

NX • Teamcenter

## Advanced Group

Original design manufacturer sees a 30 percent efficiency gain after implementing NX

### Industry

Consumer products

### Business challenges

Greater design complexity

Customers' expectations for faster turnaround

### Keys to success

Seamlessly integrated CAD and CAM functionality using NX

Intuitive software workflows for mold design, simulation and assembly

Implementation help from Siemens PLM Software partner

NX CAM support for 5-axis machining

### Results

Overall design and machining efficiency up by 30 percent

Previous 14-day design-to-production cycle down to 10 or 11 days

Delays and errors caused by data translation eliminated

### Seamless CAD-CAM integration and support for 5-axis machining shrink the development cycle even as products become more complex

#### Golf equipment manufacturer diversifies

Advanced Group is the leading original design manufacturer (ODM) of golf equipment in Taiwan. The company's clubs and balls are used by a number of competitors on the professional golf tour, including the LPGA's top Taiwanese player.

In recent years, Advanced Group has begun to diversify, extending its reach to carbon-fiber bicycle frames and other sporting equipment, as well as to composite materials used in products such as mobile phones and tablet computers. Regardless of the project, however, designs have become more complex while delivery deadlines have gotten shorter.

#### One-stop supplier

Advanced Group, which has nearly 25 years of experience in design, machining and manufacturing, provides its customers with "one-stop" service. "Our promise of one-stop service is based on years of experience in the top-down approach," explains Don Wu, manager of the Tooling Center at Advanced Group. "From product design to digital simulation, to manufacturing and mass production, clients can simply put in their order with Advanced Group and then wait for their shipment to arrive.

Advanced Group takes care of everything that happens in between."

As customers started demanding faster turnaround on their orders, Advanced Group needed to accelerate its design and manufacturing processes. This was difficult to do with the company's previous computer-aided design (CAD) and computer-aided manufacturing (CAM) systems, however, in large part because they were not integrated. CAD files were converted for use with the CAM system. This process was time-consuming on its own and, because there was always the risk of incomplete data transfer, extra time was required to verify the transferred files. "When we used nonintegrated CAD and CAM systems, converted models could deform or tear, which resulted in large



**Results (continued)**

Former 2- to 3-day design process now takes only 1 day

More use of 5-axis machining; faster and more accurate mold production

Improved CAD/CAM data management and file control

**"Siemens NX gives us the highly efficient 'design for manufacturing' process. Now even complex designs quickly become profitable products for our customers."**

Don Wu  
Tooling Center Manager  
Advanced Group

**"NX support for 5-axis machining allows us to handle complex designs quickly and with high precision."**

Kenny Chen  
Section Chief,  
Tooling Section II  
Advanced Group

gaps," says Kenny Chen, section chief of Advanced Group's Tooling Section II. "If the CAM engineer did not find these defects, the entire mold fixture had to be scrapped and remade. This was a huge loss in both time and material costs."

To solve this problem, Advanced Group upgraded to NX™ software from Siemens PLM Software. The CAD and CAM functionality of NX are seamlessly integrated, eliminating the previous problem with data translation. "The most significant improvement is getting rid of previous disasters where files were not updated. It has been a while since we had to rework the entire process using outdated files," says Chen.

Advanced Group installed multiple seats of the NX CAD and CAM modules. These included NX modules for industrial design, mold design (including NX Mold Wizard) assembly modeling, drafting, and CAM (including support for 5-axis machining).

"The NX solution not only features plenty of functionality, but also comes with the professional support and partnership of Siemens PLM Software," says Don Wu, manager of the Tooling Center at Advanced Group. During the NX implementation, Advanced Group also relied on support provided by Siemens PLM

Software partner, Alpha Precision Instrumentation Corp. This company responded to telephone and e-mail inquiries the same day. In addition, its technicians were available onsite during the introductory phase of NX implementation. "Functions that were not part of the original software were customized for us by the Alpha engineers," adds Gimi Wu, section chief of Advanced Group's Tooling Section I. "This greatly reduced the complexity involved in transitioning to a new system." The Tooling Center also set up an NX knowledge database where troubleshooting procedures are recorded for future reference.

**Improved efficiency, start to finish**

The NX solution has greatly reduced the time needed to design, simulate and validate mold tooling, improving overall efficiency by 30 percent. "The simple commands and high-efficiency of NX makes it a great tool during the design phase," says Gimi Wu. "A mold for a wood club head that previously required 2 to 3 days to design can now be completed within a day with simple NX commands."



## Solutions/Services

NX

[www.siemens.com/nx](http://www.siemens.com/nx)

Teamcenter

[www.siemens.com/teamcenter](http://www.siemens.com/teamcenter)

## Client's primary business

Advanced Group specializes in the manufacturing of golf-related products (club heads, shafts, balls), bicycle components (forks and frames) and composites.

[www.adgroup.com.tw](http://www.adgroup.com.tw)

## Client location

Kaohsiung  
Taiwan

## Partner

Alpha Precision  
Instrumentation Corp.  
[www.apic.com.tw](http://www.apic.com.tw)

**"A wood club head that previously required 2 to 3 days of assembly can now be completed within a day with simple NX commands."**

Gimi Wu  
Section Chief  
Tooling Section  
Advanced Group



Improvements to efficiency do not stop there. Advanced Group uses the assembly modeling functionality of NX to reduce the on-site mold construction workload. The typical 2-week period from design to tooling has been shortened to 10 or 11 days. The simulation accuracy of NX also greatly improves results during mold try-out and validation.

Advanced Group uses Teamcenter® software, also from Siemens PLM Software, for product lifecycle management (PLM). The Tooling Center makes full use of the data management capabilities of Teamcenter to efficiently manage its CAD and CAM data. It also uses Teamcenter to manage the uploading and downloading of drawing files, version upgrades, and user permissions, so that every aspect of the development process can be carefully controlled.

## 5-axis machining support is key

Advanced Group relies on NX to produce the molds for its golf equipment and carbon fiber products. The software's support for 5-axis machining is becoming more important as the company increases its use of 5-axis technology. "With NX, we are able to better utilize 5-axis machining for the more complex mold designs," says Chen. "This offers faster production and higher precision."

In production of the golf club head, if the tooling process exceeds the 3-axis machine capacity, additional time is needed to orient the machine to properly cut the material. With 5-axis machining, these steps are unnecessary, eliminating that delay and resulting in a 30 to 40 percent time saving. Also, because with 5 axes the machine can reach difficult-to-access areas more effectively, shorter cutting tools can be used. This allows the machine to cut faster due to less cutting tool deflection.

"With improvements such as these, the future is brighter than ever for Advanced Group," says Don Wu.

## Siemens Industry Software

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[www.siemens.com/plm](http://www.siemens.com/plm)

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