

## Control Rod Guide Tube

### PWR Internals Replacement

#### Challenge

The control rod guide tube (CRGT) is a safety component which ensures timely control rod drop. Its role is also to guide the rod during step-by-step movements.

MRP-227 exams are documenting guide card wear. Guide card wear is a generic issue (for control rods involved in Thermal Power adjustment) due to the load follow. Wear can affect the control rod drop and lead to the need for replacement.

#### Solution

Framatome offers solutions for guide tube removal and replacement. Our customers can choose to replace a guide tube with a new tube or two guide tubes can be swapped.

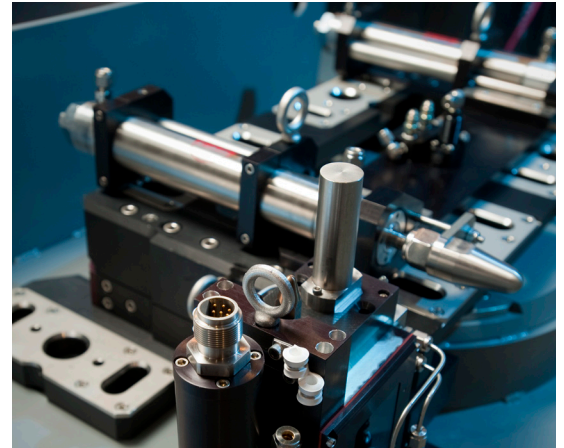
#### Technical Features

The work is performed underwater during a normal outage while the upper internals are on their stand. The operators work from the refuel bridge or an auxiliary platform.

- The guide tube is removed and installed using specific tools such as:
  - An umbrella gripper to maintain the upper and lower parts of the guide tubes together
  - A tool for screwing/unscrewing, torquing/detorquing, locking cup reshaping, etc.
- Cover plates placed on the guide tube support to prevent the ingress of loose parts
- Electrical discharge machining to repair any damaged hold down screws

Framatome is a world leader in upper internals work — In the past two years over **100 replacements and swaps**

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



#### Customer benefits

- Our teams continuously perform control rod guide tube scopes worldwide and have tooling and equipment ready to support your replacement needs
- Proven tooling designs and lessons learned from extensive experience
- Replaces worn guide tube required for safe operation

#### Contact:

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