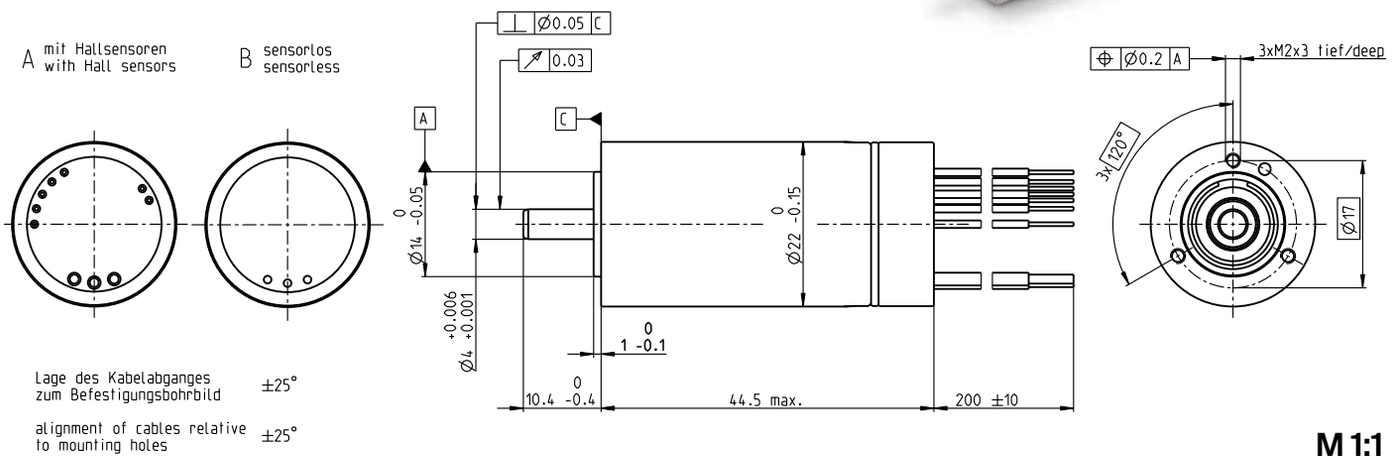
ECX SPEED 22 M ∅22 mm, brushless, BLDC motor

Key Data: 40/51 W, 12.1 mNm, 45 000 rpm



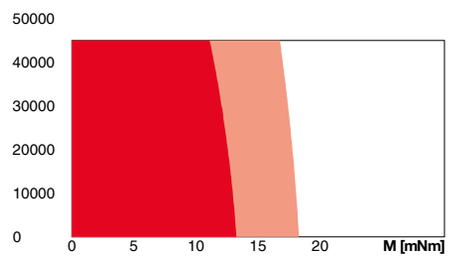
M 1:1

	Motor Data					
1_	Nominal voltage	V	18	24	36	48
2_	No load speed	rpm	40400	40000	40500	40400
3_	No load current	mA	378	279	189	141
4_	Nominal speed	rpm	37300	37100	37700	37500
5_	Nominal torque (max. continuous torque)	mNm	10.7	11.5	12.1	11.9
6_	Nominal current (max. continuous current)	A	2.89	2.28	1.61	1.18
7_	Stall torque	mNm	154	175	196	189
8_	Stall current	A	36.5	30.8	23.3	16.8
9_	Max. efficiency	%	81.1	82.2	83.1	82.8
10_	Terminal resistance	Ω	0.493	0.779	1.54	2.86
11_	Terminal inductance	mH	0.0272	0.0495	0.109	0.194
12_	Torque constant	mNm/A	4.2	5.67	8.4	11.2
13_	Speed constant	rpm/V	2270	1680	1140	850
14_	Speed/torque gradient	rpm/mNm	266	231	209	216
15_	Mechanical time constant	ms	5.94	5.16	4.65	4.82
16_	Rotor inertia	gcm²	2.13	2.13	2.13	2.13

	Thermal data		
17_	Thermal resistance housing-ambient	K/W	15
18_	Thermal resistance winding-housing	K/W	1.34
19_	Thermal time constant winding	s	2.71
20_	Thermal time constant motor	s	417
21_	Ambient temperature	°C	-20...+100
22_	Max. winding temperature	°C	155
	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)	N	110
	(static, shaft supported)	N	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	98
32_	Typical noise level [rpm]	dBA	53 [45 000]

Operating Range

n [rpm] winding 36 V



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

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 Details on catalog page 34

maxon gear	Stages [opt.]	maxon sensor	maxon motor control
349_GPX 22 A/C	1-2 [3-4]	for motor type A:	501_ESCON 36/3 EC
350_GPX 22 LN/LZ	1-2 [3-4]	456_ENX 22 EASY INT	501_ESCON Module 50/4 EC-S
351_GPX 22 HP	2-3 [4]	for motor type B:	501_ESCON Module 50/5
352_GPX 22 UP	1-4	456_ENX 22 EASY INT Abs.	503_ESCON 50/5
353_GPX 22 SPEED	1-2		505_DEC Module 50/5
354_GPX 26 A/C	3		509_EPOS4 Micro 24/5
355_GPX 26 LN/LZ	3		510_EPOS4 Mod./Comp. 50/5
356_GPX 26 HP	4		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.

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