"In many cases we can decrease the design iteration from weeks to days compared to buying prototypes outside the company. The Alaris30 has helped Peltor with the difficult job of adapting hearing protectors to the human head"

Henric Hansson,
Mechanical Designer

Case Study

At a Glance

Company: Peltor AB
URL: www.peltor.se/
Location: Sweden
Industry: Communication equipment and head and face protectors

Challenges

- Creating a high resolution prototype that allows accurate fit testing
- Create models quickly and cost effectively
- Speed up the design iteration process
- Ensuring maximum confidentiality while testing new ideas

Solution

Alaris™30 Desktop 3D Printing System from Objet Geometries

Results

- Can now create accurate models that give the same performance test results as the final product
- Reduced response time for modifications and changes
- Achieves desired results in a shorter time with lower costs

Peltor Uses Objet 3D Printing System for Form, Fit and Function Testing

In the world of protection and communication gear, safety and quality are what matters. Having gear that fits properly is essential, and as it's worn daily, nice design is appreciated as well. Creating well-designed head and face protectors and communication devices requires testing with prototype materials that mimic the materials used in the final design. This ensures that functional testing returns accurate results.

With more than 50 years of experience in developing and manufacturing hearing protectors, Peltor offers a wide range of products that are at the forefront of safety, comfort and aesthetics. Its line includes communication devices (such as headphones and mouthpieces), safety glasses, hardhats and visors, and its clients are professionals in manufacturing, the military, aviation, forestry, agriculture, motor sports and other industries.

Complete solutions that pay attention to the unique needs and working situation of each individual in an aesthetic way are Peltor's added value in the market. During product development, Peltor focuses on both function and aesthetics, enabling it to create advanced, comfortable communication and protection solutions that are also attractive to use. As a result, when it comes to prototypes, how they look is just as important as their fit, form, and function.

Peltor depends on the Alaris30 desktop 3D printer from Objet Geometries to create attractive, accurate prototypes that function realistically and give designers a way to see the final product before production. The Alaris30 uses FullCure® VeroWhite™ model material, which acts like acrylonitrile butadiene styrene (ABS), the material Peltor uses for some of its final products. This allows Peltor to perform accurate fit, form and function tests of its products before production, thus raising the quality bar.

Alaris30 Printer Materials Mimic the Real Thing

Objet PolyJet™ Technology was the first choice for model creation to authenticate the fit, function and form of their designs in-progress. The similarity in attributes of the model material and of ABS is one of the main benefits of the Objet Alaris30 for Peltor. To test this similarity,

OBJET

Peltor used the Alaris30 to create a prototype of a headpiece for hearing protection and then checked how good the performance is in the Objet-printed ear-protector cups. In comparing the performance of the Objet model and the end product, Peltor found that there is little differentiation between the end product made from ABS material and the prototype printed on the Alaris30.

Before installing the Objet 3D printer, Peltor had used other prototype techniques such as SLS. However, none of those techniques measured up to Peltor's needs. For example, a very good functional prototype could be scrapped simply because its looks did not match the design. Hence, the company needed prototypes that are both good-looking and well functioning. The Alaris30 prints high resolution models which can be painted directly after printing to look exactly like the final product, solving Peltor's issue with look and feel replication.

Saving Time and Money

Originally Peltor's prototypes were produced by other companies, which made the design iteration a slow and laborious process. With the Objet Alaris30 in-house, the evaluation time for a prototype is considerably faster. Timely feedback from the prototypes has made it possible to implement and confirm changes in one or two days, rather than one or two weeks. In addition, producing models in-house saves the considerable costs of outsourcing.

The use of Objet's Alaris30 during the development process brings benefits to many intrinsic elements to Peltor's design process:

- Saves development time by allowing form, fit and function to be verified early in the design process
- Facilitates testing of innovative ideas and designs
- Reduces the time needed to test and evaluate new concepts.
- Confidentiality of new and innovative designs

Reducing the design iteration time, has in turn decreased time to market. Development costs are lower due to the lower prototype costs, and ROI is faster because of a significantly reduced and more accurate design phase. According to Hansson, Peltor will not "sell any product with known quality problems so finding the problems with the prototype is perfect."

Objet is the only system that provided us with all the features we needed.

About Objet Geometries

Objet Geometries Ltd., the innovation leader in 3D printing, develops, manufactures and globally markets ultra-thin-layer, high-resolution 3-dimensional printing systems and materials that utilize PolyJet™ polymer jetting technology, to print ultra-thin 16-micron layers.

The market-proven Eden™ line of 3D Printing Systems and the Alaris™30 3D desktop printer are based on Objet's patented office-friendly PolyJet™ Technology. The Connex™ family is based on Objet's PolyJet Matrix™ Technology, which jets multiple model materials simultaneously and creates composite Digital Materials™ on the fly. All Objet systems use Objet's FullCure® materials to create accurate, clean, smooth, and highly detailed 3D parts.

Objet's solutions enable manufacturers and industrial designers to reduce cost of product development and dramatically shorten time-to-market of new products. Objet systems are in use by world leaders in many industries, such as Education, Medical / Medical Devices & Dental, Consumer Electronics, Automotive, Toys, Consumer Goods, and Footwear industries in North America, Europe, Asia, Australia, and Japan.

Founded in 1998, Objet serves its growing worldwide customer base through offices in USA, Mexico, Europe, Japan, China and Hong Kong, and a global network of distribution partners. Objet owns more than 50 patents and patent pending inventions. Visit www.objet.com.

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