

Industrial machinery and heavy equipment

Istobal

Istobal refines development processes with NX and Teamcenter

Products

NX, Teamcenter

Business challenges

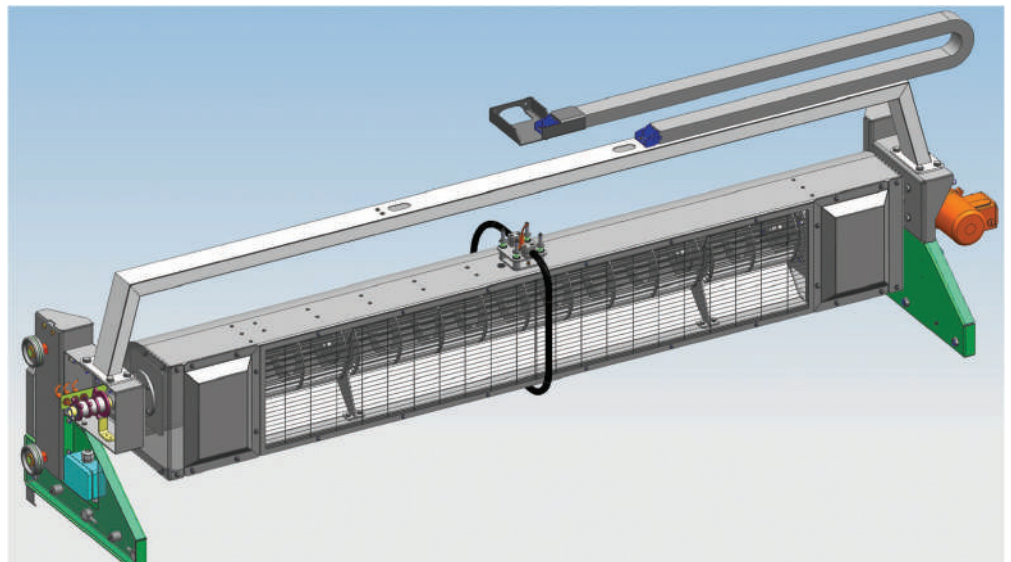
- Maximum re-use of components
- Reduction of design time
- Cost reduction
- Control, stability and integration of information
- Producing design variants

Keys to success

- 3D design with advanced tools
- Centralization and automation of information with Teamcenter
- Integrated CAE capabilities
- Process restructuring
- Integration of Teamcenter with different systems

Results

- Cut design time by 50 percent
- Streamlined change management
- Reduced testing, prototyping and related costs
- Increased innovation capacity resulted in more patents



Multinational car wash company increases innovation and reduces time-to-market by 50 percent with Siemens PLM solutions

Innovation to continue leading the market

Istobal is a Spanish company specializing in the design, manufacture and marketing of automotive washing solutions. Istobal leads the Spanish market, is second in the European market and exports its products to more than 75 countries. The company has an extended network of distributors all over the world, as well as nine subsidiaries and four manufacturing plants – two in

Europe, one in the United States and another in Brazil.

The company's headquarters is located in L'Alcúdia, Valencia, where approximately 370 of its more than 700 employees are based. Istobal was founded in 1950, and since then the company's range of products has evolved from an initial car lubrication machine and workshop elevators to sophisticated washing systems that have helped Istobal to become a successful multinational company with a consolidated turnover of 100 million Euros in 2014.

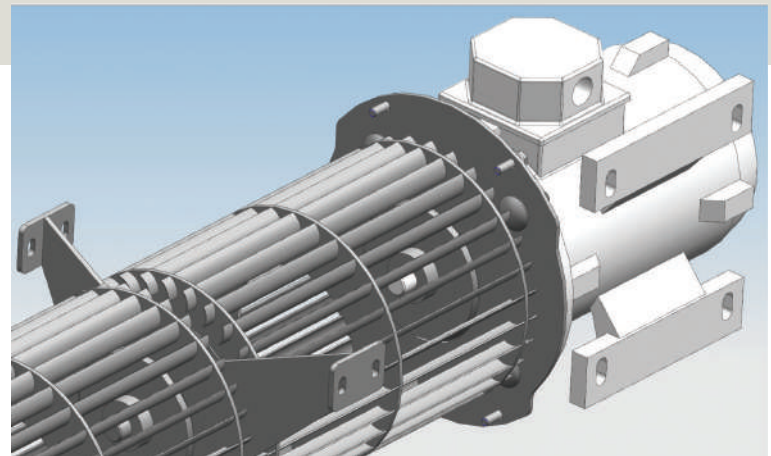
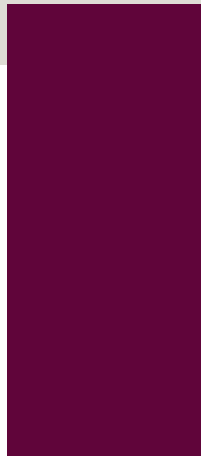
Istobal's market-leading position is based on continuous improvement of its business

Results *(continued)*

Launched Smartflow, reducing electric consumption by 60 percent and the sound level by more than seven decibels compared to other dryers on the market

Accelerated the rotation of products in the catalog from 15 percent to 60 percent

Reduced the number of components and references in the BOMs by 60 to 70 percent



processes to answer the changing and demanding needs of more than 9,000 clients worldwide. Istobal has always invested in innovation as a tool to increase growth and boost the quality and competitiveness of its products.

Following this company philosophy, the research, development and innovation (R&D&I) department plays an essential role, as it is responsible for continuously updating the catalog of existing models and creating new products.

Istobal conducted a detailed analysis of manufacturing processes and procedures affecting engineering when the company updated the corporate enterprise resource planning (ERP) system in 2007. “Many processes and designs were repeated, and that affected productivity,” says Salvador Cardona, Istobal’s head of information and communications technologies (ICT). “We considered expanding the use of information technology tools from the engineering department to other areas of the company, so we could benefit from and re-use parts and designs for other purposes and share

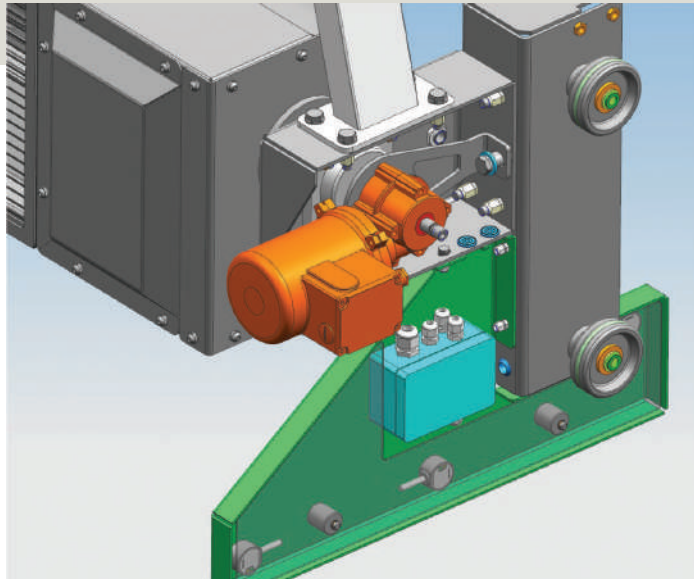
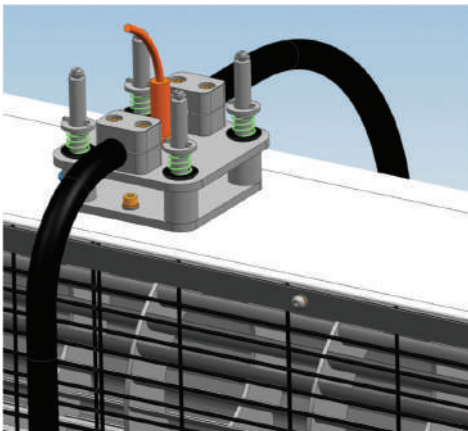
“With Siemens PLM Software solutions, we have managed to streamline each of the processes required for the design and manufacture of our machines and reassign every department’s tasks, allowing each professional to carry out the work they do best.”

Salvador Cardona
Head of Information and Communications Technologies
Istobal

them in a collaborative environment. This meant facing structural and organizational changes at all levels”.

The engineering department already used NX™ software from product lifecycle management (PLM) specialist Siemens PLM Software for computer-aided design (CAD) and computer-aided engineering (CAE), but it needed a complementary tool to manage and control its processes and data. “The new solution needed to be fully integrated with NX,” says Cardona. “We also wanted to enable the maximum reutilization of parts and components, to use variant structures to reduce design times, and to realize cost savings. In addition, we needed to improve the stability and integrity of information and to guarantee the integration of suppliers and subcontractors. More importantly, it had to add value to our product.”

Istobal communicated all of its requirements to Siemens PLM Software to determine whether it would be possible to deploy them in the engineering environment. Siemens PLM Software professionals recommended the adoption of Teamcenter® software to fulfill Istobal’s requirements for PLM. After testing proved the effectiveness of the solution, NX and Teamcenter became the cornerstone of Istobal’s new working philosophy.



“The Siemens PLM Software solution gave us great confidence,” says Cardona. “It is essential for us to use the most up-to-date technology on the market, and this can only be guaranteed by top-level suppliers.” For future updates and continuous evolution of these solutions, Istobal relies on Navarro y Soler, a solution partner of Siemens PLM Software that has participated in deployment for Istobal’s subsidiaries in the United States and Brazil.

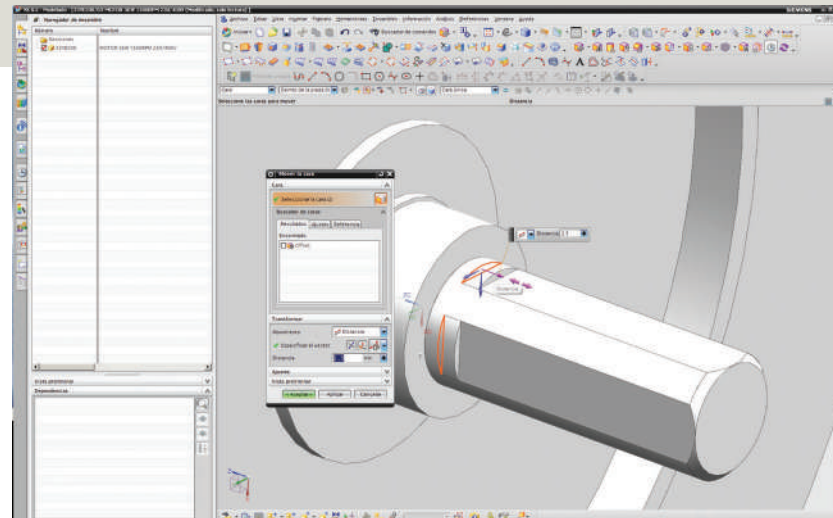
Improved design processes

The combination of NX and Teamcenter has enabled Istobal to establish a new work and organizational structure to cover the entire product lifecycle, tailored to the uniqueness of the business.

Istobal serves a broad client base, from large companies to small and medium enterprises, with diverse requirements due to geographical locations and variety of markets with different legal regulations and technical specifications. This diversity means that Istobal’s product lines (principally washing tunnels and bridges with thousands of components) must accommodate multiple variants with different specifications for height, width, length of the runway, voltage, and other parameters. These specifications are analyzed in

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Head of Research,
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Istobal



“When you need to modify a component that is present in 30 models, you aren’t required to download the 30 assembly files and then reload them. Now you simply make the necessary changes within the same file and Teamcenter and NX manage these for you.”

José Ricardo Vanaclocha
R&D&I Engineer
Istobal

accordance with market demand and defined by the product and R&D&I departments.

When creating new models of machines, the R&D&I engineers at Istobal previously had to design each of the machine variants, and the design and manufacturing bills of materials (BOMs). After the products were shipped, they maintained the complex documentation history.

This way of working required most of the engineering workforce to be fully committed each time a new machine was launched. “We spent a great deal of time generating an extraordinary amount of documentation, since any modification had to be made by R&D&I on a product structure adapted to manufacturing,” explains Cardona. “They had to document

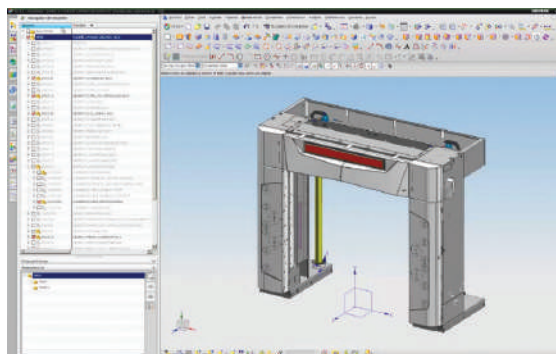
modifications in all the plans where those changes were applicable. It was a huge amount of bureaucracy and work for this department that did not add any value to the product.”

Istobal has leveraged NX and Teamcenter tools to make management of complex product structures an automated and centralized process. Designers work from a single model as a basic assembly structure to which variants are applied. Instead of starting new models from scratch each time, they can develop the entire product range by simply choosing the variants from modular structures and options.

When this approach was first evaluated, it was considered impossible. “Imagine one person in a design environment working on a model with all the machine variants – it just did not seem manageable,” recalls José Ricardo Vanaclocha, R&D&I engineer at Istobal. “Thanks to the excellent integration of NX with Teamcenter, it has become possible.”

“In the design environment, with NX and Teamcenter, we find all the variants within the same bill of materials of a product,” says Vanaclocha. “You just select the ones you wish to work with, and the system eliminates the unnecessary parts and assemblies, configuring only those which are required. When you need to modify a component that is used in 30 models, you aren’t required to download the 30 assembly files and then reload them. Now you simply make the necessary changes within the same file, and Teamcenter and NX manage these for you.”

The Teamcenter structure management tools have been key to a streamlined engineering process. For example, Istobal was able to react quickly to the success achieved by the Tracer OH1 machine, designed for the United States market with very local market requirements for electrical voltage and frequency. “We were able



to adapt this machine to the European market in very little time, just keeping the common components and configuring those applicable to each country," says Jaume Bou, R&D&I engineer at Istobal.

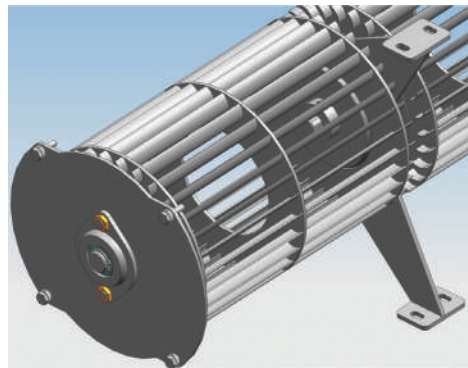
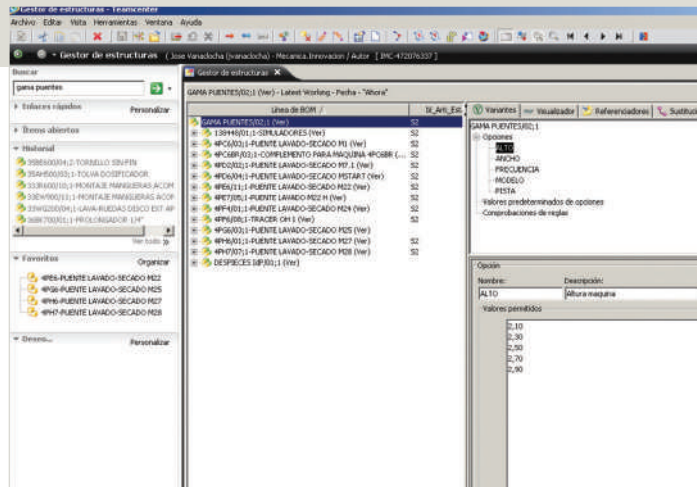
Complete integration with ERP

The open systems architecture of Teamcenter has enabled Istobal to fully integrate the PLM solution with its ERP system. When the R&D&I engineers finish the design of a model and all the variants, the information is automatically transferred into the ERP system. Production engineers can immediately assign the manufacturing processes, times and operations needed to complete the production, and launch the processes to machines on the shop floor.

When designs are sent to the Training & Documentation department, they create exploded-view drawings of the machines for the assembly line and service technicians. Istobal relies on Cortona3D software for technical documentation during this process to create assembly manuals. Full integration of Cortona3D with NX enables the department to re-use NX design geometry to create videos to aid Istobal's technicians and those of its distributors, who can directly access all of the documentation from an online portal.

Because Teamcenter is integrated with the ERP system, the R&D&I engineers can easily assess the impact of design changes using the impact analysis tools of Teamcenter. "Each time we need to modify a part, we must know which machines or prototypes include the part," says Vanaclocha. "Previously, we had to go into the ERP system, but now we can see this directly in Teamcenter within our own environment, without any need to use another system."

With this new vision, the ICT department, supported by the product and R&D&I departments, has developed a product



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R&D&I Engineer
Istobal

configurator directly integrated with the ERP system that is reliable, simple and intuitive. The system enables any configuration of any product model for future manufacture. More than 150 sales teams at Istobal and its distributors are using the new tool, and the orders they have introduced are manufactured weekly.

Modeling and simulation with NX

A 3D CAD design tool such as NX is essential for addressing the multiple challenges faced daily by the R&D&I department. Among the advanced capabilities of NX, synchronous technology is crucial. "When it's necessary to modify parts, synchronous technology allows direct modeling without needing to follow the operations tree," says Vanaclocha. "Previously, we had to determine how models were constructed, and this led to misunderstandings and mistakes. In our current design process,

“By having all the information centralized, people in different locations can access the information they need at any time, without any problems. In addition, we can eliminate errors by avoiding duplication of information.”

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The simulation capabilities of NX help support maximum engineering efficiency. Istobal engineers use NX CAE to simulate multiple variations of products with different forces and materials. “The static analysis prevents us from oversizing components and guarantees that they adjust to real-world requirements,” says David Primo, R&D&I engineer. “We eliminated the need for numerous physical tests or prototypes, so we avoid unnecessary expenses.”

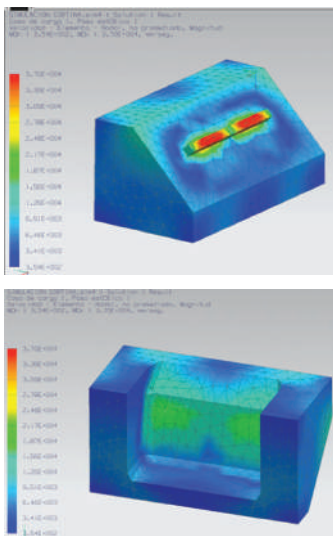
Istobal has launched a revolutionary drying system called Smartflow for its range of M’NEX washing bridges. NX CAE software was used in the development to simulate the fluid dynamics. “With NX Flow, we can analyze and simulate the airstream behavior at the inlet and outlet of the drying nozzle,” says Primo. “We have managed to achieve a very efficient drying process, reducing electrical consumption by 60 percent and the sound level by more than seven decibels compared to other dryers on the market.” This achievement

demonstrates Istobal’s interest in making eco-friendly, sustainable products.

Realizing business benefits

With Teamcenter and NX, Istobal’s engineers have realized significant benefits in their daily work as a result of easy-to-learn, user-friendly and intuitive operation. They cite the systems’ agility, flexibility, fluidity, and efficiency most often. But the benefits go far beyond engineering for positive impacts on the business.

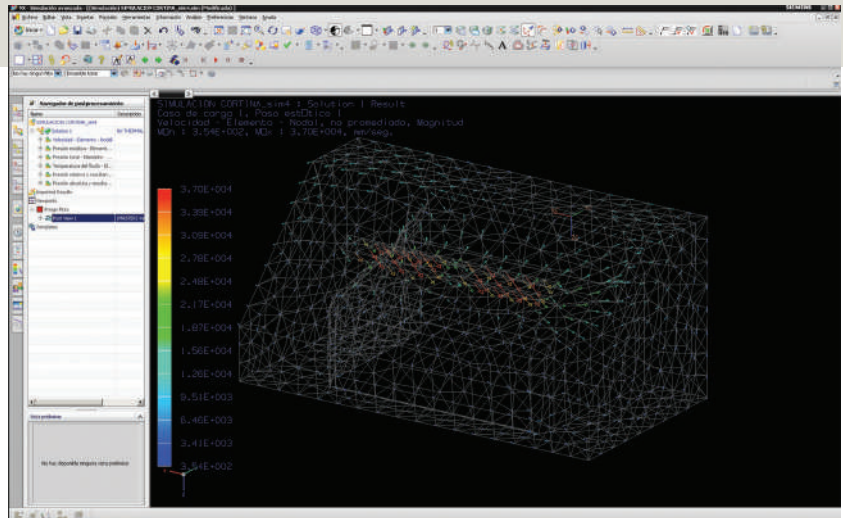
NX and Teamcenter provide a unified environment for collaboration among Istobal’s international locations. “By having all the information centralized, people in different locations can access the information they need at any time, without any problems,” says Marisol G. Castillo, head of R&D&I at Istobal. “In addition, we can eliminate errors by avoiding duplication of information.” Collaboration is also supported by capabilities in NX for importing and exporting design data in multiple formats, allowing for modification and editing of components from external suppliers and partners who use different systems.



“Another important feature is the traceability of each component,” says Castillo. “We know when parts have been designed or modified, and who did that. That helps us to see how things have evolved when the market asks us for more options and updates, and it is key for the quality assurance of our internal processes and those of our suppliers and clients, and for regulatory compliance.”

The new organization of processes and the use of configurable product structures with variants has helped Istobal realize a 50 percent reduction in design time for each new machine. “This means we have more time to work on the design of new models and, therefore, to innovate. As a result, the number of registered patents has increased in the last few years,” says Castillo.

The time-to-market for Istobal’s products has also improved dramatically, as evidenced in the recent remodeling of the range of bridges to include more height and size variants. “Without NX, it would take us around six to nine months to launch, but now we plan to launch within two to three months,” says Castillo. The rapid development of new proposals has accelerated the rotation of products in the catalog from 15 percent to 60 percent in the last few years.



Istobal has also reduced the number of parts and standard component references in the final BOMs by 60 to 70 percent, which translates to a reduction in work hours and savings on management costs.

Reassigning of tasks and future plans

The next step in the organizational restructuring aims to free the R&D&I department from operational tasks so that it can fully concentrate on creative functions. Eliminating the need to work in a separate environment when they define manufacturing operations will eliminate inaccuracies in the production lists. Each department will be able to work with the list of materials it needs, with R&D&I creating materials lists for the design department and the production engineering

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Solutions/Services

NX

www.siemens.com/nx

Teamcenter

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Customer's primary business

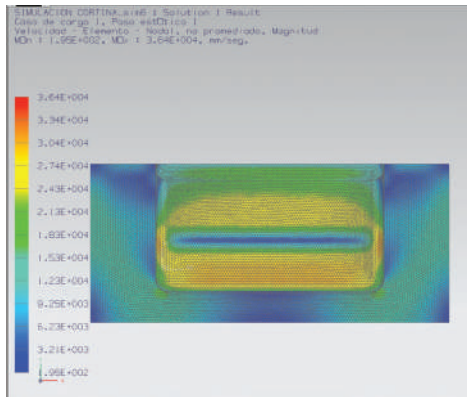
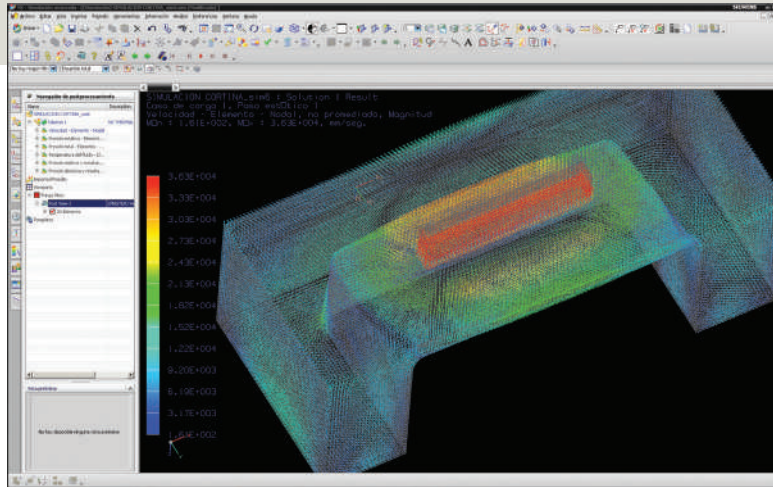
Istobal, a Spanish multinational company, is a leader in the design and manufacture of automotive washing solutions
www.istobal.com

Customer location

L'Alcúdia, Valencia
Spain

Partner

Navarro y Soler
www.nysplm.com



department adapting them to assembly and manufacturing operations, including routes and times as needed. The production engineering department will assume responsibility for publication of these lists in the ERP system. "The goal is that each department should provide maximum value to the product, concentrating on what they do best," says Cardona.

Istobal also plans to introduce NX CAE solutions for structural dynamics simulation and fatigue analysis. With these tools, the company can accurately predict the durability and service lives of machine parts. In addition, the company plans to take advantage of the multiple integration capabilities of Teamcenter to connect it with the EPLAN system to centralize the design of components that are currently modeled using other programs.

These improvements will enrich the ambitious restructuring project that is helping Istobal innovate and maintain market leadership. "With Siemens PLM Software solutions, we have managed to streamline each of the processes required for the design and manufacture of our machines and reassign every department's tasks, allowing each professional to carry out the work they do best," says Cardona.

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