

# ECX SPEED 16 M brushless

## BLDC motor Ø16 mm

Sterilizable, Ceramic Bearings

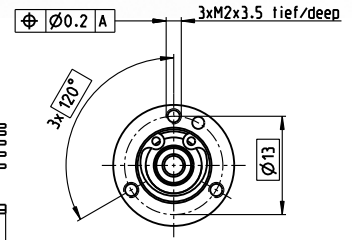
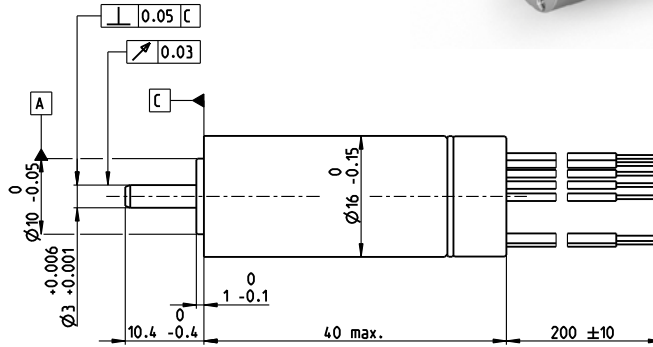
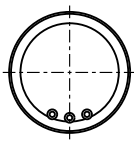
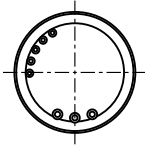
**NEW**

40/72.4 W 6.6 mNm 120 000 rpm



A mit Hallsensoren  
with Hall sensors

B sensorlos  
sensorless



Lage des Kabelabganges  
zum Befestigungsbohrbild ±25°

alignment of cables relative  
to mounting holes ±25°

**M 1:1**

### Motor Data

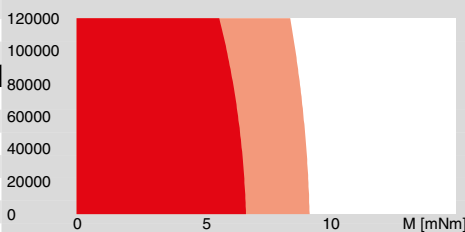
1_	Nominal voltage	V	18	24	48
2_	No load speed	rpm	61500	65000	58900
3_	No load current	mA	275	227	96.2
4_	Nominal speed	rpm	56400	59900	53900
5_	Nominal torque (max. continuous torque)	mNm	6.88	6.61	6.64
6_	Nominal current (max. continuous current)	A	2.71	2.08	0.94
7_	Stall torque	mNm	97.3	99.6	91
8_	Stall current	A	35.1	28.5	11.8
9_	Max. efficiency	%	84	83	83
10_	Terminal resistance	Ω	0.512	0.841	4.06
11_	Terminal inductance	mH	0.0341	0.0542	0.264
12_	Torque constant	mNm/A	2.77	3.49	7.7
13_	Speed constant	rpm/V	3450	2740	1240
14_	Speed/torque gradient	rpm/mNm	638	659	654
15_	Mechanical time constant	ms	3.94	4.06	4.03
16_	Rotor inertia	gcm <sup>2</sup>	0.589	0.589	0.589

### Thermal data

17_	Thermal resistance housing-ambient	K/W	20.2
18_	Thermal resistance winding-housing	K/W	1.64
19_	Thermal time constant winding	s	1.97
20_	Thermal time constant motor	s	505
21_	Ambient temperature	°C	-40...+135
22_	Max. winding temperature	°C	155

### Operating Range

n [rpm] winding 24 V



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.

### Mechanical data ball bearings

23_	Max. speed	rpm	120 000
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	50
32_	Typical noise level [rpm]	dBA	50 [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		378_ESCON Module 24/2
			379_ESCON 36/3 EC
			379_ESCON Module 50/4 EC-S
			379_ESCON Module 50/5
			379_ESCON 50/5
			382_DEC Module 24/2
			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