



BECKER SERVICE TEAM: MORE THAN JUST DELIVERING SPARES

After years of service in salt water conditions, eventually all equipment on board a vessel is in need of planned or unplanned maintenance. For the safety of crew and ship, manoeuvring equipment such as rudders and steering nozzles in particular must be in flawless condition at all times.

In order to maintain the approximately 8,000 units delivered to date, the Becker Service Team supports their customers by advising

them on the required and recommended spare parts for the next docking, based on the available history of delivered products. Our excellent network of long-term sub-suppliers guarantee the shortest of delivery times. Many standard items can be delivered directly from stock.

Even at short notice or at any location worldwide, our experienced service engineers from Becker service stations in China

(Nanjing, Shanghai), Korea, Singapore, USA and Germany are available for all your service needs. Their scope of services include inspections, replacement of worn out wear and tear components (such as neck bearing bushes, requiring dismantling the rudder blade and stock), complete overhauls, rudder upgrades, failure analyses and rudder conversions.

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NEWCOMERS: MATHIAS NIPPEL, TIM MEWES, HENNING STEFFEN



With good ties to the University of Applied Sciences in Kiel in matters of education, Becker regularly hires promising young graduates for their trainee program. Currently half of Becker's sales team has a degree in Naval Architecture from Kiel.

Henning Steffen and Tim Mewes began as trainee students in 2007/2008, with Mathias Nippel joining the company after getting his Master's degree in 2014. Henning is responsible for the Korean and Norwegian markets, Mathias is developing Becker's business in Japan and taking constant care of his customers in the Benelux countries, Sweden and the UK. Tim spent two years at Becker's office in Shanghai, China and is now responsible for the Mediterranean market.



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Rudder upgrades including such items as hydrodynamically optimised rudder bulbs and propeller end caps for energy-efficient operation have become an ever more popular part of our services. In collaboration with our in-house CFD experts, the Becker Service Team will find the perfect rudder upgrade solution for you.



We also offer failure analyses. Real-time video material can be recorded at sea via the temporary installation of Becker's RUDI system, a remote controlled underwater camera (pictured above). Vibration and FEM analyses leave no question unanswered.

We are experts in rudder conversion, which can drastically improve the perhaps inadequate manoeuvring performance of a vessel or can adapt a ship to new operational requirements, e.g. converting a tanker into a shuttle tanker with DP capabilities.

After replacing a semi-spade rudder with a state-of-the-art Becker Flap Rudder the potential increase in lateral force can be calculated in detail by our CFD simulation.

Our service does not end following the installation of a new rudder: Becker Manoeuvring Training will help familiarise your captain and crew with the new manoeuvring performance of their upgraded vessel.

Your Becker Service Team is available worldwide on a 24/7 basis:

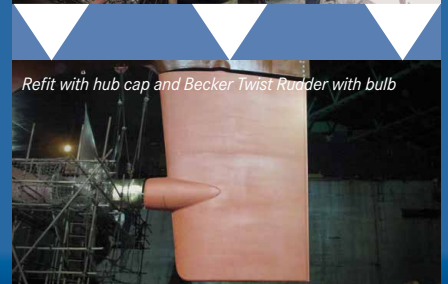
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The old rudder on a vehicles carrier



Installation of an optimised hub cap designed by Becker



Refit with hub cap and Becker Twist Rudder with bulb

BECKER MEWIS DUCT®: SIX BP TANKERS TO BE EQUIPPED

Tank tests and full scale measurements demonstrate power savings of five percent

British multinational oil and gas giant BP has placed an order for the delivery of nine 50k product/chemical tankers to be built at Korean Hyundai Mipo Dockyard.

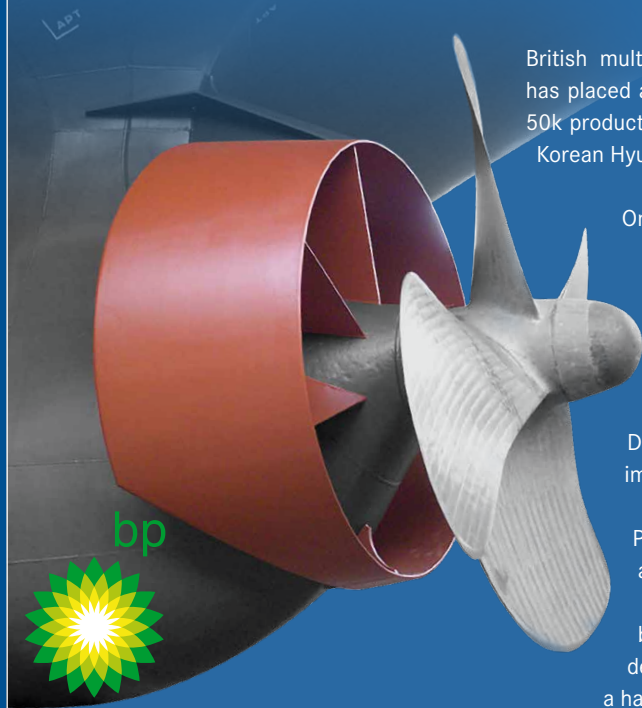
One of BP's major requirements for these newbuildings was the efficiency of the ship design. BP, Hyundai Mipo Dockyard and Becker Marine Systems agreed to conduct tests on the Becker Mewis Ducts® as part of the efficiency improvements for the vessels.

Propulsion tank tests with and without Becker Mewis Duct® made for design/ballast and scantling draft have demonstrated a three to five and a half percent improvement.

In order to gain certainty about these savings, a Becker Mewis Duct® was installed on ship no. 1 of the first batch of four vessels at Hyundai Mipo Dockyard. BP then performed several sea trials with the vessel so equipped to verify whether the numbers obtained from tank tests would also appear at full size.

The full scale measurements were compared and corrected in accordance with IMO requirements. The results of the tank tests demonstrated an average full scale power savings of five percent attained by the installation of a Becker Mewis Duct®.

The remarkable improvement in ship design efficiency from the installation of the Becker Mewis Duct® led to BP's decision to also install Becker's energy-saving device on the remaining batch of five vessels in the series.





BECKER PRODUCTS: RECENT ORDER HIGHLIGHTS

Product: Becker Flap Rudder (SA)
Ordered by: Scana Propulsion

Russian shipyard JSC Yantar has awarded Scana Propulsion AS to supply propulsion solutions for three state-of-the-art RMRS classed fishing vessels. Becker will deliver high-lift flap rudders including steering gears from Remontowa to Norwegian propulsion specialist Scana. The Becker Flap Rudder provides excellent manoeuvring characteristics in the rough seas of fishing vessel operation – at slow speed fishing as well as sailing conditions. The reliable product package of rotary-vane type steering gear and Becker Flap Rudder will ensure safe manoeuvring for crew and vessel.



Photo © skipskompetanse.no



HYUNDAI
MIPO DOCKYARD CO., LTD.

Photo © Super-Eco Tankers

Product: Becker Mewis Duct®
Ordered by: Hyundai Mipo Dockyard

Korean Hyundai Mipo Dockyard once again placed an order for Becker Mewis Ducts® for two 40k chemical tankers. Greek ship owner Super-Eco Tankers decided to install the energy-saving devices from Becker Marine Systems and will benefit from significant power savings. The 40,000 dwt vessels are scheduled for delivery in October 2017 and January 2018. HMD's order now adds up to a total of 14 Becker Mewis Ducts® ordered by Hyundai Mipo Dockyard, underlining once more the success of Becker's best-selling energy-saving device.

Product: Becker Flap Rudder Twisted
Ordered by: Wärtsilä

Wärtsilä has awarded Becker the contract to supply a rudder retrofit for two of BC Ferries' RoPax ferries. The *Spirit of British Columbia* was built in 1993, the *Spirit of Vancouver Island* in 1994. Both twin screw ferries were originally equipped with Becker Flap Rudders. Because BC Ferries plans to operate these vessels for another 25 years, the decision has been made to upgrade the ships with optimised and fuel saving Becker Flap Rudders Twisted. The four new rudder blades will be delivered to the conversion shipyard in mid-2017 / mid-2018.



WÄRTSILÄ

Photo © Wärtsilä

Product: Becker Twist Rudder with Bulb
Ordered by: Hyundai Mipo Dockyard

Becker received an order from Korean Hyundai Mipo Dockyard for the delivery of Becker Twist Rudders with Bulb for four PCTCs, ordered by the Korean ship owner CIDO. The high-performance full spade Becker Twist Rudder with Bulb and optimised propeller hub cap ensures excellent manoeuvring characteristics as well as efficient vessel operations in all conditions. This project once again highlights the good cooperation of Hyundai Mipo Dockyard and Becker Marine Systems in regard to efficient manoeuvring solutions.



HYUNDAI
MIPO DOCKYARD CO., LTD.

Photo © Hyundai Mipo Dockyard

ONOMICHI DOCKYARD



Photo © Onomichi

Product: Becker Mewis Duct®
Ordered by: Onomichi Dockyard

Becker Marine Systems is proud to have found a new customer in Onomichi Dockyard. The Japanese shipyard, is amongst other things, specialised in the construction of product tankers and bulk carriers. Becker Marine Systems is developing a Becker Mewis Duct® design for an existing series of 60,000 dwt bulk carriers with a length of 195.0 m, a breadth of 32.3 m and a scantling draft of 13.0 m. The first two energy-saving Becker Mewis Ducts® will be installed on vessels of that series belonging to the Monacan shipowner Marfin Management.

Product: Becker Twist Rudder
Ordered by: Imabari

Becker has received another significant order from Japanese shipbuilder Imabari. A series of ten 2,800 TEU class B-type container vessels has been ordered by Evergreen. The Taiwanese shipowner has ordered a total of twenty vessels, but split the order between the two shipyards Imabari and CSBC. Becker Marine Systems will supply Becker Twist Rudders for the ten ships under construction at Imabari, each with propulsion optimised rudder bulb in order to improve the manoeuvrability and efficiency of the newbuildings.



Imabari Shipbuilding Co.,Ltd.

Photo © Wikipedia



SIGNIFICANT SHIP: ALEXANDER VON HUMBOLDT

Becker Marine Systems is proud of its ongoing sales success story with specialised rudder solutions for the challenging operating conditions of dredger vessels.

Dutch trailing suction hopper dredger *Alexander von Humboldt* represents an impressive example

of dredgers fitted with Becker Rudders. The ship was built at Krupp Fördertechnik shipyard in 1998 and is still in active service for the Jan De Nul Group. The vessel with a length of 120.5 m and a breadth of 24.5 m has a capacity of 9,000 m³ and is fitted with two Becker Flap Rudders.

LNG HYBRID BARGE: YEAR-ROUND USE GUARANTEED

Power supply to AIDAsol in summer, power and heat supply for the HHLA in winter



The *Hummel* LNG Hybrid Barge's low-emission supply of power to *AIDAsol* at the Port of Hamburg is a success, which also makes Henning Kuhlmann, Managing Director of Becker Marine Systems happy: "The operation of the *Hummel* is going smoothly and to the full extent. We are very satisfied with a sum total of more than 40 MWh of power on one port call day".

Operating company Hybrid Port Energy, a subsidiary of Becker Marine Systems, welcomes the fact that a smooth eight-hour supply to the cruise ship during port layovers is now being achieved.

By October this year *AIDAsol* is scheduled to make sixteen stops at the HafenCity Terminal – and during layovers at port the cruise vessel will be supplied with environmentally-friendly energy by the LNG Hybrid Barge.

Contracts for the winter season were also signed. In the winter months, the *Hummel* will be patched by Hamburg Hafen und Logistik AG into its own power supply in order to supply its own terminal premises with clean electricity and heat. Year-round use of the LNG Hybrid Barge has thus been guaranteed.

UPCOMING EXHIBITIONS



SMM, Hamburg Exhibition Center, Hamburg, Germany, hall A1, booth A1.225 and hall A5, booth A5.200.A
6th - 9th September 2016



Seatrade Cruise Med, booth #412, Tenerife, Canary Islands, Spain
21st - 23rd September 2016



Work Boat Show, booth #711, New Orleans, Louisiana, USA
30th November - 2nd December 2016

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Schilling® Rudders are available in Japan only under the designation Becker SHARC Fishtail Rudder.