

# ECX SPEED 19 M brushless BLDC motor Ø19 mm

Sterilizable

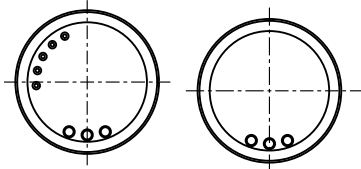
**NEW**



60/68 W 10.3 mNm 70000 rpm

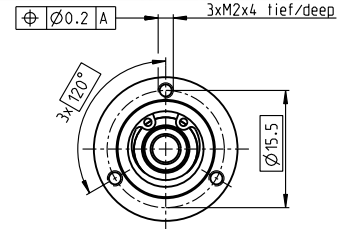
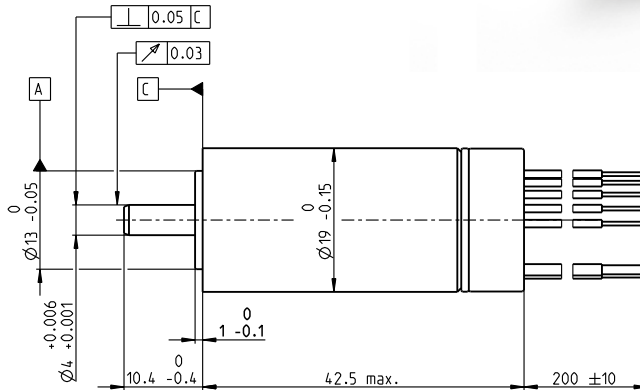
A mit Hallensoren  
with Hall sensors

B sensorlos  
sensorless



Lage des Kabelabganges  
zum Befestigungsbohrbild ±25°

alignment of cables relative  
to mounting holes ±25°



M 1:1

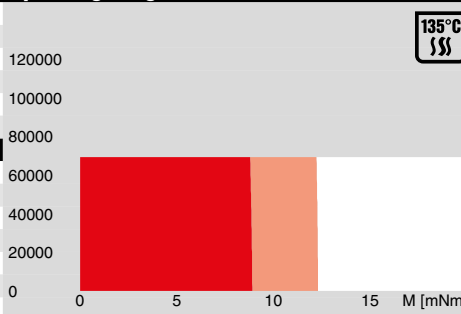
### Motor Data

1_ Nominal voltage	V	18	24	36	48
2_ No load speed	rpm	64700	64400	64500	63300
3_ No load current	mA	307	229	153	112
4_ Nominal speed	rpm	59700	59300	59700	58600
5_ Nominal torque (max. continuous torque)	mNm	10.7	9.59	9.91	10.1
6_ Nominal current (max. continuous current)	A	4.28	2.89	1.99	1.49
7_ Stall torque	mNm	175	150	164	169
8_ Stall current	A	66.1	42.4	31	23.5
9_ Max. efficiency	%	87	86	87	87
10_ Terminal resistance	Ω	0.272	0.566	1.16	2.04
11_ Terminal inductance	mH	0.0234	0.0438	0.0986	0.182
12_ Torque constant	mNm/A	2.64	3.54	5.3	7.2
13_ Speed constant	rpm/V	3610	2700	1800	1330
14_ Speed/torque gradient	rpm/mNm	373	432	396	376
15_ Mechanical time constant	ms	4.49	5.2	4.77	4.53
16_ Rotor inertia	gcm <sup>2</sup>	1.15	1.15	1.15	1.15

### Thermal data

17_ Thermal resistance housing-ambient	K/W	16.9
18_ Thermal resistance winding-housing	K/W	1.1
19_ Thermal time constant winding	s	1.62
20_ Thermal time constant motor	s	700
21_ Ambient temperature	°C	-40...+135
22_ Max. winding temperature	°C	155

### Operating Range



Sensorless: typical 2000 sterilization cycles  
Hall sensors: typical 1000 sterilization cycles  
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<sub>th2</sub> 50%  
■ Short term operation

### Mechanical data ball bearings

23_ Max. speed	rpm	70000
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 commutator segments		3
31_ Weight of motor	g	78
32_ Typical noise level [rpm]	dBA	48 [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 <sub>Hall</sub> 3...24 VDC
blue	GND
yellow	Hall sensor 1
brown	Hall sensor 2
grey	Hall sensor 3

Wiring diagram for Hall sensors see page 33

### Connection NTC (Cable AWG 26)

purple	NTC
purple	NTC

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

### maxon Modular System

maxon gear	maxon sensor	maxon motor control
		379_ESCON 36/3 EC
		379_ESCON Module 50/4 EC-S
		379_ESCON Module 50/5
		379_ESCON 50/5
		382_DEC Module 50/5

### Configuration

Flange front: thread in flange/center thread  
Flange back: without/center thread  
Shaft front: length/diameter  
Electric connection: cable length/pin connection  
Temperature Sensor: NTC-Thermistor