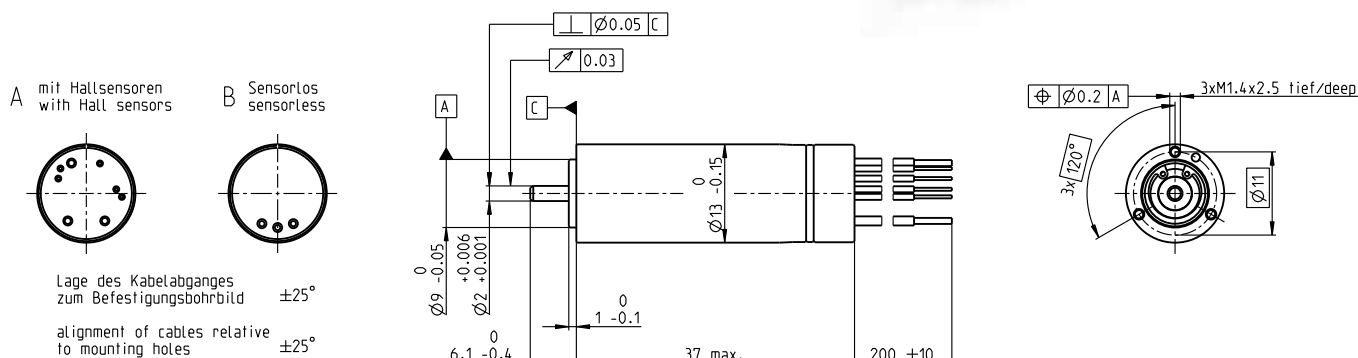


ECX SPEED 13 M Ø13 mm, brushless, BLDC motor

Key data: 12/18 W, 4.2 mNm, 50 000 rpm



ECX SPEED



M 1:1

Motor data

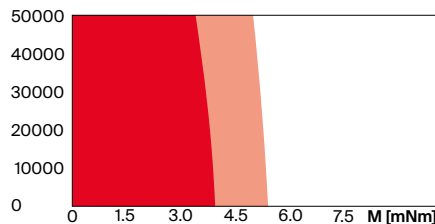
1.	Nominal voltage	V	18	24	36	48
2.	No load speed	rpm	45700	45500	44300	44700
3.	No load current	mA	80.8	60.3	38.8	29.4
4.	Nominal speed	rpm	38400	38400	36900	37300
5.	Nominal torque	mNm	4.21	4.23	4.05	3.99
6.	Nominal current (max. continuous current)	A	1.2	0.899	0.56	0.419
7.	Stall torque	mNm	27.9	28.3	25.4	25.1
8.	Stall current	A	7.49	5.68	3.32	2.48
9.	Max. efficiency	%	80.7	80.8	79.9	79.8
10.	Terminal resistance	Ω	2.4	4.22	10.9	19.3
11.	Terminal inductance	mH	0.0546	0.0978	0.232	0.404
12.	Torque constant	mNm/A	3.72	4.98	7.66	10.1
13.	Speed constant	rpm/V	2570	1920	1250	943
14.	Speed/torque gradient	rpm/mNm	1660	1630	1770	1800
15.	Mechanical time constant	ms	4.23	4.15	4.51	4.6
16.	Rotor inertia	gcm ²	0.244	0.244	0.244	0.244

Thermal data

17.	Thermal resistance housing-ambient	K/W	20
18.	Thermal resistance winding-housing	K/W	2.21
19.	Thermal time constant winding	s	1.31
20.	Thermal time constant motor	s	306
21.	Ambient temperature	°C	-20...+100
22.	Max. winding temperature	°C	155

Operating range

n [rpm] winding 36 V



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 31
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.

Modular system

Gear	Stages [opt.]	Sensor
377_GPX 13 SPEED	1-3	for motor type A:
378_GPX 14 A/C	1-2 [3-4]	513_ENX 13 EASY INT
379_GPX 14 LN/LZ	1-2 [3-4]	for motor type B:
380_GPX 14 HP	2-3 [4]	513_ENX 13 EASY INT Abs.
381_GPX 16 A/C	3-4	
382_GPX 16 LN/LZ	3-4	
383_GPX 16 HP	4	

Details on catalog page 44

Motor Control

547_DEC Module 24/2
547_DEC Module 50/5
550_ESCON Module 24/2
551_ESCON 36/3 EC
551_ESCON Module 50/4 EC-S
551_ESCON Module 50/5
553_ESCON 50/5
557_ESCON2 Nano 24/2
557_ESCON2 Micro 60/5
563_EPOS4 Micro 24/5
564_EPOS4 Module 24/1.5
564_EPOS4 Module 50/5
565_EPOS4 Compact 24/5 3-axes
566_EPOS4 Compact 24/1.5
567_EPOS4 Compact 50/5
569_EPOS4 50/5
570_EPOS4 Disk 60/8

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.