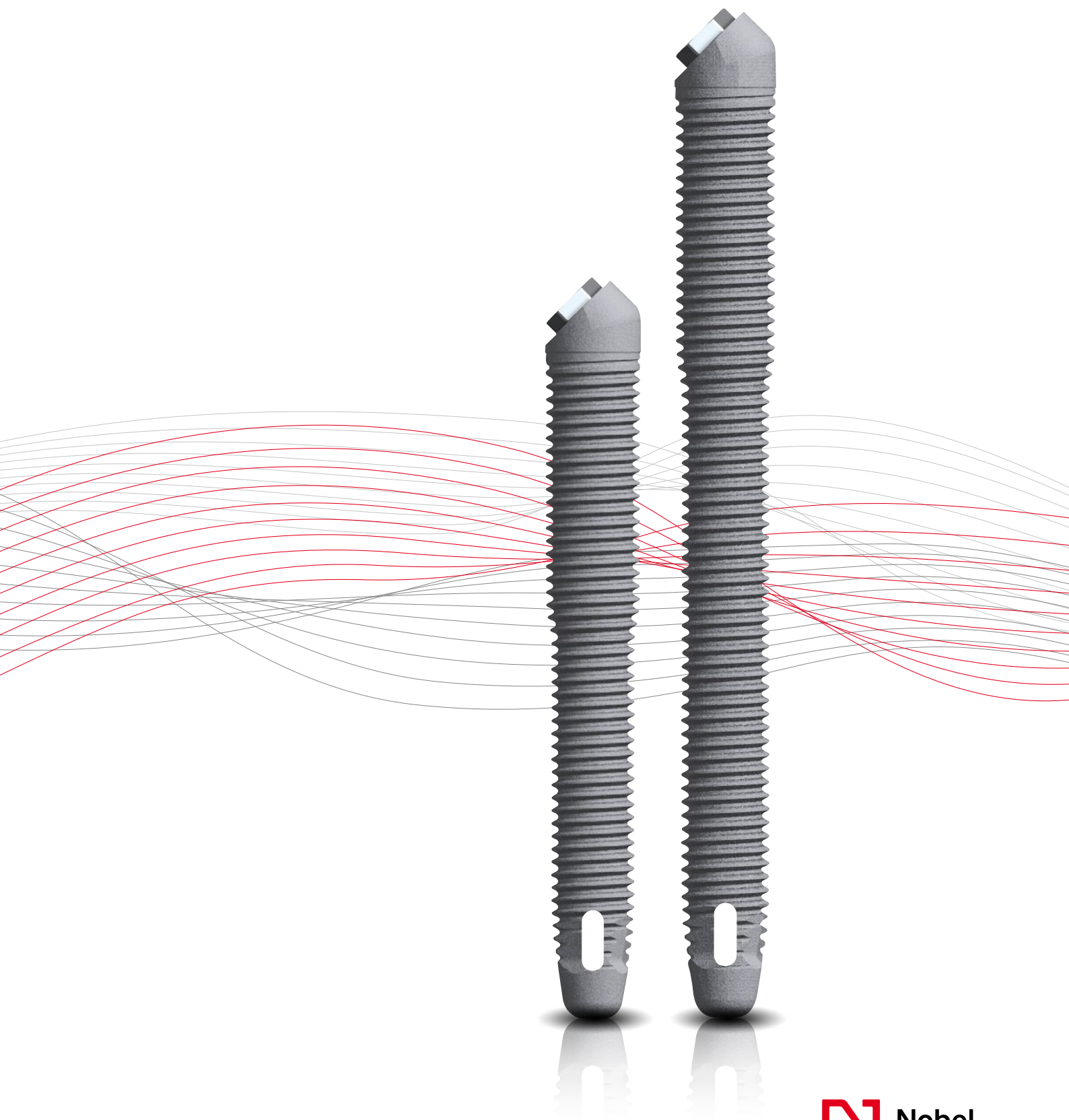


Brånemark System® Zygoma

Procedures manual



Note: In order to improve readability, Nobel Biocare does not use ™ or ® in the running text. By doing so, however, Nobel Biocare does not waive any right to the trademark or registered mark and nothing herein shall be construed to the contrary.

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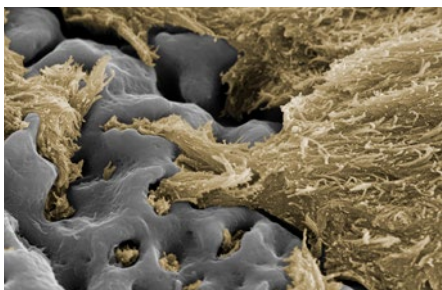
Graftless implant solution for the resorbed maxilla

Improve your patients' quality of life

- Anchoring the implants in the zygomatic bone eliminates the need for bone grafting.
- Option to load implants immediately after surgery with a fixed provisional bridge.

Proven stability in the critical healing phase

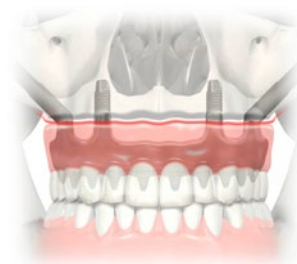
Unique oxidized TiUnite surface maintains implant stability immediately after placement with enhanced osseointegration. This is particularly important in regions with soft bone and for immediate loading protocols.



Predictable and enhanced osseointegration: The unique combination of controlled titanium oxide texture and porosity makes bone grow directly onto and into the surface.
© Schüpbach Ltd, Switzerland



Prosthetic flexibility



NobelProcera Implant Bridge on implant or Multi-unit Abutment level



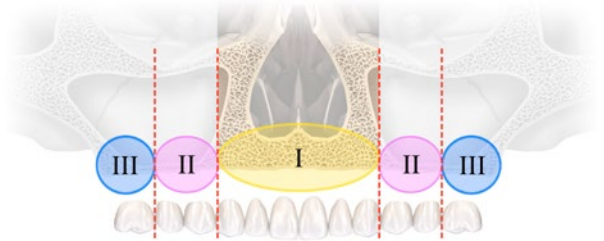
NobelProcera Implant Bar Overdenture on implant or Multi-unit Abutment level

Surgical flexibility

Implants available in eight lengths from 30 to 52.5 mm.

Indications

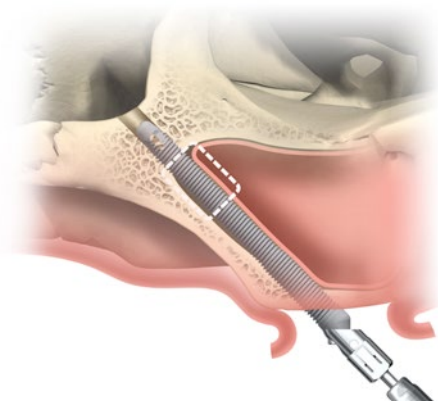
- Edentulous maxilla in which bone only exists in zone 1 (premaxilla), whereas zone 2 (premolar region) and zone 3 (molar region) are lacking.
- Partially edentulous maxilla with uni- or bilateral loss of alveolar bone in zone 3 (molar region). In such cases, a Brånemark System Zygoma implant in combination with at least two additional standard implants supports a fixed restoration adequately.



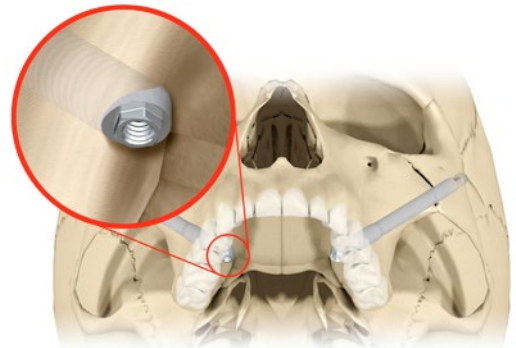
Implant position

The Brånemark System Zygoma implant typically pierces the oral mucosa in the premolar region and passes through the sinus along the lateral wall of the maxilla. Depending on the contour of the lateral maxillary wall, the mid-portion of the implant may also pass lateral to the lateral wall.

The implant tip enters the base of the body of the zygoma (the superior-lateral corner of the maxillary sinus), travels through the zygoma and pierces through its lateral cortex. The implant trajectory is usually parallel to the zygomatic buttress.



Path of the Brånemark System Zygoma implant.



Place implant platform as close to the crest of the ridge as possible. The implant has a 45° abutment head.

Biomechanical considerations

Number of implants

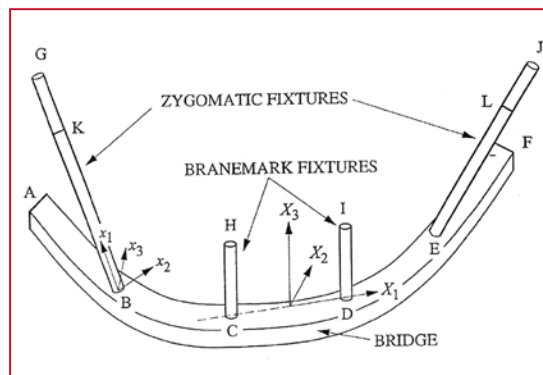
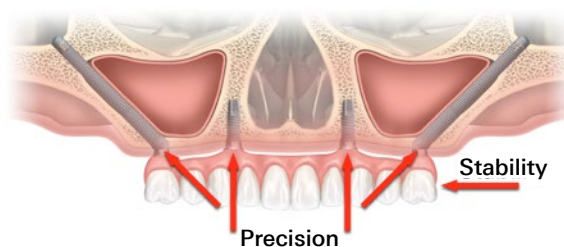
The Brånemark System Zygoma implant has an increased tendency to bend under horizontal loads compared to a standard implant. This is related to two factors:

- Greatly increased implant length (30–52.5 mm).
- Limited bone support in the maxillary alveolar crest.

Based on clinical experience and biomechanical theoretical calculations, a full-arch restoration in the maxilla with two Brånemark System Zygoma implants (one on each side) should be assisted by at least two regular Nobel Biocare implants in the anterior maxilla.*

Caution:

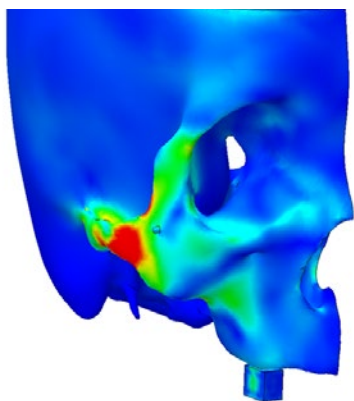
- The mechanical performance of implants, abutment screws and prosthetic components, as well as long-term osseointegration, may all be adversely affected by lack of passive fit of the restoration, inadequate design of the prosthesis, trauma to the oral region, and various other aspects of biomechanical overload.
- Brånemark System Zygoma implants can only withstand functional load if they are rigidly connected to a minimum of two or more osseointegrated standard implants.



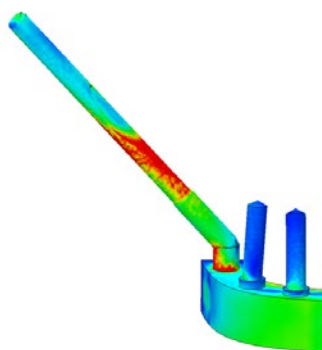
The Brånemark System Zygoma implants must always be cross-arch stabilized with the anterior implants when exposed intraorally.*

Bending moments

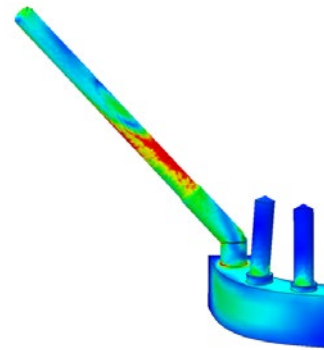
Forces that cause bending moments (lateral loads) are known to be the most unfavorable, as they can potentially jeopardize the long-term stability of the implant as well as the implant-supported restoration.



Occlusal forces through the zygoma implants are mainly supported by the zygoma bone, as there is less than 1 mm of residual crestal maxillary bone at the implant platform in most cases.



During centric occlusion, the abutment-implant connection and the mid-portion of the implant are under load.

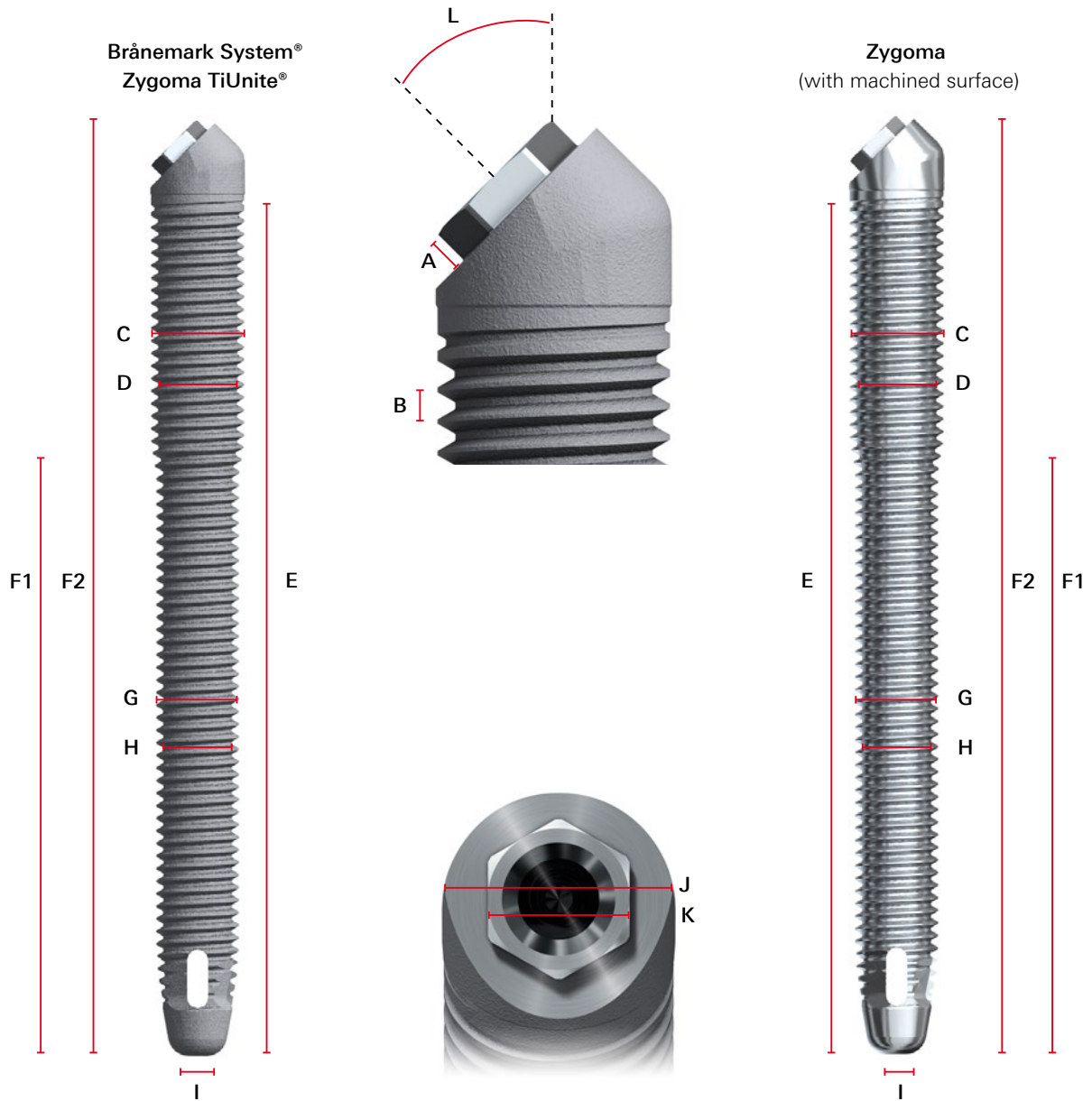


In presence of bending moments, the mid-portion of the implant is under load.

In order to counteract the adverse effects of bending moments, distribution of forces are better managed by:

- Cross-arch stabilization of the zygoma and the premaxillary implants
- Minimizing distal cantilevers of the prosthesis
- Balanced occlusion
- Decreased cuspal inclination of the prosthetic teeth

Implant specifications



		A	B	C	D	E	F1	F2	G	H	I	J	K	L
Platform	Implant length	Hex height	Thread pitch	Major diameter 1	Minor diameter 1	Thread height	Length of smaller diameter	Total length	Major diameter 2	Minor diameter 2	Tip diameter	Collar diameter	Hex width	Angle
RP	30mm	0.7	0.6	4.4	3.76	31.0	17.8	34.7	3.9	3.26	2.5	4.1	2.7	45°
	35mm	0.7	0.6	4.4	3.76	36.0	22.8	39.7	3.9	3.26	2.5	4.1	2.7	45°
	40mm	0.7	0.6	4.4	3.76	41.0	27.8	44.7	3.9	3.26	2.5	4.1	2.7	45°
	42.5mm	0.7	0.6	4.4	3.76	43.5	30.3	47.2	3.9	3.26	2.5	4.1	2.7	45°
	45mm	0.7	0.6	4.4	3.76	46.0	32.8	49.7	3.9	3.26	2.5	4.1	2.7	45°
	47.5mm	0.7	0.6	4.4	3.76	48.5	35.3	52.2	3.9	3.26	2.5	4.1	2.7	45°
	50mm	0.7	0.6	4.4	3.76	51.0	37.8	54.7	3.9	3.26	2.5	4.1	2.7	45°
	52.5mm	0.7	0.6	4.4	3.76	53.5	40.3	57.2	3.9	3.26	2.5	4.1	2.7	45°

All measurements in mm. Sectional measurements do not necessarily add up to total length.

Important difference between Brånemark System Zygoma implants with TiUnite and with machined surface

Brånemark System Zygoma with TiUnite surface

The angulated head of Brånemark System Zygoma TiUnite is closed. Specific components with a shorter screw need to be used, as they can otherwise not be fully seated.

Note: There are two dedicated healing abutments, four Multi-unit Abutments and a cover screw for Brånemark System Zygoma implants (see page 50).



Zygoma implants with machined surface

The angulated head of Zygoma implants is open so that the standard components for Brånemark System implants with Regular Platform (RP) can be used.

Note: There are four dedicated Multi-unit Abutments and a cover screw for Zygoma implants (see page 51).



TiUnite® surface

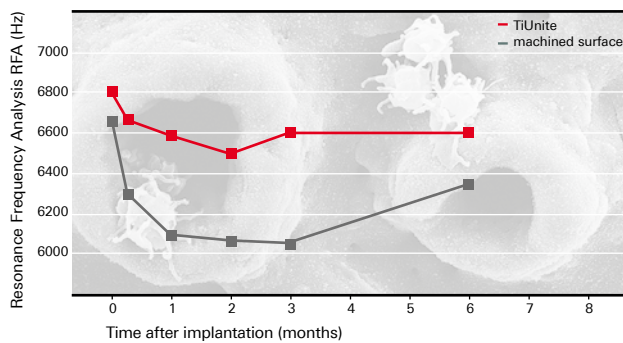
A unique surface

TiUnite is a moderately rough thickened titanium oxide layer with high crystallinity and phosphorus content. Its ceramic-like properties and micropores ensure high osteoconductivity and fast anchorage of newly formed bone.

Proven to perform

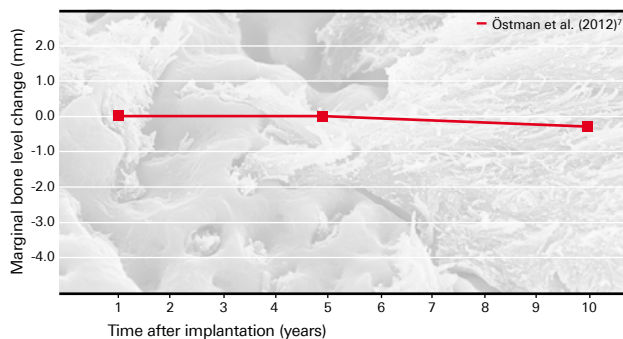
- Proven longevity with over ten years of clinical follow-up data.^{6,7,11}
- High performance under the most challenging conditions including soft bone and immediate loading.^{1,2,9,12,13,14,16}
- Stability maintained at a high level during the critical healing phase after implant insertion due to enhanced osseointegration and anchorage in surrounding bone.^{3,4,5}
- Stable marginal bone levels after the initial bone remodeling phase and over the long term.^{6,7,11,15}
- Cellular soft tissue adhesion behaves similarly to soft tissue around a natural tooth.⁸
- Long-term success with cumulative survival rates of 97.1–99.2% after 10 and more years.^{6,7,11}

High stability in the critical healing phase



Higher stability with immediately loaded implants with TiUnite surface than with the same implants with machined surface in the posterior maxilla.³

Stable marginal bone levels over the long term



Stable marginal bone levels after initial remodeling. Baseline adjusted at year 1 to allow comparisons with other publications.

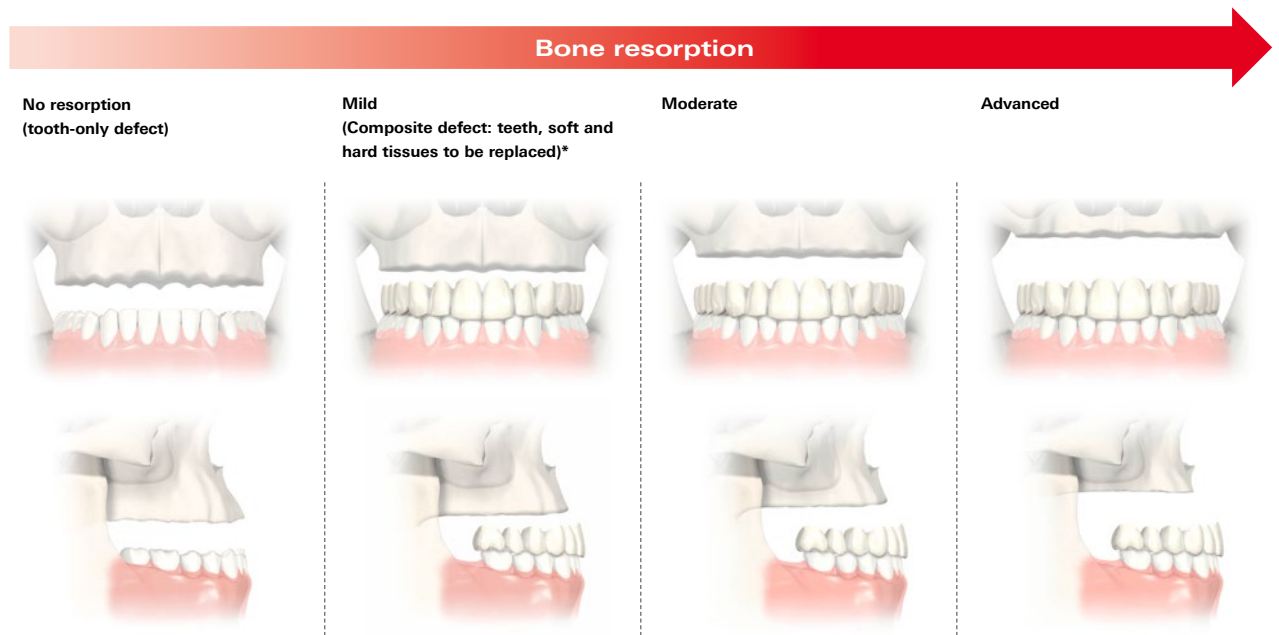
SEM images courtesy of Dr. Peter Schüpbach, Switzerland.

¹ Glauser R. Implants with an Oxidized Surface Placed Predominately in Soft Bone Quality and Subjected to Immediate Occlusal Loading: Results from a 7-Year Clinical Follow-Up. *Clin Implant Dent Relat Res* 2013;15(3):322-31. ² Liddel G and Henry P. The immediately loaded single implant-retained mandibular overdenture: a 36-month prospective study. *Int J Prosthodont* 2010; 23:13-21. ³ Glauser R, Portmann M, Ruhstaller P, Lundgren AK, Hammerle CH, Gottlow J. Stability measurements of immediately loaded machined and oxidized implants in the posterior maxilla. A comparative clinical study using resonance frequency analysis. *Applied Osseointegration Research* 2001; 2:27-9. ⁴ Zechner W, Tangl S, Furst G, Tepper G, Thams U, Mailath G, Watzek G. Osseous healing characteristics of three different implant types. *Clin Oral Implants Res* 2003; 14:150-7. ⁵ Ivanoff CJ, Widmark G, Johansson C, Wennerberg A. Histologic evaluation of bone response to oxidized and turned titanium micro-implants in human jawbone. *Int J Maxillofac Implants* 2003;18:341-8. ⁶ Degidi M, Nardi D, Piattelli A. 10-Year Follow-Up of Immediately Loaded Implants with TiUnite Porous Anodized Surface. *Clin Implant Dent Relat Res* 2012;14(6):828-38. ⁷ Östman PO, Hellman M, Sennerby L. Ten years later. Results from a prospective single-centre clinical study on 121 oxidized (TiUnite) Brånemark implants in 46 patients. *Clin Implant Dent Relat Res* 2012 Dec;14(6):852-60. ⁸ Schüpbach P, Glauser R. The defense architecture of the human periimplant mucosa: a histological study. *J Prosthet Dent* 2007; 97(6 Suppl):15-25. ⁹ Mura P. Immediate Loading of Tapered Implants Placed in Postextraction Sockets: Retrospective Analysis of the 5-Year Clinical Outcome. *Clin Implant Dent Relat Res* 2012;14(4):565-574. ¹⁰ Rieben AS, Alifanz J, Jannu AS. Survival rates of implants with a highly crystalline phosphate enriched surface – a literature review [#191], in 20th Annual Scientific Congress of the European Association for Osseointegration. 2011: Athens, Greece. ¹¹ Glauser R. Eleven-year results of implants with an oxidized surface placed predominantly in soft bone and subjected to immediate occlusal loading. *Clin Oral Impl Res* 2012;23 suppl 7;140-1. ¹² McAllister BS, Cherry JE, Kolinski ML, Parrish KD, Pumphrey DW, Schroering RL. Two-year Evaluation of a Variable-Thread Tapered Implant in Extraction Sites with Immediate Temporization: A Multicenter Clinical Trial. *Int J Oral Maxillofac Implants* 2012; 27:611-8. ¹³ Rocci A, Martignoni M, Gottlow J. Immediate loading of Brånemark System TiUnite and machined-surface implants in the posterior mandible: a randomized open-ended clinical trial. *Clin Implant Dent Relat Res* 2003; 5 suppl 1:57-63. ¹⁴ Marzola R, Scotti R, Fazi G, Schincaglia GP. Immediate loading of two implants supporting a ball attachment-retained mandibular overdenture: a prospective clinical study. *Clin Implant Dent Relat Res* 2007; 9:136-43. ¹⁵ Nickenig H, Wichmann M, Schlegel K, Nkenke E, Eitner S. Radiographic evaluation of marginal bone levels adjacent to parallel-screw cylinder machined-neck implants and rough-surfaced micro-threaded implants using digitized panoramic radiographs. *Clin Oral Impl Res* 2009;20:550-4. ¹⁶ Arnhart C, Kielbassa AM, Martinez-de Fuentes R, Goldstein M, Jackowski J, Lorenzoni M, Maiorana C, Mericske-Stern R, Pozzi A, Rompen E, Sanz M, Strub JR. Comparison of variable-thread tapered implant designs to a standard tapered implant design after immediate loading. A 3-year multicentre randomised controlled trial. *Eur J Oral Implantol*. 2012;5:123-36

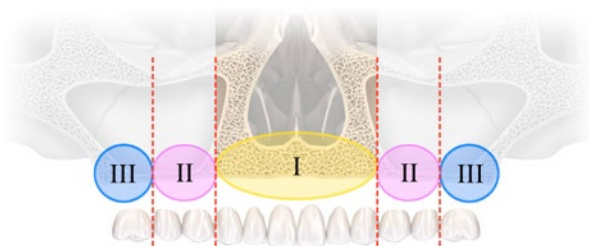
Bone resorption pattern

It is very important to understand the degree of hard and soft tissue loss, as this degree of atrophy directs the restorative protocol. This means that the remaining alveolar bone directs the surgical protocol, which in turn supports the restorative treatment plan.

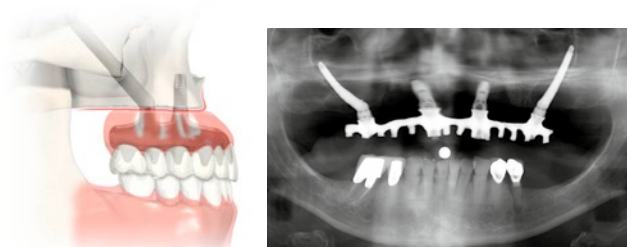
How much hard and soft tissue is missing? What is to be replaced?



Advanced bone resorption



Presence of bone in zone 1 only



Solution: tilted implant concept with two Brånemark System Zygoma and two standard implants

* Bedrossian E et al. Fixed-prosthetic Implant Restoration of the Edentulous Maxilla: A Systematic Pretreatment Evaluation Method. J Oral Maxillofac Surg 2008;66:112-122

Oral examination of the patient

A thorough pre-treatment evaluation of edentulous patients or patients with failing/terminal dentitions is necessary to establish a predictable treatment outcome. To begin the evaluation of this group of patients, the following may be taken into consideration.

1 Medical history and chief complaint

Any conditions that might affect the result or influence candidacy for surgery are noted here. Consideration for referral for medical clearance as indicated.

2 Dental history

Ascertain the patient's expectations, past dental history with dental failure, e.g. periodontal disease, admitted or known habits including clenching and bruxing.

3 Radiographic analysis

Initial radiographic evaluation may be done with the help of a panoramic radiograph (OPG). Upon the discretion of the practitioner, a full mouth periapical series (FMX/FMS) may be considered. It is recommended to perform a medical (CB)CT scan analysis prior to the final decision.

4 Intra- and extraoral examination

For patients with existing non-restorable teeth, documentation of the findings for their removal is noted. A screening exam for intraoral soft tissue health is paramount. Evaluation of the temporomandibular joint (TMJ) is also recommended.

5 Pre-surgical evaluation of maxillary sinus health

3D radiographic survey allows for the identification of the following in the maxillary sinus:

- Maxillary sinus polyps
- Thickness of the Schneiderian membrane
- Potential air-fluid level
- Patency of the osteomeatal complex

A healthy maxillary sinus is essential for the placement of zygoma implants.

Prosthetic considerations

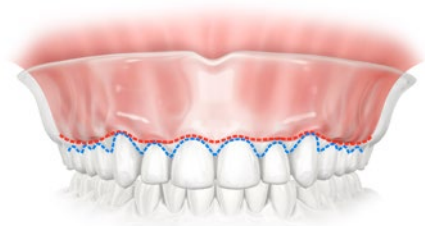
The pre-surgical prosthetic examination and evaluation are multifaceted. In order to determine the type of final prosthesis, three specific clinical criteria must be evaluated at the initial consultation.*

- I Presence or lack of composite defect
- II Type of final prosthesis
- III Visible or hidden transition line

Step I: Determine the presence or lack of a composite defect

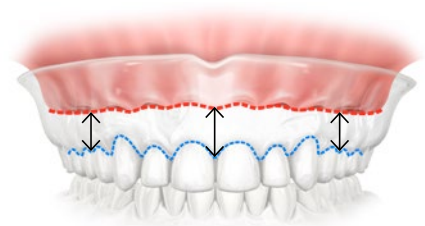
Tooth-only defect (missing teeth)

In this group of patients, there is no space between the cervical portion of the denture teeth and the crest of the soft tissues. Therefore, they are missing teeth only.



Composite defect (missing teeth, hard and soft tissues)

In this group of patients, there is space between the cervical portion of the denture teeth and the crest of the soft tissues (as shown by the black arrows). Therefore, they are missing teeth as well as hard and soft tissues.

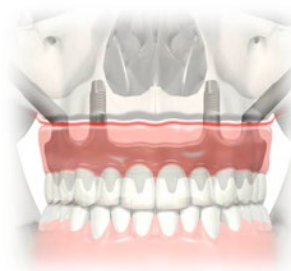


* Bedrossian E et al. Fixed-Prosthetic Implant Restoration of the Edentulous Maxilla: A Systematic Pretreatment Evaluation Method. J Oral Maxillofac Surg 2008;66:112-122

Step II: Determine the final restoration

Patients with tooth-only defects receive a NobelProcera Implant Bridge or conventionally fabricated porcelain-fused-to-metal bridge.

However, the majority of zygoma implant patients demonstrate mild to advanced composite defects. For these patients, either the fixed NobelProcera Implant Bridge or the fixed-removable NobelProcera Implant Bar Overdenture are available.



NobelProcera Implant Bridge



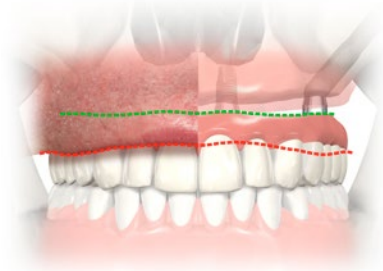
NobelProcera Implant Bar Overdenture

Step III: Determine the transition line

Determination of a hidden or visible transition line can assist in determining potential esthetic considerations and needs of the patient and the final prosthesis.

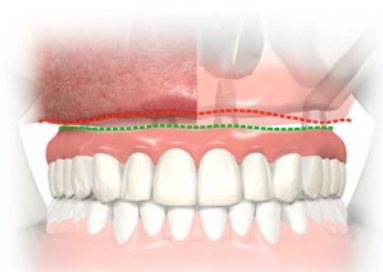
If the smile line is apical to the transition line, the margin of the prosthesis will show and an unesthetic outcome will result. It is recommended to have the smile line coronal to the transition line.

Hidden transition line



Esthetic outcome: transition line (in green) is apical to the smile line (in red).

Visible transition line



Unesthetic outcome: transition line (in green) is coronal to the smile line (in red).

Once the three criteria are assessed, evaluate the following

- Facial profile and contours, determined by evaluation of the VDO (Vertical Dimension of Occlusion) and the AP-tooth position
- Parafunctional habits
- Horizontal and vertical jaw relationships
- Occlusal plane orientation
- Status of the opposing dentition
- Status of present dentition or the existing complete upper denture

General guidelines for prosthetic design when using Brånemark System Zygoma implants

- Incorporate sufficient rigidity and precision to achieve a passive fit in the final restoration. If the prosthesis is insufficiently rigid, deformation and deflection of the Brånemark System Zygoma implants can lead to screw loosening or implant loss.
 - It is recommended to use NobelProcera CAD/CAM precision-milled restorations for precision and fit.
-

Considerations for the placement of 4 versus 6 implants

When planning the position and the number of implants to place, it is important to consider the functional and biomechanical properties of the fixed, implant-supported final prosthesis. Two important points must be considered:

- Anterior-posterior spread of the implants (AP-spread)
- The forces placed on the implant framework in lateral excursions

AP-spread

As reported (Silva et al. 2010, Bevilacqua et al. 2010), the AP-spread of the implants is important in limiting or eliminating the posterior cantilevers.* Placing an implant in the posterior maxilla distalizes the implant platform, which enlarges the AP-spread and therefore reduces the forces on the distal implants (Krekmanov et al. 2000).** Distalization of the most posterior implants may be achieved by either using the All-on-4® treatment concept with tilted posterior implants in cases where bone in zone 2 (premolar region) is available; or by placing Brånemark System Zygoma implants in cases where there is lack of bone in zones 2 and 3 (premolar and molar region).

Lateral excursions

Increased stress values on the framework may be observed during lateral function, which may be addressed by the addition of two implants in the canine region (figure 1).

Therefore, consideration of the number as well as the distribution of the implants is paramount in treatment planning the fully edentulous maxilla. Placement of six implants as distributed in figure 1 addresses the involved forces.

In the advanced resorbed maxilla

The resorption pattern of the maxilla may not allow for the placement of six implants. By distributing four implants as shown in figure 2, the biomechanical properties of the final prosthesis are addressed. The AP-spread is maintained and the anterior implants lend support in lateral excursions, as they are placed in the cuspid position due to the posterior resorption pattern of the premaxilla.

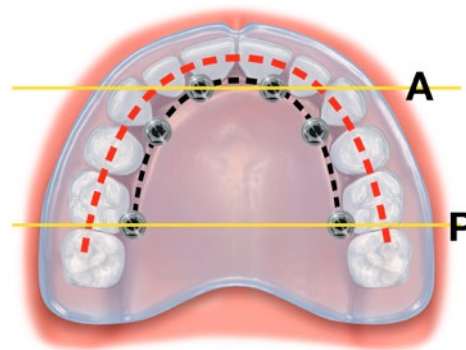


Figure 1: Six implants

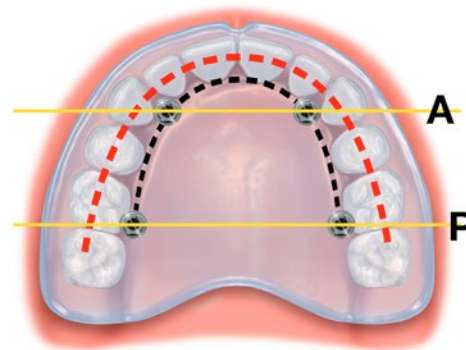


Figure 2: Four implants

* Silva GC, Mendonça JA, Lopes LR, Landre J Jr. Stress Patterns on Implants in Protheses Supported by Four or Six Implants :A Three-Dimensional Finite Element Analysis. Int J Oral Maxillofac Implants 2010;25:239-46

* Bevilacqua M, Tealdo T, Menini M, Pera F, Mossolov A, Drago C, Pera P. The influence of cantilever length and implant inclination on stress distribution in maxillary implant supported fixed dentures. J Prosthet Dent 2010;105:5-13

** Krekmanov L, Kahn M, Rangert B, Lindström H. Tilting of Posterior Mandibular and Maxillary Implants for Improved Prosthesis Support. Int J Oral Maxillofac Implants 2000; 15:405-14

Position and angulation of implants

The tooth positions for the planned restoration should be determined preoperatively, allowing for the selection of the most appropriate position and angulation for each planned implant. The existing or the newly fabricated full denture must be in the correct VDO (Vertical Dimension of Occlusion) and have the proper AP-tooth position in order to allow fabrication of a surgical guide.

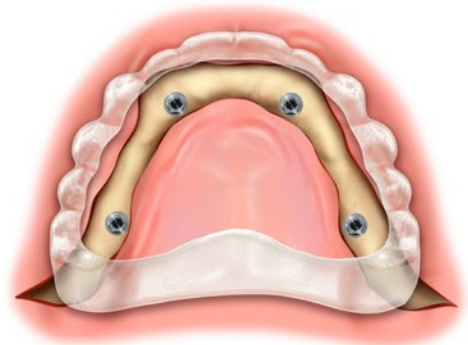
It is the responsibility of the prosthetic team to ensure that the surgical team clearly understands the tooth positions required for the final prosthesis. One of the most appropriate means of doing this is to provide a surgical guide. A quick and simple way of fabricating a surgical guide is to make a replica in clear acrylic resin, either of the existing or the newly fabricated denture.

To help visualize the surgical field, the palatal portion of the clear surgical guide is removed, except for a supporting posterior connection. Leaving only the buccal contours of the teeth helps the surgeon to angulate the drills correctly during osteotomy preparation and to maintain the desired implant angulation during insertion.

If immediate loading is planned, the guide also helps to select the appropriate abutments (angled or straight), allowing for properly aligned prosthetic screw access holes.



Replica of the existing or newly fabricated denture.



Surgical guide helps to angulate the drills correctly and to maintain the desired implant angulation during insertion.

Surgical considerations

Two-stage versus immediate loading surgical protocols

The cross-arch stabilization of the Brånemark System Zygoma implants is paramount once the implant platforms are exposed intraorally.

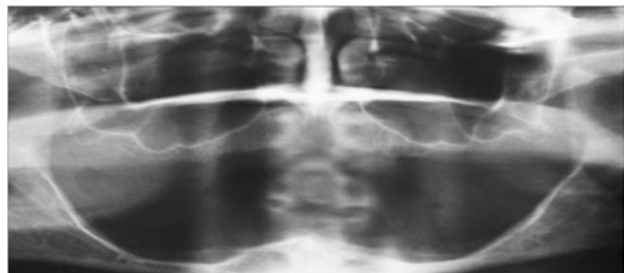
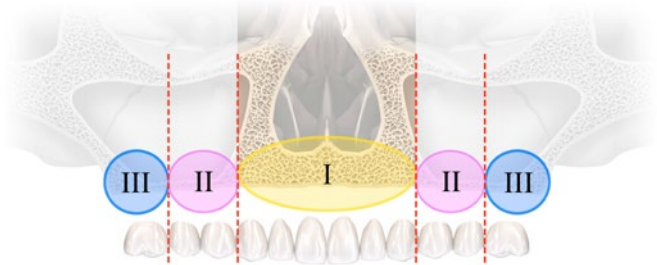
In cases where immediate loading is considered, either the patient's existing or a newly fabricated full upper denture is converted into a fixed provisional bridge, facilitating the cross-arch splinting of the implants.

For two-stage delayed loading, it is recommended that the patient's existing denture is converted into a fixed provisional bridge by cross-arch splinting the exposed implants at second-stage surgery.

For both approaches, the same procedure is used for converting the existing denture into a fixed provisional bridge (see page 38).

Zones of the maxilla

The panoramic image (OPG) allows the visualization of the zones of the maxilla. If bone is lacking in zones 2 and 3, the zygoma concept may be considered by placing one Brånemark System Zygoma implant on each side to establish posterior support. In zone 1, two to four regular implants may be placed for anterior support.

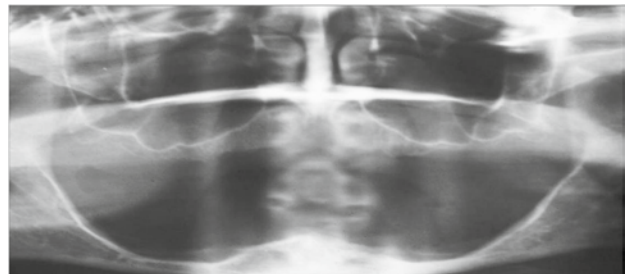


Presence of bone in zone 1 only

Radiographic examination

Panoramic image (OPG)

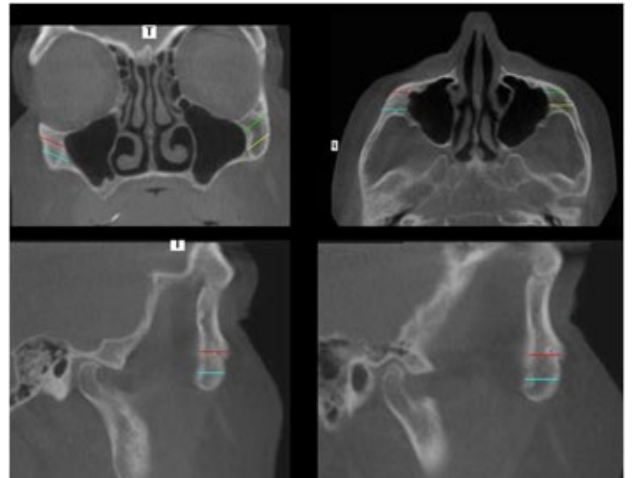
Initial radiograph of choice; a scout film visualizes the three zones of the maxilla.



3D studies

It is essential that the (CB)CT scans include maxilla and zygomatic bone in their entirety. They provide detailed information on the maxillary sinus topography, such as the width and height of the zygomatic body and the width of the residual alveolar bone.

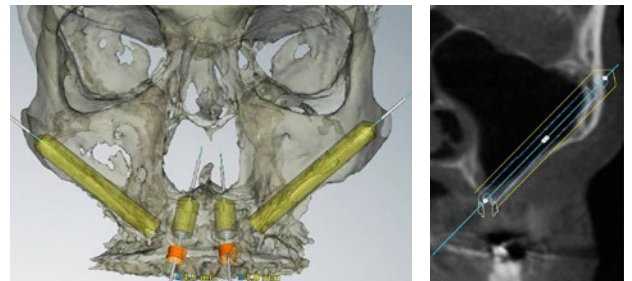
Reformatted images allow for evaluation of the maxillary sinuses and the zygomatic body in 3D. The location of the osteomeatal complex as well as the existence or lack of sinus pathology can also be identified.



NobelClinician Software

The use of the NobelClinician Software allows for the 3D evaluation of the edentulous maxilla as well as the planning of the implant placements. Both the premaxillary implants as well as the Brånemark System Zygoma implants can be planned, visualized and ordered in the NobelClinician Software.

Note: The exact length of the zygoma implant has to be determined at time of surgery.



Immediate Function concept

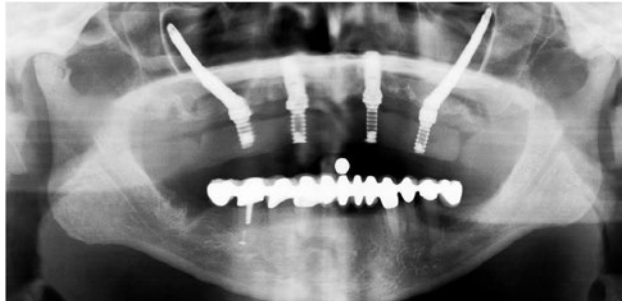
Immediate Function means that patients leave the office with a functional fixed restoration in place directly after implant insertion.

Osseointegration is defined as a direct structural and functional connection between living bone and the surface of a load-carrying implant.* With the Immediate Function protocol, osseointegration has not yet taken place when abutment and provisional restoration are delivered to the patient. The majority of the scientific publications which examine the use of Nobel Biocare TiUnite implants in an Immediate Function approach report successful outcomes. The TiUnite implants maintain and increase the initial stability over time until the osseointegration takes place.** Immediate Function with its potential loading is an alternative to later loading protocols for the experienced implant user.

As with any surgical or restorative implant procedure, the treatment outcome may be affected by many different factors. It is prudent to consider the following six interdependent variables:

- Biocompatibility of materials
- Implant design
- Implant surface
- Surgical technique
- Prosthetic loading conditions
- Individual patient local site conditions

When considering the Immediate Function concept, it is essential to utilize sound surgical and prosthetic principles as well as placing the implants with an initial stability of minimum 35 Ncm with immediate cross-arch splinting using a provisional fixed bridge.



Immediate Function concept: OPG of cross-arch splinted fixed implant-supported provisional bridge.

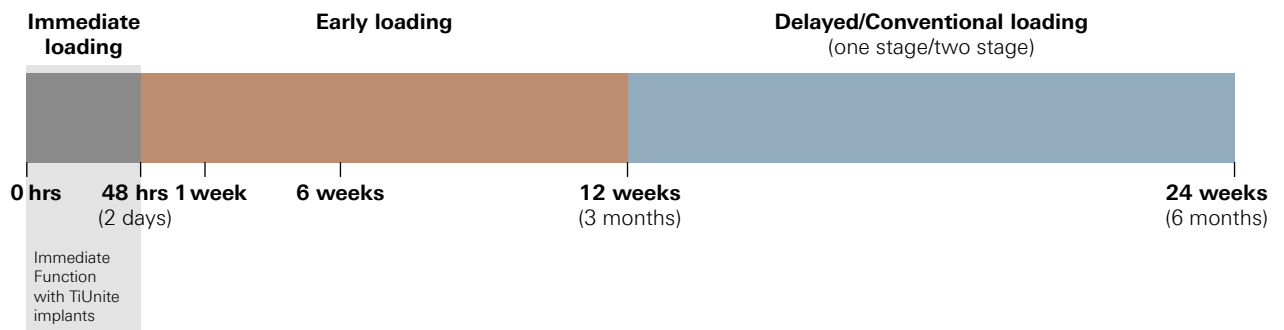
Clinical relevance

- Immediate Function refers to patients leaving the office with a fixed implant-supported provisional bridge.
- It is an alternative to delayed loading (2-stage protocol) for experienced implant users.
- Careful patient selection and follow-up is necessary for this group of patients.

* Brånemark P-I, Zarb G, Albrektsson T. *Tissue-integrated prostheses: Osseointegration in clinical dentistry*. Chicago: Quintessence Publishing Co., Inc. 1985.

** Glauser R, Portmann M, Ruhstaller P, Lundgren AK, Hämmerle C, Gottlow J. *Stability measurements of immediately loaded machined and oxidized implants in the posterior maxilla. A comparative clinical study using resonance frequency analysis*. *Appl Osseointegration Res* 2001;2:27–29

Loading protocols – definitions



Surgical guidelines

- Adapt implant site preparation technique to bone quality/ quantity or use a tapered implant body for high initial implant stability.
- Individual implants should be able to withstand a final tightening torque of minimum 35 Ncm torque without further rotation to confirm stability at time of implant placement.
- If resonance frequency measurement is performed at time of placement – ISQ values > 60 is recommended.
- Regardless of anatomic site or bone quality, implants typically show a drop in the initial stability over the first few weeks before osseointegration takes place. While the maintenance of initial stability is higher with TiUnite than a machined implant surface, this phenomenon can still be expected to occur. Consequently, it is not just the Immediate Function itself but also other prosthetic manipulation of the implants during the healing phase that need to be considered, e.g. unscrewing of provisional restoration and impression copings.

Restorative guidelines

- A restorative strategy should be developed to ensure minimal handling and tightening of prosthetic components and transference of forces to the implants during the first few weeks after placement.
- Special care is recommended when it comes to evaluating load distribution and the elimination of cantilevers and lateral forces. If possible, the occlusal contact should be reduced during the first two to three months after implant placement.
- To obtain optimal esthetics, when practical, the placement of the final abutment at time of implant placement can minimize further disruption of the soft tissue interface.
- A well-designed provisional restoration during soft tissue maturation improves the esthetic end results.
- Cantilevers of all types should be avoided in Immediate Function protocol.

Presentation of treatment options to patient

The final phase in treatment planning includes an in-depth presentation of all appropriate treatment options. Any anticipated esthetic or functional limitations to proposed treatment are discussed with the patient. Final acceptance of the treatment plan is documented with the patient's confirmation.

Pre-operative preparation

Pre-medication

Patients are pre-medicated with antibiotics prior to the surgical visit as instructed by the surgical team.

Anesthesia

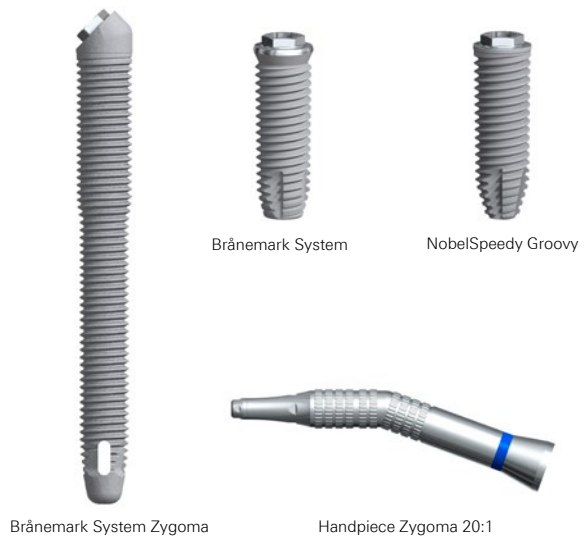
Patients may be treated under local anaesthesia, IV sedation or general anaesthesia.

Surgical inventory

It is recommended that the surgical team maintains at least two Brånemark System Zygoma implants of every available size. Identifying the required implant lengths is a clinical process during the preparation of the osteotomy.

To maintain continuity by using the same prosthetic components, NobelSpeedy or Brånemark System implants (with external connection) are generally used for the premaxillary implants. Ensure that a variety of lengths are at hand.

Note: A handpiece 20:1 is needed for the osteotomy preparation and implant insertion of zygoma implants.



Prosthetic inventory when considering immediate loading

The surgical and prosthetic teams ensure that the patient arrives with either their existing full denture or their newly fabricated full maxillary denture, as it will be converted into an immediately loaded fixed provisional bridge. Ensure that all necessary components for this procedure including surgical guide are at hand.

Caution: There are dedicated Multi-unit Abutments for Brånemark System Zygoma implants with TiUnite surface and for Zygoma implants with machined surface, respectively.

Brånemark System Zygoma TiUnite



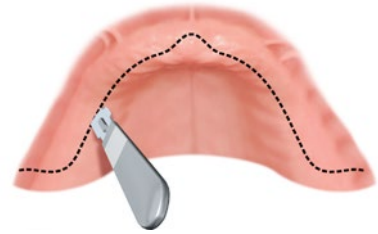
Zygoma with machined surface



Surgical access

1 Make incision

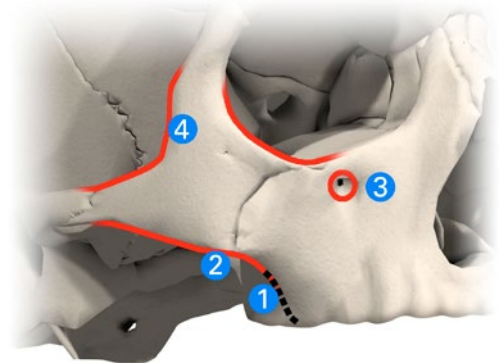
- Make an incision on the crest of the edentulous maxilla with distal vertical releasing incision.
- Reflect a full thickness mucoperiosteal flap exposing the lateral maxillary wall.



2 Be aware of anatomical landmarks

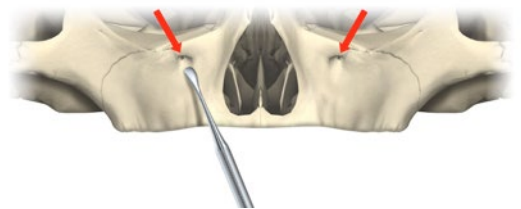
It is imperative to be aware of neighboring arteries, veins and nerves in the surgical area. Injuries to these anatomical structures can lead to complications such as eye injury, extensive bleeding, and nerve-related dysfunction.

- 1 Posterior wall of the maxillary sinus
- 2 Zygomatic-maxillary buttress
- 3 Infraorbital foramen
- 4 Frontozygomatic notch



3 Dissect to the level of the infraorbital foramen

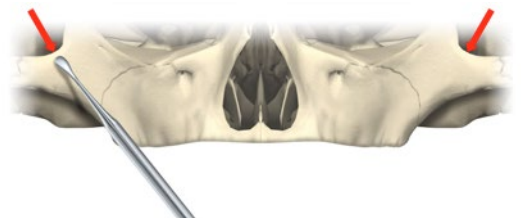
- Expose the alveolar crest, including its palatal side.
- Dissect carefully to the level of the infraorbital foramen. Identification of the infraorbital foramen may assist with anatomic orientation.



4 Expose zygomatic body

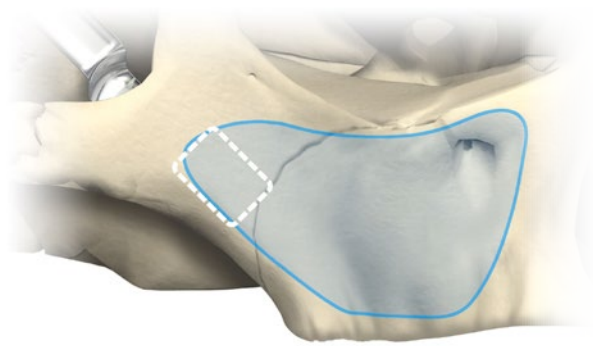
Reflect laterally at the level of the infraorbital nerve and expose the body of the zygomatic bone.

Caution: It is essential to identify and protect the infraorbital nerve.



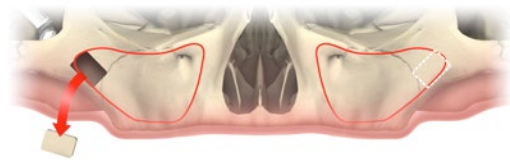
5 Place retractor to visualize apical point of implant

Place a retractor in the frontozygomatic notch to facilitate visualization of the intended apical point of the implant (with special emphasis on avoiding penetration of the orbital floor). When the dissection is complete, the landmarks 1–4 will be visible.



6 Make window

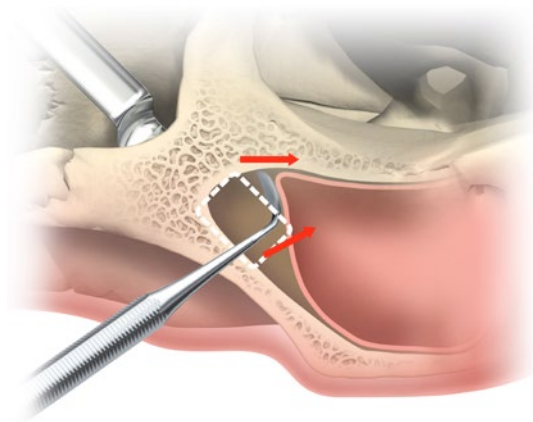
Make an approximately 10 mm × 5 mm window on the lateral wall of the sinus, close to the infrazygomatic crest.



7 Lift sinus mucosa

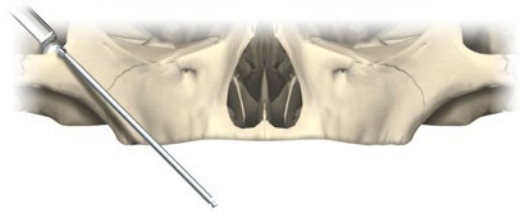
Carefully lift the sinus mucosa away from the area where the implant will pass through the sinus, from the floor of the sinus to the roof, trying not to penetrate the membrane.

Caution: Try to keep the sinus membrane intact during this process. However, penetration of the sinus membrane will not result in an adverse outcome.



8 Identify implant trajectory and starting point for drilling

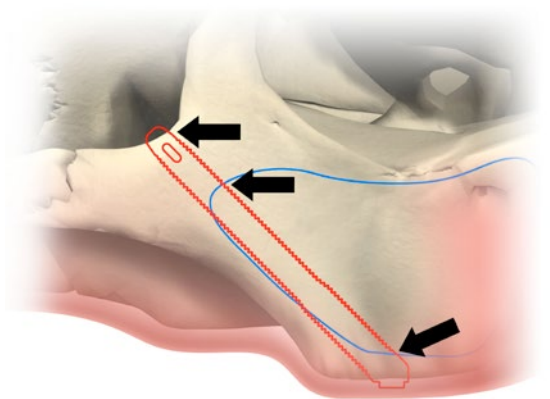
- Identify the trajectory of the implant by placing the round bur over the lateral wall of the maxilla:
 - The tip of the bur at the frontozygomatic notch
 - The body of the bur over the posterior lateral corner of the maxillary sinus
 - The base of the bur at the crest of the ridge in the 2nd bicuspid / 1st molar position
- Determine the exact point on the alveolar crest at which to start the drilling sequence, and the direction of the long axis of the implant, based on the known anatomy of the maxilla, the sinus, and the zygomatic bone.
- Aim for the middle of the retractor during the drilling sequence.



9 Plan implant placement

Plan to place the implant as posteriorly as possible, with the implant head as close to the alveolar crest as possible (typically in the 2nd premolar region.) The implant must simultaneously pass through the floor of the sinus and the maxillary sinus, enter the base of the zygoma bone (the posterior-lateral portion of the maxillary sinus roof) and travel through it, exiting through the lateral cortex of the zygoma below the frontozygomatic notch.

Note: Adjustment to this implant placement may be considered due to anatomical variations.



Osteotomy preparation

Drill technique

- Use an in-and-out motion and drill into the bone for 1 to 2 seconds.
- Move the drill up without stopping handpiece motor. This also allows the irrigation to flush away debris.
- Proceed until desired depth is reached.
- Do not exceed 2000 rpm when drilling.
- Copious irrigation is recommended throughout the drilling sequence.

Notes:

- Round bur, twist drills and pilot drills are delivered non-sterile and need to be sterilized prior to use.
- Drills are disposable and should be used for one surgery only.
- The twist drills and pilot drills are made of stainless steel with an amorphous diamond coating, which gives them their black color.

Caution:

- Avoid lateral pressure on drills during implant-site preparation. Lateral pressure may cause drill fracture.
- Verify that drills lock in the handpiece before starting any drilling. A loose drill may accidentally harm the patient or members of the surgical team.
- Verify that all interconnecting instruments lock properly before intraoral use to prevent accidental swallowing or aspiration.

Drill guard

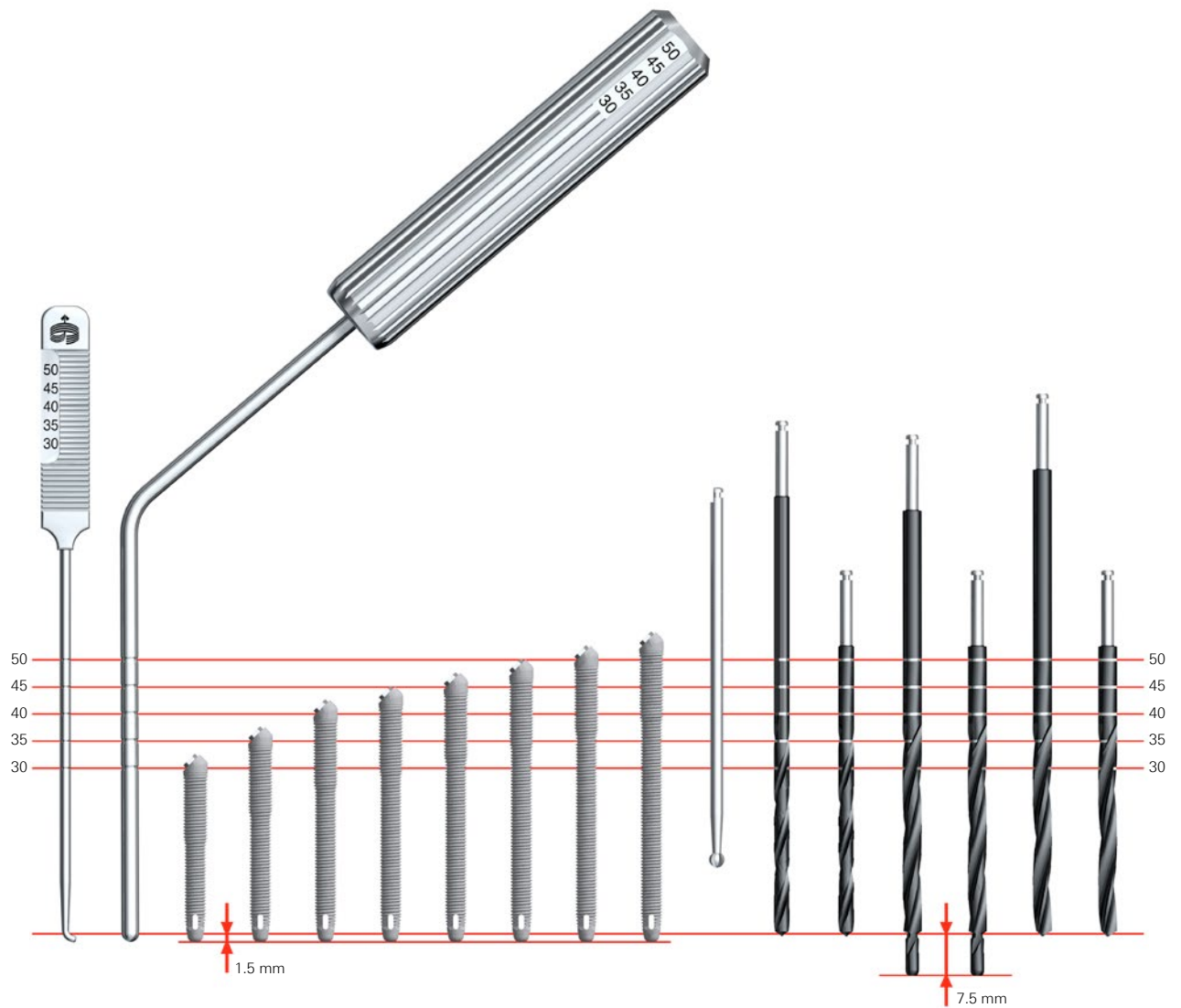
Drill guards may be used to prevent contact of the rotating drill shaft with the nearby soft tissues. Injury to the tongue or corner of the lip can occur if the drill shaft is unprotected. Surgeon and assistant should verify that these tissues are protected throughout the procedure.

Note: Drill guards are available in two lengths.




Depth measurement system

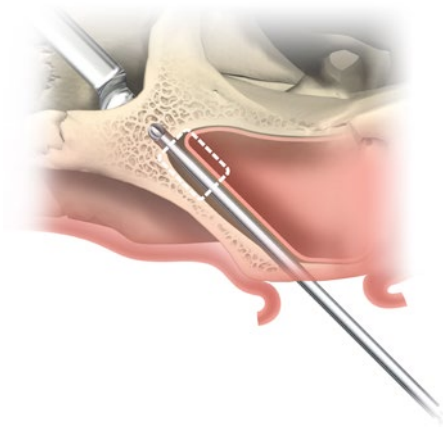
All drills are available in a short and a long version.



1 Make entrance mark with round bur

- Make the palatal/crestal mark for the implant entrance with the round bur.
- Penetrate and pass the round bur through to the sinus while checking the direction of the bur through the sinus window. The bur must be directed towards the retractor that was previously placed in the notch.
- Make an entrance mark in the posterior-superior roof of the sinus to allow seating of the 2.9mm drill without chatter.

Maximum speed  2000rpm

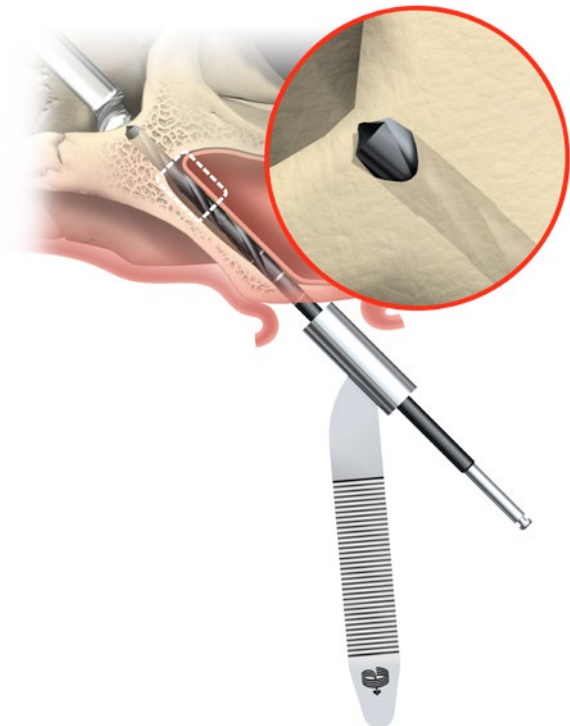


2 Drill with Twist Drill 2.9 mm

Continue with the Twist Drill 2.9 mm until it penetrates the outer cortical layer of the zygomatic bone at the incisura.

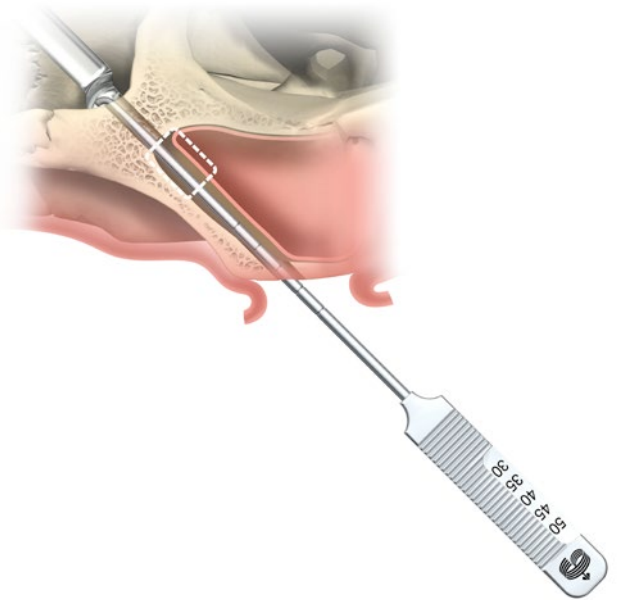
Note: It is imperative to protect the soft tissue at the zygomatic bone penetration site by using the drill guards; and to have full control of the area where the drill penetrates at the level of the zygoma.

Maximum speed  2000rpm



3 Determine implant length

Use the Straight Depth Indicator to determine the required implant length.



4 Widen osteotomy with Pilot Drill 3.5 mm

Use the Pilot Drill 3.5 mm (Ø 2.9/3.5mm) to find the penetration of the sinus roof previously made by the Twist Drill 2.9mm. It makes a partial 3.5mm osteotomy through the zygoma body.

Maximum speed  2000 rpm



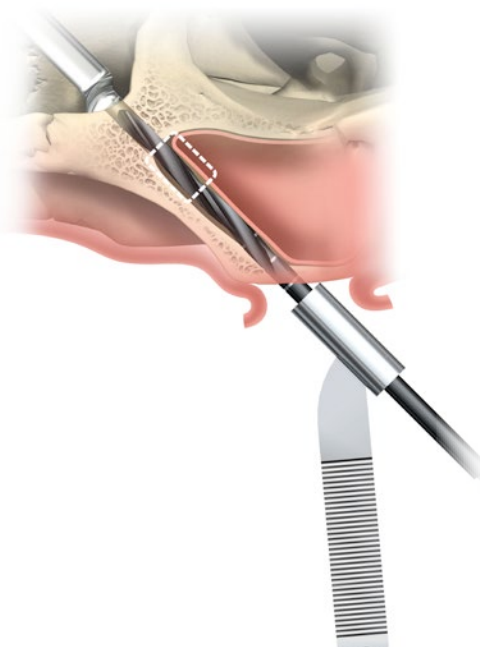
5 Finalize osteotomy with Twist Drill 3.5 mm

Complete the osteotomy with the Twist Drill 3.5 mm.

Maximum speed  2000 rpm

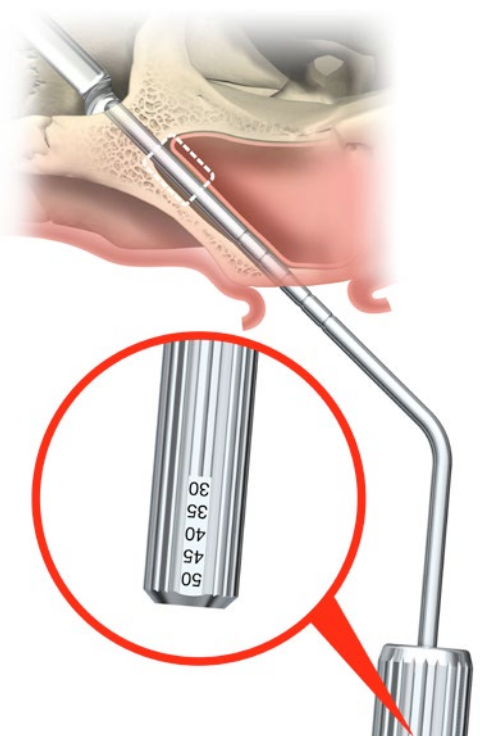
Caution:

- Ensure correct angulation and avoid drill wobble, as this can inadvertently widen the preparation site.
- If the sinus membrane cannot be kept intact during osteotomy preparation, carefully irrigate away debris when inserting the implant. Any mucosal remnants in the bone site may prevent osseointegration of the implant.



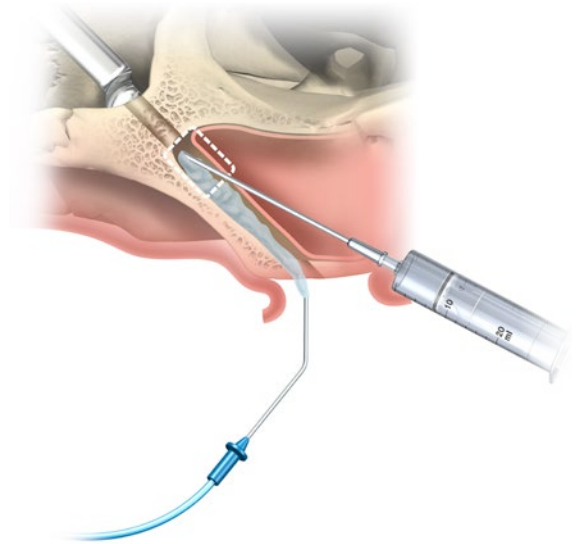
6 Verify depth

Verify the depth of the prepared bone site with the Angled Depth Indicator to ensure that the selected implant length will fully seat without apical bone interference.



7 Irrigate sinus

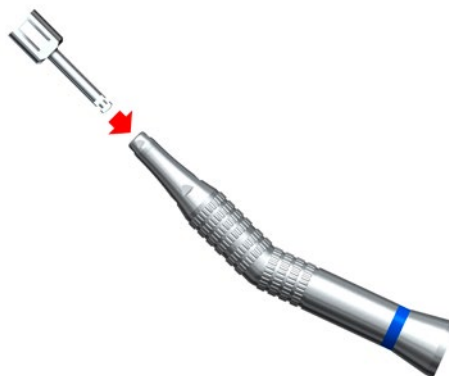
When the osteotomy is completed, irrigate the sinus before inserting the implant.



Implant insertion

1 Prepare handpiece

Attach the Connection to Handpiece to the Zygoma Handpiece.

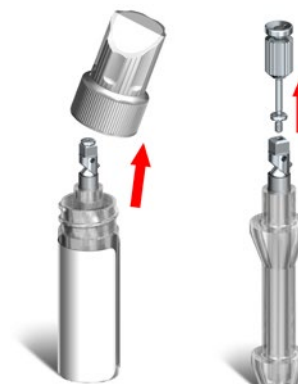


2 Unpack implant

- Unscrew the lid carefully.
- Remove the cover screw from the implant mount with the Cover Screw Driver Brånemark System Hexagon.

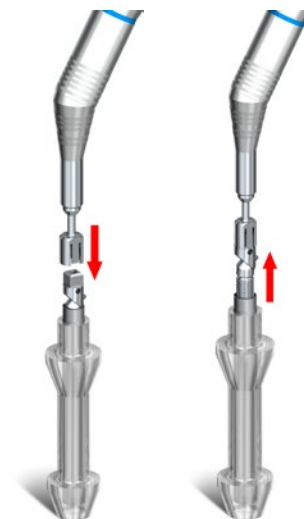
Note: Each implant is delivered with the implant mount pre-mounted.

Caution: The cover screw sits loosely in the implant mount. Be careful not to drop it by accident.



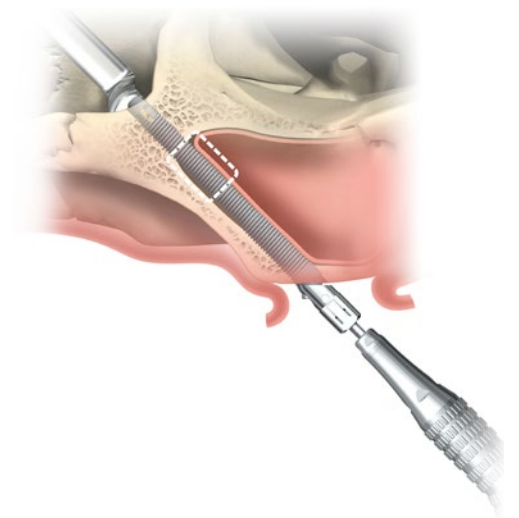
3 Pick up implant

Engage the implant mount with the Connection to Handpiece and pick up the implant.



4 Insert implant with drilling unit

- Insert the implant in the prepared bone site with 20 Ncm setting on the drilling unit. The setting may be increased to 50 Ncm to facilitate implant insertion.
- Once an insertion torque of 40 to 50 Ncm is reached, the Z Handle may be used to tighten the implant manually to the proper insertion depth.
- Confirm the correct insertion angle of the implant while continuing through the sinus until the implant apex engages in the zygomatic bone.

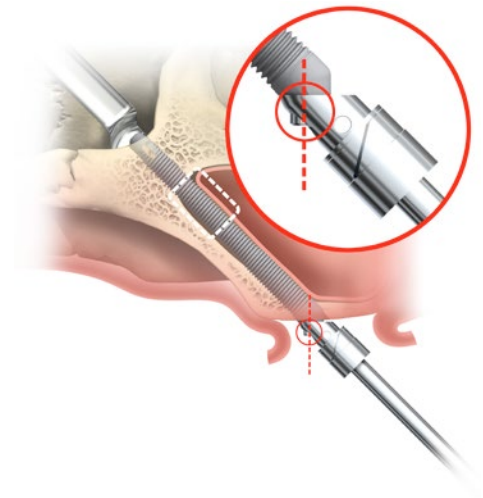


5 Tighten manually

- Disengage the Connection to Handpiece from the implant mount and connect the Z Handle to the implant mount.
- Rotate the Z Handle clockwise until the desired depth and head position are achieved.

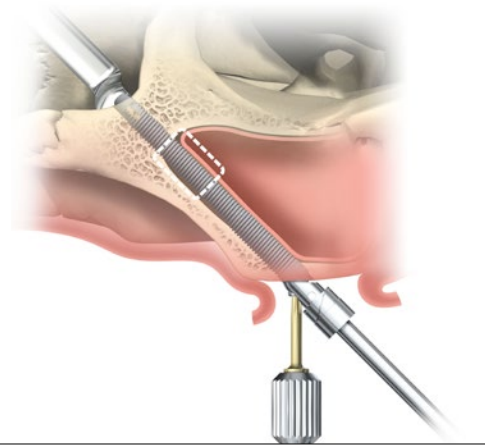
Caution: When using the Z Handle, applying excessive torque can distort the implant head or fracture the implant mount and/or the implant mount screw.

Note: The implant head can be positioned accurately by observing the screw that locks the implant mount to the implant. The implant mount screw position marks exactly the future position of the abutment screw. Ideally, position this as perpendicular to the occlusal plane as possible.



6 Verify correct position of implant platform

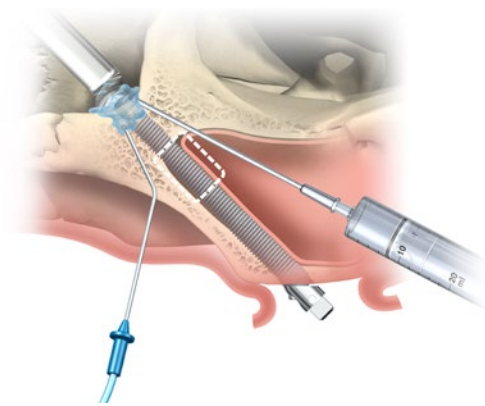
Verify the correct position of the implant platform by placing a Screwdriver Manual Unigrip into the screw head of the implant mount. The shaft of the screwdriver must be perpendicular to the crest of the ridge.



7 Irrigate apical implant portion

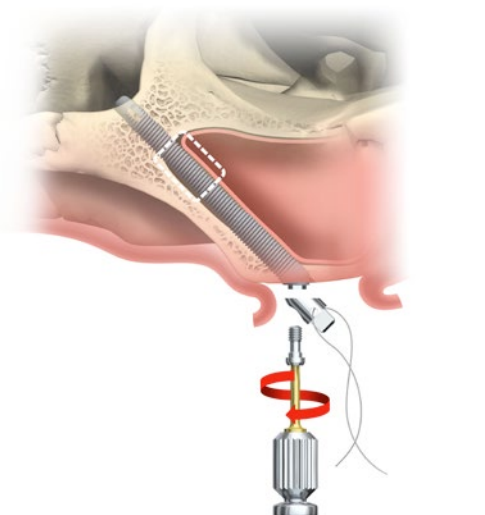
The apical portion of the Brånemark System Zygoma implant must be irrigated prior to removal of the retractor. This ensures that any bone fragments from the osteotomy preparation are removed.

Note: Remove the retractor after adequate irrigation of the apical portion of the implant.



8 Remove implant mount

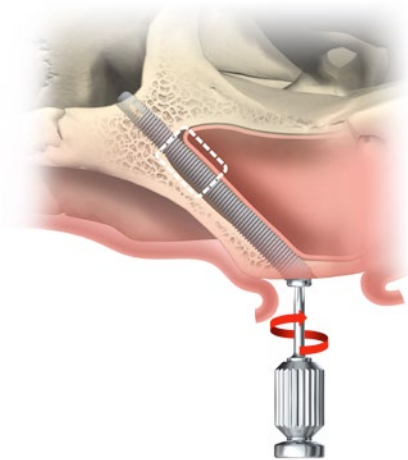
- Secure the implant mount with a surgical suture through the tool's hole.
- Loosen the screw of the implant mount with Screwdriver Manual Unigrip or a screwdriver installed on the contra-angle.
- If necessary, wiggle the implant mount gently from side to side to ensure that it is not binding on the implant head.
- Remove the screw carefully from the implant mount and remove the implant mount.



9 Place cover screw (for two-stage surgical approach)

Place a cover screw using Cover Screw Driver Brånemark System Hexagon. Make sure that the screw is fully seated to prevent bone in-growth between screw and implant platform. Final tightening has to be done manually.

Caution: There are dedicated cover screws for Brånemark System Zygoma implants with TiUnite surface and for Zygoma implants with machined surface, respectively.

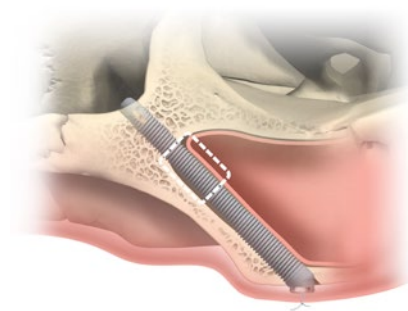


10 Place remaining implants

The anterior maxillary implants are placed according to their surgical protocol.

11 Close flap and reline denture (for two-stage surgical approach)

- Close and suture tissue flap around the implant using desired technique.
- Adjust and soft reline the patient's full upper denture.

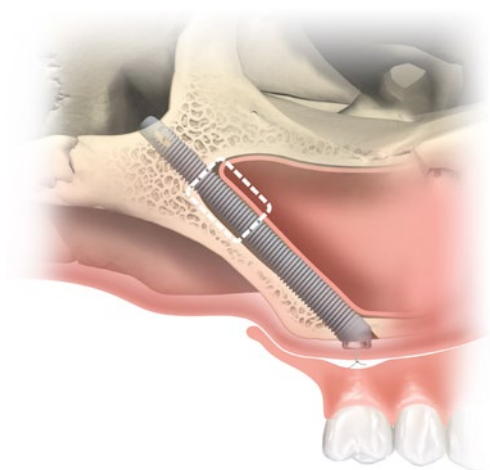


12 Wait for sufficient healing

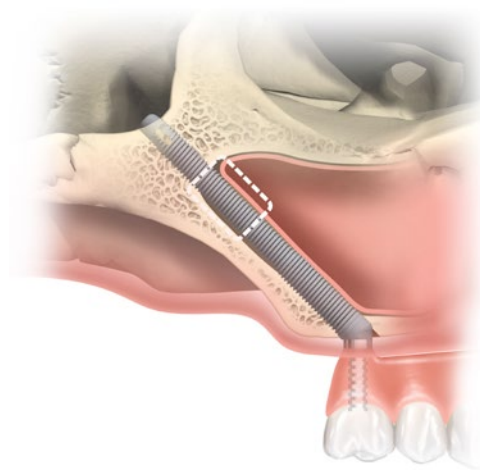
Allow six months for the implants to osseointegrate prior to second-stage surgery (exposure of implants).

Finalization of implant surgery

There are two options for finalizing the implant surgery.



or



Two-stage delayed function

Use Cover Screw Driver Brånemark System Hexagon to connect a cover screw to the implant. Suture tissue flap using desired technique.

Note: Be sure to relieve denture intaglio (tissue) surface to avoid contact between implants and denture.

One-stage Immediate Function

Provisionalize implants for Immediate Function on abutment level by fabricating a provisional bridge using Nobel Biocare Multi-unit Abutments in combination with Temporary Copings Multi-unit.

Post-operative instructions

Medication

Appropriate antibiotics as well as analgesic for pain management are prescribed for one week following the surgical procedure.

Diet

A soft diet is to be maintained throughout the period of using the immediately loaded provisional prosthesis. Strongly recommend that “tearing” forces and hard food (e.g. raw vegetables and fruit, nuts) are to be avoided.

Oral hygiene

Encourage the use of salt water rinses for the first week and prescribe 2% Chlorhexadine rinse b.i.d. (twice daily) for one month following surgery. In addition, ensure that the use of pulsating mechanical hygiene instruments is avoided. The modification of oral hygiene protocols is an ongoing process monitored by the surgical team on an individual patient basis. Also remind patients that they are not to blow their nose until instructed.

Follow-up appointments

The patients are seen one week post-operatively by the surgical as well as the prosthetic team. The need for more frequent surgical or prosthetic monitoring is determined by each team on an individual basis.

For immediate loading cases: post-insertion visit

At each visit, the stability of the restoration is checked, and a general evaluation of function, phonetics and esthetics is made. The stability of the prosthetic screws is also tested and, if necessary, the screws are retightened. The screw-access holes can be sealed by placing a soft, easily removable material over the screw head and a temporary or more permanent filling material of choice, such as composite resin, on top. The immediately loaded provisional prosthesis is normally left undisturbed for the first six months of the osseointegration.

Appointment for final prosthesis

After an osseointegration period of six months, the surgical team determines the integrity of all implants. The patients are then referred back to their prosthetic team for the fabrication of the final prosthesis.

Re-call schedule

A re-call schedule is established, based on an individual evaluation of each patient’s needs and circumstances. Annual clinical check-ups are recommended, with intraoral radiographic examinations after 1, 3 and 5 years. Encourage patients that they should return immediately if they feel pain or anything move.

Option 1: Immediate Function with conversion of existing denture into a fixed provisional bridge

The following illustrations show the Immediate Function protocol with immediate loading of four implants with a fixed provisional bridge on abutment level. The provisional restoration is fabricated from the existing upper denture.

The same prosthetic procedure for provisionalization applies for restorations with six implants and for implants that follow a two-stage delayed loading protocol.

1 Ensure that denture is suitable

In order to successfully convert a denture into a fixed provisional bridge, consider the following:

- **Function:** The denture must be functional. After several years of use, many dentures are worn and weakened, which will affect the strength of the fixed provisional bridge.
- **Fit:** The fit of the denture is critical. If the base is not stable, the conversion process is significantly challenged.
- **Occlusion:** The denture should be in an ideal occlusal and vertical relationship.
- **Esthetics:** The esthetics should be acceptable to the patient. If not, making a new denture for this procedure will be needed to enhance the patient experience.

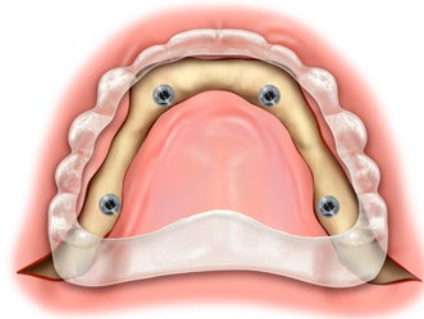


2 Confirm implant positions and choose

Multi-unit Abutments

Place the surgical template to confirm implant positions. This helps to select the correct Multi-unit Abutments.

Caution: There are dedicated Multi-unit Abutments for Brånemark System Zygoma implants with TiUnite surface and Zygoma implants with machined surface, respectively.

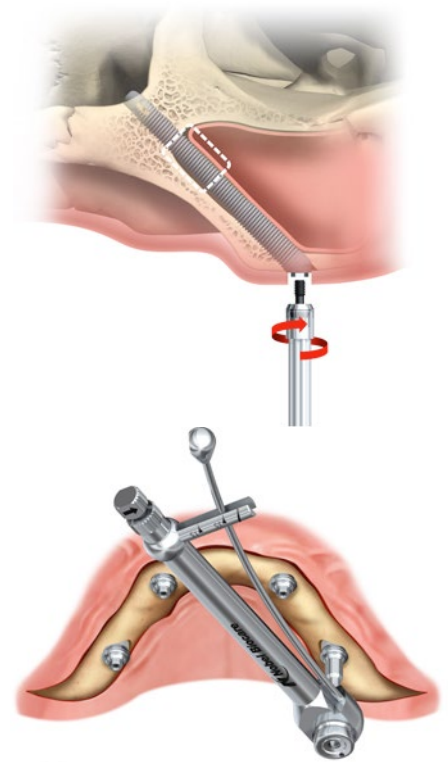


3 Connect and tighten Multi-unit Abutments

- Connect the Multi-unit Abutments to the implants.
- Tighten the Multi-unit Abutments.

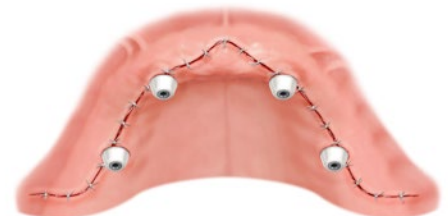
Notes:

- For straight Multi-unit Abutments, tighten the abutment screw to 35Ncm using Screwdriver Machine Multi-unit and Manual Torque Wrench Prosthetic.
- For angulated Multi-unit Abutments, tighten the abutment screw to 15Ncm using Screwdriver Machine Unigrip and Manual Torque Wrench Prosthetic.



4 Suture surgical site

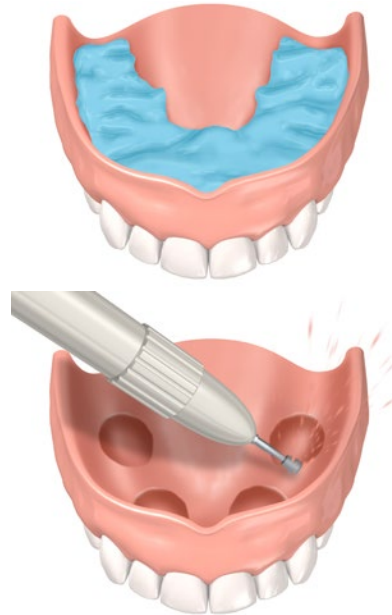
- Place Healing Caps Multi-unit and tighten prosthetic screws manually with the Screwdriver Manual Unigrip.
- Close and suture tissue flap around the abutments.



5 Make trial insertion

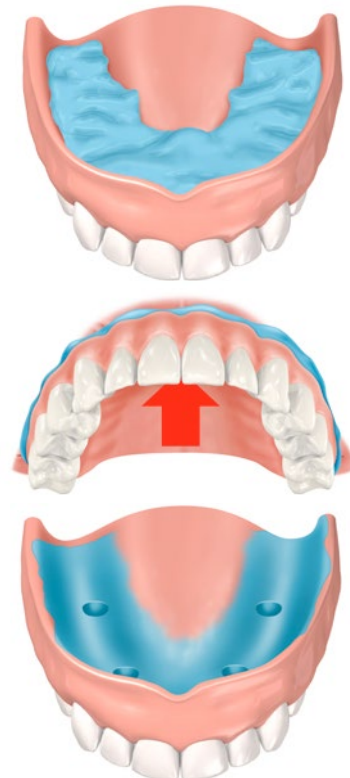
- Place impression material into denture. Be sure to keep the palatal aspect free from impression material.
- Verify clearance for Healing Caps Multi-unit and reduce any interferences.
- Secure correct occlusal relationship.
- Remove impression material.

Note: For final indexing, ensure clearance for Healing Caps Multi-unit.



6 Register abutment positions for final indexing

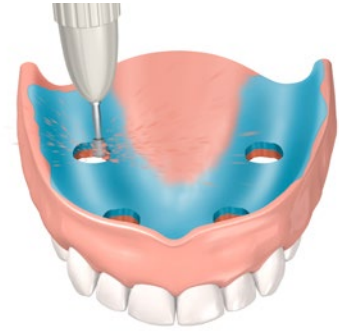
- Place impression material into denture. Be sure to keep the palatal aspect free from impression material.
- Place denture into patient's mouth with finger pressure on palatal area to index the position of the Healing Caps Multi-unit.
- Use opposing dentition to verify occlusal relationship.
- Remove denture with impression material.



Impression of Healing Caps Multi-unit

7 Make holes for temporary abutments

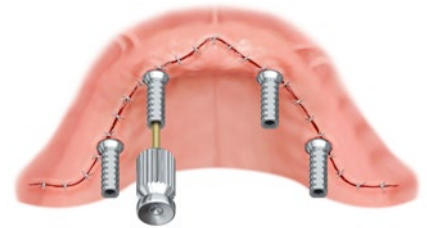
- Drill holes into the denture where Healing Caps Multi-unit have left an impression using a carbide bur.
- Remove impression material.



8 Place temporary copings

- Remove Healing Caps Multi-unit.
- Place Temporary Copings Multi-unit Titanium on the Multi-unit Abutments and tighten the prosthetic screws with the Screwdriver Manual Unigrip manually.

Note: Ensure that no soft tissue is trapped between coping and abutment.



9 Verify passive fit

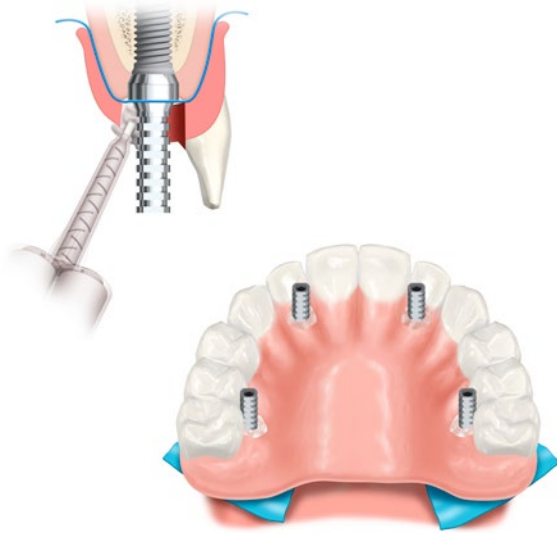
- Confirm passive fit of the denture by placing denture over the temporary copings.
- Confirm proper midline position as well as occlusal plane.
- Block out screw access holes.



10 Lute denture to temporary copings

- Use rubber dam or other suitable material to protect surgical site.
- Lute the denture with resin acrylic onto the temporary copings in the patient's mouth.
- Unscrew and remove denture together with luted temporary copings from patient's mouth.
- Finish luting procedure extraorally and polish.

Tip: A Protection Analog Multi-unit could be used to protect the temporary copings from resin acrylic.



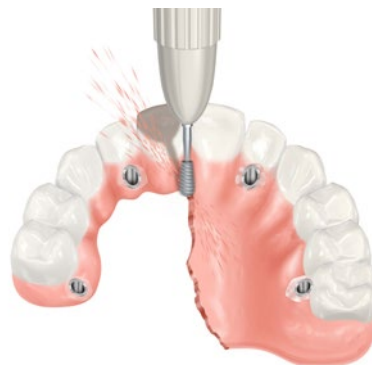
11 Trim titanium copings

Use a carbide bur to trim the titanium copings extraorally so that they are flush with the acrylic resin.



12 Trim denture

In order to complete the conversion of the patient's denture into a fixed provisional bridge, remove the palatal portion and recontour the buccal flange. In addition, remove cantilevers that exist distal to the position of the zygoma implants.



13 Finalize provisional bridge

Make sure that the palatal surface of the bridge is convex and smoothly polished to avoid food impaction and bacteria accumulation.



14 Connect provisional bridge

- Place the provisional bridge on the abutments and tighten the prosthetic screws to 15 Ncm using Screwdriver Machine Unigrip and Manual Torque Wrench Prosthetic.
- Block out screw access and fill holes with suitable material.
- Check and adjust the occlusion if necessary.



15 Wait for sufficient healing

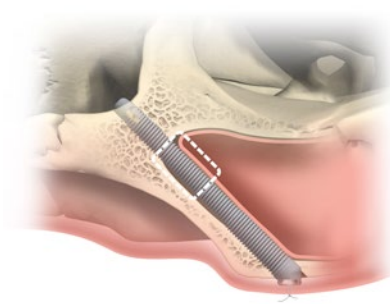
Allow six months for the implants to osseointegrate.

Option 2: two-stage delayed loading

When delayed loading is considered, it is essential that the zygoma implants are cross-arch splinted after the second-stage surgery (uncovering of the implants).

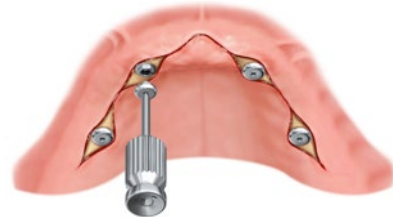
For stage-two surgery, the Brånemark System Zygoma implants must be splinted to the premaxillary implants through a rigid cross-arch splinted bar. It may be practical to use the patient's interim full denture for cross-arch stabilization of the zygoma and premaxillary implants. This is achieved by converting the denture into a fixed provisional bridge.

The provisional restoration allows both for cross-arch fixation of the zygoma implants and evaluation of the esthetics and function of the final prosthesis by the restorative team and the patient.



1 Make crestal incision and remove cover screws

- Make a crestal incision to expose the cover screws.
- Remove the cover screws using Cover Screw Driver Brånemark System Hexagon.
- Examine the implants to ensure successful osseointegration and stability.



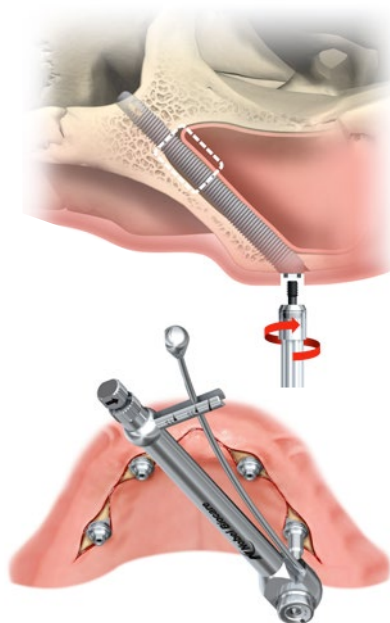
2 Select and tighten Multi-unit Abutments

- Select appropriate Multi-unit Abutments and connect to implants.
- Tighten the Multi-unit Abutments.

Notes:

- For straight Multi-unit Abutment, tighten the abutment screw to 35 Ncm using Screwdriver Machine Multi-unit and Manual Torque Wrench Prosthetic.
- For angulated Multi-unit Abutments, tighten the abutment screw to 15 Ncm using Screwdriver Machine Unigrip and Manual Torque Wrench Prosthetic.

Caution: There are dedicated Multi-unit Abutments for Brånemark System Zygoma implants with TiUnite surface and Zygoma implants with machined surface.



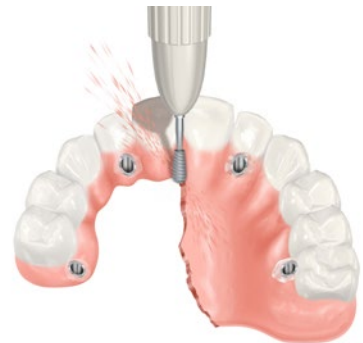
3 Suture surgical site

- Place Healing Caps Multi-unit and tighten prosthetic screws manually with the Screwdriver Manual Unigrip.
- Close and suture tissue flap around abutments.



4 Option: convert existing denture into provisional bridge

If you have not ordered a new provisional bridge from your dental laboratory, convert the existing denture into a fixed provisional bridge. In this case, follow the steps 5–13 on pages 40–43.



5 Connect provisional bridge

- Remove Healing Caps Multi-unit.
- Place the provisional bridge on the abutments and tighten the prosthetic screws to 15 Ncm using Screwdriver Machine Unigrip and Manual Torque Wrench Prosthetic.
- Block out screw access and fill holes with suitable material.
- Check and adjust the occlusion if necessary.



6 Wait for sufficient healing

Allow 4-6 weeks for soft tissue healing prior to fabrication of the final prosthesis.

Final restoration

The following illustrations demonstrate the abutment level, open tray impression taking technique using Multi-unit Abutments after second-stage surgery and fabrication of a NobelProcera Implant Bridge Titanium as final restoration.

1 Verify hard and soft tissue integration

Prior to the final restorative procedure, the dental team ensures that the implants are properly osseointegrated and soft tissue maturation has taken place.

2 Remove the provisional prosthesis

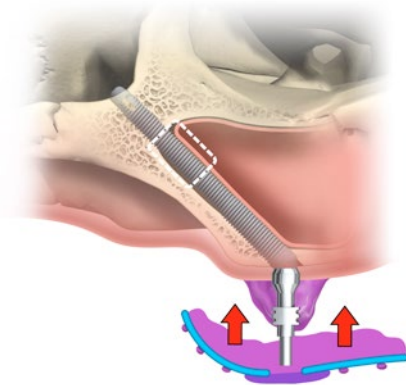
Remove the provisional prosthesis using Screwdriver Unigrip.



3 Take impression

- Connect the Impression Copings Open Tray to the Multi-unit Abutments and block out the screw-access holes.
- Take an impression with a custom-made tray using the open-tray technique.
- An impression of the lower jaw is also recorded, as well as a preliminary registration and jaw-relation records.

Note: Specific impression copings are available for restorations on implant level.



4 Laboratory procedure: fabrication of master cast and tooth set-up

– Deliver the impression to the dental laboratory, which makes a master cast.

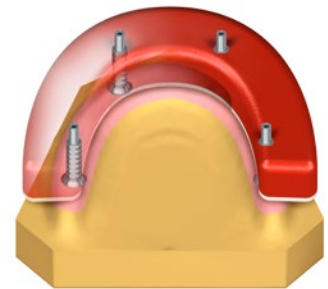
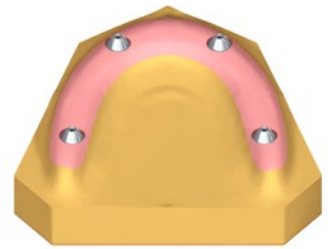
– An acrylic record base with a wax occlusal rim is fabricated on this cast.

Registration of jaw relations

The acrylic record base is attached to the abutments, and the occlusal rim is adjusted to the correct vertical height and occlusal plane orientation. Adequate lip support and facial contours are also evaluated, and appropriate adjustments are made to the occlusal rim. Tooth shape and shade are selected.

Tooth set-up in wax

A preliminary tooth set-up is made, following conventional prosthetic principles.



5 Confirm tooth set-up

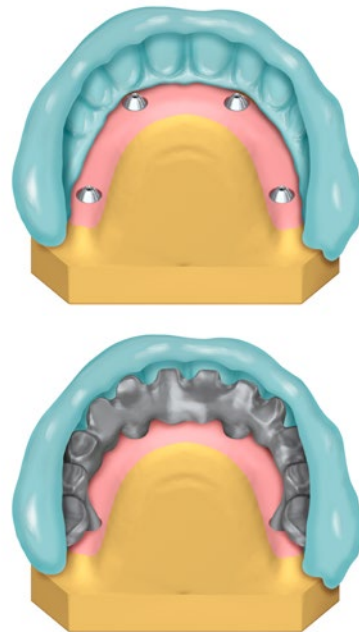
Try the wax tooth set-up in the patient and evaluate all relevant parameters such as vertical dimension, occlusal relationships, cantilevers, cuspal inclination, tooth shade and shape, hygiene access, lip support, facial contours as well as phonetics.



6 Laboratory procedure: framework fabrication

A rigid framework with adequate volume and precision is made.

Caution: A passive fit of the framework on the master cast is imperative.



Precision-milled NobelProcera framework in titanium

7 Try in framework

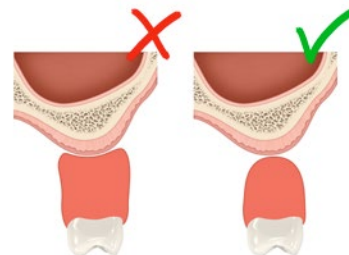
Verify the passive fit of the framework by placing one screw and checking the complete seating of the framework on the abutments.



8 Laboratory procedure: finalization of restoration

The restoration is finalized and delivered to the clinician.

Make sure that the palatal surface of the bridge is convex and smoothly polished to avoid food impaction and bacteria accumulation.



9 Connect final restoration

- Verify the passive fit of the final restoration intraorally.
- Tighten the prosthetic screws to 15Ncm using Unigrip Screwdriver Machine and Manual Torque Wrench Prosthetic.
- Block out screw access and fill holes with suitable material.
- Check the occlusion.

Note: Eliminate any primary occlusal contacts on distal cantilevers.



Brånemark System® Zygoma TiUnite®

Brånemark System® Zygoma with TiUnite® surface

The angulated head of Brånemark System Zygoma TiUnite is closed. Specific components with a shorter screw need to be used, as they can otherwise not be fully seated.



Brånemark System® Zygoma TiUnite® RP

Implant 30 mm	34723
Implant 35 mm	34724
Implant 40 mm	34735
Implant 42.5 mm	34736
Implant 45 mm	34737
Implant 47.5 mm	34738
Implant 50 mm	34739
Implant 52.5 mm	34740

All implants are delivered with the implant mount pre-mounted. Each package also includes a cover screw.

Brånemark System Zygoma TiUnite Cover Screw	32424
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Brånemark System® Zygoma Healing Abutments

Ø 4 × 3 mm	32332
Ø 4 × 5 mm	32333

Brånemark System® Zygoma Multi-unit Abutments RP

Multi-unit 3 mm	32330
Multi-unit 5 mm	32331
17° Multi-unit 2 mm	32328
17° Multi-unit 3 mm	32329



Zygoma with machined surface

Zygoma implants with machined surface

The angulated head of Zygoma implants is open so that the standard components for Brånemark System implants with Regular Platform (RP) can be used.*

Note: There are a dedicated cover screw and several Multi-unit Abutments for Zygoma implants.



Zygoma RP

Implant 30 mm	28862
Implant 35 mm	28863
Implant 40 mm	28864
Implant 42.5 mm	28865
Implant 45 mm	28866
Implant 47.5 mm	28867
Implant 50 mm	28868
Implant 52.5 mm	28869

All implants are delivered with the implant mount pre-mounted. Each package also includes a cover screw.

Zygoma Cover Screw	28989
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Zygoma Multi-unit Abutments RP

Multi-unit 3 mm	29312
Multi-unit 5 mm	29313
17° Multi-unit 2 mm	29314
17° Multi-unit 3 mm	29315

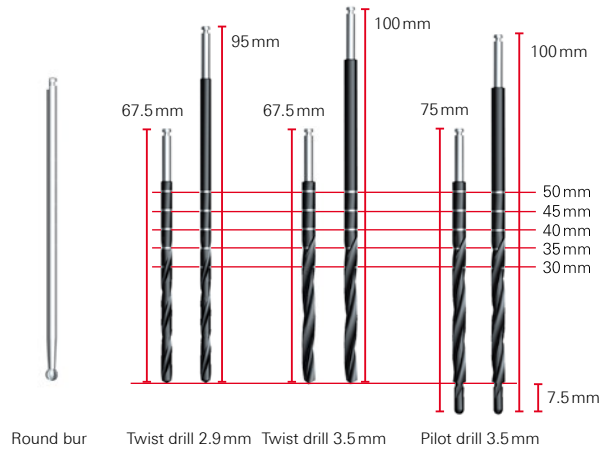


* For the full assortment, see the current product catalog or visit the online store nobelbiocare.com/store

Drills and instruments

Brånemark System® Zygoma drills

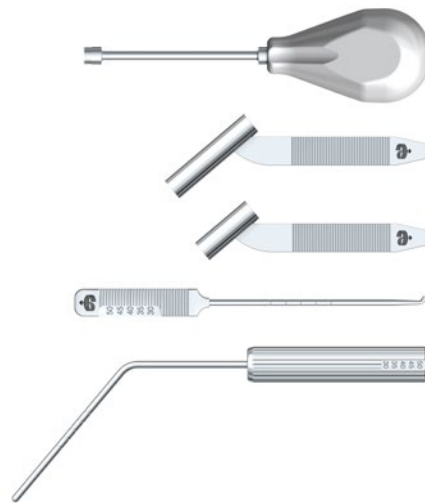
Round Bur	DIA 578-0
Twist Drill 2.9mm	32628
Twist Drill 2.9mm Short	32629
Pilot Drill 3.5mm	32630
Pilot Drill 3.5mm Short	32791
Twist Drill 3.5mm	32631
Twist Drill 3.5mm Short	32632



Zygoma Surgical Kit 29162

(The articles below cannot be purchased individually.)

Kit includes
Storage Box*
Z Handle
Z Drill Guard
Z Drill Guard Short
Z Depth Indicator Straight
Z Depth Indicator Angled



* The storage box cannot be sterilized.

Zygoma instruments

Cover Screw Driver Brånemark System® Hexagon	DIB 097-0
Screwdriver Machine Unigrip™ 25 mm (to implant mount screw)	29152
Screwdriver Manual Unigrip™ 28 mm (to implant mount screw)	29149
Zygoma Handpiece (to be used with OsseoSet™ or OsseoCare™) (semi straight ratio 20:1)	32615
Connection to Handpiece	29081



Drills and instruments for standard anterior implants

For the full assortment of standard implants and their surgical and prosthetic components, see the current product catalog or visit the online store nobelbiocare.com/store



Prosthetic components

For restorations on abutment level

Multi-unit Abutments	
See pages 50 and 51	
Healing Cap Multi-unit	
1/pkg	31145
5/pkg	29064
Healing Cap Wide Multi-unit (1/pkg)	31146
Temporary Coping Multi-unit Titanium (with Prosthetic Screw)	29046
Temporary Coping Multi-unit Plastic (without Prosthetic Screw) (cannot be used as a burn-out)	DCA 468-0
Impression Coping Open Tray Multi-unit (includes 15mm Guide Pin)	29089
Impression Coping Closed Tray Multi-unit	29090
Gold Coping Multi-unit (with Prosthetic Screw)	
1/pkg	29043
5/pkg	29042
Prosthetic Screw Multi-unit	29285
Lab Screw Multi-unit (5/pkg)	29287
Abutment Replica Multi-unit	
1/pkg	31161
5/pkg	29110
Guide Pin Multi-unit 10 mm	
1/pkg	31154
5/pkg	29102
Guide Pin Multi-unit 20 mm	
1/pkg	31155
5/pkg	29103
Protection Analog Multi-unit (5/pkg)	29123



For restorations on implant level

For Zygoma implants with machined surface, the standard components for Brånemark System implants with Regular Platform (RP) can be used – see the current product catalog or visit the online store nobelbiocare.com/store

For Brånemark System Zygoma implants with TiUnite surface, a dedicated impression coping and a shorter abutment screw are available.

Brånemark System® Zygoma	
Impression Coping Open Tray Ø 4 mm	33396
Brånemark System® Zygoma Abutment Screw*	33397



Prosthetic Kit	32309
Kit includes	
Prosthetic Kit Box	32322
Screwdriver Machine Unigrip™ 20mm	29151
Screwdriver Machine Unigrip™ 30mm	29153
Screwdriver Machine Multi-unit 21mm	29158
Manual Torque Wrench Prosthetic	29165



* A shorter abutment screw for placing a wider range of abutments and bridges on Brånemark System® Zygoma implants. The abutment screw is compatible with the following components: NobelProcera / Procera Implant Bridge, NobelProcera / Procera Abutment Titanium, Esthetic Abutment, Snappy Abutment, GoldAdapt, Gold Abutment Bar (implant level), and Temporary Abutment.

Drill motor

Handpiece Zygoma 20:1

32615



OsseoCare Pro™

With Contra-angle CA 20:1 L Micro-Series 1700470-001

With Contra-angle CA 20:1 L Micro-Series Kirschner-Meyer 1700471-001

OsseoCare™

With Contra-angle CA 20:1 L Micro-Series 1700472-001

With Contra-angle CA 20:1 L Micro-Series Kirschner-Meyer 1700473-001

With Contra-angle CA 20:1 L Micro-Series
(with software for US & Canadian market) 1700474-001With Contra-angle CA 20:1 L Micro-Series Kirschner-Meyer
(with software for US & Canadian market) 1700475-001

Accessories

Irrigation Line (10/pkg) 1500984-010

Irrigation Clip (10/pkg) 1303711-010

Irrigations System Kirschner-Meyer 20:1 L (10/pkg) 1501621-010

Irrigation Line Kirschner-Meyer (10/pkg) 1501635-010

Handpiece / Motor Holder 1301575-001

Gallows for irrigation fluid 1303393-001

Contra-angle CA 20:1 L Micro-Series 1600873-001

Contra-angle CA 20:1 L Micro-Series Kirschner-Meyer 1600874-001

Motor MX-i LED® 1600875-001

Cable for MX-i LED® 1600606-001

Foot Control 1600631-001

Safety Fuse 5x20 250V (10/pkg) 1301560-010

Holder for iPad® 4 1305949-001

Screwdriver Torx for iPad® Holder 1305947-001

Sterile Protection Film (10/pkg) 1501746-010

Contra-Angle for
external irrigationKirschner Meyer hand-
piece for external and
internal irrigation

Recommendations for surgical units other than OsseoCare

– Gearing of the contra-angle handpiece is adjustable to a ratio of 20:1.

- Maximum drill speed is 2000 rpm.
- Maximum speed for implant insertion is 45 rpm.
- Maximum torque for implant insertion is 50 Ncm.

Cleaning and sterilization

Sterile components

The devices delivered sterile have a “Sterile” marking on the label. Opened packages of components that have never entered the oral cavity of a patient may be cleaned and sterilized/ autoclaved again. See current cleaning and sterilization guidelines for details: nobelbiocare.com/sterilization



Note: Implants should never be re-sterilized.

Implants

Implants are delivered sterile, are for single-use only, and must be used prior to the labeled expiration date. Do not use implants if the packaging has been damaged or previously opened.



Multi-unit Abutments

Multi-unit Abutments are delivered sterile. If re-sterilization is required, see current cleaning and sterilization guidelines for details: nobelbiocare.com/sterilization

Notes:

- For re-sterilization of straight Multi-unit Abutment, remove plastic holder prior to procedure.
- Healing Cap Multi-unit is delivered non-sterile and needs to be sterilized prior to placing it in the oral cavity.



Non-sterile components

Care and maintenance of reusable instruments and drills are crucial for successful treatment. Well-maintained instruments not only safeguard your patients and staff against infection, but are also essential for the outcome of the total treatment.

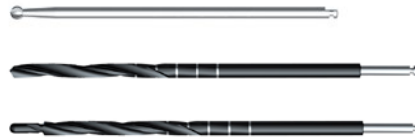
See current cleaning and sterilization guidelines for details:
nobelbiocare.com/sterilization



Drills

Brånemark System Zygoma Drills are delivered non-sterile and need to be sterilized prior to placing them in the oral cavity.

See current cleaning and sterilization guidelines for details:
nobelbiocare.com/sterilization



Contra-angle

For cleaning and sterilization procedures, see specific instructions from respective manufacturer.

Customer service worldwide

Americas

Brazil

Nobel Biocare Brazil
Phone: 0800 16 999 6

Canada

Nobel Biocare Canada
Phone: +1 800 939 9394

Mexico

Nobel Biocare Mexico
Phone: +52 55 524 974 60

USA

Nobel Biocare USA
Phone: +1 800 322 5001

Asia Pacific

Australia

Nobel Biocare Australia
Phone: 1800 804 597

China

Nobel Biocare China
Phone: +86 400 081 7707

Hong Kong

Nobel Biocare Hong Kong
Phone: +852 2845 1266

India

Nobel Biocare India
Phone: 1800 266 9998

Japan

Nobel Biocare Japan
Phone: +81 3 6408 4182

New Zealand

Nobel Biocare New Zealand
Phone: 0800 441 657

Taiwan

Nobel Biocare Taiwan
Phone: +886 080 00 779

Europe, Middle East and Africa

Austria

Nobel Biocare Austria
Phone: +43 1 892 89 90

Belgium

Nobel Biocare Belgium
Phone: +32 2 467 41 70

Denmark

Nobel Biocare Denmark
Phone: +45 39 40 48 46

Finland

Nobel Biocare Finland
Phone: +358 20 740 61 00

France

Nobel Biocare France
Phone: +33 1 49 60 46 00

Germany

Nobel Biocare Germany
Phone: +49 221 500 850

Hungary

Nobel Biocare Hungary
Phone: +36 1 279 33 79

Ireland

Nobel Biocare Ireland
Phone: +44 208 756 3300

Israel

Nobel Biocare Israel
Phone: +972 3 9291000

Italy

Nobel Biocare Italy
Phone: +39 800 53 93 28

Lithuania

Nobel Biocare Lithuania
Phone: +370 5 268 3448

Netherlands

Nobel Biocare Netherlands
Phone: +31 30 635 49 49

Norway

Nobel Biocare Norway
Phone: +47 64 95 75 55

Poland

Nobel Biocare Poland
Phone: +48 22 395 73 60

Portugal

Nobel Biocare Portugal
Phone: +351 800 300 100

Russia

Nobel Biocare Russia
Phone: +7 495 974 77 55

South Africa

Nobel Biocare South Africa
Phone: +27 11 802 0112

Spain

Nobel Biocare Spain
Phone: +34 900 850 008

Sweden

Nobel Biocare Sweden
Phone: +46 31 335 49 00

Switzerland

Nobel Biocare Switzerland
Phone: 0800 211 424

United Kingdom

Nobel Biocare UK
Phone: +44 208 756 3300

Distributor Markets

European Distributor Markets

Azerbaijan, Bulgaria, Croatia, Cyprus, Czech Republic, Greece, Malta, Romania, Serbia and Montenegro, Slovakia, Slovenia
Phone: +34 933 560 562

Latam Distributor Markets

Chile, Colombia, Costa Rica, Puerto Rico
Phone: +1 714 282 4800

Middle East & Africa Distributor Markets

Algeria, Bahrain, Jordan, Kuwait, Lebanon, Qatar, Saudi Arabia, Tunisia, Turkey, United Arab Emirates
Phone: +34 933 560 562

Southeast Asia Distributor Markets

Indonesia, Malaysia, Singapore, South Korea, Thailand, Vietnam
Phone: +852 28238925

South Asia Distributor Markets

Bangladesh, Nepal, Pakistan and Sri Lanka
Phone: +91 22 67519999

