

Modulift Lifts the Worlds Largest Gas Turbine!

In January 2013, global spreader beam manufacturer, Modulift, designed and built spreaders to lift the world's most powerful gas turbine: the Rolls-Royce MT30 turbine was installed into the Royal Navy's new aircraft carrier HMS Queen Elizabeth, at Babcocks Rosyth Shipyard in Scotland. Rolls Royce viewed the lifting of the gas turbine as a "significant milestone" in the Queen Elizabeth shipbuilding programme.



Having worked together on a number of heavy lift projects, Rolls-Royce approached lifting experts Modulift to custom design and manufacture the lifting solution for the 50 tonne MT30 turbines. For Modulift, the pinnacle of this project was the successful lift and installation of the steel housed turbine onto the ships structure.

In order to design the rig to lift the 50 tonne MT30 turbines, Modulift took key information that was provided such as the centre of gravity position, and created detailed rig drawings - the aim was to achieve a level lift using 3 spreader beams in a 'one over two' formation, and ensuring that the slings were vertical at each corner. This was achieved by firstly specifying custom length struts so that the Modulift spreader beams were each of an exact length, and secondly by providing unequal length top slings to take into account the CG position.



Sue Caples, Operations Manager and Head Engineer at Modulift said "The Gas Turbine had a 75/25 offset centre of gravity which meant that we had to design a lifting rig that would enable the turbine to be lifted level despite the extreme offset CG. We achieved this by designing a '1 over 2' Lifting Rig that had different length top slings so that the crane hook would be directly over the centre of gravity during the lift. It is important for loads to be lifted level particularly for installations such as this one, and it was a great success because the load was level within 0.2 degrees from horizontal. We are very pleased to have provided the lifting equipment for such a prestigious project"

...Rolls Royce viewed the lifting of the gas turbine as a "significant milestone" in the Queen Elizabeth shipbuilding programme.

Manufacture of the spreader beams was carried out to exacting standards and procedures which captured the need for all aspects of the manufacturing process to be controlled and compliant with order requirements.

Prior to painting the spreader beams, Modulift conducted Proof Load Testing using its purpose built Compression Test Rig. All of the spreader beams were individually assembled and loaded one at a time into the compression test rig. The designated proof load was applied, (for this project the proof load factor was SWL + 25%). Testing of all of the spreader beams was successfully completed without any issues and a final post-test MPI examination verified that there were no weld defects after testing. The drop links for the spreader beams were then proof load tested in Modulift's own tensile test rig using the same proof load factor as the spreader beams.

Email: sales@modulift.com

www.modulift.com