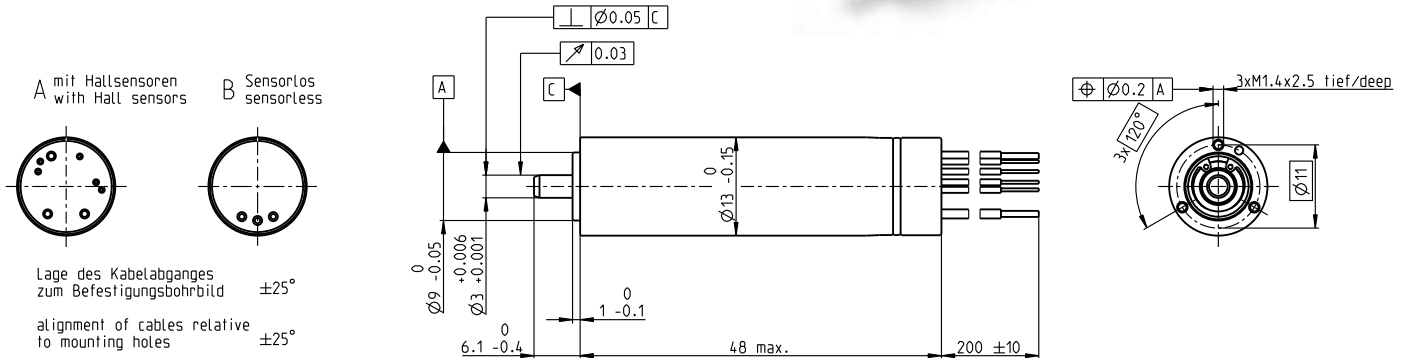


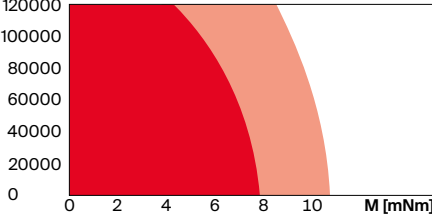
ECX SPEED 13 L Ø13 mm, brushless, BLDC motor

Sterilizable, ceramic bearings

Key data: 50/59 W, 7.5 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	66400	65300	67100	61200
5.	Nominal torque	mNm	7.3	7.57	7.26	7.56
6.	Nominal current (max. continuous current)	A	3.22	2.44	1.6	1.14
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	88.4	88.5	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	19.5	n [rpm] winding 36 V		Sterilization cycles
18.	Thermal resistance winding-housing	K/W	2.04			Sensorless: typical 2000
19.	Thermal time constant winding	s	213			Hall sensors: typical 1000
20.	Thermal time constant motor	s	397			
21.	Ambient temperature	°C	-40...+135			
22.	Max. winding temperature	°C	155			Sterilization with steam
Mechanical data ball bearings						
23.	Max. speed	rpm	120 000		Temperature +134°C ±4°C	
24.	Axial play	mm	0...0.28		Compression pressure up to 2.3 bar	
	Preload	N	1.5		Rel. humidity 100%	
	Direction of force		pull		Cycle length 18 min.	
25.	Radial play		preloaded		Continuous operation	
26.	Max. axial load (dynamic)	N	1.5		Continuous operation with reduced thermal resistance R_{th2} 50%	
27.	Max. force for press fits (static)	N	50		Short term operation	
	(static, shaft supported)	N	1500			
28.	Max. radial load [mm from flange]	N	6 [5]			
Other specifications			Modular system		Details on catalog page 44	
29.	Number of pole pairs		1	Gear 377_GPX 13 SPEED 1-3	Stages [opt.] 1-3	Sensor for motor type A: 513_ENX 13 EASY INT for motor type B: 513_ENX 13 EASY INT Abs.
30.	Number of phases		3			
31.	Weight of motor	g	42			
32.	Typical noise level [rpm]	dBA	47 [50 000]			
					Motor Control	
					547_DEC Module 50/5	
					551_ESCON 36/3 EC	
					551_ESCON Module 50/4 EC-S	
					551_ESCON Module 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.