

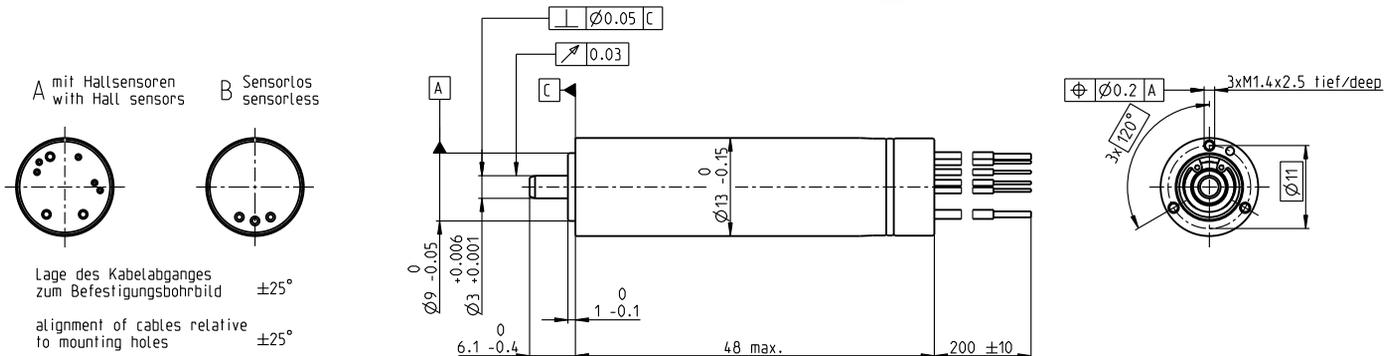
ECX SPEED 13 L \varnothing 13 mm, brushless, BLDC motor

Sterilizable

Key Data: 50/62 W, 7.8 mNm, 90 000 rpm



ECX SPEED



M 1:1

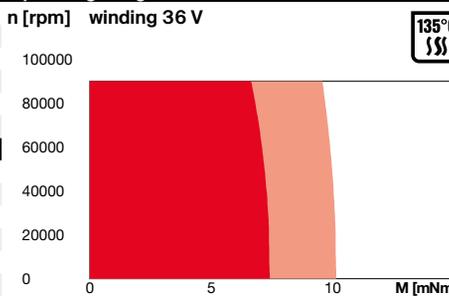
Motor Data

1_	Nominal voltage	V	18	24	36	48
2_	No load speed	rpm	72200	70600	72200	66200
3_	No load current	mA	234	170	117	76.5
4_	Nominal speed	rpm	67500	66400	68200	62300
5_	Nominal torque (max. continuous torque)	mNm	7.55	7.8	7.53	7.69
6_	Nominal current (max. continuous current)	A	3.39	2.57	1.69	1.18
7_	Stall torque	mNm	124	140	146	139
8_	Stall current	A	52.3	43.4	30.8	20.2
9_	Max. efficiency	%	87.3	88.1	88.2	88.3
10_	Terminal resistance	Ω	0.344	0.552	1.17	2.38
11_	Terminal inductance	mH	0.00741	0.0138	0.0296	0.0627
12_	Torque constant	mNm/A	2.37	3.23	4.74	6.89
13_	Speed constant	rpm/V	4030	2950	2010	1390
14_	Speed/torque gradient	rpm/mNm	586	505	496	478
15_	Mechanical time constant	ms	1.93	1.67	1.64	1.58
16_	Rotor inertia	gcm ²	0.315	0.315	0.315	0.315

Thermal data

17_	Thermal resistance housing-ambient	K/W	22
18_	Thermal resistance winding-housing	K/W	2.04
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

Operating Range



Sterilization information

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

Mechanical data ball bearings

23_	Max. speed	rpm	90 000
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 41
32_	Typical noise level [rpm]	dBA 47 [50 000]

maxon Modular System

maxon gear	Stages [opt.]	maxon sensor	maxon motor control
337_GPX 13 SPEED	1-3	for motor type A: 449_ENX 13 EASY INT	501_ESCON 36/3 EC 501_ESCON Module 50/4 EC-S
		for motor type B: 449_ENX 13 EASY INT Abs.	501_ESCON Module 50/5 503_ESCON 50/5 505_DEC Module 50/5 509_EPOS4 Micro 24/5 510_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

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.