

SwissPlus Surgical and Prosthetic Manual

Full-Contour Abutment System



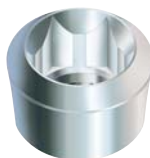
Restorative options with Full-Contour Abutments

Straight and Angled Abutments

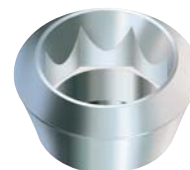
Full-Contour Abutments are manufactured from titanium alloy and used as the support foundation for single- or multiple-unit cement-retained partially edentulous fixed restorations. These abutments consist of an abutment (fixation) screw and a full-contour preparable base with an apex that engages the implant with a non-rotational octagon or hexagon feature. The abutment base can be modified either chairside or in the laboratory to create a variety of contoured margins and abutment profiles to emulate the contours of the natural tooth it is replacing. Once prepared, these abutments are attached to the implant and impressed following conventional crown and bridge techniques. The full contour range of abutments are divided into three categories:

- 1) **Fixture Mount/Transfer:** Supplied with the implant, it engages either the internal octagon or hexagon of the implant. Used as the delivery mechanism during implant placement. It can then be used as the final abutment.
- 2) **Straight Abutment/Transfer:** Purchased as an option to the Fixture Mount/Transfer, this component functions first as an implant-level transfer and then as a final abutment. This component is available for the 4.8mmD platform only.
- 3) **20° Angled Abutment:** To be utilized in cases where the angulation of the implants prevents the successful use of the above mentioned components. The components are available for the 4.8mmD platform [OPH20] and the 3.8mmD platform [SPH20].

Abutments for SwissPlus Internal Hex Implant, 3.8mmD platform



Abutments for SwissPlus Internal Octagon Implant, 4.8mmD platform

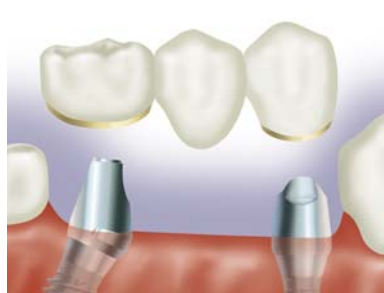


Restorative applications with the Full-Contour Abutments

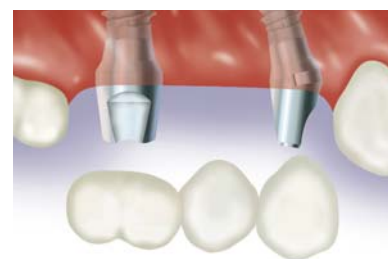
Cemented crown



Cemented fixed partial denture



Cemented fixed partial denture



Straight Full-Contour Abutments for fixed partial dentures

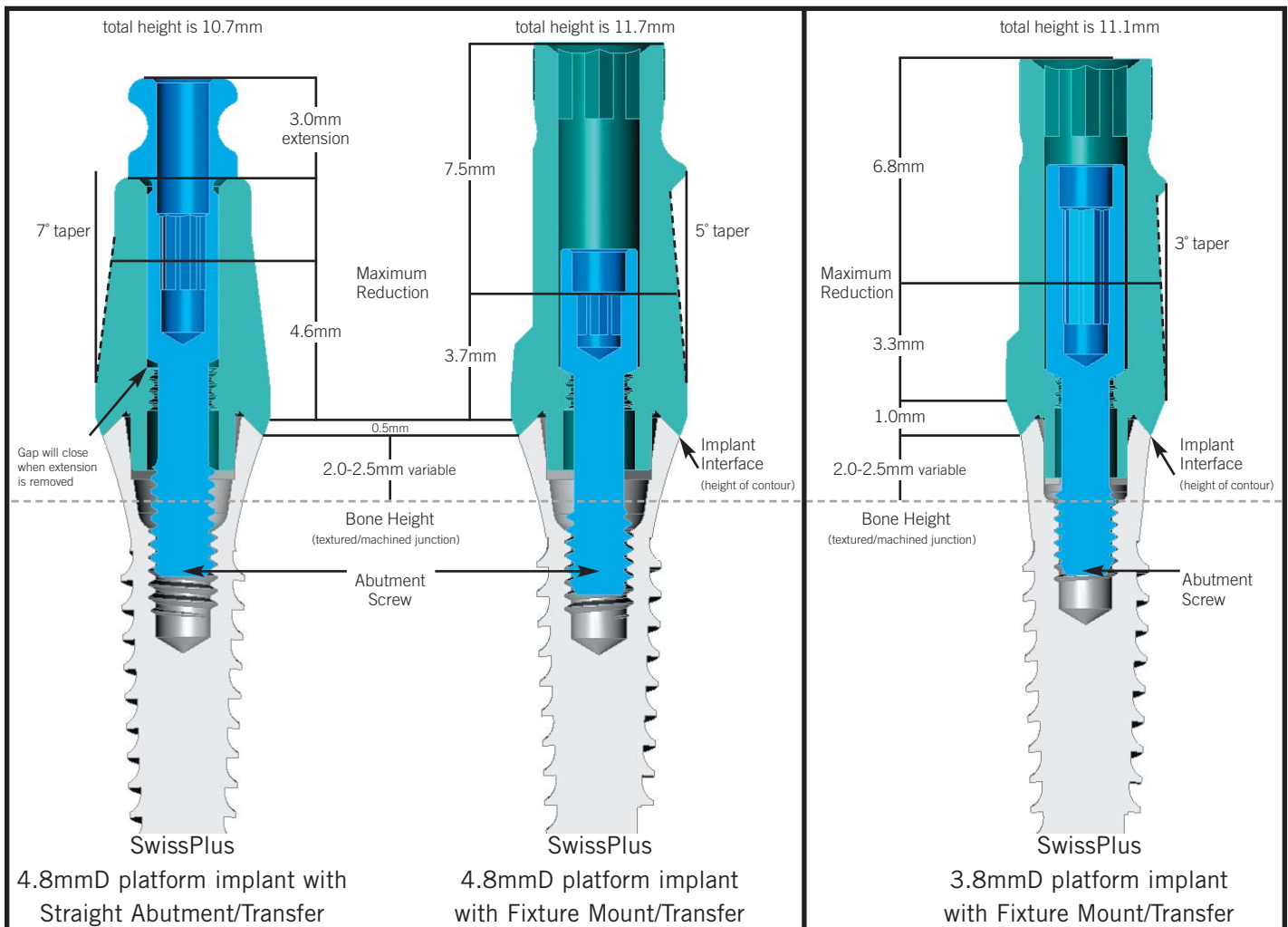
Straight Abutments for SwissPlus implant system

Straight Full-Contour Abutments/Transfers are used for cemented single- and multi-unit restorations when the long axis of the implant is approximately 0° to 15° out of parallelism with the clinical long axis of the adjacent teeth. There must be acceptable soft tissue thickness to establish margins at least 0.5mm subgingival for esthetics.

The Straight Abutments are divided into two categories:

- 1) Fixture Mount/Transfer:** During implant placement, the flat side of the fixture mount aids in the alignment of the internal octagon or hexagon, necessary for accurate orientation of the Angled Abutment. The Fixture Mount can be used as an implant-level transfer and finally as a Full-Contour Abutment. The profile diameter compliments the implant platform and body diameter and matches the profile of the supplied Surgical Cover Screw. The OPWB and SPWB series of implants have a 6.0mmD fixture mount, the SPB series has a 5.2mmD fixture mount and the SPMB series of implants has a 4.6mmD fixture mount. The Fixture Mount/Transfer [FMTM2] can be purchased separately for the SPMB series (3.8mmD platform) only.
- 2) Straight Abutment/Transfer:** Supplied with a fixation screw [OPAS] which forms a 3mmL extension to the component base, and with a circumferential groove for vertical retention within the closed-tray impression. After the impression is made the extension is sectioned off the fixation screw converting the transfer into a full contour abutment. The components [OPA/5 and OPA/6] have a profile diameter matching the profile of the Surgical Cover Screws (5.2mmD and 6.0mmD respectively), and are for the 4.8mmD Octagon platform only.

Once the restorative components are in place, the minimum vertical clearance between the implant interface as measured from the height of contour and the opposing dentition is shown below. Note: Make allowance for the thickness of the proposed restoration.



Angled Full-Contour Abutments for fixed partial dentures

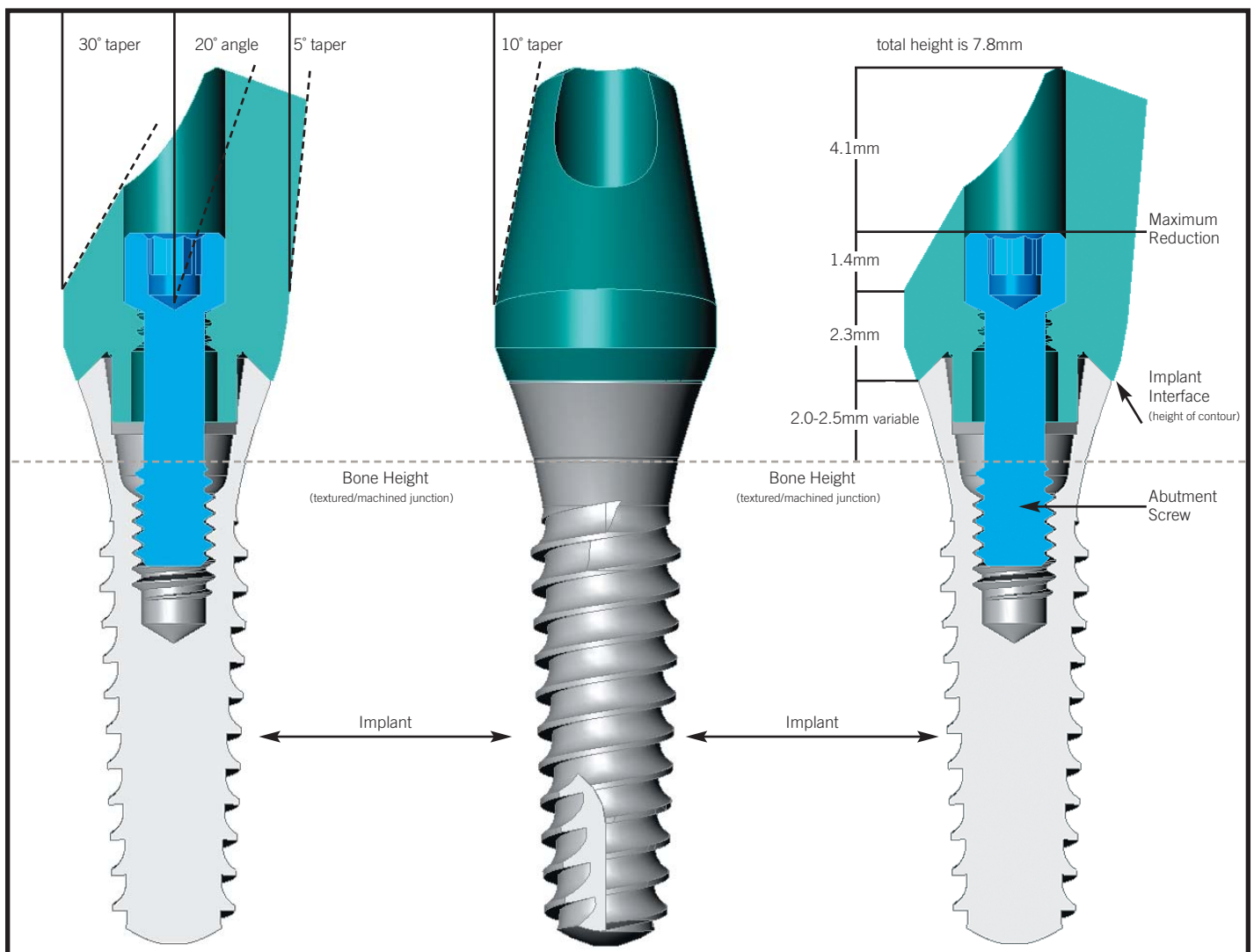
Angled Abutments for SwissPlus implant system

Angled Abutments are used for cemented single- and multi-unit restorations when the long axis of the implant is approximately 15° to 30° out of parallelism with the clinical long axis of the adjacent teeth. There must be acceptable soft tissue thickness to establish margins at least 0.5mm subgingival for esthetics.

The 20° Angled Abutment [OPH20] for internal octagon SwissPlus is packaged with a titanium alloy angled 5.2mmD base and abutment screw [OPH20S]. The abutment [SPH20] for internal hexagon SwissPlus is packaged with a titanium alloy angled 4.6mmD base and abutment screw [AH20S].

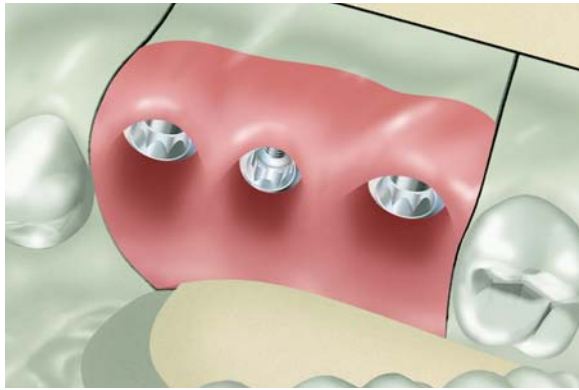
Once the restorative components are in place, the minimum vertical clearance between the implant interface as measured from the height of contour and the opposing dentition is approximately 3.7mmL (as shown below). Note: Make allowance for the thickness of the proposed restoration. The height of the implant interface (height of contour) above the crestal bone is determined by the implant type: Straight SwissPlus (2.5mmL machined neck) or Tapered SwissPlus (2.0mmL machined neck) and their respective textured/machined surface junction relative to the crestal bone height.

These abutment assemblies are most effectively utilized and require minimum preparation when one flat of the implant octagon or hexagon is oriented toward the direction of the implant angulation at time of implant surgery. This design allows for 6 positional changes of 60° for the internal hexagon implants and 8 positional changes of 45° for the internal octagon implants.



Full-Contour Abutment System

Selecting the abutment



Selecting the abutments

Fabricate the working cast utilizing one of the transfer procedures mentioned in the Impression Transfer section.

Abutments (“abutment”) consist of an abutment body and an abutment screw. Note: the abutment should have the same profile as the Surgical Cover Screw used at time of implant placement.

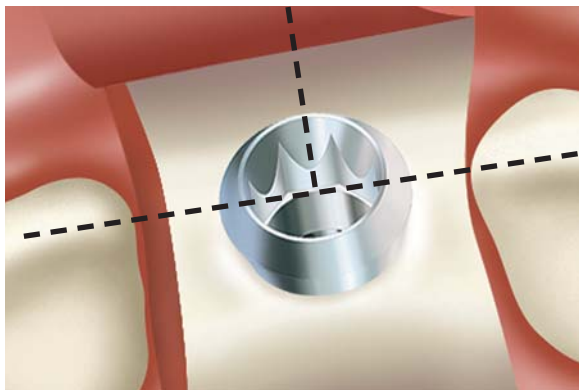
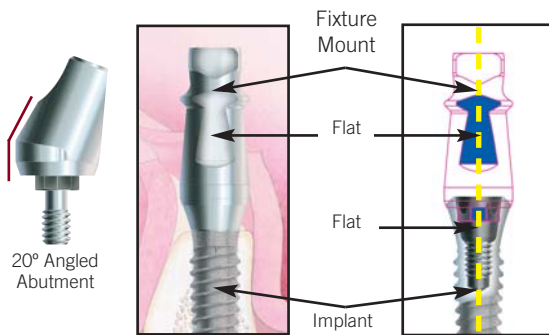
Determine whether a Straight or Angled Abutment is needed depending on the angulation of the implants placed.

Using Angled Abutments

Confirm that implants that are incorrectly angled relative to the plane of occlusion have the internal octagon or hexagon oriented correctly for use of the Angled Abutment.

At time of implant placement the clinician will position the flat surface of the implant’s Fixture Mount/Transfer either toward or opposite the desired direction of the abutment angle. This will position the implant’s hex or octagon with a flat surface facing the angulation of the implant.

The two-piece 20° Angled Abutments [OPH20 or SPH20] are designed to function most effectively in this situation.



Selecting the abutments

In the following sequence, Straight Abutments (Fixture Mount/Transfers could be used if available) for 4.8mmD platform SwissPlus implants are used for the mesial and distal implants. The angulation of the middle implant will indicate the use of a 20° Angled Abutment for a 3.8mmD platform SwissPlus Implant.

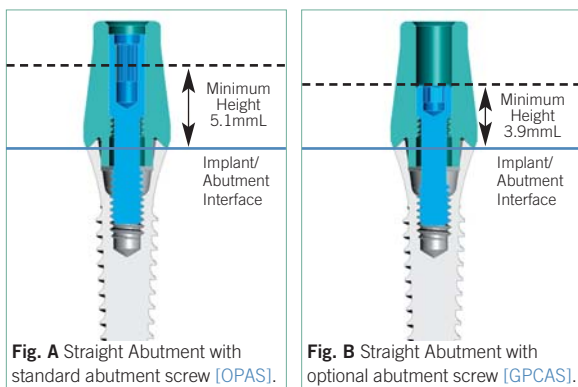


Seating the abutments on the working cast

Interdigitate the abutment’s anti-rotational feature with the octagon or hexagon of the Implant Replicas in the working cast (or implant in the patient’s mouth) and place the abutment onto the Implant Replica (or implant). Thread the abutment screw through the abutment body and into the Implant Replica (or implant) with the 1.25mmD Hex Tool. To complete seating tighten the abutment screw to 30 Ncm with a calibrated torque wrench.

Full-Contour Abutment System

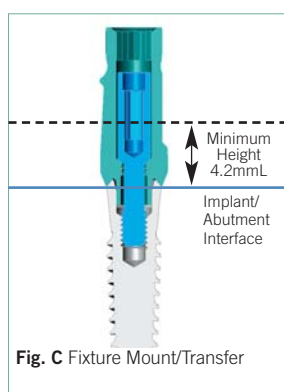
Preparing the abutment



Determining Straight Abutment/Transfer modifications

Straight Abutments [OPA/5 and OPA/6] for the 4.8mmD platform only extend 7.7mm vertically above the implant/abutment interface. Visually determine the modifications necessary for establishing marginal and vertical contours. In order to preserve adequate hex engagement (1.0mm) within the abutment fixation screw, do not vertically reduce the abutment by more than 2.6mm (Fig. A) from the top of the abutment. This reduction provides a vertical height of 5.1mm above the internal octagon implant.

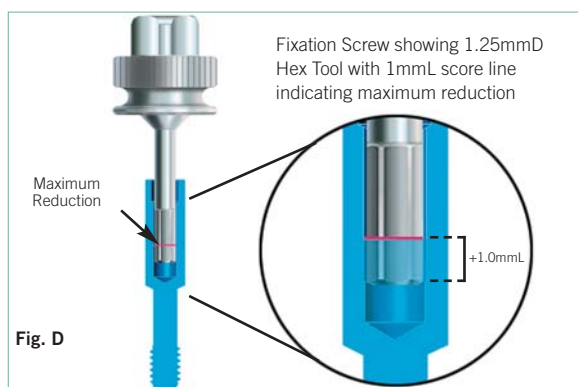
To reduce the abutment below this level, a lower profile, optional abutment screw [GPCAS] may be used (Fig. B). This low-profile screw provides for a reduction to a vertical height of 3.9mm above the internal octagon implant.



Determining Fixture/Transfer modifications

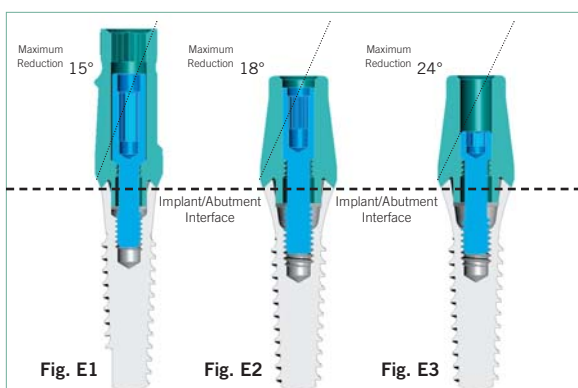
Fixture mounts for the 3.8mmD and 4.8mmD platform SwissPlus Implants extend approximately 11.1mm and 11.7mm respectively above the top of the implant/abutment interface.

Reduce the height of the abutment relative to the accepted height adjustment of the fixation screw as described below. Reduction of the Fixture Mount/Transfer will produce an abutment 4.2mm in height above the top of the Implant Replica (or implant) for both 3.8mmD and 4.8mmD platform implants.



Trimming the Abutment Screw

Mark a score line on the 1.25mmD Hex Tool a little more than 1.0mm from the apex (red line in Fig. D). Trim the abutment screw vertically with regular placement of the 1.25mmD Hex Tool into the hex-hole of the screw. As soon as the 1.0mmL line on the tool is partially visible with the Hex Tool fully seated, discontinue trimming of the screw, maximum reduction has been achieved. Attach the screw and abutment to an Implant Replica and cut the abutment height to match the cut screw.



Preparing abutments to maximum angle

Prepare abutments at an angle to achieve mutual parallelism and to create a favorable path of draw for the prosthesis.

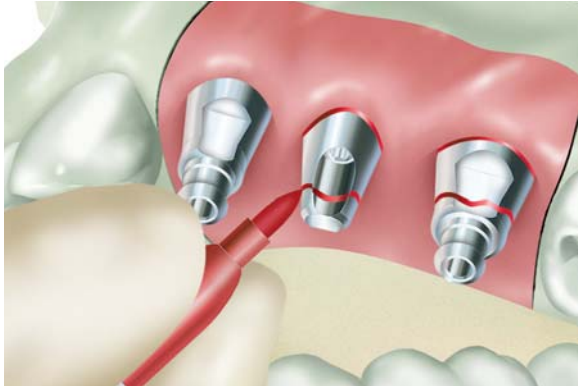
Fig. E1: Fixture Mount/Transfer of 3.8mmD and 4.8mmD platform implants can be trimmed to a maximum angle of 15° and 20° respectively with a margin height of 0.5mm.

Fig. E2: Straight Abutments for 4.8mmD platform implants with profile diameters of 5.2mm and 6.0mm can be trimmed to a maximum angle of 18° with a margin height of 0.5mm.

Fig. E3: The above mentioned Straight Abutments used with an optional low-profile abutment screw [GPCAS], can be trimmed to a maximum angle of 24°.

Full-Contour Abutment System

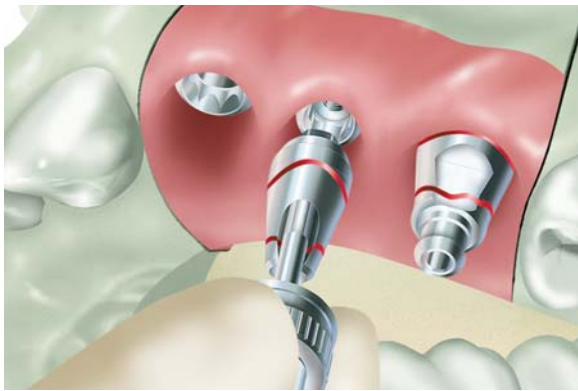
Preparing the abutment



Marking the abutment for desired preparation

Mark the required modifications on the abutment to achieve appropriate vertical clearance as well as gingival contours. Note: the reduction of the abutment needs to take into consideration the following:

- 1) Type of restoration, example, a ceramic or metal margin
- 2) Desired thickness of alloy
- 3) Desired thickness of veneering material
- 4) Occlusal considerations: centric occlusion, protrusive or lateral excursion



Removing the abutment

Use the 1.25mmD Hex Tool to loosen and remove the abutment screw. Note: It is extremely important when using a variety of platforms and abutment types to keep the screws separate through the whole process.



Modifying the abutments

Attach the abutment to an additional Implant Replica [OPR or SPMR] located within the Abutment Holder [ABTH]. Modify the abutment with cut-off disks, heatless stone wheels and 12-fluted carbide burs. Use a diamond bur to define the margins. Create a dimple on the buccal surface to help orient the abutment on the implant.

Preserve or redefine a flat surface as an anti-rotational feature. If modifying the abutments chairside, **proceed to placing the prepared abutments.**

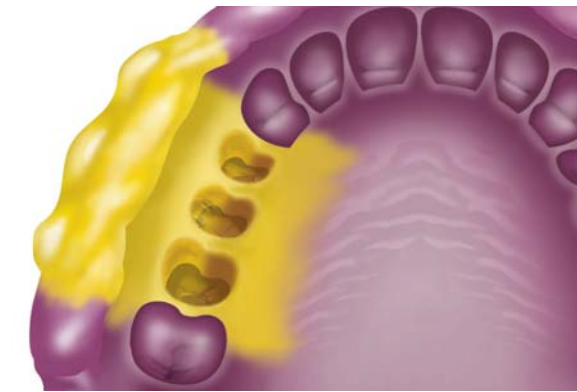
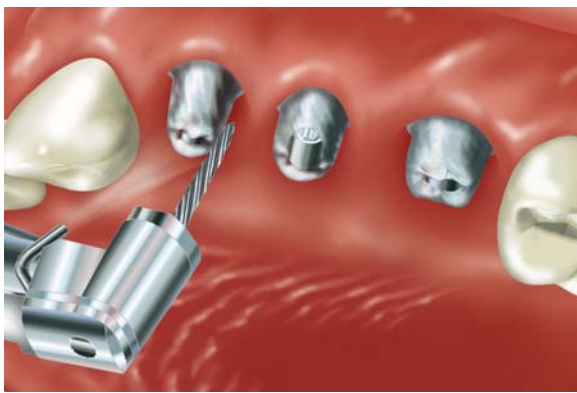
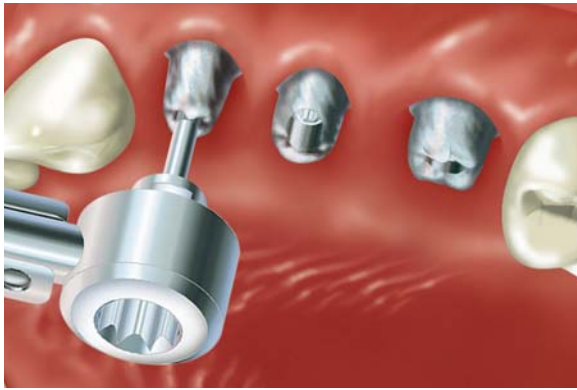


Fabricating the provisional prosthesis

Replace the abutments on the working cast and make final adjustments. Take care not to damage the soft tissue material, which can be removed from the working cast, if necessary. If a diagnostic wax-up was made, make an alginate impression over it and pour the impression in dental stone. Mold a clear acrylic sheet onto the cast of the diagnostic wax-up according to the manufacturer's instructions. Remove the mold from the cast. Occlude screw access holes and lubricate the abutments and working cast, then flow temporary material into the areas of the abutments and missing teeth in the mold. Seat the mold onto the cast containing the prepared abutments. Trim the resulting provisional prosthesis and return it with the prepared abutments to the dentist.

Full-Contour Abutment System

Making the impression



Placing the prepared abutments

Sterilize the prepared abutments according to standard clinical procedures before placing them into the patient's mouth. Interdigitate the hex or octagon of each abutment and implant utilizing the dimple to orient the abutment in the correct spatial position. Thread the abutment screw through the abutment body and into the implant with the Hex Tool.

Tighten each abutment screw to 30 Ncm with a calibrated torque wrench.

Making final adjustments to the abutments

With a round-end, 12-fluted carbide bur in a high-speed handpiece, make minor modifications to the gingival and vertical contours of the abutments under copious irrigation.

After completing final modifications, retighten the abutment screws to the recommended torque. Take a radiograph to confirm that the abutments are fully seated.

Making an impression of the prepared abutments

Block out the hex-holes in the tops of the abutment screws with a medium of choice to prevent the ingress of impression material. Remove excess material so that the blockout is flush with the ends of the abutment screws. Make a conventional, full-arch, crown-and-bridge impression with an elastomeric impression material, such as vinyl polysiloxane. To insure a proper fit of the finished restoration, the abutments must remain in the patient's mouth after completing the impression procedure. Send the impression to the laboratory to fabricate a porcelain-fused-to-metal bridge.

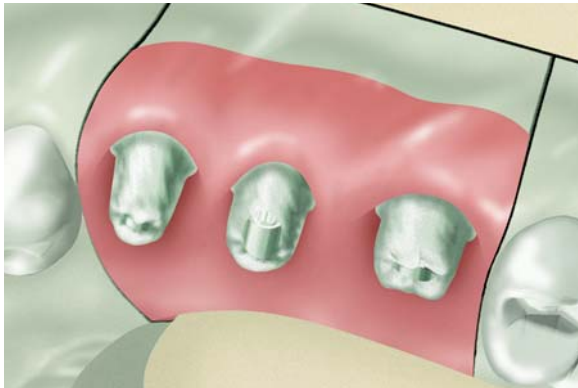
Cementing the provisional prosthesis

Block out the hex-holes in the tops of the abutment screws with material of choice. If the laboratory has fabricated a provisional prosthesis, cement it onto the prepared abutments with soft access cement.

If a provisional prosthesis has not been fabricated, block out any undercuts and lightly lubricate the abutments. Fabricate a prosthesis over the abutments chairside with a light-cure or autopolymerizing tooth colored acrylic material. For a more dense cure, remove the set provisional prosthesis from the mouth and place it in a curing unit. After curing, remove the restoration from the mold, trim and polish then cement the finished provisional prosthesis onto the abutments.

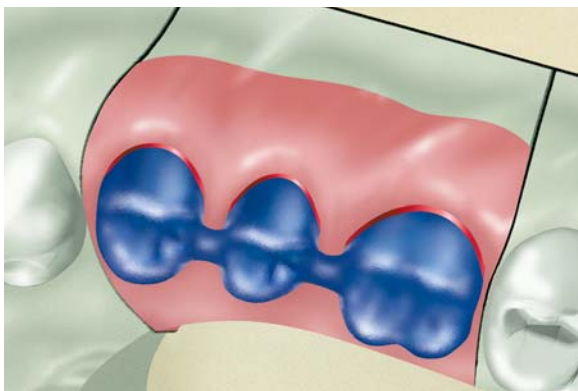
Full-Contour Abutment System

Fabricating the framework pattern



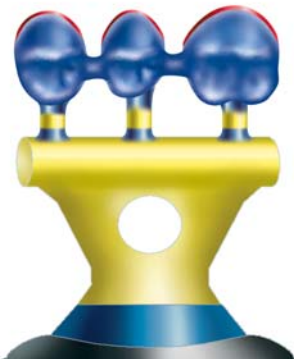
Pouring the working cast

Pour the standard crown-and-bridge impression in die stone. An epoxy die material may be useful if preparations are extremely thin. Separate the cast from the impression. Follow standard laboratory procedures to produce a soft tissue model. Utilize the inter-occlusal records to articulate the working cast with the opposing arch cast. Prepare the working cast for fabrication of the wax framework pattern.



Fabricating the wax framework pattern

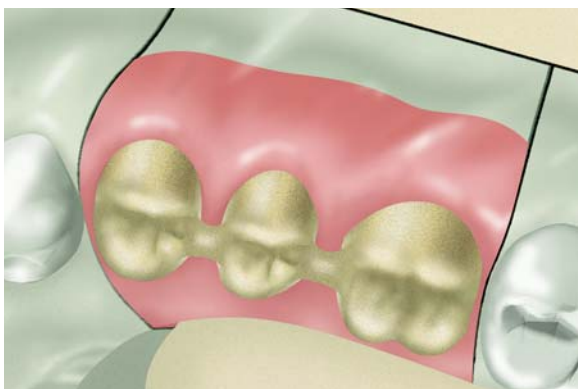
Create the wax framework pattern according to routine crown-and-bridge procedures.



Spruing, investing and casting the framework pattern

Attach 10-gauge sprue wax with reservoirs to the thickest part of each unit within the framework pattern. Add auxiliary sprues and vents to prevent porosity in the casting, as needed.

Invest and cast the pattern in noble or high noble ceramic alloy according to the manufacturer's guidelines.

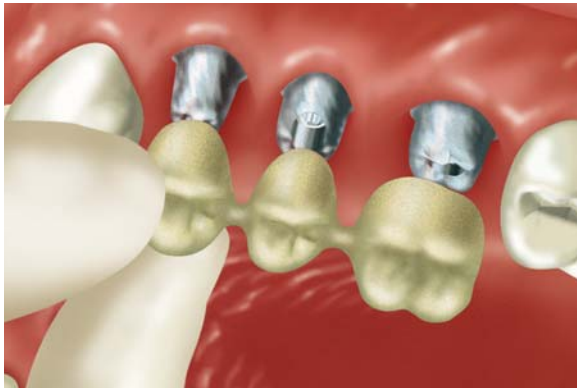


Finishing the cast framework

Divest the cast framework with ultrasonic cleaning and non-abrasive glass bead. Follow conventional laboratory techniques to fit and finish the cast framework. Seat the finished framework onto the working cast and confirm that a passive fit has been achieved. Place the framework on the working cast and send it to the clinician for a try-in of the metal framework. The dentist should confirm that a passive fit has been achieved before the veneering material is applied.

Full-Contour Abutment System

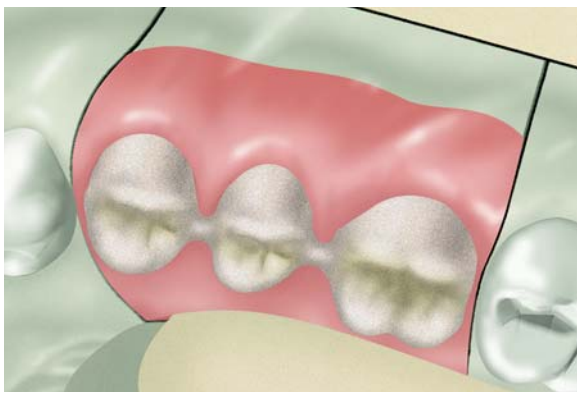
Seating the final restoration



Trying in the finished framework

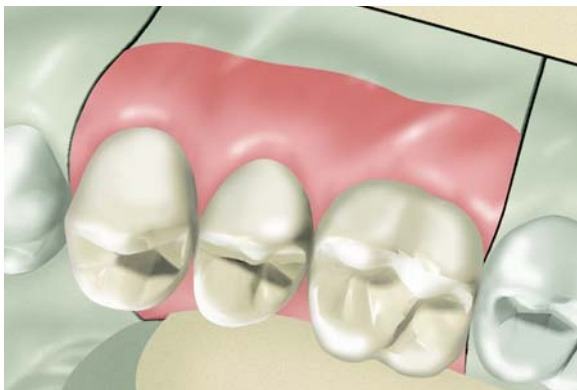
Remove the provisional restoration from the patient's mouth. Retorque the abutment screws to 30 Ncm with a calibrated torque wrench. Seat the finished framework onto the abutments. Verify that it fits passively, and that no additional finishing or adjustment is required. Remove the framework. Reseat the provisional prosthesis with soft-access cement.

Return the framework to the laboratory on the working cast for completion of the fixed partial denture.



Applying the porcelain (veneering material)

Prepare the framework to receive the opaque layer according to routine laboratory procedures.



Finishing the final prosthesis

Apply porcelain to the framework according to routine laboratory procedures.

Finish the porcelain and polish any metal margins, seat the finished prosthesis on the working cast and send it to the clinician for final delivery.



Delivering the final prosthesis

Remove the provisional restoration from the patient's mouth. Retorque the abutments to 30 Ncm with the calibrated torque wrench. Wait ten minutes, then retighten. This is done to compensate for clamping force lost due to screw embedment. Seal the screw access channel in each abutment with cotton pellets and light-curing resilient material or gutta percha. This will ensure future access to the screw head. Seat the final prosthesis onto the abutments and confirm fit and contour. Check the occlusion. Verify that no additional finishing or adjustment is required. Cement the final prosthesis with a cement of choice. To facilitate future retrievability, a soft-access cement may be used. Provide the patient with oral hygiene instructions prior to release.