



4th INTERNATIONAL CONFERENCE ON NDT

Hellenic Society for NDT
11-14 October 2007, Chania, Crete-Greece



INSPECTION OF TURBINE BLADE BOLTS

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ABSTRACT

Bolt are coupling the blades on the turbine. Ultrasonic in service inspection is developed from an axial bolt bore hole aiming the beam to the outer surface to detect transversal defects along the bolts. In this presentation are described the techniques used. One is a contact technique employing an angular transducer with manual or automatic driving by a device with oscillating rotation and axial movement. The second one is by immersion technique using an ultrasonic tool with an axial transducer aiming the beam into the material by reflection in a rotational mirror, driving it by a flexible coupling and external motor. The techniques have been applied in several inspections of bolts in Kaplan turbine blades of a hydroelectric power station. Both tests can be fully automated to control scanning parameter, data recording and presentation and post signal treatment.