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Measurement & Control

Ultrasonic Testing of Laser Welds on Airbag Cartridges

Ultrasonic Application Solutions

Application

One important part of every modern car is its airbag. Therefore, the circumferential laser welds on airbag cartridges must be inspected during manufacture. Specifically welding penetration depth has to be determined and any flaws in the weld must be detected.

Figure 1: Airbag cartridge

Solution

A schematic of the laser welded area is is shown in figure 2. It is recommended to carry out testing using the immersion technique with the probe H 10 MP 15 (f = 10 MHz, depth of focus in water = 15 mm), by means of straight beam scanning and rotation around the entire circumference. In this way, a C-scan can be generated which assists interpretation and provides a permanent record.

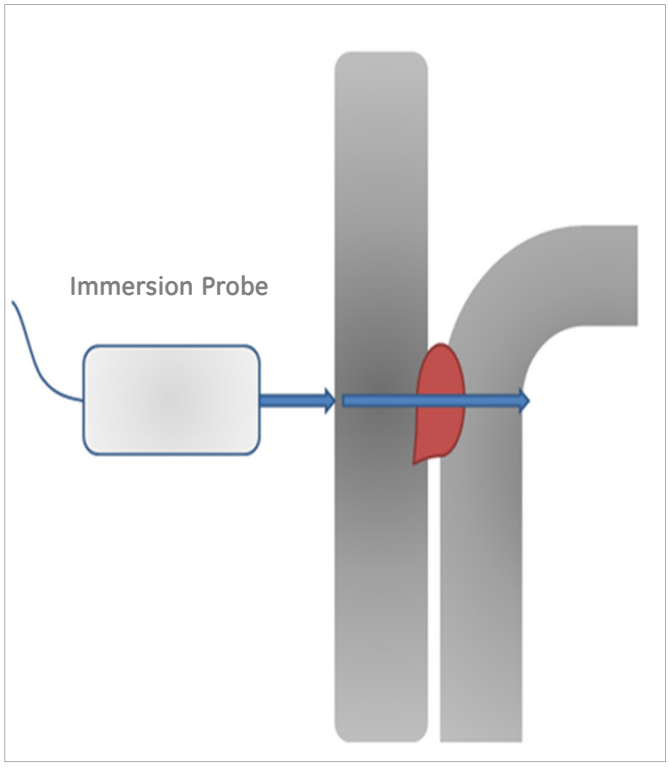

Figure 2: Measurement setup

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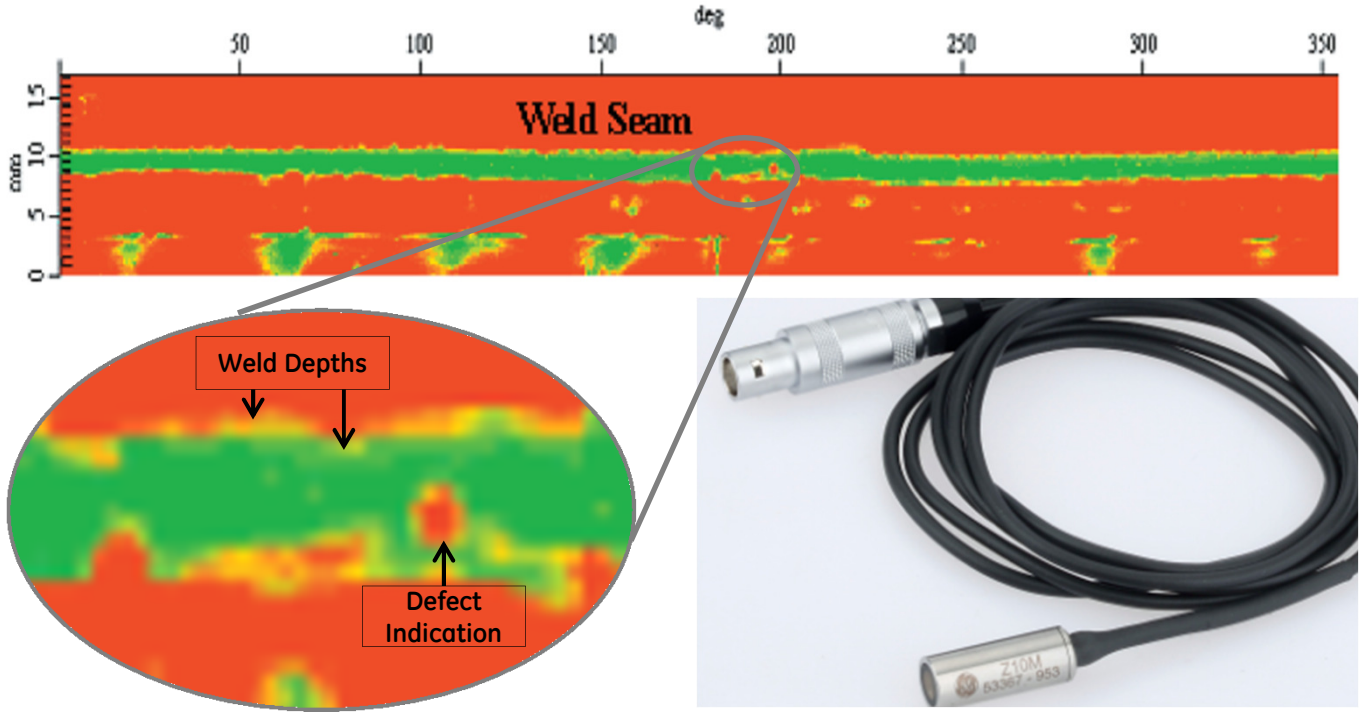
Results



The C-scan (upper picture) shows the developed view from 0 to 360 degrees along the probe displacement from 0-17mm. The amplitude is color-coded. Red marks a high signal amplitude from the backwall echo or from flaws in the weld metal bead, and green represents low signal amplitudes or missing echoes. This makes it possible both to determine the welding depths and to reliably detect and locate flaws in the laser weld.

General solution information

- Flaw Detector: USIP 40
- Probe: H 10 MP 15
- Software: KScan
- Accessories: Immersion system with scanner for probe movement and rotation of the test object

Your benefit

- Ensure high quality
- Reduce field failures and potential liability
- Save money by eliminating destructive testing and by improving your process

Part numbers

USIP 40	0036535	H10MP15	0053132
KScan	0037085		

GE imagination at work

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

GE Measurement & Control
European Solutions Center
www.utprobes.com
Portable.utsolutions@ge.com

70004062014