

# ECX SPEED 22 M brushless

## BLDC motor Ø22 mm

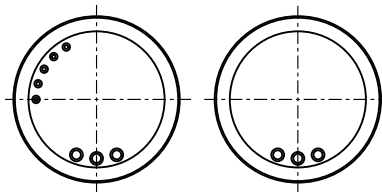
Sterilizable, Ceramic Bearings

**NEW**



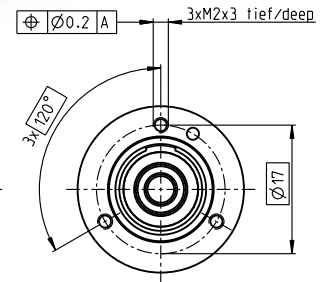
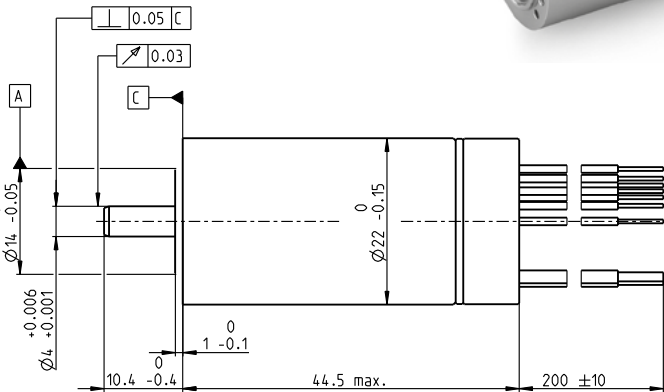
**80/168 W 19.5 mNm 85000 rpm**

A mit Hallensensoren  
with Hall sensors      B sensorlos  
sensorless



Lage des Kabelabganges  
zum Befestigungsbohrbild ±25°

alignment of cables relative  
to mounting holes ±25°



**M 1:1**

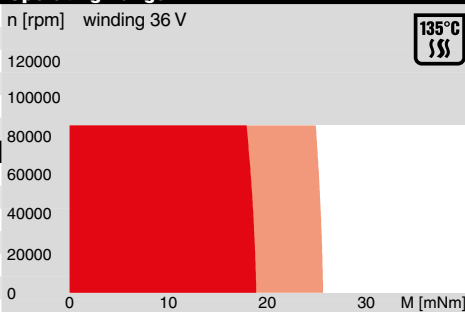
### Motor Data

1_	Nominal voltage	V	18	24	36	48
2_	No load speed	rpm	52800	54800	56900	54800
3_	No load current	mA	286	227	161	114
4_	Nominal speed	rpm	49400	51500	53600	51500
5_	Nominal torque (max. continuous torque)	mNm	19.5	19.9	18.7	19
6_	Nominal current (max. continuous current)	A	6.23	4.85	3.23	2.37
7_	Stall torque	mNm	340	365	362	361
8_	Stall current	A	105	87.5	60.1	43.3
9_	Max. efficiency	%	90	90	90	90
10_	Terminal resistance	Ω	0.172	0.274	0.599	1.11
11_	Terminal inductance	mH	0.00934	0.0154	0.0322	0.0617
12_	Torque constant	mNm/A	3.24	4.17	6.02	8.34
13_	Speed constant	rpm/V	2940	2290	1590	1150
14_	Speed/torque gradient	rpm/mNm	156	151	158	152
15_	Mechanical time constant	ms	3.12	3.01	3.15	3.05
16_	Rotor inertia	gcm <sup>2</sup>	1.91	1.91	1.91	1.91

### Thermal data

17_	Thermal resistance housing-ambient	K/W	12
18_	Thermal resistance winding-housing	K/W	1
19_	Thermal time constant winding	s	2.09
20_	Thermal time constant motor	s	334
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.

### Mechanical data ball bearings

23_	Max. speed	rpm	85000
24_	Axial play	mm	0...0.24
	Preload	N	4
	Direction of force		pull
25_	Radial play	preloaded	
26_	Max. axial load (dynamic)	N	4
27_	Max. force for press fits (static)	N	110
	(static, shaft supported)	N	6000
28_	Max. radial load [mm from flange]	N	16 [5]

### Other specifications

29_	Number of pole pairs		1
30_	Number of phases		3
31_	Weight of motor	g	106
32_	Typical noise level [rpm]	dBA	54 [50000]

### Connection A and B, motor (Cable AWG 18)

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	maxon sensor	maxon motor control
		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  
Electric connection: cable length/pin connection  
Temperature Sensor: NTC-Thermistor

xdrives.maxonmotor.com