



FACTS AT A GLANCE

Company: Shandong Provincial Textile Design Institute

Website: www.sdfzszy.com

Description: Shandong Provincial Textile Design Institute (Shandong TDI), a provincial state-run scientific research and design enterprise founded in 1963, provides research, consultation, design, and project management to textile and other sectors. The institute has made great contributions to China's textile industries and earned 100 awards, including gold medals for excellent design. The institute is a member of the China Association of Survey and Design and other related industry organizations.

Industry: Textiles

Country: China

PRODUCTS USED

- CADWorx® Plant Professional

KEY BENEFITS

- Cut design time by 50% to accommodate tight design schedules.
- Improved data accuracy to eliminate wasted design time.
- Enhanced productivity despite frequent design changes and using 3D design for the first time.

SHANDONG TDI SUCCEEDS ON FIRST 3D DESIGN EFFORT WITH CADWORX®

IDENTIFYING GOALS

Shandong TDI needed to design a 1.02 billion Yuan (US\$156 million) Lyocell cellulose fiber project in the Bohai chemical industry park in Weifang, Shandong, that would produce 30,000 tons annually. Lyocell comes from dissolving pulp made from timber, bamboo, and other natural and reproducible plants and spinning it with N-methylmorpholine oxide (NMMO) solvent to form the fiber.

The recycling rate of NMMO solvent is over 99.5 percent with no harm to the environment, making Lyocell fiber the "green fiber" of the 21st century. As the leading fiber project during China's 12th Five-Year Plan period, the facility enjoyed extensive support from the National Development and Reform Commission (NDRC) and other government departments.

For this 34,000 square meter project, Shandong TDI was in charge of designing the main workshops and auxiliary production devices containing more than 340 models and 2,900 pipelines ranging from DN10 to DN600 in diameter. Challenges came from a strict nine-month design time compounded by frequent design changes and the complex technology from abroad with high standards of automation, with much of the basic data in English and German. It was their first project using 3D design, requiring designers to adjust their methods, and they lacked any projects in China to use for reference. To address these design challenges, Shandong TDI chose Intergraph® CADWorx®.

OVERCOMING CHALLENGES

CADWorx helped the company create a variety of deliverables, including layout and pipeline drawings, process and instrumentation diagrams (P&IDs), the 3D design model, and material lists. Using 3D design, they doubled their efficiency, cutting design time by half.

"The accuracy of 3D design with CADWorx is far superior, and the problems of collision were solved," explained Jichao Wei with Shandong TDI.

Without CADWorx, design time would have taken twice as long and its three-dimensional design accuracy would have been much harder to achieve and collisions much more of a problem. The company would not have been able to save the estimated 30 percent on the cost of construction that CADWorx provided. Employee motivation would have been more of a challenge without the software's ease of use, and client satisfaction much more difficult to achieve. In 2D design, the volume of

work would have been too much and the low coherence among different professions would make revisions difficult, causing lower accuracy and higher costs.

REALIZING RESULTS

“Using CADWorx, we reduced cost construction costs by 30 percent, enhanced employee motivation, and greatly increased the client’s satisfaction,” said Jichao Wei. “CADWorx is a powerful solution that was easy to learn and operate.”

The results produced by using CADWorx are helping lead the entire textile and fiber industry to this solution, gaining wider acceptance in the region.

AWARD-WINNING PROJECT

Shandong received the 2015 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.



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