

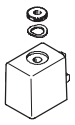
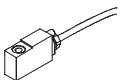

# Solenoid coils MSF/MSN1

Product range overview




Valve accessories  
Solenoid coils

7.1

Design	Type	For valve series										→ Page	
		MFH	MOFH	JMFH	JMFDH	MFXMH	NVF3	MUFH	MN1H	JMN1H	JMN1DH		
<b>F solenoid coil</b>													
	MSF	■	■	■	■	■	■	■	■	-	-	-	2 / 7.1-3
<b>F solenoid coil for explosive atmospheres (with ATEX certification)</b>													
	MSF...-EX	■	■	■	■	■	■	■	■	-	-	-	2 / 7.1-5
<b>N1 solenoid coil</b>													
	MSN1 <sup>1)</sup>	-	-	-	-	-	-	-	-	■	■	■	2 / 7.1-8

1) Free of copper, PTFE and silicone

-  - Note  
ATEX certification is only effective in combination with other ATEX-certified components.  
→ [www.festo.com/en/ex](http://www.festo.com/en/ex)

# Solenoid coils MSF/MSN1

Selection aid

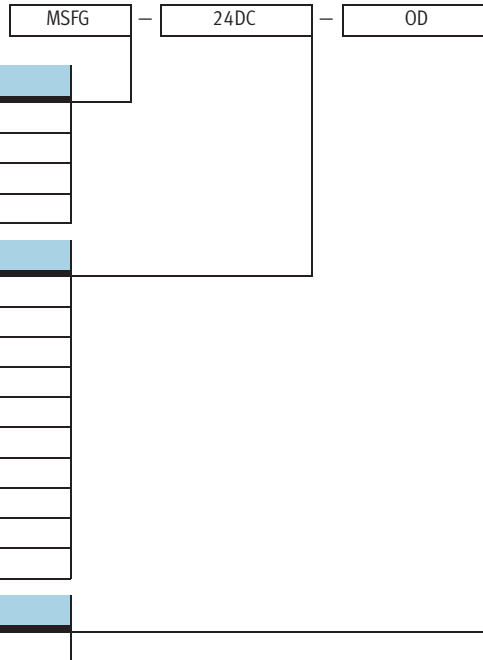
FESTO

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

## Solenoid coils

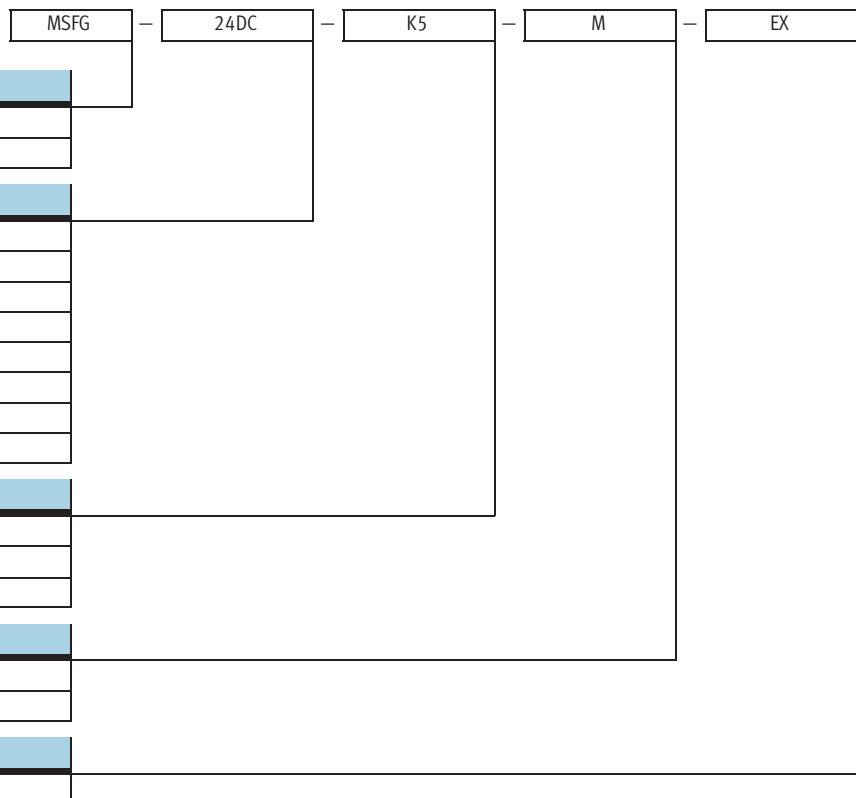


Type	
MSFG	F solenoid coil, for D.C. voltage
MSFW	F solenoid coil, for A.C. voltage
MSN1G	N1 solenoid coil, for D.C. voltage
MSN1W	N1 solenoid coil, for A.C. voltage

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



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 T130°C X
M	II 2 GD EExm II T5


Explosion protection	
EX	Explosion-proof to EN 50 028

# Solenoid coils MSF

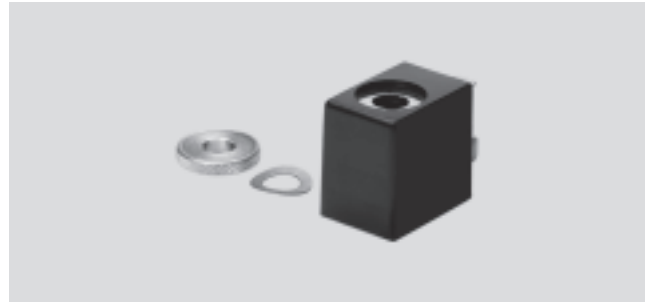
Technical data



-  - 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



Valve accessories  
Solenoid coils

7.1

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
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]	–
Perm. voltage fluctuation		[%]	±10
Coil characteristics	D.C. voltage	12 V	[W]
		24, 42 V	[W]
	A.C. voltage	[VA]	–
			Pull: 7.5 Hold: 6
Duty cycle	[%]	100	
Power factor $\cos\varphi$		–	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

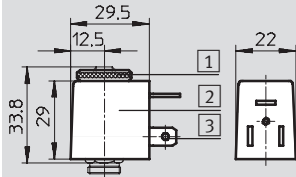
# Solenoid coils MSF

Technical data



## Dimensions

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)



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
<b>Plug socket</b> <span style="float: right;">Technical data → 2 / 7.2-12</span>					
	–	–	–	34 431	MSSD-F
<b>Plug socket with insulation displacement technology</b> <span style="float: right;">Technical data → 2 / 7.2-12</span>					
	–	–	–	192 746	MSSD-F-S-M16
<b>Plug socket with cable</b> <span style="float: right;">Technical data → 2 / 7.3-27</span>					
	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
<b>Illuminating seal</b> <span style="float: right;">Technical data → 2 / 7.4-1</span>					
	12 ... 24 V DC	–	■	19 143	MF-LD-12-24DC
	230 V DC/V AC	–	■	19 144	MF-LD-230AC
<b>Inscription label</b> <span style="float: right;">Technical data → 2 / 7.7-0</span>					
	Scope of delivery: 35 pieces in each frame	–	–	33 362	KMC/F/V-BZ-35X

# Solenoid coils MSF...-EX

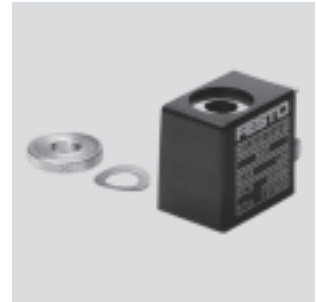


## Technical data

-  - 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
	Plug version	[g]	65
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 <sup>2</sup> , 1 m or 5 m long (other lengths upon request)	
Operating voltage	D.C. voltage	[V DC]	24
	A.C. voltage	[V AC]	-
Perm. voltage fluctuation		[%]	±10
Coil characteristics	D.C. voltage	24 V	[W]
	A.C. voltage	24 V	[VA]
		110 V	[VA]
		230 V	[VA]
			50 Hz, pull: 4.6 60 Hz, pull: 3.77
			50 Hz, pull: 4.84 60 Hz, pull: 4.32
			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) 73/23/EEC (low voltage)

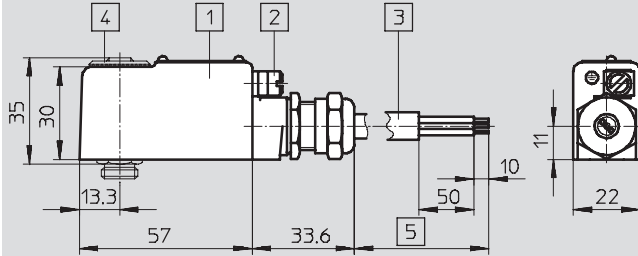
# Solenoid coils MSF...EX

Technical data



## Dimensions – cable version

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)



- 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

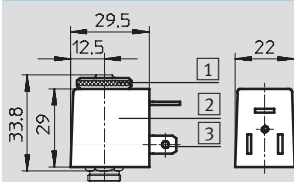
Can only be operated on aluminium valves with the following valve body dimensions:  
≥ 25 x 25 x 17 mm

## Electrical data – plug version

			D.C. voltage	A.C. voltage
ATEX symbol			II 3 GD EEx nA II T130°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

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)



- 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

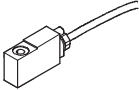
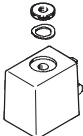
Note


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
	–	–	–	34 431	MSSD-F
	Technical data → 2 / 7.2-12				




# Solenoid coils MSN1

Technical data



 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)	

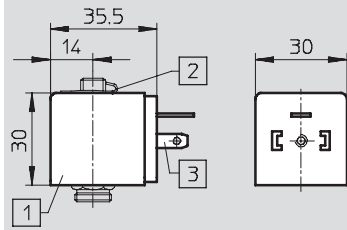
Ambient conditions		
Ambient temperature	[°C]	-10 ... +50
Temperature of medium	[°C]	-10 ... +50

# Solenoid coils MSN1

Technical data

**FESTO**

**Dimensions** Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)



- 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
<b>Plug socket</b> <span style="float: right;">Technical data → 2 / 7.2-12</span>					
	–	–	–	34 583	MSSD-C
<b>Plug socket with insulation displacement technology</b> <span style="float: right;">Technical data → 2 / 7.2-12</span>					
	–	–	–	192 748	MSSD-C-S-M16
<b>Plug socket with cable</b> <span style="float: right;">Technical data → 2 / 7.3-27</span>					
	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
<b>Illuminating seal</b> <span style="float: right;">Technical data → 2 / 7.4-1</span>					
	12 ... 24 V DC	–	■	19 145	MC-LD-12-24DC
	230 V DC/V AC	–	■	19 146	MC-LD-230AC
<b>Inscription label</b> <span style="float: right;">Technical data → 2 / 7.7-0</span>					
	Scope of delivery: 35 pieces in each frame	–	–	33 362	KMC/F/V-BZ-35X


Valve accessories  
Solenoid coils

7.1


# Solenoid coils MD-2/MH-2

Technical data



 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			
Type		MD-2 (system 8)	MH-2 (system 13)
Min. starting time		[ms]	-
Type of mounting		Via knurled nut	Via lock nut
Max. tightening torque of fitting		[Nm]	0.5
Mounting position		Any	Any
Product weight		[g]	110
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			
Type		MD-2 (system 8)	MH-2 (system 13)
Operating voltage	DC voltage	[V DC]	24
	AC voltage	[V AC]	110, 230
Perm. voltage fluctuations		[%]	±10
Coil characteristics	24 V DC	[W]	6.8
	110 V AC, 50/60 Hz	[VA]	Pull: 14.5 Hold: 10.5
	230 V AC, 50/60 Hz	[VA]	Pull: 14.5 Hold: 10.5
Duty cycle		[%]	100
Power factor cosφ	110 V AC		0.7
	230 V AC		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



Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

**Dimensions**

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		
<b>MD</b>					
	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
<b>MH</b>					
	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
<b>Plug socket</b>			
	3-pin, square design MSF	550 067	MSSD-N