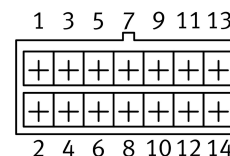
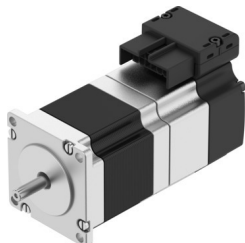


# Stepper motor EMMB-ST-57-M-SMB

Part number: 8156142

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                                                                               |
| Information on max. installation height        | with 1,000 m and longer 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                                                                            |
| Thermal class according to EN 60034-1          | B                                                                                    |
| Max. winding temperature                       | 130 °C                                                                               |
| Rating class according to EN 60034-1           | S1                                                                                   |
| Temperature monitoring                         | Dig. motor temp. via BiSS-C                                                          |
| Motor type as per EN 60034-7                   | IM B5<br>IM V1<br>IM V3                                                              |
| Mounting position                              | Any                                                                                  |
| 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, connection technology | Plug pattern L10                                                                     |
| Electrical connection 1, number of pins/wires  | 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 as per FN 942017-4 and EN 60068-2-6 |
| Shock resistance                               | Shock test with severity level 2 as per FN 942017-5 and EN 60068-2-27                |
| Certification                                  | RCM compliance mark                                                                  |
| CE marking (see declaration of conformity)     | As per EU EMC directive<br>As per 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                                                   | 1050 Nm                                             |
| Nominal torque                                                         | 770 Nm                                              |
| Peak torque                                                            | 1100 Nm                                             |
| Nominal rotary speed                                                   | 1000 rpm                                            |
| Max. rotational speed                                                  | 2600 rpm                                            |
| Max. mechanical speed                                                  | 8000 rpm                                            |
| Step angle with full step                                              | 1.8 deg                                             |
| Step angle tolerance                                                   | ±5%                                                 |
| Motor nominal power                                                    | 81 W                                                |
| Continuous stall current                                               | 6100 A                                              |
| Motor nominal current                                                  | 5100 A                                              |
| Peak current                                                           | 8 A                                                 |
| Motor constants                                                        | 152 Nm/A                                            |
| Voltage constant, phase                                                | 13100 mV/min                                        |
| Phase winding resistance                                               | 170 Ohm                                             |
| Winding inductance phase                                               | 500 mH                                              |
| Winding longitudinal inductivity Ld (phase)                            | 700 mH                                              |
| Cross inductivity Lq (phase)                                           | 500 mH                                              |
| Electric time constant                                                 | 2900 ms                                             |
| Thermal time constant                                                  | 28 min                                              |
| Thermal resistance                                                     | 1600 K/W                                            |
| Measuring flange                                                       | 200 x 200 x 15 mm, steel                            |
| Total output inertia moment                                            | 0.33 kgcm <sup>2</sup>                              |
| Product weight                                                         | 1220 g                                              |
| Permissible axial shaft load                                           | 15 N                                                |
| Permissible radial shaft load                                          | 75 N                                                |
| Rotor position sensor                                                  | Absolute encoder, multi-turn                        |
| Rotor position sensor for manufacturer designation                     | KCD-BC33B-1617-U09C-JAQ-009                         |
| Rotor position encoder for absolutely detectable revolutions           | 65536                                               |
| Rotor position sensor interface                                        | BiSS-C                                              |
| Rotor position sensor measuring principle                              | Magnetic                                            |
| Rotor position encoder for DC operating voltage                        | 14 V                                                |
| Rotor position encoder for DC operating voltage range                  | 4750 V...15000 V                                    |
| Rotor position encoder, sinusoidal/cosinusoidal periods per revolution | 2                                                   |
| Rotor position encoder for positional values per revolution            | 131072                                              |
| Rotor position sensor resolution                                       | 17 bit                                              |
| Rotor position encoder system accuracy angle measurement               | -310 arcsec...310 arcsec                            |
| Brake holding torque                                                   | 1740 Nm                                             |
| Brake DC operating voltage                                             | 24 V                                                |
| Brake current consumption                                              | 380 A                                               |
| Brake power consumption                                                | 9 W                                                 |
| Brake coil resistance                                                  | 63800 Ohm                                           |
| Brake coil inductivity                                                 | 107 mH                                              |
| Brake separation time                                                  | 32 ms                                               |
| Brake closing time                                                     | 97 ms                                               |
| DC brake response delay                                                | 11 ms                                               |
| Max. brake no-load speed                                               | 8000 rpm                                            |
| Max. brake friction work                                               | 6000 J                                              |
|                                                                        | 1                                                   |
| Brake mass moment of inertia                                           | 0.024 kgcm <sup>2</sup>                             |
| Switching cycles, holding brake                                        | 10 million idle actuations (without friction work!) |

| Feature            | Value                            |
|--------------------|----------------------------------|
| MTTF, subcomponent | 20 years, rotor position encoder |