

SIEMENS

Ingenuity for life

Consulting

Spring

NX helps Spring engineer better designs for additive manufacturing

Product

NX

Business challenges

Engineer customers' designs to optimize additive manufacturing process

Handle designs for any type of industry and product, from aerospace to household appliances

Keys to success

NX to quickly process and modify third-party 3D files

Results

Faster model editing time

Reduction of costs and weight by up to 60 percent

Improved turnaround in delivering prototypes

Highly efficient production of small series of products through optimization of additive manufacturing processes

Advanced engineering and rapid prototyping specialist utilizes the flexibility of NX to optimize the cost, performance and weight of customer designs

Applying knowledge for customer advantage

Spring Srl was established in 1998 in Monteviale, Italy, near Vicenza, by business people with previous experience in product design, molds and dies, and prototyping. The company's core business is engineering services, delivered by a team of qualified engineers who are continuously trained to use the most advanced computer-aided design, engineering, and manufacturing (CAD/CAM/CAE) tools. Over the years, Spring has expanded its service portfolio, building up a rapid prototyping line that can respond to different customer requirements.

Five specialists provide mechanical design services for customers from diverse industries, including household appliances, pet accessories, automotive, motorsports, aerospace and home decor. "Originally, we also designed molds and dies, but today Spring focuses on its expertise as an engineering subcontractor," says Fabio Gualdo, chief executive officer (CEO). "We start from a design concept and develop it up to the production stage."

From design to production

About five years ago, to complement its design and engineering services, Spring



added rapid prototyping and rapid manufacturing, implementing technology and systems to produce small series of products across different segments, including aircraft, Formula 1® race cars, special machinery and others. "Utilizing our design expertise, we deployed additive manufacturing technology in production, achieving excellent results in terms of cycle time reduction for part creation," Gualdo says. "Today, all companies strive to reduce costs and cycle time, while improving performance. Each item must be analyzed accurately. We co-engineer with the customer, starting from their design concept and adapting it to rapid manufacturing and prototyping techniques, based on layering or material removal."

"NX offers an efficient solution, especially for processing 3D files delivered by third parties in the STEP data format. We use synchronous technology with a hybrid approach; meaning, we do not completely remove the feature tree, which helps expert designers resolve any design issue. The best approach for us is a combination of synchronous technology and parametric techniques."

Fabio Gualdo
CEO
Spring



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"For a project submitted by a customer from the aerospace industry, our contribution during the engineering phase helped reduce the final cost of the part from 400 euros to 160 euros, while obtaining a more functional and lighter design, in fact, reflecting a 60-percent weight reduction."

Fabio Gualdo
CEO
Spring

Spring's current approach to design and prototyping is bidirectional. Massimo Gobbo, marketing manager at Spring, explains: "For some jobs, we start from design projects that develop into part prototyping jobs, while in other cases the customer asks us to make parts using rapid prototyping. We offer all the necessary support to develop a project according to the selected final manufacturing technique."

Spring, an acronym for "Società di Progettazione e Ingegnerizzazione," is not a prototyping or 3D printing service that simply opens a stereolithography (STL) file and prints it. "We analyze the customer's technological approach to make sure it is sustainable," notes Gualdo. "We then present the most efficient solution based on our technical expertise. In many cases, the core activity is 'design review' in close cooperation with the customer, supporting them to fully leverage the potential of 3D printing according to their needs."

Strategic choice

Spring resulted from a merger of two Vicenza-based design companies that were already using NX™ software, the high-performance product development system from product lifecycle management (PLM) specialist Siemens PLM Software. "We were working for a prototyping company at the time, and we needed a tool to switch from 2D to 3D," Gualdo recalls. "We considered different tools, but they were too expensive or complicated. We decided to adopt NX, doing so with its first Windows-based release."

NX plays a key role in Spring's rapid prototyping process. "In recent years, our core business has been shifting to additive manufacturing, which requires redesign of most products before they can be manufactured with this technology," Gualdo says. "NX supports this process with its great flexibility."

Solutions/Services

NX

www.siemens.com/nx

Customer's primary business

Spring is a consulting company specializing in engineering and rapid prototyping, supporting customers through all research and development stages, from concept to final product.
www.springitalia.com

Customer location

Monteviale, Vicenza
Italy

Spring also selected NX because the company needed a suitable tool for diverse projects, including electric motors, coffee makers, kitchen appliances, washer/dryer equipment, automotive parts, and aerospace components, to name a few.

Customer requests often involve drawing parts with complex surfaces as well as providing complete engineering services for projects created by third parties. Another frequent request involves performing feasibility studies to assess the investment required from design completion through production.

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Measurable results

NX offers tangible results, initially by helping reduce the time required to modify a model. Such results are particularly evident when Spring receives instructions from a supplier to optimize the mold for a part.

Gualdo notes, "For us, NX is essential in additive manufacturing. For a project submitted by a customer from the aerospace

industry, our contribution during the engineering phase helped reduce the final cost of the part from 400 euros to 160 euros, while obtaining a more functional and lighter design, in fact, reflecting a 60-percent weight reduction.

"The customer asked us to check an alternative solution to produce a small batch of parts using additive manufacturing techniques. We optimized the design to build it via rapid prototyping. Although we were working on a model created with a different CAD system, using NX, it took only three days to submit a detailed offer to the customer, together with a test part. With NX, we repaired the geometry of the original model very quickly, and then used the powerful functionality of synchronous technology to modify it."

Gualdo points out that Spring is also quite pleased with the software's 3D printing functions using stereolithography techniques: "Unlike other CAD software, NX offers an approach with specific functions for rapid prototyping included in the basic licenses."

On the horizon

Looking ahead, the CEO concludes, "We are considering adopting Teamcenter for data management, which is becoming increasingly complex, especially for revisions."

"For us, NX is essential in additive manufacturing."

Massimo Gobbo
Marketing
Spring

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