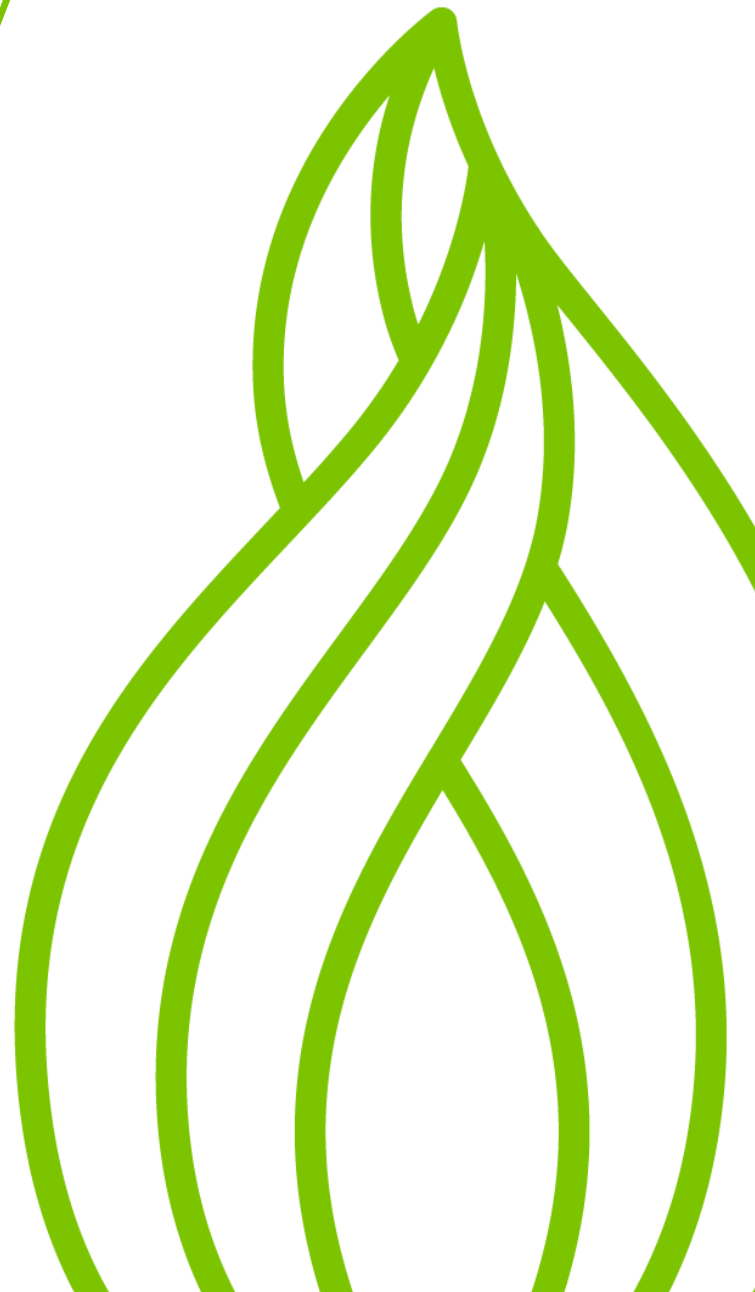




# Mechanical Pipe Connection (Lokring)

Value Tracking Case Study



# Mechanical Pipe Connection

## Background

Across our network, there are small diameter impulse/instrumentation metallic pipework connections made using welded stabbings. These can be vent and drain lines on compressor stations or supporting pipework for our valves. When corrosion is identified on these sections of pipework, replacement can be very difficult, as it brings on welding challenges; it requires specialist expertise to carry out the work including material sampling and procedure writing and qualification along with specific hot work permits and planning, which can all become a costly operation. Also, the welded stabbings are also subject to vibration damage issues with failures occurring across the network.

## What's new?

National Gas have identified LOKRING Technology, a method of pipe joining, which is weldless and threadless. The technology is designed to join pipe up to 2" diameter pipe and is currently rated to up to 3000 psi dependent on metallic composition and size. The technology is qualified to ASME B31 and reported to be integrity equivalent to a shop butt weld. Pressure tests on small diameter pipework to verify that the mechanical pipe connections will withstand National Gas sealant line pressures. These have been verified for a full pressure range from the transmission system.

Mechanical pipe connection process



Lokring (supplier) trained several technicians to install a 2" mechanical pipe connection at one of our sites. The training included what steps were required at each phase of the installation; each step was evaluated and

signed off by an inspector.

## The benefits

Utilising the mechanical pipe connection technology as part of the corrosion management application on site has improved as the installation can be performed within 1 hour which is a 50% reduction in time from the equivalent welding process. Whilst trialling and adopting Lokring™ the associate processes have been able to be streamlined which has improved the remediation process as well as making it safer due to the resultant reduction in hot works. The utilisation of the equipment results in improvements across multiple areas, including safety, cost, and efficiency. Using the mechanical pipe connection across our network will significantly reduce the risk associated with hot work such as welding as well as:

Eliminate the costs associated with welding as the following will not be required:

- Specialist expertise for material sampling
- The need to write the procedures and qualification
- Developing specific hot work permits and planning.

## Financial savings

Welding versus Mechanical Pipe connections			
	Sub Total	Fee 9.9%	Total
Welding	£11,219.34	£1,110.71	£12,330.05
Mechanical Pipe Connection	£ 4,712.16	£ 466.50	£ 5,178.66
Difference	£ 6,507.18	£ 644.21	£ 7,151.39

## Outcomes

This is the first time this technology has been used on UK gas assets. The mechanical pipe connection has undergone National Gas QA process to be an approved vendor, successfully undergoing audits at each stage of manufacture and supply. Training was conducted and an installation check list was produced to aid with the installations. The specification for mechanical equipment on compressor installations T/SP/COMP/33 will be updated. The preferred method of jointing will be approved via a G/19.

