

ContourDesign

Cutting-edge technology calls for cutting-edge design

Introduction

Innovative new chip technologies for hearing instruments are being introduced to the market at a tremendous rate. Leading manufacturers are regularly rolling out new chip platforms offering incredible possibilities approximately every two years. New chip structures with innovative audiological features are being rapidly developed, and the overall design of the hearing instrument is another element that also requires much attention. Endusers will often rely on their first impressions when choosing a hearing instrument reinforcing the importance of hearing instrument design. An attractive look and a comfortable fit are far more important than some may care to believe. A customer will always select the better-looking instrument first and there are plenty who will not buy a particular system simply because they do not find it visually appealing. Phonak Spice Generation hearing instruments have combined style and performance to create a complete portfolio of unmatched hearing instruments. This new chip platform will offer some exciting new audiological features and benefits, second generation wireless technology, new accessories and attractive new housings. Cutting-edge technology calls for an equally cutting-edge design: ContourDesign.

New technology – new design

As the leading manufacturer of hearing instruments, Phonak has a continuous commitment to innovation rate. As a result two years after the release of the CORE platform we are now introducing a completely redeveloped chip platform with increased technological performance and enduser benefits. The entire range of our behind-the-ear instruments have been re-designed to further enhance these technological improvements. Accessories have also been extensively remodeled, so elements ranging from remote controls to storage cases, all now conform to the new, coordinated overall image.

Comfort is key

Various features of the new Phonak BTE hearing instruments have been revised to optimize user comfort (both for improved esthetics and benefits). These revisions include:

- Smallest compact size possible
- Improvements in acoustic performance
- Audiological features that support product design
- Increased reliability

Phonak has made all the housings in each power class noticeably smaller than previous models by making improvements in component development and mountings (Figure 1).



Fig. 1: Size comparison between Exélia Art M and Ambra microM housing

Eye-catching style

It is important for new housings to be stylish and to attract the attention of endusers however the aim was evolution, not revolution. The design of the housings for the new Spice Generation has been changed in a subtle, yet effective, ways. Housings are ergonomically rounded where they make contact with the ear, while all visible elements have a modern, sophisticated and therefore esthetically pleasing look.

An example of the benefit of such attention to design is evident in the fact that the CRT housings of our Audéo portfolio have been recognized for their excellence by prestigious expert panels (Figure 2). The innovative Audéo YES housing and the ultra-small Audéo MINI are both Red Dot Design award winners. Audéo SMART and Audéo MINI have also been recognized for superior design with the iF Design Award. All new Spice generation instruments incorporate all of these award-winning design features, in addition to new and improved design features.



Fig. 2: The award winning Audéo portfolio

There is a range of colors available for Spice Generation instruments so that virtually any color preference can be accommodated including 2 and 3 color combinations. An additional metal coating produces a beautiful metallic effect and gives the housing a very sophisticated look (Figure 3). The use of three colors creates the illusion of an even smaller and slimmer hearing instrument.



Fig. 3: The real metal coating creates a very attractive and authentic metallic effect

The "back part" of the housing, which is visible behind the ear, is designed to match the individual skin tone or hair color of the hearing instrument user. Its concave effect blends into the natural shadow of the pinna and creates the illusion that the housing is disappearing behind the ear. An additional nano-coating helps prevent build up of dirt by repelling these particles, so they can not accumulate in the housing.

Form and function

The shape of the new housings was not created solely based on appearance, but also designed with function in mind. Figure 4 presents a comparison between an Exélia Art housing which sits behind the ear and a new housing from the same performance class. The new housing ensures that the front microphone remains in its optimal forward position. Along with a rearrangement of the position of the rear microphone, this design supports excellent directional performance.

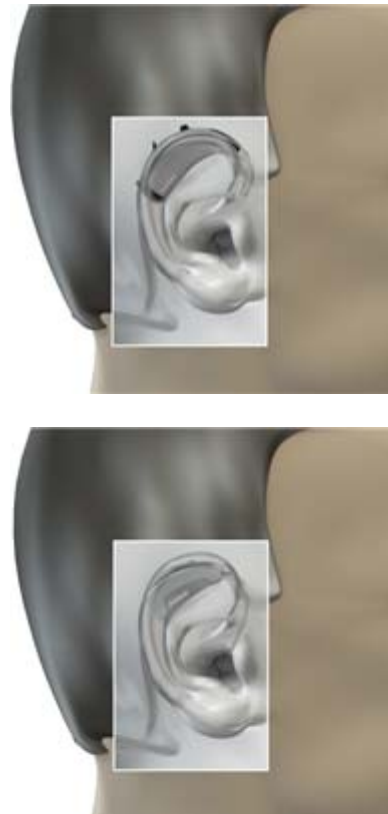


Fig. 4: Improved positioning behind the ear. It is clear that the upper part of the new housing (below) sits deeper in the crease between the skull and the pinna. It is therefore less visible, but the acoustic function is nevertheless improved.

Along with the redesign of the housing, there have also been improvements to the Sound Delivery system dedicated to these instruments. All Ambra BTEs use the same earhooks and SlimTubes and housings in the Ambra and Audéo S series now also have:

- uniform domes
- the same microphone shield for all models
- identical control buttons
- right/left markings
- integrated child tamper proof battery lock (optional)

As part of our continuous commitment to quality, improvements were also made to other housing components. Microphone covers are an essential component to our hearing instruments. If dirt or moisture enters the microphone inlet, the performance of the hearing instrument deteriorates. Careful attention was given to this element, which not only must be a barrier to dirt and moisture, but must also be robust and easy to clean.

New SlimTubes and CRT xReceivers also have improvements to fit and design. Connection points to the housings are not only smaller and therefore easier to change but the connection is robust. The ergonomic shape of both tubes and wires better matches the shape of the ear while the CRT wires are even thinner than previous versions. All these small enhancements add up to substantial improvements in wearing comfort and cosmetics.

The new standard domes compatible with SlimTubes and xReceivers have been modified to seat better and more securely. The new closed dome now resembles the open dome and the power dome has been resized. A newly designed wax guard, integrated into all domes (Figure 5) making them easy to clean and requiring less frequent replacement.



Fig. 5: Improved wax guard in the standard domes

For the first time SlimTubes can now reproduce the desirable "horn effect", long employed as a fitter option with standard tubing. This new slim tube option improves the acoustic impedance and results in a better sound transmission especially for the higher frequencies. An impressive 5 dB more gain at 6 KHz can be achieved!

Safety and reliability

While form, function and attractive appearances are all essential considerations, safety and reliability are equally important. Users of hearing instruments range in age from infants through to adults, therefore it is vital to ensure that the battery cannot easily fall out, can be securely and properly inserted and can not be opened by children. These important areas were carefully considered during the redevelopment of the new housings and tamperproof battery doors are now available as an option on all Spice Generation BTE hearing instruments.

The reliability of the electronics in a hearing instrument begins with the reliability of its housing. Moisture and debris can enter through the microphone and receiver inlets, and seams between the housing parts are also vulnerable points which could allow moisture into the instrument. Special attention has therefore been paid to producing a very accurately manufactured and well-sealed housing. The nano-coating, mentioned previously, also contributes by repelling moisture, causing it to roll off the housing, thereby preventing potentially critical problems from arising in the first place.

Further innovations

Re-designing new housings to convey a coordinated overall image, it naturally led Phonak to extend some of these design concepts to our range of accessories as well. A completely redesigned remote control is available for the Phonak Spice Generation products. In addition a new, attractive storage case has been added which will safely store and transport the new hearing instruments (Figure 6).



Fig. 6: New remote control and storage case designs

Summary

ContourDesign is reflected in the launch of the new Ambra series, the flagship of the Phonak Spice Generation. Phonak has developed a completely new housing range for BTEs which sets new industry standards in design and esthetics while also encompassing improvements to detail and reliability (Figure 7). All the new housings are designed in two or three colors, with a wide variety of color combinations available, various detailed improvements have been made to enhance acoustics, adaptability and ease of use all created with increased enduser benefit in mind. The new housings are moisture-resistant and nano-coated for improved reliability and durability. Phonak Ambra and Audéo S together present a visually harmonized image which in turn reflects the innovative design and exceptional benefits of the new Spice platform. The whole range of products is supplemented by a new remote control and a redesigned storage case, which paired with the new housings reinforce the commitment Phonak has to technological innovation

The outcome of the new ContourDesign approach is extremely small, stylish hearing instruments with enhanced performance and enduser benefits. ContourDesign is perfect for a new generation, the Phonak Spice Generation.



Fig. 7: All the new housings at a glance