

PASSIVE MIDDLE EAR IMPLANTS

VENTILATION TUBES
SURGICAL INSTRUMENTS



MIDDLE EAR INTELLIGENCE

KURZ Middle Ear Prosthesis

WELL-ESTABLISHED KNOWLEDGE OF THE MIDDLE EAR

The aim of reconstructing the ossicular chain is to create the natural function as closely as possible and conduct the incoming acoustic signal to the inner ear with minimal loss. The complex mechanics of acoustic sound transmission places high demands on the development of implants and calls for well-established knowledge of the middle ear. Furthermore, prostheses must have properties that facilitate implantation for the surgeon and help to minimize risks.

SOLUTIONS FOR EVERY SITUATION

KURZ covers the entire range of implants required for tympanoplasty and stapes surgery. In addition, the product line is rounded off by precision otological instruments and ventilation tubes.

INNOVATIVE DESIGNS AND MATERIALS

Innovative KURZ product designs and materials have set new standards in middle ear prosthetics throughout the world. For example, length adjustable prostheses can be shortened to a Functional Length of 0.75 mm. Clip prostheses standardize coupling to the incus or stapes. New types of ball-joint designs counterbalance the natural movements of the tympanic membrane and anatomically adapted bells create a secure connection to the stapes head. Furthermore, finely balanced weight distribution provides the prostheses with intraoperative stability.

These developments are based not only on well-established anatomical understanding but also on the latest results of scientific research and extensive test series. KURZ prostheses are available in numerous types and offer ideal solutions also in challenging anatomical situations.

MR information is available on www.kurzmed.com

IMPLANT MATERIALS AND PROCESSING

UTMOST CARE AND HIGHEST PRECISION

In order to achieve best possible results, the elegant design of the KURZ prostheses often probes the limits of feasibility. The manufacturing process of these prostheses requires highest precision and utmost care. Stringent inspections furthermore ensure compliance with highest quality standards.

INTENSIVE CLEANING PROCESS

All KURZ prostheses undergo an intensive cleaning process. The result is an extremely pure surface. This contributes toward ensuring irritation-free contact with the sensitive mucosa and helps to prevent inflammations and granulomas which can develop as a result of residues or dirt particles.

HIGH DEMANDS TO BE MET BY MATERIALS

For the production of their prostheses, KURZ uses only high-quality, clinically tested material: Due to its excellent biocompatibility titanium has since decades proven its worth as implant material. In addition, KURZ employs innovative nitinol variants which offer numerous clinically unique benefits.

MR SAFETY TESTS

MR safety tests also cover the compatibility of KURZ prostheses, as long-term implants, with potential future Tesla strengths (up to 7.0 T). For further MR-related information, see www.kurzmed.com

NITINOL

Nitinol was discovered in 1958 by the Naval Ordnance Laboratory (USA). The alloy is made up of nickel and titanium in roughly equal proportions. It is distinguished by good mechanical properties as well as high resistance to corrosion.

Nitinol can assume different properties: As a shape memory alloy, the metal is malleable and returns to its pre-programmed state when heated. The NiTiBOND® makes use of this closing effect.

Nitinol can also be produced in a superelastic configuration. These properties have been utilized in the design of the NiTiFLEX. The clip attachment exhibits extreme spring elasticity and gently couples to the long process of the incus.

1 ir 2 p.d. atitikimas: "Pagaminta iš 1 – 4 klasės titano"

TITANIUM

KURZ uses only high-quality (ASTM F67, medical grade), pure titanium for its prostheses. The properties of this material grade are ideally suited due to its rigidity, weight and technical manufacturing possibilities. The biocompatibility of this metal is also suitable for long-term applications.

Thanks to its low mass, titanium is particularly suitable for the use in middle-ear prosthetics. Compared to other materials, it minimizes losses in connection with the transmission of sound energy. Moreover, the material is extremely resistant to deformation, while at the same time it can, if required, be adapted to individual anatomical situations by bending.

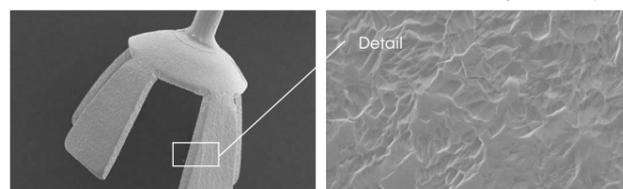
References:

Wirsching K., Lehle K., Jacob P., Gleich O., Strutz J., Kwok P. Influence of Surface Processing on the Biocompatibility of Titanium. Materials 2011, 4(7), 1238-1248; doi: 10.3390/ma4071238

1 ir 2 p.d. atitikimas: "Pagaminta iš 1 – 4 klasės titano"

PURE TITANIUM (ASTM F67): CHEMICAL COMPOSITION				
Element	Grade 1	Grade 2	Grade 3	Grade 4
Titanium (Ti)	99.48	99.31	99.19	98.94
Nitrogen (N)	0.03	0.03	0.05	0.05
Carbon (C)	0.10	0.10	0.10	0.10
Hydrogen (H)	0.0125	0.0125	0.0125	0.0125
Ferrite (Fe)	0.20	0.30	0.30	0.50
Oxygen (O)	0.18	0.25	0.35	0.40

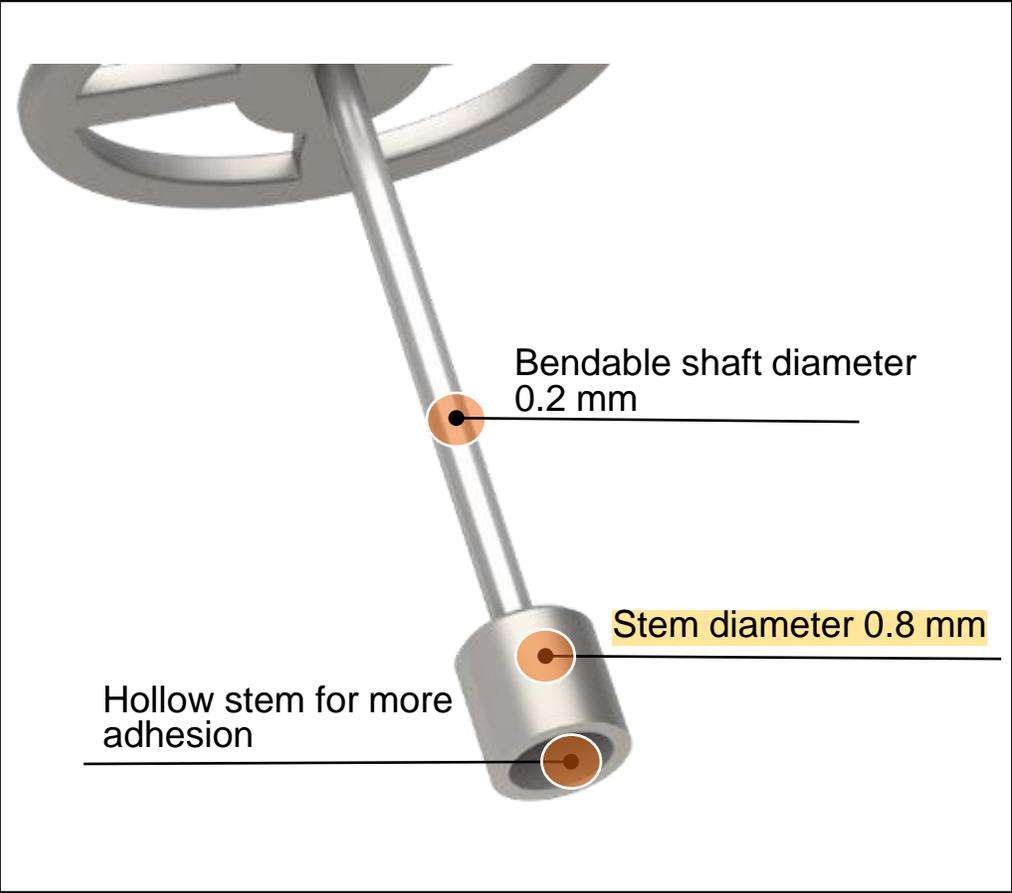
Maximum cut-off grades in % (m/m)



BELL after cleaning. 50 times magnification (KURZ Prosthesis)

Titanium surface after cleaning. 1000 times magnification (KURZ Prosthesis)

Features



2 p.d. atitikimas: " Kojytės gale yra 0,8 mm diametro cilindrinė mova."

OMEGA CONNECTOR

OPTIMIZED FIT

In total ossicular reconstruction, movements of the tympanic membrane can alter the implant position on the stapes footplate. This risk may be reduced by using the OMEGA CONNECTOR together with a total prosthesis. The OMEGA CONNECTOR is designed to compensate for tympanic membrane movements and provide additional stability.

FLEXIBLE JOINT CONNECTION

With sufficient footplate access, the OMEGA CONNECTOR increases the medial surface contact of a total prosthesis. The micro ball joint connects with the cannulated stem of the KURZ total prosthesis. In this way it accommodates drum to head plate angles without prosthesis manipulations.

STABLE CONNECTION

An aspiration tip is ideally used to place the OMEGA CONNECTOR first into the middle ear. The cupped medial end of the total prosthesis is assembled with the OMEGA CONNECTOR in situ. A snug and stable fit between the two prostheses makes fixation with adhesive unnecessary. The undersurface of the shoe has a longitudinally milled recess to compensate for footplate irregularity.

Developed in close collaboration with Dr. med. G. Schmid, Reutlingen, Germany.



1 p.d. atitikimas: "Skirtas naudoti protezo stabilumo užtikrinimui su TORP tipo (visos klausos kauliukų grandinės) protezais, turinčiais apvalią įdubą kojės cilindrinėje movoje."

MODULAR SYSTEM FOR KURZ TOTAL PROSTHESES

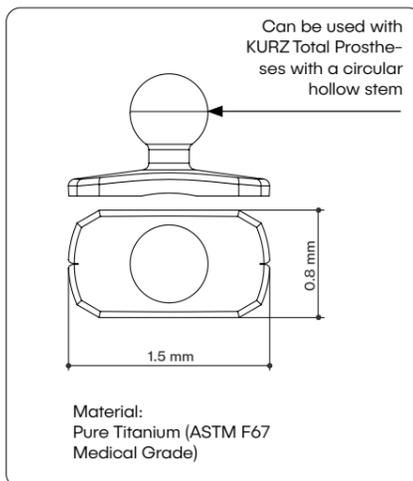
The OMEGA CONNECTOR is compatible with all KURZ total prostheses that have a hollow stem with a diameter of 0.8 mm at the end of the shaft:

- TTP-VARIAC® System Total
- TTP®-Tuebingen AERIAL Total
- Duesseldorf AERIAL Total
- MNP Malleus Notch Total
- MunichLMU Total

2 p.d. atitikimas: "Kojytės gale yra 0,8 mm diametro cilindrinė mova."

QUICK DETERMINATION OF AVAILABLE SPACE

With the aid of the specially developed OMEGA CONNECTOR Sizer the surgeon can intraoperatively determine whether adequate space prevails for the OMEGA CONNECTOR between the stapes crura remnants. The measuring tip of the OMEGA CONNECTOR Sizer precisely corresponds to the dimensions of the OMEGA CONNECTOR.



ITEM	FL (mm)	REF
OMEGA CONNECTOR	0.5 mm	1004 930

FL: Functional Length

1 p.d. atitikimas: "... funkcinis ilgis - 0,5 mm."

ITEM	REF
TTP-VARIAC® System Total	1004 020
OMEGA CONNECTOR	1004 930

ITEM	REF
Duesseldorf AERIAL Total	1004 034 to 1004 049
OMEGA CONNECTOR	1004 930

ITEM	REF
MNP Malleus Notch Total	1004 434 to 1004 449
OMEGA CONNECTOR	1004 930

ITEM	REF
TTP®-Tuebingen AERIAL Total	1004 234 to 1004 249
OMEGA CONNECTOR	1004 930

ITEM	REF
MunichLMU Total	1004 074 to 1004 089
OMEGA CONNECTOR	1004 930

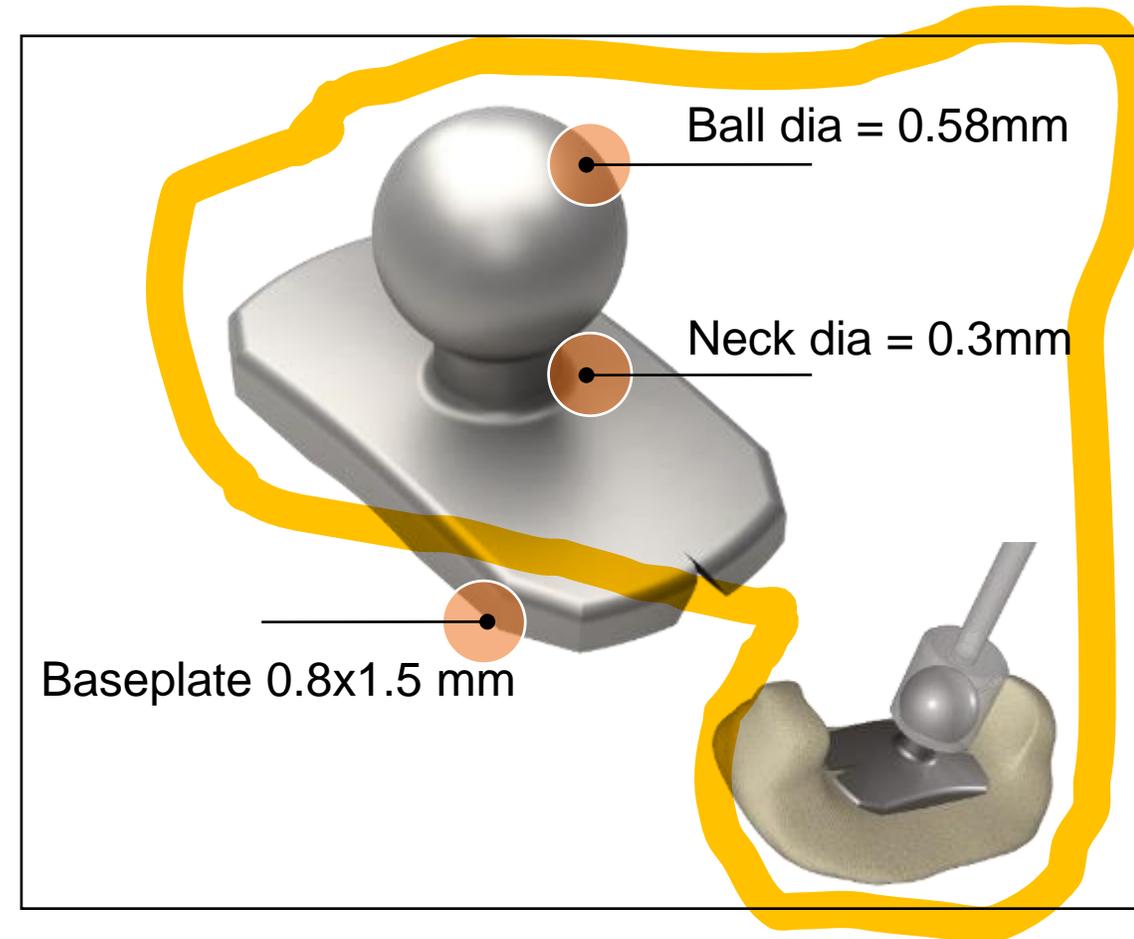
Ω Connector

Total reconstruction - fixed length

- A micro-ball-joint is created together with KURZ total prosthesis
- Any movement at the level of the TM due to hydrostatic pressure or post-op healing process is “absorbed” by the ball-joint
- Increases the likelihood of keeping the total prosthesis positioned on the stapes footplate
- Total prosthesis may be angled to fit the anatomy

1 p.d. atitikimas: "Jungamąją grandį sudaro atraminis padelis su įrantu išilgai pagrindo bei apvali galvutė."

1 p.d. atitikimas: "Grandies galvutės diametras yra 0,58 mm ..."



TTP®-TUEBINGEN

LIGHTWEIGHT AND FINELY BALANCED

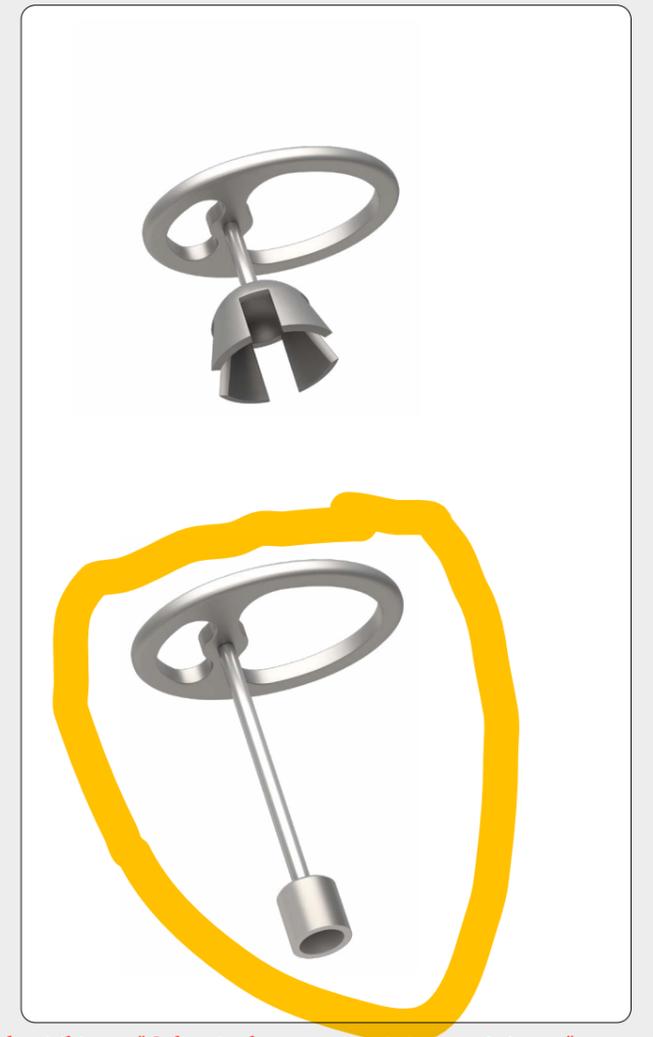
The TTP®-Tuebingen has a lightweight design which enables the surgeon to adapt the implant to the patient's individual anatomical situation by bending. Furthermore, finely balanced weight distribution ensures secure intraoperative and postoperative fit of the prosthesis.

INTRAOPERATIVE VISIBILITY

An open head plate in conjunction with a slim prosthesis stem further facilitates the handling: As a result the surgeon has maximum intraoperative visibility.

PROVEN IN THE LONG TERM

The TTP®-Tuebingen has already been used successfully in tympanoplasty for several decades. As a result, KURZ is not only a hallmark of innovation but also of well-established long-term experience.



2 p.d. atitikimas: "Galvutės skersmuo yra 2,6 mm x 3,6 mm."

TTP®-Tuebingen
BELL Partial
Material:
Pure Titanium (ASTM F67
Medical Grade)
Shaft Diameter: 0.2 mm

LENGTH L (mm)	FL (mm)	REF
1.75	0.75	1002 223
2.00	1.00	1002 224
2.25	1.25	1002 225
2.50	1.50	1002 226
2.75	1.75	1002 227
3.00	2.00	1002 228
3.25	2.25	1002 229
3.50	2.50	1002 230

FL: Functional Length

2 p.d. atitikimas: "Protezo kojytės skersmuo yra 0,2 mm."

TTP®-Tuebingen
AERIAL Total
Material:
Pure Titanium (ASTM F67
Medical Grade)
Shaft Diameter: 0.2 mm

LENGTH L (mm)	REF
3.00	1004 234
3.25	1004 235
3.50	1004 236
3.75	1004 237
4.00	1004 238
4.25	1004 239
4.50	1004 240
4.75	1004 241
5.00	1004 242
5.25	1004 243
5.50	1004 244
6.00	1004 246
6.50	1004 248
7.00	1004 249

The TTP®-Tuebingen
AERIAL Total
is compatible with the
OMEGA CONNECTOR
(REF 1004 930).

2 p.d. atitikimas: "Bendras protezo ilgis yra nuo 3,0 mm iki 7,0 mm (žingsnis – kas 0.25 mm)."

DUESSELDORF

LONG-TERM EXPERIENCE

With the Duesseldorf, KURZ demonstrates its well-established long-term experience: This implant has been successfully used for reconstructing the ossicle chain in middle ear reconstruction for over 20 years.

SECURE INTRAOPERATIVE POSITIONING

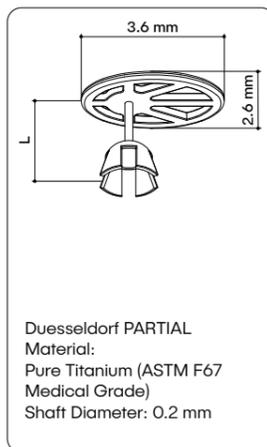
The features of the implant have set standards for a large number of other generations of prostheses. The cleverly engineered weight distribution of KURZ implants helps the surgeon to achieve secure intraoperative positioning of the prosthesis. The stem of the Duesseldorf AERIAL Total and the bell of the Duesseldorf Partial have proven reliable throughout the world.

CLINICALLY AND SCIENTIFICALLY EVALUATED

Not only in clinical use are KURZ prostheses evaluated, but the individual benefits are also documented in numerous independent studies and scientific papers.



2 p.d. atitikimas: "Galvutės skersmuo yra 2,6 mm x 3,6 mm."



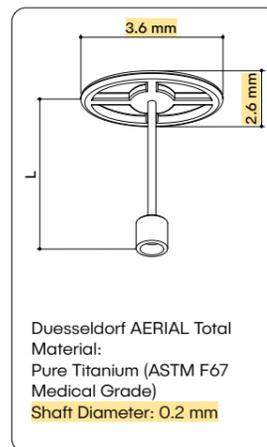
Duesseldorf PARTIAL
Material:
Pure Titanium (ASTM F67
Medical Grade)
Shaft Diameter: 0.2 mm

LENGTH L (mm)	FL (mm)	REF
1.75	0.75	1002 023
2.00	1.00	1002 024
2.25	1.25	1002 025
2.50	1.50	1002 026
2.75	1.75	1002 027
3.00	2.00	1002 028
3.25	2.25	1002 029
3.50	2.50	1002 030
4.00	3.00	1002 032
4.50	3.50	1002 033

FL: Functional Length

Special sizes upon request.

2 p.d. atitikimas: "Protezo kojytės skersmuo yra 0,2 mm."



Duesseldorf AERIAL Total
Material:
Pure Titanium (ASTM F67
Medical Grade)
Shaft Diameter: 0.2 mm

LENGTH L (mm)	REF
3.00	1004 034
3.25	1004 035
3.50	1004 036
3.75	1004 037
4.00	1004 038
4.25	1004 039
4.50	1004 040
4.75	1004 041
5.00	1004 042
5.25	1004 043
5.50	1004 044
6.00	1004 046
6.50	1004 048
7.00	1004 049

The Duesseldorf AERIAL Total is compatible with the OMEGA CONNECTOR (REF 1004 930).

2 p.d. atitikimas: "Bendras protezo ilgis yra nuo 3,0 mm iki 7,0 mm (žingsnis – kas 0.25 mm)."

MUNICHLMU

CHARACTERISTIC DESIGN

The MunichLMU is a prosthesis with a very characteristic head plate design. It is shaped like an umbrella with an extended rounded edge that creates a wide, atraumatic contact zone to the tympanic membrane. Large fenestrations provide good visual overview during implantation.

STABILITY WHEN COUPLING

Optimal coupling is provided by the particular prosthesis foot: The stem of the MunichLMU AERIAL Total has a cannulated distal footing to increase the fluid adhesion force to the stapes foot plate. The concave surface of the MunichLMU BELL Partial makes direct contact with a broad range of anatomical superstructures.

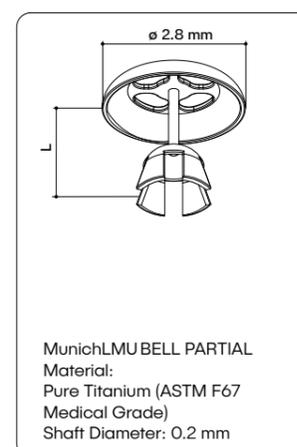
PROSTHESES IN NUMEROUS LENGTHS

In situ the well-balanced weight distribution provides the prosthesis with the best possible stability and simplified handling. The MunichLMU is a fixed length prosthesis family available in 0.25 mm increments.

Developed in close collaboration with the ENT Clinic at LMU Munich University (Germany) Prof. Dr. A. Berghaus, Prof. Dr. J. Müller.



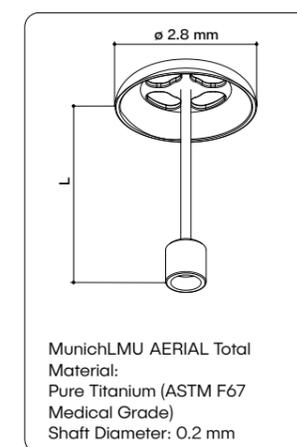
NOT AVAILABLE FOR SALE IN THE USA



MunichLMU BELL PARTIAL
Material:
Pure Titanium (ASTM F67
Medical Grade)
Shaft Diameter: 0.2 mm

LENGTH L (mm)	FL (mm)	REF
1.75	0.75	1002 073
2.00	1.00	1002 074
2.25	1.25	1002 075
2.50	1.50	1002 076
2.75	1.75	1002 077
3.00	2.00	1002 078
3.25	2.25	1002 079
3.50	2.50	1002 080

FL: Functional Length



MunichLMU AERIAL Total
Material:
Pure Titanium (ASTM F67
Medical Grade)
Shaft Diameter: 0.2 mm

LENGTH L (mm)	REF
3.00	1004 074
3.25	1004 075
3.50	1004 076
3.75	1004 077
4.00	1004 078
4.25	1004 079
4.50	1004 080
4.75	1004 081
5.00	1004 082
5.25	1004 083
5.50	1004 084
6.00	1004 086
6.50	1004 088
7.00	1004 089

The MunichLMU AERIAL Total is compatible with the OMEGA CONNECTOR (REF 1004 930).