

## Sampling Technology

### Material Sampling Using Diamond Cutting and Electrical Discharge Machining Technologies

Framatome's remote-controlled manipulator technologies have especially been designed to face the challenges of nuclear power plants.

#### Challenge

The sequencing of dismantling activities for nuclear power plants, the choice of tools, and the subsequent packaging strategy and planning are heavily dependent on levels of contamination and activation and on activation depths.

For detailed radiological assessment and characterization, material samples of the component to be dismantled are required.

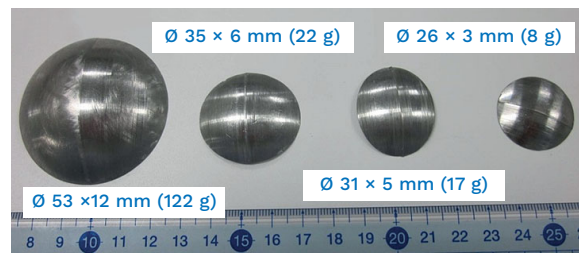
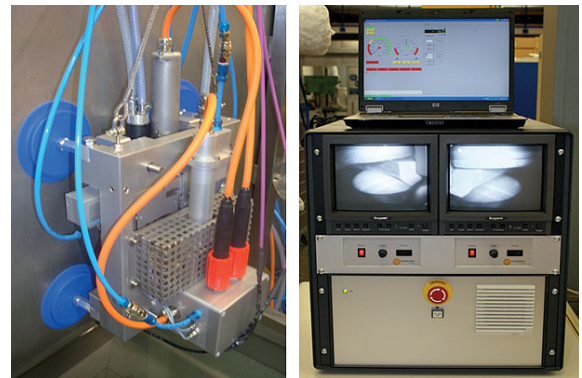
#### Solution

Remote-controlled manipulators are used to obtain material samples in areas of nuclear power plants inaccessible for humans such as the wall of the reactor pressure vessel (RPV) and RPV internals.

The sampling itself can be done using electrical discharge machining (EDM) or diamond cutting.

The diamond cutter can be operated underwater, fully immersed or under spraying using a special cold grinding process without heat input into the component. The cutter can be mounted using vacuum pads, tensioning or clamping. Sample sizes range between  $\varnothing 26$  and 58 mm diameter by 3 to 16 mm in depth. The samples are automatically caught by the cutter.

Using mobile and modular 4-axis EDM technology any desired sampling geometry is possible. Additionally, base material samples can be taken from beneath weld cladding or hard surfacing.



Top: Diamond cutter and control unit with integrated camera system  
Middle: Diamond cutting samples (example)  
Bottom: EDM samples (example)

#### Customer benefits

- Material sampling also in high radiation areas
- Samples which are perfectly suited for subsequent radiological analysis
- Sample dimensions and mass can be adjusted by cut-in depth and EDM shape
- EDM does not produce any chips

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is **our everyday commitment**

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