

## Electrical Discharge Machining

### Remote Machining

Framatome's EDM — The best technology to eliminate foreign material concerns and machine highly irradiated material

#### Challenge

As the nuclear fleets seek subsequent license renewal, utilities are continuing to repair and replace aging components — often repairs and replacements that require machining and drilling. As a result customers are seeking safer, cleaner, and more efficient ways to perform machining operations. In many cases, during machining operations plants are challenged with the risk of foreign material being introduced into their system, or have a need to cut piping with complex geometries underwater. In addition, utilities need ways to perform work on piping while the system is still in service to save critical time and money.

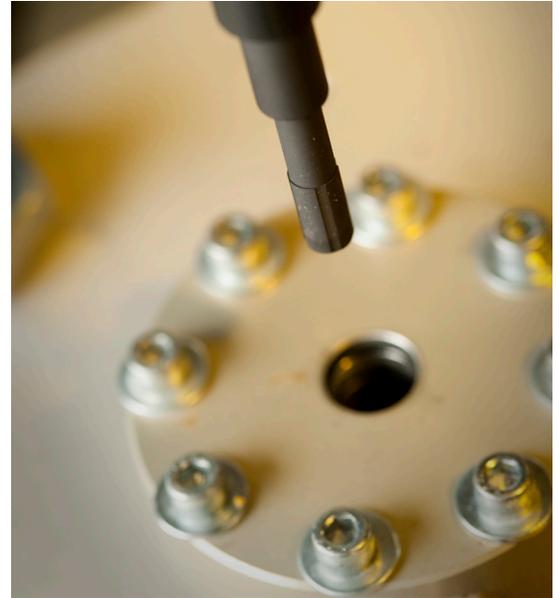
#### Solution

Keep your plant operating safely with innovative, customized solutions to your machining challenges. Framatome is using its exclusive Remote Electrical Discharge Machining (EDM) technology to make repairs to both PWR and BWR plants in a variety of locations — sometimes while the system is still in operation. Under water or under pressure, EDM is being used as an integral part of total repair processes as well as for complete solutions. Based on robust, field-proven technology, our EDM solutions include task-specific tooling modifications and innovative applications that leave behind little residue — and big satisfaction.

The appeal of Framatome's EDM not only includes its ability to create detailed machine geometries, but also in how it handles the by-products of the process. EDM swarf — micron-sized material suspended in solution — is simply pulled from the area and processed, making the technology well-suited for use in primary coolant because any standard machining particles, if left in the system, can be a threat to nuclear fuel assemblies.

The adaptability of EDM technology allows Framatome to exceed customer expectations and keep plants operating safely. Framatome has also perfected EDM internal thread machining which allows bolted repairs in all types of plant components. Our internal thread machining is a qualified, proven process used for numerous field applications.

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

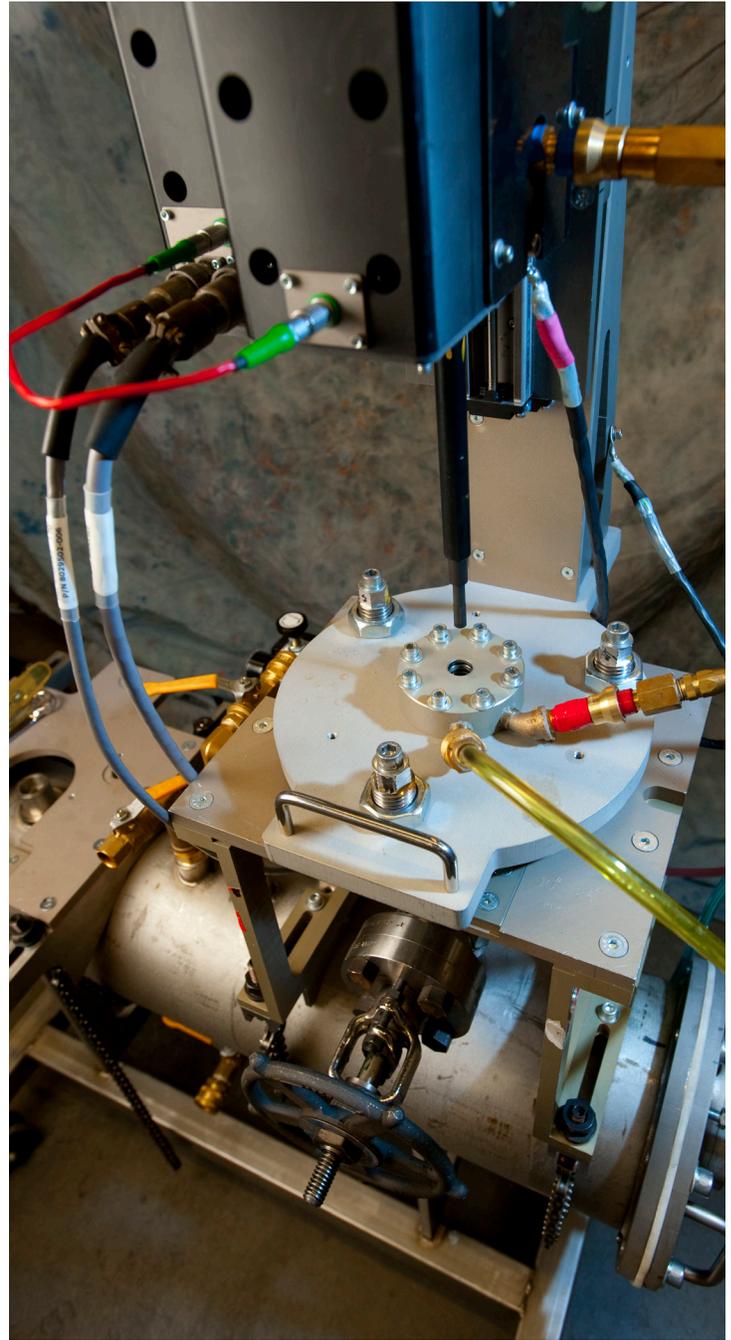
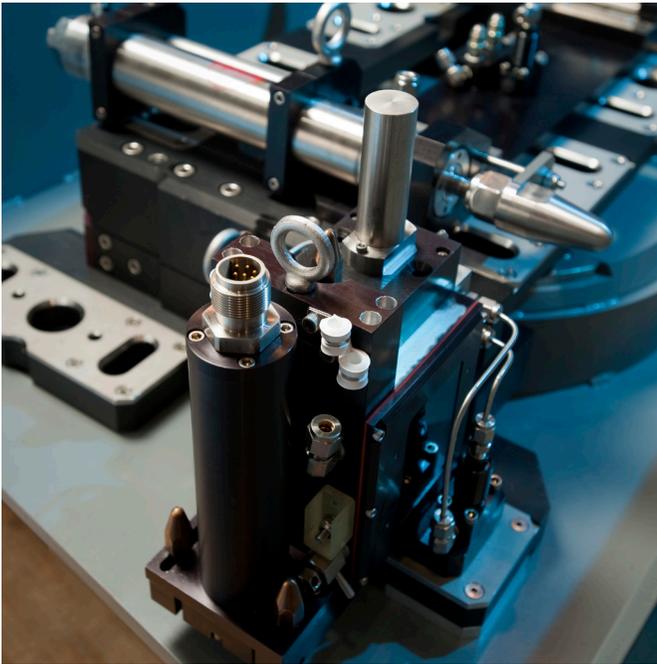


#### Customer benefits

- Customized solutions for emergent repair issues
- EDM technology can be utilized for both BWR and PWR plants
- Proven repair method with machining that requires no force (in comparison to drilling operations) which allows for remote operations
- No FME — residue is processed through a water filtration system during machining
- Can be adapted for use while system is still in operation for certain applications
- Capable of performing internal thread machining for bolted repairs
- Can be used for numerous repairs as a complete solution or as an integral part of the total repair process

## Experience/Applications

- Feedwater Sparger Repair
- Damaged Lift Rig Threads
- ECP Probe Flow Hole
- Vent Valve Removal
- Clevis Bolt Replacement
- High Point Vent Line Installation (EDM of 14 holes (10 cold tap & 4 hot tap))
- Emergent Repair of Pressurizer Heater Leak — FOAK project to remove 17 damaged heaters (EDM) and successfully install 17 plugs
- Baffle Bolt Replacement
- Core Spray Repair



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