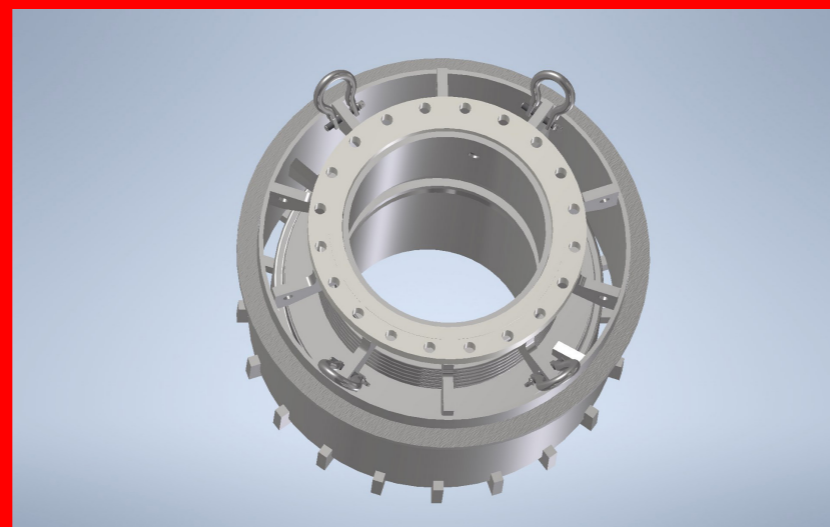


# Customised Eliminated Thrust Axial Compensator

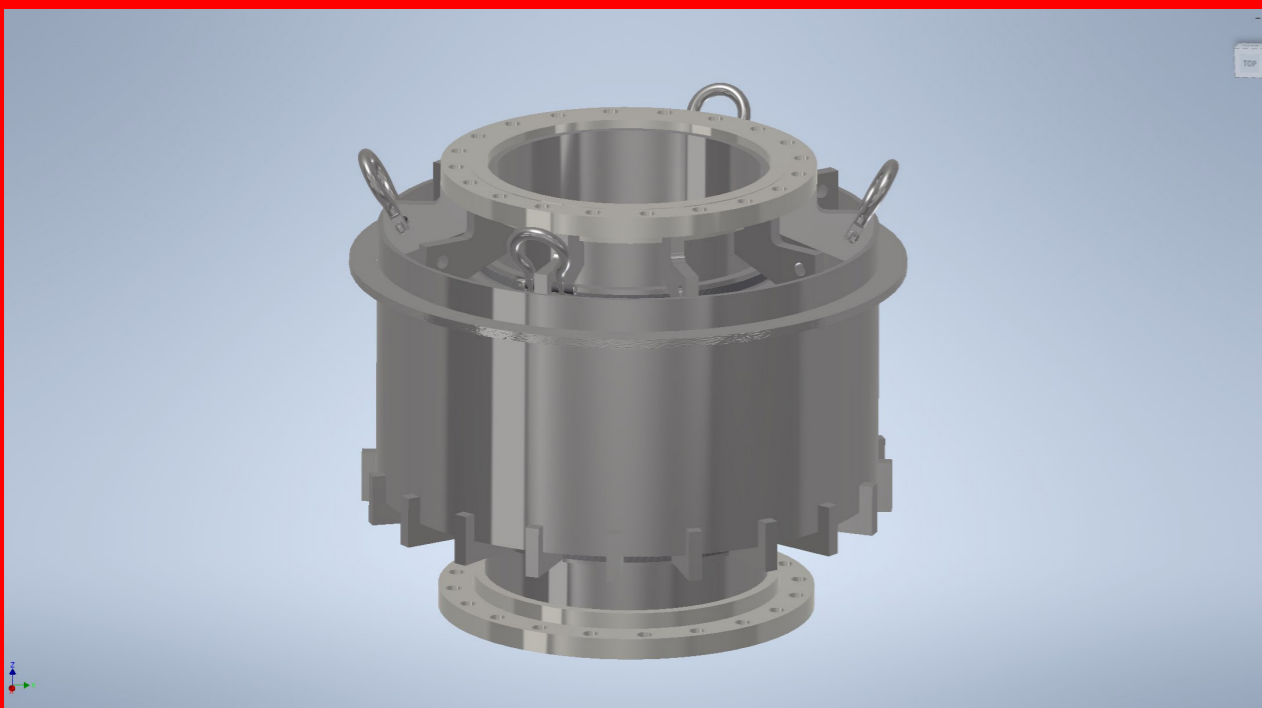


The development project for a specialised pressure balanced compensator consisted of six stages, aiming to provide an innovative solutions tailored to the customer's specific needs.

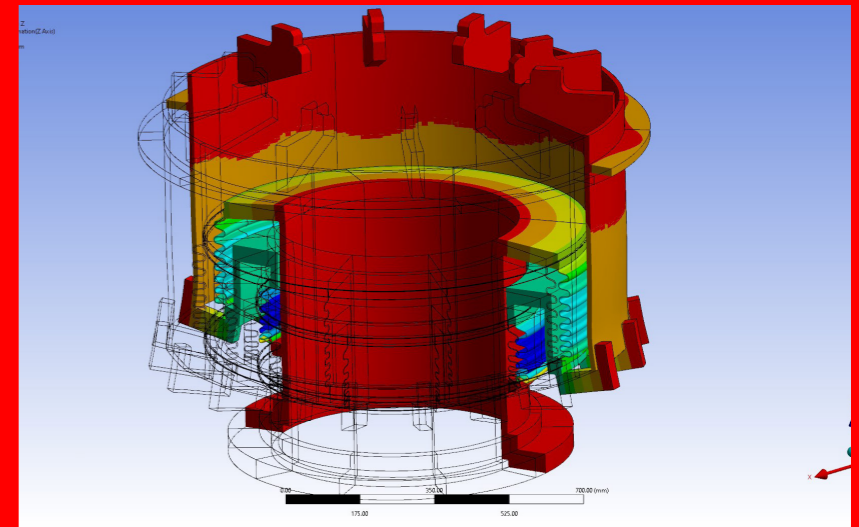
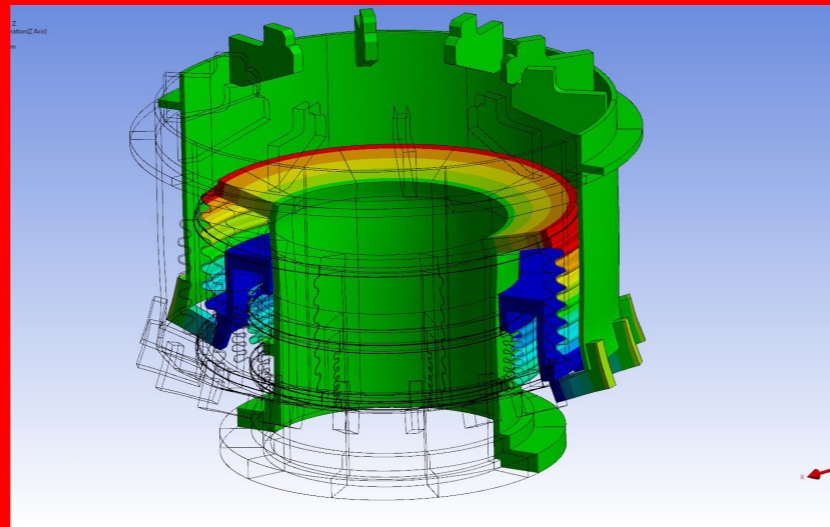
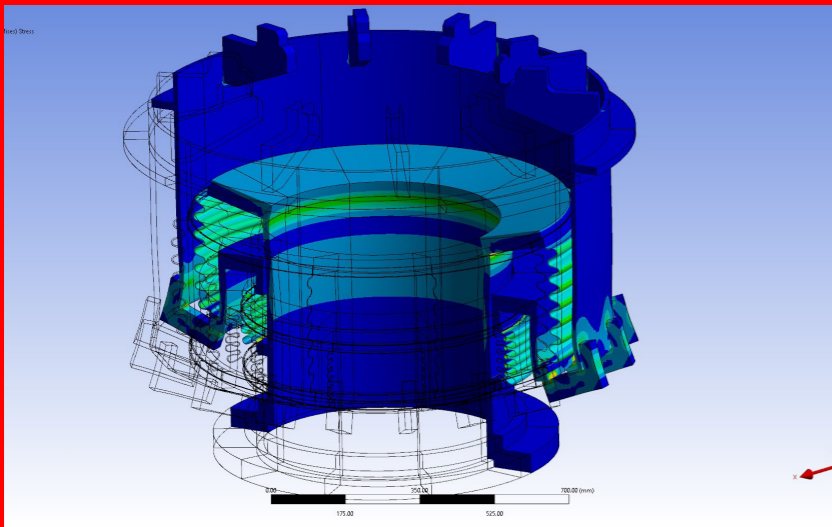
**SPECIALISED 3D MODELLING** Using advanced 3D modelling techniques, we designed a customised thrust eliminated expansion joint.



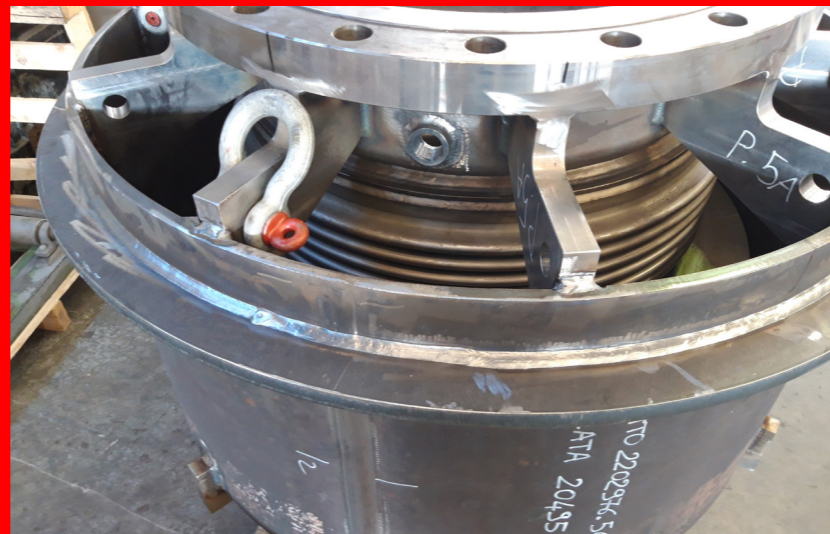
**CALCULATION AND FEM ANALYSIS** Calculations were performed in accordance with ASME VIII Div. 1 standards and certified with ASME U-STAMP, supplemented by FEM (Finite Element Method) analysis using ANSYS. This enabled the development of a customised mechanism to meet the customer's specific requirements.



**DETAILED DESIGN** Detailed construction designs were prepared, ensuring the correct implementation of the products.



**MATERIAL SELECTION AND GEOMETRIC OPTIMISATION** Based on the results of the FEM analysis and the permissible stresses for the chosen material, GIORGI ENGINEERING proceeded to select suitable materials and optimise the geometry of the components.



**SPECIAL APPROVAL TESTS OF MATERIAL** Special tests were performed to ensure the quality and suitability of the expansion joint.



**PRODUCTION AND REALIZATION** Production was carried out by GIORGI ENGINEERING on the basis of the final construction designs passed by special tests, guaranteeing the highest quality and compliance with the required specifications.



**MAIN CHALLENGE** The main challenge was the design of a pressure balancing mechanism capable of withstanding the various stresses generated by the required pressure, temperature and diameter, according to ASME VIII Div. 1 standard.

**STRATEGY AND SOLUTION** The key strategy was to use in-depth calculations compliant with ASME VIII Div. 1 standards and FEM analysis to identify the best combinations of materials and geometries to meet the client's specific needs.

**PRODUCT/SERVICE OFFERED** The 'eliminated thrust compensator' is a compact and highly efficient solution designed as an innovative version of the traditional eliminated thrust expansion joint. This DN 600 PN16 compensator, with 50 mm axial movement and operating at 150°C, offers superior performance and maximum reliability.

**CLIENT AND INSTALLATION CONTEXT** The client, Tenova, a renowned manufacturer in the steel industry, requested installation at Baosteel Zhanjiang in China, demonstrating trust in our work and our ability to provide innovative, high-quality solutions.

**BENEFITS AND RESULTS** The solution offered has overcome technical challenges and provided a customized pressure balanced compensator, ensuring maximum efficiency and quality. Thanks to the partnership with GIORGI ENGINEERING, the use of high-quality materials and rigorous quality testing, we have provided an exclusive product that fully meets the client's needs, reaffirming our reputation for reliability and expertise in the industry.