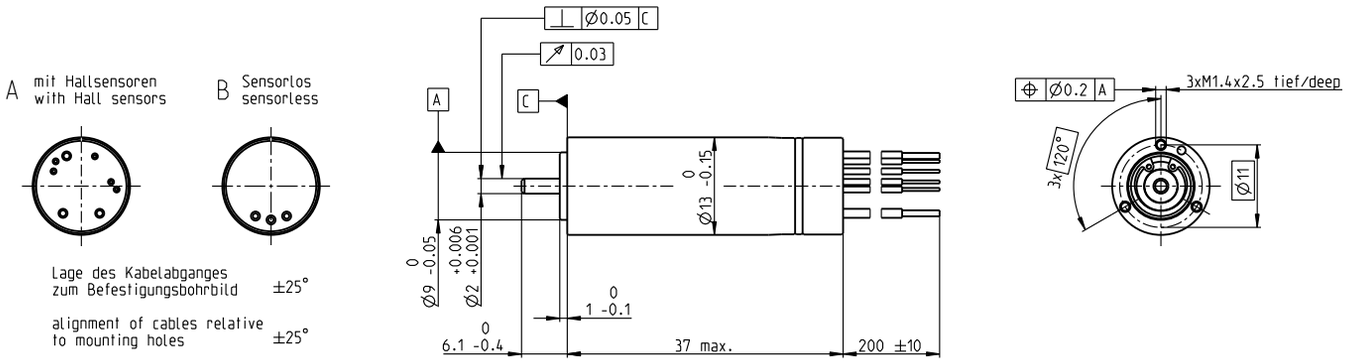
ECX SPEED 13 M ∅13 mm, brushless, BLDC motor

Key Data: 12/12.8 W, 2.7 mNm, 50 000 rpm



M 1:1

	Motor Data					
1_	Nominal voltage	V	18	24	36	48
2_	No load speed	rpm	44700	44500	43300	43700
3_	No load current	mA	206	154	98.1	74.7
4_	Nominal speed	rpm	40000	40000	38600	38900
5_	Nominal torque (max. continuous torque)	mNm	2.73	2.74	2.63	2.58
6_	Nominal current (max. continuous current)	A	0.916	0.687	0.431	0.321
7_	Stall torque	mNm	28	28.4	25.5	25.2
8_	Stall current	A	7.49	5.68	3.32	2.48
9_	Max. efficiency	%	71	71	70	69
10_	Terminal resistance	Ω	2.4	4.22	10.9	19.3
11_	Terminal inductance	mH	0.0652	0.117	0.276	0.483
12_	Torque constant	mNm/A	3.74	5	7.69	10.2
13_	Speed constant	rpm/V	2560	1910	1240	939
14_	Speed/torque gradient	rpm/mNm	1640	1610	1750	1790
15_	Mechanical time constant	ms	4.2	4.12	4.48	4.56
16_	Rotor inertia	gcm²	0.244	0.244	0.244	0.244

	Thermal data		
17_	Thermal resistance housing-ambient	K/W	29.5
18_	Thermal resistance winding-housing	K/W	2.21
19_	Thermal time constant winding	s	1.31
20_	Thermal time constant motor	s	355
21_	Ambient temperature	°C	-20...+100
22_	Max. winding temperature	°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]
	Other specifications		
29_	Number of pole pairs		1
30_	Number of phases		3
31_	Weight of motor	g	24.1
32_	Typical noise level [rpm]	dBA	46 [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

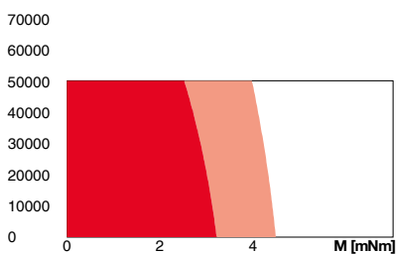
Connection A, sensors (Cable AWG 28)

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



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

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:	500_ESCON Module 24/2
338_GPX 14 A/C	1–2 [3–4]	449_ENX 13 EASY INT	501_ESCON 36/3 EC
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 24/2
343_GPX 16 HP	4		505_DEC Module 50/5
			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

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.

xdrives.maxongroup.com