Non-Destructive Inspection of Welds and Joints with Ultrasonics

This application notes describes the inspection of welds with rough surfaces for accurate, non-destructive safety assessments.

Why Ultrasonics

It is clear that to be able to critically asses the integrity of welds and joints non-destructively, either at their manufacturing stage or during in-service, it is very important especially in safety critical situations.

One of the most reliable and well-established techniques employed to inspect these joints is the use of ultrasound or what is commonly known as Ultrasonics (UT). In this application note, we are using the UT8000.

The Challenge

Ultrasonic probes used for weld examination have frequencies generally between 2MHz and 5MHz, the lower frequency probes being used for the examination of coarse-grained material or on rough surfaces, the higher frequency probes for the detection of fine defects such as cracks or lack of fusion.

Mostly inspection is carried out with single crystal shear wave transducers but sometimes in situations where there is a rough contact surfaces, the twin crystal variants are used.

The solution

Probes for Weld Inspection

SS60-4(ML), part of the SS series:

Part number is SSXX°-4(ML)

SS = Single Shear

XX° = Angle. Either 45°,60° or 70°

4 = 4MHz Frequency

(ML) = Mini Lemo (Lemo 00) connector

Successfully used by NDT Inspection Companies as well as asset owners in the Oil and Gas, Petrochemical, Fabrication, Powergen and Rail industries among others.

Four key advantages of the Proceq angle beam probes:

- Excellent signal to noise characteristics
- Customised angles
- Contoured to match convex and concave surfaces
- High temperature versions

Angle Beam Compression Wave transducers are available for the inspection of coarse-grained materials such as austenitic stainless steel and exotic Duplex materials.

caption

See more applications and uses of the UT8000 Ultrasonic flaw detection in our Tech Hub.