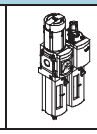
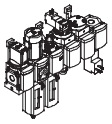
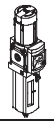
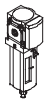
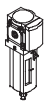
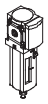
Service unit combinations MSB, MS series

FESTO

Service unit combinations MSB, MS series

Product range overview – MS series service units

Type		Size	Pneumatic connection in housing	Connecting plate	Pressure regulation range [bar]						Grade of filtration [µm]			
					0.05 ... 0.7	0.05 ... 2.5	0.1 ... 4	0.3 ... 7	0.1 ... 12	0.5 ... 16	0.01	1	5	40
Code				AG...	D2	D4	D5	D6	D7	D8	A	B	C	E
Service units														
MSB-FRC		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	■	■	–	–	–	■	■
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	■	■	–	–	–	■	■
		9	–											
		12	–											
Service unit combinations (further variants can be ordered using the configurator ➔ Internet: msb4, msb6 or msb9)														
MSB		4	G¼	G⅛, G¼, G⅜	–	–	–	■	■	–	–	–	■	■
		6	G½	G¼, G⅜, G½, G¾	–	–	–	■	■	–	–	–	■	■
		9	–											
		12	–											
Individual devices														
Filter regulators **MS-LFR**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	■	■	■	–	–	–	■	■
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	■	■	■	■	–	–	■	■
		9	G¾, G1	G½, G¾, G1, G1¼, G1½	–	–	■	■	■	■	–	–	■	■
		12	–	G1, G1¼, G1½, G2	–	–	–	■	■	■	–	–	■	■
Filters **MS-LF**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	–	–	■	■
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	–	–	■	■
		9	G¾, G1	G½, G¾, G1, G1¼, G1½	–	–	–	–	–	–	–	–	■	■
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–	■	■
Fine and micro filters **MS-LFM**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	■	■	–	–
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	■	■	–	–
		9	G¾, G1	G½, G¾, G1, G1¼, G1½	–	–	–	–	–	–	■	■	–	–
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	■	■	–	–
Activated carbon filters **MS-LFX**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	–	–	–	–
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	–	–	–	–
		9	G¾, G1	G½, G¾, G1, G1¼, G1½	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–	–	–
Water separators **MS-LWS**		4	–											
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	–	–	–	–
		9	G¾, G1	G½, G¾, G1, G1¼, G1½	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–	–	–

Service unit combinations MSB, MS series

Product range overview – MS series service units

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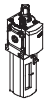
Type	Size	Bowl guard		Condensate drains				Pressure indicator					Security		Options		→ Page/ Internet
		Plastic bowl with plastic bowl guard	Metal bowl	Manual rotary	Semi-automatic	Fully automatic	External, fully automatic, electrical	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor	Rotary knob with detent, lockable via accessories	Rotary knob with integrated lock	Silencer	Flow direction from right to left	
Code		R	U	M	H	V	E...	VS	AG	A8	A4	AD...	AS	E11	S	Z	
Service units																	
MSB-FRC	4	■	–	■	–	■	–	–	■	–	–	–	■	–	–	■	msb4
	6	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb6
	9	–															–
	12	–															–
Service unit combinations																	
MSB	4	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb4
	6	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb6
	9	–															–
	12	–															–
Individual devices																	
Filter regulators	4	■	■	■	■	■	–	■	■	■	■	■	■	■	–	■	ms4-lfr
MS-LFR	6	■	■	■	■	■	■	■	■	–	■	■	■	■	–	■	ms6-lfr
	9	–	■	■	■	■	■	■	■	–	■	■	■	■	–	■	ms9-lfr
	12	–	■	■	–	■	■	■	■	–	■	–	■	■	–	■	ms12-lfr
Filters	4	■	■	■	■	■	–	–	–	–	–	–	–	–	–	■	ms4-lf
MS-LF	6	■	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms6-lf
	9	–	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms9-lf
	12	–	■	■	–	■	■	–	–	–	–	–	–	–	–	■	ms12-lf
Fine and micro	4	■	■	■	■	■	–	–	–	–	–	–	–	–	–	■	ms4-lfm
filters	6	■	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms6-lfm
MS-LFM	9	–	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms9-lfm
	12	–	■	■	–	■	■	–	–	–	–	–	–	–	–	■	ms12-lfm
Activated carbon	4	■	■	–	–	–	–	–	–	–	–	–	–	–	–	■	ms4-lfx
filters	6	■	■	–	–	–	–	–	–	–	–	–	–	–	–	■	ms6-lfx
MS-LFX	9	–	■	–	–	–	–	–	–	–	–	–	–	–	–	■	ms9-lfx
	12	–	■	–	–	–	–	–	–	–	–	–	–	–	–	■	ms12-lfx
Water separators	4	–															–
MS-LWS	6	–	■	–	–	■	■	–	–	–	–	–	–	–	–	■	ms6-lws
	9	–	■	–	–	■	■	–	–	–	–	–	–	–	–	■	ms9-lws
	12	–	■	–	–	■	■	–	–	–	–	–	–	–	–	■	ms12-lws

Service unit combinations MSB, MS series

Product range overview – MS series service units

Type		Size	Pneumatic connection in housing	Connecting plate	Pressure regulation range [bar]						Supply voltage			
					0.05 ... 0.7	0.05 ... 2.5	0.1 ... 4	0.3 ... 7	0.1 ... 12	0.5 ... 16	24 V DC, connection pattern to EN 175301	24 V DC, connection M12 to IEC 61076-2-101	110 V AC, connection pattern to EN 175301	230 V AC, connection pattern to EN 175301
Code				AG...	D2	D4	D5	D6	D7	D8	V24	V24P	V110	V230
Individual devices														
Pressure regulators **MS-LR**		4	G1⁄8, G1⁄4	G1⁄8, G1⁄4, G3⁄8	–	–	■	■	■	–	–	–	–	–
		6	G1⁄4, G3⁄8, G1⁄2	G1⁄4, G3⁄8, G1⁄2, G3⁄4	–	–	■	■	■	■	–	–	–	–
		9	G3⁄4, G1	G1⁄2, G3⁄4, G1, G1 1⁄4, G1 1⁄2	–	–	■	■	■	■	–	–	–	–
		12	–	G1, G1 1⁄4, G1 1⁄2, G2	–	–	–	■	■	■	–	–	–	–
Pressure regulators **MS-LRB**		4	G1⁄4	G1⁄8, G1⁄4, G3⁄8	–	–	■	■	■	–	–	–	–	–
		6	G1⁄2	G1⁄4, G3⁄8, G1⁄2, G3⁄4	–	–	■	■	■	■	–	–	–	–
		9	–											
		12	–											
Precision pressure regulators **MS-LRP**		4	–											
		6	G1⁄4, G3⁄8, G1⁄2	G1⁄4, G3⁄8, G1⁄2, G3⁄4	■	■	■	–	■	–	–	–	–	–
		9	–											
		12	–											
Precision pressure regulators **MS-LRPB**		4	–											
		6	G1⁄2	G1⁄4, G3⁄8, G1⁄2, G3⁄4	■	■	■	–	■	–	–	–	–	–
		9	–											
		12	–											
Electrical pressure regulators **MS-LRE**		4	–											
		6	G1⁄4, G3⁄8, G1⁄2	G1⁄4, G3⁄8, G1⁄2, G3⁄4	–	–	■	■	■	■	–	–	–	–
		9	–											
		12	–											
Lubricators **MS-LOE**		4	G1⁄8, G1⁄4	G1⁄8, G1⁄4, G3⁄8	–	–	–	–	–	–	–	–	–	–
		6	G1⁄4, G3⁄8, G1⁄2	G1⁄4, G3⁄8, G1⁄2, G3⁄4	–	–	–	–	–	–	–	–	–	–
		9	G3⁄4, G1	G1⁄2, G3⁄4, G1, G1 1⁄4, G1 1⁄2	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1 1⁄4, G1 1⁄2, G2	–	–	–	–	–	–	–	–	–	–
On-off valves, manually actuated **MS-EM(1)**		4	G1⁄8, G1⁄4	G1⁄8, G1⁄4, G3⁄8	–	–	–	–	–	–	–	–	–	–
		6	G1⁄4, G3⁄8, G1⁄2	G1⁄4, G3⁄8, G1⁄2, G3⁄4	–	–	–	–	–	–	–	–	–	–
		9	G3⁄4, G1	G1⁄2, G3⁄4, G1, G1 1⁄4, G1 1⁄2	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1 1⁄4, G1 1⁄2, G2	–	–	–	–	–	–	–	–	–	–
On-off valves, electrically actuated **MS-EE**		4	G1⁄8, G1⁄4	G1⁄8, G1⁄4, G3⁄8	–	–	–	–	–	–	■	–	■	■
		6	G1⁄4, G3⁄8, G1⁄2	G1⁄4, G3⁄8, G1⁄2, G3⁄4	–	–	–	–	–	–	■	–	■	■
		9	G3⁄4, G1	G1⁄2, G3⁄4, G1, G1 1⁄4, G1 1⁄2	–	–	–	–	–	–	■	■	■	■
		12	–	G1, G1 1⁄4, G1 1⁄2, G2	–	–	–	–	–	–	■	■	■	■
Soft-start valves, pneumatically actuated **MS-DL**		4	G1⁄8, G1⁄4	G1⁄8, G1⁄4, G3⁄8	–	–	–	–	–	–	–	–	–	–
		6	G1⁄4, G3⁄8, G1⁄2	G1⁄4, G3⁄8, G1⁄2, G3⁄4	–	–	–	–	–	–	–	–	–	–
		9	–											
		12	–	G1, G1 1⁄4, G1 1⁄2, G2	–	–	–	–	–	–	–	–	–	–
Soft-start valves, electrically actuated **MS-DE**		4	G1⁄8, G1⁄4	G1⁄8, G1⁄4, G3⁄8	–	–	–	–	–	–	■	–	■	■
		6	G1⁄4, G3⁄8, G1⁄2	G1⁄4, G3⁄8, G1⁄2, G3⁄4	–	–	–	–	–	–	■	–	■	■
		9	–											
		12	–	G1, G1 1⁄4, G1 1⁄2, G2	–	–	–	–	–	–	■	■	■	■

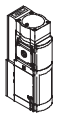
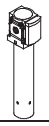
Service unit combinations MSB, MS series

Product range overview – MS series service units

Type	Size	Bowl guard		Pressure indicator					Security		Options		→ Page/ Internet
		Plastic bowl with plastic bowl guard	Metal bowl	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor	Rotary knob with detent, lockable via accessories	Rotary knob with integrated lock	Silencer	Flow direction from right to left	
Code		R	U	VS	AG	A8	A4	AD...	AS	E11	S	Z	
Individual devices													
Pressure regulators **MS-LR**	4	–	–	■	■	■	■	■	■	■	–	■	ms4-lr
	6	–	–	■	■	–	■	■	■	■	–	■	ms6-lr
	9	–	–	■	■	–	■	■	■	■	–	■	ms9-lr
	12	–	–	■	■	–	■	–	■	■	–	■	ms12-lr
Pressure regulators **MS-LRB**	4	–	–	■	■	■	■	■	■	■	–	■	ms4-lrb
	6	–	–	■	■	–	■	■	■	■	–	■	ms6-lrb
	9	–											–
	12	–											–
Precision pressure regulators **MS-LRP**	4	–											–
	6	–	–	■	–	■	■	■	■	■	–	■	ms6-lrp
	9	–											–
	12	–											–
Precision pressure regulators **MS-LRPB**	4	–											–
	6	–	–	■	–	■	■	■	■	■	–	■	ms6-lrpb
	9	–											–
	12	–											–
Electrical pressure regulators **MS-LRE**	4	–											–
	6	–	–	■	■	–	■	–	–	–	–	■	ms6-lre
	9	–											–
	12	–											–
Lubricators **MS-LOE**	4	■	■	–	–	–	–	–	–	–	–	■	ms4-loe
	6	■	■	–	–	–	–	–	–	–	–	■	ms6-loe
	9	–	■	–	–	–	–	–	–	–	–	■	ms9-loe
	12	–	■	–	–	–	–	–	–	–	–	■	ms12-loe
On-off valves, manually actuated **MS-EM(1)**	4	–	–	■	■	■	■	■	–	–	■	■	ms4-em1
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-em1
	9	–	–	■	■	–	■	–	–	–	■	■	ms9-em
	12	–	–	■	■	–	■	–	–	–	■	■	ms12-em
On-off valves, electrically actuated **MS-EE**	4	–	–	■	■	■	■	■	–	–	■	■	ms4-ee
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-ee
	9	–	–	■	■	–	■	–	–	–	■	■	ms9-ee
	12	–	–	■	■	–	■	–	–	–	■	■	ms12-ee
Soft-start valves, pneumatically actuated **MS-DL**	4	–	–	■	■	■	■	■	–	–	–	■	ms4-dl
	6	–	–	■	■	–	■	■	–	–	–	■	ms6-dl
	9	–											–
	12	–	–	■	■	–	■	–	–	–	–	■	ms12-dl
Soft-start valves, electrically actuated **MS-DE**	4	–	–	■	■	■	■	■	–	–	–	■	ms4-de
	6	–	–	■	■	–	■	■	–	–	–	■	ms6-de
	9	–											–
	12	–	–	■	■	–	■	–	–	–	–	■	ms12-de

Service unit combinations MSB, MS series

Product range overview – MS series service units

Type		Size	Pneumatic connection in housing	Connecting plate	Performance Level		Supply voltage			
					Category 1, 1-channel	Category 4, 2-channel with self-monitoring	24 V DC, connection pattern to EN 175301	24 V DC, connection M12 to IEC 61076-2-101/ to EN 60947-5-2	110 V AC, connection pattern to EN 175301	230 V AC, connection pattern to EN 175301
Code				AG...	C	E	V24	V24P	V110	V230
Individual devices										
Soft start and exhaust valves **MS-SV-C**		4	–							
		6	G1/2	G1/4, G3/8, G1/2, G3/4	■	–	■	■	■	■
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	■	–	■	■	■	■
		12	–							
Soft start and exhaust valves **MS-SV-E**		4	–							
		6	G1/2	G1/4, G3/8, G1/2, G3/4	–	■	■	–	–	–
		9	–							
		12	–							
Membrane air dryers **MS-LDM1**		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–
		9	–							
		12	–							
Branching modules **MS-FRM**		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	–	–	–	–	–	–
		12	–	G1, G1 1/4, G1 1/2, G2	–	–	–	–	–	–
Distributor blocks **MS-FRM-FRZ**		4	G1/4	–	–	–	–	–	–	–
		6	G1/2	–	–	–	–	–	–	–
		9	–							
		12	–							
Flow sensors **SFAM**		4	–							
		6	G1/2	G1/2	–	–	–	–	–	–
		9	–	G1, G1 1/2	–	–	–	–	–	–
		12	–							

Service unit combinations MSB, MS series

Product range overview – MS series service units

Type	Size	Bowl guard		Pressure indicator					Switch output		Options		→ Page/ Internet
		Plastic bowl with plastic bowl guard	Metal bowl	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor	2x PNP or NPN, 1 analogue output 4 ... 20 mA	2x PNP or NPN, 1 analogue output 0 ... 10 V	Silencer	Flow direction from right to left	
Code		R	U	VS	AG	A8	A4	AD...	2SA	2SV	S	Z/R	
Individual devices													
Soft start and exhaust valves **MS-SV-C**	4	–											–
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-sv
	9	–	–	■	■	–	■	■	–	–	■	■	ms9-sv
	12	–											–
Soft start and exhaust valves **MS-SV-E**	4	–											–
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-sv
	9	–											–
	12	–											–
Membrane air dryers **MS-LDM1**	4	–	■	–	–	–	–	–	–	–	–	■	ms4-ldm1
	6	–	■	–	–	–	–	–	–	–	–	■	ms6-ldm1
	9	–											–
	12	–											–
Branching modules **MS-FRM**	4	–	–	■	■	■	■	■	–	–	–	■	ms4-frm
	6	–	–	■	■	–	■	■	–	–	–	■	ms6-frm
	9	–	–	■	■	–	■	■	–	–	–	■	ms9-frm
	12	–	–	■	–	–	–	–	–	–	–	–	ms12-frm
Distributor blocks **MS-FRM-FRZ**	4	–	–	–	–	–	–	–	–	–	–	■	ms4-frm
	6	–	–	–	–	–	–	–	–	–	–	■	ms6-frm
	9	–											–
	12	–											–
Flow sensors **SFAM**	4	–											–
	6	–	–	–	–	–	–	–	■	■	–	■	sfam-62
	9	–	–	–	–	–	–	–	■	■	–	■	sfam-90
	12	–											–

Service unit combinations MSB, MS series

Key features

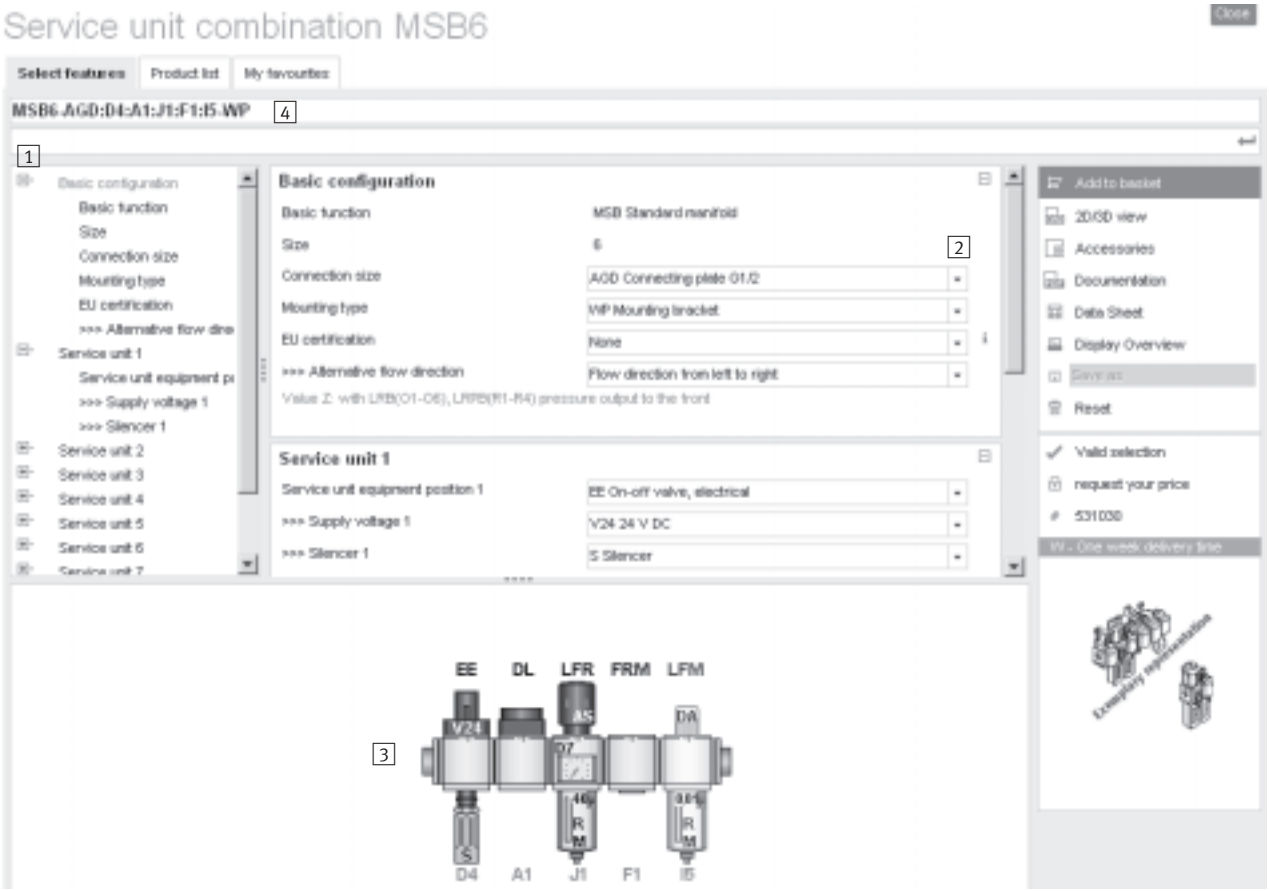
Configurable service unit combinations MSB

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

Configurator

The configurator enables step-by-step configuration of complex service unit combinations. 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 features of the basic configuration. All service unit configurations define the service unit along with 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 selected configuration ➔ table "Conditions and exclusion of features".
If you select a feature shown against a grey background, 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 combinations MSB, MS series

Key features

Information

General

The adjacent columns and the product range overview provide a brief overview of the available service units of a specific size ➔ 2.
You can find the breakdown of the service unit short code transferred in the order code for the size MSB4/MSB6 from page 12 onwards and for the size MSB9 from page 25 onwards.
You can find detailed information and all of the technical data in the documentation for the corresponding service unit. To do so, enter the code for the service unit (e.g. MS6-EE) in the search window in the product catalogue and select Documentation.

Note

Individual devices with selected features are available for the configurable service unit combinations ➔ Overview lists. Further feature options can be selected via the configurable individual device.

ISO: MSB4 (part no. 531029)
NPT: MSB4N (part no. 532306)[1)]

- 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
- Manual on-off valve MS4-EM1
- Electric on-off valve MS4-EE
- Pneumatic soft-start valve MS4-DL
- Electric soft-start valve MS4-DE
- Membrane air dryer MS4-LDM1
- Branching module MS4-FRM

ISO: MSB6 (part no. 531030)
NPT: MSB6N (part no. 532307)[1)]

- 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
- Electric 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
- Manual on-off valve MS6-EM1
- Electric on-off valve MS6-EE
- Pneumatic soft-start valve MS6-DL
- Electric soft-start valve MS6-DE
- Soft-start and exhaust valve MS6-SV
- Membrane air dryer MS6-LDM1
- Branching module MS6-FRM
- Flow sensor SFAM-62

ISO + NPT:
MSB9 (part no. 552938)

- 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
- Manual on-off valve MS9-EM
- Electric on-off valve MS9-EE
- Soft-start and exhaust valve MS9-SV
- Branching module MS9-FRM
- Flow sensor SFAM-90

1) Not available in all markets.

Notes on individual service units and their features

MS-LFR and MS-LF:

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

MS-LFM:

- Grade of filtration with feature B (1 µm) or A (0.01 µm)
- Filter contamination sensor with feature DA is an optical differential pressure indicator with red-green range
- Filter contamination sensor with 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 the feature Z (alternative flow direction) is selected

MS-EE and MS-DE:

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

MS-LDM1:

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

Service unit combinations MSB, MS series

Key features

Conditions and exclusions of features

Note

If a service unit combination is configured with ISO thread then 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 are equipped with NPT threads and integrated MS pressure gauges with the display unit [psi].

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

General rules

- Selection of at least 2 to at most 10 service units
- Lubricators MS-LOE are not permitted in the flow direction upstream of a filter MS-LFR/LFM/LF/LFX, water separator MS-LWS or membrane air dryer MS-LDM1
- A micro filter MS-LFM must be installed upstream of an activated carbon filter MS-LFX in the flow direction
- Mounting bracket for large wall gap WPB must be chosen if the combination contains the electric pressure regulator MS-LRE, the soft-start and exhaust valve MS-SV-E or the lockable 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

Service unit-specific rules

MS-LFM:

- Only manual condensate drain permissible 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 must be at least G½ for SFAM-62 and at least G¾ for SFAM-90
- An SFAM cannot be installed directly 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-E:

- Must be the last service unit in the flow direction

Service unit combinations MSB, MS series

Key features

ATEX

A configured service unit combination consisting of mechanical service units 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 units are approved and can be selected using the code EX4 in the order section "EU certification":

- 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
- Manual on-off valve MS9-EM
- Branching module MS9-FRM

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

- Electric on-off valve MS4/6/9-EE
- Electric soft-start valve MS4/6-DE
- Flow sensor SFAM

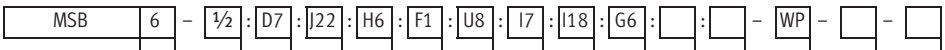
- Supplied with special accessories, e.g. mounting brackets, module connectors, connecting plates with earthing screws
- Only connecting plates with G thread possible
- Lubricated operation not permissible
- On-off valve MS-EE or soft-start valve MS-DE only with 24 V supply voltage

EU certification	EX2	EX4
MSB4/6		
ATEX category for gas	II 3G	–
Explosion ignition protection type for gas	Ex nA IIC T4 X Gc	–
ATEX category for dust	II 3D	–
Explosion ignition protection type for dust	Ex tc IIIC T105°C X Dc IP65	–
Explosion-proof temperature rating	–10 °C ≤ Ta ≤ +60 °C	–
CE marking (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)	–
	To EU EMC Directive	–
	To EU Low Voltage Directive	–
MSB9		
ATEX category for gas	II 3G	II 2G
Explosion ignition protection type for gas	Ex nA IIC T5 X Gc	c T6 X
ATEX category for dust	II 3D	II 2D
Explosion ignition protection type for dust	Ex tc IIIB T95°C X Dc IP54	c 60 °C X
Explosion-proof temperature rating	0 °C ≤ Ta ≤ +50 °C	–10 °C ≤ Ta ≤ +60 °C
	+5 °C ≤ Ta ≤ +50 °C[1)]	+5 °C ≤ Ta ≤ +60 °C[1)]
CE marking (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)	

1) When using a service unit with condensate drain.

Service unit combinations MSB4/6, MS series

Type codes



Series	
MSB	Standard service unit combination

Size	
4	Grid dimension 40 mm
6	Grid dimension 62 mm

Pneumatic connection	
MSB4	
⅛	Female thread G⅛
¼	Female thread G¼
AGA	Connecting plate G⅛
AGB	Connecting plate G¼
AGC	Connecting plate G⅜
MSB6	
¼	Female thread G¼
⅜	Female thread G⅜
½	Female thread G½
AGB	Connecting plate G¼
AGC	Connecting plate G⅜
AGD	Connecting plate G½
AGE	Connecting plate G¾

Service unit equipment		
Position 1	Selection ➔ Overview list	Position 1
Position 2		Position 2
Position 3		Position 3
Position 4		Position 4
Position 5		Position 5
Position 6		Position 6
Position 7		Position 7
Position 8		Position 8
Position 9		Position 9
Position 10		Position 10

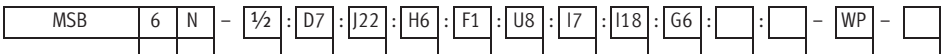
Type of mounting	
	Without mounting bracket
WP	Mounting bracket
WPB	Mounting bracket for large wall gap
WPM	Mounting bracket

EU certification	
	None
EX2	II 3GD in accordance with EU Directive 94/9/EC

Flow direction	
	From left to right
Z	From right to left

Service unit combinations MSB4/6, MS series

Type codes



Series	
MSB	Standard service unit combination

Size	
4	Grid dimension 40 mm
6	Grid dimension 62 mm

Thread	
N	NPT

Pneumatic connection	
MSB4N	
⅛	Female thread NPT⅛
¼	Female thread NPT¼
AQK	Connecting plate NPT⅛
AQN	Connecting plate NPT¼
AQP	Connecting plate NPT⅜
MSB6N	
¼	Female thread NPT¼
⅜	Female thread NPT⅜
½	Female thread NPT½
AQN	Connecting plate NPT¼
AQP	Connecting plate NPT⅜
AQR	Connecting plate NPT½
AQS	Connecting plate NPT¾

Service unit equipment		
Position 1	Selection ➔ Overview list	Position 1
Position 2		Position 2
Position 3		Position 3
Position 4		Position 4
Position 5		Position 5
Position 6		Position 6
Position 7		Position 7
Position 8		Position 8
Position 9		Position 9
Position 10		Position 10

Type of mounting	
	Without mounting bracket
WP	Mounting bracket
WPB	Mounting bracket for large wall gap
WPM	Mounting bracket

Flow direction	
	From left to right
Z	From right to left

Service unit combinations MSB4/6, MS series

Type codes

Overview list – Service units MS4/6				
Code	Size		Type	Description
	MS4	MS6		
Soft-start valve MS-DL, pneumatically actuated				
A1	■	■	MS-DL	Cover plate
Soft-start valve MS-DE, electrically actuated				
B1	■	■	MS-DE-V24	Supply voltage 24 V DC, operating pressure 4 ... 14 bar (MS4) / 4 ... 18 bar (MS6), cover plate
B2	■	■	MS-DE-V110	Supply voltage 110 V AC, operating pressure 4 ... 14 bar (MS4) / 4 ... 18 bar (MS6), cover plate
B3	■	■	MS-DE-V230	Supply voltage 230 V AC, operating pressure 4 ... 14 bar (MS4) / 4 ... 18 bar (MS6), cover plate
B4	■	■	MS-DE-10V24	Supply voltage 24 V DC, operating pressure 4 ... 10 bar, cover plate
B5	■	■	MS-DE-V24-EX2	Supply voltage 24 V DC, operating pressure 4 ... 14 bar (MS4) / 4 ... 18 bar (MS6), cover plate, to EU Explosion Protection Directive (ATEX)
On-off valve MS-EM1, manually actuated				
C3	■	■	MS-EM1	Without silencer, cover plate
C4	■	■	MS-EM1-S	Silencer, cover plate
On-off valve MS-EE, electrically actuated				
D1	■	■	MS-EE-V24	Supply voltage 24 V DC (pin allocation to EN 175301), operating pressure 4 ... 14 bar (MS4) / 4 ... 18 bar (MS6), without silencer, cover plate
D2	■	■	MS-EE-V110	Supply voltage 110 V AC (pin allocation to EN 175301), operating pressure 4 ... 14 bar (MS4) / 4 ... 18 bar (MS6), without silencer, cover plate
D3	■	■	MS-EE-V230	Supply voltage 230 V AC (pin allocation to EN 175301), operating pressure 4 ... 14 bar (MS4) / 4 ... 18 bar (MS6), without silencer, cover plate
D4	■	■	MS-EE-V24-S	Supply voltage 24 V DC (pin allocation to EN 175301), operating pressure 4 ... 10 bar, silencer, cover plate
D5	■	■	MS-EE-V110-S	Supply voltage 110 V AC (pin allocation to EN 175301), operating pressure 4 ... 10 bar, silencer, cover plate
D6	■	■	MS-EE-V230-S	Supply voltage 230 V AC (pin allocation to EN 175301), operating pressure 4 ... 10 bar, silencer, cover plate
D7	■	■	MS-EE-10V24	Supply voltage 24 V DC (pin allocation to EN 175301), operating pressure 4 ... 10 bar, without silencer, cover plate
D8	■	■	MS-EE-10V24-S	Supply voltage 24 V DC (pin allocation to EN 175301), operating pressure 4 ... 10 bar, silencer, cover plate
D9	■	■	MS-EE-V24-EX2	Supply voltage 24 V DC (pin allocation to EN 175301), operating pressure 4 ... 14 bar (MS4) / 4 ... 18 bar (MS6), without silencer, cover plate, to EU Explosion Protection Directive (ATEX)
D10	■	■	MS-EE-V24-S-EX2	Supply voltage 24 V DC (pin allocation to EN 175301), operating pressure 4 ... 10 bar, silencer, cover plate, to EU Explosion Protection Directive (ATEX)
D14	■[1)]	■[1)]	MS-EE-10V24P-AD7	Supply voltage 24 V DC, M12x1 to IEC 61076-2-101, operating pressure 4 ... 10 bar, without silencer, pressure sensor with operational status indicator (plug M8, threshold value comparator, PNP, N/O contact)
1) Female thread only with G¼ (MS4) or G½ (MS6)				
Branching module MS-FRM/distributor block MS-FRM-FRZ				
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 175 301, type A, cube), cover plate
F6	■	■	MS-FRM-AD1	Pressure sensor with LCD display (plug M8, 1 switching output PNP, 3-pin)
F7	■	■	MS-FRM-I-AD1	Integrated non-return function, pressure sensor with LCD display (plug M8, 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 (plug M12, 1 switching output PNP, 4-pin)
F11	■	■	MS-FRM-I-AD3	Integrated non-return function, pressure sensor with LCD display (plug M12, 1 switching output PNP, 4-pin)

Service unit combinations MSB4/6, MS series

Type codes

Overview list – Service units MS4/6				
Code	Size		Type	Description
	MS4	MS6		
Branching module MS-FRM/distributor block MS-FRM-FRZ				
F12	■	■	MS-FRM-AD7	Pressure sensor with operational status indicator (plug M8, threshold value comparator, PNP, N/O contact)
F13	■	■	MS-FRM-I-AD7	Integrated non-return function, pressure sensor with operational status indicator (plug M8, threshold value comparator, PNP, N/O contact)
F14	■	■	MS-FRM-FRZ	Half grid dimension 20 mm
Membrane air dryer MS-LDM1				
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
Filter MS-LF				
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
Fine and micro filter MS-LFM				
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 indicator
I6	–	■	MS-LFM-ARV-DA	Grade of filtration 0.01 µm, plastic bowl guard, fully automatic condensate drain, optical differential pressure indicator
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 indicator
I10	■	■	MS-LFM-BRM-DA	Grade of filtration 1 µm, plastic bowl guard, manual condensate drain, optical differential pressure indicator
I11	–	■	MS-LFM-BRV-DA	Grade of filtration 1 µm, plastic bowl guard, fully automatic condensate drain, optical differential pressure indicator
I12	■	■	MS-LFM-AUV-DA	Grade of filtration 0.01 µm, metal bowl, fully automatic condensate drain, optical differential pressure indicator
I13	■	■	MS-LFM-BRM-DP	Grade of filtration 1 µm, plastic bowl guard, manual condensate drain, filter contamination indicator (plug M8, PNP, 3-pin)
I14	–	■	MS-LFM-BRV-DP	Grade of filtration 1 µm, plastic bowl guard, fully automatic condensate drain, filter contamination indicator (plug M8, PNP, 3-pin)
I15	■	■	MS-LFM-ARM-DP	Grade of filtration 0.01 µm, plastic bowl guard, manual condensate drain, filter contamination indicator (plug M8, PNP, 3-pin)
I16	–	■	MS-LFM-ARV-DP	Grade of filtration 0.01 µm, plastic bowl guard, fully automatic condensate drain, filter contamination indicator (plug M8, PNP, 3-pin)
I17	■	■	MS-LFM-BUV-DP	Grade of filtration 1 µm, metal bowl, fully automatic condensate drain, filter contamination indicator (plug M8, PNP, 3-pin)
I18	■	■	MS-LFM-AUV-DP	Grade of filtration 0.01 µm, metal bowl, fully automatic condensate drain, filter contamination indicator (plug M8, PNP, 3-pin)

Service unit combinations MSB4/6, MS series

Type codes

Overview list – Service units MS4/6				
Code	Size		Type	Description
	MS4	MS6		
Fine and micro filter MS-LFM				
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 indicator
I26	–	■	MS-LFM-AUV-HF-DA	Grade of filtration 0.01 µm, metal bowl, fully automatic condensate drain, high flow rate, optical differential pressure indicator
I27	–	■	MS-LFM-BUV-HF-DP	Grade of filtration 1 µm, metal bowl, fully automatic condensate drain, high flow rate, filter contamination indicator (plug M8, 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 (plug M8, PNP, 3-pin)
I29	–	■[1)]	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 cleaning air
I30	–	■[1)]	MS-LFM-BRV-HP	Grade of filtration 1 µm, plastic bowl guard, fully automatic condensate drain, low flow rate suitable for sealing air and cleaning air
I31	–	■[1)]	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 cleaning air, filter contamination indicator (plug M8, PNP, 3-pin)
I32	–	■[1)]	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 cleaning air, filter contamination indicator (plug M8, PNP, 3-pin)
1) Female thread only with G½ (MS6)				
Filter regulator MS-LFR				
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, standard rotary knob with detent, lockable 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, standard rotary knob with detent, lockable 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, standard rotary knob with detent, lockable 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, standard rotary knob with detent, lockable 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, standard rotary knob with detent, lockable 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, standard rotary knob with detent, lockable 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, standard rotary knob with detent, lockable 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, standard rotary knob with detent, lockable 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, standard rotary knob with detent, lockable 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, standard rotary knob with detent, lockable with accessories

Service unit combinations MSB4/6, MS series

Type codes

Overview list – Service units MS4/6				
Code	Size		Type	Description
	MS4	MS6		
Filter regulator MS-LFR				
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, standard rotary knob with detent, lockable 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, standard rotary knob with detent, lockable 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 (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable 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 (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable 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 (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable 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 (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable with accessories
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 (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable 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 (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable 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 (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable 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 (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable 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 (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable 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 (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable 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 (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable 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 (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable 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 operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable 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 operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable with accessories

Service unit combinations MSB4/6, MS series

Type codes

Overview list – Service units MS4/6				
Code	Size		Type	Description
	MS4	MS6		
Filter regulator MS-LFR				
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 operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable 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 operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable 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 operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable 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 operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable 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 operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable 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 operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable with accessories
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 operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable 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 operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable 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 operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable 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 operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable with accessories
Activated carbon filter MS-LFX				
L1	■	■	MS-LFX-R	Plastic bowl guard
L2	■	■	MS-LFX-U	Metal bowl
L3	–	■	MS-LFX-U-HF	Metal bowl, high flow rate
L4	–	■[1)]	MS-LFX-R-HP	Plastic bowl guard, low flow rate suitable for sealing air and cleaning air
1) Female thread only with G½ (MS6)				
Lubricator MS-LOE				
M1	■	■	MS-LOE-R	Plastic bowl guard
M2	■	■	MS-LOE-U	Metal bowl

Service unit combinations MSB4/6, MS series

Type codes

Overview list – Service units MS4/6				
Code	Size		Type	Description
	MS4	MS6		
Pressure regulator MS-LR				
N1	■	■	MS-LR-D5-AS	Pressure regulation range 0.3 ... 4 bar, integrated MS pressure gauge, standard rotary knob with detent, lockable with accessories
N2	■	■	MS-LR-D6-AS	Pressure regulation range 0.3 ... 7 bar, integrated MS pressure gauge, standard rotary knob with detent, lockable with accessories
N3	■	■	MS-LR-D7-AS	Pressure regulation range 0.5 ... 12 bar, integrated MS pressure gauge, standard rotary knob with detent, lockable with accessories
N4	■	■	MS-LR-D5-AD1-AS	Pressure regulation range 0.3 ... 4 bar, pressure sensor with LCD display (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable with accessories
N5	■	■	MS-LR-D6-AD1-AS	Pressure regulation range 0.3 ... 7 bar, pressure sensor with LCD display (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable with accessories
N6	■	■	MS-LR-D7-AD1-AS	Pressure regulation range 0.5 ... 12 bar, pressure sensor with LCD display (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable with accessories
N7	■	■	MS-LR-D5-KD-AS	Pressure regulation range 0.3 ... 4 bar, integrated MS pressure gauge, rotary knob underneath, standard rotary knob with detent, lockable with accessories
N8	■	■	MS-LR-D6-KD-AS	Pressure regulation range 0.3 ... 7 bar, integrated MS pressure gauge, rotary knob underneath, standard rotary knob with detent, lockable with accessories
N9	■	■	MS-LR-D7-KD-AS	Pressure regulation range 0.5 ... 12 bar, integrated MS pressure gauge, rotary knob underneath, standard rotary knob with detent, lockable with accessories
N10	■	■	MS-LR-D5-AD1-KD-AS	Pressure regulation range 0.3 ... 4 bar, pressure sensor with LCD display (plug M8, 1 switching output PNP, 3-pin), rotary knob underneath, standard rotary knob with detent, lockable with accessories
N11	■	■	MS-LR-D6-AD1-KD-AS	Pressure regulation range 0.3 ... 7 bar, pressure sensor with LCD display (plug M8, 1 switching output PNP, 3-pin), rotary knob underneath, standard rotary knob with detent, lockable with accessories
N12	■	■	MS-LR-D7-AD1-KD-AS	Pressure regulation range 0.5 ... 12 bar, pressure sensor with LCD display (plug M8, 1 switching output PNP, 3-pin), rotary knob underneath, standard rotary knob with detent, lockable with accessories
N19	■	■	MS-LR-D5-AD7-AS	Pressure regulation range 0.3 ... 4 bar, pressure sensor with operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable with accessories
N20	■	■	MS-LR-D6-AD7-AS	Pressure regulation range 0.3 ... 7 bar, pressure sensor with operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable with accessories
N21	■	■	MS-LR-D7-AD7-AS	Pressure regulation range 0.5 ... 12 bar, pressure sensor with operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable with accessories
N22	■	■	MS-LR-D5-AD7-KD-AS	Pressure regulation range 0.3 ... 4 bar, pressure sensor with operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), rotary knob underneath, standard rotary knob with detent, lockable with accessories
N23	■	■	MS-LR-D6-AD7-KD-AS	Pressure regulation range 0.3 ... 7 bar, pressure sensor with operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), rotary knob underneath, standard rotary knob with detent, lockable with accessories
N24	■	■	MS-LR-D7-AD7-KD-AS	Pressure regulation range 0.5 ... 12 bar, pressure sensor with operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), rotary knob underneath, standard rotary knob with detent, lockable with accessories
N28	–	■	MS-LR-D5-VS-DM2	Pressure regulation range 0.3 ... 4 bar, cover plate, large rotary knob pressure gauge
N29	–	■	MS-LR-D6-VS-DM2	Pressure regulation range 0.3 ... 7 bar, cover plate, large rotary knob pressure gauge
N30	–	■	MS-LR-D7-VS-DM2	Pressure regulation range 0.5 ... 12 bar, cover plate, large rotary knob pressure gauge
N31	■	–	MS-LR-D5-VS-DM1	Pressure regulation range 0.3 ... 4 bar, cover plate, small rotary knob pressure gauge
N32	■	–	MS-LR-D6-VS-DM1	Pressure regulation range 0.3 ... 7 bar, cover plate, small rotary knob pressure gauge
N33	■	–	MS-LR-D7-VS-DM1	Pressure regulation range 0.5 ... 12 bar, cover plate, small rotary knob pressure gauge

Service unit combinations MSB4/6, MS series

Type codes

Overview list – Service units MS4/6				
Code	Size		Type	Description
	MS4	MS6		
Pressure regulator MS-LRB				
01	■1)	■1)	MS-LRB-D5-AS	Pressure regulation range 0.3 ... 4 bar, integrated MS pressure gauge, standard rotary knob with detent, lockable with accessories, pressure output to rear/front without angled outlet block
02	■1)	■1)	MS-LRB-D6-AS	Pressure regulation range 0.3 ... 7 bar, integrated MS pressure gauge, standard rotary knob with detent, lockable with accessories, pressure output to rear/front without angled outlet block
03	■1)	■1)	MS-LRB-D7-AS	Pressure regulation range 0.5 ... 12 bar, integrated MS pressure gauge, standard rotary knob with detent, lockable with accessories, pressure output to rear/front without angled outlet block
04	■1)	■1)	MS-LRB-D5-AS-BD	Pressure regulation range 0.3 ... 4 bar, integrated MS pressure gauge, standard rotary knob with detent, lockable with accessories, pressure output to rear/front with angled outlet block QS-8
05	■1)	■1)	MS-LRB-D6-AS-BD	Pressure regulation range 0.3 ... 7 bar, integrated MS pressure gauge, standard rotary knob with detent, lockable with accessories, pressure output to rear/front with angled outlet block QS-8
06	■1)	■1)	MS-LRB-D7-AS-BD	Pressure regulation range 0.5 ... 12 bar, integrated MS pressure gauge, standard rotary knob with detent, lockable with accessories, pressure output to rear/front with angled outlet block QS-8
07	■1)	■1)	MS-LRB-D5-A8-AS	Pressure regulation range 0.3 ... 4 bar, adapter plate for EN pressure gauge ⅛, standard rotary knob with detent, lockable with accessories, pressure output to rear/front without angled outlet block
08	■1)	■1)	MS-LRB-D6-A8-AS	Pressure regulation range 0.3 ... 7 bar, adapter plate for EN pressure gauge ⅛, standard rotary knob with detent, lockable with accessories, pressure output to rear/front without angled outlet block
09	■1)	■1)	MS-LRB-D7-A8-AS	Pressure regulation range 0.5 ... 12 bar, adapter plate for EN pressure gauge ⅛, standard rotary knob with detent, lockable with accessories, pressure output to rear/front without angled outlet block
010	■1)	■1)	MS-LRB-D5-AD1-AS	Pressure regulation range 0.3 ... 4 bar, pressure sensor with LCD display (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable with accessories, pressure output to rear/front without angled outlet block
011	■1)	■1)	MS-LRB-D6-AD1-AS	Pressure regulation range 0.3 ... 7 bar, pressure sensor with LCD display (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable with accessories, pressure output to rear/front without angled outlet block
012	■1)	■1)	MS-LRB-D7-AD1-AS	Pressure regulation range 0.5 ... 12 bar, pressure sensor with LCD display (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable with accessories, pressure output to rear/front without angled outlet block
013	■1)	■1)	MS-LRB-D5-AD1-AS-BD	Pressure regulation range 0.3 ... 4 bar, pressure sensor with LCD display (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable with accessories, pressure output to rear/front with angled outlet block QS-8
014	■1)	■1)	MS-LRB-D6-AD1-AS-BD	Pressure regulation range 0.3 ... 7 bar, pressure sensor with LCD display (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable with accessories, pressure output to rear/front with angled outlet block QS-8
015	■1)	■1)	MS-LRB-D7-AD1-AS-BD	Pressure regulation range 0.5 ... 12 bar, pressure sensor with LCD display (plug M8, 1 switching output PNP, 3-pin), standard rotary knob with detent, lockable with accessories, pressure output to rear/front with angled outlet block QS-8
016	■1)	■1)	MS-LRB-D5-VS-KD-AS	Pressure regulation range 0.3 ... 4 bar, cover plate, rotary knob underneath, standard rotary knob with detent, lockable with accessories, pressure output to rear/front without angled outlet block

1) Female thread only with G¼ (MS4) or G½ (MS6)

Overview list – Service units MS4/6				
Code	Size		Type	Description
	MS4	MS6		
Pressure regulator MS-LRB				
017	■1)	■1)	MS-LRB-D6-VS-KD-AS	Pressure regulation range 0.3 ... 7 bar, cover plate, rotary knob underneath, standard rotary knob with detent, lockable with accessories, pressure output to rear/front without angled outlet block
018	■1)	■1)	MS-LRB-D7-VS-KD-AS	Pressure regulation range 0.5 ... 12 bar, cover plate, rotary knob underneath, standard rotary knob with detent, lockable with accessories, pressure output to rear/front without angled outlet block
019	■1)	■1)	MS-LRB-D5-KD-AS-BD	Pressure regulation range 0.3 ... 4 bar, integrated MS pressure gauge, rotary knob underneath, standard rotary knob with detent, lockable with accessories, pressure output to rear/front with angled outlet block QS-8
020	■1)	■1)	MS-LRB-D6-KD-AS-BD	Pressure regulation range 0.3 ... 7 bar, integrated MS pressure gauge, rotary knob underneath, standard rotary knob with detent, lockable with accessories, pressure output to rear/front with angled outlet block QS-8
021	■1)	■1)	MS-LRB-D7-KD-AS-BD	Pressure regulation range 0.5 ... 12 bar, integrated MS pressure gauge, rotary knob underneath, standard rotary knob with detent, lockable with accessories, pressure output to rear/front with angled outlet block QS-8
022	■1)	■1)	MS-LRB-D5-AD7-AS	Pressure regulation range 0.3 ... 4 bar, pressure sensor with operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable with accessories, pressure output to rear/front without angled outlet block
023	■1)	■1)	MS-LRB-D6-AD7-AS	Pressure regulation range 0.3 ... 7 bar, pressure sensor with operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable with accessories, pressure output to rear/front without angled outlet block
024	■1)	■1)	MS-LRB-D7-AD7-AS	Pressure regulation range 0.5 ... 12 bar, pressure sensor with operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable with accessories, pressure output to rear/front without angled outlet block
025	■1)	■1)	MS-LRB-D5-AD7-AS-BD	Pressure regulation range 0.3 ... 4 bar, pressure sensor with operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable with accessories, pressure output to rear/front with angled outlet block QS-8
026	■1)	■1)	MS-LRB-D6-AD7-AS-BD	Pressure regulation range 0.3 ... 7 bar, pressure sensor with operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable with accessories, pressure output to rear/front with angled outlet block QS-8
027	■1)	■1)	MS-LRB-D7-AD7-AS-BD	Pressure regulation range 0.5 ... 12 bar, pressure sensor with operational status indicator (plug M8, threshold value comparator, PNP, N/O contact), standard rotary knob with detent, lockable with accessories, pressure output to rear/front with angled outlet block QS-8
028	–	■1)	MS-LRB-D5-VS-DM2	Pressure regulation range 0.3 ... 4 bar, cover plate, large rotary knob pressure gauge, pressure output to rear/front without angled outlet block
029	–	■1)	MS-LRB-D6-VS-DM2	Pressure regulation range 0.3 ... 7 bar, cover plate, large rotary knob pressure gauge, pressure output to rear/front without angled outlet block
030	–	■1)	MS-LRB-D7-VS-DM2	Pressure regulation range 0.5 ... 12 bar, cover plate, large rotary knob pressure gauge, pressure output to rear/front without angled outlet block
031	■1)	–	MS-LRB-D5-VS-DM1	Pressure regulation range 0.3 ... 4 bar, cover plate, small rotary knob pressure gauge, pressure output to rear/front without angled outlet block
032	■1)	–	MS-LRB-D6-VS-DM1	Pressure regulation range 0.3 ... 7 bar, cover plate, small rotary knob pressure gauge, pressure output to rear/front without angled outlet block
033	■1)	–	MS-LRB-D7-VS-DM1	Pressure regulation range 0.5 ... 12 bar, cover plate, small rotary knob pressure gauge, pressure output to rear/front without angled outlet block

1) Female thread only with G¼ (MS4) or G½ (MS6)

Overview list – Service units MS4/6				
Code	Size		Type	Description
	MS4	MS6		
Precision pressure regulator MS-LRP				
P1	–	■	MS-LRP-D2-A8	Pressure regulation range 0.05 ... 0.7 bar, adapter plate for EN pressure gauge ⅛, standard rotary knob with detent
P2	–	■	MS-LRP-D4-A8	Pressure regulation range 0.05 ... 2.5 bar, adapter plate for EN pressure gauge ⅛, standard rotary knob with detent
P3	–	■	MS-LRP-D5-A8	Pressure regulation range 0.1 ... 4 bar, adapter plate for EN pressure gauge ⅛, standard rotary knob with detent
P4	–	■	MS-LRP-D7-A8	Pressure regulation range 0.1 ... 12 bar, adapter plate for EN pressure gauge ⅛, standard rotary knob with detent
Precision pressure regulator MS-LRPB				
R1	–	■[1)]	MS-LRPB-D2-A8	Pressure regulation range 0.05 ... 0.7 bar, adapter plate for EN pressure gauge ⅛, standard rotary knob with detent, pressure output to rear/front without angled outlet block
R2	–	■[1)]	MS-LRPB-D4-A8	Pressure regulation range 0.05 ... 2.5 bar, adapter plate for EN pressure gauge ⅛, standard rotary knob with detent, pressure output to rear/front without angled outlet block
R3	–	■[1)]	MS-LRPB-D5-A8	Pressure regulation range 0.1 ... 4 bar, adapter plate for EN pressure gauge ⅛, standard rotary knob with detent, pressure output to rear/front without angled outlet block
R4	–	■[1)]	MS-LRPB-D7-A8	Pressure regulation range 0.1 ... 12 bar, adapter plate for EN pressure gauge ⅛, standard rotary knob with detent, pressure output to rear/front without angled outlet block
R5	–	■[1)]	MS-LRPB-D2-A8-BD	Pressure regulation range 0.05 ... 0.7 bar, adapter plate for EN pressure gauge ⅛, standard rotary knob with detent, pressure output to rear/front with angled outlet block QS-8
R6	–	■[1)]	MS-LRPB-D4-A8-BD	Pressure regulation range 0.05 ... 2.5 bar, adapter plate for EN pressure gauge ⅛, standard rotary knob with detent, pressure output to rear/front with angled outlet block QS-8
R7	–	■[1)]	MS-LRPB-D5-A8-BD	Pressure regulation range 0.1 ... 4 bar, adapter plate for EN pressure gauge ⅛, standard rotary knob with detent, pressure output to rear/front with angled outlet block QS-8
R8	–	■[1)]	MS-LRPB-D7-A8-BD	Pressure regulation range 0.1 ... 12 bar, adapter plate for EN pressure gauge ⅛, standard rotary knob with detent, pressure output to rear/front with angled outlet block QS-8
R9	–	■[1)]	MS-LRPB-D2-A8-BE	Pressure regulation range 0.05 ... 0.7 bar, adapter plate for EN pressure gauge ⅛, standard rotary knob with detent, pressure output to rear/front with angled outlet block QS-10
R10	–	■[1)]	MS-LRPB-D4-A8-BE	Pressure regulation range 0.05 ... 2.5 bar, adapter plate for EN pressure gauge ⅛, standard rotary knob with detent, pressure output to rear/front with angled outlet block QS-10
R11	–	■[1)]	MS-LRPB-D5-A8-BE	Pressure regulation range 0.1 ... 4 bar, adapter plate for EN pressure gauge ⅛, standard rotary knob with detent, pressure output to rear/front with angled outlet block QS-10
R12	–	■[1)]	MS-LRPB-D7-A8-BE	Pressure regulation range 0.1 ... 12 bar, adapter plate for EN pressure gauge ⅛, standard rotary knob with detent, pressure output to rear/front with angled outlet block QS-10
1) Female thread only with G½ (MS6)				
Electric pressure regulator MS-LRE				
S1	–	■	MS-LRE-D6	Pressure regulation range 0.3 ... 7 bar, integrated MS pressure gauge
S2	–	■	MS-LRE-D7	Pressure regulation range 0.5 ... 12 bar, integrated MS pressure gauge
S3	–	■	MS-LRE-D6-PI	Pressure regulation range 0.3 ... 7 bar, integrated MS pressure gauge, 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, 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, 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, electrical pressure output (integrated pressure sensor with voltage output, plug M8x1, 3-pin)

Service unit combinations MSB4/6, MS series

Type codes

Overview list – Service units MS4/6				
Code	Size		Type	Description
	MS4	MS6		
Flow sensor SFAM				
U5	–	■	SFAM-1000-M-2SA-M12	Flow measuring range 10 ... 1,000 l/min, electrical output (2x PNP or NPN, 1 analogue output 4 ... 20 mA), electrical connection (plug M12x1, 5-pin)
U6	–	■	SFAM-1000-M-2SV-M12	Flow measuring range 10 ... 1,000 l/min, electrical output (2x PNP or NPN, 1 analogue output 0 ... 10 V), electrical connection (plug M12x1, 5-pin)
U7	–	■	SFAM-3000-M-2SA-M12	Flow measuring range 30 ... 1,000 l/min, electrical output (2x PNP or NPN, 1 analogue output 4 ... 20 mA), electrical connection (plug M12x1, 5-pin)
U8	–	■	SFAM-3000-M-2SV-M12	Flow measuring range 30 ... 1,000 l/min, electrical output (2x PNP or NPN, 1 analogue output 0 ... 10 V), electrical connection (plug M12x1, 5-pin)
U9	–	■	SFAM-5000-M-2SA-M12	Flow measuring range 50 ... 1,000 l/min, electrical output (2x PNP or NPN, 1 analogue output 4 ... 20 mA), electrical connection (plug M12x1, 5-pin)
U10	–	■	SFAM-5000-M-2SV-M12	Flow measuring range 50 ... 1,000 l/min, electrical output (2x PNP or NPN, 1 analogue output 0 ... 10 V), electrical connection (plug M12x1, 5-pin)
Soft-start and exhaust valve MS-SV				
V1	–	■[1)]	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, without multi-pin plug socket
V2	–	■[1)]	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, without multi-pin plug socket
V3	–	■[1)]	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 (plug M8, 1 switching output PNP, 3-pin), without multi-pin plug socket
V4	–	■[1)]	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 (plug M8, 1 switching output PNP, 3-pin), without multi-pin plug socket
V5	–	■[1)]	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, multi-pin plug socket (Sub-D, 9-pin, screw terminal, without cable, enable signals static)
V6	–	■[1)]	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, multi-pin plug socket (Sub-D, 9-pin, screw terminal, without cable, enable signals static)
V7	–	■[1)]	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	–	■[1)]	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	–	■[1)]	MS-SV-C-10V24-S	Performance level "c", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, silencer, cover plate
V22	–	■[1)]	MS-SV-C-10V24-S-AD7	Performance level "c", supply voltage 24 V DC, operating pressure 3.5 ... 10 bar, silencer, pressure sensor with operational status indicator (plug M8, threshold value comparator, PNP, N/O contact)
V27	–	■[1)]	MS-SV-E-ASIS-AG	Performance level "e", supply voltage 22 ... 31.6 V DC (AS-I Safety at Work, SPEC 3.0, Profile 7.5.5), operating pressure 3.5 ... 10 bar, without silencer, integrated MS pressure gauge
V28	–	■[1)]	MS-SV-E-ASIS-SO-AG	Performance level "e", supply voltage 22 ... 31.6 V DC (AS-I Safety at Work, SPEC 3.0, Profile 7.5.5), operating pressure 3.5 ... 10 bar, open silencer, integrated MS pressure gauge

1) Female thread only with G½ (MS6)

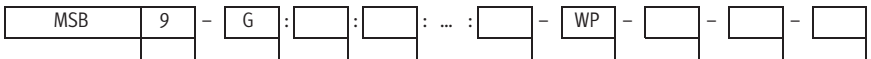
Service unit combinations MSB4/6, MS series

Type codes

Overview list – Service units MS4/6				
Code	Size		Type	Description
	MS4	MS6		
Soft-start and exhaust valve MS-SV				
V31	–	■[1)]	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, multi-pin plug socket (Sub-D, 9-pin, screw terminal, without cable, enable signals static, short-circuit detection possible)
V32	–	■[1)]	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, multi-pin plug socket (Sub-D, 9-pin, screw terminal, without cable, enable signals static, short-circuit detection possible)
V33	–	■[1)]	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, short-circuit detection possible)
V34	–	■[1)]	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, short-circuit detection possible)
1) Female thread only with G½ (MS6)				
Water separator MS-LWS				
W1	–	■	MS-LWS-U-V	Metal bowl, fully automatic condensate drain

Service unit combinations MSB9, MS series

Type codes



Series	
MSB	Standard service unit combination

Size	
9	Grid dimension 90 mm

Pneumatic connection	
¾	Female thread G¾
1	Female thread G1
AGD	Connecting plate G½
AGE	Connecting plate G¾
AGF	Connecting plate G1
AGG	Connecting plate G1¼
AGH	Connecting plate G1½
N¾	Female thread NPT¾
N1	Female thread NPT1
AQR	Connecting plate NPT½
AQS	Connecting plate NPT¾
AQT	Connecting plate NPT1
AQU	Connecting plate NPT1¼
AQV	Connecting plate NPT1½
G	Module without connecting thread, without connecting plate
NG	Module without connecting thread, without connecting plate (port 2 or 3 in NPT)

Service unit equipment		
Position 1	Selection ➔ Overview list	Position 1
Position 2		Position 2
...		...
Position 10		Position 10

Type of mounting	
	Without mounting bracket
WP	Mounting bracket
WPB	Mounting bracket for large wall gap
WPM	Mounting bracket

EU certification	
	None
EX2	II 3GD to EU Directive 94/9/EG
EX4	II 2GD to EU Directive 94/9/EG

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

Flow direction	
	From left to right
Z	From right to left

Service unit combinations MSB9, MS series

Type codes

Overview list – Service units MS9		
Code	Type	Description
On-off valve MS-EM, manually actuated		
C2	MS-EM-S-VS	Silencer, cover plate
On-off valve MS-EE, electrically actuated		
D4	MS-EE-V24-S-VS	Supply voltage 24 V DC, operating pressure 3.5 ... 16 bar, silencer, cover plate
Branching module MS-FRM		
F1	MS-FRM-VS	Cover plate
F3	MS-FRM-VS-Y	Cover plate, pressure switch PEV without display (plug socket, EN 175 301, type A, cube)
F8	MS-FRM-VS-M12	Cover plate, pressure switch PEV without display (plug socket, round, M12, 4-pin)
Filter MS-LF		
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
Fine and micro filter MS-LFM		
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 indicator
I12	MS-LFM-AUV-DA	Grade of filtration 0.01 µm, metal bowl, fully automatic condensate drain, optical differential pressure indicator
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 indicator
I26	MS-LFM-AUV-HF-DA	Grade of filtration 0.01 µm, metal bowl, fully automatic condensate drain, high flow rate, optical differential pressure indicator
Filter regulator MS-LFR		
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, directly actuated filter diaphragm regulator, integrated MS pressure gauge, standard rotary knob with detent, lockable 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, directly actuated filter diaphragm regulator, integrated MS pressure gauge, standard rotary knob with detent, lockable 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, directly actuated filter diaphragm regulator, integrated MS pressure gauge, standard rotary knob with detent, lockable 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, directly actuated filter diaphragm regulator, integrated MS pressure gauge, standard rotary knob with detent, lockable with accessories
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 actuated filter diaphragm regulator, integrated MS pressure gauge, standard rotary knob with detent, lockable 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 actuated filter diaphragm regulator, integrated MS pressure gauge, standard rotary knob with detent, lockable 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 actuated filter diaphragm regulator, integrated MS pressure gauge, standard rotary knob with detent, lockable 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 actuated filter diaphragm regulator, integrated MS pressure gauge, standard rotary knob with detent, lockable with accessories

Service unit combinations MSB9, MS series

Type codes

Overview list – Service units MS9		
Code	Type	Description
Filter regulator MS-LFR		
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 actuated filter diaphragm regulator, integrated MS pressure gauge, standard rotary knob with detent, lockable 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 actuated filter diaphragm regulator, integrated MS pressure gauge, standard rotary knob with detent, lockable 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 actuated filter diaphragm regulator, integrated MS pressure gauge, standard rotary knob with detent, lockable 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 actuated filter diaphragm regulator, integrated MS pressure gauge, standard rotary knob with detent, lockable with accessories
Activated carbon filter MS-LFX		
L2	MS-LFX-U	Metal bowl
Lubricator MS-LOE (not with EX2/EX4 EU certification)		
M2	MS-LOE-U	Metal bowl
Pressure regulator MS-LR		
N1	MS-LR-D5-DI-AG-AS	Pressure regulation range 0.3 ... 4 bar, directly actuated diaphragm regulator, integrated MS pressure gauge, standard rotary knob with detent, lockable with accessories
N2	MS-LR-D6-DI-AG-AS	Pressure regulation range 0.3 ... 7 bar, directly actuated diaphragm regulator, integrated MS pressure gauge, standard rotary knob with detent, lockable with accessories
N7	MS-LR-D5-DI-AG-KD-AS	Pressure regulation range 0.3 ... 4 bar, directly actuated diaphragm regulator, integrated MS pressure gauge, rotary knob underneath, standard rotary knob with detent, lockable with accessories
N8	MS-LR-D6-DI-AG-KD-AS	Pressure regulation range 0.3 ... 7 bar, directly actuated diaphragm regulator, integrated MS pressure gauge, rotary knob underneath, standard rotary knob with detent, lockable with accessories
N35	MS-LR-D5-AG-AS	Pressure regulation range 0.3 ... 4 bar, pilot actuated diaphragm regulator, integrated MS pressure gauge, standard rotary knob with detent, lockable with accessories
N36	MS-LR-D6-AG-AS	Pressure regulation range 0.3 ... 7 bar, pilot actuated diaphragm regulator, integrated MS pressure gauge, standard rotary knob with detent, lockable with accessories
N37	MS-LR-D7-AG-AS	Pressure regulation range 0.5 ... 12 bar, pilot actuated diaphragm regulator, integrated MS pressure gauge, standard rotary knob with detent, lockable with accessories
Flow sensor SFAM (only in flow direction from left to right)		
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 (plug M12x1, 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 (plug M12x1, 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 (plug M12x1, 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 (plug M12x1, 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 (plug M12x1, 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 (plug M12x1, 5-pin)

Service unit combinations MSB9, MS series

Type codes

Overview list – Service units MS9		
Code	Type	Description
Soft-start/quick exhaust valve MS-SV (not with EX2/EX4 EU certification)		
V12	MS-SV-C-V24-S-VS	Performance Level "c", supply voltage 24 V DC, silencer, cover plate
V22	MS-SV-C-V24-S-AD7	Performance Level "c", supply voltage 24 V DC, silencer, pressure sensor with operational status indicator (plug M8, threshold value comparator, PNP, N/O contact)
Water separator MS-LWS		
W1	MS-LWS-U-V	Metal bowl, fully automatic condensate drain

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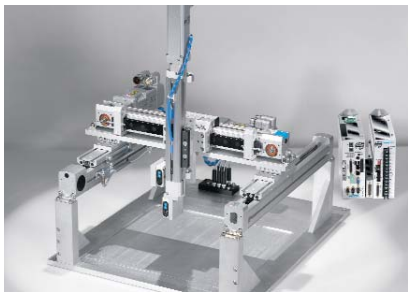

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