

54A

Member Full Version

...insert your project name...

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



propCalc - Propeller Calculator



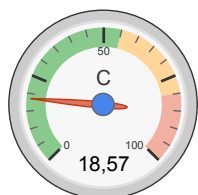
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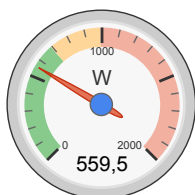
General	Motor Cooling: <input type="text" value="good"/>	# of Motors: <input type="text" value="1"/> <small>(on same Battery)</small>	Model Weight: <input type="text" value="1250"/> g <input type="text" value="incl. Drive"/> <input type="text" value="44.1"/> oz	Wing Area: <input type="text" value="50"/> 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="button" value="search..."/> <input type="button" 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="11"/> inch <input type="text" value="279.4"/> mm	Pitch: <input type="text" value="5.5"/> inch <input type="text" value="139.7"/> 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="0"/> km/h <input type="text" value="0"/> mph	<input type="button" value="calculate"/>



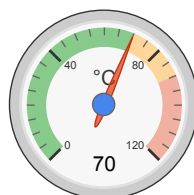
Load:



Mixed Flight Time:



electric Power:



est. Temperature:



Thrust-Weight:



Pitch Speed:

Remarks:

Battery	Motor @ Optimum Efficiency	Motor @ Maximum	Propeller	Total Drive	Airplane
Load: 18.57 C	Current: 35.05 A	Current: 40.85 A	Static Thrust: 2396 g	Drive Weight: 490 g	All-up Weight: 1250 g
Voltage: 13.90 V	Voltage: 13.85 V	Voltage: 13.70 V	84.5 oz	17.3 oz	44.1 oz
Rated Voltage: 14.80 V	Revolutions*: 11256 rpm	Revolutions*: 10936 rpm	Revolutions*: 10936 rpm	Power-Weight: 484 W/kg	Wing Load: 25 g/dm ²
Energy: 32.56 Wh	electric Power: 485.5 W	electric Power: 559.5 W	Stall Thrust: 1856 g	220 W/lb	8.2 oz/ft ²
Total Capacity: 2200 mAh	mech. Power: 404.0 W	mech. Power: 464.7 W	65.5 oz	Thrust-Weight: 1.92 : 1	Cubic Wing Load: 3.5
Used Capacity: 1870 mAh	Efficiency: 83.2 %	Efficiency: 83.1 %	Thrust @ 0 km/h: 2396 g	P(in) @ max: 604.5 W	est. Stall Speed: 24 km/h
min. Flight Time: 2.7 min		est. Temperature: 70 °C	Thrust @ 0 mph: 84.5 oz	P(out) @ max: 464.7 W	15 mph
Mixed Flight Time: 6.9 min		158 °F	Pitch Speed: 92 km/h	Efficiency @ max: 76.9 %	est. Speed (level): 83 km/h
Weight: 236 g			57 mph		52 mph

8.3 oz

Tip Speed: 576 km/h
358 mph
specific Thrust: 4.28 g/W
0.15 oz/W

est. Speed (vertical): 42 km/h
26 mph
est. rate of climb: 11.6 m/s
2284 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	4.8	30.1	51	10.6	13	1.8	0.37	8	341.5
2400	19	0.7	14.8	10.1	48.3	115	11.4	20	4.1	0.40	13	162.5
3200	26	1.3	14.8	19.0	61.1	205	10.8	27	7.2	0.38	17	86.6
4000	32	2.2	14.8	32.7	69.4	321	9.8	34	11.3	0.35	21	50.3
4800	39	3.6	14.7	52.4	74.8	462	8.8	40	16.3	0.31	25	31.2
5600	46	5.5	14.7	79.6	78.2	628	7.9	47	22.2	0.28	29	20.5
6400	53	8.0	14.6	115.5	80.4	821	7.1	54	28.9	0.25	33	14.1
7200	61	11.2	14.6	161.6	81.9	1039	6.4	60	36.6	0.23	38	10.0
8000	68	15.3	14.5	219.3	82.8	1282	5.8	67	45.2	0.21	42	7.3
8800	76	20.5	14.3	290.0	83.3	1551	5.3	74	54.7	0.19	46	5.5
9600	85	26.8	14.2	375.2	83.6	1846	4.9	81	65.1	0.17	50	4.2
10400	94	34.4	14.0	476.5	83.7	2167	4.5	87	76.4	0.16	54	3.3
10936	100	40.8	13.9	559.5	83.1	2396	4.3	92	84.5	0.15	57	2.7

Motor Characteristic at Full Throttle

