



BAB X PENUTUP

X.1. Kesimpulan

Dari perencanaan yang telah dilakukan terhadap kapal *Supply Vessel 2 X 2900 HP* dengan ukuran kapal :

<i>Length Over All</i>	(LOA)	= 66,00 m
<i>Length Water Line</i>	(LWL)	= 63,40 m
<i>Length Between Perpendicular</i>	(LPP)	= 59,20 m
<i>Breadth Moulded</i>	(B mld)	= 12,40 m
<i>Height Moulded</i>	(H mld)	= 5,50 m
<i>Draft Moulded</i>	(T mld)	= 4,60 m
<i>Coefficient Block</i>	(Cb)	= 0,716
<i>Coefficient Midship</i>	(Cm)	= 0,987
<i>Coefficient Waterline</i>	(Cw)	= 0,899
<i>Coefficient Prismatic</i>	(Cp)	= 0,725
<i>Displacement</i>	(Δ)	= 2478,21 ton
<i>Volume Displacement</i>	(∇)	= 2417,765 m ³
<i>Speed</i>	(Vs)	= 14,00 Knots
<i>WSA</i>	(s)	= 1037,940 m ²

Motor penggerak utama dipilih mesin diesel empat langkah dengan merek :

<i>Merk</i>	= MAK
<i>Tipe</i>	= 12 M282
<i>Daya</i>	= (2200 KW / 2993 HP) X 2
<i>Speed</i>	= 900 Rpm

Dan 2 unit mesin generator dengan merek:

<i>Merk / Tipe</i>	= YANMAR 6NY16L-UN
<i>Daya motor</i>	= 320 KW
<i>RPM</i>	= 1200 rpm
<i>Jumlah silinder</i>	= 6
<i>Jumlah</i>	= 2 unit



Mesin – mesin pendukung kerja mesin induk antara lain :

➤ Kompresor udara

Merk : J.P. SAUER & SOHN MASCHINENBAU GMBH

Type : WP 200

➤ Fuel Oil Transfer Pump

Merk : TAIKO

Type : HG-50

➤ Fuel Oil Supply Pump

Merk : TAIKO

Type : HG-50

➤ L.O Pump

Merk : TAIKO

Type : CIT-200

➤ Sistem Pendingin Air Laut

Merk : Taiko

Type : EHC-130C

➤ Sistem pendingin Air Tawar

Merk : TAIKO

Type : EMC-125C

➤ Sistem Bilga

Merk : TAIKO

Type : EHS-51B

➤ Sistem Balllast

Merk : TAIKO

Type : EHS-101D



➤ Pompa Sanitary Air Tawar

Merk : Taiko
Type : TMC-40A

➤ Pompa Sanitary Air laut

Merk : Taiko
Type : TMC-40A

➤ Sistem Pemadam Kebakaran

Merk : Taiko
Type : EMCN-125MB

➤ Sistem Sewage

Merk : TAIKO
Type : TMC – 32

➤ Mesin Kemudi

Merek : Bochi
Type : BMMDESGSR-003

➤ Mesin Jangkar

Merek : Deyuan Marine
Type : Mooring Winch 10837-699

➤ Mesin Capstan

Merek : Deyuan Marine
Type : Electric mooring rope capstan 10837-699

➤ Mesin Capstan

Merek : Deyuan Marine
Type : Electric mooring rope capstan 10837-699

Didalam perencanaan kamar mesin, tidak terlepas dari asumsi- asumsi yang diberikan untuk mempermudah dalam perhitungan dengan tidak mengabaikan tanggung jawab secara teknis, ekonomis dan peraturan- peraturan yang ada, sehingga hasil perhitungan dapat mendekati keadaan yang sebenarnya.

X.2. Saran

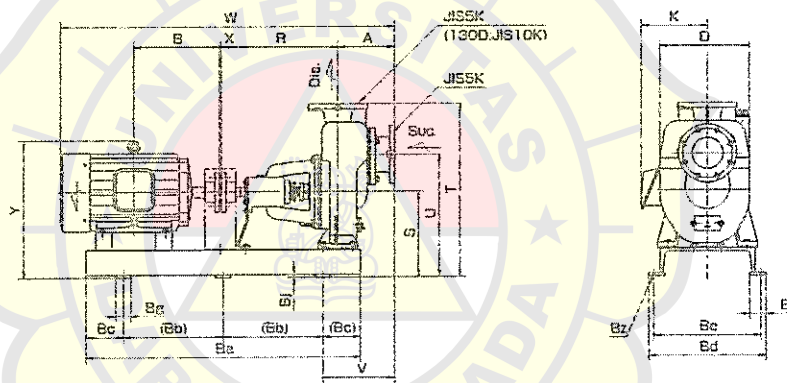
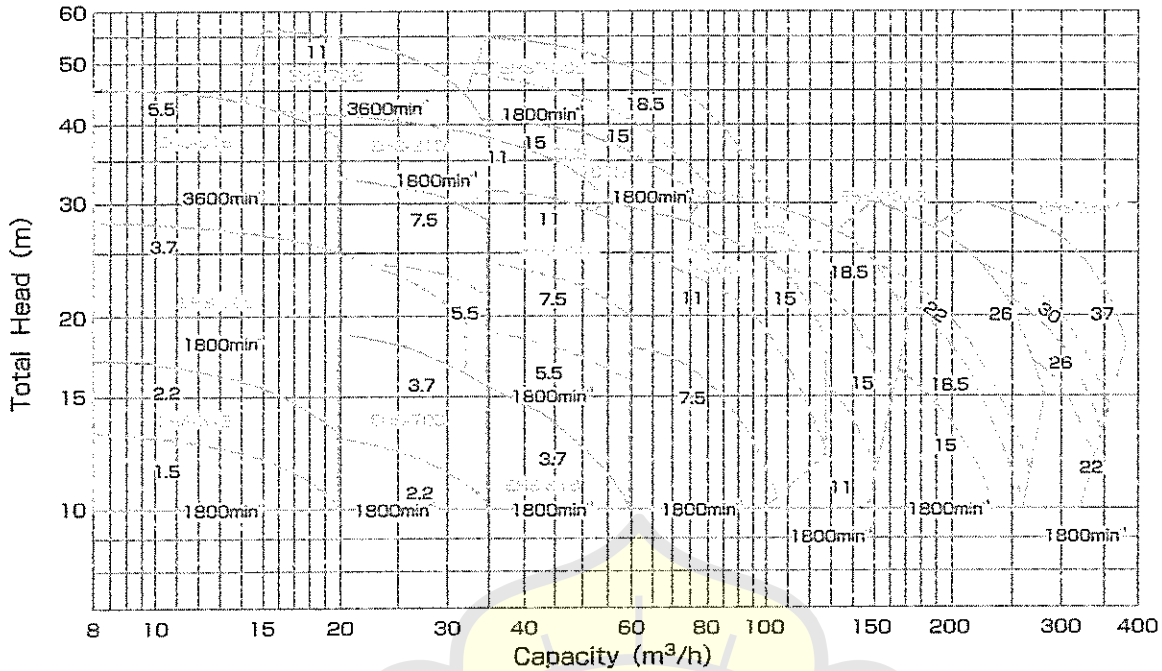
Terlepas dari sistem yang dipelajari selama ini ada beberapa hal yang perlu diberikan perhatian yaitu :

- Adanya kepercayaan dan kesempatan dari pemerintah terhadap galangan kapal yang masuk kategori menengah sehingga pembuatan kapal tidak dimonopoli oleh perusahaan besar dan melalui tender terbuka.
- Adanya peningkatan sumber daya manusia dalam dunia perkapalan, melalui media pendidikan dan pelatihan-pelatihan sehingga diharapkan tidak menggunakan tenaga asing.
- Pihak Jurusan mengadakan pusat informasi tentang Regulasi – regulasi terbaru khususnya tentang perencanaan kapal container, maupun kapal-kapal lain pada umumnya.



DAFTAR PUSTAKA

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Model No.	Motor		Bore		Dimension (mm)																					
	kW	min ⁻¹	Suc.	Dis.	A	B	C	K	R	S	T	U	V	W	X	Y	Ba	Bb	Bc	Bd	Be	Bf	Bg	Bh	Bz	
EHS-51B	1.5	1800	50	50	1/8	166.5	199	254	197	355	270	528	380	238	957	3	355	700	450	125	325	290	55	50	12	4-φ15
	2.2	3600			239	243	930		428	900	500	150	50													
	5.5	193			243	930	428		900	500	150	50														
EHS-70B	2.2	1800	65	65	189	200	262	212	355	270	538	380	248	944	3	416	800	500	125	325	290	55	50	12	4-φ15	
	3.7	323			295	944		3	416	800	500	150	50													
	11	323			295	944		3	416	800	500	150	50													
EHS-70C	3.7	1800	65	65	169	200	313	212	355	290	565	430	248	944	3	428	800	500	150	390	350	65	60	12	4-φ15	
	5.5	239			245	1000		800	550	175	50															
	7.5	239			245	1000		800	550	175	50															
EHS-81B	3.7	1800	80	80	230	200	278	212	365	290	565	400	300	936	3	438	800	500	150	390	350	65	60	12	4-φ15	
	5.5	239			245	1132		800	550	175	50															
	7.5	239			245	1132		800	550	175	50															
EHS-81C	7.5	1800	80	80	205	258	337	245	470	320	670	470	265	1132	3	479	1000	350	150	470	430	65	60	12	6-φ10	
	11	323			295	1171		550	1100	400	50															
	11	323			295	1286		550	1100	400	50															
EHS-81D	11	1800	80	80	215	323	384	285	470	345	720	520	275	1290	3	575	1100	400	150	470	430	65	60	12	6-φ10	
	15	323			295	1342		600	1100	400	150	470	450	65	60	12	6-φ10									
	15	323			295	1342		600	1100	400	150	470	450	65	60	12	6-φ10									
EHS-101D	7.5	1800	100	100	225	345	409	245	470	370	745	545	285	1191	3	503	1000	350	150	470	450	65	60	12	6-φ10	
	11	323			295	1308		600	1100	400	150	470	430	65	60	12	6-φ10									
	15	323			295	1348		600	1100	400	150	470	430	65	60	12	6-φ10									
EHS-130C	11	1800	125	125	225	323	358	295	470	345	700	485	285	1308	3	575	1100	400	150	470	430	65	60	12	6-φ10	
	15	323			295	1348		600	1100	400	150	470	430	65	60	12	6-φ10									
	15	323			295	1348		600	1100	400	150	470	430	65	60	12	6-φ10									
EHS-130D	15	1800	125	100	280	345	416	285	575	370	770	545	340	1508	3	600	1200	450	150	470	430	65	60	12	6-φ10	
	18.5	323			295	1520		630	1200	450	150	470	430	65	60	12	6-φ10									
	18.5	323			295	1520		630	1200	450	150	470	430	65	60	12	6-φ10									
EHS-151C	11	1800	150	150	285	345	353	295	470	345	720	520	345	1366	3	575	1100	400	150	470	430	65	60	12	6-φ10	
	15	323			295	1408		605	1100	400	150	470	430	65	60	12	6-φ10									
	18.5	323			295	1420		605	1100	400	150	470	430	65	60	12	6-φ10									
EHS-201C	15	1800	200	200	325	351.5	400	295	470	370	810	570	385	1448	3	630	1100	400	150	470	430	65	60	12	6-φ10	
	18.5	323			295	1498		600	1200	450	150	470	430	65	60	12	6-φ10									
	22	323			295	1498		600	1200	450	150	470	430	65	60	12	6-φ10									
EHS-251C	22	1800	250	250	335	370.5	500	320	530	430	960	660	365	1530	3	690	1200	450	150	550	500	65	60	25	6-φ10	
	28	323			295	1590		600	1200	450	150	550	500	65	60	25	6-φ10									
	37	323			295	1650		600	1200	450	150	550	500	65	60	25	6-φ10									

PRODUCT

we keep cargo on the move™



Reefering cranes
21 ton boom cranes

Hiab 401 L

Product Line: Hiab 401 L

- Hiab 401
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- Hiab 403
- Hiab 404
- Hiab 405
- Hiab 406
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- Hiab 408
- Hiab 409
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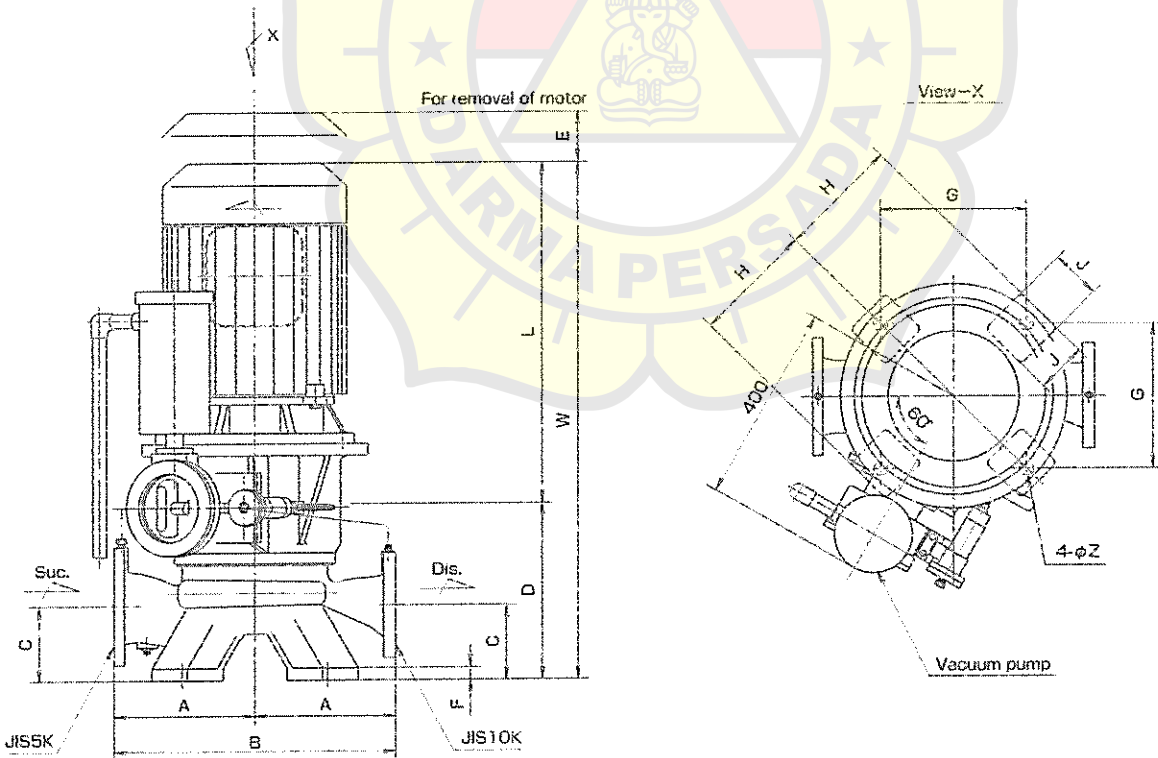
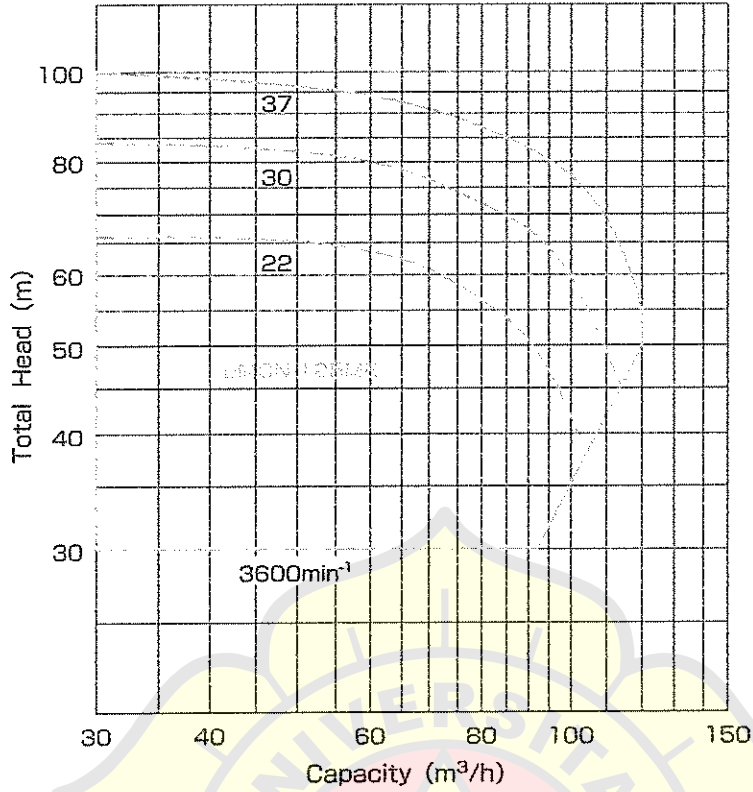
Customer Center
+62 31 225 8900



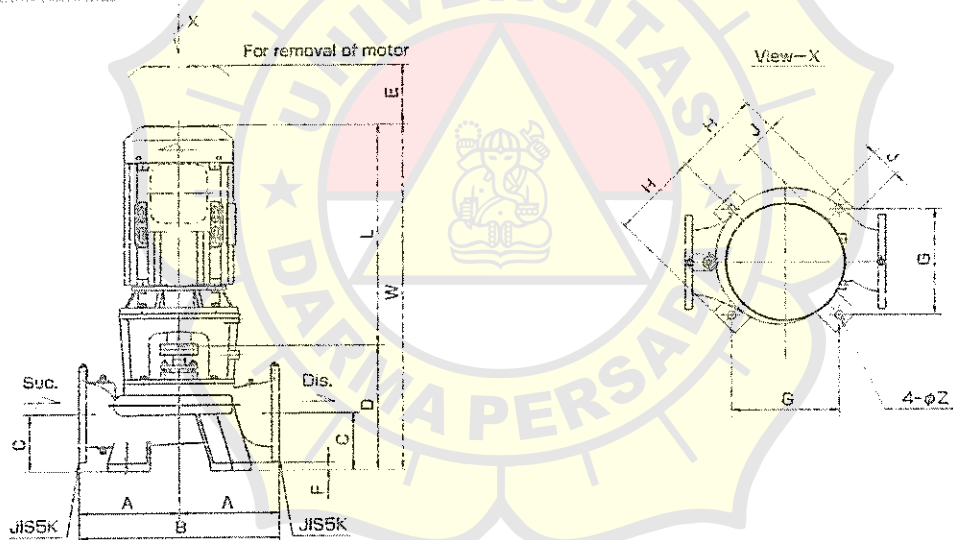
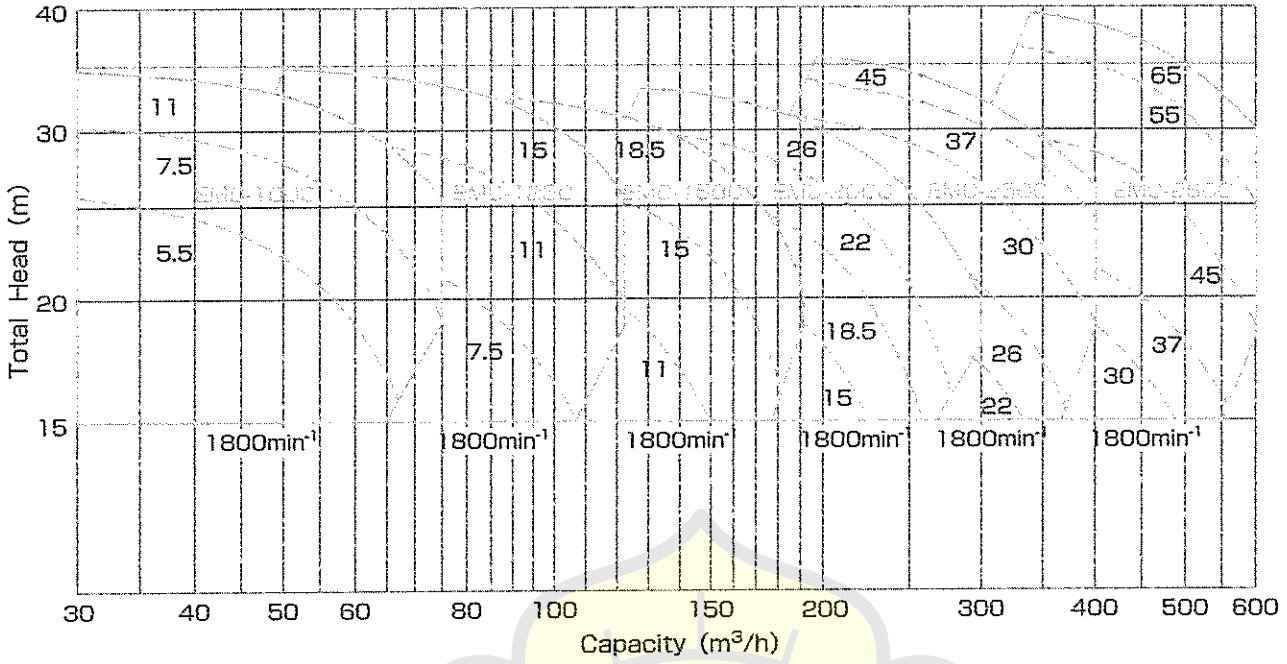
Model	Hiab 401L-2	Hiab 401L-3
Crane capacity	205kNm	205kNm
Max. outreach	14.0m	14.0m
Max. working height	16.1m	16.1m
Load capacity	60000kg 100000kg 120000kg	60000kg 100000kg 120000kg 140000kg
Weight	520kg	520kg
Lifting speed	80 t/min	
Rated working distance	200m	
Rated oil flow	60 l/min	
Slewing angle	360° continuous	
Max. heel/dip angle	5° heel 0° dip	
Slewing torque	65 tkm	
Slewing speed	1.0 sec	
Net required power	28.5kw	



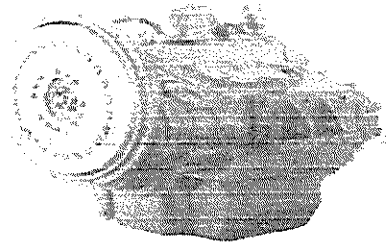
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Model No.	Motor		Bore		Dimension (mm)											
	kW	min ⁻¹	Suc.	Dis.	A	B	C	D	E	F	G	H	J	L	W	Z
EMCN-125MB	22	3600	125	100	260	560	150	365	250	25	290	240	100	685	1050	28
	30													725	1090	
	37													770	1135	



Model No.	Motor		Bore		Dimension (mm)											
	kW	min ⁻¹	Suc.	Dis.	A	B	C	D	E	F	G	H	J	L	W	Z
EMC-100C	5.5	1800	100	100	230	560	150	360	150	25	250	240	100	480	940	28
	7.5								200							
	11								150							
EMC-125C	7.5	1800	125	125	300	600	160	370	150	25	230	240	100	595	965	28
	11								200							
	15								635							
EMC-150C	11	1800	150	150	315	630	160	393	200	25	360	230	100	595	968	28
	15								635							
	18.5								635							
EMC-200C	15	1800	200	200	335	670	190	418	200	25	360	290	100	635	1053	28
	18.5								250							
	22								725							
	26								655							
EMC-250C	22	1800	250	250	400	600	220	490	200	25	410	325	100	725	1215	28
	26								250							
	30								800							
	37								725							
	45								800							
EMC-260C	30	1800	250	250	400	900	220	520	200	25	410	325	100	725	1245	28
	37								250							
	45								800							
	55								950							
	65								1050							



Model:135、135A Marine gearbox

Product No.:	FS-05		
Product Name:	Model: 135、135A Marine gearbox		
Transmission mode	Clutch	Input coupling	Engine speed
Five helical gears with three shafts	Hydraulic control, wet type multiplate clutch	Toothed rubber flexible coupling	750-2000rpm
Ratios and the corresponding transmission capacities			
Nomina ratios	Actual ratios	Transmission capacities(kW/rpm)	
2:1	2.03:1		
2.5:1	2.59:1		
3:1	3.04:1	0.100	
3.5:1	3.62:1		
4:1	4.11:1		
4.5:1	4.65:1	0.093	
5:1	5.06:1	0.088	
5.5:1	5.47:1	0.077	
6:1	5.81:1	0.070	
Rated Propeller thrust	Mechanical efficiency	Time required for reversal	Center distance
30000N	96%	≤10s	225mm
Direction of input shaft rotation	Direction of output shaft Rotation when ahead	Working oil pressure	Oil grade
(Facing the output end) anti-clockwise	Contrary to the input shaft	1.1-1.3Mpa	50000 or SAE50000 or SAE50 for stern in the stern zone
Oil capacity	Max. Oil temp	Cooling water consumption	Permissible angle of inclination
About 16L	≤80°C	≈2m ³ /h	10° longitudinally 15° transversely
Overhaul	Net weight	Outside dimensions	
Over 10,000h	450Kg	580 × 795 × 830(mm)	

Technical data

Features

1. Marine gearbox Model 135、135A has the capacities of ahead and astern,clutching and disclutching, reducing speed and carrying the propeller thrust.
2. The said gearbox possesses reliable construction, smooth clutching, easy maintenance, Beautiful shape.
3. Work stably, Low noise and durable application, particularly, big transmission power, small bulk and light weight.
4. All products are approved by ABS, BV, CCS, DNV, GL, LR, NK, etc. .Certificated of quality system ISO9001:2000.

2-Stage Water-Cooled Starting and Working Air Compressors

Up to date V arrangement of cylinders for low vibration and easy maintenance.

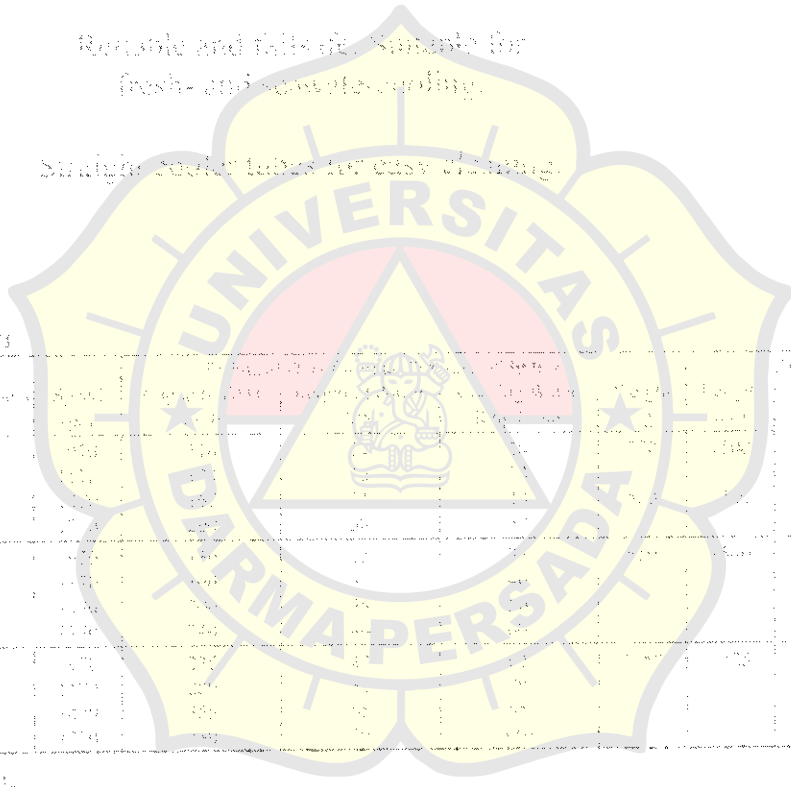
Strong design: crankshaft beared on both ends, side bearings for the connecting rods.

Reliable pressure oil lubrication.

Replaceable cylinder liners for low maintenance costs.

Removable and replaceable pistons for fresh- and seawater cooling.

Straight cooler tubes for easy cleaning.



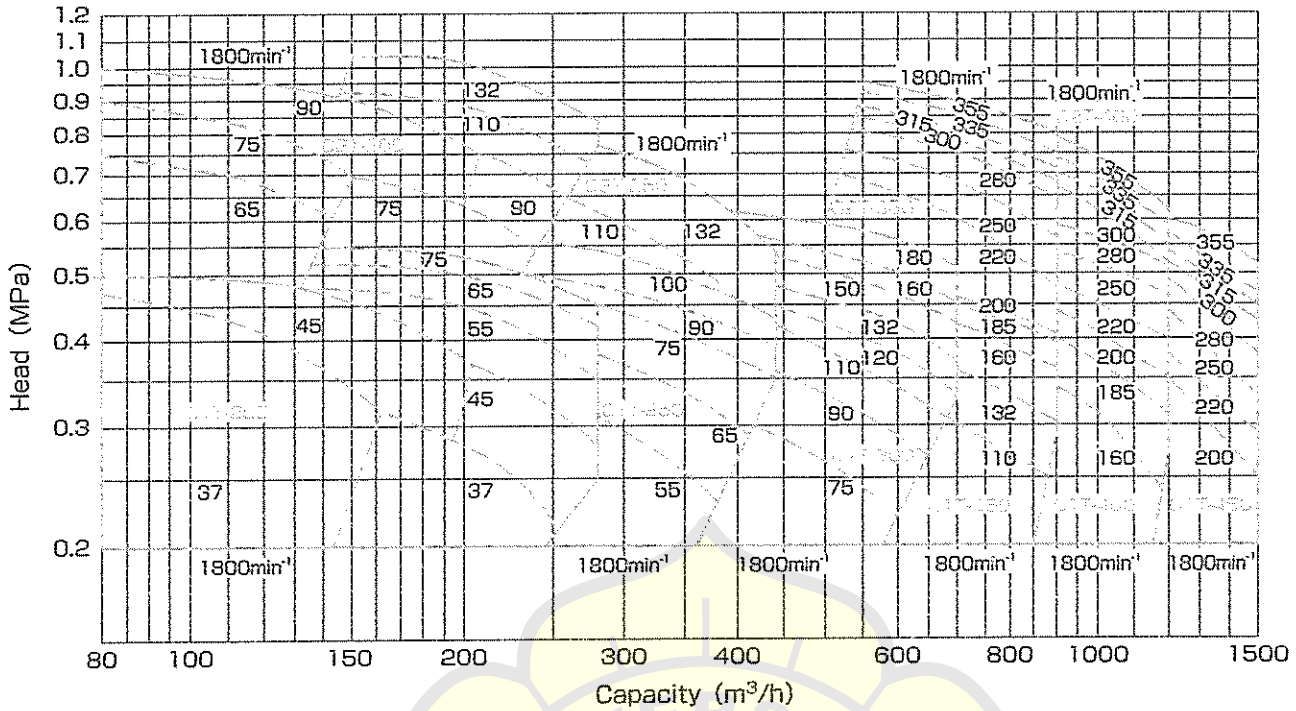
Technical Data Starting Air

Model	Capacity (m ³ /min)	Technical Data Starting Air			Technical Data Working Air		
		Rated Power (kW)	Rated Pressure (bar)	Rated Flow (m ³ /min)	Rated Pressure (bar)	Rated Flow (m ³ /min)	Rated Power (kW)
2000	1.0	11.0	7.0	1.0	7.0	1.0	11.0
2000	1.5	11.0	7.0	1.5	7.0	1.5	11.0
2000	2.0	11.0	7.0	2.0	7.0	2.0	11.0
2000	3.0	11.0	7.0	3.0	7.0	3.0	11.0
2000	4.0	11.0	7.0	4.0	7.0	4.0	11.0
2000	5.0	11.0	7.0	5.0	7.0	5.0	11.0
2000	6.0	11.0	7.0	6.0	7.0	6.0	11.0
2000	7.0	11.0	7.0	7.0	7.0	7.0	11.0
2000	8.0	11.0	7.0	8.0	7.0	8.0	11.0
2000	9.0	11.0	7.0	9.0	7.0	9.0	11.0
2000	10.0	11.0	7.0	10.0	7.0	10.0	11.0

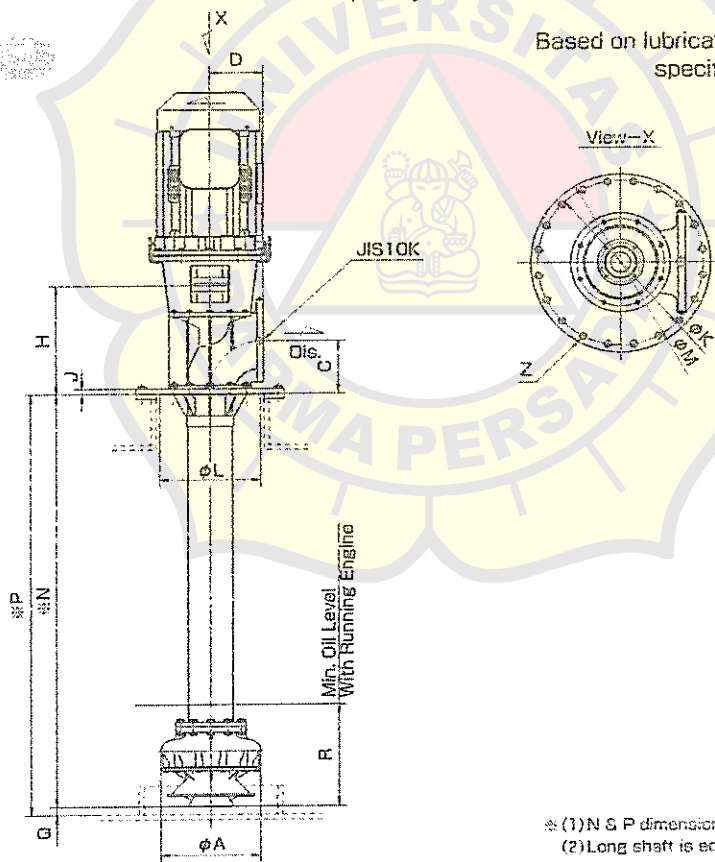
Technical Data Working Air

Model	Capacity (m ³ /min)	Technical Data Starting Air			Technical Data Working Air		
		Rated Power (kW)	Rated Pressure (bar)	Rated Flow (m ³ /min)	Rated Pressure (bar)	Rated Flow (m ³ /min)	Rated Power (kW)
2000	1.0	11.0	7.0	1.0	7.0	1.0	11.0
2000	1.5	11.0	7.0	1.5	7.0	1.5	11.0
2000	2.0	11.0	7.0	2.0	7.0	2.0	11.0
2000	3.0	11.0	7.0	3.0	7.0	3.0	11.0
2000	4.0	11.0	7.0	4.0	7.0	4.0	11.0
2000	5.0	11.0	7.0	5.0	7.0	5.0	11.0
2000	6.0	11.0	7.0	6.0	7.0	6.0	11.0
2000	7.0	11.0	7.0	7.0	7.0	7.0	11.0
2000	8.0	11.0	7.0	8.0	7.0	8.0	11.0
2000	9.0	11.0	7.0	9.0	7.0	9.0	11.0
2000	10.0	11.0	7.0	10.0	7.0	10.0	11.0

Technical data is subject to change without notice. The data is for reference only. The actual data may vary due to the manufacturing process and the quality of the materials used. The data is for reference only. The actual data may vary due to the manufacturing process and the quality of the materials used.



Based on lubrication oil at 75 mm²/S,
specific gravity 0.9



(1) N & P dimensions are adjusted to Tank depth.
(2) Long shaft is equipped with intermediate bearing.

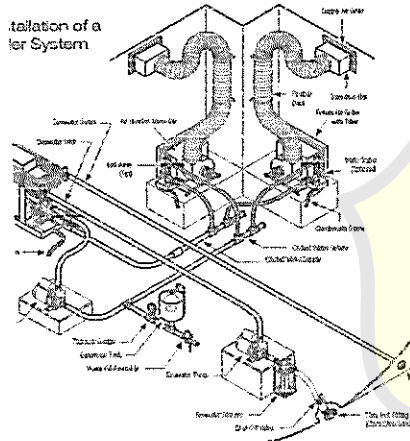
Model No.	Dimension (mm)													
	Bore Dia.	K	C	D	H	J	K	L	M	N	P	Q	R	Z
C1T-200	200	475	233	260	488	25	605	480	655	1710	1750	40	350	20-φ25
C1T-250	250	485	258	260	533	25	665	495	720	1620	1660	40	350	20-φ27
C1T-300	300	540	292	290	587	29	665	550	720	1775	1815	40	350	20-φ27
C1T-350	350	570	315	355	743	32	715	575	770	1865	2005	40	560	20-φ27
C1T-400	400	630	400	400	855	32	770	635	825	1940	1980	40	560	24-φ27
C1T-450	450	660	450	425	930	32	820	695	875	1930	1970	40	720	24-φ27
C2T-200	200	475	233	260	488	25	605	480	655	1650	1690	40	350	20-φ25
C2T-250	250	485	258	260	533	25	665	495	720	1820	1860	40	350	20-φ27
C2T-350	350	570	315	355	743	32	715	575	770	2340	2380	40	560	20-φ27
C2T-400	400	630	400	400	855	32	770	635	825	2400	2440	40	560	24-φ27

Technical Specifications for MCW Series

Model	1/2 HP	3/4 HP	1 HP	1 1/2 HP	2 HP	3 HP	4 HP	5 HP	6 HP
Weight (lb)	24,600	28,000	40,000	50,000	70,000	90,000	110,000	150,000	170,000
Height (in)	6,000	6,200	6,200	10,100	10,100	10,100	10,100	10,100	10,100
Depth (in)	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Width (in)	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000
Volume (cu ft)	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500

As shown in the accompanying drawings, a 24" dia. 1/2" thick plate is required to install the MCW Series. Contact the factory for additional information.

Installation of a Chilled Water System

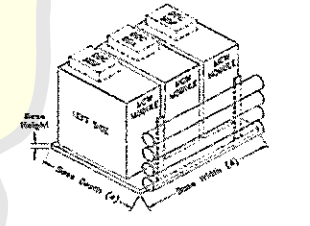
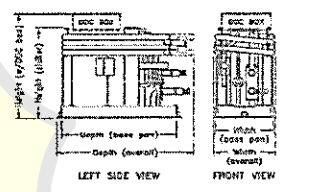


- Evaporator coils are factory installed (ECC) and are protected by a stainless steel mesh. The mesh is made of 304 stainless steel. The mesh is made of 304 stainless steel. The mesh is made of 304 stainless steel.
- Standard models operate at 60Hz and 50Hz. Models are available to operate at 480V, 240V, and 120V. Models are available to operate at 480V, 240V, and 120V.
- Remote air-cooled condenser coils are available. Remote air-cooled condenser coils are available. Remote air-cooled condenser coils are available.
- Each unit is pre-charged with R-134a and is factory sealed. Each unit is pre-charged with R-134a and is factory sealed. Each unit is pre-charged with R-134a and is factory sealed.
- Charge: Each unit is pre-charged with R-134a and is factory sealed. Charge: Each unit is pre-charged with R-134a and is factory sealed. Charge: Each unit is pre-charged with R-134a and is factory sealed.
- All units are covered with a protective plastic film. All units are covered with a protective plastic film. All units are covered with a protective plastic film.

MCW Chiller Physical Specifications
Domestic Corporation, Environmental Division - Marine Air Systems

Model	1/2 HP	3/4 HP	1 HP	1 1/2 HP	2 HP	3 HP	4 HP	5 HP	6 HP
Weight (lb)	24,600	28,000	40,000	50,000	70,000	90,000	110,000	150,000	170,000
Height (in)	6,000	6,200	6,200	10,100	10,100	10,100	10,100	10,100	10,100
Depth (in)	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Width (in)	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000

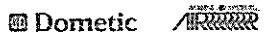
Model	1/2 HP	3/4 HP	1 HP	1 1/2 HP	2 HP	3 HP	4 HP	5 HP	6 HP
Weight (lb)	24,600	28,000	40,000	50,000	70,000	90,000	110,000	150,000	170,000
Height (in)	6,000	6,200	6,200	10,100	10,100	10,100	10,100	10,100	10,100
Depth (in)	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Width (in)	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000

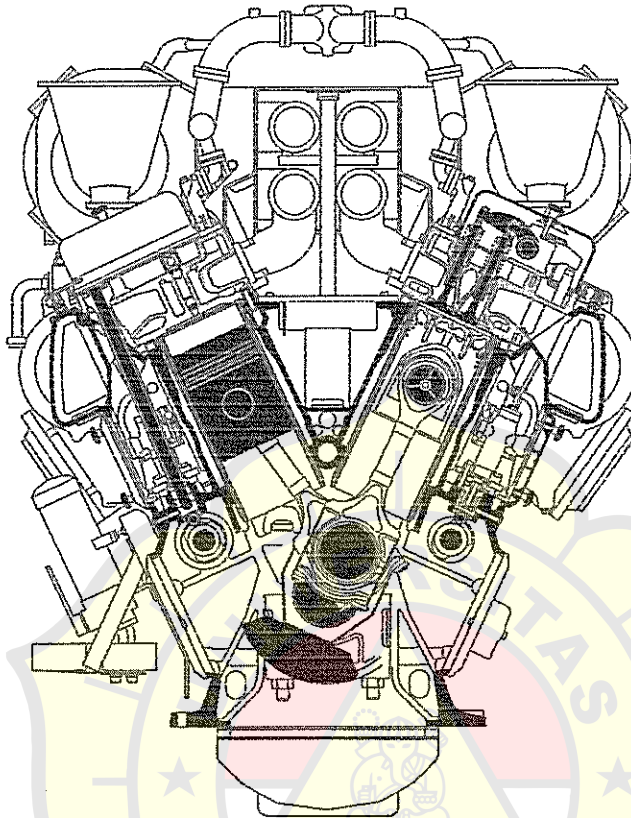


- Verify all critical dimensions with Domestic. All dimensions are given in inches and all extended weights are in pounds (4.54 kg).
- Dimension of base and top are 18" (457 mm) x 18" (457 mm). Dimension of base and top are 18" (457 mm) x 18" (457 mm).
- (1) For all models, add 1.0" (25.4 mm) to both base and top for mounting brackets.
- (2) Overall depth includes mounting brackets to base for 2" (50.8 mm) and condenser fans to base (see diagrams).
- (3) Add machine height and base height for overall height of a multi-stage chiller mounted on a base.
- (4) Manifold may extend up to 5.0" (127 mm) to front of unit and up to 7.0" (177.8 mm) to the side of base (see diagrams).
- (5) Use base dimensions of 7.5 for models for MCW 6 ton at 50 Hz.
- (6) Electrical connection for the chiller is made at a suitable point. It may be made at the base.
- (7) Add 1.0" (25.4 mm) to top & bottom for mounting tabs. Add a minimum clearance of 4.0" (101.6 mm) on bottom for base.
- (8) If a three-stage chiller has three heat exchangers, then use the three-stage chiller base size.
- (9) If using frequency drives, specify the rated drive motor size. If base is stainless steel (13.5), specify the rated size.

In the absence of product information, the specifications and design as defined herein are subject to change without notice.

Domestic Corporation
10000 E. 10th Avenue
Denver, CO 80231
Tel: 303-750-1000
Fax: 303-750-1001
www.domesticcorp.com



**V-Motor M 282
V-engine M 282**

Motortyp/Engine type	-	12 M 282
Bohrung/Bore	mm	240
Hub/Stroke	mm	280
Hubvolumen/Swept Volume	dm ³	152
Drehzahlbereich/Speed range	rpm	900 - 1000
Leistung/Output	kW	2200 - 2650

Motoraufbau 12 M 282

- Einteiliges Motorgehäuse aus Sphäroguß mit untergehängter Kurbelwelle
- Korrosionsfeste Haupt- und Pleuellager
- gebauter Kolben mit Aluminium-Hemd und Stahlkrone - Ringnuten gehärtet - nitriertgehärtete Laufbuchsen
- Ventilsitzringkühlung für Auslaßventil
- Motorkühlung durch 2-Kreis- oder verzweigte Einkreiskühlung
- Anwendung als Hauptmotor für den Propellerantrieb oder als Bordaggregat zur Stromerzeugung

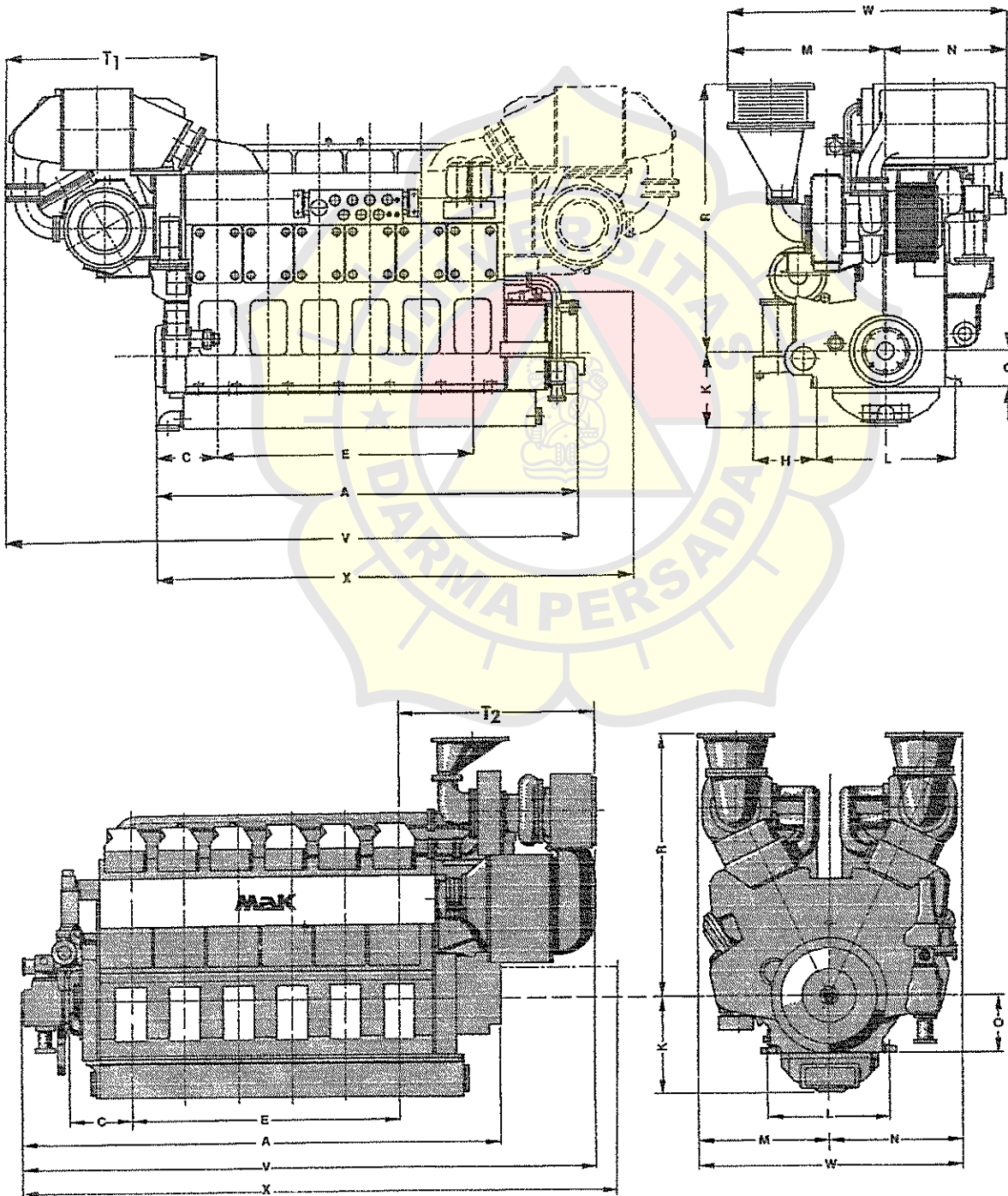
Engine design 12 M 282

- single-piece engine housing made of nodular cast iron with crankshaft underslung
- corrosion resistant main bearings
- piston with aluminium skirt and hardened steel crown snap ring grooves
- nitride hardened liners
- valve seat ring cooling for inlet and outlet valve
- engine cooling by 2 circuit cooling or branched single cooling
- to be used as main engine for the propeller drive or as generating set for power generation

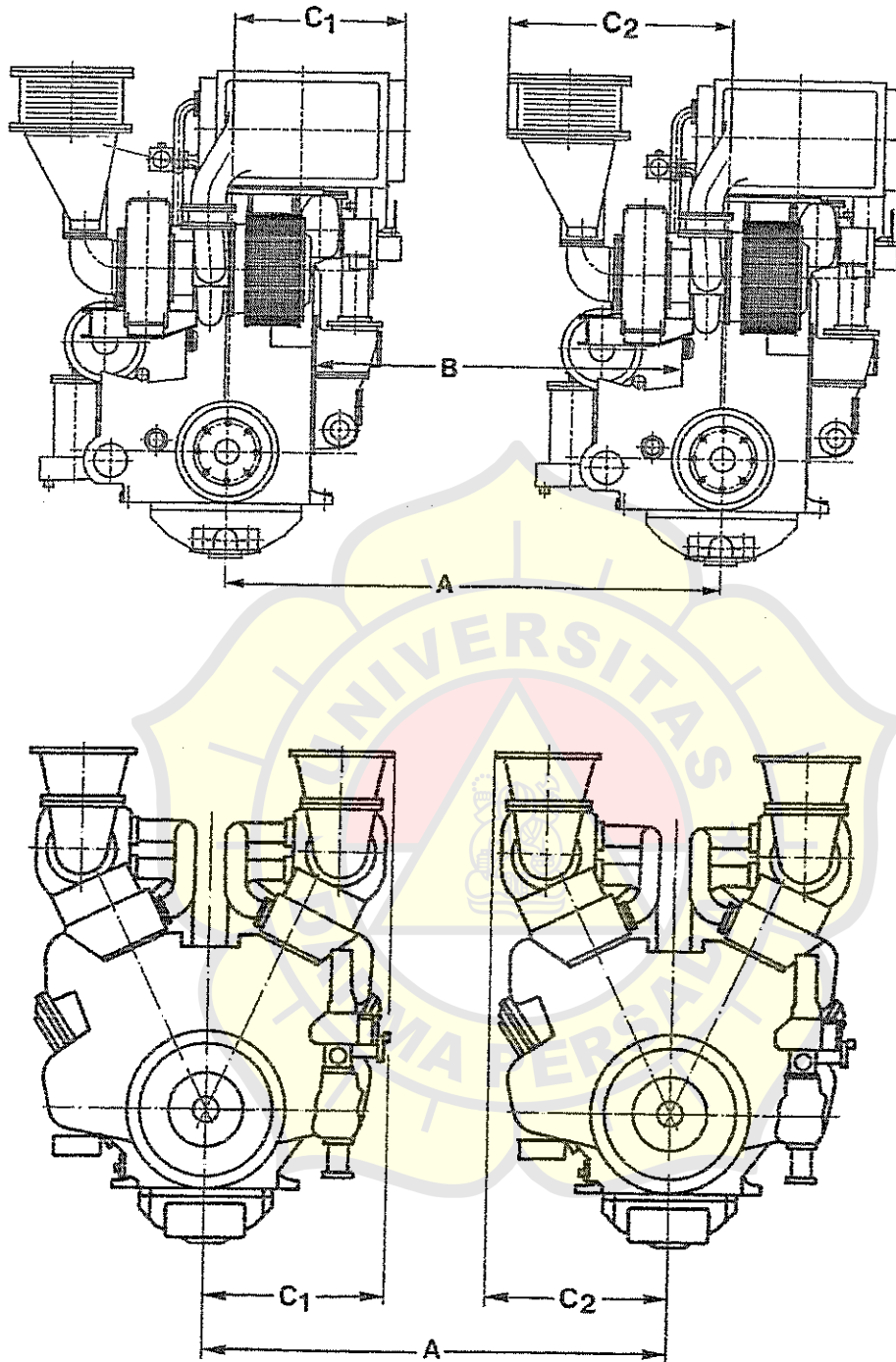
Motortyp/Engine type	Maße in Millimeter/Dimensions in millimeter															
	A	C	E	H	K	L	M	N	O	R	T ₁	T ₂	V	W	X**	
6 M 332 C	2655		1600				1242			1700	1340	-	3272	1740	4420	
8 M 332 C	3295	392	2240	206	455		950	750	230	1780	1256	-	4217	1680	5700	
6 M 282	2655		1600		+ 781	870	1242			1700	1340	-	3272	1740	4420	
8 M 282	3295	392	2240				950	750	230	1780	1256	-	4217	1680	5700	
12 M 282	3319	448	1875	-	667		920	920	400	1800	-	1380	4000	1840	5305	

* Naßsumpf/Wet sump

** Ausbaumaß Nockenwelle/Camshaft removal



Motormittenabstand bei Doppelmotorenanlagen
Engine centre distance for twin-engine installations



Motortyp/Engine type	Maße in Millimeter/Dimensions in millimeter				Abstand bis Motormitte Distance to engine centre line	
	A Achsabstand Centre Distance		B Abstand zwischen Triebreumdeckel Distance between crankcase doors		C1	C2
	empfohlen recommended	minimum	empfohlen recommended	minimum		
6 M 332 C	2346	2246	1556	1456	750	1042
8 M 332 C	2327	2227	1537	1437		
6 M 282	2192	2092	1402	1302		850
8 M 282	2327	2227	1537	1437		
12 M 282	2440	2340	-	-	920	920

MAK

Issue
1/90

Technische Daten
Technical Data

12 M 282

3013/1 DT31 *015*

p2 1) p2 1) p3 6)

Betriebsdaten	Performance Data				
Motordauerleistung nach ISO 3046/1 Motordrehzahl niedrigste Betriebsdrehzahl mittl. effektiver Druck Ladedruck Kompressionsdruck Zünddruck Luftbedarf Förderbeginn/Einspritzbeginn Abgastemp. an Zylinder / nach Turbine Kraftstoffverbrauch 2) 100% Propeller/n-coast 2) 85% 75% 50% Schmierölverbrauch 3) Turboladertyp	Maximum continuous rating acc. ISO 3046/1 Speed Minimum speed Break mean effective pressure Charge air pressure Compression pressure Firing pressure Combustion air demand Delivery / injection timing Exhaust gas temperature after cylinder / turbine Specific fuel oil consumption 2) Propeller/ n-coast 2) 85% 75% 50% Lubricating oil consumption 3) Turbocharger type	kW 1/min 1/min bar bar bar bar n³/h °w.UT °C g/kWh g/kWh g/kWh g/kWh g/kWh g/kWh	2200 900 350 19,3 2,26 90 130 15700 21/13 400/370 201 200 202/204 210/214 1,5 2-28212	2400 1000 350 18,96 2,26 95 130 17100 21/13 430/370 205 204 207/209 212/214 1,5 2-28212	2650 1000 350 20,9 2,46 100 135 17500 18/10 600/375 194 193 190/192 194/198 1,5 VTC 304
Kraftstoff Leistung der angeb. Zabringspumpe Leistung der separaten Zabringspumpe Maschenweite HFO Feinfilter Maschenweite HFO Automatic-Filter Maschenweite HFO Feinfilter Düsenkühlung über Modul	Fuel Engine driven booster pump Stand-by booster pump Mesh size MDO fine filter Mesh size HFO automatic filter Mesh size HFO fine filter Nozzle cooling by module	m³/h m³/h mm mm mm	1,0 1,1 0,015	1,0 1,15 0,015	1,0 1,3 0,015
Schmieröl Leistung der angeb. Druckpumpe Leistung der separaten Druckpumpe Betriebsdruck am Motor Leistung der angeb. Saugpumpe Leistung der separaten Saugpumpe Vorschlepppumpe Inhalt Wälzlager/Trockenschumpf Temperatur vor Motor Temperatur-Regler, MW Doppelfilter MW (MDO/HFO) Maschenweite Doppelfilter (HDO/HFO) Maschenweite Automatic-Filter HFO	Lubricating oil Engine driven pump Independent pump Working pressure on engine inlet Engine driven scavenge pump Independent scavenge pump Priming pump Sump tank content/ dry sump content Temperature at engine inlet Temperature controller MB Double filter MB (MDO/HFO) Mesh size double filter (HDO/HFO) Mesh size automatic filter (HFO)	m³/h/bar n³/h/bar bar m³/h/bar m³/h/bar n³/h/bar m³ °C mm mm mm mm	36,9/10 39/8 3,5 40,5/3 40/3 6/5 3,0 50-55 80 mm mm mm	43,2/10 43/8 3,5 45,0/3 43/3 6/5 3,3 50-55 80 mm mm mm	43,2/10 43/8 3,5 45,0/3 45/3 6/5 3,6 60-65 80 mm mm mm

MAK

Ausgabe
Issue
1/90

Technische Daten
Technical Data

12 M 282

3013/2 0131 05

p2 1) p2 i) p3 6)

Kühlwasser	Fresh water cooling				
Wasserinhalt Motor Erforderliche Druckhöhe NW-Temperatur nach Motor	Engine content Pressure at engine inlet Temperature at engine outlet	m3 bar °C	0,4 2,5 80-85	0,4 2,5 80-85	0,4 2,5 85-90
1 Kreis-System Leistung der angegeb. Kreiselpumpe Leistung der separaten Pumpe FW-Temperatur Ladeluftkühler Eintritt Wärmemenge für Wärmeerwärmer (85->38°C) HT/NT-Temperaturregler NW	Standard cooling Engine driven pump Independent pump Temperature at charge air cooler inlet Water flow to heat consumer (at 85->38°C) HT/NT-Controller NG	m3/h/bar m3/h/bar °C m3/h mm			48/2,5 48/2,5 38 100
2 Kreis-System Leistung der angegeb. Kreiselpumpe Leistung der separaten Pumpe HT-Temperaturregler NW erk. FW-Menge für LIX NW-Temperatur LIX Eintritt	Two circuit system Engine driven pump Independent pump HT-Controller NG Water demand HT-charge air cooler Temperature at LT-charge air cooler inlet Temperature/water flow for heat consumer	m3/h/bar m3/h/bar mm m3/h °C °C/m3/h	75/2,9 75/2,5 100 37 38	75/2,9 75/2,5 100 37 38	
Abzuführende Wärmemengen	Heat Dissipation				
spez. Wärmemenge aus Motorkühlwasser spez. Wärmemenge aus Schmieröl Wärmemenge im Schmierölkühler Wärmemenge Motorkühlwasser	Specific jacket water heat Specific lub. oil heat Lub. oil cooler Jacket water	kJ/kWh kJ/kWh MJ/h MJ/h	740 370 814 1628	740 370 888 1776	720 350 928 1908
Wärmemenge im 1-Stufigen LIX 4) Wärmemenge im 2-Stufigen LIX HT 4) Wärmemenge im 2-Stufigen LIX NT 4) (HT-Stufe vor Motor)	Charge air cooler 4) Charge air cooler (HT-Stage) 4) Charge air cooler (LT-Stage) 4) (HT-Stage before engine)	kJ/h kJ/h MJ/h	1978 2155 975	2155 1060	3400
Abgas	Exhaust gas				
Schalldämpfer/Funkenfänger NW 25dBA NW 35dBA Abgasleitung nach Turbine NW Maximaler Abgasgedruck nach Turbine	Silencer/spark arrester NB 25 dBA NB 35 dBA Pipe diameter NB after turbine Maximum exhaust gas pressure drop	mm mm mm bar	500/600 500/600 2x400 0,02	500/600 500/600 2x400 0,02	600 600 600 0,02
Startluft	Starting air				
Startluftdruck Minimaler Startluftdruck (umst./nicht umst.) Luftverbrauch pro Start 3)	Starting air pressure Minimum starting air pressure (avg./non rev.) Air consumption per Start 3)	bar bar Nm3	30 -10 0,35	30 -10 0,35	30 -10 0,35

ung zugelassen für folgende Schiffanwendungen
tor, Hauptmotor, Trawler, Versorger, Fährten, Passagierschiffe, Eis-
schiffe, Jachten, Militärschiffe, Rettungschiffe
42700 kJ/kg, Umgebungslufttemperatur 27°C,
temperatur 45°C, Toleranz 3%
wert, Toleranz ± 0,3 g/kWh
umgebungslufttemperatur 45°C
bewährte Maschine
itung nur für Generator und Lokbetrieb frei

- 1) This power is available for following marine applications: aux-engine, main engine for trawlers, supply ships, ferries, passenger ships, ice breakers, yachts, patrol boats, navy ships, rescue ships
- 2) Reference conditions: LCV - 42700 kJ/kg, ambient temperature 27°C, charge air temperature 45°C, tolerance 3%
- 3) Standard value, tolerance ± 0,3 g/kWh
- 4) Charge air heat based on 45°C ambient temperature
- 5) preheated engine
- 6) This power is available for generator and railway traction

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containers, tankers, ferries, General cargo ships, passage ships, Dredgers and any other vessels that need more steering torque.

Main Tech:

- Max working torque: 40 KN.M — 500 KN.M
- Max mech. rudder angle: ± 35 Degrees
- Max rudder movement: ≤28 S
- Rudder stock Diameter: 300mm — 900 mm
- Working pressure: 8 Mpa — 17 Mpa
- Design pressure: 1.5 KW — 20 KW
- For more details, please check the item (5).

Type of Delivery:

- Complete steering gear with hydraulic cylinders
- Electro-Hydraulic power station with oil pumps
- Oil tanks
- Electric motors

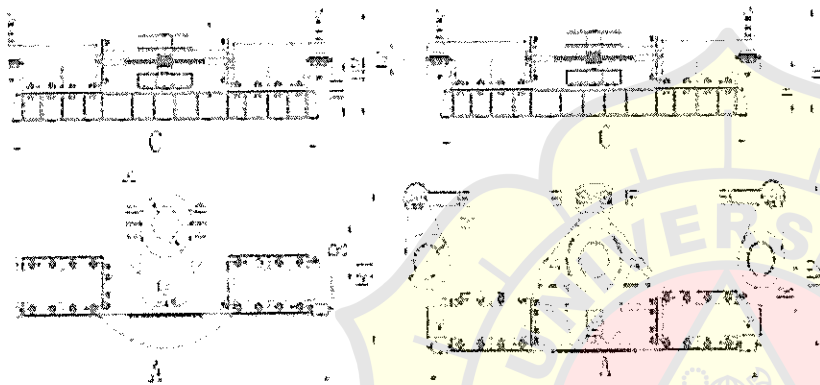
For special requests, the full range of parts will be delivered.

Certifications:

Our provided products can be delivered with certifications of ABS, GL, BV, LR and CSS, and other certifications can be served according to customers.

For more details, please contact us.

Drawing:

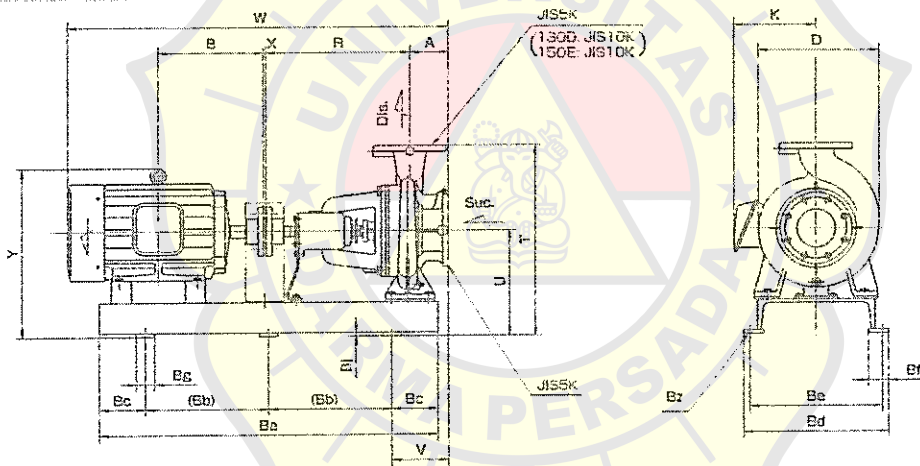
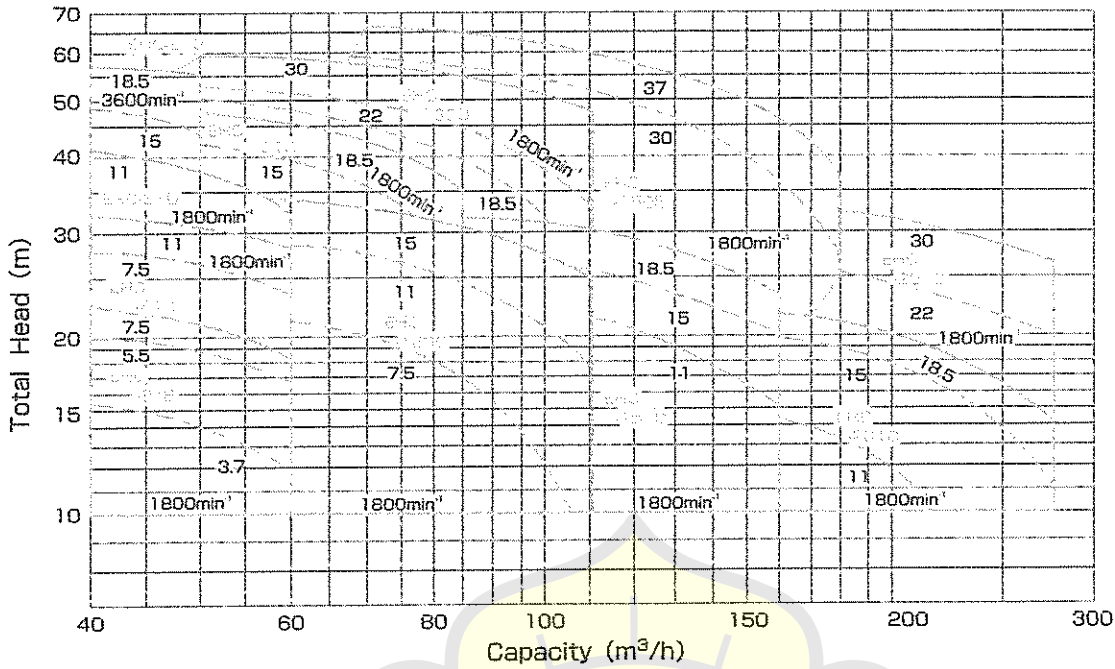


Dimensions

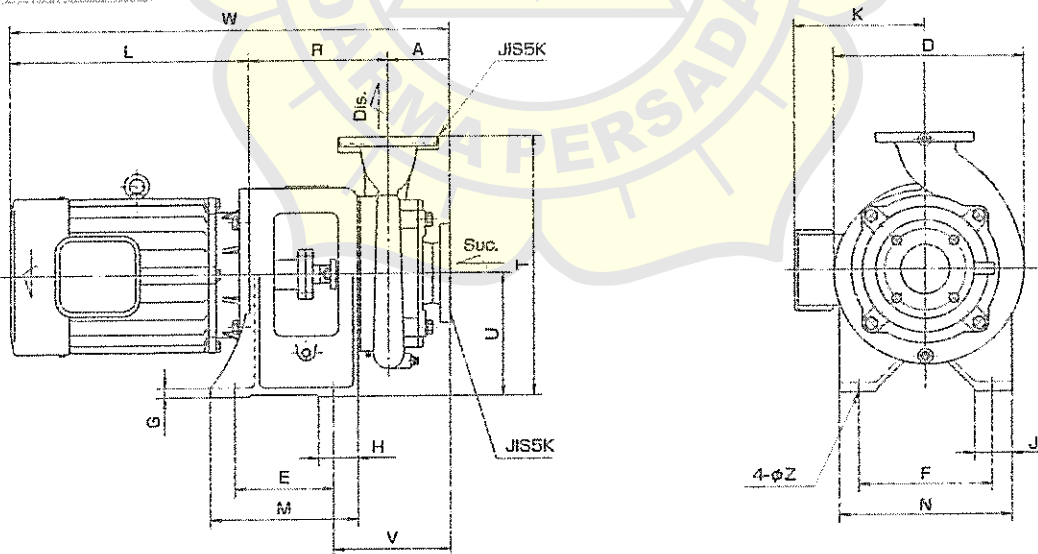
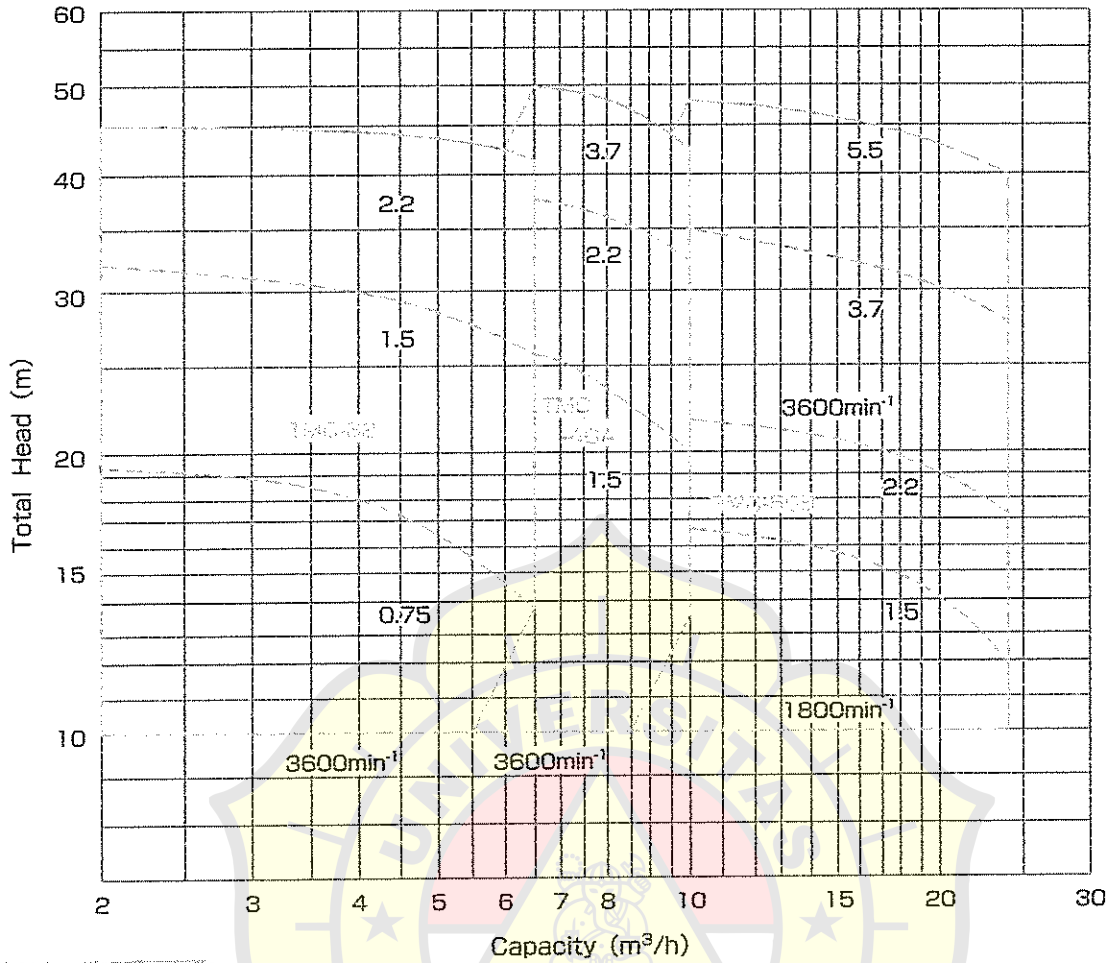
Model No.	A	B1	B2	C	H1	H2
ESGSR-1470		490	670	1280	280	510
ESGSR-1870		615	840	1480	320	560
ESGSR-2238		706	935	2000	360	631
ESGSR-2498		925	1210	2460	380	734
ESGSR-2956		1065	1299	2830	380	1010
ESGSR-3610		1296	1520	3400	560	1040
ESGSR-3914		1456	1606	3600	560	1053
ESGSR-4300		1550	1700	3800	560	1070

Technical Specification

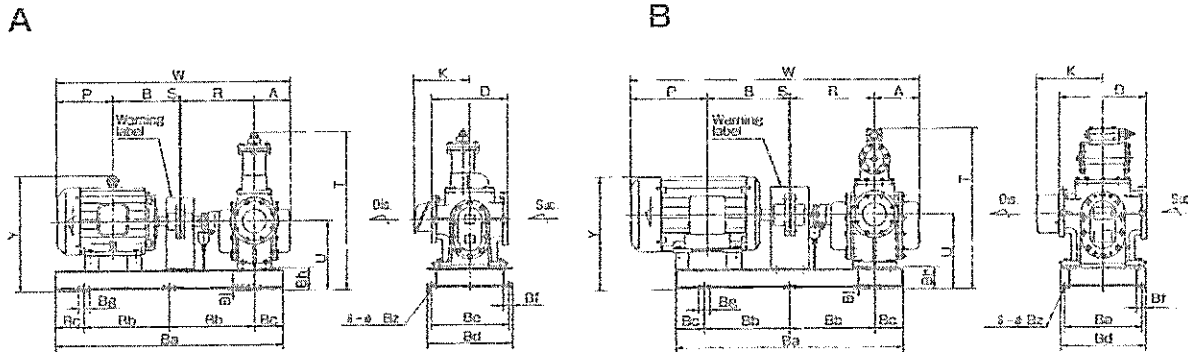
Model No.	Working Torque KN.M	Thickness		Rudder Turning Radius R	Diameter	
		Single Tiller H1	Twin Tiller H2		Rudder Sock(Single) D1	Rudder Sock(Twin) D2
ESGSR-10-16		215	180	180	<=125	<=100
ESGSR-20-40		260	180	240	<=165	<=140
ESGSR-50-63		320	180	300	<=180	<=140
ESGSR-75-125		345	280	350	<=250	<=250
ESGSR-160-200		345	310	450	<=300	<=250
ESGSR-250-320		500	400	500	<=340	<=300
ESGSR-350-400		500	400	570	<=340	<=320
ESGSR-450-500		570	450	600	<=360	<=340



Model No.	Motor		Base		Dimension (mm)																				
	kW	min ⁻¹	Suc.	Dis.	A	B	D	K	R	T	U	V	W	X	Y	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10
EHC-81B	3.7	1800	80	80	100	200	323	212	360	515	290	165	861	3	448	426	800	500	150	390	350	65	80	12	4-φ18
	5.5					233		245								1071		600							
	7.5	3600			252	285	1071	600	550	175	60														
	15				323	345	1113	520	1000	700	150														
EHC-81C	7.5	1800	80	80	100	252	364	245	470	570	320	160	1066	3	478	1000	350	150	470	430	65	60	12	6-φ19	
	11	323	1181	550	1100	400																			
EHC-81D	11	1800	80	80	125	323	413	285	470	625	345	185	1206	3	575	1100	400	150	470	430	65	60	12	6-φ19	
EHC-1010	15	1800	100	100	125	345	413	285	470	685	370	185	1246	3	600	1100	400	150	470	430	65	60	12	6-φ19	
	18.5					351.6		320					630												
EHC-130C	7.5	1800	125	125	125	256	390	245	470	625	345	185	1081	3	503	1000	350	150	470	430	65	60	12	6-φ19	
	11					323		205					1206		400										
	15					345		1246																	
EHC-130D	18.5	1800	125	100	140	351.6	440	330	575	885	370	200	1390	3	630	1200	450	150	470	430	65	60	12	6-φ19	
	22					370.5		1415																	
	30					323		1221																	
EHC-151C	11	1800	150	150	140	323	427	285	470	625	345	200	1263	3	575	1100	400	150	470	430	65	60	12	6-φ19	
	15					345		1275					605												
	18.5					351.6		330					1275												
EHC-150E	30	1800	150	125	140	370.5	576	330	530	665	455	170	1374	3	725	1300	500	150	550	500	65	60	12	6-φ24	
	37					425.5		345					1455		345										
EHC-201B	11	1800	200	200	140	323	450	285	470	685	370	200	1221	3	600	1100	400	150	470	430	65	60	12	6-φ19	
	15					345		1263					630												
	18.5					351.6		330					1275		630										
EHC-201C	22	1800	200	200	140	351.6	475	330	470	725	370	200	1275	3	630	1100	400	150	470	430	65	60	12	6-φ19	
	30					370.5		1314					1200		450										



Model No.	Motor		Sere		Dimension (mm)																				
	KW	rpm	Suc.	Dia.	A	D	E	F	G	H	J	K	L	M	N	R	T	U	V	W	Z				
TMC-32	0.75	3600	32	32	82	270	120	160	15	50	65	173	260	160	220	160	290	140	158	654	12				
	1.5						140	180				168	302	200	250	170	300	160							
	2.2																								
TMC-40A	1.5	3600	40	40	80	235	140	190	15	50	65	188	302	200	250	175	320	160	160	657	12				
	2.2											212	358			185									
	3.7																								
TMC-50B	1.5	1800	50	50	100	265	150	220	18	60	65	163	302	250	280	215	370	190	205	653	15				
	2.2						197					328	225												
	3.7	3600					212	368				290	330	245		390	210					653			
	5.5						200	270				300	330	245		390	210					720			



形番 Model No.	図 号	電動機 Motor		寸法 Dimension (mm)																		質量 Weight (kg)			軸接手 Coupling			
		出力 (kW)	回転数 (rpm)	A	B	D	K	P	R	S	T	U	W	Y	Ba	Bb	Bc	Bd	Be	Bf	Bg	Bh	Bj	Bz		ポンプ Pump	台板 Base	電動機 Motor
HG-35	A	11	6	165	345	340	265	247	345	3	685	330	1105	543	1100	400	150	450	410	50	60	120	30	19	138	65	139	A-180
		15			351.5		290	284.5					1159	577													175	
HG-40	A	11	6	190	345	400	265	247	390	3	845	370	1102	583	1100	400	150	450	410	50	60	120	30	19	160	75	139	A-180
		15			351.5		290	284.5					1129	617	1200	450											80	
HG-50	A	15	6	185	351.5	400	294.5	294.5	390	3	845	370	1224	617	1200	450	150	450	410	50	60	120	30	19	155	60	175	A-180
		18.5			370.5		313.5						1262														220	
HG-65	A	18.5	8	220	370.5	460	290	313.5	445	4	850	400	1353	647	1200	450	150	450	410	50	60	120	30	19	230	90	220	A-200
		22			425.5		350	370.5					1465	760													335	
HG-80	B	22	8	235	425.5	460	350	370.5	445	4	850	400	1430	770	1200	450	150	450	410	50	60	120	30	19	230	90	335	A-224
		30			432		375	380					1498	807	1300	500		550	500	65	80	150		24			375	
HG-90	B	22	6	235	425.5	460	350	370.5	445	4	850	400	1480	770	1200	450	150	450	410	50	60	120	30	19	230	90	335	A-224
		30			432		375	380					1498	807	1300	500		550	500	65	80	150		24			375	
HG-100		30	8	265	432	500	375	380	515	4	950	470	1595	847	1400	550	150	550	500	65	80	150	30	24	320	105	375	A-250

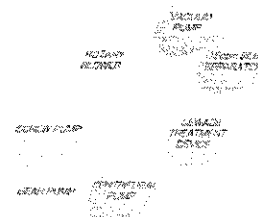
* 電動機メーカー及び形番によりW.P.Y.K寸法及び質量は異なります。
 * Depend on motor manufacturer and model, measurement of W.P.Y.K and weight maybe changed.

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 ISO 9001 certified For any inquiries, please refer to attached 【BUSINESS OFFICE NETWORK】
 ● このカタログに記載した製品は性能向上のため予告なしに寸法及び仕様を変更することがあります。
 ● The sizes and specifications of the products in this catalog are subject to improvement.

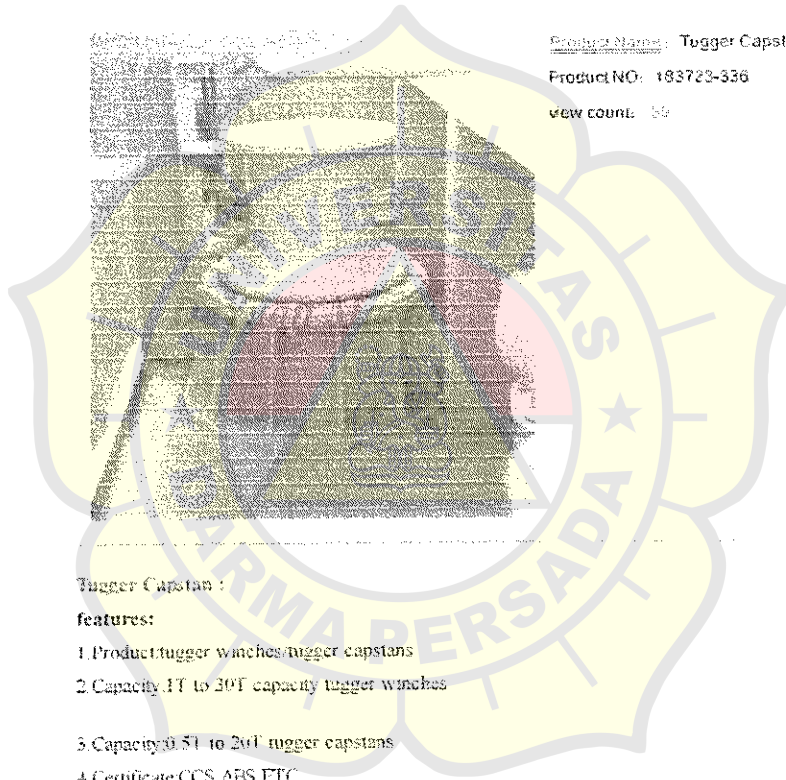
2010/05 MUTSUMI

search for product...

Product Name: Tugger Capstan

Product NO: 183723-336

view count: 50



Tugger Capstan :

features:

1. Product:tugger winches/tugger capstans
2. Capacity :1T to 30T capacity tugger winches
3. Capacity:0.5T to 20T tugger capstans
4. Certificate:CCS,ABS ETC

Technical Details:

Tugger winches/capstans				
Model	HTW-10-300	ETW-10-300	HC-5-200	EC-5-200
Drive	Hydraulic or electric		Hydraulic or electric	
Type	Single or double drum		vertical	
Rated load	10KN-300KN		5KN-200KN	
Rated speed	10-30m/min		10-20m/min	
Holding load	20KN-500KN			
Dia wire	φ13-42mm		φ13-32mm	
Drum capacity	50-500m			
Clutch	Hydraulic/handle operated jaw type			
brake	Spring load of hydraulic release/handle operated type			
Power required	4-90kw	4-90kw	4-75kw	4-75kw
control	Local control& remote control in wheelhouse			

imo Capstan

EL:

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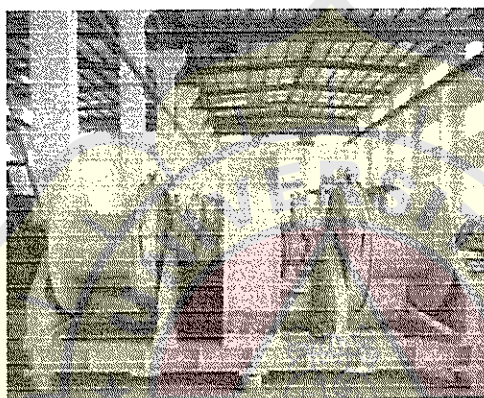
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Product Name: Electric double gypsy mooring winch
 Product NO: 10837-688
 view count: 43

Electric double gypsy mooring winch :

Drum load (KN)	Holding load (KN)	Power (kw)	Non spread moment	mooring winch		double gypsy mooring winch			
				Rope dia (mm)	Steel (mm)	Drum size (mm)			Capacity (mm)
				D1 (mm)	D2 (mm)	L (mm)			
50	150	15	16	45	20.5	480	820	950	180
						480	1045	720	
80	240	15	25	50	28	480	880	820	200
						480	1200	920	
100	310	15	32	55	28	540	930	840	200
						540	1260	840	
125	390	15	38	64	30	540	950	820	200
						540	1480	960	
160	480	15	56	75	38	540	950	820	200
						540	1480	960	
200/250	650	15/2	64	90	40	650	1150	1000	250
						650	1600	1400	

More Electric double gypsy mooring winch can be offered,pls contact us for more details

Previous: Hydraulic single gypsy mooring winch

Next: Electric single gypsy mooring winch

A Wide Range for Every Requirement.

For Marine Diesel Oil (60Hz)

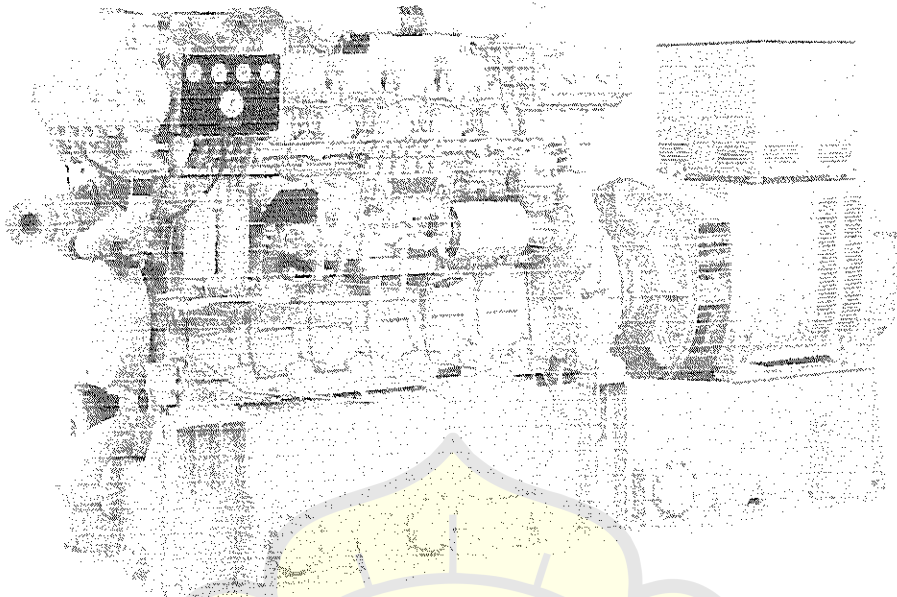
Generator capacity kWe	No. of poles		
	10P	8P	6P
	720min ⁻¹	900min ⁻¹	1200min ⁻¹
200			6NY16L (400kWe)
300			
400	6EY18L (560kWe)	6EY18AL (750kWe)	6N165L (480kWe)
500			
600	6N21L (740kWe)		
700			
800	8N21L (980kWe)	6N21AL (960kWe)	
900			
1000	6/8EY26L (2300kWe)	8N21AL (1270kWe)	
1500			
2000			
2500	6/8N330L (3300kWe)		
3000			

For Marine Diesel Oil (50Hz)

Generator capacity kWe	No. of poles	
	8P	6P
	750min ⁻¹	1000min ⁻¹
200		6NY16L (320kWe)
300		
400	6EY18L (560kWe)	6N165L (400kWe)
500		6EY18AL (750kWe)
600	6N21L (740kWe)	
700		
800	8N21L (980kWe)	6N21AL (960kWe)
900		
1000	6/8EY26L (2300kWe)	8N21AL (1270kWe)
1500		
2000		
2500	6/8N330L (3300kWe)	
3000		

6NY16L

generator capacity 180~400kWe



Depending on the specifications or options that have been chosen, your model may differ slightly from the one in the photograph.

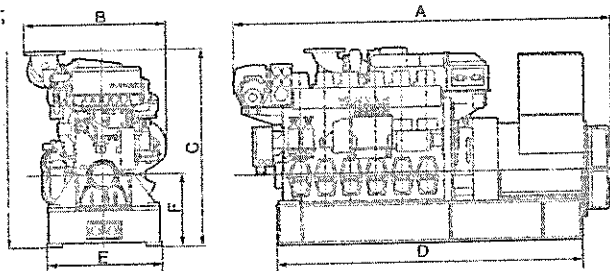
Specifications

Engine model	6NY16L-HN	6NY16L-DN	6NY16L-UN	6NY16L-SN	6NY16L-EN					
Vertical water-cooled 4-cycle diesel engine										
Number of cylinders	6									
Cylinder bore X stroke	160 X 200									
Total displacement	24.13									
Continuous rated output	200 (272)	255 (360)	245 (333)	310 (421)	355 (483)	310 (421)	400 (544)	353 (480)	441 (600)	
Rated speed	1000	1200	1000	1200	1000	1200	1000	1200	1000	1200
Mean effective pressure	0.995 (10.15)	1.097 (11.19)	1.218 (12.42)	1.284 (13.09)	1.343 (13.69)	1.472 (15.01)	1.540 (15.70)	1.658 (16.91)	1.756 (17.90)	1.829 (18.65)
Generator capacity	180	240	220	280	240	320	280	360	320	400
Injection system	Direct injection									
Starting system	Compressed Air									
Dimensions	Overall length	1996								
	Overall width	1085								
	Overall height	1532								
Weight	2880									

The engine dry weight may differ depending upon the specifications and attached accessories. Above generator capacity will vary according to actual generator efficiency.

Dimensions (Unit:mm)

The dimensions and weight for the diesel engine generator sets are simply reference values. The values may differ for different generator manufacturers.



Engine model	6NY16L-HN	6NY16L-DN	6NY16L-UN	6NY16L-SN	6NY16L-EN
A	2991	2991	2991	2991	2991
B	1136	1136	1136	1136	1136
C	1613	1613	1613	1613	1613
D	2530	2530	2530	2530	2530
E	940	940	940	940	940
F	600	600	600	600	600
G	1725	1725	1725	1725	1725
Dry weight of generating equipment (kg)	5500	5500	5500	5500	5500

Please confirm all specifications on the approval drawing.