



# ERW Pipe Weld Inspection

TEMATE BW-LT(ERW)

## Equipment Highlights

- Non-contact ultrasonic EMAT technique.
- Independent PCL for in-line, fully automated inspection.
- Installs directly after welder for immediate weld quality feedback and real time process control.
- Provides full volumetric inspection of the weld, including ID trim conditions, according to API standards.
- Multiple sensors configured to detect all defects regardless of type and orientation.
- Automated flaw marking option.
- Automated movement from calibration to operation.

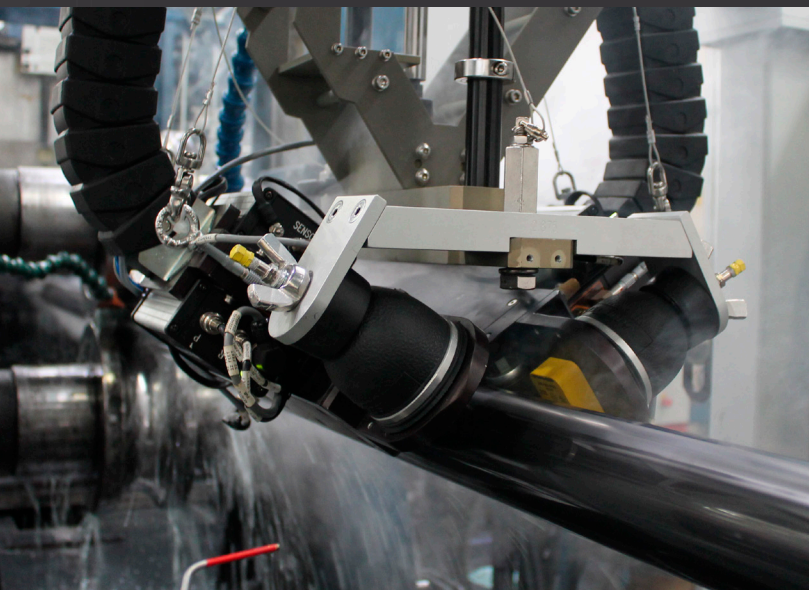
The temate BW-LT(ERW) is an automated system for inspection of longitudinal welds in ERW tubes. The couplant-free EMAT technique permits inspection immediately after welding and reliable detection of all API defects and poor ID scarfing.

The lack of coupling fluid permits inspection of tubes at higher temperatures, and installation immediately after the welder without the need for heat quenching. The system detects weld defects, such as hook cracks, pinholes, inclusions, penetrators, mismatch, skelp burr, and poor scarfing (ID and OD) and meet all API standards.

As the weld is inspected, the system provides immediate disposition of weld quality, and saves a complete record for post-analysis, tracking, and process monitoring. All the records can be saved on a network drive and are easily exportable to different formats.

The standard space requirements are 1372 mm (54") length (product flow direction), 2670 mm (105") width, and 2670 mm (105") height. Innerspec can also work to custom fit into your space requirements.

The temate BW-LT(ERW) provides a superior return on investment by minimizing scrap rates and providing real-time process control.



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## TEMATE BW-LT(ERW) - Specifications

<b>Materials Inspected</b>	<ul style="list-style-type: none"> <li>Carbon Steel Tube and Casings (all API carbon steel grades).</li> <li>Diameter: 2.375" (60.33 mm) to 16" (406 mm). Consult with Innerspec for other diameters.</li> <li>Thickness Range: 0.188" (5 mm) to 0.623" (16 mm). Consult with Innerspec for other thicknesses.</li> <li>Provides inspection of ID, OD and mid-weld.</li> <li>The pipe should be secured by pinch rollers separated by ~2 m (7') for inspection and is relatively straight, level with minimal movement.</li> </ul>
<b>Defect Detection</b>	<ul style="list-style-type: none"> <li>½" / 1" (12.7 mm/25.4 mm) N10 and N5, ID and OD longitudinal notches.</li> <li>1/16" (1.6 mm) through drilled hole(TDH).</li> <li>Hook cracks, pinholes, mismatch, skelp burrs, poor scarfing (OD &amp; ID) and point defects such as inclusions and penetrators not easily detected with conventional systems.</li> <li>Meets all API Standards and the most stringent oil company requirements.</li> </ul>
<b>Inspection Technique</b>	<ul style="list-style-type: none"> <li>Multi-mode shear wave technique in pulse-echo configuration with sensors on both sides of the weld.</li> <li>Sensors located offset from the weld seam by approximately 50 mm (2") avoiding direct heat from the weld. Permits up to 6 mm (0.25") of weld wander without reducing sensitivity.</li> <li>Maximum sample rate of 2000 pulses per second for inspection speed of 1.5 m/s.</li> </ul>
<b>Sensor Head Assembly</b>	<ul style="list-style-type: none"> <li>Two sensor assemblies, one on each side of the weld.</li> <li>Multiple channels in each assembly to detect defects in any orientation.</li> </ul>
<b>Data Acquisition Electronics</b>	<ul style="list-style-type: none"> <li>Industrial enclosure; NEMA 12 and IP 55 per EN 60 529/10.91 protection rating, located up to 165 cabling feet (50 m) from sensor.</li> <li>Enclosure is 24" (610 mm) W x 32.3" (820 mm) L x 69" (1750 mm) H, weighing approximately 500 lbs (225 kg).</li> <li>Includes EMAT T/R electronics, magnet pulser, power supplies, computer, communication interfaces, monitor, keyboard and mouse.</li> </ul>
<b>Software Features</b>	<p><b>Real Time Acquisition &amp; Processing</b></p> <ul style="list-style-type: none"> <li>Uses fast FPGA-based signal acquisition and processing.</li> <li>Provides uninterrupted control and analysis of all time sensitive operations, including real-time display and disposition.</li> </ul> <p><b>Processing Link</b></p> <ul style="list-style-type: none"> <li>Connects real-time acquisition &amp; processing with the user interface.</li> <li>Decouples acquisition from user interface for easy hardware upgrades, and rapid customization.</li> <li>Organizes and prepares data received from real time acquisition &amp; processing for representation.</li> </ul> <p><b>NDT-WEB User Interface</b></p> <ul style="list-style-type: none"> <li>Provides display and user controls customized for the application using proprietary NDT-WEB real-time web technology.</li> <li>Broadcasts its own Wi-Fi signal for simple access by any device using a regular browser and IP address (no client software needed). Alternatively, users can connect to the equipment using an external video monitor or ethernet port.</li> <li>Permits easy customization of user controls and display without affecting the operation of the equipment.</li> <li>Includes built-in features to connect to NDT-LINK, Innerspec's web portal for support, spares purchasing, and automated/remote operation and process control tools.</li> </ul>
<b>Power &amp; Environment Range</b>	<ul style="list-style-type: none"> <li>240 VAC (+/-10%), 60 Hz, minimum circuit capacity at 15 Amps.</li> <li>3-phase at 240 VAC(+/- 10%), 60 Hz, minimum circuit capacity at 25 Amps.</li> <li>Single supply of compressed air 80 to 120 PSI (5.51 to 8.27 bar) pressure.</li> <li>Operating temperature 32°F (0°C) to 105°F (40°C).</li> <li>Humidity, non-condensing, 5% to 95% RH.</li> </ul>