EXPANDER KIT

Bone expanders and sinus lift bone expanders

Ziacom®

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Important information

Please read carefully before using Ziacom® products

General information

This document contains basic information on the use of original Ziacom® dental implant systems, hereafter referred to as Ziacom® dental implants or simply Ziacom® products. This document has been created as quick guide for clinicians responsible for treatment, hereafter the "user", and, therefore, is neither an alternative nor a substitute for specialized training or professional clinical experience.

Ziacom® products must be used according to a suitable treatment plan and adhering strictly to the surgical and prosthetic protocols established by the manufacturer. Read the product-specific surgical and prosthetic protocols as well as the instructions for use and maintenance before using each Ziacom® product. You can find this information on our website, www.ziacom.com, or request it from your nearest authorised Ziacom® distributor.

Liability, safety and guarantee.

The instructions for the use and handling of Ziacom® products are based on internationally published literature, current clinical standards and our clinical experience, so they should be understood as general guiding information. The handling and use of Ziacom® products is the sole responsibility of the user as it is outside the control of Ziacom Medical SL. Ziacom Medical SL, their affiliates and/or their authorised distributors disclaim all responsibility, whether explicit or implicit, total or partial, for possible damage or injury caused by poor handling of the product or any other situation not considered in their protocols and manuals for the correct use of their products.

The user must ensure that the Ziacom® product is appropriate for the intended procedure and end purpose. Neither these instructions for use nor the work or handling protocols for the products release the user from this obligation. Ziacom® products must be used, handled and applied by professionals with the appropriate training and qualifications required according to current legislation in each country.

The total or partial use, handling and/or application of Ziacom® products at any stage of their implementation by personnel who are unqualified or lack the necessary training will automatically void any type of warranty and may cause severe damage to the patient's health.

Ziacom® products are part of their own system, with their own design characteristics and work protocols, including dental implants, abutments or prosthetic components and surgical or prosthetic instruments. The use of Ziacom® products in combination with elements or components from other manufacturers could result in treatment failure, damage to tissues or bone structures, inadequate aesthetic outcomes and severe damage to the patient's health. Therefore, only original Ziacom® products should be used.

The clinician in charge of the treatment is solely responsible for ensuring the use of original Ziacom® products and that they are used according to the corresponding instructions for use and handling protocols throughout the implant procedure. The use of any other non-original Ziacom® components, instruments or products, whether alone or in combination with any original Ziacom® products, will immediately void the warranty of the original Ziacom® products.

See the Ziacom Medical SL Warranty Programme (available on the website or by contacting Ziacom Medical SL, their affiliates or authorised distributors).

Warning. Not all Ziacom® products are available in all counties. Check availability in your country.

Together for **health**

Index

The Company

Together for **health**

Ziacom® has been working for more than 15 years to improve the **oral health** and well-being of patients around the world by **designing and manufacturing innovative,** high-quality dental implant, prosthetic component, surgical instrument and biomaterial solutions.

The company was founded in 2004 with **100% Spanish capital** and began its activity as a manufacturer of dental implants and attachments for several European companies before launching its own **brand of implant systems** in 2006.

In 2015, Ziacom® introduced its **diversification strategy** with the development of **new business lines** and new product lines and the launch of a **new portfolio**, which helped the company achieve a **15% share of the Spanish market** in 2016 with the sale of more than 230,000 implants.

In 2022, the company started up on an **ambitious growth plan** with new goals of **international expansion**, broadening and **diversification** of its portfolio **of products and services** and a Corporate Identity restyle.

Ziacom® quality

The commitment to **quality and innovation** has been part of the values and essence of Ziacom® since its inception.

For this reason, we apply the most advanced technology **in all phases of the production cycle** of our products, from **design and manufacturing** to **verification, cleaning and packaging** processes. In addition, for the manufacture of all our products we only use **high quality raw materials** and apply **strict controls in the selection processes** of our main suppliers.

Ziacom Medical SLU is a **licensed manufacturer of medical devices** and an AEMPS (Spanish Agency for Medicines and Medical Devices) 6425-PS **marketing authorisation holder**. Our **quality management system is certified** in accordance with the requirements of ISO standards 9001:2015 and 13485:2018, and is also GMP 21 CFR 820 compliant.

ISO 9001 ISO 13485 CE 0051

FDA Approved*

*See approved models

Thanks to our ceaseless endeavours to offer our clients unsurpassable quality, all our implants have a **lifetime guarantee**.

Ziacom GUARANTEE LIFETIME Dental **implants**

Ziacom GUARANTEE 15 YEARS Prosthetic **abutments**

See the General Conditions for Accessing the Guarantee for Ziacom® products.

IMPORTANT
All the products (except dental implants) listed in this Ziacom® catalogue are supplied unsterilised and must be sterilised before use.

Non sterile

Investment in innovation and training

In order to always offer the very best solutions for the **well-being of every patient**, and thanks to the experience and dedication of our **highly-qualified professionals** and **innovative Technological Centre**, our R&D&I team works incessantly in the field of **research and innovation** to **improve** our products and develop **new solutions** to meet the demands and needs of both patients and dentists.

We also invest in **research** and **ongoing training** as a way of providing **scientific support to the sector** and we firmly believe in training **young professionals** to ensure the best **advances in dentistry field**.

We therefore work closely with **training centres, universities and scientific bodies** to create a practical and specialised teaching environment to promote and strengthen their knowledge, abilities and professional growth.

In order to enhance our investment in the training and **development of dental professionals**, we have **specific areas at our facilities** for **hands-on training and practicals**, **state-of-the-art** training equipment and also a **physical and virtual showroom** where professionals can see all our dental solutions first hand.

Ziacom® around the world

We are committed to making oral health available to patients all over the world and have a solid **internal growth and expansion plan** to increase the company's **international presence** in those **areas where we our products are already available** and to add **new growth areas**.

In order to achieve this, we offer our **international associates** a **trusting and collaborative** partnership by adapting to their **local needs** and providing solutions that are specific to each market.

As part of our commitment to meet the specific **quality, regulatory and legal requirements of each country**, for both the registration and distribution of our products, we have **specific certifications** from each of the countries in which we trade.

Regional headquarter

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Please see the up-to-date list of Ziacom® distributors at **www.ziacom.com** or email us at **export@ziacom.com**

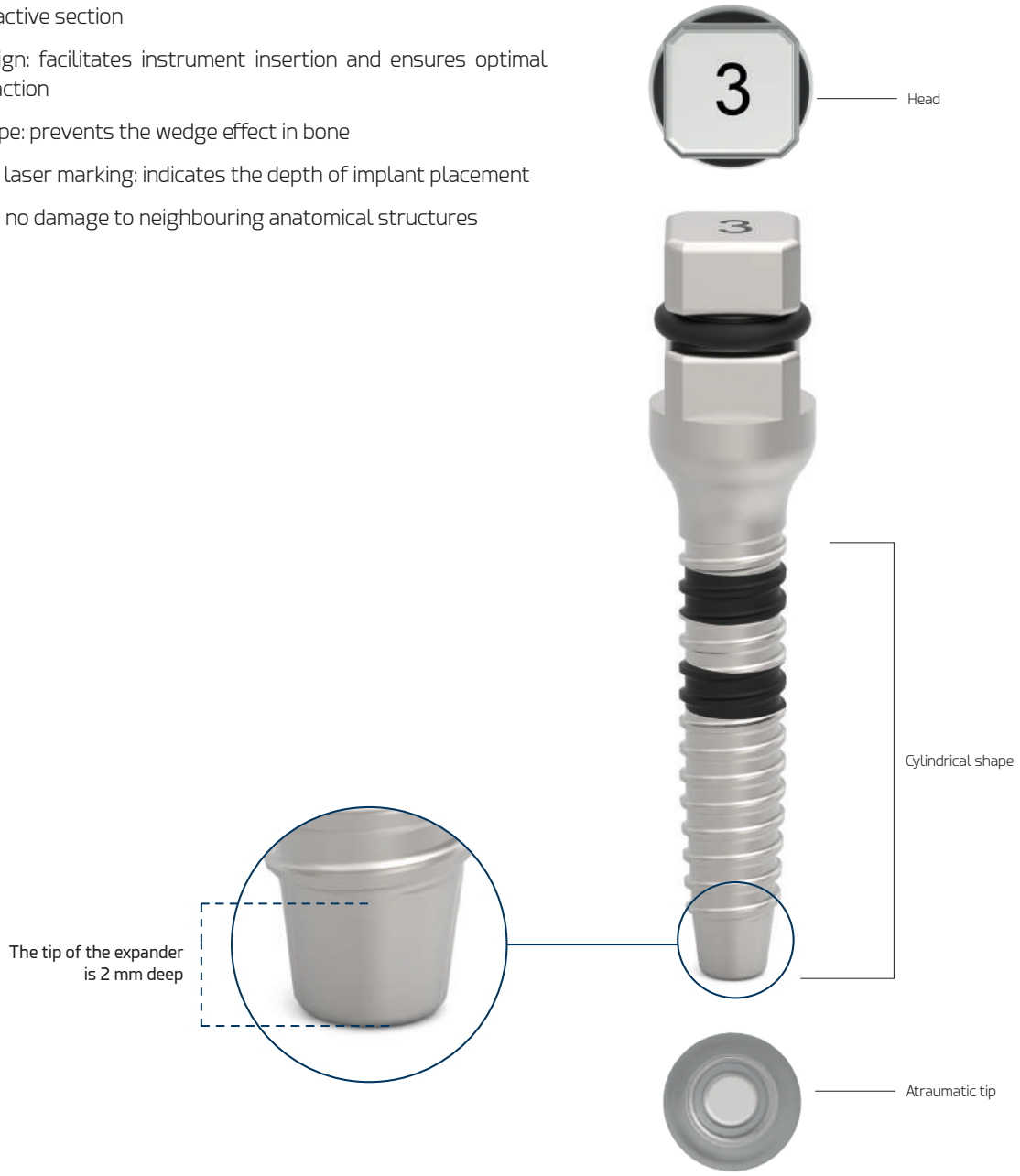
Bone expanders

For clinical situations where there is insufficient bone tissue, Ziacom® has designed the EXPANDER KIT. Bone expanders are used to increase bone volume and quality by condensing and expanding bone cortices.

Ziacom® EXPANDERS have a threaded design to allow use with maximum precision and control, producing functional stimuli that favourably modify bone density.

Characteristics

- Head compatible with 4x4 mm ratchet
- 14.5 mm long active section
- Threaded design: facilitates instrument insertion and ensures optimal cortical compaction
- Optimised shape: prevents the wedge effect in bone
- Expander with laser marking: indicates the depth of implant placement
- Atraumatic tip: no damage to neighbouring anatomical structures



References and dimensions

EXPANDER KIT

BONE EXPANDERS

CODE	1	2	3	4	5	6
EXPANDERS						
REFERENCE	EOX100	EOX200	EOX300	EOX400	EOX500	EOX600
END/NECK Ø	2.00 mm	2.35 mm	2.85 mm	3.10 mm	3.40 mm	3.80 mm
TIP/APEX Ø	1.50 mm	1.80 mm	2.50 mm	2.35 mm	2.50 mm	2.70 mm
INSTRUMENT LENGTH	23.40 mm	23.40 mm	23.40 mm	23.40 mm	23.40 mm	23.40 mm
ACTIVE LENGTH	14.50 mm	14.50 mm	14.50 mm	14.50 mm	14.50 mm	14.50 mm
APEX LENGTH	2.00 mm	2.00 mm	2.00 mm	2.00 mm	2.00 mm	2.00 mm
TOTAL Ø	2.50 mm	2.85 mm	3.20 mm	3.55 mm	3.90 mm	4.25 mm
IMPLANT Ø	NO END	NO END	3.30 mm	3.60/3.70mm	4.00 mm	4.30/4.40mm

Dimensions in mm.

NOTE: bone expanders must be used sequentially and according to the insertion protocol.

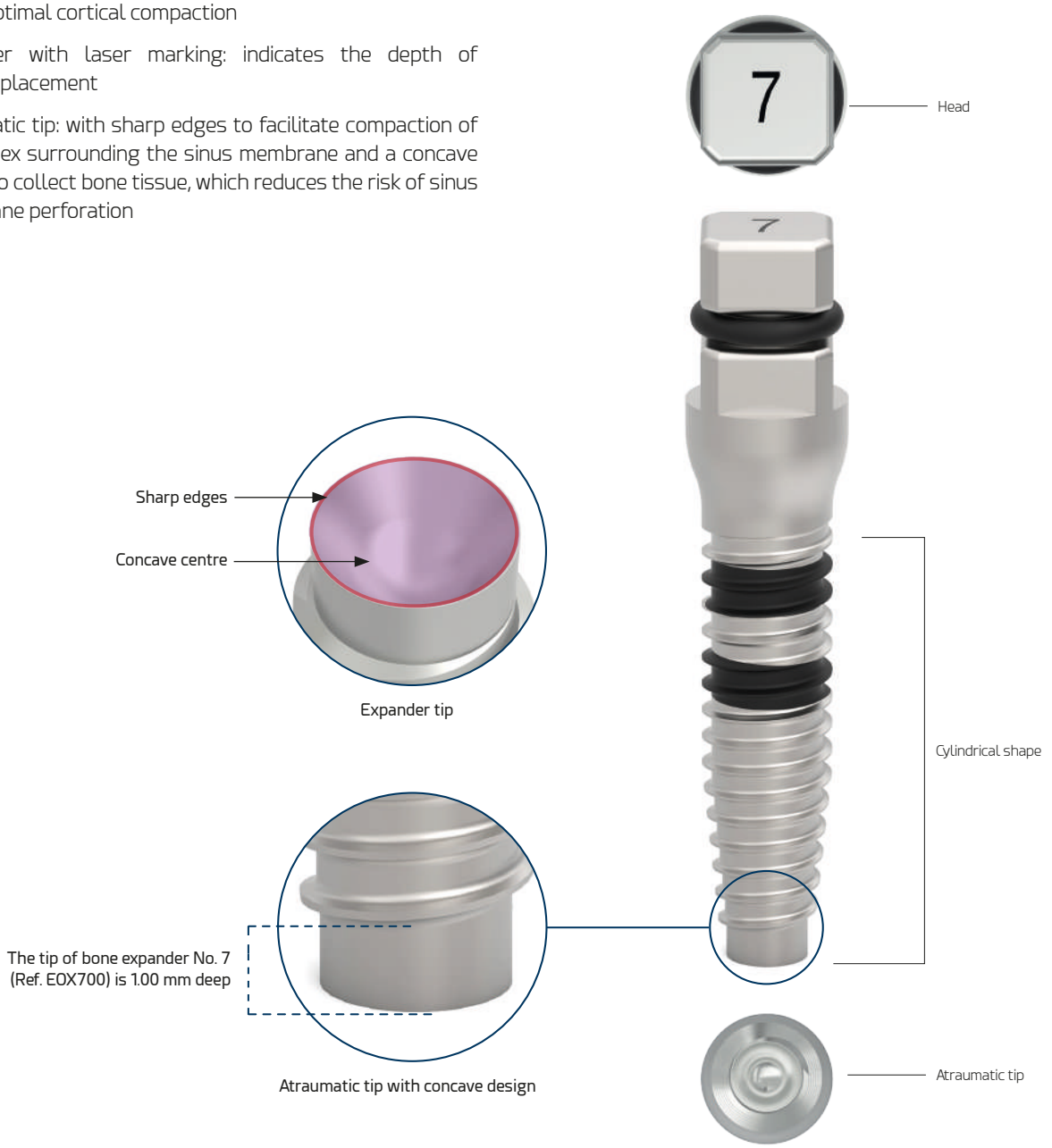
The tip of bone expander No. 1 (Ref. EOX100) has a conical shape to make insertion easier

Sinus lift bone expanders

The Ziacom® sinus lift bone expander is designed to condense the bone tissue surrounding the sinus membrane, creating sufficient space for the placement of longer implants.

Characteristics

- Head compatible with 4x4 mm ratchet
- 14.5 mm long active section
- Threaded design: facilitates instrument insertion and ensures optimal cortical compaction
- Expander with laser marking: indicates the depth of implant placement
- Atraumatic tip: with sharp edges to facilitate compaction of the cortex surrounding the sinus membrane and a concave centre to collect bone tissue, which reduces the risk of sinus membrane perforation



References and dimensions

EXPANDER KIT

BONE EXPANDER

CODE	7
EXPANDER	
REFERENCE	EOX700
END/NECK Ø	3.40 mm
TIP/APEX Ø	2.50 mm
INSTRUMENT LENGTH	23.40 mm
ACTIVE LENGTH	14.50 mm
APEX LENGTH	1.00 mm
TOTAL Ø	4.00 mm
IMPLANT Ø	4.00 mm

Dimensions in mm.

NOTE:

- Before performing a sinus lift procedure, always perform an imaging study to assess, among other things, the state of the sinus membrane, length of the ridge and anatomy of the maxillary sinus.
- The distance between the ridge crest and sinus membrane should be at least 5.00 mm and over 4.00 mm thick.
- The sinus membrane can be lifted a maximum of 4.00 mm. If this value is exceeded, it significantly increases the risk of sinus membrane perforation.
- Bone expander Ref. EOX600 is required for the placement of 4.40 mm and 4.60 mm implants.
- Implants with a diameter over 4.60 mm are not recommended.
- Biomaterials should be used as filler in the maxillary sinus before placing the implant.

Ziacom® bone expanders

Recommendations for use

Bone expanders are used to complement the dental implant placement technique to increase bone volume and density, thereby allowing correct dental implant placement. Bone expanders may be used for:

BONE EXPANSION

From a surgically-created bed, the bone crest is gradually expanded, creating space for implants to be fitted.

SINUS LIFT

Elevating the sinus compresses the bone surrounding the sinus membrane, raising the floor of the maxillary sinus and enabling longer implants to be fitted.

LATERAL BONE CONDENSATION

Gradually compacting and condensing the bone tissue generates beneficial physiological stimuli that help improve the quality of the bone tissue. This condensation also helps improve primary stability in low-density bone.

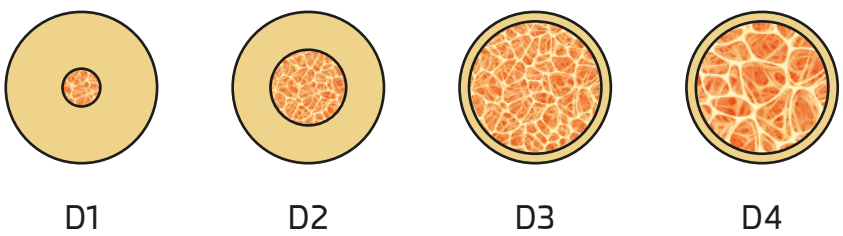
Advantages

- Simple surgical procedure
- More conservative technique as bone is compressed laterally rather than being removed by drilling
- Compaction of bone around the implant which promotes osseointegration
- Precision and control when inserting the implant
- Reduced drill use
- When expanders are threaded, bleeding is produced that promotes osseointegration
- They can be used for the placement of different dental implant systems

Indications

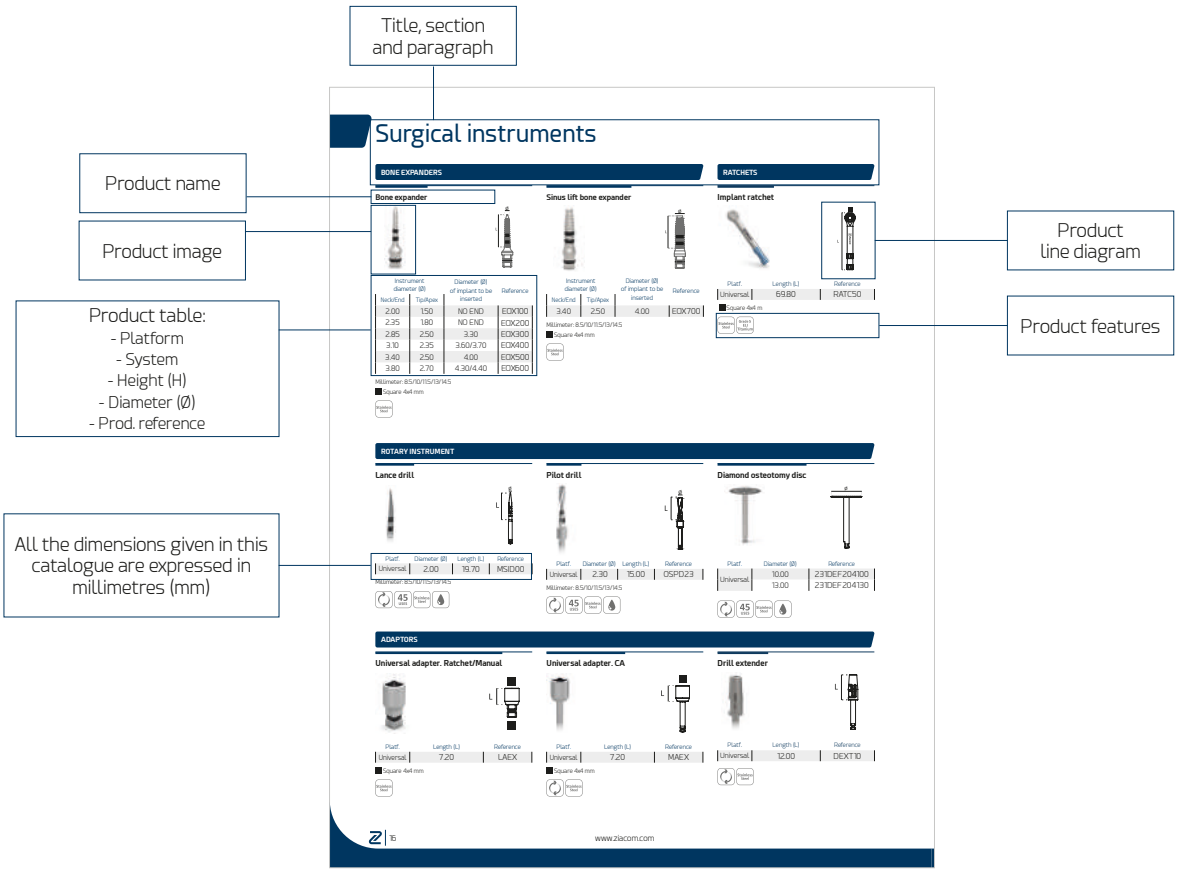
- Bone expansion for the placement of single-unit implants and multi-unit adjacent implants (1)
- Transcrestal maxillary sinus lift (2)
- Ridge crest expansion in type II, III and IV bone (3)
- Bone expansion in type I bone in combination with conventional drilling systems (3)

(1) Expansion of bone ridge crests measuring a minimum of 3.00 mm in diameter and 8.50 mm in length and a maximum of 6.00 mm in diameter and 13 mm in length.
(2) Sinus membrane lifted to a maximum of 4.00 mm, having a ridge crest of at least 5.00 mm.
(3) Bone density classification according to Lekholm and Zarb (1985).



Bone density according to Lekholm and Zarb (1985)

Product sheet



Symbology

Symbol	Meaning
ROT	Rotatory element
NO ROT	Non-rotatory element
	Use with manual torque
XX Ncm	Maximum operating torque
Ncm 10 20 30 40 50 60 70	Ratchet torque range
Galaxy	Galaxy connection
1,25mm	Screw connection
Kirator	Kirator connection
Basic	Basic connection
XDrive	XDrive connection

Symbol	Meaning
	Tx30 connection
MX,XX	Size in millimeters
45°	45° screw support
90°	90° screw support
	Use in rotation with a CA
XX Rpm	Maximum rotation speed
XX USES	Maximum number of uses
	Single-use product
Grade 5 ELI Titanium	Made from grade 5 ELI (extra-low interstitial) titanium
Stainless Steel	Made from stainless steel

Symbol	Meaning
Co-Cr +castable	Made from cobalt chromium + castable plastic
Cobalt Chromium	Made from cobalt chromium
PEEK	Made from PEEK
Full castable	Made from castable plastic
Plastic	Made from plastic
XX°	Recommended sterilisation temperature
Non sterile	Unsterilised product
	Use with abundant irrigation
XX°	Maximum angle

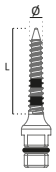
EXPANDER KIT

Surgical instruments

Surgical instruments

BONE EXPANDERS

Bone expander



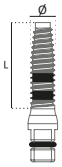
Instrument diameter (Ø)		Diameter (Ø) of implant to be inserted	Reference
Neck/End	Tip/Apex		
2.00	1.50	NO END	EOX100
2.35	1.80	NO END	EOX200
2.85	2.50	3.30	EOX300
3.10	2.35	3.60/3.70	EOX400
3.40	2.50	4.00	EOX500
3.80	2.70	4.30/4.40	EOX600

Millimeter: 8.5/10/11.5/13/14.5

Square 4x4 mm

Stainless Steel

Sinus lift bone expander



Instrument diameter (Ø)		Diameter (Ø) of implant to be inserted	Reference
Neck/End	Tip/Apex		
3.40	2.50	4.00	EOX700

Millimeter: 8.5/10/11.5/13/14.5

Square 4x4 mm

Stainless Steel

RATCHETS

Implant ratchet

Platf.	Length (L)	Reference
Universal	69.80	RATC50

Square 4x4 m

Stainless Steel | Grade 5 ELI Titanium

ROTARY INSTRUMENT

Lance drill

Platf.	Diameter (Ø)	Length (L)	Reference
Universal	2.00	19.70	MSID00

Millimeter: 8.5/10/11.5/13/14.5

45 USES | Stainless Steel

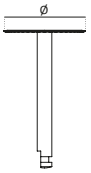
Pilot drill

Platf.	Diameter (Ø)	Length (L)	Reference
Universal	2.30	15.00	OSPD23

Millimeter: 8.5/10/11.5/13/14.5

45 USES | Stainless Steel

Diamond osteotomy disc

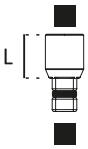


Platf.	Diameter (Ø)	Reference
Universal	10.00	231DEF204100
	13.00	231DEF204130

45 USES | Stainless Steel

ADAPTORS

Universal adapter. Ratchet/Manual

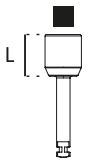


Platf.	Length (L)	Reference
Universal	7.20	LAEX

Square 4x4 mm

Stainless Steel

Universal adapter. CA

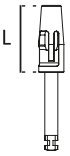


Platf.	Length (L)	Reference
Universal	7.20	MAEX

Square 4x4 mm

Stainless Steel

Drill extender



Platf.	Length (L)	Reference
Universal	12.00	DEXT10

Stainless Steel

Expander kit box

Available expander kit combinations

Contents	Reference
Empty	BOXEOX
Complete	BOXEOXC

134°

Material: Radel.

Ensure boxes do not touch the walls of the autoclave to avoid damage.

Box contents*

*ASK YOUR SALES REP ABOUT AVAILABLE COMBINATIONS

REF	Description
E0X100	Bone expander No. 1. Millimeter. Stainless steel
E0X200	Bone expander No. 2. Millimeter. Stainless steel
E0X300	Bone expander No. 3. Millimeter. Stainless steel
E0X400	Bone expander No. 4. Millimeter. Stainless steel
E0X500	Bone expander No. 5. Millimeter. Stainless steel
E0X600	Bone expander No. 6. Millimeter. Stainless steel
E0X700	Bone expander Sinus lift. Millimeter. Stainless steel
RATC50	Implant ratchet. Stainless steel
LAEX	Universal adapter, Ratchet/Manual. Stainless steel
MAEX	Universal adapter, CA. Stainless steel
MSID00	Lance drill. ZM4/Zinic®/Zinic MT. Ø2.00 mm. Millimeter. CA. Stainless steel
OSPD23	Pilot drill. ZM4/Zinic®. Ø 2.30 mm. Millimeter. CA. Stainless steel
231DEF204100	Osteotomy disc. Diamond. Ø 10 mm
231DEF204130	Osteotomy disc. Diamond. Ø 13 mm

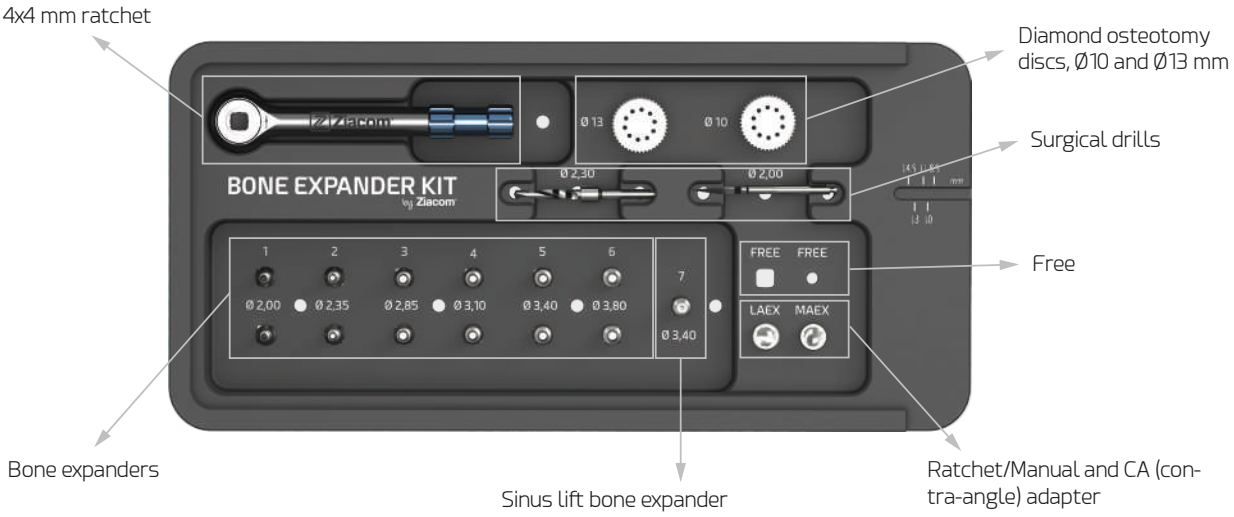
EXPANDER KIT

Surgical protocol

Surgical protocol

General considerations

THE Ziacom® BONE EXPANDER KIT contains all the instruments required to perform bone expansion and transcrestal sinus lift procedures. Ziacom® EXPANDERS are made from stainless steel and must be handled carefully to prevent damages that could compromise their effectiveness, thereby ensuring that all material is in optimal condition. If you are unsure about the condition of any instrument, do not use it.



Drilling instructions

- Drills must be inserted into the contra-angle handpiece with the motor stopped, ensuring that they are seated and rotate properly before starting drilling.
- Drills should be used with external irrigation.
- They should be used at a speed of 400 rpm (increasing to 600 rpm depending on the type of bone).
- Position the drill at the chosen implant insertion site before starting drilling.
- Perform controlled tapping movements, drilling the bone to the desired depth, guided by the reference depth laser marking.
- Remove the drill from the surgical site with the motor running.

Instructions for using the osteotomy disc

- The disc must be inserted into the contra-angle handpiece with the motor stopped, ensuring that it is seated and rotates properly before starting to cut.
- The disc should be used with external irrigation.
- It should be used at a speed of 600 to 800 rpm.
- Make a mid-crestal cut by controlling the direction of the osteotomy disc until the desired depth is reached, without the shaft of the cutting disc making contact with the bone surface.
- Remove the disc from the surgical site with the motor running.
- Keep at least 1.00 mm from the tooth.

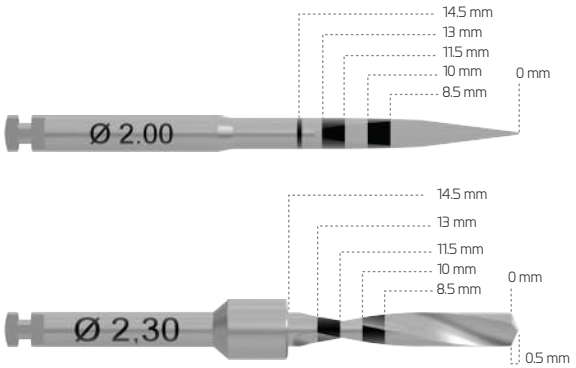
Notes

- Do not continue drilling without irrigation.
- If using a drill extender, supplement irrigation manually.
- For surgical drills and the osteotomy disc, a maximum of 45 uses is recommended.
- If any damage to the drill or osteotomy disc is observed, do not use it and replace with a new drill or disc.
- Sterilise the instruments after each use in accordance with the cleaning and sterilisation instructions.

Surgical drills

The Ziacom® mm-graduated lance drill (Ref. MSID00) and the surgical drill (Ref. OSPD23) are used for initial drilling of the surgical site. They have laser markings in the form of horizontal bands along their active section representing different lengths.

NOTE
The tip of the surgical drill (Ref. OSPD23) is 0.50 mm long and this measurement is not included in the laser-marked lengths.



Osteotomy discs

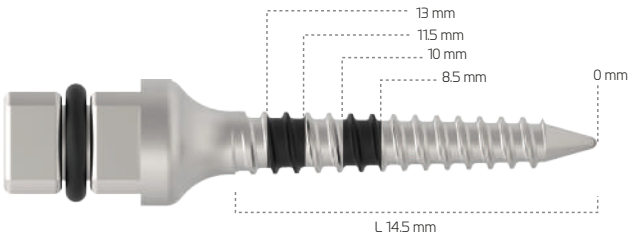
Diamond osteotomy discs are used for mid-crestal and vertical corticotomies during bone expansion procedures in cases of multi-unit implants. Two diameters are available: Ø10.00 mm (Ref. 231DEF204100) and Ø13.00 mm (Ref. 231DEF204130).

NOTE
The Ø10.00 mm disc has a cutting depth of 3.50 mm, while the Ø13.00 mm disc has a cutting depth of 5.00 mm.

Bone expanders

Bone expanders are available in a wide range of progressively increasing diameters. Sequential use of the expanders allows the bone tissue to be compacted and expanded, thus gaining volume for correct placement of the implant in the bone. The geometry of the expander head allows the expanders to be used with the ratchet (Ref. RATC50) or with a contra-angle and the universal adapter (Ref. MAEX).

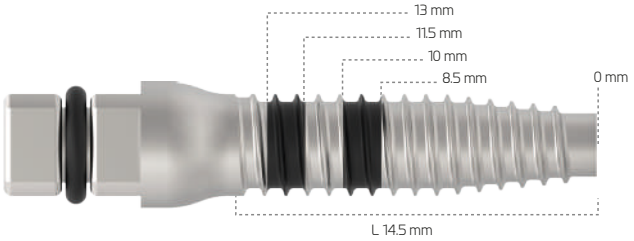
Bone expanders have laser marking on the head to identify the expander and its position in the expander sequence and also horizontal bands along their active section representing different lengths.



Sinus lift bone expander

Bone expander Ref. EOX700 has a design that facilitates compaction of the bone adjacent to the sinus membrane, helping to lift this membrane. The tip design has sharp edges to facilitate compaction of the bone cortex surrounding the sinus membrane and a concave centre to collect bone tissue, which reduces the risk of sinus membrane perforation.

Its head allows the expander to be used with the ratchet (Ref. RATC50), although it can also be used with a contra-angle and the universal adapter (Ref. MAEX). It has laser marking on the head to identify the expander and also horizontal bands along its active section representing different lengths.



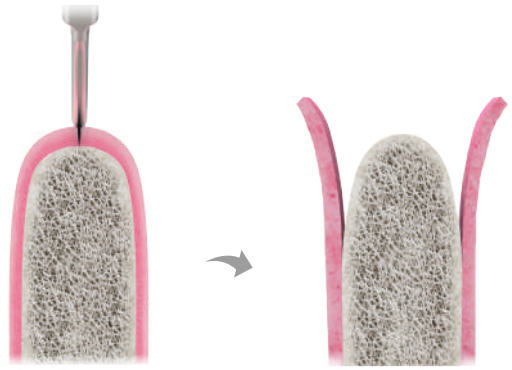
Surgical protocol

Bone expansion steps for placement of a single 4.00 x 11.50 mm implant

It is important to note that the Ziacom® bone expander protocol varies according to the diameter of the implant to be placed and the type of bone so special attention should be paid to these two variables.

STEP 1 | Open the mucosa

Make an incision and lift the flap.



STEP 2 | Perform initial drilling

Perform initial drilling with a mm-graduated lance drill (Ref. MSID00), controlling both the direction and angle of the drill and always applying intermittent pressure in a vertical direction, until the desired implant depth is reached. If necessary, use the drill extender (Ref. DEXT10).

STEP 3 | Expander 1 - Ø2.00 mm

Place the Ø2.00 mm bone expander (Ref. EOX100) in the surgical site and firmly apply pressure while turning slowly, taking care not to fracture or fenestrate the bone cortices. In the event of excessive resistance to rotation, turn the expander **90°** anti-clockwise per complete turn. On reaching the length of the implant to be inserted, remove the expander by slowly turning it in the opposite direction to the direction of insertion.

NOTE
The expanders can be used manually using the ratchet (Ref. RATC50) or a contra-angle (Ref. MAEX). If necessary, use the universal adapter (Ref. LAEX for ratchet or Ref. MAEX with Ref. DEXT10 for contra-angle) at a maximum speed of 25 rpm.

STEP 4 | Expander 2 - Ø2.35 mm

Place the Ø2.35 mm bone expander (Ref. EOX200) in the surgical site and firmly apply pressure while turning slowly, taking care not to fracture or fenestrate the bone cortices. In the event of excessive resistance to rotation, turn the expander 90° anti-clockwise per complete turn. On reaching the length of the intended implant, remove the expander by slowly turning it in the opposite direction to the direction of insertion.

STEP 5 | Expander 3 - Ø2.50 mm

Place the Ø2.50 mm bone expander (Ref. EOX300) in the surgical site and firmly apply pressure while turning slowly, taking care not to fracture or fenestrate the bone cortices. In the event of excessive resistance to rotation, turn the expander 90° anti-clockwise per complete turn. On reaching the length of the intended implant, remove the expander by slowly turning it in the opposite direction to the direction of insertion.

STEP 6 | Expander 4 - Ø3.10 mm

Place the Ø3.10 mm bone expander (Ref. EOX400) in the surgical site and firmly apply pressure while turning slowly, taking care not to fracture or fenestrate the bone cortices. In the event of excessive resistance to rotation, turn the expander 90° anti-clockwise per complete turn. On reaching the length of the intended implant, remove the expander by slowly turning it in the opposite direction to the direction of insertion.

STEP 7 | Expander 5 - Ø3.40 mm

Place the Ø3.40 mm bone expander (Ref. EOX500) in the surgical site and firmly apply pressure while turning slowly, taking care not to fracture or fenestrate the bone cortices. In the event of excessive resistance to rotation, turn the expander 90° anti-clockwise per complete turn. On reaching the length of the intended implant, remove the expander by slowly turning it in the opposite direction to the direction of insertion.

In type I bone, it is necessary to use the last drill of the drilling protocol for the selected implant system prior to placing the implant.

STEP 8 | Insert the implant

Insert the implant into the surgical site, controlling both the direction and angle of the implant.

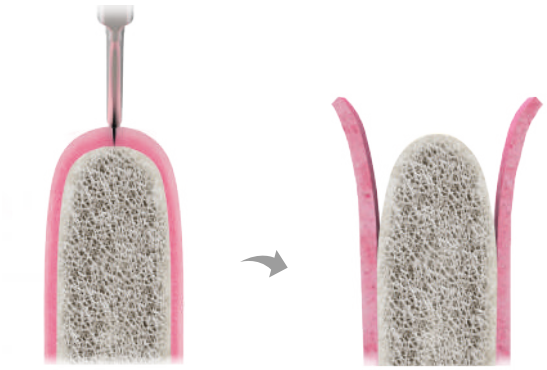
Surgical protocol

Bone expansion steps for placement of a single 4.00 x 10.00 mm implant with sinus lift

For maxillary sinus floor lift, it is necessary to assess the length of the bone crest, which should be at least 5.00 mm long, and also the condition and anatomy of the sinus membrane.

STEP 1 | Open the mucosa

Make an incision and lift the flap.



STEP 2 | Perform initial drilling

Perform initial drilling with a mm-graduated lance drill (Ref. MSID00) to a depth that is 1.00 mm less than the total length between the maxillary sinus floor and the bone crest, controlling both the direction and angle of drilling and always applying intermittent pressure in a vertical direction. If necessary, use the drill extender (Ref. DEXT10).

STEP 3 | Perform drilling sequence

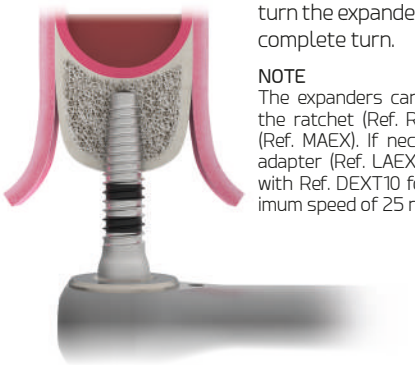
Continue with the pilot drill (Ref. OSPD23) to a depth that is 1.00 mm less than the total length between the maxillary sinus floor and the bone crest*, controlling both the direction and angle of drilling and always applying intermittent pressure in a vertical direction. If necessary, use the drill extender (Ref. DEXT10).

*Note that the drill tip is 0.50 mm long and this is not included in the different laser-marked lengths.

STEP 4 | Insert the maxillary sinus floor lift expander

Insert the Ø3.40 mm bone expander No. 7 (Ref. EOX700) into the surgical site and firmly apply pressure while turning slowly, taking care not to fracture or fenestrate the bone cortices. Continue until the drilling depth is reached. In the event of excessive resistance to rotation, turn the expander **90°** anti-clockwise per complete turn.

NOTE
The expanders can be used manually using the ratchet (Ref. RATC50) or a contra-angle (Ref. MAEX). If necessary, use the universal adapter (Ref. LAEX for ratchet or Ref. MAEX with Ref. DEXT10 for contra-angle) at a maximum speed of 25 rpm.



STEP 5 | Lift the maxillary sinus floor membrane

Once the drilling depth has been reached with the expander, turn it slowly until the membrane has been lifted*. It is advisable to wait 30-40 seconds between each **360°** turn for bone microfractures to form and dilate and compact the adjacent bone.

Once the membrane has been lifted, remove the bone expander by rotating it in the opposite direction to the direction of insertion, instruct the patient to breathe in and out and make sure the sinus membrane is kept intact. In the event of perforation, it is suggested that the procedure be stopped.

*Please note that a maximum sinus lift of only 4.00 mm can be performed.

STEP 6 | Insert the implant

Insert the implant into the surgical site* up to the desired length reached with the bone expander, controlling both the direction and angle of insertion.

*Biomaterial can be used as filler in the maxillary sinus before placing the implant.

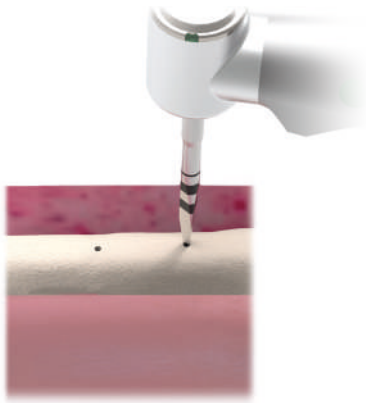
Bone expansion steps for placement of multiple adjacent 4.00 x 11.5 mm implants

In order to expand bone for the placement of multiple implants, it is necessary to assess the type of bone, the position of neighbouring teeth, neighbouring anatomical structures and the diameter of the implants to be inserted.

STEP 1 | Open the mucosa

Make an incision and lift the flap.

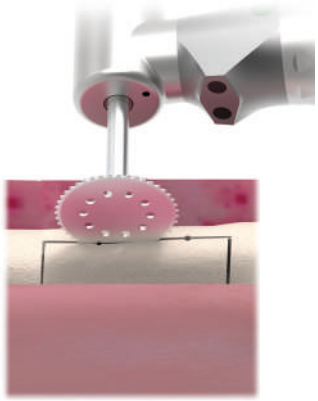
STEP 2 | Perform initial drilling



Drill spaced-out perforations that are between 1.00 and 2.00 mm deep using the mm-graduated lance drill (Ref. MSID00) in the crestal area where the bone is to be expanded. If necessary, use the drill extender (Ref. DEXT10).

Surgical protocol

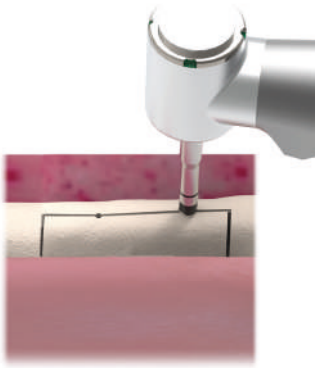
STEP 3 | Use the osteotomy disc



Using the 10 mm osteotomy disc (Ref. 231DEF204100), perform a corticotomy, leaving the marrow tissue intact*. The corticotomy should ideally follow the mid-crest line and join the perforations made with the lance drill. This cut should be at least 1.00 mm from the adjacent tooth.

*In type I and II bone, vertical cuts measuring between 3.00 and 4.00 mm are suggested to avoid fracturing the bone table.

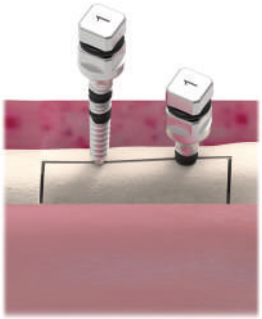
STEP 4 | Perform drilling



Drill the perforations previously made using the mm-graduated lance drill (Ref. MSID00) to the length of the implants to be inserted. If necessary, use the drill extender (Ref. DEXT10).

NOTE
If possible, drill the perforations 3.00 to 4.00 mm deeper than the length of the implant to be inserted in order to facilitate bone expansion.

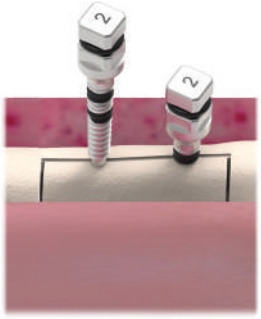
STEP 5 | Expander 1 - Ø2.00 mm



Place the Ø2.00 mm bone expander (Ref. EOX100) at the centremost point of the surgical site. Firmly apply pressure and start to turn slowly until the desired depth is reached. If excessive resistance is encountered, turn the expander **90°** anti-clockwise per complete turn. Place a second Ø2.00 mm bone expander (Ref. EOX100) next to the first expander.

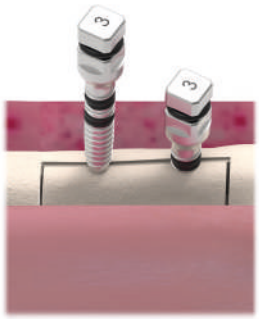
NOTE
The expanders can be used manually using the ratchet (Ref. RATC50 or a contra-angle (Ref. MAEX). If necessary, use the universal adapter (Ref. LAEX for ratchet or Ref. MAEX with Ref. DEXT10 for contra-angle) at a maximum speed of 25 rpm.

STEP 6 | Expander 2 - Ø2.35 mm



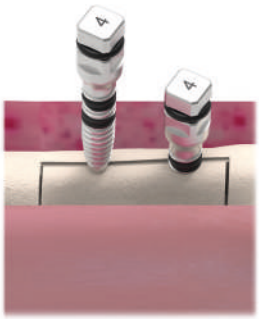
Replace the Ø2.00 mm bone expanders (Ref. EOX100) one by one with Ø2.35 mm bone expanders (Ref. EOX200) at the same site, applying firm pressure and turning slowly until the depth of the desired implant is reached and taking care not to fracture or fenestrate the bone cortices. If excessive resistance is encountered, turn the expander **90°** anti-clockwise per complete turn.

STEP 7 | Expander 3 - Ø2.50 mm



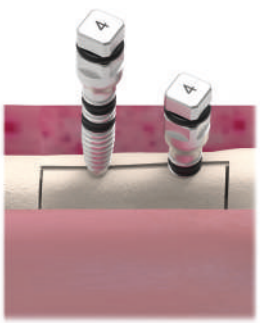
Replace the Ø2.35 mm bone expanders (Ref. EOX200) one by one with Ø2.50 mm bone expanders (Ref. EOX300) at the same site, applying firm pressure and turning slowly until the depth of the desired implant is reached and taking care not to fracture or fenestrate the bone cortices. If excessive resistance is encountered, turn the expander 90° anti-clockwise per complete turn.

STEP 8 | Expander 4 - Ø3.10 mm



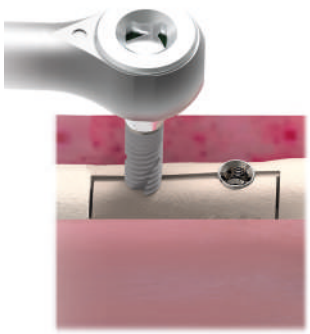
Replace the Ø2.50 mm bone expanders (Ref. EOX300) one by one with Ø3.10 mm bone expanders (Ref. EOX400) at the same site, applying firm pressure and turning slowly until the depth of the desired implant is reached and taking care not to fracture or fenestrate the bone cortices. If excessive resistance is encountered, turn the expander **90°** anti-clockwise per complete turn.

STEP 9 | Expander 5 - Ø3.40 mm



Replace the Ø3.10 mm bone expanders (Ref. EOX400) one by one with Ø3.40 mm bone expanders (Ref. EOX500) at the same site, applying firm pressure and turning slowly until the depth of the desired implant is reached and taking care not to fracture or fenestrate the bone cortices. If excessive resistance is encountered, turn the expander **90°** anti-clockwise per complete turn.

STEP 10 | Insert the implant



Remove the central Ø3.40 mm bone expander (Ref. EOX500) and insert the 4.00 x 11.5 mm implant into the surgical site. Then remove the next Ø3.40 mm bone expander (Ref. EOX500) and insert the second 4.00 x 11.5 mm implant into the site, controlling both the direction and angle of insertion*.

*After inserting the implant, it is suggested that biomaterial be placed in the residual gap and membrane be used.

EXPANDER KIT

Cleaning, disinfection and sterilisation

Cleaning, disinfection and sterilisation

The protocols described in this section must only be carried out by personnel qualified to clean, disinfect and sterilise the dental materials specified here in.

Cleaning and disinfection instructions

Applicable for instruments, surgical and prosthetic boxes and plastic retainer caps.

Disassembly

1. Dismount* the appropriate instruments, for example manual ratchets, drills or drill stops.
2. Remove the various components from the surgical or prosthetic box for correct cleaning.

Cleaning and disinfection

For disinfecting instruments and surgical boxes:

1. Submerge the instruments in a detergent/disinfectant solution** suitable for dental instruments to help eliminate any adhered biological residues. If an ultrasound bath is available***, confirm that the detergent/disinfectant solution is indicated for use with this type of equipment.
2. Manually remove any biological residues with a non-metallic brush and pH-neutral detergent.
3. Rinse with copious water.
4. When cleaning the surgical and prosthetic boxes, always use a pH-neutral detergent and non-abrasive utensils to avoid damaging the surface of the boxes.
5. Dry the materials with disposable cellulose, lint-free clothes or compressed air.

For disinfecting plastic caps and spacers:

1. Submerge in a neat benzalkonium chloride solution for 10 minutes.
2. Rinse with distilled water.
3. Dry the caps and spacer before use.

Inspection

1. Check that the instruments are perfectly clean; if not, repeat the cleaning and disinfection steps.
2. Discard any instruments with imperfections and replace them before the next procedure.
3. Check that the instruments and the surgical and prosthetic boxes are perfectly dry before reassembling the parts and proceeding to their sterilisation.

* See the assembly disassembly manuals at **www.ziacom.com/biblioteca**

** Follow the instructions from the disinfectant's manufacturer to determine the correct concentrations and times.

*** Follow the instructions from the ultrasound bath's manufacturer to determine the correct temperature, concentration and times.

Sterilisation instructions for steam autoclave

Applicable to orthodontic implants, abutments, and surgical and prosthetic instruments and boxes.

1. Introduce each material separately in individual sterilisation bags, then seal the bags. For joint sterilisation, place the instruments in their surgical box, introduce the box into a sterilisation bag and seal the bag.
2. Place the bags to be sterilised in the autoclave.
3. Sterilise in a steam autoclave at 134°C/273°F (max. 137°C/276°F) for 4 min (minimum) and at 2 atm. Torque wrenches must be sterilised in 3 vacuum cycles at 132°C/270°F for a minimum of 1.5 minutes and vacuum-dried for a minimum of 20 minutes.

For the United States only: The validated and recommended sterilisation cycle for the US must be performed in a steam autoclave at 132°C/270°F for at least 15 min and with the drying time of at least 15 - 30 min.

IMPORTANT
Make sure the drying stage is allowed to run to completion, otherwise the products may be damp.
Check the sterilisation equipment if the materials or sterilisation bags are damp at the end of the sterilisation cycle.
Perform the necessary maintenance actions on the autoclave according to the established periodicity and following the manufacturer's instructions.

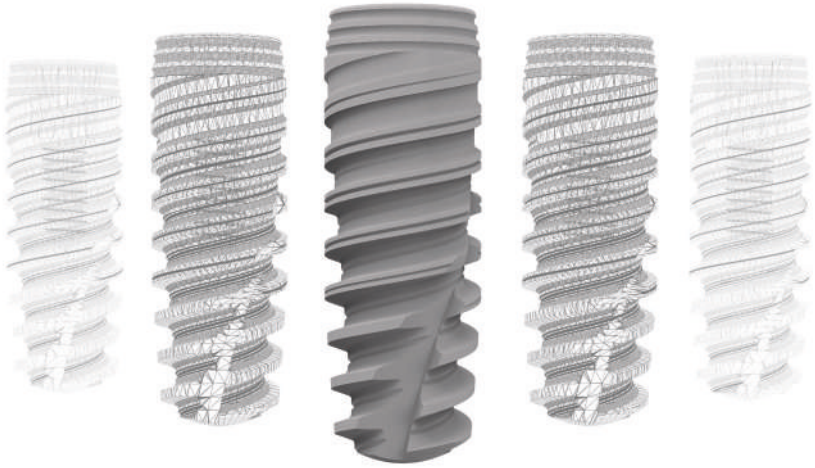
Storage of Ziacom® products

- Store the products in their original packaging and in a clean, dry location until they are used.
- After sterilisation, keep the products in the sealed sterilisation bags and in a clean, dry location.
- Never exceed the use by date indicated by the manufacturer of the sterilisation bags.
- Always follow the indications of the manufacturer of the sterilisation bags.

General recommendations

- Never use damaged or dirty material; never reuse single-use products. The user is responsible for following the instructions described in this document correctly.
- The attention to piercing or sharp elements. Gloves should be worn when cleaning the materials to avoid accidents during handling.
- Follow the safety instructions indicated by the manufacturer of the disinfectant agent.
- The product's sterility cannot be guaranteed if the sterilisation bag is open, damaged or damp.
- Respect all stages of the sterilisation process. If the materials or sterilisation bags contain traces of water or moisture, check the autoclave and repeat the sterilisation.
- Orthodontic abutments and implants are supplied UNSTERILISED and must always be sterilised before use.
- Instruments and surgical and prosthetic boxes are supplied UNSTERILISED and must always be sterilised before use and cleaned and disinfected after use.
- The sterilisation, cleaning and disinfection processes gradually deteriorate the instruments. Inspect the instruments thoroughly to detect any signs of deterioration.
- Avoid contact between products made from different materials (steel, titanium, etc.) during the cleaning, disinfection and sterilisation processes.
- Ziacom Medical SL recommends these instructions are implemented for the correct maintenance and safety of their products; accordingly, the company refuses any liability for any damage to the products that could arise if the user applies alternative cleaning, disinfection and sterilisation procedures.

See **www.ziacom.com/biblioteca** for the latest version of the cleaning, disinfection and sterilisation instructions.



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