

Short Range Guided Wave (SRUT GW) Inspection using Wedged Matrix Array Probes



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Item Inspection SW Application for ISONIC 2009 UPA Modality: 3D-SCAN S - Shear / Surface / Guide Wedged Matrix Array Probes / Dual Linear Arr ⇒ Wedged Matrix Array Probes - 3D-Scan and Sector 3D-Control of Ultrasonic Beam Vertical Plane Focusing with True-To-Geometry-Volu 3D Imaging (3D-Scan) of the Material from Single Probe Posi → True-To-Geometry Weld Overlay Volume Corrected (3D-Scan) from Single Probe Position → True-To-Geometry Volume Corrected Sector-Scan (Objects (Plates, Pipe Wall in Longitudinal Direction, etc) Sector-Scan Cross Sectional Coverage Intuitive Image Guided PA Pulser Receiver with 3D DAC / TCG Normalization Independent on TCG Angle Gain Compensation / Ga Encoded and Time based C-Scan 100% Raw Data Capturing \rightarrow Automatic Defects Alarming Upon C-Scan Acquisitio \rightarrow Automatic Creation of Editable Defects List \rightarrow \rightarrow Comprehensive Postrpocessing Including: Recovery and Evaluation of Captured A-Scans fro (Sector Scan / B-Scan) and C-Scans Recovery of Cross Sectional Views from the Reco \triangleright Converting Recorded C-Scans or their Segments \triangleright Off-Line Gain Manipulation Off-Line DAC Normalization of the Recorded Imag \triangleright Numerous Filtering / Reject Options (by Geometry \triangleright Defects Sizing Creation of Defect List and Storing it Into a Separa \triangleright Automatic creating of inspection reports - hard cop ⇒ Wedged Matrix Array Probes - Lateral Sector Scan Waves 3D-Control of Ultrasonic Beam Horizontal Plane CB-Scan Coverage and Imaging wi \rightarrow Waves using Linear Arrays Situated Horizontally on the Fixed → Azimuth C-Scan Coverage Intuitive Image Guided PA Pulser Receiver with 3D DAC / TCG Normalization Independent on TCG Angle Gain Compensation / Ga \rightarrow \rightarrow 100% Raw Data Capturing Comprehensive Postrpocessing Including: Recovery and Evaluation of Captured A-Scans fro Off-Line Gain Manipulation \triangleright \triangleright Off-Line DAC Normalization of the Recorded Imag Numerous Filtering / Reject Options (by Geometry \triangleright Defects Sizing Automatic creating of inspection reports - hard cop ⇒ Dual Linear Array Probes → True-To-Geometry Weld Overlay Volume Corrected Scan)- / Side- / End- View and 3D Sector-Scan Cross Sectional Coverage

- Intuitive Image Guided PA Pulser Receiver with 3D
- DAC / TCG Normalization
- Built-In Weld Bevel Editor and Ray Tracer Scannin
- Independent on TCG Angle Gain Compensation / Ga
- Automatic Coupling Monitor \rightarrow
- Encoded and Time based C-Scan \rightarrow
- 100% Raw Data Capturing \rightarrow
- Automatic Defects Alarming Upon C-Scan Acquisitio \rightarrow
- Automatic Creation of Editable Defects List \rightarrow
- Comprehensive Postrpocessing Including: \rightarrow
- Recovery and Evaluation of Captured A-Scans fro (Sector Scan) and C-Scans
 - Recovery of Cross Sectional Views from the Reco \triangleright
 - Converting Recorded C-Scans or their Segments \triangleright
 - \triangleright Off-Line Gain Manipulation
 - Off-Line DAC Normalization of the Recorded Imag \triangleright \triangleright
 - Numerous Filtering / Reject Options (by Geometr
- etc) \triangleright Defects Sizing
 - Creation of Defect List and Storing it Into a Separa \triangleright \triangleright
 - Automatic creating of inspection reports hard cop



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Sound Path

< Threshold

-180

RSD

< Threshold

-90

Depth

< Threshold

Amplitude

> 130%

 \rightarrow \rightarrow \rightarrow \rightarrow

etc)

 \rightarrow

etc)

 \rightarrow

270

Angle

10.0°

180

VC(A)

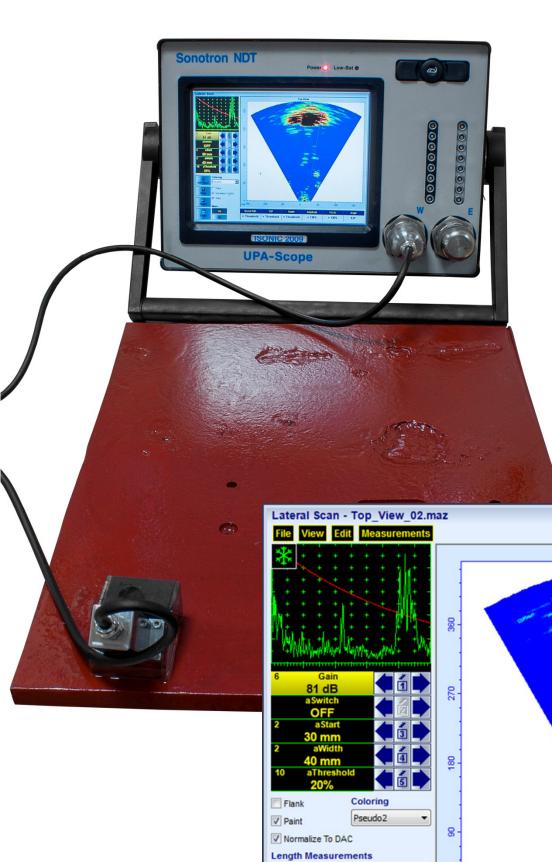
> 130%

with 100% raw data capturing

SRUT Guided Wave Inspection with use of wedged Matrix Array Probe – the sample of the annular ring with the artificial defects and real corrosion

The 8X8 wedged matrix array probe is connected to ISONIC 2009 UPA scope while the emitting / receiving aperture comprises all 64 elements allowing 3D manipulating of ultrasonic beams. This allows both: finding of the mode of the guided wave, which is optimal for the part under test and the sectorial scan coverage and CB-Scan-type top view imaging on the material

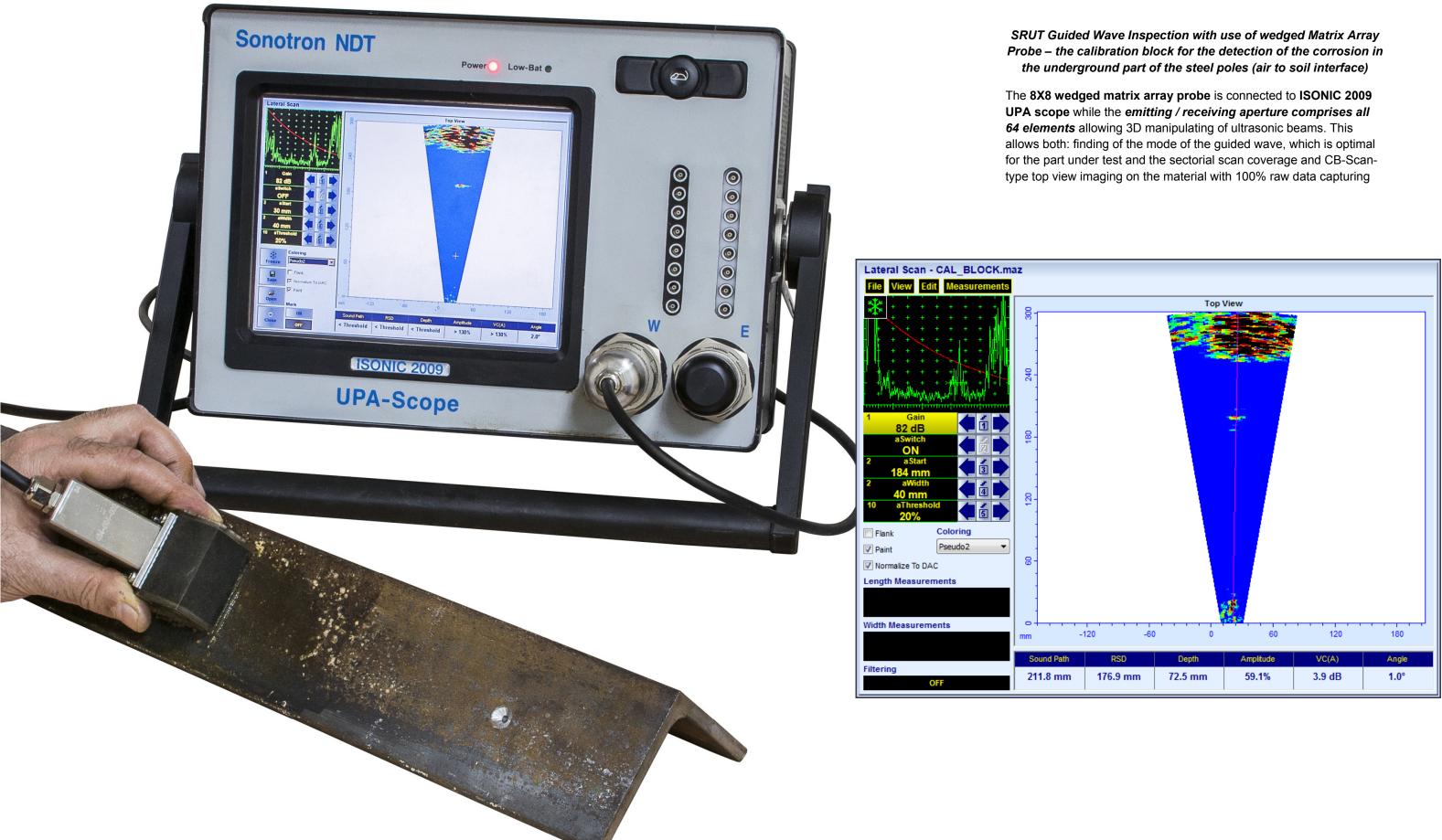
Top View



Width Measurements

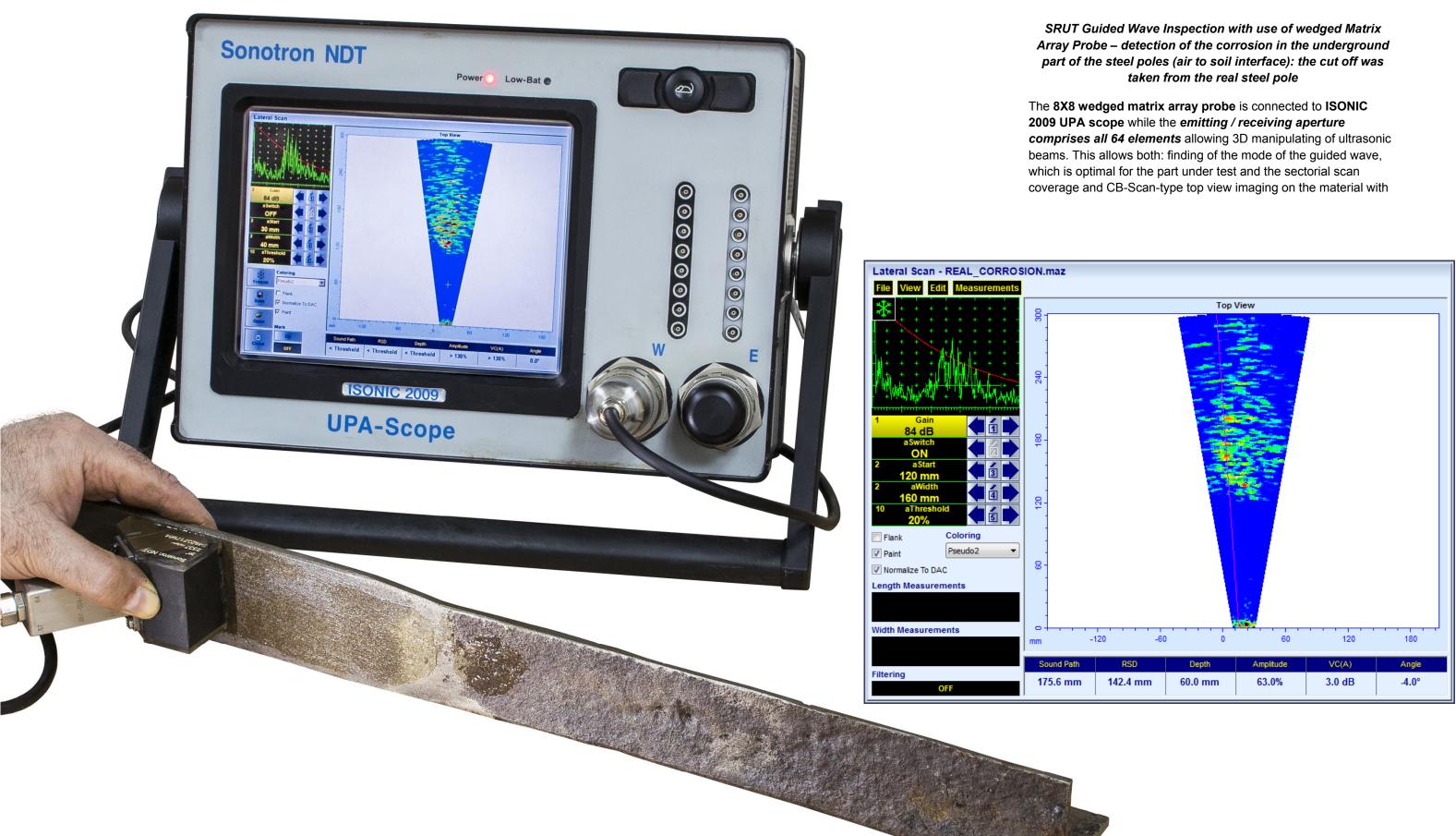
Filtering

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