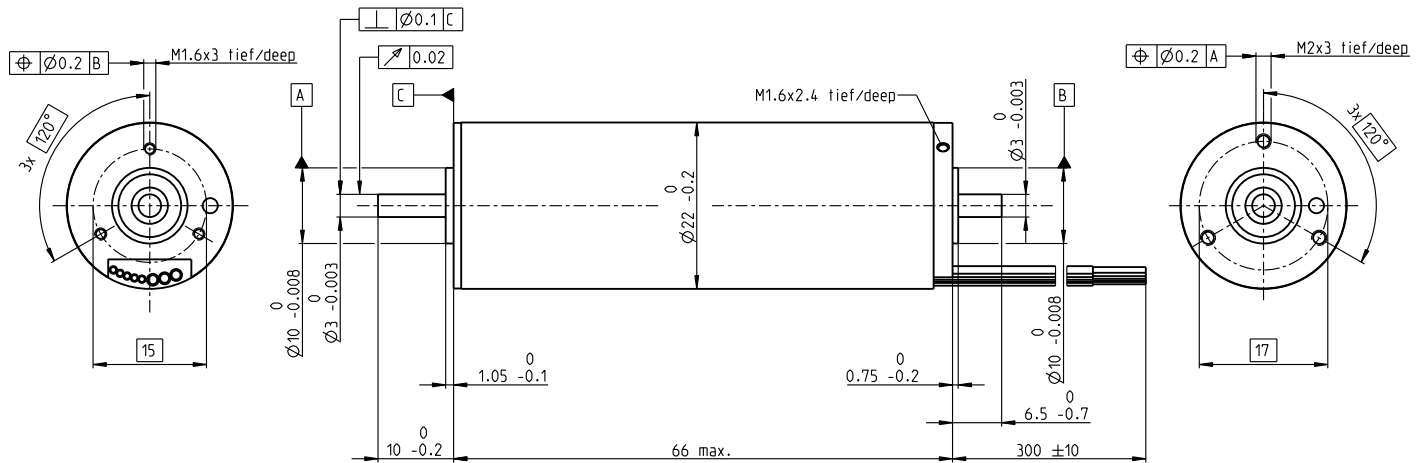


EC-4pole 22 Ø22 mm, brushless, 120 Watt

High Power



M 1:1

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

Part Numbers

311535 311536 311537 311538

Motor Data

| Values at nominal voltage | | | | | |
|---|------------------|-------|-------|-------|-------|
| 1 Nominal voltage | V | 18 | 24 | 36 | 48 |
| 2 No load speed | rpm | 16800 | 16900 | 17800 | 16900 |
| 3 No load current | mA | 298 | 223 | 166 | 112 |
| 4 Nominal speed | rpm | 15700 | 15800 | 16800 | 15800 |
| 5 Nominal torque (max. continuous torque) | mNm | 53.9 | 54.5 | 54 | 54.4 |
| 6 Nominal current (max. continuous current) | A | 5.54 | 4.2 | 2.94 | 2.1 |
| 7 Stall torque | mNm | 874 | 954 | 1090 | 1020 |
| 8 Stall current | A | 86 | 70.4 | 56.8 | 37.7 |
| 9 Max. efficiency | % | 89 | 89 | 90 | 90 |
| Characteristics | | | | | |
| 10 Terminal resistance phase to phase | Ω | 0.209 | 0.341 | 0.634 | 1.27 |
| 11 Terminal inductance phase to phase | mH | 0.017 | 0.031 | 0.062 | 0.123 |
| 12 Torque constant | mNm/A | 10.2 | 13.5 | 19.2 | 27.1 |
| 13 Speed constant | rpm/V | 940 | 705 | 497 | 352 |
| 14 Speed/torque gradient | rpm/mNm | 19.4 | 17.7 | 16.4 | 16.6 |
| 15 Mechanical time constant | ms | 1.81 | 1.65 | 1.53 | 1.54 |
| 16 Rotor inertia | gcm ² | 8.91 | 8.91 | 8.91 | 8.91 |

Specifications

| Thermal data | |
|---------------------------------------|--------------|
| 17 Thermal resistance housing-ambient | 10.7 K/W |
| 18 Thermal resistance winding-housing | 0.7 K/W |
| 19 Thermal time constant winding | 4.66 s |
| 20 Thermal time constant motor | 936 s |
| 21 Ambient temperature | -20...+100°C |
| 22 Max. winding temperature | +155°C |

| Mechanical data (preloaded ball bearings) | | |
|---|---|---------------------------------------|
| 23 | Max. speed | 25000 rpm |
| 24 | Axial play at axial load | < 5.0 N 0 mm > 5.0 N 0.14 mm |
| 25 | Radial play | preloaded |
| 26 | Max. axial load (dynamic) | 4 N |
| 27 | Max. force for press fits (static) (static, shaft supported) | 53 N 600 N |
| 28 | Max. radial load, 5 mm from flange | 16 N |

Other specifications

| | |
|-------------------------|-------|
| 29 Number of pole pairs | 2 |
| 30 Number of phases | 3 |
| 31 Weight of motor | 175 g |

Values listed in the table are nominal.

Connection motor (Cable AWG 20)

| | |
|-------|-----------------|
| red | Motor winding 1 |
| white | Motor winding 3 |
| black | Motor winding 2 |

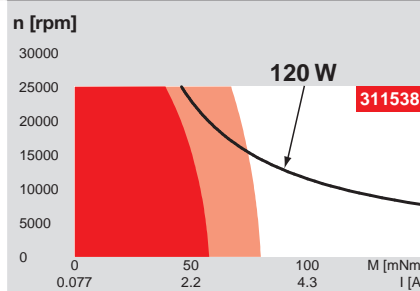
Connection sensors (Cable AWG 26)

| | |
|------------|------------------------------|
| red/grey | Hall sensor 1 |
| black/grey | Hall sensor 2 |
| white/grey | Hall sensor 3 |
| green | V _{Hall} 3...24 VDC |
| blue | GND |

Wiring diagram for Hall sensors see p. 35

Operating Range

Comments



- Continuous operation
- Continuous operation with reduced thermal resistance R_{th2} 50%
- Intermittent operation

Assigned power rating

maxon Modular System

Overview on page 20-27

Planetary Gearhead

Ø22 mm

2.0 - 3.4 Nm

Page 333

Planetary Gearhead

Ø32 mm

1.0 - 6.0 Nm

Page 343

Spindle Drive

Ø32 mm

Page 370-372

Recommended Electronics:

Notes Page 26

ESCON Mod. 50/5 417

ESCON Mod. 50/4 EC-S 417

ESCON 50/5 418

ESCON 70/10 418

DEC Module 50/5 420

EPOS2 24/5 425

EPOS2 50/5 425

EPOS2 70/10 425

EPOS2 P 24/5 428

EPOS4 Module 50/8 431

EPOS4 Comp. 50/8 CAN 431

MAXPOS 50/5 435

Encoder SCH16F

2000 - 3600 CPT,

3 channels

Page 396

Encoder HEDL 5540

500 CPT,

3 channels

Page 404

Encoder AEDL 5810

1024 - 5000 CPT,

3 channels

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