54R

Member Full Version

...insert your project name...

all data without guarantee - Accuracy: +/-15%

xcopterCalc - Multicopter Calculator

General — Motor Cooling: good; # of Rotors: 6, flat; Model Weight: 3000 g / 105.8 oz; incl. Drive; Frame Size: 695 mm / 27.36 inch; FCU Tilt Limit: no limit; Field Elevation: 50 m ASL / 164 ft ASL; Air Temperature: 15 °C / 59 °F; Pressure (QNH): 1013 hPa / 29.91 inHg

Battery Cell — Type (Cont. / max. C) - charge state: LiPo 6000mAh - 20/30C - normal; Configuration: 4 S 1 P; Cell Capacity: 6000 mAh / 6000 mAh total; max. discharge: 85%; Resistance: 0.0038 Ohm; Voltage: 3.7 V; C-Rate: 20 C cont. / 30 C max; Weight: 142 g / 5 oz

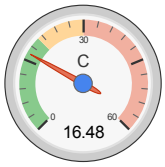
Controller — Type: max 30A; Current: 30 A cont. / 30 A max; Resistance: 0.008 Ohm; Weight: 40 g / 1.4 oz

Accessories — Current drain: 0 A; Weight: 0 g / 0 oz

Motor — Manufacturer - Type (Kv): Tarot - 4006/620KV (620); search... Prop-Kv-Wizard; KV (w/o torque): 620 rpm/V; no-load Current: 0.8 A @ 14.8 V; Limit (up to 15s): 426 W; Resistance: 0.126 Ohm; Case Length: 30 mm / 1.18 inch; # mag. Poles: 22; Weight: 82 g / 2.9 oz

Propeller — Type - yoke twist: custom - 0°; Diameter: 12 inch / 304.8 mm; Pitch: 5.5 inch / 139.7 mm; # Blades: 2; PConst / TConst: 1.2 / 1.0; Gear Ratio: 1 : 1

calculate



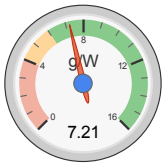
Load:

Hover Flight Time:

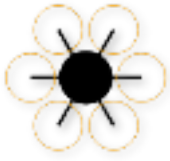
electric Power:

est. Temperature:

Thrust-Weight:



specific Thrust:


Configuration

Remarks:

Battery

Load:	16.48	C
Voltage:	13.30	V
Rated Voltage:	14.80	V
Energy:	88.8	Wh
Total Capacity:	6000	mAh
Used Capacity:	5100	mAh
min. Flight Time:	3.1	min
Mixed Flight Time:	8.2	min
Hover Flight Time:	10.5	min
Weight:	568	g
	20	oz

Motor @ Optimum Efficiency

Current:	8.61	A
Voltage:	13.95	V
Revolutions*:	7945	rpm
electric Power:	120.0	W
mech. Power:	101.2	W
Efficiency:	84.3	%

Motor @ Maximum

Current:	16.48	A
Voltage:	13.17	V
Revolutions*:	6820	rpm
electric Power:	216.9	W
mech. Power:	174.2	W
Power-Weight:	433.8	W/kg
	196.8	W/lb
Efficiency:	80.3	%
est. Temperature:	33	°C
	91	°F

Wattmeter readings

Current:	98.88	A
Voltage:	13.3	V
Power:	1315.1	W

Motor @ Hover

Current:	4.84	A
Voltage:	14.32	V
Revolutions*:	4160	rpm
Throttle (log):	44	%
Throttle (linear):	55	%
electric Power:	69.4	W
mech. Power:	55.7	W
Power-Weight:	143.4	W/kg
	65	W/lb
Efficiency:	80.3	%
est. Temperature:	21	°C
	70	°F
specific Thrust:	7.21	g/W
	0.25	oz/W

Total Drive

Drive Weight:	1430	g
	50.4	oz
Thrust-Weight:	2.1	: 1
Current @ Hover:	29.06	A
P(in) @ Hover:	430.1	W
P(out) @ Hover:	334.0	W
Efficiency @ Hover:	77.7	%
Current @ max:	98.85	A
P(in) @ max:	1463.0	W
P(out) @ max:	1045.3	W
Efficiency @ max:	71.4	%

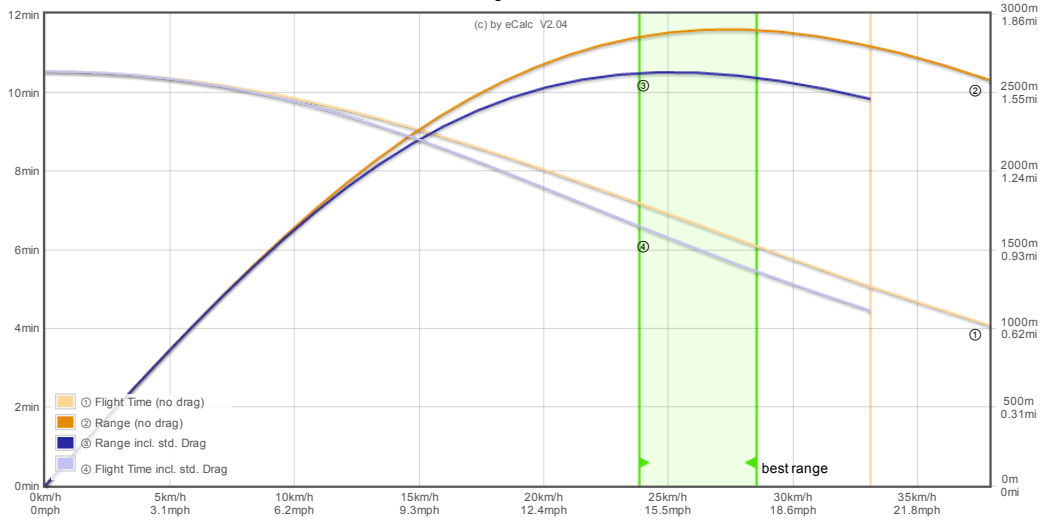
Multicopter

All-up Weight:	3000	g
	105.8	oz
add. Payload:	2416	g
	85.2	oz
max Tilt:	56	°
max. Speed:	38	km/h
	23.6	mph
est. rate of climb:	6.4	m/s
	1260	ft/min
Total Disc Area:	43.78	dm²
	678.59	in²
with Rotor fail:	✓	

share https:// https://www.eCalc.ch...

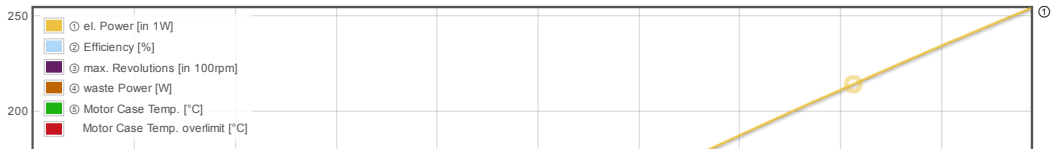
add to >> Download .csv (0) << clear

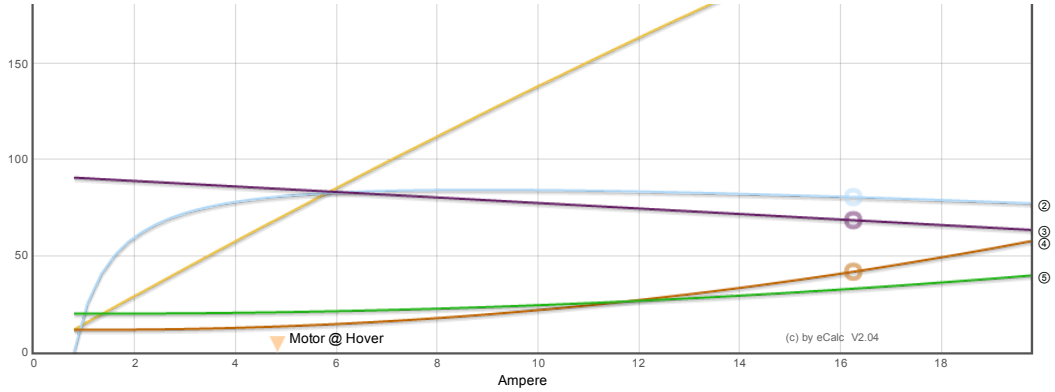
Range Estimator



Air Speed

Motor Characteristic at Full Throttle





Important Note:
Before flight recheck your max. current! If your Current, el. Power or RPM are over the manufacturers limits your motor, controller and/or battery may take damage! **Verify before flight by measurment!**

for printing use Landscape format
* The manufacturer limitation is NOT monitored
** Testdata with reduced accuracy

Version: X6.72, 09.01.17 / Data: 28.03.17 with 7897 Motors
translated to english by Markus Mueller