



BruxZir® Solid Zirconia Full-Arch Implant Prosthesis (Protocol C – All-CAD with Multi-Unit Abutments)

Step-by-Step Restorative Protocol

C



The BruxZir® Full-Arch Implant Prosthesis offers a fixed, all-zirconia implant solution for edentulous patients desiring a stable and esthetic replacement for removable prostheses. Constructed from 100% BruxZir Solid Zirconia, this fully edentulous restoration offers exceptional resistance to chips, fractures and stains while improving chewing and speech function. A provisional CAD/CAM implant prosthesis is included, which functions as a temporary appliance and allows for patient evaluation of the definitive prosthesis. Indicated for single-arch restorations only, the all-CAD process replaces the wax setup with a digitally designed PMMA try-in appliance, which is easily adjusted and eliminates the risk of damage during transit that can occur with wax setups.*

FIRST Appointment

Preliminary Impression

Before moving forward with the BruxZir Full-Arch Implant Prosthesis option, consider anterior-posterior spread and keep in mind that 10 mm or more of vertical clearance is required. Although a closed-tray impression technique is described here, open-tray impressions are acceptable.

- Take an implant-level impression, including the vestibules. Ensure the palate is included for maxillary impressions.
 - a.** Remove the healing abutments or appliance from the implants. If the patient already has multi-unit abutments in place, take an abutment-level impression.
 - b.** Seat the impression copings and tighten the screws (*Fig. 1*). Take a periapical radiograph to verify complete seating. Check the impression tray for proper fit.
 - c.** Take a VPS impression of the edentulous arch (*Fig. 2*). Allow the material to completely set, carefully remove the impression tray, loosen the screws, and remove the impression copings.
 - d.** Replace the healing abutments or appliance.
 - e.** Carefully place the impression copings back into the impression (*Fig. 3*).
 - f.** Fill out lab Rx including implant system and diameter of implants. If a bite splint is desired (additional fee), check the appropriate box on the Rx. Send the lab Rx in with the case.



Figure 1: Seat the impression copings.



Figure 2: Take preliminary VPS impression.



Figure 3: Carefully reinsert impression copings into impression.

*Cases in which a hygienic high-water or sanitary pontics design is desired are not eligible for All-CAD and must be completed following the standard wax setup technique described in Protocol A (GL-3701).



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SECOND Appointment

Jaw Relation Records and Shade Selection

You will receive from Glidewell Laboratories a bite block with screw-retained temporary cylinders (Fig. 4).

- Remove the healing abutments or appliance.
- Seat the bite block and gently tighten the screws by hand (Fig. 5).
- With the patient sitting up, use conventional denture technique to achieve accurate jaw relation records (Fig. 6).
- Unscrew the cylinder screws and remove the bite block.
- Replace the healing abutments or appliance.
- Take an impression of the opposing dentition and an impression of current denture for study model. The study model of the patient's existing denture can be used as a reference regarding the size and shape of the new teeth.
- Select the shade and mold of the denture teeth; select the gingival shade.
- Return the entire case to Glidewell, including the working model, bite block, bite registration, opposing impression and shade selection.

Note: The final restorative option is determined following the Second Appointment, after your bite block has been received. At this point, Glidewell Laboratories may determine that multi-unit abutments are required to correct implant angulation, accommodate screw access holes that are too far to the facial, or connect the prosthesis to implants that are more than 2 mm subgingival. In these cases, the lab will contact the doctor to provide information concerning treatment options and pricing.

THIRD Appointment

Implant Verification Jig, Final Impression, PMMA Try-in, and Delivery of Provisional PMMA Implant Prosthesis

You will receive from Glidewell Laboratories a custom tray, implant verification jig, PMMA try-in appliance, and a provisional PMMA implant prosthesis. If multi-unit abutments are required but not already in place, they will also be provided.

Verification Jig

To ensure a passive fit of your restoration, it is vital to obtain an accurate final impression. A custom tray is provided along with an implant verification jig that has been sectioned and



Figure 4: Bite block with temporary cylinders.



Figure 5: Seat the bite block.



Figure 6: Record the jaw relationship.



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numbered on a working model. Each acrylic section contains a titanium cylinder. This procedure should be followed to ensure an accurate final impression.

- Remove the healing abutments or appliance. If multi-unit abutments were supplied by Glidewell, deliver the multi-unit abutments in the same sequence and positions represented on the model.
- Seat each section of the jig onto the appropriate multi-unit abutment and tighten the guide pin (**Fig. 7**).
 - a.** The sections should not be in contact. If necessary, remove one section, minimally trim it with a disc, and reseat it. Each section should have a gap about the thickness of a credit card. Visually verify gaps before luting.
- Lute the sections together with a suitable material (e.g., Triad® DualLine® – DENTSPLY; Pattern Resin™ – GC America; Zapit® – Dental Ventures of America or ADDS-IT – American Diversified Dental Systems) (**Fig. 8**).
 - a.** Allow the material to flow through and completely around the gaps (**Fig. 9**).
 - b.** Ensure the material is completely cured.

Optional – If desired, the clinician can test the passivity of the jig with a one-screw test. Tighten a single guide pin into one of the distal cylinders. No lifting of the jig should occur. Check for a passive fit by visibly inspecting completely around each cylinder for complete seating. This process can be repeated for each implant.

- a.** If any section has a cylinder-implant interface that is subgingival, a periapical radiograph should be taken to verify complete seating.
- b.** If any cylinder is not completely seated, the jig must be sectioned in that area, reluted and rechecked until a passive fit is obtained.

Final Impression

- Check the custom impression tray for proper fit, ensuring no contact with the jig or cylinders (**Fig. 10**).
- Using a medium body VPS material, take the final impression with an open-tray technique.
 - a.** Inject VPS impression material under and around the jig to capture the ridge and all anatomical landmarks as for a full denture including full vestibular extensions (**Fig. 11**). Capture the complete palate for maxillary cases.
 - b.** Completely fill the impression tray. Seat the filled impression tray, ensuring the heads of the guide pins are exposed through the tray (**Fig. 12**).
 - c.** Once the material has set, remove guide pins and then remove the impression.

Note: The verification jig is picked up in the impression. Inspect the impression for the required detail.



Figure 7: Implant verification jig seated.



Figure 8: Luting sections of the implant verification jig.



Figure 9: Implant verification jig luted together.



Figure 10: Check fit of the custom tray over the implant verification jig.



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PMMA Try-in

Fabricated from poly(methyl methacrylate) (PMMA), the try-in appliance is designed using precise CAD software and takes the place of the traditional wax setup. PMMA is easily adjusted to accommodate changes that are typically made to the wax setup.

Note: The PMMA try-in appliance does not include tissue shade and glaze on the gingival areas of the prosthesis.

- Seat the PMMA try-in appliance on the multi-unit abutments.
- Hand-tighten the prosthetic screws, alternating from one side to the other (**Fig. 13**).
- Evaluate the VDO, CR, esthetics, shade, tooth arrangement, occlusion, phonetics and midline (**Fig. 14**). Make adjustments as necessary. If CR is incorrect, a new bite registration should be taken.
- Send clinical photos.
- If occlusal or other significant changes are necessary, a new bite registration should also be taken (**Fig. 15**).
- Unscrew the prosthetic screws and remove the PMMA try-in appliance.

Delivery of Provisional PMMA Implant Prosthesis

The provisional implant prosthesis serves as a temporary appliance and allows the patient a trial period to evaluate the prosthesis design prior to final fabrication.

Note: The provisional implant prosthesis does include tissue shade and glaze on the gingival areas of the prosthesis.

- Seat the provisional prosthesis on the multi-unit abutments.
- Hand tighten the prosthetic screws, alternating from one side to the other.
- Tighten the screws to the appropriate torque per manufacturer instructions (**Fig. 16**). Wait approximately 5 minutes and retorque the screws.
- Any adjustments made to the PMMA try-in appliance should also be made to the provisional implant prosthesis. The provisional implant prosthesis will be worn until delivery of the final restoration.
- Place a small amount of cotton in the screw access holes and fill with light cure composite or acrylic to prevent bacteria build-up (**Fig. 17**).
- Return the case to Glidewell, including the PMMA try-in appliance, the working cast and opposing model, the final impression containing the implant verification jig and guide pins, and lab Rx with adjustments listed.



Figure 11: Inject impression material under the implant verification jig.



Figure 12: Seat the filled impression tray.



Figure 13: Seat PMMA try-in appliance and hand-tighten prosthetic screws.



Figure 14: Evaluate PMMA try-in appliance.



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FOURTH Appointment

Second PMMA Try-In

You will receive from Glidewell Laboratories a new PMMA try-in appliance.

- Try-in the PMMA appliance according to Third Appointment instructions.
- After making any necessary changes, remove the PMMA try-in appliance.
- Redeliver provisional implant prosthesis according to Third Appointment instructions.
- Return the case to Glidewell, including the master cast, opposing model, and the PMMA try-in appliance. List any final adjustments on the prescription. Check the appropriate box on the Rx if a bite splint is desired but has not yet been prescribed.

Note: If adjustments are required, the final restoration cannot be fabricated until the PMMA try-in appliance has been returned.



Figure 15: Taking a new bite registration (if necessary).



Figure 16: Occlusal view of provisional prosthesis in place after tightening the prosthetic screws to the appropriate torque.



Figure 17: Occlusal view of provisional implant prosthesis in place following sealing of the screw access holes.

FIFTH Appointment

Delivery of Final Prosthesis

You will receive from Glidewell Laboratories the final prosthesis. If prescribed, you will also receive a bite splint.

- Remove provisional implant prosthesis.
- Seat the final prosthesis on the multi-unit abutments.
- Hand-tighten the prosthetic screws, alternating from one side to the other.
- Tighten the screws to the appropriate torque per manufacturer instructions. Wait approximately 5 minutes and retorque the screws (Fig. 18).
- Confirm the occlusion (Fig. 19). Make adjustments as necessary.
- Place a small amount of cotton in the screw access holes and fill with light cure composite or acrylic to prevent bacteria build-up (Fig. 20).

Note: Tooth-colored composite or acrylic should be used for access holes in the teeth, while pink composite or acrylic should be used for access holes in the prosthesis base.

ONE WEEK

Follow-Up Check

- Check occlusion.
- Review oral hygiene instructions.



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- Set recall schedule.

MAINTENANCE Appointments

How to Maintain Final Prosthesis

- Six-month hygiene appointment
 - a.** Perform prophylaxis under the prosthesis.
- Twelve-month (annual) hygiene appointment
 - a.** Remove prosthesis for thorough cleaning.
 - b.** If prosthesis screws are damaged or show signs of stripping, screws should be replaced.



Figure 18: Deliver final prosthesis



Figure 19: Confirm occlusion.



Figure 20: Occlusal view of the final prosthesis in place following sealing of the screw access holes.



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Predictable implant lab fees and no hidden costs

Price (per arch) includes: provisional prosthesis; final prosthesis; all labor, model and die work; analogs, set-ups, bite blocks, try-ins and verification jigs.

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**Price does not include multi-unit abutments and may vary when original equipment manufacturer (OEM) components are requested or required for the chosen implant system. Half of payment is due after first appointment; half is due at final delivery. Bite splint is available for an additional fee and requires an additional three days for fabrication.*

Quick Reference

	Doctor	Glidewell
FIRST Appointment	Preliminary impression	Pour models, fabricate bite block (3 days)
SECOND Appointment	Jaw relation records, select tooth shade/mold, impressions of opposing dentition and current denture for study casts	Fabricate implant verification jig, custom tray, PMMA try-in appliance and provisional PMMA implant prosthesis (9 days)
THIRD Appointment	Lute verification jig, take final impression, PMMA try-in, photos, delivery of provisional PMMA implant prosthesis	Fabricate master cast and new PMMA try-in appliance (7 days)
FOURTH Appointment	Second PMMA try-in, photos	Fabricate final BruxZir Solid Zirconia Full-Arch Implant Prosthesis (8 days)
FIFTH Appointment	Final prosthetic delivery	
ONE WEEK Post-Delivery Check	Check occlusion, review oral hygiene instructions, set recall schedule	

800-839-9755
glidewelldental.com





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