

Consumer products and retail

Fiorenzato

Coffee grinder manufacturer uses NX to cut overall development time by 50 percent

Product

NX

Business challenges

Design a new generation of electronic machines in-house

Slash design cycle time and eliminate the typical errors and limitations of 2D

Find design software that is compatible with Apple's Mac OS X operating system

Keys to success

Leverage easy-to-use, fast and efficient NX 3D software

Integrate 3D design and machining centers driven by Siemens controllers

Results

Reduced overall development time by 50 percent

Facilitated quick, accurate and reliable drafting so drawings could be distributed to the internal workshop and external subcontractors

Increased re-use of parts, reducing mold-and-die construction time

Siemens PLM Software solution enables Fiorenzato to increase re-use of parts and reduce mold-and-die construction time

Constantly evolving

In Italy, the quality of a café is mostly defined by the quality of its espresso. It's not mere chance that coffee bars used to be called caffè. Italy is the home country of espresso, and it has spread from there around the world in recent years, recording consistent double-digit growth rates. It has become increasingly popular in the United States and China. Coffee drives the entire supply chain because, for good espresso, you not only need an excellent blend, you also need suitable equipment, techniques and procedures. Equipment such as a coffee grinder might be very simple, but it still must be well conceived and constructed.

Fiorenzato M.C. Srl (Fiorenzato) was founded in 1936 by Pietro Fiorenzato and produces coffee grinders and grinder dosers. The company is now managed by the third generation of the Fiorenzato family.

Manuel Oddera, purchasing manager and Pietro's nephew, says the company has constantly evolved for almost 80 years. Although the early grinders dating back to 1936 were already electrical, the very heavy machines were made of cast iron in a factory with almost 300 employees producing about 300 pieces every month.

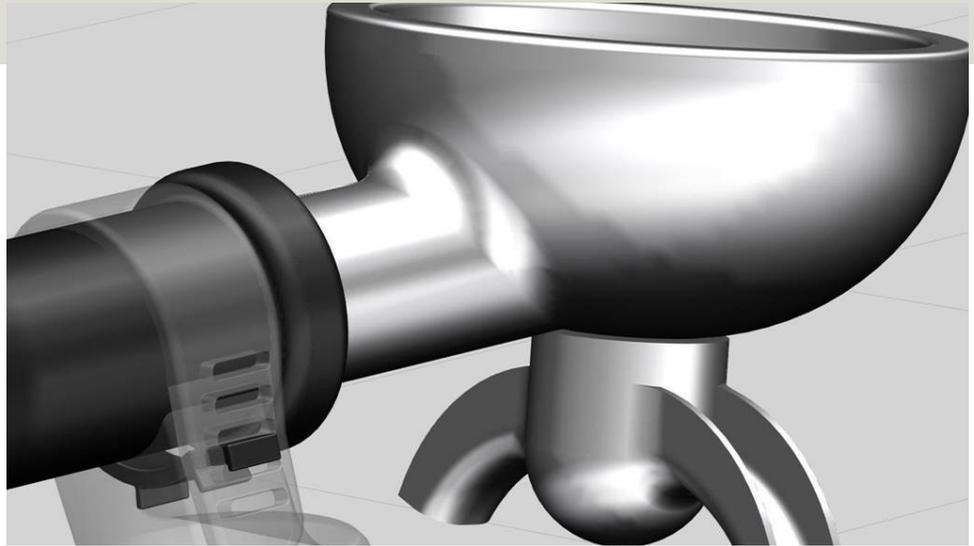


"Today, by leveraging technology, we are close to producing 3,000 machines per month with 33 employees," Oddera says. Customers are mostly roasting shops and high-end brands, such as Julius Meinl or Caffè Vergnano, plus a range of coffee producers, distributors and importers who supplement their coffee supplies with Fiorenzato machines.

"Global demand for espresso coffee is literally soaring," Oddera says. "All global markets want espresso coffee for their consumers, from Greece to Australia and America to China, where individual spending capacity is increasing.

“NX directly interacts with the Siemens controllers in our machining centers, but we made the final decision due to the ease of use and efficiency of NX.”

Luca Lissandron
Engineering and Design
Manager
Fiorenzato



“Riding this wave, Fiorenzato reached an all-time business peak in 2014 with unprecedented volume. We went from revenues of €6.3 million in 2013 up to €8.5 in 2014, and in the first two months of 2015 we have already increased by another 20 percent. Just consider that we attended our first American exhibition in April 2015 in Seattle, and collected several orders even though we did not have United States market certifications at that point.”

Espresso for everyone

The key feature of a coffee grinder is durability. For this reason, Fiorenzato builds sturdy machines using high-end components exclusively (especially the inverter). The company, based in Peraga di Vigonza, near Padua, is famous for electronic grinder dosers, which dispense an exact quantity of coffee powder in just one second each time.

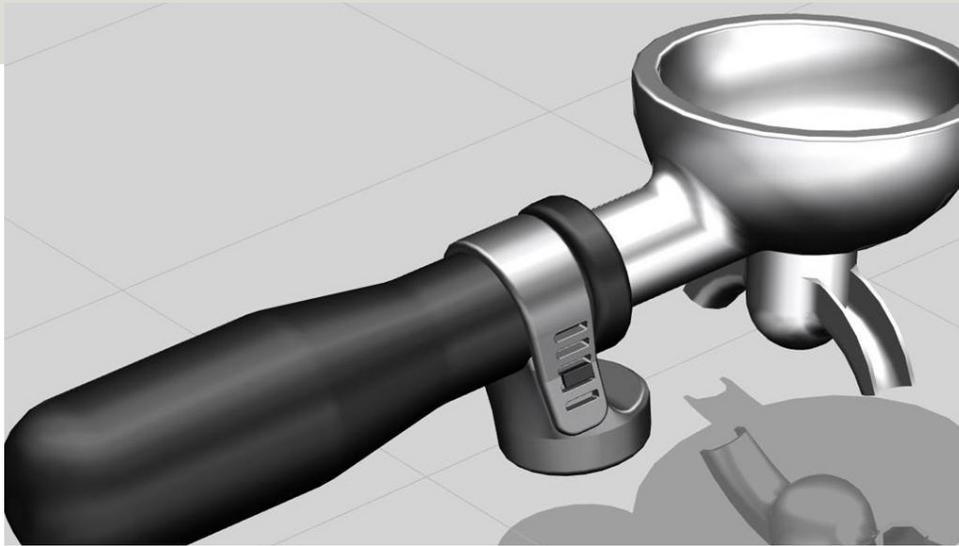
“To achieve this, we have adopted an inverter with a patent-pending concept while our competitors use gear motors,” Oddera explains. “Our solution offers several benefits, starting with the elimination of mechanical buttons and the risk of failure for planetary gears. The inverter also halves the footprint and helps define the grinder’s performance in detail in terms of motor pickup, torque and speed.”

Fiorenzato is focusing on a range of electronic equipment with touchscreens for instant grinding.

“Touchscreen operation is essential for coffee shops with large volumes of up to 2,000 cups a day, seven days a week,” says Oddera. “With such intensive use, conventional spring-operated buttons don’t last long. The maintenance of our electronic

“Working with NX is like having a part in your hands. I can check and correct every single detail before moving to production.”

Luca Lissandron
Engineering and Design Manager
Fiorenzato



models is limited to the grinding blades, providing an ideal solution for machines with seven to eight years of life expectancy.”

With Fiorenzato’s patent, the barista doesn’t even need to touch the machine. By using radio frequency identification (RFID), the grinder doser identifies the portafilter size (for one or two cups of coffee) and automatically grinds and dispenses the exact quantity.

Electronic turn

Research and development (R&D) is the key to Fiorenzato’s success in a market in which competitors typically lag 10 years behind with their technology. Product development is driven by Fiorenzato, with periodic updates and upgrades to their portfolio, and by customers, whose requests are selected and developed according to their added value.

Starting from 2D design like most manufacturers, Fiorenzato realized the need for new tools in the early 2000s following the introduction of electronic grinder dosers.

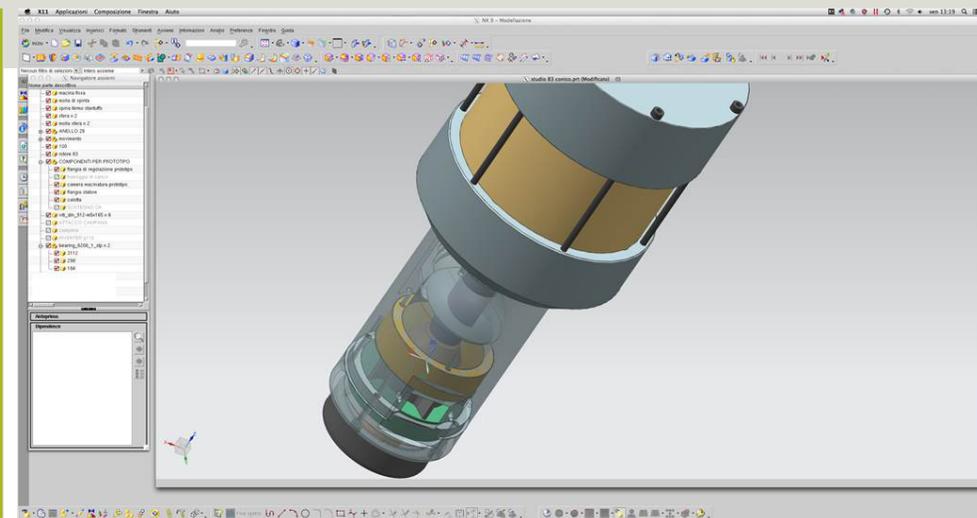
“Our design and development cycle starts from a concept or a sketch on paper,” says Luca Lissandron, engineering and design manager. “Initially, we designed on a PC, built several prototypes and tested the most critical or new parts. After checking feasibility, we moved on with engineering.”

However, electronics required a different approach from 2D drawing. First, the company decided to develop new designs internally without turning to external partners, entirely conceiving and developing the machines in 3D. Second, they needed to slash design cycle time and eliminate the typical errors and limitations of 2D.

“In addition to optimizing construction, the use of NX also encourages creativity with highly realistic visualization. When we presented the project to Hausbrandt, we used NX and impressed the customer with the possibility of viewing the finished project down to the smallest detail, from the outer shell to the internal components.”

Manuel Oddera
Purchasing Manager
Fiorenzato

The introduction of electronics required a different approach from two-dimensional drawing, designing machines entirely in 3D.



“With 3D, we could see any mistake in detail, identifying matching and interference issues,” Lissandron says.

Integrated design and machining

After testing some 3D computer-aided design (CAD) packages in early 2014, Fiorenzato’s engineering department adopted NX™ software from product life-cycle management (PLM) specialist Siemens PLM Software. The decision stemmed from the existing relationship with Siemens as a supplier of grinder doser components and numerical controls for machining centers; that decision was corroborated and reinforced by the efficiency that NX brought to the company’s development process.

“NX directly interacts with the Siemens controllers in our machining centers, but we made the final decision due to the ease of use and efficiency of NX,” Lissandron says. I had already tested some 3D packages, but NX immediately proved to be fast and easy. When you design with NX, the level of satisfaction is much higher because you can see the product grow and shape it with your hands.”

Fiorenzato found that, by using the 3D model created with NX, the designer can easily print out the 2D drawings for the workshop and generate the tool paths for

the numerically controlled machine tools. Since the parts are so accurate they can be assembled right the first time and the job is done.

Drafting is very fast, accurate and, most of all, reliable, providing exact drawings to the internal mechanical workshop and external subcontractors for special operations and challenging prototypes.

“Working with NX is like having a part in your hands,” Lissandron says. “I can check and correct every single detail before moving to production.”

On all platforms

Another key reason the firm adopted NX was its full compatibility with Apple’s Mac® OS X® operating system software, which is available at Fiorenzato. For this implementation, the company’s team was supported by Team3D, a Siemens PLM Software partner with specific Apple Mac expertise. Team3D engineers note that the OS X platform presents a few challenges (menus, peripherals and mouse operations), which require specific skills to enable optimal use of NX.

“Team3D also supported us so we could choose between NX and a mid-range software that, for items of average complexity like our coffee grinders, seemed to provide suitable functionality,” Lissandron says.

Solutions/Services

NX
www.siemens.com/nx

Customer's primary business

Founded in 1936, Fiorenzato specializes in the design and production of coffee grinder dosers.
www.fiorenzato.it

Customer location

Peraga di Vigonza
Padua, Italy

After Fiorenzato acquired a deeper knowledge of NX and was fully satisfied with its 3D modeling and drafting capabilities, it asked Team3D to expand the solution. The company also develops ad hoc projects that must meet customer requirements, including all grinding system specifications. With NX, Fiorenzato can extend the same benefits of standard machines to customer-specific projects with functional, dimensional and esthetic constraints, as with a recent order from Hausbrandt.

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With the JT™ data format standard and the free application JT2Go, Hausbrandt's technical manager has also downloaded the viewer and the 3D model on his iPad®



mobile digital device and iPhone® mobile digital device to analyze it with greater attention after the presentation.

"With the speed of NX and the large spectrum of options for drafting and drawing configuration, we estimate we have reduced the total product development cycle time by at least 50 percent," says Oddera. "The use of NX has also increased the re-use of several parts for our coffee grinders, 50 percent of which are castings that require expensive molds."

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Siemens PLM Software

Americas +1 314 264 8499
Europe +44 (0) 1276 413200
Asia-Pacific +852 2230 3308

www.siemens.com/plm

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