

Marine

News

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2009 Yearbook

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tech file

IntelliJet Marine Jet Design

IntelliJet of Redmond, Wa. offers a marine jet design for fuel economy, safety, reliability and the preservation of marine life. The system works with electric, diesel and gas motors and is applicable to commercial vessels, military ships, yachts, rigid inflatables and recreational boats. The company is refining the prototype and currently in talks with potential manufacturing partners.

In addition to the safety and reduced draft benefits, IntelliJet uses a computer to control an adjustable intake, an adjustable outlet nozzle and a controllable pitch propeller. A velocity sensor senses the water speed into the inlet and adjusts the intake and the outlet to control the velocity of the water through the pump to achieve higher low-speed thrust and fuel economy over a wide range of boat speeds and loads. With the controllable pitch propeller pump there is no need for a reversing bucket or other reversing mechanism. Because the system offers a high volume of water flow at low speeds it reduces fuel consumption and reportedly offers excellent low-speed control. IntelliJet claims that the propulsion unit can do

three things better than propellers: 1) it operates the motor more efficiently, so the motor delivers more shaft power for the fuel it consumes; 2) it controls the flow of water through the propeller, so the propeller converts more shaft power into hydraulic power; and 3) it minimizes the velocity of the discharge jet so that it produces more thrust force from a given hydraulic power. Reducing the jet velocity by 50% doubles the thrust for any given hydraulic power. If the motor and pump efficiencies are constant, the same amount of fuel is required to produce a given amount of hydraulic power, so fuel consumption is reduced by 50% in the lower jet velocity.

IntelliJet and marine architects Art Anderson Associates presented a technical paper entitled "Recent Developments in Marine Jet Propulsors" at the Advanced Naval Propulsion Symposium in Arlington, Va. in December, 2008. The paper details the propulsion physics and related reductions in fuel consumption and is available by contacting IntelliJet Marine, Inc.

www.iiJet.com

Rear view. (Photos and images courtesy IntelliJet Marine)

