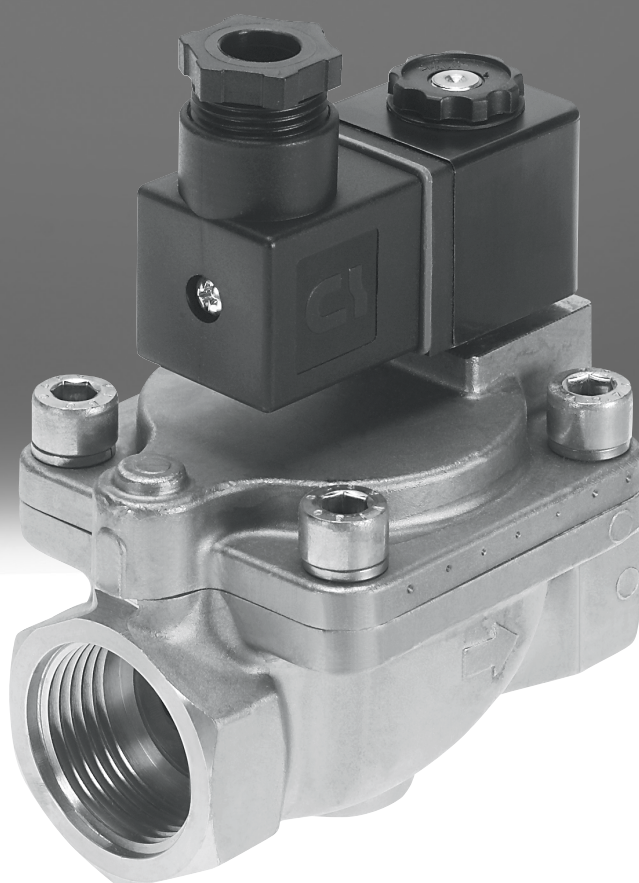


## Solenoid valve, metric VZWM

**FESTO**



## Characteristics

### At a glance

- Indirectly actuated poppet valve with diaphragm seal
- Valve body connection G14 ...G2
- Flow rate 1400 ... 31000 l/min
- Brass or cast stainless steel version
- Wide range of coils

### Product segmentation



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- Quickest delivery, worldwide – wherever, whenever
- Expected high Festo quality
- Easy and fast to select

## Type code

|      |                                                        |  |
|------|--------------------------------------------------------|--|
| 001  | Series                                                 |  |
| VZWM | Solenoid valve, process directional control valve VZWM |  |
| 002  | Directional control valve type                         |  |
| L    | In-line valve                                          |  |
| 003  | Valve function                                         |  |
| M22C | 2/2-way valve, normally closed                         |  |

|      |                          |  |
|------|--------------------------|--|
| 004  | Process valve connection |  |
| G14  | G1/4                     |  |
| G38  | G3/8                     |  |
| G12  | G1/2                     |  |
| G34  | G3/4                     |  |
| G1   | G1                       |  |
| G114 | G1 1/4                   |  |
| G112 | G1 1/2                   |  |
| G2   | G2                       |  |

|     |                                                   |  |
|-----|---------------------------------------------------|--|
| 005 | Electrical connection                             |  |
| F4  | Electric with armature tube for solenoid coil 8   |  |
| F5  | Electric with armature tube for solenoid valve 13 |  |

|     |                      |  |
|-----|----------------------|--|
| 006 | Corrosion protection |  |
|     | Standard             |  |
| R1  | Stainless steel      |  |

## Datasheet

## General technical data G thread

| Connection Process valve                              | G1/4                              | G3/8        | G1/2        | G3/4           | G1           | G1 1/4       | G1 1/2       | G2           |
|-------------------------------------------------------|-----------------------------------|-------------|-------------|----------------|--------------|--------------|--------------|--------------|
| Nominal size                                          | 13 ... 13.5 mm                    |             |             | 25 ... 27.5 mm |              | 40 mm        |              | 50 mm        |
| Valve function                                        | 2/2-way, closed, monostable       |             |             |                |              |              |              |              |
| Design                                                | Diaphragm valve, servo-controlled |             |             |                |              |              |              |              |
| Sealing principle                                     | Soft                              |             |             |                |              |              |              |              |
| Type of actuation                                     | Electric                          |             |             |                |              |              |              |              |
| Type of piloting                                      | Pilot actuated                    |             |             |                |              |              |              |              |
| Flow direction                                        | Non-reversible                    |             |             |                |              |              |              |              |
| Type of mounting                                      | In-line installation              |             |             |                |              |              |              |              |
| Mounting position                                     | Preferably vertical               |             |             |                |              |              |              |              |
| Standard nominal flow rate (standardised to DIN 1343) | 1,400 l/min                       | 2,100 l/min | 2,400 l/min | 10,000 l/min   | 11,700 l/min | 24,000 l/min | 26,400 l/min | 31,000 l/min |
| Flow rate Kv                                          | 1.6 m³/h                          | 2 m³/h      | 2.4 m³/h    | 8.5 m³/h       | 10.7 m³/h    | 21.3 m³/h    | 27.4 m³/h    | 39 m³/h      |
| C value                                               | 6 l/sbar                          | 8.8 l/sbar  | 9.8 l/sbar  | 39 l/sbar      | 41 l/sbar    | 75 l/sbar    | 82 l/sbar    | 110 l/sbar   |
| b value                                               | 0.3                               | 0.35        | 0.37        | 0.5            | 0.57         | 0.6          | 0.67         | 0.68         |
| Pressure difference                                   | 0.5 bar                           |             |             |                |              | 0.7 bar      |              |              |
| Material housing                                      | Stainless steel casting, Brass    |             |             |                |              |              |              |              |
| Material number housing                               | 1.4581, 2.0402                    |             |             |                |              |              |              |              |
| Material seals                                        | NBR                               |             |             |                |              |              |              |              |
| Material plunger tube                                 | High-alloy steel                  |             |             |                |              |              |              |              |
| Note on materials                                     | RoHS-compliant                    |             |             |                |              |              |              |              |
| Max. tightening torque for connecting thread          | 35 Nm                             | 60 Nm       | 105 Nm      | 200 Nm         | 350 Nm       | 450 Nm       | 540 Nm       | 620 Nm       |
| Max. tightening torque for cover screw                | 20 Nm                             |             |             | 30 Nm          |              |              |              |              |
| Max. tightening torque for coil fastening             | 0.5 ... 2 Nm                      |             |             |                |              | 2 Nm         |              |              |

## Operating and environmental conditions G thread

| Connection Process valve                     | G1/4                                                                          | G3/8 | G1/2 | G3/4                                               | G1 | G1 1/4         | G1 1/2 | G2 |
|----------------------------------------------|-------------------------------------------------------------------------------|------|------|----------------------------------------------------|----|----------------|--------|----|
| Medium                                       | Compressed air to ISO 8573-1:2010 [7:4:4], Inert gases, Water, Neutral fluids |      |      |                                                    |    |                |        |    |
| Ambient temperature <sup>1)</sup>            | -10 ... 60°C                                                                  |      |      |                                                    |    |                |        |    |
| Pressure difference                          | 0.5 bar                                                                       |      |      |                                                    |    | 0.7 bar        |        |    |
| Medium pressure, valve for liquid media      | 0.5 ... 6 bar                                                                 |      |      |                                                    |    | 0.7 ... 6 bar  |        |    |
| Medium pressure, valve for gaseous media     | 0.5 ... 10 bar                                                                |      |      |                                                    |    | 0.7 ... 10 bar |        |    |
| Media temperature                            | -10 ... 60°C                                                                  |      |      |                                                    |    |                |        |    |
| Media temperature for fluids                 | 5 ... 50°C                                                                    |      |      |                                                    |    |                |        |    |
| Max. viscosity                               | 22 mm²/s                                                                      |      |      |                                                    |    |                |        |    |
| CE mark (see declaration of conformity)      | –                                                                             |      |      | In accordance with EU Pressure Equipment Directive |    |                |        |    |
| UKCA marking (see declaration of conformity) | –                                                                             |      |      | to UK Pressure Equipment Regulations               |    |                |        |    |
| Corrosion resistance class CRC <sup>2)</sup> | 1 - Low corrosion stress, 3 - high corrosion stress                           |      |      |                                                    |    |                |        |    |

1) Note the ambient temperature of the solenoid coils.

2) Corrosion resistance class CRC 1 to Festo standard FN 940 070. Parts with low corrosion stress. Transport and storage protection. Parts that do not have primarily decorative surface requirements e.g. in non-visible interior areas, or parts that are covered.

Corrosion resistance class 3 to Festo standard 940 070. Components subject to high corrosion stress. External visible parts in direct contact with a normal industrial environment or media, such as solvents and cleaners, with primarily functional surface requirements.

## Valve switching times G thread

| Connection Process valve   | G1/4           | G3/8           | G1/2           | G3/4           | G1             | G1 1/4   | G1 1/2   | G2       |
|----------------------------|----------------|----------------|----------------|----------------|----------------|----------|----------|----------|
| Switching time off         | 10 ms          |                |                | 12 ms          |                | 20 ms    |          | 21 ms    |
| Switching time on          | 8 ms           |                |                | 15 ms          |                | 26 ms    |          | 62 ms    |
| Switch-off time for fluids | 200 ... 210 ms | 190 ... 210 ms | 200 ... 220 ms | 930 ... 950 ms | 750 ... 950 ms | 1,900 ms | 2,000 ms | 2,800 ms |
| Switch-on time for fluids  | 80 ... 100 ms  | 110 ms         |                | 400 ... 420 ms | 300 ... 400 ms | 1,400 ms |          | 2,100 ms |

## Datasheet

**Electrical data G thread**

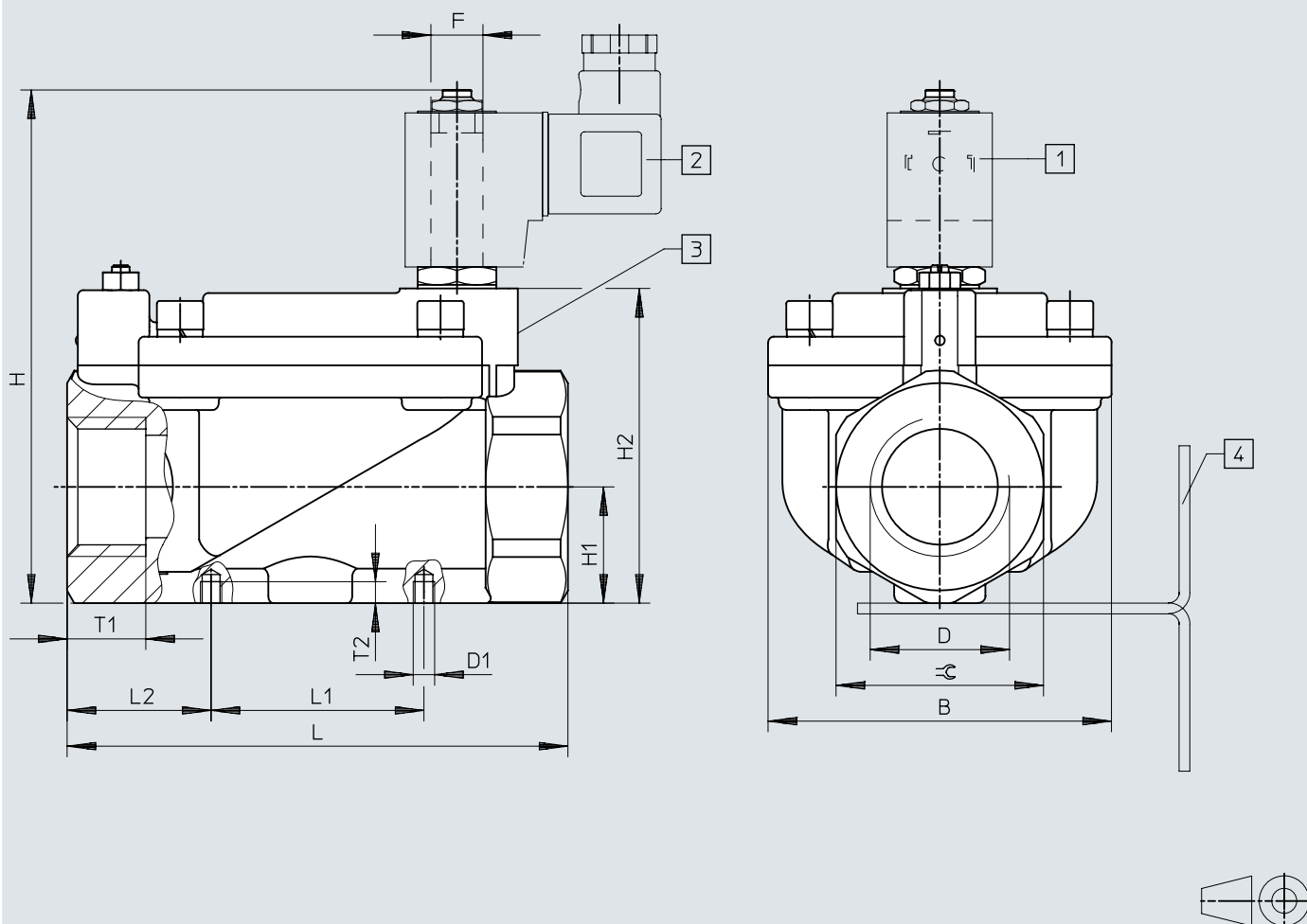
| Connection Process valve | G1/4                                                                                                                             | G3/8 | G1/2 | G3/4 | G1 | G1 1/4                                                          | G1 1/2 | G2 |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------|------|------|------|----|-----------------------------------------------------------------|--------|----|
| Electrical connection    | Solenoid coil type MD-... , coil can be ordered as an accessory, Solenoid coil type MH-... , coil can be ordered as an accessory |      |      |      |    | Solenoid coil type MH-... , coil can be ordered as an accessory |        |    |

**Weight G thread**

| Connection Process valve | G1/4          | G3/8          | G1/2          | G3/4              | G1                | G1 1/4            | G1 1/2            | G2                |
|--------------------------|---------------|---------------|---------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Product weight           | 400 ... 500 g | 400 ... 480 g | 360 ... 450 g | 1,200 ... 1,270 g | 1,100 ... 1,200 g | 2,650 ... 2,850 g | 2,400 ... 2,570 g | 3,660 ... 3,800 g |

## Dimensions

Dimensions – 2/2-way valve

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

[1] Connection for plug socket according to DIN EN 17301-803, type A

[2] Plug socket MSSD-N

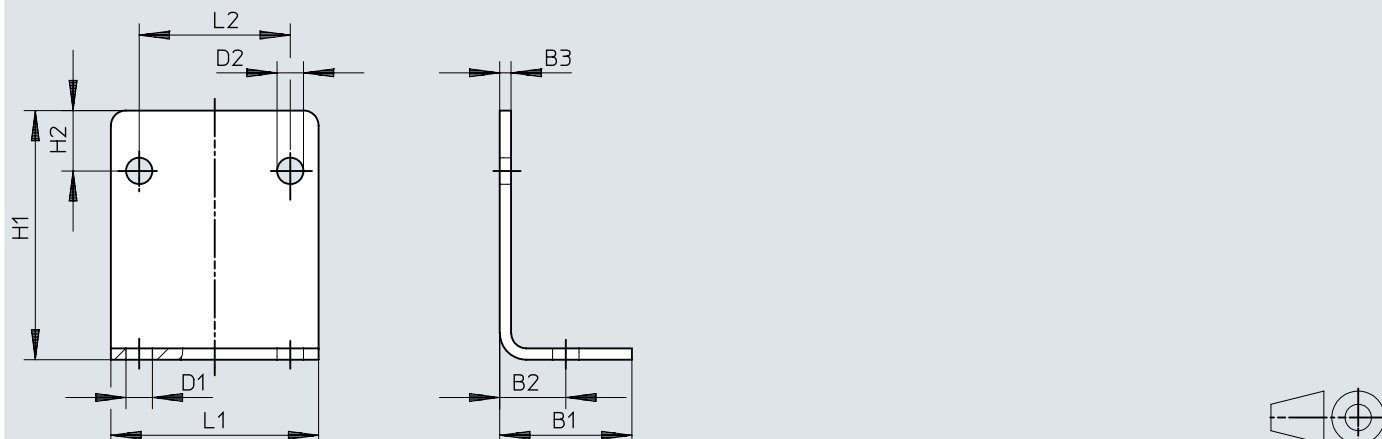
[3] Space for inscription label

[4] Retaining bracket HRM-...

|                     | B<br>±1,5 | D      | D1 | H<br>±2 | H1<br>±1,5 | H2<br>±1 | L<br>±2 | L1<br>±1,5 | L2    | F  | T1 | T2<br>±0,5 | ≅  |
|---------------------|-----------|--------|----|---------|------------|----------|---------|------------|-------|----|----|------------|----|
| VZWM-...-G14-F4     | 48        | G1/4   | M4 | 85,5    | 15         | 49       | 67      | 25         | 21    | F4 | 12 | 4          | 27 |
| VZWM-...-G38-F4     | 48        | G3/8   | M4 | 85,5    | 15         | 49       | 67      | 25         | 21    | F4 | 12 | 4          | 27 |
| VZWM-...-G12-F4     | 48        | G1/2   | M4 | 85      | 15         | 49       | 67      | 25         | 21    | F4 | 12 | 4          | 27 |
| VZWM-...-G34-F4     | 70        | G3/4   | M6 | 107     | 24,2       | 70,5     | 96      | 40         | 28    | F4 | 16 | 6          | 41 |
| VZWM-...-G1-F4      | 70        | G1     | M6 | 107     | 24,2       | 70,5     | 96      | 40         | 28    | F4 | 16 | 6          | 41 |
| VZWM-...-G114-F5    | 96        | G1 1/4 | M6 | 143,5   | 32,5       | 88       | 140     | 59,5       | 40,25 | F5 | 22 | 6          | 58 |
| VZWM-...-G112-F5    | 96        | G1 1/2 | M6 | 143,5   | 32,5       | 88       | 140     | 59,5       | 40,25 | F5 | 22 | 6          | 58 |
| VZWM-...-G2-F5      | 112       | G2     | M6 | 159     | 38,5       | 103,5    | 168     | 59,5       | 54,25 | F5 | 25 | 6          | 70 |
| VZWM-...-G14-F5-R1  | 44        | G1/4   | M4 | 106     | 15,6       | 51       | 67      | 25         | 21    | F5 | –  | 4          | 27 |
| VZWM-...-G38-F5-R1  | 44        | G3/8   | M4 | 106     | 15,6       | 51       | 67      | 25         | 21    | F5 | –  | 4          | 27 |
| VZWM-...-G12-F5-R1  | 44        | G1/2   | M4 | 106     | 15,6       | 51       | 67      | 25         | 21    | F5 | –  | 4          | 27 |
| VZWM-...-G34-F5-R1  | 70        | G3/4   | M6 | 126     | 24,2       | 70       | 96      | 40         | 28    | F5 | –  | 6          | 41 |
| VZWM-...-G1-F5-R1   | 70        | G1     | M6 | 126     | 24,2       | 70       | 96      | 40         | 28    | F5 | –  | 6          | 41 |
| VZWM-...-G114-F5-R1 | 96        | G1 1/4 | M6 | 145     | 34         | 89,5     | 140     | 59,5       | 40,25 | F5 | –  | 6          | 58 |
| VZWM-...-G112-F5-R1 | 96        | G1 1/2 | M6 | 145     | 34         | 89,5     | 140     | 59,5       | 40,25 | F5 | –  | 6          | 58 |
| VZWM-...-G2-F5-R1   | 112       | G2     | M6 | 159     | 38,5       | 104      | 168     | 59,5       | 54,25 | F5 | –  | 6          | 70 |

## Dimensions

Dimensions – Mounting bracket HRM

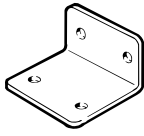
Download CAD data [www.festo.com](http://www.festo.com)

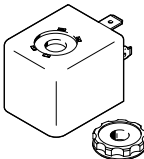
|       | B1 | B2   | B3 | D1 | D2 | H1 | H2 | L1 | L2   |
|-------|----|------|----|----|----|----|----|----|------|
|       |    |      |    | ∅  | ∅  |    |    |    | ±0,1 |
| HRM-1 | 25 | 12,5 | 2  | 6  | 5  | 37 | 10 | 40 | 25   |
| HRM-2 | 35 | 17,5 | 3  | 7  | 7  | 66 | 16 | 55 | 40   |
| HRM-3 | 47 | 23,5 | 3  | 9  | 7  | 87 | 23 | 75 | 59,5 |

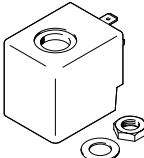
## Ordering data

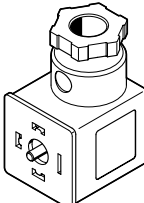
| Ordering data                                                                    |                          |              |                                                                 |          |                        |
|----------------------------------------------------------------------------------|--------------------------|--------------|-----------------------------------------------------------------|----------|------------------------|
|                                                                                  | Connection Process valve | Nominal size | Electrical connection                                           | Part no. | Type                   |
|  | G1/4                     | 13 mm        | Solenoid coil type MH-... , coil can be ordered as an accessory | 546162   | VZWM-L-M22C-G14-F5-R1  |
|                                                                                  |                          | 13.5 mm      | Solenoid coil type MD-... , coil can be ordered as an accessory | ★ 546146 | VZWM-L-M22C-G14-F4     |
|                                                                                  | G3/8                     | 13 mm        | Solenoid coil type MH-... , coil can be ordered as an accessory | ★ 546163 | VZWM-L-M22C-G38-F5-R1  |
|                                                                                  |                          | 13.5 mm      | Solenoid coil type MD-... , coil can be ordered as an accessory | ★ 546147 | VZWM-L-M22C-G38-F4     |
|                                                                                  | G1/2                     | 13 mm        | Solenoid coil type MH-... , coil can be ordered as an accessory | ★ 546164 | VZWM-L-M22C-G12-F5-R1  |
|                                                                                  |                          | 13.5 mm      | Solenoid coil type MD-... , coil can be ordered as an accessory | ★ 546148 | VZWM-L-M22C-G12-F4     |
|                                                                                  | G3/4                     | 25 mm        | Solenoid coil type MH-... , coil can be ordered as an accessory | 546165   | VZWM-L-M22C-G34-F5-R1  |
|                                                                                  |                          | 27.5 mm      | Solenoid coil type MD-... , coil can be ordered as an accessory | ★ 546149 | VZWM-L-M22C-G34-F4     |
|                                                                                  | G1                       | 25 mm        | Solenoid coil type MH-... , coil can be ordered as an accessory | ★ 546166 | VZWM-L-M22C-G1-F5-R1   |
|                                                                                  |                          | 27.5 mm      | Solenoid coil type MD-... , coil can be ordered as an accessory | ★ 546150 | VZWM-L-M22C-G1-F4      |
|                                                                                  | G1 1/4                   | 40 mm        | Solenoid coil type MH-... , coil can be ordered as an accessory | 546151   | VZWM-L-M22C-G114-F5    |
|                                                                                  |                          |              |                                                                 | 546167   | VZWM-L-M22C-G114-F5-R1 |
|                                                                                  | G1 1/2                   |              |                                                                 | 546152   | VZWM-L-M22C-G112-F5    |
|                                                                                  |                          |              |                                                                 | 546168   | VZWM-L-M22C-G112-F5-R1 |
|                                                                                  | G2                       | 50 mm        |                                                                 | 546169   | VZWM-L-M22C-G2-F5-R1   |
|                                                                                  |                          |              |                                                                 | 546153   | VZWM-L-M22C-G2-F5      |

## Accessories

| Mounting bracket HRM                                                              |                |          |       |
|-----------------------------------------------------------------------------------|----------------|----------|-------|
|                                                                                   | Product weight | Part no. | Type  |
|  | 39 g           | 9769     | HRM-1 |
|                                                                                   | 130 g          | 9770     | HRM-2 |
|                                                                                   | 246 g          | 9771     | HRM-3 |

| Solenoid coil for VZWM- ... -F4- ...                                              |                     |                |          |                |
|-----------------------------------------------------------------------------------|---------------------|----------------|----------|----------------|
|                                                                                   | Ambient temperature | Product weight | Part no. | Type           |
|  | -20 ... 50 °C       | 110 g          | 549905   | MD-2-230VAC-PA |
|                                                                                   |                     |                | ★ 549903 | MD-2-24VDC-PA  |
|                                                                                   |                     |                | 549904   | MD-2-110VAC-PA |

| Solenoid coil for VZWM- ... -F5- ...                                               |                     |                |          |                |
|------------------------------------------------------------------------------------|---------------------|----------------|----------|----------------|
|                                                                                    | Ambient temperature | Product weight | Part no. | Type           |
|  | -20 ... 50 °C       | 150 g          | 549906   | MH-2-24VDC-PA  |
|                                                                                    |                     |                | 549908   | MH-2-230VAC-PA |
|                                                                                    |                     |                | 549907   | MH-2-110VAC-PA |

| Plug socket                                                                         |                                                                      |          |        |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------|----------|--------|
|                                                                                     | Description                                                          | Part no. | Type   |
|  | 3-pin, square design, plug pattern according to EN 175301-803 form A | 550067   | MSSD-N |