

Bridging the gap between the mine and the power station

A new joint venture in Indonesia is making innovations in floating crane design, and enhancing operations at offshore floating terminals

Swire CTM Bulk Logistics, Monaco

Indonesia, the world's largest steam coal exporter, with annual steam coal exports up to the 170 million tons mark, of course benefits from its ideal geographical position close to its principal consumer markets. The freight advantages arising from there are obvious. Indonesia's rise to this dominant position has been achieved over a rather short time frame, as it only really started exporting steam coal in 1990 when it shipped some five million tons.

The necessity of offshore floating terminals

The rapid rise in exports has not been matched by an equally fast expansion in port infrastructure and still today coalmines in Indonesia, unlike their primary competitors in nearby Australia, predominantly rely on offshore floating terminals or geared tonnage.

The geographical spread of the mines, and the need to have loading systems in place relatively quickly, played a role in this. Offshore floating terminals require a short lead-time, are flexible and have a low capital cost. One of the principal drawbacks with floating terminals lies in their slower load rates, when compared to their onshore cousins.

Indonesia is home to some 50 offshore floating terminals, and it is estimated that as much as 120 million tons of coal are handled annually by such terminals in the country. Improving the loading speed will therefore contribute significantly to the competitiveness of its exported coal, and lead to further efficiencies in the logistics chain.

However, in the offshore dry-bulk logistics arena and its floating terminals and cranes, there are – surprisingly enough – not many technical innovations in sight that aim to diminish this gap. Competence, skill optimization, extensive operational experience and a proven track record or system are, and remain for all participants, the fundamental ingredients for a smooth and reliable operation year after year.

Bridging the loading speed gap

One company active in the offshore terminal field that has been looking at how to bridge this loading speed gap, amongst other innovations, is the joint venture company PT Mitra Swire CTM (MSC).

MSC commenced operating its new building offshore floating crane, the *Princess Abby*, at the end of 2008 under an offshore logistics contract with mining company PT Berau. The innovative design has proved its worth in the meantime, having achieved a highest NET daily loading rate of 29,000 tons, and a best daily average loading rate of 27,600 tons. There are very few single floating cranes around that can boast a similar daily rate while operating in open sea conditions.

MSC aims to be a fully integrated logistics supplier of dry bulk material, from mine to end-user, including ocean transportation. The company offers clients the opportunity to deal with only one

Princesse Chloe



PT. MITRA SWIRE CTM

BTU: salient points



- Desing loading rate > 50,000 tpd
- Minimun loading rate 32,000 tpd
- No limitation on OGV size
- Can load at both OGV's sides
- Heavy duty design
- Open sea operation
- Buffer storage availability
- Coal mechanical sampler
- Telescopic ship-loader
 - 2200 tph capacity
 - outreach 42 meters
- Trimming chute
- Dozer lifting device
- Environmental friendly

Design: Logmarin/Interprogetti • Flag: Indonesia • Class: Rina and BKI

The design of the *Princess Chloe* floating crane, which will be delivered later this year.

partner, thus optimizing the flow of raw materials through cost effective solutions. Without the trouble of having to interact with many different organisations, the gap between mine and power station is bridged further still.

MSC has always strived for improvement in the performance of its systems. To achieve this goal, they have established close working relationships with Logmarin Advisors; leading bulk material handling facilities designers and manufacturers Liebherr, Bedeschi, Peiner SMAG, associated marine engineering company Interprogetti, and the Italian classification society RINA (an IACS member). The aforementioned *Princess Abby* – designed by Logmarin Advisors, Interprogetti and equipped with a Liebherr crane – is proof of the success of MSC's strategy, and demonstrates the company's ability in achieving its goals.

Innovative floating crane design

Building on the success of the *Princess Abby*, MSC has ordered a new floating crane for delivery later in 2010, to be named *Princess Chloe*, and has also entered into a another offshore logistics contract with PT Berau. This latest new building, using the experience gained with the *Princess Abby* and taking into account customer requirements, is conceived for open-water operation and equipped with combined 'Roll Damping Systems' for pontoon rolling motions attenuation (amplitude, period and acceleration). This innovative floating crane concept, designed by Logmarin Advisors, is less sensitive to adverse weather conditions, compared with the standard floating cranes.

With a daily designed loading rate of 50,000 tons, the *Princess Chloe* is capable of loading over 800,000 tons of coal per month. The environmentally friendly coal transfer operation will be carried out at a daily average rate exceeding 40,000 tons. The telescopic ship-loader (conceived by Bedeschi and Logmarin), equipped with a distribution chute, means that loading operations are carried out smoothly and efficiently, even when loading coal with a high stowage factor.

The efficiency of this coal handling facility will enable PT Berau to maximize the vessel's cargo-carrying capacity (thus, for instance, avoiding broken space in the vessel's holds), minimize the vessel loading time and thus reduce transportation costs significantly.

The *Princess Chloe* has significant competitive advantages over existing offshore floating transfer units. Furthermore, the *Princess Chloe* is designed to be capable of carrying out loading operations on both sides of the Ocean Going Vessel (OGV), for better management of operations in adverse weather conditions.

Last but not least, in addition to the spare parts recommended by Class, the *Princess Chloe* will be provided with a suitable number of additional spares to enhance operational efficiency, and has been designed with redundancy built in, so as to give further assurance of smooth operation.

In summary, the main common characteristics of the system are:

- Indonesian Flag

- Brand new equipment
- Key components supplied by renowned suppliers such as Liebherr, Peiner Smag, Caterpillar, Bedeschi.
- Capable of performing the transshipment of coal into OGVs from the coal barges off Muara Pantai, East Kalimantan, Indonesia.
- Designed for offshore transshipment operation in accordance with Class requirements. The *Princess Chloe* (including its hull, machinery and equipment) will be constructed and registered in accordance with the rules and regulations of RINA classification society, and classed Lloyds 100A1 or equivalent.
- The coal handling equipment designed under MSC and Logmarin specifications are manufactured in compliance with the highest classifications for heavy-duty work in open-water conditions.
- The crane(s) incorporate specific features for open-water conditions. These design features all ensure high turnover, efficient and effortless operation, as well as smooth and wider life-cycle times.
- Double independent electrical generator sets (one set on duty, one stand-by or maintenance to ensure 24-hour, non-stop operation) i.e. built-in redundancy.
- Availability of automatic sampling, belt scale and metal detector in accordance to the latest standards.
- Complies with Indonesian laws and regulations and specific customer requirements.
- Operates in accordance with ISPS and ISM code.

Protecting the environment

Protection of the environment is an integral part of the MSC's business philosophy. MSC require that their staff at sea and ashore carry out their duties giving environmental concerns the highest possible priority. For this reason, the following devices have been built in to ensure environmentally friendly coal transshipment operations:

- Water spray system to minimise dust emission
- Spill plates to avoid and minimise coal spillage
- Fully enclosed conveyor system and coal transfer points to avoid wind-generated dust
- Sewage system to treat dirty water
- The diesel engine for power supply has been designed in accordance with the latest standards to reduce emission.

The floating crane *Princess Chloe* is under construction at Keppel Subic Shipyard, Philippines, under the supervision of Logmarin Advisors. She will be delivered from the yard later this year. Amongst other shipbuilding, conversion and repair projects, Keppel Subic yard has built the transshipment units *Bulk Pioneer*, *FC Nicholas*, *Princess Abby*, *Zeus* and *Princess Rachel*.

ABOUT THE COMPANIES

ENQUIRIES

PT Mitra Swire CTM (MSC) is an Indonesian joint venture between PT Mitra Bahtera Segarasejati and Swire CTM Bulk Logistics. With an expanding fleet, daily throughput capability is expected to exceed 200,000 tons in the future. MSC's network is spread over five continents, with the Hong Kong, Singapore, Jakarta and the Monte Carlo offices of the joint venture partners co-ordinating, supervising and managing the logistics projects implementations from inception.

PT Mitra Bahtera Segarasejati (MBSS) entered the Indonesian logistics market in 1993. Today, MBSS

operates a fleet of 90 sets of tug and barges ranging from 4,000 to 11,000 deadweight capacity, four offshore transshipment units (including the *Princess Abby*) with a further two under implementation (including the *Princess Chloe*).

Swire CTM Bulk Logistics (SCBL) is a 50-50 joint venture between the China Navigation Company Limited (CNCo), part of the Swire Group (a multi-national, multi-disciplined commercial group with over 130 years of experience in shipping), and C Transport Maritime (CTM), part of the Drylog Group.

Web: www.mbss.co.id
(PT Mitra Bahtera Segarasejati)
www.swirectmbl.com
(Swire CTM Bulk Logistics)