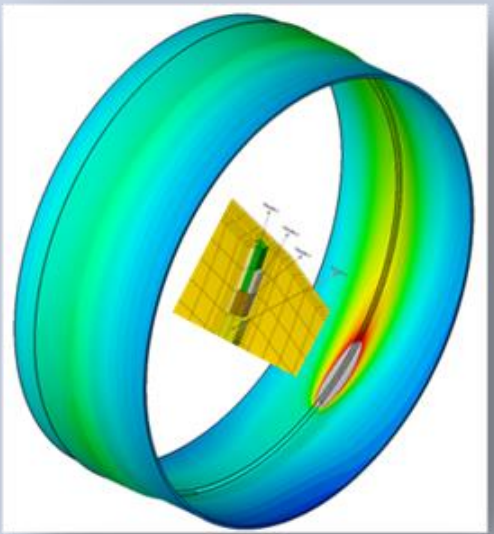
Predicting the effects of welds in massive pieces

Welding Distortion Analysis services for the evaluation of deformation and the optimization of jigs in steel assemblies with massive welds



Value proposition

- The main advantage of the services offered by Natec is the applicability of distortion prediction to massive and complex assemblies.
- These services can be used in the design phase to lead to a compliant manufacturing route and to optimize jig structures from mechanical resistance and weld distortion point of view.

Original/Potential Field of Application

Fusion Heritage

In ITER, the walls of the main chamber are the first layer of nuclear protection; its integrity is essential for proper functioning and security. Furthermore, it is the structure on which are mounted the measurement equipment and other components, therefore it has to be manufactured with very high accuracy, overcoming the welds deformation and satisfying the high dimensional requirements. The company Natec has developed with F4E a step-by-step thermo mechanical simulation of the welding process, including complex mechanical boundaries (jigs), assembly and welding sequences. Based on finite element analysis the simulation predicts the deformation caused by welding and the forces on supporting jigs.

NATEC's WDA services can be used in fusion reactors for vacuum vessels, coil cases and port plugs.

It can also be applied in other big and complex pieces such as those used for some applications in space or in architecturally complex infrastructures (buildings, bridges and ports among other)..

IPR Status & Contact Information

The technology is available through rendering of engineering support services and expert advice for interpretation of results

For further information, the contact point is
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