

Parallel Walled Navigator System

For Guided Surgery

Procedure Manual



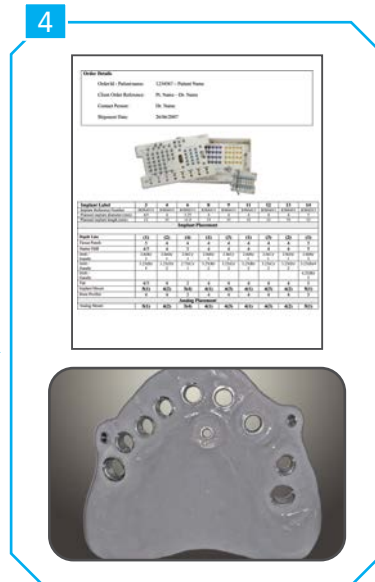
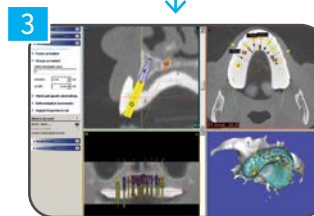
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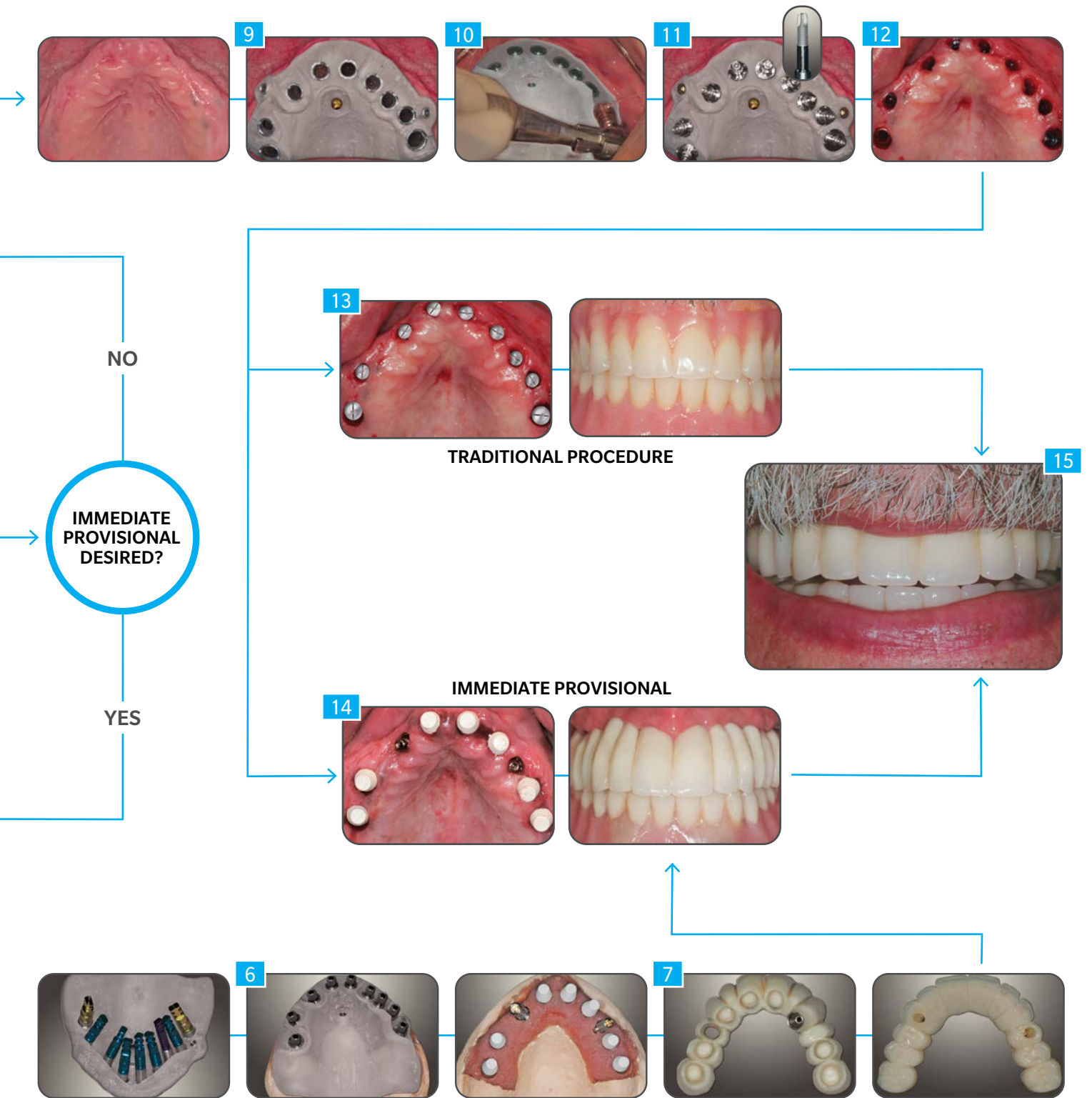
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Navigator CT Guidance

Steps to Success

1. The scanning appliance may be created from an existing denture or new wax-up to visualize the soft-tissue and tooth position in the third-party planning software chosen.
2. A CT scan of the patient is taken by an imaging center or in the clinician's office. Data from the scan is converted into the planning software.
3. The clinician plans the case within the planning software and the case plan is sent to the surgical guide manufacturer. Fixation of the guide can also be planned at this time.
 - a. The software company may act as the surgical guide manufacturer or
 - b. A laboratory may create the surgical guide.
4. The surgical guide manufacturer develops a case-specific surgical plan and surgical guide.
5. The surgical plan and surgical guide are sent to the dental laboratory or restorative doctor and used in conjunction with the Zimmer Biomet Parallel Walled Navigator Laboratory Kit (if no immediate provisional is desired, go to step 8).
6. The master cast is poured into the guide or the implant analogs are placed in the preoperative cast on a partially edentulous case using the guide.
7. The abutments are selected and the provisional prosthesis is fabricated and sent to the clinician.
8. The surgical guide and surgical plan are sent to the surgeon and used in conjunction with the Parallel Walled Navigator Surgical Kit.
9. The surgical guide is placed and may be fixated with 2 mm fixation screws.
10. The clinician will prepare the site(s) with the case-specific surgical plan and surgical guide for implant placement with the Zimmer Biomet Parallel Walled Navigator Surgical Kit.
11. The implants are placed through the surgical guide.
12. The Implant Mounts and surgical guide are removed.
13. If a traditional procedure is desired, a one or two-stage procedure is completed and a traditional provisional prosthesis – denture/Maryland Bridge/flipper partial – may be delivered.
14. The abutments and the provisional prosthesis are delivered.
15. The patient is able to go home that day with a brand new smile!





Photos courtesy of Dr. Harold Baumgarten†, Philadelphia, PA and Dr. Alan Meltzer†, Voorhees, NJ

†Dr. Baumgarten and Dr. Meltzer have financial relationships with BIOMET 3i LLC resulting from speaking engagements, consulting engagements and other retained services.

Getting Started

In order to utilize the Parallel Walled Navigator System, clinicians will need to purchase CT planning software from one of the planning software companies and have access to a CT scanning facility. Training on how to use the CT planning software chosen is essential for all clinicians and technicians involved in case treatment-planning. In addition, laboratory technicians will need to obtain the Parallel Walled Navigator System Laboratory Kit to fabricate the preoperative master cast and clinicians will need to obtain the Parallel Walled Navigator System Surgical Kit to place the implants. The complete system overview that describes each instrument and component included in the kits and their associated use begins on page 5.

Prior to sending the patient to the CT scanning facility, a radiopaque scanning appliance may be fabricated to show the desired tooth position of the restoration when seated in the mouth during the CT scan. Pages 13-17 in this manual are designed to guide surgeons, restorative clinicians and laboratory technicians through the process of fabricating a scanning appliance from an existing denture, a newly fabricated denture or a diagnostic wax up.

A page with tips from clinicians who evaluated the system prior to market release is also included in this manual on pages 10-11. These tips will help to ensure a smooth process from CT scan to the day of surgery and provisional delivery when using the system and may reduce the learning curve associated with use of the Zimmer Biomet Parallel Walled Navigator System For Guided Surgery.

Open Architecture System

The Parallel Walled Navigator System is designed to allow clinicians to place and provisionalize Zimmer Biomet Dental Implants using a variety of compatible CT planning software and surgical guides. The system is open architecture to be compatible with the current software and surgical guide providers listed below.

Materialise Dental, Inc.

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Introduction and Treatment Planning

This manual is designed to serve as a reference guide for dental practitioners to utilize Zimmer Biomet Dental Restorative Components and instruments. Zimmer Biomet Dental Implant Systems have been developed to meet the diverse needs of patients and to offer practitioners a choice of customized restorative techniques.

Zimmer Biomet Dental Implant and restorative component designs provide practitioners with a wide range of restorative options, including support for single tooth crowns, fixed and removable prostheses and attachments for securing overdentures. Zimmer Biomet Dental Implant and Abutment Systems utilize proven restorative designs and provide clinicians and patients with predictable treatment options.

General Information:

This manual provides guidelines for surgical and restorative practitioners and laboratory technicians in the use of the Zimmer Biomet Dental Navigator System For Guided Surgery. The success of any dental implant system depends upon proper use of the components and instrumentation. This manual is not intended for use as a substitute for professional training and experience.

Treatment Planning Patient Evaluation And Selection

Several important factors must be considered when evaluating a patient prior to implant surgery. The presurgical evaluation must include a careful and detailed assessment of the patient's general health, medical history, oral hygiene, motivation and expectations. If the patient's medical history reveals an existing condition or signals a potential problem that may compromise treatment and/or the patient's well being, consultation with a physician is recommended. In addition, the clinician should determine if the patient presents with an acceptable anatomical foundation that is conducive to implant placement. An extensive intraoral examination should be performed to evaluate the oral cavity for any potential bone or soft-tissue pathology. The clinician should also determine the periodontal status of the remaining teeth, the health of the soft-tissue, the presence of occlusal abnormalities or parafunctional habits, such as bruxism or crossbite and any other conditions that could adversely affect the restorative outcome.

Pre-Operative Planning

Proper treatment planning includes selection of appropriate implant lengths, diameters and locations. The number

of implants is a fundamental consideration for the long-term success of an implant supported restoration. Before an implant is placed, the anatomical foundation of the treatment area must be carefully assessed. During the presurgical restorative planning phase of cases with immediate provisionalization, it is important for the surgeon, restorative dentist and laboratory technician to participate in determining the type of prosthesis and restorative components that will be used. Such decision making is critical for determining the location of implants and should be finalized prior to implant surgery. A top-down treatment planning approach is recommended, whereby the final prosthesis is designed, implant locations determined and restorative components selected prior to initiating implant surgery.

Clinical information necessary for determining appropriate treatment options includes but is not limited to: determining vertical dimension, evaluating the space available between the alveolar crest and the opposing dentition to confirm that available space exists to accommodate the proposed abutment and final restoration, locating the position of important anatomic structures and determining bone dimensions where implants are to be placed. The height required by the restorative components varies with the type of abutment. Therefore, the surgeon and restorative dentist should carefully evaluate abutment dimensions. Diagnostic casts should be used pre-operatively to evaluate the residual ridge and to determine the position and angulation of all implants. These casts allow the clinician to evaluate the opposing dentition and its effect on implant position. A surgical guide is helpful in determining the precise intraoral position and angulation of the implants and should be included in the pre-operative treatment plan.

By visualizing the final design of the prosthesis prior to implant surgery, both restorative and surgical clinicians have the opportunity to identify potential restorative problems. They can then make the necessary modifications to implant selection, location and the overall treatment plan prior to actually placing the implants, thus improving treatment predictability and success.

Instrumentation Overview



The Zimmer Biomet Navigator System For Guided Surgery was developed in response to clinicians' growing interest in dental implant placement utilizing the benefits of Computed Tomography (CT) and the desire to accelerate patient provisionalization.

The Navigator System is open architecture. The system is used in conjunction with the leading planning software and case-specific surgical guides to enhance treatment planning and improve the accuracy of placing Zimmer Biomet Dental Implants.

CT guidance technology allows clinicians to determine more precisely the locations of anatomical structures and the dimensions of underlying bone as well as to ascertain bone densities in order to plan and perform cases. Use of CT scans allows procedures to be less invasive than traditional surgery. The necessary planning and added instrument precision can shorten chair time for full-arch, single-tooth and short-span implant cases, allowing for more efficient procedures.

The Navigator System can be used to fabricate a provisional prosthesis prior to implant placement by creating a master cast using the surgical guide.

The system allows clinicians to place dental implants in predetermined locations with proper hex orientation. This feature is especially beneficial for single tooth and cement retained provisionals. It offers clinicians the option to deliver a provisional prosthesis the day of surgery and the opportunity to perform bone, teeth and tissue supported (flapless) surgery.

The Zimmer Biomet Parallel Walled Navigator System For Guided Surgery includes the Parallel Walled Navigator Surgical Kit and the Parallel Walled Navigator Laboratory Kit. These kits make it possible for clinicians to restore and place Certain® Parallel Walled 3.25, 4 & 5 mm Implants, Osseotite XP® 4/5 mm Implants, Prevail® 3/4/3, 4/5/4 and straight Prevail 4/3 and 5/4 mm Implants. With this design, Zimmer Biomet Dental is able to support the majority of clinical situations and compliment the use of a wide range of prosthetic options.

A 2 mm Fixation System (31-3100) is available through Zimmer Biomet Dental Microfixation. To order this Fixation System, please contact Zimmer Biomet Dental Microfixation at 1-800-874-7711.

Master Tubes

Master Tubes guide instruments through the surgical guide. These provide a predetermined depth stop for the Twist Drills and Implant Mounts and ensure identical hex orientation and positioning between the lab analog and final implant placement. The Master Tubes are positioned in the surgical guide by the surgical guide manufacturer.

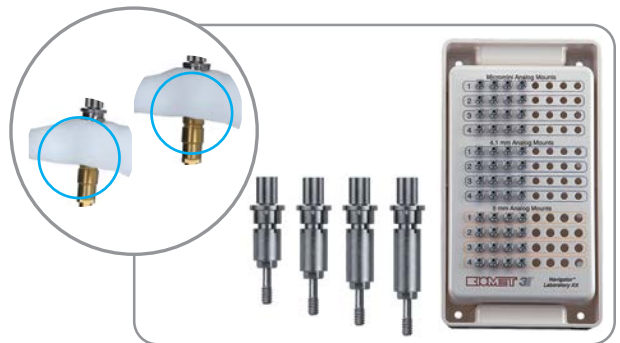
The “slot” feature on the Master Tubes is used for alignment with the Analog Mounts for analog placement when fabricating the master cast and for alignment with the Implant Mounts and implants during surgery.



Laboratory Kit Components

Implant Analog Mounts

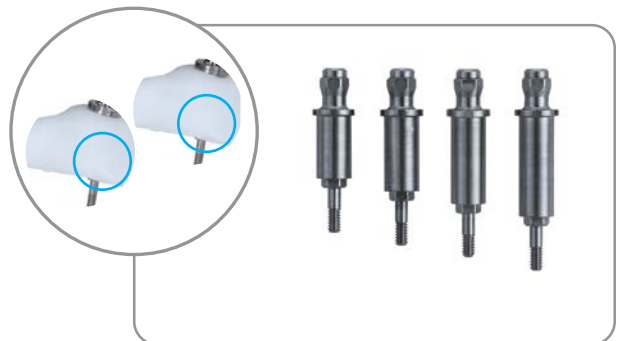
The Parallel Walled Navigator Laboratory Kit is comprised of Implant Analog Mounts used through the Master Tubes in the surgical guide to position implant analogs into a cast. The laboratory kit, like the surgical kit, contains twelve unique mounts with the Certain Connection and these mounts are available in three diameters (3.4, 4.1 and 5 mm) and four lengths identified as (1), (2), (3), and (4). Because a specific Analog Mount may be required multiple times, four complete sets of Analog Mounts are available in the kit for a total of 48 Analog Mounts. The Analog Mounts feature a mechanical-locking system to hold the implant analog in place (vertically, laterally and rotationally) within the Master Tube. A peg on the side of the Analog Mounts is aligned with one of the slots on the Master Tube to ensure accurate transfer of the hex orientation from the pre-operative master cast to the mouth.



Surgical Kit Components

Implant Mounts

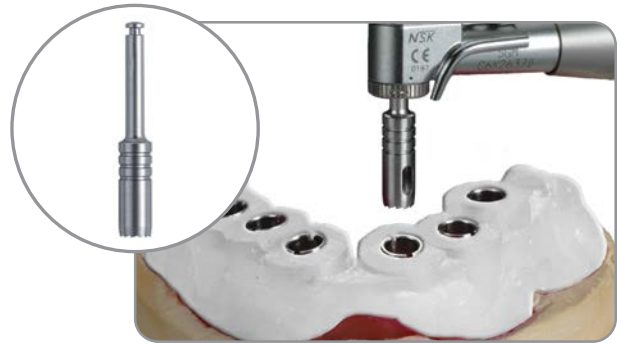
Implant Mounts are used through the Master Tubes in the surgical guide to place implants. The Implant Mounts have the Certain Connection and are available in three diameters (3.4, 4.1 and 5 mm) and four lengths identified as (1), (2), (3), and (4) for a total of twelve unique Implant Mounts. Because a specific Implant Mount may be required multiple times, five complete sets of Implant Mounts are available in the kit for a total of 60 Implant Mounts. Implant Mounts are depth specific with a flange for a depth stop. A “spline” feature on the flange can be used as a visual reference during implant placement to orient the hex connection of the implant. The cutouts on the flange are aligned with the slots on the Master Tube to ensure accurate transfer of the hex orientation from the pre-operative master cast to the mouth.



Tissue Punches

The Tissue Punches are used through the Master Tubes in the surgical guide to remove soft tissue for flapless surgery. The Tissue Punches are available in two diameters (4 and 5 mm) and one length and contain depth markings of (1), (2), (3) and the top of the Tissue Punch (4) to correspond with the surgical plan (protocols) for use during surgery.

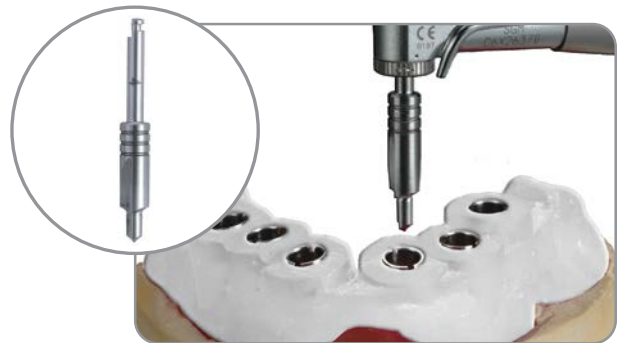
The recommended drill speed is 300 rpm.



Starter Drills

The Tissue Punches are used through the Master Tubes in the surgical guide to remove soft tissue for flapless surgery. The Tissue Punches are available in two diameters (4 and 5 mm) and one length and contain depth markings of (1), (2), (3) and the top of the Tissue Punch (4) to correspond with the surgical plan (protocols) for use during surgery.

The recommended drill speed is 300 rpm.



Drill Positioning Handles

The handles contain drill guide tubes that are placed within the Master Tubes of the surgical guide to guide and stop the Twist Drills at a specific predetermined depth for preparation of the osteotomy. There are five handles [handles (1) and (2) for use with 4 mm Master Tubes and handles (3), (4) and (5) for use with 5 mm Master Tubes]. These contain drill guide tubes to accommodate the various drill diameters (2, 2.75, 3, 3.25, 3.85 and 4.25 mm).



Twist Drills

The Twist Drills are used to prepare the osteotomy for implant placement. Once the surgical guide is in place, the Drill Positioning Handles with drill guide tubes are inserted into the Master Tubes of the surgical guide. The Twist Drills are inserted through these guide tubes. The drills are depth-specific with no depth lines and contain flanges to stop the drills when these make contact with the drill guide tube component of the Drill Positioning Handles. Twist Drills are available in six diameters (2, 2.75, 3, 3.25, 3.85 and 4.25 mm) to allow surgeons to appropriately size osteotomies based on observed bone densities, clinical preference and multiple lengths (A, B, C, D, E).

The recommended drill speed is 1200 - 1500 rpm.

The drills included in the surgical kit will accommodate 90% of all possible scenarios. Special drills required for the remaining 10% have been left out to simplify the surgical kit. In these special cases, Y or Z drills may be prescribed by the surgical plan. These drills may be purchased separately as needed.

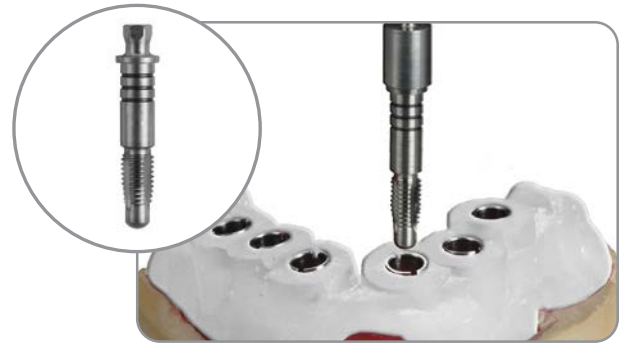


NOTE: Drill lengths do not necessarily correspond to implant lengths; rather these are dictated by the surgical plan (protocols) based on the prolongation (distance between the position of the Master Tubes and implant seating surface).

Bone Taps

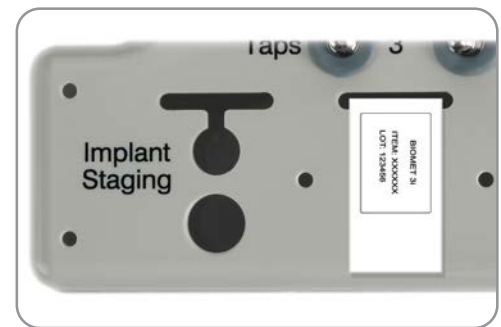
Bone Taps are used through the Master Tubes in the surgical guide to thread a 5.5 mm section of the osteotomy prior to implant placement. The Bone Taps are available in four diameters (3.25, 4, 4/5 and 5 mm) and one length. These contain depth markings (1), (2), (3) and at (4) the Bone Tap body has a depth stop. These markings correspond with the surgical plan (protocols) for use during surgery.

The recommended drill speed is 15 - 20 rpm.



Implant Staging

The Navigator Surgical Kit contains eight implant holder slots to receive the inner packaging of Zimmer Biomet Dental Implants, similar to existing surgical kits. Implants will be manually pre-mounted here in preparation for placement



Bone Profilers

Handheld Bone Profilers are available to manually remove crestal bone for proper abutment seating after the surgical guide is removed for 3.4, 4 and 5 mm implants.

Miscellaneous Tools

Miscellaneous standard drivers and ratchets are included in the system to place Zimmer Biomet Dental Implants. These tools include the following: PHD02N, RASH3N, MDR10, CW100, WR150 and RE100.



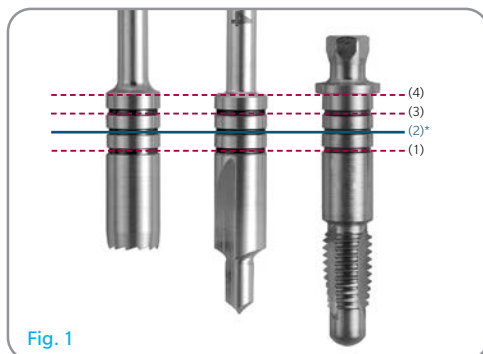
Surgical Plan Overview

The Parallel Walled Navigator System For Guided Surgery works in conjunction with the surgical plan, which is provided by the CT planning software company. Each surgical plan is case-specific to provide direction regarding the instrumentation that will be used for each implant site.

Implant Label	3	4	6	8	9	11	12	13	14
Implant Reference Number	IIOS4513	IOSS415	IOSM311	IOSS413	IOSS415	IOSS413	IOSS413	IOSS415	IOSS513
Planned implant diameter (mm)	4/5	4	3.25	4	4	4	4	4	5
Planned implant length (mm)	13	15	11.5	13	15	13	13	15	13
Implant Placement									
Depth Line	(1)	(2)	(4)	(1)	(3)	(1)	(3)	(2)	(1)
Tissue Punch	5	4	4	4	4	4	4	4	5
Starter Drill	4/5	4	3	4	4	4	4	4	5
Drill / Handle	2.0(B)/3	2.0(D)/1	2.0(C)/1	2.0(B)/1	2.0(E)/1	2.0(B)/1	2.0(C)/1	2.0(D)/1	2.0(B)/3
Drill / Handle	3.25(B)/4	3.25(D)/2	2.75(C)/1	3.25(B)/2	3.25(E)/2	3.25(B)/2	3.25(C)/2	3.25(D)/2	3.25(B)/4
Drill / Handle									4.25(B)/5
Tap	4/5	4	3	4	4	4	4	4	5
Implant Mount	5(1)	4(2)	3(4)	4(1)	4(3)	4(1)	4(3)	4(2)	5(1)
Bone Profiler	4	4	3	4	4	4	4	4	5
Analog Placement									
Analog Mount	5(1)	4(2)	3(4)	4(1)	4(3)	4(1)	4(3)	4(2)	5(1)

The surgical plan specifies the depth line for instruments that pass directly through the surgical guide Master Tubes including the Tissue Punch, Starter Drill and Bone Taps. These instruments have landmarks referenced as (1), (2), (3) and (4) that indicate the proper depth to which these instruments should be used through the Master Tubes [Figure 1]. There are three lines on each instrument; the first line represents depth line (1), while the top of the instrument represents depth line (4). The instruments pass through the Master Tube until the center of the specified line on the instrument reaches the top of the Master Tube [Figure 2].

The depth lines also determine what Implant Mount and Implant Analog Mount must be used. These are labeled by diameter and length. Therefore a 4 mm implant that has a 3 mm depth line will be specified as a 4(3).



Tips and Techniques

Planning:

- Be sure the CT scanning appliance fits and is seated completely in the mouth before the scan is performed. Failure to confirm a stable fit of the scanning appliance may result in a poorly fitting surgical guide affecting the outcome of the procedure.
- Refer to the surgical guide manufacturer for specific instructions on how to mask anatomical structures and plan for fixation of the surgical guide.
- Download the most recent version of planning software including implant libraries.
- Implants currently compatible with the Navigator System Include:
 - Certain Parallel Walled 3.25, 4 & 5 mm Implants
 - Osseotite XP 4/5 mm Implants
 - Prevail 3/4/3, 4/5/4 and straight Prevail 4/3 and 5/4 mm Implants.
- Height of the master cylinder above the implant platform is variable (7.5, 9, 10.5, 12 mm) and determined by the surgical guide manufacturer.
- **To determine the overall drill length, the respective tip length for a given diameter should be added to the drill cutting length of the specified drill.**

Table: Drill Tip Lengths	
Drill Diameter (mm)	Tip Length (mm)
2	0.58
2.75	0.73
3	0.86
3.25	0.98
3.85	1.1
4.25	1.21

- If planning a cement-retained full arch case, consider implant sites with the greatest potential for stability in order to screw-retain these locations in combination with cement retaining others based on:
 - Bone density readings (in Hounsfield Units) from CT Scan
 - Potential implant length and position relative to the restoration

Preparation:

- Inspect the surgical guide for imperfections and reinforce potential weak areas of the surgical guide with acrylic.
- Try-in the Drill Positioning Handles in case the guide may need adjustments to allow the Drill Positioning Handles to fully seat.
- Clear the Master Tubes of any material remaining from the surgical guide manufacturer.
- Score the Master Tube notch position on the surgical guide to record the hex-orientation landmarks [\[Figure 1\]](#).

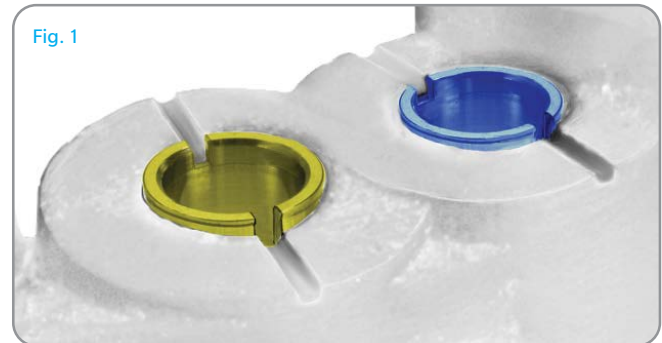


Fig. 1

- Preparation of a master cast may be advised to confirm the planned position and restorative considerations of implants prior to surgery.
- Review the CT scan data for bone density to anticipate areas of poor bone quality and areas where implant stability may be compromised. During use, surgical guides provide little tactile confirmation of bone density.

Clinical Use:

- For flapless cases, use a Tissue Punch prior to fixation of the Surgical Guide. Remove the Surgical Guide and the tissue plugs. Then, replace and fixate the Surgical Guide.
- All instrumentation should be advanced as far as possible through the Master Tube(s) or the Drill Positioning Handles and into the osteotomy prior to activation. This will limit the possibility of damaging either the instruments or the tube(s) [Figure 2].



Fig. 2

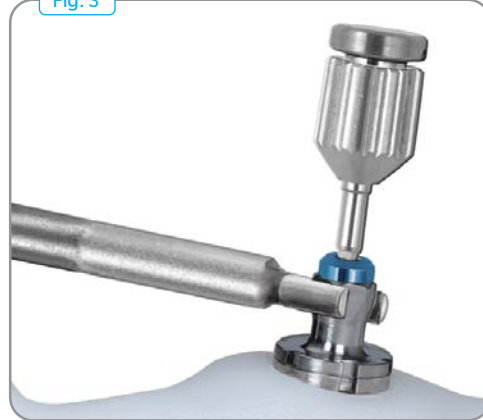


- Use copious irrigation on instruments prior to and during use to provide lubrication and cooling when passing through the Master Tube(s) and/or Drill Positioning Handle(s). Irrigate and suction the osteotomy and tubes to remove debris between each step of the Surgical Plan and prior to implant placement.
- Undersize the osteotomy to increase likelihood of initial implant stability (ie. when planning for a 4 mm implant use 3 mm as final Twist Drill; 5 mm implant use 3.85 mm as final Twist Drill. If necessary, increase the diameter of the final Twist Drill appropriately).
- Avoid applying lateral force on the instrumentation during use, as this may cause damage or premature wear.
- When using the Implant Mounts and Bone Taps, progress the instruments until the instrument flange contacts the Master

Tube. It is recommended to use the WR150 Ratchet Wrench with extension for final rotations of these instruments. Once seated, do not continue to rotate these instruments as this can cause damage to the instrumentation or osteotomy [Figure 3].



Fig. 3



- The Implant Mounts must be fully engaged within the implant prior to tightening the Implant Mount Screw.
- Sequence the placement of implants in an alternating cross arch pattern, moving from one side to the other so as to not compress soft-tissue. For cases requiring more than two (2) implants, removal of the subsequent Implant Mounts immediately following implant placement will reduce divergent forces on the Surgical Guide.
- When removing Implant Mounts, remove along the path of insertion and avoid applying lateral force. A slight counter-clockwise torque applied to the Implant Mount with the CW100 may assist with Implant Mount removal.
- Use Bone Profilers prior to placing abutments of any type. Use an oversized profiler when placing angulated abutments.

Immediate Provisionalization Option

A key benefit of using the Zimmer Biomet Navigator System for Guided Surgery is the option to use a CT surgical guide to create a preoperative master cast and a fixed provisional restoration in the laboratory prior to the day of surgery. This may allow the clinician to insert a provisional restoration immediately following implant placement using the surgical guide and provides the patient with aesthetic and functional teeth the same day.

Pages 13-28 in this manual are designed to guide surgeons, restorative clinicians and laboratory technicians through the process of fabricating a preoperative master cast and a provisional restoration for insertion following the placement of Zimmer Biomet Dental Implants using the Parallel Walled Navigator System For Guided Surgery. The CT software company may also offer the option of fabricating a stereo lithographic model for use in creating a master cast.

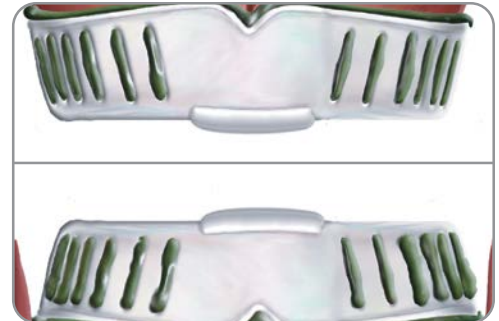
The provisional may be fabricated using a variety of Zimmer Biomet Dental Provisional Components. These components and manual guidelines were developed to provide an easy to use way to deliver an accurately fitting provisional restoration on the day of surgery regardless of potential error from CT scan data, cast fabrication or implant placement. When selecting the provisional component to use, it is important to identify the type of definitive prosthesis and the abutment system that will be used to create it. The chart below includes recommendations that a clinician may want to consider for provisional component selection dependent upon the type of definitive restoration planned.

Provisional Component	Seating Platform	Provisional Restoration	Final Restoration
PreFormance Posts	Direct to Implant	Cement-Retained	Cement-Retained Or Screw-Retained
PreFormance Temporary Cylinders	Direct to Implant	Screw-Retained	Cement-Retained Or Screw-Retained
Provide® Temporary Cylinders	Abutment Level (For Provide® Abutments Only)	Cement-Retained	Cement-Retained
QuickBridge Provisional Restoration Components	Abutment Level (For Conical Abutments Only)	Cement-Retained	Screw-Retained

Fabrication of a New Denture or Partial Denture and CT Scanning Appliance

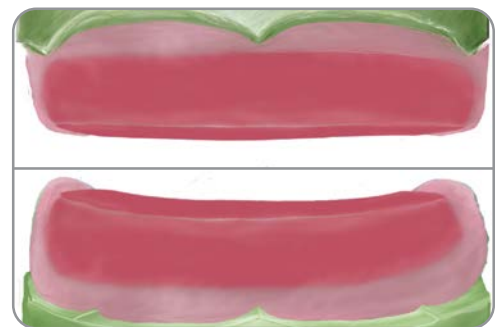
Clinician

1. Make impressions of the maxillary and mandibular arches.



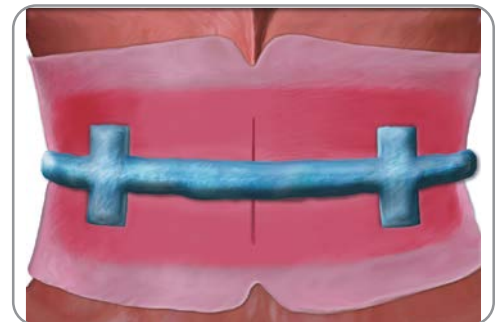
Laboratory

2. Pour the maxillary and mandibular impressions in die stone. Fabricate baseplate(s) and wax occlusal rim(s) on the cast(s).



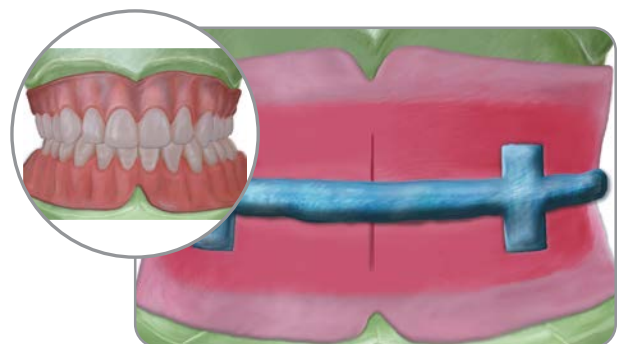
Clinician

3. Place the wax occlusal rim(s) in the mouth, contour appropriately and make an interocclusal registration.



Laboratory

1. Articulate the maxillary and mandibular casts using the interocclusal registration. Set denture teeth on the baseplate(s) and wax for try in.



Clinician

5. Place the wax try-in(s) in the mouth. Verify the occlusion, aesthetics and phonetics. Make any adjustments necessary. If major adjustments are necessary, make a new interocclusal registration and return to the laboratory for a new set-up and wax try-in.

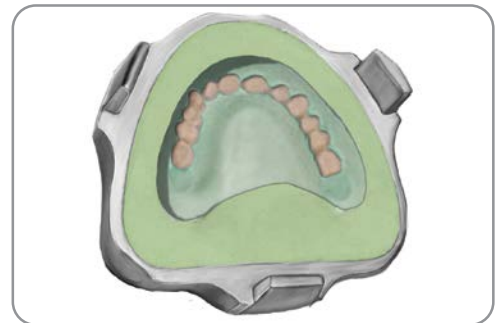


Laboratory

6. Wax the denture for the arch in which implants will be placed for processing, and flask it. Separate the flask, and boil away the wax. Process, finish and polish the denture. Using a denture duplication flask, mix the duplication material and place it into one side of the flask. Place the patient's existing denture into the material with the soft-tissue side down. Allow the duplication material to set per the manufacturer's instructions. Apply a separator to the surface. Mix the duplication material and place it into the other side of the flask and close the flask over the denture. Allow the duplication material to set. Separate the flask and remove the denture.



7. Create a mixture of 30% barium sulfate and cold-cure acrylic resin. Pour the mixture into the tooth areas only. Allow the acrylic resin to set per the manufacturer's instructions. Create a mixture of 10% barium sulfate and cold-cure acrylic resin. Pour the mixture into the flask. Close the flask tightly. Allow the acrylic resin to set.



8. Remove the CT scanning appliance from the flask, finish and polish. Place the appliance on the cast. Place the cast on the articulator and make an interocclusal registration. The scanning appliance is returned to the clinician for the CT scan and the occlusal registration is set aside for later use.



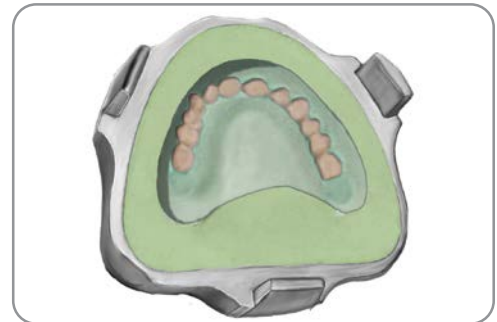
Fabrication of CT Scanning Appliance Using an Existing Denture

Clinician or Laboratory

1. Using a denture duplication flask, mix the duplication material and place it into one side of the flask. Place the patient's existing denture into the material with the soft-tissue side down. Allow the duplication material to set per the manufacturer's instructions. Apply a separator to the surface. Verify the occlusion duplication material and place it into the other side of the flask and close the flask over the denture. Allow the duplication material to set. Separate the flask and remove the denture.



2. Create a mixture of 30% barium sulfate and cold-cure acrylic resin. Pour the mixture into the tooth areas only. Allow the acrylic resin to set per the manufacturer's instructions. Create a mixture of 10% barium sulfate and cold-cure acrylic resin. Pour the mixture into the flask. Close the flask tightly. Allow the acrylic resin to set.



3. Remove the CT scanning appliance from the duplication flask, finish and polish.



Clinician

4. Place the CT scanning appliance in the mouth and equilibrate. Make an interocclusal registration. Send the scanning appliance with the patient for the CT scan and set aside the interocclusal registration for later use.



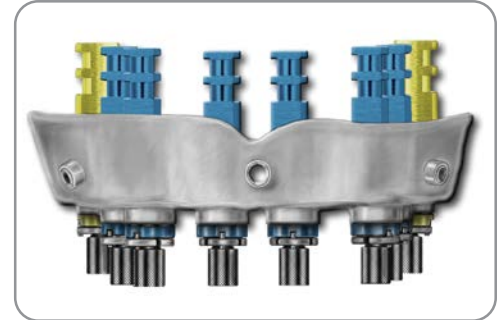
Pre-Surgical Fabrication of an Edentulous Fixed Provisional Restoration

Fabrication of Master Cast, Articulation and Vacuum Formed Template

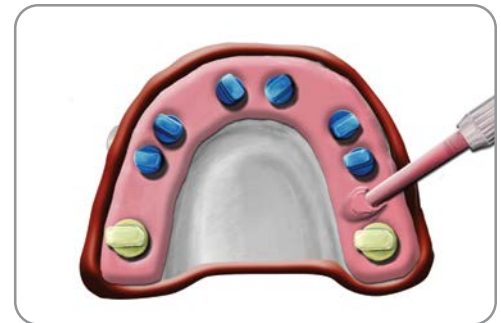
Laboratory

1. Select the proper diameter and length Analog Mounts for each implant position following the instructions provided by the Surgical Guide manufacturer. Place the Implant Analogs onto the Analog Mounts, line up the hexes and thread the thumb screws into these approximately two turns. Place the Analog Mount/Analog assemblies through the Master Tubes, engage the rotational positioning pin into the notch and tighten the thumb screws using the Square Driver.

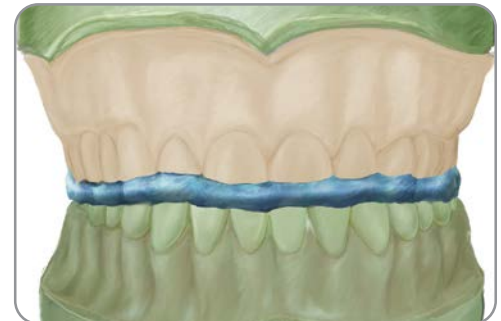
TIP: Over-tightening the Analog Mounts outside of the Master Tubes may damage the Analog Mounts.



2. Bead and box the Surgical Guide using rope wax. Apply a stone separator around the inside of the guide. Syringe soft-tissue material around the analogs approximately 2 mm apical from the interface of the Analog Mount. Pour stone into the Surgical Guide to create the master cast and allow it to set. Unscrew the thumb screws and remove the Analog Mounts. Carefully separate the Surgical Guide from the master cast.



3. Bead and box the Surgical Guide using rope wax. Apply a stone separator around the inside of the guide. Syringe soft-tissue material around the analogs approximately 2 mm apical from the interface of the Analog Mount. Pour stone into the Surgical Guide to create the master cast and allow it to set. Unscrew the thumb screws and remove the Analog Mounts. Carefully separate the Surgical Guide from the master cast.



4. Make a vacuum formed template over the scanning appliance on the cast. Remove the template and the scanning appliance and separate those.

Continue on to step 5 (pages 22, 24 or 26) for abutment selection and provisional restoration fabrication.

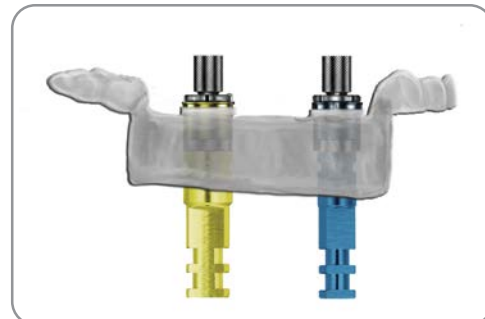


Pre-Surgical Fabrication of a Partially Edentulous Fixed Provisional Restoration

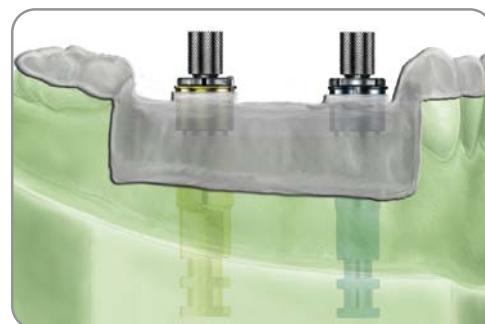
Laboratory

1. Select the proper diameter and length Analog Mounts for each implant position following the instructions provided by the Surgical Guide manufacturer. Place the Implant Analogs onto the Analog Mounts, line up the hexes and thread the thumb screws into these approximately two turns. Place the Analog Mount/Analog assemblies through the Master Tubes, engage the rotational positioning notches and tighten the thumb screws using the Square Driver.

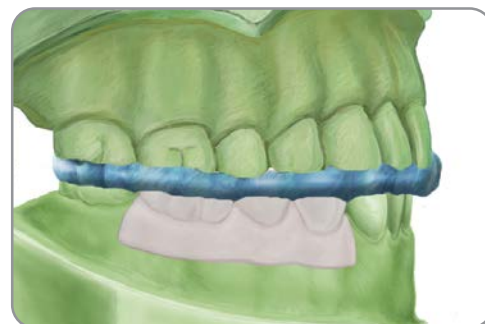
TIP: Over-tightening the Analog Mounts outside of the Master Tubes may damage the Analog Mounts.



2. Mark the planned implant locations on the preoperative cast and drill holes for each implant that is slightly larger in diameter than the Implant Analogs. Do not drill through the guide. Insert the Implant Analogs attached to the Surgical Guide into the holes, and seat the guide onto the remaining teeth on the cast. Fixate the analogs in the cast using stone or pattern resin. Unscrew the thumb screws and remove these. Remove the Surgical Guide from the master cast.



3. If a scanning appliance was fabricated on the cast, place it on the master cast and verify the fit and tooth position. Articulate the master cast with the opposing cast using the occlusal registration.



4. Make a vacuum formed template over the scanning appliance or diagnostic setup on the cast. Remove the template and the scanning appliance or setup and separate those.

Continue on to step 5 (pages 18 or 20) for abutment selection and provisional restoration fabrication.



Cement-Retained PreFormance Post

Continued from Laboratory Procedure (Steps 1-4) on page 17.

Abutment Selection

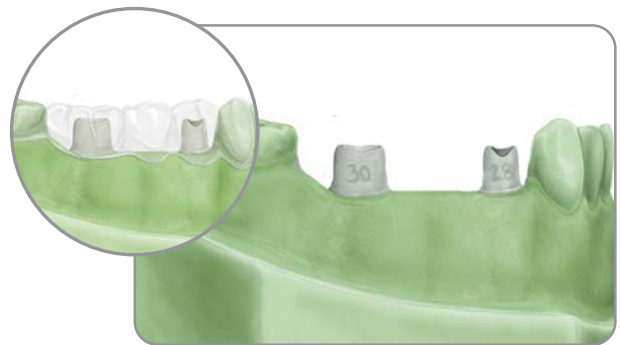
5. Measure the soft-tissue depth in the interproximal areas at each location and select the proper abutment collar height that will allow the margin to be at soft-tissue level or slightly below after preparation. Also, select the desired emergence profile and a straight or 15° angled PreFormance Post. Finally, match the color-coding of the Implant Analog to determine the platform diameter.



6. Place the selected PreFormance Posts into each Implant Analog. Line up the hexes and place the flat side of the post toward the buccal aspect. Press firmly until feeling and/or hearing the audible and tactile click. Secure the abutments into place using a Certain Titanium Abutment Screw and the Large Hex Driver.



7. Prepare the margin of each PreFormance Post following the gingival contour at soft-tissue level or slightly below and prepare the post area for the proper draw of single or multiple units. A rough diamond bur is recommended. Number each abutment with the tooth position on the buccal side with a bur. Seal the abutment screw access openings with wax or putty.



Provisional Restoration Fabrication

8. Place the vacuum formed template on the master cast over the PreFormance Posts. Reduce the posts as necessary so that these fit within the template. Block out the undercuts on the adjacent teeth. Place the cast back on the articulator. Apply a separator to the posts and the casts. Fill the tooth portion of the template with acrylic resin. Fully seat the template on the cast over the abutments using the articulation. Allow the acrylic resin to set per the manufacturer's instructions.



Or

Duplicate the master cast with the abutments in place. Articulate, wax the provisional restoration on the duplicate cast and process it in acrylic resin.

9. Remove the template from the PreFormance Posts. Remove the provisional restoration from the template. Remove all excess acrylic resin from around the margin areas and fill in any voids. Finish the restoration to the desired contour and polish.

Optional: Relieve each abutment area for the intraoral reline of the provisional restoration.



CT Guided Surgical Implant Placement

Clinician

10. Place the implants using a Surgical Guide and following the Surgical Guide instructions provided by the guide manufacturer.

See page 9 for an example of a Surgical Plan.



Post Surgical Delivery of Provisional Restoration

11. Place each PreFormance Post into the implants, one by one, following the tooth position numbers on the buccal aspect. Press firmly until feeling and/or hearing the audible and tactile click. Thread the titanium abutment screw into each implant using the Large Hex Driver. Verify an accurate fit of each abutment by visualizing the interfaces or by taking a radiograph. Torque the abutment screws to 20 Ncm using the Large Hex Driver Tip and a torque device. Seal each screw access opening with a temporary filling material. Try in the provisional restoration over the PreFormance Posts and verify it fits to the margins properly. Adjust the occlusion as indicated and remove the provisional restoration.



4. If the provisional restoration did not fit passively, place acrylic resin into each abutment area, seat the provisional restoration onto the abutments and have the patient close into centric occlusion. Allow the acrylic resin to set per the manufacturer's instructions. Remove the provisional restoration and fill in any voids. It may be necessary to remove the PreFormance Posts and place those into the provisional restoration to fill marginal voids. Remove any excess acrylic resin and polish. Place temporary cement into the provisional restoration, seat it on the abutments and have the patient close into centric occlusion. Remove any excess cement from around the margin areas. Allow the cement to set per the manufacturer's instructions. If a flap procedure was used during surgery, suture the soft-tissue around the PreFormance Posts and the provisional restoration.



Cement-Retained Provide Abutment and Temporary Cylinder

Continued from Laboratory Procedure (Steps 1-4) on page 17.

Abutment Selection

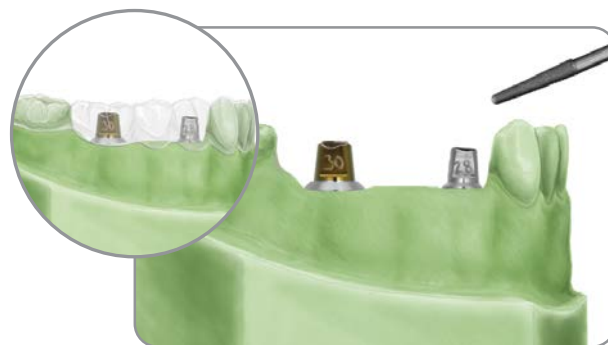
5. Select the proper Provide Abutment collar height for each implant by measuring the soft-tissue depth on the buccal side at each position. If a 1 mm subgingival margin is desired, subtract 1 mm. Also, select the proper post height that will allow approximately 2 mm of interarch space between the top of the post and the opposing occlusion. Finally, match the color-coding of the Implant Analog to determine the platform diameter.



6. Place the selected Provide Abutments into each Implant Analog. Line up the hexes and place the flat side of the post toward the buccal aspect. Press firmly until feeling and/or hearing the audible and tactile click. Secure the abutments into place using a Certain Try-In Screw and the Large Hex Driver.

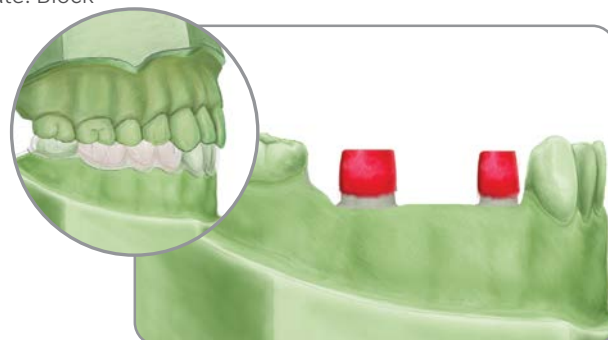


7. Preparation of the post portion of the Provide Abutment may be necessary to achieve the proper draw for multiple-units. A carbide bur is recommended. Do not prepare the margin area of the abutment as this will impact the fit of interfacing components. Number each abutment with the tooth position on the flat side with a bur. Seal the abutment screw access openings with wax or putty.



Provisional Restoration Fabrication

8. Select the appropriate Provide Temporary Cylinder for single or multiple units. Place the temporary cylinders on each abutment and verify complete seating at the margin. Place a small amount of wax at the margin area of each Provide Temporary Cylinder to ensure that the fit remains passive on the abutment margin during fabrication of the provisional restoration. Place the vacuum formed template on the master cast over the temporary cylinders. Reduce the cylinders as necessary so that these fit within the template. Block out the retention facets on the cylinders with wax. Block out the undercuts on the adjacent teeth. Apply a separator to the cast. Fill the tooth portion of the template with acrylic resin. Place the cast back on the articulator. Fully seat the template on the cast over the temporary cylinders using the articulation. Allow the acrylic resin to set per the manufacturer's instructions.



Or

Duplicate the master cast with the Provide Abutments and temporary cylinders in place. Articulate, wax the provisional restoration on the duplicate cast and process it in acrylic resin.

9. Remove the template from the Provide Abutments with the temporary cylinders inside the acrylic resin. Remove the provisional restoration from the template. Remove the temporary cylinders from the provisional restoration. Remove all excess acrylic resin from around the margin areas and fill in any voids. Finish the restoration to the desired contour and polish.



CT Guided Surgical Implant Placement

Clinician

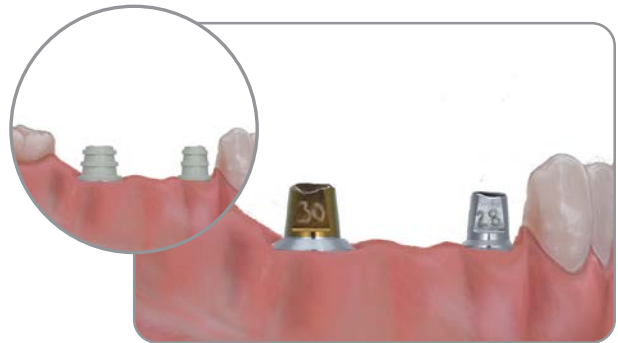
10. Place the implants using a Surgical Guide and following the Surgical Guide instructions provided by the guide manufacturer.

See page 9 for an example of a Surgical Plan.



Post Surgical Delivery of Provisional Restoration

11. Place each Provide Abutment into the implants, one by one, following the tooth position numbers on the buccal aspect. Press firmly until feeling and/or hearing the audible and tactile click. Thread the Certain Gold-Tite® Screw into the implant using the Large Hex Driver. Verify an accurate fit of each abutment by visualizing the interfaces or by taking a radiograph. Torque the abutment screws to 20 Ncm using the Large Hex Driver Tip and a torque device. Seal each screw access opening with a temporary filling material. Place a small amount of temporary cement inside each Provide Temporary Cylinder and seat it on the Provide Abutment. Try in the provisional restoration over the temporary cylinders and verify it fits to the margins properly. Adjust the occlusion as indicated and remove the provisional restoration.



12. If a flap procedure was used during surgery, suture the soft-tissue around the Provide Abutments. Place acrylic resin into the retention facets on each Provide Temporary Cylinder and into each abutment area on the provisional restoration. Seat the provisional restoration on the cylinders and have the patient close into centric occlusion. Allow the acrylic resin to set per the manufacturer's instructions. Remove the provisional restoration and fill in any voids. Remove any excess acrylic resin and polish. Place temporary cement into the provisional restoration, seat it on the abutments and have the patient close into centric occlusion. Remove any excess cement from around the margin areas. Allow the cement to set per the manufacturer's instructions.



Screw-Retained Low Profile Abutment and Temporary Cylinder

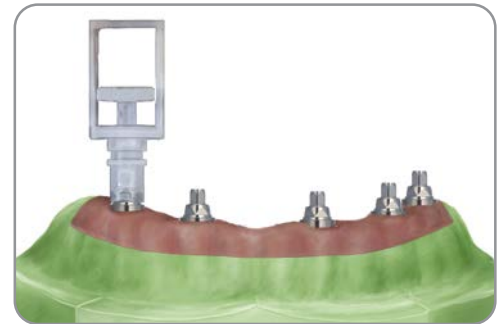
Continued from Laboratory Procedure (Steps 1-4) on page 16.

Abutment Selection

5. Select the proper Low Profile Abutment collar height for each implant by measuring the soft-tissue depth on the buccal side at each location. If a 1 mm subgingival margin is desired, subtract 1 mm. Next, select the proper abutment angulation; straight, 17° or 30°. Allow approximately 3.5 mm of interarch distance between the top of the abutment and the opposing occlusion. Finally, match the color-coding of the Implant Analog to determine the platform diameter.

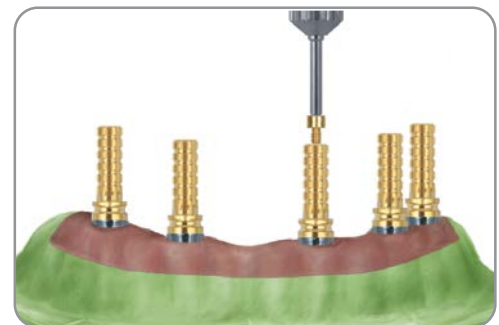


6. Place the selected Low Profile Abutments into each Implant Analog and press firmly until feeling and/or hearing an audible and tactile click. Secure the abutments into place using the Low Profile Abutment Screws and the Abutment Driver.

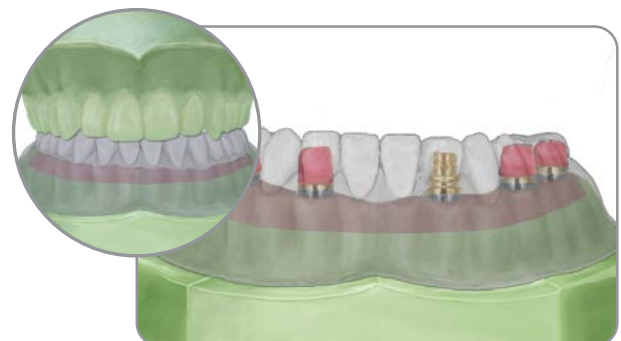


Provisional Restoration Fabrication

7. Select the appropriate Low Profile Temporary Cylinders for single or multiple units. Place a Low Profile Temporary Cylinder on each of the abutments. Secure the cylinders into place using the Low Profile Titanium Screw and the Large Hex Driver.



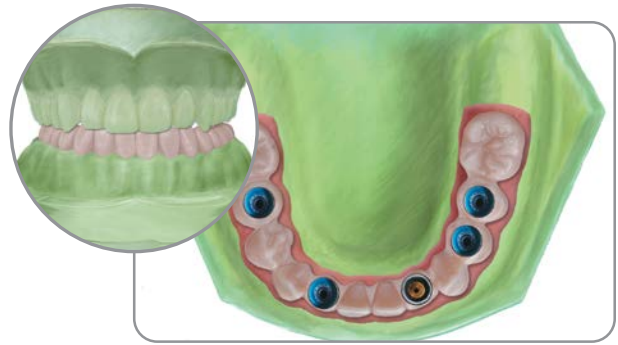
8. Drill holes in the vacuum formed template in the areas of the Low Profile Temporary Cylinders. Place the vacuum formed template on the master cast over the temporary cylinders. Reduce the cylinders as necessary so that these fit within the template using a carbide bur. Seal the cylinder screw access openings with wax or putty. Select one cylinder in an area with dense bone to process it into the provisional restoration. Block out the retention facets on all other cylinders with wax. Place the cast back on the articulator. Add acrylic resin into the retention facets on the selected cylinder and fill the tooth portion of the template with acrylic resin. Fully seat the template on the cast over the temporary cylinders using the articulation. Allow the acrylic resin to set per the manufacturer's instructions.



Or

Duplicate the master cast with the Low Profile Abutments and Temporary Cylinders in place. Articulate, wax the provisional restoration on the duplicate cast and process it in acrylic resin.

9. Clear the cylinder screw access opening and remove the retaining screw from the selected cylinder. Remove the template from the cast over the non-processed cylinders with the selected temporary cylinder inside the acrylic resin. Remove the provisional restoration from the template. Remove all excess acrylic resin from around the margin areas and fill in any voids. Relieve the holes for the other cylinders as necessary so the provisional restoration can be placed over these and removed easily. Fill in any voids. Finish the restoration to the desired contour and polish.



CT Guided Surgical Implant Placement

Clinician

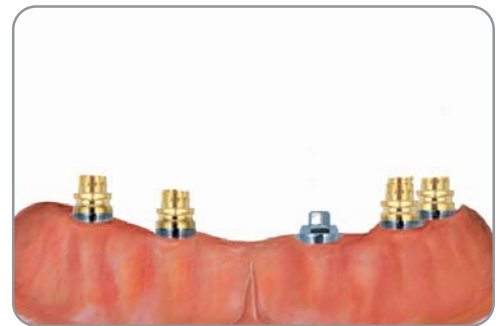
10. Place the implants using a Surgical Guide and following the Surgical Guide instructions provided by the guide manufacturer.

See page 9 for an example of a Surgical Plan.



Post Surgical Delivery of Provisional Restoration

11. Place each Low Profile Abutment into the implants, one by one, in the proper locations. Press firmly until feeling and/or hearing the audible and tactile click. Thread the Low Profile Abutment Screws into the implants using the Abutment Driver. Verify an accurate fit of each abutment by visualizing the interfaces or by taking a radiograph. Torque the abutment screws to 20 Ncm using the Abutment Driver Tip and a torque device. Place a Low Profile Temporary Cylinder on an abutment on the opposite side of the arch from the selected lab-processed cylinder. Secure the cylinder into place using the Low Profile Titanium Screw and the Large Hex Driver. Seal the screw access opening with impression material. Try in the provisional restoration over the Low Profile Temporary Cylinder and secure it into place by threading a retaining screw through the lab-processed cylinder. Verify that it fits to the cylinder margins properly. Adjust the occlusion as indicated and remove the provisional restoration.



12. If a flap procedure was used during surgery, suture the soft tissue around the Low Profile Abutments. Place acrylic resin into the retention facets on the Low Profile Temporary Cylinder and into the cylinder area on the provisional restoration. Seat the provisional restoration over the cylinder and secure it into place by threading a retaining screw through the lab-processed cylinder. Have the patient close into centric occlusion. Allow the acrylic resin to set per the manufacturer's instructions. Remove the Low Profile Titanium Screws and remove the provisional restoration. Place the remaining Low Profile Temporary Cylinders on the abutments and lute these into the provisional restoration by repeating the prior steps. Fill in any voids. Remove any excess acrylic resin and polish. Secure the provisional restoration into place with the Low Profile Gold-Tite Retaining Screws using the Large Hex Driver. Torque the screws to 20 Ncm using the Large Hex Driver Tip and a torque device. Place a temporary filling material into the screw access openings and seal those with composite resin. Adjust the occlusion as indicated.



Screw-Retained PreFormance Temporary Cylinder

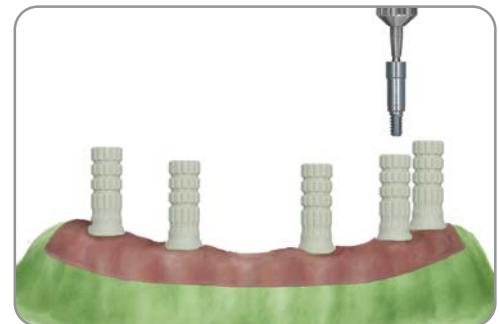
Continued from Laboratory Procedure (Steps 1-4) on page 16.

Abutment Selection

5. PreFormance Temporary Cylinders are designed to allow acrylic resin to be added to develop the desired subgingival and supragingival contour to the restoration. The hexed cylinder is used for single-units and the non-hexed cylinder is used for multiple-unit provisional restorations. Match the color-coding of the Implant Analog to determine the platform diameter.

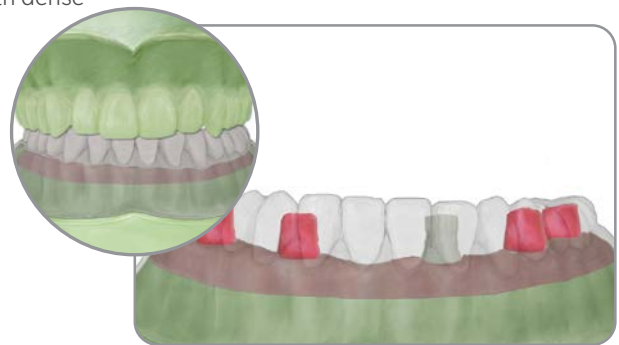


6. Place the selected PreFormance Temporary Cylinders into each Implant Analog. Secure the abutments into place using a Certain Titanium Abutment Screw for hexed cylinders or a large diameter titanium abutment screw for non-hexed cylinders and the Large Hex Driver



Provisional Restoration Fabrication

7. Drill holes in the vacuum formed template in the areas of the PreFormance Temporary Cylinders. Place the vacuum formed template on the master cast over the temporary cylinders. Reduce the cylinders as necessary so that these fit within the template using a carbide bur. Seal the cylinder screw access openings with wax or putty. Select one cylinder in an area with dense bone to process it into the provisional restoration. Block out the retention facets on all other cylinders with wax. Place the cast back on the articulator. Add acrylic resin into the retention facets on the selected cylinder and fill the tooth portion of the template with acrylic resin. Fully seat the template on the cast over the temporary cylinders using the articulation. Allow the acrylic resin to set per the manufacturer's instructions.



Or

Duplicate the master cast with the PreFormance Temporary Cylinders in place. Articulate, wax the provisional restoration on the duplicate cast and process it in acrylic resin.

8. Clear the cylinder screw access opening and remove the abutment screw from the selected cylinder. Remove the template from the cast over the non-processed cylinders with the selected temporary cylinder inside the acrylic resin. Remove the provisional restoration from the template. Remove all excess acrylic resin from around the margin areas of the provisional restoration. Relieve the holes for the other cylinders as necessary so that the provisional restoration can be placed over those and removed easily. Fill in any voids. Finish the restoration to the desired contour and polish.



CT Guided Surgical Implant Placement

Clinician

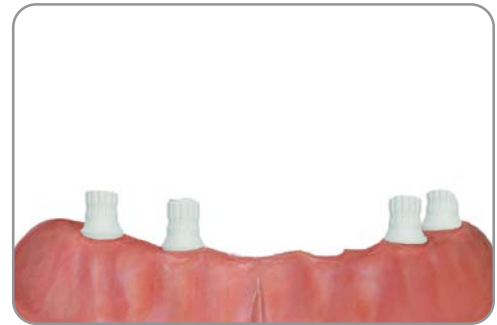
- Place the implants using a Surgical Guide and following the Surgical Guide instructions provided by the guide manufacturer.

See page 9 for an example of a surgical plan.

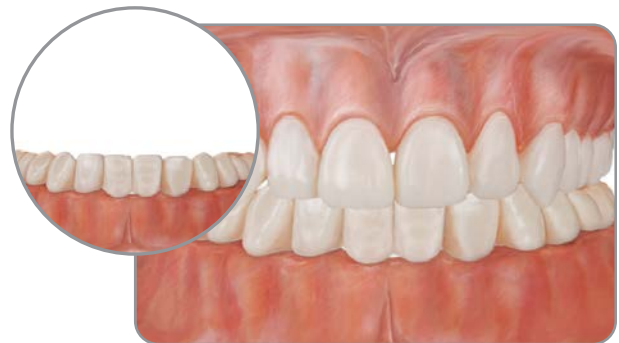


Post Surgical Delivery of Provisional Restoration

- Place a PreFormance Temporary Cylinder on the implant that is on the opposite of the arch from the selected lab-processed cylinder. Secure the cylinder into place using an abutment screw and the Large Hex Driver. Seal the screw access opening with impression material. Try in the provisional restoration over the PreFormance Temporary Cylinder and secure it into place by threading an abutment screw through the lab-processed cylinder. Verify that it fits to the cylinder margins properly. Adjust the occlusion as indicated and remove the provisional restoration.



- Place acrylic resin into the retention facets on the PreFormance Temporary Cylinder and into the cylinder area on the provisional restoration. Seat the provisional restoration over the cylinder and secure it into place by threading an abutment screw through the lab-processed cylinder. Have the patient close into centric occlusion. Allow the acrylic resin to set per the manufacturer's instructions. Remove the abutment screws and remove the provisional restoration. Place the remaining PreFormance Temporary Cylinders on the implants and lute these into the provisional restoration by repeating the prior steps. Fill in any voids. Remove any excess acrylic resin and polish. Secure the provisional restoration into place with the titanium abutment screws using the Large Hex Driver. Torque the screws to 20 Ncm using the Large Hex Driver Tip and a torque device. Place a temporary filling material into the screw access openings and seal those with composite resin. Adjust the occlusion as indicated. If a flap procedure was used during surgery, suture the soft-tissue around the provisional restoration.



Combination Cement / Screw-Retained QuickBridge Restoration and Low Profile Temporary Cylinder Multiple-Unit Only

Continued from Laboratory Procedure (Steps 1-4) on page 16.

Abutment Selection

5. Select the proper Low Profile Abutment collar height for each implant by measuring the soft-tissue depth on the buccal side at each position. If a 1 mm subgingival margin is desired, subtract 1 mm. If using QuickBridge Provisional Components, subtract 2.5 mm. Next, select the proper abutment angulation: straight, 17° or 30°. Allow approximately 3.5 mm of interarch distance between the top of the abutment and the opposing occlusion. Finally, match the color-coding of the analog platform to determine the platform diameter.



6. Place the selected Low Profile Abutments into each Implant Analog and press firmly until feeling and/or hearing an audible and tactile click. Secure the abutments into place with the Low Profile Abutment Screws using the Abutment Driver.



Provisional Restoration Fabrication

7. Select one abutment in an area with dense bone to process a Low Profile Temporary Cylinder into the provisional restoration. Select another abutment area across the arch where a temporary cylinder will be processed into the provisional restoration chairside. Place a Low Profile Temporary Cylinder on the two selected abutments and secure these into place using the Low Profile Titanium Screws and the Large Hex Driver. Thread a Low Profile QuickBridge Titanium Cylinder on each of the remaining abutments using the Large Hex Driver. Place a Low Profile QuickBridge Cap on each cylinder and press down firmly until fully seated. Block out the retention facets on the Low Profile QuickBridge Caps and one of the temporary cylinders with wax.



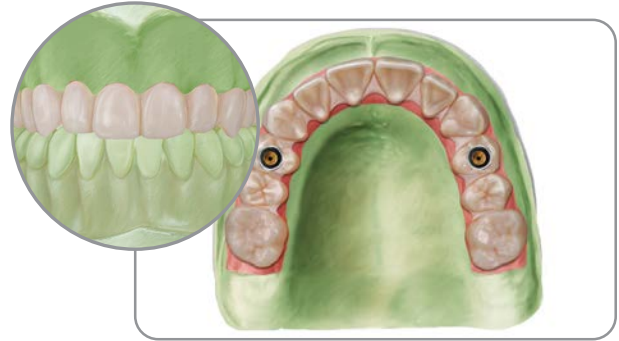
8. Drill holes in the vacuum formed template in the areas over the Low Profile Temporary Cylinders. Place the vacuum formed template onto the master cast over the cylinders and caps to verify there is no interference with it seating completely. Reduce the cylinders as necessary so that these fit within the template using a carbide bur. Seal the cylinder screw access openings with wax or putty. Place the cast back on the articulator. Add acrylic resin into the retention facets on the selected cylinder and fill the tooth portion of the template with acrylic resin. Fully seat the template on the cast over the temporary cylinders and the Low Profile QuickBridge Caps using the articulation. Allow the acrylic resin to set per the manufacturer's instructions

Or

Duplicate the master cast with the Low Profile Abutments, Temporary Cylinders and the Low Profile QuickBridge Caps in place. Articulate, wax the provisional restoration on the duplicate cast and process it in acrylic resin.



9. Clear the cylinder screw access opening and remove the Low Profile Retaining Screw from the selected Low Profile Temporary Cylinder. Remove the template from the cast over the remaining cylinder and the Low Profile QuickBridge Caps with the Low Profile Temporary Cylinder inside the acrylic resin. Remove the provisional restoration from the template. Remove all excess acrylic resin from around the margin areas of the provisional restoration and the screw access openings. Relieve the holes for the Low Profile Temporary Cylinder and the Low Profile QuickBridge Caps as necessary so that the provisional restoration can be placed over these and removed easily. Fill in any voids. Finish the restoration to the desired contour and polish. Remove the wax from the temporary cylinder and the Low Profile QuickBridge Caps and return these with the case for chairside pick up.

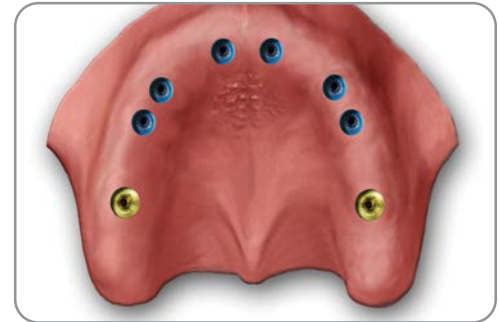


CT Guided Surgical Implant Placement

Clinician

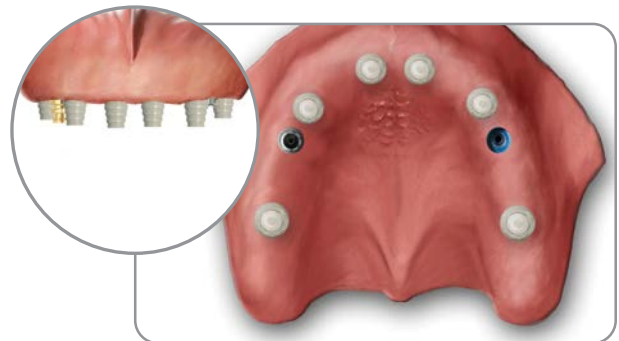
10. Place the implants using a Surgical Guide and following the Surgical Guide instructions provided by the guide manufacturer.

See page 9 for an example of a Surgical Plan.



Post Surgical Delivery of Provisional Restoration

11. Place each Low Profile Abutment into the implants, one by one, in the proper locations. Press firmly until feeling and/or hearing a click. Thread the Low Profile Abutment Screws into the implants using the Abutment Driver. Verify an accurate fit of each abutment by visualizing the interfaces or by taking a radiograph. Torque the abutment screws to 20 Ncm using the Abutment Driver Tip and a torque device. Place the Low Profile Temporary Cylinder onto the abutment on the opposite side of the arch from the lab-processed cylinder and secure it into place with a retaining screw. Seal the screw access opening with impression material. Place a Low Profile QuickBridge Titanium Cylinder on each of the abutments using the Large Hex Driver except for the abutment with the selected lab-processed temporary cylinder. Place a Low Profile QuickBridge Cap on each cylinder and press down firmly until fully seated. Try in the provisional restoration over the temporary cylinder and the Low Profile QuickBridge Caps and secure it into place by threading a retaining screw through the lab-processed cylinder. Verify that it fits to the cylinder and cap margins properly. Adjust the occlusion as indicated and remove the provisional restoration.



12. If a flap procedure was used during surgery, suture the soft-tissue around the Low Profile Abutments. Place acrylic resin into the retention facets on the temporary cylinder and into the cylinder area on the provisional restoration. Seat the provisional restoration over the cylinder and secure it into place by threading a retaining screw through the lab-processed temporary cylinder. Have the patient close into centric occlusion. Allow the acrylic resin to set per the manufacturer's instructions. Remove the retaining screws and the provisional restoration. Place acrylic resin into the retention facets on each Low Profile QuickBridge Cap and into each cap area on the provisional restoration. Seat the provisional restoration over the caps and secure it into place by threading retaining screws through the two temporary cylinders. Have the patient close into centric occlusion. Allow the acrylic resin to set.



13. Remove the retaining screws and the provisional restoration. Fill in any voids. Remove any excess acrylic resin and polish.



14. Line the Low Profile QuickBridge Cylinders with temporary cement. Seat the provisional restoration on the Low Profile Abutments and snap it over the Low Profile QuickBridge Titanium Cylinders. Secure the provisional restoration into place with Gold-Tite Retaining Screws using the Large Hex Driver. Torque the screws to 20 Ncm using the Large Hex Driver Tip and a torque device. Have the patient close into centric occlusion. Remove any excess cement from around the cap margin areas. Allow the cement to set per the manufacturer's instructions. Place a temporary filling material into the screw access openings and seal these with composite resin. Adjust the occlusion as indicated.





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