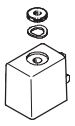
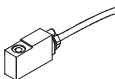




Solenoid coils MSF/MSN1

Product range overview

Design	Type	For valve series										→ Page/ Internet	
		MFH	MOFH	JMFH	JMFDH	MFXMH	NVF3	MUFH	MN1H	JMN1H	JMN1DH		
F solenoid coil													
	MSF	■	■	■	■	■	■	■	■	-	-	-	3
F solenoid coil for explosive atmospheres (with ATEX certification)													
	MSF...-EX	■	■	■	■	■	■	■	■	-	-	-	5
N1 solenoid coil													
	MSN1 ¹⁾	-	-	-	-	-	-	-	-	■	■	■	8

1) Free of copper, PTFE and silicone

 - Note

ATEX certification is only effective in combination with other ATEX-certified components.

→ www.festo.com

Solenoid coils MSF/MSN1

Selection aid

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Solenoid valves and corresponding solenoid coils													
Valve family	Valve type	Solenoid coil											
		D	E	EB	F	N1	N2	V	Y	Z	ZB	ZC	
ISO 15 407-1	MN2H, JMN2H, JMN2DH	-	-	-	-	-	■	-	-	-	-	-	-
ISO 5599-1	MN1H, JMN1H, JMN1DH	-	-	-	-	■	-	-	-	-	-	-	-
	MFH, JMFH, JMFDH	-	-	-	■	-	-	-	-	-	-	-	-
	MDH, JMDH	■	-	-	-	-	-	-	-	-	-	-	-
	MEBH, JMEBH, JMEBDH	-	-	■	-	-	-	-	-	-	-	-	-
Namur	NVF3, MFXMH	-	-	-	■	-	-	-	-	-	-	-	-
	MN1H	-	-	-	-	■	-	-	-	-	-	-	-
Compact Performance	CPE10-M1BH, CPE14-M1BH	-	-	-	-	-	-	-	-	-	-	-	■
	CPE18, CPE24	-	-	■	-	-	-	-	-	-	-	-	-
Tiger 2000	MFH, JMFH	-	-	-	■	-	-	-	-	-	-	-	-
	MVH, JMVH	-	-	-	-	-	-	■	-	-	-	-	-
Tiger Classic	MFH, MOFH, JMFH, JMFDH	-	-	-	■	-	-	-	-	-	-	-	
Midi Pneumatic	MEBH, MOEBH, JMEBH	-	-	■	-	-	-	-	-	-	-	-	-
	MEH, MOEH, JMEH	-	■	-	-	-	-	-	-	-	-	-	-
Directly actuated solenoid valves	MZBH, MOZBH	-	-	-	-	-	-	-	-	-	-	■	-
	MEBH, MOEBH	-	-	■	-	-	-	-	-	-	-	-	-
	MVH, MOVH	-	-	-	-	-	-	■	-	-	-	-	-
	MDH, MODH	■	-	-	-	-	-	-	-	-	-	-	-
Fast-switching valves	MH2, MH3	-	-	-	-	-	-	-	-	-	-	-	■
Micro/Mini Pneumatic	MZH, MOZH, JMZH	-	-	-	-	-	-	-	-	-	■	-	-
	MYH, MOYH, JMYH	-	-	-	-	-	-	-	■	-	-	-	-
M5 Compact	MUFH	-	-	-	■	-	-	-	-	-	-	-	

Solenoid coils MSF/MSN1

Type codes

FESTO

Solenoid coils



		MSFG	–	24DC	–	OD
Type						
MSFG	F solenoid coil, for D.C. voltage					
MSFW	F solenoid coil, for A.C. voltage					
MSN1G	N1 solenoid coil, for D.C. voltage					
MSN1W	N1 solenoid coil, for A.C. voltage					
Operating voltage						
12DC	12 V DC					
24DC	24 V DC					
24AC/12DC	12 V DC/24 V AC					
24DC/42AC	24 V DC/42 V AC					
42DC	42 V DC					
24AC	24 V AC					
48AC	48 V AC					
110AC	110 V AC					
230AC	230 V AC					
240AC	240 V AC					
Scope of delivery						
OD	Without plug socket					

Solenoid coils, explosion-proof

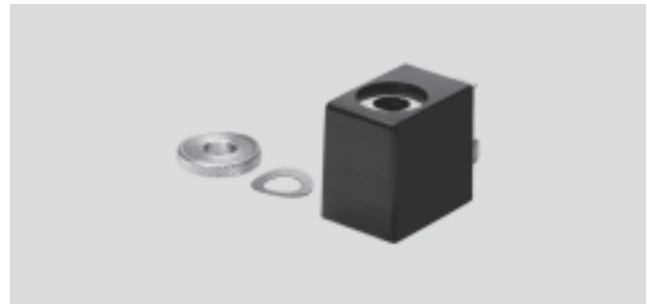
		MSFG	–	24DC	–	K5	–	M	–	EX
Type										
MSFG	F solenoid coil, for D.C. voltage									
MSFW	F solenoid coil, for A.C. voltage									
Operating voltage										
24	24 V DC									
24DC	24 V DC									
24AC	24 V AC									
24-50/60	24 V AC, 50/60 Hz									
110AC	110 V AC									
110-50/60	110 V AC, 50/60 Hz									
230AC	230 V AC									
230-50/60	230 V AC, 50/60 Hz									
Cable length										
	1 m									
K5	5 m									
KX	Upon request									
ATEX symbol										
	II 3 GD EEx nA II T1 30°C X									
M	II 2 GD EExm II T5									
Explosion protection										
EX	Explosion-proof to EN 50 028									

Solenoid coils MSF

Technical data

-  Voltage
12 ... 42 V DC
24 ... 240 V AC
-  Temperature range
-5 ... +40 °C

- In compliance with VDE regulation 0580, insulation class F
- Can be replaced without interrupting the pneumatic circuit
- Low power consumption and temperature rise



General technical data			D.C. voltage	A.C. voltage
Min. pick-up time	[ms]		10	
Type of mounting			Via knurled nut	
Mounting position			Any (can be rotated 360° on the armature tube)	
Product weight	[g]		65	55
Materials			Steel, copper, duroplastic	

Electrical data					D.C. voltage	A.C. voltage	
Electrical connection	Plug vanes for plug sockets MSSD-F, KMF						
Operating voltage	D.C. voltage	[V DC]	12, 24, 42, 48			-	
	A.C. voltage	[V AC]	-			24, 42, 48, 110, 230, 240	
Perm. voltage fluctuation		[%]	±10				
Coil characteristics	D.C. voltage 12 V	[W]	4.1			-	
		24, 42 V	[W]	4.5			-
	A.C. voltage	[VA]	-			Pull: 7.5 Hold: 6	
Duty cycle		[%]	100				
Power factor cosφ							0.7
Protection class to EN 60529	IP65 with plug socket						
CE symbol							73/23/EEC (low voltage)

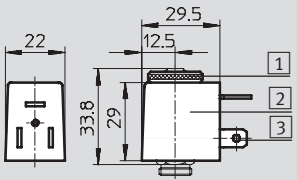
Operating and environmental conditions		
Ambient temperature	[°C]	-5 ... +40
Temperature of medium	[°C]	-10 ... +60

Solenoid coils MSF

Technical data

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Dimensions Download CAD data → www.festo.com

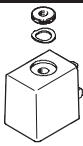




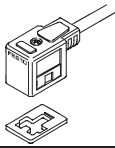


1 Retaining nut (min. tightening torque 100 Ncm, max. 150 Ncm)

2 Solenoid coil (can be rotated 360° on the armature tube)

3 Plug vanes for plug sockets MSSD-F, KMF



Note
Can only be operated on aluminium valves with the following valve body dimensions:
≥ 26 x 16 x 14 mm

Ordering data					
	Description	Operating voltage		Part No.	Type
		V DC	V AC (50 ... 60 Hz)		
	Solenoid coil, without plug socket, with spring washer and knurled nut	12	–	34 410	MSFG-12DC-OD
		24	42	34 411	MSFG-24DC/42AC-OD
		42	–	34 413	MSFG-42DC-OD
		–	24	34 415	MSFW-24AC-OD
		–	48	34 418	MSFW-48AC-OD
		–	110	34 420	MSFW-110AC-OD
		–	230	34 422	MSFW-230AC-OD
		–	240	34 424	MSFW-240AC-OD

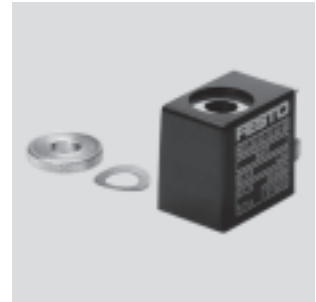
Ordering data – Accessories					
	Description	Cable length [m]	Switching status display with LED	Part No.	Type
Plug socket Technical data → Internet: mssd					
	–	–	–	34 431	MSSD-F
Plug socket with insulation displacement technology Technical data → Internet: mssd					
	–	–	–	192 746	MSSD-F-S-M16
Plug socket with cable Technical data → Internet: kmf-1					
	24 V DC	2.5	■	30 935	KMF-1-24DC-2,5-LED
		5	■	30 937	KMF-1-24DC-5-LED
		10	■	193 458	KMF-1-24DC-10-LED
	Up to 240 V	2.5	–	30 936	KMF-1-230AC-2,5
		5	–	30 938	KMF-1-230AC-5
Illuminating seal Technical data → Internet: mf-ld					
	12 ... 24 V DC	–	■	19 143	MF-LD-12-24DC
	230 V DC/V AC	–	■	19 144	MF-LD-230AC
Inscription label Technical data → Internet: kmc					
	Scope of delivery: 35 pieces in each frame	–	–	33 362	KMC/F/V-BZ-35X

Solenoid coils MSF...-EX

Technical data

-  Voltage
24 V DC
24 ... 240 V AC
-  Temperature range
-5 ... +40 °C

- In compliance with ATEX directive
- In compliance with VDE regulation 0580, insulation class F
- With cable or plug
- Can be replaced without interrupting the pneumatic circuit
- Manifold mounting permissible (minimum clearance from coil to coil 5 mm)



General technical data			D.C. voltage	A.C. voltage
Min. pick-up time		[ms]	12	
Type of mounting	Via knurled nut			
Mounting position	Any (can be rotated 360° on the armature tube)			
Product weight	Cable version	[g]	175	170
	Plug version	[g]	65	55
Materials	Cable version	Steel, copper, aluminium, epoxy resin		
	Plug version	Steel, copper, duroplastic		

Operating and environmental conditions		
ATEX ambient temperature	[°C]	-5 ... +40
Ambient temperature	[°C]	-5 ... +40
Temperature of medium	[°C]	-5 ... +40

Electrical data – cable version			D.C. voltage	A.C. voltage	
ATEX symbol	II 2 GD EEx m II T5				
Electrical connection	Moulded-in cable 3x0.75 mm ² , 1 m or 5 m long (other lengths upon request)				
Operating voltage	D.C. voltage	[V DC]	24	-	
	A.C. voltage	[V AC]	-	24, 110, 120, 220, 230, 240	
Perm. voltage fluctuation		[%]	±10		
Coil characteristics	D.C. voltage	24 V	[W]	4.5	-
		A.C. voltage	24 V	[VA]	-
		110 V	[VA]	-	50 Hz, pull: 4.84 60 Hz, pull: 4.32
		230 V	[VA]	-	50 Hz, pull: 6.2 60 Hz, pull: 5.6
Duty cycle		[%]	100		
Min. pick-up time		[ms]	12		
Power factor cosφ			-	0.7	
Protection class to EN 60 529	IP65				
CE symbol	94/9/EC (ATEX)			94/9/EC (ATEX) 73/23/EEC (low voltage)	

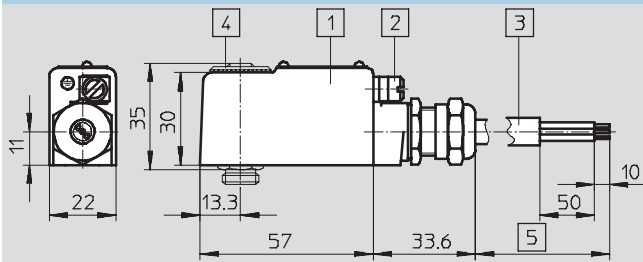
Solenoid coils MSF...EX

Technical data

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Dimensions – cable version

Download CAD data → www.festo.com



- 1 Solenoid coil
(can be rotated 360° on the armature tube)
- 2 Protective earth connection
- 3 Heat resistant rubber tubing,
Ø 6,1 ... 7,9 mm
- 4 Retaining nut
(min. tightening torque 100 Ncm,
max. 150 Ncm)
- 5 Cable length

-  - Note

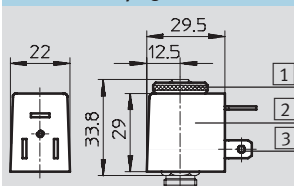
Can only be operated on aluminium valves with the following valve body dimensions:
≥ 25 x 25 x 17 mm

Electrical data – plug version

		D.C. voltage	A.C. voltage
ATEX symbol		II 3 GD EEx nA II T1 30°C X	
Electrical connection		Plug vanes for plug sockets MSSD-F, KMF	
Operating voltage	D.C. voltage [V DC]	24	–
	A.C. voltage [V AC]	–	24, 110, 120, 220, 230, 240
Perm. voltage fluctuation [%]		±10	
Coil characteristics	D.C. voltage 24 V [W]	4.5	–
	A.C. voltage 24 V [VA]	–	Pull: 7 Hold: 6
	110 V [VA]	–	Pull: 7 Hold: 6
	230 V [VA]	–	Pull: 7 Hold: 6
Duty cycle [%]	100		
Min. pick-up time [ms]	12		
Power factor cosφ	–		0.7
Protection class to EN 60 529	IP65 with plug socket		
CE symbol	94/9/EC (ATEX)		94/9/EC (ATEX)
			73/23/EEC (lower voltage)

Dimensions – plug version

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- 1 Retaining nut
(min. tightening torque 100 Ncm,
max. 150 Ncm)

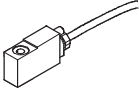
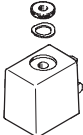
- 2 Solenoid coil
(can be rotated 360° on the armature tube)
- 3 Plug vanes for plug sockets
MSSD-F, KMF

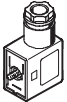
-  - Note

Can only be operated on aluminium valves with the following valve body dimensions:
≥ 26 x 16 x 14 mm

Solenoid coils MSF...EX

Technical data



Ordering data						
	Description	Operating voltage		Cable length [m]	Part No.	Type
		V DC	V AC			
ATEX symbol: II 2 GD EEx m II T5						
	Solenoid coil with cable, explosion-proof, moulded-in cable, with spring washer and knurled nut	24	–	1	535 619	MSFG-24DC-M-EX
		–	–	5	535 621	MSFG-24DC-K5-M-EX
		–	24	1	535 623	MSFW-24AC-M-EX
		–	110	1	535 622	MSFW-110AC-M-EX
		–	–	5	535 624	MSFW-110AC-K5-M-EX
		–	230	1	535 620	MSFW-230AC-M-EX
		–	–	5	535 625	MSFW-230AC-K5-M-EX
		24	–	Upon request	538 215	MSFG-24DC-KX-M-EX
		–	24	–	538 216	MSFW-24AC-KX-M-EX
		–	110	–	538 218	MSFW-110AC-KX-M-EX
		–	230	–	538 217	MSFW-230AC-KX-M-EX
		ATEX symbol: II 3 GD EEx nA II T130°C X				
	Solenoid coil with plug vanes, explosion-proof, without plug socket, with spring washer and knurled nut	24	–	–	536 931	MSFG-24-EX
		–	24	–	536 932	MSFW-24-50/60-EX
		–	110	–	536 933	MSFW-110-50/60-EX
		–	230	–	536 934	MSFW-230-50/60-EX

Ordering data – Accessories						
	Description	Cable length [m]	Switching status display with LED	Part No.	Type	
					Plug socket	
	–	–	–	34 431	MSSD-F	

Solenoid coils MSN1

Technical data

FESTO

-  Voltage
24 V DC
24 ... 230 V AC
-  Temperature range
-10 ... +50 °C

- In compliance with VDE regulation 0580, insulation class F
- Can be replaced without interrupting the pneumatic circuit
- Connection pattern to DIN EN 175 301-803, type A
- Free of copper, PTFE and silicone



General technical data		
Min. pick-up time	[ms]	10
Type of mounting		Via mounting clip
Mounting position		Any (can be rotated 360° on the armature tube)
Product weight	[g]	80
Materials		Steel, copper, thermoplastic
Note on materials		Free of copper, PTFE and silicone

Electrical data						
		D.C. voltage	D.C. voltage/ A.C. voltage	A.C. voltage		
Operating voltage	D.C. voltage	[V DC] 24	12	-		-
	A.C. voltage	[V AC] -	24 (50 ... 60 Hz)	110 (50 ... 60 Hz), 120 (60 Hz)		230 (50 ... 60 Hz)
Perm. voltage fluctuation	[%]	-15 ... +10	50 Hz: ±10 60 Hz: -10 ... +20		±10	
Coil characteristics	D.C. voltage	[W] 2.5	5	-		-
	A.C. voltage, 50 Hz	[VA] -	Pull: 7.5 Hold: 5.0	Pull: 7.5 Hold: 5.0		Pull: 7.5 Hold: 5.0
	A.C. voltage, 60 Hz	[VA] -	Pull: 5.0 Hold: 3.7	Pull: 5.0 Hold: 3.7		Pull: 5.0 Hold: 3.7
Duty cycle	[%]	100				
Power factor cosφ		-		0.7		
Electrical connection		Plug vanes with connection pattern to DIN EN 175 301-803, type A				
Protection class to EN 60 529		IP65 with plug socket				
CE symbol		-		73/23/EEC (low voltage)		

Ambient conditions		
Ambient temperature	[°C]	-10 ... +50
Temperature of medium	[°C]	-10 ... +50

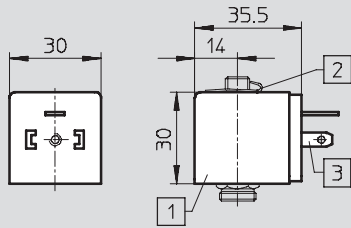
Solenoid coils MSN1

Technical data

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Dimensions


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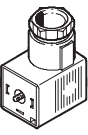

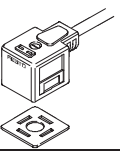


- 1 Solenoid coil
(can be rotated 360° on the armature tube)
- 2 Securing clip

- 3 Plug vanes with connection pattern to
DIN EN 175 301-803,
type A

Ordering data

	Description	Operating voltage		Part No.	Type
		V DC	V AC		
	Solenoid coil, without plug socket, with mounting clip, connection pattern to DIN EN 175 301-803, type A	24	–	123 060	MSN1G-24DC-OD
		12	24	170 152	MSN1W-24AC/12DC-OD
		–	110/120	123 061	MSN1W-110AC-OD
		–	230	123 062	MSN1W-230AC-OD


Ordering data – Accessories

	Description	Cable length [m]	Switching status display with LED	Part No.	Type
Plug socket Technical data → Internet: mssd					
	–	–	–	34 583	MSSD-C
Plug socket with insulation displacement technology Technical data → Internet: mssd					
	–	–	–	192 748	MSSD-C-S-M16
Plug socket with cable Technical data → Internet: kmc-1					
	24 V DC	2.5	■	30 931	KMC-1-24DC-2,5-LED
		5	■	30 933	KMC-1-24DC-5-LED
		10	■	193 459	KMC-1-24DC-10-LED
	Up to 240 V	2.5	–	30 932	KMC-1-230AC-2,5
		5	–	30 934	KMC-1-230AC-5
Illuminating seal Technical data → Internet: mc-ld					
	12 ... 24 V DC	–	■	19 145	MC-LD-12-24DC
	230 V DC/V AC	–	■	19 146	MC-LD-230AC
Inscription label Technical data → Internet: kmc					
	Scope of delivery: 35 pieces in each frame	–	–	33 362	KMC/F/V-BZ-35X


Solenoid coils MD-2/MH-2

Technical data

FESTO

 Voltage
 24 V DC
 110, 230 V AC

- Can be replaced without interrupting the pneumatic circuit
- Connection pattern to DIN EN 175301-803, type A

 Temperature range
 -20 ... +50 °C



General technical data			MD-2 (system 8)	MH-2 (system 13)
Type				
Min. starting time	[ms]		–	12
Type of mounting			Via knurled nut	Via lock nut
Max. tightening torque of fitting	[Nm]		0.5	2
Mounting position			Any	Any
Product weight	[g]		110	150
Materials	Solenoid coil		Steel, copper, duroplastic	
	Winding		Copper	
Paint-wetting impairment substances criterion			PWIS-free	Contains paint-wetting impairment substances
Switching position display			No	

Electrical data			MD-2 (system 8)	MH-2 (system 13)
Type				
Operating voltage	DC voltage	[V DC]	24	24
	AC voltage	[V AC]	110, 230	110, 230
Perm. voltage fluctuations		[%]	±10	±10
Coil characteristics	24 V DC	[W]	6.8	7.6
	110 V AC, 50/60 Hz	[VA]	Pull: 14.5 Hold: 10.5	14
	230 V AC, 50/60 Hz	[VA]	Pull: 14.5 Hold: 10.5	14
Duty cycle		[%]	100	
Power factor $\cos\varphi$	110 V AC		0.7	0.7
	230 V AC		0.7	0.7
Electrical connection			Plug vanes with connection pattern to DIN EN 175301-803, type A	
Protection class to EN 60529			IP65 with plug socket	
CE mark	110 V AC, 230 V AC		In accordance with EU Low Voltage Directive	

Ambient conditions		
Ambient temperature	[°C]	-20 ... +50

Solenoid coils MD-2/MH-2

Technical data

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
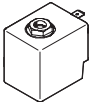
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
MD-2 (system 8)

1 Knurled nut M8x0.75 3 Solenoid coil
2 Plug pattern to
 EN 175301-803, type A

MH-2 (system 13)

1 Hex nut G1/8 3 Solenoid coil
2 Plug pattern to
 EN 175301-803, type A

Ordering data					
	Description	Operating voltage		Part No.	Type
		V DC	V AC		
MD					
	Solenoid coil, without plug socket, connection pattern to DIN EN 175301-803, type A	24	–	549 903	MD-2-24VDC-PA
		–	110	549 904	MD-2-110VAC-PA
		–	230	549 905	MD-2-230VAC-PA
MH					
	Solenoid coil, without plug socket, connection pattern to DIN EN 175301-803, type A	24	–	549 906	MH-2-24VDC-PA
		–	110	549 907	MH-2-110VAC-PA
		–	230	549 908	MH-2-230VAC-PA

Ordering data – Accessories					
	Description	Part No.	Type		
Plug socket					
	3-pin, square design MSF	550 067	MSSD-N		