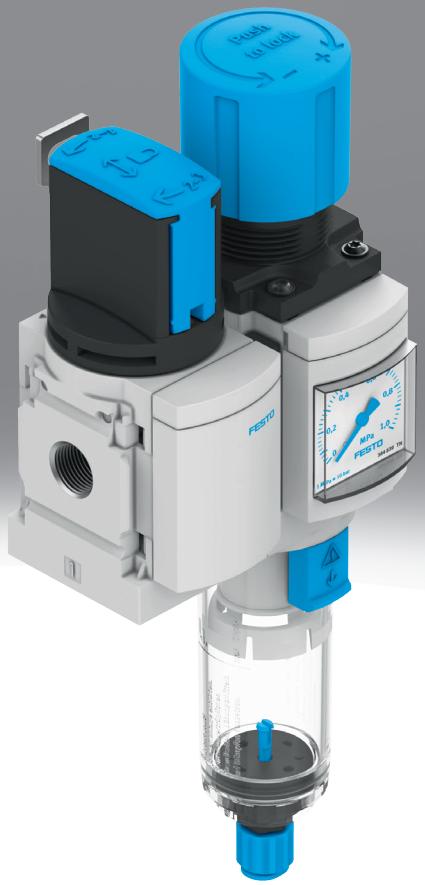
Service unit MS-EM1FR



Characteristics

Function

Combination of on/off valve and filter regulator
- For filtered and unlubricated compressed air supply
- Output pressure is infinitely adjustable within the pressure regulation range

Pneumatic connection

For individual fittings that are fastened via a female thread.

Pressure regulation range

For adjusting the pressure regulation range from 0.5 ... 7 bar.

Filter design

Grade of filtration of 5 µm or 40 µm can be selected.

Bowl

Bowl is protected by a plastic bowl guard.

Condensate drain

The following functions can be selected:
- Manual
- Fully automatic, normally closed

Alternative pressure gauge scale

The pressure regulator can be ordered with or without a pressure gauge. The interface has a thread of G1/8.

Special material properties

[F1A]	Recommended for production plants for manufacturing lithium-ion batteries, F1A

Metals with more than 1% copper by mass are excluded from use. Exceptions are circuit boards, cables, electrical plug connectors and coils

Version

[B]	Second generation

Basic component with sturdy and lightweight polymer housing. Fully compatible with the MS series.

Type code

001	Series	
MS	MS series	

002	Size	
4	Grid dimension 40 mm	
6	Grid dimension 62 mm	

003	Function	
EM1FR	On/off valve, manually operated with filter control valve	

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

005	Pressure regulation range	
D6	0.5 – 7 bar	

006	Filter design	
C	5 µm	
E	40 µm	

007	Bowl	
P	Plastic bowl	

008	Condensate drain	
M	Manually	
VC	Fully automatic, normally closed	

009	Pressure gauge	
A8	Adapter for EN pressure gauge 1/8, without pressure gauge	
AG	With pressure gauge	
AD13	Pressure sensor	

010	Alternative pressure gauge scale	
	MS pressure gauge	
BAR	bar	
MPA	MPa	

011	Type of mounting	
WP	Mounting bracket basic design	
WPE	Mounting bracket for wall mounting	

012	Version	
B	Second generation	

Datasheet

General technical data		
Size	4	6
Type of mounting	Either: Inline installation With mounting bracket With accessories	
Mounting position	Vertical +/-5°	
Grade of filtration	5 µm 40 µm	
Condensate drain	Fully automatic Manual, non-detenting Manual, rotating	
Pressure gauge (ANALOG) or Pressure display (DIGITAL)	Prepared for G1/8 With pressure gauge	

Standard nominal flow rate				
Size	4		6	
Filter design	5 µm	40 µm	5 µm	40 µm
Standard nominal flow rate, exhaust 0.6->0 MPa (6->0 bar, 87->0 psi)	1,400 l/min		3,600 l/min	
Standard nominal flow rate (standardised to DIN 1343)	1,500 l/min	1,700 l/min	4,750 l/min	5,300 l/min

Operating and environmental conditions		
Condensate drain	Manually	Fully automatic, normally closed
Operating pressure	0.1 ... 1 MPa	
Operating pressure	1 ... 10 bar	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]	
Note on operating and pilot medium	Compatibility with ester oil not guaranteed	
Ambient temperature	-5 ... 50°C	5 ... 50°C
Media temperature	-5 ... 50°C	5 ... 50°C
Storage temperature	-5 ... 50°C	
Corrosion resistance class CRC [1]	1 - Low corrosion stress	

1) More information www.festo.com/x/topic/kbk

Materials	
Material bowl	Makrolon®
Material filter	Packaging unit
Note on materials	RoHS compliant
LABS (PWIS) conformity	VDMA24364-B1/B2-L

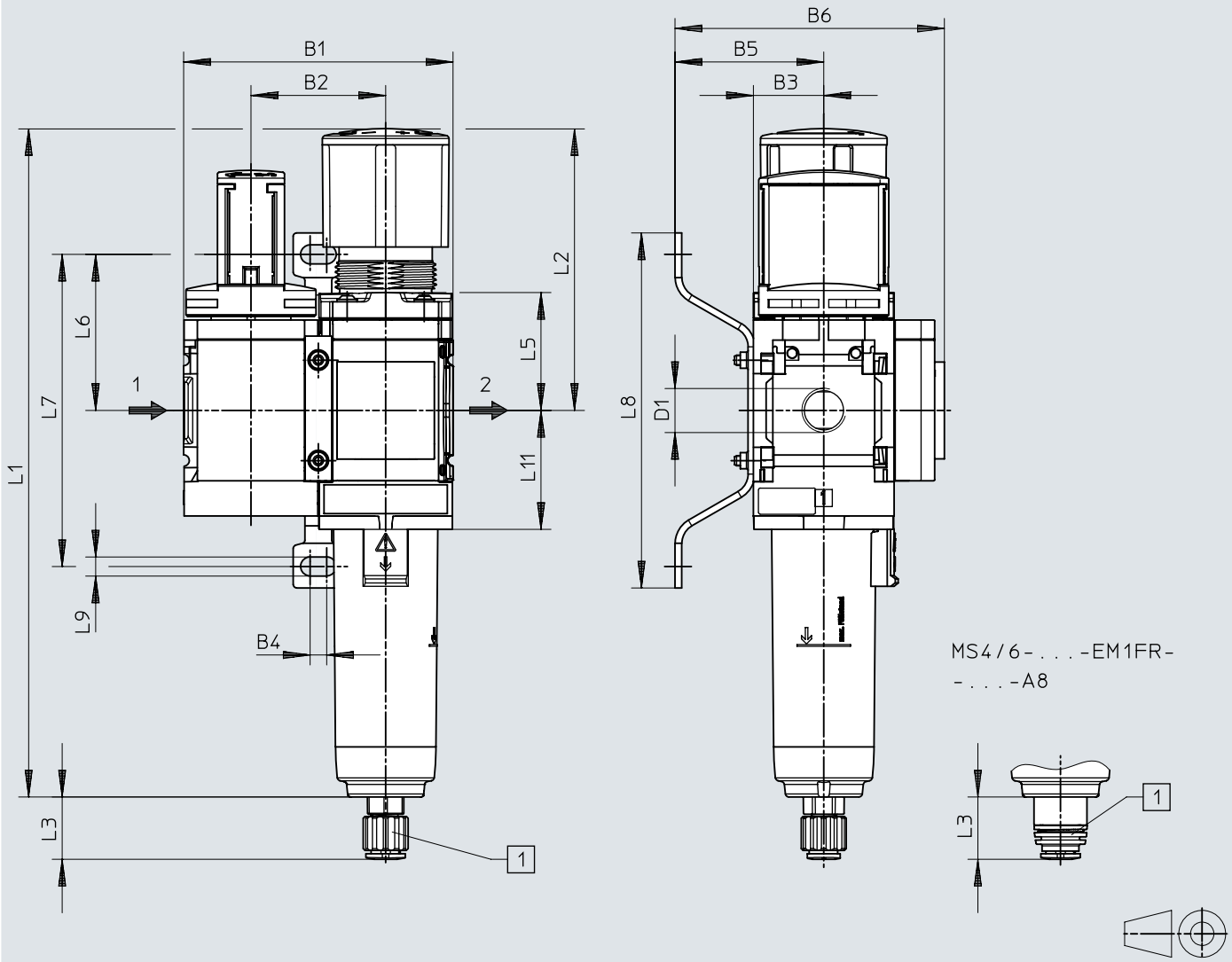
Additional material specifications – products for battery production	
Suitability for the production of Li-ion batteries[1]	Suitable for battery production with reduced Cu/Zn/Ni values (F1a)

1) only valid for MS...-F1A-B

Dimensions

Dimensions – MS4/6-EM1FR – manually operated on/off valve, filter regulator with pressure gauge

Download CAD data www.festo.com



[1] MS4-EM1FR-...: Manual condensate drain; MS4-EM1FR-...-A8: Automatic condensate drain

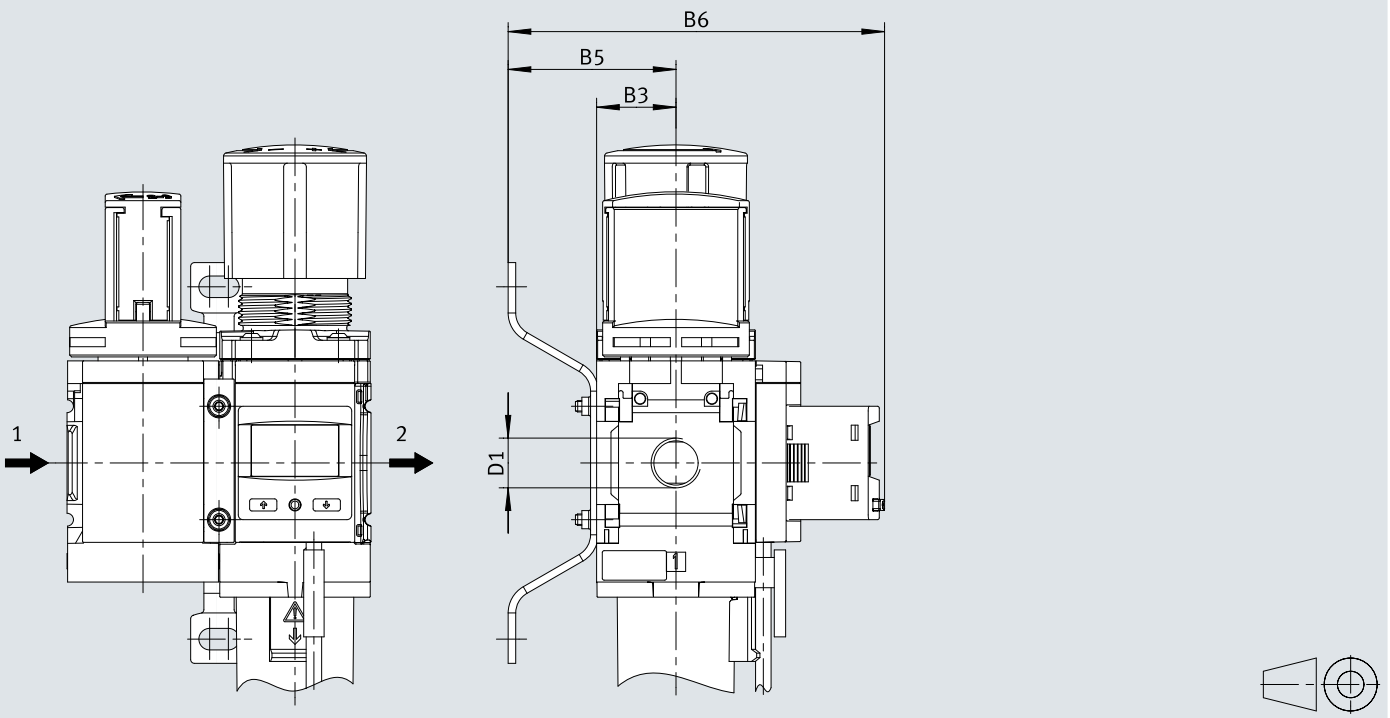
	B1	B2	B3	B4	B5	B6	D1	L1
MS4-EM1FR	80,4	40,2	21	5	44,4	80,4	G1/4	199,8
MS4-EM1FR-...-A8								
MS6-EM1FR	124	62	31	4,3	53,9	99,9	G1/2	288,9
MS6-EM1FR-...-A8								

	L2	L3	L5	L6	L7	L8	L9	L11
MS4-EM1FR	84,4	18,6	35,2	46,6	93,2	106	5,7	35,5
MS4-EM1FR-...-A8		20,8						
MS6-EM1FR	141,3	20,8	49,4	72	142	158	6,6	53,5
MS6-EM1FR-...-A8		22,4						

Dimensions

Dimensions – MS4/6-EM1FR-...-AD13-B - Manually operated on/off valve, filter regulator with pressure sensor SPAN-B

Download CAD data www.festo.com



	B3	B5	B6	D1
MS4-EM1FR-1/4-...-AD13-B	21	44,4	99,6	G1/4
MS6-EM1FR-1/2-...-AD13-B	31	53,9	119,1	G1/2

Ordering data

Ordering data – MS4/6-EM1FR-...-B (pressure indication G1/8“ prepared)



Size	Filter design	Standard nominal flow rate (standardised to DIN 1343)	Condensate drain	Product weight	Part no.	Type
4	5 µm	1,500 l/min	Manually	470 g	8130947	MS4-EM1FR-1/4-D6-C-P-M-A8-WPE-B
			Fully automatic, normally closed		8130949	MS4-EM1FR-1/4-D6-C-P-VC-A8-WPE-B
	40 µm	1,700 l/min	Manually		8130950	MS4-EM1FR-1/4-D6-E-P-M-A8-WPE-B
			Fully automatic, normally closed		8130948	MS4-EM1FR-1/4-D6-E-P-VC-A8-WPE-B
6	5 µm	4,750 l/min	Manually	1,250 g	8130912	MS6-EM1FR-1/2-D6-C-P-M-A8-WPE-B
			Fully automatic, normally closed		8130911	MS6-EM1FR-1/2-D6-C-P-VC-A8-WPE-B
	40 µm	5,300 l/min	Manually		8130913	MS6-EM1FR-1/2-D6-E-P-M-A8-WPE-B
			Fully automatic, normally closed		8130914	MS6-EM1FR-1/2-D6-E-P-VC-A8-WPE-B

Ordering data – MSB4/6-EM1FR-...-B (pressure gauge with outer scale in MPa)



Size	Filter design	Standard nominal flow rate (standardised to DIN 1343)	Condensate drain	Product weight	Part no.	Type
4	5 µm	1,500 l/min	Manually	470 g	8098378	MS4-EM1FR-1/4-D6-C-P-M-AG-MPA-WPE-B
			Fully automatic, normally closed		8098377	MS4-EM1FR-1/4-D6-C-P-VC-AG-MPA-WPE-B
	40 µm	1,700 l/min	Manually		8098374	MS4-EM1FR-1/4-D6-E-P-M-AG-MPA-WPE-B
			Fully automatic, normally closed		8098380	MS4-EM1FR-1/4-D6-E-P-VC-AG-MPA-WPE-B
6	5 µm	4,750 l/min	Manually	1,250 g	8098371	MS6-EM1FR-1/2-D6-C-P-M-AG-MPA-WPE-B
			Fully automatic, normally closed		8098368	MS6-EM1FR-1/2-D6-C-P-VC-AG-MPA-WPE-B
	40 µm	5,300 l/min	Manually		8098369	MS6-EM1FR-1/2-D6-E-P-M-AG-MPA-WPE-B
			Fully automatic, normally closed		8098364	MS6-EM1FR-1/2-D6-E-P-VC-AG-MPA-WPE-B

Ordering data

Ordering data – MSB4/6-EM1FR-...-B (pressure gauge with outer scale in bar and inner scale in psi)



Size	Filter design	Standard nominal flow rate (standardised to DIN 1343)	Condensate drain	Product weight	Part no.	Type
4	5 µm	1,500 l/min	Manually	470 g	**8098373**	**MS4-EM1FR-1/4-D6-C-P-M-AG-BAR-WPE-B**
			Fully automatic, normally closed		**8098372**	**MS4-EM1FR-1/4-D6-C-P-VC-AG-BAR-WPE-B**
	40 µm	1,700 l/min	Manually		**8098376**	**MS4-EM1FR-1/4-D6-E-P-M-AG-BAR-WPE-B**
			Fully automatic, normally closed		**8098379**	**MS4-EM1FR-1/4-D6-E-P-VC-AG-BAR-WPE-B**
6	5 µm	4,750 l/min	Manually	1,250 g	**8098363**	**MS6-EM1FR-1/2-D6-C-P-M-AG-BAR-WPE-B**
			Fully automatic, normally closed		**8098370**	**MS6-EM1FR-1/2-D6-C-P-VC-AG-BAR-WPE-B**
	40 µm	5,300 l/min	Manually		**8098365**	**MS6-EM1FR-1/2-D6-E-P-M-AG-BAR-WPE-B**
			Fully automatic, normally closed		**8098367**	**MS6-EM1FR-1/2-D6-E-P-VC-AG-BAR-WPE-B**

Ordering data – MS4/6-EM1FR-...-B (pressure sensor SPAN-B)



Size	Filter design	Standard nominal flow rate (standardised to DIN 1343)	Condensate drain	Product weight	Part no.	Type
6	5 µm	1,500 l/min	Manually	470 g	**8236710**	**MS4-EM1FR-1/4-D6-C-P-M-AD13-WPE-B**
			Fully automatic, normally closed		**8236711**	**MS4-EM1FR-1/4-D6-C-P-VC-AD13-WPE-B**
		4,750 l/min	Manually	1,250 g	**8236719**	**MS6-EM1FR-1/2-D6-C-P-M-AD13-WPE-B**
			Fully automatic, normally closed		**8236720**	**MS6-EM1FR-1/2-D6-C-P-VC-AD13-WPE-B**
	40 µm	1,700 l/min	Manually	470 g	**8236708**	**MS4-EM1FR-1/4-D6-E-P-M-AD13-WPE-B**
			Fully automatic, normally closed		**8236709**	**MS4-EM1FR-1/4-D6-E-P-VC-AD13-WPE-B**
		5,300 l/min	Manually	1,250 g	**8236717**	**MS6-EM1FR-1/2-D6-E-P-M-AD13-WPE-B**
			Fully automatic, normally closed		**8236718**	**MS6-EM1FR-1/2-D6-E-P-VC-AD13-WPE-B**

Ordering data

Ordering data – MSB4/6-EM1FR-...-B (pressure display G1/8“ prepared)



Size	Filter design	Standard nominal flow rate (standardised to DIN 1343)	Condensate drain	Product weight	Part no.	Type
4	5 µm	1,500 l/min	Manually	470 g	**8176525**	**MS4-EM1FR-1/4-D6-C-P-M-A8-WP-F1A-B**
					8176522	**MS4-EM1FR-1/4-D6-C-P-M-AG-MPA-WP-F1A-B**
					8176521	**MS4-EM1FR-1/4-D6-C-P-M-AG-BAR-WP-F1A-B**
	40 µm	1,700 l/min			**8176526**	**MS4-EM1FR-1/4-D6-E-P-M-A8-WP-F1A-B**
					8176524	**MS4-EM1FR-1/4-D6-E-P-M-AG-MPA-WP-F1A-B**
					8176523	**MS4-EM1FR-1/4-D6-E-P-M-AG-BAR-WP-F1A-B**
6	5 µm	4,750 l/min		1,250 g	**8176531**	**MS6-EM1FR-1/2-D6-C-P-M-A8-WP-F1A-B**
					8176527	**MS6-EM1FR-1/2-D6-C-P-M-AG-BAR-WP-F1A-B**
					8176528	**MS6-EM1FR-1/2-D6-C-P-M-AG-MPA-WP-F1A-B**
	40 µm	5,300 l/min			**8176530**	**MS6-EM1FR-1/2-D6-E-P-M-AG-MPA-WP-F1A-B**
					8176529	**MS6-EM1FR-1/2-D6-E-P-M-AG-BAR-WP-F1A-B**
					8176532	**MS6-EM1FR-1/2-D6-E-P-M-A8-WP-F1A-B**

Accessories

Pressure gauge MA



Pneumatic connection [1]	Indicating range	Indicating range	Product weight	Part no.	Type
R1/8			60 g	**526778**	**MA-40-1,0-R1/8-MPA-E-RG**
		0 ... 10 bar		**525725**	**MA-40-10-R1/8-E-RG**
	0 ... 145 psi			**162835**	**MA-40-10-1/8-EN**

1) RG: Red/green scale

Silencer U



Pneumatic connection	Sound pressure level	Flow rate to atmosphere	Product weight	Part no.	Type
G1/4	76 dB(A)	3,300 l/min	7.7 g	**2316**	**U-1/4**
G1/2	82 dB(A)	10,300 l/min	58.2 g	**2310**	**U-1/2**

Mounting bracket MS...-WPE-B



Size	Material mounting bracket	LABS (PWIS) conformity	Product weight	Part no.	Type
4	Steel	VDMA24364-B1/B2-L	30 g	**8118600**	**MS4-WPE-B**
6			58 g	**8118599**	**MS6-WPE-B**

Module connector MS...-MV1

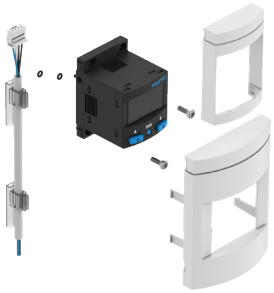


Size	Material module connector	Suitability for the production of Li-ion batteries [1]	Product weight	Part no.	Type
4	POM, High-alloy stainless steel		13 g	**8119201**	**MS4-MV1**
		F1a	36 g	**8176695**	**MS4-MV1-F1A**
6			33 g	**8119204**	**MS6-MV1**
		F1a	54 g	**8176697**	**MS6-MV1-F1A**

1) More information: www.festo.com/x/topic/bat

Accessories

Pressure sensor SPAN-B



Measurement method	Switching element function	Operational voltage range DC	Product weight	Part no.	Type
Piezoresistive pressure sensor	NC or NO, switchable	15 ... 30 V	105 g	**8218111**	**SPAN-B-B11R-MS-PN-L1**