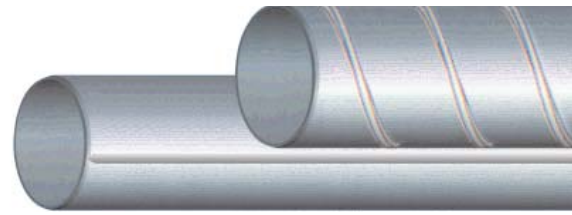


AUTOMATED ULTRASONIC INSPECTION SYSTEMS FOR WELDED PIPES

(H-SAW,L-SAW ,ERW)

Adding Value To
Your Product.....



INTRODUCTION

Today pipes are being used in severe conditions and customer quality requirements are becoming more stringent. Of these, the defect detection of weld seam and body are the most important component of quality assurance as per the test standards.

In order to ensure good quality control during the stages of manufacturing and the subsequent customer acceptance, it has been necessary to deploy ultrasonic testing systems for the inspection of pipes.

Enrico Technologies provides automated ultrasonic pipe inspection systems with reliability, repeatability and full data acquisition in accordance with API, ASTM specification (such other standards)

DESCRIPTION

Enrico Technologies provides both online and offline automated ultrasonic inspection systems with the below listed details:

⇔ System Mechanical and Automation:



Test mechanics majorly consist of height adjustable frames, rotary table, profile-based probe carriage, probe holders, probes, water supply unit and spray marking guns.

Body lamination mechanics consist of probes arranged in rows to achieve test by stationary method. The coupling between probes and pipe surface is supplied by water gap.

Test Electrical majorly consist of pneumatics, servomotors, I/O devices and electrical panel along with HMI, PLCs, Drives etc.

Test cycles are completely automated such as auto centering of pipe, raising/lowering of probes during entry/exit of pipes, auto weld tracking, auto home positioning before start of new test. HMI are used to display the cycle stages and seam tracking, diagnose cycle fault and to set/save/recall the adjustment functions.

Auto weld seam tracking is achieved by using opto lasers to detect the actual position of the weld. The opto lasers are interfaced via micro multiprocessor boards for high-speed data transmission to the servos to provide automatic control of the probe carriage with reference to the weld seam drift.



ET ENRICO TECHNOLOGIES

Sales and Mailing Address: New Samitha Commercial CHS, Bldg. No.:A-B 13, Gala No.:13, A.K. Road
Near Safaid Pool Tel. Exchange, Saki Naka, Andheri (E), Mumbai - 400072, India

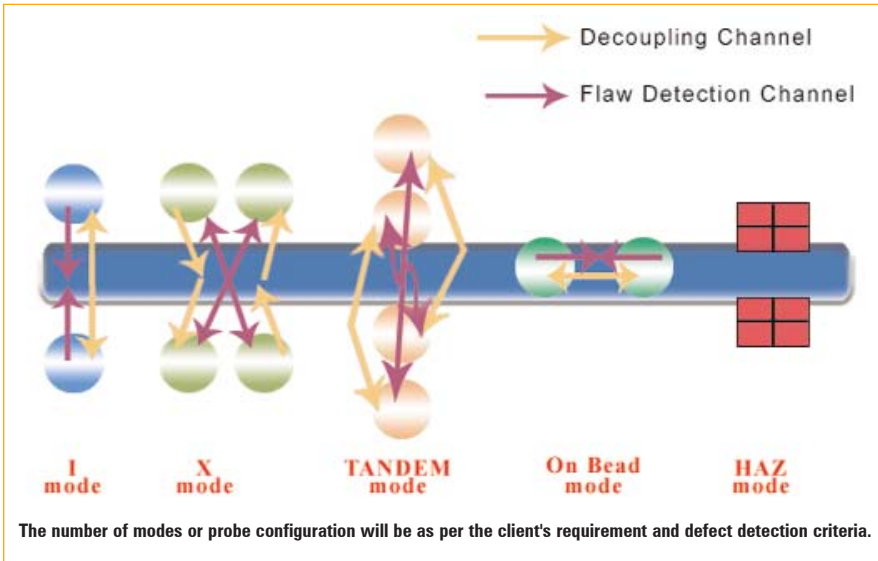
Ph: +91 22 40264048, Fax: +91 22 40264047, E-mail: info@enicotechnologies.in, Website: www.enricotechnologies.in

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DESCRIPTION

↔ Defect Detection Scope:



Longitudinal Weld Defect :

Two angle beam probes facing each other operate in pulse-echo mode for defect detection and in a through-transmission mode for continuous coupling and performance check of the probes. (I mode)



Angle Probe

Transverse Weld Defect :

Two angle beam probes operate in through-transmission mode. In the possibility of a defect, the sound beam is reflected from there and received by the second probe facing the first one (X mode). On bead arrangement can also be provided as per the client requirement (On bead mode).



On Bead probe with holder

Radial Defect :

Tandem technique is used for the characterization of vertical / planar / radial type defects in high thickness pipes. Two-angle beam probe are placed in the row and focusing on the expected area. In the possibility of a defect, the loss of through transmission echoes will indicate defect. (Tandem mode)

H.A.Z. Area Defect :

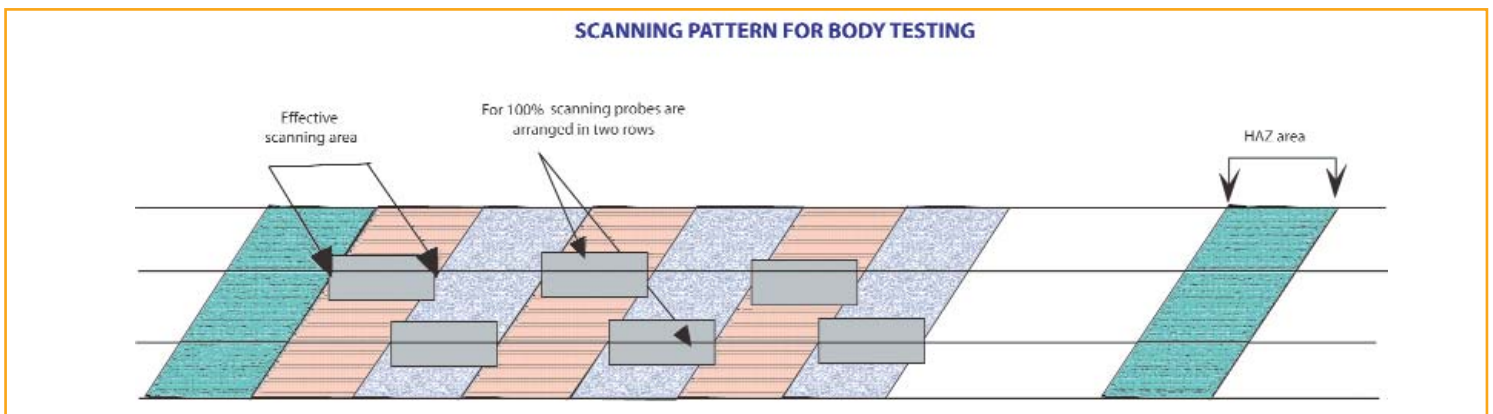
Laminar defects in Heat Affected Zone are detected by straight beam dual crystal probes. The probes operate in pulse-echo mode. The test is performed by means of evaluation between interface echo and first back wall echo. (HAZ mode).



Multi Crystal probe

Body Lamination defect :

Multicrystal TR probes are used in pulse-echo mode for pipes to be inspected for laminations in base metal. Lamination can be detected by evaluation gate to be positioned between interface echo and first backwall echo.



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