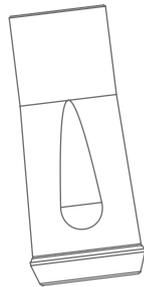


GMI implant system
MONOLITH



**Prosthetic
procedures
guide**

ABOUT THIS MANUAL

This prosthetic procedures guide or prosthetic manual for the **GMI monolith** implant system is designed solely to provide instructions for using **GMI monolith** products, and is not intended to describe diagnosis methods or procedures, treatment planning or the location of the implants, nor does it replace clinical training or clinical judgement about the needs of each patient. GMI recommends appropriate and specific training as a prerequisite for the placement of implants and the associated treatment.

The methods illustrated and described in this manual reflect an ideal patient with the bone and soft tissue required for the placement of an implant. We do not intent to cover the wide range of adverse conditions that may negatively affect the success of the surgery or rehabilitation. **The experience and judgement of the clinician in relation to any particular case must always be above the recommendations made in this or any other GMI manual.**

Rx only - Caution: Federal (USA) law restricts these devices to sale by, or on the order, of a dentist or physician.

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SINGLE RESTORATION

CEMENT-RETAINED



CARRIER ABUTMENT



STRAIGHT ABUTMENT



ANGLED ABUTMENT



CLINIC SCREW

MULTIPLE RESTORATION

CEMENT-RETAINED



CARRIER ABUTMENT



STRAIGHT ABUTMENT



ANGLED ABUTMENT



CLINIC SCREW

OVERDENTURE

DIRECT TO IMPLANT



EQUATOR ABUTMENT



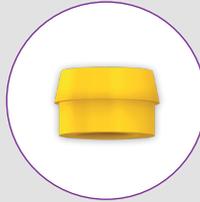
RETENTION CAPS



CONTAINER



BALL ABUTMENT



RETENTION CAPS



CONTAINER

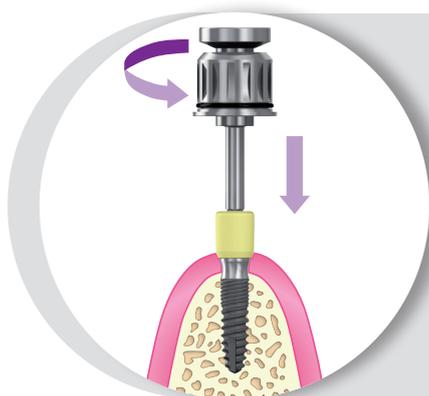
ABUTMENTS EXTRACTION



As the conical connection of **GMI monolith** implant system is a self-blocking cone, to remove the components that are fixed using the clinic screw, an extractor system must be used. There are two systems: the parts with an auto-extractor system and the parts that require the use of an extraction tool.

SELF-EXTRACTOR:

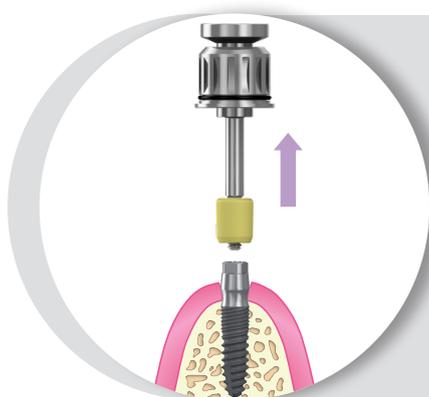
This system is only incorporated in the ball abutments, Equator abutments and healing abutments and do not require the use of the extractor since the extraction system is incorporated in the screw. To separate the components the following steps must be performed:



1. Loosen the screw

Loosen the screw using the HEX-1.20 mm wrench (Ref. KYLOF0128) until the component is separated from the implant.

Note: It is normal that in the cone releasing phase a turning force greater than normal must be applied.

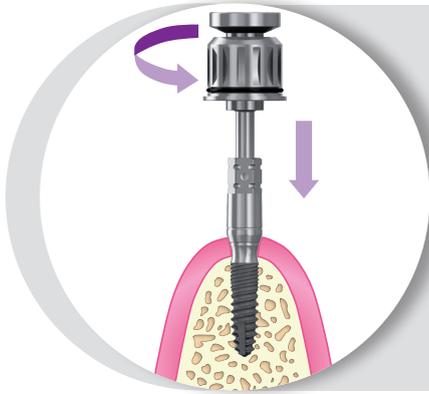


2. Remove the assembly

Remove the abutment from the implant.

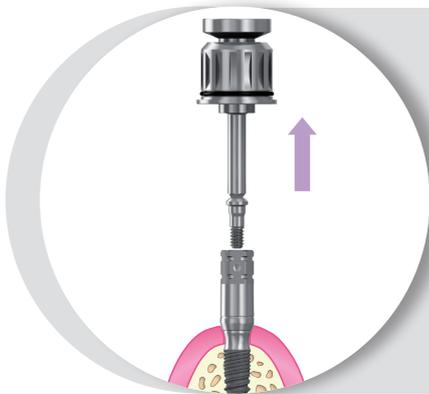
MONOLITH EXTRACTORS:

To separate the components in the rest of the abutments the **monolith** abutments extractor wrench must be used.



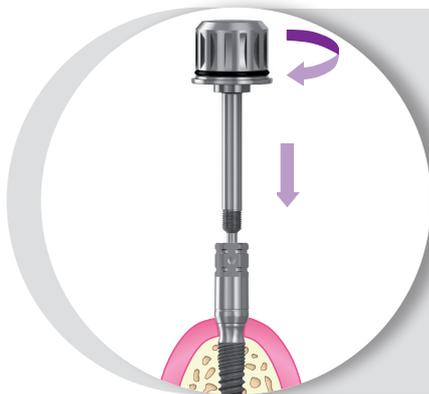
1. Loosen the screw

Loosen the abutment screw using the HEX-1.20 mm wrench (Ref. KYL0F0128).



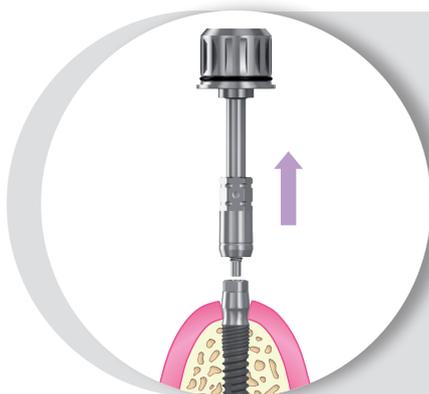
2. Remove the screw

Remove the abutment screw using a HEX-1.20 mm wrench.



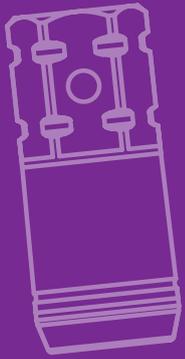
3. Extractor insertion

Insert the extractor (Ref. KYL0F0143) and turn it clockwise until the components are separated.

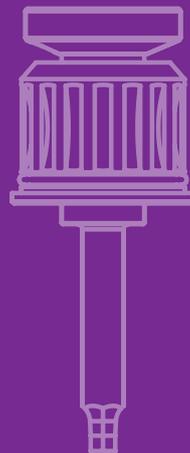
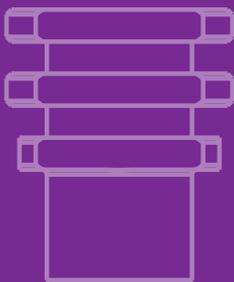
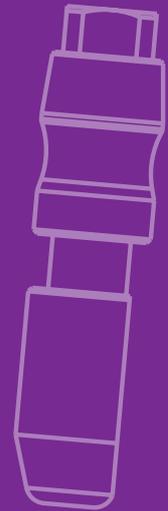


4. Remove the assembly

Remove the assembly from the implant.



IMPRESSION COPING TECHNIQUES



CT IMPRESSION COPING OVER CARRIER ABUT.



► FUNCTION

CT (Closed Tray) impression coping is used to make abutment-level impressions allowing to create a working model that represents precisely the position of the implant and the soft tissue profile.

► REQUIRED MATERIAL



Carrier abutment



CT impression coping



Implant replica



Manual wrench
HEX-1.20

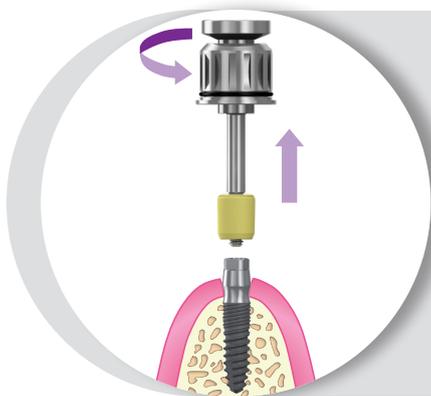
► PROCEDURE



Clinician



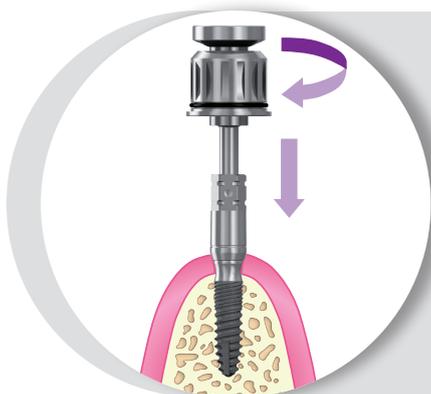
Laboratory



1. Remove the healing abutment (optional)



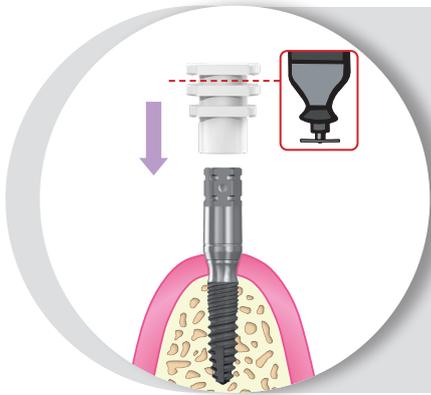
Manually remove the healing abutment from the implant using a HEX-1.20 mm wrench (Ref. KYLOF0128). Ensure that the implant connection is free of any bone debris or soft tissue.



2. Place the carrier abutment



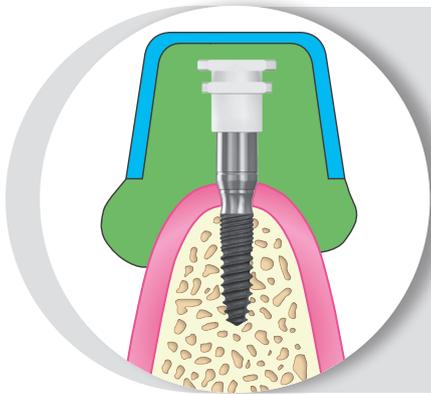
Place the carrier abutment on the implant body, ensuring that it is correctly oriented, and retain it with the screw. Hand tighten or use a HEX-1.20 mm wrench (Ref. KYLOF0128) applying a maximum torque of **15 N•cm**. Take a radiograph along the long axis of the implant to ensure that the carrier abutment is correctly placed into the implant.



3. Place the CT impression coping

C

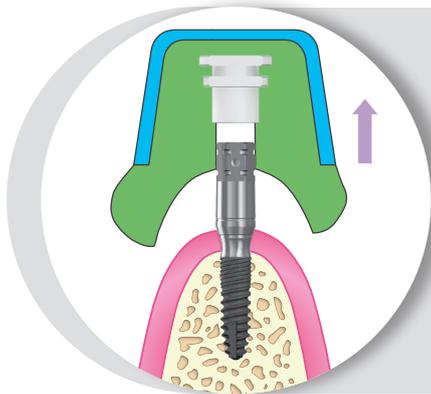
Place the plastic CT impression coping on the carrier abutment, ensuring that the hex is correctly oriented, until it has been perfectly placed. Check assembly height and cut if necessary, leaving at least two retentions.



4. Impression coping

C

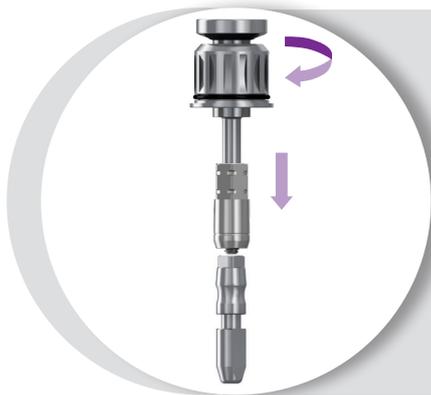
Use a custom or standard tray. Syringe a medium or heavy body elastomeric impression material around the coping body and after this load the tray. Make the impression following the impression material manufacturer recommended procedure.



5. Remove the impression tray

C

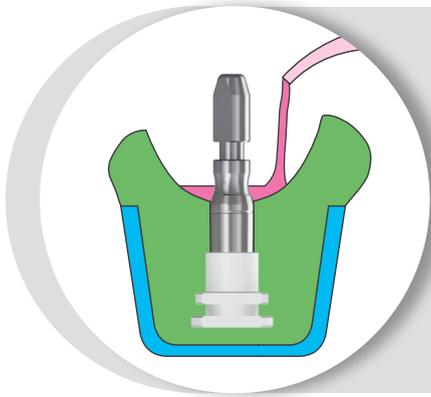
Remove the tray from the mouth with the CT plastic impression coping embedded. Verify the impression material is completely adjusted around the coping. Loosen the screw and remove the abutment from implant body. Replace the carrier abutment immediately to prevent soft tissue collapse over the implant. Send the tray and the carrier abutment to the lab.



6. Assemble the replica

L

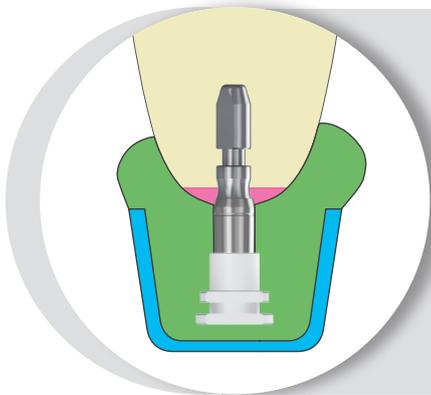
Attach the replica to the carrier abutment, ensuring that is correctly oriented, and tighten the assembly with the screw by hand with the HEX-1.20 mm wrench. Verify that the abutment and replica assembly are properly connected.



7. Make a soft tissue model



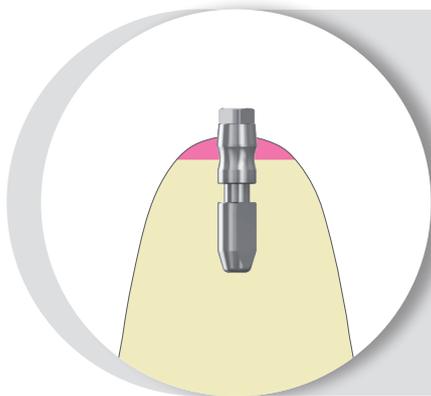
Insert replica-abutment assembly on CT plastic impression coping, ensuring that the hex is correctly oriented. Syringe a soft tissue replica material around the impression coping to obtain a correct simulation of the soft tissue level.



8. Fabricate the stone model



Process and pour high hardness die stone with minimal expansion into impression tray following the procedure recommended by the manufacturer.

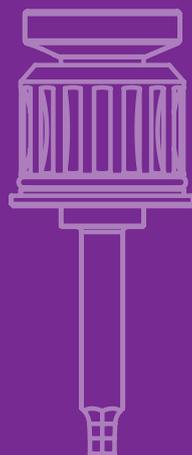
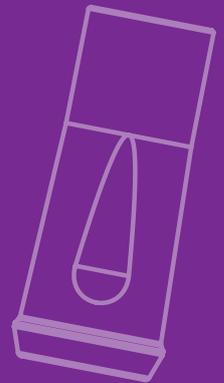
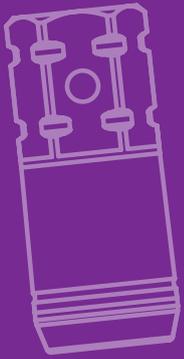


9. Finished stone model



Once the material is set, remove the impression coping screw and the tray. Make the necessary modifications to the model base and articulate according to normal laboratory procedures.

CEMENTED RESTORATIONS



CEMENTED RESTORATION OVER ABUTMENTS



► FUNCTION

Cementable abutments are used to perform single and multiple cement-retained restorations. Once the abutments have been modified and the crown or bridge has been fabricated in the laboratory, the abutments are attached to the implant using the clinic screw and the crown/s are cemented directly over the abutments.

► REQUIRED MATERIAL



Carrier abutment



Straight abutment



Angled abutment



Clinic screw



Laboratory screw



Manual wrench
HEX-1.20



Laboratory wrench HEX-1.20



TI ratchet wrench

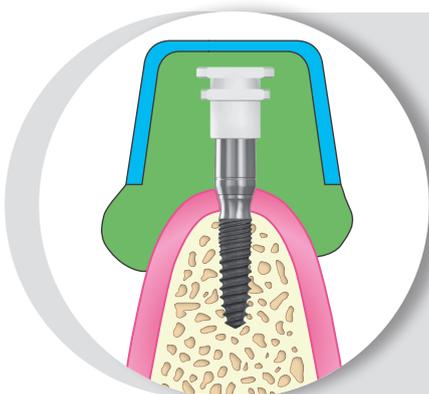
► PROCEDURE



Clinician



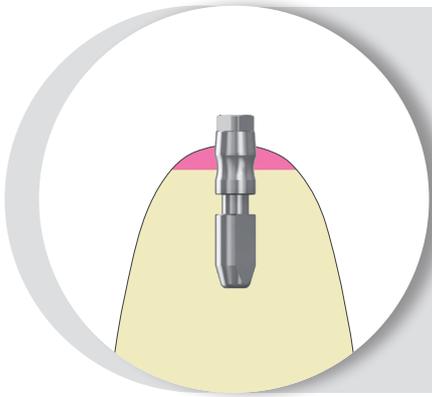
Laboratory



1. Make an implant-level impression



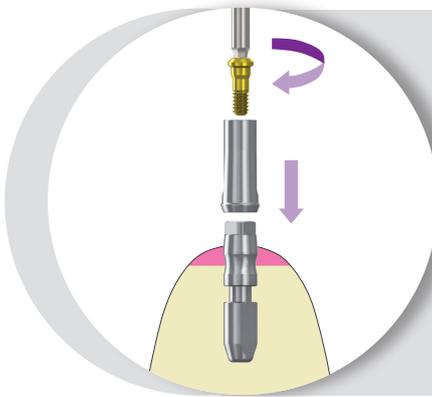
Make an implant-level impression using closed tray (CT) technique following the procedures explained in the corresponding section. Send the components to the lab.



2. Fabricate the working model



Fabricate stone working model, model soft tissue and articulate the following conventional laboratory procedures.



3. Select and place the abutment



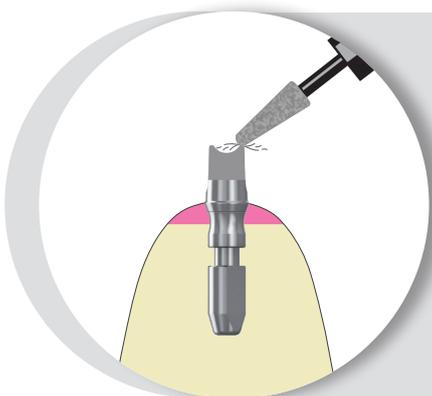
Select the abutment according to implant angulation. Place the abutment on the replica ensuring that is correctly oriented, and handtighten the lab screw using a lab HEX-1.20 mm wrench (Ref. KYLOF0006). Evaluate inter-occlusal dimensions, angulations and soft tissue contour. Mark the abutment for the required modifications allowing a minimum of 1.5-2.0 mm of occlusal clearance for metal and porcelain.



4. Modify the abutment



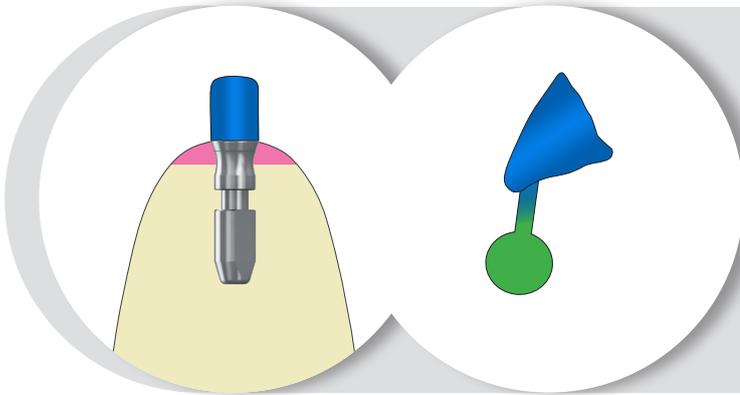
Remove the marked abutment from the replica and place it onto the universal handle with the proper tip. Modify the abutment following the marks of the previous step using carbide burs, cut-off disks or heatless stone wheels. A diamond bur may be used to define the margins. Create a mark on the buccal surface to make re-indexing the abutment in the mouth easier. If the flat of the abutment is removed during preparation, a new anti-rotational feature must be established on the abutment for single restorations.



5. Return abutment to the model



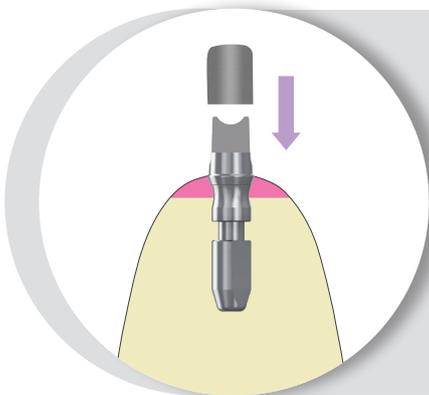
Place the modified abutment on the mounted working model and make the final adjustments using a diamond bur. When the abutment margin is prepared it should be modified so the margin is 0.5 to 1.0 mm subgingival in the esthetic area and at gingival or supragingival in the non esthetic areas.



6. Wax and cast the coping

L

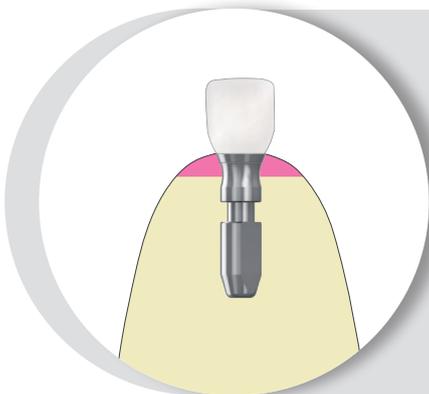
Block-out the screw access hole from the prepared abutment and apply die spacer. Create wax crown coping over modified abutment following conventional procedures. Sprue, invest and cast the coping pattern in noble alloy according to the manufacturer's instructions.



7. Divest and finish the coping

L

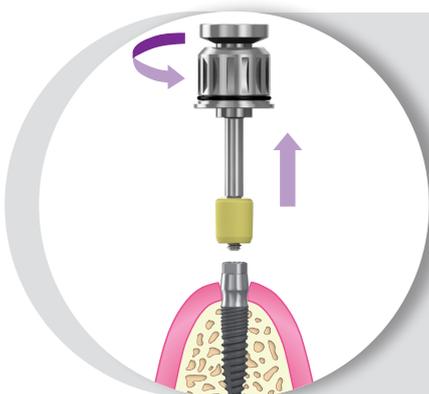
Divest, fit, and finish the cast coping following conventional laboratory procedures in preparation for the porcelain application.



8. Apply porcelain

L

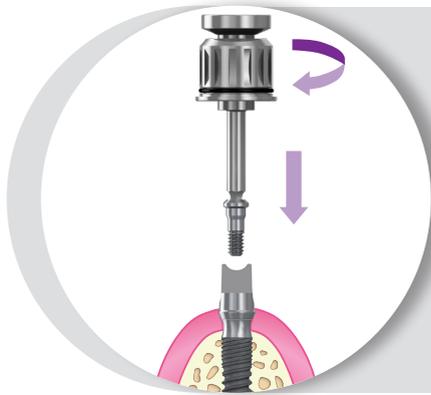
Apply opaque and porcelain to the metal framework and complete the crown according to conventional laboratory procedures. Send the finished crown, the modified abutment and clinic screw to the clinician.



9. Clean and remove healing abutment

C

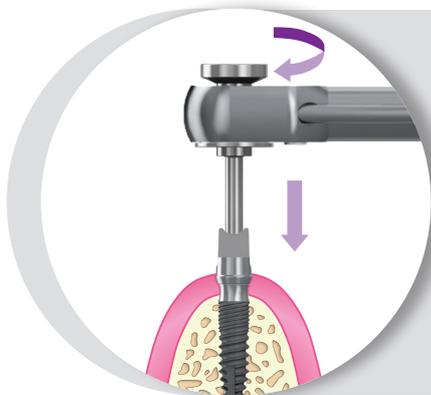
Sanitize modified abutment and crown following standard clinical procedures. Remove healing abutment or temporary prosthesis using a HEX-1.20 mm wrench. Make sure the implant platform is free of bone and soft tissue.



10. Placed modified abutment



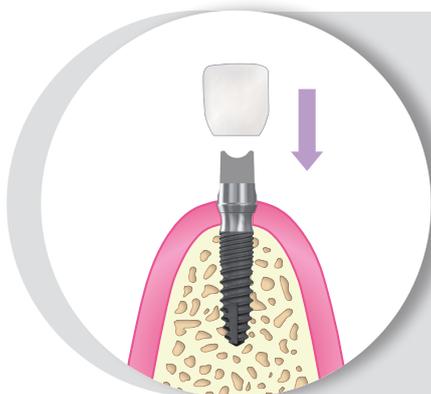
Place the modified abutment and clinic screw in the implant, engaging the implant hex, and hand tighten using a HEX-1,20 mm wrench (Ref. KYL0F0128). Take a radiograph along the long axis of the implant to ensure the abutment is placed completely in the implant.



11. Final screw tightening



Tighten the clinic screw to **25 N.cm** using a HEX-1.20 mm wrench (Ref. KYL0F0128) coupled to TI ratchet wrench (Ref. KYL0F0113). Follow the instructions for use of TI ratchet wrench to apply torque accurately.



12. Cement the crown



Place a resilient material of choice (gutta-percha, silicone or temporary filling material) into the screw access hole and fill the remaining canal with composite or another material of choice. This allows for easy access to the abutment screw in the future. Place the final restoration onto the abutment and check the occlusion, the contacts and the contour. Modify if it is necessary and polish after making adjustments. Finally cement the crown following the manufacturer recommended procedures. Take a radiograph for the final prosthesis delivery records.

OVERDENTURE RESTORATIONS



OVERDENTURE WITH EQUATOR* ABUTMENTS



► FUNCTION

EQUATOR abutments serve as retention elements to stabilize existing or newly manufactured whole or partial implant-supported overdentures.

► REQUIRED MATERIAL



EQUATOR abutment



EQUATOR retentions



Retention container



Protection disk



EQUATOR abutment wrench



Manual wrench
HEX-1.20

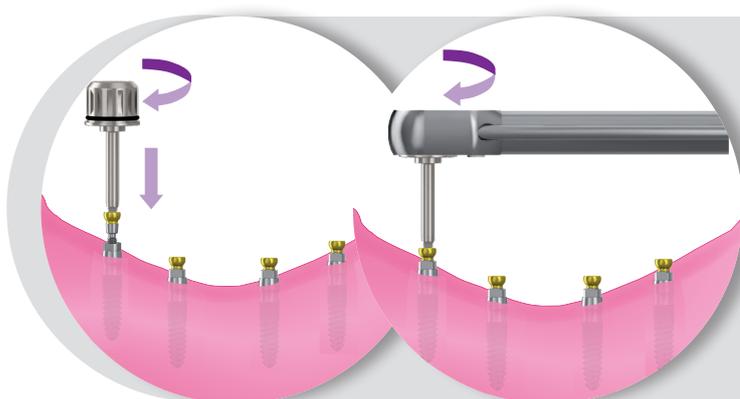


Insertion / removal tool
for caps



TI ratchet wrench

► PROCEDURE



1. Screw the EQUATOR abutments

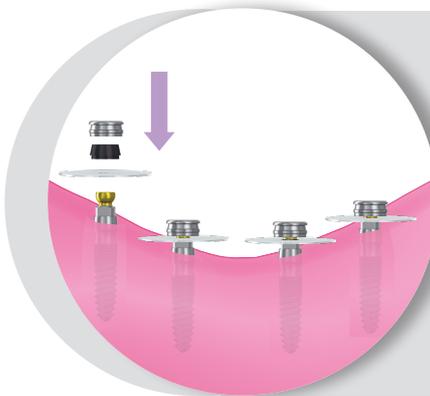
Screw the abutments to the implants manually with the EQUATOR abutment wrench (Ref. KYLOF0132) and finish tightening with the wrench attached to the TI ratchet wrench using a torque of **30 N.cm**. Take a radiograph along the axis of the implant to ensure that the settlement is correct.

*EQUATOR abutments are manufactured by RHEIN'83 s.r.l.



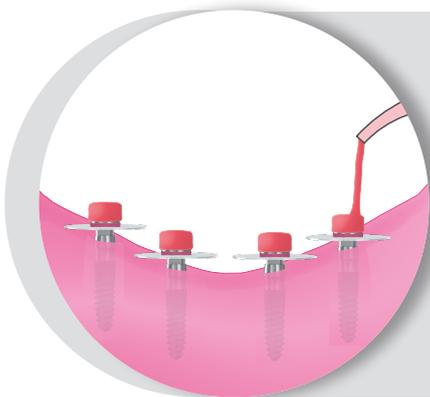
2. Mark and make accommodations for the containers

Make a mark in the coronal part of the EQUATOR abutments with a permanent marker and transfer their position to the denture. Perform the recesses in the marks made to accommodate the retention containers, leaving at least 0.25 mm of clearance between the denture and the containers to prevent excessive pressure on the implants. Make a few lingual holes so that the excess acrylic can exit.



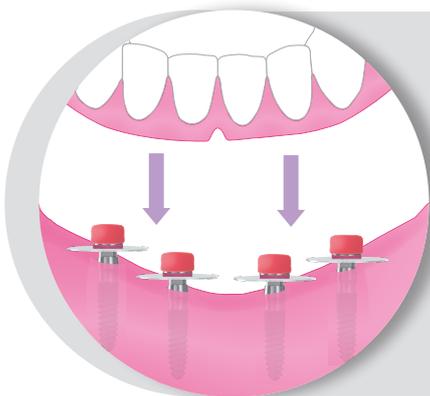
3. Place the retentions in the EQUATOR abutments

Insert the black laboratory retentions in the containers with the retention insertion wrench (Ref. RH485IC). Place a protection disc between the abutment and the container to protect the soft tissues from the acrylic, and insert a container in each EQUATOR abutment.



4. Apply the acrylic resin

Apply a small amount of acrylic resin, either cured with light or self-curable, in accommodations made in the teeth and around containers of retentions.



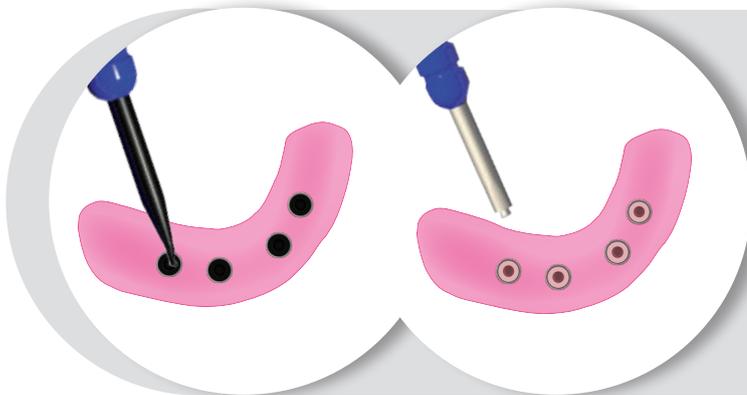
5. Place the denture

Place the denture in the mouth again and make the patient occlude, maintaining a proper relationship with the opposing arch. Maintain the denture in a passive position without compressing the soft tissue while the resin hardens.



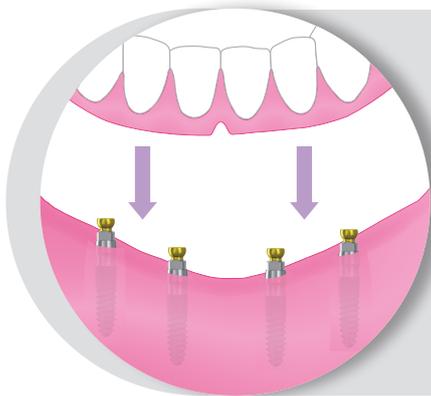
6. Remove denture and adjust

Once the acrylic resin is cured, remove the denture and the protection discs from the mouth. Fill the holes and remove any remaining excess acrylic around the containers and from the holes of the lingual overflows. Polish the denture.



7. Check retention and adjust

Remove the laboratory retention and place the proper retention. Check denture retention on the abutments and adjust according to the needs. Use retention extractor (Ref. RH4851C) to remove the retentions and the insertion wrench (Ref. RH4851C) to place the new ones.



8. Place the denture and finish

Place the denture in the patient's mouth again. Modify the occlusion and the soft tissue side as necessary and polish again after making the modifications. Ensure that the patient is able to remove and install the over-denture properly.

OVERDENTURE WITH BALL ABUTMENTS*



► FUNCTION

Ball abutments serve as retention elements to stabilize existing or newly manufactured mandibular tissue-supported overdentures.

► REQUIRED MATERIAL



Ball abutment



Ball abutment retentions



Retention container



Protection disk



Manual wrench
HEX-1.20

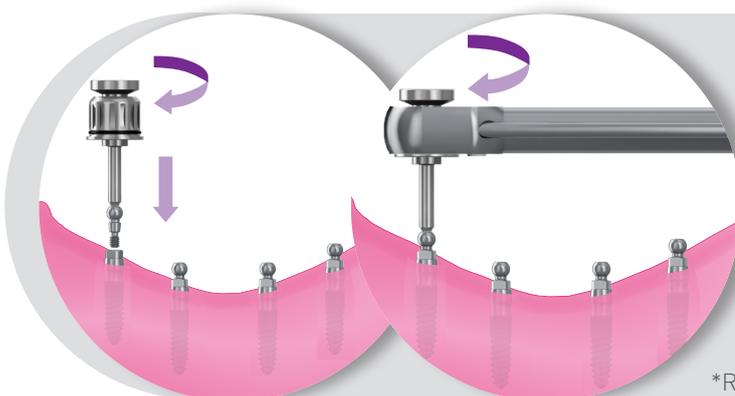


Insertion / removal tool
for caps



TI ratchet wrench

► PROCEDURE



1. Screw the ball abutments

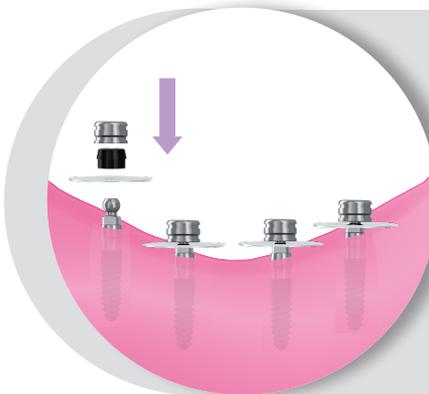
Screw the ball abutments with the HEX-1.20 mm wrench and finish tightening with the wrench attached to the TI torque wrench using a torque of **30 N·cm**. Take a radiograph along the axis of the implant to ensure that the settlement is correct.

*Retentions for ball abutments are manufactured by RHEIN'83 s.r.l.



2. Mark and make accommodations for the containers

Make a mark in the coronal part of the ball abutments with a permanent marker and transfer their position to the denture. Perform the recesses in the marks made to accommodate the retention containers, leaving at least 0.25 mm of clearance between the denture and the containers to prevent excessive pressure on the implants. Make a few lingual holes so that the excess acrylic can exit.



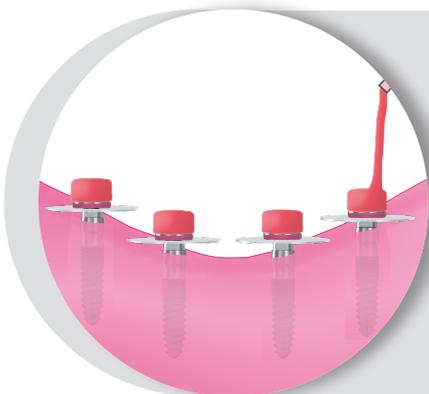
3. Place the retentions in the ball abutments

Insert the retentions in the containers with the retention insertion wrench (Ref. RH4851C). Place a protection disk between the abutment and the container to protect the soft tissues from the acrylic, and insert a container in each ball abutment. If the implants are not parallel it will be necessary to use material to block the retentions in the same horizontal plane to ensure that the denture can be removed.



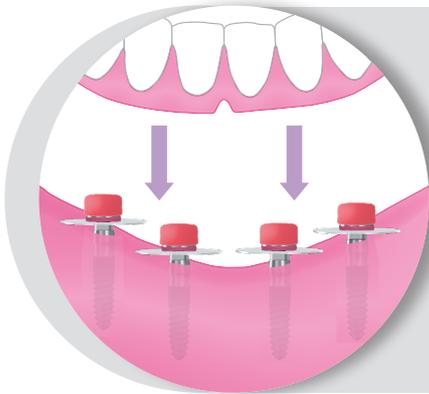
4. Cover the gaps

Cover all the gaps between the container and the soft tissue with material of choice to prevent the acrylic resin from attaching the denture to the abutment. Place the denture in the mouth and make sure it does not touch the containers.



5. Apply the acrylic resin

Apply a small amount of acrylic resin, either cured with light or self-curable, in accommodations made in the teeth and around containers of retentions.



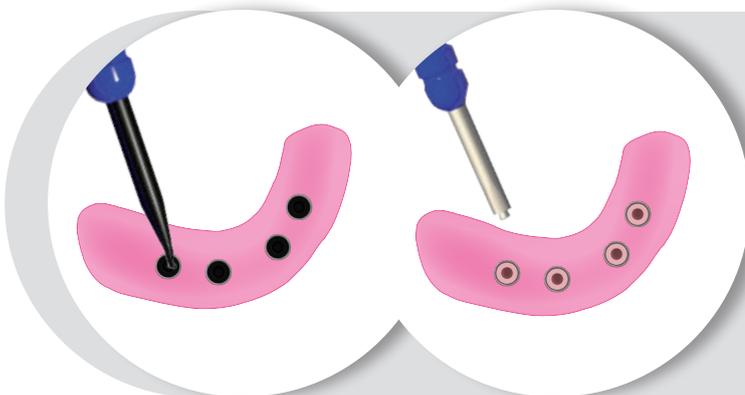
6. Place the denture

Place the denture in the mouth again and make the patient occlude, maintaining a proper relationship with the opposing arch. Maintain the denture in a passive position without compressing the soft tissue while the resin sets.



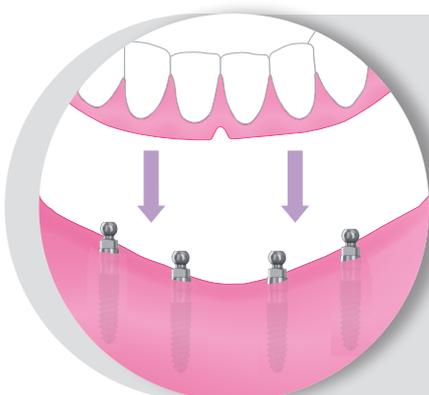
7. Remove denture and adjust

Once the acrylic resin is cured, remove the denture and the protection discs from the mouth. Fill the holes and remove any remaining excess acrylic around the containers and from the holes of the lingual overflows. Polish the denture.



8. Check retention and adjust

Check denture retention on the ball abutments and adjust according to the needs (yellow for extra-soft retention, pink for soft retention, transparent for standard retention and green for elastic retention). Use retention extractor (Ref. RH485IC) to remove the retentions and the insertion wrench (Ref. RH485IC) to place the new ones.



9. Place the denture and finish

Place the denture in the patient's mouth again. Modify the occlusion and the soft tissue side as necessary and polish again after making the modifications. Ensure that the patient is able to remove and install the overdenture properly.



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