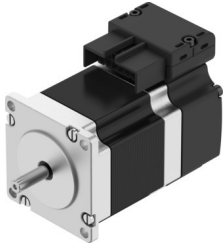


# Stepper motor EMMB-ST-57-M-SS

Part number: 8156138

FESTO



 General operating condition

## Data sheet

| Feature                                              | Value                                                                            |
|------------------------------------------------------|----------------------------------------------------------------------------------|
| Ambient temperature                                  | -15 °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                                 | IP20                                                                             |
| Note on degree of protection                         | IP40 for motor shaft without rotary shaft seal                                   |
| Interface code, motor out                            | 57A                                                                              |
| Electrical connection 1, connection type             | Hybrid plug                                                                      |
| Electrical connection 1, connector system            | Plug pattern L10                                                                 |
| Electrical connection 1, number of connections/cores | 14                                                                               |
| Electrical connection 1, connection pattern          | 00997534                                                                         |
| 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                                                                               |
| Motor holding torque                                 | 1.05 Nm                                                                          |

| Feature                                                     | Value                              |
|-------------------------------------------------------------|------------------------------------|
| Nominal torque                                              | 0.77 Nm                            |
| Peak torque                                                 | 1.1 Nm                             |
| Nominal rotary speed                                        | 1000 rpm                           |
| Max. rotational speed                                       | 2600 rpm                           |
| Max. mechanical speed                                       | 8000 rpm                           |
| Stepper angle for complete step                             | 1.8 deg                            |
| Stepping angle tolerance                                    | ±5%                                |
| Nominal power rating of motor                               | 81 W                               |
| Continuous stall current                                    | 6.1 A                              |
| Nominal motor current                                       | 5.1 A                              |
| Peak current                                                | 8 A                                |
| Motor constant                                              | 0.152 Nm/A                         |
| Voltage constant, phase                                     | 13.1 mVmin                         |
| Phase winding resistance                                    | 0.17 Ohm                           |
| Phase winding inductance                                    | 0.5 mH                             |
| Winding longitudinal inductivity Ld (phase)                 | 0.7 mH                             |
| Winding cross inductivity Lq (phase)                        | 0.5 mH                             |
| Electric time constant                                      | 2.9 ms                             |
| Thermal time constant                                       | 28 min                             |
| Thermal resistance                                          | 1.6 K/W                            |
| Measuring flange                                            | 200 x 200 x 15 mm, steel           |
| Total mass moment of inertia of output                      | 0.3 kgcm <sup>2</sup>              |
| Product weight                                              | 810 g                              |
| Permissible axial shaft load                                | 15 N                               |
| Permissible radial shaft load                               | 75 N                               |
| Rotor position sensor                                       | Absolute single-turn encoder       |
| 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         |
| Mean time to failure (MTTF), subcomponent                   | 9666 years, rotor position encoder |