

Consumer products and retail, architectural, LED luminary

Macron

Designer lighting products specialist uses Solid Edge and CAM Express to save time and enhance products

Products

Solid Edge, CAM Express

Business challenges

Transition to 3D CAD software with built-in core technologies

Keys to success

Combining two modeling modes to meet drawing requirements of OEMs/brands

Easy-to-use software

Professional support by Siemens PLM Software partner, CADEX Technology

Results

Quickly transitioned to new tools and greater productivity

Combined modeling modes to realize fast modifications to complex drawings

Synchronously updated both mold and part data, saving significant time and effort



Siemens PLM Software solutions enable Macron to meet the requirements of its mid- and high-end customers

Focusing on the mid- to high-end market

With more than 30 years of engagement in the research and development (R&D) of the architecture of light, Macron Associate Co. (Macron) is currently specializing in light-emitting diodes (LED) lighting. The company has a turnkey supply chain covering everything from drivers, assemblies, mechanisms and electronic components to lighting product design. Macron's long-time core business is focused on original equipment manufacturers (OEMs)

and original design manufacturers (ODMs), with the main customer base in North America. Macron focuses on architectural lighting for the high-end retailer/shop, especially providing custom-tailored products and services to meet the requirements of lighting firms and designers. For LED products to appeal to professional lighting designers, elegant appearance and performance are equally important. To this end, the company not only pays great attention to high-heat dissipation performance and transparency, but also focuses on styling variations of the lighting products, aiming to inspire designer creativity, and create special spatial atmospheres with unique lighting effects.

“CAM Express provides many tooling methods that enable us to make better and subtler engravings more quickly compared to previous tools.”

Huang Chien-Wei
Supervisor, Process
Engineering Department
Macron Associate Co.



As Macron focuses on low-volume, highly varied designs, Macron’s R&D department employed 3D design tools early-on. However, in 2013, the company made yet another major switch, turning to Solid Edge® software to engrave and manufacture samples in combination with CAM Express software.

Transitioning to 3D software

Prior to the transition, Macron’s R&D designers were experienced with other 3D design tools, but they made the change due to long-term investment considerations.

Hsiao Wei-chin, assistant manager of the information department at Macron, explains, “What really attracts us is the independent core technology embedded in Solid Edge, which enables us to keep up with technology advancements and guarantee investment returns for users. Although an easy-to-use interface is appealing to users, it’s not easy to stay current if the software’s core technology is proprietary, which can lead to problems and thus cause us to fall behind in our work.”

As 3D design tools represent an essential investment, Macron is determined to be proactive going forward.

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Leveraging two types of modeling

Szu-Min, assistant manager of the R&D department at Macron, noted, "Unlike machinery, the design of lighting products does not involve too many parts, so 3D software is mainly used to make drawings, and not much analysis work is involved."

Therefore, the combination of sequence modeling and non-parametric modeling of Solid Edge can go a long way toward helping Macron meet its goals.

In addition, Siemens PLM Software's Solid Edge features synchronous technology. For instance, after designers choose the boundaries of a part, the system is used to check whether there is any geometric correlation between the boundaries of the part and other boundaries, and calculate the necessary geometric correlation that must be maintained. This is also known as non-parametric modeling as it doesn't require a manual parametric setting.

"Before introducing Solid Edge, our engineers had already been used to sequential modeling, so it surely is a good thing that they can do two kinds of modeling with this software," says Chen. "By providing both sequence modeling and non-parametric modeling, Solid Edge cuts down the time needed to modify moderately complex drawings by half or even more compared to our previous system."

Cutting modification time in half

Chen observed that, after a complete transition to Solid Edge, engineers were using it in different ways. For instance, with an ODM business that involves modifying drawings coming from customers, non-parametric modeling is much handier; while for engineers tasked with designing the company's own branded products, the advantage is not that obvious.

For example, if the drawing provided by a customer didn't include any draft angles, the engineers have to add draft angles when modifying the drawing. However, if the drawing was converted using STEP, it would be impossible to make any changes, leaving the engineers no choice but to redraft it.

"But now with the synchronous technology of Solid Edge, engineers can easily add draft angles without giving any thought to whether or not there originally was any fillet in the drawing," says Chen, who added that this is what makes Solid Edge superior to other software.

It is this unique capability of Solid Edge that cuts down the time that engineers need to modify drawings.



"Take a moderately complex drawing as an example," says Chen. "It would take half a day using the old software, but now it only takes half of that time or even shorter."

Huang Chien-Wei, supervisor of process engineering at Macron, also noted the significant productivity improvement enabled using Solid Edge. "For example, when we are drawing a mold, we can use the software to remove materials by changing the Boolean value, or use the multibody function to figure out the mold size easily and more quickly, possibly finishing one drawing within three minutes," says Huang. "This enables concurrent modifications to assemblies during synchronous design. The ability to update the sizes of 10 parts simultaneously can save a lot of time throughout the whole process."

Huang estimated that once engineers got used to the advance functions, productivity could be further improved.

Improving quality and efficiency with CAM Express

Macron's wide variety of lighting products all go through a proofing and testing stage before order acceptance and mass production. The company produces approximately 1000 proofs, or samples, annually. To improve the quality and efficiency of this sample production, Macron switched its computer-aided manufacturing (CAM) software to CAM Express, also from Siemens PLM Software. CAM Express is a CAM-only configuration of Siemens PLM Software's NX CAM product, providing special integrations for use with Solid Edge.

Solutions/services

Solid Edge
www.siemens.com/solidedge
CAM Express
www.siemens.com/plm/camexpress

Client's primary business

Macron focuses on LED lighting solutions, with a turnkey supply chain covering everything from drivers, assemblies, tubes and bulbs to lighting product design.
www.macrongroup.com

Client location

Taichung
Taiwan

Partner

CADEX Technology
www.cadex.com.tw

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Chen Szu-Min
Assistant Manager, R&D Department
Macron Associate Co.

“We rely heavily on 3-axis machining to process samples; CAM Express provides many tooling methods that enable us to make better and subtler engravings more quickly compared to previous tools,” says Huang.

Anticipating another notable increase in design efficiency

After initial exploration and application, Macron now plans to step up its training, including advanced courses that will enable its engineers to further improve design efficiency and overall productivity.

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