

The ITER Vacuum Vessel

Vacuum vessel in figures

19.4 m in diameter,
11.4 m high,
Volume: 1,400 m³,
Weight: ~5,200 tonnes.

Sectors in figures

12 m high, 6.5 m wide,
6.3 m deep, 500 tonnes.
150 km of welding beads,
20 000 hours of machining,
100 000 hours of welding.

What is the role of the ITER Vacuum Vessel?

The vacuum vessel will house the fusion reaction. It is a massive double-walled container made of special stainless-steel that will also act as a first safety barrier. The vacuum vessel will be hermetically sealed blocking any dust, air, liquids and impurities entering its chamber. Cooling water will circulate through its double steel walls to remove the heat during operation. Powerful superconducting magnets will embrace the vacuum vessel to help the plasma float without touching its walls.

What are the main parts?

It is made of nine sectors, with Europe responsible for the manufacturing of five of them and the Republic of Korea of the remaining four together with the equatorial ports (openings), lower ports and gravity supports. India is providing the in-wall shielding blocks and Russia all upper ports.

How is Europe involved?

F4E and the AMW consortium (Ansaldo Nucleare, Mangiarotti/Westinghouse, Walter Tosto) are responsible for the manufacturing of Europe's five sectors. At least 150 professionals and more than 15 companies have been directly involved.