straumann

BASIC INFORMATION

Straumann® Guided Surgery (without FIBA)

Technical handling information

CONTENTS

ABOUT THIS GUIDE

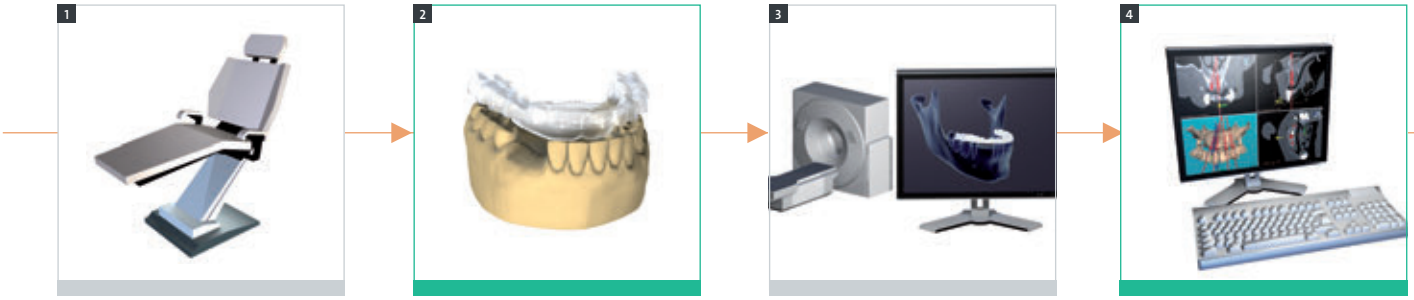
The Basic Information on Straumann® Guided Surgery for the Straumann® Dental Implant System provides dental professionals and related specialists with the essential steps for surgical treatment planning, and procedure for guided surgery.

The manual is divided into the following main parts:

- Preoperative planning and guided surgery for Straumann® Dental Implant System
- Planning and clinical solutions
- Surgical procedures
- Product specifications
- Additional information

The following information is not sufficient to allow immediate use of the Straumann® Dental Implant System. Knowledge of dental implantology and instruction in the handling of the Straumann® Dental Implant System provided by an operator with the relevant experience and by the brochures for conventional procedures *Straumann® Dental Implant System: Basic Information on the Surgical Procedures* (702084/en) and *Basic information on the surgical procedures for the Straumann® Bone Level Tapered Implant* (702167/en) are always necessary. For detailed information on products supplied by third parties, please contact these companies directly. Please note that not all products are available in all markets. Please contact your local Straumann representative for more details.

1. PREOPERATIVE PLANNING AND GUIDED SURGERY FOR STRAUMANN® DENTAL IMPLANT SYSTEM



1. Treatment plan
2. Fabrication scan prosthesis
3. CT scanning
4. Software based planning

Straumann® guided instruments are intended for treatments planned preoperatively with 3D planning software. They are designed to prepare the implant bed for implants of the Straumann® Dental Implant System using surgical templates.
Planning software complementing the Straumann® guided instruments is called CoDiagnostiX™ by Dental Wings Inc.
The open system approach also allows for the execution of template-based surgery preoperatively planned with other planning software systems. For further information, please contact your Straumann representative.

Computer Guided (Static) Surgery can be subdivided into six main steps (see figure above). They are described in the following.

Step 1 – Treatment plan

Diagnosis and patient specific requests influence the treatment plan. The type of final restoration, patient's request for a provisional, number of implants and imaging procedure need to be taken into account for the patient's treatment plan for guided surgery.
Note: For a template based surgery, the patient's mouth opening capability needs to be sufficient to accommodate the instruments for guided surgery.

Step 2 – Scan prosthesis fabrication

The scan prosthesis is a radiopaque duplicate of the current situation or the provisional teeth set-up. It supplies the clinician with additional information for implant planning. When the patient is scanned with the scan prosthesis, the desired tooth set-up is visible in the CT images.
The scan prosthesis is also used to visualize the soft tissue situation in the planning software. Furthermore, reference marks (e.g. Guttapercha) are incorporated in the scan prosthesis for the identification of its position in the planning software.
The procedure for fabricating the scan prosthesis is dependent on applied software and chosen template fixation (bone, teeth or mucosa supported). Refer to the detailed documentation of the software suppliers for further information.

Fabrication surgical template

5. Surgery with Straumann® guided instruments

6. Prosthetic procedures

Step 3 – CT scanning

Regardless of imaging technology used, scanning with the correct parameters is the basis for accurate planning in the software and for correct implant placement.
In order to get the optimal scan data, the radiologist and the patient need to be instructed correctly and scanning instructions/parameters must be followed according to the software supplier guidelines.

Step 4 – Software-based planning and fabrication of the surgical template (open system approach)

Software-based planning allows for implants to be planned virtually within the planning software. When completed successfully, the case plan is sent to the surgical template manufacturer. The software company may act as the surgical template manufacturer or the dental laboratory may fabricate the surgical template depending on the software concept used.

Note: In this step, the surgical template manufacturer ensures the compatibility with the Straumann® guided instruments by utilizing Straumann® sleeves for guided surgery positioned according to Straumann parameters.

Step 5 – Surgery with Straumann® guided instruments & guided implant insertion

After fixing the surgical template in the patient's mouth, the implant bed for S, SP, BL, BLT and TE implant lines can be prepared with the guided instruments included in the Straumann® Guided Surgery Cassette and Straumann® Basic Guided Surgery Cassette. The surgical protocol, provided together with the surgical template, recommends which instruments are required to prepare each implant site. The Straumann® guided implants allow for insertion through the surgical template including a physical depth control.

Step 6 – Prosthetic procedures

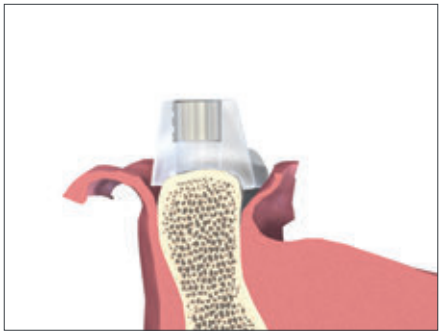
For the prosthetic procedures, Straumann offers a wide range of solutions. The brochures *Straumann® Narrow Neck: Prosthetic Options for Narrow Neck Implants* (152.305/en), *Straumann® synOcta Prosthetic System: Crown and Bridge Restorations* (152.255/en), *Straumann® Solid Abutment Prosthetic System: Cement-retained Crowns and Bridges with the Solid Abutment System* (152.254/en), *Straumann® Bone Level Implant Line: Basic Information on the Prosthetic Procedures* (152.810/en) and *Straumann® Narrow Neck CrossFit® Implant Line: Prosthetic Procedures for the Narrow Neck CrossFit® Implant* (152.808/en) describe in detail the prosthetic workflow for the respective implants to be restored.

2. PLANNING AND CLINICAL SOLUTIONS

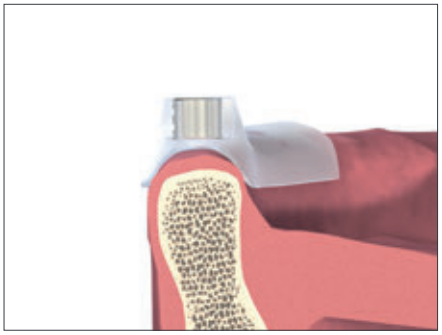
2.1 SURGICAL TEMPLATE

2.1.1 Surgical template fixation

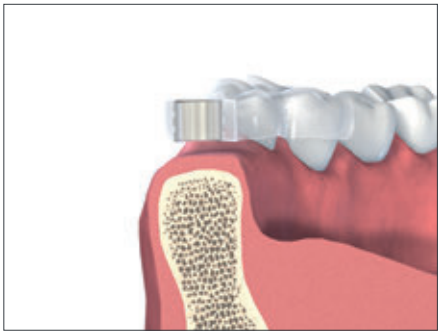
Bone-, mucosa- and teeth-supported surgical template fixations (see figures) are possible depending on the clinician's preferences and the planning system used.



Bone-supported



Mucosa-supported



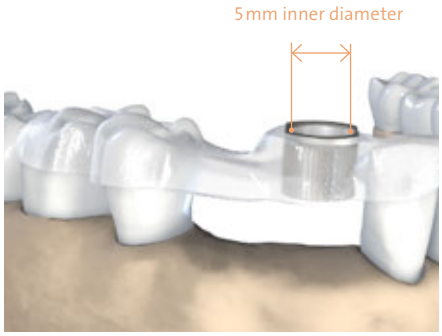
Teeth-supported

Note: In order to stabilize the surgical template, it can additionally be fixed with fixation pins (see chapter 3), fixation screws, or it can be positioned on temporary implants.

2.1.2 Sleeves for surgical templates

Depending on the anatomical situation and the planned axis of adjacent implants, three different sleeve diameters are available. The sleeves are cylindrical with an additional rim at the top (T-sleeve).

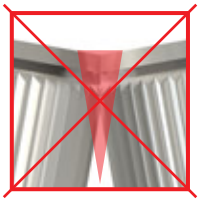
- ∅ 5 mm sleeves for regular situations with sufficient space for sleeve placement

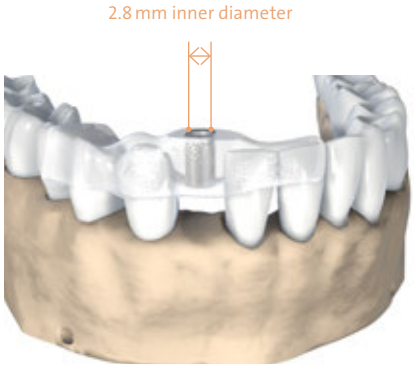


- ∅ 2.8 mm sleeves for narrow interdental spaces

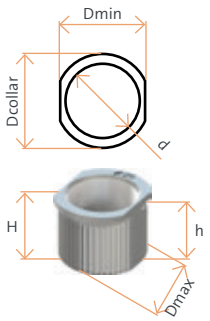
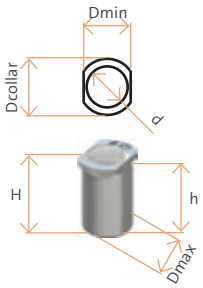
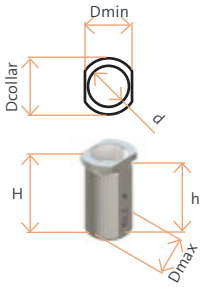
Sleeve collision due to inclination or narrow interdental space

Use a ∅ 2.8 mm sleeve instead



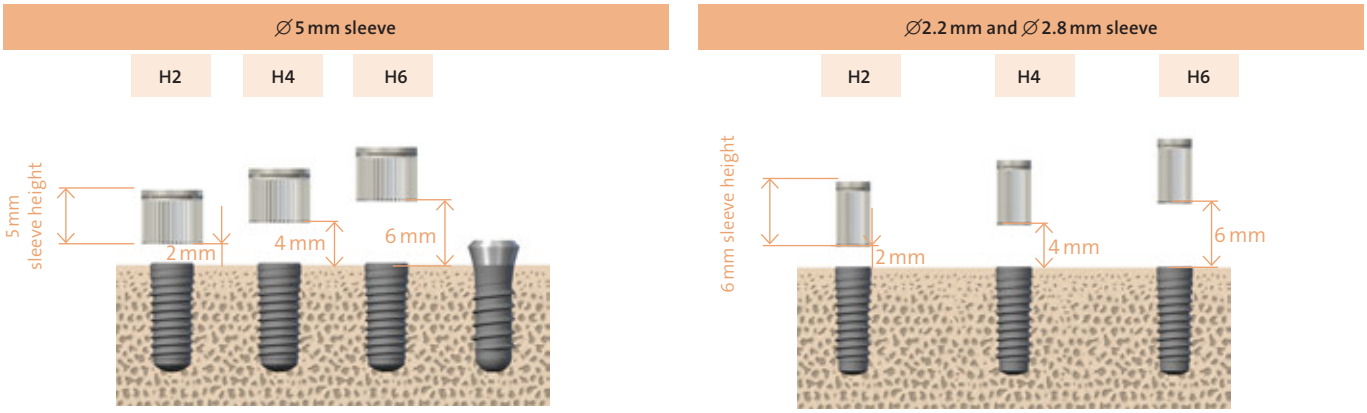


- ∅ 2.2 mm sleeve for only guided pilot drilling

Article	Art. No.		Sleeve inner diameter	Sleeve outer diameter	Sleeve height	Use of drill handle
∅ 5 mm T-sleeve	034.053V4		d = 5 mm	Dmin = 5.7 mm Dcollar = 7.0 mm Dmax = 6.3 mm	H = 5 mm h = 4.5 mm	yes
∅ 2.8 mm T-sleeve	034.055V4		d = 2.8 mm	Dmin = 3.2 mm Dcollar = 4.4 mm Dmax = 3.8 mm	H = 6 mm h = 5.5 mm	no (Direct guidance of milling cutters and guided drills ∅ 2.8 mm)
∅ 2.2 mm T sleeve	046.712V4		d = 2.2 mm	Dmin = 2.6 mm Dcollar = 3.8 mm Dmax = 3.2 mm	H = 6 mm h = 5.5 mm	no (Direct guidance of guided drills ∅ 2.2 mm)

2.1.3 Sleeve positions

The system allows for flexible sleeve placement in the surgical template. The three distinct sleeve positions are 2 mm (H2), 4 mm (H4), 6 mm (H6) above bone level (see figure).



While determining the corresponding sleeve position for each implant in the planning software, the following requirements need to be considered for favorable conditions during surgical procedures.

- The surgical template fixation (mucosa-, bone- or teeth-supported) and the mucosa thickness determine the sleeve position.
- The sleeve position in the surgical template must allow for ample access for instrument irrigation.
- Sleeve contact with tissue must be avoided.

Refer to the sleeve-position implant-length matrix in the product specifications (see chapter 4.1).

Note: Place the sleeve as close to the bone / soft tissue as anatomic conditions allow.

2.1.4 Surgical template fabrication

The surgical template must allow for proper irrigation of the surgical site. Furthermore, windows in the surgical template can be included.

For a correct fit of the cylinder of the handles in the sleeve (see chapter 2.2.1) remove additional material around the sleeve.

Caution

- Ensure the sleeves are firmly fixed into the surgical template.
- Radial and axial load on the sleeves must be avoided to help ensure proper retention of the sleeves in the surgical template.
- Prior to starting the surgical procedures, evaluate the fit and stability of the surgical template on the model and in the patient's mouth as well as size and localization of the openings for irrigation after receiving it from the manufacturer. Verify if the position and orientation of the sleeves in the surgical template correspond with the preoperative plan. Check product documentation (if available) from the surgical template manufacturer.

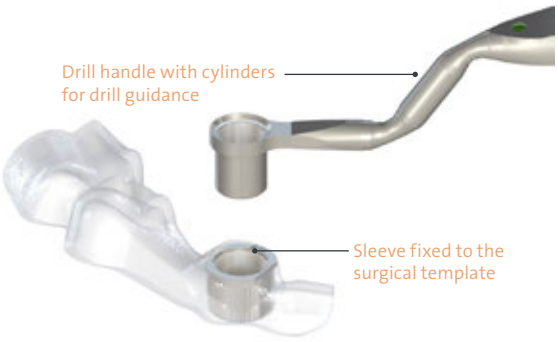
2.1.5 Surgical template pre-processing

For disinfection/sterilization of the surgical template before surgery use an appropriate liquid chemical disinfectant (e.g. betadine) or a sterilizing agent that follow the instructions from the template manufacturer. Do not damage the material of the surgical template.

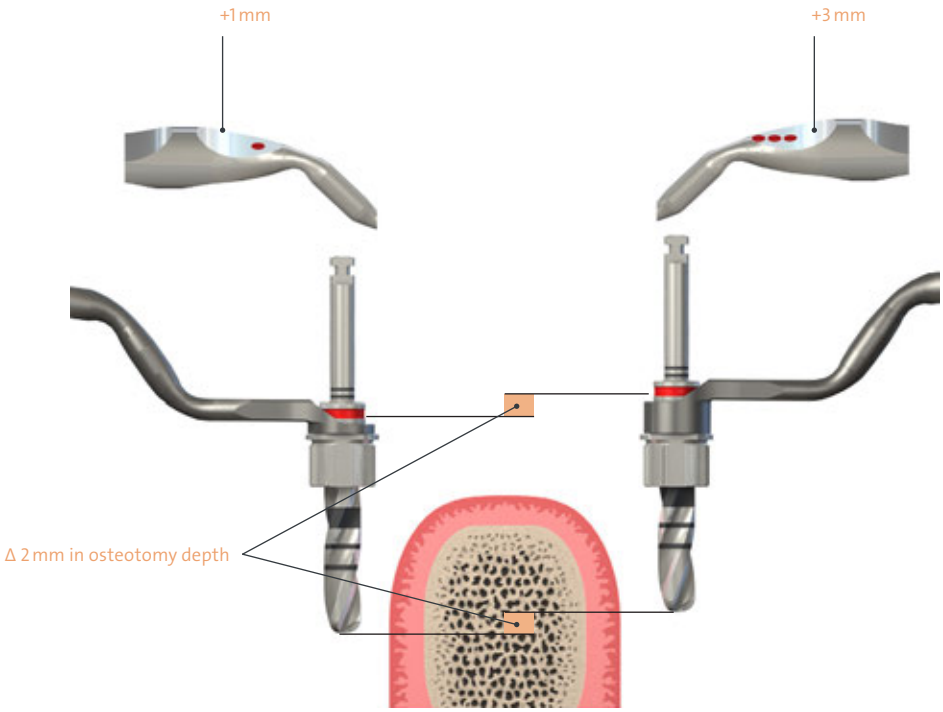
2.2 STRAUMANN® GUIDED SURGERY CONCEPT

2.2.1 Drill handles for basic implant bed preparation

Straumann® drill handles direct milling cutters and guided drills based on the sleeve-in-sleeve concept (see figure). The cylinder of the drill handle is inserted into the sleeve (∅ 5 mm) fixed to the surgical template. For each instrument diameter, ∅ 2.2 mm, ∅ 2.8 mm, ∅ 3.5 mm and ∅ 4.2 mm, an ergonomic drill handle is available.

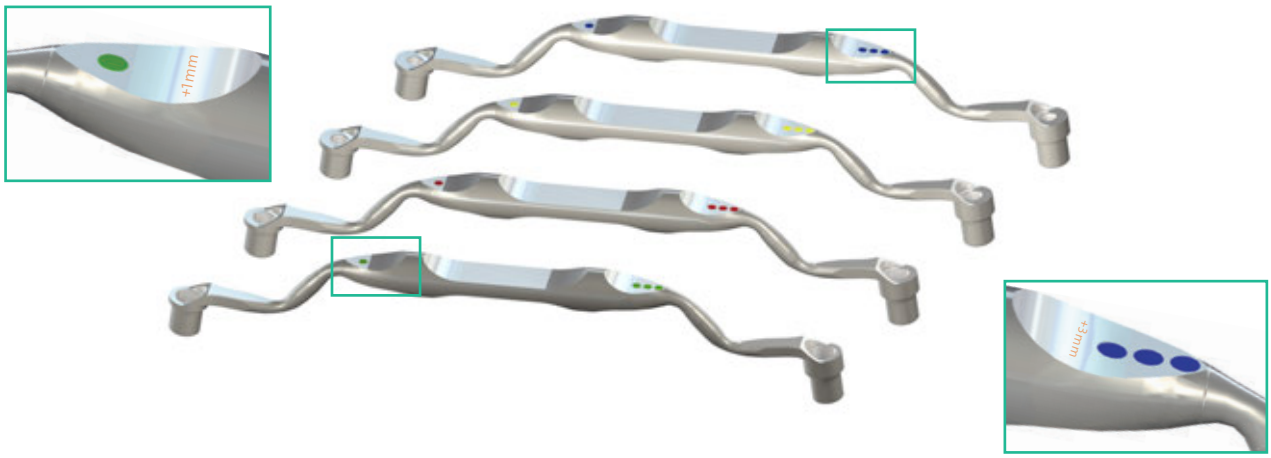


Every drill handle features one cylinder with an additional height of +1 mm at one end and a second cylinder with an extra cylinder height of +3 mm at the other end (see figure).



The surgical protocol (see chapter 2.2.3) lists which cylinder of the drill handle (+1 mm, +3 mm) should be used for each implant.

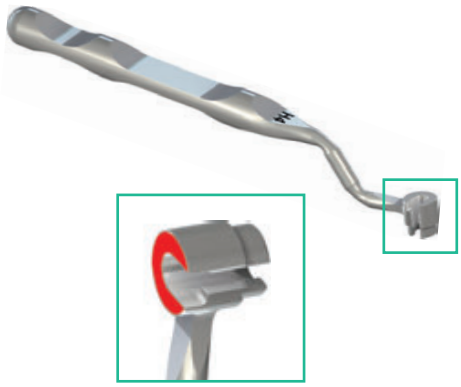
For identification during surgery, Straumann® drill handles for guided surgery are color-coded and symbol-marked (see following figure).



Art. No.	Instrument diameter	+1 mm		+3 mm
		1 mm	Drill handle cylinder	3 mm
034.150	Ø 2.2 mm	●	Color-coding and symbol	●●●
034.250	Ø 2.8 mm	●		●●●
034.450	Ø 3.5 mm	●		●●●
034.650	Ø 4.2 mm	●		●●●

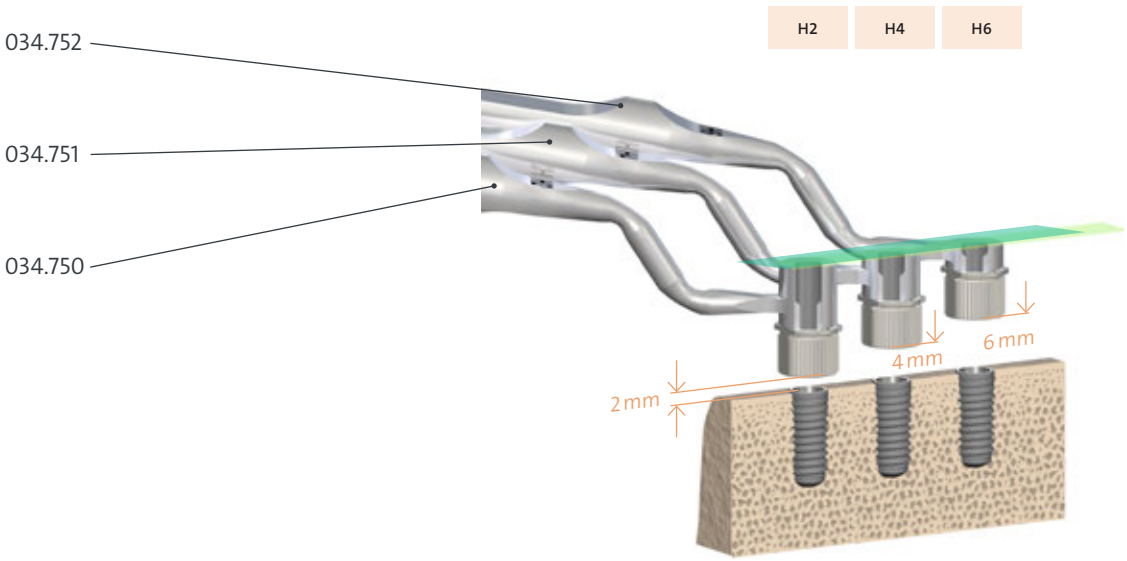
2.2.2 C-handles for fine implant bed preparation

Straumann® C-handles for fine implant bed preparation are also designed according to a sleeve-in-sleeve concept. The cylinder of the C-handle is inserted into the sleeve (∅5 mm only) fixed to the surgical template. Each C-handle corresponds to one distinct sleeve position (H2, H4 and H6) as shown in the chart below.



Art. No.		Article	Sleeve position
034.750		C-handle H2	H2 2 mm above bone level
034.751		C-handle H4	H4 4 mm above bone level
034.752		C-handle H6	H6 6 mm above bone level

The Straumann® C-handles direct guided profile drills and guided taps (see figure).



2.2.3 The surgical protocol for guided surgery

The implant bed preparation with guided instruments follows the surgical protocol normally delivered together with the surgical template by the manufacturer or exported from the planning software. Based upon the virtual plan where sleeve diameter and sleeve position were selected, the surgical protocol recommends the correct combination of drill handle cylinder and Straumann® guided instruments to be used for each implant.

Caution

- Verify if the surgical protocol corresponds to your preoper-atively defined treatment plan before you start surgery.
- All Straumann® guided drills and guided profile drills (see chapter 4.4) feature a collar. In order to reach the required depth for each implant, drilling must always be continued until the collar hits the cylinder of the handle. The combination of guided instruments listed in the surgical protocol is recommended under this presumption.
- The surgical protocol represents a suggestion for your treatment. The clinician is responsible for adjusting the surgical protocol in case the clinical situation varies from the virtual planning.

Notes

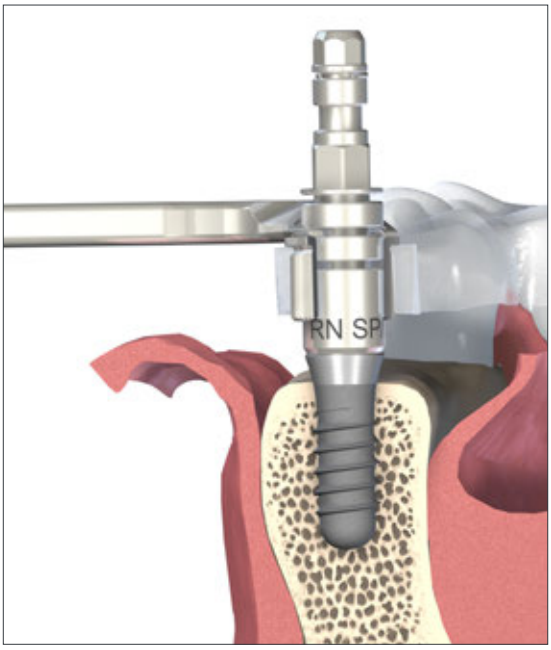
- The surgical protocol might differ in appearance depending on the planning software used.
- Refer to the sleeve-position implant-length matrix in the product specifications (see chapter 4.1) for consistency check.

2.2.4 Straumann® guided implants

Straumann® guided implants can be inserted fully guided through the Straumann® sleeves with an inner diameter of 5 mm. Thereby, the stop key engages with the transfer piece and is used for physical depth control.

The only difference between the guided and standard Straumann® implants is the transfer piece. The implant itself and the prosthetic components are identical.

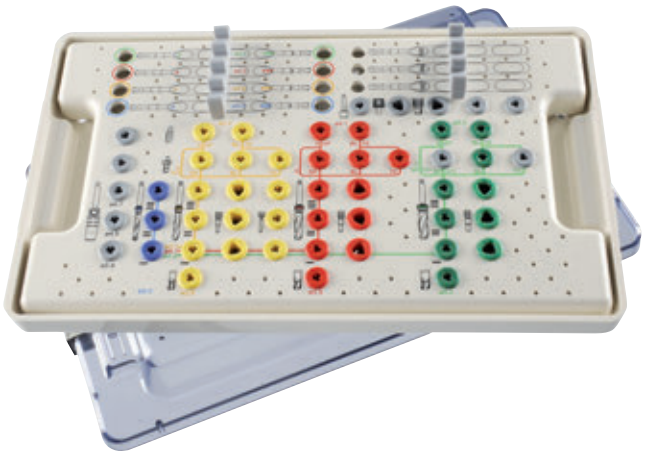
Note: Alternatively, a guided adapter could be used to place a standard Straumann implant through a Straumann sleeve with an inner diameter of 5 mm. For more information please refer to “Basic information on the Straumann® Guided Adapter” (Art. No. 490.165).



2.2.5 Straumann® Guided Surgery Cassette

The Straumann® Guided Surgery Cassette (see figure) is used for the secure storage and sterilization of the surgical instruments and auxiliary instruments of the Straumann® Dental Implant System (see chapter 5.2).

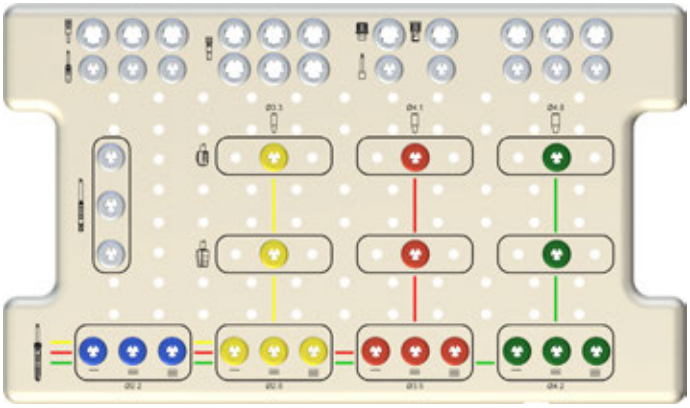
The color-coded sequences on the cassette help ensure a reliable working process during surgery. Clear illustrations allow for checking the arranged instruments for correctness and completeness at a glance. The instruments are positioned securely in the silicone grommets for sterilization and storage.



2.2.6 Straumann® Basic Guided Surgery Cassette (034.281)

The Straumann® Basic Guided Surgery Cassette has been designed to simplify the guided surgery procedure for clinicians working with one preferred Straumann implant line.

The cassette can hold all the necessary instruments for the basic and fine guided implant bed preparation as well as the required auxiliaries.



2.2.7 Precautions

- Guided instruments must only be used together with the corresponding sleeves fixed in templates and handles.
- Inspect the instruments for operational reliability prior to each surgery and replace if necessary.
- Cutting instruments must not rotate during insertion into and removal from sleeves or handles (see figure).
- Avoid lateral pressure on instruments which may lead to damage of the instruments, the cylinder of the handle and the sleeve. Hold the drill handle while drilling.
- During and after implant bed preparation, the patient's mouth must be thoroughly rinsed and aspirated.
- Pilot and twist drills have an apical overlength (up to 0.4 mm) at the drill tip compared to the insertion depth of the implant.
- Use intermittent drilling technique.
- Use handles only in combination with guided instruments, as indicated on the package labeling.
- Do not bend handles.
- Ensure ample cooling of cutting instruments with pre-cooled physiological sterile saline solution (NaCl) or Ringer's solution. This applies for instruments used with handles as well.
- Guided instruments must not be used in combination with drill sleeves with collar (049.810V4), thermoplastic drill templates (040.526 and 040.527) or drill stops (040.460, 040.454S-040.457S).

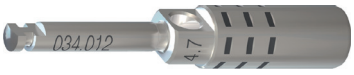
No rotation

Only start rotation when inserted

3. SURGICAL PROCEDURES

3.1 USE OF THE MUCOSA PUNCH

As an option, the mucosa punch can be used through the 5 mm sleeves before using the milling cutter. The following table lists the available mucosa punches with its specifications.

Art. No.	Article	Max rpm.	
034.010	Mucosa punch, ∅ 3.4 mm, guided	15	
034.011	Mucosa punch, ∅ 4.0 mm, guided	15	
034.012	Mucosa punch, ∅ 4.7 mm, guided	15	

The three depth marks indicate the distance from bone level to the upper border of the respective sleeve (H2, H4, H6).

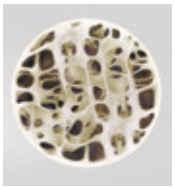
3.2 BASIC IMPLANT BED PREPARATION FOR REGULAR SITUATIONS (SUFFICIENT INTERDENTAL SPACE)

After opening the gingiva, position the surgical template. Verify the fit and stability of the surgical template before starting with the osteotomy preparation. Start the basic implant bed preparation with preparing the alveolar ridge (Step 1 below). After that, the implant bed preparation with pilot and twist drills follows (Steps 2–5 below) according to the endosteal implant diameter chosen in the preoperative planning.

Depending on the bone density* (soft/medium/hard) different drill protocols should be applied.

This provides the flexibility to adjust the implant bed preparation to the individual bone quality and anatomical situation.

Cross sectional view of different types of bone quality*

Type I	Type II / III	Type IV
Hard	Medium	Soft
Thick cortical bone with marrow cavity	Thin cortical bone with dense trabecular bone of good strength	Very thin cortical bone with low density trabecular bone of poor strength
		

** Lekholm U, Zarb G. Patient selection and preparation in Tissue Integrated Prostheses. Branemark P I, Zarb G A, Albrektsson T (eds). pp199–210. Quintessence, 1985.*

Step 1 – Prepare the alveolar ridge

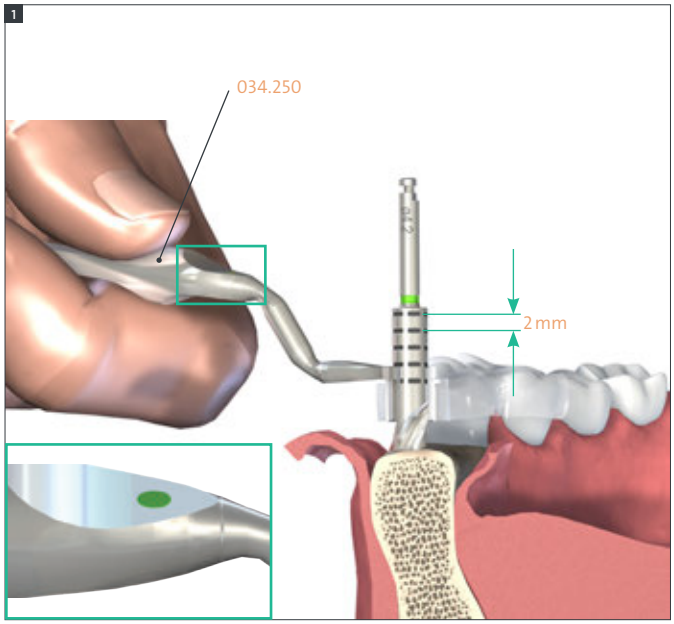
The correct milling cutter as indicated in the surgical protocol provides a flat bone surface and a sufficiently wide area of bone. In case of hard cortical bone conditions, milling cutters with increasing diameters can be used. The following table lists the milling cutter to be selected for the respective implant bed.

Art. No.	Article	Max rpm.		Endosteal implant diameter (mm)		
				Ø 3.3	Ø 4.1	Ø 4.8
034.215	Milling Cutter, Ø 2.8 mm, guided	600				
034.415	Milling Cutter, Ø 3.5 mm, guided	500				
034.615	Milling Cutter, Ø 4.2 mm, guided	400				

Note: Milling cutters have no physical stop.

Step 1a – Identify bone level

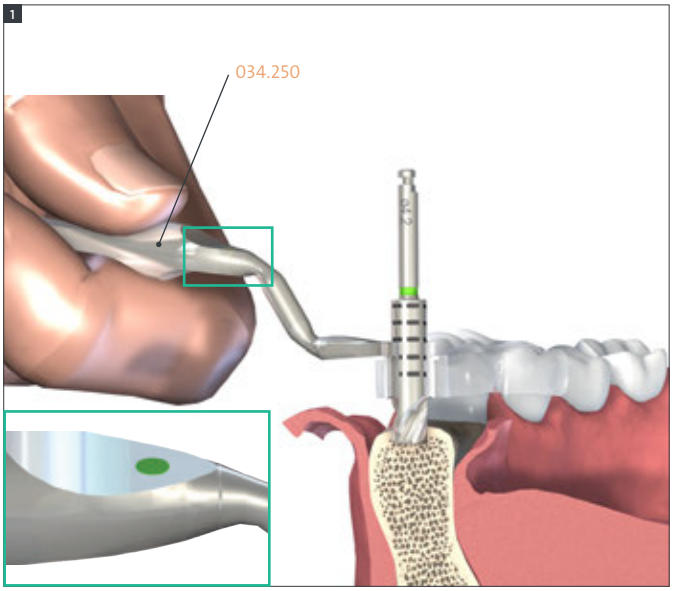
Choose the milling cutter and the corresponding drill handle* as indicated in the surgical protocol. Place the cylinder of the drill handle (recommended: +1 mm) into the sleeve in the surgical template. Insert the milling cutter into the cylinder until it hits bone level. Use the laser marks on the milling cutter for depth reference (2 mm intervals).



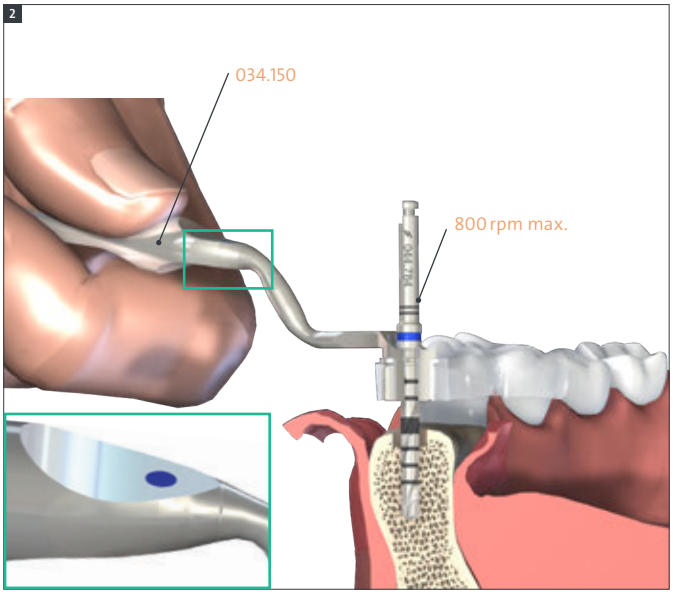
** The Drill Handle Ø 2.8 mm, and the corresponding Ø 2.8 mm Milling Cutter are shown as an example.*

Step 1b – Prepare the alveolar ridge
Prepare the alveolar ridge to the intended depth with the milling cutter. Use the laser marks on the milling cutter (2 mm intervals) as depth reference.

Note: Milling cutters must only be used for flattening the alveolar ridge.



Step 2 – Prepare implant bed to ∅ 2.2 mm
Pre-drill the implant bed with the ∅ 2.2 mm Pilot Twist Drill PRO for Guided Surgery using the corresponding drill handle for guidance. In the case of Bone Level Tapered implants, use the ∅ 2.2 mm guided BLT Drill. Always make sure to use the correct cylinder of the drill handle (+1 mm or +3 mm) and the respective drill length (short, medium and long) as indicated in the surgical protocol recommended by the software (see page 19).
In soft bone situation for a Bone Level Tapered implant with an endosteal diameter of ∅ 3.3 mm, basic implant bed preparation ends here. Either continue with the basic implant bed preparation of the remaining implant sites, or proceed with the fine implant bed preparation (see chapter 3.5).

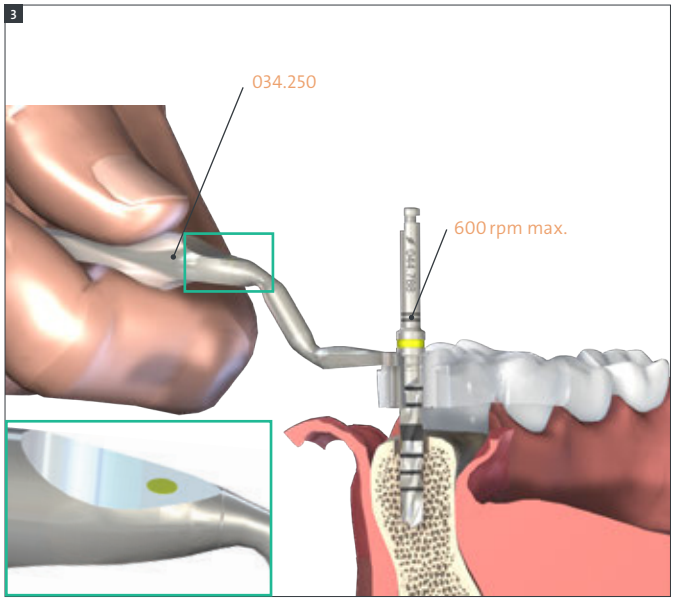


Caution: Start drilling only after inserting the drill into the cylinder of the drill handle completely.

Note: Always drill until the collar of the drill hits the cylinder of the drill handle in order to reach the required osteotomy depth. Conventional depth gauges can additionally be used to check the osteotomy depth.

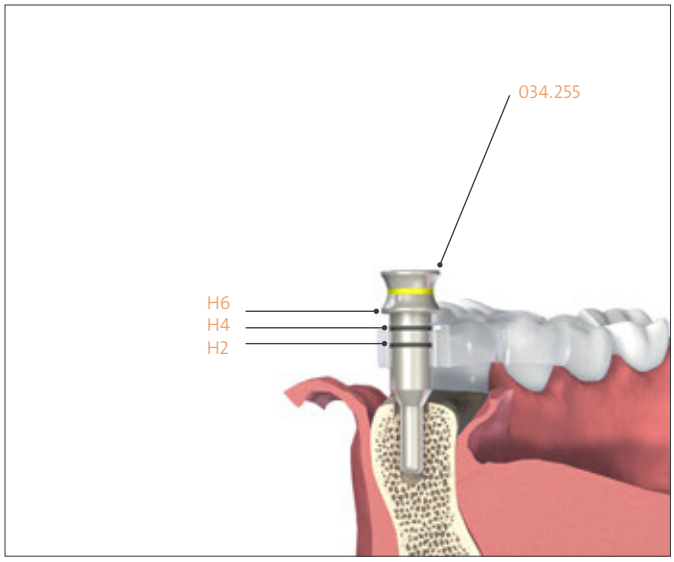
Step 3 – Widen implant bed to ∅ 2.8 mm
Continue with the basic implant bed preparation using the ∅ 2.8 mm Twist Drill PRO for Guided Surgery. In the case of Bone Level Tapered implants, use the ∅ 2.8 mm guided BLT Drill.

For an implant with an endosteal diameter of ∅ 3.3 mm, basic implant bed preparation ends here. In soft bone situation, Bone Level Tapered implant with an endosteal diameter of ∅ 4.1 mm, basic implant bed preparation ends here. Either continue with the basic implant bed preparation of the remaining implant sites, optionally using template fixation pins. Or proceed with the fine implant bed preparation (see chapter 3.5).



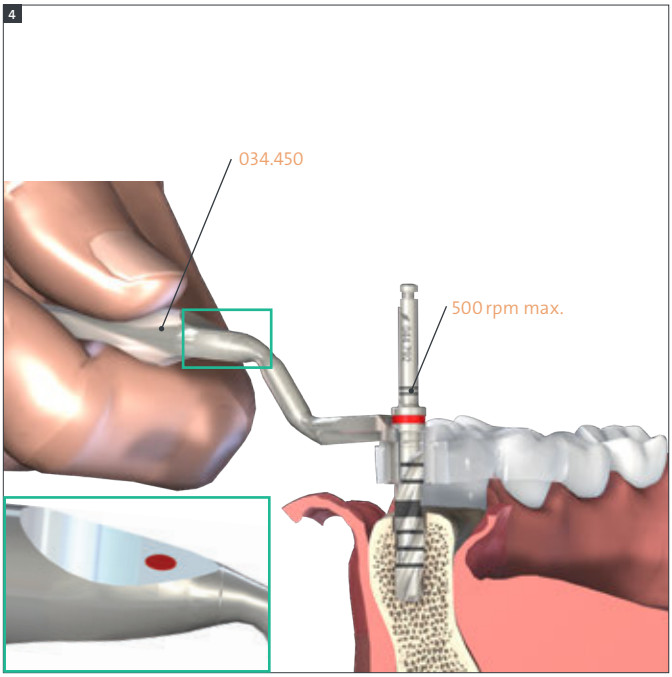
Option – Template fixation pins
Additional stabilization of the surgical template can be achieved by anchoring it with template fixation pins. Secure the pins against aspiration.

Caution: In case of flapless surgery, no force must be applied onto the surgical template fixation pins to avoid damage to the soft tissue.



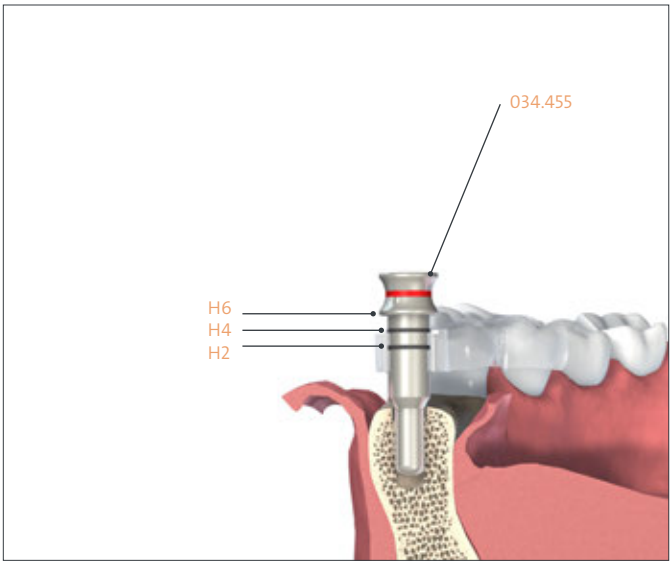
Step 4 – Widen implant bed to ∅ 3.5 mm
Continue with the ∅ 3.5 mm Twist Drill PRO for Guided Surgery. In the case of Bone Level Tapered implants, use the ∅ 3.5 mm guided BLT Drill.

For an implant with an endosteal diameter of ∅ 4.1 mm, basic implant bed preparation ends here. In soft bone situation, Bone Level Tapered implant with an endosteal diameter of ∅ 4.8 mm, basic implant bed preparation ends here. Either continue with the basic implant bed preparation of the remaining implant sites, optionally using template fixation pins. Or proceed with the fine implant bed preparation (see chapter 3.5).



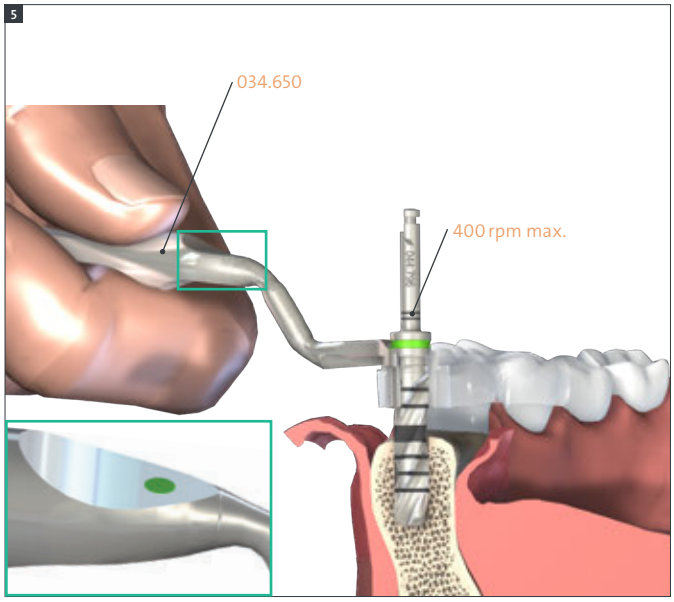
Option – Template fixation pins
Additional stabilization of the surgical template can be achieved by anchoring it with template fixation pins. Secure the pins against aspiration.

Caution: In case of flapless surgery, no force must be applied onto the surgical template fixation pins to avoid damage to the soft tissue.



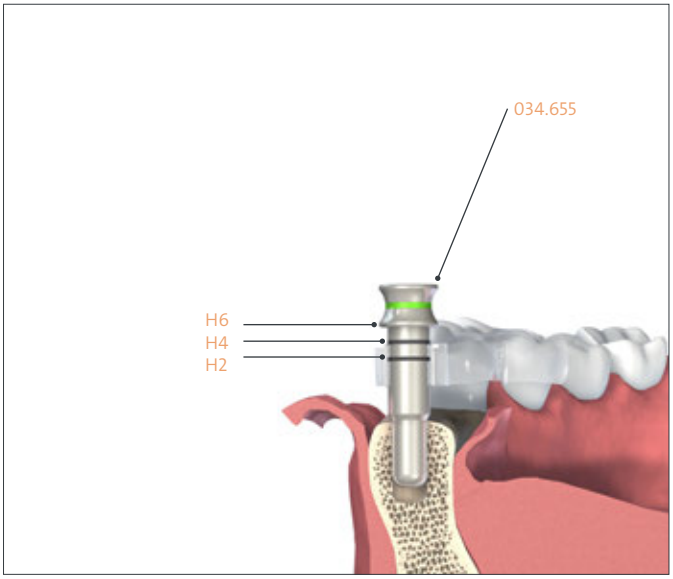
Step 5 – Widen implant bed to ∅4.2 mm
Finish basic implant bed preparation with the ∅4.2 mm Twist Drill PRO for Guided Surgery. In the case of Bone Level Tapered implants, use the ∅4.2 mm guided BLT Drill.

Either continue with the basic implant bed preparation of the remaining implant sites, optionally using template fixation pins. Or proceed with the fine implant bed preparation (see chapter 3.5).



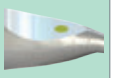
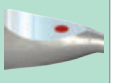
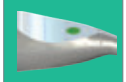
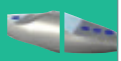
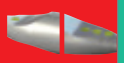
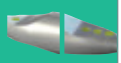
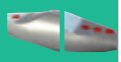
Option – Template fixation pins
Additional stabilization of the surgical template can be achieved by anchoring it with template fixation pins. Secure the pins against aspiration.

Caution: In case of flapless surgery, no force must be applied onto the surgical template fixation pins to avoid damage to the soft tissue.



The following table summarizes the instruments used for basic implant bed preparation according to endosteal implant diameter. All guided drills are available in short, medium and long.

Instrumentation for guided basic implant bed preparation

Steps		Max. rpm	Article	Endosteal implant diameter (mm)		
				Ø 3,3	Ø 4,1	Ø 4,8
		600	Milling Cutter, Ø 2.8 mm, guided			
		500	Milling Cutter, Ø 3.5 mm, guided			
Prepare ridge **1** ⬇		400	Milling Cutter, Ø 4.2 mm, guided			
Prepare implant bed to Ø 2.2 mm **2** ⬇	 *	800	Pilot Twist Drill PRO Ø 2.2 mm BLT Guided Pilot drill Ø 2.2 mm			
Widen implant bed to Ø 2.8 mm **3** ⬇	 *	600	Twist Drill PRO Ø 2.8 mm BLT Guided drill Ø 2.8 mm			
Widen implant bed to Ø 3.5 mm **4** ⬇	 *	500	Twist Drill PRO Ø 3.5 mm BLT Guided drill Ø 3.5 mm			
Widen implant bed to Ø 4.2 mm **5**	 *	400	Twist Drill PRO Ø 4.2 mm BLT Guided drill Ø 4.2 mm			

** available in short, medium and long*

3.3 BASIC IMPLANT BED PREPARATION FOR NARROW INTERDENTAL SPACES

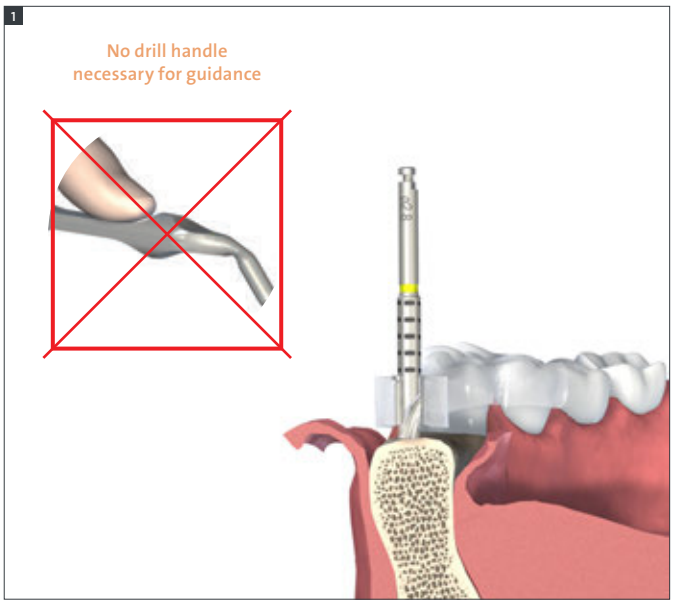
With ∅ 2.8 mm sleeves for narrow interdental spaces, no drill handles are required. After opening the gingiva and placing the surgical template, start the basic implant bed preparation by preparing the alveolar ridge using the Milling Cutter ∅ 2.8 mm (Step 1 below). Then, the implant bed is directly prepared with the Twist Drill PRO ∅ 2.8 mm (Step 2 below). In the case of Bone Level Tapered implants, use the ∅ 2.8 mm guided BLT Drill. No pilot drilling is required.

∅ 2.8 mm T-sleeve

Step 1 – Prepare the alveolar ridge
The Milling Cutter ∅ 2.8 mm provides a flat bone surface and a sufficiently wide area of bone.

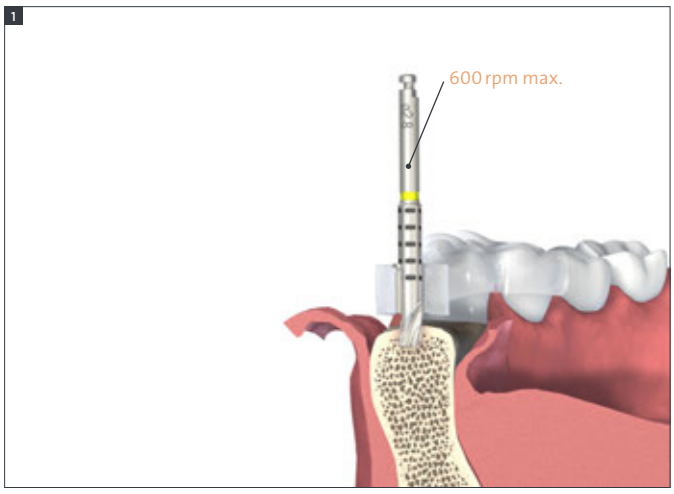
Step 1a – Identify bone level
Insert the ∅ 2.8 mm Milling Cutter into the sleeve in the surgical template until it hits bone level. Use the laser marks on the milling cutter as depth reference (2 mm intervals).

Notes for ∅ 2.8 mm sleeves
- No drill handle required.
- The height of the ∅ 2.8 mm sleeve is 6 mm.



Step 1b – Prepare the alveolar ridge
Prepare the alveolar ridge to the intended depth with the milling cutter. Use the laser marks on the milling cutter (2 mm intervals) as depth reference.

Note: Milling cutters must only be used for flattening the alveolar ridge.



Step 2 – Drill implant bed to ∅2.8 mm

Continue the implant bed preparation with the ∅2.8 mm Twist Drill PRO for Guided Surgery. In the case of Bone Level Tapered implants, use the ∅2.8 mm guided BLT Drill.

The guided basic implant bed preparation for narrow interdental spaces ends here. Either continue with the guided basic implant bed preparation of the remaining implant sites, optionally using template fixation pins. Or remove the surgical template and follow the conventional procedure for widening the implant bed (if necessary), for the fine implant bed preparation and the implant placement of the current implant site. The conventional procedure without surgical template is described in the brochures *Straumann® Dental Implant System: Basic Information on the Surgical Procedures* (702084/en) and *Basic information on the surgical procedures for the Straumann® Bone Level Tapered Implant* (702167/en).

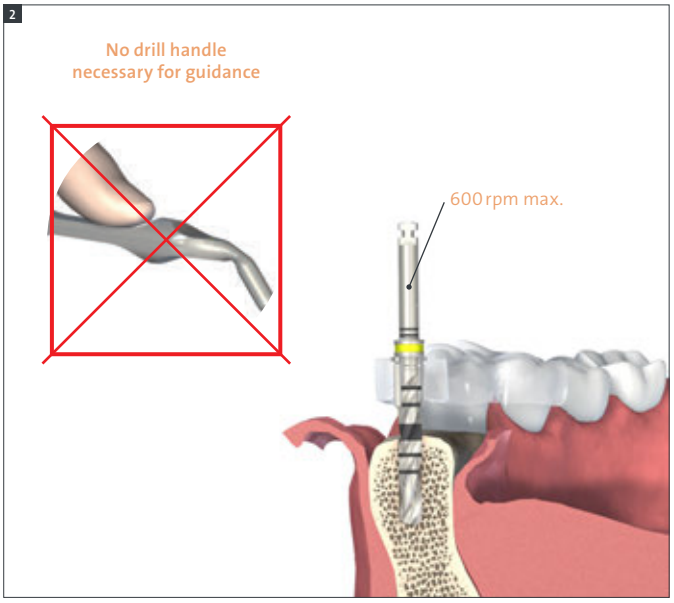
Notes for ∅2.8 mm sleeves

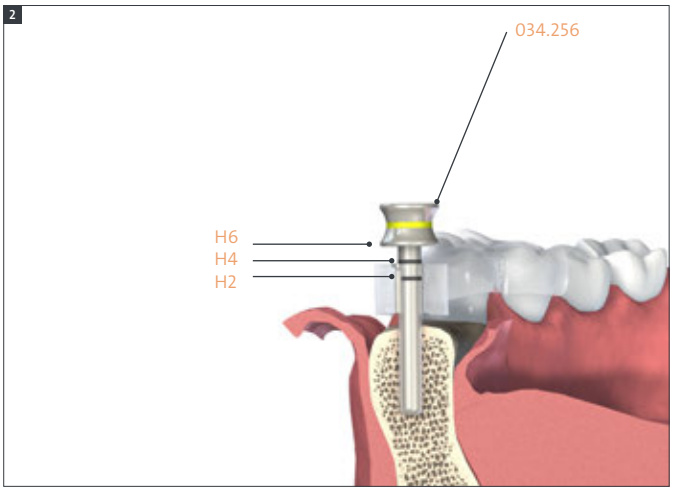
- Always drill until the collar of the drill hits the sleeve in order to reach the required osteotomy depth.
- Fine implant bed preparation cannot be executed with guided instruments. Make sure to have the instruments for conventional procedures ready for use.

Note: When using ∅2.8 mm drill as the first drill, make sure to use intermittent drilling technique and proper instrument irrigation to avoid overheating the bone.

Option – Template fixation pins

Additional stabilization of the surgical template can be achieved by anchoring the surgical template with template fixation pins. Secure the pins against aspiration.





3.4 BASIC IMPLANT BED PREPARATION FOR GUIDED PILOT DRILLING

With ∅ 2.2 mm sleeves for guided pilot drilling, the surgical template is only used for guiding the pilot drill. No drill handles are required. After opening the gingiva, start the basic implant bed preparation by preparing the alveolar ridge with conventional procedure. (Step 1 below). Then the surgical template is placed and the implant bed is directly prepared with the Pilot Twist Drill PRO ∅ 2.2 mm (Step 2 below).

Step 1 – Prepare the alveolar ridge
Carefully reduce and smooth a narrow tapering ridge with a large round bur. This will provide a flat bone surface and a sufficiently wide area of bone.

Step 2 – Drill implant bed to ∅ 2.2 mm
Continue the implant bed preparation with the ∅ 2.2 mm Pilot Twist Drill PRO for Guided Surgery.

Notes for ∅ 2.2 mm sleeves
- No drill handle required.
- The height of the ∅ 2.2 mm sleeve is 6 mm.

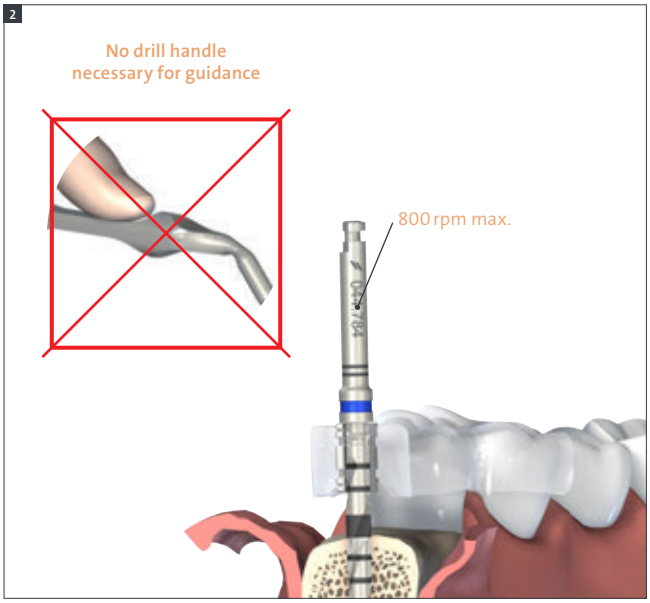
The basic implant bed preparation for guided pilot drilling ends here. Either continue with the guided basic implant bed preparation of the remaining implant sites. Or remove the surgical template and follow the conventional procedure for widening the implant bed, fine implant bed preparation and the implant placement of the current implant site.

The conventional procedure without surgical template is described in the brochures *Straumann® Dental Implant System: Basic Information on the Surgical Procedures* (702084/en) and *Basic information on the surgical procedures for the Straumann® Bone Level Tapered Implant* (702167/en).

Notes for ∅ 2.2 mm sleeves
- Always drill until the collar of the drill hits the sleeve in order to reach the required osteotomy depth.
- Fine implant bed preparation cannot be executed with guided instruments. Make sure to have the instruments for conventional procedures ready for use.

1

2



3.5 FINE IMPLANT BED PREPARATION

Fine implant bed preparation encompasses profile drilling and subsequent tapping. The procedure depends on implant type, endosteal implant diameter, and bone class.

Caution

- Fine implant bed preparation (profile drilling and tapping) is not possible through ∅ 2.2 mm and ∅ 2.8 mm sleeves. Also instruments for guided profile drilling for WN implants are currently not available. Remove the surgical template instead and follow the conventional procedure without surgical template described in the brochures *Straumann® Dental Implant System: Basic Information on the Surgical Procedures* (702084/en) and *Basic information on the surgical procedures for the Straumann® Bone Level Tapered Implant* (702167/en).
- Make sure to have the instruments for conventional procedures ready for use.

The surgical protocol lists the necessary instruments for fine implant bed preparation.

3.5.1 Profile drilling for regular situations

Profile drilling prepares the implant bed for the shape of a specific Straumann® implant. Straumann® Standard Plus and Bone Level implants require profile drilling, independent of bone class. For Straumann® Bone Level Tapered implants, profiling drill is recommended only in dense cortex situation.

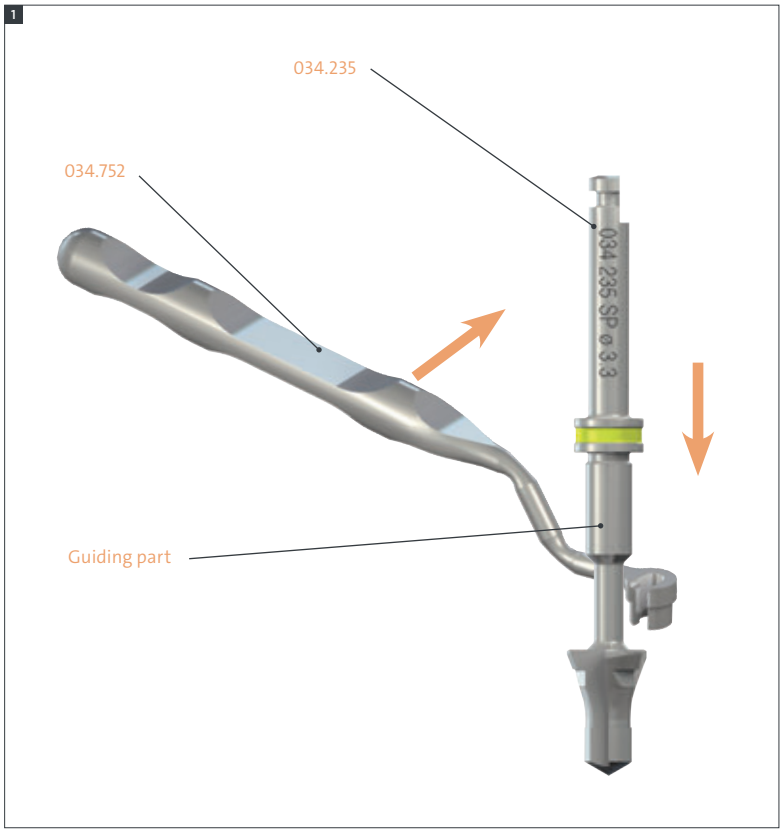
Note: Due to the neck portion,

- Straumann® Standard implants and
- Straumann® Standard Plus RN implants, ∅ 4.8 mm, are inserted without prior profile drilling.

Step 1 – Insert the guided profile drill into the C-handle

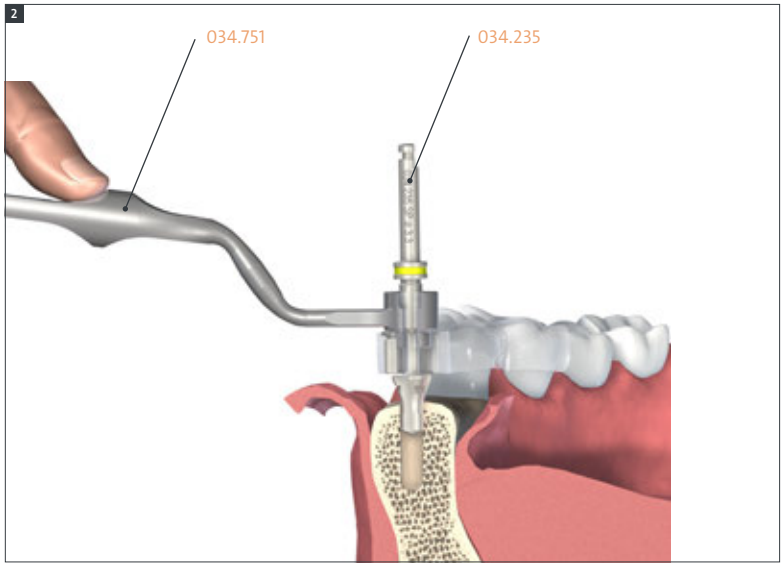
Insert the guided profile drill sidewise into the cylinder of the C-handle. Engage the guiding part by pushing the inserted guided profile drill downwards.

1



Step 2 – Place the instruments

Insert the assembly of C-handle and guided profile drill into the sleeve ∅ 5 mm fixed to the surgical template.



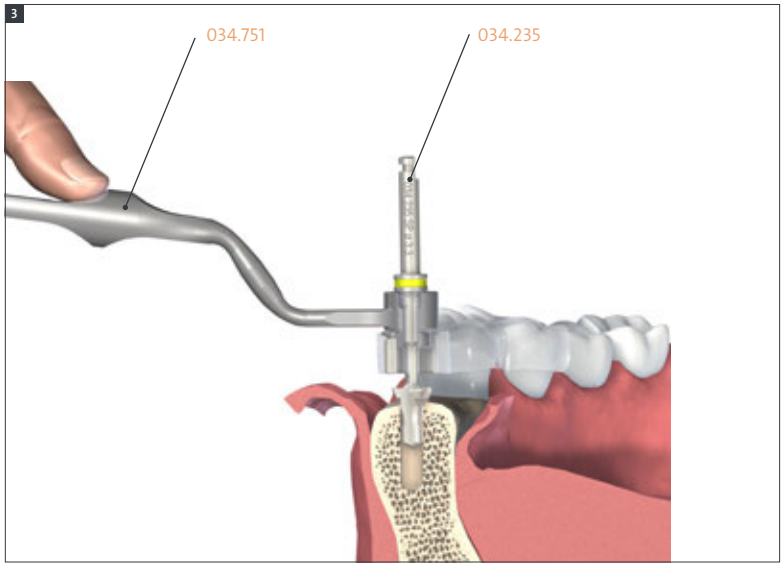
Step 3 – Profile drilling

Shape the coronal part of the implant bed with the corresponding guided profile drill. The maximum recommended rpm for SP profile drills is 400 rpm and 300 rpm for BL/NNC, BLT and TE profile drills.

Note: Always drill until the collar of the guided profile drill hits the cylinder of the C-handle in order to reach the required depth.

Important:

- Do not use SP Profile drills with Standard Plus implants ∅ 3.3 mm, NNC, or with Standard Plus implants ∅ 4.8 mm, RN.
- For SP ∅ 3.3 mm NNC implants, use the 026.2510 BL/TE/NNC Tap for handpiece, guided, for preparing the implant bed for NNC implants.



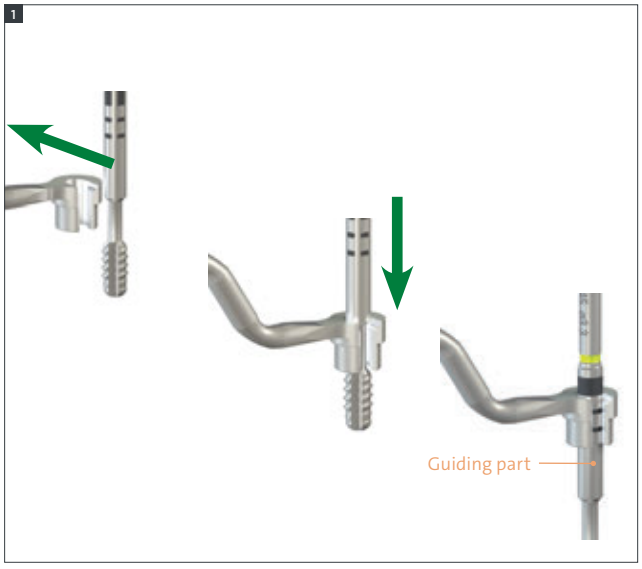
3.5.2 Tapping for regular situations

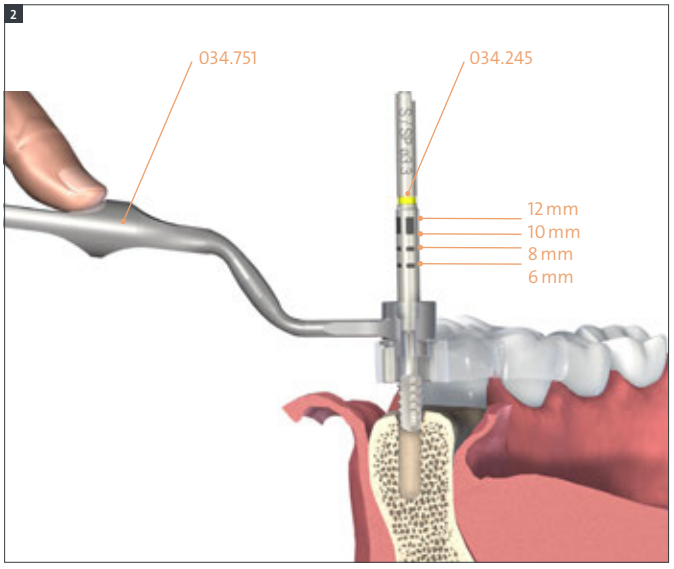
Tapping prepares the implant bed for a specific thread type. This optional step gives the surgeon the flexibility to adjust the surgical protocol to bone class to achieve optimal primary implant stability. It is recommended in dense bone to keep the insertion torque for the implant in an acceptable range.

Note: With Straumann® guided instruments increased insertion torques can appear due to precise osteotomy preparation.

Step 1 and 2 – Insert the guided tap into the C-handle and place the instrument

Insert the guided tap sideways into the cylinder of the C-handle and engage the guiding part by pushing it downwards (see chapter 3.4.1). Place the assembly of C-handle and guided tap into the sleeve (∅ 5 mm) fixed to the surgical template.



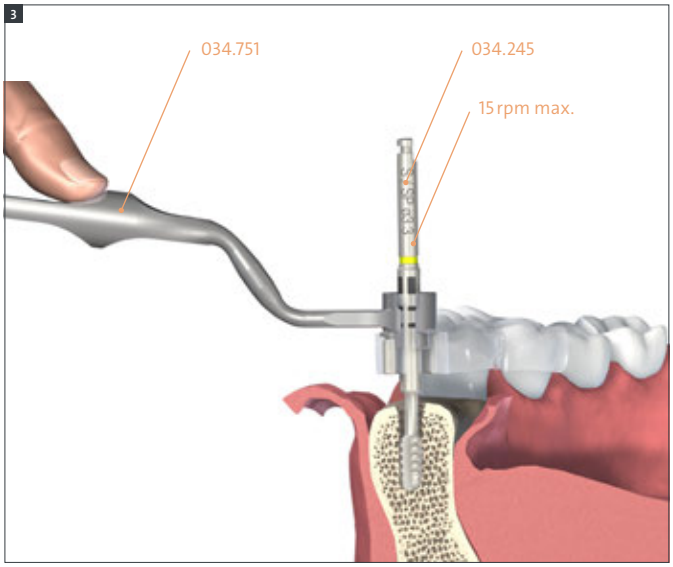


Note: BL/TE/NNC Tap has an additional marking at 4 mm for Straumann® Standard Plus Short Implant (SPS).

Step 3 – Tapping the thread

Pre-tap the implant bed according to bone class and endosteal diameter. Use the laser marks on the guided taps as depth reference (2 mm intervals).

Caution: Do not apply torque greater than 60 Ncm. Torque values above 60 Ncm can result in damage to the tap.



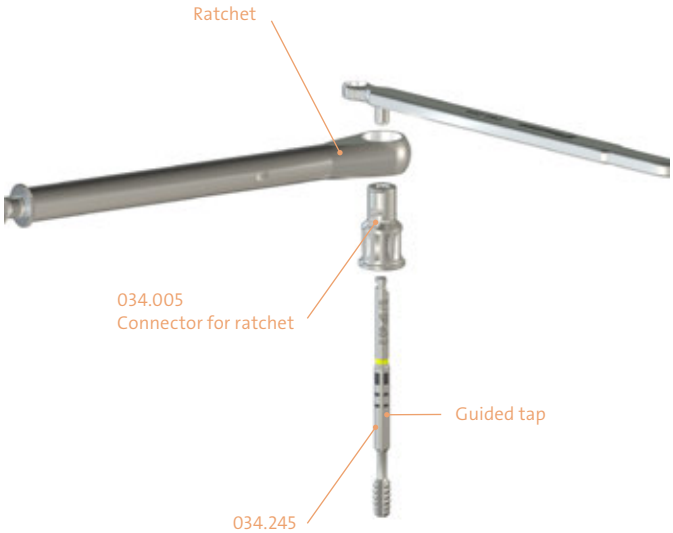
Straumann® guided taps can be used in two different ways: The guided taps are coupled either to the handpiece directly or to the ratchet using the connector for ratchet (see figures below).

Tapping with handpiece

Connect the guided tap to the handpiece.

Tapping with ratchet

For tapping with the ratchet use the connector for ratchet. The thread is tapped with slow rotating movements.



3.6 GUIDED IMPLANT PLACEMENT

To reach maximum precision, it is recommended to use the Straumann® guided implants in combination with guided surgery procedures. Guided implant placement encompasses guided implant insertion through the Straumann® 5 mm sleeves and visual or physical depth control, latter with the stop key.

As an alternative it is also possible to remove the surgical template and place the implant following the conventional procedure without surgical template described in the brochures *Straumann® Dental Implant System: Basic Information on the Surgical Procedures* (702084/en) and *Basic information on the surgical procedures for the Straumann® Bone Level Tapered Implant* (702167/en).

The following chapters describe the placement of a Straumann® Guided Implant through the surgical template.

3.6.1 Opening the implant package

Note: Guided implant insertion is only possible through Straumann sleeves with an inner diameter of 5 mm.

Opening of the implant packaging follows the same steps as for the non-guided implants. Therefore, please consult the brochure *Straumann® Dental Implant System: Basic Information on the Surgical Procedures* (702084/en).

3.6.2 Placing the implant

A Straumann® implant can be placed either manually with the ratchet or with the aid of the handpiece.

The following step-by-step instruction shows how a Straumann® Guided Standard Plus Implant is placed with the handpiece (left column on the following pages) and how a Straumann® Guided Bone Level Implant is placed with the ratchet (right column).

Note: When using the physical depth control with the stop key, make sure not to apply too much torque when reaching the depth stop. A too high torque can lead to damages to the implant bed.

- Straumann® Bone Level implants must be rotationally oriented for both hand-piece and ratchet insertion.
- Make sure that the surgical template fits firmly in the patient's mouth before starting guided implant insertion.

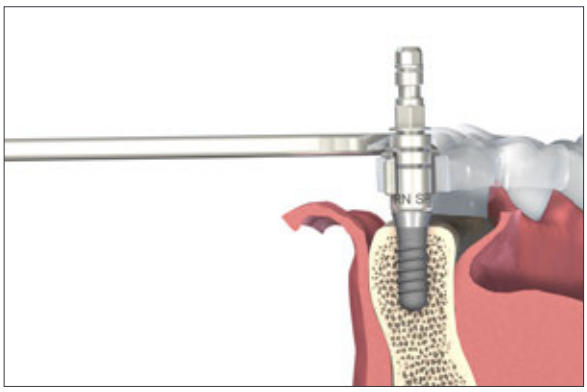
Placement with the handpiece
Example: Straumann® Guided Standard Plus Implant

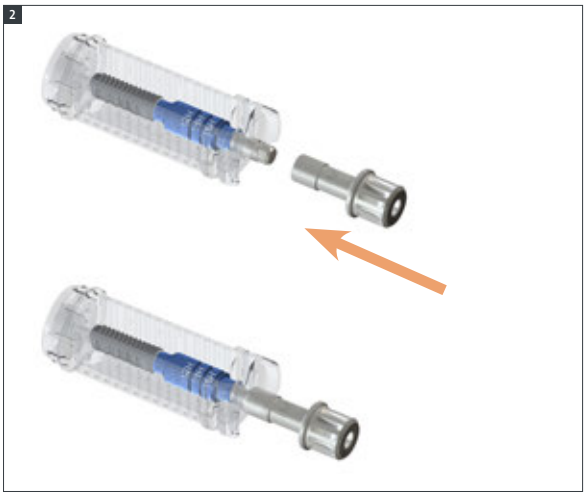
Step 1 – Find the relevant information for depth control in the surgical protocol

The guided implant transfer piece have depth marks for the sleeve heights H2, H4 and H6, respectively. Before implant placement, consult the surgical protocol and confirm the sleeve height for the corresponding implant site.

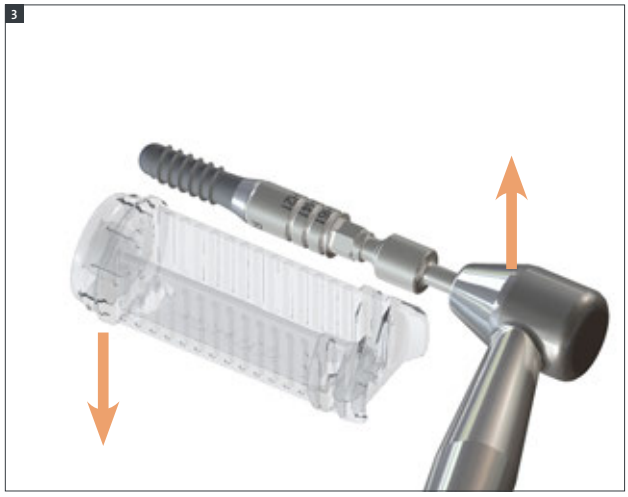
Step 2 – Attach the handpiece adapter
Grasp the closed part of the implant carrier. Attach the handpiece adapter to the implant. A click is heard when the handpiece adapter is attached correctly.

Placement with the ratchet
Example: Straumann® Guided Bone Level Implant

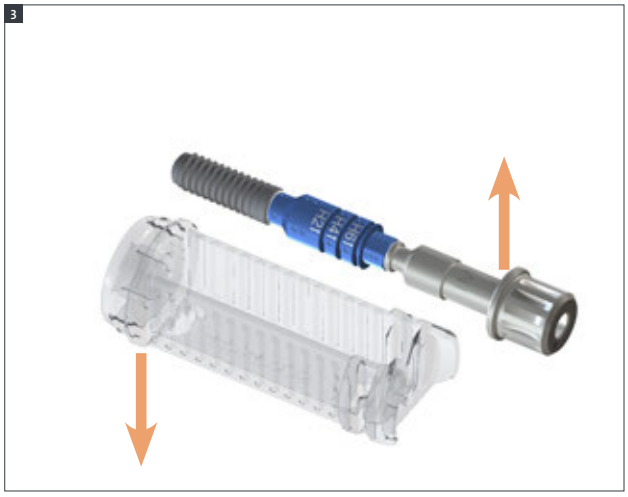




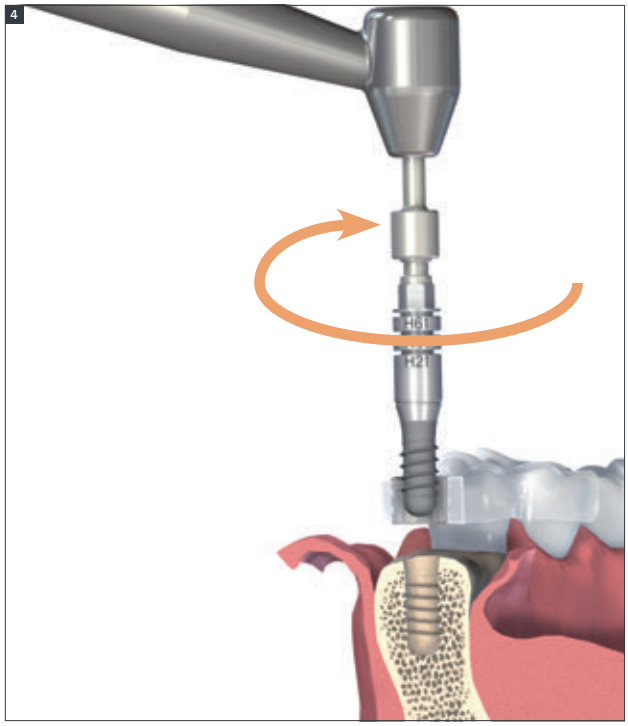
Step 2 – Attach the ratchet adapter
Hold the implant carrier at the closed end and push the ratchet adapter onto the transfer part until you hear a click.



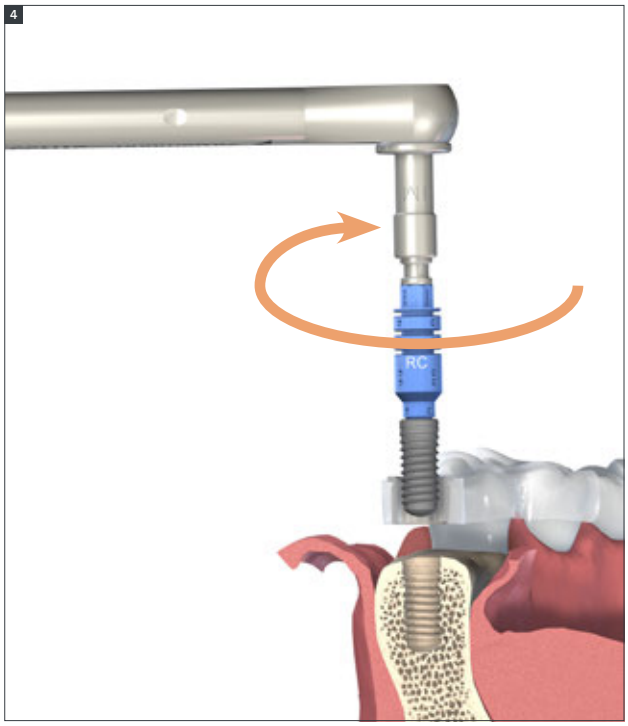
Step 3 – Remove the implant from the carrier
Simultaneously, pull down the implant carrier and lift the implant out of the implant carrier (while supporting your arms).



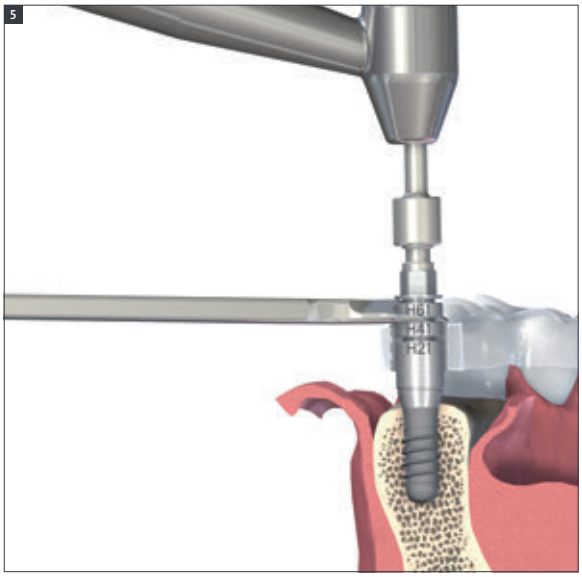
Step 3 – Remove the implant from the carrier
Pull the implant carrier slightly downward to remove the implant from the implant carrier. At the same time, lift the implant from the carrier with a slight twisting movement (prop your hands while doing this).



Step 4 – Place the implant
Place the implant with the handpiece into the respective sleeve of the surgical template. Align the cylindrical part of the guided implant transfer mount with the axis of the sleeve.



Step 4 – Place the implant
Place the implant with the adapter into the respective sleeve of the surgical template. Align the cylindrical part of the guided implant transfer mount with the axis of the sleeve.



Step 5 – Insert the implant with the handpiece and the stop key
Attach the stop key at the correct height to the guided implant. Insert the implant with a maximum of 15 rpm, turning it clockwise. The final implant position is indicated by the physical stop provided by the stop key.

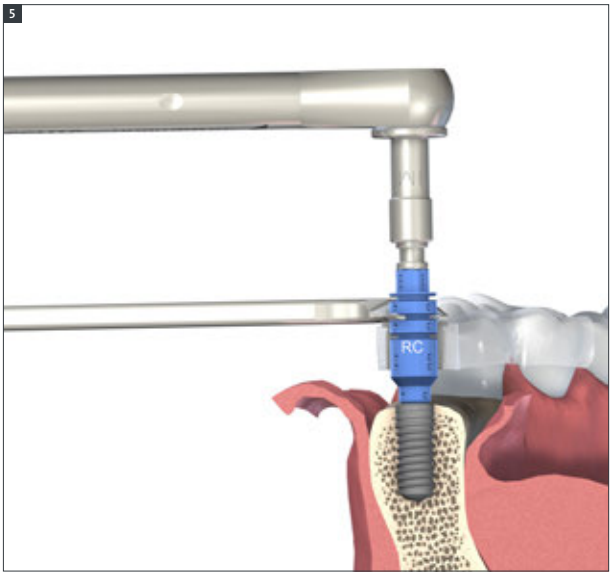
When using the physical depth control with the stop key, make sure not to apply too much torque when reaching the depth stop. A too high torque can lead to damages to the implant bed.

As an alternative, the implant can be inserted without the stop key by means of a visual depth control.

Caution: Avoid corrections of the vertical position using reverse rotations (counterclockwise). This can cause loosening of the transfer part and may lead to a decrease in primary stability.

Please make sure to use the stop key with the flat side pointing towards the sleeve.

Note: Insertion torque with the guided implants may exceed 35 Ncm.



Step 5 – Insert the implant with the ratchet and the stop key
Attach the stop key at the correct height to the guided implant.

The clockwise arrow on the rotary knob signals the direction of insertion (see insert). Insert the implant with slow movements of the ratchet. The final implant position is indicated by the physical stop provided by the stop key.

When using the physical depth control with the stop key, make sure not to apply too much torque when reaching the depth stop. A too high torque can lead to damages of the implant bed.

As an alternative, the implant can be inserted without the stop key by means of a visual depth control.

Caution: Avoid corrections of the vertical position using reverse rotations (counterclockwise). This can cause loosening of the transfer part and may lead to a decrease in primary stability.

Please make sure to use the stop key with the flat side pointing towards the sleeve.

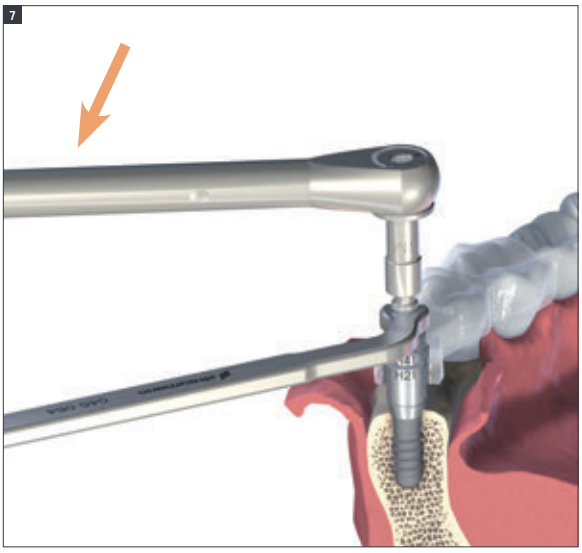
Note: Insertion torque with the guided implants may exceed 35 Ncm.

Step 6 – Correct implant orientation (only needed for Bone Level implants, not needed for S/SP/TE)

While approaching the final implant position, make sure that one of the four laser markings on the transfer part is exactly oriented orofacially. This positions the four protrusions of the internal connection for ideal prosthetic abutment orientation. A quarter turn to the next mark corresponds to a vertical displacement of 0.2 mm.

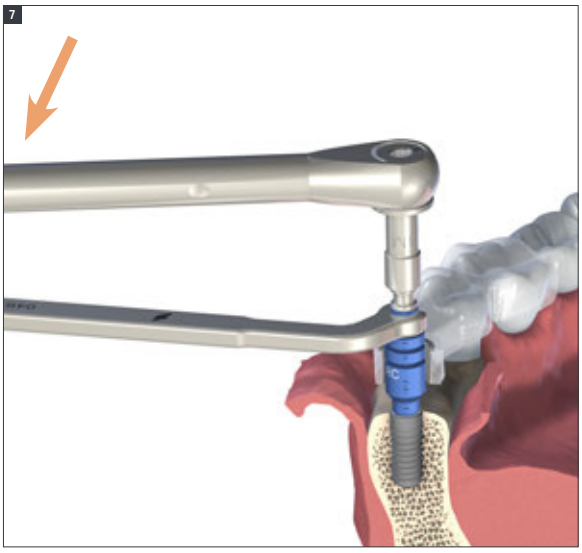
6

7



Step 7 – Loosen the transfer part
Before removing the transfer part, set the motor on the handpiece to "reverse". During the first few turns, hold the implant with the holding key which is used for stabilizing (countering) the hexagon.

7



Step 7 – Loosen the transfer part
Change the direction of the ratchet. The arrow on the rotary knob now points counterclockwise (see insert). Use the holding key to counter the octagon and loosen the transfer part counterclockwise using the ratchet.

3.7 SOFT TISSUE MANAGEMENT

Soft tissue management (and implant closure) follow the conventional procedures described in the brochures *Straumann® Dental Implant System: Basic Information on the Surgical Procedures* (702084/en) and *Basic information on the surgical procedures for the Straumann® Bone Level Tapered Implant* (702167/en).

4. PRODUCT SPECIFICATIONS

4.1 SLEEVE-POSITION IMPLANT-LENGTH MATRIX

The planning software calculates the surgical protocol based on the virtual planning of implant placement and choice of sleeve types and positions. The surgical protocol recommends which cylinder of the drill handle (+1 mm or +3 mm) and which drill length (short, medium, long) are required for preparing the osteotomy for each specific implant.

4.1.1 Sleeve-position implant-length matrix for ∅ 5 mm sleeves in the surgical template

Implant length		4 mm	6 mm	8 mm	10 mm	12 mm	14 mm	16 mm
Sleeve position	**H2** 2 mm		short drill +3 mm drill handle	short drill +1 mm drill handle	medium drill +3 mm drill handle	medium drill +1 mm drill handle	long drill +3 mm drill handle	long drill +1 mm drill handle
	H4 4 mm	short drill +3 mm drill handle	short drill +1 mm drill handle	medium drill +3 mm drill handle	medium drill +1 mm drill handle	long drill +3 mm drill handle	long drill +1 mm drill handle	
	H6 6 mm	short drill +1 mm drill handle	medium drill +3 mm drill handle	medium drill +1 mm drill handle	long drill +3 mm drill handle	long drill +1 mm drill handle		

Example: The implant bed is to be prepared for a 10 mm implant with a sleeve fixed to the surgical template positioned at 4 mm above bone level (H4). Accordingly, the *medium drill* and the *+1 mm cylinder of the drill handle* must be used in order to achieve the required implant bed depth.

4.1.2 Sleeve-position implant-length matrix for ∅ 2.2 mm sleeves (pilot drill guided) and ∅ 2.8 mm sleeves (narrow interdental spaces) in the surgical template

While using ∅ 2.2 mm and ∅ 2.8 mm sleeves, no drill handle is required.

Implant length		6 mm	8 mm	10 mm	12 mm	14 mm	16 mm
Sleeve position	**H2** 2 mm		short drill no drill handle		medium drill no drill handle		long drill no drill handle
	H4 4 mm	short drill no drill handle		medium drill no drill handle		long drill no drill handle	
	H6 6 mm		medium drill no drill handle		long drill no drill handle		

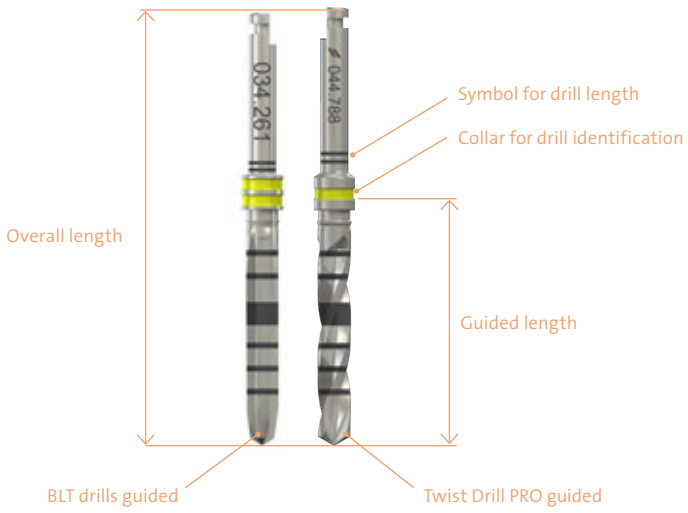
Example: The implant bed is to be prepared for an 8 mm implant with a sleeve fixed to the surgical template positioned at 2 mm above bone level (H2). Accordingly, the ***short drill*** must be used in order to achieve the required implant bed depth.

4.2 STRAUMANN® GUIDED DRILL DESIGN

Straumann® guided instruments have depth marks in 2 mm intervals that correspond to the available implant lengths. Compared to the Straumann® conventional instruments, Straumann® guided drills are color-coded according to the instrument diameter and denoted according to the drill overall length on the shaft part (see figures below).

Drill name	Guided length	Overall length	Symbol for drill length
Short	16 mm	32 mm	▬
Medium	20 mm	36 mm	〓
Long	24 mm	40 mm	☰

Caution: Guided instruments must not be used without the indicated sleeves fixed to the surgical template in order to ensure guidance.



4.3 COLOR-CODING AND LABELING OF STRAUMANN® CUTTING INSTRUMENTS FOR GUIDED SURGERY

Color-coding guided instruments

Color sequence		Instrument diameter	Endosteal implant diameter
●	blue	Ø 2.2 mm	Pilot drill
●	yellow	Ø 2.8 mm	Ø 3.3 mm
●	red	Ø 3.5 mm	Ø 4.1 mm
●	green	Ø 4.2 mm	Ø 4.8 mm

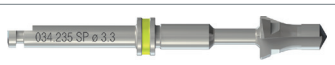
Overview instruments for guided basic implant bed preparation

Art. No.	Article	Name	Symbol	Overall length	Guided length	Max rpm.	
034.215	Milling Cutter, Ø 2.8 mm					600	
034.415	Milling Cutter, Ø 3.5 mm					500	
034.615	Milling Cutter, Ø 4.2 mm					400	
044.783*	Pilot Twist Drill PRO, Ø 2.2 mm	short	—	32 mm	16 mm	800	
034.123**	Pilot Drill, guided, Ø 2.2 mm						
044.784*	Pilot Twist Drill PRO, Ø 2.2 mm	medium	=	36 mm	20 mm	800	
034.126**	Pilot Drill, guided, Ø 2.2 mm						
044.785*	Pilot Twist Drill PRO, Ø 2.2 mm	long	≡	40 mm	24 mm	800	
034.129**	Pilot Drill, guided, Ø 2.2 mm						
044.787*	Twist Drill PRO, Ø 2.8 mm	short	—	32 mm	16 mm	600	
034.223**	Twist Drill PRO, guided, Ø 2.8 mm						
044.788*	Twist Drill PRO, Ø 2.8 mm	medium	=	36 mm	20 mm	600	
034.226**	Twist Drill PRO, guided, Ø 2.8 mm						
044.789*	Twist Drill PRO, Ø 2.8 mm	long	≡	40 mm	24 mm	600	
034.229**	Twist Drill PRO, guided, Ø 2.8 mm						
044.791*	Twist Drill PRO, Ø 3.5 mm	short	—	32 mm	16 mm	500	
034.423**	Twist Drill PRO, guided, Ø 3.5 mm						
044.792*	Twist Drill PRO, Ø 3.5 mm	medium	=	36 mm	20 mm	500	
034.426**	Twist Drill PRO, guided, Ø 3.5 mm						
044.793*	Twist Drill PRO, Ø 3.5 mm	long	≡	40 mm	24 mm	500	
034.429**	Twist Drill PRO, guided, Ø 3.5 mm						
044.795*	Twist Drill PRO, Ø 4.2 mm	short	—	32 mm	16 mm	400	
034.623**	Twist Drill PRO, guided, Ø 4.2 mm						
044.796*	Twist Drill PRO, Ø 4.2 mm	medium	=	36 mm	20 mm	400	
034.626**	Twist Drill PRO, guided, Ø 4.2 mm						
044.797*	Twist Drill PRO, Ø 4.2 mm	long	≡	40 mm	24 mm	400	
034.629**	Twist Drill PRO, guided, Ø 4.2 mm						

** Not all products are available in all countries.*
*** This article will be replaced with above article.*

Overview instruments for guided basic implant bed preparation							
Art. No.	**Article**	**Name**	**Symbol**	**Overall length**	**Guided length**	**Max rpm.**	
034.257	BLT Pilot Drill, ∅ 2.2 mm	short	▬	33.4 mm	16 mm	800	
034.258	BLT Pilot Drill, ∅ 2.2 mm	medium	〓	37.4 mm	20 mm	800	
034.259	BLT Pilot Drill, ∅ 2.2 mm	long	☰	41.4 mm	24 mm	800	
034.260	BLT Drill,∅ 2.8 mm	short	▬	33.4 mm	16 mm	600	
034.261	BLT Drill, ∅ 2.8 mm	medium	〓	37.4 mm	20 mm	600	
034.262	BLT Drill, ∅ 2.8 mm	long	☰	41.4 mm	24 mm	600	
034.263	BLT Drill, ∅ 3.5 mm	short	▬	33.4 mm	16 mm	500	
034.264	BLT Drill, ∅ 3.5 mm	medium	〓	37.4 mm	20 mm	500	
034.265	BLT Drill, ∅ 3.5 mm	long	☰	41.4 mm	24 mm	500	
034.266	BLT Drill, ∅ 4.2 mm	short	▬	33.4 mm	16 mm	400	
034.267	BLT Drill, ∅ 4.2 mm	medium	〓	37.4 mm	20 mm	400	
034.268	BLT Drill, ∅ 4.2 mm	long	☰	41.4 mm	24 mm	400	

Overview instruments for guided fine implant bed preparation

Art. No.	Article	Max. rpm	
034.235	SP Profile Drill, ∅ 3.3 mm, RN, guided	400	
034.435	SP Profile Drill, ∅ 4.1 mm, RN, guided		
034.245	S/SP Tap for Handpiece, ∅ 3.3 mm, guided	15	
034.445	S/SP Tap for Handpiece, ∅ 4.1 mm, guided		
034.645	S/SP Tap for Handpiece, ∅ 4.8 mm, guided		
034.237	TE Profile Drill, ∅ 3.3 mm, RN, guided	300	
034.437	TE Profile Drill, ∅ 4.1 mm, RN, guided		
026.2503	BL/NNC Profile Drill, ∅ 3.3 mm, guided		
026.4503	BL Profile Drill, ∅ 4.1 mm, guided		
026.6503	BL Profile Drill, ∅ 4.8 mm, guided		
026.2510	BL/TE/NNC Tap for Handpiece, ∅ 3.3 mm, guided	15	
026.4510	BL/TE Tap for Handpiece, ∅ 4.1 mm, guided		
026.6510	BL/TE Tap for Handpiece, ∅ 4.8 mm, guided		
034.269	BLT Profile Drill ∅ 3.3 mm, guided	300	
034.270	BLT Profile Drill ∅ 4.1 mm, guided		
034.271	BLT Profile Drill ∅ 4.8 mm, guided		
034.272	BLT Tap, ∅ 3.3 mm, guided	15	
034.273	BLT Tap, ∅ 4.1 mm, guided		
034.274	BLT Tap, ∅ 4.8 mm, guided		

Important

- For SP ∅ 3.3 mm NNC implants, use the 026.2503 BL/NNC Profile drill, guided, and 026.2510 BL/TE/NNC Tap for handpiece, guided, for preparing the implant bed for NNC implants.

4.4 OVERVIEW OF GUIDED IMPLANTS

Tissue Level Implants

Product	Platform		Material	Length	Art. no.
SLActive®, guided					
Standard Plus Ø 3.3	RN - Regular Neck Ø 4.8 mm		Roxolid®	8 mm 10 mm 12 mm	033.451G 033.452G 033.453G
Standard Ø 3.3				8 mm 10 mm 12 mm	033.431G 033.432G 033.433G
Standard Plus Ø 4.1	RN - Regular Neck Ø 4.8 mm		Roxolid®	8 mm 10 mm 12 mm	033.561G 033.562G 033.563G
Standard Ø 4.1				8 mm 10 mm 12 mm	033.531G 033.532G 033.533G
Tapered Effect Ø 4.1				8 mm 10 mm 12 mm	033.571G 033.572G 033.573G
Standard Plus Ø 4.8	RN - Regular Neck Ø 4.8 mm		Roxolid®	8 mm 10 mm 12 mm	033.591G 033.592G 033.593G

Bone Level Implants

Product	Platform		Material	Length	Art. no.
SLActive®, guided					
Bone Level Ø 3.3	NC - Narrow CrossFit®		Roxolid®	8 mm 10 mm 12 mm	021.2208G 021.2210G 021.2212G
Bone Level Tapered Ø 3.3				8 mm 10 mm 12 mm	021.3308G 021.3310G 021.3312G
Bone Level Ø 4.1	RC - Regular CrossFit®		Roxolid®	8 mm 10 mm 12 mm	021.4308G 021.4310G 021.4312G
Bone Level Tapered Ø 4.1				8 mm 10 mm 12 mm	021.5308G 021.5310G 021.5312G
Bone Level Ø 4.8	RC - Regular CrossFit®		Roxolid®	8 mm 10 mm 12 mm	021.6308G 021.6310G 021.6312G
Bone Level Tapered Ø 4.8				8 mm 10 mm 12 mm	021.7308G 021.7310G 021.7312G

4.5 SURGICAL PROTOCOL TEMPLATE FOR COMPLETING MANUALLY (TO BE COPIED)

					Basic implant bed preparation			Fine implant bed preparation		
Implant position	Implant Art. No.	Implant	Sleeve height	Sleeve position	Milling cutter	Guided drill	Cylinder of drill handle	Guided profile drill	C-handle	Guided tap

5. ADDITIONAL INFORMATION

5.1 ADDITIONAL INFORMATION ON SURGICAL INSTRUMENTS

Instruments must be inspected for completeness and safe function. An adequate stock of implants and spare sterile instruments should always be available. The instruments must be disassembled for sterilization. Well maintained instruments help prevent development of infections that could endanger patients as well as the practice team.

To help ensure patient safety, all instruments and products used must be sterile and secured against aspiration in the patient's mouth. To prevent contamination of the sterile instruments, they should be removed from the surgical cassette and put into the handpiece or ratchet with sterile forceps. The forceps (Art. No. 046.820) was developed and shaped specially to allow round instruments to be gripped securely.

5.2 CARE AND MAINTENANCE OF INSTRUMENTS

Most of Straumann® components are not sterile when delivered. Use only solvents designed for stainless steel. Follow the solvent directions for use. Do not use any disinfectants or cleaning agents with high chlorine content or containing oxalic acid. Do not apply temperatures above 134 °C for machine cleaning or sterilization.

Guidelines for sterilizing the guided instruments utilizing the Straumann® Guided Surgery Cassette

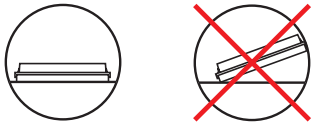
Method	Temperature	Exposure time	Dry time
Steam Sterilization Prevacuum Cycle	134 °C/273 °F	min. 4–18 min	20–60 min*
No dry heat sterilization!			

**Instruments that are not thoroughly dried may corrode.*

Before sterilization, the cassette is packed (e.g. sealed in foil or wrapped in towels) in order to maintain sterilization of product.

Important:
- Do not use chemical sterilization
- Do not use dry heat sterilization

In order to avoid damaging the surgical cassette during autoclaving, it must be placed correctly in the autoclave (see figure).



Note: All steps related to the maintenance of Straumann® surgical instruments are part of a dental practice hygiene plan (see also *Care and Maintenance of Surgical and Prosthetic Instruments* (152.008/en), *Straumann® Dental Implant System: Basic Information on the Surgical Procedures* (702084/en) and *Basic information on the surgical procedures for the Straumann® Bone Level Tapered Implant* (702167/en)).

5.3 LABELING AND COLOR-CODING OF THE STRAUMANN® DENTAL IMPLANT SYSTEM

Naming and labeling explanations

Color-coding		
●	yellow	Endosteal implant diameter 3.3 mm
●	red	Endosteal implant diameter 4.1 mm
●	green	Endosteal implant diameter 4.8 mm

Implant types

S: Standard Implant
SP: Standard Plus Implant
TE: Tapered Effect Implant
BL: Bone Level Implant
BLT: Bone Level Tapered Implant

Connection types	
NNC: Narrow Neck CrossFit® ∅ 3.5 mm	∅ 3.5 mm 
RN: Regular Neck ∅ 4.8 mm	∅ 4.8 mm 
WN: Wide Neck ∅ 6.5 mm	∅ 6.5 mm 
NC: Narrow CrossFit® ∅ 3.3 mm	∅ 3.3 mm 
RC: Regular CrossFit® ∅ 4.1 and ∅ 4.8 mm	∅ 4.1 mm ∅ 4.8 mm 

5.4 RELATED DOCUMENTATION

Note: Our detailed documentation will help you in carefully planning and performing your implant-based restorations:

- *Prosthetic Procedures for the Narrow Neck CrossFit® Implant – Straumann® Narrow Neck CrossFit® Implant Line* (152.808/en)
- *Crown and Bridge Restorations: Straumann® synOcta® Prosthetic System* (152.255/en)
- *Cement-retained Crowns and Bridges with the Solid Abutment System: Straumann® Solid Abutment Prosthetic System* (152.254/en)
- *Basic Information on the Straumann® Prosthetic Procedures – Straumann® Bone Level* (152.810/en)

Instrument care and maintenance

- Well maintained instruments are a basic requirement for successful treatment. You will find detailed information in the brochure *Care and Maintenance of Surgical and Prosthetic Instruments* (152.008/en).

The Straumann Guarantee

- As a Swiss company, we attach the greatest importance to manufacturing our products in to the highest quality. We are firmly convinced of the scientific and clinical basis of our Straumann® Dental Implant System and draw on the fund of know-how from nearly 30 years of quality production. The Straumann guarantee regulates replacement of all components of the Straumann® Dental Implant System. You will find detailed information in the brochure *Straumann Guarantee* (152.360/en).

Explantation

- For explantation guidelines please refer to the *Directions for Use: Explantation Procedure for Straumann® Dental Implants* (150.854). The components required for explanation can be found in our current product catalog.

References

The Straumann® Dental Implant System has been comprehensively clinically documented for over 25 years. You can find references to the current research literature on our website www.straumann.com or by contacting your local Straumann representative.

Courses and training

Continuing education ensures long-term success! Please, ask your Straumann representative directly for information on the Straumann® Dental Implant System courses and training. Further information at www.straumann.com.

Quality assurance in accordance with MDD 93/42/EEC.

All production stages carried out by Institut Straumann AG are subject to the Standards laid down in the EN ISO 9001 quality assurance system. This European standard establishes in detail the criteria which a company must fulfil regarding comprehensive quality assurance during its manufacturing processes in order to be recognized. Particularly high standards are rightly expected of medical products. They are defined in European standards ISO 13485, which we also meet. This ensures that the quality of our products and services meets our customers' expectations, and can be reproduced and traced at any time. Our products comply with the essential requirements defined in the Medical Devices Directive 93/42/EEC. All of our medical products therefore carry the CE mark. Institut Straumann AG meets the stringent requirements of European directive MDD 93/42/EEC for medical devices and standards EN ISO 9001 and ISO 13485.

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List of abbreviations

SCS	=	Screw Carrying System
HDD	=	Horizontal Defect Dimension
SLActive®	=	Sand-blasted, Large grit, Acid-etched, chemically active and hydrophilic
SLA®	=	Sand-blasted, Large grit, Acid-etched
NNC	=	Narrow Neck CrossFit® (3.5 mm)
RN	=	Regular Neck (4.8 mm)
WN	=	Wide Neck (6.5 mm)
NC	=	Narrow CrossFit® Connection (for BL implants)
RC	=	Regular CrossFit® Connection (for BL implants)
S	=	Standard
SP	=	Standard Plus
TE	=	Tapered Effect
BL	=	Bone Level
BLT	=	Bone Level Tapered

NOTES

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152.753/en/D/03 11/24
702083/en/D/03 11/24

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