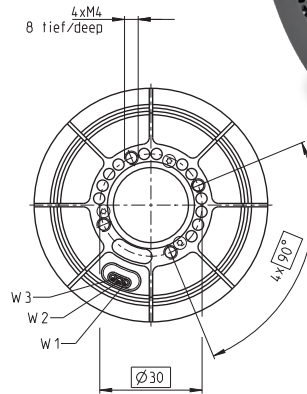
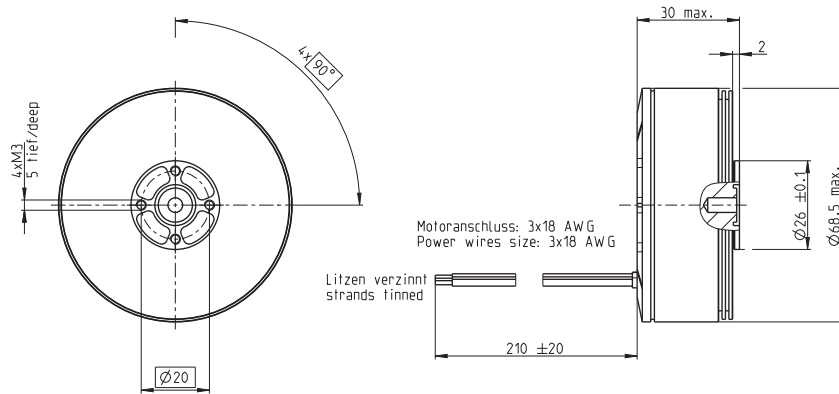


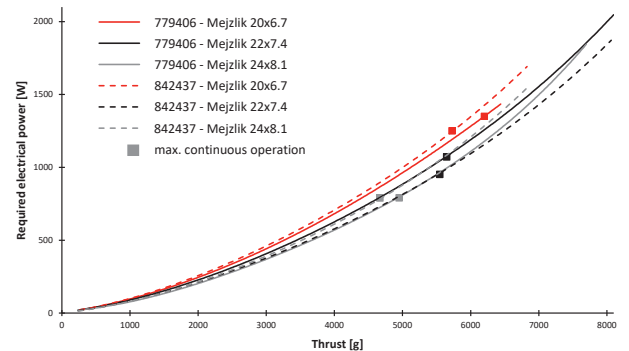
EC 69 flat UAV Ø69 mm, brushless

Designed for professional UAV applications



Part number			
sensorless			
779406			
842437			
Propeller selection			

Motor data			
Values at nominal voltage			
1 Nominal voltage ¹	V	24	12
2 No load speed	rpm	3800	4070
3 No load current	mA	551	1230
4 Nominal speed	rpm	2900	3240
5 Nominal torque (max. continuous torque)	mNm	1180	993
6 Nominal current (max. continuous current)	A	17.6	32.6
7 Stall torque ²	mNm	3000	3020
8 Stall current	A	168	368
9 Max. efficiency	%	88.9	88.8
Characteristics			
10 Terminal resistance phase to phase	Ω	0.143	0.0326
11 Terminal inductance phase to phase	mH	0.0799	0.0174
12 Torque constant	mNm/A	59.9	28.0
13 Speed constant	rpm/V	159	342
14 Speed/torque gradient	rpm/mNm	0.381	0.398
15 Mechanical time constant	ms	2.95	3.09
16 Rotor inertia	gcm ²	740	740
17 Thermal resistance housing-ambient ³	K/W	0.344	0.311
18 Thermal resistance winding-housing ³	K/W	0.852	1.28
19 Thermal time constant winding	s	15.2	19.9
20 Thermal time constant motor	s	46.3	41.8



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	-40...+70
22 Max. continuous winding temperature	°C	+155	+155
Absolute winding temperature	°C	+180	+180
Mechanical data (preloaded ball bearings)			
23 Max. speed	rpm	6500	6500
Other specifications			
24 Number of pole pairs		14	14
Magnetic system configuration		24N28P	24N28P
25 Number of phases		3	3
26 Weight of motor (incl. 210 mm cable)	g	269	269
27 Recommended propeller sizes	inch	20...24	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

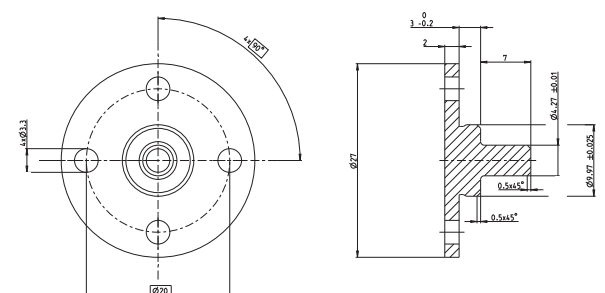
Values listed in the tables are nominal, i.e. defined for operation without a propeller attached (no active cooling).

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

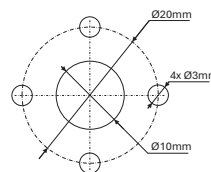
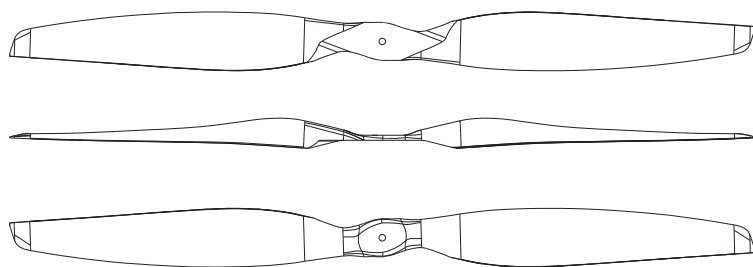
Connection cable with polyolefin insulation, L = 210 mm, AWG 18

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



Propeller 24x8.1

maxon recommended propeller for EC 69 flat



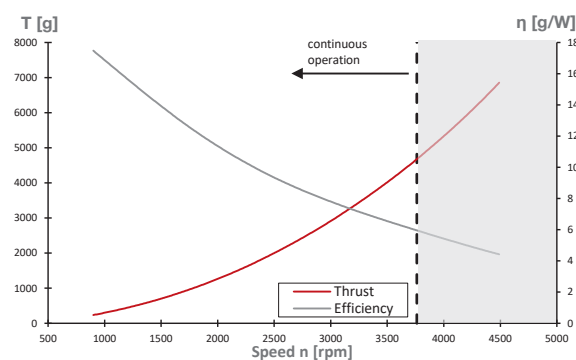
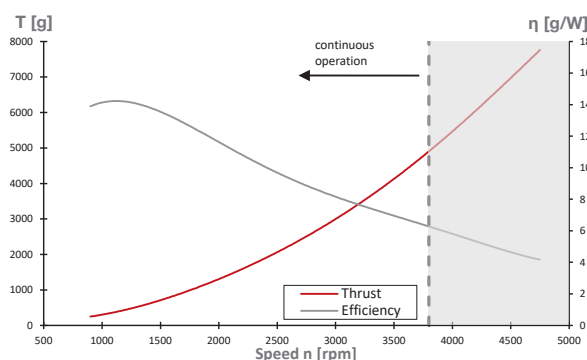
Propeller specifications		
1 Diameter	inch	24.0 (609.6 mm)
2 Pitch	inch	8.1 (205.7 mm)
3 Weight of propeller	g	57.0
4 Drill pattern		maxon EC69fl UAV
5 Interface thickness	mm	4.5
6 Material		carbon/glass fiber
7 Max. recommended speed	rpm	7500

Motor propeller combination				
Adjusted motor data for use with specified propeller (active cooling)				
		779406	842437	
8 Max. continuous speed	rpm	3800	3762	
9 Max. continuous torque	mNm	1500	1442	
10 Max. continuous current	A	28.8	56.4	motor current=output current from ESC maxon UAV ESC parameter: nominal current
11 Max. continuous electrical power	W	860	868	
12 Max. peak electrical power	W	1903	1727	<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 ($T_w < 155^{\circ}\text{C}$)							Continuous operation ($T_w < 155^{\circ}\text{C}$)						
6S (22.2V)	900	0.3	94	242	18	13.8	6S (22.2V)	900	0.3	93	237	14	17.4
	1100	0.5	135	372	26	14.4		1100	0.4	133	366	22	16.3
	1200	0.6	158	447	31	14.3		1200	0.5	157	441	28	15.7
	1400	0.8	208	613	44	13.8		1400	0.8	208	612	42	14.5
	1600	1.2	269	814	62	13.1		1500	1.0	235	701	51	13.9
	1700	1.4	303	925	73	12.8		1700	1.4	296	904	71	12.8
	1900	1.9	376	1178	98	12.0		1800	1.6	332	1022	83	12.3
	2100	2.5	454	1434	129	11.1		2000	2.1	402	1261	111	11.3
	2200	2.8	501	1591	147	10.8		2100	2.5	446	1404	129	10.9
	2400	3.6	593	1905	188	10.1		2300	3.2	528	1684	166	10.1
2950 rpm	2600	4.5	691	2235	237	9.4	2950 rpm	2500	4.1	627	2006	214	9.4
	2700	5.1	739	2402	265	9.1		2600	4.6	673	2154	239	9.0
	2900	6.3	850	2773	327	8.5		2800	5.8	784	2521	301	8.4
	3100	7.9	999	3255	411	7.9		2900	6.4	841	2718	335	8.1
	3200	8.6	1046	3440	449	7.7		3100	8.0	968	3123	416	7.5
8S (29.6V)	3400	10.4	1182	3866	543	7.1	8S (29.6V)	3200	8.8	1032	3333	459	7.3
	3600	12.7	1351	4420	661	6.7		3400	10.7	1168	3782	559	6.8
	3700	13.7	1402	4603	716	6.4		3600	13.1	1327	4282	680	6.3
3700 rpm	Short term operation ($T_w > 155^{\circ}\text{C}$)						3700 rpm	Short term operation ($T_w > 155^{\circ}\text{C}$)					
10S (37.0V)	3900	16.6	1596	5205	866	6.0	10S (37.0V)	3900	17.2	1566	5052	894	5.7
	4100	19.7	1762	5772	1030	5.6		4000	18.9	1652	5326	978	5.4
	4200	21.3	1823	5954	1110	5.4		4050 rpm	4200	22.8	1836	5910	1177
4270 rpm	4400	25.9	2053	6667	1352	4.9	4270 rpm	4300	25.1	1935	6245	1298	4.8
	4600	31.8	2287	7405	1663	4.5		4480 rpm	4490	30.2	2111	6855	1559
12S (44.4V)	4750	35.7	2397	7697	1865	4.1	12S (44.4V)	4750	35.7	2397	7697	1865	4.1



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.