

Core Exit Thermocouple Repair and Replacement

Reduces dose and precludes damage to conduits

Innovative Vibratory Method

More plants have to replace their aging thermocouples (TC) because of surprise events or damaged connectors. An older industry removal method put a tremendous strain on the thermocouples, often causing breakage. Framatome now offers a safe solution by removing your old thermocouples with vibrations.

Removal using the vibratory system

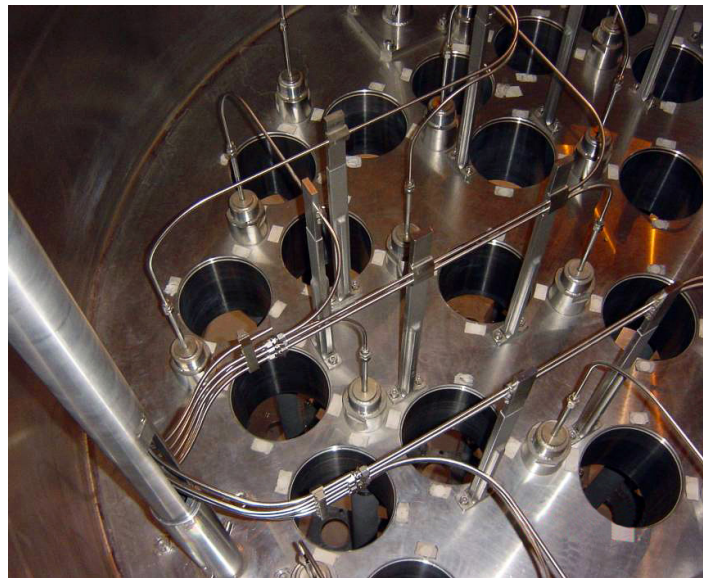
The TC removal tool causes the thermocouples and conduits located above the upper guide tube plate to vibrate. Prior to removal of the thermocouples, Framatome inspects the upper guide-tube plate.

Three Step Method

1. From the platform, the operator lowers the vibrator located at the end of the pole into place above the upper internals.
2. Guided by the CCTV image, the operator connects the vibrator to the conduit.
3. The resonant frequency is determined and the operator starts removing the thermocouple.

Components

- Removal System
- Pole fitted with an instrumented pneumatic vibrator and an air-operated gripper, which can be angled or straight, depending on the requirement for a vertical or horizontal excitation
- Remote control panel to guide the tool and determine the resonant frequency of the conduit



Benefits

- An innovative, fully-mastered solution to meet customer requirements
- Less pulling tension for safer thermocouple removal
- Simple, easy-to-use tool
- No damage to conduits
- Reduced operator exposure = less dose
- High success rate
- Secure access according to Framatome standards
- Less risk of contamination and irradiation for operators

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

Remote Operation Enhances Safety

Framatome removes thermocouples remotely under water, providing biological shielding and reducing operator exposure.

Control at All Levels:

- Less static pulling required to remove
- Removal system controls speed and pulling tension
- The pole/vibrator/gripper assembly controls vibration
- The remote control panel controls pulling tension, vibrations and vibration frequency

Caring for the Environment

The vibratory system generates no waste, is non-intrusive and requires no chemical substances. Plus, Framatome's high success rate means fewer repairs required on your upper internals and less waste generated.

Framatome has removed 90%
of the industry's thermocouples.

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