

Fuel Delivery

PRIME™ Advanced Fuel Features Package

Background

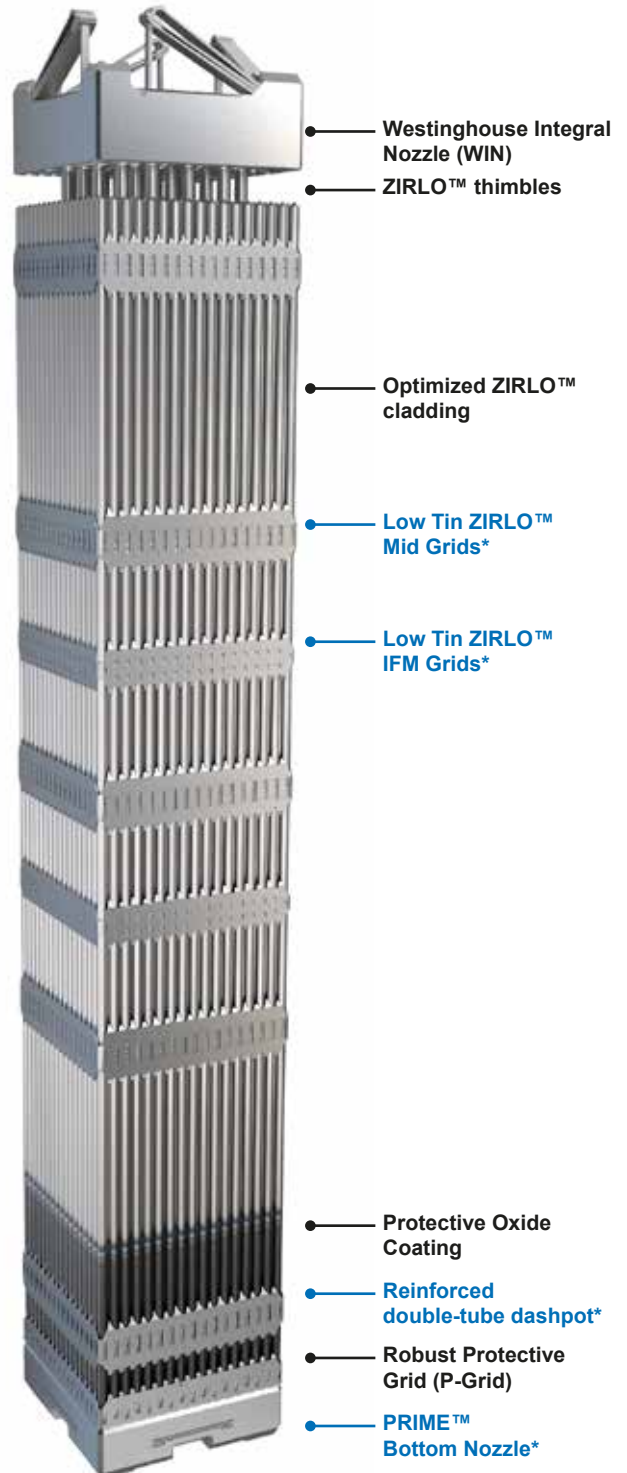
Westinghouse's **PRIME™** advanced fuel features help to improve fuel performance, enhance fuel reliability, enable better fuel cycle economics and provide additional margin at uprated conditions and higher burnup. The package of features includes an optimization of enhancements based on proven Westinghouse fuel reliability and world-class leadership in the design and manufacture of nuclear fuel. **PRIME** fuel features are available for the 17x17 Robust Fuel Assembly 2 (RFA-2), 17x17 Optimized Fuel Assembly (OFA) and 15x15 Upgrade Westinghouse fuel designs.

Key Features

- **Low Tin ZIRLO™** mid grids and intermediate flow mixing grids
 - Based on unrivaled experience and performance of Westinghouse's **ZIRLO®** grid material
- Reinforced dashpot in guide thimble tubes
 - Incorporates a double tube design to further improve dimensional stability and stiffness in the lower portion of skeleton.
- **PRIME** Bottom Nozzle
 - With the incorporation of a lower pressure drop adapter plate and an innovative debris filter side-skirt, the decreased flow resistance allows a higher proportion of flow through the fuel assembly while mitigating debris migration between fuel assemblies.

Benefits

- Advanced materials – **Low Tin ZIRLO** grids support higher burnup with lower corrosion, lower growth and improved grid-to-rod fretting margin
- Structural stiffness for margin against fuel assembly distortion, particularly at higher burnups
- Lower pressure drop to improve flow and enhance thermal margin
- Industry-leading mitigation features that add multiple layers of defense against debris



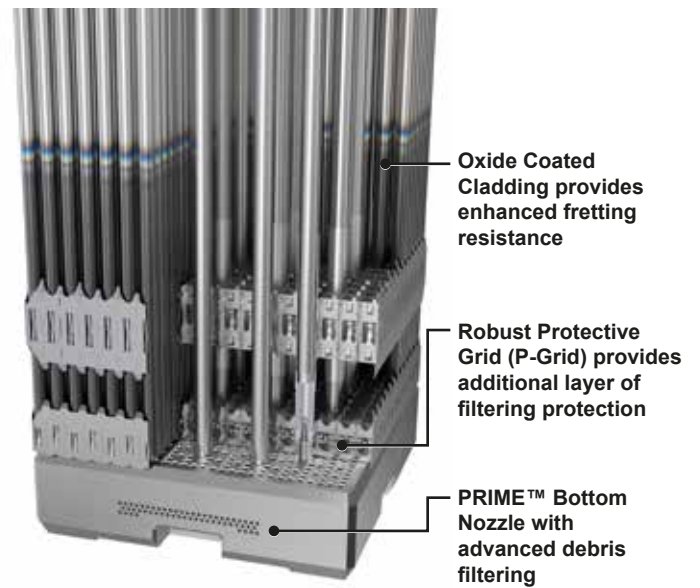
* **PRIME** Advanced Features
(in blue text)

Experience

Westinghouse has unrivaled experience and performance in our advanced fuel products, including:

- Global experience in delivering the **Low Tin ZIRLO** grid material for a variety of fuel types in region quantities since 2008
- Decades of experience in delivering the reinforced dashpot **PRIME** design for multiple fuel types around the world since 1998
- Low pressure drop bottom nozzle adapter plate design successfully irradiated in three reactors with 24 lead test assemblies
- With decades of exceptional performance with a variety of bottom nozzle designs, Westinghouse is the first to design and deliver the revolutionary side skirt debris filter design starting in 2020

The **PRIME** advanced fuel features further enhance the unmatched fuel performance of the Westinghouse 17x17 RFA-2, 17x17 OFA and 15x15 Upgrade fuel designs, optimizing the fuel performance, operational flexibility and fuel cycle economics.



Debris Protection Features

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