

Case Study

Hydratight's hot bolting campaign extends asset life in North Sea



Working medium: Refrigerant,
Process
Hydrocarbons,
Methanol

**Max contained
pressure:** 21 bar

Flange sizes: 1/2–12"

Flange classes: 150#, 300#
and 600#

Number of flanges: 127

As part of a large integrated production project in the North Sea, a major oil and gas operator's unmanned platform has been active for an extended number of years. Due to the natural aging of this asset in the harsh North Sea environment, the operator commissioned Hydratight to perform offshore bolting repairs on live pipe-systems to improve integrity on the platform and extend the life of the asset.

The Challenge

The client's governing procedure dictated that hot bolting should not occur without the use of suitable additional restraint devices for four-bolted or hydrocarbon-containing flanges. Asset integrity inspectors found that over 100 four-bolt flanges were showing high levels of corrosion to the fasteners.

Remedial work was required as a priority to maintain the integrity of the bolted flanges, upgrading all 'at risk' flanges to extend the life of the asset. High levels of corrosion on infrastructure containing pressurised gases and liquids significantly increases the risk of bolt failure, which can lead to a dangerous leak.

The Solution

Hydratight's team of engineers and technicians fully assessed the asset's four-bolt flanges to better understand the extent of the corrosion. They conducted joint application surveys, involving the use of a database system to gather and record as much information as possible, including flange alignment, line contents, pressures and temperatures.

Engineering assessments were completed and cross-referenced with the operator's hot-bolting certificates ahead of the offshore maintenance operations. The collaborative forward-planning identified flanges that were suitable for bolt replacement using Hydratight's MorSafe™ clamps and also recommended additional controls for mitigating higher risk associated with certain flanges.

The MorSafe™ clamps are made up of segments designed to encase the flange and prevent any increase or release of load on the bolted joint gaskets. The low profile design allows it to fit on most applications—for this campaign, the clamp was used on flanges between DN15 (1/2") and DN300 (12") up to class 600 and maximum contained pressure of 304 psi (21 bar).

The Results

Through the combination of Hydratight's thorough risk assessment process and highly capable MorSafe™ clamps, Hydratight succeeded in upgrading the 'at risk' flanges with zero downtime and zero incidents. Preventing shutdown saved the client both time and expense and the use of MorSafe™ products and the Hydratight team meant more flanges could be upgraded per shift, minimising work time disturbances on site for the operator.

For more information, visit [hydratight.com](https://www.hydratight.com).

"This project is an excellent example of the value and range that Hydratight's MorSafe™ service brings. Clamps of multiple flange classes and sizes were mobilised alongside our expertly trained technicians to renew at-risk bolts and ultimately save the customer 250 man-hours of shutdown time."

Luca Ghiotto
Hydratight Product Manager –
Specialty Services