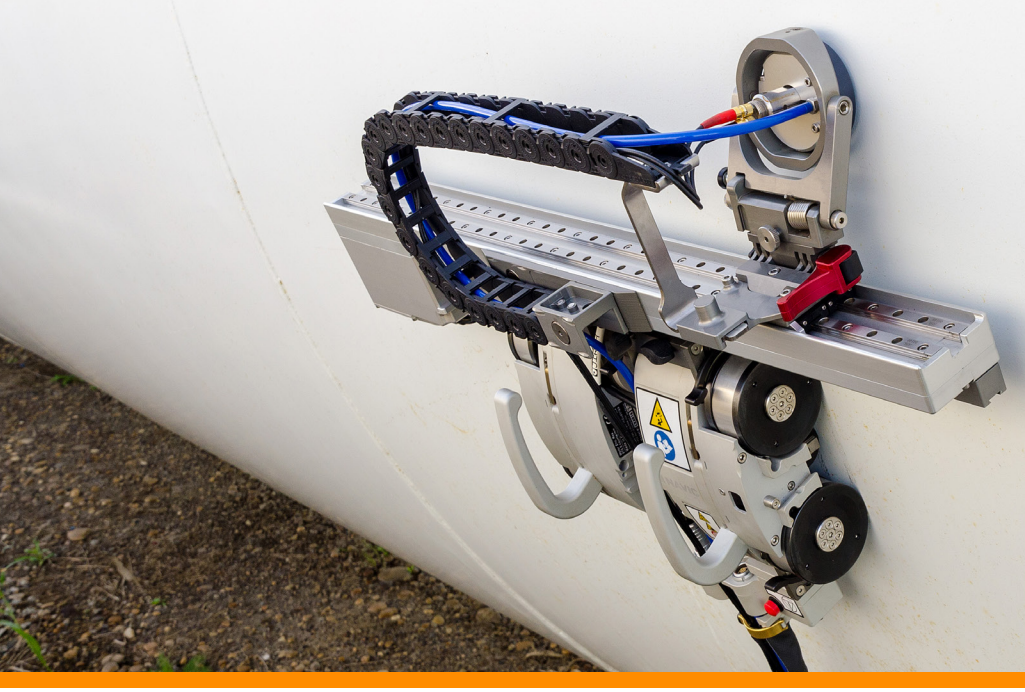


Eddyfi Technologies
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Technical
Specifications

# NAV2

**Advanced magnetic automated & battery operated, remote-access conventional and phased array testing solution**

## WELD INSPECTION & CORROSION MAPPING SCANNER

Eddyfi Technologies' advanced inspection solution leads the way for a 100% corrosion mapping and weld inspection coverage of critical assets. Designed for flexibility and efficiency, these advanced systems can be deployed in multiple configurations to meet diverse non-destructive testing (NDT) needs. With multiple configuration options, the systems cover high-speed Phased Array (PA) corrosion mapping, elevated-temperature corrosion mapping, single line corrosion scans and weld inspection utilizing both PAUT and TOFD probes.

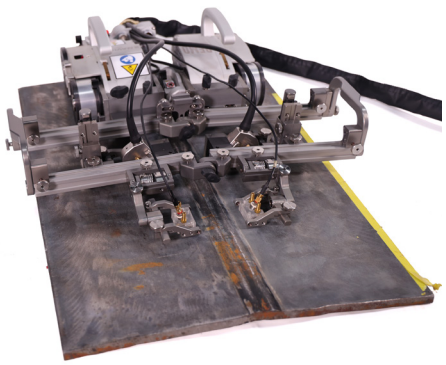
## BENEFITS

- Fully automated, remote-controlled systems
- Portable, battery-operated for onsite flexibility
- Suitable for multiple asset types, from 70mm (2.75in) diameter pipes to flat plates
- Fast scanning speeds—up to 250mm/sec (9.84in/sec) scan speed and up to 762mm/sec (0-30in/sec) index speed
- Lightweight—Magnetic crawler weighs just 7.7kg (17lb)

## APPLICATIONS

- Pressure vessels
- Pipelines
- Horizontal storage tanks
- Tank shells and roofs
- Spheres
- Ship hulls
- Marine vessels
- Slug catchers
- Other critical ferrous assets

**Eddyfi Technologies offers a complete solution with advanced phased array instruments, a range of automated and manual scanners, and a full range of probes and wedges. Our team of technical experts have invested time in creating ready made kits ensuring we deliver highly optimized turnkey solutions**



## PHASED ARRAY CORROSION MAPPING

Eddyfi Technologies' automated corrosion mapping solutions leverage advanced Phased Array Ultrasonic Testing to deliver precise, high-resolution data with a 1mm (0.04in) resolution. These systems are engineered to optimize productivity while maintaining a high Probability of Detection (PoD), ensuring even the smallest defects are detected with unparalleled accuracy.

The phased-array configuration utilises a specially designed water box which produces a controlled and stable water-column that eliminates the need for a wedge, thus providing the benefits of improved signal consistency, accuracy and limited dead zone. This concept offers enhanced surface conformance and improved coupling.

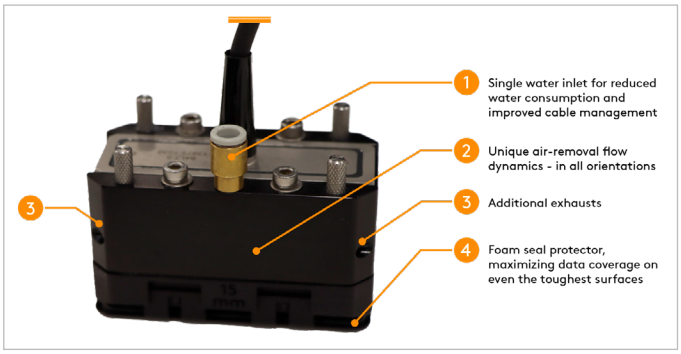



**Figure 1:** Aqualock V2 for rapid high resolution corrosion mapping.

## AUTOMATED WELD INSPECTION

Eddyfi Technologies offers battery-operated, portable scanning solutions for comprehensive weld inspections on both ferrous and non-ferrous materials. Utilizing phased array ultrasonic testing and time of flight diffraction techniques, these systems ensure accurate defect detection, even in challenging or hard-to-reach areas. The range of evolutive weld inspection solutions have been developed to successfully interrogate various weld types in different conditions:

- Weld geometries, diameters, thicknesses
- Orientation – circumferential, long seam, spiral welds; accessible from either one or both sides. Nozzle option also available.

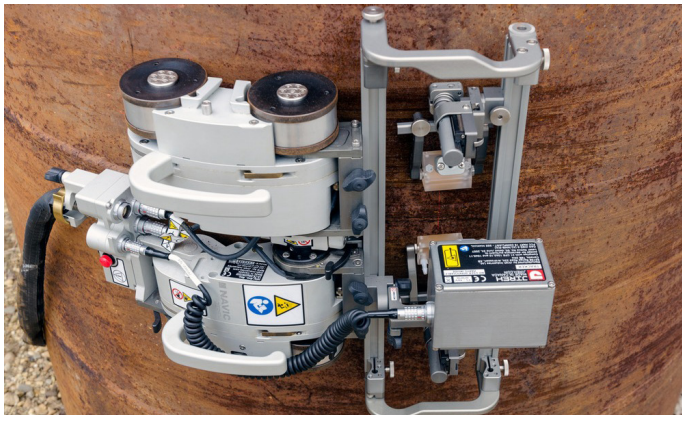


**Figure 2:** NAV2 Weld Inspection configuration utilizing weld tracker on pipe.

## CONVENTIONAL ULTRASONIC CORROSION MAPPING

Eddyfi Technologies' recommended conventional ultrasonic testing solution, when paired with an automated system, utilizes a single crystal focused probe with a local immersion water column, housed in a gimbaled holder. This setup ensures stable coupling and high-quality data acquisition, even in challenging environments.

One key advantage of this approach is that advanced corrosion mapping surveys can be performed without the need for phased array-qualified personnel. Despite this, it still delivers the high productivity, high PoD, and application-specific software features associated with more advanced systems. Twin crystal UT options are also available, further enhancing versatility.

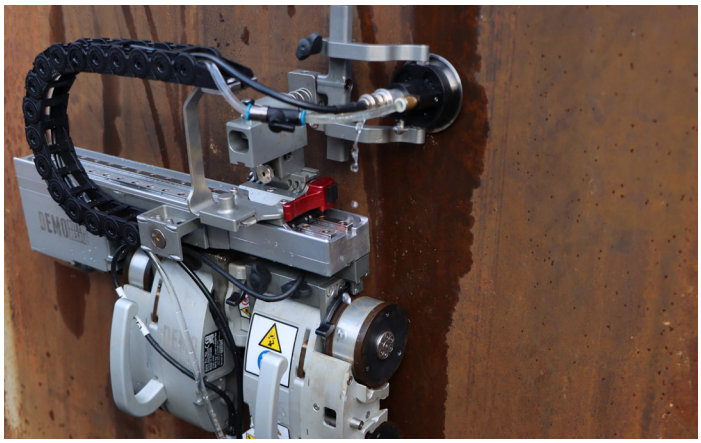


**Figure 3:** NAV2 conventional SCUT corrosion mapping configuration.

## NON-INTRUSIVE INSPECTION (NII)

This unique technology combination allows inspection versatility when performing non-intrusive inspections of pressure vessels and associated pipework.

To complete a thorough NII inspection, there are requirements to perform numerous advanced Ultrasonic Testing (UT) methods. In addition to corrosion mapping of the shell, the industry recommended practice is to perform PAUT and/or Time of Flight Diffraction (ToFD) on welds, and phased-array for flange face and nozzle welds.

With an Eddyfi Automated soloution, operators are now able to perform the full NII inspection by a simple change of configuration

## WORLDWIDE SUPPORT YOU CAN RELY ON

Eddyfi Technologies provides global after-sales support. We are on standby to lend a hand in the case of unforeseen situations. With nine service centers and full technical support teams, you can continue to rely on us to calibrate and maintain your system for optimal operating conditions

# SPECIFICATIONS

## FERROUS INSPECTION SOLUTION

| | |
|---|---|
| **Crawler Weight** | 7.7kg (17lb) |
| **Crawler Dimensions** | Height: 12.5cm (4.9in)<br>Height w/o Handles: 8.1cm (3.2in)<br>Width: 28.2cm (11.1in)<br>Depth: 22.6cm (9in) |
| **Right Drive Module Weight** | 4.2kg (9.3lb) |
| **Right Drive Module Dimensions** | Height: 12.5cm (4.9in)<br>Height w/o Handles: 8.1cm (3.2in)<br>Width: 13.4cm (5.3in)<br>Depth: 22.6cm (9in) |
| **Circumferential Pipe Range** | 7cm (2.75in) OD to flat |
| **Longitudinal Pipe Range** | 30.5cm (12in) OD to flat |
| **Internal, Circumferential Pipe Range** | 61cm (24in) to OD |
| **Nozzle Size Range** | 7cm (2.75in) |
| **Radial Clearance w/o Handles** | 7cm (2.75in) pipes under 20cm (8in)<br>8.15cm (3.2in) pipes over 20cm (8in) |
| **Vertical Nozzle Clearance** | 23cm (9in) |
| **Idler Encoder (Right Module)** | 13.78 counts/mm (22162.8 counts/in) |
| **Motor Encoder (Left Module)** | 872.5 counts/mm (22162.8 counts/in) |
| **Y-Axis Encoder (Nozzle Application)** | 161.3 counts/mm (4096 counts/in) |
| **Skew Axis Encoder (Nozzle Application)** | 2.84 counts/degrees |
| **Driving Speed** | Variable 0-25cm/sec (0-10in/sec) |
| **Crawler's Vertical Payload** | 10kg (22lb)* |
| **Power Requirements** | 100-240VAC, 50/60Hz, 3.5 Amps |
| **Inspection Surface** | Ferrous |
| **Maximum Backpack Payload** | 1.36kg (3lb) |
| **Regulations** | CE: European Union CE Declaration – Compliance with essential requirements and provisions of European Union directives<br>FCC: Compliance with Part 15 of FCC rules<br>Industry Canada: CAN ICES-3 (A)/NMB-3(A) – This class A digital apparatus complies with Canadian ICES-003 |
| **Operating Environment** | -20°C (-4°F) to 50°C (122°F) |
| **Max. Inspection Surface Temperature** | 150°C (302°F)** |
| **Environmental Sealing** | Dust-tight, watertight*** |
| **Notes** | * Performance may vary with the surface type. Heavy payloads may require reduced speeds.<br>** The automated crawler medium temperature add-on kit is required when the inspection surface temperature measures between 50°C (122°F) and 150°C (302°F).<br>*** Not submersible. |

# SPECIFICATIONS

## ATTACHMENTS

| | |
|---|---|
| **General** | Raster Arm Module Encoder: 240.2 counts/mm (6101 counts/in)<br>Raster Arm Module Speed: 0 - 76.2 cm/sec (0 - 30 in/sec) |
| **Stroke** | 300mm Raster Arm: 300mm (11.8in)<br>600mm Raster Arm: 600mm (23.6in)<br>900mm Raster Arm: 900mm (35.4 in)<br>11600mm Raster Arm: 11600mm (45.7in) |
| **Weight** | 300mm Raster Arm (12in): 2.4kg (5.3lb)<br>600mm Raster Arm (24in): 3.33kg (7.2lb)<br>900mm Raster Arm (35in): 4kg (8.7lb)<br>1160mm Raster Arm (45in): 4.6kg (10.2lb) |

## ACCESSORIES

| | |
|---|---|
| **Tracker** | Automatically follow a weld profile |
| **Motorized Raster Arm** | Two-axis, automated, corrosion scanning |
| **Backpack** | Carry peripherals on the crawler |
| **Pre-Amp Bracket** | Mount pre-amps to the crawler |
| **Motorized Couplant Pump** | Consistent couplant supply |
| **Optical Guide** | Guide crawler along welds |
| **Camera Mount** | Monitor scanner operation |

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2025-01

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