

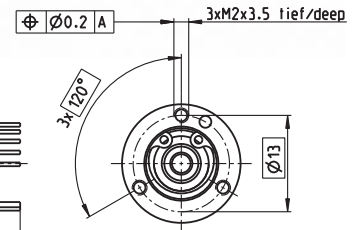
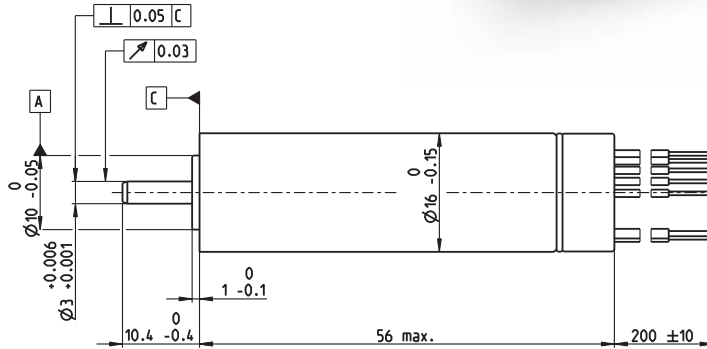
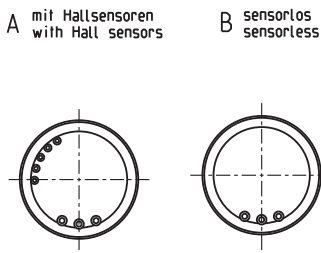
# ECX SPEED 16 L brushless

## BLDC motor Ø16 mm

Sterilizable

80/97 W 13.9 mNm 70000 rpm

**NEW**



Lage des Kabelabganges zum Befestigungsbohrbild  $\pm 25^\circ$   
 alignment of cables relative to mounting holes  $\pm 25^\circ$

**M 1:1**

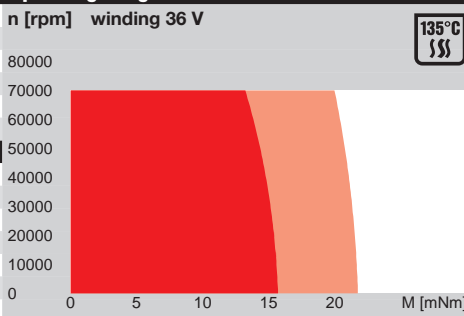
**Motor Data**

1_	Nominal voltage	V	18	24	36	48
2_	No load speed	rpm	67700	67800	67800	67800
3_	No load current	mA	420	315	210	157
4_	Nominal speed	rpm	64400	64700	64900	64900
5_	Nominal torque (max. continuous torque)	mNm	14.6	15.2	14.6	14
6_	Nominal current (max. continuous current)	A	6.15	4.78	3.07	2.22
7_	Stall torque	mNm	330	389	395	377
8_	Stall current	A	131	115	78.1	56
9_	Max. efficiency	%	89.2	90	90	89.8
10_	Terminal resistance	$\Omega$	0.138	0.208	0.461	0.858
11_	Terminal inductance	mH	0.00567	0.0101	0.0227	0.0403
12_	Torque constant	mNm/A	2.53	3.37	5.06	6.74
13_	Speed constant	rpm/V	3780	2830	1890	1420
14_	Speed/torque gradient	rpm/mNm	206	175	172	180
15_	Mechanical time constant	ms	1.24	1.06	1.04	1.09
16_	Rotor inertia	gcm <sup>2</sup>	0.577	0.577	0.577	0.577

**Thermal data**

17_	Thermal resistance housing-ambient	K/W	15.8
18_	Thermal resistance winding-housing	K/W	0.952
19_	Thermal time constant winding	s	2.1
20_	Thermal time constant motor	s	574
21_	Ambient temperature	$^\circ\text{C}$	-40...+135
22_	Max. winding temperature	$^\circ\text{C}$	155

**Operating Range**



Sensorless: typical 2000 sterilization cycles  
 Hall sensors: typical 1000 sterilization cycles  
 Sterilization with steam  
 Temperature  $+134^\circ\text{C} \pm 4^\circ\text{C}$   
 Compression pressure up to 2.3 bar  
 Rel. humidity 100%  
 Cycle length 18 min.

**Mechanical data ball bearings**

23_	Max. speed	rpm	70000
24_	Axial play	mm	0...0.29
	Preload	N	1.5
	Direction of force		pull
25_	Radial play		preloaded
26_	Max. axial load (dynamic)	N	1.5
27_	Max. force for press fits (static)	N	60
	(static, shaft supported)	N	2500
28_	Max. radial load [mm from flange]	N	10 [5]

**Other specifications**

29_	Number of pole pairs		1
30_	Number of phases		3
31_	Weight of motor	g	73
32_	Typical noise level [rpm]	dBA	52 [50000]

**maxon Modular System**

<b>maxon gear</b>	Stages	<b>maxon sensor</b>	<b>maxon motor control</b>
125_GPX 16 SPEED	1-2		417_ESCON 36/3 EC 417_ESCON Module 50/4 EC-S 417_ESCON Module 50/5 418_ESCON 50/5 418_ESCON 70/10 420_DEC Module 50/5

**Connection A and B, motor (Cable AWG 22)**

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

**Connection A, sensors (Cable AWG 26)**

orange V<sub>Hall</sub> 3...24 VDC  
 blue GND  
 yellow Hall sensor 1  
 brown Hall sensor 2  
 grey Hall sensor 3

Wiring diagram for Hall sensors see page 35

**Connection NTC (Cable AWG 26)**

purple NTC  
 purple NTC  
 Resistance 25 $^\circ\text{C}$ : 10 kOhm  $\pm 1\%$ , beta (25-85 $^\circ\text{C}$ ): 3490 K

**Configuration**

Flange front: thread in flange/center thread  
 Flange back: plastic ring/center thread  
 Shaft front: length  
 Electric connection: cable length/pin connection  
 Temperature Sensor: NTC-Thermistor