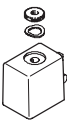
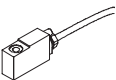
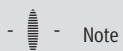


# Solenoid coils MSF/MSN1/MD-2/MH-2

Product range overview

| Version                                                                             | Type               | For valve series |      |      |       |      |      |      |       |        |        | → Page/<br>Internet |
|-------------------------------------------------------------------------------------|--------------------|------------------|------|------|-------|------|------|------|-------|--------|--------|---------------------|
|                                                                                     |                    | MFH              | MOFH | JMFH | JMFDH | NVF3 | MUFH | MN1H | JMN1H | JMN1DH | VZWM-L |                     |
| F solenoid coil                                                                     |                    |                  |      |      |       |      |      |      |       |        |        |                     |
|    | MSF                | ■                | ■    | ■    | ■     | ■    | ■    | -    | -     | -      | -      | 4                   |
| F solenoid coil for explosive atmospheres (with ATEX certification)                 |                    |                  |      |      |       |      |      |      |       |        |        |                     |
|    | MSF...-EX          | ■                | ■    | ■    | ■     | ■    | ■    | -    | -     | -      | -      | 6                   |
| N1 solenoid coil                                                                    |                    |                  |      |      |       |      |      |      |       |        |        |                     |
|    | MSN1 <sup>1)</sup> | -                | -    | -    | -     | -    | -    | ■    | ■     | ■      | -      | 8                   |
| H solenoid coil                                                                     |                    |                  |      |      |       |      |      |      |       |        |        |                     |
|   | MH-2               | -                | -    | -    | -     | -    | -    | -    | -     | -      | ■      | 10                  |
| D solenoid coil                                                                     |                    |                  |      |      |       |      |      |      |       |        |        |                     |
|  | MD-2               | -                | -    | -    | -     | -    | -    | -    | -     | -      | ■      | 10                  |

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/MD-2/MH-2

Selection aid

FESTO

| Solenoid valves and corresponding solenoid coils |                        |               |   |    |   |   |    |    |   |   |   |    |    |   |
|--------------------------------------------------|------------------------|---------------|---|----|---|---|----|----|---|---|---|----|----|---|
| Valve series                                     | Valve type             | Solenoid coil |   |    |   |   |    |    |   |   |   |    |    |   |
|                                                  |                        | D             | E | EB | F | H | N1 | N2 | V | Y | Z | ZB | ZC |   |
| ISO 15407-1                                      | MN2H, JMN2H, JMN2DH    | –             | – | –  | – | – | –  | –  | ■ | – | – | –  |    |   |
| ISO 5599-1                                       | MN1H, JMN1H, JMN1DH    | –             | – | –  | – | – | –  | ■  | – | – | – | –  | –  | – |
|                                                  | MFH, JMFH, JMFDH       | –             | – | –  | ■ | – | –  | –  | – | – | – | –  | –  | – |
|                                                  | MDH, JMDH              | ■             | – | –  | – | – | –  | –  | – | – | – | –  | –  | – |
|                                                  | MEBH, JMEBH, JMEBDH    | –             | – | ■  | – | – | –  | –  | – | – | – | –  | –  | – |
| Namur                                            | NVF3                   | –             | – | –  | ■ | – | –  | –  | – | – | – | –  | –  | – |
|                                                  | 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              | ■             | – | –  | – | – | –  | –  | – | – | – | –  | –  | – |
| Miniature valves                                 | MH1                    | –             | – | –  | – | – | –  | –  | – | – | – | –  | –  | ■ |
| Fast-switching valves                            | MH2, MH3               | –             | – | –  | – | – | –  | –  | – | – | – | –  | –  | ■ |
|                                                  | MH4                    | –             | – | ■  | – | – | –  | –  | – | – | – | –  | –  | – |
| Smart Cubic                                      | CPASC1                 | –             | – | –  | – | – | –  | –  | – | – | – | –  | –  | ■ |
| VB series                                        | VUVB                   | –             | – | ■  | – | – | –  | –  | – | – | – | –  | –  | – |
| Micro/Mini Pneumatic                             | MZH, MOZH, JMZH        | –             | – | –  | – | – | –  | –  | – | – | – | ■  | –  | – |
|                                                  | MYH, MOYH, JMYH        | –             | – | –  | – | – | –  | –  | – | – | ■ | –  | –  | – |
| M5 Compact system                                | MUFH                   | –             | – | –  | ■ | – | –  | –  | – | – | – | –  | –  | – |
| Process directional control valves               | VZWM-L                 | ■             | – | –  | – | ■ | –  | –  | – | – | – | –  | –  | – |

# Solenoid coils MSF/MSN1

Type codes

FESTO

## Solenoid coils

| Type              | MSFG                             | 24DC | OD |
|-------------------|----------------------------------|------|----|
| MSFG              | F solenoid coil, for DC voltage  |      |    |
| MSFW              | F solenoid coil, for AC voltage  |      |    |
| MSN1G             | N1 solenoid coil, for DC voltage |      |    |
| MSN1W             | N1 solenoid coil, for AC 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                            | 24DC | K5 | M | EX |
|----------------------|---------------------------------|------|----|---|----|
| MSFG                 | F solenoid coil, for DC voltage |      |    |   |    |
| MSFW                 | F solenoid coil, for AC 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                   | On request                      |      |    |   |    |
| ATEX specification   |                                 |      |    |   |    |
|                      | 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    |      |    |   |    |

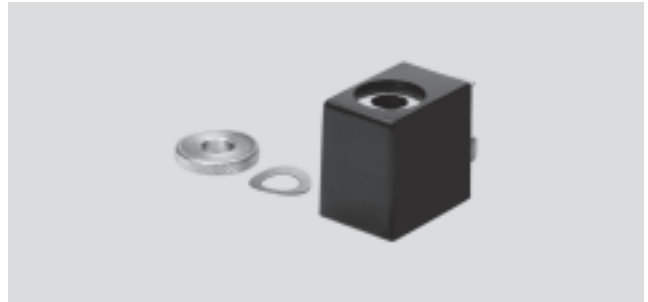
# Solenoid coils MSF

Technical data

FESTO

-  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                |                                                |     |
|---------------------------------------|------------------------------------------------|-----|
| Type of mounting                      | Via knurled nut                                |     |
| Mounting position                     | Any (can be rotated 360° on the armature tube) |     |
| Max. tightening torque of plug socket | [Nm]                                           | 0.4 |
| Product weight                        | [g]                                            | 55  |

| Materials         |                            |
|-------------------|----------------------------|
| Solenoid coil     | Duroplastic, copper, steel |
| Note on materials | RoHS-compliant             |

| Electrical data                    |                                                                 |                       |            |         |         |          |          |          |
|------------------------------------|-----------------------------------------------------------------|-----------------------|------------|---------|---------|----------|----------|----------|
| Type                               | MSFG-12                                                         | MSFG-42               | MSFG-24/42 | MSFW-24 | MSFW-48 | MSFW-110 | MSFW-230 | MSFW-240 |
| Electrical connection              | 3-pin                                                           |                       |            |         |         |          |          |          |
|                                    | Plug vanes with connection pattern to Festo standard for MSSD-F |                       |            |         |         |          |          |          |
| Min. starting time                 | [ms]                                                            | 10                    |            |         |         |          |          |          |
| Permissible voltage fluctuations   | [%]                                                             | ±10                   |            |         |         |          |          |          |
| Permissible frequency fluctuations | [%]                                                             | –                     |            | ±5      |         |          |          |          |
| Duty cycle                         | [%]                                                             | 100                   |            |         |         |          |          |          |
| Power factor cosφ                  |                                                                 | –                     |            | 0.7     |         |          |          |          |
| Switching position display         |                                                                 | No                    |            |         |         |          |          |          |
| Protection class to EN 60529       |                                                                 | IP65 with plug socket |            |         |         |          |          |          |

| Coil characteristics |                   |                   |                   |                  |                  |                   |                   |                   |
|----------------------|-------------------|-------------------|-------------------|------------------|------------------|-------------------|-------------------|-------------------|
| Type                 | MSFG-12           | MSFG-42           | MSFG-24/42        | MSFW-24          | MSFW-48          | MSFW-110          | MSFW-230          | MSFW-240          |
| Output               | 12 V DC,<br>4.1 W | 42 V DC,<br>5.5 W | 24 V DC,<br>4.5 W | –                | –                | –                 | –                 | –                 |
| Switching power      | 50/60 Hz          | –                 | 42 V AC, 9 VA     | 24 V AC,<br>9 VA | 48 V AC,<br>9 VA | 110 V AC,<br>9 VA | 230 V AC,<br>9 VA | 240 V AC,<br>9 VA |
| Holding capacity     | 50/60 Hz          | –                 | 42 V AC, 7 VA     | 24 V AC,<br>7 VA | 48 V AC,<br>7 VA | 110 V AC,<br>7 VA | 230 V AC,<br>7 VA | 240 V AC,<br>7 VA |

| Operating and environmental conditions     |         |            |            |         |         |          |                             |          |
|--------------------------------------------|---------|------------|------------|---------|---------|----------|-----------------------------|----------|
| Type                                       | MSFG-12 | MSFG-42    | MSFG-24/42 | MSFW-24 | MSFW-48 | MSFW-110 | MSFW-230                    | MSFW-240 |
| Ambient temperature                        | [°C]    | -5 ... +40 |            |         |         |          |                             |          |
| CE mark<br>(see declaration of conformity) |         | –          |            |         |         |          | To EU Low Voltage Directive |          |

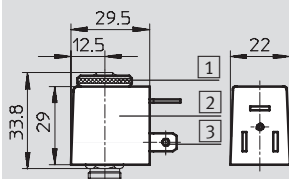
# Solenoid coils MSF

Technical data

**FESTO**

## Dimensions

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



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

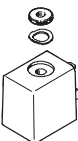
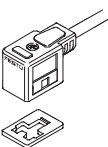
- 3 Plug vanes for plug sockets  
MSSD-F, KMF



Note

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

## Ordering data

| Description                                                                         |                                                              | Part No.           | Type                      |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------|--------------------|---------------------------|
| Solenoid coil                                                                       |                                                              |                    |                           |
|    | Without plug socket, with disc-spring washer and knurled nut | 12 V DC            | 34410 MSFG-12DC-OD        |
|                                                                                     |                                                              | 24 V DC, 42 V AC   | 34411 MSFG-24/42-50/60-OD |
|                                                                                     |                                                              | 42 V DC            | 34413 MSFG-42DC-OD        |
|                                                                                     |                                                              | 24 V AC            | 34415 MSFW-24AC-OD        |
|                                                                                     |                                                              | 48 V AC            | 34418 MSFW-48AC-OD        |
|                                                                                     |                                                              | 110 V AC           | 34420 MSFW-110AC-OD       |
|                                                                                     |                                                              | 230 V AC           | 34422 MSFW-230AC-OD       |
|                                                                                     |                                                              | 240 V AC           | 34424 MSFW-240AC-OD       |
| Plug socket                                                                         |                                                              |                    |                           |
|  | Cable connection via clamping screws                         | 34431              | MSSD-F                    |
|  | Cable connection via insulation displacement technology      | 192746             | MSSD-F-S-M16              |
| Plug socket with cable                                                              |                                                              |                    |                           |
|  | Operating voltage 24 V DC, switching status display via LED  | Cable length 2.5 m | 30935 KMF-1-24DC-2,5-LED  |
|                                                                                     |                                                              | Cable length 5 m   | 30937 KMF-1-24DC-5-LED    |
|                                                                                     |                                                              | Cable length 10 m  | 193458 KMF-1-24DC-10-LED  |
|                                                                                     | Operating voltage up to 240 V                                | Cable length 2.5 m | 30936 KMF-1-230AC-2,5     |
|                                                                                     |                                                              | Cable length 5 m   | 30938 KMF-1-230AC-5       |
| Illuminating seal                                                                   |                                                              |                    |                           |
|  | Operating voltage 12 ... 24 V DC                             | 19143              | MF-LD-12-24DC             |
|                                                                                     | Operating voltage 230 V DC/V AC                              | 19144              | MF-LD-230AC               |
| Inscription label                                                                   |                                                              |                    |                           |
|  | Scope of delivery: 35 pieces in frame                        | 33362              | KMC/F/V-BZ-35X            |

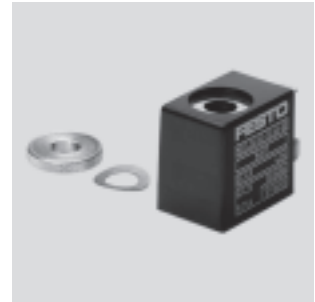
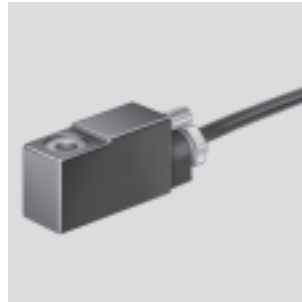
# Solenoid coils MSF...-EX

Technical data

FESTO

-  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
- Cable or plug connection
- Can be replaced without interrupting the pneumatic circuit
- Manifold mounting permissible (minimum clearance from coil to coil 5 mm)



| General technical data |                                                |     |
|------------------------|------------------------------------------------|-----|
| Min. starting time     | [ms]                                           | 10  |
| Type of mounting       | Via knurled nut                                |     |
| Mounting position      | Any (can be rotated 360° on the armature tube) |     |
| Product weight         | [g]                                            | 170 |
|                        |                                                | 55  |

| Materials         |                                       |                            |
|-------------------|---------------------------------------|----------------------------|
| Type              | MSF...-M                              | MSF                        |
| Solenoid coil     | Steel, copper, aluminium, epoxy resin | Steel, copper, duroplastic |
| Winding           | Copper                                | Copper                     |
| Note on materials | RoHS-compliant                        | RoHS-compliant             |

| Electrical data                    |                       |               |                                                                 |                   |
|------------------------------------|-----------------------|---------------|-----------------------------------------------------------------|-------------------|
| Type                               | MSFG-...-M-EX         | MSFW-...-M-EX | MSFG-24-EX                                                      | MSFW-...-50/60-EX |
| Electrical connection              | -                     |               | 3-pin                                                           |                   |
|                                    | Cable                 |               | Plug vanes with connection pattern to Festo standard for MSSD-F |                   |
| Conductor nominal cross section    | [mm <sup>2</sup> ]    | 0.75          | -                                                               |                   |
| Min. starting time                 | [ms]                  | 10            |                                                                 |                   |
| Permissible voltage fluctuations   | [%]                   | ±10           |                                                                 |                   |
| Permissible frequency fluctuations | [%]                   | -             | ±5                                                              | -                 |
| Duty cycle                         | [%]                   | 100           |                                                                 |                   |
| Power factor cosφ                  |                       | -             | 0.7                                                             |                   |
| Switching position display         | No                    |               |                                                                 |                   |
| Protection class to EN 60529       | IP65 with plug socket |               |                                                                 |                   |

| Coil characteristics |                    |                     |                      |                      |                |                  |                   |                   |
|----------------------|--------------------|---------------------|----------------------|----------------------|----------------|------------------|-------------------|-------------------|
| Type                 | MSFG-24DC-...-M-EX | MSFW-24 AC-...-M-EX | MSFW-110 AC-...-M-EX | MSFW-230 AC-...-M-EX | MSFG-24-EX     | MSFW-24-50/60-EX | MSFW-110-50/60-EX | MSFW-230-50/60-EX |
| Output               | 24 V DC, 4.3 W     | 24 V AC, 4.4 VA     | 110 V AC, 4.4 VA     | 230 V AC, 4.2 VA     | 24 V DC, 4.5 W | -                | -                 | -                 |
| Switching power      | 50/60 Hz           | -                   | -                    | -                    | -              | 24 V AC, 9 VA    | 110 V AC, 9 VA    | 230 V AC, 9 VA    |
| Holding capacity     | 50/60 Hz           | -                   | -                    | -                    | -              | 48 V AC, 7 VA    | 110 V AC, 7 VA    | 230 V AC, 7 VA    |

# Solenoid coils MSF...-EX

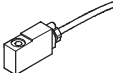
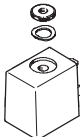
Technical data

**FESTO**

| Operating and environmental conditions |                                             |                             |                             |                             |
|----------------------------------------|---------------------------------------------|-----------------------------|-----------------------------|-----------------------------|
| Type                                   | MSFG-...-M-EX                               | MSFW-...-M-EX               | MSFG-24-EX                  | MSFW-...-50/60-EX           |
| Ambient temperature [°C]               | -20 ... +40                                 |                             | -5 ... +40                  |                             |
| ATEX temperature rating [°C]           | -20 ≤ Ta ≤ +40 IP65                         |                             | -5 ≤ Ta ≤ +40               |                             |
| ATEX specification                     | II 2 GD EEx m II T5 T95°C                   |                             | II 3 GD EEx nA II T1 30°C X |                             |
| CE mark                                | To EU Explosion Protection Directive (ATEX) |                             |                             |                             |
| (see declaration of conformity)        | –                                           | To EU Low Voltage Directive | –                           | To EU Low Voltage Directive |

| Dimensions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | Download CAD data → <a href="http://www.festo.com">www.festo.com</a>                                                                                                                                          |                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MSF...-M                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |                                                                                                                                                                                                               |                                                                                                                                                                                                  |
| <p>Technical drawing of the MSF...-M solenoid coil. The side view shows dimensions: total height 35 mm, mounting flange height 30 mm, mounting flange width 13.3 mm, total width 57 mm, distance from mounting flange to cable exit 33.6 mm, cable exit diameter 50 mm, and cable length 10 mm. The front view shows a height of 11 mm and a width of 22 mm. Callouts 1-5 identify components: 1. Solenoid coil, 2. Protective earth conductor connection, 3. Heat-resistant rubber tubing, 4. Mounting nut, 5. Cable length.</p> |  | <p>1 Solenoid coil</p> <p>2 Protective earth conductor connection</p> <p>3 Heat-resistant rubber tubing, Ø 6.1 ... 7.9 mm</p> <p>4 Mounting nut (tightening torque 100 ... 150 Ncm)</p> <p>5 Cable length</p> | <p>-  - Note</p> <p>Can only be operated on aluminium valves with valve body dimensions ≥ 25 x 25 x 17 mm</p> |

|     |  |                                                                                                                                    |                                                                                                          |
|-----|--|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| MSF |  |                                                                                                                                    |                                                                                                          |
|     |  | <p>1 Retaining nut (tightening torque 100 ... 150 Ncm)</p> <p>2 Solenoid coil</p> <p>3 Plug vanes for plug sockets MSSD-F, KMF</p> | <p>Note</p> <p>Can only be operated on aluminium valves with valve body dimensions ≥ 26 x 16 x 14 mm</p> |

| Ordering data                                                                       |                                                                                                                                                |          |                         |        |                    |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------------------|--------|--------------------|
|                                                                                     | Description                                                                                                                                    | Part No. | Type                    |        |                    |
| Solenoid coil                                                                       |                                                                                                                                                |          |                         |        |                    |
|  | ATEX specification: II 2 GD EEx m II T5, with connecting cable, explosion-proof, moulded-in cable, with disc-spring washer and knurled nut     | 24 V DC  | Cable length 1 m        | 535619 | MSFG-24DC-M-EX     |
|                                                                                     |                                                                                                                                                |          | Cable length 5 m        | 535621 | MSFG-24DC-K5-M-EX  |
|                                                                                     |                                                                                                                                                |          | Cable length on request | 538215 | MSFG-24DC-KX-M-EX  |
|                                                                                     |                                                                                                                                                | 24 V AC  | Cable length 1 m        | 535623 | MSFW-24AC-M-EX     |
|                                                                                     |                                                                                                                                                |          | Cable length on request | 538216 | MSFW-24AC-KX-M-EX  |
|                                                                                     |                                                                                                                                                | 110 V AC | Cable length 1 m        | 535622 | MSFW-110AC-M-EX    |
|                                                                                     |                                                                                                                                                |          | Cable length 5 m        | 535624 | MSFW-110AC-K5-M-EX |
|                                                                                     |                                                                                                                                                |          | Cable length on request | 538218 | MSFW-110AC-KX-M-EX |
|                                                                                     |                                                                                                                                                | 230 V AC | Cable length 1 m        | 535620 | MSFW-230AC-M-EX    |
|                                                                                     |                                                                                                                                                |          | Cable length 5 m        | 535625 | MSFW-230AC-K5-M-EX |
| Cable length on request                                                             | 538217                                                                                                                                         |          | MSFW-230AC-KX-M-EX      |        |                    |
|  | ATEX specification: II 3 GD EEx nA II T130°C X, with plug vanes, explosion-proof, without plug socket, with disc-spring washer and knurled nut | 24 V DC  |                         | 536931 | MSFG-24-EX         |
|                                                                                     |                                                                                                                                                | 24 V AC  |                         | 536932 | MSFW-24-50/60-EX   |
|                                                                                     |                                                                                                                                                | 110 V AC |                         | 536933 | MSFW-110-50/60-EX  |
|                                                                                     |                                                                                                                                                | 230 V AC |                         | 536934 | MSFW-230-50/60-EX  |
| Plug socket                                                                         |                                                                                                                                                |          |                         |        |                    |
|  | Cable connection via clamping screws                                                                                                           | 34431    | MSSD-F                  |        |                    |

# Solenoid coils MSN1

Technical data

FESTO

- Voltage  
12 V DC  
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 EN 175301-803, type A
- Free of copper, PTFE and silicone



| General technical data |                                                |
|------------------------|------------------------------------------------|
| Type of mounting       | Clamped via retaining clamp                    |
| Mounting position      | Any (can be rotated 360° on the armature tube) |
| Product weight [g]     | 80                                             |

| Materials         |                         |
|-------------------|-------------------------|
| Housing           | PA                      |
| Pin contact       | Steel                   |
| Winding           | Copper                  |
| Note on materials | Free of copper and PTFE |

| Electrical data                      |                                                                     |                                        |                |                                        |
|--------------------------------------|---------------------------------------------------------------------|----------------------------------------|----------------|----------------------------------------|
| Type                                 | MSN1G-24DC-OD                                                       | MSN1W-110AC-OD                         | MSN1W-230AC-OD | MSN1W-24AC/12DC                        |
| Electrical connection                | Plug vanes, 3-pin, with connection pattern to EN 175301-803, type A |                                        |                |                                        |
|                                      | –                                                                   | –                                      | –              | Clip                                   |
| Min. starting time [ms]              | 10                                                                  |                                        |                |                                        |
| Permissible voltage fluctuations [%] | –15 / +10                                                           | At 50 Hz: ±10<br>At 60 Hz: –10 ... +20 | ±10            | At 50 Hz: ±10<br>At 60 Hz: –10 ... +20 |
| Duty cycle [%]                       | 100                                                                 |                                        |                |                                        |
| Power factor cosφ                    | –                                                                   | 0.7                                    | 0.7            | 0.7                                    |
| Protection class to EN 60529         | IP65 with plug socket                                               |                                        |                |                                        |

| Coil characteristics   |                |                  |                  |                 |
|------------------------|----------------|------------------|------------------|-----------------|
| Type                   | MSN1G-24DC-OD  | MSN1W-110AC-OD   | MSN1W-230AC-OD   | MSN1W-24AC/12DC |
| Output                 | 24 V DC, 2.5 W | –                | –                | 12 V DC, 5 W    |
| Switching power 50 Hz  | –              | 110 V AC, 7.5 VA | 230 V AC, 7.5 VA | 24 V AC, 7.5 VA |
| 60 Hz                  | –              | 110 V AC, 5.0 VA | 230 V AC, 5.0 VA | 24 V AC, 5.0 VA |
| Holding capacity 50 Hz | –              | 110 V AC, 5.0 VA | 230 V AC, 5.0 VA | 24 V AC, 5.0 VA |
| 60 Hz                  | –              | 110 V AC, 3.7 VA | 230 V AC, 3.7 VA | 24 V AC, 3.7 VA |

| Operating and environmental conditions  |                       |                             |                    |                 |
|-----------------------------------------|-----------------------|-----------------------------|--------------------|-----------------|
| Type                                    | MSN1G-24DC-OD         | MSN1W-110AC-OD              | MSN1W-230AC-OD     | MSN1W-24AC/12DC |
| Ambient temperature [°C]                | –10 ... +50           |                             |                    |                 |
| Temperature of medium [°C]              | –10 ... +50           |                             |                    |                 |
| CE mark (see declaration of conformity) | –                     | To EU Low Voltage Directive |                    | –               |
| Certification                           | cULus recognized (OL) | Germanischer Lloyd          | Germanischer Lloyd | –               |

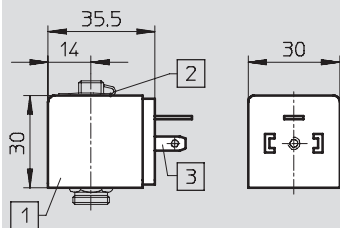
# Solenoid coils MSN1

Technical data

**FESTO**

## Dimensions

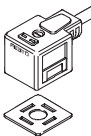
Download CAD data → [www.festo.com](http://www.festo.com)



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

- 3 Plug vanes with connection  
pattern to EN 175301-803,  
type A

## Ordering data

| Description                                                                         |                                                                                         | Part No.           | Type                                   |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|--------------------|----------------------------------------|
| Solenoid coil                                                                       |                                                                                         |                    |                                        |
|    | Without plug socket, with mounting clip,<br>connection pattern to EN 175301-803, type A | 24 V DC            | <b>123060</b> <b>MSN1G-24DC-OD</b>     |
|                                                                                     |                                                                                         | 12 V DC, 24 V AC   | <b>170152</b> <b>MSN1W-24AC/12DC</b>   |
|                                                                                     |                                                                                         | 110/120 V AC       | <b>123061</b> <b>MSN1W-110AC-OD</b>    |
|                                                                                     |                                                                                         | 230 V AC           | <b>123062</b> <b>MSN1W-230AC-OD</b>    |
| Plug socket                                                                         |                                                                                         |                    |                                        |
|   | Cable connection via clamping screws                                                    | <b>34583</b>       | <b>MSSD-C</b>                          |
|  | Cable connection via insulation displacement technology                                 | <b>192748</b>      | <b>MSSD-C-S-M16</b>                    |
| Plug socket with cable                                                              |                                                                                         |                    |                                        |
|  | Operating voltage 24 V DC,<br>switching status display via LED                          | Cable length 2.5 m | <b>30931</b> <b>KMC-1-24DC-2,5-LED</b> |
|                                                                                     |                                                                                         | Cable length 5 m   | <b>30933</b> <b>KMC-1-24DC-5-LED</b>   |
|                                                                                     |                                                                                         | Cable length 10 m  | <b>193459</b> <b>KMC-1-24DC-10-LED</b> |
|                                                                                     | Operating voltage up to 240 V                                                           | Cable length 2.5 m | <b>30932</b> <b>KMC-1-230AC-2,5</b>    |
|                                                                                     |                                                                                         | Cable length 5 m   | <b>30934</b> <b>KMC-1-230AC-5</b>      |
|                                                                                     |                                                                                         |                    |                                        |
| Illuminating seal                                                                   |                                                                                         |                    |                                        |
|  | Operating voltage 12 ... 24 V DC                                                        | <b>19145</b>       | <b>MC-LD-12-24DC</b>                   |
|                                                                                     | Operating voltage 230 V DC/V AC                                                         | <b>19146</b>       | <b>MC-LD-230AC</b>                     |
| Inscription label                                                                   |                                                                                         |                    |                                        |
|  | Scope of delivery: 35 pieces in frame                                                   | <b>33362</b>       | <b>KMC/F/V-BZ-35X</b>                  |

## Solenoid coils MD-2/MH-2

FESTO

### Technical data

- ⚡ Voltage  
 24 V DC  
 110, 230 V AC
- 🌡️ Temperature range  
 -20 ... +50 °C
- Can be replaced without interrupting the pneumatic circuit
- Connection pattern to EN 175301-803, type A



| General technical data                 |                 |                  |
|----------------------------------------|-----------------|------------------|
| Type                                   | MD-2 (system 8) | MH-2 (system 13) |
| Type of mounting                       | Via knurled nut | Via lock nut     |
| Max. tightening torque of fitting [Nm] | 0.5             | 2                |
| Mounting position                      | Any             |                  |
| Product weight [g]                     | 110             | 150              |

| Materials         |                            |                                                     |
|-------------------|----------------------------|-----------------------------------------------------|
| Type              | MD-2 (system 8)            | MH-2 (system 13)                                    |
| Solenoid coil     | Duroplastic, copper, steel |                                                     |
| Winding           | Copper                     |                                                     |
| Note on materials | –                          | Contains PWIS (paint-wetting impairment substances) |

| Electrical data                    |                                                             |                       |     |            |                |
|------------------------------------|-------------------------------------------------------------|-----------------------|-----|------------|----------------|
| Type                               | MD-2-24VDC                                                  | MD-2-...110VAC        |     | MH-2-24VDC | MH-2-...110VAC |
| Electrical connection              | Plug vanes with connection pattern to EN 175301-803, type A |                       |     |            |                |
| Min. starting time                 | [ms]                                                        | –                     |     |            | 12             |
| Permissible voltage fluctuations   | [%]                                                         | ±10                   |     |            |                |
| Permissible frequency fluctuations | [%]                                                         | –                     | ±10 |            |                |
| Duty cycle                         | [%]                                                         | 100                   |     |            |                |
| Power factor cosφ                  |                                                             | –                     | 0.7 | 0.7        |                |
| Switching position display         |                                                             | No                    |     |            |                |
| Protection class to EN 60529       |                                                             | IP65 with plug socket |     |            |                |

| Coil characteristics      |                |                   |                   |                |                 |                 |
|---------------------------|----------------|-------------------|-------------------|----------------|-----------------|-----------------|
| Type                      | MD-2-24VDC     | MD-2-110VAC       | MD-2-230VAC       | MH-2-24VDC     | MH-2-110VAC     | MH-2-230VAC     |
| Output                    | 24 V DC, 6.8 W | –                 | –                 | 24 V DC, 7.6 W | 110 V AC, 14 VA | 230 V AC, 14 VA |
| Switching power 50/60 Hz  | –              | 110 V AC, 14.5 VA | 230 V AC, 14.5 VA | –              | –               | –               |
| Holding capacity 50/60 Hz | –              | 110 V AC, 10.5 VA | 230 V AC, 10.5 VA | –              | –               | –               |

| Operating and environmental conditions  |             |                             |            |                             |
|-----------------------------------------|-------------|-----------------------------|------------|-----------------------------|
| Type                                    | MD-2-24VDC  | MD-2-...VAC                 | MH-2-24VDC | MH-2-...VAC                 |
| Ambient temperature [°C]                | -20 ... +50 |                             |            |                             |
| CE mark (see declaration of conformity) | –           | To EU Low Voltage Directive | –          | To EU Low Voltage Directive |

# Solenoid coils MD-2/MH-2

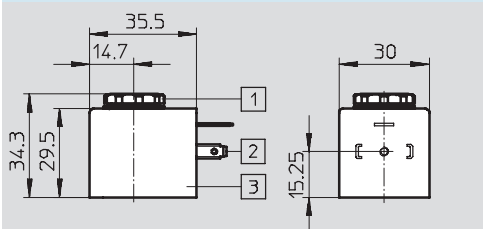
Technical data

**FESTO**

## Dimensions

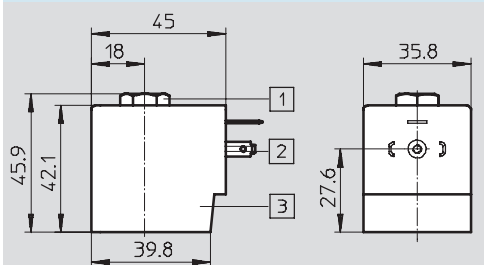
Download CAD data → [www.festo.com](http://www.festo.com)

### MD-2 (system 8)



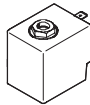
- 1 Knurled nut M8x0.75
- 2 Plug pattern to EN 175301-803, type A
- 3 Solenoid coil

### MH-2 (system 13)



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

## Ordering data

|                                                                                     | Description                                                                    | Part No.      | Type                         |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------|------------------------------|
| Solenoid coil                                                                       |                                                                                |               |                              |
|   | System 8, without plug socket,<br>connection pattern to EN 175301-803, type A  | 24 V DC       | <b>549903</b> MD-2-24VDC-PA  |
|                                                                                     |                                                                                | 110 V AC      | <b>549904</b> MD-2-110VAC-PA |
|                                                                                     |                                                                                | 230 V AC      | <b>549905</b> MD-2-230VAC-PA |
|  | System 13, without plug socket,<br>connection pattern to EN 175301-803, type A | 24 V DC       | <b>549906</b> MH-2-24VDC-PA  |
|                                                                                     |                                                                                | 110 V AC      | <b>549907</b> MH-2-110VAC-PA |
|                                                                                     |                                                                                | 230 V AC      | <b>549908</b> MH-2-230VAC-PA |
| Plug socket                                                                         |                                                                                |               |                              |
|  | 3-pin, square design MSF                                                       | <b>550067</b> | <b>MSSD-N</b>                |

## Product Range and Company Overview

### A Complete Suite of Automation Services

Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.



**Custom Automation Components**  
Complete custom engineered solutions



**Custom Control Cabinets**  
Comprehensive engineering support and on-site services



**Complete Systems**  
Shipment, stocking and storage services

### 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.

### Quality Assurance, ISO 9001 and ISO 14001 Certifications

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.



© Copyright 2008, Festo Corporation. While every effort is made to ensure that all dimensions and specifications are correct, Festo cannot guarantee that publications are completely free of any error, in particular typing or printing errors. Accordingly, Festo cannot be held responsible for the same. For Liability and Warranty conditions, refer to our "Terms and Conditions of Sale", available from your local Festo office. All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior written permission of Festo. All technical data subject to change according to technical update.



Printed on recycled paper at New Horizon Graphic, Inc., FSC certified as an environmentally friendly printing plant.

# Festo North America

## Festo Regional Contact Center

5300 Explorer Drive  
Mississauga, Ontario L4W 5G4  
Canada

### USA Customers:

For ordering assistance,

**Call:** 1.800.99.FESTO (1.800.993.3786)

**Fax:** 1.800.96.FESTO (1.800.963.3786)

**Email:** [customer.service@us.festo.com](mailto:customer.service@us.festo.com)

For technical support,

**Call:** 1.866.GO.FESTO (1.866.463.3786)

**Fax:** 1.800.96.FESTO (1.800.963.3786)

**Email:** [product.support@us.festo.com](mailto:product.support@us.festo.com)

### Canadian Customers:

**Call:** 1.877.GO.FESTO (1.877.463.3786)

**Fax:** 1.877.FX.FESTO (1.877.393.3786)

**Email:** [festo.canada@ca.festo.com](mailto:festo.canada@ca.festo.com)

## USA Headquarters

Festo Corporation  
395 Moreland Road  
P.O. Box 18023  
Hauppauge, NY 11788, USA  
[www.festo.com/us](http://www.festo.com/us)

## USA Sales Offices

### Appleton

North 922 Tower View Drive, Suite N  
Greenville, WI 54942, USA

### Boston

120 Presidential Way, Suite 330  
Woburn, MA 01801, USA

### Chicago

1441 East Business Center Drive  
Mt. Prospect, IL 60056, USA

### Dallas

1825 Lakeway Drive, Suite 600  
Lewisville, TX 75057, USA

### Detroit – Automotive Engineering Center

2601 Cambridge Court, Suite 320  
Auburn Hills, MI 48326, USA

### New York

395 Moreland Road  
Hauppauge, NY 11788, USA

### Silicon Valley

4935 Southfront Road, Suite F  
Livermore, CA 94550, USA

## United States



**USA Headquarters, East:** Festo Corp., 395 Moreland Road, Hauppauge, NY 11788

Phone: 1.631.435.0800; Fax: 1.631.435.8026;

Email: [info@festo-usa.com](mailto:info@festo-usa.com)

[www.festo.com/us](http://www.festo.com/us)

## Canada



**Headquarters:** Festo Inc., 5300 Explorer Drive, Mississauga, Ontario L4W 5G4

Phone: 1.905.624.9000; Fax: 1.905.624.9001;

Email: [festo.canada@ca.festo.com](mailto:festo.canada@ca.festo.com)

[www.festo.ca](http://www.festo.ca)

## Mexico



**Headquarters:** Festo Pneumatic, S.A., Av. Ceylán 3, Col. Tequesquahuac,  
54020 Tlalneapantla, Edo. de México

Phone: 011 52 [55] 53 21 66 00; Fax: 011 52 [55] 53 21 66 65;

Email: [festo.mexico@mx.festo.com](mailto:festo.mexico@mx.festo.com)

[www.festo.com/mx](http://www.festo.com/mx)

## Central USA

Festo Corporation  
1441 East Business  
Center Drive  
Mt. Prospect, IL 60056, USA  
Phone: 1.847.759.2600  
Fax: 1.847.768.9480



## Western USA

Festo Corporation  
4935 Southfront Road,  
Suite F  
Livermore, CA 94550, USA  
Phone: 1.925.371.1099  
Fax: 1.925.245.1286



## Festo Worldwide

Argentina Australia Austria Belarus Belgium Brazil Bulgaria Canada Chile China Colombia Croatia Czech Republic Denmark  
Estonia Finland France Germany Great Britain Greece Hong Kong Hungary India Indonesia Iran Ireland Israel Italy Japan Latvia  
Lithuania Malaysia Mexico Netherlands New Zealand Norway Peru Philippines Poland Romania Russia Serbia Singapore  
Slovakia Slovenia South Africa South Korea Spain Sweden Switzerland Taiwan Thailand Turkey Ukraine United States Venezuela

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