

Solid Edge

Manz

Higher design efficiency supports rapid company growth

Industry

Electronics and semiconductor

Business challenges

Secure competitive edge
Expand international business
Make design process more efficient

Keys to success

Strategic company acquisitions
Access to Chinese market
Solid Edge for comprehensive development tasks
Ease of use
Centralized licensing
Extensive network of design service providers

Results

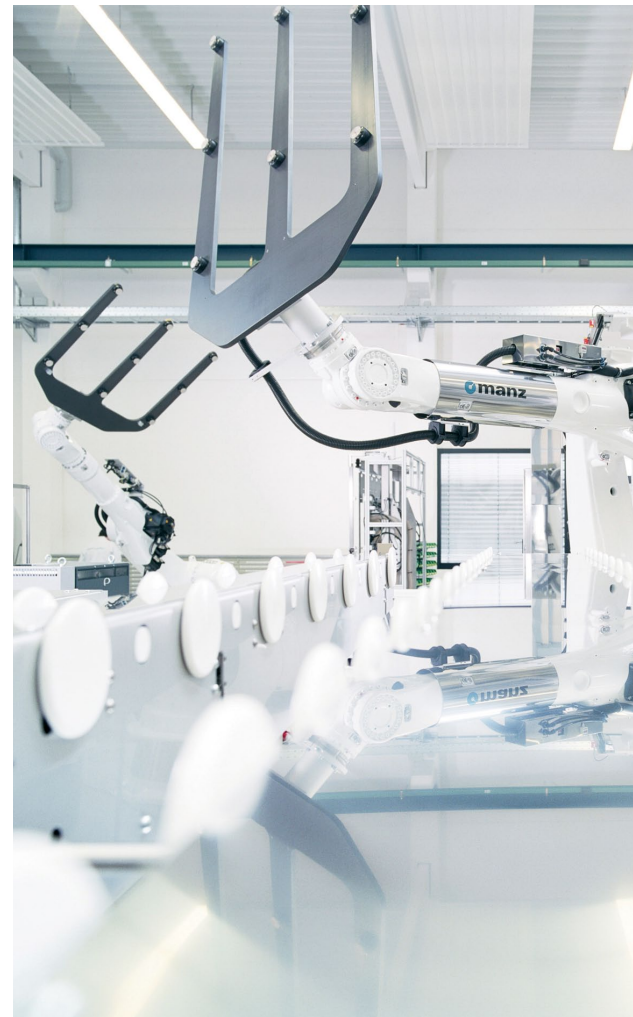
Improved economics
Faster design results
External designs easily integrated
Strong PLM infrastructure secured, including supplier network
Competitive edge extended

High-tech equipment manufacturer ensures handling of comprehensive product range with flexible 2D/3D CAD system

Rapid growth within promising markets

Manz AG (Manz), headquartered in Reutlingen, Germany, is one of the world's leading high-tech equipment manufacturers. Founded in 1987, the company has transformed from an automation specialist to a provider of integrated system solutions for the production of crystalline silicon solar cells and thin-film solar modules, as well as maker of flat panel displays (FPDs). Since 2009, its new business portfolio includes the development and manufacturing of production systems for lithium-ion batteries.

Manz is a technology leader, operating in dynamic future and growth markets. The company benefits from the global trend towards renewable energies, the boom in smartphone and media tablets, and the rapidly developing automotive electromobility market. To meet the strong demand for its products, Manz acquired several manufacturing companies and now produces its wares in nearby Tuebingen, as well as in Hungary and Slovakia. The acquisition of a Taiwanese company delivered access to the Chinese market. In fact, today, most FPDs are produced with Manz systems. The company's astonishing



Manz' automation system for handling of FPD glass substrates.

"We really appreciate the good cost-benefit ratio of Solid Edge."

"We are happy about the cooperation with PBU. It is very beneficial for us to have a partner that knows our company and processes very well and that can be contacted at any time needed."

Roland Mann
Manager of CAD/PLM
Administration
Manz AG



Cell tester and sorter.

growth is mirrored by its increase in employees – from 200 in 2006 to about 1,900 currently.

Flexible CAD system for a broad product range

A pivotal element of the company's success is a flexible and practical tool for development and design. For about ten years, Manz has been using Solid Edge® software, the most complete hybrid 2D/3D computer-aided design (CAD) system. With Solid Edge, about 100 Manz users handle its entire product range. Manz users note that Solid Edge excels in both standard projects containing about 15,000 parts and major projects with up to 150,000 components.

Part of the product lifecycle management (PLM) portfolio of Siemens PLM Software, Solid Edge readily meets the high assembly requirements of Manz. The software's extensive assembly functionality ensures efficient design despite the huge number of parts. For example, individual zones can be defined in order to hide all included components. Part and assembly simplification facilitates and accelerates the processing of extensive design information. An intelligent memory management feature loads parts only when needed.

With Solid Edge, Manz is able to create designs that would have not been possible only a few years ago. Now, the company manages manufacturing systems for battery cells as easily as complete solutions for the processing of silicon wafers and photovoltaic cells that can be 146 meters long and 15 meters wide.

Fully supported by Manz management, Solid Edge is the company's strategic CAD system. The low investment costs and comprehensive functionality of Solid Edge ensure that design tasks are quickly adjusted to changing market requirements. "We really appreciate the outstanding value of Solid Edge," says Roland Mann, manager of CAD/PLM administration at Manz. "Solid Edge meets our needs."

More benefits with synchronous technology

Currently, Manz is implementing Solid Edge with synchronous technology at all design workplaces in order to benefit from the advantages of the software's new modeling techniques. The automatic product manufacturing information (PMI) data exchange from 3D models to 2D drawings (including dimensions, tolerances and geometric dependencies) greatly improves



"OneStep Selective Emitter Method" using specialized laser optics increases efficiency of solar cells.

the design process. Retrieving manufacturing dimensions from the 3D model significantly speeds 2D drawing creation, eliminating the time-consuming need to define manufacturing information twice. Also, Manz computer numeric control (CNC) programmers can access the data. As a result, the new PMI feature improves communication between the company's design and manufacturing departments.

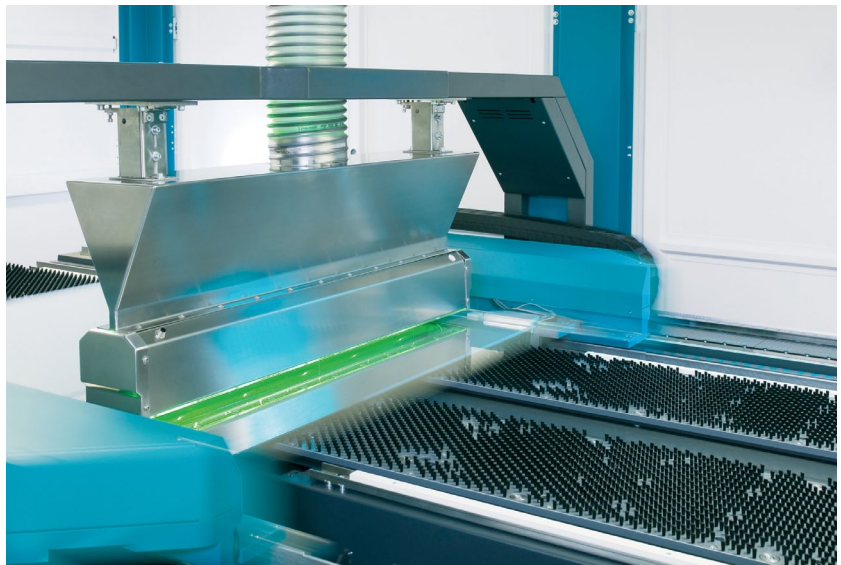
For Mann, user-friendliness is one of the biggest advantages of Solid Edge. The training period for new personnel is comparatively short. After a 5 days of training, the design engineers are able to use Solid Edge productively to the demanding standards required by Manz. The design engineers are especially impressed with the new user guidance functionality of Solid Edge, which makes the software even easier to use. Mann points out that the user interface supports rapid learning. For example, the radial menu is at the users' fingertips, providing faster access to everyday operations.

One company, one software

Another advantage of synchronous technology is the improved management of external CAD data. Within projects for battery manufacturing, Manz often operates

as prime contractor for large automotive companies. Efficient cooperation with suppliers and engineering service providers is mandatory. Using Solid Edge ensures that the design engineers of Manz can work with external data without encountering problems. Mann notes that even small, developing firms implement Solid Edge due to its low investment costs and track record of positive results. This enables Manz to continuously enlarge its development network of vendors that use Solid Edge, which ensures standardized processes and tight technological compatibility.

Additionally, the improved handling of external data supports the realization of Manz' maxim: "One company, one software". The introduction of Solid Edge at its new Tuebingen site has already been decided. Now, using synchronous technology, the existing design infrastructure can be confidently replaced without risking loss of data. There are other noteworthy advantages of using Solid Edge. For example, the interaction with the existing CAD installation of Manz Asia is now more productive. In the past, the data exchange between both traditional architectures was sometimes less than optimal.



Laser structuring of thin-film solar modules.

Solutions/Services

Solid Edge with synchronous technology
www.siemens.com/solidedge

Customer's primary business

Manz AG is one of the world's leading technology suppliers of production systems for the photovoltaic and flat panel display industries. Its new business operations include the manufacture of lithium-ion batteries.
www.manz.com

Customer location

Reutlingen
Germany

Partner

PBU CAD-Systeme GmbH
www.pbu-cad.de

"We have significant benefits through the trouble-free handling of external data. This definitely speaks for Solid Edge."

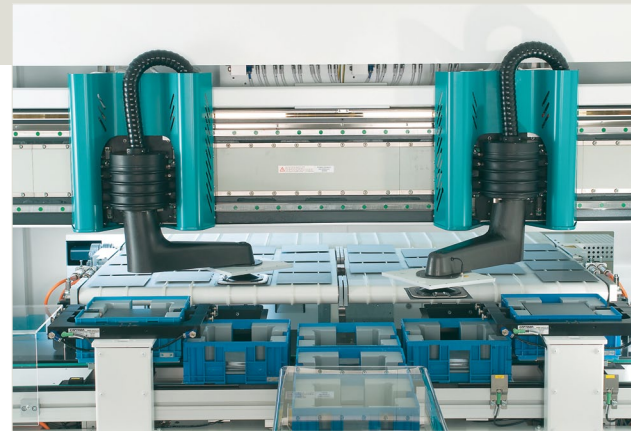
Roland Mann
Manager of CAD/PLM Administration
Manz AG

"Seamless communication of the two CAD environments is crucial, because it secures an enormous competitive edge; that definitely speaks for Solid Edge," explains Mann.

Easy system administration

Solid Edge plays a pivotal role within the overall PLM strategy of Manz. The open character and various interfaces of Solid Edge ensure seamless integration and the very important direct PLM connection. According to Mann, design data is converted into neutral file formats like tagged image file format (TIFF), portable data format (PDF) and data exchange format (DXF) and the interplay of various systems happens faultlessly. "Solid Edge significantly facilitates the conversion process," says Mann. "I am able to open drawings without having to access the associated model. Hence, data volume is reduced to the minimum." He notes that the enormous volume of conversions required by Manz are now readily manageable and that small add-on programs for Manz-specific tasks and processes can be quickly integrated using Solid Edge.

Mann points out that the system administration of Solid Edge is simple and direct. For example, Manz' 3 CAD administrators implemented synchronous technology in 115 workstations at 5 locations within a single weekend. The implementation process was quick because a central server for all European locations ensured a fast and trouble-free distribution of the company's 70 Solid Edge licenses. Moreover, this centralized licensing approach for regional



Speedpicker automation systems enable high throughput of crystalline cell at minimal breakage rate.

utilization provides the flexibility required for Manz' international operations.

Excellent regional support

Implementation and comprehensive support of Solid Edge are provided by PBU CAD-Systeme GmbH, a distribution and solution partner of Siemens PLM Software. PBU provides tailor-made and customized PLM training, as well as solution-oriented, on-site maintenance service. Fast licensing and high-quality consulting are important to Manz, and PBU delivers. Regional proximity helps ensure a quick response to potential problems. "We are happy about the cooperation with PBU," says Mann. "It is very beneficial for us to have a partner that knows our company and processes very well and that can be contacted at any time needed."

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