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PRESS RELEASE

MOTech Develops PBCF Mark II — Applies for Additional Patent —

TOKYO — Mitsui O.S.K. Techno-Trade, Ltd. (MOTech, President: Kazuichi Okai) today announced the application for an additional patent on the Propeller Boss cap Fins (PBCF) system, jointly developed by MOTech, Akishima Laboratories(Mitsui Zosen)Inc., and Mitsui O.S.K. Lines, Ltd. The new patent covers innovations that make the PBCF even more effective in saving fuel and protecting the environment.

[What is the PBCF?](#)

The PBCF is the most reliable energy-saving system for propeller-driven ships, adopted on 1,700 vessels around the world. It is installed at the rear of the propeller, breaking up the hub vortex forms behind the rotating prop. It reduces the torque of the propeller, and increases propulsion at the same time, boosting fuel efficiency by 3% to 5%.

[Details of patent application](#)

Improvement of the PBCF efficiency stem from the redesigned length and shape of the device. Compared to the previous model, these changes allow more reliable control of the hub vortex, boost propeller thrust, and reduce torque. The new design features are covered in the patent application. The original PBCF patent application was filed in Japan in July 1987. Since then, the PBCF has been patented in Japan and 11 other countries.

[Background of development](#)

Today, in commemoration of 200th anniversary of Charles Darwin's birth, the PBCF continues to evolve.

In reaction to today's increasing awareness of environmental issues and an uncertain economy, shipping companies are more concerned than ever about saving energy. MOTech and its partners continue research and development to further enhance the efficiency of the PBCF, which has received high praise from users all over the world. This ongoing research indicated some potential for improvement of the PBCF

efficiency and even better results.

[The future](#)

MOTech plans to install the new PBCF system on an MOL-operated vessel that will be completed at the end of 2009 and conduct performance tests. At the same time, the company will conduct research on final design and manufacturing, aiming to bring the enhanced PBCF to market in 2010.'

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