

PAUT CORROSION MAPPING

SEE THE WHOLE PLATE, NOT JUST THE POINT.

Encoded phased array corrosion mapping for ship hulls, storage tanks, pipelines and pressure vessels. Every scan is recorded reading by reading and handed back as colour maps and data you can use.

SHIP HULLS | STORAGE TANKS | PIPELINES & PIPING | PRESSURE VESSELS | ELBOWS & BENDS | REPEAT SURVEYS | CSV EXPORT

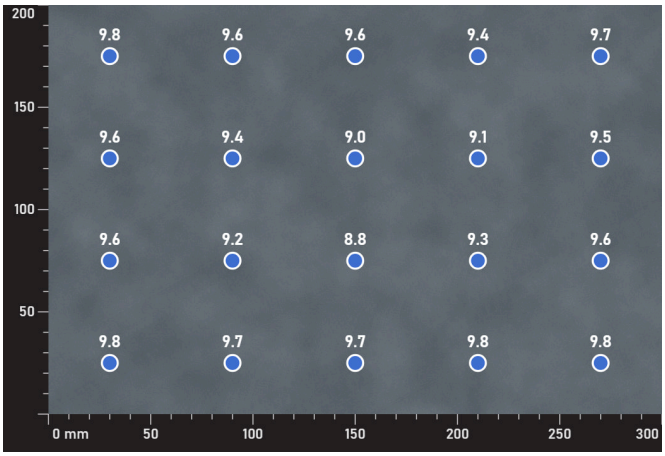
WHY PHASED ARRAY

A SPOT READING CHECKS A POINT.
A CORROSION MAP CHECKS THE PLATE.

Thickness gauging takes one reading at a time on a grid, and corrosion doesn't follow the grid. Pitting, grooving and patches of wall loss sit between the points and never get measured. Encoded phased array scans the whole area in one pass and records a reading every millimetre, so the thinnest spot is found, measured and located instead of missed.

SPOT UT ON A 60 MM GRID

20 readings

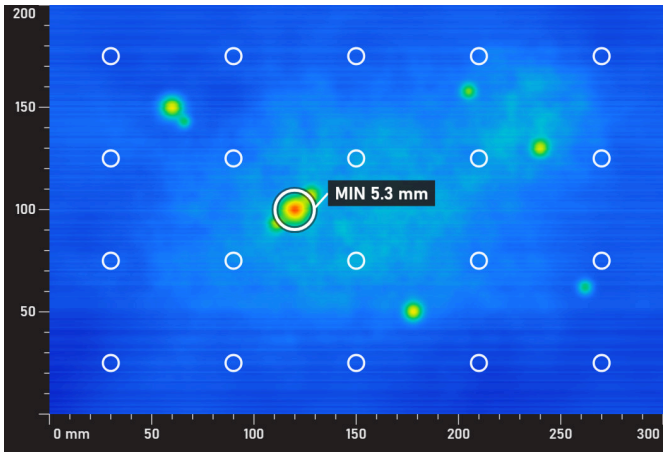


8.8 MM Lowest of the 20 grid readings. On paper, the plate looks fine.

Same 300 × 200 mm plate, both panels. Example data.

PAUT C-SCAN, SAME PLATE

60,000 readings



5.3 MM Lowest reading on the map. Pitting sits between the grid points (white rings).

Thin — Nominal 10 mm

01 FULL COVERAGE
100% of the scan area, not a sample of it.

02 ENCODED & REPEATABLE
Every reading tied to a position. Re-scan the same area next time and compare.

03 FINDS MID-WALL DAMAGE
Laminations and inclusions told apart from true wall loss.

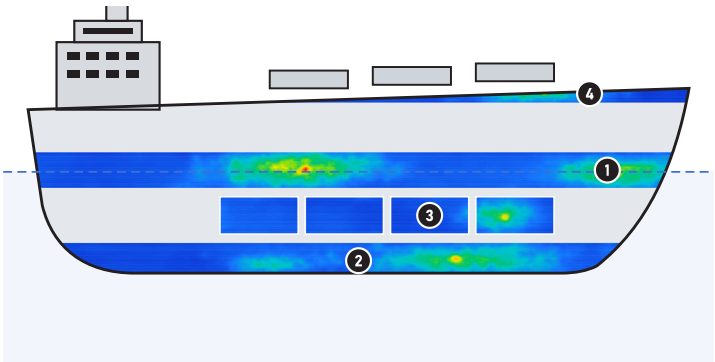
04 STAYS IN SERVICE
Scanned from the outside while the asset keeps running.

MARINE

SHIP HULL SCANNING

Hull plate loses steel where it's hardest to see: along the waterline, around the bilge and behind ballast tank coatings. We map whole plates on the hardstand, in dry dock or from inside the tanks, so steel renewal is decided on measured wall, not a guess between readings.

1. Side shell and boot-top, where wet and dry cycling thins plate fastest
2. Bottom and bilge plating, mapped plate by plate in dock
3. Ballast, fuel and void tank boundaries, scanned from inside
4. Decks, hatch coamings and bulkheads



Scan zones on a typical hull, shown as example C-scan data. Dashed line: waterline.

DNV APPROVED SERVICE SUPPLIER

Thickness measurements to Class Programme DNV-CP-0620, Category I: all types and sizes of ships classed with DNV. Cert. AOSS0000MFM

RollerFORM wheel probe for fast coverage of large plates. **HydroFORM 2** for high-resolution detail. Results laid out by strake and frame, ready for your surveyor and the repair yard.

CORROSION MAPPING

TANKS, PIPELINES AND PRESSURE VESSELS.



The same encoded mapping that finds pitting on a hull works across the rest of your plant. We scan from the outside with the asset in service, and each map feeds straight into our API 653 and API 510 assessments for minimum thickness and remaining life.

BURIED PIPELINES, AT THE DIG

Where a buried line is exposed, we map the pipe in the excavation and mark the wall loss and its extent on the steel, then report every reading.

STORAGE TANKS

Shell courses, nozzles and roof plate, from inside or out. Maps feed straight into API 653 minimum-thickness and remaining-life calculations.

- HydroFORM 2 · RollerFORM

PIPELINES & PIPING

Straight runs mapped along and around the pipe with HydroFORM 2. Elbows and bends, where erosion and flow-accelerated corrosion bite hardest, mapped with the FlexoFORM wrap-around array.

- HydroFORM 2 · FlexoFORM

PRESSURE VESSELS

Shells, heads and nozzles mapped for wall loss, plus the mid-wall laminations and inclusions a spot gauge can mistake for corrosion. Supports our API 510 in-service inspections.

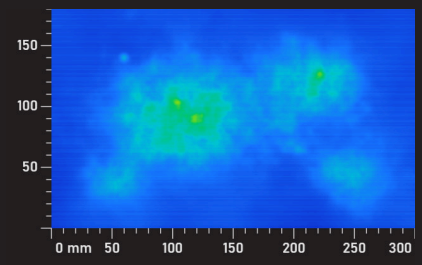
- HydroFORM 2 · OmniScan X4

REPEAT SURVEYS

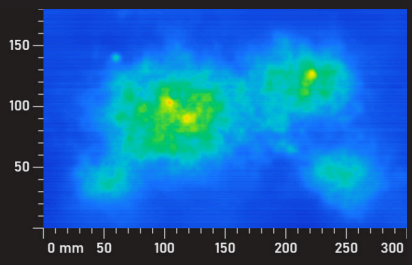
SCAN IT AGAIN. MEASURE THE RATE.

Every reading is encoded to a datum, so the next survey covers exactly the same steel. Subtract one map from the other and you get a measured corrosion rate at every point, not an estimate from two spot readings.

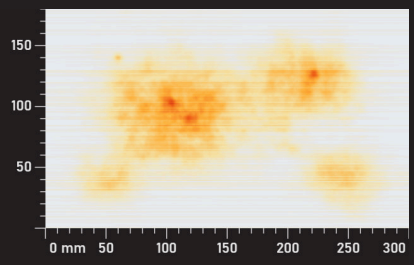
SURVEY 1



SURVEY 2, FIVE YEARS ON



WALL LOST BETWEEN THEM



Thin — Nominal 10 mm

0 — 1.5 mm lost Example data

1.15 MM

Most wall lost at any one point over the five years

0.23 MM/YR

Measured corrosion rate at that point

5.2 YEARS

Shortest remaining life on the plate, to an example 5.0 mm minimum

SAME STEEL, EVERY TIME

Scan start points and directions are recorded against the datum, so each survey repeats the last.

A RATE AT EVERY POINT

The worst spot sets the life, and the map shows exactly where it is.

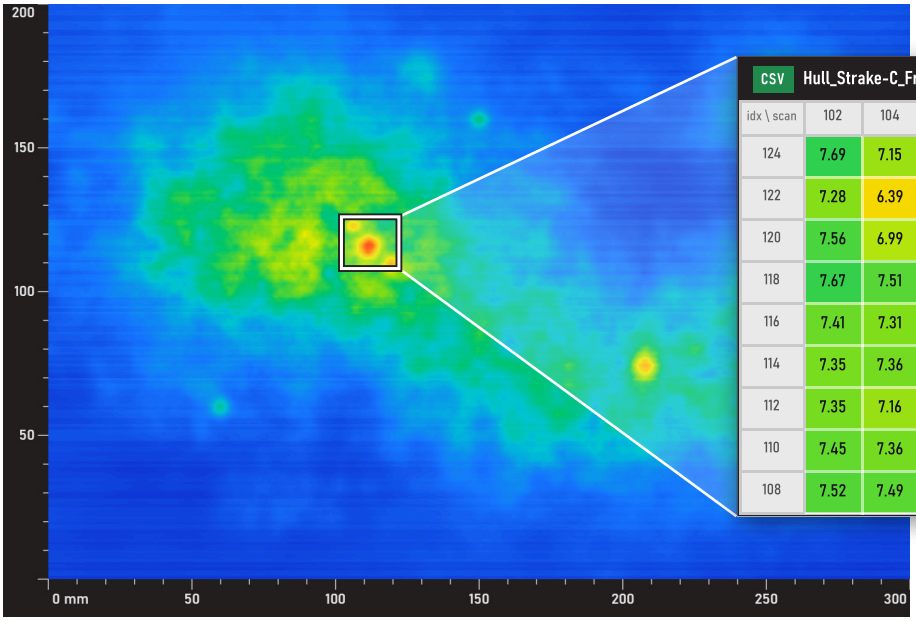
INTO THE ASSESSMENT

Rates and minimums go straight into our API 653 and API 510 remaining-life calculations.

YOUR DATA

EVERY READING, IN A SPREADSHEET.

Any C-scan can be exported as a CSV file holding every thickness reading at its scan and index position, colour-coded to the same scale as the map. Open it in Excel, sort for the minimums, run your own remaining-life numbers or load it into your asset management system. Your data stays yours.



CSV Hull_Strake-C_Fr42-48.csv — 60,000 READINGS

idx \ scan	102	104	106	108	110	112	114	116	118	120
124	7.69	7.15	7.02	7.30	7.50	7.77	8.11	8.20	8.16	8.02
122	7.28	6.39	6.29	6.92	7.35	7.43	7.83	7.94	7.95	7.84
120	7.56	6.99	6.94	7.13	7.27	7.39	7.60	7.80	7.76	7.79
118	7.67	7.51	7.27	6.88	6.42	6.65	7.02	7.45	7.60	7.71
116	7.41	7.31	6.87	6.15	5.43	5.61	6.53	7.21	7.53	7.69
114	7.35	7.36	6.85	5.92	5.28	5.56	6.57	7.30	7.59	7.81
112	7.35	7.16	6.91	6.44	5.84	6.22	6.89	7.11	7.18	7.28
110	7.45	7.36	7.41	6.97	6.79	6.90	7.25	6.91	6.30	6.60
108	7.52	7.49	7.41	7.13	7.11	7.25	7.20	6.62	6.02	6.37

Example data. The outlined 20 × 18 mm area of the C-scan as it appears in the CSV export. The thinnest reading, 5.28 mm, is outlined in the sheet.

C-SCAN MAPS
Minimum and average wall for each zone

CSV EXPORT
Every reading, positioned and colour-coded

SCAN IMAGES
A, B and C-scan views of anything flagged

RAW DATA
Scan files kept for re-scans and trending

THE KIT

EVIDENT (OLYMPUS) PHASED ARRAY, RUN IN-HOUSE

INSTRUMENT
OMNISCAN X4
Phased array instrument. Every scan encoded, recorded and kept.

CORROSION
HYDROFORM 2
Water-wedge mapping scanner. High-resolution maps on plate and pipe, even on rough surfaces.

ELBOWS
FLEXOFORM
Flexible array that wraps around elbows and bends, the areas spot UT finds hardest.

LARGE AREAS
ROLLERFORM
Wheel probe that rolls across hull plate and tank shells at speed.

NEED TO KNOW HOW MUCH STEEL YOU HAVE LEFT?

Swift reporting, round the clock.

NATA 12303 | ISO 9001 | DNV | API | AINDT | PCN | IRATA

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