



Client

The client performs complex ship and submarine asset management and repairs

Location

Naval Dockyard in the South of England

Featured Product Range:



Ventex®
Ventilation
Solutions



Ravex® Fume
Control

Specialist Hazard Control Solutions Kept Workers Safe During Vessel Maintenance of a Hunt Class Minesweeper

Project Overview

Between 1980 and 1989, 13 Hunt Class minesweepers and minehunters were commissioned, and eight remain in service with the UK's Royal Navy.

At 750t displacement, 60m length, 10.5m beam and 2.2m draught, the Hunt Class are the largest warships made of glass reinforced plastic (GRP). The GRP construction contributes to the vessel's very low magnetic signature, which is required for mine countermeasures operations. Vessels undergo regular Fleet Time Service Periods, which is a short-term maintenance programme to maintain technical specifications of the ship, avoid unwanted accidents or emergencies, and protect the ship's productivity.

Challenge

A vessel was due to undergo planned maintenance repairs, but because Minesweepers primarily consist of a glass reinforced plastic hull, this meant that the works could present harmful health hazards. GRP dust is created during activities such as drilling, grinding and sanding, and if the dust is inhaled, it can cause fluid to collect in the lungs and create respiratory irritation. It can also cause skin irritation. Other health hazards that need to be managed include zinc dust, which is created when repairing areas of the vessel covered in paint and coatings, this dust is combustible and an irritant. When styrene is used during repairs, if the fume is not controlled, it can affect vision, hearing loss, concentration, and balance.

There was also the challenge of maintenance works taking place in confined areas inside the vessel. This posed the risk of workers experiencing loss of consciousness or asphyxiation caused by inhaling toxic fume or vapour, or from oxygen deficiency.

Solution

For this project, RAVEX® Wandafilta Plus Kits were installed with twin VENTEX® 300M Centrifugal fans to extract dust and fume at the source. We filtered to H14 (HEPA) standard, which will capture an impressive 99.99% of 0.3-micrometer air particles, so out of 1,000,000 air particles, only 10 particles will not be captured. This system created a negative pressure, so fumes and dust could not migrate into other areas of the vessel.

We installed multiple 100mm diameter hoses to provide extraction at different locations throughout the vessel, covering up to 75m distance. The anti-static ducting was fitted with quick release connections at critical fire doors, allowing for fast containment in the event of a fire. All of the extraction systems on site were commissioned, demonstrating that it is performing in accordance with RVT's design and meeting the customer's requirements. It also met with the requirements set out in HSG258 (the HSE's guide to local exhaust ventilation (LEV)).

Fresh air was introduced into maintenance areas, including Dieso tanks, to ensure a safe working environment at all times. This was achieved using additional VENTEX® 300M Centrifugal fans.

RVT has a long-standing relationship with the UK's largest naval ship manufacturers and over the years we have developed bespoke hazard control solutions to meet their niche requirements.

We provide mechanical control measures which protect long-term health of those maintaining and repairing ships. We operate a scalable team, based on site every day, reacting fast to enable maintenance work to take place in the high-pressure environment.

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- ▶ RVT has provided a 'turnkey' service for the naval base for a number of years. RVT visit the site to survey the hazard control requirements, design an effective system, supply and install the solution, and collect the equipment at the end of the project.
- ▶ VENTEX® 300M Centrifugal fans extract dangerous fumes in line with COSHH regulations
- ▶ The RAVEX® Wandafilta Plus Extraction & Filtration Kit has 3 stages of filter media, up to HEPA filtration
- ▶ Negative pressure extraction ensures that there is zero fume or dust migration into surrounding areas

