



## UT-CD Hawk

Ultrasonic Crack Detection and  
Sizing In-line Inspection

**Dexon Technology Plc** provides in-line inspection and asset integrity management services globally. The company currently employs 500 staff worldwide and operates throughout Europe, Asia, the Middle East, and the Americas.

Located on Thailand's eastern seaboard, Dexon's headquarters houses extensive in-line inspection (ILI) testing and research and development facilities. Inspection tools are developed in-house from initial inspection technique research through to testing and implementation. Tool customization is also offered to address individual client inspection requirements and the inspection of unpiggable or challenging pipelines. Innovation is at the core of Dexon's philosophy, continuously pushing the limits of what is possible and driving the industry forward.

Dexon's ultrasonic testing crack detection (UT-CD) Hawk fleet offers axial and circumferential crack detection and sizing in addition to metal loss inspection capabilities in a single tool. Dexon's on-site testing facility includes pump-through test lines of various lengths and diameters to test inspection capabilities. Clients are welcome to visit Dexon's RDE department and test facilities, also known as X-Base, in Thailand for technology demonstrations and inspection verifications.

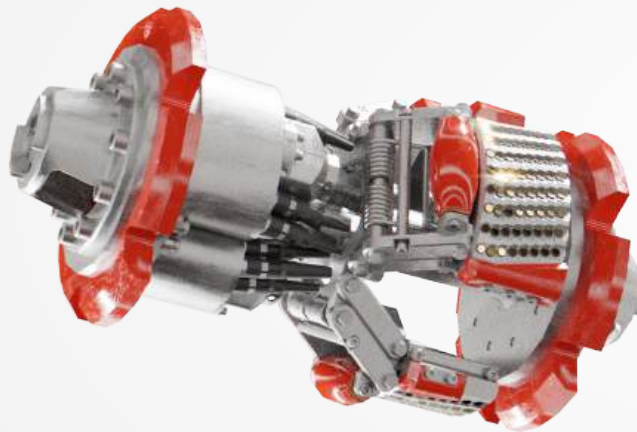


## Ultrasonic Crack Detection and Sizing



The UT-CD Hawk combines circumferential and axial crack detection and sizing with metal loss inspection capabilities. The tool uses ultrasonic shear wave angle-beam crack inspection with variable sampling densities. Crack sizing is accomplished by combining high sampling resolution with proven data analysis algorithms and analysts. Dexon's proprietary transducers allow for the inspection of cracking from both sides of a crack.

In-house R&D teams provide customized inspection solutions for challenging pipelines, such as those traditionally considered uninspectable (carbon and stainless finned tubes, thin-walled piping, inclined cracking, irregular welds, and small-bore piping). Its specialized design allows it to navigate challenging pipeline configurations, giving the tool greater flexibility in operations.



### Key Fleet Features

- 3" and greater pipe diameters
- Crack and metal loss inspection in a single tool
- Customizable sampling rates of up to 1mm circumferential × 1mm axial sampling resolution
- Combined axial and circumferential crack detection and sizing
- Sizing with a minimized tolerance of  $\pm 0.8\text{mm}$

**1mm Crack Detection, Sizing & Monitoring Precision:** Up to 1,000,000 raw data measurements per m<sup>2</sup> provide 90% POD of critical defects.

**Inspection Verification:** Proven capabilities via independent client anomaly verification and testing.

**Crack Measurement by Direct Method and Raw Data:** All crack data is recorded via direct measurement and defect reporting is accompanied by raw data.

**Automated Defect Detection and Identification Capabilities:** Advanced software algorithms provide automated defect detection for follow-up.

**Quick Turnaround Reporting Times:** Reporting schedules can be customized to meet individual client requirements.

Defect  
Detection  
Capabilities

The UT-CS Hawk ILI system is able to reliably detect and accurately size and delineate a full range of defects, including:

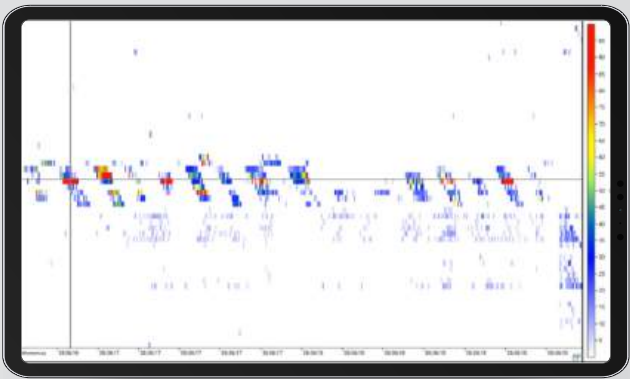
- Cracks and Crack-Like Features

  - Axial cracking
  - Circumferential cracking
  - Girth weld cracking
  - Hydrogen induced cracking
  - Longitudinal weld cracking
  - Stress corrosion cracks/colonies
  - Spiral weld cracking
- Metal Loss Anomalies

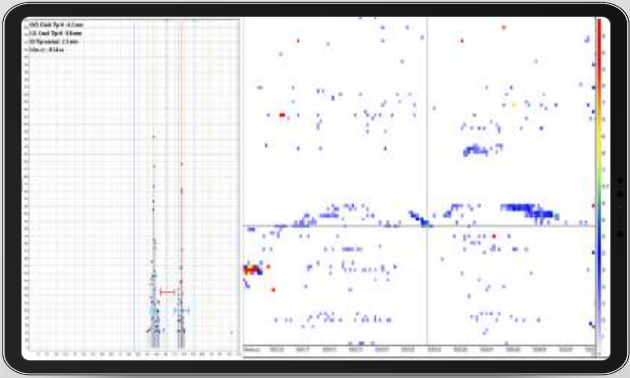
  - Pitting
  - General corrosion
  - Corrosion clusters
  - Pinholes

Crack Inspection Data and Reporting

Dexon’s UT-CD report provides details of all crack and crack-like features detected on the pipeline with robust measurements and categorization to enable a full integrity assessment of the pipeline.



Test yard inspection data showing man-made defects on a pipe used for inspection verification.



A-Scan and C-Scan UT-CS crack inspection data.



Example ultrasonic crack inspection reporting format.



## Reporting and Deliverables

Dexon's in-line inspection data analysis and reporting (DAR) department provides three-tiered reporting compliant to Pipeline Operators Forum 100 2021 recommendations. Inspection data reporting is fully customizable, including multiple export formats allowing for immediate integration into existing pipeline integrity management systems. 3D graphic representation of inspection data is available for incorporation into graphical information systems. Inspection report criteria can also be tailored to individual client inspection requirements with standard reporting including the following:

### Operations Report

The operations report summarizes important operation information including:

- Comprehensive overview of inspection operations.
- Data quality assessment to ensure successful evaluation of the pipeline.

### Preliminary Report

Preliminary reporting summarizes the most important anomalies or those requiring immediate attention, including crack-like and metal loss anomalies based on pre-defined priority thresholds

### Final Report

The final report details all the findings in the pipeline during the analysis process including:

- Detailed analysis of all detected anomalies above an agreed reporting tolerance.
- Pipeline tally, list of anomalies, list of clusters, and list of components.
- Any predetermined custom list in multiple output formats.



## Bespoke Solutions

Drawing on world-leading expertise in its state-of-the-art research, development, and engineering facility, Dexon provides clients with rapid, dynamic solutions to fulfill any inspection requirement. Dexon has collaborated with major oil and gas companies to work on a number of innovative and unique technology solutions. Talk to an inspection engineer today about securing the integrity of your assets.

**Talk to an inspection engineer today.**



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