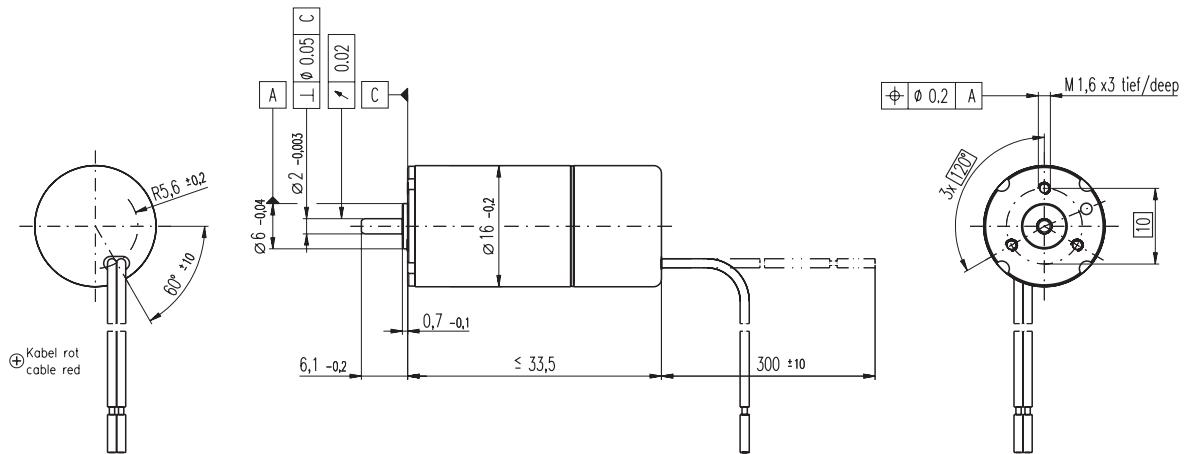


EC-max 16 2-wire \varnothing 16 mm, brushless, 5 Watt, CE approved

maxon EC-max



M 1:1

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

Order Number

| | | | |
|--------|--------|--------|--------|
| 320816 | 320817 | 320818 | 320819 |
|--------|--------|--------|--------|

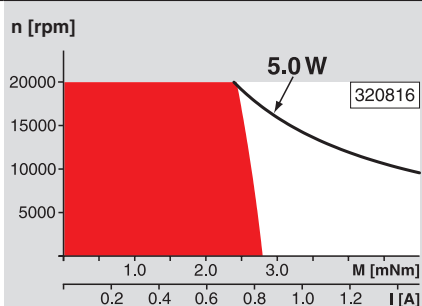
Motor Data

| Values at nominal voltage | | 320816 | 320817 | 320818 | 320819 | |
|---------------------------|---|------------------|--------|--------|--------|-------|
| 1 | Nominal voltage | V | 5.0 | 6.0 | 9.0 | 12.0 |
| 2 | No load speed | rpm | 13600 | 12900 | 12100 | 13000 |
| 3 | No load current | mA | 126.0 | 97.1 | 58.9 | 48.8 |
| 4 | Nominal speed | rpm | 7200 | 6530 | 6040 | 7010 |
| 5 | Nominal torque (max. continuous torque) | mNm | 2.41 | 2.47 | 2.66 | 2.64 |
| 6 | Nominal current (max. continuous current) | A | 0.838 | 0.675 | 0.448 | 0.359 |
| 7 | Stall torque | mNm | k.A. | k.A. | k.A. | k.A. |
| 8 | Starting current | A | 1.66 | 1.28 | 0.842 | 0.729 |
| 9 | Max. efficiency | % | 54 | 54 | 55 | 56 |
| Characteristics | | | | | | |
| 10 | Terminal resistance phase to phase | Ω | k.A. | k.A. | k.A. | k.A. |
| 11 | Terminal inductance phase to phase | mH | k.A. | k.A. | k.A. | k.A. |
| 12 | Torque constant | mNm / A | 3.25 | 4.12 | 6.60 | 8.23 |
| 13 | Speed constant | rpm / V | 2940 | 2320 | 1450 | 1160 |
| 14 | Speed / torque gradient | rpm / mNm | 2730 | 2650 | 2340 | 2320 |
| 15 | Mechanical time constant | ms | 12.2 | 11.9 | 10.5 | 10.4 |
| 16 | Rotor inertia | gcm ² | 0.428 | 0.428 | 0.428 | 0.428 |

Specifications

| | | |
|--|--|---------------|
| Thermal data | | |
| 17 | Thermal resistance housing-ambient | 23.5 K / W |
| 18 | Thermal resistance winding-housing | 2.57 K / W |
| 19 | Thermal time constant winding | 0.92 s |
| 20 | Thermal time constant motor | 390 s |
| 21 | Ambient temperature | -20 ... +85°C |
| 22 | Max. temperature of electronics (max. loading capacity of the motor is defined by the electronics) | +100°C |
| Mechanical data (preloaded ball bearings) | | |
| 23 | Max permissible speed | 20000 rpm |
| 24 | Axial play at axial load | 0 mm |
| | < 2.0 N | 0.14 mm |
| | > 2.0 N | preloaded |
| 25 | Radial play | 1.5 N |
| 26 | Max. axial load (dynamic) | 40 N |
| 27 | Max. force for press fits (static) | 6 N |
| 28 | Max. radial loading, 5 mm from flange | |

Operating Range



Comments

- Continuous operation**
In observation of above listed thermal resistance (lines 17 and 18) the maximum permissible winding temperature will be reached during continuous operation at 25°C ambient.
= Thermal limit.
- Short term operation**
The motor may be briefly overloaded (recurring).
- Assigned power rating**

Other specifications

| | | |
|----|-----------------------|----------------|
| 29 | Number of pole pairs | 1 |
| 30 | Number of phases | 3 |
| 31 | Weight of motor | 26 g |
| | Direction of rotation | clockwise (CW) |

Values listed in the table are nominal.

Connection (Cable AWG 26/7 UL Style 1569)

| | |
|-------|------------------|
| red | +V _{CC} |
| black | GND |

Electronic data

| | |
|---|-----------------|
| Operating voltage range | +5 ... +15 VDC |
| Protection against wrong polarity up to max. 18 VDC | |
| Shaft blocking protection at speed | < 76 rpm |
| Temperature monitoring | > 104°C |
| Current limitation | 1.6 A \pm 15% |
| Low voltage monitoring | < 4 VDC |

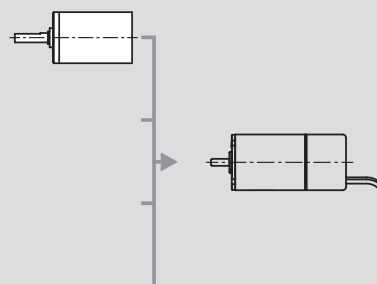
Δ Attention: Operating voltage V_{CC} > 18 VDC will destroy the electronics

Option: Sense of rotation: counter-clockwise (CCW)

maxon Modular System

Planetary Gearhead

| |
|---------------------|
| \varnothing 16 mm |
| 0.1 - 0.3 Nm |
| Page 224 |



Overview on page 16 - 21