

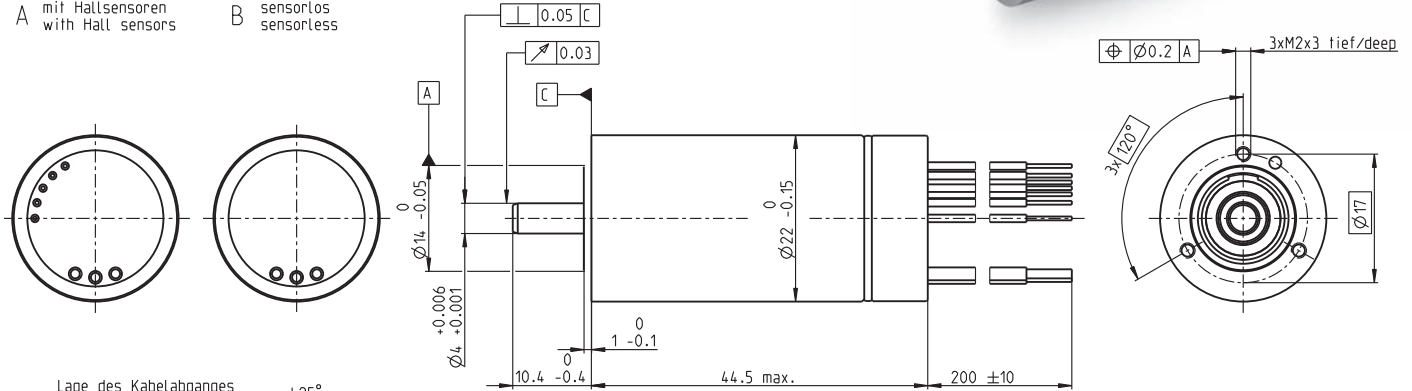
# ECX SPEED 22 M brushless BLDC motor Ø22 mm

**NEW**



**40/65 W 15.4 mNm 45 000 rpm**

A mit Hallensoren  
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**

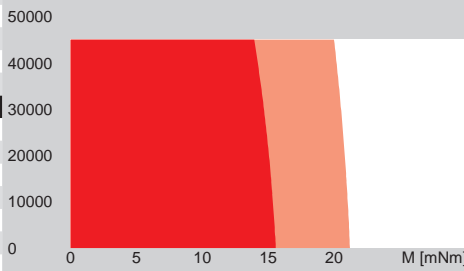
1_	Nominal voltage	V	18	24	36	48
2_	No load speed	rpm	40500	40000	40600	40400
3_	No load current	mA	337	248	169	126
4_	Nominal speed	rpm	36500	36300	37000	36800
5_	Nominal torque (max. continuous torque)	mNm	13.7	14.7	15.4	15.1
6_	Nominal current (max. continuous current)	A	3.54	2.8	1.98	1.45
7_	Stall torque	mNm	154	175	196	189
8_	Stall current	A	36.5	30.8	23.3	16.8
9_	Max. efficiency	%	82.2	83.2	84.1	83.8
10_	Terminal resistance	Ω	0.493	0.779	1.54	2.86
11_	Terminal inductance	mH	0.0272	0.0495	0.109	0.194
12_	Torque constant	mNm/A	4.2	5.67	8.4	11.2
13_	Speed constant	rpm/V	2270	1680	1140	850
14_	Speed/torque gradient	rpm/mNm	266	231	209	216
15_	Mechanical time constant	ms	5.94	5.16	4.65	4.82
16_	Rotor inertia	gcm <sup>2</sup>	2.13	2.13	2.13	2.13

**Thermal data**

17_	Thermal resistance housing-ambient	K/W	10.8
18_	Thermal resistance winding-housing	K/W	1.34
19_	Thermal time constant winding	s	2.71
20_	Thermal time constant motor	s	300
21_	Ambient temperature <sup>1</sup>	°C	-20...+100
22_	Max. winding temperature	°C	155

**Operating Range**

n [rpm]      winding 36 V



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

**Mechanical data ball bearings**

23_	Max. speed	rpm	45 000
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	98
32_	Typical noise level [rpm]	dBA	53 [45 000]

**maxon Modular System**

<b>maxon gear</b>	Stages	<b>maxon sensor</b>	<b>maxon motor control</b>
133_GPX 22 SPEED	1-2		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 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 35

**Connection NTC** (Cable AWG 26)

purple NTC  
purple NTC  
Resistance 25°C: 10 kOhm ±1%, beta (25-85°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