MARINE THRUSTERS WITH STRUCTURALLY INTEGRATED ELECTRIC MOTORS

Conventional thrusters systems (hydraulic or electric) consist of a propeller driven by a motor via a shaft operate under ship’s hull. This design has hydrodynamic drawbacks. In this new technology (tip-driven thruster) brushless permanent magnet motors are structurally integrated in marine thrusters. The stator of the motor is mounted in the duct while the rotor forms a ring around the propeller rim. There are only propeller blades in the water and only electric cables go through the hull.

Advantages
- high efficiency
- improved thrust production
- low maintenance
- shorter length
- bidirectional
- low noise

Applications:
- underwater vehicles, submarines, remote operated vehicles, ships.
- such configuration is also suitable for other applications as marine turbine generators, fans and pumps.

We realized an experimental demonstrator:
- Outer diameter of the propeller: 70 mm.
- Outer diameter of the thruster: 107 mm.
- Total length: 85 mm.
- Thrust force: 26 N
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