INNOVATION IN EARMOULD TECHNOLOGY

Starkey Laboratories

Hearing Is Our Concern™
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Innovation in Earmould Technology

At Starkey Hearing Technologies, we have over 30 years experience delivering first-class earmould products. Our core values of quality, service and innovation have earned us a reputation as the industry leaders in earmould manufacturing.

Innovation

The development of new technology never stops and neither do we. As new products enter the market place, our dedicated product innovation team are constantly researching new products and materials to ensure the latest solutions are always available to you.

Craftmanship

It’s crafting our earmoulds one at a time that has made us a world leading manufacturer. We continually invest into our production processes to improve the quality of our earmould products ever further, to deliver a precision earmould on time, every time.

Advances in Earmould Manufacturing - SDEM & SLA

As a global leader in earmould manufacturing, we have invested in a new infrastructure to improve our earmould products and services.

We are delighted to be the first manufacturer in Europe to have both a soft and hard digital production process to meet your earmould production requirements.
Earmould Production Methods

Traditional earmould production methods involve handmade techniques using gel and wax materials as well as careful control of room temperature and time elements during the production process.

Once the ear impression has been prepared and cast, the final earmould is produced using legacy materials.

**Digital Production Process methods**

The digital design process involves laser scanning the patient’s ear impression to create a 3D image within sophisticated modeling software. Highly trained craftsmen known as Modelers then create the required earmould style optimised to the individual’s ear impression. This delivers an accurate, attractive, comfortable, efficient and easy to fit earmould.

**Hard Digital Processing**

A state-of-the-art light curing non-allergenic material specifically developed for Starkey’s Ear Imaging Viper SLA™ fabrication process is used. This revolutionary approach to earmould fabrication utilises advanced CAD modeling software and hardware within the manufacturing process, providing styling and vent options previously considered impossible.

**Soft Digital Processing**

Using the latest technology available to us we have utilised Biopor Xtreme a non-allergenic robust and extremely tear resistant material specifically designed for our Projet 3D printers.

Using the advanced CAD software all holes in the earmoulds such as vents and sound bores are pre designed on screen to ensure accuracy and consistency.

The Projet 3D printer enables us to produce an outsized negative cast, ensuring accurate injection of the selected Biopor material and curing at the post-production stage. Minimal finishing and handling of the earmould is necessary as this has been eliminated through CAD. Earmoulds produced using these methods prove to have a greater technical accuracy for fit and are more aesthetically and cosmetically appealing.
Starkey Laboratories: Earmould Innovation

Production Methods
- Hard Digital
- Soft Digital
Key Benefits
Fit Quality | Consistency
Venting & Tubing
Power Vents | Open Ear
Key Benefits of the Digital Production Process

**Fit Quality**
The Prepared earmould is printed directly from the software image, ensuring that there is no deviation from the original design. Starkey’s post-processing techniques ensure the earmould is produced with high definition surface finishing for unmatched quality and comfort. No additional buffing or polishing is required.

**Consistency**
The scanned ear impression is saved electronically and readily available should a further earmould be required. This allows fast and accurate replacement for lost and damaged earmoulds. In the case of modifications being required we have a starting point of the previous scanned image and previously produced earmould.

**Venting and tubing**
An internal vent or a sound bore can be positioned anywhere within the earmould ensuring a constant diameter throughout and facilitating easy insertion of the earmould tubing.

**Power Vents**
SLA offers a power vent option. This is a revolutionary venting design which is recommended for use with a high power instrument. It facilitates venting of the ear without the problem of acoustic feedback because it is clearly routed around the back of the concha bowl and into the helix. Any escaping acoustic energy is dissipated before reaching the microphone of the hearing aid. Such venting is impossible using manual techniques of manufacture.

**Open Ear**
The digital production process offers unrivalled quality and fit to ensure the most un-occluded earmould possible. Starkey have pioneered a custom fitting option in both hard and soft materials for open fit tubing and receiver in canal style hearing instruments. By customising the open/RIC fitting rather than using standard domes you add value to your fitting allowing for personalisation and comfort of fit with these highly cosmetically acceptable options.

Custom tips can be manufactured for any competitor open ear products as well as Starkey’s own hearing instruments.
Frequently Asked Questions

Q: Are the digital production earmoulds hypo allergenic?
A: Yes. In the SLA process for hard earmoulds the way the material is cured using a laser light ensures the potential impurities that can cause allergies are burnt out effectively making a highly inert and low allergy material.

The material used in the soft digital earmoulds is a silicone that is considered a low allergy alternative to legacy materials.

Q: Can you produce all earmould material types in the digital production process?
A: It is possible to produce both a hard earmould and a soft earmould in the digital process. The soft earmoulds can be produced in a range of shore values (softness). The soft material we are using is Biopor Xtreme. It is not possible to produce a soft acrylic earmould in the digital process and we consider this material to be an inferior legacy product as it has undesirable properties. Soft Acrylic hardens and discolours quickly when worn due to being very porous. Soft Acrylic earmoulds should be replaced at least annually, the material is not considered low allergy and requires special treatment to reduce the risk of allergy when a reaction occurs. If you have been using a Soft Acrylic material we would suggest you request a 60 shore value Biopor Xtreme earmould as an alternative superior product.

Q: Will the earmoulds produced digitally look the same as those hand manufactured?
A: We are able to make much more accurate reproductions of your impressions and so we can carve the finished product much more to produce a lightweight more cosmetically appealing product that maintains the acoustic sealing properties through accurate modeling of the meatus. We are producing matt finish earmoulds as these are accurate reproductions of the impressions with no additional layer of coating on them. The matt finish is very cosmetically appealing in use as it does not catch the light, but also improves the grip of the product in the ear.
**Q:** Can you produce different soft materials?
**A:** We offer 3 different shore values in the Biopor Xtreme materials. The higher the shore value the harder the finished product will be.

If you are using some of our legacy materials you may want to consider the following guide to help you select the correct shore rating for your finished digital earmould.

- **25** - Very soft material, similar to the legacy product Microflex.
- **40** - Soft material similar to the legacy product Biopor.
- **60** - Semi-rigid material similar to the legacy products of Bioplast and Soft Acrylic.

**Q:** Are colours, logos and glitters available in the digital printing process?
**A:** There are a wide range of colours available in our Biopor Xtreme soft digital printed material and we are happy to supply a colour chart for you. We can also include glitters and logos in the soft earmoulds.

In the current printing process only clear, red, blue and pink earmoulds can be produced in the hard SLA printed format.

**Q:** How important is accurate impression taking to the digital earmould production process?
**A:** We are scanning in your ear impression and can only model from the reproduction of the ear we receive from you. Any areas that are under filled or have gaps will leave errors in the final reproduction of the finished earmould product. This is not different to the hand manufactured process but as we are able to make much more accurate reproductions of your impressions a great impression will lead to a great earmould.

**Q:** Where are our earmoulds produced?
**A:** Starkey Hearing Technologies have invested heavily in our UK production facility at Stockport in Cheshire. This includes the installation of additional printing facilities and digital production capabilities. All UK orders are produced in Stockport and hand finished by our experienced team of earmould technicians.

**Q:** Is there a price increase to ordering a digital earmould?
**A:** No. Although Starkey has invested heavily in bringing digital earmould design to the UK we will not be passing this along to our customers and we are happy to maintain your pricing for legacy materials whilst producing your earmoulds using the digital production process. Please contact your Starkey Area Manager to discuss your individual pricing proposal.

**Q:** Is there a difference in turnaround times for digitally produced earmoulds?
**A:** Starkey maintain their exceptional turn around time of 3-4 working days for all earmoulds. Pediatric turnaround time is maintained at 24 hours.
Contact Information

Starkey have a team of dedicated staff in place to support every area of your account.

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