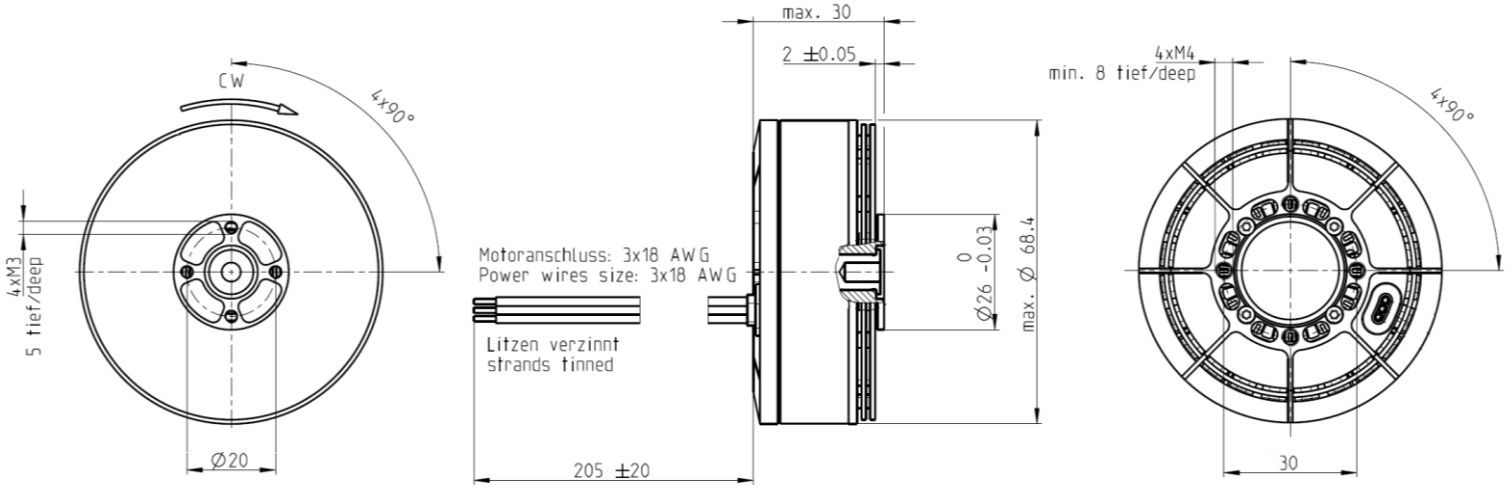


EC 69 flat UAV

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

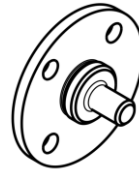
| | V | 24 | 36 |
|---|-----|------|------|
| 1 Nominal voltage | V | 24 | 36 |
| 2 No load speed | rpm | 8110 | 5690 |
| 3 No load current | mA | 1950 | 709 |
| 4 Nominal speed | rpm | 6680 | 4860 |
| 5 Nominal torque (max. continuous torque) | mNm | 1270 | 1390 |
| 6 Nominal current (max. continuous 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

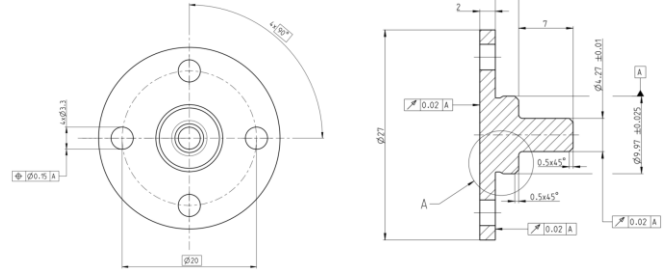
| | Ω | 0.0395 | 0.123 |
|--|------------------|--------|--------|
| 12 Terminal resistance phase to phase | Ω | 0.0395 | 0.123 |
| 13 Terminal inductance phase to phase | mH | 0.0174 | 0.0799 |
| 14 Torque constant | mNm/A | 28 | 59.9 |
| 15 Speed constant | rpm/V | 342 | 159 |
| 16 Speed/torque gradient | 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 |

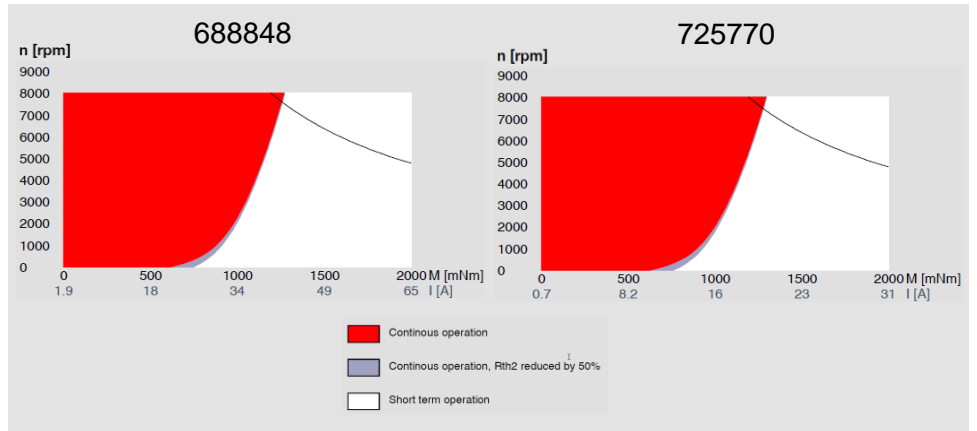
Cable

Connection winding wire direct, L = 205 mm silicone insulated

¹Calculation does not include saturation effect

²At nominal working point

Operating Range



Notes

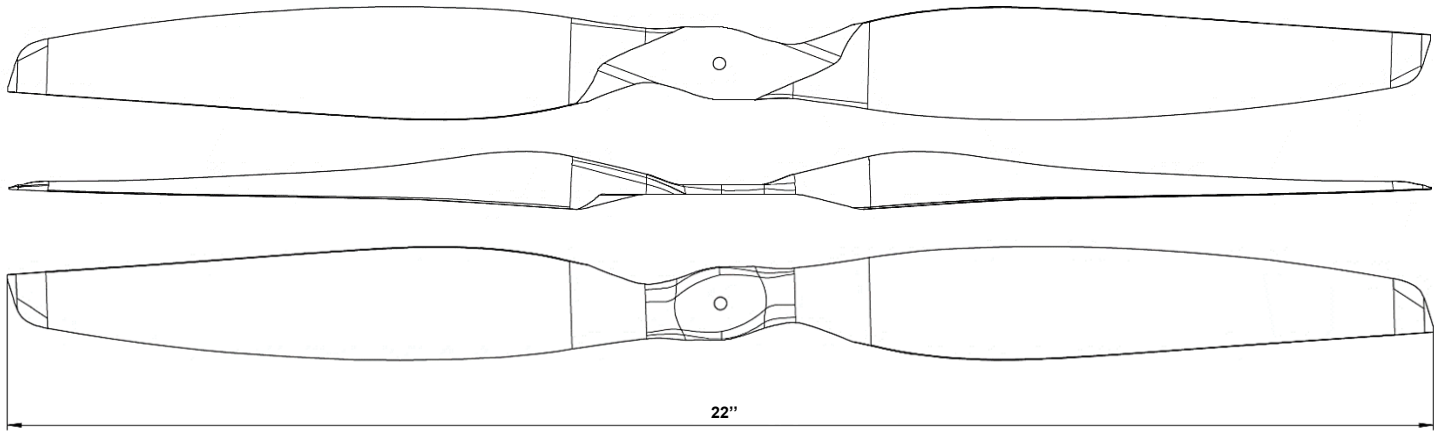
Please contact aerospace@maxongroup.com

Propeller 22x7.4

propeller recommendation



maxon recommended propeller for EC 69 flat



Propeller Specifications

- 1 Diameter 22" (558.8 mm)
- 2 Pitch 7.4" (188.0 mm)
- 3 Weight of Propeller 44 g
- 4 Max. recommended speed 8200 rpm
- 5 Material carbon fiber, glass fiber, roving, polyurethane, epoxy

Motor Propeller Combination

Propulsion System Performance Table

688848

Based on measured data in hover flight condition. @ 33.6V ESC supply voltage.

| Speed [rpm] | Current [A] | Torque [mNm] | Thrust [g] | el. Power [W] | Efficiency [g/W] |
|-----------------------------|-------------|--------------|------------|---------------|------------------|
| continuous operation | | | | | |
| 1100 | 0.5 | 86 | 234 | 18 | 13.2 |
| 1400 | 0.9 | 132 | 396 | 31 | 12.8 |
| 1600 | 1.3 | 169 | 529 | 42 | 12.5 |
| 1800 | 1.7 | 213 | 689 | 58 | 11.9 |
| 2000 | 2.3 | 265 | 889 | 77 | 11.6 |
| 2200 | 2.9 | 315 | 1058 | 99 | 10.7 |
| 2400 | 3.7 | 369 | 1287 | 125 | 10.3 |
| 2600 | 4.6 | 421 | 1467 | 154 | 9.5 |
| 2800 | 5.9 | 509 | 1782 | 197 | 9.1 |
| 3000 | 7.1 | 575 | 2044 | 239 | 8.6 |
| 3200 | 8.8 | 670 | 2389 | 295 | 8.1 |
| 3400 | 10.4 | 744 | 2655 | 348 | 7.6 |
| 3600 | 12.4 | 826 | 2981 | 416 | 7.2 |
| 3800 | 14.5 | 906 | 3282 | 486 | 6.8 |
| 4000 | 17.3 | 1029 | 3702 | 583 | 6.4 |
| 4200 | 20.9 | 1167 | 4237 | 702 | 6.0 |
| short term operation | | | | | |
| 4400 | 24.1 | 1277 | 4595 | 810 | 5.7 |
| 4600 | 27.6 | 1377 | 4975 | 927 | 5.4 |
| 4800 | 32.9 | 1540 | 5519 | 1107 | 5.0 |
| 5000 | 36.7 | 1622 | 5847 | 1234 | 4.7 |
| 5200 | 45.6 | 1860 | 6663 | 1534 | 4.3 |

725770

Based on measured data in hover flight condition. @ 52.2V ESC supply voltage.

| Speed [rpm] | Current [A] | Torque [mNm] | Thrust [g] | el. Power [W] | Efficiency [g/W] |
|-----------------------------|-------------|--------------|------------|---------------|------------------|
| continuous operation | | | | | |
| 1100 | 0.4 | 88 | 226 | 19 | 12.1 |
| 1400 | 0.6 | 134 | 386 | 31 | 12.6 |
| 1600 | 0.8 | 171 | 518 | 42 | 12.4 |
| 1800 | 1.1 | 216 | 679 | 56 | 12.1 |
| 2000 | 1.4 | 262 | 856 | 73 | 11.8 |
| 2200 | 1.8 | 316 | 1047 | 94 | 11.1 |
| 2400 | 2.3 | 370 | 1264 | 118 | 10.7 |
| 2600 | 2.9 | 441 | 1516 | 149 | 10.2 |
| 2800 | 3.5 | 503 | 1739 | 182 | 9.6 |
| 3000 | 4.2 | 577 | 2014 | 222 | 9.1 |
| 3200 | 5.1 | 653 | 2297 | 268 | 8.6 |
| 3400 | 6.2 | 741 | 2624 | 321 | 8.2 |
| 3600 | 7.2 | 822 | 2929 | 377 | 7.8 |
| 3800 | 8.8 | 948 | 3376 | 460 | 7.3 |
| 4000 | 10.1 | 1024 | 3654 | 525 | 7.0 |
| 4200 | 11.6 | 1126 | 4051 | 607 | 6.7 |
| 4400 | 13.7 | 1250 | 4481 | 714 | 6.3 |
| short term operation | | | | | |
| 4600 | 15.5 | 1356 | 4894 | 811 | 6.0 |
| 4800 | 17.9 | 1484 | 5298 | 934 | 5.7 |
| 5000 | 20.9 | 1648 | 5903 | 1090 | 5.4 |
| 5200 | 24.0 | 1815 | 6455 | 1254 | 5.1 |
| 5400 | 27.1 | 1936 | 6938 | 1415 | 4.9 |
| 5600 | 30.6 | 2090 | 7443 | 1597 | 4.7 |
| 5800 | 35.1 | 2232 | 7963 | 1832 | 4.3 |
| 5880 | 38.9 | 2384 | 8462 | 2029 | 4.2 |

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.

