

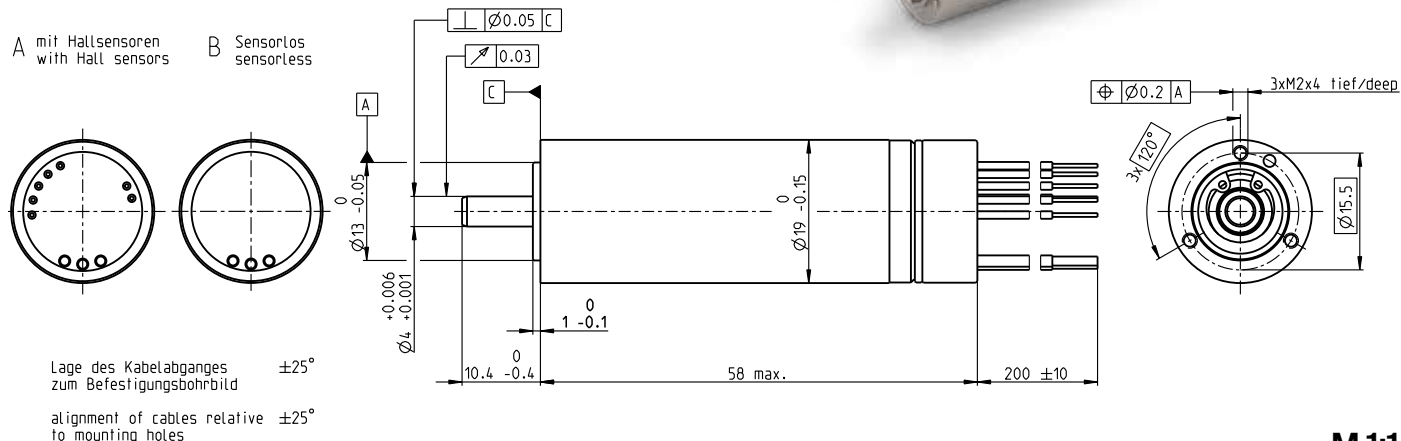
ECX SPEED 19 L \varnothing 19 mm, brushless, BLDC motor

Sterilizable

Key Data: 120/147 W, 23.9 mNm, 70 000 rpm



ECX SPEED



M 1:1

Motor Data						
1_	Nominal voltage	V	18	24	36	48
2_	No load speed	rpm	60800	60800	57600	63400
3_	No load current	mA	426	319	194	172
4_	Nominal speed	rpm	57200	57500	54600	60500
5_	Nominal torque (max. continuous torque)	mNm	23.6	23.3	23.9	23
6_	Nominal current (max. continuous current)	A	8.68	6.43	4.14	3.31
7_	Stall torque	mNm	503	561	613	655
8_	Stall current	A	178	149	103	90.8
9_	Max. efficiency	%	90.6	91.1	91.6	91.6
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		Operating Range		Sterilization information		
17_	Thermal resistance housing-ambient	K/W	13.6	n [rpm]	winding 36 V	Sterilization cycles Sensorless: typical 2000 Hall sensors: typical 1000
18_	Thermal resistance winding-housing	K/W	0.9			
19_	Thermal time constant winding	s	2.79			Sterilization with steam Temperature +134°C \pm 4°C Compression pressure up to 2.3 bar Rel. humidity 100% Cycle length 18 min.
20_	Thermal time constant motor	s	563			
21_	Ambient temperature	$^\circ$ C	-40...+135			
22_	Max. winding temperature	$^\circ$ C	155			

Mechanical data ball bearings		maxon Modular System		Details on catalog page 34	
23_	Max. speed	rpm	70 000	maxon gear	Stages [opt.]
24_	Axial play	mm	0...0.29		
	Preload	N	4	maxon sensor	for motor type A: 455_ENX 19 EASY INT
	Direction of force		pull		
25_	Radial play		preloaded	for motor type B: 455_ENX 19 EASY INT Abs.	maxon motor control
26_	Max. axial load (dynamic)	N	4		
27_	Max. force for press fits (static)	N	70	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	
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]

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 $^\circ$ C: 10 kOhm \pm 1%, beta (25–85 $^\circ$ 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.