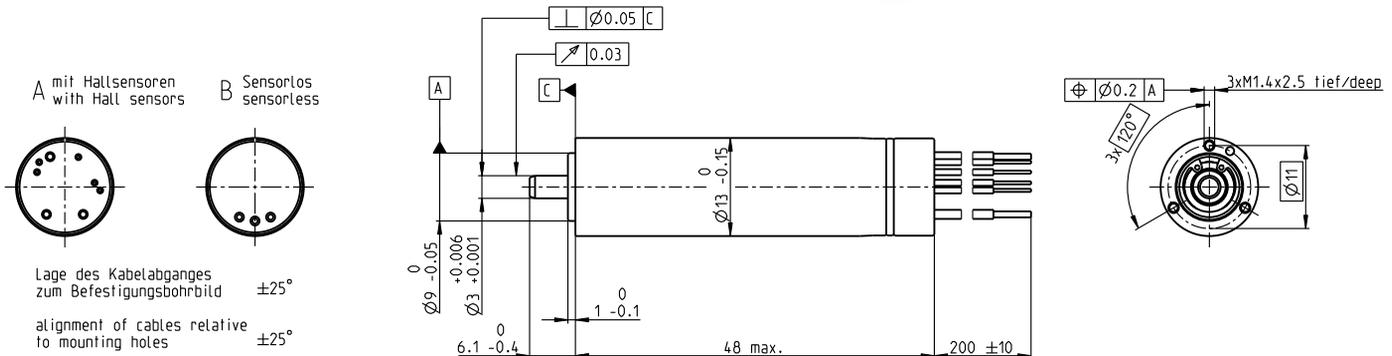


# ECX SPEED 13 L $\varnothing$ 13 mm, brushless, BLDC motor

Key Data: 25/27 W, 5.2 mNm, 50 000 rpm



ECX SPEED



M 1:1

### Motor Data

1_	Nominal voltage	V	18	24	36	48
2_	No load speed	rpm	42300	43100	42300	42700
3_	No load current	mA	165	128	82.5	62.8
4_	Nominal speed	rpm	38000	39100	38400	38700
5_	Nominal torque (max. continuous torque)	mNm	4.84	5.1	5.23	5.13
6_	Nominal current (max. continuous current)	A	1.35	1.08	0.724	0.539
7_	Stall torque	mNm	50.9	58.5	59.9	58.9
8_	Stall current	A	12.7	11.1	7.47	5.55
9_	Max. efficiency	%	79.1	80.3	80.6	80.4
10_	Terminal resistance	$\Omega$	1.42	2.16	4.82	8.64
11_	Terminal inductance	mH	0.0444	0.0761	0.178	0.31
12_	Torque constant	mNm/A	4.01	5.25	8.02	10.6
13_	Speed constant	rpm/V	2380	1820	1190	901
14_	Speed/torque gradient	rpm/mNm	842	746	715	734
15_	Mechanical time constant	ms	3.3	2.92	2.8	2.88
16_	Motor inertia	gcm <sup>2</sup>	0.374	0.374	0.374	0.374

### Thermal data

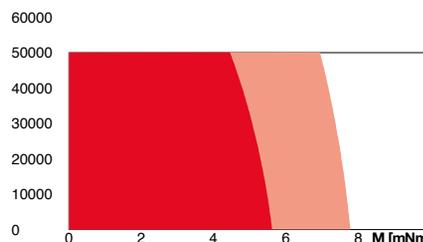
17_	Thermal resistance housing-ambient	K/W	23.7
18_	Thermal resistance winding-housing	K/W	2
19_	Thermal time constant winding	s	2.12
20_	Thermal time constant motor	s	398
21_	Ambient temperature	$^{\circ}$ C	-20...+100
22_	Max. winding temperature	$^{\circ}$ C	155

### Mechanical data ball bearings

23_	Max. speed	rpm	50 000
24_	Axial play	mm	0...0.28
	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	50
	(static, shaft supported)	N	1500
28_	Max. radial load [mm from flange]	N	6 [5]

### Operating Range

n [rpm] winding 36 V



■ Continuous operation  
■ Continuous operation with reduced thermal resistance  $R_{th2}$  50%  
■ Short term operation

### Other specifications

29_	Number of pole pairs	1	maxon gear	Stages [opt.]	maxon sensor	maxon motor control
30_	Number of phases	3	337_GPX 13 SPEED	1-3	for motor type A:	500_ESCON Module 24/2
31_	Weight of motor	g	338_GPX 14 A/C	1-2 [3-4]	449_ENX 13 EASY INT	501_ESCON 36/3 EC
32_	Typical noise level [rpm]	dBA	339_GPX 14 LN/LZ	1-2 [3-4]	for motor type B:	501_ESCON Module 50/4 EC-S
			340_GPX 14 HP	2-3 [4]	449_ENX 13 EASY INT Abs.	501_ESCON Module 50/5
			341_GPX 16 A/C	3-4		503_ESCON 50/5
			342_GPX 16 LN/LZ	3-4		505_DEC Module 50/5
			343_GPX 16 HP	4		509_EPOS4 Micro 24/5
						510_EPOS4 Mod./Comp. 24/1.5
						510_EPOS4 Mod./Comp. 50/5
						511_EPOS4 Comp. 24/5 3-axes
						515_EPOS4 50/5
						516_EPOS4 Disk 60/8
						520_EPOS2 P 24/5

### Connection A and B, motor (Cable AWG A: 26, B: 22)

red Motor winding 1  
 black Motor winding 2  
 white Motor winding 3

### Connection A, sensors (Cable AWG 28)

orange  $V_{CC}$  5  $\pm$ 0.5 V  
 blue GND  
 yellow Hall sensor 1  
 brown Hall sensor 2  
 grey Hall sensor 3

Output signals: CMOS compatible push-pull stage. No pull-up resistor required. Hall signals are generated by an EASY INT sensor. In combination with the ENX EASY INT, the orange ( $V_{CC}$ ) and blue (GND) connections are not used.

### maxon Modular System

Details on catalog page 34

**maxon gear** Stages [opt.]  
 337\_GPX 13 SPEED 1-3  
 338\_GPX 14 A/C 1-2 [3-4]  
 339\_GPX 14 LN/LZ 1-2 [3-4]  
 340\_GPX 14 HP 2-3 [4]  
 341\_GPX 16 A/C 3-4  
 342\_GPX 16 LN/LZ 3-4  
 343\_GPX 16 HP 4

**maxon sensor**  
 for motor type A:  
 449\_ENX 13 EASY INT  
 for motor type B:  
 449\_ENX 13 EASY INT Abs.

### Configuration

Flange front: thread holes/center thread  
 Flange back: metal ring/external thread  
 Shaft front: length/diameter  
 Electric connection: cable length/pin connection/connector  
 Appropriate connectors and connecting cables are available for the configuration of the pin connection together with the external thread: see catalog, Accessories section.