



## Selected products Service units, MS series



- Service unit combinations MSB



- Pressure regulators MS-LR
- Filter regulators MS-LFR
- Soft-start/quick exhaust valves MS-SV



- On/off valves MS-EE
- On/off valves MS-EM
- Soft-start valves MS-DL



- Branching modules MS-FRM-F1A  
Suitable for the production of lithium-ion batteries

### MS series

- Complete concept for compressed air preparation
- 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

### Selection and ordering

Check our electronic catalogue for the components and solutions we offer.

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

Or simply contact your Festo sales engineer, who will be happy to help you.

- Filter, regulator and lubricator functions in a single unit
- High flow rate and highly efficient in removing contaminants
- Good control characteristics with minimal pressure hysteresis
- Grid dimension 40, 62 mm (size 4, 6)



- Standard nominal flow rate 900 ... 5100 l/min
- Temperature range -10 ... +60 °C
- Operating pressure 0.8 ... 20 bar

Further versions  
 → [www.festo.com/catalogue/msb4-frc](http://www.festo.com/catalogue/msb4-frc)

## Order code

001 002 003 004 005 006  
 MSB [ ] - [ ] - [ ] [ ] : [ ] : [ ] [ ] - [ ]

001	Series
MSB	Service unit combination, MS series
002	Size
4	Grid dimension 40 mm
6	Grid dimension 62 mm
003	Pneumatic connection
1/4	Female thread G1/4
1/2	Female thread G1/2
004	Function
FR	Service unit combination
	None

005	Service unit component equipment
C3	On-off valve
C5	On/off valve with silencer (plastic cage)
D14	On-off valve, electrical 24 V DC, M12 to IEC 61076-2-101, pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact
F12	Branching module with pressure sensor, without display, plug M8, threshold value comparator, PNP, N/O contact
J1	Filter regulator, 0.5 ... 12 bar, 40 µm, plastic bowl with plastic bowl guard, manual condensate drain, lockable rotary knob
M1	Lubricator, plastic bowl with plastic bowl guard
006	Type of mounting
	None
WP	Mounting bracket standard design

## Ordering data

	Size	Pneumatic connection	Standard nominal flow rate	Pressure regulation range	Part no.	Type
<b>Service unit combinations MSB</b>						
	4	G1/4	900 l/min	0.5 ... 12 bar	★ 531117	MSB4-1/4-FRC5-J1M1
	6	G1/2	3700 l/min	0.5 ... 12 bar	★ 530244	MSB6-1/2-FRC5-J1M1
	4	G1/4	1400 l/min	4 ... 10 bar	★ 8025358	MSB4-1/4-C3-J1-D14-WP
	6	G1/2	4000 l/min	4 ... 10 bar	★ 8025359	MSB6-1/2-C3-J1-D14-WP
	4	G1/4	1600 l/min	0.5 ... 10 bar	★ 8025356	MSB4-1/4-C3-J1-F12-WP
	6	G1/2	4500 l/min	0.5 ... 10 bar	★ 8025357	MSB6-1/2-C3-J1-F12-WP
	4	G1/4	1700 l/min	0.5 ... 12 bar	★ 8025354	MSB4-1/4-C3-J1-WP
	6	G1/2	5100 l/min	0.5 ... 12 bar	★ 8025355	MSB6-1/2-C3-J1-WP

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### At a glance:

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- Maintains a constant working pressure (secondary side), independently of the pressure fluctuations in the system (primary side) and the air consumption
- Good regulation characteristics with minimal hysteresis and input pressure compensation
- High flow rate performance with minimal pressure drop



- MS4-LFR, MS6-LFR: Directly actuated diaphragm regulator
- MS9-LFR: Piloted diaphragm regulator or directly actuated diaphragm regulator
- Grid dimension 40, 62, 90 mm (Size 4, 6, 9)
- Standard nominal flow rate 1700 ... 28000 l/min
- Temperature range -10 ... +60 °C
- Operating pressure 0.8 ... 20 bar

Further versions

→ [www.festo.com/catalogue/ms4-lr](http://www.festo.com/catalogue/ms4-lr)

## Order code

001	002	003	004	005	006	007	008	009	010	011
MS		LR						AS		

001	Series
MS	MS series
002	Size
4	Grid dimension 40 mm
6	Grid dimension 62 mm
9	Grid dimension 90 mm
003	Function
LR	Pressure regulator
004	Pneumatic connection
1/4	Female thread G1/4
1/2	Female thread G1/2
G	Module without connecting thread, without connecting plate
005	Pressure regulation range/actuation
D5	0.3 ... 4 bar, manually actuated
D6	MS4, MS6: 0.3 ... 7 bar; MS9: 0.5 ... 7 bar, manually actuated
D7	0.5 ... 12 bar, manually actuated

006	Pressure gauge alternatives
	None
AG	MS pressure gauge
007	Alternative pressure gauge scale
	None
BAR	bar
008	Secondary exhausting
	With secondary exhausting
009	Actuator lock
AS	Rotary knob with latch, can be locked using accessories
010	Type of mounting
	Without mounting bracket
011	Flow direction
	Flow direction from left to right

## Ordering data

	Size	Pneumatic connection	Standard nominal flow rate	Pressure regulation range	Part no.	Type
<b>Pressure regulators MS-LR</b>						
	4	G1/4	2100 l/min	0.3 ... 4 bar	★ 529415	MS4-LR-1/4-D5-AS
			1800 l/min	0.3 ... 7 bar	★ 529417	MS4-LR-1/4-D6-AS
			1700 l/min	0.5 ... 12 bar	★ 529419	MS4-LR-1/4-D7-AS
	6	G1/2	7500 l/min	0.3 ... 4 bar	★ 529989	MS6-LR-1/2-D5-AS
			6500 l/min	0.3 ... 7 bar	★ 529991	MS6-LR-1/2-D6-AS
			5500 l/min	0.5 ... 12 bar	★ 529993	MS6-LR-1/2-D7-AS
	9	without connecting thread	28000 l/min	0.5 ... 7 bar	★ 564136	MS9-LR-G-D6-AG-BAR-AS
			28000 l/min	0.5 ... 12 bar	★ 564138	MS9-LR-G-D7-AG-BAR-AS

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## Filter regulators MS-LFR ★

- Filter and pressure regulator are combined in one unit
- MS4-LFR, MS6-LFR: Directly actuated diaphragm control valve
- MS9-LFR: Piloted or directly actuated filter-diaphragm regulator
- Good regulation characteristics with minimal hysteresis and primary pressure compensation
- Good particle and condensate separation



- MS4-LFR, MS6-LFR: Return flow option for exhausting from output 2 to output 1 already integrated
- Grid dimension 40, 62, 90 mm (Size 4, 6, 9)
- Standard nominal flow rate 1200 ... 20000 l/min
- Temperature range -10 ... +60 °C
- Operating pressure 0.8 ... 20 bar

Further versions

[→ www.festo.com/catalogue/ms4-lfr](http://www.festo.com/catalogue/ms4-lfr)

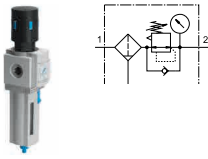
## Order code

001 002 003 004 005 006 007 008 009 010 011 012 013 014  
 MS - LFR - - - - - - - AS - - - - -

001	Series
MS	MS series
002	Size
4	Grid dimension 40 mm
6	Grid dimension 62 mm
9	Grid dimension 90 mm
003	Function
LFR	Filter regulator
004	Pneumatic connection
1/4	Female thread G1/4
1/2	Female thread G1/2
G	Without connecting thread, without connecting plate
005	Pressure regulation range
D6	0.3 ... 7 bar
D7	0.5 ... 12 bar
006	Grade of filtration
C	5 µm
E	40 µm
007	Bowl
R	Plastic bowl with plastic bowl guard
U	Metal bowl

008	Condensate drain
M	Manually
V	Automatic
009	Pressure gauge alternatives
	None
AG	MS pressure gauge
010	Alternative pressure gauge scale
	None
BAR	bar
011	Secondary exhausting
	With secondary exhausting
012	Actuator lock
AS	Rotary knob with latch, can be locked using accessories
013	Type of mounting
	Without mounting bracket
014	Flow direction
	Flow direction from left to right

## Ordering data

	Size	Pneumatic connection	Standard nominal flow rate	Pressure regulation range	Part no.	Type			
<b>Filter regulators MS-LFR</b>									
	4	G1/4	1500 l/min	0.3 ... 7 bar	★ 529144	MS4-LFR-1/4-D6-CRM-AS			
			1500 l/min		★ 529146	MS4-LFR-1/4-D6-CRV-AS			
			1700 l/min		★ 529148	MS4-LFR-1/4-D6-ERM-AS			
			1700 l/min		★ 529150	MS4-LFR-1/4-D6-ERV-AS			
			1200 l/min	0.5 ... 12 bar	★ 529152	MS4-LFR-1/4-D7-CRM-AS			
			1200 l/min		★ 529154	MS4-LFR-1/4-D7-CRV-AS			
			1200 l/min		★ 535720	MS4-LFR-1/4-D7-CUV-AS			
			1500 l/min		★ 529156	MS4-LFR-1/4-D7-ERM-AS			
			1500 l/min		★ 529158	MS4-LFR-1/4-D7-ERV-AS			
			1500 l/min		★ 535724	MS4-LFR-1/4-D7-EUM-AS			
			1500 l/min		★ 535722	MS4-LFR-1/4-D7-EUV-AS			
			6		G1/2	5600 l/min	0.3 ... 7 bar	★ 529176	MS6-LFR-1/2-D6-CRM-AS
						5600 l/min		★ 529178	MS6-LFR-1/2-D6-CRV-AS
						6200 l/min		★ 529180	MS6-LFR-1/2-D6-ERM-AS
	6200 l/min	★ 529182		MS6-LFR-1/2-D6-ERV-AS					
	4000 l/min	0.5 ... 12 bar		★ 529184		MS6-LFR-1/2-D7-CRM-AS			
	4000 l/min			★ 529186		MS6-LFR-1/2-D7-CRV-AS			
	4000 l/min			★ 530338		MS6-LFR-1/2-D7-CUM-AS			
	4000 l/min			★ 530340		MS6-LFR-1/2-D7-CUV-AS			
	4500 l/min			★ 529188		MS6-LFR-1/2-D7-ERM-AS			
	4500 l/min			★ 529190		MS6-LFR-1/2-D7-ERV-AS			
	4500 l/min			★ 529192		MS6-LFR-1/2-D7-EUM-AS			
	4500 l/min			★ 529194		MS6-LFR-1/2-D7-EUV-AS			
	9			Without connecting thread		20000 l/min	0.5 ... 7 bar	★ 564110	MS9-LFR-G-D6-EUM-AG-BAR-AS
						20000 l/min		★ 564111	MS9-LFR-G-D6-EUV-AG-BAR-AS
		20000 l/min	0.5 ... 12 bar		★ 564118	MS9-LFR-G-D7-EUM-AG-BAR-AS			
		20000 l/min			★ 564119	MS9-LFR-G-D7-EUV-AG-BAR-AS			

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## Soft-start/quick exhaust valves MS-SV ★

- For gradual pressurisation and quick exhaust of system components (single channel)
- Suitable for applications with a high flow rate in restricted spaces with medium safety requirements
- High volumetric flow rate for pressurisation and exhaust
- The filling flow rate can be set for slowly building up the pressure using a restrictor



- Adjustable pressure switchover point
- Conforms to EN ISO 13849-1
- Grid dimension 40, 62 mm (Size 4, 6)
- Standard nominal flow rate 5700 ... 16550 l/min
- Temperature range 0 ... 60 °C
- Operating pressure 3 ... 16 bar

Further versions

→ [www.festo.com/catalogue/ms4-sv](http://www.festo.com/catalogue/ms4-sv)

### Order code

001	002	003	004	005	006	007	008
MS		SV		C		S	

001	Series
MS	MS series
002	Size
6	Grid dimension 62 mm
9	Grid dimension 90 mm
003	Function
SV	Soft-start/quick exhaust valve
004	Pneumatic connection
1/2	Female thread G1/2
G	Without connecting thread, without connecting plate
005	Performance Level
C	Category 1, 1-channel to ISO 13849-1

006	Supply voltage
10V24	24 V DC, 10 bar, connection pattern to EN 175301
V24	24 V DC (connection pattern to EN 175301)
007	Silencer
S	Silencer
008	Pressure gauge alternatives
	None
VS	Cover plate

### Ordering data

	Size	Pneumatic connection	Standard nominal flow rate	Actuation type	Silencer	Part no.	Type
<b>Soft-start/quick exhaust valves MS-SV</b>							
	6	G1/2	5700 l/min	Electrical	■	★ 8001469	MS6-SV-1/2-C-10V24-S
	9	G1	8300 ... 16550 l/min	Electrical	■	★ 570737	MS9-SV-G-C-V24-S-VS

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### On/off valves MS-EE

- For pressurising and exhausting pneumatic systems
- With solenoid coil, without plug socket
- Standard nominal flow rate  
2000 ... 18000 l/min
- Temperature range  
-10 ... +60 °C
- Operating pressure  
3.5 ... 18 bar



### On/off valves MS-EM(1)

- For pressurising and exhausting pneumatic systems
- Standard nominal flow rate  
2200 ... 18000 l/min
- Temperature range  
-10 ... +60 °C
- Operating pressure  
0 ... 20 bar



Further versions

→ [www.festo.com/catalogue/ms4-ee](http://www.festo.com/catalogue/ms4-ee)

Further versions

→ [www.festo.com/catalogue/ms4-em1](http://www.festo.com/catalogue/ms4-em1)


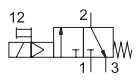

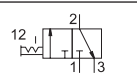
## Order code

001	002	003	004	005	006	007
MS						

<b>001</b>	<b>Series</b>
MS	MS series
<b>002</b>	<b>Size</b>
4	Grid dimension 40 mm
6	Grid dimension 62 mm
9	Grid dimension 90 mm
<b>003</b>	<b>Function</b>
EE	On/off valve, electric
EM1	On/off valve, manual
EM	On/off valve, manual
<b>004</b>	<b>Pneumatic connection</b>
1/4	Female thread G1/4
1/2	Female thread G1/2
G	Module without connecting thread, without sub-base

<b>005</b>	<b>Supply voltage</b>
	None
<b>10V24</b>	24 V DC, 10 bar, connection pattern to EN 175301
<b>V24</b>	24 V DC (connection pattern to EN 175301)
<b>006</b>	<b>Silencer</b>
	None
<b>S</b>	Silencer
<b>007</b>	<b>Pressure gauge alternatives</b>
	None
<b>VS</b>	Cover plate

## Ordering data

	Size	Pneumatic connection	Standard nominal flow rate	Actuation type	Silencer	Part no.	Type
<b>On/off valves MS-EE, MS-EM1, MS-EM</b>							
 	4	G1/4	2000 l/min	electric	-	★ 542578	MS4-EE-1/4-10V24
	6	G1/2	7000 l/min	electric	-	★ 542598	MS4-EE-1/4-10V24-S
	9	G1	18000 l/min	electric	-	★ 542582	MS6-EE-1/2-10V24
 	4	G1/4	2200 l/min	manual	-	★ 542602	MS6-EE-1/2-10V24-S
	6	G1/2	8700 l/min	manual	-	★ 562940	MS9-EE-G-V24-S-VS
	9	G1	18000 l/min	manual	-	★ 541258	MS4-EM1-1/4
	4	G1/4	2200 l/min	manual	-	★ 541259	MS4-EM1-1/4-S
	6	G1/2	8700 l/min	manual	-	★ 541267	MS6-EM1-1/2
	9	G1	18000 l/min	manual	-	★ 541268	MS6-EM1-1/2-S
	9	G1	18000 l/min	manual	-	★ 562952	MS9-EM-G-S-VS

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- For slowly pressurising and exhausting pneumatic systems (for use with on/off valves EM1 and EE)
- Sudden and erratic movements are avoided



- Standard nominal flow rate  
2000 ... 6400 l/min
- Temperature range  
-10 ... +60 °C
- Operating pressure  
4 ... 18 bar

Further versions

[→ www.festo.com/catalogue/ms4-dl](http://www.festo.com/catalogue/ms4-dl)

## Order code

001 002 003 004  
MS  -  -

001	Series
MS	MS series
002	Size
4	Grid dimension 40 mm
6	Grid dimension 62 mm
9	Grid dimension 90 mm
003	Function
DL	Soft-start valve, pneumatic

004	Pneumatic connection
1/4	Female thread G1/4
1/2	Female thread G1/2

## Ordering data

	Size	Pneumatic connection	Standard nominal flow rate	Actuation type	Part no.	Type
<b>Soft-start valves MS-DL</b>						
	4	G1/4	2000 l/min	pneumatic	★ 529531	MS4-DL-1/4
	6	G1/2	6450 l/min	pneumatic	★ 529817	MS6-DL-1/2

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## Branching modules MS-FRM-F1A – Suitable for the production of lithium-ion batteries

- Compressed air distributors with 4 connections
- Can be used as an intermediate distributor for varying air qualities
- Support for auxiliary modules
- Outlet at the top and underneath
- Recommended for production systems for manufacturing lithium-ion batteries



- Standard nominal flow rate  
4600 ... 14700 l/min
- Temperature range  
–10 ... +60 °C
- Operating pressure  
0 ... 20 bar

Further versions

[→ www.festo.com/catalogue/ms4-frm](http://www.festo.com/catalogue/ms4-frm)

## Order code

001	002	003	004	005	006
MS		FRM			F1A

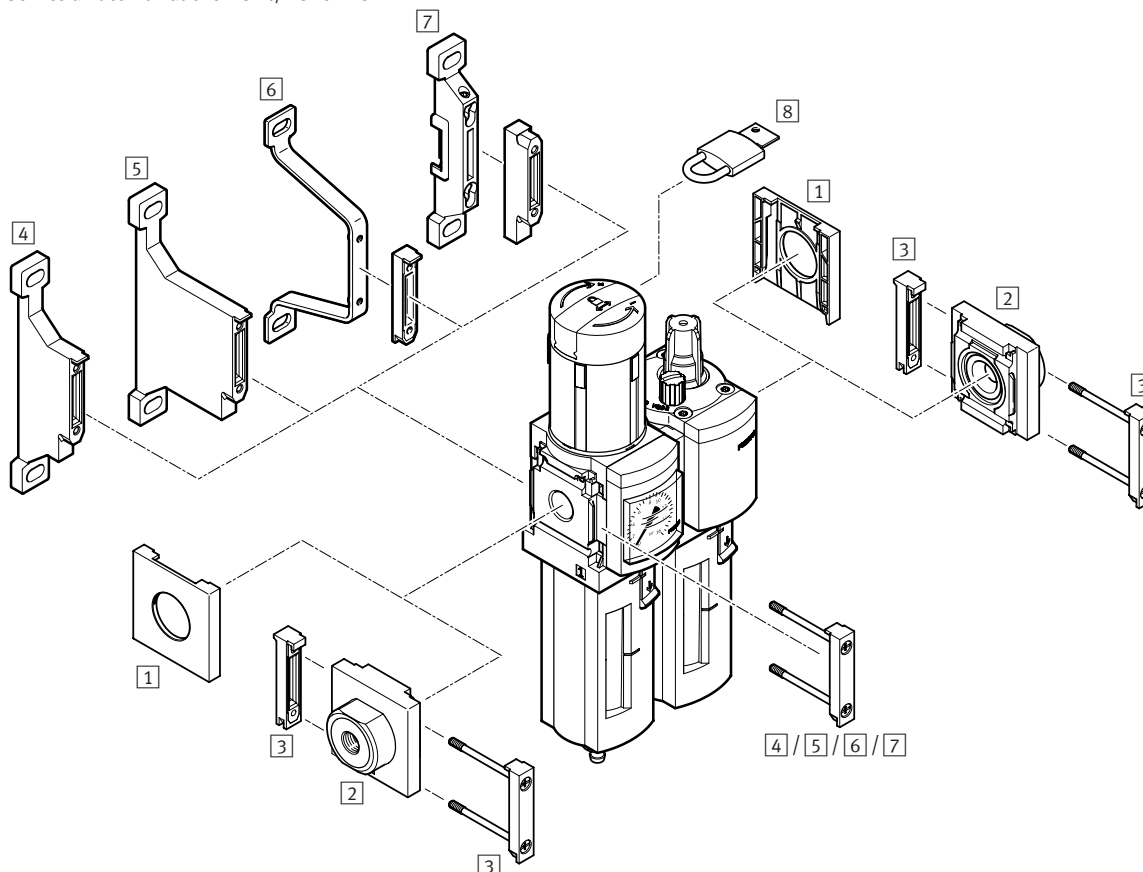
001	Series	005	Pressure gauge alternatives
MS	MS series	A4	Adapter for EN pressure gauge 1/4, without pressure gauge
002	Size	A8	Adapter for EN pressure gauge 1/8, without pressure gauge
4	Grid dimension 40 mm	006	Special material properties
6	Grid dimension 62 mm	F1A	Recommended for production facilities for the manufacture of lithium-ion batteries
003	Function		
FRM	Branching module		
004	Pneumatic connection		
1/4	Female thread G1/4		
1/2	Female thread G1/2		

## Ordering data

	Size	Pneumatic connection	Standard nominal flow rate	Flow direction	Part no.	Type
<b>Branching module MS-FRM-F1A – for battery production</b>						
	4	G1/4	4600 l/min	From left to right	8183570	MS4-FRM-1 / 4-A8-F1A
	6	G1/2	14700 l/min	From left to right	8183566	MS6-FRM-1/2-A4-F1A
			14700 l/min	From left to right	8183567	MS6-FRM-1/2-A8-F1A

## Peripherals overview

Service unit combinations MSB4/MSB6-FRC



- 1 Cover cap MS4/6-END → [ms4-end](#), [ms6-end](#)
- 2 Connecting plate SET MS4/6-AG...
- 3 Module connector MS4/6-MV
- 4 Mounting bracket MS4/6-WP

- 5 Mounting bracket MS4/6-WPB
- 6 Mounting bracket MS4/6-WPE → [ms4-wpe](#), [ms6-wpe](#)
- 7 Mounting bracket MS4/6-WPM
- 8 Padlock LRVS-D → [lrvs](#)

	for size	D1	Part no.	Type
<b>2 Connecting plate SET</b>				
	9	G3/4	552955	MS9-AGE
		G1	552956	MS9-AGF
		G11/4	552957	MS9-AGG
		G11/2	552958	MS9-AGH

	for size	Part no.	Type
<b>3 Module connector</b>			
	4	★ 8119201	MS4-MV1
	6	★ 8119204	MS6-MV1
	9	552950	MS9-MV
	4	532800	MS4-MVM
	6	532801	MS6-MVM
<b>Module connector for battery production</b>			
	4	8176695	MS4-MV1-F1A
	6	8176697	MS6-MV1-F1A

	for size	Part no.	Type
<b>4 / 5 / 7 Mounting bracket for individual devices/combinations</b>			
	4	★ 532184	MS4-WP
	6	★ 532195	MS6-WP
	9	552947	MS9-WP
	4	★ 526063	MS4-WPB
	6	★ 526074	MS6-WPB
	9	552949	MS9-WPB
	4	526060	MS4-WPM-D
	6	526073	MS6-WPM-D
	9	552948	MS9-WPM
<b>Mounting bracket for battery production</b>			
	4	8176694	MS4-WP-F1A
	6	8176698	MS6-WP-F1A

	for size	D1	Part no.	Type
<b>Mounting bracket for individual devices</b>				
	4	–	★ 532185	MS4-WB
	6	–	★ 532196	MS6-WB
	4	–	★ 526064	MS4-WR
	6	–	★ 526075	MS6-WR
<b>Mounting bracket for battery production</b>				
	4	–	8176693	MS4-WR-F1A-B
	6	–	8176696	MS6-WR-F1A-B

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