

# Stepper motor EMMT-ST-42-S-R

Part number: 8156161

FESTO



 General operating condition

## Data sheet

| Feature                                              | Value                                                                                                 |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Ambient temperature                                  | 0 °C ... 40 °C                                                                                        |
| Note on ambient temperature                          | Up to 80°C with derating -2%/°C                                                                       |
| Max. installation height                             | 4000 m                                                                                                |
| Note on max. installation height                     | As of 1,000 m: only with derating of -1.0% per 100 m                                                  |
| Storage temperature                                  | -20 °C ... 70 °C                                                                                      |
| Relative air humidity                                | 0 - 90%<br>Non-condensing                                                                             |
| Conforms to standard                                 | IEC 60034                                                                                             |
| Temperature class as per EN 60034-1                  | B                                                                                                     |
| Max. winding temperature                             | 130 °C                                                                                                |
| Rating class as per EN 60034-1                       | S1                                                                                                    |
| Motor type to EN 60034-7                             | IM B5<br>IM V1<br>IM V3                                                                               |
| Mounting position                                    | optional                                                                                              |
| Degree of protection                                 | IP40                                                                                                  |
| Note on degree of protection                         | IP40 for motor shaft without rotary shaft seal<br>IP65 for motor housing, incl. connection technology |
| Interface code, motor out                            | 42A                                                                                                   |
| Electrical connection 1, connection type             | Hybrid plug                                                                                           |
| Electrical connection 1, connector system            | M17x0.75                                                                                              |
| Electrical connection 1, number of connections/cores | 12                                                                                                    |
| Electrical connection 1, connection pattern          | 00997532                                                                                              |
| Note on materials                                    | RoHS-compliant                                                                                        |
| Corrosion resistance class CRC                       | 0 - No corrosion stress                                                                               |
| LABS (PWIS) conformity                               | VDMA24364 zone III                                                                                    |
| Vibration resistance                                 | Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6                      |
| Shock resistance                                     | Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27                                     |
| Approval                                             | RCM trademark<br>c UL us - Recognized (OL)                                                            |
| CE mark (see declaration of conformity)              | To EU EMC Directive<br>In accordance with EU RoHS Directive                                           |
| UKCA marking (see declaration of conformity)         | To UK instructions for EMC<br>To UK RoHS instructions                                                 |
| Certificate issuing authority                        | UL E342973                                                                                            |
| Nominal operating voltage DC                         | 48 V                                                                                                  |
| Number of pole pairs                                 | 50                                                                                                    |

| Feature                                     | Value                    |
|---------------------------------------------|--------------------------|
| Motor holding torque                        | 0.25 Nm                  |
| Peak torque                                 | 0.25 Nm                  |
| Max. rotational speed                       | 2700 rpm                 |
| Max. mechanical speed                       | 9000 rpm                 |
| Stepper angle for complete step             | 1.8 deg                  |
| Stepping angle tolerance                    | ±5%                      |
| Continuous stall current                    | 2 A                      |
| Nominal motor current                       | 1.8 A                    |
| Peak current                                | 2 A                      |
| Motor constant                              | 0.133 Nm/A               |
| Voltage constant, phase                     | 12.1 mVmin               |
| Phase winding resistance                    | 2.1 Ohm                  |
| Phase winding inductance                    | 0.3 mH                   |
| Winding longitudinal inductivity Ld (phase) | 1.6 mH                   |
| Winding cross inductivity Lq (phase)        | 3 mH                     |
| Electric time constant                      | 1.4 ms                   |
| Thermal time constant                       | 22 min                   |
| Thermal resistance                          | 3.5 K/W                  |
| Measuring flange                            | 200 x 200 x 15 mm, steel |
| Total mass moment of inertia of output      | 0.035 kgcm <sup>2</sup>  |
| Product weight                              | 370 g                    |
| Permissible axial shaft load                | 10 N                     |
| Permissible radial shaft load               | 28 N                     |