

New Rosemount™ LA120 Area Monitor for Localized Corrosion and Erosion Monitoring

ICorr 2026 Aberdeen

Session Topics

Localized Damage Challenge

Existing Management Methods and Limitations

The Rosemount™ LA120 Area Monitor

Applications

Specification



Localised Mechanisms Accounts for More Than 80% of Cases of Metal Corrosion Issues

High Temperature Sulfidation

Naphthenic Acid Corrosion

H₂S Corrosion

Sand Erosion

Chloride Corrosion

CO₂ Corrosion

Crevice Corrosion

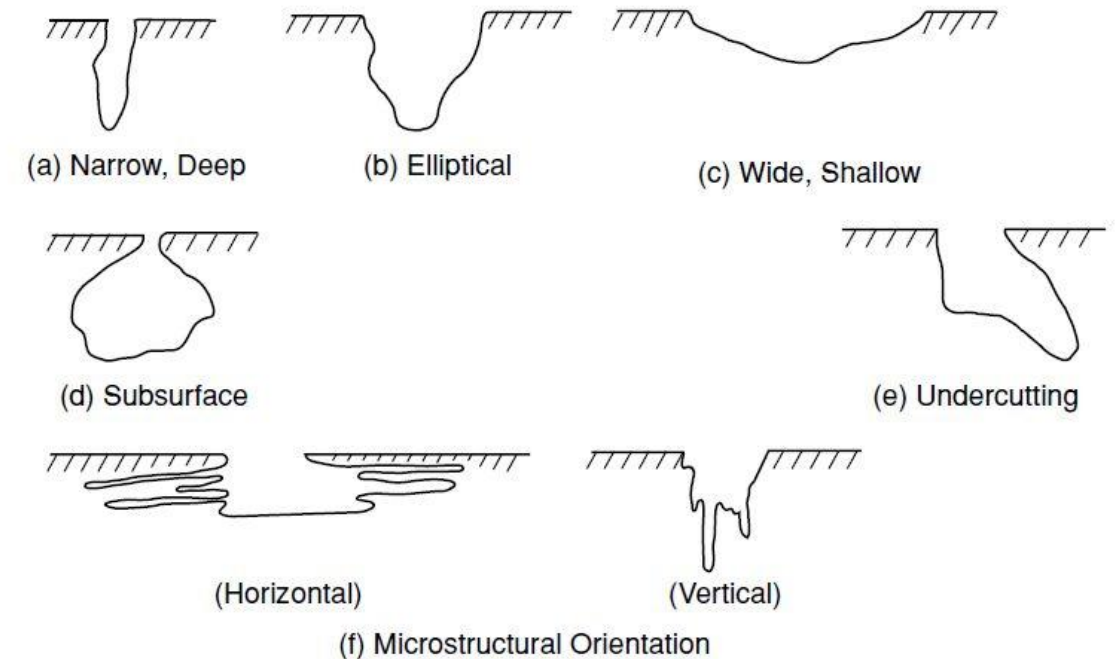
Microbially Induced Corrosion (MIC)

Preferential Weld Corrosion

Under Deposit Corrosion

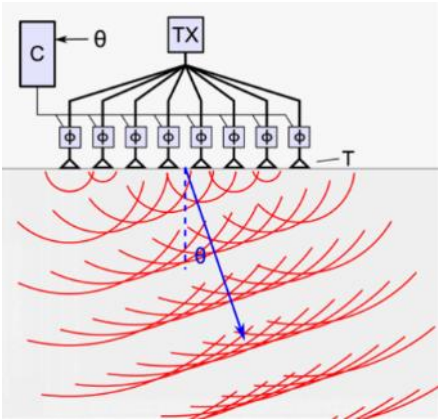
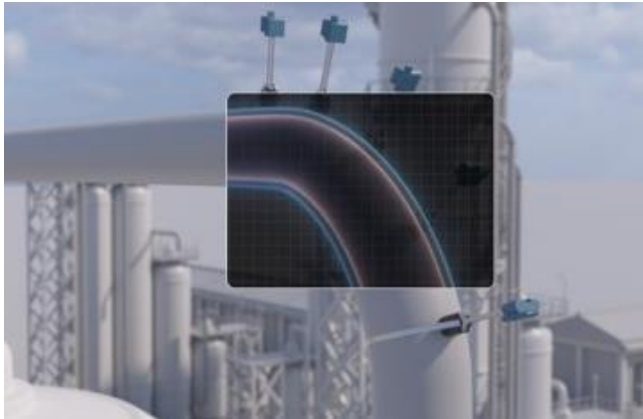
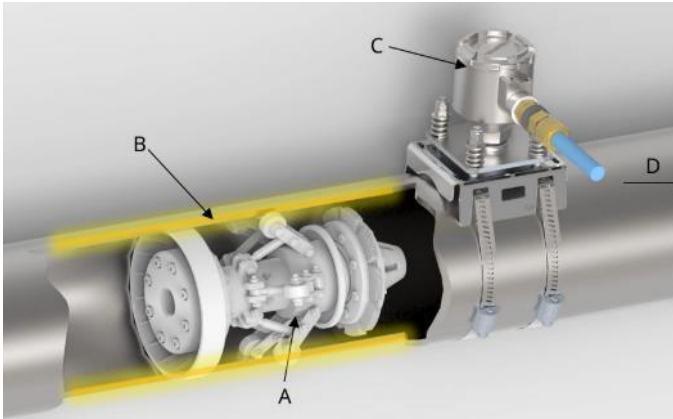


VARIATIONS IN THE CROSS-SECTIONAL SHAPE OF PITS



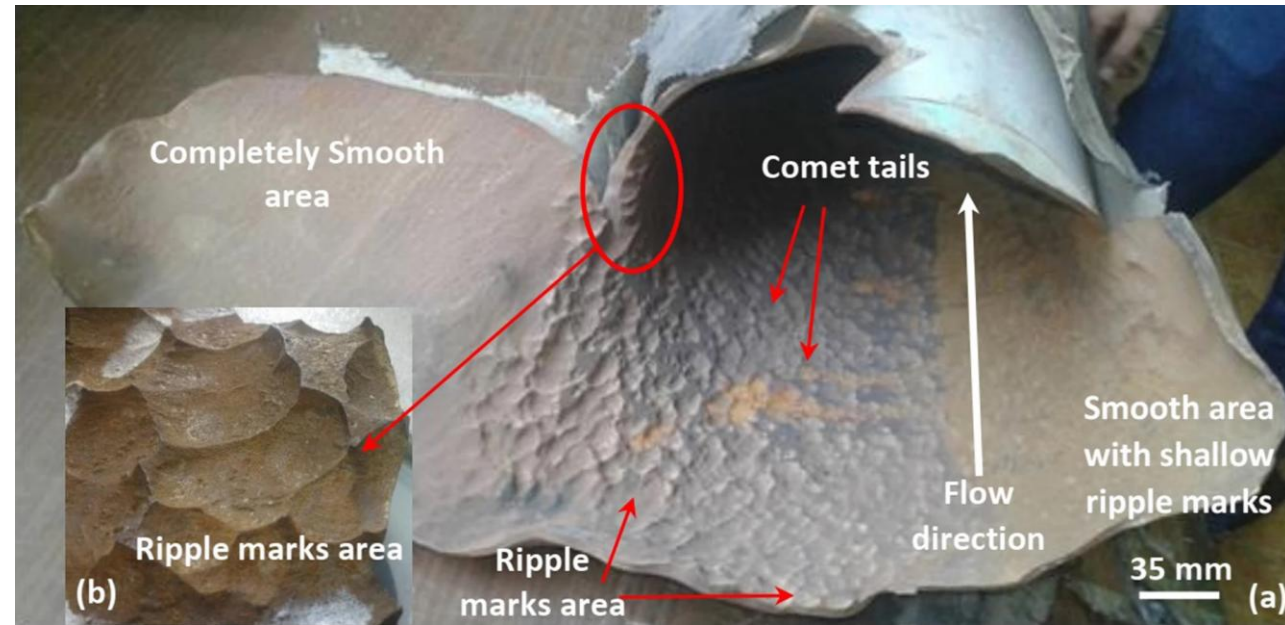
Source: ASTM, G 46, Fig. 1 (2000 Edition).

Traditional Inspection Methods Cannot Deliver Continuous or Large-Area Monitoring

Manual Ultrasonic Testing (UT)	Phased Array Ultrasonic Testing (PAUT)	Radiographic Testing (RT)	In-Line Inspection (ILI / Pigging)
			
Pros: - Low cost - Simple for localized checks Cons: - Needs surface access - Variable results from operators - Labour-intensive over areas - May miss localized damage	Pros: - Faster, detailed inspections - Cross-sectional imaging Cons: - Requires surface prep & skilled operators - Bulky in tight spaces - Not for continuous monitoring	Pros: - Visualizes internal defects - Detects volumetric flaws Cons: - Safety risks (radiation) - Needs access to both sides - Limited for gradual thinning - Snapshot only, not continuous	Pros: - Full coverage - Long-range pipeline integrity Cons: - Expensive - Requires piggable design - Periodic, not real-time - Limited resolution for early defects

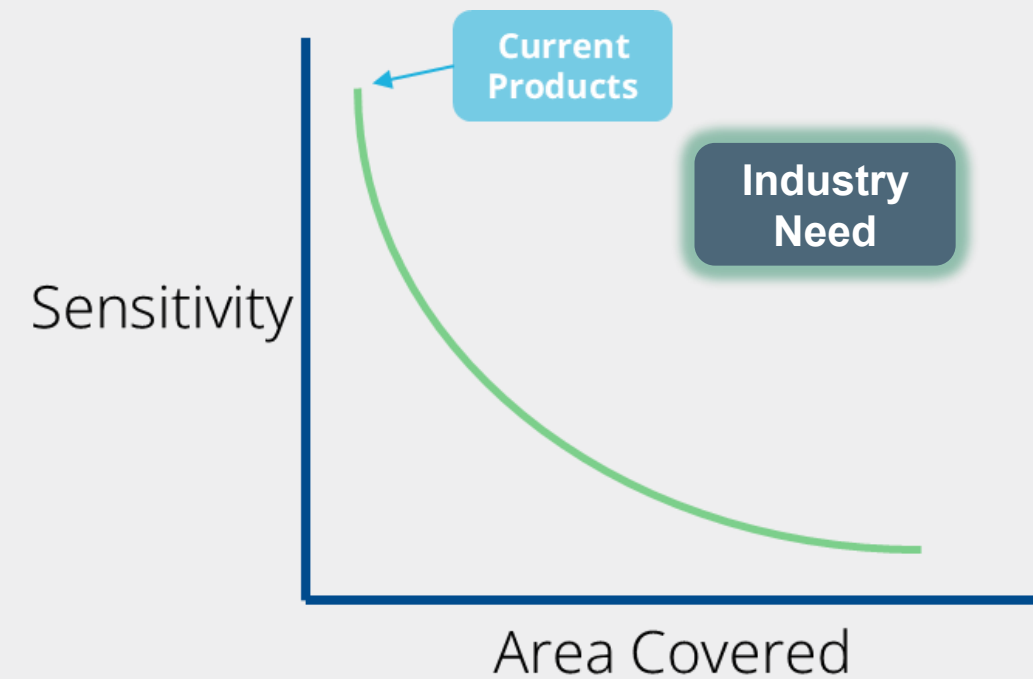
All are Expensive to Perform Offshore, Especially for Known Damage Locations Requiring Frequent Inspection

Online Point Monitoring can Struggle With Detecting Sand Erosion



No existing solution simultaneously provides:

- Affordable area coverage
- Measurement through coatings
- Repeatable simple deployment
- Automatic data retrieval and consumption
- Long lifetime with minimal maintenance



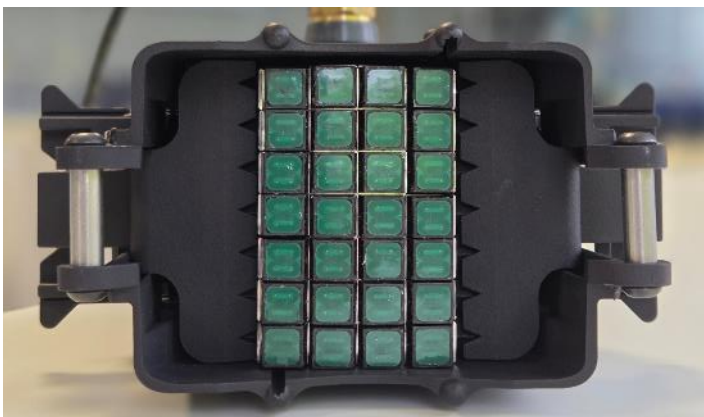
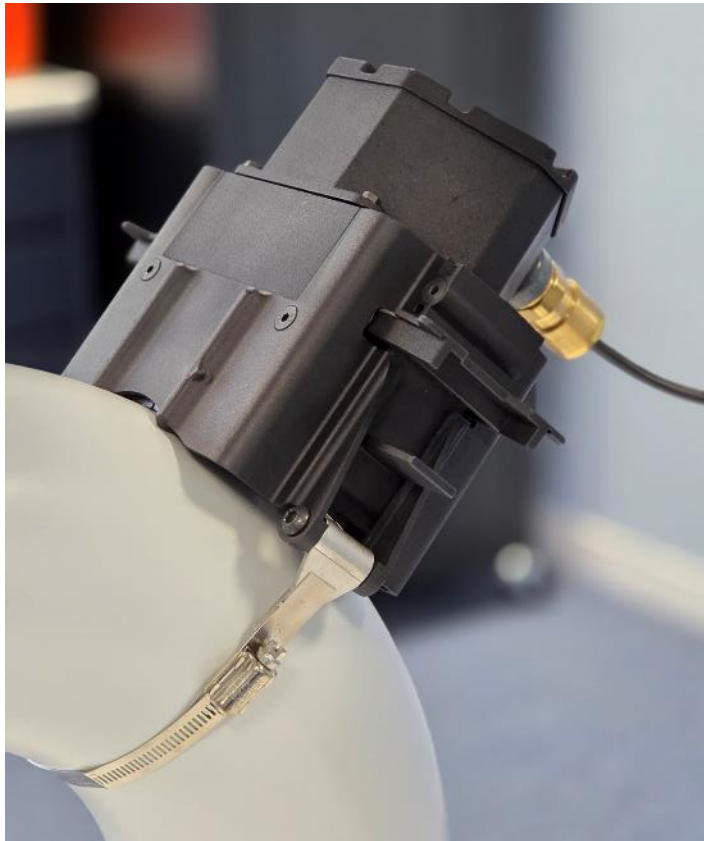
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“Point thickness monitoring is great for general corrosion, but our biggest challenge comes from localised damage, which we see far more frequently. We can’t recommend point monitoring for these cases.”

Lead Advisor, Global Energy Company



The Rosemount LA120 Area Monitor



Dense Array EMAT Technology

Complete coverage with no blind spots and early detection of localized defects. Measurements through coatings up to 500µm with no couplant needed. Patented and proven technology

Simple Non-Intrusive Installation

Quick magnetic mounting without special tools and no process interruption needed. Can be relocated as needed to any hazardous area (Class 1/Div 1, Zone 0)

Autonomous Operation

First version wired with battery-powered wireless communication coming later. Suitable for remote and buried locations with minimal maintenance needs

Underground Capability

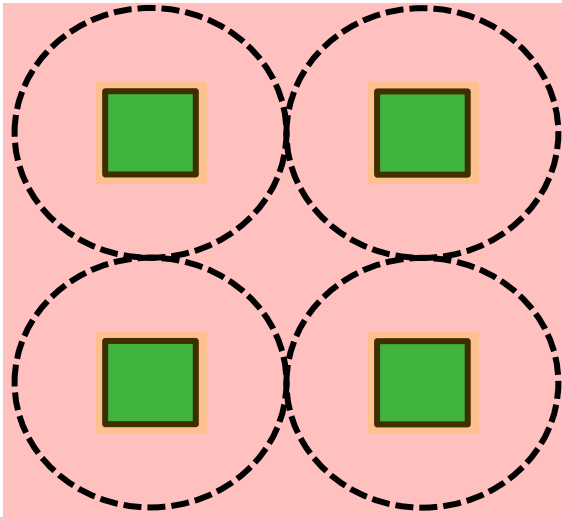
Variant can be buried with ancillary kit, eliminating the need for permanent inspection pits. Reduces inspection access costs and compatible with pigging operations giving lower total cost of ownership

Intelligent Analytics

Real-time monitoring and alerts with trend analysis for predictive maintenance. Early warning of developing issues. Integration with existing and external systems

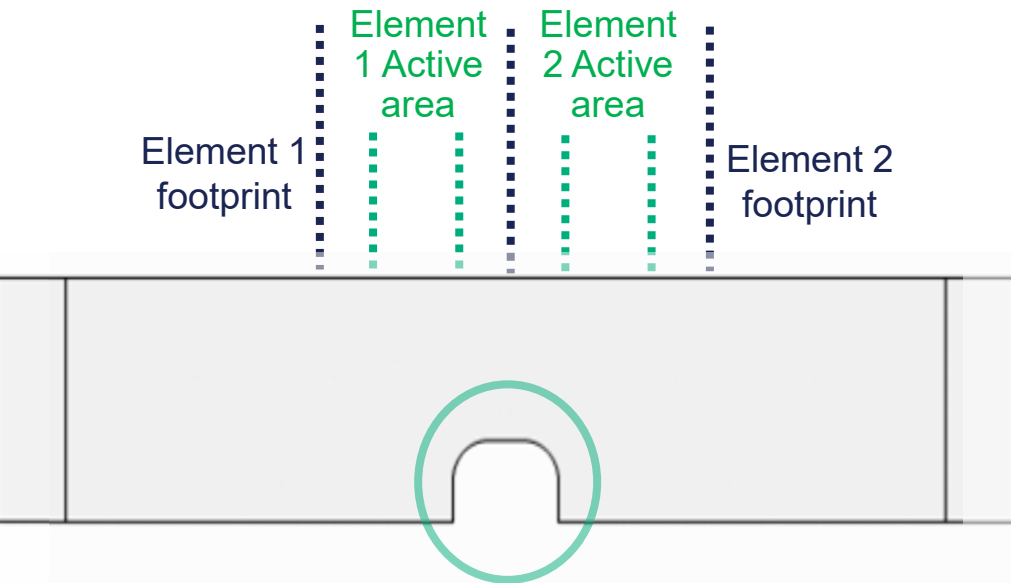
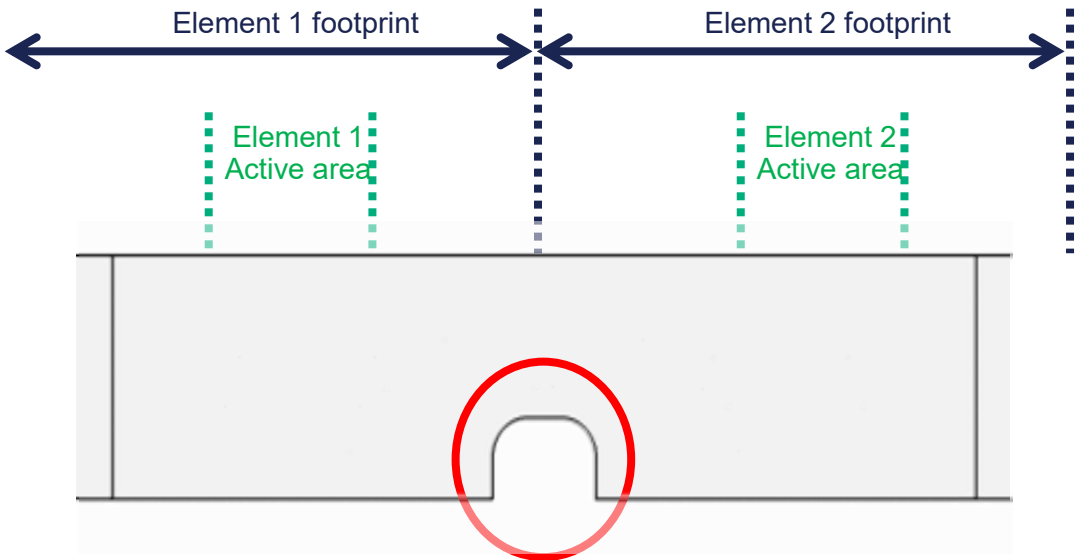
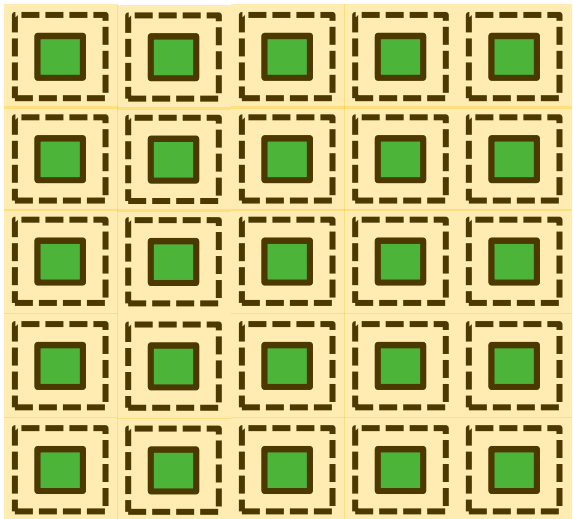
Addressing EMAT Array Density Challenges Through Patented Magnetic Design

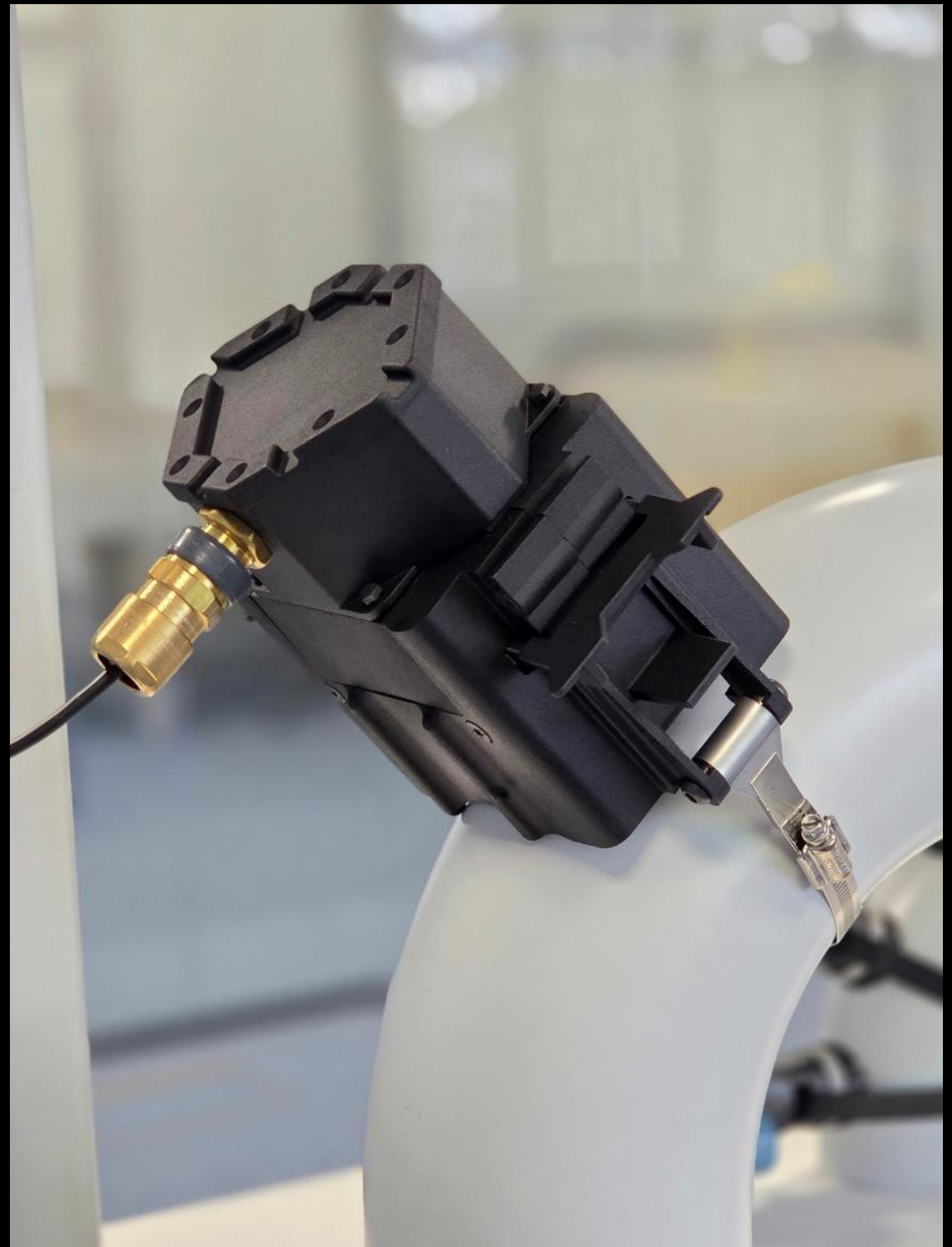
Packed array of current technology



Miniaturise active area
to increase the beam spread
and have closer proximity
between active areas to
remove blind spots

The goal (100% coverage)



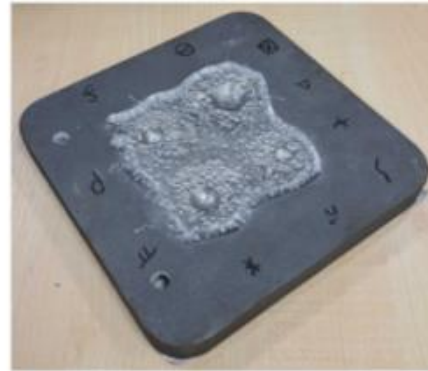


Representative Real-World Samples Give Confidence on Both Detection and Quantification

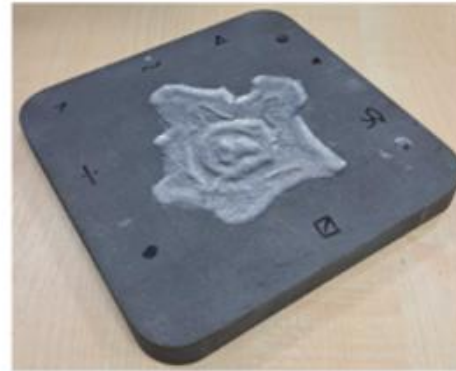
Sand erosion



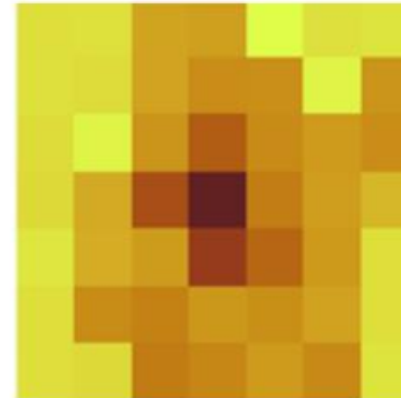
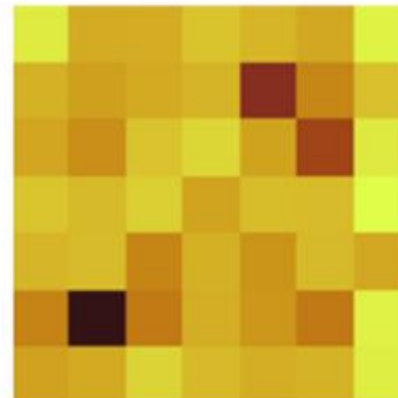
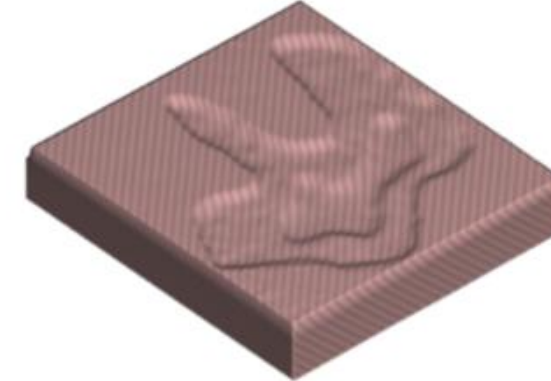
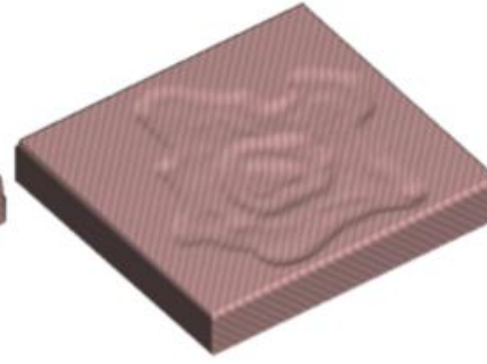
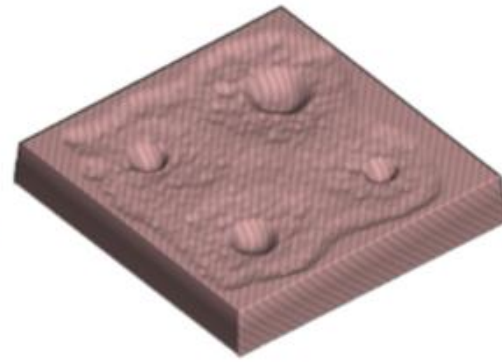
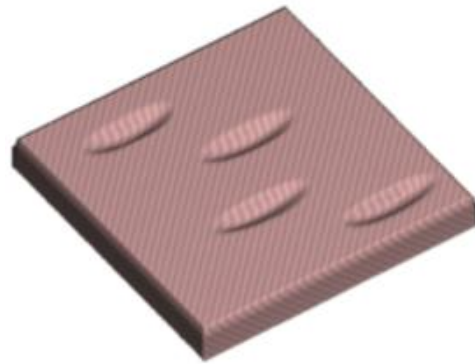
Localised pitting



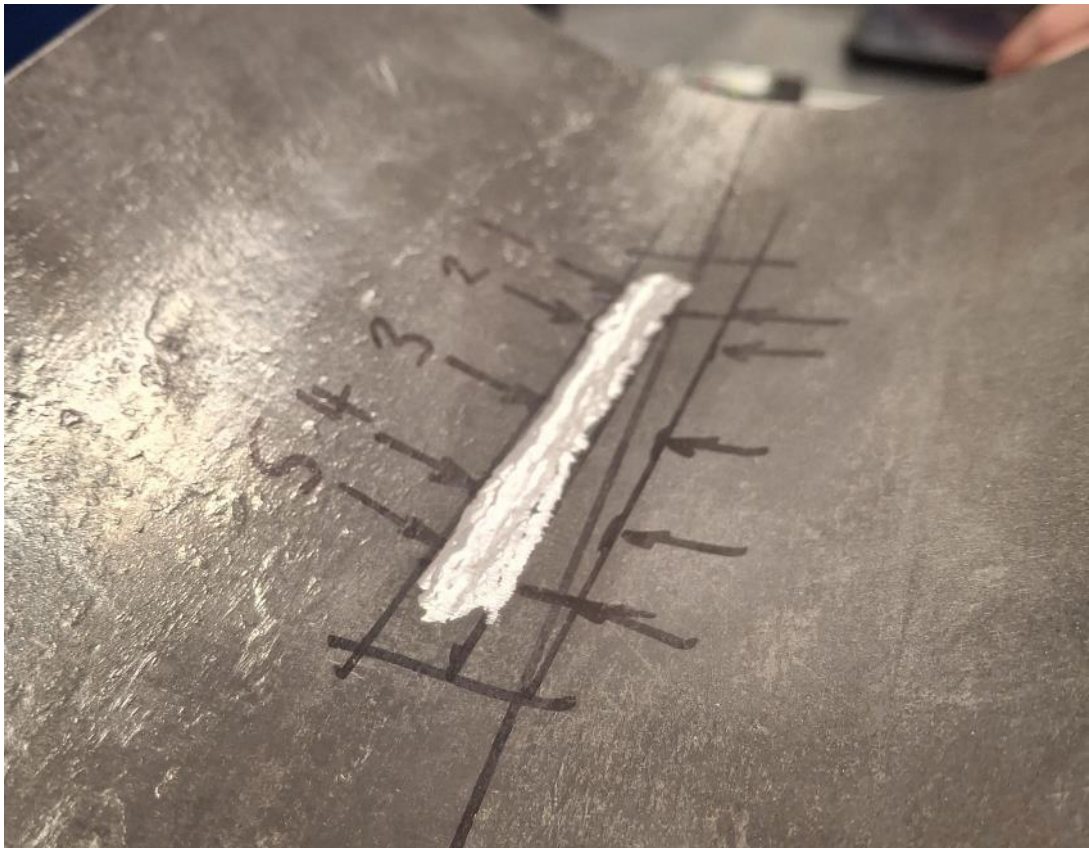
General corrosion



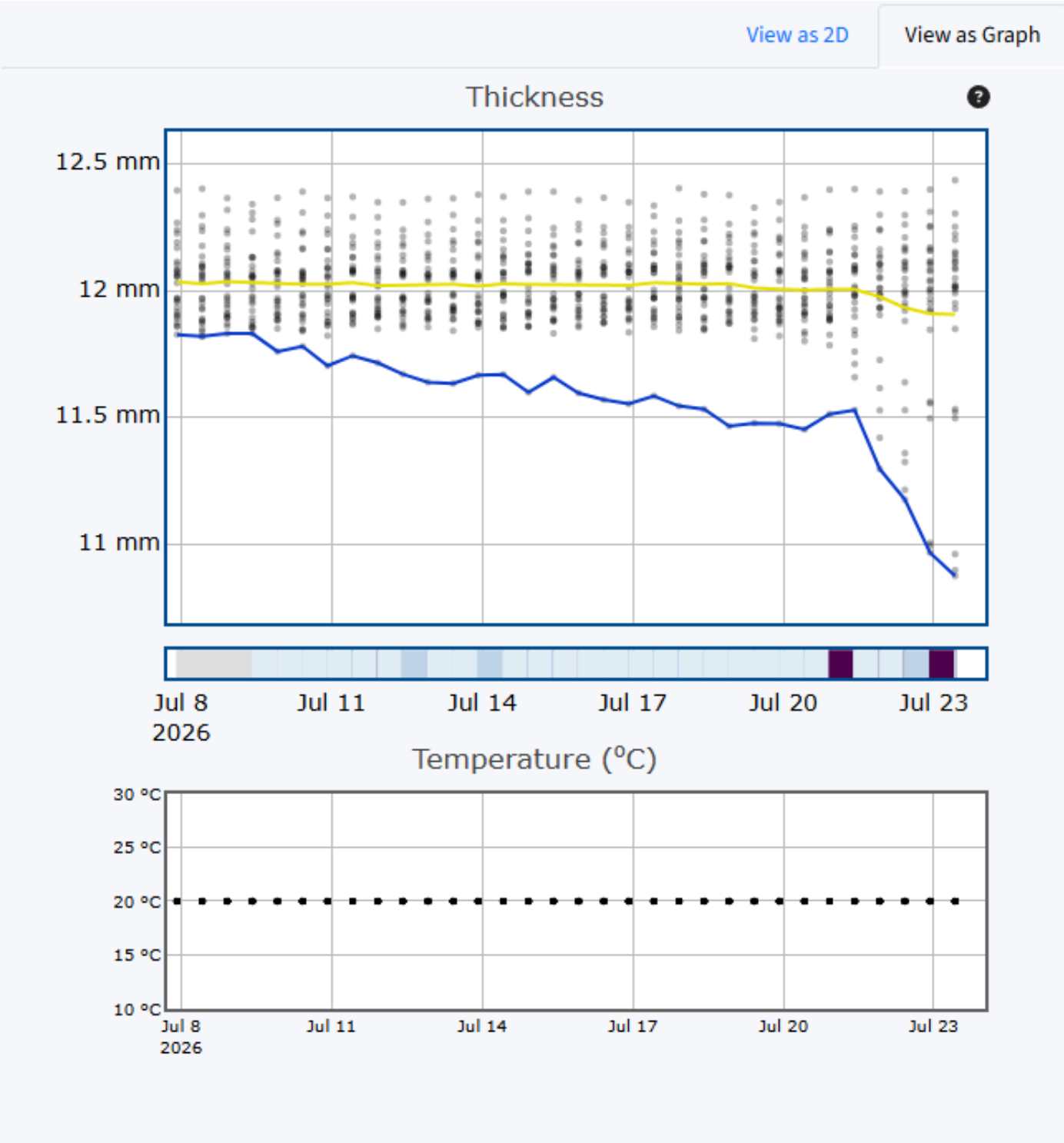
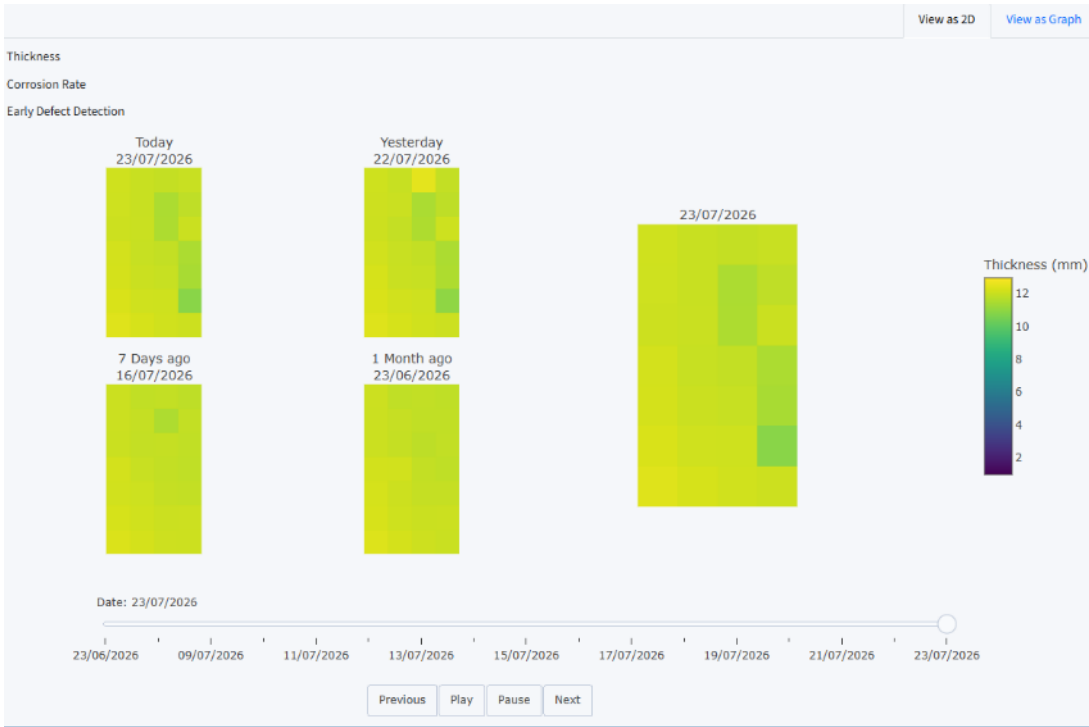
Riverbed erosion



Wall Thickness Reduction



Wall Thickness Heat Map



Line graph with Avg. and minimum wall thickness

Rosemount LA120 Area Monitor: Specification

Ultrasonic Technology

- Method: EMAT dense array, pulse-echo, no couplant required
- Measurement repeatability: $<25\text{ }\mu\text{m}$ [0.001"] between measurements

Physical & Installation

- Physical dimensions: $190 \times 150\text{ mm}$ [7.5×6 "]
- Measurement footprint: $60 \times 100\text{ mm}$ [2.4×4 "]
- Pipe compatibility: 4" to flat surfaces, including short-radius elbows
- Compatible materials: Carbon steel, duplex stainless steels
- Maximum paint/coating thickness: $500\text{ }\mu\text{m}$ [0.02"]
- Wall thickness range: 8–50 mm [0.31–2"]
- Temperature limits:
 - Surface: $120\text{ }^{\circ}\text{C}$ [$250\text{ }^{\circ}\text{F}$]
 - Ambient: $75\text{ }^{\circ}\text{C}$ [$167\text{ }^{\circ}\text{F}$]
- Markings / Certifications: Class 1/Div 1, Zone 0 (pending approvals)

Detection & Measurement Performance

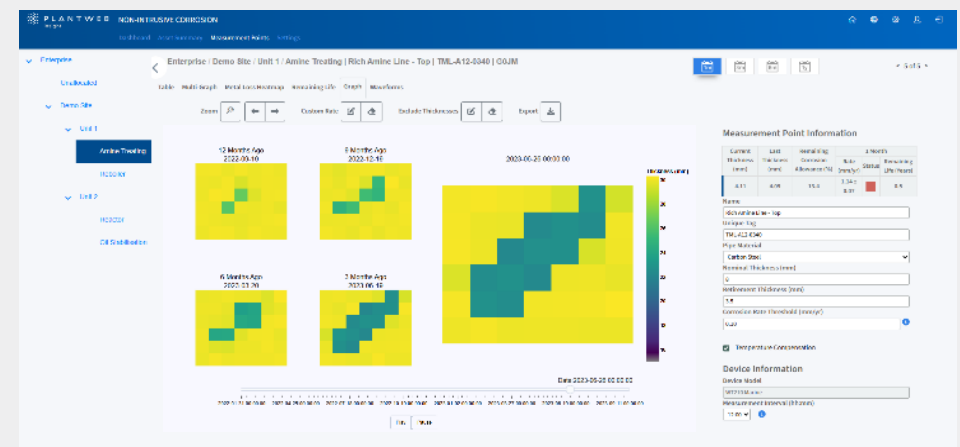
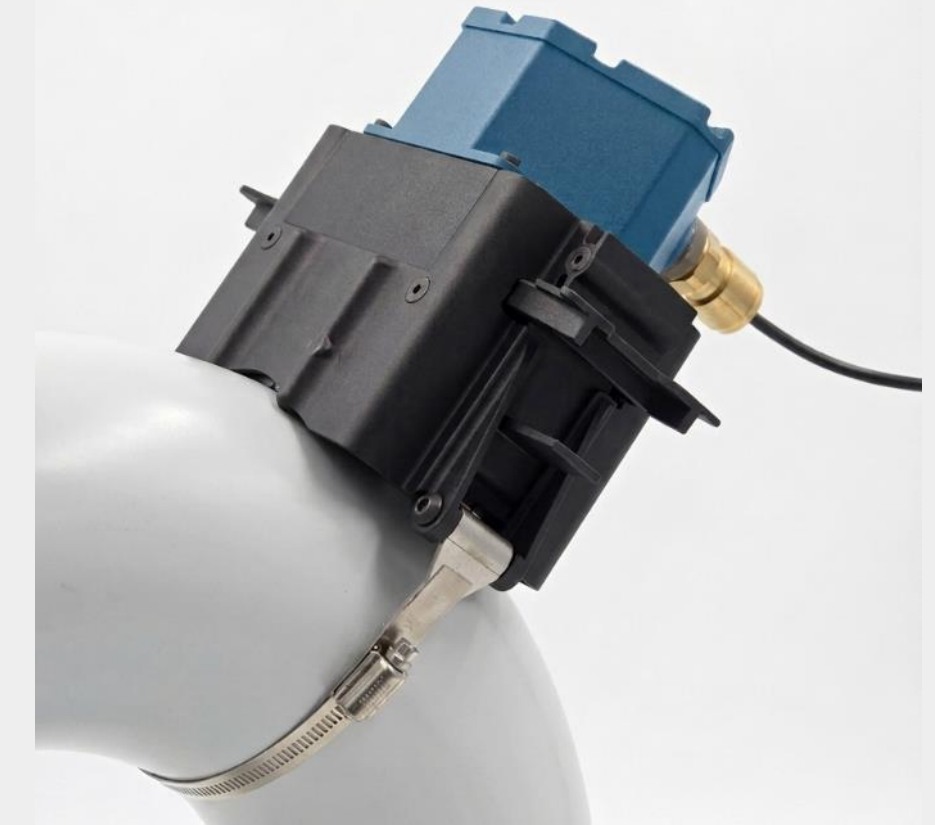
- Minimum defect size for quantification: $10\text{ mm (W)} \times 4\text{ mm (D)}$ [0.04×0.16 "]
- Minimum defect size for early detection: $5\text{ mm (W)} \times 2\text{ mm (D)}$ [0.02×0.08 "]
- Acquisition frequency: Up to every 1 hour

Connectivity & Software

- Data retrieval:
 - Wired power + data retrieval
 - Wireless options (coming later): WirelessHART, Cellular, LoRaWAN
- Software deployment: Local/enterprise network or cloud-hosted



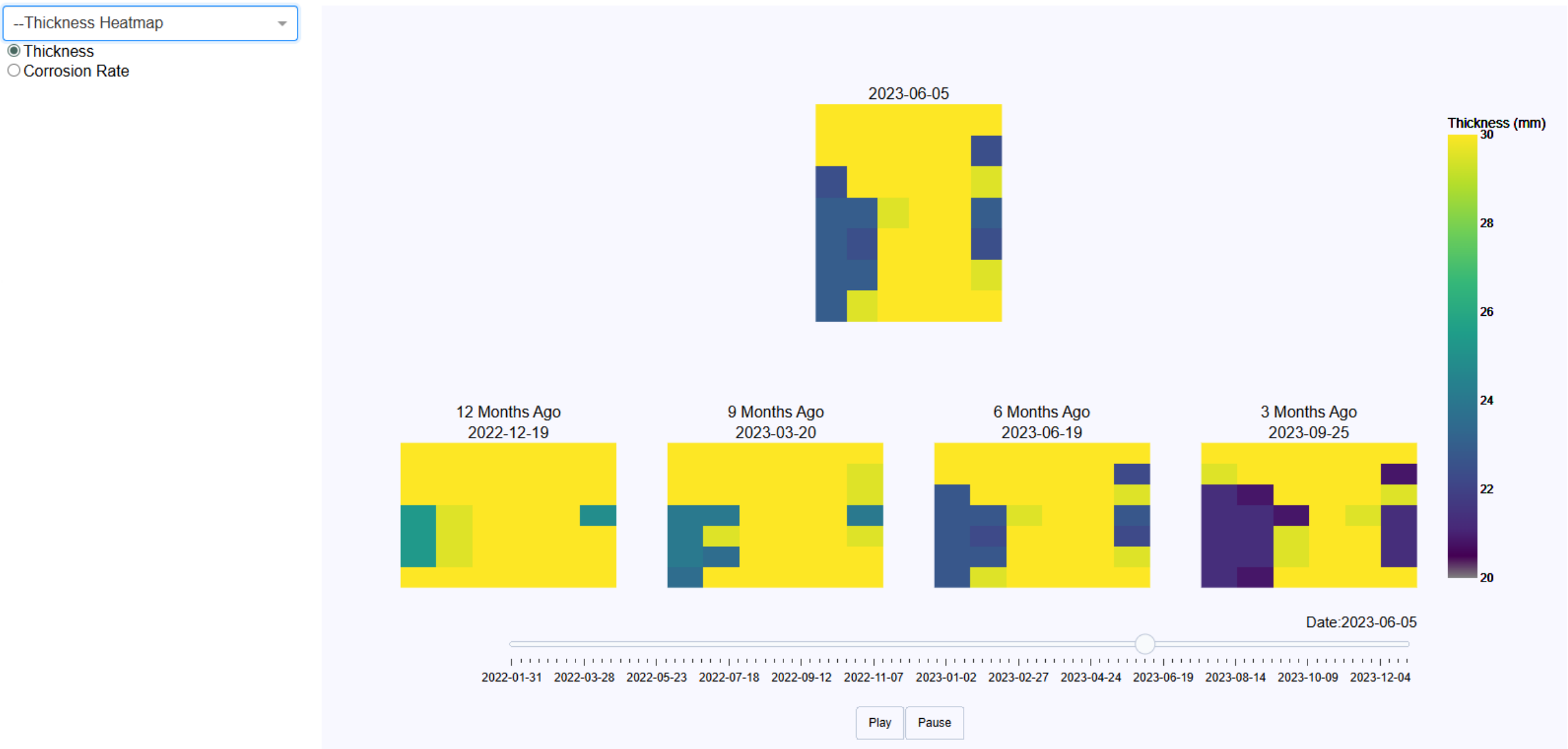
PLANTWEB
insight



Visualisation: Damage Development Over Time



Prototyping Tool

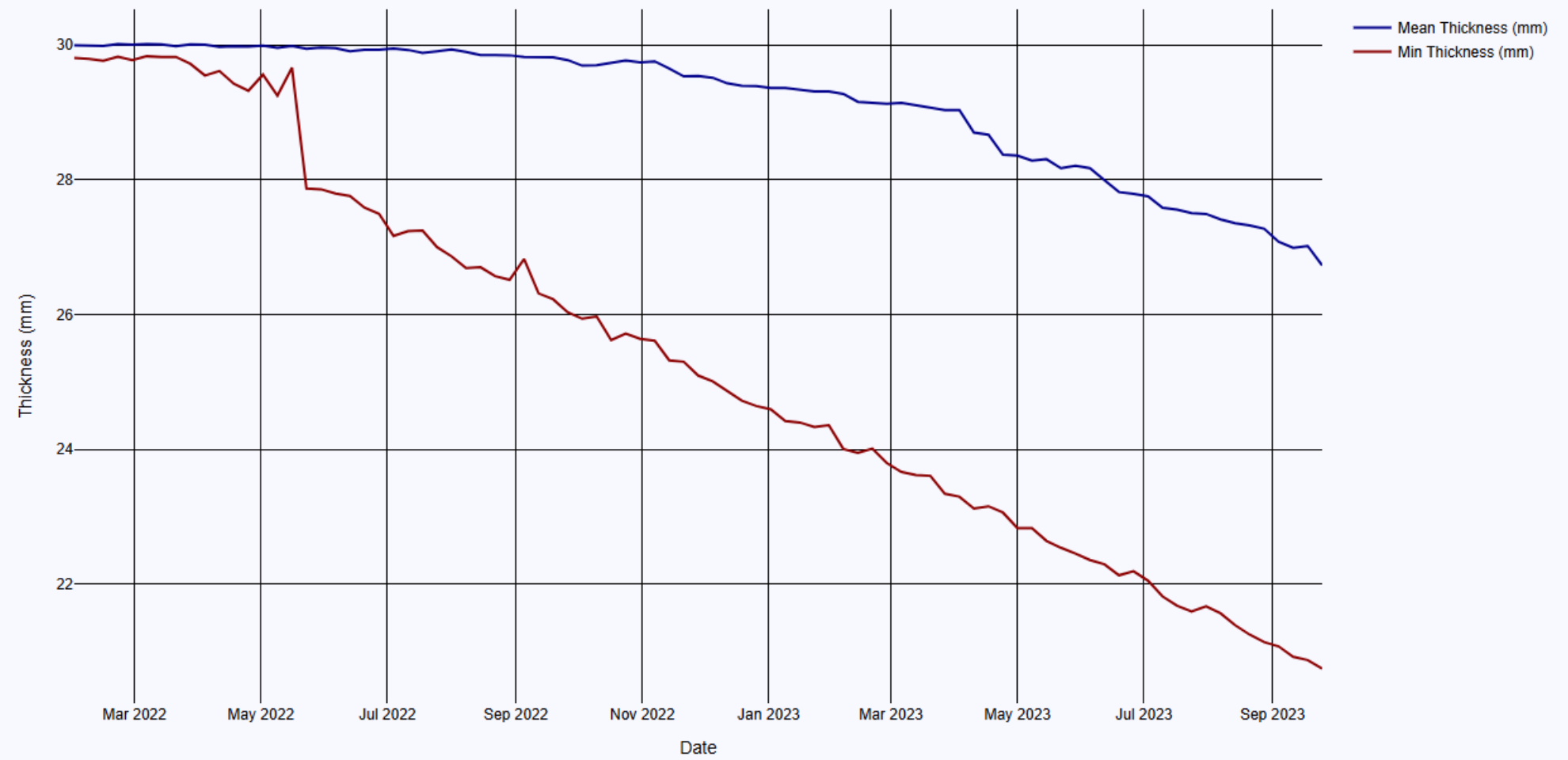


Visualisation: Minimum and Mean Thickness Across Array

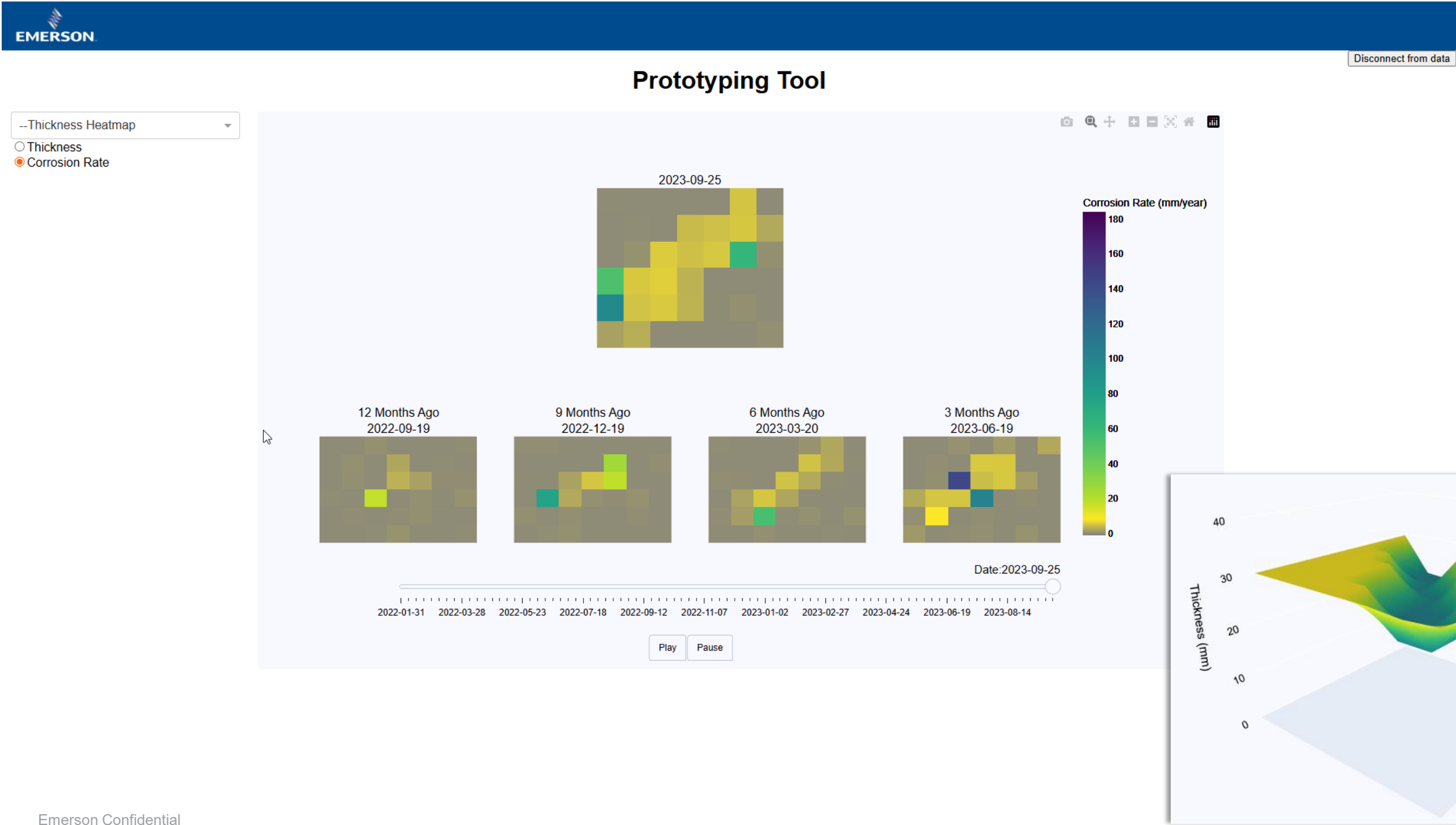


Prototyping Tool

- Mean and Min Thicknesses ▾
- ☒ Thickness
- ☐ Corrosion Rate



Visualisation: Corrosion Rate Over Time and 3D Visualisation



Emerson Confidential

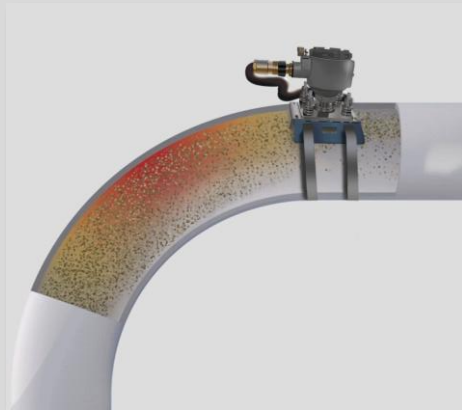
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Sand Erosion

Complete Solution

Monitor Risk

Rosemount SAM42



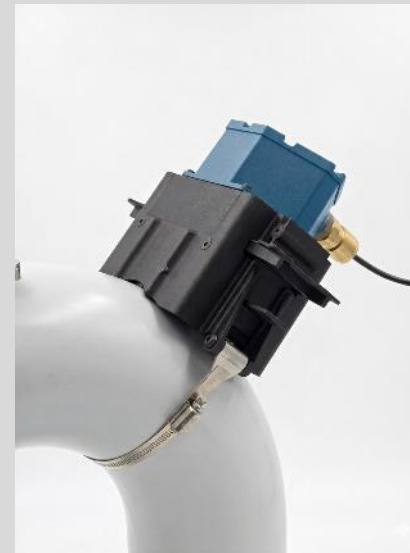
Detects sand contact with the pipe wall, which causes erosion.



Does not monitor the impact of the sand contact.

Monitor Impact

Rosemount LA120

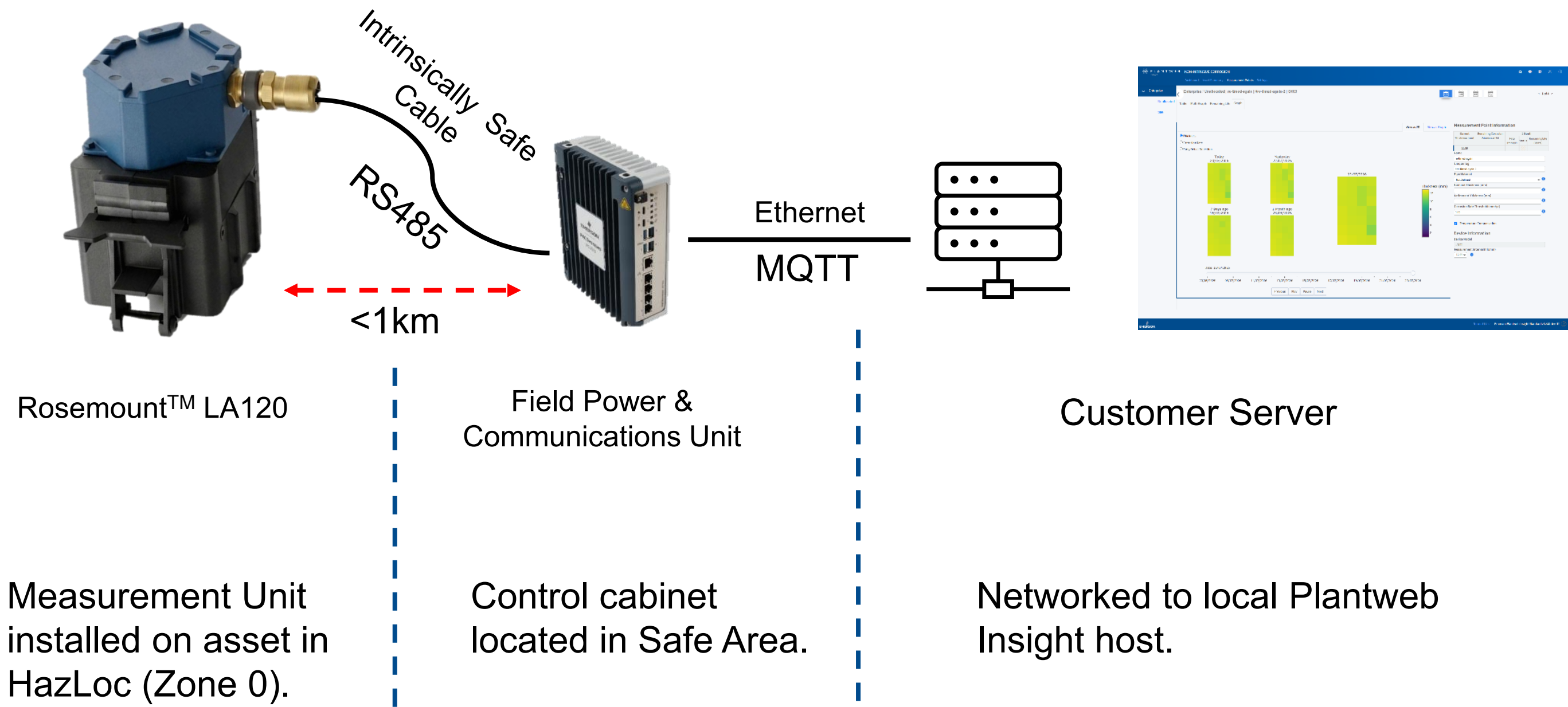


Detects impact of erosion event and monitors the change.



Cannot determine the method of erosion.

LA120 Architecture



Thank you for attending our presentation

