EAS® Hearing Implant System
Regain a Life of Hearing

Now Approved for Adults and Children of All Ages!
How Complete is Your Hearing?

Are certain sounds easier to hear than others? Can you hear male voices, but struggle to hear female voices? Do you feel that your hearing aids are just not good enough?

If this sounds familiar, you may be missing out on hearing high-frequency sounds. When you cannot hear high-frequency sounds, you might have a type of hearing loss known as Partial Deafness. Partial Deafness is common in both children and adults.

Sounds have different frequencies: a dog’s bark or most vowels are low-frequency sounds, and a telephone’s ring or the letters F, S, or K are high-frequency sounds. Quality hearing enables you to perceive the complete range of sound frequencies.

Partial deafness means you have residual hearing in the low frequencies but no hearing in the high frequencies. Speech contains both low-frequency and high-frequency sounds, and if you cannot hear high-frequency sound speech will seem unclear. Therefore, Partial Deafness may cause you to feel disconnected from your social and professional lives. This can be especially noticeable in noisy environments, or when multiple people speak at the same time during events like social gatherings or business meetings.

Hearing aids can help you to hear better low-frequency sounds, but they fail short in treating high-frequency hearing loss and are often not an optimal solution for Partial Deafness. For the high-frequency hearing loss, an additional solution is required.

MED-EL Has the Solution

The MED-EL Electric Acoustic Stimulation (EAS) Hearing Implant System is specifically designed to treat the combination of hearing losses experienced with Partial Deafness. It combines two technologies, acoustic amplification for the low frequencies and electric stimulation for the high frequencies. These different technologies work together to give individuals with Partial Deafness a rich hearing experience that covers all frequencies of sound.

MED-EL is the pioneer in electric acoustic stimulation. For over a decade, the MED-EL EAS Hearing Implant System has helped both children and adults to hear better. It has been proven in clinical research to improve speech understanding in both quiet and noisy environments.

We invite you to read more and learn about the MED-EL EAS Hearing Implant System. It is designed to help you regain the complete range of hearing that you may have been missing.

Scan me!
Scan this code with your mobile device to learn more about EAS, or go to www.medel.com/EAS.
The Full Spectrum of Hearing

Low- and High-Frequency Sounds

Low-frequency sounds serve as the foundation of hearing, and allow you to hear vowels in speech, distinguish between voices, recognise emotion, and appreciate music. High-frequency sounds provide fine details in sound, create depth, and make hearing more enjoyable and conversations more meaningful.

Natural Hearing & The Cochlea

The cochlea is the spiral-shaped part of the inner ear that recognises the different frequencies of sound. Different areas of the cochlea are specialised to respond to different frequencies. As shown in Figure 1, the apical region receives low-frequency sounds and the basal region receives high-frequency sounds. When the whole cochlea detects sound, the ear processes the whole range of low- and high-frequency sounds.

Low-Frequency Sounds

- Lorry
- Water droplets
- Lawn mower
- Dog barking
- Drum
- Music

High-Frequency Sounds

- Baby’s laughter
- Conversation
- Leaves rustling
- Bird chirping
- Telephone
- Music
Partial Deafness

Difficulties Hearing High-Frequency Sounds

Partial Deafness is defined as a mild-to-moderate sensorineural hearing loss in the low frequencies that becomes a profound hearing loss in the high frequencies. Partial Deafness is common, and may be the result of noise-related hearing loss, aging, or genetics. It can affect both children and adults. With Partial Deafness, speech and other sounds can seem less clear.

Partial Deafness Means You Hear Only Low-Frequency Sounds

Partial Deafness occurs when the basal region of the cochlea has damaged or missing hair cells. As shown in Figure 2, this means that the cochlea can detect some or all low-frequency sounds but cannot detect the high-frequency sounds. Because acoustic amplification cannot stimulate these damaged or missing hair cells, hearing aids alone are not a sufficient solution to Partial Deafness.

Do You Have Partial Deafness?

— Are you having trouble following conversations when multiple people speak at one time?
— Do you have difficulty understanding on the telephone?
— Is it difficult to understand in noisy environments, such as restaurants?
— Do words, sounds, and voices seem muffled to you?
— Can you hear male voices, but have trouble with female voices?

If you are experiencing any of these situations, you might have Partial Deafness.

Your answers to these questions do not constitute a medical diagnosis. Please consult your hearing professional to determine if you have a hearing loss.

Measuring Partial Deafness

An audiogram reveals what sounds an individual may or may not hear. Figure 3 is a potential audiogram of an individual with Partial Deafness. The individual cannot hear any sounds above the grey line. Because this line is higher on the left than on the right, the individual may hear some low-frequency sounds like chirping birds, ringing telephones, or the letters F, S, or K.

Figure 3 – An example audiogram showing the effects of Partial Deafness.
The EAS® Hearing Implant System

Regain a Life of Hearing

The EAS Hearing Implant System is designed specifically for individuals with Partial Deafness. It has two parts that work together to help you to hear both low-frequency and high-frequency sounds. Acoustic amplification supports your residual hearing in the low frequencies of sound, and electric stimulation allows you to hear the high-frequency sounds that cannot be replicated by a hearing aid.

Built with Decades of Experience

MED-EL is the pioneer of combined electric and acoustic stimulation technology. For over a decade, the EAS Hearing Implant System has helped people to more closely connect with family, friends, and co-workers. It helps you to hear sounds that you have been missing, can improve your confidence on the telephone, and may allow you to follow conversations with greater ease. Studies show that EAS improves speech understanding, especially in noisy environments.1,2,3,8,9,10,11 It is used world-wide, and is available for both children and adults.

Complete Coverage of Sound

The EAS Hearing Implant System consists of external and internal components. The audio processor is external, and rests on the ear. It receives and processes sound information. Depending on the frequency of sound, this information is turned into electrical signals or acoustically amplified sound.

Acoustic Amplification & Electric Stimulation

Low-frequency sounds are acoustically amplified and sent to the ear so that they can stimulate the cochlea naturally. High-frequency sounds become electrical signals that are transmitted to the internal cochlear implant, where they are sent to the cochlea and replicate the experience of hearing high-frequency sounds.

EAS is the combination of two technologies: a cochlear implant for the high frequencies, and acoustic amplification for the low frequencies. Together, they cover the full range of hearing for both children and adults.

A Combination of Two Technologies

1. Low-frequency sounds are received by a microphone in the audio processor.
2. The acoustic component amplifies these sounds and sends them through the ear-mould, via the normal hearing pathway, into the ear.
3. The amplified sounds stimulate the hearing nerves in the apical region of the cochlea, the part of the ear responsible for low-frequency sounds.

Electric Stimulation for the High Frequencies

1. Mid- and high-frequency sounds are received by the external microphone and processed into an electrical signal.
2. This signal is sent via the coil to the implant, which converts the signal into electrical pulses.
3. The electrical pulses pass from the electrode array to the cochlea and stimulate the basal region of the cochlea, the part of the ear responsible for high-frequency sounds.
EAS can help you to regain hearing in both the low and high frequencies of sound. Figure 4 shows an example of an audiogram indicating how your hearing might improve with EAS. The red line shows how acoustic amplification can improve your residual hearing in the low frequencies, and the blue shows the significant improvements in high-frequency hearing that electric stimulation provides. Together, these technologies combine and can help you to hear all the sounds of speech.

Figure 4 − Potential hearing improvement due to EAS

Switching from hearing aids to EAS has proven benefits. Five independent studies demonstrate significant improvement in the hearing of children and adults with Partial Deafness after switching from hearing aids to EAS. Figure 5 shows the results of post-operative monosyllable speech score tests. EAS users score an average of 50 percentage points higher in speech understanding and sound quality when compared to their pre-operative use of hearing aids.

Figure 5 − EAS provides a significant, 50-percentage-point, increase in sound quality and speech understanding in monosyllabic speech score tests.
Children & EAS

For a Lifetime of Listening & Learning

MED-EL is committed to your child’s quality of life. The EAS Hearing Implant System can improve children’s ability to hear and learn both in the classroom and during everyday life. Our unique technologies for gentle electrode insertion can help preserve residual hearing, thereby providing for a lifetime of quality hearing.

Better Listening and Communication Skills
The development of hearing and listening skills is key to your child’s future. The EAS Hearing Implant System can improve children’s communication skills and speech understanding, abilities that are integral to healthy development within the hearing world.

Technologies Designed to Protect What Matters Most
Our uniquely soft and flexible electrode arrays are designed for the protection of the delicate neural structures in the cochlea. Because neural stimulation is more effective in a cochlea that receives minimal trauma during electrode insertion, the use of our soft and flexible electrode arrays may help your child to retain residual hearing and an overall higher quality of hearing.

Preservation of the cochlea is important for your child’s hearing, both now and in the future. With MED-EL, you can provide your child with the best possible hearing today and enable access to future therapies and technologies.

For more information on hearing preservation and atraumatic electrodes, visit our website at www.medel.com/hearingpreservation.
The Audio Processor

Proven Performance, Easy to Use

The DUET 2 Audio Processor is the externally-worn component of the EAS Hearing Implant System. It receives and processes the sound information that helps you to hear both the low and high frequencies of sound. Low-frequency sounds are acoustically amplified and sent through the ear mould, while high-frequency sounds are converted to electrical pulses and sent to the implant.

Designed to Help You Hear Your Best

The DUET 2 is designed to offer you the best possible hearing performance. It is powered by today’s most advanced sound-processing technologies and can be used in combination with Assistive Listening Devices (ALDs). Its long battery life allows you to enjoy up to seven days of uninterrupted hearing.

Simplicity in Design

The DUET 2 Audio Processor is designed to provide a simple and easy-to-use way to enjoy superior hearing. It is lightweight and rests discretely on your ear while allowing the microphone to receive sounds with accuracy. Using the FineTuner, adjustments to volume and sensitivity can be made without removing the processor from the ear.

Advanced Technology

Automatic Sound Management (ASM) is one of MED-EL’s signature technologies. It provides superior hearing, regardless of the listening situation or level of background noise.

The Implant

Superior Sound in the High Frequencies

The CONCERTO Cochlear Implant receives electrical signals from the DUET 2 Audio Processor. These signals are converted to electrical pulses and sent directly to electrode contacts located within the basal region of the cochlea. This replicates the experience of hearing high-frequency sounds, and complements acoustic amplification to help you hear the full range of sound.

The World’s Smallest Titanium CI

The Housing

The titanium housing contains the electronics that send electrical signals to the electrode. Its compact design is only 4.5mm in thickness and 7.6g in weight, and it is engineered to strict safety standards and built for long-lasting performance.

The FLEX°® Electrode Array

The electrode is the part of the implant that rests inside your cochlea. The FLEX°® Electrode Array is specially engineered to preserve residual hearing and cochlear structures. Its uniquely soft and flexible construction is designed for safe and gentle insertion, which can provide for superior performance.

Designed to Preserve your Natural Residual Hearing

Structure Preservation

At MED-EL, our engineers understand the importance of protecting the delicate neural structures within the cochlea. Our unique electrodes may help to preserve your residual hearing and allow you to retain the ability to naturally hear sound, both now and in the future.

Reliability

MED-EL has more than two decades of experience producing hearing loss solutions. Our implants are designed according to the highest safety standards for reliability you can count on.

Future Compatibility

Designed for compatibility with future audio processor technologies.
Katarzyna, Poland

Katarzyna was born with Partial Deafness. Even with hearing aids, she could hear only low-frequency sounds. When she talked, she would hear men's voices but was unable to hear her own voice.

“The most difficult thing for me has always been hearing with background noise,” said Katarzyna. “I could not separate sounds easily.”

Katarzyna continued to experience more problems with her high-frequency hearing loss. She became unable to participate in conversations unless they were face-to-face, and had trouble speaking on the phone.

Today, with the EAS system, she can experience sounds she never heard before.

"On the first day after being fitted with my DUET 2 audio processor," she said, "my hearing improved so noticeably that I thought to myself ‘This is a big improvement.’ Now I can talk to strangers and not just people that I know. I am not as shy on the phone as I was before.”

Marek, her husband, said that her whole life has changed.

"She can separate the sounds in the songs better now and hear details like scratching or feedback, which she thinks is a big advantage - the ability to separate the various parts of sound," he said. "She has begun listening to music in foreign languages and understands the lyrics better each time. Now, she is the one correcting me. We are getting to the stage where talking across different rooms is possible. Little differences really add up to something much better.”

Donald, Philippines

"When I first found out that I had a hearing loss, I was in denial," Donald said.

Signs of hearing loss first appeared when Donald was 30 years old. Even though he recognised that something was changing, he was sceptical that he had hearing loss.

"I couldn’t believe it," said Donald. "How can I have hearing loss, when in fact I can hear and understand most conversations?"

For Donald, with each day it became more clear that hearing loss was affecting his quality of life. He became unable to follow television shows or movies without subtitles, and often had to ask people to repeat themselves during conversations.

Donald received the MED-EL EAS Hearing Implant System, and after hearing with it for nine months he said that his friends really noticed a change in his life. He no longer had to interrupt them during conversation, and when he was at work he could use the phone and communicate with customers with ease.

"EAS has made working a lot easier," he said. "At first, I didn’t notice the difference between hearing aids and my EAS implant. It was even a little hard at first, and there was a learning curve to using EAS. But now, I know that there is a difference. I can’t live without it."
Take the Next Step
Reconnect to the World of Hearing

If you are affected by Partial Deafness, it is time to take the next step. Reconnect with your family, friends, and loved ones with the MED-EL EAS Hearing Implant System.

MED-EL is the pioneer in combined electric and acoustic stimulation technology. Our EAS system has been helping children and adults to hear better for over ten years.

EAS has been clinically demonstrated to improve sound quality and speech understanding. If conventional hearing aids do not work for you, EAS can help you to hear both low-frequency and high-frequency sounds.

For more information about MED-EL and the EAS Hearing Implant System, contact your medical healthcare professional, your local MED-EL representative, or visit www.medel.com/EAS.

MED-EL is there for you, wherever you are.

MED-EL is internationally recognised as the driving force behind the advancement of hearing implant technology. Its staff of hearing loss professionals fuels the development of industry-changing innovations. MED-EL is the world’s fastest-growing hearing implant company, and has a presence in nearly 100 countries.

MED-EL is there for you, today and in the future. Its roots lie in university projects of the 1970s, and now its state-of-the-art hearing implant solutions deliver best-in-class hearing performance with a design that is comfortable to wear and easy to use.

Since its founding in 1989, MED-EL has remained dedicated to “overcoming hearing loss as a barrier to communication and quality of life.”