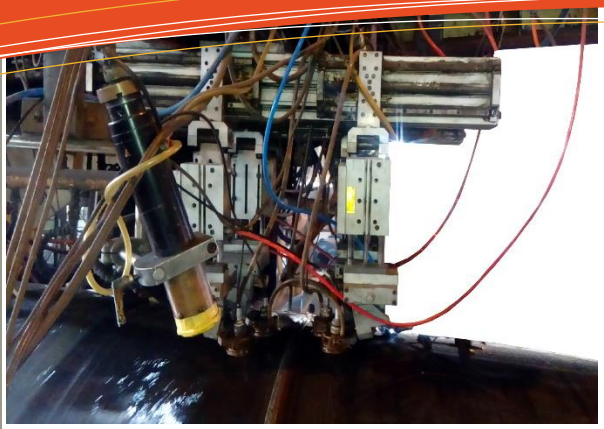
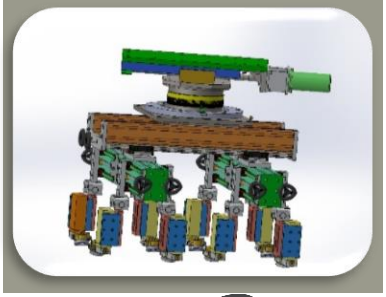
Spiral SAW Pipe Inspection System - Ultrasonic Steel Weld Testing
(FLAW HUNTER SP 9501)



- Importance of Spiral SAW Pipe Weld Inspection
- Ultrasonic Steel Weld Testing
- Spiral SAW Pipe Inspection System - Ultrasonic Steel Weld Testing (FLAW HUNTER SP 9501)
- Technical Specifications
- Software and Control Capabilities

The Ultrasonic Steel Weld Testing, quality control, and inspection system for Spiral SAW Pipe welds is an online and automated system that relies on advanced ultrasonic technology, precise software algorithms, engineered mechanical design, and production line integration capabilities. It provides an unparalleled solution for continuous and accurate weld quality monitoring in Spiral steel Pipe production. This system plays a pivotal role in optimizing the production process, ensuring final product quality, reducing costs, and preventing future



Importance of Spiral SAW Pipe Weld Inspection

Spiral SAW pipes, as one of the most critical types of welded metal pipes, play a pivotal role in various fluid transfer processes. These pipes, manufactured using the Submerged Arc Welding (SAW) method with a helical geometry, can withstand high pressure and heavy mechanical forces. Consequently, they are extensively used in strategic industries such as oil and gas transmission, water pipelines, chemical industries, thermal power plants, bridge construction, metal structures, and urban and rural infrastructure projects.

Given that the weld seam and the Heat-Affected Zone (HAZ) are the most structurally sensitive areas in these pipes, ensuring their complete integrity is a standard manufacturing requirement. International standards like API 5L, ISO 3183, and DNV-OS-F101 mandate Non-Destructive Testing (NDT) to verify the structural integrity of these pipes.

Among NDT methods, Ultrasonic Steel Weld Testing is recognized as the most accurate technique for identifying volumetric and surface defects in the weld.

Online and continuous Ultrasonic Steel Weld Testing during production allows line operators to assess weld quality in real time and take corrective actions upon detecting defects like cracks, Lack of Fusion, or Lamination.

This approach reduces final production costs, prevents the delivery of defective products to customers, and minimizes the risk of functional failure during operation.

Ultrasonic Steel Weld Testing

In Ultrasonic Steel Weld Testing, ultrasonic waves are transmitted into the pipe wall by a probe. These waves are reflected upon hitting the inner wall and received by the same probe. The received waves are converted into electrical pulses and sent to the ultrasonic device.

After amplifying and filtering the received electrical pulses, the ultrasonic device displays them as signals on its screen.

The device calculates and displays the location of defects by examining the time intervals between the signals received from the inner wall.

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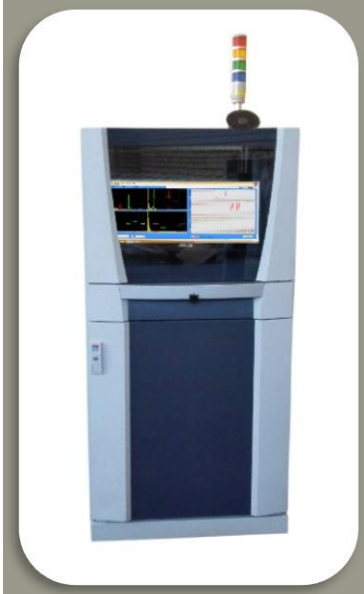

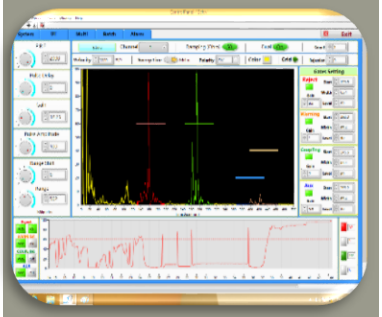

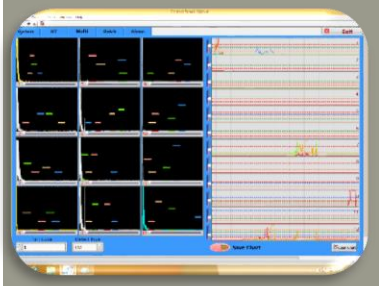

FLAW HUNTER SP 9501
Automated Ultrasonic Steel Weld Testing System

The Most Advanced Solution for Spiralweld Pipe Weld Testing in Production Lines

The FLAW HUNTER SP 9501 system is an innovative and fully automated solution for Ultrasonic Steel Weld Testing of Spiral SAW Pipe welds, installed in the production line immediately after the welding process.

Utilizing Pulse-Echo technology and optimized angled probes, this system accurately detects volumetric, surface, transverse, and longitudinal defects in the weld seam and HAZ.

Technical Specifications

-Equipped with eight 70-degree angled probes, each connected to an independent channel. These probes are housed in specialized holders using Water Gap technology, enabling precise calibration and stable ultrasonic energy transfer.

-**The probe arrangement** includes four pairs of separate holders on both sides of the weld area:

Two pairs of probes for detecting longitudinal defects (surface and subsurface longitudinal) along the weld line.

Two other pairs for detecting transverse defects (perpendicular to the weld line) and internal or external structural defects.

-The system is upgradeable, allowing the addition of 2 to 4 extra diagnostic channels for detecting Disbonding or Delamination at the weld edges.

-The system is designed to be installed close to the weld exit point, minimizing the time lag between welding and inspection for quick defect resolution.

-The common layouts in the test of these pipes are X, K, I layouts, among which the K layout is very common for Spiral steel Pipe.

Software and Control Capabilities

-**Equipped with an automatic Weld Seam** Tracking system that accurately follows the weld seam and positions the probes accordingly.

-Digital and continuous **recording of results in separate Strip Charts** for each channel, with full data traceability.

-Equipped with an **automatic paint spray defect marking system** that pinpoints the exact location of defects on the pipe surface.

-**Simultaneous visual and audible alarms** for rapid operator notification upon detecting critical defects.

-**Utilizes high-precision digital and electronic filters** to eliminate environmental noise.

-**Powerful software and electronic filtering** capable of completely removing noise from welding machines, plasma cutters, and adjacent electric motors.

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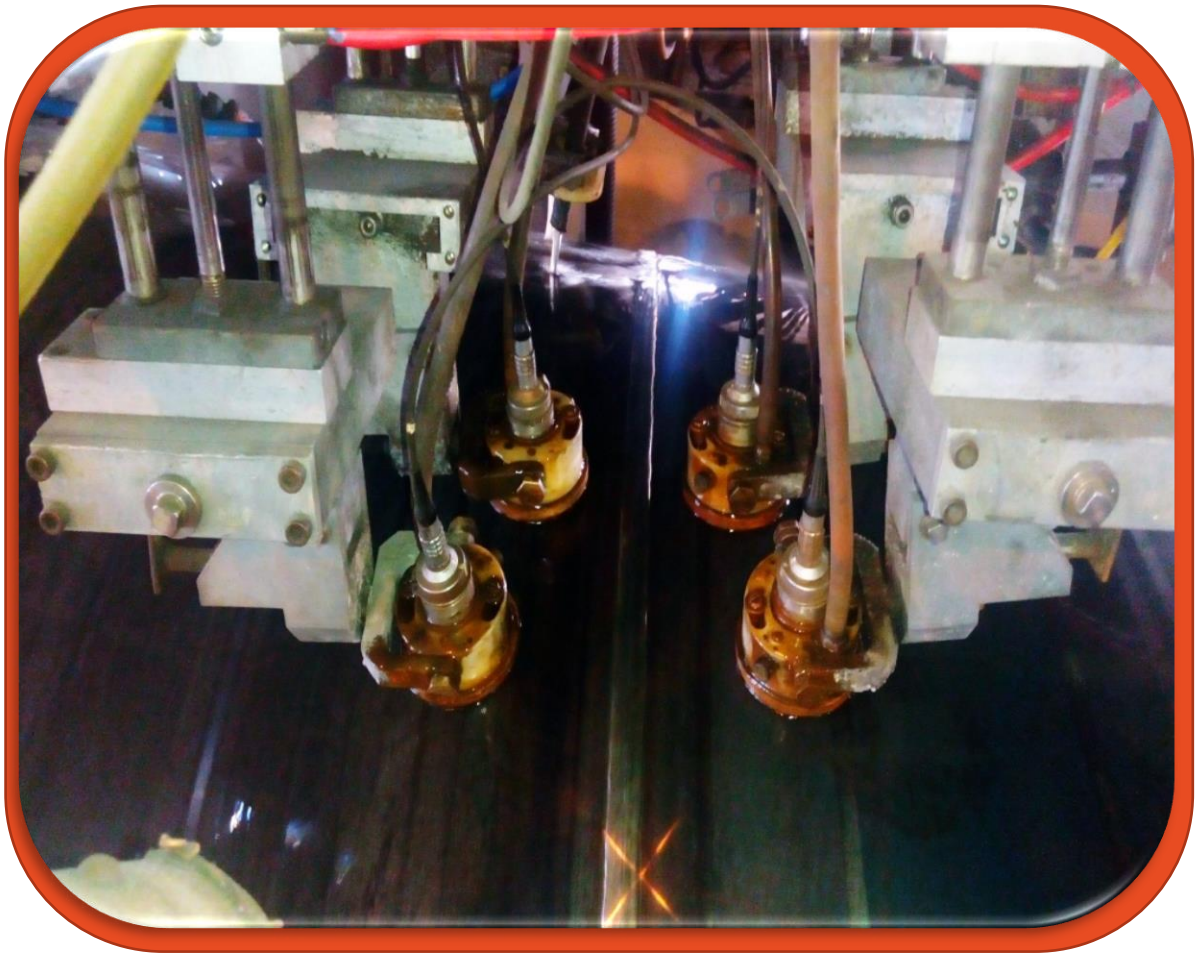

Advantages of choosing Pejvak Rayan Company

Industrial Ultrasonic Testing Equipment Manufacturer

-Trusted Expertise:
Over 20 years of experience in ultrasonic testing systems.

-Advanced Technology:
High-accuracy flaw detection with global standards; suitable for pipes, billets, rebars, ingots, sheets, and plates.

-Cost-Effective Quality:
Competitive pricing tailored for Asian markets — without compromising performance.

-Complete Service:
On-site installation, professional training, and ongoing technical support.

Experience world-class technology with region-friendly pricing

Pejvak Rayan – Precision You Can Rely On

Testable Pipe Specifications with FLAW HUNTER SP 9501 System Capabilities		
No	**Characteristic Name**	**Values**
1	**Testable pipe diameters**	**16-120 inch diameter pipes**
٢	**Testable product thickness**	**4-30 mm**
٣	**Testable product material**	**Carbon steel and alloy steel**
٤	**Linear test speed**	**Up to 40 meters per minute**
٥	**Detectable defects**	**Internal and external longitudinal and transverse N5 grooves and 1.6 mm diameter through-holes**
٦	**Test range**	**Entire weld seam, including the Heat-Affected Zone (HAZ)**

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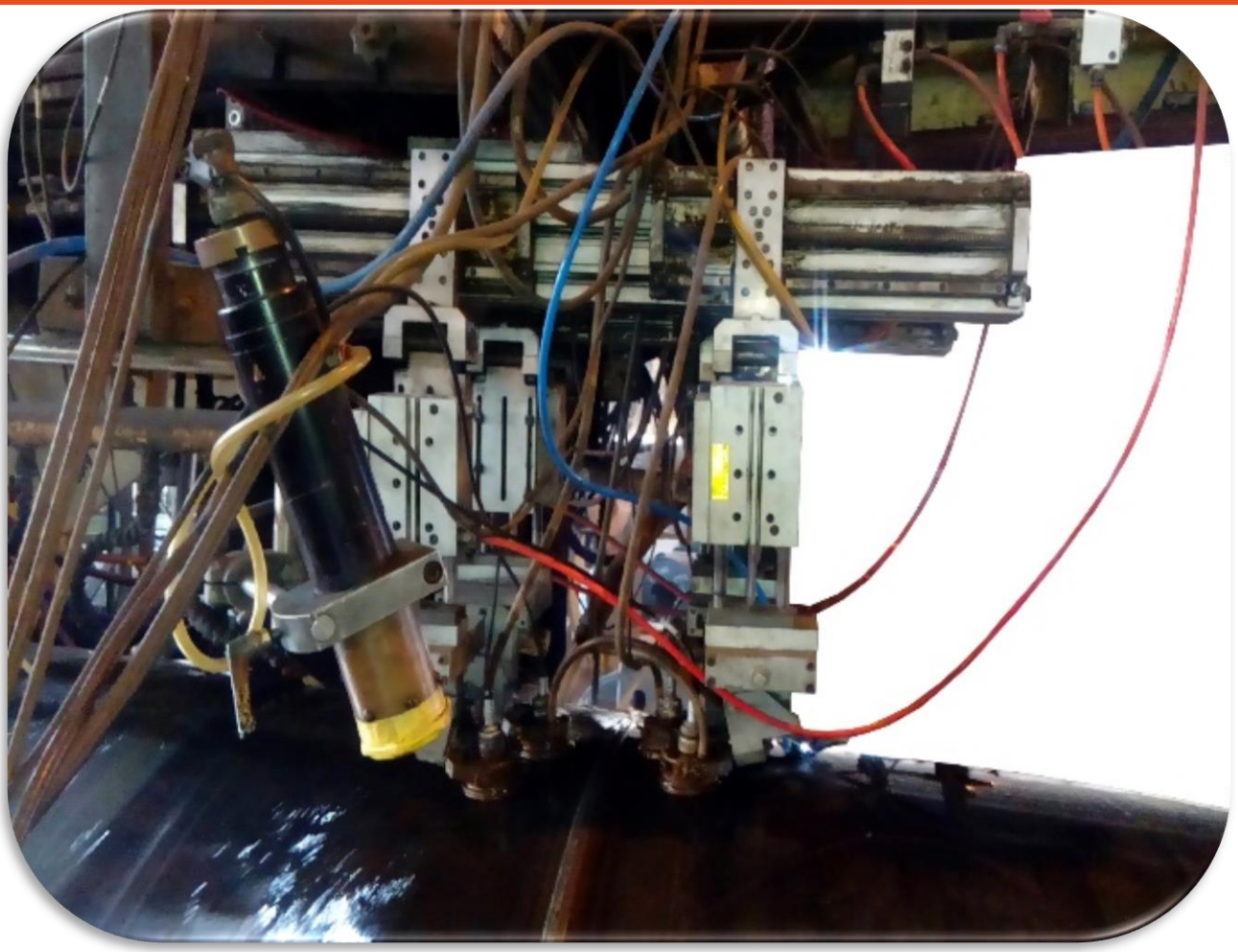

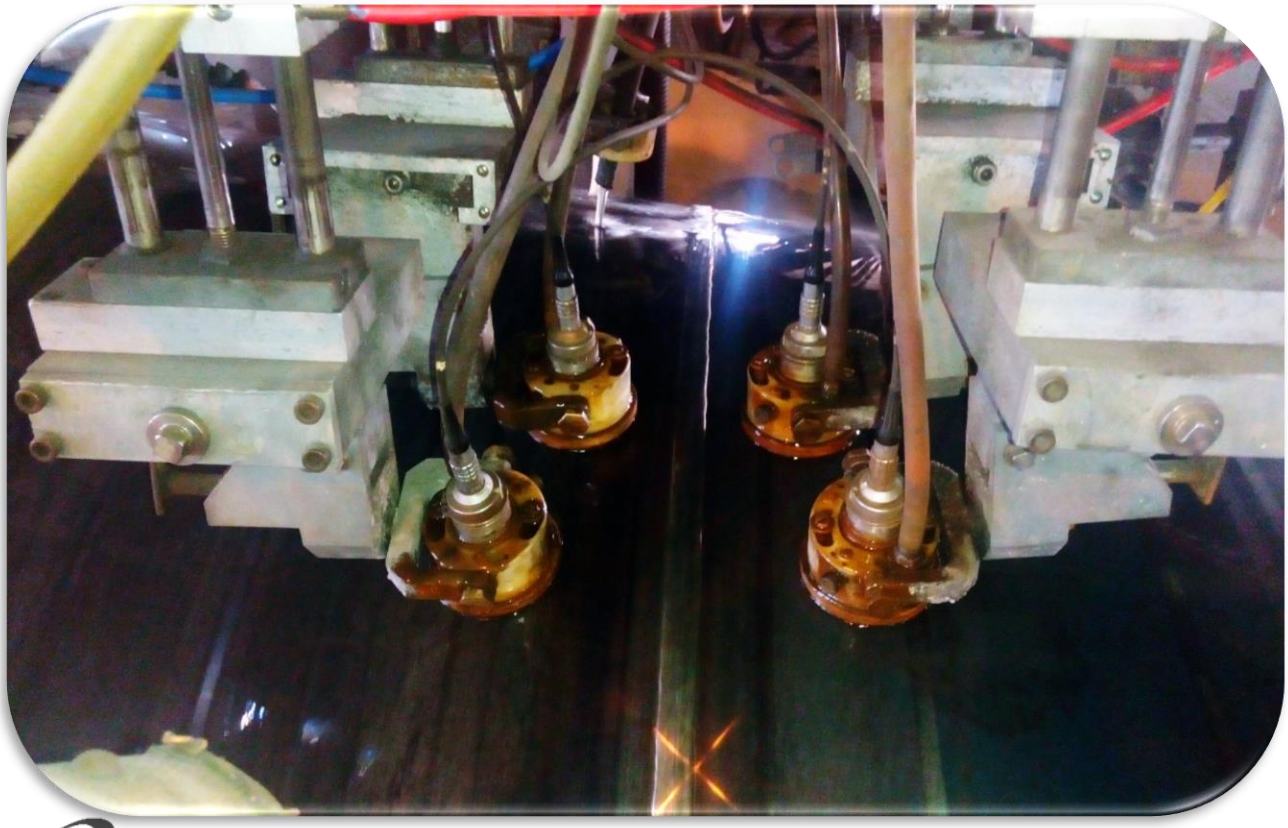

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