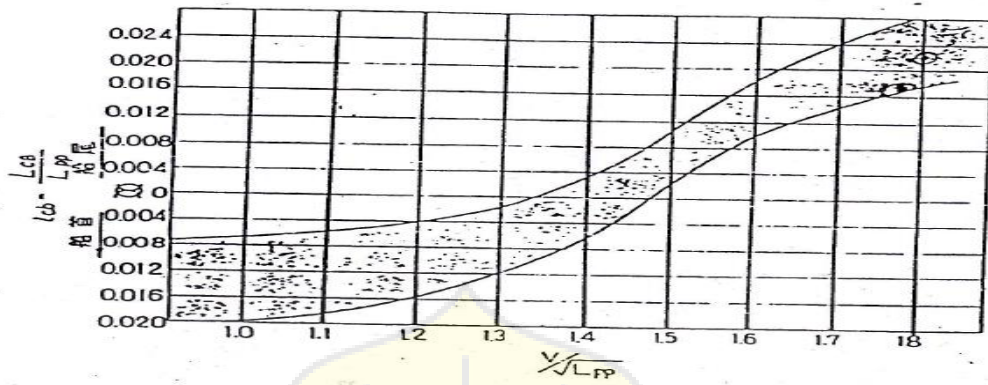


## LAMPIRAN

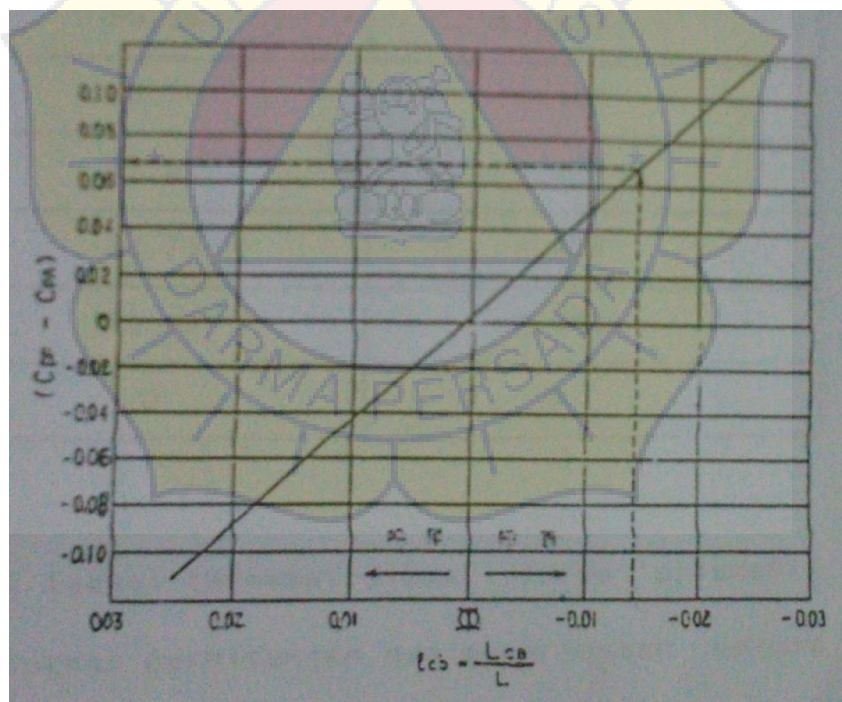
### Lampiran 1

#### Grafik $lcb$ Ikeda Masaharu



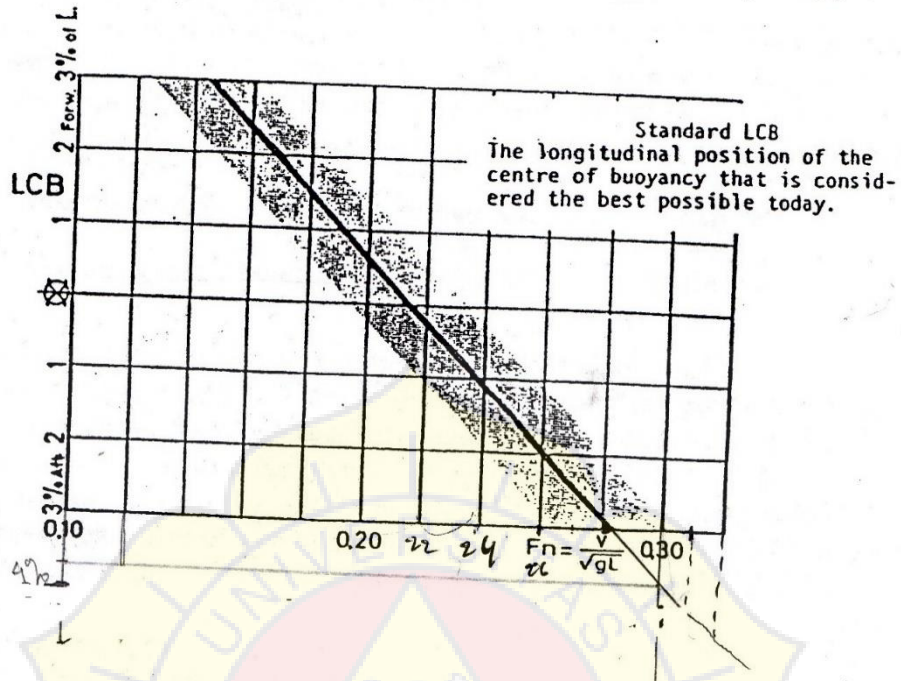
### Lampiran 2

#### Grafik (Cpf-Cpa) Ikeda Masaharu



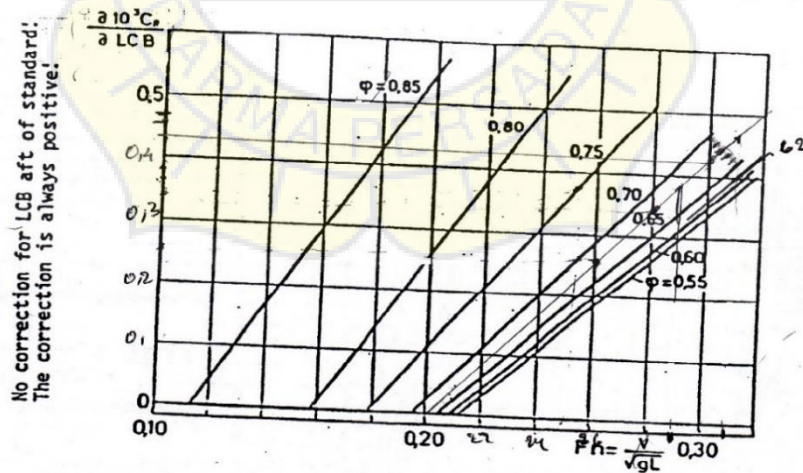
Lampiran 3

LCB Standart



Lampiran 4

Koreksi CR



Gb.9.8 Koreksi  $C_R$  untuk tiap 1% perbedaan lokasi LCB di depan LCB kapal standart

## Lampiran 5

### Diagram Kurva *Residual Resistance Coefficient*

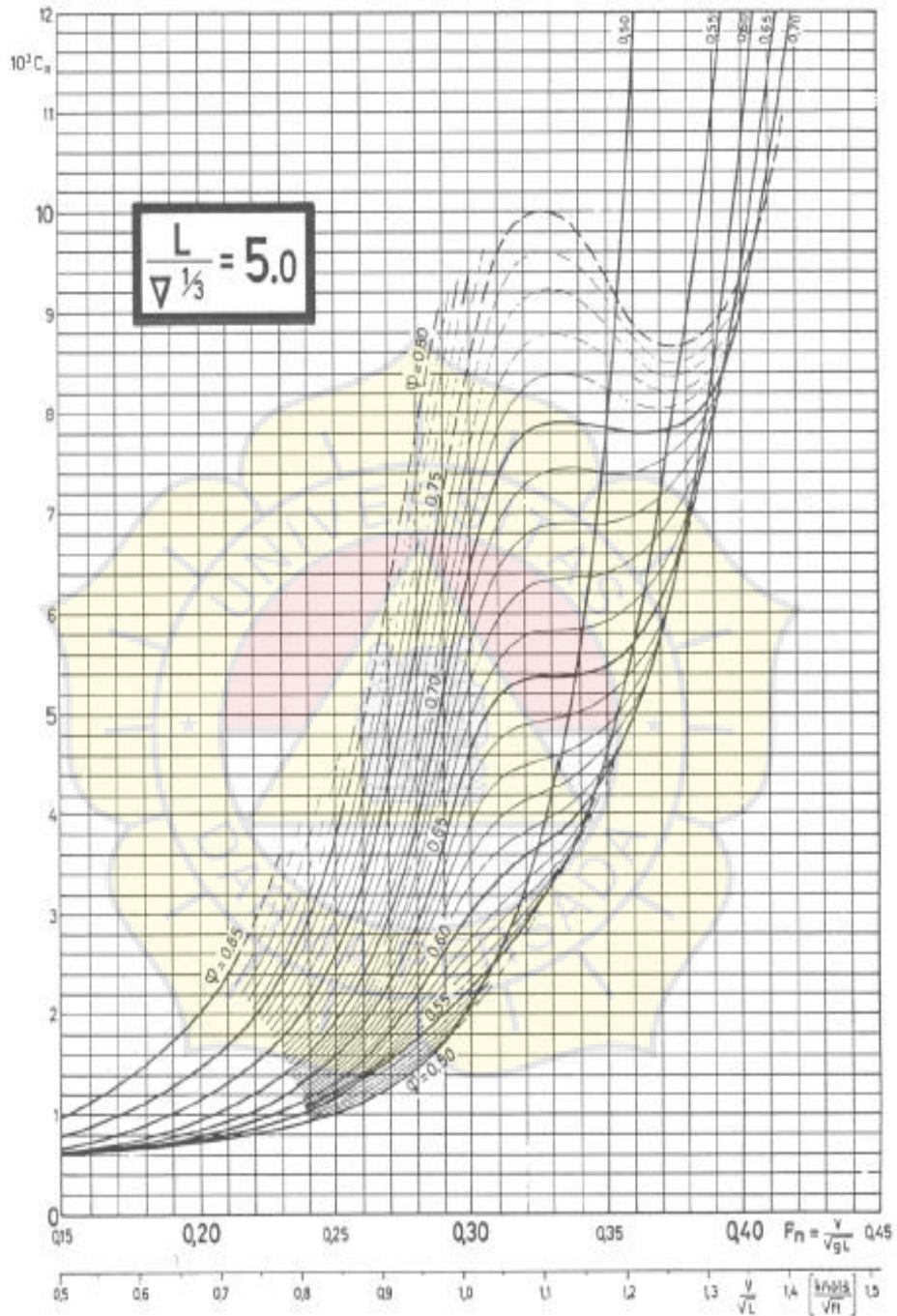
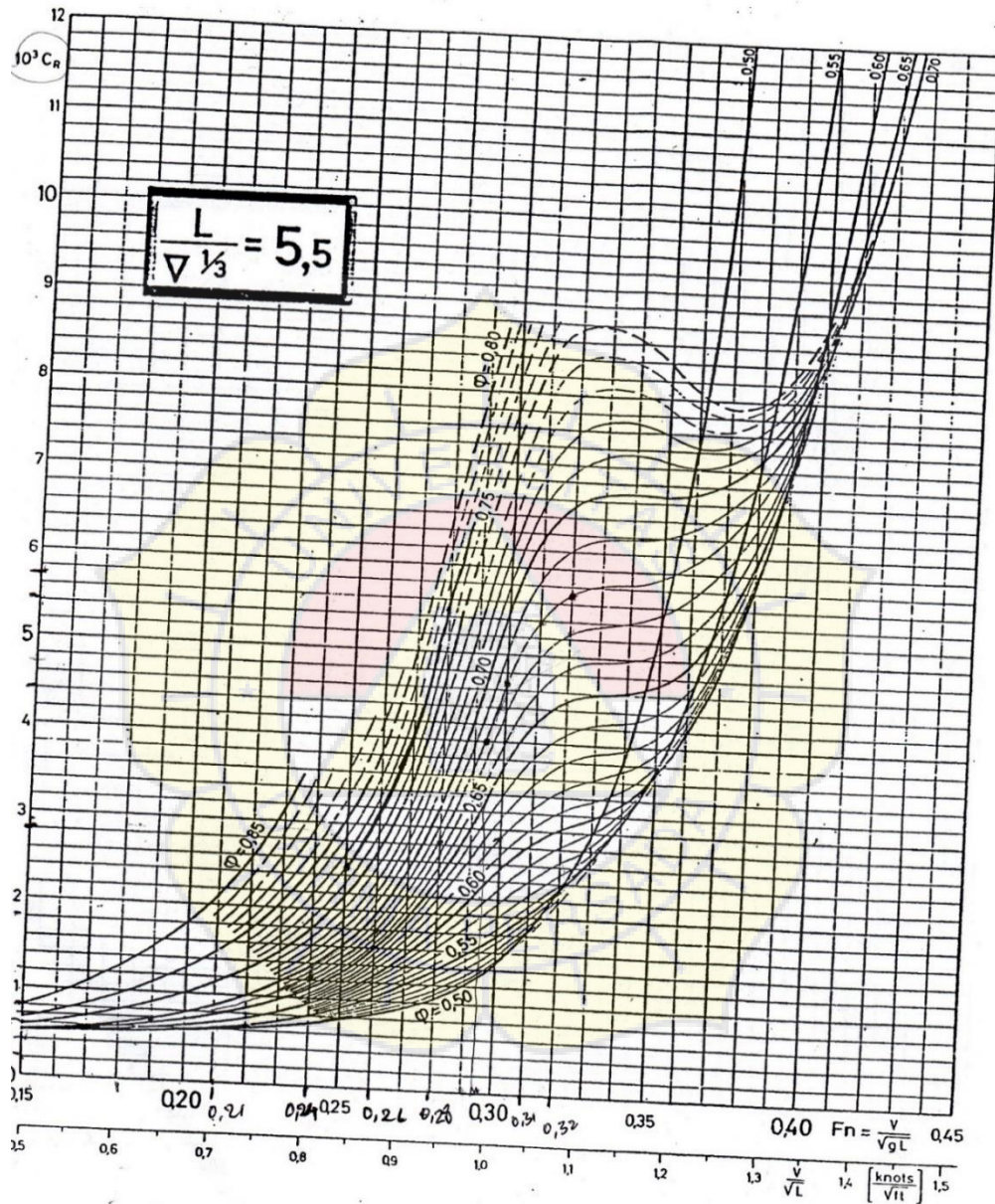


Figure 5.5.7. Residual resistance coefficient versus speed-length ratio for different values of longitudinal prismatic coefficient.  $L/\nabla^{1/3} = 5.0$ .

Lampiran 6

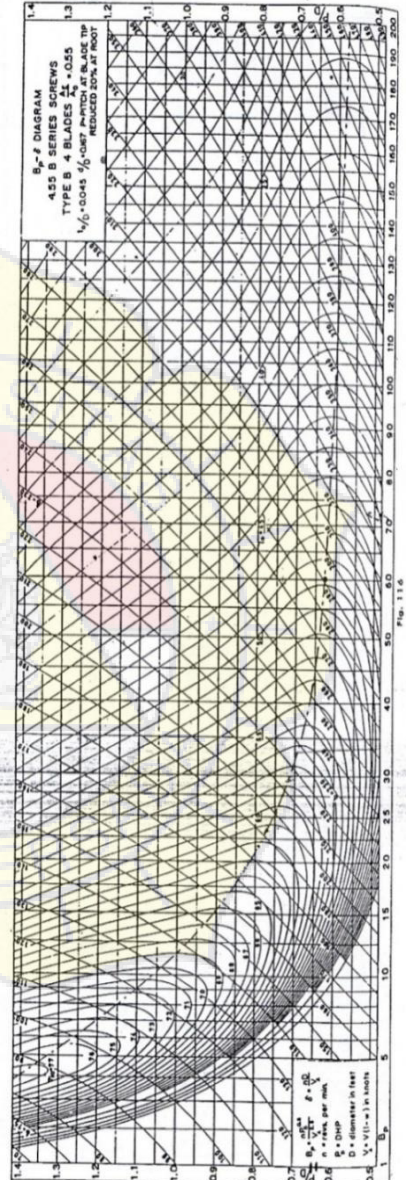
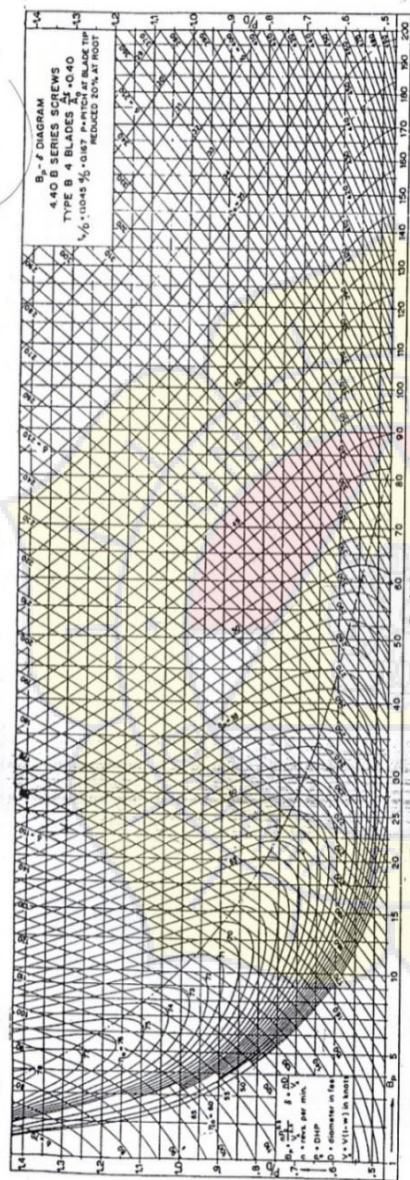
Diagram Kurva *Residual Resistance Coefficient*



Gb.9.9.4 Diagram kurva *Residual Resistance Coefficient*  $C_R$  vs Angka Froude  $Fr$  pada rentang harga *Prismatic Coefficient*  $\phi (= C_p) = 0,50 \sim 0,80$  untuk *Volumetric Coefficient*  $C_v (= L / \nabla^{1/3}) = 5,5$  (8)

Lampiran 7

Diagram Bp 4.40 dan 4.55



414

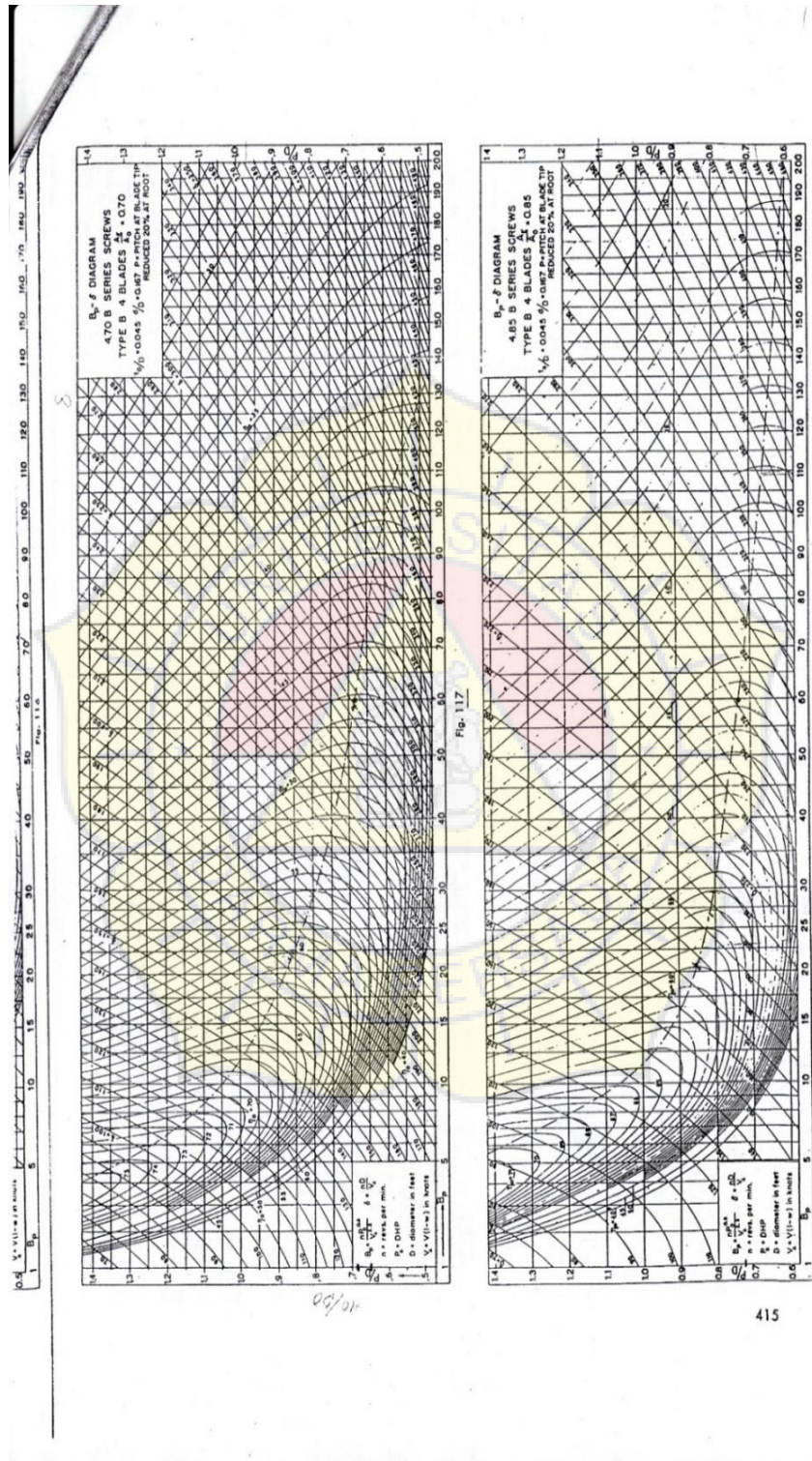
140  
1072



B 3-70

### Lampiran 8

### Diagram Bp 4.70 dan 4.85



## Lampiran 9

### Main Engine

# 6EY22AW

| Power | 885~1370kW

#### Main Data

- Type : 4-stroke, Diesel    ■ No. of Cylinders : In-line 6    ■ Cylinder Bore : 220 mm
- Piston Stroke : 320 mm    ■ Mean Effective Pressure : 1.62 - 2.50 MPa
- Piston Speed : 9.60 m/s

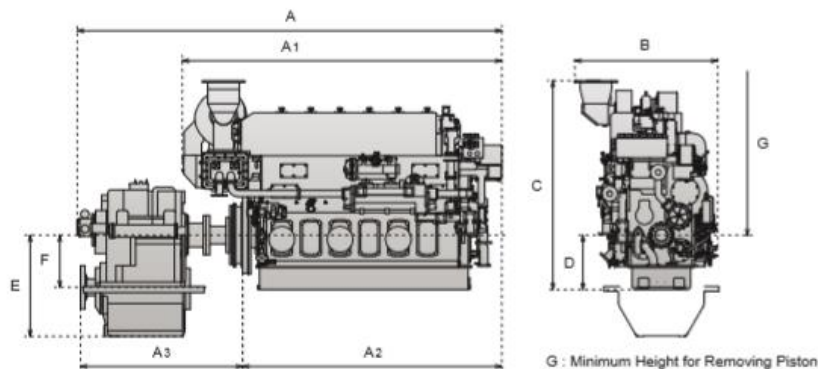
Engine Model	6EY22AW					
No. of Cylinders	6					
Cylinder Bore x Stroke (mm)	220x320					
Rated Output (kW/PSI)	735(1000)	885(1203)	1030(1400)	1180(1604)	1330(1808)	1370(1863)
Engine Speed (min <sup>-1</sup> )	800	850			900	
Dry Weight (kg)	10000					

#### Standard Marine Gear

Propeller Type		for F.P.P.	
Marine Gear Model	Offset	YX-1000	YXH-2000
	Co-Axial	YX-1000C	YXH-2000C
Reduction Gear Ratio (Ahead)	Offset	2.03, 2.36, 2.78, 3.32	2.23, 2.58, 2.79, 3.03
	Co-Axial	2.03, 2.36, 2.78, 3.32	2.23, 2.58, 2.79, 3.03
Marine Gear Dry Weight (kg)	Offset	2400	4750
	Co-Axial	2565	5050

#### Dimensions [ mm ] / Weights [ kg ]

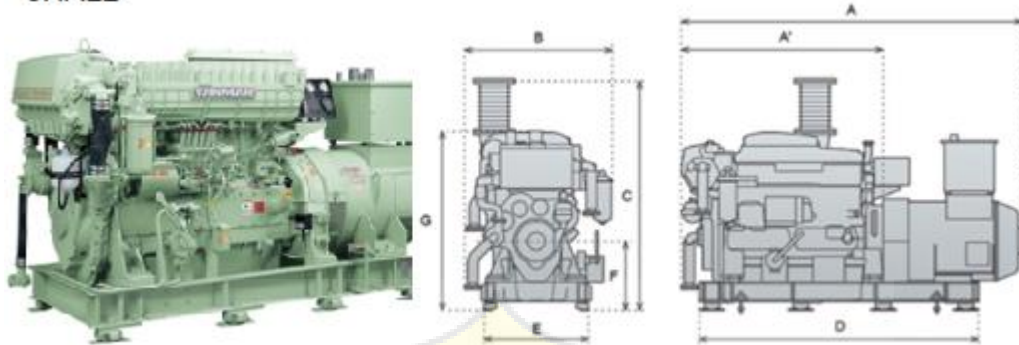
Engine Model	Marine Gear	A	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	B	C	D	E	F	G	Total Dry Weight with Marine Gear
6EY22AW (885kW)	YX-1000	4574	3647	2965	1488	1618	2416	666	885	435	1922	12505
	YX-1000C	4687	3647	2965	1601	1618	2416	666	450	-	1922	12670
6EY22AW (1030kW)	YX-1000	4603	3647	2965	1517	1618	2416	666	885	435	1922	12556
	YX-1000C	4636	3647	2965	1550	1618	2416	666	450	-	1922	12721
6EY22AW (1180kW)	YXH-2000	4810	3647	2965	1807	1618	2416	666	1145	590	1922	14861
6EY22AW (1330kW)	YXH-2000C	4960	3647	2965	1957	1618	2416	666	555	-	1922	15161



## Lampiran 10

### Auxiliary Engine

#### 6HAL2



#### Specifications

##### Rated Power

Engine Model	6HAL2-N	6HAL2-TN	6HAL2-WT	6HAL2-WHT	6HAL2-WDT						
Type	Vertical, Water-cooled, 4-stroke Diesel										
No. of Cylinders	6										
Cylinder Bore × Stroke [mm]	130×165										
Continuous Rated Output [kW(PS)]	90 (122)	115 (156)	120 (163)	150 (204)	180 (244)	160 (217)	220 (299)	265 (360)	200 (271)	255 (346)	305 (414)
Generator Capacity [kWe(kVa)]	80 (100)	100 (125)	104 (130)	136 (170)	160 (200)	144 (180)	200 (250)	240 (300)	180 (225)	232 (290)	280 (350)
Engine Speed [min <sup>-1</sup> ]	1200	1500	1200	1500	1800	1200	1500	1800	1200	1500	1800
Combustion System	Direct Injection										
Starting system	Electric Starting or Air-motor starting										
Dry Weight [kg]	1380	1422	1422	1437	1447						
Total Weight (Gen.Set) [kg]	2360	2410	2410	2750	2850						

Engine Model	A	A2	B	C	D	E	F	G	Dry Weight	
									Engine	Gen.Set
6HAL2-N 90~115kW	2499	1589	1164	1654	2100	820	544	1327	1380	2360
6HAL2-TN 120kW	2499	1589	1164	1774	2100	820	544	1327	1422	2410
6HAL2-WT 150~180kW	2499	1589	1164	1774	2100	820	544	1327	1422	2410
6HAL2-WHT 160~265kW	2574	1589	1164	1804	2200	820	544	1327	1437	2750
6HAL2-WDT 200~305kW	2684	1589	1164	1804	2200	820	544	1327	1447	2850



Lampiran 11  
Tabel Webster

after block shear ratio coefficient	free body												shear block ratio coefficient														
	$s_{10}H_1$	$a$	$m$	$a$	$m$	$a$	$m$	$a$	$m$	$a$	$m$	$a$		$s_{10}H_1$													
0.60	0.15	41.2	0.275	57.4	0.077	57.7	0.045	66.9	0.021	96.3	-0.013	104.9	-0.220	95.3	-0.017	72.9	0.012	55.7	0.048	56.3	0.080	61.7	0.115	40.2	0.372	0.30	
0.08	40.0	0.250	55.9	0.044	55.2	0.018	63.7	0.001	92.0	-0.017	104.3	-0.522	97.0	-0.017	68.4	0.006	51.2	0.035	49.1	0.077	56.9	0.091	36.8	0.377	0.16		
0.62	0.15	43.9	0.268	56.6	0.072	56.8	0.044	66.0	0.024	95.3	-0.008	105.1	-0.517	95.4	-0.015	74.2	0.012	56.0	0.045	55.4	0.077	60.8	0.110	40.1	0.345	0.30	
0.08	39.4	0.248	54.9	0.041	54.2	0.017	62.8	0.004	91.2	-0.013	104.3	-0.519	95.2	-0.015	69.5	0.007	51.4	0.032	48.4	0.073	53.8	0.087	36.8	0.352	0.16		
0.64	0.15	40.5	0.261	55.9	0.067	55.9	0.043	65.1	0.027	94.4	-0.004	105.2	-0.514	100.3	-0.012	75.3	0.013	56.2	0.044	54.7	0.074	59.9	0.104	39.9	0.351	0.30	
0.08	39.0	0.244	53.9	0.037	53.2	0.016	62.1	0.005	90.4	-0.009	104.3	-0.516	95.2	-0.012	70.4	0.009	51.6	0.031	47.8	0.069	54.6	0.083	36.8	0.351	0.16		
0.66	0.15	40.4	0.253	55.2	0.062	55.1	0.041	64.4	0.029	93.6	0.000	105.2	-0.512	101.1	-0.005	76.2	0.015	56.3	0.044	53.9	0.071	59.0	0.098	39.6	0.351	0.30	
0.08	38.5	0.238	53.1	0.033	52.4	0.015	61.5	0.003	89.6	-0.005	104.2	-0.513	102.2	-0.011	71.0	0.012	51.8	0.031	47.3	0.065	53.4	0.079	36.7	0.341	0.16		
0.68	0.15	40.2	0.245	54.5	0.056	54.4	0.039	63.8	0.032	92.8	0.004	105.2	-0.509	101.9	-0.005	76.9	0.015	56.4	0.046	53.2	0.068	58.2	0.093	39.4	0.345	0.30	
0.08	38.3	0.229	52.2	0.028	51.6	0.014	61.0	0.009	85.9	-0.001	104.1	-0.510	101.3	-0.005	71.5	0.015	52.0	0.032	46.7	0.062	52.3	0.076	36.6	0.332	0.16		
0.70	0.15	40.0	0.235	53.9	0.051	53.6	0.037	63.3	0.035	92.1	0.008	105.2	-0.506	102.4	-0.002	77.6	0.022	56.6	0.045	52.5	0.066	57.3	0.087	39.1	0.332	0.30	
0.08	38.1	0.219	51.5	0.023	50.9	0.013	60.7	0.011	88.2	0.003	104.1	-0.507	101.5	-0.004	72.1	0.019	52.2	0.034	46.2	0.059	51.2	0.072	36.5	0.315	0.16		
0.72	0.15	39.9	0.225	53.2	0.046	53.0	0.036	62.9	0.038	91.5	0.012	105.2	-0.503	102.5	0.001	78.4	0.025	56.9	0.050	52.0	0.065	56.4	0.082	38.8	0.324	0.30	
0.08	38.0	0.207	50.7	0.018	50.2	0.012	60.6	0.012	87.6	0.007	104.2	-0.504	102.2	-0.001	72.8	0.023	52.5	0.037	45.8	0.057	50.1	0.069	36.4	0.302	0.16		
0.74	0.15	39.5	0.215	52.6	0.042	52.3	0.036	62.6	0.041	91.1	0.016	105.4	-0.500	104.4	0.004	79.5	0.028	57.4	0.053	51.5	0.064	55.6	0.076	38.6	0.314	0.30	
0.08	38.0	0.194	49.9	0.015	49.5	0.012	60.5	0.014	87.2	0.011	104.4	-0.501	103.4	0.002	73.9	0.026	52.9	0.039	45.4	0.056	49.0	0.066	36.3	0.292	0.16		
0.76	0.15	39.7	0.203	51.9	0.040	51.7	0.038	62.5	0.044	90.9	0.020	105.7	-0.502	105.4	0.005	81.0	0.029	58.2	0.056	51.0	0.064	54.9	0.070	38.4	0.302	0.30	
0.08	38.0	0.180	49.1	0.013	49.0	0.013	60.5	0.017	86.9	0.015	104.7	-0.504	104.3	0.004	75.3	0.028	53.6	0.042	45.1	0.054	48.0	0.062	36.2	0.282	0.16		
0.78	0.15	39.7	0.190	51.2	0.040	51.1	0.041	62.5	0.048	90.9	0.023	106.1	-0.505	107.2	0.005	83.1	0.030	59.4	0.059	50.7	0.065	54.2	0.065	38.4	0.282	0.30	
0.08	38.1	0.166	48.2	0.013	48.4	0.015	60.5	0.020	86.7	0.018	105.1	-0.504	106.3	0.005	77.2	0.028	54.5	0.046	44.9	0.054	47.1	0.059	36.2	0.269	0.16		
0.80	0.15	39.8	0.176	50.3	0.041	50.5	0.046	62.6	0.052	91.0	0.027	106.7	-0.503	108.5	0.005	85.6	0.030	60.9	0.062	50.4	0.066	53.5	0.059	38.5	0.272	0.30	
0.08	38.2	0.152	47.2	0.015	47.9	0.018	60.6	0.024	86.7	0.021	105.7	-0.506	108.9	0.007	79.5	0.028	55.6	0.049	44.8	0.054	46.3	0.055	36.2	0.252	0.16		

This table applies to all cases where:  
 1. the freeboard ratio varies from 0.18 to 0.38. 2. the shear ratio varies from 0.16 to 0.30 forward and from 0.03 to 0.15 aft. 3. the block coefficient varies from 0.05 to 0.80.  
 Note: For the forward and after terminals the ordinate of the flooding curve as given by the formula must be plotted on a vertical line situated at a distance from the particular terminal equal to one-half the floodable length given by the formula for a permeability of 80 per cent.

## Lampiran 12

### Equipment Number

Table C27.1 Anchors, Chain Cables and Ropes

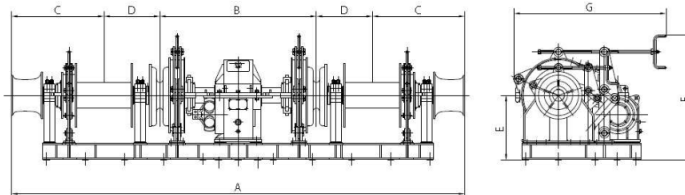
Equipment letter	Equipment number		Anchor		Chain cable for anchor (stud anchor for chain)			Tow line		Mooring line			
			number	Mass per anchor (stockless anchor)	Total length	Diameter			Length	Breaking load	number	Length of each line	Breaking load
						Grade 1	Grade 2	Grade 3					
	Over	Up to		kg	m	mm	mm	mm	m	kN		m	kN
A1	50	70	2	180	220	14	12.5		180	↑ 98	3	80	↑ 34
A2	70	90	2	240	220	16	14		180	∴ 98	3	100	∴ 37
A3	90	110	2	300	247.5	17.5	16		180	∴ 98	3	110	∴ 39
A4	110	130	2	360	247.5	19	17.5		180	∴ 98	3	110	∴ 44
A5	130	150	2	420	275	20.5	17.5		180	∴ 98	3	120	∴ 49
B1	150	175	2	480	275	22	19		180	∴ 98	3	120	∴ 54
B2	175	205	2	570	302.5	24	20.5		180	● 112	3	120	∴ 59
B3	205	240	2	660	302.5	26	22	20.5	180	∴ 129	4	120	∴ 64
B4	240	280	2	780	330	28	24	22	180	∴ 150	4	120	∴ 69
B5	280	320	2	900	357.5	30	26	24	180	∴ 174	4	140	∴ 74
C1	320	360	2	1020	357.5	32	28	24	180	↓ 207	4	140	● 78
C2	360	400	2	1140	385	34	30	26	180	↑ 224	4	140	∴ 88
C3	400	450	2	1290	385	36	32	28	180	∴ 250	4	140	∴ 98
C4	450	500	2	1440	412.5	38	34	30	180	∴ 277	4	140	∴ 108
C5	500	550	2	1590	412.5	40	34	30	190	∴ 306	4	160	∴ 123
D1	550	600	2	1740	440	42	36	32	190	○ 338	4	160	∴ 132
D2	600	660	2	1920	440	44	38	34	190	∴ 371	4	160	∴ 147
D3	660	720	2	2100	440	46	40	36	190	∴ 406	4	160	∴ 157
D4	720	780	2	2280	467.5	48	42	36	190	∴ 441	4	170	∴ 172
D5	780	840	2	2460	467.5	50	44	38	190	↓ 480	4	170	∴ 186
E1	840	910	2	2640	467.5	52	46	40	190	↑ 518	4	170	∴ 201

## Lampiran 13

### Windlass dan Mooring Winch

生产编号 DWG NO.	规格部分 Part of weighing				系泊部分 Part of mooring				液压马达参数 Hydro-motor data				主要尺寸 Part of dimension								
	规格 Chain dia (mm)	额定 拉力 Nom. Pull (kN)	卷扬 深度 Ancho- ring depth (m)	额定 速度 Nom. Speed (m/min)	额定 负载 Nom. Load (kN)	额定 速度 Nom. Speed (m/min)	卷扬 绳径 Rope dia (mm)	容量 Capacity (m)	额定 速度 Nom. Speed (m/min)	型号 model	理论 排量 Theoretical discharge (L/min)	额定 压力 Rated Pressure (MPa)	转速 Speed (rpm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	
226RAT090-00	50	106.3																			
	52	134.9	62.5	≥P	80	15	55	22	140	80	315/1.6/100-40/20	314/1.57	30	3175	3755	1120	1135	1500	1530	800	2140
	54	133.9																			
	56	133.3																			
226RAT060-00	51	143.0	62.5	≥P	80	15	55	22	140	80	315/1.6/100-40/20	314/1.57	30	3175	3950	1260	1135	1535	1750	900	2430
	60	153.0																			
	62	163.4																			
	64	174.1	62.5	≥P	100	15	60	24	140	100	315/1.6/100-40/20	314/1.57	30	3175	4260	1430	1165	1665	1880	900	2590
226RAT080-00	66	165.1																			
	68	196.5																			
	70	208.3	62.5	≥P	125	12	66	26	160	125	315/1.6/100-40/20	314/1.57	30	3175	4475	1520	1240	1715	1715	1200	2930
	72	236.6																			

Symmetrical Hy-combined Windlass Mooring Winch Drawing



## Lampiran 14

### Liferaft



mm

Type	Capacity	Length	Width	Height	Weight	Container size
HSE-A-20	20	3000	4600	1570	≤195	720×1100
HSE-B-20	20	4100	2810	1450	≤100	680×1150
HSE-Y-20	20	3850	3850	1450	≤140	700×1300
HSE-D-20	20	3760	3760	2150	≤190	740×1500
HSE-S-20	20	4280	3080	1500	≤180	730×1500
HSE-O-20	20	3850	3850	1500	≤140	700×1300
HSE-R-20	20	3840	3840	740	≤110	690×1150
HSE-L-20	20	3780	3780	2100	≤185	790×1390

## Lampiran 15

### Life Boat

Daivit-launched Life Boat [\[Back\]](#) [\[Search Related Products\]](#)

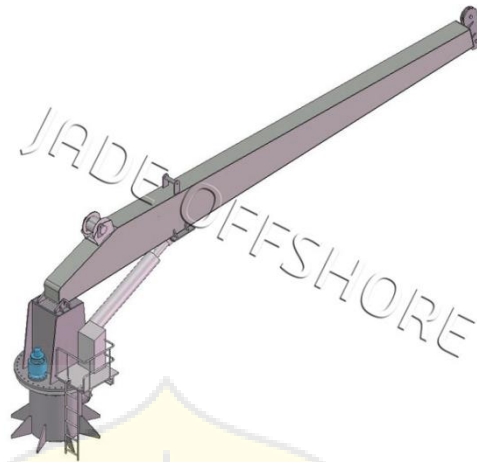


Specification:

Model	Dimension(M)	Person (Max.)	Speed(Kn)	Total Weight(Kg)	Engine
HSEM45	4.50 * 1.86 * 0.86	6	≥20	1165	60HP
HSEM50	5.05 * 1.86 * 0.86	10	≥20	1870	88HP
HSEM601	6.00 * 2.20 * 1.05	15	≥20	2418	60HP
HSEM602	6.00 * 2.20 * 1.05	15	≥25	2563	90HP
HSEM603	6.00 * 2.20 * 1.05	15	≥25	2599	60HP *2
HSEM651	6.50 * 2.20 * 1.05	15	≥27	2551	144HP
HSEM652	6.00 * 2.20 * 1.05	15	≥27	2646	160HP
HSEM653	6.00 * 2.20 * 1.05	15	≥27	2646	170HP
HSEM654	6.00 * 2.20 * 1.05	15	≥35	2591	212HP
HSEM655	6.00 * 2.20 * 1.05	15	≥35	2591	250HP

## Lampiran 16

### Hose Crane

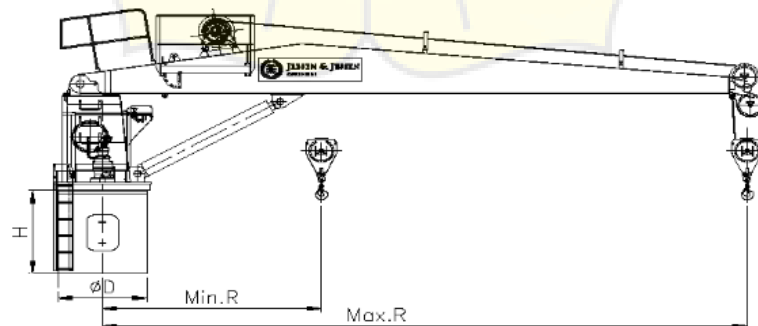


Design Specification

Model No	Lifting Capacity (T x m)	Min. Length R (m)	Max. Length R (m)	Pedestal Dia. OD (mm)	Pedestal Height H (mm)	Est. Power (kw)
FCRN40-2T8M	2T x 8m	2.7m	8m	920mm	1200mm	15kw
FCRN60-3T10M	3T x 10m	3.4m	10m	1020mm	1200mm	18.5kw
FCRN100-5T10M	5T x 10m	3.4m	10m	1270mm	1500mm	37kw
FCRN125-5T12M	5T x 12m	4.1m	12m	1420mm	1500mm	37kw
FCRN160-5T15M	5T x 15m	5.1m	15m	1620mm	1500mm	37kw
FCRN250-10T15M	10T x 15m	5.1m	15m	1820mm	1800mm	75kw
FCRN400-15Tx20M	15T x 20m	6.8m	20m	2020mm	1800mm	110kw
FCRN650-20Tx20M	20T x 20m	6.8m	20m	2260mm	1800mm	132kw
FCRN1300-25Tx25M	25T x 25m	8.5m	25m	2830mm	2000mm	160kw

## Lampiran 17

### Provision Crane



Model No	Lifting Capacity (T x m)	Min. Length R (m)	Max. Length R (m)	Pedestal Dia. OD (mm)	Pedestal Height H (mm)	Est. Power (kw)
FCRN40-2T8M	2T x 8m	2.7m	8m	920mm	1200mm	15kw
FCRN60-3T10M	3T x 10m	3.4m	10m	1020mm	1200mm	18.5kw
FCRN100-5T10M	5T x 10m	3.4m	10m	1270mm	1500mm	37kw
FCRN125-5T12M	5T x 12m	4.1m	12m	1420mm	1500mm	37kw
FCRN160-5Tx15M	5T x 15m	5.1m	15m	1620mm	1500mm	37kw
FCRN250-10Tx15M	10T x 15m	5.1m	15m	1820mm	1800mm	75kw
FCRN400-15Tx20M	15T x 20m	6.8m	20m	2020mm	1800mm	110kw
FCRN650-20Tx20M	20T x 20m	6.8m	20m	2260mm	1800mm	132kw
FCRN1300-25Tx25M	25T x 25m	8.5m	25m	2830mm	2000mm	160kw
FCRN1750-30Tx30M	30T x 30m	10.2m	30m	3170mm	2000mm	200kw
FCRN2600-40Tx35M	40T x 35m	12.0m	35m	4020mm	2200mm	250kw

## Lampiran 18 Pompa Ruang Muat



Parameters in case of power supply frequency of 50Hz

Type	(50Hz3φ380V) Main technical parameter					Motor type & power (kW)	Weight (Kg)
	Capacity (m3/h)	Head (m)	Speed (r/min)	NPSHr (m)	Shaft power (kW)		
150CWS-8.5	125	54	2950	2.9	25.2	Y200L2-2H37	147
	160	50		3.8	27.2		
	200	42		4.4	29.7		
150CWS-8.5A	105	44	2950	2.9	17.5	Y200L1-2H30	147
	140	40		3.8	20.3		
	170	35		4.2	21.9		
350CWS-6B	825	104	1450	3.7	329	450	1420
	1100	96		5.3	373.5		
	1320	83		6.5	408.5		
400CWS-13	1200	59	1450	3.8	248.6	355	1420
	1800	52		5.3	289.5		
	2100	45		6.3	312		
400CWS-13A	1160	54.5	1450	3.8	214.3	Y355L1-4H280	1420
	1740	45		5.3	250.7		
	2030	38		6.3	259.3		

Lampiran 19

Katalog Pelat

CALCULATED PLATE WEIGHT (FROM THICKNESS & SIZE)

Width x Length (in mm)	1219 x 2438	1219 x 6096	1524 x 3048	1524 x 6096	1524 x 9144	1524 x 12192	1829 x 6096	1829 x 12192	2133 x 6096	2133 x 12192	2438 x 6096	2438 x 12192	2743 x 6096	2743 x 12192	3048 x 6096	3048 x 12192	3353 x 6096	3353 x 12192	
Width x Length (in ft)	4' x 8'	4' x 20'	5' x 10'	5' x 20'	5' x 30'	5' x 40'	6' x 20'	6' x 40'	7' x 20'	7' x 40'	8' x 20'	8' x 40'	9' x 20'	9' x 40'	10' x 20'	10' x 40'	11' x 20'	11' x 40'	
Width x Length (in inch)	48 x 96	48 x 240	60 x 120	60 x 240	60 x 360	60 x 480	72 x 240	72 x 480	84 x 240	84 x 480	96 x 240	96 x 480	108 x 240	108 x 480	120 x 240	120 x 480	132 x 240	132 x 480	
Thickness (mm)																			
8	187	467	292	583	875	1.167	700	1.420	817	1.633	933	1.867	1.050	2.100	1.167	2.334	1.284	2.567	
9	210	525	328	656	985	1.313	785	1.575	919	1.837	1.050	2.100	1.181	2.363	1.313	2.625	1.444	2.888	
10	233	583	365	729	1.094	1.459	875	1.750	1.021	2.041	1.167	2.333	1.313	2.625	1.459	2.917	1.605	3.209	
12	280	700	438	875	1.313	1.750	1.050	2.101	1.225	2.450	1.400	2.800	1.575	3.150	1.750	3.501	1.925	3.851	
12.7	296	741	463	926	1.389	1.852	1.112	2.223	1.296	2.593	1.482	2.963	1.667	3.334	1.852	3.705	2.038	4.076	
14	327	817	511	1.021	1.532	2.042	1.225	2.451	1.429	2.858	1.633	3.267	1.838	3.675	2.042	4.084	2.246	4.493	
15	350	875	547	1.094	1.641	2.188	1.313	2.626	1.531	3.062	1.750	3.500	1.969	3.938	2.188	4.376	2.407	4.814	
18	373	933	583	1.167	1.750	2.334	1.400	2.801	1.633	3.266	1.867	3.733	2.100	4.200	2.334	4.667	2.567	5.134	
18	420	1.050	656	1.313	1.989	2.825	1.575	3.151	1.837	3.675	2.100	4.200	2.363	4.725	2.625	5.251	2.888	5.776	
19	443	1.108	693	1.386	2.078	2.771	1.663	3.326	1.938	3.878	2.217	4.433	2.494	4.988	2.771	5.543	3.049	6.087	
20	467	1.167	729	1.459	2.188	2.917	1.750	3.501	2.041	4.083	2.333	4.667	2.625	5.250	2.917	5.834	3.209	6.418	
22	513	1.283	802	1.604	2.407	3.209	1.926	3.851	2.246	4.491	2.567	5.133	2.888	5.776	3.209	6.418	3.530	7.060	
24	560	1.400	875	1.750	2.625	3.501	2.101	4.201	2.450	4.899	2.800	5.600	3.150	6.301	3.501	7.001	3.851	7.702	
25	583	1.458	912	1.823	2.735	3.646	2.188	4.376	2.552	5.104	2.917	5.833	3.282	6.563	3.646	7.293	4.011	8.023	
25.4	593	1.482	926	1.852	2.779	3.705	2.223	4.446	2.593	5.385	2.963	5.927	3.334	6.668	3.705	7.410	4.076	8.151	
26	607	1.517	948	1.896	2.844	3.792	2.276	4.531	2.654	5.308	3.033	6.087	3.413	6.828	3.792	7.585	4.172	8.344	
28	653	1.633	1.021	2.042	3.063	4.084	2.451	4.901	2.858	5.716	3.267	6.533	3.675	7.351	4.084	8.168	4.493	8.985	
30	700	1.750	1.094	2.188	3.282	4.376	2.626	4.251	3.062	6.124	3.500	7.000	3.938	7.875	4.376	8.751	4.814	9.627	
32	747	1.867	1.167	2.334	3.501	4.667	2.801	5.602	3.266	6.533	3.733	7.467	4.200	8.401	4.667	9.335	5.134	10.269	
36	840	2.100	1.313	2.625	3.938	5.251	3.151	6.302	3.675	7.349	4.200	8.400	4.725	9.451	5.251	10.502	5.776	11.553	
38	887	2.217	1.386	2.771	4.157	5.543	3.326	6.552	3.879	7.757	4.433	8.867	4.988	4.976	5.543	11.085	6.097	12.194	
40	933	2.333	1.459	2.917	4.376	5.834	3.501	7.002	4.083	8.166	4.667	9.333	5.250	10.501	5.834	11.669	6.418	12.836	
45	1.050	2.625	1.641	3.282	4.923	6.564	3.939	7.877	4.593	9.186	5.250	10.500	5.907	11.814	6.564	13.127	7.220	14.441	
50	1.166	2.917	1.823	3.646	5.470	7.293	4.376	8.792	5.104	10.207	5.833	11.667	6.563	13.126	7.293	14.586	8.023	16.045	
55	1.283	3.208	2.005	4.011	6.017	8.022	4.814	9.628	5.614	11.278	6.417	12.883	7.219	14.439	8.022	16.044	8.825	17.650	
60	1.400	3.500	2.188	4.376	6.564	8.751	5.251	10.503	6.124	12.249	7.000	14.000	7.876	15.751	8.751	17.503	9.627	19.254	
65	1.516	3.792	2.370	4.740	7.111	9.481	5.689	11.378	6.635	13.269	7.583	15.167	8.582	17.064	9.481	18.962	10.429	20.859	
70	1.633	4.083	2.553	5.105	7.658	10.210	6.127	12.253	7.145	14.290	8.167	16.333	9.188	18.377	10.210	20.420	11.232	22.463	
75	1.750	4.375	2.735	5.470	8.204	10.939	6.564	13.129	7.655	15.311	8.750	17.500	9.845	19.689	10.939	21.879	12.034	24.068	
80	1.866	4.667	2.917	5.834	8.751	11.669	7.002	14.004	8.166	16.331	9.333	18.667	10.501	21.002	11.669	23.337	12.836	25.672	
85	1.983	4.958	3.099	6.199	9.298	12.398	7.440	14.879	8.676	17.352	9.917	19.833	11.157	22.315	12.398	24.796	13.639	27.277	
90	2.100	5.250	3.282	6.564	9.845	13.127	7.877	15.754	9.186	18.373	10.500	21.500	11.814	23.627	13.127	26.254	14.441	28.882	
95	2.216	5.542	3.464	6.928	10.392	13.866	8.315	16.630	9.697	19.394	11.083	22.167	12.470	24.940	13.866	27.713	15.243	30.486	



## Lampiran 20

### Oil Water Separator



Model	YWC-									
Technical Specifications	0.25	0.5	1	1.5	2	2.5	3	4	5	
Rated capacity(m <sup>3</sup> /h)	0.25	0.5	1	1.5	2	2.5	3	4	5	
Oil content of the discharged water	≥15ppm									
Power of the electric heater (kw)	1kw	3kw	6	6	6	6	6	12	12	
Electrical System	AC 380V/50Hz/3φ, AC 415V/50Hz/3φ, AC 440/60Hz/3φ, AC 480V/60HZ/3φ (optional)									
Power of the electric motor	0.37kw	0.55kw	0.75kw	1.1kw	1.1kw	1.5kw	1.5kw	2.2kw	2.2kw	
Suction head	≥6m-H <sub>2</sub> O									
Pressure of the discharged water	5-10m-H <sub>2</sub> O									
Outline Dimension (L*W*H) (mm)	1000*600*1250	1100*690*1460	1050*1000*1620	1100*1130*1650	1900*1120*1700	1900*1120*1900	1700*1500*1900	2280*1700*1900	2590*2000*1900	
Base	5#	6#	6#	6#	8#	8#	8#	10#	10#	
Weight	Dry Weight	400	600	800	1060	1260	1500	1800	2100	2500
	Wet Weight	550	900	1200	1650	2260	2800	3200	3900	4600
Applicable Vessel (KDWT)	<1	1-5	5-10	10-30	30-50	50-100	100-200	100-300	>300	

## Lampiran 21

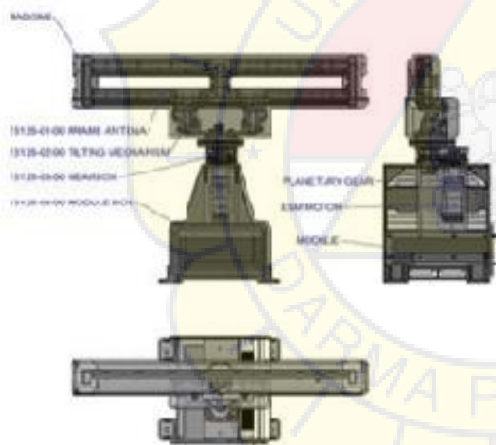
### Kompas Magnetik



Project	Data
Dial Diameter	Φ 130mm
Dial graduation	0° ~ 360° 1° for each grid
Using temperature	-20°C ~ 50°C
Indicating deviation (H=35 μ T, T=20 ± 3°C)	≤ 1.5°
Half period (H=35 μ T, T=20 ± 3°C)	≥ 5.59 S
Friction deviation (H=35 μ T, T=20 ± 3°C)	≤ 0.26°
Main semicircle self heterodyne correcting energy	1° ~ 40°
Quadrant self heterodyne correcting energy	1° ~ 5°
Inclining self heterodyne correcting energy	-75 ~ +75 μ T
Lighting power supply	AC 220V, DC 24V
Outline Dimension	330 x 200 x 270mm
Packing size	400 x 240 x 340mm
Diameter of mounting holes	Pitchrow118 Aperture Φ 6.5
weight	3kg

## Lampiran 22

### Radar



SYSTEMS	
DMX12-22	X-BAND 12KW RADAR SYSTEM WITH 22" DISPLAY
DMX12-20	X-BAND 12KW RADAR SYSTEM WITH 20" DISPLAY
SPECIFICATION	
FREQUENCY BAND	X-BAND
FREQUENCY	9.4 GHz
PEAK POWER	12KW
MAGNETRON LIFE	10,000 HRS TYPICAL
SIGNAL PROCESSING	N/A
RECEIVER IF FREQUENCY	75MHz
MINIMUM RANGE	< 40m
ANTENNA LENGTH	1.5m
MASS	25kg



## Lampiran 23

### *Echo Sounder*



Model	ES9000-08
Ukuran layar	8" TFT LCD warna
Resolusi	800 x 600
Eksternal dimensi	225mmx225mmx113.5mm
Pengolahan	Sinyal digital Processing(DSP)
Bahasa	Cina, Inggris, Korea, Vietnam
Rentang tegangan	12 ~ 36V DC
Frekuensi	200KHz
Output daya Transmit	300 ~ 600W
Tingkat emisi	3600 kali/menit di atas
Panjang pulsa	0,12 ~ 3.0ms
Ketepatan ukur	0.1m
Terendah buta	0, 2 m
Sensitivitas	7 dB $\mu$ V
Berbagai kedalaman	0 ~ 500m
Auto rentang	OFF/ON
Auto Gain	OFF/L/M/H
A-Mode	OFF/ON
Kedalaman Alarm	OFF/dalam kisaran / keluar jangkauan
Tegangan Alarm	OFF/ON
Skala Line	OFF/ON
Kekacauan	Ya
Memperkuat Mode Zoom modus	OFF / bawah kunci/Auto Zoom/Manual Zoom
Gambar muka kecepatan	7 langkah (berhenti, 1/8, 1/4, 1/2, x 1, x2, x3)
Warna latar belakang	8 macam
Bermacam-macam warna	256 warna
STC	OFF/L/M/H
Kekuatan TX	OFF/L/M/H
Kartu SD	Fungsi penyimpanan dan replay, pembaruan perangkat lunak
Ekspansi Mode	X2, X4, X8, XR (sebenarnya resolusi)
Kedalaman Unit	Meter(m), Feet(ft), Fathom(fa)
Jarak aman Kompas	$\approx$ 1.5 m
Antarmuka	NMEA0183 Masukan: GPS informasi (GGA, RMC, VTG)
	NMEA0183 Output: kedalaman Data (DPT, DBT)
	Antarmuka serial cetak: cocok untuk printer DPU-414
	Transduser antarmuka: x 1 Kekuatan antarmuka: DC 24V
Lingkungan	Suhu: -10°C ~ 40°C
	Perlindungan tingkat: tuan rumah mesin: IP23, transduser: IP66
Sertifikasi	CCS sertifikat

## Lampiran 24

### GPS (*Global Positioning System*)



#### Specifications :

##### Display Unit

Screen Type 4.2" Color LCD

Screen Resolution 480 (V) x 272 (H) pixels

GPS Antenna External

Display Modes Plotter, Highway, Steering, NAV Data, Satellite monitor, User Display (Digital, Speedometer, COG)

Language English, French, Spanish, Chinese, Vietnamese, Malay, Indonesian, Thai

GPS / SBAS (WAAS/EGNOS/MSAS)

Receiving Type GPS: 12 channels parallel, 12 satellites tracking, C/A code, all-in-view

SBAS: 2 channels

Receiving Frequency L1 (1575.42 MHz 1.023 MHz)

Accuracy GPS: 10 m (95% of the time, HDOP4)

WAAS: 3 m (95% of the time, HDOP4)

MSAS: 7 m (95% of the time, HDOP4)

##### PLOTTER

Memory Capacity 3,000 ship's track points

10,000 waypoints with comments

100 routes with 30 waypoints/route

##### OTHERS

Waterproofing Display unit: IP55

Antenna unit: IP56

Power Supply 12-24 VDC : 0.7-0.3 A

Weight 0.86 kg (Bracket mount)

## Lampiran 25

### Pillar



The versatile spiral-welded steel pipes are popular among differe & gas industries, building construction, and water/liquid distribut pipe product is often used for foundation piling, liquid flow distrib jetty construction.

At GRP, we produced our pipe with the automatic double-side ! (S.A.W) technology to ensure the great consistency of our weldi final product.

For a specific work project, we are able produce the spiral-weldi ferent thickness and the diameter of up to 64" OD. In addition, additional coating services with different type of material to the project's requirement.

Available Size :  $\phi$  6.5" -  $\phi$  120" (Outside Diameter)  
Annual Capacity : 48.000 MT/Year

#### Standard & Specification

Standard	Main Application	Grade	Standard	Main Application	Grade	Standard	Main Application	Grade	
API 5L	High strength oil & gas pipelines, slurry lines, refinery piping, etc.	A 25 Cl 1	ASTM A 252	Piping	1	DIN 1626	General Application	US 37 - 1	
		A 25 Cl 1			2			RS 37 - 1	
		A			3			US 37 - 2	
		B			ASTM A 36			RS 37 - 2	
		X 42			ASTM A 283			C	SI 37 - 3
					D			US 42 - 1	
		X 46			30			RS 42 - 1	
					33			US 42 - 2	
		X 52			36			RS 42 - 2	
					40			SI 42 - 3	
	45	320	---						
	X 55	NE/CE			360	---			
	X 60	NE/CE			430	---			
	X 65	NE/CE							
	X 70	NE/CE							
	X 80	NE/CE							

Outside Diameter	Thickness																				
	4	5	6	7	8	9	10	11	12	12.7	13	14	15	16	17	18	19	20	21		
7	177.8	17.34	25.42	33.50	37.48	43.36	45.35	48.26	51.71	52.83	56.35	60.22	63.84	67.41	70.93	74.40	77.83	81.20			
8	203.2	19.65	28.58	38.51	48.32	47.64	53.14	55.56	59.69	60.97	66.22	69.82	73.86	78.06	82.23	86.31	90.25	94.35			
10	254.0	24.66	36.69	48.53	54.38	60.17	65.52	71.61	75.57	77.25	82.86	88.41	93.91	99.36	104.76	110.13	115.41	120.68			
12	304.8	29.67	44.21	58.33	63.65	71.70	79.70	85.85	91.48	93.55	100.40	107.20	113.85	120.65	127.33	133.81	140.46	146.97			
14	355.6	34.68	51.73	68.57	76.82	85.22	93.48	101.58	107.99	109.83	117.99	125.99	133.89	141.85	149.85	157.73	165.53	173.28			
16	406.4	39.69	58.74	78.40	88.20	97.75	107.25	116.71	123.99	126.12	135.42	144.29	153.64	163.24	172.40	181.53	190.57	199.38			
18	457.2	44.70	66.76	88.42	98.47	110.28	121.04	131.74	139.21	142.40	153.01	163.57	174.08	184.94	194.96	205.31	215.63	225.89			
20	508	49.71	74.28	98.64	110.75	122.81	134.82	146.78	155.52	158.69	170.55	182.36	194.12	205.84	217.50	229.12	240.68	252.25			
22	558.8	54.73	81.79	108.65	122.02	135.33	148.50	161.81	171.03	174.97	188.09	201.15	214.17	227.13	240.05	252.92	265.74	278.51			
24	609.6	59.74	89.31	118.68	133.95	147.86	161.38	176.84	188.94	193.29	206.62	219.84	234.21	248.43	262.60	276.72	290.79	304.81			
26	660.4	64.75	96.83	128.71	144.37	160.35	176.58	191.87	207.85	207.54	223.16	238.73	254.25	269.73	285.15	300.52	315.85	331.12			
28	711.2	69.76	104.34	138.71	155.85	172.92	189.94	206.91	223.76	223.83	240.70	257.52	274.30	291.02	307.70	324.32	340.90	357.43			
30	762	74.77	111.86	148.75	167.13	185.64	203.72	221.94	239.67	240.11	258.24	276.32	294.34	312.32	330.25	348.13	365.95	383.73			
32	812.8	79.78	119.37	158.77	178.40	197.97	217.50	236.97	256.58	256.40	275.78	295.11	314.29	333.42	352.50	371.53	391.02	410.04			
34	863.6	84.79	126.88	168.79	189.67	210.50	231.28	252.01	266.40	272.69	293.32	313.90	334.43	354.91	375.34	395.73	416.06	436.35			
36	914.4	89.80	134.41	178.81	200.94	223.03	245.08	267.24	289.40	289.97	310.95	332.89	354.47	376.31	397.80	419.53	441.13	462.66			
38	965.2	94.81	141.92	188.84	212.22	235.55	258.84	282.07	305.31	305.26	328.39	351.48	374.52	397.50	420.44	443.33	466.17	488.95			
40	1016	99.82	149.44	198.86	223.69	248.08	271.87	297.50	323.23	323.54	347.63	371.77	395.86	419.90	443.94	467.93	491.29	515.27			
42	1066.8	104.83	156.96	208.88	234.77	260.61	286.40	312.14	338.13	337.83	363.47	389.05	414.60	440.10	465.54	490.94	516.28	541.58			
44	1117.6	109.85	164.47	218.90	246.04	273.13	300.18	327.17	354.03	354.11	381.01	407.85	434.65	461.39	488.09	514.74	541.34	567.89			
46	1168.4	114.86	171.99	228.92	257.32	285.66	313.96	342.20	369.94	370.40	398.35	426.64	454.69	482.69	510.64	538.54	566.39	594.19			
48	1219.2	119.87	179.51	238.95	268.59	298.15	327.74	357.23	387.83	388.68	418.08	445.43	474.73	503.95	533.16	562.34	591.43	620.50			
50	1270	124.88	187.02	248.97	279.87	310.72	341.52	372.27	398.76	402.87	433.62	464.22	494.78	525.28	555.74	586.14	616.50	646.81			
52	1320.8	129.89	194.54	258.99	291.54	323.24	355.30	387.30	409.67	413.23	445.16	481.02	514.82	548.58	582.29	615.95	649.53	683.11			
54	1371.6	134.90	202.05	269.01	302.42	335.77	369.08	402.33	425.58	429.54	462.70	501.81	534.87	567.88	600.84	633.75	666.63	699.42			
56	1422.4	139.91	209.57	279.03	313.83	348.30	382.85	417.37	441.49	445.83	480.24	520.60	554.81	588.17	621.38	654.55	687.66	720.73			
58	1473.2	144.92	217.06	289.05	324.93	360.83	396.54	432.40	457.40	462.11	500.77	539.99	574.85	609.47	643.93	678.33	712.73	747.04			
60	1524	149.93	224.60	299.08	336.24	373.33	410.42	447.43	473.31	478.40	520.31	561.18	595.00	631.76	668.48	705.15	741.77	778.34			
62	1574.8	154.94	232.13	309.10	347.31	385.86	424.20	462.46	489.22	495.68	539.85	579.97	615.04	653.06	691.03	728.95	766.83	804.66			
64	1625.6	159.95	239.64	319.12	358.79	398.41	437.98	477.50	505.53	512.37	558.39	595.75	635.08	674.32	713.58	752.76	791.85	830.94			

Weight/M (Kg/M) = (OD-T) x T x 0.2466

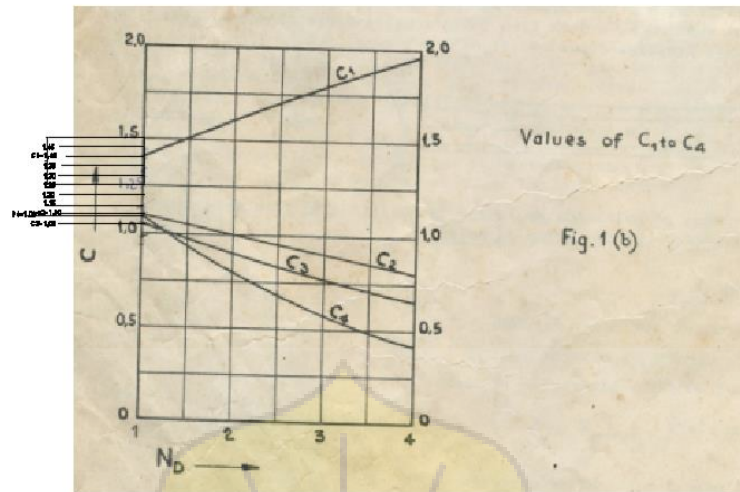
Net Available

NOTE : Non standard size are available upon request and subject to minimum quantity.

OD = Outside Diameter (mm)  
T = Thickness (mm)

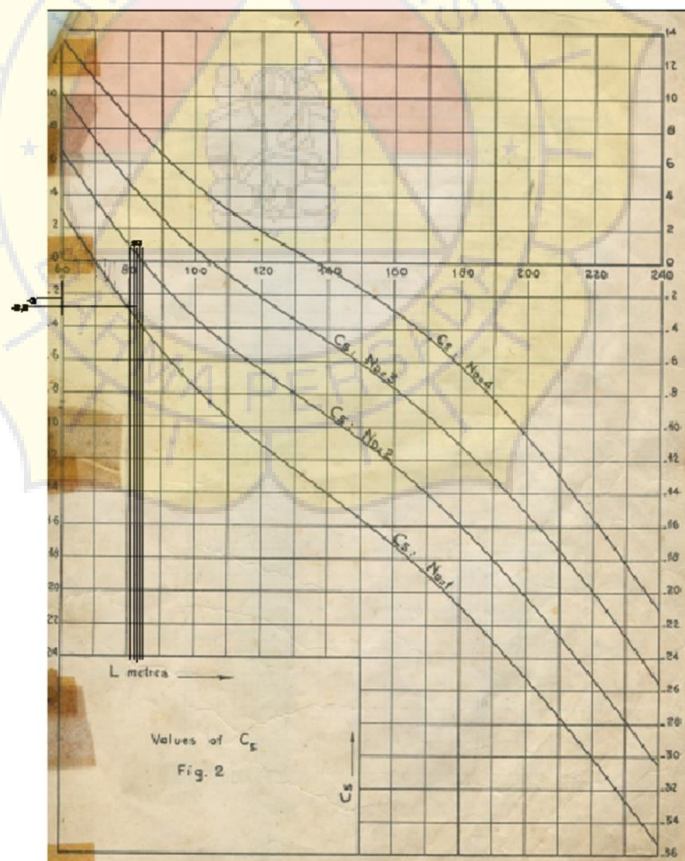
### Lampiran 26

#### Grafik Pembacaan Nilai C1, C2, C3, C4



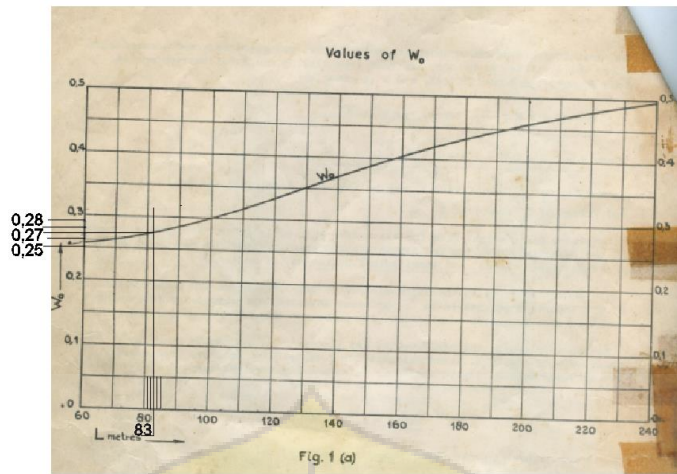
### Lampiran 27

#### Grafik Pembacaan Nilai C5



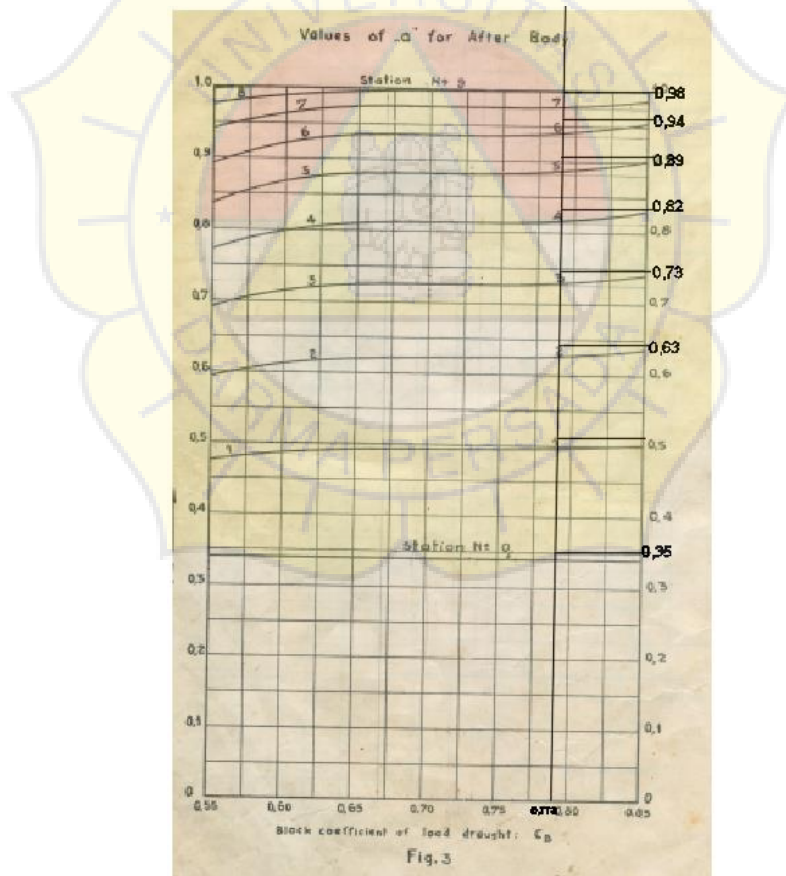
**Lampiran 28**

**Grafik Pembacaan Nilai  $W_0$**



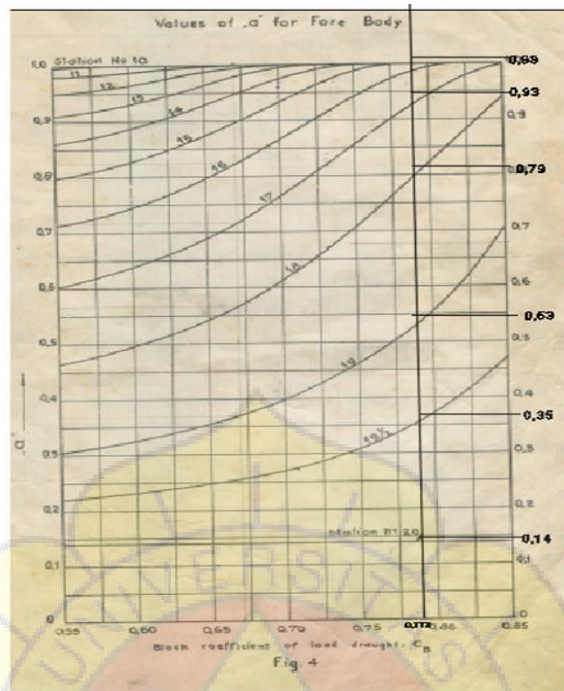
**Lampiran 29**

**Grafik Pembacaan Nilai Station AP - 9**



### Lampiran 30

#### Grafik Pembacaan Nilai *Station 10-20*



### Lampiran 31

#### Grafik Pembacaan Nilai *S*

