

FACTS AT A GLANCE

Company: Austral Diseños Industriales

Website: www.adinsa.com.ar

Description: Austral Diseños Industriales provides engineering for oil and gas companies and to the thermal and power generation sectors, including the design of boilers and furnaces. With clients across Europe and Argentina, projects encompass static equipment and plant design, stress analysis, support design and construction.

Industry: Power Generation

Country: Algeria

PRODUCTS USED

- CAESAR II®
- Isogen®

KEY BENEFITS

- Addressed erroneous analysis.
- Demonstrated needed changes.
- Completed analysis in just two weeks with CAESAR II automation.

AUSTRAL CORRECTS ERRONEOUS ANALYSIS ON FAST-TRACK PROJECT WITH CAESAR II®

IDENTIFYING GOALS

Austral Diseños Industriales (Austral) provided the engineering and analysis for an innovative US\$441 million project. The integrated solar combined cycle (ISCC) plant in Hassi R'mel, Algeria, is the world's first facility combining solar energy with conventional gas generation. The 170 megawatt (Mw) power plant includes 20 Mw solar fields added to the 150 Mw from gas and steam turbines to produce energy for export to Europe via undersea cables.

The project included the HRSG boilers and air condenser and uses a hot oil fluid (HTF) plant to exchange energy with water to generate steam of 160,000 Kg/h at 92 bar pressure at 370°C. The solar field contains 183,000 m² of mirrors and ASTM A106 Grade B pipe in varying diameters with temperatures of 400°C and 115 bar pressure.

OVERCOMING CHALLENGES

With a short 33-month project schedule and construction already in process, Austral had few possibilities to change the design. A major challenge came when it discovered the previous stress analysis was erroneous because the system had been analyzed as independent pipes and the connections with the equipment analyzed as anchor points without movement and without consideration of the maximum loads over nozzles.

Using CAESAR II for stress analysis, Austral was able to show the client the system's complexity and how it all works together. Austral included the initial model's problems and the needed changes, correcting these problems to guarantee a safe startup and operation. The team used the Isogen® module built into CAESAR II to automatically produce the isometric drawings and then produced the calculation deliverables.

With construction already underway, Austral would not have been able to uncover the previously done erroneous engineering analysis without CAESAR II's capabilities, and it could not have met the client's schedule. It would have been too difficult to carry out this project without CAESAR II, not only to analyze the stresses, but to define the new type of supports, make pipe changes, and visualize how the pipe and equipment work together under different operation conditions.

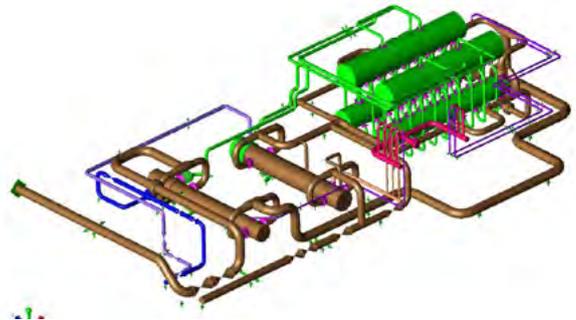
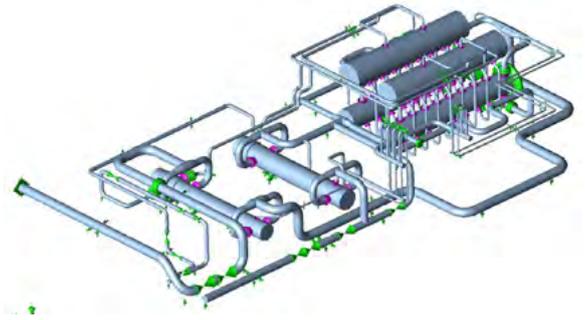
REALIZING RESULTS

CAESAR II helped Austral save time and improve accuracy, ensuring the client's confidence in Austral as a partner for repeat business.

"It would have been too difficult without CAESAR II, not only from the stress point of view but also because of the project's complexities," explained Nicolás Duca, mechanical engineer and magister environmental engineer at Austral.

"Without CAESAR II, we could not have completed the project on time and still allow the rest of specialties to continue their work," he added.

With CAESAR II, the team completed the analysis in a short two weeks and avoided costly and dangerous inconsistencies. Austral demonstrated its capabilities on this complex analysis with the most appropriate engineering solutions.



AWARD-WINNING PROJECT

Austral received the 2014 CADWorx Drivers of Success Runner-Up Award for its use of the software. The annual Drivers of Success competition recognizes innovative applications of Intergraph products, impressive project results, and significant benefits from collaboration among disciplines and the integration of the products.

ABOUT INTERGRAPH

Soon to be known as Hexagon Process, Power & Marine, Intergraph Process, Power & Marine is the leading global provider of engineering software for the design, construction and operation of plants, ships, and offshore facilities.

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