

## **LAMPIRAN**

## Lampiran Perhitungan

### 1. Perhitungan Konversi Satuan Psi menjadi Pa

N (menit)	Laju Aliran (L/Min)		P(psi)			P(Pa)			T(o)K
	lpg	Hidrogen	P0	P1	$\Delta P$	P0	P1	$\Delta P$	
1(60)	1.5	0.5	1800	1500	300	12.4	10.342	2.068	298
2(60)	1.5	0.5	1500	1200	300	10.3	8.274	2.068	298
3(60)	1.5	0.5	1200	900	300	8.3	6.205	2.068	298
4(60)	1.5	0.5	900	700	200	6.2	4.826	1.379	298
5(60)	1.5	0.5	700	400	300	4.8	2.758	2.068	298
6(10)	1.5	0.2	100	60	40	0.7	0.414	0.276	298
7(10)	1.5	0.3	130	100	30	0.9	0.689	0.207	298

R ( J/mol.K )	$(V m^3)$	n (g/mol)	massa gas (g)			$\Delta m$ (kg)
			M0	M1	$\Delta m$	
4.124	1	2.016	10.098	8.415	1.683	0.00168
4.124	1	2.016	8.415	6.732	1.683	0.00168
4.124	1	2.016	6.732	5.049	1.683	0.00168
4.124	1	2.016	5.049	3.927	1.122	0.00112
4.124	1	2.016	3.927	2.244	1.683	0.00168
		rata-rata	6.845	5.274	1.571	0.00157
4.124	1	2.016	0.561	0.337	0.224	0.00022
4.124	1	2.016	0.729	0.561	0.168	0.00017

laju konsumsi	laju konsumsi	laju konsumsi
laju konsumsi hidorgen (mg/s)	laju konsumsi hidrogen(g/s)	laju konsumsi hidrogen(kg/s)
0.468	0.00046752	0.000000468
0.468	0.00046752	0.000000468
0.468	0.00046752	0.000000468
0.312	0.00031168	0.000000312
0.468	0.00046752	0.000000468
0.436	0.000436	0.000000436
0.374	0.00037402	0.000000374
0.281	0.00028051	0.000000281

waktu (menit)	No	m lpg (kg/s)	m hyd (kg/s)	LHV LPG (KJ/kg)	LHV hyd (KJ/kg)	Q LPG (Watt)
60	1	0.056	0.000000468	33715.46	119810	1873.1
60	2	0.056	0.000000468	33715.46	119810	1873.1
60	3	0.083	0.000000468	33715.46	119810	2809.6
60	4	0.056	0.000000312	33715.46	119810	1873.1
60	5	0.083	0.000000468	33715.46	119810	2809.6
					Rata-rata	2247.697
10	6	0.083	0.000000374	33715.46	119810	2809.6
10	7	0.067	0.000000281	33715.46	119810	2247.7

Q hyd (Watt)	Q total (Watt)	P (Watt)	efs (%)
56.014	1929.095	283.96	14.720
56.014	1929.095	283.96	14.720
56.014	2865.635	287.5	10.033
37.343	1910.424	280.44	14.679
56.014	2865.635	285.2	9.952
52.280	2299.977	284.212	12.821
44.811	2854.433	280.44	9.825
33.608	2281.306	283.96	12.447

## 2. Perhitungan Efisiensi

$$\eta = \left( \frac{\text{Energi Total Bahan Bakar}}{\text{Energi yang dikeluarkan}} \right) \times 100\%$$

Contoh :

$$\eta = \left( \frac{15,256}{1,022} \right) \times 100\% = 14,927 \%$$

NO	QH2(MJ)	Q LPG (MJ)	Q-total BB (MJ)	Energi Keluaran Genset(MJ)	(%)
1	0.202	9.2	9.402	1.022	10.870
2	0.202	9.2	9.402	1.022	10.870
3	0.202	13.8	14.002	1.035	7.392
4	0.135	9.2	9.335	1.01	10.820
5	0.202	13.8	14.002	1.027	7.335
6	0.027	1.84	1.867	1.010	54.078
7	0.020	2.3	2.320	1.022	44.059

## DOKUMENTASI PENGAMBILAN DATA

