



Steel Tube Production

Induction Pipe Welding

Q

Question

How do you control the temperature of a welded seam while minimizing spikes caused by splatter during the induction welding process.

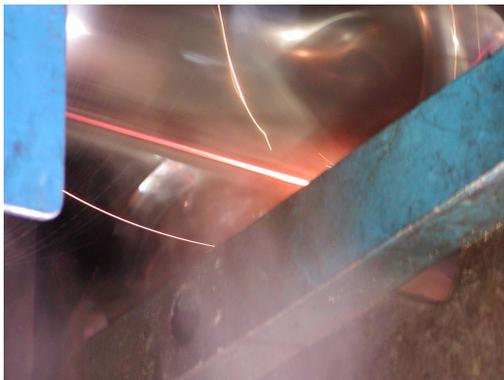
A

Answer

Situation Analysis

Hundreds of thousands of tons of steel tubing are produced every year for a variety of uses, including pipeline systems, structural members, electrical applications and general engineering purposes. Induction welding is a common method of steel tube production and temperature control is essential to maintaining quality. The production of steel tubing uses a continuous steel strip that is formed into a tubular shape by passing it through a series of steel roller stands and a induction coil that heats the seam and welds it together.

- Measurement temperature 1400°C (2552°F)
- Ambient temperature = up to 60°C (140°F)
- Process speed = 0.3 to 1.2 m/s (1 to 4 ft/s)



A

Answer

Solution and Improvements

The Ircon Modline® 5R two color ratio thermometer is an ideal instrument for this application. The weld tends to move from side to side, making it difficult to focus directly on the weld. With a two color instrument, the spot size is made large enough to encompass the possible positions of the weld and as long as the weld is anywhere in this focal spot, the instrument will accurately measure the weld temperature. The instrument also has a laser aiming feature that indicates the actual spot being measured on the weld as you focus the instrument. Thus, it is easy to focus and aim the instrument without having to climb up on top of the machine to aim the sensor. The system has an adjustable response time designed to eliminate the hot spots caused by the spattering of the metal. Linear and digital outputs can be interfaced with the induction computer control to continuously control the weld temperature and allow the operator to change speeds, as needed in this process. If water cooling is introduced immediately after the weld, then a sight tube may be necessary to keep the steam out of the line of sight and utilize the internal Peak Picker function to eliminate cold spots.

Ircon Product

Modline M5 5R1410

Accessories

- UAA universal adapter
- APA air purge
- Sight tube

Benefits

- Faster startup
- Quality welds
- Increased throughput