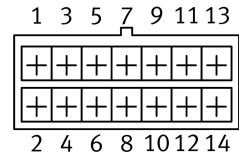
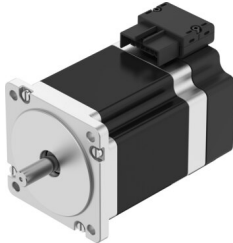


# Stepper motor EMMB-ST-87-M-SS

Part number: 8156156

**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                                                                                   |
| 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 Motor shaft                                                                     |
| Interface code, motor out                      | 87A                                                                                  |
| 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<br>c UL us - Recognized (OL)                                     |
| 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                             |
|------------------------------------------------------------------------|-----------------------------------|
| Certificate issuing authority                                          | UL E342973                        |
| Nominal operating voltage DC                                           | 48 V                              |
| Number of pole pairs                                                   | 50                                |
| Motor holding torque                                                   | 6.6 Nm                            |
| Nominal torque                                                         | 5.9 Nm                            |
| Peak torque                                                            | 6.8 Nm                            |
| Nominal rotary speed                                                   | 140 rpm                           |
| Max. rotational speed                                                  | 600 rpm                           |
| Max. mechanical speed                                                  | 7000 rpm                          |
| Step angle with full step                                              | 1.8 deg                           |
| Step angle tolerance                                                   | ±5%                               |
| Motor nominal power                                                    | 87 W                              |
| Continuous stall current                                               | 8.2 A                             |
| Motor nominal current                                                  | 7.5 A                             |
| Peak current                                                           | 12 A                              |
| Motor constants                                                        | 0.79 Nm/A                         |
| Voltage constant, phase                                                | 56.6 mVmin                        |
| Phase winding resistance                                               | 0.27 Ohm                          |
| Winding inductance phase                                               | 2.3 mH                            |
| Winding longitudinal inductivity Ld (phase)                            | 3.6 mH                            |
| Cross inductivity Lq (phase)                                           | 2.3 mH                            |
| Electric time constant                                                 | 8.5 ms                            |
| Thermal time constant                                                  | 33 min                            |
| Thermal resistance                                                     | 0.88 K/W                          |
| Measuring flange                                                       | 250 x 250 x 15 mm, steel          |
| Total output inertia moment                                            | 1.9 kgcm <sup>2</sup>             |
| Product weight                                                         | 3320 g                            |
| Permissible axial shaft load                                           | 60 N                              |
| Permissible radial shaft load                                          | 220 N                             |
| Rotor position sensor                                                  | Absolute encoder, single-turn     |
| Rotor position sensor for manufacturer designation                     | Festo iC-MHM                      |
| Rotor position encoder for absolutely detectable revolutions           | 1                                 |
| Rotor position sensor interface                                        | BiSS-C                            |
| Rotor position sensor measuring principle                              | Magnetic                          |
| Rotor position encoder for DC operating voltage                        | 5 V                               |
| Rotor position encoder for DC operating voltage range                  | 4.75 V...5.25 V                   |
| Rotor position encoder, sinusoidal/cosinusoidal periods per revolution | 2                                 |
| Rotor position encoder for positional values per revolution            | 65536                             |
| Rotor position sensor resolution                                       | 16 bit                            |
| Rotor position encoder system accuracy angle measurement               | -540 arcsec...540 arcsec          |
| MTTF, subcomponent                                                     | 106 years, rotor position encoder |