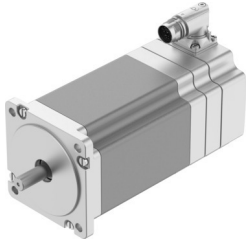


# Stepper motor EMMT-ST-87-L-RB

Part number: 8156200

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 %                                                                                              |
| 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                           | IP40                                                                                                  |
| Note on degree of protection                   | IP40 for motor shaft without rotary shaft seal<br>IP65 for motor housing, incl. connection technology |
| Interface code, motor out                      | 87A                                                                                                   |
| Electrical connection 1, connection type       | Hybrid plug                                                                                           |
| Electrical connection 1, connection technology | M17x0.75                                                                                              |
| Electrical connection 1, number of pins/wires  | 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 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                                                   |

| Feature                                      | Value                                                 |
|----------------------------------------------|-------------------------------------------------------|
| 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                         | 9.4 Nm                                                |
| Peak torque                                  | 9.4 Nm                                                |
| Max. rotational speed                        | 430 rpm                                               |
| Max. mechanical speed                        | 7000 rpm                                              |
| Step angle with full step                    | 1.8 deg                                               |
| Step angle tolerance                         | ±5%                                                   |
| Continuous stall current                     | 10 A                                                  |
| Motor nominal current                        | 8.4 A                                                 |
| Peak current                                 | 10 A                                                  |
| Motor constants                              | 1.06 Nm/A                                             |
| Voltage constant, phase                      | 78.9 mVmin                                            |
| Phase winding resistance                     | 0.3 Ohm                                               |
| Winding inductance phase                     | 2.7 mH                                                |
| Winding longitudinal inductivity Ld (phase)  | 4.1 mH                                                |
| Cross inductivity Lq (phase)                 | 2.7 mH                                                |
| Electric time constant                       | 9 ms                                                  |
| Thermal time constant                        | 37 min                                                |
| Thermal resistance                           | 0.75 K/W                                              |
| Measuring flange                             | 250 x 250 x 15 mm, steel                              |
| Total output inertia moment                  | 3.11 kgcm <sup>2</sup>                                |
| Product weight                               | 5490 g                                                |
| Permissible axial shaft load                 | 60 N                                                  |
| Permissible radial shaft load                | 220 N                                                 |
| Brake holding torque                         | 4.26 Nm                                               |
| Brake DC operating voltage                   | 24 V                                                  |
| Brake current consumption                    | 0.49 A                                                |
| Brake power consumption                      | 12 W                                                  |
| Brake coil resistance                        | 49.2 Ohm                                              |
| Brake coil inductivity                       | 110 mH                                                |
| Brake separation time                        | 44 ms                                                 |
| Brake closing time                           | 110 ms                                                |
| DC brake response delay                      | 30 ms                                                 |
| Max. brake no-load speed                     | 7000 rpm                                              |
| Max. brake friction work                     | 14000 J                                               |
| Brake mass moment of inertia                 | 0.11 kgcm <sup>2</sup>                                |
| Switching cycles, holding brake              | 10 million idle actuations (without friction work!)   |