Automated Ultrasonic

Corrosion Mapping

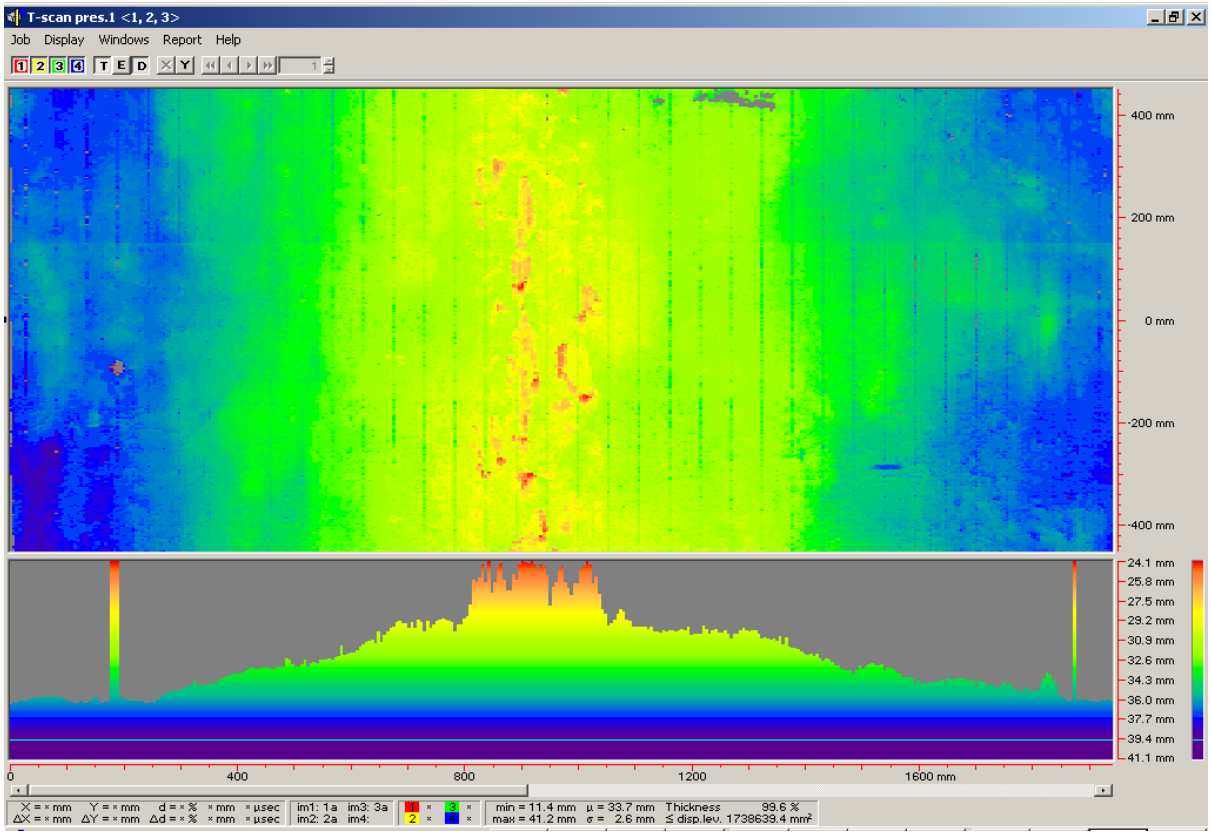
Corrosion mapping
Automated ultrasonic corrosion mapping is used where the demand for quality, documentation, and repeatability of the inspection is high. Typical applications are e.g. storage tanks, pressure vessels and piping. The automated solution is viable at areas where access is difficult and scaffolding expensive.

FORCE Technology uses the P-scan system for corrosion mapping. The P-scan system is a portable computerised ultrasonic inspection system developed by FORCE Technology. The P-scan system comes with a wide range of scanners including multi-purpose and special purpose scanners to match specific job requirements. Most scanners are remote controlled magnetic wheel scanners.

Applications
Typical applications of automated ultrasonic corrosion mapping:

- **Storage tanks.** Inspections are carried out at areas selected by the applicable standard, EEMUA 159 or equivalent. The mapping can be carried out in vertical or horizontal paths as required. This method can reveal pitting, general corrosion, or areas with severe corrosion attacks.
- **Pressure vessels.** Inspections can be carried out in bottom area, and other areas suspectible to corrosion.
- **Pipes and pipe bends.** Pipes and pipe bends can be inspected 100% or partially.
- **Reactors.** T-scan on reactors makes it possible to verify the integrity of the interior lining/ insulation. Primarily used on areas close to penetrations.
- **Key areas.** Ultrasonic inspection is used for repeated monitoring of key areas.

Corrosion mapping is normally used to estimate corrosion rates. The inspection is carried out at regular intervals on piping, pressure vessels, risers, and other critical components.



Corrosion mapping of 24" pipe with heavy corrosion in bottom area

Documentation

The P-scan system offers a unique visualisation of the inspection results. The printouts are colour coded and include top, side, and end views of the inspected volume. The data from the inspection can be exported, and further analysed in a purpose designed spreadsheet. The results can be stored in Inspection Manager® for easy retrival and comparison.

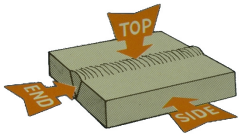
Personnel

The ultrasonic inspection is performed by highly trained and experienced personnel. Key personnel are certified to level 2 in the EN 473/NORDTEST, or equivalent certification schemes.

Related services

FORCE Technology offers the following related services with the P-scan system:

- **P-scan weld inspection**, using the conventional ultrasonic pulse-echo technique, through transmission technique, Time of Flight Diffraction (TOFD), A-scan collection or EMAT technique.



- **Visual inspection.** The P-scan system can be fitted with various video cameras and lights in order to perform e.g. a visual inspection of interior or exterior welds on a spherical tank.
- **Eddy Current.** The P-scan system can be fittted with Eddy Current probes for e.g. crack detection at welds.

FORCE Technology Department of Advanced NDE Services

The Department of Advanced NDE Services is set up for world-wide operation using mainly automated inspection techniques based on the ultrasonic, eddy current, and visual inspection methods. The main areas of operation are nuclear and conventional power industry, space industry, petroleum and offshore industry, chemical and petrochemical industry, and fertilizer industry.

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