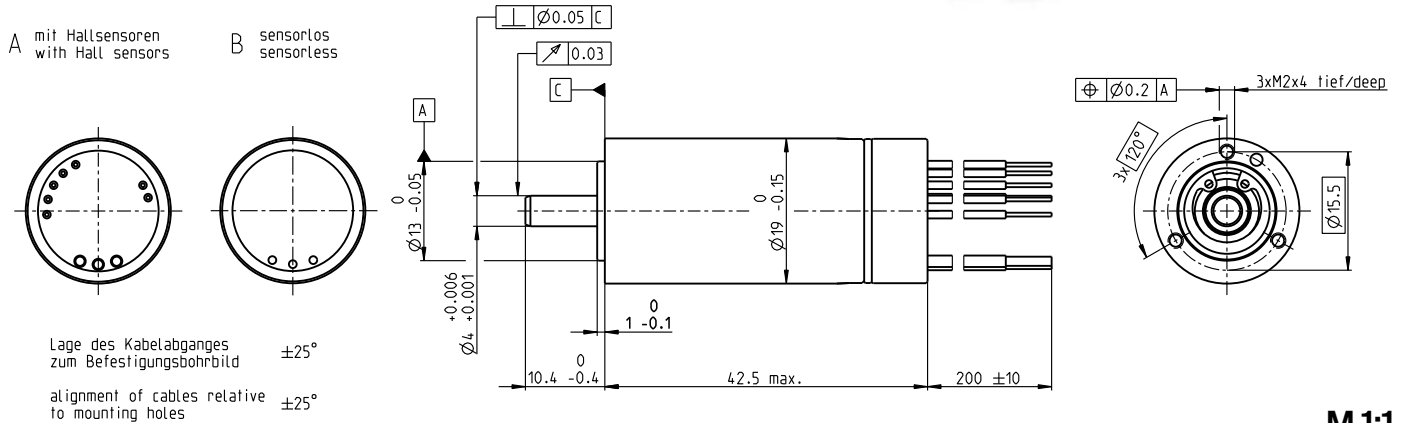


# ECX SPEED 19 M Ø19 mm, brushless, BLDC motor

Key Data: 30/37 W, 7.6 mNm, 50 000 rpm



ECX SPEED



M 1:1

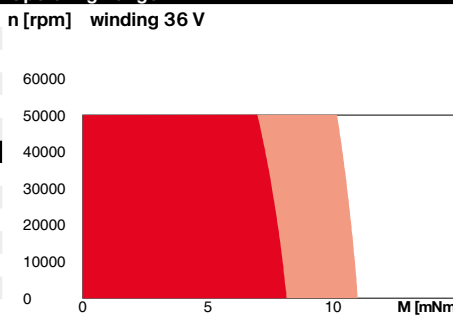
### Motor Data

1_	Nominal voltage	V	18	24	36	48
2_	No load speed	rpm	45200	47700	45200	47100
3_	No load current	mA	250	205	125	100
4_	Nominal speed	rpm	41000	43600	41100	42900
5_	Nominal torque (max. continuous torque)	mNm	7.61	7.47	7.57	7.08
6_	Nominal current (max. continuous current)	A	2.23	1.74	1.11	0.82
7_	Stall torque	mNm	94.8	101	96.7	91.8
8_	Stall current	A	25.2	21.3	12.8	9.54
9_	Max. efficiency	%	82	82	82	81
10_	Terminal resistance	Ω	0.715	1.13	2.8	5.03
11_	Terminal inductance	mH	0.0548	0.0873	0.219	0.358
12_	Torque constant	mNm/A	3.76	4.75	7.53	9.62
13_	Speed constant	rpm/V	2540	2010	1270	992
14_	Speed/torque gradient	rpm/mNm	482	476	473	519
15_	Mechanical time constant	ms	5.81	5.74	5.69	6.25
16_	Rotor inertia	gcm <sup>2</sup>	1.15	1.15	1.15	1.15

### Thermal data

17_	Thermal resistance housing-ambient	K/W	16.8
18_	Thermal resistance winding-housing	K/W	2.77
19_	Thermal time constant winding	s	5.55
20_	Thermal time constant motor	s	696
21_	Ambient temperature	°C	-20...+100
22_	Max. winding temperature	°C	155

### Operating Range



### Mechanical data ball bearings

23_	Max. speed	rpm	50 000
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) (static, shaft supported)	N	70
28_	Max. radial load [mm from flange]	N	5000

### Other specifications

29_	Number of pole pairs	1	
30_	Number of phases	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 57. In combination with the ENX EASY INT, the orange (V<sub>CC</sub>) 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

### maxon Modular System

maxon gear	Stages [opt.]
345_GPX 19 A/C	1-2 [3-4]
346_GPX 19 LN/LZ	1-2 [3-4]
347_GPX 19 HP	2-3 [4]
348_GPX 19 SPEED	1-2
349_GPX 22 A/C	3-4
350_GPX 22 LN/LZ	3-4
351_GPX 22 HP	4
353_GPX 22 SPEED	[3]

maxon sensor
for motor type A:
455_ENX 19 EASY INT
for motor type B:
455_ENX 19 EASY INT Abs.

### Details on catalog page 34

maxon motor control
500_ESCON Module 24/2
501_ESCON 36/3 EC
501_ESCON Module 50/4 EC-S
501_ESCON Module 50/5
503_ESCON 50/5
505_DEC Module 24/2
505_DEC Module 50/5
509_EPOS4 Micro 24/5
510_EPOS4 Mod./Comp. 50/5
511_EPOS4 Comp. 24/5 3-axes
515_EPOS4 50/5
516_EPOS4 Disk 60/8
520_EPOS2 P 24/5

### Configuration

Flange front: thread holes/center thread  
 Flange back: plastic ring/external thread/with opening  
 Shaft front: length/diameter  
 Shaft rear: length  
 Electric connection: cable length/pin connection/connector  
 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.

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