

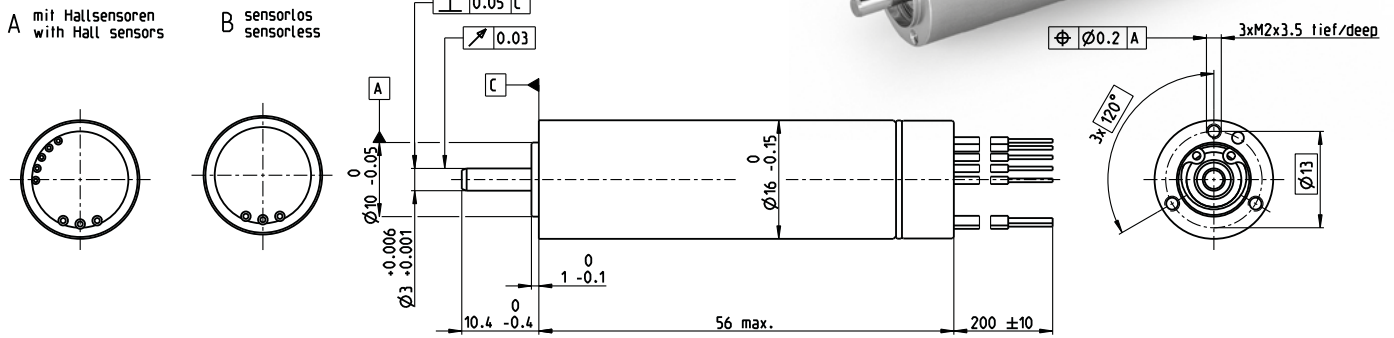
# ECX SPEED 16 L brushless

## BLDC motor Ø16 mm

Sterilizable, Ceramic Bearings

**NEW**

80/104 W 13.9 mNm 120000 rpm



Lage des Kabelabganges zum Befestigungsbohrbild ±25°  
alignment of cables relative to mounting holes ±25°

**M 1:1**

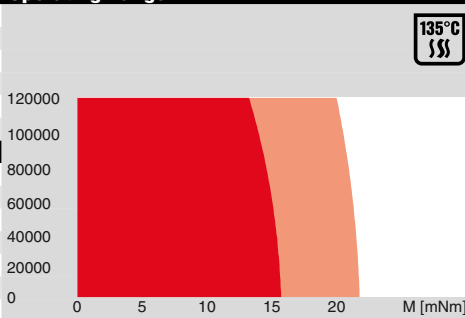
### Motor Data

1_	Nominal voltage	V	18	24	36	48
2_	No load speed	rpm	67700	67700	67700	67700
3_	No load current	mA	567	425	283	213
4_	Nominal speed	rpm	64600	64900	65100	65100
5_	Nominal torque (max. continuous torque)	mNm	13.4	13.9	13.4	12.8
6_	Nominal current (max. continuous current)	A	5.82	4.52	2.9	2.1
7_	Stall torque	mNm	330	389	395	377
8_	Stall current	A	131	115	78.1	56
9_	Max. efficiency	%	88	89	89	88
10_	Terminal resistance	Ω	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	1.88
20_	Thermal time constant motor	s	574
21_	Ambient temperature	°C	-40...+135
22_	Max. winding temperature	°C	155

### Operating Range



Sensorless: typical 2000 sterilization cycles  
Hall sensors: typical 1000 sterilization cycles  
Sterilization with steam  
Temperature +134°C ±4°C  
Compression pressure up to 2.3 bar  
Rel. humidity 100%  
Cycle length 18 min.

■ Continuous operation  
■ Continuous operation with reduced thermal resistance R<sub>m2</sub> 50%  
□ Short term operation

### Mechanical data ball bearings

23_	Max. speed	rpm	120000
24_	Axial play	mm	0...0.29
	Preload	N	2.5
	Direction of force		pull
25_	Radial play		preloaded
26_	Max. axial load (dynamic)	N	2.5
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 commutator segments		3
31_	Weight of motor	g	73
32_	Typical noise level [rpm]	dBA	52 [50000]

### 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 33

### Connection NTC (Cable AWG 26)

purple NTC  
purple NTC  
Resistance 25°C: 10 kOhm ±1%, beta (25–85°C): 3490 K

### maxon Modular System

maxon gear	Stages	maxon sensor	maxon motor control
65_GPX 16 SPEED	1–2		379_ESCON 36/3 EC 379_ESCON Module 50/4 EC-S 379_ESCON Module 50/5 379_ESCON 50/5 379_ESCON 70/10 382_DEC Module 50/5

### Configuration

Flange front: thread in flange/center thread  
Flange back: without/center thread  
Shaft front: length/diameter  
Electric connection: cable length/pin connection  
Temperature Sensor: NTC-Thermistor

xdrives.maxonmotor.com