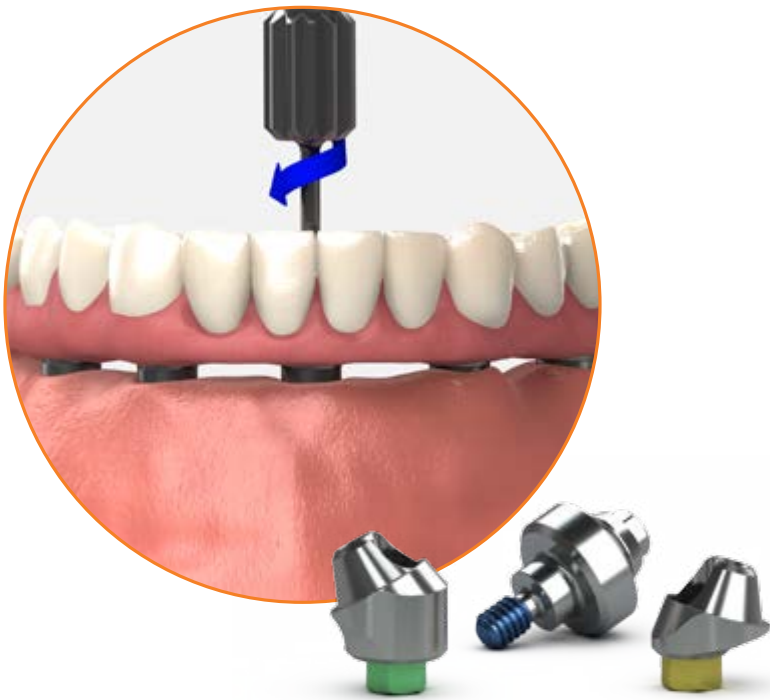


# Multi-unit abutment hybrid or fixed-detachable screw-retained restoration



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## Multi-unit abutment hybrid or fixed-detachable screw-retained restoration

Use this technique for the fabrication of a multiple unit implant-supported, screw-retained hybrid in a partially or fully edentulous patient.

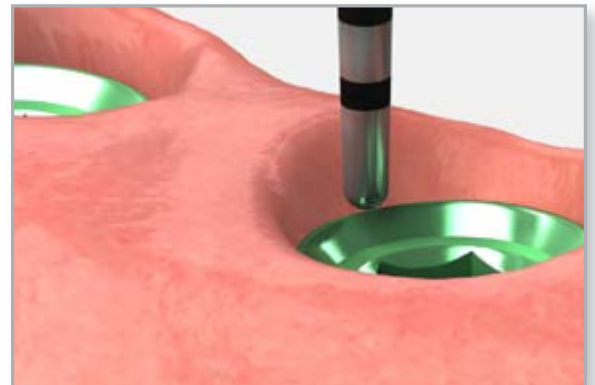


### component options

- Multi-unit abutments, straight
- Multi-unit abutments, angled
- Multi-unit direct pick-up copings
- Multi-unit abutment replicas
- Multi-unit protection analogs
- Multi-unit abutment prosthetic screws
- Multi-unit abutment cover caps
- manual Multi-unit hex adapter
- handpiece Multi-unit hex adapter
- 4mm square Multi-unit hex adapter
- .050" (1.25mm) hex driver
- torque wrench

### 1 Select the abutments

Measure the tissue depth from the top of the implant to the top of the tissue at its highest point. Select a Multi-unit abutment with a collar height which is 1-2mm taller than what is measured and also matches the platform size and angulation needed for proper coping position.





## Multi-unit abutment hybrid or fixed-detachable screw-retained restoration

### 2 Place the abutments

Remove the healing abutments using an .050" (1.25mm) hex driver.

**Straight abutments:** Seat each straight abutment using the color-coded carrier, threading it clockwise onto the implant body. Bend the carrier to release it from the abutment. Hand tighten the abutment using the manual Multi-unit hex adapter.

**Angled abutments:** Remove the color-coded carrier from the angled abutment using an .050" (1.25mm) hex driver. Deliver the abutment to the implant using the hex driver (for convenient, one-handed placement) or the Multi-unit carrier (for controlled, two-handed placement). The Multi-unit carrier is sold separately. Hand tighten the abutment screw.



**Important:** When placing an angled Multi-unit abutment, rotate the abutment and choose one of the six positions that best corrects the implant angle.



**Helpful Hint:** Remove one healing abutment at a time and immediately replace it with a Multi-unit abutment. This reduces the likelihood of soft tissue collapsing onto the implant. Work from the posterior to the anterior.

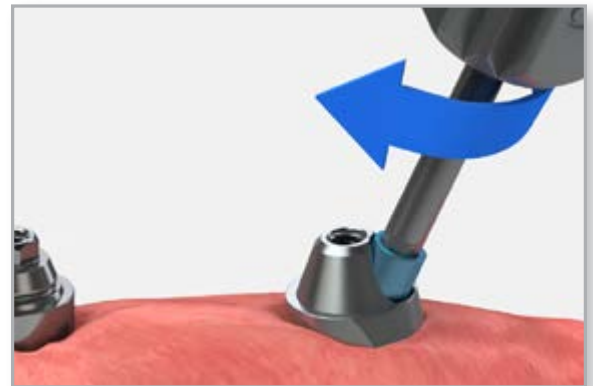
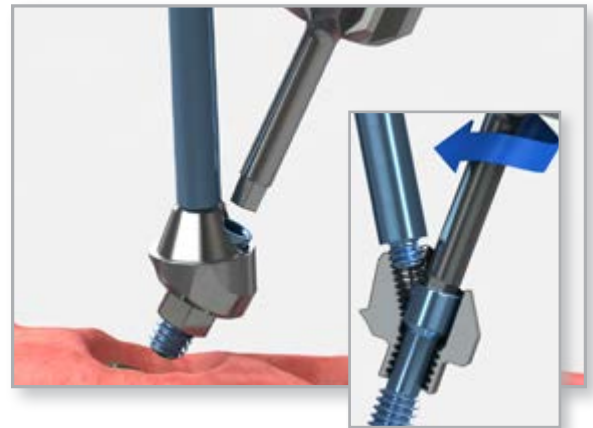
Take a radiograph along the long axis of the implants to ensure that the Multi-unit abutments are seated completely.



**Note:** The X-ray tube must be positioned perpendicular to the implant prosthetic platform.

**Straight abutments:** Tighten the abutments to 30 Ncm using a calibrated torque wrench and the 4mm square hex adapter. The Multi-unit handpiece hex adapter can be used with a compatible torque wrench.

**Angled abutments:** Tighten the abutments to 30 Ncm using a calibrated torque wrench and an .050" (1.25) hex driver.





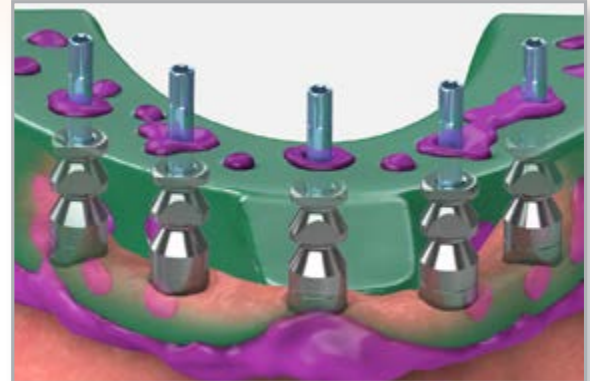
## Multi-unit abutment hybrid or fixed-detachable screw-retained restoration

### 3 Make an abutment-level impression

Follow the steps for creating an abutment-level impression by referring to the impression technique for either the **Multi-unit abutment open tray technique using the direct pick-up coping module** or the **Multi-unit abutment closed tray technique using the indirect transfer coping module**.



**Important:**  
The fabrication of a verification jig is recommended to ensure the accuracy of the master stone model. Follow the steps for creating a verification jig by referring to the **verification jig fabrication** module.



### 4 Lab step - Make a stabilized baseplate

Place the Multi-unit direct pick-up copings on the model using the long prosthetic screws.

Place a baseplate material of choice around the copings. Contour the material around the copings and posterior along the edentulous arch. This will be used to stabilize the wax rim.



### 5 Lab step - Create a wax occlusal rim

Create a wax occlusal rim on the stabilized baseplate allowing access to the screws. Only two screws in the cuspid areas are needed to secure the assembly to the model.

Index the occlusal rim to stabilize bite registration material used in next step.



send to clinician

- stabilized baseplate
- model
- regular prosthetic screws



## Multi-unit abutment hybrid or fixed-detachable screw-retained restoration

### 6 Try-in the stabilized baseplate

Remove the cover caps from the Multi-unit abutments using an .050" (1.25mm) hex driver. Attach the baseplate and occlusal rim assembly to the abutments using the regular Multi-unit prosthetic screws and hand tighten using an .050" (1.25mm) hex driver.

Contour the occlusal rim, mark the midline, and smile line. Record the vertical dimension of the occlusion with a bite registration material.



### 7 Attach the baseplate to the working model

Remove the baseplate and the bite registration from the mouth and reassemble on the working model using the Multi-unit prosthetic screws. Replace the healing caps onto the abutments using an .050" (1.25mm) hex driver.

Note: If making a verification jig, refer to [verification jig fabrication](#) module.

Return the case to the laboratory for the fabrication of a trial hybrid denture.



#### send to lab

- tooth selection
- occlusal rim
- bite registration
- models
- prescription with lab instructions

### 8 Lab step - Mount and set the teeth

Mount the working and opposing model on an articulator.

Set denture teeth on the wax rim and wax for try-in. Adjust the teeth as necessary to clear the screw access holes. Finish for a trial hybrid denture.



#### send to clinician

- trial hybrid denture mounted on working cast
- regular prosthetic screws



## Multi-unit abutment hybrid or fixed-detachable screw-retained restoration

### 9 Try in the trial hybrid denture

Remove the healing caps from the Multi-unit abutments using an .050" (1.25mm) hex driver. Seat the hybrid denture try-in onto the Multi-unit abutments and place the prosthetic screws through the two access holes in the denture. Hand tighten using an .050" (1.25mm) hex driver.



### 10 Verify the trial hybrid denture

Verify occlusion, esthetics, and phonetics. It may be necessary to make adjustments and new inter-occlusal records for a new try-in.

Remove the trial hybrid denture and replace the healing caps using an .050" (1.25mm) hex driver. Replace the trial hybrid denture onto the working model and secure.



### send to lab

- trial hybrid denture mounted on working model
- new inter-occlusal records, if necessary

### 11 Lab step - Form a matrix

Index the working model with circular grooves or notches to allow for accurate repositioning of the lab matrix putty.

Make a labial matrix of the denture teeth in silicone putty to record tooth position and labial borders of the prosthesis relative to the working model.

Remove the teeth from the wax-up and place them into their respective locations in the silicone putty matrix. Lute them into position with sticky wax.





## Multi-unit abutment hybrid or fixed-detachable screw-retained restoration

### 12 Lab step - Place the copings

Place the gold custom castable copings for the Multi-unit abutment on the working model. Position the matrix with the teeth onto the working model and use it as a guide for modifying the copings. Design the frame within the confines of the trial hybrid denture teeth.

Connect the copings using an acrylic resin material to serve as a foundation for the frame wax-up.



### 13 Lab step - Wax the framework

Wax the framework to follow and support the position of the teeth. Keep the frame 2-3 mm off the tissue for adequate hygiene space.

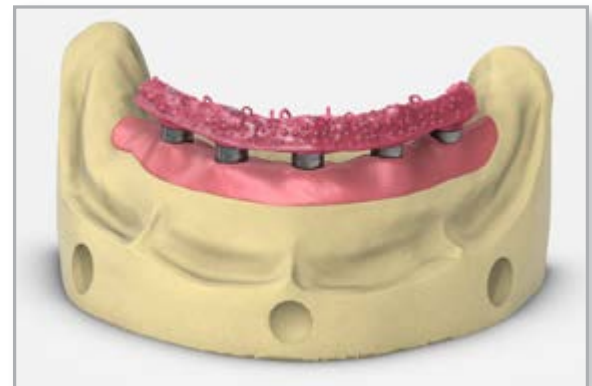
Following completion of the wax-up, add retention beads and loops to retain the acrylic.



Note:  
custom castable gold alloy specifications\*

- Melting range: 1400-1490 °C
- Coefficient of thermal expansion:  $12.2 \times 10^{-6} \text{K}^{-1}$
- Hardness HV5: >215
- Tensile strength: >750 MPa
- Composition: 60% gold, 20% platinum, 19% palladium, 1% iridium

\* material data sheet for Ceramicor® from Centres+Métaux



### 14 Lab step - Sprue, invest and cast the framework

Sprue and invest the wax pattern per normal laboratory procedures. Cast the frame in a noble or high noble alloy.



Important:  
Do not use a non-precious alloy.





## Multi-unit abutment hybrid or fixed-detachable screw-retained restoration

15

Lab step - Divest, finish, and polish the framework

Divest the frame.



**Important:**

When divesting the casting, it is important not to sandblast the abutment interface. Doing so may result in a poor fit between the abutment and the frame. Using a chemical investment remover is preferred. When polishing the interface between the abutment and the prosthetic connection, attach a Multi-unit protection analog to protect the connection.

Finish the casting and check for a passive fit. Section and solder/laser weld as needed.

Polish the frame, again using the protection analog.

Send to the clinician for try-in.



send to clinician

- hybrid frame
- regular prosthetic screws
- working model

16

Try-in the framework

Remove the healing caps from the Multi-unit abutments using an .050" (1.25mm) hex driver.

Place the hybrid frame and confirm that it seats passively. Beginning with the most distal implant, place the first prosthetic screw. Hand tighten the screw and make sure the abutment interface/connections on all the remaining implants are completely seated.

Continue placing the prosthetic screws. Verify the fit each time a screw is placed. If at any point the frame lifts as a screw is tightened, the frame is not passive and needs to be sectioned in this area and returned to the lab for correction. Refer to the [correcting a non-passive framework](#) module.

Remove the hybrid framework. Replace the healing caps onto the Multi-unit abutments using an .050" (1.25mm) hex driver.



send to lab

- hybrid frame
- prescription with lab instructions
- working model





## Multi-unit abutment hybrid or fixed-detachable screw-retained restoration

### 17 Lab step - Wax set-up

Set-up the denture teeth in wax following conventional denture procedures and send to the clinician for a trial hybrid denture.

#### send to clinician

- hybrid frame with teeth set up in wax
- regular prosthetic screws
- working model



### 18 Trial hybrid denture try-in

Remove the healing caps from the Multi-unit abutments using an .050" (1.25mm) hex driver.

Place the trial hybrid denture and verify occlusion, esthetics, and phonetics. Make any necessary adjustments and take a new bite registration if needed.

Remove the hybrid denture and replace the healing caps onto the Multi-unit abutments using an .050" (1.25mm) hex driver. Send to the lab for final processing.

#### send to lab

- trial hybrid denture
- prescription with lab instructions
- working model
- regular prosthetic screws
- bite registration



### 19 Lab step - Final processing

Process acrylic using conventional denture procedures. Use the long prosthetic screws during processing. This will maintain the screw access holes.

#### send to clinician

- completed hybrid prosthesis
- regular prosthetic screws
- working model





## Multi-unit abutment hybrid or fixed-detachable screw-retained restoration

### 20 Deliver the final restoration

Remove the healing caps from the Multi-unit abutments using an .050" (1.25mm) hex driver.

Place the hybrid prosthesis and confirm that it seats passively. Beginning with the most distal implant, place the first prosthetic screw. Hand tighten the screw and make sure the connections to all the remaining abutments are completely seated.

Verify occlusion, esthetics, and phonetics. Modify as necessary and polish after making adjustments.



### 21 Tighten the prosthetic screws

Tighten the prosthetic screws to 15 Ncm using an .050" (1.25mm) hex driver and a calibrated torque wrench.



**Important:** Do not exceed 15 Ncm when tightening prosthetic screws onto the Multi-unit abutments. BioHorizons recommends the use of the ITL precision adjustment torque wrench.



### 22 Fill the screw access channels

Place a resilient material of choice (gutta-percha, silicone or temporary filling material) into the screw access channel. This allows for easy access to the prosthetic screw in the future. Fill the remainder of the channels with a composite resin material of choice.

Take an x-ray for final prosthesis delivery records.





notes

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