



Threaded Bolt Crack and Corrosion Detection

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 threads of the bolts have to be checked for any damage on a regular basis without removing the bolts.

The measurement detects corrosion damage and cracks, and assists in deciding whether to keep or exchange the threaded bolts.

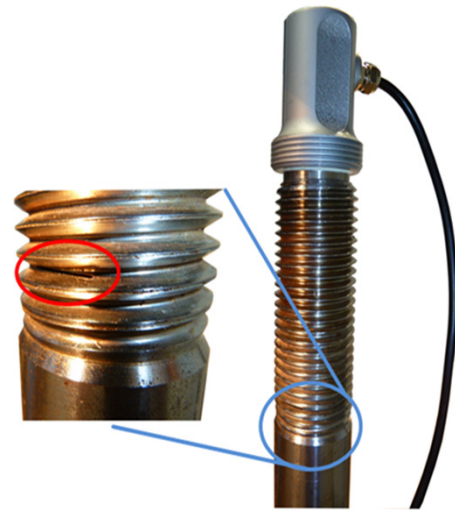


Figure 1: Zoom on threaded bolt damage

Solution

The detection of defective areas in the thread is preferably carried out using a sector scan (eg. +35 degree -35 degree) of straight beam phased array probes. It is recommended to use an operating frequency of 4MHz to obtain optimum thread resolution. To ensure steady and uniform coupling, as well as good inspection results, the probe contact diameter should match the diameter of the bolt under inspection. These features result in an improved measuring reliability and accuracy.



Figure 2: The B.SPA16 & MB.SPA16



The B.SPA16 / MB.SPA16

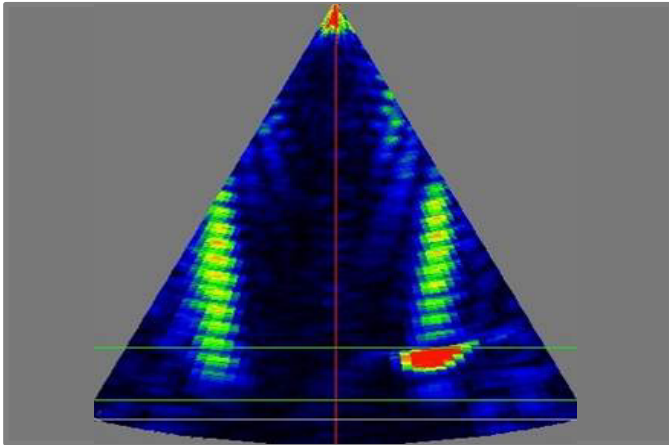


Figure 3: S-scan

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

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



Figure 4: The non-abrasive protective membrane

To ensure steady and uniform coupling, the probes' features are a non-abrasive protective membrane allowing for coupling on rough surfaces and increasing lifetime of the probe, as well as a unique circular transducer design.

General solution information

- Straight beam contact phased array probes B4SPA16 or MB4SPA16
- Ultrasonic phase array flaw detectors: PHASOR XS
- Also operational on other commercially available phased array instruments

Your benefit

- High quality inspection and probability of detection
- Reduce construction failures and potential liability
- Save money by improving your process

Part numbers

B4SPA16	0069806	MB4SPA16	0069906
Phasor XS	0104372		

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