

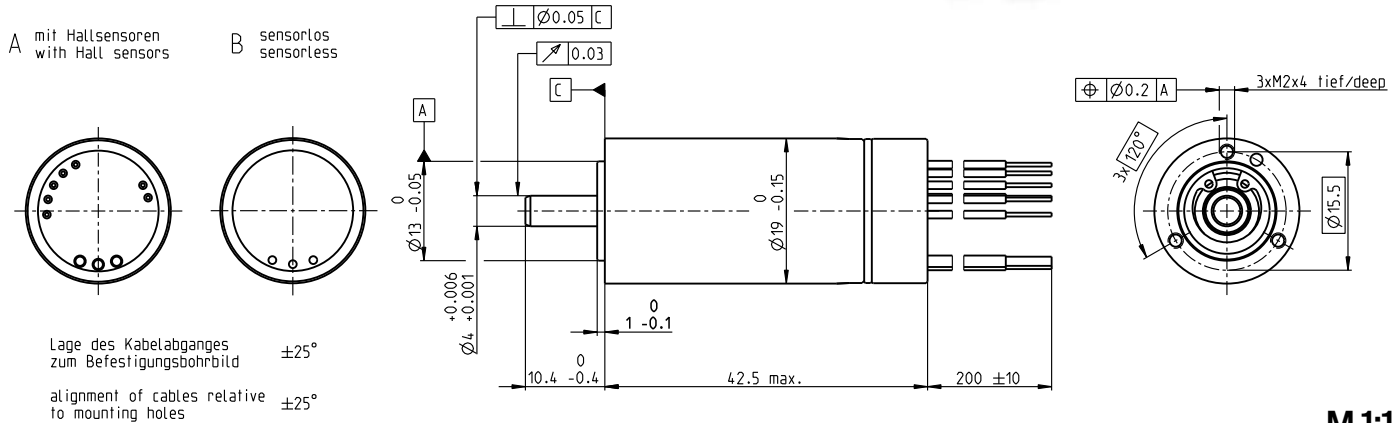
ECX SPEED 19 M \varnothing 19 mm, brushless, BLDC motor

High Power

Key Data: 60/71 W, 11.2 mNm, 65 000 rpm



ECX SPEED



M 1:1

Motor Data

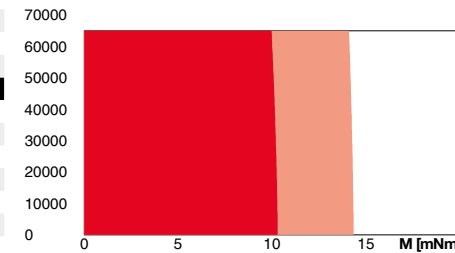
1_	Nominal voltage	V	18	24	36	48
2_	No load speed	rpm	61300	59600	59700	58600
3_	No load current	mA	408	293	195	142
4_	Nominal speed	rpm	56800	55200	55400	54400
5_	Nominal torque (max. continuous torque)	mNm	11.2	10.2	10.5	10.8
6_	Nominal current (max. continuous current)	A	4.36	2.91	2	1.5
7_	Stall torque	mNm	189	162	177	183
8_	Stall current	A	67.7	42.4	31	23.5
9_	Max. efficiency	%	85.4	84.4	85.1	85.4
10_	Terminal resistance	Ω	0.266	0.566	1.16	2.04
11_	Terminal inductance	mH	0.0213	0.0398	0.0896	0.166
12_	Torque constant	mNm/A	2.78	3.81	5.72	7.77
13_	Speed constant	rpm/V	3430	2510	1670	1230
14_	Speed/torque gradient	rpm/mNm	327	372	340	323
15_	Mechanical time constant	ms	4.49	5.1	4.66	4.43
16_	Rotor inertia	gcm ²	1.31	1.31	1.31	1.31

Thermal data

17_	Thermal resistance housing-ambient	K/W	16.8
18_	Thermal resistance winding-housing	K/W	0.75
19_	Thermal time constant winding	s	1.27
20_	Thermal time constant motor	s	696
21_	Ambient temperature	$^\circ\text{C}$	-20...+100
22_	Max. winding temperature	$^\circ\text{C}$	155

Operating Range

n [rpm] winding 36 V



- Continuous operation
- Continuous operation with reduced thermal resistance R_{th2} 50%
- Short term operation

Mechanical data ball bearings

23_	Max. speed	rpm	65 000
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 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 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_{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

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.

maxon motor control

501_ESCON 36/3 EC
501_ESCON Module 50/4 EC-S
501_ESCON Module 50/5
503_ESCON 50/5
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.

xdrives.maxongroup.com