

## Case Study 140: Wind Farm Support Vessel

### SPECIFICATIONS

<b>Waterjets:</b>	<b>DJ140HP- DT</b>
<b>Engines:</b>	<b>Yanmar 6LY2A-STP 440hp @ 3300rpm</b>
<b>Gearboxes:</b>	<b>ZF 280-1 (2.0:1)</b>
<b>Vessel:</b>	<b>16.4m L.O.A 13.5m L.W.L 18 tonne</b>
<b>Performance:</b>	<b>24 knots</b>



### Wind Farm Support Vessel (WFSV) – 16m Alloy Catamaran

This aluminum catamaran is designed and constructed by the Korean builder, DTEC, specifically for windfarm service applications. The Korea Local Energy Management (KLEM) company has been successfully utilizing this vessel for the maintenance of offshore wind power plants located in Jeju region.

Power is provided by twin, Yanmar 440hp engines which are coupled to the DOEN **DJ140HP-DT** waterjets through ZF marine transmissions. The DOEN 15-inch (380mm) diameter high volume axial flow impellers provide excellent cruise capability enabling long range at reduced fuel consumption whilst delivering top speed of 24 knots. Furthermore the Direct Thrust (DT) configuration greatly simplifies the shaft line arrangement by making use of the marine gearboxes own thrust bearing eliminates the need for an additional and separate thrust bearing on the waterjet itself. This results in the very minimum of rotating parts and virtually eliminates routine ongoing maintenance of the shaft line compared to conventional waterjets.

Each **DJ140HP-DT** has its own fully integrated hydraulic system providing steering and reverse control. All of the hydraulic equipment including steering and reverse cylinders and associated hose connections are inboard mounted. The hydraulic pumps are directly driven from the gearbox PTO's.

Vessel propulsion control is managed using Doen's own **ECS200 – Electronic Control System**. Configured for twin engine - single station; the system, equipped with an electromechanical actuator, simply combines primary control of (mechanical) engine throttle and gear command with the waterjet steering and reverse functions. Additionally this system provides the operator with indication, monitoring and alarm information using a full color LCD screen with soft buttons. Back-up steering and reverse control functions are provided at both the main control station, and locally at the waterjets. Additionally, Doen's **eDock** joystick panel provides easy and vector control for precise and steady docking of the vessel against offshore wind turbine platforms.