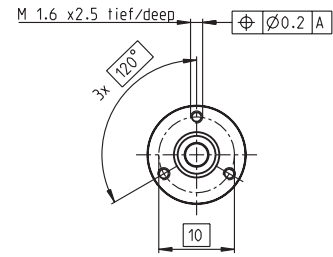
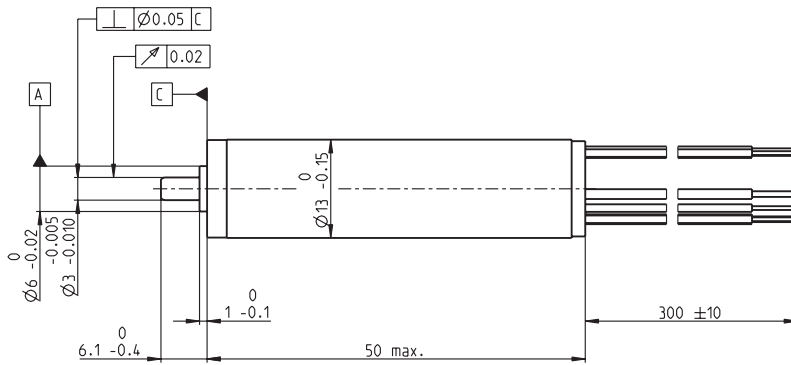


# EC 13 Ø13 mm, brushless, 50 Watt, sterilizable

**NEW**

maxon EC motor



**M 1:1**

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

		Order Number		
A with Hall sensors	384183	384184	384185	
B sensorless	384215	384216	384217	

Motor Data				
Values at nominal voltage				
1 Nominal voltage	V	12.0	24.0	48.0
2 No load speed	rpm	79300	79400	79400
3 Nominal speed	mA	257	129	64.3
4 Nominal speed	rpm	73600	74100	74200
5 Nominal torque (max. continuous torque)	mNm	7.05	7.94	8.14
6 Nominal current (max. continuous current)	A	5.09	2.85	1.46
7 Stall torque	mNm	113	142	149
8 Starting current	A	78.5	49.5	25.9
9 Max. efficiency	%	89	90	90
Characteristics				
10 Terminal resistance phase to phase	Ω	0.153	0.485	1.85
11 Terminal inductance phase to phase	mH	0.0068	0.0270	0.108
12 Torque constant	mNm / A	1.44	2.88	5.76
13 Speed constant	rpm / V	6630	3320	1660
14 Speed / torque gradient	rpm / mNm	705	559	533
15 Mechanical time constant	ms	2.66	2.11	2.01
16 Rotor inertia	gcm <sup>2</sup>	0.360	0.360	0.360

Specifications	Operating Range	Comments
<b>Thermal data</b> 17 Thermal resistance housing-ambient 16.0 K / W 18 Thermal resistance winding-housing 0.916 K / W 19 Thermal time constant winding 0.95 s 20 Thermal time constant motor 352 s 21 Ambient temperature -40 ... +135°C 22 Max. permissible winding temperature +155°C  <b>Mechanical data (preloaded ball bearings)</b> 23 Max. permissible speed 90000 rpm 24 Axial play at axial load < 2 N 0 mm > 2 N max. 1.2 mm 25 Radial play preloaded 26 Max. axial load (dynamic) 2 N 27 Max. force for press fits (static) 2 N 28 Max. radial loading, 5 mm from flange 4 N		<div style="background-color: red; width: 20px; height: 10px; display: inline-block; margin-right: 5px;"></div> <b>Continuous operation</b> 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.  <div style="background-color: white; border: 1px solid black; width: 20px; height: 10px; display: inline-block; margin-right: 5px;"></div> <b>Short term operation</b> The motor may be briefly overloaded (recurring).  — <b>Assigned power rating</b>

Application	Sterilization information
<b>Medicine / surgery / chemicals</b>	In normal use, the motor can be sterilized 500 times in an autoclave. No need to dismantle.
Hand tools that can be sterilized, such as bone saw, bone drilling and grinding machine Dermatological and dental tools Infusion pumps ECG Therapy aid, analysis and dialysis equipment	Sterilization with steam  Temperature +134°C ± 4°C Compression pressure up to 2.3 bar Rel. humidity 100 % Cycle length 20 minutes

Alignment of the electronic connections not specified. Values listed in the table are nominal.

**Connection A and B, motor** (cable AWG 22)  
 red Motor winding 1  
 black Motor winding 2  
 white Motor winding 3

**Connection A, sensore** (cable AWG 26)  
 green V<sub>Hall</sub> 3.8...24 VDC  
 blue GND  
 red/grey Hall sensor 1  
 black/grey Hall sensor 2  
 white/grey Hall sensor 3

**Option:** Inch-version size 5 available as standard version.

maxon Modular System	Overview on page 16 - 21
<b>Planetary Gearhead</b> sterilizable Ø13 mm 0.1 - 0.15 Nm Page 210	  <b>Recommended Electronics:</b> DECS 50/5, DEC 24/1 p. 289 DEC 24/3 290 DEC Module 24/2 290 DEC 50/5, Module 50/5 291 DECV 50/5 297 <b>Notes</b> 20 Choke may be required