Phased Array Ultrasonic Inspection Method for Homogeneous Tube Inspection Over Wide Oblique Angle Range

Benoit Lepage and Guillaume Painchaud-April, Olympus, 505 boul. Du Parc-Technologique, G1P 4S9, PQ, Canada

As seamless tube manufacturers push quality requirements for their products, automated phased array Rotating Tube Inspection Systems (RTIS) are now required to provide continuous NDE detection performances over a wide angular range of oblique flaws. One major impact of this new reality is a paradigm shift for the calibration method driven by the requirement to meet homogeneous detection over broad oblique flaw angle intervals, whereas standard practice only requires calibration at specific discrete angles. An innovative method specifically designed to obtain high productivity and homogeneous inspection measurements over an oblique flaw range extending from -45 to 45 degrees is presented. Experimental results from the application of the method on various tubes presenting multiple artificial flaws support the quantitative performance evaluation.