

54A

Member Full Version

...insert your project name...

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



propCalc - Propeller Calculator



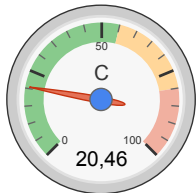
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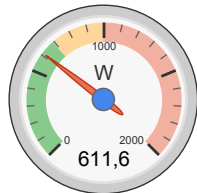
General	Motor Cooling: <input type="text" value="good"/>	# of Motors: <input type="text" value="1"/> <small>(on same Battery)</small>	Model Weight: <input type="text" value="1250"/> g <input type="text" value="incl. Drive"/> <input type="text" value="44.1"/> oz	Wing Area: <input type="text" value="50"/> dm ² <input type="text" value="775"/> in ²	Field Elevation <input type="text" value="500"/> m ASL <input type="text" value="1640"/> ft ASL	Air Temperature <input type="text" value="20"/> °C <input type="text" value="68"/> °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="LiPo 2200mAh - 55/80C"/> - <input type="text" value="normal"/>	Configuration: <input type="text" value="4"/> S <input type="text" value="1"/> P	Cell Capacity: <input type="text" value="2200"/> mAh <input type="text" value="2200"/> mAh total	max. discharge: <input type="text" value="85%"/>	Resistance: <input type="text" value="0.0055"/> Ohm	Voltage: <input type="text" value="3.7"/> V	C-Rate: <input type="text" value="55"/> C cont. <input type="text" value="80"/> C max	Weight: <input type="text" value="59"/> g <input type="text" value="2.1"/> oz
Controller	Type: <input type="text" value="max 50A"/>	Current: <input type="text" value="50"/> A cont. <input type="text" value="50"/> A max	Resistance: <input type="text" value="0.005"/> Ohm	Weight: <input type="text" value="65"/> g <input type="text" value="2.3"/> 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="EMAX"/> <input type="text" value="BL2820 (919)"/> <input type="text" value="search..."/> <input type="text" value="Prop-Kv-Wizard"/>	KV (w/o torque): <input type="text" value="919"/> rpm/V	no-load Current: <input type="text" value="2.5"/> A @ <input type="text" value="10"/> V	Limit (up to 15s): <input type="text" value="991"/> W	Resistance: <input type="text" value="0.031"/> Ohm	Case Length: <input type="text" value="24.5"/> mm <input type="text" value="0.96"/> inch	# mag. Poles: <input type="text" value="14"/>	Weight: <input type="text" value="144"/> g <input type="text" value="5.1"/> oz
Propeller	Type - yoke twist: <input type="text" value="APC Electric E"/> - <input type="text" value="0°"/>	Diameter: <input type="text" value="12"/> inch <input type="text" value="304.8"/> mm	Pitch: <input type="text" value="4.5"/> inch <input type="text" value="114.3"/> 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="0"/> km/h <input type="text" value="0"/> mph	<input type="button" value="calculate"/>



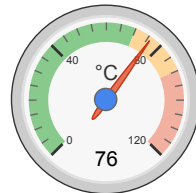
Load:



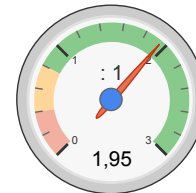
Mixed Flight Time:



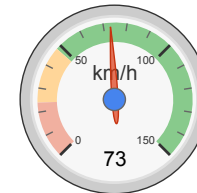
electric Power:



est. Temperature:



Thrust-Weight:



Pitch Speed:

Remarks:

Battery	Motor @ Optimum Efficiency	Motor @ Maximum	Propeller	Total Drive	Airplane
Load: 20.46 C	Current: 35.05 A	Current: 45.02 A	Static Thrust: 2439 g	Drive Weight: 490 g	All-up Weight: 1250 g
Voltage: 13.81 V	Voltage: 13.85 V	Voltage: 13.58 V	86 oz	17.3 oz	44.1 oz
Rated Voltage: 14.80 V	Revolutions*: 11256 rpm	Revolutions*: 10705 rpm	Revolutions*: 10705 rpm	Power-Weight: 533 W/kg	Wing Load: 25 g/dm ²
Energy: 32.56 Wh	electric Power: 485.5 W	electric Power: 611.6 W	Stall Thrust: - g	242 W/lb	8.2 oz/ft ²
Total Capacity: 2200 mAh	mech. Power: 404.0 W	mech. Power: 505.7 W	- oz	Thrust-Weight: 1.95 : 1	Cubic Wing Load: 3.5
Used Capacity: 1870 mAh	Efficiency: 83.2 %	Efficiency: 82.7 %	Thrust @ 0 km/h: 2439 g	P(in) @ max: 666.3 W	est. Stall Speed: 24 km/h
min. Flight Time: 2.5 min		est. Temperature: 76 °C	Thrust @ 0 mph: 86 oz	P(out) @ max: 505.7 W	15 mph
Mixed Flight Time: 6.4 min		169 °F	Pitch Speed: 73 km/h	Efficiency @ max: 75.9 %	est. Speed (level): 68 km/h
Weight: 236 g			45 mph		42 mph

8.3 oz

Tip Speed: 615 km/h
382 mph
specific Thrust: 3.99 g/W
0.14 oz/W

est. Speed (vertical): 35 km/h
22 mph
est. rate of climb: 9.6 m/s
1887 ft/min

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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
1600	13	0.3	14.8	5.1	33.1	54	10.7	11	1.9	0.38	7	324.3
2400	19	0.7	14.8	11.0	51.7	123	11.1	16	4.3	0.39	10	149.8
3200	26	1.4	14.8	21.0	64.0	218	10.4	22	7.7	0.37	14	78.2
4000	33	2.5	14.7	36.7	71.7	340	9.3	27	12.0	0.33	17	44.7
4800	39	4.1	14.7	59.4	76.4	490	8.2	33	17.3	0.29	20	27.5
5600	47	6.3	14.7	90.9	79.4	667	7.3	38	23.5	0.26	24	17.9
6400	54	9.2	14.6	132.5	81.3	872	6.6	44	30.7	0.23	27	12.2
7200	61	13.0	14.5	186.2	82.4	1103	5.9	49	38.9	0.21	31	8.6
8000	69	17.8	14.4	253.4	83.0	1362	5.4	55	48.0	0.19	34	6.3
8800	78	23.9	14.3	336.0	83.3	1648	4.9	60	58.1	0.17	38	4.7
9600	87	31.3	14.1	435.7	83.4	1961	4.5	66	69.2	0.16	41	3.6
10400	96	40.5	13.9	554.3	83.4	2302	4.2	71	81.2	0.15	44	2.8
10705	100	45.0	13.8	611.6	82.7	2439	4.0	73	86.0	0.14	46	2.5

Motor Characteristic at Full Throttle

