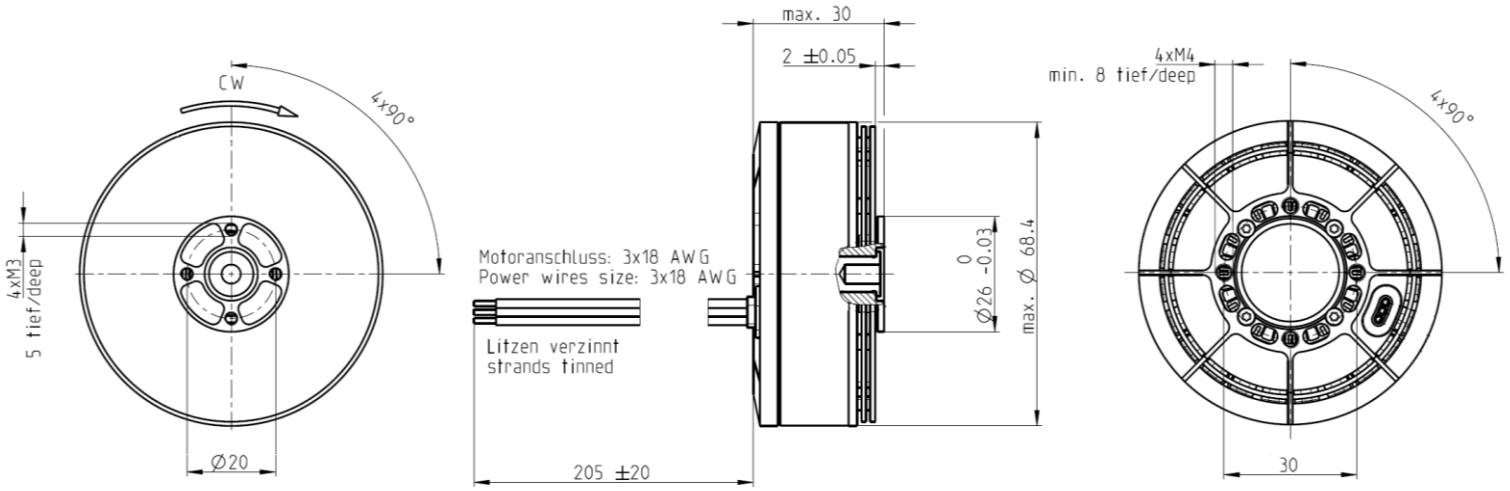


EC 69 flat UAV

designed for professional UAV applications

Ø69 mm, brushless, up to 8.4kg thrust

NEW



Part Number

Sensorless 688848 725770

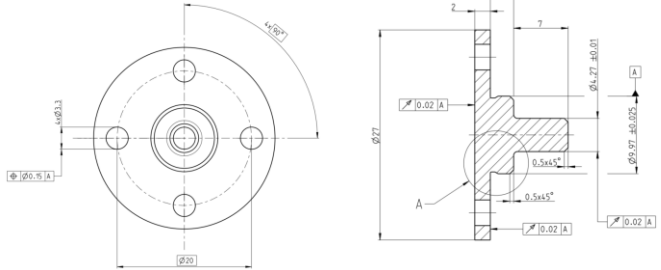
Motor Data			
Values at nominal voltage			
1 Nominal voltage	V	24	36
2 No load speed	rpm	8110	5690
3 No load current	mA	1950	709
4 Nominal speed	rpm	6680	4860
5 Nominal torque (max. continuous torque)	mNm	1270	1390
6 Nominal current (max. continuous current)	A	41.8	21.2
7 Stall torque ¹	mNm	4720	4780
8 Stall current	A	608	292
9 Max. efficiency	%	89.6	90.8
10 Max. continuous power output	W	490	620
11 Max. peak power output	W	1100	1480
Characteristics			
12 Terminal resistance phase to phase	Ω	0.0395	0.123
13 Terminal inductance phase to phase	mH	0.0174	0.0799
14 Torque constant	mNm/A	28	59.9
15 Speed constant	rpm/V	342	159
16 Speed/torque gradient	rpm/mNm	0.482	0.328
17 Mechanical time constant	ms	3.74	2.54
18 Rotor inertia	gcm ²	740	740
19 Thermal resistance housing-ambient ²	K/W	0.158	0.222
20 Thermal resistance winding-housing ²	K/W	1.01	0.781
21 Thermal time constant winding	s	7.96	10.4
22 Thermal time constant motor	s	21.3	29.9

maxon Accessories

propeller adapter: 718087



The adapter is designed for mounting the maxon recommended propellers.



Motor Specifications

Thermal data		
23 Ambient temperature	-20 ... +50 °C	
24 Max. winding temperature	+155 °C	
Mechanical data (preloaded ball bearings)		
25 Max. speed	8000 rpm	
Other specifications		
26 Number of pole pairs	14	
27 Number of phases	3	
28 Weight of motor (incl. 210 mm cable)	269 g	
29 Recommended propeller sizes	20" ... 24"	

Values listed in the tables are nominal.

Connection

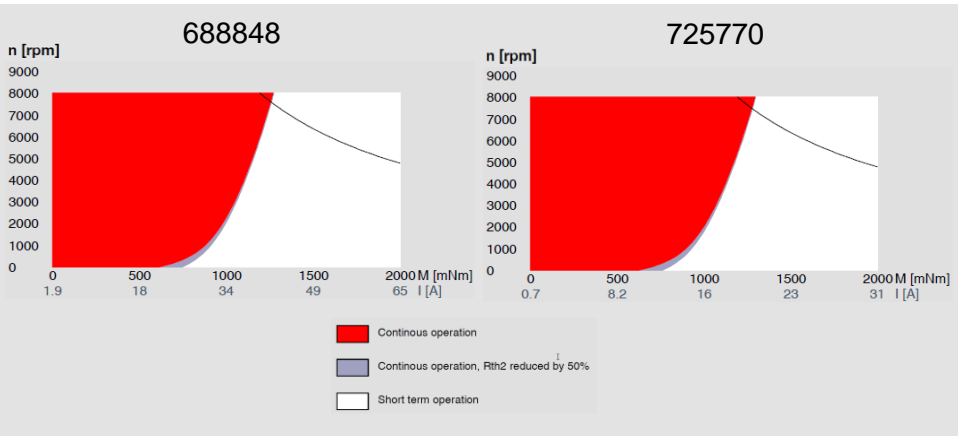
- Pin 1 Motor winding 1
- Pin 2 Motor winding 2
- Pin 3 Motor winding 3

Cable

Connection winding wire direct, L = 205 mm silicone insulated

¹Calculation does not include saturation effect
²At nominal working point

Operating Range



Notes

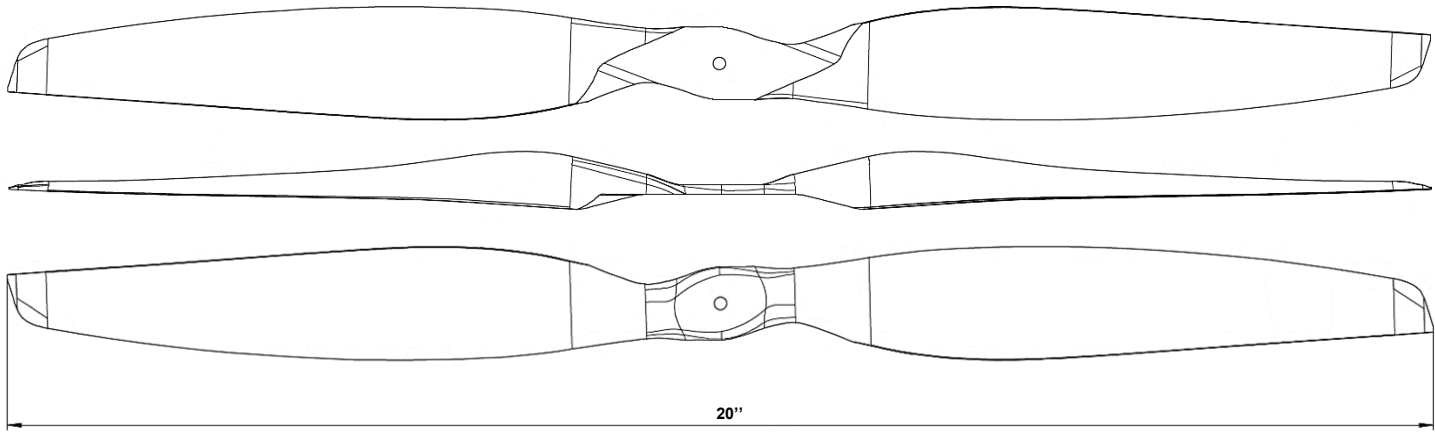
Please contact aerospace@maxongroup.com

Propeller 20x6.7

propeller recommendation



maxon recommended propeller for EC 69 flat



Propeller Specifications

- 1 Diameter 20" (508.0 mm)
- 2 Pitch 6.7" (170.2 mm)
- 3 Weight of Propeller 30 g
- 4 Max. recommended speed 9000 rpm
- 5 Material carbon fiber, glass fiber, roving, polyurethane, epoxy

Motor Propeller Combination

Propulsion System Performance Table

688848

Based on measured data from Mejzlik @ 8S (29.6V) LiPo ESC supply voltage.

Speed [rpm]	Current [A]	Torque [mNm]	Thrust [g]	el. Power [W]	Efficiency [g/W]
continuous operation					
1000	0.3	52	136	10	14.1
1400	0.7	88	280	20	13.8
1500	0.8	99	321	23	13.7
1700	1.1	125	427	32	13.2
1800	1.2	138	481	37	13.0
2000	1.7	169	609	49	12.4
2200	2.1	202	744	63	11.9
2400	2.7	240	904	80	11.3
2600	3.4	281	1073	100	10.8
2800	4.2	326	1262	123	10.2
3000	5.0	373	1457	149	9.8
3200	6.1	425	1674	181	9.3
3400	7.3	479	1897	215	8.8
3600	8.6	539	2143	255	8.4
3800	10.1	601	2402	300	8.0
4000	11.9	669	2678	353	7.6
4400	16.1	816	3273	475	6.9
4600	18.6	898	3599	549	6.6
5000	24.5	1076	4307	722	6.0
short term operation					
5200	28.0	1172	4688	822	5.7
5400	32.0	1276	5095	940	5.4
5800	41.6	1500	5967	1217	4.9
6000	47.7	1627	6475	1393	4.6
6100	51.5	1700	6783	1501	4.5

725770

Based on measured data from Mejzlik @ 12S (44.5V) LiPo ESC supply voltage.

Speed [rpm]	Current [A]	Torque [mNm]	Thrust [g]	el. Power [W]	Efficiency [g/W]
continuous operation					
1000	0.2	49	133	8	17.1
1200	0.3	67	200	12	16.7
1400	0.4	88	282	18	16.0
1600	0.6	112	380	25	15.4
1700	0.6	126	434	29	15.1
2000	1.0	171	622	45	13.9
2200	1.3	206	765	58	13.2
2400	1.7	244	925	74	12.5
2600	2.1	285	1097	93	11.8
2800	2.6	330	1286	114	11.2
3000	3.1	378	1487	139	10.7
3200	3.8	430	1702	168	10.1
3400	4.5	486	1932	201	9.6
3600	5.4	545	2176	239	9.1
3800	6.3	608	2436	281	8.7
4000	7.4	677	2717	328	8.3
4200	8.6	749	3011	381	7.9
4400	9.9	826	3323	441	7.5
4600	11.4	907	3651	508	7.2
5000	14.9	1083	4357	661	6.6
5200	16.9	1179	4736	751	6.3
short term operation					
5400	19.2	1282	5136	851	6.0
5500	20.4	1335	5347	905	5.9
5600	21.7	1389	5558	961	5.8
5740	23.7	1475	5907	1049	5.6

Efficiency Propulsion System

Propulsion system efficiency is indicated by depiction of required amount of electrical power (required by motor) to achieve a certain amount of thrust.

