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Design and structural assessment overview of the DTT TFC system

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The Divertor Tokamak Test facility (DTT) currently under construction at the ENEA Research Center of Frascati, Italy, shall be an experimental fusion reactor that will contribute to the advancement of the EUROfusion roadmap to fusion energy. This work summarizes the design choices and the Finite Element Modelling (FEM) results in support of the Toroidal Field Coil (TFC) system design which is the current reference for the coil case manufacturing and winding pack integration industrial activities. Effort has been put into optimizing the various components in order to meet the requirements of the projected assembly procedure as well as the resource constraints that have been set for this project. Compared to other tokamak machines of similar performances, the relatively small size of the DTT required the adoption of some innovative solutions to comply with the structural capabilities of the materials employed. Nonetheless, given the tight schedule this project must follow, compatibility with the technological state of the art of today was mandatory.

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