

Delivery of mv "Interlink Capacity" - 38,000 DWT Bulk Carrier



SMC is pleased to report ship delivery in Taizhou Kouan Shipbuilding Co. Ltd, China: of mv "INTERLINK CAPACITY", Hull No. TK1015, the eighth unit from the series of 15 x GREEN DOLPHIN 38,800 DWT Bulk Carriers ordered by Marine Capital Corporation, Bermuda.

Vessel's principal particulars: LOA = 180.0 m, B = 32.0 m, D = 15.0 m, T d/s = 9.5/10.5 m. Propelled by MAN 5S50ME-B9.3 Tier II engine and developing 4,575 KW x 89.9 rpm at CSR the vessel will operate at the speed of 14 knots at 9.50 m draft. All vessels in the series are classed by Lloyd's Register and will be built to Marshall Islands flag requirements.

Classification notes: LR +100A1 Bulk Carrier, CSR, BC-A, Hold Nos. 2, 4 may be empty, Grab [20], ESP, Ship Right (CM, ACS(B,D)), *IWS, LI, ECO(P, BWT, EEDI, IHM), Ice Class 1C FS. + LMC, UMS; With Descriptive notes: Ship Right ((BWMP (F,T), SCM, SERS).

The construction commenced with Steel Cutting on 22nd April 2014 followed by the erection starting in slipway on 14th Nov 2015. The Ship was launched on 14th Jan 2016 and the sea trial completed successfully on 16th May 2016. BSM, HK took delivery of ship after Delivery Signing Ceremony on 12th June 2016 which is attended by Class Surveyors, SMC Site Team and Shipyard representatives.



I.S. Sreekumar
Site Manager

The ship sailed out from shipyard on 13 June 2016.

Delivery of mv "RB Jake" - 82,000 DWT Bulk Carrier

SMC is pleased to report delivery ceremony in Maizuru Shipyard Japan Marine United Corporation, Japan: of mv "RB Jake", Hull No. S508, the first unit from the series of 2 x 82,000 DWT Bulk Carriers ordered by RB Shipping Ltd, Vessel's principal particulars: LOA = 229.0m, B = 32.26m, D = 20.0m, T d/s = 12.2/14.45m. Propelled by MAN B&W 6S60ME-C8.2 and developing 7,100 KW x 80.3 rpm at NCR the vessel will operate at the speed of 14.5 knots. All vessels in the series are classed by Bureau VERITAS and will be built to Marshall Islands flag requirements.

Classification notes: Bureau VERITAS, 1 +HULL +MACH Bulk Carrier CSR CPS (WBT) BC-A (holds 2, 4, 6 may be empty) ESP GRAB [20] Unrestricted navigation +VeriSTAR-HULL +AUT-UMS MON-SHAFT BWT GREEN PASSPORT INWATERSURVEY".

Departure of the vessel was on 06 June 2016.



Aykut Cetin
Site Manager



Delivery of mv "Interlink Affinity" - 39,000 DWT Bulk Carrier



SMC is pleased to report the delivery in Zhejiang Zengzhou Shipbuilding Co. Ltd., China of mv "Interlink Affinity", Hull No. ZZ056, the first unit from the series of 3 x 39,000 dwt Emerald Open Hatch Bulk Carriers ordered by Interlink Maritime Corporation, Bermuda.

Vessels' principal particulars: LOA = 179.90m, B = 30m, D = 14.80m, Td/s = 9.50/10.60m. Propelled by one MAN B&W 5S50ME-B9.2 developing 4,810 kW x 91.7 rpm at NCR, the vessels will operate at the speed of about 14 knots.

All vessels in the series are classed by Lloyd's Register and will be built to Marshall Islands flag requirements.

Classification notes: LR + 100A1, BULK CARRIER, CSR, BC-A, {HOLDS Nos. 2 & 4 MAY BE EMPTY}, ICE CLASS 1C, GRAB[25], ESP, *IWS, LI, ECO, SHIPRIGHT (ACS(B,D),CM), with the descriptive notes: "SHIPRIGHT SCM,BWMP(F+S), SERS, IHM" + LCM, UMS.



The vessel was delivered on 09 May 2016.

Nistor Constantinescu
Site Manager

Overview of Ballast Tank Protection

HISTORY

STABILITY is the one of main concerns when you are sailing in the ocean. And in terms of safety, this issue has the same history as human's life at sea.

The most appropriate way is "ballast" to improve weight stability & propulsion efficiency too.

In a first phase, dry materials were embarked for ballasting such as stones, rocks and sand. They were cheap and can be throw away when do not needed anymore,

Shifting from dry matters to seawater as ballast was a logical evolution in the 19th century. Sea water is always present in abundant quantities, free and easily handled by means of pumps.

Simultaneous adoption of full metal ship & sea water ballast led "corrosion" which was the different way of deformation from inside of ship's structure dislike before. However, significant protection methods did not be considered except only installing sacrificial anode & applying oily materials.

SHELL was the pioneer through adopting "Tar epoxy coating" for their tankers which were built in Japan 1967.

That introduction was called as "special lining coating" in ship building industry at that time, because epoxy structure itself is the most balanced barrier material by performance & cost wise. Further coal tar blending assists water proof performance. Hence, coal tar epoxy coating was industrial standard for ballast tank protection during more than 30years before withdrawing by two main reasons.

Firstly, coal tar resin contains potent carcinogens. And another problem was color. Surveyors could not verify the reality of structure condition in the dark place like lost ways in the nightmare.



As results of effort to overcome these limitations by various ways, Chinese and Japanese builders currently apply light colors' modified epoxies which are two components epoxy paints with addition of binder such as hydrocarbon resin substitutes for coal tar. And yard standard offered from Korean builders are usually pure epoxy systems which means no additional different resin anymore.

IMO PSPC

The one of biggest disasters in 2002 - "The Prestige oil spill" was the beginning of new serious studies & discussions.

It didn't take long time to realize that coating quality was the one of elements for this failure in MSC (Maritime Safety Committee) of IMO based on inspection results of ABS surveyor which includes expected reason as metal fatigue after fracturing ballast tank coatings.

In December 2006, IMO adopted amendments to the SOLAS 74/78 by resolution 216(82) of the MSC as results of repeated debates.

This resolution mandates compliance with the new IMO "Performance Standard for Protective Coatings for dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers" (IMO PSPC).

IMO PSPC aims for a 15 year target life of coating quality. An approved coating should keep the tank in "Good" condition for the complete period.

**Good" condition (Clarification of IACS)

- 1) Breakdown of coating or area rusted: < 3%
- 2) Local breakdown or rust on edges or weld lines: < 20%



W.S. Jang
Marketing
Chugoku Samhwa Paints, Ltd / Korea



IMO PSPC consists of systematical approaching to get reliable coating performance with following terms which have to be reviewed by all relevant parties such as owner, builder and coating manufacturer.

- A. Coating system approval
- B. Surface preparation (Both Primary & Secondary)
- C. Painting
- D. Inspector & Inspection items
- E. CTF (Coating Technical File)
- F. Work flow

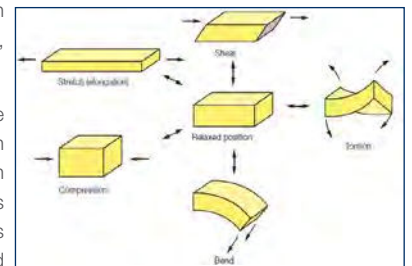
WHERE WE GO NEXT

IMO PSPC was remarkable shifting of paradigm in marine coating industry, but there is no perfect material & almighty regulation like everything in our world.

"Elongation" is the representative agenda in remaining items such as low contents of Volatile Organic Compound, alternative materials, stability with BWMS... which does not be covered by IMO PSPC.

All structures have their own behavior when getting load, stress, fatigue, & thermal fluctuation.

Ship is the representative structure which shall be designed with considering operation condition against wave & current. This is reason why naval architects always try to calculate optimized value of steel thickness & load design.



Types of mechanical deformation on "BASF handbook on Basic of coating technology"



Indeed, many survey experts found out coating failures caused by "cracking" despite after implementation of IMO PSPC. Because elongation rate of the most common SS-400 steel is approximately 20%, but typical epoxy coating materials' allowance is less than only 5%.

Rust spots can be appears on parts of less film thickness, holidays, or cracking which bring out weak barrier points of protective coatings. In these main corrosion progresses, less film thickness & holidays could be minimized by good application team & supervision work. However, cracking risk cannot be eliminated by only inspection. This is mainly related with elongation character of coating film itself which consist of structure of binder, pigment volume ratio, and dosage of each ingredient in balance.

With understanding of the highest risk of coating failures in practical service, super flexible character might be the 1st priority when developing sustainable coatings against load & fatigue for longer periods.

And these kinds of new products will be implemented in near future to protect our life & asset more effectively.

References

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Introduction of Sinokor site team



Shanghai Waigaoqiao Shipbuilding Company, Ltd was established in 1999 and in October 2015 celebrated its 16th anniversary.

The shipyard is located on the outskirts of Shanghai, China, and comprises several separate premises in which ships are being constructed.

Up to now, according to the shipyard's records, the company built more than 280 ships, mainly bulk carriers, crude oil tankers and crude /oil products tankers.

The project of three 180,000 DWT Bulk Carriers for Korean ship owner SINOKOR commenced in SWS in mid of 2015.

All SINOKOR/SMC vessels have been erected in the SWS dry dock No. 1 (360 x 106 m), which is equipped with the carnage facilities of 2 x 600 t.

Two of the vessels (yard Nos.: H1365 & H1366) have been already launched, whilst the third one – H1367 still remains in the dry dock at her final erection stage.

SMC was selected for providing its supervision services during vessels' construction from among five supervisory companies that had offered their services to SINOKOR.

SMC supervision team in SWS consists of two hull supervisors, two machinery supervisors, three paint supervisors, one outfitting supervisor and a site office secretary. All the supervisors' and site office activities are being coordinated and supervised by the site manager Mr. Waldemar Pogorzelski.

Two SINOKOR's representatives have been permanently staying in the SMC Site Office, with a status of the owner's observers, since the very beginning of the project.

Supervisors of Sinokor site team



Waldemar Pogorzelski
site manager



Chang Lu
Machinery Supervisor



Ianculovici Ion
Hull Supervisor



Igor Zelenskii
Machinery Supervisor



Jun Xu
Painting Supervisor



Roman Bobov
Painting Supervisor



Jian Shen
Painting Supervisor



Tony Chen
Hull Supervisor

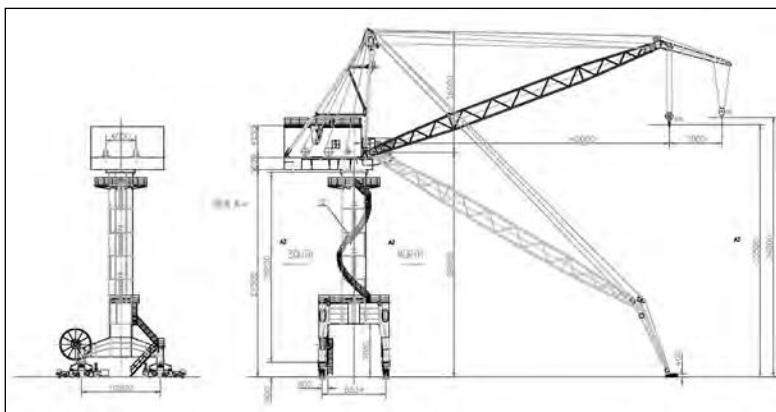


Xiaokang Sun
Hull-Outfitting Supervisor



Ivy Jin
Secretary

BAE Portal Crane



Moka Adinarayana
Project Manager
Schulte Marine Concept



SMC has been awarded supervision of a 54 tonne electric Portal Crane which marks another step in diversifying our scope of supervision services. Portal crane which has been ordered by BAE Systems – USA, is to be designed and manufactured by Rainbow Heavy Machinery Co. Ltd., Nantong (RHM). The 54 tonne electric Portal crane is to be designed to comply with ASME B30.4 requirements. SMC's scope of work includes plan review and on-site supervision at RHM's Nantong facility. Crane which weighs about 340 tonnes takes 4 months to fabricate and another 2 months for assembling and testing. Crane is planned to be shipped fully assemble to US west coast on a Project Cargo ship and land it directly on BAE's pier in a ready to use condition.

SMC's Plan Approval Module software

MariApps Marine Solutions (www.mariapps.com) is our Group technology company offering state of the art marine enterprise solutions for ship managers and ship owners. MariApps has developed a flagship Enterprise Resource Planning (marine ERP) suite called PAL e3, a software targeting ship management and ship owners providing 'single version of the truth' having all data in one place to enable organization's performance and profitability. Headquartered in Singapore and with offices in India, Singapore and Cyprus MariApps is a Microsoft Gold Certified Development Partner and has been certified by Deloitte with ISAE 3402 – Type 2 certification for enterprise standard development and operating framework readiness to deliver systems.

MariApps has developed for SMC modules dedicated and specific to newbuilding projects: Plan Approval, Site Supervision, HR, Standard Code of Practice (under development), Master Makers List (under development).

PAL e3 Plan Approval Module (PAM) is a sophisticated, automated, web-based document control system facilitating redundant and efficient electronic management and execution of plan approval process featuring the following benefits:

- Documents Routing, Review, Approval: with definable process flow.
- Automated reporting: assisted with customizable dashboard approach, facilitating data driven decision making and management.
- Increased data security, control and reliable backups: project dedicated, highly secured server.
- Facilitated collaboration: both internal and external collaboration platform through the use of web based environment and project defined workflow.
- Improved timeline: a tool efficiently driving document management processes and documents automatically through process cycle.

Xiawei Ai

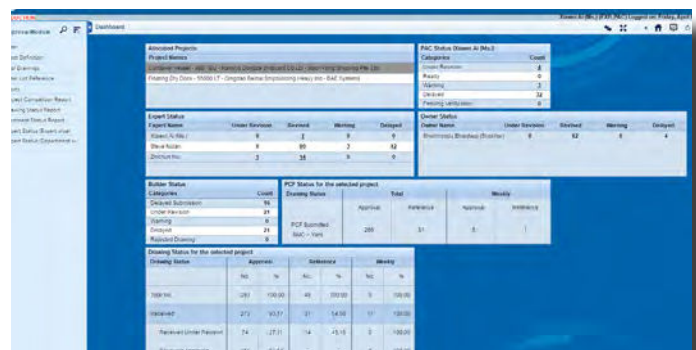
Technical Officer
Schulte Marine Concept



- Built-in compliance: the use of project and corporate compliant workflow and document lifecycle management.
- Consistent content: content is consistently formatted, named and controlled, updated with automated distribution capabilities, and document revision management.
- Mobility: documents review in a mobile environment, system works with all browsers (IE, Chrome, Firefox) and mobile platforms (iOS, Android, Windows).
- Intuitive, simple, easy to use, highly customizable.

SMC has started implementing PAL e3 Plan Approval Module for all new projects.

Dashboard



Wärtsilä RT-Flex engine to the next age, the WIN G&D X-DF Engine

Stephen Nolan

Technical Manager
Schulte Marine Concept



Gas is revolutionising marine propulsion industry and is one answer to the challenge faced by shipowners and operators from increasingly stringent environmental regulations.

Wärtsilä has produced over 1,000 Dual Fuel engines for the 4 stroke medium speed sector of the marine industry, and developed the RT-Flex engine range with a common fuel rail (liquid fuels) for the 2 stroke sector and boast a reliable concept in engine design.

Wärtsilä has also formed a new joint venture company with CSSC to bring its X-type engine development to the new age of Gas and Diesel Fuel Engines. The RT-Flex engines operating on liquid fuels meet IMO Tier II requirements, or IMO Tier III with an SCR fitted. The RT-Flex X-62 and X-72 engines with common rail technology are designed with a minimum physical width, whilst still retaining favorable stroke to bore ratios (low piston removal heights) and smaller engine dimensions. This results in a slimmer after vessel hull design, leading to flexibility in the propeller type and size with better overall shafting and propeller efficiency.

Wärtsilä have now taken the RT-Flex engine to the next age with the launch of the six cylinder X 62 DF Engine.

In April this year, Winterthur Gas & Diesel (WinGD) together with Doosan Engine Co., Ltd demonstrated the first low-speed, low-pressure Wärtsilä 6-cylinder X62DF (W6X62DF) engine for commercial application.

In addition to witnessing the W6X62DF running under a number of load and fueling conditions, visitors to the X-DF powering the future event also saw validation of its engine control features, tuning, economy and emissions. Key aspects highlighted included the engine's design fuel consumption, its Tier III NOx emissions compliance in gas mode without any additional exhaust treatment – and its capability to run stably in a wide operating window. The WinGD X-DF technology allows stable operation on gas across the entire load range from 5% to 100%, avoiding the need to increase liquid fuel injection under any situation where sufficient gaseous fuel is available. Moreover, at around only 1% of the total heat released during combustion, pilot fuel consumption is lower than with other low-speed dual-fuel engine technology.

The engine is under further development to allow a "Fuel- sharing" feature, use of liquid and gaseous fuel at the same time, that will give vessel operators broad flexibility to be as economically efficient as possible at any given time.

The W6X62DF engine is also the first X-DF engine for the new generation of very

large LNG carriers. It is currently under test by Doosan before being delivered as one of a pair that will power the first of two 174,000 m³ LNG carriers being built by Samsung Heavy Industries Co., Ltd (SHI) in Korea for SK Shipping Co., Ltd and Marubeni Corporation.

Schulte Marine Concept is currently carrying plan approval and will commence site supervision for 174,000m³ LNGc, twin s/kg, WIN D&G 6X62DF engines project at Samsung Heavy Industries, Korea.



courtesy of WinGD