

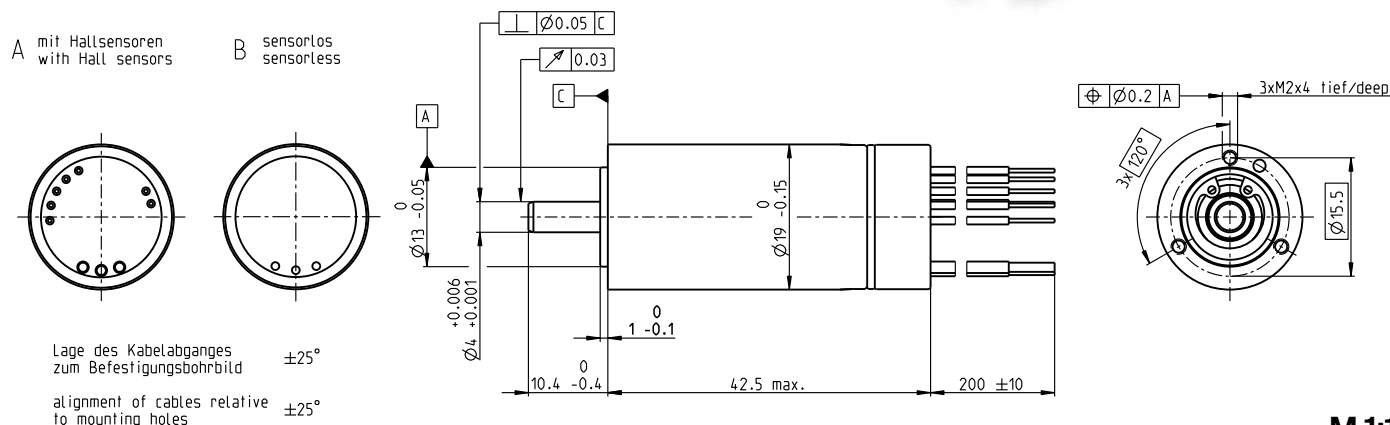
ECX SPEED 19 M Ø19 mm, brushless, BLDC motor

Sterilizable

Key data: 60/73 W, 11.6 mNm, 70 000 rpm



ECX SPEED



M 1:1

Motor data

1.	Nominal voltage	V	18	24	36	48
2.	No load speed	rpm	64800	64700	64700	63500
3.	No load current	mA	169	127	84.4	61.9
4.	Nominal speed	rpm	59600	59200	59500	58400
5.	Nominal torque	mNm	11.6	10.3	10.7	10.9
6.	Nominal current (max. continuous current)	A	4.49	3	2.06	1.55
7.	Stall torque	mNm	179	150	164	169
8.	Stall current	A	67.7	42.4	31	23.5
9.	Max. efficiency	%	90.2	89.4	89.8	90
10.	Terminal resistance	Ω	0.266	0.566	1.16	2.04
11.	Terminal inductance	mH	0.0235	0.0439	0.0989	0.183
12.	Torque constant	mNm/A	2.64	3.53	5.3	7.2
13.	Speed constant	rpm/V	3610	2700	1800	1330
14.	Speed/torque gradient	rpm/mNm	363	433	396	376
15.	Mechanical time constant	ms	4.38	5.22	4.77	4.53
16.	Rotor inertia	gcm ²	1.15	1.15	1.15	1.15

Thermal data

17.	Thermal resistance housing-ambient	K/W	12.4
18.	Thermal resistance winding-housing	K/W	1.6
19.	Thermal time constant winding	s	2.36
20.	Thermal time constant motor	s	513
21.	Ambient temperature	°C	-40...+135
22.	Max. winding temperature	°C	155

Mechanical data ball bearings

23.	Max. speed	rpm	70 000
24.	Axial play	mm	0...0.29
	Preload	N	4
	Direction of force		pull
25.	Radial play	preload	
26.	Max. axial load (dynamic)	N	4
27.	Max. force for press fits (static)	N	70
	(static, shaft supported)	N	5000
28.	Max. radial load [mm from flange]	N	12 [5]

Other specifications

General		Stages [opt.]	Sensor	Motor control
29_ Number of pole pairs	1	389_GPX 19 SPEED 1-2	for motor type A:	547_DEC Module 50/5
30_ Number of phases	3	395_GPX 22 SPEED [3]	515_ENX 19 EASY INT	551_ESCON 36/3 EC
31_ Weight of motor	g 72		for motor type B:	551_ESCON Module 50/4 EC-S
32_ Typical noise level [rpm]	dBA 48 [50 000]		515_ENX 19 EASY INT Abs.	551_ESCON Module 50/5

Connection A and B, motor (Cable AWG 20)

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

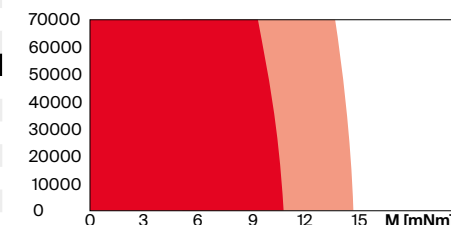
Wiring diagram for Hall sensors see page 67. In combination with the ENX EASY INT, the orange (V_{CC}) and blue (GND) connections are not used. Hall signals are then generated by an ENX EASY-INT sensor (no pull-up resistor required; output signals: CMOS compatible push-pull stage).

Connection NTC (Cable AWG 26)

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

Operating range

n [rpm] winding 36 V



Sterilization information

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.]	Sensor	Motor Control
389_GPX 19 SPEED 1-2		for motor type A: 515_ENX 19 EASY INT	547_DEC Module 50/5 551_ESCON 36/3 EC
395_GPX 22 SPEED [3]		for motor type B: 515_ENX 19 EASY INT Abs.	551_ESCON Module 50/4 EC-S 551_ESCON Module 50/5 553_ESCON 50/5 557_ESCON2 Micro 60/5 563_EPOS4 Micro 24/5 564_EPOS4 Module 50/5 565_EPOS4 Compact 24/5 3-axes 567_EPOS4 Compact 50/5 569_EPOS4 50/5 570_EPOS4 Disk 60/8

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.