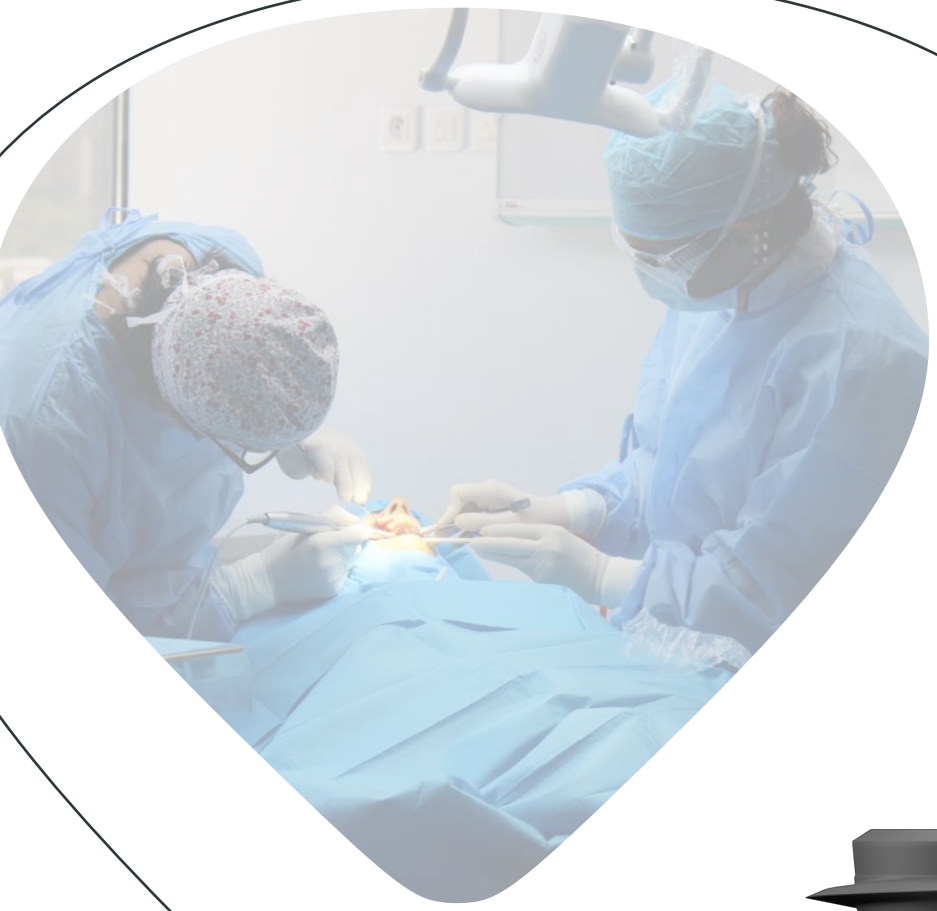
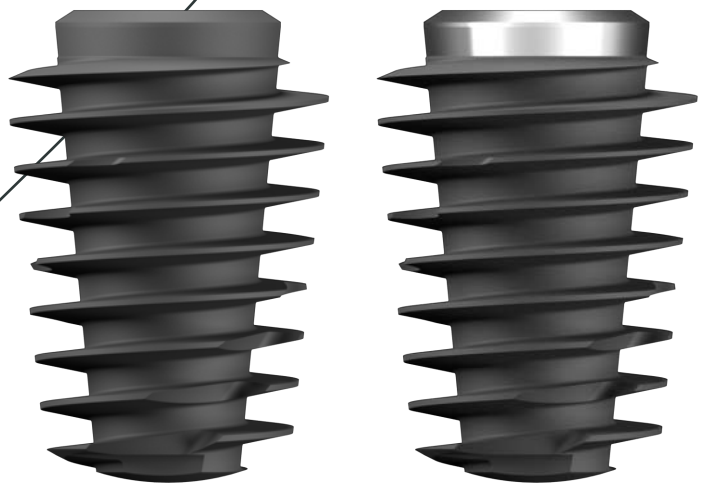
etk
A LYRA COMPANY





User manual

i bone E® and i bone S®

Surgery and Prosthesis

Editorial

With research and development experience since 1988 and clinical experience since 1992, **etk** has a proven track record in implant design confirmed by the invaluable assistance of internationally recognized research laboratories.

The design of our implants is based on the triple competence of a reactive team experienced in implant dentistry:

- Technical and biomechanical competence of our engineers guarantees the durability of the components and their adaptation to oral applications through modern simulation methods.
- Biological and physiological competence of the associated laboratories validate the osseointegration capacity of our systems.
- Clinical and practical skills of our dentists and dental technicians ensure the ergonomics of our products, the rationalization of our protocols and the definition of ranges adapted to various clinical cases encountered.

The **ibone E and ibone S** implants are also based on the most recent scientific advances in implant treatment, which gives it optimum anchoring power with a high bone attachment in the cortical area under the greatest stress.

In order to enable you to get the most out of the **ibone E and ibone S** implants, we have produced this manual with the utmost professionalism and invite you to take a close look at it. The smallest detail is important and underscores all the more the difference between the amateur and the specialist.

Table of Contents

For more information on implants etk,
we invite you to visit the following sites:
lyra.dental/implants and lyrashop.dental

Warning

The installation of the **etk** implants must be carried out by a practitioner previously trained in the techniques of implant dentistry, and under conditions of asepsis adapted to this type of intervention. The **etk** guarantee shall not be apply in case of misuse of our products or lack of **training** on the part of the implant practitioner.

The following instructions will guide you through the various phases to be implemented for performing your implant treatments. They are accompanied by the most accurate advice possible, but cannot serve as "recipes", since each clinical case is unique. A very large number of factors act interdependently to achieve a successful implant treatment. It is up to the practitioner to know the key principles, and to draw on his or her clinical experience. On the other hand, the coordination between the prosthesis laboratory and the practitioner must be perfect so that the overall treatment plan is coherent. The practitioner remains solely responsible for his or her different choices and decisions regarding the feasibility of the treatment, implants, prosthetic parts and materials used, adjustments, etc.

The technical specifications and clinical advice contained in this manual are for guidance purposes only and shall not give rise to any claims. All the essential information is indicated on the leaflet supplied with the products.

We have taken particular care in the design and manufacture of our products; nevertheless we reserve the right to make changes or improvements resulting from new technical developments in our implant system. You will be notified of any changes that affect the operating procedure. Depending on the extent of these changes, a new manual may be provided. In fact, a publication date appears on the back of your user manual, and allows us to make sure that you always have the latest updates. You can find the current version of this manual on our website.

GENERAL INFORMATION

Indications for IBONE E AND IBONE S IMPLANTS

The **ibone E and ibone S** dental implants are intended to be used for the replacement of a dental root to support a fixed or mobile prosthesis and thus restore masticatory function. The **ibone E and ibone S** dental implants are intended to be used in cases of single, partial or complete edentulism on the maxillary and/or mandibular arch (except in the presence of specific indications and contraindications, mentioned below). Dental **etk** implants can be used for delayed, immediate or early implantation after extraction or loss of a natural tooth. **etk** implants are intended, within the framework of their indications, as immediate restorations of partially or totally edentulous jaws. Good primary stability and a suitable occlusal load are essential. The duration of the healing phase for delayed restorations is mentioned in the corresponding chapter. The prosthetic restorations used are single crowns, bridges and partial or complete dentures, bonded to the implants by the prosthetic components associated with the implant used.
On the following pages, you will find detailed information on the required bone volume, the spacing between two implants and the distance to the adjacent tooth for each implant.

- Lack of retention of a denture
- Instability of a denture
- Functional discomfort with dentures
- Psychological refusal to wear a denture
- Parafunctional habits that compromise the stability of a denture
- Location and inadequate number of residual abutments
- Absence of dental abutments to make a fixed prosthesis
- Single-unit edentulism with healthy adjacent teeth preserved
- Dental agenesis
- Request for a conservative therapy (refusal of mutilation of healthy teeth)

These are implants designed to be placed in 2 surgical steps. However, the immediate placement of an iphysio® Profile Designer or a healing abutment will allow you to work in 1 step.

The conical shape of the **ibone E and ibone S** implants makes them particularly suitable for:
- reduced mesiodistal spaces
- post-extraction surgery
- esthetic management in anterior areas
- implantation with immediate loading

The **ibone E and ibone S** conical implants are very advantageous in post-extraction cases and particularly for D3-D4 type bones due to their wide coils.

Specific indications for 6 MM LONG IMPLANTS

Since the anchoring surface of these implants in the bone is reduced, they should only be used for the following indications:
- as implants to complement longer implants on a multi-unit or complete restoration
- complete esthetic supports, in the presence of a severely atrophied mandible
- on implant sites with a bone quality higher than D4 according to the Misch classification

Target POPULATION

All patients (male or female), whose growth is completed, requiring dental implant restoration and without any contraindications (see section "Implant Contraindications").

Users

The installation of implants must be carried out by a practitioner with a Doctor of Dental Surgery degree who has been trained in the uses and techniques of implant dentistry. All procedures must be performed according to the rules of dentistry and under aseptic and hygienic conditions appropriate for this type of procedure.

Guarantees

In the event of non-osseointegration, you should inform your sales consultant so that we can analyze the causes of this failure and take the necessary corrective action.
An exchange may be made in the event of a product defect; if the failure is the result of a poor analysis of the clinical case, an operating protocol not suitable for the case, use of worn drill bits ... or any reason other than the quality of our products, the guarantee shall not apply.

Packaging PARTS

Sterility & Rules of asepsis

▶ Most of our parts are delivered sterile, and therefore usable upon receipt. A control sticker indicates the effective sterility of the components on their packaging.
Sterility is guaranteed for 5 years (from the date of sterilization after complete packaging of our products). A standard expiration date is indicated on the label.
▶ Only intact packaging can guarantee the sealing and sterility of the products. Do not use implants whose packaging has been damaged or opened prematurely.
▶ Our products have been designed to be handled in such a way as to keep them sterile. It is therefore important to respect precise gestures so as not to compromise the conventional aseptic conditions of the implant practice.
▶ Parts and instruments delivered non-sterile and used for implant treatment must be decontaminated and, according to a validated process, sterilized by the dental practice.

	Sterile	Non-sterile
Implants	x	
Cover screws (supplied with the implant)	x	
Drill bits		x

Labels

Our implants are delivered with 1 main label and 2 peel-off labels clearly mentioning the brand, reference and batch number (i.e. 3 labels):

- 2 labels for the patient file of the practitioner who inserted the implants or the referring dentist.
- 1 label for the patient.

Manufacturing

Warning: see Instruction manual

Date of manufacture

To be used by

Refer to the user manual

REF
Product reference

LOT
Serial number

Keep away from light

Store in a dry place

0459
Complies with the requirements of the European Medical Device Directive 93/42 EEC

Do not use if the packaging is damaged

STERILE R
Sterilization method using irradiation

Do not reuse

Do not re-sterilize

XX N.cm *Recommended tightening torque*

Storing PARTS

Implants must be kept in a clean, dry and cool place.

Precautions FOR USE

- It is strongly recommended to have an inventory of implants to cover the main diameters, as well as the different lengths. It is essential to be able to correct the choice of implant during the operation, replace a soiled implant for any reason, insert an additional implant in some cases to ensure long-term treatment, etc.
- We recommend using a "parachute wire" on the instruments to prevent parts from accidentally falling down the patient's throat.
- It is imperative to prepare the receiving site with the instruments **etk** presented in this manual.

PRE-IMPLANTATION
STUDY

It is necessary to assess the feasibility of the implant treatment, and determine the treatment plan.

Feasibility of implant TREATMENT

This study is based on various elements

- An accurate history based on a medical questionnaire filled in by the patient and collected by the practitioner.
- A clinical and methodical examination of the patient's mouth.
- Biological tests.
- A complete radiological file to determine the available bone volumes.
- Complete study models with both arches in occlusion.
- Implant treatment cannot be initiated until all of the patient's infectious sites have been completely sanitized.

Guide for choosing IMPLANTS

Available bone volume

In the mesiodistal plane

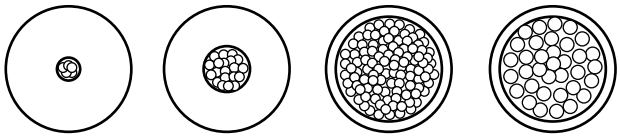
- Allow 2 mm between the coils of an implant and the adjacent natural teeth.
- Allow 3 mm between the coils of two adjacent implants.

In the vestibular-palatal-lingual direction

Leave, if possible, 1.5 to 2 mm of bone thickness around the vestibular, palatal and lingual surfaces.

Bone density

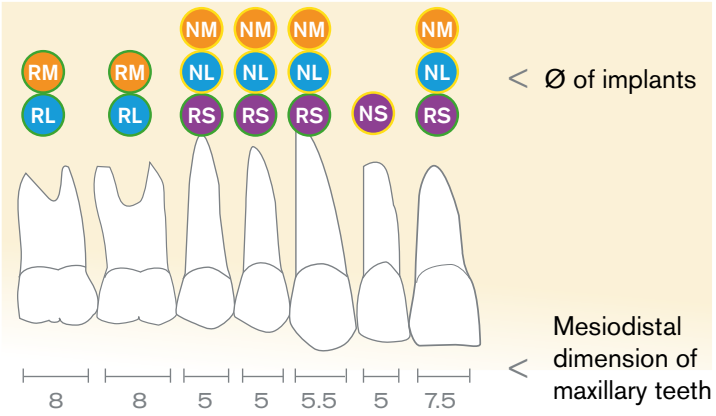
Consider the use of larger implants in low density bones to compensate for the loss of bone/implant contact surface due to cavities.

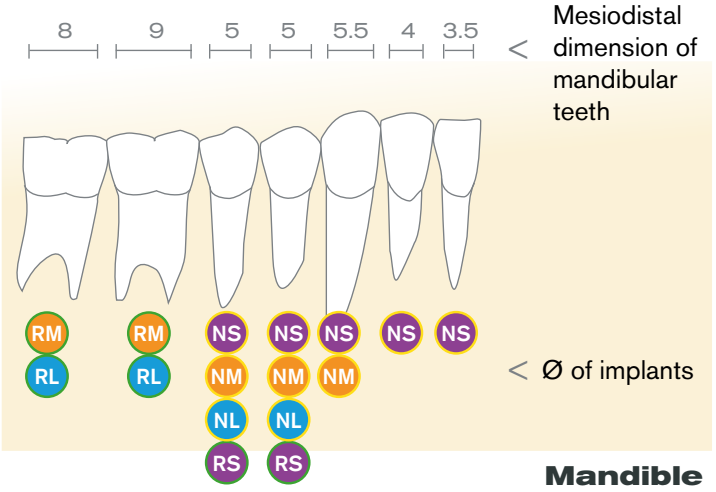


I II III IV

	ibone E and ibone S					
Ø body	● Ø 3.5			● Ø 4.3		
Ø coils	3.8	4.3	4.8	4.8	5.5	6.2

Maxillary

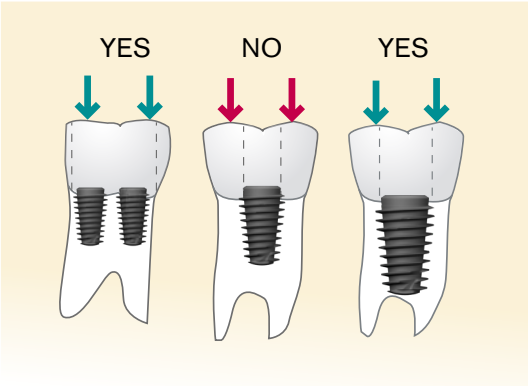




Mandible

Legend

NS	Ø3.5/3.8	RS	Ø4.3/4.8
NM	Ø3.5/4.3	RM	Ø4.3/5.5
NL	Ø3.5/4.8	RL	Ø4.3/6.2



Using THE SIMPLIFIED GUIDED SURGERY

The ibone S and ibone E implant systems are compatible with the use of a surgical guide made according to your patient's CT scan and physical or digital study models of the initial situation.
This guide can be made:

- At your practice, totally independently if you have a CBCT, planning software and a 3D printer.

- On our dedicated platform LYRAGUIDE where you select the level of support you need.

Advantages and importance OF THE SIMPLIFIED GUIDED SURGERY IN THE IBONE S AND IBONE E DRILLING PROTOCOL

- Simplification of protocols and increased success of the surgical treatment by obtaining a better predictability of results, as the system is very reliable, which allows optimal positioning of the implants without any margin of error.

- Study of bone density, which will lead to strategic surgical and prosthetic choices: surgical sequence, number of implants, their position, their angulation, type of prosthesis, etc.

- Maximum exploitation of bone volume: no need for timid implantation.

- Calculation of the volumes to be grafted, which allows the choice of the donor site.

- Precise orientation of the implant in the mesiodistal and labio-lingual direction.

- Control of bone grafts, or even in some cases, reduction of graft indications by exploiting the remaining bone volume to the maximum.

- Allows perilous or difficult implantations: search for bicortical supports, lateralization of the implant path in relation to the dental nerve...

- A further step is taken in the case of flapless surgery, which greatly improves postoperative outcomes, thus saving time and providing substantial comfort for the patient.

- Possibility of combining the osseointegration period and post-extraction implantation in order to have minimum bone resorption with maximum precision.

- Increase patient-practitioner communication.

Implant PLANNING

Beyond the guided surgery, etk has developed a digital implant library available in many implant planning software programs to guide you in the selection of your implants.
Please contact your software provider for more information.

SURGICAL
PROCEDURE

Foreword

Warning

Treatment planning and inserting dental implants require taking into account specific considerations.

Inappropriate techniques in both implant placement and prosthetic restoration can result in implant failure and substantial loss of surrounding bone. Drilling procedures for implant placement use a specific drill depth measurement system and unique markers for each system.

The practitioner must consult the description of the measuring system specific to the product used in the corresponding manual before applying it to the patient. Each implant system HAS its own specific measuring characteristics. The surgeon must therefore be familiar with the measurement system used in order to be able to assess the appropriate safety margins in relation to adjacent anatomical structures. Inadequate measurements can cause permanent injury.

Each implant system has specific design features. The combination of incompatible components may result in mechanical failure, tissue damage, or unsatisfactory clinical and esthetic results.

For all implants etk, the preparation of the implant site is carried out in 3 distinct phases:

1. Initial preparation of the implant site (bone marking and initial drilling)
2. Calibration of the implant site (boring and milling)
3. Insertion of the implant (gripping, screwing and protecting the connectors)

Precautions for use

For the entire surgical procedure, the following recommendations will be observed & followed:

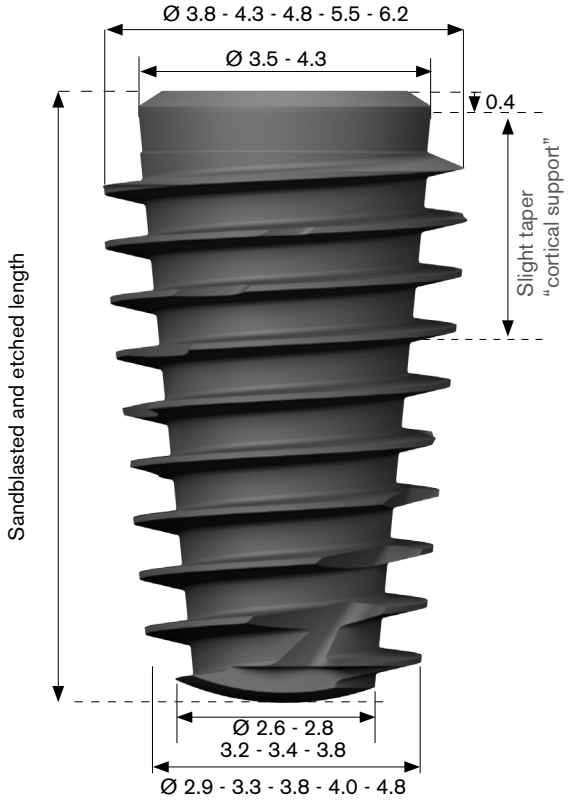
- Ensure that sufficient quantities of sterile implants and replacement instruments are available.
- All instruments must be sterile, complete, checked and functional, especially for measuring instruments (calibrated according to the manufacturers' recommendations) and sharp instruments must have a low level of wear: no more than 10 uses.
- All reusable products must be pre-disinfected, cleaned, decontaminated and sterilized.
- All disposable components delivered non-sterile must be cleaned and disinfected before entering the patient's mouth (and sterilized during surgery). Use of a thermal disinfector and a class B autoclave is possible on components out of their original packaging in a suitable pouch according to the manufacturers' recommendations.
- In the case of plastic or ceramic components, always disinfect in a solution complying with standard EN 14 476 and preferably aldehyde-free.
- Any product delivered sterile (by gamma radiation) must never be re-sterilized and is for single use only.
- Respect sterile parts of packages when unpacking and place the contents on a sterile drape.
- Respect the expiration date of the product.
- For stainless steels, the use of sodium hypochlorite (bleach) is strictly forbidden: high risk of corrosion.
- Respect the different combinations of materials treated during cleaning and decontamination in order not to damage components or cause them to deteriorate.
- Detergent and disinfectant solutions must be of a neutral or low-alkaline pH.
- Any preparation of the implant site with the cutting instrument rotating on a counter angle must be performed with abundant irrigation and cold sterile saline solution (NaCl).
- Observe the rotational speeds and/or torques indicated to limit the risk of tissue damage and device deterioration.
- Respect the recommended instrument sequences along with continuous monitoring of the implant depths and axes in accordance with the planned prosthetic restoration.
- Make sure to minimize thermal and surgical trauma and to eliminate any contaminants and sources of infection that could compromise osseointegration or the esthetic result.

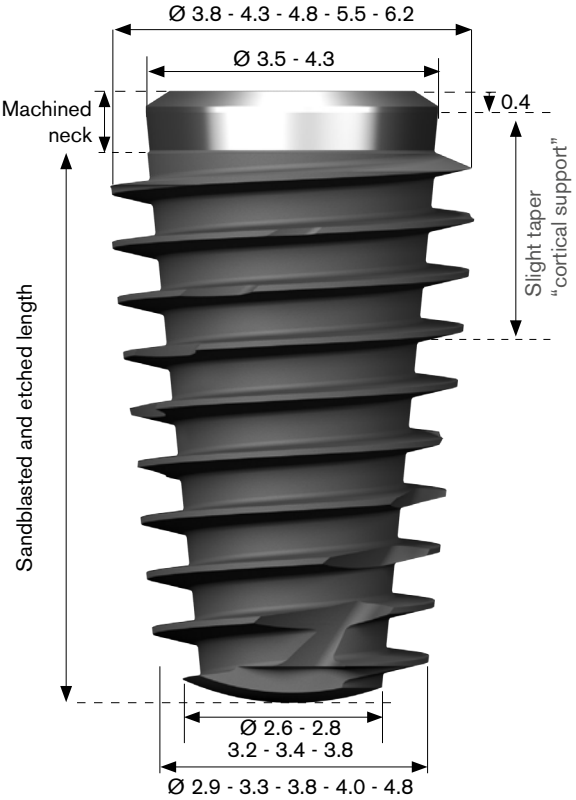
IBONE E AND IBONE S IMPLANTS

Applications

The **ibone E and ibone S** implants are intended for the treatment of partial or complete edentulism both in the maxilla and mandible. They allow implantation in the widest range of indications, especially for sites with either low bone density or reduced apical space. Post-extraction surgeries are also possible. The implants will be located in a juxta-crestal position, allowing the best possible esthetic restoration with adapted management of the biological width and the crestal rim.

Features





References

The implants are supplied with a cover screw.

ibone E						
Ø body implant	3.5			4.3		
Length / Ø implant	3.8	4.3	4.8	4.8	5.5	6.2
6	-	-	-	IE4348060	IE4355060	IE4362060
8	IE3538080	IE3543080	IE3548080	IE4348080	IE4355080	IE4362080
10	IE3538100	IE3543100	IE3548100	IE4348100	IE4355100	IE4362100
12	IE3538120	IE3543120	IE3548120	IE4348120	IE4355120	IE4362120
14	IE3538140	IE3543140	IE3548140	-	-	-

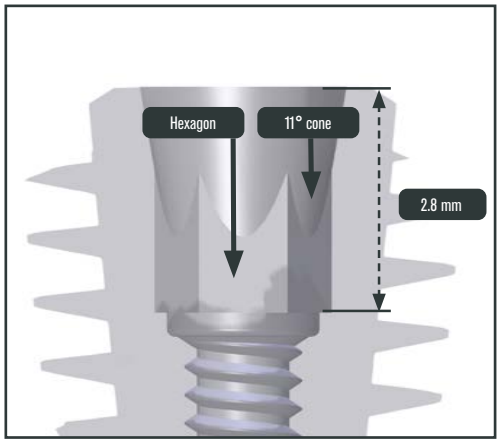
ibone S						
Ø body implant	3.5			4.3		
Length / Ø implant	3.8	4.3	4.8	4.8	5.5	6.2
6	-	-	-	IS4348060	IS4355060	IS4362060
8	IS3538080	IS3543080	IS3548080	IS4348080	IS4355080	IS4362080
10	IS3538100	IS3543100	IS3548100	IS4348100	IS4355100	IS4362100
12	IS3538120	IS3543120	IS3548120	IS4348120	IS4355120	IS4362120
14	IB3538140	IS3543140	IS3548140	-	-	-

Direct pick-up of implant using mandrel

- Less handling in the mouth, less risk of accidental dropping of instruments, and more hygienic.
- Saves time during surgery.
- Facilitates visibility of the installation.
- Provides information on the gingival height.
- Facilitates visibility of the connection orientation.

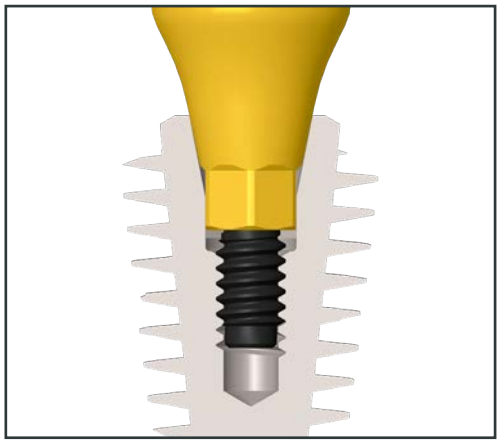
Naturactis / Naturall+ compatibility

The **ibone E and ibone S** implants, which have an internal conical connection (Morse taper type) with hexagon, have a common prosthetic range with the **Naturall+** and **Naturactis** implants.



Sealing & stability

The internal conical connection guarantees the sealing of the prosthetic joint and the stability of the assembly (S. Dibart, M. Warbington, M. Fan Su, Z. Skobe). The connection also includes a hexagon for angular orientation of the prosthetic components. The significant depth of the connection (2.8 mm) and the quality of the adjustments provide superior stability to the assembly and prevent the risk of prosthetic unscrewing



Platform switching

The implant-prosthetic component assembly is not linear but has a concavity, which acts as a **connective tissue development chamber**. The result is a ring of connective tissue that provides:

- A **mechanical stability of soft tissue,**
- A **protection of the biological seal** by limiting the **risk of tearing** (greater soft tissue thickness),
- The concavity **increases the length of the interface between the abutment and the connective tissue**.

Thus, the 3 mm of biological width needed to isolate and protect the bone from the external environment is obtained **"deployed"** (A) and not in direct line (B). This results in a more effective biological seal despite the short crown/bone distance (B).

The concavity formed by the prosthetic junction isolates the inflammatory tissue from the bone crest (see Figure 2). Richard J. Lazzara, Stephan S. Poter (PDR, Volume 26 No. 1, 2006).

Fig. 1 *Platform switching assembly*

Deployed surface

A | **B**

A > B

B = crown / bone distance
A = mucosal attachment surface

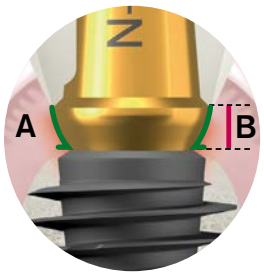
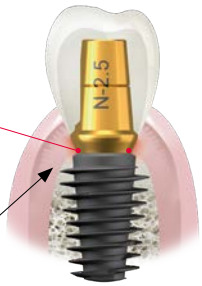


Fig. 2

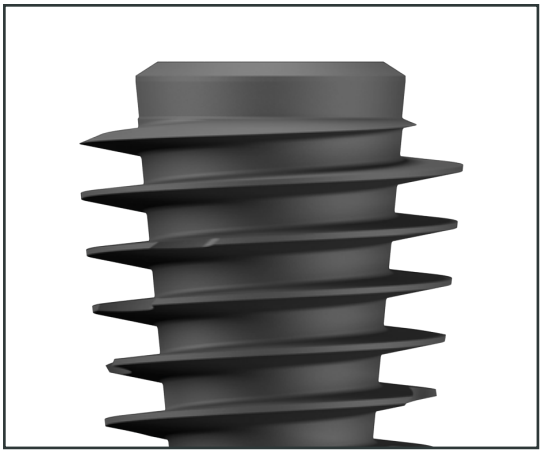


Inflammatory area recessed from the bone

Healthy gums in relation to the bone

Conical neck for guaranteed primary stability with cortical support

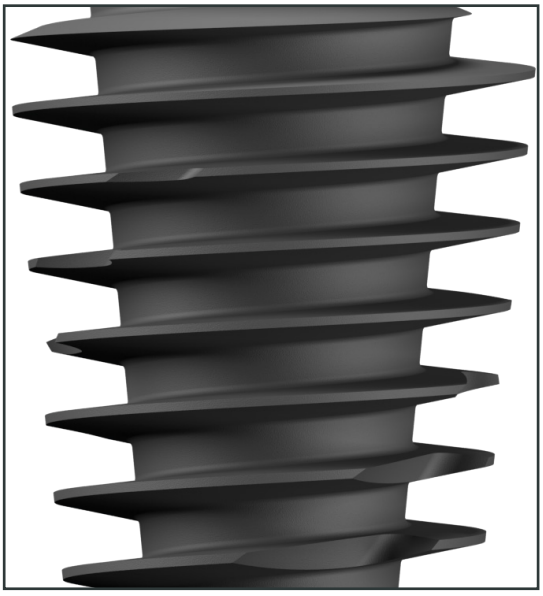
- Stabilization of the implant despite reduced apical bone density.
- Implant embedding control for optimal primary stability.



Conical implant body

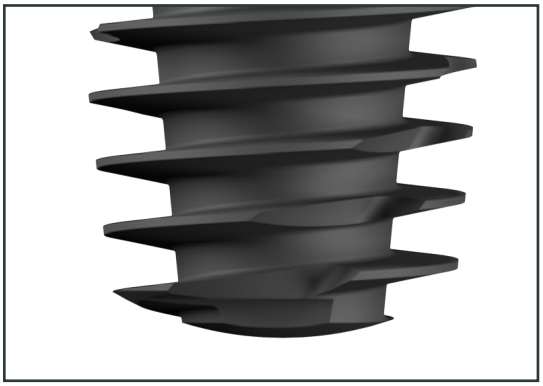
- Condenses the bone laterally in order to increase the primary stability of the implant.

The combination of a simple thread and coils selected according to bone density enables the ibone E and ibone S implants to have an optimal bone insertion.



Atraumatic and engaging apex

- A flute closer to the apex to improve the self-tapping effect of the coils.
- The threads start at the apex for a high self-tapping capacity of the implant and for a better apical grip.
- Safe for use in the sinus area.



THE KIT

There are two challenges with making implant sockets:

- Calibration **of** the sockets to achieve good primary stability of the implant, which is essential for osseointegration.
- Minimum **heating** to avoid any irreversible bone necrosis. Site preparation should be carried out under constant external irrigation with 0.9% sodium chloride solution.
- Obtaining a calibrated site guaranteeing a **proper seal**.
- Instruments are presented in their order of use, as indicated by color coding on the kit. Arrows indicate the main steps in each sequence.

WARNING

The prosthetic parts for the implants that you will insert before preparing the implant sockets should be chosen to position the implants as accurately as possible in the vertical direction (embedded level).

CAUTION

Beyond the quality of irrigation, it is also advisable to use drill bits whose cutting power has not been altered by excessive use.

Complete Kit FOR SURGERY

Ref. KI00

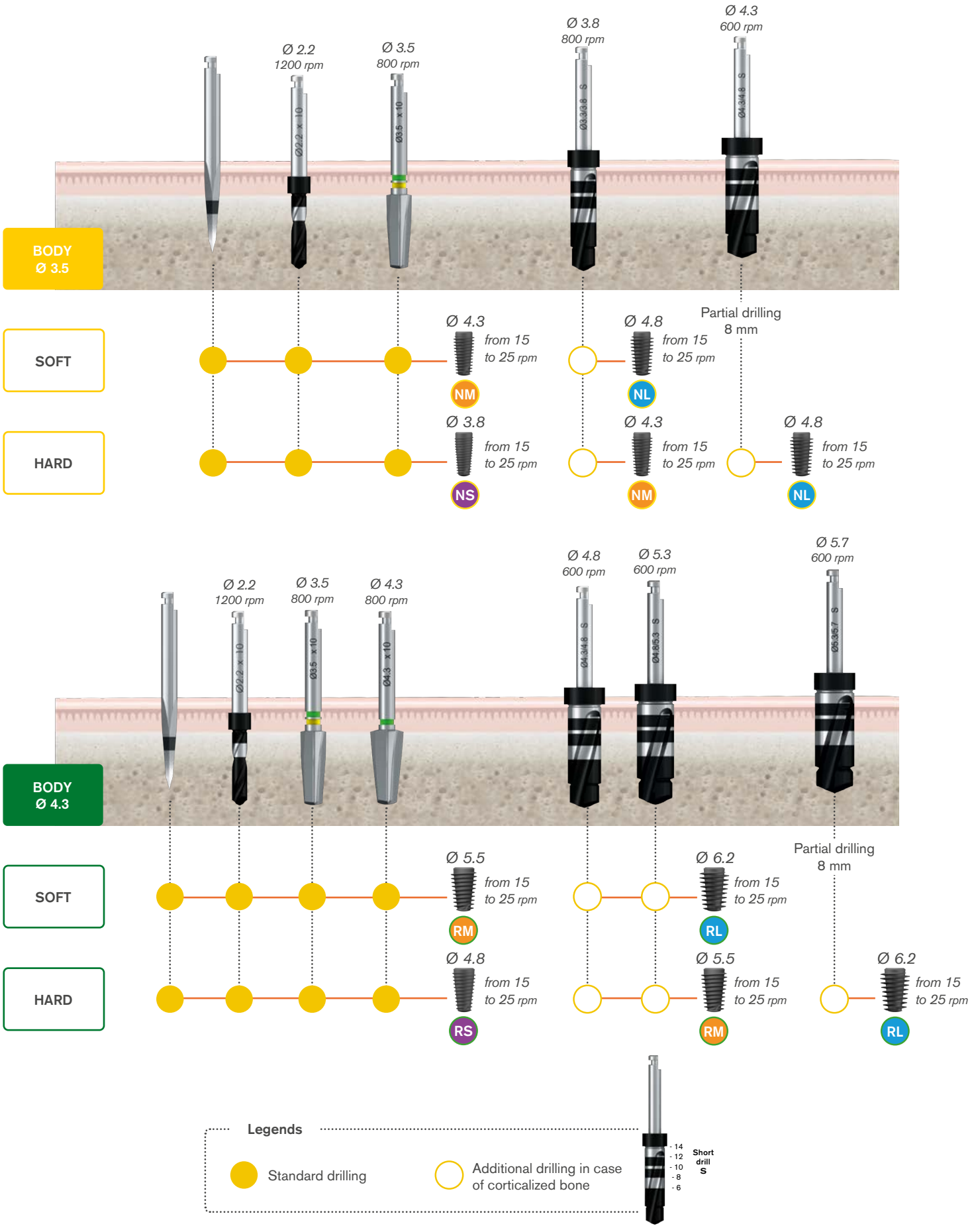
This kit offers all the instruments required to meet surgical protocol and to handle all bone densities for all lengths and all diameters of the ibone E and ibone S implants.

Contents:

- Needle drill bit Ø 2.2
- Initial drill bits Ø 2.2 lengths: 6, 8, 10, 12 and 14 mm
- Short length step drill bits 14: Ø 3.3, 3.8, 4.3, 4.8, 5.3 and 5.7
- Tapered drill bits Ø 3.5 lengths: 6, 8, 10, 12 and 14
- Tapered drill bits Ø 4.3 lengths: 6, 8, 10 and 12
- Depth probe Ø 2.2
- Implant parallelometers
- Parallelism axes Ø 2.2
- Short and long direct grip wrenches
- Short and long direct grip mandrels
- External medium length hex key 22 mm
- External long length hex mandrel 26 mm
- Mandrel extension
- Ratchet wrench

Surgical PROCEDURE

Protocol BY IMPLANT DIAMETER AND BONE DENSITY



Step-by-Step PROTOCOL

1.a **Bone** MARKING PILOT DRILL BIT

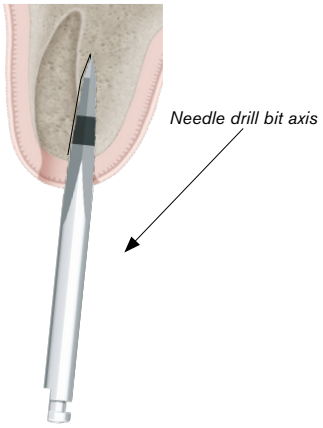
Set the maximum motor speed to 1200 rpm and start the irrigation. Visually mark the implantation site(s). The bone is marked using a pilot drill bit, which is more efficient than a ball burr. This one is equipped with a tip allowing it to pass easily through the cortical. Its upper part, which measures 2.2 mm in diameter, serves as a guide for the next drill bit.
After use, the drill bit is placed in a decontamination solution according to standard 14476.
In the case of multiple implants in the same area, mark adjacent sites according to the spacing rules on p. 13 (see box).
In post-extraction, preferably use the needle drill bit to create a starting point in the palatal wall thicker than the vestibular bone for monoradicular alveoli or in the bony septum of large alveoli. The first part of the needle drill bit measures 6 mm. The black band with the laser marking measures 2 mm. At 8 mm deep, this drill bit has a ø of 2.2 mm

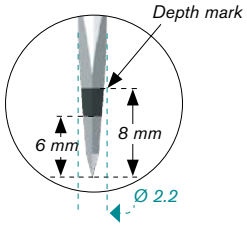
CAUTION

Provide a minimum space around the implants according to the rules commonly accepted in implant dentistry.

- *In the vestibular-palatal or lingual direction: leave 1.5 to 2 mm of bone thickness.*
- *In the mesiodistal plane: allow 2 mm between the coils of one implant and an adjacent natural tooth, and 3 mm between the coils of two implants.*
- *Consideration must be given to the flare of the neck in the implant spacing - specifically designed gauges allow you to preview the neck of the implant.*
- *Provide the necessary space between the implant necks:*

Ø implant body	*3.5*			*4.3*		
Length / Ø implant	*3.8*	*4.3*	*4.8*	*4.8*	*5.5*	*6.2*

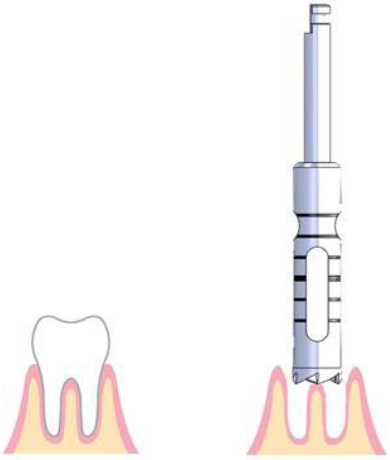




1.b **Bone** MARKING BONE DRILL BIT

In the case of post-extraction implant placement, it is possible to use the drill bits.
The purpose of the drill bit is to remove the bony septum left by the extraction of the tooth.
It will then be possible, if necessary, to pass the drill bits indicated in the protocol.

Matching drill bits
Implant Ø 3.5 -> with drill bit external Ø 3.8
Implant Ø 4.3 -> with drill bit external Ø 4.4



2 **First** DRILL BIT

The initial drill bit will determine the axis and depth of the implant socket.

These 2.2 mm diameter drill bits are drill bits with integrated stop collars. There are 5 lengths: 6 - 8 - 10 - 12 - 14 mm.

Carry out the drilling, with constant external irrigation using sterile sodium chloride solution at a maximum speed of 1200 rpm. The drill bit must progress without being forced. If this is not the case, it indicates that bone debris is not able to drain along the propeller. A simple back and forth movement, well-controlled so as not to ovalize the site, will allow smoother progression of the drill bit. This movement does not require a reversal of the motor direction if it is done at the right time. If the drill bit is blocked, it can be released in reverse mode.

WARNING

Remember to perform the axial correction at this stage if it is necessary. With the needle drill bit previously used, the Ø 2.2 drill bit will be perfectly centered and guided at the entrance of the socket.

Ø 2.2 to the length of the implant to be inserted

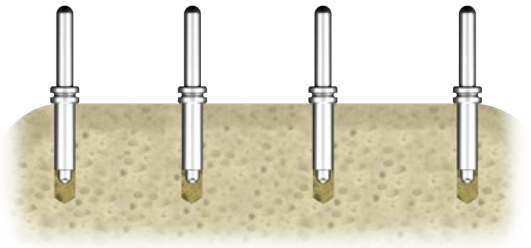
CAUTION

The rounded end of the implant does not fully engage with the tip of the drill bit. <u>The drill hole is therefore slightly deeper than the length of the implant.</u> This prevents any apical compression and ensures that the site is sealed by the support of the implant neck in the cortical area.

3 **Depth** CONTROL

Check the depth of the site using the graduated depth probe. The depth probe positioned in this way can also be used to control bleeding.

4 **Control** OF AXES OF IMPLANT SOCKETS



Insert the stepped part Ø 1.5 / 2.2 of the parallelism axes in the implant sockets to determine the emergence axes of the implants.
Gauges positioned in this way can also be used to control bleeding.

5 **Passage** OF THE TAPERED DRILL BIT

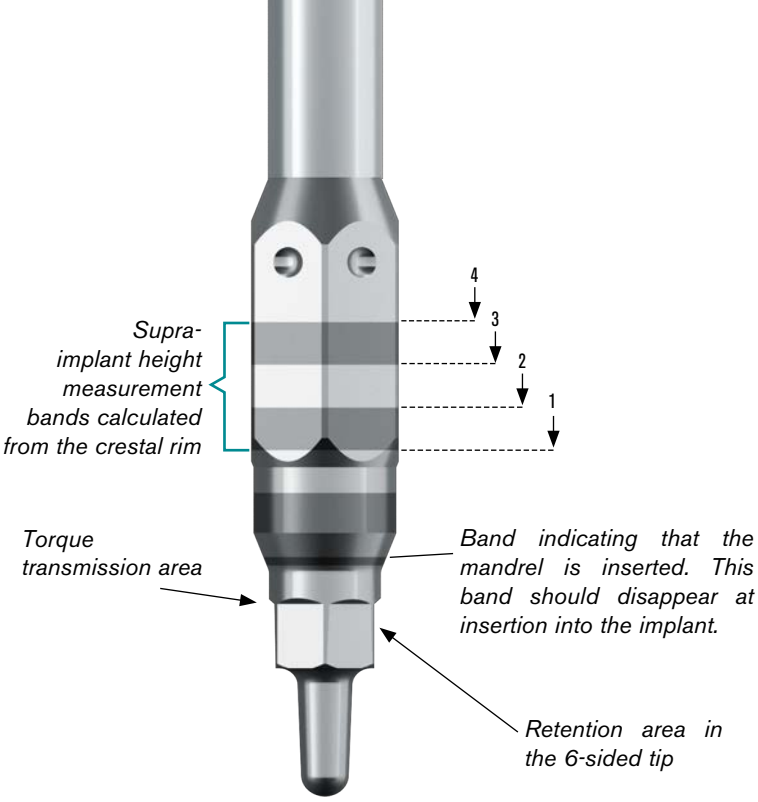
Use the protocol diagrams to determine the tapered drill bit corresponding to the selected implant Ø and adapt the implant socket to the bone quality of the site. When drilling, make sure the bone bleeds. Otherwise, scratch the bone a little to make it bleed. If there is no vascularization, it is preferable to close and wait for vascularization.

6 **Intermediate** DRILL HOLES

Use the protocol diagrams to determine the succession of drill steps corresponding to the diameter of the selected implant, and to adapt the implant socket to the selected implant according to the bone quality of the site. When drilling, make sure the bone bleeds. Otherwise, scratch the bone a little to make it bleed. If there is no vascularization, it is preferable to close and wait for vascularization. Drill at a maximum speed of 800 rpm and 600 rpm respectively for the Ø 5.3 and Ø 5.7 drill bits

7 **Implant** INSERTION

The implant can be positioned manually or with the contra-angle. This operation must be performed with the utmost care to eliminate the risk of the implant falling out and to ensure that it does not come into contact with any non-sterile components before insertion into the bone site. To do this, use the wrench or screwing mandrel. After opening the sterile tube, connect the end of the wrench or mandrel directly to the implant without removing it from the tube.



8.a **Implant gripping** IN THE TUBE SHOULD BE DONE AS FOLLOWS:

Step 1 - Align the hexagon of the mandrel or of the wrench with the internal hexagon of the implant.

Step 2 - To grasp the implant, rotate the mandrel or the wrench in the implant connection clockwise, until you feel a stop in rotation of the implant in its insert (a device in the insert limits the rotation of the implant during its handling).

Step 3 - Insert the mandrel into the implant by applying a slight effort on the mandrel so that it is retentive on the implant (5 N = 500 g).

a. If the positioning mark is no longer visible, the instrument is inserted correctly into the implant.

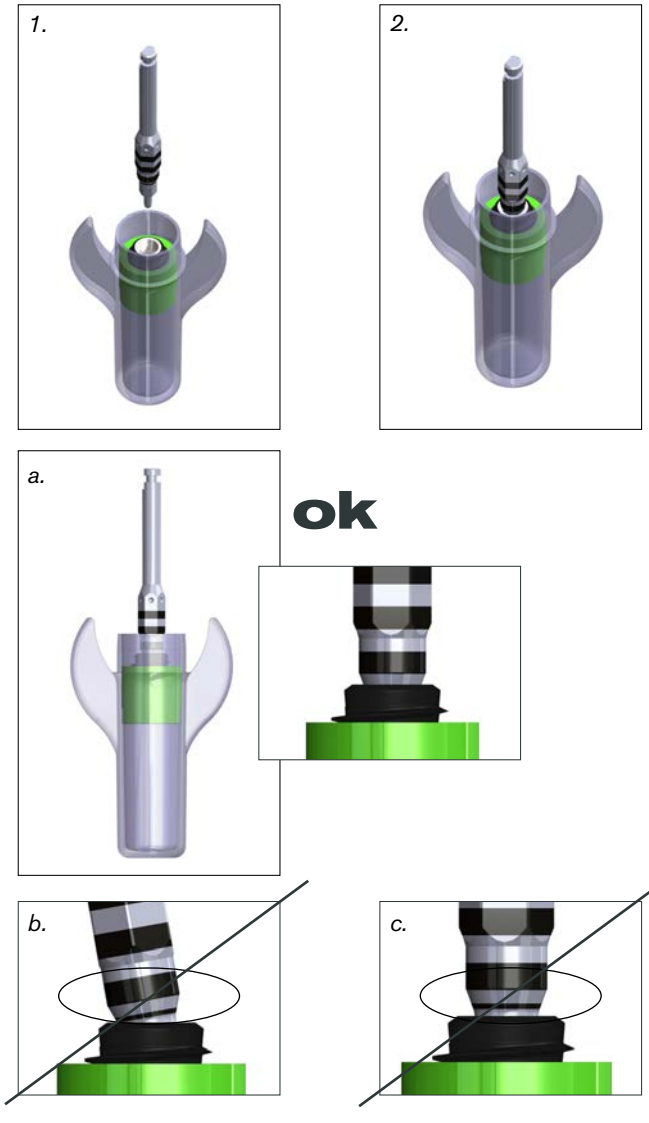
b. If the positioning mark is visible, the instrument is not aligned or inserted. In this case, go back to step 1.

c. If the positioning mark is visible, the instrument is not oriented and inserted. In this case, go back to step 2.

Step 4 - With the mandrel well-inserted into the implant, apply a slight counter-clockwise rotation and gently remove the implant from its packaging.

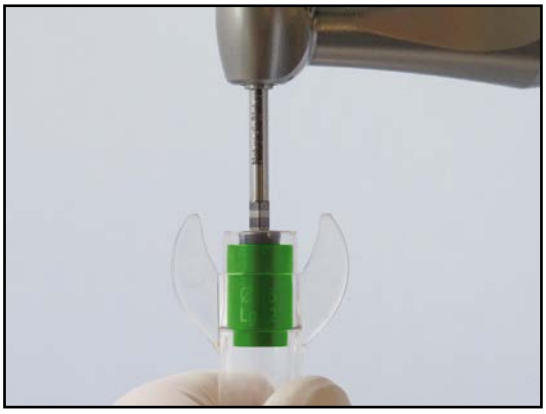
Step 5 - Transport the implant to the receiving site and present it at the entrance of the socket.

Note: Secure your handling against the risk of the implant falling to the ground or into the mouth.



8.b For placement WITH THE CONTRA-ANGLE

We recommend a speed of 15 to 25 rpm in order to properly control the descent of the implant. The contra-angle placement enables the insertion torque of the implant to be measured, and its primary stability to be determined. We recommend inserting the implant at a minimum of 30 N.cm for delayed loading and more than 40 N.cm for immediate or early loading. Do not exceed a torque greater than 70 N.cm.



In a D1 - D2 bone

For a D1 - D2 bone, it is recommended when screwing the implant with the contra-angle to finish it with a torque wrench in order to ensure the correct insertion of the implant and proper tightening torque.

8.c **In the event that the placement** IS MANUAL,

the implant is pre-screwed with the direct grip wrench. It is finished with the torque wrench. It is recommended to test the primary stability of the implant after screwing by trying to move it. If the implant moves, its primary stability is insufficient and will compromise osseointegration; it is better to remove it, and consider the use of a larger diameter implant if the bone volume allows it.

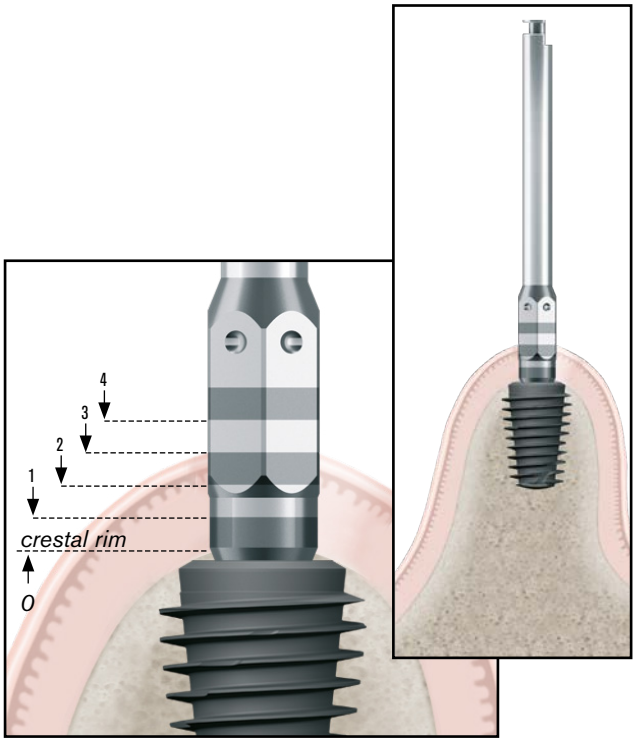
CAUTION

Avoid using force when inserting the implant. Excessive screwing can damage the integrity of the internal connection and create overcompression of the surrounding bone that can compromise osseointegration. If there is strong resistance, unscrew the implant slightly and then re-insert the implant or remove the implant to replace it in the titanium insert of its packaging and resume the drilling protocol to widen the implant site while following the protocol.

8.d **Final insertion** OF THE IMPLANT

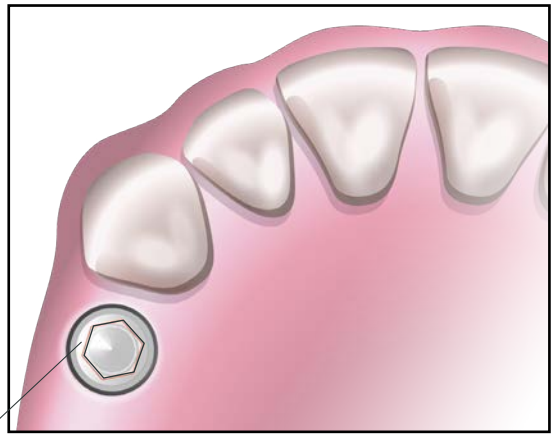
- For optimal esthetic results, position the implant at the level of the vestibular bone. Use the depth mark on the wrench or screwing mandrel.

- When inserting the implant, align one side of the hexagon of the wrench or screwing mandrel parallel to the vestibular wall, ensuring that one side of the hexagon of the implant is aligned to match the prosthetic components on the vestibular side.



8.e Disengaging THE DIRECT GRIP MANDREL

To disengage the direct grip mandrel, make a circumferential movement, not a left-to-right or top-to-bottom movement.



9 Protecting THE CONNECTION

It is ensured:

► **Either by an iphysio® Profile Designer (one-step or two-step surgery)**
Select the Profile Designer according to the tooth and the shape of the prosthetic cradle you wish to obtain. For more information on the iphysio® Profile Designer, go to iphysio.dental

► **Or by a healing abutment if you want to work in 1 surgical step.**
Select the part according to the shape of the prosthetic cradle you wish to obtain and the prosthetic abutment you wish to use afterwards.
Manually thread the chosen abutment using the external hex key and torque wrench at 10 Ncm.

► **Or by a cover screw in the case of a 2-step surgery.**
The screw is supplied with the implant; it is housed in the cap and will be placed on the implant with the external hex key at 10 N.cm. In this case, the site is sutured, taking care not to pull too much on the soft tissue to avoid an operation.

The healing time will then be observed without stressing the implants. The period of time required to achieve good osseointegration is:
- 3 months in the mandible
- 6 months in the maxilla

IN CASE OF FAILURE

To remove an implant, try unscrewing it with the implant connector or direct grip wrench. If this solution is not sufficient, please refer to the instructions for the extraction kit etk.

The site may possibly be reimplanted*, if the patient is fit to receive a new implant, with an implant of a larger diameter, in the event that the insertion of this implant takes place at the same time.

To reimplant the site with a smaller diameter implant, it is advisable to wait for the complete healing of the socket.**

* It is important to analyze the causes of failure before considering possible reimplantation.
** The practitioner determines whether it is appropriate to use a filler material.

EXTRACTION KIT
ref: KDR_3N

THE HEALING PHASE

In the case where the implant was fostered,
THE SITE IS REOPENED ABOUT 3 TO 6 MONTHS LATER

- Open the gum with a scalpel blade or gingival punch.
- Remove the cover screw with a hex key or mandrel (in reverse at low speed).
- Clean the top of the implant surface and rinse with saline solution.
- Measure the depth of the gingival sleeve by inserting a probe through the soft tissue to the base of the smooth cone at the top of the implant.
- Select an iphysio® Profile Designer according to the tooth to be replaced, otherwise choose a healing abutment according to the prosthetic project.
- Suture if needed.

Choice of IPHYSIO® PROFILE DESIGNER

During the healing phase, the iphysio® Profile Designer enables the future prosthetic emergence profile to be shaped until the gingival height has stabilized. The embedding depth of the prosthetic joint and the desired flare must be defined in advance in order to be able to select the most suitable Profile Designer.

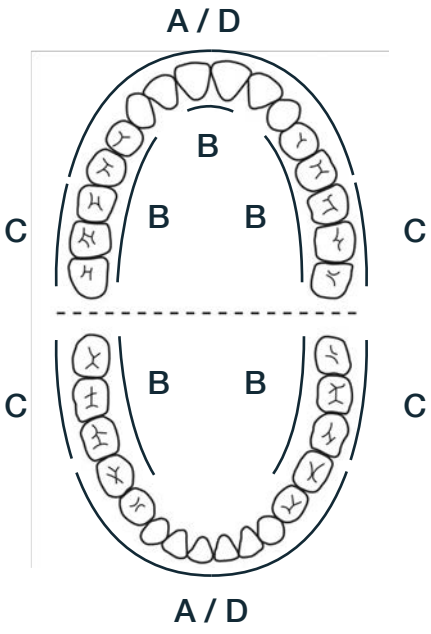
4 shapes (available in 3 heights to better adapt to the gingival context) have been developed according to the condition of the teeth.

Shape A
Incisors, canines and premolars

Shape B
Premolars, molars and maxillary central incisors

Shape C
Molars

Shape D
Incisors and premolars

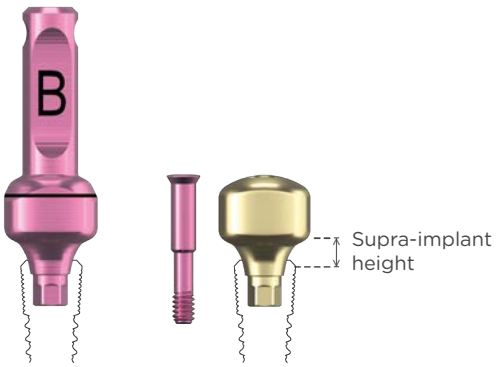


For ideal positioning of the iphysio® Profile Designer, align one side of the hexagonal indexing system of the **ibone E** or **ibone S** connection on the vestibular surface. When inserting the implant, align one side of the hexagon of the direct drive wrench or mandrel parallel to the vestibular wall, which ensures that one side of the implant hexagon is aligned on the vestibular surface. The iphysio® Profile Designer can then be ideally positioned.

An abutment test kit allows you to select the right shape and height when placing your **ibone E** or **ibone S** implants. Their practical design and handling simplify the selection of the iphysio® Profile Designer best suited to the shape of the tooth to be replaced:

ref: KIE_3N

For easy identification of their height, the test abutments are color-coded in the same way as the attachment screws of the iphysio® Profile Designers.



Shape A, B, C or D is indicated by laser marking on the side of the test abutment. In contrast to the iphysio® Profile Designers, the test abutments are reusable after cleaning and sterilization.

Reference table:

	Profile Designer			
Shape	**Height 1**	**Height 2**	**Height 4**	**Test Kit**
A	NCI_I.A1	NCI_I.A2	NCI_I.A4	KIE_3N
B	NCI_I.B1	NCI_I.B2	NCI_I.B4	
C	NCI_I.C1	NCI_I.C2	NCI_I.C4	
D	NCI_I.D1	NCI_I.D2	NCI_I.D4	

Choice of HEALING ABUTMENT

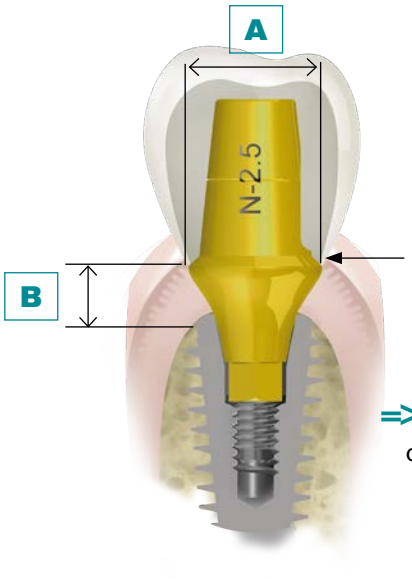
The healing abutment is used to shape the future prosthetic emergence profile until the gingival height has stabilized.

► The embedding depth of the prosthetic joint and the desired flare must be defined in advance in order to be able to select the most suitable healing abutment.

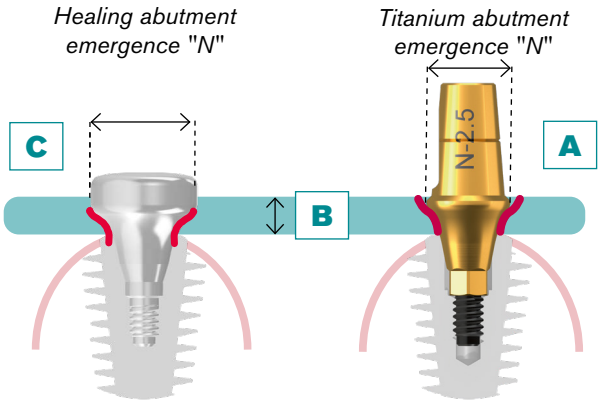
A & B are used to determine the most appropriate abutment. The corresponding healing abutment can be found in the adjacent cross-reference table.

► The flaring depends on the esthetic emergence profile you wish to achieve; the prosthetic abutment should have the same taper. This taper should form a sufficient angle to provide openings for the passage of brushes. It should also provide a precise distance between the contact points of the crowns (teeth) and the top of the interdental crest (Prof. Tarnow); this distance must be less than or equal to 5 mm. Finally, the angle defined by the conicity should exert a slight pressure on the papilla to stimulate healing without necrosis.

1. Final prosthetic project to be achieved



► Healing abutments have a slightly larger diameter (0.4 mm) than the final abutment to:
- prevent gum entrapment and improve patient comfort,
- increase the speed of intervention,
- easier and less painful insertion of transfers and fills (avoids anesthesia).

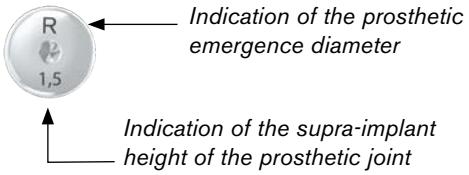


Preparation of the prosthetic emergence profile

Transgingival emergence selection table

Use a healing abutment with the same emergence profile as the titanium abutment to be placed later. Tighten to 10 N.cm with the external hex key.

Laser coding on top of the abutment



Letter	Diameter of emergence
E (Extra narrow)	Ø 3.6
N (Narrow)	Ø 4.6
R (Regular)	Ø 5.2
W (Wide)	Ø 6

Prosthetic Profile	Ø C	Healing abutments	Ø A	Titanium abutments with corresponding emergence profile	Supra-implant ht
EP ø 3.6	3.8	NCI 36 23	3.6	NPS PD 36 06	0.5
		NCI 36 34		NPS PD 36 16	1.5
		NCI 36 45		NPS PD 36 26	2.5
		NCI 36 56		NPS PD 36 36	3.5
		NCI 36 67		NPS PD 36 46	4.5
NP Ø 4.6	5.0	NCI 46 23	4.6	NPS PD 46 06	0.5
		NCI 46 34		NPS PD 46 16	1.5
		NCI 46 45		NPS PD 46 26	2.5
		NCI 46 56		NPS PD 46 36	3.5
		NCI 46 67		NPS PD 46 46	4.5
RP ø 5.2	5,6	NCI 52 23	5.2	NPS PD 52 06	0.5
		NCI 52 34		NPS PD 52 16	1.5
		NCI 52 45		NPS PD 52 26	2.5
		NCI 52 56		NPS PD 52 36	3.5
		NCI 52 67		NPS PD 52 46	4.5
WP ø 6.0	6,4	NCI 60 34	6.0	NPS PD 60 16	1.5
		NCI 60 45		NPS PD 60 26	2.5
		NCI 60 56		NPS PD 60 36	3.5
		NCI 60 67		NPS PD 60 46	4.5

TECHNIQUES OF
IMPRESSION TAKING

Digital IMPRESSION TAKING

The placement of a digital implant dentistry working protocol offers many advantages:

- Shorter and more comfortable appointments for the patient.
- Communication with the laboratory facilitated.
- Management of asepsis made easier since there are no more physical impressions circulating between the office and the laboratory, and no longer a need to decontaminate them.
- Fewer inaccuracies in prosthetics related to the distortion over time of silicone impressions and the fragility of plaster models.
- Hygiene is much better preserved in the office by streamlining patient appointments.

On IPHYSIO® PROFILE DESIGNER

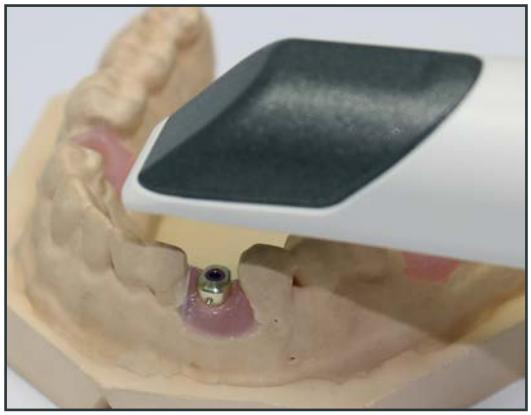
The iphysio® Profile Designer combines the requirements of a healing abutment and a Scanbody. The part will not be removed until the final prosthesis is fitted. This protocol considerably minimizes potential bacterial inputs and their proliferation at the implant neck during each handling of the parts in the mouth.

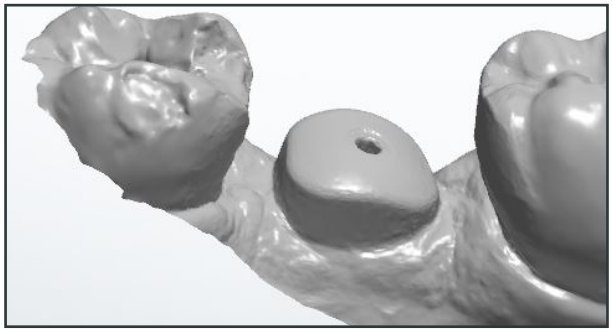
Within the framework of the iphysio® protocol, it is necessary to ensure that the laboratory is equipped with 3Shape®and the iphysio® STL digital file library for the design and execution of the final restoration.

After the healing period, clean the iphysio® Profile Designer and the patient's mouth.
Take a digital impression of the patient's mouth with your intra oral scanner in the following order:

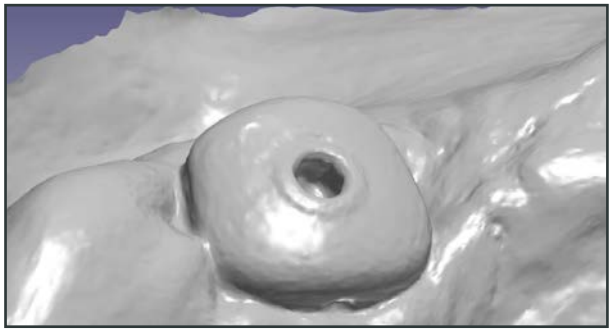
1. The iphysio® Profile Designer and adjacent teeth
2. The antagonistic arcade
3. The occlusion

Send your impression file in STL format to your laboratory or to iphysio READY laboratories.





Caution: The digital impression obtained must be similar to this one.

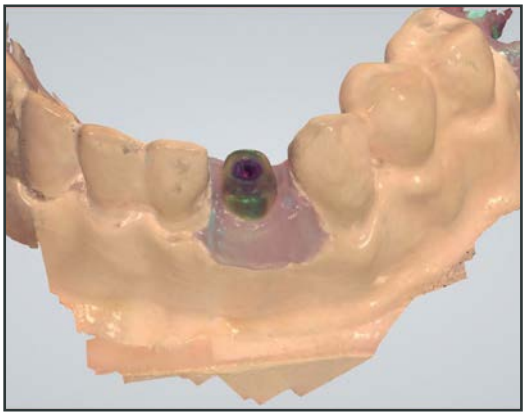


If you obtain this type of impression, the screw of the iphysio® Profile Designer must be retightened. Here the screw of the iphysio® Profile Designer comes out slightly, which may cause an occlusion problem on the final restoration.

IMPORTANT: It is imperative to send the following information in the “Comments” section of your order form:

a. The reference of the iphysio® Profile Designer used (shape and height) and the color of the screw
b. Tooth position corresponding to each Profile Designer.
c. Type of prosthetic reconstruction desired:
- Screw-retained prosthesis: screw-retained crown on titanium Esthetibase interface
- Sealed prosthesis: custom abutment + crown to be sealed

For more information, please refer to the iphysio® Profile Designer user manual, downloadable on iphysio.dental



On SCANBODY

The scanbody must be placed into the implant so that the rounded part is positioned on the vestibular side. The impression will be taken in 4 steps.

- Impression of bare gingival emergence. It is important to make this impression immediately after removal of the healing abutment, before the gingival margin collapses. In fact, it could lose its initial shape after a few seconds.
- Impression with scanbody in place.
- Impression of the antagonist.
- Impression of the bite.

ref: ETK_NA.35SB

IMPRESSION TAKING IN SILICONE

1 **Technique** ON IPHYSIO® PROFILE DESIGNER (CLOSED TRAY IMPRESSION)

- Clean the iphysio® Profile Designer and the patient's mouth. Tighten the iphysio® Profile Designer if necessary.
- Take an impression of the patient's mouth using a closed tray impression holder in the following order:
    - The arcade integrating the Profile Designer
    - The antagonistic arcade
    - Then take the occlusion
- Send your silicone impressions to your laboratory.

IMPORTANT: It is imperative to send the following information in the “Comments” section of your order form:

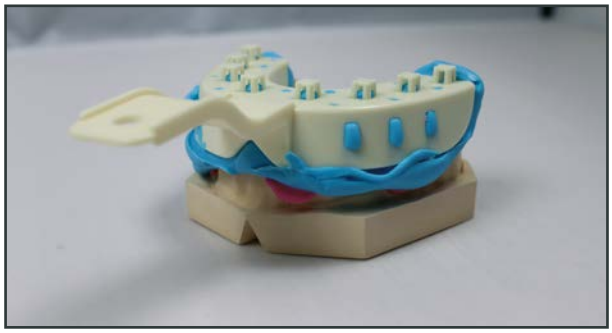
a. The reference of the iphysio® Profile Designer used (shape and height) and the color of the screw
b. The tooth position corresponding to each Profile Designer.
c. Type of prosthetic reconstruction desired:
    - Screw retained prosthesis: screw-retained crown on titanium Esthetibase interface
    - Sealed prosthesis: custom abutment + crown to be sealed

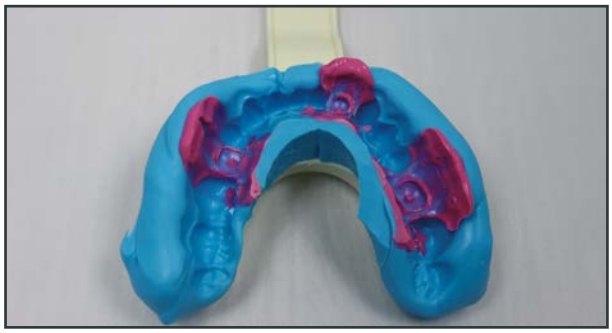
CAUTION: The iphysio® Profile Designer must not be unscrewed before or after the impression is taken in order to preserve the gum. The sub-gingival emergence profile will be considered in the design.

From the impressions, make a plaster model of the patient's mouth:
- The arcade integrating the Profile Designer
- The antagonistic arcade

If you are equipped with a 3Shape® intra oral scanner: scan the model and send the file to your laboratory or to LYRA partner laboratories.
If you do not have a scanner: send your model to the laboratory to be scanned.

For more information, please refer to the iphysio® Profile Designer user manual, downloadable on iphysio.dental





2 **Technique with** PICK-UP TRANSFER (OPEN TRAY IMPRESSION)

- After unscrewing the healing abutment, manually screw the pick-up transfer into the implant using the external hex key. Observe the maximum tightening torque of 10 N.cm.

- You can choose between 2 transfer heights depending on your case:
  - Short: 10 mm height
  - Long: 13.5 mm height

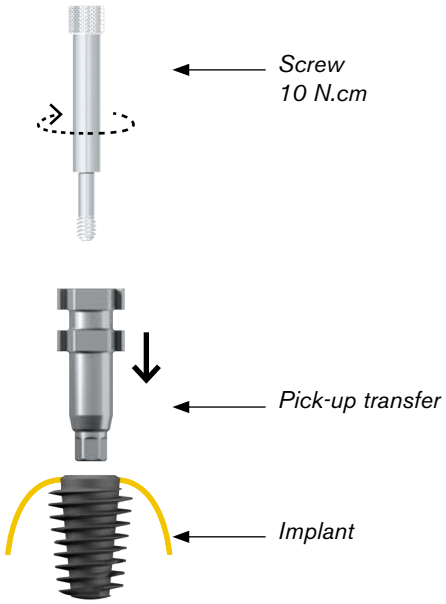
- After making sure the transfer is correctly positioned, take the impression with an open tray impression holder while remembering to remove the screw head.

- Once the impression material has set, unscrew the pick-up transfer with the external hex key.

- Remove the impression.

- Screw the analog to transfer.

Caution: Always hold the analog and not the impression holder.



3 **Technique with** POP-IN TRANSFER (CLOSED TRAY IMPRESSION)

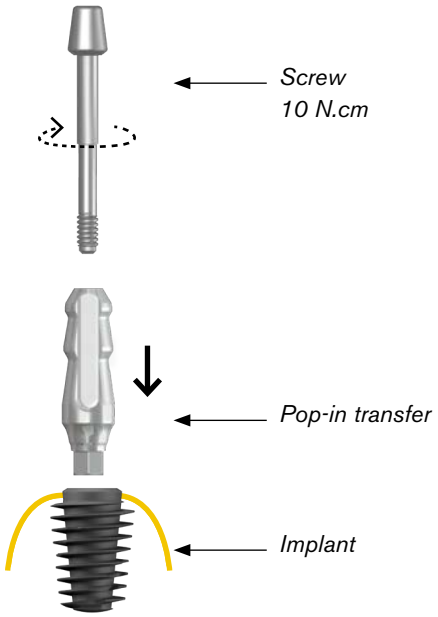
- After unscrewing the healing abutment, manually screw the pop-in transfer into the implant using the external hex key. Observe the maximum tightening torque of 10 N.cm.

- After making sure the transfer is correctly positioned, take the impression with a closed tray impression holder.

- Once the impression material has set, release the impression, ideally in the axis of the transfer.

- Unscrew the pop-in transfer using the external hex key.

- Screw the analog to the transfer, align it and then reposition the transfer in the impression.



4 **Technique with** POP-UP TRANSFER (CLOSED TRAY IMPRESSION)

▶ After unscrewing the healing abutment, manually screw the pop-up transfer into the implant using the external hex key. Observe the maximum tightening torque of 10 N.cm.

▶ After making sure the transfer is correctly positioned, install the clip-on transfer cap.

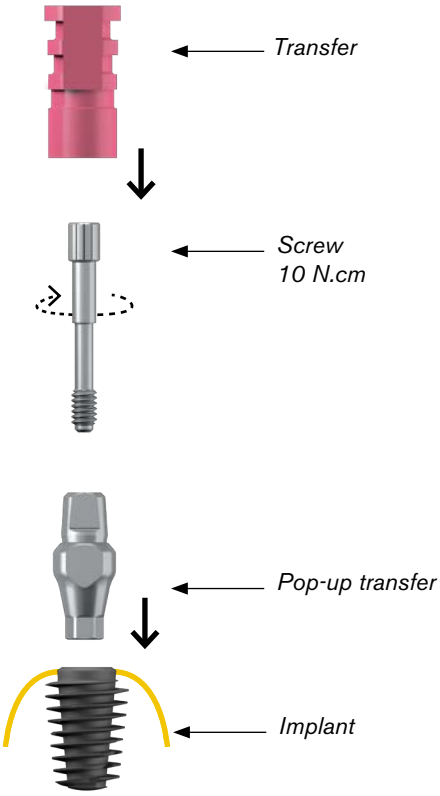
- Align the pink cap rib with the flat transfer surface
- Clip it on: Feel the "click" of the insertion

▶ Take the impression with a closed tray impression holder.

▶ Once the impression material has set, release the impression, ideally in the axis of the transfer.

▶ Unscrew the pop-up transfer using the external hex key.

▶ Screw the analog to the transfer, align it and then reposition the assembly in the impression by clipping it on to the transfer cap.

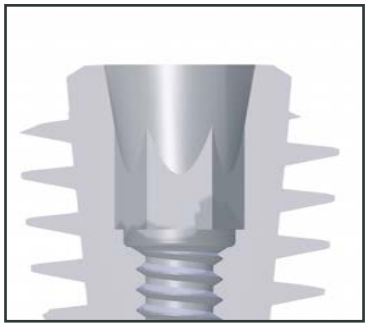


PROSTHETIC
PROCEDURE

Foreword

Precautions for use:

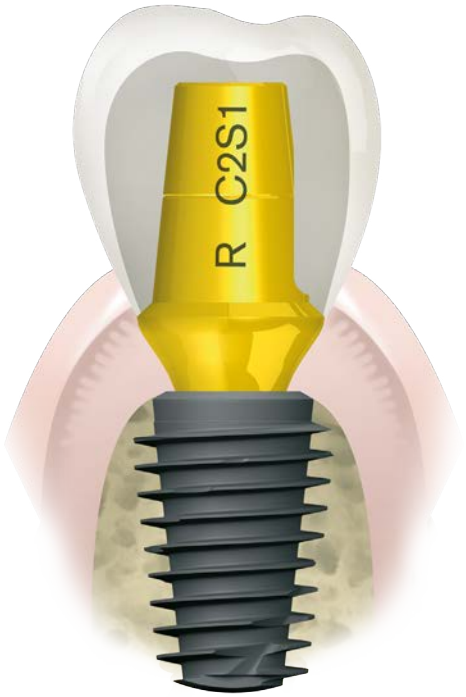
- Observe the tightening torques indicated in this manual to limit the risks of damage, breakage and malfunction of the devices
- Check the proper adjustment of part assemblies in order not to compromise the insertion of the prosthesis and to guarantee its mechanical performance
- Secure the handling of prosthetic components and instruments against the risk of falling into the mouth or out of the sterile drape due to their reduced dimensions. Check that the handling instruments have a good grip on them
- Certain prosthetic components are delivered sterile to allow their use in surgery: CAUTION: Do not re-sterilize.
- All disposable components delivered non-sterile must be cleaned and disinfected before entering the patient's mouth (and sterilized during surgery).
- Observe decontamination and/or sterilization rules (plastic and ceramic components cannot be sterilized by autoclave)
- In the case of plastic or ceramic components, always disinfect in a solution complying with standard EN 14 476 and preferably aldehyde-free.
- Any product delivered sterile (by gamma radiation) must not be re-sterilized.
- Respect sterile parts of packages when unpacking and place the contents on a sterile drape.
- Respect the expiration date of the product.
- Check the proper assembly and adjustment of the interconnected components so as not to compromise the denture insertion, mechanical performance of the components and esthetic outcome in the mouth.



A single common connection

The ibone E and ibone S implants have a unique and common connection for all references. This connection is common with our Nacturactis and Naturall+ implants. It is also compatible with the ASTRA Ocean connection.

SEALED PROSTHESIS
ON SCREW-RETAINED ABUTMENT



4 PLATFORMS

EP ø 3.6 Ø 3,6

NP Ø 4.6 Ø 4,6

RP ø 5.2 Ø 5,2

WP ø 6.0 Ø 6,0

FIGURE 1. TRANSFER ATTACHMENT

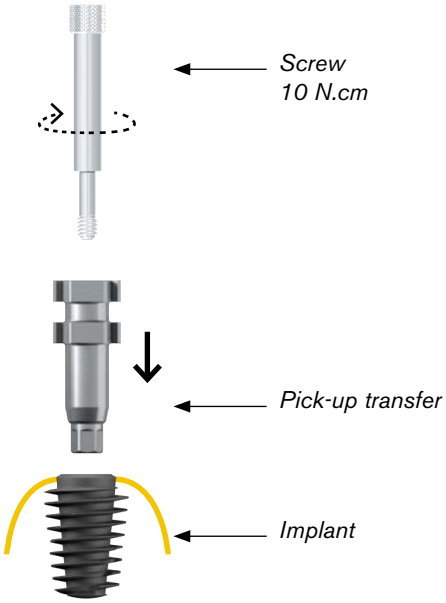


FIGURE 2. ANALOG ATTACHMENT

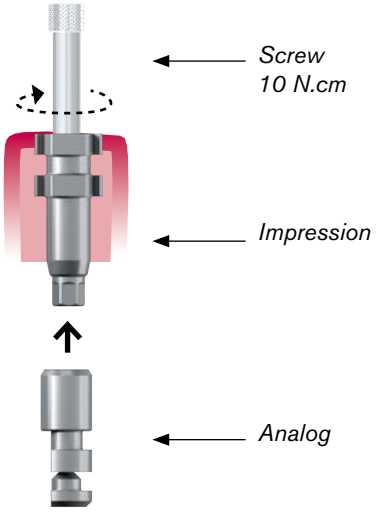


FIGURE 3. ON MODEL

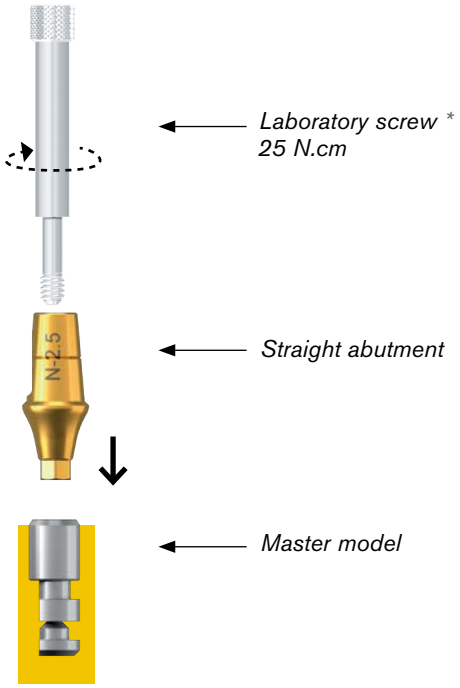
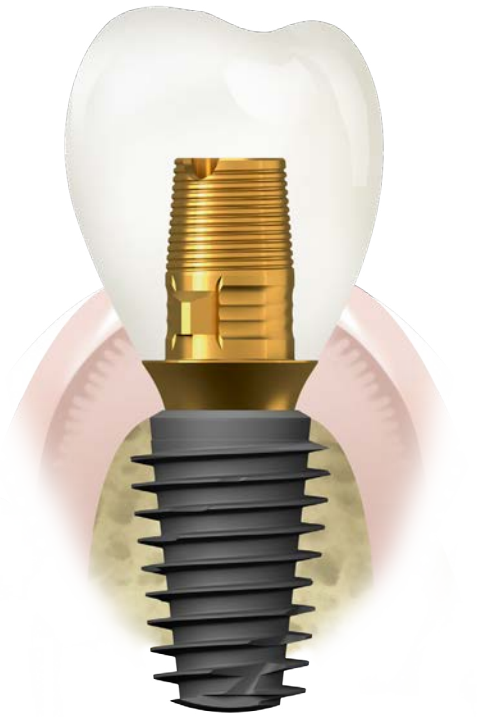


FIGURE 4. IN MOUTH

CAUTION: The final attachment screw of the screw-retained abutment must not be used for laboratory tests & manipulations so as not to alter its coefficient of elasticity.
Use a guide screw (Ref. NPS VG 16 200, NPS VG 16 250).
Use a new screw for the final screwing in the mouth.
We recommend the use of a torque wrench (Ref. CCC 35) for calibrated tightening of the prosthetic components to 25 N.cm.

ZIRCONIA PROSTHESIS
ON ESTHETIBASE INTERFACE



The use of zirconia abutments significantly improves the esthetic outcome of implant-supported restorations, but in the long term, there is a risk of deformation of the connections (sagging of the internal connections and loss of sealing, etc.) under the effect of repeated masticatory stresses. Hence the idea of preserving a titanium interface between the implant connector and the prosthetic component, as small as possible, which will serve as the basis for the construction of the zirconia abutment.

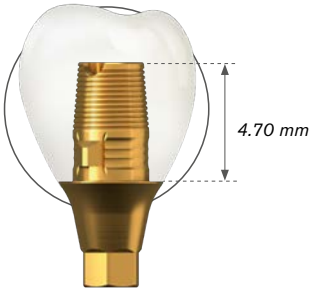
Discretion

Reduced dimensions of the titanium interface

- Thin collar and reduced height.
- Invisible in the final restoration.

Even more discreet

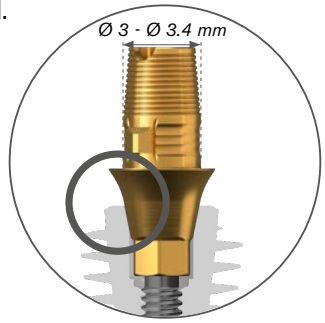
- Biocompatible yellow titanium nitride coating blends better into soft tissue shades.



Reliability

Titanium on titanium contact

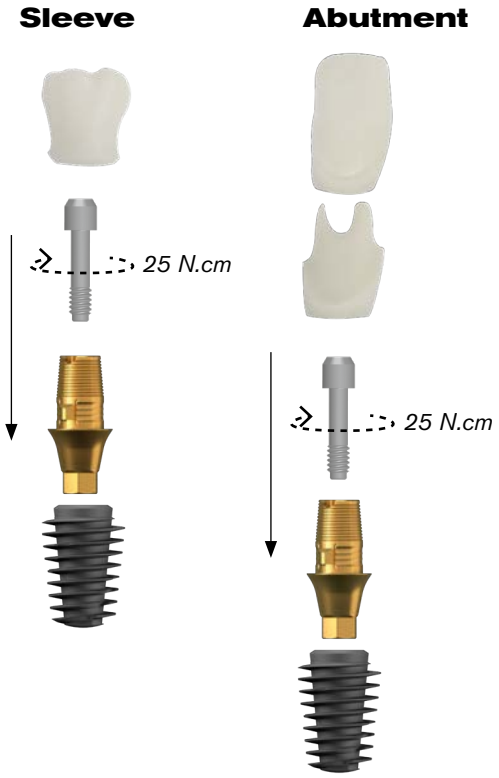
- The interface prevents contact between zirconia and titanium.
- Having the same hardness as the implant, it does not cause deformation of the connectors and keeps a good seal.



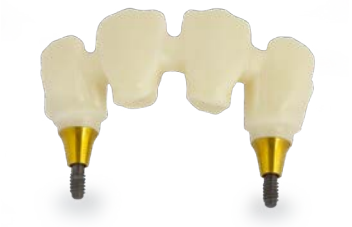
Applications

Single-unit cases

Allows the production of prosthetic components (abutments or sleeves) made of zirconia or pressed ceramic.



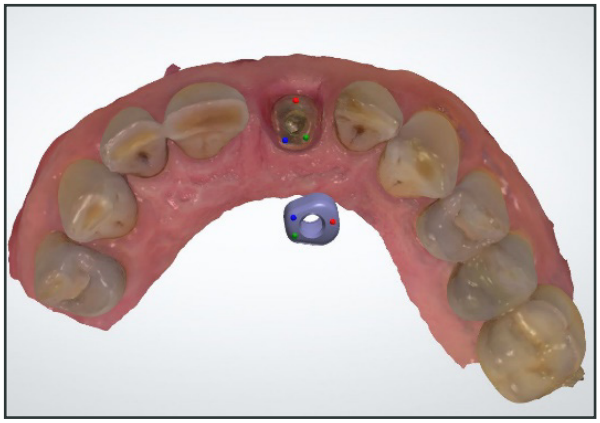
Framework

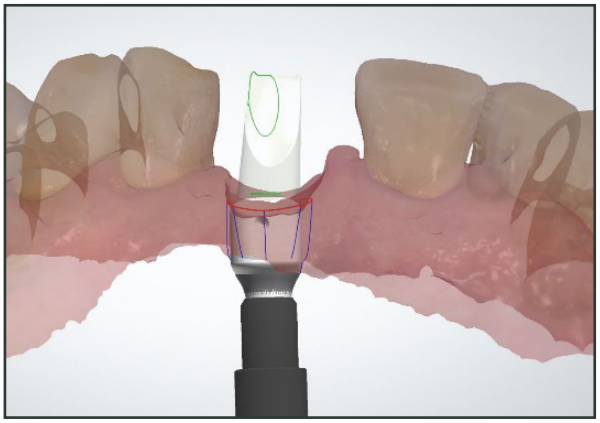


Non-contractual images

CAUTION: Use a new screw for the final screwing in the mouth.
We recommend the use of a torque wrench (Ref. CCC 35) for calibrated tightening of the prosthetic components to 25 N.cm.

Fabrication of a custom abutment on Esthetibase and a crown cemented after digital impression on iphysio® Profile Designer:



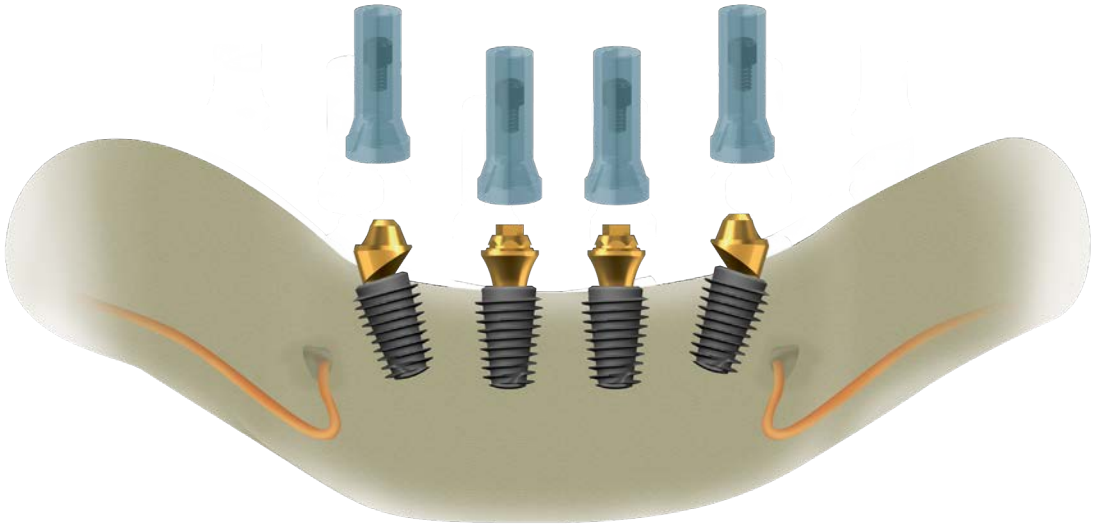


SCREW-ON PROSTHESIS

ON MULTI-UNIT ABUTMENTS

For the prosthetic management of divergent implants
Esthetic-enhancing nitride-coated abutments

ON TETRA ABUTMENTS



2 types of abutments FOR THE SCREW-ON PROSTHESIS

Multi-unit:

- Allows for multi-unit prostheses whether the implants are parallel or very divergent.
- Small size for tight spaces Ø 3.8 mm and cone height of the prosthetic part 1.8 mm.
- Taper bar support
- No single-unit prosthesis possible.

Tetra:

- Allows for multi-unit prostheses whether the implants are parallel or very divergent.
- Single-unit prosthesis possible with dedicated components.
- Secondary parts in common straight and angled version with a wide selection.
- Easy gripping and positioning with rigid handle.
- Wide 4.8 mm diameter for proper support of the flat bar on the collar.

Protocol ON TETRA ABUTMENT

FIGURE 1. TRANSFER ATTACHMENT

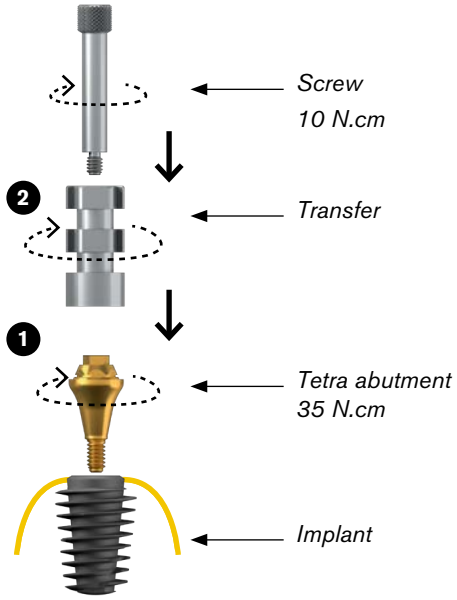


FIGURE 2. ANALOG ATTACHMENT

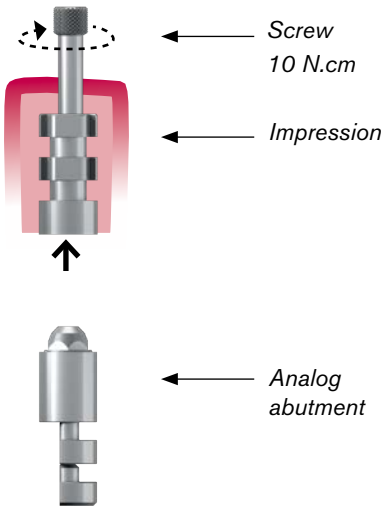


FIGURE 3. PROTECTIVE CAP

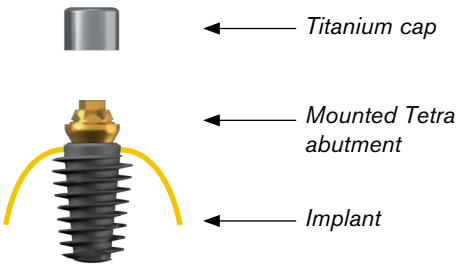


FIGURE 4. ON MODEL

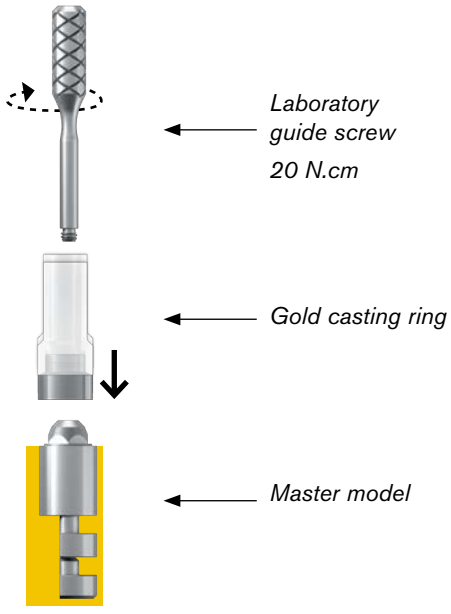
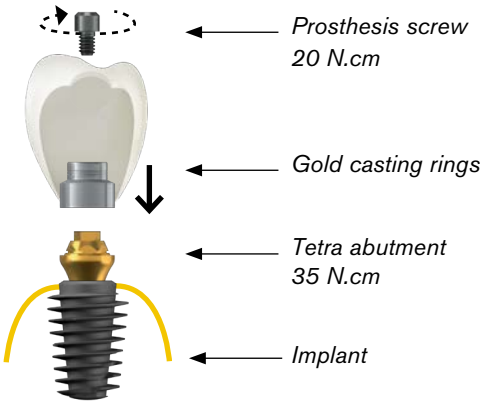


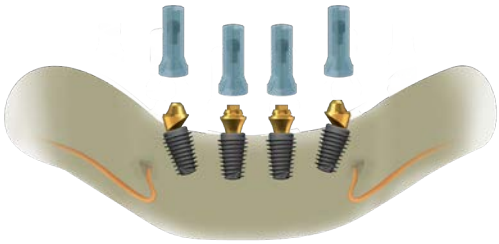
FIGURE 5. IN MOUTH



CAUTION

The final attachment screw must not be used for laboratory tests & handling operations.
Use a guide screw (Ref. NPV VG 14 105)

Screw-on multi-unit prosthesis protocol ON TETRA ABUTMENT



1. After removing the cover screws or healing abutments, place the Tetra abutments on the implants in the mouth

2. Screw the angled abutments with the external hex key to 25 N.cm, and the straight abutments with the internal hex key (Ref. CCL HI2024) to 35 N.cm (see Figure 1).

3. Take the impression with the pick-up technique (described in Figure 2) or pop-in transfer.

4. Screw the protective caps to 10 N.cm or the provisional abutments on to the Tetra abutments to 20 N.cm using the torque wrench (Ref. CCC 35)) in order to temporarily cover the abutment during the prosthetic fabrication time. A temporary prosthesis can be built on the provisional abutments or protective caps (see Figure 3).

LABORATORY STEPS

5. Production of the prosthesis using plastic sleeves and clearance of the screw access sockets (see Figure 4).

6. Fitting the infrastructure in the mouth. Insertion should be passive (gentle friction). Check and adjust the occlusion.

7. Final fitting of the complete prosthesis.

8. Screw the prosthesis on to the Tetra abutment in the mouth to 20 N.cm using the torque wrench (Ref. CCC 35) and fill the screw heads and prosthesis screw access sockets.

CAUTION

Use new screws for final attachment. For your fittings, use other screws reserved for this purpose. For laboratory manipulations, use laboratory guide screws.

FIGURE 1

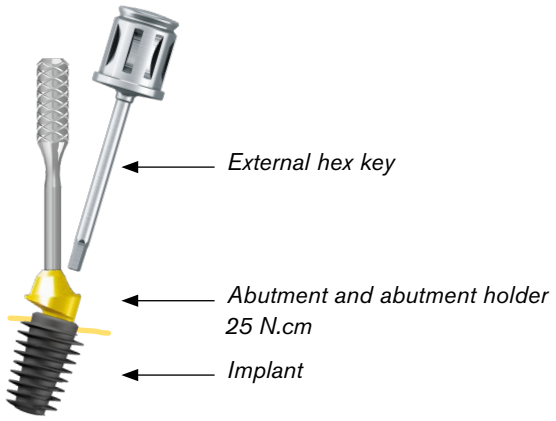


FIGURE 2

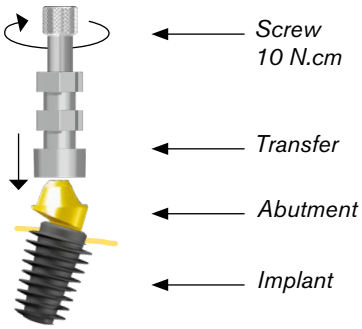


FIGURE 3

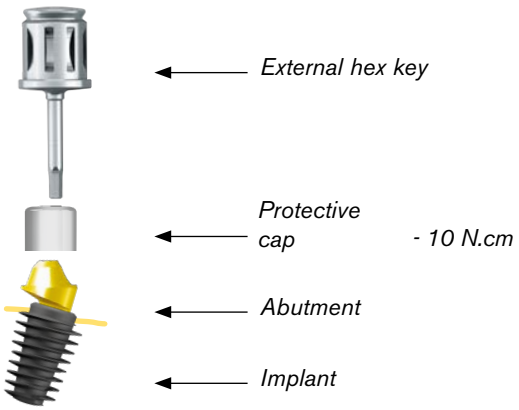
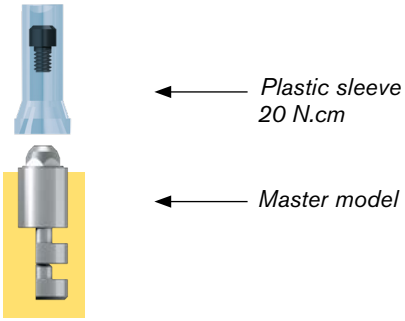


FIGURE 4



Screw-on prosthesis protocol ON STRAIGHT MULTI-UNIT ABUTMENTS

FIGURE 1. TRANSFER ATTACHMENT

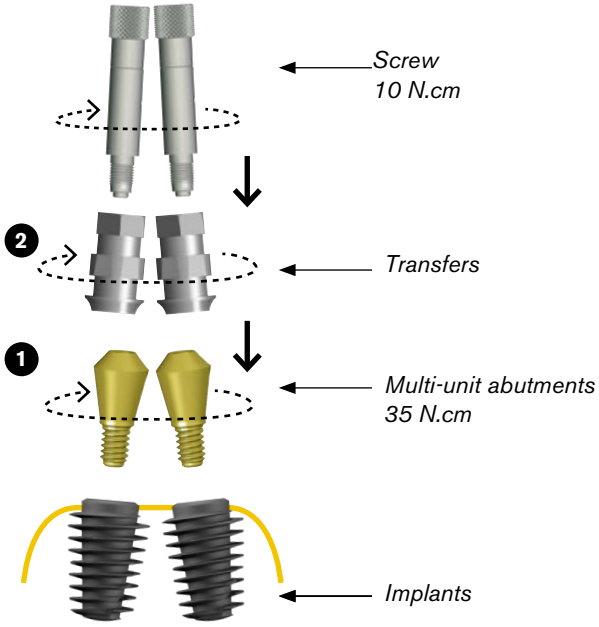


FIGURE 2. ANALOG ATTACHMENT

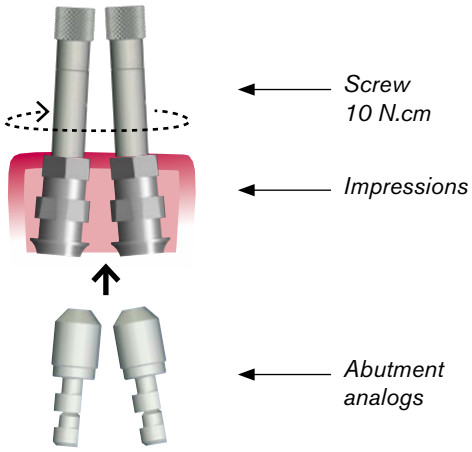


FIGURE 3. PROTECTIVE CAP

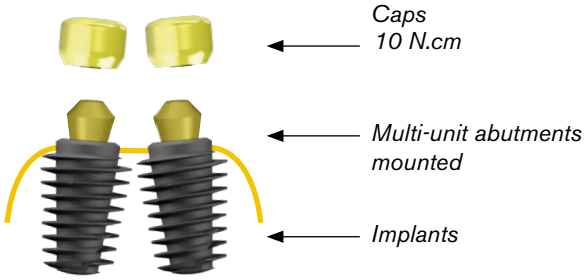


FIGURE 4. ON MODEL

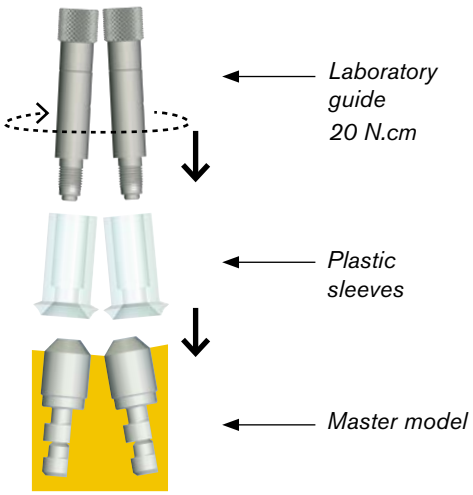
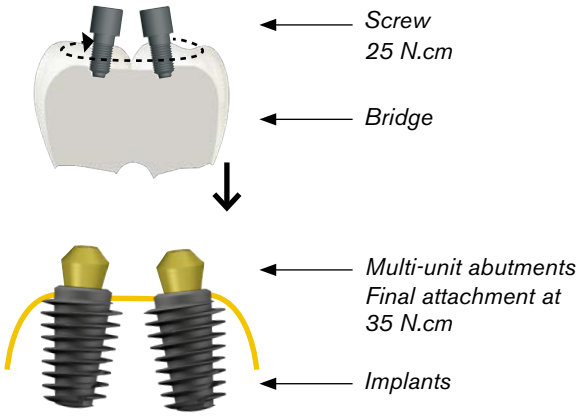
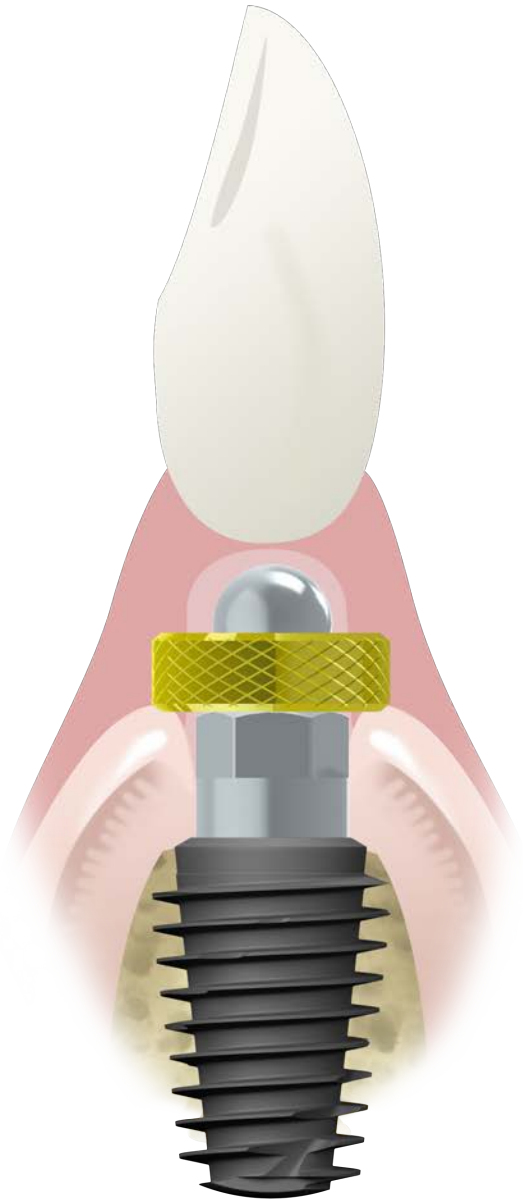


FIGURE 5. IN MOUTH



REMOVABLE PROSTHESIS
ON O-RING ATTACHMENTS



Protocol FOR REMOVABLE PROSTHESIS WITH BALL ABUTMENTS

1. Screw the pick-up transfers, manually or using an external hex key, on to the implants for impression taking. Use the transfers corresponding to the implant diameters (see prosthetic overview or product catalog) (see Figure 1).

2. Unscrew the transfers and remove the impression.

3. Connect the analogs to the transfers taken in the impression by screwing them together (see Figure 2).

4. Cast of the master model in the laboratory.

5. Place the ball abutments on the model by screwing them on to the implant analogs. Use the internal O-ring hex key ***(Ref. CCL HI 25 26)*** (see Figure 3).

6. Clip the attachments on the ball abutments of the model.

7. Prosthetic production of the overdenture using resin teeth positioned in wax according to the same process as a complete prosthesis with exclusively mucosal support.

8. Flasking for integration of attachments on the overdenture.

9. After fitting, relining and adjustment of the occlusion.

10. Attach the ball abutments to the implants using a torque wrench ***(Ref. CCC 35)*** at 35 N.cm.
Clip-on the prosthesis in the mouth. Check the mucosal support.

CAUTION

Use the internal O-ring hex key (ref. CCL HI 25 26) for placing the abutment.
Tightening to 35 N.cm will be carried out using the CCC 35 torque wrench.

FIGURE 1. TRANSFER ATTACHMENT

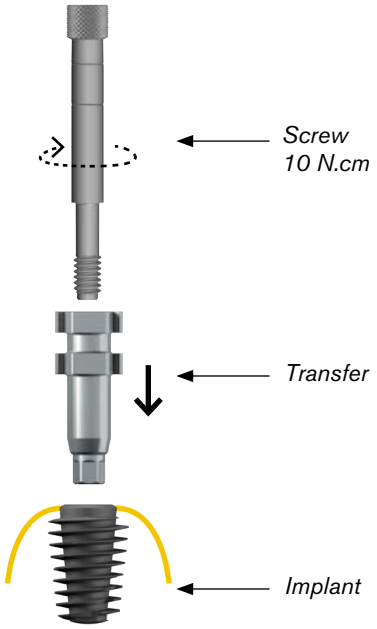


FIGURE 2. ANALOG ATTACHMENT

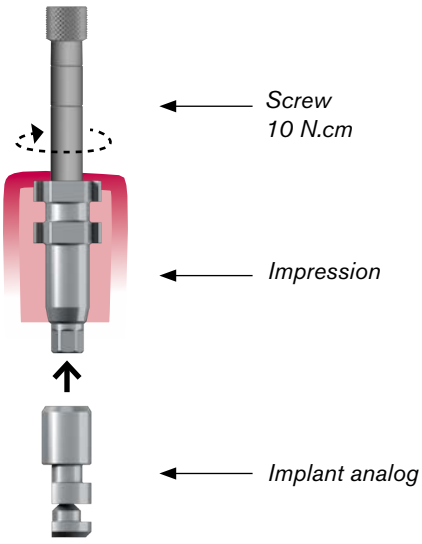
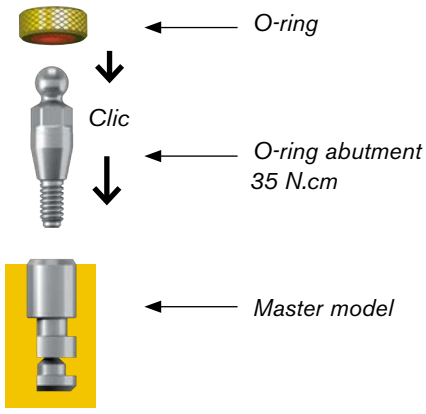


FIGURE 3. ON MODEL



Studies & PUBLICATIONS

• Placement of implants in the mandible reconstructed with free vascularized fibula flap: comparison of 2 cases [on Aesthetica+ implants] - University of Cukurova (Turkey) - 2008

• Geriatric slim implants for complete denture wearers: clinical aspects and perspectives [with OBI mini-implants] - University of Auvergne (Clermont-Ferrand - France) - 2013

• Clinical study of Naturactis dental implants in post-extraction dental procedures - University of Madrid (Spain) - 2013

• Contribution of a hybrid synthetic and innovating product in bone surgery and its filling: Matri™ BONE with Natea and Naturall implants - Université Henri Poincaré (Nancy-France) - 2012

• Implant-supported prosthetic solution in case of small inter-alveolar distance on Aesthetica+ implants - Polyclinic Kiev (Ukraine) - 2009

• Histology and histomorphometry - Comparative study of the Universal implant - Laboratoire d'Histologie d'Angers (France) - 1993

• Multicentric study on the evolution of 3000 euroteknika and Nobel Biocare implants from 1984 to 1997 - Comparison of the results - Faculty of Medicine of Angers (France) - 1997

• Quantitative study on the rough surfaces of titanium dental implants and their microstructures - Université Henri Poincaré (Nancy - France) - 2011

• Analysis of the surface treatment of euroteknika and competitor implants - University of Barcelona (Spain) - 2006

• Study of the sealing of connections for euroteknika implants - University of Catalonia (Spain) - 2008

• Comparison between the digital planning and the final position of the implants with the teknika3D system - University of Bordeaux (France) - 2013

• Resonance frequency analysis, insertion torque and BIC of 4 implants: comparison and correlation study in sheep - Saint Joseph University (Lebanon)

• Comparison of two types of decalcified freeze-dried bone allografts in the treatment of dehiscence defects around Natea implants in dogs - University of Iran - 2011

• Comparison of the insertion and removal torque of two types of dental implants with different thread designs in 3 different materials - University of Catalonia (Spain) - 2008

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