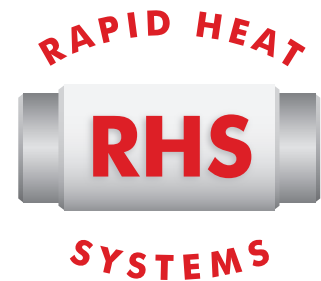


SALES AND RENTAL OF HEAT TREATMENT EQUIPMENT

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HOT TAP SPLIT TEE 14" GASOLINE LINE APPLICATIONS

Customer: Wood Group Engineering Ltd (North Sea)

Client: Shell UK

Job Description: To pre-heat a 14" split tee and the 14" pipe that it sits on (simultaneously) requiring two longitudinal welds and two circumferential welds.

Pipe Dimensions: 355.6mm x 9.5mm w/thk

Pre-heat

Target Temp: 250°C for welding fillet joints
150°C for minimum interpass

Product: Gasoline

Flow Rate: 3,500 gallons per day

Pressure: 14 bar max

Product Temp: 32°C

Job Location: Shell Fife NLG Plant Mossmorran
Kingdom of Fife

Job Date: 06.03.04 to 12.03.04

Equipment: 2 x 20kw RHS Induction Heating Machines
2 x 80ft Induction Heating Cables
2 x 50ft Induction Heating Extension Cables

Results: During the longitudinal welds, i.e. along the split part of the tee, we achieved the 250°C target pre-heat temperature but during the circumferential welds we were unable to raise the temperature above 95°C due to the pipe wall thickness and the product flow rate. The welding inspector monitored the temperature and was happy that the temperature that was reached was well within the parameters needed for welding.

Comments: Welders could not believe that they could rest their hands on cables whilst welding. The original plan was to have had comfort breaks for them on a regular basis if they had used propane. This eliminated the need for breaks and, as a result, they continued to weld out to completion once started, far quicker, which meant less time exposed in a high-risk area of the plant by personnel. The client was happy with the safety aspect and also less time and exposure to personnel on site and with the added benefit of control over temperatures giving improved quality.

