

## Correlation of ultrasonic echo amplitude with flaw size and probe angle

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Ultrasonic Non-Destructive Testing (NDT) is a method of testing materials for internal discontinuities without destroying the material. Among the common NDT methods Ultrasonic Testing has become an essential ingredient of modern engineering practice contributing significantly to quality, overall safety and reliability of components and structures.

The ultrasound echo amplitude received from an internal imperfection or discontinuity depends on the size of the reflecting surface of the discontinuity, which is a disadvantage in using the strength of the echo for interpretation of defects.

The objective of this work was to find out how the flaw size and the probe angle affect the echo amplitude and to develop a correlation between the flaw size, the probe angle and the echo amplitude. The research was done with normal beam (Type-Krautkramer, Frequency- 5 MHz, Diameter-12.5mm) and angle beam probes (Type-Krautkramer Frequency- 4 MHz, Size- 8 x 9 mm<sup>2</sup>, Angle-45°, 60°, and 70°)

From the observations it can be concluded that although the echo amplitude vary with the flaw size, the differences of the amplitude values with respect to each probe angle are constant irrespective of the flaw size for steel having flaw diameters between 3mm and 20 mm.

This work will be continued to investigate whether the difference in amplitude values with respect to each probe angle could be used to recognize the flaw type.