

Open fittings

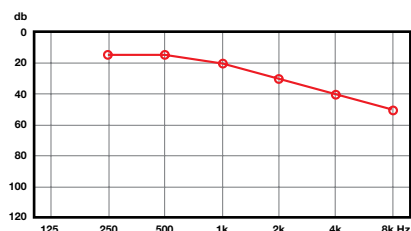
– Basic

Open fittings were originally developed for patients with precipitously sloping hearing loss. Patients often rejected hearing instruments because low frequencies were over amplified, resulting in the occlusion effect. Open fittings allow minimal amplification of low frequencies but sufficient amplification of high frequencies. They are also more cosmetically appealing and are available as behind-the-ear hearing instruments (BTEs) and in-the-ear hearing instruments (ITEs).

ReSound Air was the first open fitting hearing instrument available on the market.

Previously, completely-in-the-ear hearing instruments (CICs) and BTEs with a skeleton ear mould were recommended for patients with precipitously sloping hearing loss. However the disadvantages often outweighed the advantages and patients often failed to wear the hearing instruments. Open fittings incorporating a thin tube and dome are more effective.

Thin tube audiogram

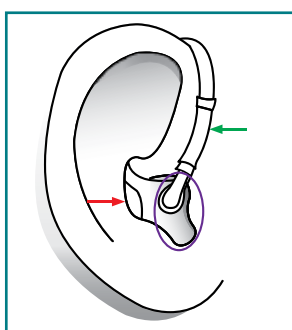


CICs



Advantages	Disadvantages
Small and cosmetically appealing	Block the entire ear canal and some patients feel detached from the outside world
The long, narrow shape complements the natural resonance characteristics of the ear canal to provide amplification of the high frequencies	The occlusion effect

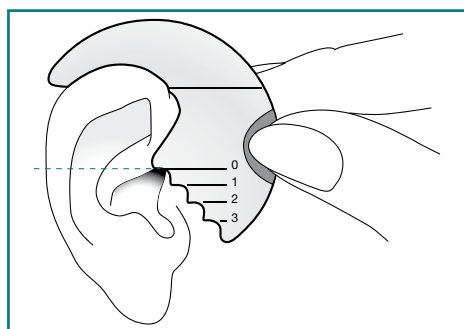
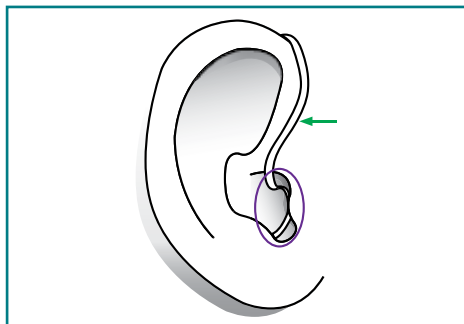
BTEs with skeleton ear mould



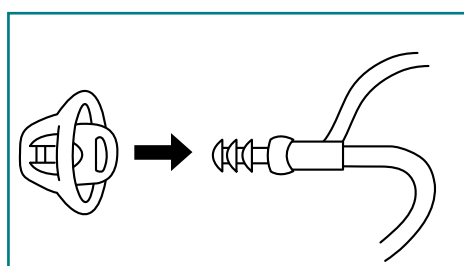
Advantages	Disadvantages
The hole in the ear mould, instead of blocking the entire concha bowl, creates more comfort for the patient	Blocks the ear canal and causes too much low frequency amplification
Improved hearing acuity	Requires thick and more visible tubing which is cosmetically less appealing

Open fittings

The size of the tube alters the acoustics on an open fitting. Adjustments for the sound pressure level (SPL) are usually set via the algorithms within the hearing instrument. Clinicians programme the software according to the type of hearing instrument, either a regular BTE or thin tube BTE.



There are three different sizes of air domes to fit different ears. On the tulip dome the phalanges on the sides provide more contact with the ear canal than a normal air dome. This creates a less open fitting for patients with poorer low frequency thresholds who might require slightly more low-frequency amplification. Domes are attached to the thin tubes by fitting the dome over the coils on the thin tube.



Advantages

- Fit inside the ear canal
- The ear canal is relatively empty and ventilated
- Cosmetically appealing as the thin tube is less visible, often appearing like a strand of hair
- The thin tube is available in various lengths for a more personalised fit
- Clinicians use a measurement tool to help select the correct length so that the thin tube sits in the uppermost portion of the ear canal
- Variety of domes to fit different ears and hearing loss
- Help keep the hearing instrument on the ear

Custom open fittings

It is possible to have an open fitting in a custom product by including a large vent in the hearing instrument. However this is not as open as a BTE fitting.

Jargon Buster

Precipitously sloping hearing loss is hearing loss that worsens by more than 20dB per octave moving from low frequencies to high frequencies.

The **occlusion effect** is caused by the sealing off of the ear canal. It occurs when low frequencies are over amplified and causes the patient discomfort. Internal sounds, like the patient's own voice or the patient chewing, sound unnatural.

Behind-the-ear hearing instruments (BTEs) are hearing instruments where the main section is worn behind the ear and is connected to a plastic ear mould that fits comfortably in the outer ear (or concha bowl).

In-the-ear hearing instruments (ITEs) are hearing instruments that are completely contained in a custom-made acrylic shell or casing that fits into the outer ear. They include full shells, half shells, in-the-canals (ITCs) and completely-in-the-canals (CICs).

Completely-in-the-canal hearing instruments are also known as **CICs**.

Hearing acuity refers to the sharpness of hearing.

Related information

Also refer to the section in this manual on **Hearing instruments and hearing loss**.