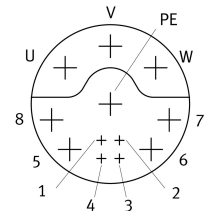


# Servo motor

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

Part number: 8215367

**FESTO**



## 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                                                           |
| 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 - 100%                                                         |
| Conforms to standard                                                | IEC 60034                                                        |
| Thermal class according to EN 60034-1                               | F                                                                |
| Max. winding temperature                                            | 155 °C                                                           |
| Rating class according to EN 60034-1                                | S1                                                               |
| Temperature monitoring                                              | Digital motor temperature transmission via EnDat® 2.2            |
| Motor type as per EN 60034-7                                        | IM B14<br>IM V18                                                 |
| Mounting position                                                   | Any                                                              |
| Degree of protection                                                | IP69K                                                            |
| Concentricity, coaxiality, axial runout according to DIN SPEC 42955 | N                                                                |
| Balancing 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, connection technology                      | M17x0.75                                                         |
| Electrical connection 1, number of pins/wires                       | 15                                                               |
| Contamination level                                                 | 2                                                                |
| Note on materials                                                   | RoHS compliant                                                   |
| Corrosion resistance class (CRC)                                    | 4 - Particularly high corrosion stress<br>(except laser marking) |
| LABS (PWIS) conformity                                              | VDMA24364 Zone III                                               |
| For use in the food industry                                        | Approved for direct food contact                                 |
| Vibration resistance                                                | as per EN 60068-2-6                                              |

| Feature                                                      | Value                                                                                                |
|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Shock resistance                                             | as per EN 60068-2-29<br>15 g/11 ms as per EN 60068-2-27                                              |
| Certification                                                | RCM compliance mark                                                                                  |
| CE marking (see declaration of conformity)                   | As per EU EMC directive<br>As per EU low voltage directive<br>As per EU RoHS directive               |
| UKCA marking (see declaration of conformity)                 | To UK instructions for EMC<br>To UK RoHS instructions<br>To UK instructions for electrical equipment |
| Nominal operating voltage DC                                 | 680 V                                                                                                |
| Type of winding switch                                       | Star inside                                                                                          |
| Number of pole pairs                                         | 5                                                                                                    |
| Stall 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/s <sup>2</sup>                                                                            |
| Motor nominal power                                          | 1300 W                                                                                               |
| Continuous stall current                                     | 7.4 A                                                                                                |
| Motor nominal current                                        | 4.3 A                                                                                                |
| Peak current                                                 | 23.1 A                                                                                               |
| Motor constants                                              | 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                                                                                             |
| Winding inductance phase-phase                               | 8.8 mH                                                                                               |
| Winding longitudinal inductivity Ld (phase)                  | 3.9 mH                                                                                               |
| 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                                                                             |
| Rotor mass moment of inertia                                 | 9.78 kgcm <sup>2</sup>                                                                               |
| Total output inertia moment                                  | 12.1 kgcm <sup>2</sup>                                                                               |
| Product weight                                               | 14400 g                                                                                              |
| Permissible axial shaft load                                 | 227 N                                                                                                |
| Permissible radial shaft load                                | 1135 N                                                                                               |
| Rotor position sensor                                        | Absolute multi-turn encoder                                                                          |
| Rotor position sensor for manufacturer designation           | EQI 1331                                                                                             |
| Rotor position encoder for absolutely detectable revolutions | 4096                                                                                                 |
| Rotor position sensor interface                              | EnDat 22                                                                                             |
| Rotor position sensor measuring principle                    | Inductive                                                                                            |
| Rotor position encoder for DC operating voltage              | 5 V                                                                                                  |
| Rotor position encoder for DC operating voltage range        | 3.6 V...14 V                                                                                         |
| Rotor position encoder for positional values per revolution  | 524288                                                                                               |
| Rotor position sensor resolution                             | 19 bit                                                                                               |
| Rotor position encoder system accuracy angle measurement     | -65 arcsec...65 arcsec                                                                               |
| Brake holding torque                                         | 20 Nm                                                                                                |
| Brake DC operating voltage                                   | 24 V                                                                                                 |
| Brake current consumption                                    | 0.68 A                                                                                               |
| Brake power consumption                                      | 16.4 W                                                                                               |
| Brake coil resistance                                        | 35.3 Ohm                                                                                             |

| Feature                                  | Value                                               |
|------------------------------------------|-----------------------------------------------------|
| 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 work per braking operation | 1980 J                                              |
| Number of emergency stops per hour       | 1                                                   |
| Total brake friction work                | 1980 kJ                                             |
| Brake mass moment of inertia             | 2.32 kgcm <sup>2</sup>                              |
| Switching cycles, holding brake          | 10 million idle actuations (without friction work!) |
| MTTF, subcomponent                       | 190 years, rotor position encoder                   |