

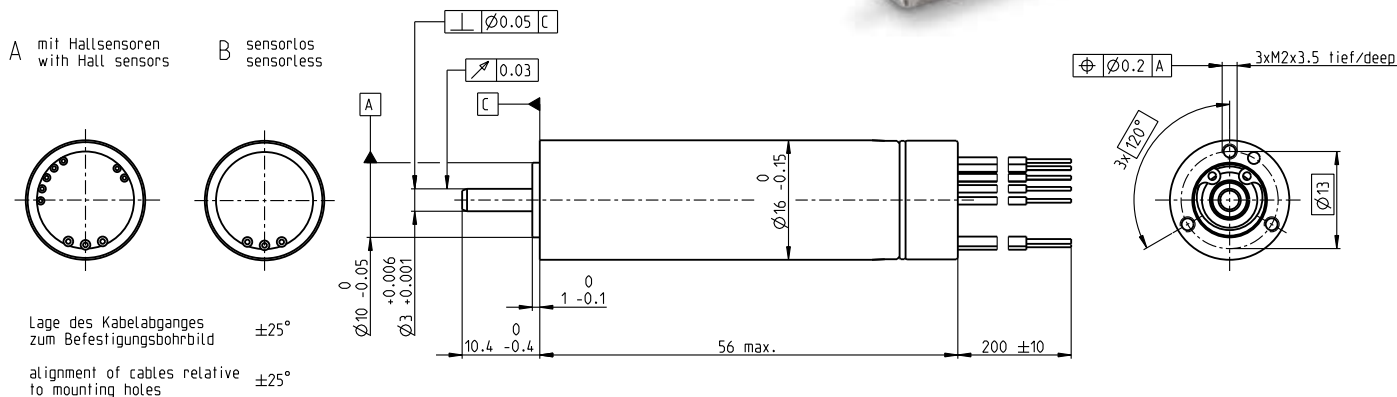
ECX SPEED 16 L $\varnothing 16$ mm, brushless, BLDC motor

Sterilizable

Key Data: 80/108 W, 16.3 mNm, 70 000 rpm



ECX SPEED



M 1:1

Motor Data

1_	Nominal voltage	V	18	24	36	48
2_	No load speed	rpm	65700	65800	65800	65800
3_	No load current	mA	333	250	167	125
4_	Nominal speed	rpm	62100	62400	62600	62600
5_	Nominal torque (max. continuous torque)	mNm	15.7	16.3	15.7	15
6_	Nominal current (max. continuous current)	A	6.28	4.87	3.13	2.26
7_	Stall torque	mNm	341	401	407	389
8_	Stall current	A	131	115	78.1	56
9_	Max. efficiency	%	90.3	91	91.1	90.9
10_	Terminal resistance	Ω	0.138	0.208	0.461	0.858
11_	Terminal inductance	mH	0.01	0.0178	0.04	0.0712
12_	Torque constant	mNm/A	2.61	3.48	5.21	6.95
13_	Speed constant	rpm/V	3660	2750	1830	1370
14_	Speed/torque gradient	rpm/mNm	194	165	162	170
15_	Mechanical time constant	ms	1.93	1.64	1.62	1.69
16_	Rotor inertia	gcm ²	0.952	0.952	0.952	0.952

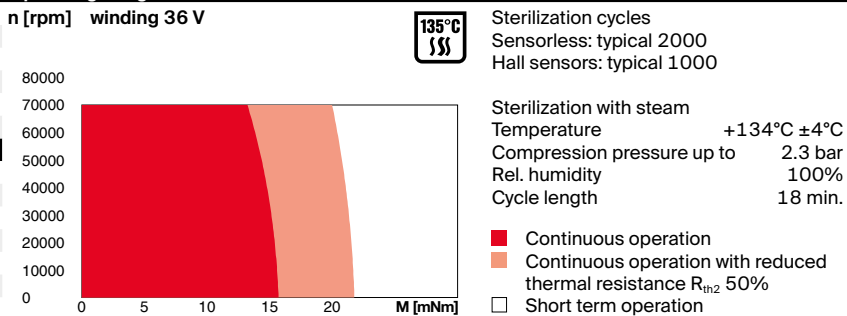
Thermal data

17_	Thermal resistance housing-ambient	K/W	16.2
18_	Thermal resistance winding-housing	K/W	0.58
19_	Thermal time constant winding	s	1.28
20_	Thermal time constant motor	s	588
21_	Ambient temperature	$^\circ\text{C}$	-40...+135
22_	Max. winding temperature	$^\circ\text{C}$	155

Mechanical data ball bearings

23_	Max. speed	rpm	70 000
24_	Axial play	mm	0...0.29
	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	60
	(static, shaft supported)	N	2500
28_	Max. radial load [mm from flange]	N	10 [5]

Operating Range



Other specifications

29_	Number of pole pairs	1	maxon gear	Stages [opt.]	maxon sensor	maxon motor control
30_	Number of phases	3	344_GPX 16 SPEED 1-2		for motor type A:	501_ESCON 36/3 EC
31_	Weight of motor	g	348_GPX 19 SPEED [3]		454_ENX 16 EASY INT	501_ESCON Module 50/4 EC-S
32_	Typical noise level [rpm]	dBA			for motor type B:	501_ESCON Module 50/5
					454_ENX 16 EASY INT Abs.	502_ESCON Module 50/8 HE
						503_ESCON 50/5
						503_ESCON 70/10
						505_DEC Module 50/5
						509_EPOS4 Micro 24/5
						510_EPOS4 Mod./Comp. 50/5
						511_EPOS4 Comp. 24/5 3-axes
						511_EPOS4 Mod./Comp. 50/8
						515_EPOS4 50/5
						515_EPOS4 70/15
						516_EPOS4 Disk 60/8
						517_EPOS4 Disk 60/12
						520_EPOS2 P 24/5

Connection A and B, motor (Cable AWG 22)

red	Motor winding 1
black	Motor winding 2
white	Motor winding 3

Connection A, sensors (Cable AWG 26)

orange	V_{Hall} 3...24 VDC
blue	GND
yellow	Hall sensor 1
brown	Hall sensor 2
grey	Hall sensor 3

Wiring diagram for Hall sensors see page 57. In combination with the ENX EASY INT, the orange (V_{cc}) and blue (GND) connections are not used. Hall signals are then generated by an ENX EASY-INT sensor (no pull-up resistor required; output signals: CMOS compatible push-pull stage).

Connection NTC (Cable AWG 26)

purple	NTC
purple	NTC

Resistance 25°C: 10 kOhm $\pm 1\%$, beta (25-85°C): 3490 K

Configuration

Flange front: thread holes/center thread
 Flange back: plastic ring/external thread/with opening
 Shaft front: length/diameter
 Electric connection: cable length/pin connection
 Temperature sensor: NTC-Thermistor (only for motor type A and only when not combined with an encoder).
 Appropriate connectors and connecting cables are available for the configuration of the pin connection together with the external thread: see catalog, Accessories section.

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