



Düsseldorf, August, 2009

New anaerobic Loctite Products in 2009

High-Tech from Sweden

The island Öckerö, off Sweden's West coast, is home to the ship propeller manufacturer Berg Propulsion, one of Sweden's leading high tech companies. Henkel had the opportunity to observe the production process at Berg's island plant. The gigantic propeller, with a diameter of more than 9 metre, dwarfs the men standing next to it. The shining bronze propeller blades appear almost menacing in their shining perfection. At every stage of the manufacturing process Loctite products have an important role to play.

From modest beginnings, the company was founded as a shipyard for fishing vessels in 1912, Berg Propulsion has developed into a multinational company constructing propellers for all kinds of vessels. Tankers, containers, cargo ships and luxury yachts, to name just a few, all rely on the experience and the craftsmanship of Berg Propulsion. The demands placed on the reliability and durability of Berg's CP (Controllable Pitch) propellers are enormous: Once the propeller is fitted to the vessel, alterations become extremely difficult and the propellers are in use for 25 years or more. There is no room for error, because the safety of the ship and the vessel depend on the quality of the product. Money is another aspect; every day that a ship has to remain in the dock for repairs costs the owner between \$15 and \$20,000 a day, explains Berg's Managing Director Anders Christoffersson.

Family businesses gone global

Technological progress has made its mark on every aspect of life, and the manufacturing process at the plant on the idyllic island of Öckerö is no exception to this rule. A lot has changed since Johann Wiktor Berg manufactured the first CP Propeller for a wooden fishing vessel in 1929; one of those changes is the use of Henkel's Loctite products. Berg Propulsion and Henkel, the global leader in adhesive technology, have a lot in common: Both started as family businesses with an emphasis on high-quality products and both have developed into successful



companies operating on a global scale.

No room for error

At every stage of the manufacturing process Loctite products have an important role to play: The threads of hydraulic pipes responsible for controlling the individual blades are retained with Loctite 638. They have to withstand pressures of more than 70 bar, which equals twice the force the blades will have to bear on the ocean. The adhesive sealing has to create a hermetic seal after an hour, because then the hydraulic pipes are embedded into the shaft. Another example for applied technological progress is the production of the spacer that protects the propeller's control units. The spacer is fitted to the units with four screws, locked with Loctite 243. "Loctite increases the reliability of our products. We co-operate closely with Loctite's technical department during the development and the production process", says Christofferson.

Lars Andreasson, from Loctite's Industrial Engineering department explains: "We can assist the customer by calculating the pressures the product has to withstand, for example. It's a form of team-work. Our goal is to assist the customer by developing tailor made solutions." The manufacturing process of ship propellers has come a long way. What is interesting to note about it, is the fact that there is something like a conspiracy theory about the origin of the technology. There is a possibility that the Englishman Francis Smith, who took credit for the invention was actually preceded by the Austrian enthusiast Josef Ressel. Unfortunately, however, that issue wasn't resolved in Ressel's lifetime and he never received the credit that in retrospect appears to be due to him. While technological progress is unstoppable, like the co-operation of Berg Propulsion and Henkel on idyllic Öckerö shows, issues with intellectual ownership seem to be here to stay.

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