



Thickness Measurement on Cast Hollow Turbine Blades

Ultrasonic Application Solutions

Application

A precise measurement is required in order to detect possible core mismatches in new hollow turbine blades or to determine the remaining wall thickness during inspections.

For this application case, the GE Portable Solution Center recommends the combination of probe G 25 MPN with the special knife-shaped delay tip (see figure 4).



Figure 1: Hollow turbine blades in an aircraft engine

Solution

Using the practical pencil probe G25MPN, having a small contact surface diameter of only 2.5mm, enables measurements on convex bends up to a minimum radius of 3mm and on concave surfaces up to a minimum radius of 15mm. A precise thickness measurement is achieved by reading the echo positions in the zero crossing mode.



Figure 2: Measurement setup



Pencil probe G 25 MPN

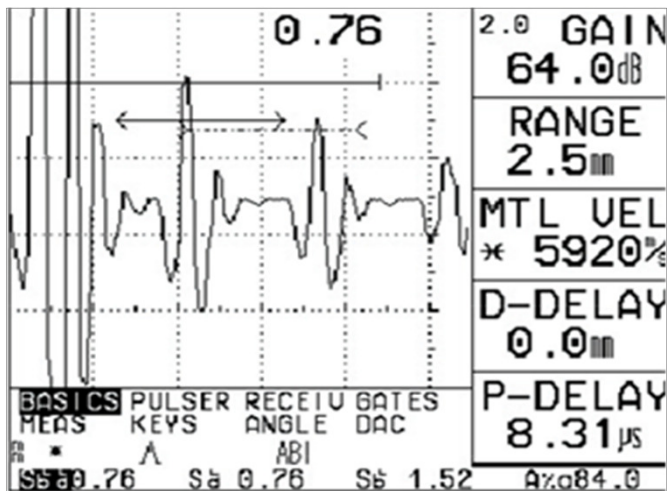


Figure 3: A-Scan of thickness measurement

This A-Scan shows a thickness measurement between the 1st and 2nd backwall echoes in the pulse zero crossing mode. The actual thickness value “0.76 mm” is indicated on the A-scan screen (thickness measurement on a hollow turbine blade using the USD 15 and the G 25 MPN).



Figure 4: Pencil probe G 25 MPN

The special probe G 25 MPN with exchangeable delay block is suitable for wall thickness measurements in the range of 0.5 mm up to 10.0 mm (in steel). It includes a PVDF transducer with a diameter of 3mm.

General solution information

- Flaw detector: USM 36, USM Go+, USLT USB
- Pencil probe: G 25 MPN

Your benefits

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

Part numbers

G 25 MPN	0067305	USM 36	0037400
USM Go+	0113214	USLT USB	0036752

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

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