

# Servo motor EMMT-AS-100-S-HS-RMB

Part number: 5255529

FESTO



 General operating condition

## 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                                 | 100A                                                                                                                                                    |
| 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 trademark<br>c UL us - Recognized (OL)                                                                                                              |

| 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          |
| 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                                           | 6.3 Nm                                                                                              |
| Nominal torque                                              | 5.1 Nm                                                                                              |
| Peak torque                                                 | 13.7 Nm                                                                                             |
| Nominal rotary speed                                        | 2700 rpm                                                                                            |
| Max. rotational speed                                       | 4770 rpm                                                                                            |
| Max. mechanical speed                                       | 13000 rpm                                                                                           |
| Nominal power rating of motor                               | 1450 W                                                                                              |
| Continuous stall current                                    | 4.4 A                                                                                               |
| Nominal motor current                                       | 3.5 A                                                                                               |
| Peak current                                                | 13.7 A                                                                                              |
| Motor constant                                              | 1.45 Nm/A                                                                                           |
| Standstill torque constant                                  | 1.67 Nm/A                                                                                           |
| Voltage constant, phase-to-phase                            | 101 mV/min                                                                                          |
| Phase-phase winding resistance                              | 3.35 Ohm                                                                                            |
| Phase-phase winding inductance                              | 32.4 mH                                                                                             |
| Winding longitudinal inductivity Ld (phase)                 | 17.8 mH                                                                                             |
| Winding cross inductivity Lq (phase)                        | 24.3 mH                                                                                             |
| Electric time constant                                      | 14.5 ms                                                                                             |
| Thermal time constant                                       | 74 min                                                                                              |
| Thermal resistance                                          | 0.6 K/W                                                                                             |
| Measuring flange                                            | 300 x 300 x 20 mm, steel                                                                            |
| Total mass moment of inertia of output                      | 4.04 kgcm <sup>2</sup>                                                                              |
| Product weight                                              | 6700 g                                                                                              |
| Permissible axial shaft load                                | 200 N                                                                                               |
| Permissible radial shaft load                               | 1110 N                                                                                              |
| Rotor position sensor                                       | Absolute multi-turn encoder                                                                         |
| 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                                        | 11 Nm                                                                                               |
| Operating voltage DC for brake                              | 24 V                                                                                                |
| Brake current consumption                                   | 0.75 A                                                                                              |
| Power consumption, brake                                    | 18 W                                                                                                |
| Brake coil resistance                                       | 32 Ohm                                                                                              |
| Brake coil inductivity                                      | 900 mH                                                                                              |
| Brake separation time                                       | ≤80 ms                                                                                              |
| Brake closing time                                          | ≤20 ms                                                                                              |
| DC brake response delay                                     | ≤4 ms                                                                                               |

| Feature                                   | Value                                               |
|-------------------------------------------|-----------------------------------------------------|
| Max. brake no-load speed                  | 10000 rpm                                           |
| Brake max. friction work                  | 12000 J                                             |
| Mass moment of inertia of brake           | 0.74 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                    |
| Energy efficiency                         | ENEFF (CN) / Class 2                                |