



ULTRASONIC
株式会社

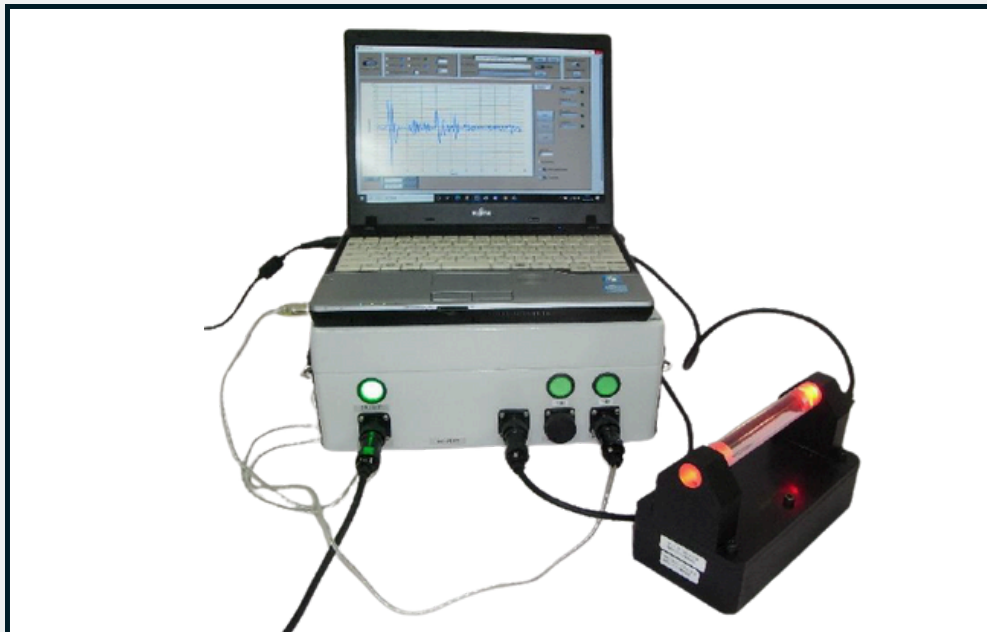
KAISEI ENGINEER CO. LTD

Inspect Corrosion and Defects with MDK-NDT SYSTEM

The Magnetic Detection Kaisei (MDK) system provides a long-lasting and reliable solution to non destructive testing of corrosion under insulation.

Smart solutions for corrosion under insulation (CUI) detection

KAISEI has developed an economical and reliable inspection technology that detects and analyses defects under insulation.



MDK-NDT SYSTEM

The System

The MDK-NDT system consists of a magnetizing coil and sensing coil, producing an eddy current.

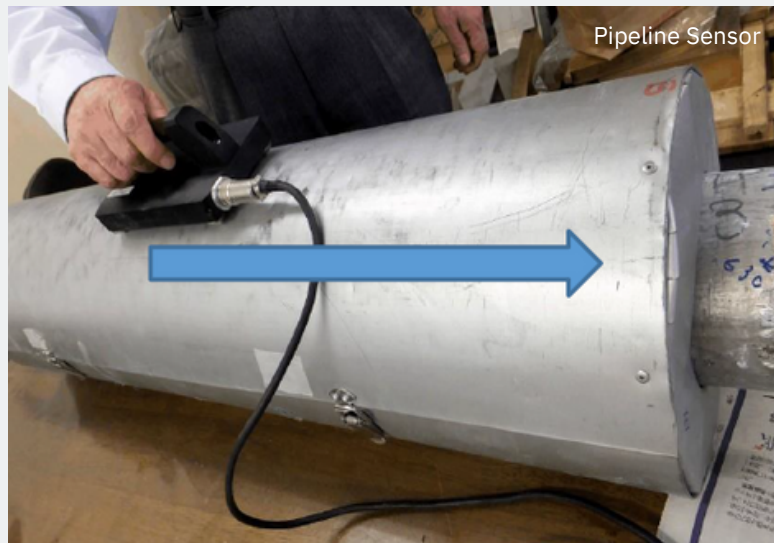
An eddy current is generated in the specimen through an alternating magnetic field produced by the magnetizing coil. A differentially connected sensing coil detects the magnetic flux as voltage. The resulting electric voltage varies if the material contains nonuniform areas, such as cracks, heat treatment inconsistencies, metal fatigue, or plating exfoliation.

The amplitude and phase of the detected voltage signal are analyzed and used for ultra-high sensitive inspection. This simple and reliable solution of electromagnetic induction inspection is used widely in Japan and other countries.

KE-9500 System



Pipeline Sensor



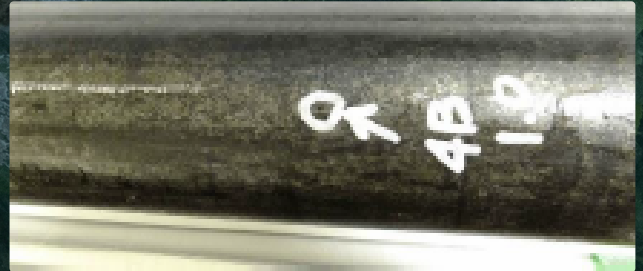
Sensors

Sensing coils come in different shapes and windings, each tailored to align with the material's form and the required placement of the sensing coil. This method enables optimal liftoff settings, enhancing the ability to detect internal defects while reducing the influence of surface conditions.

Technical Specifications

Model No. KE 9500

- MDK sensor consists of a reference coil and sensor coil in a series.
- The MDK sensor is scanned to axial direction of pipe and can test the full circumference of a pipe.
- MDK sensor is scanned along the axial direction of pipe and can test the full circumference of pipe.
- If the diameter of the pipe exceeds more than 1m, we recommend to scan different longitudinal lines.



Defect signal under insulation



Corrosion detection



Power

Variable voltage for different regions, adapted for situations.

- 90 V ~240 V/AC
- Amplifire



Weight

Lightweight unit with different sensor weights ranging to 0.8kg.

- 5kg unit + (Sensor 0.8kg)
- 300x135x200mm



Output

Connect the unit via USB plugin to PC for data analysis and viewing.

- Connection to PC for unit and sensor viewing

Inspection Cases

False defect was detected.

Test frequency: 4.0Khz for No. 1 & 2

All test data (a and b) are the raw data without any processing.

Thickness of 30mm

a) Pipe diameter: 350mm, Heat insulation thickness: 30mm

Defect size: 3.0D x 100L x 50W

Insulation plate: 0.3mm (see No.1)

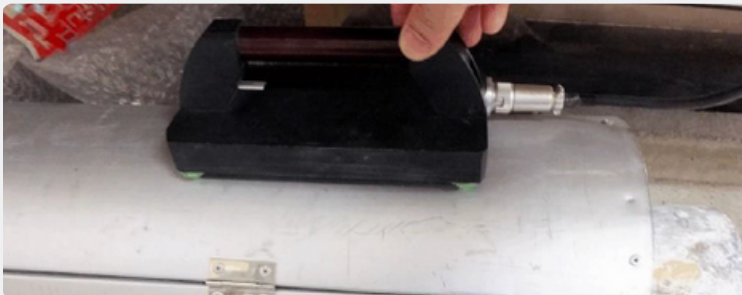
Thickness of 50mm

b) Pipe diameter: 300mm, Heat insulation thickness: 50mm

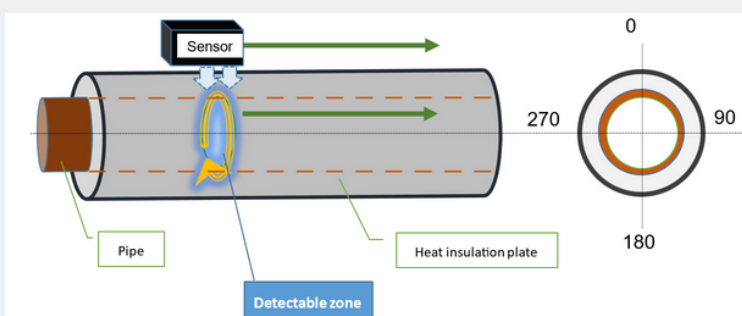
Defect size: 2.0D x 10L x 50W

Insulation plate: 0.3mm (see No.2)

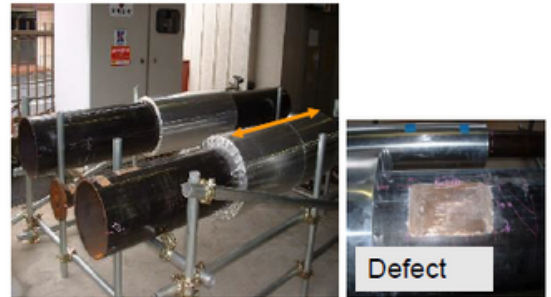
Inspection under 30mm and 50mm of Insulation



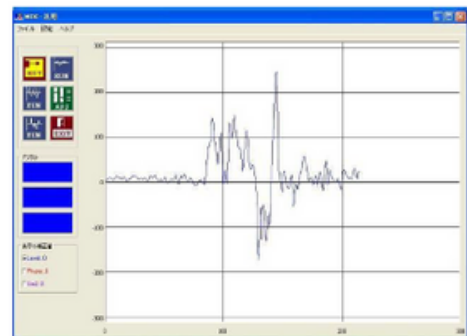
Inspection diagram of defect detection



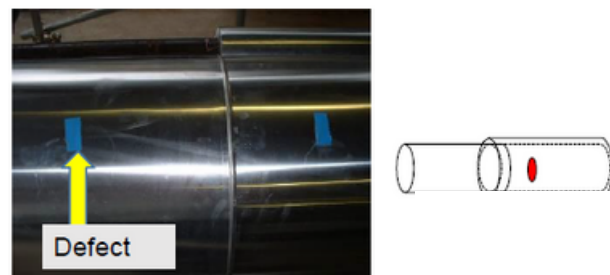
NO.1



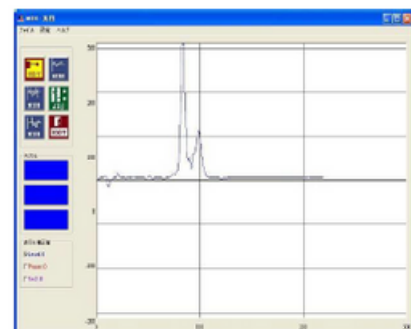
A



NO.2



B



**For further information please
email: NDT@NDT.COM.AU**