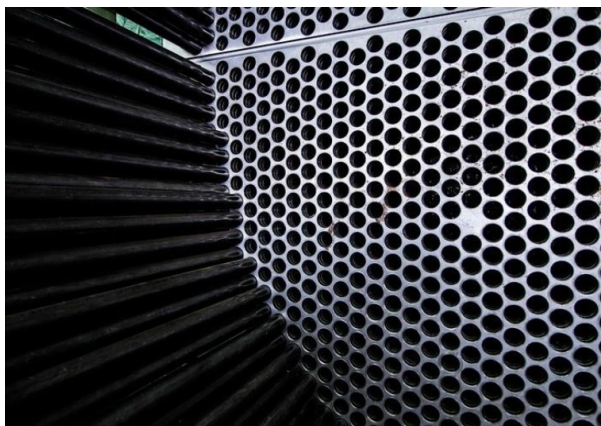


# Internal Rotating Inspection System - IRIS Inspection

IRIS (internal rotating inspection system) is a technique that can be applied to both ferrous and non-ferrous materials and even non-conductive materials like plastics. With IRIS, the remaining wall thickness of tubes can be accurately measured. IRIS inspection is more accurate than other tube-inspection techniques and has the advantage of presenting information about the geometry of defects. Local defects and wall loss on both sides of the tube can be accurately measured. Defects under support plates can be measured without any limitations. The probe used in IRIS examination is made up of a centering device, an ultrasound transducer and a rotating mirror. An ultrasound pulse is generated in the transducer that is mounted in an axial direction, then a 45-degree rotating mirror in the probe will guide the sound bundle towards the tube wall. Next, there will be an ultrasound reflection (echo) at the inner and outer walls of the tube. These echoes are reflected back and processed by the equipment. The time between these two echoes represents the wall thickness of the tube. Knowing the sound velocity in the material under test enables the wall thickness to be calculated. Water is used to rotate the probe mirror and is also needed as a couplant between the transducer and the tube wall. A calibration standard of the same material and dimensions as the tubes to be examined is used to check the IRIS system response in preparation for the inspection. The tubes should also be cleaned to an acceptable standard.



## THE Applus+ SOLUTION

Comprehensive testing services

Applus+ offers five inspection methods for heat-exchanger tubing systems:

- ECT - Eddy Current Testing
- RFT - Remote Field Testing
- NFT - Near Field Testing (Fin Fan Testing)



- IRIS - Internal Rotary Inspection System.
- MFT – Magnetic Flux Leakage Testing

Choosing the appropriate inspection method for your equipment depends on your tube material and specific inspection needs. All our crews are trained to use all techniques so they can perform complementary inspections, providing the most comprehensive service possible.

The best crews in the business

The key Applus+ differentiator is the high level of training received by our crews, who work efficiently and report quickly.

They are unique in the industry in that they consist of:

- A two-person team to perform the inspection
- An additional technician to analyse results on-site

As a result, we can typically provide:

- An initial report on the day of inspection
- A final report that is delivered in days, not weeks

Thorough reports, fully explained

Reports are only useful when the customer understands them fully.

Applus+ ensures our customers understand our reports by:

- Explaining the initial reports on the day of inspection
- Providing a timeline for final report delivery
- Conducting an exit interview to answer all questions

The Applus+ goal is to provide excellent service and exceed the industry standard.

## Target customers

IRIS is of use in a range of industries including petrochemical, power generation, food processing, steam processing and any industry that uses heat-transfer systems (including heat exchangers, boilers, condensers and air chillers).

It is used to reduce downtime resulting from catastrophic failures caused by erosion /corrosion or mechanical damage incurred during the running cycle.

## Key customer benefits



Tube Inspection with an Internal Rotating Inspection System (IRIS) for Ferrous and Nonferrous Materials:

- Boilers
- Feedwater heaters
- Air coolers
- Heat exchangers

The ultrasonic IRIS option is used to inspect a wide range of materials, including ferrous, nonferrous, and nonmetallic tubing. This technique detects and sizes wall loss resulting from corrosion, erosion, wear, pitting, cracking, and baffle cuts. IRIS inspection technology is used extensively as a prove-up technique for Remote Field Testing, Magnetic Flux Leakage, and Eddy Current Inspections.