

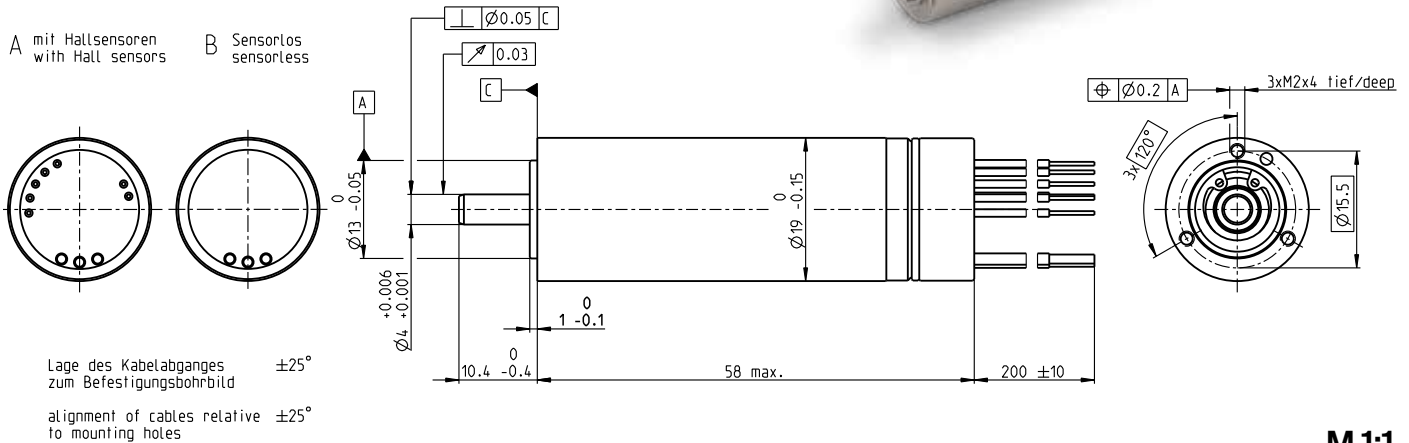
ECX SPEED 19 L \varnothing 19 mm, brushless, BLDC motor

Sterilizable, ceramic bearings

Key Data: 120/206 W, 24.1 mNm, 100 000 rpm



ECX SPEED



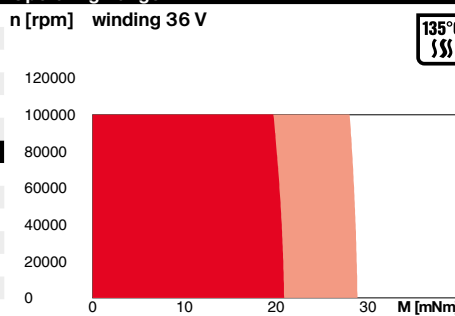
Motor Data

1_	Nominal voltage	V	18	24	36	48
2_	No load speed	rpm	60800	60800	57600	63400
3_	No load current	mA	376	282	172	152
4_	Nominal speed	rpm	57200	57500	54600	60400
5_	Nominal torque (max. continuous torque)	mNm	23.9	23.6	24.1	23.2
6_	Nominal current (max. continuous current)	A	8.71	6.45	4.16	3.32
7_	Stall torque	mNm	503	561	613	655
8_	Stall current	A	178	149	103	90.8
9_	Max. efficiency	%	91.2	91.6	92.1	92.1
10_	Terminal resistance	Ω	0.101	0.161	0.35	0.528
11_	Terminal inductance	mH	0.0096	0.0171	0.0428	0.0627
12_	Torque constant	mNm/A	2.82	3.76	5.95	7.21
13_	Speed constant	rpm/V	3390	2540	1600	1320
14_	Speed/torque gradient	rpm/mNm	121	109	94.2	97.1
15_	Mechanical time constant	ms	2.27	2.04	1.77	1.82
16_	Rotor inertia	gcm ²	1.79	1.79	1.79	1.79

Thermal data

17_	Thermal resistance housing-ambient	K/W	13.6
18_	Thermal resistance winding-housing	K/W	0.9
19_	Thermal time constant winding	s	2.79
20_	Thermal time constant motor	s	563
21_	Ambient temperature	$^\circ\text{C}$	-40...+135
22_	Max. winding temperature	$^\circ\text{C}$	155

Operating Range



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.

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 108
32_	Typical noise level [rpm]	dBA 51 [50 000]

maxon Modular System

maxon gear	Stages [opt.]	maxon sensor
348_GPX 19 SPEED 1-2		for motor type A: 455_ENX 19 EASY INT
353_GPX 22 SPEED [3]		for motor type B: 455_ENX 19 EASY INT Abs.

Details on catalog page 34

maxon motor control
501_ESCON Module 50/4 EC-S
501_ESCON Module 50/5
502_ESCON Module 50/8 HE
503_ESCON 50/5
503_ESCON 70/10
505_DEC Module 50/5
510_EPOS4 Mod./Comp. 50/5
511_EPOS4 Mod./Comp. 50/8
515_EPOS4 50/5
515_EPOS4 70/15
516_EPOS4 Disk 60/8
517_EPOS4 Disk 60/12
520_EPOS2 P 24/5

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 57. 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 $^\circ\text{C}$: 10 kOhm $\pm 1\%$, beta (25-85 $^\circ\text{C}$): 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.