

GL Noble Denton provides assurance, consulting and classification for the maritime and energy industries. Due to its in-depth knowledge and role as independent partner, GL facilitates a great number of standards and joint industry and research projects each year. GL develops new tools, methodologies, standards and recommended practices to solve technical questions while reinforcing high safety and quality standards.



As one of GL Noble Denton's most innovative technologies for pipeline intervention, Grouted Tee introduces an intelligent mechanical method for attaching a new branch connection to an existing flow line.

The Grouted Tee does not require any on site welding and therefore full product flow can be maintained during installation and hot tapping operation. The construction is

much simpler than existing mechanical fittings and can accommodate much larger ovality of the main pipeline.

The Grouted Tee technology was developed based on the successful epoxy repair sleeve that is still used all over the world to repair major pipeline defect and 3rd party damage. As part of the development process of both technologies, Waring Engineering was engaged to provide fabrication and manufacturing support.



Over the past 25 years Waring Engineering has provided GL Noble Denton (formerly Advantica and British Gas R&D) with a manufacturing service that has helped to build the reputation that the epoxy repair sleeve and Grouted Tee has today. Pipeline repair and intervention within the oil and gas industry is extremely demanding and GL Noble Denton strives to meet with those demands by using trusted suppliers who deliver the highest quality to tight timescales.



Waring Engineering prides itself on the quality of service and products and has remained GL Noble Denton's preferred supplier for pipeline repair sleeves, Grouted Tees and other bespoke fabrications.

On occasions Waring Engineering have been requested to supply repair sleeves and Grouted Tee connections for emergency situations. When required to do so work has been carried out 24 hours a day in order to deliver on time.

Repair sleeves have been made within 24 hours and multiple Grouted Tee connections have been supplied within two weeks. It should be noted that even under tight time constraints the quality of the products supplied have never been compromised.

Case Study:

In March 2011, National Grid Pipelines Maintenance Centre (PMC) was requested to attend an emergency gas escape on a IP main in Gainsborough. The pipeline supplies numerous homes and businesses and Rampton secure prison, so one of the key constraints for National Grid was zero disruption to the supply of gas to the end users. With the pipeline being an IP main and operating at full pressure it was not possible to dig down to investigate the leak without having a suitable repair solution available.



PMC provided guidance on the best repair method on the leaking IP main. The steel main in question was located in the carriageway of a busy A Road in close proximity to a busy junction, businesses and a busy café so it was imperative that the repair was undertaken in a timely, safe and efficient manner.

Following investigations on the main it was quickly determined that the pipeline wall thickness and gaseous environment made it very difficult to undertake any welding operations. As such, PMC advised that the safest and quickest option would be to utilise Grouted Tee's, and associated by-pass along with flow stopping technology to undertake the repair.

GL Noble Denton immediately started the design and Waring Engineering commenced the manufacture of 8 Grouted Tee fittings required to undertake a two position flowstop operation. Due to the location of the works and pressure from the highways authority to complete the works in a timely manner, with all parties working together the design, manufacture, installation and subsequent repair was all undertaken within 3 weeks.



Testimonial: Anthony Wood, Senior Consultant said "Waring Engineering has remained GL Noble Denton's preferred supplier because the quality of products and service are second to none"