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P3.145 Final Design and Structural Analysis of Sector Lifting Tool for ITER

Wednesday, 19 September 2018 11:00 (2 hours)

Sector Lifting Tool (SLT) are purpose-built tool for the lifting and transferring ITER components. SLT consists of the Sector Lifting Tool (SLT) with the lifting attachments. The purpose of the SLT is to lift and transfer Vacuum Vessel (VV) and Toroidal Field Coil (TFC) from Upending Tool to Sector Sub-assembly Tool (SSAT). After the sub-assembly at SSAT in assembly hall, 40° Sector which is composed of VV, VVTS and two TFCs is transferred from SSAT to Tokamak in-pit. Sector Lifting Tool and the lifted components are connected with the lifting attachments. SLT and lifting attachments have to withstand component's weight with two times safety margin. The target component's weights are VV (450 tonnes), TFC (310 tonnes) and 40° Sector (1250 tonnes) during lifting by crane operation.
This paper describes the final design of Sector Lifting Tool and shows that the structural integrity has been verified through analysis. The structural analysis was performed in accordance with the ITER load specification and tooling procedure. In analysis result, the stresses and deflections turned out under the allowable ranges.

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