

ECX SPEED 16 M brushless

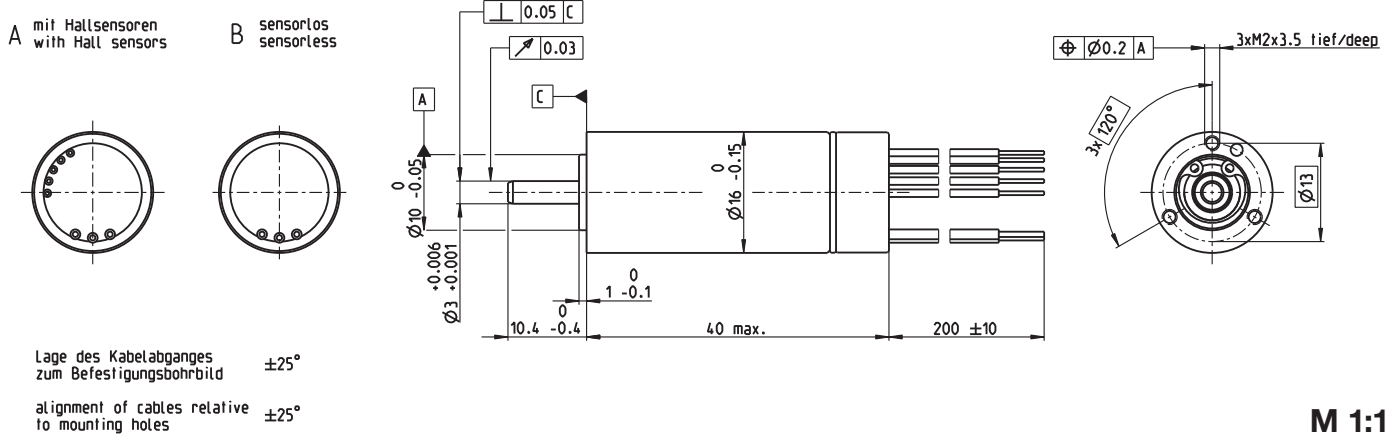
BLDC motor Ø16 mm

Sterilizable, Ceramic Bearings

40/72.4 W 6.6 mNm 120000 rpm



maxon X drives



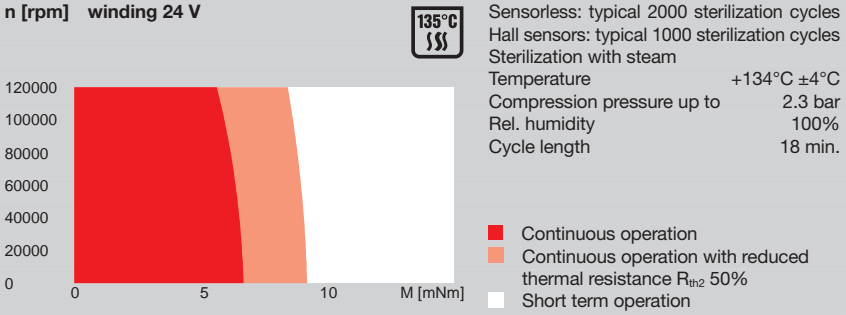
Motor Data

1_	Nominal voltage	V	18	24	36	48
2_	No load speed	rpm	61500	65000	57700	58900
3_	No load current	mA	275	227	124	96.2
4_	Nominal speed	rpm	56400	59900	52600	53900
5_	Nominal torque (max. continuous torque)	mNm	6.88	6.61	6.61	6.64
6_	Nominal current (max. continuous current)	A	2.71	2.08	1.22	0.94
7_	Stall torque	mNm	97.3	99.6	87.2	91
8_	Stall current	A	35.1	28.5	14.8	11.8
9_	Max. efficiency	%	84	83	83	83
10_	Terminal resistance	Ω	0.512	0.841	2.43	4.06
11_	Terminal inductance	mH	0.0341	0.0542	0.155	0.264
12_	Torque constant	mNm/A	2.77	3.49	5.9	7.7
13_	Speed constant	rpm/V	3450	2740	1620	1240
14_	Speed/torque gradient	rpm/mNm	638	659	668	654
15_	Mechanical time constant	ms	3.94	4.06	4.12	4.03
16_	Rotor inertia	gcm ²	0.589	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



Mechanical data ball bearings

23_	Max. speed	rpm	120 000
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 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_{Hall} 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°C: 10 kOhm ±1%, beta (25–85°C): 3490 K

maxon Modular System

maxon gear	Stages	maxon sensor	maxon motor control
125_GPX 16 SPEED	1–2		416_ESCON Module 24/2
			417_ESCON 36/3 EC
			417_ESCON Module 50/4 EC-S
			417_ESCON Module 50/5
			418_ESCON 50/5
			420_DEC Module 24/2
			420_DEC Module 50/5

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