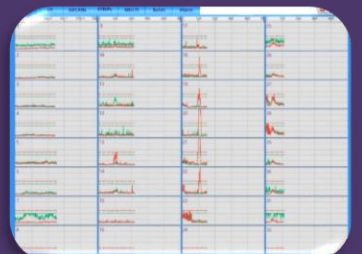
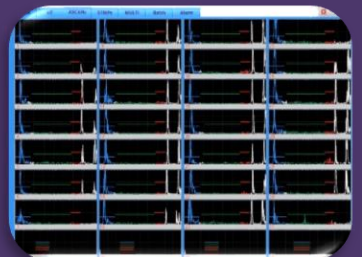




Advanced Seamless Pipe Ultrasonic Inspection System

(FLAW HUNTER SLP 9503)



- Importance of Seamless Pipe Inspection

- Ultrasonic Testing in Seamless Pipe Evaluation

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Importance of Seamless Pipe Inspection

Seamless steel pipes are fundamental components in a wide range of critical industries, including nuclear power plants, oil and gas exploration and transmission, refineries, petrochemical facilities, shipbuilding, boiler manufacturing, and the automotive sector. These pipes are highly valued for their superior strength and ability to withstand high internal and external pressures in demanding operational environments. According to global market statistics, seamless pipes currently account for approximately 65% of the total pipe manufacturing industry worldwide.

Due to the nature of their production—free of any welded joints—international standards such as API 5L, API 5CT, IPS, and IGS mandate the use of non-destructive testing (NDT) methods for quality control. Consequently, deploying a **seamless pipe ultrasonic system** with full-body inspection capability becomes essential to detect longitudinal and transverse flaws and to measure wall thickness with high precision.

Ultrasonic Testing in Seamless Pipe Evaluation

Among the most precise and widely used NDT techniques is ultrasonic testing. Particularly in pipes with wall thicknesses exceeding 10 mm, this method demonstrates excellent performance in detecting internal and external flaws, corrosion, and delamination.

The testing process involves transmitting high-frequency ultrasonic waves into the pipe wall using a dedicated probe.

These waves reflect off the inner surfaces and are received back by the same probe.

The reflected signals are converted into electrical pulses and transmitted to the **ultrasonic pipe inspection equipment**. Once received, these signals are processed, filtered, and amplified to generate interpretable waveforms on the display.

By calculating the time intervals between pulse reflections and using the known speed of sound in the material, the system determines the exact wall thickness of the pipe.



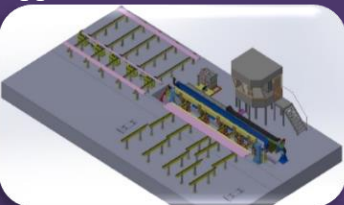
Advanced Features, Software, and System Expandability

To increase testing throughput (up to one pipe per minute), the system is upgradeable to a dual-head configuration with 64 channels.

This enhancement allows for simultaneous inspection of both halves of a 12-meter pipe, dramatically increasing productivity without compromising inspection resolution.

The integrated software platform supports real-time visualization of 32 A-Scan and 32 Strip Chart channels simultaneously. Each test result is stored individually in PDF format and can be extracted via USB, CD, or exported to factory-wide data networks for comprehensive quality documentation.

This intelligent ultrasonic pipe inspection equipment not only ensures superior accuracy but also delivers unmatched reliability for critical seamless pipe applications.



Pejvak Rayan, a leading knowledge-based company in Iran, specializes in designing and manufacturing high-performance **ultrasonic pipe inspection equipment**. With a deep understanding of the challenges faced in critical industries, the company has developed a fully automated **seamless pipe ultrasonic system** dedicated to offline full-body inspection of seamless steel pipes.

This **pipe inspection system** offers exceptional precision in flaw detection and thickness measurement, ensuring compliance with stringent quality standards. The system architecture includes multiple ultrasonic channels configured specifically to detect various internal and external anomalies across the entire surface area of the pipe.

Overview of the Seamless Pipe Ultrasonic Inspection System – FLAW HUNTER SLP 9503

The FLAW HUNTER SLP 9503 is a fully automated, multi-channel **pipe inspection system** engineered to perform high-resolution inspection, flaw detection, and wall thickness measurement of seamless steel pipes. Developed in alignment with global standards such as API 5L, API 5CT, IPS, and IGS, this **seamless pipe ultrasonic system** guarantees full-body coverage either in offline mode or integrated within production lines.

It can detect a wide range of standard reference defects, including 1.6 mm diameter through-holes, 6 mm FBH (Flat Bottom Hole) to 50% of wall thickness, and multiple longitudinal and transverse notches (N5, N10, N12.5) on both inner

and outer surfaces of the pipe. Probes are mounted on carrier arms that traverse along a 13-meter boom, driven by a precision encoder. Simultaneously, the pipe rotates to allow spiral scanning, ensuring 100% body coverage.

Channel Configuration and Inspection Capabilities

The FLAW HUNTER SLP 9503 features an optimized arrangement of ultrasonic channels as follows:

-8 Channels for Wall Thickness Measurement:

These channels utilize pulse-echo techniques to measure pipe wall thickness at various positions along its length with exceptional accuracy.

-12 Channels for Longitudinal Flaw Detection:

Probes in this group are arranged in two opposing sets of six, angled to emit ultrasonic waves in both clockwise and counter-clockwise directions. This enables the system to detect longitudinal cracks, lack of fusion, and other discontinuities on both inner and outer pipe surfaces.

-12 Channels for Transverse Flaw Detection:

Similarly, these are configured in two opposing arrays of six probes each. They transmit ultrasonic waves in directions parallel to the pipe axis, effectively identifying transverse cracks, lamination defects, and other perpendicular discontinuities.

Due to surface roughness caused by hot rolling and heat treatment processes, seamless pipes often exhibit inconsistent coupling conditions. Therefore, the system employs a **water column technique** to ensure uniform acoustic transmission and enhanced signal clarity during inspection.



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**



Technical Specifications – FLAW HUNTER SLP 9503

No	Specification	Values
1	Function	Full-body flaw detection and wall thickness measurement for seamless pipes
2	Pipe Diameter Range	2" to 24"
3	Wall Thickness Range	3 mm to 40 mm
4	Test Speed	Single-head (32 channels): one 12-meter pipe every 100 seconds Dual-head (64 channels): one 12-meter pipe every 55 seconds
5	Testing Standards	API 5L, API 5CT, IGS, IPS
6	Reference Defects	As per API 5L, API 5CT, IGS, and IPS standards
7	Detectable Flaws	Internal/external longitudinal & transverse cracks, lamination, voids, and wall thinning
8	Number of Channels	Configurable from 10 to 64 channels based on user requirements
9	Alarm System	Audio, visual, and paint marker for defect indication
10	Probes	5 MHz frequency, dimensions tailored to pipe sizes
11	Calibration & Storage	Supports calibration data storage and recall of multiple setups
12	Data Recording	All inspection data logged per pipe and exportable via USB or CD

