

3d-printed Halbach brushless Motor Performance Measurements

Performance Measurement								
Voltage [V]	Current [A]	Speed [rpm]	Force [g]	Lever [mm]	Torque [Nm]	Shaft Power [W]	Input Power [W]	Efficiency %
12	0.11	400	4	200	0.008	0	1	25%
12	0.22	680	7.1	200	0.014	1	3	38%
16	0.29	950	12.8	200	0.025	2	5	54%
16	0.3	955	12.9	200	0.025	3	5	53%
20	0.4	1184	14	200	0.027	3	8	43%
12	0.67	1292	15.9	200	0.031	4	8	52%
16	0.92	1670	26	200	0.051	9	15	61%
16	0.92	1675	26.5	200	0.052	9	15	62%
12	1.17	1675	24.1	200	0.047	8	14	59%
35.9	0.59	1863	32	200	0.063	12	21	58%
12	1.64	1950	31.3	200	0.061	13	20	64%
36.31	0.69	2010	34	200	0.067	14	25	56%
20	1.23	2020	33.3	200	0.065	14	25	56%
16	1.64	2130	37.4	200	0.073	16	26	62%
16	1.64	2130	39.5	200	0.077	17	26	66%
12	2.05	2134	37.2	200	0.073	16	25	66%
12	2.39	2286	41	200	0.080	19	29	67%
12	2.7	2403	44.8	200	0.088	22	32	68%
16	2.37	2474	50.5	200	0.099	26	38	68%
12	2.97	2499	48.1	200	0.094	25	36	69%
20	2.18	2558	52	200	0.102	27	44	63%
20	2.2	2560	52	200	0.102	27	44	62%
12	3.18	2571	49.5	200	0.097	26	38	69%
12	3.34	2633	52.4	200	0.103	28	40	71%
34.98	1.95	2944	73	200	0.143	44	68	65%
34.67	1.99	2952	73	200	0.143	44	69	64%
20	3.17	2955	68.8	200	0.135	42	63	66%
35.52	1.97	2972	72	200	0.141	44	70	63%
35.81	2.29	3165	79	200	0.155	51	82	63%
34.45	3.62	3653	111	200	0.218	83	125	67%
34.2	3.63	3655	108	200	0.212	81	124	65%
35.01	3.62	3752	108	200	0.212	83	127	66%
33.89	5.4	4221	145	200	0.284	126	183	69%
33.7	5.41	4256	142	200	0.279	124	182	68%
34.46	5.52	4288	146	200	0.286	129	190	68%
33.39	7.14	4630	175	200	0.343	166	238	70%
33.92	7.26	4704	176	200	0.345	170	246	69%

32.79	8.67	4955	198	200	0.388	202	284	71%
32.37	10.09	5231	223	200	0.438	240	327	73%
33.2	9.65	5238	213	200	0.418	229	320	72%
32.16	11.48	5464	241	200	0.473	271	369	73%
32.69	11.16	5491	235	200	0.461	265	365	73%
32.46	11.73	5501	247	200	0.485	279	381	73%
31.7	12.63	5641	257	200	0.504	298	400	74%
32.07	12.82	5706	263	200	0.516	308	411	75%
32.73	13.01	5718	261	200	0.512	307	426	72%
31.7	13.99	5838	280	200	0.549	336	443	76%
31.39	14.9	5986	292	200	0.573	359	468	77%
31.5	14.91	6013	288	200	0.565	356	470	76%
30.88	15.69	6062	300	200	0.589	374	485	77%
31.15	15.57	6158	300	200	0.589	380	485	78%
30.34	17.59	6293	327	200	0.642	423	534	79%
30.55	17.66	6420	326	200	0.640	430	540	80%
30.45	18.39	6475	333	200	0.653	443	560	79%
29.85	19.81	6560	348	200	0.683	469	591	79%
29.93	19.85	6575	350	200	0.687	473	594	80%
29.92	19.71	6592	348	200	0.683	471	590	80%
30.34	20.03	6657	355	200	0.697	486	608	80%



