



# UT of Quench Cracks on Guides of Chains for Caterpillars

Ultrasonic Application Solutions

## Application

Hardening treatment carried out on caterpillar chain guides can result in the development of quench cracks. These occur on the inner surface and can possibly emerge on the opposite surface. Once the cracks emerge, the defect is easily detectable by eddy current or even by visual inspection. However, these methods cannot detect the cracking before it reaches the surface.

## Solution

To detect this kind of defect, an ultrasonic inspection is used along with an angled probe. This method is fast, easy and effective. The angled probe developed for this application has small overall dimensions while being easy to handle. It has a crystal of 10MHz for good resolution and the beam exit point is located as close as possible towards the rear of the housing. The selected angle is 45° shear. This kind of probe allows for the detection of defects under 0.5mm.



Figure 1: Caterpillar chain

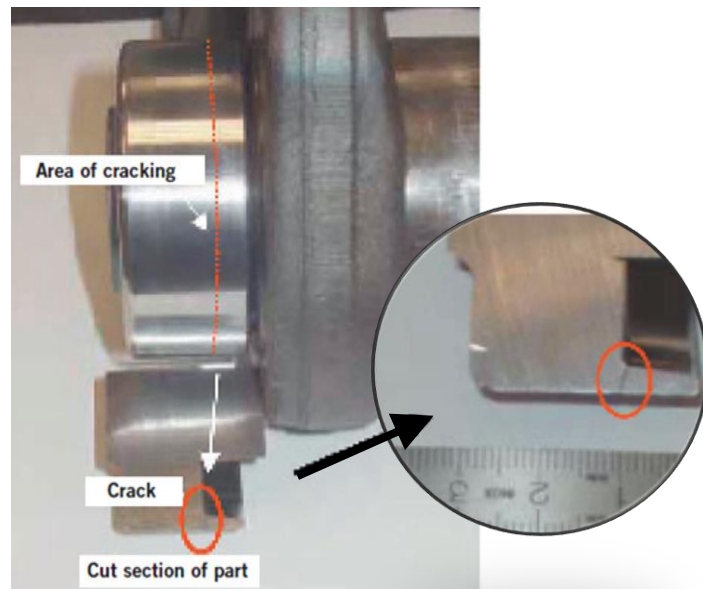


Figure 2: MSEB Dual Element Probe



## Title



Figure 3: Subminiature angle beam probe

SMWB 45-4 is a subminiature angle beam probe with a frequency of 10MHz for a good resolution and the beam exit point is located as close as possible towards the rear of the housing. The selected angle is 45° shear. This probe is very small with a width of 7mm and a length of 16mm.

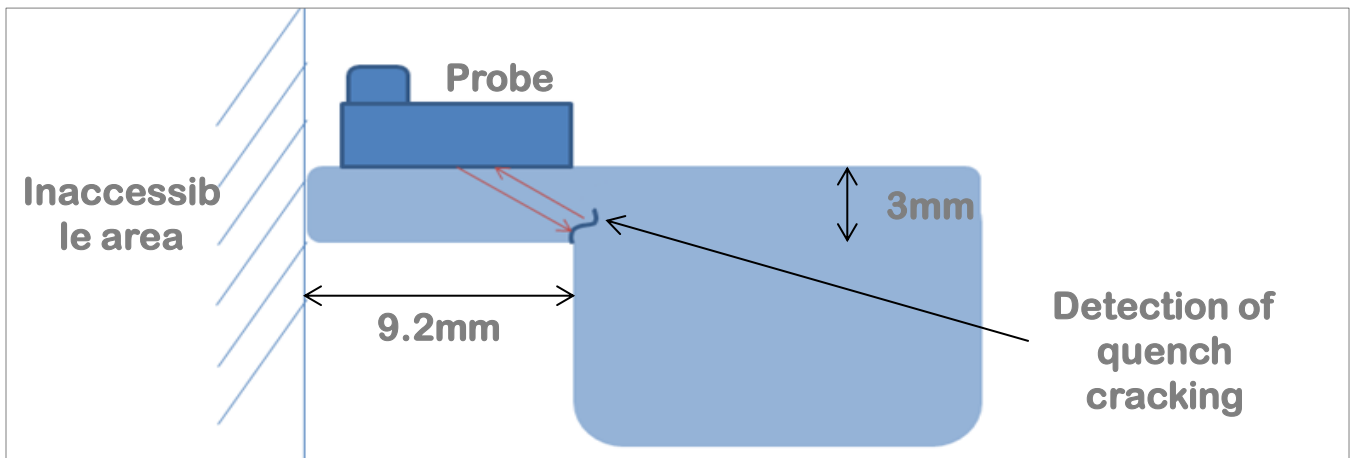


Figure 4: Measurement setup

### General solution information

#### Flaw Detector

- USM 36
- USM Go+

#### Probe

- SMWB 45-10

### Your benefit

- Ensure high quality levels
- Reduce field failures
- Reduce potential liability

#### Part numbers

USM 36	0037400	USM Go+	0113214
SMWB 45-10	0068157		

Contact the GE European Solutions Center for your individual inspection problems:

GE Measurement & Control  
European Solutions Center  
[www.utprobes.com](http://www.utprobes.com)  
[Portable.utsolutions@ge.com](mailto:Portable.utsolutions@ge.com)



GE imagination at work