

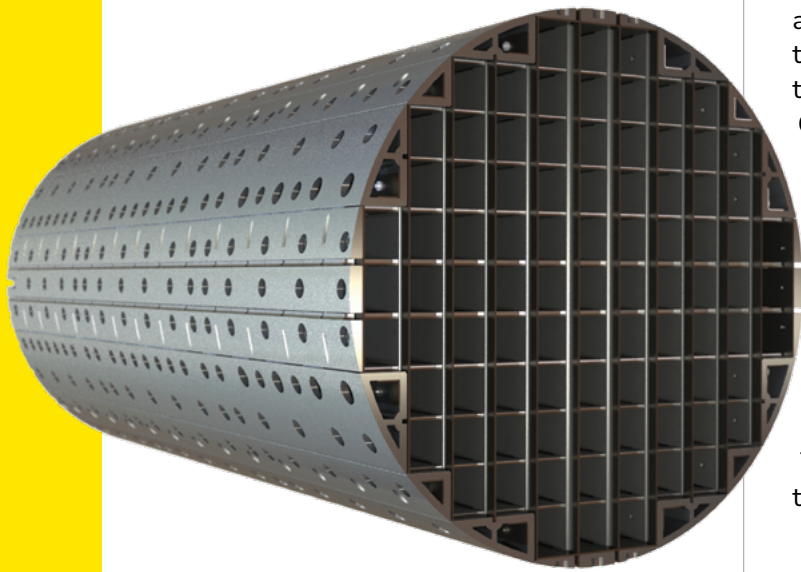


Orano TN

NUHOMS[®] EOS[®] 89BTH DSC

Extended Optimized Storage

Designed to meet BWR dry used fuel storage and transport needs, having the highest BWR fuel assembly capacity.



Orano TN's NUHOMS Extended Optimized Storage (EOS) 89BTH Dry Shielded Canister (DSC) provides customers with a high-capacity, high-burnup, and high-heat load system for Boiling Water Reactor (BWR) dry used fuel storage needs. The 89BTH DSC is designed to store and transport 89 BWR fuel assemblies.

Designed for use at plants with minimum crane capacity of 125 tons (with a 108-ton option available), the DSC is transferred in a fully-shielded transfer cask, and stored in a horizontal configuration in the NUHOMS EOS HSM concrete module. The EOS HSM is an improved storage system with redesigned vents for a higher capacity heat load with the same overall footprint.

The EOS 89BTH basket is constructed using alloy steel, aluminum, and metal matrix composite (MMC) plates configured into an egg crate design, allowing for a more cost-efficient fabrication. The compartment assemblies are connected to perimeter aluminum transition rail assemblies. Geometric spacing, fixed neutron absorbers, and soluble boron are used to maintain criticality control for enrichments up to 4.5% ²³⁵U. For enrichments above 4.5 wt% ²³⁵U, limited burnup credit is used.

The EOS DSC shell can be fabricated from three different types of stainless steel:

- **304 stainless steel** is widely used due to its excellent combination of corrosion resistance, formability, and weldability. It offers robust resistance against corrosive elements.
- **316 stainless steel** is used for enhanced resistance to chlorides, due to the addition of 2-3% molybdenum.
- **Duplex stainless steel (Duplex SS)** is composed of a mixture of austenite and ferrite phases in equal measure, making it a two-phase alloy, increasing its strength. In addition, the higher chromium and molybdenum content than 316, provides an even stronger protection against corrosion,

Duplex SS is used extensively in corrosive environments where there is exposure to high chloride content and high temperatures. It is a crucial component for the shipbuilding industry and is widely utilized in the mining industry and at nuclear plants.

BENEFITS

Highest BWR fuel assembly capacity, thereby reducing ISFSI footprint

Leverages proven closure weld design

Integrated hold-down ring reduces operation time

Customizable DSC length to fit any fuel assembly

Increased heat load capacity allows loading of shorter-cooled fuel

Design Parameters

Maximum Payload: 89 BWR fuel assemblies

- Intact fuel
- Reconstituted fuel assemblies



Finished EOS 89BTH after assembly at our manufacturing facility in North Carolina

Technical Features

Materials of Construction:

- Stainless steel shell and cover plates
- Optional high corrosion-resistant steel shell
- Steel alloy/aluminum/MMC egg-crate basket
- Coated carbon steel shield plugs

Physical Data:

- Outside diameter: 75.5"
- Outside length: Variable
- Cavity length: customized to fit fuel
- Weight, dry and loaded: 124,000 lbs

Intact fuel: Zirconium-based alloy cladding material

Max initial enrichment: 4.5 wt% ²³⁵U

Min initial enrichment: 0.7 wt% ²³⁵U

Min cooling time: 2 years

Max burnup: 62 GWd/MTU

Max decay heat: 1.7kW/assembly

Max heat load: 48 kW

Max uranium content: 198 kg/assembly

Max assembly weight: 705 lbs

Assembly length: Variable

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