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Wet Storage of Spent Fuel Assemblies

Fuel Storage Racks, Compact Fuel Storage Racks

Safe storage of spent fuel assemblies in the spent fuel pool (SFP) in classic or compact storage racks for increased capacity

Challenge

The SFP is the first stop for every fuel assembly after being removed from the reactor core. It is kept here for several years to allow it to cool down and await its final disposal.

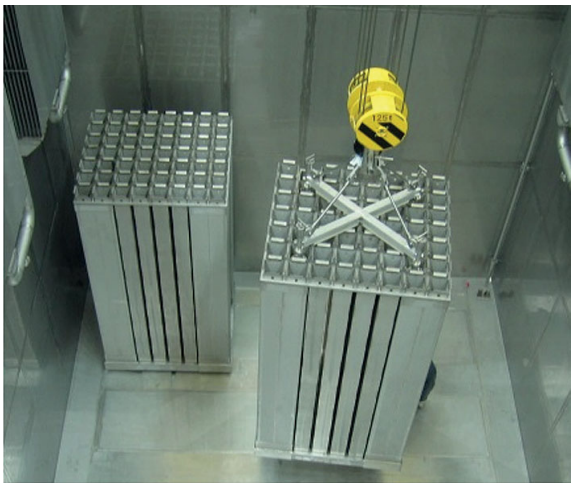
Spent fuel needs to be stored in a way that enables operators to easily track each fuel assembly, protects it from damage as well as keeping it subcritical at all times. Because most countries do not have facilities for final storage, spent fuel often has to stay in the pool far longer than it is intended for. Once capacities of the SFP are reached, the operating license of the power plant can be revoked by the authorities.

Solution

For the safe storage of spent fuel assemblies, we offer different configuration of storage racks for the SFP. Both classical and compact storage racks are available for pressurized water reactor (PWR), boiling water reactor (BWR), Russian-type reactor (VVER) and heavy water reactor (HWR) fuel assemblies.

Our compact storage racks make it possible to store spent fuel assemblies safely and efficiently. This significantly increases storage capacities of existing SFPs. In this compact configuration, fuel assemblies can be stored much closer together whilst still remaining subcritical.

All of our fuel racks use borated stainless steel as a fixed neutron poison to separate the spent fuel.



Storage racks during installation

Customer benefits

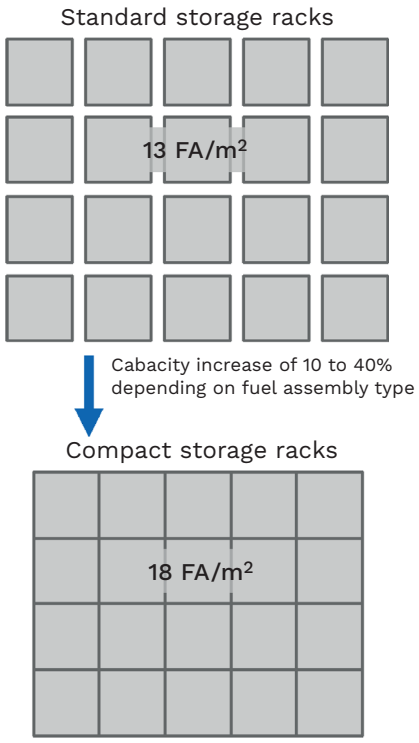
- Greatly increases storage capacity for spent fuel assemblies
- Safely stores fuel assemblies and protects them from damage
- Available for most fuel assembly types

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

Technical information

Our scope of services includes:

- Design, manufacturing and installation of (compact) storage racks for BWR, PWR, HWR and VVER fuel assemblies
- Mechanical design (single region, multiple region)
- Dynamic analysis (non-linear, 3D single rack, 2D row, whole pool multi-rack)
- Stress analysis (according to international standards, for example, AMSE)
- Criticality safety analysis (burn-up credit, boron credit)
- Thermo-hydraulic analysis (local, bulk)
- Civil load analysis
- Radiological analysis
- Licensing documentation and support (preliminary and final safety analysis report)



Example of fuel assembly (FA) capacities of standard and compact storage racks for PWR assemblies

Key figures

23 re-racking campaigns have been performed

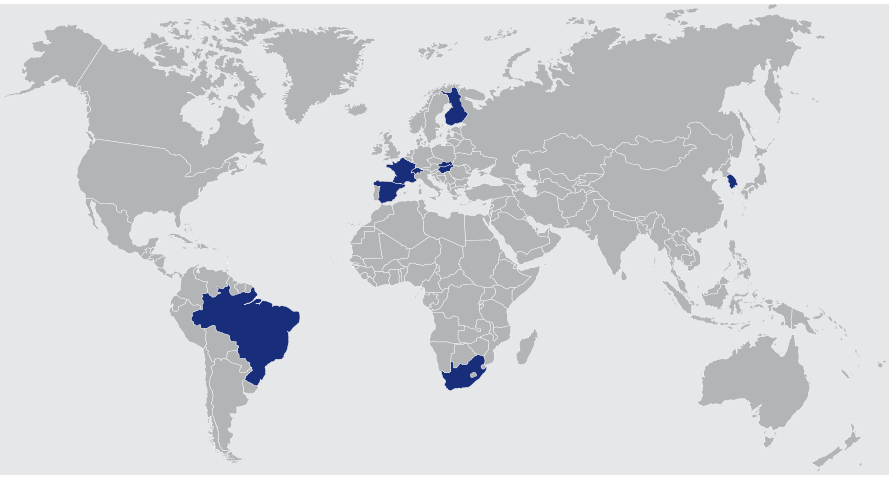
Original equipment manufacturer for **28** reactor or storage facility SFPs

50.000 fuel cells designed, manufactured and installed

40 years designed life

References

- South Korea
- Germany
- Hungary
- Finland
- Spain
- South Africa
- Switzerland
- Brazil
- Slovenia



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