3 ... 7 bar, pilot-controlled diaphragm control valve, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
N55	MS-LR-D7-RG-AS	Pressure regulation range 0.5 ... 12 bar, pilot-controlled diaphragm control valve, integrated MS pressure gauge with red-green scale with outer scale in bar and inner scale in psi, standard rotary knob with latch, can be locked with accessories
N56	MS-LR-D5-A4-AS	Pressure regulation range 0.3 ... 4 bar, pilot-controlled diaphragm control valve, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
N57	MS-LR-D6-A4-AS	Pressure regulation range 0.3 ... 7 bar, pilot-controlled diaphragm control valve, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
N58	MS-LR-D7-A4-AS	Pressure regulation range 0.5 ... 12 bar, pilot-controlled diaphragm control valve, adapter for EN pressure gauge 1/4 (without pressure gauge), standard rotary knob with latch, can be locked with accessories
N61	MS-LR-D6-AG-MPA-AS	Pressure regulation range 0.3 ... 7 bar, pilot-controlled diaphragm control valve, integrated MS pressure gauge with outer scale in MPa, standard rotary knob with latch, can be locked with accessories
<b>Flow sensor SFAM (only in flow direction from left to right)</b>		
U9	SFAM-5000L-M-2SA-M12	Flow measuring range 50 ... 5 000 l/min, electrical output (2x PNP or NPN, 1 analogue output 4 ... 20 mA), electrical connection (M12x1 plug, 5-pin)
U10	SFAM-5000L-M-2SV-M12	Flow measuring range 50 ... 5 000 l/min, electrical output (2x PNP or NPN, 1 analogue output 0 ... 10 V), electrical connection (M12x1 plug, 5-pin)
U11	SFAM-10000L-M-2SA-M12	Flow measuring range 100 ... 10 000 l/min, electrical output (2x PNP or NPN, 1 analogue output 4 ... 20 mA), electrical connection (M12x1 plug, 5-pin)
U12	SFAM-10000L-M-2SV-M12	Flow measuring range 100 ... 10 000 l/min, electrical output (2x PNP or NPN, 1 analogue output 0 ... 10 V), electrical connection (M12x1 plug, 5-pin)
U13	SFAM-15000L-M-2SA-M12	Flow measuring range 150 ... 15 000 l/min, electrical output (2x PNP or NPN, 1 analogue output 4 ... 20 mA), electrical connection (M12x1 plug, 5-pin)
U14	SFAM-15000L-M-2SV-M12	Flow measuring range 150 ... 15 000 l/min, electrical output (2x PNP or NPN, 1 analogue output 0 ... 10 V), electrical connection (M12x1 plug, 5-pin)
<b>Soft-start/quick exhaust valve MS-SV (not with EX2/EX4 EU certification)</b>		
V12	MS-SV-CV24-S-VS	Performance Level "c", supply voltage 24 V DC, operating pressure 3.5 ... 16 bar, electrical connection to EN 175301-803 (plug, type A), silencer, cover plate
V22	MS-SV-CV24-S-AD7	Performance Level "c", supply voltage 24 V DC, operating pressure 3.5 ... 16 bar, electrical connection to EN 175301-803 (plug, type C), silencer, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O)
V35	MS-SV-C-10V24P-S-VS	Performance Level "c", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, electrical connection to IEC 61076-2-101 (M12x1 plug, 4-pin to DESINA), silencer, cover plate
V36	MS-SV-C-10V24P-S-AD7	Performance Level "c", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, electrical connection to IEC 61076-2-101 (M12x1 plug, 4-pin to DESINA), silencer, pressure sensor with switching status indicator (M8 plug, threshold value comparator, PNP, N/O)
<b>Water separators MS-LWS</b>		
W1	MS-LWS-U-V	Metal bowl, fully automatic condensate drain