

RIC Innovation Tools

Ensure the reliability of in-core system

Besides the conventional tools for RIC, Framatome has developed innovative tools for RIC special maintenance or to ease routine RIC maintenances.

Challenge

A reliable RIC (in-core-instrumentation) system is important for the operation of a reactor. RIC system has several dozens of thermocouples in core and several dozens of thimble tubes inserted in core during normal operation. In each outage, there are considerable maintenance activities for RIC system.

Solution and main features

For the purpose of improving the reliability of RIC system, and facilitating the maintenance activities, Framatome has developed special tools dedicated for RIC maintenance, such as:

1. Semi-automatic continuous thimble tube withdrawal and insertion tool
 - time saving and less operator for TT withdrawal/insertion
 - Avoid TT deformation caused by manual insertion
2. Thermocouple semi-automatic continuous insertion tool
 - Improve the success rate of TC replacement
3. Thermocouple extraction by vibratory method
 - Improve the success rate of TC replacement
4. Work platforms on upper internals equipment: rigid platform, floating platform
 - Facilitate massive operations on TC columns and conduits



Massive TC replacement performed on a floating platform with TC continuous insertion tool



TC continuous insertion tool demonstration on a reactor mock-up



Semi-automatic continuous thimble tube withdrawal and insertion tool

Customer benefits

- Improve the reliability of RIC system
- Improve the success rate of component replacement operation
- Outage optimization/cost savings
- Semi Automatic operation to reduce human error

Your performance
is our everyday **commitment**

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