

## SUCCESS STORY 88

### SEAMLESS PIPE HEAT TREATMENT



**Q**

How can a manufacturer of oil and gas pipes verify temperature uniformity during the heat treatment process?

**A**

#### Situation and background

Temperature uniformity and hardening of seamless steel pipes for the oil and gas industry is vital for the reliability of the end-product. The pipes are subject to high pressures (oil, gas, hydrogen, etc.) and the physical properties of the end-product depend ultimately on the heat treatment cycle. The product is processed in a special furnace; pipes rotate while being heat treated at 950°C/1742°F for 60 to 90 minutes, depending on the thickness and grade of the steel. Rectangular thermal barriers designed with conventional thermal protection cannot be installed in the pipes, due to size and performance constraints. An entirely new approach was required.

#### The winning solution

- Datapac® was able to use its unrivaled experience in the development of specialized thermal protection solutions and designed a cylindrical vapour phase barrier for this application.
- The end-user was able for the first time to measure the performance of this key process.
- The temperature of the pipe can be measured at many points, so temperature uniformity of the product can be proven.
- With this solution, manufacturers can commission furnaces for their customers with traceable reports of their process performance.

#### Savings made

- Being able to provide process traceability and product certification enabled the manufacturer to maintain a premium sales price.
- Change-over time for different sized pipes was reduced.
- Process faults within the furnace were identified and corrected immediately, reducing waste.

#### KEY FACTS

**Customer's End Product**  
Pipes for the oil and gas industry

**Max Temperature Reached**  
1000°C/1832°F

**Duration of Process**  
90 minutes

#### PRODUCT AND BENEFITS



**Datapac TPaq21 datalogger**  
**TB4095 thermal barrier**  
**Furnace Insight™ software**

- Product temperature uniformity can be measured and certified.
- Furnace set-up time for a new product is minimized.
- Trouble-shooting the furnace profile is now quick, easy and safe.