Much effort has been made to develop energy-saving ships in the last three decades, which reduced the necessary horsepower of the main engines. However, ship operators have recently pointed out that such energy-saving ships lose speed in comparison with conventional ships when traveling through waves. Ships with better performance in waves even with smaller horsepower are desired. In response, NKK started a research and development project several years ago, and recently succeeded in creating a new bow shape named “Ax-Bow”. “Kohyohsan”, which is the first vessel to adopt the “Ax-Bow”, was delivered in June 2001 (see ). This is a 172,000DWT Cape size bulk carrier, whose GT and DWT are 87,493t and 172,564t, overall length is 289.0m and breadth is 45.0m, and her flag is that of Panama.

fuel consumption, in the case of sea conditions corresponding to a 20% sea margin.

This new bow shape was applied to a bulk carrier, which was delivered in June 2001. Full-scale measurements are being performed on this ship and her sister ship with ordinary blunt bow, with the cooperation of their ship owner. The collected performance data will be used for verifying the effectiveness of “Ax-Bow” at sea.

The development of “Ax-Bow” was the first attempt to improve ship performance at sea. We are grateful to professor Shigeru Naito of Osaka University who guided us and gave us many suggestions, comments, and discussions. A part of this study was supported by the Technology Development Fund of the Ship & Ocean Foundation.

The “Ax-Bow” ship and an ordinary blunt-bow ship are currently undergoing full-scale measurements while in service. We will use these data to verify Ax-Bow’s performance and for future ship design work.

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