

FLEX Portfolio
The Softest, Most Flexible
Electrode Arrays

Introducing FLEX²⁸



Especially developed for atraumatic surgery supporting stimulation of the entire length of the cochlea.



A FLEX Electrode for Every Cochlear Duct Length (CDL)

For a Variety of Cochlear Duct Lengths (CDLs)^{1,3}

Cochleae may differ significantly in size and shape from one another. Individual cochlear duct lengths (CDL) may vary over a very large range.

Refer to the graph at right.

FLEX Electrode Selection

From the FLEX electrode portfolio, surgeons can select the electrode array that optimally suits the individual anatomy of the patient.

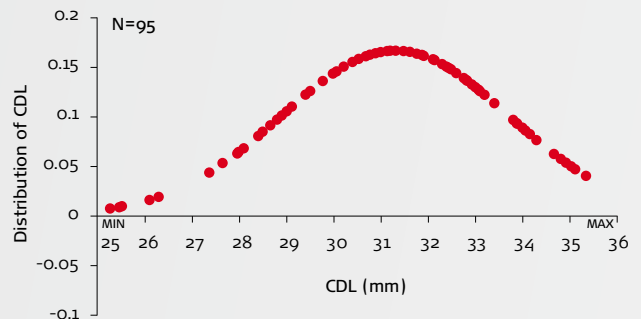
Refer to the graph at right.

Complete Cochlear Coverage (CCC)^{2,5}

Stimulating the entire cochlea from the base to the apex provides for best quality hearing.

CCC is achieved by inserting a particularly long electrode array to stimulate the entire cochlear extent.

Alternatively, in cases of partial deafness, CCC can be achieved by combined electric and acoustic stimulation which takes advantage of the patient's natural residual hearing. The range of active stimulation is crucial because it provides the implant recipient with a complete representation of sound in the broadest possible frequency range.



Estimated CDL (mm)	FLEX Electrode Type
< 24	FLEX ²⁰
< 28	FLEX ²⁴
< 32	FLEX ²⁸
≥ 32	FLEX ^{50FT}



“Straight, thin, and flexible free-fitting electrodes demonstrated to best fulfill all criteria for atraumatic CI surgery.”⁹

Ensuring a Hearing Future™

The New FLEX²⁸

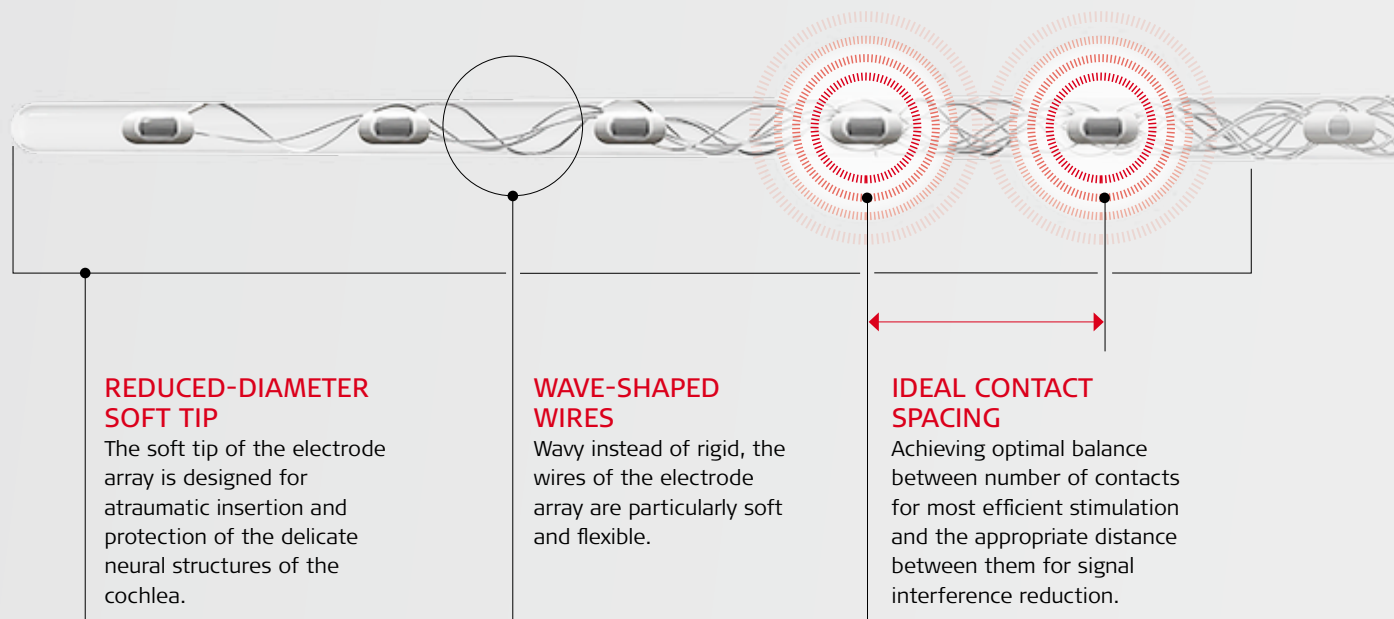
Designed for Atraumatic Implantation

Providing Superior Hearing Performance^{4,7,8}

The new FLEX²⁸ is the optimal electrode array for 96% of cochlear anatomic conditions.

Easy to insert with minimal drilling thanks to a small 0.5mm diameter at the tip and 0.8mm diameter at the basal end, the FLEX²⁸ is the ideal choice for cochlear insertion via cochleostomy or the round window.

The exceptionally long 23.1mm active stimulation range provides tonotopic coverage from the base to the apex for best quality hearing.



A Solution for Every Cochlear Anatomy

FLEX^{SOFT}

A 31mm electrode array for Complete Cochlear Coverage (CCC) providing stimulation of the entire available range of frequencies from the base to the apex. Designed for long cochlear ducts.



CDL \geq 32

NEW

FLEX²⁸

Features an electrode array length that is suitable for 96% of all normal cochlear duct lengths. FLEX²⁸ is designed for best possible hearing performance while protecting the delicate neural structures during insertion.



CDL $<$ 32

FLEX²⁴

A shorter electrode variant that may be suitable for candidates with partial deafness as well as special surgical needs or preferences. CCC can be achieved through combined electric and acoustic stimulation by making use of the recipient's natural residual hearing.



CDL $<$ 28

FLEX²⁴ is identical to the previously named FLEX^{EAS} electrode array.

FLEX²⁰

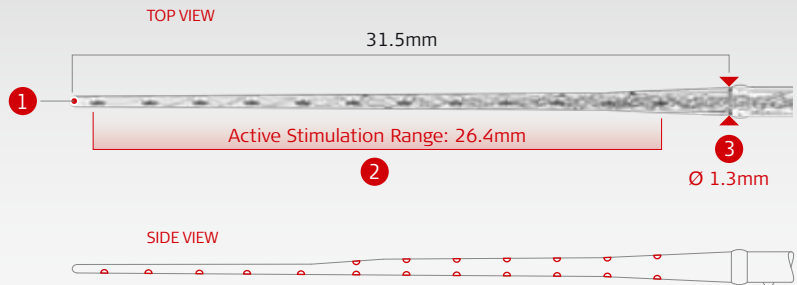
The shortest FLEX electrode array may be used in cases of partial deafness or for other specific needs or surgical preferences. CCC can be achieved through combined electric and acoustic stimulation by making use of the recipient's natural residual hearing.



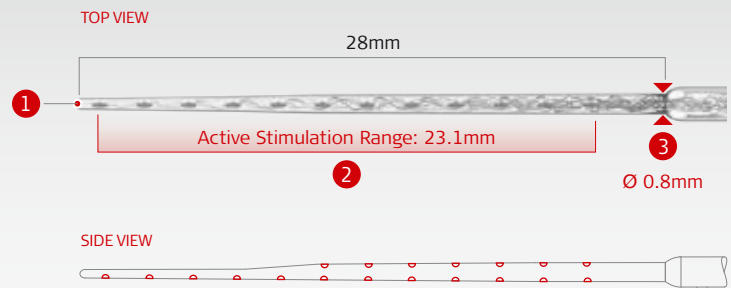
CDL $<$ 24

The FLEX²⁰ is under development.

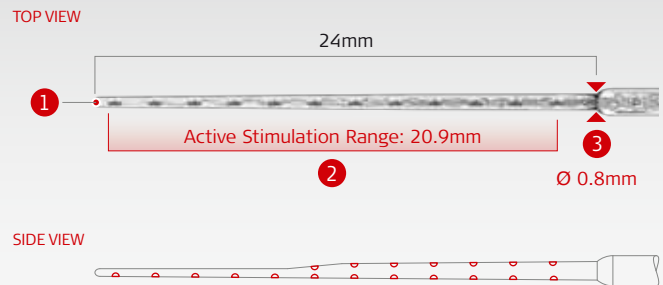
- 1 Soft tip for minimal insertion trauma
Diameter at apical end: 0.5 x 0.4mm
- 2 19 platinum electrode contacts
Optimal spacing over 26.4mm stimulation range
- 3 Diameter at basal end: 1.3mm



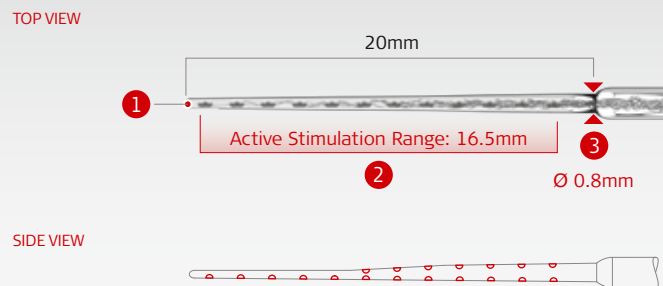
- 1 Soft tip for minimal insertion trauma
Diameter at apical end: 0.5 x 0.4mm
- 2 19 platinum electrode contacts
Optimal spacing over 23.1mm stimulation range
- 3 Diameter at basal end: 0.8mm



- 1 Soft tip for minimal insertion trauma
Diameter at apical end: 0.5 x 0.3mm
- 2 19 platinum electrode contacts
Optimal spacing over 20.9mm stimulation range
- 3 Diameter at basal end: 0.8mm



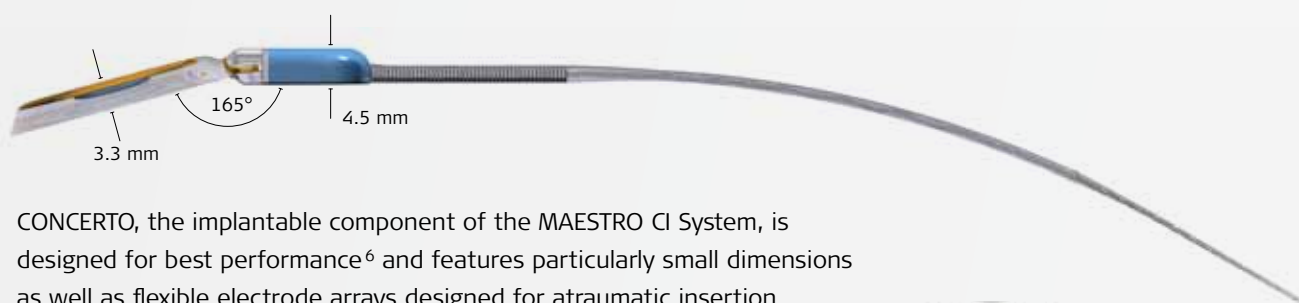
- 1 Soft tip for minimal insertion trauma
Diameter at apical end: 0.5 x 0.3mm
- 2 19 platinum electrode contacts
Optimal spacing over 16.5mm stimulation range
- 3 Diameter at basal end: 0.8mm



Facts at a Glance

	LENGTH OF ARRAY (mm)	ACTIVE STIMULATION RANGE (mm)	CONTACT SPACING (mm)	Ø AT MARKER (mm)	NO. OF CONTACTS
FLEX ^{SOFT}	31.5	26.4	2.4	1.3	19
FLEX ²⁸	28	23.1	2.1	0.8	19
FLEX ²⁴	24	20.9	1.9	0.8	19
FLEX ²⁰	20	16.5	1.5	0.8	19

CONCERTO Cochlear Implant



CONCERTO, the implantable component of the MAESTRO CI System, is designed for best performance⁶ and features particularly small dimensions as well as flexible electrode arrays designed for atraumatic insertion.

The MAESTRO CI System

- Performance
- Ease of use
- Reliability



1. The length of the organ of Corti in man, Hardy M, American Journal of Anatomy, 62(2), 1938, p. 179-311
2. Results of partial deafness cochlear implantation using various electrode designs, Skarzynski H;Lorens A;Piotrowska A;Podskarbi-Fayette R, Audiol Neurootol , 14 Suppl 1, 2009, p. 39-45
3. Depth of Electrode Insertion and Postoperative Performance in Humans with Cochlear Implants: A Histopathologic Study, Lee J;Nadol JB;Eddington DK, Audiol Neurootol , 15(5), 2010 Mar 4, p. 323-331
4. Partial Deafness Cochlear Implantation at the University of Kansas: Techniques and Outcomes, Prentiss S;Sykes K;Staecker H, J Am Acad Audiol, 21(3), 2010 Mar, p. 197-203
5. Electric Acoustic Stimulation in Children, Skarzynski H;Lorens A, Adv Otorhinolaryngol, 67, 2010, p. 135-143
6. Speech Perception with Cochlear Implants as Measured Using a Roving-Level Adaptive Test Method, Haumann S;Lenarz T;Buchner A, ORL J Otorhinolaryngol Relat Spec , 72(6), 2010 Sep 15, p. 312-318
7. Achievement of hearing preservation in the presence of an electrode covering the residual hearing region, Usami SI; Moteki H;Suzuki N;Fukuoka H;Miyagawa M;Nishio SY;Takumi Y; Iwasaki S;Jolly C, Acta Otolaryngol, 2011 Jan 5
8. Atraumatic round window deep insertion of cochlear electrodes, Skarzynski H;Lorens A;Zgoda M;Piotrowska A;Skarzynski, PH;Szkielkowska A, Acta Otolaryngol , 2011 Apr 15
9. Hearing Preservation After Complete Cochlear Coverage in Cochlear Implantation With the Free-Fitting FLEXSOFT Electrode Carrier, Helbig S;Baumann U;Hey C;Helbig M, Otol Neurotol, 2011 Jul 1