

# The Cochlear™ Nucleus® System Fact Sheet

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The Nucleus cochlear implant system helps restore hearing for people with severe to profound hearing loss.

In a naturally hearing ear, the tiny, delicate hair cells in the cochlea (or inner ear) communicate sound signals to the brain, allowing a person to hear different pitches and sounds. If these delicate cells are damaged, some or all of the ability to hear can be lost. Cochlear implants mimic natural hearing by bypassing damaged hair cells in the cochlea to stimulate the hearing nerve. This makes them different from hearing aids, which simply make sounds louder.

Cochlear implants often are a solution for people with severe to profound sensorineural hearing loss (sometimes called “nerve deafness”) that can be caused by a number of factors, including: genetics and birth defects; overexposure to loud noise; certain medications that can damage the hair cells; diseases such as measles, mumps, meningitis and Meniere’s disease; normal aging; head injuries; tumors or masses; and infections.

### The Nucleus System includes two basic components common to all cochlear implants:

- A sound processor that is positioned behind the ear and has tiny microphones that pick up sound and convert it to digital signals, which are then sent to the internal cochlear implant
- A compact cochlear implant placed under the skin behind the ear to receive digital signals from the sound processor and directly stimulate the hearing nerve

In addition, the Nucleus System includes a two-way remote device that allows users to wirelessly monitor and manage their hearing.

As the company that pioneered cochlear implants, Cochlear has worked continually to improve the devices. As a result, clinical research shows that the Nucleus System provides, on average, the highest speech recognition of any cochlear implant.<sup>1-5</sup> It also features the industry’s smallest sound processor – up to 43 percent smaller than any other.

For more information about the Cochlear Nucleus System, visit [www.CochlearAmericas.com](http://www.CochlearAmericas.com)

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<sup>1</sup> Balkany T et al. Nucleus Freedom North American clinical trial. *Otolaryngol Head Neck Surg* 2007;136(5):757-762.

<sup>2</sup> Pijil S et al. (2006) North American Freedom trial: Preliminary results adults. Cochlear Limited White Paper.

<sup>3</sup> Bassim MK et al. Med-EL Combi40+ Cochlear Implantation in Adults. *Laryngoscope* 2005;115:1568-1573.

<sup>4</sup> Seguin C et al. (2005) Patient performance with the Advanced Bionics HiRes 90K Helix 1 Device with HiFocus Perimodiolar (Helix) Electrode. Advanced Bionics White Paper.

<sup>5</sup> Wolfe, J. et al. Benefit of a commercially available cochlear implant processor with dual-microphone beamforming: A Multi-Center Study, *Otology & Neurotology*, 2011 In Press.