SURGICAL PROCEDURE

ZMK · ZMR

Special connection onepiece implants

Ziacom®

ZMK · ZMR

Prosthetic procedure manual

About this manual

This manual is intended to provide users of Ziacom® products with an instruction guide for the use of their products. It is not intended to describe methods or procedures for diagnosis, treatment planning or implant placement, nor to substitute or replace regulated training or professional judgement on the needs of individual patients.

The procedures described and illustrated in this manual show an ideal clinical situation for implant rehabilitation and are limited to an example of procedures with a specific platform (Regular Platform RP). This manual is not intended to cover the wide range of clinical conditions that may occur during implant treatment. The experience and judgement of the professional will prevail over the recommendations made in this or any other Ziacom® manual.

This manual describes the use of conical connection abutment in prosthetic procedures. Consult availability of abutment by platform for each type of conical connection implant.

In this manual of prosthodontic procedures, the processes are separated into two distinct types:

1. **Clinical**: corresponds to the procedures performed in the oral cavity by the clinician. These are all those clinical procedures that precede the prosthesis preparation in the laboratory or the required intermediate tests.
2. **Laboratory**: corresponds to the procedures performed by the prosthetist in the laboratory for the prosthesis preparation. The aim of these processes is to obtain a final product for the masticatory function rehabilitation.

RX only: Prescription only

All instruments (surgical and prosthetic), surgical boxes and components are supplied WITHOUT STERILIZING. They must be removed from their original package for sterilisation prior to first clinical use. Consult the general cleaning, disinfection and sterilisation recommendations on our website www.ziacom.com or in this manual.

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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**

Índice

Abutments

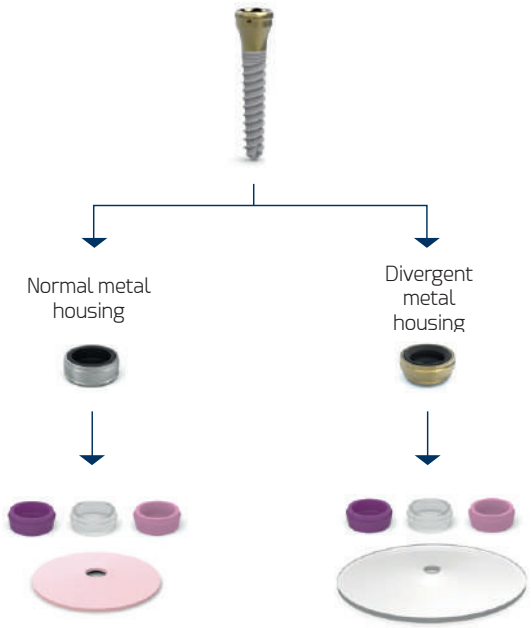
Classification of prosthetic abutments

ZMK

- Impression

DEFINITIVE RESTORATION

- Overdenture



EXAMPLE SEQUENCE

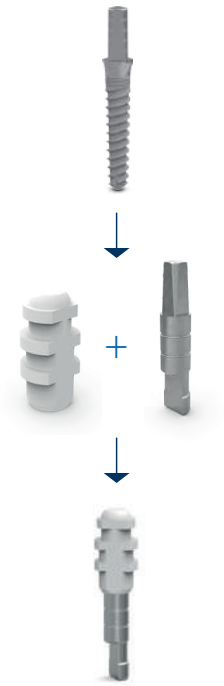
- Overdenture

ZMR

- Impression

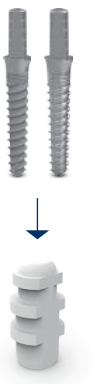
DEFINITIVE RESTORATION

- Cemented on ZMR



PROVISIONAL RESTORATION

- Cemented on ZMR / ZMRS



Abutments: impression

Closed tray with Kirator transfer abutment cap

Purpose

An impression is a negative representation or imprint of the oral cavity. Taking a closed-tray impression involves transferring the position of implants from the oral cavity to the working model. This process uses the direct pick-up impression abutment technique. The transfer cap is retained within the impression material once cured and a conventional tray is used. This impression is then cast in plaster to obtain the positive reproduction or working model.

The dentist will select this technique if the retainers are to be incorporated in the laboratory.

ZMK

INTRODUCTION | Material required

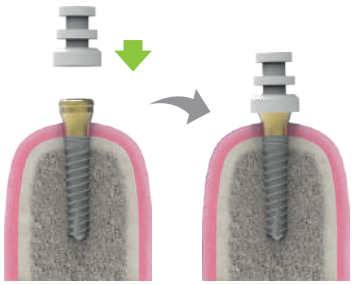
1. Kirator transfer abutment cap (Ref. TCRK3400)
2. Kirator analogue (Ref. IATORK01)

1 2

Procedure: the following illustrations show how to take a closed-tray impression with a Kirator abutment.

STEP 1 - Clinical | Attach the Kirator transfer abutment cap

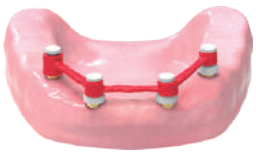
Position the transfer abutment cap over the Kirator abutment and press downwards until a click is heard, indicating that the cap has engaged. Visually check that both components are seated properly.



STEP 2 - Clinical | Splint the Kirator transfer abutment caps

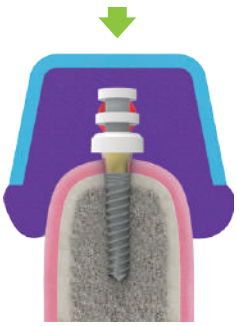
Splint the impression abutments using the technique of your choice according to the instructions given by the manufacturer of the material selected for splinting.

Important: It is recommended that four ZMK implants be inserted for upper overdentures and two ZMK implants be inserted for lower overdentures. In both cases, it is recommended that the abutments be splinted for impression.



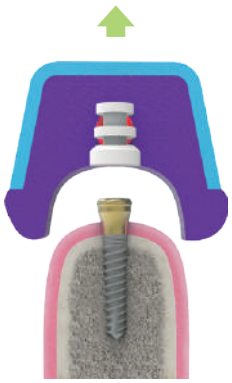
STEP 3 - Clinical | Take the impression

Select the tray to be used to take the impression. Inject elastomeric impression material around the transfer abutment cap and then fill the tray. Take the impression according to the impression material manufacturer's recommended procedures.



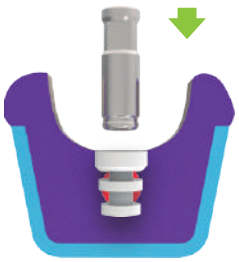
STEP 4 - Clinical | Remove the impression tray

Remove the impression tray. The transfer abutment cap should be picked up in the impression material. Check that the quality of the impression is optimal. Send the impression, processing pack, analogue and laboratory order to the laboratory.



STEP 5 - Laboratory | Position the analogue

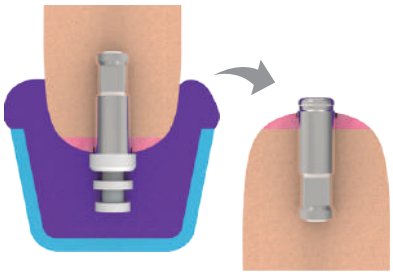
Insert the Kirator analogue into the transfer abutment cap retained in the impression material and press downwards. Visually check that both components are seated properly.



STEP 6 - Laboratory | Simulate soft tissue on the working model

Inject material around the impression abutment, to the required depth, to realistically simulate soft tissue.

STEP 7 - Laboratory | Working model



Weigh, mix and pour type IV plaster (American Dental Association (ADA) Specification No. 25 with minimum expansion, high level of hardness) into the impression according to the plaster manufacturer's recommendations.

Once the plaster has cured, remove the tray. Check the working model against the opposing model using the bite registration.

Abutments: impression

Closed tray with Snap-On transfer abutment cap

Purpose

An impression is a negative representation or imprint of the oral cavity. Taking a closed-tray impression involves transferring the position of implants from the oral cavity to the working model. This process uses the direct pick-up impression abutment technique. The transfer cap is retained within the impression material once cured and a conventional tray is used. This impression is then cast in plaster to obtain the positive reproduction or working model.

When preparing the prosthetic abutment, the dentist should take a conventional impression of the prosthetic abutment of the ZMR implant.

ZMR

INTRODUCTION | Material required

1. Snap-On transfer abutment cap for ZMR (Ref. NUXP01)
2. ZMR analogue (Ref. IAXP02)

1 2

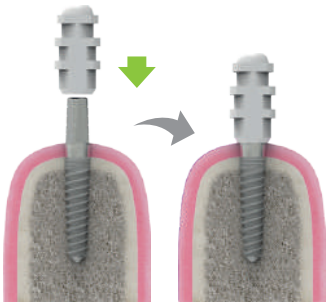
Procedure: the following illustrations show how to take an impression of a single-unit provisional restoration on the ZMR one-piece implant.

STEP 1 - Clinical | Remove the healing abutment

Remove the healing abutment from the implant by hand and check that the implant's special connection is clear of any surrounding tissues.

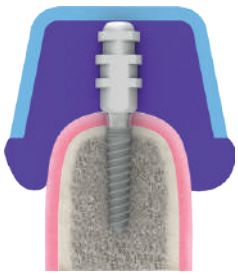
STEP 2 - Clinical | Attach the Snap-On transfer abutment cap

Make sure the plastic transfer abutment cap is seated properly on the abutment before taking the impression.

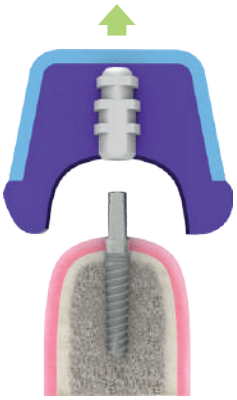


STEP 3 - Clinical | Take the impression

Select the tray to be used to take the impression. Inject elastomeric impression material around the transfer abutment cap and then fill the tray. Take the impression according to the impression material manufacturer's recommended procedures.



STEP 4 - Clinical | Remove the impression tray



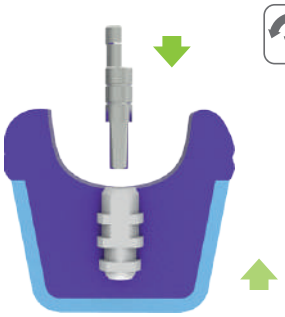
Remove the impression tray. The transfer abutment cap should be picked up in the impression material. Check that the quality of the impression is optimal. Then send the impression, analogue and laboratory order to the laboratory.

STEP 5 - Clinical | Replace the healing abutment

Immediately place the healing abutment back in the implant to prevent soft tissue collapse.

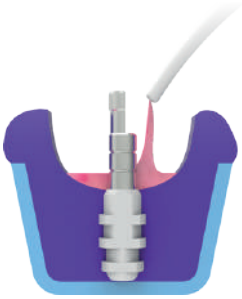
STEP 6 - Laboratory | Position the analogue

Place the analogue on the transfer abutment cap retained in the impression material and check that both components are seated properly.



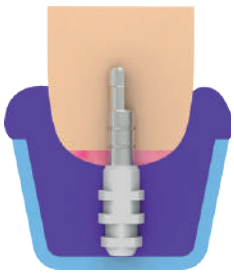
STEP 7 - Laboratory | Simulate soft tissue on the working model

Inject material of your choice around the analogue, to the required depth, to realistically simulate soft tissue.



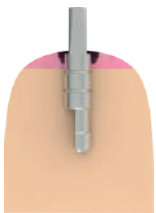
STEP 8 - Laboratory | Pour the impression

Weigh, mix and pour type IV plaster (American Dental Association (ADA) Specification No. 25 with minimum expansion, high level of hardness) into the impression according to the manufacturer's recommendations.



STEP 9 - Laboratory | Working model

Once the plaster has cured, remove the tray and check the working model against the opposing model using the bite registration.



Abutments: provisional restorations

Cemented on ZMR/ ZMR S implant

Purpose

The ZMR implant allows provisional restorations to be cemented to the prosthetic abutment, which can be modified as required based on each case.

It is possible to order the ZMRS implant, without surface treatment, as a transitional implant for immediately loaded provisional restorations..

ZMR ZMRS

INTRODUCTION | Material required

1. ZMR · ZMRS implant
2. Healing abutment (Ref. HABA05)

1 2

Procedure: the following illustrations show an example of a single-unit provisional restoration cemented on the ZMR one-piece implant.

STEP 1 - Clinical | Remove the healing abutment

Remove the healing abutment from the implant by hand and check that the implant's special connection is clear of any surrounding tissues.

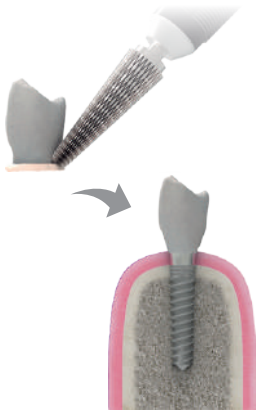
STEP 2 - Clinical | Prepare the abutment

Prepare the prosthetic abutment only if required for the individual case. If required, take a conventional impression of the prosthetic abutment.

STEP 3 - Clinical | Make the crown and fill

Make the provisional crown using the method of your choice. Mix the filling material and place it in the crown; position the crown on the provisional abutment.

STEP 4 - Clinical | Remove excess material, adjust fit and cement



Remove any excess filling material from the crown and polish. Place the crown on the abutment to check occlusion, fit and gingival contour. Make any necessary modifications and polish again. Remove all traces of previously applied separator from the abutment. Cement the crown according to the cement manufacturer's recommendations.

Abutments: definitive restorations

Cemented on ZMR implant

Purpose

The ZMR implant allows definitive restorations to be cemented to the prosthetic abutment using the UCLA castable abutment.

The UCLA abutment also acts as a Snap-On transfer abutment cap.

ZMR

INTRODUCTION | Material required

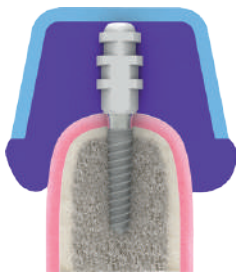
1. ZMR implant
2. UCLA abutment (Ref. NUXP01)
3. Analogue (Ref. IAXP02)

1 2 3

Procedure: the following illustrations show an example of a single-unit definitive restoration cemented on the straight abutment of the ZMR implant.

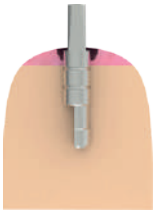
STEP 1 - Clinical | Take the impression

Take an impression of the implant using the closed-tray method, following the procedure given in the impression-taking techniques section. Take an impression of the opposing arch. Make a bite registration. Send the impressions, UCLA abutment, analogue and laboratory order to the laboratory.



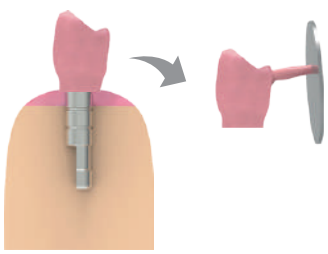
PASO 2 - Laboratory | Obtain the working model

Make the working models from type IV plaster (American Dental Association (ADA) Specification No. 25 with minimum expansion, high level of hardness) according to the plaster manufacturer's recommendations. Model the soft tissue and articulate with the bite registration according to the usual laboratory procedures.

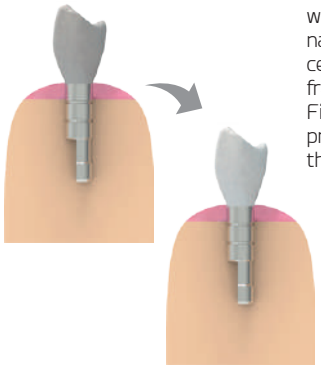


PASO 3 - Laboratory | Wax up and cast metal core of the crown

Wax up the metal core on the UCLA abutment, separate the core from the abutment and add the sprue. Cast the framework using the lost-wax casting method following the recommendations of the manufacturer of the selected material.



PASO 4 - Laboratory | Prepare the crown and layer with ceramic



Remove the sprue from the framework. Check the fit between the metal framework and the abutment. Carry out final adjustments prior to layering with ceramic. Apply opaquer to the metal framework and then layer with ceramic. Finish the restoration as per the usual procedure. Send the finished crown to the dentist for try-in.

STEP 5 - Clinical | Perform try-in and cement the crown

Place the crown on the prosthetic abutment to check occlusion, fit and contour. Make any modifications deemed necessary and take a periapical X-ray to check that the crown has engaged properly with the prosthetic abutment. Cement the crown using the cement of your choice following the manufacturer's recommendations. Remove any excess cement.

Abutments: definitive restorations

Kirator overdenture

Purpose

The ZMK one-piece implant is indicated for retaining pre-existing or newly fabricated full dentures. It is recommended that four ZMK implants be inserted for upper overdentures and two ZMK implants be inserted for lower overdentures.

Retainers may be incorporated directly by the dentist, as illustrated below, or indirectly in the laboratory.

ZMK

INTRODUCTION | Material required

1. Kirator processing pack (Ref. TP8520)
2. Kirator divergent processing pack (Ref. TP8520D)
3. Retainer insertion tool (Ref. MBEI3602)
4. Retainer insertion tool handle + extractor (Ref. MBEI3610)

Procedure: the following illustrations show an example of a maxillary overdenture on four ZMR one-piece implants.

STEP 1 | Mark and drill holes for metal housings

Mark the top of the abutments using the technique of your choice (suitable marker, articulating paper, etc.). Place the prosthesis in the oral cavity and press down on the abutments to transfer the marks. Remove the prosthesis and check that the marks are visible.

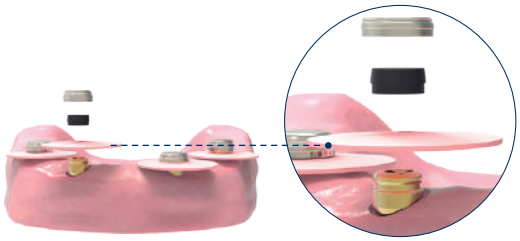
Use an acrylic or metal bur to remove material at the marked points to make space for the metal housing. Make small holes in the lingual or palatal area to allow excess acrylic to flow through.

STEP 2 | Insert the plastic retainers into the metal housing

Attach the Kirator retainer insertion tool to the insertion tool handle. Use the insertion tool handle to place the plastic retainer inside the metal housing. It is recommended that the black laboratory plastic retainer be used.

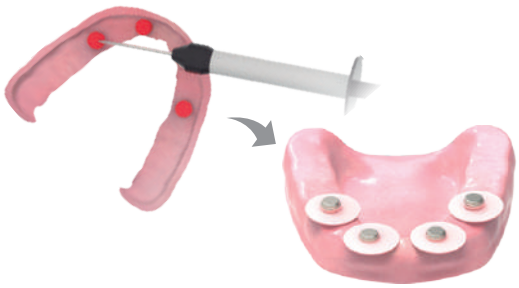
STEP 3 | Place the retainers on the Kirator abutments

Place the block-out spacer over the abutment to protect the soft tissue from the reline material. Place the retainers onto the abutments.



STEP 4 | Apply acrylic resin

Apply a small amount of acrylic resin to the holes made in the prosthesis following the recommendations of the filling material manufacturer.

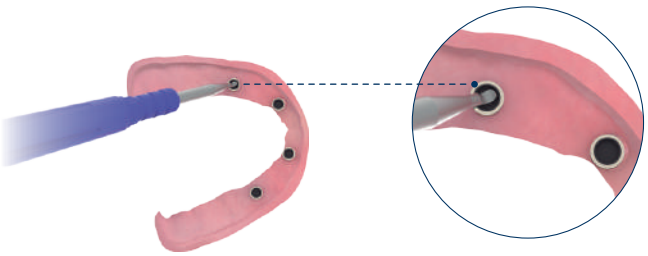


STEP 5 | Position the prosthesis

Place the prosthesis on the abutments again and ask the patient to maintain occlusion while the material cures.

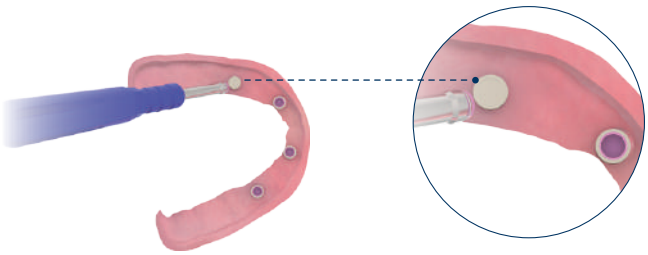
STEP 6 | Check retention and fit

Once the acrylic resin has cured, remove the prosthesis and block-out spacers. Remove any excess acrylic from around the metal housings and overflow holes. Perform the final polish.



STEP 7 | Check retention and fit

Remove the black plastic retainer from the metal housing using the retainer extractor. Insert the plastic retainer deemed to be appropriate using the Kirator inserter and handle. Use the plastic retainer extractor again if you need to change the retainers.



STEP 8 | Insert the denture and finish

Place the prosthesis in the patient's mouth again. Check occlusion and make any necessary modifications. Teach the patient how to insert and remove the prosthesis and how to keep it clean and maintain it.

Abutments

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

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.

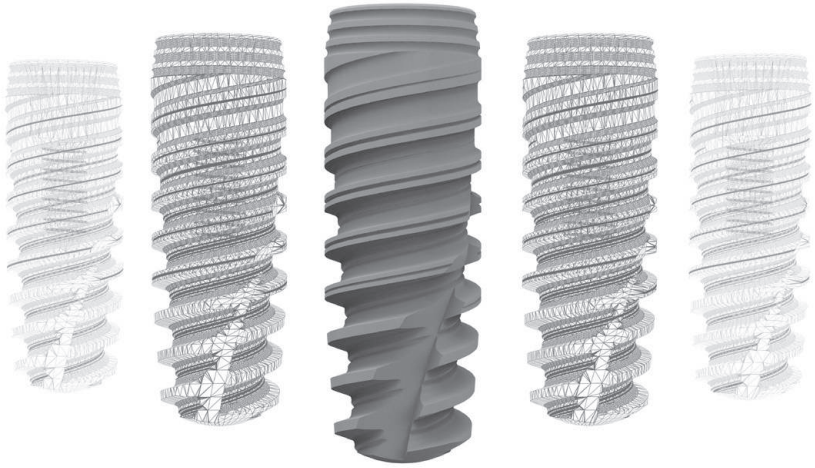
Storage of Ziacom® products

- 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.



See the latest version of the general conditions of sale on our website **www.ziacom.com**.

Check the availability of each product in your country.

See the latest version of the catalogues available at **www.ziacom.com**.

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