

DAFTAR PUSTAKA

- Ashok, B., Ashok, S. D., & Kumar, C. R. (2015). *LPG diesel dual fuel engine. Faculty of Engineering, Alexandria University*, 105-126.
- Armstrong, Proctol. 2013. *Motor Diesel Putaran Tinggi*. Jakarta: PT. Pradnya Pratama
- Darmanto, Seno dan Ireng Sigit. (2006). “Analisa Biodiesel Minyak Kelapa Sebagai Bahan Bakar Alternatif Minyak Diesel”. *Jurnal Traksi Vol 4 No 2*. UNIMUS. Semarang.
- Fadly, E. R., & Pakan, Y. (2021). Analisis Variasi Putaran Terhadap Torsi dan Daya pada Motor Diesel Satu Silinder. *Politeknik Saint Paul Sorong*, 33-38.
- H. Li, S. L. (2017). *An investigation of the combustion process of a heavy-duty dual fuel engine supplemented with natural gas or hydrogen*. *International journal of hydrogen energy*.
- Kamajaya, M. F. (2016). PERBEDAAN KONSUMSI BAHAN BAKAR DAN KEPEKATAN GAS BUANG MESIN DIESEL MENGGUNAKAN BAHAN BAKAR SOLAR DAN CAMPURAN SOLAR DENGAN MINYAK CENGKEH. *Universitas Negeri Semarang*, 1-20.
- Korakianitis, T., Namasivayam, A.M., Crookes, R.J., (2011). *Natural-gas fueled sparkignition (SI) and compression-ignition (CI) engine performance and emissions*. *Prog. Energy Combust. Sci.* 37, 89–112.
- Kumar, S., Srinivas, V. G., Murthy, K., & Sudheer, M. S. (2021). *Simulation and Experimental Validation of Combustion Characteristics of Dual Fuel LPG-Diesel Engine*. *Manipal Institute of Technology*, 1937-1944.
- Ma'muri, Kuncoro, A., & Wisnugroho, S. (2016). Rancang Bangun *Konverter Kit Dual Fuel (LPG – SOLAR) Untuk Mesin Diesel Kapal Nelayan Tradisional*. *Seminar Nasional Sains dan Teknologi 2016*.

P. Van. 1997. *Motor Diesel Kapal Jilid 1 Nautech*. Jakarta: PT. Triasko Adra.

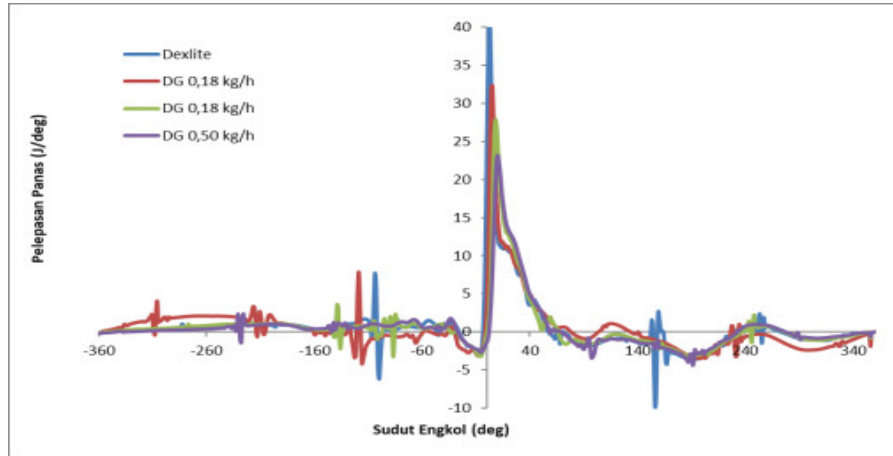


- Nurahman, V. W., Nugraheni, I. K., & B.P, A. A. (2017). Uji Emisi Gas Buang Pemanfaatan Bahan Bakar Pirolisis Hdpe Pada Motor Bensin 4 Tak 1 Silinder.
- Saleh, H. E. (2008). Effect of variation in LPG composition on emissions and performance in a dual fuel diesel engine. *Universitas Helwan*.
- Sinaga, N., Mel, N., Purba, D., & Paridawati. (2019). *Comparative study of the performance and economic value of a small engine fueled with B20 and B20-LPG as an effort to reduce the operating cost of diesel engines in remote areas*. Annual Conference on Industrial and System Engineering.
- Suwarto, & Basri, H. (2018). Pengaruh Pencampuran Bahan Bakar Biosolar dan Dexlite Terhadap Opasitas Gas Buang dan Konsumsi Bahan Bakar pada *Internal Combustion Engine (ICE)* . Seminar Nasional Inovasi dan Aplikasi Teknologi di Industri, 184-192.
- Yaqin, R. I., Zamri, Z. Z., Siahaan, J. P., Priharanto, Y. E., Alirejo, M. S., & Umar, M. L. (2020). Pendekatan FMEA dalam Analisa Risiko Perawatan Sistem Bahan Bakar Mesin Induk: Studi Kasus di KM. Sidomulyo. *Jurnal Rekayasa Sistem Industri*, 9(3), 189-200

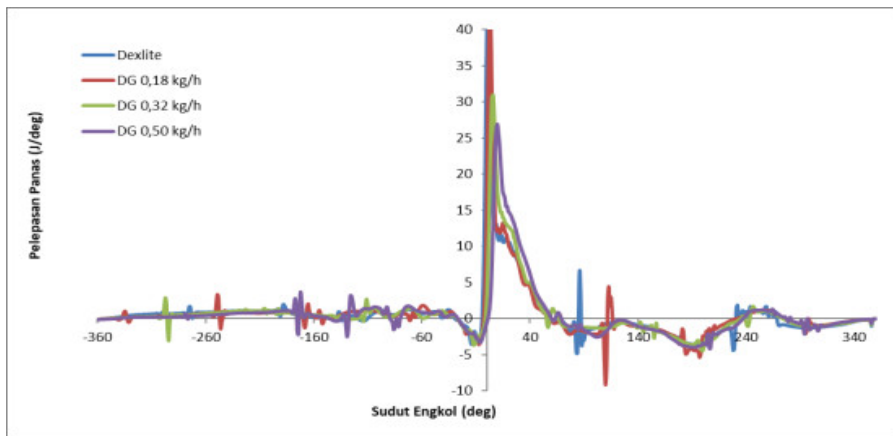


LAMPIRAN

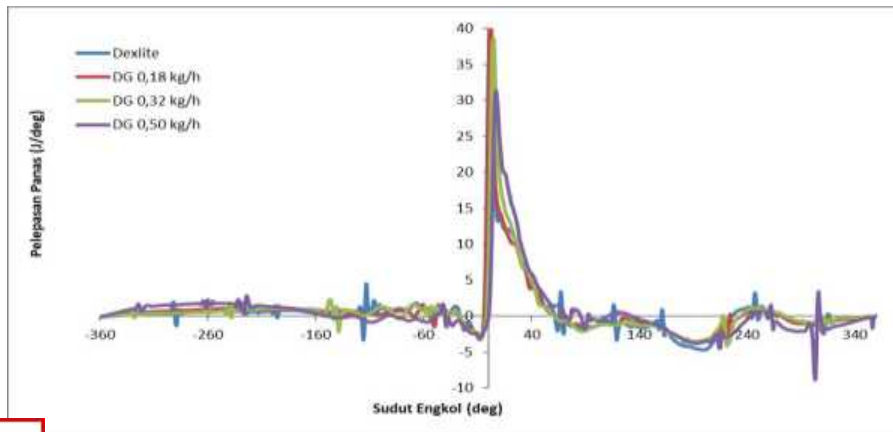
Lampiran 1 Pelepasan Panas



Pelepasan Panas Rasio Kompresi 14, beban 5 kg

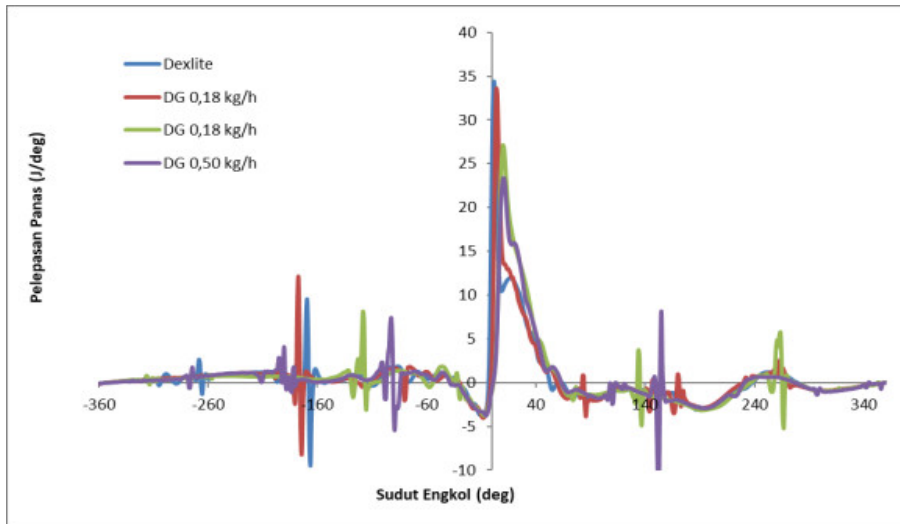


Pelepasan Panas Rasio Kompresi 14, beban 7 kg

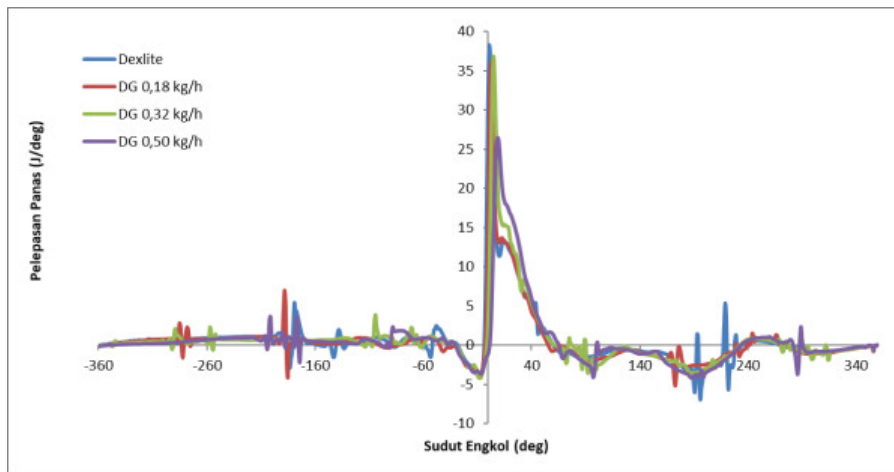


Pelepasan Panas Rasio Kompresi 14, beban 9 kg

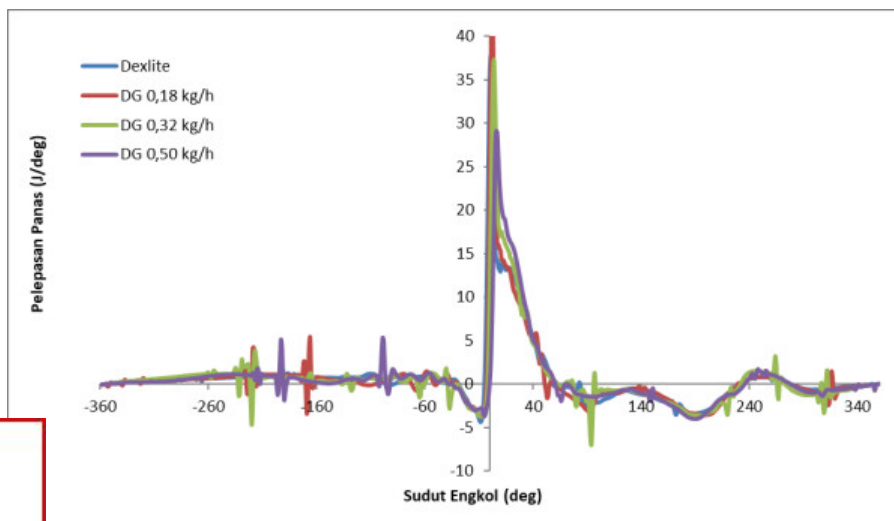




Pelepasan Panas Rasio Kompresi 16, beban 5 kg

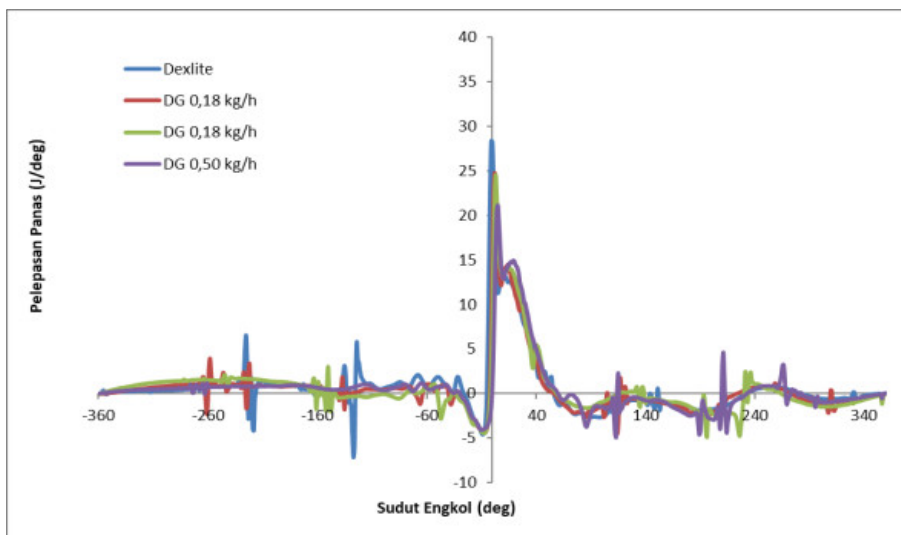


Pelepasan Panas Rasio Kompresi 16, beban 7 kg

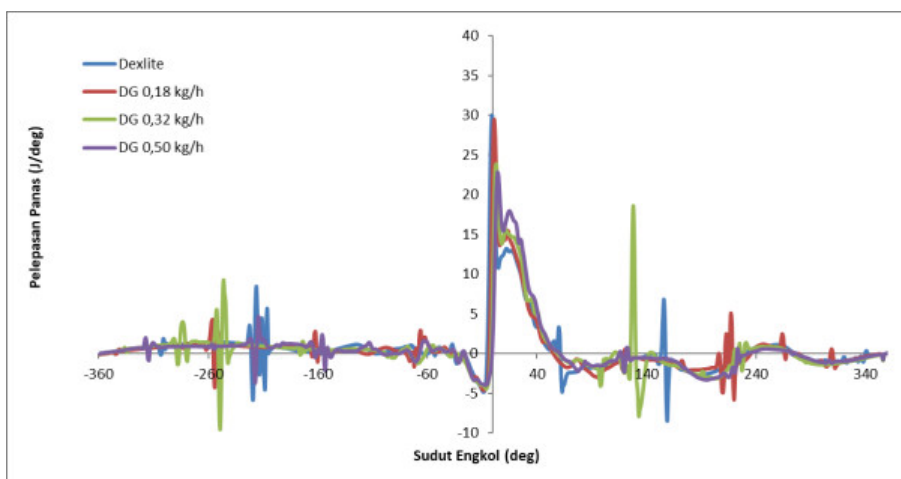


Pelepasan Panas Rasio Kompresi 16, beban 9 kg

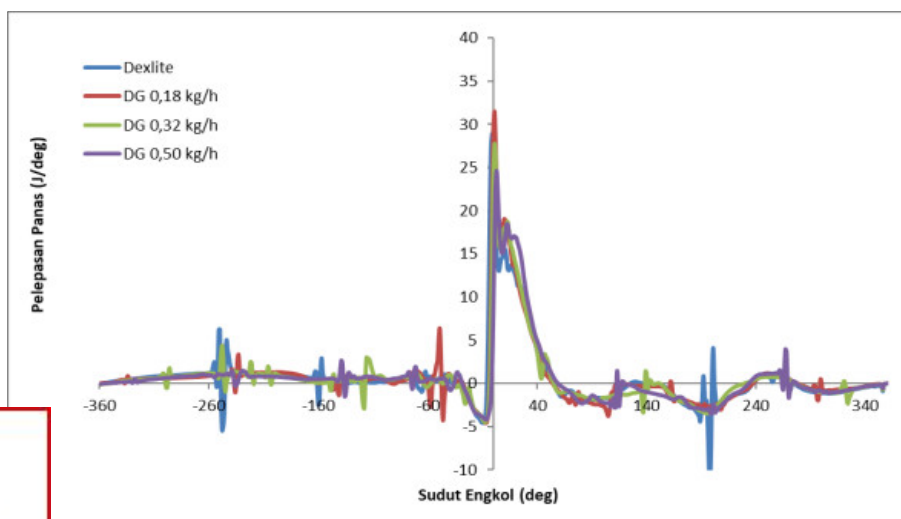




Pelepasan Panas Rasio Kompresi 18, beban 5 kg



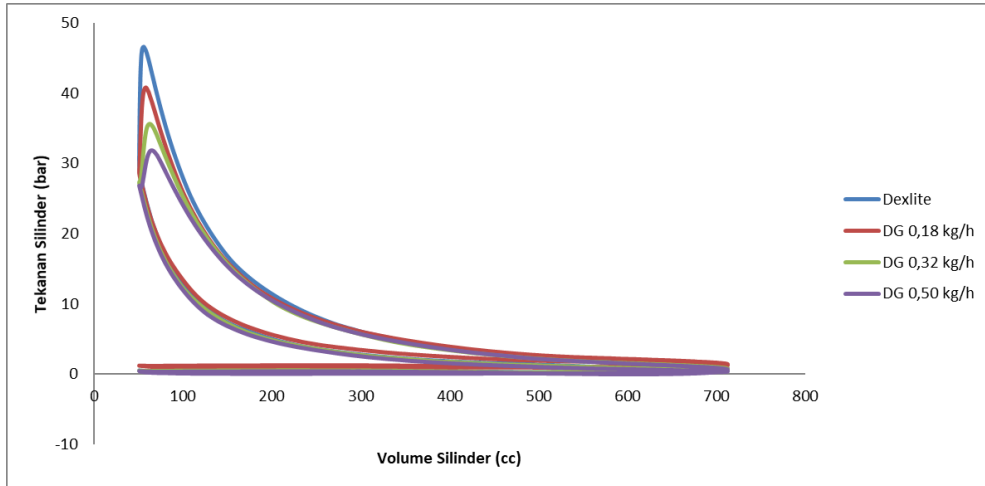
Pelepasan panas rasio kompresi 18, beban 7 kg



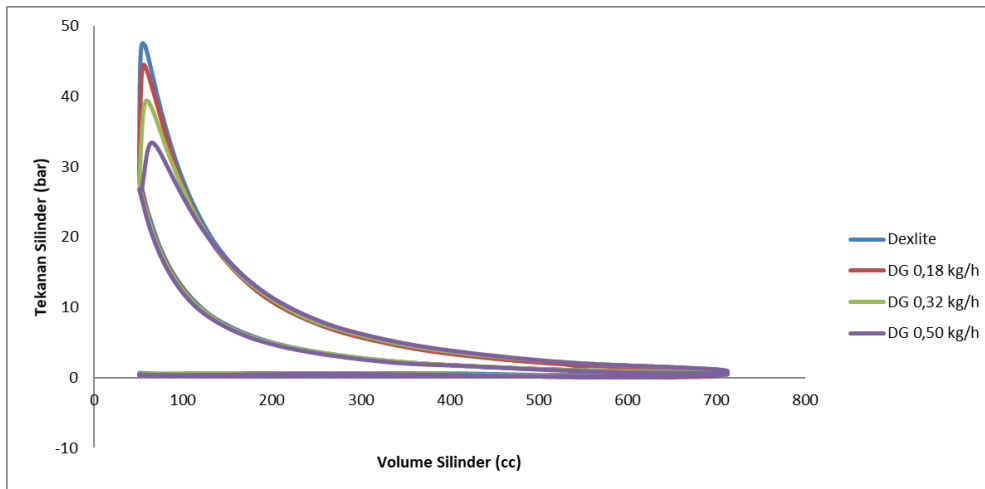
Pelepasan Panas Rasio Kompresi 18, beban 9 kg



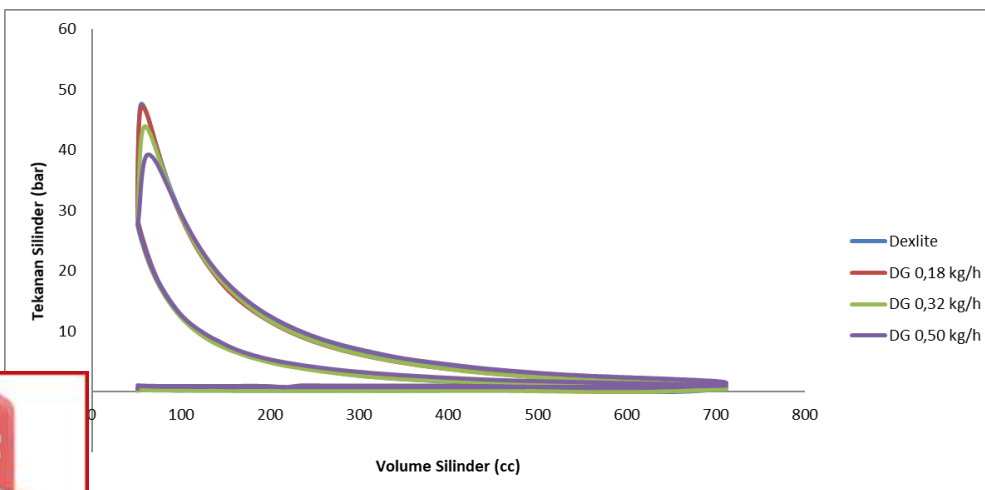
Lampiran 2 Tekanan Silinder



Tekanan Silinder Rasio Kompresi 14, beban 5 kg

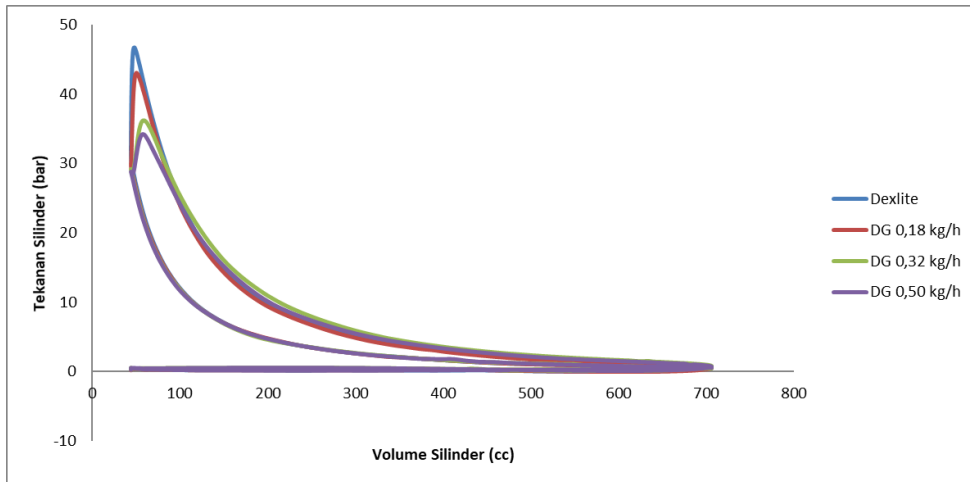


Tekanan Silinder Rasio Kompresi 14, beban 7 kg

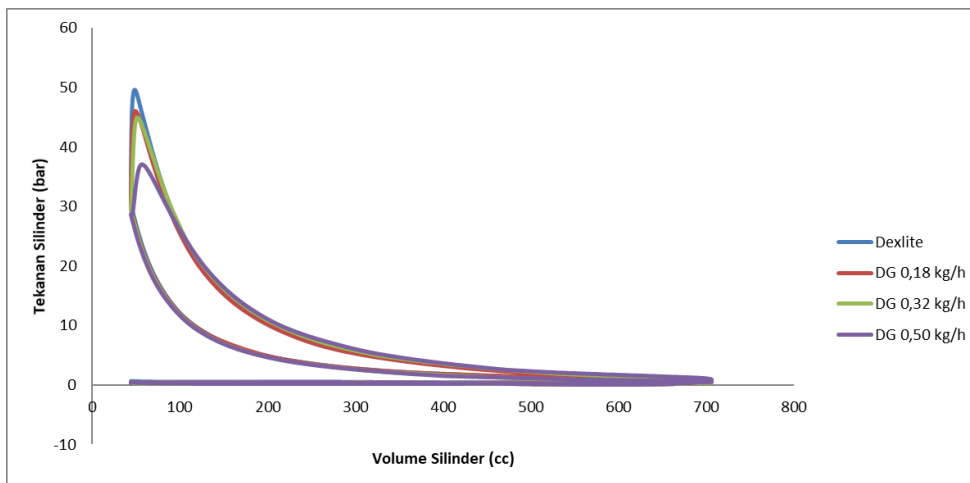


Tekanan Silinder Rasio Kompresi 14, beban 9 kg

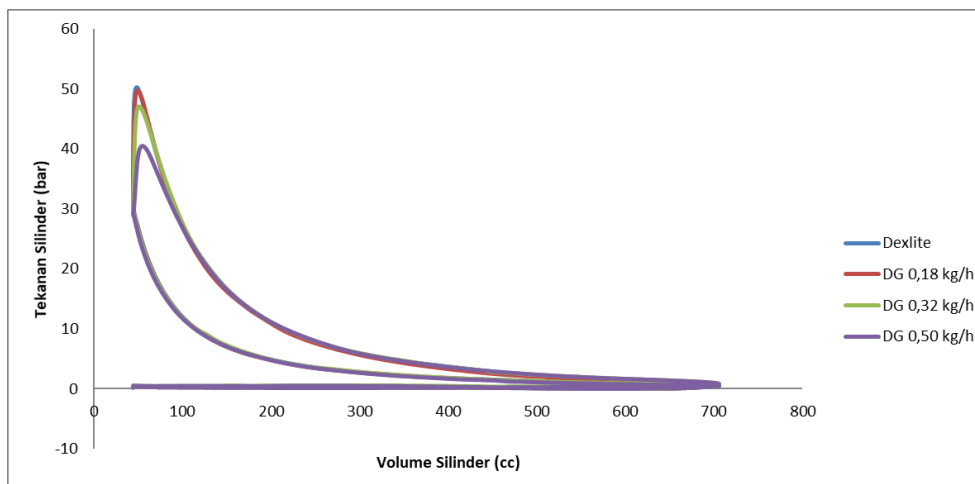




Tekanan Silinder Rasio Kompresi 16, beban 5 kg

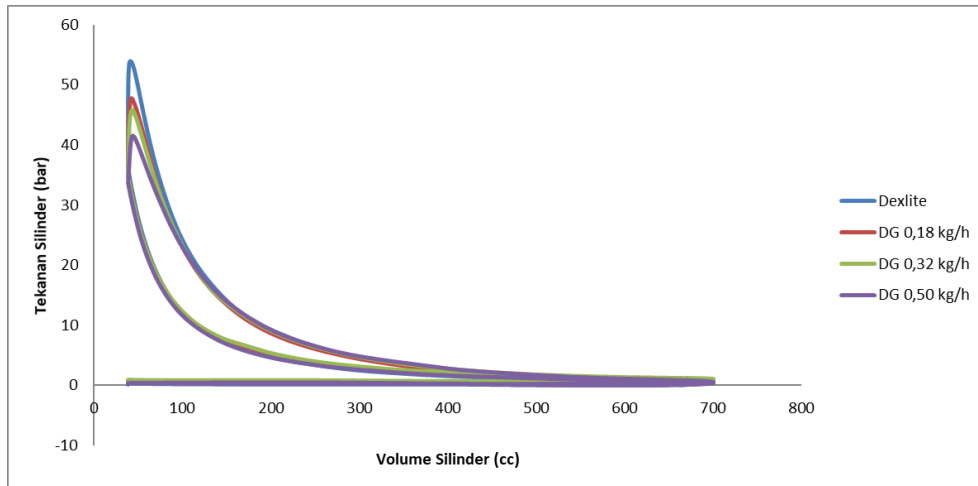


Tekanan Silinder Rasio Kompresi 16, beban 7 kg

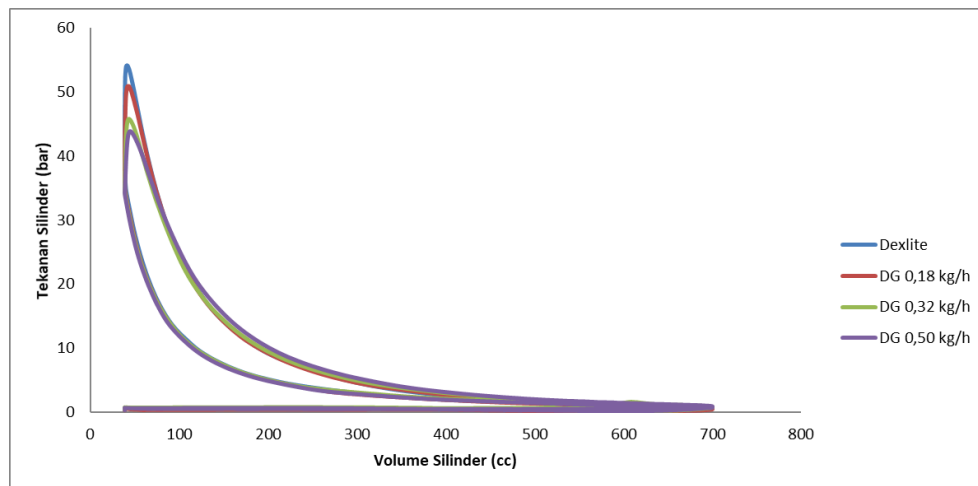


Tekanan Silinder Rasio Kompresi 16, beban 9 kg

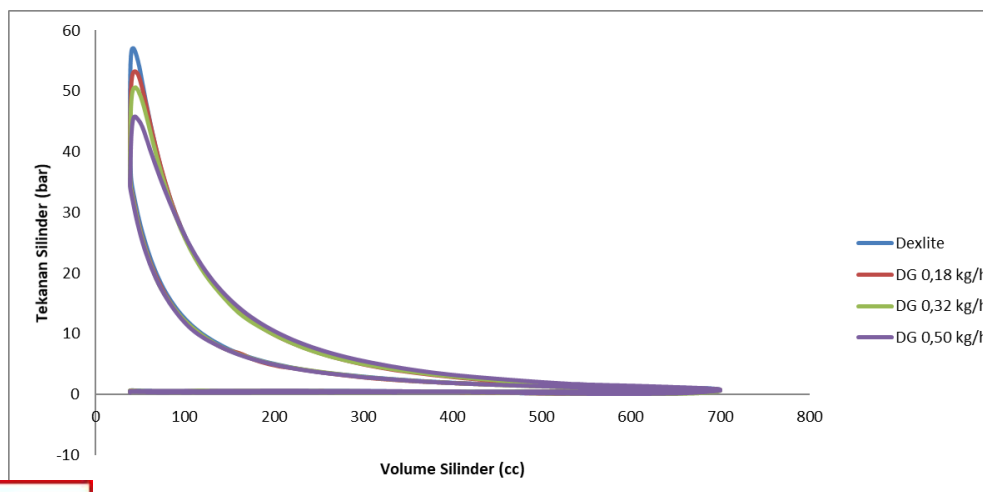




Tekanan Silinder Rasio Kompresi 18, beban 5 kg



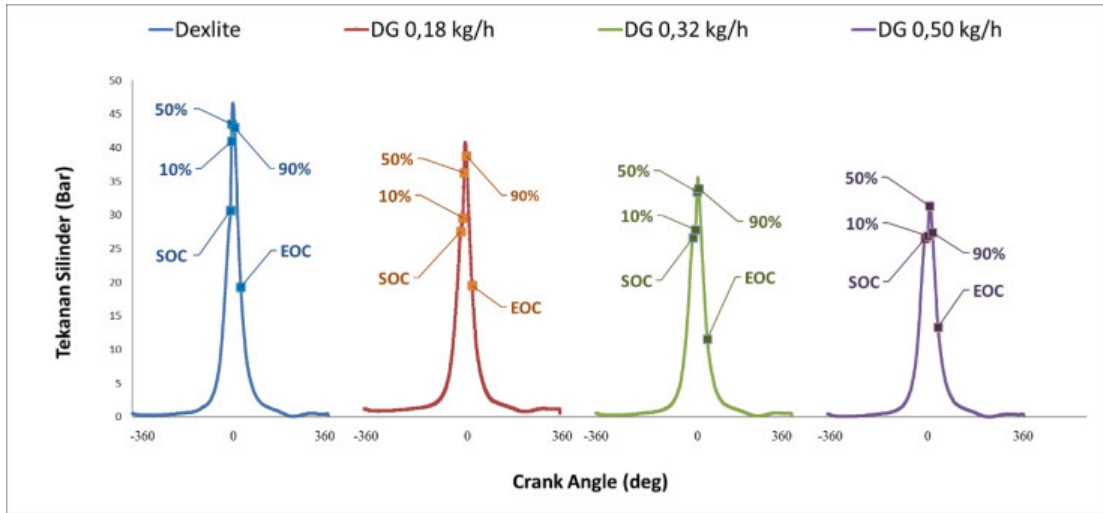
Tekanan Silinder Rasio Kompresi 18, beban 7 kg



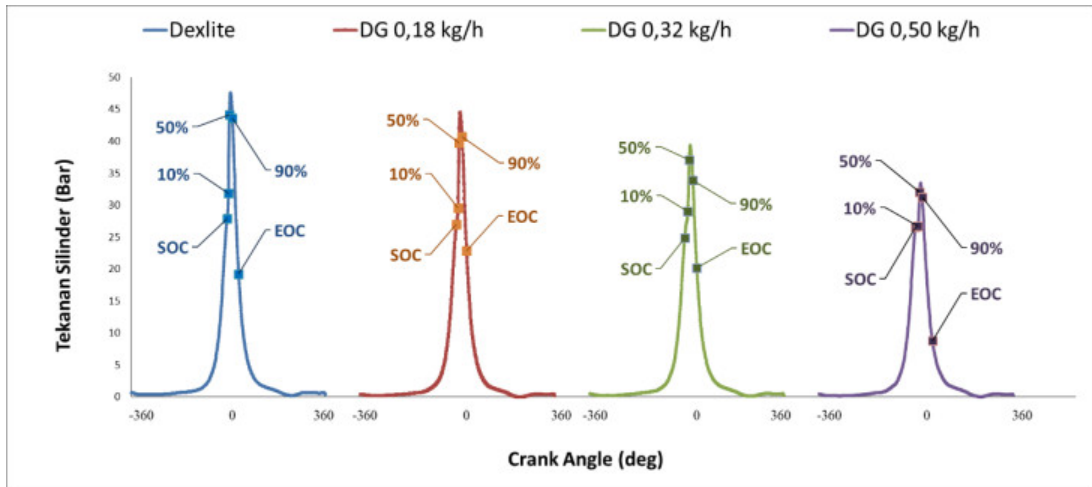
Tekanan Silinder Rasio Kompresi 18, beban 9 kg



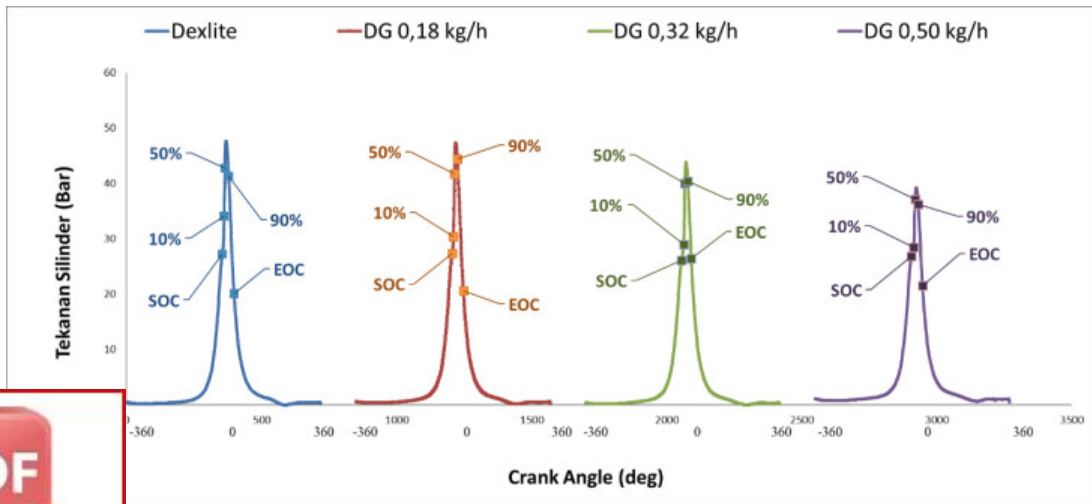
Lampiran 3 Sudut Engkol



Sudut Engkol Rasio Kompresi 14, beban 5 kg

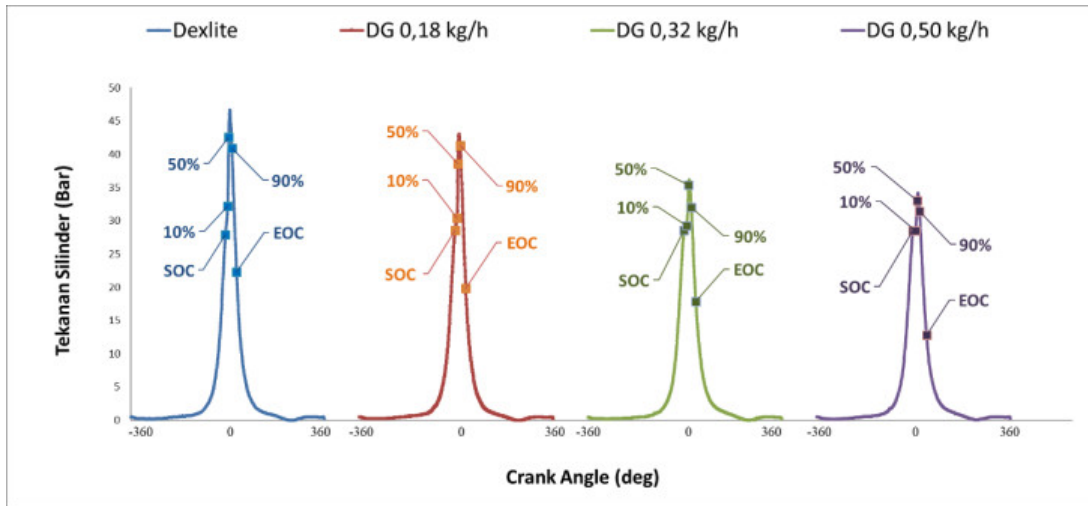


Sudut Engkol Rasio Kompresi 14, beban 7 kg

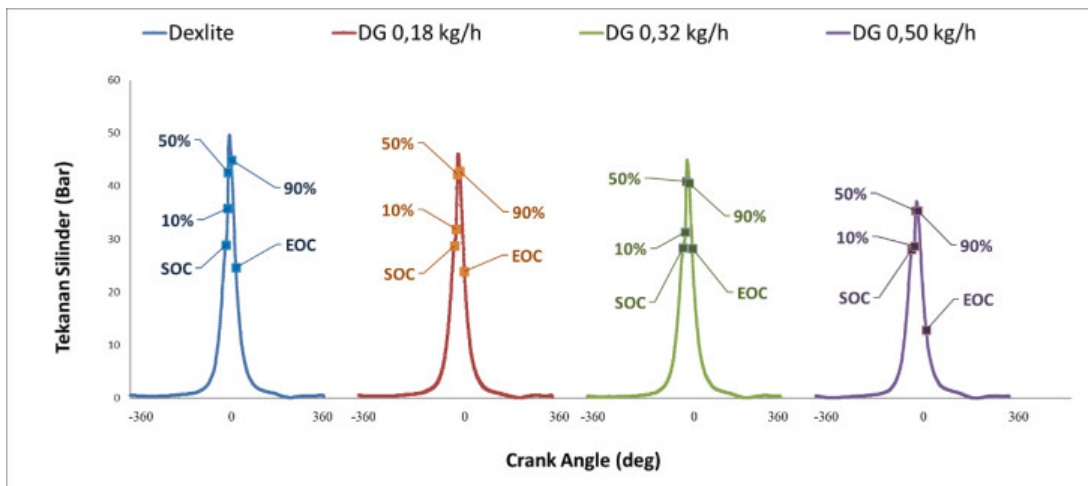


Sudut Engkol Rasio Kompresi 14, beban 9 kg

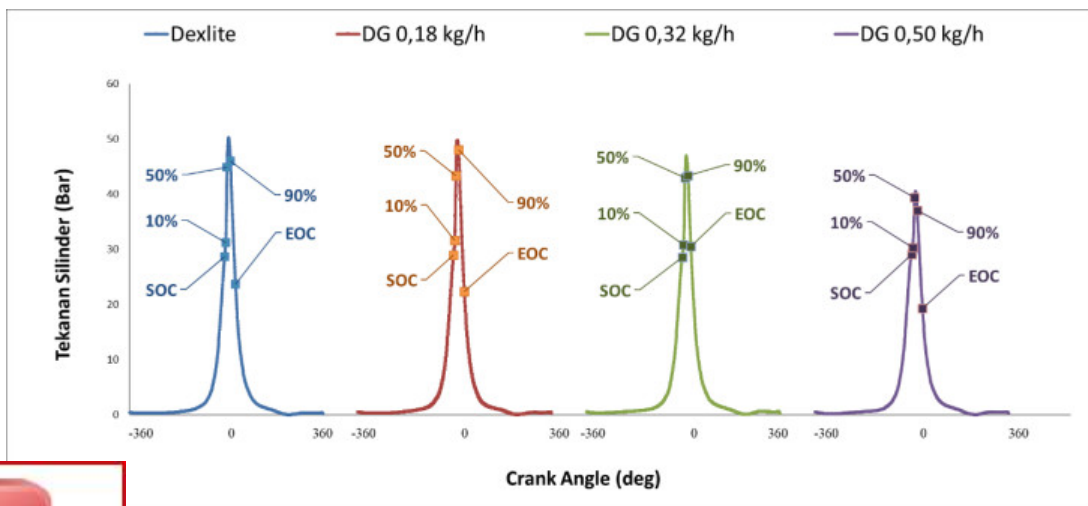




Sudut Engkol Rasio Kompresi 16, beban 5 kg

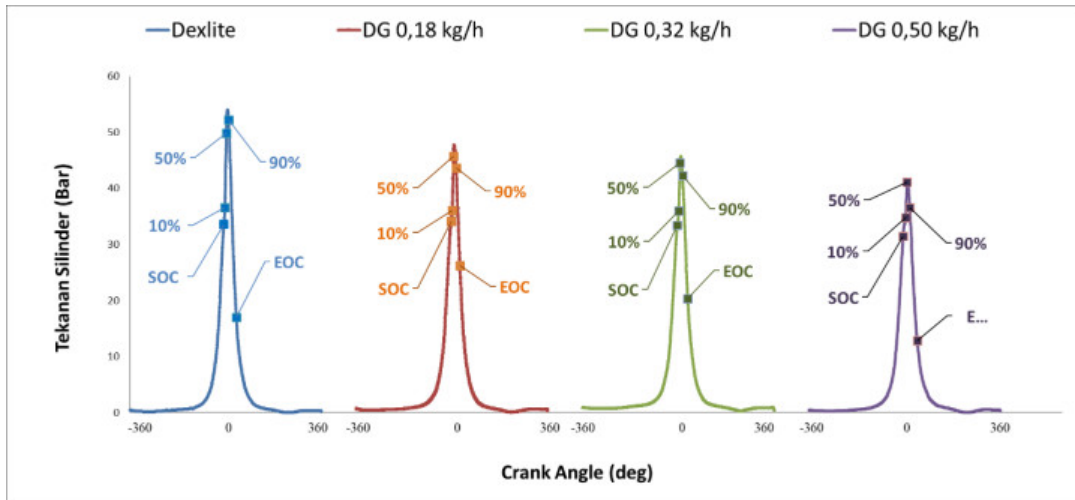


Sudut Engkol Rasio Kompresi 16, beban 7 kg

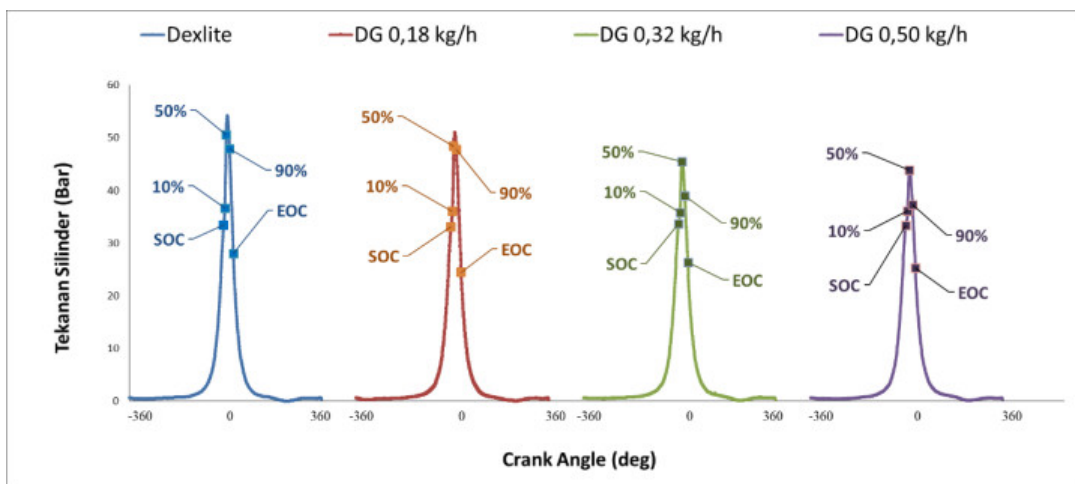


Sudut Engkol Rasio Kompresi 16, beban 9 kg

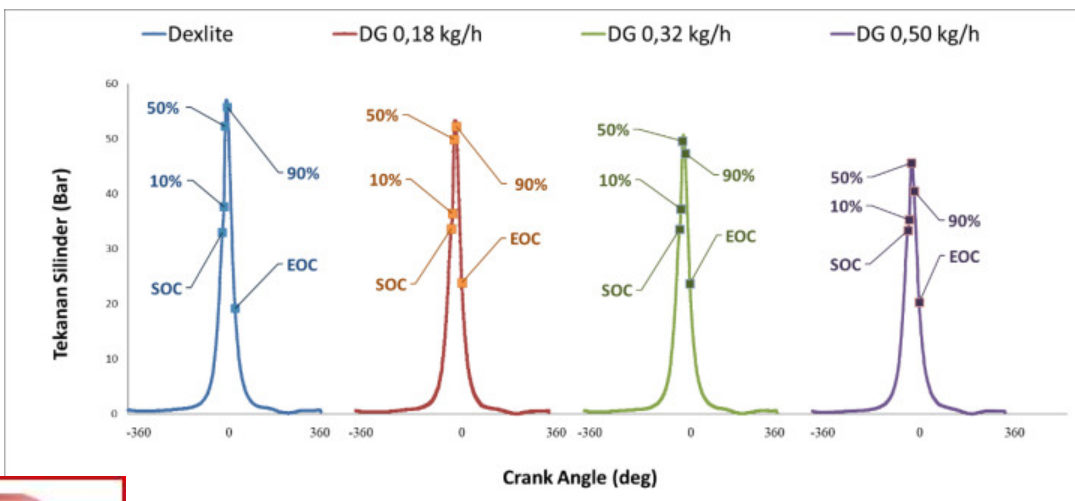




Sudut Engkol Rasio Kompresi 18, beban 5 kg



Sudut Engkol Rasio Kompresi 18, beban 7 kg



Sudut Engkol Rasio Kompresi 18, beban 9 kg



Lampiran 4 Fraksi Massa

Rasio Kompresi 14						
Beban	Bahan Bakar	SOC	EOC	MFB 10%	MFB 50%	MFB 90%
5	Dexlite	5,00	38,00	-0,19	3,93	15,2
	DG 0,18 kg/h	-5,00	36,00	2,04	6,1	14,62
	DG 0,32 kg/h	-4,00	49,00	4,94	9,85	18,04
	DG 0,50 kg/h	-3,00	45,00	6,58	12,65	23,84

Rasio Kompresi 14						
Beban	Bahan Bakar	SOC	EOC	MFB 10%	MFB 50%	MFB 90%
7	Dexlite	-5,00	38,00	-0,19	3,93	15,20
	DG 0,18 kg/h	-5,00	33,00	0,85	4,74	15,70
	DG 0,32 kg/h	-9,00	36,00	3,04	8,3	20,72
	DG 0,50 kg/h	-3,00	59,00	6,47	11,91	20,78

Rasio Kompresi 14						
Beban	Bahan Bakar	SOC	EOC	MFB 10%	MFB 50%	MFB 90%
9	Dexlite	-6,00	38,00	-0,73	4,17	17,52
	DG 0,18 kg/h	-5,00	37,00	-0,34	3,99	14,98
	DG 0,32 kg/h	-6,00	31,00	2,06	6,85	17,55
	DG 0,50 kg/h	-5,00	37,00	4,47	10,35	21,21

Rasio Kompresi 16						
Beban	Bahan Bakar	SOC	EOC	MFB 10%	MFB 50%	MFB 90%
5	Dexlite	-8,00	33,00	-0,15	3,81	15,96
	DG 0,18 kg/h	-5,00	35,00	2,18	5,87	13,67
	DG 0,32 kg/h	-4,00	40,00	6,75	12,55	23,29
	DG 0,50 kg/h	-3,00	47,00	6,43	12,00	20,62

Rasio Kompresi 16						
Beban	Bahan Bakar	SOC	EOC	MFB 10%	MFB 50%	MFB 90%
7	Dexlite	-6,00	32,00	-0,73	3,37	14,68
	DG 0,18 kg/h	-5,00	32,00	0,51	4,56	14,83
	DG 0,32 kg/h	-5,00	29,00	2,56	6,96	17,56
	DG 0,50 kg/h	-4,00	49,00	5,48	10,80	19,06



Rasio Kompresi 16						
Beban	Bahan Bakar	SOC	EOC	MFB 10%	MFB 50%	MFB 90%
9	Dexlite	-6.00	34.00	-1.55	2.97	15.30
	DG 0,18 kg/h	-5.00	35.00	0.05	3.87	13.24
	DG 0,32 kg/h	-5.00	28.00	1.40	5.99	16.93
	DG 0,50 kg/h	-2.00	39.00	4.03	9.52	19.93

Rasio Kompresi 18						
Beban	Bahan Bakar	SOC	EOC	MFB 10%	MFB 50%	MFB 90%
5	Dexlite	-7,00	40,00	-2,53	1,77	11,04
	DG 0,18 kg/h	-4,00	29	0,22	5	15,34
	DG 0,32 kg/h	-5,00	35,00	1,04	5,62	15,12
	DG 0,50 kg/h	-7,00	46,00	2,89	8	17,79

Rasio Kompresi 18						
Beban	Bahan Bakar	SOC	EOC	MFB 10%	MFB 50%	MFB 90%
7	Dexlite	-7	29	-2,63	2,21	14,64
	DG 0,18 kg/h	-6	32	-0,71	3,89	13,78
	DG 0,32 kg/h	-4	30	1,1	6,79	18,43
	DG 0,50 kg/h	-4	33	2,51	9,2	20,59

Rasio Kompresi 18						
Beban	Bahan Bakar	SOC	EOC	MFB 10%	MFB 50%	MFB 90%
9	Dexlite	-8	39	-3,08	1,57	10,51
	DG 0,18 kg/h	-5	34	-0,89	3,97	12,74
	DG 0,32 kg/h	-5	34	-0,29	5,8	15,61
	DG 0,50 kg/h	-4	38	1,42	7,98	19



Lampiran 5 Perhitungan

Dexlite Tanpa Gas																						
Rasio Kompresi	Beban (kg)	Putaran (rpm)	Torsi (Nm)	BP (Kw)	FC (kg/h)	SFC (kg/kW.h)	IMEP	Ma (kg/h)	Mth (kg/h)	AFR	η_{vo} (%)	η_{th} (%)	fuel	10^{-3}	pf	ho	pud	LVHbb	vs	$vs \times 10^{-3}$	Qtot	Opa(%)
14	5	1509	9,23	1,459	0,806	0,553	4,38	26,269	35,010	32,576	75,033	18,547	16	0,016	0,84	65,36	1,17	35107	0,661	0,00066	7,864	8,5
	7	1491	12,80	1,999	0,857	0,429	4,35	25,770	34,593	30,077	74,496	23,919	17	0,017	0,84	62,90	1,17	35107	0,661	0,00066	8,355	9,8
	9	1475	16,50	2,549	1,008	0,396	4,90	25,413	34,222	25,212	74,261	25,927	20	0,02	0,84	61,17	1,17	35107	0,661	0,00066	9,830	11,3
16	5	1540	9,23	1,489	0,806	0,542	3,66	26,557	35,730	32,933	74,328	18,928	16	0,016	0,84	66,80	1,17	35107	0,661	0,00066	7,864	4,1
	7	1505	12,82	2,020	0,907	0,449	4,29	26,023	34,918	28,685	74,527	22,838	18	0,018	0,84	64,14	1,17	35107	0,661	0,00066	8,847	5,9
	9	1490	16,54	2,581	1,008	0,391	4,71	25,705	34,570	25,501	74,356	26,254	20	0,02	0,84	62,58	1,17	35107	0,661	0,00066	9,830	6,8
18	5	1534	9,39	1,508	0,756	0,501	3,64	26,567	35,590	35,142	74,647	20,460	15	0,015	0,84	66,85	1,17	35107	0,661	0,00066	7,372	2,7
	7	1528	12,81	2,050	0,857	0,418	3,46	26,275	35,451	30,667	74,117	24,532	17	0,017	0,84	65,39	1,17	35107	0,661	0,00066	8,355	3,5
	9	1505	16,51	2,602	0,907	0,349	4,10	25,823	34,918	28,465	73,955	29,412	18	0,018	0,84	63,16	1,17	35107	0,661	0,00066	8,847	5,1

Dexlite dengan penambahan LPG 0,18 kg/h																						
Rasio Kompresi	Beban (kg)	Putaran (rpm)	Torsi (Nm)	BP (Kw)	FC (kg/h)	SFC (kg/kW.h)	IMEP	Ma (kg/h)	Mth (kg/h)	AFR	η_{vo} (%)	η_{th} (%)	fuel	10^{-3}	pf	ho	pud	LVHbb	vs	$vs \times 10^{-3}$	Qtot	Opa(%)
14	5	1538	9,25	1,490	0,785	0,527	3,42	26,318	35,683	33,534	73,753	14,884	12	0,012	0,84	65,60	1,17	35107	0,661	0,00066	10,009	9,2
	7	1513	12,82	2,031	0,886	0,436	4,08	25,982	35,103	29,339	74,017	18,478	14	0,014	0,84	63,94	1,17	35107	0,661	0,00066	10,992	10,5
	9	1492	16,49	2,576	0,986	0,383	4,62	25,527	34,616	25,879	73,744	21,514	16	0,016	0,84	61,72	1,17	35107	0,661	0,00066	11,975	11,7
16	5	1549	9,24	1,499	0,785	0,524	3,43	26,509	35,939	33,779	73,763	14,974	12	0,012	0,84	66,56	1,17	35107	0,661	0,00066	10,009	5,0
	7	1530	12,83	2,056	0,886	0,431	3,89	26,255	35,498	29,647	73,963	18,701	14	0,014	0,84	65,29	1,17	35107	0,661	0,00066	10,992	6,2
	9	1506	16,67	2,629	0,986	0,375	4,44	25,703	34,941	26,057	73,560	21,953	16	0,016	0,84	62,57	1,17	35107	0,661	0,00066	11,975	7,6
18	5	1561	9,23	1,509	0,684	0,453	2,92	26,599	36,217	38,887	73,443	16,716	10	0,01	0,84	67,01	1,17	35107	0,661	0,00066	9,026	3,1
	7	1553	13,00	2,114	0,734	0,347	3,46	26,450	36,031	36,015	73,407	22,213	11	0,011	0,84	66,26	1,17	35107	0,661	0,00066	9,518	4,6
	9	1547	16,50	2,673	0,785	0,294	4,07	26,279	35,892	33,485	73,218	26,705	12	0,012	0,84	65,41	1,17	35107	0,661	0,00066	10,009	7,2



Dexlite dengan penambahan LPG 0,32 kg/h																						
Rasio Kompresi	Beban (kg)	Putaran (rpm)	Torsi (Nm)	BP (Kw)	FC (kg/h)	SFC (kg/kW.h)	IMEP	Ma (kg/h)	Mth (kg/h)	AFR	η_{vo} (%)	η_{th} (%)	fuel	10^{-3}	pf	ho	pud	LVHbb	vs	$vs \times 10^{-3}$	Qtot	Opa(%)
14	5	1578	9,22	1,524	0,774	0,508	3,53	26,676	36,611	34,483	72,863	12,986	9	0,009	0,84	67,40	1,17	35107	0,661	0,00066	11,733	10,1
	7	1550	12,79	2,076	0,824	0,397	4,00	26,267	35,962	31,878	73,042	16,983	10	0,01	0,84	65,35	1,17	35107	0,661	0,00066	12,224	11,6
	9	1531	16,49	2,644	0,925	0,350	4,69	25,909	35,521	28,016	72,941	20,018	12	0,012	0,84	63,58	1,17	35107	0,661	0,00066	13,207	13,2
16	5	1599	9,42	1,577	0,774	0,490	4,02	27,321	37,099	35,317	73,645	13,444	9	0,009	0,84	70,70	1,17	35107	0,661	0,00066	11,733	5,8
	7	1559	12,99	2,121	0,925	0,436	4,38	26,694	36,171	28,865	73,800	16,057	12	0,012	0,84	67,49	1,17	35107	0,661	0,00066	13,207	6,6
	9	1539	16,68	2,688	0,975	0,363	4,58	26,134	35,706	26,799	73,192	19,624	13	0,013	0,84	64,69	1,17	35107	0,661	0,00066	13,699	8,1
18	5	1575	9,24	1,524	0,673	0,441	2,95	26,672	36,542	39,644	72,991	14,177	7	0,007	0,84	67,38	1,17	35107	0,661	0,00066	10,750	4,1
	7	1570	12,83	2,109	0,774	0,367	3,38	26,460	36,426	34,203	72,640	17,979	9	0,009	0,84	66,31	1,17	35107	0,661	0,00066	11,733	5,2
	9	1551	16,50	2,680	0,874	0,326	3,95	26,229	35,985	29,997	72,889	21,076	11	0,011	0,84	65,16	1,17	35107	0,661	0,00066	12,716	7,8

Dexlite dengan penambahan LPG 0,50 kg/h																						
Rasio Kompresi	Beban (kg)	Putaran (rpm)	Torsi (Nm)	BP (Kw)	FC (kg/h)	SFC (kg/kW.h)	IMEP	Ma (kg/h)	Mth (kg/h)	AFR	η_{vo} (%)	η_{th} (%)	fuel	10^{-3}	pf	ho	pud	LVHbb	vs	$vs \times 10^{-3}$	Qtot	Opa(%)
14	5	1623	9,43	1,603	0,903	0,564	3,49	27,034	37,655	29,931	71,793	10,440	8	0,008	0,84	69,22	1,17	35107	0,661	0,00066	15,352	11,4
	7	1593	12,81	2,137	0,954	0,446	4,01	26,642	36,959	27,939	72,086	13,487	9	0,009	0,84	67,23	1,17	35107	0,661	0,00066	15,844	12,9
	9	1567	16,48	2,704	1,004	0,371	4,59	26,191	36,356	26,086	72,040	16,555	10	0,01	0,84	64,97	1,17	35107	0,661	0,00066	16,335	14,1
16	5	1603	9,22	1,548	0,903	0,584	3,47	27,042	37,191	29,940	72,710	10,081	8	0,008	0,84	69,26	1,17	35107	0,661	0,00066	15,352	6,1
	7	1573	12,81	2,110	0,954	0,452	4,24	26,563	36,495	27,856	72,785	13,318	9	0,009	0,84	66,83	1,17	35107	0,661	0,00066	15,844	7,5
	9	1557	16,48	2,687	1,004	0,374	4,39	26,344	36,124	26,239	72,925	16,449	10	0,01	0,84	65,73	1,17	35107	0,661	0,00066	16,335	9,6
18	5	1610	9,39	1,583	0,802	0,507	3,25	27,215	37,354	33,917	72,857	11,017	6	0,006	0,84	70,15	1,17	35107	0,661	0,00066	14,369	4,5
	7	1601	13,00	2,180	0,853	0,391	3,84	26,905	37,145	31,549	72,432	14,666	7	0,007	0,84	68,56	1,17	35107	0,661	0,00066	14,861	5,4
	9	1583	16,49	2,734	0,903	0,330	4,10	26,611	36,727	29,463	72,455	17,805	8	0,008	0,84	67,07	1,17	35107	0,661	0,00066	15,352	8,6



Lampiran 6 Data Kinerja Mesin

DAYA EFEKTIF					
Rasio Kompresi	Beban	Dexlite	DG + 0,18 kg/h	DG + 0,32 kg/h	DG +0,50 kg/h
14	5 kg	1,459	1,490	1,524	1,603
	7 kg	1,999	2,031	2,076	2,137
	9 kg	2,549	2,576	2,644	2,704
16	5 kg	1,489	1,499	1,577	1,548
	7 kg	2,020	2,056	2,121	2,110
	9 kg	2,581	2,629	2,688	2,687
18	5 kg	1,508	1,509	1,524	1,583
	7 kg	2,050	2,114	2,109	2,180
	9 kg	2,602	2,673	2,680	2,734

TORSI					
Rasio Kompresi	Beban	Dexlite	DG + 0,18 kg/h	DG + 0,32 kg/h	DG +0,50 kg/h
14	5 kg	9,23	9,25	9,22	9,43
	7 kg	12,80	12,82	12,79	12,81
	9 kg	16,50	16,49	16,49	16,48
16	5 kg	9,23	9,24	9,42	9,22
	7 kg	12,82	12,83	12,99	12,81
	9 kg	16,54	16,67	16,68	16,48
18	5 kg	9,39	9,23	9,24	9,39
	7 kg	12,81	13,00	12,83	13,00
	9 kg	16,51	16,50	16,50	16,49

Konsumsi Bahan Bakar Spesifik (SFC)					
Rasio Kompresi	Beban	Dexlite	DG + 0,18 kg/h	DG + 0,32 kg/h	DG +0,50 kg/h
14	5 kg	0,553	0,527	0,508	0,564
	7 kg	0,429	0,436	0,397	0,446
	9 kg	0,396	0,383	0,350	0,371
16	5 kg	0,542	0,524	0,490	0,584
	7 kg	0,449	0,431	0,436	0,452
	9 kg	0,391	0,375	0,363	0,374
18	5 kg	0,501	0,453	0,441	0,507
	7 kg	0,418	0,347	0,367	0,391
	9 kg	0,349	0,294	0,326	0,330



Konsumsi Bahan Bakar (FC)					
Rasio Kompresi	Beban	Dexlite	DG + 0,18 kg/h	DG + 0,32 kg/h	DG +0,50 kg/h
14	5 kg	0,806	0,785	0,774	0,903
	7 kg	0,857	0,886	0,824	0,954
	9 kg	1,008	0,986	0,925	1,004
16	5 kg	0,806	0,7848	0,7736	0,9032
	7 kg	0,907	0,886	0,925	0,954
	9 kg	1,008	0,986	0,975	1,004
18	5 kg	0,756	0,684	0,673	0,802
	7 kg	0,857	0,7344	0,7736	0,8528
	9 kg	0,907	0,785	0,874	0,903

Laju Aliran Massa Aktual (Ma)					
Rasio Kompresi	Beban	Dexlite	DG + 0,18 kg/h	DG + 0,32 kg/h	DG +0,50 kg/h
14	5 kg	26,269	26,318	26,676	27,034
	7 kg	25,770	25,982	26,267	26,642
	9 kg	25,413	25,527	25,909	26,191
16	5 kg	26,557	26,509	27,321	27,042
	7 kg	26,023	26,255	26,694	26,563
	9 kg	25,705	25,703	26,134	26,344
18	5 kg	26,567	26,599	26,672	27,215
	7 kg	26,275	26,450	26,460	26,905
	9 kg	25,823	26,279	26,229	26,611

Laju Aliran Massa Theoritis					
Rasio Kompresi	Beban	Dexlite	DG + 0,18 kg/h	DG + 0,32 kg/h	DG +0,50 kg/h
14	5 kg	35,010	35,683	36,611	37,655
	7 kg	34,593	35,103	35,962	36,959
	9 kg	34,222	34,616	35,521	36,356
16	5 kg	35,730	35,939	37,099	37,191
	7 kg	34,918	35,498	36,171	36,495
	9 kg	34,570	34,941	35,706	36,124
18	5 kg	35,590	36,217	36,542	37,354
	7 kg	35,451	36,031	36,426	37,145
	9 kg	34,918	35,892	35,985	36,727



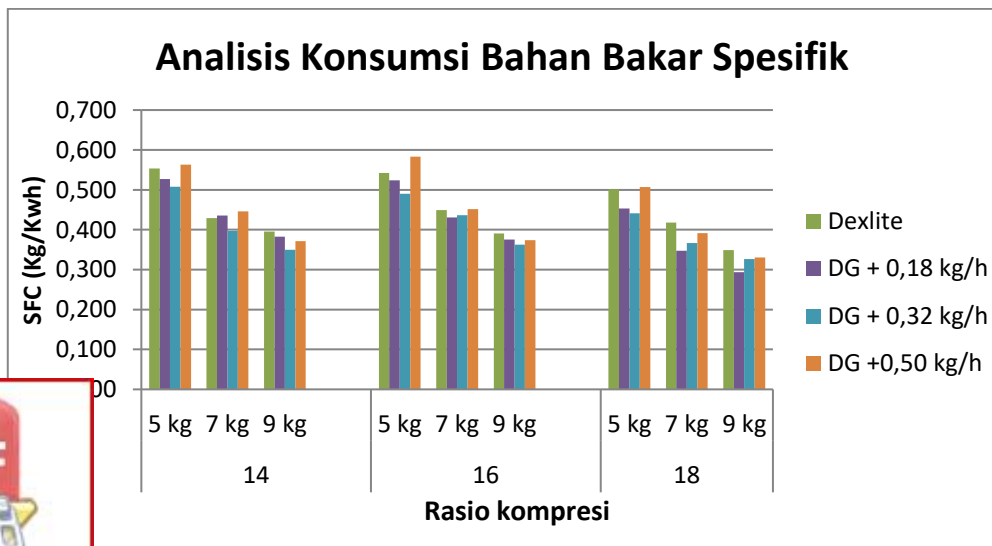
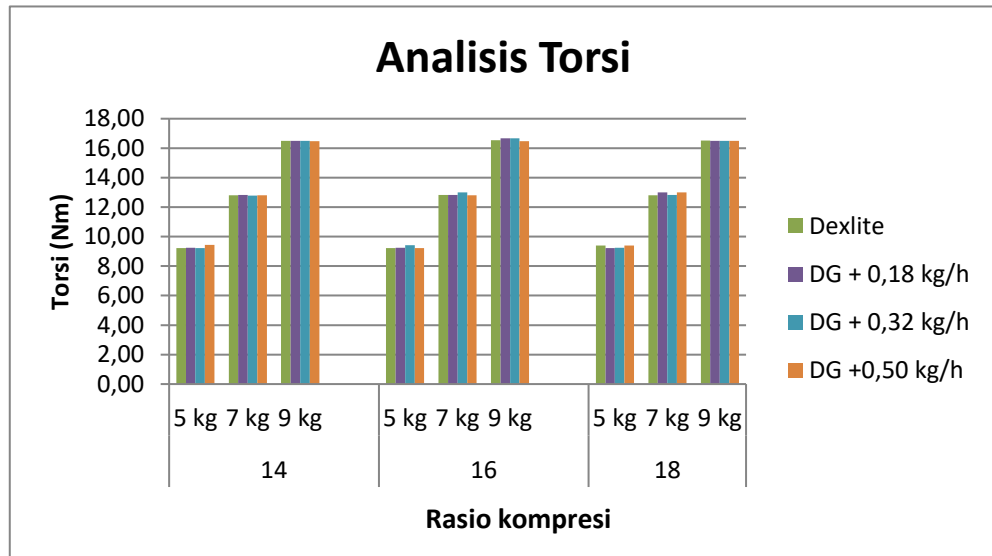
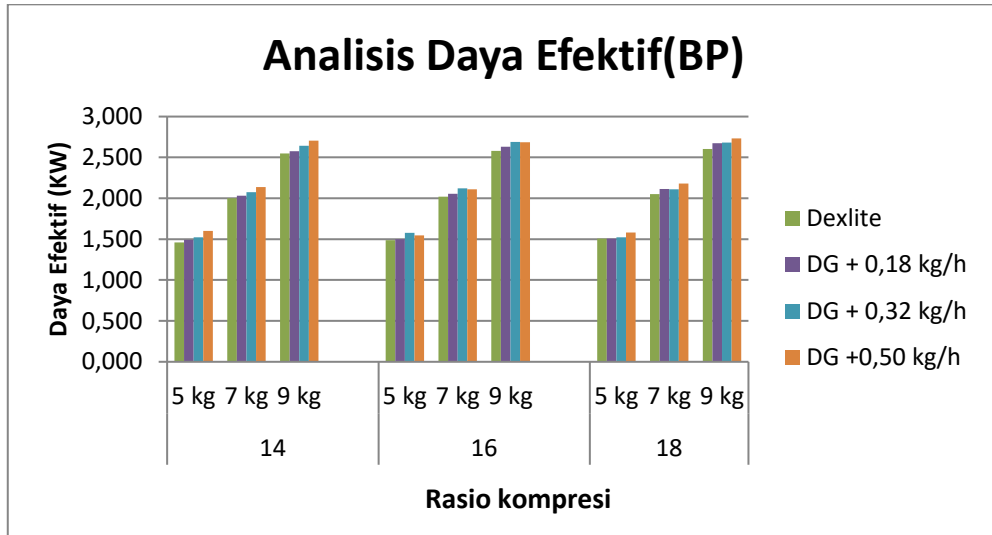
Perbandingan Udara Bahan Bakar					
Rasio Kompresi	Beban	Dexlite	DG + 0,18 kg/h	DG + 0,32 kg/h	DG +0,50 kg/h
14	5 kg	32,576	33,534	34,483	29,931
	7 kg	30,077	29,339	31,878	27,939
	9 kg	25,212	25,879	28,016	26,086
16	5 kg	32,933	33,779	35,317	29,940
	7 kg	28,685	29,647	28,865	27,856
	9 kg	25,501	26,057	26,799	26,239
18	5 kg	35,142	38,887	39,644	33,917
	7 kg	30,667	36,015	34,203	31,549
	9 kg	28,465	33,485	29,997	29,463

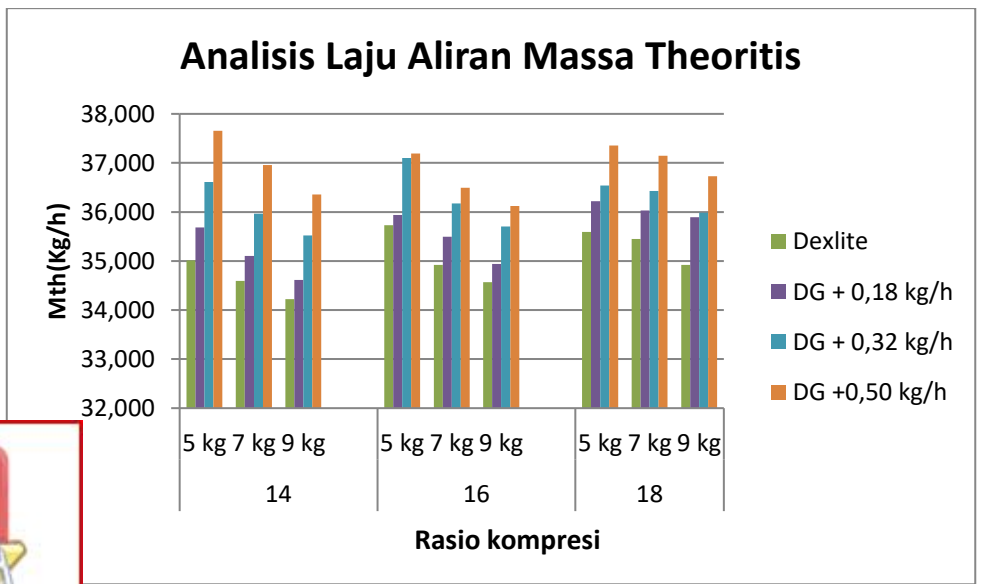
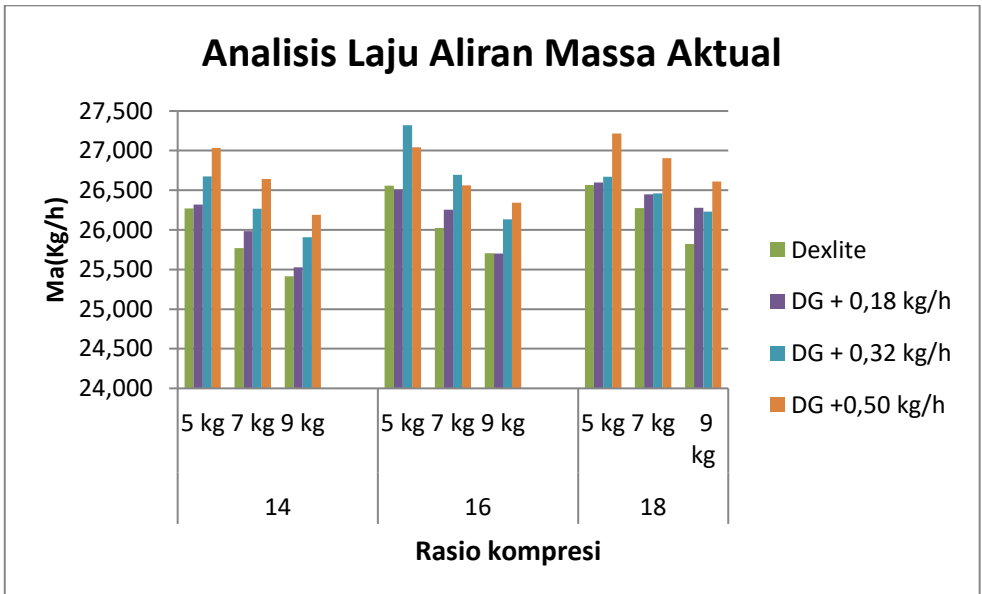
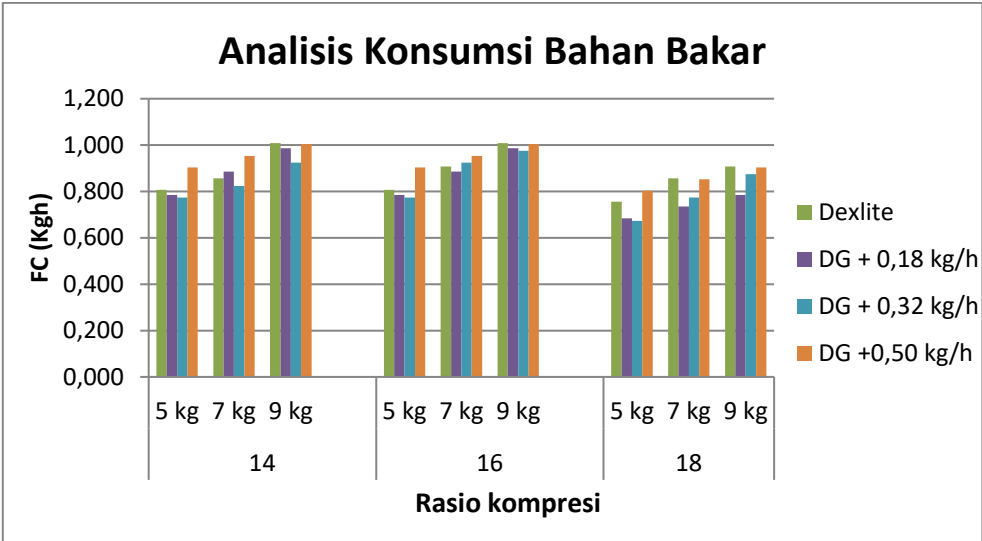
Efisiensi Volumetrik					
Rasio Kompresi	Beban	Dexlite	DG + 0,18 kg/h	DG + 0,32 kg/h	DG +0,50 kg/h
14	5 kg	75,033	73,753	72,863	71,793
	7 kg	74,496	74,017	73,042	72,086
	9 kg	74,261	73,744	72,941	72,040
16	5 kg	74,328	73,763	73,645	72,710
	7 kg	74,527	73,963	73,800	72,785
	9 kg	74,356	73,560	73,192	72,925
18	5 kg	74,647	73,443	72,991	72,857
	7 kg	74,117	73,407	72,640	72,432
	9 kg	73,955	73,218	72,889	72,455

Efisiensi Thermis					
Rasio Kompresi	Beban	Dexlite	DG + 0,18 kg/h	DG + 0,32 kg/h	DG +0,50 kg/h
14	5 kg	18,547	14,884	12,986	10,440
	7 kg	23,919	18,478	16,983	13,487
	9 kg	25,927	21,514	20,018	16,555
16	5 kg	18,928	14,974	13,444	10,081
	7 kg	22,838	18,701	16,057	13,318
	9 kg	26,254	21,953	19,624	16,449
18	5 kg	20,460	16,716	14,177	11,017
	7 kg	24,532	22,213	17,979	14,666
	9 kg	29,412	26,705	21,076	17,805

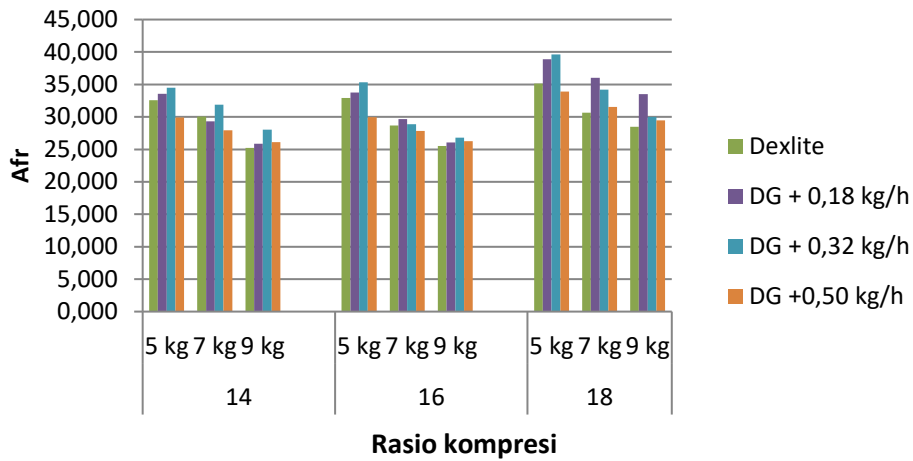


Lampiran 7 Perbandingan Kinerja Mesin

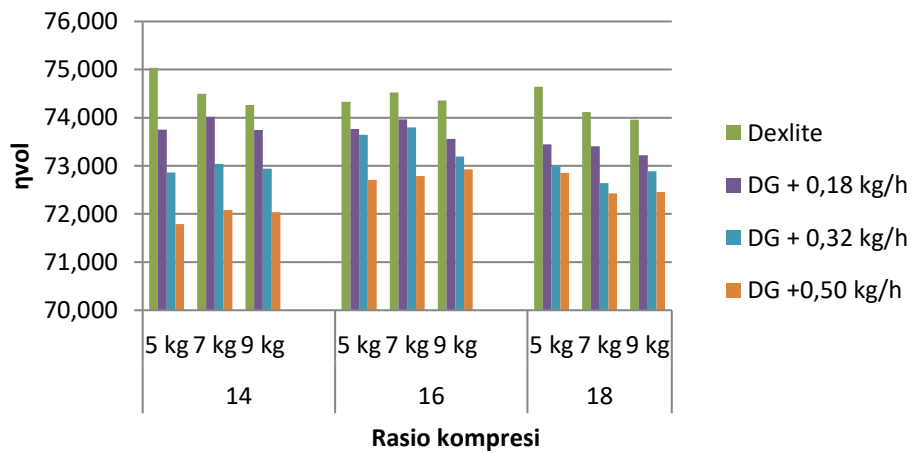




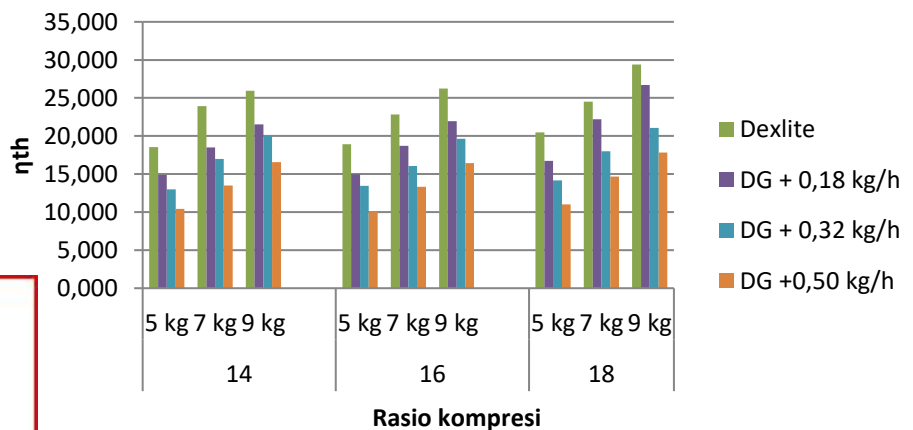
Analisis Perbandingan Udara Bahan Bakar



Analisis Efisiensi Volumetrik

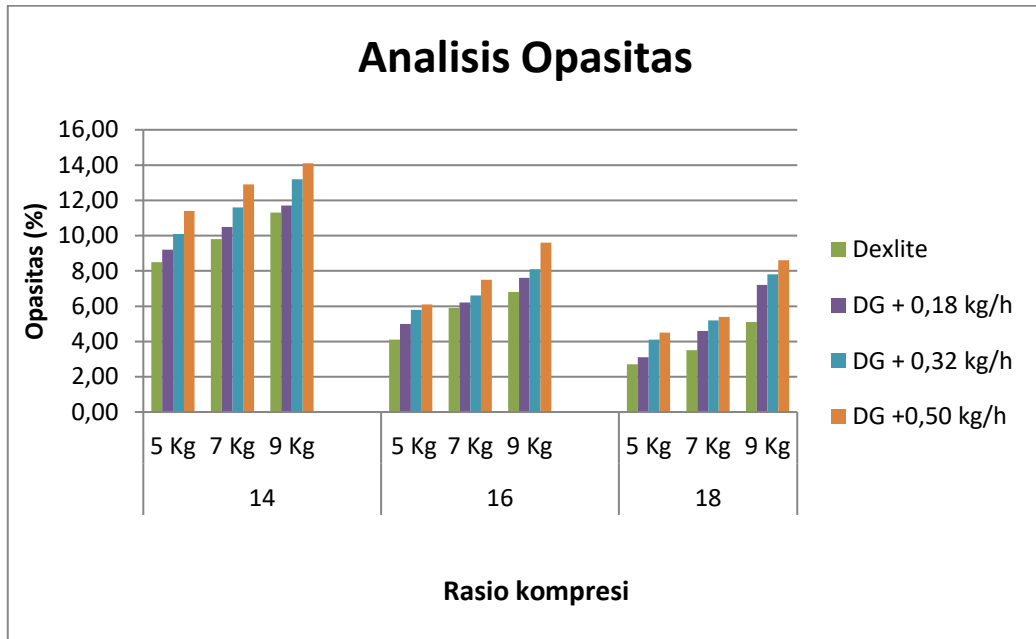


Analisis Efisiensi Thermis



Lampiran 8 Opasitas

Opasitas					
Rasio Kompresi	Beban	Dexlite	DG + 0,18 kg/h	DG + 0,32 kg/h	DG +0,50 kg/h
14	5 Kg	8,50	9,20	10,10	11,40
	7 Kg	9,80	10,50	11,60	12,90
	9 Kg	11,30	11,70	13,20	14,10
16	5 Kg	4,10	5,00	5,80	6,10
	7 Kg	5,90	6,20	6,60	7,50
	9 Kg	6,80	7,60	8,10	9,60
18	5 Kg	2,70	3,10	4,10	4,50
	7 Kg	3,50	4,60	5,20	5,40
	9 Kg	5,10	7,20	7,80	8,60



Lampiran 9 Dokumentasi



Menyesuaikan rasio kompresi sesuai dengan data yang dibutuhkan



Pemasangan *Mixer Venturi*



Pemasangan Gas LPG



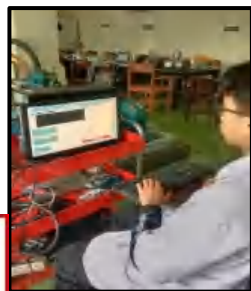
Pemasangan Alat Opasitas



Menyesuaikan beban sesuai dengan data yang dibutuhkan



Pengambilan data proses pembakaran dan kinerja mesin menggunakan komputer



Pengambilan data Opasitas menggunakan komputer

