Design and Testing of a High Efficiency, Lifting Body Integrated Propulsion Pod with Electric Drive

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Abstract
The intended result of this work is a scalable, high-efficiency lifting body integrated propulsion pod incorporating drag reducing dynamic lift and trim control and a high-efficiency electric motor, validated through at-sea trials. This technology offers particular benefits for the U.S. Navy’s patrol boat, small craft, and USV programs. Lifting body IPP units can be designed and installed on new boats, or retrofitted to existing Navy craft at marginal cost, where missions require craft with higher speeds or extended range. Similar lifting body IPP units could be installed on a wide range of commercial vessels. A particularly valuable commercial application of the technology would be to fast commuter ferries (both passenger-only and mixed traffic ferries), significantly improving their top speed and ride on rough-water routes.

Navatek has designed, fabricated an IPP and retrofitted to an existing vessel. The design process, fabricating, testing and data analysis will be discussed.

Fig. 1 Lifting Body Integrated Propulsion Pod Concept