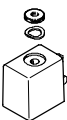
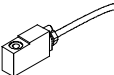


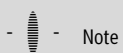
# Solenoid coils MSF/MSN1/MD-2/MH-2

FESTO

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> | -                | -    | -    | -     | -    | -    | ■    | ■     | ■      | -      | 9                   |  |
| H solenoid coil                                                                     |                    |                  |      |      |       |      |      |      |       |        |        |                     |  |
|   | MH-2               | -                | -    | -    | -     | -    | -    | -    | -     | -      | ■      | 11                  |  |
| D solenoid coil                                                                     |                    |                  |      |      |       |      |      |      |       |        |        |                     |  |
|  | MD-2               | -                | -    | -    | -     | -    | -    | -    | -     | -      | ■      | 11                  |  |

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

FESTO

Type codes

## Solenoid coils

|                          |                                  |      |   |      |   |    |
|--------------------------|----------------------------------|------|---|------|---|----|
|                          |                                  | MSFG | – | 24DC | – | OD |
| <b>Type</b>              |                                  |      |   |      |   |    |
| 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 |      |   |      |   |    |
| <b>Operating voltage</b> |                                  |      |   |      |   |    |
| 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                         |      |   |      |   |    |
| <b>Scope of delivery</b> |                                  |      |   |      |   |    |
| OD                       | Without plug socket              |      |   |      |   |    |

## Solenoid coils, explosion-proof

|                             |                                 |      |   |      |   |    |   |   |   |    |
|-----------------------------|---------------------------------|------|---|------|---|----|---|---|---|----|
|                             |                                 | MSFG | – | 24DC | – | K5 | – | M | – | EX |
| <b>Type</b>                 |                                 |      |   |      |   |    |   |   |   |    |
| MSFG                        | F solenoid coil, for DC voltage |      |   |      |   |    |   |   |   |    |
| MSFW                        | F solenoid coil, for AC voltage |      |   |      |   |    |   |   |   |    |
| <b>Operating voltage</b>    |                                 |      |   |      |   |    |   |   |   |    |
| 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              |      |   |      |   |    |   |   |   |    |
| <b>Cable length</b>         |                                 |      |   |      |   |    |   |   |   |    |
|                             | 1 m                             |      |   |      |   |    |   |   |   |    |
| K5                          | 5 m                             |      |   |      |   |    |   |   |   |    |
| KX                          | On request                      |      |   |      |   |    |   |   |   |    |
| <b>ATEX specification</b>   |                                 |      |   |      |   |    |   |   |   |    |
|                             | II 3 GD EEx nA II T1 30°C X     |      |   |      |   |    |   |   |   |    |
| M                           | II 2 GD EExm II T5              |      |   |      |   |    |   |   |   |    |
| <b>Explosion protection</b> |                                 |      |   |      |   |    |   |   |   |    |
| EX                          | Explosion-proof to EN 50 028    |      |   |      |   |    |   |   |   |    |

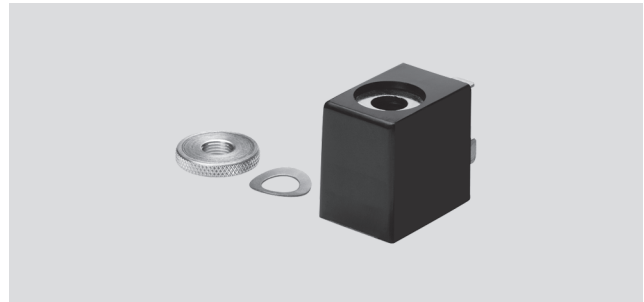
# Solenoid coils MSF

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 | MSPW-110 | MSPW-230 | MSPW-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          | MSPW-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 | MSPW-230                    | MSFW-240 |
| Ambient temperature                        | [°C]    | -5 ... +40 |            |         |         |          |                             |          |
| CE mark<br>(see declaration of conformity) |         | –          |            |         |         |          | To EU Low Voltage Directive |          |

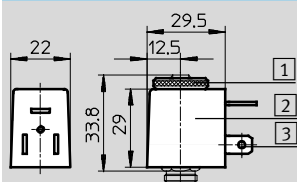
# Solenoid coils MSF

Technical data

**FESTO**

## Dimensions

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



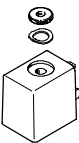
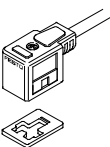
- 1 Retaining nut
- 2 Solenoid coil  
(can be rotated 360°  
on the armature tube)
- 3 Plug vanes for plug sockets  
MSSD-F, KMF



Note

Can only be operated on aluminium valves with valve body dimensions  $\geq 26 \times 16 \times 14$  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            |

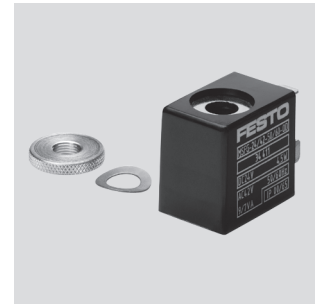
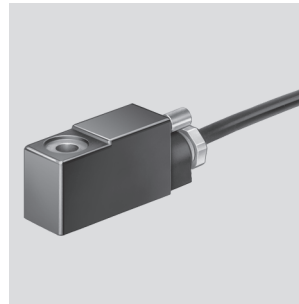
# Solenoid coils MSF...-EX

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  |                                                |     |
|-------------------------|------------------------------------------------|-----|
| Type                    | MSF...-M                                       | MSF |
| 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            | –                                                               | ±5                |
| Duty cycle [%]                                     | 100                   |               |                                                                 |                   |
| Power factor cosφ                                  | –                     |               |                                                                 | 0.7               |
| Switching position display                         | No                    |               |                                                                 |                   |
| Protection class to EN 60529                       | IP65 with plug socket |               |                                                                 |                   |

| Coil characteristics – Solenoid coils with connecting cable |                    |                    |                     |                     |
|-------------------------------------------------------------|--------------------|--------------------|---------------------|---------------------|
| Type                                                        | MSFG-24DC-...-M-EX | MSFW-24AC-...-M-EX | MSFW-110AC-...-M-EX | MSFW-230AC-...-M-EX |
| Nominal operating voltage [V]                               | 24 DC              | 24 AC              | 110 AC              | 230 AC              |
| Output                                                      | 4.3 W              | 4.4 VA             | 4.4 VA              | 4.2 VA              |

| Coil characteristics – Solenoid coils with plug vanes |            |                  |                   |                   |
|-------------------------------------------------------|------------|------------------|-------------------|-------------------|
| Type                                                  | MSFG-24-EX | MSFW-24-50/60-EX | MSFW-110-50/60-EX | MSFW-230-50/60-EX |
| Nominal operating voltage [V]                         | 24 DC      | 24 AC            | 110 AC            | 230 AC            |
| Output                                                | 4.5 W      | –                | –                 | –                 |
| Pick-up power 50/60 Hz                                | –          | 9 VA             | 9 VA              | 9 VA              |
| Holding capacity 50/60 Hz                             | –          | 7 VA             | 7 VA              | 7 VA              |

# Solenoid coils MSF...-EX

FESTO

Technical data

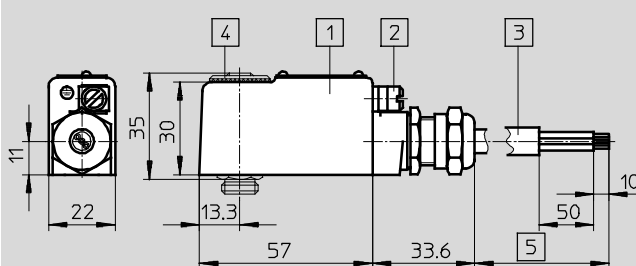
| Operating and environmental conditions – Solenoid coils with connecting cable |                                             |                                             |
|-------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------------|
| Type                                                                          | MSFG-...-M-EX                               | MSFW-...-M-EX                               |
| Ambient temperature [°C]                                                      | –20 ... +40                                 | –20 ... +40                                 |
| ATEX category gas                                                             | II 2G                                       | II 2G                                       |
| Ex-ignition protection type gas                                               | Ex mb II T5                                 | Ex mb II T5                                 |
| ATEX category dust                                                            | II 2D                                       | II 2D                                       |
| Ex-ignition protection type dust                                              | Ex tD A21 IP65 T95°C                        | Ex tD A21 IP65 T95°C                        |
| Designated organisation for the quality inspection                            | 0123                                        | 0123                                        |
| CE mark (see declaration of conformity)                                       | To EU Explosion Protection Directive (ATEX) | To EU Explosion Protection Directive (ATEX) |
|                                                                               | –                                           | To EU Low Voltage Directive                 |

| Operating and environmental conditions – Solenoid coils with plug vanes |                                             |                                             |
|-------------------------------------------------------------------------|---------------------------------------------|---------------------------------------------|
| Type                                                                    | MSFG-24-EX, MSFW-24-50/60-EX                | MSFW-110-50/60-EX, MSFW-230-50/60-EX        |
| Ambient temperature [°C]                                                | –5 ... +40                                  | –5 ... +40                                  |
| ATEX ambient temperature [°C]                                           | $-5 \leq T_a \leq +40$                      | $-5 \leq T_a \leq +40$                      |
| ATEX specification                                                      | II 3 GD EEx nA II T130°C X                  | II 3 GD EEx nA II T130°C X                  |
| CE mark (see declaration of conformity)                                 | To EU Explosion Protection Directive (ATEX) | To EU Explosion Protection Directive (ATEX) |
|                                                                         | –                                           | To EU Low Voltage Directive                 |

## Dimensions

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

### MSF...-M



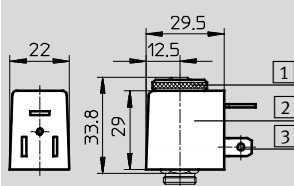
- 1 Solenoid coil
- 2 Protective earth conductor connection
- 3 Heat-resistant rubber tubing,  $\varnothing 6.1 \dots 7.9 \text{ mm}$
- 4 Mounting nut (tightening torque 100 ... 150 Ncm)
- 5 Cable length



Note

Can only be operated on aluminium valves with valve body dimensions  $\geq 25 \times 25 \times 17 \text{ mm}$

### MSF



- 1 Retaining nut (tightening torque 0.4 Nm)
- 2 Solenoid coil
- 3 Plug vanes for plug sockets MSSD-F, KMF



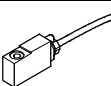
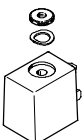
Note

Can only be operated on aluminium valves with valve body dimensions  $\geq 26 \times 16 \times 14 \text{ mm}$

# Solenoid coils MSF...-EX

Technical data

**FESTO**

| Ordering data                                                                      |                                                                                                   |          |                         |          |                    |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------|-------------------------|----------|--------------------|
| Description                                                                        |                                                                                                   |          |                         | Part No. | Type               |
| Solenoid coil                                                                      |                                                                                                   |          |                         |          |                    |
|   | 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      |          |                    |
|   | 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

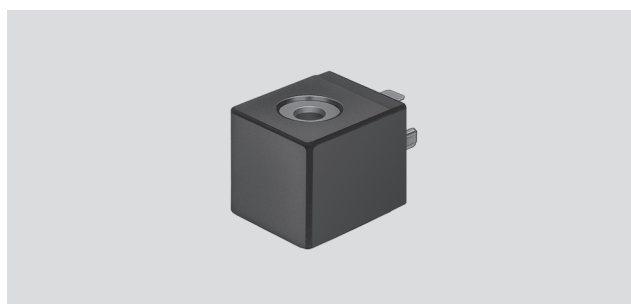
Technical data

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 | –               |

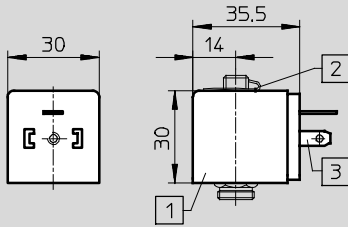
# Solenoid coils MSN1

Technical data

**FESTO**

## Dimensions

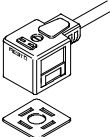
Download CAD data → [www.festo.com](http://www.festo.com)



- 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, 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, 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                                       |                |  |            |                |

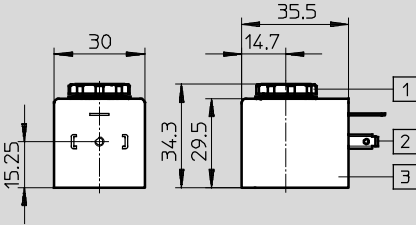
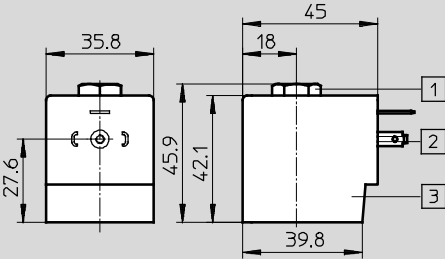
| Coil characteristics      |                |                   |                   |                |                 |                 |
|---------------------------|----------------|-------------------|-------------------|----------------|-----------------|-----------------|
| Type                      | 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 → <a href="http://www.festo.com">www.festo.com</a>                                                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MD-2 (system 8)                                                                                                                                                                                                 |  | MH-2 (system 13)                                                                                                                                                                                          |
|  <p> <b>1</b> Knurled nut M8x0.75      <b>3</b> Solenoid coil<br/> <b>2</b> Plug pattern to EN 175301-803, type A         </p> |  |  <p> <b>1</b> Hex nut G1/8      <b>3</b> Solenoid coil<br/> <b>2</b> Plug pattern to EN 175301-803, type A         </p> |

| 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  | 549903   | MD-2-24VDC-PA  |
|                                                                                     |                                                                                | 110 V AC | 549904   | MD-2-110VAC-PA |
|                                                                                     |                                                                                | 230 V AC | 549905   | MD-2-230VAC-PA |
|  | System 13, without plug socket,<br>connection pattern to EN 175301-803, type A | 24 V DC  | 549906   | MH-2-24VDC-PA  |
|                                                                                     |                                                                                | 110 V AC | 549907   | MH-2-110VAC-PA |
|                                                                                     |                                                                                | 230 V AC | 549908   | MH-2-230VAC-PA |
|                                                                                     |                                                                                |          |          |                |
| Plug socket                                                                         |                                                                                |          |          |                |
|  | 3-pin, square design MSF                                                       |          | 550067   | MSSD-N         |