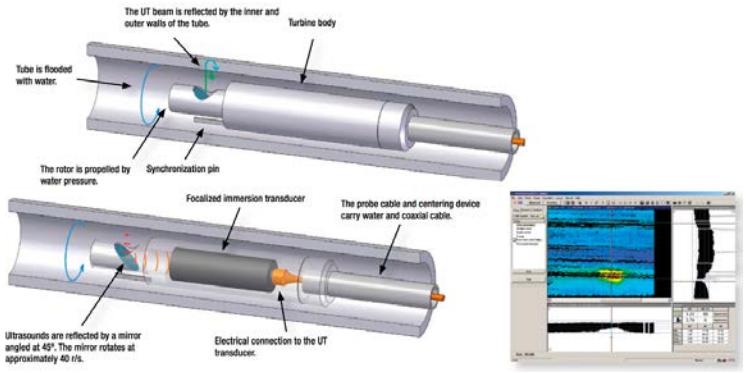
INTERNAL ROTARY INSPECTION SYSTEM

TOMTEC NDT MARINE SERVICES PTE LTD

INTERNAL ROTARY INSPECTION SYSTEM (IRIS) is an immersion type pulse-echo ultrasonic technique well suited to petrochemical and balance-of-plant (BOP) tube inspections. This technique uses an ultrasonic beam to scan the internal surface of the tube in helicoidal patterns, thus ensuring that the full length of the tube is tested. This tube inspection systems monitor the front-wall and back-wall echoes to measure the tube wall thickness.



The IRIS probe operates in pulse-echo mode to measure wall thickness, material loss, and defect orientation within the range of 0.5 in. to 3 in. (12.7 mm to 76.2 mm) ID. The IRIS probe consists of an ultrasonic transducer firing in the axial direction of the tube. A mirror mounted on a water-propelled turbine deflects the ultrasonic beam in order to obtain a normal incidence wave on the internal wall of the tube. Because the mirror revolves around the axis, the entire circumference of the tube is examined. A complete IRIS probe includes the cable, a centering unit, a turbine, and a transducer. Internal Rotary Inspection System (IRIS) can detect corrosion, pitting and wall loss and is most commonly used for tube inspection in boilers, heat exchangers, air coolers, fin-fan heat exchanger tubes and feed water heaters. It is particularly versatile as it is suitable for both ferrous and non-ferrous materials, and IRIS can be used on a wide range of tube diameters and wall thicknesses. Despite the advantages, there is still a limitation to the IRIS inspection. The testing requires extensive cleaning of the tube to remove debris, dirt or scales present. This is to ensure smooth turbine movement and also to avoid from missing any defect present at the dirty area.

Advantages

- ✓ Works on all materials, regardless of properties
- ✓ Inspection of Ferromagnetic and nonferromagnetic tubing
- ✓ Provides accurate wall thickness readings
- ✓ Allows detection and sizing of wall loss such as corrosion, pitting, erosion and baffle wear
- ✓ Can be used as a backup technique with RFT, NFT and/or MFL inspection
- ✓ Full sensitivity near tube support structures such as tube sheets
- ✓ Sensitive to both internal and external defects
- ✓ Results data storage
- ✓ Inspect approximately 250 to 300 tubes in an 8-hour day (based on exchanger length of 20 ft)

At TOMTEC, we ensure that all our technicians are competent and certified to internationally recognized standards. TOMTEC performs Ultrasonic Internal Rotary Inspection System (IRIS) to provide you with an accurate assessment of the condition of your assets.

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