



Fuel Filtration Water Removal from Fuel

Application

Some surface and sub surface vessels are designed with water compensated fuel systems. This type of system is used for two functions:-

- A) Fuel flow into the internal combustion engine is achieved by pumping sea water directly into the ship/submarine fuel tanks where the water displaces the fuel.
- B) Empty fuel tanks are filled with sea water for stability

This application was on a diesel/electric powered submarine.

Problem

As there is no physical barrier separating the water and fuel within the fuel tanks, there is a high possibility of drawing water into the engine fuel system. Therefore, all free water must be removed before entering the engine fuel system. Salt water contamination of engine fuel systems can lead to bacterial contamination, corrosion in fuel pumps and causes other components to seize, resulting in system damage and potential failure.

Solution

Pall's AquaSep® Plus Liquid/Liquid Coalescer system separates free water from the diesel fuel. Upstream of the coalescer is a duplex pre-filter to remove particulate contamination. The Pall system is also fitted with a monitoring and control system designed to automatically detect and drain any free water that is removed from the fuel.

Results

The Pall system provided the customer with the following benefits:

- Increased system reliability and availability
- Reduced maintenance time
- Reduced cost of component failures due to corrosion.



Aquasep Liquid/Liquid Coalescer



Duplex System



Wet Fuel (before)

Dry Fuel (after)



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