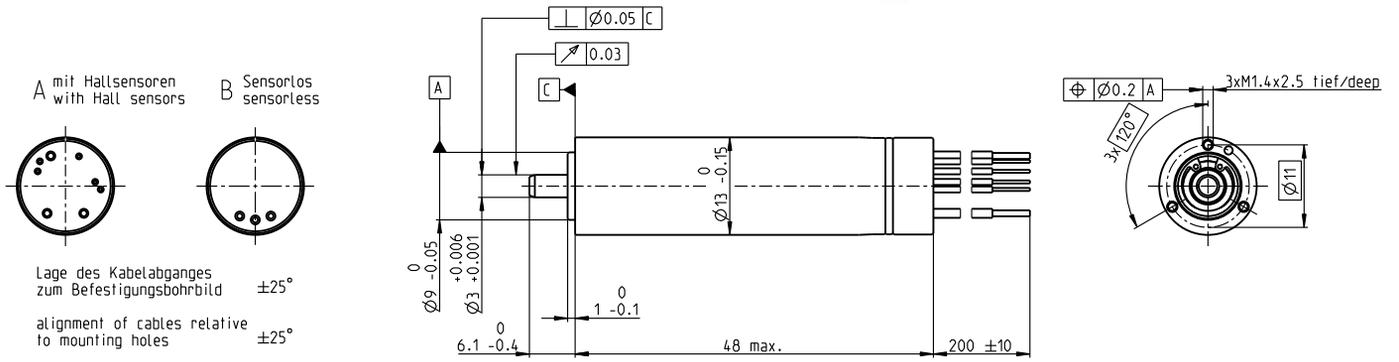
ECX SPEED 13 L ∅13 mm, brushless, BLDC motor

High Power

Key Data: 50/54 W, 7.1 mNm, 70 000 rpm



M 1:1

	Motor Data					
1_	Nominal voltage	V	18	24	36	48
2_	No load speed	rpm	67900	66400	67900	62300
3_	No load current	mA	223	161	112	72.1
4_	Nominal speed	rpm	64400	63100	64600	59000
5_	Nominal torque (max. continuous torque)	mNm	6.89	7.15	6.88	7.12
6_	Nominal current (max. continuous current)	A	2.93	2.22	1.46	1.03
7_	Stall torque	mNm	149	161	161	151
8_	Stall current	A	59.1	46.8	31.9	20.5
9_	Max. efficiency	%	88.3	88.8	88.7	88.7
10_	Terminal resistance	Ω	0.304	0.512	1.13	2.34
11_	Terminal inductance	mH	0.012	0.0223	0.0479	0.101
12_	Torque constant	mNm/A	2.52	3.44	5.04	7.33
13_	Speed constant	rpm/V	3790	2780	1890	1300
14_	Speed/torque gradient	rpm/mNm	457	414	424	415
15_	Mechanical time constant	ms	1.67	1.51	1.55	1.52
16_	Rotor inertia	gcm²	0.349	0.349	0.349	0.349

	Thermal data		
17_	Thermal resistance housing-ambient	K/W	24.4
18_	Thermal resistance winding-housing	K/W	1.6
19_	Thermal time constant winding	s	1.68
20_	Thermal time constant motor	s	411
21_	Ambient temperature	°C	-20...+100
22_	Max. winding temperature	°C	155
	Mechanical data ball bearings		
23_	Max. speed	rpm	70 000
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	1 500
28_	Max. radial load [mm from flange]	N	6 [5]
	Other specifications		
29_	Number of pole pairs		1
30_	Number of phases		3
31_	Weight of motor	g	33.7
32_	Typical noise level [rpm]	dBA	47 [50 000]

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

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

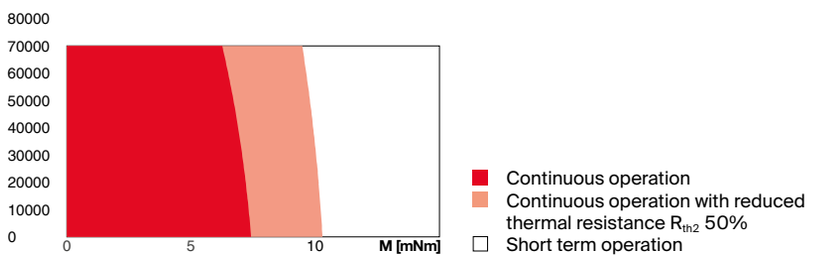
Connection A, sensors (Cable AWG 28)

orange	V_{CC} 5 ±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.

Operating Range

n [rpm] winding 36 V



maxon Modular System Details on catalog page 34

maxon gear	Stages [opt.]	maxon sensor	maxon motor control
337_GPX 13 SPEED	1–3	for motor type A:	501_ESCON 36/3 EC
338_GPX 14 A/C	1–2 [3–4]	449_ENX 13 EASY INT	501_ESCON Module 50/4 EC-S
339_GPX 14 LN/LZ	1–2 [3–4]	for motor type B:	501_ESCON Module 50/5
340_GPX 14 HP	2–3 [4]	449_ENX 13 EASY INT Abs.	503_ESCON 50/5
341_GPX 16 A/C	3–4		505_DEC Module 50/5
342_GPX 16 LN/LZ	3–4		509_EPOS4 Micro 24/5
343_GPX 16 HP	4		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

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.

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