

# Servo motor EMMT-AS-60-S-LS-RMYB

Part number: 8160631

FESTO



 General operating condition

## Data sheet

| Feature   | Value  |
|---|--|
| Ambient temperature                                       | -40 °C ... 40 °C   |
| Note on ambient temperature                               | Up to 80°C with derating of -1.5% per degree Celsius                             |
| 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                                       | -40 °C ... 70 °C   |
| Relative air humidity                                     | 0 - 90%  |
| Conforms to standard                                      | IEC 60034  |
| Temperature class as per EN 60034-1                       | F  |
| Max. winding temperature                                  | 155 °C   |
| Rating class as per EN 60034-1                            | S1   |
| Temperature monitoring                                    | Digital motor temperature transmission via EnDat® 2.2                            |
| Motor type to EN 60034-7                                  | IM V1<br>IM V3   |
| Mounting position   | Any  |
| Degree of protection                                      | IP40   |
| Note on degree of protection                              | IP67 for motor housing including connection components                           |
| Concentricity, coaxiality, axial runout to DIN SPEC 42955 | N  |
| Balance quality   | G 2.5  |
| Detent torque   | <1.0% of peak torque   |
| Bearing lifetime under nominal conditions                 | 20000 h  |
| Interface code, motor out                                 | 60P  |
| Electrical connection 1, connection type                  | Hybrid plug  |
| Electrical connection 1, connector system                 | M23x1  |
| Electrical connection 1, number of connections/cores      | 15   |
| Electrical connection 1, connection pattern               | 00995913   |
| Pollution degree  | 2  |
| 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<br>German Technical Control Board (TÜV)<br>c UL us - Recognised (Oil)        |

| Feature   | Value  |
|---|--|
| CE mark (see declaration of conformity)                     | To EU EMC Directive<br>To EU Low Voltage Directive<br>In accordance with EU RoHS Directive |
| UKCA marking (see declaration of conformity)                | To UK RoHS instructions<br>To UK regulations for electrical equipment                      |
| Certificate issuing authority                               | TÜV 968/INS 464.00/24<br>UL E342973  |
| Nominal operating voltage DC                                | 325 V  |
| Type of winding switch                                      | Star inside  |
| Number of pole pairs  | 5  |
| Standstill torque   | 0.66 Nm  |
| Nominal torque  | 0.6 Nm   |
| Peak torque   | 1.6 Nm   |
| Nominal rotary speed  | 3000 rpm   |
| Max. rotational speed                                       | 7100 rpm   |
| Max. mechanical speed                                       | 16000 rpm  |
| Angular acceleration  | $\leq 100000 \text{ rad/s}^2$  |
| Nominal power rating of motor                               | 190 W  |
| Continuous stall current                                    | 1.6 A  |
| Nominal motor current                                       | 1.4 A  |
| Peak current  | 5.4 A  |
| Motor constant  | 0.41 Nm/A  |
| Standstill torque constant                                  | 0.49 Nm/A  |
| Voltage constant, phase-to-phase                            | 29.9 mVmin   |
| Phase-phase winding resistance                              | 11.7 Ohm   |
| Phase-phase winding inductance                              | 38 mH  |
| Winding longitudinal inductivity Ld (phase)                 | 15.5 mH  |
| Winding cross inductivity Lq (phase)                        | 19 mH  |
| Electric time constant                                      | 2.1 ms   |
| Thermal time constant                                       | 41 min   |
| Thermal resistance  | 1.5 K/W  |
| Measuring flange  | 250 x 250 x 15 mm, steel   |
| Total mass moment of inertia of output                      | 0.257 kgcm <sup>2</sup>  |
| Product weight  | 1500 g   |
| Permissible axial shaft load                                | 70 N   |
| Permissible radial shaft load                               | 350 N  |
| Rotor position sensor                                       | Absolute multi-turn safety encoder   |
| rotor position sensor, manufacturer designation             | EQI 1131   |
| rotor position sensor, absolute detectable revolutions      | 4096   |
| Rotor position encoder interface                            | EnDat 22   |
| Rotor position sensor, encoder measuring principle          | Inductive  |
| rotor position sensor, DC operating voltage                 | 5 V  |
| rotor position sensor, DC operating voltage range           | 3.6 V ... 14 V   |
| rotor position sensor, position values per revolution       | 524288   |
| Rotor position transducer resolution                        | 19 bit   |
| rotor position sensor, system accuracy of angle measurement | -120 arcsec ... 120 arcsec   |
| Brake holding torque  | 2.5 Nm   |
| Operating voltage DC for brake                              | 24 V   |
| Brake current consumption                                   | 0.46 A   |
| Power consumption, brake                                    | 11 W   |
| Brake coil resistance                                       | 52.4 Ohm   |
| Brake coil inductivity                                      | 700 mH   |
| Brake separation time                                       | $\leq 35 \text{ ms}$   |
| Brake closing time  | 10 ms  |

| Feature                                | Value   |
|--|---|
| DC brake response delay                | ≤2 ms   |
| Max. brake no-load speed               | 10000 rpm   |
| Max. friction per braking process      | 5600 J  |
| Number of emergency stops per hour     | 1   |
| Total brake friction                   | 615 kJ  |
| Mass moment of inertia of brake        | 0.074 kgcm <sup>2</sup>   |
| Switching cycles holding brake         | 10 million idle actuations (without friction work!)   |
| Safety device                          | Safety device   |
| Maximum SIL                            | Safety integrity level 3<br>See user documentation  |
| Safety sub-functions up to SIL2        | Reliable recording and transmission of single-turn position data  |
| Safety sub-functions up to SIL3        | Reliable recording and transmission of single-turn position data, only with additional software function in the servo drive |
| Maximum PL and category                | Performance Level e, category 3<br>See user documentation   |
| Safety sub-function up to PL d, Cat. 3 | Reliable recording and transmission of single-turn position data  |
| Safety sub-function up to PL e, Cat. 3 | Reliable recording and transmission of single-turn position data, only with additional software function in the servo drive |
| PFHd, subcomponent                     | 15 x 10E-9, encoder   |
| Duration of use Tm, subcomponent       | 20 years, rotor position encoder  |