

Heavy Duty Drive Solution.

EC motor Ø22 mm, brushless, 80 Watt.



Key Features

- Withstands extreme temperatures (-55...200°C)
- Withstands high shock loads and vibrations
- High reliability, even in harsh environments

The motor is designed to withstand harsh environments, such as extreme temperatures, high shock loads and vibrations, as well as high ambient pressure or vacuum. Even submerged operation in oil is possible.

Faultless operation has been demonstrated in an extended ambient temperature range of -55°C up to 200°C – all internal components are designed to withstand temperatures of at least 240°C.

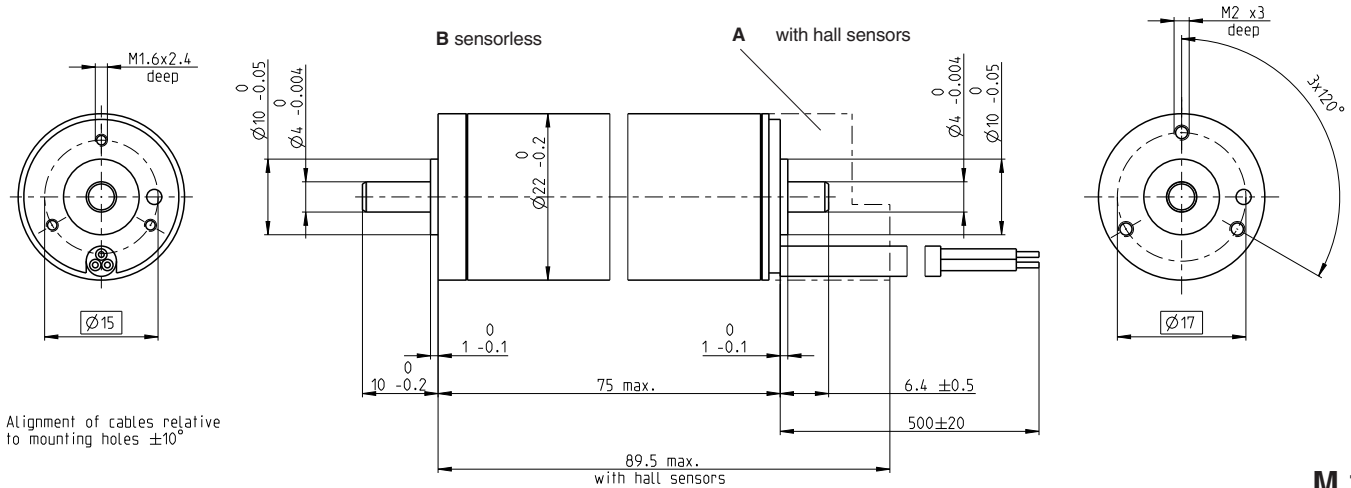
External shock loads and vibrations can be absorbed over the entire temperature range without damaging the motor.

The motor is available both with and without Hall sensors. If required Hall sensors come as a package added to the back of the motor in a similar style to that of an encoder (see drawing).

EC 22 Ø22 mm, brushless, 80 Watt

Heavy Duty

NEW



- Stock program
- Standard program
- Special program (on request)

Order Number

| | |
|---------------------|--------|
| A with Hall Sensors | 378170 |
| B sensorless | 376435 |

Motor Data (provisional)

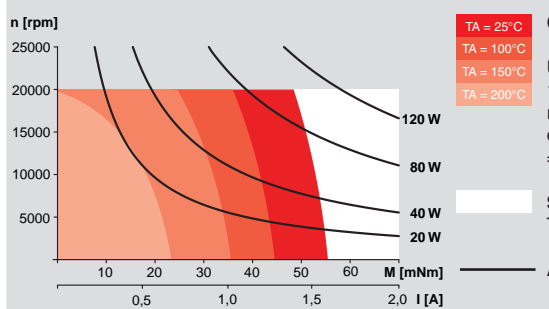
| Values at nominal voltage and ambient temperature °C | 25 | 100 | 150 | 200 |
|---|------------------|-------|-------|-------|
| 1 Nominal voltage | V | 28 | 28 | 28 |
| 2 No load speed | rpm | 7730 | 7930 | 8210 |
| 3 No load current | mA | 43.6 | 36.2 | 38.1 |
| 4 Nominal speed ¹⁾ | rpm | 4890 | 5590 | 6190 |
| 5 Nominal torque (max. continuous torque) ¹⁾ | mNm | 54.5 | 43.2 | 33.7 |
| 6 Nominal current (max. continuous current) | A | 1.73 | 1.38 | 1.09 |
| 7 Stall torque | mNm | 268 | 202 | 172 |
| 8 Starting current | A | 7.8 | 6.03 | 5.24 |
| 9 Max. efficiency | % | 85.8 | 85.3 | 84.1 |
| Characteristics | | | | |
| 10 Terminal resistance phase to phase | Ω | 3.59 | 4.64 | 5.35 |
| 11 Terminal inductance phase to phase | mH | 0.357 | 0.357 | 0.357 |
| 12 Torque constant | mNm/A | 34.4 | 33.5 | 32.9 |
| 13 Speed constant | rpm/V | 278 | 285 | 290 |
| 14 Speed / torque gradient | rpm/mNm | 29 | 39 | 47 |
| 15 Mechanical time constant | ms | 2.31 | 3.15 | 3.77 |
| 16 Rotor inertia | gcm ² | 7.63 | 7.63 | 7.63 |

¹⁾ Values in thermal steady state.

Specifications

| | |
|--|----------------------------------|
| Thermal data | |
| 17 Thermal resistance housing-ambient | 9.2 K/W |
| 18 Thermal resistance winding-housing | 0.48 K/W |
| 19 Thermal time constant winding | 3.0 s |
| 20 Thermal time constant motor | 466 s |
| 21 Ambient temperature | -55 ... 200 °C |
| 22 Max. permissible winding temperature | 240 °C |
| Mechanical data (preloaded ball bearings) | |
| 23 Max. permissible speed | 20000 rpm |
| 24 Axial play at axial load | < 5 N 0 mm > 5 N max. 0.14 mm |
| 25 Radial play | preloaded |
| 26 Max. axial load (dynamic) | 4 N |
| 27 Max. force for press fits (static) | 60 N |
| (static, shaft supported) | 250 N |
| 28 Max. radial loading, 0.2 mm from flange | 16 N |
| Other specifications | |
| 29 Number of pole pairs | 1 |
| 30 Number of phases | 3 |
| 31 Weight of motor (sensorless) | 85 g |

Operating Range



Comments

- Continuous operation**
Using the listed thermal resistance (line 17 and 18) the maximum permissible winding temperature will be reached during continuous operation at the corresponding ambient temperature. = Thermal limit.
- Short term operation**
The motor may be briefly overloaded (recurring).
- Assigned power rating**

Application

- General**
 - extreme temperature applications
 - shockloaded and vibration applications (according to MIL-STD810F/Jan2000 Fig. 514.5C-10)
 - high vacuum applications
- Aerospace**
 - gas turbine starter/generators for aircraft engines
 - regulation of combustion engines
- Oil & Gas Industry**
 - oil and geothermal wells
- Robotics**
 - robotic exploration vehicle systems
- Industry**
 - pumps and valves for liquid metal cooling systems and turbine fuel and steam control
 - valve adjustments for gas and steam power station

maxon Modular System