

Custom Design Software for the Manufacture of Hearing Instruments

Hearing instruments require custom shells for each individual. Geomagic eShell enables custom shell creation using the latest digital technologies. It replaces manual labor with machine power, creating shells with perfect fit and greater functionality, amplifying productivity in custom manufacturing for CIC, ITC and ITE hearing instruments.

Geomagic eShell features a streamlined user-interface with the addition of automated functionality and a more robust detailing process. Binaural sculpting - the ability to simultaneously sculpt both the left and right sides of a shell - is the key factor in the increased speed of Geomagic eShell. The ability to import a "virtual faceplate" containing the geometric definition for electronic components enables production to be further sped up. Components are placed in the shell to avoid interference; the faceplate is then merged into the shell. When the shell is printed, the components can be plugged easily into the base, eliminating the need for a traditional faceplate.

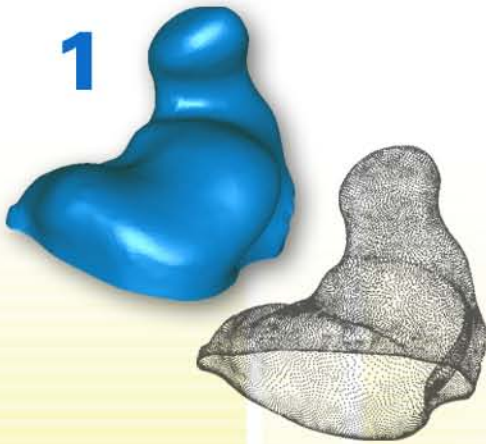
- **Perfect Fit** - Using 3D scanning, a precise digital duplication of an ear canal can be obtained without human errors.
- **Better Functionality** - Create better designed hearing instruments with visualization capabilities that allow key components to be more efficiently arranged in the shell.
- **Single Impression** - Use a single impression for the entire production process; no additional impressions are needed for repairs or remakes.
- **Ease of Use** - Designed and developed for technicians, the simple interface is easy to learn and easy to use.
- **Total Control** - Site administrators can centrally modify design and manufacturing specifications for the entire production team.
- **Scalability** - Custom shell production is no longer limited to skilled labor.
- **Speed** - The digital process creates precise custom hearing shells in a fraction of the time it takes to create shells manually.

Raindrop Geomagic Inc. is committed to your total success. Our experts are ready to assist you with selecting, integrating, and implementing a total solution that includes a 3D camera and a 3D direct manufacturing system.

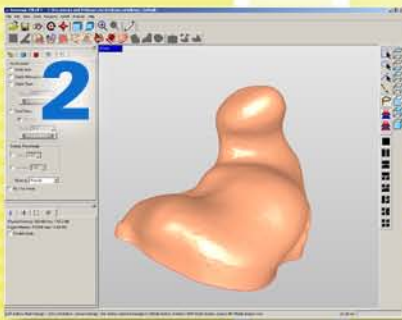
"The advanced capabilities of eShell, combined with our processes for rapid manufacturing, will enable us to produce features that are not possible with conventional molding or casting. With eShell, we have the ability to design features in the shell that enhance product performance and lead to more efficient manufacturing."

- Russ Schreiner, GN ReSound

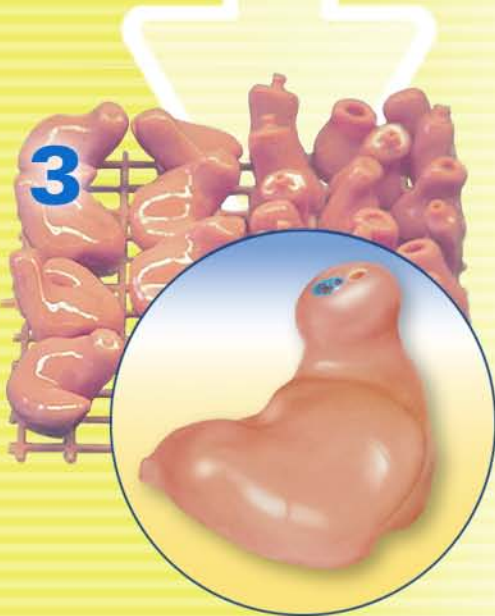
1



Digitize the ear impression using a 3D camera



Design the hearing instrument shell using Geomagic eShell



Fabricate the shell using an SLA or SLS system

geomagic eShell[®]

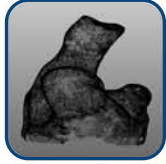
Perfect fit. Better functionality. Faster to market.

Feature Highlights



Order Configuration

- Enter all order-specific information in one place at one time.
- User-customizable parameters control the workflow.



Scan Data Processing

- Fill holes.
- Remove noise.
- Automatically surface the point cloud and make it watertight with good mesh quality.



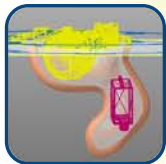
Detail Canal Tip

- Use the medial axis to define a cut-plane.
- Use pre-defined canal tip profiles.
- Round sharp corners.
- Dynamically place the wax guards.



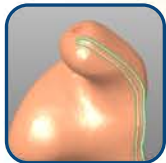
Binaural Sculpting Workflow

- Simultaneously sculpt both the left and right side shells.
- Sculpting commands are automatically transferred from the primary to the secondary shell.



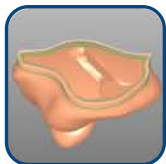
Shell Detailing

- Dynamically position electronic components within the shell with simultaneous interference checking.
- "Concurrent Measure and Offset" of selected regions allows interactive, real-time indication of the offset effects.
- Create a tool path for a CNC machine to cut and bevel a faceplate within the matching shell outline.
- Automatically taper the shell for a smooth transition to the faceplate.



Receiver Hole and Vent Creation

- Create all industry standard vents: Trench, Step, Side and Standard.
- Completely control vent location and orientation.
- Create multiple vent profiles.



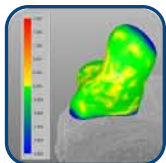
Virtual Faceplate Definition

- Import a 'virtual faceplate' containing the geometric definition for the electronic components.
- Place the virtual components in the shell to avoid interference.
- Merge the faceplate to the shell, thus eliminating the need for a separate faceplate. After the printing process, the components are simply plugged into the base.



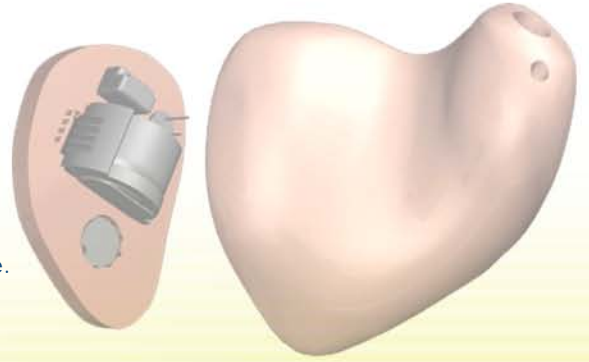
Fabrication Preparation

- Automate shell preparation functions such as clean, offset, make manifold, and hole fill.
- Add identification numbers to the interior or exterior surface of shells.



Quality Inspection

- Preview the finished product in a digital model of the customer's ear.
- Compare differences between the original impression and the shell.
- Use binaural reference to create consistent left and right shells.



Find the Perfect Fit

Geomagic eShell is available through Raindrop Geomagic. For more information, contact Raindrop Geomagic or visit our web site.

www.geomagic.com

raindropgeomagic[®]

P.O. Box 12219
Research Triangle Park, N.C. 27709
1.800.251.5551
1.919.474.0216 fax
www.geomagic.com
email: inquiry@geomagic.com