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LAMPIRAN A
SIFAT FISIKA AIR

SIFAT FISIKA AIR

TABEL A.1

Suhu °C	Berat Jenis, γ N/m ³	Densitas, ρ Kg/m ³	Viskositas, μ (10 ⁻³) Ns/m ²	Viskositas Kinematik, ν (10 ⁻⁶) m ² /s
0	9806	999.9	1.792	1.792
5	9807	1000.0	1.519	1.519
10	9804	999.7	1.308	1.308
15	9798	999.1	1.140	1.141
20	9789	998.2	1.005	1.007
25	9778	997.1	0.894	0.897
30	9764	995.7	0.801	0.804
35	9749	994.1	0.723	0.727
40	9730	992.2	0.656	0.661
45	9711	990.2	0.599	0.605
50	9690	988.1	0.549	0.556
55	9666	985.7	0.506	0.513
60	9642	983.2	0.469	0.477
65	9616	980.6	0.436	0.444
70	9589	977.8	0.406	0.415
75	9560	974.9	0.380	0.390
80	9530	971.8	0.357	0.367
85	9499	968.6	0.336	0.347
90	9466	965.3	0.317	0.328
95	9433	961.9	0.299	0.311
100	9399	958.4	0.284	0.296

(Sumber : streeter, V.L., 1996)

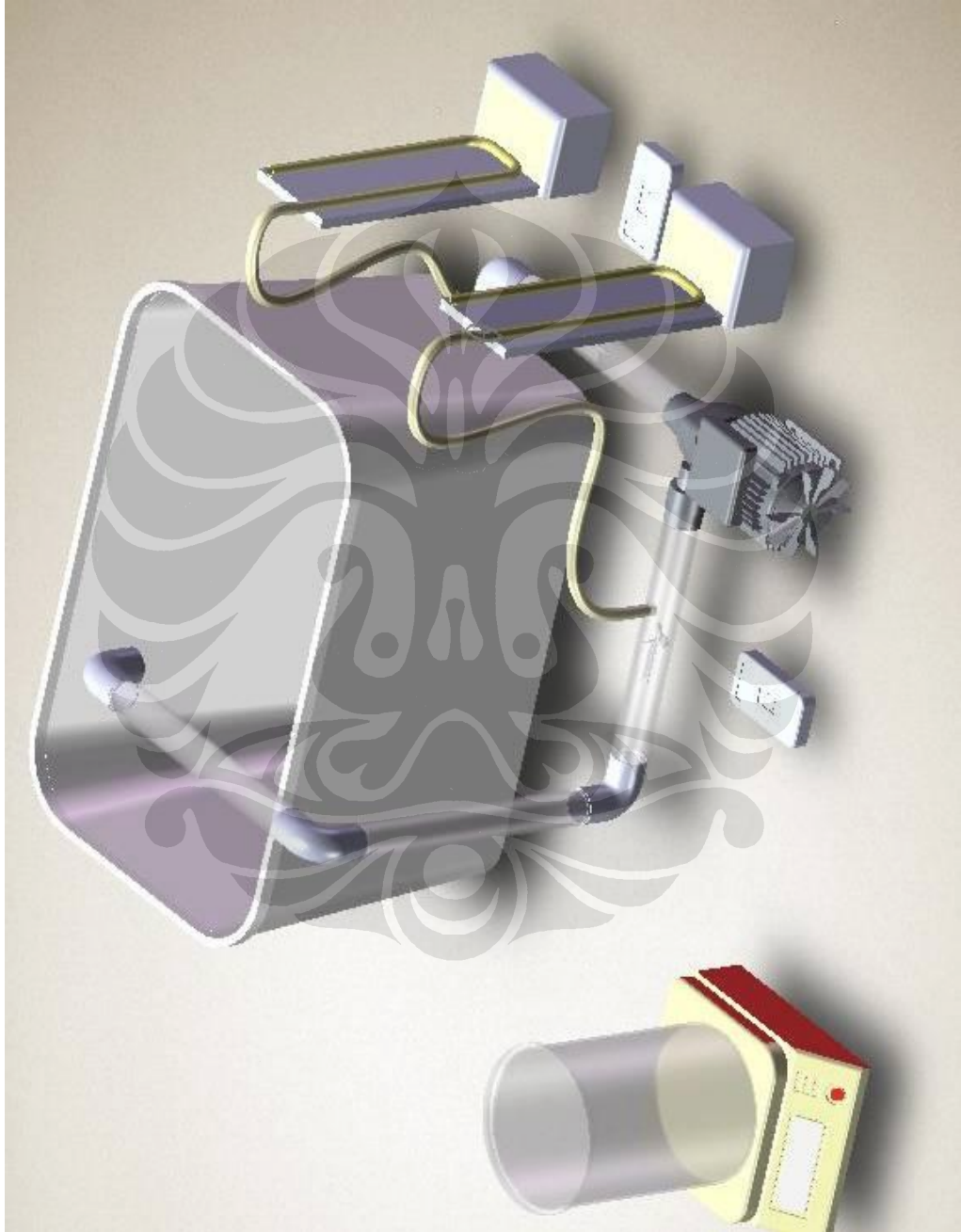
KERAPATAN BEBERAPA ZAT CAIR

TABEL A.2

Temperatur (celcius)	Kerapatan (kg/m ³)			
	Air	Hg	Benzena	Gliserin
0	999.8	13595		1275
5	999.9	13583		
10	999.7	13571		
15	999.1	13558	880	1270
20	998.2	13546		
25	997.0	13534		
30	995.6	13521		
35	994.0	13509		
40	992.2	13497	866	1250



LAMPIRAN B
GAMBAR 3-D DAN FOTO ALAT PERCOBAAN



Gambar B-1 Gambar animasi 3-D alat uji



Gambar B-2 alat uji tampak samping



Gambar B-3 alat uji tampak atas



DATA PENGUKURAN PIPA BULAT

TABEL C.1

Pengambilan data pipa bulat pada kecepatan pompa sentrifugal 1000 Rpm

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	202	212	-1.75	18.25	4.95	794
2	203	214	-1.75	18.25	6.31	1026
3	204	208	-1.75	18.25	7.23	1165
4	203	213	-1.75	18.25	5.72	926
5	203	210	-1.75	18.25	6.73	1081
6	204	210	-1.75	18.25	5.83	926
7	200	213	-1.75	18.25	6.55	1051
8	202	211	-1.75	18.25	6.79	1091
9	200	217	-1.75	18.25	6.26	1012
10	205	210	-1.75	18.25	5.7	924
11	204	209	-1.75	18.25	6.53	1043
12	202	218	-1.75	18.25	6.34	1019
13	204	210	-1.75	18.25	6.45	1029
14	205	206	-1.75	18.25	6.16	979
15	200	211	-1.75	18.25	5.33	824
16	204	209	-1.75	18.25	5.49	867
17	202	204	-1.75	18.25	5.31	840
18	201	210	-1.75	18.25	5.86	920
19	203	210	-1.75	18.25	5.73	918
20	205	206	-1.75	18.25	5.28	854
rata-rata	202.8	210.55	-1.75	18.25	6.0275	964.45

TABEL C.2**Pengambilan data pipa bulat pada kecepatan pompa sentrifugal 1200 Rpm**

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	248	270	-2.25	18.75	4.42	881
2	249	273	-2.25	18.75	4.08	787
3	252	270	-2.25	18.75	4.03	818
4	250	267	-2.25	18.75	3.74	763
5	246	268	-2.25	18.75	4.85	951
6	250	267	-2.25	18.75	4.81	950
7	251	266	-2.25	18.75	3.78	780
8	249	264	-2.25	18.75	4.42	872
9	247	269	-2.25	18.75	4.39	896
10	252	264	-2.25	18.75	4.52	891
11	252	264	-2.25	18.75	4.11	820
12	247	267	-2.25	18.75	5.11	1015
13	251	267	-2.25	18.75	4.81	970
14	248	262	-2.25	18.75	3.96	789
15	247	264	-2.25	18.75	4.84	943
16	245	262	-2.25	18.75	4.71	934
17	250	261	-2.25	18.75	4.63	896
18	252	264	-2.25	18.75	5.1	983
19	253	263	-2.25	18.75	4.57	899
20	250	265	-2.25	18.75	5.02	989
rata-rata	249.45	265.85	-2.25	18.75	4.495	891.35

TABEL C.3**Pengambilan data pipa bulat pada kecepatan pompa sentrifugal 1400 Rpm**

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	295	323	-2.75	21	3.94	925
2	293	320	-2.75	21	3.94	1003
3	292	321	-2.75	21	4.26	1010
4	298	317	-2.75	21	3.67	850
5	297	320	-2.75	21	3.74	880
6	299	323	-2.75	21	3.75	882
7	301	322	-2.75	21	3.61	839
8	298	317	-2.75	21	4.04	950
9	299	322	-2.75	21	3.29	760
10	302	314	-2.75	21	2.76	640
11	301	313	-2.75	21	3.53	801
12	296	315	-2.75	21	3.93	930
13	297	314	-2.75	21	3.85	905
14	297	322	-2.75	21	4.25	1011
15	299	316	-2.75	21	3.66	858
16	298	312	-2.75	21	3.77	889
17	299	317	-2.75	21	3.59	832
18	297	312	-2.75	21	3.88	896
19	299	320	-2.75	21	4.22	992
20	298	318	-2.75	21	3.78	887
rata-rata	297.75	317.9	-2.75	21	3.773	887

TABEL C.4**Pengambilan data pipa bulat pada kecepatan pompa sentrifugal 1600 Rpm**

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	343	371	-3.25	22.5	3.94	984
2	342	374	-3.25	22.5	3.2	859
3	343	363	-3.25	22.5	3.55	933
4	340	366	-3.25	22.5	3.59	953
5	341	367	-3.25	22.5	3.1	848
6	346	370	-3.25	22.5	3.6	961
7	340	365	-3.25	22.5	3.44	910
8	343	364	-3.25	22.5	3.47	929
9	342	362	-3.25	22.5	3.69	997
10	346	360	-3.25	22.5	3.5	934
11	345	368	-3.25	22.5	3.95	1030
12	344	373	-3.25	22.5	3.22	862
13	346	369	-3.25	22.5	3.56	936
14	344	361	-3.25	22.5	3.61	952
15	349	371	-3.25	22.5	3.11	845
16	341	362	-3.25	22.5	3.63	966
17	345	366	-3.25	22.5	3.46	914
18	346	370	-3.25	22.5	3.42	922
19	342	368	-3.25	22.5	3.7	996
20	341	369	-3.25	22.5	3.54	940
rata-rata	343.45	366.95	-3.25	22.5	3.514	933.55

TABEL C.5**Pengambilan data pipa bulat pada kecepatan pompa sentrifugal 1800 Rpm**

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	383	417	-4	24	3.14	989
2	386	418	-4	24	2.91	892
3	386	414	-4	24	3.54	1065
4	389	408	-4	24	3.22	986
5	387	412	-4	24	3.17	948
6	383	409	-4	24	2.87	856
7	382	414	-4	24	3.18	1001
8	384	411	-4	24	2.96	902
9	381	410	-4	24	3.14	955
10	386	413	-4	24	3.37	1003
11	384	416	-4	24	3.16	981
12	388	413	-4	24	2.93	903
13	384	412	-4	24	3.56	1077
14	387	415	-4	24	3.21	989
15	385	416	-4	24	3.18	956
16	388	413	-4	24	2.9	876
17	389	414	-4	24	3.19	1008
18	386	415	-4	24	2.99	905
19	388	416	-4	24	3.15	965
20	386	410	-4	24	3.33	1011
rata-rata	385.6	413.3	-4	24	3.155	963.4

TABEL C.6**Pengambilan data pipa bulat pada kecepatan pompa sentrifugal 2000 Rpm**

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	431	461	-5.25	25.75	4.73	1568
2	432	465	-5.25	25.75	4.8	1584
3	435	464	-5.25	25.75	4.44	1528
4	434	465	-5.25	25.75	4.63	1564
5	436	457	-5.25	25.75	4.86	1677
6	433	467	-5.25	25.75	4.94	1656
7	432	470	-5.25	25.75	4.17	1521
8	431	470	-5.25	25.75	4.3	1438
9	431	464	-5.25	25.75	4.69	1610
10	432	461	-5.25	25.75	4.87	1668
11	431	463	-5.25	25.75	4.07	1408
12	433	457	-5.25	25.75	4.23	1422
13	432	470	-5.25	25.75	4.41	1477
14	434	467	-5.25	25.75	4.62	1538
15	433	467	-5.25	25.75	4.32	1435
16	431	460	-5.25	25.75	4.86	1329
17	434	465	-5.25	25.75	4.32	1360
18	431	460	-5.25	25.75	4.11	1375
19	436	460	-5.25	25.75	4.52	1486
20	432	463	-5.25	25.75	4.95	1545
rata-rata	432.7	463.8	-5.25	25.75	4.542	1509.45

TABEL C.7**Pengambilan data pipa bulat pada kecepatan pompa sentrifugal 2200 Rpm**

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	478	511	-6.75	30.75	2.54	958
2	474	512	-6.75	30.75	3.42	1257
3	477	508	-6.75	30.75	3.17	1130
4	475	515	-6.75	30.75	3.34	1210
5	477	507	-6.75	30.75	3.43	1280
6	475	519	-6.75	30.75	3.05	1110
7	476	514	-6.75	30.75	3.17	1182
8	478	510	-6.75	30.75	3.35	1209
9	477	513	-6.75	30.75	2.67	1034
10	474	517	-6.75	30.75	3.08	1144
11	476	516	-6.75	30.75	3.04	1133
12	478	515	-6.75	30.75	2.66	1002
13	479	511	-6.75	30.75	3.34	1212
14	474	514	-6.75	30.75	3.14	1185
15	476	510	-6.75	30.75	3.05	1116
16	479	516	-6.75	30.75	3.42	1277
17	476	511	-6.75	30.75	3.36	1219
18	477	513	-6.75	30.75	3.19	1142
19	477	514	-6.75	30.75	3.43	1256
20	475	512	-6.75	30.75	2.56	960
rata-rata	476.4	512.9	-6.75	30.75	3.1205	1150.8

TABEL C.8**Pengambilan data pipa bulat pada kecepatan pompa sentrifugal 2400 Rpm**

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	522	562	-8.25	36.75	2.64	1075
2	527	561	-8.25	36.75	2.75	1120
3	528	563	-8.25	36.75	2.76	1098
4	526	556	-8.25	36.75	2.55	1052
5	527	570	-8.25	36.75	2.39	978
6	532	555	-8.25	36.75	2.89	1180
7	524	565	-8.25	36.75	2.64	1067
8	528	562	-8.25	36.75	2.83	1153
9	530	570	-8.25	36.75	2.96	1202
10	525	571	-8.25	36.75	3.14	1285
11	530	564	-8.25	36.75	2.65	1077
12	529	564	-8.25	36.75	2.73	1123
13	531	562	-8.25	36.75	2.74	1101
14	527	559	-8.25	36.75	2.51	1055
15	525	566	-8.25	36.75	2.4	981
16	524	564	-8.25	36.75	2.83	1191
17	525	565	-8.25	36.75	2.66	1066
18	524	566	-8.25	36.75	2.81	1152
19	525	559	-8.25	36.75	2.93	1209
20	530	561	-8.25	36.75	3.15	1288
rata-rata	526.95	563.25	-8.25	36.75	2.748	1122.65

TABEL C.9**Pengambilan data pipa bulat pada kecepatan pompa sentrifugal 2600 Rpm**

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	566	614	-9.75	40	2.89	1296
2	567	609	-9.75	40	3.06	1326
3	565	615	-9.75	40	2.73	1234
4	565	607	-9.75	40	2.82	1271
5	567	611	-9.75	40	3	1312
6	568	618	-9.75	40	2.85	1243
7	565	613	-9.75	40	2.83	1270
8	566	612	-9.75	40	2.91	1283
9	565	610	-9.75	40	3.09	1328
10	569	618	-9.75	40	2.85	1259
11	563	613	-9.75	40	2.83	1299
12	567	614	-9.75	40	3.04	1356
13	565	610	-9.75	40	2.77	1255
14	566	616	-9.75	40	2.85	1267
15	561	614	-9.75	40	3.09	1356
16	566	608	-9.75	40	2.65	1188
17	562	611	-9.75	40	2.82	1268
18	564	615	-9.75	40	2.96	1299
19	566	613	-9.75	40	2.91	1286
20	567	604	-9.75	40	3.11	1388
rata-rata	565.5	612.25	-9.75	40	2.903	1289.2

TABEL C.10**Pengambilan data pipa bulat pada kecepatan pompa sentrifugal 2800 Rpm**

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	613	656	-11.25	43.25	2.89	1310
2	611	663	-11.25	43.25	2.56	1267
3	611	662	-11.25	43.25	2.82	1397
4	606	663	-11.25	43.25	2.89	1423
5	608	661	-11.25	43.25	2.65	1245
6	605	664	-11.25	43.25	2.98	1429
7	606	663	-11.25	43.25	2.53	1190
8	609	659	-11.25	43.25	2.7	1283
9	610	664	-11.25	43.25	2.56	1231
10	612	662	-11.25	43.25	2.43	1196
11	610	657	-11.25	43.25	2.94	1391
12	605	668	-11.25	43.25	2.69	1271
13	608	656	-11.25	43.25	3.26	1548
14	611	663	-11.25	43.25	2.85	1312
15	612	661	-11.25	43.25	2.68	1246
16	609	666	-11.25	43.25	2.75	1301
17	612	666	-11.25	43.25	2.59	1241
18	611	661	-11.25	43.25	2.48	1186
19	613	661	-11.25	43.25	2.97	1405
20	608	667	-11.25	43.25	2.61	1263
rata-rata	609.5	662.15	-11.25	43.25	2.7415	1306.75

TABEL C.11**Pengambilan data pipa bulat pada kecepatan pompa sentrifugal 2930 Rpm**

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	694	744	-13.25	45	2.48	1265
2	693	742	-13.25	45	2.41	1230
3	697	750	-13.25	45	3.28	1649
4	696	756	-13.25	45	3.11	1580
5	698	745	-13.25	45	3.23	1614
6	691	751	-13.25	45	3.03	1616
7	694	750	-13.25	45	2.93	1466
8	694	755	-13.25	45	3.31	1675
9	697	751	-13.25	45	2.92	1473
10	693	746	-13.25	45	3.26	1673
11	694	745	-13.25	45	2.92	1491
12	695	741	-13.25	45	2.79	1414
13	696	753	-13.25	45	2.83	1464
14	690	749	-13.25	45	2.98	1533
15	693	747	-13.25	45	2.78	1392
16	696	742	-13.25	45	3.01	1504
17	697	748	-13.25	45	3.03	1533
18	698	748	-13.25	45	3.06	1535
19	693	735	-13.25	45	3.24	1644
20	692	737	-13.25	45	3.08	1540
rata-rata	694.55	746.75	-13.25	45	2.984	1514.55

DATA PENGUKURAN PIPA KOTAK

TABEL C.12

Pengambilan data pipa kotak pada kecepatan pompa sentrifugal 1000 Rpm

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	140	133	-2	14.5	9.47	1487
2	141	131	-2	14.5	8.75	1457
3	148	125	-2	14.5	9.99	1536
4	145	129	-2	14.5	6.03	963
5	146	126	-2	14.5	7.41	1134
6	149	128	-2	14.5	9.49	1510
7	146	127	-2	14.5	7.15	1141
8	143	129	-2	14.5	5.43	889
9	141	130	-2	14.5	6.24	993
10	144	128	-2	14.5	7.07	1117
11	142	127	-2	14.5	9.44	1482
12	143	132	-2	14.5	8.71	1450
13	145	131	-2	14.5	9.95	1530
14	144	132	-2	14.5	5.4	888
15	146	138	-2	14.5	7.38	1130
16	144	136	-2	14.5	9.45	1505
17	143	129	-2	14.5	7.1	1106
18	143	124	-2	14.5	5.39	885
19	141	129	-2	14.5	6.21	989
20	140	132	-2	14.5	7.02	1117
rata-rata	143.7	129.8	-2	14.5	7.654	1215.45

TABEL C.13**Pengambilan data pipa kotak pada kecepatan pompa sentrifugal 1200 Rpm**

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	179	179	-2.75	16	6.29	1197
2	188	172	-2.75	16	6.64	1290
3	182	176	-2.75	16	6.45	1265
4	177	177	-2.75	16	8.37	1629
5	181	180	-2.75	16	7.69	1510
6	180	174	-2.75	16	7.44	1474
7	181	177	-2.75	16	6.67	1312
8	184	175	-2.75	16	6.14	1207
9	180	178	-2.75	16	5.39	1058
10	181	171	-2.75	16	7.5	1462
11	180	175	-2.75	16	6.25	1193
12	179	177	-2.75	16	6.6	1286
13	181	179	-2.75	16	6.41	1261
14	181	172	-2.75	16	8.33	1625
15	179	174	-2.75	16	7.65	1506
16	184	177	-2.75	16	7.4	1470
17	184	174	-2.75	16	6.63	1308
18	179	175	-2.75	16	6.1	1203
19	180	174	-2.75	16	5.53	1083
20	179	179	-2.75	16	7.46	1458
rata-rata	180.95	175.75	-2.75	16	6.847	1339.85

TABEL C.14**Pengambilan data pipa kotak pada kecepatan pompa sentrifugal 1400 Rpm**

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	232	212	-3.25	18	5.26	1202
2	223	215	-3.25	18	5.96	1340
3	221	212	-3.25	18	5.69	1336
4	223	217	-3.25	18	5.38	1230
5	222	212	-3.25	18	5.69	1311
6	217	218	-3.25	18	5.79	1343
7	218	219	-3.25	18	5.79	1358
8	219	217	-3.25	18	5.58	1309
9	223	220	-3.25	18	6.22	1451
10	219	214	-3.25	18	6.28	1430
11	221	218	-3.25	18	5.24	1201
12	216	213	-3.25	18	5.94	1338
13	222	211	-3.25	18	5.63	1334
14	219	219	-3.25	18	5.4	1238
15	222	221	-3.25	18	6.1	1448
16	218	218	-3.25	18	5.72	1340
17	216	214	-3.25	18	5.53	1307
18	217	222	-3.25	18	5.18	1250
19	219	216	-3.25	18	5.62	1305
20	219	221	-3.25	18	5.59	1250
rata-rata	220.3	216.45	-3.25	18	5.6795	1316.05

TABEL C.15**Pengambilan data pipa kotak pada kecepatan pompa sentrifugal 1600 Rpm**

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	261	253	-4	20.5	4.55	1225
2	263	252	-4	20.5	5.96	1577
3	261	256	-4	20.5	5.58	1473
4	260	258	-4	20.5	5.21	1431
5	257	255	-4	20.5	6.28	1686
6	259	257	-4	20.5	5.45	1453
7	258	257	-4	20.5	4.75	1257
8	260	258	-4	20.5	5.43	1438
9	262	257	-4	20.5	5.93	1533
10	259	255	-4	20.5	5.49	1500
11	258	259	-4	20.5	5.38	1471
12	257	257	-4	20.5	5.35	1469
13	254	258	-4	20.5	4.96	1288
14	259	255	-4	20.5	5.9	1520
15	260	257	-4	20.5	6.21	1682
16	260	259	-4	20.5	5.89	1563
17	262	259	-4	20.5	5.73	1402
18	259	254	-4	20.5	6.33	1690
19	254	258	-4	20.5	5.81	1546
20	263	260	-4	20.5	5.04	1516
rata-rata	259.3	256.7	-4	20.5	5.5615	1486

TABEL C.16**Pengambilan data pipa kotak pada kecepatan pompa sentrifugal 1800 Rpm**

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	295	301	-4.75	23.5	5.38	1629
2	292	293	-4.75	23.5	4.98	1516
3	295	293	-4.75	23.5	5.11	1522
4	301	291	-4.75	23.5	5.04	1503
5	305	304	-4.75	23.5	5.43	1634
6	298	300	-4.75	23.5	5.17	1574
7	297	299	-4.75	23.5	4.77	1441
8	300	300	-4.75	23.5	5.78	1735
9	302	298	-4.75	23.5	5.4	1583
10	303	299	-4.75	23.5	5.68	1703
11	388	300	-4.75	23.5	5.31	1620
12	297	302	-4.75	23.5	4.88	1504
13	303	298	-4.75	23.5	5.21	1582
14	302	300	-4.75	23.5	5.32	1618
15	297	298	-4.75	23.5	4.99	1459
16	300	300	-4.75	23.5	5.02	1501
17	304	300	-4.75	23.5	5.67	1701
18	302	297	-4.75	23.5	4.83	1499
19	301	300	-4.75	23.5	5.73	1725
20	300	296	-4.75	23.5	5.36	1622
rata-rata	304.1	298.45	-4.75	23.5	5.253	1583.55

TABEL C.17

Pengambilan data pipa kotak pada kecepatan pompa sentrifugal 2000 Rpm

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	338	338	-5.75	26.5	4.1	1387
2	336	335	-5.75	26.5	4.52	1546
3	334	332	-5.75	26.5	4.54	1538
4	330	331	-5.75	26.5	4.49	1520
5	331	333	-5.75	26.5	4.71	1595
6	341	334	-5.75	26.5	4.69	1571
7	336	329	-5.75	26.5	4.84	1653
8	332	338	-5.75	26.5	4.05	1381
9	337	332	-5.75	26.5	4.36	1478
10	335	330	-5.75	26.5	4.29	1449
11	333	331	-5.75	26.5	4.62	1569
12	335	335	-5.75	26.5	4.38	1469
13	337	338	-5.75	26.5	4.41	1517
14	338	330	-5.75	26.5	4.78	1602
15	334	330	-5.75	26.5	4.56	1564
16	331	337	-5.75	26.5	4.44	1519
17	337	331	-5.75	26.5	4.36	1480
18	336	332	-5.75	26.5	4.53	1542
19	339	337	-5.75	26.5	4.61	1438
20	336	334	-5.75	26.5	4.82	1636
rata-rata	335.3	333.35	-5.75	26.5	4.505	1522.7

TABEL C.18**Pengambilan data pipa kotak pada kecepatan pompa sentrifugal 2200 Rpm**

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	373	374	-6.75	29.5	4.2	1547
2	374	368	-6.75	29.5	3.93	1518
3	377	375	-6.75	29.5	3.98	1480
4	377	370	-6.75	29.5	4.46	1671
5	373	374	-6.75	29.5	4.6	1740
6	376	370	-6.75	29.5	4.25	1608
7	375	366	-6.75	29.5	4.32	1615
8	376	367	-6.75	29.5	3.78	1435
9	375	365	-6.75	29.5	4.06	1517
10	377	370	-6.75	29.5	4.27	1607
11	376	369	-6.75	29.5	3.91	1509
12	380	374	-6.75	29.5	4.05	1514
13	371	369	-6.75	29.5	4.38	1655
14	379	373	-6.75	29.5	4.21	1589
15	374	372	-6.75	29.5	3.95	1477
16	383	370	-6.75	29.5	4.66	1786
17	378	377	-6.75	29.5	4.25	1605
18	375	366	-6.75	29.5	3.95	1458
19	377	375	-6.75	29.5	4.36	1663
20	381	377	-6.75	29.5	4.01	1512
rata-rata	376.35	371.05	-6.75	29.5	4.179	1575.3

TABEL C.19**Pengambilan data pipa kotak pada kecepatan pompa sentrifugal 2400 Rpm**

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	418	413	-8	33	3.51	1433
2	402	403	-8	33	3.34	1363
3	411	408	-8	33	3.49	1436
4	412	409	-8	33	3.95	1605
5	416	405	-8	33	3.88	1575
6	419	409	-8	33	3.79	1524
7	403	408	-8	33	4.05	1646
8	410	402	-8	33	4.1	1656
9	415	412	-8	33	3.8	1546
10	414	413	-8	33	4	1639
11	413	404	-8	33	4.02	1660
12	411	411	-8	33	3.62	1504
13	413	413	-8	33	3.73	1522
14	410	402	-8	33	3.55	1501
15	412	406	-8	33	3.82	1568
16	410	410	-8	33	3.38	1425
17	415	408	-8	33	3.65	1523
18	404	406	-8	33	3.42	1442
19	407	412	-8	33	3.65	1525
20	415	410	-8	33	3.5	1440
rata-rata	411.5	408.2	-8	33	3.7125	1526.65

TABEL C.20**Pengambilan data pipa kotak pada kecepatan pompa sentrifugal 2600 Rpm**

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	450	444	-9.5	36.5	3.61	1613
2	459	453	-9.5	36.5	3.92	1788
3	453	446	-9.5	36.5	3.56	1581
4	448	443	-9.5	36.5	3.77	1652
5	443	447	-9.5	36.5	3.59	1595
6	448	445	-9.5	36.5	3.31	1503
7	446	448	-9.5	36.5	3.84	1719
8	447	445	-9.5	36.5	3.96	1675
9	450	444	-9.5	36.5	3.64	1612
10	452	442	-9.5	36.5	3.39	1518
11	454	438	-9.5	36.5	3.63	1599
12	454	441	-9.5	36.5	3.5	1560
13	443	450	-9.5	36.5	3.6	1610
14	447	443	-9.5	36.5	3.52	1578
15	445	442	-9.5	36.5	3.74	1649
16	446	451	-9.5	36.5	3.21	1501
17	452	440	-9.5	36.5	3.55	1574
18	451	452	-9.5	36.5	3.28	1512
19	453	451	-9.5	36.5	3.62	1609
20	448	444	-9.5	36.5	3.87	1730
rata-rata	449.45	445.45	-9.5	36.5	3.6055	1608.9

TABEL C.21**Pengambilan data pipa kotak pada kecepatan pompa sentrifugal 2800 Rpm**

No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	482	483	-11	41	3.47	1748
2	485	476	-11	41	3.67	1792
3	484	477	-11	41	3.26	1628
4	480	474	-11	41	3.75	1798
5	488	475	-11	41	3.64	1745
6	487	478	-11	41	3.61	1722
7	481	475	-11	41	3.52	1607
8	485	472	-11	41	3.63	1738
9	487	480	-11	41	3.2	1518
10	483	483	-11	41	2.98	1426
11	485	476	-11	41	3.6	1752
12	486	474	-11	41	3.32	1522
13	483	476	-11	41	3.02	1506
14	484	473	-11	41	3.52	1718
15	488	475	-11	41	3.59	1685
16	487	479	-11	41	3.44	1739
17	483	479	-11	41	3.62	1788
18	484	477	-11	41	3.58	1785
19	487	481	-11	41	3.22	1526
20	483	476	-11	41	3.54	1734
rata-rata	484.6	476.95	-11	41	3.459	1673.85

TABEL C.22

Pengambilan data pipa kotak pada kecepatan pompa sentrifugal 2930 Rpm

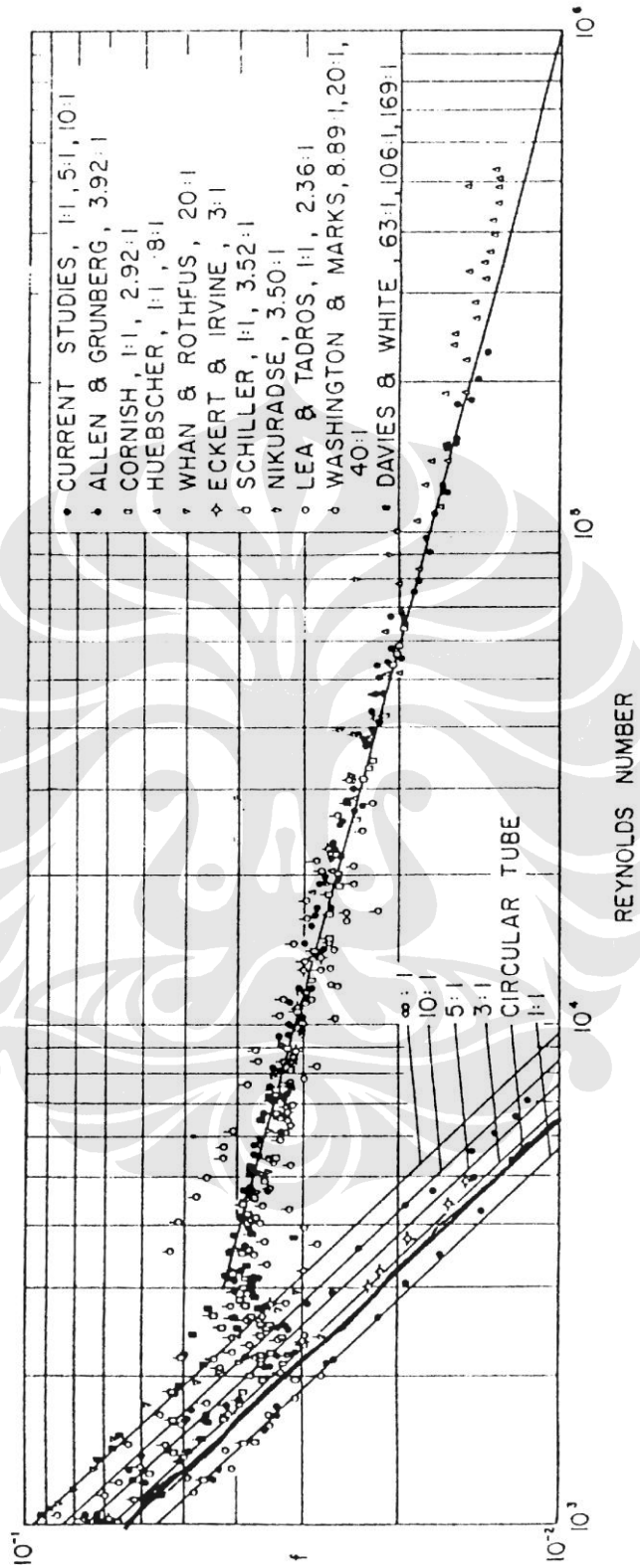
No.	Rpm Propeller bebas		Head		Debit air	
	Rpm in	Rpm out	ΔH in (mmhg)	ΔH out (mmhg)	Time (detik)	massa (gram)
1	506	503	-12.5	44	3.89	1926
2	508	507	-12.5	44	3.79	1927
3	509	505	-12.5	44	3.32	1656
4	512	503	-12.5	44	3.52	1803
5	509	515	-12.5	44	3.53	1792
6	510	505	-12.5	44	3.63	1798
7	513	509	-12.5	44	3.62	1790
8	514	505	-12.5	44	3.47	1737
9	509	507	-12.5	44	3.5	1759
10	515	507	-12.5	44	3.43	1715
11	512	510	-12.5	44	3.65	1785
12	506	505	-12.5	44	3.74	1918
13	515	501	-12.5	44	3.58	1786
14	514	509	-12.5	44	3.41	1725
15	511	511	-12.5	44	3.82	1920
16	513	505	-12.5	44	3.56	1779
17	518	504	-12.5	44	3.36	1669
18	513	511	-12.5	44	3.67	1852
19	512	502	-12.5	44	3.49	1755
20	517	503	-12.5	44	3.38	1740
rata-rata	511.8	506.35	-12.5	44	3.568	1791.6



LAMPIRAN D
TABEL PENGOLAHAN DATA PIPA BULAT
TABEL PENGOLAHAN DATA PIPA KOTAK



LAMPIRAN E
KOEFISIEN GESEK BULAT DAN KOTAK



Grafik perbandingan koefisien gesek pipa persegi dan bulat hasil percobaan schiller