

LAMPIRAN

Tabel L. 1 Matriks Jurnal Rujukan

No	Author/ Tahun	Judul	Tujuan	Metode	Hasil
1.	Fahmi Harahap dkk, 2024	Pengaruh Diameter Lubang Nozel Terhadap karakteristik Api Dan waktu Pemanasan Air Pada Kompur Multifuel.	Tujuan pada penelitian ini, akan dilakukan pengujian untuk mengetahui pengaruh variasi diameter lubang nozel kompur terhadap karakteristik api dan temperatur air selama proses pemanasan air.	Metode yang digunakan dalam pengujian ini adalah gabungan dari kajian eksperimental dan studi literatur. Terdapat 5 variasi diameter lubang nozel yang akan diuji yaitu 1,5 mm, 2,0 mm, 2,5 mm, 3,0 mm, dan 3,5 mm.	Terdapat 5 variasi diameter lubang nozel yang akan diuji yaitu 1,5 mm, 2,0 mm, 2,5 mm, 3,0 mm, dan 3,5 mm. Hasil dari pengujian yang telah dilakukan adalah berdasarkan temperatur api rata-rata temperatur api tertinggi adalah 716°C yang terdapat pada nozel dengan diameter lubang 2,5 mm, dan rata- rata temperatur api terendah adalah 557°C yang terdapat pada nozel dengan diameter lubang 1,5 mm. Lama nyala api terlama adalah 1.295 detik pada diameter lubang nozel 1,5 mm, sedangkan lama nyala api tercepat adalah 832 detik pada diameter lubang nozel 3,5 mm. Variasi diameter lubang nozel

					tidak memberikan pengaruh pada warna api, yaitu dengan menghasilkan warna biru dengan lidah api berwarna kejinggaan. Waktu pendidihan air paling lama adalah 180 detik terjadi pada diameter lubang nozel 1,5 mm, 3,0 mm, dan 3,5 mm, sedangkan waktu pendidihan air paling cepat adalah 150 detik terjadi pada diameter lubang nozel 2,0 mm dan 2,5 mm.
2.	Annasruddin pratama, 2020	Rancang Bangun Kompor (<i>Burner</i>) Berbahan Bakar Oli Bekas	Penelitian ini bertujuan untuk mengetahui rancang bangun kompor (<i>burner</i>) berbahan bakar oli bekas, beserta spesifikasinya dan mengetahui hasil pengujian menggunakan kompor (<i>burner</i>)	Metode yang digunakan kurangnya pemanfaatan limbah oli bekas dan belum adanya alat yang baik untuk memanfaatkan oli bekas tersebut. Disisi lain apabila digunakan sebagai bahan bakar, oli bekas tidak menghasilkan pembakaran sempurna.	Perbandingan bahan bakar menghasilkan data bahwa elpiji lebih cepat 16 menit dibandingkan oli bekas dalam peleburan alumunium. Panjang nyala api paling tinggi ialah 1.57 m pada variasi tekanan udara 3 bar dan paling rendah ialah 0.83 m pada tekanan 1 bar. Adanya pengaruh variasi tekanan

			pembakaran oli bekas	Penelitian ini disimpulkan bahwa kompor (<i>burner</i>) yang dirancang memiliki bentuk yang besar dibandingkan pada <i>burner</i> pada umumnya. Kompor (<i>burner</i>) mencapai tekanan 3.5 bar dengan suhu mencapai 1127 °C. Api yang dihasilkan oli bekas berwarna jingga	terhadap temperatur pembakaran dengan temperatur minimal dan maksimal mencapai titik tertinggi dengan tekanan sebesar 2.5 bar dengan temperatur sebesar 118 °C dan 994 °C sedangkan untuk titik terendah pada temperatur minimal dan maksimal pada tekanan 1 bar dengan temperatur sebesar 80,4 °C dan 662 °C dengan tekanan 0,5 bar. Waktu konsumsi bahan bakar dengan variasi jarak sebesar 2200 km menghasilkan waktu yang cukup singkat yaitu sebesar 12 menit 25 detik. Sedangkan waktu konsumsi yang diperoleh dari variasi jarak 1800 km sebesar 17 menit 11 detik.
3.	Mafruddin dkk, 2022	Pengaruh Laju Aliran Udara Dan Lubang Uap	Tujuan dari penelitian yaitu untuk mengetahui	. Metode penelitian yang dilakukan yaitu eksperimental	Dari hasil penelitian diperoleh bahwa laju aliran udara

		Air Terhadap Kinerja Kompor Dengan Bahan Bakar Oli Bekas.	pengaruh laju aliran udara dan jumlah lubang uap air terhadap temperatur dan efisiensi kompor dengan bahan bakar oli bekas.	dengan melakukan pembuatan dan pengujian kompor dengan bahan bakar oli bekas dan penambahan uap air untuk memaksimalkan hasil pembakaran. Variasi laju aliran udara yaitu 9 m/s, 10 m/s, dan 11 m/s serta variasi jumlah lubang uap air yaitu 8, 9 dan 10 buah.	dan jumlah lubang berpengaruh pada nyala api, temperatur dan kualitas pembakaran. Temperatur tertinggi yaitu 605,6°C dan efisiensi kompor tertinggi yaitu 10,91% diperoleh dengan laju aliran udara 10 m/s dan jumlah lubang uap air 10.
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Tabel L. 2 sifat fisik fluida

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APPENDIX 1

TABLE A-9

Properties of saturated water

Temp. T, °C	Saturation Pressure P _{sat} , kPa	Density ρ, kg/m ³		Enthalpy of Vaporization h _{fg} , kJ/kg	Specific Heat c _p , J/kg · K		Thermal Conductivity k, W/m · K		Dynamic Viscosity μ, kg/m · s		Prandtl Number Pr		Volume Expansion Coefficient β, 1/K
		Liquid	Vapor		Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	
0.01	0.6113	999.8	0.0048	2501	4217	1854	0.561	0.0171	1.792 × 10 ⁻³	0.922 × 10 ⁻⁵	13.5	1.00	-0.068 × 10 ⁻³
5	0.8721	999.9	0.0068	2490	4205	1857	0.571	0.0173	1.519 × 10 ⁻³	0.934 × 10 ⁻⁵	11.2	1.00	0.015 × 10 ⁻³
10	1.2276	999.7	0.0094	2478	4194	1862	0.580	0.0176	1.307 × 10 ⁻³	0.946 × 10 ⁻⁵	9.45	1.00	0.733 × 10 ⁻³
15	1.7051	999.1	0.0128	2466	4185	1863	0.589	0.0179	1.138 × 10 ⁻³	0.959 × 10 ⁻⁵	8.09	1.00	0.138 × 10 ⁻³
20	2.339	998.0	0.0173	2454	4182	1867	0.598	0.0182	1.002 × 10 ⁻³	0.973 × 10 ⁻⁵	7.01	1.00	0.195 × 10 ⁻³
25	3.169	997.0	0.0231	2442	4180	1870	0.607	0.0186	0.891 × 10 ⁻³	0.987 × 10 ⁻⁵	6.14	1.00	0.247 × 10 ⁻³
30	4.246	996.0	0.0304	2431	4178	1875	0.615	0.0189	0.798 × 10 ⁻³	1.001 × 10 ⁻⁵	5.42	1.00	0.294 × 10 ⁻³
35	5.628	994.0	0.0397	2419	4178	1880	0.623	0.0192	0.720 × 10 ⁻³	1.016 × 10 ⁻⁵	4.83	1.00	0.337 × 10 ⁻³
40	7.384	992.1	0.0512	2407	4179	1885	0.631	0.0196	0.653 × 10 ⁻³	1.031 × 10 ⁻⁵	4.32	1.00	0.377 × 10 ⁻³
45	9.593	990.1	0.0655	2395	4180	1892	0.637	0.0200	0.596 × 10 ⁻³	1.046 × 10 ⁻⁵	3.91	1.00	0.415 × 10 ⁻³
50	12.35	988.1	0.0831	2383	4181	1900	0.644	0.0204	0.547 × 10 ⁻³	1.062 × 10 ⁻⁵	3.55	1.00	0.451 × 10 ⁻³
55	15.76	985.2	0.1045	2371	4183	1908	0.649	0.0208	0.504 × 10 ⁻³	1.077 × 10 ⁻⁵	3.25	1.00	0.484 × 10 ⁻³
60	19.94	983.3	0.1304	2359	4185	1916	0.654	0.0212	0.467 × 10 ⁻³	1.093 × 10 ⁻⁵	2.99	1.00	0.517 × 10 ⁻³
65	25.03	980.4	0.1614	2346	4187	1926	0.659	0.0216	0.433 × 10 ⁻³	1.110 × 10 ⁻⁵	2.75	1.00	0.548 × 10 ⁻³
70	31.19	977.5	0.1983	2334	4190	1936	0.663	0.0221	0.404 × 10 ⁻³	1.126 × 10 ⁻⁵	2.55	1.00	0.578 × 10 ⁻³
75	38.58	974.7	0.2421	2321	4193	1948	0.667	0.0225	0.378 × 10 ⁻³	1.142 × 10 ⁻⁵	2.38	1.00	0.607 × 10 ⁻³
80	47.39	971.8	0.2935	2309	4197	1962	0.670	0.0230	0.355 × 10 ⁻³	1.159 × 10 ⁻⁵	2.22	1.00	0.653 × 10 ⁻³
85	57.83	968.1	0.3536	2296	4201	1977	0.673	0.0235	0.333 × 10 ⁻³	1.176 × 10 ⁻⁵	2.08	1.00	0.670 × 10 ⁻³
90	70.14	965.3	0.4235	2283	4206	1993	0.675	0.0240	0.315 × 10 ⁻³	1.193 × 10 ⁻⁵	1.96	1.00	0.702 × 10 ⁻³
95	84.55	961.5	0.5045	2270	4212	2010	0.677	0.0246	0.297 × 10 ⁻³	1.210 × 10 ⁻⁵	1.85	1.00	0.716 × 10 ⁻³
100	101.33	957.9	0.5978	2257	4217	2029	0.679	0.0251	0.282 × 10 ⁻³	1.227 × 10 ⁻⁵	1.75	1.00	0.750 × 10 ⁻³
110	143.27	950.6	0.8263	2230	4229	2071	0.682	0.0262	0.255 × 10 ⁻³	1.261 × 10 ⁻⁵	1.58	1.00	0.798 × 10 ⁻³
120	198.53	943.4	1.121	2203	4244	2120	0.683	0.0275	0.232 × 10 ⁻³	1.296 × 10 ⁻⁵	1.44	1.00	0.858 × 10 ⁻³
130	270.1	934.6	1.496	2174	4263	2177	0.684	0.0288	0.213 × 10 ⁻³	1.330 × 10 ⁻⁵	1.33	1.01	0.913 × 10 ⁻³
140	361.3	921.7	1.965	2145	4286	2244	0.683	0.0301	0.197 × 10 ⁻³	1.365 × 10 ⁻⁵	1.24	1.02	0.970 × 10 ⁻³
150	475.8	916.6	2.546	2114	4311	2314	0.682	0.0316	0.183 × 10 ⁻³	1.399 × 10 ⁻⁵	1.16	1.02	1.025 × 10 ⁻³
160	617.8	907.4	3.256	2083	4340	2420	0.680	0.0331	0.170 × 10 ⁻³	1.434 × 10 ⁻⁵	1.09	1.05	1.145 × 10 ⁻³
170	791.7	897.7	4.119	2050	4370	2490	0.677	0.0347	0.160 × 10 ⁻³	1.468 × 10 ⁻⁵	1.03	1.05	1.178 × 10 ⁻³
180	1,002.1	887.3	5.153	2015	4410	2590	0.673	0.0364	0.150 × 10 ⁻³	1.502 × 10 ⁻⁵	0.983	1.07	1.210 × 10 ⁻³
190	1,254.4	876.4	6.388	1979	4460	2710	0.669	0.0382	0.142 × 10 ⁻³	1.537 × 10 ⁻⁵	0.947	1.09	1.280 × 10 ⁻³
200	1,553.8	864.3	7.852	1941	4500	2840	0.663	0.0401	0.134 × 10 ⁻³	1.571 × 10 ⁻⁵	0.910	1.11	1.350 × 10 ⁻³
220	2,318	840.3	11.60	1859	4610	3110	0.650	0.0442	0.122 × 10 ⁻³	1.641 × 10 ⁻⁵	0.865	1.15	1.520 × 10 ⁻³
240	3,344	813.7	16.73	1767	4760	3520	0.632	0.0487	0.111 × 10 ⁻³	1.712 × 10 ⁻⁵	0.836	1.24	1.720 × 10 ⁻³
260	4,688	783.7	23.69	1663	4970	4070	0.609	0.0540	0.102 × 10 ⁻³	1.788 × 10 ⁻⁵	0.832	1.35	2.000 × 10 ⁻³
280	6,412	750.8	33.15	1544	5280	4835	0.581	0.0605	0.094 × 10 ⁻³	1.870 × 10 ⁻⁵	0.854	1.49	2.380 × 10 ⁻³
300	8,581	713.8	46.15	1405	5750	5980	0.548	0.0695	0.086 × 10 ⁻³	1.965 × 10 ⁻⁵	0.902	1.69	2.950 × 10 ⁻³
320	11,274	667.1	64.57	1239	6540	7900	0.509	0.0836	0.078 × 10 ⁻³	2.084 × 10 ⁻⁵	1.00	1.97	
340	14,586	610.5	92.62	1028	8240	11,870	0.469	0.110	0.070 × 10 ⁻³	2.255 × 10 ⁻⁵	1.23	2.43	
360	18,651	528.3	144.0	720	14,690	25,800	0.427	0.178	0.060 × 10 ⁻³	2.571 × 10 ⁻⁵	2.06	3.73	
374.14	22,090	317.0	317.0	0	—	—	—	—	0.043 × 10 ⁻³	4.313 × 10 ⁻⁵			

Note 1. Kinematic viscosity ν and thermal diffusivity α can be calculated from their definitions, $\nu = \mu/\rho$ and $\alpha = k/\rho c_p = \nu/Pr$. The temperatures 0.01°C, 100°C, and 374.14°C are the triple-, boiling-, and critical-point temperatures of water, respectively. The properties listed above (except the vapor density) can be used at any pressure with negligible error except at temperatures near the critical-point value.

Note 2. The unit kJ/kg · °C for specific heat is equivalent to kJ/kg · K, and the unit W/m · °C for thermal conductivity is equivalent to W/m · K.

Source. Viscosity and thermal conductivity data are from J. V. Sengers and J. T. R. Watson, *Journal of Physical and Chemical Reference Data* 15 (1986), pp. 1291–1322. Other data are obtained from various sources or calculated.

Tabel L. 3 Jadwal penelitian

No.	Urutan penelitian	Bulan ke-					
		I	II	III	IV	V	VI
1.	Seminar Proposal						
2.	Persiapan alat dan bahan						
3.	Pembuatan kompor berbahan bakar oli dengan variasi diameter <i>nozzle</i>						
4.	Pengambilan data						
5.	Pengolahan data dan Analisa data						
6.	Seminar hasil						
7.	Ujian tugas akhir						

Tabel L. 4 *Nozzle burner* ½ inci 1.1

No	Tanggal	waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
1	2/11/2025	21:22:31	26.9	29.9	22.1	25.7	37	420.2	239.8
2	2/11/2025	21:22:35	27	31.2	21.3	25.7	36.9	424.4	246.2
3	2/11/2025	21:22:40	27.2	29.4	22.6	25.8	32.1	420.2	263.4
4	2/11/2025	21:22:45	27.4	29.4	22.6	26	29.8	460	361.1
5	2/11/2025	21:22:50	27.5	29.1	20.6	26	29.2	545.7	455.9
6	2/11/2025	21:22:55	27.7	29	21.7	26	28.4	641.3	518
7	2/11/2025	21:23:00	27.7	29.6	20.9	26	27.6	711.8	557.2
8	2/11/2025	21:23:05	27.8	29.5	22.5	26.3	27.6	775.7	583.6
9	2/11/2025	21:23:10	27.9	30.9	20.2	26.4	28.4	862.2	614.9
10	2/11/2025	21:23:15	28.2	31.1	21.1	26.6	28.5	904.9	632.3
11	2/11/2025	21:23:20	28.4	30.5	22.4	26.8	28.7	899.3	640.8
12	2/11/2025	21:23:25	28.8	31.6	23.6	27.6	29.4	889	634
13	2/11/2025	21:23:30	29.1	31.4	24	27.6	30.3	890	633.7
14	2/11/2025	21:23:35	29.5	32.7	23.2	27.8	30.3	879.2	633.1
15	2/11/2025	21:23:40	29.7	31.9	23.6	28.4	29.5	875.3	639.4
16	2/11/2025	21:23:45	30.1	32.6	23.6	28.7	30.2	881.6	645.1
17	2/11/2025	21:23:50	30.6	33.3	26.1	29	30.9	896.9	651.6
18	2/11/2025	21:23:55	31	33.3	24.5	29.4	30.9	901.3	659.6
19	2/11/2025	21:24:00	31.7	32.5	25.2	29.5	31.5	913.8	657.7
20	2/11/2025	21:24:05	32.1	33.5	26.1	30	31.5	926.8	660.3
21	2/11/2025	21:24:10	32.5	33.6	26.1	30.6	31.7	934.3	660.6
22	2/11/2025	21:24:15	33	33.8	27.4	31.1	32.3	939.5	663.7
23	2/11/2025	21:24:20	33.4	34.3	28.2	31.6	32.5	942.4	673.6
24	2/11/2025	21:24:25	33.7	34.6	29.1	32.1	32.8	938.7	667.7
25	2/11/2025	21:24:30	34	36.6	30.2	32.8	33.1	936.9	662.6
26	2/11/2025	21:24:35	34.5	37.2	30.1	33.3	33.4	934.9	664.2
27	2/11/2025	21:24:40	34.9	38.4	29.7	33.7	33.1	934.9	657.6
28	2/11/2025	21:24:45	35.3	38.4	29.9	34.1	33.8	932.8	641.8
29	2/11/2025	21:24:50	35.6	37.1	29.6	34.3	30.5	942.1	636.4
30	2/11/2025	21:24:55	35.6	37.1	15.2	34.5	29.2	942.1	630.1
31	2/11/2025	21:25:00	35.5	38.5	7.8	35.2	29.1	915.2	625.6
32	2/11/2025	21:25:05	35.5	39.2	11.8	36.1	29	903.8	634.6
33	2/11/2025	21:25:10	35.5	39.2	18.8	36.3	29.1	891.2	650.7
34	2/11/2025	21:25:15	35.7	39.4	20.1	37.1	29.3	882.4	689.6
35	2/11/2025	21:25:20	36.3	39.7	22.1	37.5	29.5	892.8	693.6
36	2/11/2025	21:25:25	36.8	40.3	24	37.9	29.6	892.4	697.3
37	2/11/2025	21:25:30	37.1	40.8	22.7	38	29.9	888.8	707.2
38	2/11/2025	21:25:35	38	41.4	20.4	38.9	29.9	880.7	702.1
39	2/11/2025	21:25:40	38.7	41.4	19.3	39	29.8	882	706.1

No	Tanggal	waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
40	2/11/2025	21:25:45	39.7	43	17	39.2	29.8	876.1	711.6
41	2/11/2025	21:25:50	39.7	43.8	9.6	39.7	30	882.9	712.9
42	2/11/2025	21:25:55	39.7	43.9	7.2	40.1	29.9	862.4	658.6
43	2/11/2025	21:26:00	40.3	44.6	9.9	40.8	29.7	858.8	622.3
44	2/11/2025	21:26:05	40.3	45.5	4.8	41.6	30.3	849.9	605.4
45	2/11/2025	21:26:10	40.4	46.3	14.3	42.2	30.2	855.8	627.3
46	2/11/2025	21:26:15	41	46.2	11.3	40.6	30.5	853.3	651.1
47	2/11/2025	21:26:20	41.5	46.1	11.3	41.6	30.7	855.2	655.8
48	2/11/2025	21:26:25	41.8	46.1	6.5	42.3	30.6	845.4	654.5
49	2/11/2025	21:26:30	42.2	46.2	15.3	42.3	30.4	841.1	650.9
50	2/11/2025	21:26:35	44.6	46	16.3	42.3	30.3	820.6	644.6
51	2/11/2025	21:26:40	45.2	47.3	26.6	42.3	30.4	806.7	632.7
52	2/11/2025	21:26:45	45.2	47.3	19.6	42	30.3	771.7	628.5
53	2/11/2025	21:26:50	45.5	48.5	16.8	42.3	30.2	794.5	628
54	2/11/2025	21:26:55	45.9	49.4	20.9	42.7	30.5	824.8	632.3
55	2/11/2025	21:27:00	46	51.6	25.1	43.8	30.9	823.8	632.9
56	2/11/2025	21:27:05	46.2	52.3	27.4	44.5	31.1	830.3	635.8
57	2/11/2025	21:27:10	46.2	49.4	29.4	45.1	31	821.3	633.5
58	2/11/2025	21:27:15	47.5	51.5	28.7	45.1	30.9	819.8	644.1
59	2/11/2025	21:27:20	48.8	49.6	29.2	45.1	30.9	822.2	648.1
60	2/11/2025	21:27:25	49.4	50.7	29.6	46.3	31.1	840.9	646
61	2/11/2025	21:27:30	50.1	49.9	40.4	47.1	31.3	840	647.9
62	2/11/2025	21:27:35	50.7	49.9	44.1	48	31.4	835.6	648.5
63	2/11/2025	21:27:40	50.7	51	33.6	47	31.5	843.5	651.9
64	2/11/2025	21:27:45	50.6	51.8	29.4	47.1	31.5	839.4	650.8
65	2/11/2025	21:27:50	51	52.4	32.2	47.5	31.5	839.1	654.6
66	2/11/2025	21:27:55	51	52.6	32	47.8	31.8	837.5	652.7
67	2/11/2025	21:28:00	51.8	52.9	32.4	48.3	32	841.7	649.2
68	2/11/2025	21:28:05	52.6	52.9	28.3	48.5	31.8	837.5	646.9
69	2/11/2025	21:28:10	53.4	54.4	32.9	50.1	31.8	826.2	648.1
70	2/11/2025	21:28:15	53.4	54.4	34.1	49.5	31.7	817.4	643.1
71	2/11/2025	21:28:20	53.5	54.6	34.9	50.1	31.6	798.5	629
72	2/11/2025	21:28:25	54.5	56.2	32.3	50.1	31.8	795.4	619.4
73	2/11/2025	21:28:30	54.5	58.6	32.3	50.5	31.9	778.3	613.8
74	2/11/2025	21:28:35	55.2	59.9	29.8	50.5	32.3	787.1	620.1
75	2/11/2025	21:28:40	55.8	60.9	24.5	51.2	32.4	797.5	615.1
76	2/11/2025	21:28:45	58	62.5	7.4	51.2	32.6	818.5	613.1
77	2/11/2025	21:28:50	58	63.1	2.6	51.9	32.7	809.4	614.5
78	2/11/2025	21:28:55	58.6	60.3	1	52.3	32.7	785.6	623.4
79	2/11/2025	21:29:00	58.6	63.4	19.5	53.2	32.7	771.8	623.7
80	2/11/2025	21:29:05	58.1	64.1	24.5	53.3	32.7	757.2	612

No	Tanggal	waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
81	2/11/2025	21:29:10	58.9	64.7	28.1	53.4	32.8	777.1	613.9
82	2/11/2025	21:29:15	60.3	64.7	26.7	53.7	33.1	788.5	610.2
83	2/11/2025	21:29:20	61.1	65.5	22.6	53.6	32.9	786.5	608.2
84	2/11/2025	21:29:25	61.1	66.1	24.1	53.7	32.8	765.7	608
85	2/11/2025	21:29:30	61.2	67.4	26.1	55.4	32.9	764.6	591.2
86	2/11/2025	21:29:35	62.4	68	27.9	56	33	746.5	575.2
87	2/11/2025	21:29:40	62.4	69.4	29.7	57.1	32.9	749.2	576.3
88	2/11/2025	21:29:45	62.5	70.7	28.3	57.2	33.2	762.1	577.6
89	2/11/2025	21:29:50	62.7	67.9	27.7	57.9	33.4	783	579.8
90	2/11/2025	21:29:55	62.9	68.6	17.5	59.9	33.4	803.7	579.1
91	2/11/2025	21:30:00	62.9	68.2	26.2	60.1	33.5	818.6	581.3
92	2/11/2025	21:30:05	62.9	66.9	26.1	61.9	33.5	820.5	579.6
93	2/11/2025	21:30:10	62.8	66.2	0.9	61.9	33.5	806.9	575.9
94	2/11/2025	21:30:15	62.8	67.1	8.4	61.9	33.5	790.7	571.3
95	2/11/2025	21:30:20	62.9	67.9	-12.6	62.3	33.5	803.5	568.3
96	2/11/2025	21:30:25	64.4	67.1	8.1	62.2	33.4	765.9	562.4
97	2/11/2025	21:30:30	64.4	67.1	17.3	62.2	33.2	768.6	556.3
98	2/11/2025	21:30:35	64.5	68.1	14.3	63.4	33.4	782	554.6
99	2/11/2025	21:30:40	64.5	71.8	8.2	64	33.4	737.4	555.4
100	2/11/2025	21:30:45	64.5	72.4	5.8	65.3	33.5	738.8	550.3
101	2/11/2025	21:30:50	62.3	73	0.4	65.9	33.6	731.2	546.8
102	2/11/2025	21:30:55	64.1	73.8	7.2	65.9	33.6	723.6	548.8
103	2/11/2025	21:31:00	64.1	74.7	2.3	66.3	33.6	727.2	548.5
104	2/11/2025	21:31:05	64.5	74.7	1.5	66.9	33.6	725.4	548.6
105	2/11/2025	21:31:10	65.2	75	-6.8	67.1	33.6	731.7	551.2
106	2/11/2025	21:31:15	65.4	76.3	5.5	68.2	33.7	724.3	550.3
107	2/11/2025	21:31:20	69.1	75.2	18.6	68.4	33.7	698.7	550.6
108	2/11/2025	21:31:25	69.4	75.2	21.7	68.4	33.7	700.1	543.4
109	2/11/2025	21:31:30	69.1	76.8	7.3	69.1	33.8	697.9	548.1
110	2/11/2025	21:31:35	72.3	76.8	1.3	69.1	33.9	689.3	555.8
111	2/11/2025	21:31:40	73.1	75.4	28.5	68.3	33.9	701.5	554
112	2/11/2025	21:31:45	74.5	75.8	31.4	68.6	33.9	702	556.3
113	2/11/2025	21:31:50	74.5	77.8	30.2	68.6	34	677.5	559.7
114	2/11/2025	21:31:55	74.6	76.7	35	70.4	34	655.7	553.6
115	2/11/2025	21:32:00	74.6	78.6	33.5	70.4	33.9	640.6	558.7
116	2/11/2025	21:32:05	75	79.6	32.8	71.1	34	647.5	558.7
117	2/11/2025	21:32:10	75.5	79.6	33.1	71.7	34.1	642	557.9
118	2/11/2025	21:32:15	75.5	79.4	42.9	72.9	34.1	623.7	554.2
119	2/11/2025	21:32:20	75.5	80.2	40.7	72.8	34.1	633.5	549.5
120	2/11/2025	21:32:25	75.5	82.6	36	72.7	34.4	625.8	547.4
121	2/11/2025	21:32:30	75.5	82.7	36.3	73.6	34.5	650.7	549

No	Tanggal	waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
122	2/11/2025	21:32:35	77.2	83.8	36.3	73.6	34.4	649.4	555.1
123	2/11/2025	21:32:40	77.2	85	36.3	73.5	34.5	623.2	560.1
124	2/11/2025	21:32:45	77.2	87	36.3	73	34.6	626	566.4
125	2/11/2025	21:32:50	77.2	84.5	36.3	73.9	34.7	629.4	560.1
126	2/11/2025	21:32:55	77.2	87	36.3	73.9	34.8	644.2	558.7
127	2/11/2025	21:33:00	77.6	88.8	36.3	73.9	34.9	639.1	559.4
128	2/11/2025	21:33:05	77.6	87.2	36.3	74.8	34.9	615	564.7
129	2/11/2025	21:33:10	78.4	92	36.3	75.7	34.8	609	563.5
130	2/11/2025	21:33:15	78.4	91.3	36.3	75.9	35	621.9	564.8
131	2/11/2025	21:33:20	78.4	93.6	36.3	75.9	35.1	649.4	560.6
132	2/11/2025	21:33:25	78.4	91.2	36.3	76.3	35.2	650.6	553.1
133	2/11/2025	21:33:30	78	92.2	36.3	75.4	35.1	660.1	555.3
134	2/11/2025	21:33:35	78	92.5	36.3	76.2	34.9	654.4	555.5
135	2/11/2025	21:33:40	78	92.1	36.3	76.2	34.8	661.1	552.5
136	2/11/2025	21:33:45	78	90.2	36.3	75	34.9	649.7	547.8
137	2/11/2025	21:33:50	78	93.7	36.3	77.6	34.7	645.6	540.7
138	2/11/2025	21:33:55	78.8	85.6	36.3	80.5	33.9	659.2	531.8
139	2/11/2025	21:34:00	78.8	89.1	34.3	76.9	34.6	667.6	529
140	2/11/2025	21:34:05	78.8	91.9	34.3	81.8	34.6	653.4	520.1
141	2/11/2025	21:34:10	78.8	88.3	34.3	79.6	34.3	654.1	513.6
142	2/11/2025	21:34:15	79.7	97.9	34.3	84.3	34.3	685.2	511.9
143	2/11/2025	21:34:20	79.7	93.4	34.3	81.2	33.9	676.9	514.1
144	2/11/2025	21:34:25	79.7	87.3	34.3	83	33.9	669	518.4
145	2/11/2025	21:34:30	84.5	87.3	34.3	85.2	34.6	660.9	523.1
146	2/11/2025	21:34:35	84.5	87.3	42.2	85.2	33.4	683.9	528.6
147	2/11/2025	21:34:40	84.5	87.3	42.2	83.4	33.3	681.2	521.9
148	2/11/2025	21:34:45	84.5	87.3	42.2	83.4	33.2	728.2	514.5
149	2/11/2025	21:34:50	84.5	87.3	42.2	83.4	33.2	750.2	511.6
150	2/11/2025	21:34:55	82.1	87.3	42.2	83.4	33.2	773.3	510.9
151	2/11/2025	21:35:00	82.1	87.3	42.2	83.4	33.2	789.3	515.5
152	2/11/2025	21:35:05	82.1	87.7	42.2	84.2	34.1	804.5	526.1
153	2/11/2025	21:35:10	82.1	87.7	42.2	84.2	34.1	813.5	540.8
154	2/11/2025	21:35:15	82.1	87.7	42.2	84.2	34.5	848.1	557.4
155	2/11/2025	21:35:20	78.3	87.7	42.2	84.2	37.2	852.8	575.8
156	2/11/2025	21:35:25	78.3	87.7	42.2	84.2	34.9	841.1	584.1
157	2/11/2025	21:35:30	78.3	88	42.2	85.7	38.1	846.6	590.9
158	2/11/2025	21:35:35	78.3	88	42.2	85.7	36.8	842.2	592.3
159	2/11/2025	21:35:40	78.3	88	38	85.7	36	845.5	595.1
160	2/11/2025	21:35:45	78.3	87.5	38	85.7	35.2	848.8	597.9
161	2/11/2025	21:35:50	76.1	87.5	38	85.7	34.4	852.1	600.7
162	2/11/2025	21:35:55	76.1	87.5	64.1	85.7	33.6	855.4	603.5

No	Tanggal	waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
163	2/11/2025	21:36:00	76.1	89.5	64.1	88.6	32.8	858.7	606.3
164	2/11/2025	21:36:05	88.1	89.5	64.1	88.6	32	862	609.1
165	2/11/2025	21:36:10	88.1	89.5	64.1	88.6	31.2	865.3	611.9
166	2/11/2025	21:36:15	88.1	89.5	64.1	88.6	30.4	868.6	614.7
167	2/11/2025	21:36:20	88.1	89.7	64.1	86.9	29.6	871.9	617.5
168	2/11/2025	21:36:25	88.1	89.7	64.1	86.9	28.8	875.2	620.3
169	2/11/2025	21:36:30	88.1	96.7	64.1	86.9	28	878.5	623.1
170	2/11/2025	21:36:35	88.1	96.7	64.1	86.9	27.2	881.8	625.9
171	2/11/2025	21:36:40	88.1	96.7	36.2	86.9	26.4	885.1	628.7
172	2/11/2025	21:36:45	88.1	96.7	36.2	87.8	25.6	888.4	631.5
173	2/11/2025	21:36:50	88.1	97.1	36.2	87.8	24.8	891.7	634.3
174	2/11/2025	21:36:55	88.1	97.1	36.2	87.8	24	895	637.1
175	2/11/2025	21:37:00	88.1	97.1	36.2	87.8	23.2	898.3	639.9
176	2/11/2025	21:37:05	88.1	97.1	36.2	88.7	22.4	901.6	642.7
177	2/11/2025	21:37:10	88.1	97.5	36.2	88.7	21.6	904.9	645.5
178	2/11/2025	21:37:15	88.1	97.5	36.2	88.7	21.6	908.2	648.3
179	2/11/2025	21:37:20	88.1	97.5	36.2	88.7	21.6	911.5	651.1
180	2/11/2025	21:37:25	88.1	97.5	36.2	88.7	21.6	914.8	653.9
181	2/11/2025	21:37:30	88.1	97.9	43.9	89.9	21.6	918.1	656.7
182	2/11/2025	21:37:35	76.1	97.9	43.9	89.9	20.8	921.4	659.5
183	2/11/2025	21:37:40	76.1	97.9	43.9	89.9	20.8	924.7	662.3
184	2/11/2025	21:37:45	76.1	98.3	43.9	89.9	20.8	928	665.1
185	2/11/2025	21:37:50	85.6	98.3	43.9	89.9	20.8	931.3	667.9
186	2/11/2025	21:37:55	85.6	98.3	43.9	89.3	20	934.6	670.7
187	2/11/2025	21:38:00	85.6	98.7	43.9	89.3	20	937.9	673.5
188	2/11/2025	21:38:05	85.6	98.7	67.4	89.3	19.2	941.2	676.3
189	2/11/2025	21:38:10	85.6	98.7	67.4	89.3	19.2	944.5	679.1
190	2/11/2025	21:38:15	85.6	98.7	67.4	89.3	18.4	947.8	681.9
191	2/11/2025	21:38:20	85.6	99.1	67.4	89.3	18.4	951.1	684.7
192	2/11/2025	21:38:25	85.6	99.1	67.4	89.3	18.4	954.4	687.5
193	2/11/2025	21:38:30	85.6	99.1	67.4	89.3	17.6	957.7	690.3
194	2/11/2025	21:38:35	85.6	99.1	67.4	89.3	17.6	961	693.1
195	2/11/2025	21:38:40	85.6	99.5	67.4	89.3	17.6	964.3	695.9
196	2/11/2025	21:38:45	85.6	99.5	67.4	93.8	16.8	967.6	698.7
197	2/11/2025	21:38:50	76.1	99.9	67.4	93.8	16.8	970.9	701.5
198	2/11/2025	21:38:55	81.7	99.9	67.4	93.8	15.2	974.2	704.3
199	2/11/2025	21:39:00	81.7	99.9	74.1	93.8	15.2	977.5	707.1
200	2/11/2025	21:39:05	81.7	100.3	74.1	93.8	15.2	980.8	709.9
201	2/11/2025	21:39:10	81.7	100.3	74.1	93.8	12.8	984.1	712.7
202	2/11/2025	21:39:15	81.7	100.7	74.1	90.1	12.8	987.4	715.5
203	2/11/2025	21:39:20	81.7	100.7	88	90.1	12	990.7	718.3

No	Tanggal	waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
204	2/11/2025	21:39:25	81.7	101.1	88	90.1	12	994	721.1
205	2/11/2025	21:39:30	81.7	101.1	88	90.1	10.4	997.3	723.9
206	2/11/2025	21:39:35	88.7	101.1	88	90.1	10.4	1000.6	726.7
207	2/11/2025	21:39:40	88.7	101.1	88	90.1	10.4	1003.9	729.5
208	2/11/2025	21:39:45	89.8	101.1	88	90.1	10.4	1007.2	732.3
209	2/11/2025	21:39:50	89.8	101.1	88	93.8	9.6	1010.5	735.1
210	2/11/2025	21:39:55	89.8	101.1	74.1	93.8	9.6	1013.8	737.9
211	2/11/2025	21:40:00	89.8	101.1	74.1	93.8	9.6	1017.1	740.7
212	2/11/2025	21:40:05	89.8	101.1	97.1	93.8	9.6	1020.4	743.5
213	2/11/2025	21:40:10	89.8	101.1	97.1	93.8	8.8	1023.7	746.3
214	2/11/2025	21:40:15	89.8	101.5	97.1	97.5	8.8	1027	749.1
215	2/11/2025	21:40:20	93.3	101.5	97.1	97.5	8.8	1030.3	751.9
216	2/11/2025	21:40:25	93.3	101.5	97.1	97.5	8	1033.6	754.7
217	2/11/2025	21:40:30	93.3	101.5	97.1	97.5	8	1036.9	757.5
218	2/11/2025	21:40:35	93.3	101.5	97.1	97.5	8	1040.2	760.3
219	2/11/2025	21:40:40	93.3	102.3	97.1	101.2	7.2	1043.5	763.1
220	2/11/2025	21:40:45	96	102.3	97.1	101.2	7.2	1046.8	765.9
221	2/11/2025	21:40:50	96	102.3	97.1	101.2	7.2	1050.1	768.7
222	2/11/2025	21:40:55	98.7	102.3	97.1	101.2	6.4	1053.4	771.5
223	2/11/2025	21:41:00	98.7	102.3	97.1	101.2	6.4	1056.7	774.3
224	2/11/2025	21:41:05	98.7	102.3	100.3	101.2	20.8	1060	777.1
225	2/11/2025	21:41:10	98.7	102.7	102.3	104.9	20.8	1063.3	779.9
226	2/11/2025	21:41:15	101.4	102.7	102.9	104.9	20.8	1066.6	782.7
227	2/11/2025	21:41:20	101.4	102.7	103.3	104.9	20.8	1069.9	785.5
228	2/11/2025	21:41:25	101.4	102.7	103.3	104.9	20.8	1073.2	788.3
Rata-rata		0:18:54	101.4	102.7	103.3	104.9	49.17	1903.09	1409.9

Tabel L. 5 *Nozzle burner ½ inci*

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angi} n(°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
1	2/11/2025	21:53:05	30.2	28.4	32.1	26	60.1	196.1	202.5
2	2/11/2025	21:53:09	27.5	25.9	27.8	26.1	49.2	279.8	301.7
3	2/11/2025	21:53:14	27.5	25.9	27.8	26.4	43.2	451.6	439.1
4	2/11/2025	21:53:19	28.6	26.5	27.2	26.5	41.3	498.3	566.1
5	2/11/2025	21:53:24	28.6	28.4	30	26.7	42.2	554	613.7
6	2/11/2025	21:53:29	30.3	26.1	26.4	27.1	50	541.5	616.4
7	2/11/2025	21:53:34	27.3	26	26.4	27.7	58.1	488	603.1
8	2/11/2025	21:53:39	27.4	27	27.9	28.4	48.5	437.3	620
9	2/11/2025	21:53:44	27.8	26.8	27.2	28.5	50.1	407.5	580.1
10	2/11/2025	21:53:49	27.8	26.8	27.2	27.9	49	425.7	616.8
11	2/11/2025	21:53:54	27.9	26.9	28.9	28	54.6	453.6	627.8
12	2/11/2025	21:53:59	28	27	26.9	28.1	55.2	490.8	651.1
13	2/11/2025	21:54:04	29	30.9	30.9	29.5	47.1	523.5	674.2
14	2/11/2025	21:54:09	28	28.4	27.4	27.9	48	754.9	582.6
15	2/11/2025	21:54:14	29	30	31.5	29.9	46.1	774.6	519.3
16	2/11/2025	21:54:19	28.4	27.2	28.6	28.1	45.4	775	489.8
17	2/11/2025	21:54:24	30.2	30.3	31.6	32.5	41.8	889.2	463.6
18	2/11/2025	21:54:29	30.9	27.4	29	32.5	37	908.1	477.4
19	2/11/2025	21:54:34	32.7	32.3	33.8	34.6	37	910.6	505.1
20	2/11/2025	21:54:39	34	32.3	33.2	34.4	37.5	904.7	515.4
21	2/11/2025	21:54:44	34.7	32.6	33.4	34.4	37.5	908	519.6
22	2/11/2025	21:54:49	35.5	33.5	34.1	34.8	37.2	909.6	513.5
23	2/11/2025	21:54:54	36.2	34.4	35.2	33.2	37	909.1	501.2
24	2/11/2025	21:54:59	36.3	35.2	35.2	34.1	36.1	914	513.5
25	2/11/2025	21:55:04	37.1	36	35.7	34.1	36.1	904.4	517.3
26	2/11/2025	21:55:09	37.8	36.4	35.7	34.8	36.1	891.1	519.5
27	2/11/2025	21:55:14	38.3	36.4	36.4	35.7	36.7	904.1	514.7
28	2/11/2025	21:55:19	39.5	39.2	38.7	35.5	37.5	882.4	520.5
29	2/11/2025	21:55:24	38.3	36.8	36.1	34.8	43	872.7	506.5
30	2/11/2025	21:55:29	38.9	38.4	36.4	35.7	37.6	875.1	541.4
31	2/11/2025	21:55:34	40.2	39	38.8	36.3	38.7	875.6	540.5
32	2/11/2025	21:55:39	40.2	40.8	41	37	38.5	869.7	574.5
33	2/11/2025	21:55:44	43.8	42.8	45.2	38.4	41.5	878.2	548.2
34	2/11/2025	21:55:49	41.3	41	41.5	37.6	41.7	889.4	530.2
35	2/11/2025	21:55:54	41.3	40.3	39.3	38.5	41.3	894.6	543.2
36	2/11/2025	21:55:59	41.5	40.3	42.6	38.5	37.1	905.7	483
37	2/11/2025	21:56:04	42.9	44.5	42.9	39.7	44.1	888.3	495.4
38	2/11/2025	21:56:09	42.5	44.6	44.1	40.4	37.8	889.2	487.4
39	2/11/2025	21:56:14	42.6	42	41	40.4	37.3	901.8	512.9

40	2/11/2025	21:56:19	44.1	44.6	44.5	42	41.1	888.9	482.4
41	2/11/2025	21:56:24	44.1	46.2	46.2	42	42.2	866.6	483
42	2/11/2025	21:56:29	44.2	46	44.6	42	42	897.1	470
43	2/11/2025	21:56:34	45.4	45.3	45.7	42.1	42	905.3	470
44	2/11/2025	21:56:39	45.4	44.3	46.5	42.8	38.7	871.2	466.3
45	2/11/2025	21:56:44	46.2	46.2	47.2	43.4	43.1	858	507.1
46	2/11/2025	21:56:49	46.6	46.6	47.9	43.4	40.7	895.9	483.3
47	2/11/2025	21:56:54	47.5	47.4	47.9	44	42	863.5	485.4
48	2/11/2025	21:56:59	47.7	47.1	47.6	44.7	43.1	892.5	467.9
49	2/11/2025	21:57:04	46.7	45.9	45.1	45.3	38.9	907.8	496.5
50	2/11/2025	21:57:09	48.2	48.9	48.3	46.3	42.4	899.7	476.2
51	2/11/2025	21:57:14	48.9	50.1	51	46.3	42	891.6	467.7
52	2/11/2025	21:57:19	48.9	51	52.1	47.4	43.6	826.2	474.3
53	2/11/2025	21:57:24	49.4	46.9	47.5	46.5	43.2	833.9	496.9
54	2/11/2025	21:57:29	50	48.2	50.6	46.5	43.8	890	462.8
55	2/11/2025	21:57:34	50	48.8	50	47	41.3	898.7	465.9
56	2/11/2025	21:57:39	50.3	50.3	51.8	47.6	41.9	906.9	463.9
57	2/11/2025	21:57:44	51.3	50.8	49.6	48.6	42.8	909.1	455.4
58	2/11/2025	21:57:49	51.3	50.2	51.3	49.6	41.3	847.1	464.6
59	2/11/2025	21:57:54	51.2	49.1	50.7	49.5	41.2	894.7	457.6
60	2/11/2025	21:57:59	51.5	49.8	51.3	50.1	41.1	877.1	458.5
61	2/11/2025	21:58:04	51.8	50.6	51.3	50.1	41.3	887.4	434.1
62	2/11/2025	21:58:09	52.3	51.8	51.2	50.9	41.3	889.6	438.7
63	2/11/2025	21:58:14	52.9	52.1	53.3	51.5	40.5	884.5	426.6
64	2/11/2025	21:58:19	53.4	54.7	54	52.1	41.8	870.6	418.8
65	2/11/2025	21:58:24	53.7	52.7	54.7	53.2	41	869.2	407
66	2/11/2025	21:58:29	54.7	53.9	54.9	53.2	43.2	856.5	404.9
67	2/11/2025	21:58:34	54.7	57	53.4	55.2	34.4	860.9	445.6
68	2/11/2025	21:58:39	55.6	56.2	59.6	55.2	32.2	846.2	422.7
69	2/11/2025	21:58:44	58	58.9	63.4	54.7	32.8	815.9	393.1
70	2/11/2025	21:58:49	59.2	60.5	61.6	56.4	32.7	783.3	389.1
71	2/11/2025	21:58:54	55.5	55.7	59.5	55.2	33.4	752.3	395.4
72	2/11/2025	21:58:59	56.9	57.4	57.3	57.9	33.3	723.8	383.4
73	2/11/2025	21:59:04	55.6	57.2	54.9	57.4	34.2	708.6	385
74	2/11/2025	21:59:09	58.9	56.9	56.2	57.7	33.5	734.8	382.4
75	2/11/2025	21:59:14	57.4	54.9	54.8	57.7	34.7	773.7	411.3
76	2/11/2025	21:59:19	58.3	57.1	57.3	59.1	34.7	741	414.6
77	2/11/2025	21:59:24	59.5	59.4	59.8	59.7	32.9	758.8	401.3
78	2/11/2025	21:59:29	62.8	58.2	61.3	59.7	34.2	845.9	405.7
79	2/11/2025	21:59:34	64	61.9	63.5	61.3	34.1	857.7	410.7
80	2/11/2025	21:59:39	62.8	62.9	56.2	62.3	34	860.5	446.4
81	2/11/2025	21:59:44	62.8	63.9	62.1	61.7	33.9	842.1	435.9
82	2/11/2025	21:59:49	62.5	61.6	59.3	61.7	34.1	846.4	437.1

83	2/11/2025	21:59:54	64.1	64.7	64	62.7	33.7	798.3	402.2
84	2/11/2025	21:59:59	62.6	60.4	61.4	63.6	32.8	811.3	416.6
85	2/11/2025	22:00:04	63.1	65.9	67.6	64.4	32.5	848.8	394.3
86	2/11/2025	22:00:09	65.9	65.4	67.6	64.4	33.1	824.2	402.5
87	2/11/2025	22:00:14	65.7	66.6	69.8	64.4	33.3	861.3	410.8
88	2/11/2025	22:00:19	66.4	68.4	70.2	66.1	33.3	882.7	407
89	2/11/2025	22:00:24	66.5	68.5	68.2	66.7	33.4	882.3	413.7
90	2/11/2025	22:00:29	63.7	69.1	65.4	66.6	34.4	894	419
91	2/11/2025	22:00:34	64	70	67.2	67.9	34.4	886.1	423.2
92	2/11/2025	22:00:39	65	72.8	69.7	68.5	33.3	868	427.2
93	2/11/2025	22:00:44	67.4	71.1	68.7	68.5	34.1	847.4	426.1
94	2/11/2025	22:00:49	67.4	71.8	70.1	69.6	34.1	829	415.3
95	2/11/2025	22:00:54	67.7	72.5	70.1	69.6	33.9	835.4	404.8
96	2/11/2025	22:00:59	66.8	71.4	69.3	70.1	34.5	855.3	411.9
97	2/11/2025	22:01:04	65.9	70.7	70.7	70.1	34.5	865.8	418.7
98	2/11/2025	22:01:09	67.2	72.2	69.9	71.5	34.5	862.9	428.6
99	2/11/2025	22:01:14	68.3	72.2	69.9	71.5	34.6	843.6	433.6
100	2/11/2025	22:01:19	71.2	73.2	73.5	72.2	34.4	835.9	423.4
101	2/11/2025	22:01:24	72.8	73.3	75.1	72.3	34.3	832.4	422.5
102	2/11/2025	22:01:29	72.8	73.6	73.2	73.1	34.4	833.1	420.9
103	2/11/2025	22:01:34	73.6	74.5	73.7	75.1	34.4	837.5	431.8
104	2/11/2025	22:01:39	75.2	75.6	75.8	75.1	34.5	817.6	429.9
105	2/11/2025	22:01:44	75.8	77.1	78	75.1	34.5	805.1	427.8
106	2/11/2025	22:01:49	76.1	77.3	77.8	75.4	34.5	782.6	430.8
107	2/11/2025	22:01:54	71.1	75.4	73.8	76.4	34.7	752.5	421.9
108	2/11/2025	22:01:59	78.8	84.3	86.1	77.1	34.7	719.5	418.2
109	2/11/2025	22:02:04	78.6	79.4	82.4	77.1	34.5	719	410.8
110	2/11/2025	22:02:09	77.9	80	79.1	77.8	34.8	709.8	416.7
111	2/11/2025	22:02:14	73.2	76	80.1	77.5	33.3	713.2	437.7
112	2/11/2025	22:02:19	77.8	82.5	82.1	78.6	35.2	704.5	421.1
113	2/11/2025	22:02:24	79.1	80	81.7	78.5	35.2	706.6	410.4
114	2/11/2025	22:02:29	78.3	79	79.9	80.2	35.4	679.4	408.3
115	2/11/2025	22:02:34	77	82.3	78	80.2	35.8	657.2	407.5
116	2/11/2025	22:02:39	77.4	80.6	79.3	82.3	35.4	676	400.7
117	2/11/2025	22:02:44	78.3	80.1	84.3	80.3	36.2	661.4	401
118	2/11/2025	22:02:49	79	80.3	81.7	79.8	34.6	647.7	417.9
119	2/11/2025	22:02:54	82.2	80.6	75.4	82.5	34.4	647.1	408.2
120	2/11/2025	22:02:59	80.7	89	78.3	83.7	36.3	644.5	395.7
121	2/11/2025	22:03:04	80.8	82.1	82.8	81.5	34.9	660.3	412.3
122	2/11/2025	22:03:09	83.6	84.7	82.9	83.3	36.8	687.9	418.3
123	2/11/2025	22:03:14	84.6	81.1	80.1	83.6	36.8	676.8	419.5
124	2/11/2025	22:03:19	85.4	86.1	80.9	83.7	37.5	668.9	416
125	2/11/2025	22:03:24	85.3	85.6	81.8	85.5	37.7	699.9	420.3

126	2/11/2025	22:03:29	87.3	87.3	85.8	85.1	38.2	718.3	426
127	2/11/2025	22:03:34	85.8	88.8	79.7	85.8	38.5	730	431.8
128	2/11/2025	22:03:39	83.6	84.1	80.3	86.4	38.9	728	431.4
129	2/11/2025	22:03:44	83.7	83.4	80.3	87.1	39.1	723	430.7
130	2/11/2025	22:03:49	82.8	79.6	73.5	87.1	40.5	715	445
131	2/11/2025	22:03:54	82.9	80.4	73.5	87.3	40.5	729.3	461.8
132	2/11/2025	22:03:59	83.3	81.1	73.8	87.8	39.8	725.4	479.4
133	2/11/2025	22:04:04	83.5	81	73.8	88.4	41	710.3	476.1
134	2/11/2025	22:04:09	83.6	81.7	73.8	88.9	41	696.7	470.7
135	2/11/2025	22:04:14	87.8	87.2	73.8	87.3	39.9	688.2	473.3
136	2/11/2025	22:04:19	88.8	90.3	73.8	88.4	40.7	699.3	476
137	2/11/2025	22:04:24	86.2	91.1	74.3	89.2	41.3	695	477.5
138	2/11/2025	22:04:29	91.3	90.8	74.3	89.2	41.3	694.4	478.5
139	2/11/2025	22:04:34	89.9	87.6	74.3	89.9	41.3	673.4	482.5
140	2/11/2025	22:04:39	87.6	86.2	85.4	91.9	41.5	674	473.7
141	2/11/2025	22:04:44	88.3	89.9	87.8	91.6	39.9	665.2	470.3
142	2/11/2025	22:04:49	91.8	90.4	87.8	91.4	39.9	637.4	451.8
143	2/11/2025	22:04:54	84.8	90.9	81.2	93.1	41	639.4	441.3
144	2/11/2025	22:04:59	91.6	84.9	81.2	94.3	41	742.4	452.3
145	2/11/2025	22:05:04	84.4	86.4	88	92.9	41.1	759.9	458.2
146	2/11/2025	22:05:09	93.1	93.3	88	93.8	39	785.3	471.6
147	2/11/2025	22:05:14	93.9	92.1	88	93.8	39.7	761	458.7
148	2/11/2025	22:05:19	92.6	95.6	84.1	93.8	42	812.2	464.5
149	2/11/2025	22:05:24	92.7	95.5	84.1	93.8	41.9	820	478
150	2/11/2025	22:05:29	96	97.1	84.1	93.8	37.8	825.5	493.4
151	2/11/2025	22:05:34	93.4	97.4	76.9	93.2	43.4	780.8	486.2
152	2/11/2025	22:05:39	96.9	97.9	76.9	94.8	42.7	772.7	483.2
153	2/11/2025	22:05:44	83.6	91	87.8	94.8	43.7	741.4	482.7
154	2/11/2025	22:05:49	84.8	89.8	87.8	94.1	42.9	767.4	481.9
155	2/11/2025	22:05:54	86	88.6	73.8	94.1	42.1	793.4	481.1
156	2/11/2025	22:05:59	87.2	87.4	73.8	94.9	41.3	819.4	480.3
157	2/11/2025	22:06:04	88.4	86.2	73.8	94.9	40.5	845.4	479.5
158	2/11/2025	22:06:09	89.6	85	86.7	94.9	39.7	871.4	478.7
159	2/11/2025	22:06:14	90.8	83.8	86.7	97.6	38.9	897.4	477.9
160	2/11/2025	22:06:19	92	82.6	86.7	97.6	38.1	923.4	477.1
161	2/11/2025	22:06:24	93.2	81.4	89	96.4	37.3	949.4	476.3
162	2/11/2025	22:06:29	94.4	80.2	89	96.4	36.5	975.4	475.5
163	2/11/2025	22:06:34	95.6	79	89	96.4	35.7	1001.4	474.7
164	2/11/2025	22:06:39	95.6	77.8	91.3	101.2	34.9	1027.4	473.9
165	2/11/2025	22:06:44	96.8	76.6	93.4	101.2	34.1	1053.4	473.1
166	2/11/2025	22:06:49	96.8	75.4	93.4	102.3	33.3	1079.4	472.3
167	2/11/2025	22:06:54	96.8	74.2	93.4	102.3	32.5	1105.4	471.5
168	2/11/2025	22:06:59	98	73	92.5	102.3	31.7	1131.4	470.7
169	2/11/2025	22:07:04	98	97.1	92.5	103.4	30.9	1157.4	469.9

170	2/11/2025	22:07:09	99.2	97.1	92.5	103.4	30.1	1183.4	469.1
171	2/11/2025	22:07:14	99.2	97.1	92.5	103.4	29.3	1209.4	468.3
172	2/11/2025	22:07:19	100.4	101.3	103.7	104.5	28.5	1235.4	467.5
173	2/11/2025	22:07:24	100.4	101.3	103.7	104.5	27.7	1261.4	466.7
174	2/11/2025	22:07:29	100.4	101.3	103.7	104.5	26.9	1287.4	465.9
Rata-rata		0:14:24	100.4	101.3	103.7	104.5	65.4	2094.1	928.3

Tabel L. 6 *Nozzle burner* ½ inci 1.3

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
1	2/11/2025	22:21:11	28	24.4	26.5	26.8	65.8	28.3	29
2	2/11/2025	22:21:16	28.2	24.4	25.4	26.7	55.3	28.3	29
3	2/11/2025	22:21:21	29.1	25.3	26	26.7	46	28.3	29
4	2/11/2025	22:21:26	30.5	26.1	27.6	27.1	41.6	58.1	29
5	2/11/2025	22:21:31	29.9	26.1	28.4	28.5	38.6	357.9	29.1
6	2/11/2025	22:21:36	30.7	26.2	30.1	27.8	37.6	710.7	107.6
7	2/11/2025	22:21:41	31.5	27.1	31	28.5	37	814.1	302.5
8	2/11/2025	22:21:46	35.5	38.6	42.9	28.7	45.3	776.2	447.4
9	2/11/2025	22:21:51	35.4	29.3	31.7	29.3	39.3	815.3	526.3
10	2/11/2025	22:21:56	34.5	34	36.8	29.5	36.2	764.8	568.1
11	2/11/2025	22:22:01	37.5	34.3	33.1	29.9	40	765	581.3
12	2/11/2025	22:22:06	39.2	34.2	36.1	30.9	41.4	777.8	586.2
13	2/11/2025	22:22:11	37.8	31.5	33.6	32.2	35.9	806.5	597.9
14	2/11/2025	22:22:16	39.8	32.6	36.4	32.2	40.4	812	602.5
15	2/11/2025	22:22:21	40.4	33.1	35.1	32.9	35.8	830.6	610.5
16	2/11/2025	22:22:26	42.9	35.9	36.4	34.2	38.5	748.5	594.5
17	2/11/2025	22:22:31	43.7	35.7	37.4	34.1	35.1	786.4	602.4
18	2/11/2025	22:22:36	45.3	38.2	37.5	34.7	35.1	834.3	620.1
19	2/11/2025	22:22:41	45.3	38.2	38.3	35.9	35.2	855.6	625.2
20	2/11/2025	22:22:46	46.8	39.6	40.8	36.5	35.4	863.9	630.3
21	2/11/2025	22:22:51	47.5	41.6	42	36.4	36.2	868	636.7
22	2/11/2025	22:22:56	48.2	40.8	41.1	40.4	35.5	879.5	634.5
23	2/11/2025	22:23:01	48.2	42.4	42.4	39.3	35.5	877.9	644.4
24	2/11/2025	22:23:06	48.7	42.5	42.4	39.3	35.6	871.9	649.7
25	2/11/2025	22:23:11	49.2	43.1	42	41.5	35.8	855.1	648.4
26	2/11/2025	22:23:16	49.4	44.6	41.6	42.1	34.9	862.2	650.6
27	2/11/2025	22:23:21	49.7	44.1	43.1	42.1	35.5	868.8	655.5
28	2/11/2025	22:23:26	50.6	42.6	43.1	42.3	35.4	872.5	654.3
29	2/11/2025	22:23:31	50.6	44.6	44.7	42.6	36	876.5	661.5
30	2/11/2025	22:23:36	50.5	44.2	44.1	43.7	35.3	873.7	664.7
31	2/11/2025	22:23:41	50.6	44.2	44.9	44.6	35.3	873.7	666.6
32	2/11/2025	22:23:46	51	45.7	46.6	43.8	35.3	872	670.2
33	2/11/2025	22:23:51	51.2	45.4	45.8	45	35.5	867.9	668.7
34	2/11/2025	22:23:56	51.3	44.3	44.7	45.9	35.5	859.3	659.6
35	2/11/2025	22:24:01	51.6	44.3	45	46.8	35.6	837.3	650.2
36	2/11/2025	22:24:06	52	44.5	46	47.5	35.5	835.2	644.8
37	2/11/2025	22:24:11	52.2	44.8	45.2	47.4	35.5	842.3	650
38	2/11/2025	22:24:16	52.3	45.1	47.6	49.7	35.6	840.3	649.1
39	2/11/2025	22:24:21	52.4	46	46.6	49	35.7	839.6	647.6

40	2/11/2025	22:24:26	52.4	46	47.4	48.4	35.3	856.9	653
41	2/11/2025	22:24:31	52.5	46.4	46.6	49.5	35.3	836	650
42	2/11/2025	22:24:36	53.1	46.2	46.6	50.2	35.5	817.6	645.1
43	2/11/2025	22:24:41	53.1	48.3	49.5	51.2	34.6	817.3	640.6
44	2/11/2025	22:24:46	53.3	46.9	47.6	51.8	34.6	827.8	641.7
45	2/11/2025	22:24:51	53.8	49.1	50.2	51.4	34.9	824.6	638.1
46	2/11/2025	22:24:56	54.2	47.7	49.8	51.4	35.1	830.9	637.9
47	2/11/2025	22:25:01	54.6	48.2	49	52.1	34.7	829.5	638.7
48	2/11/2025	22:25:06	55	50.2	49	52.8	35.5	848.7	642
49	2/11/2025	22:25:11	55.4	51.6	54	52.8	34.8	845.7	649.6
50	2/11/2025	22:25:16	55.6	53.2	54.3	54.7	34.8	827.7	652.8
51	2/11/2025	22:25:21	56.2	53.2	48.6	54	35.5	825.9	654.1
52	2/11/2025	22:25:26	56.6	51.9	51.5	54.6	35.4	828.4	656.7
53	2/11/2025	22:25:31	57	53.6	55.5	55.1	35.3	836.5	655.2
54	2/11/2025	22:25:36	57.4	50.3	52	55.1	35.3	803.1	650.2
55	2/11/2025	22:25:41	57.9	50.2	52.1	56.7	35.3	811.2	650.8
56	2/11/2025	22:25:46	58.9	53.3	56.3	58.1	35.4	815.5	649.8
57	2/11/2025	22:25:51	59.1	56.4	55.9	58.1	35.7	836.2	657.2
58	2/11/2025	22:25:56	59.8	52.9	53.8	59.2	35.3	815.7	655.8
59	2/11/2025	22:26:01	60.3	53.9	54.7	60	36	816.1	654.9
60	2/11/2025	22:26:06	60.9	53.9	54.7	61.2	35.9	819.5	658.1
61	2/11/2025	22:26:11	61.3	56.4	54.1	60.6	35.7	811.5	663.5
62	2/11/2025	22:26:16	61.6	56	60.1	61.3	35.3	830	665.5
63	2/11/2025	22:26:21	63.6	59.9	62.8	61.3	39.7	822	660.3
64	2/11/2025	22:26:26	63.7	61.5	62.7	62.2	39.7	831.3	660.9
65	2/11/2025	22:26:31	63.8	56.4	58.3	62.2	36.2	826.2	659.5
66	2/11/2025	22:26:36	64	57.1	59	63.4	37.6	840.3	664.1
67	2/11/2025	22:26:41	64.8	58.8	61.8	64	36.7	834.6	660.7
68	2/11/2025	22:26:46	66	62.4	65.7	65.1	37.6	833.9	658
69	2/11/2025	22:26:51	66.9	55.7	57.3	64.1	37.3	847.6	658.9
70	2/11/2025	22:26:56	66.3	57.1	58.4	65.3	36.2	841.5	653
71	2/11/2025	22:27:01	67.5	57.9	59.9	65.4	37.4	833.4	663.1
72	2/11/2025	22:27:06	67.5	61.6	60.7	66.1	36	830.9	663.7
73	2/11/2025	22:27:11	67.3	59.3	61.7	67	36	817.3	662.1
74	2/11/2025	22:27:16	68.1	63.6	65.3	66.8	37.5	832.1	657.2
75	2/11/2025	22:27:21	69	59.1	61.3	68.3	36.9	835.6	652.3
76	2/11/2025	22:27:26	69.8	58.5	60.3	68.3	36.7	847	648
77	2/11/2025	22:27:31	71.2	59.5	61	68.6	36.7	839.2	648
78	2/11/2025	22:27:36	72.1	58.8	60.2	70.1	36.7	851.1	651.2
79	2/11/2025	22:27:41	74.4	59.5	60.5	69.5	36.9	829.5	642.5
80	2/11/2025	22:27:46	73.1	59.5	60.1	70.9	35.9	834.2	637.7

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
81	2/11/2025	22:27:51	73.1	59.4	60	72.5	35.9	827	642.5
82	2/11/2025	22:27:56	73.4	61.3	62	72.5	35.8	841.4	641.1
83	2/11/2025	22:28:01	73.4	62.1	62.6	71.9	35.9	818.5	638.5
84	2/11/2025	22:28:06	72.7	62.1	63.4	71.8	35.3	822.3	636.5
85	2/11/2025	22:28:11	73.4	70	72	72.7	35.3	825.6	635.4
86	2/11/2025	22:28:16	73.5	71.5	73.9	72.7	35.3	820.1	639.3
87	2/11/2025	22:28:21	73.6	71	74.1	72.7	35.3	817.2	639.4
88	2/11/2025	22:28:26	73.9	72.2	73.4	73.1	35.6	810.2	640.5
89	2/11/2025	22:28:31	74.5	71.6	73.7	73.7	35.6	825.4	646.3
90	2/11/2025	22:28:36	76.3	72.9	75.6	74.2	36.1	823.2	649.6
91	2/11/2025	22:28:41	75.5	73.7	75.7	74.7	36.1	828.7	650.9
92	2/11/2025	22:28:46	75.5	73.9	75.5	76.4	35.2	830.1	649
93	2/11/2025	22:28:51	78.2	74.6	66.1	77.7	36.7	833.1	649.2
94	2/11/2025	22:28:56	77.3	74.2	75.7	77.6	35.3	815.7	649.6
95	2/11/2025	22:29:01	79.2	72.9	76.3	77.6	37.6	797.5	645.8
96	2/11/2025	22:29:06	79.2	64.2	76	78.7	35.7	823.4	644.8
97	2/11/2025	22:29:11	79.8	71.7	80.5	78	37.6	803.2	639.9
98	2/11/2025	22:29:16	79.8	71.1	71.1	79.7	37.9	786	629.9
99	2/11/2025	22:29:21	80.7	67.3	68.7	81.8	37.2	839.8	638.2
100	2/11/2025	22:29:26	81.8	68.8	70.4	81.7	37.2	826.3	638.6
101	2/11/2025	22:29:31	81.8	68	68.9	81.8	36.3	822.7	636
102	2/11/2025	22:29:36	82.2	68.8	70.7	82.2	37.2	815.6	638.7
103	2/11/2025	22:29:41	82.9	68.8	70.7	83	37.3	825.8	642.1
104	2/11/2025	22:29:46	83.9	73.4	80.4	84.1	37.5	824	644.2
105	2/11/2025	22:29:51	83.9	70	72.9	84.8	37.5	831.3	648.5
106	2/11/2025	22:29:56	83.9	68.9	70.4	84.8	37.6	830.4	654.7
107	2/11/2025	22:30:01	87	71.6	74.6	86.2	36.8	788.8	656.2
108	2/11/2025	22:30:06	91.6	71	73.6	86.8	35.7	796.8	662.9
109	2/11/2025	22:30:11	86.3	69.4	73.4	86.2	39.8	804.5	662.1
110	2/11/2025	22:30:16	86.3	70.3	69.9	87.8	38.4	822.5	661.3
111	2/11/2025	22:30:21	86.3	70.4	75.4	88.4	35.8	824.8	660.4
112	2/11/2025	22:30:26	89	70.2	69.9	89.1	39	784.6	657.9
113	2/11/2025	22:30:31	89	72.1	72.9	89.2	36.2	807.7	660.2
114	2/11/2025	22:30:36	88.8	73.5	74	89.9	38.7	821.2	661.3
115	2/11/2025	22:30:41	93.2	73.4	75.6	90.7	37	825.1	661.7
116	2/11/2025	22:30:46	93.2	72.5	75	90.9	35.7	815.8	655.9
117	2/11/2025	22:30:51	93.2	72.4	74	91.8	37	836.1	656.6
118	2/11/2025	22:30:56	89.9	73.7	75.2	92.6	36.2	823.7	659
119	2/11/2025	22:31:01	89.9	70.5	73.5	92.6	36.7	832.7	655.3
120	2/11/2025	22:31:06	90.8	80.2	81.8	92.6	39.1	810.6	652.5
121	2/11/2025	22:31:11	90.8	78.4	74	93.1	36.5	840	648.2

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
122	2/11/2025	22:31:16	91.5	88.6	81.4	93.1	39	822	643.5
123	2/11/2025	22:31:21	91.5	80	88.2	93.1	36.6	806	637.7
124	2/11/2025	22:31:26	91.5	82.4	82.4	92.5	36.6	829.2	632
125	2/11/2025	22:31:31	91.5	81	90	92.5	35.2	837.4	634.5
126	2/11/2025	22:31:36	91.5	87.2	57.2	93.7	35.2	838.1	631.1
127	2/11/2025	22:31:41	91.5	87.2	68.1	93.7	35.8	846.6	633.2
128	2/11/2025	22:31:46	91.7	87.2	88.5	94.1	35.7	840.4	632.7
129	2/11/2025	22:31:51	91.7	87.2	89.5	94.1	35.5	810.8	631.4
130	2/11/2025	22:31:56	93.8	87.2	89.5	93.9	35.3	781.2	630.1
131	2/11/2025	22:32:01	93.8	48.1	89.5	93.9	35.1	751.6	628.8
132	2/11/2025	22:32:06	93.8	39.6	89.5	94.9	34.9	722	627.5
133	2/11/2025	22:32:11	97.1	39.6	90.1	94.9	34.7	692.4	626.2
134	2/11/2025	22:32:16	97.1	39.6	90.1	97.7	34.5	662.8	624.9
135	2/11/2025	22:32:21	97.1	39.6	90.1	97.7	34.3	633.2	623.6
136	2/11/2025	22:32:26	97.1	39.6	90.1	96.6	34.1	603.6	622.3
137	2/11/2025	22:32:31	97.1	90.1	99.9	96.6	33.9	574	621
138	2/11/2025	22:32:36	96.5	90.1	99.9	96.6	33.7	544.4	619.7
139	2/11/2025	22:32:41	96.5	90.1	99.9	98.6	33.5	514.8	618.4
140	2/11/2025	22:32:46	96.5	90.1	99.9	98.6	33.3	485.2	617.1
141	2/11/2025	22:32:51	96.5	90.1	99.9	98.6	33.1	455.6	615.8
142	2/11/2025	22:32:56	92.4	90.1	99.9	99.7	32.9	426	614.5
143	2/11/2025	22:33:01	92.4	90.1	99.9	99.7	32.7	396.4	613.2
144	2/11/2025	22:33:06	93.1	100.4	90.9	100.8	32.5	366.8	611.9
145	2/11/2025	22:33:11	93.1	100.4	90.9	100.8	32.3	337.2	610.6
146	2/11/2025	22:33:16	93.1	100.4	103.5	101.9	32.1	307.6	609.3
147	2/11/2025	22:33:21	98.8	100.4	103.5	101.9	31.9	278	608
148	2/11/2025	22:33:26	98.8	102.5	103.5	103	31.7	248.4	606.7
149	2/11/2025	22:33:31	98.8	102.5	103.5	103	31.5	218.8	605.4
150	2/11/2025	22:33:36	101.8	102.5	103.5	104.1	31.3	189.2	604.1
151	2/11/2025	22:33:41	101.8	102.5	103.5	104.1	31.1	159.6	602.8
152	2/11/2025	22:33:46	101.8	102.5	103.5	104.1	30.9	130	601.5
Rata-rata		0:12:35	101.8	102.5	103.5	104.1	67.24	544.4	601.5

Tabel L. 7 *Nozzle burner* $\frac{3}{4}$ inci 1.1

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin}	T _{api}	T _{tungku}
			TD ₁	TD ₂	TD ₃	TD ₄			
1	2/12/2025	2:29:21	24.4	30.2	25.3	28.6	35.3	419	418.2
2	2/12/2025	2:29:26	24.4	29.6	27.5	28.6	33.9	494.6	558.1
3	2/12/2025	2:29:31	25.3	30.2	26.7	28.6	33.9	528.1	596.1
4	2/12/2025	2:29:36	26.1	30.2	27.8	28.7	33.2	564.6	614.3
5	2/12/2025	2:29:41	26.1	30.3	27.8	29.3	33.1	581.6	625.8
6	2/12/2025	2:29:46	26.2	30.8	27.4	29.6	33	590.1	629.8
7	2/12/2025	2:29:51	27.1	31.9	27.4	29.8	32.8	602.7	634.1
8	2/12/2025	2:29:56	38.6	32	27.7	30.2	32.7	612.4	636.9
9	2/12/2025	2:30:01	29.3	32	28.2	30.4	32.7	617.2	633.1
10	2/12/2025	2:30:06	34	32.6	28	30.4	32.8	614.5	624.1
11	2/12/2025	2:30:11	34.3	32.6	28.9	30.7	32.8	609.9	638.8
12	2/12/2025	2:30:16	34.2	32.4	29.1	31	32.9	612.2	643.7
13	2/12/2025	2:30:21	31.5	37.9	19.4	30.6	31.6	616.5	651.1
14	2/12/2025	2:30:26	32.6	32.8	28.5	30.6	32.7	626.9	657.6
15	2/12/2025	2:30:31	33.1	32.8	29.5	31.2	32.7	626.2	660.6
16	2/12/2025	2:30:36	35.9	35.7	25.9	31.6	32.7	641.4	653.9
17	2/12/2025	2:30:41	35.7	36.5	24	31.6	32.7	629.2	642.1
18	2/12/2025	2:30:46	38.2	36.7	22.5	31.5	32.6	624.7	636.9
19	2/12/2025	2:30:51	38.2	36.7	24.2	31.9	32.4	625	642.8
20	2/12/2025	2:30:56	39.6	36.7	24.7	32.4	32.4	639.5	638.2
21	2/12/2025	2:31:01	41.6	37	25.1	32.8	32.8	654.2	638.3
22	2/12/2025	2:31:06	40.8	38.7	27.3	32.7	33.1	671.4	638.1
23	2/12/2025	2:31:11	42.4	38.7	27.3	32.4	32.8	685.6	633.7
24	2/12/2025	2:31:16	42.5	38.9	28.1	32.3	32.6	720.4	628.2
25	2/12/2025	2:31:21	43.1	39.1	28.1	32.4	32.6	712.4	624.8
26	2/12/2025	2:31:26	44.6	39.1	28.1	32.5	32.7	707.1	631.2
27	2/12/2025	2:31:31	44.1	39.6	28.1	33	32.6	719.7	637.4
28	2/12/2025	2:31:36	42.6	40.2	28	33.6	32.6	731	633.8
29	2/12/2025	2:31:41	44.6	41.5	27.8	33.9	32.6	745.5	623.6
30	2/12/2025	2:31:46	44.2	42.4	27.5	34.5	32.5	752.3	621.1
31	2/12/2025	2:31:51	44.2	43.2	27.2	34.5	32.6	768.7	625.4
32	2/12/2025	2:31:56	45.7	45.4	27.2	34.6	32.5	775.1	631.4
33	2/12/2025	2:32:01	45.4	46.1	26.9	35.9	32.4	775.7	636.6
34	2/12/2025	2:32:06	52.3	46.1	25.3	35.9	34	784.8	623.7
35	2/12/2025	2:32:11	53.2	39.1	20.3	39.4	39.9	751.9	611.7
36	2/12/2025	2:32:16	53.3	39.8	44.5	39.4	44.8	752.9	616.5
37	2/12/2025	2:32:21	53.4	47.4	43.9	40.2	42.9	754.8	603.2
38	2/12/2025	2:32:26	53.7	46.8	43.2	39.6	41.2	761	588.2
39	2/12/2025	2:32:31	53.6	44.9	39.4	40.8	41.5	760.4	584.4

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin}	T _{api}	T _{tungku}
			TD ₁	TD ₂	TD ₃	TD ₄			
40	2/12/2025	2:32:36	53.7	44.8	42.4	40.7	47.4	749.1	584.7
41	2/12/2025	2:32:41	55.4	42.9	37.9	40.5	51.4	738.6	586.5
42	2/12/2025	2:32:46	56	41.3	36.5	43.1	47.4	747.2	579.7
43	2/12/2025	2:32:51	57.1	39.7	41	42.4	48	738.8	590.9
44	2/12/2025	2:32:56	57.2	50.2	45.1	43	40.6	736.8	614.3
45	2/12/2025	2:33:01	57.9	49.4	44.4	43	41.5	722.2	631.6
46	2/12/2025	2:33:06	59.9	47.2	40.2	42.1	35.1	711.3	634.7
47	2/12/2025	2:33:11	60.1	49.1	39.8	43.3	37.8	706.8	635.8
48	2/12/2025	2:33:16	61.9	43.9	37.8	44.1	34.9	733.4	634.1
49	2/12/2025	2:33:21	61.9	53.5	50.6	45.8	39.9	698.2	637.9
50	2/12/2025	2:33:26	61.9	44.2	36.9	45	35.2	730.1	652
51	2/12/2025	2:33:31	62.3	51.3	43.3	45	38.3	693	652.3
52	2/12/2025	2:33:36	62.2	44.7	45.7	46.5	35.5	728.8	650.1
53	2/12/2025	2:33:41	62.2	45.2	37.2	45.2	38	705.8	648.7
54	2/12/2025	2:33:46	63.4	48.2	44.2	49.1	37.4	738.7	633.5
55	2/12/2025	2:33:51	64.2	42.3	16.2	48.9	37.8	733.1	624.6
56	2/12/2025	2:33:56	63.3	47.2	16.2	48	42	729.8	617.6
57	2/12/2025	2:34:01	63.3	46.9	16.2	47.1	38	712.4	610.9
58	2/12/2025	2:34:06	63.3	46.7	16.2	47.1	37.9	702.1	605.4
59	2/12/2025	2:34:11	63.3	52	16.2	47.2	38.2	720.7	597.1
60	2/12/2025	2:34:16	63.3	50.7	16.2	49	41.9	677.9	590.5
61	2/12/2025	2:34:21	63.3	50.7	16.2	49	42.8	735.9	590.1
62	2/12/2025	2:34:26	63.3	56.5	16.2	51.6	42.6	722	583.7
63	2/12/2025	2:34:31	63.3	50	16.2	52.5	39.4	765.3	580
64	2/12/2025	2:34:36	63.3	55.5	16.2	51.5	43.2	680	579.8
65	2/12/2025	2:34:41	63.3	56	17.8	52.4	41.8	716.7	575.8
66	2/12/2025	2:34:46	60.8	53.4	17.8	54.2	43.4	738.6	571.4
67	2/12/2025	2:34:51	60.8	54.4	16.2	52.2	37.8	741	575.8
68	2/12/2025	2:34:56	60.8	53.3	16.2	56.5	40.3	722.5	583.3
69	2/12/2025	2:35:01	59.7	58.4	16.2	55.7	40.8	699.6	586.6
70	2/12/2025	2:35:06	59.7	51.9	20.8	57.1	37.8	724.3	583.8
71	2/12/2025	2:35:11	65.2	50	20.8	56.9	37.2	734.4	588.7
72	2/12/2025	2:35:16	62.4	53.1	21.3	56.3	38.4	716	590.4
73	2/12/2025	2:35:21	62.4	52.7	21.3	59.1	37.1	745.4	588.6
74	2/12/2025	2:35:26	62.4	54.1	21.3	60	37.1	695.1	581.9
75	2/12/2025	2:35:31	68	58.7	25.4	59.1	40.6	673.1	572.3
76	2/12/2025	2:35:36	68	56.6	25.4	61.1	39.6	677.7	561.2
77	2/12/2025	2:35:41	67.3	53	25.4	62.5	38.1	740.6	548.9
78	2/12/2025	2:35:46	67.3	57.6	35.3	64.2	39.1	676.3	545.4
79	2/12/2025	2:35:51	72.4	56.5	24.6	64	38	684.9	547.8
80	2/12/2025	2:35:56	72.4	54.6	24.6	65.8	39.9	716.4	551

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin}	T _{api}	T _{tungku}
			TD ₁	TD ₂	TD ₃	TD ₄			
81	2/12/2025	2:36:01	72.4	52.9	28	68.7	37.9	710.5	557
82	2/12/2025	2:36:06	70.8	57	28	67.4	41.2	692.2	551.2
83	2/12/2025	2:36:11	70.8	61.9	40.3	65.3	37.8	682.3	550.5
84	2/12/2025	2:36:16	70.8	51.6	40.3	66	38.8	744.9	555.9
85	2/12/2025	2:36:21	70.8	57.9	20.2	67.2	39.9	691.2	559.8
86	2/12/2025	2:36:26	70.8	56.7	20.2	66.6	40.8	734.3	567.2
87	2/12/2025	2:36:31	76.4	54.1	20.2	69.3	37.3	721.5	569.3
88	2/12/2025	2:36:36	76.4	61.4	20.2	71.2	39.6	675.6	571.9
89	2/12/2025	2:36:41	76.4	50.5	20.2	71.8	37.9	737.4	579.4
90	2/12/2025	2:36:46	76.4	53	20.2	68.3	37.9	738.6	589.5
91	2/12/2025	2:36:51	75.8	57.8	12.9	67.2	39.4	736.2	580.1
92	2/12/2025	2:36:56	73.5	65	15.8	68.4	40	754.4	574.6
93	2/12/2025	2:37:01	73.5	54.9	15.8	64.8	39.2	744.4	579.4
94	2/12/2025	2:37:06	74	60.4	15.8	66.9	38	756.2	584.4
95	2/12/2025	2:37:11	74	52.6	19.4	73.7	38.7	745.1	587.4
96	2/12/2025	2:37:16	74	63.5	19.4	66.2	39.9	717.3	585.3
97	2/12/2025	2:37:21	74	57	19.4	68.2	38.1	740.8	587.7
98	2/12/2025	2:37:26	79.6	58.6	21.1	65.1	38.1	757.1	587.7
99	2/12/2025	2:37:31	79.6	63	21.1	71.9	38.6	739.5	590.1
100	2/12/2025	2:37:36	79.6	73.4	21.1	67.8	39.4	764.8	588.5
101	2/12/2025	2:37:41	79.6	66.3	21.3	71.3	40.6	742.1	586
102	2/12/2025	2:37:46	82	65.8	21.3	74.7	37.9	735.4	582.3
103	2/12/2025	2:37:51	82	70.7	21.3	76.1	41.7	720	581.2
104	2/12/2025	2:37:56	82	68.3	21.3	74.2	37.2	737.1	585.9
105	2/12/2025	2:38:01	82	63.9	21.3	80.1	41	722.7	579.3
106	2/12/2025	2:38:06	82	59.7	21.3	79.3	41	717.2	577.5
107	2/12/2025	2:38:11	84.1	51.5	21.3	83.9	41.6	708.9	574.1
108	2/12/2025	2:38:16	84.1	57.4	21.3	85.7	39.3	712.7	575.3
109	2/12/2025	2:38:21	84.1	55.5	16.2	84.2	39.9	737.6	580.1
110	2/12/2025	2:38:26	84.1	53.7	16.2	83.8	39.9	743.4	584.1
111	2/12/2025	2:38:31	83	56.8	16.2	84.2	41.6	701.1	592.4
112	2/12/2025	2:38:36	83	52.5	16.2	89.1	43.2	722.5	591.3
113	2/12/2025	2:38:41	83	50.7	16.2	91.8	43	722.1	588.9
114	2/12/2025	2:38:46	83	51.5	16.2	93.4	42.6	733.9	589.6
115	2/12/2025	2:38:51	88.5	51.7	17.3	89.1	43.3	729	589
116	2/12/2025	2:38:56	88.5	46.1	17.3	96.6	43.5	723.2	595.2
117	2/12/2025	2:39:01	88.5	45.3	17.3	96	43.6	718.7	599.4
118	2/12/2025	2:39:06	88.5	72.1	17.3	92.2	45	717.2	600.6
119	2/12/2025	2:39:11	88.5	82.3	17.3	86.9	44.7	717.3	601.7
120	2/12/2025	2:39:16	89.1	-4.5	17.3	75.2	61.1	736.4	601.6
121	2/12/2025	2:39:21	89.1	82.5	54.8	91.5	41.8	723	600.1

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin}	T _{api}	T _{tungku}
			TD ₁	TD ₂	TD ₃	TD ₄			
122	2/12/2025	2:39:26	89.1	6.4	54.8	98.2	57.2	731.3	601.2
123	2/12/2025	2:39:31	89.6	4.3	54.8	83.4	63.4	725.9	606.4
124	2/12/2025	2:39:36	89.6	42.3	54.8	118.5	53.8	726.2	606.4
125	2/12/2025	2:39:41	89.6	57.9	54.8	97.9	47.2	729	606
126	2/12/2025	2:39:46	89.6	26.9	54.8	107.6	54.3	729.9	606.8
127	2/12/2025	2:39:51	92.1	70.5	41.1	94.2	47.7	731.7	610
128	2/12/2025	2:39:56	92.1	85.4	86.4	85.8	53.1	733.2	610
129	2/12/2025	2:40:01	92.1	82.1	83.4	86.4	47.7	756.1	607.6
130	2/12/2025	2:40:06	93.6	86.2	87	86.4	51.1	732.9	601.4
131	2/12/2025	2:40:11	93.6	85.9	81.5	86.3	47.8	755.7	600.8
132	2/12/2025	2:40:16	93.6	79	67	87.2	45.7	787.5	600.8
133	2/12/2025	2:40:21	93.6	84.7	67	91.3	49.2	746.3	602.6
134	2/12/2025	2:40:26	93.6	84.3	76	90.2	47.7	746.9	609.5
135	2/12/2025	2:40:31	93.6	81.6	78.1	90.2	53.1	742.6	611.4
136	2/12/2025	2:40:36	91.1	86.8	63.4	90.2	50.7	752.1	612.3
137	2/12/2025	2:40:41	103.1	85.5	54.8	91.2	50.8	763.3	614.8
138	2/12/2025	2:40:46	103.4	80.9	69.2	91.2	47.9	742.7	615.4
139	2/12/2025	2:40:51	103.4	89.9	80.6	93.6	49.7	747.7	614.1
140	2/12/2025	2:40:56	103.4	90.8	84.9	91.8	49.6	761.4	614.9
141	2/12/2025	2:41:01	103.4	84.9	88.6	91.4	50.2	754.8	615
142	2/12/2025	2:41:06	112.4	93.2	82.5	92.1	52.8	755.8	616.2
143	2/12/2025	2:41:11	110.9	89.7	78.3	95.9	49.7	760.1	618.6
144	2/12/2025	2:41:16	124.7	88.8	81.5	93.3	50.7	786.4	618
145	2/12/2025	2:41:21	104.2	93.2	87.5	97.1	50.2	754.6	620.6
146	2/12/2025	2:41:26	104.2	93.9	79.2	93.6	46.5	732.6	619.5
147	2/12/2025	2:41:31	104.2	95.8	90.8	95.2	51	729.9	620.3
148	2/12/2025	2:41:36	104.2	93.4	77	94.4	46.6	779.6	620.4
149	2/12/2025	2:41:41	104.2	97.6	92.7	95.5	49.3	759.7	622.2
150	2/12/2025	2:41:46	104.2	105.1	91.7	95.7	46.8	744	619.9
151	2/12/2025	2:41:51	104.2	105.1	105.5	106.2	48.9	771.1	619.9
Rata-rata		0:12:30	104.2	105.1	105.5	106.2	61.71	712.57	602.53

Tabel L. 8 *Nozzle burner* $\frac{3}{4}$ inci 1.2

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
1	2/12/2025	2:55:01	37	49	39	28.7	47.7	795.6	574.3
2	2/12/2025	2:55:06	38.2	49	38.8	28.3	48.4	793.6	577
3	2/12/2025	2:55:11	38.5	49	38.1	30.6	48.3	794.5	577
4	2/12/2025	2:55:16	42.1	49	32.3	31.8	47.3	789.9	579.8
5	2/12/2025	2:55:21	42.8	49	39.4	37.5	47.3	794.6	582.4
6	2/12/2025	2:55:26	39.2	49	27.3	29.5	47.4	797.1	585.6
7	2/12/2025	2:55:31	42.8	49	38.4	28.6	47.3	796.9	588.7
8	2/12/2025	2:55:36	41.2	49.6	36	36.1	47.3	804.3	593
9	2/12/2025	2:55:41	40.7	49.6	27.6	35.1	47.5	810	596.1
10	2/12/2025	2:55:46	41.4	49	30.9	34.1	47.6	802.3	597.8
11	2/12/2025	2:55:51	42.1	48.3	33.1	35.2	48	799.7	601
12	2/12/2025	2:55:56	42.9	48.3	34.6	36.3	48.3	798.5	603.9
13	2/12/2025	2:56:01	43.6	46.9	35.6	36.3	59.4	757.7	604.5
14	2/12/2025	2:56:06	43.6	46.9	36.9	38.4	60.2	748.1	604.2
15	2/12/2025	2:56:11	43.9	46.9	37.9	38.4	61.9	742.9	606.6
16	2/12/2025	2:56:16	44.3	46.9	40.8	38.4	59.6	751.8	607.9
17	2/12/2025	2:56:21	44.8	59	41.5	38.9	62.3	744.1	611.3
18	2/12/2025	2:56:26	45.2	46.7	39.9	39.1	60.7	754	612.7
19	2/12/2025	2:56:31	45.8	46.7	36.7	39.5	64.7	754.8	612.7
20	2/12/2025	2:56:36	46.4	55.1	35.5	39.8	57.8	755.3	614.1
21	2/12/2025	2:56:41	47.2	54.4	35.5	40.5	57.8	761.8	615
22	2/12/2025	2:56:46	48	54.4	35.5	40.4	56.4	764.8	614.4
23	2/12/2025	2:56:51	48.9	54.4	37.8	40	56.5	768.4	614.4
24	2/12/2025	2:56:56	49.2	54.4	40.1	40.9	56.3	767.6	614.9
25	2/12/2025	2:57:01	48.4	54.4	42.1	40.9	56.5	769.5	614.1
26	2/12/2025	2:57:06	46	59.6	43.1	40	56.5	773.1	614.9
27	2/12/2025	2:57:11	46	59.6	36.8	41	53.5	785.7	615.9
28	2/12/2025	2:57:16	46	59.6	39.9	41	60.9	742.7	616.8
29	2/12/2025	2:57:21	48.1	59.6	42.4	43.1	60.9	771	617.6
30	2/12/2025	2:57:26	46.3	59.6	38.6	43.3	58.5	762.2	620
31	2/12/2025	2:57:31	47.3	59.6	40.5	44.1	59.1	758.2	621.1
32	2/12/2025	2:57:36	46.8	59.6	39.5	43	62.1	758.2	623.7
33	2/12/2025	2:57:41	48.9	59.6	54.6	41.3	55.9	740.2	623
34	2/12/2025	2:57:46	49	59.7	53.4	41.5	56.6	769.1	624.3
35	2/12/2025	2:57:51	49.7	59.7	55.7	41.3	45.9	814.6	625.9
36	2/12/2025	2:57:56	51.6	59.7	55	41	45.9	814.6	627.4
37	2/12/2025	2:58:01	49.9	59.7	63.3	37.6	45.8	811.4	627.4
38	2/12/2025	2:58:06	50.6	60.9	64.9	37.5	45.8	812.1	628.3
39	2/12/2025	2:58:11	52.6	60.9	50.4	35.3	50	804.7	628.3

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
40	2/12/2025	2:58:16	49	60.9	34.4	38.5	50	784.9	629.2
41	2/12/2025	2:58:21	52.2	60.9	52.5	40.4	50.6	792.4	630.1
42	2/12/2025	2:58:26	52.3	60.9	52	39.5	50.5	791.9	631.2
43	2/12/2025	2:58:31	55.4	60.9	53.5	44.4	52.7	786.6	632.1
44	2/12/2025	2:58:36	55.2	60.9	52.6	44.4	49.9	790.4	634
45	2/12/2025	2:58:41	53.3	60.9	52.8	44.3	45.9	812.1	634.8
46	2/12/2025	2:58:46	52	61	51.6	41.5	45.9	802.3	629.9
47	2/12/2025	2:58:51	54.6	61	49.1	40.7	48	765.9	625.5
48	2/12/2025	2:58:56	55.4	61.6	52.6	43	45.9	777.7	619.2
49	2/12/2025	2:59:01	55.4	61.6	54.2	45	45.9	795.1	618
50	2/12/2025	2:59:06	57.6	61.6	56.9	45.8	48.4	797.6	619
51	2/12/2025	2:59:11	57.6	61.6	55.2	44.9	51.8	783.4	625
52	2/12/2025	2:59:16	59	61.6	55.2	46	51.8	787.2	625
53	2/12/2025	2:59:21	59	61.6	55.4	47.3	52.6	776.2	625.1
54	2/12/2025	2:59:26	58	62.2	55.6	44.8	52.8	775.5	625.9
55	2/12/2025	2:59:31	59.3	62.2	58.9	48.6	58.9	767	626
56	2/12/2025	2:59:36	58.1	62.2	58.1	43.8	56.7	773.8	627
57	2/12/2025	2:59:41	58.1	62.2	55.6	41.8	56.8	764.2	626.4
58	2/12/2025	2:59:46	57.5	62.2	61.5	46.5	54.3	767.5	625.4
59	2/12/2025	2:59:51	61.2	66.4	59	45.6	55.3	782	625.3
60	2/12/2025	2:59:56	59.8	66.4	61.7	48.8	56.7	788.5	624.1
61	2/12/2025	3:00:01	62.2	66.4	60.3	45.3	47.1	814.5	626.1
62	2/12/2025	3:00:06	62.2	66.4	60.9	42.1	46.3	816	624.8
63	2/12/2025	3:00:11	59.1	66.4	51.2	44.2	49.7	820	627.7
64	2/12/2025	3:00:16	63.1	67	59.4	45.7	50.4	794.5	626.7
65	2/12/2025	3:00:21	61.2	67	48.8	46.3	45.6	818.3	625.9
66	2/12/2025	3:00:26	60.6	67	49	44.6	46.6	816	623
67	2/12/2025	3:00:31	61	69.1	54.7	46.7	47.1	812.5	621.8
68	2/12/2025	3:00:36	64.2	69.1	66.5	61	51.8	807.7	622.9
69	2/12/2025	3:00:41	64.9	69.1	59.9	52.4	48.6	815	622.2
70	2/12/2025	3:00:46	67.5	70.3	70.6	62.1	47	792.6	623.2
71	2/12/2025	3:00:51	65.1	70.3	64.8	58.6	45.3	803.7	621.4
72	2/12/2025	3:00:56	66	70.3	57.8	51.9	50.7	792.1	624.6
73	2/12/2025	3:01:01	65.4	70.3	68.6	52.9	50.1	788.1	622.7
74	2/12/2025	3:01:06	65.5	70.3	65.4	54.4	44.6	813.6	621.8
75	2/12/2025	3:01:11	66.1	70.3	63.3	52.9	46.2	812.3	620.2
76	2/12/2025	3:01:16	66.8	72.2	72.2	53.5	49.8	799.7	617.9
77	2/12/2025	3:01:21	67	72.2	68	56.2	46.6	798.5	617.3
78	2/12/2025	3:01:26	67.5	72.2	61.7	51.5	49.2	798.9	621.3
79	2/12/2025	3:01:31	69.7	72.2	64.3	53.6	51.8	774.4	627.5
80	2/12/2025	3:01:36	70.5	72.2	68.5	51.3	49.3	803.8	628.9

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
81	2/12/2025	3:01:41	72.3	72.2	65	58.5	50.8	793.9	625.1
82	2/12/2025	3:01:46	71.2	72.2	66.9	59.5	48.6	815.5	620.3
83	2/12/2025	3:01:51	73.3	74.4	69.3	65.2	50.6	780.6	620.6
84	2/12/2025	3:01:56	74.5	74.4	70	68.1	44.5	786.1	620.6
85	2/12/2025	3:02:01	73.9	74.4	70.4	69.4	47.5	790.4	619.8
86	2/12/2025	3:02:06	78.4	74.4	74.7	70.4	43.2	812.5	619.7
87	2/12/2025	3:02:11	79.1	74.4	78.3	74.1	43.2	800.7	619.6
88	2/12/2025	3:02:16	75.4	74.4	77.4	71.6	44.4	795.5	616.7
89	2/12/2025	3:02:21	77.5	72.8	78.1	71.6	44.4	799.5	618.1
90	2/12/2025	3:02:26	79.3	72.8	83.8	71.6	43.8	809.1	624.5
91	2/12/2025	3:02:31	79	75.4	83.6	76.6	43.1	813.7	625.9
92	2/12/2025	3:02:36	78.1	75.4	82.6	65.8	47.6	795.8	628.1
93	2/12/2025	3:02:41	74.7	75.4	73.8	76	47.6	791	626.2
94	2/12/2025	3:02:46	74	75.4	80	52.2	48.8	785.4	627.3
95	2/12/2025	3:02:51	74.2	75.4	73.4	53.3	49.5	781	627
96	2/12/2025	3:02:56	74.6	75.5	76.2	53.8	48.3	795.4	630
97	2/12/2025	3:03:01	80.7	75.5	81.6	61.7	48.4	793.2	629.2
98	2/12/2025	3:03:06	75.5	75.5	84	57.4	48.4	791.7	630.8
99	2/12/2025	3:03:11	74.5	75.5	82.2	57.5	51.2	777.1	630.7
100	2/12/2025	3:03:16	74.6	75.5	82.5	55.2	50.3	774.6	632.4
101	2/12/2025	3:03:21	78	83.1	85.1	56.5	50.1	781.1	633.9
102	2/12/2025	3:03:26	77.4	83.1	83.4	53.3	50.4	780.5	632
103	2/12/2025	3:03:31	78	83.1	83.4	53.7	49	781.6	631
104	2/12/2025	3:03:36	79.3	83.1	85.4	53.8	50	772.9	631.8
105	2/12/2025	3:03:41	79.4	83.1	85.9	54.6	50.7	777.9	630.1
106	2/12/2025	3:03:46	79.4	83.1	85.8	53.7	51.4	776.3	630.4
107	2/12/2025	3:03:51	79.7	83.1	86.3	52.4	49.5	771.8	630.6
108	2/12/2025	3:03:56	81.9	83.1	86.3	61.1	49.2	770.2	633.4
109	2/12/2025	3:04:01	81.7	84.4	87.6	64.1	48.5	766.2	634.4
110	2/12/2025	3:04:06	84.8	84.4	82.3	62.7	49.7	766.5	634.4
111	2/12/2025	3:04:11	81.9	84.4	83.8	66.6	47.5	773.1	632.1
112	2/12/2025	3:04:16	81.9	93.2	83.8	56.9	43.8	786.9	630.3
113	2/12/2025	3:04:21	81.9	93.2	83.8	54.2	43.6	791.6	627.6
114	2/12/2025	3:04:26	81.9	93.2	83.8	53.3	47.8	779.5	628.5
115	2/12/2025	3:04:31	81.9	95.3	84.8	51.9	47	775.8	630.6
116	2/12/2025	3:04:36	81.9	95.3	84.8	52	47.8	776	630.6
117	2/12/2025	3:04:41	81.9	88.5	84.8	50.9	47.8	771.2	631.9
118	2/12/2025	3:04:46	81.9	88.5	87.6	65.2	47.2	765.6	633.1
119	2/12/2025	3:04:51	82.6	95	87.6	68.1	48	766.7	634.8
120	2/12/2025	3:04:56	82.6	95	87.6	69.4	47.4	772	634.9
121	2/12/2025	3:05:01	82.6	95	87.6	70.4	46.3	770.7	633.9

122	2/12/2025	3:05:06	83.2	97.8	82.7	74.1	47.4	772	639.1
123	2/12/2025	3:05:11	83.2	97.8	82.7	71.6	48.5	773.3	644.3
124	2/12/2025	3:05:16	86.2	97	82.7	71.6	49.6	774.6	649.5
125	2/12/2025	3:05:21	86.2	97	82.7	71.6	50.7	775.9	654.7
126	2/12/2025	3:05:26	88.9	99.5	96.8	76.6	51.8	777.2	659.9
127	2/12/2025	3:05:31	88.9	99.5	96.8	93.2	52.9	778.5	665.1
128	2/12/2025	3:05:36	88.9	99.5	93.3	93.2	54	779.8	670.3
129	2/12/2025	3:05:41	81	99.5	93.3	103.6	55.1	781.1	675.5
130	2/12/2025	3:05:46	99.5	103.2	103.4	103.6	56.2	782.4	680.7
131	2/12/2025	3:05:51	99.5	103.2	103.4	103.6	57.3	783.7	685.9
132	2/12/2025	3:05:56	102.5	103.2	103.4	103.6	58.4	785	691.1
Rata-rata		0:10:55	102.5	103.2	103.4	103.6	58.4	782.4	680.7

Tabel L. 9 *Nozzle burner* $\frac{3}{4}$ inci 1.3

No	Tangaal	Waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{apiv} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
1	2/12/2025	3:26:14	40.3	44	16.4	35	40.2	558.5	626.4
2	2/12/2025	3:26:19	40.9	42.3	19.4	36.1	40.1	565.8	622.8
3	2/12/2025	3:26:24	41.8	42.3	23.1	36.7	40	569.9	619.7
4	2/12/2025	3:26:29	43.1	43	24.8	37.5	39.9	575.1	618.4
5	2/12/2025	3:26:34	44.7	43.8	24.7	38.1	39.8	579.3	615.3
6	2/12/2025	3:26:39	45.5	43.4	25.3	39.5	39.6	584.1	615.3
7	2/12/2025	3:26:44	46.2	44.1	24.2	40.1	39.4	585.6	597.6
8	2/12/2025	3:26:49	46.9	46.2	22.7	40.1	39.3	588	595.8
9	2/12/2025	3:26:54	48.2	45.1	43.9	43.7	38.6	588.8	592
10	2/12/2025	3:26:59	48.8	45.1	42.6	44.4	38.6	590.9	594.6
11	2/12/2025	3:27:04	48.2	48	29.3	42.1	39.3	591.7	592.8
12	2/12/2025	3:27:09	48.2	48.5	16.7	40.9	39.3	590.4	578.1
13	2/12/2025	3:27:14	48.5	49.2	19	41	39.3	591.3	576.8
14	2/12/2025	3:27:19	50.7	48.8	21.5	42.1	39.1	591.3	574.7
15	2/12/2025	3:27:24	51.5	50.2	19	42.7	39	591.5	571
16	2/12/2025	3:27:29	50	53.1	7.8	43.3	39	591.6	565.7
17	2/12/2025	3:27:34	51.3	52.3	6.6	43.4	38.9	592.8	554.7
18	2/12/2025	3:27:39	51.3	52.2	8.4	42.8	38.9	594.1	551.5
19	2/12/2025	3:27:44	52.2	52.1	14.9	43.7	38.9	595.6	553.4
20	2/12/2025	3:27:49	52.3	54.9	10.5	44.3	38.8	596.5	555.1
21	2/12/2025	3:27:54	52.6	54.9	9.9	44.3	38.9	596.5	556.2
22	2/12/2025	3:27:59	53	54.2	13.6	44.6	38.9	599.2	557.3
23	2/12/2025	3:28:04	53.7	54.2	11.2	45.5	38.8	599.2	558.3
24	2/12/2025	3:28:09	54.1	55.6	9.6	45.2	38.8	599	572.6
25	2/12/2025	3:28:14	54.6	57.1	10	44.5	38.8	598.8	582.1
26	2/12/2025	3:28:19	55.4	57.9	9.3	45.3	38.9	599.3	592.4
27	2/12/2025	3:28:24	54.2	61.1	-1.7	44.6	38.9	600.5	596.8
28	2/12/2025	3:28:29	56.9	63.2	-0.3	44.6	39	604	600.3
29	2/12/2025	3:28:34	60.1	59.3	11.2	47.3	39.1	605.4	601
30	2/12/2025	3:28:39	62.2	59.6	11	48.5	39.2	607.2	601
31	2/12/2025	3:28:44	63.9	58.7	19.2	49.1	39.1	612	600.9
32	2/12/2025	3:28:49	60.2	62.3	9.1	47.7	39.1	608.1	590.6
33	2/12/2025	3:28:54	62.1	60.7	18.7	47.9	39.1	606.6	588.2
34	2/12/2025	3:28:59	66.9	61.4	16.3	48.9	39.2	601.5	583.1
35	2/12/2025	3:29:04	70.2	61.6	19.2	49.9	39.3	600.9	581.7
36	2/12/2025	3:29:09	69.9	63.2	10.5	51.1	39.2	592	579.1
37	2/12/2025	3:29:14	68.7	62.7	17.8	52.2	39.4	588.7	584.3

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
38	2/12/2025	3:29:19	68.7	65.8	7.6	52.4	39.4	575.9	581.3
39	2/12/2025	3:29:24	68.7	62.8	41.2	57.5	39.1	564.5	585.3
40	2/12/2025	3:29:29	68.7	66.7	19.2	54.6	39	551.1	579.4
41	2/12/2025	3:29:34	68.7	68.3	16.7	54.6	39.3	538.1	572.1
42	2/12/2025	3:29:39	68.7	68.9	18.7	54.8	39.5	527.5	574.4
43	2/12/2025	3:29:44	68.7	62.8	62.9	61.1	39.2	521.7	575.4
44	2/12/2025	3:29:49	68.7	62.8	67.6	62.4	39.2	513.5	579.3
45	2/12/2025	3:29:54	69.3	64.3	62.3	61.7	39.1	508.5	577.5
46	2/12/2025	3:29:59	69.3	64.3	62.5	64.1	39	501.9	579.9
47	2/12/2025	3:30:04	69.3	68.7	62.5	55	39	499.7	580.5
48	2/12/2025	3:30:09	69.3	70.9	62.5	57	39.4	494.7	577.9
49	2/12/2025	3:30:14	69.3	67.4	62.5	58.6	39	491.1	578.7
50	2/12/2025	3:30:19	69.3	67.7	63.4	54	39	490.2	577
51	2/12/2025	3:30:24	67.5	75.3	63.4	65.5	39	488.9	573.8
52	2/12/2025	3:30:29	67.5	76	63.4	58.6	39.3	484.5	573
53	2/12/2025	3:30:34	67.5	74.9	63.4	67.1	39.4	483.1	577.8
54	2/12/2025	3:30:39	67.5	71	69.2	64.4	39	481.9	579.7
55	2/12/2025	3:30:44	67.5	79.7	69.2	58.6	39.5	480.2	577.8
56	2/12/2025	3:30:49	68.8	71.8	69.2	67.3	39.4	476.2	576
57	2/12/2025	3:30:54	68.8	70.6	66.2	71.6	39.3	474.4	573.1
58	2/12/2025	3:30:59	72.7	71.9	58	72.8	39.2	472.2	569.5
59	2/12/2025	3:31:04	72.7	74.6	58	61.3	38.9	470.8	567.3
60	2/12/2025	3:31:09	72.7	90.3	58	58.8	39.7	469.1	559.9
61	2/12/2025	3:31:14	74.4	84.5	58	66.5	39.1	469.1	555.5
62	2/12/2025	3:31:19	74.4	63.8	51.1	70.5	39.1	470.4	552.9
63	2/12/2025	3:31:24	74.4	78.6	66.2	63.8	39.7	470.4	552.9
64	2/12/2025	3:31:29	75.6	85.3	66.2	63.3	39.7	469.8	549.7
65	2/12/2025	3:31:34	75.6	85.3	66.2	65	39.8	471	545.5
66	2/12/2025	3:31:39	75.6	86.5	66.2	70.2	39.8	468.9	542.1
67	2/12/2025	3:31:44	75.6	64.8	103.3	82.9	39.7	466.7	543.8
68	2/12/2025	3:31:49	75.6	61.1	112.8	83.8	39.7	465.9	543.3
69	2/12/2025	3:31:54	75.6	88.2	-24.9	82.3	39.8	466.3	545.6
70	2/12/2025	3:31:59	75.6	67.3	104.3	83.6	40	466.3	544.4
71	2/12/2025	3:32:04	75.6	80.5	84.9	80.6	40.3	465.6	549.6
72	2/12/2025	3:32:09	77	90.6	84.9	71.5	40.3	465.6	552.4
73	2/12/2025	3:32:14	77	80	85.3	83.6	40.2	465.8	556.2
74	2/12/2025	3:32:19	80.2	79.2	87.3	84.3	39.7	466.1	561.1
75	2/12/2025	3:32:24	80.2	80.9	86.6	85.1	39.5	468.4	568.3
76	2/12/2025	3:32:29	80.2	80.9	86.6	83.4	39.5	472.5	576.3

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
77	2/12/2025	3:32:34	83.3	85.4	86.6	83.8	40.4	475.5	580.3
78	2/12/2025	3:32:39	83.3	88.7	86.6	77.9	40.4	480.4	587.6
79	2/12/2025	3:32:44	83.3	88.2	86.6	77.9	40.4	488.7	587.6
80	2/12/2025	3:32:49	81.1	90.1	86.6	76.2	40.3	492	585.8
81	2/12/2025	3:32:54	81.1	90.1	86.6	76.9	40.3	497.1	585.1
82	2/12/2025	3:32:59	84.8	89.8	86.6	75.5	40.2	502.4	587.1
83	2/12/2025	3:33:04	84.8	95.1	87.2	68.6	40.9	501.7	588.1
84	2/12/2025	3:33:09	84.8	95.7	87.2	68.6	40.9	499.2	588.7
85	2/12/2025	3:33:14	84.8	97.5	87.2	69.1	40.8	497.6	587
86	2/12/2025	3:33:19	84.8	93.5	87.2	74.1	40.8	495.2	588.1
87	2/12/2025	3:33:24	84.8	84.3	98.9	74.6	39.9	495.2	590.9
88	2/12/2025	3:33:29	88.7	84.3	98.9	87	39.9	496.7	591.7
89	2/12/2025	3:33:34	88.7	80.4	98.9	89.4	40	497.3	592.2
90	2/12/2025	3:33:39	88.7	84.2	73.8	65.4	40	498.4	590.5
91	2/12/2025	3:33:44	88.7	87.4	73.8	87.5	39.7	499.7	590.5
92	2/12/2025	3:33:49	88.7	88.5	73.8	88.9	39.7	499.8	592.2
93	2/12/2025	3:33:54	86.1	97.7	86.7	75.2	39.7	500.5	589.9
94	2/12/2025	3:33:59	86.1	86.7	86.7	74.3	39.7	503	589.2
95	2/12/2025	3:34:04	88.3	88.6	86.7	66.7	39.7	506.1	587.7
96	2/12/2025	3:34:09	88.3	88.6	89	85.8	40.3	507.9	585
97	2/12/2025	3:34:14	88.3	89.7	89	87.9	40.3	510.1	585
98	2/12/2025	3:34:19	88.3	89.7	89	71.3	39.8	513	585.1
99	2/12/2025	3:34:24	88.3	96.9	91.3	82.1	39.8	514.9	585.2
100	2/12/2025	3:34:29	92.7	99.7	93.4	73.8	39.8	518.7	585.3
101	2/12/2025	3:34:34	92.7	97.9	93.4	95.6	40	520.3	586.6
102	2/12/2025	3:34:39	92.7	86.4	93.4	90.8	40.3	521.1	586.8
103	2/12/2025	3:34:44	92.7	76.1	93.4	90.2	41	521.8	586
104	2/12/2025	3:34:49	94.9	76.4	93.4	89	41	524.3	586.8
105	2/12/2025	3:34:54	94.9	88.5	92.5	94.7	40.9	525.4	586.8
106	2/12/2025	3:34:59	94.9	80.8	92.5	96.5	40.9	525.4	587.1
107	2/12/2025	3:35:04	94.9	99.7	92.5	95.9	40.8	527.5	585.7
108	2/12/2025	3:35:09	94.9	99.7	98.9	82	40.9	527.5	586.1
109	2/12/2025	3:35:14	95	99.7	98.9	99.2	40.9	531.8	584.2
110	2/12/2025	3:35:19	95	102.1	98.9	77.7	40.9	536.6	586.3
111	2/12/2025	3:35:24	101.8	102.1	102.7	103.4	40.4	542.2	589.2
112	2/12/2025	3:35:29	101.8	102.1	102.7	103.4	40.4	546.5	592.5
Rata-rata		0:09:15	101.8	102.1	102.7	103.4	39.63	529.65	579.76

Tabel L. 10 Nozzle burner 1 inci 1.1

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
1	2/11/2025	16:03:49	58.7	77.8	76.2	54.5	63.7	765.3	519.5
2	2/11/2025	16:03:54	57.7	76.9	74.9	55.4	67	774.8	519.9
3	2/11/2025	16:03:59	57.9	70.1	65.5	54.5	62.3	824.4	538.8
4	2/11/2025	16:04:04	58.6	69.5	62.8	54.5	62.3	828.8	548.9
5	2/11/2025	16:04:09	58.6	67.2	60.9	55.1	60.9	727.3	536
6	2/11/2025	16:04:14	59.1	68.9	62.6	54.4	61.3	732.1	534.5
7	2/11/2025	16:04:19	59.1	72.8	68.8	55.4	62.4	797.4	532.8
8	2/11/2025	16:04:24	59.8	72.6	66.9	55.4	63.4	798.6	544.2
9	2/11/2025	16:04:29	59.8	74	68.8	57.4	63.7	802.8	533.3
10	2/11/2025	16:04:34	60.1	76.8	72.1	56.8	66	795.5	511.1
11	2/11/2025	16:04:39	60.6	77.4	72.7	57.5	66	811.6	515
12	2/11/2025	16:04:44	60.9	79	73.4	57.5	66	809.8	514.3
13	2/11/2025	16:04:49	61.1	76.4	72.4	57.3	65.9	798.7	516.8
14	2/11/2025	16:04:54	62.6	80.5	76.1	57.9	65.4	775.2	521.5
15	2/11/2025	16:04:59	63.2	85.1	82.3	58.6	64.3	744.8	527.9
16	2/11/2025	16:05:04	63.3	82.5	79.9	58.6	63.5	719.3	536.6
17	2/11/2025	16:05:09	62.6	77	75.4	59	66.2	684.8	520.3
18	2/11/2025	16:05:14	61.7	69.3	65.9	59	65.3	663.2	519.2
19	2/11/2025	16:05:19	62.4	74.8	72.1	58.8	63.7	649.9	478.3
20	2/11/2025	16:05:24	62.3	72.6	69.5	58.6	63.7	632.8	462.8
21	2/11/2025	16:05:29	62.1	68.5	59.4	58.3	63	610.1	485.6
22	2/11/2025	16:05:34	62.1	71.3	64.2	58.5	60.8	590.1	506.5
23	2/11/2025	16:05:39	62.5	69.1	59.1	58.7	61.9	566.2	488.1
24	2/11/2025	16:05:44	63.1	70.5	61.7	58.6	61.9	654	502.6
25	2/11/2025	16:05:49	63.2	70.1	48.5	58.6	57.7	654.6	587.2
26	2/11/2025	16:05:54	63	72.2	64.4	59.6	65.7	645.9	493.3
27	2/11/2025	16:05:59	63.6	74.4	62.1	60.8	75.4	604.3	407.7
28	2/11/2025	16:06:04	63.6	73.8	59.1	60.7	81.5	585.2	402.8
29	2/11/2025	16:06:09	73.4	107.8	65	60.3	29.5	530.9	396.4
30	2/11/2025	16:06:14	67.6	75.2	68.2	59.4	60.7	379.5	524.8
31	2/11/2025	16:06:19	66.9	74.1	62.2	59.4	76.1	288.6	434.9
32	2/11/2025	16:06:24	67.7	79	69.3	60.4	90.4	232.4	395.3
33	2/11/2025	16:06:29	72.9	79.7	71.6	60.4	87.3	203.2	437
34	2/11/2025	16:06:34	69.8	88.7	84.3	61.8	85.4	166.3	398.5
35	2/11/2025	16:06:39	76.1	104.3	129.2	65.3	67.4	137.9	378.9
36	2/11/2025	16:06:44	72.1	89	106.5	63.9	89.5	115.3	402.9
37	2/11/2025	16:06:49	73.4	86.4	104.6	64.9	90.1	97.8	410.6
38	2/11/2025	16:06:54	70.4	79.3	79.3	63.9	97.4	86.3	400.9
39	2/11/2025	16:06:59	70.5	76.1	69.5	62.4	101.3	76.1	433.1

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
40	2/11/2025	16:07:04	71.8	76	76.3	63.5	103.8	69.4	445.2
41	2/11/2025	16:07:09	72.1	94.3	70	63.5	89.6	61.4	415.5
42	2/11/2025	16:07:14	71.2	87.7	65.6	63.4	84.8	138.9	416.6
43	2/11/2025	16:07:19	71.8	88.8	66.7	62.8	84.6	298.7	418.7
44	2/11/2025	16:07:24	71.7	90.8	66	62.8	84.7	405.1	421.6
45	2/11/2025	16:07:29	73.9	103.7	93.9	64.8	83.5	494.2	384.8
46	2/11/2025	16:07:34	74.4	104.5	79.3	64.4	84.4	539.8	424.5
47	2/11/2025	16:07:39	71.6	96.1	73.4	64.7	84.6	560.7	418.8
48	2/11/2025	16:07:44	71.6	91.2	71.5	64.7	84.6	585.1	407.8
49	2/11/2025	16:07:49	71.8	93.7	76.4	64.6	83.8	587.9	394.6
50	2/11/2025	16:07:54	74.5	103.5	97.4	66.6	83.5	590.1	353.3
51	2/11/2025	16:07:59	76	103.5	95.2	66.6	82.5	590.8	364.7
52	2/11/2025	16:08:04	76.9	104.9	136.1	67.9	60.6	617.4	380.6
53	2/11/2025	16:08:09	75.3	102.2	88.4	66.6	57.6	613	335.3
54	2/11/2025	16:08:14	75.3	95.2	84	66.7	60.3	615.5	402.2
55	2/11/2025	16:08:19	76.4	99.5	89.7	67	47.7	707.3	418.1
56	2/11/2025	16:08:24	77.8	104.9	94	67.8	37.8	786.8	430.6
57	2/11/2025	16:08:29	76.9	101.8	90.5	67.8	36.9	741.3	438.1
58	2/11/2025	16:08:34	76.7	98.8	83.7	67.8	45.8	663.2	425
59	2/11/2025	16:08:39	78.1	103.3	93.6	67.9	40.4	735.5	420.6
60	2/11/2025	16:08:44	78.8	104.5	98.5	68.3	38.4	795	423.3
61	2/11/2025	16:08:49	78.8	106.8	93.2	69.4	36.7	820	426.8
62	2/11/2025	16:08:54	79	106.7	98.4	70	36.7	807.8	423.1
63	2/11/2025	16:08:59	79.4	107	98.1	70	37.5	798.5	423.2
64	2/11/2025	16:09:04	79.2	108.1	91.7	69.9	36.4	800.1	424.1
65	2/11/2025	16:09:09	73.8	79.8	42.6	68.7	53.7	793.1	438.6
66	2/11/2025	16:09:14	75.3	81.6	43.3	67.4	51.4	780.5	436.7
67	2/11/2025	16:09:19	74.5	82.7	48.4	67.4	53.3	759.1	431.3
68	2/11/2025	16:09:24	74.5	78.7	42.6	67.1	55.2	715.5	436.7
69	2/11/2025	16:09:29	74.6	78.9	42.1	67.1	55.8	665.2	439
70	2/11/2025	16:09:34	74.7	80.2	42.1	67.3	55.8	619	446.3
71	2/11/2025	16:09:39	74.7	84	48.9	67.3	55.8	581.7	448.3
72	2/11/2025	16:09:44	86	134.3	136	75.4	14.7	553.1	463.1
73	2/11/2025	16:09:49	81.5	111.5	108.7	72.1	35.5	524.9	482.8
74	2/11/2025	16:09:54	81.5	107.9	92.2	71.5	43.3	507.6	441.6
75	2/11/2025	16:09:59	77.6	89.3	59.4	69	42.8	478.1	462.6
76	2/11/2025	16:10:04	77	87.2	57	69	43.5	457.7	485.6
77	2/11/2025	16:10:09	77.1	87	59	69.1	43.1	416.7	479.7
78	2/11/2025	16:10:14	84.9	114.1	117.2	76.4	19.7	369.2	441.6
79	2/11/2025	16:10:19	86.9	137.1	120	74	6.3	384.7	449.3
80	2/11/2025	16:10:24	85.1	134.2	138.5	76.1	22	387	403.1

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
81	2/11/2025	16:10:29	87.8	136	154.7	76.1	14.1	380.2	401.7
82	2/11/2025	16:10:34	87.8	135.9	154.7	75.9	16	365.3	386.5
83	2/11/2025	16:10:39	87.7	134.2	151.7	75.7	16.7	364.5	424.9
84	2/11/2025	16:10:44	86.6	134.8	152	75.8	29.6	359.2	386.7
85	2/11/2025	16:10:49	86.6	134.7	150.6	75.9	37.1	343.2	395.8
86	2/11/2025	16:10:54	86.8	134.5	152.4	75.9	39.1	337.8	384.3
87	2/11/2025	16:10:59	87	134.5	153.2	75.9	42.5	337.8	386.1
88	2/11/2025	16:11:04	87	135.9	155.3	76.5	41.3	336.8	379
89	2/11/2025	16:11:09	80.4	95.5	117.1	73.5	53.1	332	405
90	2/11/2025	16:11:14	80.3	92.2	112.8	73.4	55.2	322.4	309.3
91	2/11/2025	16:11:19	80.3	92.1	113.5	73.4	56.5	314	240.6
92	2/11/2025	16:11:24	82.5	97	130.8	75.2	50.3	297.9	192.6
93	2/11/2025	16:11:29	82.5	98.8	131.6	75.2	50.3	275.5	155.4
94	2/11/2025	16:11:34	82.4	98.8	132.3	75.4	50.2	265.4	138.2
95	2/11/2025	16:11:39	82.3	99.1	131	75.5	50.1	258.8	115.6
96	2/11/2025	16:11:44	33.8	32.9	32.3	29.8	32.5	598.2	417.5
97	2/11/2025	16:11:49	32.7	33.3	36.1	29.9	32.5	708.3	470.7
98	2/11/2025	16:11:54	38.8	36.8	40.7	29.9	32.5	824.5	489.4
99	2/11/2025	16:11:59	38.5	36.4	42	30.6	33.6	844.8	529.4
100	2/11/2025	16:12:04	34.8	34.6	36.8	30.6	32.9	860.9	554.7
101	2/11/2025	16:12:09	37.8	34.6	38.5	30.4	32.9	853.7	567.1
102	2/11/2025	16:12:14	40.2	39.3	43.5	30.3	32.2	860.2	570
103	2/11/2025	16:12:19	38.4	40	42	31.4	33.5	869.3	589.3
104	2/11/2025	16:12:24	41.6	38.7	45	31.4	34.1	866.6	587.1
105	2/11/2025	16:12:29	42.9	39.3	46.9	31.2	33.4	886.7	587.7
106	2/11/2025	16:12:34	45.3	40.7	47.5	31.3	32.4	898.8	596.6
107	2/11/2025	16:12:39	44.6	41.6	51.1	32.2	31.8	898.5	591.9
108	2/11/2025	16:12:44	46.4	43	48.5	32.8	31.8	899	601.7
109	2/11/2025	16:12:49	48.2	44	50.3	32.8	31.9	901.3	606.5
110	2/11/2025	16:12:54	52.7	46.2	55.8	33.1	32.5	903.5	605.8
111	2/11/2025	16:12:59	58.6	49.1	59.3	33.7	33.2	904.4	603.7
112	2/11/2025	16:13:04	63.1	50	63.6	34	34.1	903.8	603.5
113	2/11/2025	16:13:09	60.1	50.1	63.3	34.1	34.7	909.1	605
114	2/11/2025	16:13:14	60.1	51.3	63.5	34.4	33.3	910.7	604
115	2/11/2025	16:13:19	63.9	53	68.2	34.9	31.9	904.4	600.8
116	2/11/2025	16:13:24	66.3	53.9	69.6	35.4	30.9	904.4	603.4
117	2/11/2025	16:13:29	66.4	55.1	69.6	36	30.9	903.2	595.2
118	2/11/2025	16:13:34	67.1	55.7	69.6	36.7	30.8	898.8	595.9
119	2/11/2025	16:13:39	67.8	56.4	71.1	36.9	30.7	892.4	601.6
120	2/11/2025	16:13:44	67.5	56.4	71.1	36.8	30.5	900	604.5
121	2/11/2025	16:13:49	62.2	55.2	68.2	36.8	31.9	900.4	603.2

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
122	2/11/2025	16:13:54	65.7	50.3	75.1	37.2	30.3	900.6	635.8
123	2/11/2025	16:13:59	35.4	42.6	40.7	37.7	30.5	900.3	658.8
124	2/11/2025	16:14:04	62.6	49.2	80	38.6	31.5	898	623.5
125	2/11/2025	16:14:09	61.1	49.2	79.2	39.2	31.6	888	615
126	2/11/2025	16:14:14	27.1	46.7	28.7	38.5	32	900.9	647.8
127	2/11/2025	16:14:19	47.5	51.4	31.7	39.6	32.3	910.8	651.6
128	2/11/2025	16:14:24	54.6	55.5	59.9	39.6	32.1	912.1	611.2
129	2/11/2025	16:14:29	57.6	57.8	64.5	39.6	32	914.8	605.5
130	2/11/2025	16:14:34	59.6	58.6	64.9	40.3	31.9	916.6	610
131	2/11/2025	16:14:39	57	54.2	54.7	40.3	31.8	916.7	625.9
132	2/11/2025	16:14:44	55.2	56.4	59.1	41.4	31.9	924.5	619.4
133	2/11/2025	16:14:49	28.7	48.3	38.5	41.4	31.1	914.4	661.6
134	2/11/2025	16:14:54	31.1	42.6	50.7	41.2	31.1	914	639.5
135	2/11/2025	16:14:59	29.5	44.4	35.9	42.2	31.2	905.4	668.5
136	2/11/2025	16:15:04	50.9	56.4	76.1	42.2	31.6	925.7	619.1
137	2/11/2025	16:15:09	62.5	58	62.9	42.6	31.6	917.2	634.6
138	2/11/2025	16:15:14	63	58.1	70.2	43.3	31.6	896	616.9
139	2/11/2025	16:15:19	65.9	62	73	43.6	31.6	877.9	598.4
140	2/11/2025	16:15:24	67.5	63.7	74.8	43.7	31.4	851.4	588.5
141	2/11/2025	16:15:29	66.8	63.7	74.8	43.8	31.3	852.3	587.9
142	2/11/2025	16:15:34	65.3	60.5	68.4	44.4	33	822.6	591.2
143	2/11/2025	16:15:39	52.7	56.6	60.4	44.9	39.4	769.5	557.4
144	2/11/2025	16:15:44	45.5	52.2	51.2	45.9	41.7	754	560.5
145	2/11/2025	16:15:49	39.2	49.4	40	45.9	47.1	729.4	554.2
146	2/11/2025	16:15:54	38.4	50.9	47.4	46	46.9	728.6	549.2
147	2/11/2025	16:15:59	53.9	50.8	37.3	47.1	39.9	743.2	558.6
148	2/11/2025	16:16:04	62.6	58.1	67.5	47.1	32.6	787.1	574.8
149	2/11/2025	16:16:09	54.8	54.6	60.7	47.5	32.6	709.4	569.1
150	2/11/2025	16:16:14	59.2	56.9	75.5	48.9	34.2	675	568
151	2/11/2025	16:16:19	34.6	49.9	46.8	48.9	33	655.6	587.8
152	2/11/2025	16:16:24	57.8	56.9	54.8	49	34.3	651.2	580
153	2/11/2025	16:16:29	41.8	54.5	49.5	49.4	33	638.5	577
154	2/11/2025	16:16:34	41.6	51.7	50.1	49.8	32.9	623.3	568.5
155	2/11/2025	16:16:39	38.5	51.9	46.4	50.1	32.8	638	585.1
156	2/11/2025	16:16:44	47.6	55.9	58	50.7	33.6	633.8	568.7
157	2/11/2025	16:16:49	53.6	57.3	44.5	51.2	41.8	604.8	510.7
158	2/11/2025	16:16:54	42.8	56.8	38.2	51.7	35.4	564.3	537.9
159	2/11/2025	16:16:59	69.9	63.9	81.4	52.2	34.2	548.8	503.6
160	2/11/2025	16:17:04	61.8	61.3	78.5	54.8	36.9	562.2	499.2
161	2/11/2025	16:17:09	55.3	61.4	68.9	54.2	38	572.5	496.8
162	2/11/2025	16:17:14	44.1	61.4	70.9	54.2	35.8	570.6	498.1

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
163	2/11/2025	16:17:19	55.9	60.2	67.5	55.9	38.5	571.4	480.3
164	2/11/2025	16:17:24	55	60.2	65.3	55.9	38.5	585.2	477.4
165	2/11/2025	16:17:29	49.7	59.5	64	55.6	39.4	617.1	481.4
166	2/11/2025	16:17:34	27.5	56.5	28.3	55.3	38.1	655.2	508.5
167	2/11/2025	16:17:39	33.5	56	39.6	56	36.6	679.3	503.8
168	2/11/2025	16:17:44	59.2	63.3	62.3	56.1	37.8	618.4	490.1
169	2/11/2025	16:17:49	47.1	60.5	57.1	57.6	38.7	582.3	495.8
170	2/11/2025	16:17:54	67.3	67.6	83.6	57.6	34.7	569	486.4
171	2/11/2025	16:17:59	55.9	63.8	71.3	58.4	38.6	547.4	474.4
172	2/11/2025	16:18:04	68.8	68.2	80.7	59.4	34.8	529.8	476.1
173	2/11/2025	16:18:09	55.4	66	77.5	60.2	37.2	543.3	483.9
174	2/11/2025	16:18:14	38.4	65	60.9	60.8	42.9	557.9	474.5
175	2/11/2025	16:18:19	58.9	68.9	72.1	61.5	40.8	567.9	485.9
176	2/11/2025	16:18:24	58.1	69	71.8	62.5	38.4	566.6	505.9
177	2/11/2025	16:18:29	43.3	66.7	60.5	61.3	35.8	561.8	516.5
178	2/11/2025	16:18:34	64.7	72.6	78.1	63	35.1	530.5	494.1
179	2/11/2025	16:18:39	57.8	72	78.4	63.6	37.4	507.4	478
180	2/11/2025	16:18:44	57.3	69.9	74.9	63.6	36.4	486.9	469.8
181	2/11/2025	16:18:49	63.2	71.8	78.2	65.7	37.6	480.7	455.9
182	2/11/2025	16:18:54	65.2	72.5	77.8	65.7	37.6	486.3	451.9
183	2/11/2025	16:18:59	64.7	71.6	78.4	65.6	37.5	477.4	447.3
184	2/11/2025	16:19:04	24.4	70.9	39.4	66.4	40.4	470.6	455.7
185	2/11/2025	16:19:09	35.3	70.3	52.7	67	39.2	462.7	444.9
186	2/11/2025	16:19:14	56	74.3	62.6	66.3	35.4	455.4	446.6
187	2/11/2025	16:19:19	57.8	72.8	52.1	68	35.4	451	444.3
188	2/11/2025	16:19:24	52.8	74.7	64.3	68.6	35.6	450	439.9
189	2/11/2025	16:19:29	60.4	76.7	63.9	69.3	35.9	447.6	439.2
190	2/11/2025	16:19:34	57.4	73.1	67.1	69.3	39	448.5	430.2
191	2/11/2025	16:19:39	53.8	74.3	63.4	69.6	43.6	462.1	416.8
192	2/11/2025	16:19:44	43.5	72.9	52.2	69.8	44.4	528.3	414.7
193	2/11/2025	16:19:49	43.1	73.9	51.4	71	44.4	537.6	420
194	2/11/2025	16:19:54	27.7	70.7	56.6	69.6	43.6	546.5	429.1
195	2/11/2025	16:19:59	23.2	74.2	50.8	70.7	37.5	523.6	437.7
196	2/11/2025	16:20:04	27.8	77.7	39.6	71.7	37.4	479.1	444.1
197	2/11/2025	16:20:09	51.7	79.4	25.2	71.8	37.4	474.9	453.4
198	2/11/2025	16:20:14	49.1	76.3	52.8	72.3	37.5	472	415
199	2/11/2025	16:20:19	43.6	77.2	47.3	72.7	41.1	458.4	417.3
200	2/11/2025	16:20:24	47.6	78.8	55.7	73.7	41.1	454.3	411.6
201	2/11/2025	16:20:29	54.9	82.2	66.6	74	39.8	514.2	420.9
202	2/11/2025	16:20:34	59.5	83.5	75.4	75	38.3	500.2	414.1
203	2/11/2025	16:20:39	54.9	76.4	53.8	75.6	40.3	473.3	417.3

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
204	2/11/2025	16:20:44	21.4	73.6	56.9	76.3	38.5	458.8	403.6
205	2/11/2025	16:20:49	45.1	83.6	54.4	77.1	38	491.3	416.9
206	2/11/2025	16:20:54	24.8	84.2	43.7	77.1	38.6	484.5	420.7
207	2/11/2025	16:20:59	39.7	82.6	64	77.2	42.8	497.5	420.5
208	2/11/2025	16:21:04	39.9	77.6	49.8	77.6	39.9	474.7	427.3
209	2/11/2025	16:21:09	32.7	78.7	52.6	78.6	39.2	470.1	423.1
210	2/11/2025	16:21:14	18.2	84.5	26.9	78.6	39.2	467.3	445.6
211	2/11/2025	16:21:19	8.7	78.9	60.6	80.1	45.4	460.2	417.6
212	2/11/2025	16:21:24	41	83.7	49.5	80.1	39.1	459.6	422.9
213	2/11/2025	16:21:29	46.7	86.6	63.2	80.7	39.1	455	420.7
214	2/11/2025	16:21:34	31.5	87.2	54.7	81.6	39.2	455.3	429.9
215	2/11/2025	16:21:39	39.4	88.8	52	82.9	38.9	458.5	423.4
216	2/11/2025	16:21:44	34.4	88.2	59.7	82.9	38.5	458.5	420.9
217	2/11/2025	16:21:49	44.4	90	61.9	84.4	38.5	457.7	420.2
218	2/11/2025	16:21:54	83.6	83.7	57.3	84.4	38.3	482.8	425.8
219	2/11/2025	16:21:59	84.8	89.5	65.1	85.4	38.3	465	420.3
220	2/11/2025	16:22:04	86	80.6	28.3	86.3	38.3	460	453.9
221	2/11/2025	16:22:09	87.2	92.8	69.5	86.9	39.4	459.9	422.9
222	2/11/2025	16:22:14	88.4	91.3	73.8	86.9	39	457.6	427.4
223	2/11/2025	16:22:19	89.6	90.1	73.8	87.5	39	457.6	427
224	2/11/2025	16:22:24	90.8	86	73.8	88.1	39.2	457	436.9
225	2/11/2025	16:22:29	92	91.3	86.7	88.7	39.1	458	434.4
226	2/11/2025	16:22:34	93.2	93.8	86.7	89.2	39.1	509.3	429.6
227	2/11/2025	16:22:39	94.4	84.3	86.7	88.3	39.2	503.4	455.1
228	2/11/2025	16:22:44	95.6	88.9	89	88.3	39.2	489.5	445.6
229	2/11/2025	16:22:49	95.6	86.7	89	90.6	39.2	479.1	444.3
230	2/11/2025	16:22:54	96.8	85.3	89	91.3	39.2	473.2	456.4
231	2/11/2025	16:22:59	96.8	89.8	91.3	90.5	40.5	492.2	407.1
232	2/11/2025	16:23:04	96.8	89.5	93.4	90.7	47.6	566.7	418.3
233	2/11/2025	16:23:09	100	88.9	93.4	88.7	50.9	713.3	415.7
234	2/11/2025	16:23:14	100.1	88.4	93.4	90.6	51.5	602.4	413.3
235	2/11/2025	16:23:19	100.1	83.4	92.5	91.5	47	594.7	424.2
236	2/11/2025	16:23:24	100.1	87.6	92.5	91.5	51.1	650.3	419.5
237	2/11/2025	16:23:29	100.1	88.5	97.5	91.7	55.6	622.5	443.7
238	2/11/2025	16:23:34	100.3	84.8	97.5	92.4	55.1	556.9	430
239	2/11/2025	16:23:39	100.3	93.8	99.8	93.4	42.8	529.2	452.5
240	2/11/2025	16:23:44	100.3	93.1	101.5	102.1	45.1	525.4	427.9
241	2/11/2025	16:23:49	100.3	101.3	101.5	102.1	44.3	519.2	432.6
Rata-rata		0:11:45	100.3	101.3	101.5	102.1	45.1	665.2	487.5

Tabel L. 11 *Nozzle burner 1 inci 1.2*

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
1	2/11/2025	20:07:47	32.8	24.3	18.3	24.9	64.2	447.7	333.9
2	2/11/2025	20:07:51	32.8	24.4	20.1	25.5	61.7	448.3	325.8
3	2/11/2025	20:07:56	32.7	24.9	21.7	25.5	49	560.1	356
4	2/11/2025	20:08:01	32.2	24.9	21.2	25.6	42.5	656.2	455.8
5	2/11/2025	20:08:06	32.2	25.2	22.1	25.8	40.6	796.9	536.5
6	2/11/2025	20:08:11	33.8	25.6	20.5	25.9	39.1	827.1	588.3
7	2/11/2025	20:08:16	32.7	27.7	21.1	26.8	38	818.9	639.3
8	2/11/2025	20:08:21	33.5	27.7	16.7	25.9	38	822.8	689.4
9	2/11/2025	20:08:26	34.2	27.7	19.5	25.8	37.3	840.6	713.3
10	2/11/2025	20:08:31	36.1	27.5	12.3	27	37.3	857.9	701
11	2/11/2025	20:08:36	36.1	27.5	16.1	26.3	37.3	889.2	672.1
12	2/11/2025	20:08:41	37	27	14.4	26.3	37.3	919	659.7
13	2/11/2025	20:08:46	34.8	30	21.7	28.2	36.8	927.1	650.9
14	2/11/2025	20:08:51	34.9	30	25.4	28.8	36.7	921.1	638.6
15	2/11/2025	20:08:56	36	29.4	17.2	30	36.2	935.4	637
16	2/11/2025	20:09:01	37.2	31.5	23.8	29.9	35.9	934.1	637
17	2/11/2025	20:09:06	38.5	32.4	22.4	30	35.8	912.2	632.7
18	2/11/2025	20:09:11	38.5	33.8	24.9	30.7	36	920.4	629.5
19	2/11/2025	20:09:16	39.2	35.6	27.8	32.2	37.7	929.1	631.5
20	2/11/2025	20:09:21	38.6	37.6	27.8	33.8	35.8	923.2	636
21	2/11/2025	20:09:26	38.7	37.3	32.2	34.6	35.8	900.6	636.5
22	2/11/2025	20:09:31	38.8	37.3	31.5	34.6	35.8	887.5	627.8
23	2/11/2025	20:09:36	39.4	37.5	32.1	34.5	35.7	894.2	626.7
24	2/11/2025	20:09:41	40	37.7	31.5	34.2	35.6	883.9	624.3
25	2/11/2025	20:09:46	41.3	37.9	32.7	35.2	35.5	860.6	620
26	2/11/2025	20:09:51	41.9	39.3	32.2	35.2	35.5	817.4	614.2
27	2/11/2025	20:09:56	41.9	40	33.3	35.8	35.5	765.6	609.1
28	2/11/2025	20:10:01	41.3	40.8	36.5	37.2	35.5	736.1	603.9
29	2/11/2025	20:10:06	41.9	42	35.5	37.9	35.5	716.8	600.3
30	2/11/2025	20:10:11	43.1	42.9	34.7	38.7	35.4	709.1	595.3
31	2/11/2025	20:10:16	43.7	43.7	37.6	39.6	35.4	697.1	587.3
32	2/11/2025	20:10:21	46.6	44.4	33.4	38.9	35.5	684.7	577.6
33	2/11/2025	20:10:26	47.4	46.9	35.5	39.7	35.6	675	567.1
34	2/11/2025	20:10:31	47.4	49.5	39.5	40.4	35.5	672.4	561.2
35	2/11/2025	20:10:36	48.7	50.5	42.2	42.3	35.6	670	554.3
36	2/11/2025	20:10:41	48.7	51.6	43.6	41.6	35.7	667.3	553
37	2/11/2025	20:10:46	52.4	52.7	46.6	43.5	35.7	667.9	552.1
38	2/11/2025	20:10:51	50.9	53.9	46.5	43.5	35.7	670.2	554.9
39	2/11/2025	20:10:56	50.9	55.8	47.2	44.2	35.7	665.4	554.9

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
40	2/11/2025	20:11:01	55.3	55.9	39.5	44.6	35.8	659.1	551.1
41	2/11/2025	20:11:06	56	55.9	39.3	44.6	35.9	657.4	552
42	2/11/2025	20:11:11	59.1	56.2	35.8	44.8	35.8	659.1	556.2
43	2/11/2025	20:11:16	59.7	58.2	35.8	45.5	35.6	658.4	558.2
44	2/11/2025	20:11:21	60.4	58.6	40	46.4	35.7	654.1	555.7
45	2/11/2025	20:11:26	59.4	60.3	42.2	47	35.8	647.6	551
46	2/11/2025	20:11:31	59.5	61.2	43.7	48.6	35.9	647.6	551
47	2/11/2025	20:11:36	59.5	62.7	44.1	48.6	36	650.4	550.8
48	2/11/2025	20:11:41	61.7	63.9	45.6	48.7	36.1	651.2	551.3
49	2/11/2025	20:11:46	61.2	63.9	48	50.5	36.1	615.3	553.8
50	2/11/2025	20:11:51	66.2	61.6	32.5	49.2	36.2	615	554.9
51	2/11/2025	20:11:56	65.1	62.4	36.6	49.2	37.4	625.6	555.8
52	2/11/2025	20:12:01	63.6	64.7	41.1	50.9	36.8	627.6	557.7
53	2/11/2025	20:12:06	63.6	66.4	43.7	52.6	36.7	624.7	557.8
54	2/11/2025	20:12:11	61.1	68.9	53.5	53.2	36.6	621.1	559.3
55	2/11/2025	20:12:16	61.3	69.7	53.5	54.1	36.6	618.6	563.6
56	2/11/2025	20:12:21	61.9	71.3	53.7	54.2	36.6	616.7	568.3
57	2/11/2025	20:12:26	62.4	72	54.6	54.8	36.6	617.8	569
58	2/11/2025	20:12:31	63.8	72.9	55.6	55.5	36.6	616.7	570.4
59	2/11/2025	20:12:36	63.8	74.5	57.6	56.3	36.6	613.8	567.6
60	2/11/2025	20:12:41	65	75.8	56.9	57.2	36.6	615.1	568.2
61	2/11/2025	20:12:46	65.6	76.9	58.6	57.7	36.6	618.7	573.7
62	2/11/2025	20:12:51	65.7	78.5	58.6	59.5	36.6	618.1	574.9
63	2/11/2025	20:12:56	77.8	74.1	34.4	55.1	36.6	618.9	577.7
64	2/11/2025	20:13:01	69.1	79.3	55.9	59.1	36.5	618.9	578.5
65	2/11/2025	20:13:06	69.1	80.9	58.5	59.7	36.4	619.6	575.5
66	2/11/2025	20:13:11	69.7	82.3	58.4	60.3	36.5	619.6	565.7
67	2/11/2025	20:13:16	69.7	83.7	58.7	61.1	36.5	622.3	562.6
68	2/11/2025	20:13:21	77.4	80.8	42.5	60.4	37.6	619.7	556.3
69	2/11/2025	20:13:26	77.4	84.1	55.7	62.2	37	613.2	544.9
70	2/11/2025	20:13:31	77.4	84	45	60.5	37	613.2	541.1
71	2/11/2025	20:13:36	77.4	83.9	53.8	63.2	37.1	611	539.1
72	2/11/2025	20:13:41	77.4	82.9	44.9	61.5	37.1	610	540.2
73	2/11/2025	20:13:46	77.4	86.6	61.4	63.7	37.1	615.1	551.4
74	2/11/2025	20:13:51	77.4	87.2	61.4	64.4	36.9	621.4	554.9
75	2/11/2025	20:13:56	77.4	82.3	36.1	61.5	36.6	623	555.7
76	2/11/2025	20:14:01	72.3	84.7	41.5	61.6	36.5	599.1	554
77	2/11/2025	20:14:06	72.3	88.7	33.6	61.6	36.5	588.8	554.7
78	2/11/2025	20:14:11	72.3	83.5	41.8	63.2	36.6	585.5	557.1
79	2/11/2025	20:14:16	72.3	81.7	40.7	63.2	35.9	584.1	554.9
80	2/11/2025	20:14:21	72.3	85.5	47.8	64.5	35.9	581.6	552.6

No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
81	2/11/2025	20:14:26	72.3	83	46.2	65.6	36.1	579.6	553.2
82	2/11/2025	20:14:31	76.3	80.2	44.1	64.6	36.1	578.8	553.5
83	2/11/2025	20:14:36	76.3	79.5	39.4	63.3	36.6	575.5	551.6
84	2/11/2025	20:14:41	76.3	79.4	27.2	63.5	36.6	570.5	550.4
85	2/11/2025	20:14:46	76.3	77.2	30.9	63.5	36.6	564.6	545.3
86	2/11/2025	20:14:51	76.3	78.7	28.8	65.7	36.4	559	543.6
87	2/11/2025	20:14:56	76.3	80.5	45.1	66.3	37.4	559.1	536.5
88	2/11/2025	20:15:01	78.9	83.1	58.7	68.7	36.6	556	532.6
89	2/11/2025	20:15:06	78.9	80	31	63.8	36.5	552.7	531.3
90	2/11/2025	20:15:11	78.9	78.4	36	63.9	36.4	550.7	531.3
91	2/11/2025	20:15:16	78.9	76.6	23.7	64.4	36.5	550	539
92	2/11/2025	20:15:21	73.3	76.4	20.3	64.5	36.6	549.9	543.4
93	2/11/2025	20:15:26	73.3	77.8	32.9	66.1	36.6	548.7	547.6
94	2/11/2025	20:15:31	73.3	80.7	51.3	71.3	36.6	548.7	548.5
95	2/11/2025	20:15:36	73.3	82.1	60.1	72.8	36.7	548.8	545.7
96	2/11/2025	20:15:41	73.3	82.1	58.7	72.8	36.7	551.4	545.9
97	2/11/2025	20:15:46	79.2	76.2	19.4	67.9	36.7	551.4	546.6
98	2/11/2025	20:15:51	79.2	75.6	25.8	69.2	36.7	552.4	547.5
99	2/11/2025	20:15:56	79.2	79.5	25.8	68.9	36.7	558.1	555
100	2/11/2025	20:16:01	79.2	80.8	25.8	71.9	36.8	554.1	548.5
101	2/11/2025	20:16:06	80.2	83.7	25.8	73.5	36.8	551.9	545.3
102	2/11/2025	20:16:11	80.2	83.2	25.8	70.9	36.9	551.9	544.6
103	2/11/2025	20:16:16	80.2	82.4	25.8	72.6	37	549.1	543.3
104	2/11/2025	20:16:21	80.2	82.8	25.8	72.4	37	552.1	543.3
105	2/11/2025	20:16:26	80.2	90.8	25.8	73.8	36.9	551.8	543.2
106	2/11/2025	20:16:31	81.2	84.2	25.8	73	36.9	548.1	543
107	2/11/2025	20:16:36	81.2	83.6	25.8	73.6	36.9	548	542.8
108	2/11/2025	20:16:41	81.2	86.2	25.8	74	36.9	548.7	543.1
109	2/11/2025	20:16:46	81.2	86.2	25.8	74	37	548.6	540.3
110	2/11/2025	20:16:51	81.2	87	25.8	75.5	37.1	547.9	538.4
111	2/11/2025	20:16:56	85.2	84.7	26	76.7	37.1	549.8	535
112	2/11/2025	20:17:01	85.2	81	26	74	37	550.6	534.3
113	2/11/2025	20:17:06	85.2	86.4	26	78.9	37	554.3	537.2
114	2/11/2025	20:17:11	85.2	84	26	74.7	37	550.4	533.2
115	2/11/2025	20:17:16	80.2	88.2	26	77	37.1	549.6	530.9
116	2/11/2025	20:17:21	80.2	83.1	36.6	76	37.2	546.9	529.2
117	2/11/2025	20:17:26	86.3	87.1	36.6	72.6	37.2	548.2	528.5
118	2/11/2025	20:17:31	86.3	83.2	36.6	72.2	37.2	547.1	528.5
119	2/11/2025	20:17:36	86.3	84.8	36.6	75.4	37.2	546.5	528.8
120	2/11/2025	20:17:41	83.9	93.5	36.6	73.4	37.2	546.3	528.1
121	2/11/2025	20:17:46	83.9	96.8	36.6	71.4	37.3	547.3	529

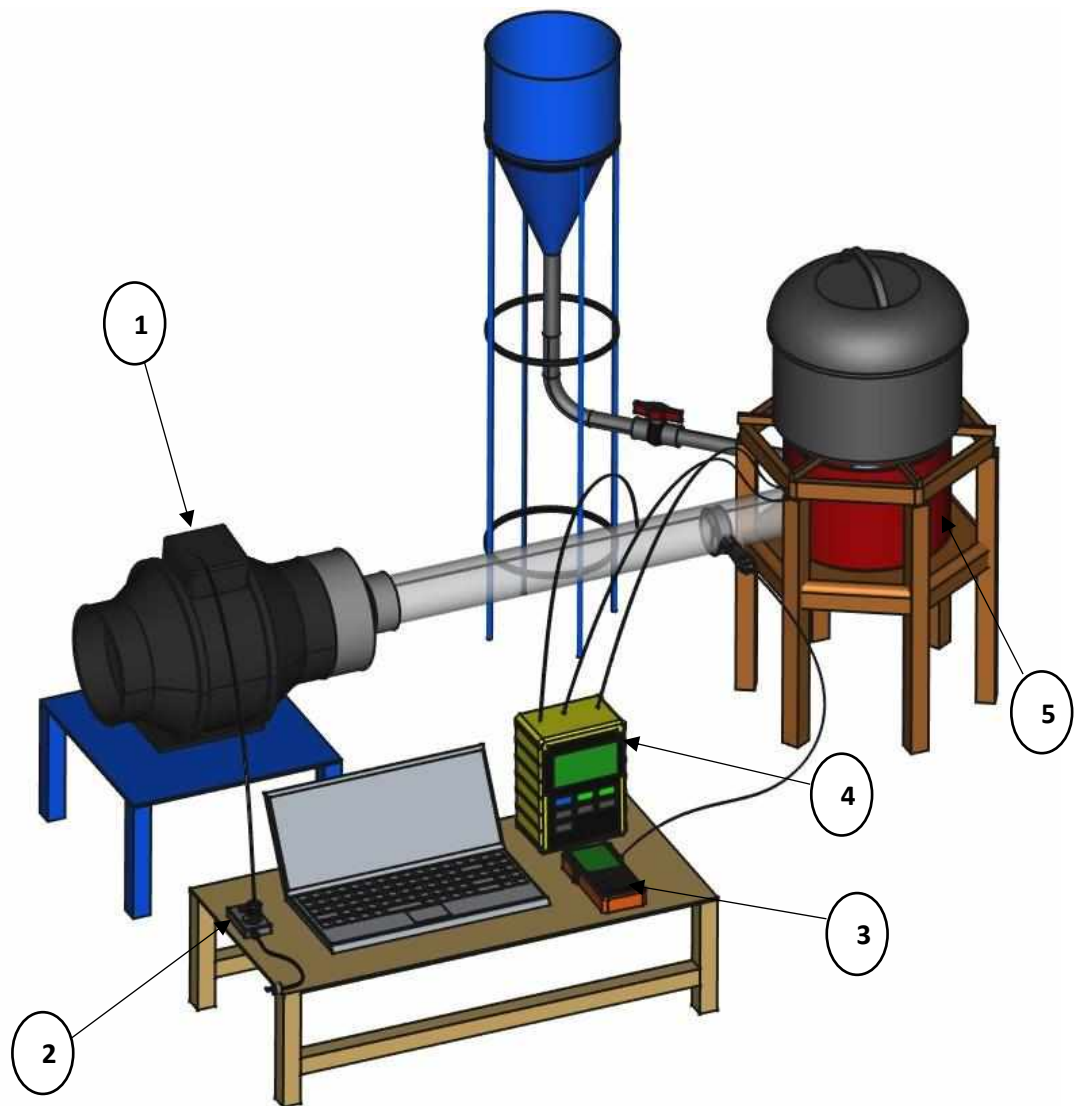
No	Tanggal	Waktu	Temperatur didih, TD (°C)				T _{angin} (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
122	2/11/2025	20:17:51	83.9	95	18.2	68.7	37.3	547.1	532.8
123	2/11/2025	20:17:56	89.5	82.6	13.7	74	37.3	547.5	537.4
124	2/11/2025	20:18:01	89.5	82	7.4	73.6	37.2	553.4	539.6
125	2/11/2025	20:18:06	89.5	85.7	45.3	81.2	37.3	555.4	543.9
126	2/11/2025	20:18:11	89.5	80.8	22.9	78.9	37.4	560.6	550
127	2/11/2025	20:18:16	89.5	80.8	54.1	81.7	37.6	561.2	556.6
128	2/11/2025	20:18:21	91.5	80.8	54.1	81.8	37.5	558.5	565.5
129	2/11/2025	20:18:26	91.5	80.8	68.9	87.8	37.4	558.9	578
130	2/11/2025	20:18:31	91.5	80.8	68.9	85.1	37.4	560.2	589.4
131	2/11/2025	20:18:36	91.5	75.6	68.9	82.5	37.4	560.8	595.1
132	2/11/2025	20:18:41	91.5	75.6	68.9	86.2	37.4	562	601.6
133	2/11/2025	20:18:46	91.5	75.6	68.9	80.4	37.4	563	609.4
134	2/11/2025	20:18:51	95.9	75.6	68.9	79.3	37.4	564.9	615.9
135	2/11/2025	20:18:56	95.9	75.6	68.9	82.5	37.5	574.2	623.2
136	2/11/2025	20:19:01	95.9	75.6	68.9	86	37.4	581.3	629.4
137	2/11/2025	20:19:06	95.9	75.6	70.5	82.2	37.4	588.2	636
138	2/11/2025	20:19:11	91.7	72.5	85.4	81.5	37.5	595.4	641.5
139	2/11/2025	20:19:16	91.7	72.5	82.1	83	37.5	605.6	653.2
140	2/11/2025	20:19:21	91.7	72.5	86.2	83	37.4	622.6	668.9
141	2/11/2025	20:19:26	92.8	72.5	85.9	80.6	37.4	641.1	688
142	2/11/2025	20:19:31	92.8	88.2	79	78.8	37.4	653.9	707.6
143	2/11/2025	20:19:36	92.8	83.1	84.7	86.6	37.3	660.7	723.8
144	2/11/2025	20:19:41	92.8	87.1	84.3	83.9	37.1	662.9	734.7
145	2/11/2025	20:19:46	100	83.2	81.6	87	37	662.6	739.7
146	2/11/2025	20:19:51	100	84.8	86.8	97.8	36.9	668.1	737.2
147	2/11/2025	20:19:56	100.1	93.5	85.5	97.8	36.9	675.1	728.4
148	2/11/2025	20:20:01	100.1	96.8	90.8	97.8	36.8	690.2	714.8
149	2/11/2025	20:20:06	100.1	100.9	99.9	101.9	36.7	706.6	697.9
150	2/11/2025	20:20:11	100.1	100.9	101.4	101.9	36.7	709.5	681.3
Rata-rata		0:09:25	100.1	100.9	101.4	101.9	37.2	641.93	576.4

Tabel L. 12 *Nozzle burner 1 inci 1.3*

No	Tanggal	waktu	Temperatur didih, TD (°C)				T _{angin} , (°C)	T _{api} (°C)	T _{tungku} (°C)
			TD ₁	TD ₂	TD ₃	TD ₄			
1	2/11/2025	16:42:56	273.6	37.2	23.6	42.8	37.2	694.2	564.2
2	2/11/2025	16:43:01	290	38.1	27.3	43.7	37.1	703.9	556.5
3	2/11/2025	16:43:06	326.3	50.1	46.6	44.4	37.1	689.1	524.2
4	2/11/2025	16:43:11	328	45.9	32.7	44.4	37	678.4	544.2
5	2/11/2025	16:43:16	308.3	41.3	26.5	44.6	37	673.9	550.3
6	2/11/2025	16:43:21	326.9	38.1	24.8	44.9	37	670.6	549
7	2/11/2025	16:43:26	366.4	42.9	37.7	45.2	36.9	673.3	533.6
8	2/11/2025	16:43:31	360.9	36.5	20.1	47.8	36.9	672.8	556.8
9	2/11/2025	16:43:36	362.9	38	20.2	47.8	36.9	680.7	557.4
10	2/11/2025	16:43:41	375.1	36.9	17.2	48.2	36.9	703.4	572.5
11	2/11/2025	16:43:46	375.3	36.9	16.6	49.1	36.8	699.2	579
12	2/11/2025	16:43:51	377.7	37.3	16.6	50.1	36.8	685.7	576.5
13	2/11/2025	16:43:56	402.2	37.6	16.8	50.5	36.8	675.8	574
14	2/11/2025	16:44:01	404.5	37.7	16.8	51.2	36.9	663	567.2
15	2/11/2025	16:44:06	408	38.7	19	52.2	36.9	665.5	562.3
16	2/11/2025	16:44:11	394.8	38.7	17.7	52.6	36.9	662	556.6
17	2/11/2025	16:44:16	471.3	38.7	15.3	52.9	36.9	669.4	553.3
18	2/11/2025	16:44:21	461.5	39.7	22	53.2	37	670.2	546.7
19	2/11/2025	16:44:26	453.7	40.8	32.7	53.4	37	666.8	536.5
20	2/11/2025	16:44:31	454.3	39.6	18	55.3	36.9	666.7	557
21	2/11/2025	16:44:36	473.8	40.6	20.9	54.4	36.9	678.7	557.6
22	2/11/2025	16:44:41	258.6	44.1	18.1	56.6	37.7	683.2	552.7
23	2/11/2025	16:44:46	424.6	45.4	27.9	54.5	39.7	695.1	536.1
24	2/11/2025	16:44:51	503.4	42.2	20.1	57.2	41.7	704.4	526.8
25	2/11/2025	16:44:56	286	54.4	35.2	52.1	42.3	694.6	523.8
26	2/11/2025	16:45:01	235.7	54.6	55	57.4	42.3	689.5	521.9
27	2/11/2025	16:45:06	266	54.9	56.4	52.7	42.5	676.5	521
28	2/11/2025	16:45:11	703.1	56	55.5	54.4	42.5	673	522.6
29	2/11/2025	16:45:16	273.6	57.4	56.7	54.2	42.5	682.2	526.3
30	2/11/2025	16:45:21	310.1	56.1	58.8	55.5	42.4	672.6	524.5
31	2/11/2025	16:45:26	644.3	42.5	17.4	63.2	42.4	680.3	526.4
32	2/11/2025	16:45:31	674.5	40.7	19.5	65.6	42.4	671	514.8
33	2/11/2025	16:45:36	652.4	40	17.9	65.6	42	679	519.7
34	2/11/2025	16:45:41	655.4	40.7	21.1	67.1	42	681.9	516
35	2/11/2025	16:45:46	659	48.2	29.7	67.7	42.5	691.7	517
36	2/11/2025	16:45:51	713.9	40.3	12.1	68.4	42.5	708.4	537.6
37	2/11/2025	16:45:56	829.2	41	12.1	68.4	43.1	685.9	536.2
38	2/11/2025	16:46:01	846.8	41.3	12.4	68.8	43	679.9	529.9
39	2/11/2025	16:46:06	767.2	41.9	12.4	69.3	42.9	681.5	534.6
40	2/11/2025	16:46:11	713.6	41.3	10.7	71.3	43	706.5	533.8

41	2/11/2025	16:46:16	727.6	42.9	11.2	71.3	43.1	720.5	536.2
42	2/11/2025	16:46:21	779.3	48.6	24.2	67.2	43	734.3	538.1
43	2/11/2025	16:46:26	880.6	55.8	55.2	61.6	42.6	742.5	534.1
44	2/11/2025	16:46:31	1053	50.8	25.8	70	42.6	702.6	528.7
45	2/11/2025	16:46:36	881.8	44.1	13.8	72.7	42.6	677.8	520.1
46	2/11/2025	16:46:41	1011	46.3	17.4	72.7	42.8	680.9	531.7
47	2/11/2025	16:46:46	401.2	68.4	27.1	66.6	42.8	724.2	543.9
48	2/11/2025	16:46:51	410.3	66.8	67.1	63.4	42.8	711.3	544.1
49	2/11/2025	16:46:56	1079	49.1	17.2	73.1	42.8	704	549.9
50	2/11/2025	16:47:01	404.4	77.3	59.3	71.2	41.3	697	533.2
51	2/11/2025	16:47:06	1080	63	44.9	72.9	39.7	718.3	554
52	2/11/2025	16:47:11	1146	60	37.6	77.4	41.4	708.4	528.4
53	2/11/2025	16:47:16	982.2	54.4	25.3	77.1	42.9	742	543.8
54	2/11/2025	16:47:21	960.5	50	22.6	77	42.9	754.3	546.1
55	2/11/2025	16:47:26	754.7	64.3	46.5	70.1	43	762.9	556
56	2/11/2025	16:47:31	830.5	62	41.2	73.9	42.4	714.9	547.7
57	2/11/2025	16:47:36	508.6	70.7	72.7	68.9	43	700.3	559.3
58	2/11/2025	16:47:41	941.3	59.9	32.9	75.6	43	710.2	553.4
59	2/11/2025	16:47:46	808.4	57.4	21.9	74.1	43.1	726.5	542.7
60	2/11/2025	16:47:51	840.3	71.4	28.9	75.4	37	727.6	544
61	2/11/2025	16:47:56	403.6	76.6	81.6	69.6	37	705.1	535.8
62	2/11/2025	16:48:01	448.7	71.7	73.3	70.6	37	710	562.3
63	2/11/2025	16:48:06	704.4	84.5	90.7	72.3	37	700.6	538.3
64	2/11/2025	16:48:11	436.2	74.3	82.2	72.9	37	706.5	554.5
65	2/11/2025	16:48:16	441.1	61.3	45.3	73.2	37	701.3	545
66	2/11/2025	16:48:21	840.1	75.2	56.4	78.1	37	694.8	536.5
67	2/11/2025	16:48:26	1343	84.6	50.1	81.7	37	702.8	537.8
68	2/11/2025	16:48:31	1012	58.2	50.9	81.7	37	699.6	549.5
69	2/11/2025	16:48:36	1348	68.4	50.1	85.4	37.1	721.6	536.5
70	2/11/2025	16:48:41	9999	57.7	22.5	86.5	37.1	737.8	579.9
71	2/11/2025	16:48:46	1139	64.2	33.4	83.6	37.1	742.9	588.9
72	2/11/2025	16:48:51	398.1	82.5	78.2	86.1	37.1	724	598.6
73	2/11/2025	16:48:56	1335	59.1	25.2	86.6	37.1	704.3	606
74	2/11/2025	16:49:01	9999	53.9	19.7	88.8	37.2	698.6	597.4
75	2/11/2025	16:49:06	1263	63.3	36.2	85.1	38.9	701.9	585.4
76	2/11/2025	16:49:11	1047	69.5	61.5	86.3	40.1	699.7	585
77	2/11/2025	16:49:16	1159	61.7	87.5	86.5	40.1	695.7	583.2
78	2/11/2025	16:49:21	1086	60.8	78.2	88	40.7	679.7	588.5
79	2/11/2025	16:49:26	905.3	69.8	78.2	88.1	40.6	669.5	594.9
80	2/11/2025	16:49:31	967	66.2	82.6	86.3	40.6	663.9	589.7
81	2/11/2025	16:49:36	805.3	71	84.7	85.6	40.6	666.4	596.8
82	2/11/2025	16:49:41	1025	66.3	78.1	88.8	40.7	686.2	602.8
83	2/11/2025	16:49:46	1015	65.3	74.3	89.4	40.7	706.2	613.5

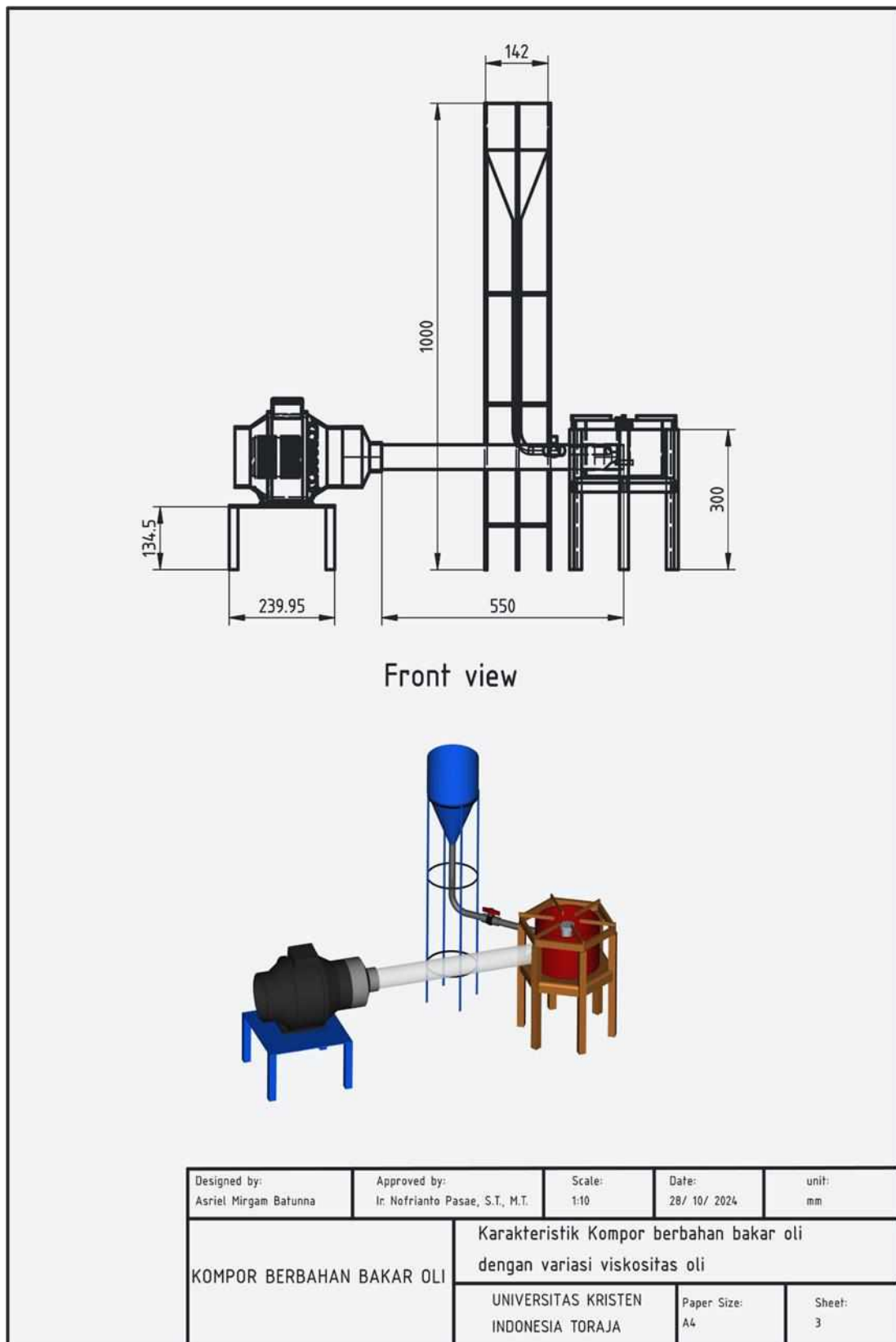
84	2/11/2025	16:49:51	1022	66.8	75.7	91.6	40.4	692.4	617.2
85	2/11/2025	16:49:56	823	71.7	77	86.6	39.8	689.8	615.5
86	2/11/2025	16:50:01	1017	71.6	75	88.6	39.3	691.8	615.4
87	2/11/2025	16:50:06	969.9	71.4	79.1	90	39.1	674.8	613
88	2/11/2025	16:50:11	1168	65.8	75.3	92.7	39	672.1	616.6
89	2/11/2025	16:50:16	645.4	77.1	87.2	89.8	39.3	664.7	616.3
90	2/11/2025	16:50:21	953.5	68.9	84.5	91.6	39.4	667.3	610.7
91	2/11/2025	16:50:26	978.9	68.9	79.6	95.8	39.6	657.4	611.7
92	2/11/2025	16:50:31	1131	65.2	82.7	96.6	39.9	654.8	614.5
93	2/11/2025	16:50:36	800.5	73.7	75.9	85.1	48.3	651.2	574.3
94	2/11/2025	16:50:41	181.9	82.1	132.1	120.7	48.3	656.1	572.8
95	2/11/2025	16:50:46	144.2	72.3	47.7	96	48.2	651.4	579.6
96	2/11/2025	16:50:51	128	79.5	67.6	90	48.4	651.8	578.6
97	2/11/2025	16:50:56	121	98.3	77	89.1	48.5	652.8	579.8
98	2/11/2025	16:51:01	135.1	98.3	102.7	94.3	47.9	657.6	573.9
99	2/11/2025	16:51:06	102.5	102.7	102.7	94.3	46.7	660.9	565.9
100	2/11/2025	16:51:11	102.5	102.7	102.9	103.7	46.7	738.8	569.7
Rata-rata		0:08:15	102.5	102.7	102.9	103.7	40.40	691.4	558.65



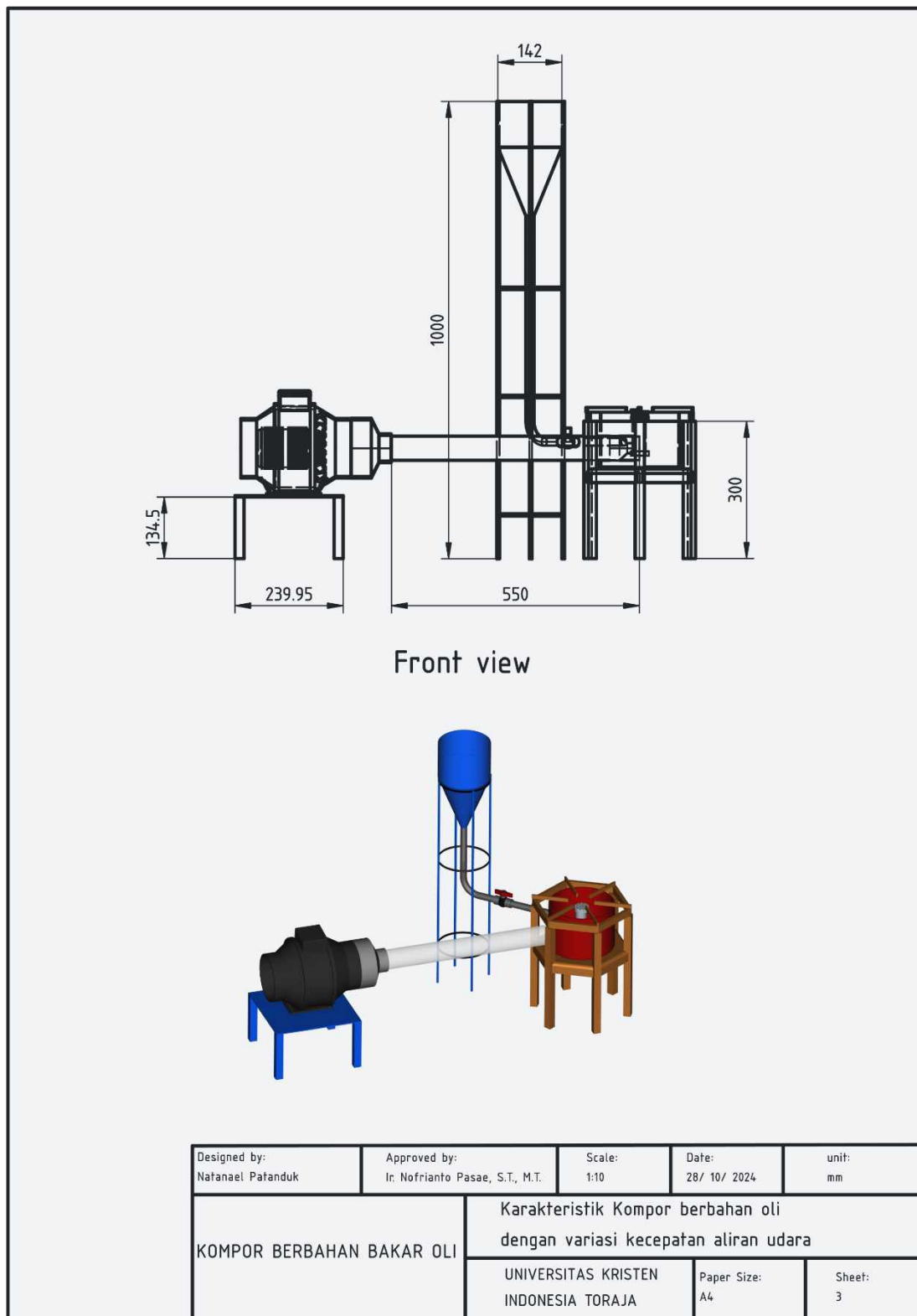
Gambar L 1 *Layout 2D* penelitian kompor berbahan bakar oli

Keterangan:

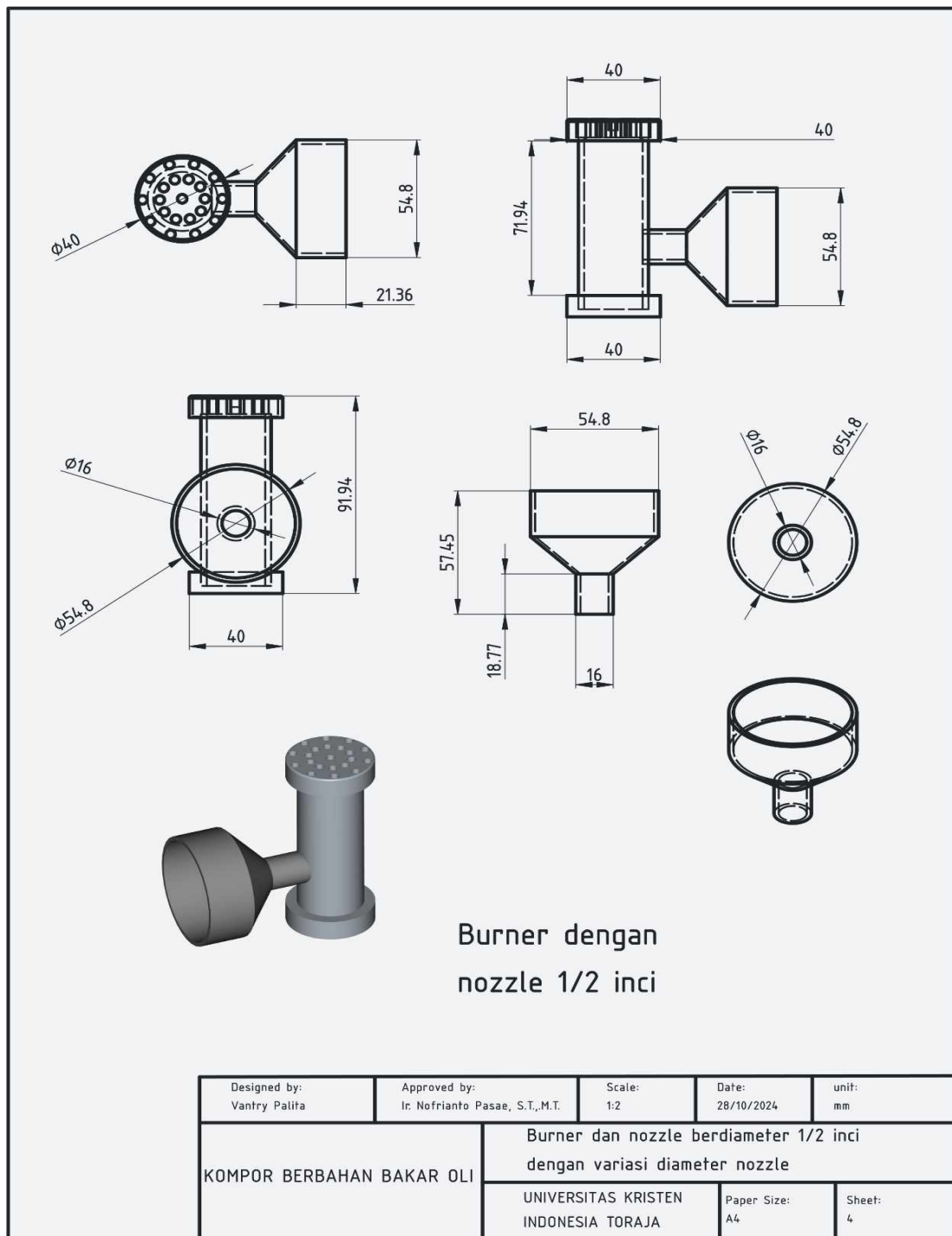
1. Blower
2. *Dimmer*
3. *Anemometer*
4. *Anemometer Termokopel data logger*
5. *Burner*



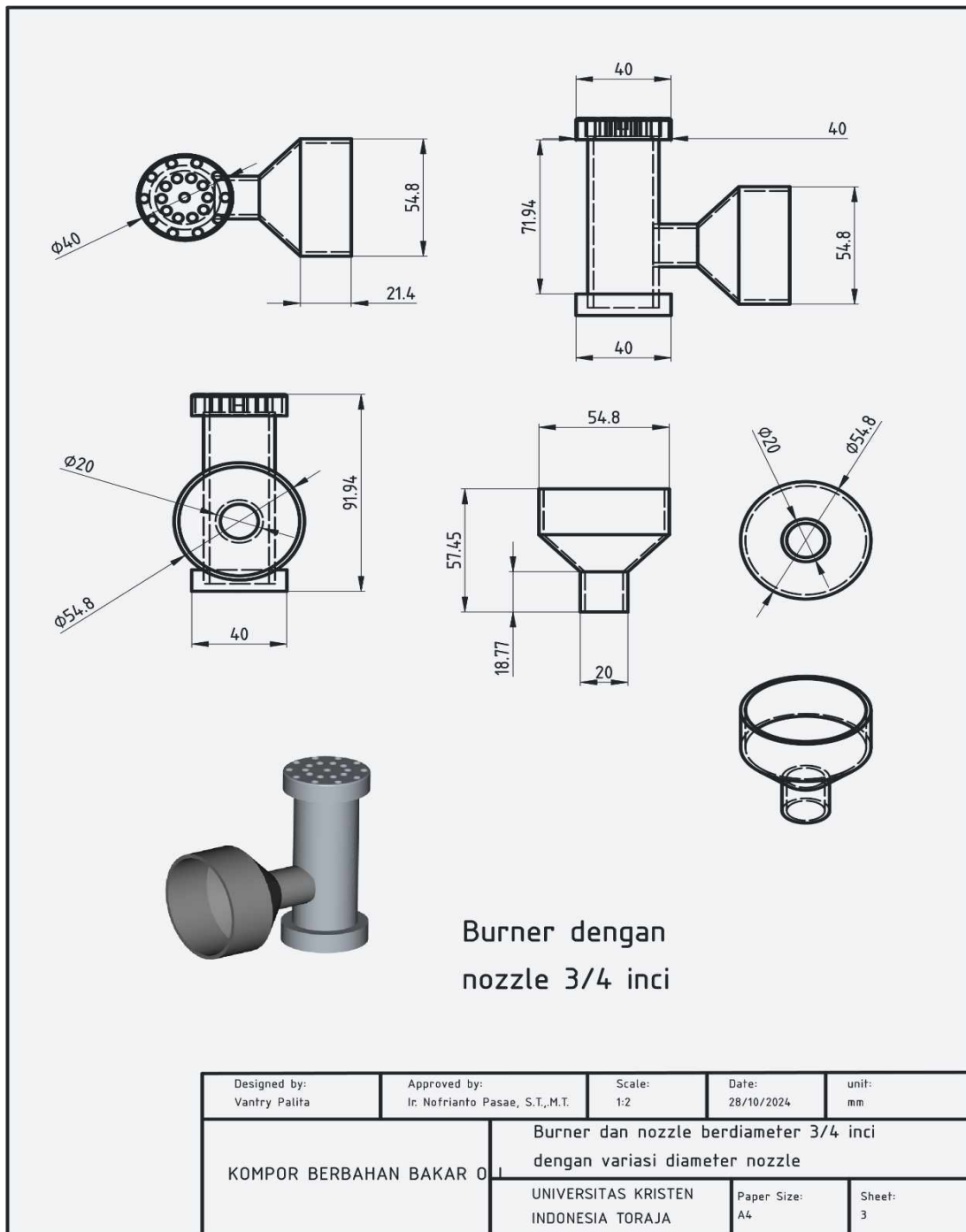
Gambar L 2 Layout dua dimensi kompor berbahan oli tampak atas



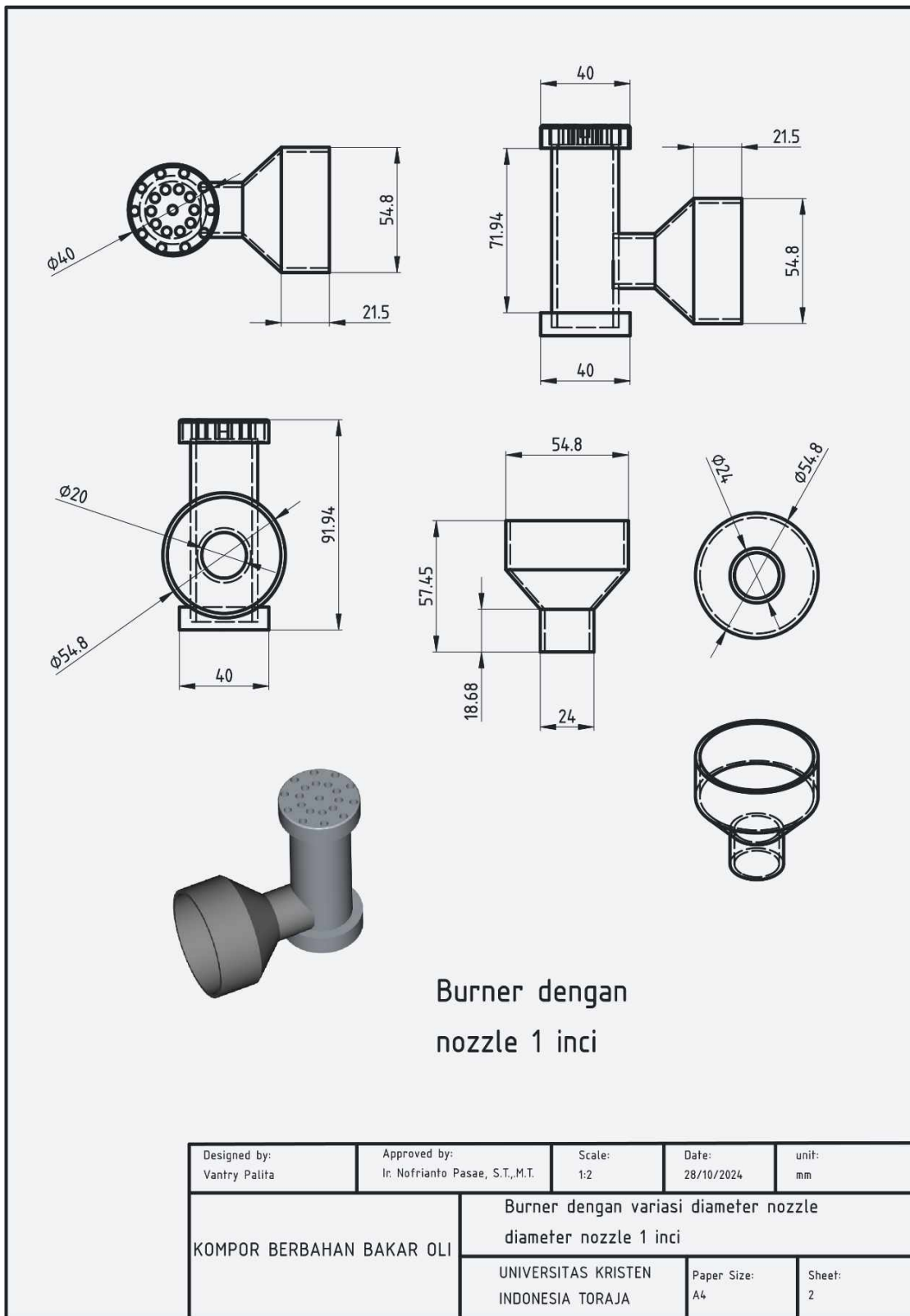
Gambar L 3 *layout* 2D kompor berbahan bakar oli tampak depan



Gambar L.4 Dimensi burner dengan variasi diameter *nozzle* burner 1/2 inci



Gambar L.5 Dimensi burner dengan variasi diameter *nozzle* burner 3/4 inci

Gambar L.6 Dimensi burner dengan variasi diameter *nozzle burner* 1 inci

Lampiran kegiatan pembuatan alat dan pengambilan data



Gambar L.7 Dokumentasi pemotongan pada besi holo 4x4



Gambar L.8 Dokumentasi pengeboran pada *nozzle burner*



Gambar L.9 Dokumentasi pegemplasan pada tungku



Gambar L.10 Dokumentasi pengecatan pada dudukan tungku



Gambar L.11 Dokumentasi pemasangan *Nozzle burner* kedalam tungku



Gambar L.12 Dokumentasi proses pengambilan data



Gambar L.13 Dokumentasi proses pengimputan data