

SwissPlus Manual

Non-Engaging Abutment System



Restorative options with Non-Engaging Components

Non-Engaging Abutments* are used to fabricate implant-level, custom restorations that provide reduced height for vertical occlusal clearance and/or implant angles. These abutment assemblies consist of:

1) A **non-engaging gold base**, an abutment screw and typically a castable press-fit Plastic Sheath. The press-fit Plastic Sheath is modified and incorporated into the wax framework pattern. After investing, the wax and Plastic Sheath are burned out of the pattern following the lost wax process. When molten alloy is cast into the investment mold, the base component is incorporated into the casting and provides a **machined interface** that mates directly with the implant.

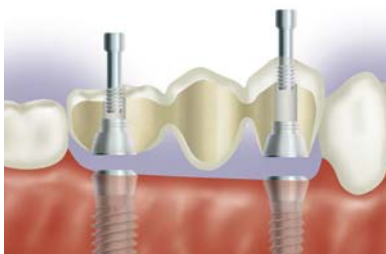
The gold base is fabricated from a non-oxidizing alloy that promotes chemical adhesion of the cast alloy, but does not permit the adhesion of porcelain. Therefore, a porcelain bonding alloy must be added to all areas of the gold base where porcelain veneering is desired.

2) A **non-engaging plastic castable** abutment supplied with an abutment screw incorporates the interface of the above mentioned gold base as well as its press-fit Plastic Sheath all in one piece. The plastic abutment is modified and incorporated into the wax framework pattern. After investing, the wax and plastic abutment are burned out of the pattern following the lost wax process. Molten alloy is cast into the investment mold creating a framework pattern which provides a **cast interface** that mates directly with the implant.

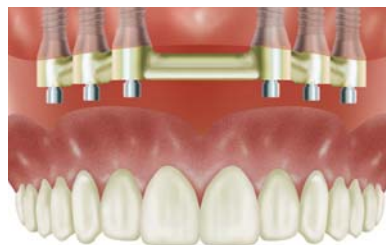
The finished casting can be used as the sub-structure for:

- A screw-retained partial denture that receives a veneering material of choice.
- An implant level multi-unit bar when vertical occlusal clearance does not allow for vertical stacking of the Tapered Abutment Components.
- An implant level multi-unit bar when bucco-lingual or mesial-distal angulation of implants and prosthesis profile does not allow for vertical stacking of the Tapered Abutment Components.

Screw-retained partial denture



Bar overdenture



Screw-retained partial denture



Abutments for the SwissPlus Implant, 4.8mmD platform



"Cast-To"
Gold
Abutment
[OPGC]



"Castable"
Plastic
Abutment
[OPCC]

*Components are not available for the SwissPlus 3.8mmD platform

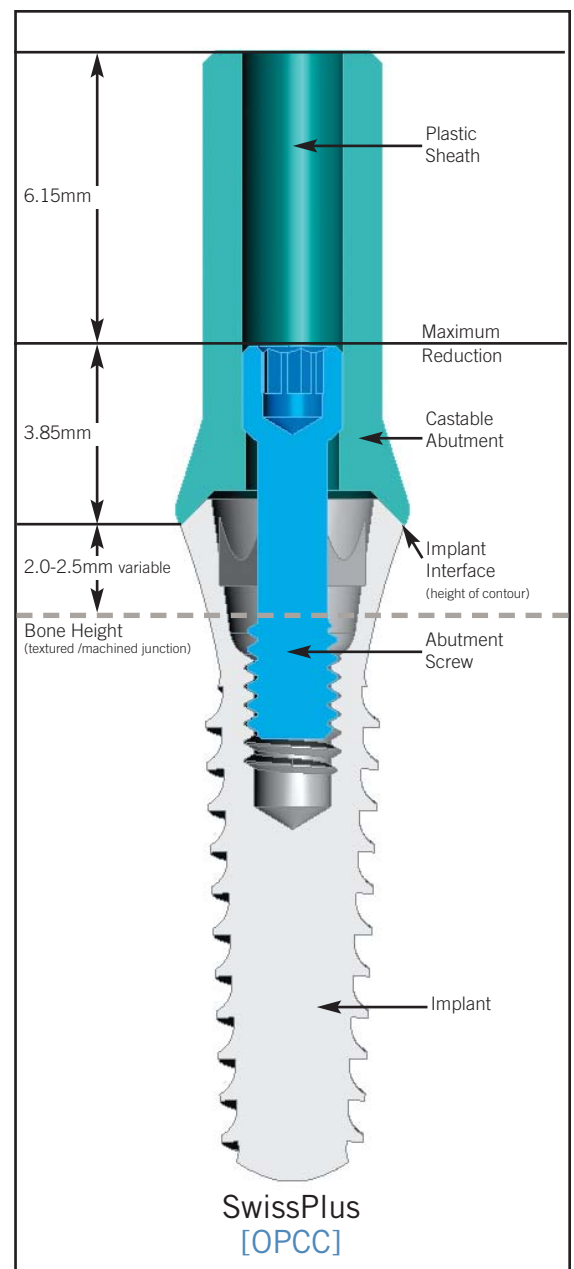
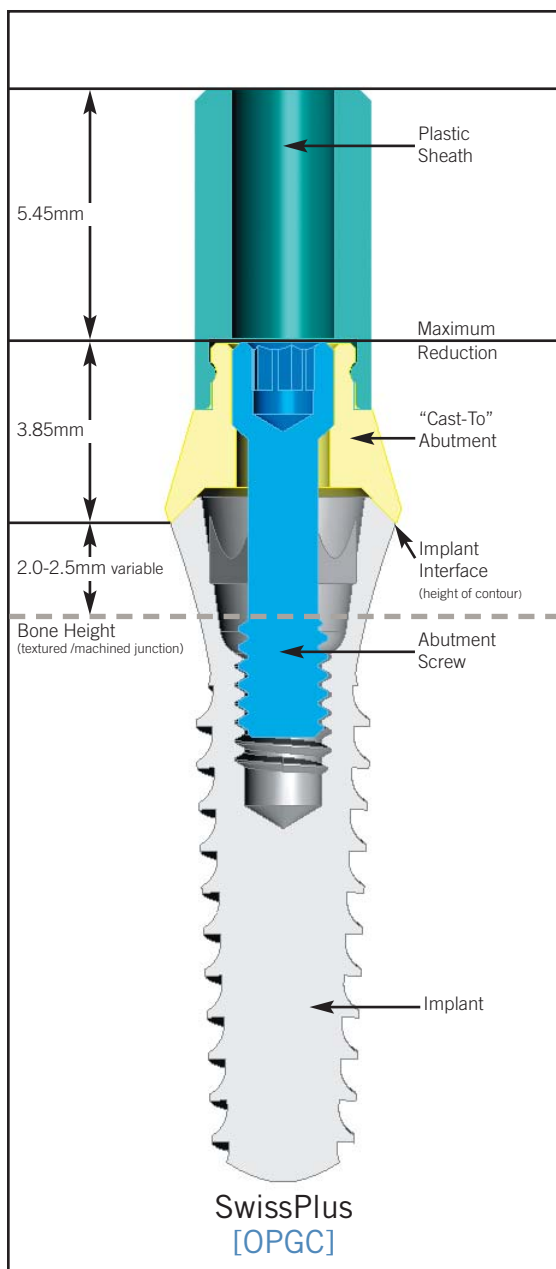
Vertical height requirements for Non-Engaging Abutments

Non-Engaging Abutments for SwissPlus implant systems

Non-Engaging Abutment [OPGC & OPCC] for internal octagon SwissPlus with a 4.8mmD platform, allows for a low profile connection to the one-stage implant platform.

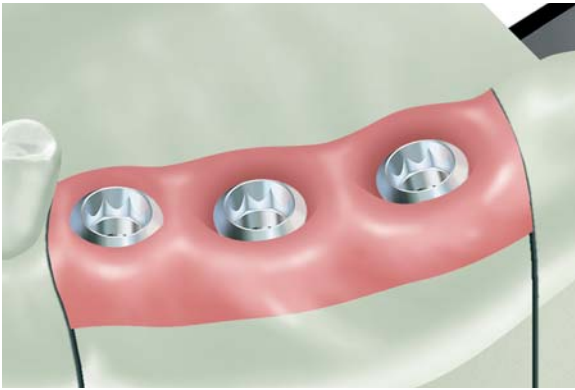
The abutment [OPGC] is packaged with a gold base, a 3.8mmD plastic castable sheath [OPS] and an abutment screw [GPCAS]. The abutment [OPCC] is packaged as plastic castable component with an abutment screw [GPCAS].

Once all 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 3.85mmL (as shown below). The height of the implant interface 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.



Non-Engaging Abutment System

Fabricating multi-unit framework patterns



Selecting the Abutment

Fabricate the soft tissue working cast following standard laboratory procedures.

Non-Engaging “Cast-To” Gold Abutments or Plastic Castable Abutments [OPGC and OPCC] respectively are for internal octagon Tapered and Straight SwissPlus implants .



Attaching the abutments and plastic sheaths

These abutments are selected in this case due to the limited vertical clearance between the implant platform and the occlusal surface of the opposing dentition. The vertical limitation prevents the use of the Tapered Abutment System.

Carefully seat the assemblies onto the Implant Replicas [OPR] in the working cast. Thread the abutment screws through the abutment assemblies and into the Implant Replicas with the 1.25mmD Hex Tool. As these components do not engage the internal interface of the implant, finger tightening at this time is sufficient to fully seat the components on the Implant Replicas. Extreme care should be taken with the plastic castable abutment.



Trimming the plastic sheaths

Visually determine the modifications needed to provide adequate clearance for adjacent and opposing dentition. Consult with the clinician to determine any additional modifications needed for the case design. Section the plastic sheaths with a cutting disk to obtain the correct vertical and interproximal clearance. Minor circumferential changes can be made to allow the framework to fit within the profile of the desired restoration.



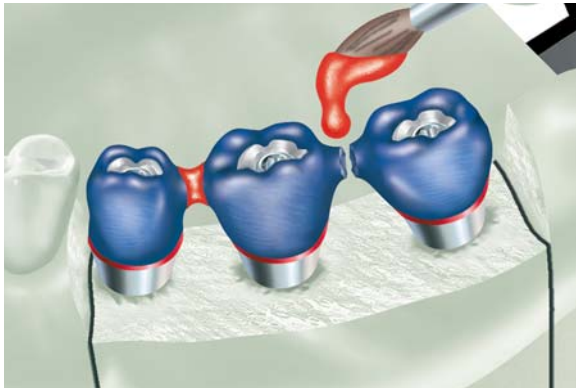
Fabricating the framework pattern

Use wax and/or acrylic burnout resin to incorporate the modified abutment into the pattern. Build up the final contours of the pattern with crown-and-bridge wax. If using the gold/plastic combination, carefully apply a thin layer of wax or burnout resin at the junction of the base and the Plastic Sheath to ensure a smooth casting.

- An alternative to using the Plastic Sheaths and Abutment Screws:
- Secure the abutments to the Implant Replicas with the Waxing Screws [WSX for internal octagon implants].
 - Lightly lubricate the Waxing Screw.
 - Use wax and or acrylic burnout resin and fabricate the framework pattern around the screw and directly to the gold base.

Non-Engaging Abutment System

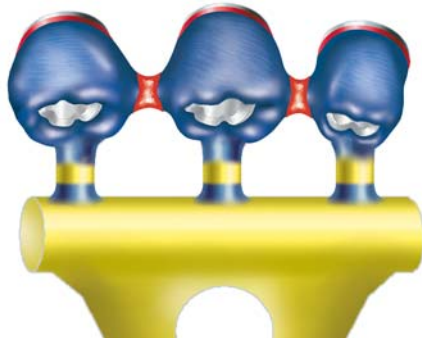
Fabricating multi-unit framework patterns



Removing the framework pattern

Create a very thin cut between the components to section the framework. Use wax or burnout resin to lute the sections together. This process is incorporated to relieve the stresses in the framework pattern created by contraction distortion of the wax or resin used in the fabrication of the framework pattern.

Remove the abutment screws with the 1.25mmD Hex Tool then remove the framework pattern from the Implant Replicas [\[OPR\]](#).



Spruing, casting and divesting of the metal framework

Attach 10-gauge sprue wax to the thickest part of each unit. Add auxiliary sprues and vents to prevent porosity in the casting, as needed. Connect the framework to a runner bar then assemble to rubber casting base. Do not use a debubbler when investing the gold or plastic components.

When casting to gold components, the casting alloy must not exceed a casting temperature of 2350°F/1288°C. Cast the framework pattern according to conventional techniques utilizing a two-stage burnout, which is standard practice with patterns containing plastic or resin. The burnout temperature should not exceed 1500°F/815°C, with a hold time of no longer than 1 hour. Utilize high noble or noble alloy with a compatible investment material, as described in the manufacturer's guidelines.



Divest the casting; chemical investment removers may also be used with gold components. To ensure that the fitting surface of the incorporated copings are not damaged, protect the abutment interface while blasting the abutment with non-abrasive glass bead. Clean the casting in an ultrasonic unit. Refine the screw access holes within the casting by hand-rotating the Reamer for "Cast-To" or Castable Abutments [\[PR for SwissPlus components with 4.8mmD interface\]](#).



Finishing the metal framework

Remove the soft tissue replica from the working cast to provide visual access to the cast metal frame/implant replica connection. Confirm a passive fit has been achieved.

Secure the finished framework to the Implant Replicas in the working cast and return it to the clinician for try-in.

Non-Engaging Abutment System

Delivering the final prosthesis



Removing the healing components

Unthread the abutment screws with the 1.25mmD Hex Tool. Remove the cast framework from the working cast. Sterilize the components according to standard clinical procedures.

Remove the provisional restoration from the patient's mouth. Unthread the Surgical Cover Screws with the 1.25mmD Hex Tool. Clean and sterilize the components for placement after the cast framework try-in.



Trying in the metal framework

To determine a passive fit, the distal unit of the cast metal framework is attached to its corresponding Implant with an abutment screw [GPCAS]. Finger-tighten the screw with the 1.25mmD Hex Tool. The metal framework is then inspected to verify that no discernable gaps are present between the remaining components and implants. If a gap is present, determine where the framework should be sectioned and follow procedures in Tapered Abutment Section on pages 77 and 78.

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



Finishing the final prosthesis

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

Apply porcelain to the framework and ensure that no porcelain flows inside the screw access channel. Refine the screw access channel within the prosthesis by hand-rotating the Reamer for "Cast-To" or Castable Abutments [PR for SwissPlus components with 4.8mmD interface].

Finish the porcelain and polish any metal margins taking care to not alter the area which interfaces with the implant. 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 and/or healing components from the patient's mouth.

Sterilize and seat the finished prosthesis onto the implants. Thread the abutment screws into the implants with the 1.25mmD Hex Tool. Torque the screws to 30 Ncm with a calibrated torque wrench.

Confirm the fit, contour and occlusion of the restoration, and make any needed final adjustments. Seal the screw access channels in each abutment with cotton pellets and composite resin material to complete the contour and esthetics of the restoration.

Provide the patient with oral hygiene instructions prior to release.