DEDINI S/A INDÚSTRIAS DE BASE

Accelerating energy plant and industrial factory development with SolidWorks

Dedini relies on SolidWorks design and simulation solutions to develop entire power plants and factories more efficiently, accurately, and cost-effectively.

As the world's largest exporter of ethanol, Brazil is considered to have the first sustainable biofuels economy. Supporting this important industry is Dedini S/A Indústrias de Base, a 90-year old company that has emerged as the world leader in the development of energy plants and industrial factories for the sugarcane sector. Mario Dedini founded the company in 1920 as a small workshop. Since then, Dedini has followed a meteoric growth path through the development of plants, factories, and equipment for a variety of energy generation and industrial applications.

In addition to its prominence in sugar processing and ethanol production, Dedini develops other energy facilities, such as cogeneration, steam boiler, and biodiesel (vegetable oil) plants. The company also operates industrial factories, including food processing; wastewater treatment; and cement, mining, and metallurgical equipment.

Until 2005, Dedini's engineers used AutoCAD® 2D design tools to develop a wide range of facilities and equipment. To support its growth and effectively respond to increasing demand, Dedini needed to accelerate its design processes and shorten time-to-market, while maintaining high levels of quality and innovation. Management believed a 3D development platform could satisfy these needs, according to Otávio Spagnol Sechinato, project analyst and 3D CAD specialist.

"We encountered many errors using AutoCAD," Sechinato explains. "With 3D, Dedini anticipated faster designs and fewer errors. So, we decided to train an engineer in each of five CAD systems (Autodesk Inventor®, CATIA®, NEX®, Solid Edge®, and SolidWorks®), and had them work on a complete project. That process produced three finalists: CATIA, NEX, and SolidWorks. After evaluating price and usability, we chose SolidWorks software because it is the easiest to use, represents the best value, and provides the large assembly design and visualization tools that we need."

Challenge:
Accelerate the development of diverse energy generation plants and industrial processing factories while improving quality, controlling costs, and increasing innovation.

Solution:
Implement SolidWorks design and SolidWorks Premium design and analysis software to better visualize plant designs, automate design processes, and reduce design errors.

Results:
- Compressed design cycles by 35 percent
- Shortened time-to-market by as much as 30 percent
- Reduced design errors by 60 percent
- Cut rework by 30 percent

3S SOLIDWORKS

Dedini relies on its 59 SolidWorks licenses, including 24 SolidWorks Premium licenses, to enhance its leadership position in plant and factory development. "SolidWorks has worked out well for Dedini, and we now try to use 3D visuals as much as we can," Sechinato says.

Faster, better with less rework

Since implementing SolidWorks software in 2006, Dedini has compressed its design cycles by 35 percent. Some of these savings relate to having fewer design errors with SolidWorks—60 percent fewer than when working in 2D. With fewer errors to rectify in production, Dedini has also cut the amount of rework required by 30 percent. These productivity gains have resulted in faster plant delivery—as much as 30 percent faster in some cases.

"Working in SolidWorks is definitely saving time and money," Sechinato stresses. "It's the only software that we use to develop key mechanical components and systems in our plants. We are working on very large projects, so visualization alone is a big time-saver. However, when 3D visualiation is combined with SolidWorks interference checking and motion simulation tools, we are able to identify many of the errors that we simply couldn't catch in 2D. Fewer errors means less rework, which saves us time and money."

Automated routing of piping systems

A consistent requirement of Dedini's projects is the routing of piping systems throughout the plant. Using SolidWorks Routing capabilities, the company has automated this process, contributing to its faster plant delivery times.

"We are working on many projects at any given moment and rely heavily on the SolidWorks Routing tool to meet challenging delivery schedules," Sechinato explains. "It's an added bonus to be able to route piping runs in the same CAD system that we use to develop mechanical systems. We try to design everything that we make in SolidWorks, which provides the complete set of design tools required to develop plants and factories."

An internal User Group community

An integral contributor to Dedini's success with SolidWorks software is its active and knowledgeable SolidWorks User Community. Led by its own SolidWorks User Group, Dedini designers and engineers have valuable resources to which they can turn to improve their efficiency with SolidWorks. "Made up of key users, our User Group Committee meets regularly to discuss new tools and technologies, and validate new capabilities in SolidWorks," Sechinato notes. "In addition to educating our users on new ways to apply the software, the Dedini User Group provides our first line of user support.

"We often push our designs and software to the edge," Sechinato adds. "Having such a vibrant, internal SolidWorks community is helping us achieve our development goals and obtain the greatest value from the software."
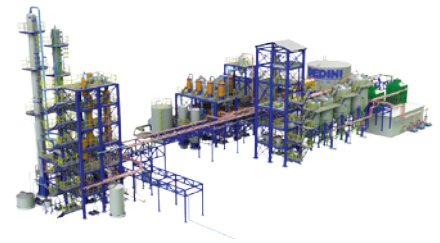
Specialized tools like SolidWorks Routing help Dedini automate development and shorten plant delivery times.