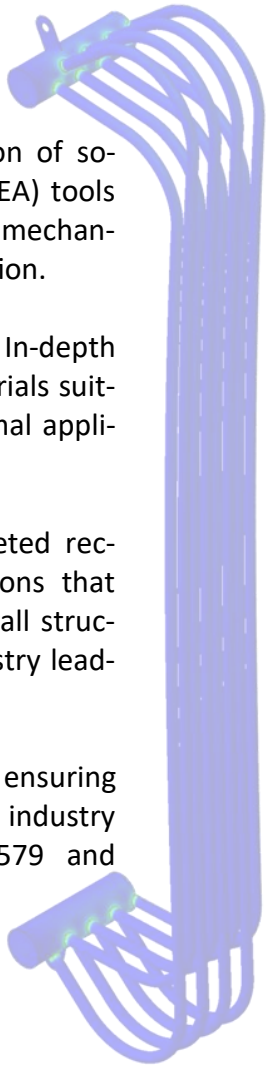
Solar Receivers

Heat Transfer, Stress, Creep and Fatigue

FE Consultants (FEC) specialise in advanced mechanical design and analysis of solar thermal receivers. Our 15+ years of in-house expertise includes high temperature creep assessments, as well as detailed evaluation of cyclic behaviour, ensuring reliable performance throughout the system's lifespan.

Key Skills



Stress Analysis Proficiency: Utilisation of sophisticated Finite Element Analysis (FEA) tools to simulate the effects of thermal and mechanical stresses, including creep deformation.

Material Performance Evaluation: In-depth knowledge of high-temperature materials suitable for high temperature solar thermal applications.

Design Optimisation: Providing targeted recommendations for design modifications that improve resistance to creep and overall structural performance, aligning with industry leading best practices.

Regulatory Compliance: Expertise in ensuring compliance with the most advanced industry standards such as ANL-20/03, API579 and ASME Section III Division 5.

FEC has over 10 years of experience in the design of high temperature equipment used in both traditional and renewable energy industries. Common to both fields is the requirement to ensure the structural integrity of equipment while operating in extreme service conditions.

We are committed to delivering tailored engineering solutions that meet the unique requirements of each project, enhancing operational efficiency and achieve successful outcomes for our Clients. We have collaborated with leading organisations in this field such as the **Australian National University**, **Vast Solar, Sunrise CSP, Hazer Group** and the **CSIRO**.

Key Projects:

ANU Mark 1 Receiver and Housing: Integrating with the solar receiver design, the full enclosure of the Mark 1 curved panel receiver.

ANU 1MWth Gen 3L Receiver: Mechanical Design of a solar receiver, manifold pipework and enclosure.

Vast Solar: Ground and tower piping system design for Port Augusta plant operating with creep and cyclic conditions including transient hydraulic assessment.

Hazer Group: Mechanical design of high temperature furnace heated reactor for the catalytic decomposition of methane to hydrogen and graphite.

Mark 1 Receiver Housing

FE Consultants

31 Folkestone Street, Bowen Hills, QLD, Australia, 4006
+61 7 3252 7400 | www.feconsult.com