

# NDTS ADVANCED INSPECTION TECHNOLOGY

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### TIME OF FLIGHT DIFFRACTION (TOFD)

NDTS uses the state of the art OmniScan MX Mainframe with Phased Array TOFD Acquisition Modules, combined with multipurpose scanners and modulators.

With ToFD, a single line scan of a pair of angle compression wave probes held at a fixed separation can provide full volumetric coverage of both weld and heat affected zone (HAZ) and generate an immediate scale image of through wall condition with defects shown in true location and size. The wide beam used defines the test surface by generating a lateral wave and the inner surface by reflections off the material 'backwall'. Any anomalies lying between these two surfaces are highlighted by signals diffracted and reflected off their extremities. The lateral location and length of these discontinuities is reported as a function of encoded scan position.

(TOFD), which was originally developed for crack-sizing in nuclear applications, established itself as a widely used tool for flaws detection in welds. This unique ultrasonic technique has big advantages in speed, detection of defects and is the most accurate defect sizing technique in general use. One of the important advantages of using TOFD for weld inspection is the absence of radiation. Furthermore, in several validation projects TOFD has proved itself to be a technique, which combines a high detection rate with a very high reliability in pre-service and in-service inspections.

NDTS have provided ToFD services since 2007 to TCO and KPO facilities.

