

SUCCESS

THE ORIGINAL

PURE TITANIUM

BICORTICAL®
Insertion Technique

PERFECT

PURE TITANIUM

MINIMUM TRAUMA



The self-cutting titanium implant with bicortical support

Concept

The Bicortical Implant is a unique one-phase implant which was developed in design and function for a maximum of primary stability and a minimum of surgical trauma. For the implant insertion only the shaft diameter of 2 mm has to be prepared in bone. The deep anchorage of the self-cutting threads ensure an excellent primary stability of the implant. Since the occlusal forces are transferred through the threads into the bone, the shaft of the implant rests passively within the crestal bone. There is no resorption (as documented in long-term studies over 20 years). The self-cutting Bicortical Implant was originally developed for single tooth replacement.

The implant also serves as bridge or bar abutment in the edentulous region of the maxilla and mandible. The implant is not only used for later

insertion, but in many cases can be inserted immediately post-extraction. When inserted in fresh extraction sockets or neighboring infection-free defects, we recommend to augment the site. If the bone preparation is not completely filled by the implant shaft after insertion, healing will be accelerated if the site is augmented with synthetic material (such as Bioresorb), and larger defects should be covered by a membrane (Cytoplast) to keep the alveolar crest level.

The Bicortical Implant finds an immediate and permanent stable support in healthy bone. The deep thread anchorage and bicortical support provides immediate stability of the implant and ensures healing without complications with direct bone-to-implant contact.

Implant Selection

Precondition for any implant surgery is the clinical examination of the patient including ascertaining the true width of the alveolar crest, i.e. diagnosis regarding quantity and quality. The crest width can be determined easily with the Osteometer instrument, using surface or infiltration anesthesia. Furthermore, a periapical or panoramic radiograph should be taken. The X-ray indicator corresponding with the magnification factor of the X-ray unit is placed on the radiograph to preselect the optimal lengths and diameters of the implants for the corresponding jaw region prior to surgery.

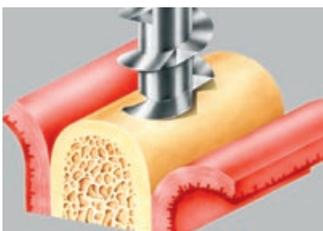


Fig. 1
The pilot drill and the twist drill prepare the volume of the implant shaft only. The threads with helix segments cut their own way in the bone.



Fig. 2
The helix cutting segments allow a low-trauma procedure without compression of the surrounding bone.

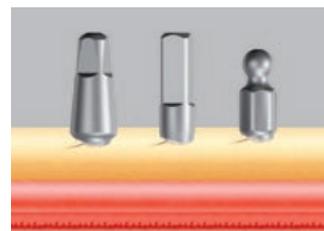


Fig. 3
Note the mini-traumatic cervical implant entrance (left to right: round post, square post, ball post)

Easy, simple insertion technique

Preparation for insertion in porous cancellous bone (anterior to sinus and mental foramen)

Basic principle: The more porous the bone is, the larger should be the implant diameter.

Start with incision and thorough reflection of the gingiva periosteum flaps and exposure of the bone site. Enter the external compact bone with the Initial Perforation (IP) Drill (800 – 1,200 rpm) just slightly to perforate the cortical bone. Continue with the Pilot Drill, penetrate the spongiosa/cancellous bone under slow parallel



rotation (800 – 1,200 rpm) and up and down movements with sufficient cooling. The proper depth is reached when the opposite cortical plate is felt. At this point the drill procedure should be terminated immediately. Only with the careful parallel rotating and up and down movements of the drill on slow setting, a free-moving and precise touching of the opposite cortical bone is possible.

Preparation for insertion in dense cancellous bone and compact cortical regions, especially in the mandibular interforaminal region

In addition to the above-mentioned procedure, a slight preparation (1,800–2,400 rpm) with the laser-graduated Twist

Drill of Ø 2.0 mm may be necessary, according to the bone density. Do not rotate now, but perform only a few up and down movements, also for cleaning the drill. This insertion procedure should be used especially with the large implant diameters of 3.5 mm and 4.5 mm. For the 5.5 mm Ø, use the 2.5 mm Ø Twist Drill. The Twist Drill should only prepare the cortical region max. to the complete length of the threads. For insertion of the 2.5 mm diameter Bicortical Implant, use the Pilot Drill only.

Checking the prepared channel

The laser-graduated depth gauge checks the depth and shape of the bur channel. The final selection of the implant length is determined by the depth gauge, taking the gingiva height into consideration. For the 2.5 mm Ø, the length is determined by the Pilot Drill only.

Implant Insertion

Retrieve the implant from the sterile package and insert directly into the prepared site by holding the sterile vial cap, screwing it in until a stability has been reached. Remove the cap from the implant by pulling off and replace by the finger key. Apply slight apical pressure and slow back and forth rotations of the finger key. After two forward rotations apply one back rotation in order to make optimal use of the cutting property. The conical shape of the special threads and cutting segments on the helix enable the Bicortical Implant to cut its own way into the bone. This way, the use of a precutting instrument is avoided.

For transapical insertion

into a fresh extraction socket, prepare the site with thorough curettage and proceed as aforementioned. Before the implant is screwed in completely to its final position, the site can be augmented. The anatomical limits should be carefully considered for the insertion direction.

For the final position of the implant post level, the gingiva healing up to the post base should be considered, to keep the post completely free for the cementation.

Survey of the sequence of drills and instruments to be used	
Thread diameter	Drills/instruments
Ø 2.5 mm	1. IP Drill 2. Pilot Drill 3. Depth Gauge 4. Insertion of the implant
Ø 3.5 mm Ø 4.5 mm	1. IP Drill 2. Pilot Drill 3. Twist Drill Ø 2,0 mm 4. Depth Gauge 5. Insertion of the implant
Ø 5.5 mm	1. IP Drill 2. Pilot Drill 3. Twist Drill Ø 2.0 mm 4. Twist Drill Ø 2.5 mm 5. Depth Gauge 6. Insertion of the implant

The insertion step by step

Fig. 1
Initial perforation of the cortical bone and distance distribution with the IP drill and finding the optimal direction for insertion.

Fig. 2
Continuation of the depth insertion and marking the opposite cortical bone with the pilot drill which is rotating also slightly horizontal.

Fig. 3
Enlarging the diameter with the laser-graduated twist drill to 2.0 mm Ø.

Fig. 4
Laser-graduated depth gauge inserted.

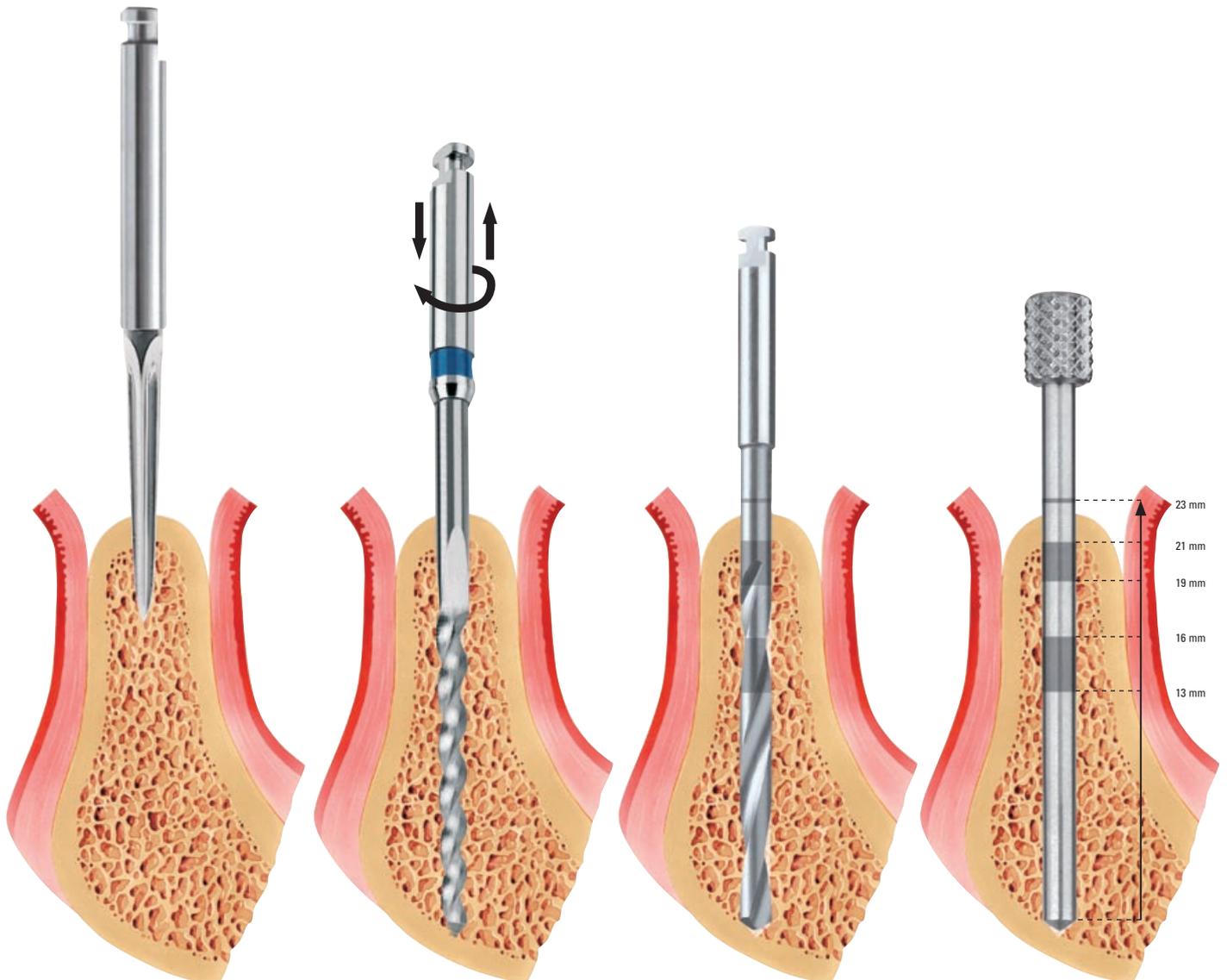


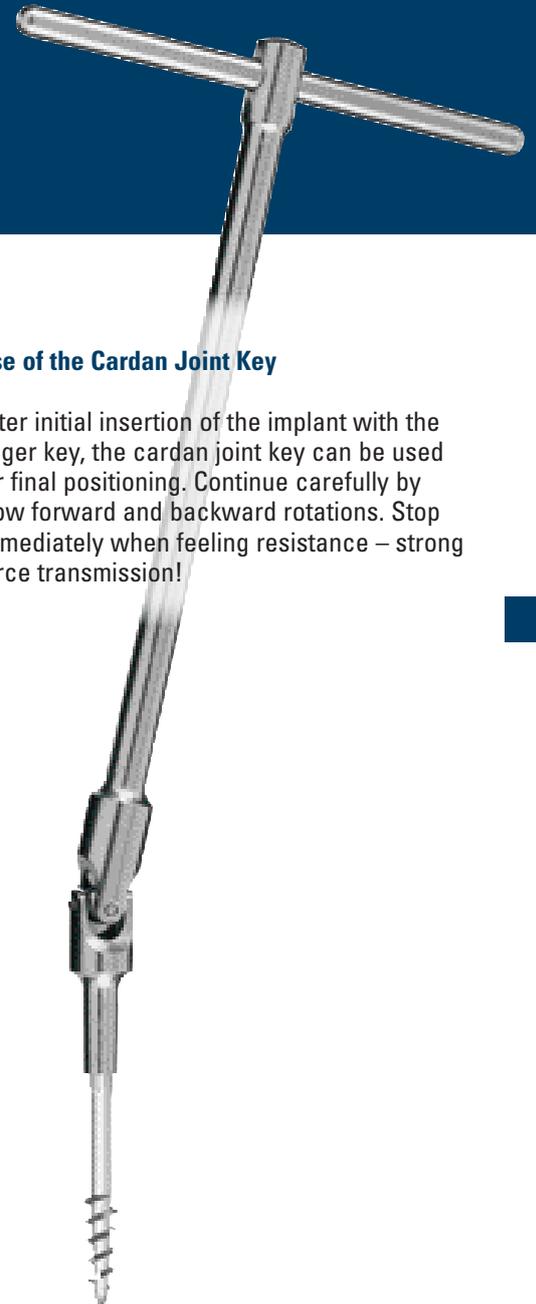
Fig. 5
By slow rotation (2 x forward, 1 x back) and slight pressure towards apical a low-trauma insertion is achieved, using the one-piece finger key (for square and round post) or the finger key on octagon key (for ball post).

Fig. 6
By use of the finger key, the implant is in stable optimal position, having bicortical support at cervical and apical site. Traces of threads will heal spontaneously.



Use of the Cardan Joint Key

After initial insertion of the implant with the finger key, the cardan joint key can be used for final positioning. Continue carefully by slow forward and backward rotations. Stop immediately when feeling resistance – strong force transmission!



I Note

The maximum angulation of the cardan joint key should not exceed 20°, to avoid overloading of the bone and deformation of the implant.

The Bicortical Implant for immediate insertion after extraction

Indication variety with safe functional quality

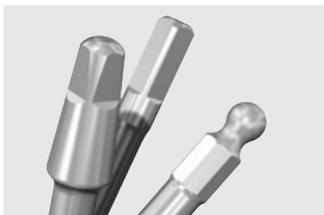
The 2.5 mm Ø implant can be used as an additional implant to relieve the primary implants from loading during the healing phase. The Bicortical Implant is indicated especially in the interforaminal region. Distal of the mental foramen the uncomplicated insertion is limited by the mandibular canal. Experienced implantologists will succeed to insert Bicortical Implants of 13 mm insertion depth into sites of premolars or first molars above the mandibular nerve immediately or after healing. Indication in the distal maxil-

lary area is limited by the sinus extension. An additional indication is in the tuber area for short Bicortical Implants of 4.5 and 5.5 mm diameter for distal support which is essential for connection of the prosthetic construction and relief of the anterior abutments. The Bicortical Implant is suitable for a variety of anatomical indications by four different diameters (2.5/3.5/4.5/5.5 mm) and the shorter insertion depths. Also in cases of an accident or missing lateral incisors or in cases of extremely atrophied

alveolar crests of the mandible or maxilla, the Bicortical Implant finds a unique indication.

The Bicortical Implant, anchored transapically, can find bicortical support and optimal primary stability immediately after insertion. The implant can be provided with a temporary crown keeping it free from occlusion contact.

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Choice of 3 posts

In order to increase the indication range, the Bicortical Implant is now available in 3 different post designs to meet the additional indications. According to each situation of available space, esthetic requirements or just for economical reasons, please choose among three modalities.

Square Post

The square post can be inserted in small approximal spaces (lower incisors, upper lateral incisors). In addition, the square post is indicated in cases of severe divergencies of the implant axis to the crown axis. The square post can be adjusted in the mouth by bending the neck below the square, using the holding instrument and bending pliers.

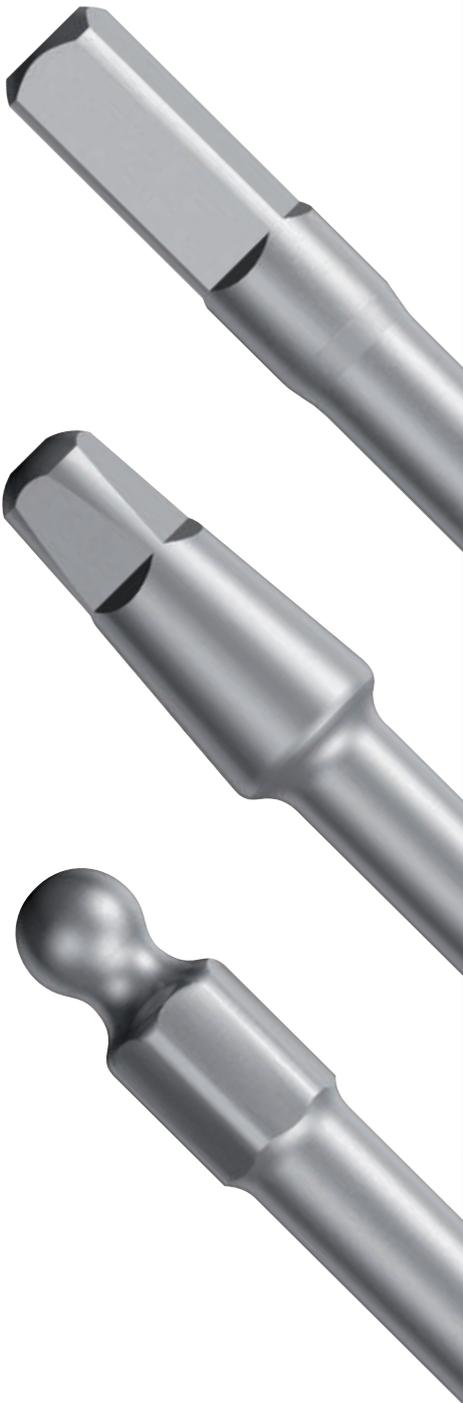
Round Post

For normal available interdental spaces, for single tooth replacement or as bridge abutment. The round post can be trimmed in the laboratory, and the conical shape favors parallelism for a bridge. For square and round posts the same instrumentarium can be used.

Please note: the round post and the ball post are not adjustable.

Ball Post

This Bicortical Implant variation can be used for the support and improvement of economical prosthetic constructions, preferably in the interforaminal region with primary stability on four implants. The ball post Bicortical Implant is available in Ø 3.5 and 4.5 mm, non-adjustable. For insertion of the ball post implant, use the octagon key with the finger key.



Indication

Ø 2.5 mm

Basic use as temporary implant, to support and protect the primary implants during the healing phase. Do not use for immediate post extraction. A 2.5 mm diameter of 23 mm insertion depth can remain as final implant if well integrated in a small interdental space in cortical bone (D1/D2) with bicortical support. Splinting with other implants or natural teeth is imperative.

Ø 3.5 mm

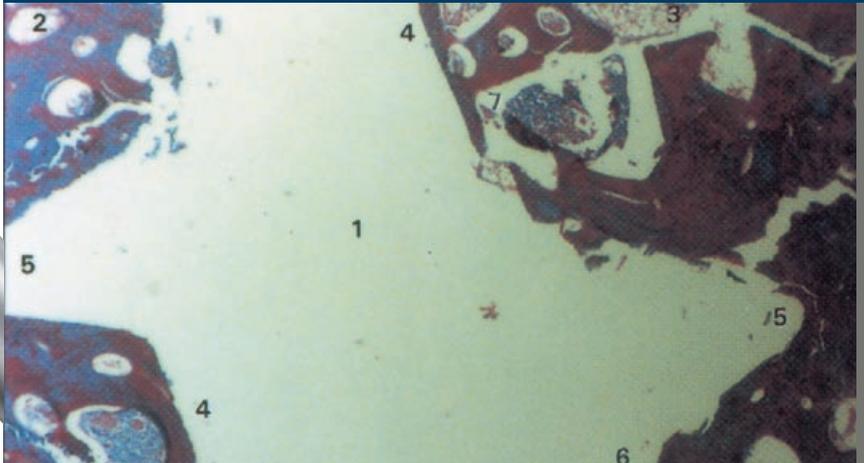
For the lateral incisor region in the maxilla, or the central and lateral incisor in the mandible, also immediate post-extraction with transapical anchorage or bicortical support.

Ø 4.5 mm

For single tooth replacement or bridge abutments in the maxilla and mandible anterior, canine or presinus regions. Especially for immediate post-extraction in these regions in both jaws, also in connection with other implants or natural teeth.

Ø 5.5 mm

Immediate post-extraction or after healing of sockets in mandibular or maxillary bicuspid region. Special indication of 13 mm insertion depth for distal support in the maxillary tuber region, and funnel-shaped periodontal defects. Can be applied in rich marrow spongy bone. Not suitable for cortical bone regions.



Legal notice

The implant must be used only by doctors who are suitably familiar with the system. The instructions (in this brochure and in the instructions for use) must be strictly complied with. Continuing training in this implant system is absolutely essential. We reserve the right to modify or improve the products in line with technical progress.

Histology: Sarnachiaro, Bonal et al., Primates Research Institute, University of Buenos Aires, "Oral Implantology" 13/1986.

The Bicortical Implant achieves optimal bone-implant contact: Osseointegration.

- | | |
|-------------------------------------------------------|-------------------------------------------------------------|
| 1. implant body | 5. direct bone contact to helix,
no fibrous tissue layer |
| 2. original bone, cancellous | 6. direct bone contact
to implant shaft |
| 3. fatty bone marrow,
not near the implant | |
| 4. new bone formation in
direct contact to implant | |

BICORTICAL®-Implant



Innovative products

-  PITT-EASY®
-  ENDOPORE®
-  BICORTICAL®
-  BIORESORB®
-  CYTOPLAST®

INNOVA – ORALTRONICS – ATTACHMENTS A World of Implant Solutions

The dental implant platform of Sybron Dental Specialties (SDS) brings over 85 years of combined experience in design and manufacturing of proprietary implant systems to the dental implant market.

Delivering two of the most respected, leading-edge dental implants on the market – ENDOPORE® and PITT-EASY® – we are giving you access to a world of implant solutions.

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