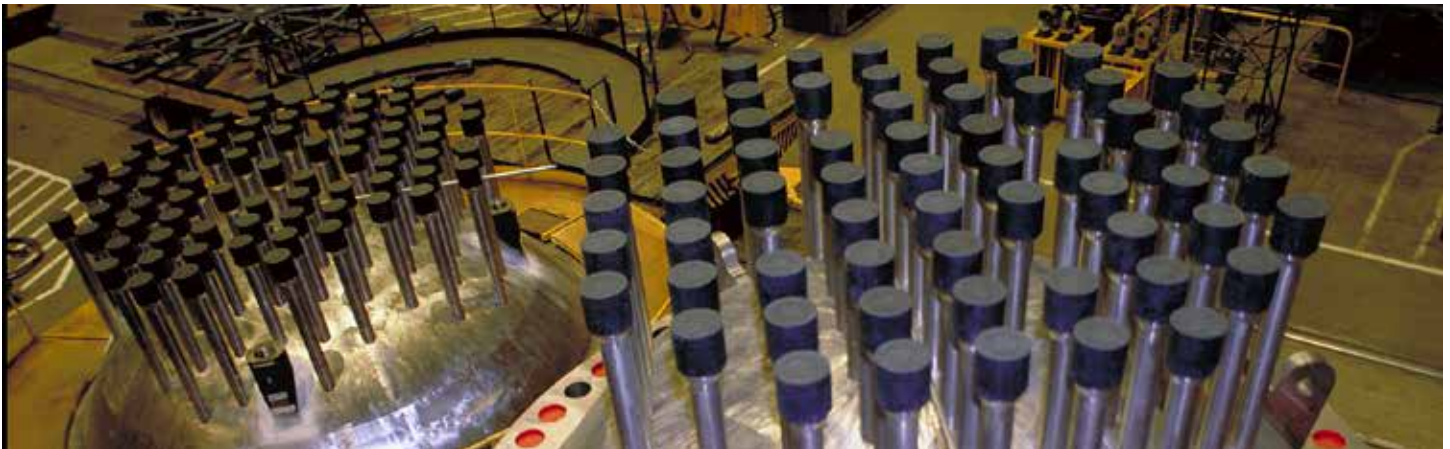


Reactor Vessel Head Replacement



Challenge

Primary Water Stress Corrosion Cracking in alloy 600 material has resulted in unacceptable indications and leaking in the CRDM Nozzle j-groove welds. Data shows degradation levels of RVHs is related to material heats and manufacturer. In addition, utilities seeking life extension are evaluating RV Head Replacement.

Solution

Asset Management and life extension:

Framatome manufactures Control Rod Drive Mechanisms (CRDMs) as well as Reactor Vessel Heads (RVHs). In addition, as your full-service vendor, we provide design, fabrication, project management, installation, heavy rigging, and disposal services.

With the industry's most responsive U.S. teams, Framatome's proven track record includes the successful fabrication of 156 original and replacement RVHs for nuclear customers in 11 different countries (including Framatome, CE, Westinghouse, and B&W-designed two-, three and four-loop plants). All of these projects were delivered on schedule.

Unparalleled CRDM Experience

Framatome's 35 years of experience in developing, refining and qualifying the CRDM installation process has created the world's most reliable CRDM replacement program. Moreover, we have manufactured and installed CRDMs in reactor vessel heads for over 80 nuclear units. To date, our installations number over 6,000 new CRDMs and hundreds of refurbished CRDMs, including all seven B&W plants.

Customer benefits

Integrated Latch Housing Design

- Eliminates lower canopy seal — no potential for leakage
- No change in In-Service Inspection needs

Single Piece Rod Travel Housing

- Eliminates joint at the top omega seal — no potential for leakage

Omega Seal Weld

- No leaks in over 5,300 installations
- Ease of CRDM maintenance in the field
- No structural weld ISI inspection required

Your performance
is our everyday **commitment**

Design Life of up to 8 Million Steps — trouble-free operation for our customers and no corrosion issues — EVER.

- Performed World Record RVH Replacement outage at Salem in 26 days
- Extensive experience: 156 original and replacement RVHs manufactured, including 19 replacement heads for U.S. plants
- Capabilities to manufacture both replacement RVHs and CRDMs
- The only vertically integrated supplier whose main focus is on nuclear plants
- A complete portfolio of replacement head services — from RVH and CRDM fabrication to installation and service structure upgrades to disposal
- Exclusive integrated latch housing assembly to eliminate the risk of leakage from stress corrosion cracking
- Integral rod-travel housing/cap to eliminate leakage paths from seal welds
- Raw material improvements to ensure excellent mechanical properties and reliability of pressure-retaining components



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