

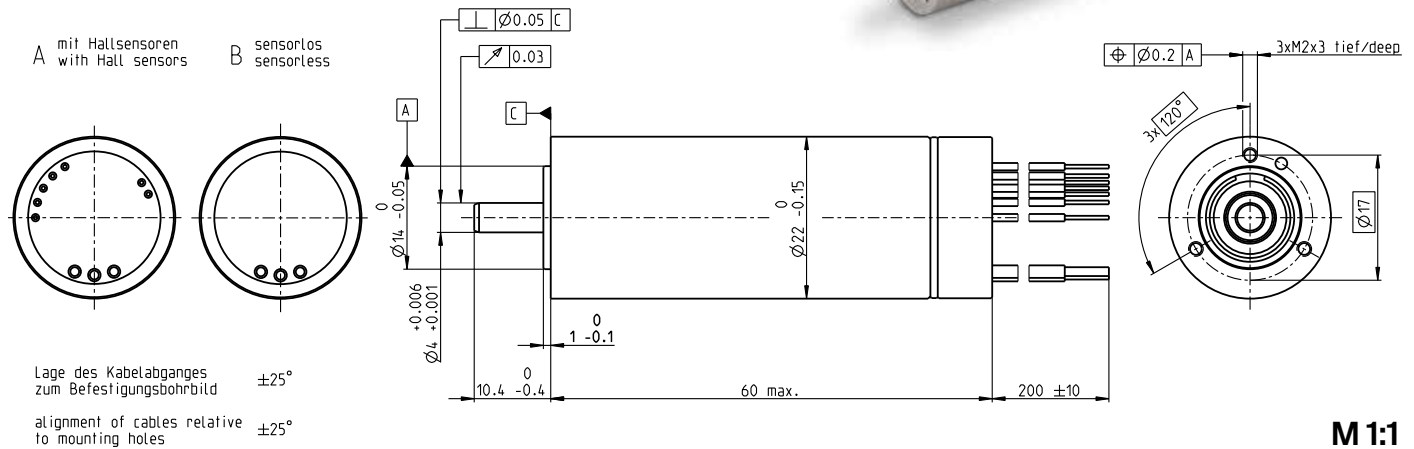
ECX SPEED 22 L Ø22 mm, brushless, BLDC motor

Sterilizable, ceramic bearings

Key Data: 120/169 W, 271 mNm, 85 000 rpm



ECX SPEED



M 1:1

Motor Data

1_	Nominal voltage	V	24	36	48
2_	No load speed	rpm	54100	56200	57300
3_	No load current	mA	477	339	263
4_	Nominal speed	rpm	52200	54400	55500
5_	Nominal torque (max. continuous torque)	mNm	26.7	27.1	25.5
6_	Nominal current (max. continuous current)	A	6.72	4.74	3.42
7_	Stall torque	mNm	965	1160	1120
8_	Stall current	A	228	190	140
9_	Max. efficiency	%	91.2	91.8	91.6
10_	Terminal resistance	Ω	0.105	0.189	0.343
11_	Terminal inductance	mH	0.0114	0.0237	0.0406
12_	Torque constant	mNm/A	4.23	6.11	7.99
13_	Speed constant	rpm/V	2260	1560	1200
14_	Speed/torque gradient	rpm/mNm	56.1	48.4	51.3
15_	Mechanical time constant	ms	1.39	1.2	1.27
16_	Rotor inertia	gcm ²	2.36	2.36	2.36

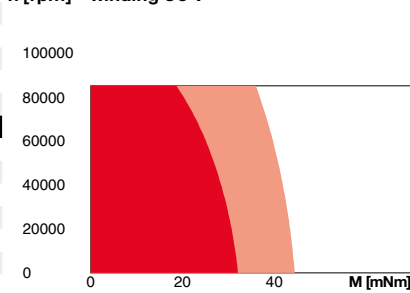
Thermal data

17_	Thermal resistance housing-ambient	K/W	12.5
18_	Thermal resistance winding-housing	K/W	0.84
19_	Thermal time constant winding	s	2.96
20_	Thermal time constant motor	s	634
21_	Ambient temperature	°C	-40...+135
22_	Max. winding temperature	°C	155

Mechanical data ball bearings

23_	Max. speed	rpm	85 000
24_	Axial play	mm	0...0.24
	Preload	N	4
	Direction of force		pull
25_	Radial play		preloaded
26_	Max. axial load (dynamic)	N	4
27_	Max. force for press fits (static)	N	110
	(static, shaft supported)	N	6000
28_	Max. radial load [mm from flange]	N	16 [5]

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

Other specifications

29_	Number of pole pairs	1
30_	Number of phases	3
31_	Weight of motor	g 148
32_	Typical noise level [rpm]	dBA 55 [50 000]

Connection A and B, motor (Cable AWG 18)

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 ±1%, beta (25-85°C): 3490 K	

maxon Modular System

maxon gear	Stages [opt.]	maxon sensor	maxon motor control
353_GPX 22 SPEED 1-2		for motor type A: 456_ENX 22 EASY INT	501_ESCON Module 50/4 EC-S
		for motor type B: 456_ENX 22 EASY INT Abs.	501_ESCON Module 50/5
			502_ESCON Module 50/8 HE
			503_ESCON 50/5
			503_ESCON 70/10
			505_DEC Module 50/5
			510_EPOS4 Mod./Comp. 50/5
			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

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.