



# CASE STUDY

No: 11  
Date: April 2008

## Avoiding Welding on a production platform

**Market:** Offshore Oil & Gas  
**Product:** Phastite



### Value Summary:

- > **Faster:** Speedy repairs in a crowded environment
- > **Smarter:** Avoided the need for welding and permits
- > **Smarter:** Production was able to continue during repair
- > **Smarter:** Component costs greatly reduced

### Customer:

BP Exploration's BP Bruce field. A major drilling platform in the North Sea. The Bruce field is around 240 km NE of Aberdeen and produces some 20 million cubic feet of gas and 70,000 barrels of oil a day. It has been operating since 1993.

### Problem:

Important hydraulic services in the vicinity of the platform's drilling area were damaged. Some of the damaged lines were fabricated from heavy-wall 1-inch tubing, and it was impossible to repair using traditional twin-ferrule compression tube fittings. Welding in new sections was highly undesirable, due to the location, and the costly downtime that would be necessary. A repair by means of special flanges was feasible, but these products had

a 16-week lead-time (and cost several thousand pounds per item).

### Solution:

Phastite fittings offered a high-pressure connection system that slid over the tubing, and is capable of being compressed onto thick wall (or thin wall) tubing using a portable hydraulic tool.

The platform operator's engineering contractor discussed the application with potential suppliers, to see what solutions were possible. Parker's distributor Aberdeen Fluid Systems Technologies (AFST) recommended the Phastite connector. The contractor was impressed and subsequent technical review meetings with both the contractor and end customer were arranged to demonstrate the connection system. Following demonstrations, the contractor and the operating company

conducted a formal risk assessment for the scope of the offshore work. The solution was accepted in principle, but the end customer's strict safety policies also demanded verification of the equipment by a third-party inspector. AFST generated a full certification package to support the inspection process.

Once approval to proceed was received, AFST arranged a short Phastite training course for the contractor's project personnel, and provided the Phastite fittings required and the loan of the assembly tool. The contractor completed the repairs speedily and without disrupting production, despite some severe accessibility problems in the crowded hydraulic services area. The tool's compact jaws allowed the tubing repairs to be made in situ, despite the proximity to many other tubing runs and connections (see photos overleaf).

## Benefits:

Phastite avoided welding and any need for 'hot work permits' (which were virtually impossible to obtain in this particular case) — providing a fast repair.

Production was able to continue on the platform during repair. Component costs were greatly reduced compared with the alternative flange-based repair method.

## Customer Quote:

**“All the installation of Phastite connections went well on BP Bruce. Thank you AFST and Parker for the support, covering the speedy manufacture, support paperwork and risk assessment. I wish we got the same level of service everywhere”.**

The platform's Chief Engineer (Piping & Mechanical).



Phastite is a new type of fluid connection providing permanent connections for fluid systems operating at up to 20,000 PSI / 1,379 bar. For permanent connections, and these elevated pressures, system builders would typically use either welded or 'cone and thread' style fittings, which are time consuming and expensive to install. Compared with these products, Phastite connectors can reduce installation costs by a factor of 90% or more. Phastite employs a compression assembly principle using a novel form of toothed profile, which makes the seal. The connectors are supplied as one-piece components. To make a joint, all that's required is to insert the tube, and then push the collar along the connector body until it reaches a dead stop. This

operation is performed by a simple hydraulic tool (the tool is handheld for smaller joints - up to 1/2 inch / 12 mm), and takes a few seconds. The tool requires no skill to use, and assures users of right-first-time connections. This assembly approach contrasts with the requirement to perform a 360-degree weld around the circumference of a tube, an operation requiring skill, consumables, expensive equipment, and up to 10 minutes of time. Or, the coning and threading of a tube end to prepare it for use in a special screw-together fitting, operations that again require skill, and time - in this case up to 30 minutes or more. For many applications, the quality of the weld is also tested by means of dye penetration, or x-ray inspection, adding further substantial costs.

## Some views of Phastite repairs on the platform.

Before (left), and after shown right:



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