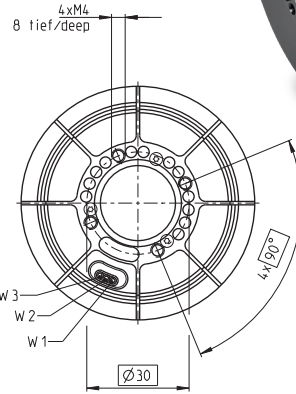
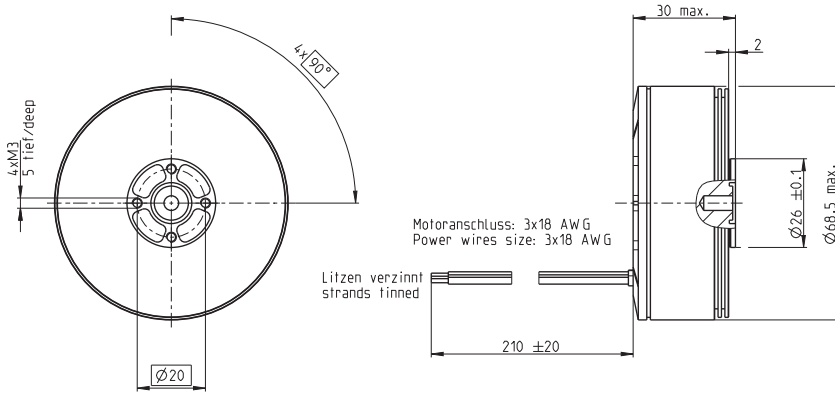


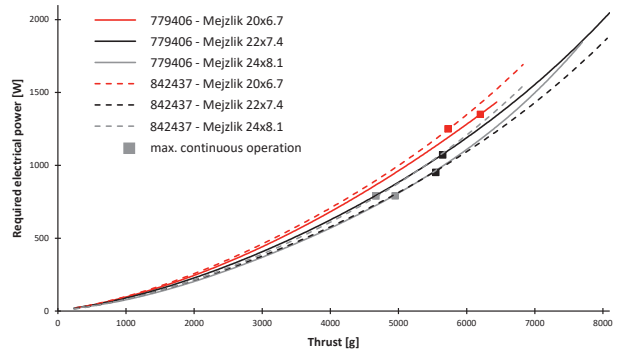
EC 69 flat UAV Ø69 mm, brushless

Designed for professional UAV applications



Part number			
sensorless			
779406			
842437			
Propeller selection			

Motor data			
Values at nominal voltage			
1	Nominal voltage ¹	V	24
2	No load speed	rpm	3800
3	No load current	mA	551
4	Nominal speed	rpm	2900
5	Nominal torque (max. continuous torque)	mNm	1180
6	Nominal current (max. continuous current)	A	17.6
7	Stall torque ²	mNm	3000
8	Stall current	A	168
9	Max. efficiency	%	88.9
Characteristics			
10	Terminal resistance phase to phase	Ω	0.143
11	Terminal inductance phase to phase	mH	0.0799
12	Torque constant	mNm/A	59.9
13	Speed constant	rpm/V	159
14	Speed/torque gradient	rpm/mNm	0.381
15	Mechanical time constant	ms	2.95
16	Rotor inertia	gcm ²	740
17	Thermal resistance housing-ambient ³	K/W	0.344
18	Thermal resistance winding-housing ³	K/W	0.852
19	Thermal time constant winding	s	15.2
20	Thermal time constant motor	s	46.3



¹ The nominal voltage is used to characterize the motor properties. This value does not represent the maximum operating voltage.

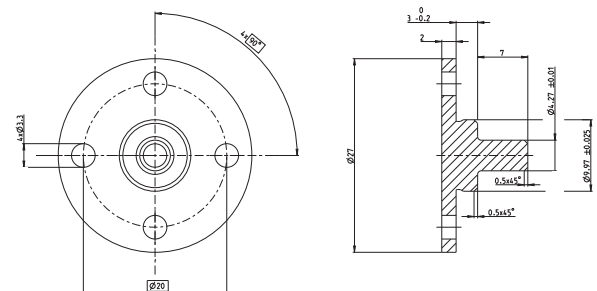
² Calculation does not include saturation effect.

³ At nominal working point.

Specifications			
Thermal data			
21	Ambient temperature	°C	-40...+70
22	Max. continuous winding temperature	°C	+155
	Absolute winding temperature	°C	+180
Mechanical data (preloaded ball bearings)			
23	Max. speed	rpm	6500
Other specifications			
24	Number of pole pairs		14
	Magnetic system configuration		24N28P
25	Number of phases		3
26	Weight of motor (incl. 210 mm cable)	g	269
27	Recommended propeller sizes	inch	20...24
Modifications on request - contact aerospace@maxongroup.com			
- Cable length			
- Electrical connector			
- Shaft length			
- Additional shaft end			
- Shaft design (e.g. hollow shaft)			
- Customized labeling (text only)			
- Speed constant and torque constant			
- Active propeller positioning feature			
- Open motor design			
- Integration of a NTC temperature sensor			

maxon accessories

Propeller adapter: 718087



Values listed in the tables are nominal, i.e. defined for operation without a propeller attached (no active cooling).

Motor data when operated with a propeller attached differs from the nominal values. The adjusted motor data depending on the propeller used can be found on the following pages under the section "Adjusted motor data for use with specified propeller (active cooling)."

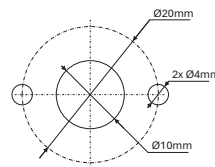
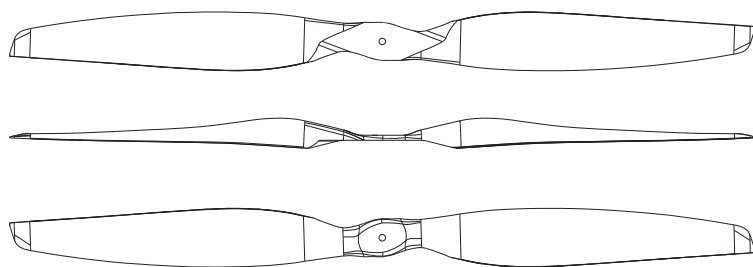
Cable and connection

Connection cable with polyolefin insulation, L = 210 mm, AWG 18

W1: Motor winding 1, W2: Motor winding 2, W3: Motor winding 3

Propeller 20x6.7

maxon recommended propeller for EC 69 flat



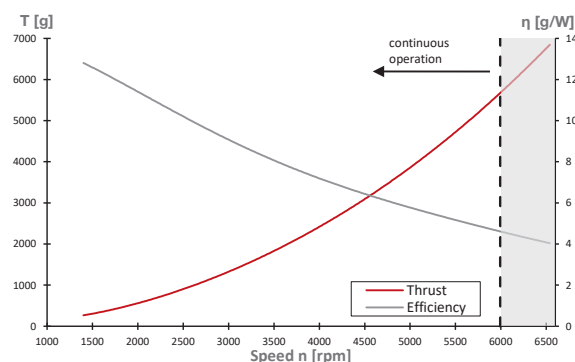
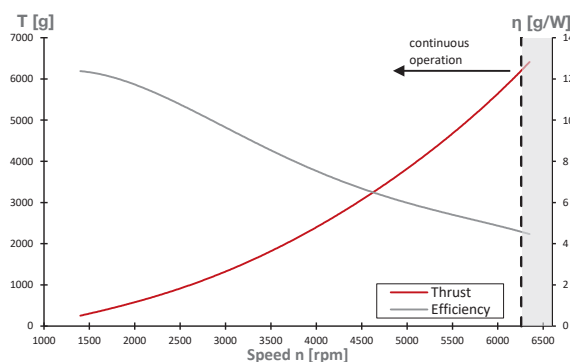
Propeller specifications		
1 Diameter	inch	20.0 (508.0 mm)
2 Pitch	inch	6.7 (170.2 mm)
3 Weight of propeller	g	31.0
4 Drill pattern		maxon EC69fl UAV
5 Interface thickness	mm	3.94
6 Material		carbon/glass fiber
7 Max. recommended speed	rpm	9000

Motor propeller combination				
Adjusted motor data for use with specified propeller (active cooling)				
		779406	842437	
8 Max. continuous speed	rpm	6260	5995	
9 Max. continuous torque	mNm	1620	1490	
10 Max. continuous current	A	32.8	60.4	motor current=output current from ESC maxon UAV ESC parameter: nominal current
11 Max. continuous electrical power	W	1450	1325	
12 Max. peak electrical power	W	1696	1797	<15s
13 Thermal time constant winding	s	28.5	30.5	

Propulsion system performance table

ESC supply voltage: 52.2 V (12S max. LiPo voltage) / Ambient temperature: 20°C / Elevation (AMSL): 475 m

779406							842437						
Achievable speed with battery level	Speed [rpm]	Current [A]	Torque [mNm]	Thrust [g]	el. Power [W]	Efficiency [g/W]	Achievable speed with battery level	Speed [rpm]	Current [A]	Torque [mNm]	Thrust [g]	el. Power [W]	Efficiency [g/W]
Continuous operation ($T_w < 155\text{ }^{\circ}\text{C}$)							Continuous operation ($T_w < 155\text{ }^{\circ}\text{C}$)						
	1400	0.4	82	262	21	12.4		1400	0.4	82	261	20	12.8
	1600	0.6	105	351	29	12.2		1600	0.5	105	351	28	12.4
	1800	0.7	130	455	38	12.0		1800	0.7	131	451	38	11.9
	2000	0.9	160	574	49	11.8		2100	1.1	174	624	56	11.1
	2300	1.3	209	768	69	11.2		2300	1.3	204	750	70	10.7
	2500	1.6	244	905	85	10.7		2500	1.7	244	907	89	10.2
	2700	2.0	283	1070	105	10.2		2700	2.1	284	1066	109	9.7
6S (22.2V)	2900	2.4	331	1249	123	10.1		3000	2.8	349	1328	146	9.1
	3100	2.9	376	1439	154	9.4		3200	3.4	396	1514	175	8.6
	3225 rpm	3300	3.4	422	1612	180	8.9		3400	4.0	445	1707	208
	3500	4.1	476	1833	215	8.5		3600	4.7	501	1935	244	7.9
	3800	5.2	556	2160	270	8.0		3900	6.0	591	2293	311	7.4
	8S (29.6V)	4000	6.1	617	2371	319	7.4		4100	7.0	659	2560	364
4150 rpm	4200	7.1	682	2612	369	7.1		4300	8.1	727	2833	420	6.7
	4400	8.1	754	2902	425	6.8		4500	9.3	794	3092	482	6.4
	4600	9.4	838	3234	490	6.6		4800	11.3	916	3553	589	6.0
10S (37.0V)	4800	10.7	907	3490	557	6.3		5000	12.8	986	3832	665	5.8
4980 rpm	5100	13.1	1049	4067	685	5.9		5200	14.7	1086	4203	763	5.5
	5300	14.6	1115	4315	763	5.7		5400	16.5	1168	4519	856	5.3
	5500	16.6	1209	4660	867	5.4	6S (22.2V)	5600	18.7	1270	4908	970	5.1
12S (44.4V)	5700	18.7	1306	5054	976	5.2	5660 rpm	5900	22.4	1424	5481	1162	4.7
5700 rpm	5900	21.0	1409	5420	1094	5.0	Short term operation ($T_w > 155\text{ }^{\circ}\text{C}$)						
	6100	23.6	1517	5813	1230	4.7		6100	25.3	1535	5896	1307	4.5
Short term operation ($T_w > 155\text{ }^{\circ}\text{C}$)							8S (29.6V)	6300	28.6	1657	6350	1476	4.3
	6350	27.4	1684	6441	1429	4.5	6530 rpm	6540	32.9	1798	6828	1697	4.0



Notes

Bench test data for reference only. Direct comparison with datasheets from other manufacturers can be misleading.
The propeller is not distributed by maxon. Please contact the propeller manufacturer.
Please note the interface to the motor, see drawing above.