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Various methodologies used in the mechanical analysis of TF coils for EU DEMO

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EU DEMOnstration reactor (DEMO) aims towards demonstrating the feasibility of commercial fusion power plant. Various activities are in progress as part of EUROfusion's framework for the design of DEMO. As part of the mechanical assessment activities, various Finite Element (FE) analysis on these complex systems are performed. Due to the large dimensions of the magnets, a multiscale approach is often used. As a result of this, various strategies are followed by the fusion community in analyzing these systems like using 2D generalized plane strain assumption or sub-modelling techniques. This work focuses on these strategies and their capacity to predict the mechanical behavior on a Toroidal Field (TF) coil design by CEA (WP#3) for EU DEMO.

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