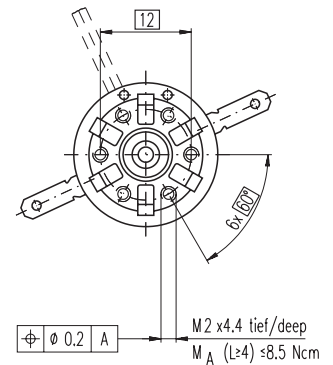
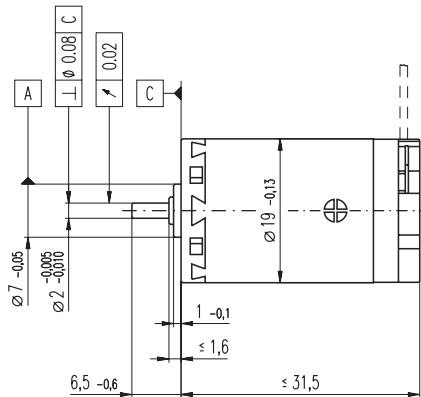
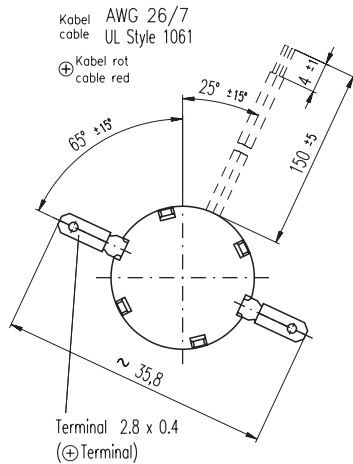


A-max 19 Ø19 mm, Graphite Brushes, 2.5 Watt



M 1:1

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

Order Number

| | | | | | | | | | |
|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| with terminals | 249982 | 249983 | 249984 | 249985 | 249986 | 249987 | 249988 | 249989 | 249990 |
| with cables | 240133 | 352942 | 310977 | 352943 | 352944 | 352945 | 352946 | 352947 | 310980 |

Motor Data

| Values at nominal voltage | | | | | | | | | | | | | | | |
|---------------------------|---|------------------|--------|--------|-------|-------|-------|-------|-------|-------|-------|--|--|--|--|
| 1 | Nominal voltage | V | 2.4 | 3.6 | 6.0 | 7.2 | 9.0 | 12.0 | 15.0 | 18.0 | 24.0 | | | | |
| 2 | No load speed | rpm | 11700 | 10200 | 12100 | 8960 | 8830 | 9920 | 9930 | 8920 | 8470 | | | | |
| 3 | No load current | mA | 287 | 157 | 113 | 66.0 | 51.8 | 44.5 | 35.6 | 26.2 | 18.6 | | | | |
| 4 | Nominal speed | rpm | 9580 | 7240 | 8530 | 4570 | 4540 | 5620 | 5650 | 4600 | 4050 | | | | |
| 5 | Nominal torque (max. continuous torque) | mNm | 0.783 | 1.79 | 2.76 | 3.84 | 3.95 | 3.86 | 3.89 | 3.91 | 3.84 | | | | |
| 6 | Nominal current (max. continuous current) | A | 0.720 | 0.720 | 0.720 | 0.591 | 0.476 | 0.393 | 0.316 | 0.239 | 0.168 | | | | |
| 7 | Stall torque | mNm | 4.78 | 6.59 | 9.77 | 8.23 | 8.50 | 9.29 | 9.40 | 8.45 | 7.74 | | | | |
| 8 | Starting current | A | 2.72 | 2.11 | 2.17 | 1.14 | 0.925 | 0.849 | 0.687 | 0.465 | 0.305 | | | | |
| 9 | Max. efficiency | % | 46 | 53 | 60 | 58 | 59 | 60 | 60 | 58 | 57 | | | | |
| Characteristics | | | | | | | | | | | | | | | |
| 10 | Terminal resistance | Ω | 0.883 | 1.71 | 2.76 | 6.33 | 9.72 | 14.1 | 21.8 | 38.7 | 78.8 | | | | |
| 11 | Terminal inductance | mH | 0.0186 | 0.0587 | 0.121 | 0.314 | 0.506 | 0.719 | 1.12 | 1.98 | 3.87 | | | | |
| 12 | Torque constant | mNm / A | 1.76 | 3.13 | 4.50 | 7.23 | 9.19 | 10.9 | 13.7 | 18.2 | 25.4 | | | | |
| 13 | Speed constant | rpm / V | 5430 | 3050 | 2120 | 1320 | 1040 | 873 | 698 | 525 | 376 | | | | |
| 14 | Speed / torque gradient | rpm / mNm | 2720 | 1670 | 1300 | 1160 | 1100 | 1130 | 1110 | 1120 | 1170 | | | | |
| 15 | Mechanical time constant | ms | 73.2 | 36.7 | 30.1 | 26.2 | 25.2 | 25.0 | 24.7 | 24.4 | 24.6 | | | | |
| 16 | Rotor inertia | gcm ² | 2.56 | 2.10 | 2.21 | 2.17 | 2.19 | 2.11 | 2.11 | 2.08 | 2.01 | | | | |

Specifications

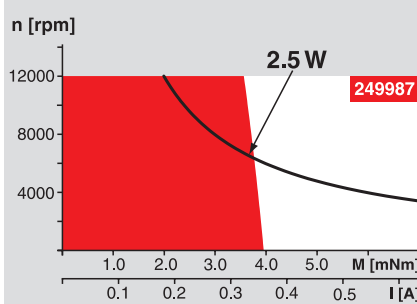
| Thermal data | | |
|-----------------------------------|---------------------------------------|----------------|
| 17 | Thermal resistance housing-ambient | 21.3 K / W |
| 18 | Thermal resistance winding-housing | 10.5 K / W |
| 19 | Thermal time constant winding | 11 s |
| 20 | Thermal time constant motor | 351 s |
| 21 | Ambient temperature | -30 ... +85°C |
| 22 | Max. permissible winding temperature | +125°C |
| Mechanical data (sleeve bearings) | | |
| 23 | Max. permissible speed | 12000 rpm |
| 24 | Axial play | 0.05 - 0.15 mm |
| 25 | Radial play | 0.012 mm |
| 26 | Max. axial load (dynamic) | 1 N |
| 27 | Max. force for press fits (static) | 80 N |
| 28 | Max. radial loading, 5 mm from flange | 2.7 N |
| Mechanical data (ball bearings) | | |
| 23 | Max. permissible speed | 12000 rpm |
| 24 | Axial play | 0.05 - 0.15 mm |
| 25 | Radial play | 0.025 mm |
| 26 | Max. axial load (dynamic) | 3.3 N |
| 27 | Max. force for press fits (static) | 45 N |
| 28 | Max. radial loading, 5 mm from flange | 11.9 N |
| Other specifications | | |
| 29 | Number of pole pairs | 1 |
| 30 | Number of commutator segments | 9 |
| 31 | Weight of motor | 33 g |

Values listed in the table are nominal.
Explanation of the figures on page 49.

Option

Ball bearings in place of sleeve bearings

Operating Range



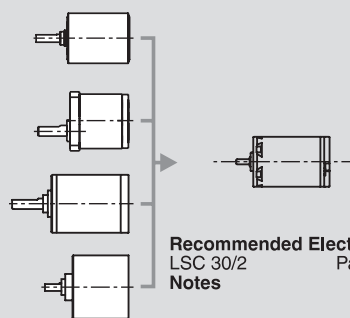
Comments

- 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**

maxon Modular System

Overview on page 16 - 21

- Planetary Gearhead**
Ø19 mm
0.1 - 0.3 Nm
Page 226
- Spur Gearhead**
Ø20.3 mm
0.06 - 0.25 Nm
Page 227
- Planetary Gearhead**
Ø22 mm
0.1 - 2.0 Nm
Page 228 / 230 / 231
- Spur Gearhead**
Ø24 mm
0.1 Nm
Page 234



Recommended Electronics:
LSC 30/2 Page 276
Notes 18