



ENVIRONMENTAL TECHNOLOGY

Navy reduces repair times and improves pump reliability

The bow thruster pumps on a naval fleet of eight Hunt Class minesweepers were of a horizontal split case design and were fitted with radially divided mechanical seals.

The problem

When a seal failed, divers had to fit blanks to the pump inlets below the waterline before it was possible to carry out a repair. The divers also had to stand by for the duration of the work, which would typically take around a week. The repair operation was, therefore, time-consuming and very costly.

Additional problems were caused by the lip seal arrangement on the pump bearing housing.

Surface contact with the rotating shaft means that lip seals start to deteriorate almost immediately following installation and they quickly begin to wear. The lip seals were allowing the ingress of salt water and dirt into the bearing housing and damage was being caused to both the bearing housing and bearing journal, increasing the risk of premature failure.

AESSEAL® was asked to find a better alternative to the sealing arrangement.

The solution

AESSEAL® recommended replacing the sealing arrangement with 100mm RDS™ seals and Inflatable Shut off Seals (ISOS™).

RDS seals provide a quick and cost-effective alternative to dismantling large pieces of equipment to fit mechanical seals. They can be tailored to any application and retrofitted to assets. ISOS™ seals are fitted between the pump and radially divided seal, forming a separate seal when required, which enables the quick and easy removal of the mechanical seal.

While the client considered the proposal, a ship on deployment in Denmark experienced a seal failure and was deemed non-operational. The existing seal supplier was unable to deliver spares for a considerable time, so the client turned to AESSEAL® for help.

AESSEAL® designed and manufactured the ISOS™ within days and provided a service engineer to fit them in Denmark.

Following the successful completion of trials, the entire fleet of Hunt Class minesweepers was converted to the AESSEAL® sealing RDS™ and ISOS™ sealing arrangement. With the ISOS™ in place, the seals on the bow thruster pumps can now be changed within two to three hours without the need for divers, saving time and money...



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Added value

While the conversion programme was being carried out, engineers identified seawater and dirt ingress into the lip seal arrangement on the pump.

AESSEAL® advised replacing the lip seals with LabTecta® bearing isolators, which employ innovative labyrinth seal technology to eliminate the ingress of fluids and dirt, protecting the bearings and maximising their reliability and lifespan. Their non-contacting design also avoids friction, removing the risk of damage to the pump shaft and reducing energy costs.



Entire fleet of Hunt Class minesweepers converted

Industry:	Marine Industry
Product:	RDS™ and ISOS™
Application:	Bow thruster pumps
Savings:	Time and money
Reference N.O:	CS0199



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