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LAMPIRAN

Lampiran A

A1. Tabel Hasil Pengamatan Sudu Mangkuk Material Plastik (Daya dan Efisiensi Turbin)

Bukaan katup	m	n	A	t	h_s	h_{tho}	Q_1	Q_{tho}
	(kg)	(rpm)	(m^2)	(s)	(m)	(m)	(m^3/s)	(m^3/s)
25%	0.1	21	0,0217	0,7880	0,0836	0,1294	0,0114	0,0112
	0.2	18						
	0.3	16						
	0.4	14						
	0.5	12						
	0.6	10						
	0.7	8						
	0.8	6						
	0.9	4						
	1	1						
50%	0.1	25	0,0266	0,6880	0,1022	0,1376	0,0135	0,0131
	0.2	23						
	0.3	21						
	0.4	18						
	0.5	15						
	0.6	13						
	0.7	11						
	0.8	8						
	0.9	6						
	1	4						
75%	0.1	30	0,0291	0,6020	0,112	0,1440	0,0149	0,0146
	0.2	27						
	0.3	25						
	0.4	23						
	0.5	20						
	0.6	17						
	0.7	13						
	0.8	11						
	0.9	9						
	1	7						
100%	0.1	35	0,0310	0,5460	0,1194	0,1504	0,0164	0,0163
	0.2	32						
	0.3	29						
	0.4	27						
	0.5	25						
	0.6	22						
	0.7	19						
	0.8	16						
	0.9	13						
	1	11						

A2. Tabel Hasil Pengamatan Sudu Mangkuk Material Plastik (Daya Listrik Turbin)

Bukaan katup	(n) Lampu	n	V	I	h_s	h_{tho}	Q_1	Q_{tho}
		(rpm)	(volt)	(A)	(m)	(m)	(m ³ /s)	(m ³ /s)
25%	1	9	1,97	0,0305	0,0436	0,1380	0,0144	$4,6546 \times 10^{-7}$
	2	8	1,83	0,0241				
	3	8	1,81	0,0233				
	4	8	1,52	0,0224				
	5	8	1,23	0,0221				
50%	1	11	2,14	0,0368	0,0470	0,1410	0,0124	$5,1830 \times 10^{-7}$
	2	10	1,89	0,0293				
	3	10	1,88	0,0268				
	4	10	1,84	0,0248				
	5	10	1,83	0,0228				
75%	1	12	2,28	0,0380	0,0480	0,1440	0,0112	$5,7583 \times 10^{-7}$
	2	12	2,14	0,0317				
	3	11	2,03	0,0313				
	4	11	1,97	0,0285				
	5	11	1,93	0,0273				
100%	1	13	2,41	0,0425	0,0510	0,1460	0,0099	$6,1695 \times 10^{-7}$
	2	13	2,28	0,0339				
	3	12	2,17	0,0322				
	4	12	2,16	0,0302				
	5	12	2,08	0,0285				

A3. Tabel Hasil Pengamatan Sudu Mangkuk Material Melamin (Daya dan Efisiensi Turbin)

Bukaan katup	m (kg)	n (rpm)	A (m ²)	t (s)	h _s (m)	h _{tho} (m)	Q ₁ (m ³ /s)	Q _{tho} (m ³ /s)
25%	0.1	21	0,0217	0,7880	0,0836	0,1294	0,0114	0,0112
	0.2	19						
	0.3	17						
	0.4	15						
	0.5	13						
	0.6	11						
	0.7	8						
	0.8	5						
	0.9	3						
	1	1						
50%	0.1	25	0,0266	0,6880	0,1022	0,1376	0,0135	0,0131
	0.2	23						
	0.3	21						
	0.4	18						
	0.5	15						
	0.6	12						
	0.7	9						
	0.8	7						
	0.9	4						
	1	2						
75%	0.1	29	0,0291	0,6020	0,112	0,1440	0,0149	0,0146
	0.2	27						
	0.3	24						
	0.4	22						
	0.5	19						
	0.6	16						
	0.7	13						
	0.8	10						
	0.9	8						
	1	5						
100%	0.1	34	0,0310	0,5460	0,1194	0,1504	0,0164	0,0163
	0.2	31						
	0.3	28						
	0.4	26						
	0.5	23						
	0.6	20						
	0.7	17						
	0.8	14						
	0.9	12						
	1	9						

A4. Tabel Hasil Pengamatan Sudu Mangkuk Material Melamin (Daya Listrik Turbin)

Bukaan katup	(n)	n	V	I	h_s	h_{tho}	Q_1	Q_{tho}
	Lampu	(rpm)	(volt)	(A)	(m)	(m)	(m ³ /s)	(m ³ /s)
25%	1	9	1,70	0,0269	0,0790	0,1470	0,0144	$6,3837 \times 10^{-7}$
	2	8	1,62	0,0208				
	3	8	1,51	0,0190				
	4	8	1,50	0,0183				
	5	8	1,41	0,0163				
50%	1	10	1,76	0,0301	0,0880	0,1530	0,0124	$7,7972 \times 10^{-7}$
	2	10	1,73	0,0232				
	3	10	1,67	0,0209				
	4	9	1,65	0,0198				
	5	9	1,57	0,0188				
75%	1	11	2,14	0,0342	0,0900	0,1580	0,0112	$9,1573 \times 10^{-7}$
	2	11	1,98	0,0263				
	3	11	1,90	0,0236				
	4	10	1,86	0,0231				
	5	10	1,83	0,0204				
100%	1	12	2,34	0,0386	0,0950	0,1620	0,0099	$1,0377 \times 10^{-6}$
	2	12	2,03	0,0302				
	3	12	2,00	0,0278				
	4	11	1,92	0,0270				
	5	11	1,88	0,0247				

A5. Tabel Hasil Pengamatan Sudu Mangkuk Material *Stainless Steel* (Daya dan Efisiensi Turbin)

Bukaan katup	m (kg)	n (rpm)	A (m ²)	t (s)	h _s (m)	h _{tho} (m)	Q ₁ (m ³ /s)	Q _{tho} (m ³ /s)
25%	0.1	24	0,0217	0,7880	0,0836	0,1294	0,0114	0,0112
	0.2	22						
	0.3	20						
	0.4	17						
	0.5	15						
	0.6	13						
	0.7	11						
	0.8	9						
	0.9	7						
	1	5						
50%	0.1	28	0,0266	0,6880	0,1022	0,1376	0,0135	0,0131
	0.2	26						
	0.3	24						
	0.4	22						
	0.5	19						
	0.6	16						
	0.7	13						
	0.8	11						
	0.9	8						
	1	6						
75%	0.1	32	0,0291	0,6020	0,112	0,1440	0,0149	0,0146
	0.2	30						
	0.3	28						
	0.4	25						
	0.5	22						
	0.6	19						
	0.7	16						
	0.8	14						
	0.9	11						
	1	9						
100%	0.1	37	0,0310	0,5460	0,1194	0,1504	0,0164	0,0163
	0.2	34						
	0.3	32						
	0.4	29						
	0.5	27						
	0.6	24						
	0.7	21						
	0.8	18						
	0.9	15						
	1	13						

A6. Tabel Hasil Pengamatan Sudu Mangkuk Material *Stainless Steel* (Daya Listrik Turbin)

Bukaan katup	(n)	n	V	I	h_s	h_{tho}	Q_1	Q_{tho}
	Lampu	(rpm)	(volt)	(A)	(m)	(m)	(m ³ /s)	(m ³ /s)
25%	1	9	2,19	0,0321	0,0750	0,1450	0,0144	$5,9611 \times 10^{-7}$
	2	9	2,17	0,0268				
	3	8	2,09	0,0258				
	4	8	1,75	0,0245				
	5	8	1,58	0,0229				
50%	1	11	2,32	0,0388	0,0790	0,1490	0,0124	$6,8299 \times 10^{-7}$
	2	11	2,18	0,0318				
	3	10	2,17	0,0285				
	4	10	2,16	0,0264				
	5	10	2,11	0,0238				
75%	1	13	2,47	0,0409	0,0900	0,1520	0,0117	$7,5457 \times 10^{-7}$
	2	12	2,34	0,0347				
	3	12	2,22	0,0334				
	4	11	2,21	0,0300				
	5	11	2,14	0,0288				
100%	1	13	2,51	0,0448	0,0940	0,1550	0,0099	$8,3204 \times 10^{-7}$
	2	13	2,38	0,0372				
	3	13	2,32	0,0342				
	4	12	2,30	0,0316				
	5	12	2,27	0,0302				

Lampiran B

B1. Tabel Hasil Perhitungan Sudu Mangkuk Material Plastik (Secara Teori)

Bukaan katup	m (kg)	n (rpm)	v (m/s)	P _{air} (watt)	τ (N.m)	ω (rad/s)	P _{turbin} (watt)	η _{turbin} (%)
25%	0.1	21	0,5154	1,4828	0,0834	2,1980	0,1833	12,3602
	0.2	18			0,1668	1,8840	0,3142	21,1889
	0.3	16			0,2502	1,6747	0,4189	28,2519
	0.4	14			0,3335	1,4653	0,4887	32,9605
	0.5	12			0,4170	1,2560	0,5237	35,3148
	0.6	10			0,5003	1,0467	0,5237	35,3148
	0.7	8			0,5837	0,8373	0,4887	32,9605
	0.8	6			0,6671	0,6280	0,4189	28,2519
	0.9	4			0,7505	0,4187	0,3142	21,1889
	1	1			0,8339	0,1047	0,0873	5,8858
50%	0.1	25	0,4916	1,5730	0,0834	2,6167	0,2182	13,8709
	0.2	23			0,1668	2,4073	0,4015	25,5224
	0.3	21			0,2502	2,1980	0,5498	34,9546
	0.4	18			0,3335	1,8840	0,6284	39,9481
	0.5	15			0,4169	1,5700	0,6546	41,6126
	0.6	13			0,5003	1,3607	0,6808	43,2771
	0.7	11			0,5837	1,1513	0,6720	42,7223
	0.8	8			0,6671	0,8373	0,5586	35,5095
	0.9	6			0,7505	0,6280	0,4713	29,9611
	1	4			0,8339	0,4187	0,3491	22,1934
75%	0.1	30	0,5026	1,8420	0,0834	3,1400	0,2618	14,2147
	0.2	27			0,1668	2,8260	0,4713	25,5865
	0.3	25			0,2502	2,6167	0,6546	35,5369
	0.4	23			0,3335	2,4073	0,8029	43,5919
	0.5	20			0,4170	2,0933	0,8728	47,3825
	0.6	17			0,5003	1,7793	0,8902	48,3301
	0.7	13			0,5837	1,3607	0,7942	43,1181
	0.8	11			0,6671	1,1513	0,7680	41,6966
	0.9	9			0,7505	0,9420	0,7069	38,3798
	1	7			0,8339	0,7327	0,6109	33,1677
100%	0.1	35	0,5256	2,2457	0,0834	3,6633	0,3055	13,6025
	0.2	32			0,1668	3,3493	0,5586	24,8731
	0.3	29			0,2502	3,0353	0,7593	33,8119
	0.4	27			0,3335	2,8260	0,9426	41,9734
	0.5	25			0,4170	2,6167	1,0910	48,5803
	0.6	22			0,5003	2,3027	1,1520	51,3008
	0.7	19			0,5837	1,9887	1,1608	51,6895
	0.8	16			0,6671	1,6747	1,1171	49,7462
	0.9	13			0,7505	1,3607	1,0211	45,4712
	1	11			0,8339	1,1513	0,9600	42,7507

B2. Tabel Hasil Perhitungan Sudu Mangkuk Material Plastik (Secara Eksperimen)

Bukaan katup	m (kg)	n (rpm)	v (m/s)	P _{air} (watt)	τ (N.m)	ω (rad/s)	P _{turbin} (watt)	η _{turbin} (%)
25%	0.1	22	0,5255	1,5711	0,0834	2,1980	0,1833	11,6660
	0.2	19			0,1668	1,8840	0,3142	19,9989
	0.3	17			0,2502	1,6747	0,4189	26,6652
	0.4	14			0,3335	1,4653	0,4887	31,1094
	0.5	11			0,4170	1,2560	0,5237	33,3315
	0.6	9			0,5003	1,0467	0,5237	33,3315
	0.7	6			0,5837	0,8373	0,4887	31,1094
	0.8	4			0,6671	0,6280	0,4189	26,6652
	0.9	1			0,7505	0,4187	0,3142	19,9989
	1	0			0,8339	0,1047	0,0873	5,5552
50%	0.1	26	0,5070	1,7257	0,0834	2,6167	0,2182	12,6440
	0.2	24			0,1668	2,4073	0,4015	23,2649
	0.3	21			0,2502	2,1980	0,5498	31,8628
	0.4	18			0,3335	1,8840	0,6284	36,4146
	0.5	15			0,4169	1,5700	0,6546	37,9319
	0.6	12			0,5003	1,3607	0,6808	39,4491
	0.7	10			0,5837	1,1513	0,6720	38,9434
	0.8	8			0,6671	0,8373	0,5586	32,3685
	0.9	6			0,7505	0,6280	0,4713	27,3109
	1	4			0,8339	0,4187	0,3491	20,2303
75%	0.1	31	0,5134	1,9632	0,0834	3,1400	0,2618	13,3370
	0.2	28			0,1668	2,8260	0,4713	24,0066
	0.3	25			0,2502	2,6167	0,6546	33,3425
	0.4	23			0,3335	2,4073	0,8029	40,9002
	0.5	20			0,4170	2,0933	0,8728	44,4567
	0.6	17			0,5003	1,7793	0,8902	45,3458
	0.7	14			0,5837	1,3607	0,7942	40,4556
	0.8	12			0,6671	1,1513	0,7680	39,1219
	0.9	9			0,7505	0,9420	0,7069	36,0099
	1	7			0,8339	0,7327	0,6109	31,1197
100%	0.1	36	0,5310	2,3152	0,0834	3,6633	0,3055	13,1937
	0.2	33			0,1668	3,3493	0,5586	24,1256
	0.3	30			0,2502	3,0353	0,7593	32,7958
	0.4	27			0,3335	2,8260	0,9426	40,7120
	0.5	25			0,4170	2,6167	1,0910	47,1203
	0.6	22			0,5003	2,3027	1,1520	49,7591
	0.7	19			0,5837	1,9887	1,1608	50,1360
	0.8	16			0,6671	1,6747	1,1171	48,2512
	0.9	13			0,7505	1,3607	1,0211	44,1046
	1	11			0,8339	1,1513	0,9600	41,4659

B3. Tabel Hasil Perhitungan Sudu Mangkuk Material Plastik (Daya Listrik)

Bukaan katup	(n) Lampu	n (rpm)	V (m/s)	P _{air} (watt)	V (volt)	I (A)	P _{listrik} (watt)
25%	1	9	1,2683	11,5210	1,97	0,0305	0,0601
	2	8			1,83	0,0241	0,0441
	3	8			1,81	0,0233	0,0422
	4	8			1,52	0,0224	0,0341
	5	8			1,23	0,0221	0,0272
50%	1	11	1,0145	6,3559	2,14	0,0368	0,0788
	2	10			1,89	0,0293	0,0554
	3	10			1,88	0,0268	0,0505
	4	10			1,84	0,0248	0,0456
	5	10			1,83	0,0228	0,0417
75%	1	12	0,8947	4,4535	2,28	0,0380	0,0867
	2	12			2,14	0,0317	0,0679
	3	11			2,03	0,0313	0,0636
	4	11			1,97	0,0285	0,0561
	5	11			1,93	0,0273	0,0526
100%	1	13	0,7426	2,7052	2,41	0,0425	0,1023
	2	13			2,28	0,0339	0,0773
	3	12			2,17	0,0322	0,0699
	4	12			2,16	0,0302	0,0652
	5	12			2,08	0,0285	0,0594

B4. Tabel Hasil Perhitungan Sudu Mangkuk Material Melamin (Secara Teori)

Bukaan katup	m (kg)	n (rpm)	v (m/s)	P _{air} (watt)	τ (N.m)	ω (rad/s)	P _{turbin} (watt)	η _{turbin} (%)
25%	0.1	21	0,5154	1,4828	0,0834	2,1980	0,1833	12,3602
	0.2	19			0,1668	1,9887	0,3316	22,3661
	0.3	17			0,2502	1,7793	0,4451	30,0176
	0.4	15			0,3335	1,5700	0,5237	35,3148
	0.5	13			0,4170	1,3607	0,5673	38,2577
	0.6	11			0,5003	1,1513	0,5760	38,8463
	0.7	8			0,5837	0,8373	0,4887	32,9605
	0.8	5			0,6671	0,5233	0,3491	23,5432
	0.9	3			0,7505	0,3140	0,2356	15,8917
	1	1			0,8339	0,1047	0,0873	5,8858
50%	0.1	25	0,4916	1,5730	0,0834	2,6167	0,2182	13,8709
	0.2	23			0,1668	2,4073	0,4015	25,5224
	0.3	21			0,2502	2,1980	0,5498	34,9546
	0.4	18			0,3335	1,8840	0,6284	39,9481
	0.5	15			0,4169	1,5700	0,6546	41,6126
	0.6	12			0,5003	1,2560	0,6284	39,9481
	0.7	9			0,5837	0,9420	0,5498	34,9546
	0.8	7			0,6671	0,7327	0,4887	31,0708
	0.9	4			0,7505	0,4187	0,3142	19,9741
	1	2			0,8339	0,2093	0,1746	11,0967
75%	0.1	29	0,5026	1,8419	0,0834	3,0353	0,2531	13,7409
	0.2	27			0,1668	2,8260	0,4713	25,5865
	0.3	24			0,2502	2,5120	0,6284	34,1154
	0.4	22			0,3335	2,3027	0,7680	41,6966
	0.5	19			0,4170	1,9887	0,8291	45,0134
	0.6	16			0,5003	1,6747	0,8379	45,4872
	0.7	13			0,5837	1,3607	0,7942	43,1181
	0.8	10			0,6671	1,0467	0,6982	37,9060
	0.9	8			0,7505	0,8373	0,6284	34,1154
	1	5			0,8339	0,5233	0,4364	23,6912
100%	0.1	34	0,5256	2,2457	0,0834	3,5587	0,2967	13,2138
	0.2	31			0,1668	3,2447	0,5411	24,0958
	0.3	28			0,2502	2,9307	0,7331	32,6460
	0.4	26			0,3335	2,7213	0,9077	40,4188
	0.5	23			0,4170	2,4073	1,0037	44,6939
	0.6	20			0,5003	2,0933	1,0473	46,6371
	0.7	17			0,5837	1,7793	1,0386	46,2485
	0.8	14			0,6671	1,4653	0,9775	43,5280
	0.9	12			0,7505	1,2560	0,9426	41,9734
	1	9			0,8339	0,9420	0,7855	34,9778

B5. Tabel Hasil Perhitungan Sudu Mangkuk Material Melamin (Secara Eksperimen)

Bukaan katup	m (kg)	n (rpm)	v (m/s)	P _{air} (watt)	τ (N.m)	ω (rad/s)	P _{turbin} (watt)	η _{turbin} (%)
25%	0.1	21	0.5255	1.5711	0,0834	2,1980	0,1833	11,6660
	0.2	19			0,1668	1,9887	0,3316	21,1099
	0.3	17			0,2502	1,7793	0,4451	28,3317
	0.4	15			0,3335	1,5700	0,5237	33,3315
	0.5	13			0,4170	1,3607	0,5673	36,1091
	0.6	11			0,5003	1,1513	0,5760	36,6646
	0.7	8			0,5837	0,8373	0,4887	31,1094
	0.8	5			0,6671	0,5233	0,3491	22,2210
	0.9	3			0,7505	0,3140	0,2356	14,9992
	1	1			0,8339	0,1047	0,0873	5,5552
50%	0.1	25	0.5070	1.7257	0,0834	2,6167	0,2182	12,6440
	0.2	23			0,1668	2,4073	0,4015	23,2649
	0.3	21			0,2502	2,1980	0,5498	31,8628
	0.4	18			0,3335	1,8840	0,6284	36,4146
	0.5	15			0,4169	1,5700	0,6546	37,9319
	0.6	12			0,5003	1,2560	0,6284	36,4146
	0.7	9			0,5837	0,9420	0,5498	31,8628
	0.8	7			0,6671	0,7327	0,4887	28,3225
	0.9	4			0,7505	0,4187	0,3142	18,2073
	1	2			0,8339	0,2093	0,1746	10,1152
75%	0.1	29	0.5134	1.9632	0,0834	3,0353	0,2531	12,8924
	0.2	27			0,1668	2,8260	0,4713	24,0066
	0.3	24			0,2502	2,5120	0,6284	32,0088
	0.4	22			0,3335	2,3027	0,7680	39,1219
	0.5	19			0,4170	1,9887	0,8291	42,2339
	0.6	16			0,5003	1,6747	0,8379	42,6784
	0.7	13			0,5837	1,3607	0,7942	40,4556
	0.8	10			0,6671	1,0467	0,6982	35,5654
	0.9	8			0,7505	0,8373	0,6284	32,0088
	1	5			0,8339	0,5233	0,4364	22,2284
100%	0.1	34	0.5310	2.3152	0,0834	3,5587	0,2967	12,8167
	0.2	31			0,1668	3,2447	0,5411	23,3717
	0.3	28			0,2502	2,9307	0,7331	31,6649
	0.4	26			0,3335	2,7213	0,9077	39,2041
	0.5	23			0,4170	2,4073	1,0037	43,3507
	0.6	20			0,5003	2,0933	1,0473	45,2355
	0.7	17			0,5837	1,7793	1,0386	44,8586
	0.8	14			0,6671	1,4653	0,9775	42,2198
	0.9	12			0,7505	1,2560	0,9426	40,7120
	1	9			0,8339	0,9420	0,7855	33,9266

B6. Tabel Hasil Perhitungan Sudu Mangkuk Material Melamin (Daya Listrik)

Bukaan katup	(n) Lampu	n (rpm)	V (m/s)	P _{air} (watt)	V (volt)	I (A)	P _{listrik} (watt)
25%	1	9	0,7000	3,5092	1,70	0,0269	0,0277
	2	8			1,62	0,0208	0,0220
	3	8			1,51	0,0190	0,0128
	4	8			1,50	0,0183	0,0074
	5	8			1,41	0,0163	0,0050
50%	1	10	0,5418	1,8131	1,76	0,0301	0,0396
	2	10			1,73	0,0232	0,0299
	3	10			1,67	0,0209	0,0197
	4	9			1,65	0,0198	0,0125
	5	9			1,57	0,0188	0,0088
75%	1	11	0,4772	1,2668	2,14	0,0342	0,0541
	2	11			1,98	0,0263	0,0426
	3	11			1,90	0,0236	0,0295
	4	10			1,86	0,0231	0,0220
	5	10			1,83	0,0204	0,0147
100%	1	12	0,3987	0,7797	2,34	0,0386	0,0696
	2	12			2,03	0,0302	0,0529
	3	12			2,00	0,0278	0,0422
	4	11			1,92	0,0270	0,0324
	5	11			1,88	0,0247	0,0205

B7. Tabel Hasil Perhitungan Sudu Mangkuk Material *Stainless Steel* (Secara Teori)

Bukaan katup	m (kg)	n (rpm)	v (m/s)	P _{air} (watt)	τ (N.m)	ω (rad/s)	P _{turbin} (watt)	η _{turbin} (%)
25%	0.1	24	0,5154	1,4828	0,0834	2,5120	0,2095	14,1259
	0.2	22			0,1668	2,3027	0,3840	25,8975
	0.3	20			0,2502	2,0933	0,5237	35,3148
	0.4	17			0,3335	1,7793	0,5935	40,0235
	0.5	15			0,4169	1,5700	0,6546	44,1435
	0.6	13			0,5003	1,3607	0,6808	45,9093
	0.7	11			0,5837	1,1513	0,6720	45,3207
	0.8	9			0,6671	0,9420	0,6284	42,3778
	0.9	7			0,7505	0,7327	0,5498	37,0806
	1	5			0,8339	0,5233	0,4364	29,4290
50%	0.1	28	0,4916	1,5730	0,0834	2,9307	0,2444	15,5354
	0.2	26			0,1668	2,7213	0,4538	28,8514
	0.3	24			0,2502	2,5120	0,6284	39,9481
	0.4	22			0,3335	2,3027	0,7680	48,8255
	0.5	19			0,4169	1,9887	0,8291	52,7093
	0.6	16			0,5003	1,6747	0,8379	53,2642
	0.7	13			0,5837	1,3607	0,7942	50,4900
	0.8	11			0,6671	1,1513	0,7680	48,8255
	0.9	8			0,7505	0,8373	0,6284	39,9481
	1	6			0,8339	0,6280	0,5237	33,2901
75%	0.1	32	0,5026	1,8419	0,0834	3,3493	0,2793	15,1624
	0.2	30			0,1668	3,1400	0,5237	28,4295
	0.3	28			0,2502	2,9307	0,7331	39,8013
	0.4	25			0,3335	2,6167	0,8728	47,3825
	0.5	22			0,4169	2,3027	0,9600	52,1207
	0.6	19			0,5003	1,9887	0,9949	54,0160
	0.7	16			0,5837	1,6747	0,9775	53,0684
	0.8	14			0,6671	1,4653	0,9775	53,0684
	0.9	11			0,7505	1,1513	0,8640	46,9087
	1	9			0,8339	0,9420	0,7855	42,6442
100%	0.1	37	0,5256	2,2457	0,0834	3,8727	0,3229	14,3798
	0.2	34			0,1668	3,5587	0,5935	26,4277
	0.3	32			0,2502	3,3493	0,8379	37,3097
	0.4	29			0,3335	3,0353	1,0124	45,0825
	0.5	27			0,4169	2,8260	1,1782	52,4667
	0.6	24			0,5003	2,5120	1,2568	55,9645
	0.7	21			0,5837	2,1980	1,2830	57,1305
	0.8	18			0,6671	1,8840	1,2568	55,9645
	0.9	15			0,7505	1,5700	1,1782	52,4667
	1	13			0,8339	1,3607	1,1346	50,5235

B8. Tabel Hasil Perhitungan Sudu Mangkuk Material *Stainless Steel* (Secara Eksperimen)

Bukaan katup	m (kg)	n (rpm)	v (m/s)	P _{air} (watt)	τ (N.m)	ω (rad/s)	P _{turbin} (watt)	η _{turbin} (%)
25%	0.1	24	0,5255	1,5711	0,0834	2,5120	0,2095	13,3326
	0.2	22			0,1668	2,3027	0,3840	24,4431
	0.3	20			0,2502	2,0933	0,5237	33,3315
	0.4	17			0,3335	1,7793	0,5935	37,7756
	0.5	15			0,4169	1,5700	0,6546	41,6643
	0.6	13			0,5003	1,3607	0,6808	43,3309
	0.7	11			0,5837	1,1513	0,6720	42,7754
	0.8	9			0,6671	0,9420	0,6284	39,9977
	0.9	7			0,7505	0,7327	0,5498	34,9980
	1	5			0,8339	0,5233	0,4364	27,7762
50%	0.1	28	0,5070	1,7257	0,0834	2,9307	0,2444	14,1612
	0.2	26			0,1668	2,7213	0,4538	26,2994
	0.3	24			0,2502	2,5120	0,6284	36,4146
	0.4	22			0,3335	2,3027	0,7680	44,5067
	0.5	19			0,4169	1,9887	0,8291	48,0470
	0.6	16			0,5003	1,6747	0,8379	48,5528
	0.7	13			0,5837	1,3607	0,7942	46,0240
	0.8	11			0,6671	1,1513	0,7680	44,5067
	0.9	8			0,7505	0,8373	0,6284	36,4146
	1	6			0,8339	0,6280	0,5237	30,3455
75%	0.1	32	0,5134	1,9632	0,0834	3,3493	0,2793	14,2261
	0.2	30			0,1668	3,1400	0,5237	26,6740
	0.3	28			0,2502	2,9307	0,7331	37,3436
	0.4	25			0,3335	2,6167	0,8728	44,4567
	0.5	22			0,4169	2,3027	0,9600	48,9024
	0.6	19			0,5003	1,9887	0,9949	50,6806
	0.7	16			0,5837	1,6747	0,9775	49,7915
	0.8	14			0,6671	1,4653	0,9775	49,7915
	0.9	11			0,7505	1,1513	0,8640	44,0121
	1	9			0,8339	0,9420	0,7855	40,0110
100%	0.1	37	0,5310	2,3152	0,0834	3,8727	0,3229	13,9476
	0.2	34			0,1668	3,5587	0,5935	25,6335
	0.3	32			0,2502	3,3493	0,8379	36,1884
	0.4	29			0,3335	3,0353	1,0124	43,7277
	0.5	27			0,4169	2,8260	1,1782	50,8900
	0.6	24			0,5003	2,5120	1,2568	54,2826
	0.7	21			0,5837	2,1980	1,2830	55,4135
	0.8	18			0,6671	1,8840	1,2568	54,2826
	0.9	15			0,7505	1,5700	1,1782	50,8900
	1	13			0,8339	1,3607	1,1346	49,0051

B9. Tabel Hasil Perhitungan Sudu Mangkuk Material *Stainless Steel* (Daya Listrik)

Bukaan katup	(n) Lampu	n (rpm)	V (m/s)	P _{air} (watt)	V (volt)	I (A)	P _{listrik} (watt)
25%	1	9	0,7373	3,8935	2,19	0,0321	0,0703
	2	9			2,17	0,0268	0,0582
	3	8			2,09	0,0258	0,0540
	4	8			1,75	0,0245	0,0430
	5	8			1,58	0,0229	0,0362
50%	1	11	0,6035	2,2497	2,32	0,0388	0,0890
	2	11			2,18	0,0318	0,0692
	3	10			2,17	0,0285	0,0618
	4	10			2,16	0,0264	0,0570
	5	10			2,11	0,0238	0,0503
75%	1	13	0,4772	1,2668	2,47	0,0409	0,1010
	2	12			2,34	0,0347	0,0813
	3	12			2,22	0,0334	0,0742
	4	11			2,21	0,0300	0,0664
	5	11			2,14	0,0288	0,0616
100%	1	13	0,4029	0,7963	2,51	0,0448	0,1125
	2	13			2,38	0,0372	0,0885
	3	13			2,32	0,0342	0,0794
	4	12			2,30	0,0316	0,0727
	5	12			2,27	0,0302	0,0686

B10. Tabel Sifat fisik air pada 1 atm (Frank M.Wahite, 1986)

KERAPATAN DAN KEKENTALAN AIR PADA 1 atm							
$T, ^\circ\text{C}$	$\rho, \text{kg/m}^3$	$\mu, (\text{N}\cdot\text{s})/\text{m}^2$	$\nu, \text{m}^2/\text{s}$	$T, ^\circ\text{F}$	$\rho, \text{slug/ft}^3$	$\mu, (\text{lb}\cdot\text{s})/\text{ft}^2$	$\nu, \text{ft}^2/\text{s}$
0	1000	1.788 E-3	1.788 E-6	32	1.940	3.73 E-5	1.925 E-5
10	1000	1.307 E-3	1.307 E-6	50	1.940	2.73 E-5	1.407 E-5
20	998	1.003 E-3	1.005 E-6	68	1.937	2.09 E-5	1.082 E-5
30	996	0.799 E-3	0.802 E-6	86	1.932	1.67 E-5	0.864 E-5
40	992	0.657 E-3	0.662 E-6	104	1.925	1.37 E-5	0.713 E-5
50	988	0.548 E-3	0.555 E-6	122	1.917	1.14 E-5	0.597 E-5
60	983	0.467 E-3	0.475 E-6	140	1.908	0.975 E-5	0.511 E-5
70	978	0.405 E-3	0.414 E-6	158	1.897	0.846 E-5	0.446 E-5
80	972	0.355 E-3	0.365 E-6	176	1.886	0.741 E-5	0.393 E-5
90	965	0.316 E-3	0.327 E-6	194	1.873	0.660 E-5	0.352 E-5
100	958	0.283 E-3	0.295 E-6	212	1.859	0.591 E-5	0.318 E-5



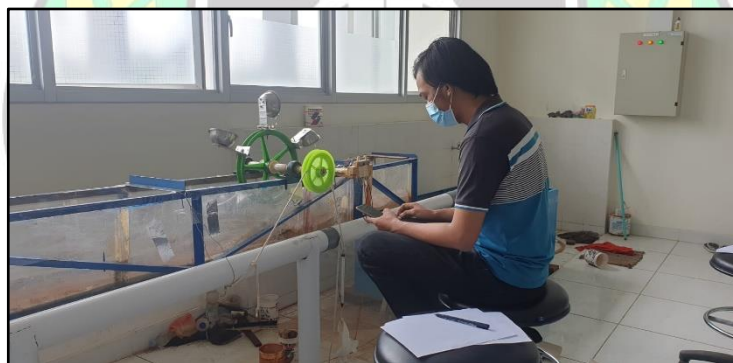
Lampiran C



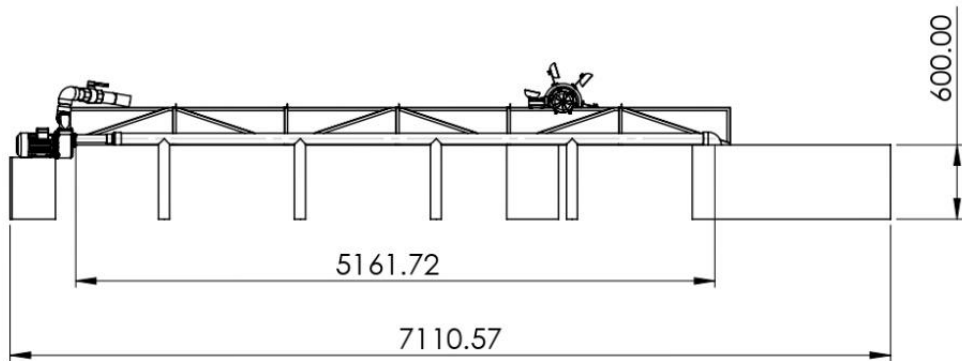
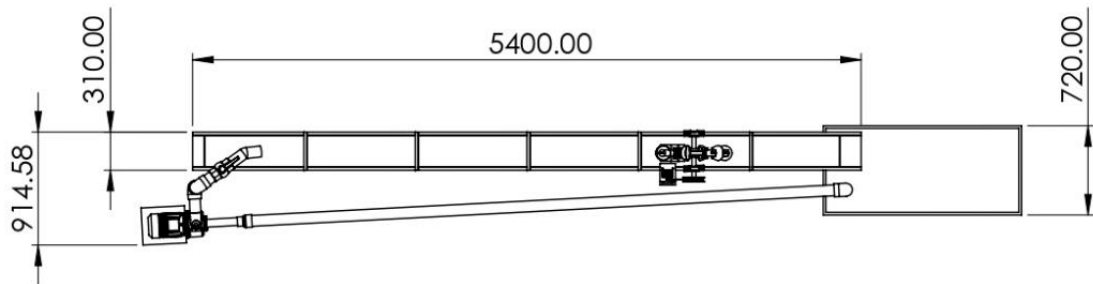
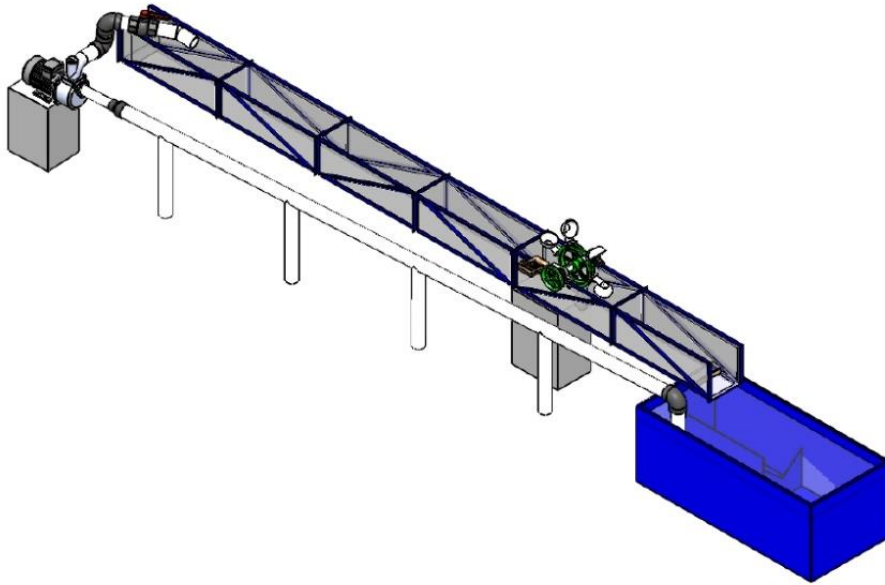
Gambar C1. Dokumentasi Pengambilan Data Turbin Air Material Sudu Plastik

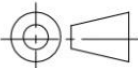


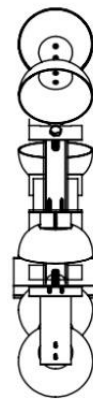
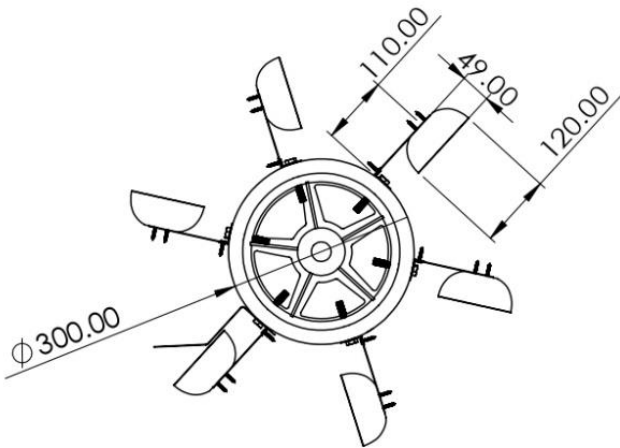
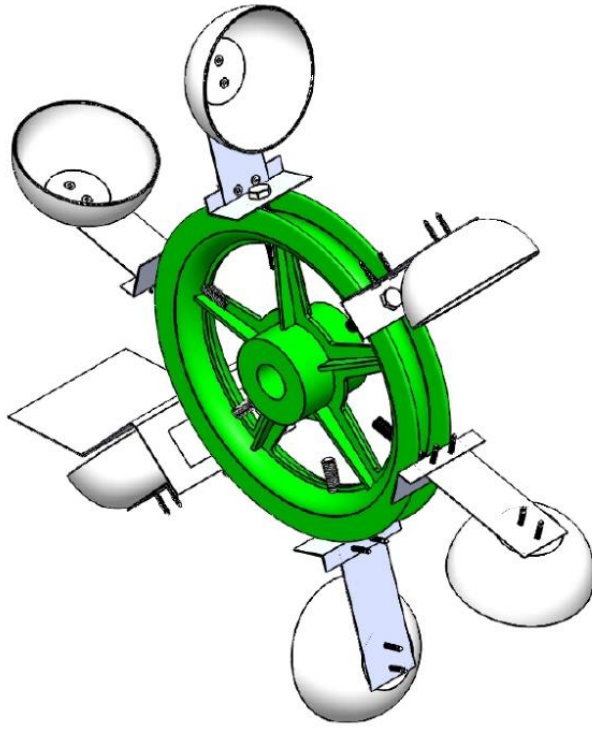
Gambar C2. Dokumentasi Pengambilan Data Turbin Air Material Sudu Melamin



Gambar C3. Dokumentasi Pengambilan Data Turbin Air Material Sudu *Stainless Steel*



	SKALA : 1 : 50	DIGAMBAR : RICHARD SEPTIANO H.	KETERANGAN :	
	SATUAN : mm	STAMBUK : D021171320		
	TGL : -	DIPERIKSA : PROF. DR. IR. LUTHER S., MT		
SISTEM KINCIR AIR			NO. 1	A4



	SKALA : 1 : 10	DIGAMBAR : RICHARD SEPTIANO H.	KETERANGAN :	
	SATUAN : mm	STAMBUK : D021171320		
	TGL : -	DIPERIKSA : PROF. DR. IR. LUTHER S., MT		
KINCIR AIR			NO. 2	A4