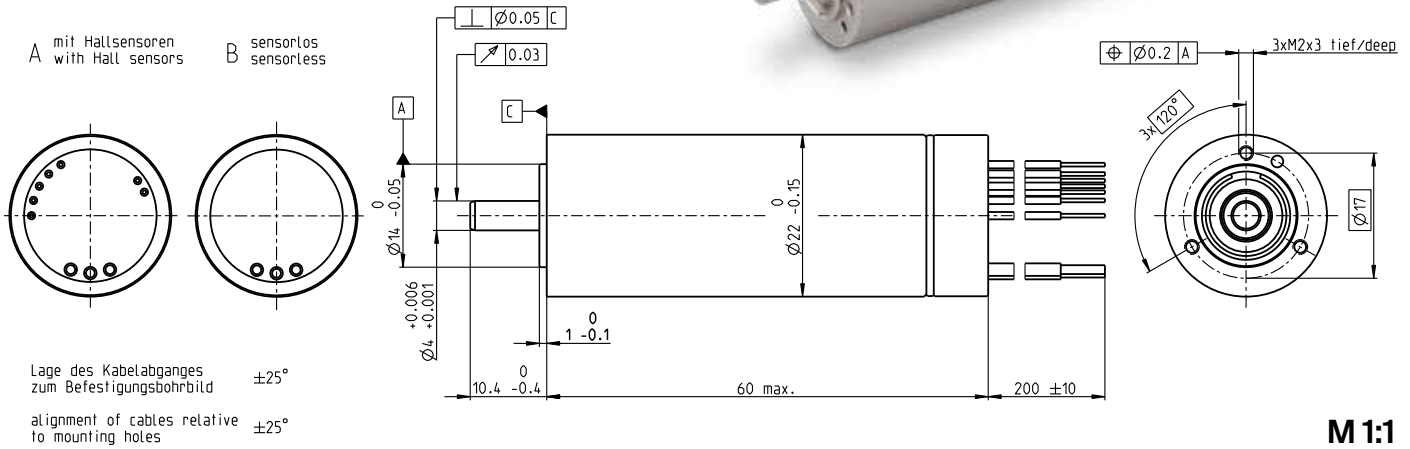


ECX SPEED 22 L Ø22 mm, brushless, BLDC motor

Sterilizable, ceramic bearings

Key data: 120/171 W, 31 mNm, 85 000 rpm



M 1:1

Motor data

1. Nominal voltage	V	24	36	48
2. No load speed	rpm	52700	54700	55800
3. No load current	mA	365	259	201
4. Nominal speed	rpm	50600	52800	53900
5. Nominal torque	mNm	30.8	31	28.9
6. Nominal current (max. continuous current)	A	7.39	5.14	3.69
7. Stall torque	mNm	992	1190	1150
8. Stall current	A	228	190	140
9. Max. efficiency	%	92.3	92.8	92.6
10. Terminal resistance	Ω	0.105	0.189	0.343
11. Terminal inductance	mH	0.0114	0.0238	0.0407
12. Torque constant	mNm/A	4.34	6.27	8.2
13. Speed constant	rpm/V	2200	1520	1160
14. Speed/torque gradient	rpm/mNm	53.2	45.9	48.7
15. Mechanical time constant	ms	1.31	1.13	1.2
16. Rotor inertia	gcm ²	2.36	2.36	2.36

Thermal data

17. Thermal resistance housing-ambient	K/W	9
18. Thermal resistance winding-housing	K/W	0.84
19. Thermal time constant winding	s	2.96
20. Thermal time constant motor	s	456
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]

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

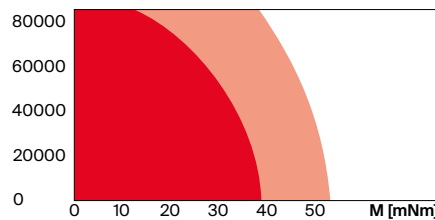
Wiring diagram for Hall sensors see page 67. In combination with the ENX EASY INT, the orange (V_{CC}) and blue (GND) connections are not used. Hall signals are then generated by an ENX EASY-INT sensor (no pull-up resistor required; output signals: CMOS compatible push-pull stage).

Connection NTC (Cable AWG 26)

purple	NTC
purple	NTC
Resistance 25 °C: 10 kOhm $\pm 1\%$, beta (25–85 °C): 3490 K	

Operating range

n [rpm] winding 36 V



Sterilization information

Sterilization cycles
Sensorless: typical 2000
Hall sensors: typical 1000

Sterilization with steam
Temperature $+134^\circ\text{C} \pm 4^\circ\text{C}$
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

393_GPX 22 HP	1-3
395_GPX 22 SPEED	1-2

Stages [opt.]

for motor type A:
516_ENX 22 EASY INT

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

516_ENX 22 EASY INT Abs.

516_ENX 22 EASY INT Abs.

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516_ENX 22 EASY INT Abs.

516_ENX 22 EASY INT Abs.

516_ENX 22 EASY INT Abs.

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.

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
564_EPOS4 Module 50/5
565_EPOS4 Module 50/8
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