



ULTRASONIC IN SERVICE INSPECTION OF HIGH RESISTANCE BOLTS COUPLING WATER TURBINE BLADES

Carlos Desimone, Pablo Katchadjian
CNEA, Argentina

The ultrasonic inspection is developed from the axial bolt bore hole aiming the beam to the outer surface to detect transversal defects along the bolts. Two techniques are described in this presentation. 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. Both tests can be fully automated to control scanning parameter, data recording and presentation and post signal treatment. The techniques have been applied in several inspections of bolts in Kaplan turbine blades of a hydroelectric power station.