



Orano TN

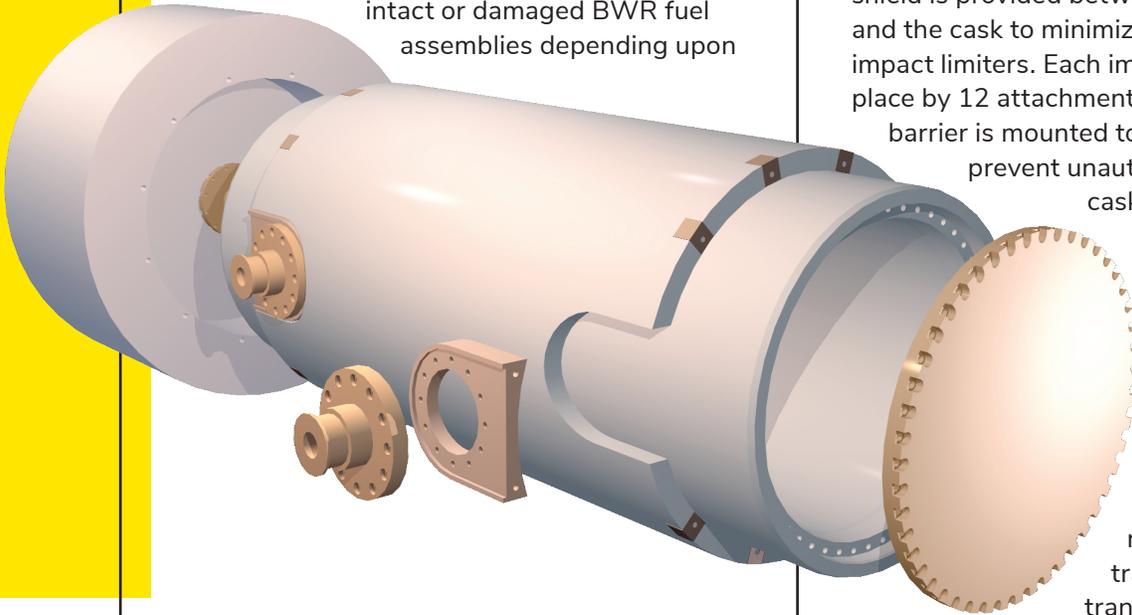
# NUHOMS<sup>®</sup> MP197HB

Universal Transport Cask

## Licensed to transport canistered HBU used fuel

NUHOMS MP197HB transportation cask is truly versatile—the universal cask capable of transporting nine different types of used fuel canisters. All transportable canister types designed by Orano TN can be transported in the MP197HB.

The NUHOMS MP197HB is used for the offsite transportation of up to 61 or 69 intact or damaged BWR fuel assemblies depending upon



the canister type used as a payload. Similarly, it can transport up to 24, 32, or 37 intact or damaged PWR fuel assemblies depending upon the canister type used as a payload. The NUHOMS MP197HB cask is also capable of transporting the NUHOMS Radwaste Canister (RWC) that is used to store dry irradiated and/or contaminated non-fuel hardware.

The MP197HB is a transport cask consisting of a containment boundary, structural shell, gamma shielding material, and solid neutron shield. The containment boundary consists of a cylindrical shell, bottom end (closure)

plate with a RAM access penetration, top end forging ring, bottom and top cover plates (lids) with associated seals and bolts, and vent and drain port closure bolts and seals.

Sets of removable upper and lower trunnions, bolted to the outer shell of the cask provide support, lifting, and rotation capability between horizontal and vertical orientations. Impact limiters encased in stainless steel shells are attached to each end of the NUHOMS MP197HB cask during shipment. A thermal shield is provided between the impact limiter and the cask to minimize heat transfer to impact limiters. Each impact limiter is held in place by 12 attachment bolts. A personnel barrier is mounted to the transport frame to prevent unauthorized access to the cask body.

The NUHOMS MP197HB packaging transported in the horizontal orientation specially-designed shipping frame. The package is approved for transport by rail, truck, or marine transport. During transport, the package is secured to the transportation skid with a cask shear key saddles and tie-down straps.

Both the transport cask cavity and the dry shielded canister (DSC) cavity are filled with helium. The heat generated by the used fuel assemblies is dissipated to the surrounding air by conduction, convection, and radiation. The cask is designed to carry payloads with a maximum of 32kW heat load. External fins are only required for heat loads greater than 26kW.

## Technical Features

### Payload:

- Up to 61 or 69 BWR fuel assemblies
- Up to 24, 32, or 37 PWR fuel assemblies depending upon canister type
- Intact or damaged BWR fuel with or without channels
- Intact or damaged PWR fuel with or without control components

**Fuel design:** 7x7, 8x8, 9x9, or 10x10 BWR fuel assembly or 14x14, 15x15, 16x16, or 17x17 PWR fuel assembly

### Materials of Construction:

- Stainless steel shell and cover plates
- Gamma shielding: stainless steel and lead
- Neutron shielding: aluminum-encased resin
- Impact limiters: balsa & redwood encased in stainless steel shells
- Carbon steel closure bolts
- Option of outer fins for high decay heat payload depending upon the regulation

### Physical Data:

- Outside diameter: 126 inches w/ impact limiter
- Outside diameter: 97.75 inches w/o impact limiters
- Outside length: 271.25 inches w/ impact limiters
- Cask body diameter: 97.75 inches w/o fins and 104.25 inches w/fins
- Cavity length: 199.25 inches
- Cavity diameter: 70.5 inches and 68 inches w/internal sleeve
- Weight, empty: 94.7 tons w/impact limiters
- Weight, loaded: 152 tons w/impact limiters

### Fuel Parameters:

- Maximum burnup: up to 62,500 MWD/MTU
- Minimum cooling time: depends upon the payload
- Maximum heat load: 32 kW
- Maximum heat load per assembly: depends upon the payload

## Design Parameters

**Required crane capacity for direct loading out of the spent fuel pool:** 141 tons inside the fuel handling area with the heaviest payload. Capable of loading a dry shielded canister from a storage module.

**Maximum drop height:** meets all the normal and accident condition design loads per 10CFR71 requirements.

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