

COMPANY

Ulysse Nardin

LOCATION

Le Locle, Switzerland

SOFTWARE

**Autodesk® Inventor®
Autodesk® Showcase®
Autodesk® Vault Professional**

Art—inside and out

Ulysse Nardin creates watches people dream of owning with the Autodesk solution for Digital Prototyping

Designs progress more quickly and without collisions. With Digital Prototyping, our watch movements and cases are largely refined during design, so we produce just one physical prototype instead of three.

—**Pierre Gygax**
Executive Vice President of Production
Ulysse Nardin



Image courtesy of Ulysse Nardin.

Project summary

In 1846, Ulysse Nardin founded what is now one of the world's premier makers of fine mechanical watches. Today, the name Ulysse Nardin is synonymous with elegance, quality, and innovation. Few products pack so much mechanical complexity into such a small area as fine watches. With more than 400 moving parts, Swiss watches, such as those made by Ulysse Nardin, have long been marvels of design and artistry. But in today's competitive marketplace, even companies like Ulysse Nardin must accelerate time to market while controlling costs. To make its product development process more efficient, the company implemented the Autodesk® solution for Digital Prototyping using Autodesk® Inventor®, Autodesk® Vault Professional, and Autodesk® Showcase® software. Using Digital Prototyping, Ulysse Nardin has been able to:

- Cut product development cycles in half
- Produce one physical prototype instead of three
- Save as much as US\$30,000 per new watch by producing fewer prototypes
- Create photorealistic images of watches for marketing before production

The challenge

Prior to turning to Digital Prototyping, Ulysse Nardin spent about four years designing the internal mechanisms for each new watch it created. The process was lengthy due to design complexity, small design teams, and the number of physical prototypes required. Yet in the competitive market for high-end watches, Ulysse Nardin had to create ever more innovative watches—faster.

"Innovations take time and care to perfect," says Pierre Gygax, Ulysse Nardin's executive vice president of production. "For example, with our perpetual calendar watches, you can adjust the date as you cross time zones with the push of a single button. The gears and springs inside do the rest. With 2D tools, designs took a long time, and then we still had to do three to five rounds of physical prototypes to achieve the high level of quality that our customers expect."

Ulysse Nardin designs and produces new watch movements in half the time with Digital Prototyping

Loïc Pellaton, Ulysse Nardin's technical manager, explains the challenge of 2D design further, "We used 2D design tools to draw the gears and springs, but we used our expertise and experience to mentally keep track of how all the parts would fit together. Only a few people could work on each design—it was simply too difficult to prevent interferences with multiple designers involved."

The solution

Ulysse Nardin accelerated its product development cycles using Autodesk Inventor software to cost-effectively take advantage of a Digital Prototyping workflow. As the foundation of the Autodesk solution for Digital Prototyping, Autodesk Inventor software allows Ulysse Nardin's mechanical designers to create an accurate digital prototype of a new timepiece.

Working with a 3D model, watch designers are able to visualize how gears and springs fit with other components as they design. This makes it much easier for them to spot and eliminate interferences early in the design process. They can also optimize the positions of mechanical parts that integrate with external portions of the watch, which are initially drawn in 2D by a conceptual designer.

"A typical Ulysse Nardin watch contains about 400 moving parts," explains Pellaton. "Having a clear 3D view is a significant advantage. Autodesk Inventor helps us to place parts and explore different options very quickly. It has significantly accelerated one of the most complicated aspects of watch design."

More effective teams, fewer physical prototypes

With digital models integrating the design process, Ulysse Nardin has been able to use larger and more interchangeable design teams. These teams rely on Inventor to help them explore and hone digital

prototypes, reducing the need to produce multiple rounds of physical prototypes.

"The digital prototype allows teams to easily validate their designs against the work of other teams," says Gyax. "Designs progress more quickly and without collisions. With Digital Prototyping, our watch movements and cases are largely refined during design, so we produce just one physical prototype instead of three."

Streamlined change management

Ulysse Nardin uses Autodesk Vault Professional data management software to manage design data while making it easier for other workgroups to collaborate with the design team. So if people on the shop floor spot an opportunity to enhance a design, they generate a change order within Vault. The software automatically sends appropriate alerts and manages the change request.

"We are able to process change requests more efficiently with Autodesk Vault," says Pellaton. "It brings everyone who needs to review the request together electronically, allowing us to make changes quickly and with minimal disruption to other projects."

The finishing touches

To help refine its watch cases, Ulysse Nardin recently began using Autodesk Showcase. The software creates accurate, photorealistic images of Ulysse Nardin's digital prototypes, enabling more efficient decision making. For example, Autodesk Showcase allows design teams to visually explore a wide array of decorative and watchband options without having to produce a single physical prototype.

"We are impressed with Showcase," says Gyax. "It allows us to compare realistic representations of different watchband materials side by side. We see precisely how each band will complement the watch face. Product images created with Showcase are so realistic that we have used them instead of product photographs on our website."

The result

Pellaton points to accelerated product development cycles as a key benefit of Digital Prototyping. He says, "With Inventor, we realize our vision twice as quickly. Instead of taking four years to design and produce a new watch movement, it now takes two. Inventor has also helped us lower costs. We are saving as much as US\$30,000 in prototyping

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—Pierre Gyax

Executive Vice President of Production
Ulysse Nardin



Image courtesy of Ulysse Nardin.

production costs for each new watch movement." Looking at the big picture, Gyax adds: "Inside and out, our customers expect a work of art. Autodesk Inventor provides an environment to explore ideas and continue innovation in the art of mechanical watchmaking. From the beautiful case to the movement Ulysse Nardin watches are renowned for, Digital Prototyping helps us to create the kind of watches people dream of owning."

For more information

To find out how the Autodesk solution for Digital Prototyping can help you experience your products before they are real, visit

www.autodesk.com/digitalprototyping.



Image courtesy of Ulysse Nardin.