LAMPIRAN

Tabel L. 1 Jadwal Penelitian

No	Urutan Penelitian	Bulan ke-					
		I	II	III	IV	V	VI
1	Tinjauan pustaka						
2	Seminar proposal tugas akhir						
3	Persiapan alat dan bahan turbin angin Savonius tipe t*wist* dua sudu						
4	Pembuatan alat penelitian turbin angin Savonius tipe t*wist* dua sudu dengan variasi model bilah *cylindrical guide vane*						
5	Pengambilan data						
6	Pengolahan data dan analisa						
7	Seminar hasil						
8	Ujian tugas akhir						

Tabel L. 2 Sifat-sifat zat

TABLE A–9

Properties of air at 1 atm pressure

Temp. T, °C	Density ρ, kg/m³	Specific Heat c_p J/kg·K	Thermal Conductivity k, W/m·K	Thermal Diffusivity α, m²/s	Dynamic Viscosity μ, kg/m·s	Kinematic Viscosity ν, m²/s	Prandtl Number Pr
−150	2.866	983	0.01171	4.158×10^{-6}	8.636×10^{-6}	3.013×10^{-6}	0.7246
−100	2.038	966	0.01582	8.036×10^{-6}	1.189×10^{-6}	5.837×10^{-6}	0.7263
−50	1.582	999	0.01979	1.252×10^{-5}	1.474×10^{-5}	9.319×10^{-6}	0.7440
−40	1.514	1002	0.02057	1.356×10^{-5}	1.527×10^{-5}	1.008×10^{-5}	0.7436
−30	1.451	1004	0.02134	1.465×10^{-5}	1.579×10^{-5}	1.087×10^{-5}	0.7425
−20	1.394	1005	0.02211	1.578×10^{-5}	1.630×10^{-5}	1.169×10^{-5}	0.7408
−10	1.341	1006	0.02288	1.696×10^{-5}	1.680×10^{-5}	1.252×10^{-5}	0.7387
0	1.292	1006	0.02364	1.818×10^{-5}	1.729×10^{-5}	1.338×10^{-5}	0.7362
5	1.269	1006	0.02401	1.880×10^{-5}	1.754×10^{-5}	1.382×10^{-5}	0.7350
10	1.246	1006	0.02439	1.944×10^{-5}	1.778×10^{-5}	1.426×10^{-5}	0.7336
15	1.225	1007	0.02476	2.009×10^{-5}	1.802×10^{-5}	1.470×10^{-5}	0.7323
20	1.204	1007	0.02514	2.074×10^{-5}	1.825×10^{-5}	1.516×10^{-5}	0.7309
25	1.184	1007	0.02551	2.141×10^{-5}	1.849×10^{-5}	1.562×10^{-5}	0.7296
30	1.164	1007	0.02588	2.208×10^{-5}	1.872×10^{-5}	1.608×10^{-5}	0.7282
35	1.145	1007	0.02625	2.277×10^{-5}	1.895×10^{-5}	1.655×10^{-5}	0.7268
40	1.127	1007	0.02662	2.346×10^{-5}	1.918×10^{-5}	1.702×10^{-5}	0.7255
45	1.109	1007	0.02699	2.416×10^{-5}	1.941×10^{-5}	1.750×10^{-5}	0.7241
50	1.092	1007	0.02735	2.487×10^{-5}	1.963×10^{-5}	1.798×10^{-5}	0.7228
60	1.059	1007	0.02808	2.632×10^{-5}	2.008×10^{-5}	1.896×10^{-5}	0.7202
70	1.028	1007	0.02881	2.780×10^{-5}	2.052×10^{-5}	1.995×10^{-5}	0.7177
80	0.9994	1008	0.02953	2.931×10^{-5}	2.096×10^{-5}	2.097×10^{-5}	0.7154
90	0.9718	1008	0.03024	3.086×10^{-5}	2.139×10^{-5}	2.201×10^{-5}	0.7132
100	0.9458	1009	0.03095	3.243×10^{-5}	2.181×10^{-5}	2.306×10^{-5}	0.7111
120	0.8977	1011	0.03235	3.565×10^{-5}	2.264×10^{-5}	2.522×10^{-5}	0.7073
140	0.8542	1013	0.03374	3.898×10^{-5}	2.345×10^{-5}	2.745×10^{-5}	0.7041
160	0.8148	1016	0.03511	4.241×10^{-5}	2.420×10^{-5}	2.975×10^{-5}	0.7014
180	0.7788	1019	0.03646	4.593×10^{-5}	2.504×10^{-5}	3.212×10^{-5}	0.6992
200	0.7459	1023	0.03779	4.954×10^{-5}	2.577×10^{-5}	3.455×10^{-5}	0.6974
250	0.6746	1033	0.04104	5.890×10^{-5}	2.760×10^{-5}	4.091×10^{-5}	0.6946
300	0.6158	1044	0.04418	6.871×10^{-5}	2.934×10^{-5}	4.765×10^{-5}	0.6935
350	0.5664	1056	0.04721	7.892×10^{-5}	3.101×10^{-5}	5.475×10^{-5}	0.6937
400	0.5243	1059	0.05015	8.951×10^{-5}	3.261×10^{-5}	6.219×10^{-5}	0.6948
450	0.4880	1081	0.05298	1.004×10^{-4}	3.415×10^{-5}	6.997×10^{-5}	0.6965
500	0.4565	1093	0.05572	1.117×10^{-4}	3.563×10^{-5}	7.806×10^{-5}	0.6986
600	0.4042	1115	0.06093	1.352×10^{-4}	3.846×10^{-5}	9.515×10^{-5}	0.7037
700	0.3627	1135	0.06581	1.598×10^{-4}	4.111×10^{-5}	1.133×10^{-4}	0.7092
800	0.3289	1153	0.07037	1.855×10^{-4}	4.362×10^{-5}	1.326×10^{-4}	0.7149
900	0.3008	1169	0.07465	2.122×10^{-4}	4.600×10^{-5}	1.529×10^{-4}	0.7206
1000	0.2772	1184	0.07868	2.398×10^{-4}	4.826×10^{-5}	1.741×10^{-4}	0.7260
1500	0.1990	1234	0.09599	3.908×10^{-4}	5.817×10^{-5}	2.922×10^{-4}	0.7478
2000	0.1553	1264	0.11113	5.664×10^{-4}	6.630×10^{-5}	4.270×10^{-4}	0.7539

Note: For ideal gases, the properties c_p, k, μ, and Pr are independent of pressure. The properties ρ, ν, and α at a pressure P (in atm) other than 1 atm are determined by multiplying the values at 1 atm by sthe temperature by P and by dividing ρ and ν by P.

Source: Data generated from the EES software developed by S. A. Klein and F. L. Alvarado. Original sources: Keenan, Chao, Keyes, *Gas Tables*, Wiley, 198; and *Thermophysical Properties of Matter*, Vol. 3: Thermal *Conductivity*, Y. S. Touloukian, P. E. Liley, S. C. Saxena, Vol. 11: Viscosity, Y. S. Touloukian, S. C. Saxena, and P. Hestermans, IFI/Plenum, NY, 1970, ISBN 0-30606-020-8.

Tabel L. 3 Pengukuran temperature °C dan kecepatan angin (m/s) dengan menggunakan anemometer data logger

NO	Main Value	Main Unit	Vel Mode	Tem Value	T Unit	Time	Date
1	8.973	m/s	VEL	24.6	°C	10:10:01 AM	5/2/2026
2	8.924	m/s	VEL	24.6	°C	10:10:02 AM	5/2/2026
3	9.008	m/s	VEL	24.6	°C	10:10:03 AM	5/2/2026
4	9.23	m/s	VEL	24.6	°C	10:10:04 AM	5/2/2026
5	9.609	m/s	VEL	24.6	°C	10:10:05 AM	5/2/2026
6	9.939	m/s	VEL	24.6	°C	10:10:18 AM	5/2/2026
7	9.965	m/s	VEL	24.6	°C	10:10:19 AM	5/2/2026
8	9.544	m/s	VEL	24.6	°C	10:10:24 AM	5/2/2026
9	9.514	m/s	VEL	24.6	°C	10:10:25 AM	5/2/2026
10	9.653	m/s	VEL	24.6	°C	10:10:26 AM	5/2/2026
11	9.749	m/s	VEL	24.6	°C	10:10:27 AM	5/2/2026
12	9.736	m/s	VEL	24.6	°C	10:10:28 AM	5/2/2026
13	9.807	m/s	VEL	24.6	°C	10:10:29 AM	5/2/2026
14	9.47	m/s	VEL	24.6	°C	10:10:30 AM	5/2/2026
15	9.07	m/s	VEL	24.7	°C	10:10:31 AM	5/2/2026
16	8.77	m/s	VEL	24.7	°C	10:10:32 AM	5/2/2026
17	8.466	m/s	VEL	24.7	°C	10:10:33 AM	5/2/2026
18	8.117	m/s	VEL	24.7	°C	10:10:34 AM	5/2/2026
19	8.846	m/s	VEL	24.7	°C	10:10:35 AM	5/2/2026
20	8.083	m/s	VEL	24.7	°C	10:10:36 AM	5/2/2026
21	8.638	m/s	VEL	24.7	°C	10:10:37 AM	5/2/2026
22	9.087	m/s	VEL	24.7	°C	10:10:38 AM	5/2/2026
23	9.374	m/s	VEL	24.7	°C	10:10:39 AM	5/2/2026
24	9.838	m/s	VEL	24.7	°C	10:10:40 AM	5/2/2026
25	9.72	m/s	VEL	24.7	°C	10:10:41 AM	5/2/2026
26	9.387	m/s	VEL	24.7	°C	10:10:42 AM	5/2/2026
27	9.287	m/s	VEL	24.7	°C	10:10:43 AM	5/2/2026
28	8.581	m/s	VEL	24.8	°C	10:10:44 AM	5/2/2026
29	8.838	m/s	VEL	24.8	°C	10:10:45 AM	5/2/2026
30	8.891	m/s	VEL	24.8	°C	10:10:46 AM	5/2/2026
	9.204			24.7			

Kecepatan Angin rata-rata (v) = 9,204 m/s

Temperatur angin rata- rata (T) = 24,7 °C

Tabel L. 4 Data pengukuran beban dan putaran turbin angin Savonius dengan dua sudu tipe *Twist* dengan tanpa

Tanpa *Cylindrical Guide Vane*								
Tanpa beban			0,5 kg		1 kg		1,5 kg	
No	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu
1	889,9	2026-05-04 12:32:09.502	715,3	2026-05-04 12:33:35.139	452,8	2026-05-04 12:34:56.407	244,9	2026-05-04 12:36:11.435
2	879,5	2026-05-04 12:32:10.004	715,3	2026-05-04 12:33:35.643	452,8	2026-05-04 12:34:56.909	244,9	2026-05-04 12:36:11.936
3	879,5	2026-05-04 12:32:10.509	721,1	2026-05-04 12:33:36.130	451,1	2026-05-04 12:34:57.413	241,6	2026-05-04 12:36:12.424
4	886,9	2026-05-04 12:32:10.997	721,1	2026-05-04 12:33:36.634	451,1	2026-05-04 12:34:57.917	241,6	2026-05-04 12:36:12.928
5	886,9	2026-05-04 12:32:11.500	715,3	2026-05-04 12:33:37.137	444,9	2026-05-04 12:34:58.423	241,6	2026-05-04 12:36:13.432
6	890,6	2026-05-04 12:32:12.003	715,3	2026-05-04 12:33:37.640	444,9	2026-05-04 12:34:58.907	249,5	2026-05-04 12:36:13.936
7	890,6	2026-05-04 12:32:12.508	678,3	2026-05-04 12:33:38.145	437,0	2026-05-04 12:34:59.413	249,5	2026-05-04 12:36:14.425
8	878,4	2026-05-04 12:32:12.996	678,3	2026-05-04 12:33:38.632	438,5	2026-05-04 12:34:59.918	249,4	2026-05-04 12:36:15.431
9	878,4	2026-05-04 12:32:13.499	655,5	2026-05-04 12:33:39.136	438,5	2026-05-04 12:35:00.420	249,4	2026-05-04 12:36:15.935
10	871,2	2026-05-04 12:32:14.001	655,5	2026-05-04 12:33:39.639	438,5	2026-05-04 12:35:00.907	220,4	2026-05-04 12:36:16.422
11	871,2	2026-05-04 12:32:14.505	649,2	2026-05-04 12:33:40.144	429,4	2026-05-04 12:35:01.411	231,8	2026-05-04 12:36:16.924
12	883,7	2026-05-04 12:32:15.009	649,2	2026-05-04 12:33:40.631	429,4	2026-05-04 12:35:01.914	231,8	2026-05-04 12:36:17.430
13	883,7	2026-05-04 12:32:15.496	635,5	2026-05-04 12:33:41.135	406,4	2026-05-04 12:35:02.419	239,4	2026-05-04 12:36:17.933
14	882,4	2026-05-04 12:32:19.008	635,5	2026-05-04 12:33:41.636	406,4	2026-05-04 12:35:02.906	239,4	2026-05-04 12:36:18.436
15	882,4	2026-05-04 12:32:19.494	635,5	2026-05-04 12:33:42.140	403,8	2026-05-04 12:35:03.410	239,4	2026-05-04 12:36:18.924
16	882,4	2026-05-04 12:32:20.000	624,9	2026-05-04 12:33:42.630	403,8	2026-05-04 12:35:03.914	246,3	2026-05-04 12:36:19.428
17	869,0	2026-05-04 12:32:20.500	624,4	2026-05-04 12:33:45.134	424,7	2026-05-04 12:35:04.417	246,3	2026-05-04 12:36:19.932
18	869,0	2026-05-04 12:32:21.005	624,4	2026-05-04 12:33:45.637	424,7	2026-05-04 12:35:04.904	244,7	2026-05-04 12:36:20.436
19	866,0	2026-05-04 12:32:21.492	630,0	2026-05-04 12:33:46.141	438,9	2026-05-04 12:35:05.409	244,7	2026-05-04 12:36:20.925
20	866,0	2026-05-04 12:32:21.998	630,0	2026-05-04 12:33:46.644	438,9	2026-05-04 12:35:05.912	243,8	2026-05-04 12:36:21.427
21	874,0	2026-05-04 12:32:22.500	632,7	2026-05-04 12:33:47.133	446,9	2026-05-04 12:35:06.416	243,8	2026-05-04 12:36:21.932
22	874,0	2026-05-04 12:32:23.006	632,7	2026-05-04 12:33:47.634	446,9	2026-05-04 12:35:06.920	244,8	2026-05-04 12:36:22.435
23	883,4	2026-05-04 12:32:23.506	641,1	2026-05-04 12:33:48.139	446,9	2026-05-04 12:35:07.425	244,8	2026-05-04 12:36:22.922
24	883,4	2026-05-04 12:32:23.995	641,1	2026-05-04 12:33:48.642	444,1	2026-05-04 12:35:07.911	236,7	2026-05-04 12:36:23.427
25	883,9	2026-05-04 12:32:24.499	641,1	2026-05-04 12:33:49.131	444,1	2026-05-04 12:35:08.415	236,7	2026-05-04 12:36:24.448
26	883,9	2026-05-04 12:32:25.002	638,7	2026-05-04 12:33:49.636	444,9	2026-05-04 12:35:08.921	240,5	2026-05-04 12:36:24.921
27	878,9	2026-05-04 12:32:25.507	638,7	2026-05-04 12:33:50.139	444,9	2026-05-04 12:35:09.408	241,5	2026-05-04 12:36:25.429
28	878,9	2026-05-04 12:32:25.994	626,0	2026-05-04 12:33:50.643	444,9	2026-05-04 12:35:09.912	241,5	2026-05-04 12:36:25.928
29	878,9	2026-05-04 12:32:26.498	626,0	2026-05-04 12:33:51.126	445,4	2026-05-04 12:35:10.413	241,8	2026-05-04 12:36:26.432
30	878,9	2026-05-04 12:32:27.001	638,4	2026-05-04 12:33:51.629	445,4	2026-05-04 12:35:10.917	241,8	2026-05-04 12:36:26.936
31	879,5		655,5		437,0		241,8	

Tabel L. 5 Data pengukuran beban dan putaran turbin angin Savonius dengan dua sudu tipe *Twist* dengan Diameter CGV 250 mm

Diameter *Cylindrical Guide Vane* 250 mm								
Tanpa beban			0,5 kg		1 kg		1,5 kg	
No	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu
1	1015,8	2026-05-05 14:04:39.081	828,6	2026-05-05 14:04:39.081	481,5	2026-05-02 16:13:04.904	244,2	2026-05-02 16:14:50.162
2	1015,8	2026-05-05 14:04:39.592	828,6	2026-05-05 14:04:39.592	481,5	2026-05-02 16:13:05.409	244,2	2026-05-02 16:14:50.665
3	1008,8	2026-05-05 14:04:40.132	802,3	2026-05-05 14:04:40.132	478,0	2026-05-02 16:13:05.917	244,2	2026-05-02 16:14:51.169
4	1008,8	2026-05-05 14:04:40.627	802,3	2026-05-05 14:04:40.627	478,0	2026-05-02 16:13:06.419	222,2	2026-05-02 16:14:51.672
5	1008,8	2026-05-05 14:04:41.124	808,4	2026-05-05 14:04:41.124	491,8	2026-05-02 16:13:06.906	222,2	2026-05-02 16:14:52.191
6	1008,8	2026-05-05 14:04:41.635	808,4	2026-05-05 14:04:41.635	491,8	2026-05-02 16:13:07.410	244,2	2026-05-02 16:14:52.662
7	1008,8	2026-05-05 14:04:42.127	821,5	2026-05-05 14:04:42.127	491,3	2026-05-02 16:13:07.915	244,2	2026-05-02 16:14:53.169
8	1008,8	2026-05-05 14:04:42.622	821,5	2026-05-05 14:04:42.622	491,3	2026-05-02 16:13:08.419	244,2	2026-05-02 16:14:53.671
9	1012,8	2026-05-05 14:04:43.133	813,8	2026-05-05 14:04:43.133	472,9	2026-05-02 16:13:08.921	244,2	2026-05-02 16:14:54.176
10	1012,8	2026-05-05 14:04:43.628	813,8	2026-05-05 14:04:43.628	472,9	2026-05-02 16:13:09.409	244,2	2026-05-02 16:14:54.664
11	1012,8	2026-05-05 14:04:44.124	806,9	2026-05-05 14:04:44.124	463,7	2026-05-02 16:13:09.913	244,2	2026-05-02 16:14:55.168
12	1021,8	2026-05-05 14:04:44.650	806,9	2026-05-05 14:04:44.650	463,7	2026-05-02 16:13:10.416	258,3	2026-05-02 16:14:55.670
13	1021,8	2026-05-05 14:04:45.129	807,6	2026-05-05 14:04:45.129	463,1	2026-05-02 16:13:11.911	258,3	2026-05-02 16:14:56.174
14	1015,8	2026-05-05 14:04:45.623	807,6	2026-05-05 14:04:45.623	463,1	2026-05-02 16:13:12.416	258,3	2026-05-02 16:14:56.663
15	1015,8	2026-05-05 14:04:46.133	807,6	2026-05-05 14:04:46.133	488,1	2026-05-02 16:13:12.920	244,8	2026-05-02 16:14:57.167
16	1011,8	2026-05-05 14:04:46.631	804,4	2026-05-05 14:04:46.631	488,1	2026-05-02 16:13:13.404	244,8	2026-05-02 16:14:57.669
17	1011,8	2026-05-05 14:04:47.121	804,4	2026-05-05 14:04:47.121	486,5	2026-05-02 16:13:13.910	244,2	2026-05-02 16:14:58.172
18	1011,8	2026-05-05 14:04:47.632	831,3	2026-05-05 14:04:47.632	486,5	2026-05-02 16:13:14.430	255,3	2026-05-02 16:14:58.662
19	1011,8	2026-05-05 14:04:48.129	831,3	2026-05-05 14:04:48.129	483,2	2026-05-02 16:13:14.934	255,3	2026-05-02 16:14:59.164
20	1012,8	2026-05-05 14:04:48.624	834,8	2026-05-05 14:04:48.624	483,2	2026-05-02 16:13:15.405	255,6	2026-05-02 16:14:59.668
21	1012,8	2026-05-05 14:04:49.085	834,8	2026-05-05 14:04:49.085	483,2	2026-05-02 16:13:15.909	255,6	2026-05-02 16:15:00.171
22	1021,8	2026-05-05 14:04:49.593	834,0	2026-05-05 14:04:49.593	491,5	2026-05-02 16:13:16.413	247,1	2026-05-02 16:15:00.691
23	1021,8	2026-05-05 14:04:50.124	834,0	2026-05-05 14:04:50.124	491,5	2026-05-02 16:13:16.937	247,1	2026-05-02 16:15:01.163
24	1021,8	2026-05-05 14:04:50.634	826,9	2026-05-05 14:04:50.634	487,9	2026-05-02 16:13:17.421	262,3	2026-05-02 16:15:01.666
25	1021,8	2026-05-05 14:04:51.130	826,9	2026-05-05 14:04:51.130	487,9	2026-05-02 16:13:17.908	262,3	2026-05-02 16:15:02.170
26	1021,8	2026-05-05 14:04:51.623	830,9	2026-05-05 14:04:51.623	472,9	2026-05-02 16:13:18.412	244,2	2026-05-02 16:15:02.674
27	1018,8	2026-05-05 14:04:52.133	830,9	2026-05-05 14:04:52.133	472,9	2026-05-02 16:13:18.915	244,2	2026-05-02 16:15:03.180
28	1018,8	2026-05-05 14:04:52.627	844,8	2026-05-05 14:04:52.627	470,9	2026-05-02 16:13:19.453	244,2	2026-05-02 16:15:03.713
29	1028,8	2026-05-05 14:04:53.123	844,8	2026-05-05 14:04:53.123	470,3	2026-05-02 16:13:19.454	244,2	2026-05-02 16:15:04.169
30	1028,8	2026-05-05 14:04:53.633	844,8	2026-05-05 14:04:53.633	470,3	2026-05-02 16:13:19.455	244,2	2026-05-02 16:15:04.673
31	1015,8		821,5		480,0		247,1	

Tabel L. 6 Data pengukuran beban dan putaran turbin angin Savonius dengan dua sudu tipe *Twist* dengan Diameter CGV 300 mm

Diameter 300 mm										
Tanpa beban			0,5 kg		1 kg		1,5 kg		2 kg	
No	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu
1	1126,5	2026-05-05 13:19:01.166	918,5	2026-05-05 13:20:17.563	606,3	2026-05-05 13:21:28.182	271,4	2026-05-05 13:22:55.217	159	2026-05-02 13:23:58.437
2	1126,5	2026-05-05 13:19:01.678	918,5	2026-05-05 13:20:18.052	606,3	2026-05-05 13:21:28.676	271,4	2026-05-05 13:22:55.728	159	2026-05-02 13:23:58.942
3	1132,5	2026-05-05 13:19:02.171	913,2	2026-05-05 13:20:18.549	606,3	2026-05-05 13:21:29.221	285,1	2026-05-05 13:22:56.221	153,8	2026-05-02 13:23:59.430
4	1132,5	2026-05-05 13:19:02.667	913,2	2026-05-05 13:20:19.059	608,9	2026-05-05 13:21:29.734	285,1	2026-05-05 13:22:56.716	153,8	2026-05-02 13:23:59.934
5	1143,5	2026-05-05 13:19:03.181	920,7	2026-05-05 13:20:19.559	608,9	2026-05-05 13:21:30.226	295,7	2026-05-05 13:22:57.223	150,8	2026-05-02 13:24:00.436
6	1143,5	2026-05-05 13:19:03.676	920,7	2026-05-05 13:20:20.049	601,8	2026-05-05 13:21:30.721	295,7	2026-05-05 13:22:57.721	150,8	2026-05-02 13:24:00.988
7	1148,5	2026-05-05 13:19:04.168	933,6	2026-05-05 13:20:20.544	601,8	2026-05-05 13:21:31.233	299,3	2026-05-05 13:22:58.230	150,8	2026-05-02 13:24:01.445
8	1148,5	2026-05-05 13:19:04.680	933,6	2026-05-05 13:20:21.055	601,8	2026-05-05 13:21:31.726	299,3	2026-05-05 13:22:58.725	159,6	2026-05-02 13:24:01.931
9	1148,5	2026-05-05 13:19:05.173	947,6	2026-05-05 13:20:21.548	606,9	2026-05-05 13:21:33.228	285,1	2026-05-05 13:22:59.232	159,6	2026-05-02 13:24:02.433
10	1148,5	2026-05-05 13:19:05.667	947,6	2026-05-05 13:20:22.044	606,9	2026-05-05 13:21:33.723	285,1	2026-05-05 13:22:59.713	153,8	2026-05-02 13:24:02.939
11	1137,5	2026-05-05 13:19:06.178	948,4	2026-05-05 13:20:22.555	616,1	2026-05-05 13:21:34.234	285,1	2026-05-05 13:23:00.244	153,8	2026-05-02 13:24:03.442
12	1137,5	2026-05-05 13:19:06.674	948,4	2026-05-05 13:20:23.051	616,1	2026-05-05 13:21:34.729	285,1	2026-05-05 13:23:00.720	153,8	2026-05-02 13:24:03.930
13	1136,5	2026-05-05 13:19:07.184	935,3	2026-05-05 13:20:23.544	621	2026-05-05 13:21:40.212	285,1	2026-05-05 13:23:01.221	162,2	2026-05-02 13:24:04.434
14	1136,5	2026-05-05 13:19:07.680	935,3	2026-05-05 13:20:24.054	621	2026-05-05 13:21:40.741	298,8	2026-05-05 13:23:05.223	162,2	2026-05-02 13:24:04.938
15	1141,5	2026-05-05 13:19:08.169	928,7	2026-05-05 13:20:24.549	622,3	2026-05-05 13:21:41.221	285,1	2026-05-05 13:23:05.718	153,6	2026-05-02 13:24:05.456
16	1141,5	2026-05-05 13:19:08.672	928,7	2026-05-05 13:20:25.044	622,3	2026-05-05 13:21:41.722	285,1	2026-05-05 13:23:06.226	153,6	2026-05-02 13:24:05.929
17	1140,5	2026-05-05 13:19:09.184	928,7	2026-05-05 13:20:25.556	626,1	2026-05-05 13:21:42.224	271,4	2026-05-05 13:23:06.723	153,6	2026-05-02 13:24:06.431
18	1140,5	2026-05-05 13:19:09.675	928,7	2026-05-05 13:20:26.046	626,1	2026-05-05 13:21:42.722	271,4	2026-05-05 13:23:07.216	153,8	2026-05-02 13:24:06.938
19	1143,5	2026-05-05 13:19:10.173	933,2	2026-05-05 13:20:26.551	634,7	2026-05-05 13:21:43.168	271,4	2026-05-05 13:23:07.726	141,2	2026-05-02 13:24:07.441
20	1143,5	2026-05-05 13:19:10.679	933,2	2026-05-05 13:20:27.055	634,7	2026-05-05 13:21:43.679	271,4	2026-05-05 13:23:09.224	141,2	2026-05-02 13:24:07.928
21	1143,5	2026-05-05 13:19:11.177	947,6	2026-05-05 13:20:27.552	634,7	2026-05-05 13:21:44.174	280,1	2026-05-05 13:23:09.721	136,71	2026-05-02 13:24:08.431
22	1143,5	2026-05-05 13:19:11.672	947,6	2026-05-05 13:20:28.043	637,1	2026-05-05 13:21:44.719	280,1	2026-05-05 13:23:10.219	136,71	2026-05-02 13:24:08.938
23	1146,5	2026-05-05 13:19:12.181	949,2	2026-05-05 13:20:28.555	635,1	2026-05-05 13:21:45.229	285,1	2026-05-05 13:23:10.726	143,52	2026-05-02 13:24:11.943
24	1146,5	2026-05-05 13:19:12.671	949,2	2026-05-05 13:20:29.049	635,1	2026-05-05 13:21:45.723	285,1	2026-05-05 13:23:11.223	143,52	2026-05-02 13:24:12.446
25	1146,5	2026-05-05 13:19:14.170	935,7	2026-05-05 13:20:29.545	635,1	2026-05-05 13:21:46.219	298,8	2026-05-05 13:23:11.715	143,52	2026-05-02 13:24:12.932
26	1146,5	2026-05-05 13:19:14.669	935,7	2026-05-05 13:20:30.056	629,4	2026-05-05 13:21:46.726	292,9	2026-05-05 13:23:13.727	143,9	2026-05-02 13:24:13.454
27	1146,5	2026-05-05 13:19:15.178	935,7	2026-05-05 13:20:30.552	629,4	2026-05-05 13:21:47.220	292,9	2026-05-05 13:23:14.220	143,9	2026-05-02 13:24:13.942
28	1142,5	2026-05-05 13:19:15.670	921,4	2026-05-05 13:20:31.043	629,4	2026-05-05 13:21:47.718	285,1	2026-05-05 13:23:14.716	143,9	2026-05-02 13:24:14.429
29	1142,5	2026-05-05 13:19:16.167	921,4	2026-05-05 13:20:31.554	629,4	2026-05-05 13:21:48.228	285,1	2026-05-05 13:23:15.226	153,8	2026-05-02 13:24:14.963
30	1142,5	2026-05-05 13:19:16.680	937,3	2026-05-05 13:20:33.053	640	2026-05-05 13:21:48.720	285,1	2026-05-05 13:23:15.720	153,8	2026-05-02 13:24:15.450
31	1141,5		933,2		621,0		285,1		150,776	

Tabel L. 7 Data pengukuran beban dan putaran turbin angin Savonius dengan dua sudu tipe Twist dengan Diameter CGV 350 mm

Diamater 350 mm										
Tanpa beban			0,5 kg		1 kg		1,5 kg		2 kg	
No	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu
1	1102,8	2026-05-05 12:34:14.678	979,6	2026-05-05 12:35:37.425	750,7	2026-05-05 12:36:49.111	486,6	2026-05-05 12:37:50.517	207	2026-05-05 12:39:13.705
2	1102,8	2026-05-05 12:34:15.174	980,2	2026-05-05 12:35:37.937	755,8	2026-05-05 12:36:49.552	486,6	2026-05-05 12:37:51.030	207	2026-05-05 12:39:14.202
3	1107,8	2026-05-05 12:34:15.715	980,2	2026-05-05 12:35:38.478	755,8	2026-05-05 12:36:50.049	467,8	2026-05-05 12:37:51.527	225,7	2026-05-05 12:39:14.696
4	1107,8	2026-05-05 12:34:16.226	964,1	2026-05-05 12:35:38.976	756,7	2026-05-05 12:36:50.590	467,8	2026-05-05 12:37:52.067	225,7	2026-05-05 12:39:15.189
5	1107,8	2026-05-05 12:34:16.720	964,1	2026-05-05 12:35:39.488	756,7	2026-05-05 12:36:51.101	448,3	2026-05-05 12:37:52.578	224,6	2026-05-05 12:39:15.743
6	1107,8	2026-05-05 12:34:17.213	969,6	2026-05-05 12:35:39.982	752,1	2026-05-05 12:36:51.595	448,3	2026-05-05 12:37:53.072	224,6	2026-05-05 12:39:16.241
7	1107,8	2026-05-05 12:34:17.726	969,6	2026-05-05 12:35:40.476	752,1	2026-05-05 12:36:52.096	436,8	2026-05-05 12:37:53.570	222,6	2026-05-05 12:39:16.739
8	1107,8	2026-05-05 12:34:18.221	971,5	2026-05-05 12:35:40.982	754,4	2026-05-05 12:36:52.599	436,8	2026-05-05 12:37:54.079	222,6	2026-05-05 12:39:17.249
9	1107,8	2026-05-05 12:34:18.716	971,5	2026-05-05 12:35:41.475	754,4	2026-05-05 12:36:53.097	438,2	2026-05-05 12:37:54.574	227,4	2026-05-05 12:39:17.748
10	1121,8	2026-05-05 12:34:19.227	979,6	2026-05-05 12:35:41.977	766,1	2026-05-05 12:36:53.590	438,2	2026-05-05 12:37:55.069	227,4	2026-05-05 12:39:18.239
11	1121,8	2026-05-05 12:34:19.723	979,6	2026-05-05 12:35:42.485	766,1	2026-05-05 12:36:54.103	457,7	2026-05-05 12:37:55.579	227,4	2026-05-05 12:39:18.748
12	1121,8	2026-05-05 12:34:20.214	979,6	2026-05-05 12:35:42.979	773,8	2026-05-05 12:36:54.592	457,7	2026-05-05 12:37:56.071	230,8	2026-05-05 12:39:19.242
13	1121,8	2026-05-05 12:34:20.727	979,6	2026-05-05 12:35:43.476	773,8	2026-05-05 12:36:55.093	436,3	2026-05-05 12:37:56.569	230,8	2026-05-05 12:39:19.740
14	1121,8	2026-05-05 12:34:21.224	979,6	2026-05-05 12:35:43.987	775,9	2026-05-05 12:36:55.599	436,3	2026-05-05 12:37:57.081	225,8	2026-05-05 12:39:20.250
15	1121,8	2026-05-05 12:34:21.717	979,6	2026-05-05 12:35:44.484	775,9	2026-05-05 12:36:56.097	437,3	2026-05-05 12:37:57.572	225,8	2026-05-05 12:39:20.745
16	1121,8	2026-05-05 12:34:22.226	977,3	2026-05-05 12:35:44.974	782,8	2026-05-05 12:36:56.589	437,3	2026-05-05 12:37:58.068	230,5	2026-05-05 12:39:21.254
17	1121,8	2026-05-05 12:34:22.720	977,3	2026-05-05 12:35:45.488	782,8	2026-05-05 12:36:57.102	437,3	2026-05-05 12:37:58.564	230,5	2026-05-05 12:39:21.748
18	1120,8	2026-05-05 12:34:23.223	973,3	2026-05-05 12:35:45.976	786,9	2026-05-05 12:36:57.597	442	2026-05-05 12:37:59.075	228,3	2026-05-05 12:39:22.243
19	1120,8	2026-05-05 12:34:23.726	973,3	2026-05-05 12:35:46.476	786,9	2026-05-05 12:36:58.087	442	2026-05-05 12:37:59.570	228,3	2026-05-05 12:39:22.739
20	1115,8	2026-05-05 12:34:24.223	961,9	2026-05-05 12:35:47.001	780,8	2026-05-05 12:36:58.599	436	2026-05-05 12:38:00.061	228,3	2026-05-05 12:39:23.248
21	1115,8	2026-05-05 12:34:24.717	961,9	2026-05-05 12:35:47.484	780,8	2026-05-05 12:36:59.096	436	2026-05-05 12:38:00.569	252,7	2026-05-05 12:39:23.744
22	1116,8	2026-05-05 12:34:25.225	951	2026-05-05 12:35:47.977	782,1	2026-05-05 12:36:59.589	428	2026-05-05 12:38:01.064	252,7	2026-05-05 12:39:24.239
23	1116,8	2026-05-05 12:34:25.719	951	2026-05-05 12:35:48.485	782,1	2026-05-05 12:37:00.097	428	2026-05-05 12:38:01.561	257,9	2026-05-05 12:39:24.751
24	1116,8	2026-05-05 12:34:26.215	948	2026-05-05 12:35:48.977	787,2	2026-05-05 12:37:00.592	434,2	2026-05-05 12:38:02.070	257,9	2026-05-05 12:39:25.260
25	1116,8	2026-05-05 12:34:26.727	948	2026-05-05 12:35:49.478	787,2	2026-05-05 12:37:01.087	434,2	2026-05-05 12:38:02.564	257,9	2026-05-05 12:39:25.754
26	1118,8	2026-05-05 12:34:27.222	948	2026-05-05 12:35:49.986	787,1	2026-05-05 12:37:01.613	458,7	2026-05-05 12:38:03.059	259,7	2026-05-05 12:39:26.250
27	1121,8	2026-05-05 12:34:27.714	939,9	2026-05-05 12:35:50.486	787,1	2026-05-05 12:37:02.111	458,7	2026-05-05 12:38:03.576	259,7	2026-05-05 12:39:26.743
28	1121,8	2026-05-05 12:34:28.226	939,9	2026-05-05 12:35:50.972	776,1	2026-05-05 12:37:02.591	458,7	2026-05-05 12:38:04.073	291,7	2026-05-05 12:39:27.240
29	1118,8	2026-05-05 12:34:28.723	922,8	2026-05-05 12:35:51.485	776,1	2026-05-05 12:37:03.098	476,1	2026-05-05 12:38:04.561	291,7	2026-05-05 12:39:27.750
30	1118,8	2026-05-05 12:34:29.233	922,8	2026-05-05 12:35:51.979	763	2026-05-05 12:37:03.596	476,1	2026-05-05 12:38:05.074	298,4	2026-05-05 12:39:28.242
31	1115,8		964,1		771,6		448,8		239,4	

Tabel L. 8 Data pengukuran beban dan putaran turbin angin Savonius dengan dua sudu tipe *Twist* dengan Diameter CGV 400 mm

Diameter 400 mm										
Tanpa beban			0,5 kg		1 kg		1,5 kg		2 kg	
No	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu
1	1129,9	2026-05-04 12:15:30.287	1053,4	2026-05-04 12:17:06.132	860,1	2026-05-04 12:18:12.412	519,5	2026-05-04 12:19:20.487	255,9	2026-05-04 12:20:44.648
2	1129,9	2026-05-04 12:15:30.792	1042,4	2026-05-04 12:17:06.620	860,1	2026-05-04 12:18:12.918	534,7	2026-05-04 12:19:20.975	255,9	2026-05-04 12:20:45.154
3	1129,9	2026-05-04 12:15:31.293	1042,4	2026-05-04 12:17:07.122	875,8	2026-05-04 12:18:13.424	534,7	2026-05-04 12:19:21.480	255,9	2026-05-04 12:20:45.653
4	1129,9	2026-05-04 12:15:31.798	1038,4	2026-05-04 12:17:07.627	875,8	2026-05-04 12:18:13.926	534,8	2026-05-04 12:19:22.000	255,9	2026-05-04 12:20:46.160
5	1141,9	2026-05-04 12:15:32.286	1038,4	2026-05-04 12:17:08.131	874,5	2026-05-04 12:18:14.431	534,8	2026-05-04 12:19:22.487	269,2	2026-05-04 12:20:46.664
6	1141,9	2026-05-04 12:15:32.788	1038,4	2026-05-04 12:17:08.634	874,5	2026-05-04 12:18:14.920	524,6	2026-05-04 12:19:22.975	269,2	2026-05-04 12:20:47.151
7	1148,9	2026-05-04 12:15:33.294	1043,4	2026-05-04 12:17:09.122	854,7	2026-05-04 12:18:15.422	524,6	2026-05-04 12:19:23.476	281,3	2026-05-04 12:20:47.655
8	1145,9	2026-05-04 12:15:33.797	1043,4	2026-05-04 12:17:09.624	854,7	2026-05-04 12:18:15.927	520,2	2026-05-04 12:19:23.982	281,3	2026-05-04 12:20:48.157
9	1145,9	2026-05-04 12:15:34.285	1042,4	2026-05-04 12:17:10.129	851,0	2026-05-04 12:18:16.431	520,2	2026-05-04 12:19:24.484	281,3	2026-05-04 12:20:48.661
10	1136,9	2026-05-04 12:15:34.790	1042,4	2026-05-04 12:17:10.633	851,0	2026-05-04 12:18:16.918	527,8	2026-05-04 12:19:24.972	293,3	2026-05-04 12:20:49.150
11	1136,9	2026-05-04 12:15:35.293	1040,4	2026-05-04 12:17:11.118	861,1	2026-05-04 12:18:17.421	527,8	2026-05-04 12:19:25.477	293,3	2026-05-04 12:20:49.655
12	1140,9	2026-05-04 12:15:35.795	1040,4	2026-05-04 12:17:11.625	861,1	2026-05-04 12:18:17.925	541,6	2026-05-04 12:19:25.981	290,7	2026-05-04 12:20:50.158
13	1140,9	2026-05-04 12:15:36.284	1040,4	2026-05-04 12:17:12.128	874,3	2026-05-04 12:18:18.429	541,6	2026-05-04 12:19:26.484	290,7	2026-05-04 12:20:50.661
14	1149,9	2026-05-04 12:15:36.788	1040,4	2026-05-04 12:17:12.629	874,3	2026-05-04 12:18:18.917	542,5	2026-05-04 12:19:26.972	294,1	2026-05-04 12:20:51.150
15	1149,9	2026-05-04 12:15:37.290	1043,4	2026-05-04 12:17:13.120	867,4	2026-05-04 12:18:19.421	542,5	2026-05-04 12:19:27.476	294,1	2026-05-04 12:20:51.653
16	1159,9	2026-05-04 12:15:37.795	1043,4	2026-05-04 12:17:13.623	867,4	2026-05-04 12:18:19.924	540,4	2026-05-04 12:19:27.980	295,0	2026-05-04 12:20:52.156
17	1159,9	2026-05-04 12:15:38.283	1058,4	2026-05-04 12:17:14.127	843,1	2026-05-04 12:18:20.428	540,4	2026-05-04 12:19:28.483	295,0	2026-05-04 12:20:52.660
18	1159,9	2026-05-04 12:15:38.787	1058,4	2026-05-04 12:17:14.630	843,1	2026-05-04 12:18:20.915	538,5	2026-05-04 12:19:28.987	289,6	2026-05-04 12:20:53.164
19	1159,9	2026-05-04 12:15:39.291	1075,4	2026-05-04 12:17:15.119	838,4	2026-05-04 12:18:21.419	538,5	2026-05-04 12:19:29.476	289,6	2026-05-04 12:20:53.652
20	1154,9	2026-05-04 12:15:39.795	1075,4	2026-05-04 12:17:15.621	838,4	2026-05-04 12:18:21.923	538,5	2026-05-04 12:19:29.976	286,6	2026-05-04 12:20:54.155
21	1154,9	2026-05-04 12:15:40.298	1086,4	2026-05-04 12:17:16.126	852,2	2026-05-04 12:18:22.426	531,0	2026-05-04 12:19:30.482	286,6	2026-05-04 12:20:54.659
22	1154,9	2026-05-04 12:15:40.786	1086,4	2026-05-04 12:17:16.630	852,2	2026-05-04 12:18:22.930	531,0	2026-05-04 12:19:30.987	269,2	2026-05-04 12:20:55.162
23	1156,9	2026-05-04 12:15:41.289	1098,4	2026-05-04 12:17:17.133	852,2	2026-05-04 12:18:23.418	518,0	2026-05-04 12:19:31.474	269,2	2026-05-04 12:20:55.649
24	1156,9	2026-05-04 12:15:41.793	1098,4	2026-05-04 12:17:17.621	865,5	2026-05-04 12:18:23.922	518,0	2026-05-04 12:19:31.978	269,2	2026-05-04 12:20:56.154
25	1154,9	2026-05-04 12:15:42.296	1085,4	2026-05-04 12:17:18.124	865,5	2026-05-04 12:18:24.426	515,4	2026-05-04 12:19:32.481	236,6	2026-05-04 12:20:56.657
26	1154,9	2026-05-04 12:15:42.784	1085,4	2026-05-04 12:17:18.629	865,9	2026-05-04 12:18:24.946	515,4	2026-05-04 12:19:32.983	236,6	2026-05-04 12:20:57.161
27	1144,9	2026-05-04 12:15:43.288	1066,4	2026-05-04 12:17:19.132	865,9	2026-05-04 12:18:25.417	521,3	2026-05-04 12:19:33.470	230,6	2026-05-04 12:20:57.648
28	1144,9	2026-05-04 12:15:43.792	1066,4	2026-05-04 12:17:19.620	868,6	2026-05-04 12:18:25.920	521,3	2026-05-04 12:19:33.977	230,6	2026-05-04 12:20:58.153
29	1143,9	2026-05-04 12:15:44.296	1059,4	2026-05-04 12:17:20.123	868,6	2026-05-04 12:18:26.424	512,4	2026-05-04 12:19:34.480	214,9	2026-05-04 12:20:58.654
30	1143,9	2026-05-04 12:15:44.783	1059,4	2026-05-04 12:17:20.628	877,5	2026-05-04 12:18:26.926	512,4	2026-05-04 12:19:35.001	214,9	2026-05-04 12:20:59.160
31	1146,9		1057,8		861,2		528,8		269,2	

Tabel L. 9 Data pengukuran beban dan putaran turbin angin Savonius dengan dua sudu tipe *Twist* dengan Diameter CGV 450 mm

Diameter 450 mm										
Tanpa beban			0,5 kg		1 kg		1,5 kg		2 kg	
No	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu
1	1181	2026-05-04 17:20:11.166	1079,6	2026-05-04 17:22:07.390	905,3	2026-05-04 17:25:12.208	659,1	2026-05-04 17:26:19.964	379,1	2026-05-04 17:28:50.098
2	1181	2026-05-04 17:20:11.662	1068,6	2026-05-04 17:22:07.899	905,3	2026-05-04 17:25:12.686	659,1	2026-05-04 17:26:20.460	392,2	2026-05-04 17:28:50.591
3	1181	2026-05-04 17:20:12.194	1068,6	2026-05-04 17:22:08.445	905,3	2026-05-04 17:25:13.184	668,7	2026-05-04 17:26:20.957	407,2	2026-05-04 17:28:51.134
4	1181	2026-05-04 17:20:12.710	1064,6	2026-05-04 17:22:08.937	905,3	2026-05-04 17:25:13.727	668,7	2026-05-04 17:26:21.511	407,2	2026-05-04 17:28:51.644
5	1175	2026-05-04 17:20:13.216	1064,6	2026-05-04 17:22:09.447	919,7	2026-05-04 17:25:14.249	648,6	2026-05-04 17:26:22.008	417,7	2026-05-04 17:28:52.141
6	1175	2026-05-04 17:20:13.696	1064,6	2026-05-04 17:22:09.956	919,7	2026-05-04 17:25:14.746	648,6	2026-05-04 17:26:22.502	417,7	2026-05-04 17:28:52.645
7	1175	2026-05-04 17:20:14.206	1069,6	2026-05-04 17:22:10.437	899,9	2026-05-04 17:25:15.224	657,5	2026-05-04 17:26:23.016	406,6	2026-05-04 17:28:53.144
8	1175	2026-05-04 17:20:14.707	1069,6	2026-05-04 17:22:10.950	899,9	2026-05-04 17:25:15.767	657,5	2026-05-04 17:26:23.507	406,6	2026-05-04 17:28:53.640
9	1175	2026-05-04 17:20:15.201	1068,6	2026-05-04 17:22:11.440	896,2	2026-05-04 17:25:16.229	652,4	2026-05-04 17:26:24.003	406,6	2026-05-04 17:28:54.136
10	1175	2026-05-04 17:20:15.712	1068,6	2026-05-04 17:22:11.935	896,2	2026-05-04 17:25:16.726	652,4	2026-05-04 17:26:24.514	406,6	2026-05-04 17:28:54.642
11	1175	2026-05-04 17:20:16.204	1066,6	2026-05-04 17:22:12.448	906,3	2026-05-04 17:25:17.250	650,5	2026-05-04 17:26:25.008	412,9	2026-05-04 17:28:55.140
12	1175,5	2026-05-04 17:20:16.698	1066,6	2026-05-04 17:22:12.940	906,3	2026-05-04 17:25:17.727	650,5	2026-05-04 17:26:25.515	412,9	2026-05-04 17:28:55.639
13	1175,5	2026-05-04 17:20:17.210	1066,6	2026-05-04 17:22:13.438	919,5	2026-05-04 17:25:18.225	656	2026-05-04 17:26:26.012	417,8	2026-05-04 17:28:56.144
14	1175,5	2026-05-04 17:20:17.703	1066,6	2026-05-04 17:22:13.947	919,5	2026-05-04 17:25:18.734	656	2026-05-04 17:26:26.508	417,8	2026-05-04 17:28:56.639
15	1175,5	2026-05-04 17:20:18.202	1079,6	2026-05-04 17:22:14.442	912,6	2026-05-04 17:25:19.250	658,2	2026-05-04 17:26:27.002	430,8	2026-05-04 17:28:57.135
16	1181	2026-05-04 17:20:18.707	1079,9	2026-05-04 17:22:14.938	912,6	2026-05-04 17:25:19.725	658,2	2026-05-04 17:26:27.513	432,3	2026-05-04 17:28:57.645
17	1181	2026-05-04 17:20:19.203	1079,9	2026-05-04 17:22:15.443	888,3	2026-05-04 17:25:20.231	666,6	2026-05-04 17:26:27.964	432,3	2026-05-04 17:28:58.140
18	1188	2026-05-04 17:20:19.699	1079,9	2026-05-04 17:22:15.941	888,3	2026-05-04 17:25:20.727	666,6	2026-05-04 17:26:28.456	432,2	2026-05-04 17:28:58.638
19	1188	2026-05-04 17:20:20.212	1084,6	2026-05-04 17:22:16.437	883,6	2026-05-04 17:25:21.223	675,4	2026-05-04 17:26:28.966	432,2	2026-05-04 17:28:59.143
20	1188	2026-05-04 17:20:20.701	1084,6	2026-05-04 17:22:16.946	883,6	2026-05-04 17:25:21.736	675,4	2026-05-04 17:26:29.508	432,2	2026-05-04 17:28:59.638
21	1181	2026-05-04 17:20:21.197	1084,6	2026-05-04 17:22:17.438	897,4	2026-05-04 17:25:22.242	681,2	2026-05-04 17:26:30.020	413,3	2026-05-04 17:29:00.136
22	1181	2026-05-04 17:20:21.726	1084,6	2026-05-04 17:22:17.933	897,4	2026-05-04 17:25:22.724	681,2	2026-05-04 17:26:30.527	413,3	2026-05-04 17:29:00.642
23	1181	2026-05-04 17:20:22.203	1084,6	2026-05-04 17:22:18.463	897,4	2026-05-04 17:25:23.251	687,8	2026-05-04 17:26:31.006	413,3	2026-05-04 17:29:01.143
24	1188	2026-05-04 17:20:22.698	1124,5	2026-05-04 17:22:18.940	910,7	2026-05-04 17:25:23.730	687,8	2026-05-04 17:26:31.516	442,1	2026-05-04 17:29:01.634
25	1188	2026-05-04 17:20:23.209	1124,5	2026-05-04 17:22:19.434	910,7	2026-05-04 17:25:24.223	687,8	2026-05-04 17:26:32.031	442,1	2026-05-04 17:29:02.146
26	1188	2026-05-04 17:20:23.706	1124,5	2026-05-04 17:22:19.946	911,1	2026-05-04 17:25:24.688	690,8	2026-05-04 17:26:32.506	432,1	2026-05-04 17:29:02.591
27	1188	2026-05-04 17:20:24.199	1124,5	2026-05-04 17:22:20.440	911,1	2026-05-04 17:25:25.180	690,8	2026-05-04 17:26:33.004	432,1	2026-05-04 17:29:03.086
28	1188	2026-05-04 17:20:24.709	1124,5	2026-05-04 17:22:20.932	913,8	2026-05-04 17:25:25.727	689,2	2026-05-04 17:26:33.512	413,3	2026-05-04 17:29:03.643
29	1185	2026-05-04 17:20:25.204	1124,5	2026-05-04 17:22:21.448	913,8	2026-05-04 17:25:26.232	689,2	2026-05-04 17:26:34.024	413,3	2026-05-04 17:29:04.139
30	1185	2026-05-04 17:20:25.697	1124,5	2026-05-04 17:22:21.956	922,7	2026-05-04 17:25:26.729	689,2	2026-05-04 17:26:34.502	413,3	2026-05-04 17:29:04.630
31	1181		1086		905		669		417,6	

Tabel L. 10 Data pengukuran beban dan putaran turbin angin Savonius dengan dua sudu tipe *Twist* dengan Diameter CGV 500 mm

Diameter *Cylindrical Guide Vane* 500 mm								
Tanpa beban			0,5 kg		1 kg		1,5 kg	
No	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu
1	1207,4	2026-05-04 16:56:32.856	1156,6	2026-05-04 16:58:02.338	997	2026-05-04 16:59:10.522	743,1	2026-05-04 17:00:19.094
2	1207,4	2026-05-04 16:56:33.351	1156,6	2026-05-04 16:58:02.847	997	2026-05-04 16:59:11.016	740,4	2026-05-04 17:00:19.591
3	1207,4	2026-05-04 16:56:33.848	1157,6	2026-05-04 16:58:03.389	997	2026-05-04 16:59:11.573	740,4	2026-05-04 17:00:20.101
4	1207,4	2026-05-04 16:56:34.403	1157,6	2026-05-04 16:58:03.883	997	2026-05-04 16:59:12.086	756	2026-05-04 17:00:20.642
5	1207,4	2026-05-04 16:56:34.897	1161,6	2026-05-04 16:58:04.399	955,5	2026-05-04 16:59:12.561	756	2026-05-04 17:00:21.140
6	1207,4	2026-05-04 16:56:35.391	1161,6	2026-05-04 16:58:04.906	955,5	2026-05-04 16:59:13.076	753,3	2026-05-04 17:00:21.651
7	1207,4	2026-05-04 16:56:35.906	1160,6	2026-05-04 16:58:05.387	955,5	2026-05-04 16:59:13.568	753,3	2026-05-04 17:00:22.143
8	1210,4	2026-05-04 16:56:36.412	1160,6	2026-05-04 16:58:05.895	961,6	2026-05-04 16:59:14.060	750,3	2026-05-04 17:00:22.640
9	1210,4	2026-05-04 16:56:36.893	1157,6	2026-05-04 16:58:06.408	961,6	2026-05-04 16:59:14.572	750,3	2026-05-04 17:00:23.148
10	1210,4	2026-05-04 16:56:37.406	1157,6	2026-05-04 16:58:06.884	977,6	2026-05-04 16:59:15.067	749,9	2026-05-04 17:00:23.645
11	1214,4	2026-05-04 16:56:37.900	1157,6	2026-05-04 16:58:07.396	977,6	2026-05-04 16:59:15.560	749,9	2026-05-04 17:00:24.143
12	1214,4	2026-05-04 16:56:38.396	1157,6	2026-05-04 16:58:07.891	977,6	2026-05-04 16:59:16.073	741,9	2026-05-04 17:00:24.648
13	1210,4	2026-05-04 16:56:38.902	1145,6	2026-05-04 16:58:08.391	962,2	2026-05-04 16:59:16.567	741,9	2026-05-04 17:00:25.143
14	1210,4	2026-05-04 16:56:39.400	1145,6	2026-05-04 16:58:08.895	962,2	2026-05-04 16:59:17.081	734,2	2026-05-04 17:00:25.641
15	1210,4	2026-05-04 16:56:39.901	1141,6	2026-05-04 16:58:09.390	955,5	2026-05-04 16:59:17.587	734,2	2026-05-04 17:00:26.150
16	1210,4	2026-05-04 16:56:40.404	1131,6	2026-05-04 16:58:09.887	955,5	2026-05-04 16:59:18.067	731,7	2026-05-04 17:00:26.642
17	1220,4	2026-05-04 16:56:40.918	1131,6	2026-05-04 16:58:10.412	957	2026-05-04 16:59:18.567	731,7	2026-05-04 17:00:27.140
18	1217,4	2026-05-04 16:56:41.396	1113,6	2026-05-04 16:58:10.893	957	2026-05-04 16:59:19.087	731,5	2026-05-04 17:00:27.665
19	1217,4	2026-05-04 16:56:41.904	1113,6	2026-05-04 16:58:11.385	961,6	2026-05-04 16:59:19.566	731,5	2026-05-04 17:00:28.144
20	1217,4	2026-05-04 16:56:42.399	1132,6	2026-05-04 16:58:11.894	961,6	2026-05-04 16:59:20.074	739,1	2026-05-04 17:00:28.636
21	1217,4	2026-05-04 16:56:42.892	1132,6	2026-05-04 16:58:12.391	961,6	2026-05-04 16:59:20.577	739,1	2026-05-04 17:00:29.164
22	1217,4	2026-05-04 16:56:43.406	1132,6	2026-05-04 16:58:12.886	961,6	2026-05-04 16:59:21.067	745,9	2026-05-04 17:00:29.643
23	1221,4	2026-05-04 16:56:43.896	1132,6	2026-05-04 16:58:13.397	956,5	2026-05-04 16:59:21.563	745,9	2026-05-04 17:00:30.091
24	1221,4	2026-05-04 16:56:44.393	1132,6	2026-05-04 16:58:13.889	956,5	2026-05-04 16:59:22.075	733,3	2026-05-04 17:00:30.602
25	1221,4	2026-05-04 16:56:44.904	1132,6	2026-05-04 16:58:14.385	957,3	2026-05-04 16:59:22.569	733,3	2026-05-04 17:00:31.143
26	1221,4	2026-05-04 16:56:45.402	1132,6	2026-05-04 16:58:14.894	957,3	2026-05-04 16:59:23.061	726,1	2026-05-04 17:00:31.638
27	1221,4	2026-05-04 16:56:45.894	1132,6	2026-05-04 16:58:15.391	949,7	2026-05-04 16:59:23.576	726,1	2026-05-04 17:00:32.148
28	1221,4	2026-05-04 16:56:46.405	1120,6	2026-05-04 16:58:15.887	949,7	2026-05-04 16:59:24.067	730,9	2026-05-04 17:00:32.660
29	1221,4	2026-05-04 16:56:46.900	1120,6	2026-05-04 16:58:16.397	942,9	2026-05-04 16:59:24.561	730,9	2026-05-04 17:00:33.153
30	1221,4	2026-05-04 16:56:49.416	1120,6	2026-05-04 16:58:16.890	942,9	2026-05-04 16:59:25.074	727,3	2026-05-04 17:00:33.649
31	1214		1142		964		740	

Diameter *Cylindrical Guide Vane* 500 mm				
2 kg			2,5 kg	
No	Putaran	Tanggal/Waktu	Putaran	Tanggal/Waktu
1	495,7	2026-05-04 17:01:36.913	209,9	2026-05-04 17:02:39.983
2	495,7	2026-05-04 17:01:37.407	209,9	2026-05-04 17:02:40.496
3	495,7	2026-05-04 17:01:37.967	204,8	2026-05-04 17:02:40.988
4	495,7	2026-05-04 17:01:38.459	204,8	2026-05-04 17:02:41.527
5	495,7	2026-05-04 17:01:38.956	211,5	2026-05-04 17:02:42.045
6	495,7	2026-05-04 17:01:39.464	211,5	2026-05-04 17:02:42.538
7	456,1	2026-05-04 17:01:39.962	211,5	2026-05-04 17:02:43.031
8	456,1	2026-05-04 17:01:40.454	214,6	2026-05-04 17:02:43.543
9	456,1	2026-05-04 17:01:40.969	214,6	2026-05-04 17:02:44.051
10	456,1	2026-05-04 17:01:41.458	234,8	2026-05-04 17:02:44.532
11	456,1	2026-05-04 17:01:41.972	234,8	2026-05-04 17:02:45.040
12	456,1	2026-05-04 17:01:42.465	258,6	2026-05-04 17:02:45.538
13	434	2026-05-04 17:01:42.959	258,6	2026-05-04 17:02:46.029
14	434	2026-05-04 17:01:43.454	258,6	2026-05-04 17:02:46.542
15	434	2026-05-04 17:01:43.966	273,4	2026-05-04 17:02:47.038
16	442,7	2026-05-04 17:01:44.463	273,4	2026-05-04 17:02:47.529
17	442,7	2026-05-04 17:01:44.957	263,8	2026-05-04 17:02:48.043
18	459,5	2026-05-04 17:01:45.468	263,8	2026-05-04 17:02:48.535
19	459,5	2026-05-04 17:01:45.961	236,1	2026-05-04 17:02:49.031
20	459,5	2026-05-04 17:01:46.457	236,1	2026-05-04 17:02:49.558
21	459,5	2026-05-04 17:01:46.967	214,9	2026-05-04 17:02:50.038
22	459,5	2026-05-04 17:01:47.460	214,9	2026-05-04 17:02:50.530
23	459,5	2026-05-04 17:01:47.972	214,9	2026-05-04 17:02:51.042
24	468,4	2026-05-04 17:01:48.467	219,2	2026-05-04 17:02:51.538
25	468,4	2026-05-04 17:01:48.961	219,2	2026-05-04 17:02:52.031
26	489,9	2026-05-04 17:01:49.452	230,6	2026-05-04 17:02:52.541
27	489,9	2026-05-04 17:01:49.962	230,6	2026-05-04 17:02:53.037
28	489,9	2026-05-04 17:01:50.461	232,6	2026-05-04 17:02:53.533
29	495,7	2026-05-04 17:01:50.958	232,6	2026-05-04 17:02:54.042
30	495,7	2026-05-04 17:01:51.463	244,9	2026-05-04 17:02:54.536
31	468		231	



Gambar L. 1 Proses Pengambilan Data Kecepatan Angin



Gambar L. 2 Tempat Neraca Digital



Gambar L. 3 Proses Pengambilan Data



Gambar L. 4 Cylindrical Guide Vane Diameter 250 mm, 300 mm, 350 mm, 400 mm, 450 mm dan 500 mm.



Gambar L. 5 Rotor Tipe Twist Dua Sudu



Gambar L. 6 Blower Tampak Belakang



Gambar L. 7 Blower Tampak Samping