



Time of Flight Diffraction (TOFD)

The ultrasonic technique of detecting diffracted waves from crack tips and sizing of the cracks from the arrival time of these diffracted waves is known as the time-of-flight diffraction technique or TOFD.

The main advantages of TOFD over conventional pulse-echo techniques are:

- It is largely independent of defect orientation
- It does not rely on signal amplitude for sizing
- Permanent digital record of inspection data with cross-section type views through the metal

The TOFD technique provides a means of accurately sizing internal flaws in metal, and in particularly in welds. The technique also detects flaws with a high probability of detection, but training and experience are required to analyse the sometimes-complex patterns observed.

Inspection using the ultrasonic Time Of Flight Diffraction (TOFD) technique provides a proven combination of reliable flaw detection, & accurate flaw sizing ($\pm 1\text{mm} / 0.040''$)

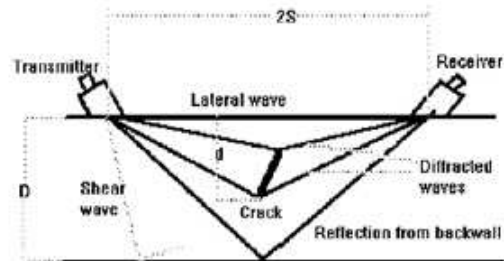
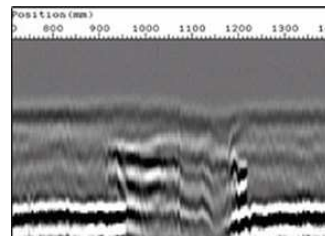


Figure A1.1 Wave Paths for the TOFD Arrangement

Axess is a leading provider of inspection & integrity management, and engineering & construction services.

The business within Axess comprises the offshore, maritime and energy industries.



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