



Nucleus® Freedom™ Implant with Contour Advance and Straight Electrodes

Features and Specifications

featuring SmartSound™ technology

With our leading performance and superior reliability ratings, the Nucleus Freedom implant(s) delivers the power for today's innovations with the flexibility for tomorrow's breakthroughs.



- Asynchronous architecture*
- New stimulation rates (up to 32 kHz) with access to all existing coding strategies
- Lower power – even more efficient
- Thin, self-curling, perimodiolar array**
- Wide range of stimulation modes
- Advanced telemetry capabilities enabling new AutoNRT™
- Ultra-low-noise NRT amp (~1 μV)
 - Fast, precise measurements, and dependable results that enable new Auto NRT and easier, faster programming from objective measures
 - Fast, efficient intraoperative NRT provides confidence in a successful surgery
- 4th Generation Stimulator ASIC (Application Specific Integrated Circuit)

- 0.7 μm Mixed Signal CMOS technology (Complementary Metal Oxide Semiconductor)
- Dual electrode mode allows creation of additional stimulation channels*
- Sound clarity through 22 electrodes
- Softip™ to minimize force**
- MRI safe up to 1.5 telsa with the magnet removed
- Minimal excavation
- Built for a lifetime

* feature not yet available

** available with the Contour Advance

The Nucleus Freedom implant with either the Contour Advance or the Straight electrode array is intelligently engineered with power for today and flexibility for tomorrow. You and your patients can be completely confident that Nucleus Cochlear implants are designed to last a lifetime.

Contour Advance:

The Contour Advance electrode featuring the unique Softip is designed to preserve the delicate structures of the cochlea and to aid in consistent perimodiolar positioning. It is recommended that surgeons use the Advance Off-Stylet™ (AOS™) insertion technique to realize the full benefits of the Softip™ design. The Softip is designed to work in conjunction with the AOS technique to allow the array to glide smoothly and gently through the lumen, thereby minimizing lateral wall forces.¹

A thin, flexible stylet straightens the array for ease of insertion. After the stylet is withdrawn, elastic memory allows the array to resume its cochlear shape and positions 22 stimulating contacts close to the modiolus. The self-curling electrode array matches the curvature of the average cochlea and occupies less than half the width of the scala tympani.

Straight:

This thin, non-curling array is designed for use by surgeons who may prefer a straight array option for individual patients. We also recommend use of this implant for revision surgeries.

At Cochlear, we believe so strongly in meeting individual needs that we have consistently engineered our implants to provide highly reliable, flexible solutions for each user.

References

1. Roland, J. Thomas Roland, Jr., A Model for Cochlear Implant Electrode Insertion and Force Evaluation: Results with a New Electrode Design and Insertion Technique, Laryngoscope, in press.

www.cochlear.com

Cochlear Americas
400 Inverness Parkway
Suite 400
Englewood CO 80112
USA

Cochlear Limited
14 Mars Road
Lane Cove NSW 2066
Australia

Tel: 1 303 790 9010
Fax: 1 303 792 9025
Toll Free: 1 800 523 5798

Tel: 61 2 9428 6555
Fax: 61 2 9428 6352
Toll Free: 1 800 620 929

Specifications

CI24RE (CA) & CI24RE (ST)

Electronics Platform

- Stimulation Rate – up to 32,000 pulses per second
- Asynchronous Stimulation resolution – 0.2µsec*
- Stimulation modes – BP+n, MPI, MP2, MP(1+2), CG, MP(1+2), double electrode mode, ECE1 - ECE2, ECE to common ICE*
- Diagnostics – Intra-operative NRT
- Custom Sound fitting options – Manual, Electrophysiology
- Electrophysiology Telemetry Modes – NRT, AutoNRT, ESRT, ABR, CEP
- Stimulation Strategies – ACE, CIS or SPEAK
- Speech processor compatibility – Nucleus Freedom speech processor

Implant Package

- Case – 20.3x19.3x6.9mm – 2.3mm bone bed (typical)
- Coil – 30.9mm diameter x 3.6mm thick (typical)
- Weight 9.5g (including electrode)
- Magnet removable for MRI
- MRI safe– 1.5T with magnet removed

Surgical

- 2.3mm bone bed depth (typical)
- 16mm bone bed diameter

Electrode CI24RE (CA): Contour Advance electrode version

- Perimodiolar electrode – designed for AOS Insertion Technique
- 22 active platinum electrodes, silicone carrier, 15mm active length
- Diameter – 0.8mm at basal end – tapering to 0.5mm at apical end – tip of Softip 0.2mm diameter
- Two coactively coupled extracochlear electrodes – platinum ball electrode and platinum plate on receiver/stimulator

Electrode CI24RE (ST): Straight electrode version

- 32 platinum rings (22 active electrodes and 10 inactive stiffening rings), silicone carrier, 17mm active length
- Diameter – 0.6mm at basal end – tapering to 0.4mm at apical end
- Two extracochlear electrodes – platinum ball electrode and platinum plate on receiver/stimulator

* feature not yet available