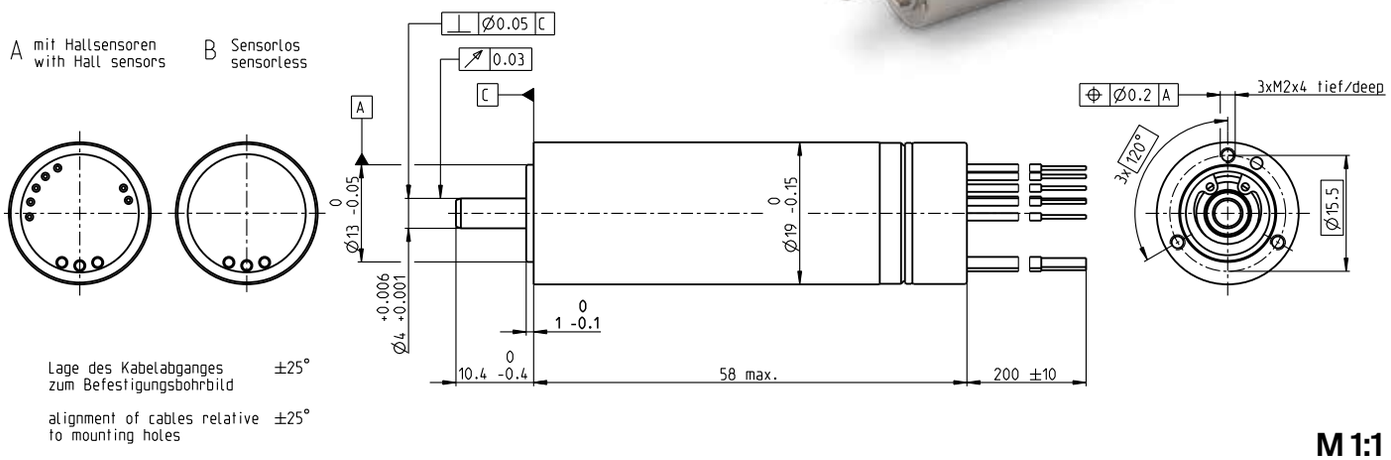
ECX SPEED 19 L ∅19 mm, brushless, BLDC motor

Sterilizable, ceramic bearings

Key data: 120/165 W, 24.9 mNm, 100 000 rpm



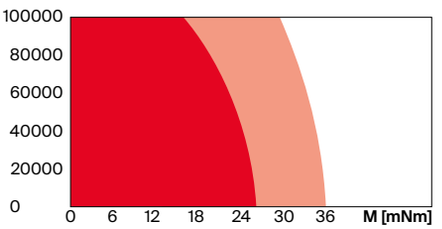
M 1:1

	Motor data					
1_	Nominal voltage	V	18	24	36	48
2_	No load speed	rpm	60200	60200	57100	62900
3_	No load current	mA	274	206	127	109
4_	Nominal speed	rpm	56600	56900	54000	59900
5_	Nominal torque	mNm	24.3	24	24.9	23.2
6_	Nominal current (max. continuous current)	A	8.69	6.43	4.2	3.26
7_	Stall torque	mNm	508	566	619	661
8_	Stall current	A	178	149	103	90.8
9_	Max. efficiency	%	92.3	92.7	93.1	93.2
10_	Terminal resistance	Ω	0.101	0.161	0.35	0.528
11_	Terminal inductance	mH	0.0101	0.018	0.0451	0.0662
12_	Torque constant	mNm/A	2.85	3.8	6.01	7.28
13_	Speed constant	rpm/V	3350	2510	1590	1310
14_	Speed/torque gradient	rpm/mNm	119	107	92.4	95.2
15_	Mechanical time constant	ms	2.22	2	1.73	1.79
16_	Rotor inertia	gcm²	1.79	1.79	1.79	1.79

	Thermal data		
17_	Thermal resistance housing-ambient	K/W	10.1
18_	Thermal resistance winding-housing	K/W	0.9
19_	Thermal time constant winding	s	2.74
20_	Thermal time constant motor	s	418
21_	Ambient temperature	°C	-40...+135
22_	Max. winding temperature	°C	155
	Mechanical data ball bearings		
23_	Max. speed	rpm	100 000
24_	Axial play	mm	0...0.29
	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	70
	(static, shaft supported)	N	5000
28_	Max. radial load [mm from flange]	N	12 [5]
	Other specifications		
29_	Number of pole pairs		1
30_	Number of phases		3
31_	Weight of motor	g	100
32_	Typical noise level [rpm]	dBA	51 [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.]
389_GPX 19 SPEED	1–2
395_GPX 22 SPEED	[3]

Sensor
for motor type A:
515_ENX 19 EASY INT
for motor type B:
515_ENX 19 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
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

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

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.