



Becker Mewis Duct®: The largest ever built - up to now

BECKER DELIVERS AN EIGHT-METER-DIAMETER VERSION OF ITS PRIME ENERGY SAVER FOR VLCC



With a diameter of 8.10 m Becker Marine Systems has delivered the largest Becker Mewis Duct® ever made for the construction of Very Large Crude Oil Carriers (VLCCs) at Hyundai Samho Heavy Industries for Samco Shipholding, Singapore.

Initial sea trials of the new VLCC with a length of 319.0 m have proven once more the excellent rate of power savings provided by the Becker Mewis Duct®. Fuel savings of about 5% were measured, lowering operating costs for the lifetime of the ship. This fuel savings also reduces CO₂ emissions

by 2,800 t per year for each VLCC. These numbers speak for themselves and persuaded Samco to equip all four VLCCs of this series constructed at Hyundai Samho with the Becker Mewis Duct®.

This order is just one example of the excellent reception being given the Becker Mewis Duct®, especially in the Korean shipbuilding market. Every week Becker's sales team receives more than ten Becker Mewis Duct® enquiries from Korea. Korean shipyards build a lot of tankers and bulkers in sizes ranging from 30,000 to 320,000 dwt.

This is the perfect size for the Becker Mewis Duct® and always results in substantial rates of fuel savings. Hyundai Mipo Dockyard has thus ordered four Becker Mewis Ducts® for an Italian owner, and two more for a Norwegian owner. Also, STX has ordered the first three Becker Mewis Ducts® for the newbuilding of 50,000 dwt bulkers for a Danish owner and an additional order of four for a Greece owner will soon follow.



Becker staff member: Frank Schmitz

BMS HAMBURG – MANAGER PROJECTS DEPARTMENT

In 2007 Frank Schmitz joined the team at Becker Marine Systems as the Sales Manager for China, North America and Greece and since August 2011 has been working as the head of the rudder project team. Before joining BMS Frank Schmitz served as an army officer working in the area

of repair and maintenance. He is a graduate of Mechanical Engineering and holds a Masters of Science in Automotive Engineering. After his initial experience as a sales manager in the arms industry Frank Schmitz acquired experience in the shipbuilding industry at BMS. His goal is to apply his sales experience in supporting and providing consulting services for both the sales team as well as customers.



Asia: How may we serve you?

BECKER MARINE SYSTEMS CONTINUES TO STRENGTHEN ITS PRESENCE IN THE ASIAN MARKET

In order to serve our customers as well and reliably as possible, we underwent internal changes with no change to our outward appearance. We successfully made it through the shipbuilding crisis of 2009 and 2010 with ship orders being cancelled and ship owners and shipyards struggling to survive. This period was a new experience for Becker Marine Systems. Orders suddenly stopped coming in. We immediately took precautionary steps by reducing our stocks of raw materials, negotiating with customers and suppliers to find compromises for the sudden drop in orders. With quick decisions, a solid order book and reliable partners, we overcame this difficult period in good shape. The period of change was used to restructure, develop new products and review cost, quality and operational issues. These measures have made Becker Marine Systems stronger than ever.

However, the shipbuilding world has changed. Dramatic price reductions have put enormous pressure on shipyards to reduce costs and have forced them to enter into ever tougher negotiations with suppliers. For Becker Marine Systems this new situation means making more changes in order to adapt to the requirements of our customers. We have made three changes that might be of interest for you.



Mr. Kuhlmann inspecting a TLKSR® Twisted Rudder at a Chinese dry dock following 5 years of operation

1. Following strong demand in our core markets of Korea and China, it has become necessary to have more local presence on our part. We have thus opened our own Becker office in Busan, Korea. Based in Haeundae, our team is available for customers with the complete range of sales, technical expertise and after sales services.

2. Becker entered into close cooperation with the leading manufacturer of conventional rudder systems in Korea, Haeduk Power Ways. The company has been manufacturing conventional rudders for over 30 years. With major shipyards as its customer base, Haeduk has experienced a steady growth in recent years and is listed on the Korean Stock Exchange (KOSDAQ). Haeduk produces about 250 rudders per year. With additional factories under construction in Busan and Dalian, Haeduk will have overall annual production capacity of more than 500 rudders by 2013.

3. Mr. Henning Kuhlmann, Managing Partner of Becker, temporarily moved to Asia this September. By manning an office in the region and constantly shuttling between China and Korea Mr. Kuhlmann on site to respond to customers' needs in person. So, how may we serve you, too?

Service: Increased demand for rudder conversions

Becker's After Sales Team has been faced with increased demand for conversions of non-Becker rudders. Ship owners are turning to Becker for new rudder solutions to increase the manoeuvrability of vessels already in service.

A good example of such a conversion is the *Jaeger Arrow* from Gearbulk, Norway. The cargo vessel was built with a semi-spade Schilling® Mariner Rudder in 2001. Within a three-week period in June 2011 the Becker After Sales Team cut out the tarnished semi-spade rudder and replaced it with a new fullspade Schilling® Monovec Rudder.

As is almost always the case when performing rudder conversions, the Becker Team was able to fit the new rudder to the existing steering gear. The crew of the *Jaeger Arrow* took the opportunity of a Manoeuvring Training course offered by Becker to experience their vessel's new and improved course stability.

In another case, the captain of the 25-year-old cruise ship *Thomson Dream* was very pleased with the conversion of the semi-spade rudders to a new Becker TLFKSR Twisted Leading Edge Flap Rudder System in 2010. The new rudders enable the captain to perform many harbour operations tug-free. Before the conversion the *Thomson Dream* frequently needed tug assistance, which is now decreased by an astonishing 80%.

And yet another success story showing the benefit of rudder conversions for ship owners can be told by Stena Line. Their *Stena Britannica* and *Stena Hollandica* were fitted with new Becker TLFKSR Twisted Leading Edge Flap Rudders during the time the vessels were docked for lengthening in 2007. Also, *Stena Danica* was fitted with Becker's TLFKSR Rudders to replace non-Becker rudders, demonstrating improved manoeuvrability during Becker's Manoeuvring Training course for the bridge crew.



... so you can avoid the costs for this.

Order highlights: Becker Marine Systems products

MITSUBISHI HEAVY INDUSTRIES



Norwegian-based Petroleum Geo-Services (PGS) have ordered two vessels for delivery in 2013 and two options for their innovative W-class Ramform design to be built at Mitsubishi Heavy Industries. These ships will outperform all comparable seismic research vessels in terms of reliability, endurance and 3D seismic acquisition productivity and efficiency. Three Heracles Flap Rudders each measuring 17.7 m² will provide each ship with reliable steering capability for course keeping in streamer operation, a demanding task for a vessel with a length of 104.5 m and a beam of 70.0 m – with up to 26 streamer lines following behind.

JIANGSU NEW YANGZI

In August 2011, Jiangsu New Yangzi Shipyard and Becker Marine Systems signed a contract for the delivery of full spade Twisted Rudders with KSR support (TLKSR®) for next generation 10,000 TEU container vessels, ordered by Canadian owner Seaspan. The order of 5 vessels with an option for 18 more is the largest contract ever placed with a Chinese shipyard. Becker Marine Systems is very proud to be part of this historic delivery of giant container vessels from the Chinese ship-building industry. The ships with a length of 337.0 m, a breadth of 48.0 m and a draught of 13.0 m will have a service speed of approx. 25.0 kn and DNV class.

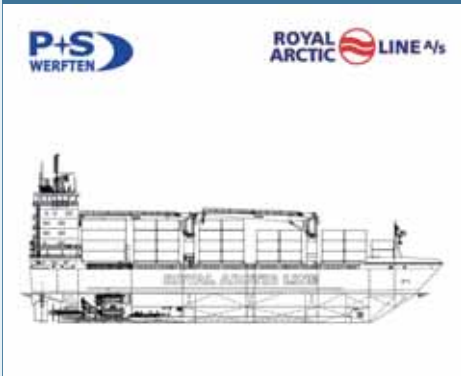


HYUNDAI HEAVY INDUSTRIES



Becker Marine Systems was recently awarded an order for the rudders for Hyundai Heavy Industries' 155k shuttle tanker order for Knutsen NYK Offshore Tankers. The contract includes one 70 m² Schilling® KSR Rudder – the largest one ever built. Due to the special support design, the patented full spade Schilling® KSR Rudder can be built to any size. The contract also includes rudders for two optional vessels. Becker is proud to be extending the long and successful business relationship with Hyundai Heavy Industries and Knutsen NYK Offshore Tankers, maintain the title of leading supplier of high-lift rudders in the shuttle tanker segment.

P+S WERFTEN



Becker Marine Systems has been awarded the order from P+S Werften, Germany, for the delivery of rudders for five ice-going container ships for Royal Arctic Line. The vessels (one 606 TEU, two 108 TEU and two 36 TEU container ships) will be equipped with Becker Schilling® Rudders specifically suited for arctic conditions and small harbours with the need for reliable manoeuvrability. The fishtail of the proven Schilling® Rudder profile guarantees high lift even at low rudder angles. An ice knife and the strong and reliable Becker Schilling® design meet the highest ice class. The five small container ships are scheduled for delivery by the end of 2012.

JIANGSU HANTONG

U.S.-based Eagle Bulk Shipping is continuing to expand its fleet with the order for the new-building of four 57,000 dwt Dolphin class bulk carriers. The vessels are being built at Jiangsu Hantong Ship Heavy Industry and are scheduled for delivery in 2012. Eagle Bulk Shipping decided once more to install Becker Mewis Ducts® to improve fuel efficiency and lower emissions. The rate of power savings of the Becker Mewis Duct® for Dolphin class bulk carriers is guaranteed to be at least at 5%, making the installation of the power-saving device almost a necessity for vessels of this type.



STX OFFSHORE & SHIPBUILDING



Danish NORDEN A/S ordered four 49,600 dwt product tankers from Korean shipyard STX to be delivered in the first half of 2013. NORDEN will equip three ships in the series with the Becker Mewis Duct®. Becker's R&D team calculated a power reduction of at least 4.5%, reducing fuel consumption accordingly. NORDEN is treating this as a key project for a potential standard power-saving device retrofit for the whole NORDEN fleet in the future. For Becker Marine Systems this is the first project with a Danish ship owner and the Becker team is very proud to have acquired NORDEN as a client in this segment of vessels.



Historic Ship: Conversion for MS Deutschland, 1966



In 1966 Becker Marine Systems – back then still called Willi Becker Ingenieurbüro – received the order for the delivery of a high-performance Becker

Flap Rudder for the inland waterway passenger vessel *MS Deutschland*. The passenger ship had been built by the Els-flether Werft and had been in service for owner Otto W. A. Schreiber Reederei in Bremen for harbour cruises since 1949. Company founder Willi Becker himself calculated the offer for the rudder replacement, including a hydraulic steering gear.

This rudder conversion 45 years ago dates back to the time when our company had not yet conquered the manoeuvring market for seagoing ships with

large Becker Flap Rudders and was primarily equip-ping inland waterway vessels with high-perfor-mance rudder systems with an excellent reputation for having the best manoeuvrability.

MS DEUTSCHLAND	
Length (loa).....	46.0 m
Breadth	7.60 m
Speed.....	14.0 kn
Displacement	400 t
Passengers	600

Service: Rudder refurbishment for Mein Schiff 2

Becker's After Sales Team has long been known for quality and flexibility when it comes to refurbishing Becker Rudders that have been in service for decades. During a general overhaul Becker specialists turn old Rudders into ones that are as "good as new" by replacing all worn parts and doing a complete makeover to all rudder parts.

Such a job has just been done for the *Mein Schiff 2* cruise ship. The 243.0 m long and 32.23 m wide vessel was built as the *Mercury* for Celebrity Cruises at the famed Meyer Werft



in Papenburg in 1997. At that time Becker Marine Systems delivered twin FKS R Flap Rudders which served its first owner faithfully over a 14-year period of service.

In 2011, TUI Cruises aquired the cruise ship and rechristened the vessel *Mein Schiff 2*. The ship underwent extensive modifications at Lloyd Werft in Bremerhaven, where Becker's experienced service engineers treated the twin Rudders to a complete makeover for smooth and reliable manoeuvring in all sea conditions after a long and trouble free-service life.

Exhibitions: On display at all major Asian trade shows

Becker Marine Systems will be representing their company at the Inmex (India), Kormarine (Korea), Europort (Netherlands) and Marintec (China) exhibitions this year. We will be presenting our wide product range comprising, amongst others, the Twisted Rudder TLKSR® and Twisted Flap Rudder TLFKSR, the Schilling® KSR Rudder and, of course, the best-selling Becker Mewis Duct®.

At Kormarine in Korea a full-scale Becker Mewis Duct® will be on display in front of the exhibition hall. Following the exhibition this particular Becker Mewis Duct® will be installed on its designated vessel. Next year's highlights are Sea Japan in Tokyo and SMM in Hamburg. We are looking forward to meeting our clients and visitors at these exhibitions.

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EXHIBITIONS 2011	
	Inmex, Mumbai, India, German Pavilion, Hall 1, Stand 1G123, 29th September - 1st October 2011
	Kormarine, Bexco, Busan, Korea, German Pavilion, Hall 2, Stand O36, 26th - 29th October 2011
	Europort, Rotterdam, The Netherlands, at the stand of Sandfirden Technics B.V., 8th - 11th November 2011
	Marintec, Shanghai, China, German Pavilion, Hall W4, Stand 4C31-3, 29th November - 2nd December 2011