

# Core FOSAR Vacuum

AREVA's core foreign object search and retrieval (FOSAR) vacuum is an underwater vacuuming system used to retrieve foreign material. This system allows for easy retrieval of objects above and below the core plate, as well as elsewhere in the cavity. The system is lighter, easier to control, faster to deploy, has greater suction and is more user-friendly than previous systems.

Unlike some systems, which only retrieve foreign material below the core plate and rely on the site's Tri-Nuke to generate suction, or other systems which only retrieve foreign material from above the core plate, this integrated system performs both tasks. It is capable of retrieving foreign material below the core plate independent of the Tri-Nuke system and can also be used for foreign material retrieval in the upper and lower cavity. The lightweight nature and the ability to be rapidly deployed means it can easily be transferred between containment and the spent fuel pool.

## Basic Operation of the System

The core FOSAR vacuum is placed in the water and lowered down on BWR poles with one float pole attached to help compensate for the weight of the unit. When fully submerged, with the float pole attached, the vacuum is slightly buoyant and can be operated single-handedly. Once in the water, the unit is moved over the foreign material to be retrieved. The vacuum is turned on, and the foreign material is sucked up into the removable in-line filter assembly. With the vacuum still on, the unit is relocated over the trash basket, the vacuum is turned off, and the material is released. If foreign material becomes caught in the in-line filter or the hose, both attachments can be removed underwater and disposed of in the trash basket.

## Features and Benefits

- Integrated system for above and below core plate retrieval
- Reduces time to perform retrieval
- Contributes to lower dose for retrieval
- Additional attachments can be fabricated and/or adapted to meet a wide array of customer needs





## Specifications (Vacuum System Only)

Weight: 25 lbs/11.3 kg

Length: 50.3 in/128 cm

Width: 9.5 in/24 cm

Power requirements: 230 VAC, single phase

Vacuum is powered by a unit similar to that used in the Tri-Nuke Cavity Filtration System

## Weight of Foreign Material Retrieved

With 12' hose — ≈25g  
(approximately the weight of 5 U.S. quarters)

Without 12' hose — ≈85g  
(approximately the weight of a ¼" shackle)

## Attachments

- 12' hose with articulating end — capable of articulating the lower 24" of the hose 90° to reach foreign material located on various locations below the core plate
- 12' flexible stainless steel hose
- In-line filter assembly
- BWR float pole/buoyancy compensator
- Tri-Nuke adapter (if greater suction or filtration is required)



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