RELIABLE ULTRASONIC SIZING TECHNIQUE FOR PLANAR FLAWS BY MULTIPLE-TIP ECHO METHODS

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ABSTRACT

By transmitting high frequency vibrations into a specimen and listening to echoes from flaws in the specimen, Ultrasonic Testing can be used to detected flaws in a specimen. When ultrasonic wave encounters a planar flaw, e.g. a crack, it will be diffracted at crack tips and then may be received by the same transducer or it will propagate back and forth along the crack surface before being received. Therefore there are multiple tip echoes by which the same height of the crack can be estimated repeatedly without spending any extra inspection time. In other words, one can calculates the mean and its associated standard deviation of these estimates, thus the accuracy of the estimated crack height can be improved significantly.

Keywords: Ultrasonic Testing; echo; flaw; crack

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