

Scorpion SII-4020-630 Motor Propeller Data

Magnets 14-Pole	Motor Wind 11-Turn Delta	Motor Kv 630 RPM/Volt	No-Load Current I ₀ = 1.54 Amps @ 10v	Motor Resistance R _m = 0.016 Ohms	I Max 95 Amps	P Max (5S) 1750 W
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Stator 12-Slot	Outside Diameter 48.9 mm, 1.925 in.	Body Length 46.2 mm, 1.819 in.	Total Shaft Length 78.4 mm, 3.087 in.	Shaft Diameter 5.98 mm, 0.235 in.	Motor Weight 288 gm, 10.16 oz
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Test Data From Sample Motor	Input I ₀ Value	12.0 V 1.70 A	16.0 V 2.05 A	20.0V 2.37 A	24.0V 2.77 A	Measured Kv value 665 RPM/Volt	Measured Rm Value 0.016 Ohms
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Prop Manf.	Prop Size	Li-Po Cells	Input Voltage	Motor Amps	Input Watts	Prop RPM	Pitch Speed in MPH	Thrust Grams	Thrust Ounces	Thrust Eff. Grams/W
APC	12x8-E	4	14.8	39.10	578.7	8,543	64.7	2189	77.21	3.78
APC	12x10-E	4	14.8	47.31	700.2	8,302	78.6	2344	82.68	3.35
APC	12x12-E	4	14.8	52.97	784.0	8,134	92.4	2182	76.97	2.78
APC	13x6.5-E	4	14.8	42.89	634.7	8,424	51.9	2980	105.12	4.69
APC	13x8-E	4	14.8	44.87	664.0	8,194	62.1	2858	100.81	4.30
APC	13x10-E	4	14.8	64.13	949.1	7,854	74.4	2782	98.13	2.93
APC	14x7-E	4	14.8	52.33	774.5	8,155	54.1	3359	118.48	4.34
APC	14x8.5-E	4	14.8	56.64	838.2	8,041	64.7	3588	126.56	4.28
APC	14x10-E	4	14.8	58.55	866.6	7,992	75.7	3401	119.97	3.92
APC	14x12-E	4	14.8	82.40	1219.5	7,345	83.5	2939	103.67	2.41
APC	15x4-E	4	14.8	42.51	629.2	8,443	32.0	3520	124.16	5.59
APC	15x6-E	4	14.8	56.65	838.4	8,037	45.7	4036	142.36	4.81
APC	15x8-E	4	14.8	60.76	899.2	7,903	59.9	3922	138.34	4.36
APC	15x10-E	4	14.8	84.79	1254.9	7,239	68.6	4024	141.94	3.21
APC	16x8-E	4	14.8	85.50	1265.5	7,021	53.2	4526	159.65	3.58
APC	16x10-E	4	14.8	98.38	1456.1	6,905	65.4	4602	162.33	3.16
APC	17x8-E	4	14.8	95.13	1407.9	6,930	52.5	5046	177.99	3.58
MAS	12x6x3	4	14.8	31.46	465.6	8,603	48.9	2385	84.13	5.12
MAS	12x8x3	4	14.8	47.40	701.5	8,319	63.0	3182	112.24	4.54
MAS	13x8x3	4	14.8	52.47	776.6	8,183	62.0	3523	124.27	4.54
MAS	14x7x3	4	14.8	61.46	909.7	7,916	52.5	4167	146.99	4.58
MAS	14x9x3	4	14.8	72.41	1071.7	7,593	64.7	4534	159.93	4.23
MAS	15x7x3	4	14.8	75.65	1119.6	7,520	49.8	4852	171.15	4.33
MAS	16x8x3	4	14.8	86.06	1273.7	7,201	54.6	5357	188.96	4.21
MAS	16x10x3	4	14.8	106.76	1580.0	6,722	63.7	5914	208.61	3.74

Prop Manf.	Prop Size	Li-Po Cells	Input Voltage	Motor Amps	Input Watts	Prop RPM	Pitch Speed in MPH	Thrust Grams	Thrust Ounces	Thrust Eff. Grams/W
APC	11x8-E	5	18.5	46.95	868.5	10,618	80.4	2792	98.48	3.21
APC	11x8.5-E	5	18.5	50.56	935.4	10,492	84.5	2862	100.95	3.06
APC	11x10-E	5	18.5	58.09	1074.6	10,275	97.3	2669	94.15	2.48
APC	12x6-E	5	18.5	47.99	887.9	10,593	60.2	3563	125.68	4.01
APC	12x8-E	5	18.5	59.26	1096.4	10,250	77.7	3257	114.89	2.97
APC	12x10-E	5	18.5	72.38	1339.1	9,634	93.1	3322	117.18	2.48
APC	12x12-E	5	18.5	76.72	1419.4	9,710	110.3	3142	110.83	2.21
APC	13x6.5-E	5	18.5	64.97	1201.9	9,833	60.5	4119	145.29	3.43
APC	13x8-E	5	18.5	75.53	1397.4	9,778	74.1	4241	149.60	3.04
APC	13x10-E	5	18.5	95.36	1764.2	9,144	86.6	3777	133.23	2.14
APC	14x7-E	5	18.5	86.00	1591.0	9,426	62.5	4851	171.11	3.05
APC	14x8.5-E	5	18.5	86.41	1598.7	9,413	75.8	4827	170.27	3.02
APC	14x10-E	5	18.5	87.10	1611.3	9,379	88.8	4753	167.66	2.95
APC	14x12-E	5	18.5	124.04	2294.7	8,772	99.7	4159	146.70	1.81
APC	15x4-E	5	18.5	67.11	1241.4	10,007	37.9	5273	186.00	4.25
APC	15x6-E	5	18.5	88.32	1633.8	9,355	53.2	5558	196.05	3.40
APC	15x8-E	5	18.5	92.29	1707.4	9,214	69.8	5328	187.94	3.12
APC	15x10-E	5	18.5	131.85	2439.2	8,587	81.3	5577	196.72	2.29
MAS	11x8x3	5	18.5	46.48	859.9	10,545	79.9	3220	113.58	3.74
MAS	12x6x3	5	18.5	47.63	881.2	10,522	59.8	3645	128.57	4.14
MAS	12x8x3	5	18.5	66.84	1236.5	9,878	74.8	4532	159.86	3.67
MAS	13x8x3	5	18.5	74.33	1375.1	9,644	73.1	5007	176.61	3.64
MAS	14x7x3	5	18.5	86.58	1601.7	9,320	61.8	5824	205.43	3.64
MAS	14x9x3	5	18.5	103.15	1908.3	9,029	77.0	6456	227.73	3.38

Prop Manf.	Prop Size	Li-Po Cells	Input Voltage	Motor Amps	Input Watts	Prop RPM	Pitch Speed in MPH	Thrust Grams	Thrust Ounces	Thrust Eff. Grams/W
APC	10x7-E	6	22.2	45.22	1004.0	12,966	85.9	2938	103.63	2.93
APC	10x10-E	6	22.2	65.28	1449.2	12,281	116.3	2701	95.27	1.86
APC	11x5.5-E	6	22.2	51.26	1137.9	12,748	66.4	3810	134.39	3.35
APC	11x7-E	6	22.2	61.55	1366.4	12,394	82.2	3863	136.26	2.83
APC	11x8-E	6	22.2	66.95	1486.2	12,206	92.5	3674	129.60	2.47
APC	11x8.5-E	6	22.2	69.18	1535.8	11,893	95.7	3685	129.98	2.40
APC	11x10-E	6	22.2	80.61	1789.5	11,781	111.6	3519	124.13	1.97
APC	12x6-E	6	22.2	70.53	1565.7	12,098	68.7	4695	165.61	3.00
APC	12x8-E	6	22.2	82.60	1833.8	11,696	88.6	4309	151.99	2.35
APC	12x10-E	6	22.2	99.88	2217.4	11,159	105.7	4240	149.56	1.91
APC	13x4-E	6	22.2	57.03	1266.1	12,556	47.6	4911	173.23	3.88
APC	13x6.5-E	6	22.2	94.59	2099.9	11,326	69.7	5387	190.02	2.57
APC	13x8-E	6	22.2	102.72	2280.4	11,004	83.4	5423	191.29	2.38
MAS	10x7x3	6	22.2	46.69	1036.5	12,729	84.4	3616	127.55	3.49
MAS	11x7x3	6	22.2	54.61	1212.4	12,215	81.0	4150	146.39	3.42
MAS	11x8x3	6	22.2	61.02	1354.6	11,998	90.9	4141	146.07	3.06
MAS	12x6x3	6	22.2	64.72	1436.8	12,130	68.9	4954	174.75	3.45
MAS	12x8x3	6	22.2	89.89	1995.6	11,311	85.7	5997	211.54	3.01
MAS	13x8x3	6	22.2	100.95	2241.0	11,059	83.8	6692	236.05	2.99

Propeller Chart Color Code Explanation

- The prop is too small to get good performance from the motor. (Less than 50% power)
- The prop is sized right to get good power from the motor. (50 to 80% power)
- The prop can be used, but full throttle should be kept to short bursts. (80 to 100% power)
- The prop is too big for the motor and should not be used. (Over 100% power)

PLEASE NOTE:

The Data contained in this Prop Chart is based on actual measurements, taken in a controlled test environment, at an altitude of 512 feet above sea level. The test voltages used are based on the standard output of a Li-Po battery under load, which is 3.70 volts per cell. If you are using a battery that is larger in capacity than normal, or has a very high C-rating, then your actual voltages will be higher than those shown in the chart, and this will result in a higher current and power value for every prop used. You should always test your actual power system with a watt meter before flying your model to make sure that you are not exceeding the recommended current and power ratings of the motor being used. The prop recommendations in this chart assume that the motor receives adequate cooling throughout its operation. If your motor is being used inside a cowl or fuselage, you must ensure that the motor receives sufficient airflow, and does not get too hot during operation. It is always best to use a prop size that pulls no more than 80% of the motors maximum recommended current value to ensure safe operation under all conditions.