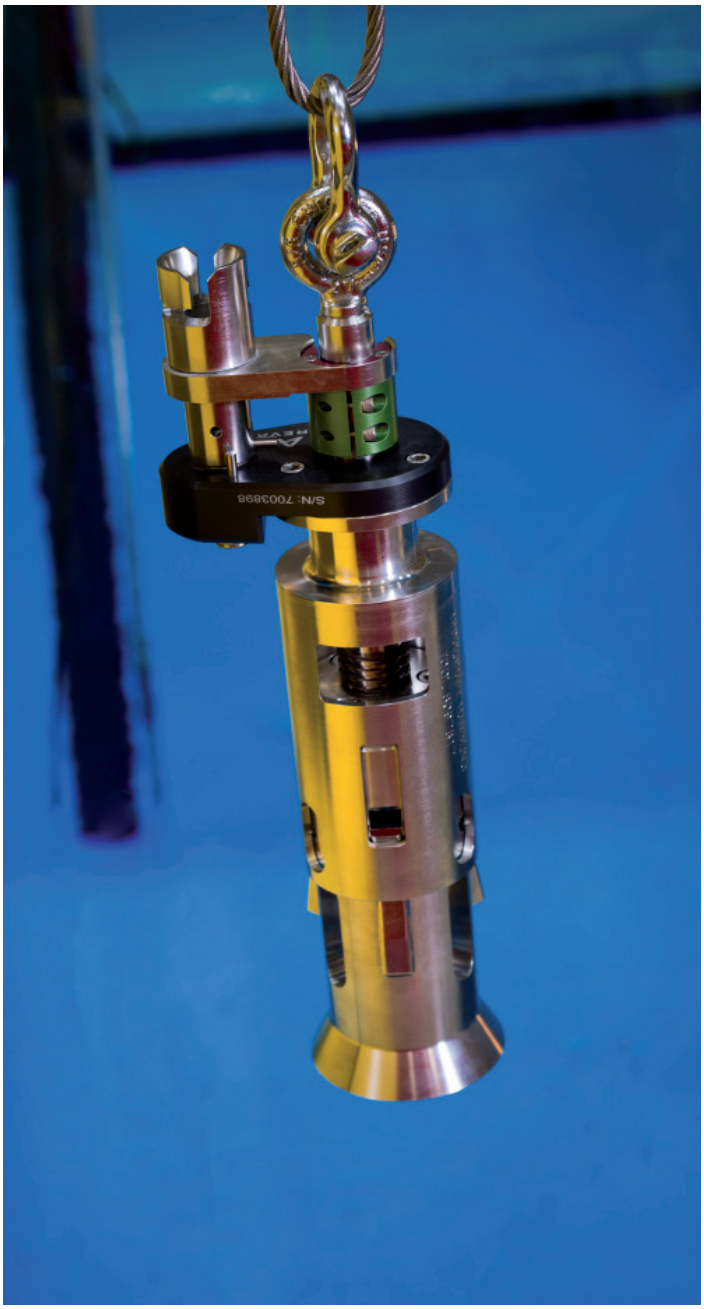
Drive Shaft Handling Tool and CRDS Storage Rack



Drive Shaft Handling Tool

AREVA's drive shaft handling tool is used to remove and insert control rod drive shafts (CRDS) to and from the reactor upper internals. The tool is designed to be used from the refueling machine auxiliary hoist, polar crane or any other suitable gantry, hoist or crane system. The tool is positioned by the lifting system and is then "latched" or "unlatched" by manual, mechanical means.

Features and Benefits

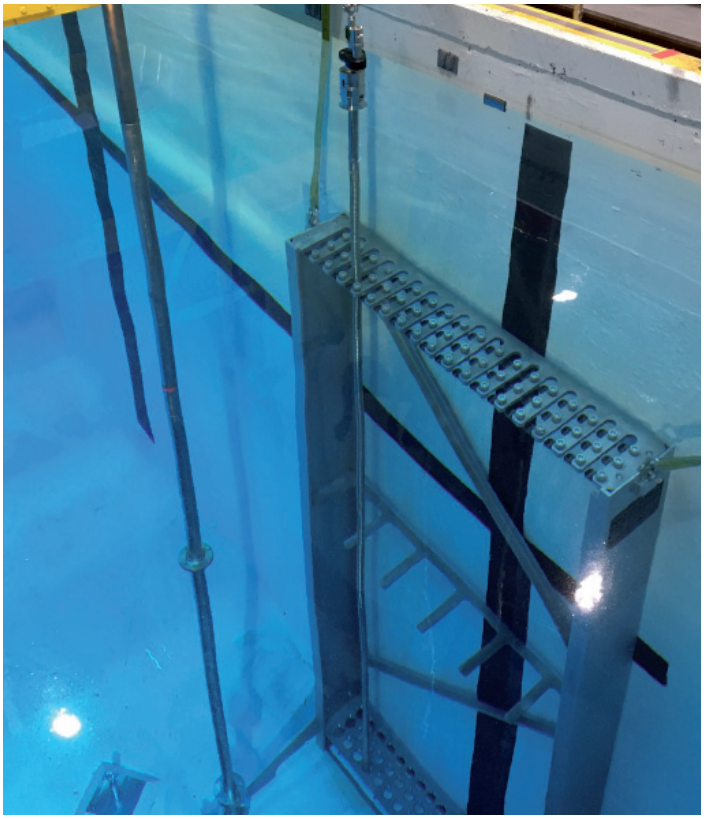
- Reliable all mechanical tool
- Reduces risk: fail safe in the latched position
- Requires minimal operators
- Constructed from electro-polished stainless steel for minimizing contamination
- Reduces duration of drive shaft removal

Experience

- First used in spring of 2017 to support upper internals guide card inspection
  - 10 hours to remove all CRDS — including shielding exposed drive shaft
  - Six hours to install all CRDS

CRDS Storage Rack

The CRDS storage rack was specially designed to have a small footprint for use in an upper cavity and not interfere with the segmented cavity seal and hatch covers. Latches can be opened and closed utilizing long-handled tooling from the manipulator crane or cavity edge. Outriggers were incorporated into the design to ensure rack stability when fully loaded.



Features and Benefits

- Reduces time for removal, inspection and replacement
- CRDS storage rack contains engraved drive shaft locations on its latches to ensure drive shaft traceability is not compromised
- The outriggers are adjustable to accommodate an array of obstructions and removable for easy storage
- More than one motion is required to open a latch
- Designed to fit in a standard sized sea-land shipping container for storage
- Stainless steel construction is corrosion-resistant

AREVA Inc.
155 Mill Ridge Road, Lynchburg, VA 24501

AREVA Outage Control Center
Tel: 434.832.3777
Email: OCC@areva.com

areva-np.com

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