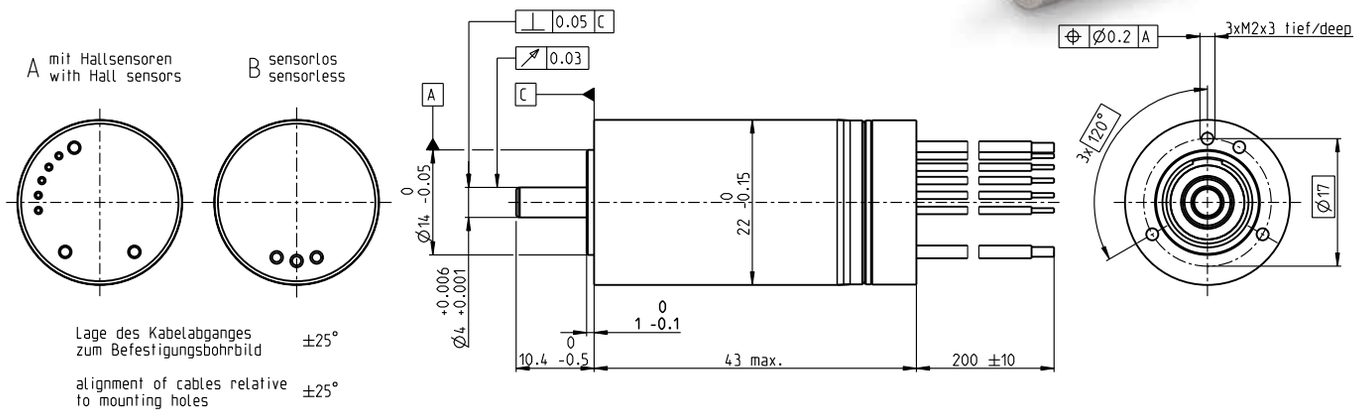
ECX TORQUE 22 M ∅22 mm, brushless, BLDC motor

Key Data: 30/43 W, 32.4 mNm, 16 000 rpm



M 1:1

	Motor Data					
1_	Nominal voltage	V	18	24	36	48
2_	No load speed	rpm	14300	15300	15100	13000
3_	No load current	mA	175	145	94.8	56.5
4_	Nominal speed	rpm	12200	13100	12900	10900
5_	Nominal torque (max. continuous torque)	mNm	29.4	28.6	29.7	32.4
6_	Nominal current (max. continuous current)	A	2.41	1.88	1.28	0.885
7_	Stall torque	mNm	439	466	494	461
8_	Stall current	A	37.1	31.5	21.9	13.2
9_	Max. efficiency	%	86.9	87.1	87.4	87.5
10_	Terminal resistance	Ω	0.486	0.763	1.64	3.63
11_	Terminal inductance	mH	0.274	0.428	0.988	2.38
12_	Torque constant	mNm/A	11.8	14.8	22.5	34.9
13_	Speed constant	rpm/V	806	645	424	273
14_	Speed/torque gradient	rpm/mNm	33.1	33.2	31	28.4
15_	Mechanical time constant	ms	0.596	0.599	0.558	0.512
16_	Rotor inertia	gcm^2	1.72	1.72	1.72	1.72

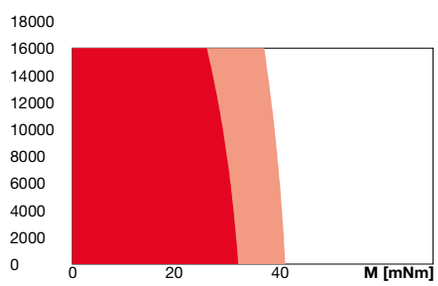
	Thermal data		
17_	Thermal resistance housing-ambient	K/W	15.7
18_	Thermal resistance winding-housing	K/W	4.48
19_	Thermal time constant winding	s	18.4
20_	Thermal time constant motor	s	644
21_	Ambient temperature	°C	-40...+100
22_	Max. winding temperature	°C	155

	Mechanical data ball bearings		
23_	Max. speed	rpm	16 000
24_	Axial play	mm	0...0.24
	Preload	N	4.0
	Direction of force		pull
25_	Radial play		preloaded
26_	Max. axial load (dynamic)	N	4.0
27_	Max. force for press fits (static)	N	110
	(static, shaft supported)	N	
28_	Max. radial load [mm from flange]	N	22 [5]

	Other specifications		
29_	Number of pole pairs		4
30_	Number of phases		3
31_	Weight of motor	g	82.1
32_	Typical noise level [rpm]	dBA	54 [12 000]

Operating Range

n [rpm] winding 24 V



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

maxon Modular System Details on catalog page 34

maxon gear	Stages [opt.]	maxon sensor	maxon motor control
349_GPX 22 A/C	1–2	for motor type A:	500_ESCON Module 24/2
350_GPX 22 LN/LZ	1–2	456_ENX 22 EASY INT	501_ESCON 36/3 EC
351_GPX 22 HP	2–3	for motor type B:	501_ESCON Module 50/4 EC-S
352_GPX 22 UP	1–4	456_ENX 22 EASY INT Abs.	501_ESCON Module 50/5
354_GPX 26 A/C	3		503_ESCON 50/5
355_GPX 26 LN/LZ	3		505_DEC Module 24/2, 50/5
356_GPX 26 HP	4		509_EPOS4 Micro 24/5
			510_EPOS4 Module/Comp. 50/5
			520_EPOS2 P 24/5

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_{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.

Connection Temperature sensor (Cable AWG 26)

purple	NTC
purple	NTC

Resistance 25°C: 10 kOhm ±5%, beta (25-85°C): 3434 K

Configuration

Flange front: thread holes/center thread
Flange back: plastic ring/center thread
Shaft front: length/diameter
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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