

## Fuel Channel Characterization (FCC)

### Fast and Reliable Dimensional Data for Irradiated BWR Channels

Framatome's Fuel Channel Characterization (FCC) delivers reliable results in real-time for measuring the dimensional behavior of irradiated BWR channels. FCC has minimal impact on outage time during fuel offloading or refueling. We realize that accurate fuel channel information is an important part of building a performance database. It enables early detection of potential problems.

### Field-Proven Ultrasonic Transducers Collect Data

FCC employs UT transducers placed at discrete axial locations along the length of the inspection fixture to perform four-sided, non-contact measurement. Inspection criteria determine the number and location of transducers, which can be arranged to measure both flat and contoured channels. Using a computer-based data acquisition system, Framatome takes measurements and interprets data — in less than one minute. The system can quickly print data in spreadsheet format for preliminary analysis at poolside. Tables and columns display data within tolerances as green and suspect data in red. Plus, the bow data is displayed graphically. The computer saves raw and reduced data for additional evaluation. Using the acquired data, analysis reveals the channel's width, bow and bulge dimensions.

### Quick and Easy Setup

The inspection fixture is designed to accommodate quick and easy setup with minimal site modifications. The fixture can also work with an independent support frame, allowing placement in the cask pit or other open storage pool areas.

### Enhances Fuel Management Strategy

This comprehensive measurement of channel dimensional changes, when related to operating conditions, improves several aspects of in-core fuel management. In fact, FCC can help manage safe operation and free movement of the control blades.



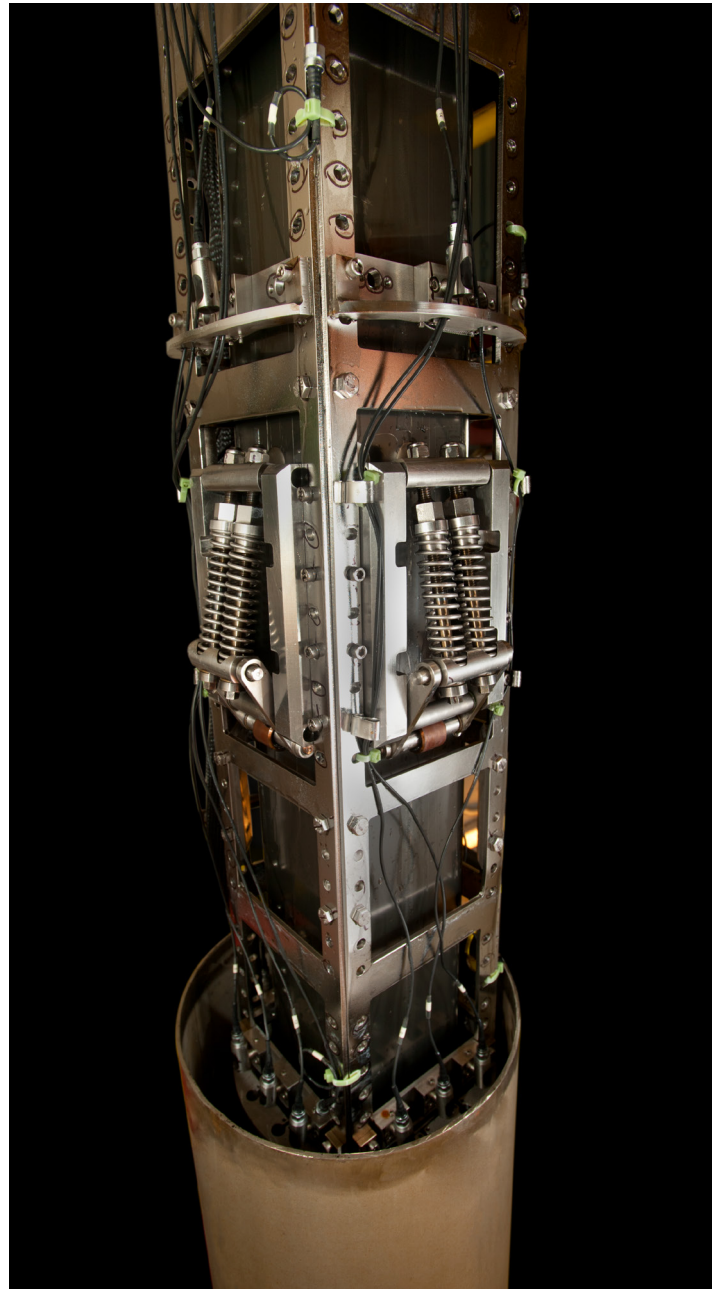
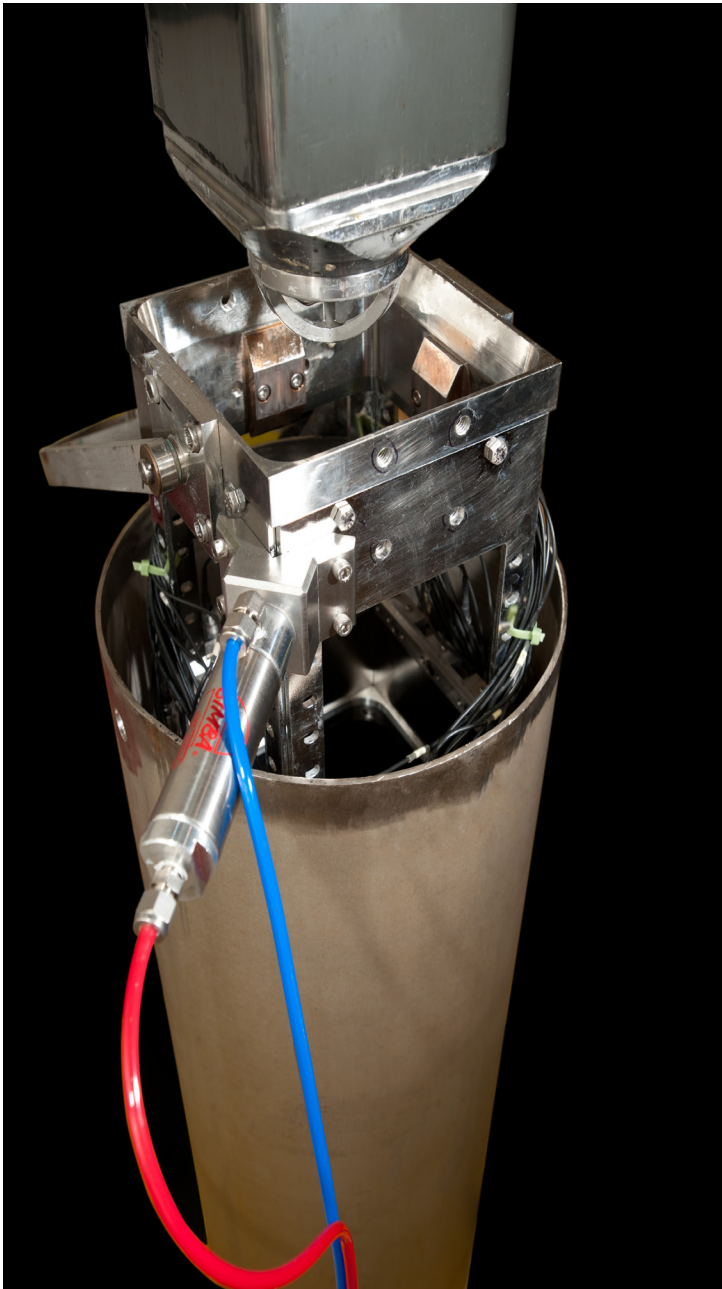
### Fuel Channel Distortion Issues Characterized

- Control blade interaction (bow/bulge)
- Impact on critical power ratio (under predicting bow)

### Features and Benefits

- Proven technology
- Minimal impact on outage time during fuel offloading or refueling
- Inspection fixture designed to accommodate quick and easy setup
- Reliable, low-maintenance fixture
- Measures bulge and width, and calculates bow in less than one minute
- Data reduced and transferred to spreadsheet format with printouts at poolside for preliminary analysis
- Number and locations of UT transducers can easily be changed dependent on inspection criteria and channel design
- Channel measurement fixture is electropolished, leading to easy decontamination

**Your performance**  
is **our** everyday **commitment**



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