

**DEFECT DETECTION IN WELD ZONE USING ULTRASONIC  
NON-DESTRUCTIVE TESTING**

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## **ABSTRACT**

### **DEFECT DETECTION IN WELD ZONE USING ULTRASONIC NON-DESTRUCTIVE TESTING**

The defects in the materials can be tested by using Non-destructive testing (NDT). NDT is defined as a testing of material, component or assembly by means, which do not affect its ultimate use. One of common methods in NDT is Ultrasonic testing (UT). UT is a non-destructive technique of describing the depth or interior structure of a test piece with high-frequency sound waves. UT can be utilized for flaw discovery, dimensional estimations and material display. Therefore, by using UT, the defect of the plate can be determined. The defect of Plate No. 14 B was located on the middle of the plate with the depth of half of the thickness, which was 5.1 mm. For plate No. 6, the defect was detected from the position 2 by the depth of 5.5 mm as half of the thickness. Thus, the defect was located on the middle of the welded plate. For plate No. 13, the defect was determined from the position 2 by the depth of 7.0 mm as half of the thickness. That is why, the defect was detected at the centre of the welded plate. While, for plate No. 1, the probe was moved to position 2 and the defect was obtained at the depth of 1.4 mm and sound path, S of 26.2 mm. Lastly for plate No. 2, the probe was moved to position 2 and the defect was obtained at the depth of 5.0 mm and sound path, S of 30.0 mm. In conclusion, the defect present in weld zone on the plate is successfully determined using ultrasonic testing by analyzing graph signal of ultrasonic testing.

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