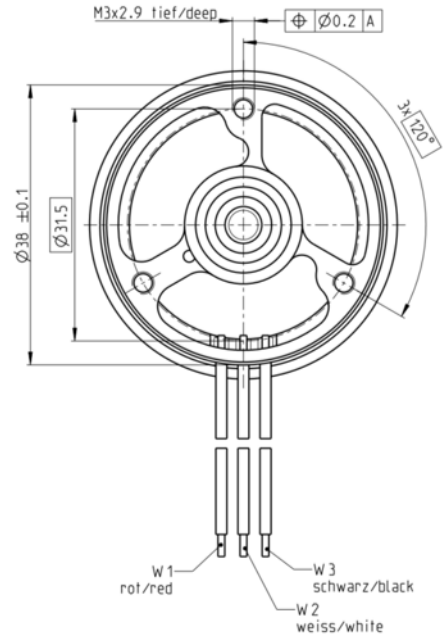
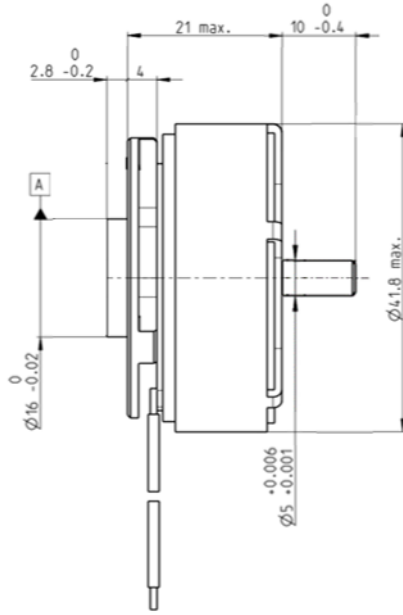
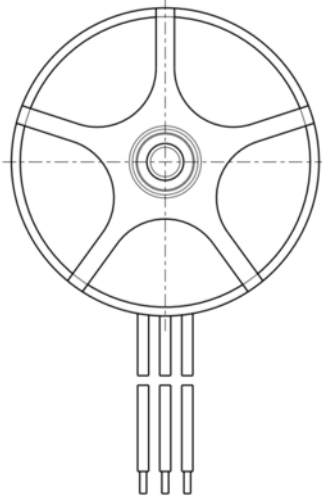


# ECX 42 flat UAV

high power to weight ratio

Ø42 mm, brushless, up to 2.3kg thrust

**NEW**



**Part Number**

Sensorless

**Motor Data**

Values at nominal voltage		
1 Nominal voltage	V	18
2 No load speed	rpm	7760
3 No load current	mA	340
4 Nominal speed	rpm	6160
5 Nominal torque (max. continuous torque)	mNm	223
6 Nominal current (max. continuous current)	A	8.8
7 Stall torque <sup>1</sup>	mNm	1790
8 Stall current	A	191
9 Max. efficiency	%	91.6
10 Max. continuous power output	W	148
11 Max. peak power output	W	for t<15s

Characteristics		
12 Terminal resistance phase to phase	Ω	0.0944
13 Terminal inductance phase to phase	mH	0.127
14 Torque constant	mNm/A	22
15 Speed constant	rpm/V	435
16 Speed/torque gradient	rpm/mNm	1.87
17 Mechanical time constant	ms	2.64
18 Rotor inertia	gcm <sup>2</sup>	135

**Specifications**      **Operating Range**      **Comments**

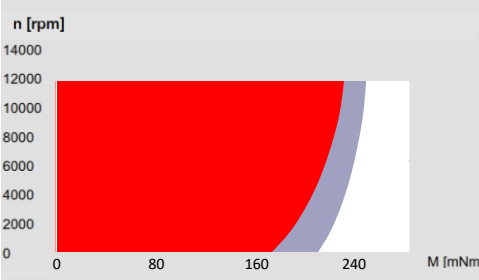
Thermal data	
19 Thermal resistance housing-ambient <sup>2</sup>	3.26 K/W
20 Thermal resistance winding-housing <sup>2</sup>	3.47 K/W
21 Thermal time constant winding	22.6s
22 Thermal time constant motor	181s
23 Ambient temperature	-40...+100°C
24 Max. winding temperature	+125°C

Mechanical data (preloaded ball bearings)	
25 Max. speed	12000 rpm

Other specifications	
26 Number of pole pairs	8
27 Number of phases	3
28 Weight of motor (incl. cable)	88.6g
29 Recommended propeller sizes	13"...15"



**Continuous operation**  
In observation of listed thermal resistance (lines 17 and 18) the maximum permissible winding temperature will be reached during continuous operation at 25°C ambient. = Thermal limit.

**Continuous operation**  
Thermal resistance Rth2 reduced by 50%.

**Short term operation**  
The motor may be briefly overloaded (recurring).

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 cable PTFE

<sup>1</sup>Calculation does not include saturation effect  
<sup>2</sup>At nominal working point

**Notes**

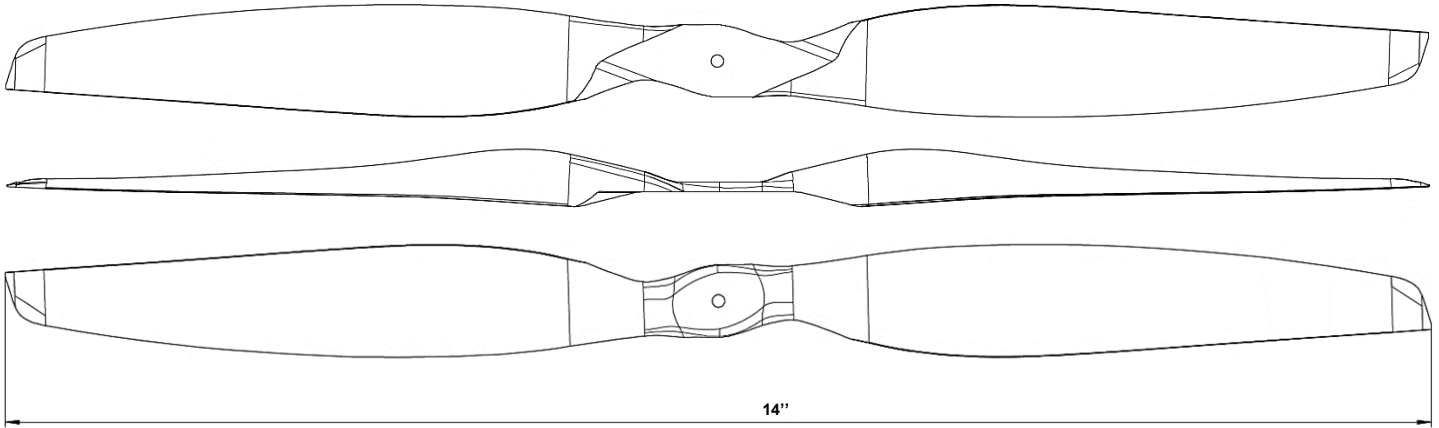
**Motor in development**  
Please contact [aerospace@maxongroup.com](mailto:aerospace@maxongroup.com)

# Propeller 14x4.5

## propeller recommendation

maxon recommended propeller

propeller recommendation

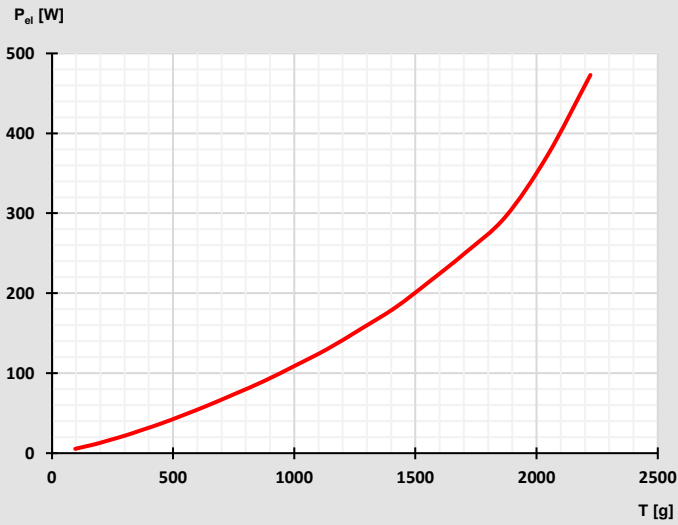


### Propeller Specifications

- |                       |   |
|-----------------------|---|
| 1 Diameter            | 14" (355.6 mm)                              |
| 2 Pitch               | 4.5" (114.3 mm)                             |
| 3 Weight of Propeller | 18 g  |
| 4 Max. speed          | 10'500 rpm                                  |
| 5 Material            | carbon and glass fiber, polyurethane, epoxy |

### 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.



### Motor Propeller Combination

#### Propulsion System Performance Table

Based on simulated data @ 28.95V ESC supply voltage.

Speed [rpm]	Current [A]	Torque [mNm]	Thrust [g]	el. Power [W]	Efficiency [g/W]
<b>continuous operation</b>					
1700	0.2	18	97	6	17.0
2000	0.3	26	140	9	16.0
2300	0.4	34	183	12	15.5
2600	0.6	44	241	17	14.3
2900	0.8	54	300	22	13.6
3200	1.0	67	375	29	12.7
3500	1.3	80	453	38	12.1
3800	1.7	96	544	48	11.3
4100	2.1	112	642	60	10.7
4400	2.6	130	754	74	10.2
4700	3.2	150	873	90	9.7
5000	3.9	171	1004	110	9.2
5300	4.6	194	1139	131	8.7
5600	5.6	217	1278	156	8.2
5900	6.5	241	1418	182	7.8
<b>short term operation</b>					
6200	7.7	265	1558	215	7.3
6500	9.0	291	1705	250	6.8
6800	10.7	319	1872	296	6.3
7100	13.6	348	2045	372	5.5
7400	17.3	378	2222	473	4.7

### Notes

Please contact [aerospace@maxongroup.com](mailto:aerospace@maxongroup.com)