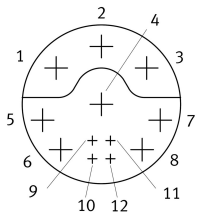
# Stepper motor
# EMMT-ST-42-S-RSB

Part number: 8156165






## 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 | Any |
| Degree of protection | IP40 |
| Note on degree of protection | IP40 motor shaft<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 |
| 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<br>c UL us - Recognised (Oil) |
| CE mark (see declaration of conformity) | To EU EMC Directive |

| Feature | Value |
|---|---|
| | 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 |
| Motor holding torque | 0.25 Nm |
| Nominal torque | 0.24 Nm |
| Peak torque | 0.25 Nm |
| Nominal rotary speed | 600 rpm |
| Max. rotational speed | 2700 rpm |
| Max. mechanical speed | 9000 rpm |
| Stepper angle for complete step | 1.8 deg |
| Stepping angle tolerance | ±5% |
| Nominal power rating of motor | 17 W |
| 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 | 0.041 kgcm² |
| Product weight | 590 g |
| Permissible axial shaft load | 10 N |
| Permissible radial shaft load | 28 N |
| Rotor position sensor | Absolute encoder, single turn |
| rotor position sensor, manufacturer designation | Festo iC-MHM |
| rotor position sensor, absolute detectable revolutions | 1 |
| Rotor position encoder interface | BiSS-C |
| Rotor position sensor, encoder measuring principle | magnetic |
| rotor position sensor, DC operating voltage | 5 V |
| rotor position sensor, DC operating voltage range | 4.75 V...5.25 V |
| Rotor pos. enc., sin/cosin p/r | 2 |
| rotor position sensor, position values per revolution | 65536 |
| Rotor position transducer resolution | 16 bit |
| rotor position sensor, system accuracy of angle measurement | -540 arcsec...540 arcsec |
| Brake holding torque | 0.63 Nm |
| Operating voltage DC for brake | 24 V |
| Brake current consumption | 0.34 A |
| Power consumption, brake | 8.2 W |
| Brake coil resistance | 70.9 Ohm |
| Brake coil inductivity | 146 mH |
| Brake separation time | 28 ms |
| Brake closing time | 41 ms |
| DC brake response delay | 8 ms |
| Max. brake no-load speed | 9000 rpm |

| Feature | Value |
|---|---|
| Max. friction per braking process | 1500 J |
| Number of emergency stops per hour | 1 |
| Mass moment of inertia of brake | 0.006 kgcm² |
| Switching cycles holding brake | 10 million idle actuations (without friction work!) |
| Mean time to failure (MTTF), subcomponent | 106 years, rotor position encoder |