ENGLISH - EN

Prosthodontic procedure TSA®

Reference: PRO-00002

Version: 01

Phibo Dental Solutions, S.A.
Pol. Ind. Mas d´en Cisa. C/Gato Pérez, 3-9. 08181-Sentmenat (Spain)
Tel.: +34 937151978 | Fax: +34937153997 |
email:info@phibo.com

Index

1. General Considerations

Phibo® products are intended to be used only by healthcare professionals specialized in odontology and implantology. It is necessary to have training in dental implantological technology for the use of any of the Phibo products.

It is also necessary to consult the information gathered in this procedure and related instructions for use (IFUs):

- **IFU-00001 Implants.**
- **IFU-00002 Implantable attachments.**
- **IFU-00003 Dental instruments Class IIa.**
- **IFU-00004 Non-implantable attachments.**
- **IFU-00005 Dental instruments Class I**

If you are not familiar with the prosthodontic procedure described here, you can contact Phibo to provide you with any information and/or training you may require to perform this procedure:

- atencionphibo@phibo.com

Before opening the package of a Phibo product, please consult the information from the product's label and IFU.

2. Introduction

The objective of this Prosthodontic Procedure is to allow for a global view of the different prosthodontic restorations that can be performed on the **TSA® implant system**.

With the TSA® system, multiple options are available in current Implantology. From single and multiple cases, fixed prostheses and complete restorations to their different forms of connection: cement-retained, screw-retained and mixed.

The TSA® implant system has a wide range of attachments that allow for simple and versatile prosthodontic restorations on implants, with solutions for aesthetic and functional components that guarantee a successful treatment for the patient.

3. Procedure by type of implant and restauration

Direct immediate aesthetics

Temporary restoration without occlusal contact is performed during the surgical procedure itself, after the insertion of the implant. The temporary prosthesis is created in the laboratory or CAD-CAM manufacturing center based on the initial models and is adjusted and relined in the clinic.

Indirect immediate aesthetics

Temporary restoration without occlusal contact within 24 hours after insertion of the implant. After the impression is taken, the temporary prosthesis is created in the laboratory or CAD-CAM manufacturing center. The prosthesis is then cemented and adjusted by occlusion in the clinic.

Direct immediate loading

The temporary restoration with occlusal contact is performed during the surgical procedure itself, after the insertion of the implant. The temporary prosthesis is created in the laboratory or CAD-CAM manufacturing center based on the initial models and is adjusted and relined in the clinic.

It is recommended to use a primary stability indicator to verify that the values obtained are optimal to ensure the effectiveness of this technique.

Indirect immediate loading

Temporary or permanent restoration with occlusal contact within 24 hours after implant insertion. After the impression is taken, the temporary or permanent prosthesis is manufactured in the laboratory or CAD-CAM manufacturing center using the initial models and is adjusted and relined at the clinic.

In the case of bar-retained overdentures, if indicated, a second adjustment of the overdenture will be performed in the mouth.

It is recommended to use a primary stability indicator to verify that the values obtained are optimal to ensure the effectiveness of this technique.

Early loading

Temporary or permanent restoration with occlusal contact, after six weeks in the mandible and eight weeks in the maxilla, from implant insertion. Prosthetic procedure performed in the laboratory.

It is recommended to use a primary stability indicator to verify that the values obtained are optimal to ensure the effectiveness of this technique.

Delayed loading

Temporary or permanent restoration with occlusal contact, after three months in the mandible and six months in the maxilla, from implant insertion. Prosthetic procedure performed in the laboratory.

4. Impression taking

Two options of impression taking are available:

- In cases of severe non-parallelism between implants or between implants and teeth, impressions are taken with **open-tray** and a long retention screw using the open-tray impression carrier.
- In cases of parallelism between implants or between implants and teeth, impressions can be taken with **closed-tray** and a short retention screw using the closed-tray impression carrier.

Materials

- ✓ TSA® Metal impression carrier for open-tray or closed-tray systems, depending on the chosen technique.
- ✓ Phibo® 1.25 mm driver.
- ✓ TSA® implant analog.

Additional Materials (not supplied by Phibo®)

- ✓ Single tray
- ✓ Impression material.
- ✓ Impression material adhesive.

Procedure

Begin by removing the healing abutment from the implant.

Choose the appropriate impression-taking method (open-tray or closed-tray) and select the corresponding impression carrier accordingly.

Attach the 1.25 mm driver to the retention screw and thread it through the impression carrier until the screw tip protrudes from the lower end.

Position the carrier and screw assembly on the implant head.

Thread the assembly onto the implant until the base of the carrier makes full contact with the implant head.

Loosen the retention screw slightly and try to rotate the impression carrier gently clockwise or counterclockwise. If the carrier does not rotate, it is correctly aligned with the implant hexagon. If it rotates, apply slight pressure in an occlusal-gingival direction while rotating until the assembly fits securely between the hexagons.

Tighten the retention screw manually to secure the impression carrier to the implant. Perform a periapical X-ray to confirm the correct positioning and fixation of the carrier, if necessary.

Air dry the carrier to remove any moisture.

Apply the impression material around the carrier to ensure precise capture of the implant position.

Take the Impression according to the selected technique:

- **Open-Tray Technique:** Place the tray into the patient's mouth with the remaining impression material and wait for it to set. Once set, remove the retention screw and withdraw the tray with the carrier attached.
- **Closed-Tray Technique:** Insert the tray with impression material and allow it to set. Once set, remove the tray directly, leaving the impression carrier in place. Remove the carrier from the implant afterward.

Reattach the healing abutment to the implant after the impression-taking process.

Prepare the following components for the laboratory:

- Impression tray.
- Impression carrier along with the corresponding retention screw.
- Implant analog.
- Bite registration.
- Opposing arch model.

At the laboratory:

Process the impression according to the selected technique:

- **Open-Tray Technique:** Attach the implant analog to the open-tray carrier embedded in the impression material and secure it using the retention screw.
- **Closed-Tray Technique:** Connect the implant analog to the closed-tray carrier with the retention screw. Insert the assembly into the impression by aligning the flat faces and applying light pressure until a retention click is heard.

To create the model, pour soft resin into the areas representing soft tissue to replicate the peri-implant tissue contours, and allow it to set. Fill the remaining tray with plaster to form the final working model.

Finalize the model according to the selected technique:

- **Open-Tray Technique:** Once the plaster has hardened, remove the retention screw and separate the model from the impression material.
- **Closed-Tray Technique:** Once the plaster has hardened, detach the model from the tray and remove the impression carrier by loosening the retention screw.

For model conditioning, mount the model onto a semi-adjustable articulator using the pre-surgical records provided. Confirm that the model accurately reflects the clinical scenario.

Inspect the following:

- **Implant Position:** Verify angulation and parallelism.
- **Available Spaces:** Assess interproximal and occlusal dimensions for prosthetic components.
- **Soft Tissue Height:** Measure the emergence profile to ensure appropriate design of the prosthesis.
- **Opposing Arch:** Evaluate its relationship with the model for functional harmony.

With the information obtained, choose the optimal abutments and the necessary attachments to manufacture the prosthesis in the laboratory.

5. Temporary Restorations

Indications

The temporary restorations on Phibo TSA implants serve essential aesthetic, biological, biomechanical, and functional objectives.

- Aesthetically, they help create an appropriate emergence profile, which is influenced by the position of the implant, including its depth, emergence, and direction, as well as the patient's gingival biotype, whether fine or thick. This ensures a natural and harmonious integration with surrounding tissues.
- From a biological perspective, temporary restorations contribute to the proper formation of the peri-implant sulcus and the biological seal, which is crucial for protecting against bacterial infiltration. Additionally, they support organized bone apposition, which is vital for long-term implant stability. These factors collectively promote optimal healing and tissue integration.
- Biomechanically, the temporary prosthesis is designed to be slightly infraoccluded and free of lateral movements. This controlled approach allows for the progressive adaptation of axial loads and bending forces, reducing stress on the implant while ensuring gradual functional loading. This strategy minimizes the risk of mechanical complications and enhances the overall success of the implant.
- Functionally, temporary restorations facilitate the adaptation of implants to load resistance through the gradual modification of temporary crowns based on bone quality. They also allow for close monitoring of clinical and radiographic signs of tissue maturation.

5.1. Aesthetic and direct immediate loading procedure

Materials

- ✓ ProUnic Plus™ abutment for Phibo® TSA® implants.
- ✓ ProUnic Plus™ abutment and/or ProUnic Plus™ transmucosal abutments with height of 1, 2 and 3mm for Phibo® TSA® implants.
- ✓ ProUnic Plus™ clinical screw for Phibo® TSA® implants.
- ✓ ProUnic Plus™ laboratory screw for Phibo® TSA® implants.
- ✓ Phibo® 1.25 mm driver.
- ✓ Phibo® 1.25mm ratchet driver bit
- ✓ Phibo® torque ratchet.

Additional Materials (not supplied by Phibo®)

- ✓ Self-curing resin for temporary units.
- ✓ Mixing cup and syringe dispenser.
- ✓ Laboratory pre-shaped resin crown or bridge, white or transparent.
- ✓ Instrument for modeling.
- ✓ Rotation cutting-roughing and polishing instrument for handpieces.

Procedure

Fabrication of the Temporary Prosthesis

To ensure an optimal temporary prosthesis, the following steps should be performed:

Conduct a diagnostic wax-up on models mounted on a semi-adjustable articulator to simulate the final prosthetic outcome.

Utilize the wax-up as a reference for the temporary prosthesis to achieve accurate morphology and function.

Drill occlusal access holes in the prosthesis to accommodate clinical and laboratory screws, ensuring proper fixation and ease of handling.

Placement of ProUnic Plus™ Abutment and Protective Cap

Choose the appropriate ProUnic Plus™ abutment based on implant positioning and prosthetic requirements.

Insert the ProUnic Plus™ retention screw using a 1.25mm manual driver, passing it through the coronal hole in the abutment until it emerges at the end.

Place the ProUnic Plus™ abutment onto the implant by engaging the hexagonal connection and adjusting it with small turns.

Secure the abutment screw manually and finalize tightening with a torque of 25 N-cm using a torque wrench and 1.25mm bit.

Prosthesis Adaptation

Insert the temporary prosthesis by passing the laboratory screw through the pre-drilled occlusal access hole until it reaches the outer cone of the implant, protective cap, and soft tissue.

Refine prosthesis positioning to eliminate any interference and ensure proper adaptation.

Perform occlusal adjustments to establish the desired prosthetic height and avoid excessive contact.

Reline and Placement of the Prosthesis

To enhance adaptation and soft tissue healing, a relining procedure is recommended:

Use a rubber dam to protect soft tissues from impression materials.

Remove and dry the prosthesis thoroughly. Apply a thin layer of acrylic inside the crown and around the cap to improve fit.

Apply petroleum jelly around the prosthesis and the surgical splint in reline areas to prevent unintended bonding.

Insert the prosthesis with the laboratory screw, remove excess material before setting, and turn the screw slightly to prevent it from adhering to the resin. If gaps appear, reline again.

After the material has set, manually remove the prosthesis and screw with a slight axial force using a crown and bridge extractor. Remove any excess material, remodel, and polish the prosthesis to promote soft tissue healing and proper emergence profile formation.

Insert the prosthesis intraorally with light pressure until achieving a secure retention fit.

Final Fixation and Occlusal Adjustment

Use a permanent clinical screw to affix the temporary prosthesis manually.

Check Occlusion:

- For Immediate Aesthetic Restoration, ensure no occlusal contact to prevent premature loading.
- For Immediate Loading, perform occlusal adjustments to distribute forces appropriately.

Apply petroleum jelly to the prosthetic access hole, cover the screw with cotton, and seal with a temporary filling material.

Note: When placing the permanent prosthesis, the permanent ProUnic Plus™ abutment initially worn by the patient with the temporary prosthesis will be replaced by the selected permanent ProUnic Plus™ Abutment or by another suitable abutment.

5.2. Aesthetic and indirect immediate loading procedure

Materials

- ✓ ProUnic Plus™ carrier for Phibo® TSA® implants.
- ✓ ProUnic Plus™ abutment and/or ProUnic Plus™ transmucosal abutments with height of 1, 2 and 3mm for Phibo® TSA® implants.
- ✓ Phibo® 1.25 mm driver.
- ✓ Phibo® 1.25mm ratchet driver bit.
- ✓ Phibo® torque ratchet.
- ✓ ProUnic Plus™ Abutment metal impression transfer for Phibo® TSA® Implants.
- ✓ ProUnic Plus™ analog for Phibo® TSA® implants.
- ✓ ProUnic Plus™ and transmucosal ProUnic Plus™ for Phibo® TSA® implants.
- ✓ TSA® implant analog.
- ✓ ProUnic Plus™ clinical screw for Phibo® TSA® implants.
- ✓ ProUnic Plus™ laboratory screw for Phibo® TSA® implants.
- ✓ Phibo® 1.25 mm driver.

Additional Materials (not supplied by Phibo®)

- ✓ Self-curing resin for temporary units.
- ✓ Mixing cup and syringe dispenser.
- ✓ Laboratory pre-shaped resin crown or bridge, white or transparent.
- ✓ Modeling instrument.
- ✓ Rotation cutting-roughing and polishing instruments for handpieces (burs, discs, abrasive rubbers, etc.).

Procedure

At the clinic

Abutment selection and impression taking (Clinic)

Choose the appropriate ProUnic Plus™ abutment based on implant angulation, soft tissue profile, and prosthetic requirements.

Insert the ProUnic Plus™ retention screw using a 1.25mm manual driver, passing it through the coronal hole in the abutment until it protrudes at the end.

Engage the hexagonal connection of the abutment onto the implant, making small rotational adjustments before tightening the screw manually.

Attach the impression transfer onto the ProUnic Plus™ abutment and secure it in place. This component shapes and stabilizes the soft tissue, preventing its collapse before impression-taking.

Impression Taking:

- Utilize rubber dam isolation to prevent silicone contact with the suture and avoid soft tissue irritation.
- Proceed with impression-taking, ensuring proper capture of the abutment and surrounding soft tissue anatomy.
- Carefully remove the tray with the impression transfer to maintain integrity.

At the laboratory

Model preparation and analog selection

Attach the ProUnic Plus™ analog to the impression transfer retained in the impression.

The ProUnic™ abutment is left in the patient's mouth, while an implant analog is placed in the model to replicate clinical conditions.

Impression Molding and Model Fabrication

Once the appropriate ProUnic Plus™ analog or TSA® + ProUnic Plus™ implant analog is placed on the ProUnic Plus™ abutment impression transfer, the impression is prepared for casting.

High-quality plaster or plaster cast is used to create the working model. Gingival masks or silicone gums are recommended to simulate soft tissue contours and verify proper fit of prosthetic components.

Once the plaster sets, the model is:

- Removed from the impression
- Prepared and conditioned
- Mounted on a semi-adjustable articulator using the recorded jaw relation.
- Used for temporary prosthesis fabrication and eventual permanent prosthesis manufacturing.

Fabrication and Adjustment of Temporary Prosthesis

Position the Temporary Cap on the ProUnic Plus™ analog or TSA® implant analog, ensuring precise hexagonal engagement. Apply light finger pressure to secure the mechanical retention.

Apply coronal pressure until the NonStop™ System retention mechanism is activated.

Ensure that the Temporary Cap remains stable and fully seated on the ProUnic Plus™ analog.

Pass the screw through the Temporary Cap and thread it manually onto the analog to:

- Verify the insertion axis of the temporary prosthesis.
- Identify the location of the clinical screw entry hole.

Adjust the Temporary Cap height as needed to achieve the appropriate occlusal plane.

Construct temporary prosthesis using standard laboratory techniques, ensuring functional and aesthetic compatibility.

Temporary Prosthesis Placement and Final Adjustments (Clinic)

Prosthesis Placement: Insert the temporary prosthesis into the patient's mouth, applying sufficient pressure to reach the final seated position within the NonStop™ System.

Fixation with Clinical Screw: Pass the clinical screw through the prosthesis and secure it manually.

Occlusal Adjustment: Modify the prosthesis to ensure:

- For Immediate Aesthetics: No occlusal contact to prevent functional loading.
- For Immediate Loading: Only functional contacts to distribute forces efficiently.

Sealing the Access Hole: Apply petroleum jelly to the prosthetic access hole, insert insulating teflon, and cover with temporary sealing material to protect the screw and ensure patient comfort.

6. Permanent restorations

6.1. Screw retained restorations

6.1.1. ProUnic® Advance

Indications

Base abutment to support single screw-retained crowns, fabricated:

With the conventional anti-rotation and wax-up castable abutment technique.

Base abutment to support partial or full, fixed screw-retained restorations, fabricated:

With the conventional anti-rotation and wax-up castable abutment technique.

Base abutment to support bar-retained overdenture implants, through conventional casting on the castable abutment or welded bar.

Precautions

The procedure requires precision in the insertion of the implant in the intermediate rehabilitation processes and in the adjustments of the fabricated prosthesis.

Contraindications

When the entry hole of the permanent clinical screw in the crown or bridge falls in areas of aesthetic compromise.

Material

- ✓ ProUnic® Advance and/or transmucosal abutments for Phibo® TSA® implants
- ✓ ProUnic® Advance abutment carrier for Phibo® TSA® implants
- ✓ Phibo® TSA® permanent clinical screw
- ✓ TSA® metal impression carrier.
- ✓ Phibo® 1.25 mm manual driver.
- ✓ Phibo® 1.25mm ratchet driver bit
- ✓ Phibo® torque ratchet.
- ✓ TSA® implant analog for Phibo® TSA® implants
- ✓ ProUnic® Advance abutment carrier for Phibo® TSA® implants
- ✓ ProUnic® Advance anti-rotation/rotation screw-retained castable abutment for Phibo® TSA® implants.
- ✓ ProUnic® Advance laboratory screw for Phibo® TSA® implants.

Procedure

At the clinic

Impression taking and working model preparation

See the Dual-Press™ Abutment or Conventional metal carrier impression procedure.

At the laboratory

Prosthesis fabrication in laboratory

a) Conventional prosthesis on castable abutment.

Place the castable abutment on the implant analog on the working model. Fix it gently using the laboratory screw.

Check the adjustment of the soft tissue from the implant shoulder to the free gingival margin, for the preparation of the restoration emergence profile.

Model the structure in wax or resin for casting onto the castable abutment.

Cast the castable abutment.

Remove the cast structure. Reline the implant shoulder support.

Test the metal structure, apply ceramic coating without glazing to check for anatomy, color and occlusion, or finish the prosthesis permanently if necessary.

b) Using CAD-CAM prosthesis technique.

At the clinics

Structure sample

Remove the healing abutment.

Mount the ProUnic® Advance Abutment in the mouth and place the structure.

Check the fit of the structure:

- Adjustments of the abutment shoulder to the implant.
- Passivity.
- Relationship with the gingiva.
- Contact points.
- Occlusion.

Check adjustment using an X-Ray.

Remove the structure.

Replace the healing abutment.

Structure finishing

Finish the ceramic coating and glazing.

Placing the ProUnic Advance™ abutment on the implant

Remove the healing abutment.

Place the ProUnic Advance ™ abutment with the carrier, by engaging the hexagons and adjusting them with small turns.

The abutment will be retained in the implant through primary fixation.

Remove the carrier from the ProUnic Advance™ Abutment by turning it half a turn counterclockwise.

If it is necessary to remove the ProUnic Advance™ abutment, insert the carrier and turn it half a turn clockwise. In this way the carrier will be fixed to the abutment. Apply the necessary force to remove the abutment.

Place the permanent structure on the ProUnic Advance™ abutment.

Screw the structure with the permanent clinical screw using the torque ratchet, at a torque of 35 N.cm.

Check the fit of the structure:

- Adjustments of the abutment shoulder to the implant.
- Passivity.
- Relationship with the gingiva.
- Contact points.
- Occlusion.
- Check adjustment using an X-Ray.

Seal the screw hole by placing cotton and temporary sealing material.

6.1.2. ProUnic® Aesthetic anti-rotation

Indications

In cases with an occlusal height from the implant of less than 4mm.

For single crowns screwed to the abutment, manufactured by metal casting of the base structure or modeled from a machined castable abutment.

Contraindications

When the position of the crown retention screw entry hole results in aesthetic compromise.

When the occlusal height from the implant is greater than 5mm, and the ProUnic Plus™ Abutment is indicated.

Materials

- ✓ ProUnic® Aesthetic Anti-rotation abutment for Phibo® TSA® implants.
- ✓ ProUnic® Aesthetic anti-rotation abutment carrier for Phibo® TSA® implants.
- ✓ Attachments for impression taking on Phibo® TSA® implants.
- ✓ ProUnic® Aesthetic clinical screw for Phibo® TSA® implants.
- ✓ Phibo® 1.00mm manual driver.
- ✓ Phibo® 1.00 mm ratchet driver bit.
- ✓ Phibo® torque ratchet.
- ✓ TSA® implant analog
- ✓ ProUnic® Aesthetic anti-rotation castable abutments for Phibo® TSA® implants.
- ✓ ProUnic® Aesthetic anti-rotation clinical screw for Phibo® TSA® implants.
- ✓ ProUnic® Aesthetic anti-rotation laboratory screw for Phibo® TSA® implants.

Procedure

At the clinic

Impression taking and molding

See the procedure for impression taking with metal attachments on TSA® implants.

At the laboratory

Conventional prosthesis on castable abutment

Attach the ProUnic® Aesthetic anti-rotation abutment to the TSA® implant analog with the 1.00mm manual driver.

Place the Castable Abutment and secure it gently with the laboratory screw.

Check the adjustment of the soft tissue from the implant shoulder to the free gingival margin, for the preparation of emergence profile.

Model the structure in wax or resin for casting onto the castable abutment.

Cast the castable abutment.

Remove the cast structure. Reline the implant shoulder support.

Test the metal structure, apply ceramic coating without glazing to check for anatomy, color and occlusion, or finish the prosthesis permanently if necessary.

At the clinic

Structure sample

Insert the permanent abutment into the implant.

Mount the prosthesis structure in the mouth and fix it with the permanent clinical screw.

Check the fit of the structure.

- Adjustments of the abutment shoulder to the implant.
- Passivity.
- Relationship with the gingiva.
- Contact points.
- Occlusion.

Remove the permanent clinical screw and the structure.

Remove the permanent abutment and replace the healing abutment.

Structure finishing

Finish the ceramic coating and glazing.

Placement of ProUnic® Aesthetic anti-rotation abutment

Remove the healing abutment with the 1.25 mm driver.

Fix the ProUnic® Aesthetic retention screw with a 1.00mm driver and pass it through the coronal hole in the abutment until it protrudes at the end.

Insert the assembly into the ProUnic® Aesthetic Anti-rotation Abutment Carrier. Abutment and carrier are secured through mechanical frictional retention by applying slight pressure.

Place the abutment on the TSA® implant by applying slight pressure and making small turns to adjust the hexagons to the implant connection. Thread the retention screw with the carrier driver.
Remove carrier from the ProUnic® Aesthetic Abutment.
Tighten abutment screw by applying a force of 25 N·cm using the torque wrench and the 1.00 mm tip.

Placement of the prosthesis

Place the permanent prosthesis on the abutment.
Fix the prosthesis with the permanent clinical screw using the 1.00mm driver and apply a force of 25N·cm with the torque wrench.
Check the fit of the structure.

- Adjustments of the abutment shoulder to the implant.
- Passivity.
- Relationship with the gingiva.
- Contact points.
- Occlusion.

Place cotton if there is a too much space and cover with temporary sealing material.

6.1.3. ProUnic® Aesthetic rotation

Indications

When the occlusal height from the implant is less than 5 mm.
Partial intercalary or free-end fixed prosthesis, using the wax-up castable abutment technique.
Full fixed screw-retained restorations on 6-8 implants in the mandible, using the wax-up castable abutment technique.
Full fixed restorations on 8 implants in the maxilla, using the wax-up castable abutment technique.
Full removable restorations through a mucosa-implant-supported ball-retained overdenture attached to implants, 2-4 in the mandibular area and 4-6 to 6 in the maxillary area, using the conventional wax-up castable abutment technique.
In cases with angulations between implants exceeding 10º for Series 3 and 14º for Series 4.

Contraindications

When the position of the crown retention screw entry hole results in aesthetic compromise.
When the occlusal height from the implant is greater than 5mm, and the ProUnic Plus™ Abutment is indicated and there are no signs of non-parallelism.

Materials

- ✓ ProUnic® Aesthetic rotation abutment for Phibo® TSA® implants.
- ✓ Attachments for impression taking on Phibo® TSA® implants.
- ✓ Phibo® 1.00 mm driver.
- ✓ Phibo® 1.00 mm ratchet driver bit.
- ✓ Phibo® torque ratchet.

- ✓ TSA® implant analog.
- ✓ ProUnic® Aesthetic rotation castable abutment for Phibo® TSA® implants.
- ✓ ProUnic® Aesthetic rotation clinical screw for Phibo® TSA® implants.
- ✓ ProUnic® Aesthetic rotation laboratory screw for Phibo® TSA® implants.

Procedure

At the clinic

Impression taking and molding

See the procedure for impression taking with metal attachments on TSA® implants.

At the laboratory

Prosthesis fabrication

Follow conventional prosthesis on castable abutment.

Attach the ProUnic® Aesthetic Rotation Abutment to the TSA® implant analog with the 1.00mm fixed driver.

Place the Castable abutment on the abutment in the working model, and secure it with the laboratory screw.

Check the adjustment of the soft tissue from the implant shoulder to the free gingival margin, for the preparation of the restoration emergence profile.

Model the structure in wax or resin for casting onto the castable abutment.

Cast the castable abutment.

Remove the cast structure. Reline the implant shoulder support with the reamer.

Test the metal structure, apply ceramic coating without glazing to check for anatomy, color and occlusion, or finish the prosthesis permanently if necessary.

At the clinic

Structure sample

Insert the permanent abutment into the implant.

Mount the prosthesis structure on the abutment in the mouth and fix it with the permanent clinical screw.

Check the fit of the structure.

- Adjustments of the abutment shoulder to the implant.
- Passivity.
- Relationship with the gingiva.
- Contact points.
- Occlusion.

Remove the permanent clinical screw and the structure.

Remove the abutment and replace the healing abutment.

Structure finishing

Finish the ceramic coating and glazing.

Placement of ProUnic® Aesthetic rotation abutment

Remove the healing abutment with the 1.25 mm driver.

Attach the ProUnic® Aesthetic abutment with the 1.00 mm driver.

Take the abutment into the oral cavity, insert it into the implant and thread the abutment until insertion is complete.

Tighten the abutment using the 1.00mm driver tip and the torque wrench at a torque of 25N·cm.

Placement of the prosthesis

Place the permanent bridge on the abutment.

Fix the prosthesis with the permanent clinical screw using the 1.00 mm driver and apply a force of 25N·cm with the torque wrench.

Check the fit of the structure.

- Adjustments of the abutment shoulder to the implant.
- Passivity.
- Relationship with the gingiva.
- Contact points.
- Occlusion.

Seal the entry hole in the clinical screw using temporary sealing material.

6.2. Cement-retained restorations

6.2.1. Millable abutments

Indications

To level the emergence height of the crown to the adjacent natural teeth and soft tissue thickness (4 options).

When the occlusal height from the implant is greater than 6 mm.

When it is necessary to adjust the height of the opposing arch and parallelize the insertion axis of the prosthesis.

In fixed restorations with non-parallel implants exceeding 10° for Series 3 implants, 14° for Series 4 implants and 12° for Series 5 implants.

In single or multiple restorations where, due to the position of the implant, the entry hole of the retention screw in a screw-retained prosthesis compromises the restoration aesthetics.

Contraindications

When the occlusal height from the implant is less than 4 mm.

Precautions

Retention with prosthetic cement in cantilever or extension.

Cemented on screwed components.

Materials

Phibo® 1.25 mm driver.

Phibo® torque wrench.

TSA® implant analog.

Phibo® TSA® Millable Abutments.

Phibo® TSA® Non-Shouldered Millable Castable Abutment.

Additional Materials (not supplied by Phibo®)

Implant impression record.

Impression material.

Procedure

At the clinic

Impression taking and molding

See the procedure for impression taking with metal attachments on TSA® implants.

At the laboratory

Millable abutment selection and modeling

Choose the type of millable abutment depending on:

- Implant non-parallelism.
- Soft tissue height from the implant shoulder to the free gingival margin.
- Emergence profile of the prosthesis.

Insert the chosen abutment into the implant analog, adjusting the hexagons with small turns and manually tighten the retention screw until the millable abutment is fixed to the TSA® implant analog.

Check the height of the Millable Abutment in relation to the opposing arc and the parallelism with adjacent teeth and/or abutments.

Shape the abutment by milling if necessary.

Prosthesis fabrication

Seal the entry hole of the retention screw of the millable abutment with wax and prepare the abutment with the spacer.

For millable non-shouldered abutments:

Fix the Millable Castable Abutment on the abutment, applying light occlusal-gingival pressure until frictional retention is activated.

Fill the interior space between Castable Abutment and abutment with liquid phase self-curing resin until you reach the full height of the Castable Abutment.

Remove excess material before setting.

Once the resin has set, remove the Castable Abutment to check the interior copy of the abutment shape and planes.

Reposition the Castable abutment on the abutment.

For other Millable Abutments:

Wax-up the abutment directly after modeling by milling (if indicated), after inserting the appropriate spacer.

Model the structure for casting with wax or resin.

Perform the casting on metal.

Remove the structure casted into the cylinder.

Reline and adjust the shoulder.

Apply ceramic coating without glazing, if applicable.

Make a guide on the model for the position of the Millable Abutment in the mouth.

Remove the Millable Abutment from the model.

At the clinic

Structure sample

Remove the healing abutment from the implant.

Place the abutment or abutments on the acrylic resin guide made in the laboratory.

Attach the abutment to the implant using the acrylic resin positioning guide and thread the retention screw until the abutment is fixed, gently tightening by hand.

Mount the prosthesis structure on the abutment in the mouth.

Check the fit of the structure:

- Adjustments of the abutment shoulder to the implant.
- Passivity.
- Relationship with the gingiva.
- Contact points.
- Occlusion.

Remove the structure from the mouth and assemble it back into the working model.

Replace the healing abutment.

Structure finishing

Finish the ceramic coating and glazing.

Placement of millable abutment

Remove the healing abutment from the implant.

Place the abutment or abutments on the acrylic resin guide made in the laboratory.

Attach the abutment to the implant using the acrylic resin positioning guide and thread the retention screw until the abutment is fixed, gently tightening by hand.

Tighten the retention screw using the 1.25 mm driver tip and the torque wrench to a torque of 35N·cm.

Prosthesis placement

Mount the prosthesis structure on the abutment in the mouth.

Check the fit of the structure.

Adjustments of the abutment shoulder to the implant:

- Passivity.
- Relationship with the gingiva.
- Contact points.
- Occlusion.

Seal the entry hole in the retention screw using temporary sealing material.

Cement the prosthesis. If you plan to remove the prosthesis for maintenance, use temporary cement.

Wait until it sets and remove the excess cement.

6.3. Permanent overdenture restorations

6.3.1. ProUnic® Plus™ abutment

Indications

Full removable restorations through a mucosa-implant-supported ball-retained overdenture attached to implants, 2-4 in the mandibular area and 4 to 6 in the maxillary area, manufactured with the conventional wax-up castable abutment technique, using a Rotation Castable Abutment.

Materials

- ✓ ProUnic Plus™ and/or transmucosal abutments for Phibo® TSA® implants.
- ✓ ProUnic Plus™ abutment for Phibo® TSA® implants.
- ✓ ProUnic Plus™ impression carrier for Phibo® TSA® implants.
- ✓ ProUnic Plus™ abutment protective cap for Phibo® TSA® implants
- ✓ Phibo® 1.25 mm driver.
- ✓ Phibo® torque ratchet.
- ✓ ProUnic Plus™ analog for Phibo® TSA® implants.
- ✓ Rotation castable abutment for Phibo® TSA® bridge or screw-retained bar.
- ✓ Phibo® TSA® clinical screw.

Additional Materials (not supplied by Phibo®)

- ✓ Implant impression record.
- ✓ Impression material.

Procedure

At the clinic

Placing the ProUnic Plus™ or transmucosal abutment on the implant

Remove the healing abutment.

Select the appropriate ProUnic Plus™ abutment.

Fix the ProUnic Plus™ retention screw with a 1.25mm manual driver and pass it through the coronal hole in the abutment until it protrudes at the end.

Insert the assembly into the ProUnic Plus™ abutment carrier, applying slight pressure to secure them through mechanical friction retention.
Position the ProUnic Plus™ abutment on the implant by engaging the hexagons, adjusting them with small turns. Tighten the screw manually.
Remove the ProUnic Plus™ Abutment carrier.
Tighten ProUnic Plus™ abutment screw by applying a force of 25 N·cm using the torque wrench and the 1.25mm ratchet tip.
If an impression is not taken in the same clinical session, fix the ProUnic™ Abutment protection cap by applying occlusal-gingival pressure and rotate it to engage the hexagons until you hear a click, NonStop™ system. Check the fit with the outer cone of the implant.

Impression taking and working model preparation
See the ProUnic Plus™ impression carrier Plus™ Abutment as indicated.

At the laboratory
Prosthesis fabrication
Conventional prosthesis on castable abutment.
Place the castable abutment on the Prounic Plus™ analog in the working model. Fix it gently using the laboratory screw.
Check the adjustment of the soft tissue from the implant shoulder to the free gingival margin, to select an appropriate transmucosal abutment.
Model the structure in wax or resin for casting onto the castable abutment.
Shape the bar in wax or attach prefabricated plastic bars to the castable abutment model.
Cast the castable abutments.
Remove the cast structure. Reline the implant shoulder support with the reamer.
Model overdenture structure on the bar and its attachment.

At the clinic
Structure sample
Remove the plastic cap from the ProUnic Plus™ or transmucosal abutment or temporary prosthesis.
Attach the bar to the implants by manual torque.
Attach the overdenture on the bar in the mouth.
Check the fit of the structure.

- Occlusion.
- Adjustments and position in support areas.

Remove the mouth structure and the bar.
Replace the protective cap.

Structure finishing
Shape the overdenture or bar appropriately.

Placement of abutments and permanent prosthesis

Remove the protective cap from the ProUnic Plus™ or transmucosal abutment or temporary prosthesis.

Attach the bar to the implants using the 1.25mm driver.

Tighten the bar using the 1.25mm driver tip and the torque wrench at a torque of 35 N·cm.

Mount the overdenture on the bar in the mouth.

Make the necessary adjustments.

6.3.2. ProUnic® Aesthetic rotation abutment

Materials

- ✓ ProUnic® Aesthetic rotation abutment for Phibo® TSA® implants.
- ✓ Metal impression carrier for Phibo® TSA® implants
- ✓ Phibo® 1.25 mm driver.
- ✓ Phibo® 1.0mm mechanical or manual driver.
- ✓ Phibo® torque ratchet.
- ✓ TSA® Implant Analog.
- ✓ Rotation castable abutment for Phibo® TSA® bridge or screw-retained bar.
- ✓ Phibo® TSA® clinical screw.

Additional Materials (not supplied by Phibo®)

- ✓ Implant impression record.
- ✓ Impression material.

Procedure

At the clinic

Impression taking and molding

See the procedure for impression taking with metal attachments on TSA® implants

At the laboratory

Prosthesis fabrication

Conventional prosthesis on castable abutment.

Place the Prounic® Aesthetic rotation castable abutment on the TSA® implant analog in the working model.

Fix it gently using the laboratory screw.

Check the adjustment of the soft tissue from the implant shoulder to the free gingival margin, for the preparation of the restoration emergence profile.

Model the structure in wax or resin for casting onto the castable abutment.

Shape the bar in wax or attach prefabricated plastic bars to the castable abutment model.

Cast the castable abutments.

Remove the cast structure. Reline the implant shoulder support with the reamer.

Model overdenture structure on the bar and its attachment.

At the clinic

Structure sample

Remove the protective cap.

Attach the ProUnic® Aesthetic permanent rotation abutment.

Place the bar on the implants and fix the bar with manual torque.

Attach the overdenture on the bar in the mouth.

Check the fit of the structure.

- Occlusion.
- Adjustments and position in support areas.

Remove the mouth structure and the bar.

Replace the protective cap.

Structure finishing

Shape the overdenture or bar appropriately.

Placement of abutments and permanent prosthesis

Attach the ProUnic® Aesthetic permanent abutment to the implant at a torque of 25N·cm.

Place the bar on the implants and fix the bar to the implants with the 1.00mm driver.

Attach the bar to the implants using the 1.00mm driver.

Tighten the bar using the 1.00mm driver tip and the torque wrench at a torque of 25N·cm.

Mount the overdenture on the bar in the mouth.

Make the necessary adjustments.

6.3.3. ProUnic® Advance abutment

Materials

- ✓ ProUnic Advance™ and/or transmucosal abutments for Phibo® TSA® implants.
- ✓ ProUnic Advance™ abutment carrier for Phibo® TSA® implants.
- ✓ Phibo® TSA® permanent clinical screw
- ✓ TSA® impression carrier
- ✓ Phibo® 1.25 mm driver.
- ✓ Phibo® 1.25 mm ratchet driver bit
- ✓ Phibo® torque ratchet.
- ✓ TSA® implant analog
- ✓ ProUnic® Advance anti-rotation/rotation screw-retained castable abutment.
- ✓ ProUnic® Advance™ laboratory screw

Procedure

At the clinic

Impression taking and working model preparation

See the conventional metal carrier impression procedure.

At the laboratory

Prosthesis fabrication

Conventional prosthesis on castable abutment.

Place the castable abutment on the Duplit™ + implant analog on the working model. Fix it gently using the laboratory screw.

Check the adjustment of the soft tissue from the implant shoulder to the free gingival margin, for the preparation of the restoration emergence profile.

Model the structure in wax or resin for casting onto the castable abutment.

Cast the castable abutment.

Remove the cast structure. Reline the implant shoulder support.

Test the metal structure, apply ceramic coating without glazing to check for anatomy, color and occlusion, or finish the prosthesis permanently if necessary.

At the clinic

Structure sample

Remove the healing abutment.

Mount the ProUnic Advance™ Abutment in the mouth and place the structure.

Check the fit of the structure:

- Adjustments of the abutment shoulder to the implant.
- Passivity.
- Relationship with the gingiva.
- Contact points.
- Occlusion.
- Check adjustment using Rx.

Remove the structure.

Replace the healing abutment.

Structure finishing

Finish the ceramic coating and glazing.

Placing the ProUnic Advance™ abutment on the implant

Remove the healing abutment.

Place the ProUnic Advance™ abutment with the carrier, by engaging the hexagons and adjusting them with small turns.

The abutment will be retained in the implant through primary fixation.

Remove the carrier from the ProUnic Advance™ Abutment by turning it half a turn counterclockwise.

If it is necessary to remove the ProUnic Advance™ abutment, insert the carrier and turn it half a turn clockwise. In this way the carrier will be fixed to the abutment. Apply the necessary force to remove the abutment.

Place the permanent structure on the ProUnic Advance™ abutment.

Screw the structure with the permanent clinical screw using the torque ratchet, at a torque of 35 N cm.

Check the fit of the structure.

- Adjustments of the abutment shoulder to the implant.
- Passivity.
- Relationship with the gingiva.
- Contact points.
- Occlusion.
- Check adjustment using an X-Ray.

Seal the screw hole by placing cotton and temporary sealing material.

6.3.4. Ball abutments

Materials

- ✓ Phibo® 1.25 mm driver.
- ✓ Phibo® torque ratchet.
- ✓ TSA® implant analog
- ✓ Phibo® TSA® Ball Abutment
- ✓ Metal O-ring cap for Phibo® TSA® ball abutment.

Additional Materials (not supplied by Phibo®)

- ✓ Implant impression record.
- ✓ Impression material.

Procedure

Impression taking and molding

See the procedure for impression taking with metal attachments on TSA® implants.

At the laboratory

Selection and placement of ball abutments

Choose the height of the transmucosal area of the Ball Abutment most suitable for reconstruction.

Place the chosen abutment on the TSA® implant analog.

Check the abutment height in relation to the opposing arch and the space for the overdenture.

Prosthesis fabrication

Model the overdenture structure.

Fix the metal O-ring cap to the overdenture with temporary material.

At the clinic

Structure sample

Remove the healing abutments.

Attach the ball abutment manually to the implant using the 1.25mm driver.

Place the structure on the abutments.

Check the fit of the structure:

- Adjustments of the abutment shoulder to the implant.
- Passivity.
- Relationship with the gingiva.
- Contact points.
- Occlusion.

Remove the structure and the ball abutments from the mouth.

Place the healing abutments.

Structure finishing

Shape the structure if necessary.

Remove the caps and temporary cement.

Fix the caps permanently with acrylic resin.

Placement of ball abutment and prosthesis

Remove the healing abutments.

Attach the ball abutments to the implant using the 1.25mm driver and torque wrench at a torque of 35 N-cm.

Mount the overdenture on the abutments in the mouth.

Make the necessary occlusal and soft tissue adjustments.

Important:

Periodic replacement of the O-ring retention element is required.

It requires more frequent control of the adaptation of the overdenture to the tissues in order to avoid premature wear of the O-ring.

7. SUMMARY OF TSA® SCREW TORQUES

PRODUCT	TORQUE	
TSA® healing cap	25 N·cm	
TSA® healing abutment	25 N·cm	
TSA® carrier screw	Manual adjustment	
TSA® abutment screw	Temporary	25 N·cm
	Permanent	35 N·cm
TSA® laboratory screw	Manual adjustment	
TSA® clinical screw	CAD-CAM (CrCo/ Ti/ Zr with interface)	35 N·cm
	CAD-CAM (PMMA)	15 N·cm