



Experience Where It Counts.
Innovation Where It Matters.

INTELLIGENTLY CONNECTED TECHNOLOGY PARTNERS



GMC MECHANICAL CONNECTOR

The core technology behind GMC's Intelligently Connected Pipe, ICP.



ADVANCED MATERIALS

Eliminating offshore welding enables high strength & corrosion resistant solutions. Lighter weight for high pressure and ultra deep-water, C110 for H2S service & Inconel Clad for high CO2 for pre/sub salt deepwater riser & flow-lines.



FRICTION JOINT PROCESS

A forging technology creating pipe joints with fatigue & strength properties comparable to the parent pipe.



FATIGUE RESISTANT

DNV Approval to ISO:21329:2004 & API Standard 2RD:2013
Results > DNV-B1 S-N Curve



RFID TAGGING

Radio Frequency Identification tagging identifies & tracks the life of ICP pipe joints: manufacture, Quality Control inspections, & multiple field installations.



Intelligently Connected Pipe (ICP)

GMC-THOMPSON (TFW) JOINT VENTURE

The GMC-Thompson Friction Welding (TFW) Joint Venture was established in 2012. Our prime focus is to provide B1 joining characteristics to SCR Production SURF in combination with the highly fatigue resistant GMC Mechanical Connector.

Together, GMC & TFW bring a unique combination of Intelligently Connected products to the offshore market.

GMC

GMC Limited (GMC) is an industry leading company focused on ultra deep-water products, engineering, project management, and the development and production of enabling technologies. The company headquarters is in the UK and a main office is located in Houston, Texas.

For more company information, visit www.gmcltd.net

THOMPSON

Thompson has been at the forefront of the friction welding industry for over 50 years, having pioneered the direct (continuous) drive process. Thompson has sold more than 800 machines worldwide for a wide range of applications. Key sectors include oil and gas, automotive, truck and bus, construction machines and aerospace.

For more company information, visit <http://www.thompson-friction-welding.com>

FRICITION JOINT PROCESS

The Friction Joint Process (FJP) is accepted in many industries as the best possible bonding method for safety critical applications such as aero engine components, truck and bus axles, and automotive parts (including airbags, suspension, and a variety of engine components.) For over 30 years, the process has been API accredited for joining oil drill pipe and is also widely used for exploration and rock drills.

The FJP not only offers a solid-state parent metal bond at the atomic level, requiring no third party fillers or gasses, but is also repeatable, robust and accurate. Typically, the process offers high fatigue resistance with predictable levels of hardening and the resulting joint is of forge quality.

The direct drive process offers many key advantages over rival friction processes including:

- Total process control throughout the whole joint cycle, Programmable Logic Controls (PLC)
- High frequency monitoring up to 100 times per second
- Every FJP is logged in detail including key parameter data allowing for total traceability
- Less aggressive process allowing for optimum HAZ control

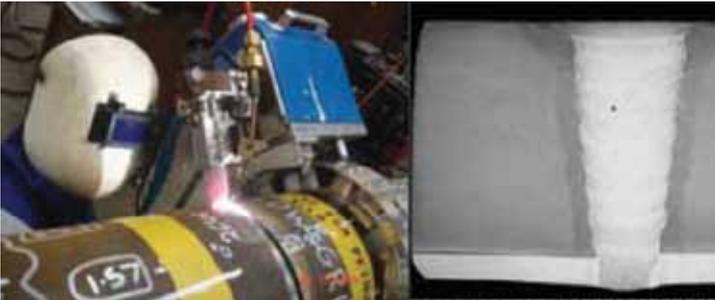
SCR & FSHR

Steel Catenary Risers (SCR) and Free Standing Hybrid Risers (FSHR) are an attractive technology for deepwater field developments. SCR's are simple in design with few complicated components, FSHR's decouple motions from the FPS (Floating Production System.)

The engineering, procurement, construction, and installation contractors can improve the fatigue performance of SCR's and FSHR's by proposing the best riser configuration and installation methods; thus, withstanding life of field factors and minimizing fatigue.

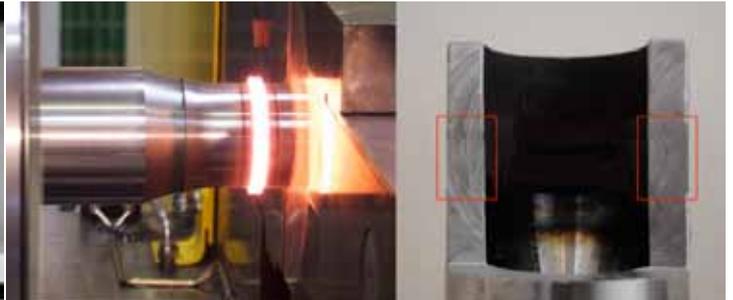
WELDING VS. FJP

Present SCR & FSHR Welding Technology



Mechanised Gas Tungsten Arc Welding (GTAW) equipment in operation (l), and typical weld macrosection in clad pipe.

Future SCR & FSHR Friction Joint Process



Friction Joint Process (FJP) in operation (Robotic) (l), and typical FJP macrosection of P110 pipe.

The main challenge in any SCR and FSHR design remains the fatigue performance of the weld or joint. SCR's and FSHR's in deepwater can be subject to severe environmental loading, and the fatigue performance is often limited by the girth weld.

The future of FJP along with the GMC Mechanical Connector is to provide B1 Fatigue Resistant tubulars for HPHT and highly corrosive deepwater SURF.

GET CONNECTED TODAY!