

Case Study 125: **Fast Patrol Boat**

SPECIFICATIONS

Waterjets:	DJ170HP (Twin)
Engines:	CAT C18 747kW @ 2300 rpm
Gearboxes:	ZF 550
Vessel:	15.1m L.O.A 13.4m L.W.L 19.5 tonne
Performance:	45 knots



A high speed Aluminium monohull operating in the Red Sea off Saudi Arabia

DOEN DJ170HP waterjets propels this aluminium 15.1m monohull designed and built to BV Class Rules. This vessel is one of five built for use by a Saudi Arabian Security Company that provides harbour patrol and surveillance activities for oil company asset protection.

Power is provided by twin CAT 747kW diesel engines, which are coupled to the DOEN waterjets through ZF marine transmissions. A reduction ratio is used to optimise the waterjet impeller selection and the gearbox also provides the vessel with disengagement and a back flushing capability.

The DOEN 17.0-inch (432mm) diameter high volume axial flow impellers provide excellent cruise capability allowing long range patrol at reduced fuel consumption whilst delivering an uncompromised top speed of 45 knots.

The DOEN balanced steering nozzle gives fast and precise response. These are controlled using a conventional helm power assisted hydraulic steering system. Inboard cylinders are mechanically connected to the waterjets inboard steering tiller. This provides the vessel with exceptional easy control at all speeds and especially when maneuvering around rigs and alongside other vessels. A simple mechanical tie bar is used to connect the waterjets providing synchronized steering at all times.

The DJ170HP waterjets are fitted with an electronic control system. This fully electronic control provides single lever function, which combines control of the engine throttle and waterjet reverse bucket into one simple and reliable system. The reverse function provides full follow up control of the reverse bucket by way of the jet mounted hydraulic system incorporating a proportional solenoid valve. Control of the marine transmission is by way of separate, simple to use, touch pad.