



Hand-Customized Components and Functional Prototypes: 3D Printing Enhances Design and Production Time of Tailor-made Machines



Customized solutions have always been Dallan S.p.A's hallmark. The Treviso, Italy-based company, founded in 1978, designs and produces complete production assembly systems for precision rollforming and sheet metal production that adhere to each customer's exacting specifications.

"Our customers tell us the end product they wish to produce," says Andrea Dallan, CEO and Sales Director at Dallan. "It could be a shutter or window blind, products for suspended ceilings, drywall manufacture and more. Then we develop the automated production systems that manufacture that product."

In an effort to continually diversify components and improve time-to-market, the company has added new 3D printing systems to its conventional machining technologies. Installing the 3D Systems ProJet 3510, provided by reseller 3DZ, the company has upped its value proposition by using the ProJet® 3510 for fast customization of client parts.

Unique Solutions

Said Dallan, "Each production machine we make is basically a very well-tested prototype, since it's unique to each customer's needs. Each new automated section and each new mechanism must be designed, manufactured, tested and applied to the machine, using many components that have to interact seamlessly."

"Since the parts being made by the customer—say window blinds—are often quite delicate, the machine components, especially those for picking and handling of the parts, are typically milled from solid blocks of plastic material. But this process takes time, especially when you consider that for foamed rolling shutter production we have more than 300 different models and the picking clamp must perfectly match the form of the part being made. Using traditional milling, it takes a long time to perfectly match the curvature. Using 3D printing, you have the shape already in place and you simply print it with perfect dimensional accuracy."

Two Paths, One Turn

Dallan says that with 3D printing, the company can pursue two paths. "Either we print components in plastic materials that are assembled as final parts on the machines, or we obtain prototypes used to carry out functional, dimensional assembly tests before manufacturing the part in metal."

"In both cases, the ProJet 3510 system allows us to cut machine manufacturing time and thus reach the market faster. We are even using an acrylic resin that has sufficient mechanical features to create, for instance, support elements for sensors."

"We used 3D printing instead of milling to create brackets measuring 10 x 20 mm, which include holes for the passage of optical fiber sensors. To program the machine tool with the correct inclination of the holes, internal threading and so on is long and demanding work. But with 3D printing we have designed the bracket with all details related to the holes, and in the evening we sent the file to the ProJet 3510. The next morning the components were there, ready to be assembled. We applied them and immediately, and successfully, tested the set."





From The Idea to the Product

Simply put, Dallan is quickly discovering the potential of 3D printing—it allows them to create specific solutions that can't be achieved with conventional machining.

“We are rapidly identifying the cases in which it is more profitable to use 3D printing and those in which it is preferable to use milling. At times, to optimize machining time, if the milling devices are busy we manufacture some pieces directly with the 3D printer.”

“Another important aspect we have verified is that, beyond productive possibilities in terms of price complexity and fastness, 3D printing can prove very useful even during the project development stage.”

Going forward, the sky is the limit with Dallan's growing 3D printing capabilities and the new level of service it allows the company to offer. “I believe that the possibility of customizing parts and the design freedom offered by 3D printing, used in synergy with conventional machining technologies, will allow us to respond in an increasingly versatile and specialized manner to the new challenges set by our customers,” says Andrea Dallan.



Aesthetic and Functional

Easy to use, compact and silent, the ProJet 3510 printer by 3D Systems makes it possible to manufacture aesthetic prototypes and prototypes for dimensional assessment. Indeed, it produces parts featuring smooth surfaces and well-defined edges that are ideal to be used in functional tests, forms and coupling checking, rapid prototyping, product presentations, masters for casting, or silicon replicas.

Based on MultiJet technology, the ProJet 3510 produces objects with maximum dimensions of 298 x 185 x 203 mm, with a maximum resolution of 750 x 750 x 1600 dpi and layer thickness up to 16 µm.

