

SUCCESS STORY 60 HOT ROLLING H SECTION STEEL BEAM



Q

How do you measure temperature at (3) points on a steel beam when the beam is changing in size during the rolling process?

A

Situation and background

A pre-heated H section steel beam is passed back and forth through a rolling stand until it reaches the correct size and shape. During the rolling process, the beam becomes longer and thinner.

Previously, (3) infrared spot sensors were used to monitor temperature at (3) points on the beam as it moved back and forth. The sensors were mounted on a rig that would adjust the height relative to the beam. Reliability and maintenance of the moving rig was a big problem. A maintenance-free solution was needed with a fixed installation that could automatically adapt to the changing size.

The winning solution

- An EC150 linescanner system was used to scan the beam in a vertical direction as it moves back and forth in front of the scanner.
- EC150 software includes adapting sectors to follow the changing size of the beam based on a threshold temperature.
- Analog outputs corresponding to the (3) sectors provide inputs to the existing control system.
- One measurement device gives better accuracy between measurement points compared to (3) discrete sensors in the previous solution.
- Stream recording mode can record one complete beam rolling cycle for traceability or R&D data analysis.
- Sector results were recorded in a single text file.

Savings made

- Removal of moving assembly saves maintenance costs and time
- Simplified installation and fast changeover when new H-beams are run

KEY FACTS

Industry
Steel

Customer's End Product
H section steel beam

Process Temperatures
Approximately 1000°C/1832°F

PRODUCT AND BENEFITS

EC1502M and analog output module

- Short wavelength linescanner for lowest possible measurement errors
- Software with automatic sectors to duplicate moving spot sensors and provide 3 measurement points
- Easy interface with existing control/monitoring system
- Stainless steel housing for additional protection