

## Case Study 134: **Fast Patrol Boat**

### SPECIFICATIONS

<b>Waterjets:</b>	<b>DJ120Z (Twin)</b>
<b>Engines:</b>	<b>Cummins QSC 8.3 600hp @ 3000rpm</b>
<b>Gearboxes:</b>	<b>Twin Disc 5065SC</b>
<b>Vessel:</b>	<b>13.0 m L.O.A 11.8 m L.W.L 11.0 tonne</b>
<b>Performance:</b>	<b>43 knots</b>



### **AZERBAIJAN COAST GUARD – 13m Fast Patrol Boat**

This 13m High Density Polyethylene (HDPE) vessel has been built in Turkey for the Azerbaijan Coast Guard. Designed for high-speed patrol and sea rescue activities this vessel has fully enclosed cabin with forward accommodation for crew.

Power is provided by twin Cummins QSC8.3 diesel engines, which are coupled to the DOEN DJ120 waterjets through Twin Disc 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 12.2-inch (310mm) 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 43 knots.

The DOEN balanced steering nozzle gives fast and precise response. They 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 thereby providing synchronized steering at all times.

The role of this boat requires it to quite frequently crash stop at its full speed at full throttle. Reverse mechanism of DJ120 waterjets, which is designed with two cylinders for heavy duty is well up to the task.

The DJ120 waterjets are fitted with DOEN's Rotary Servo Control (RSC), which is a proportional hydraulic control system providing simple and exact follow up control of the waterjets reverse buckets, by conventional lever. This system has fully integrated hydraulics with in-built cooling; bulkhead mounted steering and reverse cylinders and all connections inboard and protected from corrosion. This system interfaces with standard 33C push-pull cables system.