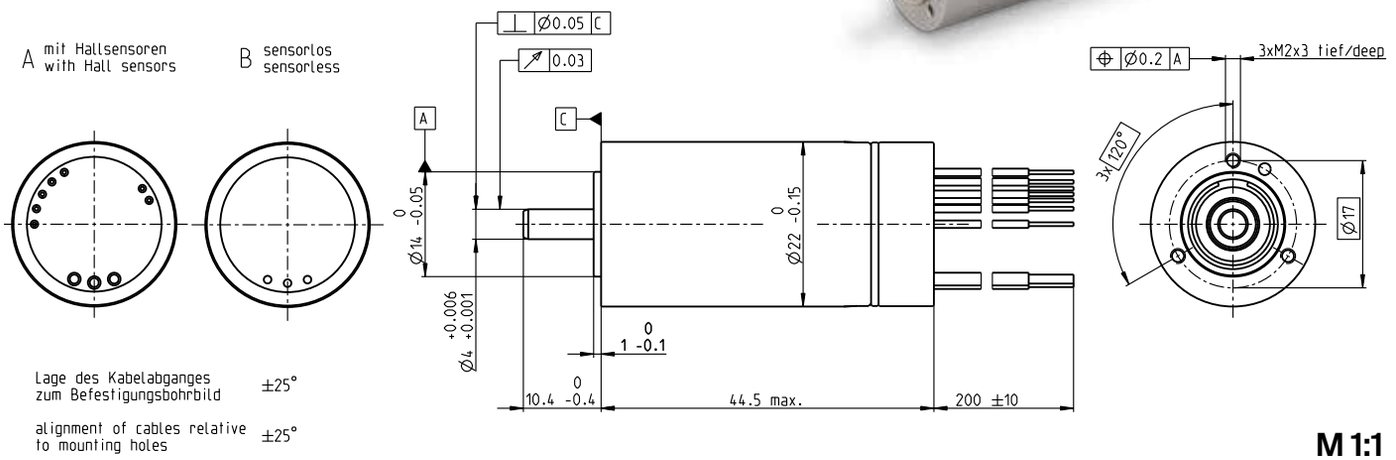
ECX SPEED 22 M ∅22 mm, brushless, BLDC motor

Sterilizable

Key data: 80/95 W, 18 mNm, 60 000 rpm



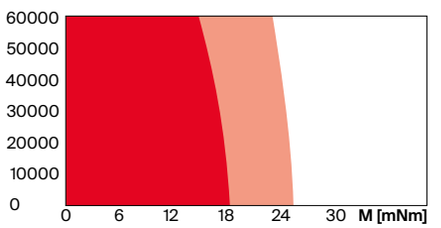
M 1:1

	Motor data					
1_	Nominal voltage	V	18	24	36	48
2_	No load speed	rpm	52700	54700	56800	54700
3_	No load current	mA	254	201	142	101
4_	Nominal speed	rpm	49300	51400	53500	51500
5_	Nominal torque	mNm	18	17.8	17	17.4
6_	Nominal current (max. continuous current)	A	5.72	4.4	2.92	2.16
7_	Stall torque	mNm	341	366	368	365
8_	Stall current	A	105	87.5	60.9	43.7
9_	Max. efficiency	%	90.5	90.7	90.7	90.7
10_	Terminal resistance	Ω	0.172	0.274	0.591	1.1
11_	Terminal inductance	mH	0.0164	0.0272	0.0567	0.109
12_	Torque constant	mNm/A	3.25	4.18	6.04	8.36
13_	Speed constant	rpm/V	2940	2290	1580	1140
14_	Speed/torque gradient	rpm/mNm	155	150	155	150
15_	Mechanical time constant	ms	3.1	3	3.1	3
16_	Rotor inertia	gcm²	1.91	1.91	1.91	1.91

	Thermal data		
17_	Thermal resistance housing-ambient	K/W	11.3
18_	Thermal resistance winding-housing	K/W	0.6
19_	Thermal time constant winding	s	1.25
20_	Thermal time constant motor	s	314
21_	Ambient temperature	°C	-40...+135
22_	Max. winding temperature	°C	155
	Mechanical data ball bearings		
23_	Max. speed	rpm	60 000
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	105
32_	Typical noise level [rpm]	dBA	54 [50 000]

Operating range

n [rpm] winding 36 V



Sterilization information

135°C SSS

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

Modular system Details on catalog page 44

Gear	Stages [opt.]
393_GPX 22 HP	1–3
395_GPX 22 SPEED	1–2

Sensor
for motor type A:
516_ENX 22 EASY INT
for motor type B:
516_ENX 22 EASY INT Abs.

Motor Control
547_DEC Module 50/5
551_ESCON Module 50/4 EC-S
551_ESCON Module 50/5
552_ESCON Module 50/8 HE
553_ESCON 50/5
553_ESCON 70/10
557_ESCON2 Micro 60/5
558_ESCON2 Module 60/12
559_ESCON2 Compact 60/12
563_EPOS4 Micro 24/5
564_EPOS4 Module 50/5
565_EPOS4 Module 50/8
565_EPOS4 Compact 24/5 3-axes
567_EPOS4 Compact 50/5
567_EPOS4 Compact 50/8
569_EPOS4 50/5
569_EPOS4 70/15
570_EPOS4 Disk 60/8
571_EPOS4 Disk 60/12

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 67. 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

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.