



# Time of flight diffraction testing (ToFD)

Time of Flight Diffraction (TOFD) is becoming one of widely used non-destructive testing method for weld inspection. The main difference of TOFD technique is based on received ultrasonic diffractions which are from tip of imperfections instead of received reflected signals in conventional method.

The basic arrangement of the TOFD technique consists of two probes in the pitch-and-catch configuration, with one probe acting as the transmitter and the second probe as the receiver. Such an arrangement provides a large volume for inspection and provides for unambiguous location of the position and depth of the reflectors.

This advanced ultrasonic technique has special features such as highest probability of defect detection, very accurate sizing of defects (better than 0.2 mm), increased speed of inspection, permanent digital record of the inspection data, efficient detection of defect independent of defect orientation and highest reliability of inspection quality.

the application of TOFD technique can be classified into areas i.e., pre-service inspection of linear butt welds on vessels, pipeline and plates. in-service inspection which includes corrosion monitoring, cladding measurement and condition monitoring (growth of flaws) on different product sectors like marine engineering oil & gas, large-sized steel structure, wind power industry. aircraft industry and so on.

We can provide Ultrasonic training courses and examinations suitable for any of the following certification

- PCN/ ISO 9712 Level 1.2, and 3
- SNT-TC-1A Level 1. 2 and 3 in accordance with your company written practice

We can also provide

- Preparing and approving written instruction
- Level 3 witness

SGS can tailor make the syllabus to satisfy the requirements of an individual's company specific written practice if requested.

## LEVEL 1

### WORK EXPERIENCE AND TRAINING HOURS' REQUIREMENTS

- 80 hours training
- 1 months work experience

PCN examination must hold current valid Level 2 or Level 3 certification in Ultrasonic Testing issued by a certification body recognised by BINDT.

### THEORY EXAMINATION SPECIFIC ONLY

Application of the Method and use of Codes, Specifications and Procedures, applicable to the company, including the relevant control checks.

### PRACTICAL EXAMINATION

Follow written instructions and process the inspection test pieces, recording and classifying the results according to written instructions (quality of the collected data), carry out pre-test calibration checks and post-test procedures.

## LEVEL 2

### WORK EXPERIENCE AND TRAINING HOURS' REQUIREMENTS

- 120 hours training
- 3 months work experience

PCN examination must hold current valid Level 2 or Level 3 certification in Ultrasonic Testing issued by a certification body recognised by BINDT.

### THEORY EXAMINATION SPECIFIC ONLY

Application of the Method to the specific requirements of the company, in particular making reference to those Codes, Specifications and Procedures used by the Company, including the relevant control checks.

Product technology of the products for the relevant sector, manufacturing processes, defect formation and detection.

### PRACTICAL EXAMINATION

Production of written instruction, determine the best inspection techniques for the individual parts, process the inspection test pieces, interpreting and evaluating the results according to the applicable standards define limitation of ToFD, carry out pre-test calibration checks, post test procedures.

## CONTACT US

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WHEN YOU NEED TO BE SURE

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