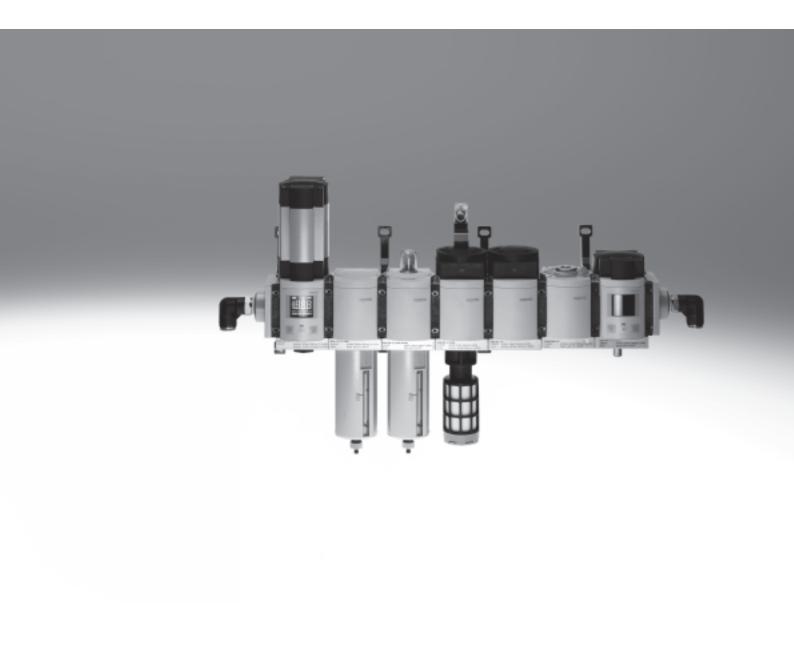
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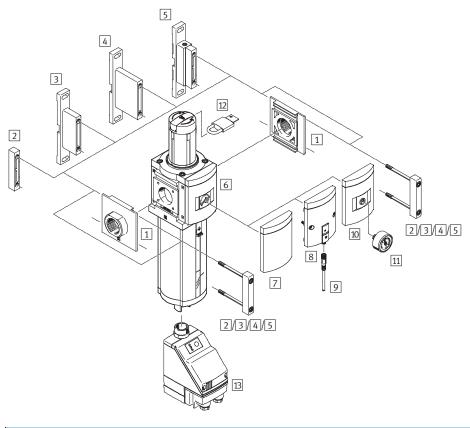
Filter regulators MS9-LFR, MS series, NPT Peripherals overview





Additional accessories:

- Module connector for combinations with size MS6, MS9 or MS12 → Internet: rmv, armv



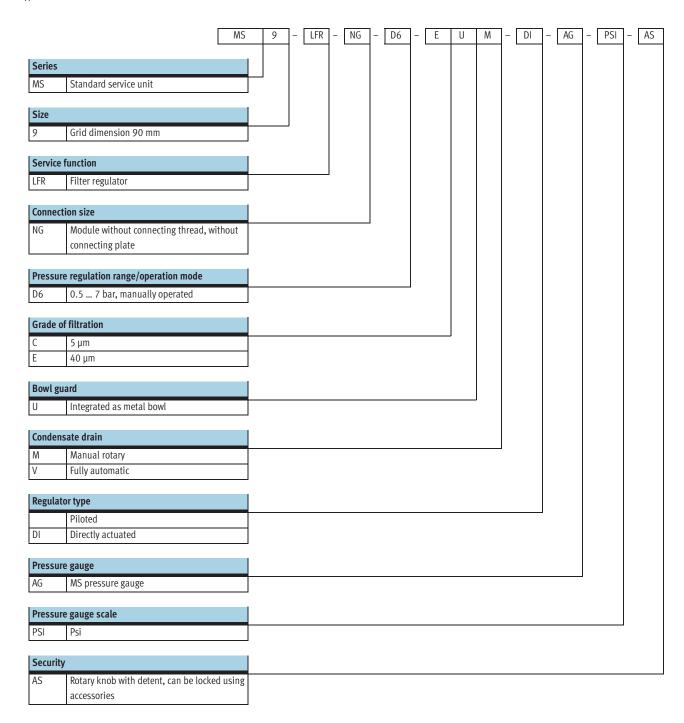
Mour	ting attachments and accessories				
		Individual unit		Combination	→ Page/Internet
		Without connecting thread	With connecting thread NPT3/4-14 or NPT1-111/2		
1	Connecting plate	•	_		ms9-aq
	MS9-AQ	-	_	-	
2	Module connector		_		ms9-mv
	MS9-MV	_		_	
3	Mounting bracket				ms9-wp
	MS9-WP	_	_	_	
4	Mounting bracket				ms9-wp
	MS9-WPB	_	_	_	
5	Mounting bracket		_		ms9-wp
	MS9-WPM	_		_	
6	MS pressure gauge				10
	AG				
7	Cover plate				10
	VS				
8	Pressure sensor without display				10
	AD7 AD10				
9	Connecting cable				13
	NEBU-M8LE3				1
10	Adapter plate for EN pressure gauge 1/4			•	10
[]	A4				
11	Pressure gauge			•	13
	MA				1
12	Padlock		•	•	13
[]	LRVS-D				
13	Condensate drain, fully automatic, electrically			•	10
	actuated E1/E2/E3/E4				



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3

Type codes



Additional variants can be ordered using the modular system ightharpoonup 10

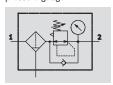
- Connecting plates
- Pressure regulation range
- Condensate drain
- Pressure gauge alternatives
- Alternative pressure gauge scale

- Secondary venting
- Security lock
- Type of mounting
- Alternative flow direction

Technical data

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Manual rotary condensate drain, with pressure gauge



Flow rate

8,000 ... 23,000 l/min

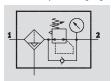
Temperature range

−10 ... +60 °C

Pressure

1 ... 20 bar

Semi or fully automatic condensate drain, with pressure gauge



With this component, the filter and pressure regulator are combined into a single unit. The sintered filter with water separator removes contamination, pipe sinter, rust and condensate from the compressed air.

 Good regulation characteristics with low hysteresis and primary pressure compensation

- Good particle and condensate separation
- Piloted or directly actuated filter-diaphragm regulator
- High flow rates



- Available with or without secondary venting
- Four pressure regulation ranges: 0.5 ... 4 bar, 0.5 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Actuator lock to protect set values against adjustment
- Pressure gauge connection for different fitting options
- Available with manual, semi-automatic, fully automatic or fully automatic, electrically actuated condensate drain
- Optional pressure sensor
- Choice of filter cartridges: 5 μm or 40 μm
- New filter cartridges → 12

Pneumatic connection 1	, 2	NPT3/4-14	NPT1-11 ¹ / ₂	NPT1/2-14 NPT11/2-111/2	- (without connecting								
				(with connecting plate AQ)	thread NG)								
Design		Piloted filter-diaphra	igm regulator										
		Directly actuated filt	er-diaphragm regulator										
Regulator type	Piloted	Output pressure con	Output pressure constant, with return flow action, with primary pressure compensation, with secondary venting										
	Directly actuated	Output pressure constant, with return flow action, with/without secondary venting											
Type of mounting		Via accessories											
		In-line installation											
Mounting position		Vertical ±5°											
Grade of filtration	[µm]	5 (air quality class a	t the output 3.7 to DIN ISO 8	573-1)									
		. , ,	at the output 5.7 to DIN ISO	8573-1)									
Bowl guard		Integrated as metal I	Integrated as metal bowl										
Condensate drain		Manual rotary											
		Semi-automatic											
		Fully automatic											
		Fully automatic, elec	·										
Security		Rotary knob with det											
		,	ent, can be locked using access	sories									
		Rotary knob with into	=										
Pressure regulation	D5 [bar]	0.5 4, manually o											
range/operation mode	D6 [bar]	0.5 7, manually o											
	D7 [bar]		operated (0.5 10 with pressu										
	D8 [bar]		operated (0.5 10 with pressu	ure sensor variant AD)									
Max. pressure hysteresi	s [bar]	0.4											
Pressure display		· ·	, , - , ,	via operational status indicator and elec	trical output								
			or displaying output pressure										
		, ,	vith red/green scale for display	ring output pressure									
		G1/4 prepared											
Max. condensate volume	e [ml]	220											



Filter regulators MS9-LFR, MS series, NPT Technical data



Standard nominal flow ra	ate qnN¹) [l/mi	n]			
Design		Piloted filter-diaphragm	regulator	Directly actuated filter	-diaphragm regulator DI
Pneumatic connection		NPT3/4-14	NPT1-11½	NPT3/4-14	NPT1-11 ¹ / ₂
D5 – Pressure regulation	range 0.5 4	bar			
Grade of filtration	5 μm	16,000 ±15% ²⁾	20,000 ±15% ²⁾	8,000 ±15% ²⁾	19,000 ±15% ²⁾
	40 μm	19,000 ±15% ²⁾	23,000 ±15% ²⁾	8,000 ±15% ²⁾	19,000 ±15% ²⁾
D6 – Pressure regulation	range 0.5 7	bar			
Grade of filtration	5 μm	13,000 ±15%	18,000 ±15%	18,000 ±15%	13,000 ±15%
	40 μm	15,000 ±15%	20,000 ±15%	14,000 ±15%	13,000 ±15%
D7 – Pressure regulation	range 0.5 12	2 bar			
Grade of filtration	5 μm	13,000 ±15%	18,000 ±15%	-	_
	40 μm	19,000 ±15%	20,000 ±15%	-	-
D8 – Pressure regulation	range 0.5 16	5 bar			
Grade of filtration	5 μm	10,000 ±15%	18,000 ±15%	_	-
	40 μm	19,000 ±15%	20,000 ±15%	-	-

¹⁾ Measured at p1 = 10 bar and p2 = 6 bar, Δ p = 1 bar 2) Measured at p1 = 10 bar and p2 = 4 bar, Δ p = 1 bar

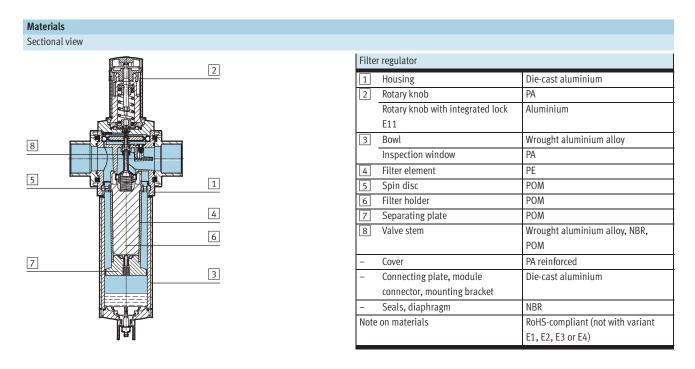
Operating and environmental conditions	;			
Condensate drain	Manual rotary M	Semi-automatic H	Fully automatic	Fully automatic, electrically actuated E1 E4
Operating pressure [bar]	1 20	1.5 12	2 12	1 16
Operating medium	Air quality class 5:7:- to DIN I	SO 8573-1		
Operating medium with pressure sensor	Filtered compressed air, lubric	cated or unlubricated, grade of	filtration 40 μm	
AD				
Ambient temperature [°C]	-10 +60	+5 +60	+5 +60	+1 +60
Ambient temperature with [°C] pressure sensor AD	0 +50	+5 +50	+5 +50	+1 +50
Temperature of medium [°C]	-10 +60	+5 +60	+5 +60	+1 +60
Temperature of medium with [°C]	0 +50	+5 +50	+5 +50	+1 +50
pressure sensor AD				
Storage temperature [°C]	-10 +60	+5 +60	+5 +60	+1 +60
Corrosion resistance class CRC ¹⁾	2		•	•

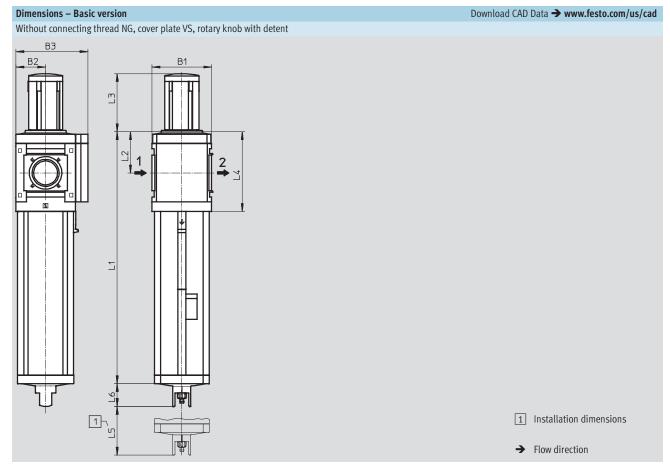
¹⁾ Corrosion resistance class 2 according to Festo standard 940 070 Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or $\begin{array}{c} \cdot \\ \text{lubricating agents.} \end{array}$

Weight [g]		
Rotary knob	Without integrated lock E11	With integrated lock E11
Filter regulator with metal bowl U	2,400	2,700
Filter regulator with metal bowl U and	2,800	3,100
fully automatic condensate drain,		
electrically actuated E1 E4		

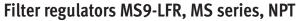
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Technical data





Туре	B1	B2	В3	L	1	L	2	L3	L	4	L5	L6
				pilot	directly	pilot	directly		pilot directly			
				actuated	actuated DI	actuated	uated actuated DI		actuated	actuated DI		
MS9-LFR-NG	90	45	109	320	313	69	62	86	127	120	150	34.5

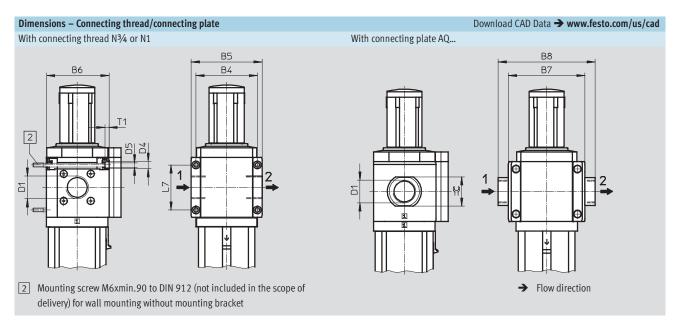


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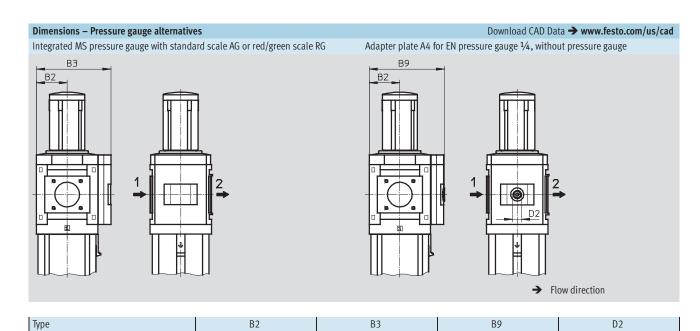
Technical data

MS9-LFR-...-AG/RG

MS9-LFR-...-A4



Туре	B4	B5	В6	В7	B8	D1	D4	D5	L7	T1	=©
MS9-LFR-N ³ / ₄	90	104	91.5			NPT3/4-14	11	6.5	66	6	
MS9-LFR-N1	90	104	91.5	_	_	NPT1-11 ¹ / ₂	11	0.5	00	6	_
MS9-LFR-AQR					132	NPT1/2-14					30
MS9-LFR-AQS					132	NPT3/4-14					36
MS9-LFR-AQT	-	-	-	112	142	NPT1-11 ¹ / ₂	-	-	-	-	41
MS9-LFR-AQU					162	NPT11/4-111/2					50
MS9-LFR-AQV			<u> </u>		176	NPT1½-11½					55



109

110

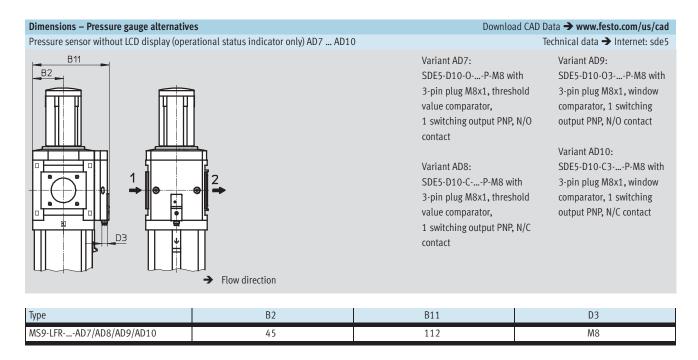
G1/4

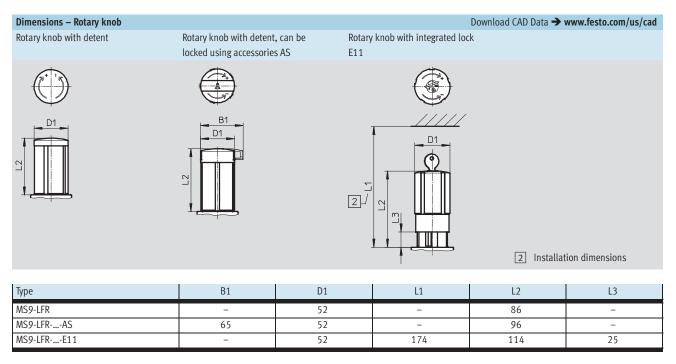
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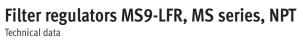


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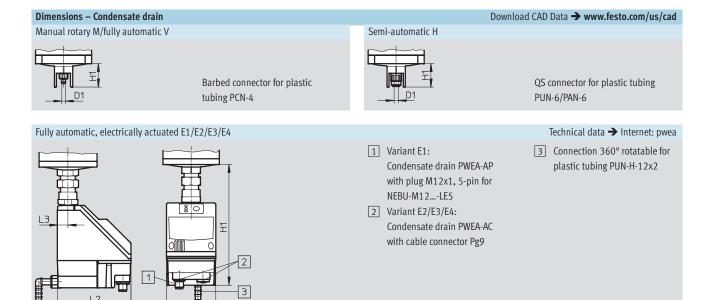
Technical data







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Туре	B1	D1	H1	L1	L2	L3
MS9-LFRM/V		5	34.5	_		
MS9-LFRH	-	6	54.5	_	_	_
MS9-LFRE1/E2/E3/E4	72	-	178	140	108	15

Ordering data													
Pressure regulation range 0.5 7 bar, integrated pressure gauge, display unit [psi], rotary knob with detent, can be locked using accessories													
Size Condensate drain Connection Grade of filtration 5 μm Grade of filtration 40 μm													
	Part No. Type Part No. Type												
Directly actuat	ed filter-diaphragm reg	ulator											
MS9	Manual rotary	-	564128 MS9-LFR-NG-D6-CUM-DI-AG-PSI-AS		564124 MS9-LFR-NG-D6-EUM-DI-AG-PSI-AS								
	Fully automatic	-	564129 MS9-LFR-NG-D6-CUV-DI-AG-PSI-AS		564125 MS9-LFR-NG-D6-EUV-DI-AG-PSI-AS								



Filter regulators MS9-LFR, MS series, NPT Ordering data – Modular products

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M Mandatory	M Mandatory data →														
Module No.	Series	Size	Function	Conr	ection	Pressure range/operati on mode		Grade of filtration		Bowl		Condensate drain			
562531	MS	9	LFR	N ³ / ₄ , AQR, AQT, AQV, NG	AQS,	D5, D6, D7, D8		E, C		U		M, H, V, E1 E4			
Ordering example															
562531	MS	9	– LFR	– NG		– D5	-	E	_	U	-	M			

rid dimension	[mm]	90	Condition	Code	Enter
			S		code
Module No.		562531			
Series		Standard		MS	MS
Size		9		9	9
Function		Filter regulator		-LFR	-LFR
Connection size		Thread N ³ / ₄		-N ³ / ₄	
		Thread N1		-N1	
		Connecting plate N½		-AQR	
		Connecting plate N ³ / ₄		-AQS	
		Connecting plate N1		-AQT	
		Connecting plate N11/4		-AQU	
		Connecting plate N11/2		-AQV	
Pressure range/operation mo		Module without connecting thread, without connecting plate		-NG	
Pressure range/operat	ion mode	0.5 4 bar, manually operated		-D5	
		0.5 7 bar, manually operated		-D6	
		0.5 12 bar, manually operated		-D7	
		0.5 16 bar, manually operated		-D8	
Grade of filtration		40 μm		-E	
		5 μm		-C	
Bowl		Metal bowl		-U	-U
Condensate drain		Manual		-M	
		Semi-automatic (P1 max. 12 bar)		-H	
		Fully automatic (P1 max. 12 bar)		-V	
Exter	nal, fully	24 V DC, M12 (P1 max. 16 bar) - 1 -		-E1	
auto	matic,	110 V AC, terminals (P1 max. 16 bar)		-E2	
elect	ric	230 V AC, terminals (P1 max. 16 bar)		-E3	
		24 V DC, terminals (P1 max. 16 bar)		-E4	

Transfer order	cod	e										
562531		MS	9	_	LFR	-	-	-	-	U	_	



Filter regulators MS9-LFR, MS series, NPT Ordering data – Modular products

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→	O Options	Mandatory data		O Options			
	Regulator type	Pressure gauge/pressure gauge alternatives	Alternative pressure gauge scale	Secondary venting	Security	Type of mounting	Alternative flow direction
	DI	AG, VS, A4, RG, AD7 AD10	PSI, MPA, BAR	OS	AS, E11	WP, WPM, WPB	Z
-	DI –	AG –	BAR –	OS -	AS –	-	

Ordering table								
Gr	id dimension [mm]	90	Condition	Code		Enter		
			S			code		
0	Regulator type	Directly actuated	1	-DI				
M	Pressure gauge/pressure gauge	MS pressure gauge		-AG				
	alternatives	Cover plate		-VS				
		Adapter plate for EN pressure gauge 1/4, without pressure gauge		-A4				
		Integrated pressure gauge, red/green scale	2	-RG				
		Pressure sensor without display, plug M8, threshold value comparator, PNP, N/O contact	3	-AD7				
		Pressure sensor without display, plug M8, threshold value comparator, PNP, N/C contact	3	-AD8				
		Pressure sensor without display, plug M8, window comparator, PNP, N/O contact	3	-AD9				
		Pressure sensor without display, plug M8, window comparator, PNP, N/C contact	3	-AD10				
	Alternative pressure gauge scale	Psi	4	-PSI		1		
		MPa	4	-MPA				
		Bar	4	-BAR		ı		
0	Secondary venting	Without secondary venting	5	-0S				
	Security	Can be locked using accessories		-AS				
		With integrated lock		-E11				
	Type of mounting	Mounting bracket	6	-WP				
		Mounting bracket	6	-WPM				
		Mounting bracket for large wall gap	6	-WPB				
	Alternative flow direction	Flow direction from right to left		-Z				

1 DI	Not with pressure range D7, D8	5	os	Only with regulator type [
2 RG	Not with alternative pressure gauge scale PSI	6	WP, WPM, WPB	Not with module NG
	PSI scale serves only as an auxiliary scale			
3 AD7 AD10	Measuring range max. 10 bar			

3 AD7 ... AD10 4 PSI, MPA, BAR Not with pressure gauge alternatives VS, A4, AD7, AD8, AD9, AD10 $\,$

	Transfer order code							
_		_	-	-	-	-	-	

Filter regulators MS-LFR, MS series, NPT Accessories

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Filter cartridges



Ordering (Ordering data								
Size	Grade of filtration	Part No.	Туре						
	[μm]								
MS4	5 (colour: blue)	534501	MS4-LFP-C						
	40 (colour: white)	534502	MS4-LFP-E						
MS6	5 (colour: blue)	534499	MS6-LFP-C						
	40 (colour: white)	534500	MS6-LFP-E						
MS9	5	570309	MS9-LFP-C -O-						
	40	570310	MS9-LFP-E -O-						
MS12	5	537143	MS12-LFP-C						
	40	537144	MS12-LFP-E						

Filter regulators MS-LFR, MS series, NPT Accessories



Ordering data - C	Ordering data – Connecting cable NEBU-M8 Technical of									
	Electrical connection	Number of wires	Cable length [m]	Part No.	Туре					
	M8x1, straight socket	3	2.5	541333	NEBU-M8G3-K-2.5-LE3					
6 M			5	541334	NEBU-M8G3-K-5-LE3					
	M8x1, angled socket	3	2.5	541338	NEBU-M8W3-K-2.5-LE3					
			5	541341	NEBU-M8W3-K-5-LE3					

Ordering data - C	Ordering data - Connecting cable NEBU-M12 Technical data → Internet: n									
	Electrical connection	Number of wires	Cable length [m]	Part No.	Туре					
	M12x1, straight socket	4	2.5	550326 541328	NEBU-M12G5-K-2.5-LE4 NEBU-M12G5-K-5-LE4					
	M12x1, angled socket	4	2.5	550325	NEBU-M12W5-K-2.5-LE4					
			5	541329	NEBU-M12W5-K-5-LE4					

Ordering data - P	Ordering data – Pressure gauge MA									
	Nominal size	Pneumatic connection	Indicating range	ndicating range		Туре				
			[bar]	[psi]						
	Pressure gauge MA, DIN EN 837-1 Technical data → Internet: m									
	40	R1/4	0 16	0 232	187080	MA-40-16-R ¹ / ₄ -EN				
			0 25	0 360	187081	MA-40-25-R ¹ / ₄ -EN				
		G1/4	0 16	0 232	183901	MA-40-16-G ¹ / ₄ -EN				
			0 25	0 360	183902	MA-40-25-G ¹ / ₄ -EN				
	Pressure gauge MA, DIN I	T	ēchnical data → Internet: ma							
	40	R ¹ /8	0 16	-	525726	MA-40-16-R ¹ / ₈ -E-RG				
	50	R ¹ / ₄	0 16	-	525729	MA-50-16-R ¹ / ₄ -E-RG				

Ordering data – Padlock LRVS-D								
	Weight [g]	Part No.	Туре					
	120	193786	LRVS-D					

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Custom Automation Components Complete custom engineered solutions



Custom Control Cabinets Comprehensive engineering support and on-site services



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The Broadest Range of Automation Components

With a comprehensive line of more than 30,000 automation components, Festo is capable of solving the most complex automation requirements.



Electromechanical Electromechanical actuators, motors, controllers & drives



Pneumatics Pneumatic linear and rotary actuators, valves, and air supply



PLCs and I/O Devices PLC's, operator interfaces, sensors and I/O devices

Supporting Advanced Automation... As No One Else Can!

Festo is a leading global manufacturer of pneumatic and electromechanical systems, components and controls for industrial automation, with more than 12,000 employees in 56 national headquarters serving more than 180 countries. For more than 80 years, Festo has continuously elevated the state of manufacturing with innovations and optimized motion control solutions that deliver higher performing, more profitable automated manufacturing and processing equipment. Our dedication to the advancement of automation extends beyond technology to the education and development of current and future automation and robotics designers with simulation tools, teaching programs, and on-site services.

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Festo Corporation is committed to supply all Festo products and services that will meet or exceed our customers' requirements in product quality, delivery, customer service and satisfaction.

To meet this commitment, we strive to ensure a consistent, integrated, and systematic approach to management that will meet or exceed the requirements of the ISO 9001 standard for Quality Management and the ISO 14001 standard for Environmental Management.



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