



# Customspedia

## Your A-Z on Phonak custom products

A Sonova brand

**PHONAK**  
life is on

# A better fit for your clients... and for you

Customization in a client's hearing technology can be essential to achieve optimal hearing performance for your clients.

Partner with Phonak to leverage our patented processes in production to provide your clients the best custom hearing solutions, quickly.

Get a competitive edge in today's evolving hearing healthcare marketplace, by meeting the unique needs of each client - especially those who require customization.

Phonak is here to help you get a better fit.

# Table of contents

Benefits of custom-made products	5
When domes just don't do the trick	6
<b>Section 1 – Ear impressions and impression material</b>	
Ear impressions	8
Deep impressions made easy	9
Impression material	10
Ear impression technique	11
Your clients deserve a great first fit	15
Occlusion	16
<b>Section 2 – Custom products</b>	
Custom product style options	18
Custom product canal length options	20
Custom product vent selection	21
Custom product venting styles	22
Factors that influence custom product size	23
Receiver size and insertion depth	24
Power levels: the receivers	25
Wax protection system options	26
Ease of use options	27
<b>Section 3 – Earmolds and custom shells</b>	
100% digitally manufactured	29
Earmold and custom shell material options	30
Earmold and custom shell style options	31
Acoustic coupling portfolio for RICs and BTEs	34
SlimTip vs cShell	35
Earmold and custom shell venting options	36
Phonak Serenity Choice	37
Phonak custom hearing protection	38
Notes	39

# Benefits of custom-made products

## Custom-made products, including cShell, SlimTip, and In-The-Ear (ITE) instruments, offer numerous benefits to people with hearing loss.

From an appearance perspective, custom molds on Receiver-in-Canal (RIC) and Behind-The-Ear (BTE) style hearing aids can provide consistency of placement, improved retention and consequently offer a more comfortable fit.

For discreet fitting options, custom-made ITEs fit discreetly behind the tragus, reducing exposure to wind, and providing a cosmetically appealing solution.

Lastly, ITE products offer ergonomic advantages in that their one-piece design can make them easier to remove and insert.

### Audiological Benefit

- No one ear is like another; a custom product takes into account the variation in any given ear canal
- Greater chance of first fit success
- Greater retention<sup>1</sup>
- Higher maximal stable gain<sup>2</sup>
- Reduced risk of feedback<sup>3</sup>
- Relative to an open fit, RICs and BTEs with custom molds have greater directionality and consequently greater performance in background noise<sup>4,5</sup>

### Clinic Benefit

- Quality-made products that reflect a high level of professionalism

1. West, M. "and more: Maximizing patient satisfaction." (2005) Retrieved from <http://www.audiologyonline.com/articles/-and-more-maximizingpatient-850>.  
2. Dillon, H "Advanced Signal Processing Schemes" Hearing Aids 2nd Edition. Turramurra. Boomerang Press. 2012: 236-238.  
3. Maxwell, JA, and Zurek, PM. "Reducing Acoustic Feedback in Hearing Aids." IEEE Transactions on Speech and Audio Processing. 3.4. 1995: 304-13. Web.  
4. Kuk, K., Keenan. "How do vents affect hearing aid performance?" Hearing Review, 2006: 34-42.  
5. Magnusson, L., Claesson, A., Persson, M., Et Tengstrand, T. Speech recognition in noise using bilateral open-fit hearing aids: The limited benefit of directional microphones and noise reduction." International Journal of Audiology, 2013, 52, 29-36.

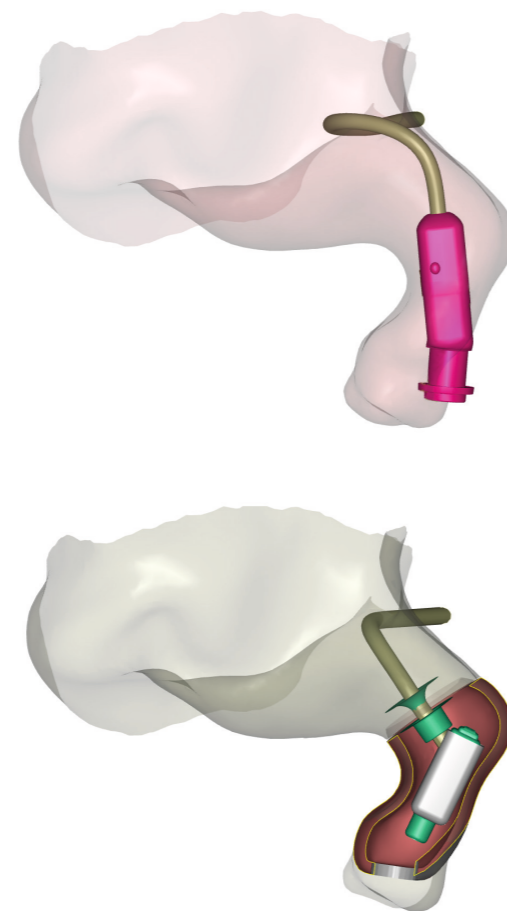
# When domes just don't do the trick

Off-the-shelf receivers, SlimTubes and domes are a great way to fit clients quickly, but 'one size fits all' is a statement that does not apply to custom products.

In some cases, hearing aid receivers and tubes are too straight or too wide in places, compromising a comfortable or optimal fit. Custom products give more flexibility to provide better comfort, retention and performance, as illustrated in the case study below.

In the example here is a standard receiver in the canal. Because the "off-the-shelf" item is all one piece, positioning the wire correctly results in the tip forcing its way into the canal wall (and this is without fitting a dome!). This will result in significant discomfort if the client can insert the receiver fully. It is more likely that they will not be able to insert it beyond the first bend, resulting in poor retention and seal. Consequently, the sound outlet is directed at the canal wall, which can have an impact on the feedback margin.

Here is the same ear showing the cross section of a cShell, modelled with a standard receiver. Because the wire, faceplate, receiver and sound tube are all separate pieces, we are able to model and create a solution where the sound outlet is in the optimal position. The result is discreet, with better retention, seal and comfort.



## Section 1 Ear impressions and impression material

# The importance of ear impressions

Ear mold impressions are the foundation of all custom product production. They are also among the riskiest procedures that Hearing Care Providers (HCP) have within their scope of practice, due to the nearness of the otoblock to the tympanic membrane.

It is crucial to obtain a good-quality ear impression. The ear impression quality is the clue to creating a small custom product with an optimal fit. Any deficiencies in the ear impression may result in a poor-fitting custom earpiece and can negatively impact the client experience.

A good impression will consist of a canal length 2 to 4 millimeters beyond the second bend. The helix, concha bowl and ear canal should be completely filled and smooth. There should be no gaps or imperfections in the impression.



Good quality impression



Poor quality impressions

## Good to know

- Phonak recommends the use of otoblocks for all impressions
- Digital ear scans are also accepted
- We recommend that you completely fill the concha bowl and helix (entire outer ear), regardless of which model is ordered, to ensure a good fit and accurate orientation of the aid
- If requesting a directional microphone custom product, it is recommended to mark the horizontal plane
- For proper receiver placement, the impressions should clearly show both first and second bends
- For maximum benefit, it's critical that CIC impressions extend 2 to 4 millimeters beyond the second bend
- For all models, it is important to have a long and deep impression in order to model the best retention of the shell, improve comfort, and align the receiver towards the eardrum for an optimized acoustic output

# Deep impressions made easy

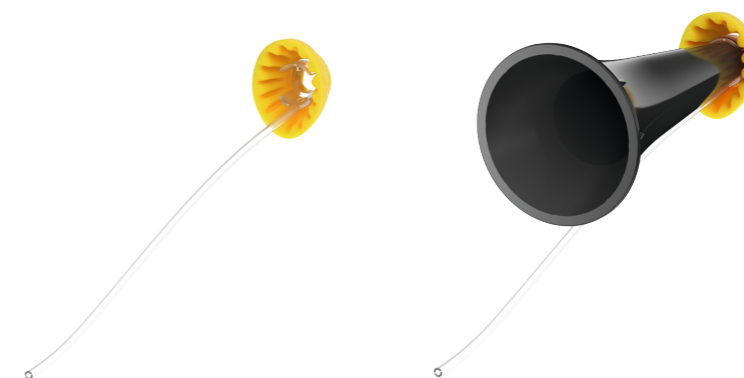
The EasyView Otoblock is an innovative approach for taking deep ear impressions.



It provides visualization and light to the deep ear canal throughout insertion which enables the HCP to confidently place the otoblock while keeping full view of the proximity to the eardrum.

The otoblock is constructed with a Lyric seal with a medial transparent lens. It attaches directly onto the end of an otoscope to allow full visualization of the ear canal and tympanic membrane during placement.

It is compatible with standard impression making materials and stays on the impression during the scanning process to add an average of 6mm more canal length information<sup>1</sup>.



HCPs benefit because they are able to take deep ear impressions comfortably and confidently. Their clients benefit because the outcome of a quality deep ear impression is a small, secure, optimized custom product.

**To order the EasyView Otoblock, contact your local Phonak representative or order from the eStore.**

The EasyView Otoblock is only to be used by HCPs according to its purpose and with appropriate training. The HCP is cautioned against inconsistent size selection and usage of the product for clients with a perforated or missing tympanic membrane or other abnormality of the middle or outer ear.

1. Schwarlos-Sooprayen, J.K. (2017) Phonak Field Study: Field Study: Deeper ear impressions with EasyView Otoblock. <https://www.phonakpro.com/com/en/resources/information> Patent publication numbers: EP3198891B1, US10070235B2.

# Impression material

## Phonak recommends silicone.

Silicone ear impression material is the most common type used today. It comes in a variety of forms, colors and viscosities.

Double cartridge						Tubs			
Double	Otoform* Xpand	Otoform* A softX	Otoform* Ak	Otoform* A soft	Otoform* A flex	Otoform* Ak X	Otoform* Ak	Otoform* Ak soft	Otoform* Kc
Color	Apricot	Pink	Green	Yellow	Turquoise	White/pink	White/green	White/light pink	White
Setting time at 37°C	3 min ± 15 sec	3 min ± 15 sec	3 min ± 15 sec	3 min ± 15 sec	3 min ± 15 sec	3 min ± 15 sec	3 min ± 15 sec	3 min ± 15 sec	4 min ± 30 sec
Characteristics	Expanding, soft, easy handling and processing	Soft, easy processing, optimal fluidity	Classic	Soft, easy processing	Soft, flexible, easy processing	Soft mixing feeling	Classic	Soft, flexible	Condensation -vulcanising
Use case	The Allrounder: Hearing protection, power and standard BTE, ITE, soft ear tissue	ITE, CIC, IIC, sensitive ear tissue	Hearing protection, Power and standard BTE, ITE	CIC, ITE	CIC, ITE	BTE, ITE, CIC, IIC, sensitive ear tissue	Hearing protection, Power and standard BTE, ITE	BTE, ITE, CIC	BTE, ITE, CIC

\*There are many different types of impression materials available on the market. Shown here are different types produced by just one company. All of these materials have slightly different properties based on the type of impression required. For deeper impressions that are typically needed for ITC, CIC and IIC products, a soft, low viscosity material is recommended. The benefits include less effort needed when using the impression gun which makes dispensing of the impression material easier to control in the ear. This results in less distortion of the ear canal wall for more accurately sized impressions.

## Common terms used with impression material

**Viscosity** – measurement of the material consistency prior to polymerisation; a low viscosity will have a soft consistency and a high viscosity will have a firm consistency

**Shore value** – the silicone after-cure hardness; the lower the shore value, the softer the finished product

**Shelf life** – how long the impression material will last

**Cure time** – how long it takes the impression material to cure

# Ear impression technique

## Step 1

Proceed with proper infection control protocols: Sterilize the equipment and wash your hands.

## Step 2

Before you begin, explain the entire process to your client, using easy-to-understand language. Inform them about the otoscopic examination, the impression material you're using, taking the ear impression and removal of the ear impression. Before you begin, ask if there are any questions.



Otoscopic examination

## Step 3

### Otoscopic examination

This exam indicates the presence of one or more medical conditions that would affect your ability to safely obtain an impression. Using the bridging technique, inspect the ear canal and tympanic membrane. Prior to inserting the otoscope speculum into the ear canal, straighten the canal by gently pulling up and backward on the pinna, while stabilizing your client's head. Grip the top portion of the pinna with your index finger and thumb. To protect against sudden movement and accidental injury, press the other fingers against the side of the client's head. Carefully insert the otoscope speculum into the ear canal.

While conducting an otoscopic examination, look for the following:

**Cerumen** – impacted or non-occluding

**Drainage** – clear, yellowish, green or red

**Prolapsed canal** – sagging skin in the ear canal

**Abnormalities of the tympanic membrane** – reddish color, perforation, atypical appearance, bulging eardrum or retraction

**Presence of foreign objects** – such as cotton

**Malformations** – congenital deformities, bony growths, scar tissue, dimples, surgically enlarged ear canal from mastoid surgery or stenosis.

If you've ruled out any contraindications, you may proceed to the next step. If you've identified any contraindications, do not proceed to the next step or take an impression. Refer your client to a physician.

## Step 4

### Otoblock placement

After you've conducted the otoscopic exam, insert an otoblock into the ear canal. Otoblocks are intended to protect and cushion the ear canal from the impression material. Select the appropriate otoblock size by making sure it is a slightly larger than the ear canal; this will prevent ear impression material from bypassing the otoblock. Phonak suggests using either cotton or foam otoblocks. Next, insert the otoblock into the entrance of the ear canal.



Various types of otoblocks

Pulling up and back on the pinna, use an ear light probe to carefully insert the otoblock into the ear. Gently push the otoblock into the ear canal until it is 2 to 4 millimeters beyond the second bend. After insertion of the otoblock, conduct an otoscopic examination to review otoblock placement; verify that there are no gaps between the otoblock and the ear canal.



Insert otoblock into the ear canal

## Step 5

### Injecting the material into the ear

Begin by placing the syringe tip approximately one-half inch, or 13 millimeters, into the ear canal. Gently inject the material into the canal. As the material begins to flow back to the tip of the syringe or nozzle, slowly back the tip out of the ear canal while applying consistent pressure to the syringe; this helps ensure constant flow of material. Once the canal portion is filled, continue to fill the tragus, anti-tragus, concha bowl and helix regions. Fill the remaining portion of the ear, making sure all anatomical landmarks of the outer ear have been filled with an adequate amount of material.



Inject material into the ear



Fill canal, tragus, anti-tragus, concha bowl, helix, and outer ear

### Open-jaw vs. closed-jaw impression?

Customers often ask, "When should I take an open-jaw versus a closed-jaw impression?" We recommend open jaw impressions in the following cases:

1. The client has significant mandibular displacement with jaw movement
2. The client experiences feedback with jaw movement
3. The ear canal is straight, lacks retention and/or hearing aid slides out of the ear
4. The client complains about a decrease in hearing instrument volume when opening or closing jaw

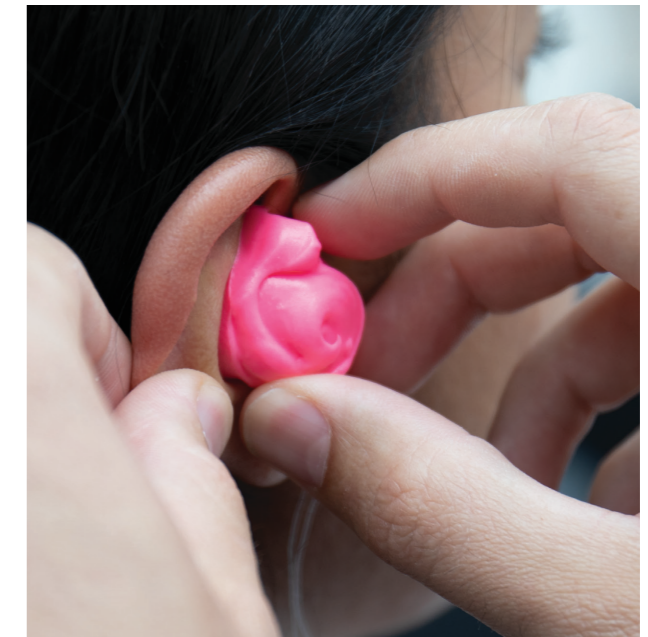
When conducting an open-jaw impression, it's important to follow this procedure to capture a truly open impression:

1. Insert the bite block between the front teeth (central incisors)
2. Insert the otoblock
3. Inject the silicone impression material into the ear
4. Give the impression material adequate time to cure
5. Remove the impression
6. Remove the bite block

## Step 6

### Removal of the impression

Allow the impression to cure for the amount of time stated on the impression material instructions. Check to see if the impression has cured by gently pressing an ear tip light into the impression material to see if the indentation remains. If there is no indentation and the material is not tacky, the impression has cured. Before removing the impression, it's important to relieve pressure by gently pulling outward on the pinna and loosening the material away from helix area and down through the anti-tragus. Grasp the anti-tragus region with your thumb and the helix region with your index finger. If there is no discomfort, slightly rotate the impression forward towards the client's nose and pull outward.



Removing impression

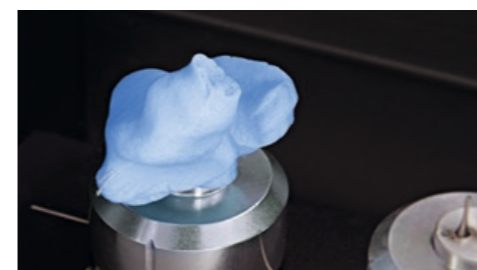
Now the ear impression is ready to be made into a Phonak custom product.



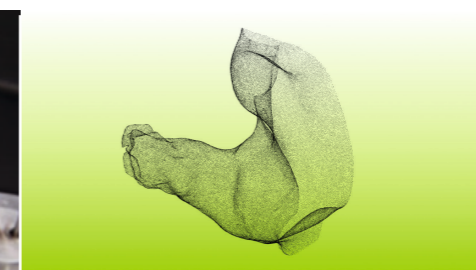
# Your clients deserve a great first fit

Our custom production process uses a proprietary technology – Rapid Shell Modeling (RSM) – to generate virtual 3D custom products.

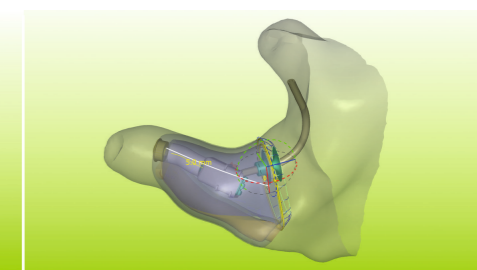
RSM captures thousands of data points from an individual ear impression to help ensure an exact fit and determine the optimal placement of components. The end result is the smallest possible, best-fitting device with the technology and features you and your clients have requested.



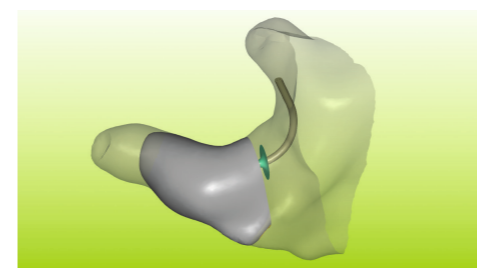
**1.** The process begins with the digital scanning of each client's ear impression, which is stored for future reference in case of a style change or lost custom product.



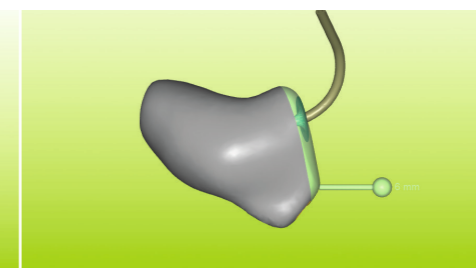
**2.** The virtual build begins with our proprietary 3D modelling software, which converts the digital scan into a point cloud model with thousands of reference points.



**3.** The optimum placement of components and venting options is then determined, taking into account the individual's anatomy and audiological needs.



**4.** The finished build shown inside the impression scan, is the result of our sophisticated technology, combined with the experience and skill of our modelling technicians, allowing us to create the smallest possible hearing instrument for each client.



**5.** The finished build, concludes the virtual modelling, built with all the parts necessary and ensuring order accuracy. The shell can then be printed using 3D technology.



**6.** The individually customized finished product is discreet and built for a great first-fit experience.

## Biometric Calibration

For ITE hearing aids, our modelling software encompasses a technology called Biometric Calibration. The Biometric Calibration algorithm extracts over 1600 unique data points from the client's ear impression, enabling an accurate representation of the unique features of any given ear. These points are compared to a standard ear model that knows how to reflect sound. The differences between the client's ear and the reference ear are calculated and a unique algorithm is created which will optimize directionality in the individual's ear.



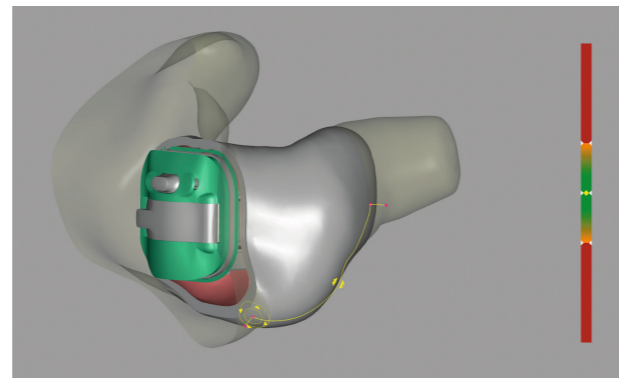
# Occlusion – we've got the solution

No one wants hearing aid wearers to experience occlusion and this is a common reason why HCPs may select a dome over a custom tip.

Occlusion arises when low frequency energy from the wearer's voice enters the ear canal via bone conduction and becomes trapped in the canal due to the presence of a shell or mold. This can result in a 'boomy' or 'hollow' sensation during vocalization. Occlusion can be caused by a physical fit of the custom shell or by inappropriate levels of amplification that can cause problems that appear similar to occlusion. One way to alter occlusion is to reduce the acoustic mass through the venting.

## Acoustic mass

Reducing occlusion is all about modifying the acoustic mass of air within a vent system. In any given vent, it is easier for low frequency sound to overcome the inertia of acoustic mass. Increasing the cross sectional area and/or decreasing the length of a vent reduces the acoustic vent mass value. This opens a pathway for low frequencies, consequently reducing the occlusion effect.



## Shell optimization and modification

Our experienced Shell Lab will model and modify the vent and the shape of the mold/shell to reduce or mitigate the occlusion effect. To achieve the optimal acoustic mass given the infinite variations in individual anatomy, we are able to model the custom product using various venting styles.

## AOV venting

Phonak's proprietary AOV (Acoustically Optimized Venting), is an algorithm which takes into account the unique characteristics of each client, including the audiometric configuration, risk of feedback, likelihood of occlusion, benefit of direct sound, and the need for low-frequency gain. The proprietary formula then creates an individualized vent size specifically for each client. Designed to prioritize size, AOV gives clients a smaller, more discreet hearing aid, while HCPs benefit from hearing aids that are returned less often than those with a manually selected vent.<sup>1</sup> Phonak recommends selecting AOV for every custom product order, as a review of internal data<sup>1</sup> shows hearing aids with the AOV code entered into the fitting software are returned less often than hearing aids with manually-selected vents.

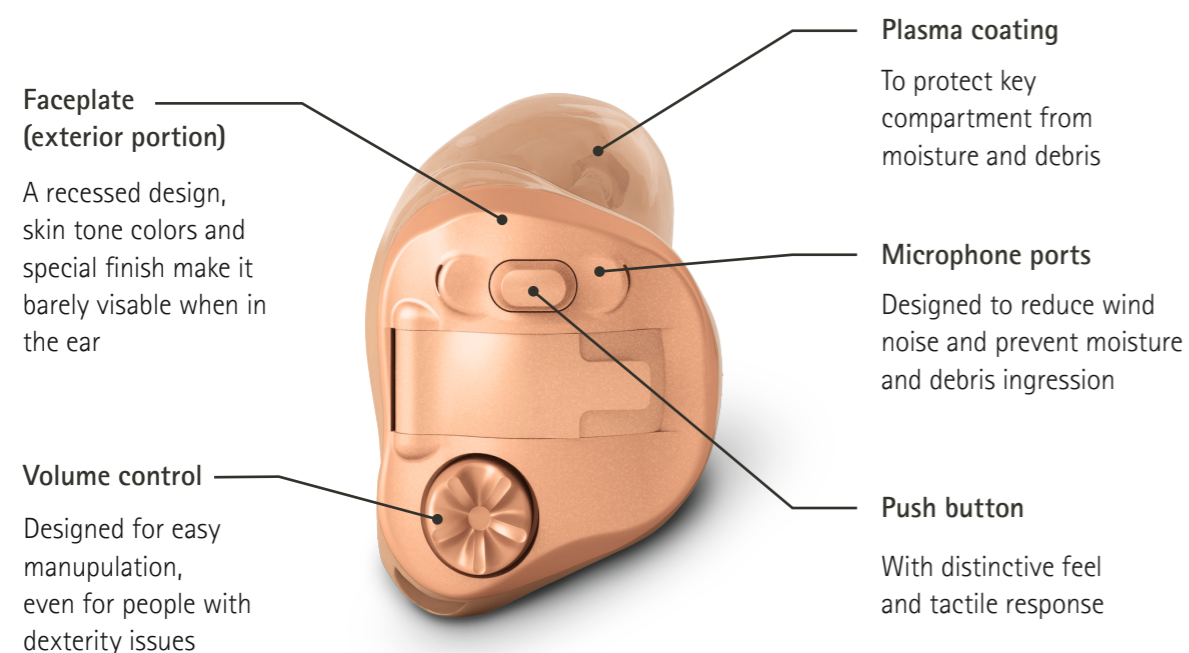
1. Leuthold, N. (2019). Internal Phonak report. Please contact [claims@phonak.com](mailto:claims@phonak.com) if you are interested in further information.

## Section 2 Custom products

# Custom product style options

## Phonak custom hearing instruments are offered in six styles: full shell, half shell, canal, mini-canal, completely-in-the-canal and invisible-in-the-canal.

Phonak state-of-the-art custom manufacturing facilities use a proprietary UV-curable acrylic plastic shell that is hypoallergenic and custom-crafted for each client. Phonak offers several custom hearing aid options to address the individual needs of each of your clients. Custom options include: directional microphones, push buttons, volume controls, Acoustically Optimized Venting technology, wireless technology and wireless accessory compatibility.



### Full shell

Phonak full shell custom products are designed for clients with mild to profound hearing losses. Full shell devices provide natural sound quality and are recommended for clients who require maximum retention, ergonomics, ease of insertion/removal, long battery life and options such as a telecoil, volume control or push button.



### Half shell and canal

Phonak half shell and canal custom products are designed for clients with mild to severe hearing losses. Canal and half shell devices provide natural sound quality and are recommended for clients who are concerned about cosmetics and need the benefits of custom options, such as a directional microphone, volume control or push button.



### Completely-in-the-canal

Phonak completely-in-the-canal custom products are designed for clients with mild to severe hearing losses. CIC devices provide natural sound quality, as well as wind noise reduction and improved directionality due to the location of the faceplate behind the tragus. CIC devices are recommended for clients who are looking for a cosmetically discreet solution, yet would like some manual control, such as a push button.



### Invisible-in-the-canal

Phonak invisible-in-the-canal custom products are designed for clients with mild to moderate hearing losses. IIC devices provide natural sound and enhanced directionality due to the recessed faceplate. IIC devices are recommended for clients who have cosmetic concerns and are looking for a "fit-and-forget" solution. Available in titanium and acrylic materials.



# Custom product canal length options

## Things to know

**Full length of impression** – The hearing instrument or earmold can be made the entire length of the impression. This is suggested for clients with moderate to profound hearing losses.

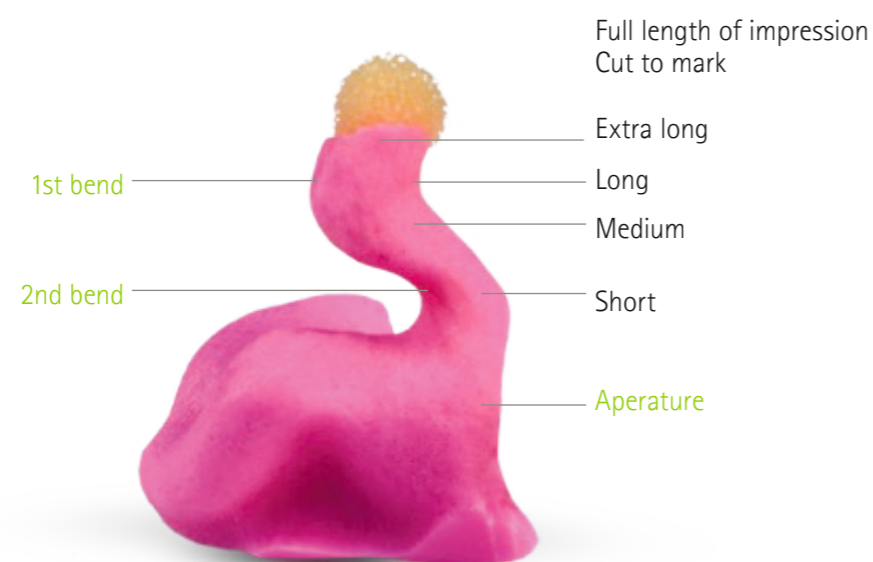
**Cut to mark** – This shell tip is customized for each client based on the mark you provide. The mark helps Phonak know exactly where to cut the canal for the individual client's needs. This is suggested if a specific canal length is required or if the client has soreness or a growth in the ear canal or a surgical ear.

**Extra-long** – The shell tip is customized 2 to 4 millimeters beyond the second bend. An extra-long canal is suggested for moderate to profound hearing losses.

**Long** – The canal is cut at the second bend. A long canal is suggested for moderate to profound hearing losses or for clients with occlusion.

**Medium** – The canal is cut between the first and second bends. A medium canal length is suggested for mild to severe hearing losses.

**Short** – The canal is cut just beyond the first bend. A short canal is suggested for mild to moderate hearing losses, narrow ear canals and/or clients with occlusion.



# Custom product venting styles

## Phonak custom hearing instruments are available with a wide variety of venting options.

The most effective vent diameter and style is determined by our Rapid Shell Modeling (RSM) technology, in conjunction with Phonak's AOV algorithm. A combination of the styles shown below is used to achieve the balance between seal and ventilation.



### Conventional vent

- Parallel tube running through the shell or mold



### Conical

- Tapered vent shape
- Different entry and exit diameter
- Maximizes venting when space is limited at one end



### D shaped

- Allows for larger venting while maintaining space for internal components
- More effectively utilizes the width of the canal



### Semi-IROS

- Vent cut back at canal tip
- Vent channel is shorter and therefore more open
- Can also be used to ease insertion



### IROS

- Vent shortened by cutting back both ends
- Very open



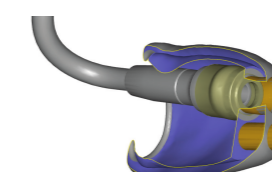
### Inverse IROS

- Section is removed from the center of vent
- Shortens the vent while maintaining retention
- May help with mandibular displacement



### Trench

- Groove cut along the exterior of the shell
- Used when internal space is too limited to fit a conventional vent



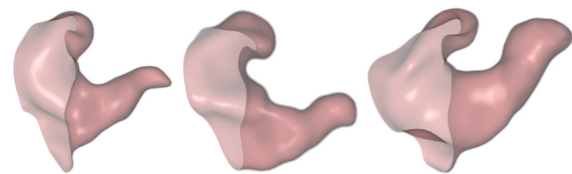
### Cavity

- A hole in the tip of hollow SlimTip style molds
- The most open option available
- Pictured shell shown as cross section

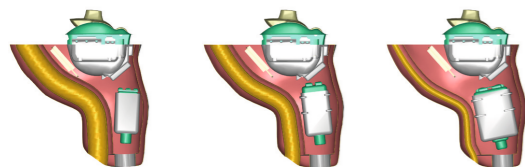
# Factors that influence custom product size

Many factors influence the possible shell size for a client. The individual's anatomy, the receiver power level, venting size, battery size and other options all play a part. It is important to keep these factors in mind to manage the client's size expectations.

There is an infinite variety of individual ear anatomy:



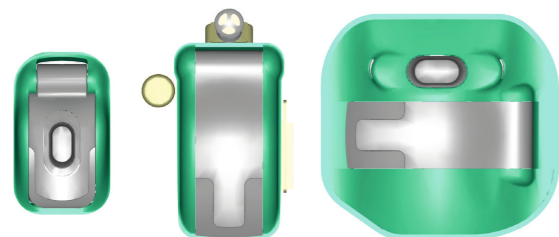
Venting and receiver size



1 or 2 microphones?

User controls?

Wireless or non-wireless?



Battery size



Power levels: The receivers

Receivers vary in width and length. It is important to note that some ear canals have smaller volumes which may not accommodate large receivers. When this happens the receiver must be placed within the concha and a more discreet size is not achievable. Thus a CIC (Completely in the Canal) with size 10 battery may become a mini-canal, or a canal model with 312 battery may become a half shell or even larger.

cShells: Different styles for different ears

You may have noticed that cShells sometimes look a little different from one order to the next. For most orders, the receiver wire exits the cShell through the faceplate. This is the most discreet option, but is not always possible. When the canal is very small, or a large receiver is required, sometimes the faceplate profile cannot be made low enough for the wire to exit in the conventional way. In these cases a 'cShell XL' is produced with the wire exiting from the top of the shell —this allows the profile to be higher while keeping the wire flush. This solution is commonly required with UP receiver.

**cShell**

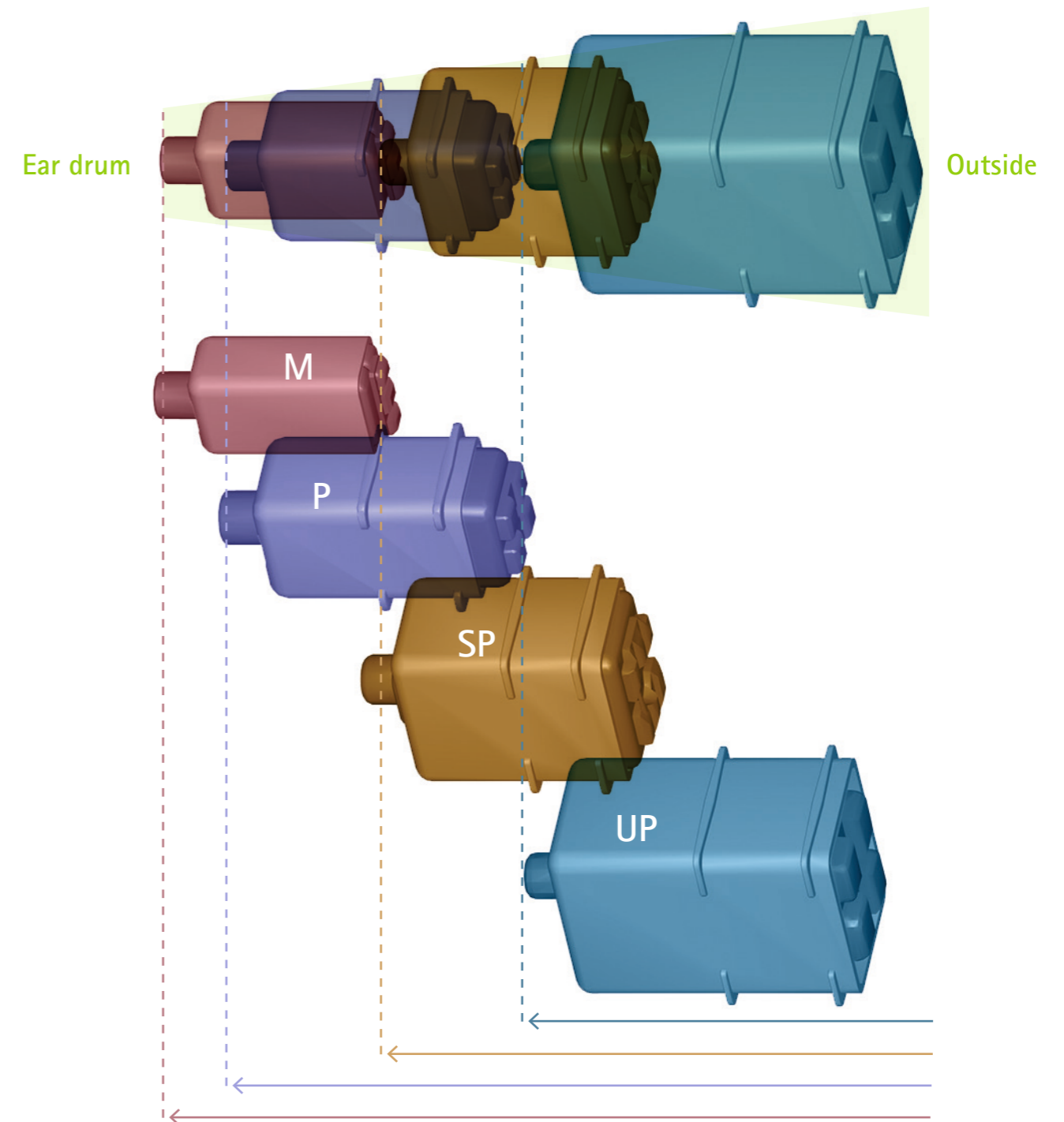
A custom shell option for Receiver-In-The-Canal (RIC) devices.

**cShell XL**

A larger cShell option; the receiver wire exits from the top of the shell to allow space inside for a larger receiver.

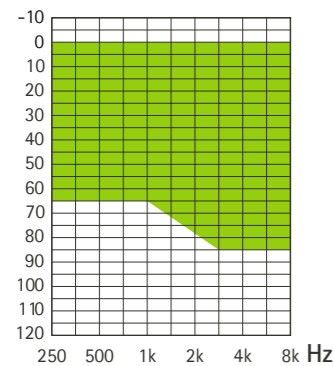


# Receiver size and insertion depth



# Custom product receiver power levels

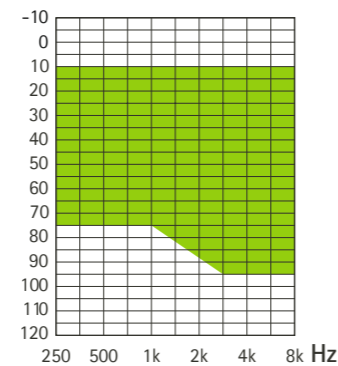
Moderate (all form factors)



For mild to severe hearing losses, all audiometric configurations

Dimensions: 7 x 3.1 x 2.3mm

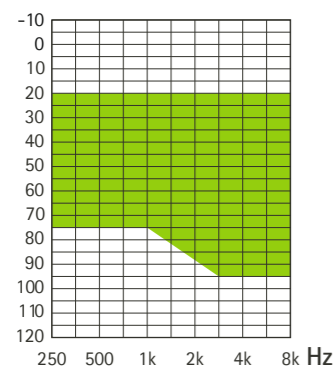
Power (all form factors)



For mild to moderately-severe hearing losses, all audiometric configurations

Dimensions: 7.9 x 3.8 x 3.4mm

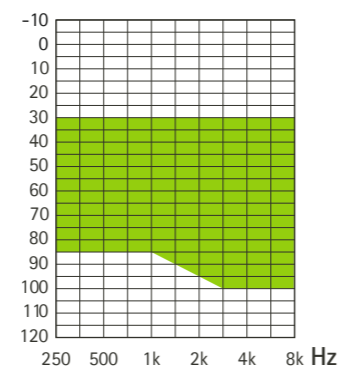
SuperPower (all form factors)



For moderate to severe hearing losses, all audiometric configurations

Dimensions: 8.1 x 5.2 x 4.0mm

UltraPower (312 form factor)



For moderate to profound hearing hearing losse, all audiometric configurations

Dimensions: 10 x 6.1 x 4.9mm

# Wax protection system options

Cerumen can build up inside a hearing instrument, causing the amplification to seem weak or nonexistent. Phonak offers several wax guards to help protect your client's hearing instruments.



Cerustop wax filter	HF3 wax filter	HF4 wax filter
A replaceable wax protection system that helps prevent wax from reaching the receiver.	A replaceable wax protection system with a large diameter, fine mesh filter to prevent wax from entering the receiver.	A replaceable wax protection system with a fine mesh filter to prevent wax from entering the receiver (the same as HF3 but smaller).
<b>Pros:</b> <ul style="list-style-type: none"> <li>• Small—fits most ears including narrow canals</li> <li>• Works with all receiver power levels</li> </ul>	<b>Pros:</b> <ul style="list-style-type: none"> <li>• Fine mesh prevents wax from entering receiver</li> <li>• Large diameter for longer filter change intervals</li> <li>• Durable attachment to hearing instrument</li> <li>• Color coded blue and red for left and right identification, respectively</li> <li>• Better acoustic reliability</li> <li>• Recommended for cShells with a UP receivers</li> </ul>	<b>Pros:</b> <ul style="list-style-type: none"> <li>• Small diameter fits most ears</li> <li>• Durable attachment to hearing instrument</li> <li>• Color coded blue and red for left and right identification, respectively</li> </ul>
<b>Cons:</b> <ul style="list-style-type: none"> <li>• Small cavity for trapping cerumen can block quickly</li> <li>• Not suitable for cShells with a UP receiver</li> <li>• Less accurate on the acoustic performances</li> </ul>	<b>Cons:</b> <ul style="list-style-type: none"> <li>• Requires a fairly large / wide canal to fit</li> </ul>	

## What about moisture?

To maximize the life and performance of hearing instruments, the use of an active drying box, such as the 'Phonak D-Dry' is recommended. This helps to remove damaging moisture and reduces the accumulation of germs with the use of a UV-C lamp.

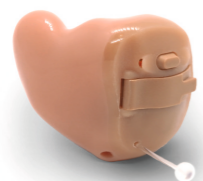


# Ease of use options



### Removal filament

A nylon cord attached to the device to assist with removal of the instrument.



### Removal filament extended

A removal filament that is 5mm longer than standard for easier grip/removal.



### Removal post

A sturdy, robust post for easy insertion and removal – great for clients with limited dexterity.



### Raised volume control

A cap is inserted on the volume control, making it easier to locate on the faceplate.



### Color dots

Large red and blue color dots are placed on both instruments, serving as a visual indicator of right versus left, respectively.



### Side indicators

L and R markings added to instruments to help identify left from right.



### Cord holder set

A rubber cord, connected between ITEs or molds to prevent loss. Includes a clip which can be attached to clothing. Loop handles required.

## Custom shell retention options



### Canal lock

Known by many names –concha lock, retention wing, canal hook, retention shoe Increases retention by adding additional material in the anti-tragus and concha bowl area.



### Helix/Skeleton lock

Additional retention gained in the helix/cymba region, effectively locking the shell in place between the cymba, tragus and antitragus.

# Section 3 Earmolds and custom shells

# 100% digitally manufactured

Phonak is your convenient one-stop shop for earmolds and custom shells. Available in acrylic, silicone and titanium, our custom products are 100% digitally manufactured to ensure a perfect fit. In our state-of-the-art lab, we keep your clients' digitally scanned ear impressions on file for more than two years, creating an easier, timesaving pathway to remakes.



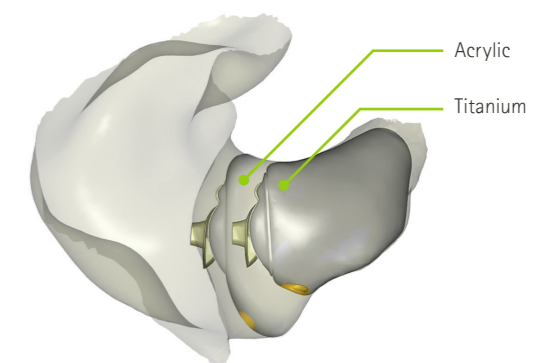
# Earmold and custom shell material options

When selecting an earmold or custom shell material for your clients, there are a number of factors to consider, including: hearing loss, ear texture, age, possible allergies to materials, color options, modification options and tubing options.

Material	Characteristics	Advantages
Acrylic	Hard	<ul style="list-style-type: none"> <li>• Hard, durable</li> <li>• Hypoallergenic</li> <li>• Easy to modify in clinic</li> <li>• Recommended for mild to severe hearing losses</li> </ul>
Titanium	Hard	<ul style="list-style-type: none"> <li>• Ultimate durability</li> <li>• Suitable for sensitive ears that react to other materials</li> <li>• Reduces device size by allowing thinner shell walls</li> </ul>
Silicone S70	Semi-soft	<ul style="list-style-type: none"> <li>• Firm, semi-flexible</li> <li>• Designed to provide added comfort over hard material</li> <li>• Hypoallergenic</li> <li>• Recommended for mild to profound hearing losses</li> </ul>
Silicone S40	Soft	<ul style="list-style-type: none"> <li>• Soft, flexible material with superior sealing properties</li> <li>• Hypoallergenic</li> <li>• Recommended for severe to profound hearing losses</li> <li>• Available in specialty colors</li> </ul>
Silicone S25	Very soft	<ul style="list-style-type: none"> <li>• Softest, flexible material with superior sealing properties</li> <li>• Recommended for severe to profound hearing losses and corner audiograms</li> </ul>

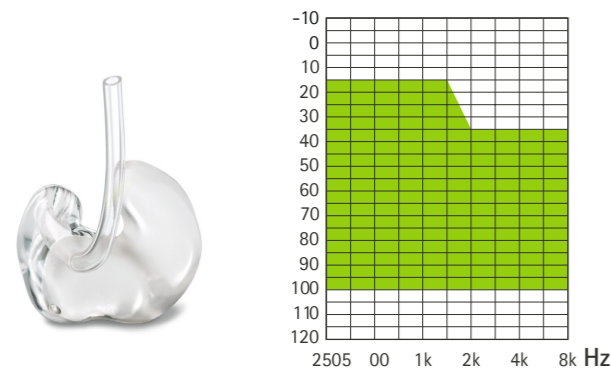
## Titanium advantage: Lower profile

The most compelling reason to choose a titanium shell is for a more cosmetically appealing hearing instrument. This example shows a challenging ear with a narrow canal entrance. With a traditional acrylic shell, the battery does not fit into the canal, resulting in a higher profile than ideal. By measuring with the Titanium Fit Guide and changing to a titanium shell, we are able to provide an additional 2.5mm<sup>1</sup> of depth, making the device significantly less visible.

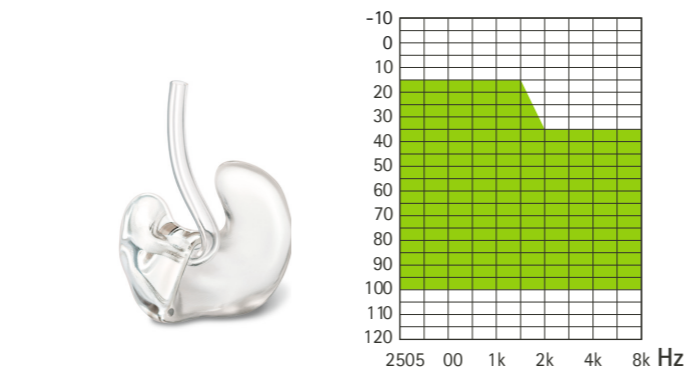


# Earmold and custom shell style options

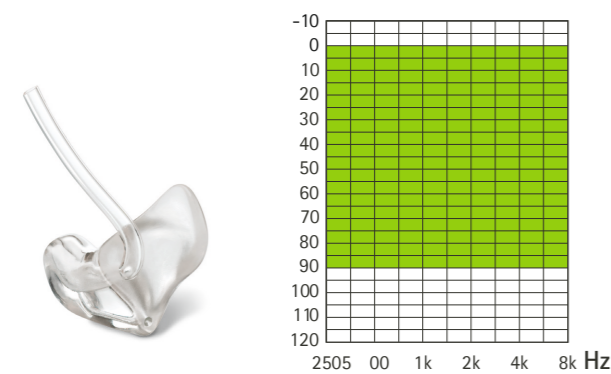
## Earmold style



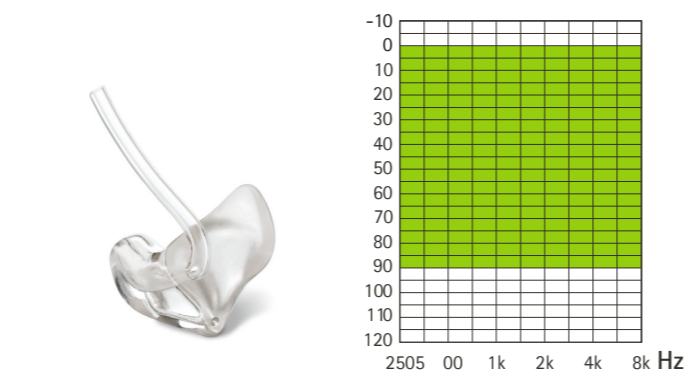
**Full shell**  
Provides maximum retention; less risk of feedback; recommended for mild to profound hearing losses and pediatrics.  
Available in acrylic, silicone.



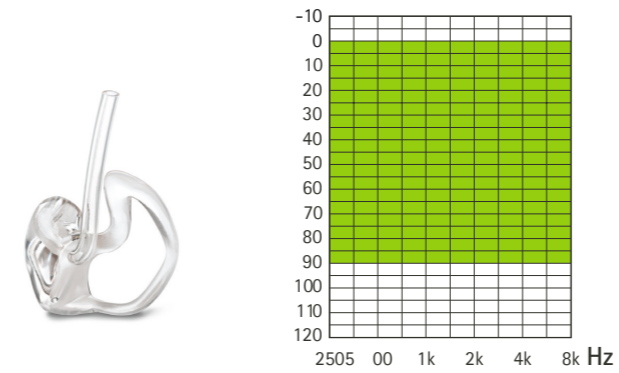
**Carved full shell**  
Provides maximum retention; less risk of feedback; recommended for mild to profound hearing losses and pediatrics.  
Available in acrylic, silicone.



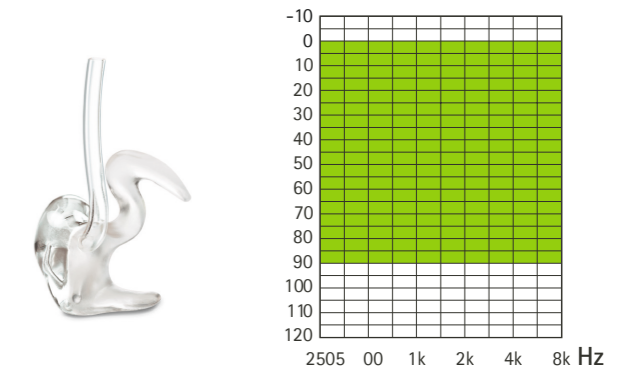
**Half shell**  
Provides good retention; recommended for mild to severe hearing losses.  
Available in acrylic, silicone.



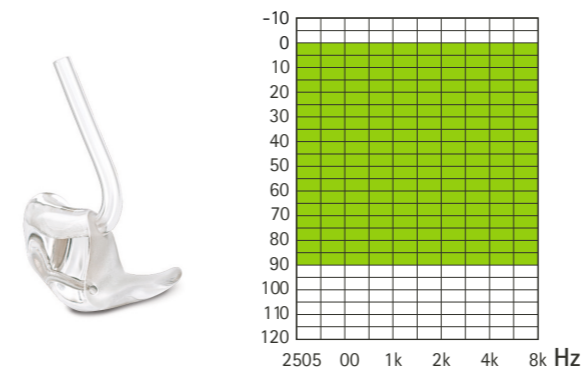
**Carved half shell**  
Provides good retention; recommended for mild to severe hearing losses.  
Available in acrylic, silicone.



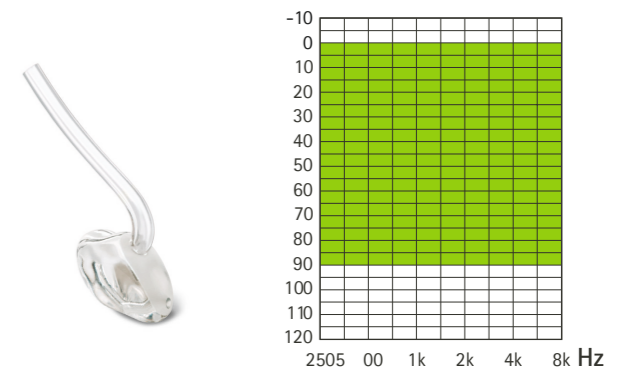
**Skeleton**  
A cosmetic solution with good retention; recommended for mild to severe hearing losses.  
Available in acrylic.



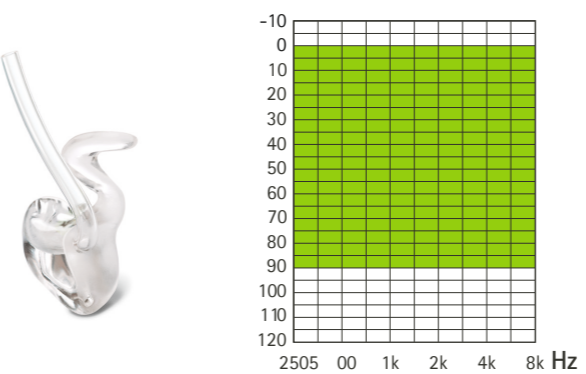
**Semi-skeleton**  
A cosmetic solution with retention; recommended for mild to severe hearing losses.  
Available in acrylic.



**Canal lock/ canal lock long**  
A cosmetic solution when retention is required; recommended for mild to severe hearing losses.  
Available in acrylic.



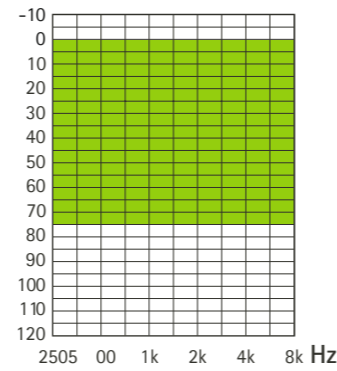
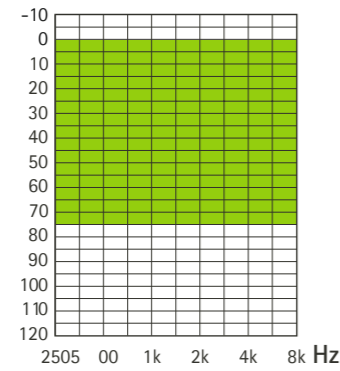
**Canal mold**  
A cosmetic solution when retention isn't a concern; recommended for mild to severe hearing losses.  
Available in acrylic, silicone.



**Helix lock**  
A cosmetic solution when retention is required; recommended for mild to severe hearing losses.  
Available in acrylic



## Custom shell style



### Solid sleeve mold

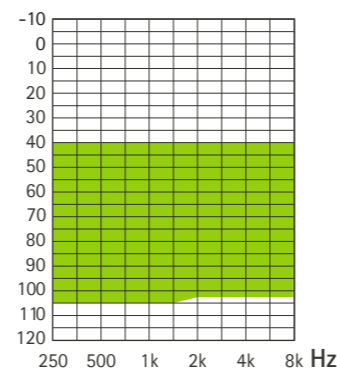
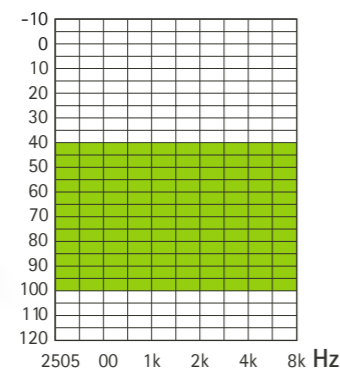
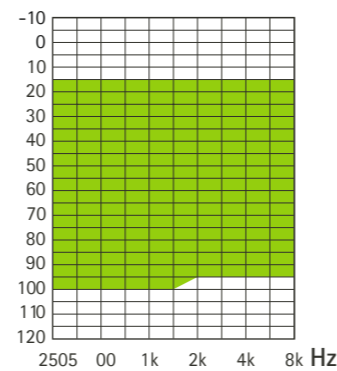
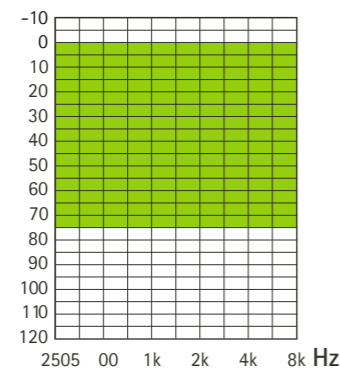
For RIC devices (except narrow canals) or slim tubes; recommended for mild to severe hearing losses.

Available in acrylic, silicone and soft silicone.

### Hollow sleeve mold

Recommended for mild-to moderate hearing losses. Can be used with either RIC technology or slim tubes.

Available in acrylic.



### cShell

A custom shell option for receiver-in-the canal devices. recommended for moderate to severe

### XL cShell

A larger cShell option; the receiver wire comes out from the shell.

# Acoustic coupling portfolio for RIC and BTEs

In addition to earmolds and custom shells, the Phonak acoustic coupling portfolio includes off-the-shelf solutions for Phonak RIC and BTE hearing aids. The acoustic portfolio refers to all the parts that support the delivery of sound from the hearing aid to the eardrum. The correct acoustic coupling ensures appropriate acoustic performance in addition to wearing comfort for clients.

## Domes



### Cap dome

- Cap to cover the end of the receiver spout
- Designed for narrow canals

### Open dome

- Disk shape
- Shaped for comfort and better retention

### Vented dome

- Balloon shape for better comfort
- Vented to give acoustic coupling between Open and Power

### Power dome

- Optimized shape for comfort
- Lateral seal smaller for better retention and comfort

## Earmold tubing



### Standard slim tube

Compatible with current Phonak BTEs

### Power slim tube

Compatible with Naida BTEs

### Standard size 13 earmold tube (default acrylic)

Compatible with most Phonak BTEs

### Standard size 13 earmold tube with tube lock

Compatible with silicone and acrylic. Available tube lock systems: Glueless tube lock, Quick snap tube lock, plastic tube lock

# Slim tip vs cShell

Which is the right custom product for your RIC clients? How can you tell if a SlimTip or a cShell will give the best outcome for your client? These two custom options each have their own pros and cons.

## SlimTip



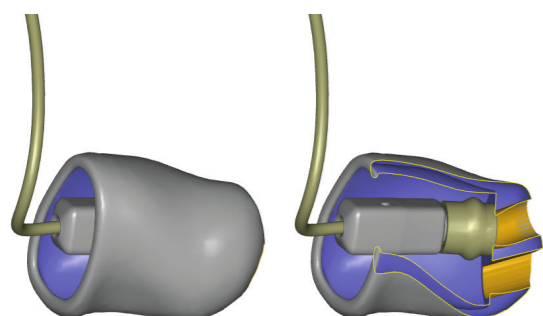
### Pros:

- Receivers can be replaced in the clinic
- The most open custom fitting available when built with cavity venting
- Usually physically smaller in the hand
- Available in acrylic, titanium or silicone (which some clients might find more comfortable)

### Cons:

- Not suitable for narrow or sharply bent canals
- Hollow style can be more challenging to keep clean
- Limited to Cerustop wax protection system in titanium SlimTips
- Limited control over wire/tube and sound outlet angle placement

### Anatomy of a SlimTip (acrylic and titanium)



## cShell



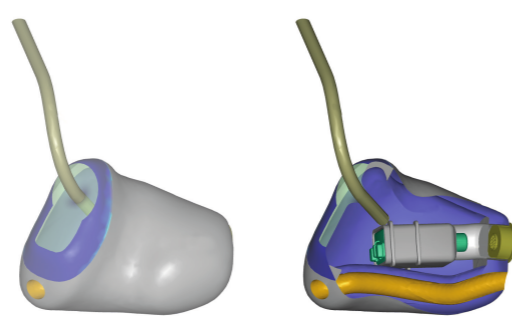
### Pros:

- Can be made for almost any ear
- Receiver wire and sound outlet position can be adjusted separately, resulting in better overall fit
- Available with the full range of receivers, including UP
- Available with various wax protection systems (model dependent)
- More durable than a hollow SlimTip
- The most customizable option
- Available in acrylic or titanium

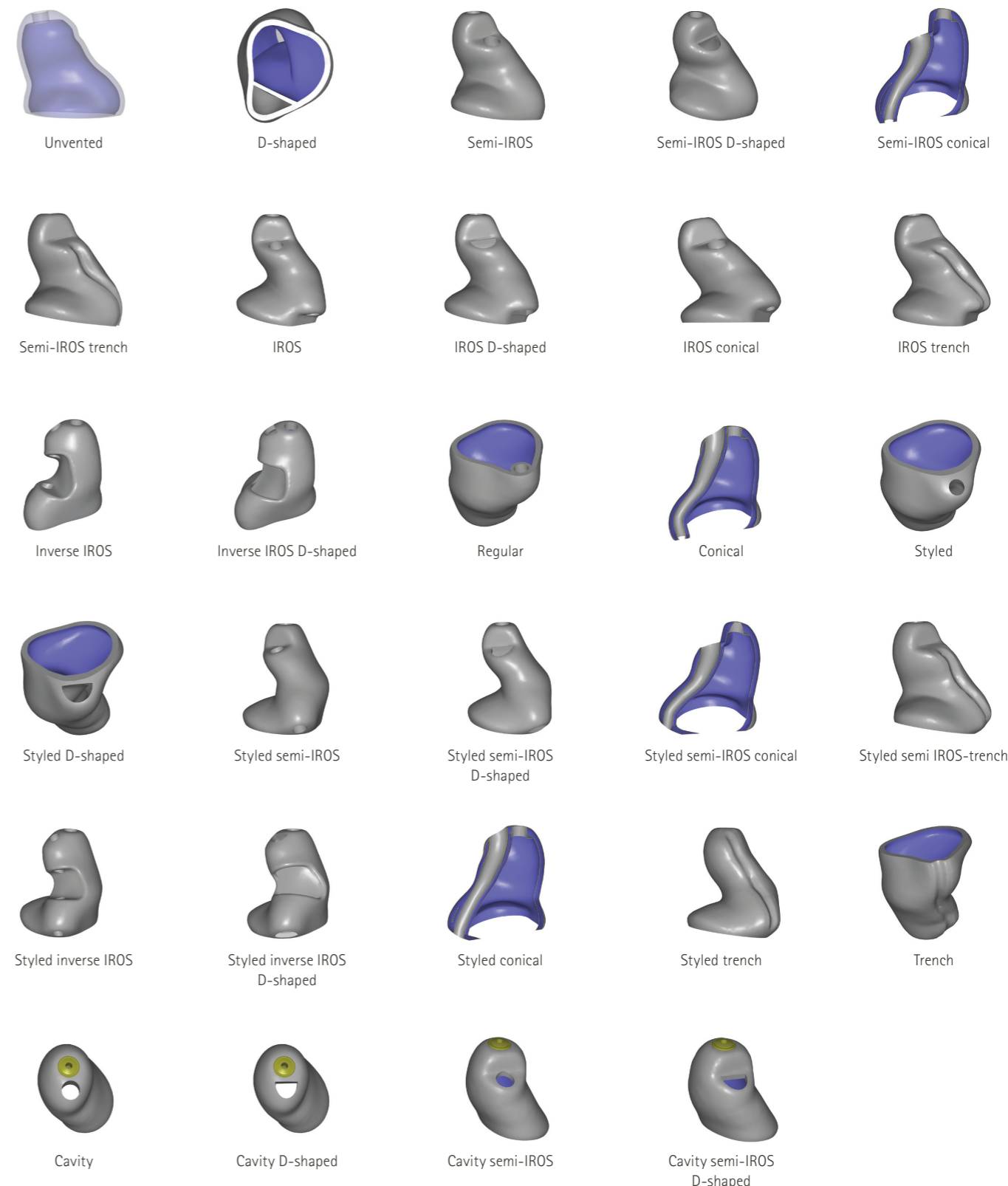
### Cons:

- Must be returned to Phonak for receiver replacement

### Anatomy of a cShell



# Earmold and custom shell venting options



# Phonak Serenity Choice

Did you know that 70% of people exposed to loud noise never or seldom wear hearing protection? Part of Phonak's Well-Hearing is Well-being philosophy is to provide solutions that treat hearing loss and solutions that prevent it.

Phonak Serenity Choice™ is the high-end hearing protection that offers a ready-to-wear hearing protection solution.



Phonak Serenity Choice™ Plus is custom-made hearing protection, which offers the same high-quality filter technology as Phonak Serenity Choice with the additional benefits of a custom-made fit. For both generic and custom hearing protection, a range of filters is available to ensure a solution for all environments.



# Phonak Custom hearing protection

	Filter	Level of Protection	Full Shell	Canal Mold
Music		Low KM 15	n/a	Silicone
		Medium KM 20		Acrylic
		High KM 25		
Shooting & Hunting		High (impulse) KIM 9	Silicone	Silicone
			Acrylic	Acrylic
Motorsport		Medium KI 20	n/a	Silicone
		High KI 25		
Work		Medium KI 20	Silicone	Silicone & Acrylic
		High KI 25	Acrylic	
		Max KI 30		
Comfort		Low KI 10	n/a	Silicone
Sleep	n/a	High No filter, sealed	n/a	Silicone
Fly		Low KM 16	Silicone & Acrylic	Silicone & Acrylic
Swim		Water KR 5	Silicone	n/a



## life is on

Since 1947, Phonak is dedicated to preserving social, emotional and physical life quality by opening new acoustic worlds. We believe that well-hearing equates to well-being and thus is essential for living life to the fullest. Today we offer the broadest portfolio of innovative hearing solutions. And, together with our hearing care professionals, we keep on focusing on what matters most: improving speech understanding, changing people's lives and having a positive effect on society as a whole. life is on

[www.phonak.com](http://www.phonak.com)



027-0670-02/V1.00/2022/06/SAL © 2020 Sonova AG All rights reserved