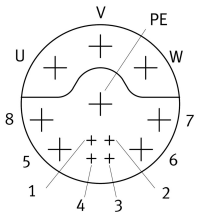
# Servo motor
# EMMH-AS-138-MA-HS-S1MB-T

Part number: 8215367






## Data sheet

| Feature | Value |
|---|---|
| Ambient temperature | -30 °C...40 °C |
| Note on ambient temperature | Up to 80°C with derating -2%/°C |
| Max. installation height | 3000 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 - 100% |
| 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 B14<br>IM V18 |
| Mounting position | Any |
| Degree of protection | IP69K |
| 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 | 138C |
| Electrical connection 1, connection type | Hybrid plug |
| Electrical connection 1, connector system | M21x1 |
| Electrical connection 1, number of connections/cores | 15 |
| Pollution degree | 2 |
| Note on materials | RoHS compliant |
| Corrosion resistance class CRC | 4 - Very high corrosion stress<br>(except laser marking) |
| LABS (PWIS) conformity | VDMA24364 zone III |
| Suitable for use with food | Approved for direct contact with food |
| Vibration resistance | As per EN 60068-2-6 |

| Feature | Value |
|---|---|
| Shock resistance | As per EN 60068-2-29<br>15 g/11 ms to EN 60068-2-27 |
| Approval | RCM<br>c UL us - Recognised (Oil) |
| 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 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 | 11 Nm |
| Nominal torque | 6.2 Nm |
| Peak torque | 33.3 Nm |
| Nominal rotary speed | 2000 rpm |
| Max. rotational speed | 4590 rpm |
| Max. mechanical speed | 5000 rpm |
| Angular acceleration | 100000 rad/s² |
| Nominal power rating of motor | 1300 W |
| Continuous stall current | 7.4 A |
| Nominal motor current | 4.3 A |
| Peak current | 23.1 A |
| Motor constant | 1.47 Nm/A |
| Standstill torque constant | 1.51 Nm/A |
| Voltage constant, phase-to-phase | 97.6 mVmin |
| Phase-phase winding resistance | 0.89 Ohm |
| Phase-phase winding inductance | 8.8 mH |
| Winding longitudinal inductivity Ld (phase) | 3.9 mH |
| Winding cross inductivity Lq (phase) | 4.4 mH |
| Electric time constant | 9.8 ms |
| Thermal time constant | 100 min |
| Thermal resistance | 0.68 K/W |
| Measuring flange | 300 x 300 x 30 mm, steel |
| Mass moment of inertia of rotor | 9.78 kgcm² |
| Total mass moment of inertia of output | 12.1 kgcm² |
| Product weight | 14400 g |
| Permissible axial shaft load | 227 N |
| Permissible radial shaft load | 1135 N |
| Rotor position sensor | Absolute encoder, multi-turn |
| rotor position sensor, manufacturer designation | EQI 1331 |
| 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 | -65 arcsec...65 arcsec |
| Brake holding torque | 20 Nm |
| Operating voltage DC for brake | 24 V |
| Brake current consumption | 0.68 A |

| Feature | Value |
|---|---|
| Power consumption, brake | 16.4 W |
| Brake coil resistance | 35.3 Ohm |
| Brake coil inductivity | 3200 mH |
| Brake separation time | 90 ms |
| Brake closing time | 81 ms |
| DC brake response delay | 10 ms |
| Max. brake no-load speed | 10000 rpm |
| Max. friction per braking process | 1980 J |
| Number of emergency stops per hour | 1 |
| Total brake friction | 1980 kJ |
| Mass moment of inertia of brake | 2.32 kgcm² |
| Switching cycles holding brake | 10 million idle actuations (without friction work!) |
| Mean time to failure (MTTF), subcomponent | 190 years, rotor position encoder |
| Energy efficiency | ENEFF (CN) / Class 2 |