

Solid Edge

Mindman

Use of 3D CAD software enables pneumatic components manufacturer to respond faster to customers; gain a competitive advantage

Industry

Industrial machinery and equipment

Business challenges

Reduce the time needed to respond to customers' design changes

Improve design accuracy

Reduce material consumption during molding process

Keys to success

Short learning curve and ease of use of Solid Edge

Synchronous technology permits changes directly to customers' CAD models, speeding design changes

Both internally developed and customers' designs processed and managed using a single CAD system

Results

Development of standard components successfully transferred into 3D design

Improved product development best practices

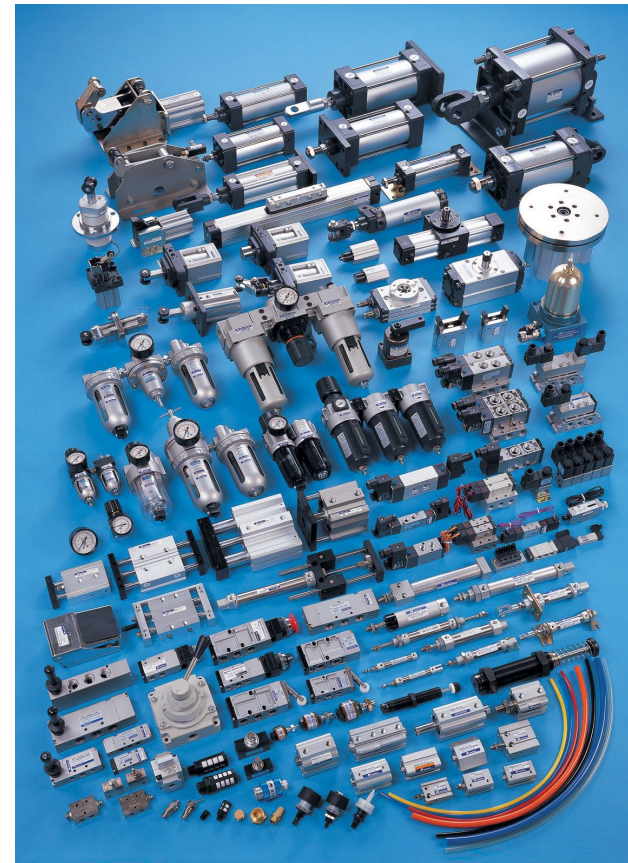
With Solid Edge, Mindman increases design accuracy across standardized and customized components, accelerating the design process and improving change management efficiency

Looking for a way to improve design efficiency

Founded in 1979, Mindman Industrial Co., Ltd. (Mindman) specializes in the development and manufacturing of pneumatic components. Its products include pneumatic cylinders, control valves, and air filters, as well as regulators and lubricators, all of which are widely used in industrial machinery.

Mindman's exporting network is widespread across Southeast Asia, Australia, the Middle East, Japan and Europe. The company has a research and development (R&D) facility as well as five factories in Taiwan. With an integrated development process, from product design, to die casting, to machining, surface coating and assembly, along with automatic warehousing and delivery, Mindman can provide customers with high-quality products and fast delivery.

2D design tools served the company well for many years. However, over time, parts based on 2D drawings sometimes did not dovetail with each other. If the deviations were not serious, they were corrected by modifying dimensions. But in cases of



serious deviations, entire sets of parts would become worthless, wasting time and material.

To solve these problems, Mindman turned to 3D software, but it was not a one-step process. Mindman had used two generations of 3D computer-aided design (CAD)

Results (continued)

Significantly better communication with customers; improved customer satisfaction

The right products are designed in less time and delivered faster to market

Winning new business

“With Solid Edge, for design changes made by our customer, we can view the results in real-time. This not only improves our communication with the customer, but also shows Mindman’s R&D competitiveness.”

Huang Chinghung
Deputy R&D Manager
Mindman

tools. It was only after adopting Siemens PLM Software’s Solid Edge® software that the company was able to accelerate the design process and solve problems related to design change.

Transition to 3D

“During the transition from 2D to 3D, we were unable to use our first set of 3D tools in the Windows 7 environment,” notes the deputy R&D manager at Mindman.

As the number of designers involved increased and the workload of each designer grew, Mindman decided to look for another 3D CAD solution, one worth a long-term technical investment and with advanced technologies and methods for accelerating both the design and the process of making design changes. The company also wanted to use the new software to improve its communication with customers, particularly regarding design changes.

After an evaluation of a variety of 3D systems, Solid Edge was chosen for its superior functionality.

The unique synchronous modeling functionality of Solid Edge was a key reason for Mindman’s selection of the 3D technology. “The synchronous technology of Solid Edge represents a leading tool in the current market,” notes Mindman’s deputy R&D manager. “It is exactly what we wanted for our long-term investment.”

Moreover, the 3D capabilities of Solid Edge enable more flexibility throughout the design and drawing change process. It also gives the company a high level of compatibility with its customers’ data as there’s no need to prepare multiple CAD tools regardless of the version difference. Instead, changes can be made directly to designs, enabling the company to efficiently manage and apply both internally developed and externally received data.

Since implementing Solid Edge, the software has been used for all new designs at Mindman, especially in the development of standard components. Mindman has always focused on efficiency in generating these designs as a way of remaining competitive in its market.

According to Mindman’s deputy R&D manager, “We can make changes directly on 3D drawings, and have great flexibility in parameter setting. Use of Solid Edge with synchronous technology enables great convenience in the design work.”

Mindman uses 3D modeling to simulate its standard products. For custom products, with common parts between the standard and the custom products, it only needs to modify various elements of an existing design, such as the length of cylinder parts, piston rods or threads.

Mindman’s deputy R&D manager explains, “Using 3D software not only enables easy and fast modifications with real-time views of specific shapes and detailed lines by our customers, but also provides the accuracy needed for subsequent operations.”

Improving R&D competitiveness

To date, all standard components are now designed and manufactured with Solid Edge, while custom components are designed using a combination of 2D and 3D software, with approximately half of the work done using the 3D approach. If Solid Edge can be applied in the design and processing of all components in the future, and this appears to be the case, Mindman may realize additional substantial benefits in the form of higher accuracy and fewer errors.

Mindman’s deputy R&D manager points out, “For design changes made by our customer, we can view the results in real-time. This not only improves our communication with the customer on design drawings, but also shows Mindman’s R&D competitiveness.”

Solutions/Services

Solid Edge
www.siemens.com/solidedge

Customer's primary business

Mindman specializes in R&D and manufacturing of automated pneumatic components.
www.mindman.com.tw

Customer location

Tainan City
Taiwan

Partner

CADEX Technology Co., Ltd.
www.cadex.com.tw

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To facilitate the smooth operation of 3D and display the design concepts visually, it was necessary to unfold the component design drawings in detail. Once the appropriate talent was trained, Mindman realized significant value. In fact, the new approach played an essential role in winning more orders.

With the prior approach, it took significantly more time to process 2D drawings for use in the 3D system, especially when parameters required complex associative relationships. There was also the issue of damaged models, which required the engineers to spend valuable time correcting problems. Mindman's Deputy R&D manager explains, "In that situation, neither could we respond to the customer's requirements on design changes quickly, nor could we let them know the possible purchase costs. However, with the high level of compatibility between different formats of 3D drawings and files offered by Solid Edge, we are able to impress our customers with exceptional efficiency and accuracy in the drawing change process, which plays an important role in winning orders."

Along with the implementation of Solid Edge, Mindman has also launched a new product data management (PDM) system, which manages related drawings and files in a unified way.

Launching technology

To facilitate a successful introduction of the 3D design system, Mindman used software-savvy seed instructors to train its design engineers, who are responsible for developing new components. Then, a set of teaching methods was developed based on their learning experience and design output. These methods were used to teach

other designers on a batch basis, ultimately leading to the complete incorporation of all design work using the newly launched 3D system.

During the implementation of the new software, Mindman received technical support from CADEX Technology Co., Ltd. (CADEX), a Siemens PLM Software channel partner. CADEX helped tackle any concerns and shrink the learning curve by providing training courses based on actual development cases. Meanwhile, the channel partner also made videos that answered users' frequently asked questions. The videos are now used by Mindman as reference data for in-house technology sharing and training.

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