



OIL & GAS

WELDING CONSULTANCY

Much industrial plant, including pipelines and vessels, are fabricated by the welding together of component parts. To ensure that the welded structure's properties are fit-for-purpose requires not only the selection of the most suitable 'parent' materials, but also the choice of an appropriate welding technique and procedure.

DNV GL can ensure that your construction project is successful by ensuring that problems are avoided where they should be: on the drawing board. We can also supervise welding operations to ensure it is completed to the right quality, with the minimum of repairs, and hence keep your project on schedule.

Capabilities

Welding is an integral part of the fabrication process in the oil & gas industry. DNV GL has the capability to provide welding consultancy that includes weld design, metallurgy, fabrication, quality control and repair.

DNV GL's welding engineers are available to support projects for the welding requirements for pressure vessels, boilers and pipelines.

Our welding engineers are supported by DNV GL's materials, corrosion and stress analysis specialists.

Areas of investigation include, but are not limited to:

- Weld procedure specification and qualification which may include preparation, review and witnessing
- Weldability testing
- Hot tap welding
- Audit of on-site welding operations
- Development of weld repair strategies
- Assessment of new welding techniques
- Failure investigations – this may include investigation of a failed procedure qualification or failure of in-service welded components



Weldability testing

Weldability is a measure of how easy it is to obtain crack free welds, achieve the required mechanical properties and produce welds resistant to in service degradation. Weldability testing may be carried out when there is a change in the base material and it is necessary to evaluate the effect of welding on the properties and characteristics of both the weld and parent materials.

Weld repair strategy

During service materials are subjected to a number of degradation mechanisms, including corrosion, thermal degradation, fatigue, damage from foreign objects etc. It is almost inevitable that during the lifetime of a plant that components will become damaged and will require repair or replacement.

There are a number of repair methods that may be used with each having its advantages and disadvantages in particular applications. It is therefore important to fully understand the type of defect and identify the most suitable repair method to prevent further failure of the equipment, and this is where DNV GL can help in developing a repair strategy.



The cause of the degradation should also be identified so that precautions can be made during the repair to reduce the possibility of future failures. DNV GL's materials failure analysis specialists can assist with this.

Review of contractor weld procedure specifications

DNV GL can review welding procedure specifications and qualification records to ensure that they meet the requirements of the relevant welding specification and that the proposed procedure covers the welding operations for a particular project.

Supervision of welding operations

DNV GL can provide welding supervision during weld procedure qualification, welder qualification and on-site welding operations to ensure that they are carried out in accordance with the weld procedure specification.

