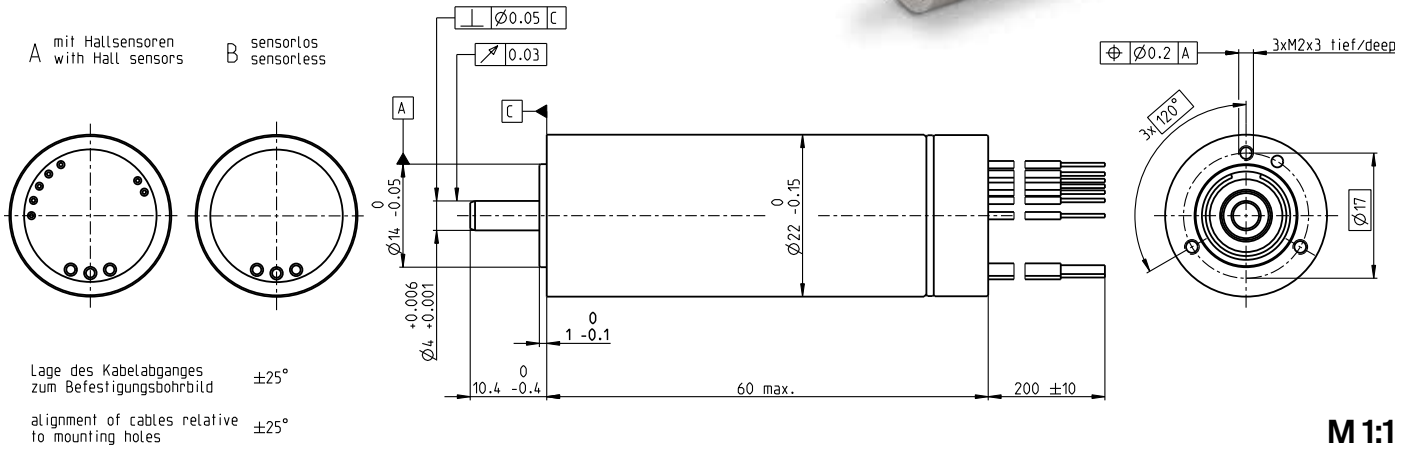


ECX SPEED 22 L Ø22 mm, brushless, BLDC motor

Key Data: 80/81 W, 20.2 mNm, 45 000 rpm



ECX SPEED



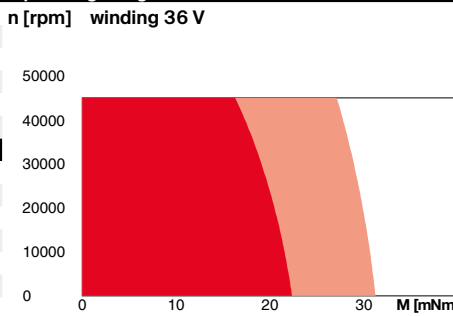
Motor Data

1_	Nominal voltage	V	24	36	48
2_	No load speed	rpm	38000	36800	37400
3_	No load current	mA	337	214	164
4_	Nominal speed	rpm	36000	34800	35600
5_	Nominal torque (max. continuous torque)	mNm	18.2	19.3	20.2
6_	Nominal current (max. continuous current)	A	3.35	2.27	1.8
7_	Stall torque	mNm	383	407	461
8_	Stall current	A	64	43.8	37.8
9_	Max. efficiency	%	86.2	86.7	87.4
10_	Terminal resistance	Ω	0.375	0.823	1.27
11_	Terminal inductance	mH	0.0234	0.0563	0.0968
12_	Torque constant	mNm/A	5.99	9.29	12.2
13_	Speed constant	rpm/V	1590	1030	784
14_	Speed/torque gradient	rpm/mNm	99.9	91	81.7
15_	Mechanical time constant	ms	4.07	3.71	3.33
16_	Rotor inertia	gcm ²	3.89	3.89	3.89

Thermal data

17_	Thermal resistance housing-ambient	K/W	12.7
18_	Thermal resistance winding-housing	K/W	0.62
19_	Thermal time constant winding	s	1.95
20_	Thermal time constant motor	s	644
21_	Ambient temperature	°C	-20...+100
22_	Max. winding temperature	°C	155

Operating Range



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

Mechanical data ball bearings

23_	Max. speed	rpm	45 000
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) (static, shaft supported)	N	110 6000
28_	Max. radial load [mm from flange]	N	16 [5]

Other specifications

29_	Number of pole pairs	1
30_	Number of phases	3
31_	Weight of motor	g 140
32_	Typical noise level [rpm]	dBA 54 [45 000]

maxon Modular System

maxon gear	Stages [opt.]
349_GPX 22 A/C	1-2 [3-4]
350_GPX 22 LN/LZ	1-2 [3-4]
351_GPX 22 HP	2-3 [4]
352_GPX 22 UP	1-4
353_GPX 22 SPEED	1-2
354_GPX 26 A/C	3
355_GPX 26 LN/LZ	3
356_GPX 26 HP	4

maxon sensor

for motor type A:
456_ENX 22 EASY INT
for motor type B:
456_ENX 22 EASY INT Abs.

maxon motor control

501_ESCON 36/3 EC
501_ESCON Module 50/4 EC-S
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

Configuration

Flange front: thread holes/center thread
Flange back: plastic ring/external thread/with opening
Shaft front: length/diameter
Shaft rear: length
Electric connection: cable length/pin connection/connector
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.

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