



**BUREAU
VERITAS**

ULTRASONIC C-SCAN FLAW MAPPING

Accurate sizing and dimensioning of corrosion, erosion and internal flaws by C-Scan topographic imaging

BUSINESS CHALLENGE

Accurate assessment of corrosion and/or erosion, and subsequent remnant life determination, is critical for the management of process vessels and piping.

Manual thickness mapping techniques generally have limited resolution and the presentation of thickness values can be difficult to interpret. The identification of the geometry of hidden internal features can be important inspection criteria.

Additionally, radiographic inspection of internal flaws does not provide enough depth of information. Ultrasonic C-Scan Flaw Mapping combats this issue.

SOLUTION

Automated C-Scan Flaw Mapping

The test area is fully scanned with an ultrasonic transducer. A video camera tracking the transducer, or an X-Y encoder is used to plot the movement of the transducer.

The ultrasonic signals from the geometric features and any flaws that may occur are recorded with each movement of the transducer.

Signal processing is used to convert this information into a coloured image similar to that shown below. The various colours of the image represent a range of thickness values resulting in a topographic map of the test item.

The signals, processed image, calibration parameters and other relevant information are stored electronically and can be recalled whenever required.

WHY CHOOSE BUREAU VERITAS?

Recognition Founded in 1828, Bureau Veritas is a world leader specialising in conformity assessment services related to Quality, Health, Safety & Environment (QHSE). Certified to ISO 9001 for all of its activities globally, Bureau Veritas is well known for its ability to adapt to changing client environments and situations and for its commitment to providing leading solutions through quality service.

Knowledge & Expertise Through expert local teams and technical knowledge, Bureau Veritas are able to deliver packaged and targeted solutions and information, to support our clients' unique business requirements.

Network With a network of 900 locations, and over 40,000 employees in more than 140 countries, Bureau Veritas provides solutions to over 370,000 clients throughout the world across a diverse range of industries.



OUR APPROACH

Bureau Veritas is committed to discovering the best technology solutions to meet inspection requirements.

The relative benefits of available inspection methods, in terms of plant safety, reliability and maintenance costs, will be discussed with clients.

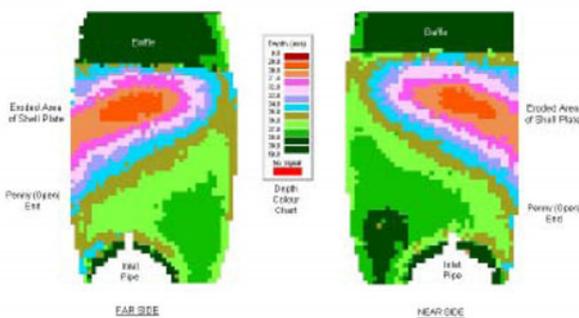
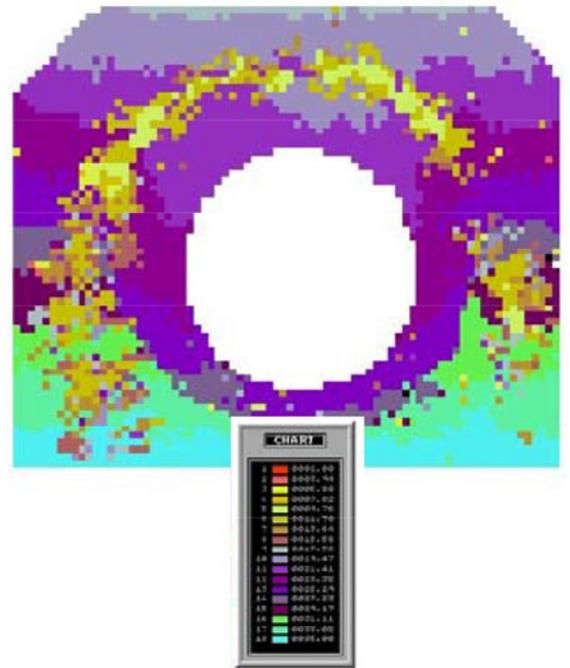
FAQ – FREQUENTLY ASKED QUESTIONS

Does automated ultrasonic flaw mapping take longer to perform than manual thickness mapping techniques?

Yes, however the additional time and cost is justified in certain critical applications where more detailed information on the condition of the asset is important.

Does manual thickness testing still have a place?

Yes. Not all inspection tasks require such exacting data acquisition.



LIQUOR HEATER FLAW MAPPING IMAGES

CASE STUDY

Bureau Veritas AIRS staff performed automated ultrasonic flaw mapping on a heat exchanger shell in order to better understand erosion wear results obtained from manual thickness mapping, conducted on a grid style pattern.

The resulting C-Scan image of the eroded area clearly indicated a wear pattern associated with the location and geometry of an internal baffle.

This information was used to re engineer the internal baffle to reduce the incidence of erosion.

CONTACT

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