

APPLICATION NOTE

Threaded Bolt Crack and Corrosion Mapping

Ultrasonic Application Solutions

Application

Threaded bolts are an essential part of any large construction such as bridges, offshore platforms and even buildings. To ensure the structural integrity of such large structures the full volume of the bolt, especially the threaded area should be evaluated on a regular basis. A simple phased array exam may be performed without dismantling the bolts.

The phased array image is capable of readily displaying thread degradation such as corrosion as well as defects such as cracking. This will aid in decision for further action.



Solution

The detection of corrosion within the threaded area is preferably carried out using the sector scan of straight beam phased array probes.

The probe is rotated by 360° on the bolt such that the sector scan fully covers the threads.

The lefthand figure displays such a sector scan, in which single threads are resolved and the corroded area is detected by a significantly increased reflection signal (red area).

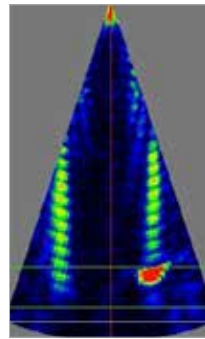
To ensure steady and uniform coupling, the probe features uses a non-abrasive protective membrane allowing for coupling on rough surfaces and increasing the probes' lifetime.

These features result in an improved measurement, reliability and accuracy.



Key Features & Benefits

- To ensure steady and uniform coupling, the probe features use a non-abrasive protective membrane allowing for coupling on rough surfaces and increasing the probes' lifetime
- High quality inspection and probability of detection
- Reduce construction failures and potential liability



Equipment Used

- Straight beam contact phased array probes B4SPA16 or MB4SPA16
- Mentor UT Phased Array Flaw Detector - P/N 100N3883
- Also operational on other commercially available phased array instruments