

N25. Lightweight Torque Wrench Improves Bolting Maintenance

An automated Control Rod Bolting Wrench system for maintenance in Boiling Water Reactors has been developed and demonstrated. The system allows a single mechanic to remove or replace Control Rod Drive Bolts from beneath the reactor vessel.

The technology is directly applicable to other difficult, high exposure bolting tasks within the plant, such as on reactor coolant pumps, heat exchangers, and vessel manways.

Each bolt can be completely removed or replaced within 30 seconds. Total tool weight is only 20 pounds. A remote torque display allows monitoring of peak torque from outside the reactor containment, thereby eliminating radiation exposure to quality control personnel.

A new wrench can reduce direct radiation exposures and labor requirements under the vessel by 75 percent during bolting maintenance. It also offers the potential for reducing critical path time and operating fatigue.

The system consists of two complete wrenches, power supplies, and remote digital displays of peak torque. One wrench is dedicated to breaking out bolts, and the other is dedicated to making up bolts. Peak torque is delivered to the bolt by an internal hydraulic system capable of repeatable performance within 2 percent of prescribed torque limits.

Ultralight, 10 lb. systems can be configured to handle final makeup or initial breakout torque, as specified by the consumer.

For more, see Pentek Ink, Volume 5, No. 2, Fall 1989 (Pentek, 1026 Fourth Avenue, Coraopolis, PA 15108).