TALCYON

Attributes	APR	ECT	IRIS
Type	Non Invasive	Invasive	Invasive
Technology	Uses sound waves	Eddy Current	Ultrasonic
Principle of operation	Acoustic Pulse Reflectometry	Pulse Echo method	Pulse Echo method
Defect Detection	Hole (Leaks), Blockages (Deposits/Scales) Wall loss (pitting & erosion). Limited only to ID (Inner Diameter) Defects	Hole (Leaks), Wall loss	Wall Loss
Tube Configuration	Straight, Tubes with bends (U type, multiple bends) Spiral, twisted, helical	Straight tubes in most of the cases. Flexible probe for U bend but accuracy is low.	Only Straight portions.
Tube Material	Applicable for all materials but not limited to ferrous, non ferrous, grpahite, composites, plastics	Applicable only for non ferrous material	Applicable for tube material with minimum thickness of 2mm
Inspection time per tube	10 seconds/tube irrespective of tube configuration and length. 2000 tube shall be inspected in 12hr shift	Dependent on tube length. At a sampling rate of 2000 samples/sec, the inspection of a tube can be done at a speed of 72 inches/sec (6 ft/sec). 750-800 tubes for 12 hour shift	2 inches per second. 100-200 tubes in one shift
Cleaning Requirement	Proper cleaning to ensure that there are no scales/deposits. Incase of hydro jetting, blow dry by air is recommended to avoid water stagnation. Scales/deposits shall be reflected as blockage. Defects under the blockages shall be not be detected unless cleaned.	Proper cleaning to ensure that there are no scales/deposits. In case of hard deposits, probe shall damage	Metal level cleaning is highly required. In case of deposits/scales, fill factor cant be maintained and hence be declared as blind spot.
Accuracy (Detection & Sizing)	Precise location of defect is feasible. Minimum Hole diameter - 0.5mm Minimum Blockage-5% cross section reduction Minimum Pitting/Erosion-10% wall thickness reduction	Location is not feasible. Minimum Hole Diameter-1.5mm Wall loss: 0-20%; 21-40%, 41-60%;61-80%;>80%	Location is not feasible. Remaining wall loss in terms of mm s hall be indicated

Interpretation of signals	Advanced analysis supported by sophisticated machine learning algorithm developed based upon 1,500,000 tube signatures	Manual analysis by expertise in Eddy Current Testing	Manual anlaysis supported by C scan & expertise
Reporting time	Report for 2000 tube inspection shall be issued within 24 hour stint	Totally dependent on number of tubes and proficiency on analysis . In most of the case, prelim report shall be issued in couple of days and final report after a week	Totally dependent on number of tubes and expertise proficiency on anlaysis. In most of the case, prelim report shall be issued in couple of days and final report after a week
Calibration	No calibration required as acoustic components are self calibrated prior to each inspection	Calibration should be performed on the specific tube as per ASNT standards	Calibration should be performed prior to the inspection on specific tube