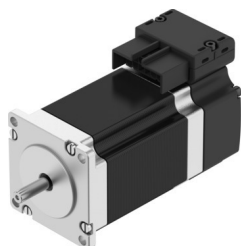


# Stepper motor EMMB-ST-57-L-SM

Part number: 8156145

**FESTO**



## 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                                                                               |
| Temperature monitoring                               | Dig. motor temp. via BiSS-C                                                      |
| 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                                                                               |
| 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                                                                    |
| 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                            |

| Feature                                                     | Value                            |
|-------------------------------------------------------------|----------------------------------|
| Nominal operating voltage DC                                | 48 V                             |
| Number of pole pairs                                        | 50                               |
| Motor holding torque                                        | 1800 Nm                          |
| Nominal torque                                              | 1580 Nm                          |
| Peak torque                                                 | 2100 Nm                          |
| Nominal rotary speed                                        | 500 rpm                          |
| Max. rotational speed                                       | 1500 rpm                         |
| Max. mechanical speed                                       | 8000 rpm                         |
| Stepper angle for complete step                             | 1.8 deg                          |
| Stepping angle tolerance                                    | ±5%                              |
| Nominal power rating of motor                               | 83 W                             |
| Continuous stall current                                    | 5800 A                           |
| Nominal motor current                                       | 5 A                              |
| Peak current                                                | 8 A                              |
| Motor constant                                              | 320 Nm/A                         |
| Voltage constant, phase                                     | 22600 mVmin                      |
| Phase winding resistance                                    | 260 Ohm                          |
| Phase winding inductance                                    | 950 mH                           |
| Winding longitudinal inductivity Ld (phase)                 | 1750 mH                          |
| Winding cross inductivity Lq (phase)                        | 950 mH                           |
| Electric time constant                                      | 3700 ms                          |
| Thermal time constant                                       | 32 min                           |
| Thermal resistance                                          | 1500 K/W                         |
| Measuring flange                                            | 200 x 200 x 15 mm, steel         |
| Total mass moment of inertia of output                      | 0.486 kgcm <sup>2</sup>          |
| Product weight                                              | 1170 g                           |
| Permissible axial shaft load                                | 15 N                             |
| Permissible radial shaft load                               | 75 N                             |
| Rotor position sensor                                       | Absolute multi-turn encoder      |
| rotor position sensor, manufacturer designation             | KCD-BC33B-1617-U09C-JAQ-009      |
| rotor position sensor, absolute detectable revolutions      | 65536                            |
| Rotor position encoder interface                            | BiSS-C                           |
| Rotor position sensor, encoder measuring principle          | Magnetic                         |
| rotor position sensor, DC operating voltage                 | 14 V                             |
| rotor position sensor, DC operating voltage range           | 4750 V...15000 V                 |
| Rotor pos. enc., sin/cosin p/r                              | 2                                |
| rotor position sensor, position values per revolution       | 131072                           |
| Rotor position transducer resolution                        | 17 bit                           |
| rotor position sensor, system accuracy of angle measurement | -310 arcsec...310 arcsec         |
| Mean time to failure (MTTF), subcomponent                   | 20 years, rotor position encoder |