

## Spreadsheet for Emax 1407/2800Kv and LiPo Batteries

Work Area:										
Motor Data Sheet	Wt. grams	Kv	Idle Current Io	Motor Resistance	Amps In Max Con.	Watts In Max Con.	Rec Min # of Cells	Rec Max # of Cells	Stator Arms	Rotor Poles
Emax 1407/2800	13.7	2800	0.70	180m	13.6	220	2	4	9	12

  

Prop Mfg Name	Diameter	Pitch	# of Cells	Voltage	Motor Amps In	Watts In	Prop RPM	Thrust Grams	Kv	RE	MPH
Emax Carbon Fiber	5.0	3.0	2	7.91	5.53	43.74	17699	233	2238	405	50.28
Emax Carbon Fiber	5.0	3.0	3	11.43	9.22	105.38	23673	413	2071	225	67.25
Emax Carbon Fiber	5.0	3.0	4	15.37	12.77	196.27	28530	587	1856	145	81.05
Gemfan EP	5.0	3.0	2	7.91	5.1	40.34	17857	219	2258	443	50.73
Gemfan EP	5.0	3.0	3	12.02	9.47	113.83	24726	422	2057	217	70.24
Gemfan EP	5.0	3.0	4	14.95	12.33	184.33	28355	577	1897	154	80.55
Gemfan EP	6.0	3.0	2	7.76	6.64	51.53	15725	283	2026	305	44.67
Gemfan EP	6.0	3.0	3	11.86	11.41	135.32	20308	491	1712	150	57.69
Gemfan EP	6.0	3.0	4	4S NOT RECOMMENED, PROP STARTS HIGHSPEED VIBRATION							
Gemfan LR	7.0	3.5	2	7.69	10.67	82.05	10650	326	1385	130	35.30
Gemfan LR	7.0	3.5	3	3S NOT RECOMMENED, PROP STARTS HIGHSPEED VIBRATION							
Cyclone	7.0	4.0	2	7.67	9.19	70.49	12984	325	1693	184	49.18
Cyclone	7.0	4.0	3	10.98	13.23	145.27	15715	476	1431	108	59.53
APC SF CUT	5.0	4.10	2	7.61	8.77	66.74	13665	212	1796	205	53.06
APC SF CUT	5.0	4.10	3	11.29	13.7	154.67	17118	333	1516	111	66.46
APC SF CUT	5.0	4.10	4	14.21	16.42	233.33	18217	392	1282	78	70.73
APC SF	6.0	4.10	2	7.66	9.58	73.38	12355	290	1613	168	47.97
APC SF	6.0	4.10	3	11.86	14.14	167.70	14771	423	1245	88	57.35
APC SF	7.0	4.10	2	7.75	11.55	89.51	10073	340	1300	113	39.11
APC E	4.75	4.75	2	7.91	6.9	54.58	15764	156	1993	289	70.91
APC E	4.75	4.75	3	11.86	11.86	140.66	20533	266	1731	146	92.36
APC E	5.1	4.5	2	7.74	9.03	69.89	13220	225	1708	189	56.34
APC E	5.1	4.5	3	11.13	15.96	177.63	13912	343	1250	78	59.28
APC E	5.0	5.0	2	7.76	8.16	63.32	14331	159	1847	226	67.86
APC E	5.0	5.0	3	11.71	13.68	160.19	17733	244	1514	111	83.96

Prop Mfg Name	Diameter	Pitch	# of Cells	Voltage	Motor Amps In	Watts In	Prop RPM	Thrust Grams	Kv	RE	MPH
MasterAirscrew EO	6.0	3.0	2	7.74	10.29	79.64	11828	175	1528	149	33.60
MasterAirscrew EO	6.0	3.0	3	11.28	14.59	164.58	14628	265	1297	89	41.56
MasterAirscrew G/F	5.5	4.5	2	7.54	8.42	63.49	13468	253	1786	212	57.39
MasterAirscrew G/F	5.5	4.5	3	11.28	13.23	149.23	17247	406	1529	116	73.50
MasterAirscrew G/F	6.00	4.00	2	7.76	8.89	68.99	13786	304	1777	200	52.22
MasterAirscrew G/F	6.00	4.00	3	11.27	13.68	154.17	17043	467	1512	111	64.56
GWS	5.0	4.3	2	7.91	7.2	56.95	16002	236	2023	281	65.16
GWS	5.0	4.3	3	11.72	11.87	139.12	21023	406	1794	151	85.61
GWS	5.0	4.3	4	15.38	15.97	245.62	24554	540	1596	100	99.98
APC E	4.1	4.1	2	7.91	5.29	41.84	18083	131	2286	432	70.21
APC E	4.1	4.1	3	11.71	9.35	109.49	24028	234	2052	219	93.29
APC E	4.1	4.1	4	15.39	12.78	196.68	28402	322	1845	144	110.27
GWS	4.5	4.0	2	8.05	5.51	44.36	18053	197	2243	407	68.38
GWS	4.5	4.0	3	11.57	9.33	107.95	23894	344	2065	221	90.51
GWS	4.5	4.0	4	14.94	12.77	190.78	27855	472	1864	146	105.51
GWS	4.0	2.5	2	8.05	3.37	27.13	20540	135	2552	757	48.63
GWS	4.0	2.5	3	11.86	6.16	73.06	28462	259	2400	390	67.38
GWS	4.0	2.5	4	15.39	9.19	141.43	34954	389	2271	247	82.75
FC	3.5	5.0	2	8.05	3.76	30.27	19756	128	2454	653	93.54
FC	3.5	5.0	3	11.71	6.51	76.23	27422	235	2342	360	129.84
FC	3.5	5.0	4	15.09	9.36	141.24	33635	333	2229	238	159.26
GWS	4.0	4.0	2	7.91	5.40	42.70	17977	133	2273	421	68.09
GWS	4.0	4.0	3	11.57	9.48	109.68	23663	237	2045	216	89.63
GWS	4.0	4.0	4	15.39	13.69	210.69	26684	304	1734	127	101.08
King Kong	4.0	4.5	2	8.05	3.48	28.01	20212	129	2511	721	86.13
King Kong	4.0	4.5	3	11.71	6.29	73.66	27729	248	2368	376	118.16
King Kong	4.0	4.5	4	15.23	9.55	145.45	33907	379	2226	233	144.49

Results:	Diameter	Pitch	Watts Output	System Eff.	(g/w) Eff.	Rec. ESC Amps Min	# LiPo Cells	Batt. mAh	Throt Manage 80% mAh Req	Safe C-rate	Flight Time
Emax Carbon Fiber	5.0	3.0	38	87%	5.33	16	2	300	240	23	5
Emax Carbon Fiber	5.0	3.0	97	92%	3.92	16	3	500	400	23	5
Emax Carbon Fiber	5.0	3.0	186	95%	2.99	16	4	700	560	23	5
Gemfan EP	5.0	3.0	35	86%	5.43	16	2	300	240	21	5
Gemfan EP	5.0	3.0	105	93%	3.71	16	3	500	400	24	5
Gemfan EP	5.0	3.0	174	94%	3.13	16	4	700	560	22	5
Gemfan EP	6.0	3.0	46	89%	5.49	16	2	400	320	21	5
Gemfan EP	6.0	3.0	127	94%	3.63	16	3	600	480	24	5
Gemfan EP	6.0	3.0	4S NOT RECOMMENED, PROP STARTS HIGHSPEED VIBRATION								
Gemfan LR	7.0	3.5	77	93%	3.97	16	2	600	480	22	5
Gemfan LR	7.0	3.5	3S NOT RECOMMENED, PROP STARTS HIGHSPEED VIBRATION								
Cyclone	7.0	4.0	65	92%	4.61	16	2	500	400	23	5
Cyclone	7.0	4.0	138	95%	3.28	16	3	700	560	24	5
APC SF CUT	5.0	4.10	61	92%	3.18	16	2	500	400	22	5
APC SF CUT	5.0	4.10	147	95%	2.15	16	3	800	640	21	5
APC SF CUT	5.0	4.10	223	96%	1.68	16	4	900	720	23	5
APC SF	6.0	4.10	68	93%	3.95	16	2	500	400	24	5
APC SF	6.0	4.10	159	95%	2.52	16	3	800	640	22	5
APC SF	7.0	4.10	84	94%	3.80	16	2	700	560	21	5
APC E	4.75	4.75	49	90%	2.86	16	2	400	320	22	5
APC E	4.75	4.75	132	94%	1.89	16	3	700	560	21	5
APC E	5.1	4.5	64	92%	3.22	16	2	500	400	23	5
APC E	5.1	4.5	170	96%	1.93	16	3	900	720	22	5
APC E	5.0	5.0	58	91%	2.51	16	2	500	400	20	5
APC E	5.0	5.0	152	95%	1.52	16	3	800	640	21	5

Results:	Diameter	Pitch	Watts Output	System Eff.	(g/w) Eff.	Rec. ESC Amps Min	# LiPo Cells	Batt. mAh	Throt Manage 80% mAh Req	Safe C-rate	Flight Time
MasterAircrew EO	6.0	3.0	74	93%	2.20	16	2	600	480	21	5
MasterAircrew EO	6.0	3.0	157	95%	1.61	16	3	800	640	23	5
MasterAircrew G/F	5.5	4.5	58	92%	3.99	16	2	500	400	21	5
MasterAircrew G/F	5.5	4.5	141	95%	2.72	16	3	700	560	24	5
MasterAircrew G/F	6.00	4.00	64	92%	4.41	16	2	500	400	22	5
MasterAircrew G/F	6.00	4.00	146	95%	3.03	16	3	800	640	21	5
GWS	5.0	4.3	51	90%	4.14	16	2	400	320	23	5
GWS	5.0	4.3	131	94%	2.92	16	3	700	560	21	5
GWS	5.0	4.3	235	96%	2.20	16	4	900	720	22	5
APC E	4.1	4.1	36	87%	3.13	16	2	300	240	22	5
APC E	4.1	4.1	101	93%	2.14	16	3	600	480	19	6
APC E	4.1	4.1	186	95%	1.64	16	4	700	560	23	5
GWS	4.5	4.0	39	87%	4.44	16	2	300	240	23	5
GWS	4.5	4.0	100	92%	3.19	16	3	500	400	23	5
GWS	4.5	4.0	180	95%	2.47	16	4	700	560	23	5
GWS	4.0	2.5	21	79%	4.98	16	2	200	160	21	5
GWS	4.0	2.5	65	89%	3.55	16	3	400	320	19	5
GWS	4.0	2.5	131	92%	2.75	16	4	500	400	23	5
FC	3.5	5.0	25	81%	4.23	16	2	200	160	24	5
FC	3.5	5.0	68	89%	3.08	16	3	400	320	20	5
FC	3.5	5.0	131	93%	2.36	16	4	500	400	23	5
GWS	4.0	4.0	37	87%	3.11	16	2	300	240	22	5
GWS	4.0	4.0	102	93%	2.16	16	3	500	400	24	5
GWS	4.0	4.0	200	95%	1.44	16	4	800	640	21	5
King Kong	4.0	4.5	22	80%	4.60	16	2	200	160	22	5
King Kong	4.0	4.5	65	89%	3.37	16	3	400	320	20	5
King Kong	4.0	4.5	135	93%	2.61	16	4	500	400	24	5

#### Notes:

1) Flight time based on 100% Throttle continuous

2) C-Rate Safety Factor is 1.25 times Amps in

3) Choosing a smaller Batt requires Higher C-Rate!

#### COLOR DEFINITION:

Caution Minor Amperage Overdraw, Actual Flight should unload prop.

Amps/Watts Spec Exceeded

Data Separator