

# Servo motor EMMT-AS-60-M-HS-RMB

Part number: 5242211

FESTO



## Data sheet

| Feature   | Value   |
|---|---|
| Ambient temperature                                       | -15 °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                                       | -20 °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 B5<br>IM V1<br>IM V3   |
| Mounting position   | optional  |
| Degree of protection                                      | IP40  |
| Note on degree of protection                              | IP40 for motor shaft without rotary shaft seal<br>IP65 for motor shaft with rotary shaft seal<br>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 the 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  |
| 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  |

| Feature   | Value   |
|---|---|
| Shock resistance  | Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27                                   |
| Approval  | RCM trademark<br>c UL us - Recognized (OL)  |
| CE mark (see declaration of conformity)                     | To EU EMC Directive<br>To EU Low Voltage Directive<br>In accordance with EU RoHS Directive          |
| CE marking (see declaration of conformity)                  | To UK instructions for EMC<br>To UK RoHS instructions<br>To UK regulations for electrical equipment |
| Certificate issuing authority                               | UL E342973  |
| Nominal operating voltage DC                                | 680 V   |
| Type of winding switch                                      | Star inside   |
| Number of pole pairs  | 5   |
| Standstill torque   | 1.15 Nm   |
| Nominal torque  | 1 Nm  |
| Peak torque   | 3.4 Nm  |
| Nominal rotary speed  | 3000 rpm  |
| Max. rotational speed                                       | 14200 rpm   |
| Max. mechanical speed                                       | 16000 rpm   |
| Nominal power rating of motor                               | 310 W   |
| Continuous stall current                                    | 2.5 A   |
| Nominal motor current                                       | 2.2 A   |
| Peak current  | 11 A  |
| Motor constant  | 0.45 Nm/A   |
| Standstill torque constant                                  | 0.53 Nm/A   |
| Voltage constant, phase-to-phase                            | 32 mVmin  |
| Phase-phase winding resistance                              | 4.85 Ohm  |
| Phase-phase winding inductance                              | 20 mH   |
| Winding longitudinal inductivity Ld (phase)                 | 8 mH  |
| Winding cross inductivity Lq (phase)                        | 10 mH   |
| Electric time constant                                      | 2.7 ms  |
| Thermal time constant                                       | 42 min  |
| Thermal resistance  | 1.3 K/W   |
| Measuring flange  | 250 x 250 x 15 mm, steel  |
| Total mass moment of inertia of output                      | 0.373 kgcm <sup>2</sup>   |
| Product weight  | 1850 g  |
| Permissible axial shaft load                                | 70 N  |
| Permissible radial shaft load                               | 350 N   |
| Rotor position sensor                                       | Absolute multi-turn 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  |

| <b>Feature</b>                            | <b>Value</b>  |
|---|---|
| Brake separation time                     | 35 ms   |
| Brake closing time                        | 10 ms   |
| DC brake response delay                   | 2 ms  |
| Max. brake no-load speed                  | 10000 rpm   |
| Brake max. friction work                  | 5600 J  |
| Mass moment of inertia of brake           | 0.074 kgcm <sup>2</sup>                             |
| Switching cycles holding brake            | 10 million idle actuations (without friction work!) |
| Mean time to failure (MTTF), subcomponent | 190 years, rotor position sensor                    |