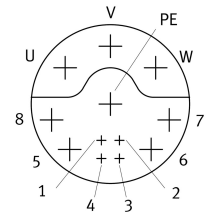


# Servo motor EMMH-AS-88-MA-HS-S1MB-T

Part number: 8215351

**FESTO**



## Data sheet

| Feature                                                   | Value                                                    |
|-----------------------------------------------------------|----------------------------------------------------------|
| Ambient temperature                                       | -30 °C...40 °C                                           |
| Note on ambient temperature                               | Up to 80°C with derating of -1.5% per degree Celsius     |
| 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                                         | optional                                                 |
| 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                                 | 88C                                                      |
| Electrical connection 1, connection type                  | Hybrid plug                                              |
| Electrical connection 1, connector system                 | M17x0.75                                                 |
| 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 trademark                                                                                       |
| 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 |
| Nominal operating voltage DC                                | 680 V                                                                                               |
| Type of winding switch                                      | Star inside                                                                                         |
| Number of pole pairs                                        | 5                                                                                                   |
| Standstill torque                                           | 2 Nm                                                                                                |
| Nominal torque                                              | 1.2 Nm                                                                                              |
| Peak torque                                                 | 6.8 Nm                                                                                              |
| Nominal rotary speed                                        | 3100 rpm                                                                                            |
| Max. rotational speed                                       | 8000 rpm                                                                                            |
| Max. mechanical speed                                       | 8000 rpm                                                                                            |
| Angular acceleration                                        | 100000 rad/s <sup>2</sup>                                                                           |
| Nominal power rating of motor                               | 390 W                                                                                               |
| Continuous stall current                                    | 2.7 A                                                                                               |
| Nominal motor current                                       | 1.8 A                                                                                               |
| Peak current                                                | 9.5 A                                                                                               |
| Motor constant                                              | 0.69 Nm/A                                                                                           |
| Standstill torque constant                                  | 0.74 Nm/A                                                                                           |
| Voltage constant, phase-to-phase                            | 49.6 mVmin                                                                                          |
| Phase-phase winding resistance                              | 3.6 Ohm                                                                                             |
| Phase-phase winding inductance                              | 15 mH                                                                                               |
| Winding longitudinal inductivity Ld (phase)                 | 6.8 mH                                                                                              |
| Winding cross inductivity Lq (phase)                        | 7.5 mH                                                                                              |
| Electric time constant                                      | 3.5 ms                                                                                              |
| Thermal time constant                                       | 61 min                                                                                              |
| Thermal resistance                                          | 1.14 K/W                                                                                            |
| Measuring flange                                            | 300 x 300 x 30 mm, steel                                                                            |
| Mass moment of inertia of rotor                             | 1.12 kgcm <sup>2</sup>                                                                              |
| Total mass moment of inertia of output                      | 1.53 kgcm <sup>2</sup>                                                                              |
| Product weight                                              | 5200 g                                                                                              |
| Permissible axial shaft load                                | 76 N                                                                                                |
| Permissible radial shaft load                               | 380 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                                        | 6 Nm                                                                                                |
| Operating voltage DC for brake                              | 24 V                                                                                                |
| Brake current consumption                                   | 0.5 A                                                                                               |
| Power consumption, brake                                    | 12 W                                                                                                |
| Brake coil resistance                                       | 48 Ohm                                                                                              |

| Feature                                   | Value                                               |
|-------------------------------------------|-----------------------------------------------------|
| Brake coil inductivity                    | 2100 mH                                             |
| Brake separation time                     | 50 ms                                               |
| Brake closing time                        | 45 ms                                               |
| DC brake response delay                   | 10 ms                                               |
| Max. brake no-load speed                  | 10000 rpm                                           |
| Max. friction per braking process         | 570 J                                               |
| Number of emergency stops per hour        | 1                                                   |
| Total brake friction                      | 570 kJ                                              |
| Mass moment of inertia of brake           | 0.41 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                    |