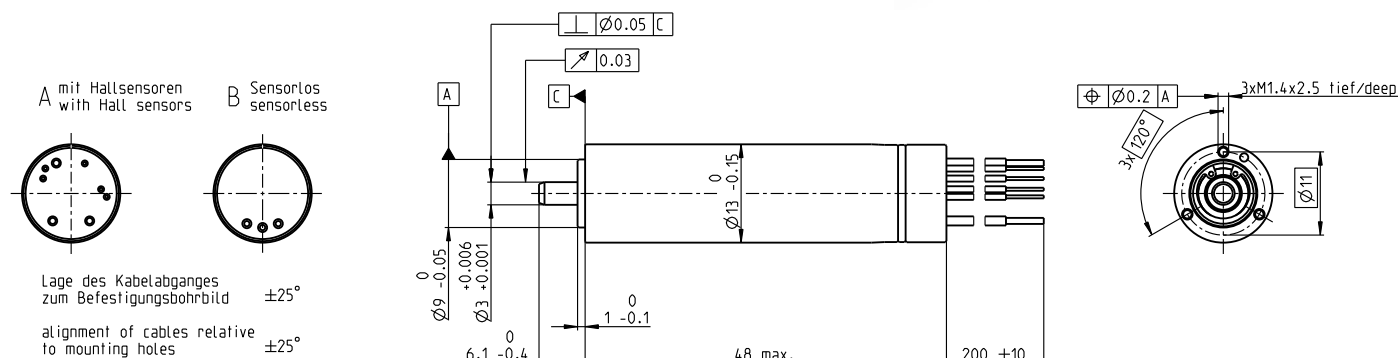


ECX SPEED 13 L Ø13 mm, brushless, BLDC motor

Sterilizable, ceramic bearings

Key Data: 50/79 W, 7.9 mNm, 120 000 rpm



M 1:1

Motor Data					
1. Nominal voltage	V	18	24	36	48
2. No load speed	rpm	71000	69500	71000	65100
3. No load current	mA	224	162	112	72
4. Nominal speed	rpm	66800	65600	67400	61500
5. Nominal torque	mNm	6.66	6.93	6.63	6.95
6. Nominal current (max. continuous current)	A	2.96	2.25	1.47	1.05
7. Stall torque	mNm	126	143	149	142
8. Stall current	A	52.3	43.4	30.8	20.2
9. Max. efficiency	%	87.6	88.9	89	88.6
10. Terminal resistance	Ω	0.344	0.552	1.17	2.38
11. Terminal inductance	mH	0.0128	0.0238	0.0512	0.108
12. Torque constant	mNm/A	2.41	3.29	4.82	7.01
13. Speed constant	rpm/V	3960	2910	1980	1360
14. Speed/torque gradient	rpm/mNm	567	489	480	462
15. Mechanical time constant	ms	1.87	1.61	1.58	1.52
16. Rotor inertia	gcm ²	0.315	0.315	0.315	0.315

Thermal data			Operating Range		Sterilization information
17. Thermal resistance housing-ambient	K/W	22	n [rpm]	winding 36 V	
18. Thermal resistance winding-housing	K/W	2.0			135°C SSS Sterilization cycles Sensorless: typical 2000 Hall sensors: typical 1000 Sterilization with steam Temperature +134°C ±4°C Compression pressure up to 2.3 bar Rel. humidity 100% Cycle length 18 min. ☒ Continuous operation ☒ Continuous operation with reduced thermal resistance R_{th2} 50% ☐ Short term operation
19. Thermal time constant winding	s	2.13			
20. Thermal time constant motor	s	448			
21. Ambient temperature	°C	-40...+135			
22. Max. winding temperature	°C	155			

Mechanical data ball bearings		
23_	Max. speed	rpm 120 000
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]

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

Modular System		Details on catalog page 40
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Other specifications			Gear	Stages [opt.]	Sensor	Motor Control
29_	Number of pole pairs	1	363_GPX 13 SPEED	1-3	for motor type A:	533_ESCON 36/3 EC
30_	Number of phases	3			481_ENX 13 EASY INT	533_ESCON Module 50/4 EC-S
31_	Weight of motor	g 41			for motor type B:	533_ESCON Module 50/5
32_	Typical noise level [rpm]	dBA 47 [50 000]			481_ENX 13 EASY INT Abs.	535_ESCON 50/5

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 ±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.

Configuration

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