

During the process of designing a new object, one of the essential stages is the realization of the prototype. With 3D printing, Zedax SA is able to produce in a few hours resin prototypes that can be examined from an esthetical, geometrical, functional or technical point of view.

# 3D printing in the process of developing new products





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1. Watch & glass: design Paul Picot.

2. Objet500 Connex 3 - printed color helmets.

**T**en years ago when Lucien Hirschi opened up his 3D printing service company called Zedax, very few even knew what it was.

As we are located in La Neuveville, a little town in the heart of the watch industry, we felt of course a calling for customers in this industry.



**«You can already print metallic parts or even human tissue!»**

Lucien Hirschi,  
Director of Zedax SA

The complexity was to convince professionals that they could change their way of developing products and, of course, to explain not only the technology but all the advantages they could benefit in using 3D printing: save costs and move more quickly from concept to the end product.

After testing different technologies, we decided to buy an Eden 330 from Objet Geometries Ltd, the company that has patents on PolyJet™ technology.

As for all the other rapid prototyping or 3D printing technologies, it's an additive manufacturing technology. Very similar to inkjet document printing, it jets 16 μ or 28 μ layers of liquid photopolymer onto a build tray and cures them with UV lights. All the holes of the CAD designs are filled with a support (gel-like) that will be removed after production.

We chose this technology for different reasons: smooth surfaces, thin walls and

outstanding accuracy, down to the finest details. Ability of building very complex geometries, with a wide range of materials from rubber (27 ShoreA) to very rigid (ABS-like) - from transparent to opaque.

These materials can also be treated after production (painted, plated, polished, etc.) to obtain very realistic prototypes.

At this point, we started getting customers and the world of watchmakers in particular understood very quickly all the benefits they could get from this way of producing prototypes. It allows fast and effective communication of design ideas, it resolves issues between design and engineering, the validation of design fit, form, and function is more effective, you get a greater design flexibility, with the ability to run quickly through multiple design iterations. The design and development cycles are tightened, it speeds products to the market and reduces costly mistakes. You keep intellectual property onsite and, finally, the end product is as desired.

When the Connex260 with PolyJet Matrix™ Technology was launched, we bought one. This system is able to print parts made of multiple model materials, all in a single built. The Connex family printers introduced «the new concept of on-the-fly fabrication of materials: these Digital Materials (DM) are composite materials that are formulated during the build process and that have preset combinations of mechanical properties unattainable by single materials».

So not only we could now offer more than 80 combinations of DM but in the

meanwhile a great range of new materials (ABS-like, VeroClear, etc) were also available and allowed us to widen our domain, to improve the prototypes and to offer new services as the manufacturing of injection molds for small series or tooling.

In 2012, when Objet Geometries merged with Stratasy's, a leading manufacturer of 3D printers, we were able to offer a wider range of 3D printers for we have been resellers of Objet in Switzerland since 2006 in partnership with RTC Germany.

We also acquired a thermoformer machine, the perfect complement to 3D printing and an improvement to our services.

This year, we bought the Objet500 Connex3, a brand new color multi-material printer and a small low cost FDM (Fused Deposition Modeling) machine. So now we have a range of machines which allows us to accommodate the various needs of our customers.

The past decade has seen the rising in popularity of 3D printing especially after the expiration of the FDM patent belonging to Stratasy's.

The improvements have been spectacular, in terms of the choice of materials, precision and speed. The different technologies are now moving from prototyping to production. You can already print metallic parts or even human tissue!

We trust that 3D printing will become more and more common in the process of developing new products.

[www.zedax.ch](http://www.zedax.ch)