



Queen Elizabeth Class Aircraft Carrier Propulsion System

MT30 Naval Gas Turbine Packaging and Integration

Cullum Marine role was pivotal in assisting Rolls-Royce Naval Marine (RRNM), with the design, manufacture and integration of the MT30 Gas Turbine and Alternator (GTA) propulsion systems for the Queen Elizabeth Class of Aircraft Carriers being built by BVT Surface Fleet at Rosyth, on the Firth of Forth, in Scotland, for the Royal Navy.

Cullum Marine were contracted to ensure that the acoustic guarantees for the aero derivative Marine Trent (MT30) Rolls-Royce engines that power the aircraft carriers were met. This involved the design and manufacture of an acoustic package incorporating a combined baseplate for the Gas Turbine and Alternator units. Cullum Marine purpose built an Integration Facility at their works in Heanor Derbyshire to facilitate the integration, alignment and testing of the MT30 propulsion units.

The Cullum scope includes

- Design and Manufacture of the MT30 Gas Turbine and Alternator Baseplate
- Design and Manufacture of the MT30 Gas Turbine Acoustic Enclosure and Plenum
- Design and Manufacture of the Fluid Systems
- Design and Manufacture of Electrical Power, Control and Instrumentation Systems
- Design, Manufacture and Demonstration of the Engine Handling System
- FEA analysis of the Enclosure Ventilation System.
- Installation of the Exhaust Collector
- Integration of the Fluid Systems and Pipework
- Integration of the Electrical Harnesses and Cabling
- Integration of the Fire and Gas Detection System
- Integration of the Fire Suppression System
- Alignment of the MT30 and Alternator Drive Train
- Testing and Commissioning
- Loading out the Completed GTA Package to the Docks