

APC Tank Wall Inspection

Several tank failures with serious environmental and economic impacts generated new industry standards and regulations. These new standards and regulations call for tank integrity management and inspection programs. The measurement of tank wall thickness to ascertain the impact of corrosion is extremely important, since very often corrosion cannot be detected via visual inspection. Corrosion will weaken steel and could lead to system failures.

Sound inspection and maintenance practices can prevent the serious environmental consequences brought about by leaking storage facilities

THE SOLUTION

To determine shell thickness, **APC** employs the latest in Ultrasonic testing/scanning technology to obtain thickness measurements. We are able to gauge true metal thickness measurements even when a surface is coated or painted.

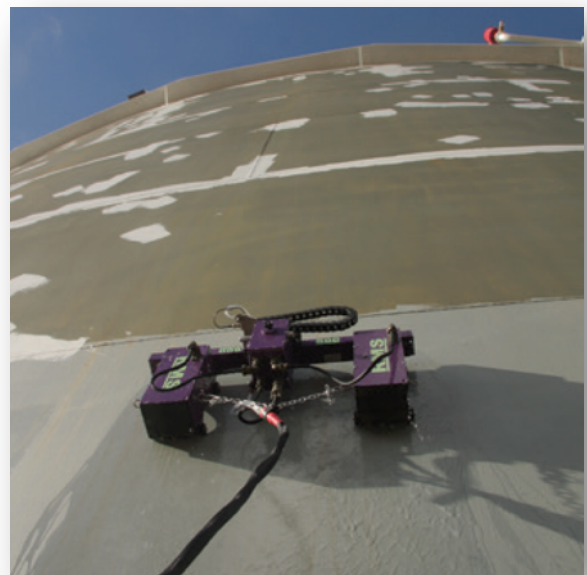
APC provides tank wall inspections using RMS – Rapid Motion Scanner. The RMS is a high speed, high accuracy remote access ultrasonic corrosion mapping system designed to evaluate the condition of ferrous structures such as storage tanks, pipelines, pressure vessels and other critical equipment, supporting effective and safe operation.

The RMS2 can give 100% coverage in a band up to 1000 mm wide, significantly increasing Probability of Detection (POD) of corrosion, enabling engineers to determine the optimum repair strategy and improve risk life assessment (RLA) & risk based inspection (RBI) maintenance programs. The RMS is extremely flexible with a range of scanning heads to suit different inspection requirements.



KEY FEATURES

- Very high speed for fast coverage with real time image display.
- High probability of detection with up to 0.5 mm scan grid
- Wide range of applications up to 170 °C
- Inspection material thickness up to 150 mm
- 3D data view for internal/external profile
- Can be used on any ferrous item form 6" NB to flat plate
- Longitudinal scanning head for increased productivity on crude oil transfer lines, slug catchers and the like
- Up to 50 meter long x 1 m wide scan data acquisition feasible in one location
- Field proven durability & reliability
- Aid to reduce maintenance costs by minimizing use of scaffolding
- No paint removal required



INSPECTION CAPABILITIES

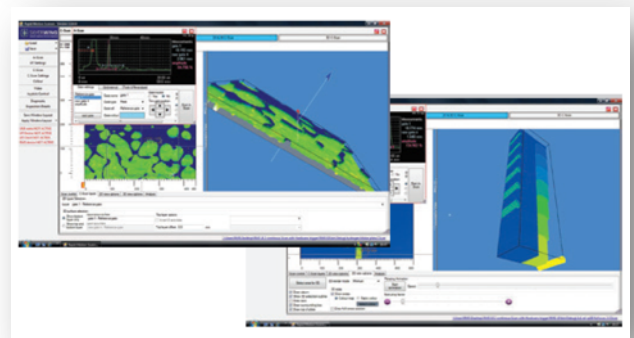
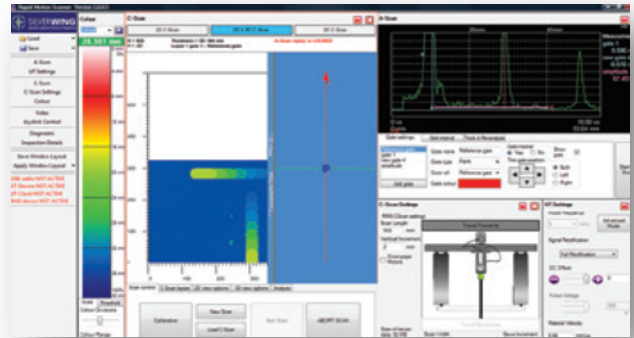
- Localized / generalized pitting.
- General corrosion
- Laminations
- Hydrogen blistering
- Hydrogen induced cracking (HIC)
- Stress corrosion cracking (SCC)
- De-bonding of internal liners

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DATA ACQUISITION AND ANALYSIS

The RMS software integrates scanner control, data capture, data analysis and reporting tools. The software shows a real-time display of the ultrasonic A-scan, C-scan, thickness measurement and positional data, with a maximum resolution of 0.5 mm x 0.5 mm. All of this information is recorded when a scan is saved. All A-Scan, B-scan and C-scan views can be either printed directly from the software, or saved as digital images in order to create a detailed report.

- Integrated scanner control, data acquisition, analysis and reporting tools
- Real-time A-scan and C-Scan display during scan
- Fully captured A-scan and gate configuration for post inspection analysis
- Full scan replay with multiple gates
- Near side (external) defect sizing
- Far side (internal) defect sizing
- Up to 20 A-scan gates - Several gate types
- Peak
- Flank
- Fixed position (Can be used for top surface corrosion)
- Amplitude
- Up to 19 C-scan layers for data review
- Sizing tools, length, area, statistical
- A-scan, B-scan, C-scan and 3D views
- Export C-Scan data as .CSV files for MS excel



SPECIFICATIONS

Ultrasonic Technical Specifications

Pulse Voltage	-40 to -300, 256 steps
Pulse Width	50 ns to 320 ns in 20 ns step
Damping	500Ω
Receiver Gain	0 dB to 80 dB in 0.1 dB increments.
Filter	0.6 MHz to 18MHz fixed
Waveform	Full rectify, + half rectify, - half rectify, or RF
Sampling Rate	50MHz
Resolution	8 bits (0 to 255)
Waveform Length	1 to 8190
Trigger Source	+external, -external, internal or software
Transducer Range	1 to 10 MHz
Post Trigger delay	0 to 16,370 samples in 1 sample step

Common Scanner Specifications

Scan grid	0.5 to 150 mm in 1 mm steps (0.02" to 6")independent X and Y
Max scan length	60 m (200 ft) at 10 mm (0.4") grid
Auto- position	Scanner movement to origin or selected point
Scanner identification	Automatic
Scanner control	Joystick controller and software

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