

CEA Extension Shaft Mechanical Coupling/Uncoupling Tool

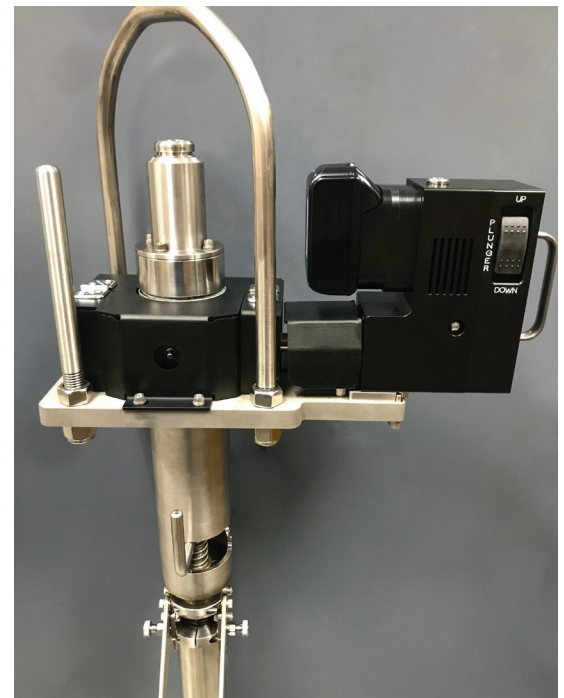
Simplified Control Element Assembly (CEA) coupling and uncoupling for easier operation and improved reliability

Challenge

The OEM uncoupling tool utilizes a hydraulic control unit (console) requiring demineralized water and nitrogen, controlled by an external pendant. During uncoupling activities in a recent outage, critical path time was lost due to a leaking relief valve, resulting in delays for fuel offload while repairs on the deficient console were performed during the no-mode window. This resulted in extra dose, additional consumables and a significant amount of site support. This incident, along with previous failures of the OEM tool system in prior outages, have created an opportunity for the development of a simpler tool.

Solution

Framatome's Extension Shaft Coupling/Uncoupling tool eliminates the console and thus the need for nitrogen. It also eliminates the need for air hoses, electrical cabling and hydraulic hoses by utilizing a self-contained, proven, onboard battery-operated power supply. An easily removable and rechargeable battery powers a reliable electric motor-driven mechanism that pulls the plunger shaft to allow uncoupling. The motor's push-button operation reduces operator fatigue and decreases the number of people required to operate the tool. This new design can be operated by a single person rather than the three needed for the OEM tool.



Customer benefits

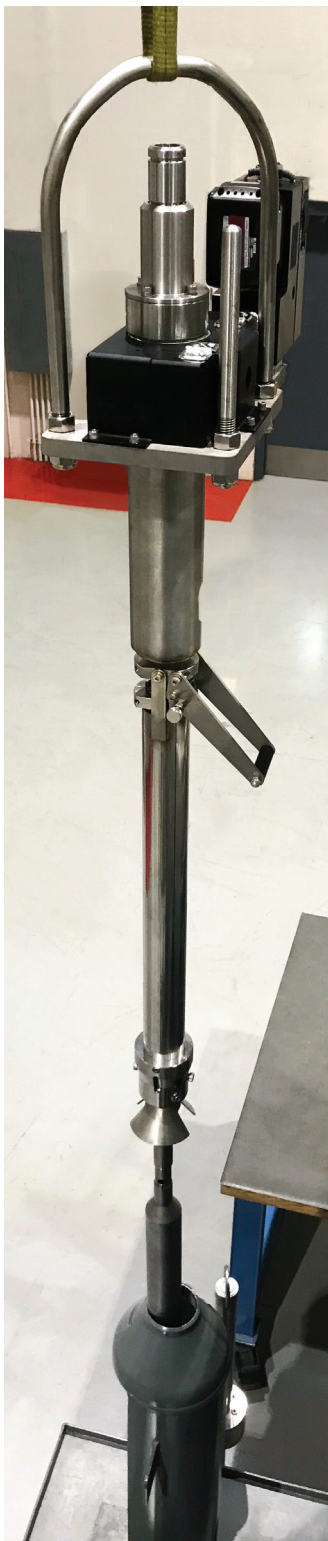
Simplicity improves reliability

- No separate control console
- No air hoses, hydraulic hoses or electrical cabling required
- Self-contained, battery-operated power unit can be replaced without tools

Simplified Operation Reduces Dose

- Single reactor technician operation
- Reduced setup time
- No interconnecting umbilicals
- Simple and intuitive battery replacement
- Manual plunger engagement provides tactile and visual feedback to operator
- Visual indication of plunger state (coupled/uncoupled) at top of the tool

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



The innovation
is in the simplicity.

Contact: outage@framatome.com
www.framatome.com

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