



PROSTHETICS

**Fixed crown and bridge
restorations with the
solid abutment system**



Straumann is the exclusive industrial partner of the ITI (International Team for Implantology) in the areas of research, development and education.



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Cement-retained crown and bridge restorations on solid abutments

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Solid abutments are used for cement-retained superstructures. The restoration does not differ from the conventional method for fabricating crowns and bridges. The superstructure is fabricated by the dental technician and is cemented into place by the dentist.

Various auxiliary components are available for use with the solid abutments.

Distinction is made between:

Option A: No modification of the abutment

Option B: Modification of the abutment

The respective application of the products depends on the option used.



Indications

Solid abutments can be used in both anterior and posterior areas of the mouth for cement-retained crown and bridge restorations. The insertion depth of the implant should allow an easy access for the removal of excess cement leavings.

Features and benefits

- Prefabricated impression components for a precise transfer
- Simple procedure that is similar to conventional dentistry
- Ease of temporization
- Morse taper for reliable friction fit
- Color-coded components for easy identification



Abutment Insertion

Initial situation – “the patient”

The model on the right shows a Standard Implant Ø 4.1 mm (Regular Neck Ø 4.8 mm) in position 44 (28) and a Standard Implant Ø 4.8 mm (Wide Neck Ø 6.5 mm) in position 46 (30). Following successful osseointegration, the implants can be restored. Remove any debris from the head of the healing caps and use any length SCS screwdriver to loosen, lift, and remove them. The internal aspect of the implants must then be thoroughly cleaned and dried.



Standard Implant Wide Neck in situ



Standard Implant Regular Neck in situ

Inserting the abutments

RN solid abutments (048.540/541/542) are inserted using a solid abutment driver (046.067/068). The WN solid abutments (048.545/546) are inserted using an SCS screwdriver (046.400/401/402/410/411/412).

Working outside of the mouth and over a sterile field, align the groove of the RN solid abutment with the line on the driver shaft and insert the abutment into the driver. (When placing WN solid abutments, an SCS screwdriver is used instead. The "star" configuration of the screwdriver tip connects to the occlusal opening of the abutment, allowing it to be picked up.) Bring the abutment to the mouth with the appropriate driver and insert it into the implant. Use finger pressure to tighten it down.



RN solid abutment driver**
for use with RN solid abutments

Indicator for internal wedge



SCS screwdriver
for use with WN solid abutments



groove

RN solid abutment
for use with implants that have a RN Ø 4.8 mm



WN* solid abutment
for use with implants that have a WN Ø 6.5 mm

Tightening torque = 35 Ncm

*WN = Wide Neck
**RN = Regular Neck



1. Place the looped-end of the assembled ratchet and torque control device over the driver handle. The directional arrow must be pointing clockwise (towards the torque bar with tear drop). If it's not, simply pull the arrow out, flip it over, and push it back in.

The solid abutments are inserted into the implant **without applying cement.**

Important:
Once the impression has been taken, any removal or repositioning of the abutment will require a new impression to capture the change in location of the flat side.



2. For stabilization, place the pin-end of the holding key into the coronal hole on the driver handle.



3. Use one hand to hold the holding key and use the other hand to hold the torque bar. Grasp only the tear drop and move the torque bar to the 35 Ncm mark.



Tightening torque = 35 Ncm



4. After reaching the 35 Ncm mark, return the torque bar back to its starting position. Lift and remove the holding key, ratchet with torque control device, and the driver. The solid abutment is now in place and ready for the impression to be taken. Once the abutment has been torqued in, it should not be removed.



Option A

Impression overview for non-modified solid Abutments

Step 4

Take the impression.
Send it to the lab.



Step 3

Push the positioning cylinder through the impression cap, taking care to align the internal flat side of the positioning cylinder with the flat side of the solid abutment. Push it until it is flush with the impression cap.



Step 2

Place the impression cap over the abutment and snap it onto the implant shoulder.

Slightly rotate the cap to ensure that it is properly seated.



Step 1

Place the solid abutment into the implant at 35 Ncm.

For implants with RN 4.8 mm	For implants with WN 6.5 mm
 <p>048.060 048.061 048.062</p>	 <p>048.065 048.066</p>
 <p>048.017</p>	 <p>048.013</p>
 <p>048.540 048.541 048.542</p> 	 <p>048.545 048.546</p> 
	



Clinical Procedures for non-modified solid Abutments

All parts of the solid abutment transfer system are supplied non-sterile. The parts can be disinfected as required using standard commercial disinfection agents for plastic products (refer to the manufacturer's instructions).

Caution: The plastic components are for single use only. They must not be sterilized. In order to prevent any damage to the plastic components (loss of elasticity or embrittlement) they must be protected from strong light or heat irradiation.



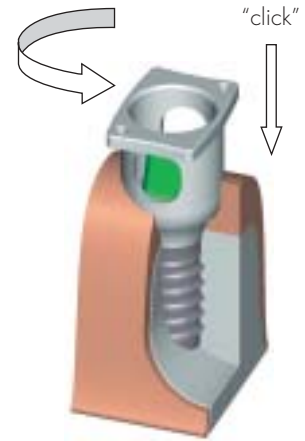
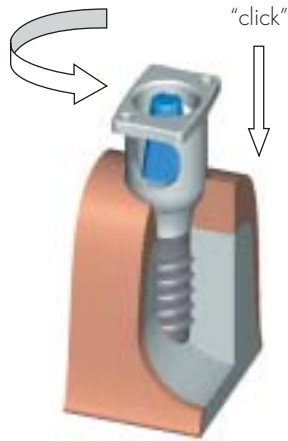


Clinical Procedures for non-modified solid Abutments

1a. Taking an impression

Both the implant shoulder and the abutment must be cleaned of any blood or tissue prior to the impression procedure. If a WN solid abutment is used, the occlusal opening of the abutment must be sealed with wax or guttapercha.

The impression cap (048.017) or the WN impression cap (048.013) is pushed over the abutment, and onto the implant shoulder, until the cap "clicks" into place. The impression cap is turned gently in order to check that it is securely snapped onto the implant shoulder. When the cap is seated correctly, it can be rotated smoothly on the implant.



Positioning cylinders for RN solid abutments



Positioning cylinders for WN solid abutments

Important:

In order to avoid errors during the impression procedure, it must be ensured that the shoulder and the margin of the impression cap are not damaged.



RN impression cap



WN impression cap



RN solid abutments



WN solid abutments

Color-coding

In order to facilitate identification, the transfer system is color-coded.

Accessories for RN solid abutment, height 4.0 mm = **yellow**

Accessories for RN solid abutment, height 5.5 mm = **grey**

Accessories for RN solid abutment, height 7.0 mm = **blue**

Accessories for WN solid abutment, height 4.0 mm = **green**

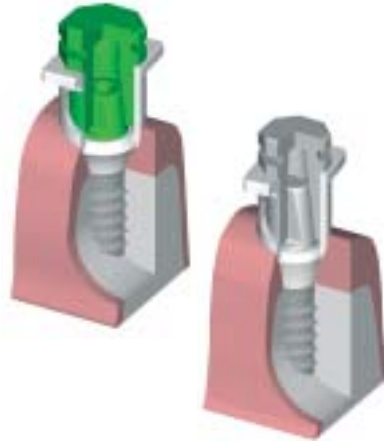
Accessories for WN solid abutment, height 5.5 mm = **brown**



Clinical Procedures for non-modified solid Abutments

Solid abutments and their corresponding components are color-coded for easy usage and identification (e.g. green positioning cylinders work with green abutments).

Positioning cylinders have a flat-side indicator (external knob) to identify where the internal flat side is. Care should always be taken to align the flat side of the positioning cylinder with the flat side of the abutment. It is then pushed down over the abutment and through the impression cap. **The positioning cylinder must be pushed down as far as it will go, until it is flat and flush against the impression cap.**



The impression is taken using an elastomeric impression material (polyvinylsiloxane or polyether rubber).



The color of the positioning cylinder identifies which analog must be used in the lab. It is extremely important that only the color which is designed for the corresponding abutment be used. If the incorrect analog is used, the final result will be compromised.

Important:
Due to its insufficient tensile strength, hydrocolloid is not suitable for this application.



2a. Fabricating a temporary restoration

While the superstructure is being fabricated, the solid abutments should be temporized in some fashion. Keeping them covered will be more comfortable for the patient and also keep the abutment clean.

Plastic protective caps (048.047/048/049/051/052) can be used to temporize the abutment and are a simple and convenient option.

Only temporary cement should be used to secure the protective caps.



Important:
Protective caps are removed in the same way as a temporarily cemented crown. In order to prevent any displacement of the abutment, the protective cap must **not** be removed by using a rotary movement.

If desired, an anatomical acrylic provisional restoration can be used instead. It is fabricated directly over the implant and abutment (or indirectly from an impression) in the same manner as for conventional crown and bridge procedures. This option is especially useful in esthetic sites because the provisional maintains the shape of the soft tissue and will allow a precise impression to be taken at a later date.



Option B

Impression overview for modified solid Abutments



Step 4

Send it to the lab.



Step 3

Take the impression.
Inject impression material through the holes of the impression cap.














Step 2

Place the impression cap over the abutment and snap it onto the implant shoulder. Slightly rotate the cap to ensure that it is properly seated.



Step 1

Place the solid abutment into the implant at 35 Ncm.

For implants with Ø 4.8 mm shoulder	For implants with Ø 6.5 mm shoulder
 <p>048.017</p>  <p>048.540</p>  <p>048.541</p>  <p>048.542</p> 	 <p>048.013</p>  <p>048.545</p>  <p>048.546</p> 
	



Option B

Clinical Procedures for modified solid Abutments

It is sometimes necessary to modify the shape or size of a solid abutment. A different impression procedure must be used in such cases.

After it has been inserted into the implant and torqued down, the solid abutment is prepped in the mouth by the doctor. The abutment is shaped with a highspeed drill and either a medium or coarse grit diamond bur using light pressure and copious irrigation. Upon completing the modification of the abutment, a minimum height of 3.0 mm of the solid abutment should remain.



1b. Taking an impression

With this option, an impression is taken individually of the abutment. This is necessary when the abutment has been modified. The color-coded positioning cylinder cannot be used. Only the impression cap is utilized for this impression technique.

All parts of the transfer system are supplied non-sterile. The parts can be disinfected as required using standard commercial disinfection agents for plastic products (refer to the manufacturer's instructions).

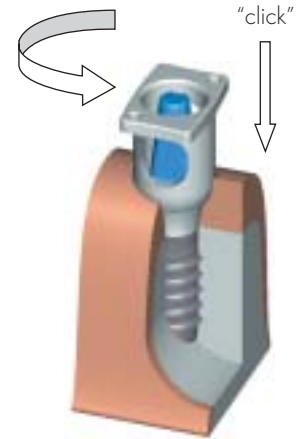
Caution: The plastic components are for single use only. They must not be sterilized. In order to prevent any damage to the plastic components (loss of elasticity or embrittlement), they must be protected from strong light and heat irradiation.

Both the implant shoulder and the abutment must be cleaned of any blood or tissue prior to the impression procedure. If a WVN solid abutment is used, the occlusal opening of the abutment must be sealed with wax and guttapercha.

The impression cap (048.017) or the WVN impression cap (048.013) is pushed over the abutment, and onto the implant shoulder, until the cap "clicks" into place. The impression cap is turned gently in order to check that it is securely snapped onto the implant shoulder. When the cap is seated correctly, it can be rotated smoothly on the implant.

Important:

In order to avoid errors during the impression procedure, it must be ensured that the shoulder and the margin of the impression cap are not damaged.



Impression material is injected through the occlusal and lateral openings and an impression is taken. An elastomeric impression material (polyvinylsiloxane or polyether rubber) is used for the impression procedure.

Important:

Due to its insufficient tensile strength, hydrocolloid is not suitable for this application.



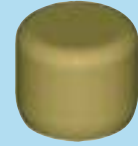


2b. Fabricating a temporary restoration

While the superstructure is being fabricated, the solid abutments should be temporized in some fashion. Keeping them covered will be more comfortable for the patient and also keep the abutment clean.

Plastic protective caps (048.047/048/049/051/052) can be used to temporize the abutment and are a simple and convenient option.

Only **temporary cement** should be used to secure the protective caps.



Important:

Protective caps are removed the same way as a temporarily cemented crown. In order to prevent any displacement of the abutment, the protection cap **must not** be removed using a rotary movement.

If desired, an anatomical acrylic provisional restoration can be used instead. It is fabricated directly over the implant and abutment (or indirectly from an impression) in the same manner as for conventional crown and bridge procedures. This option is especially useful in esthetic sites because the provisional maintains the shape of the soft tissue and will allow a precise impression to be taken at a later date.



Option A

Laboratory overview for non-modified solid Abutments

Step 3

After fabrication the final restoration is delivered to the doctor. It is placed over the solid abutment with permanent cement.



Step 2

Select the appropriate coping (crown/bridge) and snap it ("click") over the analog. Trim the height as necessary. The framework is then modeled in the usual way.



Step 1

Select the appropriate analog. Align the flat side of the analog with the flat side of the positioning cylinder (captured in the impression). Insert the analog into the impression until it snaps ("click") securely into place. Pour up in stone (extra hard stone, type 4 DIN 13911).

For implants with Ø 4.8 mm shoulder	For implants with Ø 6.5 mm shoulder
 <p>048.245 crown</p> <p>048.246 bridge</p>  <p>048.160</p> <p>048.161</p> <p>048.162</p>	 <p>048.247 crown</p> <p>048.248 bridge</p>  <p>048.165</p> <p>048.166</p>
	



Laboratory procedures for non-modified solid Abutments

1a. Casting the model

The color of the positioning cylinder in the impression identifies which analog must be used. In the laboratory, the corresponding analog (048.160/161/162/165/166) is positioned in the impression. Care should be taken to properly align the flat side of the analog with the flat side of the positioning cylinder. The analog is then pushed into the impression until it snaps securely into place.



- yellow** = analog for RN, 4.0 mm
- grey** = analog for RN, 5.5 mm
- blue** = analog for RN, 7.0 mm



- green** = analog for WN, 4.0 mm
- brown** = analog for WN, 5.5 mm

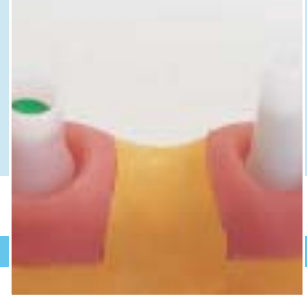


Standard techniques and type 4 (DIN 13911) extra hard stone plaster are used to cast the working model.

Important:

A gingival mask should always be used to ensure that the crown is contoured correctly. This is absolutely essential for restorations in the esthetic region and with subgingival crown margins.

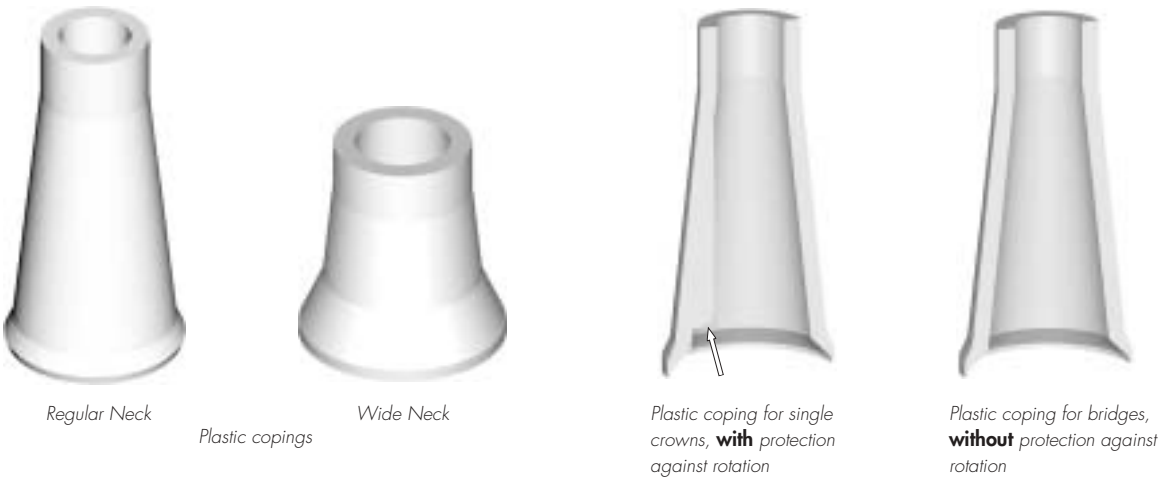




2a. Fabricating the superstructure

The plastic coping is selected in accordance with the planned superstructure:

- 048.245 for crowns RN,
- 048.246 for bridges RN,
- 048.247 for crowns WN,
- 048.248 for bridges WN.



After the model has been poured, the plastic copings are snapped onto the analogs and are then shortened accordingly. The framework is modeled in the usual way.

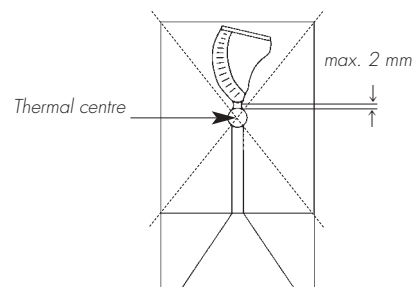
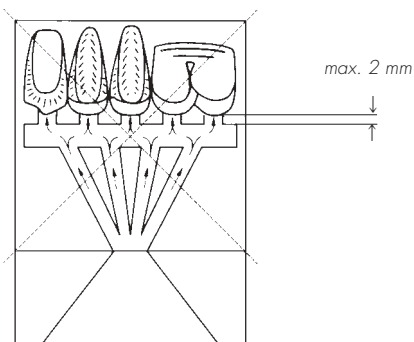
Important:

Cusps must not be over-contoured, as this may lead to non-physiological loading. The Standard and Standard Plus resp. Tapered Effect Implants Ø 4.8 mm, Wide Neck Ø 6.5 mm, are recommended for the molar region, provided that sufficient bone is available, since this allows for optimal shaping of the crown.

For all implants with Regular Neck Ø 4.8 mm, the crowns **must** be reduced to the size of premolars – this reduces the risk of non-axial loading and diminishes plaque accumulation due to over-contouring.



Laboratory procedures for non-modified solid Abutments



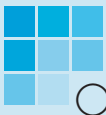
Casting the framework

The success of work carried out with pre-fabricated plastic components depends on the attention paid to the following points:

- Burn-out plastics are characterized by the fact that they swell up when they are burned out. For that reason it is important that the outside of the plastic coping is completely covered with wax. The wax burns off and therefore creates sufficient space in the mold for expansion when burned out in the oven. There must be a wax layer of at least 0.3 mm in the marginal region (caution: do not wax above the delicate margin).
- If there is insufficient waxing in the marginal region of the coping, there is a risk that the frustum will break in the interior of the invested coping, due to the effects of the expansion of the plastic in the mold. This can result in a casting error.
- To avoid casting errors due to wax particles, insulating agents, etc., careful cleaning of the interior and the inside and outside of the delicate edge of the coping prior to investment (e.g. with a cotton bud soaked in alcohol) is recommended.
- The sprues must encourage elimination of the wax and plastic and must not impede the direction of flow of the alloy (i.e. there should be no sharp angles and edges). Follow the investment material manufacturer's recommendations on the selection and positioning of sprues.
- Do not use wax wetting agents, if possible. The plastic is so smooth that the investment material will fill all the fine contours of the coping's interior very well during investment (with the aid of a fine blunt instrument or a fine brush).

However, if wetting agents are utilized, ensure that no aggressive wetting agents are used which could attack the surface of the plastic copings. Then blow-dry the copings carefully with compressed air. Wetting agent residues can lead to a reaction with the investing material and thus to casting errors.

- The use of phosphate-bonded investment materials that allows a staged burn-out is recommended. These must be matched with the alloy used.
- When processing the investment material, follow the investment material manufacturer's instructions. Observe the recommended mixing ratio and preheating times exactly.
- The use of investment material for rapid heating methods (speed investment methods) is not recommended.
- Use only high gold content alloys, and refer to the alloy manufacturer's alloy tables.



General casting tips for plastic copings

Casting Procedure

The mold must be transferred to the casting machine in the shortest time possible.

Careful devesting

Once the mold has slowly cooled to room temperature, carefully remove the investment material from the cast object. The following are suitable for devesting: ultra-sound, water jet, pickling or a glass fiber brush.

Never use sand-blasting for devesting.

This would destroy the fine margins and the internal configuration, which would lead to reduced accuracy of the fit (poor marginal fit and rotation of the copings).

Important:

Casting defects like insufficient discharge, casting beads or casting flashes considerably affect the precision of the prefabricated parts and jeopardize the long-term success of the restoration. The work then has to be repeated.





Laboratory procedures for non-modified solid Abutments

The plastic copings for solid abutments are fitted with a "snap-on mechanism," which makes it easy to fit the plastic coping on the analog. This allows the plastic copings to be perfectly positioned and fixed on the analog and therefore makes the modeling process easier.

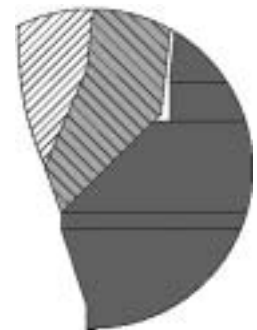
However, once the coping has been cast, the snap-on mechanism no longer works, because unlike plastic, the casting alloy has no elasticity. Following the casting, this "snap-on mechanism" must be removed using the finishing instrument (046.243) or a rubber/silicone wheel polisher (046.243) or a rubber/silicone wheel polisher **before** the cast coping is placed on the analog. Working under a stereo microscope is recommended.



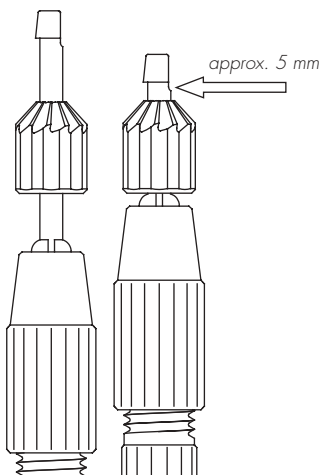
Plastic coping with "snap-on mechanism"



Coping following casting. The snap-on mechanism no longer works. **The lip must be removed before the cast coping is placed on the analog.**



Finished work with lip removed.



In order to remove the "snap-on mechanism," a finishing instrument with various guide pins is available.

The following three items are required:

Article	Art. No.
① Guide pin for RN solid abutments	046.242
or	
Guide pin for WN solid abutments	046.244
② Finishing instrument for 45° shoulder	046.243
③ Handle	046.240



Laboratory procedures for non-modified solid Abutments

Important:

The plastic snap-on mechanism must be completely removed after casting using the finishing instrument and working under a stereo microscope, otherwise it will not be possible to position the construction on the analogs and implants.

Tip

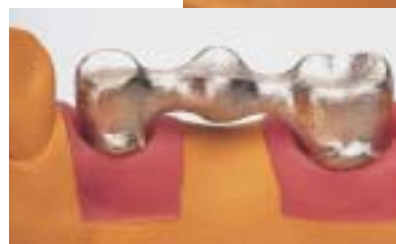
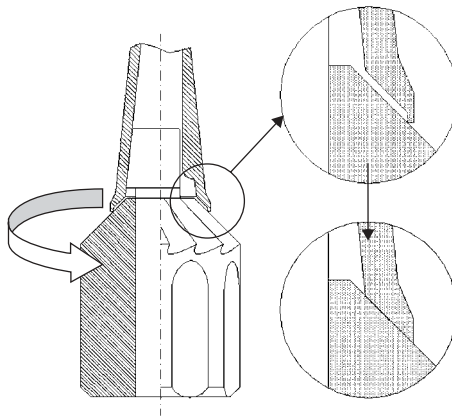
You may use a stereo microscope to remove up to 70% of the margin overhang using a rotary instrument like a silicone wheel. When you are close to the 45° implant shoulder, you should stop and finish the metal margin using the finishing instrument.

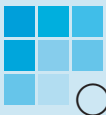
Position the guide pin in the cast coping and remove the "snap-on mechanism" by rotating the finishing instrument slowly and evenly.

Important:

The finishing instrument **does not have** an automatic stopping mechanism. Only remove as much as is necessary, until the protruding lip is flush with the implant shoulder. Then the crown can be placed on the analog.

The final processing of the frame is then carried out and the facing is built up according to the anatomical guidelines, ensuring that the molars are replaced with pre-molars (exception: Wide Neck). The "freedom in centric" concept should be used for the occlusion as described on page 19.





Laboratory procedures for non-modified solid Abutments

Natural teeth are suspended elastically in the alveolar bone by the periodontium. In comparison, implants are retained rigidly as they undergo ankylosis with the bone. Loads exerted on implant-borne crowns and bridges are transferred directly into the bone. Wherever possible, these loads should be transferred during a physiological movement, i.e. by a correctly designed occlusion, as the integrated implants may be disturbed by inadequately designed occlusal surfaces. The "freedom in centric" concept is ideal for the occlusion for implant-borne bridgework. "Freedom in centric" involves the creation of an area of approximately 1 mm² which permits lateral freedom of approximately 1 mm in habitual intercuspitation. This surface permits the cusps to slide smoothly between the retruded contact position and maximum intercuspitation. The position of maximum intercuspitation is considered to be the centric occlusion.



As masticatory movements can be carried out with the described tolerance, certain guided movements of the restored dentition are possible. This, together with premolarization (exception: Wide Neck), prevents over-loading. Extreme cusp anatomy must be avoided as it may lead to severe intercuspitation and, consequently, to over-loading.

Vertical masticatory forces must be exerted as physiologically as possible on the implant-antagonist axis. Crowns on single tooth implants should not perform guidance functions. During treatment planning (diagnostic wax-up) one should decide the degree to which this can be achieved.



Option B

Laboratory overview for modified solid Abutments

Step 3

After fabrication of the restoration, the final prosthesis is delivered to the doctor. It is placed over the solid abutment with permanent cement.





Step 2

The framework is modeled in the usual way.



Step 1

Snap ("click") the appropriate shoulder analog onto the impression. Trim the length of the reinforcement pin as necessary. Pour up half way in stone, insert reinforcement pin, finish pouring up in stone.

For implants with Ø 4.8 mm shoulder	For implants with Ø 6.5 mm shoulder
 <p data-bbox="646 1323 976 1397">048.117V4 shoulder analog and reinforcement pin for RN solid abutments</p>	 <p data-bbox="1203 1323 1283 1348">048.140</p>
	



1b. Casting the model

In the laboratory, the shoulder analog (048.117) or the WN shoulder analog (048.140) is repositioned in the impression; the shoulder analog must **audibly click into place**. The shoulder analog is turned gently in order to check that it has been snapped on securely. When the shoulder analog has been placed correctly, it can be rotated smoothly. The shoulder analog (048.117V4) comes with a reinforcement pin that can be used when casting the model (exception: WN shoulder analog does not require a pin). The pin strengthens the plaster die and is particularly recommended for the 7.0 mm solid abutment in order to reduce the risk of the die breaking.

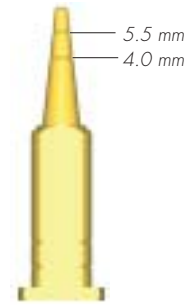
Important:

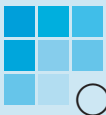
The reinforcement pin is automatically sized to match the length of the 7.0 mm solid abutment. Therefore, the tip of the pin must be shortened for use with the shorter abutments (4.0 and 5.5 mm).

There are 2 notches located at the tip of the pin:

- First notch = 5.5 mm RN solid abutment
- Second notch = 4.0 mm RN solid abutment

The pin should be trimmed accordingly until the rectangular end of the pin fits flat and flush against the shoulder analog.





Laboratory procedures for modified solid Abutments

The working model is cast using type 4 (DIN 13911) extra hard stone plaster. The impression is filled as far as the implant shoulder in the region of the abutments. The tip of the reinforcement pin is dampened with plaster and is then pushed as far as it will go into the still liquid plaster by a gentle rotational movement. The remainder of the impression is then filled.

Hint

Where there are markedly divergent abutments, we recommend pouring the die with modeling resin, in order to reduce the risk of breakage. The use of the reinforcement pin is also possible with modeling resin (any possible contraction of the modeling resin is minimized by the material reduction).

A gingival mask should always be used to ensure that the crown is contoured correctly. This is absolutely essential for restorations in the esthetic region and with subgingival crown margins.



2b. Fabricating the superstructure

The subsequent procedure is identical to the procedure for conventional crown and bridge work.

The modeling is carried out and the facing is built up in accordance with the same guidelines (premolarization, axial loading, "freedom in centric") as described for Option A on pages 19.



In the event that the implant shoulder has been modified, it is then necessary to take a direct impression of the abutment.

No auxiliary components can be used when there are modifications to the implant shoulder. In this case, the impression procedure and the model casting are carried out in the conventional way using injection molding and an individual impression procedure.

Note:

In the case of the WVN solid abutment, the occlusal opening must be sealed with wax or gutta-percha prior to the impression procedure.

The procedure is identical to that for natural teeth.

The modeling is carried out and the facing is built up in accordance with the same guidelines (premolarization, axial loading, "freedom in centric") as described for Option A on pages 19.

Important:

Modifying the implant shoulder is not recommended and should only be done when it is absolutely necessary.

Important Notes

Disclaimer of liability

The Straumann dental implant is part of an overall concept and may only be used in conjunction with the associated original components and instruments according to Institut Straumann AG's instructions and recommendations.

Use of products made by third parties in conjunction with the Straumann® Dental Implant System will void any warranty or other obligation, express or implied, of Institut Straumann AG.

Instructions as to application of our products take place verbally, in writing, by electronic media or in hands-on trainings corresponding to state of the art at the time of introduction of the product.

The user of Straumann products has the duty to determine whether or not any product is suitable for the particular patient and circumstances. Straumann disclaims any liability, express or implied, and shall have no responsibility for any direct, indirect, punitive or other damages, arising out of or in connection with any errors in professional judgment or practice in the use or installation of Straumann products.

The user is also obliged to study the latest developments of the Straumann® Dental Implant System and their applications regularly.

Please note

The descriptions given are insufficient to allow immediate use of the Straumann® Dental Implant System. Guidance in the handling of these instruments by a doctor experienced in their use is strongly recommended.

Availability

Not all products listed in this brochure are available in all countries.

Validity

Upon publication of this brochure, all previous versions are superseded.

Caution

As a general rule, our products must be secured against aspiration when used intra-orally.

Delivery

Federal law restricts these devices to sale by or on the order of a dentist or a physician.

Units per package

Unless stated otherwise, there is one unit in each package.

Documentation

You can obtain detailed instructions on the Straumann® Dental Implant System from your Straumann representative.

Copyright and trademarks

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Explanation of the symbols on labels and instruction leaflets



Lot/batch number



Article number



Sterile by gamma irradiation



Nonsterile



Lower limit of temperature



Upper temperature limit



Temperature limitation

Rx only

Caution: Federal (USA) law restricts this product to sale by or on the order of a dentist or physician.



Do not use on patients



Do not reuse



Refer to instructions for use



Use before expiry date



Protect from exposure to strong light or heat



Straumann products carry the CE mark and fulfill the requirements of the Medical Devices Directive 93/42 EEC.

Colored warning labels

YELLOW = CAUTION: indicates hazards or unsafe handling which might cause minor injury or damage to property.

ORANGE = WARNING: indicates hazards which might cause serious or fatal injury.

RED = DANGER: indicates hazards which might cause immediate serious or fatal injury.

Definition SLA® Sand-blasted, Large grit, Acid-etched

National Distributor

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