



GENESIS Implant System

Prosthetic Manual



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Symbols Key



= Caution



=Note



=Tip

INTRODUCTION

This manual serves as a reference to aid clinicians and dental technicians in restorative procedures for Keystone Dental's Genesis Straight and Tapered implants and prosthetic components. It is not intended to describe the methods or procedures for diagnosis, treatment planning, placement or restoration; nor does it replace clinical training or clinical judgment regarding the needs of each patient.

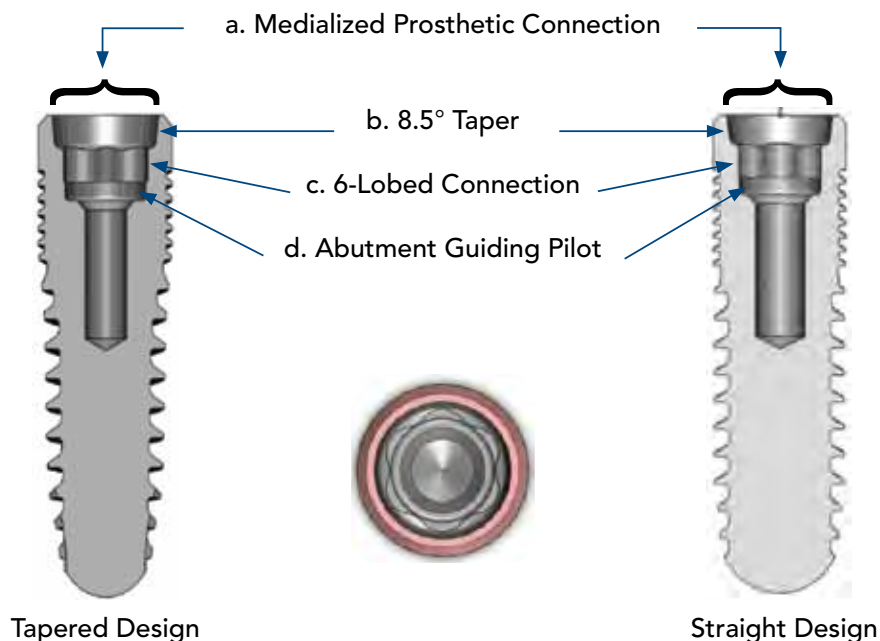
Keystone Dental strongly recommends appropriate training as a prerequisite for the placement/restoration of implants and associated treatment. The procedures described within this manual reflect idealized patient presentations with conditions adequate for commencement of the restorative phase of treatment. No attempt has been made to cover the wide range of actual patient conditions which may adversely affect prosthetic outcomes.

Connection Information

Genesis Straight and Tapered implant systems share identical prosthetic platforms with a secure, patented TiLobe™ internal 6-lobed connection to allow complete cross-compatibility between the two styles. Both implants offer the flexibility of either one or two stage treatment plans. The TiLobe connection utilizes the same screw diameter throughout all implant diameters. The 5.5mm and 6.5mm Tapered implant diameters share the same prosthetic connection.

The TiLobe connection design features;

- Medialized prosthetic connection on all implant diameters.
- Internal 8.5° tapered section of the connection.
- 6-lobed internal connection below the taper.
- Built-in abutment guiding pilots.



Icon Identification

These label icons represent the diameter of the prosthetic connection of the Genesis Implant System. They can be found on all packaging labels to identify all prosthetic components that will mate with each prosthetic platform.



Identifies all 4.0 and 5.0 prosthetic components that will mate with the 3.8mm Ø Implant.



Identifies all 5.0 and 6.0 prosthetic components that will mate with the 4.5mm Ø Implant.



Identifies all 5.0 prosthetic components that will mate with the 5.5mm Ø Implant.



Identifies all 6.0 prosthetic components that will mate with the 5.5/6.5 Ø Implant.

Platform Diameters

Genesis implants are available in the following platform diameters and lengths:



3.8mm Ø Straight and Tapered
Available in lengths of 8.5, 10, 11.5, 13, and 16mm



4.5mm Ø Straight and Tapered
Available in lengths of 8.5, 10, 11.5, 13, and 16mm



5.5mm Ø Tapered Only
Available in 8.5, 10, 11.5, and 13mm lengths



6.5mm Ø Tapered Only
Available in 8.5, 10, 11.5, and 13mm lengths

Platform Diameter



TREATMENT PLANNING

Successful treatment requires the coordinated efforts of the implanting surgeon, the restorative dentist, and the dental technician. A pre-surgical treatment option discussion between these individuals helps to determine the appropriate restorative strategy and adds balance between the surgical objectives and aesthetic, phonetics, and function of the final prosthesis. In addition, this coordinated approach ensures that treatment is complete, there is no omission of important technical considerations, such as the use of a surgical guide for implant positioning, and that the biomechanics of the final prosthesis is maintained.

Diagnostic Casts

Mounted study casts and a diagnostic wax-up are the foundation for determining implant location. The implanting surgeon, the restoring dentist, and the dental technician should work together to produce diagnostic wax-ups and a surgical guide.

Surgical Guides

A surgical guide is used to indicate practical boundaries for the placement of implants and may prevent them from being placed too buccal/lingually or mesial/distally. This process helps to ensure functional placement of implants and aesthetic results. The implanting surgeon should communicate to the dental technician any conditions that may affect guide design (e.g., the type of incision that will be used, expected reflection of tissue, etc.) The designed surgical guide also provides information relating to ideal tooth shape and supporting bone structures that may have been lost.

Keystone Dental offers the EasyGuide™ dental implant planning and placement system. This planning software allows virtual planning of dental implant surgery cases based on the patient's computed tomography (CT) scan data, and a service where the radiographic guide worn by the patient during the scan is converted into a precise surgical guide. When the program is purchased please refer to EasyGuide literature enclosed in the software package for detailed information on the products and procedures.

Fabricating a Surgical Guide

There are several methods available for fabrication for a surgical guide. One common method is described below.

Step 1: Once the diagnostic wax-up is completed, create a duplicate stone model of the diagnostic wax-up and then fabricate a clear acrylic splint over the implant area and adjacent teeth. For stability, extend the template to include several teeth on each side of the implant.

Step 2: Place a mark on the surgical guide in the area where the center of the implant should be located. Implants are designed for axial load to the implant body. The mark on the surgical guide should reflect the optimal location to facilitate an axial load. For a posterior tooth, this would be through the occlusal table of the tooth. For an anterior tooth, the ideal location would be through the incisal edge of the tooth.

Step 3: Drill holes through the guide where the mark(s) have been made.



NOTE: For the totally edentulous arch, the guide should extend onto areas where soft tissue will not be reflected, (i.e., the palate and tuberosities in the maxilla or the retromolar pads in the mandible). This assures the guide will be stable after the soft tissue has been reflected from the bone during surgery.

Healing Abutment

The Healing Abutment is a one-piece component, designed to support optimal aesthetic results. This abutment is used for soft tissue contouring during the healing phase and can be used for both one and two-stage surgeries.

One-Stage Surgery

Place the implant at bone level and allow a healing abutment to be placed and exposed through the soft tissue. After implant healing and soft tissue contouring is complete, replace the healing abutment with a temporary or permanent abutment.



NOTE: Although the implant is not in occlusal function during healing, some forces can be transmitted to it through the exposed portion of the Healing Abutment. It is recommended to remove any material from a temporary prosthesis that will come in contact with the Healing Abutment during the healing phase.

Two-Stage Surgery

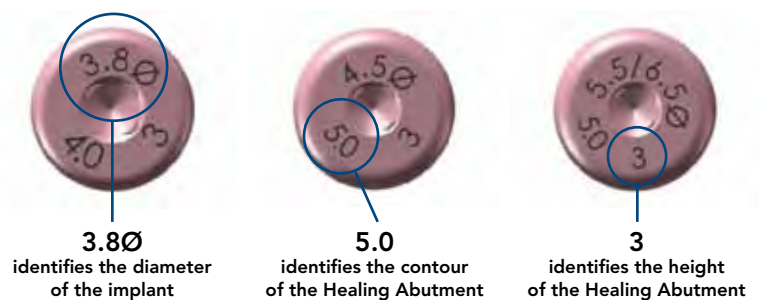
Place a cover screw immediately following implant placement and suture the soft tissue together. After an appropriate healing period, the healing abutment is placed during a second surgical procedure.

Intended Applications

- For all positions in the mouth
- For intermediate use only

Recommended Torque – 10Ncm

The healing abutment is laser etched with numbers to identify implant diameter, contour and height of the healing abutment.



CONSISTENT CONTOURS

Genesis prosthetics offer a complete line of restorative products with consistent contours from healing abutments, temporary abutments, and impression copings to the final abutments for each prosthetic platform. If the surgeon has placed a specific contoured healing abutment, it is important to use components with the same emergence profile throughout the treatment plan. This will ensure easy seating of prosthetic components and support of the soft tissue contours, without causing discomfort for the patient by blanching of the soft tissue.

Each implant prosthetic platform will accept two different contours. The chart below defines the correct contours for each prosthetic platform.



Implant Diameter	Available Contours	
3.8Ø	4.0mm	5.0mm
4.5Ø	5.0mm	6.0mm
5.5Ø	5.0mm	6.0mm
6.5Ø	6.0mm	*7.0mm

* Availability 2011

Custom Cast Abutments do not specify a contour since the emergence will be determined by the contour of the final restoration.

Torque Wrench Procedure

The measurement of torque is extremely important in the success of restorative procedures. The tightening of abutments and screws to recommended torque specifications will control the integrity of the implant/abutment connection interface when full function is resumed. Genesis final abutment screws have a recommended torque of 30Ncm. Place abutments onto the connection and hand-tighten with the final abutment screw in place; insert the required tip into the Torque Wrench. Engage the abutment screw with the driver and apply firm apical pressure to ensure proper seating of the tool. Failure to engage the abutment screw properly may result in stripping of either the driver or the component. To assure proper torque is applied, set the wrench to the desired value by turning the torque meter dial until the desired torque value is shown in the window on the handle of the torque wrench. Align the marking on the torque meter dial with the markings on either side of the window. To apply torque to the abutment screw, turn the wrench slowly in a clockwise direction.



NOTE: The word "IN" should appear on the top of the wrench when turning in a clockwise direction.

Continue turning until the wrench "slips." When the wrench slips a clicking sound is heard and tension is released on the torque wrench. This indicates that the pre-set torque value has been reached and assures that the proper torque value has been delivered.

RESTORATIVE OPTIONS

Cement-Retained Restorations

Cement-retained implant restorations are very similar to traditional crown & bridge restorations. An abutment is prepared and is screwed onto the implant. The screw access hole is protected for retrieval of the abutment, if necessary. The crown or restoration is cemented to the prepared abutment, much like a crown is cemented to a prepared natural tooth.

a. Intended Applications

- Single or multiple-unit implant restorations.
- Fully edentulous or partially edentulous arch.
- All tooth positions.

b. Advantages

- Use of conventional crown & bridge techniques.
- Maintaining of optimum occlusal integrity by the intact occlusal surface of the cement-retained restoration.
- Flexibility to achieve optimal aesthetics.

c. Disadvantages

- Difficulty in retrieving the restoration if necessary.



Screw-Retained Restorations

Screw-retained restorations are indicated when inter-arch space is limited and/or a screw-retained restoration is planned. In this application, the custom cast abutment and the crown restoration are all one piece, seated on the implant, and retained by a screw that enters through the occlusal surface of the prosthesis.

a. Intended Applications

- Single or multiple-unit restorations.
- Fixed-detachable (hybrid-type) restorations.
- Fully or partially edentulous arch.
- Minimal inter-arch space.
- All tooth positions.

b. Advantages

- Ease of retrievability for hygiene maintenance.
- Minimal inter-arch space is required.

c. Disadvantages

- Splinted restorations on implants with divergent angles greater than 10°.
- Screw holes for wider implants may be highly unaesthetic.



Implant Overdenture Restoration

The denture is retained in the mouth with an attachment mechanism supported by tissue. It contains a metal housing and a retentive insert to secure the denture to the implant abutments. The abutments screw directly into the implant, providing a choice of retention options.

a. Intended Applications

- Maladaptive or dissatisfied denture patients requiring greater retention and oral comfort.
- Patients who desire a more stable mandibular denture.
- Partially edentulous patients with severely compromised dentition (i.e., about to become edentulous) that cannot be successfully maintained to retain or support a prosthesis.
- Ideally Canine or Lateral Position to reduce tendency for denture to rotate around the fulcrum.

b. Advantages

- Prosthesis is removable for easier oral hygiene access.
- Existing denture may be used.
- Low financial investment by the patient.

c. Disadvantages

- None when contraindications are not present.



Implant or Bar Retained Overdenture Restorations

Screw-retained restorations are also used for bar-supported and/or implant supported overdenture cases. The denture is retained by the bar with attachments, i.e. clips or ball attachments or fixed directly to the bar and screwed to the implants (Fixed-detachable or Hybrid types).



NOTE: An implant-retained, tissue-supported prosthesis is indicated when there are fewer than four implants in the mandible and fewer than six in the maxilla.

a. Intended Applications

- Multiple-unit restorations.
- Areas where extensive bone loss has occurred.
- Excessive inter-occlusal space.
- Fully edentulous patients in the maxillae or mandible.

b. Advantages

- Bar-supported overdenture
 - Easily removed by patient.
 - Easier hygiene maintenance by patient.
- Implant-supported overdenture
 - Fixed not removable.

c. Disadvantages

- Inter-occlusal space between the maxilla and mandible is limited.

d. Number of implants

- In the mandible, four to six implants are recommended for an implant-supported/implant-retained prosthesis.
- In the maxilla, six to ten implants are recommended for an implant-supported/implant-retained prosthesis.



CLEANING AND STERILIZATION PROCEDURE

Certain prosthetic components are provided in sterile, gamma irradiated packaging. Please refer to individual package labeling to determine if the prosthetic component is sterile. Before installation, non-sterile abutments must undergo a cleaning and sterilization procedure. This procedure should preferably take place in an ultrasonic unit with a mixture of dishwashing detergent and water. For sterilization procedures, follow the instructions below:

ABUTMENT	STERILIZATION PROCEDURE
UCLA Gold/Plastic Abutment*	Steam Sterilization Gravity Cycle: 134°C (~ 273°F) 20 minute exposure / 40 minute dry time
Ti Temporary Abutment	Steam Sterilization Pre Vacuum Cycle: 134°C (~273°F) 4 minute exposure / 40 minute dry time
Healing Abutment	Not required. Sterile when delivered.
Temporary Abutment	
Final Abutment Screw	
Locator Abutment	
Snap Abutment	
Esthetic ContourTi Abutment	
SureConnect Abutment	
Impression Posts	



***CAUTION:** Do not steam autoclave plastic parts. It is recommended that the finished custom UCLA abutment from the dental laboratory be sterilized according to sterilization procedures listed above for the UCLA Gold/Plastic Abutment.

IMPRESSION TECHNIQUES

There are three (3) types of impression techniques utilized in implant dentistry:

Prepared Abutment – An abutment is placed and prepared in the mouth. The abutment screw is tightened to the recommended torque. An impression is taken with the prepared abutment in place.

Implant-level – The healing abutment is removed and an impression post is placed on the implant. An impression is taken to transfer the lobe position, angle, and contour of the impression post and depth in the osteotomy of the implant.

Abutment-level – The healing abutment is removed and an unprepared abutment is seated on the implant in the patient's mouth. An impression post or impression cap is placed onto the abutment. The abutment and abutment screw position are recorded for screw or cement-retained prosthesis.

Implant-level and **Abutment-level** impressions can be made by either of the following techniques:

Open Tray (Direct) Pick-up Impression Technique

Closed Tray (Indirect) Impression Technique **or**

The option chosen is dependent on the treatment plan and the degree of accuracy needed to fabricate the final restoration. The open tray technique is considered more accurate than the closed tray technique and is recommended in multiple-unit restorations. Impression posts for the Genesis System are packaged with a short and long screw for use in either open or closed impressions.

Open Tray (Direct) Pick Up Impression Post

This technique requires use of an impression post body and a long screw. The open tray impression post transfers the position of the internal 6-lobes, angle of the implant, contours of the tissue and depth of the implant in the osteotomy. This information is important to the success of the restoration and is transferred through the impression to a laboratory cast that mimics the patient's mouth. During this technique, the impression post sits in the connection of the implant and is picked up when the impression is made. The impression post will remain inside the impression when it is removed from the mouth. Open tray impression posts are recommended for use when an impression is made of multiple divergent implants.

3.8mm Ø	4.5mm Ø	5.5mm Ø	6.5mm Ø
4.0 Contour Part Number, G71100	5.0 Contour Part Number, G71102	5.0 Contour Part Number, G71104	6.0 Contour Part Number, G71105
5.0 Contour Part Number, G71101	6.0 Contour Part Number, G71103	6.0 Contour Part Number, G71105	



NOTE: Open tray impression posts may be difficult to use in areas of limited inter-arch space.

Closed Tray (Indirect) Impression Post

This technique requires use of an impression post body and a short screw. The closed tray impression post transfers the position of the internal 6-lobes, angle of the implant, contours of the tissue and depth of the implant in the osteotomy. This information is important to the success of the restoration and is transferred through the impression to a laboratory cast that mimics the patient’s mouth. The impression post sits in the connection of the implant and is picked up when the impression is made. The impression post is designed to stay on the implant in the patient’s mouth when it is removed. The impression post is then removed from the implant and transferred into the impression. Closed tray impression posts are ideal for use in limited inter-arch space.

3.8mm Ø	4.5mm Ø	5.5mm Ø	6.5mm Ø
4.0 Contour Part Number, G71100	5.0 Contour Part Number, G71102	5.0 Contour Part Number, G71104	6.0 Contour Part Number, G71105
5.0 Contour Part Number, G71101	6.0 Contour Part Number, G71103	6.0 Contour Part Number, G71105	



NOTE: Closed Tray Impression Posts must not be used when an impression is made of multiple divergent implants. There is a risk of not being able to remove the impression tray from the copings once the impression material has set.

To select the proper platform diameter open or closed tray impression post(s), match the color of the post to the implant diameter located on the label. Selection of the proper contour should be consistent with the contour of the healing abutment.



NOTE: Genesis Impression Posts are packaged clean and provided sterile.

Procedure For Open Tray (Direct) Pick Up Impression Post Technique

- Step 1:** Take an alginate impression of the implant site and fabricate a full arch custom tray. (*Block out over the implant site approximately 15mm. Use the standard block out technique to provide space for impression material.*)
- Step 2:** Cut hole(s) in the top of the custom tray over the implant site(s) to allow the Impression Post screw to protrude through the top of the tray.
- Step 3:** Remove the Healing Abutment from the patient with the Swivel Head Quad Driver.



NOTE: When placing multiple impression posts, it is recommended to remove one Healing Abutment at a time and then place an Impression Post to prevent the tissue from slumping. Additionally, it is recommended to work from the back of the mouth to the front.

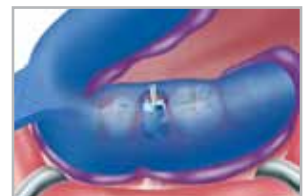


Step 3

- Step 4:** Inspect the implant prosthetic table for tissue invagination. (*If tissue is covering the prosthetic table, replace the healing abutment lightly and have the patient return to the surgical doctor or contact the surgical doctor for guidance.*)
- Step 5:** Place the long screw into the impression post body and place over the implant. Align the long screw with the screw threads of the implant. Seat the impression post and firmly tighten the long screw by hand.
- Step 6:** Take a radiograph to verify that the Impression Post is completely seated. The X-ray cone should be perpendicular to the implant.
- Step 7:** Place the custom tray in the mouth to verify that the long screw is extended approximately 2mm above the top of the tray.
- Step 8:** Block out the hole in the top of the screw with a soft wax.
- Step 9:** Syringe the impression material (*any medium to heavy body polyvinylsiloxane*) around the entire body of the impression post exposing only the top of the screw.
- Step 10:** Fill and seat the custom tray in the mouth covering the impression post and exposing the top of the screw through the hole in the top of the tray.
- Step 11:** Once the impression tray is seated and before the material cures, remove the impression material from the top of the tray to expose the screw.



Step 5



Step 7



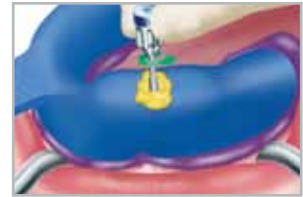
Step 9

- Step 12:** Once the material has completely cured, using the Swivel Head Quad Driver remove the screw from the impression post and remove the impression tray from the mouth. The impression post will remain embedded inside the impression.
- Step 13:** Replace the Healing Abutment.
- Step 14:** Inspect the impression for accuracy.
- Step 15:** Place the Implant Analog (replica of the implant) onto the male lobed portion of the impression post body in the impression. Slide the screw through the top of the impression and engage the analog. Hand tighten the screw. Firmly hold the analog so that the impression post will not move or dislodge within the impression.



NOTE: Step 15 may be completed by the dental technician.

- Step 16:** Send the impression with the seated Implant Analog, opposing model, shade, and bite registration to the laboratory.



Step 12



Step 13



Step 16

Procedure For Closed Tray (Indirect)

Impression Post Technique

- Step 1:** Take an alginate impression of the implant site and fabricate a full arch custom tray. (*Block out over the implant site approximately 15mm. Use the standard block out technique to provide space for impression material.*)
- Step 2:** Remove the Healing Abutment from the patient with the Quad Driver.



NOTE: When placing multiple impression posts, it is recommended to remove one Healing Abutment at a time and then place an Impression Post to prevent the tissue from slumping. Additionally, it is recommended to work from the back of the mouth to the front.

- Step 3:** Inspect the implant prosthetic table for tissue invagination. (*If the tissue is covering the prosthetic table, replace the healing abutment lightly and return the patient to the surgical doctor or contact the surgical doctor for guidance.*)
- Step 4:** Place the short screw into the impression post body and place over the implant. Align the short screw with the screw threads of the implant. Seat the impression post and firmly tighten the short screw by hand.



Step 2



Step 4

- Step 5:** Take a radiograph to verify that the impression post is completely seated. (*The X-ray cone should be perpendicular to the implant prosthetic table.*)
- Step 6:** Block out the hole in the top of the screw with a soft wax.
- Step 7:** Syringe the impression material (*any medium to heavy body polyvinylsiloxane*) around the entire impression post.
- Step 8:** Fill the full arch impression tray with impression material and seat the custom tray in the mouth completely covering the impression post.
- Step 9:** Once the material has cured in the mouth, remove the impression tray. The impression post body and short screw will remain in the patients' mouth.
- Step 10:** Inspect the impression for accuracy.
- Step 11:** Remove the short screw and impression post with the Quad Driver and replace the Healing Abutment. Remove one impression post at a time and immediately seat the appropriate Healing Abutment.
- Step 12:** Select the indicated Implant Analog (replica of the implant). Place the short screw through the Impression Post into the female lobed portion of the analog and hand tighten the screw with the Quad Driver.
- Step 13:** Seat the impression post connected to the Implant Analog back into the impression, aligning the flat side of the Impression Post to the flat side of the impression.
- Step 14:** Send the impression with the seated Impression Post and Implant Analog, opposing model, shade, and bite registration to the laboratory.



Step 6



Step 7



Step 11



Step 12



Step 13

Laboratory Cast Fabrication – Dental Laboratory

- Step 1:** Once the impression, bite, opposing model, shade and instructions have been received by the dental laboratory, inspect the impression for accuracy.
- Step 2:** Please refer to Step 15 found in IMPRESSION TECHNIQUES, Open Tray Technique for attaching of implant analog if the clinician did not attach the analog prior to sending the case to the laboratory. Refer to Steps 12 & 13 found in section IMPRESSION TECHNIQUES, Closed Tray Technique for attaching of implant analog if clinician did not attach the analog prior to sending the case to the laboratory.

- Step 3:** A soft tissue model is recommended to be made around the implant site. Verify the analog is seated properly before applying lubricant around the analog where the soft tissue model will be made.
- Step 4:** Pour a working cast in minimal expansion, high hardness die stone. Articulate according to normal laboratory procedures.

TEMPORIZATION PROCEDURES

Genesis offers 2 types of temporization abutments; the first is a Temporary Abutment of an acrylic PMMA (poly [methyl methacrylate]) with a metal substructure that simplifies the process of making an in-office temporary. This abutment is fabricated from an aesthetic tooth-colored polymer which is easily modified and bonds well with common temporary materials including acrylic and composite. The second option is a Ti (Titanium) Temporary Abutment. This abutment is a titanium alloy which can be modified to fabricate a temporary. With this abutment, the acrylic is mechanically bonded to the metal substructure. Both temporization options are available in locking and non-locking designs.



Intended Applications

- Cement- and screw-retained restorations.
- Single or multiple units, partial and full edentulous restorations.
- All tooth positions.

Temporary restorations are dependent on the treatment plan, the requirements of the patient and the final restoration planned.

The following are two of the most common temporization techniques:

Screw-Retained Temporization – Chairside

- Step 1:** Using the master cast, place a denture tooth in the edentulous area and then fabricate a vacuum-formed stent using 0.02 stent material.
- Step 2:** Place the Temporary or Ti Temporary Abutment using the Quad Driver and the laboratory screw.
- Step 3:** Prepare the Abutment as necessary so there is adequate space for acrylic between the stent and the Abutment.
- Step 4:** Trim the stent so it fits over the edentulous area with the abutment in place and seats onto the adjacent teeth.



Step 1.1



Step 1.2

- Step 5:** Block-out the abutment screw access hole to prevent acrylic from flowing inside.
- Step 6:** Place the temporary acrylic material of choice into the stent and place the stent over the adjacent teeth. *(Follow manufacturer's recommendations for curing times.)*
- Step 7:** Remove the stent and separate it from the acrylic Temporary Abutment.
- Step 8:** Grind through the acrylic and into the screw access hole to gain access to the laboratory screw.
- Step 9:** Remove the temporary restoration using the Quad Driver and adjust the acrylic for optimum emergence and contour through the tissue.
- Step 10:** Adjust the bite so it is out of occlusion and polish the temporary restoration.
- Step 11:** Proceed with the final insertion using the Quad Driver Torque Tip & Torque Wrench and tighten the screw to 30Ncm.
- Step 12:** Included with the temporary abutment is an occlusal plug for protection of the screw. Modify the occlusal plug and seat into the screw access hole. Fill the remaining portion of the screw access hole with composite. Adjust the occlusion, perform the final contour, and polish with the recommended composite polishing medium.



Step 5



Step 6



Step 12

Cement-Retained Temporization – Chairside

- Step 1:** Remove the Healing Abutment.
- Step 2:** Seat the Temporary Abutment into the implant. Use the Quad Driver to tighten (finger pressure only) the abutment screw. Modify the abutment height and the gingival contours to provide adequate space for acrylic.
- Step 3:** Using wax, block-out the screw access channel to prevent acrylic from flowing into the access channel. Select an appropriate shell crown (color and size) to seat over the temporary abutment. Modify the shell crown as needed.



Step 2



Step 3

temporization procedures

- Step 4:** Apply a separating material on the Temporary Abutment to keep the composite/acrylic from adhering to the abutment. Carefully pack the shell crown with a tooth-colored dental composite/acrylic material and insert over the trimmed abutment. (Follow manufacturer's recommendations for curing times.)
- Step 5:** Remove the temporary restoration from the mouth. Follow standard laboratory procedures to finish the temporary restoration. Check the occlusion, contacts, and the margin integrity in centric occlusion.
- Step 6:** Block-out the screw access channel with wax. Cement the temporary restoration with provisional cement. The provisional cement provides easier retrievability when future access to the abutment/screw is desired.



Step 4



Step 5



Step 6

CEMENT-RETAINED RESTORATIONS

Additional information can be found in RESTORATIVE OPTIONS.

Esthetic ContourTi Abutment

The Esthetic ContourTi Abutment offers an opportunity to create individual solutions regarding function and aesthetics following the principles of traditional restorative cement-retained procedures used on natural teeth. The abutment is a pre-machined abutment with anatomical margins that follow gingival contours. The abutment is held in place in the implant using a final screw that is included with the abutment. The surface of the abutment is pink to enhance long-term aesthetics by providing a natural hue through the gingival tissue.

Intended Applications

- Single, partial and fully edentulous restorations.
- All tooth positions.

Configurations

- Straight and 15° Angled designs.
- Cuff heights of 0.5mm, 1.0mm, 1.5mm, and 3.0mm.

Technical Considerations

- A minimum inter-occlusal distance of 4.5mm plus the restoration thickness is required between the implant prosthetic table and the occlusal plane.
- It is recommended that the Abutment Lab Screw be used during laboratory procedures to avoid damage to the final abutment screw.
- Torque Recommendations – 30Ncm.

Esthetic ContourTi Abutments and tools needed:



cement-retained restorations

There are two methods for preparation of cement-retained Esthetic ContourTi Abutments:

- a. An implant level impression is taken; the dental technician prepares the abutment, and sends the abutment and final restoration back to the clinician. See the following section on LAB PREPARATION OF THE ESTHETIC CONTOURTI ABUTMENT.
- b. Chairside preparation of a cement-retained abutment, see section CHAIRSIDE PREPARATION AND TEMPORIZATION BY THE CLINICIAN.

a. LAB PREPARATION OF THE ESTHETIC CONTOURTI ABUTMENT



NOTE: When abutments are prepared in the dental laboratory, an implant level impression utilizing either a closed tray or open tray technique is required. Refer to section **IMPRESSION TECHNIQUES** for implant level impression techniques.

LABORATORY SECTION – Laboratory Cast Fabrication



NOTE: Attach the Implant Analog to the Impression Post. A soft tissue model is recommended to provide an accurate replication of the patient's soft tissue.

Step 1: Pour the soft tissue around the implant analog. When the material has set, pour a stone laboratory cast.



Step 1

Esthetic ContourTi Straight or 15° Angled Abutment Selection and Modification

Step 2: When selecting the proper Esthetic ContourTi Abutment cuff height, measure the tissue depth from the top of the implant analog to the height of the soft tissue.



Step 3



NOTE: For aesthetics, the final margin of the Esthetic Straight or 15° Angled Abutment should be 1-2mm below tissue height.

Step 3: Place the Esthetic ContourTi Abutment using the laboratory screw and the Quad driver. Determine if reduction in the height of the abutment and/or the cuff is required. Mark the abutment for the required vertical reduction and gingival contour with a felt tip marker.



Step 4

Step 4: Modify the Esthetic ContourTi Abutment.



NOTE: To improve stability when adjusting the Esthetic ContourTi Abutment, attach an Implant Analog to the abutment.



NOTE: For single unit cases, it is recommended to mark the buccal of the abutment with a bur mark to assist the clinician with orientation in the mouth.



NOTE: For multi-unit cases, the laboratory may fabricate a “positioning jig” using a pattern resin material. Using the positioning jig, the clinician can transfer the abutment from the master model to the mouth, simplifying the abutment seating procedure.

Step 5: After preparation is complete, block out the top of the screw access hole to prevent wax from flowing into the area.

Metal Framework Fabrication

Step 6: Construct and wax the coping/metal framework following conventional crown and bridge procedures. It is recommended that the bucco-lingual dimension of the implant final restoration be narrower than that of natural dentition.

Step 7: Sprue, invest and cast following conventional crown and bridge techniques.

Step 8: Divest and finish the coping/metal framework using conventional crown and bridge techniques.



NOTE: If a multi-unit restoration was requested by the clinician to confirm a passive fit of multi-unit restorations, an intra-oral metal try-in is recommended.

Step 9: If there is no metal framework fitting assessment, proceed to section Porcelain Application and follow standard laboratory procedures. Return the final restoration on the master model to the clinician.



Step 6



Step 8



Step 9

CLINICAL SECTION

Metal Framework Fitting Assessment

Step 1: Remove the metal framework from the master model. Before placement in the mouth, note the orientation marks on the model and on the Esthetic ContourTi Abutments placed by the dental technician.



NOTE: During a multiple unit case, it is recommended to remove one healing abutment at a time and place the appropriate Esthetic ContourTi Abutment (to prevent tissue slumping). When removing the healing abutments, it is recommended to work from the posterior to the anterior of the patient's mouth. If the laboratory fabricated a positioning jig, it will be necessary to remove all of the Healing Abutments and seat the Esthetic ContourTi Abutments utilizing the fabricated positioning jig.

Step 2: Remove the Healing Abutment(s) using the Quad Driver.

Step 3: Place the Esthetic ContourTi Abutments in the patient's mouth. Verify that the position of the orientation mark is in the same position in the mouth as it was on the model or use a positioning jig if supplied.

Step 4: Use the Quad Driver and the lab abutment screw to hand tighten the abutments.

Step 5: Take a radiograph to verify that the abutments are completely seated. The X-ray cone should be perpendicular to the implant prosthetic table.

Step 6: Seat the coping/metal framework and verify that the framework fits passively and completely over the Esthetic ContourTi Abutments.



CAUTION: If the framework binds as it is seated or does not go completely down to the margin of the abutments, then the bridge must be cut, orientated in the mouth, and returned to the laboratory for soldering/laser welding. It may be possible to use an indicating spray or paste to determine if the internal aspect of the bridge can be modified to allow the bridge to seat.



NOTE: If the framework is not passive, mark the area where the framework is not seating and needs to be sectioned. Remove the framework from the patient's mouth. Section the framework, creating a space of approximately 0.3mm using an ultra-thin disc.

Step 7: Reseat the sections in the mouth and lute the sections of the framework together using a pattern resin material. Once the material has set (according to the manufacturer's specifications):

- Return the metal framework to the laboratory to be soldered/laser welded and returned for a second framework fit assessment.

OR

- Pick up the luted together framework in a secondary full arch impression. Return the framework to the laboratory for soldering/laser welding and porcelain application.

Step 8: If the metal framework did fit passively and completely, it can be removed and returned to the laboratory. Next remove the Esthetic ContourTi Abutments one at a time, replacing the appropriate healing abutment immediately to avoid tissue slumping, or replace the temporary prosthesis.



NOTE: It may be advantageous to take a bite registration with the metal framework seated to verify an accurate articulation of the models.

LABORATORY SECTION – Porcelain Application

Proceed with porcelain application following standard laboratory procedures. Return the restoration on the master model to the clinician.

CLINICAL SECTION – Final Insertion

- Step 1:** Remove the Healing Abutment(s) or the temporary prosthesis from the patient's mouth. Place the Esthetic ContourTi Abutment(s) in the patient's mouth utilizing the quad driver and the final abutment screw.
- Step 2:** Using a quad driver torque tip and a 30Ncm torque wrench, tighten the final abutment screw.
- Step 3:** Take a radiograph to verify that the abutments are completely seated. The X-ray cone should be perpendicular to the implant prosthetic table.
- Step 4:** Place the final restoration onto the abutments prior to cementing in place. Check the occlusion, contacts, and the margin integrity in centric occlusion. Once the fit and occlusion characteristics are verified, block out the screw access hole to protect the screw from damage. Use of temporary or permanent cement is up to the discretion of the clinician. It is recommended to use temporary cement if retrievability is needed.



Step 4.1



Step 4.2



CAUTION: To prevent tissue irritation or implant failure, ensure that all excess cement has been removed from the sulcus surrounding the abutment/implant interface.

b. CHAIRSIDE PREPARATION AND TEMPORIZATION BY THE CLINICIAN

CLINICAL SECTION – Chairside Preparation



NOTE: Preparation of Straight or Angled Esthetic Abutments follow a similar process. Slight changes in preparation of the Angled Abutments will be noted in this section.



CAUTION: When intraoral abutment modification is necessary, use copious amounts of irrigation to eliminate excessive heat buildup in the surrounding bone tissue that may compromise the osseointegration of the implant.

- Step 1:** Remove the healing abutment using the quad driver.
- Step 2:** When selecting the proper Esthetic ContourTi Abutment cuff height, measure the tissue depth from the top of the implant to the height of the soft tissue.



NOTE: For aesthetics, the final margin of the Esthetic Contour Straight or 15° Angled Abutment should be 1-2mm below tissue height.

Step 3: Place the Esthetic ContourTi Abutment using the laboratory screw and the quad driver. Determine if reduction in the height of the abutment and/or the cuff is required. Mark the abutment for the required vertical reduction and gingival contour with a felt tip marker.

Step 4: Remove the abutment from the patient's mouth and immediately replace the healing abutment to prevent the tissue from slumping over the implant connection.



TIP: To improve abutment stability while adjusting the fit, attach an Implant Analog to the abutment.

Step 5: Modify the abutment using carbide burs, cut-off disks or heatless stone wheels. A diamond bur may be used to define the margins. Create a mark to indicate the buccal surface to assist in orientation of the abutment in the mouth. If the flat of the abutment is removed during the preparation, a new anti-rotational feature must be defined on the abutment.

Step 6: After the correct height and contour are obtained, remove the healing abutment.

Step 7: Utilizing the quad driver, seat the Esthetic ContourTi Abutment with the final abutment screw.

Step 8: Using a quad driver torque tip and a 30Ncm torque wrench, tighten the final abutment screw.

Step 9: Take a radiograph to verify that the abutments are completely seated. The X-ray cone should be perpendicular to the implant prosthetic table.

Step 10: Make any final adjustments to the Esthetic ContourTi Abutment. When preparing a margin on an abutment for cement retention, it is important to respect the soft tissue contours rather than the pre-defined margin of the abutment. A carbide bur in a high-speed handpiece can be used to make minor intra-oral modifications. A diamond bur may be used to define the margins. Copious irrigation should be used.

Step 11: Place a resilient removable material into the screw access hole to protect the abutment screw. Fill the remaining portion of the screw access hole with composite.

Step 12: Conventional impression techniques are used for the final restoration. (Always take a full arch impression.) If the margin is subgingival, retraction cord or injectable retraction material may be necessary to expose the prepared margin.



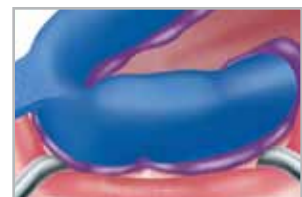
Step 3



Step 4



Step 7



Step 8

Step 13: Prepare a temporary restoration to support the soft tissues based on the contours of the healing abutment. Cement temporary restoration with material of choice.

LABORATORY SECTION – Fabrication of the Restoration



NOTE: To prevent chipping or breaking, it is recommended to pour the master die using an epoxy type die material.

Step 1: Construct and wax the coping/metal framework following conventional crown and bridge procedures. It is recommended that the bucco-lingual dimension of the implant final restoration be narrower than that of natural dentition.

Step 2: Sprue, invest and cast following conventional crown and bridge techniques.

Step 3: Divest and finish the coping/metal framework using conventional crown and bridge techniques.



NOTE: If requested, the coping/metal framework may now be returned to the dentist for metal try-in.

Step 4: Apply an opaque layer to the coping/metal framework. Apply porcelain application following conventional laboratory procedures.

Step 5: Disinfect and return the final restoration on the master model to the clinician for final insertion.

CLINICAL SECTION – Final Insertion

Step 1: Disinfect the restoration and remove the temporary prosthesis from the patient's mouth. Verify the temporary cement is completely removed from the abutment.

Step 2: Place the final restoration onto the abutments prior to cementing. Check the occlusion, contacts, and the margin integrity in centric occlusion. Once satisfied with the fit and occlusion, block out the screw access hole to protect the screw from damage. Use of temporary cement or permanent cement is at the discretion of the clinician. It is recommended to use temporary cement if retrievability is needed.



Step 2



CAUTION: To prevent tissue irritation or implant failure, ensure that all excess cement has been removed from the sulcus surrounding the implant/abutment interface.

UCLA Gold/Plastic Abutment – Custom Abutment

The Genesis UCLA Gold/Plastic Abutment is recommended for fabrication of a customized abutment for both screw and cement-retained restorations, using regular wax-up and cast-to techniques. It is designed to achieve optimal contouring of the soft tissue for a more aesthetic emergence profile of the restoration through the tissue. The Gold/Plastic abutment combines a precision-machined interface with the convenience of a castable plastic sleeve. The plastic sleeve portion is color-coded to match the implant diameter for easy identification. The abutments are available in locking for single-tooth and non-locking for multi-unit restorations.

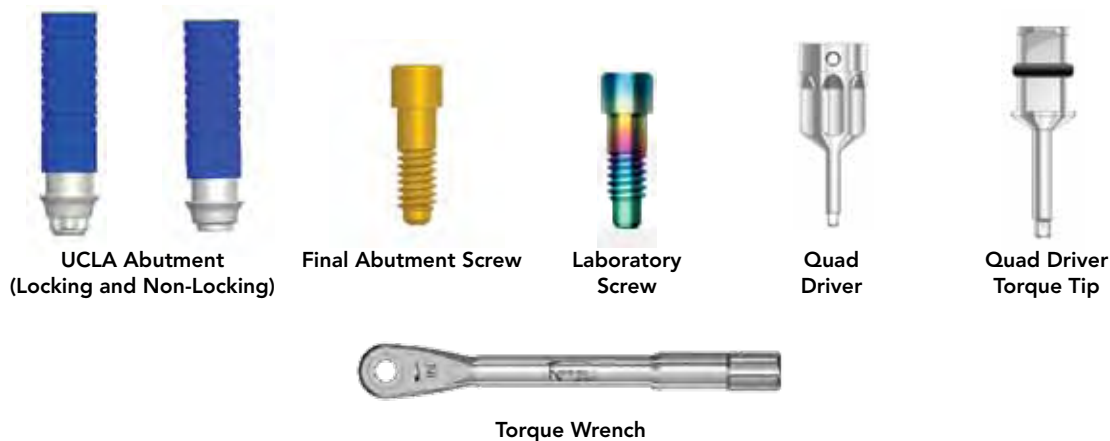
Intended Applications

- Single, partial and fully edentulous restorations.
- All tooth positions.
- Screw-retained single tooth restorations.
- Bar-retained Overdenture restorations.
- Angle corrections up to 15°.

Technical Considerations

- A minimal inter-occlusal distance of 4.5mm is required between the implant prosthetic table and the top of the abutment screw when seated.

UCLA Abutment and tools needed:



NOTE: When abutments are prepared in the dental laboratory, an implant level impression utilizing either an open tray or closed tray technique is required. Refer to section **IMPRESSION TECHNIQUES** for implant level impression techniques.

LABORATORY SECTION – Laboratory Cast Fabrication



NOTE: Attach the Implant Analog(s) to the Impression Post(s). A soft tissue model is recommended to provide an accurate replication of the patient's soft tissue.

- Step 1:** Pour the soft tissue material around the implant analog. When the material has set, pour a stone master model.
- Step 2:** Place the UCLA Gold/Plastic Abutment on the laboratory cast.
- Step 3:** Determine the modifications needed to provide adequate clearance for adjacent and opposing dentition. Shorten the gold/plastic abutment with a separating disc to obtain the correct vertical and inter-proximal dimensions. Adjust the gold/plastic abutment for the ideal angulations as long as sufficient retention is present.
- Step 4:** Lightly lubricate the laboratory abutment screw so that wax and/or acrylic will not stick to it when removing it from the abutment. Add wax and/or acrylic burnout resin to the abutment to contour the abutment into the appropriate dimensions.



Step 2



Step 3



Step 5



NOTE: Extend a small amount of wax onto the gold base to ensure a smooth junction between the base and the plastic sleeve.

- Step 5:** Sprue, invest and cast following conventional crown and bridge techniques. See the UCLA Gold/Plastic Abutment package insert for technical data on casting and melting temperatures.



NOTE: The UCLA Gold/Plastic Abutment absorbs heat during burnout and casting. Make sure to compensate for this by:

- Increasing the time for the burnout and preheating procedures.
- Raising the temperature slowly and increasing the final burnout temperature by approximately 100°C/212°F.



NOTE: Pour the investment into the investment ring very slowly. Watch for the investment to completely flow up through the screw access hole.



NOTE: A chemical divestment material is recommended to preserve the implant/abutment interface. When divesting and casting, it is important not to sandblast the implant/abutment interface. Doing so could result in a poor fit between the abutment and implant.

cement-retained restorations

Step 6: Confirm a passive fit of the abutments on the master cast. The soft tissue material can be removed to verify an accurate fit of the custom abutment to the implant analog on the model. Polish any part of the abutment that will be exposed in the soft tissue.



NOTE: When polishing the abutment collar, attach an Implant Analog to protect the implant/abutment interface.



NOTE: Block out the screw access hole. This will protect the screw access hole from excess material flowing down and stopping the screw from seating properly. Apply a die spacer to the abutment. This will provide a space for cement when the final restoration is completed.

Step 7: Construct a wax coping/metal framework following conventional crown and bridge procedures. It is recommended that the bucco-lingual dimension of the implant final restoration be narrower than that of natural dentition.

Step 8: Sprue, invest and cast following conventional crown and bridge techniques.

Step 9: Divest and finish the coping/metal framework using conventional crown and bridge techniques.



NOTE: If requested, the coping/metal framework may now be returned to the dentist for metal try-in.

Step 10: If there is no metal framework try-in, proceed to section **Porcelain Application** following standard laboratory procedures. Return the final restoration on the master model to the clinician.

CLINICAL SECTION – Metal Framework Try-in

Step 1: Remove the metal framework from the master model. Before placement in the mouth, note the orientation marks on the model and on the UCLA custom abutments placed by the dental technician.



NOTE: During multiple unit cases, it is recommended to remove one healing abutment at a time and place the appropriate UCLA custom abutment to prevent tissue slumping. When removing the healing abutment, working from the posterior of the patient's mouth to the anterior is recommended. If the laboratory fabricated a positioning jig, it will be necessary to remove all of the Healing Abutments and seat the UCLA custom abutments utilizing the fabricated positioning jig.

Step 2: Remove the healing abutment(s) using the quad driver.

Step 3: Place the UCLA custom abutments in the patient's mouth. Verify that the position of the orientation mark is in the same position in the mouth as it was on the model or use a positioning jig if supplied.

- Step 4:** Use the quad driver and the lab abutment screw to hand tighten the abutments in the mouth.
- Step 5:** Take a radiograph to verify that the abutments are completely seated. The X-ray cone should be perpendicular to the implant prosthetic table.
- Step 6:** Seat the coping/metal framework and verify that the framework fits passively and completely over the UCLA custom abutments.



CAUTION: If the framework binds during seating or does not go completely down to the margin of the abutment(s), then the bridge must be cut, orientated in the mouth, and returned to the laboratory for soldering/laser welding. It may be possible to use an indicating spray or paste to determine if the internal aspect of the bridge can be modified to allow the bridge to seat.



TIP: If the framework is not passive, mark the area where the framework is not seating and needs to be sectioned. Remove the framework from the patient's mouth. Section the framework using an ultra-thin disc to create a space of approximately 0.3mm.

- Step 7:** Reseat the sections in the mouth and lute the sections of the framework together using a pattern resin material. Once the material has set to the manufacturer's specifications:
- Return the metal framework to the laboratory to be soldered/laser welded and returned for a second framework fitting.

OR

- Pick up the luted framework in a secondary full arch impression. Return the framework to the laboratory for soldering/laser welding and porcelain application.

- Step 8:** If the metal framework did fit passively and completely, it can be removed and returned to the laboratory. Next remove the UCLA custom abutments one at a time, replacing the appropriate Healing Abutment immediately to avoid tissue slumping, or replace the temporary prosthesis.



NOTE: It may be advantageous to take a bite registration with the metal framework seated to verify an accurate articulation of the models.

LABORATORY SECTION - Porcelain Application

Proceed with porcelain application following standard laboratory procedures. Return the restoration on the master model to the clinician.



CLINICAL SECTION - Final Insertion

- Step 1:** Remove and disinfect the restoration. Review the orientation marks on the custom abutment and on the working cast before transferring it from the laboratory cast to the mouth. The custom abutment must be seated in the mouth in the same position.
- Step 2:** Using the Quad driver remove the healing abutments from the patient's mouth.
- Step 3:** Place each abutment using the orientation marks as a guide or use a positioning jig if supplied.
- Step 4:** Using a Quad Driver Torque Tip and a 30Ncm torque wrench, tighten the final abutment screw.
- Step 5:** Take a radiograph to verify that the abutments are completely seated. The X-ray cone should be perpendicular to the implant prosthetic table.
- Step 6:** Place the final restoration onto the abutments prior to cementation. Check the occlusion, contacts, and the margin integrity in centric occlusion. Upon verifying the fit and occlusion, block out the screw access hole to protect the screw from damage. Use of temporary cement or permanent cement is at the discretion of the clinician. It is recommended to use temporary cement if retrievability is needed.



Step 6



CAUTION: To prevent tissue irritation or implant failure, ensure that all excess cement has been removed from the sulcus surrounding the abutment/implant interface.

SureConnect Abutment System

The SureConnect Abutment System has pre-tapered abutments designed to meet the clinicians' demands for conventional cement-retained procedures and restorative simplicity.

The SureAlign Impression System makes impression-taking simple. The Impression Cap aligns itself along the flat of the abutment and transfers the SureConnect Abutment positioning to the laboratory. It virtually eliminates the need for retraction cord.

Temporary/Healing Caps are available for all SureConnect Abutments and may be utilized in two different ways.

- a. As a Healing Cap to protect the abutment during crown fabrication
- b. As a Temporary Crown so the patient can leave the office with a temporary tooth while the final crown is being fabricated.

The Temporary/Healing Caps are provided sterile and are manufactured from a PMMA acrylic (poly [methyl methacrylate]). When creating a temporary restoration, composite/acrylic used in the dental office will bond directly to the Temporary/Healing Cap.

The caps are available in different diameters and cuff heights, mimicking natural teeth, which provides the opportunity to create optimal aesthetics.

All necessary components for the restorative and laboratory procedures, including abutment, abutment screw, healing cap, abutment analog and plastic sleeve, are delivered in one convenient box.

Available cuff heights and contours

- Straight only for all implant diameters .
- Contours 5.0mm, 6.0mm, and *7.0mm.
- Cuff heights of 0.5mm, 1.5mm, 2.5mm, and 4.0mm.

* Available in 2011

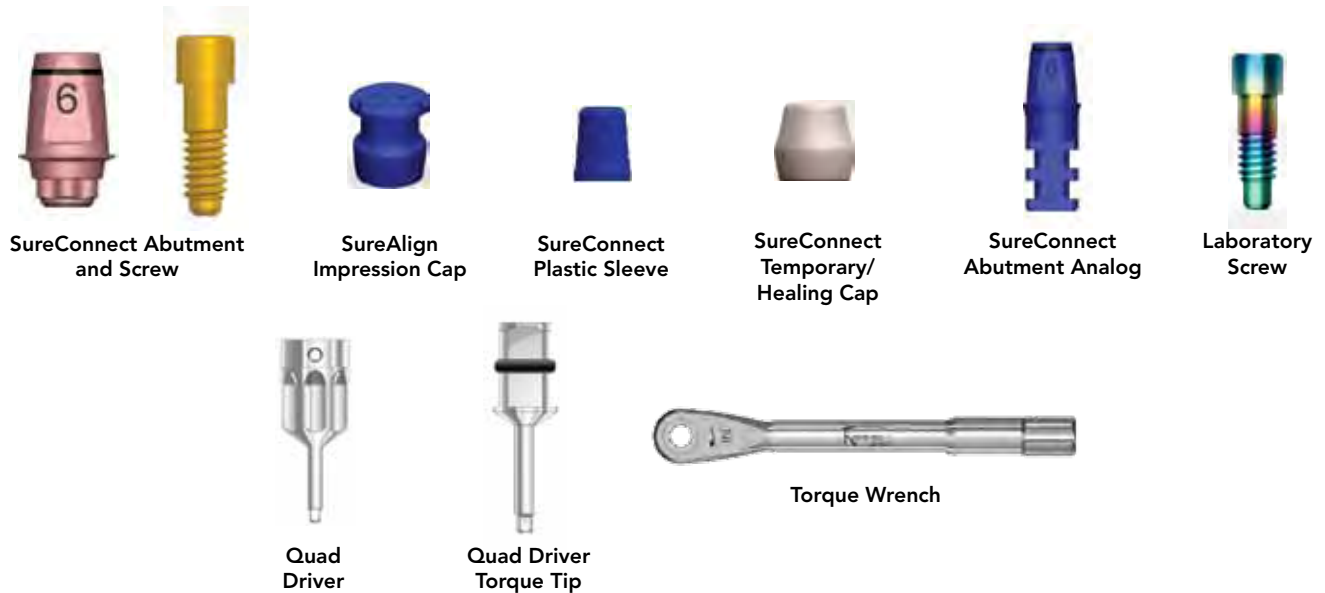
Technical Considerations

- For use in single-tooth or multi-unit restorations.
- Inter-occlusal space needed is 4.0mm plus cuff height. Include 2mm of inter-occlusal space for the restoration.
- Includes a separate abutment screw. Torque to 30Ncm.
- It is recommended that the Laboratory Screw be used during laboratory procedures to avoid damage to the final abutment screw.

Indication and intended use

- Single, partial and fully edentulous restorations.
- All areas of the mouth.

SureConnect Abutment System and tools needed:



CLINICAL SECTION

Abutment Level Impression

- Step 1:** Remove the Healing Abutment utilizing the Quad Driver.
- Step 2:** Using a periodontal probe, measure the tissue depth on the buccal from the top of the implant platform to the crest of the gingival tissue. Determine the abutment diameter and contour. This information can be found on the top of the Healing Abutment. For Healing Abutment information, refer to the TREATMENT PLANNING section of this Prosthetic Manual.
- Step 3:** Select the appropriate tissue height SureConnect Abutment. The selection is based on the criteria to place the margin of the crown approximately 1.0mm below the gum for ideal aesthetics.



NOTE: Be sure to have the required 2.0mm of clearance between the top of the abutment and the opposing dentition for metal and porcelain. For additional clearance, the abutment may be modified an additional 1.0mm. Reduce the height of the abutment to the bottom of the laser mark. This will reduce the total height of the abutment by 1.0mm for additional clearance.

You **MUST** notify the laboratory by noting on the prescription or using the REDUCED by 1.0mm slip included in the package before the restoration is fabricated.

To ensure a perfect fit of the final crown, if the abutment was reduced to the bottom of the laser mark by the clinician, the Abutment Replica will need to be reduced to the bottom of the laser mark by the dental technician.

- Step 4:** When placing the SureConnect Abutment always try to place the flat of the abutment towards the buccal. This will make visualization of the flat for the impression procedure easier to identify. Place the selected SureConnect Abutment with the Quad Driver.
- Step 5:** Utilizing the torque wrench and the Quad Driver Torque Tip, torque the SureConnect Abutment to 30Ncm.
- Step 6:** Once final torque is completed, protect the abutment screw from cement by blocking out the screw access hole with a resilient removable material.
- Step 7:** Select the appropriated color-coded and contour SureAlign Impression Cap. The SureAlign Caps are color-coded based on diameter of the implant. The number on the flat of the abutment and the top of the impression cap determines the contour of the abutment. Locate the flat inside the SureAlign Impression Cap, which is easily identified by the elevated tab on the top of the impression cap. Locate the groove on the opposite side of the abutment flat and on the internal of the impression cap.
- Step 8:** Align the flat and groove of the SureAlign Impression Cap with the flat and groove of the SureConnect Abutment. A symmetrical groove in the cap and towards the top of the abutment will provide an audible and tactile snap when completely seated. The groove on the opposite side of the flat will aid in proper seating alignment of the impression cap. Seat the impression cap.
- Step 9:** Syringe impression material around the SureAlign Impression Cap. The impression cap should be completely covered with impression material. It is recommended to use a medium- or heavy-bodied polyvinylsiloxane material
- Step 10:** Using the same heavy bodied impression material, fill the full arch custom tray with impression material and seat. *(Follow the manufacturer's specifications for impression material setting times.)*
- Step 11:** Remove the impression and verify for accuracy that the impression material completely encased the impression cap.
- Step 12:** Send the impression, opposing model, shade, bite registration, and color-coded SureConnect Abutment Analog (optional) to the laboratory for crown fabrication. (Analog is color-coded to match the SureAlign Impression Cap.)

Placement of the Healing Cap/Temporary

Use as a Healing Cap

If a temporary restoration is not being fabricated, the Temporary/Healing Cap can be used to protect the SureConnect Abutment while the final restoration is being fabricated.



CAUTION: The Temporary/Healing Caps **cannot** be re-sterilized and are designed for short-term use.

- Step 1:** Select the appropriate Temporary/Healing Cap for the SureConnect Abutment.

cement-retained restorations

Step 2: Place the Temporary/Healing Cap with a minimal amount of soft temporary cement for retention onto the SureConnect Abutment.

Use as a Temporary Cap

Step 1: Select the appropriate Temporary/Healing Cap for the SureConnect Abutment.

Step 2: The Temporary/Healing Cap can be used as a foundation for fabrication of temporary restoration. Add acrylic to create a temporary restoration for cementation. The Temporary/Healing Cap is manufactured from PMMA (poly [methyl methacrylate]) which will directly bond to most dental office acrylics.



NOTE: Take a post-operative radiograph to verify that no excess cement is in the area of the incision.



NOTE: To accurately finish the margins of the temporary restorations, a SureConnect Abutment Analog may be used.



Step 2 (Healing Cap)



Step 2 (Temporary Cap)

LABORATORY SECTION

Laboratory Cast



NOTE: If a PFM restoration is indicated, follow crown and bridge procedures in section Fabrication of the Restoration – Utilizing the Plastic Sleeve. If an all-ceramic restoration is indicated, follow the procedures in the section Fabrication of Restoration – Utilizing the SureConnect Abutment Ceramic Coping.

Step 1: Inspect the impression for accuracy. Seat the SureConnect Abutment Analog in the impression; align the flat and groove of the impression cap to the flat and groove of the abutment analog. The abutment analog has a symmetrical groove towards the top of the abutment analog to engage the snap of the impression cap secure in place.

Step 2: If the margins of the restoration are subgingival, a soft tissue model is recommended.



NOTE: Refer to the clinicians' prescription or if the REDUCED BY 1.0mm slip is included with the case. This will inform you that the clinician has modified the abutment and you will need to make the necessary modifications to the abutment analog before proceeding with wax-up of the restoration.



Step 1



Step 2



NOTE: 1.0mm modification of the abutment analog: The SureConnect Abutment and corresponding SureConnect Abutment Analog have a corresponding laser mark to provide a precise modification of 1.0mm when indicated for additional inter-occlusal room. Reducing the occlusal height by a maximum of 1.0mm will ensure that sufficient material is maintained to ensure an optimal fit of the final crown. The abutment should be reduced to the bottom of the laser marking by the clinician, while the abutment analog is reduced to the bottom of the laser marking by the dental technician.



NOTE: If the Plastic Sleeve is used, make sure to adjust it to the reduction of the abutment analog.

Fabrication of the Restoration - Utilizing the Plastic Sleeve

There are two types of plastic sleeves:

- a. **Locking – single unit restorations** (A flat is located on the inside of the plastic sleeve to align with the flat on the abutment analog to provide anti-rotation of the restoration)
- b. **Non-Locking – multi-unit splinted restorations** (No flat on the inside of the plastic sleeve)

Step 1: Select the appropriate prefabricated plastic sleeve for single or multi-unit cement-retained restorations.

Step 2: Place the prefabricated Plastic Sleeve onto the abutment analog. Use light finger pressure to snap the Plastic Sleeve over the shoulder of the abutment analog. If the abutment analog has been modified, shorten the Plastic Sleeve accordingly.



Step 1



NOTE: Optional Direct Wax Technique: If waxing directly to a SureConnect Abutment Analog is desired, it is recommended that 2 coats of die spacer be applied, with any traditional crown and bridge die, to provide space for the cement.

Step 3: Wax directly onto the plastic sleeve. It is recommended to completely cover the plastic sleeve with a thin layer of wax as plastic expands before the burn out procedure is complete. This can cause failure of the investment and casting process.

Step 4: Sprue, invest, and cast the wax coping using conventional crown and bridge techniques.



Step 3

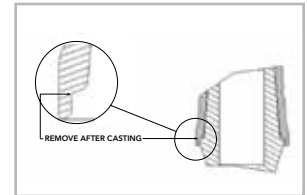


TIP: It is recommended that the dental technician use an additional analog to check the substructure, wax margins and fit of the understructure. This allows for individual verification while still maintaining a solid model for accuracy.

Step 5: After the metal understructure is removed from the investment, removal of the remaining investment with a chemical divesting material is recommended. The small lip of extension at the margin must be removed before the cast coping is fitted on the abutment analog.

Reamer Tool Procedure

- Insert Alignment Guide into the internal aspect of the metal casting. Single units must align the flat of the Alignment Guide with the internal flat of the casting.
- Insert correct contour Reamer Tool into the handpiece.
- Slide the Reamer Tool over the Alignment Guide.
- Utilizing 15,000 rpm or less and light pressure, carefully remove the snap-on mechanism from the metal framework.
- Once the lip is removed, finalize the margins by removing the over-extension. Finish the remainder of the understructure. Prepare for porcelain application using conventional crown and bridge techniques. When fabricating a multi-unit restoration, a metal try-in is recommended.



Step 5



Step a



Step c



Step e.1



Step e.2

CLINICAL SECTION

Metal Framework Try-in (Optional)

- Step 1:** Remove the temporary prosthesis or Temporary/Healing Cap. Be sure to remove any excess cement around the SureConnect Abutment.
- Step 2:** Seat the metal framework. Ensure the framework seats passively.
- Step 3:** Evaluate the fit of the margins of the framework, if satisfied return the framework to the laboratory for porcelain application. Replace the temporary prosthesis or the Temporary/Healing Cap.



NOTE: If the framework binds as it is seated or does not go completely down to the margin, then the bridge is not passive and must be sectioned. It may be possible to use an indicator spray or paste to determine if the internal aspect of the bridge can be modified to allow for a passive seat.



CAUTION: If the framework is not passive, mark the area where the framework is not seating and remove it from the mouth. Use an ultra thin disc to section the framework thereby creating a gap approximately 0.3mm wide.

Step 4: Seat all the sections of the framework in the mouth. Using an acrylic pattern resin material, lute all the sections together.

Once the material has set to the manufacturer's specifications:

- a. Remove and return the framework to the laboratory to be soldered or laser welded.

OR

- b. Pick up the luted framework in a secondary full arch impression. Return the impression to the laboratory for soldering or laser welding and porcelain application.

LABORATORY SECTION

Porcelain Application

Proceed with porcelain application following conventional laboratory procedures. Return the finished prosthesis to clinician.



TIP: Keep the occlusal tables narrow (like on a pontic) and avoid any excursive contacts with only light contact in centric occlusion.



CLINICAL SECTION

Final Insertion

Step 1: Remove the temporary prosthesis or Temporary/HealingCap. Check that all temporary cement is removed from the SureConnect Abutment. Try in the final restoration. Check the occlusion, contacts, and margin integrity. There should be no occlusal contacts in excursive movements and only light contact in centric occlusion.

Step 2: Protect the abutment screw from cement by blocking out the screw access hole with a resilient removable material. Use a resin bonded or permanent cement to seat the crown. Be sure to remove all excess cement from around the margins. Verify with an x-ray for complete cement removal below the margin of the restoration.



Step 2

Fabrication of the Restoration - Utilizing the SureConnect Abutment Ceramic Coping**LABORATORY SECTION**

- Step 1:** Select the appropriate size Ceramic Coping that matches the corresponding SureConnect Abutment.
- Step 2:** Reduce/adjust the Ceramic Coping using traditional porcelain fine diamond finishing burs and wheels as needed in order to provide for ideal dimensions for porcelain application.
- Use irrigation to keep the Ceramic Coping cool during preparation.
- Do not reduce the thickness to less than 0.5mm.
 - All edges and angles must remain rounded to prevent porcelain fracture.
 - Do not use the Ceramic Coping option if more than 2mm of porcelain thickness is required.
- Step 3:** Sandblast the surface of the Ceramic Coping with 50 - 120 micron aluminum oxide at 30 - 38 PSI. Steam clean or use distilled water in an ultrasonic cleaner.
- Step 4:** Select porcelain which is specifically formulated for Zirconia application. This type of porcelain will accommodate the coefficient of thermal expansion (CTE) of the Ceramic Coping.
- Step 5:** Apply porcelain and complete the restoration following the manufacturer's recommendations.

CLINICAL SECTION**Final Insertion**

- Step 1:** Remove the temporary prosthesis or Temporary/Healing Cap. Check that all temporary cement is removed from the SureConnect Abutment. Try in the final restoration. Check the occlusion, contacts, and margin integrity. There should be no occlusal contacts in excursive movements and only light contact in centric occlusion.
- Step 2:** Protect the abutment screw from cement by blocking out the screw access hole with a resilient removable material. Use a resin bonded cement to seat the crown. Be sure to remove all excess cement from around the margins. Verify with an x-ray for complete cement removal below the margin of the restoration.

SCREW-RETAINED RESTORATIONS

UCLA Abutment System

The Genesis UCLA Gold/Plastic Abutment is recommended for fabrication of a customized abutment for both screw and cement-retained restorations, using regular wax-up and cast-to techniques. It is designed to achieve optimal contouring of the soft tissue for a more aesthetic emergence profile of the restoration through the tissue. The Gold/Plastic abutment combines a precision-machined interface with the convenience of a castable plastic sleeve. The plastic sleeve portion is color-coded to match the implant diameter for easy identification. The abutments are available in locking for single-tooth and non-locking for multi-unit restorations.

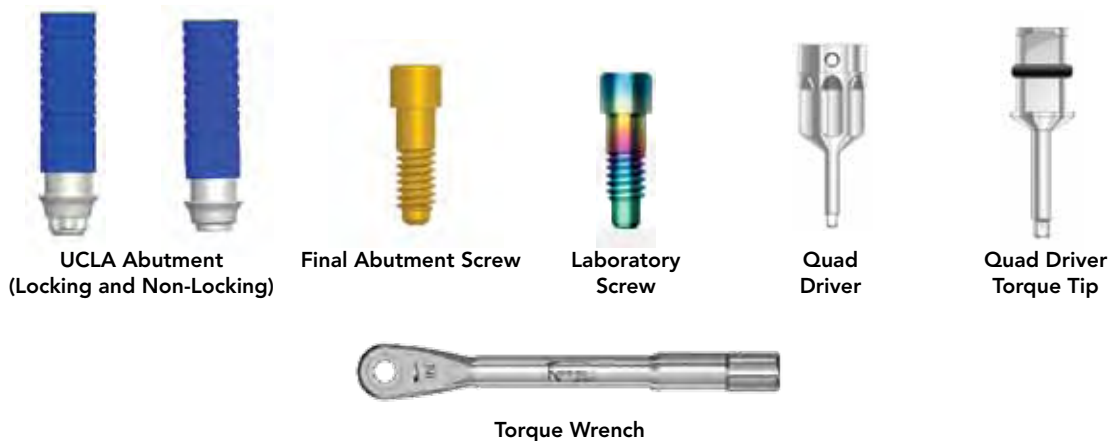
Intended Applications

- Single, partial and fully edentulous restorations.
- All tooth positions.
- Screw-retained single tooth restorations.
- Bar-retained Overdenture restorations.
- Angle corrections up to 15°.

Technical Considerations

- A minimal inter-occlusal distance of 4.5mm is required between the implant prosthetic table and the top of the abutment screw when seated.

UCLA Abutment and tools needed:



CLINICAL SECTION



NOTE: When abutments are prepared in the dental laboratory, an implant level impression utilizing either an open tray or closed tray technique is required. Refer to section **IMPRESSION TECHNIQUES** for implant level impression techniques.

LABORATORY SECTION

Laboratory Cast Fabrication



NOTE: Attach the Implant Analog(s) to the Impression Post(s). A soft tissue model is recommended to provide an accurate replication of the patient's soft tissue.

Step 1: Pour the soft tissue material around the implant analog. When the material has set, pour a stone laboratory cast.



Step 1.1 (laboratory cast)

Metal Framework Fabrication

Step 1: Place the UCLA Gold/Plastic Abutment on the laboratory cast.



Step 1.2 (laboratory cast)

Step 2: Reduce the plastic sleeve with a rubber wheel. The plastic sleeve should be reduced to a point where it is slightly out of occlusion. Lightly lubricate the laboratory abutment screw. Add wax and/or acrylic resin to the sleeve to contour the abutment into the appropriate dimensions. Adjust the gold/plastic abutment for the ideal angulations as long as sufficient retention is present.



Step 1 (metal framework)



TIP: Keep the occlusal tables narrow (like on a pontic) and avoid any excursive contacts with only light contact in centric occlusion.

Step 3: Sprue, invest and cast following conventional crown and bridge techniques. See the UCLA Gold/Plastic Abutment package insert for technical data on casting and melting temperatures in the SCREW-RETAINED RESTORATIONS section.



Step 2 (metal framework)



NOTE: The UCLA Gold/Plastic Abutment absorbs heat during burnout and casting. Make sure to compensate for this by:

- Increasing the time for the burnout and preheating procedures.
- Raising the temperature slowly and increasing the final burnout temperature by approximately 100°C/212°F.



NOTE: A chemical divestment material is recommended to preserve the implant/abutment interface. When divesting and casting, it is important not to sandblast the implant/abutment interface. Doing so could result in a poor fit between the implant and abutment.

Step 4: Confirm a passive fit of the screw-retained framework on the laboratory cast. The soft tissue material can be removed to verify an accurate fit of the framework to the implant analog on the model. Polish any part of the abutment/frame that will be exposed in the soft tissue.



NOTE: If the restoring doctor requested a temporary restoration, fabrication can be done using a temporary abutment.



NOTE: Use an intraoral metal fitting on all multi-unit restorations to confirm a passive fit is achieved.

CLINICAL SECTION

Metal Framework Try-in

Step 1: Disinfect restoration and remove the healing abutments utilizing the Quad Driver.

Step 2: Place the metal framework in the mouth without the abutment screws. Verify the framework sits on the implant.

Verify the fit of the bridge as follows:

- a. Place the first laboratory abutment screw with the Quad driver and confirm that the bridge is still seating on the remaining implants.
- b. Continue placing one screw at a time until all laboratory abutment screws are placed.
- c. If the metal framework fits passively and completely, it can be removed and returned to the laboratory. Then replace the healing abutments immediately to avoid tissue slumping.
- d. If the bridge does not seat passively, section the bridge and reassemble in the mouth.



CAUTION: : If the framework binds as it is seated or does not go completely down to the implant(s), then the bridge must be cut, orientated in the mouth, and returned to the laboratory for soldering/laser welding.



TIP: If the framework is not passive, mark the area where the framework is not seating and needs to be sectioned. Remove the framework from the patient's mouth. Section the framework, creating a space of approximately 0.3mm using an ultra-thin disc.

Step 3: Reseat the sections in the mouth and lute the sections of the framework together using a pattern resin material. Once the material has set to the manufacturer's specifications:

- Return the metal framework to the laboratory to be soldered/ laser welded and returned for a second framework try-in.

OR

- Pick up the luted framework in a secondary full arch impression. Then, return the framework to the laboratory for soldering/laser welding and porcelain application.

Step 4: Replace the appropriate healing abutment to prevent the soft tissue slumping.

LABORATORY SECTION

Porcelain Application

Apply an opaque layer to the coping/metal framework. Apply a porcelain application following conventional laboratory procedures. Polish any exposed metal with a gold polishing paste.



CAUTION: Do not sandblast the pre-machined surface of the metal framework.



TIP: When polishing the abutment and the implant collar, attach an Implant Analog to protect the implant/abutment interface.



CLINICAL SECTION

Final Insertion

Step 1: Disinfect the restoration. Use the Quad Driver to remove the screw-retained bridge from the laboratory cast. Inspect the internal aspect of the abutment base for any glaze or porcelain that may have overextended into the male portion.

Step 2: Remove the healing abutment with the Quad Driver.

Step 3: Without the abutment screw in place, seat the completed restoration on the implant. Check the proximal contacts before placing the final abutment screw.

Step 4: Place one abutment screw and examine the fit.

Step 5: Place the remaining screws examining the fit after each screw is placed. All screws should be seated with firm finger pressure.

Step 6: With the final restoration seated, check the occlusion, proximal contacts, and margin integrity. There should be no occlusal contact in excursive movements and only light contact in centric occlusion. If the crowns are subgingival, take a radiograph to verify a complete seating.

Step 7: With the final restoration in place, utilizing a Quad Driver Torque Tip and a 30Ncm Torque Wrench apply the final torque to the final abutment screws.

Step 8: Included with the UCLA Gold/Plastic Abutment is an occlusal plug for protection of the screw. Modify the occlusal plug and seat into the screw access hole. Fill the remaining portion of the screw access hole with composite. Adjust the occlusion, perform the final contour, and polish with the recommended composite polishing medium.



Step 6



Step 8.1



Step 8.2



Step 8.3

OVERDENTURE RESTORATIONS

In most cases the patient perceives no aesthetic difference between an implant attachment-retained and bar attachment-retained overdenture. However, the patient can expect a more stable (less movement) prosthesis with a bar attachment-retained overdenture. "Attachment-Retained" means the restoration has some type of built-in releasing mechanism that permits the restoration to reposition itself when the occlusal loads are applied. Therefore, only a portion of the occlusal load is distributed to the soft tissue and the bony structures of the edentulous areas.

Restorative Options:



Implant Attachment-Retained Overdenture Tissue-Supported Prosthesis

- Primarily indicated for use in the mandible.
- Two or more implants are required.
- The patient removes the overdenture for proper hygiene.
- Denture is retained by female attachments only.
- Total mucosa supported.



Bar Attachment-Retained Overdenture Tissue-Supported Prosthesis

- Indicated for use in the maxilla or mandible.
- Two or more implants are required.
- The patient removes the overdenture for proper hygiene.
- Various attachment mechanisms are used for retention of the denture.
- Slight movement provides the patient with stability and comfort.
- Can be implant and tissue supported or all implant supported.



Milled Bar Overdenture Implant-Supported Prosthesis

- Indicated for use in the maxilla or mandible.
- Eight or more implants are required in the maxilla.
- Six or more implants are required in the mandible.
- The patient removes the over denture for proper hygiene.
- Various attachment mechanisms are used for retention of the denture to the bar.
- All implant supported prosthesis.



Screw-Retained Fixed-Detachable Implant-Supported Prosthesis

- Primarily indicated for use in the mandible.
- Six or more implants are required in the mandible.
- Eight or more implants are required in the maxilla.
- Can only be removed by dentist.
- Screw-retained directly to the implants or transmucosal abutments.
- The bar design should be 2 to 2.5mm above the tissue.

Preliminary Considerations

Implant Attachment-Retained Overdenture

There are several indications for overdenture treatment in connection with implant treatment. Function, aesthetics, phonetics and hygienic indications in certain clinical situations support the use of the overdenture as a treatment option. The presence of at least one implant in each quadrant of the jaw, combined with a suitable attachment system, makes overdenture treatment a viable alternative when treating totally edentulous jaws.

Retained Overdenture treatment in the lower jaw

In the lower jaw, the installation of a fixed bridge restoration is often possible; however, patients sometimes prefer to have an overdenture for economic reasons.

The following implant protocol is recommended in the lower jaw:

- Minimum two implants, splinted or non-splinted.

Retained Overdenture treatment in the upper jaw

In the upper jaw, the clinical result and long term predictability is more dependent on the mode of implant support and the design of the denture. A prefabricated or customized bar, splinting four or more implants can help to ensure equally good results as in the lower jaw.

The following implant protocol is recommended in the upper jaw:

- Minimum four implants, splinted with a prefabricated bar or customized bar or non-splinted with suitable attachment system.

Indications for Retained Overdenture treatment

- An unfavorable jaw relation.
- Aesthetic problems, e.g. the need for lip support in the upper jaw.
- Phonetic problems due to loss of alveolar bone in the upper jaw.
- Patient dissatisfaction with removable denture due to oral irritations and/or loss of bone for denture fixation.
- Edentulous patients with a cleft palate.
- Economic constraints.

Considerations for Retained Overdenture Treatment

Factors which govern the planning of the Overdenture Treatment are the number and length of the implants, together with quality and quantity of the bone tissue. In cases where there are three or more implants, greater accuracy is required in order to achieve proper distribution of loading on implants and the mucosa.

To ensure an optimal restorative treatment, make sure that the following conditions are met:

- Patient's oral and general health should be good.
- Request a full wax set-up to evaluate tooth position and the vertical dimension (inter-arch space).
- Parallelism between implants.
- Evaluate the contours/angle of the bone for possible divergence of the implants.
- Determine the inter-occlusal space available for the abutments, length of bars, large spaces between implants and the attachment mechanism.
- Provide an even load on the mucosa when the prosthesis is in function.

Contraindications for Retained Overdenture Treatment

- Proper number of implants for support.
- Available bone width and height.

There are two types of Overdenture Abutment Systems available for the Genesis Implant System: the Locator® Abutment System and the Snap Abutment System.

LOCATOR ABUTMENT SYSTEM

Locator Abutments are used with two or more implants as the attachment mechanism between the implants and the patient's denture for attachment-retained overdenture restorations. The Locator Abutment threads directly into the implant and the Denture Cap is processed into the denture base by either a chairside method or at the dental laboratory. The Nylon Retentive Inserts offer varying degrees of retention to stabilize the denture.

Indications

The Locator Abutment System is designed for use with overdentures or partial dentures retained in whole or in part by implants.

Contraindications

- Use where a totally rigid connection is required.
- Use on two or more implants with greater than 40° total divergence.

Technical Considerations

Lowest Vertical Height: The height of the Locator Abutment (Abutment plus Male) Assembly is only 2.5mm plus cuff height for the Genesis implant.

Self-Locating Design: Self-locating design allows the patient to easily seat their overdenture without the need for accurate alignment of the attachment components.

Retention Inside and Out: The patented Dual Retention feature provides the Locator Abutment with greater retention surface area than with other attachments. A combination of inside and outside retention will optimize performance.

Rotational Pivoting Action: The design of the pivoting Locator Male delivers a resilient connection for the prosthesis without any resulting loss of retention.

Use With Non-Parallel Implants: Standard Locator Replacement Males can be used to restore an implant with up to 10° of divergence (20° between implants). The Locator Extended Range Replacement Males can accommodate a divergence of up to 20° (40° between implants).

Locator Core Tool: The Locator Core Tool is a multi-purpose tool that contains a Locator Male Removal Tool, a Locator Male Seating Tool and a Locator Abutment Driver.

Locator Abutment components and tools needed:



How To Use The Locator Tool

The Locator Core Tool is made up of three tools in one:

1. Locator Abutment Driver for tightening of abutment.
2. Locator Insert Seating Tool for seating an insert into a titanium processing cap.
3. Locator Insert Removal Tool for catching and pulling a used insert out of the titanium processing cap.



locator abutment system

The sleeve slips onto the driver end of Locator Core-Tool, and is designed to hold a Locator® Abutment onto the driver. This allows the driver/sleeve and abutment to be held vertically without the abutment falling off the driver, making it easier to deliver the abutment to the patient's implant.



Loosen the Male Removal Tool a full 3 turns counter clockwise (you will see a visible gap).



To remove a Locator nylon male from the titanium metal housing, simply insert the tip into the cap/male assembly and push straight in to the bottom of the nylon male. Then tilt the tool so that the sharp edge of the tip will grab hold of the male and pull it out of the cap.



To discard the nylon male from the tip on the Core Tool, point the tool down and away and tighten the Male Removal Tool clockwise back onto the Core Tool. This will activate the removal pin and dislodge the nylon male from the tip end of the Male Removal Tool.



Separate the Male Removal Tool section from the Locator Core Tool and use the Male Seating Tool end of the remaining two sections to place a new nylon male into the empty titanium metal housing.



Chairside Placement of the Locator Abutment – New Denture

CLINICAL SECTION

Abutment Selection

Step 1: After the soft tissue healing period is complete, remove the Healing Abutment using the Quad Driver. To select the proper Genesis Locator Abutment, determine the diameter of the implant. Measure the tissue thickness from the top of the prosthetic table of the implant to the crest of the gingiva at the highest side of the implant site. Choose the abutment cuff height that equals the tissue measurement, or the next closest longer size available. This will position the functioning 1.5mm of the abutment above the surrounding gingival level (which should not be submerged below the tissue).



Step 1



NOTE: It is imperative that all bone and soft tissue be removed from the superior aspect of the implant body to guarantee complete seating of the Locator Abutment.

Step 2: Thread the Locator Abutment into the implant using the Locator Abutment Driver on the locator tool or the Locator Torque Wrench Driver and the Conversion Handle.



Step 2

Step 3: To prevent loosening of the abutment, the Locator Torque Wrench Driver and a Torque Wrench should be used to tighten the Locator Abutment in place at 30Ncm.

Step 4: After the Locator Abutment is securely seated, take a radiograph along the long axis of the implants to ensure the abutments are completely seated. Place a Locator Abutment Pick-up onto each Locator Abutment. The Impression Coping should have a friction grip to the abutment to stabilize during the impression procedure.



Step 4

Step 5: Take a full arch impression using a firm body impression material, exercising caution not to compress the soft tissue. The Locator Abutment Pick-up is designed with retention so that it can be picked up in the impression material.

Step 6: Inspect the impression for accuracy. The black inserts should be clearly visible in the impression. Send the impression with the Locator Abutment replica to the laboratory to fabricate a laboratory cast.



Step 6



NOTE: If the patient is wearing an existing denture, be sure to relieve the underside of the denture, add a soft liner material over the Locator abutments to prevent excessive loading until the prosthesis is complete.

LABORATORY SECTION

Laboratory Cast Fabrication and Processing

- Step 1:** Snap a Locator Abutment replica onto each Abutment Pick-up in the impression. The Abutment replica must not dislodge during vibration of the stone.
- Step 2:** Pour the laboratory cast. Upon separation, the Locator Abutment replica is secure in the laboratory cast and replicates the position of the Locator Abutments in the patient's mouth.
- Step 3:** Before proceeding with the denture, place a processing cap onto each Abutment replica in the laboratory cast. Make sure the processing cap is fully seated. Using a light-curing baseplate material over the processing caps, incorporate the caps into the baseplate to stabilize the trail process of the denture.
- Step 4:** Create a wax occlusal rim on the baseplate and send assembly to the clinician for occlusal records.



Step 2



Step 4

CLINICAL SECTION

- Step 1:** Remove the provisional prosthesis. Attach the baseplate and occlusal rim assembly to the Locator Abutments. Mark the midline and smile line, record the vertical dimension of the occlusion with a bite registration, and contour the wax occlusal rim.
- Step 2:** Remove the baseplate and bite from the patient's mouth and replace on the working model. Select the denture teeth and return to laboratory for the fabrication denture wax try-in.

LABORATORY SECTION

- Step 1:** Mount the working and opposing model on an articulator. Follow normal laboratory and clinical procedures for denture wax-up techniques. Return to the clinician for evaluation.

CLINICAL SECTION

- Step 1:** Seat the denture wax try-in on the Locator Abutments. Evaluate for aesthetics, phonetics, and function and make any necessary adjustments. Remove the denture wax try-in and return to the laboratory for processing.

LABORATORY SECTION



NOTE: The black processing males should be used throughout the entire process.

- Step 1:** Process the denture using normal laboratory procedures. After the boil-out, remove the black processing male. Place a white block-out spacer over the head of each Locator Abutment replica. The spacer is used to block out the immediate area surrounding the Locator Abutment. The space created will allow the full resilient function of the pivoting metal denture cap over the Locator Abutment.
- Step 2:** Re-insert the Locator black processing male into each Locator Abutment replica, leaving the white block-out spacer beneath it. The black processing male will maintain the overdenture in the upper limit of its vertical resiliency during the processing procedure.
- Step 3:** Complete the processing and polishing of the final denture and discard the white spacer. Return the completed denture to the clinician.



Step 1



Step 2



Step 3

CLINICAL SECTION

- Step 1:** Seat the denture with the black processing male still in place to gauge initial retention. If the retention is acceptable, the black processing male may be worn clinically for a period of time determined by the clinician. This will allow time to make necessary adjustment to the denture if required.
- Step 2:** When patient is ready for final retention, remove the black processing male using the Locator tool. Place the insert of choice into the housings with the male seating tool part of the Locator tool. Seat the denture, engaging the Locator Abutment. Check retention by snapping the denture on and off the Locator Abutments in the patient's mouth.
- Step 3:** Deliver the final denture in the patient's mouth, engaging the Locator Abutments. Make necessary adjustments to the occlusion. Adjust fit against the soft tissue as necessary. Instruct the patient on insertion and removal of the prosthesis and oral hygiene maintenance. Have the patient insert and remove the prosthesis several times.



Step 2

Chairside Placement of the Locator Abutment – Existing Denture

Abutment Selection

Step 1: After the soft tissue healing period is complete, remove the Healing Abutment using the Quad Driver. To select the proper Genesis Locator Abutment, determine the diameter of the implant. Measure the tissue thickness from the top of the prosthetic table of the implant to the crest of the gingival at the highest side of the implant site. Choose the abutment cuff height that equals the tissue measurement, or the next closest longer size available. This will position the functioning 1.5mm of the abutment above the surrounding gingival level (which should not be submerged below the tissue).



NOTE: It is imperative that all bone and soft tissue be removed from the superior aspect of the implant body to guarantee complete seating of the Locator Abutment.

Step 2: Thread the Locator Abutment into the implant using the Locator Abutment Driver on the Locator tool or the Locator Torque Wrench Driver and the Conversion Handle.

Step 3: To prevent loosening of the Locator Abutment, the Locator Torque Wrench Driver and a Torque Wrench should be used to tighten it to 30Ncm.

Step 4: After the Locator Abutment is securely seated, take a radiograph along the long axis of each implant to ensure they are seated completely on the implants.

Step 5: Place a white block-out spacer over the head of each Locator Abutment which is used to block out the area immediately surrounding the abutment. The space created will allow the full resilient function of the pivoting metal denture cap over the Locator Male. If the white block-out spacer does not completely fill the space between the tissue and the metal denture cap, it may be necessary to block out any remaining undercuts to prevent the acrylic resin from locking the denture onto the abutment.

Step 6: Insert a Locator Cap with black processing male onto each Locator Abutment, leaving it above the white block-out spacer. The black processing male will maintain the overdenture in the upper limit of vertical resiliency during the processing procedure.



Step 2



Step 5



Step 6

- Step 7:** Use an acrylic laboratory burr to relieve the denture base in the areas where the black processing males will contact the denture. There must be no contact between the denture and the titanium cap. If the denture rests on the metal cap, excess pressure on the implant will result.
- Step 8:** On the lingual side of the denture, using a round bur create a vent hole in the denture to allow excess acrylic to flow out of the denture.
- Step 9:** Using a cold-cure acrylic to bond the Locator Denture Cap Male into the denture. Mix some acrylic and fill the recess for the processing male about half-way. Add additional acrylic to the top of the processing male.
- Step 10:** Insert the denture into position in the mouth. Guide the patient into occlusion while maintaining a proper relationship with the opposing arch.



Step 7



NOTE: While the acrylic sets, maintain the denture in a passive position, without compression of the soft tissue. Excessive occlusal pressure during the setting time may cause tissue recoil against the denture base and could contribute to dislodging and premature wear of the retentive inserts.

- Step 11:** Allow the acrylic resin to set per manufacturer's instructions. After the acrylic resin has cured, remove the denture and discard the white spacer. Use a bur to remove excess acrylic and polish the denture base before changing to the final insert.
- Step 12:** Use the Locator Core Tool to remove the black processing male from the metal denture cap. Insert the male removal tool end into the cap male assembly and push straight down into the bottom of the retentive insert. Tilt the tool so that the tip will grab hold of the male and pull it out of the cap.
- Step 13:** The Locator Core Tool is used to firmly push a Locator Replacement Male into the metal denture cap. The Replacement male must seat securely into place and be level with the rim of the cap.
- Step 14:** Deliver the final denture in the patient's mouth, engaging the Locator Abutments. Make necessary adjustments to the occlusion. Adjust fit against the soft tissue as necessary. Instruct the patient on proper insertion and removal of the prosthesis and on oral hygiene maintenance. Have the patient insert and remove the prosthesis several times.



Step 12



Step 13

Reline and Rebase a Locator Case

- Step 1:** Remove each existing replacement insert from its Processing Male following the steps in HOW TO USE THE LOCATOR TOOL. Replace them with black processing replacement males. The built-in spacer of the black processing male will maintain the overdenture in its level of vertical resiliency during the reline process.
- Step 2:** Using an impression material, take a reline impression using the existing overdenture as a tray. The black processing males will engage the Locator Abutments and hold the prosthesis in place while the impression material sets.
- Step 3:** When the impression is removed, the black processing males will remain in the metal denture caps.
- Step 4:** Insert a Locator Abutment replica onto each black processing male and pour a master cast.
- Step 5:** After processing the reline and polishing the denture base, replace the black processing males with the final retentive inserts.



Step 3



Step 4

Patient Care

Good oral hygiene is vital to implant success. The Locator Abutments must be thoroughly cleaned daily. The use of a soft nylon bristle or end-tufted toothbrush, and floss to polish the abutments is recommended. Non-abrasive toothpaste and an irrigation system is recommended to keep the socket of the Locator Abutment clean.

Patients should maintain a three to four month recall for cleaning and implant evaluation. The sulcular area around the implant abutment is a primary area of concern. Use plastic instruments for scaling the abutments. Do not use metal instruments, which may create scratches on the abutment surface. Examine patients for signs of inflammation around the implant abutment, and for implant mobility. Use the gold plated abutment driver (contained in the Locator Core Tool), to make sure the Locator Abutment is secure before dismissal.

SNAP ABUTMENT SYSTEM

The Snap Abutment System is used with two or more implants. It provides an economical direct attachment for an Attachment-Retained Overdenture Restoration. The Snap Abutment is available in multiple cuff heights to accommodate various tissue depths. The Snap Abutment Metal Housing is cured into the denture and custom retention is achieved with the nylon insert, snapped into the housing. The nylon inserts are available in three different retention strengths, offering optimal retention for every individual situation.

Indications

The Snap Abutment System is designed for use with overdentures or partial dentures retained in whole or in part by implants.

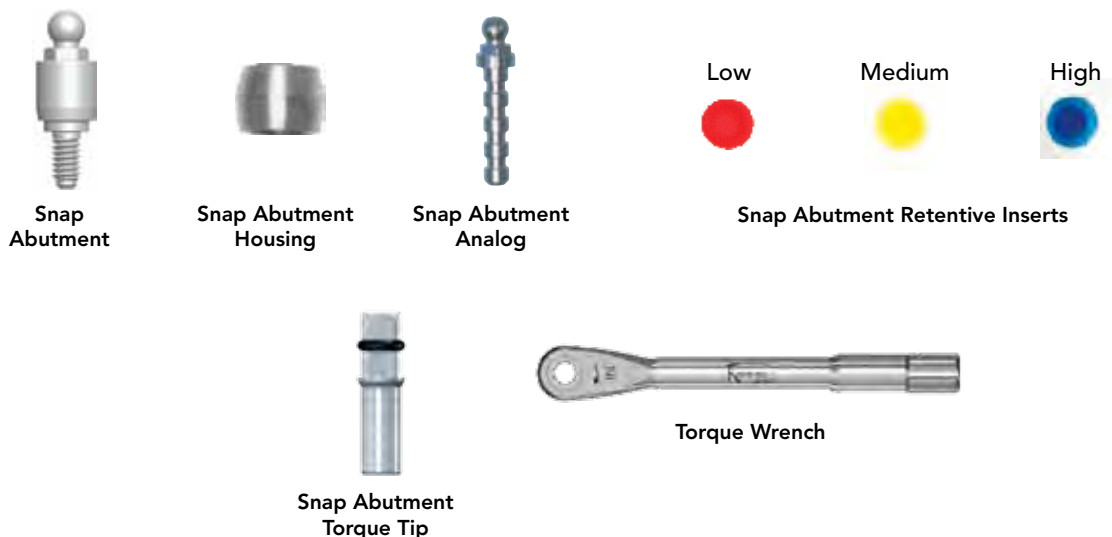
Contraindications

- Totally rigid connections.
- Use on two or more implants with greater than 20° total divergence.
- If a patient cannot tolerate pressure on the mucosa, this type of restoration is not an option.

Technical Considerations

- A minimum inter-occlusal clearance of 7.0mm + cuff height is required.
- The patient must have good manual dexterity to align the denture directly over the attachments prior to seating.

Snap Abutment components and tools needed:



Chairside Placement of the Snap Abutment – New Denture

CLINICAL SECTION

Abutment Selection

Step 1: After the soft tissue healing period is complete, remove the healing abutment using the Quad Driver. To select the proper Genesis Snap Abutment, determine the diameter of the implant. Measure the tissue thickness from the top of the prosthetic table of the implant to the crest of the gingiva at the highest side of the implant site. Choose an abutment cuff height that is 1.0mm higher than the measured tissue or the next closest longer size available. This will position the functioning 1.0mm of the abutment above the surrounding gingival level (which should not be submerged below the tissue).



Step 1



Step 2



NOTE: It is imperative that all bone and soft tissue be removed from the superior aspect of the implant body to guarantee complete seating of the Snap Abutment.

Step 2: Thread the Snap Abutment into the implant using the Overdenture Abutment Driver or the Overdenture Torque Tip and the Conversion Handle.

Step 3: To prevent loosening of the abutment, the Overdenture Torque Tip and a Torque Wrench should be used to tighten the Snap Abutment in place at 30Ncm.

Step 4: After the Snap Abutment is securely seated, take a radiograph along the long axis of the implants to ensure the abutments are seated completely on the implants.

Step 5: Take a full arch impression using a firm body impression material, exercising caution not to compress the soft tissue. Impression the top of the Snap Abutment and include capturing the hex below the Snap abutment. This will provide a positive seat for the Snap Abutment Analog placement by the laboratory.



Step 5

Step 6: Inspect the impression for accuracy. Inspect if the hex below the Snap Abutment has been captured. Send the impression with the Snap Abutment Analogs to the laboratory to fabricate a laboratory cast.



NOTE: If the patient is wearing an existing denture and until the prosthesis is complete, be sure to relieve the underside of the denture and add a soft liner material over the Snap Abutments to prevent excessive loading.

LABORATORY SECTION

Laboratory Cast Fabrication and Processing

- Step 1:** Insert a Snap Abutment Analog onto the impression. Completely seat the analog engaging the hex portion of the analog. The Snap Abutment Analog must not dislodge during vibration of the stone.
- Step 2:** Pour the laboratory cast. Upon separation, the Snap Abutment Analog is secure in the laboratory cast and replicates the position of the Snap Abutments in the patient's mouth.
- Step 3:** Before proceeding with the denture, place a processing cap onto each Snap Abutment Analog in the laboratory cast. Make sure the processing cap is fully seated. Incorporate the caps into the baseplate using a light-curing baseplate material over the processing caps, to stabilize the trial process of the denture.
- Step 4:** Create a wax occlusal rim on the baseplate and send assembly to the clinician for occlusal records.



Step 2

CLINICAL SECTION

- Step 1:** Remove the provisional prosthesis. Attach the baseplate and occlusal rim assembly to the Snap Abutments. Mark the midline and smile line, record the vertical dimension of the occlusion with a bite registration, and contour the wax occlusal rim.
- Step 2:** Remove the baseplate and bite from the patient's mouth and replace on the working model. Select the denture teeth and return to laboratory for the fabrication denture wax try-in.

LABORATORY SECTION

- Step 1:** Mount the working and opposing model on an articulator. Follow normal laboratory and clinical procedures for denture wax-up techniques. Return the denture wax-up and articulator to the clinician for evaluation.

CLINICAL SECTION

- Step 1:** Seat the denture wax try-in on the Snap Abutments. Evaluate for aesthetics, phonetics, and function during the wax try-in and make any necessary adjustments. Remove the denture wax try-in and return to the laboratory for processing.

LABORATORY SECTION

- Step 1:** Process the denture using normal laboratory procedures. After the boil-out, remove the metal housing and the red insert. Place the metal spacer over the head of each Snap Abutment Analog. The spacer is used to block out the immediate area surrounding the Snap Abutment. The space created will allow the full resilient function of the pivoting metal denture cap over the Snap Abutment.
- Step 2:** Re-insert the Snap Abutment metal housing and red insert into each Snap Abutment Analog, leaving the metal block-out spacer beneath it. The metal cap and red inserts will maintain the overdenture in the upper limit of its vertical resiliency during the processing procedure.
- Step 3:** Complete the processing and polishing of the final denture and discard the gold spacer. Return the completed denture to the clinician.

CLINICAL SECTION

- Step 1:** Seat the denture with the metal housing and red insert still in place to gauge initial retention. If the retention is acceptable, the metal housing and red insert may be worn clinically for a period of time determined by the clinician. This will allow time to make any necessary adjustment to the denture if required.
- Step 2:** When patient is ready for final retention, remove the red insert using the Snap Abutment tool. Place the insert of choice into the housings with the male seating tool part of the Snap Abutment tool. Seat the denture, engaging the Snap Abutments. Check retention by snapping the denture on and off the Snap Abutments in the patient's mouth.
- Step 3:** Deliver the final denture in the patient's mouth, engaging the Snap Abutments. Make necessary adjustments to the occlusion. Adjust fit against the soft tissue as necessary. Instruct the patient on insertion and removal of the prosthesis and oral hygiene maintenance. Have the patient insert and remove the prosthesis several times.

Chairside Placement of the Snap Abutment – Existing Denture

Abutment Selection

Step 1: After the soft tissue healing period is complete, remove the Healing Abutment using the Quad Driver. To select the proper Genesis Snap Abutment, determine the diameter of the implant. Measure the tissue thickness from the top of the prosthetic table of the implant to the crest of the gingiva at the highest side of the implant site. Choose the abutment cuff height that is 1.0mm higher than the measured tissue or the next closest longer size available. This will position the functioning 1.0mm of the abutment above the surrounding gingival level (which should not be submerged below the tissue).



NOTE: It is imperative that all bone and soft tissue be removed from the superior aspect of the implant body to guarantee complete seating of the Snap Abutment.

- Step 2:** Thread the Snap Abutment into the implant using the Overdenture Abutment Driver or the Overdenture Torque Tip and the Conversion Handle.
- Step 3:** To prevent loosening of the abutment, the Overdenture Torque Tip and a Torque Wrench should be used to tighten the Snap Abutment in place to 30Ncm.
- Step 4:** After the Snap Abutment is securely seated, take a radiograph along the long axis of the implants to ensure the abutments are seated completely on the implants.
- Step 5:** Place a metal spacer over the head of each Snap Abutment which is used to block out the area immediately surrounding the abutment. The space created will allow the full resilient function of the pivoting metal denture cap over the Snap Abutment. If the metal spacer does not completely fill the space between the tissue and the metal denture cap, it may be necessary to block out any remaining undercuts to prevent the acrylic resin from locking the denture onto the abutment.
- Step 6:** Insert Snap Abutment housing with a red insert onto each Snap Abutment, leaving the metal spacer beneath it. The red insert will maintain the overdenture in the upper limit of vertical resiliency during the processing procedure.
- Step 7:** Use an acrylic laboratory burr to relieve the denture base in the areas where the Snap Abutment will contact the denture. There must be no contact between the denture and the Snap Abutment housing. If the denture rests on the metal cap, excess pressure on the implant will result.



Step 2



Step 5



Step 7

snap abutment system

Step 8: On the lingual side of the denture, using a round bur create a vent hole in the denture to allow excess acrylic to flow out of the denture.

Step 9: Using a cold-cure acrylic to bond the Snap Abutment housing into the denture. Mix some acrylic and fill the recess for the denture cap about half-way. Add additional acrylic to the top of the Snap Abutment housing.

Step 10: Insert the denture into position in the mouth. Guide the patient into occlusion, maintaining a proper relationship with the opposing arch.



NOTE: Maintain the denture in a passive position, without compression of the soft tissue, while the acrylic sets. Excessive occlusal pressure during the setting time may cause tissue recoil against the denture base and could contribute to dislodging and premature wear of the retentive inserts.

Step 11: Allow the acrylic resin to set per manufacturer's instructions. After the acrylic resin has cured, remove the denture and discard the metal spacer. Use a bur to remove excess acrylic and polish the denture base before changing to the final insert.

Step 12: Use the Snap Abutment Tool to remove the red inserts from the metal housing. Insert the end of the Male Removal Tool into the cap male assembly and push straight down into bottom of the retentive insert. Tilt the tool so that the tip will grab hold of the male and pull it out of the cap.

Step 13: The Snap Abutment Tool is used to firmly push the selected retentive insert into the metal housing. The retentive insert must seat securely into place, level with rim of the cap.

Step 14: Deliver the final denture in the patient's mouth, engaging the Snap Abutments. Make necessary adjustments to the occlusion. Adjust fit against the soft tissue as necessary. Instruct the patient on insertion and removal of the prosthesis and oral hygiene maintenance. Have the patient insert and remove the prosthesis several times.



Step 9.1



Step 9.2



Step 11

Reline and Rebase a Snap Abutment Case

- Step 1:** Remove each existing retentive insert from its metal housing and replace them with a red insert. The built-in spacer of the red insert will maintain the overdenture in its level of vertical resiliency during the reline process.
- Step 2:** Using an impression material, take a reline impression using the existing overdenture as a tray. The red inserts will engage the Snap Abutments and hold the prosthesis in place while the impression material sets.
- Step 3:** When the impression is removed, the red inserts will remain in the metal housings.
- Step 4:** Insert a Snap Abutment Analog onto each red insert and pour a laboratory cast.
- Step 5:** After processing the reline and polishing the denture base, replace the red insert with the final retentive inserts of choice.

Patient Care

Good oral hygiene is vital to implant success. The Snap Abutments must be thoroughly cleaned daily. The use of a soft nylon bristle or end-tufted toothbrush, and floss to polish the abutments is recommended. Non-abrasive toothpaste and an irrigation system is recommended to keep the socket of the Snap Abutment clean.

Patients should maintain a three to four month recall for cleaning and implant evaluation. The sulcular area around the implant abutment is a primary area of concern. A radiograph for possible bone changes in height or infection. Use plastic instruments for scaling the abutments. Do not use metal instruments as these may create scratches on the abutment surface. Examine patients for signs of inflammation around the implant abutment, and for implant mobility.

BAR ATTACHMENT-RETAINED OVERDENTURES

Fabrication of a Bar Attachment-Retained Overdenture

In most cases, the patient perceives no aesthetic difference between an Implant Attachment-Retained Overdenture and a Bar Attachment-Retained Overdenture. However, the patient can expect a more stable (less movement) prosthesis with a Bar Attachment-Retained Overdenture. The chairside protocols for the Bar Attachment-Retained Overdentures using different attachment mechanisms are virtually the same. The primary differences between the attachment mechanisms include inter-arch space, angle correction capabilities, amount of retention provided, and biomechanical advantages and disadvantages. For Genesis Implants, two common abutment systems are available for a Bar Attachment-Retained Overdenture: the UCLA Gold/Plastic Abutment and the Multi-Unit Abutment Systems.

When the tissue depth exceeds 3.0mm, a transmucosal abutment (*Multi-Unit Abutment) is recommended to extend the seating platform of the restoration to the abutment approximately 1.0mm to 1.5mm above the tissue height. This will allow better access for hygiene care. It is recommended that a full diagnostic set-up be completed prior to fabrication of any denture restoration. Typically, fabricating a new denture for the patient is required due to the limited ability to retrofit an existing denture to a metal bar.

* Available 2011

Bar Overdenture Restorations Using the UCLA Gold/Plastic Abutment System

Technical Considerations

- A minimal inter-occlusal clearance of 4.5mm for all diameters of the UCLA Gold/Plastic Abutments is required between the implant prosthetic table and the top of the abutment screw when seated.
- It is recommended that the Laboratory Abutment Screw be used during laboratory procedures to avoid damage to the final abutment screw.



Implant Posts

CLINICAL SECTION – IMPRESSION PROCEDURE



NOTE: For implant level impressions, refer to section IMPRESSION TECHNIQUE for an open or closed tray impression technique.

LABORATORY SECTION

Laboratory Cast Fabrication



NOTE: Attach the Implant Analog(s) to the Impression Post(s). A soft tissue model is recommended to provide an accurate replication of the patient's soft tissue.

Step 1: Pour the soft tissue around the implant analog. When the material has set, pour a stone laboratory cast.



Step 1.1

Wax Rim Fabrication

For the laboratory procedures of a wax bite rim fabrication, follow conventional denture procedures.



Step 1.2



CAUTION: If the patient's ridge is flat, incorporate a minimum of two Impression Posts with short screws into the baseplate. This creates a stable baseplate resulting in a more accurate try-in by the clinician.



NOTE: Since distortion in materials may occur and cause inaccuracies in the impression, a verification jig should be made for all bar restorations. This will ensure an accurate impression was obtained.

Verification Jig Fabrication

- Step 1:** Place the Impression Posts onto the master cast and hand-tighten using the long screws.
- Step 2:** Intertwine dental floss around the Impression Posts.
- Step 3:** Apply a pattern resin or a light-cured material to the Impression Posts. Incorporate the dental floss and lute the Impression Posts together.
- Step 4:** Section the pattern resin between the Impression Posts. Mark the Impression Posts for mid-facial orientation and return to the clinician individually or luted together in sections.
- Step 5:** Send the sectioned verification jig with the laboratory screws to the clinician for try-in. A passive fit intra-orally will confirm that an accurate final impression has been achieved.



Step 1



Step 2



Step 3



Step 4

CLINICAL SECTION

Inter-occlusal Record and Verification Jig Protocol

- Step 1:** Remove the provisional prosthesis. Remove the Healing Abutments from the implant to which the baseplate will be attached. Attach the baseplate and occlusal rim assembly to the implants. Mark the midline and smile line, record the vertical dimension of the occlusion with a bite registration, and contour the wax occlusal rim.
- Step 2:** Remove the baseplate and bite from the patient's mouth and replace on the working model. Select the denture teeth and return to laboratory for the fabrication denture wax try-in.
- Step 3:** Once the inter-occlusal record is completed, remove all the remaining healing abutments with the Quad Driver prior to try-in of the verification jig.
- Step 4:** Place the sectioned verification jig onto the implants and tighten the laboratory screws firmly utilizing the Quad Driver. Be sure to place the sections in the mouth in the same position as they were on the master model.
- Step 5:** Using a pattern resin or a light-cured material, lute the sections together creating a solid verification jig.



Step 4



Step 5

bar attachment-retained overdentures

- Step 6:** Once the luted material has set, remove the screws. Lift the luted verification jig from the mouth. There should be no binding or fracturing of the verification jig upon removal. This will confirm that a passive fit has been achieved.
- Step 7:** Replace all the Healing Abutments and return the verification jig and bite rim to the dental laboratory.



Step 6

LABORATORY SECTION

Denture Wax Set-up and Cast Verification

- Step 1:** Mount the working and opposing model on an articulator. Follow normal laboratory and clinical procedures for denture wax-up techniques. Return to the clinician for evaluation.



Step 1



NOTE: Once the clinician has established a passive fit with the verification jig, the master model may need to be altered to the new relationship before the bar framework can be fabricated. Remove the soft tissue from the master model. Using a straight bur, remove the misaligned analog(s) from the master model. Attach the implant analog(s) to the verification jig. Soak the master model in water and then carefully vibrate stone into the voids around the flats of the implant analogs.

CLINICAL SECTION

Denture Wax Try-in

- Step 1:** Remove the provisional prosthesis. Remove the two Healing Abutments that the wax try-in will attach to from the implants. Seat the denture try-in on Implant Analogs. Evaluate for aesthetics, phonetics, and function during the denture wax try-in and make any necessary adjustments. Remove the denture wax try-in and return it to the laboratory for processing.

LABORATORY SECTION

Bar Fabrication

The bar fabrication, try-in and final processing using the UCLA Gold/Plastic Abutment System is shown in this section. If Multi-Unit Abutments are used for fabrication of a Bar Attachment-Retained Overdenture, the bar fabrication, try-in, and final processing procedures are identical.

- Step 1:** Index the facial contours of the approved wax set-up with putty or plaster matrix. This will provide a guide for bar positioning and attachment placement.

- Step 2:** Remove the matrix and the wax set-up from the master model. With a laboratory abutment screw and the UCLA Gold/Plastic Abutments (Non-Locking) secure the abutments onto the Implant Analogs and hand-tighten. Reduce the occlusal height of the abutments to fit within the matrix of the denture set-up.
- Step 3:** Using a plastic bar pattern, cut a section of the bar pattern to fit between the implant sites. Adjust the height of the bar so the bar is parallel to the plane of occlusion. The base of the bar should be at least 1.0-1.5mm off the tissue.
- Step 4:** Place the matrix back on the model. Use it as a guide to provide adequate clearance for the attachments, housings, bar pattern, teeth and acrylic.



NOTE: There are many different types of attachment mechanisms in various heights and diameters. Choose an attachment mechanism that will allow adequate thickness for the acrylic and enough room for the denture teeth.

- Step 5:** Connect the bar pattern to the Gold/Plastic Abutments using wax or resin material. Use a rubber wheel to reduce the height of the plastic sleeves to 0.5mm above the top of the bar. Smooth out the wax-up to prepare for spruing.
- Step 6:** Sprue the pattern with 10 gauge wax with reservoirs. Use a high-heat, phosphate-bonded investment and follow the manufacturer's specifications for liquid/powder ratios, mixing times, etc.
- Step 7:** When divesting the bar framework, use of a chemical divesting medium to maintain the integrity of the gold cylinder is recommended.



CAUTION: When polishing the interface between the implant and the prosthetic connection, attach an implant analog to protect the abutment.

- Step 8:** Send the bar framework and the denture to the clinician for try-in; include the Laboratory Abutment Screws.

CLINICAL SECTION

Bar Framework Try-in

- Step 1:** Remove the healing abutments with the Quad Driver.
- Step 2:** Place the bar framework on the implants without any screws and confirm that the bar framework seats passively.
- Step 3:** Beginning with the most distal implant, place the first laboratory screw utilizing the Quad Driver. Hand tighten the laboratory screw. Make sure the abutment interface is completely seated on all the remaining implants.
- Step 4:** Continue placing one laboratory screw at a time around the arch. Verify the fit of each abutment interface is completely seated on the implant.

bar attachment–retained overdentures

- Step 5:** Once the bar framework is completely seated, follow the conventional procedures for wax set-up evaluation. Evaluate aesthetics, phonetics, and function during the wax-up try-in and make any necessary adjustments. Remove the denture wax try-in and return it to the laboratory for processing.
- Step 6:** After the wax set-up evaluation is completed and removed, remove the metal bar framework.
- Step 7:** Replace all the Healing Abutments.



NOTE: If bar is not passive follow steps below in Sectioning Bar Framework.



NOTE: A non-passive fitting bar framework can sometimes cause the patient to feel pressure or a pulling sensation when the abutment screws are tightened.

Sectioning Bar Framework

- Step 1:** Using a marker, create a mark on the bar framework directly after the last fully seated abutment was placed with the laboratory screw and where the bar has lifted and is not seated on the abutment interface.
- Step 2:** Remove the bar from the patient's mouth and replace the Healing Abutment on the implants.
- Step 3:** Replace bar on working model and section the framework where necessary with an ultra-thin separating disk and a high-speed handpiece, creating a space of approximately 0.3mm.
- Step 4:** Reseat the sections in the mouth, align the sections and lute the sections of the framework together using a pattern resin material.
- Step 5:** Remove the luted sectioned bar framework and replace the Healing Abutments.
- Step 6:** Return the luted bar framework, laboratory screws, abutments, and the master cast to the laboratory for solder/laser welding. DO NOT reattach the framework to the working model.

LABORATORY SECTION

Processing Bar and Denture



NOTE: Once a passive fit has been corrected in the mouth, the working model must be corrected. If the bar has been sectioned, laser weld the sections together. Remove any misaligned Implant Analogs from the working model, one at a time. When the framework rests passively on the remaining Implant Analogs; reattach the removed Implant Analogs to the framework. Seat the framework on the model, securing the bar framework to the Implant Analogs that remained in the model. The reattached Analogs will be suspended within the hole created when they were removed from the model. Soak the model in water. Carefully vibrate stone into the voids around the retentive undercuts of the Implant Analogs. Allow the stone to set.

Step 1: Process the denture using conventional techniques.

Step 2: Return the final restoration to the clinician for final insertion. Include the final abutment screws for seating.

CLINICAL SECTION

Step 1: Remove the Healing Abutments with the Quad Driver. Insert the bar framework, hand-tighten the abutments screws and verify fit. Then, use a Torque Wrench and the Quad Driver Torque Tip to torque the screws to 30Ncm.

Step 2: Seat the final overdenture and follow conventional procedures for the delivery of the final restoration.

FIXED DETACHABLE RESTORATIONS USING THE MULTI-UNIT ABUTMENT SYSTEM

*Multi-Unit Abutment System

The Multi-Unit Abutment System is commonly used for a fixed detachable (hybrid) restoration. Additionally, it can be used as a Transmucosal abutment for bar overdenture restorations. The Multi-Unit Abutment's are available in straight and 20° degree angulations in various cuff heights. The tapered cone provides excellent stability and allows for an easier path of insertion. The Multi-Unit Abutment is commonly used in the maxilla because of its tapered walls.

* Available 2011

Technical Considerations

- A minimum inter-occlusal clearance of 4.8mm + cuff is required between the implant prosthetic table and the top of the coping screw of the Multi-Unit Abutment.
- Can be used as a single screw retained unit

CLINICAL SECTION

Multi-Unit Abutment Placement and Impression Procedure

- Step 1:** To select the proper Multi-Unit Abutment, determine the diameter of the implant. Measure the tissue thickness from the top of the prosthetic table of the implant to the crest of the gingiva at the highest side of the implant site. Choose the abutment cuff height that is 1.0 to 1.5mm higher than the measured tissue or the next closest longer size available. This will position the fixed detachable to be 1.5 to 2.0mm above the gingiva.
- Step 2:** Remove the Healing Abutments with the Hand Screw Driver. To prevent slumping of the tissues, remove one Healing Abutment at a time and then seat the Multi-Unit Abutment. Repeat this until all Multi-Unit Abutments are seated.
- Step 3:** Place the Multi-Unit Abutments using the Quad Driver. Hand tighten with firm finger pressure.
- Step 4:** Take a radiograph to verify that the Multi-Unit Abutments are completely seated.
- Step 5:** Utilizing a Quad Driver Torque Tip and a Torque Wrench torque the Multi-Unit abutments to 30Ncm.
- Step 6:** Place the Multi-Unit Impression Posts onto the Multi-Unit Abutments. The impression taking techniques are the same as implant level impressions except that Multi-Unit Abutment Impression Posts are placed directly on the Multi-Unit Abutments. Refer to IMPRESSION TECHNIQUE section for the open tray impression technique.



Step 2



Step 3.1



Step 3.2



Step 6



NOTE: Only open tray impression posts are available for the Multi-Unit Abutment System.

LABORATORY SECTION

Laboratory Cast Fabrication

- Step 1:** Seat the Multi-Unit Abutment Analogs into the Impression Posts and pour the master cast in dental stone.

Wax Rim Fabrication

For wax bite rim fabrication laboratory procedures, follow conventional denture procedures.



Step 1



CAUTION: If the patient's ridge is flat, incorporate a minimum of two Impression Posts with short screws into the baseplate. This creates a stable baseplate resulting in a more accurate try-in by the clinician.



NOTE: Since distortion in materials may occur and cause inaccuracies in the impression, a verification jig should be made for all multi-unit bar restorations to ensure an accurate impression is obtained.

Verification Jig Fabrication

For verification jig fabrications refer to Bar Overdenture Section.

CLINICAL SECTION

Inter-occlusal Record and Verification Jig Protocol

- Step 1:** Remove the provisional prosthesis from the patients mouth. Remove from the Multi-Unit Abutments, two Healing Caps that will be attached to the baseplate. Attach the baseplate and occlusal rim assembly to the abutments. Mark the midline and smile line, record the vertical dimension of the occlusion with a bite registration, and contour the wax occlusal rim.
- Step 2:** Remove the baseplate and bite from the patient's mouth and replace on the working model. Select the denture teeth and return to laboratory for the fabrication denture wax try-in.
- Step 3:** Once the inter-occlusal record is completed, remove all the remaining healing caps on the Multi-Unit Abutments with the Quad Driver prior to try-in of the verification jig.
- Step 4:** Place the sectioned verification jig onto the Multi-Unit Abutments and tighten the coping screws firmly utilizing the Quad Driver. Be sure to place the sections in the mouth in the same position as they were on the master model.
- Step 5:** Using a pattern resin or a light-cured material, lute the sections together creating a solid verification jig.
- Step 6:** Once the luted material has set, remove the screws. Lift the luted verification jig from the mouth. There should be no binding or fracturing of the verification jig upon removal. This will confirm that a passive fit has been achieved.
- Step 7:** Replace all the Healing Caps and return the verification jig and bite rim to the dental laboratory.



Step 3



Step 4



Step 5



Step 6



Step 7

LABORATORY SECTION

Denture Wax Set-up and Cast Verification

Step 1: Mount the working and opposing model on an articulator. Follow normal laboratory and clinical procedures for denture wax-up techniques, Return to the clinician for evaluation.



NOTE: Once the clinician has established a passive fit with the verification jig, the master model may need to be altered to the new relationship before the bar framework can be fabricated. Using a straight bur, remove the misaligned Multi-Unit Abutment Analogs from the master model. Attach the analogs to the verification jig. Soak the master model in water and then carefully vibrate stone into the voids around the Multi-Unit Abutment Analogs.

CLINICAL PROCEDURE

Denture Wax Try-in for the Patient

Follow conventional denture procedure for try-in of a wax set-up.



Wax Try-in

CLINICAL SECTION

Denture Wax Try-in

Step 1: Remove the provisional prosthesis and the two Healing Caps on the Multi-Unit Abutments that will be attached to the wax try-in. Seat the denture try-in over the Multi-Unit Abutments. Evaluate aesthetics, phonetics, and function during the wax try-in and make any necessary adjustments. Remove the denture wax try-in and return to the laboratory for processing.

LABORATORY SECTION

Fixed-Detachable Framework Fabrication

Step 1: Index the facial contours of the approved wax set-up with a putty or plaster matrix. Doing so will aid in positioning of the framework and placing the screw access holes.



Step 1.1



Step 1.2

Optional Method for Fabrication of a Matrix:

- Place a separating medium onto the denture teeth.
- Adapt a light-cure material over the teeth. (Place enough material over the teeth so they will be stable.)
- Extend the light-cure material onto the retromolar pad area.
- Place a strip of light-cure material from the incisal edge of the matrix down to the vestibule of the stone model.
- Boil away the wax from the denture teeth.

Step 2: Fasten the Multi-Unit Plastic or Gold Sleeve and Waxing Pin. Hand tighten using the Quad Driver.



NOTE: If the waxing pin/screw access hole interferes with the matrix, relieve the matrix and the denture teeth to allow the waxing pins to seat properly into the plastic or titanium sleeves.

Step 3: Utilizing a preformed pattern, align the pattern over the implant sites.

Step 4: Continue with the following procedure:

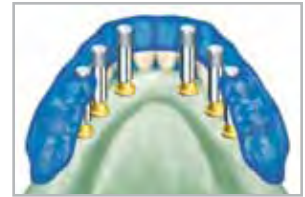
- Mark the implant sites on the PC pattern and use a bur to cut holes.
- Visually inspect to ensure that the PC pattern sits completely around the plastic sleeves.
- Shorten the distal extensions if necessary. The PC pattern should support all the teeth.
- Connect the PC pattern to the plastic sleeves.
- Place retention beads and/or loops with a thin gauge wire wax on the occlusal of the PC pattern.



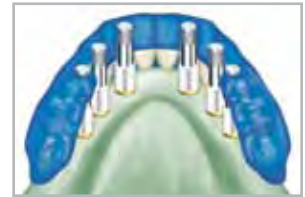
TIP: Placing the PC pattern 2.0-2.5mm above the tissue is recommended. The underside of the PC pattern should be rounded for easy patient cleaning.

Step 5: Sprue the pattern with 10 gauge wax with reservoirs. Use a high-heat, phosphate-bonded investment and follow the manufacturer's specifications for liquid/powder ratios, mixing times, etc.

Step 6: When divesting the fixed-detachable framework, use of a chemical divesting material to maintain the integrity of the cylinder is recommended.



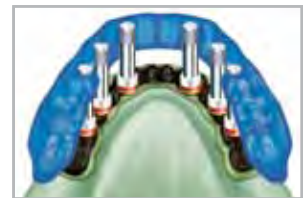
Step 2.1



Step 2.2



Step 4.1



Step 4.2



Step 5



Step 6



TIP: When polishing the interface between the implant and the prosthetic connection, attach an implant analog to protect the abutment.

- Step 7:** Send the fixed-detachable framework to the clinician for try-in. Include the final abutment screws.



Step 7

CLINICAL SECTION

Fixed-Detachable Framework Try-in

- Step 1:** Remove the healing caps with the Quad Driver.
- Step 2:** Confirm that the fixed-detachable framework seats passively.
- Step 3:** Beginning with the most distal implant/abutment, place the first final screw and hand tighten. Make sure the abutment interface connections on all the remaining implants are completely seated.
- Step 4:** Continue placing the coping screws around the arch. Verify the fit of the remaining abutment interface/connection each time a coping screw is placed.
- Step 5:** Once the fixed-detachable framework is completely seated, verify that all abutment/framework interfaces are completely seated.
- Step 6:** Remove the fixed-detachable framework from the patient's mouth.
- Step 7:** Replace the Healing Caps.



Step 2



Step 3



Step 5

Sectioning Fixed-Detachable Framework Procedure



NOTE: If the fixed-detachable framework does not seat passively, it must be cut and soldered/laser welded.



NOTE: A non-passive fitting bar framework can sometimes cause the patient to feel pressure or a pulling sensation when the abutment screws are tightened.



Step 8.1



Step 8.2

- Step 8:** Using a marker, create a mark on the bar framework directly after the last fully seated abutment was placed with the laboratory screw and where the bar has lifted and is not seated on the abutment interface.
- Step 9:** Remove the bar from the patient's mouth and replace the Healing Abutment on the implants.

- Step 10:** Replace bar on working model and section the framework where necessary with an ultra-thin separating disk and a high-speed handpiece, creating a space of approximately 0.3mm.
- Step 11:** Reseat the sections in the mouth, align the sections and lute the sections of the framework together using a pattern resin material.
- Step 12:** Remove the luted sectioned bar framework and replace the Healing Abutments.
- Step 13:** Return the luted bar framework, laboratory screws, abutments, and the master cast to the laboratory for solder/laser welding. DO NOT reattach the framework to the working model.



CAUTION: A non-passive fixed-detachable framework can sometimes cause the patient to feel pressure or a pulling sensation when the abutment/final screws are tightened.

Laboratory Procedure – Denture Wax Set-up

For denture wax set-up onto the fixed detachable framework, follow conventional denture procedures and deliver to the clinician for a final verification in wax.

Clinical Procedure – Denture Wax Try-in



TIP: Follow conventional denture procedures for the try-in of a wax set-up.



Denture Wax Set-up



Denture Wax Try-in

LABORATORY SECTION

Processing

Processing tips:

- Place the waxing pins into the denture and attach an analog to the underside of the framework.
- Tighten the waxing pin with finger pressure.
- Pour a separate, new working cast embedding the analogs for stability.
- Block out under the fixed-detachable framework using an appropriate material.

Step 1: Process using conventional denture techniques.

Step 2: Return the finished fixed-detachable prosthesis to the clinician for final insertion.



Step 1



Step 2

CLINICAL SECTION

Final Insertion of Fixed-Detachable Prosthesis

- Step 1:** Remove the healing caps using the Quad Driver.
- Step 2:** Seat the final fixed-detachable prosthesis and hand tighten the final screws.
- Step 3:** If the final denture is firmly and properly seated, use a Torque Wrench to apply 20Ncm of torque to the final screws.
- Step 4:** Follow conventional denture procedures for delivery of the final prosthesis. Place a resilient removable material into the screw access hole to protect the coping screw. Fill the remaining portion of the screw access holes with composite. Adjust the occlusion, perform final contours and polish with a recommended composite polishing paste.



Step 4.1



Step 4.2

Trademark Acknowledgements

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Caution,
consult accompanying documents

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Additional patents are pending.