



Multi-unit abutment bar overdenture

Use this technique for the fabrication of a multiple-unit, implant-supported, screw-retained bar with an overdenture in a totally edentulous patient.



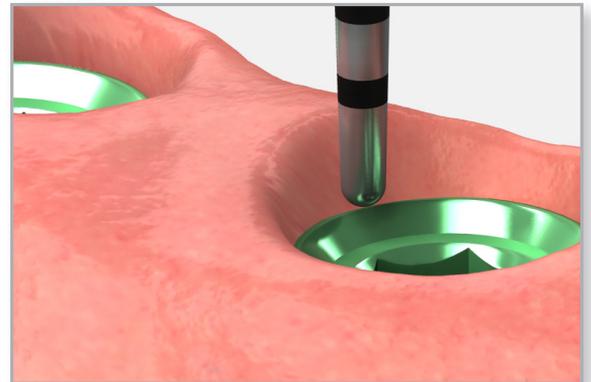
component options

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

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.





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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.

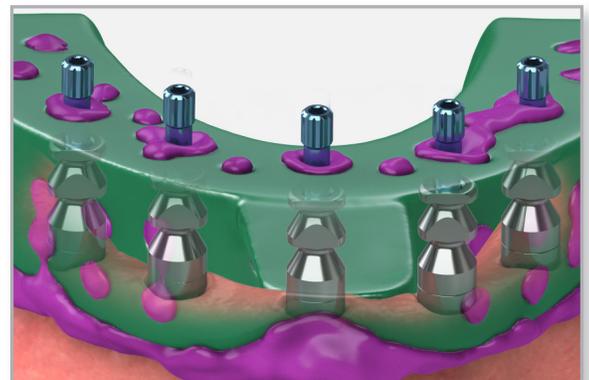
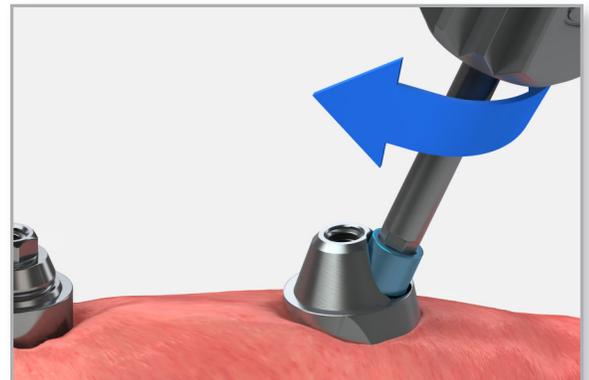
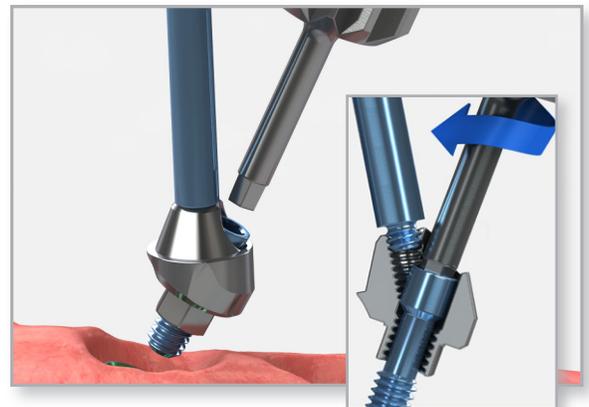
3 Make an abutment-level impression

Follow the steps for creating an abutment-level impression by referring to 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.



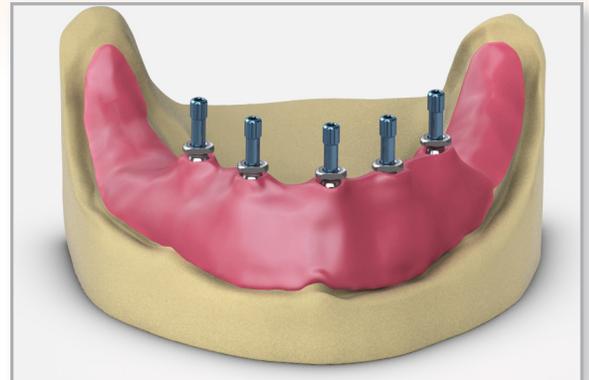


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4 Lab step - Make a stabilized baseplate

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 later.



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

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 bite registration material.





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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 stabilized trial denture.

send to lab

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

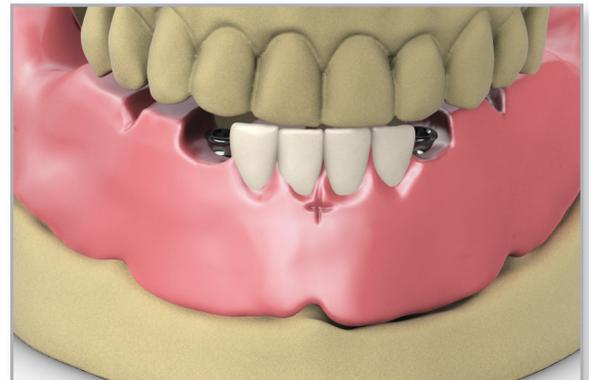
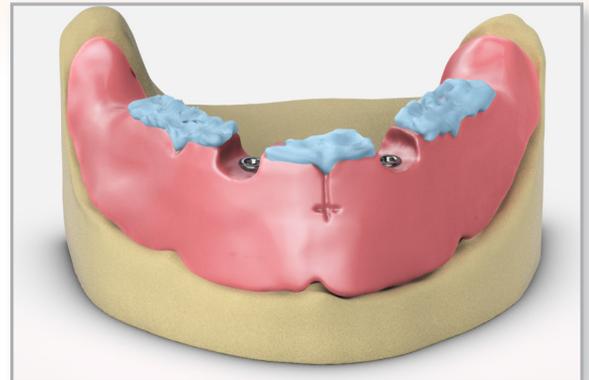
8 Lab step - Mount and set the teeth

Mount the working and opposing model on an articulator. Index the occlusal rim to stabilize bite registration material used in next step.

Set the denture teeth for a trial denture. Finish for a denture wax try-in.

send to clinician

- trial denture for approval

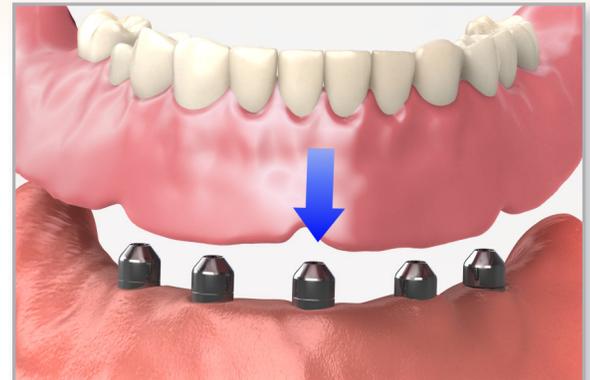




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9 Try in the trial denture

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



send to lab

- trial denture
- new inter-occlusal records, if necessary

10 Lab step - Form a matrix

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

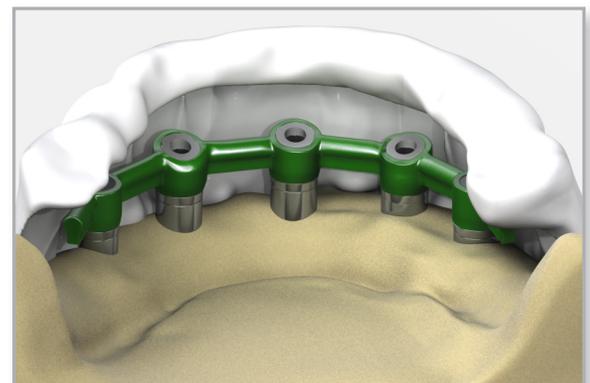
Make a labial matrix of the denture teeth in silicone putty to record tooth position and labial borders of the prosthesis relative to the working model.



11 Lab step - Place the copings and design the bar

Place the gold custom castable copings for the Multi-unit abutment on the working model. Position the matrix onto the working model and use it as a guide for modifying the copings.

Design the bar within the confines of the wax try-in.





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12 Lab step - Wax the bar

Verify attachment position, bar height and functional requirements. Design the overdenture bar using a bar wax and/or a preformed pattern of choice, incorporating the copings within the bar pattern.

Verify the position of attachments with a surveyor and adjust as needed.



Note:

custom castable gold alloy specifications*

- Melting range: 1400-1490°C
- Coefficient of thermal expansion: $12.2 \times 10^{-6} K^{-1}$
- Hardness HV5: >215
- Tensile Strength: >750 MPa
- Composition:

60% Gold, 20% Platinum, 19% Palladium, 1% Iridium

* *Material Data Sheet for Ceramicor® from Centres+Métaux*



13 Lab step - Sprue, invest and cast

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.



14 Lab step - Divest, finish, and polish

Divest the bar.



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 bar. Using a chemical investment remover is preferred. When polishing the interface between the abutment and the bar 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 bar, again using the protection analog.

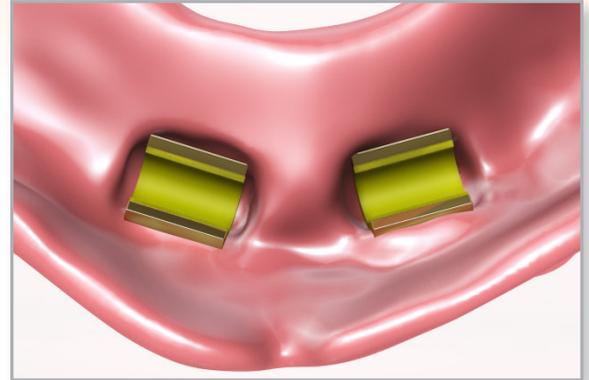




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15 Process attachments in the denture base

Attach the finished bar to the working model using the prosthetic screws and an .050" (1.25mm) hex driver. Adapt the wax-setup to fit over the bar and process the selected attachments into the denture base using normal laboratory procedures.



send to clinician

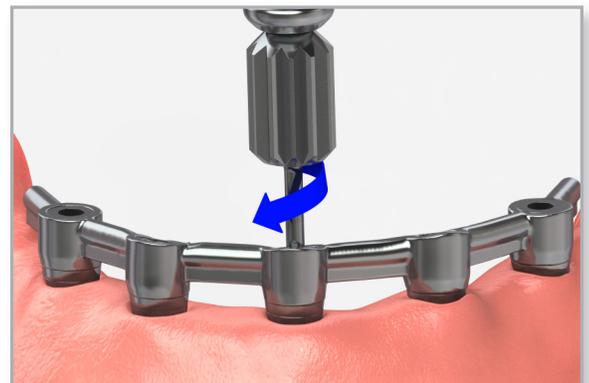
- bar
- regular prosthetic screws
- trial denture
- working model

16 Try in the bar

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

Place the bar on the Multi-unit abutments and confirm that the bar 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 bar lifts as a screw is tightened, the bar 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.



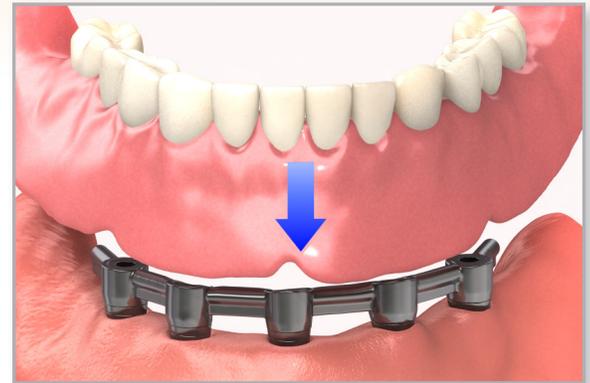


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17 Try in the trial denture

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

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



send to lab

- bar
- trial denture on the bar
- prescription with lab instructions
- working model
- regular prosthetic screws

18 Lab step - Process the denture

Process the denture according to conventional laboratory procedures.



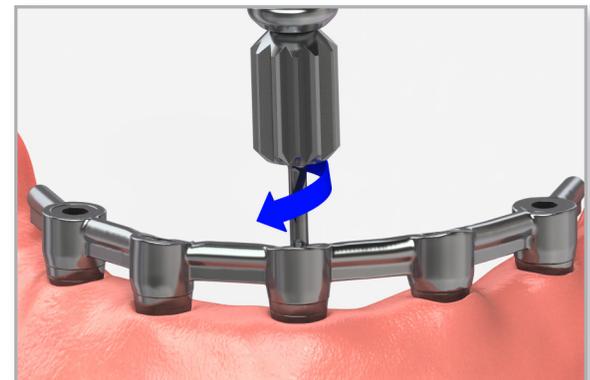
send to clinician

- bar
- regular prosthetic screws
- finished denture
- working model

19 Deliver the final restoration

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

Place the final cast bar and confirm that the bar seats passively. Beginning with the most distal implant, place the first prosthetic screw. Hand tighten the prosthetic screw using an .050" (1.25mm) hex driver. Make sure the connections to all the remaining abutments are completely seated.





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20 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.



21 Deliver the denture

Seat the finished denture, engaging the attachments.

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

Take an x-ray for final prosthetic delivery records.

