

## Industrial machinery and heavy equipment

# Soler & Palau

Physical prototypes take too long to build

### Product

NX

### Business challenges

Fan design involves dozens of variables

Testing prototypes to evaluate each design concept takes too long

Lengthy design cycles can result in a product that is not competitive when introduced

### Keys to success

Use NX software to model products and production processes electronically

Evaluate design alternatives rapidly with virtual rather than physical prototypes

Develop a system to give entire development team access to latest product specifications and definitions

### Results

Four virtual prototypes evaluated in a week; more design variations considered

Time-to-market for one new product line was reduced by 40 percent

### Ventilation system manufacturer Soler & Palau needed a faster way to evaluate design alternatives

Competitive challenges forced Soler & Palau to improve product performance and reduce the time needed for bringing new models to market.

### Difficult design and development challenge

Soler & Palau (S&P) is one of the leading ventilation manufacturers in the world. Its systems are known for being well-designed, easy to install and extremely durable. Designing a ventilation system can be a lengthy endeavor due to the complexity of the assembly. It consists of an inlet with a protective mesh, duct, rotating impeller, electric motor, exhaust, louver shutter and other components. "The relative position of every part is critical to achieving an optimized design," says Josep Vilanova, development and support manager, Soler & Palau. "For example, if the rotating impeller blades are located near fixed parts as supports, an objectionable noise is usually produced."

Because there are so many design variables, only a limited number of design concepts can be evaluated with physical prototypes as a single prototype can take up to one month to build. S&P can't risk delaying new product introductions because a fan that is late to market can be



instantly out-dated. The company needed a way to evaluate multiple design concepts quickly to speed the introduction of optimized new products.

### Applying NX

S&P took a new approach with its PVP-SL ventilator series, a family of six new helio-centrifugal fans that deliver low noise and high performance and provide direct coupling for installation in impulsion or aspiration duct lines. S&P used the development of this product as a test bed to optimize its usage of engineering methods based on NX™ software. The goal was to increase product performance while reducing development time.

S&P engineers used the software to model assemblies in 3D. Then, using NX

## Results (continued)

Availability of 3D geometry enabled a smooth transition to manufacture of tooling, stamping dies and molds

## Solutions/Services

NX

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

## Customer's primary business

Soler & Palau is a leader in the European ventilation market, producing axial-flow fans, roof fans, in-line fans and centrifugal direct-drive fans for industrial applications and axial extractors, centrifugal extractors, cooling fans and heaters for home use.

[www.soler-palau.com](http://www.soler-palau.com)

## Customer location

Ripoll  
Spain

**"NX is helping us develop new products in less time by providing tools to create virtual prototypes. With NX, we can evaluate multiple design alternatives before we commit to a physical implementation."**

Josep Vilanova  
Development and Support  
Manager  
Soler & Palau

# "We reduced the time-to-market by about 40 percent."

Josep Vilanova  
Development and Support Manager  
Soler & Palau

visualization capabilities and third-party analysis programs, they evaluated the virtual assemblies electronically. They also used the software for electronic communication and collaboration with manufacturing.

## Time savings and quality improvements

In the early phases of the design cycle, S&P engineers evaluated four different virtual prototypes in a single week. The engineers also evaluated several additional structural and aerodynamic alternatives. "Even if we had not reduced the design time, our efforts would have been justified by the fact that we were able to consider more design variations," says Vilanova. "This made it possible to significantly improve the performance of the product."

Once the product definition was finalized, engineers provided digital models for tooling, molds and dies to suppliers that machined them directly from the model. This ensured the accuracy of the tooling and also reduced the lead time required to move into production. "We reduced the time-to-market by about 40 percent," says Vilanova. "Beyond that, the existence of the 3D digital model meant that we were able to quickly make modifications to the product design and communicate them to downstream manufacturing sources."



S&P now uses NX for complete digital product development from initial concept to finished product. The company creates, simulates, optimizes, documents, builds and tests products within an integrated digital environment, involving its extended development team and the supply chain in the product development process.

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

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