M5208 HighProt

Specification Ⅰ

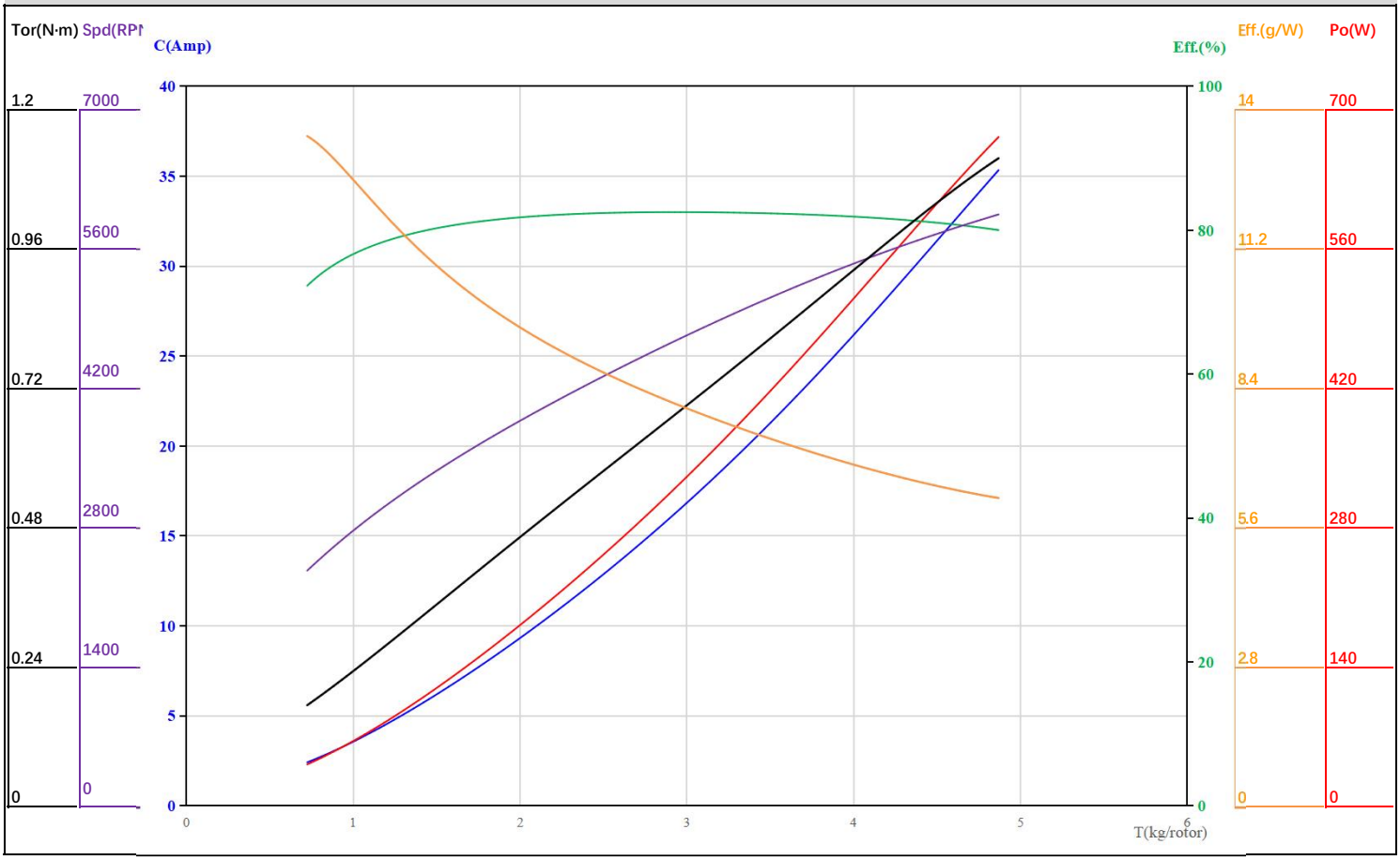
Model	M5208 HighProt-320/380KV	Protection level	IP45
Motor Size	Φ58*H29.8mm	Slot& Pole	24N 28P
Stator Size	Φ52*H8mm	Dynamic balance	≤8mg
Stator process	High standard silicon steel sheet, rust proof, 180℃ high temperature resistance paint-coat	Bearing	Water proof bearing
Enamelled wire	220℃	Motor axle diameter	Φ4mm
Magnet	180℃	Props mounting dimensions	4*M3@D12mm, 4*M3@D18mm
Isolation test	500V AC high voltage resistance test	Motor mounting dimensions	4*M3@D25mm
Rated power input	150W	Rated power output	127.5W

Specification Ⅱ

KV	320	380
Battery(LiPo)	LiPo-6S	LiPo-6S
No-load current	1.5A	1.8A
Maximum current (Non-hermetic Ambient Temperature ≤ 25℃)	55A	45A
Max power	964W	986W
Max thrust	5.4kg	5.2kg
Resistance	55.8mΩ	43.4mΩ
Wire Size	16AWG	16AWG
Wire length	80mm	80mm
Weight（With wire）	166g	165.5g

320KV+MSC 20x6.0 Load performance parameters

Graph



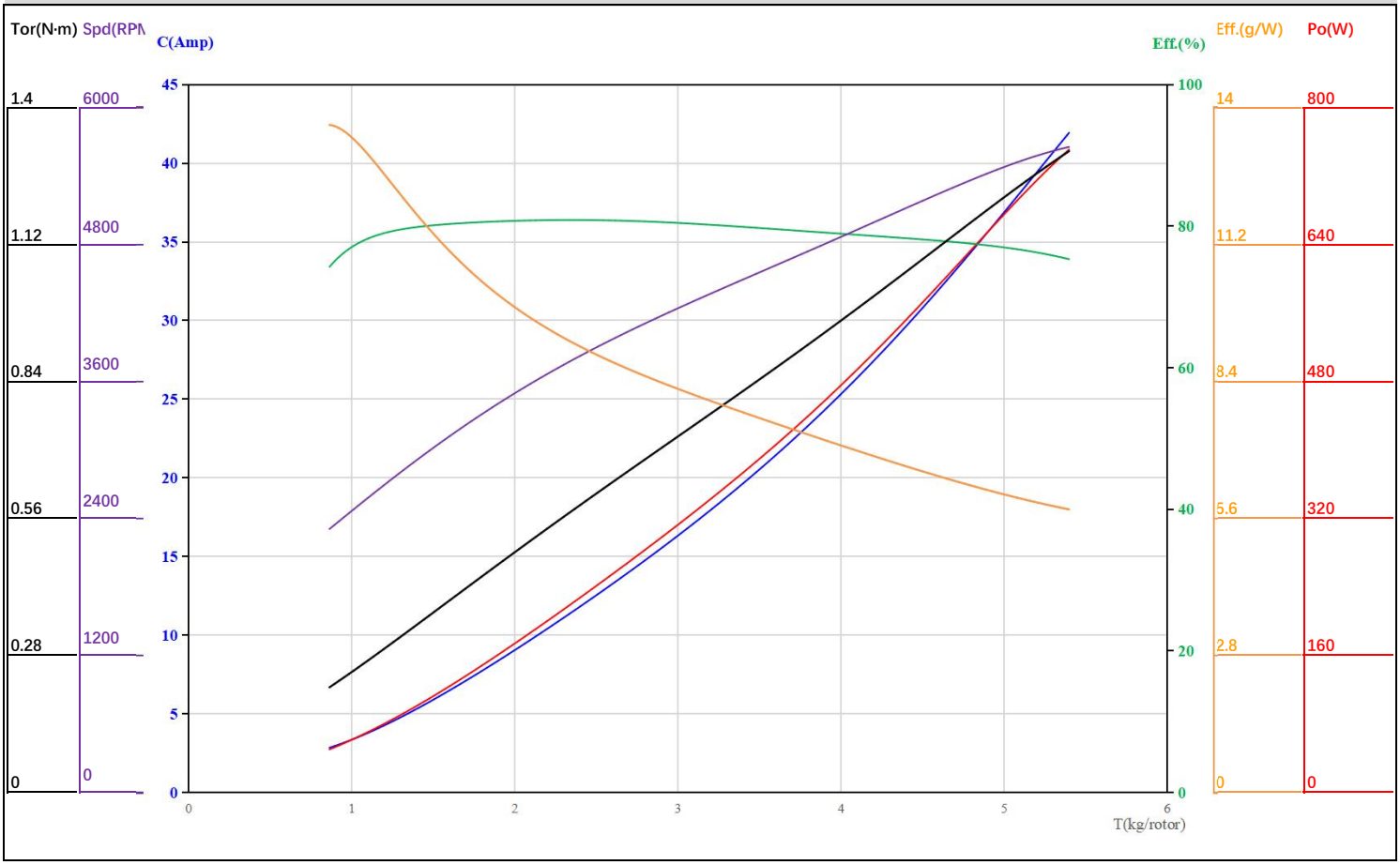
Motor Propeller Pull Test Data

Voltage(V)	Propeller	Throttle(%)	Thrust(g)	Current(A)	Power Input(W)	Speed(RPM)	Efficiency(g/W)	Torque(N·m)	Power Output(W)	Temperature(℃)
23V (6S LiPo)	MSC 20x6.0	33%	765	2.6	59.1	2349	12.9	0.18	50.2	60.0
		35%	857	2.9	67.6	2483	12.7	0.19	57.5	
		37%	960	3.4	77.9	2624	12.3	0.22	66.2	
		39%	1070	3.9	89.7	2766	11.9	0.24	76.2	
		42%	1243	4.8	109.9	2976	11.3	0.28	93.4	
		45%	1422	5.7	132.4	3176	10.7	0.32	112.5	
		48%	1602	6.8	156.6	3365	10.2	0.36	133.1	
		51%	1782	7.9	182.2	3542	9.8	0.40	154.8	
		54%	1961	9.1	208.9	3710	9.4	0.44	177.5	
		57%	2140	10.3	236.8	3871	9.0	0.48	201.3	
		60%	2321	11.6	266.2	4028	8.7	0.52	226.3	
		63%	2505	12.9	297.5	4183	8.4	0.56	252.9	
		66%	2696	14.4	331.1	4338	8.1	0.60	281.5	
		69%	2894	16.0	367.7	4495	7.9	0.64	312.5	
		72%	3101	17.7	407.7	4654	7.6	0.69	346.6	
		75%	3318	19.6	451.6	4814	7.3	0.74	383.8	
		78%	3543	21.7	499.3	4974	7.1	0.79	424.4	
		81%	3775	23.9	550.7	5131	6.9	0.84	468.1	
		84%	4008	26.3	604.5	5280	6.6	0.90	513.8	
		87%	4236	28.6	658.8	5417	6.4	0.95	560.0	
		90%	4450	30.9	710.8	5537	6.3	0.99	604.2	
		100%	4869	35.3	813.3	5754	6.0	1.08	691.3	

The above data is measured by HobbyWing laboratory at room temperature 25℃, sea level, change the throttle input adjustment, the motor housing temperature is 65% and the throttle runs for 10 minutes, for reference only.

320KV+MSC 21x6.3 Load performance parameters

Graph



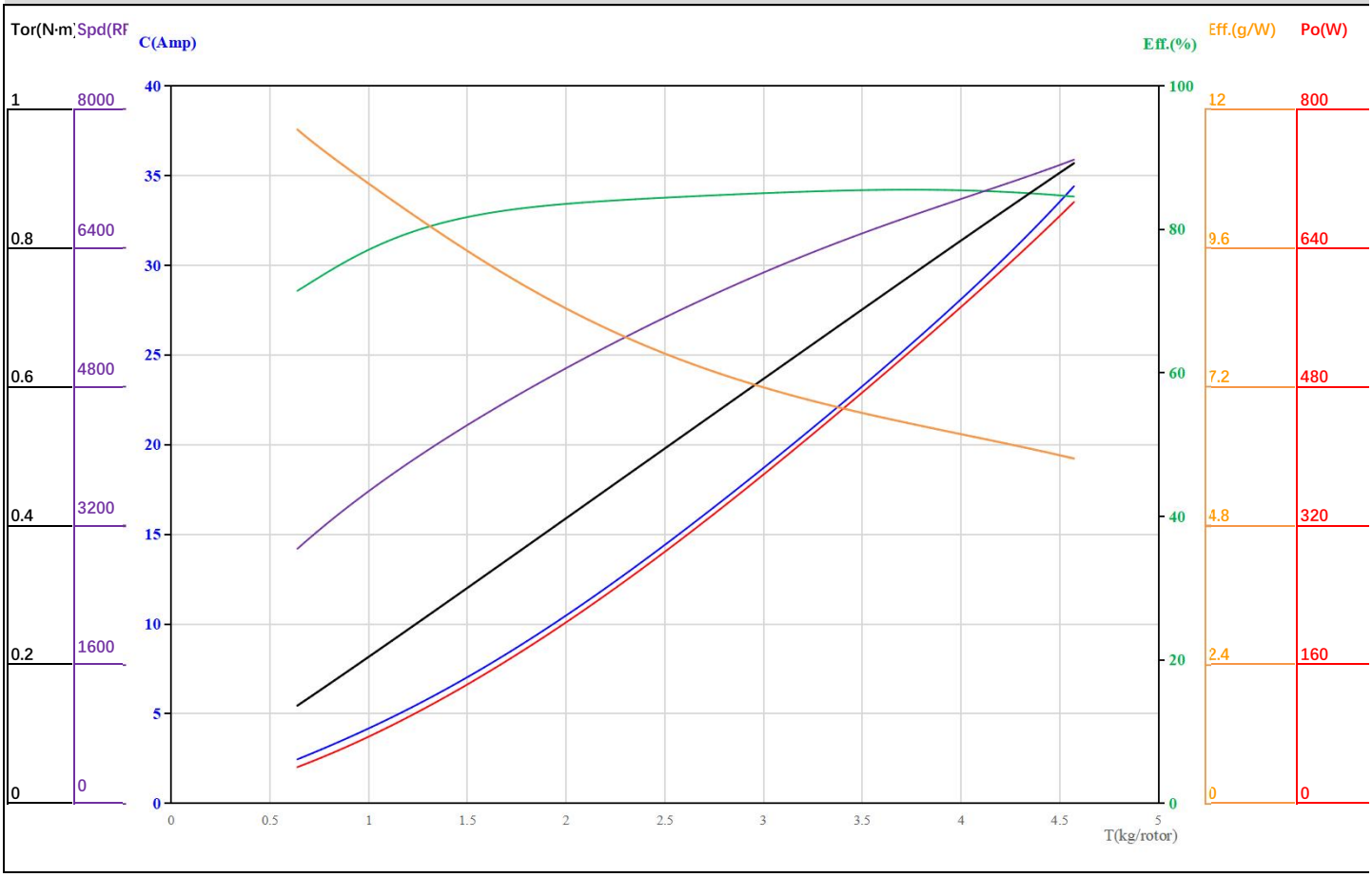
Motor Propeller Pull Test Data

Voltage(V)	Propeller	Throttle(%)	Thrust(g)	Current(A)	Power Input(W)	Speed(RPM)	Efficiency(g/W)	Torque(N·m)	Power Output(W)	Temperature(℃)
23V (6S LiPo)	MSC 21x6.3	33%	923	3.0	70.2	2299	13.1	0.22	59.7	82.0
		35%	1042	3.5	81.3	2433	12.8	0.25	69.1	
		37%	1164	4.1	94.1	2567	12.4	0.28	80.0	
		39%	1287	4.7	108.4	2700	11.9	0.30	92.1	
		42%	1475	5.7	132.3	2895	11.1	0.35	112.5	
		45%	1666	6.9	158.8	3083	10.5	0.40	135.0	
		48%	1861	8.1	187.4	3263	9.9	0.44	159.3	
		51%	2061	9.5	217.8	3434	9.5	0.49	185.2	
		54%	2265	10.9	250.1	3597	9.1	0.54	212.6	
		57%	2473	12.3	284.3	3752	8.7	0.58	241.6	
		60%	2688	13.9	320.5	3901	8.4	0.63	272.4	
		63%	2907	15.6	359.1	4045	8.1	0.68	305.3	
		66%	3133	17.4	400.5	4186	7.8	0.73	340.4	
		69%	3363	19.3	445.0	4325	7.6	0.79	378.3	
		72%	3598	21.4	493.1	4466	7.3	0.84	419.1	
		75%	3835	23.7	544.9	4609	7.0	0.89	463.1	
		78%	4073	26.1	600.2	4753	6.8	0.95	510.2	
		81%	4308	28.6	658.6	4897	6.5	1.01	559.8	
		84%	4537	31.2	718.7	5037	6.3	1.06	610.9	
		87%	4756	33.8	778.7	5166	6.1	1.12	661.9	
		90%	4957	36.3	836.0	5278	5.9	1.17	710.6	
		100%	5399	41.9	964.6	5471	5.6	1.27	819.9	

The above data is measured by HobbyWing laboratory at room temperature 25℃, sea level, change the throttle input adjustment, the motor housing temperature is 65% and the throttle runs for 10 minutes, for reference only.

380KV+MSC 17x5.8 Load performance parameters

Graph



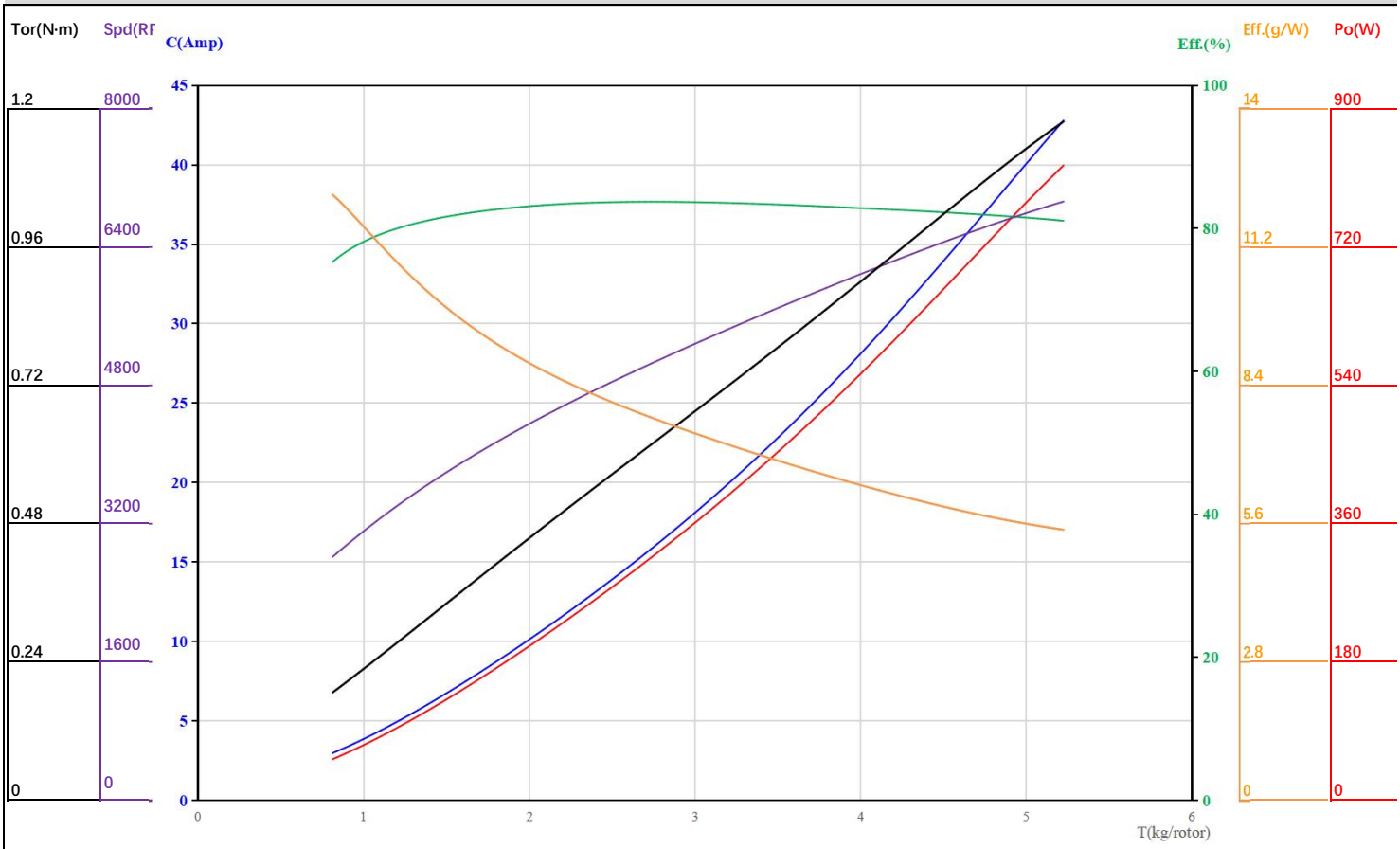
Motor Propeller Pull Test Data

Voltage(V)	Propeller	Throttle(%)	Thrust(g)	Current(A)	Power Input(W)	Speed(RPM)	Efficiency(g/W)	Torque(N·m)	Power Output(W)	Temperature(℃)
23V (6S LiPo)	MSC 17x5.8	33%	658	2.5	58.6	2875	11.2	0.14	49.8	53.0
		35%	737	2.9	67.0	3026	11.0	0.15	57.0	
		37%	825	3.3	76.5	3185	10.8	0.17	65.1	
		39%	919	3.8	87.1	3347	10.6	0.19	74.0	
		42%	1067	4.5	104.5	3587	10.2	0.22	88.8	
		45%	1220	5.4	123.8	3821	9.9	0.25	105.2	
		48%	1375	6.3	144.7	4046	9.5	0.28	123.0	
		51%	1533	7.2	167.2	4263	9.2	0.31	142.1	
		54%	1693	8.3	191.4	4472	8.8	0.34	162.7	
		57%	1856	9.4	217.6	4678	8.5	0.37	184.9	
		60%	2024	10.7	245.8	4881	8.2	0.40	208.9	
		63%	2199	12.0	276.6	5084	8.0	0.44	235.1	
		66%	2383	13.5	310.2	5290	7.7	0.47	263.7	
		69%	2576	15.0	347.0	5497	7.4	0.51	294.9	
		72%	2781	16.8	387.1	5707	7.2	0.55	329.0	
		75%	2996	18.7	430.5	5915	7.0	0.59	365.9	
		78%	3222	20.7	477.0	6120	6.8	0.63	405.5	
		81%	3454	22.8	526.1	6317	6.6	0.68	447.2	
		84%	3688	25.0	577.1	6504	6.4	0.72	490.5	
		87%	3918	27.3	628.7	6677	6.2	0.77	534.4	
		90%	4134	29.5	679.5	6837	6.1	0.81	577.6	
		100%	4572	34.4	792.7	7176	5.8	0.89	673.8	

The above data is measured by HobbyWing laboratory at room temperature 25℃, sea level, change the throttle input adjustment, the motor housing temperature is 65% and the throttle runs for 10 minutes, for reference only.

380KV+MSC 18x6.1 Load performance parameters

Graph

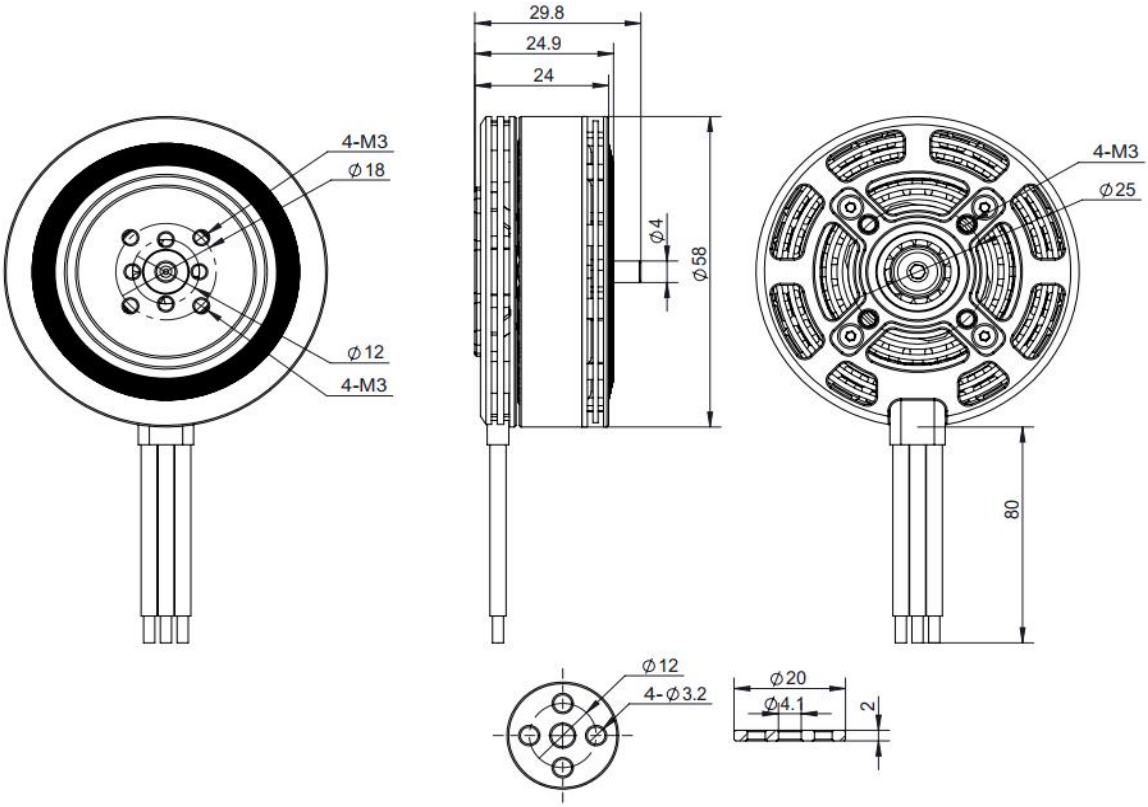


Motor Propeller Pull Test Data

Voltage(V)	Propeller	Throttle(%)	Thrust(g)	Current(A)	Power Input(W)	Speed(RPM)	Efficiency(g/W)	Torque(N·m)	Power Output(W)	Temperature(℃)
23V (6S LiPo)	MSC 18x6.1	33%	838	3.1	71.1	2764	11.8	0.19	60.4	68.0
		35%	944	3.6	82.6	2927	11.4	0.21	70.2	
		37%	1051	4.1	95.1	3085	11.1	0.23	80.8	
		39%	1160	4.7	108.7	3238	10.7	0.26	92.4	
		42%	1327	5.7	130.9	3458	10.1	0.29	111.3	
		45%	1499	6.7	155.3	3668	9.7	0.33	132.0	
		48%	1675	7.9	181.8	3871	9.2	0.37	154.5	
		51%	1858	9.1	210.5	4067	8.8	0.41	178.9	
		54%	2048	10.5	241.5	4260	8.5	0.45	205.3	
		57%	2245	11.9	275.1	4449	8.2	0.49	233.9	
		60%	2450	13.5	311.5	4638	7.9	0.54	264.8	
		63%	2663	15.2	351.1	4825	7.6	0.58	298.4	
		66%	2884	17.1	394.2	5013	7.3	0.63	335.0	
		69%	3113	19.1	441.0	5201	7.1	0.68	374.8	
		72%	3348	21.3	491.8	5389	6.8	0.73	418.1	
		75%	3588	23.7	546.7	5577	6.6	0.78	464.7	
		78%	3830	26.2	605.3	5762	6.3	0.83	514.5	
		81%	4072	28.9	666.7	5942	6.1	0.89	566.7	
		84%	4308	31.7	729.7	6112	5.9	0.94	620.3	
		87%	4535	34.4	792.2	6270	5.7	0.99	673.4	
		90%	4746	37.0	851.6	6411	5.6	1.04	723.9	
		100%	5225	42.8	986.0	6700	5.3	1.14	838.1	

The above data is measured by HobbyWing laboratory at room temperature 25℃, sea level, change the throttle input adjustment, the motor housing temperature is 65% and the throttle runs for 10 minutes, for reference only.

Dimension figure



Recommended application combinations

Motor	M5208 HighProt
Propeller	MSC 20x6.0/MSC 21x6.3/MSC 17x5.8/MSC 18x6.1
ESC	XRotor Pro H60A 6S
Battery	6S LiPo
Takeoff weight / rotor	1.4~1.6kg
Takeoff weight of quadrotor	5.6~6.4kg