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7-10 days

6-8 weeks

2 weeks

3-6 months (or as necessary)



- 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

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
 - In clinic with patient Office / Lab work

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Prosthetic procedures Step 1 | Impression-taking

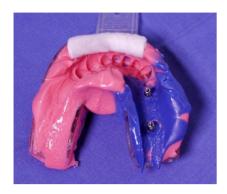
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Step 1 | Impression-taking



Introduction



Following the recommended healing phase (see Post-operative review and suture removal) after implant placement, you must now see the patient to take the impression for the final restoration. Depending on the position of the restoration and the preference of the clinician, the impression may be taken with a closed-

or open-tray method, using the respective impression components for the implant type. The bite registration and color assessment should also be done during this step, to provide the required information for the dental lab technician to fabricate the final restoration. Impression-taking follows after a period of osseointegration of the implants.

Plan to take impressions about 6-8 weeks after suture removal.

Fabrication of the final prosthesis requires:

- -Impression with openor closed-tray method
- -Bite registration
- -Color assessment
- -Clear lab prescription

Learning objectives

- Be able to decide whether a closed- or open-tray impression should be done.
- (6) Understand how a tray is prepared for an open-tray impression.
- Understand how to position the selected impression components for the specific implant type (SP/BLT), and perform the open- or closed-tray impression.
- Be able to carry out a proper bite registration and color assessment.
- Understand how the impression is transferred to the lab to create the master models.

Prosthetic procedures Step 1 | Impression-taking



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1. Assessment



- Review the healing period after surgery with the patient. Ask about comfort and oral function.
- The patient should not be experiencing any pain prior to taking the impression.

Carry out impressiontaking if your patient is symptom-free.

Prosthetic procedures Step 1 | Impression-taking



2. Clinical examination



Check for:

- Implant stability clinically by visual inspection and tactile sensation when removing the healing components or placing the screw-retained impression components
- Healthy peri-implant soft tissues

Take impression(s) if the implants are stable and the site fully healed.

Step 1 | Impression-taking



3. Treatment

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3. Treatment



- Carry out impression-taking with either the open- or closed-tray procedure for the implant types
 SP or BLT.
- Perform a bite registration and color assessment for the required final restoration.

Treatment at this visit:

- -Impression-taking
- -Bite registration
- -Color assessment

Use a stiff and dimensionally stable impression material. Do not use hydrocolloids/alginates.

The preferred impression materials are polyvinyl siloxane and polyether rubber because of their stiffness and dimensional stability, which ensures that the impression components are retained accurately in the material.

Selection of impression technique



Open-tray impression

Indicated when the implant shoulders are positioned very deeply (more than **3.0 mm sub-gingival**), and if the soft tissue condition does not allow accurate seating of the closed-tray impression components. In this case,

the open-tray impression procedure is advantageous, because the Impression Posts are screwed tightly and precisely into the implants, and displacement by the gingiva is avoided. You may do this with stock trays or custom-made trays.

Use open-tray impressions:

- -if the implant shoulders are 3 mm or more subgingival.
- -if the soft tissue condition requires a screwedin component for stability.



Closed-tray impression

There is no need to drill holes in the impression tray. The impression material picks up the Impression Caps, which are easily "snapped" into place and can be used in most cases. You may do this with stock trays or custom-made trays.

Use closed-tray impressions:

- when convenient snapon components are preferred.
- when you prefer not to drill holes in the tray.

Caution: Do not mix different open-tray and closed-tray components in the same impression procedure.

Prosthetic procedures Step 1 | Impression-taking



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This table shows the overview of the Straumann® products for the open- and closed-tray impression techniques for both SP (RN/WN) and BLT (NC/RC) Implants:

Product overview of open- and closed-tray impression components for SP (RN/WN) and BLT (NC/RC) Implants

	Tissue Level				Bone Level			
	SP Implant			BLT Implant				
Impression components	Open-tray		Closed-tray		Open-tray		Closed-tray	
							The state of the s	
				98	# #	##		
Implant shoulder	Regular Neck (RN)	Wide Neck (WN)	Regular Neck (RN)	Wide Neck (WN)	Narrow CrossFit® (NC)	Regular CrossFit® (RC)	Narrow CrossFit® (NC)	Regular CrossFit® (RC)
Article No.	048.010 (short) 048.090 (long)	048.091	048.070V4 048.017V4	048.095 048.013	025.2202 (short) 025.2205 (long)	025.4202 (short) 025.4205 (long)	025.2201	025.4201
	SP Implant						nplant	
Bite Registrati- on Aids	Regular Neck (RN) or Wide Neck (WN)			Narrow CrossFit® (NC) Regular CrossFit® (RC)			ossFit® (RC)	
Article No.	048.940V4 (short) 048.941V4 (long)		V4 (long)	025.2208-04 (short)	025.2212-04 (long)	025.4208-04 (short)	025.4212-04 (long)	



Step 1 | Impression-taking



3. Treatment

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- Intended for single use only to ensure optimal fit and precise impression-taking or bite registration for each pa-NON tient.
- Provided non-sterile and require disinfection before use.
- ⚠ Caution: Protect all components and the ⊘ SCS Screwdriver used against aspiration (e.g., use a throat pack or a thread).
- Disinfect impression components and Bite Registration Aids before use.
- Protect them against aspiration.
- Use the parts only once.

In this step, we will illustrate the

- closed-tray impression technique with Standard Plus (SP) Implants
- open-tray impression technique with Bone Level Tapered (BLT) **Implants**

For further information on the open-tray impression technique with SP Implants and the closed-tray impression technique with BLT Implants, please refer to the step on @ Impression-taking from SmartOne.





Step 1 | Impression-taking



3.1 Impression-taking with BLT (RC) Implants – open tray

Instrument set-up for **open-tray** impressions with **@ BLT** (RC) Implants:



Instrument set-up for **open-tray** impressions with **BLT** (RC) Implants

- 1. X-ray holder and film
- 2. Light-bodied impression material dispenser
- 3. Prophylaxis paste and cup
- 4. Disposable saliva ejector and control pads
- 5. Timer
- 6. SCS Screwdrivers (long and short)
- 7. Slow-speed handpiece
- 8. Cotton dispenser
- 9. Aspirator and suction tips
- 10. Shimstock (occlusal registration paper) and holder
- 11. Dental probes and scalers
- 12. Periodontal probe
- 13. Dental mirrors
- 14. Dental tweezers
- 15. Cotton rolls, gauze and petroleum jelly
- 16. Scissors
- 17. Fluoride gel
- 18. Dental floss
- 19. Syringe with saline and blunt needle for irrigation
- 20. Disposable lip and cheek retractor
- 21. Stock impression trays
- 22. RC Impression Posts for open tray and RC Bite Registration Aids (2 of each are required)
- 23. Soft wax
- 24. Straight handpiece and acrylic bur
- 25. Indelible pen
- 26. Heavy-bodied impression material dispenser



Step 1 | Impression-taking





Step-by-step instructions for open-tray impressions with @ <u>BLT</u> (RC) Implants

Please click here for a quick reference checklist for this procedure.

Follow the step-by-step procedure for open-tray impressions with BLT (RC) Implants.







1. Unscrew the Healing Abutments in a counterclockwise direction using the SCS Screwdriver.

Unscrew the Healing Abutments.



2. Examine and rinse the internal connections of the implants thoroughly to remove any blood, tissue or other debris.

Clean the internal connection of the implants.



Caution: Ensure that there is sufficient access to the implant sites in order to avoid pinching the gingival tissue during the impression procedure. Be aware that the sulcus may collapse rapidly once the healing components have been removed.

Good access to the implants is required to tighten the RC Impression Posts for open tray without pinching the soft tissue.

Step 1 | Impression-taking







3. Place the **RC Impression Posts** for open tray (025.4202 short or 025.4205 long) accurately into the implants and hand-tighten the guide screws.

Hand-tighten the RC Impression Posts for open tray by turning the guide screws.

Caution: It is important to accurately position the impression components within the internal CrossFit® connection of the implants before tightening the screws. If in doubt, you may also take a periapical radiograph to check if the RC Impression Posts for open tray are in the proper positions.

Check for accurate positioning of the RC Impression Posts for open tray before hand-tightening.

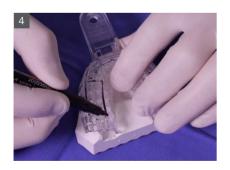
Optional:

A periapical radiograph can help to check if the RC Impression Posts for open tray are tightened in the correct position.

If interocclusal space is limited, use short RC Impression Posts for open tray or choose the

closed-tray method.

In case of occlusal space limitation, use the shorter RC Impression Posts for open tray, otherwise choose the RC Impression Posts for closed tray (025.4201), and use the closed-tray impression technique.

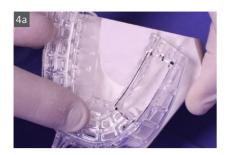


4. You can customize the prefabricated tray provided by the dental lab, or a standard plastic tray at the chairside by cutting out a window over the area of the implants to allow good clearance for the impression components.

Cut out a window in the tray.

Step 1 | Impression-taking







Try the impression tray in the patient's mouth to check that the impression components and their guide screws can protrude through the tray.

Try-in the modified tray before taking the impression.



5. The tray opening is covered by dental wax applied from the inner side. When taking the impression, this wax will occlude the heads of the screws in order to allow retrievability of the screws by the SCS Screwdriver.

Cover the window with dental wax before taking the impression to block the head of the screws for retrievability.



6. Apply a light-bodied elastomeric impression material (e.g., light-bodied polyvinyl siloxane or polyether rubber) around the RC Impression Posts for open tray.

Place the saliva pad on the cheek and a cotton roll on the lingual side to create dry conditions for impression-taking. Apply a light-bodied elastomeric impression material around the RC Impression Posts for open tray.



Meanwhile, the impression tray is loaded with heavy-bodied impression material and seated directly in the patient's mouth over the area with the light-bodied impression material.

Load the tray with heavy-bodied impression material and seat over the area.

Caution: Due to its low tensile strength, hydrocolloid is not suitable for this impression.

Do not use hydrocolloids/alginates.



Step 1 | Impression-taking





7. Wipe off any excessive impression material from the guide screws of the RC Impression Posts for open tray before it sets. The screw openings are filled with wax or cotton to prevent impression material from being trapped.

Wipe off any wax or impression material from the head of the screws.



8. Once the impression material is cured, loosen the guide screws with the SCS Screwdriver and remove the tray together with the RC Impression Posts for open tray, which remain inside the impression material.

When the impression has set, unscrew the guide screws to remove the impression.



 Inspect the impression to check that the impression material has completely adapted around the <u>RC Impression Posts for open</u> tray. Check for good adaptation of the impression material around the RC Impression Posts for open tray.



 Rinse the internal connection of the implants thoroughly to remove any impression material or other debris. Rinse the internal connection of the implants.



11. If necessary, take a bite registration. Insert the RC Bite Registration Aids into the implants. You should feel them "snap" into the internal configuration of the implants.

Snap in the Bite Registration Aids.

Caution: Protect the components against aspiration (e.g., use a throat pack or a thread).



Step 1 | Impression-taking





12. Shorten the RC Bite Registration Aids (if needed) and apply the bite registration material. To ensure the repositioning from the mouth to the master cast, the occlusal area and the lateral flat side of the RC Bite Registration Aids must be adequately surrounded with the registration material.

Shorten the Bite Registration Aids if needed

Apply the bite registration material and remove it when set.

Caution: The RC Bite Registration Aids must be shaped outside of the mouth. If they need to be shortened occlusally due to lack of space, ensure that the lateral flat side is not ground off.

Do not grind off the flat lateral side of the Bite Registration Aids.



13. Remove the RC Bite Registration Aids and rinse the internal configuration of the implants thoroughly from any remaining impression material, bite registration paste or other debris.

Rinse the internal connection of the implants.



14. Insert the Healing Abutments
back onto the BLT (RC) Implants
to prevent soft tissue collapse.

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

Apply some chlorhexidine gel or petroleum jelly before screwing in the Healing Abutments.

Step 1 | Impression-taking







15. Perform a color assessment for the future restoration.

Choose an appropriate tooth shade for the patient.





16. Take an impression of the opposing arch, if this was not already done at a previous visit.

Take an impression of the opposing arch if necessary.

17. Send the impression(s), bite registration, color assessment and lab prescription to the @dental technician.

When the impression tray is sent to the lab, the dental technician seats the Implant Analogs into the impression components inside the impression, to find the correct positions of the implants. The master model is then created with dental stone. The use of a soft tissue mask

Arrange for your patient to return in about 1-2 weeks for the framework try-in, depending on the production time in the lab. Please read the next step on fabrication of the final prosthesis, which gives you more information on what to communicate to the dental technician in order to obtain the desired final prosthesis.

by your dental technician is also recommended.

Send these materials to your dental technician:

- -Impression with the RC Impression Posts for open tray
- -Impression of the opposing jaw
- -Bite registration
- -Color assessment
- -Lab prescription

Your dental technician creates working models with the Implant Analogs from the impressions. A soft tissue mask is recommended.

Check the processing time with your dental lab.

Schedule the next appointment with your patient to fit the final prosthesis.

Step 1 | Impression-taking



3.2 Impression-taking with SP (RN) Implants – closed tray

Instrument set-up for **closed-tray** impressions with SP (RN) Implants:



Instrument set-up for **closed-tray** impressions with **SP** (RN) Implants

- 1. X-ray holder and film
- 2. Light-bodied impression material dispenser
- 3. Prophylaxis paste and cup
- 4. Disposable saliva ejector and control pads
- 5 Timer
- 6. SCS Screwdrivers (long and short)
- 7. Slow-speed handpiece
- 8. Cotton dispenser
- 9. Aspirator and suction tips
- 10. Shimstock (occlusal registration paper) and holder
- 11. Dental probes and scalers
- 12. Periodontal probe
- 13. Dental mirrors
- 14. Dental tweezers
- 15. Cotton rolls, gauze and petroleum jelly
- 16. Scissors
- 17. Fluoride gel
- 18. Dental floss
- 19. Syringe with saline and blunt needle for irrigation
- 20. Disposable lip and cheek retractor
- 21. Stock impression trays
- 22. RN Impression Caps, RN synOcta® Positioning Cylinders and RN/WN Bite Registration Aids (2 of each are required)
- 23. Soft wax
- 24. Straight handpiece and acrylic bur
- 25. Indelible pen
- 26. Heavy-bodied impression material dispenser



Step 1 | Impression-taking





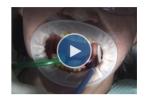
Step-by-step instructions for closed-tray impressions with SP (RN) Implants

Please click here for a quick reference checklist for this procedure.

Follow the step-by-step procedure for closed-tray impressions with SP (RN) Implants.



Video: Closed-tray impression-taking with Standard Plus (RN) Implants





1. Unscrew the <u>Healing Caps</u> in a counterclockwise direction using the <u>SCS Screwdriver</u>.

Unscrew the Healing Caps.



2. Examine and rinse the internal connection of the implants thoroughly to remove any blood, tissue or other debris.

Clean the internal connection of the implants.

Caution: Ensure that there is sufficient access to the implant sites in order to avoid pinching the gingival tissue during the impression procedure. Be aware that the sulcus may collapse rapidly once the healing components have been removed.

Good access to the implants is required to tighten the synOcta® Impression Posts for RN Implants without pinching the soft tissue. Beware of soft tissue collapse.

Step 1 | Impression-taking







3. Push the synOcta® Impression
Caps for RN Implants (048.017V4)
onto the implant shoulders until
they click into place. Gently turn
the synOcta® Impression Caps for
RN Implants to ensure they are
in the correct position. When the
caps are in the correct position,
you should be able to rotate them
on the implants without them
coming loose.

Click in the synOcta®
Impression Caps for RN
Implants and rotate them
while checking they do
not come off.

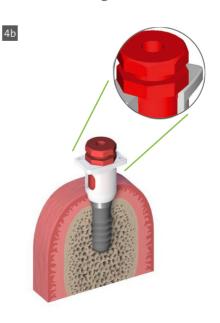
Caution: The shoulder and margins of the synOcta® Impression Caps for RN Implants must not be damaged to ensure accuracy of the impression procedure.

Any damage of the shoulder and margins of the RN Impression Caps must be avoided.



4. While inserting the RN synOcta® Positioning Cylinders (048.070V4) ensure that the octagon is properly aligned with the octagon inside the implants, and pushed into the white synOcta® Impression Caps for RN Implants as far as it will go.





Step 1 | Impression-taking







5. A standard impression tray can be used or a prefabricated tray provided by the dental lab.

You should try the impression tray in the patient's mouth to check for the appropriate size and position before taking the impression.

Try-in the tray before taking the impression.



6. Apply a light-bodied elastomeric impression material (e.g., light-bodied polyvinyl siloxane or polyether rubber) around the synOcta[®] Impression Caps for RN Implants and RN synOcta® **Positioning Cylinders.**

Place the saliva pad on the cheek and a cotton roll on the lingual side to create dry conditions for impression-taking.

Apply a light-bodied impression material around the synOcta® Impression Caps and Positioning Cylinders.



Meanwhile, the impression tray is loaded with heavy-bodied impression material and seated directly in the patient's mouth over the light-bodied impression material.

Load the tray with heavy-bodied impression material and seat over the area.

Caution: Due to its low tensile strength, hydrocolloid is not suitable for this impression.

Do not use hydrocolloids/ alginates.

Step 1 | Impression-taking





7. Once the impression material is cured, carefully remove the tray. The synOcta® Impression Caps for RN Implants and RN synOcta® Positioning Cylinders remain in the impression, as they are removed from the implants when the impression is removed from the patient's mouth.

When the impression has set, remove the tray carefully. The impression components will remain in the impression.



8. Inspect the impression to check that the impression material has completely adapted around the synOcta@lmpressionCaps for RN Implants.

Check for good adaptation of the impression material around the synOcta® Impression Caps for RN Implants.



 Rinse the internal connection of the implants thoroughly to remove impression material, or any debris. Rinse the internal connection of the implants.



10. If necessary, take a bite registration. Insert the RN/WN Bite Registration Aids into the implants. You should feel them "snap" into the internal configuration of the implants.

Snap in the Bite Registration Aids.

Caution: Protect the components against aspiration (e.g., use a throat pack or a thread).

Step 1 | Impression-taking







11. Shorten the RN/WN @ Bite Registration Aids (if needed).

Shorten the Bite Registration Aids if needed.

Caution: The Bite Registration Aids must be shaped outside of the mouth. If they need to be shortened occlusally due to lack of space, ensure that the lateral flat side is not ground off.

Do not grind off the flat lateral side of the Bite Registration Aids.



12. Apply the bite registration material. To ensure the repositioning from the mouth to the master cast, the occlusal area and the lateral flat side of the RN/WN Bite Registration Aids must be adequately surrounded with the registration material.

Apply the bite registration material and remove it when set.



13. Remove the RN/WN Bite Registration Aids and rinse the internal connection of the implants thoroughly to remove any impression material, bite registration paste or other debris.

Rinse the internal connection of the implants.



14. Put the **Argument Plant** Healing Caps back onto the SP (RN) Implants to prevent soft tissue collapse.

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

Apply some chlorhexidine gel or petroleum jelly before screwing in the Healing Caps.

Step 1 | Impression-taking





15. Perform a color assessment for the future restoration.

Choose an appropriate tooth shade for the patient.



16. Take an impression of the opposing arch, if this was not already done at a previous visit.

Take an impression of the opposing arch if necessary.



17. Send the impression(s), bite registration, color assessment and lab prescription to the dental technician.

Send these materials to your dental technician:

- -Impression with the closed-tray impression components
- -Impression of the opposing jaw
- -Bite registration
- -Color assessment
- -Lab prescription

When the impression tray is sent to the lab, the <u>dental technician</u> seats the Implant Analogs into the impression components inside the impression to find the correct position of the implants. The master model is then created with dental stone. The use of a soft tissue mask by your dental technician is also recommended.

Your dental technician creates working models with the Implant Analogs from the impressions.
A soft tissue mask is recommended.

Arrange for your patient to return in about 1-2 weeks for the framework try-in, depending on the production time in the lab. Please read the next step on fabrication of the final prosthesis, which gives you more information on what to communicate to the dental technician in order to obtain the desired final prosthesis.

Check the processing time with your dental lab.

Schedule the next appointment with your patient to fit the final prosthesis.



Step 1 | Impression-taking

DISCLAIMER

Straumann® Smart is a blended training and education program focused on the education of general dentists who want to become surgically active in the field of dental implantology. The program is limited to information pertaining to straightforward implant cases and focuses on a reduced portfolio of products that are suitable for the treatment of such cases.

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 Brandenberg-Lustenberger and Dr. Alain Fontolliet from the University of Zürich, Clinic for Fixed and Removable Prosthodontics and Dental Material Science, Switzerland.

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