SUCCESS

LINCOLN ELECTRIC
THE WELDING EXPERTS

WAVEFORM CONTROL TECHNOLOGY™

Surface Tension Transfer® (STT®)

STT on Pipe

Technip Offshore UK Ltd./UMAX

Technip Offshore UK Ltd. and UMAX partner to weld Coastal Ireland pipeline using Lincoln's STT process.

-PROBLEM-

Specifications for mechanical testing and qualification tests were especially restrictive on this project, causing concerns about maintaining production schedules.

-SOLUTION-

Lincoln's Power Wave 455M/STT power source combined with Outershield gas-shielded flux-cored wire.

-RESULTS-

Production was up 10-15% with a total of 50% reduction in manpower and 2,778 welds with a repair rate of less than one percent. Overall project costs were substantially reduced.

LINCOLN ELECTRIC NEXTWELD™

The Marathon Oil Company awarded Technip Offshore UK Ltd. with a contract to weld 15.5 miles (25Km) of 8 inch (203 mm) x 1/2 inch (12.7mm) grade X52 pipe for the Seven Heads contract (led by operator Ramco Oil & Gas Limited). Following completion of the project, Technip will provide gas processing and transportation services for the estimated natural gas reserves of approximately 300 billion cubic feet which is located 21.75 miles (35 Km) to the south-west of Marathon's Kinsale Head field in the Celtic Sea off the southern coast of Ireland.

After months of testing, Technip Offshore UK Ltd contacted UMAX Welding contractors at their Evanton location, where the Lincoln Power Wave® 455M/STT® was selected as the power source for this project. This was the first use of this STT-capable (Surface Tension Transfer®) power source in Europe for root pass MIG welding of the reeled pipe.

A Senior Welding Engineer for Technip Offshore UK Ltd, commented that "in conjunction with gas-shielded flux-cored wire fill and cap, production was up 10-15% together with a 50% reduction in manpower – this resulted in a substantial savings on the project costs".

Lincoln's Outershield® flux-cored wire in the .045" (1.2 mm) diameter was used for all hot, fill and cap passes. Shielding gas was a 80% Ar / 20% CO_2 mix. The Power Wave 455M/STT was used for the complete welding cycle on the all pipe butts welded.

That was 2,778 welds with a repair rate of less than one percent.

At the peak of production, 111 butt welds were being produced per day, with one pipe butt joint being welded every 5.5 minutes. This is particularly impressive, as specifications for mechanical testing and the welder qualification tests were especially restrictive for this project. The pipe will be reeled onto the CSO Apache reel lay vessel. The pipe is then unreeled from the boat to the sea floor, before spool tie-ins between the wellheads and the manifolds take place to complete the construction project.

"In conjunction with gas-shielded flux-cored wire fill and cap, production was up 10-15% together with a 50% reduction in manpower - this resulted in a substantial savings on the project costs"

Technip Offshore UK Ltd is regarded as a leader in the sub-sea pipeline technology market, and together with UMAX, the two companies are working with Lincoln Electric on a number of projects. On the drawing board are the Marathon Braemar

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10 inch / 6 inch (254 mm / 152 mm) pipe in pipeline for the North Sea utilizing the STT process together with Outershield gas-shielded flux-cored wire. Tie-in welds on the Williams Devils Tower project and BP King West project in the Gulf of Mexico will also be using Outershield wire.

UMAX has also ordered a dozen Lincoln European market LF30 wire feed units, which they will pair up to their existing Lincoln DC-400 power sources. These units are currently being used for all their flux-cored welding requirements.

Featured Lincoln Products

Power Wave® 455M/STT
Three ways to weld aluminum — standard push gun, spool gun, or push-pull aluminum feeding capability for high-quality feeding with thinner aluminum wires. No PC board add-on required! Synergic alignment of wire feed speed and voltage allows you to set weld procedures with only one control for simplicity and ease of use. Creates aluminum welds with a "TIG welding appearance" using Pulse-on-Pulse™ MIG welding.

Outershield® Wires
Lincoln's gas-shielded flux-cored process has become the predominant process in many industries where large weldments are required, where high deposition rates when welding out-of-position are needed, or when base material is too dirty for the MIG or metal-cored processes. Use Outershield wires in pipe, offshore, bridge and structural fabrication applications.

WHAT IS NEXTWELD?

The challenges facing industrial fabricators today are increasingly difficult. Rising labor, material, and energy costs, intense domestic and global competition, a dwindling pool of skilled workers, more stringent and specific quality demands.

Through our commitment to extensive research and investments in product development, Lincoln Electric has established an industry benchmark for applying technology to improve the quality, lower the cost and enhance the performance of arc welding processes. Advancements in power electronics, digital communications and Waveform Control Technology™ are the foundation for many of the improvements.

NEXTWELD brings you a series of Process, Technology, Application and Success Story documents like this one. NEXTWELD explains how technologies, products, processes and applications are linked together to answer the important questions that all businesses face:

- *How can we work faster, work smarter, work more efficiently?*
- *How can we get equipment and people to perform in ways they've never had to before?*
- *How do we stay competitive?*
- *How do we maintain profitability?*

NEXTWELD is the future of welding, but its benefits are available to you today. Ask your Lincoln Electric representative how to improve the flexibility, efficiency and quality of your welding operations to reduce your cost of fabrication.

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