

Introduction

Inspection for wall loss at pipe and vessel supports is complicated due to limited access. Indirect techniques are required which position sensors away from the area of interest. Corrosion morphology and pipe geometry can produce very complex transmission paths and attenuation at different angles. Conventional ultrasonic techniques rely on data from only a single angle and may require highly skilled data analysis.

The PA-CATTM phased array technique developed by Holloway NDT & Engineering Inc. is an attenuation-based modelling algorithm used to evaluate the minimum remaining wall thickness at pipe or vessel supports. The Veo3 instrument is fully capable “in the box” to easily generate phased array pitch catch focal laws for two separate transducers at the touch of a button. On board the instrument the multi-skip data can be quickly output and analysed online via www.pa-cat.ca to calculate the “river bottom” plot along the scan length. The PACATTM modelling algorithm has been developed through extensive testing of realistic corrosion based on laser scans of actual touch point corrosion.

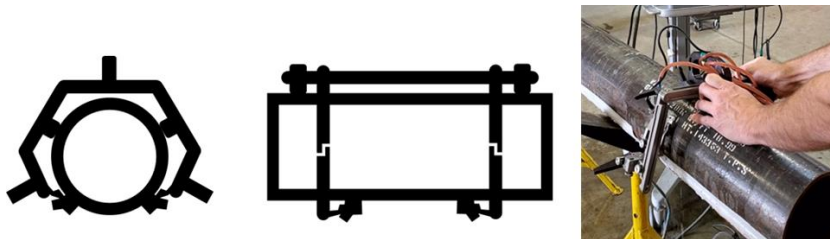


Figure 1 – PA-CAT axial and circumferential scan configurations

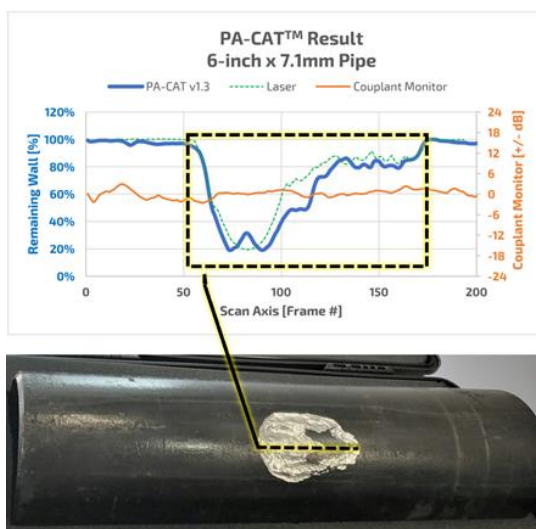


Figure 2 – PA-CAT results compared to 3D laser scanner and Jireh scanner

Industries

- Chemical & Petrochemical Sector
- Oil & Gas Sector
- Nuclear Energy Sector
- Construction and Infrastructure
- NDT Service Providers

Application

- Corrosion / Thickness measurement
- Storage Vessel Inspection
- Asset integrity

Typical Parts

- Pipeline support locations
- Vessel support areas
- Corrosion blisters

Inspection Techniques

- Phased Array S-Scan

Features and Benefits

- The Veo3 completely controls the sectorial pitch-catch scan and the two probe coupling checks
- Powerful electronics provides clean multi-skip results over long sound paths
- Comprehensive profile data over an unreachable section of the pipe



For further information or support, please contact the Sonatest Applications Team: applications@sonatest.com

Recommended Tool Package

Category	Part #	Description
Acquisition Unit	Ve03 UT BNC KIT or Ve03 UT LEMO KIT	Ve03 32:64 BNC or LEMO Note: 32 PR element is required
Probe	2x X2B-001 or 2x D1A-002	X2B-5M32E-0.6x10-SQX2.5 or D1A-5M32E-0.8x12
Splitter	ADAP-005 (if X2B' s) or D1-CABLE-003 (if D1A' s)	PA-Splitter- IX64 to IX32:32 or D1-CABLE-D-QX2
Wedges	X2BW-003 or D1AW-004	N60S Wedges kit (ask contouring in regards of the pipe sizes)
Scanner	BGG017-AD-02 (Jireh part number)	4 inches Diameter and up (10.2 cm) NOTE: Alternatively Stix or Jireh Rotix capable of holding two probes in pitch catch orientation

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