X13 G2 Propulsion System Specification

All-in-One Thrust System Specification

Product name	X13 G2	Max Thrust	60kg (at sea level)
Recommended takeoff weight per axis	27 kg (at sea level)	Efficiency of recommended takeoff weight	8.6g/W（MFP56x20） 8.4g/W（MFC57x20）
Compatible lithium battery	18S（LiPo）	Rated voltage	18S-69V
Input voltage	25~80V	Tube outer diameter	D50mm
Weight (with cable and propeller)	4185g*	Cable specification	Power cable: 10AWG 1700mm* Signal cable: 1120 mm*
Operating temperature	-20~50 ℃	Ingress Protection	IPX6
Rated power input	3160W	Rated power output	2700W
Pinout	Black-GND, White-PWM & Yellow-GND, Gray-CH, Green-CL		

ESC Specification

Rated voltage	18S (LiPo)	Communication protocol	Cyphal（UAVCAN）
Peak current (3s)	200A	Continuous current	70A
Throttle range calibration	Not supported	Throttle Source	PWM + CAN
Operating pulse width	1050-1950μs	Fault storage & Log	Supported

Motor Specification

KV value	45KV	Slot & Pole	36N42P
Stator size	138*25mm	Motor diameter	148mm

Propeller Specification

Default

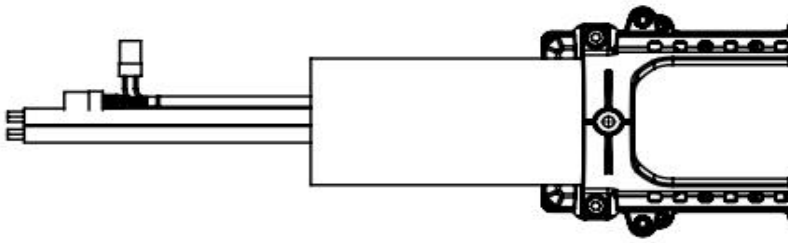
Model	MFP 56x20 (Folding propeller)	Total Weight	811g*
Material of blades	Carbon fibre-reinforced nylon composite material	Single blade weight	293g*

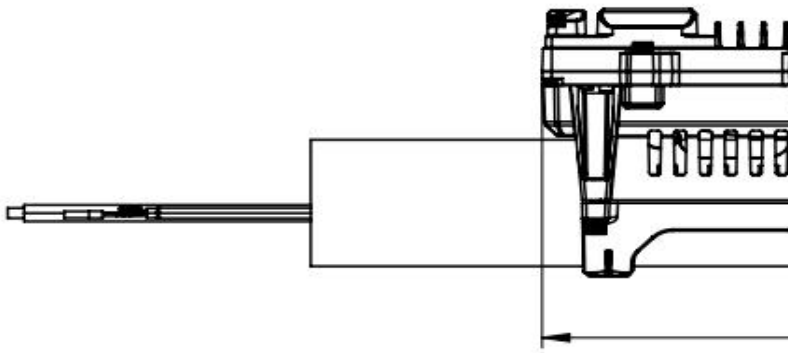
Optional

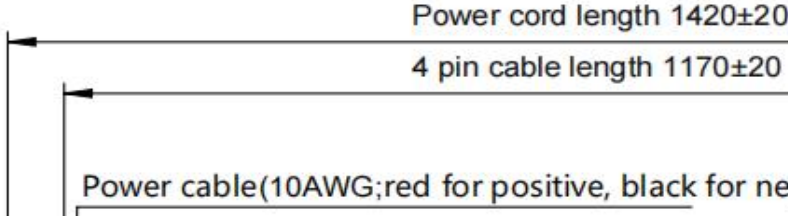
Model	MFC 57x20 (Folding propeller)	Total Weight	805g*
Material of blades	Carbon fibre composite material	Single blade weight	250g*

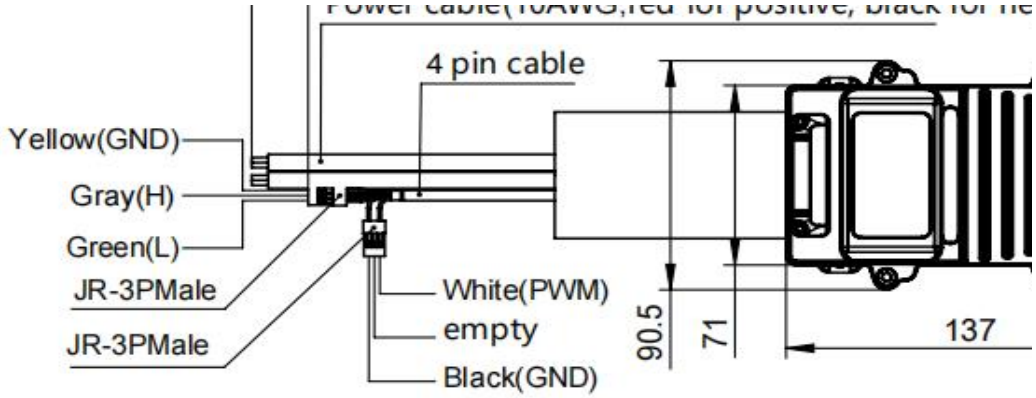
*Subject to the actual product.

Dimension figure

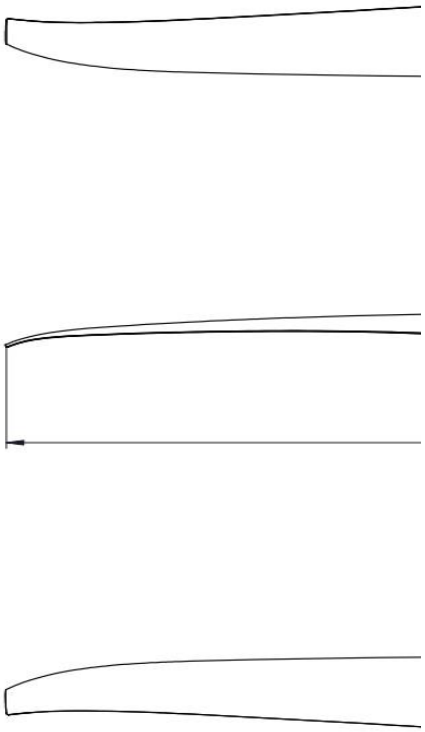




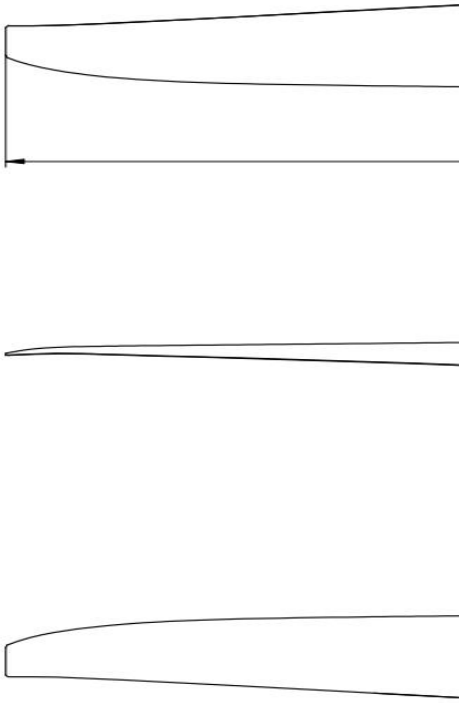


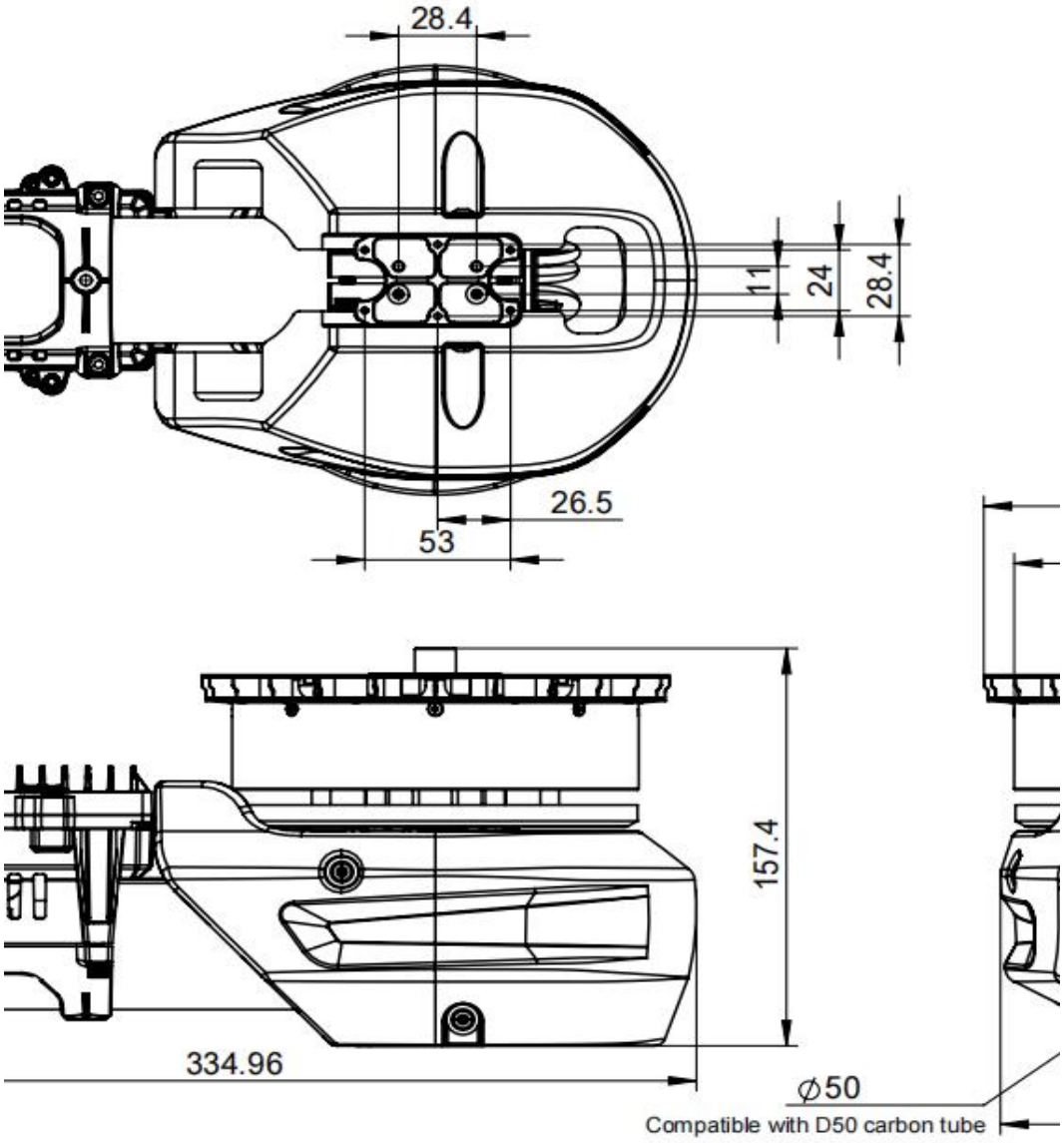


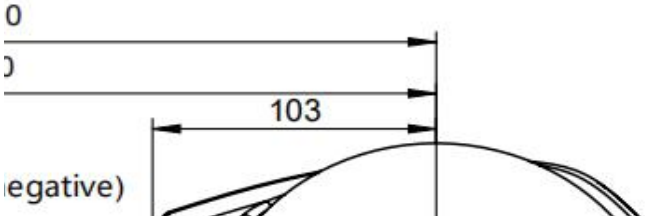
MFP 56x20



MFC 57x20




28.4
11
24
28.4
26.5
53
157.4
334.96
∅50
Compatible with D50 carbon tube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103
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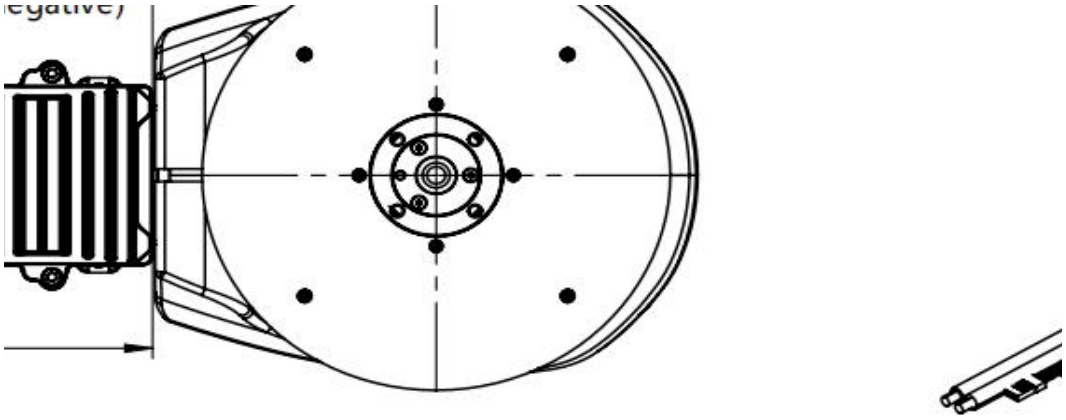
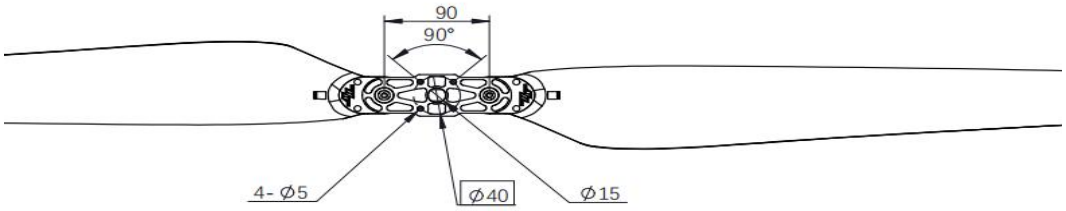
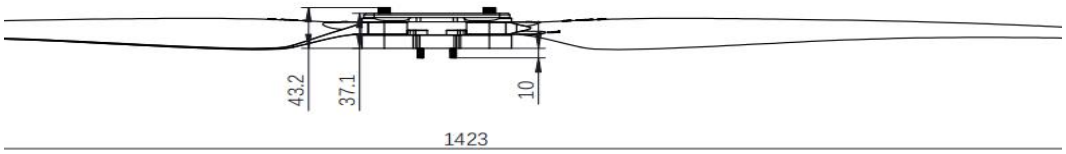
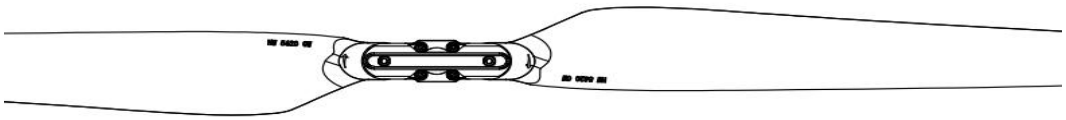
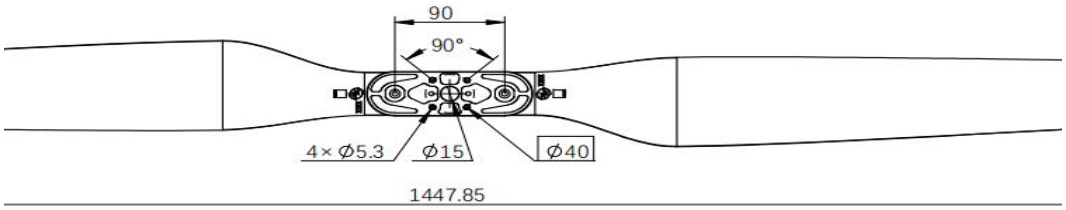
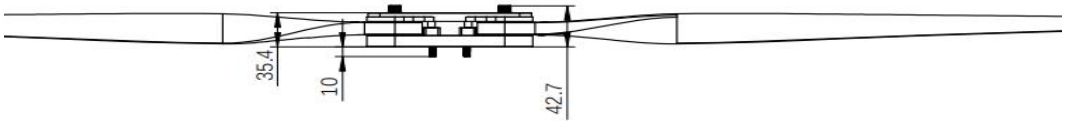


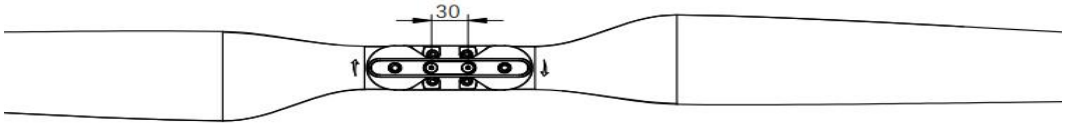

90
90°
4- Ø5
Ø40
Ø15


43.2
37.1
10
1423




90
90°
4× Ø5.3
Ø15
Ø40
1447.85


35.4
10
42.7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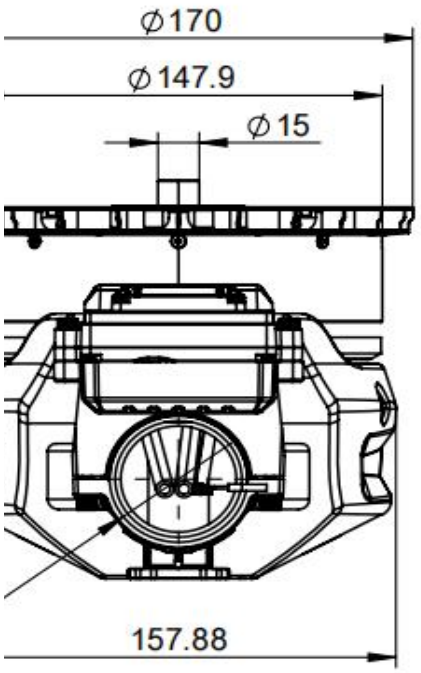
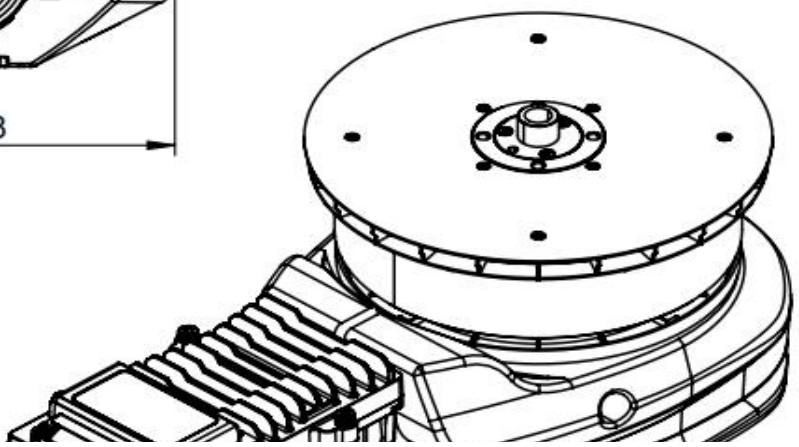
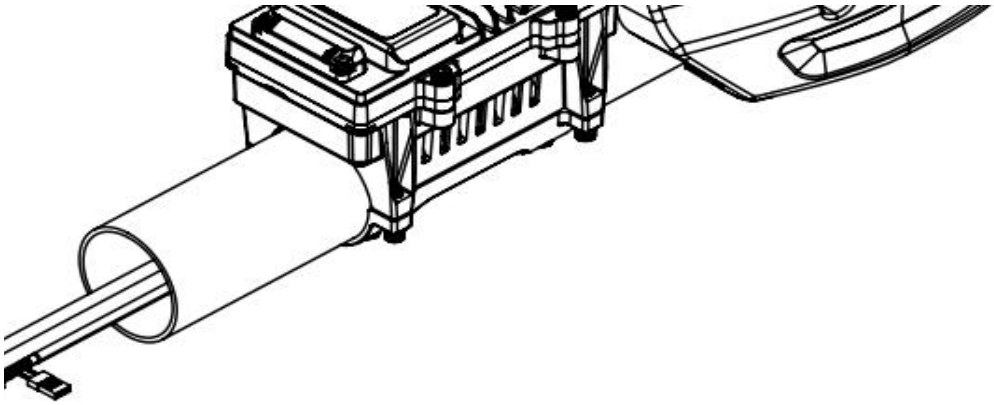
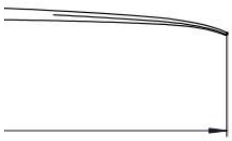
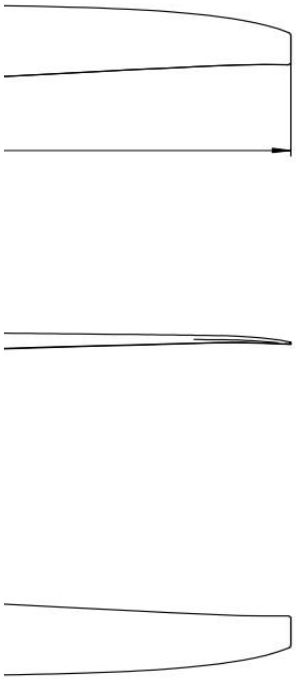

∅170
∅147.9
∅15
157.88



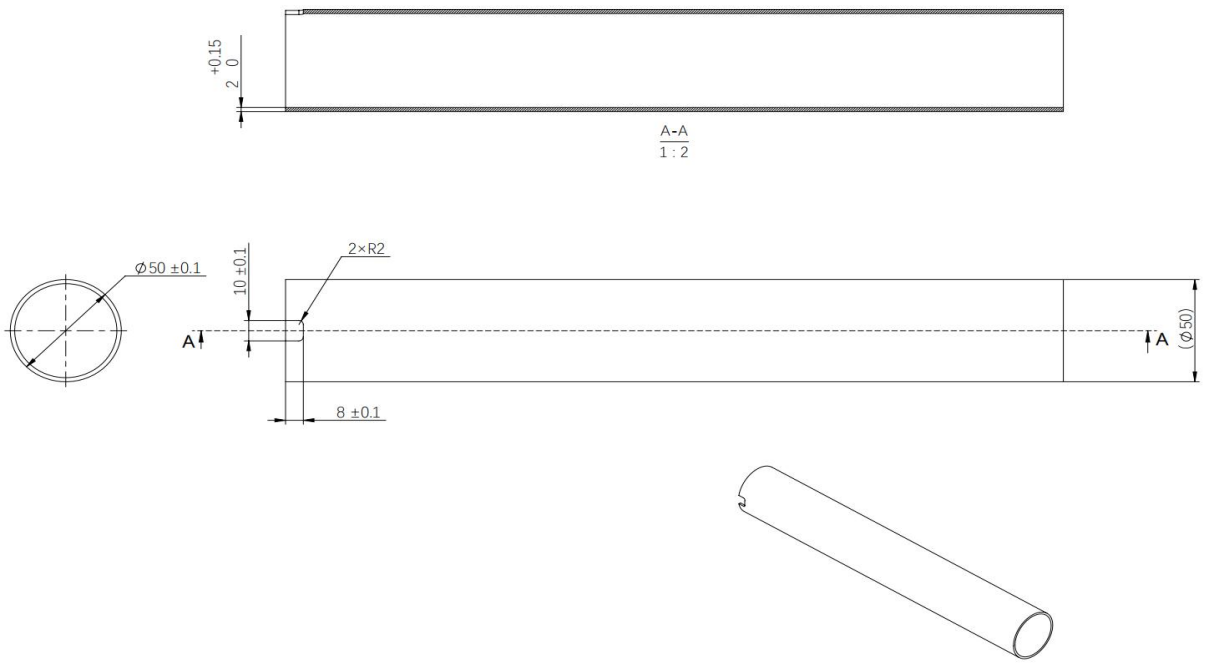






Dimension figure

Carbon Tube Pre-processing

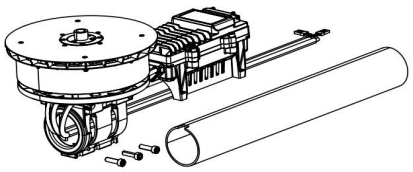


Assemble Steps

1-1. Remove the Propulsion System. (**Attention:** Remove the motor and ESC together to avoid cable damage)
1-2. Install the motor to the tube end, meanwhile threading the power cable through the center hole. Align the positioning block with the positioning notch, then tighten three M5×18 screws.

Attentions

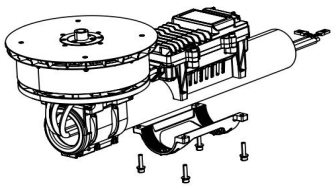
For improved reliability, apply medium-strength threadlocker (e.g., Loctite 243) to three screws.
Tighten three screws evenly in a symmetrical pattern to ensure even force distribution on the clamp mount; recommended torque is 6±0.5 N·m.



2-1. Mount the ESC upper bracket to the carbon tube. Adjust the ESC's position to ensure no contact between the power cable and the tube's outer wall, preventing vibration-induced wear.
2-2. Mount the ESC lower bracket to the carbon tube, ensure both brackets are installed in place, then tighten four M4×18 screws.

Attentions

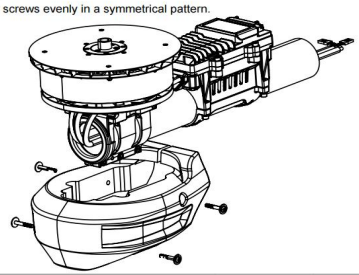
For improved reliability, apply medium-strength threadlocker (e.g., Loctite 243) to four screws.
Tighten four screws evenly in a symmetrical pattern to ensure even force distribution on the bracket, recommended torque is 3±0.5 N·m.



3. Install the protective cover to the clamp mount. With it properly seated, tighten four M4×25 screws.

Attentions

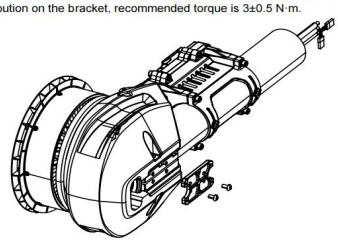
For improved reliability, apply medium-strength threadlocker (e.g., Loctite 243) to four screws.
Tighten four screws evenly in a symmetrical pattern.



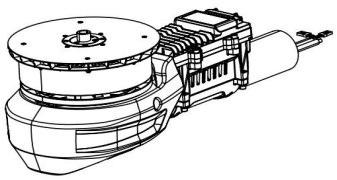
4. Install the nozzle holder under the motor clamp mount. With it properly seated, tighten two M4×8 screws.

Attentions

For improved reliability, apply medium-strength threadlocker (e.g., Loctite 243) to four screws.
Tighten four screws evenly in a symmetrical pattern to ensure even force distribution on the bracket, recommended torque is 3±0.5 N·m.

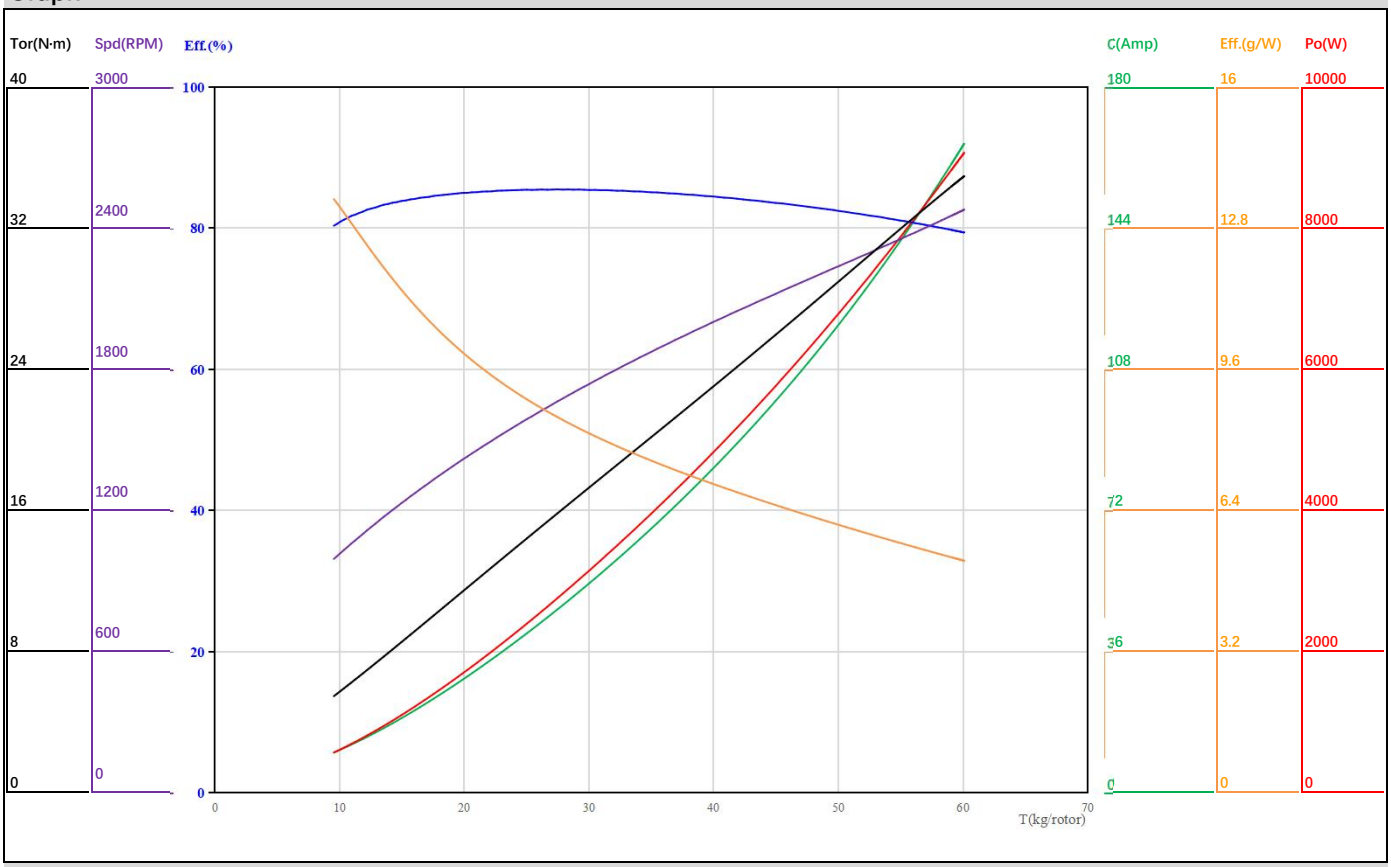


5. Completed



69V+MFP 56x20 Load performance parameters

Graph



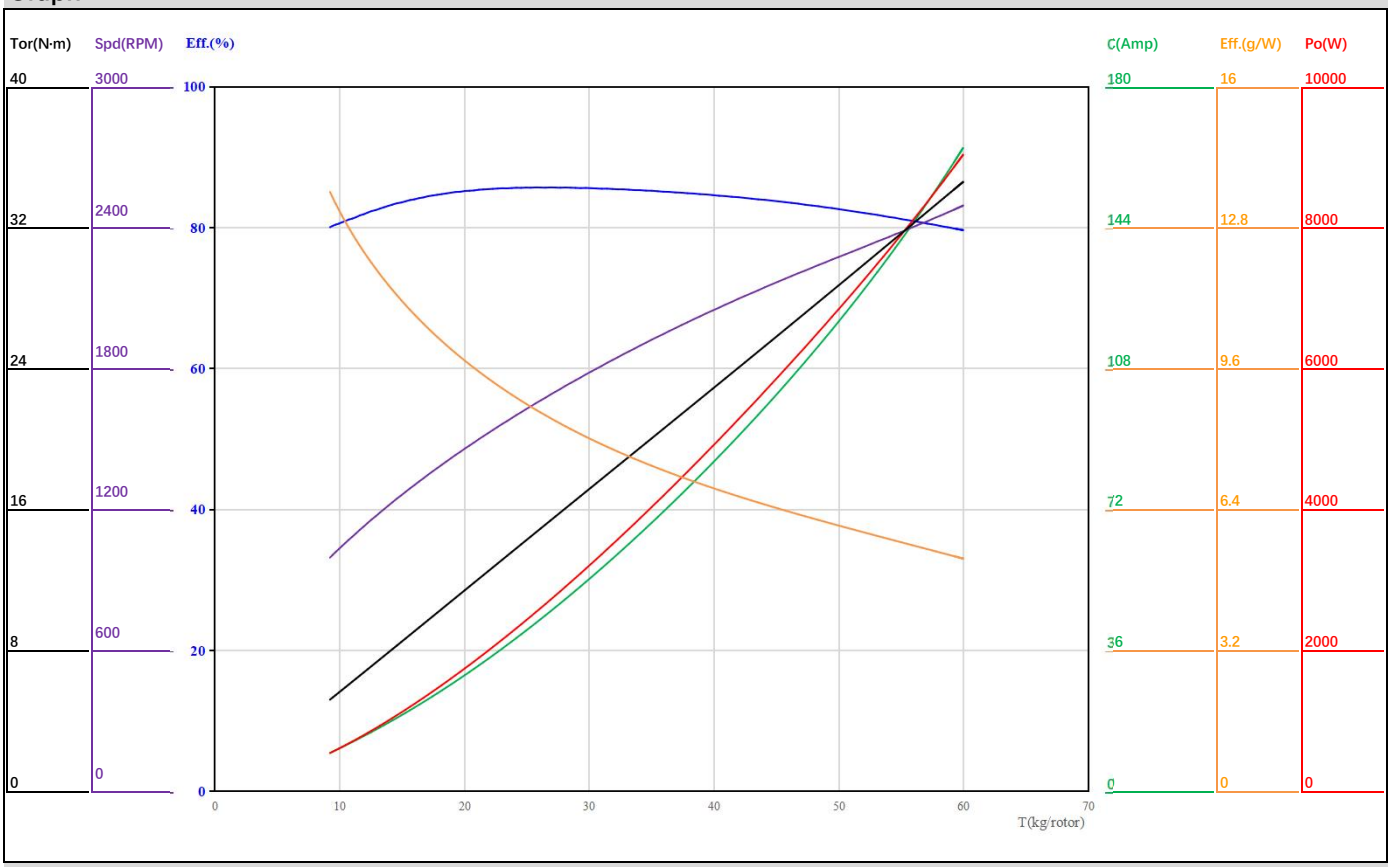
Motor Propeller Pull Test Data

Voltage(V)	Propeller	Throttle(%)	Thrust(g)	Current(A)	Power Input(W)	Speed(RPM)	Efficiency(g/W)	Torque (N·m)	Power Output(W)	Motor Temperature(℃)
69V	MFP 56x20	33%	9552	10.3	709.9	994	13.5	5.48	570.2	63℃
		35%	10360	11.4	788.1	1032	13.1	5.92	639.8	
		37%	11559	13.2	912.3	1086	12.7	6.59	749.2	
		39%	12865	15.3	1058.0	1143	12.2	7.33	877.1	
		42%	14968	19.0	1313.0	1231	11.4	8.54	1100.7	
		45%	17186	23.3	1606.2	1317	10.7	9.83	1355.9	
		48%	19476	28.0	1932.1	1402	10.1	11.17	1640.4	
		51%	21819	33.2	2287.4	1483	9.5	12.55	1948.4	
		54%	24212	38.7	2671.2	1562	9.1	13.94	2280.6	
		57%	26664	44.7	3085.1	1638	8.6	15.37	2635.5	
		60%	29192	51.2	3533.2	1714	8.3	16.82	3019.3	
		63%	31812	58.3	4021.2	1788	7.9	18.33	3431.3	
		66%	34542	66.0	4556.2	1862	7.6	19.89	3878.3	
		69%	37389	74.6	5145.6	1936	7.3	21.53	4364.2	
		72%	40351	84.0	5795.8	2010	7.0	23.24	4891.7	
		75%	43409	94.4	6511.1	2084	6.7	25.03	5461.9	
		78%	46519	105.7	7289.9	2157	6.4	26.87	6069.3	
		81%	49615	117.7	8121.9	2229	6.1	28.73	6704.8	
		84%	52597	130.2	8981.9	2297	5.9	30.52	7341.6	
		87%	55332	142.4	9824.6	2362	5.6	32.17	7955.5	
		90%	57643	153.3	10579.6	2417	5.4	33.53	8486.9	
		100%	60077	165.5	11418.8	2478	5.3	34.93	9064.4	

* The above data was measured by HOBBYWING Laboratory at room temperature 25°C, at sea level, with varying throttle input.
The motor housing temperature is measured after running for 10 minutes at 1.2 times rated thrust , for reference only.

69V+MFC 57x20 Load performance parameters

Graph



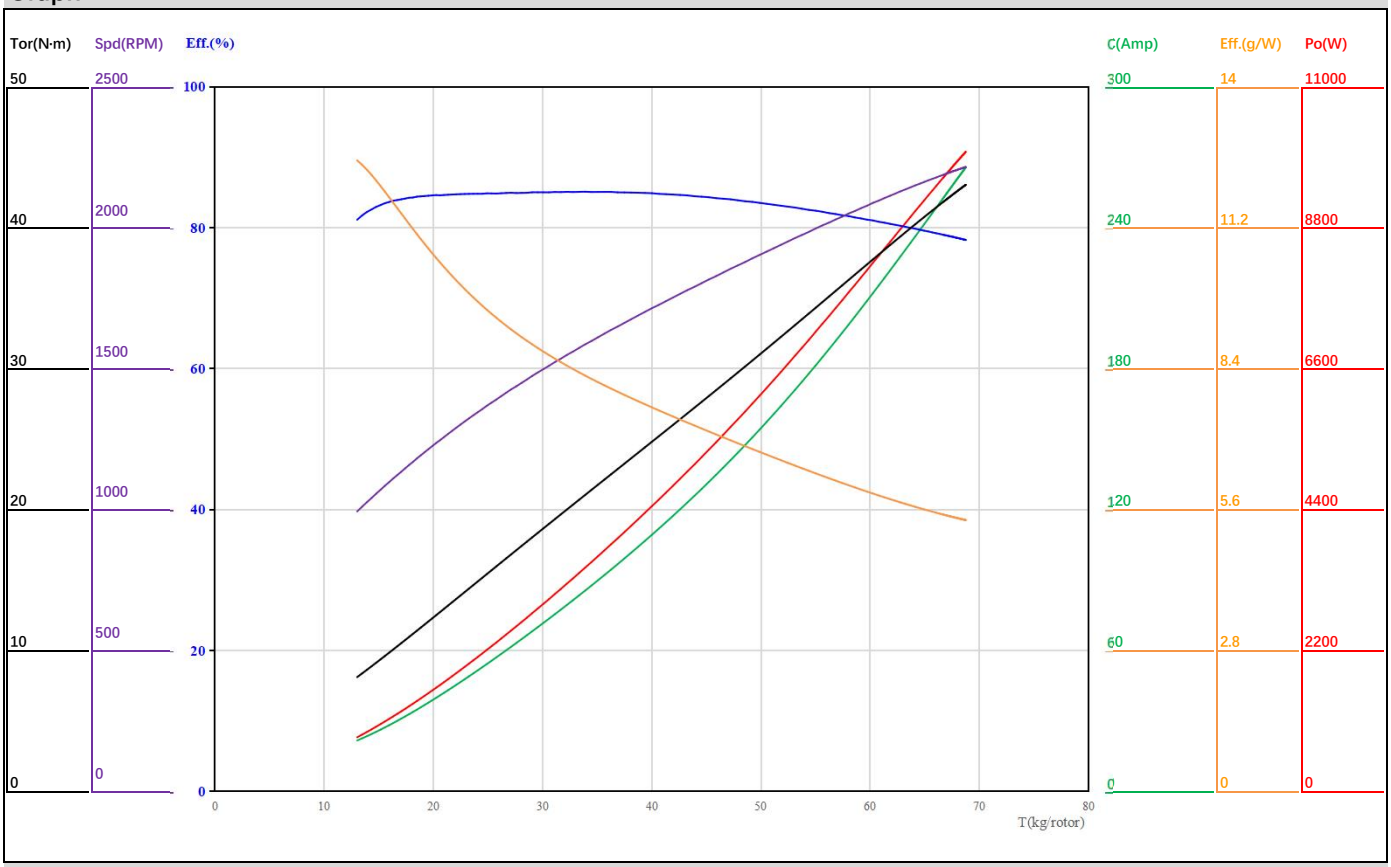
Motor Propeller Pull Test Data

Voltage(V)	Propeller	Throttle(%)	Thrust(g)	Current(A)	Power Input(W)	Speed(RPM)	Efficiency(g/W)	Torque (N·m)	Power Output(W)	Motor Temperature(℃)
69V	MFC 57x20	33%	9215	9.8	677.1	995	13.6	5.20	542.1	/
		35%	9915	10.9	750.6	1031	13.2	5.60	604.7	
		37%	11002	12.6	869.0	1084	12.7	6.22	706.3	
		39%	12223	14.6	1007.9	1142	12.1	6.92	827.8	
		42%	14224	18.1	1249.6	1231	11.4	8.07	1040.6	
		45%	16348	22.1	1525.2	1319	10.7	9.30	1284.1	
		48%	18536	26.5	1829.4	1404	10.1	10.56	1552.5	
		51%	20759	31.3	2159.4	1485	9.6	11.84	1841.6	
		54%	23013	36.4	2514.8	1564	9.2	13.14	2152.5	
		57%	25309	42.0	2898.0	1639	8.7	14.47	2482.9	
		60%	27673	48.0	3314.0	1713	8.4	15.83	2839.1	
		63%	30134	54.6	3769.4	1787	8.0	17.24	3226.7	
		66%	32722	61.9	4272.4	1861	7.7	18.73	3650.3	
		69%	35460	70.0	4830.9	1935	7.3	20.31	4114.6	
		72%	38360	79.0	5451.9	2010	7.0	21.98	4625.6	
		75%	41414	89.0	6139.8	2084	6.7	23.74	5180.7	
		78%	44590	99.9	6894.7	2158	6.5	25.58	5780.6	
		81%	47825	111.7	7710.1	2229	6.2	27.47	6410.6	
		84%	51022	124.2	8568.9	2297	6.0	29.34	7056.2	
		87%	54039	136.8	9436.8	2361	5.7	31.11	7691.3	
		90%	56686	148.6	10253.0	2419	5.5	32.67	8275.6	
		100%	59937	164.3	11340.0	2494	5.3	34.59	9033.4	

* The above data was measured by HOBBYWING Laboratory at room temperature 25°C, at sea level, with varying throttle input, for reference only.

61V+MFP 56x20 Load performance parameters

Graph



Motor Propeller Pull Test Data

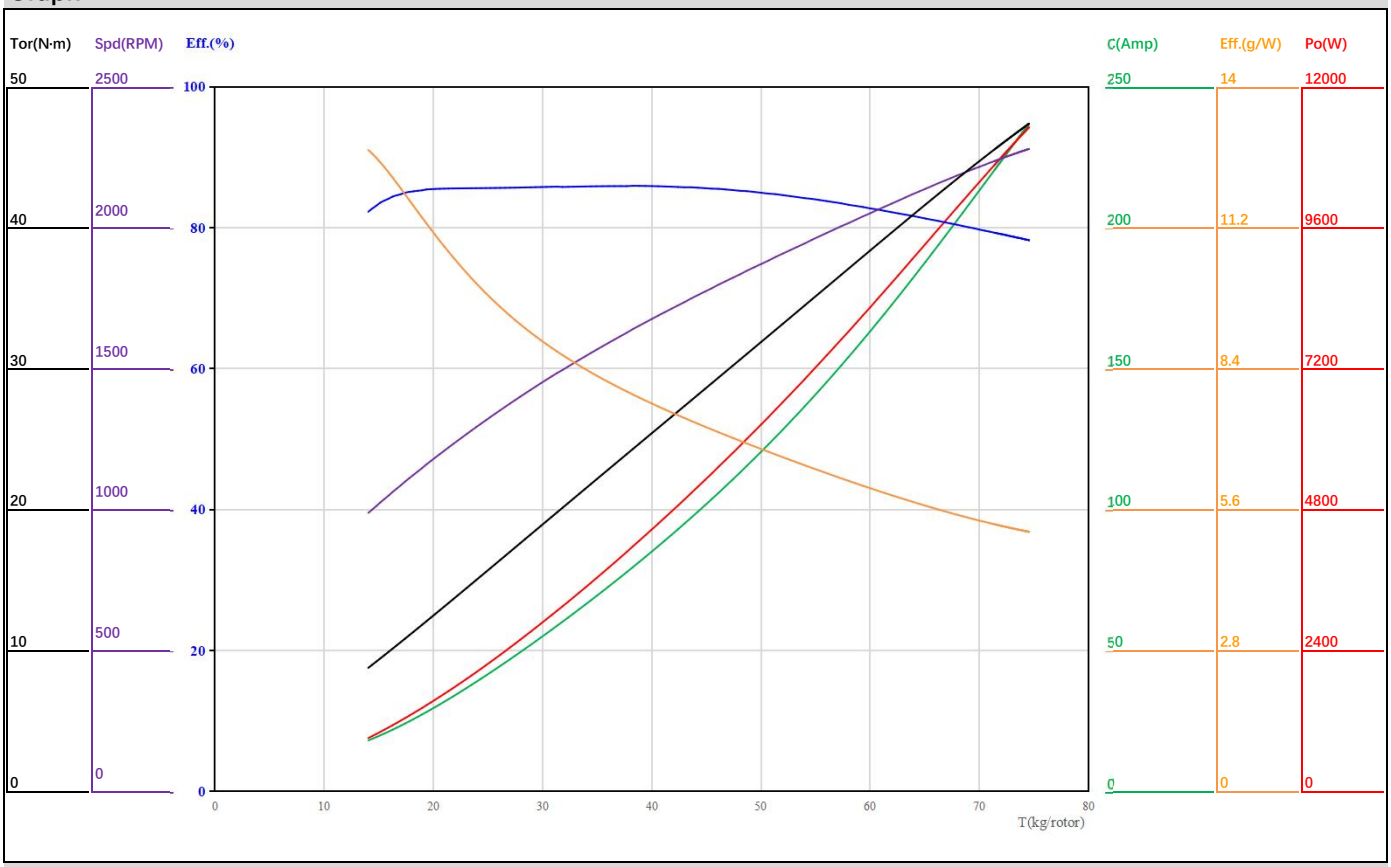
Voltage(V)	Propeller	Throttle(%)	Thrust(g)	Current(A)	Power Input(W)	Speed(RPM)	Efficiency(g/W)	Torque (N·m)	Power Output(W)	Motor Temperature(℃)
61V	MFP 56x20	33%	13019	21.6	1038.5	993	12.5	8.10	842.5	/
		35%	13916	23.5	1126.9	1026	12.3	8.62	926.5	
		37%	15557	27.2	1305.7	1084	11.9	9.60	1089.8	
		39%	17058	30.9	1485.8	1134	11.5	10.51	1248.4	
		42%	19192	36.7	1764.3	1203	10.9	11.83	1490.6	
		45%	21345	43.0	2066.9	1268	10.3	13.18	1750.1	
		48%	23652	50.2	2410.2	1334	9.8	14.63	2043.9	
		51%	26205	58.5	2808.3	1402	9.3	16.24	2383.8	
		54%	29054	68.1	3271.9	1474	8.9	18.02	2781.7	
		57%	32214	79.3	3808.1	1548	8.5	19.99	3240.0	
		60%	35667	92.1	4422.1	1624	8.1	22.12	3762.1	
		63%	39367	106.6	5118.7	1701	7.7	24.41	4347.1	
		66%	43247	122.9	5901.7	1778	7.3	26.81	4991.5	
		69%	47217	141.0	6770.4	1854	7.0	29.30	5688.4	
		72%	51176	160.7	7714.5	1927	6.6	31.83	6422.1	
		75%	55009	181.3	8707.4	1997	6.3	34.31	7175.4	
		78%	58597	202.1	9704.6	2059	6.0	36.66	7904.3	
		81%	61816	221.7	10647.4	2113	5.8	38.76	8575.7	
		84%	64547	238.9	11472.5	2156	5.6	40.50	9143.7	
		87%	66675	252.5	12123.6	2187	5.5	41.82	9576.2	
		90%	68097	261.5	12558.4	2207	5.4	42.66	9859.2	
		100%	68745	265.6	12755.7	2215	5.4	43.04	9981.9	

*以上数据为好盈实验室于室温 25℃、海平面高度，变化油门输入调节测得，仅供参考。

* The above data was measured by HOBBYWING Laboratory at room temperature 25°C, at sea level, with varying throttle input, for reference only.

61V+MFC 57x20 Load performance parameters

Graph



Motor Propeller Pull Test Data

Voltage(V)	Propeller	Throttle(%)	Thrust(g)	Current(A)	Power Input(W)	Speed(RPM)	Efficiency(g/W)	Torque (N·m)	Power Output(W)	Motor Temperature(℃)
61V	MFP 57x20	33%	14042	18.1	1102.1	988	12.7	8.76	906.6	/
		35%	15141	19.9	1211.6	1025	12.5	9.43	1012.2	
		37%	16642	22.6	1376.9	1074	12.1	10.36	1164.7	
		39%	18183	25.6	1563.3	1123	11.6	11.32	1331.3	
		42%	20570	30.8	1879.9	1196	10.9	12.84	1607.6	
		45%	23058	36.7	2239.3	1268	10.3	14.44	1916.6	
		48%	25666	43.3	2641.6	1340	9.7	16.12	2262.1	
		51%	28413	50.6	3088.6	1412	9.2	17.90	2647.3	
		54%	31324	58.7	3584.2	1484	8.7	19.79	3075.8	
		57%	34416	67.7	4134.0	1555	8.3	21.80	3549.4	
		60%	37703	77.8	4745.6	1627	7.9	23.93	4076.1	
		63%	41189	88.9	5428.2	1700	7.6	26.18	4659.9	
		66%	44865	101.5	6192.1	1773	7.2	28.55	5300.8	
		69%	48706	115.5	7047.1	1847	6.9	31.04	6002.8	
		72%	52667	131.0	7998.3	1920	6.6	33.61	6756.9	
		75%	56681	148.1	9040.3	1993	6.3	36.22	7558.8	
		78%	60655	166.3	10150.5	2063	6.0	38.80	8382.2	
		81%	64466	184.9	11282.7	2128	5.7	41.26	9193.2	
		84%	67959	202.6	12366.3	2185	5.5	43.46	9944.1	
		87%	70941	218.1	13312.7	2230	5.3	45.29	10575.0	
		90%	73182	229.8	14026.5	2262	5.2	46.61	11039.0	
		100%	74544	236.9	14457.0	2279	5.2	47.38	11306.2	

* The above data was measured by HOBBYWING Laboratory at room temperature 25°C, at sea level, with varying throttle input, for reference only.