Status of ITER Thermal Shield Development

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1. Introduction

1.1. Design Finalization (2)
- Manufacturing design of TS main components
  - TS CAD work was carried out by CATIA with ENOVIA system (PDM software of Dassault Systems), which is officially selected by ITER organization (IO).
  - In order to create the 3D drawings of the TS, 3D models were converted from multi-body to multi-part in the ENOVIA. Minor model revisions were implemented to resolve model clashes and to reflect assembly feasibility.
  - The three sorts of manufacturing drawings for the VVTS were developed: main assembly drawing, sub-assembly drawing and segment/part drawing.

1.2. R&D Activities (1)
- Assembly test of VVTS field joint
  - VVTS is located between the VV and the TCC.
  - The field joint is far from the VV vacuum vessel through narrow gap.
  - Misalignment compensation: 3D reverse engineering of splice plate

1.3. Manufacturing Status
- Manufacturing of VVTS started in October 2014.

1.4. Near-term Plan
- Construction of ITER VVTS(Secs/Port)
- Manufacturing of VVTS started in October 2014
- Overall Scheme of VVTS Assembly, Sector Fabrication

2. Design Finalization (1)
- Final design of TS main component
  - The final design review was held in November 2011 and approved in Oct 2012.
  - The final design and the supporting analysis were performed for the key components of the TS such as panel, tube bending, support, labyrinth and stopper.

3. R&D Activities (2)
- Full-size Prototype Fabrication of VVTS 10 degree section
  - 4. Cooling tube bending: 3D shape bending of 35 mm long tube
  - 5. Welding
    - Coolant welding
      - GTAW: Gas tungsten arc welding
      - Staging welding
      - Argon and helium mix welding
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    - Staging welding
    - Argon and helium mix welding

4. Manufacturing Status
- Manufacturing of VVTS started in October 2014

5. Near-term Plan
- Construction of ITER VVTS(Secs/Port)
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