RAYTECH more than precision

Hoet couture

Facts

Challenge

To produce an eyewear series with specific design characteristics that meet the precise demands of the client.

Solution

Additive Manufacturing of eyeglass frames with a honeycomb structure made of titanium using the EOS M 290.

Results

- Attractive: new design possibilities
- Customized: ease and cost-effectiveness of producing tailor-made products
- Sustainable: eradication of production surpluses frequently encountered in the industry

Unique and cost-effective: the delicate lattice structure of the titanium eyeglass frames was created using industrial 3D printing. (source: Hoet)

Designed by Sight with Additive Manufacturing

EOS

New perspectives created by eyewear specialists Hoet – made possible with the support of Raytech and EOS

'The eye is the point at which the soul and body merge.' It is not clear whether the designers from Hoet oriented themselves on this quote by dramatist and lyricist Christian Friedrich Hebbel. But looking at the classic and inimitable design of the new collection, one could easily think so. This eye-catching range was made possible by Additive Manufacturing technology. EOS partner Raytech from Belgium was responsible for the technical realization of the design.

Short profile

Raytech is a Belgian company which has been specializing in metal processing since 1988. Originally seen as a pioneer in the field of high precision laser cutting and welding, the firm has developed into a driver of innovation in Additive Manufacturing and coengineering.

Since 1884, the name Hoet and the company behind it have been synonymous with contemporary design. In addition to eyewear, accessories also make up a significant part of the optical specialists' product portfolio.

Further information

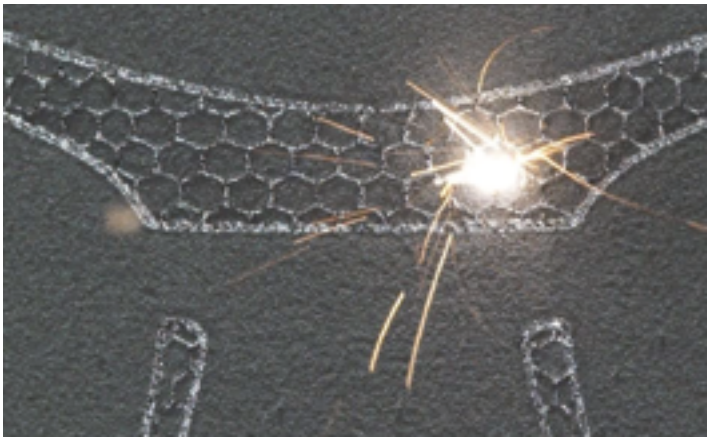
www.raytech.be
www.hoet.eu/en

Challenge

Consumer product manufacturers are just as beholden to innovation as companies in other industries– the competition for the customer is hard, and woe be to those who lack ideas or the right formula. Besides pure functionality, what counts, particularly in the consumer environment, are aesthetic arguments with sales appeal. The customer offers money in his hand for something that is pleasing to his eye. Hoet, a company that specializes in the development and production of eyewear, was searching for an innovative response to this challenge.

The Belgian family-run company which was founded in 1884 set the bar particularly high with its Cabrio eyewear. This innovative design, which combines sunglasses and a cap visor to provide dual protection from solar rays, was designed by Bieke Hoet. The designer, who heads the company, invented a proprietary laminated polypropylene material for the production of the eyewear house's frames. This approach to experimentation shows openness to the adoption of new perspectives and enabled the company to see the logic in expanding its production repertoire and choice of materials.

Not only did it have the courage to seek new paths, but it was also convinced that environmental sustainability was a key component of any new approach. From the beginning, the company also had its sights set firmly on costs. Armed with this triad of clear-cut prerequisites - the search for fresh design possibilities, acceptable costs and sustainable production - Hoet began searching for a new production process for its latest product line. The eyewear specialist soon turned their attention to Additive Manufacturing.



Outstanding design freedom: the EOS M 290 along with manufacturing know-how from laser machining experts Raytech enabled the realization of this sophisticated eyewear series. (source: Raytech)

Solution

Industrial 3D printing offers outstanding and unrivalled design freedom. Not only can this advantage be applied to the manufacturing of prototypes, but it also offers immense added value in series production – particularly with products whose design and aesthetics play a significant role in customers' purchase decisions. 'Anything goes' could be the tag line for Additive Manufacturing. That Hoet, a design-driven company, was attracted to the technology is no surprise. With an eye on the exceptional freedom it affords in the realization of ideas, Bieke Hoet set to work on creating designs for the collection.

Once the creative work had been completed, the company chose to

apply existing expertise to ensure its efficient production. The search for an experienced partner eventually led to Raytech, a company based close to Hoet's premises in Bruges. Raytech had many years of experience and displayed the required level of expertise in Additive Manufacturing. For example, the company is a supplier to the electronic and automotive industries. The metal-based version of the technology, in which a laser builds up a component layer by layer from a powder, is of huge significance to clients in these sectors.

Together, Hoet and Raytech developed a production concept. This included the use of EOS Titanium Ti64 as the core material. Titanium is often used for eyewear frames, because it combines extreme flexibility with high strength and low weight. The metal is also one of the numerous raw materials that can be processed with EOS technology. So the design, material and process were now in place. All that was missing was the means of production. Raytech decided once again to utilize its in-house EOS system: "What convinced us about EOS was the company's excellent service and, in particular, its quick and competent application advice. Its hands-on attitude, fast response and leading technology, combined with an excellent production system, made for a coherent overall package," says Paul Raymaekers, owner and managing director of Raytech.

Results

The results achieved by the triumvirate of Hoet, Raytech, and EOS will not only look great, but they will be there for all to see. The various complex and delicate lattice structures of the frames would not have been possible with conventional technology. The realization of the inimitable classic design was only made possible with the EOS M 290. Yet despite achieving the appearance it had been looking for, Hoet still had some other demands on its list – and these too were met by Additive Manufacturing. Because there are no further tooling costs, one and the same machine can produce a variety of sizes, quickly and easily, and with no additional costs. Together with appropriate software and scanning equipment, it can even manufacture custom-made frames for each respective model. This enhances the comfort of the eyewear.

Bieke Hoet also stresses a further point: normally, between 30-40% of eyewear produced remains unsold in the drawers of the wholesaler or retailer. Under these conditions, exact production planning is very difficult. But with Additive Manufacturing, it is possible to manufacture on demand, eliminating the need to build up stocks. This not only reduces storage costs but also lowers the average production costs of the products sold. A further advantage of the technology is its short time to market, i.e. the time between the product's design and its availability in retail outlets. Just two months after the installation of the system, the frames were ready to go on sale. And, if required, the manufacturing of additional stock only requires a few days.

"Additive Manufacturing has proven its worth across many areas of application. It is generally its functional aspects that are the central ones. For us, however, it was the design possibilities offered by the technology that were key to our decision," summarizes Hoet. "We wanted to give the market something that was genuinely new. By using Additive Manufacturing, we have once again followed the credo of the Cabrio range: the use of new materials and technologies adds further benefits and advanced aesthetics to the field of eyewear design." To end with a quote from Mark Twain, one of the greats of world literature: 'You can't depend on your eyes when your imagination is out of focus.' In her company, Bieke Hoet brings a clarity of vision that helps customers realize new aesthetic perspectives and 20/20 vision.

"We had three reasons for choosing Additive Manufacturing for our new eyewear frames: We were able to create things in a way that would not have been possible with standard technologies. We could manufacture various sizes without incurring additional costs. And it is a green technology that, thanks to its flexibility, clearly reduces consumption of both energy and materials."

Patrick Hoet,
Managing director of Hoet

"In our opinion, EOS is the best partner that we could work with in the Additive Manufacturing sector. We were particularly impressed that we had immediate access to contacts with a high level of competence in the optical sector and with regard to the titanium material that we use. This basic knowledge, coupled with the quickly produced, high value test samples, convinced us that we had made the right choice of partner."

Paul Raymaekers,
Owner and managing director of Raytech

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