

# MacGREGOR

## news



**Container ship  
size and fleet  
still growing**

**New division responds  
to opportunities offshore**

**Booming bulker market  
boosts crane orderbook**

# A flexible business thrives in boom or bust

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**"There is a need to be more flexible now than ever before"**



The booming shipping market is providing great opportunities for companies that have a flexible business model, such as MacGREGOR. Thanks to this flexibility, as soon as increased production capacity and component sourcing were needed, we were ready to respond. While taking advantage of the situation we can also make sure that we have the capacity to fulfill our obligations, and provide our customers with the level of support and service that they have come to expect from MacGREGOR.

The market is very much based on supply and demand. Limitations in supply cause prices throughout the chain to increase. This obviously applies to MacGREGOR and its sub-suppliers. Our answer is a business model built on the 'partner' concept. We are not limited by the capacity of our own production facilities but instead we have a wide network of production partners capable of giving us the flexibility needed in a cyclical market.

This network also means that we can be sure that the equipment produced will have a consistently high MacGREGOR quality, and be delivered on time, even in periods of great demand. Our production partnerships are long-term relationships, in which both parties fully understand each other's business, working methods and culture. In some cases we have designed a partner's new factory. So peak demand does not force us to subcontract production work out to the open market – we have prepared for these circumstances, and so have our partners. Which is good for our customers, and for our business.

For many years MacGREGOR's strategy has been to do what it does best – design, engineer and innovate – and then manufacture the resulting products at places where quality and punctuality can be guaranteed. As shipbuilding migrated to Asia, and European shipbuilding declined, MacGREGOR has followed the business by increasing its activities in Asia. We now have production partners in China, Korea, Japan and Vietnam as well as in Poland and Croatia.

There is a need to be more flexible now than ever before – on a global basis. Take the changes in Chinese VAT regulations as an example. Overnight this is creating an increased cost structure for Chinese manufactured products, adding to the impact caused by more expensive raw materials. These events need to be dealt with straight away, while at the same time we continue to serve our customers efficiently and effectively.

A boom can test a company's strength as much as the lean times do. MacGREGOR has experienced plenty of peaks and troughs in shipping sector cycles over the past 70 years. We have learnt that flexibility is the answer – both for our own business and for our customers' businesses. Whatever the market conditions, we can provide top quality, innovative cargo handling systems that will work when needed, at a budgeted through-life cost. We are strong enough to guarantee that. ■

Olli Isotalo, President, The MacGREGOR Group

Delivered by Samsung earlier this year, Seaspan's *CSCL Zeebrugge* is sixth in a 9,600 TEU eight-ship series for charter to China Shipping Container Lines; *CSCL Zeebrugge* features MacGREGOR hatch covers and fixed and loose lashings

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**MacGREGOR**

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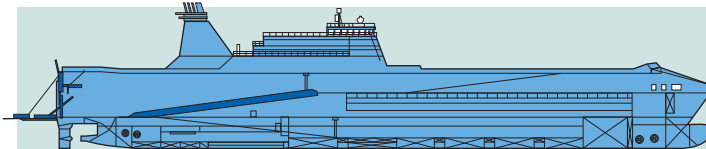
## Offshore division formed

MacGREGOR has formed a new Offshore division, founded on two recently acquired companies, Hydramarine in Norway, and Plimsoll in Singapore. The division has more than 660 employees: 160 in Norway and 500 in Asia.

The Offshore division's management team is headed by Henrik Vildenfeldt, former senior vice president of corporate development in the MacGREGOR Group. "By acquiring Plimsoll and Hydramarine, MacGREGOR was able to quickly achieve a global presence offering world-class equipment and service for the offshore industry," he said during an interview with David Foxwell, editor of *Offshore Support Journal* (see page 20).

The Offshore division will enable a high level of attention and service to the North Sea and Asia Pacific customer base and will form an important platform for the continuous development of existing – as well as new – products to serve the offshore industry. Together with MacGREGOR's Service division, the new division will also focus on offering the support of the global MacGREGOR service network to the extensive installed base of Hydramarine and Plimsoll equipment. Through strategic acquisitions within the offshore service area, ie, Grampian Hydraulics and Vestnorsk Hydraulikkservice AS (VNH), MacGREGOR has strengthened its resources as well as knowledge within this business area.

Since it was set up, the Offshore division has won deck machinery contracts for cranes, winches and



## Equipment contracts secured for 10 more RoRo vessels in Korea

MacGREGOR RoRo's division has received a contract from Hyundai Mipo, Korea, to supply RoRo equipment for 10 RoRo vessels for Italian owner Grimaldi. The contract includes design and fabrication of the equipment, which will be delivered between 2009 and 2011.

Each shipset of RoRo equipment comprises: a cylinder-operated straight stern ramp, a bulkhead door on the tank top deck, a side-hinged ramp cover in two sections, a bulkhead door on the weather deck, a hoistable ramp between main and upper deck, two pilot/bunker doors and 18 hoistable cardecks/access ramps on two levels, plus two integrated access ramps on the upper car deck level.



Henrik Vildenfeldt

davits worth around €15 million for various offshore supply vessels and FPSOs for several different shipowners. The vessels will be built in Norway, Singapore, China, Malaysia, Japan and the Middle East.

The orders comprise offshore cranes, with and without active heave-compensation, and davits sold under the Hydramarine brand, and anchor-handling winches and mooring winches sold under the MacGREGOR Plimsoll brand. The

equipment will be delivered between 2007 and 2010 and manufactured by the MacGREGOR Offshore division at its plants in Norway, Indonesia and Singapore.

## Cranes handle heavy lifts on COSCO cargo ships

MacGREGOR's Crane division has been awarded a contract worth in excess of US\$30 million to deliver heavy-lift cargo cranes to eight ships being built at Shandong Huanghai Shipbuilding in China. The 28,000 dwt general cargo ships, ordered by COSCO's Guangzhou branch, will each be equipped with two GLH cranes with an SWL of 200 tonnes and one 45-tonne GL unit. The cranes will have MacGREGOR's standard heavy-lift design comprising double control systems (CC2000) for redundancy, as well as an auxiliary hoist for efficient handling of containers.

Deliveries are planned to start in October 2009 and will continue until late 2010. The cranes will be manufactured by MacGREGOR's manufacturing partner CSSC Nanjing Luzhou Machine Company Co Ltd in China. The company has been a MacGREGOR manufacturing partner since 1987 and has extensive experience with the full MacGREGOR range of cargo cranes.



Markku Mattila

## New hand at the helm of Dry Cargo division

Markku Mattila, general manager of the Dry Cargo division, retired at the end of August after 33 years with MacGREGOR. He started in Navire in 1974.

Markku Mattila is well travelled and is recognised within the industry both in Europe and Asia. For four years he also served as president of MacGREGOR's Asian operations with the target of establishing MacGREGOR as the preferred partner in the region.

During his career Markku contributed a great deal to the process of transforming MacGREGOR from a product and production oriented company to a process and market oriented market leader. The development of the hatch cover business grew beyond expectations over the past 10 years through consistent leadership and process orientation.

Esko Karvonen has succeeded Markku as general manager of the Dry Cargo division. Esko has been with MacGREGOR for 17 years and has been deeply involved in the development of the company and processes.



Esko Karvonen

## Siwertell screw technology specified for Taiwanese and US power plants

MacGREGOR Bulk's Siwertell unloading technology for two power plants, Mai Liao Power in Taiwan, and Wisconsin Electric Power (WEPCO) in the USA, is now in operation and eliminating potential environmental problems of dust and cargo spillage.

The WEPCO system was contracted by Bechtel Power and specified for WEPCO's Oak Creek power plant expansion in Elm Road near Milwaukee. MacGREGOR delivered a Siwertell 640-F common gantry which is a combined unloader for limestone and loader for gypsum. The system was built in Europe and is capable of unloading limestone at 1,000 tons/h and loading gypsum at 500 tons/h.

Mai Liao also has a long-standing successful relationship with MacGREGOR since the delivery of its first three Siwertell units in 2002. Last year, MacGREGOR delivered two Siwertell 790-DOB coal, salt and limestone unloaders to the plant, one system being a combi coal/salt unit and the other a combi coal/limestone unloader.

The systems, which were built in Europe and China, have a coal unloading capacity of 2,000 tonnes/h each; a salt unloading capacity of 1,700 tonnes/h each; and a limestone unloading capacity of 1,000 tonnes/h each.

## Linkspans help Japanese fast ferries achieve quick turnarounds

MacGREGOR linkspans enable rapid turnaround times for a new domestic fast ferry service in Japan which is now served by the first of two 112m catamarans from Australian shipyard Incat.

For these new services, run by Higashi Nihon Ferry, linking Hakodate on Hokkaido and Aomori on Honshu, MacGREGOR developed tailor-made hydraulically-operated linkspan systems at each terminal, specifically designed for the ramp-less vessels. These allow for a fast operation and smooth vehicle transfer over the full breadth of the hulls.



The linkspans allow smooth vehicle transfer over the full catamaran breadth

## Valve controls on largest FSO modernised

MacGREGOR has been contracted to modernise the remote controlled valve system on the world's largest tanker. The contract is worth about €1.2 million and was placed by Fred Olsen Marine Services AS, Oslo, Norway, in July. The 564,650 dwt floating storage offloading (FSO) unit *Knock Nevis* will be upgraded by MacGREGOR's Service division during operation on the Al Shaheen field.

*Knock Nevis* was built as a crude carrier by Sumitomo Heavy Industries in 1979, and its former names include *Jahre Viking*. The ship was converted to an FSO in 2004 at Dubai Dry-docks and stationed on the Al Shaheen field for Maersk Oil Qatar.

MacGREGOR's turnkey remote controlled valve system solution for *Knock Nevis* covers: fully assembled containerised hydraulic room; power pack with starter control valve stands; accumulators; actuators; cargo control panel modifications; emergency operation blocks; multi-core tube installation on deck; multi-core tubes installation in pump room; system drawings; instruction manuals; and spare parts.

All installation, modifications and commissioning will be completed while *Knock Nevis* is processing oil, making it one of the most challenging projects ever undertaken at station. Also included are factory acceptance tests, installation of equipment and tubes, testing and certification of valve and actuator operation, flushing, pressure testing, system commissioning, tests and crew training.



Color Magic's bow ramp was delivered as part of a RoRo access equipment package from MacGREGOR

Photo: Joacim Under

## Color Magic combines RoRo and cruise ship roles

*Color Fantasy's* sister *Color Magic* was handed over by Aker Finnyards to Color Line at a ceremony in Rauma, Finland, on 6 September. The 75,100gt *Color Magic* is the world's largest cruise vessel with RoRo decks, and MacGREGOR has delivered bow and stern ramps as well as a complete hoistable car deck system. Included in the delivery were two trailer lifting platforms with hatch covers and a set of various shell doors. *Color Magic* joins its sister on the Oslo-Kiel route.

## Crane success continues for Chinese-built container feeder ships

A contract for 32 of MacGREGOR's GL-type cranes from Shanghai Shipyard added to recent orders from Chinese yards for feeder container ship cranes, including orders for 36 GL-type and 12 LC-type units from Wenchong Shipyard, and for 38 GL-type units from Yangzijiang Shipyard.

Shanghai Shipyard ordered shipsets of four GL4530-2 cranes for each of eight 3,600 TEU container vessels. The ships have been ordered by German owners: four by Reederei Thomas Schulte and the other four by L&B Shipping. The cranes will be delivered between September 2009 and May 2011.

In recent months MacGREGOR's Crane division also secured orders for:

- 48 container handling cranes from Wenchong Shipyard. These will be delivered shipset by shipset between early 2009 and early 2012. The cranes have been specified for twelve 2,800 TEU container feeders for undisclosed interests. Each vessel will be geared with three wire-luffing GL-type cranes and one cylinder-luffing LC-type crane located aft.

- 38 GL cranes from Yangzijiang Shipyard for installation on 14 feeder container ships in two series: four 1,350 TEU ships will have two cranes installed, and ten 2,500 TEU carriers will each feature three GL cranes and a service crane.

All these cranes will be manufactured in China by MacGREGOR's manufacturing partner CSSC Nanjing Luzhou Machine Company Co Ltd.

Designed for handling containers and multi-purpose cargoes, MacGREGOR's standard GL range covers lifting capacities from 25 to 90 tonnes, with outreaches up to 32m. LC cranes' low and slim design are of benefit when dimensions and air-draft are limited. The standard range covers lifting capacities from 36 to 45 tonnes, and outreaches of 20-34m.



# Fleet expansion and larger ships match container trade growth

Container shipping sustains its surge in meeting demand from the manufactured goods trade, and by 2010 the amount of containerised cargo transported is predicted to reach almost twice the volume logged in 2003

Growth in containerised trade remained strong through 2006, at an estimated 10.7 per cent, but the current year is forecast to see a marginally reduced growth of 9.6 per cent, according to London-based shipping consultant Clarkson Research Studies.

The fastest expanding of the main container trades last year was the Far East-Europe route, some 76 per cent of the growth (in terms of the origin of the trade) being due to trade from China (excluding Hong Kong).

Growth in the supply of container-capable capacity last year was particularly swift at 13.3 per cent, resulting in a fleet at end-2006 with an overall capacity of 11.5 million TEU. Following the period 2002-2005, when demand growth was stronger than overall supply growth, the balance eventually tipped in the opposite direction: 2006 saw greater growth in total supply than in demand.

Fully cellular container ship capacity grew to 9.44 million TEU, up by 16 per cent. By January 2007, the 3,000 TEU-plus fleet had expanded to 5.6 million TEU, representing a 22 per cent year-on-year growth. Ships over 3,000 TEU now account for 60 per cent of the overall fully cellular fleet capacity.

In 2006 the container ship orderbook grew from an aggregate capacity of 4.23 million TEU to 4.51 million TEU, although in terms of prevailing fleet capacity this represented a fall from 52 per cent to 48 per cent.

## 1.4 million TEU to be delivered in 2007

Some 1.4 million TEU capacity is expected to be handed over during 2007. From an overall growth of 13.3 per cent last year, however, the supply side is forecast to see slower expansion over the next two years, with a 12.2 per cent growth in container-capable capacity predicted for this year.

More than 350 new cellular container ships entered operation in 2006, equivalent to a nominal capacity of 1.35 million TEU. Of this tonnage, 155 ships were less than 2,000 TEU, 105 ships were between 2,000 TEU and 5,000 TEU, 35 ships were between 5,000 TEU and 8,000 TEU, and 60 ships

were larger than 8,000 TEU.

During 2006, 19 cellular ships were removed from the fleet, equivalent to 29,100 TEU, and 15 non-cellular ships (equivalent to 6,100 TEU) were also sent for scrap. The net increase in the nominal world container ship capacity was 14.7 per cent measured on a yearly basis.

Oslo-based R S Platou Economic Research assumes that container ship demand will increase 11-12 per cent from 2006 to 2007, key factors being a continued high growth in US containerised imports and, not least, a strong growth in European imports from Asia. The latter route will be vital for the largest ships because most of this tonnage will be deployed on these trade strings.

Main-line volume growth out of Asia will remain important, and the demand side will clearly be affected by any changes in the Chinese economy. Whatever their precise progress, demand and supply growth look set to remain at least in relative proximity to each other, which could keep the market balance from tipping too far either way.

## Firm European feeder market

The intra-European feeder market is also likely to stay firm, Platou believes, because the expected high volumes of overseas container imports have to be shipped from hubs to receiving destinations. The intra-Asian trade should also perform strongly in 2007, with the flow of containerised cargo from Asia to the Middle East.

Platou estimates that around 1.5 million TEU capacity of cellular container ships are scheduled for delivery in 2007. Completions of newbuildings below 1,000 TEU and between 3,000 TEU and 5,000 TEU will increase, while those above 6,000 TEU will decrease somewhat compared with last year.

Ships of 7,000 TEU-plus account for 37 per cent and 38 per cent of the current orderbook by slot capacity and gross tonnage respectively, according to Lloyd's Register-Fairplay data.

Non-cellular ships with container capacity due for delivery this year amount to around 40,000 TEU, while increased volumes of such tonnage sold for breaking are expected.

Increased scrapping of cellular tonnage compared with 2006 is also anticipated although, in terms of TEU capacity, removals will be relatively limited because most ships scrapped will be of smaller sizes.

Taking these trends into account, Platou foresees a 14-15 per cent annual average increase in the nominal cellular container ship capacity from 2006 to 2007.

The lion's share of container ships on order at the beginning of this year were post-Panamax and

super-post-Panamax types, the boom in 8,000 TEU tonnage contracts of three years ago being superseded by 10,000 TEU-plus projects. In July 2007 there were over 350 post-Panamax ships on order.

That month alone saw 25 new orders placed for 12,500 TEU ships, supplementing the 45 'MegaBoxers' of this size already contracted. With August 2014 set as the date for commissioning the expanded Panama Canal, shipowners aim to combine the maximum possible operational versatility with economies of scale – and to be among the first to do so.

## First of 11,000 TEU class

A new benchmark in size was set last autumn when A P Moller's *Emma Maersk* entered service as the first of a class with an official capacity rating of 11,000 TEU. With a length x breadth x draught dimensions of 397m x 56.4m x 16m, however, the design is considered capable of carrying around 13,500 TEU.

Will these ships – optimised to the dimensions of the proposed new locks in the Panama Canal – prove to be the industry's future workhorse, or will they pave the way for an 18,000 TEU Malacca-max fleet, the absolute maximum possible size of container carrier?

A number of technology challenges must be satisfactorily addressed, however, if these ultimate carriers are to appear, notes ABS, which classed the *Emma Maersk* series. The principal dimensions of such vessels are likely to follow the current trends which are driven by container port facilities and considerations of design, construction and operations.

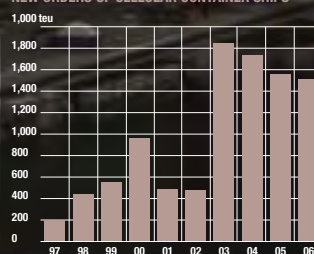
The overall ship length for design concepts in the 11,000-12,000 TEU capacity range is approximately 400m, while the 18,000 TEU carrier would have a length approaching 450m. Anticipating this, ABS has updated its hull structural criteria to cover ships with such a scantling length, which may pose challenges both for existing newbuilding docks and, on delivery, for some container terminals with regard to accessibility and manoeuvrability.

Ship breadth for ultra large container carriers is expected to approach 60m, allowing deck containers to be stowed 24 rows across. Several large terminals are already equipped with cranes having a maximum outreach up to 64m.

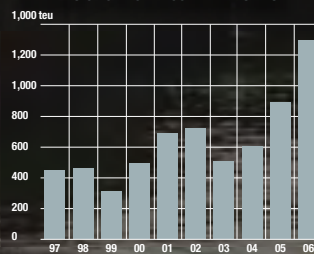
Increased breadth, however, raises the question of increased hatch opening distortion. With a typical double side width less than 3m, explains ABS, the open deck structure of a ULCC is intrinsically more flexible than its smaller counterparts. The resulting distortion has a direct impact on the design of the hatch covers, lashing bridge structure and fatigue strength of hatch corners at the hatch coaming.

In considering these and other strength issues, ABS augments the standard classification review with its Dynamic Loading Approach and Spectral Fatigue Analysis. ■

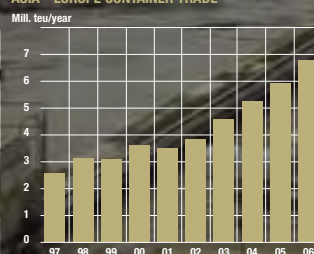
NEW ORDERS OF CELLULAR CONTAINER SHIPS



DELIVERIES OF CELLULAR CONTAINER SHIPS



ASIA - EUROPE CONTAINER TRADE



Sources: Clarkson Research Studies; R S Platou Economic Research; ABS; Germanischer Lloyd



# Seaspan surge sustained by feeder ship orders

Vancouver-based container shipping specialist Seaspan is strengthening its fleet across the capacity spectrum

**E**arlier this year Seaspan took delivery of *CSCL Zeebrugge* and *CSCL Long Beach* (pictured left) from Samsung Heavy Industries in Korea, the sixth and eighth in an eight-ship 9,600 TEU series for charter to China Shipping Container Lines. These were the 25th and 27th vessels to join the Seaspan fleet, and the largest – so far.

In early September Seaspan announced that it had signed contracts to build eight 13,100 TEU container vessels with Hyundai Heavy Industries and its subsidiary Hyundai Samho Heavy Industries (collectively HHI). Twenty of Seaspan's 34 vessels on order are with HHI. The eight newbuildings are scheduled to be delivered between January 2011 and October 2011, and have been signed to 12-year time-charters with COSCO Container Lines (Coscon) of Shanghai.

Seaspan is reportedly committed to growing its fleet by 15-20 ships a year to meet expansion plans and – based on current progress – will have more than 100 ships in service by 2010. The eight 13,100 TEU carriers just ordered mean that Seaspan has expanded its contracted fleet to a total of 63 vessels. The company ultimately hopes to own around seven per cent of the global container fleet.

Apart from investing in large post-Panamax tonnage, Seaspan is developing its feeder container ship tonnage, this year ordering 10 x 2,500 TEU vessels from China's Jiangsu Yangzijiang Shipyard. Some of the deliveries will be long-term leased to the

China Shipping Group, parent of China Shipping Container Lines.

Located at Jiangyin City in Jiangsu Province on the southern bank of the lower Yangtze, the yard is one of the country's leading private yards with a growing reputation in the export market. Its reference list embraces multi-purpose cargo ships, container vessels, car ferries, tankers, offshore support vessels and dredgers as well as diverse smaller tonnage.

Seaspan CEO Gerry Wang believes that private Chinese yards have significant potential in the medium-sized ship market as the major shipbuilding groups in Asia concentrate on post-Panamax and more advanced tonnage types. He cites competitive prices, relatively early delivery slots and a focus on customer satisfaction.

Classed by Lloyd's Register, the 2,500 TEU container ships for Seaspan will have a length between perpendiculars of around 197m, a breadth of 29.80m, a depth of 16.4m and draughts of 10.1m (design) and 11.5m (scantling).

Container capacity for 2,500 TEU will be provided on deck and in holds served by 10 lift-away hatch covers, each MacGREGOR shipset comprising 28 panels arranged in twin- or triple-panel configurations.

The forward hatch is served by a twin-panel set offering a clear opening 12.64m long x 15.36m wide; the twin-panel set of No 2 hatch provides an opening 12.64m x 20.36m; and the triple-panel sets for Nos 3-10 hatches each offer 12.64m x 25.35m openings.

Sealing between hatch covers and coaming is achieved by rubber packing, and between the hatch cover panels by a double rubber lip with drainage.

Container stack load ratings range from 60 tonnes/20ft units and 90 tonnes/40ft units on Nos 1 and 2 hatches to 80 tonnes/20ft units and 100 tonnes/40ft units for hatches 3-10. The panels will be handled by deck cranes, each ship being specified with three MacGREGOR GL cranes (as well as a service crane).

These cranes formed part of an order from Yangzijiang Shipyard calling for MacGREGOR to supply 88 cranes (39 shipsets) for 7,600 dwt bulk carrier, 12,600 dwt cargo ship and the 2,500 TEU feeder container carrier projects.

MacGREGOR will also supply a comprehensive package of fixed and loose container lashing equipment for the deck and holds of the Seaspan feeder ships.

Seaspan also ordered four 4,250 TEU carriers from the same yard this year, for delivery in 2009. A series of four 5,100 TEU and another of eight 8,500 TEU carriers were also ordered this year from HHI for delivery in 2009 and 2010.

MacGREGOR has supplied the design and key components for the lift-away hatch cover sets of Seaspan's 9,600 TEU *CSCL Zeebrugge* and its sisters from Samsung Heavy Industries, as well as fixed and loose container fittings. With a beam of 45.6m, the ship design can accommodate a stow of 18 containers across the deck, while 10 tiers of containers can be stowed in the holds. ■

Seaspan ordered 10 x 2,500 TEU vessels from China's Jiangsu Yangzijiang Shipyard





# Three leaders in container shipping

The fast-developing and highly competitive container shipping market has fuelled the growth of the sector's three leaders: AP Moller-Maersk, MSC and CMA CGM

**M**arket leadership in container shipping and terminals has been forged over the years by the AP Moller-Maersk group which fields such brand names as Maersk Line, Maersk Logistics, Safmarine and APM Terminals.

The maritime activities of the Copenhagen-based global business also embrace ferries, tankers, car carriers, tugs and supply vessels, offshore oil and gas development, and shipbuilding. Its non-marine interests include major domestic and international supermarket chains and hypermarkets, banks and freight airlines.

A group employing around 110,000 personnel in some 130 countries has grown from a company established in the Danish town of Svendborg in 1904, when Arnold Peter Moller and his father Captain Peter Maersk Moller bought a secondhand 2,200 dwt steamer.

Maersk Line and Safmarine together now operate more than 550 container ships, of which 220 are owned, and deploy 1.9 million containers in global liner shipping, while APM Terminals manages over 45 facilities.

The driving force in the creation of an impressive worldwide enterprise was Mr Maersk Mc-Kinney

Moller, who took over the group on the death of his father in 1965 and remained at the day-to-day helm until 1993. The company's first container ship – the 1,800 TEU *Svendborg Maersk* – joined the fleet in 1973.

Generic growth and strategic acquisitions in a fast-developing and highly competitive sector fuelled the group's development in container shipping, particularly from the early 1990s.

EacBen Container Line was acquired in 1993, and control taken of Safmarine, including Compagnie Maritime Belge, in early 1999. The Sea-Land Corporation (with which Maersk had started a global container service in 1996) was bought in November 1999 to create Maersk Sealand.

Royal P&O Nedlloyd and its fleet of 162 container ships aggregating over 460,000 TEU was taken over in August 2005 and merged with Maersk-Sealand to create Maersk Line.

Maersk's commercial dynamism has been accompanied by an enviable reputation for innovation in ship design and operation. Succeeding generations of container ships, invariably built by the group's own Odense Steel Shipyard in Denmark, have extended the industry capacity barrier.

*Marchen Maersk*, the first of 12 x 4,300 TEU vessels, was completed in 1988 as the world's largest container ship. *Regina Maersk*, the first with a capacity exceeding 6,000 TEU and a length of over 300m (318.2m), appeared in January 1996.

*Sovereign Maersk* joined the fleet in September 1997 as the industry's first 8,000 TEU vessel, the 100,000 dwt design also being the world's longest ship at 346m. The largest and longest title passed to *Axel Maersk* in March 2003, the first of a six-ship class, and last year saw the 11,000 TEU barrier broken by *Emma Maersk* and its sisters.

## Mediterranean Shipping Company

Founded in 1970 in Italy by Sorrento-based Captain Gianluigi Aponte, the Mediterranean Shipping Company (MSC) has grown from a small conventional ship operator to become the second largest container line in the world. Still a private and Aponte family-owned company, MSC now operates from corporate headquarters in Geneva and its own dedicated offices worldwide.

Independence has enabled MSC to respond quickly and without interference to market changes and customer needs over the years, and to pursue a long term strategy in developing global transportation solutions. Growth has been achieved internally and organically rather than through mergers and acquisitions.

In mid-July MSC was operating 346 container

ships with an aggregate capacity of 1,135,000 TEU. The company claims to be one of the few carriers offering worldwide coverage with one bill of lading, allowing the swift movement of cargo through dedicated transshipment hubs with efficient onward transport services. Some 270 ports are served through 170 direct and combined weekly liner services.

Apart from its major status in container shipping, MSC has also developed as a leading cruise line operator.

## CMA CGM

*Seatrade* magazine's Personality of the Year award for 2007 honoured the founder and chairman of CMA CGM, the world's third largest container shipping line. Jacques Saade has built up the Marseilles-based group since CMA's creation in 1978 to its current prestigious status, foreseeing and exploiting globalisation and the growth of the container trade in China in particular.

Heavy investment in China followed CMA's prescient opening of an office there as early as 1992 and has continued with the more recent forging of a partnership with China Shipping. The take-over of the French state-owned liner company CGM was another coup.

CMA CGM container traffic increased by 28 per cent to 5.97 million TEU in 2006 (including the absorption of the Delmas group of France early that

year), leading to a higher turnover (up 33 per cent to US\$8.42 billion) and increased profit attributable to shareholders.

Despite all the negative forecasts, Mr Saade reported, 2006 was a good year. Conditions had been challenging, with higher fuel costs and lower freight rates, but analyst predictions of overcapacity again failed to take into account the port waiting times that absorb some of the excess tonnage. The current year started strongly, with better early results than in 2006 and fewer newbuildings due for delivery in first-half 2007.

CMA CGM's development strategy is based on a number of pillars, including the continual introduction of new lines and services allied to a strong fleet expansion.

At the beginning of March the group operated 287 ships (87 of which were owned) with a total slot capacity of 700,000 TEU, the fleet boosted in 2006 by 28 newbuildings of 1,000 TEU-plus (11 of which are owned). Another 60-plus ships were on order at that time for delivery in 2007-2010, including 16 of 11,400 TEU nominal capacity and four 9,700 TEU vessels.

Over 330 ships are currently deployed on more than 100 shipping routes, with 403 ports of call in 150 countries. Delmas joined a group of CMA CGM services including ANL, MacAndrews, OT Africa Line and Sudcargos Services.

With 12,000 employees, the group is served by



600 agencies and offices, including 64 in China.

Sustained growth will be pursued by targeting further opportunities in emerging markets – such as in Africa, Brazil, India and Vietnam – along with continued investment in multi-modalism and port terminal operations.

The acquisition of Taiwanese operator Cheng Lie Navigation in March this year gave a foothold in the valuable intra-Asian market, which currently accounts for 37 million TEU a year, one third of the 115 million TEU annual world total. ■

(Left) Maersk Line and Safmarine together now deploy 1.9 million containers in global liner shipping. (Above) In March CMA CGM was operating 287 ships (87 of which were owned) aggregating 700,000 TEU, and 60 more ships were on order. (Below) In mid-July MSC was operating 346 container ships with an aggregate capacity of 1,135,000 TEU.





# Combined outfits of covers and cranes specified for Buss series

MacGREGOR is supplying weatherdeck and tweendeck hatch covers, fixed container lashing equipment and deck cranes for a series of 10 multi-purpose ships ordered by Hermann Buss

Many years' experience in commissioning multi-purpose and container ship newbuildings from European and Asian yards is tapped by the German shipping group Hermann Buss, whose current projects include 10 x 30,000 dwt general cargo vessels booked at a first-class Chinese shipyard.

MacGREGOR's Dry Cargo division is supplying folding weatherdeck hatch covers with associated hydraulic operating systems, lift-away tweendeck hatch covers and fixed container lashing equipment for the deck and holds of all these ships.

Cargo handling will be executed by MacGREGOR GL-type deck cranes (four per shipset), the outfit comprising GL6020/5024/4030 + 2430 (in grab operation) units; five of the ships will additionally have grab control systems.

"Buss is an important customer for MacGREGOR and its vessels have benefited from our hatch cover technology over many years," reports Tomi Sundell, MacGREGOR's director for general cargo ships. "This is the first time, however, that the company has ordered our cranes or combined outfits of both hatch covers and cranes.

"This cargo handling combination will work very efficiently and provide the owner with technical advantages. In addition, the tweendeck hatch covers we are supplying are of a special new design featuring removable 'half container size' supports."

## Family business

Shipping has been in the Buss family blood for seven generations since 1838. The business was started in Westrauderfehn but relocated to its Leer base as operations grew. The current owner and senior partner, Hermann Buss, was thrown in at the deep end as a young ship's captain after the premature death of his father in 1958.

With the support of his brother Friedrich, also a captain and responsible with an inspection team for the nautical-technical side of the enterprise, Hermann has ensured the succession and continuation of a traditional shipping company through his son Hartwig, another Captain. Father and son are responsible for the management of the company.

Offices in Hafenstrasse, Leer, were complemented by another company base on the other side of the harbour in 2004, from where two Buss Group companies run their operations. In addition, the group embraces the 100 per cent-owned subsidiaries Reider Shipping, Winschoten and Medstar Shipmanagement in Cyprus; and a 50 per cent investment is held in Papenburg-based Schulte & Bruns.

Buss also offers its expertise in providing services to other companies mainly operating in the shipping sector, an activity which has resulted in a number of joint ventures and co-operations.

Significant expansion in recent years has primarily resulted from drawing together the fundamental business of a shipping company into a business management operation controlled centrally. Buss initiates newbuilding projects, executes them through an experienced project management function working with the designated yards, and then operates the delivered ships.

Group expertise embraces:

- market analysis
- developing the ship design
- drawing up technical and commercial contractual documentation
- assessing and selecting suitable shipbuilding yards
- contractual negotiations with suppliers and the selected yard
- providing building documentation and methods
- supervising and monitoring the building process
- initial equipment testing and commissioning.

Among recent and current projects are 660 TEU, 900 TEU, 1,000 TEU, 1,200 TEU and 1,500 TEU feeder container ships, a 5,800 dwt multi-purpose cargo vessel and the Venus 5300 container ship.

Heavy investment is made by Buss in crews – over 1,000 seafarers are deployed – and in their professional progress. Nautical and technical training is provided on the vessel *Ennsstrom* moored directly in front of the company's offices. The Leer Maritime Shipping School, funded by Leer-based shipping companies, is another valuable resource.

Land-based Buss staff also benefit from specialist courses in commercial and maritime business disciplines.

Chartering activities for the Buss Group are carried out by its subsidiary GB-Shipping & Chartering. ■

MacGREGOR's cranes will be manufactured at Rainbow Heavy Machinery in China



Hyundai Heavy Industries' newbuilding complex at Ulsan embraces nine drydocks of various sizes up to 1 million dwt capacity

## COSCO commissions Asia's largest container ship

Hyundai Heavy Industries' status as the world's leading builder of container ships was impressively strengthened in August with the handover from its Ulsan yard of the 10,050 TEU *Cosco Asia*, the largest so far completed in Korea and the largest in the COSCO fleet

*Cosco Asia* is now deployed in the Chinese shipping group's China-Europe service. Container capacity in the Lloyd's Register-classed design is arranged on deck and in holds accessed by MacGREGOR lift-away hatch covers, each shipset comprising 78 panels serving the forward and aft sections of 10 hatches.

A clear opening 12.64m long x 20.6m wide is offered by the twin-panel cover of No 1 hatch (forward). All the other hatch covers consist of four panels, the set for No 1 hatch (aft) providing a 12.64m x 35.3m/30.56m opening and that for No 2 hatch (forward) yielding a clear opening 12.64m x 40.90m/36.07m. Hatches 2A to 10A each offer openings of 12.64m x 40.9m.

Container stack loadings on the panels can range from 100 tonnes/20ft units to 140 tonnes/40ft units; and 45ft containers can be loaded from the third tier

on 40ft units (on hatches 1A-5F) and on the fourth tier on 40ft units (hatches 5A-10A).

Sealing between the non-weathertight covers and the coaming is achieved by a labyrinth formed through a flat bar welded on the coaming; the joint between the panels is open. The hatch covers 1F-2A are battened to the coaming by hold-downs.

Replaceable-type hatch cover support pads are mounted in a housing welded on the coaming, the low friction material combination comprising bronze/Teflon against stainless steel.

Lashing bridges were specified for all covers except from the fore of hatch 1A to aft of hatch 2F. The outer ends of the 20ft and 40ft containers are lashed to the bridges where fitted and the others lashed to the covers.

All of COSCO's container tonnage of 6,000 TEU and above have been built by Hyundai Heavy

Industries, five 7,500 TEU, three 8,200 TEU and five 9,500 TEU ships having joined the fleet from the Korean yard since 2004. Earlier this year, the Chinese group signed a long term charter for eight 8,500 TEU newbuildings to be built by HHI, with deliveries starting in 2010.

At end-July, HHI held the world's largest orderbook for container ships, with 160 such vessels in its backlog including 30 of 10,000 TEU-plus capacity contracted by owners in Germany, Switzerland and France. Recent analysis by Lloyd's Register indicates that container ship operators may see unit cost savings as high as 35 per cent when upsize from a 6,800 TEU to a 11,800 TEU vessel.

• Four 10,000 TEU-class ships similar to the HHI newbuildings will join the COSCO fleet from China's Nantong Cosco Kawasaki Heavy Industries (NACKS) yard. These ABS-classed vessels will also be equipped with MacGREGOR lift-away hatch covers, each shipset comprising 79 panels configured as either triple- or quadruple-panel covers serving the 20 hatches. ■

## PRINCIPAL PARTICULARS

### Cosco Asia

Length, oa	349.00m
Length, bp	334.00m
Breadth	45.60m
Draught, summer	14.50m
Draught, design	13.00m
Depth	27.30m
Deadweight	110,000 tonnes
Capacity	10,050 TEU
Reefer capacity	800 x 40ft
Propulsion	MAN B&W 12K98ME
Output	68.6MW
Speed, service	25.8 knots
Class	LR
Hatch covers	MacGREGOR
Bunker/pilot doors	MacGREGOR



The 10,050 TEU *Cosco Asia* is the largest container ship so far completed in Korea

photo: Lloyd's Register



# Daewoo invests to boost box ship production

Sustained demand for large container ships from European and Asian owners is benefiting Daewoo Shipbuilding & Marine Engineering, which in July alone booked contracts for 29 vessels of various types worth approximately \$4 billion

By end-August DSME had achieved 86 per cent of its order target for this year. Some 71 container ships accounted for 58 per cent of that overall intake, including a nine-vessel series for a European owner due for completion by end-2011.

APL, a wholly-owned subsidiary of Singapore-based Neptune Orient Lines, has also ordered four 10,000 TEU vessels from DSME (another four of the class are booked from Hyundai Heavy Industries) with deliveries scheduled from 2011.

MacGREGOR is supplying complete lift-away hatch cover shipsets for a number of these projects.

Resources at the Okpo yard on Geoje Island off south east Korea are based on a 1 million dwt capacity building dock measuring 530m long x 131m wide x 14.5m deep, whose support facilities include a 900-ton capacity gantry crane and six jib cranes with capacities ranging from 50 tons to 200 tons. A second dock (350m x 81m) can accommodate

newbuildings up to 350,000 dwt and is served by a 450-ton capacity gantry crane.

## Building ships in floating docks

Demand for building capacity called for DSME to start constructing ships in one of its floating docks. This summer a large LNG carrier was the first vessel to be launched fully completed from such a facility, and several other LNGCs will follow from the same dock.

The yard now plans to build the world's largest floating dock (its fourth) to boost production of large container ships. Due for commissioning in mid-2009, the 438m-long x 84m-wide facility is sized to enable the construction of hulls for up to seven 12,500 TEU container ships annually.

## Daewoo Mangalia heavy industry

A valuable and growing contribution to DSME's container tonnage output is meanwhile flowing from

the group's yard in Romania, Daewoo Mangalia Heavy Industry (DMHI), which celebrated its 10th anniversary in January this year. Originally focused on repairs and hull-only fabrication, the Black Sea yard is becoming established as a major European builder of large container ships.

Mid-2006 saw the completion of *MSC Geneva*, the first of a dozen (plus options for two more) 4,860 TEU Panamax ships ordered by the German finance company GEBAB/Conti Holdings for charter to the Mediterranean Shipping Company. The design is similar to a series built earlier by DSME at Okpo. DMHI's backlog also includes five 5,600 TEU and six 6,300 TEU ships for Hamburg-Süd and NSB of Germany due for deliveries into 2010.

## Ferries and cruise ships

Tapping experience in constructing seven ropax ferries, DSME plans to compete in the high class cruise ship newbuilding market, a sector seen by Korean yards as a new 'growth engine' for the industry. A special project team has been formed by DSME to secure and develop the necessary technology, and specialist R&D and joint research projects are under way with Korean universities and research centres.

Support is committed by the Korean Ministry of Commerce, Industry and Energy through contributions to the development of a base technology fund. DSME's role includes noise and vibration research for cruise ships, while interior design and production technology will be pursued by subsidiary DSME Construction in conjunction with Korean shipbuilder STX. ■

Current 'Panamax' limitations are determined principally by the dimensions of the canal's lock chambers, each of which is 33.53m wide, 320m long and 25.9m deep



# Bigger ships and more traffic will transit expanded canal

The Panama Canal will be able to handle about twice its current total tonnage throughput and container ships of at least 12,000 TEU once the 'Third Set of Locks' expansion project is completed in about seven years' time

Created by building a new set of locks, a new lane along the Panama Canal will double the canal's tonnage capacity and allow substantially larger vessels to use it. Panamanians voted in favour of the expansion project in a national referendum in October last year. The project could be completed by 2014, one hundred years after the Panama Canal originally opened, and the estimated cost of US\$5.25 billion will be paid by canal tolls.

The Panama Canal Authority (ACP) expects the canal to reach its maximum sustainable capacity between 2009 and 2012. It will then be unable to continue handling growth in demand, reducing the competitiveness of the maritime route via Panama. Demand projected by ACP up until 2025 and beyond will be met by the planned canal expansion. The authority says that the expansion is fully justified by the cargo volume that will be able to transit through the canal, and not just by the vessel sizes it will be able to handle.

Environmentally sound water-saving basins will be built alongside the new locks, which will re-use 60 per cent of the water in each transit. This technology

eliminates the need for constructing dams, flooding and displacing communities along the canal's watershed.

The 'Third Set of Locks' project has three components:

- building two lock facilities – one on the Atlantic side and another on the Pacific side – each with three chambers and each including three water reutilisation basins
- excavating new access channels to the new locks and widening existing navigational channels
- deepening the navigation channels and raising Gatun Lake's maximum operating level.

The canal's new lock chambers will be 427m long by 55m wide, and 18.3m deep. They will use rolling gates instead of the existing locks' mitre gates, and use tugs to position transiting ships instead of the locomotive 'mules'. Rolling gates and tugs are already widely used in locks of similar dimensions.

Current 'Panamax' limitations are determined principally by the dimensions of the canal's lock chambers, each of which is 33.53m wide, 320m long and 25.9m deep. The maximum dimensions allowed

DSME's Okpo yard on Geoje Island off south east Korea





The present Panamax vessel with a beam of 32.24m (13 containers across) fills the size gap from 2,700 TEU to 5,100 TEU



#### Components of Third Set of Locks Project



- 1 Deepening and widening of the Atlantic entrance channel
- 2 New approach channel for the Atlantic Post-Panamax locks
- 3 Atlantic Post-Panamax locks with 3 water-saving basins per lock chamber
- 4 Raise the maximum Gatun lake operating water level
- 5 Widening and deepening of the navigational channel of the Gatun lake and the Culebra Cut
- 6 New approach channel for the Pacific Post-Panamax locks
- 7 Pacific Post-Panamax locks with 3 water-saving basins per lock chamber
- 8 Deepening and widening of the Pacific entrance channel



for a ship transiting the canal are currently a length of 294.1m, a beam of 32.3m, a tropical fresh water draught of 12.0m, and a height above the waterline of 57.91m.

Container ships of about 5,000 TEU or above are referred to as 'post-Panamax' because they are too wide for the canal's existing locks. The World Shipping Council estimates that 50 per cent or more of the capacity of the global fleet will comprise ships of 5,000 TEU or larger by 2011.

Germanischer Lloyd anticipates a new scale of Panamax ship adapted to the expanded canal dimensions as being 398m long, 54.2m wide and 27.7m high. The classification society says that this size of ship will be able to carry up to 14,000 standard containers – at least 2,000 TEU more than originally calculated by the Panama Canal Authority.

GL adds that there is still a question whether the ACP will allow these optimised container carriers into the new locks, as the authority used a smaller post-Panamax container ship as the reference for establishing the ideal lock chamber sizes. This ship is 366m long, 49m wide, with a 15m maximum draught and a nominal cargo capacity of up to 12,000 TEU. This vessel was identified as the largest type of ship that would regularly transit the canal on routes with the greatest frequency, volume and intensity.

"There will certainly still be 'post-Panamax' vessels after the Panama canal is expanded," said Kari Tirkkonen, senior naval architect at MacGREGOR, specialising in container ships. "Already there are vessel projects with 22 containers across, and those ships will not fit the new canal. With ever growing sizes of ship, how long it will take for a 'new post-Panamax' size class to appear?"

"A change in container ship design will see totally new classes of vessel developed. The present Panamax vessel with a beam of 32.24m (13 containers across) fills the size gap from 2,700 TEU to 5,100 TEU. A 5,100 TEU vessel with a narrow beam can not be optimal for fuel consumption and specially not for stability, requiring large ballast tanks. Since the smallest of today's post-Panamax has a 40m beam (16 containers across) it is obvious that there are no designs for vessels accommodating 14 or 15 containers cross. It will be interesting to see how new large sizes of vessels will be built, which will also have their own requirements for hatch covers in terms of panel arrangements".

There will, however, be much less impact on lashings, according to Pär Dehlin, lashings unit manager: "The lashing system on Panamax vessels does not differ from the systems used on smaller or larger vessels". ■

(Above) A new lane along the Panama Canal will double the canal's tonnage capacity and allow substantially larger vessels to use it.

(Left) The 'Third Set of Locks' project has three components one of which deepens the navigation channels and raises Gatun Lake's maximum operating level.



# Higher stack loads achieved with fewer fittings

Compared with deck stowage and one-tier lashing bridges, an optimised mix of one, two, and three-tier-high top lashing bridges can offer an increase in stack load of up to around 37 per cent

**B**igger and bigger ships, higher container capacities, and the need to raise stack weights on deck are all factors that have made the use of lashing bridges more popular. Lashing bridges give container stacks a greater degree of stability when carrying higher loads. The right design can enable higher tiers and therefore higher total capacities, with the hatch cover loads remaining unchanged.

By using lashing bridges, the lashing connection point can be higher up the stack with the lashing still at the same angle as from the deck, therefore the stack load can be increased with shorter lashing bars and fewer lashings. It is possible to maximise stack weights and ensure optimum distributed weights for each tier. Compared with deck stowage and one-tier-high lashing bridges, an optimised mix of one-, two-, and three-tier-high top lashing bridges can offer an increase in stack load of up to around 37 per cent, depending on the numbers of tiers per stack.

Stack weight and height on deck and on hatch covers is limited by the standard strength and feasible arrangement of lashings, as well as by the standard strength of containers. It is not possible to simply make lashings longer so that containers can be attached higher up the stack because of the steep angle of the lashing bar. It is also possible to design special bays with lashing bridges at both container ends for 20ft unit loading.

Because of the transversal forces acting against these higher stacks, it is necessary to strengthen the bridges. This is usually achieved using torsion plates or diagonal rectangular tubing. Torsion plates require less space and are better for hatch cover fittings, but the operation of hatch cover fittings needs to be considered particularly for stevedore safety.

## A lighter alternative

When constructing two- or three-container high lashing bridges, standard rectangular tubing is not considered economically feasible. In these cases, it is possible to use a lighter structure employing large diagonal fittings instead. MacGREGOR's lighter alternative uses a plate design and plate thickness can be optimised and weight reduced.

One special solution is to arrange the lashing bridge so that 45ft containers can rest directly on top of the bridge, leaving one layer of 20ft or 40ft containers resting free on the hatch covers. In such cases the lashing bridge is usually of plate design.

Lashing plates are usually attached at the upper walkway level, to swivel or fixed-eyes fitted to the walkway beam or to the vertical tubes. Two passages on the lashing bridges are normally arranged: one on the level of the top plate of the hatch cover; and the other on the level of the top



(Above) Bigger ships, higher container capacities, and the need to raise stack weights on deck are all factors that have made the use of lashing bridges more popular

of the first container layer. Hooks are incorporated into the railings for safe stowage of turnbuckles. Lashing rods can be stowed on hooks lying flat on side of passage or on hooks hanging vertically on side of the lashing bridge.

It is also possible to fit lights and the necessary connections for reefer containers on lashing bridges. ■

(Left) MacGREGOR's lashing teams are able to discuss container lashings and any related concerns with customers

## Connecting with customers

The first joint lashings seminar by MacGREGOR and AllSet Marine together was initiated to provide an opportunity to discuss all aspects of lashing issues and to better understand the needs of customers

How can you judge the condition of fixed and loose container lashing equipment to ensure its continued safety once a newbuilding has been delivered from the yard? This and many other questions were discussed at the first joint seminar held by MacGREGOR's Stockholm- and Hamburg-based container lashing teams to discuss with a customer container lashings and any related concerns. MacGREGOR's position as market leader in the field of container lashing has been strengthened by the Stockholm lashings team (formerly AllSet Marine).

The seminar was held at Costamare Shipping's offices in Athens, Greece, in May, and arranged by Captain Stelios Christoforou at the request of Costamare's fleet manager, Captain Thanasis Beis. Costamare is the largest container ship operator in Greece, and is one of MacGREGOR's most important customers, especially for lashings.

Costamare currently has big container ships in service: five 9,500 TEU vessels built by Hyundai Heavy Industries in Korea. Chartered to the Chinese shipping company COSCO and classed by Germanischer Lloyd, the vessels are 350m long, 42.8m wide and are capable of a 25.5-knot service speed. The last sister vessel was delivered in July last year and all feature MacGREGOR lashings.

Seminar topics included MacGREGOR's lashing history; container sizes; the reasons for having containers lashed; the theory behind container lashing (balance of forces keeping containers on board); and quality control matters. Also presented were inspection criteria for the maintenance, repair and replacement of lashing fittings.

A highlight was the presentation of Lashmate software, which enables the stowage planner to judge if the lashing system is sufficient for special stowage cases, for example, heavy containers on top of lighter containers, which is forbidden when no class-approved tools for judgment are available.

Presentations to about 43 captains, chief officers and port captains were made by Stefan Pisarski from MacGREGOR's Stockholm team and Markus Theuerholz from the Hamburg team. A second seminar with Costamare will be held in October, and one will also be held with Danaos in the same month.





# New division responds to opportunities offshore

MacGREGOR is integrating recent acquisitions Hydramarine and Plimsoll into its new Offshore division, and will be providing the offshore customers with access to its global service network, as David Foxwell, editor of *Offshore Support Journal*, reports

**A**lthough MacGREGOR is a global leader in the commercial marine industry, opportunities for growth are limited by growth in the overall market. MacGREGOR has often declared that its strategy is to grow, and the company has been looking at areas with growth potential where it could contribute something to industry and customers.

Moving into different areas of the marine industry in pursuit of growth would also help minimise the cyclical nature of its business while utilising the technology know-how within the company. Traditional newbuilding business in the commercial marine industry is, largely speaking, cyclical in nature, and to minimise this volatility MacGREGOR has also been focusing on increasing revenues from the service side of its business, which is a more stable revenue stream.

The offshore oil and gas industry offered exactly the features that MacGREGOR was looking for. These include technology with which it is familiar, such as hydraulic and electrical deck machinery, and an industry where cyclical nature is governed by a different driver – in this case, the oil price. The sector also has a global fleet of offshore vessels that could be supported by the MacGREGOR Service network.

Having identified this segment of the offshore market, from the beginning MacGREGOR looked for market leading companies, and quickly identified Plimsoll as market leader in the Asia Pacific region and Hydramarine as market leader in the North Sea region.

"As well as covering two different regions, another advantage of these particular companies was that they were also a perfect match, contributing differing product ranges and focus," said Henrik Vildenfeldt, general manager of MacGREGOR's newly formed Offshore division. "Plimsoll's major product range is winches, and Hydramarine is a major producer of large knuckleboom cranes – although, just as Plimsoll does, it also offers a wide range of other equipment. Thus, by acquiring Plimsoll and Hydramarine, MacGREGOR was able to quickly achieve a global presence offering world-class equipment and service for the offshore industry".

Having identified the companies it would acquire, MacGREGOR decided to form a new division, into which Plimsoll and Hydramarine are being integrated. The strategy behind forming the new division is that offshore customers and the business driver differ from the market MacGREGOR has served

in the past, so a dedicated management team with a focus on the offshore industry would be required.

"The major task for the new management is to integrate the new companies into the division, a process which is very much a 'three dimensional' integration, because Plimsoll and Hydramarine also have to be integrated into the MacGREGOR organisation," said Mr Vildenfeldt. He noted that the process of integration was, of course, doubly challenging because MacGREGOR does not already have an offshore business, so the process had to be undertaken from scratch.

However, this also has some benefits, one of which is that the new Offshore division is being built according to existing MacGREGOR 'best practice,' combined with best practice from Plimsoll and Hydramarine. The new division will have its headquarter in Copenhagen, Denmark, with assembly facilities in Norway, Singapore, Malaysia, Indonesia and China.

Hydramarine and Plimsoll are not the only purchases that MacGREGOR has made in this particular market – the earlier acquisitions of service companies Grampian Hydraulics and Vestnorsk Hydraulikk service are closely related to the strategic decision to focus on the offshore oil and gas industry. Being located in Aberdeen and Bergen respectively, they provide the perfect location for customers having access to service in the North Sea from both sides.

Now that Hydramarine and Plimsoll are part of MacGREGOR, a major focus of the integration work is to ensure that MacGREGOR's Service network is made available to their customers. That process has started, although it will of course take some time to complete, before the new division is



able to offer the kind of seamless service for which MacGREGOR is known, and service engineers for the products offered by Hydramarine and Plimsoll need to be trained.

"Integration is always a challenging task, because one is dealing with different business cultures and, in this case, with a global perspective, and that is another reason why MacGREGOR established a new division with dedicated management resources, in order to ensure successful integration," Mr Vildenfeldt said. "The integration effort has been

organised under a project organisation with a number of different workgroups, drawing members from Plimsoll, Hydramarine and MacGREGOR.

"The workgroups have different focus areas – such as strategy implementation, sales and marketing, new sales processes, after-sales processes, HR, communication, finance and control, quality and IT/business systems. One key focus area is analysing and deciding what business process will be the 'best practice' for the Offshore division."

MacGREGOR is, of course, well known for its worldwide service capability, and there is great potential for MacGREGOR to offer its existing network to the existing customer base at Hydramarine and Plimsoll. The offshore oil and gas industry is a little more concentrated than MacGREGOR's traditional business, with more than 90 per cent of the offshore vessel fleet operating in either the North Sea, Asia Pacific, Gulf of Mexico or Middle East, so the integration work is focusing on how to provide support to customers with Hydramarine and Plimsoll equipment in these areas as quickly as possible. Grampian Hydraulics and Vestnorsk Hydraulikk service will play an important role in the North Sea region.

MacGREGOR's Offshore division will continue to focus on development of hydraulic and electrical deck machinery equipment for shipowners, yards and operators in the offshore oil and gas industry. The focus will be on load handling solutions such as large active heave-compensation (AHC) cranes, winches, A-frames and other subsea load-handling solutions installed on offshore vessels and rigs.



Rescue systems will also form a key part of the product range.

Since MacGREGOR formed its Offshore division, demand for its products has been high, and in the past four months the division has signed orders worth more than €15 million. Split almost equally between Plimsoll and Hydramarine, the contracts include orders from some of the best known and biggest names in the offshore vessel market, including Bourbon Offshore, one of the world's largest owners of such vessels, and bring the division's current order backlog record high.

The integration exercise has already led to a first order for an offshore crane based on Hydramarine design and produced by Plimsoll for a vessel being built for Great Offshore Ltd. This order will see Hydramarine design a 150-tonne SWL knuckle-jib crane, complete with active heave-compensation due to be delivered mid 2009.

Given the high level of demand in this part of the world, the new Offshore division is anticipating orders for similar cranes in the near future and, having hit the ground running with significant new orders already under its belt, MacGREGOR's intention is to further develop and strengthen the position of Plimsoll and Hydramarine and to make them global market leaders in load handling solutions for the offshore industry.

Both companies already offer high quality products, and the Offshore division will continue to focus on R&D to develop solutions that support the needs of its customers. On the service side, the goal

is to offer MacGREGOR's global service to the offshore shipowners who use Plimsoll and Hydramarine equipment.

Activity levels in the offshore industry currently are high, and with the price of oil at historic heights, there is increasingly exploration activity and continued demand for new oil to be found, much of it being in deeper waters than has been the case

hitherto. This requires new technical solutions, forcing the industry to upgrade existing vessel and build new ones. With the acquisition of Plimsoll and Hydramarine, and support services from Gramplan Hydraulics and Vestnorsk Hydraulikkservice, MacGREGOR's new division is in a strong position to deliver the equipment – and the global service – that is needed by the offshore industry. ■



## Module handling makes subsea work safer and more efficient

Hydramarine is much more than just a manufacturer of cranes, and the company also designs and manufactures a wide range of load-handling and intervention technology that meets the needs of the market for offshore support and related vessels such as construction and subsea intervention types.

Precise load-handling is critical when mating subsea units on the seabed, and precision becomes even more critical in rough seas or bad weather, so Hydramarine has used its comprehensive experience

in offshore cranes and winches to develop solutions that can compensate for the movement of suspended loads in harsh conditions.

Hydramarine is one of the leading suppliers of the offshore market, and specialises in systems that are tailor-made to suit individual customer requirements, including a range of flexible moonpool-based module handling systems, incorporating deck skid systems with pallets and push/pull units, cursor system and moonpool doors. The company also offers a complete range of active heave-compensated winches. These are equipped with complete power and control systems, resulting in equipment that is flexible and

easily mobilised. Conventional over-side load-handling systems remain in demand, and Hydramarine has a range of over-side systems, either as A-frames or standard/special cranes, in its delivery programme. Combined with its active heave-compensated winches and pendulum dampened systems, these systems are the standard for many remotely operated vehicle (ROV) operations.

Such is the very challenging nature of subsea operations that load handling cannot always be undertaken by cranes, and in these circumstances module-handling systems of the type that Hydramarine has pioneered are the only alternative.

The module handling system's great advantage is

## High spec deck gear for Bourbon Offshore

Now part of the newly formed Offshore division, MacGREGOR Plimsoll has enjoyed a high level of success in recent months, most notably in the form of a contract awarded by China Sino-Pacific Group Ltd, Yangzhou Dayang Shipyards and Zhejiang Evergreen Group to provide deck machinery packages for a total of 28 anchor-handling/towing/supply (AHTS) vessels.

The MacGREGOR Plimsoll deck machinery packages will be installed on a series of GPA 254 design AHTS vessels for Group Bourbon, France, a company that has committed itself to a huge newbuilding programme in recent months. The orders are in addition to 26 shipsets of deck machinery orders placed with Plimsoll in 2006, giving a combined total of 54 shipsets in total.

Designed by Guido Perla & Associates (GPA) in Seattle in the US, the new anchor handlers have an emphasis on high-end equipment specifications but on reduced construction costs. Plimsoll had already delivered four shipsets of the same equipment package for the GPA 254 series that are now in operation with Bourbon Offshore.

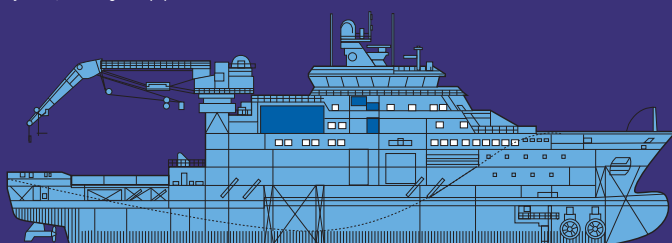
The GPA 254 anchor handlers are being fitted with specially-designed, independent drive waterfall-type double-drum anchor handling and towing winches. These have a number of special features, including a specially-developed control and monitoring system. Winch operation control is performed using

MacGREGOR Plimsoll standard PLC control systems, and the winch monitoring system consists of length and tension monitoring features that are displayed on a wheelhouse-mounted touch-screen monitor. Other equipment supplied includes anchor windlasses, tugger winches, storage reels, capstans, shark jaws and tow pins, hydraulic power units and control systems.

Over the past four years, Bourbon Offshore has completed an audit of Plimsoll, and has worked closely with Plimsoll to develop a range of deck

equipment that can meet Bourbon Offshore's operational requirements and, at the same time, be produced and maintained cost-effectively.

Combined with Plimsoll's after-sales service, the new anchor-handling gear will dramatically enhance the quality of the deck machinery in the Bourbon Offshore fleet. With recognition from Bourbon Offshore of the quality of Plimsoll's deck machinery, it is anticipated that Plimsoll will continue to secure orders from Chinese shipyards building similar anchor-handling vessels.



that it can undertake the kind of guided load handling that cannot be achieved with a crane, thus eliminating many of the risks of non-guided lifts. Such a module handling system is being installed on a Skipsteknisk-designed ST255L inspection, maintenance and repair (IMR) vessel *Edda Fauna*, which is being built for the well known Norwegian operator Østensjø Rederi, where it will handle subsea modules that the ship has to lower to the seabed. The contract to build the vessel was awarded to Aker Brattvaag in Norway.

The module handling systems consists of a rail skid system on the main deck for horizontal transportation of loads and a cursor system, lifeline

and guideline winches for vertical transportation through the ship's moonpools. Horizontal movement of modules is achieved by sliding pallets which are moved by hydraulic tractors or 'pushers.' The module handling system has four different types of pallets with their own tractors: a 60 tonne pallet, two different sizes of 30-tonne pallets, and a 3-tonne/10m crane pallet.

The main moonpool on the IMR vessel is 7.2m x 7.2m and is located amidships. It is supplied with hatches, guiding cursor and active heave-compensated winch system for vertical movements. The system can handle modules of up to 60 tonnes SWL with dimensions of 6m x 6m x 8m to a

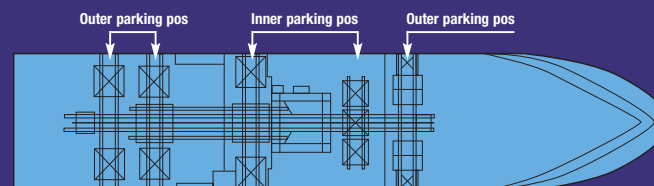
maximum depth of 2,000m in sea states of up to Hs = 5.0m. The main moonpool is also fitted with four active heave-compensated guideline winches, to guide the modules from deck level, and the system has a separate active heave-compensated lifeline winch.

The smaller 4.8m x 4.8m moonpools are located in the ROV hangar, and can handle one a single work-class ROV each. To the port side of the hangar an 'A' frame is located for vertical handling of an observation-class ROV.

Hydramarine is the only supplier in this market that is able to deliver complete shipset packages for subsea intervention vessels, and has supplied a complete package of equipment for *Edda Fauna*, including:

- a 150-tonne active heave-compensated main crane
- a 3.2-tonne fast rescue craft (FRC) davit system
- a complete module handling system, which is fully integrated into the vessel
- two complete heavy-work-class ROV handling systems for moonpool operations
- an over-side observation-class ROV handling system.

(Left and below) ST-255-L Subsea IMR vessel





# Offshore transfer terminals boost bulk handling efficiency and cleanliness

Flexibility in location and capacity is among the key benefits of self-unloading systems, which offer reliable, efficient and environment-friendly solutions to logistics problems in bulk shipping

The size of a ship that can be deployed on a specific route is often limited by draught restrictions in the discharging port. Today's transshipment technology allows charterers to bypass the problem of such restrictions, as well as ports that lack efficient discharging installations, and ensure that Capesize tonnage can be used and loaded at higher rates, explains Jonas Johansson, sales manager, MacGREGOR Bulk AB, Sweden.

In May 2005, MacGREGOR Bulk AB (formerly BMH Marine) secured a contract to supply Nordströms bulk handling systems for the floating offshore transfer barge terminal *Spencer Gulf* and two 10,500 dwt self unloading barges, *Bamagala* and *Middleback* (pictured), each with an unloading capacity of 5,000 tonnes/h.

Built in Chinese yards for Shanghai CHEC Equipment Engineering, the three barges entered service in February 2007 with CSL International at Whyalla, South Australia, where they are engaged in transferring iron ore from the port to Capesize bulk carriers in the open sea.

*Spencer Gulf* is towed out to sea and moored alongside the receiving bulk carrier, while the first self-unloading shuttle barge is loaded with ore in the port before being taken out and moored to the transfer

terminal. The barge cargo is then transferred – by the barge's own conveyor system – to the terminal for loading onto the Capesize bulk carrier at 5,000 tonnes/h.

Using two alternating shuttle barges – one loading in port, the other unloading offshore – achieves a fast and efficient transfer of ore from shore to ship.

Special attention was paid to meeting strict Australian regulations on environment-friendly cargo handling during transloading operations. Dust emissions in the offshore phase are curbed by a totally-enclosed conveyor system and shuttle boom, the latter also equipped with dust collectors. Further reducing dust during transloading, spray water nozzles are fitted in the discharge chutes between conveyors and in the unloading points.

The floating offshore transfer terminal *Spencer Gulf* is a flat-top barge equipped with a Nordströms bulk handling system and incorporating a deck hopper, into

which cargo is transferred from the shuttle barges. From there, the ore is conveyed onto two inclined belt conveyors that access a slewing and hoisting telescopic boom conveyor arranged midships for loading the cargo holds of the receiving bulk carrier.

Operation and control of the transloading process – from shuttle barge via *Spencer Gulf* to the bulk carrier – is remotely controlled from a station on the transfer terminal.

The two flat-top shuttle barges are also each equipped with a Nordströms self-unloading system and a large deck hopper, which is loaded from the shoreside loading system. Unloading is effected by gravity flow when the hydraulically-operated basket gates are opened at the bottom to feed cargo to the longitudinal conveyor belt.

Cargo is then conveyed by this belt to a slewing and hoisting boom conveyor for transfer to the receiving hopper of the offshore terminal *Spencer Gulf*. The entire conveyor system is monitored via remote control, either from the control room of the shuttle barges or from *Spencer Gulf*.

Moving the transshipment process from a port terminal to the open sea using an offshore transfer facility offers significant advantages to all parties:

- reduced pollution in ports and their immediate environs
- larger ships can replace a higher number of smaller vessels on fewer voyages
- the low draught of the shuttle barges avoids expensive dredging in port
- the high capacity of the system cuts time spent in port, a great benefit for charterers and the local environment.

Another merit is the comparative ease of meeting any future demand for increased capacity by deploying additional offshore terminals and barges; alternatively, the original facilities can be moved when the need arises to support a similar venture at another port. ■

**The floating offshore transfer terminal *Spencer Gulf* is a flat-top barge equipped with a Nordströms bulk handling system**







7.5m-wide stern quarter ramp on Aida

6,500-unit PCTCs ordered by the Wallenius Wilhelmsen Group company EUKOR in Korea. The ships will be built at Hyundai Samho Heavy Industries Co Ltd's (HSHI) Mokpo yard.

MacGREGOR is required to deliver some 120,000m<sup>2</sup> of liftable car decks, with deliveries starting this year and extending into 2008.

EUKOR is jointly owned by Wih. Wilhelmsen ASA, Wallenius Lines AB, Hyundai Motor Company and the Kia Motors Corporation. It is one of the world's largest shipping companies specialising in transportation of cars and other rolling cargo. It directly operates about 85 purpose-built vessels and has 15-20 further ships on short-term arrangements at any given point in time. EUKOR annually transports over three million cars to 160 different ports in 110 countries.

#### Environmentally-friendly operation

In Japan, four new PCTCs being built at Kyokuyo Shipyard Corporation, for Norwegian owner Gram will also be fitted with MacGREGOR's cargo access equipment.

Its scope of supply comprises a stern ramp, a quarter ramp, two ramp covers, three internal ramps and 10 hoistable car deck panels. All the internal equipment will be fully-operated by electric drive, which is an environmental friendly solution for operation and also avoids oil leakage and damage to cargo. The vessels will be delivered in 2009 and onwards.

MacGREGOR is also supplying RoRo equipment for three smaller PCTCs being built at the Croatian shipyard, 3 Maj for German owner NSC. ■



Internal movable ramp to car deck 2 or down to deck 1 (tank top); to the right: fixed ramp from deck 5 (RoRo deck)

## Deck arrangements designed with flexibility in mind

MacGREGOR's ability to supply efficient and flexible deck arrangements means that the company continues to secure PCTC and deepsea RoRo contracts

A key factor for achieving maximum flexibility and cargo space, and minimum weight and time in port, is the design and location of the cargo access equipment.

MacGREGOR has furnished the majority of the world PCC, PCTC and deepsea RoRo fleets. This is in part due to its ability to look at each customer's specific needs and design the deck arrangements to meet them, while at the same time building-in a level of operational flexibility.

#### Korean contracts

Most recently, MacGREGOR has won cargo access contracts for 15 car carriers and deepsea RoRos being built at Hyundai Mipo shipyard in Korea. Five of the vessels are 3,500-unit deep sea RoRos for

Grimaldi, six are 3,500-unit pure car/ truck carriers (PCTCs) for Neptun Lines and four are 3,500-unit PCTCs for Vroon BV.

MacGREGOR's contracts include the delivery of the design and hardware for the RoRo equipment and the design and key components for the hoistable car decks, with an option for the fabrication of the car decks. Equipment is scheduled for delivery between 2008 and 2010.

Magnus Sjöberg, sales manager, MacGREGOR RoRo division, said that: "Grimaldi, Neptun Lines and Vroon all require the deck arrangements for their vessels to be as efficient as possible, but also to be highly flexible in terms of the mix of cargo that they can accommodate. MacGREGOR has worked hard with each of the companies to achieve arrangement

solutions that meet these flexibility needs."

The Grimaldi Group's new multipurpose car carriers are destined for the company's Atlantic services. The first ship is scheduled to enter service in spring 2010, with the others following at intervals of a few months between 2010 and 2011. They are almost identical sisters of another five ships contracted with the Uljanik Yard in Croatia, which are planned for delivery in 2008 and 2009. Each of these vessels also feature MacGREGOR RoRo outfits.

At 25,000 dwt and with a service speed of 21 knots, they will be able to accommodate up to 2,000 linear metres of RoRo cargo, 2,000 cars and up to 800 TEU of containers.

The Grimaldi Group Atlantic Network of services comprises a set of regular line connections between Northern Europe and West Africa; Northern Europe and South America; the East Coast of the US and West Africa; as well as South America and West Africa.

Vroon's new 168m/3,500-unit PCTCs have been

ordered to meet an anticipated further demand for car carriers in the future, said that company, in particular for medium-size vessels.

#### 120,000m<sup>2</sup> of liftable car decks

Also in Korea, Daewoo Shipbuilding & Marine Engineering Co Ltd (DSME) has specified MacGREGOR cargo access equipment for four 8,000-unit PCTCs booked by Wallenius Wilhelmsen. These carriers are the largest of their kind, and this order is a continuation of the Wallenius series of three presently under construction at DSME's Okpo yard.

MacGREGOR will supply hardware comprising a stern/quarter ramp, side ramp, ramp cover, liftable car decks, hoistable ramps, internal doors and associated hydraulic and electric operating systems. The deliveries to DSME's Kojima yard have started this year and will continue into 2008.

In addition to the three plus four 8,000-unit PCTCs at DSME's Okpo yard, MacGREGOR is already supplying complete liftable car deck sets for eight



Car deck no 7 – a so-called two-level car deck, on Aida. Decks 6 & 7 are operated by a mobile deck lifter which lifts up deck 6, pushing deck 7 to the stowed position. 'Semi-auto stoppers' keep each panel at the correct level. If no stoppers can be fitted, suspension links are used, as shown in the foreground



# Continuing the Chipolbrok commitment

Chipolbrok has a strategy of concentrating on project loads with high lifting capacity. For over 30 years the Chinese/Polish joint-stock shipping company has specified MacGREGOR cranes and hatch covers for retrofit projects as well as newbuildings.

The close working relationship between the two companies was strengthened further earlier this year when MacGREGOR heavy-lift cranes and hatch covers were specified for four (plus two options) Chipolbrok multi-purpose carriers being built at the COSCO Dalian shipyard in China. MacGREGOR will also supply the design and key components for folding weatherdeck hatch covers and lift-away covers to the 30,000 dwt vessels.

MacGREGOR has also recently been awarded more contracts from Chipolbrok for the world's biggest twin cargo-handling cranes. These will be used to modernise general cargo ships in a 1990s-built series.

The newbuildings will be similar to hulls delivered to the owner in 2003-2005. These earlier 30,000 dwt deliveries – *Wladyslaw Orkan*, *Chipolbrok Sun*, *Chipolbrok Moon* and *Leopold Staff* – are equipped with two MacGREGOR GLH 320-tonne cranes and two GL 50-tonne cranes. Lifts of 640 tonnes at 16m outreach can be made by 'teaming' the two heavy-lift cranes. The cranes are also equipped with auxiliary hoist winches to maximise container handling rates.

"These previous deliveries have now been successfully operating for a couple of years and convinced Chipolbrok to continue to invest in the growing cargo-handling market," said Kenneth Mellin, sales manager, Crane division. "MacGREGOR has paid careful attention to these crane installations through its worldwide service network, and has been able to provide service when needed."

The new cranes will be manufactured at MacGREGOR's partner plant CSSC Nanjing Luzhou Machine Company Co Ltd in China. Delivery is schedule to start in October 2008 and continue at four-month intervals until the last delivery at the end of 2009. The total order value for cranes exceeds €14 million and for hatch covers is around €2 million.

The world's biggest twin cargo-handling cranes will be retrofitted to four more of an 11-ship series of 1990s-built general cargo ships. The GL cranes have a combined SWL of 150 tonnes at 20m and 90 tonnes at 28m, and are believed to be the world's largest shipboard twin cranes. They will feature the well-proven CC2000 control system and be able to operate simultaneously when luffing, slewing and hoisting in both single as well as twin modes at maximum load and speed.

MacGREGOR's involvement with Chipolbrok goes back to the early 1970s, and last year MacGREGOR retrofitted three other ships in the series with similar

MacGREGOR cranes and hatch covers will now serve more heavy-lift tonnage belonging to Chinese/Polish shipowner Chipolbrok – newbuildings and existing ships – and strengthens a three-decade relationship between the companies

cranes. The vessels were modernised to extend their operational lifetime.

"Chipolbrok is one of the leading operators of general cargo ships between Asia and US as well as Europe, and the increasing demand in the market convinced the company to go ahead with further investment in MacGREGOR technology, which is in the region of €2.1 million per shipset," said Mr Mellin.

The four ships, *Jia Xing*, *Wienlawski*, *Chong Ming* and *Szymanowski*, will be retrofitted with the new twin cranes starting with the first ship in May 2008 and finalised with the last ship in October. The cranes will also be manufactured at MacGREGOR's long-term partner plant CSSC Nanjing Luzhou Machine Company Co Ltd and be installed and commissioned in a shipyard in the Yangtze Jiang area. ■



## Chipolbrok: linking two continents

The Chinese-Polish Joint Stock Shipping Company was founded in 1951 under a bilateral agreement between the government of China and Poland, and was the first ever Sino-foreign joint-venture for the People's Republic of China. Chipolbrok's head office is located at Shanghai and its European base at Gdynia.

The equally shared partnership enterprise arose out of six ships contributed by each contracting party assigned to provide the sea transportation link between Polish and Chinese ports for carriage of investment goods and other commodities necessary for both countries' development.

The company's main task of linking two continents is basically realised through a regular two-weekly liner service to Hamburg and Antwerp on one side and Shanghai, Xingang, Dalian and Huangpu on the other. However, nowadays Chipolbrok has an expanded field of activity, which covers a wide geographical range including the Baltic Sea, the North Sea, the Mediterranean and the US Gulf

ports up to the Middle East and India, and South East and Far East Asian destinations.

Chipolbrok operates a modern and multipurpose fleet of 22 geared, semi-container triple-deckers with a total of over 492,000 dwt and a container capacity of over 21,000 TEU, which is also suited to the carriage of general cargo. Four of the 22 vessels have been equipped with MacGREGOR cranes able to lift cargo of up to 640 tonnes unit weight. These heavy-lift vessels have supported a liner service from 2004 and enable Chipolbrok to call at extra ports en-route when and where heavy-lift cranes are needed.

Between next year and 2010 another four (plus two options) innovative-design ships will be delivered to the company. These investments will strengthen its significant market position, said Chipolbrok. The company has also modernised a number of vessels with cranes to meet further heavy-lift demands.

# Booming bulker market boosts crane orderbook

The continuing boom in the shipbuilding market is providing a real boost to crane sales which include 88 recent orders from one Chinese shipyard and 76 GLB-crane orders for bulk carriers in China and India

**M**acGREGOR is to supply 39 shipsets of cranes to Yangzijiang Shipyard, in China, for installation on bulkers, cargo ships and feeder container carriers. Also, the company has managed to secure cargo handling crane orders for 74 bulk carriers in China and India. The Chinese market has been the most active and counts for a total of 62 ships at five different ship yards.

For the Yangzijiang contracts, twenty-one 7,600 dwt bulkers – 13 for Canadry and eight for Belbulk – will each feature a pair of MacGREGOR GLB cranes. Four 12,600 dwt multipurpose cargo ships for Carisbrook will each use two GL cranes.

MacGREGOR GL cranes are also specified for two feeder container ship series: four 1,350 TEU ships for Peter Döhle will have two cranes installed, and ten 2,500 TEU carriers – eight for SFL and two for Seaspan – will each feature three GL cranes and a service crane.

"The market has experienced a dramatic increase in interest for handy, handymax and supramax sized bulkers," said Lars Söderström, MacGREGOR Cranes' sales manager for bulk ships. "There are several reasons behind the booming market such as increasing charter rates, dramatic increase in demand for raw materials and energy products, as well as a high average age of the existing fleet."

The crane contracts for the 74 bulk carriers in China and India will see MacGREGOR delivering its cargo-handling expertise to yards until 2011. The deliveries are scheduled

to start in early 2008 and will continue until the latter half of 2011. Most of the deliveries will consist of standard GLB-type cranes in the range of 30 to 36 tonnes SWL.

MacGREGOR has also received an order confirmation for crane shipsets for three 1,700 TEU container ships being built at CSBC Kaohsiung shipyard in Taiwan, for Hong Kong-based Cido Shipping.

Each ship will be equipped with two GL cranes with a 40-tonne SWL at 28m. The cranes will be delivered to Taiwan at the beginning of 2009 from MacGREGOR's Chinese production partner. MacGREGOR is also supplying lift-away hatch covers for the weatherdeck and loose lashings.

"Despite a predicted cooling of the container feeder market in the first two quarters of this year, a constant stream of feeders have been ordered at Asian ship yards for a variety of owners, and MacGREGOR harvesting from this buoyant market," said Tore Jonsson, sales manager for container ships in MacGREGOR's Crane division.

The company's heavy-lift cranes are also in demand with eight new general cargo ships, being built at Shandong Huanghai Shipbuilding in China to feature two GLH 20020/17523/16025/12030/8033-2 cranes and one GL 4530/4035-2 unit.

The cranes will have MacGREGOR's standard heavy lift design comprising double control systems (CC2000) for redundancy, as well as an auxiliary hoist for efficient handling of containers. Deliveries are planned to start in October 2009 and will continue until late 2010.

Cranes for all the orders will be delivered from production partners in China and Korea. ■

## Reaping the success of a proven design

MacGREGOR now has close to 100 GLB cranes successfully in operation. The GLB crane was developed in 2001 and is designed to be the ultimate solution for bulk carriers. It uses the same design philosophy as MacGREGOR's well-proven GL-type crane. "Standardisation and modularisation has been used to find the most competitive solution without jeopardising quality, reliability and availability," said Lars Söderström.

In the future STS will concentrate on improving its service level, especially when it comes to response times

# Centralised system streamlines service and spares

**E**ffective spare parts delivery and service are essential to the profitability and operational success of a ship, and are therefore a focal point of the MacGREGOR Group's Service division. Each of MacGREGOR's Sales & Technical Service (STS) units are a specialist centre for:

- spare parts
- quotations
- global purchasing and logistics
- 'MacGREGOR Onboard Care' support
- central warehouses (logistic centres)
- technical documentation including manuals for newbuildings
- technical support for the service network.

"As STS centrally takes care of many routine tasks, people in the service network can spend more time with customers," said Hannu Reponen, manager at MacGREGOR's hatch cover specialist STS centre. "It is extremely important that STS and the service network operate as one team to give the best possible service for our customers. STS and network staff meet regularly to further improve our service level."

To explain the process he said that: "When a branch receives a spares enquiry it checks that all the necessary details are in place and forwards it to STS. STS has all the required data such as drawings, sales and purchasing history, and support from the newbuilding departments available and provides a quotation. After the order is received, STS specialists ensure the fastest and most effective delivery of the goods on board the vessel.

"In the past many of the above tasks were undertaken by the branches. This took many resources, which can now be used towards customer service". The quality of documentation, as well as fast data retrieval, are ensured by centralised archives kept by STS.

At the beginning STS specialist centres were located in the same places as the newbuilding departments. "This was – and is still – needed for easy and fast change of information between newbuilding and service. It also makes it possible for STS to get highly professional technical support from these departments if needed.

To simplify the way that customers receive spare parts and service from MacGREGOR, the company has centralised its system and branched out to meet demands from the Asian shipping market



"As the whole shipping business moved more and more towards Asia it was natural that STS also expanded there, and a new centre was opened up in China last year," Mr Reponen said. "Our aim is to be as close to customers as possible. This is valid for both our Asian customers and for other customers whose vessels are visiting Asian ports or having repairs carried out in Asia.

"In the future STS will concentrate on improving its service level, especially when it comes to response times," he said. "We are developing new tools to help us analyse how to better these. This will benefit our customers in many ways such as faster responses, more stock locations, faster delivery time, and more effective transportation. An essential part of this is new documentation tools, which will ensure fast and correct identification of customer needs." ■

## Centres support service and spares in Asia

MacGREGOR has three Sales & Technical Service (STS) centres in Asia, located in Tokyo, Singapore and Shanghai. The Japanese branch was developed as part of MacGREGOR-Kayaba. It has a staff of six people and its manager Keizo Ohta said that: "Our centre is well placed for customers, who can take advantage of quick responses, controlled pricing and delivery terms, and constant care by branch sales persons."

The Singapore centre was started in 2001 and has three members of staff. It is responsible for stock management, packing and labelling goods, forwarding arrangements, and documentation. Its manager, Andrew Wong, also quotes advantages to its customers, including: fast delivery times and savings in transportation costs with maximum availability of standard parts.

In China, the Shanghai centre was opened last year and now has eight members of staff. Its tasks include: spares pricing, some spares sourcing, spares logistics, business analyses, service sales management, and documentation. Alex Hu, manager of the centre, said that: "Customer feedback that we've received says that they think it's good to have such a centre to handle pricing, purchasing, logistics, and invoicing issues for them. Before the centre was set up, customers were serviced by branches separately; afterwards, it was possible to consolidate purchase demands".





Aida is a 200m vessel with capacity for 6,700 standard cars

# A good crew knows its ship

MacGREGOR's first shoreside crew training is helping deck and engineering officers from Wallenius's latest newbuildings to get the best out of their cargo handling equipment by operating and maintaining it effectively

At a time when shipbuilding is at its highest level for 18 years and crew recruitment at an all-time low, it is more important than ever to consider crew training as an essential element of a newbuild programme. Part of the problem lies in the sheer numbers of new ships being ordered for all trades, such that recruitment and training just cannot keep up.

Independent research has shown that there is already an international shortage of 10,000 officers, which could increase to between 27,000 and more than 66,000 by 2015, according to a recent report from Nautilus, the UK's union for professional mariners. These shortages are showing signs of being made worse by stricter rules governing seafarer training and certification, which are restricting and even removing some of the countries that have traditionally served as sources of economic skilled labour.

In June Wallenius took delivery of *Faust*, the first in a new series of seven large car/truck carriers (LTC) ordered by Wallenius from Daewoo Shipbuilding & Marine Engineering in Korea. With capacity for 8,000 standard cars, the 228m-long *Faust* is the largest car carrier registered in Sweden.

This design follows a new series of smaller sisters, which stake a claim to having the largest cargo capacity in the world for a 200m vessel: 6,700 standard cars. *Otelo* and *Aida*, the first

two, were delivered by Daewoo last year, and a 6,500-car version is also on order at Hyundai Heavy Industries, Korea.

All the vessels are fitted with MacGREGOR equipment.

MacGREGOR worked closely with Wallenius and in April completed its first external crew training session for deck and engineering officers appointed to the newbuildings. The second and third sessions were held in July.

MacGREGOR equipment forms an essential part of Wallenius's vessels, and training for them covered the following areas:

- MacGREGOR Onboard Care
- ship hydraulics and electrical systems
- mechanical function
- design criteria and loading capacity for a stern ramp
- due diligence in the RoRo environment
- how to read the instruction manual
- spare part identification
- how to purchase spares.

The three-day course took place in Gothenburg at the Klippan service office and the ship's captain, chief officer, chief engineer, first officer, second officer, first engineer, second engineer and electrician took part in the training. The sessions were introduced by Mikael Magnusson, MacGREGOR Service division's sales and technical services team leader.

Marine surveyor Walter Vervloesem from the Independent Maritime Consultants & Surveyors (IMCS) highlighted the importance of executing due diligence. This was essentially described as the steps that people need to adopt to take as good care as possible of their equipment, to reduce the risk of accidents and to show the authorities that everything possible has been done to maintain equipment in good working order. If an accident occurs, poor maintenance will reduce the compensation from insurance companies.

Stefan Wide, a designer in MacGREGOR's RoRo conversion business unit, discussed safe working loads and made it clear that the 'SWL' sign was not sufficient in itself for indicating how much load equipment could carry. "This is an important lesson to bear in mind when driving heavy loads on ramps," he stressed.

Arne Franklin, responsible for technical manuals, explained the operating instructions and the instructions for emergency operation, as well as the maintenance procedure for each piece of RoRo equipment on board. He went through the instruction manual, highlighting the safety precautions and functions of systems on board. Safety aspects played an important role during this session. For example, it was explained how limit switches are adjusted to avoid malfunction and accidents.

The electronic winches, with frequency converters, and the electronically-operated cleats were a particular focus. After the theoretical lesson, a practical demonstration was held by Dag Eliasson, senior electrical designer, using an electric winch, frequency converter and electronic cleats on a test rig.

Phillip Tipping, RoRo control systems manager, introduced the hydraulic system on board, from the hydraulic power pack through to the solenoid valves and the cylinders. Bengt Olofsson, RoRo technical support engineer, highlighted the spare parts catalogue and explained how to order spare parts so that the correct part is delivered without delay.

Mikael Magnusson explained the different service agreements from MacGREGOR, such as 'MacGREGOR Onboard Care' including 'Total Onboard Care'. "During the sessions, questions led to interesting discussions between MacGREGOR staff and the crew, and their feedback has given MacGREGOR useful input for instruction manual improvements for the future," he said. "Feedback about the manuals doesn't materialise very often, so it was really appreciated by the instruction manual team. Also, comments from the participants indicated that they were really satisfied with the three days, which is of course very positive for both the organisers, the tutors and the company as a whole." ■

## Service ties strengthened with the Grimaldi Group

MacGREGOR's radical 'Total Onboard Care' concept now ensures the uninterrupted operation of cargo flow equipment on 26 multipurpose RoRo ships in the Grimaldi Group's 'Repubblica' and 'Grandi' series. The contract covers three years.

"This type of contract reflects the tendency of the Grimaldi Group to entrust the maintenance of essential equipment to carefully selected specialists capable of ensuring worldwide operative availability of such equipment and thus uninterrupted operation of ships that is vital for company's revenue-earning ability," said Mario Greiner, MacGREGOR's business development vice president and acting manager for the Mediterranean region.

"MacGREGOR has worked with the Grimaldi Group

for a number of years, supplying maintenance services as well as new equipment. By awarding this latest contract to MacGREGOR, the Grimaldi Group has expressed confidence in MacGREGOR's ability to manage and deliver a total of 78 shipset maintenance-years, which are designed to ensure the performance of cargo flow equipment to rated parameters through the implementation of a process of planned and corrective maintenance".

"MacGREGOR Onboard Care" is a radical service concept introduced three years' ago. The ultimate 'Total Onboard Care' package combines planned preventive maintenance with knowledge about actual equipment condition. This makes it possible for MacGREGOR to intervene wherever and

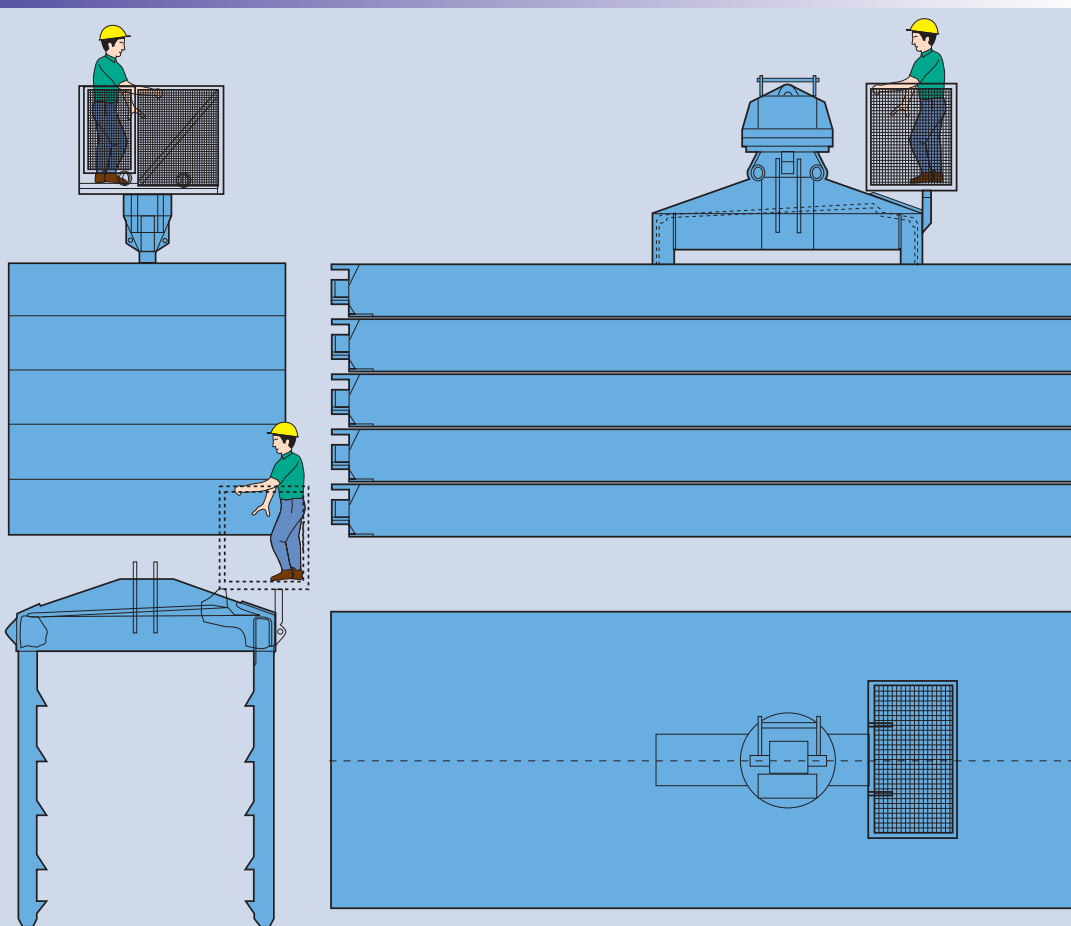
whenever required, to ensure that equipment is available and doing its job.

"We see this as a 'win-win' situation, where MacGREGOR takes a higher degree of risk than the customer," said Olli Isotalo, president of the MacGREGOR Group. "But we have confidence in our engineering solutions and our service capabilities. And it is the combination of these that enables us to assure ship operators that their equipment will work when it is needed, at a budgeted through-life cost."

MacGREGOR is delivering to Grimaldi 78 shipset maintenance-years







## Hatch cover innovation speeds up tweendeck opening

A tweendeck panel lifter that reduces operation time significantly is the latest in a long line of MacGREGOR hatch cover innovations

To reduce the time taken to remove tweendeck panels one by one and stow them clear of the hatch opening, MacGREGOR's new panel lifter is used to lift and collect up to five panels at a time, and then stack these on deck. The lifter comprises a two-legged 'fork' suspended from a crane that is lowered through holes in each panel at the panel's centre of gravity.

In the simplified version the operator inserts support pins into the legs at the appropriate height for a single panel or stack of panels. The lifting legs are lowered through the panels, and when a support pin reaches the top of a panel, the operator swivels-out lifting paws and can then raise the panel or panels. In an advanced system the crane operator can select the correct insertion depth from the crane crane cabin by remote control, as well as operate the lifting paws.

To replace the panels, the operator lowers a stack into position, and then swivels-in the lifting paws to release the bottom panel. He then raises the

legs by the thickness of one panel, re-engages the lifting paws, and repeats the process.

The operator controls the panel lifting operation from a basket just above the legs, and one option is to have this basket adjacent to a power swivel to orientate the lifter for lifting or lowering panels.

The first application of the equipment will be on a 24,000 dwt heavy-lift/multipurpose cargo ship. A mechanical panel lifter will be used in this case, but an electrically-operated version has been developed.

The SWL of the panel lifter is 45 tonnes, and it can be used to handle up to five 9-tonne panels at a time, each 10.2m long, by 3.16m wide, by 0.6m high. The equipment itself weighs around 9 tonnes.

The panel lifter can be operated in +/- 0.3 degrees of heel and up to +/- 2 degrees of trim. ■

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