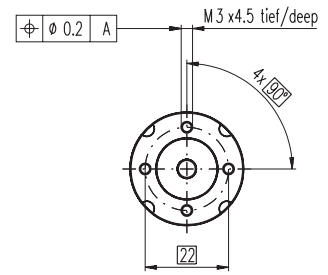
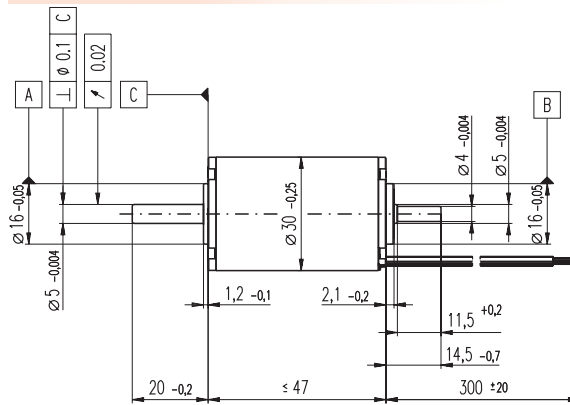
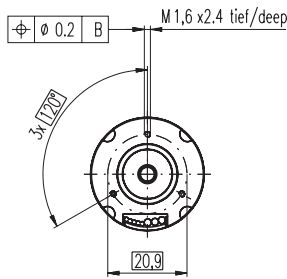


# EC-powermax 30 Ø30 mm, brushless, 100 Watt

HighPower

maxon EC-powermax



## M 1:2

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

### Order Number

309755	309756	309757	309758
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### Motor Data (provisional)

Values at nominal voltage		309755	309756	309757	309758	
1	Nominal voltage	V	18.0	24.0	36.0	48.0
2	No load speed	rpm	17800	17800	17800	17800
3	No load current	mA	773	580	387	290
4	Nominal speed	rpm	16700	16700	16800	16800
5	Nominal torque (max. continuous torque)	mNm	64.4	63.3	69.7	69.4
6	Nominal current (max. continuous current)	A	7.38	5.45	3.96	2.96
7	Stall torque	mNm	1280	1240	1480	1470
8	Starting current	A	133	96.9	77.2	57.4
9	Max. efficiency	%	86	86	87	87
Characteristics						
10	Terminal resistance phase to phase	Ω	0.135	0.248	0.466	0.836
11	Terminal inductance phase to phase	mH	0.0166	0.0295	0.0664	0.118
12	Torque constant	mNm / A	9.58	12.8	19.2	25.5
13	Speed constant	rpm / V	997	748	499	374
14	Speed / torque gradient	rpm / mNm	14.1	14.5	12.1	12.2
15	Mechanical time constant	ms	2.70	2.78	2.33	2.35
16	Rotor inertia	gcm <sup>2</sup>	18.3	18.3	18.3	18.3

### Specifications

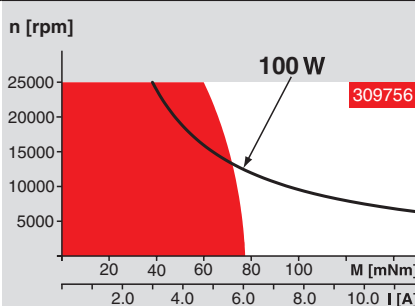
- Thermal data**
- 17 Thermal resistance housing-ambient 7.95 K / W
  - 18 Thermal resistance winding-housing 0.831 K / W
  - 19 Thermal time constant winding 4.28 s
  - 20 Thermal time constant motor 859 s
  - 21 Ambient temperature -20 ... +100°C
  - 22 Max. permissible winding temperature +155°C
- Mechanical data (preloaded ball bearings)**
- 23 Max permissible speed 25000 rpm
  - 24 Axial play at axial load < 8.0 N 0 mm
  - 24 Axial play at axial load > 8.0 N 0.14 mm preloaded
  - 25 Radial play 0.14 mm preloaded
  - 26 Max. axial load (dynamic) 5.5 N
  - 27 Max. force for press fits (static) (static, shaft supported) 100 N
  - 27 Max. force for press fits (static) (static, shaft supported) 2000 N
  - 28 Max. radial loading, 5 mm from flange 25 N
- Other specifications**
- 29 Number of pole pairs 2
  - 30 Number of phases 3
  - 31 Weight of motor 165 g

Values listed in the table are nominal.

- Connection Motor** (Cable AWG 18)
- black Motor winding 2
  - white Motor winding 3
  - red Motor winding 1

- Connection Sensors** (Cable AWG 26)
- black/grey Hall sensor 2
  - blue GND
  - green V<sub>Hall</sub> 4.5 ... 24 VDC
  - red/grey Hall sensor 1
  - white/grey Hall sensor 3

### 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

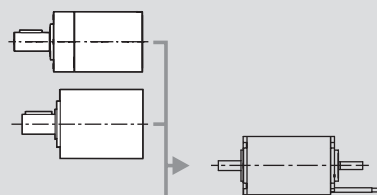
Overview on page 16 - 21

#### Planetary Gearhead

- Ø32 mm
- 8 Nm
- Page 242

#### Planetary Gearhead

- Ø42 mm
- 3 - 15 Nm
- Page 245



#### Recommended Electronics:

- DECS 50/5 Page 284
- DEC 70/10 286
- DES 70/10 287
- EPOS 70/10 295
- EPOS2 50/5 295
- Notes 20

#### Encoder MR

- 128 - 1000CTP,
- 3 channels
- Page 258

#### Encoder HEDL 5540

- 500CTP,
- 3 channels
- Page 266

#### Brake AB 20

- Ø20 mm
- 24 VDC, 0.1 Nm
- Page 306