NEODENT

SURGICAL AND PROSTHETIC

Manual

ZiLock® Connection

NEW Guided Surgery

NEW Surgical MultiKit™

Zi Ceramic Implant System

A NEW **MINDSET**

A new **flexibility mindset**

Designed to provide several treatment solutions and a wide range of prosthetic possibilities through a two-piece connection.

A new **stability mindset**

Zi combines a naturally-tapered implant design with double-trapezoidal threads, both designed to maximize stability and predictability in immediate treatments.

A new **esthetic mindset**

Zi offers an outstanding natural looking esthetic result, from the Ceramic itself to its comprehensive portfolio.

SUMMARY

ABOUT **ZI CERAMIC IMPLANT SYSTEM**

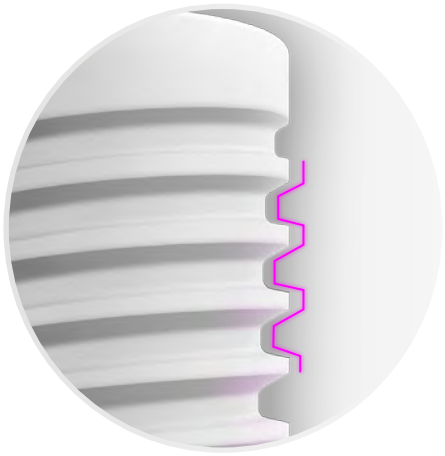
The Neodent® Ceramic implant system combines the reliable two-piece solution with a screw retained internal connection: ZiLock®. It provides a solution in single unit restorations, seeking to achieve high treatment performance with natural esthetic results. The procedures are standardized and have straightforward steps. The implant prosthetic interface has a straight internal connection in which the prosthetic abutment fits inside the platform. The Neodent® Ceramic implant system has an anti-rotational function for indexing the prosthetic component.

VERSATILITY IN IMPLANT PLACEMENT

Neodent® Zi implant was designed with a double trapezoidal thread from the coronal part to the apex, combining a naturally tapered body design: cylindrical coronal section and apically tapered, making this implant compatible with the shape of a natural tooth root, driving to achieve higher primary stability. “Trapezoidal-shaped” threads result in higher bone compaction during implant placement.[1]

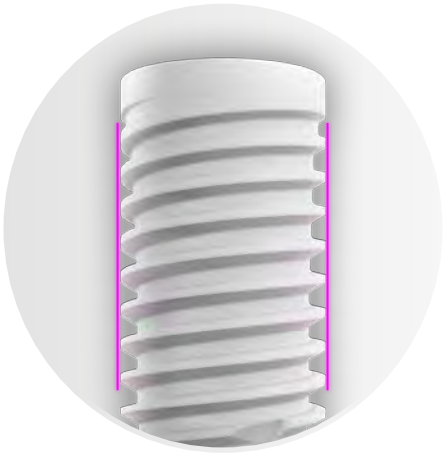
Tapered implant design also results in higher stabilization values when compared to cylindrical or parallel wall designs.[2]

These features indicate implant placement in all bone densities according to proper drilling sequence, making it suitable to all clinical cases with one design. Neodent® Zi presents implant diameters of 3.75 mm and 4.3 mm.



Double Trapezoidal thread design.

Apically tapered with chamber flutes.



Cylindrical coronal section.

SURFACE TREATMENT PERFORMANCE

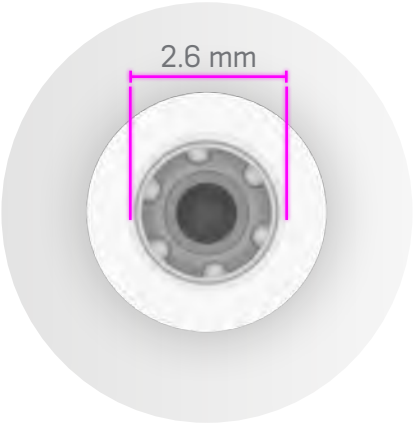
Bone deposition over the implant surface depends directly on the physical interactions between cells and the implant.[3]

Secondary stability relies on the implant's capacity to remain stable with live peri-implant tissue deposition and regeneration post-osseointegration.[4]

Study reveals that implant surface characteristics directly influence cell behavior, particularly in terms of adhesion, proliferation, morphometric and functional changes.[5]

Additionally, ceramic implants with roughened surface treatment result in an osseointegration comparable with titanium implants.[6]

Representative image of the implant surface - Scanning Electron Microscope (SEM) magnification of 5000x.



Top view of the implant and the connection.

FRIENDLY ZILOCK® CONNECTION

ZiLock® is a ceramic straight internal connection with 6 lobes and 6 points. This indexation results in a precise abutment fit, preventing rotation.

The outcome is a user-friendly system that may provide higher treatment flexibility when compared to one-piece implants.

RELIABLE AND STRONG CERAMIC SYSTEM

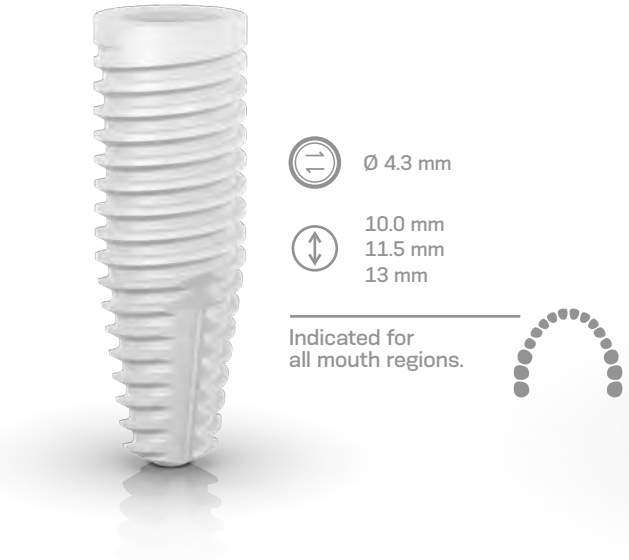
The unique patented ZiLock® connection is designed with a longer screw which provides a secure engagement between the ceramic implant and the ceramic abutment.

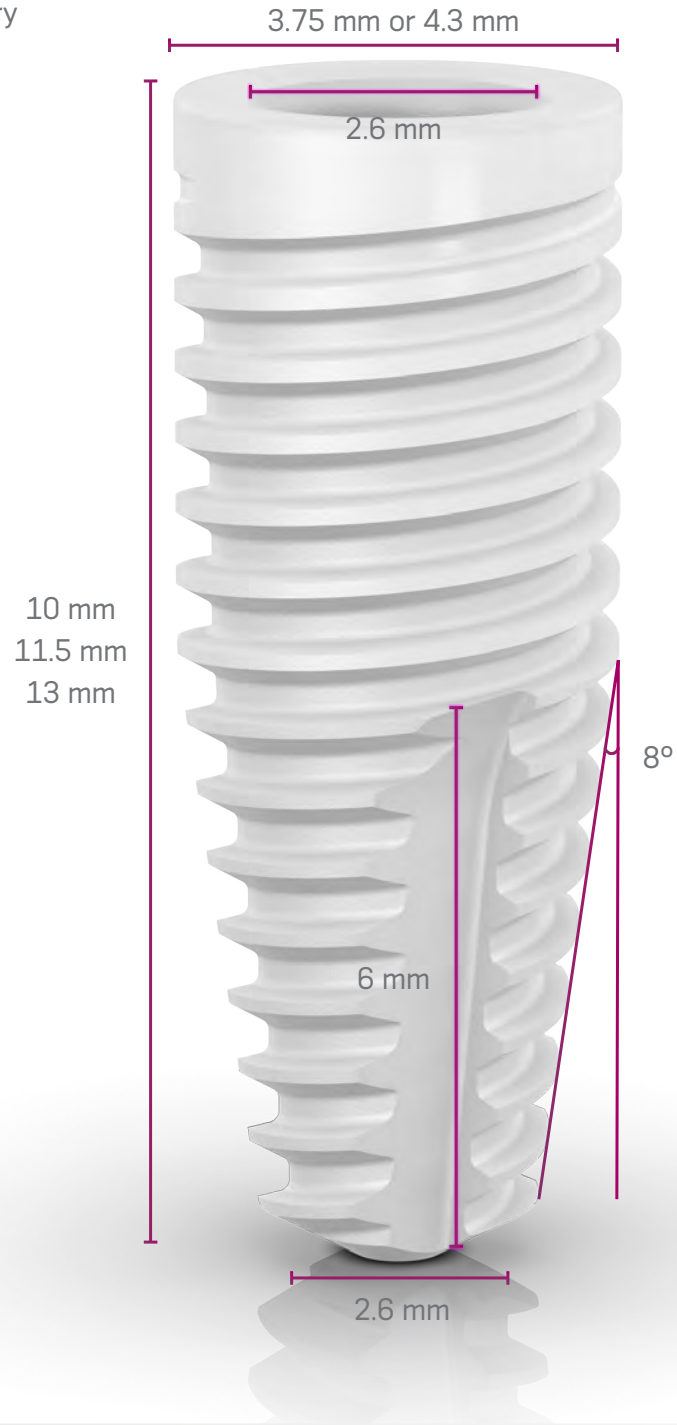
Additionally, it improves the ceramic performance by optimizing the force distribution along the internal connection.

Internal view of the implant and the connection.

NEODENT® ZI SYSTEM'S FEATURES

1. Available in the Surface treatment based on the successful Neoporos® technology;
2. Naturally-tapered implant;
3. Compacting double trapezoidal threads;
4. Implant with dual screw threads for minimal trauma and improved implant placement;
5. Conical apex with low-activity chambers and chamber flutes designed to optimize secondary stability;
6. Indicated for all bone density types placement;
7. Bone tap is required if used in bone types I/II and post-extraction.





Zi GUIDED SURGERY

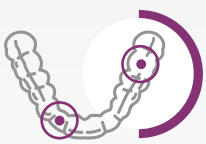
Considering the precise positioning and the combination of ceramic material with soft tissue preservation, the guided protocol is accurate and precise compared to conventional procedures[7] and also reduces the surgical procedure time[8].

Zi MultiKit

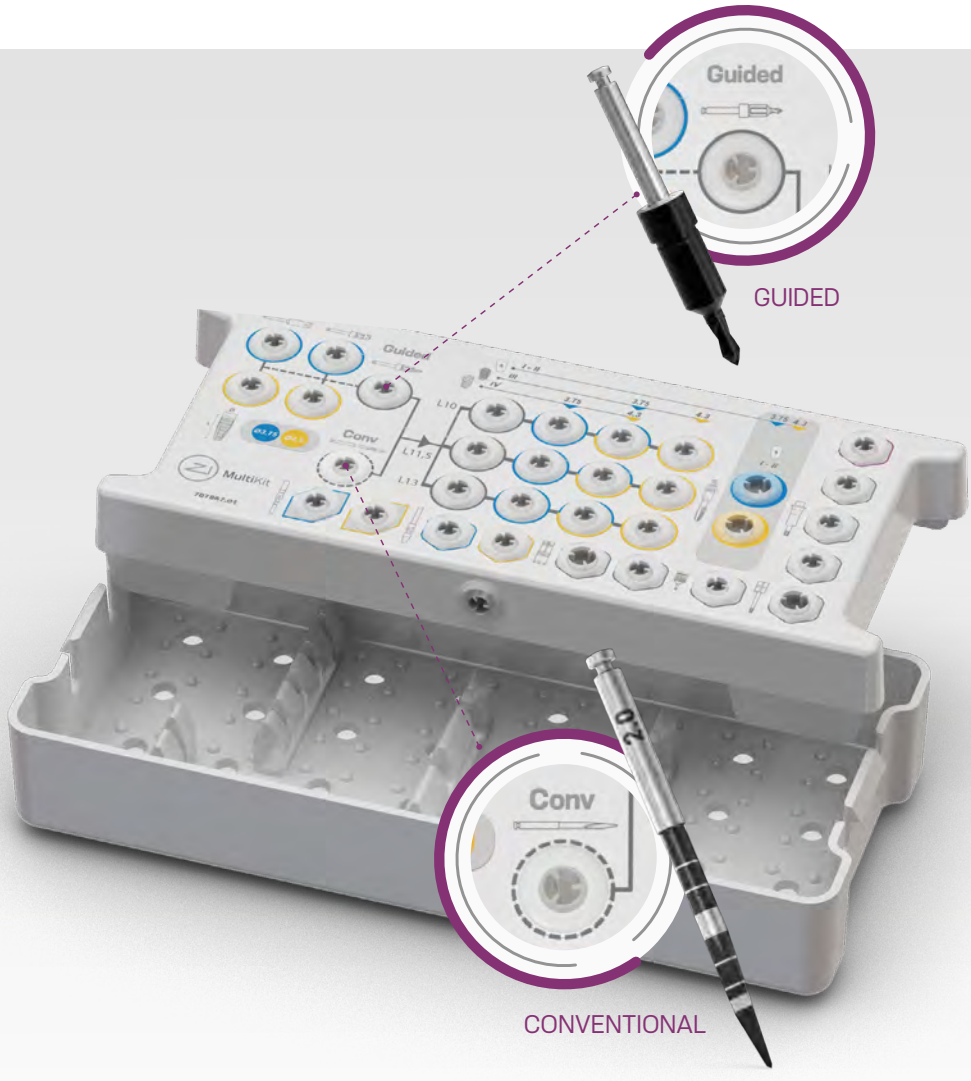
The new Neodent® Zi MultiKit™ is an all-in-one kit designed for both conventional and guided protocols, allowing a more organized, efficient, and adaptable surgical environment.

PREDICTABILITY
Advanced planning and guided protocol to achieve desired clinical outcome.

PRECISION
Advanced planning and guided protocol to achieve desired clinical outcome.



EFFICIENCY
Reduced need for decision-making during the surgical protocol.



PRE-OPERATIVE **PLANNING**

Applications

The Ceramic Implant is indicated as a support for single-unit prostheses, in immediate or conventional loading protocols.

Note: For immediate load application, primary stability must reach at least 35 N.cm and the patient must have a physiological occlusion.

Zi implants with a diameter of 4.3 are indicated for all mouth regions.

The 3.75 diameter Zi implants are indicated only for incisor and canine regions.

Implant positioning and peri-implant tissue

Implant positioning is the key to obtain the correct prosthetic restoration, and is the basis for surgical planning. Communication among the patient, dentist, surgeon and lab technician is essential for reaching the desired prosthetic result.

To establish correct planning, with the correct spatial position, choosing the ideal implant design (diameter and length), number and distribution of implants, it is recommended to:

- Perform a wax-up on the patient's study cast;
- Define the edentulous space to be restored;
- Define the type of the coping;
- Complete a CT scan and radiographic exams.

The wax-up can then be used to fabricate the radiographic and/or surgical template, and can be used as a temporary restoration. Physiological occlusion is determinant to the implant success in short and long term. Immediate loading procedures should not be performed in patients with problems in occlusion.

Note that the implant abutments should always be loaded axially, with the long axis of the implant aligned with the cusps of the opposing teeth. Extreme cusp formation should be avoided, since it may lead to overloading.

The position and number of implants are determined according to the anatomy and the prosthetic space available for each patient's case. The recommendations presented here should be considered as basic guidelines for correct biological healing, adequate restorations and patient oral hygiene. The restoration design has a strong impact on occlusion and hygiene and it must be taken into consideration.

The final response of the hard and soft tissues is highly influenced by the position of the abutment. Therefore the tri-dimensional positioning of the implant needs to be studied, being these:

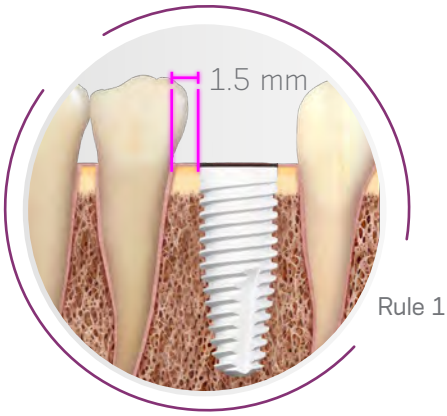
- Mesiodistal;
- Buccolingual;
- Apical coronal.

Mesiodistal implant positioning

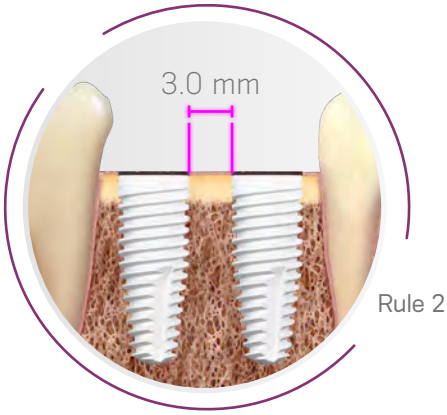
The available mesiodistal bone is an important factor when choosing the implant diameter and quantity. It is the distance between implant to teeth and implant to implant when multiple implants are required. The reference point is to measure the larger mesiodistal width of the implant, usually in the cervical area. Generally implants require a minimum of 1.5mm of adjacent bone around them.

Rule 1 - Ideally, the distance from Neodent® Zi implants to adjacent teeth should be at least 1.5 mm between the widest portion of the implant and the teeth, both on the mesial and distal aspects.

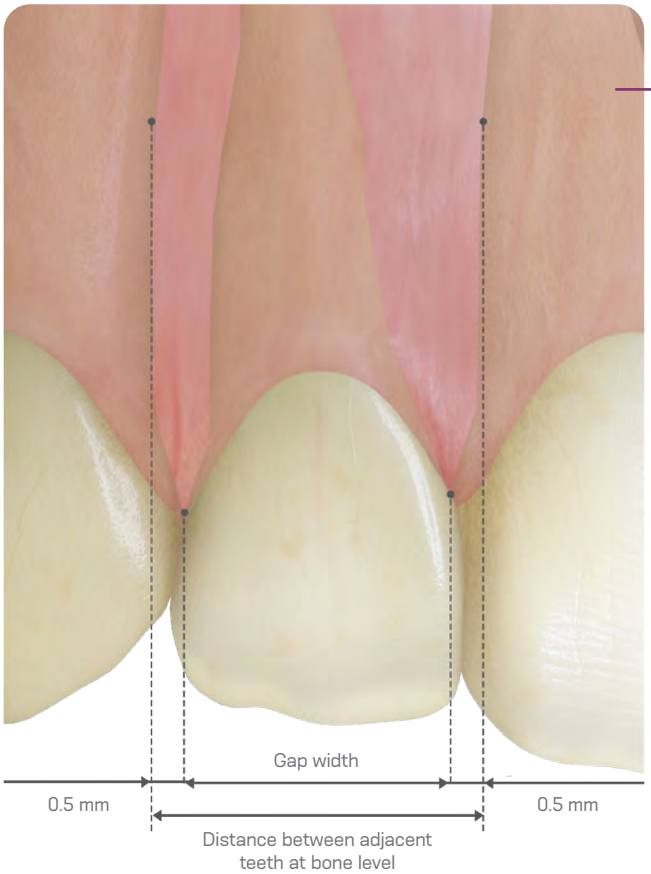
Rule 2 - Since implants require at least 1.5 mm of adjacent bone, the distance to other implants should be the minimum of 3 mm.



Rule 1



Rule 2



For single tooth restorations, the implant should be installed in the middle of the gap. The following example shows how to follow Rule 1.

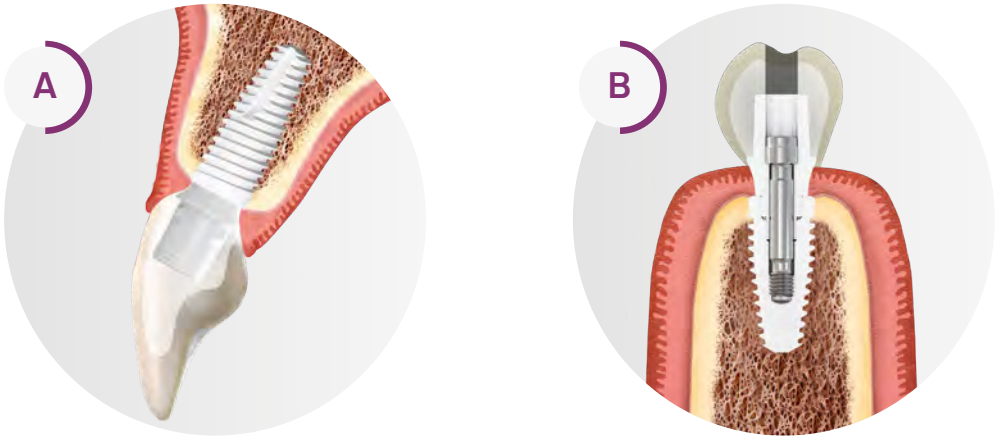
For all Neodent® Zi implants, the gap size needs to be considered for the selection of the implant diameter. To place an implant in the gap width according to Rule 1, the following aspects can be used as an approximation:

The distance between adjacent teeth is approximately 1 mm wider at the bone level because of the tooth anatomy and the interproximal contact point, compared to the actual bone gap width (two times 0,5 mm). So, according to Rule 1, the gap width must be 2 mm wider than the implant diameter.

Buccal-lingual implant positioning

The buccal and lingual bone layer must be at least 1 mm in thickness to contribute to stable hard and soft tissue conditions, besides a well-fitted prosthetic restoration. Also, the surgeon needs to determine whether the plan is to do a screw or cement-retained prosthesis.

Note: Techniques for bone augmentation are highly advisable for ridges where the orofacial bone wall is 1 mm or less, where there is bone missing on one of the sides. These procedures should be conducted only by dentists with advanced experience in grafted bone regeneration.



Example of implant positioned for cement-retained prosthesis (A) and screw-retained prosthesis (B), where there is access to the retaining screw.

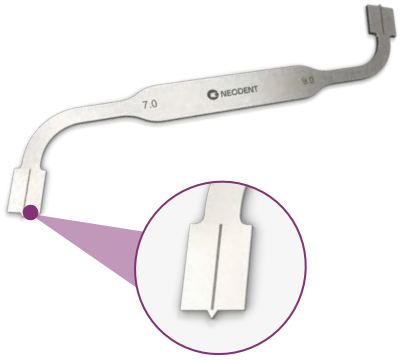
Instruments for planning

Space Planning Instrument as a diagnosis and help for implant placement

By using the 7/9 mm Space Planning Instrument in the patient's mouth or on a model, an initial analyses of the spatial relations can be obtained aiming to select the implant diameter and prosthetic reconstruction.

The Space Planning tool has two tips, with 7 and 9 mm in width, and a mark exactly in the middle (of 3.5 or 4.5 mm), it serves as a reference for the surgeon when placing implants, respecting the 1.5 mm rule of minimum adjacent peri-implant bone.

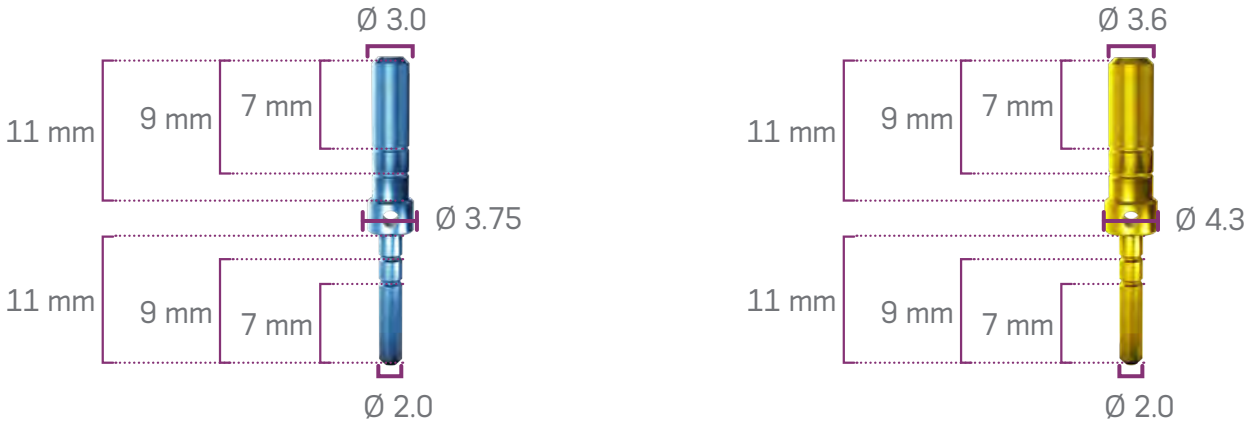
The 1.5 mm rule is important for implant placement according to the teeth position, implants and anatomical structures such as nerves, for example, the Space Planning Instrument can help positioning an implant closer to a foramen.



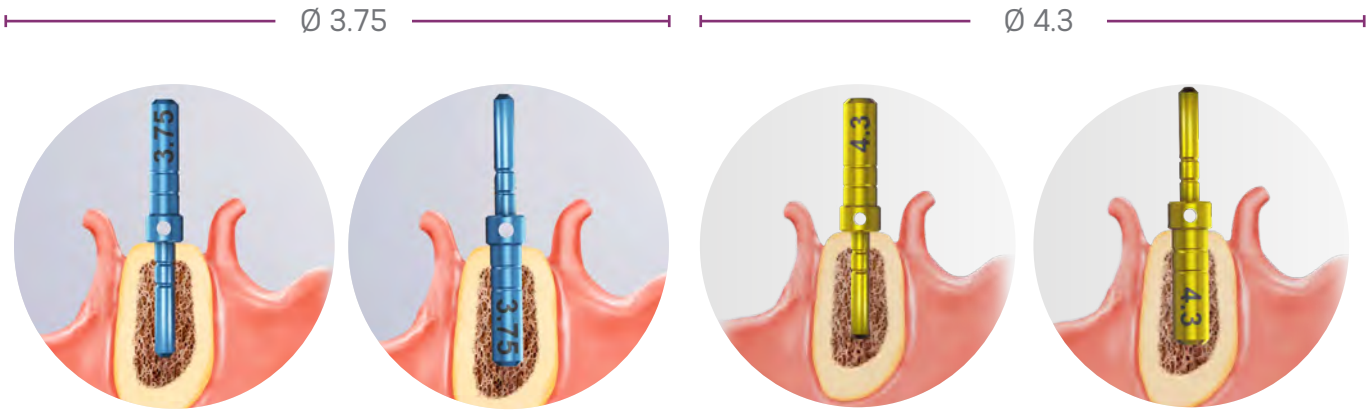
Direction Indicator pins for the diagnosis of adjacent bone

Every Direction Indicator pin in Neodent® has different designs aimed at analyzing the quantity of bone around an osteotomy.

The lower part of all pins has a 2.0 diameter to be adapted after the first osteotomy. The medium part of the pin has the same width as the respective implants, based on the values written on the upper part.



The Direction Indicator allows the surgeon to check the adjacent bone, as illustrated beside. Ensure to use the correct Direction Indicator: **128.020** for 3.75 or **128.022** for 4.3 implant.



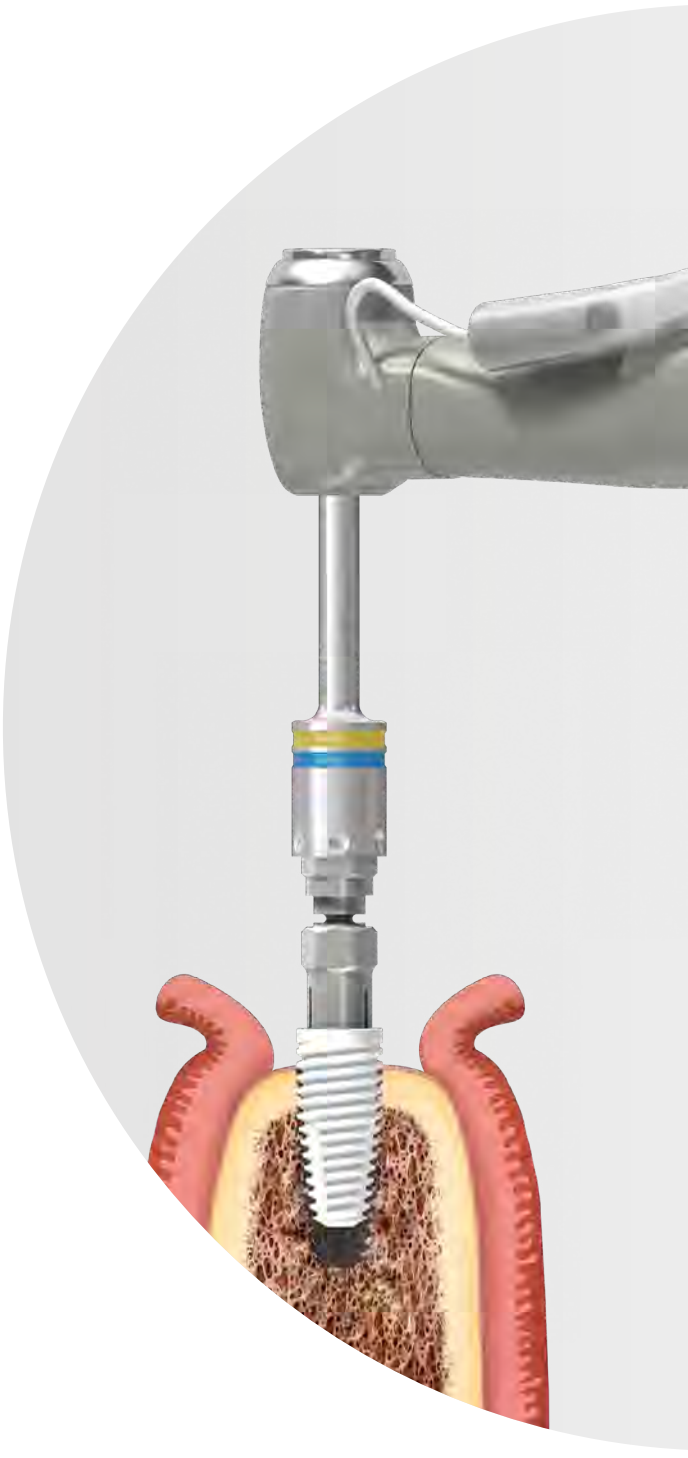
Direction Indicator inserted after the Tapered Drill 2.0 and adapted inside the last osteotomy based on drill protocol. It helps the analysis of the remaining adjacent bone when positioned.

SURGICAL **PROCEDURES**

Implant bed preparation

Diameter, position and number of implants should be selected considering anatomy and spatial circumstances. Basic implant bed preparation involves ridge preparation and tapered drill with water cooling, for which the diameter and the design (conical) of the selected implant determine the instruments to be used. Fine implant bed preparation includes profile drilling and tapping, where the type of implant and bone density determine the instruments to be used.

After opening a flap and exposing the bone for conventional surgery, or installing the surgical guide for guided surgery, the preparation of the alveolar ridge begins. Once the position of the implant has been previously determined, and with the aid of the surgical guide, the cervical cortical layer is perforated with the initial drill and visually verified for its spatial positioning. The indicated rotations per minutes (rpm) for drilling relies basically on the bone density, where in bone type I and II is applied 800-1200 rpm, and type III and IV 500-800 rpm. This initial perforation works as a guide. After, the Tapered Drill 2.0 is used to reach the desired depth for the chosen implant at **bone level**. The next drill is used to prepare the osteotomy following a sequence according to the implant type and diameter, as chosen during the preoperative planning. All drills are adapted to contra-angle according to the ISO 1797-1 – Dental rotary instruments - Shank.



Drilling Protocol – Precautions

The sequence of drills must be followed and performed considering anatomy and spatial circumstances. Wrong implant instrument combination can lead to bone damage. Do not exceed the maximum insertion torque during implant placement.

Applying a torque higher than 60 N.cm may cause damage and/or break the implant. If maximum torque is reached and the insertion cannot be concluded, it is recommended to remove the implant and reprepare the implant bed for a new insertion attempt.

Bone types I and II

Tapered drill speed: 800-1200 rpm;
Use of bone tap is required.

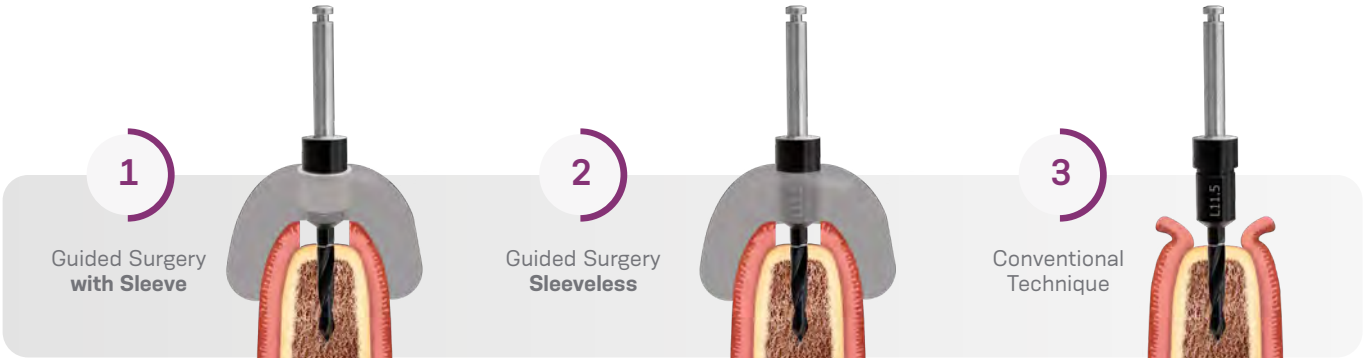
Bone types III and IV

Tapered drill speed: 500-800 rpm.

Obs: In order to prepare the surgical alveolus after extraction, use sequences of the drill used in type I bone. For mandible, use bone tap.

There are three scenarios indicated for the use of ZI guided surgery drills. The first scenario consists of the possibility of working with a surgical guide equipped with sleeves, which will guide the drill through the hole until it is stopped by the upper face of the sleeve, as shown below in item 1. Similar to this is the second scenario, which makes it possible to use a surgical guide as well as the previous one but sleeveless, where the drill will pass through the hole generated by 3D printing in the surgical guide and touch the stop on the upper face of the guide represented by item 2. Finally the third scenario, involves the conventional surgery technique where the drill is positioned manually without the guidance of a surgical guide during the drilling of the bone alveolus according to item 3.

Zi Guided Surgery and Conventional System



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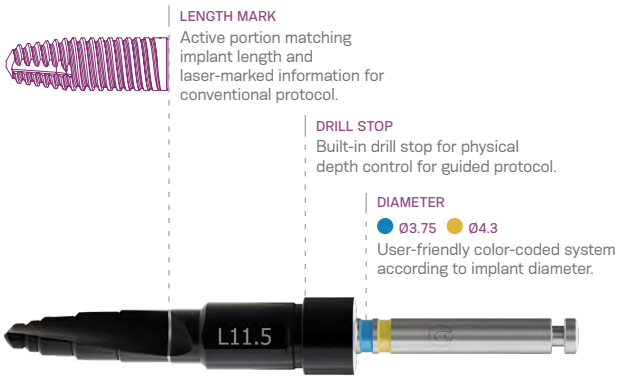
Neodent® Zi Implant Insertion

- Maximum insertion torque: 60 N.cm
- Minimum torque value for Immediate Loading: 35 N.cm

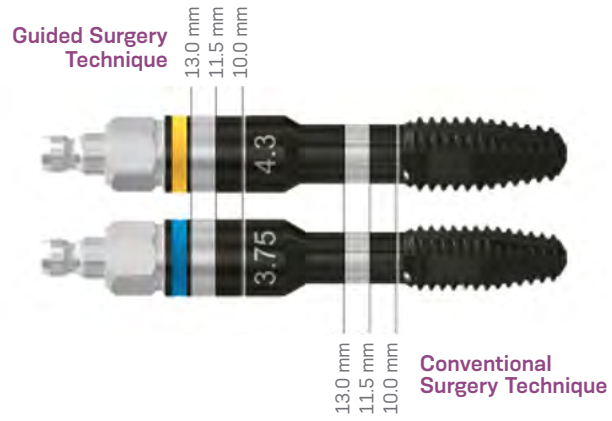


Length markings on the drills

The Zi tapared drills have one laser marking for using during conventional surgery. It indicates the depth of the drill for the selected implant. Zi drills can also be used in guided surgery and for this, they have a stop system that ensures the planned depth.

Zi Bone Tap

The Zi Bone Tap does not have a stop. The control of deep preparation with the bone tap must be done by the dentist using laser marks as a reference. For that, there are laser marks for conventional or guided surgery as shown in the image.



Previous Procedures

Neodent® Zi implant instruments are designed for procedures with 3D planning software using Cone Beam Computed Tomography (CBCT). They are designed to prepare the osteotomy and install Neodent® implants in combination with a surgical guide, with or without Neodent® Sleeves.

1 Diagnosis/ Data gathering

The treatment plan is based on the diagnosis made in the patient's appointment and specific needs. Bone volume and density, anatomy of the restoration area, type of restoration, load type, number of implants, esthetic and functional factors and any other important factors that justify the guided surgery treatment plan must be taken into consideration.

Regardless of imaging technology, a CBCT scan (following the correct parameters) is the basis for a precise digital plan and accurate implant installation. To obtain correct scanning data, the patient should be correctly positioned and scanning instructions/parameters should be followed, following the software manufacturer's instructions for use (IFU). A dental impression is mandatory and can be made conventionally or digitally.

Note: For procedures with surgical guides, the patient's mouth-opening capacity must be sufficient to accommodate guided surgery instruments.

2 Virtual planning

The 3D data set (DICOM) can be imported directly into commercially available planning software (for example, coDiagnostiX™) and superimposed with the dental impression extracted with the scanners (STL File). The implant is positioned based on the patient's anatomy and the desired prosthetic result.

3 Surgical guide production

Once virtual planning has been successfully completed, the treatment plan is sent to the surgical guide manufacturer. Either the software manufacturer or dental prosthesis laboratory can make the surgical guide depending on the software concept used.

Note: In this step, the surgical guide manufacturer should guarantee the compatibility with Neodent® Zi Instruments, using Neodent® sleeves for guided surgery when applicable, positioned according to Neodent® parameters.
Note 2: Neodent® Zi Implant System offers the Guided Surgery technique with sleeves and sleeveless. It is important to correctly select the solution's library on the planning software.

(Some products may not be available for purchase yet. For more information, please contact your local distributor).

General aspects

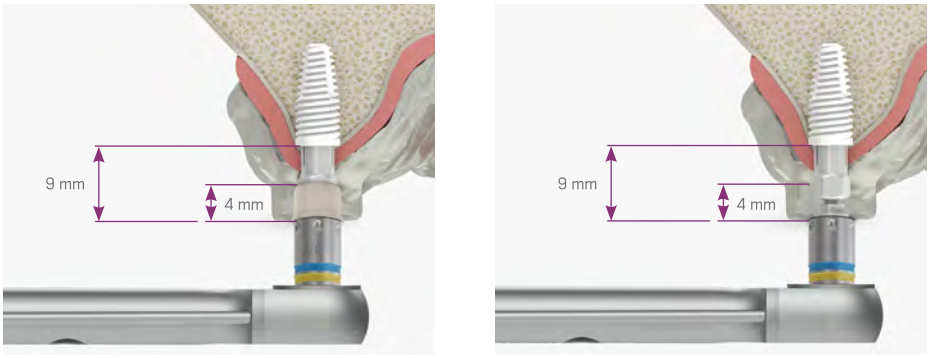
Once the surgical guide is placed in the patient's mouth, optionally using the Neodent® Clamp, osteotomy for the Neodent® Zi line of implants can be prepared with Neodent® Zi Guided instruments. The surgical protocol, provided along with the surgical guide, states which instruments are required for preparing each implant site. Neodent® Zi Guided instruments allow fully guided preparation of the bone bed using drills with physical depth control (stops) and guided implant insertion using surgical guides with guided surgery Zi drivers.

Attention: The Zi Bone Tap does not have a stop. The control of depth preparation with the bone tap must be done by the dentist using laser marks as a reference.

The patient's mouth opening capacity must be sufficient to allow the correct use of Neodent® Zi Guided drills and drivers in the region of the implant to be installed.

The drills and drivers used in guided surgery techniques must offset soft tissue thickness and sleeve height and are therefore considerably longer than instruments used in conventional techniques. Limited mouth-opening capacity may hinder implant installation in guided surgery procedures.

Neodent® Zi System has a line of drills specially developed to be used directly in the surgical guide sleeve (or directly in the guide for the Sleeveless system), making the use of drill guides or reducers unnecessary. Moreover, they have stops to physically control drilling depth. The standard distance (offset) of the system is 9 mm (H9) between the upper part of the sleeve (or guide for sleeveless) and the implant platform, providing sufficient height for soft tissue thickness. The choice of drills should always take into consideration the length of the implant to be installed during the procedure, regardless of its final position in relation to bone level.



Tissue thickness up to 5mm

In the case of osteotomy for regulating bone crest or various extractions, immediate installation of implants with guided surgery technique is not suitable due to bone remodeling after this procedure. The physiological process of ridge reduction may result in the structural loss that would be used before planning implant installation.

Surgical Guides: Types of support

Various types of support for surgical guides are commercially available, depending on personalized surgical recommendations, taking into consideration software planning characteristics and guide manufacturers. All are possibilities, depending on dentist's preference, planning software used and surgical guide manufacturer. For example, there could be a Mucosa-supported surgical guide or a Tooth-supported surgical guide. The surgical guide must correctly fit and be in the correct position to guarantee the placement of the implant in the planned position.

SLEEVE OR SLEEVELESS

The Zi Guided System has two options, with or without sleeves depending on the dentist's preference. This option must be chosen during planning and correctly selected on the planning software using the right library.

GUIDED SURGERY WITH SLEEVE

GUIDED SURGERY SLEEVELESS*

*Please check availability in your region..

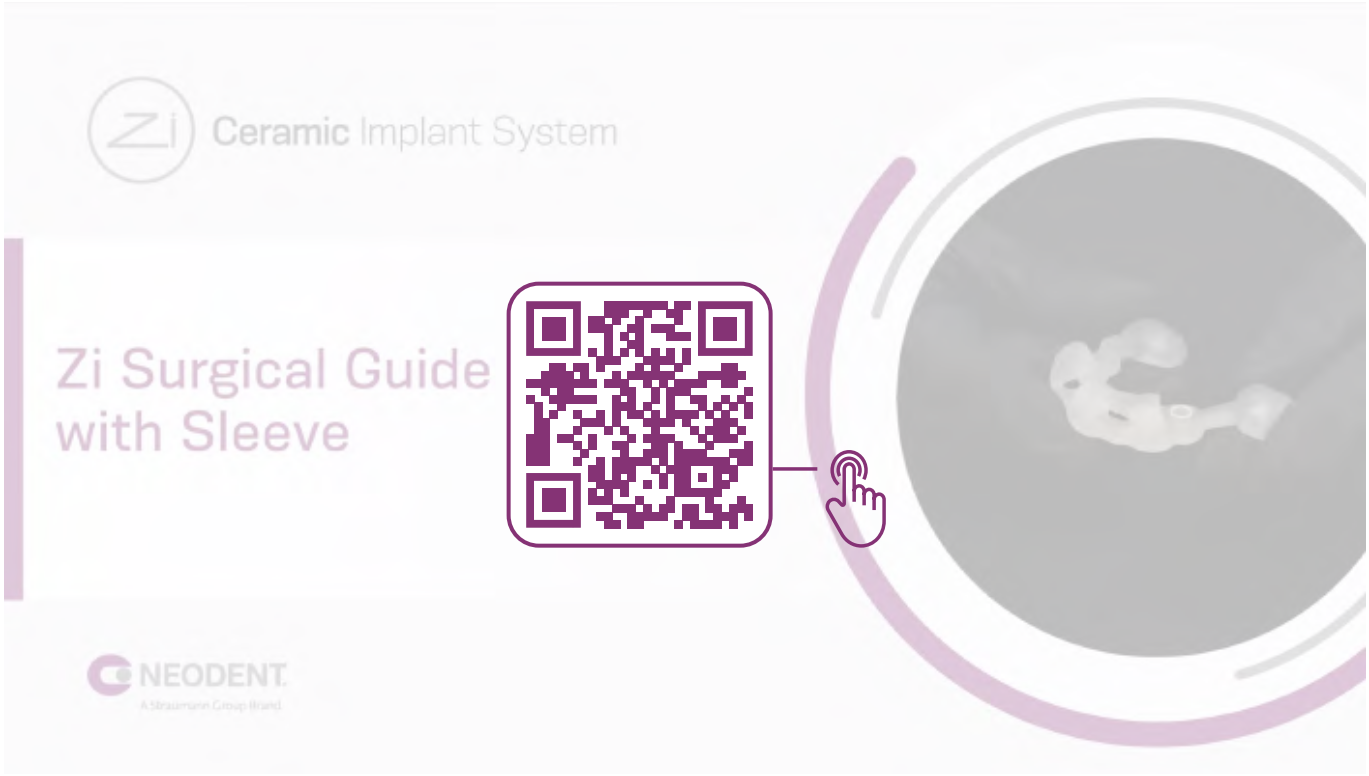
Sleeve Option

When using the sleeve option, during digital planning, sleeve positions must be assessed to avoid impact. Neodent® Zi Sleeves have two-sided surfaces on the upper part which helps in narrow spaces. They are white and made of PEEK, distinguishing them from other sleeves and preventing the implant's exterior from having contact with metal.

Sleeveless Option

In the sleeveless surgical guide option, besides preventing markings on the zirconia implant caused by contact with metal sleeves, the construction process of the surgical guide is simplified, and it can be used in slightly smaller interdental spaces compared to the sleeved option

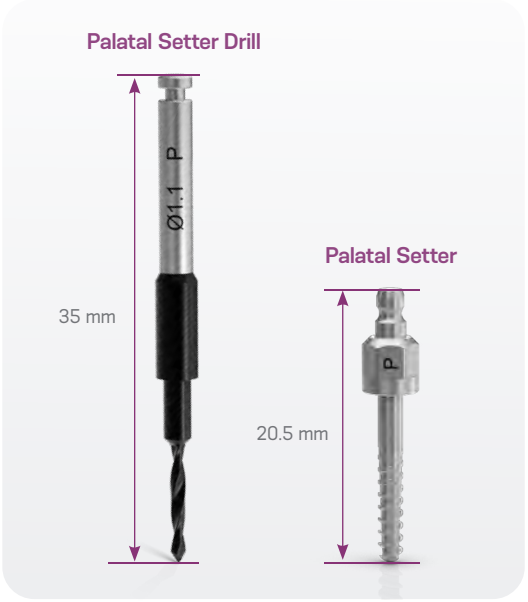
VIDEO: **SLEEVE OPTION**

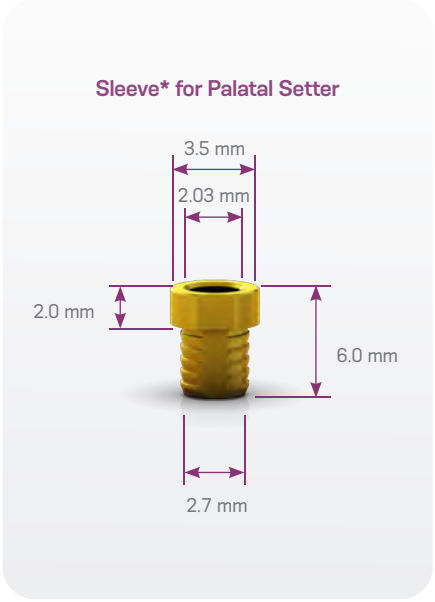


VIDEO: **SLEEVELESS OPTION**

Surgical guide placement on palate

The Palatal Setter should be used to clamp the guide to the palate and provide greater stability. It should be inserted after drill use, through the sleeve or the hole in the surgical guide to the Palatal Setter, with the aid of the Zi Implant Driver for Contra-angle, using a maximum torque of 20 N.cm. Before installing it, the Palatal Setter Drill must be used. It should be removed with the same driver by applying reverse torque.





Drilling speed:
500-800 rpm

Bone types I and II
800 - 1200 rpm

Bone types III and IV
500 - 800 rpm

*Sleeveless options also available.

Surgical Guide Placement

Neodent® Guide Clamp is used to position the guide in the patient's mouth to ensure stability. It is used to keep the surgical guide in place during surgery. To ensure stability, the Guide Clamp must be placed in an area with sufficient and adequate bone quality. The hole for the Neodent® Guide Clamp (sleeve or sleeveless) must be surrounded by sufficient material from the surgical guide for better retention. The number of Guide Clamps should be adapted to patient anatomy, surgical guide type, position and number of implants.

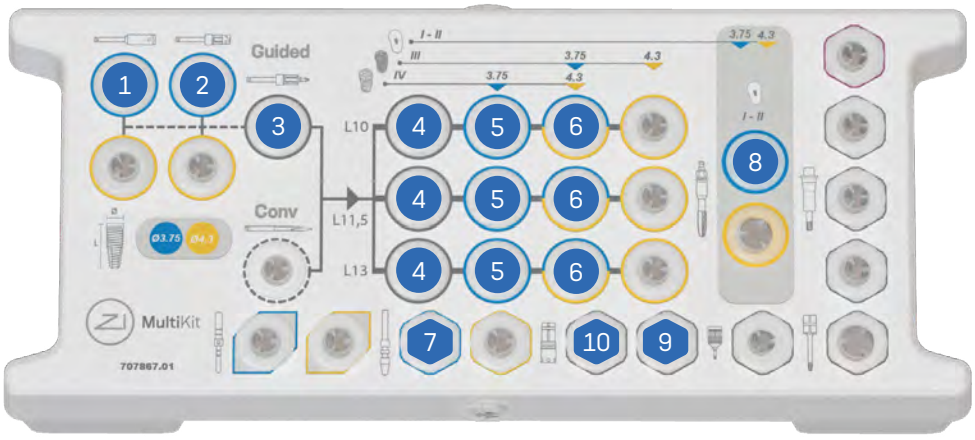
Drilling speed:
500-800 rpm

- Use intermittent drilling technique until reaching the 1.3 mm drill stop;
- After osteotomy, fully engage the clamp as far as the stop.

*Sleeveless options also available.

DRILLING PROTOCOL FOR THE NEODENT®
ZI IMPLANT Ø3.75 FOR GUIDED SURGERY

STEP	IMPLANT LENGTH	CODE	BONE TYPE I and II	BONE TYPE III	BONE TYPE IV	IMAGE
1 Mucosa Punch Ø3.75	-	103.695	60 (MAX. RPM)	60 (MAX. RPM)	60 (MAX. RPM)	
2 Zi Bone Levelling Drill Ø 3.75	-	103.680	1200 (MAX. RPM)	800 (MAX. RPM)	800 (MAX. RPM)	
3 Zi Initial Drill for Guided Surgery	-	103.682	1200 (MAX. RPM)	800 (MAX. RPM)	800 (MAX. RPM)	
4 Tapered Drill Ø2.0	10 11.5 13	103.683 103.684 103.685	1200 (MAX. RPM)	800 (MAX. RPM)	800 (MAX. RPM)	
5 Tapered Drill Ø3.75	10 11.5 13	103.686 103.687 103.688	1200 (MAX. RPM)	800 (MAX. RPM)	800 (MAX. RPM)	
6 Tapered Drill Ø3.75/4.3	10 11.5 13	103.689 103.690 103.691	1200 (MAX. RPM)	800 (MAX. RPM)	SKIP TO STEP 7	
7 Tapered X-Ray Positioner Ø3.75	-	129.020	✓	✓	✓	
8 Zi Bone Tap Ø3.75	-	111.053	30 (MAX. RPM)	⊗	⊗	
9 Zi Driver for Contra-angle	-	105.175	✓	✓	✓	
10 Zi Driver for Torque Wrench	-	105.174	✓	✓	✓	



*If the bone is flat, there is no need to use the Bone Levelling Drill.

Note:
For bone types I and II is necessary to follow steps 1 to 8.

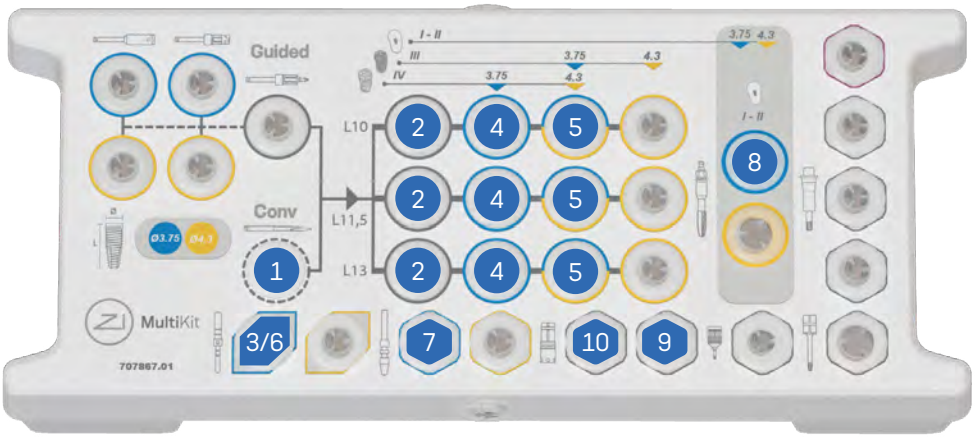
For bone type III is necessary to follow steps 1 to 7.

For bone types IV is necessary to follow steps 1 to 5 and 7 (skip step 6).

Obs.: In order to prepare the surgical alveolus after extraction, use sequences of drills used in type I bone. For the mandible, use the bone tap.

DRILLING PROTOCOL FOR THE NEODENT®
ZI IMPLANT Ø3.75 FOR CONVENTIONAL SURGERY

STEP	IMPLANT LENGTH	CODE	BONE TYPE I and II	BONE TYPE III	BONE TYPE IV	IMAGE
1 Initial Drill (optional)	-	103.170	1200 (MAX. RPM)	800 (MAX. RPM)	800 (MAX. RPM)	
2 Tapered Drill Ø2.0	10 11.5 13	103.683 103.684 103.685	1200 (MAX. RPM)	800 (MAX. RPM)	800 (MAX. RPM)	
3 Direction Indicator Ø2.0/3.75	-	128.020	✓	✓	✓	
4 Tapered Drill Ø3.75	10 11.5 13	103.686 103.687 103.688	1200 (MAX. RPM)	800 (MAX. RPM)	800 (MAX. RPM)	
5 Tapered Drill Ø3.75/4.3	-	103.689 103.690 103.691	1200 (MAX. RPM)	800 (MAX. RPM)	SKIP TO STEP 6	
6 Direction Indicator Ø2.0/3.75	10 11.5 13	128.020	✓	✓	✓	
7 Tapered X-Ray Positioner Ø3.75	-	129.020	✓	✓	✓	
8 Zi Bone Tap Ø3.75	10 11.5 13	111.053	30 (MAX. RPM)	⊗	⊗	
9 Zi Driver for Contra-angle	-	105.175	✓	✓	✓	
10 Zi Driver for Torque Wrench	-	105.174	✓	✓	✓	



*The sequence can be started with the 2.0 drill if the bone bed is flat.

Note:
For bone types I and II is necessary to follow steps 1 to 8.

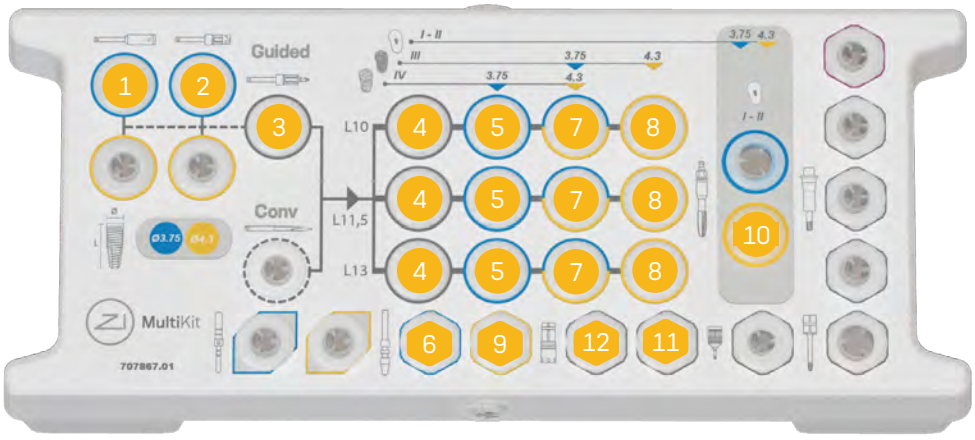
For bone type III is necessary to follow steps 1 to 7.

For bone types IV is necessary to follow steps 1 to 4 and 6 to 7 (skip step 5).

Obs.: In order to prepare the surgical alveolus after extraction, use sequences of drills used in type I bone. For the mandible, use the bone tap.

DRILLING PROTOCOL FOR THE NEODENT®
ZI IMPLANT Ø4.3 FOR GUIDED SURGERY

STEP	IMPLANT LENGTH	CODE	BONE TYPE I and II	BONE TYPE III	BONE TYPE IV	IMAGE
1 Mucosa Punch Ø4.3	-	103.696	60 (MAX. RPM)	60 (MAX. RPM)	60 (MAX. RPM)	
2 Zi Bone Levelling Drill Ø 4.3	-	103.681	1200 (MAX. RPM)	800 (MAX. RPM)	800 (MAX. RPM)	
3 Zi Initial Drill for Guided Surgery	-	103.682	1200 (MAX. RPM)	800 (MAX. RPM)	800 (MAX. RPM)	
4 Tapered Drill Ø2.0	10 11.5 13	103.683 103.684 103.685	1200 (MAX. RPM)	800 (MAX. RPM)	800 (MAX. RPM)	
5 Tapered Drill Ø3.75	10 11.5 13	103.686 103.687 103.688	1200 (MAX. RPM)	800 (MAX. RPM)	800 (MAX. RPM)	
6 Tapered X-Ray Positioner Ø3.75	-	129.020	OPTIONAL	OPTIONAL	OPTIONAL	
7 Tapered Drill Ø3.75/4.3	-	103.689 103.690 103.691	1200 (MAX. RPM)	800 (MAX. RPM)	800 (MAX. RPM)	
8 Tapered Drill Ø4.3	10 11.5 13	103.692 103.693 103.694	1200 (MAX. RPM)	800 (MAX. RPM)	SKIP TO STEP 9	
9 Tapered X-Ray Positioner Ø4.3	-	129.013	✓	✓	✓	
10 Zi Bone Tap Ø4.3	-	111.052	30 (MAX. RPM)	⊗	⊗	
11 Zi Driver for Contra-angle	-	105.175	✓	✓	✓	
12 Zi Driver for Torque Wrench	-	105.174	✓	✓	✓	



* If the bone is flat, there is no need to use the Bone Levelling Drill.

Note:
For bone types I and II is necessary to follow steps 1 to 10.

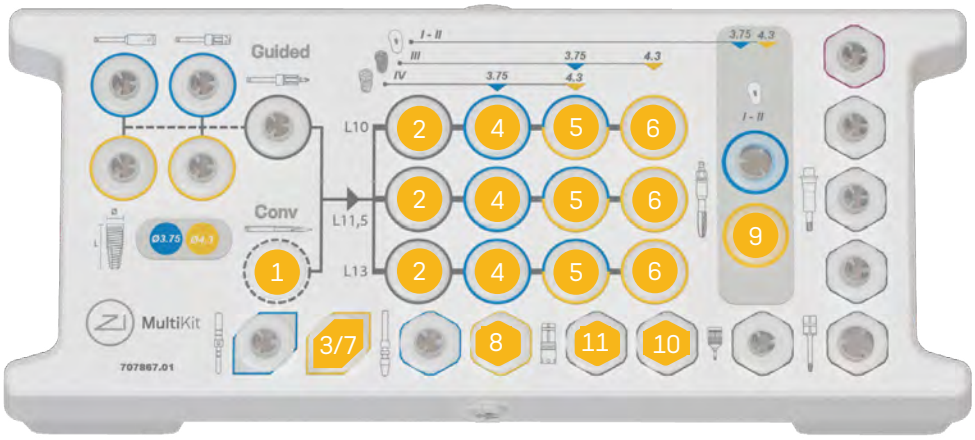
For bone type III is necessary to follow steps 1 to 9.

For bone types IV is necessary to follow steps 1 to 7 and 9 (skip step 8).

Obs.: In order to prepare the surgical alveolus after extraction, use sequences of drills used in type I bone. For the mandible, use the bone tap.

DRILLING PROTOCOL FOR THE NEODENT®
ZI IMPLANT Ø 4.3 FOR CONVENTIONAL SURGERY

STEP	IMPLANT LENGTH	CODE	BONE TYPE I and II	BONE TYPE III	BONE TYPE IV	IMAGE
1 Initial Drill (optional)	-	103.170	1200 (MAX. RPM)	800 (MAX. RPM)	800 (MAX. RPM)	
2 Tapered Drill Ø2.0	10 11.5 13	103.683 103.684 103.685	1200 (MAX. RPM)	800 (MAX. RPM)	800 (MAX. RPM)	
3 Direction Indicator Ø2.0/3.75	-	128.022	✓	✓	✓	
4 Tapered Drill Ø3.75	10 11.5 13	103.686 103.687 103.688	1200 (MAX. RPM)	800 (MAX. RPM)	800 (MAX. RPM)	
5 Tapered Drill Ø3.75/4.3	10 11.5 13	103.689 103.690 103.691	1200 (MAX. RPM)	800 (MAX. RPM)	800 (MAX. RPM)	
6 Tapered Drill Ø4.3	10 11.5 13	103.692 103.693 103.694	1200 (MAX. RPM)	800 (MAX. RPM)	SKIP TO STEP 7	
7 Direction Indicator Ø2.0/4.3	-	128.022	✓	✓	✓	
8 Tapered X-Ray Positioner Ø4.3	-	129.013	✓	✓	✓	
9 Zi Bone Tap Ø4.3	-	111.052	30 (MAX. RPM)	⊗	⊗	
10 Zi Driver for Contra-angle	-	105.175	✓	✓	✓	
11 Zi Driver for Torque Wrench	-	105.174	✓	✓	✓	



*The sequence can be started with the 2.0 drill if the bone bed is flat.

Note:
For bone types I and II is necessary to follow steps 1 to 9.

For bone type III is necessary to follow steps 1 to 8.

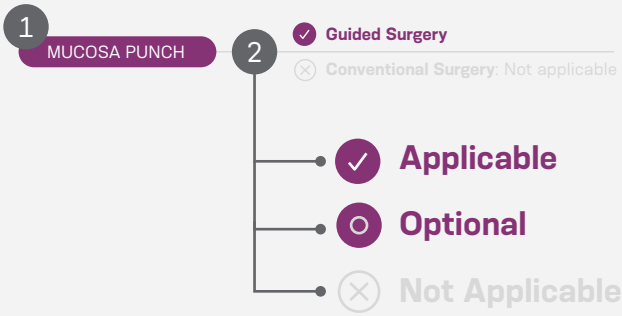
For bone types IV is necessary to follow steps 1 to 5 an 7 to 8 (skip step 6).

Obs: In order to prepare the surgical alveolus after extraction, use sequences of drills used in type I bone. For the mandible, use the bone tap.

SURGICAL **PROCEDURES**

HOW TO FOLLOW THE STEPS IN THIS MANUAL

In the left of the section (1) there is an indication of the step in the right if it's applicable for each type of surgery (2).



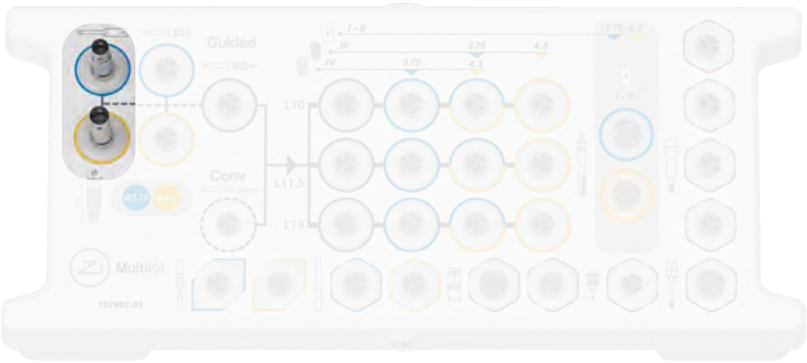
DRILLING PROTOCOL STEP-BY-STEP

MUCOSA PUNCH

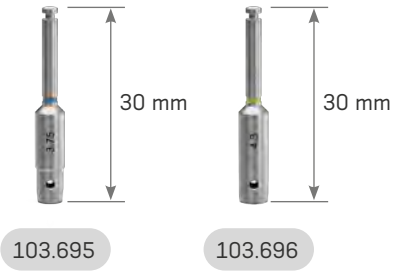
Guided Surgery

Conventional Surgery: Not applicable

A circular incision is made in the tissue before preparing the bone bed using the guided surgery technique. This optional procedure is performed with a tissue punch (a surgical instrument with a contra-angle fitting at one end and a cylindrical cutter at the other).



The appropriate number of rotations per minute (rpm) for drilling is 60 rpm.



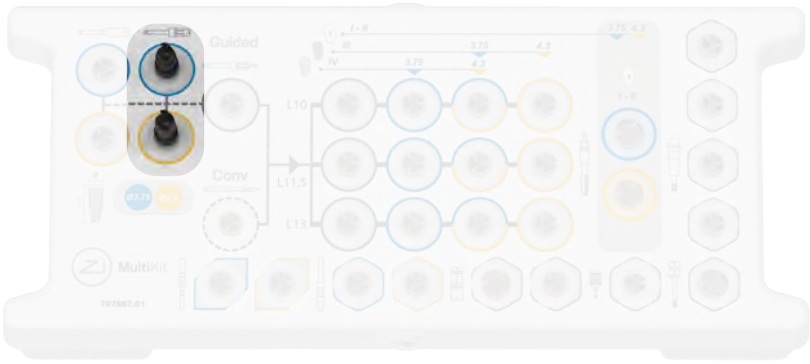
The mucosa punch has the markings corresponding with the implants' diameter.

BONE LEVELLING DRILL

Guided Surgery

Conventional Surgery: Not applicable

The Levelling Drill is used for the preparation of the bone bed prior to drilling. It has a stop which limits the depth of drill insertion. Its geometry, size and diameter are compatible with the sleeve or the sleeveless library.



The bone levelling drill has the markings corresponding with the implants' diameter.

103.680 103.681

Bone types I and II
800 - 1200 rpm

Bone types III and IV
500 - 800 rpm

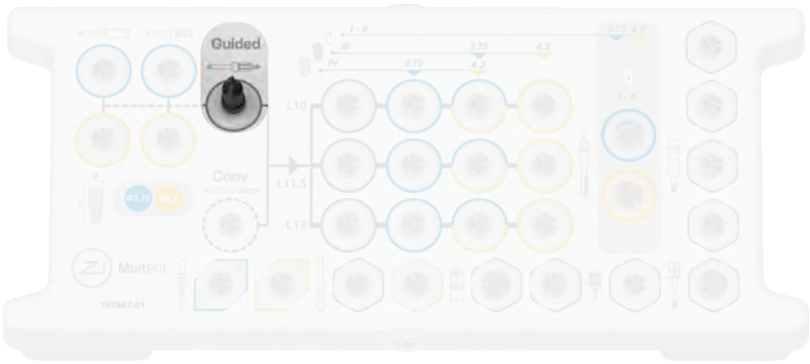
Note: For Guided Surgery it has a ring (stop) which limits the depth of insertion of the drills. Insert until the stop reaches the sleeve or the guide on the sleeveless solution.

INITIAL DRILL

Guided Surgery

Conventional Surgery: Not applicable

For marking out and breaking the cortical bone, the Initial Drill is used. It has a stop which limits the depth of insertion of the drills. Its geometry, size and diameter are compatible with the sleeve or sleeveless library. During drilling, pressure cannot be excessive, and must be done with continuous movements of insertion and removal, under abundant irrigation. Do not interrupt the rotation of the motor while the drill is inside the surgical cavity, as this may impede its removal or cause it to break.



103.682

Bone types I and II
800 - 1200 rpm

Bone types III and IV
500 - 800 rpm

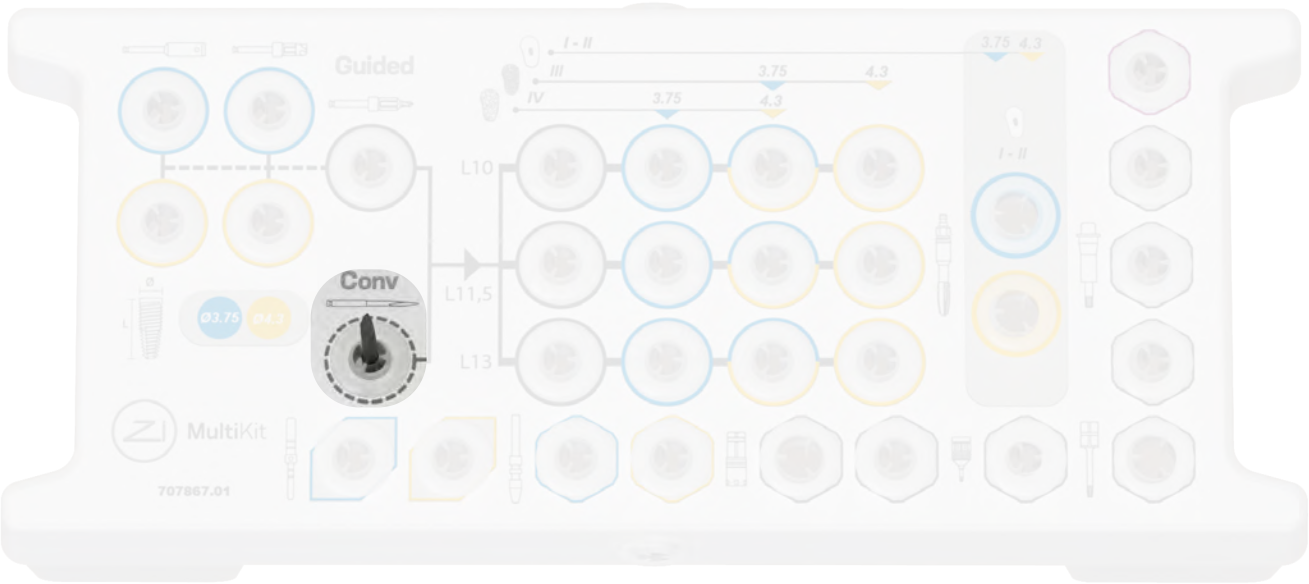
Note: For Guided Surgery it has a ring (stop) which limits the depth of insertion of the drills. Insert until the stop reaches the sleeve or the guide on the sleeveless solution.

INITIAL DRILL

Guided Surgery: Not applicable

Conventional Surgery: Optional

Carefully reduce and smooth the bone to create a flat surface before marking the position of the implant with the initial drill. Use the initial drill in accordance with the implant length and laser markings on the drill. During drilling, pressure cannot be excessive, and must be done with continuous movements of insertion and removal, under abundant irrigation. Do not interrupt the rotation of the motor while the drill is inside the surgical cavity, as this may impede its removal or cause it to break.



Conventional Surgery

103.170

Bone types I and II
800 - 1200 rpm

Bone types III and IV
500 - 800 rpm

Note:

The reduction/preparation of the bone needs to be considered in the preoperative planning since it influences the choice of implant diameter and length.

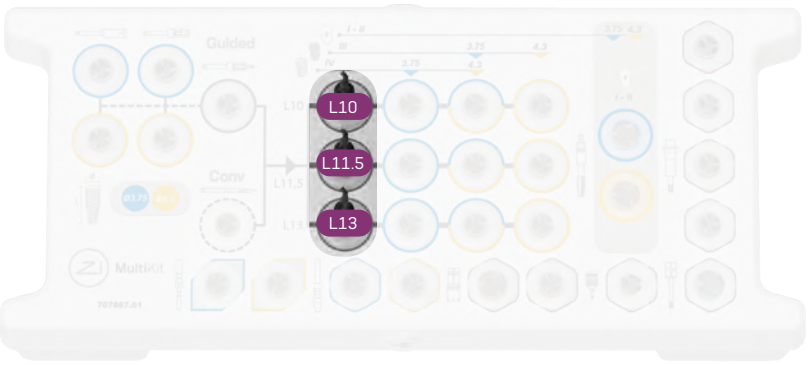
ZI TAPERED DRILL Ø2.0

- ✓ **Guided Surgery**
- ✓ **Conventional Surgery**

Start the motor and perform bone bed drilling with continuous movements of insertion and removal, under abundant irrigation. This irrigation can be either manual or combined with the irrigation from the motor. During drilling, pressure cannot be excessive. Do not interrupt the rotation of the motor while the drill is inside the surgical cavity, as this may impede its removal or cause it to break. The tapered drills have a laser marking for bone level implant placement.

Guided Surgery

Conventional Surgery



37.5 mm
L10
103.683

39 mm
L11.5
103.684

40.5 mm
L13
103.685

Bone types I and II
800 - 1200 rpm

Bone types III and IV
500 - 800 rpm

Note:

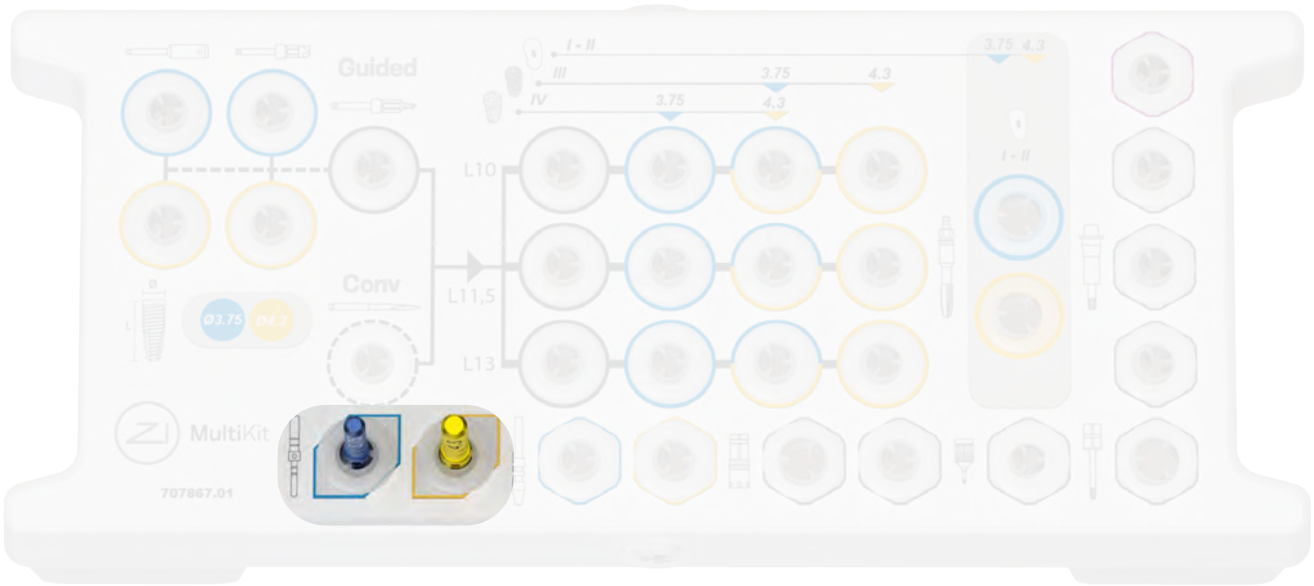
The reduction/preparation of the bone needs to be considered in the preoperative planning since it influences the choice of implant diameter and length. For Guided Surgery it has a stop which limits the depth of insertion of the drills. Insert it until the stop reaches the sleeve or the guide on the sleeveless solution.

DIRECTION INDICATOR

Guided Surgery: Not applicable

Conventional Surgery

After using the Tapered Drill Ø2.0, check the implant axis using the thinner side of the Direction Indicator.



Conventional Surgery

128.020

128.022

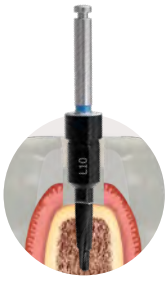
Note:

The Direction Indicator pin is fully inserted into the drilled area, allowing visualization of the drill hole relative to the anatomical structures.

ZI TAPERED DRILL Ø3.75

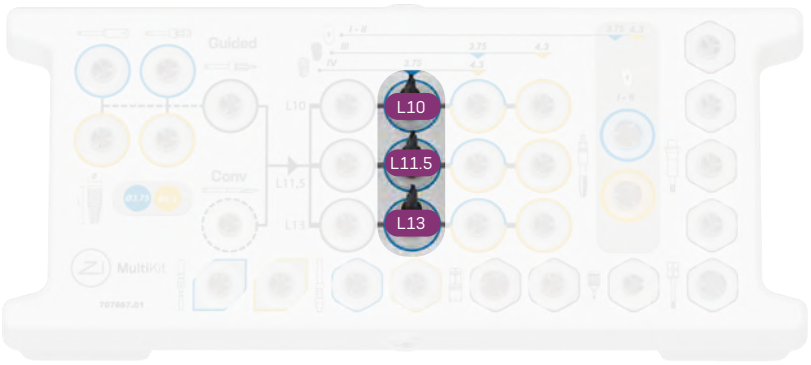
- ✓ **Guided Surgery**
- ✓ **Conventional Surgery**

Start the motor and perform bone bed drilling with continuous movements of insertion and removal, under abundant irrigation. This irrigation can be either manual or combined with the irrigation from the motor. During drilling, pressure cannot be excessive. Do not interrupt the rotation of the motor while the drill is inside the surgical cavity, as this may impede its removal or cause it to break. The tapered drills have a laser marking for bone level implant placement.



Guided Surgery

Conventional Surgery



37.5 mm
L10
103.686

39 mm
L11.5
103.687

40.5 mm
L13
103.688

Bone types I and II
800 - 1200 rpm

Bone types III and IV
500 - 800 rpm

Note:

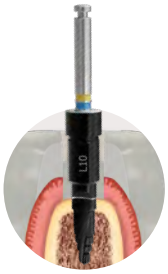
The reduction/preparation of the bone needs to be considered in the preoperative planning since it influences the choice of implant diameter and length. For Guided Surgery it has a stop which limits the depth of insertion of the drills. Insert it until the stop reaches the sleeve or the guide on the sleeveless solution.

Attention: If you are placing a Neodent® Zi Implant **Ø3.75 in bone type IV**: Please, stop the drilling protocol and skip to Direction Indicator 3.75 and/or X-ray Positioner 3.75 and then, the implant placement.

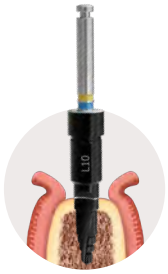
ZI TAPERED DRILL Ø3.75/4.3

- ✓ **Guided Surgery**
- ✓ **Conventional Surgery**

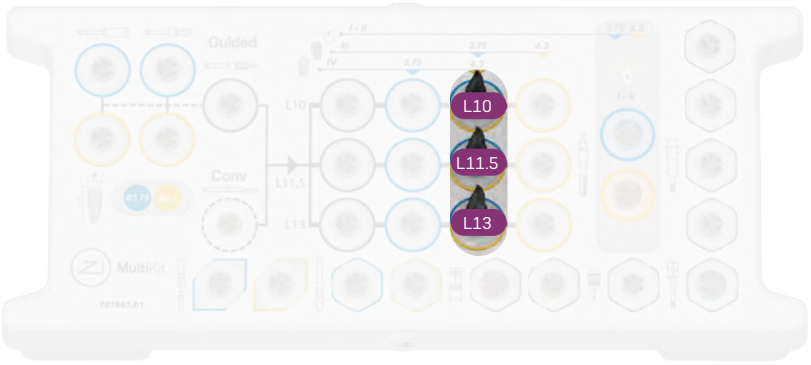
Start the motor and perform bone bed drilling with continuous movements of insertion and removal, under abundant irrigation. This irrigation can be either manual or combined with the irrigation from the motor. During drilling, pressure cannot be excessive. Do not interrupt the rotation of the motor while the drill is inside the surgical cavity, as this may impede its removal or cause it to break. The tapered drills have a laser marking for bone level implant placement.



Guided Surgery



Conventional Surgery



37.5 mm
L10
103.689

39 mm
L11.5
103.690

40.5 mm
L13
103.691

Bone types I and II
800 - 1200 rpm

Bone types III and IV
500 - 800 rpm

Note:

The reduction/preparation of the bone needs to be considered in the preoperative planning since it influences the choice of implant diameter and length. For Guided Surgery it has a stop which limits the depth of insertion of the drills. Insert it until the stop reaches the sleeve or the guide on the sleeveless solution.

Attention:
If you are placing a Neodent® Zi Implant **Ø3.75 in bone type III:** Please, stop the drilling protocol and skip to Direction Indicator Ø3.75 and/or X-ray Positioner Ø3.75 and then, the implant placement.
If you are placing a Neodent® Zi Implant **Ø3.75 in bone type I/II**: Please stop the drilling protocol and skip to Direction Indicator Ø3.75 and/or X-ray Positioner Ø3.75 and Bone Tap Ø3.75;
If you are placing a Neodent® Zi Implant **Ø4.3 in bone type IV**: Please, stop the drilling protocol and skip to Direction Indicator 4.3 and/or X-ray Positioner Ø4.3 and then, the implant placement;
If you are placing a Neodent® Zi Implant **Ø4.3 in bone type I, II or III**: Please move forward;

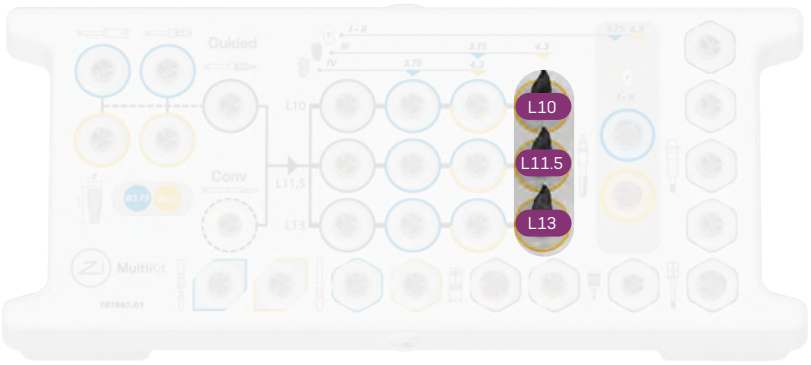
ZI TAPERED DRILL Ø4.3

- ✓ **Guided Surgery**
- ✓ **Conventional Surgery**

Start the motor and perform bone bed drilling with continuous movements of insertion and removal, under abundant irrigation. This irrigation can be either manual or combined with the irrigation from the motor. During drilling, pressure cannot be excessive. Do not interrupt the rotation of the motor while the drill is inside the surgical cavity, as this may impede its removal or cause it to break. The tapered drills have a laser marking for bone level implant placement.

Guided Surgery

Conventional Surgery



37.5 mm
L10
103.692

39 mm
L11.5
103.693

40.5 mm
L13
103.694

Bone types I and II
800 - 1200 rpm

Bone types III and IV
500 - 800 rpm

Note:

The reduction/preparation of the bone needs to be considered in the preoperative planning since it influences the choice of implant diameter and length. For Guided Surgery it has a stop which limits the depth of insertion of the drills. Insert it until the stop reaches the sleeve or the guide on the sleeveless solution.

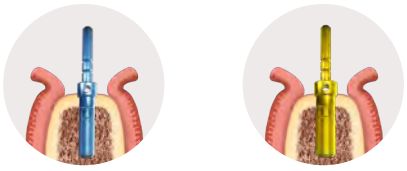
Attention:
If you are placing a Neodent® Zi Implant **Ø4.3 in bone type III**: Please, stop the drilling protocol and skip to Direction Indicator Ø4.3 and/or X-ray Positioner Ø4.3 and then, the implant placement.
If you are placing a Neodent® Zi Implant **Ø4.3 in bone type I, or II**: Please move forward.

DIRECTION INDICATOR

Guided Surgery: Not applicable

Conventional Surgery

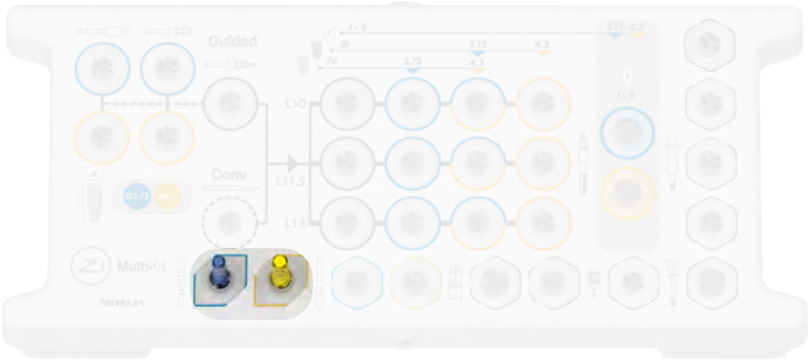
After using the final drill according to the implant diameter, check the implant axis using the thicker side of the Direction Indicator Ø3.75 or Ø4.3.



Conventional Surgery

128.020

128.022



TAPERED X-RAY POSITIONER

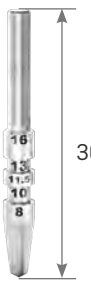
Guided Surgery

Conventional Surgery: Optional

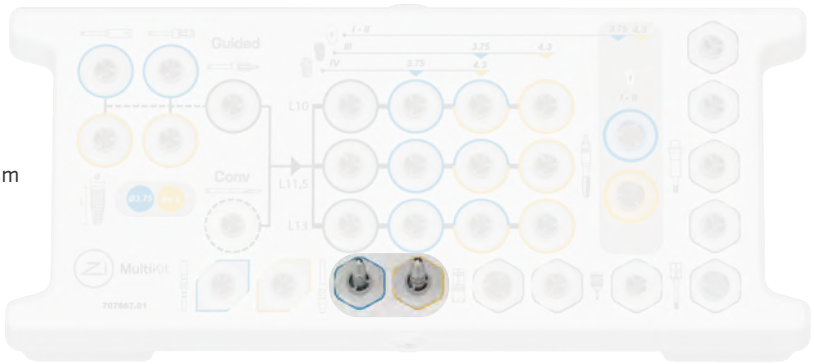
A periapical X-ray would be recommended for checking vertical bone availability, or checking the axis in relation to adjacent roots.

Conventional Surgery

129.020



129.013

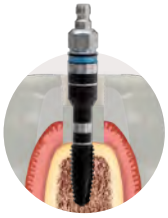


Attention: If you are placing a Neodent® Zi Implant in **bone type I or II**: Please move forward.

ZI BONE TAP

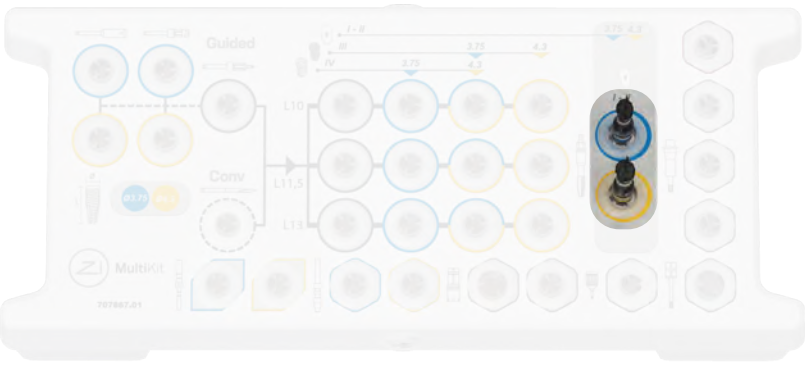
- ✓ **Guided Surgery**
- ✓ **Conventional Surgery**

Bone taps are designed for the formation of threads in the surgical alveolus before the Neodent® Zi implants placement in hard bone (type I or type II) and post-extraction, in the finalization process of implant bed preparation. This step is intended to keep the insertion torque at a desirable level.



Guided Surgery

Conventional Surgery



111.053 111.052

Note:

Bone taps have the markings corresponding with the implants' diameter and length.

Attention: The Zi Guided Bone Tap does not have a stop. The control of depth preparation with the bone tap must be done by the dentist using laser marks as a reference. For that, there are laser marks for conventional or guided surgery as shown in the image.

In order to use the Bone Tap, follow the steps below:

Step 1: In order to initiate the Bone Tap insertion, use the Contra-Angle handpiece. Fit the Bone Tap into the Contra-Angle and set the surgical motor to maximum drilling speed of 30 rpm and torque of 35 N.cm. Start the motor and insert the Bone Tap in the surgical alveolus, maintaining the perforation axis until stability is obtained and/or the maximum torque of 35 N.cm is achieved.

Step 2: Then, proceed with the bone bed preparation with the Torque Wrench Driver, using the Implant Driver for the Torque Wrench. For that, fit the Bone Tap into the Implant Driver for the Torque Wrench and perform insertion movements, in a clockwise direction, slightly pressing the Torque Wrench Driver, considering the maximum torque of 60 N.cm. In case it aproaches 60 N.cm, it is recommended to apply a counter torque and then continue the insertion. Proceed with the insertion until the Bone Tap for Ceramic Implant reaches the marking corresponding to the chosen implant. For a complete removal of the Bone Tap from the surgical cavity, reverse the Torque Wrench Driver direction counterclockwise and remove it carefully. If performed differently, its removal can compromise thread formation.

IMPLANT **PACKAGING**

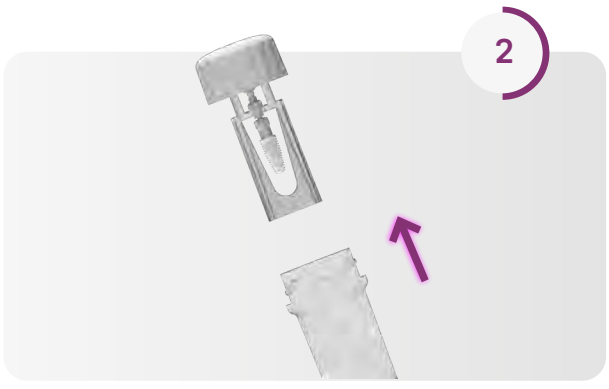
Neodent® packaging has been specially updated for easy handling and seeking to achieve a safe surgical procedure, providing practicality from implant stocking to the capture, transport and implant bed. The implant's features, such as type, diameter and length, are readily identifiable on the outside of the packaging.

Three self-adhesive labels are provided for recording in the patient's medical records and for reporting to the prosthesis team. They also ensure traceability for all articles.

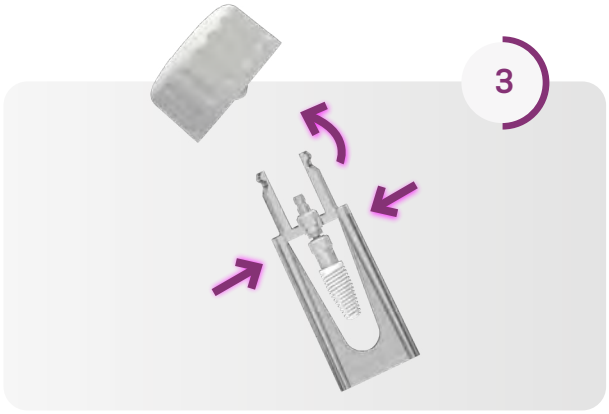
Instructions on opening the implant package

The clear tube and implant must be handled with a sterile surgical glove, in a surgical environment. Hold the bottle using the non-dominant hand and take the lid off.

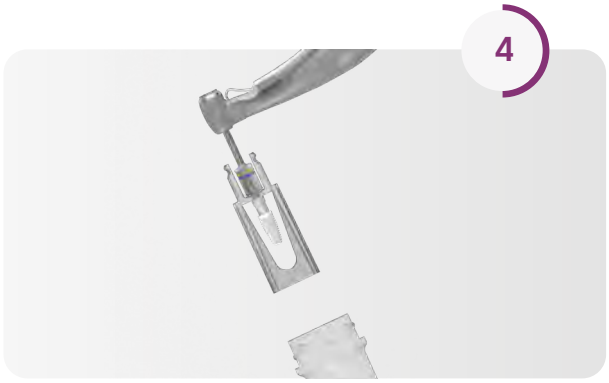
1 The cardboard and blister packagings must be opened, manually, without the use of sterile gloves. Break the seal of the cardboard packaging and remove the blister. Open the blister pack. Deposit the sterile flask over the surgical field.



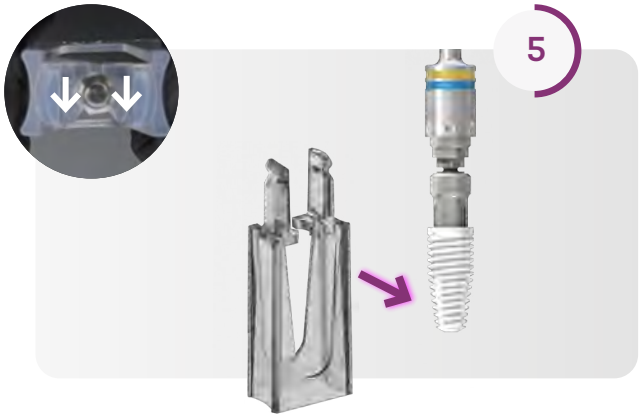
2 The internal support containing the implant and transfer piece must come out attached to the lid. To do so, remove the lid and the clear tube's internal support in the axial direction without making any lateral movements.



3 Keep the support stable and remove the lid.



4 For installation, capture the implant transfer piece with the Hexagonal Connection, keeping it stable and slightly rotating the internal support, searching for the perfect fit between the connection and transfer piece.



5 Take the transfer-implant assembly to the surgical cavity.

IMPLANT **PLACEMENT**

Neodent® Zi implants were developed to begin placement with the contra-angle handpiece or manually and to be completed with the Torque Wrench. The maximum recommended rotation speed for surgical motors is 30 rpm, with a maximum torque of 35 N.cm.

CONTRA-ANGLE CONNECTION

Warning: Corrections in the vertical position by means of reverse rotations during surgery can lead to reduced primary or mechanical stability. **Do not apply lateral forces during implant insertion.**

Attention:
For guided surgery insert the implant until the driver touches the sleeve or the guide on the sleeveles solution.

TORQUE WRENCH CONNECTION

Remove the Zi Driver for Contra-Angle connection from the transfer piece and attach the Zi Driver for Torque Wrench to complete the installation at bone level.

Warning: The torque wrench driver should not be used to transport the implant from one place to another because the product can fall out. Apply torque until the implant reaches its final position. All torque wrenches show torque levels a value above 60 N.cm are contraindicated.

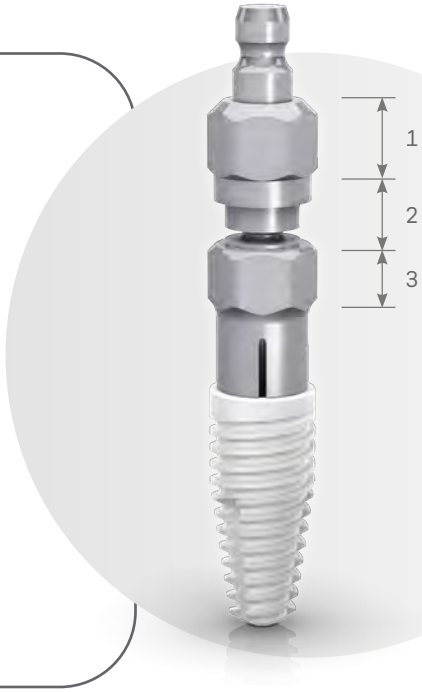
Neodent® Zi implants are provided with a transfer piece manufactured in stainless steel, which transfers the torque applied on the connection to the implant. The transfer piece is compatible with the Neodent® Hexagonal Connection.

THE TRANSFER PIECE PRESENTS SEVERAL FEATURES:

(1) An hexagon compatible with the Neodent® Hexagonal Implant Driver – this feature is used to apply torque during the installation;

(2) An intermediate safety feature (fuse) – intended to break if a torque higher than 60 N.cm is applied to the implant in order to protect the integrity of the implant;

(3) A secondary hexagon for implant removal (counter-clockwise). The secondary hexagon shall only be used for implant removal. Never use this feature to insert the implant deeper.



MAXIMUM TORQUE
60 N.cm

PRECAUTION: DO NOT EXCEED TORQUE HIGHER THAN 60 N.CM

The maximum insertion torque for the Neodent® Zi Implant is 60 N.cm. Applying a torque higher than 60 N.cm may cause damages and/or break the implant.

If you are placing the implant and realize that the maximum torque is close and the Transfer Piece is not fractured, it is recommended to remove the implant and prepare the implant bed for a new insertion attempt.

If one insists to place the implant with a higher torque, the transfer piece has a safety feature that will fracture[2]. This fracture impedes the user to continue with the implant insertion. From this moment on, the removal of the implant is **mandatory**, which must be performed through the secondary hexagonal fitting in a counter-clockwise movement[3]. After the removal, the substitution for a new implant is indicated.
At the end of the installation, make sure that one of the six hexagonal faces of the transfer piece, corresponding to the implant indexer, is facing the vestibular face. For guided surgery insert the implant until the driver touches the sleeve or surgical guide.

VIDEO

TRANSFER PIECE BREAKAGE IN CONVENTIONAL SURGERY

Guide Stabilizer (optional)

The Guide Stabilizer is used to help stabilize the surgical guide during the procedure, after implant installation using Neodent® guided surgery techniques.

Insert the Guide Stabilizer after implant installation, using the Neo Manual Screwdriver, fitting it completely, as far as the Stop. Gently apply manual torque. Do not use the Guide Stabilizer when the primary stability of the implant is less than 20 N.cm.

The implant's final placement torque determines the protocol. Correct and physiological occlusion is also determinant in the definition. The following criterias need to be observed when using immediate loading protocol:

TORQUE — 35 ≤ 60 N.cm

PROSTHETIC PROTOCOL — Immediate loading

Selection of abutment

GENERAL CHARACTERISTICS

Lateral mechanical load on provisional crowns is contraindicated;

Patients should present a balanced or physiological occlusion;

Periodontally compromised patients should have their condition controlled prior to treatment, especially when a component is exposed to the oral environment.

SOFT TISSUE **MANAGEMENT**

CONVENTIONAL LOADING
Soft tissue management

After implant placement with conventional loading, in order to protect the implant platform, a cover screw or a healing abutment can be used.

Two stage/submucosal healing: For submucosal healing (under a closed mucoperiostal flap) the use of a cover screw is indicated. A second surgical procedure is required to uncover the implant and insert the desired prosthetic abutment.

Use the Neo Screwdriver to place the cover screw on the implant.

Maximum torque: 10 N.cm.

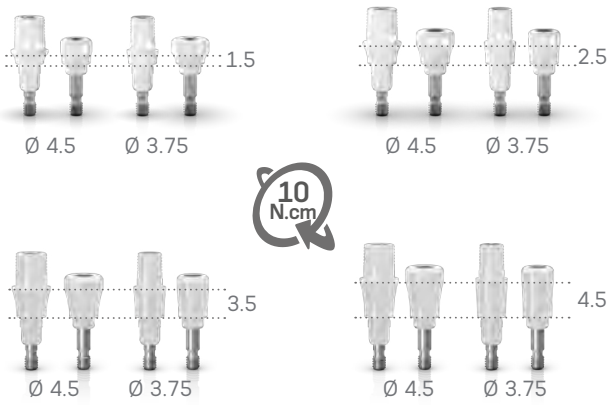
Zi Cover Screw

Neo Screwdriver

CONVENTIONAL LOADING
Healing phase

Neodent® Zi healing abutments are available in different diameters and gingival heights. This solution is designed to create a suitable gingival emergence profile, which adapts to the final abutments. The correct choice of the healing abutment determinates the adequate soft tissue healing process, maintaining the indicated biological distance, as described in the figure on the side.
Use the Neo Screwdriver to place the healing abutment on the implant.

Maximum torque: 10 N.cm.



Healing Abutment

Neo Screwdriver

Step-by-Step

For the Neodent® Zi Implant Ø4.3 placement, please check the following step-by-step videos, for both conventional and guided surgery techniques.

VIDEO: GUIDED SURGERY

BONE TYPE I AND II

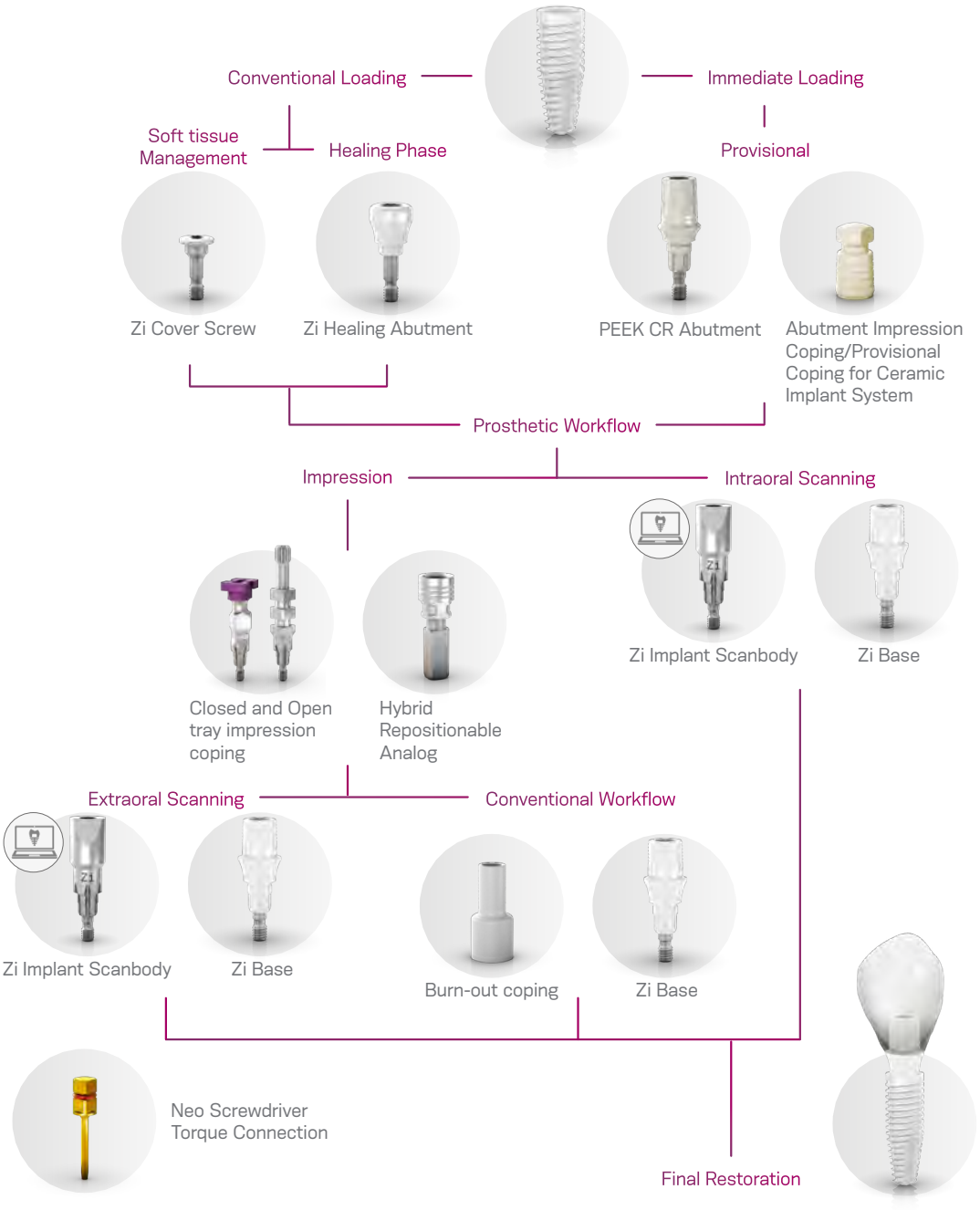
BONE TYPE III AND IV

VIDEO: CONVENTIONAL SURGERY

BONE TYPE I AND II

BONE TYPE III AND IV

PROSTHETIC PROCEDURES FOR **ZI BASE**



After the surgical procedure, the prosthetic workflow should be followed. This includes determining the most suitable approach (immediate or conventional workflows) and selecting the corresponding prosthetic abutments. The Neodent® Zi implant prosthetic system provides flexibility, stability and esthetics to the final restoration. It allows single unit prosthesis for screw or cement-retained restorations on implant level impression.

Temporary Abutment - The PEEK CR Abutment

The PEEK CR Abutment is a provisional prosthetic solution used with a temporary crown. Indicated to remain into the mouth up to 6 months, a compatible provisional coping is available to facilitate crown manufacturing and delivery an esthetic solution during provisional prosthetic step.

It can be used before the installation of the final abutment to maintain, stabilize and shape soft tissues during the healing phase.

Use the Neo Screwdriver to place the PEEK CR Abutment on the implant. Maximum torque: 10 N.cm.

It is important to keep in mind that this abutment cannot be placed in occlusion and under lateral forces.

PEEK CR Abutment


Neo Screwdriver
Torque Connection and
Torque Wrench

VIDEO:

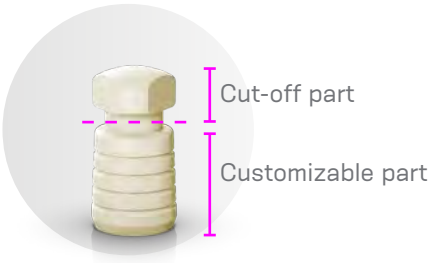
Attention

Applying a torque higher than 10 N.cm may cause damages and/or break the implant.

Temporary Abutment – Provisional Coping CR Abutment

Follow these steps to make a provisional crown:

- Place the PEEK CR Abutment on the implant.
- The upper portion of the Abutment Impression Coping/Provisional Coping for Ceramic Implant System must be cut-off and the provisional crown produced on the remaining part.
- This ensemble needs to be cemented with provisional cement over the PEEK CR Abutment.



Impression Coping / Provisional Coping CR Abutment

VIDEO:

Intraoral scanning

The scanbody is used on implant level in order to transfer their positions following the scanning used in CAD/CAM procedure. The Neodent® scanbodies are made in PEEK, an opaque polymer that eliminates the need for any type of opaque spray.

Scanbody


Neo Screwdriver

To perform the intraoral scanning the dental surgeon should use the Zi scanbody; select correctly the indication, material and specify which element is implant related; follow the step-by-step indicated by the scanner manufacturer. The digitalization of a scanbody has to capture as many details as possible and finalize the scanning process following the software instructions.

The final scanning files should be sent to the CAD software (Chairside or send them to a dental laboratory by CAD/CAM system) or e-mail.

The laboratory will receive the final scanning files and will design (CAD software) the future prosthesis. After that, the design will be transferred to the milling machine (CAM). Once the prosthesis is milled, the fit should be tried on onto the Zi Base.

Notes:
- The flat surface of the scanbody should be positioned towards the oral cavity;
- Make sure that the scanbody is properly seated;
- Scanbodies with damaged implant platform may lead to digitalization problems
- After digitalization, design the prosthesis in the CAD software.

CARES Visual Dental Wings 3Shape exocad

Libraries are available for the following softwares: CARES Visual, exocad GmbH, Dental Wings Inc and 3Shape A/S at www.neodent.com/cadcam. Make sure that your CAD library is updated.

Extraoral scanning

Once the plaster model is made, it can be scanned. This technique requires a plaster model scanner or a bench scanner. Neodent® Digital Solutions recommends the following scanners: Straumann CARES and Dental Wings 7Series.

The steps set out by the scanner's manufacturer must be followed, it is important to scan the plaster model with and without the removable gum (usually carried out at different steps) and, to scan the scanbody of the implant or abutment in the right position.

The laboratory will receive the final scanning files and will design (CAD software) the future prosthesis. After that, the design will be transferred to the milling machine (CAM). Once the prosthesis is milled, the fit should be tried on onto the Zi Base.

Scanbody


Neo Screwdriver

CARES Visual

3Shape

Dental Wings

exocad

Impression taking

The Zi Impression Coping allows transferring, by means of molding, the tridimensional position of the Neodent® Zi implant. The solution is for molding techniques with closed and open tray.
Within the closed tray technique, a negative impression of the post is made using an impression material. The impression coping is then removed from the oral cavity and adapted to the impression material in the tray.

• Place the Zi Impression Coping on the implant with the Neo Screwdriver (maximum torque: 10 N.cm);
• Perform the impression;
• Place the Zi Impression Coping and Hybrid Repositionable Analog on the mold.

Zi Impression Coping


Hybrid Repositionable Analog


Neo Screwdriver

Within the open tray technique, the body of the Impression Coping should fit into the selected implant and manually rotate the screw or with the aid of the Torque Connection. The transfers should be screwed-out and removed from the patient's mouth with the impression material in the tray. Ensure that the Impression Coping is not moved during the fitting of the analog.

• Place the Zi Impression Coping on the implant;
• Perform the impression;
• Place the Hybrid Repositionable Analog on the mold.

Zi Impression Coping


Hybrid Repositionable Analog


Neo Screwdriver

After performing the impression:
• Ensure that the impression coping is correctly adjusted and positioned.
• Place the analog on the right position.
• Continue placing the artificial gingiva and pouring the plaster mixture. Check if there are no bubbles and if all the details have been accurately replicated.
• Neodent® has developed a new generation of analogs, which can be used either in conventional (plaster model) or digital workflows (printed model), for prototyped models. They are called Hybrid Repositionable Analogs and are available for Neodent® Zi implant portfolio.

Final restoration: Burn-Out Coping

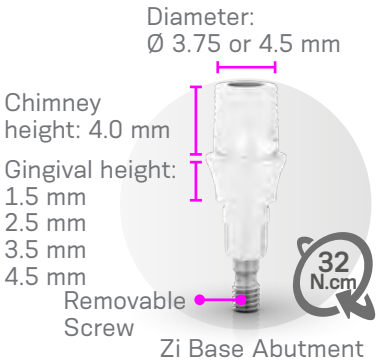
The Burn-Out Coping is a device designed for the confection of ceramic infrastructures of unitary prostheses cemented over the Zi Base.
To produce the prosthesis, the desired geometry needs to be produced, in the laboratory, in appropriate wax and placed on the Burn-Out coping. In the press technique, the wax is removed and the ceramic material is injected.

Burn-out coping features

VIDEO:

Final restoration: Zi Base abutment

Zi Base Abutment covers single-unit final restorations for Neodent® Zi implant system. It can be used according to a conventional workflow with ceramic injection molding by CAD/CAM system.
This abutment is recommended for cement-retained or screw-retained prostheses. For cementation of the Zi Base it must be carried out outside the patient's mouth, in the laboratory, using a chemically activated resin cement. This step eliminates the risk of excess cement on peri implant tissues. Subsequently, the structure is screwed onto the implant.
For Zi Base cementation follow these steps:
• Place the abutment over the plaster model or 3D model;
• Pass the fixation screw through it with a slight tightening ;
• Protect access to the screw throughout the cementation process. For cement handling, follow its manufacturer's instructions;
• Apply the cement in the external portion of the Zi Base and press the restoration, fit it according to the three available indexed guides;
• Press the restoration over the Zi Base and immediately remove any excess cement;
• After cement setting, unscrew the structure from the Analog and remove the remaining cement of the Zi Base edge;
• Screw the ensemble (Crown+Zi Base) into the patient's mouth.
* It is recommended to use a chemically activated resin cement for bonding on ceramic (e.g. Panavia – Kuraray). On Lithium Dissilicate, the use of IVOCLAR Multilink cement is required.
Use the Neo Screwdriver Torque Connection to place the Zi Base on the implant. Maximum torque: 32 N.cm.



Zi Base Abutment


Neo Screwdriver Torque Connection and Torque Wrench

VIDEO:

* If the rehabilitation uses a digital workflow it is necessary to use the correct digital library. Libraries are available for the following softwares: CARES Visual, exocad GmbH, Dental Wings Inc and 3Shape A/S at www.neodent.com/cadcam. Make sure that your CAD library is updated.

IMPLANT PLACEMENT AND **ZI BASE WORKFLOW** STEP-BY-STEP

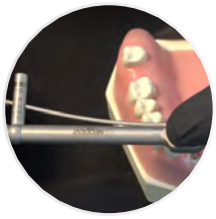
1 Implant Bed Preparation.

2A In bone types I and II: use Bone Tap with Contra-Angle.

2B In bone types I and II: use Bone Tap with Torque-Wrench. Maximum torque of 60 N.cm.

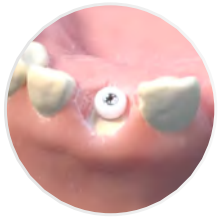
3 Neodent® Zi implant placement.

4 Attention! Maximum torque of 60 N.cm.



5 Soft tissue management: Zi Cover Screws.

6 Healing phase: Zi Healing Abutment.



7 Provisional phase: PEEK CR Abutment.

8 Provisional crown - Impression Coping /Provisional Coping CR Abutment.

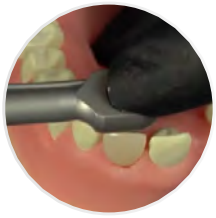
9 *If digital workflow: intraoral scanning.

10 *If digital workflow: extraoral scanning.

11 *If conventional workflow: impression.

12 Final Restoration: Burn-Out Coping.

13 Final Restoration placed in patient's mouth.



CONVENTIONAL PROSTHETIC WORKFLOW FOR **ZI BASE**

1 Geometry in wax (top) and burn-out coping used.

2 Gathered prostheses for plaster cast molding.

3 Plaster being poured around the wax pieces for mold forming.

4 Ceramic material used.

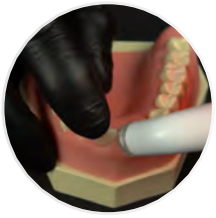
5 Ingots and piston positioned for injection of the ceramic material into the mold.

6 Parts injected after cleaning.

7 Parts without finishing (left) and with surface finish (right).

8A Cementation of the crown on the Zi Base.

8B Cementation of the crown on the Zi Base.



9 Final crown – Zi Base.

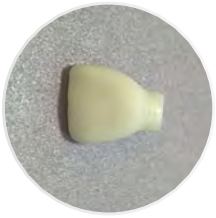
DIGITAL PROSTHETIC WORKFLOW FOR **ZI BASE**

1 Placement of Scanbody on Ceramic Implant.

2 Scanbody alignment with images captured by laboratory scanning.

3 Coping/ Crown.

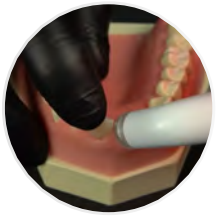
4 Milled Crown.



5 Milled Coping/ Crown, prosthetic interface.

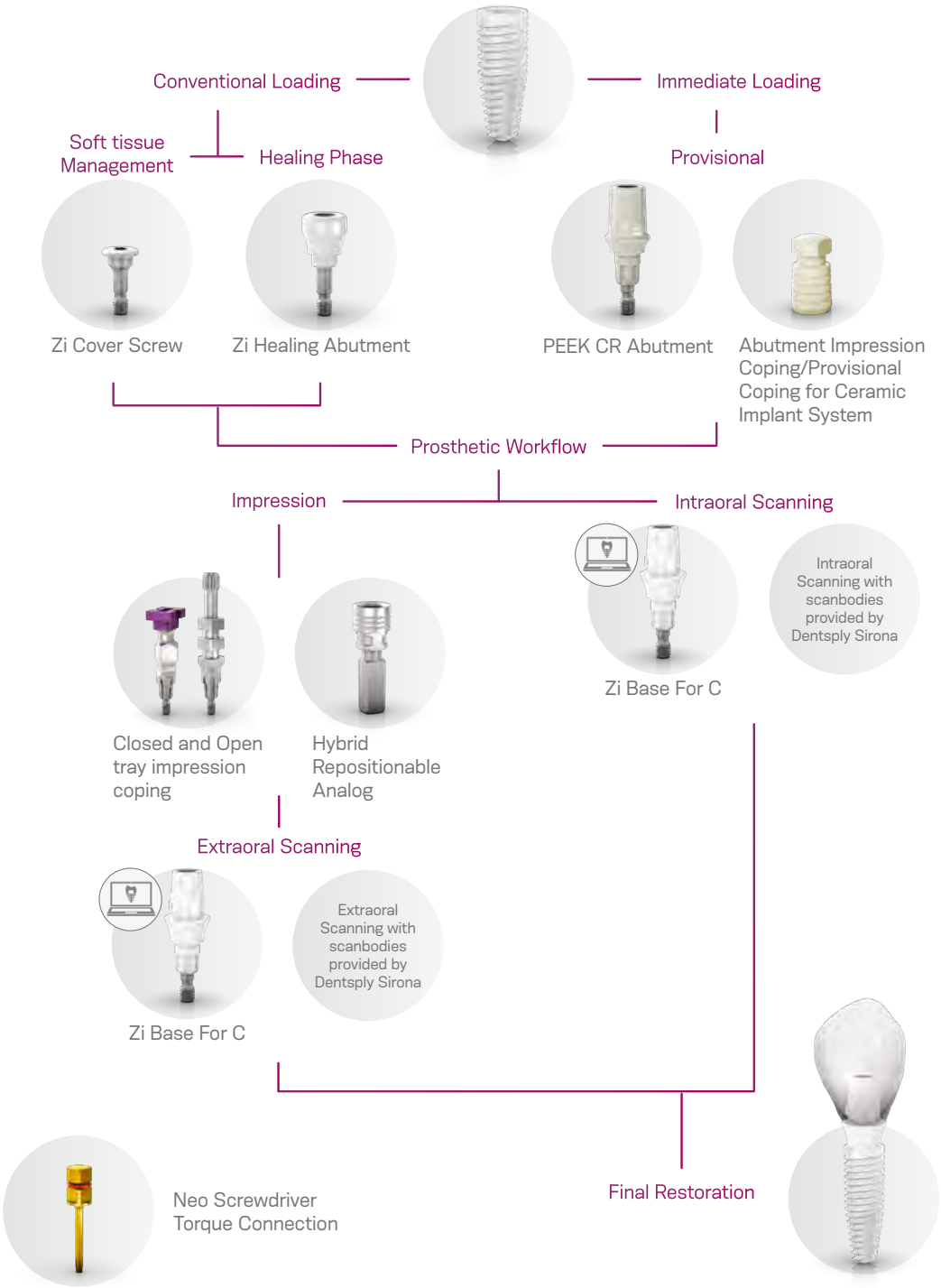
6A Cementation of the crown on the Zi Base.

6B Cementation of the crown on the Zi Base.



7 Final crown – Zi Base.

PROSTHETIC PROCEDURES FOR **ZI BASE FOR C**



After the surgical procedure, the prosthetic workflow should be followed. This includes determining the most suitable approach (immediate or conventional workflows) and selecting the corresponding prosthetic abutments. The Neodent® Zi implant prosthetic system provides flexibility, stability and esthetics to the final restoration. It allows single unit prosthesis for screw or cement-retained restorations on implant level impression.

Temporary Abutment - The PEEK CR Abutment

The PEEK CR Abutment is a provisional prosthetic solution used with a temporary crown. Indicated to remain into the mouth up to 6 months. A compatible provisional coping is available to facilitate crown manufacturing and delivery an esthetic solution during provisional prosthetic step.

It can be used before the installation of the final abutment to maintain, stabilize and shape soft tissues during the healing phase.

Use the Neo Screwdriver to place the PEEK CR Abutment on the implant. Maximum torque: 10 N.cm.

It is important to keep in mind that this abutment cannot be placed in occlusion and under lateral forces.

PEEK CR Abutment

Neo Screwdriver Torque Connection and Torque Wrench

VIDEO:

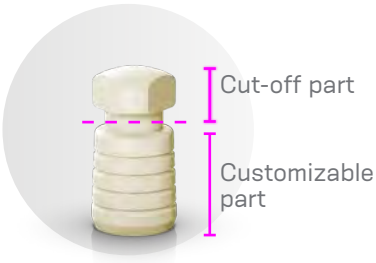
Attention

- Applying a torque higher than 10 N.cm may cause damages and/or break the implant.

Temporary Abutment – Provisional Coping CR Abutment

Follow these steps to make a provisional crown:

- Place the PEEK CR Abutment on the implant.
- The upper portion of the Abutment Impression Coping/Provisional Coping for Ceramic Implant System must be cut-off, and the provisional crown produced on the remaining part.
- This ensemble needs to be cemented with provisional cement over the PEEK CR Abutment.



Impression Coping / Provisional Coping CR Abutment

VIDEO:

Intraoral scanning

The scanbody is used on abutment level in order to transfer their positions following the scanning used in CAD/CAM procedure.

Select and install the Zi Base for C on the implant according to preplanning. Insert the scanbody compatible with the equipment of the CAD/CAM system used over the Zi Base for C, and perform scanning as indicated by the manufacturer. The digitalization of a scanbody has to capture as many details as possible and finalize the scanning process following the software instructions.

Design the prosthesis structure on Sirona inLab software (Version 3.65) or Sirona CEREC® Software (Version 4.2) according to previous prosthetic planning and raw material to be used. Zi Base for C for Ceramic implants can be used along with Sirona products, with any of the libraries from the Sirona inLab Software (Version 3.65) or Sirona CEREC® Software (Version 4.2) libraries, according to the table below:

Library	Scanbody* (Sirona)	REF Scanbody* Omnicam (Sirona)	REF Scanbody* Bluecam / Ineos (Sirona)
NBB 3.4 L NB A 4.5 L SSO 3.5 L S BL 3.3 L S BL 4.1 L BO 3.4 L	L	6431329	6431303

Notes:
- Make sure that the scanbody is properly seated;
- Scanbodies with damaged implant platform may lead to digitalization problems
- After digitalization, design the prosthesis in the CAD software.

* The Scanbody to be used with the Zi Base for C is not supplied by Neodent®; it is an accessory from Sirona Dental CAD / CAM System.

Design the external portion of the meso-structure according to the preparation guidelines for the superstructure required. Make sure not to exceed an angle of 20° between the implant axis and the restoration axis. If the meso-structure is designed to receive the esthetic ceramic, make sure that this will not narrow the screw channel. The cavity for fitting the meso-structure onto the Zi Base for C cannot be coated. Ensure there are no sharp edges or corners in the meso-structure design. Before creating the structure of the prosthesis, make sure that the machining block size is compatible with the design to be performed. Create the piece as indicated, using Sirona CEREC® MC X, inLab MC XL, or inLab MC X5 machining equipment.

Extraoral scanning

Perform molding of the implant according to preplanning, clinical situation of the patient and implant interface. Use artificial gingiva on the plaster model to simulate the patient's soft tissues. Create the plaster model according to appropriate techniques. Select and install the Zi Base for C over the analog. Insert the selected scanbody compatible with the CAD/CAM system equipment used and perform scanning according to the manufacturer's instructions. Ensure the correct fit of the scanbody on the Zi Base for C.

Library	Scanbody* (Sirona)	REF Scanbody* Omnicam (Sirona)	REF Scanbody* Bluecam / Ineos (Sirona)
NBB 3.4 L NB A 4.5 L SSO 3.5 L S BL 3.3 L S BL 4.1 L BO 3.4 L	L	6431329	6431303

* The Scanbody to be used with the Zi Base for C is not supplied by Neodent®; it is an accessory from Sirona Dental CAD / CAM System.

Impression taking

The Zi Impression Coping allows transferring, by means of molding, the tridimensional position of the Neodent® Zi implant. The solution is for molding techniques with closed and open tray.

Closed tray technique

Zi Impression Coping | Hybrid Repositionable Analog | Neo Screwdriver

Within the closed tray technique, a negative impression of the post is made using an impression material. The impression coping is then removed from the oral cavity and adapted to the impression material in the tray

- Place the Zi Impression Coping on the implant with the Neo Screwdriver (maximum torque: 10 N.cm);
- Perform the impression;
- Place the Zi Impression Coping and Hybrid Repositionable Analog on the mold.

Open tray technique

Zi Impression Coping | Hybrid Repositionable Analog | Neo Screwdriver

Within the open tray technique, the body of the Impression Coping should fit into the selected implant and mannualy rotate the screw or with the aid of the Torque Connection. The transfers should be screwed-out and removed from the patient's mouth with the impression material in the tray. Ensure that the Impression Coping is not moved during the fitting of the analog.

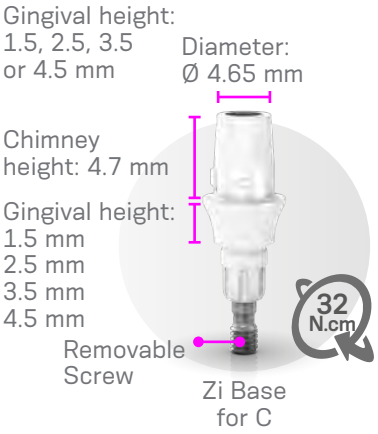
- Place the Zi Impression Coping on the implant;
- Perform the impression;
- Place the Hybrid Repositionable Analog on the mold.

After performing the impression:

- Ensure that the impression coping is correctly adjusted and positioned.
- Place the analog on the right position.
- Continue placing the artificial gingiva and pouring the plaster mixture. Check if there are no bubbles and if all the details have been accurately replicated.
- Neodent® has developed a new generation of analogs, which can be used either in conventional (plaster model) or digital workflows (printed model), for prototyped models. They are called Hybrid Repositionable Analogs and are available for Neodent® Zi implant portfolio.

Final restoration: Zi Base for C

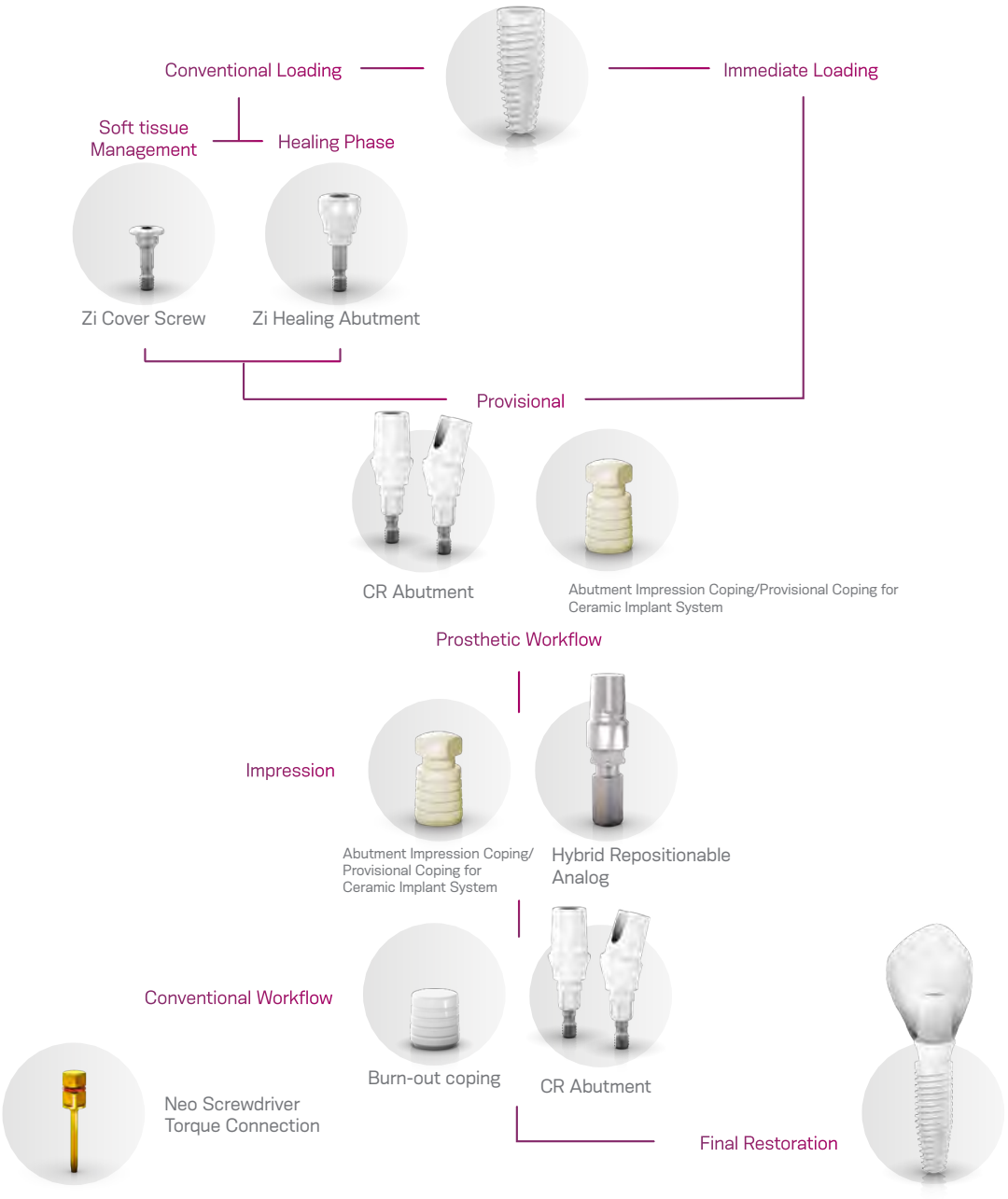
Zi Base for C covers single-unit final restorations for Neodent® Zi implant system. It can be used according to a digital workflow, following the CAD/CAM technique through the Sirona Dental CAD/CAM System.
This abutment is recommended for cement-retained or screw-retained prostheses. For cementation of the Zi Base for C, it must carried out outside the patient's mouth, in the laboratory, using a chemically activated resin cement. This step eliminates the risk of excess cement on peri-implant tissues. Subsequently, the structure is screwed onto the implant.
For Zi Base for C cementation follow these steps:
• Place the abutment over the plaster model or 3D model;
• Pass the fixation screw through it with a slight tightening ;
• Protect access to the screw throughout the cementation process. For cement handling, follow its manufacturer's instructions;
• Blast the Zi Base for C surfaces intended for cementation of the prosthesis structure with aluminum oxide, 50 µm, maximum pressure of 2 bar.
• Apply the cement in the external portion of the Zi Base for C and press the restoration, fit it according to the three available indexed guides;
• Press the restoration over the Zi Base for C and immediately remove any excess cement;
• After cement setting, unscrew the structure from the Analog and remove the remaining cement of the Zi Base edge;
• Screw the ensemble (Crown+Zi Base for C) into the patient's mouth.
* It is recommended to use a chemically activated resin cement for bonding on ceramic (e.g. Panavia – Kuraray). On Lithium Dissilicate, the use of IVOCLAR Multilink cement is required.
Use the Neo Screwdriver Torque Connection to place the Zi Base for C on the implant. Maximum torque: 32 N.cm.



Zi Base for C


Neo Screwdriver Torque Connection and Torque Wrench

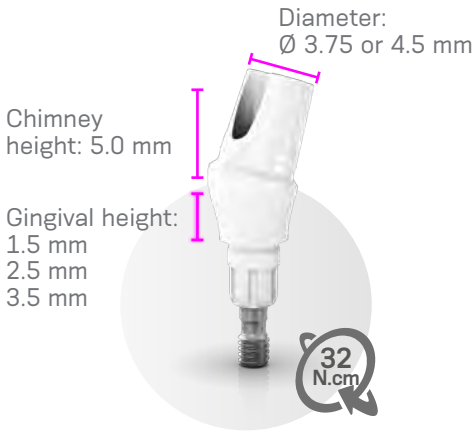
PROSTHETIC PROCEDURES FOR **CR ABUTMENTS**



After the surgical procedure, the prosthetic workflow should be followed. This means the most appropriate immediate or conventional workflow and should be followed and its related prosthetic abutments. The Neodent® Zi implant prosthetic system provides flexibility, stability and esthetics to the final restoration. It allows single-unit prosthesis for screw or cement-retained restorations on implant level impression.

CR Abutment

The CR Abutment is an abutment placed over Neodent® Ceramic Implants in order to provide support for prosthetic restorations, such as copings or crowns. It may be used for single-unit restorations that are cement-retained in esthetical areas over implants installed in maxilla or mandible. It can be used according to a conventional workflow.



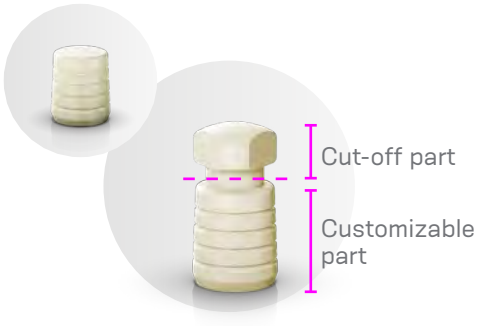
Neo Screwdriver
Torque Connection
and Torque Wrench

VIDEO:

Abutment Impression Coping/Provisional Coping for Ceramic Implant System

Follow these steps to make a provisional crown:

- Place the CR Abutment on the implant.
- The upper portion of the Abutment Impression Coping/Provisional Coping for Ceramic Implant System must be cuted-off and the provisional crown produced on the remaining part.
- This ensemble needs to be cemented with provisional cement over the CR Abutment.



Impression Coping / Provisional Coping CR Abutment

VIDEO:

Impression taking

The Abutment Impression Coping/Provisional Coping for Ceramic Implant System allows transferring, by means of molding, the tridimensional position of the CR Abutment. The solution is for molding techniques with closed tray. Within the closed tray technique, a negative impression of the post is made using an impression material. The impression coping is then removed from the oral cavity and adapted to the impression material in the tray.

• Place the Abutment Impression Coping/Provisional Coping for Ceramic Implant System until it clicks;

• Perform the impression procedure according to the closed tray technique. The Abutment Impression Coping/Provisional Coping for Ceramic Implant System must stay in the mold after the mold removal;

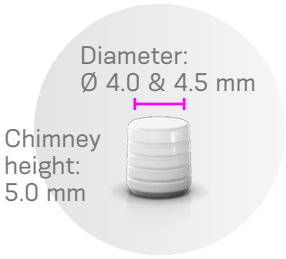
• Place the regular ceramic CR Abutment Analog on the mold;

Abutment Impression Coping/Provisional Coping for Ceramic Implant System

Hybrid Repositionable Analog

Final restoration: Burn-Out Coping

The CR Abutment Burn-Out Coping is a device designed for manufacturing ceramic infrastructures for unitary prostheses cemented on the CR Abutment, intended for laboratory use.
To produce the prosthesis, the desired geometry must be produced in appropriate wax in the laboratory and placed on the Burn-Out coping. In the press technique, the wax is removed and replaced with injected ceramic material



Burn-out coping features

VIDEO:

IMPLANT PLACEMENT AND **CR ABUTMENT STEP-BY-STEP**

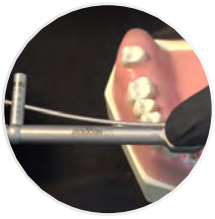
1 Implant Bed Preparation.

2A In bone types I and II: use Bone Tap with Contra-Angle.

2B In bone types I and II: use Bone Tap with Torque-Wrench. Maximum torque of 60 N.cm.

3 Neodent® Zi implant placement.

4 Attention! Maximum torque of 60 N.cm.



5 Soft tissue management: Zi Cover Screws.

6 Healing phase: Zi Healing Abutment.

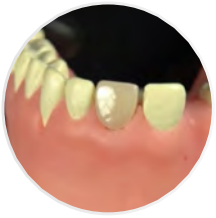
7 Provisional phase: CR Abutment.

8 Provisional crown - Impression Coping /Provisional Coping CR Abutment.

9 Perform impression following the closed tray technique

10 Customize the Impression Coping / Provisional Coping CR Abutment for provisional manufacture.

11 Perform the provisional cementation.



12 Final Restoration: Burn-Out Coping.

13 Final Restoration placed in patient's mouth.

CONVENTIONAL PROSTHETIC WORKFLOW FOR **CR ABUTMENT**

1 Geometry in wax (top) and burn-out coping used.

2 Gathered prostheses for plaster cast molding.

3 Plaster being poured around the wax pieces for mold forming.

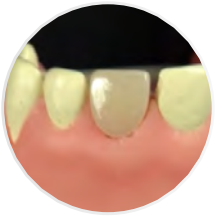
4 Ceramic material used.

5 Ingots and piston positioned for injection of the ceramic material into the mold.

6 Parts injected after cleaning.

7 Parts without finishing (left) and with surface finish (right).

8 Cementation of the crown on the CR Abutment in mouth.



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