DESIGN OF PROPELLER TUNNELS FOR HIGH-SPEED CRAFT

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Abstract

Propellers recessed into tunnels are worthy of consideration as an alternative to propellers on inclined shafts or waterjet propulsors. The enhancements achieved by using a partial tunnel include reducing the shaft angle, decreasing navigational draft and allowing the propulsion machinery to move aft for an appropriate longitudinal center of gravity location and/or improved arrangements. A partial tunnel allows large diameter propellers to be fitted which may reduce cavitation or reduce shaft angle to minimize the variation in hydrodynamic blade angle.

There is an important relationship between the propellers and the geometry of the tunnel; they must be designed together as a propulsion system. This paper provides design guidelines for partial propeller tunnels and relative placement of propellers to achieve exceptional vessel performance.

References