

Atlantis® Conus concept

Clinical and laboratory manual

Atlantis® Conus concept

Atlantis Conus concept is a conometric solution for patient-specific, non-resilient, yet removable prostheses that provide patients with the stability, comfort, and palate-free option of a fixed restoration with the ease of maintenance of a removable denture.

This innovative friction-retained solution is compatible with all major implants systems*, providing edentulous patients with optimal comfort, ease of use and function.

*Refer to Atlantis abutments implant compatibility chart



Atlantis®

CONTENTS

Introduction

Solutions for fully edentulous patients	4
Atlantis® Conus concept	4
Treatment objectives and requirements	5

Clinical and laboratory procedures

Atlantis® Conus Abutment	6
- Impression and model	6
- Ordering	6
- Design and production	7
All-acrylic prosthesis	8
- Abutment installation using Atlantis Insertion Guide	8
- SynCone cap pick up	10
Metal-framework prosthesis	12
- Framework fabrication	12
- Intraoral bonding	14
- Finishing and delivery	16

Addendum

Cleaning and sterilization	18
Order SynCone products	18
Other design options	18

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Product illustrations are not to scale.

Solutions for fully edentulous patients

Edentulism is a handicap that affects millions of people all over the world. In addition to functional disorders, it is well documented that many individuals with complete dentures also experience nutritional deficiencies, altered self-esteem and quality of life, psychosocial disorders, and systemic-related complications.

Depending on the clinical situation, patient economics, and expectations for function and esthetics, there are several treatment options for the fully edentulous patient.

A non-resilient, implant-supported, removable dental prosthesis can be an economical solution that delivers comfort and confidence with easy hygiene and maintenance.

Removable restoration with conometric retention

A conometric dental prosthesis is an implant-supported solution that uses a tapered abutment design to retain a cap on the abutment by surface friction.

The abutment design and manufacturing standards provide a non-resilient prosthesis with the functional stability of screw- and cement-retained prostheses.

The patient can remove the prosthesis for easy oral hygiene which is necessary even when horizontal and vertical extensions are required for optimal esthetics.

Atlantis[®] Conus concept

Atlantis Conus concept is a conometric solution that uses Atlantis Conus abutments and prefabricated SynCone caps for providing removable, friction-retained, cost-effective, non-resilient dental prostheses.

Atlantis Conus Abutment

Patient-specific Atlantis Conus abutments are individually designed using the proprietary Virtual Atlantis Design (VAD) software in relation to the space needed for the final prosthesis while ensuring that all abutments are parallel, and that each of their restorative margins are as close to the soft tissue as possible.

SynCone caps

Atlantis Conus Abutment is designed to fit the SynCone 5° caps. The SynCone caps are available in two exterior designs:

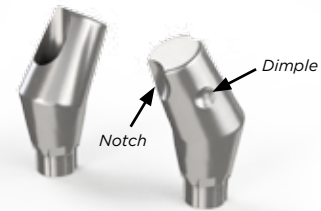
- With retention for seating into an acrylic temporary prosthesis
- Without retention for precise seating into a framework

Note: When planning the prosthesis, please note that variations in height can occur when a SynCone cap is seated on an Atlantis Conus Abutment, due to machining tolerances. The intraocclusal space is the key and must be adequate for the abutment, coping, acrylic and denture teeth.



Flexibility in design

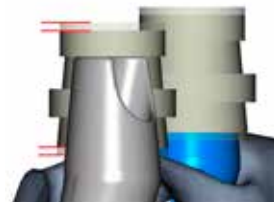
Conometric solutions provide the unique combination of removable ease and fixed stability.



Atlantis Conus abutments are designed to ensure abutment parallelism and to fit SynCone caps, and are delivered with an mandatory Atlantis Insertion Guide. The notch acts as rotational key to the guide and the dimple as a confirmation that the abutment is placed correct into the guide.



SynCone caps are prefabricated and available in two exterior designs.



Atlantis Editor image. Red lines show the variations in tolerance.

Treatment objectives and requirements

The following guidelines must be followed to ensure a conometric dental prosthesis provides optimal esthetics function, and stability:

Number of implants

Favorable load distribution should be managed through the number and distribution of implants.

- Minimum of four implants

Distribution of implants

In all cases, implant placement should provide a load distribution similar to fixed bridge solutions.

- When possible, place implants in the canine and first molar areas
- Minimize cantilevers; use traditional criteria of cantilever as with fixed bridge solutions, taking into account the anterior-posterior (AP) spread



Examples of distribution of implants

Abutment planning

- Relate the abutments to the occlusal plane of the prosthesis
- Limit angulation of implants to less than 30 degrees
- Plan for a vertical path of insertion

Vertical height requirements

- A minimum of 10.5 mm (providing 5.5 mm for components and 5 mm for materials)
- For prostheses with a metal framework, include an additional 1.0-1.5 mm for a total minimum of 12 mm

Material options

A conometric, implant-supported prosthesis can be made of all acrylic or acrylic with a metal framework to allow maximum reduction of horizontal and vertical acrylic extension

Implant placement

Start with a denture that provides the proper vertical dimension of occlusion (VDO), maxillary-mandibular relations (MM), and esthetics.

Plan implant and abutment placement based on the desired position of the prosthetic teeth and the patient's existing anatomy.

This can be accomplished in the following manner:

- Duplicate the patient's existing or new complete denture in radio-opaque resin for use as a radiographic template
- Take a CBCT and format (e.g., SIMPLANT)
- Base implant location on the anatomy, functional load support, occlusal plane, and vertical height requirements of the cap and restorative material (minimum 12 mm)

For more information, refer to the "Atlantis Conus concept brochure" and "Atlantis patient-specific abutments - Design guide".

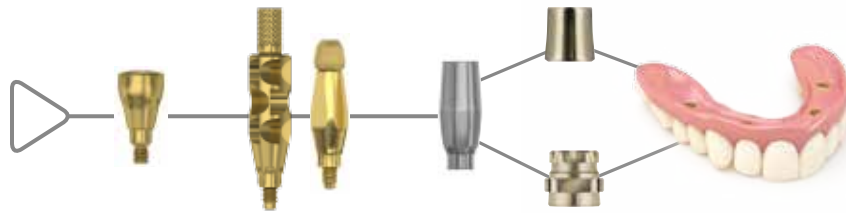


Always check occlusal space carefully, especially for shallow-placed implants. More information regarding recommended space, on page 8 and 13.



Note: Atlantis Conus abutments are designed to compensate for implants placed at an angle. The height of the abutment sides may therefore vary and the surface of the abutment may be exposed even when the cap is fully seated.

Atlantis® Conus Abutment: ordering



Clinical procedure

Laboratory procedure



Implant level impression

The implant level impression should be made with an **individual**, rigid tray.

Install the implant pick-up/implant transfer with manual tightening. Apply the impression material on the implant pick-up/implant transfer separately.

Place the tray, filled with impression material. Send the impression with the pick-ups/transfer and replicas in place, to the dental laboratory for casting the model with implant analogs.

Reinsert the healing abutments.

Fabrication of a master model

Prepare the impression with a removable soft tissue mask by applying silicone around the implant replica site.

Fabricate the model using dental stone Class IV. Ensure sufficient height to cover the lower part of the implant analog with plaster. Then, undo the transfer screws and remove the impression.

Note: A diagnostic wax-up must be provided for all Atlantis Conus concept cases.



Courtesy of Dentist Claudia Mrosek, Sweden
Dental technician Jans Stöckel, Sweden

Order

Enter your order in Atlantis WebOrder (www.atlantisweborder.com), and personalize the design to the patient's specific needs by modifying the abutment design preferences.

Print and send the order ticket with the models in an Atlantis CaseSafe to the Atlantis manufacturing facility or use Atlantis lab-based scanning to transfer the digital information for processing.

Note: Please refer to "Atlantis WebOrder user guide" for detailed instructions.

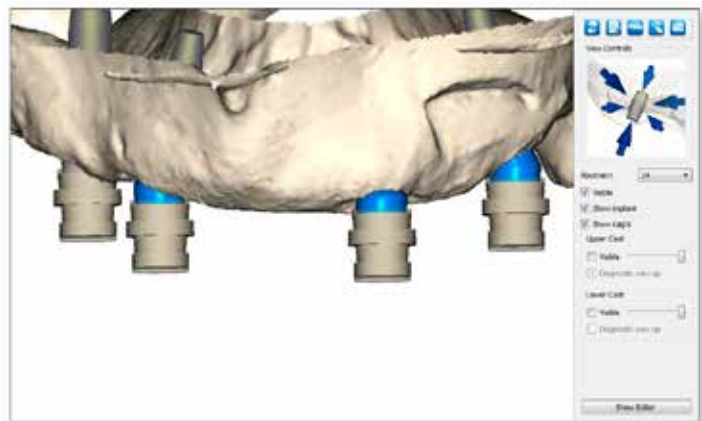
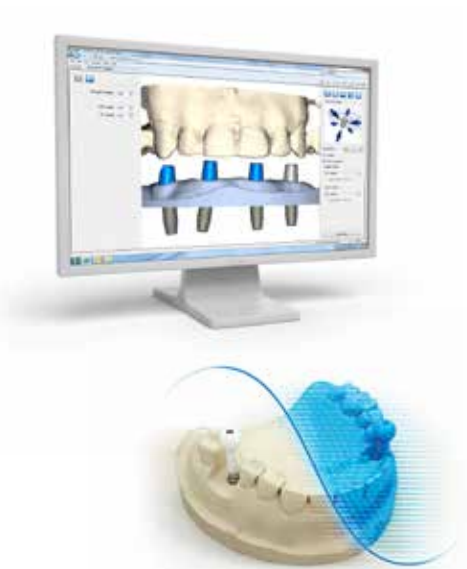
Atlantis® Conus Abutment: design and production

The Atlantis Editor is a software tool that makes it possible to both view and make limited edits to the proposed abutment design, which can be visualized in realtime.

The virtual design of the abutments can be viewed in different layers and from various angles. The wax setup can also be displayed for review of the abutments in relation to the desired prosthetic restoration.

For more information, refer to “Atlantis Editor manual”.

Laboratory procedure



Design and production

Case models are scanned and generated into 3D imaging that is then used for the individual design of the abutments using proprietary Virtual Atlantis Design (VAD) software.

Lab-based scanned cases are submitted directly for design.

Upon approval of the abutment design (if requested), the Atlantis abutment is manufactured, inspected and shipped.

Design and approval

Display the SynCone caps in Atlantis Editor and control the height. Check the box “Show caps” in the menu to the right.

The mesial-distal (MD) angle and facial-lingual (FL) angle are used to adjust the common path of insertion for all abutments at once.

Carefully review the SynCone caps and the wax-up in different views to ensure there is sufficient space for the prosthesis.

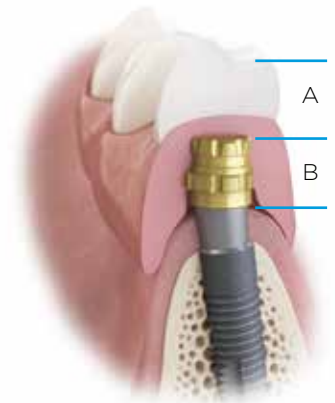
Measure the clearance between the SynCone cap and the occlusal plane; recommended space is 5 mm.

All-acrylic prosthesis: abutment installation

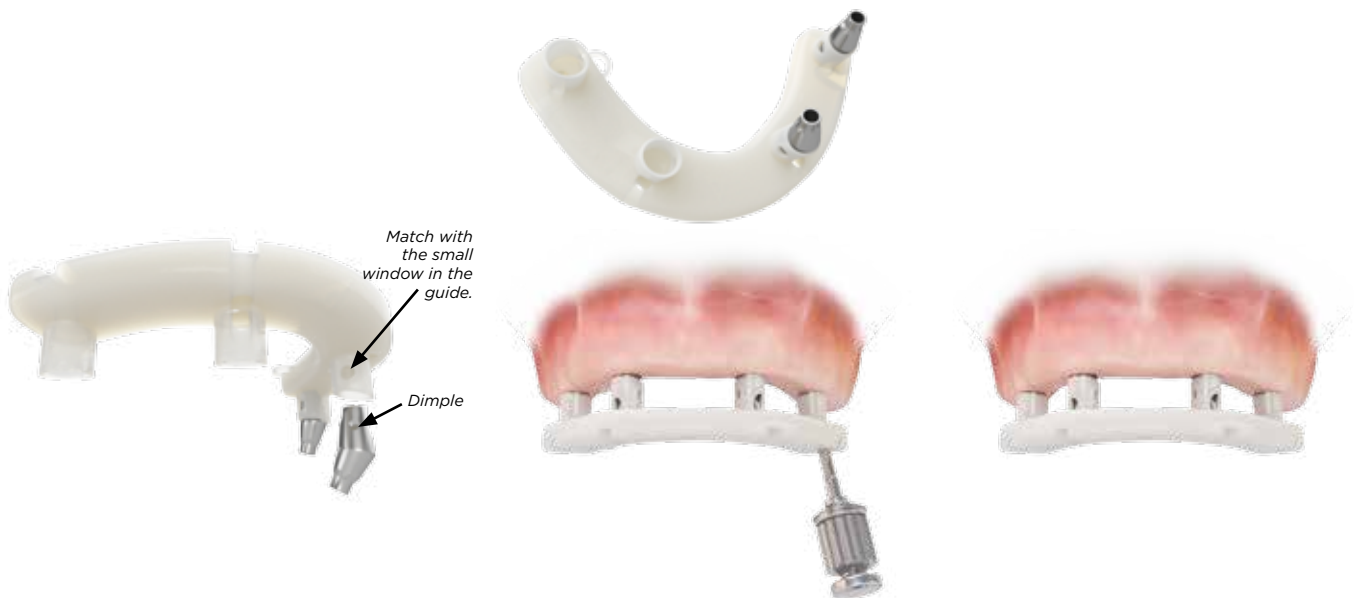
An all-acrylic existing or new complete denture should be used as a temporary prosthesis. The denture should be relieved to seat passively over the conus abutments and SynCone caps. Retrofit the caps to the denture by the application of auto-polymerizing resin. After three to six months, the prosthesis should be metal reinforced.

Make sure to measure the clearance between the SynCone cap and the occlusal plane:

- A.** Recommended space 5 mm.
- B.** Abutment with cap maximum height 5.5 mm due to tolerances.



Clinical procedure



Abutment installation

Remove the healing abutment, and prepare for the installation.

All Atlantis Conus abutments are delivered with an mandatory Atlantis Insertion Guide. The abutments include a notch that acts as a rotational key to the guide and a dimple as a visual confirmation.

Atlantis Insertion Guide

Place abutments into the guide and turn it until it sinks or "locks" into the correct position. Once the abutment is keyed into the guide, verify that the dimple on the abutment is aligned with the window in the guide. If the dimple is visible in the window, the abutment is properly placed.

In some cases, it may be difficult or impossible to use the guide to place all abutments simultaneously due to non-parallel implant installation. In this case, it may be easier to use the guide to place one or two abutments at a time, starting with the abutments that have the largest implant angle correction.

Abutment installation

Install the Atlantis Conus abutments according to the plan.

Torque to the value as recommended by the implant manufacturer.

If all abutments have been properly placed, the guide should easily fit onto all abutments simultaneously.

Note: Atlantis Conus abutments are designed to compensate for implants placed at an angle. The height of the abutment sides will therefore vary and the surface of the abutment may be exposed even when the cap is fully seated.

Use the 5° SynCone cap with retention and the polymerization sleeve to protect the soft tissue from acrylic resin.

Note: SynCone caps without retention are used only for a metal framework and should not be used for all-acrylic dentures.



Polymerization sleeve



SynCone cap with retention

Clinical procedure



Seat the caps

Note: Place the caps on the abutments by **applying firm pressure**. Then place the silicone sleeves to masque the undercuts.

The sleeves help to prevent any cold-cured polymer from penetrating the sulcus region between the caps and the abutments. Alternatively, a cofferdam can be used in the same manner.

Preparing the prosthesis

The prosthesis must match the mucosa to meet functional and esthetic requirements. Relieve the prosthesis sufficiently to create the space needed for the caps.

At the same time, keep grinding to a bare minimum to avoid excessive polymerization shrinkage.

Extended functional margins should be shortened as far as possible.

Adjust the prosthesis to seat over the abutments

Prepare a window of adequate size in the prosthesis for access to the caps for the fixation and pick-up procedure.

Note: Prior to inserting the prosthesis, check the caps to ensure they are firmly seated on the abutments.

All-acrylic prosthesis: SynCone cap pick up

>> Continued from
previous page

There are two methods for fixation and pick-up of the SynCone caps:

- The **direct method** involves adding auto polymerizing resin or a light cured material to the coping through the prepared window.
- The **indirect method** involves picking up the cap in a reline impression for processing in the dental laboratory.

Direct method



Indirect method



Finishing



Chairside processing

Add auto polymerizing resin or light cured material to the caps through the prepared window.

The SynCone caps must be covered with polymer to ensure stable, long-term integration in the body of the prosthesis.



Courtesy of Dr. Arnold Rosen, USA

Impression for laboratory processing

Take a reline impression to capture the SynCone caps. Send the impression to the laboratory for processing and finish.

Acrylic finish

Whether a direct or indirect method is used, the finishing steps are the same.

After the resin has set, remove the prosthesis.

Clean the access holes and the internal aspect of the prosthesis around the caps and adjust with additional resin as needed.



Note: Whether using a direct or indirect method, instruct the patient to close gently in habitual occlusion, to ensure proper positioning while the material sets.

If the prosthesis is too loose, the following errors may have occurred:

- Lower edges of caps are not free of acryl/plastic
- Polymerized resin present inside the cap
- Extended functional margins not shortened enough
- Movement of the prosthesis during polymerization
- Too much pressure on the prosthesis during polymerization



SynCone cap - marginal finish

Ensure that 1 mm of the margin of the SynCone cap is exposed and not covered with acrylic.

Flange adjustments

Remove the prosthesis from the oral cavity for finishing and polishing.

Adjust the horizontal and vertical aspects of the flange to meet the esthetic requirements of the patient.

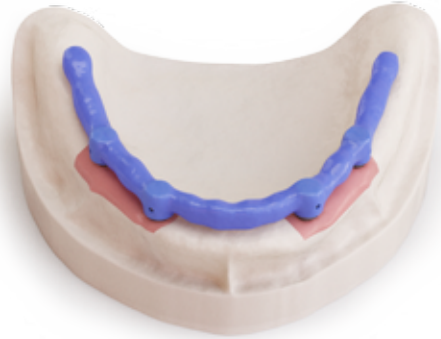
Inserting the prosthesis

Insert the finished prosthesis and check the retention, stability and occlusion. The internal surface of the prosthesis should be evaluated to ensure that it is implant-supported only with no points of pressure on the soft tissue.

Metal-framework prosthesis: framework fabrication

The final prosthesis includes a supporting framework and vestibular extension to accommodate the specific needs of the patient. The patient-specific design may vary from full vestibular extension to provide lip support and optimal esthetics to a hybrid design where an extension is not required.

Laboratory procedure



Attaching SynCone caps

Place the SynCone caps without retention on the abutments and cover with a 0.2 mm thick layer of wax or something similar. This serves as a spacer for the waxing of the framework and makes space for the bonding material.

All undercut should be blocked for preparation of the duplicate model for making the cast.

Wax-up of metal framework

A wax-up with matrix ensures the correct position of the metal framework.



Courtesy of Dr. André Büchter, Gemany

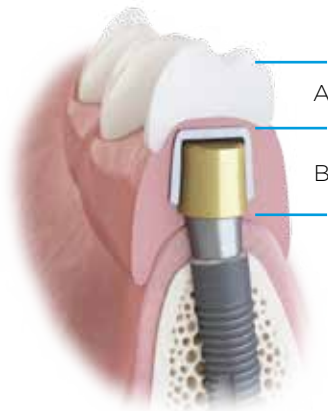
Ensure that the connections between the cap mountings and the retentions are stable. The framework must have a clearance of 1-2 mm to the basal mucosa.

A maximum length of 15 mm of the cantilever is recommended.

The framework in the cap area should be shorter than the cap margins.



Courtesy of Dr. Arnold Rosen, USA

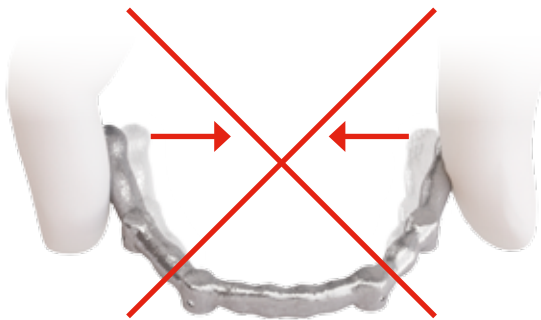


For permanent restoration with metals frameworks:

Make sure to measure the clearance between the SynCone cap and the occlusal plane. Max height should be given including the space between the abutment and cap.

- A.** Recommended space is 5 mm, from the framework
- B.** Abutment with cap: Maximum height 5.5 mm due to tolerances,+ approx. 1.0 mm space for the framework for a total of 6.5 mm.

Laboratory procedure



Finishing the metal framework

After production and finishing of the metal framework, create small windows in the framework near the occlusal edge of the caps to allow for verification of the fit of the caps. This will also allow the adhesive to escape more easily during bonding in the mouth.

Check of stability and fit

The metal framework should be rigid.

Check the finished metal framework on the model for a passive fit on the caps.

Place the caps on the abutments with light finger pressure. The caps should remain in place when the framework is removed.

Preparations for intraoral bonding

Roughen the exterior of the tapered caps by abrasive blasting with aluminum oxide in preparation for intraoral bonding. Send the caps and the metal framework to the clinician.

Note: Bonding of the framework to the cap should be performed intraorally, and not in the dental laboratory.

Metal-framework prosthesis: intraoral bonding

>> Continued from
previous page

To provide a passive fit of the prosthesis, bond the prosthetic framework to the SynCone caps intraorally by first inserting the Atlantis Conus abutments in the patient's mouth.

Bonding of the components directly in the patient's mouth ensures maximum precision and thus the fit necessary for the required retention.

Clinical procedure



Abutment installation

Install the Atlantis Conus abutments according to the plan, by using the mandatory Atlantis Insertion Guide. (refer to page 8).

Torque to the value as recommended by the implant manufacturer.

Preparing SynCone caps for bonding

Place the caps (with roughened surface) on the abutments by applying firm pressure.

Clean the outer surfaces of the caps with ethanol immediately prior to bonding.

Preparing the framework for bonding

Check the metal framework for a movement- and tension-free fit as well as for clearance from the base of the mucosa.

Note: The metal framework in the cap area should be shorter than the margins of the cap.



Courtesy of Dr. Arnold Rosen, USA

Bonding phase

Important: To achieve the necessary accuracy, bonding must only be performed intraorally.

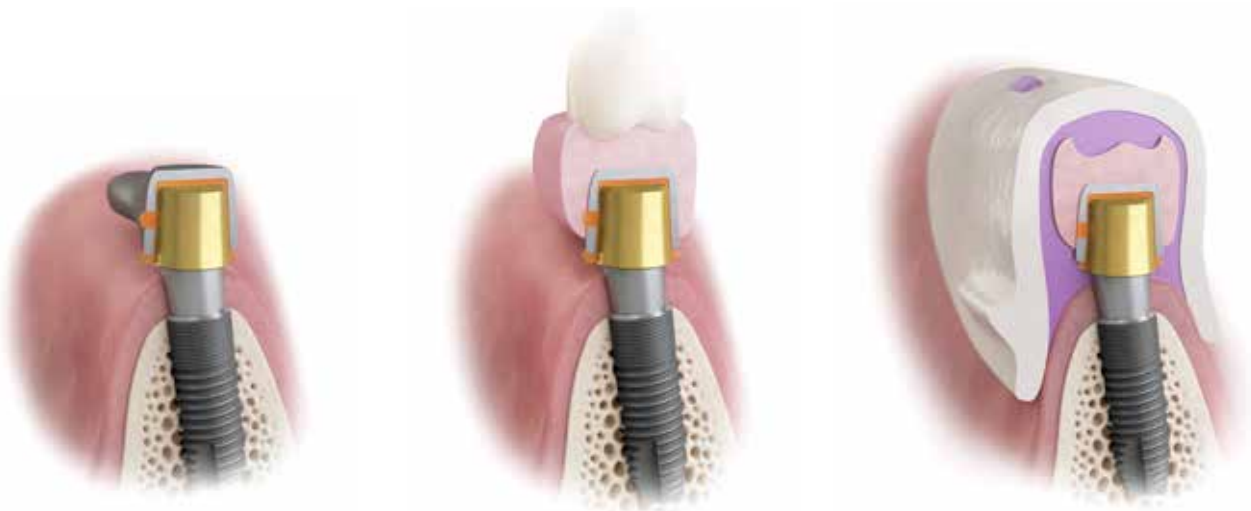
- The caps have to be roughened prior to bonding, i.e. by sandblasting
- Make sure to protect the soft tissue
- Adhesives which are suitable for metal/metal bonding should be used
- Before bonding the caps into the framework, check that the SynCone caps are firmly seated on the abutments and that the framework is seated over the caps without contact and without tension
- Completely remove any excess adhesive at the edge of the cap

Important: The adhesive must not enter the undercuts of the SynCone caps.



SynCone cap 5°, without retention

Clinical procedure



Bonding of metal framework to caps

Coat the framework with metal adhesive for intraoral use and press it onto the caps, similar to cementing a bridge.



Remove excess adhesive material prior to hardening, particularly in the undercut areas and allow the adhesive to cure.

Remove the framework with the caps and remove any excess adhesive.

After bonding, the framework must have a passive, tension-free fit. The procedure should be repeated if this is not the case.

Bite registration

After bonding the caps, take a bite registration with the framework-cap assembly in place.

Overall impression for fabricating the prosthesis

Following bite registration, take an impression with an elastomeric material. It is imperative that a plastic tray is used for this process.

Send the impression, bite registration, and information related to the tooth mold and shade to the dental laboratory.

Note: The abutments must remain in the patient's mouth. While the final prosthesis is being fabricated, relieve the temporary denture to use with the abutments and adjust with soft tissue relining material.

Metal-framework prosthesis: Finishing and delivery

>> Continued from
previous page

Once the impression, bite registration, and information related to the tooth mold and shade is received from the clinician, the laboratory can continue finishing the prosthesis.

Laboratory procedure



Courtesy of Dentist Claudia Mrosek, Sweden
Dental technician Jans Stöckel, Sweden



Fabricate the model

To fabricate the model, first lubricate the SynCone caps, fill with self-curing acrylic resin and place dowel pins. Then fill the impression with dental stone.

Dividing the tray

Note: The tray must not be removed after the stone has hardened, as this may cause the framework to bend. Instead, divide the synthetic tray into segments and remove the impression from the model and framework in sections.

Wax-up and try-in

Provide a wax-up to the clinician for try-in to confirm esthetics and occlusion.

After the try-in, the clinician should send back the wax-up and a bite-registration to the laboratory for completing the prosthesis.

Laboratory procedure



Completing the prosthesis

Apply pink opaquer to the framework. Position the teeth and after fitting, finish the prosthesis with cold-cure resin.

Note: Do not use hot-curing resin as the higher temperature may result in changes in the positions of the caps.

After completion, inspect the interior of the caps. Remove any excess synthetic sprues.

Since the prosthesis is fully implant-supported, the margins of the prosthesis should be shortened as much as possible and as indicated.

The prosthesis can be designed similarly to a bridge, because there is not soft tissue support.

A maxillary prosthesis can be designed without a palate.

Send the finished prosthesis to the dental practice.

Delivering of the prosthesis

Deliver the prosthesis and check for functional contacts. Any premature contacts should be corrected.

Instruct the patient on how to remove and reinsert the prosthesis, as well as the hygiene measures that should be followed.




Addendum

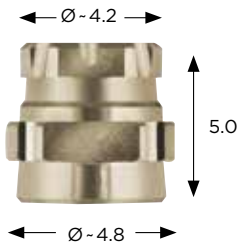
Cleaning and sterilization

For **Atlantis abutments, and Atlantis abutment titanium screw**, refer to the Instructions For Use for: *“Atlantis Abutment/Atlantis Crown Abutment/ Atlantis Conus Abutment”*.

For **SynCone caps**, refer to the Instructions for Use for: *Ankylos SynCone 5°, Abutments, Caps, Accessories”*.

Order SynCone products

Available products to order in Atlantis WebOrder:	Component	Reference number (USX), if/ when order from Dentsply Sirona Implants e-commerce
SynCone cap - Retention		31022198
SynCone cap - Without retention		31022199
Polymerization sleeve for SynCone		31021890



Other design options

Atlantis Conus abutment - custom (German crown). These are more individualized type of abutments than the Atlantis Conus overdenture abutments and will therefore not have a pre-set shape (will not fit with SynCone caps). Refer to the “Atlantis patient-specific abutments - Design guide” for more information.

About Dentsply Sirona Implants

Dentsply Sirona Implants offers comprehensive solutions for all phases of implant therapy, including Ankylos®, Astra Tech Implant System® and Xive® implant lines, digital technologies, such as Atlantis® patient-specific solutions and Simplant® guided surgery, Symbios® regenerative solutions, and professional and business development programs, such as STEPPS™. Dentsply Sirona Implants creates value for dental professionals and allows for predictable and lasting implant treatment outcomes, resulting in enhanced quality of life for patients.

About Dentsply Sirona

Dentsply Sirona is the world's largest manufacturer of professional dental products and technologies, with a 130-year history of innovation and service to the dental industry and patients worldwide. Dentsply Sirona develops, manufactures, and markets a comprehensive solutions offering including dental and oral health products as well as other consumable medical devices under a strong portfolio of world class brands. As The Dental Solutions Company™, Dentsply Sirona's products provide innovative, high-quality and effective solutions to advance patient care and deliver better, safer and faster dentistry. Dentsply Sirona's global headquarters is located in York, Pennsylvania, and the international headquarters is based in Salzburg, Austria. The company's shares are listed in the United States on NASDAQ under the symbol XRAY.

Visit www.dentsplysirona.com for more information about Dentsply Sirona and its products.