



all data without guarantee - Accuracy: +/-10%

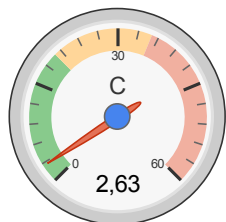


propCalc - Propeller Calculator



[News](#) | [Help](#) | Language: english

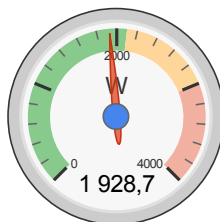
General	Motor Cooling: <input type="text" value="good"/>	# of Motors: <input type="text" value="1"/> (on same Battery)	Model Weight: <input type="text" value="25000"/> g <input type="text" value="incl. Drive"/> <input type="text" value="881.8"/> oz	Wing Area: <input type="text" value="171"/> dm ² <input type="text" value="2650.5"/> in ²	Field Elevation <input type="text" value="91"/> m ASL <input type="text" value="299"/> ft ASL	Air Temperature <input type="text" value="25"/> °C <input type="text" value="77"/> °F	Pressure (QNH): <input type="text" value="1013"/> hPa <input type="text" value="29.91"/> inHg	
Battery Cell	Type (Cont. / max. C) - charge state: <input type="text" value="TopFuel EcoX 5000mAh - 20/35C"/> - <input type="text" value="normal"/>	Configuration: <input type="text" value="10"/> S <input type="text" value="4"/> P	Cell Capacity: <input type="text" value="5000"/> mAh <input type="text" value="20000"/> mAh total	max. discharge: <input type="text" value="85%"/>	Resistance: <input type="text" value="0.002"/> Ohm	Voltage: <input type="text" value="3.7"/> V	C-Rate: <input type="text" value="20"/> C cont. <input type="text" value="35"/> C max	Weight: <input type="text" value="107"/> g <input type="text" value="3.8"/> oz
Controller	Type: <input type="text" value="Master Spin 99 Pro opto"/>	Current: <input type="text" value="99"/> A cont. <input type="text" value="128"/> A max	Resistance: <input type="text" value="0.000588"/> Ohm	Weight: <input type="text" value="110"/> g <input type="text" value="3.9"/> oz	Wire extension battery: <input type="text" value="AWG10=5.27mm<sup>2</sup>"/>	Length: <input type="text" value="0"/> mm <input type="text" value="0"/> inch	Wire extension motor: <input type="text" value="AWG10=5.27mm<sup>2</sup>"/>	Length: <input type="text" value="0"/> mm <input type="text" value="0"/> inch
Motor	Manufacturer - Type (Kv): <input type="text" value="Hacker"/> <input type="text" value="A60-16L (168)"/> <input type="text" value="search..."/> <input type="text" value="Prop-Kv-Wizard"/>	KV (w/o torque): <input type="text" value="168"/> rpm/V	no-load Current: <input type="text" value="1.8"/> A @ <input type="text" value="8.4"/> V	Limit (up to 15s): <input type="text" value="3000"/> W	Resistance: <input type="text" value="0.018"/> Ohm	Case Length: <input type="text" value="80"/> mm <input type="text" value="3.15"/> inch	# mag. Poles: <input type="text" value="12"/>	Weight: <input type="text" value="910"/> g <input type="text" value="32.1"/> oz
Propeller	Type - yoke twist: <input type="text" value="APC Electric E"/> - <input type="text" value="0°"/>	Diameter: <input type="text" value="19"/> inch <input type="text" value="482.6"/> mm	Pitch: <input type="text" value="15.5"/> inch <input type="text" value="393.7"/> mm	# Blades: <input type="text" value="2"/>	PConst / TConst: <input type="text" value="1.08"/> / <input type="text" value="1.0"/>	Gear Ratio: <input type="text" value="1"/> : <input type="text" value="1"/>	Flight Speed: <input type="text" value="90"/> km/h <input type="text" value="55.9"/> mph	<input type="button" value="calculate"/>



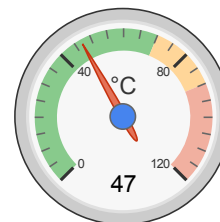
Load:



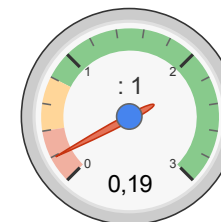
Mixed Flight Time:



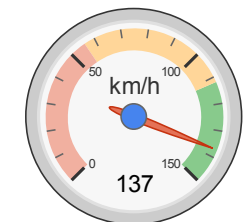
electric Power:



est. Temperature:



Thrust-Weight:



Pitch Speed:

Remarks:

- The airflow at the propeller blade will stall. Therefore the static thrust and max. current may not be reached. On ground you will measure *Stall Thrust* as maximum.
- The Thrust-Weight-Ratio might be insufficient to fly or to stay in the air. Aim for a ratio of at least 0.5!
- 25.1km/h / 15.6mph - above this airspeed stall at the propeller blade will have disappeared completely.

Battery	Motor @ Optimum Efficiency	Motor @ Maximum	Propeller	Total Drive	Airplane
Load: 2.63 C	Current: 61.49 A	Current: 52.54 A	Static Thrust: 10120 g	Drive Weight: 5830 g	All-up Weight: 25000 g
Voltage: 36.74 V	Voltage: 36.66 V	Voltage: 36.71 V	357 oz	205.6 oz	881.8 oz
Rated Voltage: 37.00 V	Revolutions*: 5766 rpm	Revolutions*: 5804 rpm	Revolutions*: 5804 rpm	Power-Weight: 78 W/kg	Wing Load: 146 g/dm ²
Energy: 740 Wh	electric Power: 2254.0 W	electric Power: 1928.7 W	Stall Thrust: 4806 g	35 W/lb	47.8 oz/ft ²
Total Capacity: 20000 mAh	mech. Power: 2100.3 W	mech. Power: 1795.4 W	169.5 oz	Thrust-Weight: 0.19 : 1	Cubic Wing Load: 11.2
Used Capacity: 17000 mAh	Efficiency: 93.2 %	Efficiency: 93.1 %	Thrust @ 90 km/h: 3480 g	P(in) @ max: 1944.1 W	est. Stall Speed: 56 km/h

min. Flight Time: 19.4 min
 Mixed Flight Time: 19.5 min
 Weight: 4280 g
 151 oz

est. Temperature: 47 °C
 117 °F

Thrust @ 55.9 mph: 122.8 oz
 Pitch Speed: 137 km/h
 85 mph
 Tip Speed: 528 km/h
 328 mph
 specific Thrust: 2.49 g/W
 0.09 oz/W

P(out) @ max: 1795.4 W
 Efficiency @ max: 92.4 %

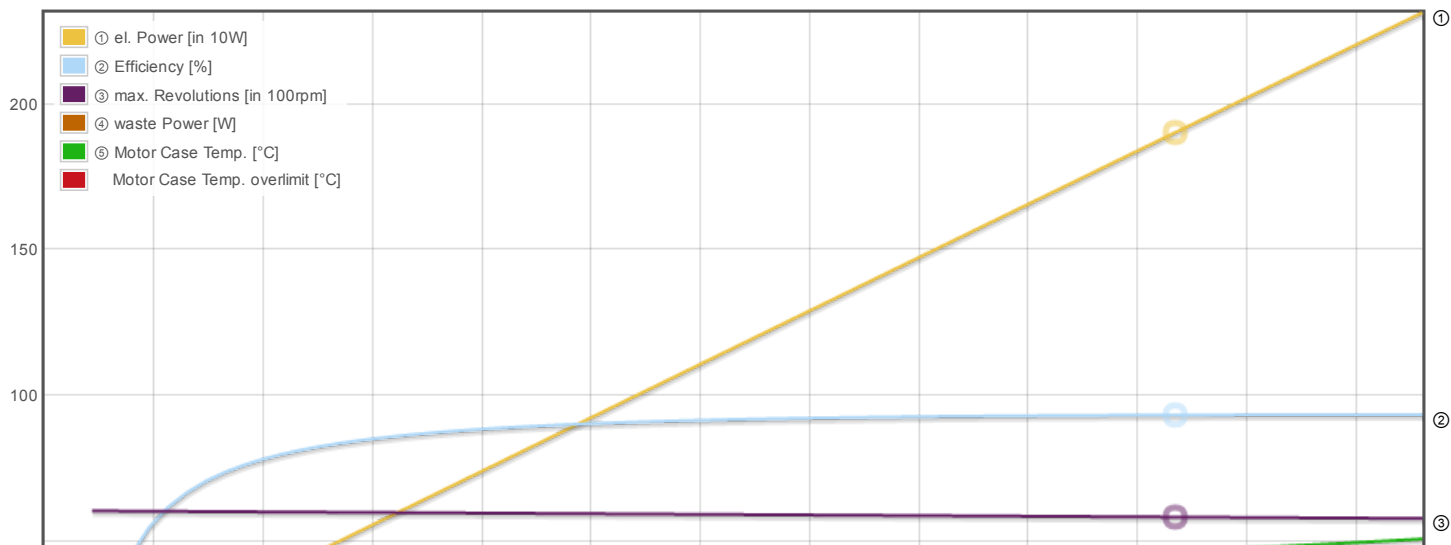
est. Speed (level): 35 mph
 118 km/h
 73 mph
 est. Speed (vertical): - km/h
 - mph
 est. rate of climb: 6 m/s
 1177 ft/min

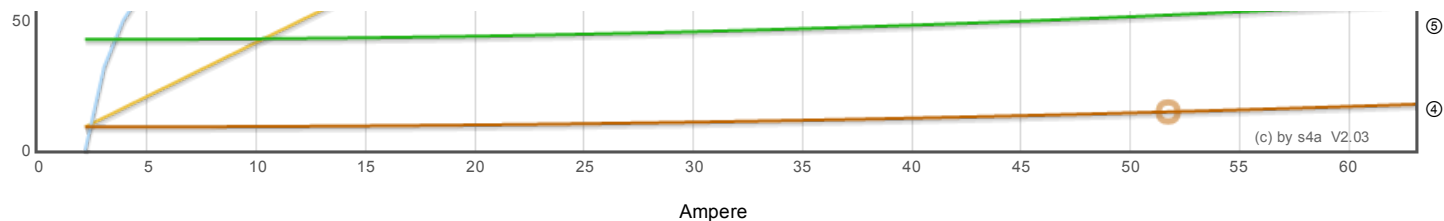
share <http://www.ecalc.ch/motorcalc.php?hacker&lang=en&cooling=good&motomur> <http://www.eCalc.ch...> add to >> Download .csv (0) << clear

Motor Partial Load

Propeller rpm	Throttle %	Current (DC) A	Volage (DC) V	el. Power W	Efficiency %	Thrust g	Spec. Thrust g/W	Pitch Speed km/h	Thrust oz	Spec. Thrust oz/W	Pitch Speed mph	Flight Time (85%) min
800	13	0.4	37.0	13.3	35.3	192	14.4	19	6.8	0.51	12	2832.8
1200	20	0.8	37.0	29.3	54.1	433	14.7	28	15.3	0.52	18	1286.0
1600	27	1.5	37.0	56.1	67.1	769	13.7	38	27.1	0.48	23	672.5
2000	34	2.6	37.0	97.2	75.5	1201	12.4	47	42.4	0.44	29	387.8
2400	40	4.2	37.0	156.5	81.1	1730	11.1	57	61.0	0.39	35	240.9
2800	47	6.4	37.0	237.5	84.9	2355	9.9	66	83.1	0.35	41	158.7
3200	54	9.3	37.0	344.2	87.4	3076	8.9	76	108.5	0.32	47	109.5
3600	61	13.0	36.9	480.1	89.2	3893	8.1	85	137.3	0.29	53	78.4
4000	68	17.6	36.9	649.2	90.5	4806	7.4	95	169.5	0.26	59	58.0
4400	75	23.2	36.9	855.3	91.4	5815	6.8	104	205.1	0.24	65	44.0
4800	82	29.9	36.9	1102.2	92.1	6921	6.3	113	244.1	0.22	70	34.1
5200	89	37.9	36.8	1393.8	92.6	8122	5.8	123	286.5	0.21	76	26.9
5600	96	47.2	36.8	1734.1	93.0	9420	5.4	132	332.3	0.19	82	21.6
5804	100	52.5	36.7	1928.7	93.1	10120	5.2	137	357.0	0.19	85	19.4

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

(c) copyright by and intellectual property of Markus Mueller, Solution for All, www.s4a.ch, info[at]ecalcalc.ch
See HTML Source for full and complete copyright notice.

Version: P6.70, 07.04.16 / Data: 5.05.16 with 6437 Motors
translated to english by Markus Mueller

4867406

