

Introduction

Long seam welds can be found in pipelines and other structures such as fume towers, storage vessels etc. Inspection of these welds can be difficult as the curved OD and ID surfaces reflect ultrasonic beams differently depending on the angle of incidence, if this is not accounted for, the results can be positioned incorrectly in the weld and out of sensitivity due to the spreading effect of the curved surface reflections.

The VEO3 uses specialised “Curved surface correction” software to ensure there is adequate sensitivity at the region of interest and that the resulting indications are plotted correctly on the S-Scan.



Figure 1 – long seam weld semi automated scan setup

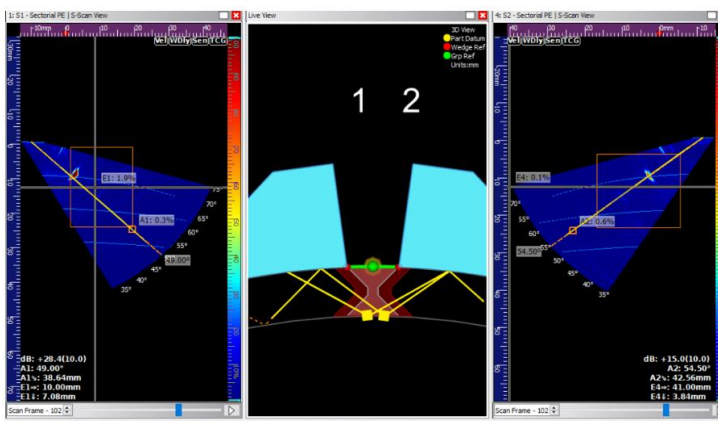


Figure 2 – curved surface S-Scan and 3D corrected view

Single Sided Manual Inspection

Manual inspection of seam welds can be carried out with a single probe setup, either timed scanning or with an encoder

Industries

- Chemical & Petrochemical Sector
- Oil & Gas Sector
- Nuclear Energy Sector
- Wind Power Renewables Sector
- Mining Sector
- Construction and Infrastructure
- NDT Service Providers

Application

- Weld Inspection
- Storage Vessel Inspection
- Asset integrity
- Flaw Detection and Evaluation

Typical Parts

- Seam welded pipelines
- Cylindrical Storage vessel vertical weld
- Wind turbine tower vertical welds

Inspection Techniques

- Phased Array S-Scan (with CSC)

Features and Benefits

- Corrected A-Scan view including a true depth ruler
- Full 3D view rendering
- Sectorial scan with integrated pipe overlay
- Cost efficient detachable probes and cables
- Constant resolution focusing with curved surface correction for optimising the number of beams in the region of interest

For a comprehensive package for carrying out manual PA inspection see Package 1 at the end of this document.




Single / Dual sided Semi Automated Inspection

Semi automated scanning can be carried out utilising scanners to position and guide the PA transducers for the full weld inspection. This has the advantage of maintaining a constant probe standoff, fully encoding the scan for accurate defect measurement, and also allows for the use of multiple probe setups to be used simultaneously for quicker inspections.


For a comprehensive semi automated inspection package see package 2 at the end of this document.

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

Recommended Tool Package 1 (single sided manual inspection)

Category	Part #	Description
Acquisition Unit	VEO3 32:64 PA Acquisition unit with curved surface correction software	
Probe	D1A series probes available in 2.25MHz, 5MHz and 7.5MHz variants.	
Wedges	D1BW Series	Wedge choices with contouring compatible with the test surface curvature
Cable	D1-CABLE-001	D1-CABLE-S-QX2-2 meters
Encoder	AXYS Encoder	

Recommended Tool Package 2 (Semi Automated DLA Inspection)

Category	Part #	Description
Acquisition Unit	VEO3 32:64 PA Acquisition unit with curved surface correction software	
Probe	D1B Series (x 2) Available in 2.25MHz, 5MHz and 7.5MHz versions	
Wedges	D1BW series (x2)	Wedge choices with contouring compatible with the test surface curvature
Cable	D1-CABLE-003	D1-CABLE-D-QX2 (Dual cable) - 2 meters
Adapter	ADAP-006	64:64 IPEX Splitter
Scanner	JX-1001 Or PX-MULTIMAG-2-VEO	Jireh; 2 Probe PA/TOFD Scanner or Phoenix; VEO Multi Mag 2 (PA/TOFD) Scanner including tubes and fitting)
Irrigation Kit	JX-1003 and JXCMA014 Or 196102	Jireh; Irrigation kit and 7.9 litre (2.1 US gallon) portable manual couplant pump or Phoenix; 7Lt Portable Hand Spray Kit

Get in touch with your local Sonatest expert, available in more than 50 countries over 5 continents!



Sonatest (Head Office)
Dickens Road, Old
Wolverton Milton Keynes,
MK12 5QQ t: +44 (0)1908
316345 e:
sales@sonatest.com
Sonatest

(North America)
12775 Cogburn, San Antonio Texas,
78249
t: +1 (210) 697-0335 e:
sales@sonatestinc.com