Basic information on screw-retained hybrid restorations

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Contents

Now available: The new option within your edentulous treatment portfolio

Providing fixed restorations for edentulous patients is a complex procedure, and you need to consider several clinical and individual aspects. Within the existing Straumann product portfolio, you can now choose from several prosthetic treatment options to help edentulous patients[1,2]:

Straumann edentulous portfolio

	Straightforward	Advanced	Complex
	Removable	Fixed	
Maxilla		 LOCATOR® on 4 implants	 Fixed screw-retained restoration on 4 implants, posterior tilted avoiding sinus	 Fixed screw-retained restoration on 6 implants
Mandible	 LOCATOR® on 2 implants	 Bar with pre-fabricated / individualized parts > 3 implants	 Fixed screw-retained restoration on 4 implants, posterior tilted avoiding mandibular nerve	 Fixed screw-retained restoration on > 6 implants

When treating edentulous cases, removable options represent a more straightforward approach, whereas a fixed option with four or more implants (straight or tilted) represents a more advanced approach.

Depending on what your patient expects, a straightforward restoration might not be a viable option. Regardless of any possibly difficult anatomical situation, most patients look for functional esthetics with a high comfort. As a dental professional you are now challenged to provide an immediate fixed solution that meets all these criteria.

To address the requirements and expectations of patients seeking fast, convenient and reliable solutions for a full dental replacement, Dr. Paulo Malo from MALO CLINIC® developed a special treatment concept in the early 1990's called the MALO CLINIC® Protocol. The protocol offers immediate restorations for edentulous patients despite limited bone availability. Since then the protocol has become a popular procedure in a large number of clinics worldwide and has influenced further developments in shortening time to teeth. Straumann now offers a new generation of surgical and prosthetic components to provide full-arch fixed restorations on either straight or tilted implants with the additional advantages of its SLActive® surface and Roxolid® material technologies.

An excellent combination of scientifically proven implant technology and sleek prosthetic components

The new Straumann® Bone Level Tapered Implant provides an optimized choice for implant treatment. It represents a unique combination of mechanics and biology for ease of use and enhanced primary stability. The unique Roxolid® material has been specifically designed for dental implantology and delivers outstanding mechanical results. Combined with the SLActive® surface, Straumann delivers an excellent implant system with excellent osseointegration and healing properties.

The new Straumann® Screw-retained Abutment provides a wide range of prosthetic options for screw-retained restorations. A low abutment profile as well as various angulations and gingiva heights offer you flexibility to provide an individual solution for edentulous patients, including the restoration of posterior-tilted implants[3]. For final restorations the new CARES® software offers a choice of bar designs for maximum flexibility.

The new Straumann® Bone Level Tapered Implant

Roxolid® – Reducing invasiveness with smaller implants

- More treatment options with smaller implants
- Preserves bone and reduces invasive grafting procedures[4,5]
- Increased patient acceptance with less invasive procedures[5]

SLActive® – Designed to maximize your treatment success and predictability

- Safer and faster treatment in 3–4 weeks for all indications[6–14]
- Higher treatment predictability in challenging protocols[4,15–20]
- Broader treatment possibilities with more confidence[4,6–20]

Apically tapered – Excellent primary stability even in compromised bone situations

- Full-depth thread to apex for early engagement
- Self-cutting in underprepared sites
- Protecting anatomical structure with round tip

Straumann® CARES® Screw-retained Bars and Bridges

- Custom-milled frameworks for final restoration
- Multiple bar and bridge designs available
- Bars and bridges for abutment level or implant level

Straumann® Screw-retained Abutment

- Same connector design for all diameters allows for a streamlined portfolio of tertiary components
- Abutment angulations of 17° and 30°
- Different gingiva heights of 1 mm, 2.5 mm and 4 mm
- Only 2 diameters cover the complete Bone Level Implant line
- Product design allows abutment-level impression
- Simplified handling with CrossFit® connection

More than a fixed rehabilitation. A smart solution with reduced complexity.

The new Straumann® Pro Arch for fixed edentulous restorations combines several treatment steps which reduce complexity without compromising the outcome. From planning and implant placement to the final restoration, the entire treatment is seamless and less demanding for the patient.

1

Implant planning

- 2D conventional implant and prosthetic planning based on (CB) CT scanning or x-rays
- 3D digital implant planning with coDiagnostiX® software for predictable results and treatment efficiency

2

Surgical procedure

- Well-documented Straumann® Bone Level Implants with tapered design for improved primary stability
- Unique Roxolid® material with excellent mechanical properties[21]
- Outstanding SLActive® surface designed to deliver increased predictability even in challenging protocols[4,15–20]
- Straumann® Pro Arch Guide to support placement of tilted implants
- Internal CrossFit® connection

3

Prosthetic treatment

- Abutments with a low-profile design, additional abutment angulations and universal abutment connector
- Abutment portfolio allows immediate temporization to deliver teeth within a short period of time
- High-end final restorations with the option for custom-milled bar designs provided either by Straumann or Createch

Planning phase

For optimal and long-lasting results, a prosthetic-driven planning phase is essential, and it should be executed in collaboration with all partners involved.
During the planning phase the following aspects need to be considered:

- Clarify patient's expectations
- Analyze patient's oral hygiene compliance
- Patient anamnesis (bone density, bone volume, sufficient lip support)
- Decide on final prosthetic restoration (fixed/removable)
- Decide on surgical procedure and implant placement based on bone volume (number of implants, implant angulation if necessary)
- Consider long-term post-operative care and maintenance

Proper diagnosis and treatment planning, including the consideration of your patient's chief complaints as well as an evidence-based implant/prosthetic design will result in a successful treatment. These factors can significantly improve the patient's quality of life[22].

Planning and implant preparation for multi-unit and single-unit restorations can either be done via conventional methods or with the help of digital planning softwares (e. g. coDiagnostiX®). In this treatment guide, the focus will be on the conventional procedure with an open-flap approach.

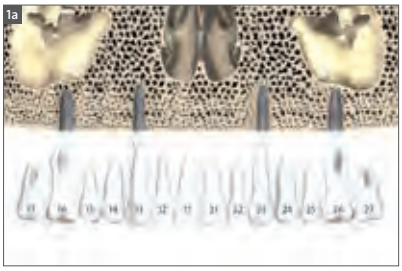
For additional information on Straumann® Guided Surgery, please consult the manual *Basic Information on Straumann® Guided Surgery,* 152.753.

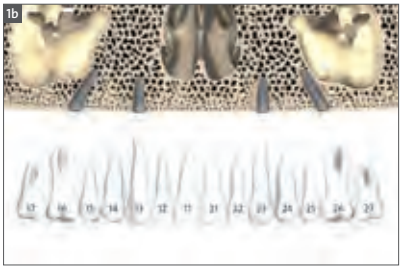
For additional information on Dental Wings coDiagnostiX®, please contact your local Dental Wings distributor.

2 Surgical procedure

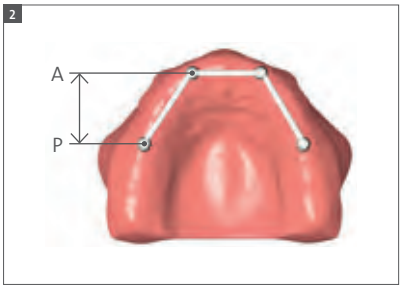
Surgical preparation and general considerations

Based on the treatment decision and the desired final restoration, define the following:





1. Position and orientation of the implant based on bone volume (based on Dr. Paulo Malo, Malo Clinic):
   - full bone volume up to molars: straight implant placement (1a)
   - bone volume sufficient in anterior region up to premolars: tilted implant placement in the posterior region (1b)



2. Implant position considering Anterior-Posterior (AP)-spread for bio-mechanical stability

3. Implant angulation (max. angulation): 30° (= higher A/P spread for higher stability)

4. Impression-taking: based on the level where the restoration is planned to be:

   a. – for a restoration based on abutment level, choose an abutment-level impression
      – for a restoration on implant level, choose an implant-level impression; also recommended when implants are tilted
   b. for a final restoration using Straumann® CARES®, use an abutment-level impression to ensure optimal results

5. Together with the dental lab, produce an individual acrylic guide to verify implant axis, abutment/coping position and screw channels throughout the overall procedure.

Surgical procedure (flap procedure), abutment placement and immediate temporization

Make sure the surgical and prosthetic planning are both completed and critical anatomical sites are not harmed (maxilla: sinus/mandible: mandible nerve). In some cases, the individual patient situation may require tilting of the implant. Posterior-tilted implants provide additional distal support for the prosthesis[23].

Prerequisites:

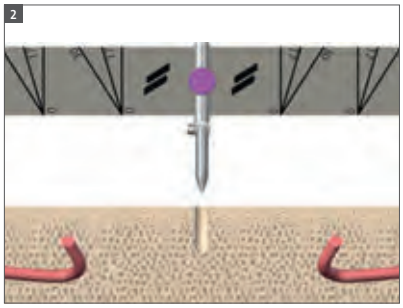
- Remaining dentition removed
- Flap opened and ready for implant placement
- Acrylic guide prepared by dental lab

1

Intraoral verification:

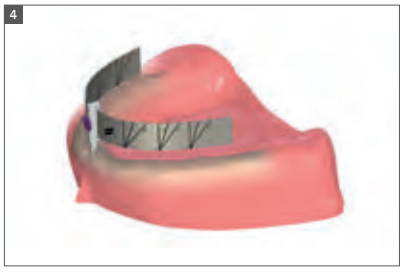
1. To ensure a proper implant position, it is recommended to use the Straumann® Pro Arch Guide.

2



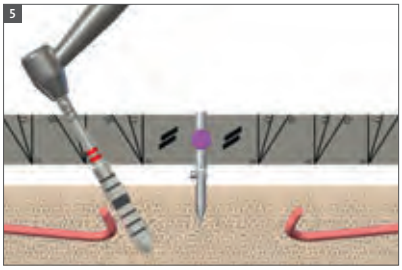
2. To prepare the placement of the Pro Arch Guide, do the necessary midline osteotomy by using the 2.2 mm Profile Drill for drilling down to 10 mm.
3. Place the Pro Arch Guide in the midline osteotomy – the marks on the Pro Arch Guide help aligning the axis of the implant.

4



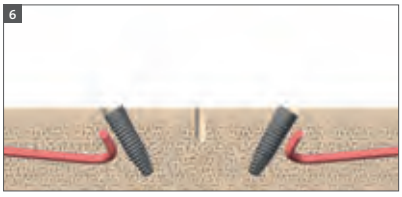
4. Bend the Straumann® Pro Arch Guide to adapt to the dental arch and use it as an orientation when you align the abutments/the Occlusal Screw channel. Ideally, the Occusal Screw channel is oriented more to the lingual/palatinal side in order to avoid the screw channel coming out buccally.

   Note: To adjust the metal plate use the Hexagonal Screwdriver (046.421).

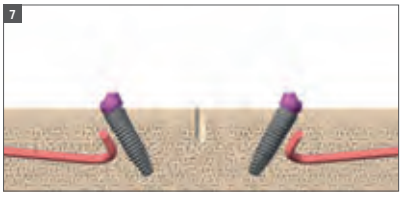


Implant site preparation:

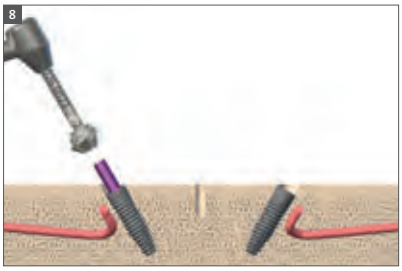
5. Drill to appropriate depth and check correct angulation using the marks on the Straumann® Pro Arch Guide.



6. Place the appropriate implant following the surgical protocol.[24]



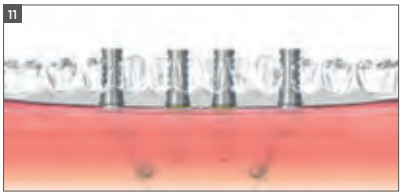
7. If needed, use Straumann® Plan Abutments intraorally to determine the final Straumann® Screw-retained Abutment's angulation and gingiva height (GH).
   Please note: Plan Abutments are only available in GH 2.5 mm.



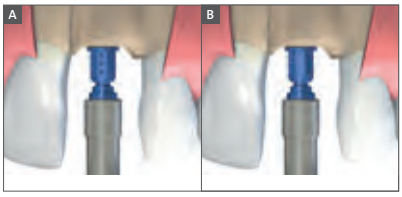
8. Use the Straumann® Bone Level Bone Profiler to prepare the bone coronally to the implant shoulder in cases where the bone interferes with the abutment's emergence profile. For more details see *Appendix B: Straumann® Bone Level Bone Profiler.*

9. Position the final abutments with a torque of 35 Ncm.

10. For anterior implant placement repeat steps 4 to 7.



11. Use the acrylic guide throughout the procedure to verify implant position and orientation.



Note: In order to find the correct abutment version (A or B), check the height markings on the Loxim™ Transfer Piece.

- If the height markings are oriented buccally use A-type abutments.
- If the height markings are not oriented buccally use B-type abutments.

Additional information on the abutment

Straumann® Screw-retained Abutments, straight NC GH 1.0 mm (∅ 3.5 mm and ∅ 4.6 mm), are indicated for single-crown restorations in central and lateral incisors, and for multi-unit restorations incisors to pre-molars:

		Single-unit restoration	Multi-unit restorations (incisors – premolars)	Multi-unit restorations (molars)
NC ∅ 3.5 mm straight abutments	GH 1 mm	Central/lateral incisors	Yes	No
	GH 2.5/4 mm	Yes	Yes	No
NC ∅ 4.6 mm straight abutments	GH 1 mm	Central/lateral incisors	Yes	No
	GH 2.5/4 mm	Yes	Yes	No
NC ∅ 4.6 mm angled abutments		Yes	Yes	No
RC ∅ 4.6 mm straight abutments		No limitation		
RC ∅ 4.6 mm angled abutments		No limitation		

Note: For additional information on the surgical procedure, please consult the *Basic information on the surgical procedure for the Straumann® Bone Level Tapered Implant,* 490.038.

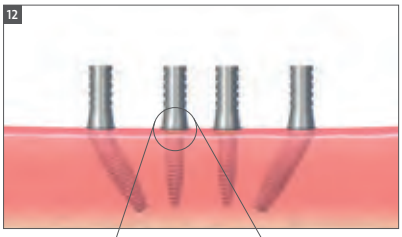
In case no immediate temporization is desired, place Protective Caps for Straumann® Screw-retained Abutments directly onto the abutments and hand-tighten them.

Do not keep the Protective Caps in the patient's mouth for more than 30 days. Prepare sufficient space in the patient's temporary fixed bridge until the final prosthesis is placed.

Immediate temporization with the help of the dental lab

Prerequisites:

- Acrylic guide based on patient situation prepared by the dental lab
- Temporary restoration prepared by dental lab
- Abutments placed and tightened with 35 Ncm



12. Place non-engaging Titanium Copings on the anterior and posterior abutments.

13. Ensure correct position of the Titanium Copings on the abutments. Avoid any gaps between the Titanium Coping and the abutment.

14. Use the acrylic guide to check the alignment and position of the Titanium Copings. Once the position is ensured make sure the occlusal set up fits with the prepared prosthesis.
    Use impression material to fix the Titanium Copings to the acrylic guide.

15. Use the acrylic guide to transfer the clinical situation to the dental lab.
16. The dental lab adapts the temporary restoration based on all information provided. Make sure to prepare sufficient space in the temporary restoration to fit in the Titanium Copings.

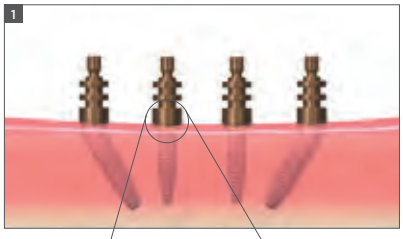
17. Intraorally, fix the Titanium Copings with the existing reworked prosthesis using resin material.

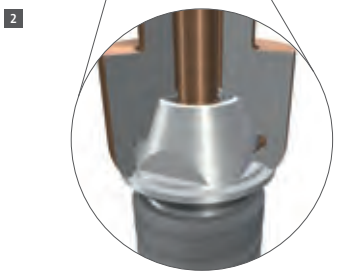
18. Finalize and polish the temporary restoration in the dental lab.
19. Place the temporary restoration in the patient's mouth and tighten the Occlusal Screws to 15 Ncm using the SCS Screwdriver along with the Ratchet and the Torque Control Device.

Impression taking on abutment level for final restoration

Prerequisites:

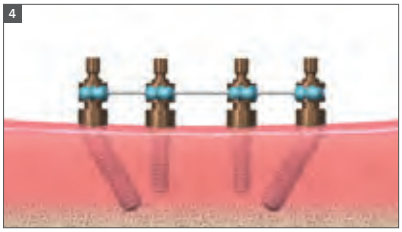
- Implants, abutments and Protective Cap placed
- Implant site healed
- Temporary prosthesis is removed



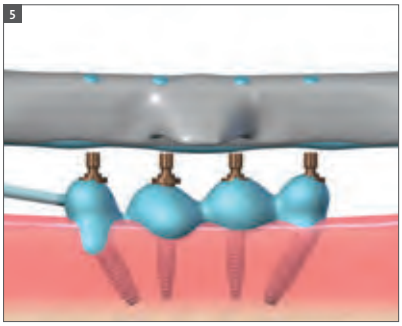


Open-tray impression

1. Place the Impression Post accurately into the abutment and hand-tighten the Guide Screw.
2. Ensure correct positioning of the Impression Posts to ensure proper fit of the restoration. Make sure the engaging features of the impression components are correctly aligned with the abutments to avoid any gaps.
3. Make perforations in the custom-made impression tray (light-cured resin) according to the individual situation so that the Positioning Screw of the Impression Post sticks out visibly.



4. Splint the Impression Posts using a small wire or resin material.



5. Take the impression using a standard elastomeric impression material (e.g. polyvinyl siloxane or polyether rubber). Uncover the screws before the material is set.
6. Once the material is set, loosen the Guide Screws and remove the tray.
7. For easy abutment identification, include the impression components when you send the dental impression to your dental lab partner.
8. In the dental lab, reposition and fix the Analog in the impression using the Guide Screw.
9. Fabricate the master cast. A gingival mask should always be used to ensure that the emergence profile is optimally contoured.

Option for closed-tray impression:
Place the Impression Posts onto the Screw-retained Abutments, ensure correct positioning with the retentive features and click the Positioning Caps onto the Impression Posts allowing a vestibular orientation. After taking the impression, forward all impression components to the dental lab for processing. In the dental lab, screw the Impression Posts onto the corresponding analogs and click back into the Positioning Caps.

Please note: All Impression Posts are intended for single use only to ensure optimal fit and precise impression taking for each patient.
Hydrocolloid is not suitable for this application due to its low tensile strength.

Final fixed bridge including digital impression-taking and custom-milled bars

Prerequisites:

- Implants placed and completely osseointegrated
- Abutments placed
- Provisional fixed bridge available
- For digital procedure: digital impression taken from the dental model with the help of Straumann® CARES® Mono Scanbodies for Screw-retained Abutments, and imported into Straumann® CARES® Visual

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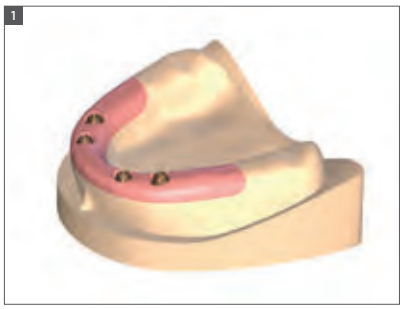


Digital impression on a dental model with scanbodies
If you decide to work with a custom-milled CARES® framework, please proceed as follows:

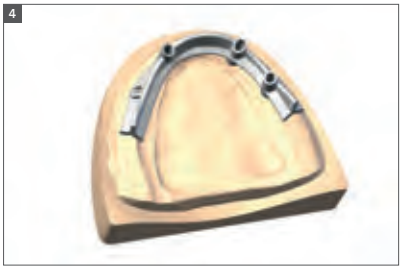
1. Fabricate a master cast based on a dental impression.

2

2. Place CARES® Mono Scanbodies for Screw-retained Abutments onto the abutments on the dental model.

3

3. Scan the dental situation with the help of the Straumann® CS2 Scanner.



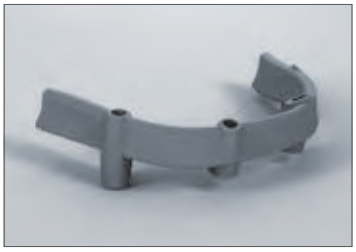
4. Design the framework in Straumann® CARES® Visual.
5. Produce the final restoration based on the custom-milled framework.

6. In the dental office, place the final restoration into the patient's mouth.

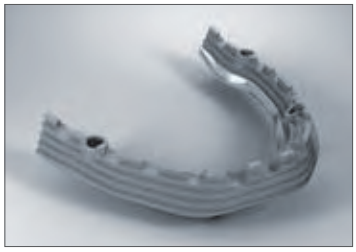
In CARES® Visual software the following framework designs for fixed screw-retained restorations are currently available:

	Tissue Level	Bone Level	Screw-retained Abutment-level
Bridge	✓	✓	✓
Bar Design	✓	✓	✓
CARES® Basic Fixed Bar	✓	✓	✓
CARES® Advanced Fixed Bar	✓	✓	✓
Material	Titanium, coron®		

CARES® Screw-retained Bridge



CARES® Basic Fixed Bar



CARES® Advanced Fixed Bar

For additional information on Straumann® CARES® products and services, please consult the following brochures:

- Straumann® CARES® Customized Prosthetic Solutions
- Straumann® CARES® Visual 9.0 Software Manual

Note: Straumann® CARES® may not be available in your country.

Straumann® CARES® Scan & Shape option

In case you do not have access to a scanner and software you have the option to use our CARES® Scan & Shape service*:


7

7. Fabricate a master cast based on a dental impression.


8

8. Send the impression and order sheet to your local CARES® Scan & Shape supplier and follow their instructions.
9. Produce the final restoration based on the custom-milled framework.
10. In the dental office, place the final restoration into the patient's mouth.

For more detailed information please refer to your local subsidiary.

Care and maintenance

For long-term success and proper fit of the fixed bridge, thorough patient instruction, and periodic check-ups (at least once a year) are recommended.

Careful maintenance of the fixed restoration provided, it is not necessary to exchange the Occlusal Screws at each check-up visit.

During these visits, you should carefully examine the:

- Condition of peri-implant tissues with regard to diseases[22]:
  - Plaque and calculus, bleeding, recession, bone loss, radiographs
- Superstructure:
  - Occlusal fit and articulation, proper fit of the fixed bridge, wear of occlusal surface, retention, attachment loosening, abutment status
- Function of the prosthesis.

For proper care at home, instruct the patient to clean the space between gingiva and fixed bridges, especially around the implants on a regular basis. Dental floss, bushy dental floss or interdental brushes are recommended.

** At the moment only available in the US.*

Clinical case

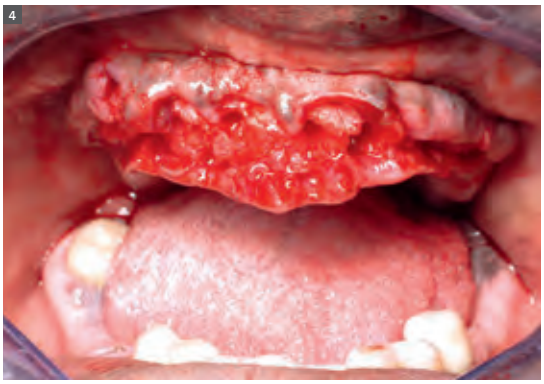
This clinical case represents a way of providing a screw-retained full-arch restoration.

Images courtesy of Dr. Runyon and Dr. Ralstin, Lab work by Darrel Clark, CDT, Fort Worth, Texas, USA
Initial situation: A female patient presented at the dental office with a problematic screw-retained bridge restoration in the anterior maxilla. Based on her dental history it was decided to go for a fixed restoration on 4 implants and an immediate temporary prosthesis.

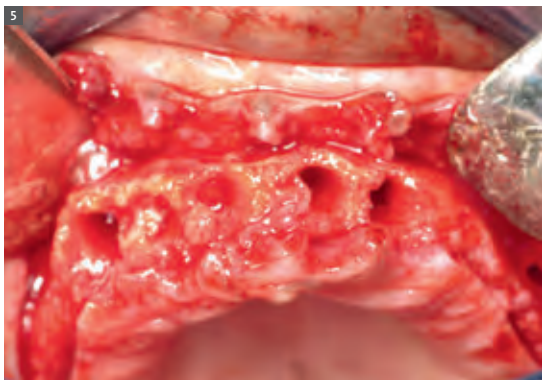
Pre-operative situation

Study model, surgical stent and interim fixed bridge prepared by the dental lab

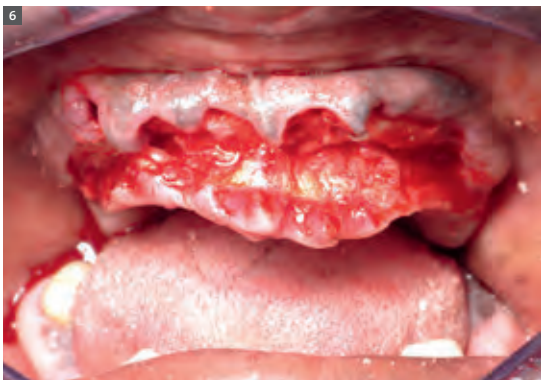
Anterior maxilla occlusal view



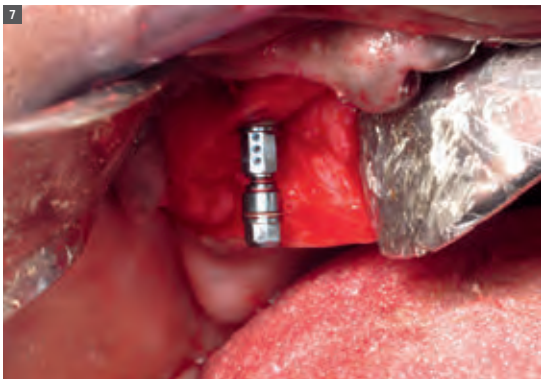
Flap and extraction of maxillary teeth



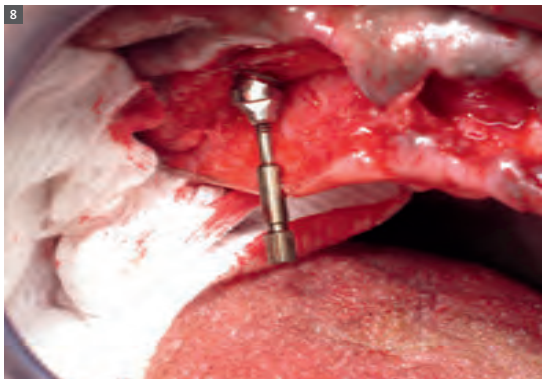
Maxillary ridge reduction



Ridge preparation



Straumann® BL RC Implant with SLActive® surface placed at #24



Screw-retained Abutment, 30° angled, placed onto the implant

Implant osteotomy #13

Surgical stent and anterior implants

Titanium Temporary Copings, non-engaging, placed intra-orally, facial view

Titanium Temporary Copings, non-engaging, placed intra-orally, occlusal view

Block-out technique to protect screw channels

Blu-Mousse® application to identify the emergence of the Temporary Abutments

Blu-Mousse® set and pick up

Trimming of impression material in the dental lab

Study model drilling and registration

Study model occlusal view

Interim fixed bridge registration with study model

Trimming interim fixed bridge for intra-oral pick up

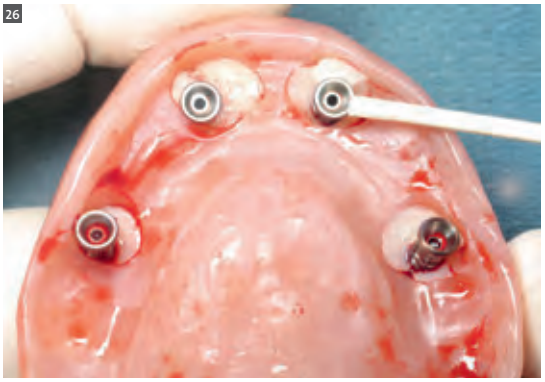
Passivity and fit check on study model

Temporary Copings in place and screw channels blocked out with guttapercha

Anterior Temporary Copings blocked out, verify access and passivity

Acrylic material intra-oral pick up

Posterior abutments blocked out and pick up



Security of intra-oral pick up verified

Application of additional acrylic to pick up sites

Trimming interim fixed bridge

Fit check of study model

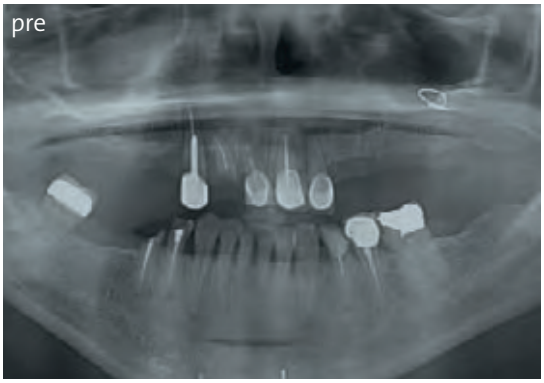
Interim fixed bridge initial seating, occlusal view

Interim fixed bridge, close screw access holes

Interim fixed bridge, post-operative, facial view: note buccal flange extension, adaptation to maxillary ridge, and relation to mandibular natural dentition

For the final fixed bridge, Straumann® CARES® Bars are used as a framework

4 months later, the final fixed bridge is delivered to the patient



Pre-operative situation

Post-operative situation

Product overview

	Pictures	Art. No.	Product description	Plan components / Screws		
Ø 3.5 mm		022.2745	NC Screw-retained Abutment, TAN, straight 0°, D 3.5 mm, GH 1 mm		025.2648-04	NC Plan Screw-retained Abutment, POM, straight 0°, D 3.5 mm, GH 2.5 mm
		022.2746	NC Screw-retained Abutment, TAN, straight 0°, D 3.5 mm, GH 2.5 mm			
		022.2753	NC Screw-retained Abutment, TAN, straight 0°, D 3.5 mm, GH 4 mm			
Ø 4.6 mm		022.2747	NC Screw-retained Abutment, TAN, straight 0°, D 4.6 mm, GH 1 mm		025.2650-04	NC Plan Screw-retained Abutment, POM, straight 0°, D 4.6 mm, GH 2.5 mm
		022.2748	NC Screw-retained Abutment, TAN, straight 0°, D 4.6 mm, GH 2.5 mm			
		022.2754	NC Screw-retained Abutment, TAN, straight 0°, D 4.6 mm, GH 4 mm			
		022.2749	NC Screw-retained Abutment, TAN, angled 17°, D 4.6 mm, GH 2.5 mm, Type A		025.2655-04	NC Plan Screw-retained Abutment, POM, angled 17°, D 4.6 mm, GH 2.5 mm, Type A
		022.2750	NC Screw-retained Abutment, TAN, angled 17°, D 4.6 mm, GH 2.5 mm, Type B			
		022.2755	NC Screw-retained Abutment, TAN, angled 17°, D 4.6 mm, GH 4 mm, Type A		025.2658-04	NC Plan Screw-retained Abutment, POM, angled 17°, D 4.6 mm, GH 2.5 mm, Type B
		022.2756	NC Screw-retained Abutment, TAN, angled 17°, D 4.6 mm, GH 4 mm, Type B			
		022.2751	NC Screw-retained Abutment, TAN, angled 30°, D 4.6 mm, GH 2.5 mm, Type A		025.2653-04	NC Plan Screw-retained Abutment, POM, angled 30°, D 4.6 mm, GH 2.5 mm, Type A
		022.2752	NC Screw-retained Abutment, TAN, angled 30°, D 4.6 mm, GH 2.5 mm, Type B			
		022.2757	NC Screw-retained Abutment, TAN, angled 30°, D 4.6 mm, GH 4 mm, Type A		025.2660-04	NC Plan Screw-retained Abutment, POM, angled 30°, D 4.6 mm, GH 2.5 mm, Type B
		022.2758	NC Screw-retained Abutment, TAN, angled 30°, D 4.6 mm, GH 4 mm, Type B			
Ø 4.6 mm		022.4745	RC Screw-retained Abutment, TAN, straight 0°, D 4.6 mm, GH 1 mm		025.4648-04	RC Plan Screw-retained Abutment, POM, straight 0°, D 4.6 mm, GH 2.5 mm
		022.4746	RC Screw-retained Abutment, TAN, straight 0°, D 4.6 mm, GH 2.5 mm			
		022.4751	RC Screw-retained Abutment, TAN, straight 0°, D 4.6 mm, GH 4 mm			
		022.4747	RC Screw-retained Abutment, TAN, angled 17°, D 4.6 mm, GH 2.5 mm, Type A		025.4649-04	RC Plan Screw-retained Abutment, POM, angled 17°, D 4.6 mm, GH 2.5 mm, Type A
		022.4748	RC Screw-retained Abutment, TAN, angled 17°, D 4.6 mm, GH 2.5 mm, Type B			
		022.4752	RC Screw-retained Abutment, TAN, angled 17°, D 4.6 mm, GH 4 mm, Type A		025.4650-04	RC Plan Screw-retained Abutment, POM, angled 17°, D 4.6 mm, GH 2.5 mm, Type B
		022.4753	RC Screw-retained Abutment, TAN, angled 17°, D 4.6 mm, GH 4 mm, Type B			
		022.4749	RC Screw-retained Abutment, TAN, angled 30°, D 4.6 mm, GH 2.5 mm, Type A		025.4653-04	RC Plan Screw-retained Abutment, POM, angled 30°, D 4.6 mm, GH 2.5 mm, Type A
		022.4750	RC Screw-retained Abutment, TAN, angled 30°, D 4.6 mm, GH 2.5 mm, Type B			
		022.4754	RC Screw-retained Abutment, TAN, angled 30°, D 4.6 mm, GH 4 mm, Type A		025.4660-04	RC Plan Screw-retained Abutment, POM, angled 30°, D 4.6 mm, GH 2.5 mm, Type B
		022.4755	RC Screw-retained Abutment, TAN, angled 30°, D 4.6 mm, GH 4 mm, Type B			

Ø 3.5 mm

Impression / transfer components		
	025.2243	Impression Post for open tray, TAN, for Screw-retained Abutment, abut. level, 0°, D 3.5 mm
	025.2245	Impression Post for closed tray, TAN/POM, for Screw-retained Abutment, abut. level, D 3.5 mm
	025.0000	CARES® Scanbody for Screw-retained Abutment, D 3.5 mm (NC)
	023.2754	NC Analog for Screw-retained Abutment, TAN, straight 0°, D 3.5 mm

Temporary restorations / Copings / Screws		
	024.2323-04	NC Protective Cap for Screw-retained Abutment, D 3.5 mm, H 5 mm, PEEK/TAN
	024.2324-04	NC Protective Cap for Screw-retained Abutment, D 3.5 mm, H 6.5 mm, PEEK/TAN
	024.2325-04	NC Protective Cap for Screw-retained Abutment, D 3.5 mm, H 8 mm, PEEK/TAN
	023.2749	NC Coping for Screw-retained Abutment, Ti, Bridge, D 3.5 mm
	023.2750	NC Coping for Screw-retained Abutment, Ti, Bar, D 3.5 mm
	023.2747	NC Coping for Screw-retained Abutment, Ti, Crown, D 3.5 mm
	023.2755	NC Burn-out Coping for Screw-retained Abutment, POM, Bridge/Bar, D 3.5 mm
	023.2748	NC Burn-out Coping for Screw-retained Abutment, POM, Crown, D 3.5 mm
	023.2751	NC Gold Coping for Screw-retained Abutment, engaging, D 3.5 mm, Ceramicor®/POM
	023.2752	NC Gold Coping for Screw-retained Abutment, non-engaging, D 3.5 mm, Ceramicor®/POM
	023.2753	NC Gold Coping for Screw-retained Abutment, bar, D 3.5 mm, Ceramicor®/POM

Ø 4.6 mm

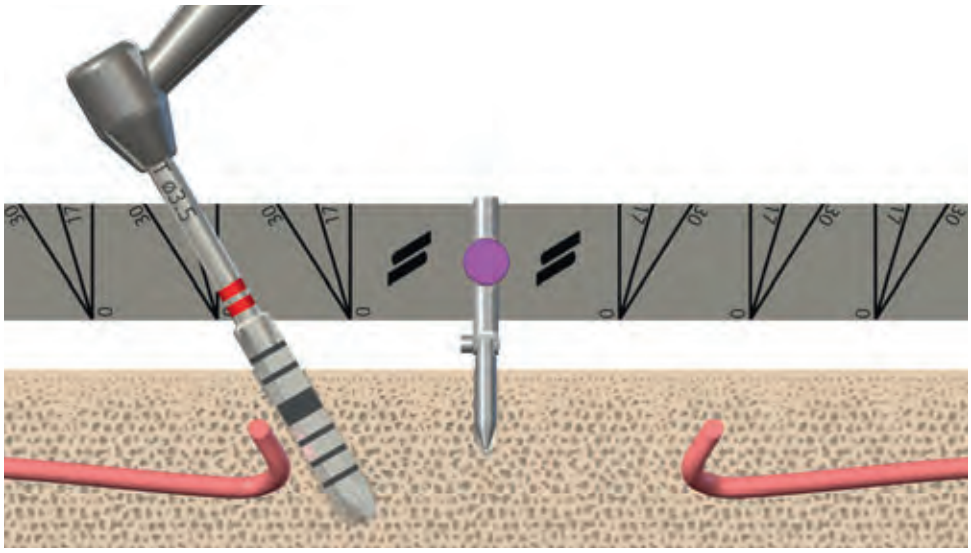
Ø 4.6 mm

Impression / transfer components		
	023.4756	NC/RC Analog for Screw-retained Abutment, TAN, straight 0°, D 4.6 mm
	023.4757	NC/RC Analog for Screw-retained Abutment, TAN, angled 17°/30°, D 4.6 mm
	025.2244	Impression Post for open tray, TAN, for Screw-retained Abutment, abut. level, 0°, D 4.6 mm
	025.2246	Impression Post for closed tray, TAN/POM, for Screw-retained Abutment, abut. level, D 4.6 mm
	025.0001	CARES® Scanbody for Screw-retained Abutment, D4.6mm (NC/RC)

Temporary restorations / Copings / Screws		
	023.4753	NC/RC Gold Coping for Screw-retained Abutment, engaging, D 4.6 mm, Ceramicor®/POM
	023.4754	NC/RC Gold Coping for Screw-retained Abutment, non-engaging, D 4.6 mm, Ceramicor®/POM
	023.4755	NC/RC Gold Coping for Screw-retained Abutment, bar, D 4.6 mm, Ceramicor®/POM
	024.4323-04	NC/RC Protective Cap for Screw-retained Abutment, D 4.6 mm, H 5.1 mm, PEEK/TAN
	024.4324-04	NC/RC Protective Cap for Screw-retained Abutment, D 4.6 mm, H 6.6 mm, PEEK/TAN
	024.4325-04	NC/RC Protective Cap for Screw-retained Abutment, D 4.6 mm, H 8.1 mm, PEEK/TAN
	023.4751	NC/RC Coping for Screw-retained Abutment, Ti, Bridge, D 4.6 mm
	023.4752	NC/RC Coping for Screw-retained Abutment, Ti, Bar, D 4.6 mm
	023.4747	NC/RC Coping for Screw-retained Abutment, Ti, Crown, D 4.6 mm
	023.4758	NC/RC Burn-out Coping for Screw-retained Abutment, POM, Bridge/Bar, D 4.6 mm
	023.4748	NC/RC Burn-out Coping for Screw-retained Abutment, POM, Crown, D 4.6 mm
	023.4749	NC/RC Screw for Screw-retained Abutment, TAN, straight 0°, GH 1 mm
	023.4750	NC/RC Screw for Screw-retained Abutment, TAN, straight 0°, GH 2.5 mm
	023.4760	NC/RC Screw for Screw-retained Abutment, TAN, straight 0°, GH 4 mm
	023.4763	NC/RC Occlusal Screw, TAN, for Coping, Screw-retained Abutment
	025.0002	NC/RC Screw for Screw-retained Abutment, TAN, 17°/30°

	026.0016	Straumann® Pro Arch Guide for Screw-retained Abutment
	026.0902	CrossFit® Plan Set
	026.0000	CrossFit® Plan Set, empty

Appendix A: Straumann® Pro Arch Guide



Intended use: The Straumann® Pro Arch Guide is used for visual and three-dimensional orientation of the implant angulation (mesial/distal) and oral parallelization.

Indication: The surgical and prosthetic procedure is the placement of multiple implants in combination with Screw-retained Straight or Angled Abutments.

Product description: The Straumann® Pro Arch Guide is used in edentulous jaws for surgical implant placement. The template of the Pro Arch Guide can be easily bent to adapt to the dental arch. It is secured by drilling into the symphysis with a ∅ 2.2 mm Pilot Drill and a pin in the jaw. The drilling depth for the bone cavity of the pin is 10 mm. The drilling depth can be checked optically using the depth markings on the drills or using the optional depth stop system.
The slider is used to position the template for drilling. Drill the implant sites according to the surgical protocol. Each drill is aligned parallel to the template surface and at the implantation angle. Make sure the Pro Arch Guide is properly assembled, clean and sterile. Never use potentially contaminated components.

Warnings and precautions: Take the following precautions prior to or during treatment:
- Position the patient in such a way that the danger of aspiration of components is minimized. All components that are used intraorally must be secured to prevent aspiration or swallowing.
- Do not use damaged or blunt instruments. Always inspect the instruments before use.
- If the laser markings are illegible, the device must be replaced.
- Do not use more than 20 times.

Sterilization: Autoclave, fractionated vacuum method or gravitation method: at least 18 min (for prion inactivation) at 134 °C (273 °F).

Appendix B: Straumann® Bone Level Bone Profiler

The Bone Level Bone Profiler is used to remove bone coronally to the implant shoulder in the following situations:

- deeply placed implants,
- angulated/tilted implants,
- scalloped or sloped alveolar ridge

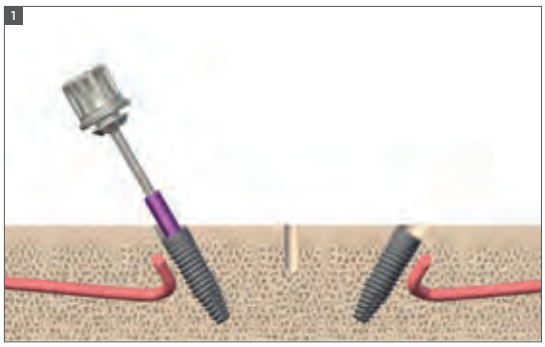
Important: Use the Bone Level Bone Profilers only if the bone walls interfere with the abutment's emergence profile.

The Straumann® Bone Level Bone Profiler system consists of the following components:

Instrument	Article number
Guiding Cylinder NC for Bone Level Bone Profiler	026.0025S
Guiding Cylinder RC for BL Bone Profiler	026.0026S
Bone Level Bone Profiler 1	026.0022
Bone Level Bone Profiler 2	026.0023
Bone Level Bone Profiler 3	026.0024

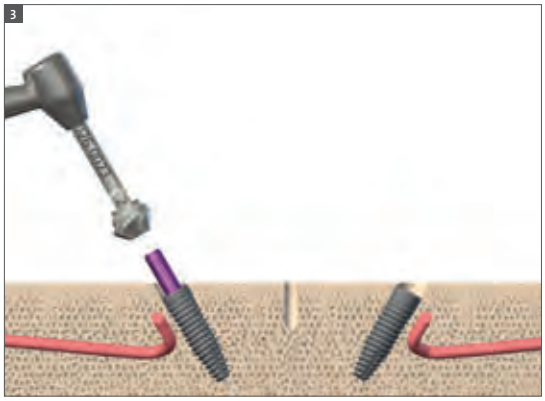
Instructions for use

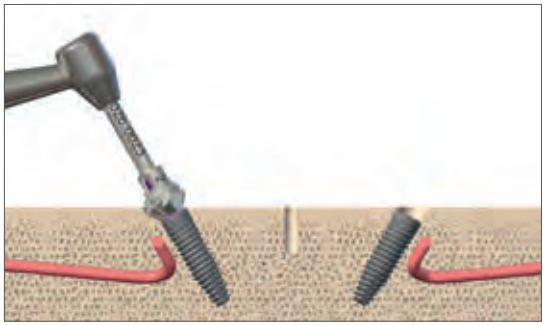
For detailed instructions please consult the *Instructions for use of the bone profilers for RN and WN implants,* 701128 supplied with the product or at www.ifu.straumann.com



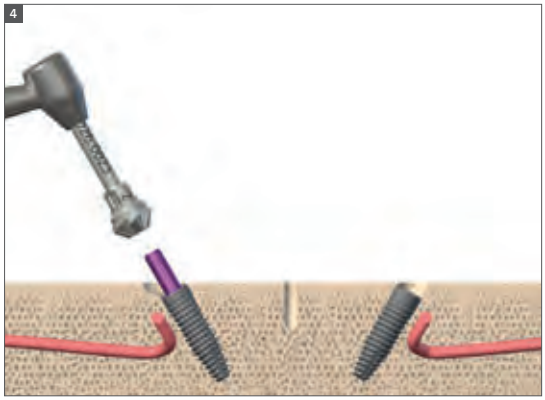
1. Depending on the implant connection type (RC or NC), screw the Guiding Cylinder NC (026.0025S) or Guiding Cylinder RC (026.0026S) into the implant using an SCS Screwdriver. Hand-tighten the Guiding Cylinder.

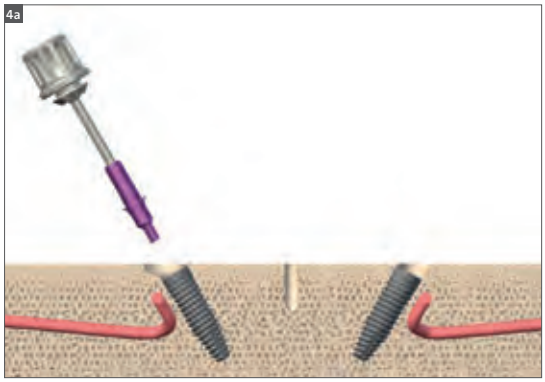
2. Choose the Bone Profiler 1, 2 or 3 depending on the abutment emergence profile, the implant position (e.g. subcrestal placement, tilted position) and surrounding bone situation (e.g. uneven, scalloped ridge). Table 1 (on the next page) shows which Bone Profiler is generally suggested for a particular abutment in situations of deeply (subcrestally) placed implants.





3. Insert the Bone Profiler into the dental hand-piece. Without turning the Bone Profiler, place it over the Guiding Cylinder and slide it down until the Bone Profiler is 1 mm away from the bone. Once in position, drill into the bone not exceeding the maximum rotational speed of 200 rpm. Use intermittent drilling technique with ample irrigation with sterile precooled physiological saline solution.
   Important: When drilling keep the Bone Profiler and the Guiding Cylinder axially aligned and do not apply any bending forces. Continue drilling until the Bone Profiler reaches the stop collar of the Guiding Cylinder.





4. Remove the Bone Profiler and unscrew the Guiding Cylinder from the implant.

5. Place the abutment and screw it into the implant.

Table 1: Abutments and corresponding Bone Level Bone Profilers

	Art No	Bone Profiler 1 026.0022	Bone Profiler 2 026.0023	Bone Profiler 3 026.0024
Bone Level Healing Abutments	024.4236, 024.4236S	✓		
	024.4234, 024.4234S	✓		
	024.4222	✓		
	024.4222S		✓	
	024.4224, 024.4224S	✓		
	024.4226, 024.4226S	✓		
	024.4242, 024.4242S			✓
	024.4244, 024.4244S		✓	
	024.2236, 024.2236S	✓		
	024.2234, 024.2234S	✓		
	024.2222, 024.2222S	✓		
	024.2224, 024.2224S	✓		
	024.2226, 024.2226S	✓		
	024.2242, 024.2242S		✓	
	024.2244, 024.2244S	✓		
	024.2246, 024.2246S	✓		
	024.4246		✓	
	024.4246S	✓	✓*	
Screw-retained Abutments	022.2745	✓		
	022.2746	✓		
	022.2753	✓		
	022.2747		✓	
	022.2748	✓		
	022.2754	✓		
	022.2749			✓
	022.2750			✓
	022.2755		✓	
	022.2756		✓	
	022.2751			✓
	022.2752			✓
	022.2757		✓	
	022.2758		✓	
	022.4745		✓	
	022.4746	✓		
	022.4751	✓		
	022.4747			✓
	022.4748			✓
	022.4752		✓	
	022.4753		✓	
	022.4749			✓
	022.4750			✓
	022.4754		✓	
	022.4755		✓	

** Bone Profiler 2 may only be needed if the implant is placed deeper than 3mm subcrestally; otherwise use Bone Profiler 1.*

References

1 based on Dawson A et al. : The SAC Classification in Implant Dentistry, ITI 2009, Classification of Restorative Cases, Edentulous Maxilla/Mandible **2** In general maxillary implant-supported/retained overdentures are considered advanced restorations **3** Compared to existing Straumann® Multi-base portfolio **4** Benic GI et al. : Titanium-zirconium narrow-diameter versus titanium regular-diameter implants for anterior and premolar single crowns: 1-year results of a randomized controlled clinical study. Journal of Clinical Periodontology 2013; [Epub ahead of print] **5** Freiberger I et al. : Non-Interventional Study on Success and Survival of TiZr Implants. European Association of Osseointegration 20th Annual Scientific Meeting, Copenhagen, Denmark, October 2012: Poster presentation. Other Source: Data base Non-interventional study, data on file. **6** Rupp F et al. : Enhancing surface free energy and hydrophilicity through chemical modification of microstructured titanium implant surfaces. Journal of Biomedical Materials Research A, 76(2):323-334, 2006. **7** DeWild M : Superhydrophilic SLActive® implants. Straumann document 151.52, 2005 **8** Maniura K : Laboratory for Materials – Biology Interactions Empa, St. Gallen, Switzerland Protein and blood adsorption on Ti and TiZr implants as a model for osseointegration. EAO 22nd Annual Scientific Meeting, October 17 – 19 2013, Dublin **9** Schwarz F et al. : Bone regeneration in dehiscence-type defects at non-submerged and submerged chemically modified (SLActive®) and conventional SLA® titanium implants: an immunohistochemical study in dogs. J Clin. Periodontol. 35.1 (2008): 64– 75. **10** Rausch-fan X et al. : Differentiation and cytokine synthesis of human alveolar osteoblasts compared to osteoblast-like cells (MG63) in response to titanium surfaces. Dental Materials 2008 Jan;24(1):102-10. Epub 2007 Apr 27. **11** Schwarz F et al. : Histological and immunohistochemical analysis of initial and early osseous integration at chemically modified and conventional SLA® titanium implants: Preliminary results of a pilot study in dogs. Clinical Oral Implants Research, 11(4): 481-488, 2007. **12** Lang, NP et al. : Early osseointegration to hydrophilic and hydrophobic implant surfaces in humans. Clin Oral Implants.Res 22.4 (2011): 349–56. **13** Raghavendra S et al. : Int. J. Oral Maxillofac. Implants. 2005 May–Jun;20(3):425–31. **14** Oates TW et al. : Enhanced implant stability with a chemically modified SLA® surface: a randomized pilot study. Int. J. Oral Maxillofac. Implants. 2007;22(5):755–760. **15** Schwarz F et al. : Bone regeneration in dehiscence-type defects at chemically modified (SLActive®) and conventional SLA® titanium implants: a pilot study in dogs. J Clin.Periodontol. 34.1 (2007): 78–86 **16** Lai HC et al. : Bone apposition around two different sandblasted, large-grit and acid-etched implant surfaces at sites with coronal circumferential defects: An experimental study in dogs. Clin. Oral Impl. Res. 2009;20(3):247–53. **17** Buser D et al. : Stability of Contour Augmentation and Esthetic Outcomes of Implant-Supported Single Crowns in the Esthetic Zone: 3-Year Result of a Prospective Study With Early Implant Placement Post Extraction. J Periodontol. 2011 March; 82(3): 342-9. **18** Buser D et al. : Long-term Stability of Early Implant Placement with Contour Augmentation. J Dent Res. 2013 Dec;92(12 Suppl):176S-82S. **19** Nicolau P et al. : Immediate and early loading of Straumann® SLActive implants: A Five Year Follow-up. Presented at the 19th Annual Scientific Meeting of the European Association of Osseointegration – 6-9 October 2010, Glasgow **20** International Diabetes Federation. http://www.idf.org/diabetesatlas/ **21** Norm ASTM F67 (states min. tensile strength of annealed titanium). Data on file for Straumann cold-worked titanium and Roxolid® Implants **22** Wismeijer D et al. : ITI Treatment Guide: Loading protocols in Implant Dentistry – Edentulous Patients, Volume 4, 2010, page 223 Patient Consideration **23** Wismeijer D et al. : ITI Treatment Guide: Loading protocols in Implant Dentistry – Edentulous Patients, Volume 4, 2010, page 54 Treatment Options for the Edentulous Arch **24** Straumann® Roxolid® Implants will be delivered with the Loxim™ Transfer Piece, which is connected to the implant with a snap-in mounting. After insertion of the implant, the Loxim™ can be released by hand or with the help of tweezers.

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