

Consumer products and retail

## Leechi Machinery

Bicycle components manufacturer uses Solid Edge to streamline design-through-manufacturing process

### Product

Solid Edge

### Business challenges

Enhance product and process design

Use a single system to handle external metafiles

Improve design change efficiency

### Keys to success

Employ integrated CAD/CAM to eliminate the need to convert drawings and files

Utilize synchronous technology to improve design simulation and model disassembly efficiency

Engage Insight technology to improve PDM

Use services and support of the Siemens Digital Industries Software partner

### Results

Significantly reduced time needed to modify models and 2D drawings

Eliminated need for multiple CAD packages

### Leechi Machinery reduces wasted resources with Siemens Digital Industries Software solutions

#### Improving accuracy

Founded in 1973, Leechi Machinery Industry Ltd. Co. (Leechi) specializes in the research, development and design of bicycle components, including disk brakes, brakes and levers, seat posts, stems and handle bars. Leechi provides mid- and high-end bicycle components, including its PROMAX line, to prominent brands throughout the United States and Europe, including Giant Manufacturing Co. Ltd. and Merida Industry Co. Ltd. Exports account for 80 percent of its revenues.

With four decades of experience in components research and manufacturing, Leechi deployed a computer-aided design (CAD) system as early as 1986 in order to improve its development capabilities and reduce development time. However, Leechi's expanding customer base meant that the company required a design system that was capable of directly handling design drawings and files from all customers.

The company sought integrated CAD and computer-aided manufacturing (CAM) technologies to meet its challenges. Lin Yuxin, general manager at Leechi, explains, "We had to purchase all sorts of design software to meet the requirements



of different customers, which created a kind of 'CAD UN' inside our company. We weren't able to address this complicated management issue until Solid Edge and Solid Edge CAM Pro from Siemens Digital Industries Software were deployed.

"The use of Solid Edge and Solid Edge CAM Pro haven't just increased the efficiency of our drawing communication and design change management processes, but they have greatly improved the accuracy of our

# “Solid Edge with synchronous technology has substantially improved our drawing communication and design change management best practices.”

Yu Anfu  
Deputy Director  
No. 3 R&D department  
Leechi

## Results (continued)

Improved accuracy of communication between manufacturing site users, resulting in more efficient collaboration

Enhanced process for reviewing gauge and jig drawings, facilitating problem-solving and turnaround

Introduced digitally based drawing and file management best practices

Accelerated design-through-manufacturing process by 30 percent

downstream processing, leading to less wasted time and resources due to errors.”

## Using a single system proves beneficial

When Lin found that several large manufacturers in the molding industry were using design software from Siemens Digital Industries Software, he decided to make inquiries. After being briefed by CADEX Technology Co., Ltd. (CADEX), an agent of Siemens Digital Industries Software, he became particularly interested in the capability of Solid Edge® software to support imported data from various competitive CAD systems as well as the Insight™ design data management solution, which could be used to manage 2D/3D files. As a result of his research, Lin decided to deploy Solid Edge in the company's No. 3 Research and Development (R&D) Department as a pilot application project.

Using Solid Edge has enabled Leechi to become more efficient at communicating drawings with customers. As most of Leechi's customers are bicycle assembly plants with projects that involve hundreds of models and numerous customized components, most design drawings are made by customers who normally only provide data in formats that aren't native to Solid Edge.

“Using Solid Edge makes it pretty easy to modify imported data files from competing CAD systems, whether they're straightforward or involve a lot of complexity, such as curve modeling,” says Yu Anfu, deputy director of the No. 3 R&D department.





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Customers often request design changes in the absence of the original drawings. Leechi utilizes synchronous technology to efficiently and effectively make modifications. Lai Jinhong, a senior engineer experienced in physical and curve modeling, notes that using Solid Edge with synchronous technology not only reduced the time it takes to modify feature-based models, it also enabled the firm to output 2D drawings directly, eliminating the need for using other software for processing.

In addition, Leechi has begun to use Solid Edge and Insight for drawing and file management, anticipating that the whole process – from development design to file management – can be executed in a single logical system.

#### **Delivering intuitive design**

“The design approach of Solid Edge is synchronous rather than parametric as it used to be, which, in combination with the capability to implement design changes and output and manage drawings and files in one single system, frees us from the complexity of handling each process step with different software,” says Lai. “The combination of synchronous technology and Insight data management in one

system increases the smoothness and efficiency of the whole working process.”

Leechi also found that using Solid Edge helps the company save time in dealing with work pieces that have many similar parts and features. If the original coordinate coefficients are identical, engineers just need to set up replacement parts, and they only need to check, and not re-mark, the 2D drawing. Leechi engineers have found they need roughly one day to finish the first work piece and only two hours to finish a similar piece.

Another benefit of using Solid Edge has been the enhanced CAD and CAM integration. Since Leechi provides one-stop services from the very beginning, its product design and process design capabilities are synchronized. The process design mainly covers the design of the gauge, jig and machine tool.

Previously, Leechi used 3D systems only for mold design in its process design business, but with Solid Edge, the use of intuitive 3D design makes it easier to review the gauge and jig drawings. “In the past, the person in charge of reviewing the drawings wasn’t necessarily equipped with

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Lai Jinhong  
Senior Engineer  
Leechi

the mechanical expertise or experienced enough in reviewing engineering drawings to be able to grasp the true meaning of dimensions or lines on a 2D drawing," says Yu. "With 3D design capabilities of Solid Edge that person can get a clear view of the outlook for the gauge and jig."

In the course of communication between the manufacturing site and the gauge users, an intuitive drawing can also play an important role, because it enables users to get a clear understanding so they can quickly react to a problem, thus improving the overall accuracy.

#### **Significant gains**

In addition to establishing a single, highly efficient system for design, improving collaboration across manufacturing sites and introducing digitally based drawing and file management best practices, the company made substantial gains in time-to-market. Leechi achieved a 30 percent faster design-through-manufacturing process, which led to faster delivery and a significant improvement in company financial performance.



#### **Providing "timely access"**

Support can be instrumental in a fast start and overall implementation success. Yu especially expresses appreciation for the technical services of Siemens Digital Industries Software and its partner, CADEX. "Whenever engineers use software with brand-new interfaces, some operating difficulties are unavoidable until they get used to it," he says. "In this regard, we're fortunate to have timely access to real support from CADEX's technical service personnel. They have guided us through the CAD/CAM integration, Insight file management configuration and other technical issues.

"If there are concerns, there will be interactive discussions by email within 24 hours, and consultants are dispatched to assist Leechi in figuring out the best approach."

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Yu Anfu  
Deputy Director  
No. 3 R&D department

## Solutions/Services

Solid Edge  
siemens.com/solidedge  
Solid Edge CAM Pro  
siemens.com/solidedge-campro

## Customer's primary business

Founded in 1973, Leechi Machinery Industry specializes in the research, development and design of bicycle components, including disk brakes, brakes and levers, seat posts, stems and handle bars.  
www.leechi.com.tw

## Customer location

Changhua  
Taiwan

## Solution Provider Partner

CADEX Technology  
www.cadex.com.tw

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