

## Tool info

Serial API: 1:1.0  
Board: Custom STM32F401RE thrustBoard v2  
Firmware: thrust++ : ChibiOS RT 7.1.0 : HAL 8.1.0  
Commit: [143fcfd] : Apr 24 2022 - 17:29:27

## Measurement info

Motor: T-Motor F1507  
KV: 2700  
Magnet poles: 14  
Propeler: T3140  
Blade count: 3  
Note: no duct

## Measurement Results 1:

Output [%]	Thrust [G]		Torque [G cm]		RPM [1/min]		Voltage [V]		Current [A]		Pin [W]	ThrustEff [G/W]
	mean	std dev	mean	std dev	mean	std dev	mean	std dev	mean	std dev		
20	26.61	0.361	32.17	2.501	8349	55.8	16.699	0.0037	0.340	0.0073	5.673	4.691
25	40.51	0.089	49.36	2.497	10199	96.8	16.687	0.0046	0.518	0.0136	8.643	4.687
30	57.35	0.235	67.93	2.496	12091	78.9	16.673	0.0067	0.755	0.0124	12.594	4.553
35	74.51	0.130	87.64	2.501	13857	112.2	16.650	0.0056	1.035	0.0135	17.238	4.323
40	91.56	0.094	108.55	2.498	15474	147.0	16.629	0.0066	1.367	0.0176	22.736	4.027
45	112.23	0.162	131.95	2.507	17358	248.2	16.599	0.0055	1.759	0.0158	29.205	3.843
50	132.24	0.120	155.46	2.497	18547	224.9	16.566	0.0052	2.120	0.0156	35.112	3.766
55	155.54	0.216	181.92	2.500	20083	87.0	16.525	0.0039	2.486	0.0153	41.087	3.786
60	182.79	0.166	212.50	2.533	21586	267.8	16.484	0.0082	2.890	0.0174	47.631	3.838
65	210.58	0.214	241.46	2.506	23434	265.2	16.424	0.0065	3.397	0.0190	55.787	3.775
70	240.95	0.210	276.60	2.601	24991	159.0	16.364	0.0093	4.155	0.0250	67.993	3.544
75	272.05	0.596	311.29	2.596	26541	251.5	16.295	0.0073	5.181	0.0269	84.418	3.223
80	300.51	0.731	350.48	2.543	28057	372.9	16.217	0.0067	6.323	0.0303	102.531	2.931
90	362.88	1.000	423.35	2.807	30830	134.6	16.071	0.0120	9.105	0.0290	146.328	2.480
100	432.87	1.450	497.30	2.730	33423	135.4	15.900	0.0107	11.739	0.0468	186.649	2.319

## Measurement Results 2:

Output [%]	Thrust [G]		Torque [G cm]		RPM [1/min]		Voltage [V]		Current [A]		Pin [W]	ThrustEff [G/W]
	mean	std dev	mean	std dev	mean	std dev	mean	std dev	mean	std dev		
20	26.29	0.228	33.91	2.466	8228	43.4	16.492	0.0047	0.324	0.0060	5.346	4.918
25	39.12	0.314	50.05	2.465	10099	72.9	16.484	0.0055	0.507	0.0136	8.361	4.679
30	55.26	0.230	67.26	2.465	11905	113.5	16.465	0.0049	0.734	0.0101	12.089	4.571
35	72.62	0.227	87.47	2.465	13760	141.3	16.445	0.0049	1.019	0.0120	16.760	4.333
40	89.94	0.224	109.00	2.465	15428	118.2	16.421	0.0030	1.362	0.0149	22.372	4.020
45	110.41	0.227	130.17	2.466	17004	201.8	16.395	0.0062	1.720	0.0159	28.202	3.915
50	127.29	0.282	151.13	2.478	18459	163.9	16.367	0.0053	2.084	0.0118	34.100	3.733
55	151.52	0.344	176.55	2.482	20048	234.4	16.333	0.0034	2.442	0.0121	39.883	3.799
60	176.64	0.248	205.58	2.466	21380	208.8	16.287	0.0063	2.863	0.0123	46.637	3.788
65	204.91	0.253	239.53	2.469	23427	330.1	16.234	0.0059	3.354	0.0175	54.453	3.763
70	235.15	0.561	272.21	2.599	24866	240.8	16.174	0.0072	4.091	0.0185	66.162	3.554
75	265.84	0.322	309.65	2.477	26303	257.2	16.106	0.0070	5.111	0.0250	82.321	3.229
80	293.62	0.515	349.15	2.504	27971	485.5	16.029	0.0064	6.224	0.0265	99.760	2.943
90	354.46	0.572	419.70	2.930	30598	141.2	15.894	0.0105	8.896	0.0229	141.393	2.507
100	424.46	0.957	494.21	2.832	33121	155.9	15.733	0.0077	11.542	0.0262	181.598	2.337

### Measurement Results 3:

Output [%]	Thrust [G]		Torque [G cm]		RPM [1/min]		Voltage [V]		Current [A]		Pin [W]	ThrustEff [G/W]
	mean	std dev	mean	std dev	mean	std dev	mean	std dev	mean	std dev		
20	25.68	0.287	33.91	1.506	8139	40.9	16.319	0.0042	0.316	0.0077	5.150	4.987
25	38.12	0.216	50.15	1.505	10009	78.0	16.308	0.0045	0.493	0.0113	8.037	4.743
30	53.86	0.217	68.10	1.506	11833	96.0	16.293	0.0043	0.728	0.0146	11.860	4.541
35	70.67	0.221	87.77	1.505	13514	131.7	16.276	0.0040	1.009	0.0124	16.430	4.301
40	87.54	0.215	108.95	1.506	15234	201.4	16.250	0.0046	1.334	0.0147	21.677	4.039
45	107.28	0.219	129.92	1.504	16873	179.9	16.228	0.0038	1.704	0.0160	27.650	3.880
50	125.51	0.252	151.01	1.520	18229	158.0	16.196	0.0051	2.062	0.0141	33.402	3.758
55	148.29	0.222	175.85	1.506	20098	262.2	16.160	0.0052	2.421	0.0152	39.129	3.790
60	172.78	0.232	204.79	1.507	21233	136.1	16.118	0.0051	2.818	0.0149	45.427	3.803
65	201.17	0.246	238.30	1.511	22701	324.3	16.069	0.0042	3.346	0.0194	53.761	3.742
70	230.57	0.543	273.26	1.683	24652	297.2	16.013	0.0078	4.061	0.0202	65.023	3.546
75	259.82	0.326	306.27	1.521	26223	277.6	15.952	0.0052	5.051	0.0189	80.565	3.225
80	287.93	0.610	347.03	1.552	27472	380.8	15.882	0.0049	6.172	0.0215	98.015	2.938
90	347.75	0.478	415.71	1.698	30437	208.4	15.758	0.0064	8.788	0.0252	138.491	2.511
100	418.44	0.861	489.79	1.835	32997	150.9	15.592	0.0093	11.386	0.0327	177.527	2.357

### Measurement Results 4:

Output [%]	Thrust [G]		Torque [G cm]		RPM [1/min]		Voltage [V]		Current [A]		Pin [W]	ThrustEff [G/W]
	mean	std dev	mean	std dev	mean	std dev	mean	std dev	mean	std dev		
20	24.95	0.238	34.68	1.179	8109	39.6	16.193	0.0040	0.316	0.0082	5.112	4.882
25	37.62	0.243	50.58	1.180	9935	54.8	16.178	0.0046	0.496	0.0093	8.024	4.688
30	53.03	0.262	68.40	1.182	11747	99.0	16.164	0.0043	0.709	0.0129	11.464	4.626
35	69.91	0.249	88.10	1.191	13418	78.6	16.139	0.0048	0.997	0.0146	16.085	4.346
40	87.35	0.245	109.17	1.181	15065	186.3	16.114	0.0052	1.328	0.0176	21.400	4.082
45	106.39	0.253	128.96	1.184	16784	186.8	16.087	0.0043	1.681	0.0180	27.039	3.934
50	123.99	0.269	149.53	1.273	18170	161.8	16.053	0.0057	2.036	0.0151	32.685	3.794
55	145.92	0.323	173.49	1.229	19701	336.0	16.009	0.0063	2.381	0.0177	38.117	3.828
60	169.90	0.315	201.63	1.190	21119	131.4	15.964	0.0069	2.813	0.0160	44.902	3.784
65	197.44	0.324	234.11	1.196	22481	193.3	15.904	0.0067	3.314	0.0163	52.703	3.746
70	225.32	0.278	267.21	1.213	24121	283.2	15.841	0.0080	4.028	0.0183	63.809	3.531
75	254.83	0.512	300.66	1.371	25779	441.4	15.758	0.0092	4.998	0.0259	78.753	3.236
80	282.35	0.506	339.54	1.460	27125	300.7	15.672	0.0097	6.134	0.0313	96.133	2.937
90	341.12	0.492	408.72	1.379	30038	154.3	15.538	0.0093	8.649	0.0271	134.381	2.538
100	408.28	0.729	479.37	1.580	32494	139.2	15.374	0.0102	11.159	0.0407	171.561	2.380

### Measurement Results 5:

Output [%]	Thrust [G]		Torque [G cm]		RPM [1/min]		Voltage [V]		Current [A]		Pin [W]	ThrustEff [G/W]
	mean	std dev	mean	std dev	mean	std dev	mean	std dev	mean	std dev		
20	23.82	0.311	33.82	2.297	7985	43.9	15.941	0.0043	0.308	0.0090	4.911	4.851
25	36.05	0.289	49.08	2.295	9788	62.8	15.928	0.0053	0.481	0.0118	7.661	4.705
30	51.03	0.287	66.01	2.293	11581	62.1	15.915	0.0061	0.702	0.0097	11.170	4.568
35	67.77	0.284	85.94	2.294	13345	92.5	15.895	0.0048	0.975	0.0120	15.504	4.371
40	84.84	0.284	106.36	2.295	14933	164.7	15.874	0.0064	1.305	0.0152	20.715	4.096
45	103.09	0.303	126.45	2.307	16437	283.7	15.846	0.0060	1.652	0.0148	26.174	3.938
50	121.15	0.313	146.36	2.299	17730	237.9	15.818	0.0048	2.005	0.0106	31.710	3.821
55	141.70	0.333	169.48	2.297	19393	163.2	15.782	0.0046	2.361	0.0146	37.265	3.802
60	165.96	0.329	197.86	2.296	20885	243.6	15.738	0.0049	2.796	0.0158	43.996	3.772
65	193.14	0.335	229.63	2.305	22420	178.2	15.685	0.0066	3.308	0.0191	51.892	3.722
70	220.65	0.390	261.79	2.311	24052	301.4	15.630	0.0068	4.003	0.0221	62.568	3.527
75	251.40	0.336	297.12	2.306	25636	304.9	15.563	0.0066	4.980	0.0206	77.511	3.243
80	278.48	0.467	333.47	2.326	26954	190.6	15.492	0.0059	6.085	0.0222	94.274	2.954
90	335.17	0.524	403.31	2.351	29779	300.0	15.368	0.0086	8.504	0.0242	130.696	2.565
100	405.06	0.865	477.93	2.524	32342	146.8	15.223	0.0109	11.009	0.0309	167.589	2.417

## Plots for Measurement Results:

