SEA-Japan

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IHI MU delivers large container carrier to NYK

IHI Marine United Inc. (IHI MU) has delivered the *NYK Argus*, a large container carrier with a container carrying capacity of 6,492TEU, to Glorious River Line S.A. at the Kure Shipyard. This ship is the sixth of seven container carriers completed for NYK. The *NYK Argus* is the OverPanamax type put in service between Europe and the Far East.

Principal particulars

Length (o.a.):	284.00m
Breadth, mld.:	40.00m
Depth, mld,:	23.90m
Draught, mld.:	14.035m
Gross tonnage:	75,484t
Deadweight tonnage:	81,171t
Main engine:	DU-Sulzer 12RTA96C diesel x 1 unit
MCR:	61,350kW x 97.7rpm
Complement:	30
Speed, service:	approx. 25.0kt
Classification:	NK
Completion:	Feb. 4, 2004

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IHI MU delivers Future 48 to Nomikos

IHI Marine United Inc. (IHI MU) has completed *ASTRA*, a 48,000DWT bulk carrier, Future 48 (F-48), for AM Nomikos Transworld Maritime at the Yokohama Shipyard. The vessel is the first of the series of three vessels ordered by the same Greek owner.

The F48 type is the ultimate Handymax bulk carrier capable of calling at various ports, where the cargo-handling facilities are insufficient, with a shallow draught and four deck cranes.

IHI has built thirteen F-48 vessels since 1999 as the latest F-series of the standard type bulk carrier in the family tree of Freedom, Fortune, Friendship, Freedom Mk-II, Future-32 and 32A, and Future-42 types.

Principal particulars (standard) of the Future-48 type
L (b.p.) x B x D x d: 181.00m x 32.20m x 16.50m x 10.70m x
DWT/GT: 48,821t/28,171t
Main engine: DU-Sulzer 6RTA48T diesel x 1 unit
Service speed: 14.5kt
Complement: 25
Classification: NK

Sanoyas completes Panamax bulker *Loch Long*

Sanoyas Hishino Meisho Corp. has completed the 75,785DWT Panamax bulk carrier, *Loch Long* (HN: 1216), for Salivan Shipping S. A. at the Mizushima Works and Shipyard. The carrier is the 16th 75,500DWT type Panamax bulker developed by Sanoyas.

The *Loch Long* has the widest beam permitted to pass through the Panama Canal. It has seven cargo holds, and the living quarters and the engine room are located aft. The cargo holds are designed as a typical bulk carrier with topside tanks and hopper bottom tanks facilitating bulk cargo handling.

The hatch covers are the side rolling type, and opening and closing of the hatch covers are performed by chains and hydraulic motors. The main engine is the low-speed and super long stroke type two-cycle diesel engine. In combination with the highly efficient propeller with a large diameter, low fuel consumption is achieved.

Principal particulars:
L (o.a.) x L (b.p.) x B x D x d: 225.00m x 217.00m x 32.26m x 19.30m x 13.994m
DWT/GT: 75,785mt/38,871t
Main engine: MAN B&W 7S50MC-C diesel x 1 unit
MCR: 12.200ps
Speed, service: 14.5kt
Cargo capacity: 89,250m^3 (grain)
Classification: NK
Completion: Jan. 20, 2004

Hakodate builds 19th 32,000DWT class bulker *Clipper Harvest*

The Hakodate Dock Co., Ltd. delivered the 19th ship of the 32,000 DWT type Log/Bulk Carrier Series, Clipper Harvest (HN: 795) to Colas Harvest Ltd. (Clipper group) of the Bahamas on Jan. 9, 2004.

The ship was specially designed with an exceptionally shallow draft in comparison with other ships with similar cargo loading capacity. Based on this design, the ship is able to call at many ports and opportunities for gaining economic benefits from ship operation can be increased.

Furthermore, Nos. 2, 3 & 4 cargo holds have topside tanks and double hull structure, and Nos. 1 & 5 cargo holds have topside and lower hopper tanks.

Principal particulars
L (o.a.) x L (b.p.) x B (mld.) x D (mld.) x d (ext.): 176.85m x 168.00m x 29.40m x 13.50m x 9.560m
DWT/GT: 32,038t/19,730t
Main engine: Mitsubishi 6UEC52LA diesel engine
Output: 6,620 kW (9,000ps) x 130rpm
Complement: 24
Classification: ABS

OSY completes USA flag Handymax bulker, *Liberty Eagle*

Oshima Shipbuilding Co., Ltd. (OSY) has completed the 51,800DWT bulk carrier, *Liberty Eagle*, for Liberty Shipping Group. The vessel is registered in the US, satisfying the strict requirements of the USCG, and is the third US flag ship of this class built by the company.

The vessel has six holds and six hatch covers, and the Nos. 1 and 6 cargo holds have double hull construction. As a safety measure for flooding, a hold water ingress alarm system is provided. Four deck cranes (30MT x 26mR) are installed for increased cargo handling efficiency.

Adoption of B-60 reduced freeboard increases in deadweight, which is quite unique as a Handymax bulker. Containers can be loaded on the upper deck, hatch covers and in cargo holds. Dangerous goods can also be transported due to the special facilities such as CO_2 fire extinguisher, water-cooling system in cargo holds and insulation in the engine room. Fuel oil tanks are double hull construction for environmental safety.

Principal particulars
L (o.a.) x B x D x d: 189.99m x 32.26m x 16.67m x 12.25m
DWT/GT: 51,812t/28,762t
Container capacity: 675TEU
M/E: KAWASAKI MAN B&W 6S50MC-C diesel x 1 unit
MCR: 9,480kW x 127.0rpm
Speed, service: 15.30kt
Classification: ABS
Flag: USA
Delivery: Jan. 27, 2004

Universal Shipbuilding Corporation (USC) has a lot of achievements of building large bulk carriers. Among the building records of USC till now, the following 200,000 DWT type bulk carrier (Newcastle Max.) is to be one of the main products in the future. *Shin Kenryu* is the first vessel of this type and was delivered in March 2003.

To our readers

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Universal 200,000DWT type bulk carrier

The ship was designed to be accommodated in the main loading and unloading ports in the world, as one of largest vessels of this type, although Universal delivers 200,000DWT type bulk carrier the capacity of the cargo volume is more than 200,000DWT.

Economic efficiency is one of the focuses of the design development of the ship. In order to achieve economic efficiency, the ship has a large cargo hold capacity (=approx. 217,700m^3) and DWT (=approx. 202,500t) at scantling draft of 17.88m.

Another feature of the ship is the shallow design draft (=16.10m) ensuring access to the ports in the Seto Inland Sea with large deadweight (=178,000t), where many steel mills are located.

Furthermore, the bulk carrier is equipped with Ax-Bow, the technology developed by Universal (ex-NKK) in 1996, which won The Ship of the Year 2001 Award for the Dunkirk Max. Ax-Bow allows 20 to 30% reduction in the sea margin compared with the conventional bow design as introduced in Sea Japan No. 293.

Principal Particulars:
L (o.a.) x L (b.p.) x B x D: 299.95m x 290.00m x 50.00m x 24.10m
Draft (Design): 16.10m
Draft (Scant.): 17.88m
Deadweight (Design): 178,963ton
Deadweight (Scant.): 203,508ton
Gross Tonnage: 101,953ton
Service Speed: 14.5knots
Main Engine: MES MAN B&W 6S70MC Mark VI
Output: 16,020kW x 91min^{-1}
Classification: NK

MHI completes high efficiency Ro-Ro cargo ships

Nippon Express Co., Ltd. and Shosen Mitsui Ferry Co., Ltd. have each put two (2) high-speed RO/RO cargo ships into service on the Japanese domestic route between Tokyo and Hakata. In this new project, the operators will rearrange their fleet from the existing six vessels to four vessels and supply a daily service.

The *Himawari No.5* (HN: 1096) is the first vessel of this series, and she was delivered at Shimonoseki Shipyard of Mitsubishi Heavy Industries, Ltd. on 24th September 2003. The other three sister vessels, *Sunflower Hakata, Sunflower Tokyo*, and the *Himawari No. 6* were also delivered at MHI Shimonoseki by the end of December 2003.

In the design stage of the new vessels, special attention was paid to the study of suitable deadweight and vehicle loading capacity, and the development of hull form in order to improve the propulsive performance and especially save fuel oil consumption. As a result, the new vessels can reduce the duration of the voyage by 4 hours and increase 30% vehicle loading capacity compared with the previous six (6) vessels.

Principal Particulars
Classification NK, NS* (RGCS) (Vehicles Carrier), MNS* (M0)
Principal Dimensions
L (o.a.) x L (b.p.) x b x D x d: 166.90m x 158.00m x 27.00m x 23.27m (at upper deck) x 6.60m
DWT/GT: 6,202t/10,470t (Japanese)
Speed, service: 23.0kt
Loading Capacity of Vehicles
Trailer chassis: 160 units
Ordinary car: 251 units
Complement: Crew: 15; Passengers: 12
Loading Ramp Ways
Bow shore ramp way: 1 unit
Stern shore ramp way: 1 unit
Hoistable inner ramp way: 2 units
Fixed ramp way: 2 units
Special Equipment
Fin stabilizer: 1 unit
Bow thruster: 1 unit
Stern thrusters: 2 units
Main Engine: 9UEC52LSE diesel x 1 unit
MR: 15,345kW x 127rpm
NR: 13,045kW x 120rpm
Electric Generators
Main diesel generator: 1,200kW x 2 units, 900kW x 2 units
Emergency diesel generator: 125kW x 1 unit

Himawari No. 5


Sunflower Hakata

NZC delivers passenger/car ferry domestic owner

Naikai Zosen Corporation (NZC) has delivered the 2,500GT passenger/car ferry, *Oita* (HN: 688), built at the Setoda Works to its co-owners, Uwajima Unyu Co., Ltd. and Corporation for Advanced Transport & Technology (CATT). The ferry is now in service between Yahatahama (Ehime Pref.) and Usuki (Oita Pref.)

The Ooita is a twin decker with two engines, two shafts, and two rudders. The ship has a smart and light appearance as a high-speed ferry. The bulbous bow, stern catamaran, and slender hull form are adopted for achieving high-speed navigation. Anti-rolling tanks are also provided for comfortable navigation. The bow thruster and two Schilling rudders facilitate berthing and unberthing.

A visor, ramp door, and separation door are provided at the bow. At the stern, a ramp door and slope at the port side are provided for smooth vehicle handling. Passenger cabins are installed along the first and second promenade deck, and consist of first and second class cabins as well as drivers' cabins. Barrier-free access is fully considered.

Principal particulars:
L o.a.): L (b.p.) x B x D x d115.00m x 105.00m x 16.00m x 10.60m (at 1st Promenade deck) x 4.45m (designed)
DWT/GT: 1,175t/2,453t
Car carrying capacity: 35 trucks and 25 passenger cars
Passenger accommodation: 500 persons
Main engines: Daihatsu 6DKM-36 diesel x 2 units
Speed, service: 20.2kt
Classification: JG

1st electronic-control UE diesel engine for large PCC

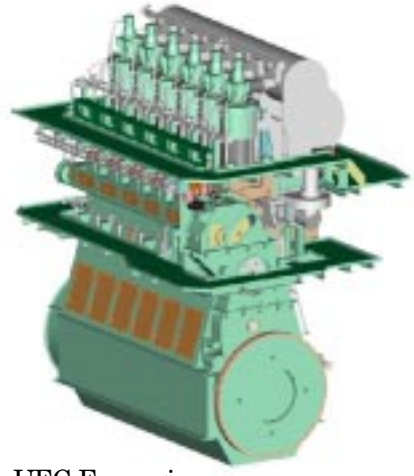
Mitsubishi Heavy Industries, Ltd. (MHI) will build its first electronic control diesel engine for a large pure car carrier (PCC) of Nippon Yusen Kaisha (NYK) to be constructed at Toyohashi Shipbuilding Co., Ltd. This latest model is called the 8UEC60LSII-Eco (generally UEC-Eco) and demonstrates low emission of NO_x, smoke, and soot. The particular feature of the engine is greatly improved fuel economy at partial load. PCC has a car carrying capacity of 6,400 units and will enter service in June 2005.

The electronic control system is adopted for controlling fuel injection, exhaust valves, the starter, and cylinder lube injection. Accurate and functional control of these principal components will contribute to the overall economy of the engine due to optimization of fuel and lube consumption. This system will also improve engine operation in the full range from the start-up to full load. Improvements include increased reliability of combustion chambers; no need for regulating fuel injection timing due to changes in operation conditions; advanced startability of engine; and betterment in very slow speed operation. In addition, engine abnormality monitoring functions have been upgraded to ensure operational reliability.

MHI will continue to develop the UEC Eco-Engine into more marketable products, meeting requirements for environmental regulations, stable ship operation, and high economy. For the purpose, the stratified water injection unit, low load FO control system, preventive maintenance system (Doctor Diesel), and SIP system already used on 100 vessels were redesigned to be easily applicable to the UEC Eco-Engine.

The UEC Eco-Engine can reduce NOx emission by approximately 15%, while maintaining the advantages of the previous UEC engines. Less smoke and soot will be emitted, decreasing the load on the environment as an eco-friendly engine for the 21st century. The UEC Eco-Engine has been developed to cope with the move to strengthen exhaust gas regulations to marine diesel engines worldwide. The Eco affixed to the name stands for Electronic control, Ecology, Easy Control, and Economy.

MHI started design of an electronically controlled diesel engine in 1988, and conducted tests on the single cylinder test engine at the Nagasaki Research Institute. In October 2003, the 7UEC33LSII diesel engine used for electric power generation at the Kobe Shipyard was remodeled into the electronic control engine (for all cylinders), and verification tests started on the engine durability, concurrently being operated in commercial use. Up until now, the engine has been running under good conditions. Therefore the engine has highly been evaluated, leading to the first order for marine use.



UEC-Eco engine

Main specifications

Type:	8UEC60LSII-Eco
Cylinder bore:	600mm
Piston stroke:	2300mm
No. of cylinders:	eight
Output:	15,540kW
Speed:	104rpm

Besides the UEC60LSII-Eco, MHI has also completed development of the UEC33LSII-Eco and UEC50LSII-E engines, and will continue to apply the electronic control system to all types of UEC-LSII and LSE engines.

7UEC33LSII diesel engine used for electric power generation at the Kobe Shipyard. Verification tests were conducted on the engine durability, concurrently being operated as a commercial use. (Photo at left shows the generator side.)

NZC completes 48,200DWT methanol carrier, Sabrewing

Naikai Zosen Corporation (NZC) has completed the 48,200DWT methanol carrier, Sabrewing (HN: 678), for New Glory Shipping S. A. at the Setoda Works. The carrier is now mainly transporting methanol produced from natural gas at Trinidad and Tobago to North America or Europe.

The Sabrewing is the Panamax type and can carry petroleum products and chemical types II and III. The double hull construction meets requirements of MARPOL.

20 cargo tanks are provided, each of which has a hydraulically driven cargo pump. Five separated ballast tanks are built along each side of the ship. The No. 4 ballast tank of each side is equipped with a ballast pump, covering ballasting of remaining tanks.

The living quarters have been improved greatly. The quarters are separated from the engine casing to secure quietness, and the ceiling height is as tall as 2.2m to provide a wider free space.

Principal particulars:

Length, o.a.:	186.00m
Length, b.p.:	178.00m
Breadth, mld.:	32.20m
Depth, mld.:	18.40m, designed
Draft, mld.:	11.60m
Deadweight:	49,323t
Gross tonnage:	29,647t
Cargo tank capacity:	57,844m^3
Main engine:	Hitachi Zosen MAN B&W 6S50MC-C diesel x 1 unit
Output, MCR:	9,480kW x 127 min^{-1}
Speed, max. trial:	15.867kt
Classification:	ABS

Clipper Moon

Owner: Solvang ASA and Bergesen D. Y. ASA
Builder: Kawasaki Shipbuilding Corporation
Hull No.: 1531
Ship type: LPG carrier
L (o.a.) x L (b.p.) x B x D x d: 204.915m x 200.45m x 32.20m x

20.20m x 12.00m
DWT/GT: 44,822t/35,012t
Cargo tank capacity: 59,388m3
Main engine: Kawasaki-MAN B&W 5S60MC-C diesel x 1 unit
Speed, service: 16.55kt
Classification: DNV
Completion: Dec. 4, 2003

Norca

Owner: Naviera Demayo, S.A.
Builder: Onomichi Dockyard Co., Ltd.
Hull No.: 494

Ship type: Product Tanker
L (o.a.) x B x D x d: 182.50m x 32.20m x 19.10m x 11.35m
DWT/GT: 47,094t/28,517t
Main engine: MAN B&W 6S50MC (Mark-VI)
Speed, max.: 15.99kt
Classification: ABS
Completion: Oct. 28, 2003

Shinyo Brilliance

Owner: Shinyo Brilliance Limited
Builder: Sanoyas Hishino Meisho Corp.
Hull No.: 1215
Ship type: Bulk carrier
L (o.a.) x L (b.p.) x B x D x d:

225.00m x 217.00m x 32.26m x 19.30m x 13.994m
DWT/GT: 75,707mt/38,886t
Main engine: MAN B&W 7S50MC-C diesel x 1 unit
Speed, service: 14.5kt
Classification: NK
Completion: Jan. 15, 2004

Yamayuri

Owner: Japan Railway Construction, Transport and Technology and Agency; Bingo Kyodo Kisen Co., Ltd.; and Naigai Kisen Co., Ltd.
Builder: Imabari Shipbuilding Co., Ltd.
Hull No.: 589

Ship type: Self-unloading coal carrier
L (o.a.) x B x D x d: 139.92m x 26.00m x 13.60m x 6.499m
DWT/GT: 15,128t/12,588t
Main engine: 7UEC37LS II x 1 unit
Speed, service: 13.5kt
Classification: NK
Completion: Dec. 19, 2003