

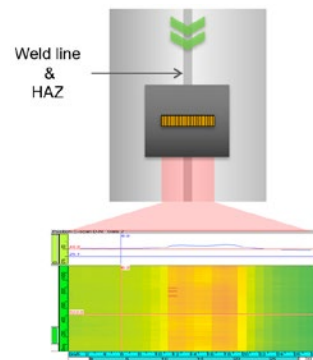
ERW In-Line High-Temperature System



Electric resistance welding (ERW) pipe are manufactured by flattening and bending steel coil and then using high-frequency electrical current to weld the edges. Through this forging process, ERW steel pipes provide excellent dimensional accuracy, uniform wall thickness, and lower pricing compared to similar seamless pipe. ERW pipes are mainly used in the oil and gas industry for oil country tubular goods (OCTG) and line pipe.

Strict Quality Control of the Weld and HAZ on the ERW Pipe Production Line

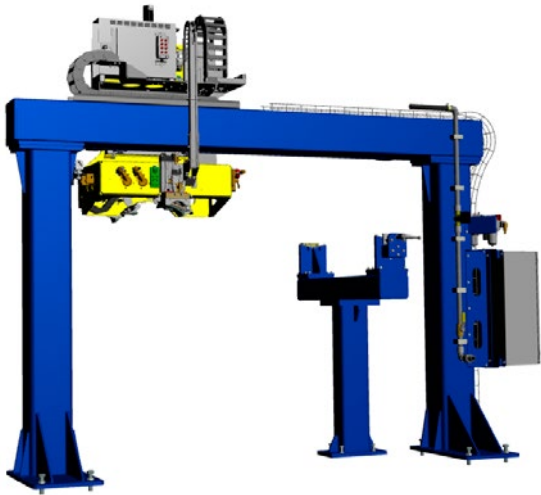
Olympus' ERW high-temperature system is a high-quality inspection solution using conventional ultrasonic (UT) and phased array (PA) technology. Our UT and PA probes are integrated into fully automated testing systems to meet process-control requirements for weld inspection. While the phased array probe tracks and records the weld profile, the conventional UT probes are used to detect flaws in the welded area using the automatic positioning. The system is an easy-to-use solution that helps ensure the quality of ERW welded tubes and can be adapted to fit the specific needs of OCTG manufacturers.



Weld profile top view

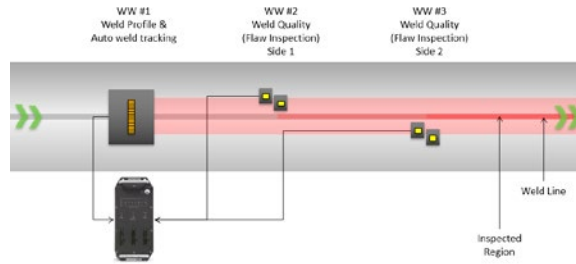
Olympus' ERW In-Line system is built to meet the inspection requirements of international standards governing pipe manufacturing. The ERW high-temperature system is installed between the weld cooling and annealing, where the pipe temperature is 100 °C (212 °F) or lower. A special self-cooling wedge combined with automatic alarms protect the phased array probe against excessive temperatures. The system inspects the internal and external surfaces of the weld seam in ERW pipes, ranging from 60.3 mm to 508 mm (2.4 in. to 20 in.) OD, in addition to the heat-affected zone (HAZ). The following typical defects are detected:

- Longitudinal cracks
- Through-drilled holes
- Lamination defects in the HAZ (up to 25 mm (1 in.) on each side of the weld)



ERW high-temperature automated turnkey solution features

- Automatically tracks the heat-affected zone (HAZ)
- Visualize the profile of the weld in real time
- Automatically positions the flaw detection probe for optimal detection
- Minimizes dependence on operator skill
- Easy and fast changeover using preset probe holders and saved setup files
- Protects the phased array probe using a closed-loop cooling system



Weld inspection configuration

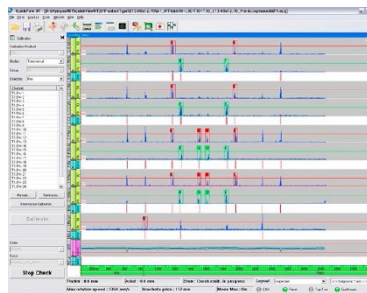
System Performance

Standard Product Range	Diameter	60.3 mm to 508 mm (2.375 in. to 20 in.)
	Wall Thickness	3 mm to 16 mm (0.118 in. to 0.630 in.)
	Speed	Typically 600 mm/sec (limited by the production line speed)
	Coverage	100% weld volume for cracks/TDH and up to 25 mm on each side of weld for lamination detection
Data Presentation	Real-Time Inspection Results	C-scan, A-scan, B-scan, strip charts, and alarms
Inspection Modes	Typical Inspection Modes	Longitudinal and lamination
Operating Temperature		Up to 100°C
Detection Capabilities for Typical Reference Defects	Repeatability	Longitudinal notches: <3 dB; 3.2 mm TDH: <4 dB; 1.6 mm TDH: <5 dB; 6.35 mm FBH: <3 dB; 3.2 mm FBH: <4 dB
	Standards	ISO, API
Reporting and Data Storage	Report Types	Inspection, calibration, and calibration-check user-configurable reports
	Storage	Real-time database inspection data storage

This solution is powered by:



QuickScan™ Acquisition Unit



QuickView™ Software



Olympus Phased Array Probes

OLYMPUS SCIENTIFIC SOLUTIONS AMERICAS CORP.
is certified to ISO 9001, ISO 14001, and OHSAS 18001.

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