

DAFTAR PUSTAKA

- Akhmad, A. A. (2022). Perahu Pinisi Membelah Ombak Mengarungi Samudera: Penerapan Ekonomi Kreatif pada Panrita Lopi di Kabupaten Bulukumba. *AGMA*.
- Alamsyah. (2021). Kajian Kebutuhan Material pada Konstruksi Lambung Kapal Pinisi. *Jurnal IPE*.
- Durbin, d. (2005). *Rangkaian Listrik*. Jakarta: Erlangga.
- Dyonisuius, M. (2014). *Perancangan Power Management System pada Kapal Penumpang*. Institut Teknologi Sepuluh Nopember, Surabaya.
- Harahap, F. S. (2022, Oktober). Analisis dan Penyelesaian Model Matematika pada Rangkaian Listrik Orde Dua. *Journal of Mathematics Education and Science*.
- Hendra, W. (2007). Studi Analisa Sistem Distribusi Dan Instalasi Tenaga Listrik Pada Kapal Cargo 30000DWT.
- I Kadek Bagus Satya Darma, d. (2022, Juni). Analisis Kapasitas Generator pada Kapal Ikan 15 GT. *Jurnal 7 Samudra, Vol. 7, No. 1*.
- Indra Mustika, C. T. (2013). Aplikasi Perencanaan Perhitungan Instalasi Listrik Penerangan Menggunakan Sistem Pakar. *Jurnal UPI*, 49-58.
- Legowo, E. (2017). *Analisis Stabilitas Tegangan pada Sistem Kelistrikan di Kapal General Cargo*. Skripsi, Institut Teknologi Sepuluh Nopember, Departemen Teknik Sistem Perkapalan, Fakultas Teknologi Kelautan, Surabaya.
- Lesnanto Multa, R. P. (2013). *Modul Pelatihan ETAP*. Yogyakarta.
- Nanda Dicky Wijayanto, dkk. (2012, September). Koordinasi Proteksi Tegangan Kedip dan Arus Lebih pada Sistem Kelistrikan Industri Nabati. *Jurnal Teknik ITS, Vol 1*.
- Nugroho, F. A. (2018). *Simulasi Stabilitas Tegangan pada Pembangkit Listrik Hybrid Menggunakan Wind Turbine, Photovoltaic, dan Diesel Engine Generator di Kapal Penumpang Hybrid Trimaran*. Institut Teknologi Sepuluh Nopember, Departemen Teknik Sistem Perkapalan, Surabaya.
- Priandhitya, L. I. (2005). *Museum Kapal Tradisional Pinisi: Ekspresi Kapal Pinisi pada Bentuk Bangunan*. Universitas Islam Indonesia, Jurusan Teknik Arsitektur, Fakultas Teknik Sipil dan Perencanaan, Jogjakarta.
- Sardono, S. (1993). *Perhitungan Kapasitas Generator yang Optimum di Kapal*. Institut Teknologi Sepuluh Nopember. Surabaya: Lembaga Penelitian ITS.
- Sitorus, C. J. (2017). *Instalasi Listrik Kapal*. Academia.edu.
- Stevenson, J. W. (1996). *Analisis Sistem Tenaga Listrik Edisi 4*. Jakarta: Penerbit Erlangga.
- Tejo Sukmadi, B. W. (2009). Perhitungan dan Analisis Keseimbangan Beban pada Sistem Distribusi 20 kV Terhadap Rugi-rugi Daya. *Jurnal Teknik Elektro*, hal. 47-52.
- M. (2006). *Electric Power System: a conceptual introduction*. United States of America.



LAMPIRAN

Lampiran 1 Brosur Generator



WP4

Categories: Auxiliary Engines, MARINE

GENERAL SPECIFICATIONS

COMMERCIAL RATINGS

MAIN DIMENSIONS & DRY WEIGHT

Model	kW	Genset power	rpm	Aspiration	Governor Type	Rating
WP4CD66E200	60	40/50	1500	T	Mech/Elec	PRP
WP4CD66E201	60	40/50	1800	T	Mech/Elec	PRP
WP4CD100E200	90	64/75	1500	TA	Mech/Elec	PRP
WP4CD100E201	90	64/75	1800	TA	Mech/Elec	PRP
WP4CD118E201	108	90	1800	TA	Elec	PRP



Optimized using
trial version
www.balesio.com

Lampiran 2 Tabel Perhitungan Daya dan Data Operasional Kapal

Location	Description	Qty	Power (kW)	Total Power (kW)	D.F	Cruising at sea			D.F	Anchoring			D.F	Departure at Harbour/Port			D.F	Arrival at Harbour/Port		
						Ess	Cont	Inter		Ess	Cont	Inter		Ess	Cont	Inter		Ess	Cont	Inter
1. Engine Room	GS Pump/Fire Pump	1	3,73	3,73	0,4	-	-	1,49	0,4	-	-	1,49	0,3	-	-	0,45	0,3	-	-	0,1343
	Bilge pump	1	3,73	3,73	0,3	-	-	1,12	0,3	-	-	1,12	0,3	-	-	1,12	0,3	-	-	1,119
	Oily water separator	1	3,2	3,2	0,3	-	-	0,96	0,3	-	-	0,96	0,3	-	-	0,29	0,3	-	-	0,96
	Oily water separator Pump	1	0,38	0,38	0,4	-	-	0,15	0,4	-	-	0,15	-	-	-	-	0,2	-	-	0,075
	FW transfer pump	1	3,73	3,73	0,4	-	-	1,49	0,4	-	-	1,49	0,3	-	-	0,45	0,3	-	-	1,119
	FW daily pump	1	3,73	3,73	0,6	-	-	2,24	0,6	-	-	2,24	0,4	-	-	0,9	0,4	-	-	1,492
	FO transfer pump	1	1,5	1,5	0,3	-	-	0,45	0,3	-	-	0,45	-	-	-	-	0,3	-	-	0,45
	FO daily pump	1	1,5	1,5	0,6	-	-	0,9	0,3	-	-	0,45	0,4	-	-	0,18	0,3	-	-	0,45
	Sewage pump	1	3,73	3,73	0,4	-	-	1,49	0,4	-	-	1,49	-	-	-	-	0,4	-	-	1,492
	Sanitary pump	1	3,73	3,73	0,4	-	-	1,49	0,4	-	-	1,49	-	-	-	-	0,4	-	-	1,492
	Sanitary Flushing Pump	1	1,5	1,5	-	-	-	-	0,3	-	-	0,45	-	-	-	-	-	-	-	-
2. Steering Gear	Water maker 200ltr/hr	1	3,5	3,5	0,4	-	-	1,4	0,4	-	-	1,4	-	-	-	-	-	-	-	-
	Air compressor	1	4,4	4,4	-	-	-	-	0,4	-	-	1,76	-	-	-	-	-	-	-	-
3. Room Boy Storage	Blower Exhaust	2	0,4	0,8	0,8	-	-	0,64	0,8	-	-	0,64	0,8	-	-	0,51	0,8	-	-	0,4096
	Blower Exhaust	2	0,4	0,8	0,5	-	0,4	-	0,4	-	0,32	-	0,4	-	0,32	-	0,3	-	0,24	-
4. Laundry Room	Steering Gear	1	3,7	3,7	0,8	2,96	-	-	-	-	-	-	0,6	2,22	-	-	0,5	1,9	-	-
	Fan	1	0,2	0,2	0,8	-	0,16	-	0,7	-	0,14	-	0,5	-	0,1	-	0,5	-	0,1	-
5. Exhaust	Washing Machine	1	0,08	0,08	0,4	-	-	0,03	0,4	-	-	0,03	0,3	-	-	0,01	0,3	-	-	0,0029
	Iron	1	0,1	0,1	0,4	-	-	0,04	0,4	-	-	0,04	0,3	-	-	0,01	0,3	-	-	0,0036
6. Water	Fan	1	0,2	0,2	0,4	-	-	0,08	0,4	-	-	0,08	0,4	-	-	0,03	0,4	-	-	0,0128
	exhaust	2	0,84	1,68	0,8	-	1,34	-	0,8	-	1,34	-	0,8	-	1,34	-	0,8	-	1,34	-
7. Fire	exhaust	1	0,2	0,2	0,8	-	0,16	-	0,8	-	0,16	-	0,8	-	0,16	-	0,8	-	0,16	-
	ile water	1	0,3	0,3	0,3	-	-	0,09	0,3	-	-	0,09	0,3	-	-	0,09	0,3	-	-	0,09
8. Smoke	detector	1	0,22	0,22	0,8	0,18	-	-	0,8	0,18	-	-	0,8	0,18	-	-	0,8	0,2	-	-
	er ceiling	1	0,02	0,02	0,3	-	-	0,01	0,3	-	-	0,01	0,3	-	-	0,01	0,3	-	-	0,007



Location	Description	Qty	Power (kW)	Total Power (kW)	D.F	Cruising at sea			D.F	Anchoring			D.F	Departure at Harbour/Port			D.F	Arrival at Harbour/Port		
						Ess	Cont	Inter		Ess	Cont	Inter		Ess	Cont	Inter		Ess	Cont	Inter
6. Toilet Main deck	Toilet exhaust fan	2	0,2	0,4	0,5	-	0,2	-	0,5	-	0,2	-	0,3	-	0,12	-	0,3	-	0,12	-
	portbale water heater	2	0,3	0,6	0,3	-	-	0,18	0,3	-	-	0,18	0,3	-	-	0,18	0,3	-	-	0,18
7. Storage	Smoke detector	1	0,22	0,22	0,8	0,18	-	-	0,8	0,18	-	-	0,8	0,18	-	-	0,8	0,2	-	-
	fan	1	0,2	0,2	0,7	-	0,14	-	0,7	-	0,14	-	0,7	-	0,14	-	0,7	-	0,14	-
8. Main deck	Windlass Anchor	1	6,5	6,5	-	-	-	-	0,5	-	-	3,25	0,3	-	-	1,95	-	-	-	-
	Boat Lifter	3	2	6	-	-	-	-	0,5	-	-	3	-	-	-	-	-	-	-	-
	General Alarm	1	1,5	1,5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mast Spotlights	2	1	2	0,4	-	-	0,8	0,4	-	-	0,8	-	-	-	-	-	-	-	-
	Stern Spotlights	1	1	1	0,4	-	-	0,4	0,4	-	-	0,4	-	-	-	-	-	-	-	-
9. Top Deck	Tv	1	0,02	0,02	0,6	-	-	0,01	0,6	-	-	0,01	0,6	-	-	0,01	0,6	-	-	0,0039
	Proyector	1	0,52	0,52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Navigation Lighting	1	0,5	0,5	0,5	-	-	0,25	0,3	-	-	0,15	0,4	-	-	0,06	0,4	-	-	0,024
	Emergency Battery Charge	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Spare Battery Charge	1	0,5	0,5	0,7	-	0,35	-	0,7	-	0,35	-	0,7	-	0,35	-	0,7	-	0,35	-
	Search Light, @1000W	1	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Battery Charge for Navigation	1	0,5	0,5	0,5	-	0,25	-	0,5	-	0,25	-	0,5	-	0,25	-	0,5	-	-	-
	Search Light, @1000W	1	1	1	-	-	-	-	0,3	0,3	-	-	0,3	0,3	-	-	0,3	0,3	-	-
10. Camera Room	AC	1	0,84	0,84	0,6	-	0,5	-	0,6	-	0,5	-	0,6	-	0,5	-	0,6	-	0,5	-
	smoke detector	1	0,22	0,22	0,8	0,18	-	-	0,8	0,18	-	-	0,8	0,18	-	-	0,8	0,2	-	-
11. Chiller	Speaker Ceiling	1	0,02	0,02	0,3	-	-	0,01	0,3	-	-	0,01	0,3	-	-	0,01	0,3	-	-	0,0072
	Showcase	2	0,29	0,58	0,8	-	0,46	-	0,8	-	0,46	-	0,8	-	0,46	-	0,8	-	0,46	-
	AC	2	1,68	3,36	0,8	-	2,69	-	0,8	-	2,69	-	0,8	-	2,69	-	0,8	-	2,69	-
	Freezer	2	0,16	0,32	0,8	-	0,26	-	0,8	-	0,26	-	0,8	-	0,26	-	0,8	-	0,26	-
	Galley Exhaust Fan	1	0,55	0,55	0,5	-	0,28	-	0,5	-	0,28	-	0,4	-	0,22	-	0,4	-	0,22	-
	Oven	1	1,5	1,5	0,3	-	-	0,45	0,3	-	-	0,45	0,3	-	-	0,45	0,3	-	-	0,45
	er	1	0,2	0,2	0,3	-	-	0,06	0,3	-	-	0,06	0,3	-	-	0,06	0,3	-	-	0,06
	nser	3	0,35	1,05	0,3	-	-	0,11	0,3	-	-	0,11	0,3	-	-	0,11	0,3	-	-	0,105
	er	1	5	5	0,3	-	-	1,5	0,3	-	-	1,5	0,3	-	-	1,5	0,3	-	-	1,5
	erator	1	0,18	0,18	0,3	-	-	0,05	0,3	-	-	0,05	0,3	-	-	0,05	0,3	-	-	0,054
	ooker	1	0,4	0,4	0,6	-	-	0,24	0,6	-	-	0,24	0,6	-	-	0,24	0,6	-	-	0,24



Location	Description	Qty	Power (kW)	Total Power (kW)	D.F	Cruising at sea			D.F	Anchoring			D.F	Departure at Harbour/Port			D.F	Arrival at Harbour/Port		
						Ess	Cont	Inter		Ess	Cont	Inter		Ess	Cont	Inter		Ess	Cont	Inter
13. Restaurant	Magic Com Rice Cooker	1	1,5	1,5	0,6	-	-	0,9	0,6	-	-	0,9	0,6	-	-	0,9	0,6	-	-	0,9
	Coffee Maker	1	0,65	0,65	0,3	-	-	0,2	0,3	-	-	0,2	0,3	-	-	0,2	0,3	-	-	0,195
	AC	3	0,84	2,52	0,8	-	2,02	-	0,8	-	2,02	-	0,8	-	2,02	-	0,8	-	2,02	-
	smoke detector	2	0,22	0,44	0,8	0,35	-	-	0,8	0,35	-	-	0,8	0,35	-	-	0,8	0,35	-	-
	speaker ceiling	3	0,02	0,07	0,3	-	-	0,02	0,3	-	-	0,02	0,3	-	-	0,02	0,3	-	-	0,0216
	TV	2	0,02	0,04	0,6	-	-	0,02	0,6	-	-	0,02	0,6	-	-	0,02	0,6	-	-	0,0216
	Amplifier	2	0,2	0,4	0,5	-	-	0,2	0,5	-	-	0,2	0,5	-	-	0,2	0,5	-	-	0,2
	Speaker sound system	2	0,4	0,8	0,5	-	-	0,4	0,5	-	-	0,4	0,5	-	-	0,4	0,5	-	-	0,4
14. Navigation	DVD	1	0,02	0,02	0,5	-	-	0,01	0,5	-	-	0,01	0,5	-	-	0,01	0,5	-	-	0,01
	AC	1	0,84	0,84	0,8	-	0,67	-	0,8	-	0,67	-	0,8	-	0,67	-	0,8	-	0,67	-
	smoke detector	1	0,22	0,22	0,8	0,18	-	-	0,8	0,18	-	-	0,8	0,18	-	-	0,8	0,18	-	-
	speaker ceiling	1	0,02	0,02	0,3	-	-	0,01	0,3	-	-	0,01	0,3	-	-	0,01	0,3	-	-	0,0072
15. Dive Master Room	Communication	1	0,8	0,8	0,8	-	-	0,64	0,8	-	-	0,64	0,8	-	-	0,64	0,8	-	-	0,64
	AC	1	0,84	0,84	0,8	-	0,67	-	0,8	-	0,67	-	0,8	-	0,67	-	0,8	-	0,67	-
	Toilet exhaust fan	1	0,2	0,2	0,8	-	0,16	-	0,8	-	0,16	-	0,5	-	0,1	-	0,5	-	0,1	-
	portbale water heater	1	0,3	0,3	0,3	-	-	0,09	0,3	-	-	0,09	0,3	-	-	0,09	0,3	-	-	0,09
16. Capten & Chief Room	smoke detector	1	0,22	0,22	0,8	0,18	-	-	0,8	0,18	-	-	0,8	0,18	-	-	0,8	0,18	-	-
	speaker ceiling	1	0,02	0,02	0,3	-	-	0,01	0,3	-	-	0,01	0,3	-	-	0,01	0,3	-	-	0,0072
	AC	1	0,84	0,84	0,8	-	0,67	-	0,8	-	0,67	-	0,8	-	0,67	-	0,8	-	0,67	-
	Toilet exhaust fan	1	0,2	0,2	0,8	-	0,16	-	0,8	-	0,16	-	0,5	-	0,1	-	0,5	-	0,1	-
17. Owner/ Cruise	portbale water heater	1	0,3	0,3	0,3	-	-	0,09	0,3	-	-	0,09	0,3	-	-	0,09	0,3	-	-	0,09
	smoke detector	1	0,22	0,22	0,8	0,18	-	-	0,8	0,18	-	-	0,8	0,18	-	-	0,8	0,18	-	-
	speaker ceiling	1	0,02	0,02	0,3	-	-	0,01	0,3	-	-	0,01	0,3	-	-	0,01	0,3	-	-	0,0072
	AC	1	0,84	0,84	0,8	-	0,67	-	0,8	-	0,67	-	0,8	-	0,67	-	0,8	-	0,67	-
	Toilet exhaust fan	1	0,2	0,2	0,8	-	0,16	-	0,8	-	0,16	-	0,5	-	0,1	-	0,5	-	0,1	-
	portbale water	1	0,3	0,3	0,3	-	-	0,09	0,3	-	-	0,09	0,3	-	-	0,09	0,3	-	-	0,09
	smoke detector	1	0,22	0,22	0,8	0,18	-	-	0,8	0,18	-	-	0,8	0,18	-	-	0,8	0,18	-	-
	speaker ceiling	1	0,02	0,02	0,3	-	-	0,01	0,3	-	-	0,01	0,3	-	-	0,01	0,3	-	-	0,0072
	AC	8	0,84	6,72	0,8	-	5,38	-	0,8	-	5,38	-	0,8	-	5,38	-	0,8	-	5,38	-
	exhaust	8	0,2	1,6	0,8	-	1,28	-	0,8	-	1,28	-	0,5	-	1,28	-	0,5	-	0,8	-



Location	Description	Qty	Power (kW)	Total Power (kW)	D.F	<i>Cruising at sea</i>			D.F	Anchoring			D.F	Departure at Harbour/Port			D.F	<i>Arrival at Harbour/Port</i>		
						Ess	Cont	Inter		Ess	Cont	Inter		Ess	Cont	Inter		Ess	Cont	Inter
	portable water heater	8	0,3	2,4	0,3	-	-	0,72	0,3	-	-	0,72	0,3	-	-	0,72	0,3	-	-	0,72
	smoke detector	8	0,22	1,76	0,8	1,41	-	-	0,8	1,41	-	-	0,8	1,41	-	-	0,8	1,4	-	-
	speaker ceiling	8	0,02	0,19	0,3	-	-	0,06	0,3	-	-	0,06	0,3	-	-	0,06	0,3	-	-	0,0576
19. Lighting	Power + Lighting	1	10	10	0,8	-	8	-	0,8	-	8	-	0,5	-	5	-	0,5	-	5	-



Lampiran 3 Brosur Kabel

SUPREME
FLEXIBLE CABLES

NYYYH 450/750 Volt

SNI 04-6629.5/Manufacturing Specification
FLEXIBLE COPPER CONDUCTOR, PVC INSULATED AND SHEATHED CABLE



Applications:

- Power cord or internal wiring with medium mechanical stress for electrical equipments, machineries, luminaires and other portable appliances used in dry indoor/outdoor premises.
- Permanent exposed wiring in humid environment, installation in tray or under plaster for industrial three phase 380 - 415 VAC or single phase 220 - 240 VAC multipurpose applications, inherently flame retardant in compliance with IEC 60332-1.

DIMENSIONAL & MECHANICAL DATA

3 Cores

Nominal cross-sectional area	Maximum Diameter of Wire	Nominal Thickness		Approximately		Minimum Bending Radius	Standard delivery Length *)
		Insulation	Outer Sheath	Overall Diameter	Cable Weight		
mm ²	mm	mm	mm	mm	kg/km	mm	m
0.75	0.20	0.6	0.8	6.6	64	46	100 or 2000
1	0.20	0.6	0.8	6.9	73	48	100 or 2000
1.5	0.25	0.7	0.9	8.1	104	57	100 or 2000
2.5	0.25	0.8	1.1	10.0	161	70	100 or 2000
4	0.30	0.8	1.1	11.1	217	78	2000
6	0.30	0.8	1.2	12.4	293	87	1000
10	0.40	1.0	1.4	16.0	489	112	1000
16	0.40	1.0	1.8	20.8	797	146	1000
25	0.40	1.2	1.8	25.4	1,189	178	1000
35	0.40	1.2	1.8	27.7	1,526	194	1000
50	0.40	1.4	1.8	32.9	2,172	230	1000
70	0.50	1.4	1.9	36.8	2,899	258	1000
95	0.50	1.6	2.0	43.4	3,865	304	1000
120	0.50	1.6	2.1	47.4	4,784	332	500
150	0.50	1.8	2.2	51.7	5,887	362	500
185	0.50	2.0	2.4	58.9	7,280	412	500
240	0.50	2.2	2.5	66.3	9,444	464	300

*) Standard delivery length: 100 m in coil and >100 m in drum.

ELECTRICAL DATA

Nominal cross-sectional area	Resistance at 20 °C		Current Carrying Capacity at 30°C in AIR max	Short circuit current of conductor at 1.0 sec max
	DC conductor max	Insulation min		
mm ²	Ω/Km	MD.Km	A	kA
0.75	26.0	50	6	0.09
1	19.5	50	10	0.12
1.5	13.3	50	15	0.17
2.5	7.98	50	20	0.29
4	4.95	50	26	0.46
6	3.30	50	33	0.69
10	1.91	50	45	1.16
16	1.21	40	61	1.64
25	0.780	40	83	2.87
35	0.554	40	103	4.03
50	0.386	30	132	5.75
70	0.272	30	165	8.05
95	0.206	30	197	10.92
120	0.161	30	235	13.80
150	0.129	20	264	17.25
185	0.106	20	297	21.27
240	0.0801	20	351	27.60

SUPREME CABLES utilize

7

www.sucab.com



Optimized using
trial version
www.balesio.com

NYHHY 450/750 Volt

SNI 04-6629.5/Manufacturing Specification
FLEXIBLE COPPER CONDUCTOR, PVC INSULATED AND SHEATHED CABLE

Applications:

- Power cord or internal wiring with medium mechanical stress for electrical equipments, machineries, luminaires and other portable appliances used in dry indoor/outdoor premises.
- Permanent exposed wiring in humid environment, installation in tray or under plaster for industrial three phase 380 - 415 VAC or single phase 220 - 240 VAC multipurpose applications, inherently flame retardant in compliance with IEC 60332-1.

DIMENSIONAL & MECHANICAL DATA

4 Cores

Nominal cross-sectional area	Maximum Diameter of Wire	Nominal Thickness		Approximately		Minimum Bending Radius	Standard delivery Length ^{*)}
		Insulation	Outer Sheath	Overall Diameter	Cable Weight		
mm ²	mm	mm	mm	mm	kg/km	mm	m
0.75	0.20	0.6	0.8	7.3	77	51	100 or 2000
1	0.20	0.6	0.9	7.8	92	54	100 or 2000
1.5	0.25	0.7	1.0	9.1	130	64	1000
2.5	0.25	0.8	1.1	10.9	195	77	1000
4	0.30	0.8	1.2	12.3	273	86	1000
6	0.30	0.8	1.3	13.8	369	97	1000
10	0.40	1.0	1.5	17.7	616	124	1000
16	0.40	1.0	1.8	22.9	986	160	1000
25	0.40	1.2	1.8	28.0	1,478	196	1000
35	0.40	1.2	1.8	30.5	1,910	214	1000
50	0.40	1.4	1.8	36.6	2,743	256	1000
70	0.50	1.4	1.9	40.9	3,675	287	1000
95	0.50	1.6	2.0	48.3	4,887	338	500
120	0.50	1.6	2.1	52.8	6,063	370	500
150	0.50	1.8	2.2	57.8	7,502	405	500
185	0.50	2.0	2.4	65.6	9,220	459	300
240	0.50	2.2	2.5	74.0	12,010	518	300

^{*)} Standard delivery length: 100 m in coil and >100 m in drum.

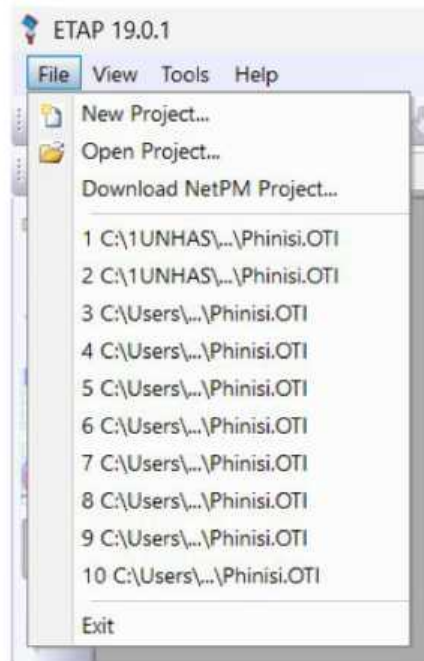
ELECTRICAL DATA

Nominal cross-sectional area	Resistance at 20 °C		Current Carrying Capacity at 30 °C in AIR max	Short circuit current of conductor at 1.0 sec max
	DC conductor max	Insulation min		
mm ²	Ω/Km	MΩ. Km	A	kA
0.75	26.0	50	6	0.09
1	19.5	50	10	0.12
1.5	13.3	50	15	0.17
2.5	7.98	50	20	0.29
4	4.95	50	26	0.46
6	3.30	50	33	0.69
10	1.91	50	45	1.15
16	1.21	40	61	1.84
25	0.780	40	83	2.87
35	0.554	40	103	4.03
50	0.386	30	132	5.75
70	0.272	30	165	8.05
95	0.206	30	197	10.92
120	0.161	30	235	13.80
150	0.129	20	364	17.25
185	0.106	20	297	21.27
240	0.0801	20	351	27.60



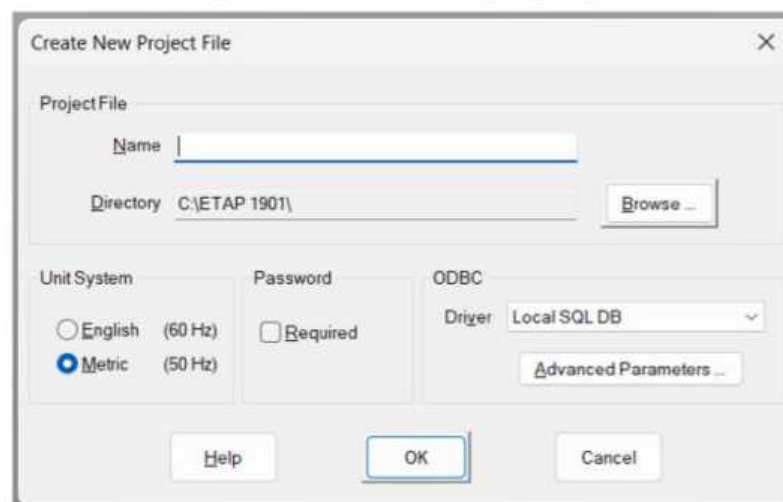
Lampiran 4 Langkah-langkah Pembuatan *Single Line Diagram* pada Software ETAP

1. File → New Project



Gambar 23 *New Project*

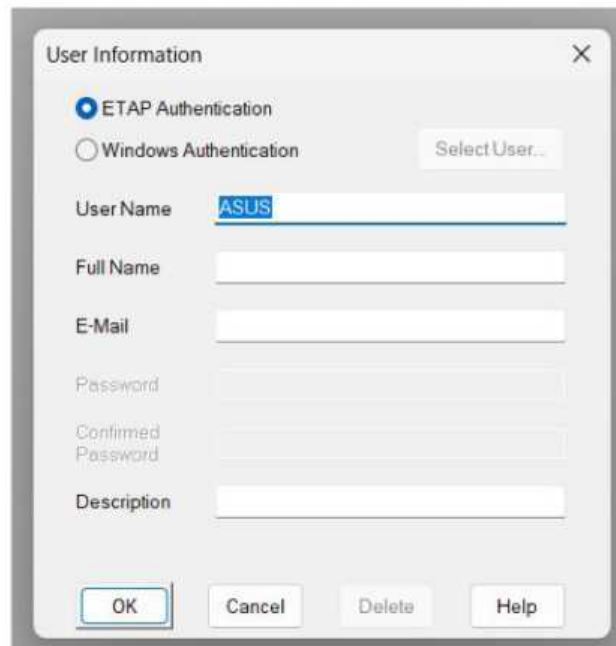
2. Beri nama file dan pilih direktori folder penyimpanan → OK



Gambar 24 *Create New Project File*



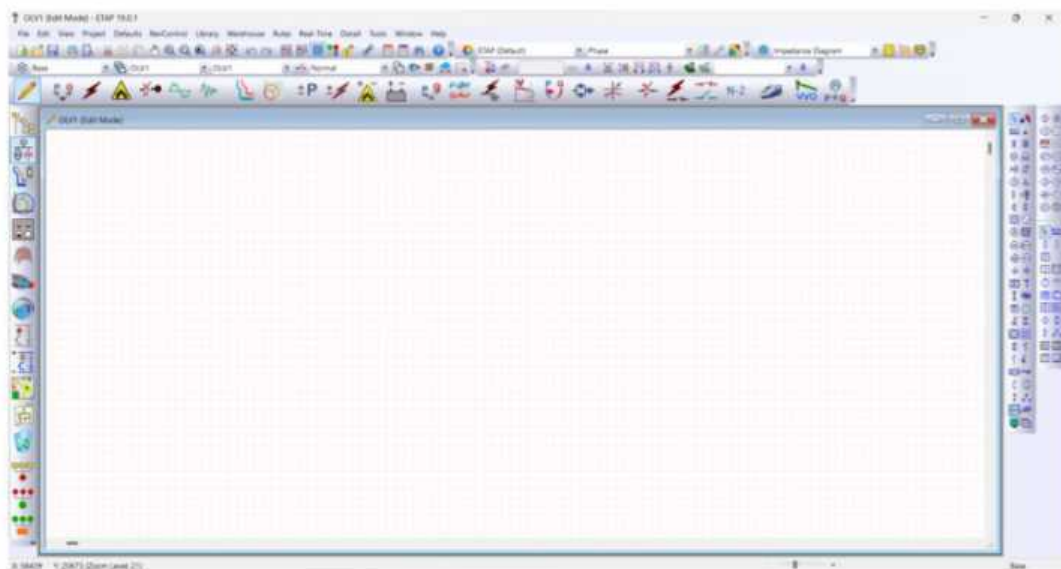
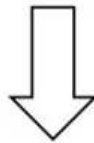
3. Isi nama User → **OK** → Muncul Lembar Kerja



The 'User Information' dialog box is shown with the following fields and options:

- ☒ ETAP Authentication
- ☐ Windows Authentication (with a 'Select User...' button next to it)
- User Name: ASUS
- Full Name: (empty text box)
- E-Mail: (empty text box)
- Password: (empty text box)
- Confirmed Password: (empty text box)
- Description: (empty text box)
- Buttons: OK, Cancel, Delete, Help

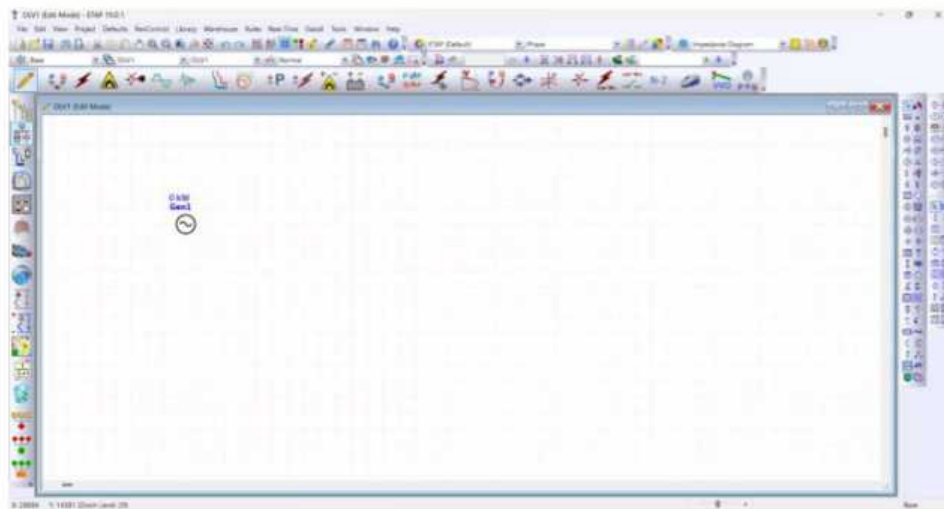
Gambar 25 *User Information*



Gambar 26 Lembar Kerja



4. Klik *Generator* satu kali pada *AC Element*, lalu klik satu kali pada *One Line Diagram* untuk meletakkannya.



Gambar 27 Generator pada Lembar Kerja ETAP

5. Klik dua kali pada Generator, lalu isikan data pada tab Info dan Rating seperti gambar di bawah → OK



Gambar 28 Tab Info Generator



Synchronous Generator Editor - Gen1

Harmonic Protection Reliability Fuel Cost Time Domain O and M Remarks Comment
Info Rating Capability ImpModel Grounding Inertia Exciter Governor PSS

0.35 kV 30 MW Voltage Control

Rating

kW	kV	% PF	kVA	% ER	Poles
30	0.35	85	105.5	95	4

% of Bus Nom. kV 100 FLA 180.9 RPM 1500

Gen. Category	% V	Angle	kW	kvar	% PF	Qmax	Qn
1 Design	100	0	0	0	0	0	0
2 Normal	100	0	0	0	0	0	0
3 Shutdown	100	0	0	0	0	0	0
4 Emergency	100	0	0	0	0	0	0
5 Resistor	100	0	0	0	0	0	0

Prime Mover Rating

Continuous	Peak
kW	kW
37.62	37.62

Mvar Limits

Capability Curve User Defined Peak kvar 17.35

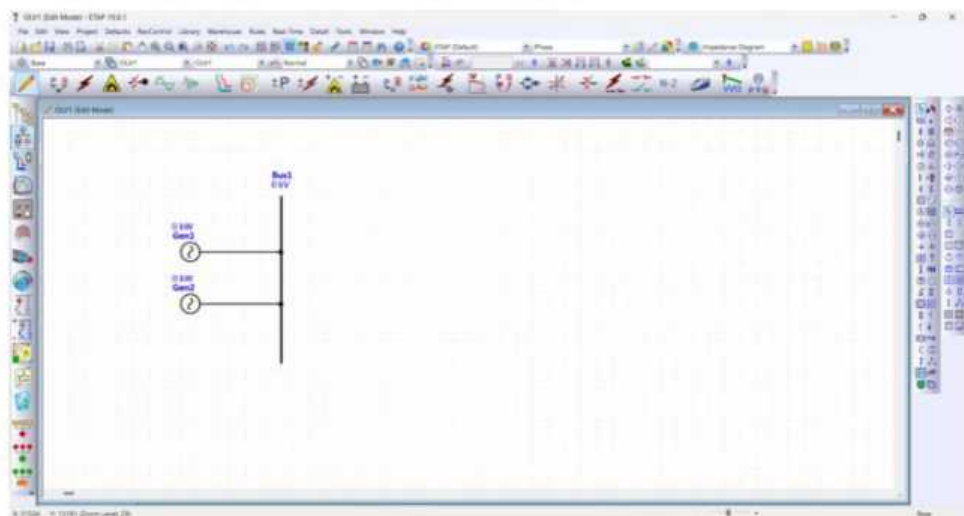
Operating Values

% V	Vangle	kW	kvar
0	0	0	0

Gen1 OK Cancel

Gambar 29 Tab Rating Generator

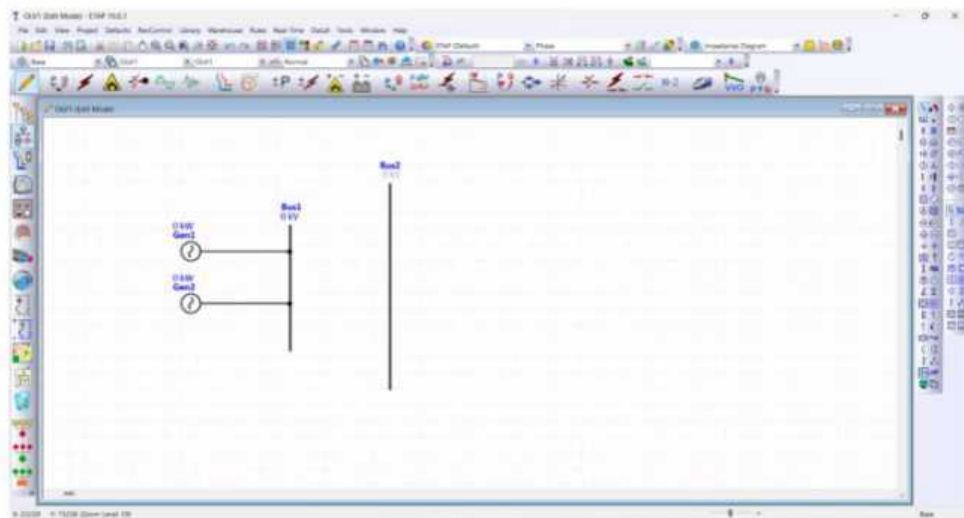
- Klik *Bus* satu kali pada *AC Element*, lalu klik satu kali pada *One Line Diagram* untuk meletakkannya. Lalu klik ujung *Generator* ke *Bus* untuk menghubungkannya. *Bus* berfungsi sebagai *panel box*.



Gambar 30 Bus1 pada Lembar Kerja ETAP

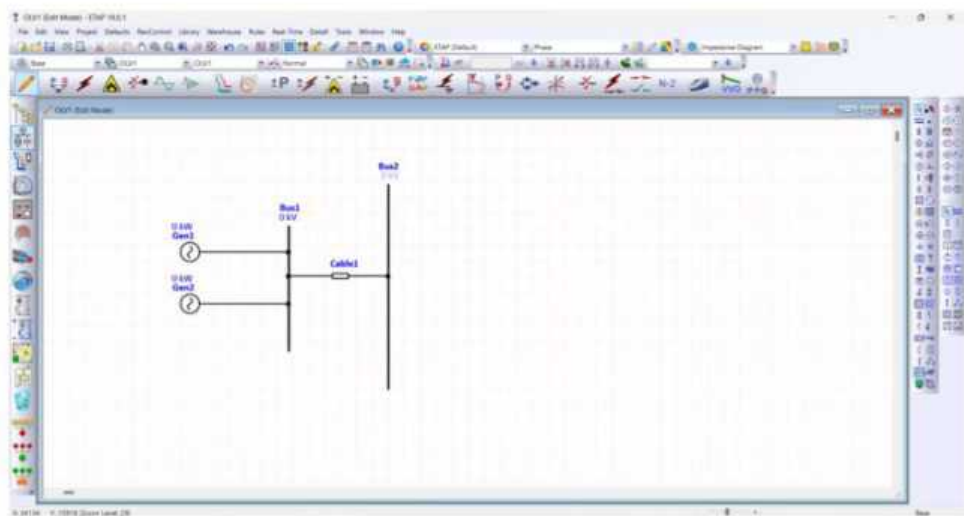


7. Klik *Bus* satu kali pada *AC Element*, lalu klik satu kali pada *One Line Diagram* untuk meletakkannya. *Bus2* digunakan sebagai *Main panel*.



Gambar 31 *Bus2* Lembar Kerja ETAP

8. Klik *cable* satu kali pada *AC Element*, lalu klik satu kali pada *One Line Diagram* untuk meletakkannya. Lalu hubungkan *cable* tersebut dari *bus1* *bus2*.



Gambar 32 *Cable* pada Lembar Kerja ETAP

9. Klik dua kali pada *cable*, lalu isi data pada tab info dan mengganti nilai-nilai pada tab Physical dan Impedance.



Cable Editor - Cable1

Size - Phase Info Size - GND/PE Physical Impedance Reliability Configuration Routing Loading Remarks Capacity Comment Protection

Info

ID: Cable1

From: Bus1 0 kV

To: Bus2 0 kV

Revision Data

Base

Equipment

Tag #

Name

Description

Condition

Service: ☒ In ☐ Out

State: As-Built

No. of Conductors / Phase: 1

Length

Length: 0 m

Tolerance: 0 %

Library

Library...

☐ Link to Library

Connection

☐ 3-Phase ☐ 1-Phase

OK Cancel

Gambar 33 Tab Info Cable

Cable Editor - Cable1

Size - Phase Info Size - GND/PE Physical Impedance Reliability Configuration Routing Loading Remarks Capacity Comment Protection

B55467 Non-Mag 50 Hz Code: 25

XLPE 100% 1.9 kV 3/C CU 25 mm²

Order of Layers: Conductor, Insulation, Shield, Sheath, Armor, and Jacket

Dimensions

Conductor Construction: ConRnd Diameter: 0.564 cm

Insulation: XLPE Thickness: 0.9 mm

Max Stress: 280.69 V/mm

Shield/Screen: Not Shielded

Aarmor: St.Armor45dg30w Diameter: 1.6 mm

Sheath: None

Aarmor / Sheath Grounding: Open Max Induced: V/m

Jacket: PVC Thickness: 1.7 mm

Cable: B55467 Diameter: 2.56 cm

DC Resistance

Rdc: 741.25 micro Ohms per meter

Cable Pulling

kg/m Weight: 1000

kg/mm² Max Tension: 7.2

kg/m Max Sidewall: 670

OK Cancel

Gambar 34 Tab Physical Cable



Cable Editor - Cable1

Sizing: Phase, Physical, Impedance, Reliability, Configuration, Routing, Loading, Remarks, Capacity, Protection

Sizing: Phase: 605467, XLPE, Non-Mag, 100%, 50 Hz, 1.0 kV, 3/C, CU, 25, Code: 25, mcm

Option: Positive Seq: ☒ Library, ☐ Calculated; Zero Seq: ☒ Library, ☐ Calculated; Units: ☒ Ohm per 1000 m, ☐ Ohm; Frequency: Project, Date

Impedance - Library

	R	X	L	Z	X/R	R/X	Y
Pos	0.327	0.082	0.000361	0.33062	0.089	11.305	0.000089
Zero	1.4739	0.29528	0.000653	1.4854	0.141	7.077	0

Calculated Impedance

	R	X	L	Z	X/R	R/X	Y
Pos	0.32705	0.07665	0.000244	0.33055	0.083	12.101	0.000083
Zero	0.50004	1.20363	0.000213	1.21886	1.297	0.775	0.0000253

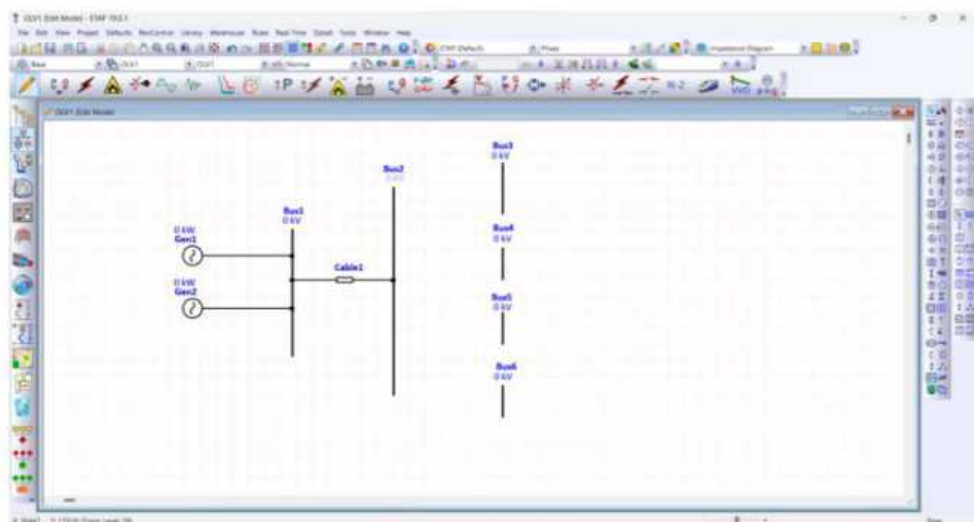
Cable Temperature: Base 90 °C, Min 75 °C, Max 75 °C

Impedance Calculation: DC resistance from the Physical page has been used

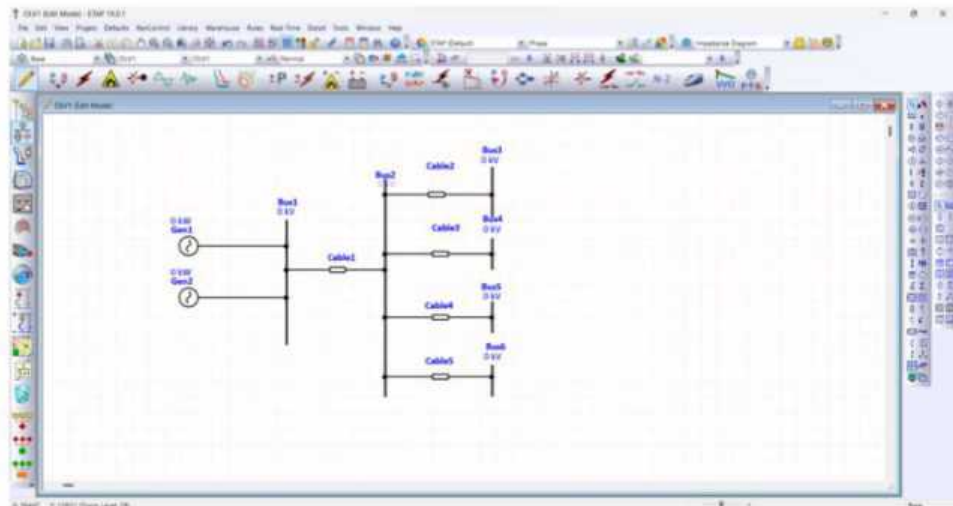
OK Cancel

Gambar 35 Tab Impedance Cable

10. Klik *Bus* satu kali pada *AC Element*, lalu klik satu kali pada *One Line Diagram* untuk meletakkannya. Buat 4 *bus* yang digunakan sebagai panel distribusi ke tiap *deck*.

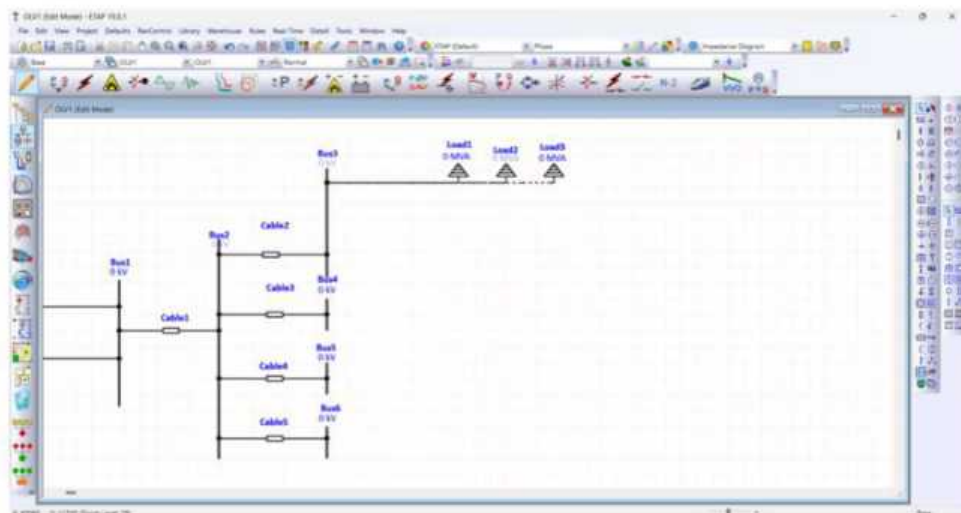
Gambar 36 Penambahan *Bus* pada Lembar Kerja ETAP

lik *cable* satu kali pada *AC Element*, lalu klik satu kali pada *One Line Diagram* untuk meletakkannya. Buat 4 *cable*, lalu hubungkan *cable* tersebut dari *bus2* ke panel distribusi tiap *deck*.



Gambar 37 Penambahan *Cable* pada Lembar Kerja ETAP

12. Isi data *cable* seperti pada poin 9.
13. Klik *static load* satu kali pada *AC Element*, lalu klik satu kali pada *One Line Diagram* untuk meletakkannya. Buat 3 *static load* 1 phasa, lalu hubungkan dengan *bus*.



Gambar 38 *Static Load* pada Lembar Kerja ETAP

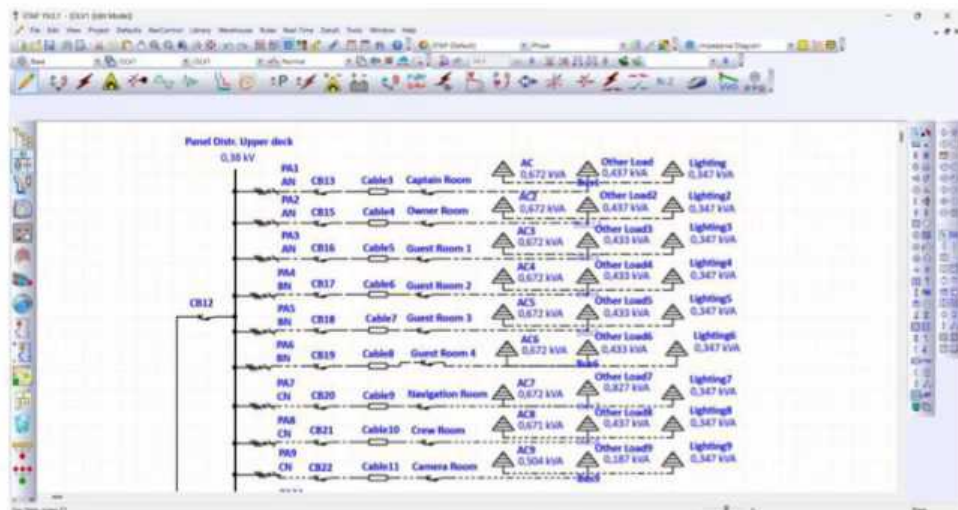


14. Klik dua kali pada *static load*, lalu isi data pada tab *loading*.



Gambar 39 Tab Loading Static Load

15. Klik *Phasa Adapter* pada *AC element*, lalu klik satu kali pada *One Line Diagram* untuk meletakkannya. Letakkan *Phasa Adapter* diantara *Bus* dengan *static load*.

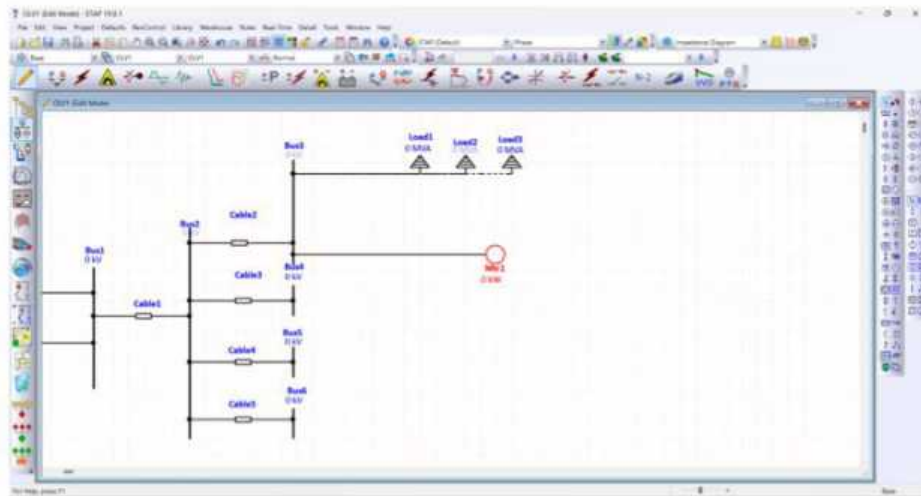


Gambar 40 Phasa Adapter pada Lembar Kerja ETAP



uat *Static Load* pada masing-masing panel distribusi sesuai desain yang telah ada.

17. Klik *Induction Machine* satu kali pada *AC element*, lalu klik satu kali pada *One Line Diagram* untuk meletakkannya.



Gambar 41 *Induction Machine* pada Lembar Kerja ETAP

18. Klik dua kali *Induction Machine*, lalu isi data pada tab *Nameplate*.

The screenshot shows the 'Induction Machine Editor - Oily water separator Pump' dialog box. The 'Nameplate' tab is selected, displaying various ratings and loading data.

Ratings		FL		75 %		50 %		N.L.		OL	
kW	0.15	kV	0.38	% PF	90.6	87.29	79.05	1.46	0	90.6	%
kVA	0.18	FLA	0.273	% EF	32.21	94	95.46	0	32.21		
Poles	4	RPM	1500	%FLA	100	76.37	55.36	33.33	100		
		% Slip	3.02	RPM	1455						

Loading		Motor Load		Feeder Loss	
Category	%	kW	kvar	kW	kvar
1 Design	100	0.15	0.16	0.08	0
2 Normal	90	0.135	0.15	0.07	0
3 Brake	0	0	0	0.06	0
4 Winter Load	0	0	0	0.06	0
5 Summer Load	0	0	0	0.06	0
6 FL Reject	0	0	0	0.06	0
7 Emergency	0	0	0	0.06	0
8 Shutdown	0	0	0	0.06	0

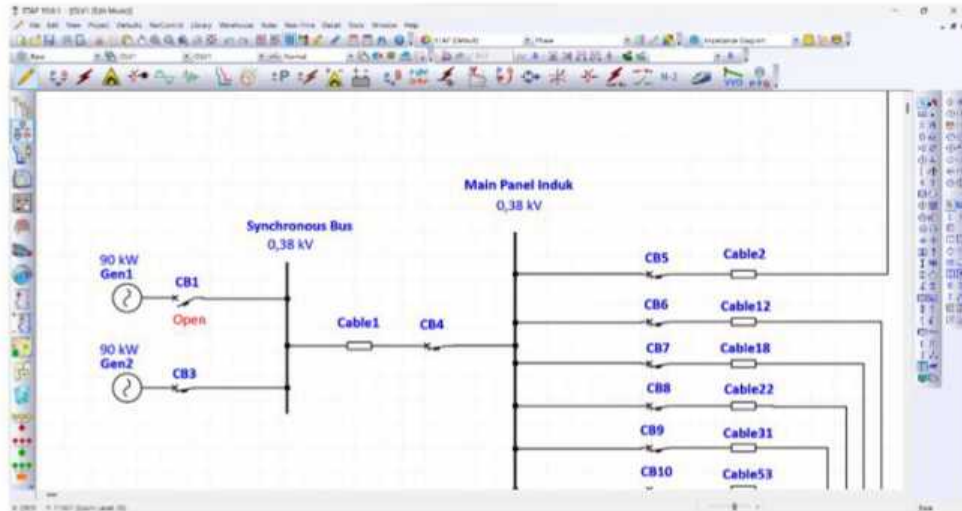
Operating Load: 0 kW * 1 0 kvar

Gambar 42 Tab *Nameplate Induction Machine*

19. Klik *cable* satu kali pada *AC Element*, lalu klik satu kali pada *One Line Diagram* untuk meletakkannya. Letakkan di mana saja yang menggunakan *ible* pada rangkain yang akan dibuat.

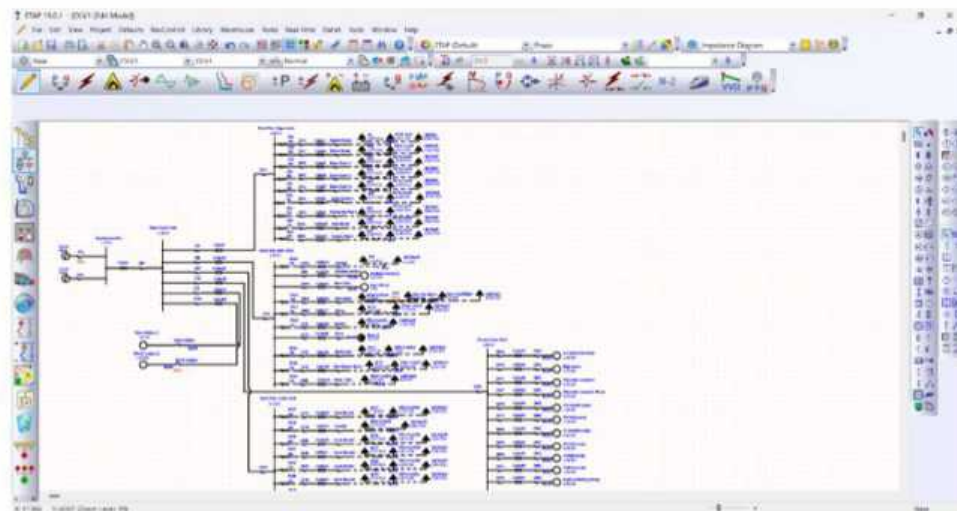


20. Klik *Low Voltage Circuit Breaker (LVCB)* satu kali pada *AC element*, lalu klik satu kali pada *One Line Diagram* untuk meletakkannya. Letakkan di mana saja yang menggunakan LVCB.



Gambar 43 *Low Voltage Circuit Breaker* pada Lembar Kerja ETAP

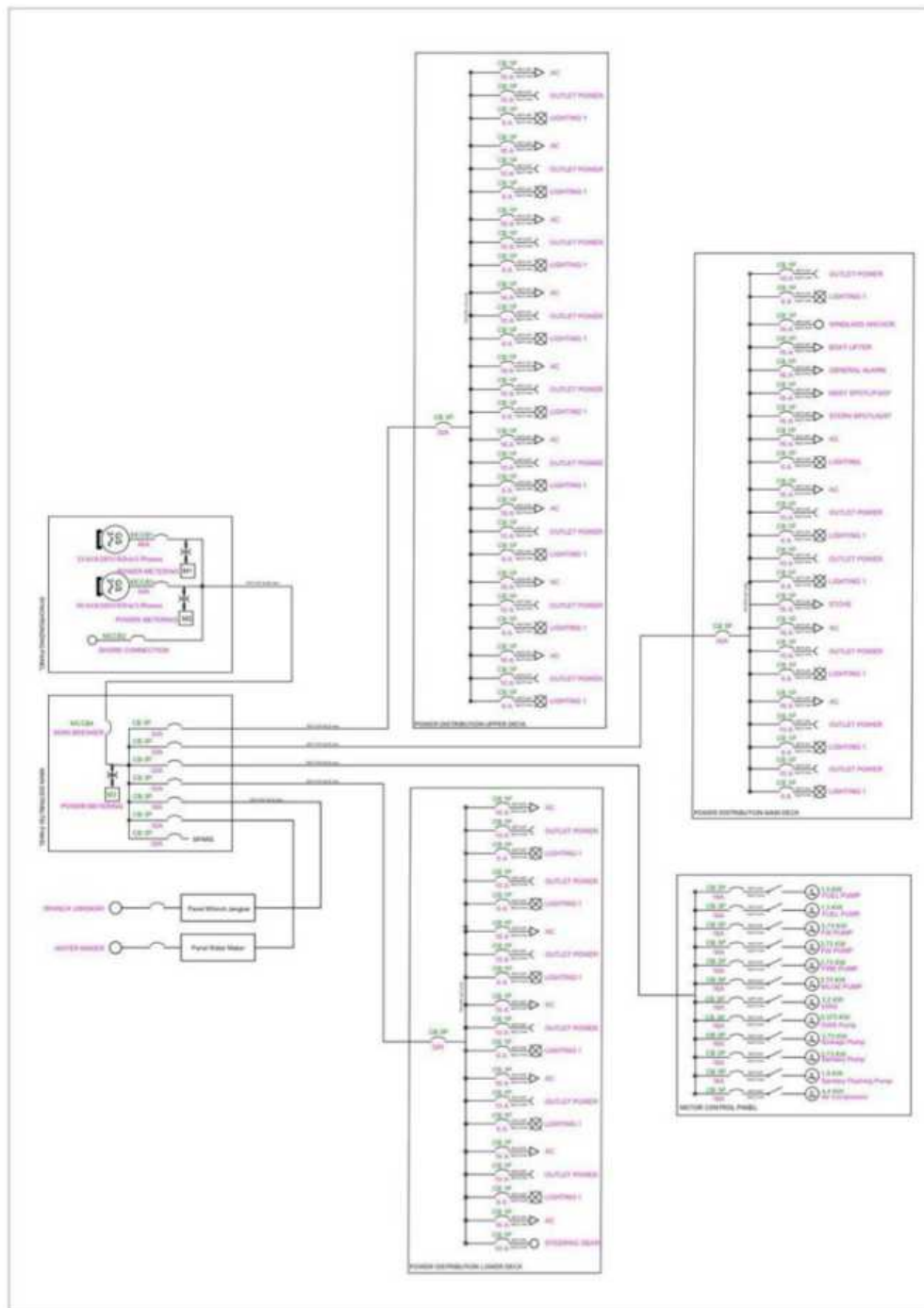
21. Rangkailah *Single Line Diagram* sesuai desain yang akan disimulasikan.



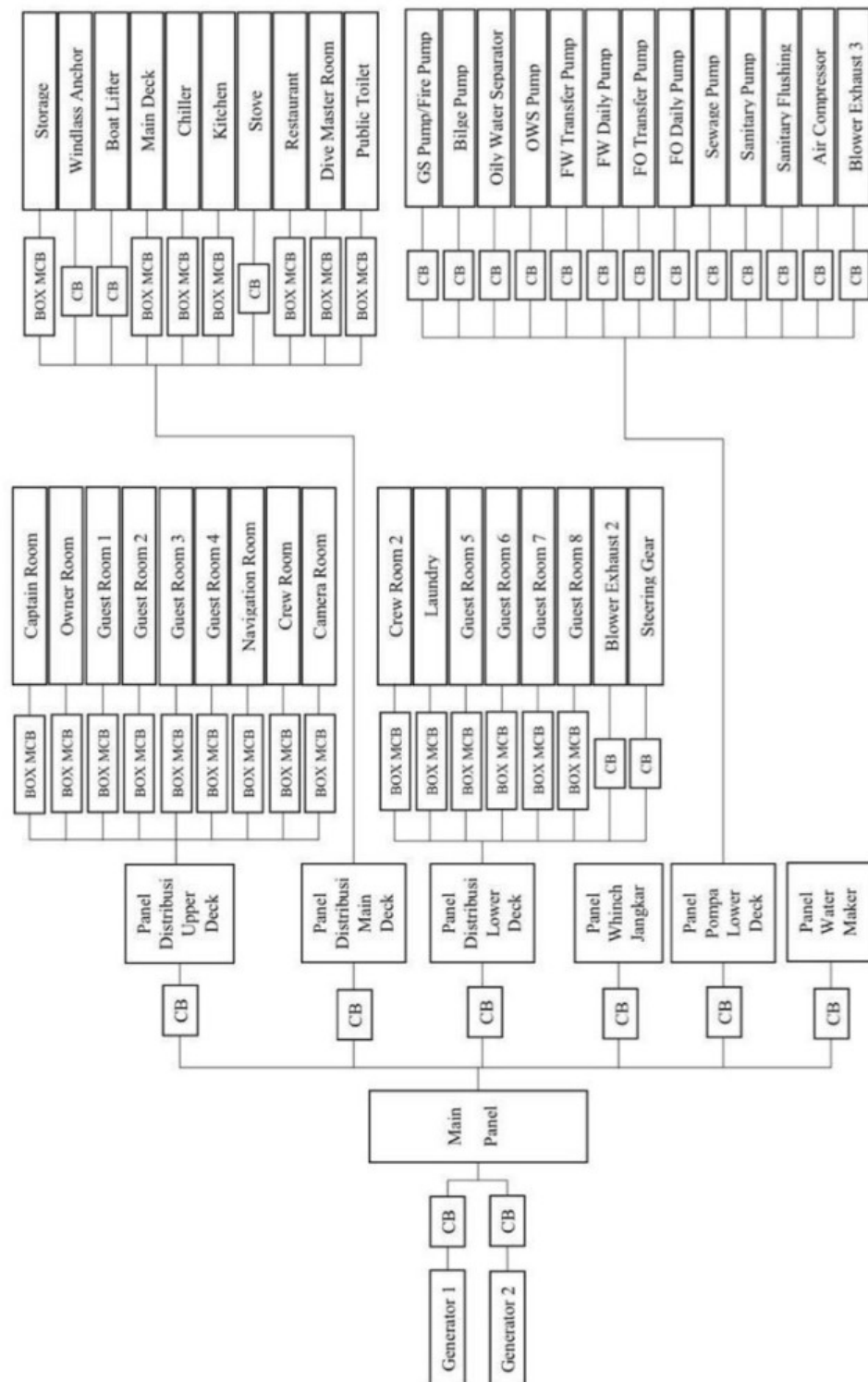
Gambar 44 Hasil *Single Line Diagram* pada ETAP



Lampiran 5 *Single Line Diagram*



Lampiran 6 Diagram Blok Sederhana



Lampiran 7 Hasil Simulasi *Raceways* pada *Kondisi Cruising at Sea*Summary (Lower Deck Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable19	Cond50	1.5	10,41	38,38
2	Cable20	Cond52	1.5	2,27	31,72
3	Cable24	Cond54	1.5	6,62	33,69
4	Cable25	Cond56	1.5	6,62	33,29
5	Cable26	Cond58	1.5	6,62	33,42
6	Cable27	Cond60	1.5	6,62	32,99
7	Cable28	Cond62	1.5	1,82	29,79
8	Cable29	Cond64	2.5	5,40	30,97

Summary (Lower Pump Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable23	Cond3	2.5	2,71	23,03
2	Cable32	Cond15	2.5	0,27	21,50
3	Cable33	Cond19	2.5	2,72	24,97
4	Cable34	Cond55	2.5	0,00	26,28
5	Cable35	Cond35	2.5	2,72	26,55
6	Cable36	Cond31	2.5	1,64	22,80
7	Cable37	Cond59	2.5	1,17	25,38
8	Cable38	Cond7	2.5	2,04	22,41
9	Cable39	Cond39	2.5	2,72	25,57
10	Cable44	Cond23	2.5	4,08	24,69
11	Cable45	Cond27	2.5	0,82	23,22
12	Cable46	Cond47	2.5	3,89	24,46
13	Cable47	Cond43	2.5	0,00	24,36
14	Cable48	Cond11	2.5	1,75	21,97

Summary (Main deck Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable13	Cond30	1.5	1,55	32,30
2	Cable14	Cond32	6.0	0,00	32,58
3	Cable15	Cond34	6.0	0,00	31,49
4	Cable16	Cond36	2.5	7,05	36,01
5	Cable17	Cond38	2.5	21,09	60,44



6	Cable30	Cond40	1.5	9,33	41,45
7	Cable40	Cond42	6.0	2,28	33,27
8	Cable41	Cond44	2.5	15,35	47,43
9	Cable42	Cond46	1.5	6,61	37,24
10	Cable43	Cond48	1.5	4,19	34,08

Summary (Panel Induk Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable12	Cond6	10	23,96	35,45
2	Cable18	Cond8	10	18,66	32,88
3	Cable2	Cond4	10	19,80	32,90
4	Cable22	Cond10	10	22,64	35,60

Summary (Synchronus Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable1	Cond2	25	86,09	54,93

Summary (Upper Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable10	Cond26	1.5	6,62	33,51
2	Cable11	Cond5	1.5	4,72	29,90
3	Cable3	Cond12	1.5	6,62	28,56
4	Cable4	Cond14	1.5	6,62	28,37
5	Cable5	Cond16	1.5	6,62	27,82
6	Cable6	Cond18	1.5	6,62	31,77
7	Cable7	Cond20	1.5	6,62	31,43
8	Cable8	Cond22	1.5	6,62	30,55
9	Cable9	Cond24	1.5	8,39	36,39



Lampiran 8 Hasil Simulasi Raceways pada Kondisi Anchoring

Summary (Lower Deck Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable19	Cond50	1.5	9,66	37,04
2	Cable20	Cond52	1.5	2,27	31,37
3	Cable24	Cond54	1.5	6,62	33,38
4	Cable25	Cond56	1.5	6,62	32,96
5	Cable26	Cond58	1.5	6,62	33,05
6	Cable27	Cond60	1.5	6,62	32,63
7	Cable28	Cond62	1.5	1,46	29,34
8	Cable29	Cond64	2.5	0,00	29,05

Summary (Lower Pump Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable23	Cond3	2.5	2,72	23,10
2	Cable32	Cond15	2.5	0,27	21,51
3	Cable33	Cond19	2.5	2,72	25,07
4	Cable34	Cond55	2.5	3,21	26,91
5	Cable35	Cond35	2.5	2,72	26,68
6	Cable36	Cond31	2.5	0,82	22,71
7	Cable37	Cond59	2.5	1,17	25,43
8	Cable38	Cond7	2.5	2,04	22,45
9	Cable39	Cond39	2.5	2,72	25,67
10	Cable44	Cond23	2.5	4,08	24,76
11	Cable45	Cond27	2.5	0,82	23,26
12	Cable46	Cond47	2.5	3,89	24,48
13	Cable47	Cond43	2.5	0,82	24,45
14	Cable48	Cond11	2.5	1,75	21,99

Summary (Main deck Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable13	Cond30	1.5	1,55	32,69
2	Cable14	Cond32	6.0	5,93	33,54
3	Cable15	Cond34	6.0	5,47	32,26
4	Cable16	Cond36	2.5	7,05	36,11
5	Cable17	Cond38	2.5	21,09	60,39



6	Cable30	Cond40	1.5	9,33	41,41
7	Cable40	Cond42	6.0	2,28	33,11
8	Cable41	Cond44	2.5	12,78	42,91
9	Cable42	Cond46	1.5	6,62	36,99
10	Cable43	Cond48	1.5	4,19	33,71

Summary (Panel Induk Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable12	Cond6	10	34,62	44,08
2	Cable18	Cond8	10	13,51	32,14
3	Cable2	Cond4	10	19,79	34,27
4	Cable22	Cond10	10	25,85	38,65

Summary (Synchronus Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable1	Cond2	25	94,83	63,27

Summary (Upper Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable10	Cond26	1.5	6,62	33,96
2	Cable11	Cond5	1.5	4,72	30,18
3	Cable3	Cond12	1.5	6,62	28,96
4	Cable4	Cond14	1.5	6,62	28,62
5	Cable5	Cond16	1.5	6,62	27,98
6	Cable6	Cond18	1.5	6,62	32,42
7	Cable7	Cond20	1.5	6,62	31,83
8	Cable8	Cond22	1.5	6,62	30,79
9	Cable9	Cond24	1.5	8,39	37,10



Lampiran 9 Hasil Simulasi Raceways pada Kondisi Arrival at Port

Summary (Lower Deck Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable19	Cond50	1.5	10,50	37,39
2	Cable20	Cond52	1.5	1,67	30,48
3	Cable24	Cond54	1.5	6,33	32,40
4	Cable25	Cond56	1.5	6,33	31,98
5	Cable26	Cond58	1.5	6,33	32,09
6	Cable27	Cond60	1.5	6,33	31,70
7	Cable28	Cond62	1.5	1,09	28,58
8	Cable29	Cond64	2.5	3,46	29,05

Summary (Lower Pump Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable23	Cond3	2.5	0,24	22,35
2	Cable32	Cond15	2.5	0,14	21,34
3	Cable33	Cond19	2.5	2,04	24,31
4	Cable34	Cond55	2.5	0,00	25,68
5	Cable35	Cond35	2.5	2,72	25,94
6	Cable36	Cond31	2.5	0,82	22,42
7	Cable37	Cond59	2.5	0,75	24,82
8	Cable38	Cond7	2.5	2,04	22,15
9	Cable39	Cond39	2.5	2,72	25,05
10	Cable44	Cond23	2.5	2,72	23,79
11	Cable45	Cond27	2.5	0,82	22,88
12	Cable46	Cond47	2.5	3,89	24,09
13	Cable47	Cond43	2.5	0,00	23,92
14	Cable48	Cond11	2.5	1,75	21,77

Summary (Main deck Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable13	Cond30	1.5	1,55	30,93
2	Cable14	Cond32	6.0	0,00	31,37
3	Cable15	Cond34	6.0	0,00	30,47
4	Cable16	Cond36	2.5	1,58	32,06
5	Cable17	Cond38	2.5	20,90	58,52



6	Cable30	Cond40	1.5	9,33	40,33
7	Cable40	Cond42	6.0	2,28	31,97
8	Cable41	Cond44	2.5	15,58	46,57
9	Cable42	Cond46	1.5	6,44	35,94
10	Cable43	Cond48	1.5	4,19	32,95

Summary (Panel Induk Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable12	Cond6	10	22,11	32,86
2	Cable18	Cond8	10	16,06	30,33
3	Cable2	Cond4	10	19,20	31,02
4	Cable22	Cond10	10	16,74	31,41

Summary (Synchronus Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable1	Cond2	25	73,74	45,25

Summary (Upper Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable10	Cond26	1.5	6,62	32,51
2	Cable11	Cond5	1.5	4,72	29,06
3	Cable3	Cond12	1.5	5,99	27,22
4	Cable4	Cond14	1.5	6,44	27,65
5	Cable5	Cond16	1.5	6,33	27,07
6	Cable6	Cond18	1.5	6,33	30,44
7	Cable7	Cond20	1.5	6,33	30,27
8	Cable8	Cond22	1.5	6,33	29,52
9	Cable9	Cond24	1.5	8,48	35,34



Lampiran 10 Hasil Simulasi Raceways pada Kondisi Departure at Port

Summary (Lower Deck Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable19	Cond50	1.5	10,41	35,94
2	Cable20	Cond52	1.5	1,83	29,19
3	Cable24	Cond54	1.5	6,33	31,12
4	Cable25	Cond56	1.5	6,33	30,85
5	Cable26	Cond58	1.5	6,33	30,95
6	Cable27	Cond60	1.5	6,33	30,59
7	Cable28	Cond62	1.5	1,46	27,67
8	Cable29	Cond64	2.5	4,05	28,29

Summary (Lower Pump Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable23	Cond3	2.5	0,82	22,10
2	Cable32	Cond15	2.5	0,00	21,15
3	Cable33	Cond19	2.5	0,82	23,61
4	Cable34	Cond55	2.5	0,00	24,93
5	Cable35	Cond35	2.5	0,00	24,84
6	Cable36	Cond31	2.5	0,33	22,07
7	Cable37	Cond59	2.5	0,93	24,20
8	Cable38	Cond7	2.5	2,04	21,89
9	Cable39	Cond39	2.5	0,00	24,03
10	Cable44	Cond23	2.5	1,63	23,08
11	Cable45	Cond27	2.5	0,00	22,45
12	Cable46	Cond47	2.5	3,89	23,65
13	Cable47	Cond43	2.5	0,00	23,39
14	Cable48	Cond11	2.5	0,52	21,40

Summary (Main deck Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable13	Cond30	1.5	1,55	29,64
2	Cable14	Cond32	6.0	3,55	30,29
3	Cable15	Cond34	6.0	0,00	29,23
4	Cable16	Cond36	2.5	1,58	30,43
5	Cable17	Cond38	2.5	20,90	56,53



6	Cable30	Cond40	1.5	9,33	38,70
7	Cable40	Cond42	6.0	2,28	30,09
8	Cable41	Cond44	2.5	7,87	34,21
9	Cable42	Cond46	1.5	6,61	34,28
10	Cable43	Cond48	1.5	4,19	31,00

Summary (Panel Induk Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable12	Cond6	10	25,35	33,77
2	Cable18	Cond8	10	16,76	29,74
3	Cable2	Cond4	10	19,26	30,36
4	Cable22	Cond10	10	7,09	28,08

Summary (Synchronus Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable1	Cond2	25	68,69	41,84

Summary (Upper Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable10	Cond26	1.5	6,62	31,69
2	Cable11	Cond5	1.5	4,72	28,28
3	Cable3	Cond12	1.5	6,34	27,32
4	Cable4	Cond14	1.5	6,34	27,24
5	Cable5	Cond16	1.5	6,33	26,78
6	Cable6	Cond18	1.5	6,33	29,88
7	Cable7	Cond20	1.5	6,33	29,72
8	Cable8	Cond22	1.5	6,33	28,98
9	Cable9	Cond24	1.5	8,39	34,35



Lampiran 11 Hasil Simulasi Raceways pada Kondisi Full Load

Summary (Lower Deck Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable19	Cond50	1.5	14,00	76,36
2	Cable20	Cond52	1.5	3,80	62,54
3	Cable24	Cond54	1.5	9,30	65,75
4	Cable25	Cond56	1.5	9,30	64,60
5	Cable26	Cond58	1.5	9,30	64,50
6	Cable27	Cond60	1.5	9,30	62,83
7	Cable28	Cond62	1.5	3,60	56,09
8	Cable29	Cond64	2.5	6,80	56,88

Summary (Lower Pump Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable23	Cond3	2.5	6,81	32,99
2	Cable32	Cond15	2.5	0,68	25,93
3	Cable33	Cond19	2.5	6,82	40,73
4	Cable34	Cond55	2.5	8,05	48,45
5	Cable35	Cond35	2.5	6,82	47,10
6	Cable36	Cond31	2.5	2,74	30,76
7	Cable37	Cond59	2.5	1,46	40,87
8	Cable38	Cond7	2.5	6,82	31,28
9	Cable39	Cond39	2.5	6,82	43,21
10	Cable44	Cond23	2.5	6,82	37,79
11	Cable45	Cond27	2.5	2,74	33,02
12	Cable46	Cond47	2.5	3,89	35,03
13	Cable47	Cond43	2.5	2,74	37,55
14	Cable48	Cond11	2.5	5,85	29,05

Summary (Main deck Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable13	Cond30	1.5	3,00	73,77
2	Cable14	Cond32	6.0	11,89	74,89
3	Cable15	Cond34	6.0	10,97	68,42
4	Cable16	Cond36	2.5	22,50	110,79
5	Cable17	Cond38	2.5	33,20	164,38



6	Cable30	Cond40	1.5	16,00	100,33
7	Cable40	Cond42	6.0	7,62	74,39
8	Cable41	Cond44	2.5	21,50	105,66
9	Cable42	Cond46	1.5	9,20	78,49
10	Cable43	Cond48	1.5	5,30	70,65

Summary (Panel Induk Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable12	Cond6	10	65,96	141,11
2	Cable18	Cond8	10	25,76	79,99
3	Cable2	Cond4	10	27,44	83,49
4	Cable22	Cond10	10	65,19	139,79

Summary (Synchronus Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable1	Cond2	25	188,87	338,40

Summary (Upper Cable)

No.	Cable ID	Conduit/Location ID	Size	Current Amp	Temp. °C
1	Cable10	Cond26	1.5	9,30	68,05
2	Cable11	Cond5	1.5	7,00	57,17
3	Cable3	Cond12	1.5	9,30	49,31
4	Cable4	Cond14	1.5	9,30	45,91
5	Cable5	Cond16	1.5	9,30	42,93
6	Cable6	Cond18	1.5	9,30	63,98
7	Cable7	Cond20	1.5	9,30	58,79
8	Cable8	Cond22	1.5	9,30	54,00
9	Cable9	Cond24	1.5	10,60	76,23

