



CROWN AND BRIDGE RESTORATIONS WITH THE **SYNOCTA® PROSTHETIC SYSTEM**



COMMITTED TO
SIMPLY DOING MORE
FOR DENTAL PROFESSIONALS



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

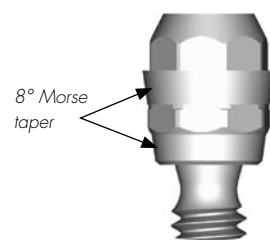
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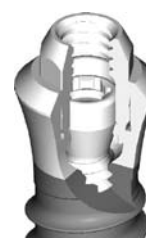
1. INTRODUCTION

The synOcta® concept was introduced worldwide in 1999 with the addition of an octagon to the Morse taper section of the abutment and implant. This is where the name synOcta® comes from, "the synergy of the two octas."

The symmetrical fit of the octagons of the abutment and the inside of the implant allows synOcta® abutments to be repositioned in the implant. This feature is unique within the Straumann® Dental Implant System and is possible only with the synOcta® abutments. The capacity for repositioning allows the clinician to take an impression over the implant shoulder without an abutment. The possibility of selecting the abutment with the aid of the planning set with the resulting flexibility is one of the factors in the success of the synOcta® prosthetic system. Besides the increased flexibility of the system, the 8° Morse taper connection is designed to provide a more secure implant-to-abutment connection.



Octagon on the abutment



Implant with RN synOcta® 1.5 screwed abutment

Screw-retained and cement-retained solutions for implants with a shoulder diameter of 4.8 mm (RN) or 6.5 mm (WN)

With the synOcta® prosthetic system, you have a choice between screw-retained or cement-retained crown and bridge restorations for implant shoulders of both Ø 4.8 mm RN (Regular Neck) and Ø 6.5 mm WN (Wide Neck).

RN Implant shoulder Ø 4.8 mm



RN Standard and Standard Plus implants



RN Tapered Effect implants

Important: The RN synOcta® abutments can only be used with implants with shoulder Ø 4.8 mm and implants with the internal octagon (Art. No. 043.xxxS and 033.xxxS).

WN Implant shoulder Ø 6.5 mm



WN Standard and Standard Plus implants



WN Tapered Effect implants

Important: The WN synOcta® abutments can only be used with implants with shoulder Ø 6.5 mm and implants with the internal octagon (Art. No. 043.xxxS and 033.xxxS).

2. ADVANTAGE

Reliable. Simple. Flexible.

The synOcta® prosthetic system offers clinicians the advantages of a reliable, simple and flexible prosthetic solution.

The secret of synOcta®'s success exists in the implant-to-abutment connection. The precise fit of the abutment octagon in the implant octagon allows the abutment to be precisely repositioned from the master cast to the mouth.

Reliable

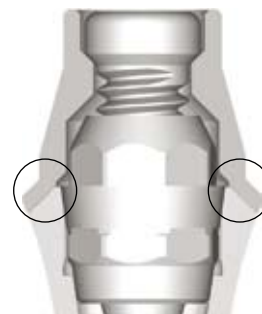
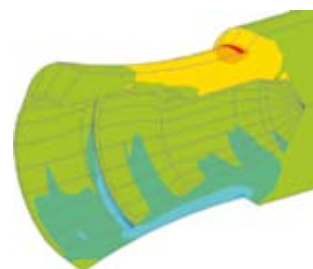
- The 8° cone of the Morse taper offers an ideal combination between cold welding and reliable vertical positioning
- Virtually no abutment loosening

Simple

- Simple impression taking without the abutment
- Simple options for provisionalization

Flexible

- Abutments can be repositioned from master cast to the mouth
- Abutment selection on the model with prosthetic planning kit
- Restorative options with comprehensive abutment range



The prosthetic superstructures that are screwed onto the synOcta® abutments distribute the loading forces onto the 45° shoulder of the implant, not the occlusal screw.

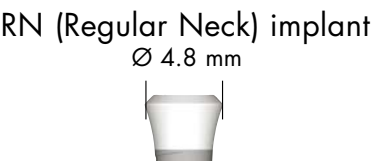


Important: Please note the description of the indication for each implant type. You will find this in the current product catalog, in "SURGICAL, Basic information on surgical procedure with the Straumann® Dental Implant System" (USLIT 100), and in the instructions for use enclosed with the implants.

RN = Regular Neck

WN = Wide Neck

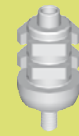
PROSTHETICS



Transfer parts	<p>048.090 048.010 048.124 048.017V4 048.070V4</p>			
Prosthetic restoration	screw-retained		screw-retained or cement-retained	
Case planning (only V4)	<p>048.929V4</p>		<p>048.921V4</p>	<p>◆ 048.916/917/918/919V4</p>
Abutments	<p>048.602</p>	<p>• 048.642</p>	<p>048.620</p>	<p>◆ 048.612/613/617/618</p>
Temporary components	<p>• 048.651 •• 048.650 • 048.668</p>			
Titanium copings	<p>••• 048.214 •• /241 • /240</p>			
Gold copings	<p>••• 048.204 •• 048.632 • 048.633</p>		<p>048.634</p>	
Plastic copings	<p>••/••• 048.227 • 048.229</p>		<p>048.665</p>	<p>048.676V4 048.670</p>
Auxiliary parts/screws	<p>048.350V4 048.360V4 048.361V4</p>	<p>048.350V4</p>	<p>049.154 048.672</p>	<p>048.350V4</p>
Transfer aids			<p>048.003V4</p>	<p>048.000V4</p>

WN (Wide Neck) implant

Ø 6.5 mm



048.091



048.171



048.013



048.095

screw-retained
or cement-retained

cement-retained

screw-retained

cement-retained



◆ 048.922/923/924/925V4



048.930V4



048.931V4



048.933V4



048.934V4



048.932V4



◆/•• 048.610/611/615/616



048.605



• 048.560



048.603



048.608



048.609



048.606



• 048.561



• 048.233



•• 048.234



•• 048.638



• 048.639



•• 048.666



• 048.667



048.678



•• 048.244



• 048.243



048.350



048.361V4



048.002V4



048.059V4



048.032



048.054V4

4. SYNOCTA® ABUTMENTS – OVERVIEW

Abutment application range for implant shoulders Ø 4.8 mm and Ø 6.5 mm

RN Implant shoulder Ø 4.8 mm:

RN synOcta® 1.5 Screw-retained



Art. No. 048.602

Transocclusal screw-retained crowns and bridges

RN synOcta® Cemented



Art. No. 048.605

Cement-retained crowns and bridges

The abutment can be shortened as necessary by a maximum of 2.0 mm occlusally.

RN synOcta® angled, 15° and 20°, type A and B



15°

Art. No.

048.612/613/610/611



20°

Art. No.

048.617/618/615/616

Cement-retained or screw-retained crowns and bridges

In the case of angled abutments, two types are available for each angle (A and B). This allows the angle to be corrected in 16 different alignments (in steps of 22.5°). These abutments are available in a short and a long version.

WN Implant shoulder Ø 6.5 mm:

WN synOcta® 1.5 Screw-retained



Art. No. 048.603

Transocclusal screw-retained crowns and bridges

WN synOcta® Cemented



Art. No. 048.606

Cement-retained crowns and bridges

The abutment can be shortened as necessary by a maximum of 2.0 mm occlusally.

WN synOcta® angled, 15°, type A and B



Art. No. 048.608/609

Cement-retained crowns and bridges

The WN synOcta® angled abutment, 15°, is available in 2 types (A and B), allowing the angle to be corrected in 16 different alignments (in graduations of 22.5°).

RN synOcta® transversal (TS)



Art. No. 048.620

Transversal screw-retained crowns and bridges

The RN synOcta® TS abutment has two transversal openings. One screw opening is aligned with the flat wall of the octagon, while a second screw opening is aligned with the apex, enabling the transversal screw to be aligned in 16 different directions (in steps of 22.5°).

RN synOcta® gold abutment



Art. No. 048.642

Transocclusal screw-retained crowns, and for the production of a meso structure for cement-retained crowns

The gold abutment is a combination of coping and abutment in one piece.

RN synOcta® meso abutment



Art. No. 048.560

For the fabrication of a meso structure for cement-retained crowns

The synOcta® meso abutment is made of titanium.

WN synOcta® meso abutment



Art. No. 048.561

For the fabrication of a meso structure for cement-retained crowns

The synOcta® meso abutment is made of titanium.

Sterilization

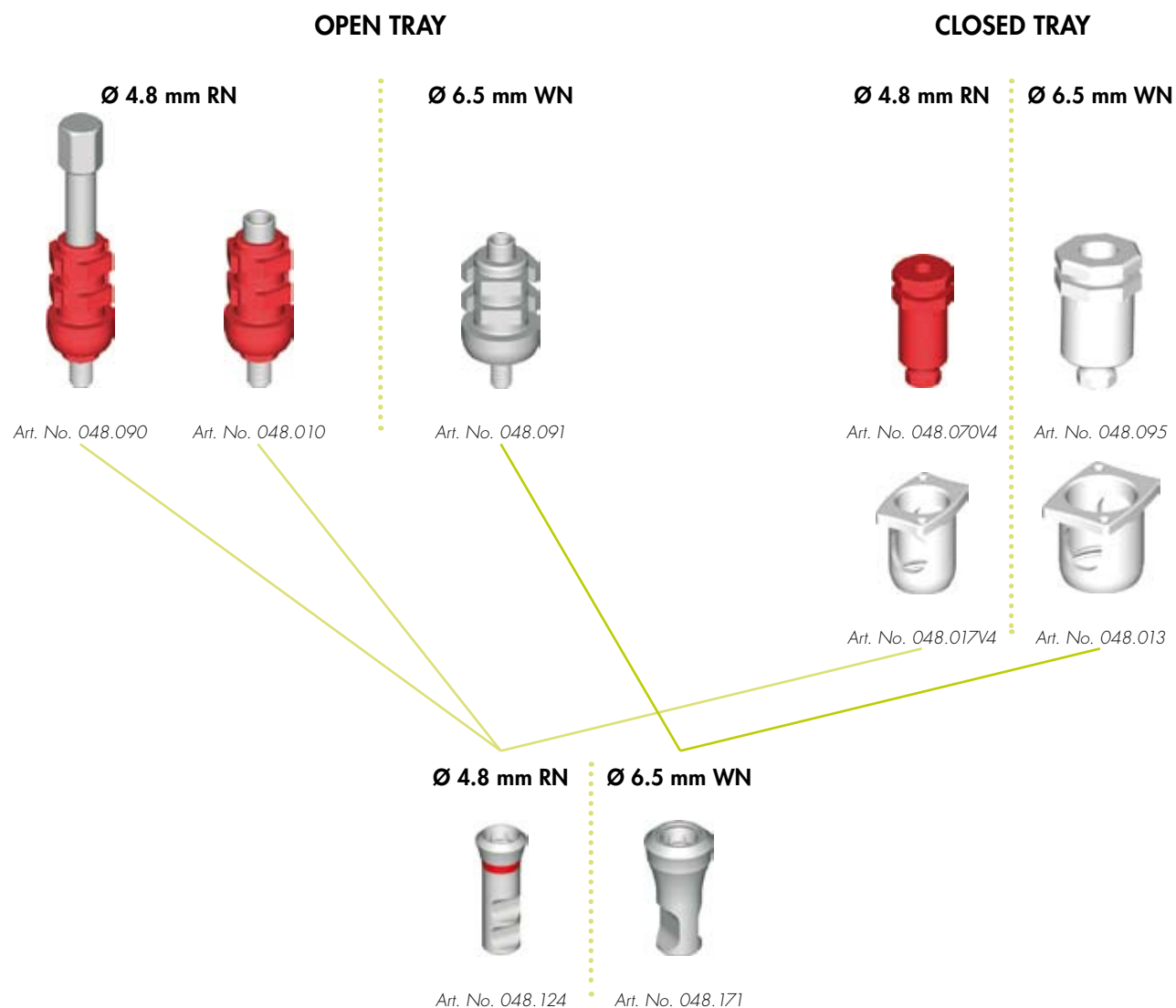
Straumann abutments and components are not sterile when delivered. Please use the following procedure for sterilization prior to use.

Material	Method	Conditions
Ti, Ti alloy, PEEK, PEEK with Ti inlay	Autoclave, moist heat	134°C (273°F), 18 min.

Note: Parts that have been modified or altered from their original state may require different sterilization procedures.

To prevent tension cracks in PMMA products do not use the following: alcohol; UV radiation; sterilization; immersion in liquid for more than one hour; temperatures over 60°C (140°F).

5. IMPRESSION PROCEDURE WITH THE SYNOCTA® PROSTHETIC SYSTEM



There are two options available for taking an impression on RN and WN implant shoulders Ø 4.8 mm and Ø 6.5 mm:

- the open tray technique "screwed"
- the closed tray technique "snap-on"

The closed tray option can be regarded as the standard version. The impression cap can easily "snap" into place and be used in most cases.

The open tray version is indicated particularly in cases where the implant shoulder is placed very deeply (more than 3.0 mm subgingival) and where the gingiva is very close. In this case, the open tray impression procedure is advantageous; the impression cap is screwed tightly and precisely to the implant, and loosening of the impression cap following displacement by the gingiva is avoided.

COLOR CODING

RN synOcta® impression components on implant shoulder
Ø 4.8 mm = **red**

WN synOcta® impression components on implant shoulder
Ø 6.5 mm = **white**

RN = Regular Neck

WN = Wide Neck



5.A CLOSED TRAY IMPRESSION PROCEDURE "SNAP-ON"

RN Implant shoulder Ø 4.8 mm



Art. No. 048.070V4

Art. No. 048.017V4

Art. No. 048.124

The closed-tray impression-taking procedure for implant shoulder Ø 4.8 mm RN and implant shoulder Ø 6.5 mm WN is identical.

WN Implant shoulder Ø 6.5 mm



Art. No. 048.095

Art. No. 048.013

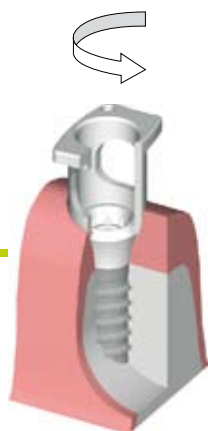
Art. No. 048.171

All parts of the transfer system are supplied non-sterile. The parts can be disinfected as required using standard commercial disinfectants that are suitable for plastic products. Follow the manufacturer's instructions.

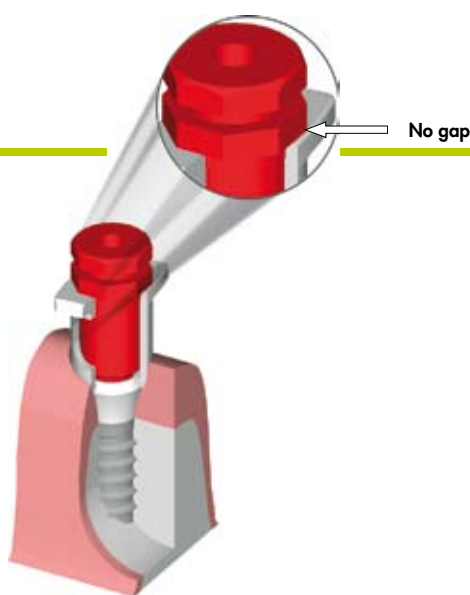
Caution: The plastic components are for single use only. They must not be sterilized. In order to prevent damage to the plastic components (loss of elasticity or embrittlement), they must be protected from strong light and heat.



STERILE



click



No gap

1. Positioning of the impression cap

Both the implant shoulder and the internal configuration must be cleaned of blood and tissue prior to the impression procedure. Push the RN impression cap (048.017V4) onto the implant shoulder until it clicks into place. Gently turn the impression cap to ensure it is in the correct position. When the cap is in the correct position, it can be rotated on the implant.

Important: The shoulder and the margin of the impression cap must not be damaged to ensure accuracy of the impression procedure.

2. Insertion of the positioning cylinder

The octagon of the RN synOcta® positioning cylinder must be properly aligned with the octagon in the implant and pushed into the impression cap until it meets the flat part of the impression cap.



3. Impression taking

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

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

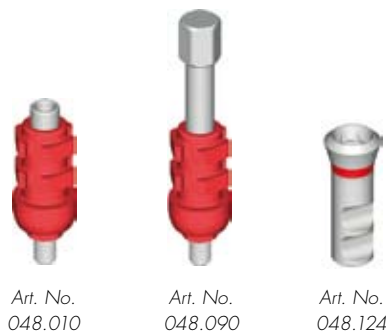
5.B OPEN TRAY IMPRESSION PROCEDURE "SCREWED"

The open tray impression-taking procedure is identical for implant shoulder Ø 4.8 mm RN and implant shoulder Ø 6.5 mm WN.

For this impression procedure use a custom-made tray with perforations. A standard tray with appropriate perforations may also be used.

Important: Only the integral screw must be used. The margin and the octagon must not be damaged to ensure accuracy of the transfer procedure. For this reason, the impression caps are intended for single use only.

RN Implant shoulder Ø 4.8 mm



WN Implant shoulder Ø 6.5 mm



STERILE

A) Positioning of the impression cap



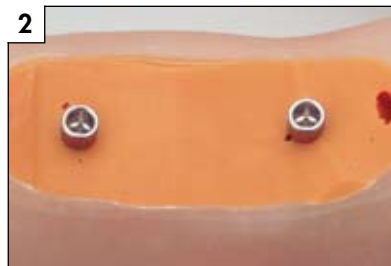
Both the implant shoulder and the internal configuration must be cleaned of blood and tissue prior to the impression procedure. Place the RN synOcta® impression cap (048.010) onto the implant shoulder and tighten it with the integral guide screw and a SCS screwdriver. It is important to accurately position the octagon of the coping with the internal configuration of the implant before tightening the screw.

Option: If interocclusal space is adequate, the impression can also be taken with the open tray RN synOcta® impression cap with built-in handle (048.090). The external octagon on the coping must be lined up with the internal octagon of the implant.

B) Impression taking



1. The custom-made tray (light-cured resin) contains perforations for the guide screws.



2. The impression is taken using an elastomeric impression material (polyvinyl siloxane or polyether rubber).



3. Once cured, the guide screw is loosened and the impression is removed with the aid of a SCS screwdriver.



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

6. BITE REGISTRATION

**For RN and WN implant shoulders
Ø 4.8 mm and Ø 6.5 mm**



Art. No. 048.940V4 Art. No. 048.941V4

To simplify bite registration after taking an impression, plastic bite registration aids are available in heights of 8.0 mm (048.940V4) and 12.0 mm (048.941V4) with a diameter of 5.0 mm. For repositioning on the master cast, the bite registration aids have a flat side laterally.



STERILE



1. The components are each fitted with a snap-in mechanism that holds them in the internal configuration of the implant.

Important: Protect against aspiration when using these components (e.g., use of a throat pack is recommended)



2. To ensure repositioning from the mouth to the master cast, the occlusal area and the lateral flat side of the bite registration aids must be adequately surrounded by bite registration material.



3. To transfer the bite, the bite registration aids are put in the analogs on the master cast, the bite wax model is fixed, and the maxilla and mandible casts are mounted on the articulator.



Note: Bite registration aids must be shaped out of the mouth. If they need to be shortened occlusally due to lack of space, ensure that the lateral flat side is not ground off.



7. TEMPORARY RESTORATIONS

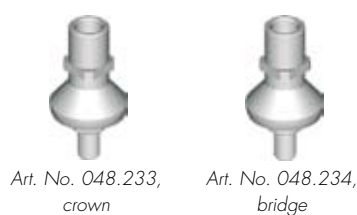
The implants may be fitted with temporary restorations until the final superstructure is fabricated. There are two options:

1. Restorations with the synOcta® posts for temporary restorations and synOcta® temporary meso abutment

Implant shoulder Ø 4.8 mm RN



Implant shoulder Ø 6.5 mm WN



The fabrication of the temporary restoration is identical on implant shoulder Ø 4.8 mm RN and implant shoulder Ø 6.5 mm WN.

This temporary restoration is particularly suitable for the esthetic anterior region and can be fabricated either intraorally by the dentist or in the laboratory by the dental technician. The RN synOcta® posts (048.650 for bridges and 048.651 for crowns) are made of titanium and are screwed directly onto the implant or analog using the integral screw. An additional abutment is not required. The RN synOcta® temporary meso abutment (048.668) for crowns is made of white PEEK and has a titanium inlay. It screws directly into the implant or analog using a basal screw. No additional screw is required.

Cement-retained temporary restoration – synOcta® temporary meso abutment

1. Insert the synOcta® temporary meso abutment into the implant.
2. Mark the areas to be modified.
3. Place the synOcta® temporary meso abutment into an analog secured by an analog holder (046.239), and modify the abutment according to the markings. A maximum of 6.0 mm vertically and 1.0 mm laterally may be removed.
4. Use a standard procedure to fabricate the cement-retained crown.
5. Insert the customized abutment into the implant and torque the basal screw between **15 and 35 Ncm**.
6. Seal the screw channel with absorbent cotton. Coat the internal configuration of the crown with temporary cement and place it over the temporary abutment.



Direct-veneering – synOcta® post for temporary restorations

1. Shorten the post below the occlusal plane.
2. Screw the customized post into the implant.
3. Place cotton pellet into the screw access hole, or use an extra-long SCS occlusal screw (80059) to prevent veneering material from flowing into the screw access hole.
4. As with conventional fabrication of a temporary restoration, fill the transparent or tooth-colored temporary with acrylic and place it over the synOcta® post. Once the patient has closed the mouth, remove any excess acrylic.
5. Once the acrylic has cured, remove the extra-long SCS occlusal screw or the cotton pellet. Place the synOcta® post onto an analog secured by an analog holder (046.239), and finish the margins.
6. Insert the finished temporary into the implant, and torque to **15 Ncm**.

Direct-veneering – synOcta® temporary meso abutment

1. Insert the synOcta® temporary meso abutment into an implant.
2. Mark the areas to be modified.
3. Place the synOcta® temporary meso abutment into an analog secured by an analog holder (046.239), and modify the abutment according to the markings. A maximum of 6.0 mm vertically and 1.0 mm laterally may be removed.
4. For additional mechanical retention, sandblast the PEEK portion of the abutment, or use a bonding agent.
5. Screw the customized abutment into the implant.
6. Place cotton pellet into the screw access hole, or use an extra-long SCS occlusal screw (80059) to prevent veneering material from flowing into the screw access hole.
7. As with conventional fabrication of a temporary restoration, fill the transparent or tooth-colored temporary with acrylic and place it over the synOcta® temporary meso abutment. Once the patient has closed the mouth, remove any excess acrylic.
8. Once the acrylic has cured, remove the extra-long SCS occlusal screw or the cotton pellet. Place the synOcta® temporary meso abutment into an analog secured by an analog holder (046.239), and finish the margins.
9. Insert the finished temporary abutment into the implant, torque the basal screw between **15 and 35 Ncm**, and fill the screw access hole with acrylic.

Fabrication in the laboratory:

The posts can be veneered either by grinding out prefabricated acrylic teeth or by waxing up and investing. This method is especially useful if a silicone key of the wax-up is available. The titanium posts should be silanized to improve bonding of the composite. The temporary restoration is fabricated using veneering composite.



Important: The synOcta® posts and RN synOcta® temporary meso abutments must not remain in situ for longer than 6 months and the restoration must always be out of occlusion in order to reduce the lateral forces that occur.

Important: Prefabricated titanium posts cannot be used for cast-on techniques.

2. Use of the closure screw/healing cap

With this option, the closure screw that was used during the healing period is replaced following the impression procedure. This version is particularly suitable when an existing prosthesis (full or partial denture) has been used as a temporary restoration or if the gap in the teeth is in the posterior region and therefore does not affect esthetics.



8. FABRICATING THE MASTER CAST

Analogs for:

Implant shoulder Ø 4.8 mm RN



Art. No. 048.124

Implant shoulder Ø 6.5 mm WN



Art. No. 048.171

The fabrication of the master cast is identical for implant shoulder Ø 4.8 mm RN and implant shoulder Ø 6.5 mm WN.

COLOR CODING

RN synOcta® impression components on implant shoulder
Ø 4.8 mm = **red**

WN synOcta® impression components on implant shoulder
Ø 6.5 mm = **white**

Important: To ensure accuracy when taking the impression, the analog in both versions must be connected exactly with the octagon of the impression components before snapping it on or screwing it in.

Closed tray technique (snap-on):

In the laboratory, the RN synOcta® analog (048.124) is repositioned in the impression. The shoulder must click audibly into place. The red RN synOcta® positioning cylinder indicates to the dental technician that the RN synOcta® analog with the red line must be used.



Open tray technique (screwed):

The RN synOcta® analog is fixed in the impression using the integral guide screw.

The red RN synOcta® impression cap indicates to the dental technician that the RN synOcta® analog with the red line must be used.

Important: When tightening the screw, grasp the retentive section of the analog in order to prevent the impression cap from rotating. This is especially important if the cap has been shortened.



Fabrication of working model:



*Conventional fabrication of the working model
using special hard plaster type 4 (DIN 13911)*

Tip: A gingival mask should always be used to ensure that the emergence profile of the crown is contoured optimally. This is essential for restorations in esthetically demanding regions, and with subgingival crown margins.

9. CASE PLANNING WITH THE PROSTHETIC PLANNING KIT

RN synOcta® PLAN abutments for implant shoulder Ø 4.8 mm



COLOR CODING

RN synOcta® PLAN abutments for implant shoulder Ø 4.8 mm = **red**

WN synOcta® PLAN abutments for implant shoulder Ø 6.5 mm



COLOR CODING:

WN synOcta® PLAN abutments for implant shoulder Ø 6.5 mm = **grey**

The prosthetic planning kit (048.901) allows for optimal planning of the restoration on the model. This gives the dentist and dental technician the greatest flexibility in cooperative planning and also minimizes the number of components that need to be stocked.

This prosthetic planning kit contains plastic abutments for crown and bridge restorations that can be placed on the analogs in order to check the height, axial alignment and screw axis. This also makes it easy to determine which of the angled abutments offers the best solution.



Caution: These PLAN abutments are only for use on the model and must not be used intraorally.

10.A SYNOCTA® 1.5 SCREW-RETAINED

Abutments for transocclusal screw-retained crowns and bridges

Implant shoulder Ø 4.8 mm RN



Art. No. 048.602

Implant shoulder Ø 6.5 mm WN



Art. No. 048.603

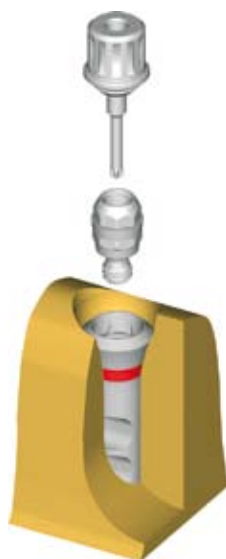
A) Fabrication of the superstructure

Inserting the abutment

The original abutment is put on the analog and aligned in the octagon.

Important: The abutment must be properly positioned in the octagon before the screw is tightened.

The screw is tightened by hand using the SCS screwdriver.



B) Process of the copings

Version 1: synOcta® gold copings for the cast-on technique

The gold copings are made of a non-oxidizing high-fusing alloy (Ceramicor®: Au 60%, Pt 19%, Pd 20%, Ir 1%; melting range 1400° – 1490 °C, 2552° – 2714 °F). With these copings, the modeling aid (burn-out plastic) is already in place. The modeling aid can be shortened if necessary.

Tip: Never cast without the modeling aid. Otherwise the metal-ceramic alloy will not flow at all or will be too thin at the upper edge of the coping (screw seating on the coping), leading to a risk of cracks appearing in the ceramic due to different heat expansion coefficients. The modeling aid also ensures that the end of the screw channel is clean and sharp-edged.



Art. No. 048.632
RN synOcta® gold coping
without internal octagon
for bridge, for use with
048.602
(includes modeling aid)



Art. No. 048.633
RN synOcta® gold coping
with internal octagon
for crown, for use with
048.602
(includes modeling aid)



Art. No. 048.638
WN synOcta® gold
coping without internal
octagon for bridge, for
use with 048.603
(includes modeling aid)



Art. No. 048.639
WN synOcta® gold
coping with internal oc-
tagon for crown, for use
with 048.603
(includes modeling aid)



1. Position the selected coping (gold or plastic), then secure with a SCS occlusal screw or SCS guide screw. Depending on the individual circumstances, the modeling aid, plastic coping and/or the guide screw may need to be shortened to the height of the occlusal plane.



2. Wax up the framework in the conventional manner for veneers (plastic/porcelain). Use the silicone key of the wax-up to check the framework shape. The modeling is carried out on a scaled-down tooth shape. The crowns must be premolarized in size to reduce the risk of nonaxial loading and prevent plaque accumulation due to overcontouring.



3. When waxing up the framework, ensure that those areas of the prefabricated gold copings that are to be veneered with porcelain are coated with wax (at least 0.7 mm). As the gold coping consists of a non-oxidizing alloy, the porcelain cannot be bonded directly onto it (no oxidation for bonding).

Important: Do not cover the delicate margin of the copings with wax. The use of investment material for rapid heating methods (speed investment methods) is not recommended. Do not use wetting agents.

Tip: Before investment, it is recommended that the delicate margin is cleaned with a cotton bud (dipped in alcohol) as even minimal wax residue here can lead to overflow of the cast-on alloy onto the edge or into the interior of the coping.

Version 2: synOcta® plastic copings for the burn-out technique

The plastic copings are made of a fully burn-out plastic and can be shortened if required.

Note: A cast component can not achieve the perfection of a prefabricated component, which is first rolled and drawn, then machined to provide excellent mechanical strength.

Important: When using plastic copings, the occlusal or guide screw should be tightened gently. When modeling on plastic copings, the screw seating and the 45° shoulder may be deformed if the screw on the analog is screwed too tightly since plastic is elastic.



Art. No. 048.227
RN synOcta® plastic coping
without internal octagon
for bridge, for use with
048.602



Art. No. 048.229
RN synOcta® plastic coping
with internal octagon
for crown, for use with
048.602



Art. No. 048.666
WN synOcta® plastic
coping without internal
octagon for bridge,
for 048.602



Art. No. 048.667
WN synOcta® plastic
coping with internal
octagon for crown,
for 048.602



Reamer for version 2

The following items are required:

- ① synOcta® guide pin, 046.241
- ② Finishing instrument for 45° shoulder, 046.243
- ③ Handle, 046.240



If there are small casting beads on the 45° shoulder of the cast plastic coping, the shoulder area can be smoothed using the finishing instrument. The synOcta® guide pin is inserted in the handle, the finishing instrument is put over the guide pin and the guide pin is then positioned carefully in the cast coping. The 45° shoulder of the coping is smoothed by rotating the finishing instrument slowly and evenly.

Important: The finishing instrument has no stop. Abrade only as much as necessary to remove the casting beads. Working under a stereo microscope is recommended. Serious casting defects and extreme unevenness cannot be corrected with the finishing instrument. In these cases, the casting procedure must be repeated.



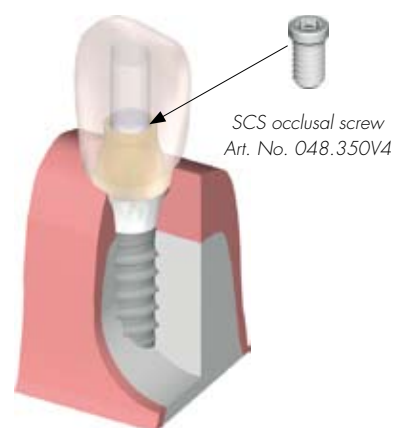
Tighten the **superstructure** on the synOcta® 1.5 abutment with a torque of **15 Ncm**. The following options are available for securing the superstructure:



Version 1: Securing with the SCS occlusal screw

With this option, cover the screw heads with a little wax or gutta percha and seal the transocclusal screw channels (e.g., with composite).

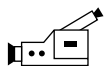
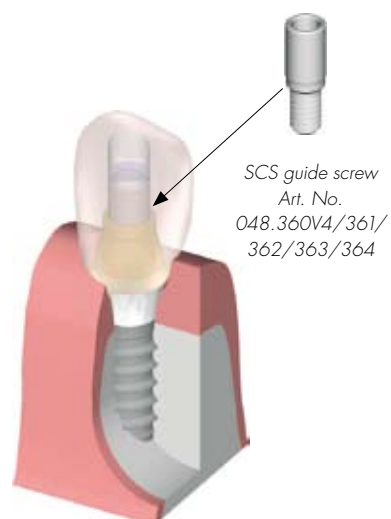
Tightening torque = 15 Ncm



Version 2: Securing with the SCS guide screw

With this option, shorten the SCS guide screw intraorally to the occlusal plane, and cover.

Tightening torque = 15 Ncm



See also CD-ROM "Straumann® Dental Implant System-Prosthetics," Art. No. 150.538: Screw-retained single tooth restoration with the RN synOcta® 1.5 screw-retained abutment.

10.B SYNNOCTA® CEMENTED

Abutments for cement-retained crowns and bridges

Implant shoulder Ø 4.8 mm RN



Art. No. 048.605

Implant shoulder Ø 6.5 mm WN



Art. No. 048.606

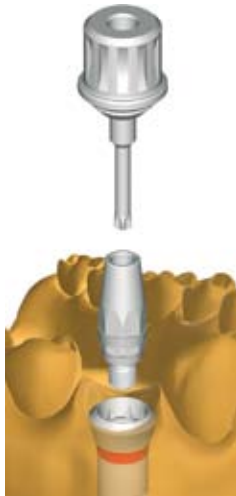
The dental technician can fabricate a cement-retained superstructure directly with this abutment without further impression-taking by the dentist. Cement-retained bridge constructions in combination with implant shoulders of Ø 4.8 mm RN and Ø 6.5 mm WN are also possible. The abutment can be shortened on the master cast by a maximum of 2.0 mm.

A) Fabrication of the superstructure

Insert the abutment in the octagon of the synOcta® analog using a SCS screwdriver.

Important: The abutment must be properly positioned in the octagon before the screw is tightened.

The screw is tightened by hand using the SCS screwdriver.



B) Process of the copings



1. Where occlusal space is limited, the abutment can be shortened by a maximum of 2.0 mm.

Important: The abutment must not be ground laterally but only shortened occlusally to maintain proper stability.



2. To facilitate the working procedure, prefabricated synOcta® plastic copings for 048.605 are available to the dental technician. The copings are made from burn-out plastic.

The plastic copings are equipped with a snap-on mechanism, which makes them easier to fix onto the synOcta® analog. The snap-on mechanism must be removed after casting.



3. The plastic copings can also be shortened and adjusted to the height of the shortened abutment.

The occlusal opening is sealed temporarily with wax or plastic. Waxing up then takes place directly over the plastic coping.



Art. No. 048.662
RN synOcta® plastic coping without internal octagon for bridge, for use with 048.605



Art. No. 048.663
RN synOcta® plastic coping with internal octagon for crown, for use with 048.605



Art. No. 048.243
WN synOcta® plastic coping with internal octagon for crown, for use with 048.606



Art. No. 048.244
WN synOcta® plastic coping without internal octagon for bridge, for use with 048.606



4. Invest the framework (see pages 58 – 59 for more information). The investment material must be matched to the casting alloy used (follow the manufacturer's directions and recommendations).

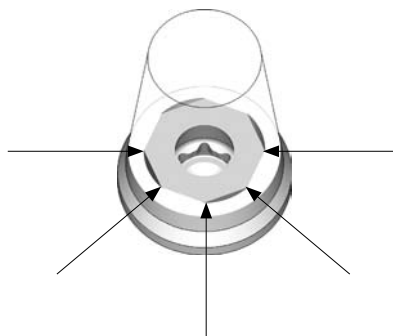
Important: Burn-out plastics are characterized by the fact that they swell up when they are burned out. For this reason, it is important that the outside of the plastic coping is completely covered with wax. The wax burns off and therefore creates sufficient space in the mold for expansion when burned out in the oven. There must be a wax layer of at least 0.3 mm in the marginal region (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.



Reamer

5. The snap-on mechanism can be removed under a microscope using the finishing instrument or rubber wheel.

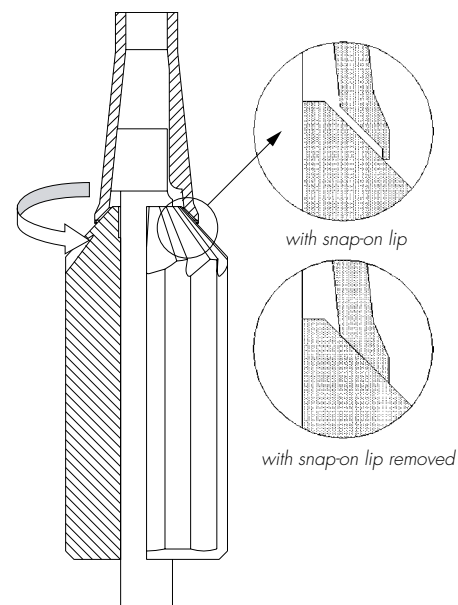
Important: The snap-on mechanism must be removed completely after casting. Otherwise, it will not be possible to exactly position the construction on the analogs and implant shoulder.



Tip: When trimming the coping, do not grind into the corners in the interior as this leads to rotatory movements of the coping on the abutment.



6. The construction can now be veneered in the conventional way. The veneering materials must be matched to the alloy used (follow the manufacturer's directions and recommendations).



Important: The finishing instrument has no stop. Abrade only as much as necessary to remove the casting beads. Working under a stereo microscope is recommended.

The following items are required:

- ① synOcta® guide pin, 046.246 for RN respectively synOcta® guide pin, 046.247 for WN
- ② Finishing instrument for 45° shoulder, 046.243
- ③ Handle, 046.240



C) Transfer aids



Art. No. 048.059V4,
for 048.605



Art. No. 048.054V4,
for 048.606

To ensure correct transfer of the position of the RN synOcta® abutment from the master cast to the patient, an individual index can be fabricated on the cast using the transfer aid (048.059V4) and plastic. Simply place the transfer aid on the abutment situated in the cast. In the case of single crowns, the index is secured with support from the adjacent teeth; in the case of bridges, the abutments are splinted to one another.



Important: The occlusal screw opening must not be covered with plastic. Ensure that no plastic gets into the interior of the abutment, otherwise it will not be possible to loosen the integral abutment screw.

D) Fitting the final restoration



The restoration is delivered to the dentist with the original abutments on the master cast.

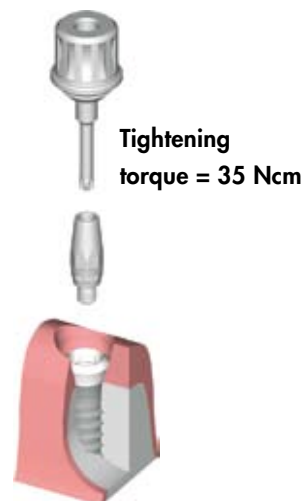
Remove the healing cap or temporary restoration. Thoroughly clean and dry the interior of the implants.

Remove the screws of the abutments from the master cast using a SCS screwdriver and place the transfer aid in the patient's mouth. Transfer can be done using the screwdriver.

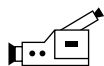


Important: Properly position the RN synOcta® abutments in the internal octagon. The abutment must first be properly positioned in the octagon of the implant before the screw is tightened.

Tighten the abutment screws with the SCS screwdriver along with the ratchet (046.119) and torque control device (046.049).



A tightening torque of **35 Ncm** is recommended for inserting the abutments.



See also CD-ROM "Straumann® Dental Implant System-Prosthetics,"
USADV 022: Cemented single tooth restoration with the RN and WN
synOcta® cemented abutment.

10.C SYNOCTA® ANGLED FOR RN

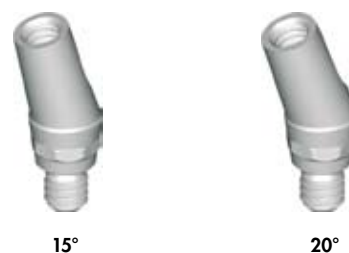
15° and 20° angled abutments for screw-retained and cement-retained crowns and bridges

RN angled abutments allow prosthetic restorations to be performed while equalizing the implant axis at the same time. The angles of 15° and 20° mean that the angle of insertion required for each situation can be determined and the necessary axis correction made. The angled abutment allows screw-retained and cement-retained crowns and bridges to be fabricated.

Important: RN angled abutments must not be used with 15° angled hollow cylinder implants.

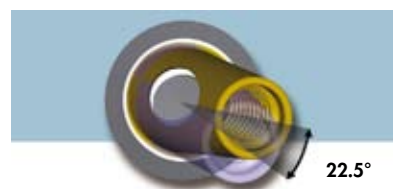
Due to their design, long angled abutments may be shortened by a maximum of 2.0 mm, when shortened only cement-retained restorations can be done. Short angled abutments cannot be modified.

The RN synOcta® angled abutments are available in a short version (Art. No. 048.612/613/617/618) and a long version (Art. No. 048.610/611/615/616). The handling of both versions is identical. The difference in height is 1.0 mm.



Selecting the correct abutment

Two types of RN synOcta® angled abutments are available for each angle, enabling the axis to be corrected in 16 different alignments (in 22.5° graduations). The use of the prosthetic planning kit (048.901) is recommended to help determine the most suitable abutment.

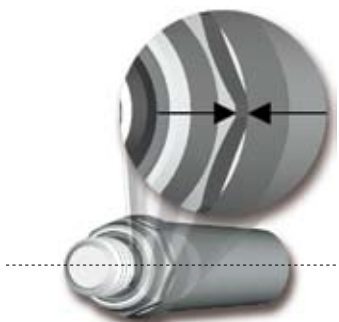


Type A



Art. No. 048.610, 048.612
15°

Art. No. 048.615, 048.617
20°



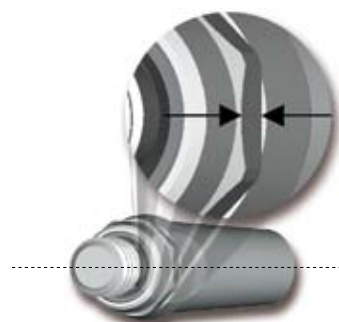
A = angle to the apex

Type B



Art. No. 048.611, 048.613
15°

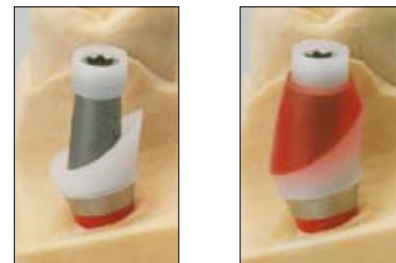
Art. No. 048.616, 048.618
20°



B = angle to the flat wall

Option: Plastic shoulder for RN synOcta® 15° and 20° angled abutments

A special plastic shoulder with a snap-on mechanism (048.676V4) is available for modeling the framework. The modeling aid is made of a fully burn-out plastic. Simply put the shoulder on the shoulder of the analog until the snap-on mechanism clicks audibly into place. Modeling can be carried out in wax or plastic and can be used for transocclusal screw-retained and cement-retained crowns and bridges.



Art. No. 048.676

A-1) Fabricating a transocclusal screw-retained single crown



1. Align the abutment on the working model and tighten the abutment screw using the SCS screwdriver.

Important: The abutment must be properly positioned in the octagon of the implant before the screw is tightened.

Tip: Once the correct position has been determined, it is recommended that the position on the model is marked with a felt-tip pen to ensure that the original position is immediately recognizable when the abutment is removed. During the modeling process, the lateral opening must be sealed with a material that can be easily removed (wax, gutta percha, modeling resin, silicone).

Important: This seal must be removed once the crown is completed.

2. Attach the plastic extension shell (048.670) to the abutment with a SCS occlusal screw and shorten occlusally or adapt individually. The screw head should always be out of occlusion in order to prevent any possible riveting of the screw head. The extension shell must always be used, since this contains the screw seating and is required for screw retention.

3. Model and cast the framework. The snap-on mechanism of the plastic shoulder must be removed after casting (for example, carefully with a polishing rubber under the microscope). Carry out veneering in accordance with the anatomical guidelines and allow for the premolarization in the lateral region. The “freedom in centric” concept should be used for the occlusion (see page 63).

A-2) Fabricating a cemented single crown



1. In this case, the occlusal opening must also be sealed (e.g., composite, gutta percha, silicone), in addition to the lateral opening.



2. Position the plastic shoulder with snap-on mechanism (048.676V4), for RN synOcta® 15° and 20° angled abutments.



3. Model and cast the framework. Carry out veneering in accordance with the anatomical guidelines and allow for premolarization in the lateral region.

The “freedom in centric” concept should be used for the occlusion (see page 63).

Important: Before delivery of the work to the dentist, the lateral seal of the screw opening must be removed to ensure that no residue is left, and the abutment must be cleaned.

B) Transfer aids



Art. No. 048.000V4
for RN synOcta®
angled, short, Art. No.
048.612/
613/617/618



Art. No. 048.002V4
for RN synOcta®
angled, long, Art. No.
048.610/
611/615/616

To ensure correct transfer of the position of the RN synOcta® angled abutments from the master cast to the patient, the transfer aid can be used. It is made from polymerizable plastic.



It can be placed on the RN synOcta® angled abutment.



Secure with the SCS occlusal screw (048.350)



An index is fabricated using plastic. In the case of a bridge, the transfer aids can be splinted. Support from adjacent teeth is not required. If space is tight, the retention elements of the transfer aid can be shortened.

C) Fitting the final restoration



The restoration is delivered to the dentist with the original abutment on the master cast. Loosen the abutment using the SCS screwdriver and remove it from the analog. Then, place the abutment in the patient's mouth using the transfer aid. Finally, remove the transfer aid and fit the superstructure onto the implant.

Important: The RN synOcta® abutment is properly positioned in the internal octagon without the use of cement.



The abutment screw is tightened with the SCS screwdriver along with the ratchet (046.119) and torque control device (046.049).

Important: The abutment must be properly positioned in the octagon of the implant before the screw is tightened.

A tightening torque of **35 Ncm** is recommended for inserting the abutments.

Tighten the **crown** with a torque of **15 Ncm** using a SCS occlusal screw or a SCS guide screw shortened to occlusal level.

Important: If the superstructure is cemented, the lateral and the occlusal openings must be re-sealed with wax or gutta percha.

10.D WN SYNOCCTA® ANGLED

15° angled abutment for cement-retained crowns and bridges



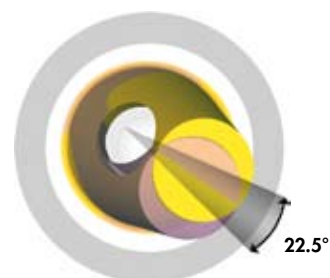
15°

Art. No. 048.608/609

The WN synOcta® 15° angled abutment allows prosthetic restorations to be performed while equalizing the implant axis at the same time. Only cement-retained crowns and bridges can be fabricated with the WN angled abutment.

Selecting the correct abutment

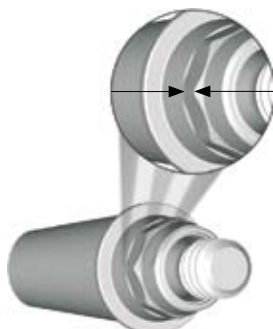
Two types of WN synOcta® 15° angled abutments are available. This enables the axis to be corrected in 16 different alignments (in 22.5° graduations). The use of the prosthetic planning kit (048.901) is recommended to help determine the most suitable abutment.



Type A



Art. No. 048.608



A = angle to the apex

Type B



Art. No. 048.609



B = angle to the flat wall

A) Fabricating a cement-retained single crown



1. Align the abutment on the working model and tighten the abutment screw using the SCS screwdriver.

Important: The abutment must be properly positioned in the octagon of the implant before the screw is tightened.

Tip: Once the correct position has been determined, it is recommended that the position on the model is marked with a felt-tip pen in order to ensure that the original position is immediately recognizable when the abutment is removed.



2. During the modeling process, the lateral opening must be sealed with a material that can be easily removed (e.g., wax, gutta percha, modeling resin, silicone).

Important: This seal must be removed once the crown is completed.



Art. No. 048.678

Option: Plastic shoulder for WN synOcta® 15° angled abutment

There is a special plastic shoulder with a snap-on mechanism (048.678) for modeling the framework. The modeling aid is made of a fully burn-out plastic.



3. Simply place the shoulder on the WN analog shoulder until the snap-on mechanism clicks audibly into place.



5. This is followed by casting of the framework. The snap-on mechanism of the plastic shoulder must be removed after casting (for example, carefully with a polishing rubber under the microscope).

Important: Before delivery of the work to the dentist, the lateral seal of the screw opening must be removed, ensuring that no residue is left and the abutment is cleaned.

B) Transfer aid



Art. No. 048.032

To ensure correct transfer of the position of the WN synOcta® angled abutment from the master cast to the patient, the transfer aid (048.032) can be used. It is made from polymerizable plastic.



The transfer aid is placed on the abutment.



Fabricate an index using plastic. In the case of a bridge, the transfer aids can be splinted. Support from adjacent teeth is not required. If space is tight, the retention elements of the transfer aid can be shortened.

C) Fitting the final restoration



The restoration is delivered to the dentist with the original abutment on the master cast. Loosen the WN synOcta® angled abutment using the SCS screwdriver and remove from the analog. Place the abutment in the patient's mouth using the transfer aid. Finally, remove the transfer aid and fit the superstructure.

Important: Properly position the abutment in the internal octagon without the use of cement.

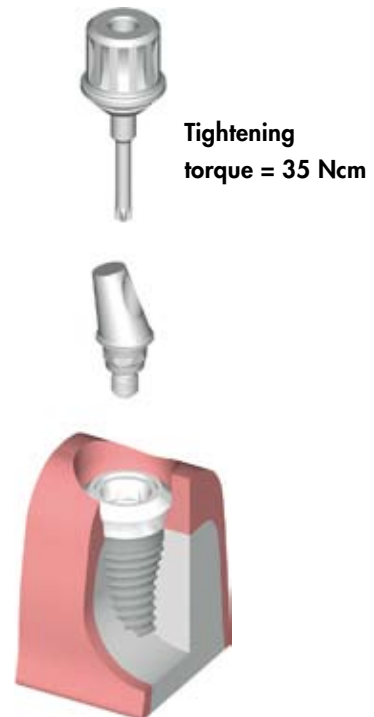


Tighten the abutment screw with the SCS screwdriver along with the ratchet (046.119) and torque control device (046.049).

Important: The abutment must be properly positioned in the octagon of the implant before the screw is tightened.

A tightening torque of **35 Ncm** is recommended for inserting the abutment.

Important: Before cementing the superstructure, the lateral opening must be resealed with wax or gutta percha.



10.E RN SYNOCTA® TRANSVERSAL

Abutment for transversal screw-retained crowns and bridges



Art. No. 048.620

Transversal screw retention is used in cases where occlusal/incisal screw retention is contraindicated due to reasons of esthetics and/or construction (axial alignment of the screw).

A) Fabrication of the superstructure

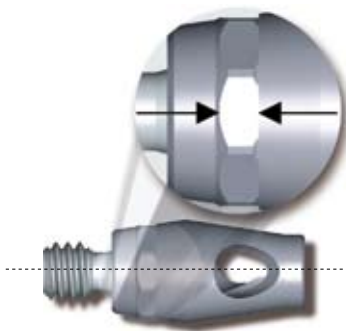
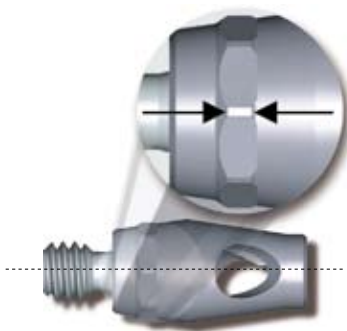
Inserting of the abutment

Put the original abutment on the RN synOcta® analog and align in the octagon.

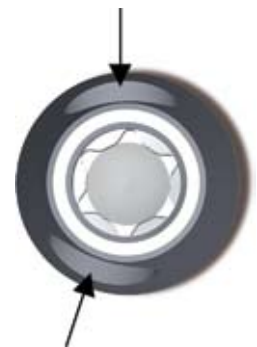
Important: The abutment must be properly positioned in the octagon before the screw is tightened.



The abutment screw is **tightened by hand using the SCS screwdriver**. The transversal opening can be aligned in 16 different positions.



One screw opening is aligned with the flat wall, while a second screw opening is aligned with the apex.



View from above

Tip: Once the correct position has been determined, it is recommended that the position on the model is marked with a felt-tip pen to ensure that the original position is immediately recognizable when the abutment is removed.



B) Processing of the copings

The following copings are available for the RN synOcta® transversal (TS) abutment:

Version 1: Gold coping for the cast-on technique

The gold coping is made of a non-oxidizing high-fusing alloy (Ceramicor®: Au 60%, Pt 19%, Pd 20%, Ir 1%; melting range 1400° – 1490 °C, 2552° – 2714 °F).



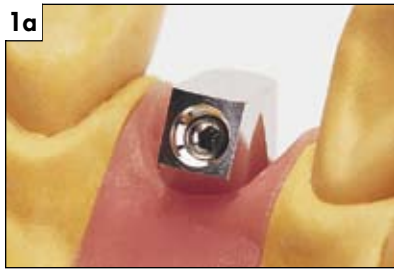
Art. No. 048.634
RN synOcta® TS gold coping

Version 2: Plastic coping for the burn-out technique

The plastic coping is made of a fully burn-out plastic with a cast-on high gold content screw housing (Ceramicor®: Au 60%, Pt 19%, Pd 20%, Ir 1%; melting range 1400° – 1490 °C, 2552° – 2714 °F).



Art. No. 048.665
RN synOcta® TS plastic coping
with cast-on threaded housing



1. Position the selected coping and then carefully tighten with a transversal screw (049.154) and the TS hexagonal screwdriver (046.420).

Important: The lingual/palatal part of the gold coping or the lingual/palatal edge of the threaded housing must not be modified prior to casting. Otherwise, the margin of the thread protection screw will no longer fit.



2. Wax up the framework in the conventional manner for veneers (plastic/porcelain). Use the silicone key of the wax-up to check the framework shape.

The modeling is carried out on a scaled-down tooth shape. The crowns must be premolarized in size to reduce the risk of nonaxial loading and prevent plaque accumulation due to overcontouring.

Important: Do not cover the delicate margin of the copings with wax



3. When waxing up the framework, ensure that those areas of the pre-fabricated gold copings that are to be veneered with porcelain are coated with wax (at least 0.7 mm). As the gold coping consists of a non-oxidizing alloy, the porcelain cannot be bonded directly onto it (no oxidation for bonding).



4. The screw thread must be protected during the casting phase. In order to do so, the transversal screw must be removed and replaced by the RN synOcta® TS threaded protection screw (048.672) prior to investment.



5. Invest the modeled superstructure.



Important: Coat the thread of the threaded protection screw and coping with graphite liquid before tightening it. This will allow the protection screw to be removed more easily after the casting process.

Tip: When investing a RN synOcta® TS plastic or gold coping, ensure that the threaded protection screw is facing sideways or downwards (see picture above). That way, the investment material can flow better into the inner thread channel and avoid bubbles. See casting tips on pages 60–62.

The investment material must be matched to the alloy used (refer to the manufacturer's instructions and recommendations).

Important: Prior to investment, the inside and outside of the circular gold or plastic margin must be free of insulating material and wax particles. The use of investment material for rapid heating methods (speed investment methods) is not recommended. Do not use wetting agents.



6. Cast-on technique for prefabricated gold copings:

Since casting is always involved with the RN synOcta® TS copings (casting to the screw housing in the case of plastic copings), the guidelines on cast-on technique on page 60–62 must be followed.

Once the model has slowly cooled to room temperature, carefully remove the investment compound.



7. The following are suitable for devesting:

Ultrasound, water, pickling or a glass fiber brush

Important: Never use sand-blasting for devesting as it will destroy the margins and adversely affect the accuracy of the fit.

Important: Casting defects inside the gold copings are due to differences in the expansion behavior between Ceramicor® and the investment material. They considerably affect the precision of the prefabricated parts and jeopardize the entire restoration (follow investment material manufacturer's directions).

If there is a small amount of metal or casting defects on the thread, the thread can be worked smooth with a tap (044.570).

Tip: If the thread of the protective screw breaks during removal because of the metal, the remainder of the thread can be loosened in an overnight acid bath containing 32% concentrated hydrochloric acid.

If there are small casting beads on the shoulder of the plastic copings, the shoulder area can be smoothed using the finishing instrument.

Position the guide pin and finishing instrument in the cast coping and smooth the margin by rotating the finishing instrument slowly and evenly.

The following items are required:

- ① synOcta® guide pin, 046.241
- ② Finishing instrument for 45° shoulder, 046.243
- ③ Handle, 046.240



Serious casting defects and extreme unevenness cannot be corrected with the finishing instrument and tap. In these cases, the procedure must be repeated.

Important: The finishing instrument has no stop. Abrade only as much as necessary to remove the casting beads. Working under a stereo microscope is recommended.

8. When trimming the framework, ensure that the burn-out alloy is not ground off or perforated. Exposed areas of prefabricated gold coping or threaded housing may cause the porcelain to crack (no oxide layer for bonding and differences in the thermal expansion behavior of Ceramicor® and porcelain).



9. Carry out veneering in accordance with the anatomical guidelines and allow for the premolarization in the lateral region. The “freedom in centric” concept should be used for the occlusion (see page 63).



Note: As the prefabricated copings are extremely precise, the margins must be finished and polished with extreme care. Working under a stereo microscope is recommended.



Tip: A RN synOcta® analog can be attached to protect the margins during polishing, to reduce the risk of damage to the margins.



C) Transfer aid



Art. No. 048.003V4

To ensure correct transfer of the position of the RN synOcta® transversal (TS) abutment from the master cast to the patient, the transfer aid (048.003V4) can be used.



It is made from polymerizable plastic and is placed on the RN synOcta® transversal (TS) abutment.



Fabricate an index using plastic. In the case of a bridge, the transfer aids can be splinted. Support from adjacent teeth is not required.

If space is tight, the retention elements of the transfer aid can be shortened.

D) Fitting the final restoration

The restoration is delivered to the dentist with the original abutment on the master cast.

Remove the healing cap or temporary restoration. Thoroughly clean and dry the interior of the implant.



Remove the RN synOcta® transversal (TS) abutment from the master cast using the SCS screwdriver.



Remove the transfer aid and fit the superstructure.



Fit the abutment intraorally using the transfer aid.



Important: Properly position the RN synOcta® transversal (TS) abutment in the internal octagon without the use of cement.



Tighten the abutment screw with the SCS screwdriver along with the ratchet (046.119) and torque control device (046.049).

Important: The abutment must be properly positioned in the octagon before the screw is tightened.

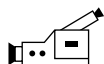
A tightening torque of **35 Ncm** is recommended for inserting the abutments.



Insert the superstructure using the transversal screw, and **tighten carefully by hand using the TS hexagonal screwdriver (046.420). Hand tighten only.**



Art. No. 046.420



See also CD-ROM "Straumann® Dental Implant System-Prosthetics," USADV 022: Screw-retained single tooth restoration with the RN synOcta® transversal abutment.

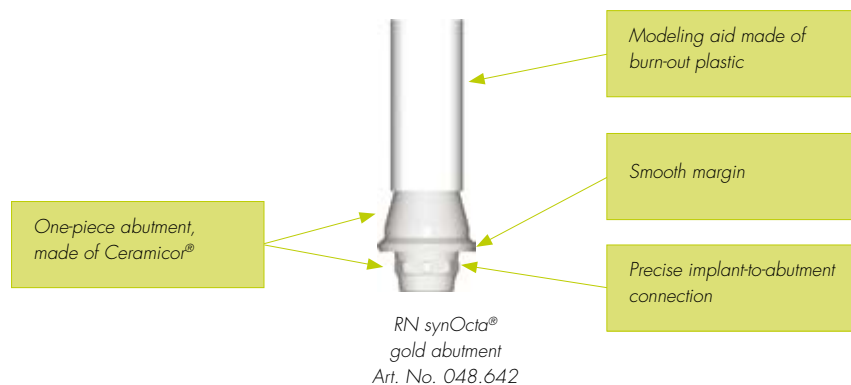
11. RN SYNOCTA® GOLD ABUTMENT

The one-piece solution for anterior zone esthetics

Indication and product overview

As an easy to process, one-piece solution, the RN synOcta® gold abutment for direct cast-on procedures simplifies production by substantially reducing required handling steps. With the option to create a screw or cement-retained restoration, the RN synOcta® gold abutment offers the prosthetic versatility needed to achieve individual esthetic results.

The RN synOcta® gold abutment has an octagon in the basal portion that joins with the octagon of the Straumann dental implant to prevent it from rotating. It is exclusively intended for use with screw-retained single crown restorations or as a customized abutment for cement-retained crowns. The gold abutment is **not suitable** for direct splinting to another gold abutment. Single restorations with a screw access hole through the occlusal/cingulum surface may be fabricated. The screw channel of burn-out plastic is attached to the gold abutment to optimize any modification. The use of a RN synOcta® 1.5 screw-retained abutment (048.602) is not necessary.



One-piece:
RN synOcta® gold abutment



Two-piece:
RN synOcta® 1.5 screw-retained
abutment with gold coping

A) Production of the meso structure

Inserting of the abutment

The RN synOcta® gold abutment is placed on the analog and aligned in the internal octagon.

Important:

The abutment must be positioned in the internal octagon **before** the internal screw is tightened. The screw is tightened by hand using a SCS screwdriver.

Tip: A gingival mask should always be used to ensure that the emergence profile of the crown is optimally contoured. This is essential for restorations in esthetically demanding regions, and with subgingival crown margins.



Processing of the gold abutment

1. Depending on the individual circumstances, the modeling aid can be shortened to the height of the occlusal plane.



Tip: For easier handling of the abutment, the use of an additional analog is recommended for manipulation outside the model.





2. For optimal esthetic planning, a wax-up can be modeled.



3. A silicone key will be made over the wax-up to define the optimal wax modelation for the customized abutment.



4a. A wax modelation is contoured according to the anatomical circumstances of the individual case.

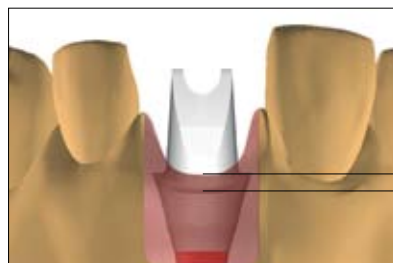


4b. The silicone key shows exactly the space for the cement-retained crown, which will be made over this customized abutment.



Note: The modeling on the abutment must be sufficiently thick (wax layer of at least 0.7 mm). Do not cover the delicate margin of the abutment with wax. The modeling aid ensures a clean and sharp-edged finish of the screw channel.

The picture shows an optimal design for fabrication of the customized abutment for contouring of an ideal emergence profile and adaptation of the margin to the gingival contour.



For reasons of hygiene, the cement margin must be no more than 2.0 mm below the gingival level.



5. Invest the customized abutment in the usual method **without** the use of wetting agents.



In order to avoid overflow of the cast-on alloy on the delicate circular edge and interior of the abutment, it is recommended to thoroughly clean the abutment prior to investment (removal of wax particles, insulating agents with a cotton pellet and/or brush moistened **with alcohol**).

Warning: Ensure that there is no wax on the delicate margin. The use of investment materials for rapid heating methods (speed investment materials) is not recommended. When processing the investment material, follow the investment material manufacturer's instructions. Observe the recommended mixing ratio and preheating time exactly.

Tip: Always do the cast with the modeling aid. Otherwise the dental casting alloy will not, or only too thinly, flow out at the upper coping rim.



6. Cast the customized abutment. Gentle devestment with ultrasound, water jet, pickling acid or glass fiber brush



Note: Intruded casting metals and casting pearls **cannot** be removed from the shoulder part of the gold abutment with the reamer instrument for the 45° shoulder due to design reasons.



Warning: Never use sand-blasting for devestment, as it will destroy the abutment.

Casting errors and incorrect handling

If the cast-on alloy is trimmed through, the Ceramicor® surface cannot be covered with ceramic veneer and the cast has to be redone. Ceramicor® is a non-oxidizing alloy and allows no ceramic bonding.

Note: If you choose to veneer directly onto the RN synOcta® gold abutment, you have to ensure that you have a sufficient metal thickness of the dental casting alloy.

Ground down to abutment level



Failed casting

Insufficiently cleaned margin, overflow of alloy on the 45 degree-shoulder



Casting beads and overflow of alloy on the 45 degree-shoulder

In the case of casting errors like insufficient mold fill, casting beads or casting defects in the interior, the procedure **must be repeated**. The long-term success of the implants also depends on the precise fit of the restoration.

7a



7b



7. After trimming, the finished customized abutment is polished and ready for the fabrication of the cement-retained single crown.

B) Fabricating the cement-retained single crown



1. After blocking out the screw channel, the framework is waxed directly over the customized abutment.



2. The silicone key shows the spatial relations for the restoration.



3. Cast the framework in the conventional manner



4. After the trimming of the cast, the metal crown fits precisely on the customized abutment.



5. The silicone key shows the spatial relations for the veneering.

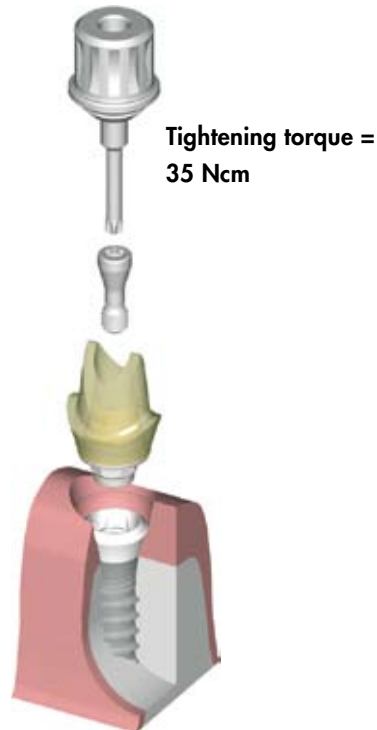


6. The final cement-retained crown on the individualized abutment

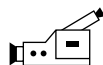
C) Fitting the final restoration

The restoration is delivered to the dentist with the customized abutment on the master cast. The customized abutment must be positioned in the internal octagon of the implant without the use of cement. The basal screw of the RN synOcta® gold abutment is then tightened to **35 Ncm** on the implant using a SCS screwdriver, ratchet (046.119) and torque control device (046.049).

Before cementing the crown, the SCS configuration of the occlusal screw should be closed with cotton and sealing compound (gutta percha). This allows the possibility of later removal of the customized abutment in case a crown replacement becomes necessary.



The final restoration will be definitively cemented on the customized abutment.



See also CD-ROM "Straumann® Dental Implant System-Prosthetics,"
USADV 022: Screw-retained single tooth restoration with the RN synOcta®
gold abutment.

MESO ABUTMENT STEP-BY-STEP



1. Any case with more than 3.0 mm of soft tissue would be a potential site for use of the synOcta® Meso abutment.



2. Create a diagnostic wax up or setup.



3. Make a lab putty index that will record the neutral zone of the edentulous space. This will provide a visual guide for the modification of the synOcta® Meso abutment.



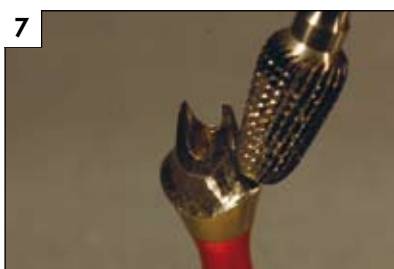
4. Remove the tissue from the model, seat the abutment on the master case, and contour.



5. Remove the abutment from the master cast and replace the tissue. Return the abutment to the master cast, and mark the tissue height with a marker.



6. Note the proposed extended finish line that the abutment will be reduced to.



7. Using end cutting titanium carbide, complete the final preparations. Polish the modified abutment using rubber and silicone.



8. Return the abutment to the master cast, and verify the preparations with the lab index.



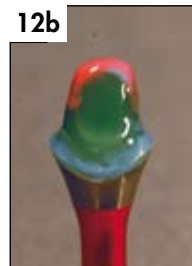
9. This lateral view illustrates that the abutment has been properly modified to allow enough room for the final restoration.



10. When satisfied with the preparation, return the abutment to the spare synOcta® analog and block out with wax.



11. Apply die lube to the abutment.



12. Dip the abutment in dipping wax and wax up in a conventional manner.



13. Sprue and cast the wax up in a conventional manner and fit with the aid of a stereo microscope.



14. Complete final finishing on the master cast.

Finally, secure the final prosthesis in place with permanent cement. Take care to ensure that all excess cement is removed.

Important:

Do not cement the abutment into the implant.



15. Apply porcelain in a conventional manner.

12. PROCESSING INSTRUCTIONS

Investing and casting



Casting tips for burn-out plastic copings

For implant shoulder \varnothing 4.8 mm RN



For implant shoulder \varnothing 6.5 mm VN



Casting the framework

The success of work carried out with prefabricated 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 (screw channel), due to the effects of the expansion of the plastic in the mold.
- 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.
- To avoid air bubbles or casting beads in the case of occlusal screw-retained plastic copings, ensure that the investment material flows through the screw channel into the interior of the coping. If it flows directly into the interior, this can lead to the formation of bubbles.
- The use of phosphate-bonded investment materials that allow 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.

Casting tips for prefabricated gold copings (Ceramicor®)

For implant shoulder Ø 4.8 mm RN



For implant shoulder Ø 6.5 mm WN



Casting the framework

- Do not use wax wetting agents, if possible. The fine film of the wax wetting agent on the surface of the gold during casting can result in metal on the 45° shoulder or in the interior (also see casting tips for burn-out plastics, page 58–59). In this case, the work has to be repeated, as the long-term success of the implants also depends on the accurate fit of the prosthetic work.
- In order to avoid overflow of the cast-on alloy on the delicate circular edge and interior of the gold/plastic copings, it is advisable to clean them prior to investment (removal of wax particles, insulating agents, for instance, with a cotton bud soaked in alcohol).
- 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 the sprues.
- The use of phosphate-bonded investment materials is recommended. These must be matched to 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 materials for rapid heating methods (speed investment materials) is not recommended.



Guidelines for creating reliable cast-on joints

Alloy remarks concerning castable Ceramicor® components:

No ceramic can be bonded directly to cast-on Ceramicor® components as this alloy does not form bonding oxides. Ceramicor® is only suitable for cast-on procedures.

Recommendation: When selecting the casting or bonding alloy, ensure that it is compatible with the high-fusing alloy of the Ceramicor® components. The melting range of this casting alloy must not exceed a liquidus temperature of 1350 °C/2462 °F.

Suitable dental casting alloys:

- High noble alloys
- Precious metal alloys with a minimum content of gold and platinum group metals of 25%
- Palladium based alloys with a minimum content of palladium of 50%

Ceramicor® must not be cast on with base metal casting alloys, because gold in combination with nickel or cobalt causes destruction of the components.

The following alloy types are suitable for cast-on procedures to the prefabricated Ceramicor® component:

- Metal-ceramic-alloy: ISO norm 9693 (metal ceramics)
- Yellow gold alloy: ISO norm 1562 (dentist's gold cast-on alloy), type 4
- Dental technician's cast-on alloys containing at least 25% and at most 75% of gold and platinum group metals, ISO norm 8891

The alloy manufacturer's recommendations must be followed. Due to "diffusion" at the alloy/gold coping interface, components made from an unsuitable alloy may form phases with low strength, reduced corrosion resistance or a lower melting range.

Compression/contraction, casting stresses:

The sprue angles and casting ratios must be such that the fusion temperature of the metals is attained. This should be ensured particularly in the case of large-volume solid casts (e.g., VN cast objects).

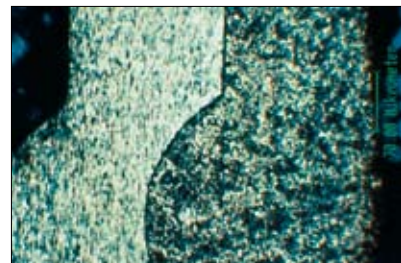
*Cast on properly
The cast-on alloy fuses with
the Ceramicor® coping*



▲
Ceramicor® coping

▲
Cast-on alloy

*Cast on inadequately
The inadequate diffusion and variable
solidification are clearly visible.*



▲
Ceramicor® coping

▲
Cast-on alloy

General casting tips for all copings (plastic and gold copings)

Casting procedure

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

Careful deinvesting

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

Never use sand-blasting for deinvesting.

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

If casting errors occur, such as insufficient discharge, casting beads or casting defects in the interior, the procedure must be repeated, as the long-term success of the prosthetic work depends on the accurate fit of the restoration.

Important: Casting defects considerably affect the precision of the prefabricated parts and jeopardize the long-term success of the restoration. The work then has to be repeated.



Trimming the cast



When using prefabricated gold copings, ensure that the bonding alloy is not ground off or perforated when trimming the framework. Exposed areas of prefabricated gold copings may cause the porcelain to crack (no oxide layer for bonding and differences in the thermal expansion behavior of Ceramcor® and ceramic).

Carry out veneering in accordance with the anatomical guidelines and allow for the premolarization. When building up the porcelain, the framework should be fixed to the master cast with the SCS guide screws. This allows the porcelain to be stacked around the screw. The “freedom in centric” concept should be used for the occlusion.

Natural teeth are elastically connected to the alveolar bone via the periodontium. In contrast, implants are held rigidly as they undergo ankylosis with the bone. Loads exerted on implant-borne crowns and bridges are transmitted directly to the bone. Wherever possible, these loads should be transmitted during physiological movement, i.e., by correct occlusion, as the integrated implants may be disturbed by an inadequate occlusal surface.

The “freedom in centric” concept therefore affords an ideal solution to occlusion with implant borne bridgework. “Freedom in centric” involves the creation of an area of approximately 1.0 mm², which permits lateral freedom of approximately 1.0 mm in habitual intercuspitation. This surface allows the cusps to glide smoothly between the retruded contact position and maximum intercuspitation. The position of maximum intercuspitation is considered to be the centric occlusion.

The possibility of performing masticatory movements with the described tolerance allows certain regulatory movements to be made in the restored dentition. This, together with premolarization, prevents overloading. Extreme cusp formation must be avoided as this may lead to severe interlocking and consequently to overloading.

Vertical masticatory forces must be exerted as physiologically as possible on the implant-antagonist axis. Crowns on single tooth implants should not perform guide functions. The degree to which this is possible should be decided at the treatment planning (diagnostic wax-up) stage.

As the prefabricated copings are extremely precise, the margins must be finished and polished with great care. Working under a stereo microscope is recommended.

Tip: A polishing protector (046.245) or an analog can be attached to protect the margins during polishing to reduce the risk of damage to the margins.

Material information

Alloy			Ceramicor®	
Color			White	
Composition	Au	%	60.0	
	Pt	%	19.0	
	Pd	%	20.0	
	Ag	%		
	Cu	%		
	Ir	%	1.0	
	other	+ = <1%		
Melting range			°C	1400°–1490 °C
			°F	2552°–2714 °F
Heat expansion coefficient			°C	25–500 °C = 11.9 µm/m x °C
			°C	25–600 °C = 12.2 µm/m x °C
			°F	77–932 °F = 11.9 µm/m x °F
			°F	77–1112 °F = 12.2 µm/m x °F
Hardness condition (by delivery)			HV5	
Hardness after casting or soldering			HV5	
Hardened			HV5	
0,2% proof stress (Rp 0,2%) condition as delivered			N/mm²	
0,2% proof stress (Rp 0,2%) after casting or soldering			N/mm²	
Possibilities for metal bonding			Casting or soldering	
Technical information Applications			Non-oxidizing alloy for casting-on with precious metal alloys or for soldering with precious metal and non-precious metal alloys.	

Patient recall

Implant-borne superstructures require optimum oral hygiene on the part of the patient. This must be considered by all involved when planning and designing the superstructure.

The following points require special attention:

- precise marginal fit between implant and superstructure
- open accessible interdental spaces (to encourage oral hygiene)
- self-cleaning posterior pontics, if possible
- the use of a gingival mask on the master cast assists the dental technician when designing the critical areas of the superstructure
- avoid excessive contouring (e.g., a "ridge lap") which would impede hygiene procedures and/or expose the implant/restoration to stress

Implant-borne superstructures must undergo regular check-ups to detect any damage or loosening of screws at an early stage.

If oral hygiene is poor, the patient should be re-instructed and motivated at the next scaling and polishing session. The interval between check-ups can be extended for cooperative patients with good oral hygiene.

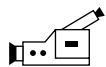


References

- Bibliography (USLIT 057)
- www.iti.ch cases
- Please contact your local Straumann representative



Documentation



On the "Straumann® Dental Implant System-Prosthetics" CD-ROM, USADV 022, you will find the following films on the following subjects:

Screw-retained single tooth restoration with the RN synOcta® 1.5 screw-retained abutment.

Cemented single tooth restoration with the RN and WN synOcta® cemented abutment.

Cemented single tooth restoration with the WN synOcta® Cemented abutment.

Screw-retained single tooth restoration with the RN synOcta® transversal abutment.

Screw-retained single tooth restoration with the RN synOcta® gold abutment.

Cemented single tooth restoration with the angled NN Titanium abutment.

Single tooth restoration on a RN Solid abutment.

Single tooth restoration on a WN Solid abutment.

Hybrid dentures: Screw-retained bar construction on RN synOcta® 1.5 screw-retained abutment.

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, expressed or implied, of Straumann. Instruction as to application of our products takes place verbally, in writing, by electronic media, or in hands-on training 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 a particular patient and circumstance. Straumann disclaims any liability, expressed 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 its 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.

Validity

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

Availability

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

Caution

Our products must be secured against aspiration when used intraorally (e.g., use of a throat pack is recommended).

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

Definition














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

SLActive™ = Sand-blasted, Large grit, Acid-etched, chemically active and hydrophilic.

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Explanation of the symbols on labels and instruction leaflets

	Lot/batch number
	Article number
	Sterile by gamma irradiation
	Non-sterile
	Upper temperature limit
	Temperature limitation
	Caution: Federal (USA) law restricts these devices 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 expiration 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 that might cause minor injury or damage to property.

ORANGE ➔ Warning: Indicates hazards that might cause serious or fatal injury.

RED ➔ Danger: Indicates hazards that might cause immediate serious or fatal injury.

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