

DESTINATION	Single screw diesel driven general cargo / container carrier for carriage of cargo as wood-pile, roll paper, prolonged lumber, steel plate, bar and coil, grain, ore, coal, cement, clay powder as well as 20 and 40 BDO standard containers in holds and on hatch covers. Holds number 3 to 9 are slanted as one bow. Holds number 12 and 10 not equipped with longitudinal cargo shelves. Hold number 11 is equipped with transverse cargo shelf. This is a minor vessel with 3-type holdout.	
SPEED & FUEL CONSUMPTION	Service speed (at design draught) 16.1 knots Service speed (at full draught) 15.6 knots Fuel consumption (90% MCR) 10,200 kg/day (42.4 t) 90% loading : 40.1 t/day Cruising range (at design draught) 25,500 Sea miles	
MAIN PROPULSION	One two-stroke diesel engine type KAWASAKI MAN B&W 680MCMK6, rating 14,090 PS at 97.5 rpm. The engine drives one fixed pitch 6 blades propeller, diameter 6.00 m, fixed rotation. Nakatsuki Propeller Co. Ltd.	
ELECTRICAL POWER PLANT	One three-phase alternator, type HUNDAI HPCS 166-14C-85-1, 1250 kVA at 720 rpm, 450 V, 60 Hz. One four-stroke engine, 577 CC compound, type S-200T, rating 1000 kW at 720 rpm. Two three-phase alternators, type HUNDAI HPCS 566-14C-48-1, 1470 kVA at 720 rpm, 450 V, 60 Hz. One four-stroke engine, 577 CC compound, type S-200T, rating 1170 kW at 720 rpm. One emergency four stroke engine, Matsui Zosen Machinery A Service Ltd, 120 kVA at 1800 rpm, 450 V, 60Hz.	
STEERING GEAR	One electro-hydraulic rotary vane type, working torque, 1226 tcm, Japan Hamworthy & Co. Ltd.	
RUDDER	Scheduling rudder (working angle 70 deg. each side). Area 36 m ² , Japan Hamworthy & Co. Ltd.	
BOW THRUSTER	Electric motor driven TT1200 TCT type with 4 blades, C/P, 16-AL-shrouds, dia. 1600 mm. Electric motor 740 kW. Ralls-Koye Marine Japan KK.	
STERN THRUSTER	Electric motor driven TT1200 TCT type with 4 blades, C/P, 16-AL-shrouds, dia. 1600 mm. Electric motor 740 kW. Ralls-Koye Marine Japan KK.	
BOILERS	One vertical cylindrical composite type, Aoshima Industries K.K. 1700 kg/h (Oil level, 40 deg) ^{*)} 401330 kg/h (Discharge gas heating, 40 deg) ^{*)}	
EVAPORATORS	Capacity 25 t/24h, All Level k.t.	
BALLAST SYSTEM	Two ballast vertical centrifugal, self-priming type pumps, Natsui Pump Mfg. Co. Ltd., 400 t/min x 25 m H ₂ O head. One ballast vertical, self-priming type pump, Natsui Pump Mfg. Co. Ltd., 400 t/min x 25 m H ₂ O head.	
HATCH COVERS AND WEIGHTS	Elbows hatches fixed on the upper deck, Tsurumi Industries Co. Ltd., opening into NO.1 to 11 Hatches. 12.30 m x 27.50 m, operated by two hydraulic cylinders on the gantry crane. NO.4 to 11 Hatches : 83.3 t NO.9 to 11 Hatches : 81.3 t NO.9 to 11 Hatches : 78.3 t	
TWEEN DECKS AND WEIGHTS	Two levels of parallel tween decks are to be used in hold NO.4 and 8, but will be stored in hold NO.11 when not in use. Tsurumi Industries Co. Ltd. NO.4 and 11 Hatches : 12.30 m x 27.50 m, operated by two hydraulic cylinders on the gantry crane. Total weight of each tween deck : 96.1 t A-Panel : 23.7 t x 4 panels, B-Panel : 24.7 t x 4 panels C-Panel : 24.5 t x 4 panels, D-Panel : 23.7 t x 4 panels	
CONTAINERS STACK LOADS	Hatch covers : on NO.1 to 8 Hatches : 60.0 TEU or 91.5 HFEU Hatch covers : on NO.9 to 11 Hatches : 40.0 TEU or 61.5 HFEU NO.1 to 11 Hatches : 3 t/m ² TEU or 4 t/m ² HFEU NO.11 Hold : 1 t/m ² TEU or 2 t/m ² HFEU *) As for detail of container loading, see cargo hold. Please refer to the container securing manual. Tween decks : 60.0 TEU or 91.5 HFEU	
UNIFORM LOAD	NO.1 Hold : 28.00 t/m ² NO.2 Hold : 28.00 t/m ² NO.3 to 9 Hatches : 28.70 t/m ² NO.10 Hold : 20.00 t/m ² NO.11 Hold : 18.00 t/m ² Hatch covers : 3.00 t/m ² Tween decks : 5.50 t/m ²	
REEFER PLUGS	22 reefer containers sockets. 3 x 440 V, 60 Hz, 11 kW, Kohatsu Co. Ltd. In group : 1 plug - 2 PCS at these 11 2 plug - 2 PCS at these 11	
CRANES	Two gantry cranes with main shaft facilities, turn-table, shift winch, and shifting cabin. Outreach from ship's side 8.0 m. Lifting height 27.5 m. Extension VLG Corp. Hoisting speed : 6040/201 x 240/580 mm/min. Lowering speed : 6040/201 x 20/580 mm/min. Shifting speed : 20 mm/min. Trolley speed : 90 mm/min. Gantry speed : 30 mm/min. Two engine parts/ provision/ F.O. base handling cranes lifting capacity : 4.0 t/7 m, 10.0 t/12 m. One engine part/ provision/ handling crane lifting capacity, Tsurumi : 2.0 t/m. Information Co. Ltd.	
WINCHES	Two combined winches - mounting winches 280T18 kN, cable lifter for 78 mm Ø3 and link chain cable, two high drums. operating winches for 74 mm dia rope, speed 10/5 cable, Nippon Panso Co. Ltd. Four mounting winches with triple drums and sheaving head. for 74 mm dia rope, speed 15 mm/min, control 118 kN, Nippon Panso Co. Ltd.	
SAFETY EQUIPMENT	One fire drill life boat, Ship Shipbuilding Co. Ltd., type GAS 7.7 for 30 persons. Five automatically inflatable life rafts with water pressure release and launching arrangement. One inflatable life raft for 6 persons. Eisei Trading Japan Co. Ltd. One fire covered rescue boat, Ship Shipbuilding Co. Ltd., type 62-43R, for 6 persons.	
FIRE FIGHTING SYSTEM	Cargo holds : CO ₂ Duster Ship Service Japan Co. Ltd. Engine room : Sea water fogging, A.K.K. Co. Ltd. CO ₂ Local fire fighting system, Daito Ship Service Japan Co. Ltd. Sea water fogging, A.K.K. Co. Ltd. Local fire fighting system, Daito Ship Service Japan Co. Ltd. Portable dry powder extinguishers, Yamaguchi Co. Ltd. Sea water fogging, A.K.K. Co. Ltd. Sea water fogging, A.K.K. Co. Ltd. Fire extinguishers, Yamaguchi Co. Ltd. Fire extinguishers, Yamaguchi Co. Ltd.	
HOLD VENTILATION	NO.1 to 11 Holds : Diaphragm fan system 2 x 7500 m ³ /h, Natsui-Sho Co. Ltd.	
AIR CONDITION PLANT	Single duct air conditioning system, Natsui-Sho Co. Ltd.	
ADDITIONAL EQUIPMENT	The ship is equipped for Tote Canal and Panama Canal Passage.	

NAVIGATIONAL EQUIPMENT		
EQUIPMENT	TYPES	MANUFACTURE
Radar with ARPA	FAR-2835S (S-BAND) FAR-2822 (X-BAND)	FURUNO ELECTRIC CO. LTD.
Doppler Speed log	DS-50	FURUNO ELECTRIC CO. LTD.
ECDF receiver	CP-60	FURUNO ELECTRIC CO. LTD.
Echo sounder	PE-700	FURUNO ELECTRIC CO. LTD.
Sound signal reception system	YSS-111/222	FURUNO ELECTRIC CO. LTD.
Navtex receiver	IX-360	FURUNO ELECTRIC CO. LTD.
Weather facsimile receiver	PA-5-215	FURUNO ELECTRIC CO. LTD.
Cyclo compass system	CMZ-700S	YOKOGAWA DENSHIKI CO. LTD.
PID auto pilot	PT600-S-42	YOKOGAWA DENSHIKI CO. LTD.
Magnetic compass system	R165A	NUNOTANI HAKUYO
N/S shaft formation system		NUNOTANI HAKUYO
Rudder angle indicator	A100S88	BIKUNI KOTOYO CO. LTD.
Air horn	BEY-100H	SAISON ELECTRIC CO. LTD.
Signaling searchlight	4PN-HL-200	NUNOTANI HAKUYO
Wind indicator	61171	SEIMATZ
Window wiper system		BIKUNI KOTOYO CO. LTD.
PR Alarm indicator system	FA-100	FURUNO ELECTRIC CO. LTD.
Automatic Identification System		FURUNO ELECTRIC CO. LTD.
Voyage Data Recorder	VR-5000	FURUNO ELECTRIC CO. LTD.
COMMUNICATION EQUIPMENT		
EQUIPMENT	TYPES	MANUFACTURE
EPDR 405 MHz	Ten 405	FURUNO (OTRON)
Two-Way VHF Radio Telephone	Ten VHF	FURUNO (OTRON)
Radio Transceiver	TRD-600	FURUNO ELECTRIC CO. LTD.
VHF radiotelephones with DSC, 2 sets	FM-8700	FURUNO ELECTRIC CO. LTD.
INMARSAT-C	FE-COM12	FURUNO ELECTRIC CO. LTD.
INMARSAT-F	Nets 777	FURUNO ELECTRIC CO. LTD.
Public Addresser system	PA-10	FURUNO ELECTRIC CO. LTD.
On-board Exchange Telephone	OAE-6040-1	NIPON HAKUYO ELECTRONICS, LTD.
Ground Power Telephone		NIPON HAKUYO ELECTRONICS, LTD.
UHF Portable Transceiver	HX-390A	FURUNO ELECTRIC CO. LTD.
Electric Crystal Clock	QC-6M4-N	I.P.I. (SEIKO)
OMDS Radio Equipment	RC-180T	FURUNO ELECTRIC CO. LTD.

CARGO HOLD													
ITEM	LOCATION	FR.No.	RAIL CAPACITY (m ³)				GRAN CAPACITY (m ³)						
			HOLD	HATCH	TOTAL	HALF CAPACITY (m ³)	HOLD	HATCH	TOTAL	HALF CAPACITY (m ³)			
No. 1 CARGO HOLD	93 ~ 97	4,340	512	4,852	171,347	-72.00	12.13	4,873	512	4,885	172,512	-71.99	12.12
No. 2 CARGO HOLD	88 ~ 92	5,703	629	6,332	223,613	-58.50	11.61	5,758	629	6,387	225,555	-58.51	11.61
No. 3 CARGO HOLD	83 ~ 87	5,862	629	6,491	229,228	-45.00	11.40	5,915	629	6,544	231,099	-45.01	11.40
No. 4 CARGO HOLD	78 ~ 82	5,862	629	6,491	229,228	-31.50	11.40	5,914	629	6,543	231,064	-31.51	11.40
No. 5 CARGO HOLD	73 ~ 77	5,862	629	6,491	229,228	-18.00	11.40	5,915	629	6,544	231,099	-18.01	11.41
No. 6 CARGO HOLD	68 ~ 72	5,862	629	6,491	229,228	-4.50	11.40	5,917	629	6,546	231,170	-4.51	11.40
No. 7 CARGO HOLD	63 ~ 67	5,862	629	6,491	229,228	9.00	11.40	5,916	629	6,545	231,135	8.99	11.41
No. 8 CARGO HOLD	58 ~ 62	5,862	629	6,491	229,228	22.50	11.40	5,914	629	6,543	231,064	22.49	11.40
No. 9 CARGO HOLD	53 ~ 57	5,862	629	6,491	229,228	36.00	11.40	5,915	629	6,544	231,099	35.99	11.41
No. 10 CARGO HOLD	48 ~ 52	5,365	629	6,014	212,363	49.50	11.99	5,435	629	6,064	214,148	49.48	11.98
No. 11 CARGO HOLD	31 ~ 47	5,074	629	5,703	95,455	62.00	16.58	2,099	629	2,728	96,339	61.97	16.57
TOTAL		58,536	6,802	65,338	2,307,392	-	-	89,071	6,802	65,873	2,326,283	-	-

NOTE : THE TRAFFIC SPACES IN TRANSVERSE BULKHEAD TO BE INCLUDED IN GRAN CAPACITY.

WATER BALLAST TANK												
ITEM	LOCATION	FR.No.	VOLUME (m ³)	WEIGHT (MT)	CENTER OF GRAVITY (m)		WEIGHT (MT)	CENTER OF GRAVITY (m)		WEIGHT (MT)	CENTER OF GRAVITY (m)	
					HOLD	HATCH		HOLD	HATCH			
FORE PEAK TANK		99 ~ F.E.	993.4	1,018	-	-	1,018	-	-	1,018	-	-
No. 1 W.B.T.	(9)	87 ~ 97	1,688.1	1,628	-	-	1,628	-	-	1,628	-	-
No. 1 W.B.T.	(5)	87 ~ 97	1,551.9	1,498	-	-	1,498	-	-	1,498	-	-
No. 2 W.B.T.	(7)	77 ~ 87	1,424.3	1,460	-	-	1,460	-	-	1,460	-	-
No. 2 W.B.T.	(3)	77 ~ 87	1,424.3	1,460	-	-	1,460	-	-	1,460	-	-
No. 3 W.B.T.	(9)	67 ~ 77	806.9	807	-	-	807	-	-	807	-	-
No. 3 W.B.T.	(5)	67 ~ 77	806.9	807	-	-	807	-	-	807	-	-
No. 3 W.B.T.	(1)	67 ~ 77	623.1	620	-	-	620	-	-	620	-	-
No. 3 W.B.T.	(3)	67 ~ 77	623.1	620	-	-	620	-	-	620	-	-
No. 4 W.B.T.	(9)	57 ~ 67	1,438.3	1,474	-	-	1,474	-	-	1,474	-	-
No. 4 W.B.T.	(5)	57 ~ 67	1,414.1	1,450	-	-	1,450	-	-	1,450	-	-
No. 5 W.B.T.	(9)	47 ~ 57	1,269.3	1,291	-	-	1,291	-	-	1,291	-	-
No. 5 W.B.T.	(3)	47 ~ 57	1,269.3	1,291	-	-	1,291	-	-	1,291	-	-
AFT PEAK TANK		A.B. ~ 11	738.1	777	-	-	777	-	-	777	-	-
TOTAL			16,180.1	16,086	-	-	16,086	-	-	16,086	-	-

GRAY WATER TANK												
ITEM	LOCATION	FR.No.	VOLUME (m ³)	WEIGHT (MT)	CENTER OF GRAVITY (m)		WEIGHT (MT)	CENTER OF GRAVITY (m)		WEIGHT (MT)	CENTER OF GRAVITY (m)	
					HOLD	HATCH		HOLD	HATCH			
GRAY WATER TANK	(9)	47 ~ 57	145.5	145	-	-	145	-	-	145	-	-
TOTAL			145.5	145	-	-	145	-	-	145	-	-

FRESH WATER TANK												
ITEM	LOCATION	FR.No.	VOLUME (m ³)	WEIGHT (MT)	CENTER OF GRAVITY (m)		WEIGHT (MT)	CENTER OF GRAVITY (m)		WEIGHT (MT)	CENTER OF GRAVITY (m)	
					HOLD	HATCH		HOLD	HATCH			
DRINKING WATER TANK	(9)	A.P. ~ 8	177.3	177	-	-	177	-	-	177	-	-
FRESH WATER TANK	(5)	A.P. ~ 8	177.1	177	-	-	177	-	-	177	-	-
TOTAL			354.4	354	-	-	354	-	-	354	-	-

FUEL OIL TANK													
ITEM	LOCATION	FR.No.	VOLUME (m ³)	WEIGHT (MT)	CENTER OF GRAVITY (m)		WEIGHT (MT)	CENTER OF GRAVITY (m)		WEIGHT (MT)	CENTER OF GRAVITY (m)		
					HOLD	HATCH		HOLD	HATCH				
No. 1 FUEL OIL TANK	(9)	97 ~ 99	443.5	943.0	801	-	-	801	-	-	801	-	-
No. 1 FUEL OIL TANK	(5)	97 ~ 99	443.5	943.0	801	-	-	801	-	-	801	-	-
No. 2 FUEL OIL TANK	(9)	39 ~ 47	710.8	682.4	648	-	-	648	-	-	648	-	-
No. 2 FUEL OIL TANK	(5)	39 ~ 47	572.4	549.5	522	-	-	522	-	-	522	-	-
SUM			3,038.7	2,898.0	2,789	-	-	2,789	-	-	2,789	-	-
H.F.O. SETT. TANK	(5)	12 ~ 12 ^{*)}	54.0	51.8	49	-	-	49	-	-	49	-	-
H.F.O. SERV. TANK	(5)	12 ^{*)} ~ 12 ^{*)}	54.7	52.5	50	-	-	50	-	-	50	-	-
SUM			108.7	104.3	99	-	-	99	-	-	99	-	-

DIESEL OIL TANK													
ITEM	LOCATION	FR.No.	VOLUME (m ³)	WEIGHT (MT)	CENTER OF GRAVITY (m)		WEIGHT (MT)	CENTER OF GRAVITY (m)		WEIGHT (MT)	CENTER OF GRAVITY (m)		
					HOLD	HATCH		HOLD	HATCH				
DIESEL OIL TANK	(5)	39 ~ 47	112.1	112	-	-	112	-	-	112	-	-	
D.O. SERV. TANK	(5)	20 ~ 21 ^{*)}	25.5	25.0	-	-	25	-	-	25	-	-	
TOTAL			137.6	136.8	137	-	-	137	-	-	137	-	-

TANK CAPACITY MARKED * INDICATES UP TO THE OVERFLOW PIPE LINE.

LUB. OIL TANK													
ITEM	LOCATION	FR.No.	VOLUME (m ³)	WEIGHT (MT)	CENTER OF GRAVITY (m)		WEIGHT (MT)	CENTER OF GRAVITY (m)		WEIGHT (MT)	CENTER OF GRAVITY (m)		
					HOLD	HATCH		HOLD	HATCH				
LUB. OIL SUPP. TANK	(5)	20 ~ 32	21.3	20.4	19	-	-	19	-	-	19	-	-
LUB. OIL STOR. TANK	(5)	17 ^{*)} ~ 20	43.5	42.0	39	-	-	39	-	-	39	-	-
LUB. OIL SETT. TANK	(5)	20 ~ 21 ^{*)}	42.5	41.9	41	-	-	41	-	-	41	-	-
C.O.L. OIL STOR. TANK	(5)	29 ~ 39	86.8	83.3	77	-	-	77	-	-	77	-	-
G/E L.O. STOR. TANK	(5)	16 ~ 18 ^{*)}	5.5	5.3	5	-	-	5	-	-	5	-	-
G/E L.O. SETT. TANK	(5)	12 ^{*)} ~ 15	8.4	8.3	3	-	-	3	-	-	3	-	-
G/E L.O. OVEFL. TANK	(5)	13 ~ 15	7.0	6.1	3	-	-	3	-	-	3	-	-
TOTAL			202.9	199.5	185	-	-	185	-	-	185	-	-

OTHER TANK												
ITEM	LOCATION	FR.No.	VOLUME (m ³)	WEIGHT (MT)	CENTER OF GRAVITY (m)		WEIGHT (MT)	CENTER OF GRAVITY (m)		WEIGHT (MT)	CENTER OF GRAVITY (m)	
					HOLD	HATCH		HOLD	HATCH			
RELIEF TANK	(9)	22 ~ 27	30.8	30.8	68.51	1.35	21	-	-	21	-	-
RELIEF SEP. OIL TANK	(5)	22 ~ 41	60.8	68.92	12.78	99	-	-	99	-	-	
HEAVY F.F. OVERFLOW TANK	(9)	27 ~ 45	60.8	60.57	10.07	98	-	-	98	-	-	
ROILER WATER TANK	(5)	11 ~ 15	4.2	4.2	84.42	15.15	99	-	-	99	-	-
F.F.O. L.O. RELIEF TANK	(5)	38 ~ 37	4.2	68.11	0.03	103	-	-	103	-	-	
S.T. COOLING WATER TANK	(9)	8 ^{*)} ~ 11	9.6	86.89	2.38	11	-	-	11	-	-	

NOTE : SLOW FOR DISTANCE TO BE AS PER BELOW.
DO SLOW : FORWARD FOR AHEAD
DO SLOW : AFT FOR AHEAD

Loaded Containers - See Container Stack Load above													
ITEM	Holds/No.	20' or 40' HORIZONTAL CAPACITY (Volumetric)											
		No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11	Total
On hatch	150k	20	42	42	42	42	42	42	42	42	42	42	42
	100k	20	42	42	42	42	42	42	42	42	42	42	
	50k	20	42	42	42	42	42	42	42	42	42	42	
	20k	20	42	42	42	42	42	42	42	42	42	42	
	10k	20	42	42	42	42	42	42	42	42	42	42	
	5k	20	42	42	42	42	42	42	42	42	42	42	
	2.5k	20	42	42	42	42	42	42	42	42	42	42	
	1.25k	20	42	42	42	42	42	42	42	42	42	42	
	625k	20	42	42	42	42	42	42	42	42	42	42	
	312.5k	20	42	42	42	42	42	42	42	42	42	42	
In hold	150k	20	42	42	42	42	42	42	42	42	42	42	
	100k	20	42	42	42	42	42	42	42	42	42	42	
	50k	20	42	42	42	42	42	42	42	42	42	42	
	20k	20	42	42	42	42	42	42	42	42	42	42	
	10k	20	42	42	42	42	42	42	42	42	42	42	
	5k	20	42	42	42	42	42	42	42	42	42	42	
	2.5k	20	42	42	42	42	42	42	42	42	42	42	
	1.25k	20	42	42	42	42	42	42	42	42	42	42	
	625k	20	42	42	42	42	42	42	42	42	42	42	
	312.5k	20	42	42	42	42	42	42	42	42	42	42	
Grand total	150k	20	42	42	42	42	42	42	42	42	42	42	
	100k	20	42	42	42	42	42	42	42	42	42	42	
	50k	20	42	42	42	42	42	42	42	42	42	42	
	20k	20	42	42	42	42	42	42	42	42	42	42	
	10k	20	42	42	42	42	42	42	42	42	42	42	
	5k	20	42	42	42	42	42	42	42	42	42	42	
	2.5k	20	42	42	42	42	42	42	42	42	42	42	
	1.25k	20	42	42	42	42	42	42	42	42	42	42	
	625k	20	42	42	42	42	42	42	42	42	42	42	
	312.5k	20	42	42	42	42	42	42	42	42	42	42	

Notes : 1. * Empty containers (100k or 150k or 20k or 10k or 5k or 2.5k or 1.25k or 625k or 312.5k)