TANK IN-SERVICE CLEANING & INSPECTION
SOLUTIONS (TICIS)

- Tank In-Service Inspection
- Cleaning Robots
- Sludge Oil Recovery
- Sludge Profiling

TANK IN-SERVICE CLEANING & INSPECTION SOLUTIONS (TICIS)

TICIS eliminates the risks of man entry, offering **safer**, more **cost-effective and accurate results and benefits**, while maintaining the storage tank's integrity and international regulatory compliances. It comprises tanks assessment and desludging using robotics.

TANK IN-SERVICE INSPECTION & CLEANING ROBOTS

FTI's In-Service Tank Inspection offers **SONAR** scan along a pre-planned path to perform a quantifiable Ultrasonic (UT) Inspection of the tank, in compliance with API 653 via the following methods.

FranScan was created for imaging, and SIZING of pitting corrosion under the fillet weld and up to 100 mm inside the storage tanks with full discrimination between Product and Soil Side Corrosion.
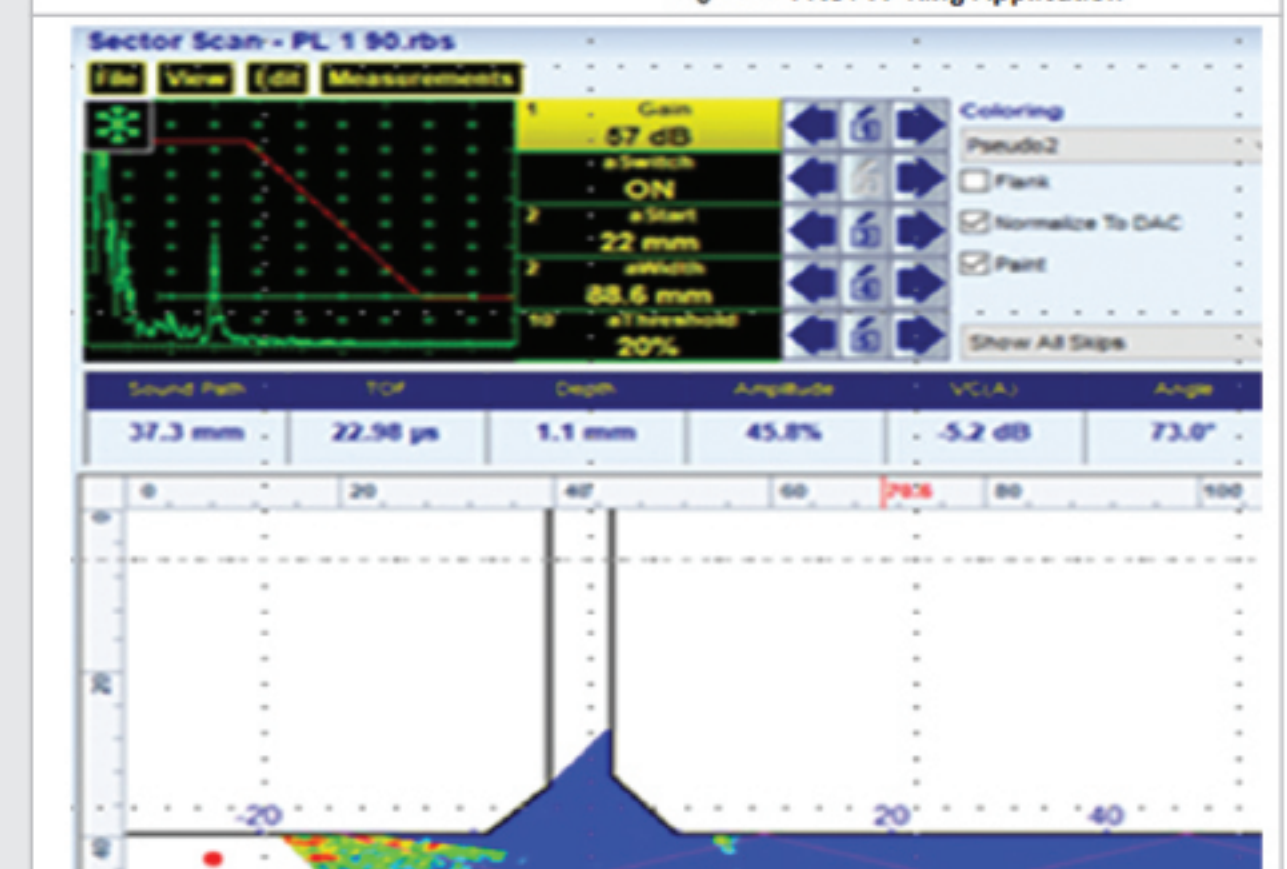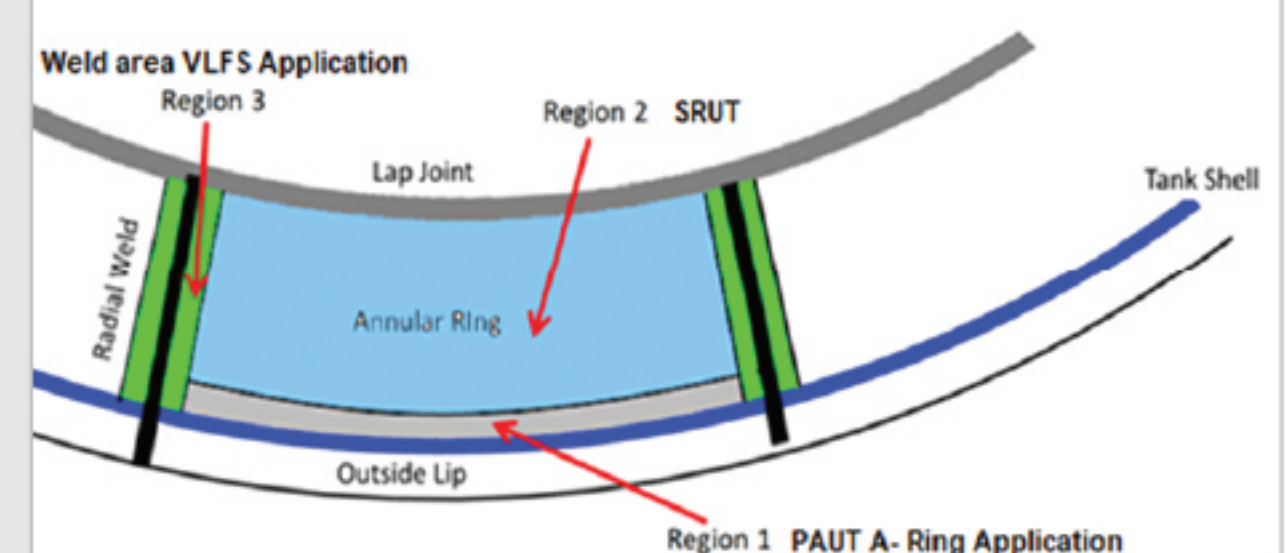
FranScan

• Tank Floor Annular Plate Testing

• Testing Concrete Coated Interfaces

• Testing Corrosion under Pipe Supports

• Scan Under Vessel Saddles

The combination of **Short Range Guided Wave UT (SRUT)** and **Phased Array UT (PAUT)** allows quantification of material loss to within 1.5mm accuracy from outside of the tank. Hence, overcoming the dead-zone restriction of SRUT.

- The annular plate can be screened up to 1000 mm with SRUT.
- With the addition of Annular Ring (A-Ring) application, detection and quantitative measurements can also cover the critical zone up to 100mm from the inner shell wall.

In collaboration with FTI

Flow Technology International™

Franscan for Critical Zone Inspection

*ATEX Robot For Low Sludge Applications*

- Complimented with other phased array applications, the quantitative measurements up to 200mm is achievable.

Underwater drone/ mini ROV is used for the visual inspection of **Fire Water** tank on the inner tank shell wall and bottom plate, to detect general wall loss, sediment levels, visible cracks, erosion, or any other visible anomaly.

The inspection results are analysed and reported with **HOIS Statistical Analysis** following API 653 standard, to predict the minimum thickness of the tank floor area, and the calculations of **Fitness-For-Service** and **Remaining Useful Life Assessment**, as well as the recommended inspection frequency.
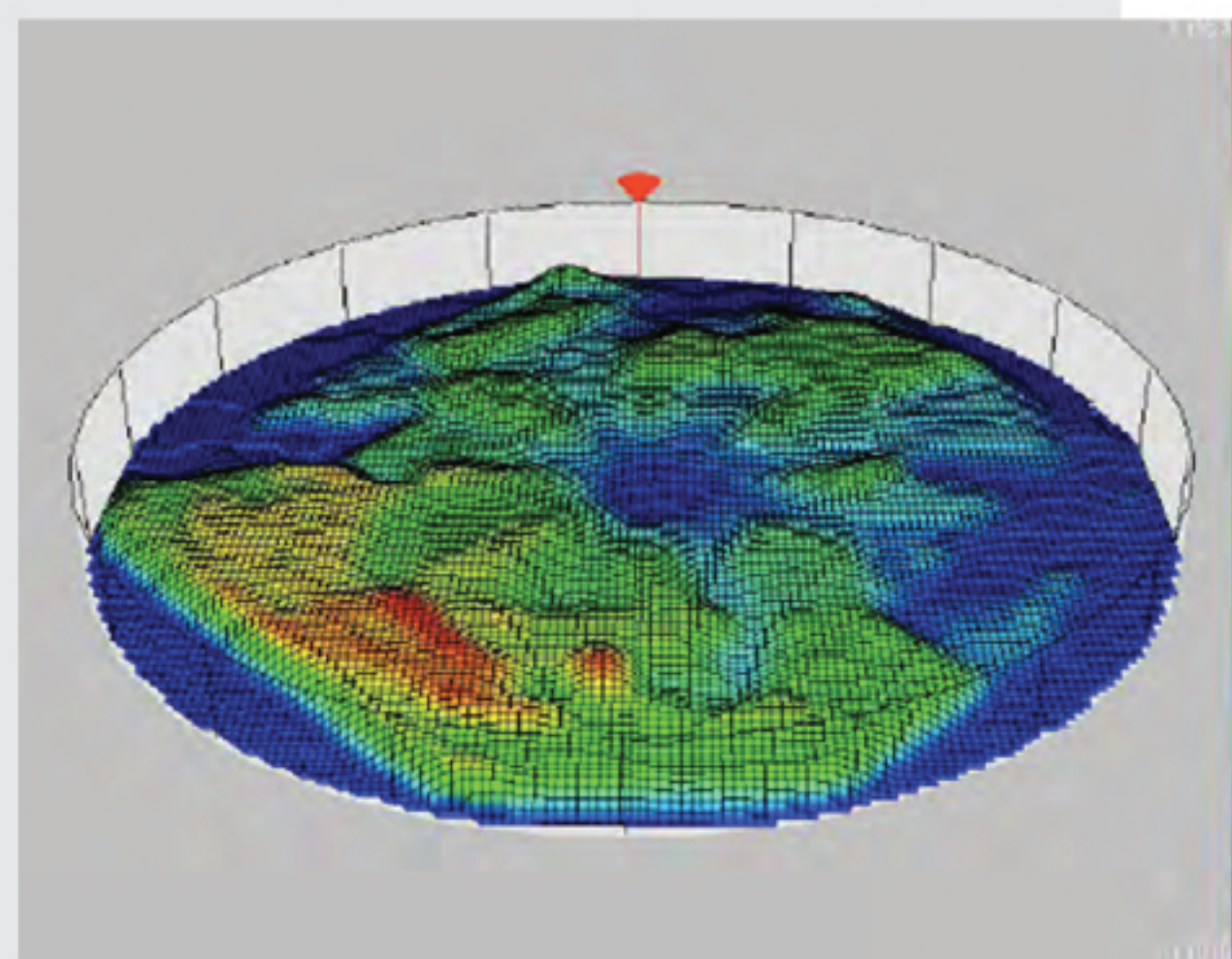

Class 2 Fuel And Non-volatile Tanks
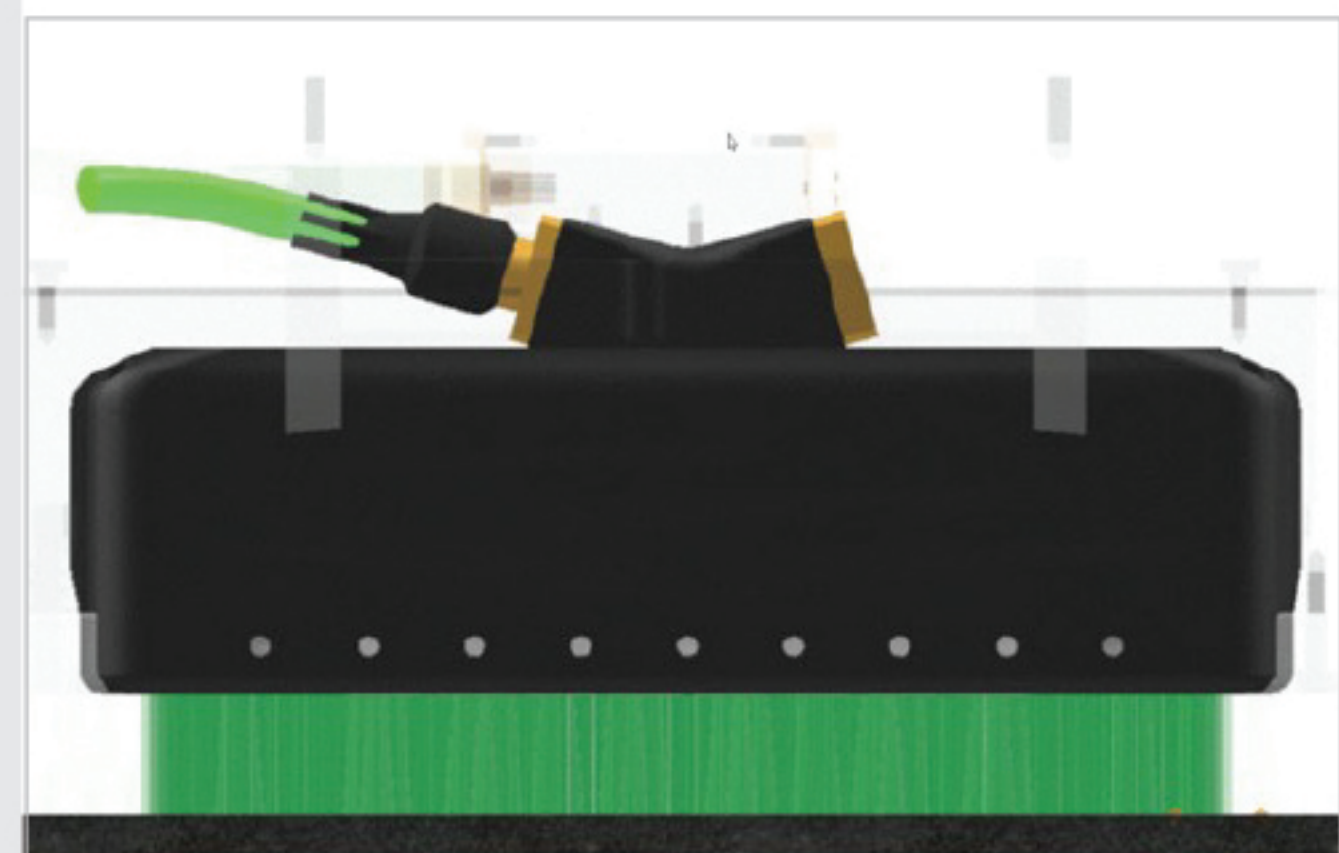
Ultrasonic (UT) Probe Types

SLUDGE PROFILING

In collaboration with FTI
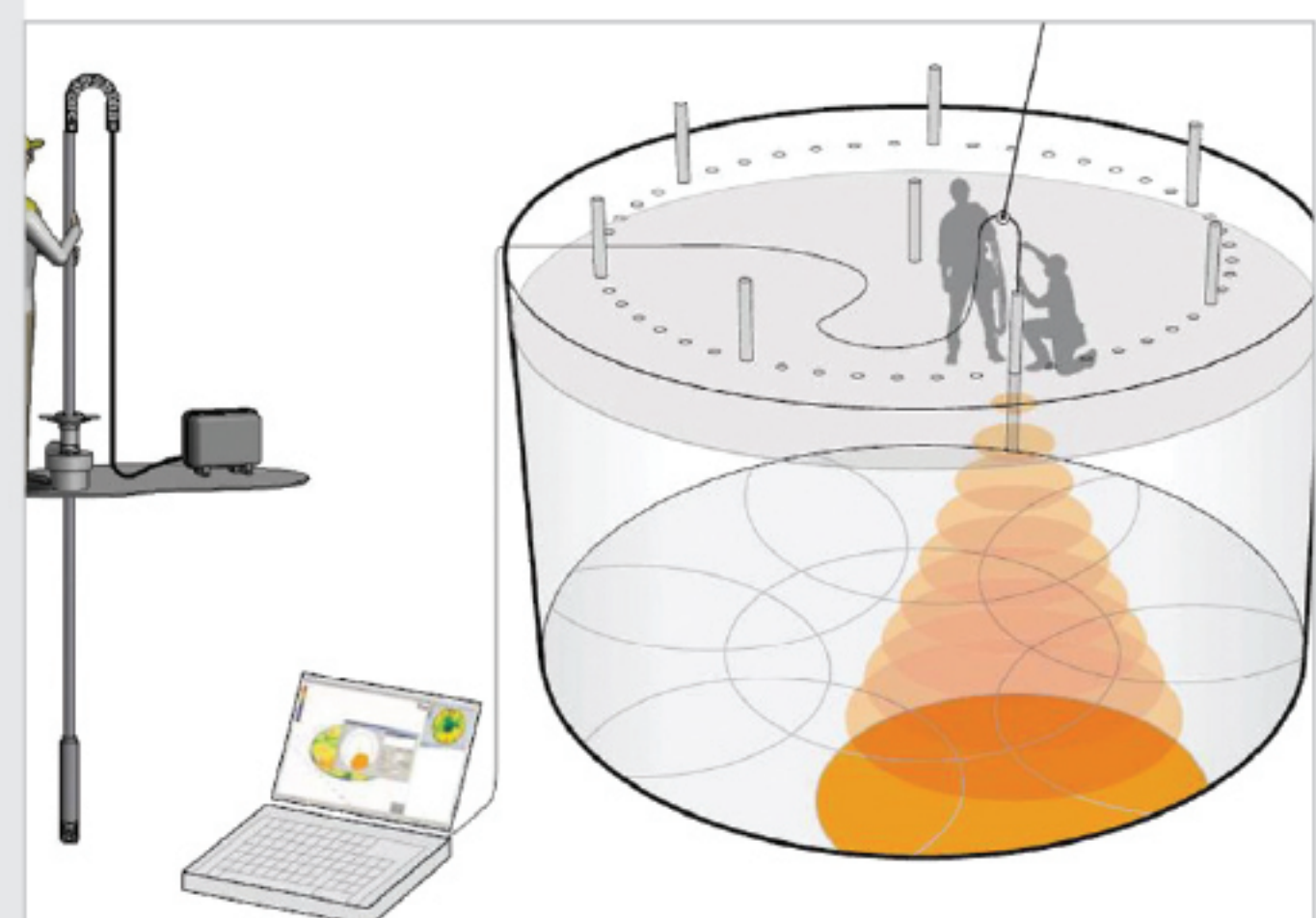
Flow Technology International™

A quick 3-Dimensional Sludge Profiling Technique to precisely measure and calculate the total volume of sludge within a tank is also made possible via Acoustic Sensor, an ATEX rated tool that is inserted into the stored product through a man way, roof leg support or other suitable opening (>90mm) on the tank roof. It precisely measures and provides volumetric visualization of the sludge within the tank.

- Precise to within 5 Percent
- 3D Imaging Provided
- Extremely Quick (1 day)

Sludge profiling tool and illustration on Acoustic Sensor submerged

3D image of the sludge distribution

BIO-SOLV

ECT's Bio-Solv is a water-based and biodegradable surfactant, used as a sludge treatment solution to break down the hard sludge into liquid which can be pumped out by robotic crawlers for subsequent sludge oil recovery, allowing for revenue generation, as opposed to costly sludge discharge.

Biosolve Sludge Treatment - Liquifies Hard Sludge

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