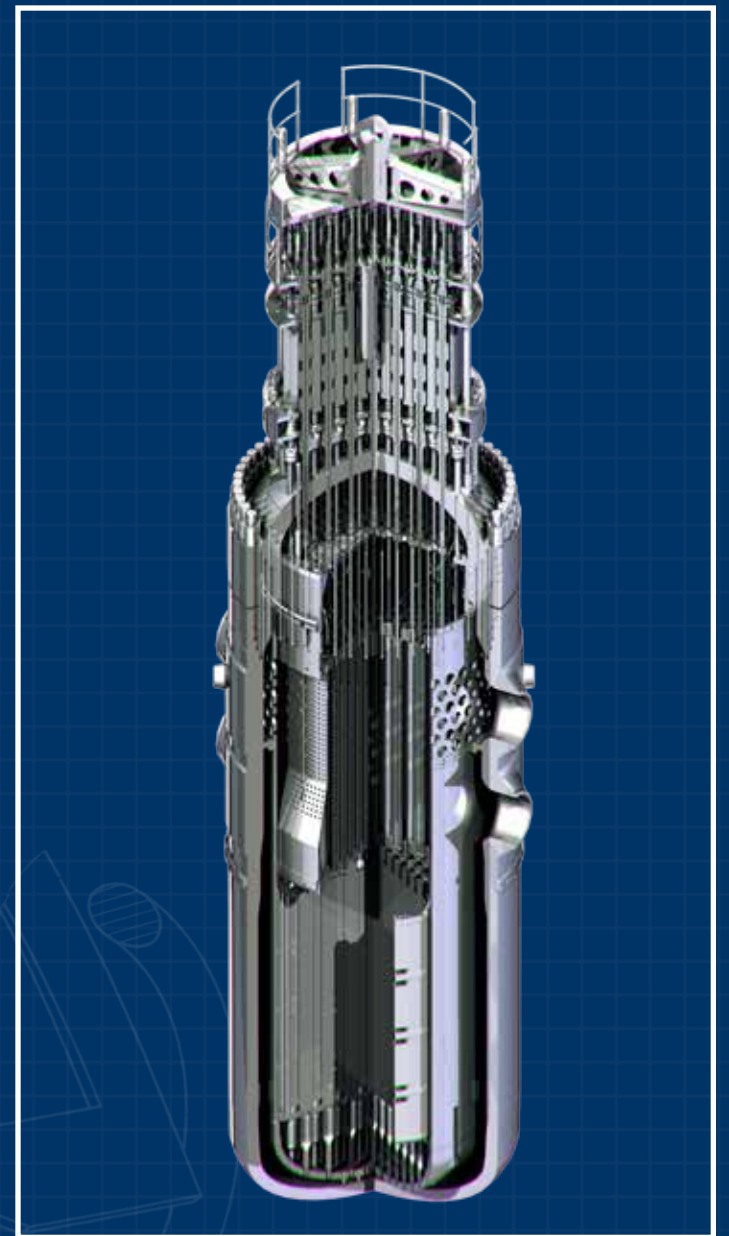


VVER-1200 Reactor

VVER is one of the most wide spread type of reactors in the world using water as heat-transfer and moderator*. Let us get inside the reactor construction and have a close look at some of its elements.

* Water, relevant to the wet chemistry regime.



Top unit

It is designed for reactor shell sealing, control and protection system placement as well as internal control sensors protection.

Mass — **137 tons**
Height — **8225 mm**
Maximum diameter — **4580 mm**



Protective tubes unit

Provides fixation of fuel assemblies heads and, most importantly, protection of control rods and internal control channels from strong water flows.

Mass — **70 tons**
Height — **7464 mm**
Maximum diameter — **3490 mm**



Baffle

Designed for the core forming and reducing fluence on the reactor wall.

Height — **4450 mm**
Mass — **38 tons**



Core barrel

Provides design accommodation of fuel assemblies, sharing of coolant flows at the entrance to the core and at the exit of reactor.

Height — **10 870 mm**
Mass — **76 tons**



Reactor Pressure Vessel

It is a vertical cylindrical vessel with bottom and nozzles designed for arrangement elements of the core and internals.

Height — **11 185 mm**
Mass (without coolant) — **331 tons**

Reactor

The lifetime of irreplaceable during operation elements is **60 years**
Height — **19 410 mm**
Mass (without coolant) — **876 tons**

Fuel assembly (FA)

The head

A bundle of FE (fuel element) and GFE (gadolinium fuel element)

A bottom nozzle

An assembly of fuel elements of nuclear power reactor Provides generation of heat energy and transmission to coolant.

The number of FA in a core is **163 pc.**
Height of FA — **4570 mm**
Height of fuel in FA — **3730 mm**
Mass of fuel in FA — **534,1 kg**
A gap between fuel elements and the head is **about 50 mm**

Fuel Element (FE)

Upper cap

Cladding

Spring Fixator

Fuel pellets

Bottom cap

The assembly unit contains nuclear material, in which the controlled chain nuclear reaction takes place.

A number in FA is **312 pc.**
Outer cladding diameter — **9,1 mm**
Outer diameter of the fuel pellet — **7,6 mm**
Diameter of the pellet central opening — **1,2 mm**
Fuel mass in FE — **1,712 kg**

