

عنوان مقاله:

The advantages of Phased Array Ultrasonic Testing (PAUT) & Time of flight Diffraction (TOFD) Combination instead of using individually on ASME U stamp Pressure vessel fabrication projects

محل انتشار:

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خلاصه مقاله:

The Phased Array Ultrasonic Testing (PAUT) and Time of Flight Diffraction (TOFD) technologies have made rapid changes in inspection and reliability in various industries. Ultrasonic phased arrays are a new technology that offers considerable potential for inspecting construction welds. Using electronic control of the beam, phased arrays can scan, sweep, steer and focus the ultrasound. Since welds typically produce defects of known character and orientation, phased arrays can be programmed to optimize weld inspections. These inspections include standard ASME-type pulse echo raster scans, zone discrimination, TOFD and specials, depending on the vessel, weld profile, geometry and specifications. The Time-of-Flight Diffraction technique (TOFD) was originally developed as a method of accurately sizing and monitoring the through wall height of flaws in the industry. It is equally effective in weld inspection for the detection of flaws, irrespective of type or orientation, since TOFD does not rely on the reflectivity of the flaw but uses the diffracted sound initiating from the flaw tips. A major advantage of PAUT & TOFD methods combination is effective procedure for better sizing and location determination of the discontinuities. This paper discusses the combination of PAUT & TOFD methods instead of individually for weld inspection on pressure vessel projects.

کلمات کلیدی:

Phased array ultrasonic testing, TOFD, Sectorial scan, Beam intersection, combination of PAUT & TOFD

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