

Stage 3 | Prosthetic procedures

# Step 3 Insertion of the final prosthesis



## Assessment and treatment planning

-  Step 1 | Patient's expectations, history and examination
-  Step 2 | Treatment planning
-  Step 3 | Consultation and consent
-  Step 4 | Fabrication of the surgical drill template

## Surgical procedures

-  Step 1 | Implant surgery
  -  Step 2 | Post-operative review and suture removal
- 7-10 days
- 6-8 weeks

## Prosthetic procedures

-  Step 1 | Impression-taking
-  Step 2 | Fabrication of the final prosthesis
-  Step 3 | Insertion of the final prosthesis

## Aftercare and maintenance

-  Step 1 | Review visit
  -  Step 2 | Maintenance visit
- 2 weeks
- 3-6 months (or as necessary)

 In clinic with patient     Office / Lab work



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## Introduction



Following the impression-taking procedure, your patient returns to your dental office for a try-in of the final restoration, before final insertion of the 3-unit implant-supported fixed dental prosthesis (FDP). The dental laboratory should have provided the

uncompleted prosthesis or framework for a try-in before final processing. The try-in of the framework should be carried out at these following time-points:

- **After framework construction, before veneering**
- **At “biscuit-bake”, before final glazing**
- **Before final insertion of the prosthesis**

Once the framework try-in is satisfactory, the final prosthesis can be processed and finally cemented onto the abutments or screwed into the implants. Final insertion involves the:

- **Final try-in procedure**
- **Final prosthesis insertion**

### **Try-in the final prosthesis at the following time-points:**

- after framework construction
- at "biscuit-bake"
- before final insertion



## Learning objectives

-  Understand the advantages and disadvantages of cement-retained and screw-retained FDPs.
-  Know what to assess during the try-in procedure of the framework.
-  Know what to assess during the try-in procedure of the final restoration.
-  Know what tightening torque to use with the final abutments and restoration.
-  Understand and follow the step-by-step procedure of restoring implants with a screw-retained 3-unit FDP with the Straumann® Variobase® for Bridge/Bar.
-  Understand and follow the step-by-step procedure of restoring implants with a cement-retained 3-unit FDP on Straumann® Cementable Abutments.



# 1. Comparison of screw-retained and cement-retained fixed dental prostheses



## Screw-retained

- + Good retrievability – can be easily removed for maintenance and cleaning if required.
- + No residual cement (decreased risk of peri-implantitis<sup>1,2</sup>).
- + Can be used where there is limited inter-occlusal height.
- Screw access holes may interfere with the occlusal surface and are visible.



## Cement-retained

- Poor retrievability – removing the FDP usually requires complete replacement.
- Difficult to remove excess cement (increased risk of peri-implantitis<sup>3,4,5</sup>).
- Need for minimal inter-occlusal height of 6-7 mm.
- + Screw access holes of the abutments are covered by the FDP and are not visible occlusally.

Advantages and disadvantages of screw-retained and cement-retained fixed dental prostheses



If you are working with a screw-retained FDP,  
[click here](#)



If you are working with a cement-retained FDP,  
[click here](#)



## 2. Screw-retained 3-unit FDP with the Straumann® Variobase® for Bridge/Bar

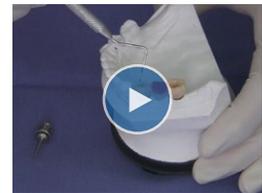
### 2.1 Framework try-in of the screw-retained 3-unit FDP

Before placing the restoration in the patient's mouth, clean, disinfect and sterilize the framework. For further instructions on how to sterilize and use the [Straumann® Variobase® for Bridge/Bar](#), please refer to the manufacturer's guidelines in the instructions for use. The most up-to-date versions can be found on our Straumann [eIFU website](#).

Please click here for a quick [Reference checklist: Framework try-in procedures](#).

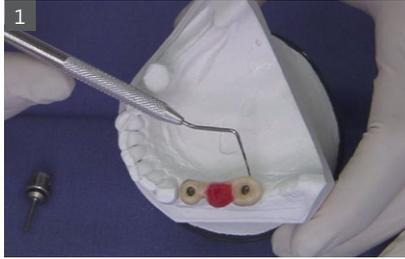
[Video: Screw-retained framework try-in with the Straumann® Variobase® for Bridge/Bar](#)

Clean, disinfect and sterilize the framework before insertion.





## Step-by-step for try-in procedure



1. Check the seating of the framework and its marginal fit on the working model with a dental explorer.

Check framework seating on the working model.



2. Assess the marginal fit with a dental explorer and check if there is tension-free seating between the framework and the implants by applying the Sheffield test<sup>6</sup>:

Apply the Sheffield test<sup>6</sup> to assess tension-free seating.

- Screw the framework firmly onto the distally positioned implant.
- Verify whether tightening of this screw results in movement of the framework away from the mesially placed implant.
- If a gap forms, tension-free seating cannot be achieved.
- Repeat this in both directions.

**⚠ Caution:** A **PASSIVE FIT** of the framework on the dental implants is necessary to avoid any physical stress or tension in the framework, or on the osseointegrated implants. This helps to prevent any future biomechanical complications. If the framework is not tension-free on the working model, send the framework back to the [🔗 dental technician](#).

A passive fit of the framework is mandatory to avoid any physical stress or tension.



# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

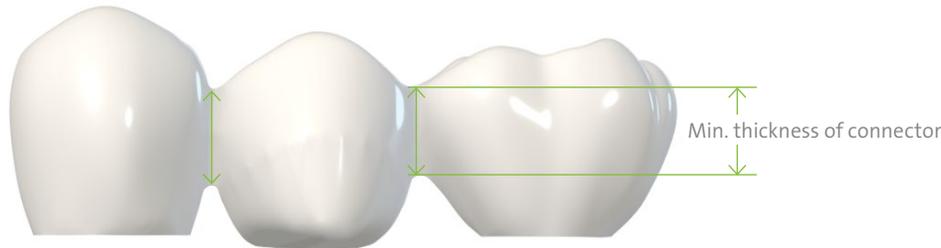
Screw-retained  
3-unit FDP



3. Check the thickness and anatomical design of the framework:

3.1 Assess the thickness of the connector of the 3-unit FDP using calipers:

Check the thickness and anatomical design of the framework.



- Minimum thickness for **metal ceramic** framework connectors<sup>7</sup>: **6.25 mm - 9 mm**
- Minimum thickness for **zirconia** framework connectors<sup>8</sup>: **9 mm**

**Minimum thickness for framework connectors<sup>7,8</sup>:**

- 6.25 mm - 9 mm for metal ceramic
- 9 mm for zirconia

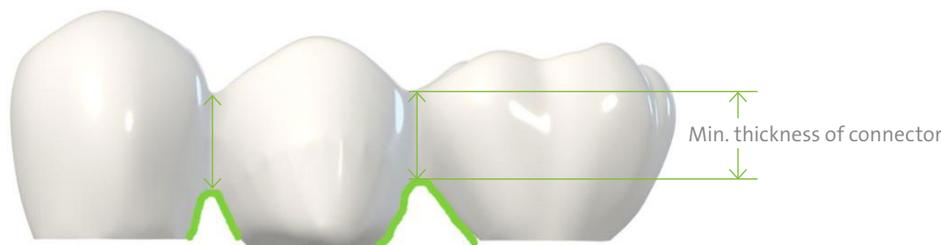
**⚠ Caution:** Depending on the material chosen for the framework, always respect the material manufacturer's guidelines!



3.2 Assess the anatomical design of the framework by visual inspection and with a dental probe:

- The framework must be designed to reflect the anatomical shape of the teeth it is replacing.
- Especially in the molar region, the occlusal surface must be rounded, creating a simplified occlusal relief to provide the best possible support for the ceramic veneer.
- The connector should also display a round shape at the gingival embrasure.

The framework should have an anatomical design.





# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Screw-retained  
3-unit FDP



4. Remove the [Healing Caps](#) or [Healing Abutments](#) respectively with the [SCS Screwdriver](#).

Remove the healing components.



- 4.1 Rinse and dry the internal connections of both implants thoroughly.

Clean and dry the implant connections.



5. Assess the peri-implant mucosa and check for absence of inflammation.

Check if the peri-implant mucosa is healthy.



If any inflammation is present, check if it has been caused by the presence of a foreign body, impression material, food debris or plaque. Consider taking a radiograph if necessary to check for the cause of inflammation. Remove the cause of inflammation and irrigate gently with chlorhexidine solution. Replace the existing healing components with new Healing Caps or Healing Abutments, and review the patient in 7-10 days.

**Optional:**

Take a radiograph. Remove any cause of inflammation. Review the patient if necessary.



# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Screw-retained  
3-unit FDP



6. Place the framework (constructed using the [Straumann® Variobase® for Bridge/Bar](#)) onto the implants in the patient's mouth, and hand-tighten it with the [SCS Screwdriver](#).

Correctly position and hand-tighten the framework onto the implants.

**⚠ Caution:** Screwing the restoration into the implants may cause pressure on the peri-implant mucosa. This may result in short-term ischemia, or blanching of the soft tissues and lead to inaccurate seating of the framework.

Temporary blanching of the mucosa can occur.



7. Check for proper seating of the framework by using a dental explorer.

Assess proper seating of the framework.



8. Assess the marginal fit with a dental explorer and check if there is tension-free seating between the framework and the implants by applying the Sheffield test<sup>6</sup>:

Assess the marginal fit and apply the Sheffield test<sup>6</sup> to assess tension-free seating.

- Screw the framework firmly onto the distally positioned implant.
- Verify whether tightening of this screw results in movement of the framework away from the mesially placed implant.
- If a gap forms, tension-free seating cannot be achieved.
- Repeat this in both directions.

**⚠ Caution:** A **PASSIVE FIT** of the framework on the dental implants is necessary to avoid any physical stress or tension in the framework, or on the osseointegrated implants. This helps to prevent any future biomechanical complications. If the framework is not tension-free, take a new impression and send the framework back to the dental technician.

A passive fit of the framework is mandatory to avoid any physical stress or tension.



# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Screw-retained  
3-unit FDP



You may take a periapical radiograph to help confirm if there is a passive fit of the screw-retained framework on the implants.

If necessary take a periapical radiograph.



Possible causes of poor marginal fit are:

- Excessive soft tissue pressure from the peri-implant tissues or pontic area, leading to incorrect seating of the framework.
- Inaccurate impression-taking.
- Inaccurate lab processes during framework fabrication.

Causes of poor marginal fit.



9. Use an interdental brush to assess if the interstitial spaces have adequate accessibility for oral hygiene procedures.

Check the emergence profile and cleanability of the framework with an interdental brush.



10. Check the correct occlusal relationship with the help of the dental technician's registration jig.

Check correct occlusal relation with the help of a registration jig.



If the occlusion with the registration jig is not correct, remove the jig and perform a new bite registration.



## Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Screw-retained  
3-unit FDP



11. Reline the pontic area with acrylic resin material.

Reline the pontic area with acrylic resin material.

12



12. Re-insert the clean [Healing Caps](#) or [Healing Abutments](#) and send the framework back to the [dental laboratory](#) to veneer the suprastructure.

Re-insert the healing components and send the framework to the dental lab for veneering.



Subsequent loosening is made easier by applying chlorhexidine gel or sterile petroleum jelly to the Healing Caps or Healing Abutments before screwing them into the implants.



# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Screw-retained  
3-unit FDP



## 2.2 Final insertion of the screw-retained 3-unit FDP

Before placing the restoration in the patient's mouth, clean, disinfect and sterilize the FDP. For further instructions on how to sterilize and use the [Straumann® Variobase® for Bridge/Bar](#), please refer to the manufacturer's guidelines in the instructions for use. The most up-to-date versions can be found on our Straumann [eFU website](#).

Please click here for a quick [Reference checklist: Screw-retained restorations with the Straumann® Variobase® for Bridge/Bar](#).

[Video: Final insertion of the screw-retained 3-unit FDP with the Straumann® Variobase® for Bridge/Bar](#)

Clean, disinfect and sterilize the final prosthesis before insertion.



### Step-by-step for final try-in procedure



1. Check for adequate fit of the final FDP on the working model:
  - Marginal fit
  - Proximal contact points
  - Occlusion

Check for adequate fit of the final prosthesis on the working model.



2. Remove the [Healing Caps](#) or [Healing Abutments](#) with the [SCS Screwdriver](#).

Remove the healing components.



- 2.1 Rinse and dry the internal connections of both implants thoroughly.

Clean and dry the implant connections.



## Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Screw-retained  
3-unit FDP



3. Assess the peri-implant mucosa and check for absence of inflammation.

Check if the peri-implant mucosa is healthy.



If any inflammation is present, check if it has been caused by the presence of a foreign body, impression material, food debris or plaque. Consider taking a radiograph if necessary to check for the cause of inflammation. Remove the cause of inflammation and irrigate gently with chlorhexidine solution. Replace the existing healing components with new [Healing Caps](#) or [Healing Abutments](#), and review the patient in 7-10 days.

### Optional:

Take a radiograph.  
Remove any cause of inflammation. Review the patient if necessary.



4. Place the final FDP onto the implants in the patient's mouth, and hand-tighten it with the [SCS Screwdriver](#) while checking for tension-free seating between the FDP and the implants by applying the Sheffield test<sup>6</sup>:

Correctly position and hand-tighten the screw-retained FDP.

- Screw the FDP firmly onto the distally positioned implant.
- Verify whether tightening of this screw results in movement of the framework away from the mesially placed implant.
- If a gap forms, tension-free seating cannot be achieved.
- Repeat this in both directions.

**⚠ Caution:** A **PASSIVE FIT** of the FDP on the dental implants is necessary to avoid any physical stress or tension in the FDP, or on the osseointegrated implants. This helps to prevent any future biomechanical complications. If the FDP is not tension-free, take a new impression and send the FDP back to the dental technician.

A passive fit of the final prosthesis is mandatory to avoid any physical stress or tension.

**⚠ Caution:** Screwing the restoration into the implants may cause pressure on the peri-implant mucosa. This may result in short-term ischemia, or blanching of the soft tissues and lead to inaccurate seating of the framework. Warn the patient of some discomfort and if this occurs for more than a day, to return to your clinic for review.

Temporary blanching of the mucosa can occur.



# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Screw-retained  
3-unit FDP



- 4.1 Check for proper seating and marginal fit between the implants, the restoration and the underlying tissues, by using a dental explorer.

Assess proper seating of the FDP.



You may take a periapical radiograph to help check the marginal and passive fit of the screw-retained FDP on the implants.



Possible causes of poor marginal fit are:

- Overly tight proximal contact points on either the mesial or distal side.
- Excessive soft tissue pressure from the peri-implant tissues or pontic area, leading to incorrect seating of the final FDP.
- Over-contour of the FDP, causing too much soft tissue pressure.
- Inaccurate impression-taking.
- Inaccurate lab processes during FDP fabrication.

Causes of poor marginal fit.

4.2



- 4.2 Use dental floss to check if the proximal contacts are tight enough to avoid food impaction.

Check the proximal contacts with dental floss.

**⚠ Caution:** If a gap is present or there are no tight proximal contacts, send the FDP back to the [🔗 dental technician](#) and communicate about the additional material which needs to be added.

4.3



- 4.3 Check the pontic area design and cleanability with dental (or super) floss.

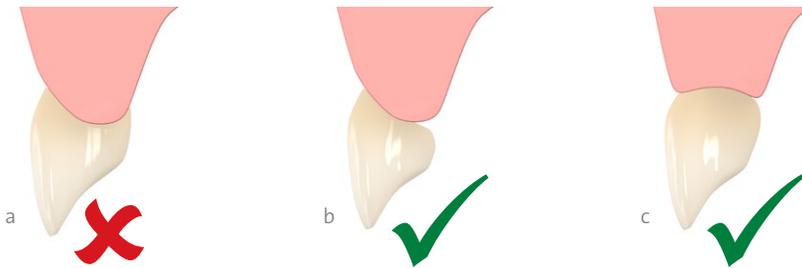
Check the pontic design and cleanability.



# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Screw-retained  
3-unit FDP



The pontic should have an ovate or a modified ridge lap design to facilitate oral hygiene procedures.

- Avoid a total ridge lap (a) design as this can cause food impaction and subsequent soft tissue inflammation.
- To allow proper cleaning, the pontic should be seated in flush contact with the underlying soft tissues, with an ovate (b) or modified ridge lap (c) design.

**⚠ Caution:** If a gap is present or there is no tight contact with the underlying tissue, send the FDP back to the [dental technician](#) and communicate about the additional material which needs to be added.



4.4 Check the occlusion. Use articulating paper to check for:

- Only light centric contact, and no contact on lateral excursions
- Any premature contacts
- Anterior and lateral guidance with the natural dentition only

**Use articulating paper and shimstock to check for:**

- Premature contacts
- Heavy centric or lateral contacts
- Lateral or anterior guidance



Check that the occlusion only holds shimstock when the teeth are clenched hard.





## Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Screw-retained  
3-unit FDP



- 4.5 Use an interdental brush to assess if the interdental spaces have adequate accessibility for oral hygiene procedures.

Check the emergence profile and cleanability with an interdental brush.

- 4.6 Check if the appearance (color and surface texture) of the teeth are natural enough and satisfactory for the patient.

Ensure that the patient is happy with the appearance of the final prosthesis.

5. If possible, carry out all adjustments of the FDP at the chair-side, before inserting the final restoration. If you need to send the FDP back to the [🔗 dental laboratory](#), re-insert clean [🔗 Healing Caps](#) or [🔗 Healing Abutments](#).



# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Screw-retained  
3-unit FDP



## Step-by-step for final FDP insertion

- Make sure that the implant-abutment connections are properly aligned when inserting the final restoration.

**⚠ Caution:** Always ensure that the surfaces of the screw threads and the screw heads are clean and that new and unused screws are used for inserting the abutments.



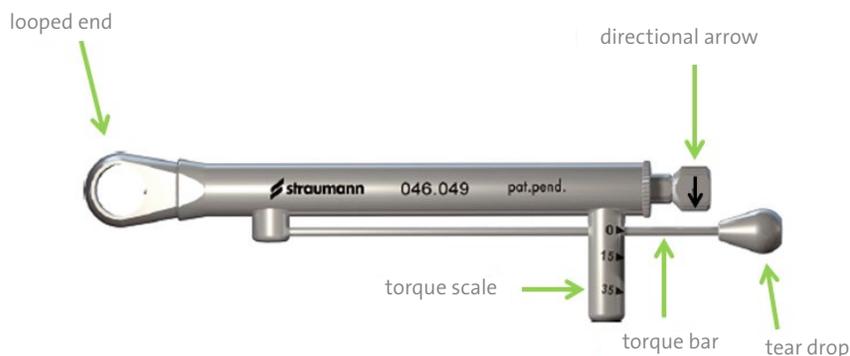
6. Insert the final screw-retained FDP into the implants. Tighten the abutment screws by hand using the [SCS Screwdriver](#).

Insert the final prosthesis properly into the implant connections.

Always use new screws, not the screws used for processing in the lab.

Hand-tighten the FDP first.

7. Place the looped end of the assembled [Ratchet](#) with the [Torque Control Device](#) over the SCS Screwdriver handle. The directional arrow must be pointing in the clockwise direction (towards the torque bar with tear drop). If not, pull the arrow out, flip it over, and let it snap in.



Use the Ratchet and Torque Control Device next.



8. You may use your fingertip or insert the pin end of the [Holding Key](#) into the coronal hole on the SCS Screwdriver handle for stabilization.

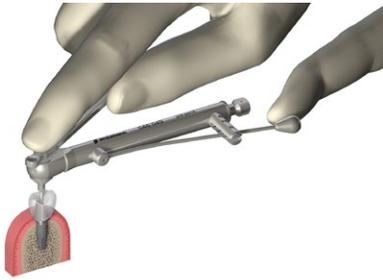
Stabilize the SCS Screwdriver with your finger or the Holding Pin.



# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Screw-retained  
3-unit FDP



9. Use one hand to hold the [Holding Key](#) and use the other hand to hold the torque bar. Grasp only the tear drop and move the torque bar to the **35 Ncm** mark with one finger.



Pull the torque bar to 35 Ncm with one finger only ONCE.

**⚠ Caution:** Only do this during final insertion in one continuous move to reach a tightening torque of 35 Ncm. There is no need to repeat this action.

Torques greater than 35 Ncm may result in the failure of the implants and/or abutments. Torque values less than 35 Ncm may result in loosening of the final restoration.

Do not repeat this torque movement.

Repeated excessive force can result in screw damage and loosening of the final prosthesis.



10. After reaching the 35 Ncm mark, return the torque bar to its starting position. Lift and remove the Holding Key, the [Ratchet](#) with the [Torque Control Device](#) and the [SCS Screwdriver](#).

Remove all the devices from the FDP.



11. Close the screw access holes with cotton and sealing compound (e.g., gutta-percha).

Close the screw access holes with temporary material as this will be replaced permanently at the first review visit.



# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Screw-retained  
3-unit FDP



11.1 The remainder of the screw access holes should be filled with a temporary filling material. This allows for later removal of the [Straumann® Variobase® for Bridge/Bar](#) in case a replacement should be required.

**⚠ Caution:** If the restoration needs to be replaced in the future, always replace the screws.



You should also take a standard periapical radiograph using the long-cone paralleling technique to check for:

- Complete seating of the final restoration
- No overhanging restorative material
- Bone levels after insertion of the final restoration as a baseline for long-term follow-up



12. Reinforce oral hygiene instructions with the patient. Discuss oral hygiene devices and aids to clean around the implants and FDP such as:

- Interdental brushes with nylon-coated core wire.
- Soft toothbrushes (both manual and electric).
- Different types of floss (e.g., plastic, braided nylon, coated, floss with stiffened end).
- Chlorhexidine digluconate (0.12 %) mouthrinse for 1 minute twice daily for 7 days.

13. Arrange to see the patient again in 2 weeks' time.

### Optional:

Take a baseline radiograph to check for complete insertion of the final restoration.

Reinforce oral hygiene instructions with the patient.

Review the patient in 2 weeks.



## 3. Cement-retained 3-unit FDP on Straumann® Cementable Abutments

### 3.1 Framework try-in of the cement-retained 3-unit FDP

Before placing the restoration in the patient's mouth, clean, disinfect and sterilize the framework and abutments. For further instructions on how to sterilize and use the [Straumann® Cementable Abutments](#), please refer to the manufacturer's guidelines in the instructions for use. The most up-to-date versions can be found on our [Straumann eIFU website](#).

Please click here for the [Reference checklist: Framework try-in procedures](#).



[Video: Cement-retained framework try-in with Straumann® Cementable Abutments](#)

Clean, disinfect and sterilize the framework and abutments before insertion.



### Step-by-step for framework try-in procedure



1. Check the seating of the framework and its marginal fit on the working model with a dental explorer.

Check framework seating on the working model.



2. Place two fingers on the occlusal surface of the framework, and check if there is tension-free seating without rocking and unwanted lateral movement.

Assess tension-free seating with two fingers.

**⚠ Caution:** A **PASSIVE FIT** of the framework on the abutments is necessary to avoid any physical stress or tension in the framework, abutments or on the osseointegrated implants. This helps to prevent any future biomechanical complications. If the framework is not tension-free on the abutments on the working model, send the framework back to the [dental technician](#).

A passive fit of the framework is mandatory to avoid any physical stress or tension.



# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

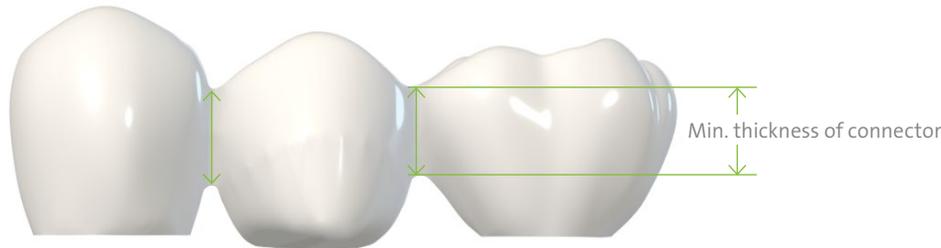
Cement-retained  
3-unit FDP



3. Check the thickness and anatomical design of the framework:

3.1 Assess the thickness of the connector of the 3-unit FDP using calipers:

Check the thickness and anatomical design of the framework.



- Minimum thickness for **metal ceramic** framework connectors<sup>7</sup>: **6.25 mm - 9 mm**
- Minimum thickness for **zirconia** framework connectors<sup>8</sup>: **9 mm**

**⚠ Caution:** Depending on the material chosen for the framework, always respect the material manufacturer's guidelines!

**Minimum thickness for framework connectors<sup>7,8</sup>:**

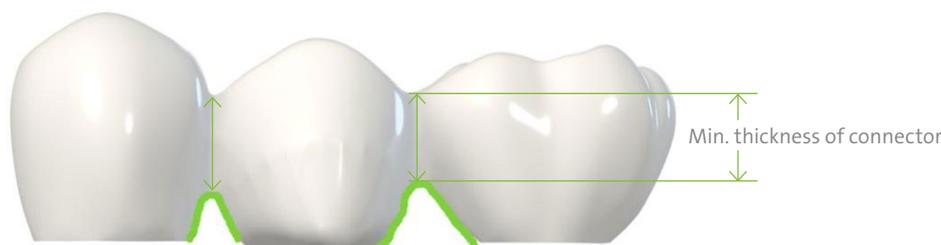
- 6.25 mm - 9 mm for metal ceramic
- 9 mm for zirconia



3.2 Assess the anatomical design of the framework by visual inspection and with a dental probe:

The framework should have an anatomical design.

- The framework must be designed to reflect the anatomical shape of the teeth it is replacing.
- Especially in the molar region, the occlusal surface must be rounded, creating a simplified occlusal relief to provide the best possible support for the ceramic veneer.
- The connector should also display a round shape at the gingival embrasure.





# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Cement-retained  
3-unit FDP



4. Remove the [Healing Caps](#) or [Healing Abutments](#) respectively with the [SCS Screwdriver](#).

Remove the healing components.



- 4.1. Rinse and dry the internal connections of both implants thoroughly.

Clean and dry the implant connections.



5. Assess the peri-implant mucosa and check for absence of inflammation.

Check if the peri-implant mucosa is healthy.



If any inflammation is present, check if it has been caused by the presence of a foreign body, impression material, food debris or plaque. Consider taking a radiograph if necessary to check for the cause of inflammation. Remove the cause of inflammation and irrigate gently with chlorhexidine solution. Replace the existing healing components with new Healing Caps or Healing Abutments, and review the patient in 7-10 days.

### Optional:

Take a radiograph.  
Remove any cause of inflammation. Review the patient if necessary.



# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Cement-retained  
3-unit FDP



6. Remove the Straumann® Cementable Abutments with the support of the splinted [Transfer Aids](#) from the working lab model, and place them in the patient's mouth.

Transfer the abutments accurately to the patient's mouth.



6.1 Make sure that the implant-abutment connections are properly aligned when inserting the abutments.

Insert the abutments properly into the implant connections.



7. Tighten the abutment screws by hand using the [SCS Screwdriver](#).

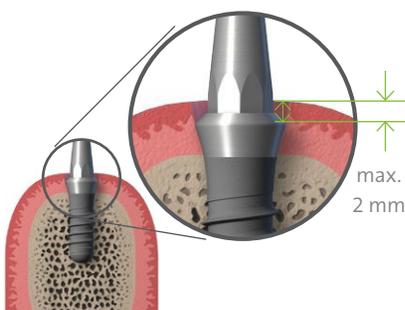
Hand-tighten the abutments first.

If there is any doubt about the fit of the final restoration, do not permanently torque the abutments.



8. Remove the splinted Transfer Aids.

Remove the Transfer Aids.



Check that the cement margins of the [Cementable Abutments](#) are no more than 2 mm below the gingiva.

The cement margins must not be more than 2 mm subgingival.



# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Cement-retained  
3-unit FDP



**⚠ Caution:** A minimum height of 3 mm above the mucosa margin of the Straumann® Cementable Abutments must be maintained to ensure proper stability and retention of the restoration.



9. Place the framework on top of the abutments and check for proper seating and design. Assess the marginal fit of the framework by using a dental explorer.



Possible causes of poor marginal fit are:

- Excessive soft tissue pressure from the peri-implant tissues or pontic area, leading to incorrect seating of the framework.
- Inaccurate impression-taking.
- Inaccurate lab processes during framework fabrication.



9.1 Place two fingers on the occlusal surface of the framework, and check if there is tension-free seating without rocking and unwanted lateral movement.

**⚠ Caution:** A **PASSIVE FIT** of the framework on the abutments is necessary to avoid any physical stress or tension in the framework, abutments or on the osseointegrated implants. This helps to prevent any future biomechanical complications. If the framework is not tension-free, take a new impression and send the framework back to the [dental technician](#).

The abutments should be at least 3 mm above the mucosa margin for good FDP retention.

Place the framework on top of the abutments and check for proper seating.

Use a dental explorer or probe to check the marginal fit.

Causes of poor marginal fit.

Assess tension-free seating with two fingers.

A passive fit of the framework is mandatory to avoid any physical stress or tension.



# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Cement-retained  
3-unit FDP



9.2 Use an interdental brush to assess if the interdental spaces have adequate accessibility for oral hygiene procedures.

Check the emergence profile and cleanability with an interdental brush.



9.3 Use dental (or super) floss to assess if the pontic space has adequate accessibility for oral hygiene procedures.



9.4 Check the occlusal relationship with the help of the dental technician's registration jig.

Check correct occlusal relation with the help of a registration jig.



If the occlusion with the registration jig is not correct, remove the jig and perform a new bite registration.



10. Reline the pontic area with acrylic resin material.

Reline the pontic area with acrylic resin material.





# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Cement-retained  
3-unit FDP



11

11. Unscrew the [Straumann® Cementable Abutments](#) with the [SCS Screwdriver](#), and remove them with the help of the splinted [Transfer Aids](#).

Unscrew the abutments with the help of the Transfer Aids and the SCS Screwdriver.



11.1

11.1 Rinse and dry the internal connections of both implants thoroughly.

Clean and dry the implant connections.



11.2

11.2 Re-insert the clean [Healing Caps](#) or [Healing Abutments](#).

Re-insert the healing components.



Subsequent loosening is made easier by applying chlorhexidine gel or sterile petroleum jelly to the Healing Caps or Healing Abutments before screwing them into the implants.

12. Send the framework, the splinted Transfer Aids with the Straumann® Cementable Abutments and the working model back to the [dental laboratory](#), for finalization and veneering of the suprastructure.

Send the framework to the dental lab for veneering.



# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Cement-retained  
3-unit FDP



## 3.2 Final insertion of the cement-retained 3-unit FDP

Before placing the restoration in the patient's mouth, clean, disinfect and sterilize the FDP and abutments. For further instructions on how to sterilize and use the [Straumann® Cementable Abutments](#), please refer to the manufacturer's guidelines in the instructions for use. The most up-to-date versions can be found on our [Straumann eIFU website](#).

Please click here for a quick [Reference checklist: Cement-retained restorations with Straumann® Cementable Abutments](#).

[Video: Final insertion of a cement-retained 3-unit FDP with Straumann® Cementable Abutments](#)

Clean, disinfect and sterilize the abutments and the final prosthesis before insertion.



### Step-by-step for final try-in procedure



1. Check for adequate fit of the final FDP on the working model:
  - Marginal fit
  - Proximal contact points
  - Occlusion

Check for adequate fit of the final prosthesis on the working model.



2. Remove the [Healing Caps](#) or [Healing Abutments](#) with the [SCS Screwdriver](#).

Remove the healing components.



- 2.1 Rinse and dry the internal connections of both implants thoroughly.

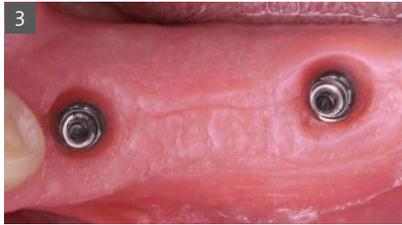
Clean and dry the implant connections.



# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Cement-retained  
3-unit FDP



3. Assess the peri-implant mucosa and check for absence of inflammation.

Check if the peri-implant mucosa is healthy.



If any inflammation is present, check if it has been caused by the presence of a foreign body, impression material, food debris or plaque. Consider taking a radiograph if necessary to check for the cause of inflammation. Remove the cause of inflammation and irrigate gently with chlorhexidine solution. Replace the existing healing components with new [Healing Caps](#) or [Healing Abutments](#), and review the patient in 7-10 days.

### Optional:

Take a radiograph.  
Remove any cause of inflammation. Review the patient if necessary.



4. Remove the [Straumann® Cementable Abutments](#) with the support of the splinted [Transfer Aids](#) from the working lab model, and place them in the patient's mouth.

Transfer the abutments accurately to the patient's mouth.



- 4.1 Make sure that the implant-abutment connections are properly aligned when inserting the abutments.

**⚠ Caution:** Always ensure that the surfaces of the screw threads and the screw heads are clean and that new and unused screws are used for inserting the abutments.

Insert the final prosthesis properly into the implant connections.

Always use new screws, not the screws used for processing in the lab.



# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Cement-retained  
3-unit FDP



5. Tighten the abutment screws by hand using the [SCS Screwdriver](#).

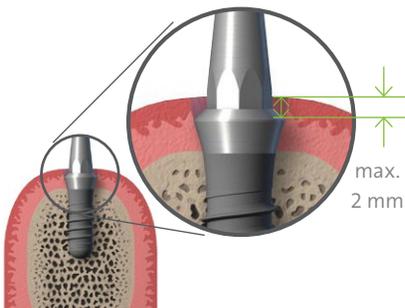
Hand-tighten the abutments first.

If there is any doubt about the fit of the final restoration, do not permanently torque the abutments.



6. Remove the splinted [Transfer Aids](#).

Remove the Transfer Aids.



Check that the cement margins of the [Straumann® Cementable Abutments](#) are no more than 2 mm below the gingiva.

The cement margins must not be more than 2 mm subgingival.

**⚠ Caution:** A minimum height of 3 mm above the mucosa margin of the Straumann® Cementable Abutments must be maintained to ensure proper stability and retention of the restoration.

The abutments should be at least 3 mm above the mucosa margin for good FDP retention.





# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Cement-retained  
3-unit FDP



7. Place the framework on top of the abutments and check for proper seating and design. Assess the marginal fit of the FDP on the abutments by using a dental explorer.

Place the final prosthesis on top of the abutments and check for proper seating.

Use a dental explorer or probe to check the marginal fit.



You may take a periapical radiograph to help check the marginal fit of the cement-retained FDP on the abutments.



Possible causes of poor marginal fit are:

- Overly tight proximal contact points on either the mesial or distal side.
- Excessive soft tissue pressure from the peri-implant tissues or pontic area, leading to incorrect seating of the final FDP.
- Over-contour of the FDP, causing too much soft tissue pressure.
- Inaccurate impression-taking.
- Inaccurate lab processes during FDP fabrication.

Causes of poor marginal fit.



7.1 Place two fingers on the occlusal surface of the FDP, and check if there is tension-free seating without rocking and unwanted lateral movement.

Assess tension-free seating with two fingers.

**⚠ Caution:** A **PASSIVE FIT** of the FDP on the abutments is necessary to avoid any physical stress or tension in the FDP, abutments or on the osseointegrated implants. This helps to prevent any future biomechanical complications. If the FDP is not tension-free on the abutments, take a new impression and send the FDP back to the [dental technician](#).

A passive fit of the final prosthesis is mandatory to avoid any physical stress or tension.



# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Cement-retained  
3-unit FDP



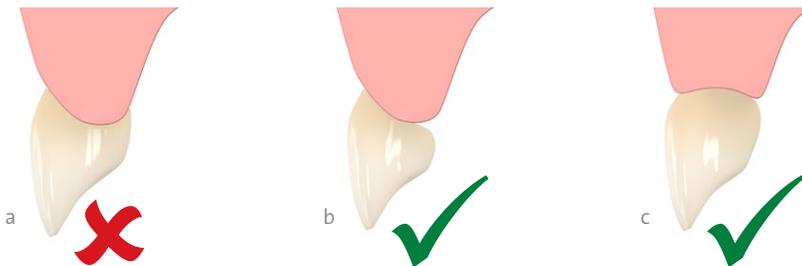
7.2 Use dental floss to check if the proximal contacts are tight enough to avoid food impaction.

Check the proximal contacts with dental floss.

**⚠ Caution:** If a gap is present or there are no tight proximal contacts, send the FDP back to the [dental technician](#) and communicate about the additional material which needs to be added.



7.3 Use dental (or super) floss to assess if the pontic space has adequate accessibility for oral hygiene procedures.



The pontic should have an ovate or a modified ridge lap design to facilitate oral hygiene procedures.

- Avoid a total ridge lap (a) design as this can cause food impaction and subsequent soft tissue inflammation.
- To allow proper cleaning, the pontic should be seated in flush contact with the underlying soft tissues, with an ovate (b) or modified ridge lap (c) design.

**⚠ Caution:** If a gap is present or there is no tight contact with the underlying tissue, send the FDP back to the dental technician and communicate about the additional material which needs to be added.



7.4 Check the occlusion. Use articulating paper to check for:

- Only light centric contact, and no contact on lateral excursions
- Any premature contacts
- Anterior and lateral guidance with the natural dentition only

**Use articulating paper and shimstock to check for:**

- Premature contacts
- Heavy centric or lateral contacts
- Lateral or anterior guidance



# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Cement-retained  
3-unit FDP



Check that the occlusion only holds shimstock when the teeth are clenched hard.



7.5 Check the emergence profile and cleanability. Use an interdental brush to assess if the inter-dental spaces have adequate accessibility for oral hygiene procedures.

Check the emergence profile and cleanability with an interdental brush.



7.6 Check if the appearance (color and surface texture) of the teeth are natural enough and satisfactory for the patient.

Ensure that the patient is happy with the appearance of the final prosthesis.

8. If possible, carry out all adjustments of the FDP at the chairside, before cementing the final restoration. If you need to send the FDP back to the [dental laboratory](#), remove the [Straumann® Cementable Abutments](#) with the help of the splinted [Transfer Aids](#) and re-insert clean [Healing Caps](#) or [Healing Abutments](#).



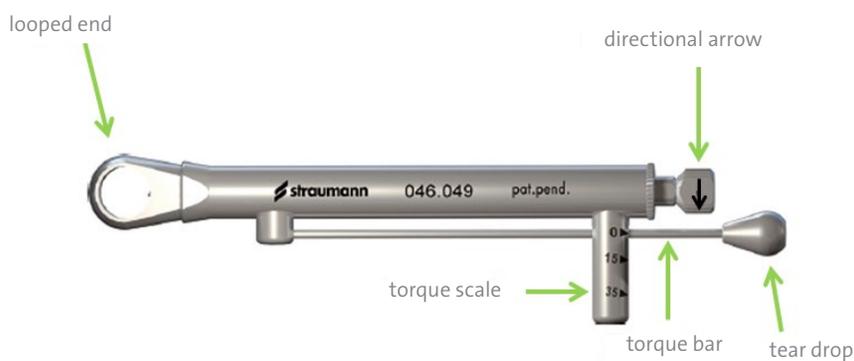
## Step-by-step for final FDP insertion

Once the FDP is ready to be cemented, permanently tighten both

[Straumann® Cementable Abutments](#).

**Caution:** Always ensure that the surfaces of the screw threads and the screw heads are clean and that new and unused screws are used for inserting the abutments.

9. Place the looped end of the assembled [Ratchet](#) with the [Torque Control Device](#) over the SCS Screwdriver handle. The directional arrow must be pointing in the clockwise direction (towards the torque bar with tear drop). If not, pull the arrow out, flip it over, and let it snap in.

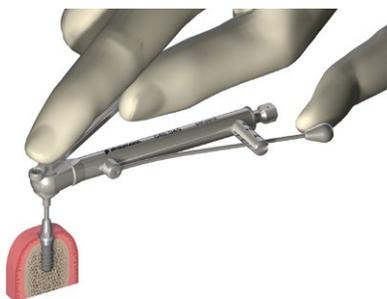


Use the Ratchet and Torque Control Device to permanently tighten the abutments.



10. You may use your fingertip or insert the pin end of the [Holding Key](#) into the coronal hole on the [SCS Screwdriver](#) handle for stabilization.

Stabilize the SCS Screwdriver with your finger or the Holding Pin.





# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Cement-retained  
3-unit FDP



11. Use one hand to hold the Holding Key and use the other hand to hold the torque bar. Grasp only the tear drop and move the torque bar to the **35 Ncm** mark with one finger.



Pull the torque bar to 35 Ncm with one finger only ONCE.

**⚠ Caution:** Only do this during final insertion in one continuous move to reach a tightening torque of 35 Ncm. There is no need to repeat this action.

Torques greater than 35 Ncm may result in the failure of the implants and/or abutments. Torque values less than 35 Ncm may result in loosening of the final restoration.

Do not repeat this torque movement.

Repeated excessive force can result in screw damage and loosening of the abutments and final prosthesis.



12. After reaching the 35 Ncm mark, return the torque bar to its starting position. Lift and remove the [Holding Key](#), the [Ratchet](#) with the [Torque Control Device](#) and the [SCS Screwdriver](#).

Remove all the devices from the abutments.



13. Close the screw access holes with cotton and sealing compound (e.g., gutta-percha).

Close the screw access holes with temporary filling material for retrievability.



# Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Cement-retained  
3-unit FDP



13.1 The remainder of the holes should be filled with a temporary filling material. This allows for later removal of the [Straumann® Cementable Abutments](#) if required.

**⚠ Caution:** If the abutments need to be replaced in the future, always replace the screws.



If necessary, place retraction cords to help prevent any submucosal cement residues. A dental floss with a knot can be placed in the pontic area to help for later excess cement removal.

Use retraction cords to help prevent cement residues.



14. Cement the final prosthesis onto the abutments.

- The cementation technique and materials used should be consistent with the restoration material and indications according to the manufacturer's instructions. The instructions for use of the cement manufacturer should also be followed.

Prepare and cement the final prosthesis according to the cement manufacturer's guidelines.



## Prosthetic procedures

Step 3 | Insertion of the final prosthesis

Cement-retained  
3-unit FDP



15. Remove all excess cement and retraction cords (if used) carefully. Dental excavators and dental floss can be used to help remove the excess cement, with copious saline irrigation.

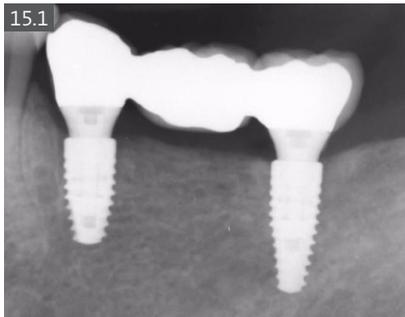
Thoroughly remove all cement.



You should also take a standard periapical radiograph using the long-cone paralleling technique to check for:

- Complete seating of the final restoration.
- Complete removal of all residual cement (if there is residual cement, remove this with a sharp curette).
- No overhanging restorative material.
- Bone levels after insertion of the final restoration as a baseline for long-term follow-up.

Take a baseline radiograph to check for complete insertion of the final restoration and complete removal of residual cement.



16. Reinforce oral hygiene instructions with the patient. Discuss oral hygiene devices and aids to clean around the implants and FDP such as:

- Interdental brushes with nylon-coated core wire
- Soft toothbrushes (both manual and electric)
- Different types of floss (e.g., plastic, braided nylon, coated, floss with stiffened end)
- Chlorhexidine digluconate (0.12 %) mouthrinse for 1 minute twice daily for 7 days

Reinforce oral hygiene instructions with the patient.

17. Arrange to see the patient again in 2 weeks' time.

Review the patient after 2 weeks.



# Prosthetic procedures

## Step 3 | Insertion of the final prosthesis

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# Prosthetic procedures

## Step 3 | Insertion of the final prosthesis

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All clinical Straumann® Smart content – such as texts, medical record forms, pictures and videos – was created in collaboration with Prof. Dr. Christoph Hämmerle, Prof. Dr. Ronald Jung, Dr. Francine Brandenburg-Lustenberger and Dr. Alain Fontollet from the University of Zürich, Clinic for Fixed and Removable Prosthodontics and Dental Material Science, Switzerland.

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