




# COCHLEAR IMPLANT COMPARISON CHART

**DISCLAIMER:** FTC provisions ([16 CFR Part 255](#)) regulate product endorsements, testimonials, and blogs, specifically in the [Revised Endorsement Guides](#). This chart has been created and maintained by Tom Hannon, a bilateral Advanced Bionics recipient, and Howard Samuels, a bilateral Advanced Bionics recipient and a volunteer Bionic Ear Association (BEA) mentor; both are equally responsible for the concept, format, research, writing and editing, and neither are employed by a cochlear implant manufacturer. Information provided in this chart may vary on market location; more current information may be available from the manufacturer. Any errors or omissions are our own; [contact us](#) with any corrections. Please feel free to print or distribute this chart; the latest version will always be available at: [CochlearImplantHELP.com](#) Please note that this chart is for side-by-side feature reference only; please refer all technical discussion to your implant team.

	ADVANCED BIONICS	COCHLEAR	MED-EL	COMMENTS
	 Advanced Bionics	 Cochlear™ Cochlear Limited <sup>1</sup>	 MED-EL	
<b>CORPORATE OWNERSHIP</b>	Owned by: <a href="#">Sonova Holding AG</a> <sup>2</sup> Traded as: PHBN:GR SONVF:US SOON1:EB SOON:BQ SOON:TQ SONVY:US	Owned by: <a href="#">Cochlear Limited</a> Traded as: COH:AU CHEOF:US OC5:GR CHEOY:US	Founded & privately owned by: <a href="#">Prof. Erwin Hochmair</a> + <a href="#">Dr. Ingeborg Hochmair</a>	
<b>ESTABLISHED, LOCATION</b>	AB: 1993 California, USA Sonova: 1947 Switzerland	1981 Australia	1990 Austria	Date the implant manufacturing company was formed.
<b>US PATENTS</b> <small>(AS OF 13-OCT-23)</small>	1089	1234	547	USA patents only to avoid global duplications: <a href="#">US Patent Office</a> or <a href="#">Quick Search</a> by "Assignee Name" <a href="#">Google Patent Search</a>
<b>ESTIMATED GLOBAL MARKET SHARE</b>	20% <sup>3</sup>	50% <sup>3</sup>	25% <sup>3</sup>	Remaining 5% includes Oticon (Neurelec now owned by Cochlear) & Nurotron. Market share percentages constantly change, and those stated are from " <a href="#">Celebrating the one millionth cochlear implant</a> " by Fan-Gang Zeng, published Online 28 July <sup>3</sup>
<b>CURRENT IMPLANT</b>	HiRes Ultra 3D <sup>4</sup> HiRes Ultra HiRes 90K Advantage	CI632 Slim Modiolar CI622 Slim Straight CI612 Contour Advance CI532 Slim Modiolar CI512 Contour Advance CI522 Slim Straight CI422 Slim Straight CI24RE Contour Advance (CA) or Full-Band Straight (ST) <sup>5</sup>	SYNCHRONY 2 SYNCHRONY CONCERT SONATA	Latest implant system from each manufacturer may not be available in all markets.
<b>MAXIMUM STIMULATION RATE</b>	83,000 PPS	32,000 PPS	51,000 PPS	PPS rate is number of updates per second the implant is capable of.

<sup>1</sup> Cochlear images provided courtesy of Cochlear™ Americas, © 2009 Cochlear Americas

<sup>2</sup> Sonova Holding AG also owns [Phonak](#).

<sup>3</sup> [Celebrating the one millionth cochlear implant](#)

<sup>4</sup> Only implant available to the USA market.

<sup>5</sup> A combined cochlear implant & hearing aid (CI/HA) system uses the same implant electronics as a conventional cochlear implant. Cochlear's L24 implant is the CI24 implant with a shortened electrode array.

	ADVANCED BIONICS	COCHLEAR	MED-EL	COMMENTS
<b>CHANNELS</b>	16 120 Virtual	22	12	<a href="#">Discussion on Electrodes &amp; Channels.</a>
<b>ELECTRODES</b>	16	22	Up to 24	Electrical contacts between the implant and the cochlea.
<b>ELECTRODE DRIVERS</b>	16	1	12	Each electrode driver contains a positive and negative current source.
<b>MAXIMUM SIMULTANEOUS ELECTRODE DRIVERS</b>	4 / 16 <sup>6</sup> Current Software/Hardware Capability	1 / 1 Current Software/Hardware Capability	2 / 12 <sup>7</sup> Current Software/Hardware Capability	
<b>RF CARRIER &amp; DATA RATE</b>	49 MHz, 1Mb sec <sup>8</sup>	5 MHz, 0.5Mb sec <sup>8</sup>	12 MHz, 0.6Mb sec <sup>8</sup>	Sound processor communication frequency & data rate.
<b>ELECTRODE ARRAY</b>	HiFocus Mid-Scala HiFocus SlimJ HiFocus 1J <sup>9</sup>	CI632/622 Slim Modiolar/Straight <sup>10</sup> CI612 Contour Advance CI532 Slim Modiolar CI512 Contour Advance CI522 Slim Straight CI422 Slim Straight CI24RE Contour Advance (CA) or Full-Band Straight (ST)	FLEX Series FORM Series CLASSIC Series	Multiple array types provide options for unusual physiologies.
<b>ACTIVE LENGTH OF ELECTRODE ARRAYS</b>	HiFocus Mid-Scala: 15.0 SlimJ: 20.0 1J: 17.0	CI632/622: 14.0/19.1 CI612: 14.25 CI532: 14.0 CI512: 14.25 CI522: 19.1 CI422: 20.0 CI24RE (CA): 15.0 CI24RE (ST): 16.4	FLEX Series FLEXSOFT: 26.4 FLEX28: 23.1 FLEX26: 20.9 FLEX24: 20.9 FLEX20: 15.4 FORM Series FORM24: 18.7 FORM19: 14.3 CLASSIC Series STANDARD: 26.4 MEDIUM: 20.9 COMPRESSED: 12.1	Measurements in millimeters (mm) & are total length of active arrays.
<b>IMPLANT HOUSING &amp; COIL DIMENSIONS (WITHOUT ARRAY)</b>	HiRes Ultra 3D: 56.2 x 28.5 x 4.5 HiRes Ultra: 56.2 x 28.5 x 4.5 Advantage: 56.0 x 28.0 x 5.5	CI632/622/612: 55.0 x 31.0 x 3.9 CI532: 55.0 x 31.0 x 3.9 CI512/CI522: 55.0 x 23.0 x 3.9 CI422: 51.1 x 19.3 x 6.9 CI24RE (CA): 51.2 x 19.3 x 6.9 CI24RE (ST): 51.2 x 19.3 x 6.9	SYNCHRONY 2: 47.3 x 24.0 x 4.5 SYNCHRONY: 45.7 x 25.4 x 4.5 CONCERT: 45.7 x 25.4 x 4.5 SONATA: 45.7 x 24.8 x 5.9	Length (L) x Width (W) x Depth (D) Measurements in millimeters (mm) at the thickest.

<sup>6</sup> Simultaneous stimulation to create virtual electrodes.

<sup>7</sup> Simultaneous stimulation of lowest channels for timing information.

<sup>8</sup> Zeng FG, Rebscher S, Harrison W, Sun X, Feng H., " [Cochlear Implants: System Design, Integration, and Evaluation](#)" Page 63 Table II

<sup>9</sup> Only available in markets that offer the HiRes 90K Advantage, not available in USA market.

<sup>10</sup> Cochlear CI632 Profile Plus available with Slim Modiolar electrode array

	ADVANCED BIONICS	COCHLEAR	MED-EL	COMMENTS	
<b>BONE RECESS DEPTH</b>	HiRes Ultra 3D: 0.5-1.0 <sup>11</sup> HiRes Ultra: 0.5-1.0 <sup>12</sup> Advantage: 3.0	CI632/622/612: 2.2 CI532: 2.2 CI512/CI522: 2.2 CI422: 2.3 CI24RE (CA): 2.3 CI24RE (ST): 2.3	SYNCHRONY 2: 2.0 Maximum <sup>13</sup> SYNCHRONY: 2.0 Maximum <sup>14</sup> CONCERT: 2.0 Maximum <sup>14</sup> SONATA: 2.0 Maximum	<p>Bone recess measurements in millimeters (mm), according to manufacturer recommendations.</p> <p>Elevation from bone referred to as "bump height."</p> <p>See American Academy of Audiology "To Drill or not to Drill a Well for the Cochlear Implant's Internal Device?"</p> <p>Implant migration may occur if manufacturer's surgical instructions are not followed. Always consult with your implant center regarding implant anchoring questions.</p>	
<b>ELEVATION FROM BONE WITH RECESS WELL</b>	HiRes Ultra 3D: 3.5-4.0 HiRes Ultra: 3.5-4.0 Advantage: 2.5	CI632/622/612: 1.7 CI532: 1.7 CI512/CI522: 1.7 CI422: 4.6 CI24RE (CA): 4.6 CI24RE (ST): 4.6	SYNCHRONY 2: 2.5 SYNCHRONY: 2.5 CONCERT: 2.5 SONATA: 3.9		
<b>ELEVATION FROM BONE WITHOUT RECESS WELL</b>	HiRes Ultra 3D: 4.5 HiRes Ultra: 4.5 Advantage: 5.5	CI632/622/612: 3.9 CI532: 3.9 CI512/CI522: 3.9 CI422: 6.9 CI24RE (CA): 6.9 CI24RE (ST): 6.9	SYNCHRONY 2: 4.5 SYNCHRONY: 4.5 CONCERT: 4.5 SONATA: 5.9		
<b>IMPLANT WEIGHT</b>	HiRes Ultra 3D: 11.0 HiRes Ultra: 10.0 Advantage: 12.0	CI632/622/612: 9.2 CI532: 8.6 CI512/CI522: 8.6 CI422: 9.5 CI24RE (CA): 9.5 CI24RE (ST): 9.5	SYNCHRONY 2: 7.6 SYNCHRONY: 7.6 CONCERT: 7.6 SONATA: 8.6		<p>Weight in grams (g).</p> <p>Casings on all current implants are titanium.</p>
<b>IMPACT RESISTANCE</b>	HiRes Ultra 3D: 2.5 Joules <sup>15</sup> HiRes Ultra: 2.5 Joules <sup>15</sup> Advantage: 6.0 Joules	CI632/622/612: 2.5 Joules CI532: 2.5 Joules CI512/CI522: 2.5 Joules CI422: 2.5 Joules CI24RE (CA): 1.0 Joules CI24RE (ST): 1.0 Joules	SYNCHRONY 2: 2.5 Joules SYNCHRONY: 2.5 Joules CONCERT: 2.5 Joules SONATA: 2.5 Joules		Damage resistance from accidental impact.

<sup>11</sup> TUV approved with 0.5mm non-sutured ramp; FDA approved with 1.0mm sutured ramp.

<sup>12</sup> Minimum established guideline suggests that a 0.5mm -1.0mm recess ramp with suture tie-down holes be created for stability.

<sup>13</sup> Two 1.0mm fixation pins recessed to a depth of 1.5mm. MED-EL also offers a Fixation Clip to secure the electrode lead.

<sup>14</sup> Available without or with fixation pins requiring two 1.0mm x 1.4mm recesses.

<sup>15</sup> Impact Resistance Value Exceeds the impact requirements specified in EN 45502-2-3:2010, which is 2.5 Joules.

	ADVANCED BIONICS	COCHLEAR	MED-EL	COMMENTS
REMOVABLE MAGNET	HiRes Ultra 3D: Yes HiRes Ultra: Yes Advantage: Yes	CI632/622/612: Yes CI532: Yes CI512/CI522: Yes CI422: Yes CI24RE (CA): Yes CI24RE (ST): Yes	SYNCHRONY 2: Yes SYNCHRONY: Yes CONCERT: No SONATA: No	MRI magnet safety varies by regulatory approval; an MRI may be available with a special compression bandage in some markets.  All implants undergoing an MRI can produce <b>significant artifact</b> and/or other <b>adverse events</b> , such as <b>magnet dislocation</b> and/or <b>depolarization</b> , either of which may require surgical intervention.  <b>MRI Safety</b> website: <a href="#">Cochlear Implant Safety</a> <a href="#">Cochlear Implant List</a>
MRI	HiRes Ultra 3D: 1.5 & 3.0 Tesla <sup>16</sup> HiRes Ultra: Up to 1.5 Tesla <sup>17</sup> Advantage: Up to 1.5 Tesla	CI632/622/612: Up to 3.0 Tesla <sup>18</sup> CI532: Up to 3.0 Tesla <sup>19</sup> CI512/CI522: Up to 3.0 Tesla <sup>19</sup> CI422: Up to 3.0 Tesla <sup>19</sup> CI24RE (CA): Up to 3.0 Tesla <sup>19</sup> CI24RE (ST): Up to 1.5 Tesla <sup>19</sup>	SYNCHRONY 2: 1.5 & 3.0 Tesla <sup>20</sup> SYNCHRONY: 1.5 & 3.0 Tesla <sup>20</sup> CONCERT: 1.5 Tesla SONATA: 1.5 Tesla	<b>MRI's in the immediate vicinity of the implant require magnet removal. Magnet removal should always be coordinated with the implant center &amp; implant manufacturer.</b>
WARRANTY	10 years	10 years	10 years <sup>21</sup>	
COUNTRY OF MANUFACTURE	United States	Australia	Austria	
CURRENT RELIABILITY	June 2023 Reliability Report	December 2022 Reliability Report	April 2023 Reliability Report	All manufacturers claim top reliability. Search the <a href="#">FDA database</a> ; Product Code: MCM <a href="#">Reliability overview</a> .

<sup>16</sup> MRI with magnet for 1.5T & 3.0T scans without head bandaging. Design provides alignment with external magnetic field in any direction without discomfort. [Advanced Bionics information](#).










<sup>17</sup> MRI without removing the magnet is not regulatory approved in all global markets. Use Advanced Bionics' [MRI Safety Information](#) to receive the regionally appropriate MRI Safety Information.

<sup>18</sup> MRI with magnet in place may not be regulatory approved in all global markets. Cochlear's implants are [FDA approved](#) without removing the magnet up to stated field strength. [Cochlear MRI guidelines](#).

<sup>19</sup> MRI for 1.5T & 3.0T must have the magnet removed in the USA market, may not require removal in other global markets. [Cochlear MRI guidelines](#).

<sup>20</sup> MED-EL SYNCHRONY is [FDA approved](#) without removing the magnet for 1.5T and 3.0T. CONCERT and SONATA are FDA approved without removing the magnet for 1.5T. [MED-EL & MRI compatibility](#).

<sup>21</sup> Lifetime warranty against damage incurred during an MRI for implants manufactured since 1994.

	ADVANCED BIONICS	COCHLEAR	MED-EL	COMMENTS
<p><b>CURRENT SOUND PROCESSOR</b></p> <p>IMAGES NOT TO SCALE</p>	<p>Naída Marvel CI M90 Adult User <a href="#">User Guide</a></p> 	<p>Nucleus® 8 CP1110 <a href="#">User Guide</a></p> 	<p>SONNET 2 <a href="#">User Manual</a></p> 	<p>Latest sound processor from each manufacturer may not be available in all markets; previous generation sound processor may still be available.</p> <p>User guides/manuals linked within this chart may not be the manufacturer's latest edition.</p> <p>Advanced Bionics C1 recipients can now replace previous generation sound processors with the <a href="#">Chorus</a>.</p>
<p><b>CURRENT SOUND PROCESSOR</b></p> <p>IMAGES NOT TO SCALE</p>	<p>Naída Sky CI M90 Pediatric User <a href="#">User Guide</a></p> 	<p>Kanso 2 CP1150 <a href="#">User Guide</a></p> 	<p>RONDO 3 <a href="#">User Manual</a></p> 	<p>Each manufacturer offers multiple wearing options.</p>
<p><b>REMOTE CONTROL</b></p> <p>IMAGES NOT TO SCALE</p>	<p>Phonak Remote Control <a href="#">User Guide</a></p> 	<p>Nucleus® 7 CR310 <a href="#">User Guide</a></p> 	<p>FineTuner Echo <a href="#">User Guide</a></p> 	<p><a href="#">Remote control discussion.</a></p>
<p><b>PROCESSOR DIMENSIONS WITH BATTERIES</b></p> <p>AS INDICATED IN MANUFACTURER'S LITERATURE</p>	<p>Naída Marvel/Sky CI M90 with</p> <p>Small M: 50.1 x 29.2 x 9.2 Medium M: 56.8 x 29.2 x 9.2 Large M: 65.2 x 31.0 x 9.2 Standard M: 55.3 x 29.2 x 9.2 M Waterproof: 46.7 x 50.5 x 22.3 M Zn-Air Pak: 54.6 x 29.2 x 9.2</p>	<p>Nucleus 8 CP1110 with</p> <p>Compact: 34.5 x 41.3 x 8.9 Extended: 43.4 x 41.3 x 8.9 Zinc-air: 47.5 x 41.0 x 8.9 Kanso 2: 38.0 x 34.0 x 12.5</p>	<p>SONNET 2 with</p> <p>Micro: 51.4 x 9.3 x 37.4 Standard: 56.7 x 9.3 x 37.4 RONDO 3: 44.9 x 35.7 x 11.9</p>	<p>Dimensions in millimeters Height (H) x Width (W) x Depth (D)</p> <p>Naída depth dimensions are without an ear-hook or T-Mic 2.</p> <p>Neptune dimensions with water-proof configuration.</p> <p>Nucleus 8 are with a medium earhook.</p>

	ADVANCED BIONICS	COCHLEAR	MED-EL	COMMENTS
<b>PROCESSOR WEIGHT WITH BATTERIES</b>	Naída Marvel/Sky CI M90 with Small M: 9.2 Medium M: 11.0 Large M: 13.0 Standard M: 10.0 M Waterproof: 34.0 M Zinc-Air: 11.0	Nucleus 8 CP1110 with Compact: 6.9 Extended: 9.4 Zinc-air: 9.9 Kanso 2 with Internal battery & smallest magnet: 14.2	SONNET 2 with ActiveWear: 6.1 Micro: 8.1 Zinc-air: 10.6 RONDO 3 14.7-18.26 with Mini Cover & M1-M5 magnets 15.9-19.47 with Standard Cover & M1-M5 magnets	Weights are in grams. Weights of battery packs include batteries.
<b>IP RATING (WATER &amp; DUST RESISTANT)</b>	IP54: Naída Marvel/Sky CI M90 with an M battery. IP68: Naída Marvel/Sky CI M90 inside the M Waterproof battery.	IP54: Nucleus 8 processor with disposable battery module. IP68: Nucleus 8 with Aqua+ coil & rechargeable batteries. IP68: Kanso 2 IP68: Kanso 2 Aqua+	IP54: SONNET 2 with standard rechargeable battery. IP68: SONNET 2 with <a href="#">WaterWear Accessory</a> using standard rechargeable battery or replacing zinc-air batteries with Alkaline or Silver Oxide Batteries. <sup>22</sup> IP 68: RONDO 3 up to a maximum depth of 1 meter for 60 minutes. IP 68: RONDO 3 with <a href="#">WaterWear Accessory</a> up to 4 meters deep for 2 hours.	
<b>MICROPHONE PLACEMENT</b>	Naída Marvel/Sky CI M90: M T-Mic at ear canal entrance, dual omni-directional on top, single omni-directional in headpiece, except Slim HP.	Nucleus 8 CP1110: Dual omnidirectional on top. Kanso 2: Dual omnidirectional	SONNET 2: Dual omnidirectional on top. RONDO 3: Dual omnidirectional	Microphone placement, whether on the sound processor or on the headpiece or on an auxiliary device (T-Mic at the ear canal) is for <a href="#">better hearing in noise</a> , and for natural telephone & headphone use.
<b>INPUT DYNAMIC RANGE (IDR)</b>	Up to 80dB	Up to 45dB <sup>23</sup>	75dB	<a href="#">IDR discussion.</a>
<b>PROGRAM SLOTS</b>	Naída Marvel/Sky CI M90: 5	Nucleus 8: 4 Kanso 2: 4	SONNET 2: 4 RONDO 3: 4	Each manufacturer has their own sound processing strategy or OS (operating system) unique to their sound processor.

<sup>22</sup> Pending regulatory approval in some markets; may not be available in all markets. WaterWear Accessory cannot be used with Zinc-Air batteries.

<sup>23</sup> (IIDR) Instantaneous Input Dynamic Range - the IDR at any given moment within a total available range of 75dB.

	ADVANCED BIONICS	COCHLEAR	MED-EL	COMMENTS
<b>EAS (HYBRID) SOUND PROCESSING</b>	Naída Marvel/Sky CI M90: Yes	Nucleus 8: Yes Kanso 2: No	SONNET 2: Yes RONDO 3: No	Processor includes hearing aid functionality to use with preserved residual hearing. <a href="#">Information here.</a> Advanced Bionics and MED-EL refer to a combined CI/HA as "Electro-Acoustic Stimulation (EAS)" and Cochlear refers to a combined CI/HA as a "Hybrid."
<b>USER CONTROLS</b>	Naída Marvel/Sky CI M90: Button Functions for program changing, volume levels & answer/hang up calls; all functions are available on the "AB Remote" app plus checking battery levels, setting surround mix, change programs & check the processor status by playing a beep or LED blink. Bi-lateral recipients can use the AB Remote app to control both processors.	Nucleus 8: Button functions for on/off, program changing, microphone sensitivity, telecoil on/off & no volume control; Bilateral recipients can use Remote Assistant or Remote Control to adjust both processors. <sup>24</sup> Kanso 2: Tap processor for on/off, program changing and other functions only available using Smart Phone Remote Assistant app or Remote Control.	SONNET 2: Battery pack lock controls on/off, all other functions available on the FineTuner Echo. Bilateral recipients can use one FineTuner Echo to adjust both processors. (DATA PENDING) RONDO 3: On/off push button. All functions on the FineTuner Echo. Bilateral recipients can use one Fine-Tuner Echo to adjust both processors.	User controls are clinician enabled.
<b>SOUND PROCESSOR TO IMPLANT REGISTRATION</b>	Naída Marvel/Sky CI M90: Yes	Nucleus 8: Yes Kanso 2: Yes	SONNET 2: Yes RONDO 3: Yes	Capability preventing a sound processor from functioning with an uncomfortable or painful stimulation when use is attempted on a different recipient or contralateral implant for bilateral recipients.
<b>ALERTS VISUAL LED</b>	Naída Marvel/Sky CI M90: Yes	Nucleus 8: Yes Kanso 2: Yes	SONNET 2: Yes RONDO 3: Yes	Programmable visual status alerts can warn caregivers, such as parents, caregivers or teachers, of functions and/or problems.
<b>ALERTS PRIVATE AUDIBLE</b>	Naída Marvel/Sky CI M90: Yes	Nucleus 8: Yes Kanso 2: Yes	SONNET 2: Yes RONDO 3: Yes	Programmable audible status alerts can warn the user of functions and/or problems.
<b>BATTERY LIFE RECHARGABLE</b> <small>MANUFACTURER CLAIMS OF MAXIMUM OPERATING TIME</small>	Naída Marvel/Sky CI M90 Small M: 9 hours Medium M: 16 hours Large M: 16 hours Standard M: 16 hours Waterproof M: 18 hours	Nucleus 8 Compact: 17 hours Extended: 34 hours Kanso 2: Built-In Li-ion: Up to 18 hours	SONNET 2 Micro: 7 hours Standard: 10 hours RONDO 3 Li-ion: Up to 24 hours	Programming algorithms trade battery life for hearing performance. For BTE processors each manufacturer may have off the ear battery options.
<b>BATTERY LIFE DISPOSABLE</b> <small>MANUFACTURER CLAIMS OF MAXIMUM OPERATING TIME</small>	Naída Marvel/Sky CI M90 M Zn-Air: 16 hours	Nucleus 8 Zinc-air: 60 hours Kanso 2 N/A	SONNET 2 Zinc-air: 60 hours RONDO 3 N/A	Zinc-air batteries (675) are disposable; others are rechargeable that may require use of an attachable battery pack.

<sup>24</sup> Pending verification.

	ADVANCED BIONICS	COCHLEAR	MED-EL	COMMENTS
GLOBAL WARRANTY	Naída Marvel/Sky CI M90 Processor: 3 years UHP, T-Mic & Cables: 3 years Global Warranty TBD	Nucleus 8: 3 years Coil & Cables: 3 years Kanso 2: Not specified. Global Warranty (not published)	SONNET 2: 3 years <sup>25</sup> Coil & Cables: 3 years RONDO 3: 3 years <sup>25</sup> Global Warranty (not published)	Warranty period may start on day of initial activation, varies by country.  Manufacturers may offer a one-time replacement for loss or accidental damage during the initial warranty period, depending on market.
USA\CANADA WARRANTY	Naída Marvel/Sky CI M90 Processor: 5 years <sup>26</sup> UHP, T-Mic & Cables: 5 years Battery Charger: 5 years USA Warranty	Nucleus 8: 5 years <sup>27</sup> Coil & Cables: 5 years Kanso 2: 5 years <sup>29</sup> USA Warranty	SONNET 2: 5 years <sup>28</sup> RONDO 3: 5 years USA Warranty	In USA, when the manufacturer warranty expires repair or replacement may be covered by insurance.  Always check with your implant clinic & manufacturer for specific warranty information.
AUXILIARY (DIRECT) INPUT	Naída Marvel/Sky CI M90: Yes <sup>29</sup> with Phonak TV Connector.	Nucleus 8: Yes, <sup>30</sup> with the Wireless Mini Mic 2+ & the Wireless TV Streamer Kanso 2: Yes, <sup>31</sup> with the Wireless Mini Mic 2+ & the Wireless TV Streamer	SONNET 2: Yes, with Integrated 2.4 GHz module RONDO 3: Yes, with Mini Battery Pack using Euro Audio adapter & via accessory socket on bottom of Mini Battery Pack	Auxiliary or direct input is used to connect to audio sources with wires; wireless capabilities eliminate the need for wires.  Bilateral recipients may be able to listen in stereo.
TELECOIL	Naída Marvel/Sky CI M90: Yes	Nucleus 8: Yes, <sup>32</sup> Mini Mic 2+ & the Wireless TV Streamer Kanso 2: Yes, with Wireless Mini Mic 2+	SONNET 2: Yes RONDO 3: Yes	Telecoil provides wireless (magnetic induction) access to hearing aid compatible telephones, and induction loop systems in many public & private buildings or areas.
FM	Naída Marvel/Sky CI M90: Yes, With compatible with Roger iN microphone and Phonak TV connector directly, without receiver or adapter.	Nucleus 8: Yes, with Roger 20 (Phonak) receiver Kanso 2: Yes, with Wireless Mini Mic 2+	SONNET 2: Yes, with via FM Battery Pack Cover or with Roger 21 (Phonak) receiver RONDO 3: Yes, with Mini Battery Pack using Euro Audio adapter.	FM is a wireless analog or digital transmission from a micro-phone or other transmitter either directly to the processor or gateway device.
WIRELESS STREAMING	Naída Marvel/Sky CI M90: Yes, <sup>32</sup> Full Bluetooth compatibility, including headset and mic functionality, also compatible with streaming accessories.	Nucleus 8: Yes, <sup>33</sup> One-way streaming from device to processor (no microphone functionality) with MFi iPhones and select Android phones, also compatible with streaming accessories. Kanso 2: Yes, One-way streaming from device to processor (no microphone functionality) with MFi iPhones and select Android phones, also compatible with streaming accessories.	SONNET 2: Yes, One-way streaming from device to processor (no microphone functionality), streaming accessories required. RONDO 3: Yes, using the AudioLink device.	

<sup>25</sup> Global market variable.

<sup>26</sup> USA & Canada only; Naída & Neptune sound processors are 5 years as part of an initial "implant kit" and are 3 years as part of any "upgrade kit," other parts & accessories are 1 year.

<sup>27</sup> Nucleus 8 and Kanso 2 sound processor parts and accessories are 5 years for new systems, and have a three (3) year warranty when purchased as part of an upgrade.

<sup>28</sup> SONNET 2 and RONDO 3 sound processor systems are 5 years as part of a new implant system, and 3 years when part of an "upgrade."

<sup>29</sup> Naída Marvel/Sky CI M90 sound processor is Bluetooth 4.2 certified.

<sup>30</sup> Wireless Mini Microphone 2+ may transmit a mono signal, and the Wireless TV Streamer transmits a stereo signal.

<sup>31</sup> The Nucleus & Kanso sound processors have several wireless options.

<sup>32</sup> Hands-free without the use of an external adapter; full Bluetooth compatibility enables complete headset operation with any Bluetooth device, such as a phone, computer, tablet, etc.

<sup>33</sup> Nucleus 8 has the capability to receive Auracast Bluetooth LE broadcasts, but is not currently enabled.



	ADVANCED BIONICS	COCHLEAR	MED-EL	COMMENTS
<b>WIRELESS BILATERAL CONTROLS</b>	Naída Marvel/Sky CI M90: Yes	Nucleus 8: Yes Kanso 2: No	SONNET 2: No RONDO 3: No	Bilateral recipients can control both processors from either processor.
<b>WIRELESS CONTRALATERAL STREAMING</b>	Naída Marvel/Sky CI M90: Yes	Nucleus 8: No Kanso 2: No	SONNET 2: No RONDO 3: No	Sound processor and compatible hearing aid communicate wirelessly for audio streaming, useful for telephone calls and situations where the desired sound is on one side, e.g. in a car.
<b>WIRELESS BIMODAL STREAMING</b>	Naída Marvel/Sky CI M90: Yes, with compatible Phonak hearing aid	Nucleus 8: Yes, with ASHA (Audio Streaming for Hearing Aid) protocol Kanso 2: Yes	SONNET 2: Yes, using telecoil RONDO 3: Yes, using telecoil	Stream sounds from an external device to a cochlear implant processor and a compatible hearing aid at the same time.
<b>BIMODAL FEATURES</b>	Naída Marvel/Sky CI M90: With a Phonak hearing aid ability to connect directly to any Bluetooth-enabled device, synchronizing sound processing, hands-free calling, multi-function button synchs both, control each with one app, & stream audio to both.	Nucleus 8: Compatibility check by clinician to enable streaming to Android or Apple device Kanso 2: N/A	SONNET 2: Not designed to link to any specific brand of hearing aid. RONDO 3: N/A	
<b>SMART PHONE CONTROL</b>	Naída Marvel/Sky CI M90: Yes	Nucleus 8: Yes <sup>34</sup> Kanso 2: Yes	SONNET 2: Yes <sup>35</sup> RONDO 3: Yes	Connect to a smart phone, either IOS or Android, to control volume, program selection or mic sensitivity using an app (application).
<b>INTEGRATED BIMODAL FUNCTIONALITY</b>	Naída Marvel/Sky CI M90: Yes, with compatible Phonak hearing aid	Nucleus 8: No Kanso 2: No	SONNET 2: No RONDO 3: No	Sound processor and compatible hearing aid communicate wirelessly for audio streaming, sound processing algorithms, unified controls such as program and volume switching.
<b>LOCATE SOUND PROCESSOR</b>	Naída Marvel/Sky CI M90: No	Nucleus 8: Yes Kanso 2: Yes	SONNET 2: Yes RONDO 3: Yes	Ability to locate lost/hidden sound processor using smartphone app (application).
<b>DATA LOGGING</b>	Naída Marvel/Sky CI M90: Yes	Nucleus 8: Yes Kanso 2: Yes	SONNET 2: Yes RONDO 3: Yes	Data logging enables the clinician to review an implant recipient's program use and listening environment to assist in optimizing programming.
<b>WIRELESS PROGRAMMING</b>	Naída Marvel/Sky CI M90: Yes	Nucleus 8: Yes <sup>36</sup> Kanso 2: Yes <sup>36</sup>	SONNET 2: No RONDO 3: No	Audiologist having a wireless connection to the sound processor for programming.

<sup>34</sup> The Nucleus Smart App provides direct streaming and user controls from any compatible [Apple device](#) or [Android device](#).

<sup>35</sup> The AudioKey app provides direct streaming and user controls from any compatible [Apple device](#) or [Android device](#).

<sup>36</sup> Requires a wireless programming pod attached to the sound processor for clinician use.

	ADVANCED BIONICS	COCHLEAR	MED-EL	COMMENTS
CLINIC FINDER	Advanced Bionics Clinic Finder	Cochlear Clinic Finder	MED-EL Clinic Finder	Contact clinic to verify that they offer the implant of your choice.
MANUFACTURER SPONSORED REHABILITATION	Rehab Portal Choice of language: English, Nederlands, Français, Deutsch, Dansk, Italiano, Español	Rehabilitation resources	Rehabilitation resources Resources Downloads	Rehabilitation is critical for cochlear implant success. <a href="#">Spreadsheet</a> of rehabilitation apps created and maintained by Tina Childress, AuD.
MANUFACTURER FORUMS	The Hearing Journey Forum USA/CAN, Deutsch, Spain, Bahasa Indonesia	Cochlear Community & Networks	Hear Peers	By joining an online forum recipients & implant candidates can learn about cochlear implants from people who use them daily.
MANUFACTURER FACEBOOK PRESENCE	English (International)	English (USA & Canada) English (EU, ME & Africa)	English (USA) English (International) German (Germany) Spanish (Spain) Italian (Italy)	Manufacturer Facebook pages are where manufacturers members share & exchange information.
MANUFACTURER SPONSORED SUPPORT	Advanced Bionics Community Connect with an AB Mentor	Cochlear country website Cochlear offers support through offices around the world.	MED-EL Community MED-EL Offices Worldwide	
MANUFACTURER SOCIAL MEDIA PRESENCE	YouTube Twitter LinkedIn Instagram Facebook	YouTube Twitter LinkedIn Pinterest Instagram Facebook	YouTube Twitter Blog Instagram Facebook	
VOLUNTEER PROGRAMS	AB Mentors	Connect with a Mentor Connect with a Peer	<a href="#">HearPeers</a>	Volunteer recipients are often matched with "candidates" who are seeking one-on-one support through in-person contact or by email.
RUMORS, COMING SOON & NEWS				Search the <a href="#">FDA Premarket Approval (PMA) database</a> (MCM code). Manufacturers invest heavily in R&D for better performing implants & smaller sound processors advancing technologies.

EDITOR'S NOTE: The cochlear implant manufacturers listed in this chart have major global market shares and are regulatory agency approved in several markets. However, there are other emerging cochlear implant manufacturers in limited markets that can also be considered by an implant candidate depending on county of residence. Listing the other manufacturers in this chart is not practical at this time. The date this chart was created (footer date) does not necessarily indicate that it is out-of-date, there are periods of time wherein the manufacturers do not release a new product to the marketplace. See most [current chart](#).

PREVIOUS COMPARISON CHARTS	Version 12.3a 10 Dec-22   Version 11.3b 1-Jun-21   Version 10.1e 26-Jan-20   Version 09.0a 1-Dec-19   Version 08.0b 7-Dec-18   Version 07.0d 29-Jul-18
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