New generation of rotor tugs is born

RT Rob is first vessel to be built to new design

RT Rob: **the first of a new rotor tug design for Kotug runs trials in Japan.**

WHEN the new rotor tug *RT-Rob* left the yard of Niigata Shipbuilding and Repair in Japan after extensive trials, it marked another advance for the 'rotor tug' brand incorporating the unique triple Z-drive propulsion system.

RT Rob is the first of a series of vessels to be built to a new innovative RT80-32 blueprint resulting from close collaboration between designers KST in Rotterdam and operator Kotug International.

RT-Rob represents the first of a series of vessels to be delivered as part of a fleet expansion and replacement program that will continue until mid 2012. A tug of 32 m in length and 12 m beam, this new generation of rotor tugs, intended for harbour and coastal towage, has a bollard pull of over 85 tonnes, towing both ahead and astern. The vessels meet the requirements of Lloyds Register with the class notation LRS + 100 A1, Tug + LMC, UMS was obtained with a range of trade of 100 miles, GMDSS area A2.

The RT80-32 is powered by three Caterpillar 3512C engines of 1765 kW each, driving three Schottel SRP1215 azimuthing propulsion units (incorporating fixed pitch propellers) via 'Twindisc' 3000LD with modulated slipping clutches.

The hull and main constructional details were designed in close consultation with the shipyard. Small modifications were made to the hull design, initially based on the successful RT Magic series, to give the RT80-32 a speed of 13.5 knots. A wheelhouse was designed on ergonomic principles, working in close cooperation with tug captains, and resulted in excellent 360 degree visibility from the operators position with all communication and navigation equipment within easy reach.

KST's involvement in the design process was not limited to technical and construction matters — special care was given to the design of the accommodation. Accepting that tugboat crews spend long days onboard their vessels, a comfortably furnished light, luxurious and spacious interior was designed.

Although the *RT Rob* will normally be manned by only three crew, the RT80-32 design can allow a maximum complement of eight.

Two Plimsoll hydraulic winches are installed, a single drum on the foredeck and a heavy duty twin-drum winch aft, with a maximum brake load of 200 tonnes, enabling the rotor tug to give assistance from either end.

A combination of operator input and high quality standards applied in the design and construction and management by KST has resulted in a unique and unequalled product.

Among the benefits offered by the RT80-32 and rotor tug principle are, exceptional manoeuvrability, the unique ability to direct the thrust in any desired direction without affecting the yaw angle of the tug, even sideways, and apply full power in a very confined space. Three propulsion units and two towing winches offer full redundancy.

Even if one engine or propulsion unit fails, the towing operation can continue with reduced (60%) power and of a towline fails a new connection can be established within minutes. Last but not least, the price of the tug is comparable to an ASD or tractor tug of equal power.

With 16 rotor tugs in service and an order portfolio of over 20, it is obvious that the benefits offered by rotor tug designs are been fully acknowledged by the towage industry.

In addition to the completion of *RT Rob*, KST has recently delivered three smaller RT80-28 tugs to German owners and one more is already in service with Kotug International. These will be followed by four more RT80-28 for another German owner, the first to be delivered in July.

Learning the ropes Lines boost efficiency and safety

Modern towlines form the vital link between the tug and its client.

A TUG, its crew, and its towlines, is a working relationship that is constantly put to the test.

The nature of their business and the working environment is hard on towlines and in return, handling the ropes can be hard on the crew. That is certainly the case with the towing gear used by Hawaiian Tug and Barge/Young Brothers.

Ed McCain, marine operations manager for the company, explains: "Our lines are exposed to heavy work, and with the amount of wear and tear on them, we were going through polyester/dacron ropes in months, not to mention crews experiencing back injuries from lifting and moving them."

When Mr McCain began looking for a replacement, the new line needed to be lightweight, easy to handle, and durable. It would also need to have the same grip on winches, H-bitts, and capstans as traditional synthetic fibres.

While standard high modulus polyethylene ropes meet most of these needs, they don't have the same grip.

In 2003, Mr McCain chose the new, patented rope Quantum-8 from Samson Ropes, that used a blended HMPE- polyester fibre technology, called DPXTM.

This rope provided the same grip as polyester while being lightweight and durable.

In 2006, DPXTM-fibre technology was used in the development of a new product Quantum-12, which had improved performance characteristics compared with the earlier rope. The 12-strand construction was rounder and had a smoother profile that was a flexible and easy-to-handle solution.

HTBYB ran a trial with the new rope the same year. Once Quantum-12 proved itself, the company equipped 14 tugs with lengths of 100-200 ft of 1.75 inches diameter towline. That was only the beginning of an extensive overhaul of towing gear in the entire fleet.

Describing the change, Mr McCain said: "Moving away from the traditional synthetic lines was not a simple process.

"Because the lines were no longer the weak link in the towing equipment chain, we had to upgrade our hardware, because the towlines were outperforming it. The result has been a huge improvement in overall durability and efficiency. We've gone from changing lines in months to years, and now one person can do the job that took two before. Plus, our injury rates decreased, and our occupational safety and health administration rating and insurance expenses have improved."

Zeeland Ports Special Report
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