Atlantis®

Design guide

For patient-specific abutments and crowns

Dentsply Sirona Implants

Atlantis®

CONTENTS

This manual provides an instructional overview of laboratory procedures and design options for Atlantis patient-specific abutments and crowns.

Atlantis abutments can be designed and produced for all major implant systems* and are available in titanium, gold-shaded titanium and zirconia.

*Refer to the latest version of Atlantis implant compatibility chart in Atlantis WebOrder.

Introduction

Atlantis® patient-specific abutments

Atlantis abutments are available for cement-, screw- and attachment-retained, implant-supported restorations for all major implant systems*. All abutments are delivered with the corresponding abutment screw.

Virtual Atlantis® Design (VAD)

Using the patented Virtual Atlantis Design (VAD) software, the abutments are designed from the final tooth shape, which is a significant advantage for achieving a more natural, esthetic result and optimized function.
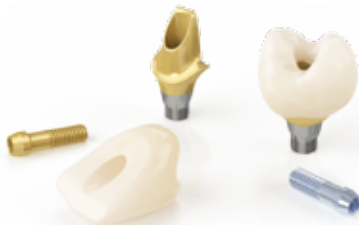
Atlantis® Abutment and crowns

For cement-retained crown or bridge restorations available in titanium, gold-shaded titanium and four shades of zirconia.**

Atlantis® Crown Abutment

For single-tooth, screw-retained crowns, available in titanium and five shades of zirconia, including a translucent zirconia in white.**

Atlantis® CustomBase solution

For screw-retained restorations, available in titanium and gold-shaded titanium. For additional product details, see page 20.

Atlantis® Conus Abutment – overdenture

For attachment-retained restorations utilizing a friction fit. Designed to fit SynCone 5° caps. Available in titanium.

Atlantis® Conus Abutment – custom

For attachment-retained restorations utilizing a friction fit, with more individual design options. Available in titanium and gold-shaded titanium.

*Refer to the latest version of Atlantis implant compatibility chart and Atlantis WebOrder.

**Images shown for communication purposes only and should not be used as a representation of the exact material color.

Laboratory procedure

The information below provides a step-by-step laboratory procedure for ordering an Atlantis abutment.

Contact your local Dentsply Sirona representative for assistance with your first order
or to request support materials:

- Training on how to use Atlantis WebOrder
- Atlantis WebOrder user guide
- Atlantis CaseSafe boxes for shipping your cases
- Information regarding lab-based and intraoral scanning for Atlantis abutments

1. Working model and scanning
The model should have a removable, stable silicone soft tissue mask. (For more information, see page 20.)

If scanning the model at the dental laboratory or receiving intraoral scanning files from the clinician, please refer to the user guide for the scanner in use to provide the needed scan files. The user guides can be found at the help page at Atlantis WebOrder.

If physical models are shipped, a small articulator/occludator can be used and shipped in the Atlantis CaseSafe box provided. All cases need to be articulated, a diagnostic wax-up can replace the opposing model but a model is preferred.

If using an articulator with a removable base plate, it is only necessary to ship the model mounted on the plate and not the entire articulator.

2. Atlantis® WebOrder
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. If physical models are shipped, print and send the order ticket with the models in an Atlantis CaseSafe to the Atlantis manufacturing facility in Waltham, MA.
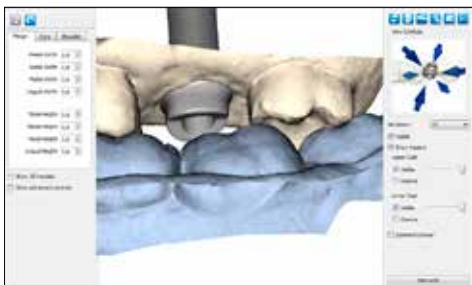
3. Design
Once your models are received, they are scanned and generated into a virtual 3D image that is then used for the individual design of the Atlantis abutment in Virtual Atlantis Design (VAD) software.

4. Manufacturing
Upon your approval of the virtual abutment design (if requested), your Atlantis abutment is manufactured and measured to check that the milling was done according to the specifications and within the tolerances.

Finally the milled abutment is verified towards the order you entered in Atlantis WebOrder and the Virtual Atlantis Design (VAD) software.

5. Final restoration
When the abutment is received at the lab, the final restoration can be fabricated.

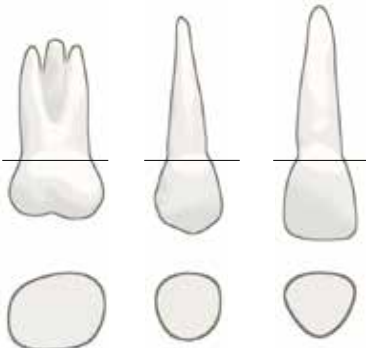**Note:** The Atlantis abutment screw delivered with the abutment should always be used by the clinician for final seating of the abutment in the mouth. In Atlantis WebOrder, extra screw(s) can be ordered together with each case to be used in the laboratory during fabrication of the final restoration.

*New users must register to access Atlantis WebOrder. Click on the "Register" link to start the process.

Anatomy

Teeth are not round. In order to create implant restorations that look and function like natural teeth, anatomically shaped abutments allow you to provide results of the highest esthetics and function.

Virtual Atlantis® Design (VAD) images

Atlantis abutments are designed to correspond with the shape of natural teeth. Customer preferences together with the Virtual Atlantis Design (VAD) software are used to create individual abutments for each patient and situation.

Emergence shape options
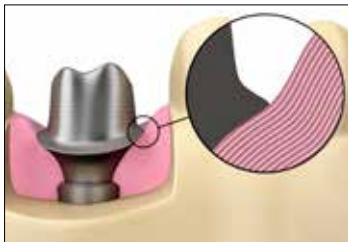
Concave
The shape between the interface and the margins (preparation line) will be concave, in order to reduce tissue pressure.

Note: If no selection is indicated in your order, the Atlantis abutment will be fabricated with this shape by default.
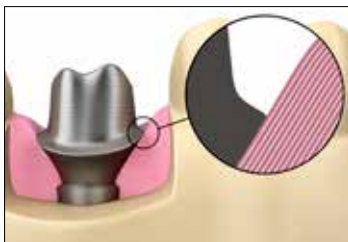
Straight
The shape between the interface and the margins (preparation line) will be straight.
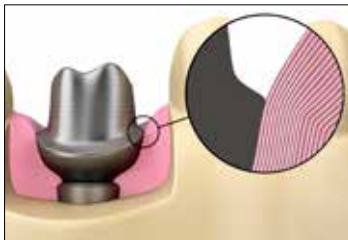
Convex
The shape between the interface and the margins (preparation line) will be convex.

Emergence width options

The design of Atlantis abutments is based on several factors, including the size of the healing space, the emergence width option chosen during order placement and the position of the restorative margin.

The healing situation can vary depending on the size of the healing abutment used. It is therefore important to choose the appropriate emergence width option that will create the abutment size needed to effectively support the final restoration.

For example, the combination of narrow healing situations and larger crown restorations could require the selection of the "Full anatomical dimensions" emergence width option, but may cause high compression on the soft tissue. A surgical incision may be required to seat the abutment.

1. No tissue displacement

Abutment with no soft tissue support. The abutment does not touch the soft tissue.

Note: If a stone model of the soft tissue is provided, the abutment can only be designed with this emergence width option.

Narrow healing space
The design of the abutment may be smaller than desired due to the required smoothing of the emergence shape.The abutment will not touch the soft tissue.
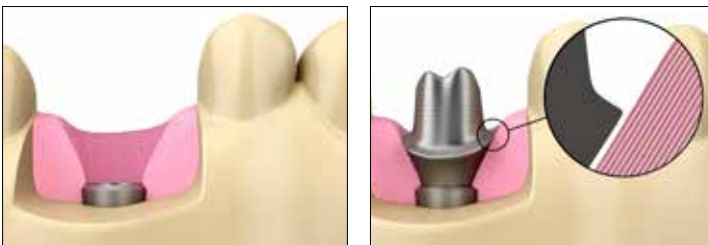
Wide healing space
In a larger sized healing situation, the abutment will be larger, but the abutment will not touch the soft tissue.

2. Support tissue

Anatomically-shaped abutment up to 0.2 mm larger than the sulcus of the silicone soft tissue model provided.

The size of the abutment will be determined by the space created by the healing/temporary abutment for an "easy" insertion.

Narrow healing space

The design of the abutment will apply light pressure on the soft tissue. A narrow healing space will result in a smaller sized abutment.
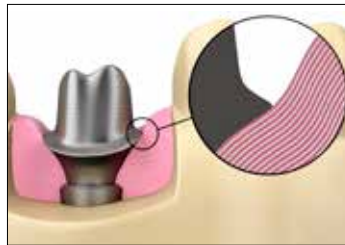
Wide healing space

The design of the abutment will apply light pressure on the soft tissue. A larger healing space, will result in a larger sized abutment.

3. Contour tissue

Medium diameter, anatomically-shaped abutment up to 1.0 mm larger than sulcus of model of soft tissue provided.
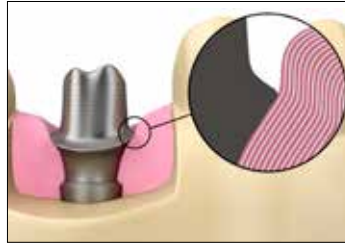
The size of the abutment is determined by the space created by the healing/temporary abutment.

The design of the abutment may cause temporary blanching of the soft tissue.

Note: If no selection is indicated in your order, the Atlantis Abutment will be fabricated with this emergence width option by default.
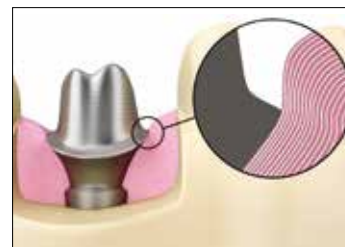
Narrow healing space

The abutment design will have a maximum of 1.0 mm of soft tissue compression. A narrow healing space will result in a smaller sized abutment.
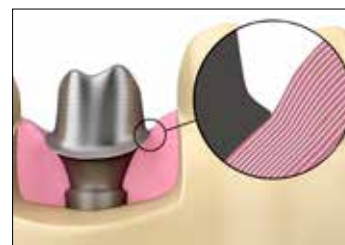
Wide healing space

The abutment design will have a maximum of 1.0 mm of soft tissue compression. A larger healing space will result in a larger sized abutment.

4. Full anatomical

Largest diameter abutment provided with best emergence profile possible.

The design of the abutment is based on the best emergence profile possible, not taking the soft tissue situation into consideration.
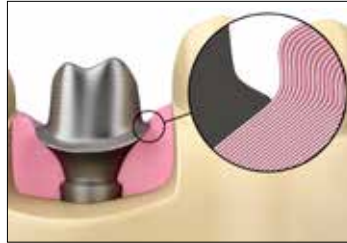
Narrow healing space

Can create a high compression when there is a narrow healing space. A surgical incision for placement may be required.
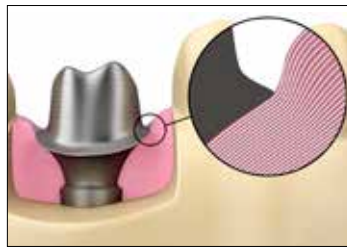
Wide healing space

In situations with a wider healing space, the compression on the soft tissue will be less

5. Anatomical support

Abutment with the least soft tissue compression, using maximum concave emergence shape, and designed based on following criteria:

- The size of the abutment is determined by the best emergence profile possible.
- The margins (preparation line) will be placed at gingiva level or just below gingiva level.
- The emergence shape will be as concave as possible.
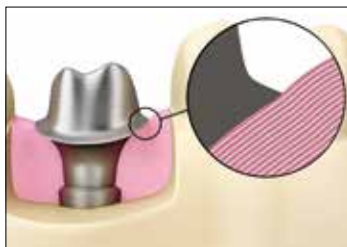
Narrow healing space

Ideal situation for the use of Anatomical support; narrow healing space compared to the edentulous situation in the "non-esthetic" zone. **Note:** Not applicable on wide healing situations.
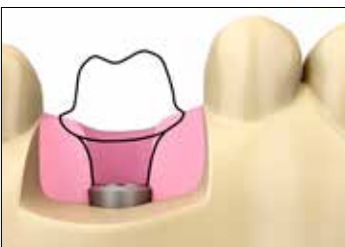
Abutment outcome

Abutment outcomes

Depending on the soft tissue situation, your selection of emergence width option may result in significant differences in the abutment size.

A – Full anatomical   **B** – Contour tissue*   **C** – Support tissue   **D** – No tissue displacement
*Default if no selection is made
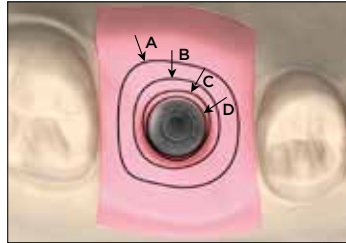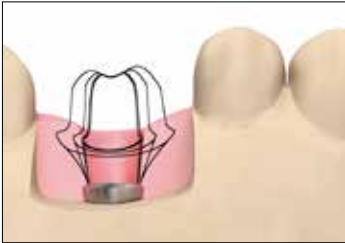
Narrow healing space
There may be more significant differences in the abutment design between each of the emergence width options.
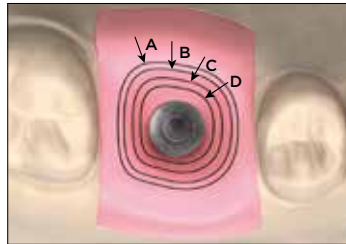
Wide healing space
There will be smaller differences in the abutment design for each of the emergence width options.

Implant placement

When the implant is placed in a non-ideal position, the choice of margin position and emergence width option has a great influence on the outcome of the abutment. The most common situations are described and illustrated below.
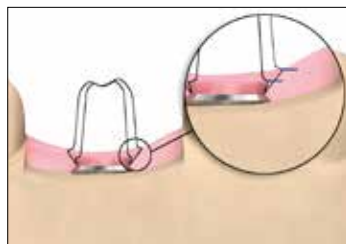
Shallow implant placement
When minimal soft tissue depth is available and a subgingival margin position is selected, the total abutment width will be limited.
Note: A supragingival margin together with emergence width option "full anatomical dimensions" or "contour soft tissue" will create a wider abutment, but may result in exposed abutment margins. Emergence width option "anatomical support" is not applicable for shallowly placed implants.
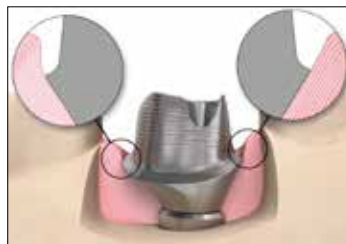
Off-center implant placement
When the implant position is off-center compared to the required final tooth restoration, the Atlantis abutment can be designed to compensate for the off-center placement through the selection of either emergence width option full anatomical dimensions or contour soft tissue, which will allow for a higher compression of the soft tissue.

Additional options

Margin position options
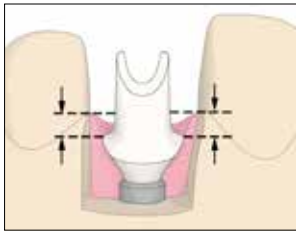
Use subgingival depth
Margin depths measured from gingival crest to abutment margin.
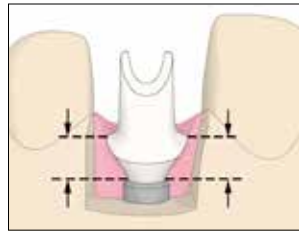
Use heights above interface
Margin depths measured from implant surface to abutment margin.
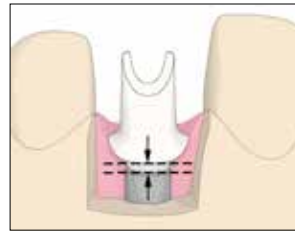
As close to interface as possible.
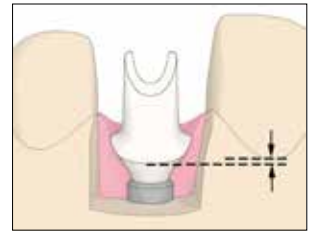
Use neighboring teeth.

Margin design
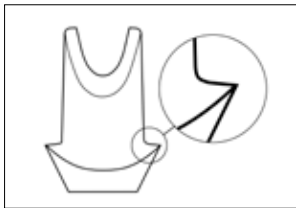
Shoulder
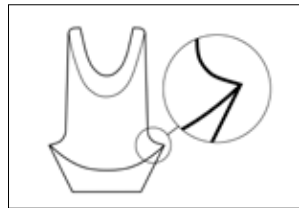
Chamfer

Margin bevel

15°
0.5 mm
0.5 mm
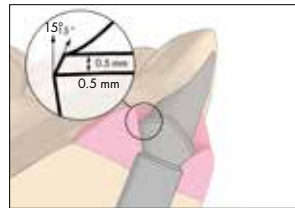
Gingival bevel
(not available in zirconia)

Retentive surface

0.25 mm
0.01 mm
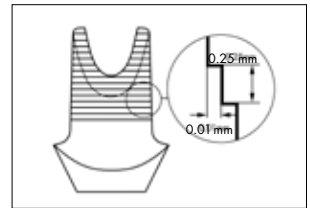
Retentive surface titanium
(not available in zirconia)

Parallel abutments

If the final restorations for a case will be splinted, the abutments must be designed to be parallel. When ordering mutiple Atlantis abutments for an individual case, be sure to indicate which abutments should be parallel to each other. Requests of having abutments designed parallel to prepared teeth can be made but parallelism cannot be guaranteed.
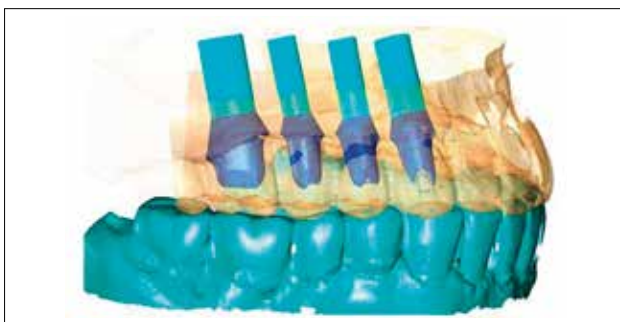
Abutment design parameters

Abutment material: Titanium

The abutment diameter ranges from 3.3 to 12 mm, the maximum abutment height is 15 mm above the implant interface and the minimum height is 4 mm above the transmucosal collar. The abutment is provided straight and up to 30° of angulation.

Abutment material: Zirconia

The abutment diameter ranges from 3.45 mm to 9.50 mm, the maximum abutment height is 13.8 mm above the implant interface and the minimum height is 4 mm above the transmucosal collar. The abutment is provided straight and up to 30° of angulation.

Note: The values mentioned above (for both abutment materials) are case dependent, meaning that they vary from case to case. For example, a titanium abutment that is angled 30° from the implant direction is not possible to design 15 mm high.

Atlantis® Abutment

For cement-retained crown or bridge restorations, available in titanium, gold-shaded titanium and four shades of zirconia.

Atlantis abutments offer several advantages compared to stock abutments:

- Different choices of emergence widths for a natural and esthetic result
- Margins can be placed at an ideal level for easy and safe removal of excess cement
- Require no chair side modification
- Produced by state-of-the-art milling process to ensure highest precision and quality – every time
- Eliminate the time needed for managing a pre-fabricated abutment inventory

Order preference defaults

When ordering your Atlantis Abutment in Atlantis WebOrder, defaults can be set for most of the design preferences. You can change preferences on an account level as well as within each individual order. If no preferences are set, the defaults listed below will be used when designing the Atlantis Abutment. See Atlantis WebOrder user guide for more details on changing preference default settings.

Order preferences	Availability	Default settings*
Images (for design approval)	Available	N/A
Model (type)	All available	N/A
Atlantis Insertion Guide	Available	No
Material	All available**	N/A
Emergence width options	All available	Contour soft tissue
Margin position options	All available	Use subgingival depth. B/F 1.0 mm, D 0.75 mm, M 0.75 mm, L 0.50 mm
Margin design	All available	Chamfer
Retentive surface	Available***	Retentive surface
Atlantis Core File	Available	No
Duplicate abutment	Available	No
Parallelism	Available	N/A
Later order	Available	N/A
Diagnostic wax-up	Available	Recommended for four (4) or more edentulous spaces next to each other

  * See Atlantis WebOrder user guide for more details on changing preference default settings.

  ** May vary between implant brands and sizes. Please see Atlantis implant compatibility chart for details.

  *** Not available for zirconia.

Atlantis® Crown, Cut-back

The Atlantis Crown, Cut-back is a patient-specific crown with space for porcelain veneering, intended for use with an Atlantis Abutment. Together, these components function as a full single-tooth prosthetic restoration. The cut-back crown is veneered and finalized by the dental laboratory, and cemented to the Atlantis Abutment by the clinician as the final stage of the prosthetic procedure.

Porcelain cut-back

To optimize the porcelain support there is a set range for porcelain cut-back. Cut-back default values can easily be changed within this set range in Atlantis WebOrder. This is a very important step in getting the exact preferred cut-back

Region	Range	Default
Buccal/Facial	0.5 – 2.0 mm	1.5 mm
Lingual	0.5 – 2.0 mm	1.2 mm
Distal	0.5 – 2.0 mm	1.5 mm
Mesial	0.5 – 2.0 mm	1.5 mm
Occlusal	0.5 – 2.0 mm	1.5 mm
Incisal	0.5 – 2.0 mm	1.5 mm

Note: Cut-backs may be further altered within the specified range by the Abutment Design Technician in order
to achieve a more ideal abutment core size and to maintain the minimum crown wall thickness of 0.4 mm.

Material and shades

The Atlantis Crown, cut-backs are milled in a monolithic medium translucent zirconia, Y-TZP (yttrium stabilized tetragonal zirconia polycrystals), with a coefficient of thermal expansion of $10.6 \times 10^{-6}/K^{-1}$.

The crowns are available in thirteen different translucent shades of zirconia. These are developed to resemble the shades on the Vita shade guide (refer to shade guide when entering the order in Atlantis WebOrder).

Porcelain application

The porcelain used for veneering of the cut-back crowns should be applicable for zirconia (see "Material" above), and must be applied and processed in accordance with the IFU from the manufacturer of the porcelain/stain used.

Additional information

The Atlantis Crown, cut-back´s are made with a cement space of 40 µm.

Atlantis® Crown, Full-contour

The Atlantis Crown, Full-contour is a patient-specific crown intended for use with an Atlantis Abutment. Together, these components function as a full single-tooth prosthetic restoration. The full-contour crown may be stained and glazed by the dental laboratory, and cemented to the Atlantis Abutment by the clinician as the final stage of the prosthetic procedure.

Material and shades

The full-contour crowns are milled in a monolithic high translucent zirconia, Y-TZP (yttrium stabilized tetragonal zirconia polycrystals), with a coefficient of thermal expansion of $10.6 \times 10^{-6}/K^{-1}$.

The crowns are available in thirteen different highly translucent shades of zirconia. These are developed to resemble the shades on the Vita shade guide.

In Atlantis WebOrder it is possible to order the crowns with or without polished surface.

Stain and glaze application

Stain and glaze may be applied to the Atlantis Crowns, Full-contour with the following stipulation: Should be formulated to have a CTE (coefficient of thermal expansion) that is appropriate for zirconia (see section "Materials" above).
Note: Application and processing must be carried out in accordance with the instruction for use from the manufacturer of the porcelain/stain used.

Cement space and Crown cementation

Cement should be appropriate for both the abutment and crown material. Perform cementation in accordance with the IFU from the manufacturer of the cement used. The Atlantis Crown, Full-contour is made with a cement space of 40 µm.

Additional information

The Atlantis design technicians will always strive to achieve as good occlusion as possible. However, if e.g. the occlusal contacts are too heavy the Atlantis Crown, Full-contour may be grinded by the dental laboratory and/or clinician. Please note that the Atlantis abutments warranty will still be valid, even if the crown has been grinded.

Atlantis® Crown File

The Atlantis Crown File is a patient-specific "ready-to-mill" digital file of the cut-back or the full-contour crown design, intended for use with an Atlantis Abutment. Together, these components function as a full single-tooth prosthetic restoration.

The Atlantis Crown File is designed by the Atlantis design technicians in the patented Virtual Atlantis Design (VAD) software. The crown file is then uploaded to Atlantis WebOrder for the laboratory to approve before the crown file is downloaded and milled in the laboratory´s in-house milling machine in the preferred crown material.

Two crown file versions:
Cut-back or full-contour
The crown files are available as cut-back or as full-contour. With the cut-back version the lab can chose from a set range of cut-back all sides of the crown (see page 13). After milling of the crown the crown

should then be veneered and finalized by the lab before the cementation is done by the clinician. The full-contour crown may be stained and glazed by the lab after the milling and should then be cemented by the clinician in the patients mouth.

Crown file download
In Atlantis WebOrder you will be able to download the crown file as soon as you have given the design approval:

Upload the crown file into the milling software, and proceed with the milling preparations according to the instructions from the particular milling software.
Note: Validation of the design and all design changes must be done within Atlantis Editor before design approval (no changes to the crown design can be done after design approval).

Minimum milling machine requirements

- 5 axis milling machine
- A milling machine that can either handle over-milling or has a capacity to:
  – Mill down to 0.5 mm diameter in "net shape" (no sintering after milling)
  – Mill down to 0.6 mm diameter in "green state" (the crown is sintered after the milling)

- The shrinkage factor depends on crown material and from which manufacturer the material comes from. Refer to the IFU from the crown material (puck) manufacturer
- Puck thickness of the crown material should be minimum 17 mm
- The crown files are delivered in STL-file format, which means that the milling software must be able to process STL-files.

Atlantis® Core File

When fabricating the final restoration, you can simply download the Atlantis Core File, instead of scanning the Atlantis Abutment yourself, allowing you to begin manufacturing the crown/bridge before the abutment arrives at the lab.

Atlantis Core File is a high precision digital file of the total case, including the outer surface of an Atlantis Abutment and includes abutment design and all scanned data such as soft tissue, adjacent teeth and opposing dentition. Atlantis Core File eliminates the need to scan the abutment and cast and enables the digital design of the coping and final restoration before even receiving the physical abutment. If preferred, the core file can also be ordered as a later order after receiving the physical abutment. Available in Atlantis WebOrder, Atlantis Core File can be ordered for cement- or screw-retained restorations (with or without screw access hole location).

The file is available both for single and multiple units (including pontics), however not for bridge cases that include prepared teeth.
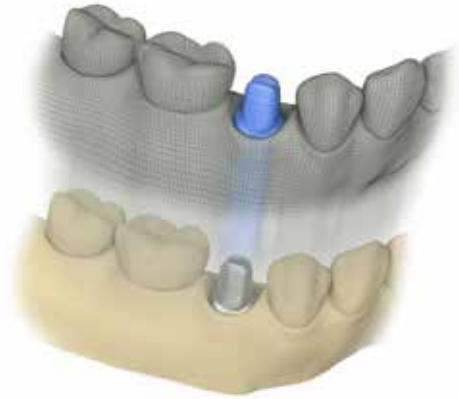
3Shape, Dental Wings, DWOS Lava Edition, exocad or open design software is required to import the file.

Refer to the Atlantis Core File user guide for further information, available on the "Help" page in Atlantis WebOrder.

Atlantis® Insertion Guide

The Atlantis Insertion Guide is a precisely-crafted, 3D-printed device that securely holds an Atlantis Abutment at the correct angle and orientation during installation. The guide can be ordered for single- and multiple-unit cases and is available for the following products:

Atlantis Abutment (for cement-retained restorations)

Atlantis Conus Abutment - overdenture (for attachment retained restorations)

Atlantis Conus Abutment – custom (for attachment retained restorations)

The insertion guide uses adjacent teeth (for single-unit cases) as an index and ensures precise and reliable abutment placement. The Atlantis Abutment scan data, provided by the patented Virtual Atlantis Design (VAD) is used to create the Atlantis Insertion Guide for a perfect design and fit.

For convenience and security, the last digits in the case number are engraved on each guide, and a floss loop allows for a piece of dental floss to be attached, ensuring predictable restorative procedures.

Please refer to the document "Handling procedures for Atlantis Abutment" available in the "Help" section of Atlantis WebOrder, which describes the laboratory and clinical procedure using the Atlantis Abutment with the guide (for single-unit cases).

*Please note that it is not possible to produce insertion guides for fully edentulous cases, since at least one remaining tooth is needed for creation of the guide.

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Atlantis® Crown Abutment

For single unit screw-retained restorations, an anatomical abutment for direct porcelain application (or composite for titanium) available in titanium and five shades of zirconia including a translucent zirconia in white.

Please consider the following when ordering an Atlantis Crown Abutment. You may also refer to the Atlantis WebOrder user guide for more information.

Diagnostic wax-up

When ordering an Atlantis Crown Abutment, a full-crown, removable diagnostic wax-up is recommended.

Porcelain cut-back

To optimize the porcelain support there is a set range for cut-backs. This range cannot be altered. Cut-back default values can easily be changed within this set range in Atlantis WebOrder.

Region	Range	Default
Buccal/Facial	0.5 – 2.0 mm	1.2 mm
Lingual	0.5 – 2.0 mm	1.0 mm
Distal	0.5 – 2.0 mm	1.0 mm
Mesial	0.5 – 2.0 mm	1.0 mm
Occlusal	0.5 – 2.0 mm	1.2 mm
Incisal	1.0 – 3.0 mm	1.5 mm

Note: Cut-backs may be further altered within the specified range by the Abutment Design Technician in order to achieve a more ideal abutment size.

Example:
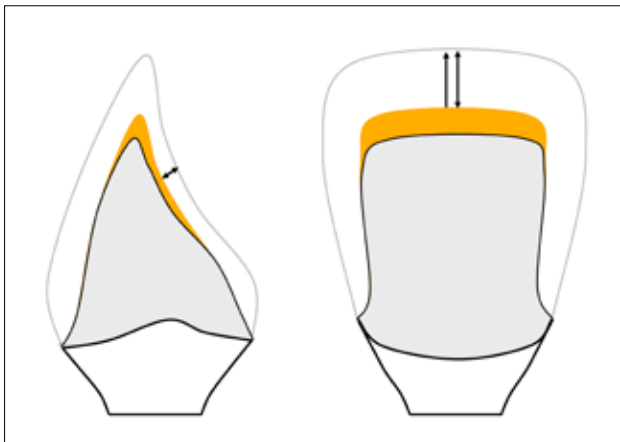
By decreasing the porcelain cut-back on the lingual side, the length of the abutment is increased for effective support of the porcelain/composite.
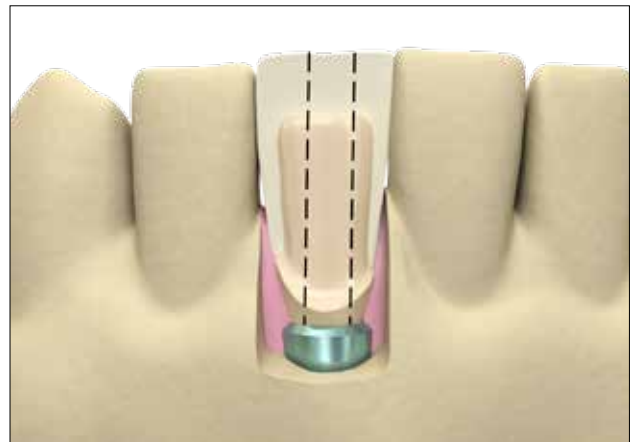
Porcelain/composite cut-backs have to be less on smaller teeth such as lower incisors, upper laterals and in narrow situations to ensure sufficient material for the abutment core.

Angled implant placements

The angle of the implant may limit the possibility to use a screw-retained restoration. It is recommended to check the model with a guide pin or similar before selecting this restoration type.
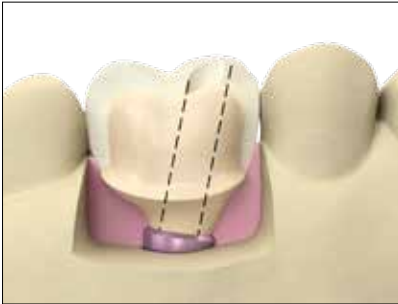
The more angled the placement of the implant, the harder it will be to place a screw-retained crown, as the path of insertion may interfere with the adjacent teeth.
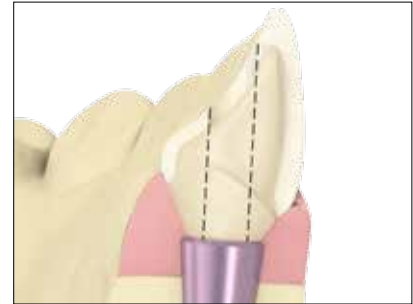
Depending on the position of the implant, the screw access hole may interfere with esthetic and functional outcome of the final crown.

Material

A mask should be used to assure that no porcelain/stain/composite gets on the areas of the interface. Incorrect application of the porcelain/stain/composite could compromise the fit and/or strength of the assembly. Whenever possible, the Atlantis Crown Abutment should be placed in an implant replica during porcelain application to avoid the risk of porcelain particles in the connection area.

Note: It is very important to correctly adjust contact points as the crown is in one piece and has to align perfectly with the implant to prevent failure.

Atlantis® Crown Abutment – zirconia

Yttria-stabilized tetragonal zirconia polycrystals (Y-TZP)

Thermal linear expansion of $10.6 \times 10^{-6}/K^{-1}$

Use appropriate porcelains made for these material constraints.

Application and processing must be carried out in accordance with the instructions for use from the manufacturer of the porcelain/stain used.

Note: The use of zirconia abutments should generally be carefully evaluated before placed in situations with unfavorable loading conditions in combination with small interface diameters.

Atlantis® Crown Abutment – titanium

Titanium Alloy 6AI-4V (Grade 5).

Carefully follow the porcelain and composite manufacture protocol.

Firing porcelain on Atlantis Crown Abutment in titanium creates an oxide layer. If the oxide layer needs to be removed, the implant abutment connection properties must not be changed. Blasting carefully with aluminium oxide 50 μm or glass beads, maximum 2 bar pressure.

Note: Not available for gold-shaded titanium, since porcelain cannot be fused to TiN (titanium nitride). Gold-bonder is not recommended for Titanium Grade 5.

Due to the integrated screw, Atlantis Crown Abutment for Ankylos is not available.

Reminders

- Further changes to porcelain cut-backs may be made by the Abutment Design Technician.
- In the event that a screw-retained solution is not possible due to limitations of the implant case and an Atlantis Crown Abutment was ordered, you will be contacted by a customer support representative.

Atlantis® CustomBase solution

Atlantis CustomBase solution is a patient-specific dental prosthetic component consisting of an Atlantis Crown, an Atlantis Abutment and Atlantis Abutment screw intended for use with an endosseous implant. Together, the bundled components function as a full single-tooth restoration for screw-retained restorations.

The Atlantis CustomBase solution, is available with:
Atlantis Crown (cut-back or full-contour with screw access hole)
Atlantis Crown File (cut-back or full-contour with screw access) and
Atlantis Core File (with screw access location)

This solution differs from a cement-retained restoration. The abutment and crown are designed at the same time and should be regarded as one unit, similar to an Atlantis Crown Abutment.

The material junction: The placement of material junction considering biological principles to ensure healthy soft tissue conditions.

Cementoenamel Junction (CEJ): The point in the restoration where the root-form transitions to the visible tooth form. Similar to where the margin is placed for abutment in a cement-retained restoration.

Emergence profile shape (EPS): Solution is designed with customized emergence profile for enhanced soft-tissue management. Patient-specific transmucosal emergence profile from implant level to up to the marginal gingiva, is specifically important for cases with limited space and when esthetics is in focus.
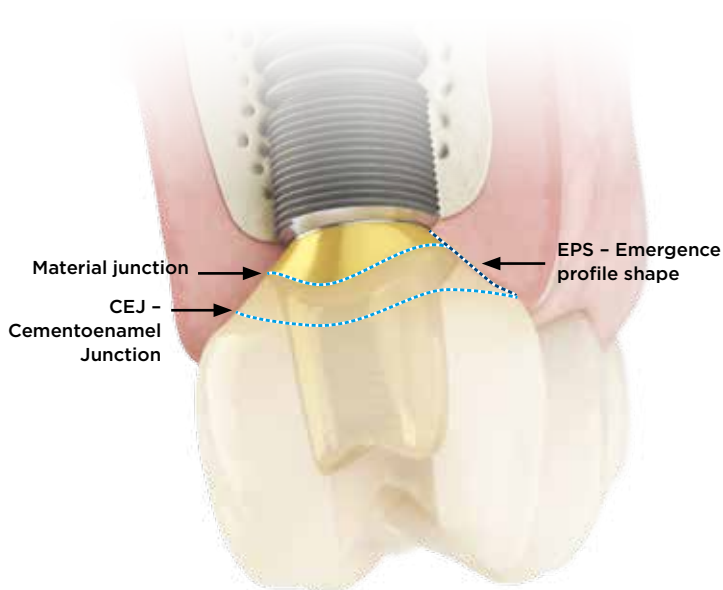
Atlantis Abutment material: The abutment is available in titanium or gold-shaded titanium.
Note: For full interface compatibility, please refer to the Atlantis abutments implant compatibility chart.

Atlantis Insertion Guide: Not available for screw-retained restorations.

Cementation: The crown with a screw access channel is cemented to the Atlantis Abutment extraorally by the dental laboratory or the clinician, to create a screw-retained restoration. The parts shall be cleaned and sterilized prior to assembly, use gloves. Use a self-adhesive resin cement indicated for bonding zirconia to titanium. Seal the screw channel as it is important to not get cement into the channel.
Note: Follow cement manufacturer's instructions for cementation. Atlantis abutments have by default a retentive surface, so no need to sandblast the surface, especially not on gold-shaded as the shade is only a thin layer that will disappear if sandblasted.

Additional considerations: As for all screw-retained solutions, the angle of the implant may limit the possibility to use a screw-retained restoration (refer to page 19). Please refer to the Atlantis Editor user guide for more information regarding how to edit the Atlantis CustomBase solution.

Material junction

CEJ – Cementoenamel Junction

EPS – Emergence profile shape

Atlantis® CustomBase solution with Atlantis® Core File

This bundled solution consists of an Atlantis Abutment, an Atlantis screw and an Atlantis Core File with screw access location. Atlantis Core File is a digital file of the entire case, including the outer surface of the Atlantis Abutment.

The dental laboratory imports the core file into their preferred software. The core file includes an additional STL file(s) that displays the location and diameter of the screw access channel. The screw access channel file is used as a guide during the restoration design to add the screw access channel hole.

Note: The crown created from the Atlantis Core File should be cemented to the Atlantis Abutment extraorally and function as a screw-retained restoration.

Atlantis Abutment and Atlantis Core File with screw access location. Import the core file to preferred software.

The dental laboratory design the final coping/crown digitally for milling.

The crown should be cemented to the Atlantis Abutment extraorally and function as a screw-retained restoration.

Crown cemented by the dental laboratory or the clinician.
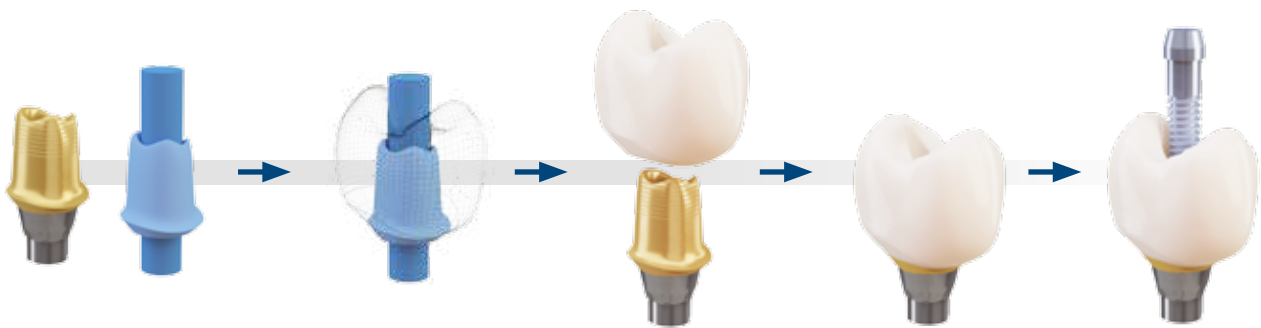
Final restoration ready to be installed by the clinician.

Atlantis® CustomBase solution with Atlantis® Crown

This bundled solution consists of an Atlantis Abutment, an Atlantis screw and an Atlantis Crown with screw access hole.

The crown can be ordered as a cut-back crown (for the laboratory to veneer) or as a full-contour (for the laboratory to stain/glaze). The crown should be cemented to the Atlantis Abutment extraorally and function as a screw-retained, single-tooth restoration.

Note: Refer to pages 14 and 15 for more information regarding Atlantis Crowns.

View, edit and approve the design using the Atlantis Editor.

Dentsply Sirona fabricate and deliver the crown, abutment and screw.

Laboratory finalizing the crown, glaze if a full contour, or layer porcelain if a cut-back crown.

Extraoral cementation – Seal the screw hole and follow manufacturer's instruction for cementation.
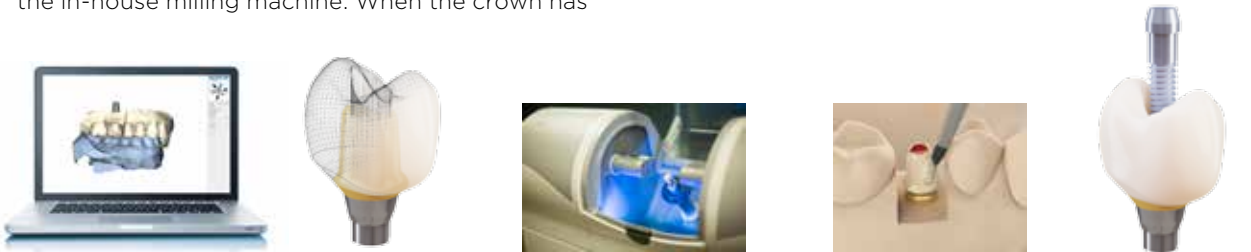
Final restoration ready to be installed by the clinician

Atlantis® CustomBase with Atlantis® Crown File

This bundled solution consists of an Atlantis Abutment and an Atlantis Crown File with screw access hole. The crown can be ordered as a cut-back crown (for the laboratory to veneer) or as a full-contour (for the laboratory to stain/glaze). The crown file is imported into the laboratory´s milling software and milled in the in-house milling machine. When the crown has been finalized, it should be cemented to the Atlantis Abutment extraorally and function as a screw-retained restoration.

Note: Refer to page 16 for more information about Atlantis Crown Files.

View, edit and approve the design using the Atlantis Editor. The crown file is not editable after exported.

Dentsply Sirona fabricates the abutment.

The customer downloads the crown file in Atlantis WebOrder, and uploads to preferred milling software. Milling and finalizing the crown at the laboratory.

Extraoral cementation – Seal the screw hole and follow manufacturer's instruction for cementation.

Final restoration ready to be installed by the clinician.

Atlantis® Conus Abutment – overdenture

Atlantis Conus Abutment – overdenture, are parallel, one-size abutments for removable prostheses. Intended for a removable, attachment-retained non-resilient overdenture as a complement to resilient solutions such as Ball or Locator abutments.

The position of the abutments will be in relation to the space needed for the final restoration and a diagnostic tooth set-up is always required. Abutments will be placed with margin levels as close to soft tissue level as possible.

The abutments will be delivered together with an mandatory Atlantis Insertion Guide, for easier insertion. Refer to Atlantis Conus Concept manual.

Atlantis® Conus concept

The combination of the Atlantis Conus Abutment – overdenture together with the friction-retained SynCone cap, is known as the Atlantis Conus Concept.

Atlantis Conus Abutment – overdenture is designed to fit SynCone 5˚ cap. The prefabricated SynCone caps are ordered in Atlantis WebOrder. The SynCone cap is available both with and without retention, material Degulor® 3406 (see table below).

Available products to order in Atlantis WebOrder:	Component	Reference number (USX), if/when order from Dentsply Sirona e-commerce
SynCone cap – Retention		3102 2198
SynCone cap – Without retention		3102 2199
Polymerization sleeve for SynCone		3102 1405

For more information, refer to the "Atlantis Conus Concept" manual.
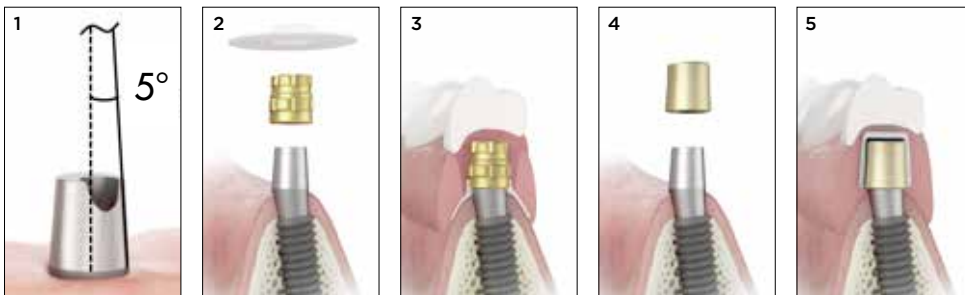
1. Cone dimensions made to fit SynCone 5° caps.
2–3. SynCone cap with retention and sleeve for polymerization.
4–5. SynCone cap without retention for metal framework.

Considerations for restorative planning

When planning the prostheses, please note the variation that can occur when a SynCone cap is seated on an Atlantis Conus Abutment – overdenture, due to machining tolerances. The height can have a variation of +/-0.4 mm (red-marked lines in the 3D Editor image below).

Note: For Atlantis Conus Abutments, a minimum of four implants are recommended.
Atlantis Conus Abutments can not be used in combination with other abutment types for the same case (e.g. Atlantis Conus Abutment and Atlantis Crown Abutment in the same restoration).
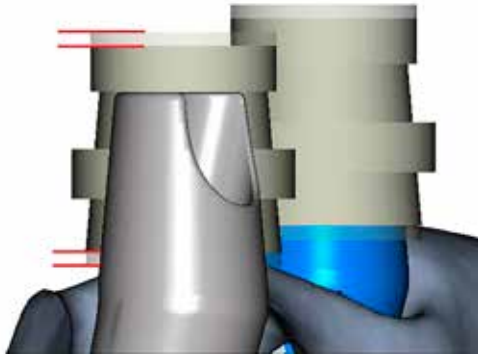
Order preferences	Availability	Default settings*
Images (for design approval)	Required	Required
Model (type)	Stone model with removable silicon soft tissue	Stone model with removable silicon soft tissue
Atlantis Insertion Guide	Yes	N/A
Material	Titanium	Titanium
Emergence width options	No	N/A
Margin position options	No	Will be made as close to soft tissue level as possible
Margin design	No	N/A
Taper	5.0°	5.0°
Retentive surface	No	No
Atlantis Core File	No	No
Duplicate abutment	Yes	No
Parallelism	All abutments included will be parallel	All abutments included will be parallel
Later order	Yes	N/A
Diagnostic wax-up	Required	Required

Atlantis® Conus Abutment – custom

Atlantis Conus Abutment – custom, are parallel individualized abutments mainly for removable bridge constructions.

Intended for a removable non-resilient, attachment-retained bridge or overdenture. These are more individualized type of abutments than the overdenture abutments and will therefore not have a pre-set shape (will not fit with SynCone caps). The default taper angle for the Atlantis Conus Abutments – custom is set to 1°.

The position of the abutments will be in relation to the space needed for the final restoration and a diagnostic tooth set-up is always required. As default the margins will be placed as close to the soft tissue level as possible. This contributes to easy insertion and removal of the bridge by the patient.

A removable bridge construction demands sufficient material thickness of the abutments around the screw access hole in order to achieve proper retention and durability. The Atlantis Conus Abutment – custom, will therefore be designed with narrow shoulder widths and occasionally, with increased soft tissue compression.
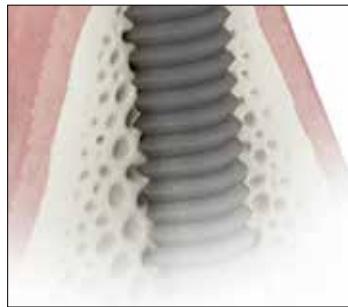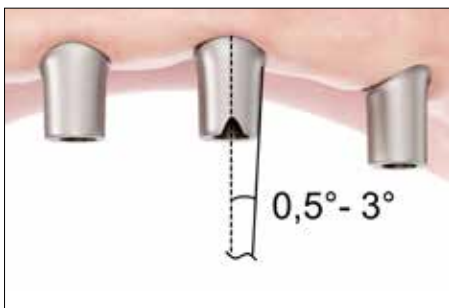
Note: Atlantis Conus Abutment – custom is not compatible for mixed cases (e.g. Atlantis Conus Abutment and Atlantis Crown Abutment in the same restoration).

Order preferences	Availability	Default settings*
Images (for design approval)	Required	Required
Model (type)	All available	N/A
Atlantis Insertion Guide	Available	No
Material	Titanium and gold-shaded titanium	N/A
Emergence width options	All available	Contour tissue
Margin position options	All available	Use subgingival depths
Margin design	All available	Chamfer
Taper	0.5°, 1.0°, 1.5°, 2.0°, 2.5° and 3.0°	1.0°
Retentive surface	No	No
Atlantis Core File	Yes	No
Duplicate abutment	Yes	No
Parallelism	All abutments included will be parallel	All abutments included will be parallel
Later order	Yes	N/A
Diagnostic wax-up	Required	Required

*Refer to the Atlantis WebOrder user guide for more details on changing preference default settings

Duplicate abutment

A functionally identical duplicate of the original abutment that is ordered and delivered together with the original abutment. The two abutments provided will be identical in material and design.

One of the abutments can be used by the clinician for placement of a temporary restoration while the other is used by the laboratory to produce the final restoration.

Available in titanium and gold-shaded titanium.

Clinical
The original abutment for the clinician placed to support a temporary crown.

Laboratory
A duplicate of the original abutment is used by the laboratory to fabricate the final restoration.

Image from Virtual Atlantis Design (VAD).

Final restoration in place.
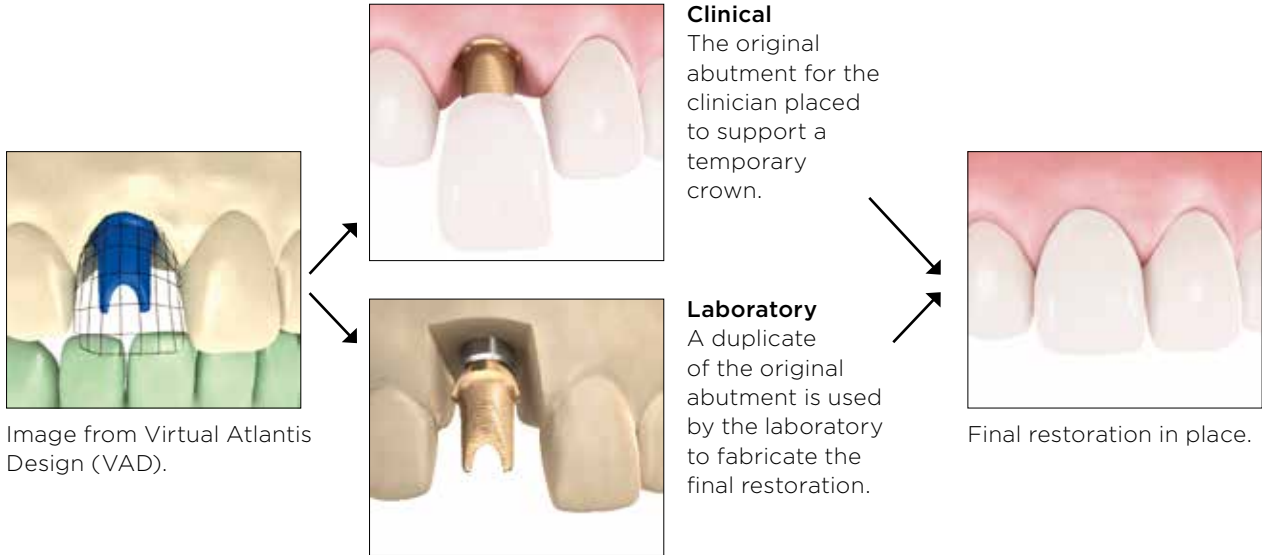
Later order

Orders of original Atlantis abutments can be placed at a later time with or without changes to the existing abutment design. If changes in the patient´s tissue dimensions occur, later order abutments allow for modifications to be made to an existing abutment design without the need for additional impressions or chairside modifications. The abutment material may also be changed if desired except for Atlantis Crown Abutment.

Note: Not guaranteed to be a functionally identical duplicate.

The soft tissue has receded.

Image from Virtual Atlantis Design (VAD) with original abutment design modified.

New abutment for final restoration.
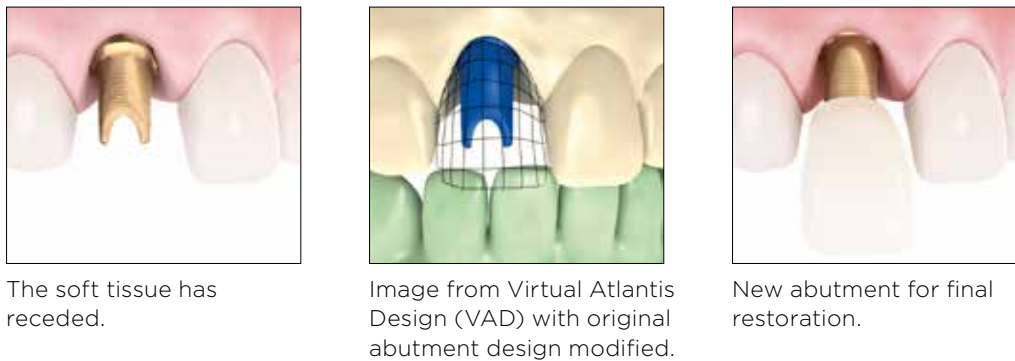
Later order can also be placed for Atlantis Core file. With this option, customers can make the Atlantis Core File order after receiving the physical Atlantis Abutment. The later order can be made first after the initial Atlantis Abutment order is status shipped.

No other later order can be made with this core file, i.e. this later order is not valid for any abutment, screw, etc., only for a core file. The core file later order is unit based.

Models

The type of soft tissue model provided will dictate the abutment design options available to you.

Stone model with removable soft tissue
Abutment design options available:

- All margin positions
- All emergence width options
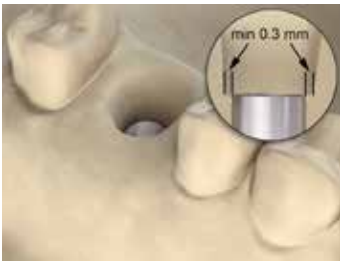
Stone model of soft tissue
Abutment design options available:

- All margin positions
- No Tissue Displacement (emergence width option 4) only

Note: Analog must have 0.3 mm radial clearance to allow processing.

Stone model – no model of soft tissue
Abutment design options available:

- Margin positions measured from implant surface to abutment margin (Margin position B) or make abutment margin as close to interface as possible (Margin position C)
- All emergence width options

Diagnostic wax-up

When there are four (4) or more adjacent edentulous spaces, a diagnostic wax-up/scan file is recommended. A removable diagnostic wax-up for three (3) or less adjacent edentulous spaces can be provided to supply additional information such as buccal-lingual dimensions, occlusal height and offset width.

The diagnostic wax-up can be made with or without the silicone soft tissue mask in place. The wax-up (acrylic) must be accurately secured to the master cast.

On the model, a temporary cylinder or similar can be used as a support on one or two of the analogs to fabricate a wax or acrylic diagnostic "wax-up".

All cases must be articulated before being shipped to Dentsply Sirona. Make sure to verify that the models are in correct occlusion.

Articulator guide

The accuracy of the Atlantis process is dependent on the quality of properly articulated cases.
A proper bite registration will ensure the best possible final result for the patient.

All cases must be articulated before being shipped to Dentsply Sirona. Verify that the models are in correct occlusion. For single unit and less complicated cases, an ocludator can be used. The articulator must fit in the Atlantis CaseSafe. For detailed shipping information please refer to "Atlantis shipping guide" available in the help section of Atlantis WebOrder.

Note: If this is not possible to fit the articulator in the Atlantis CaseSafe provided, use your own packaging and make sure it is packed and shipped properly to avoid breakage during shipping.

Note: If using an articulator with a removable base plate, it is only necessary to ship the cast mounted on the plate and not the entire articulator.

Design terminology

Basic landmarks — anterior design

Coronal (toward the tip)

Incisal

Facial bevel

Lingual

Distal

Cingulum

Facial/ buccal

Core (tapered)

Chamfer/shoulder depth

Interproximal

Margin

Mesial

Sulcus form

Apical (toward the root)
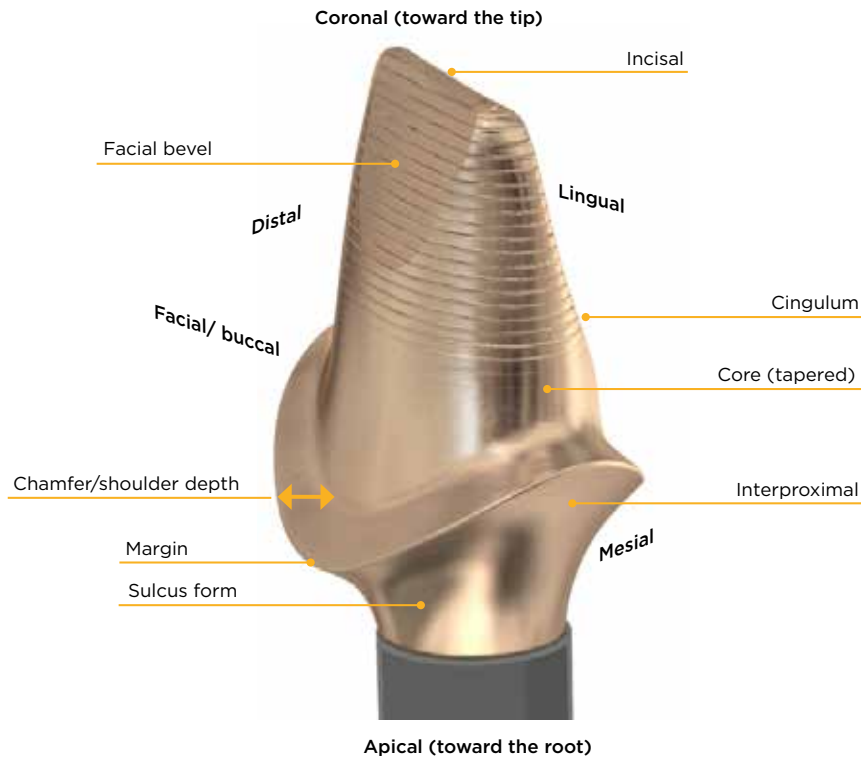
Basic landmarks — posterior design

Coronal (toward the tip)

Lingual cusp

Distal

Lingual

Buccal cusp

Facial bevel

Central fossa

Facial/ buccal

Core

Mesial

Chamfer/shoulder depth

Margin

Interproximal

Sulcus form

Implant connection

Apical (toward the root)
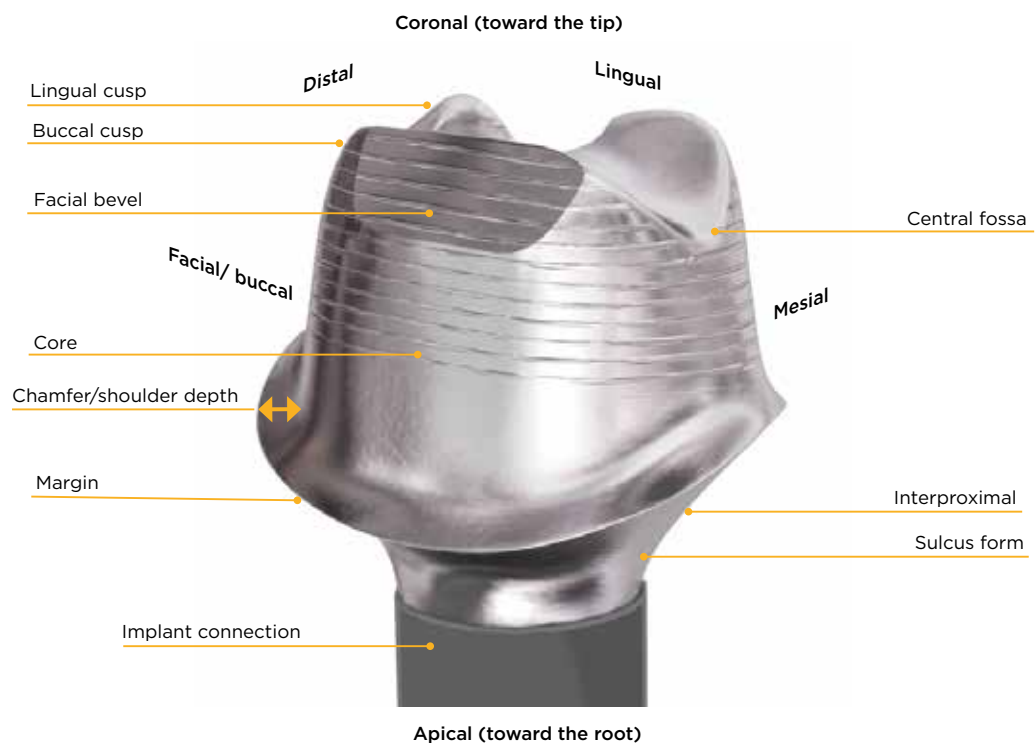
Questions and answers

Atlantis® Crown Abutment, titanium

Q: *Can the Atlantis Crown Abutment be ordered in gold-shaded titanium?*

A: No. Porcelain cannot be fused to titanium nitride coating.

Q: *Which type of porcelain can be used for Atlantis Crown Abutments in titanium?*

A: Only porcelains formulated for use with titanium such as Vita Titan, Duceram Kiss/DeguDent, Triceram and Titzian, should be used.

Q: *Can I use gold-bonder?*

A: Based on the less than optimal results, including bubbles/cracks in the porcelain that occurred during beta testing, the use of gold-bonder is not recommended.

Q: *Do I need to clean the surface of the abutment before the porcelain is applied?*

A: Please refer to the standard surface cleaning instructions of the porcelain manufacturer. If blasting is used, be sure to protect the implant connection area of the abutment, preferably with an implant replica.

Q: *What temperature should be used when firing porcelain on titanium?*

A: The firing conditions should always be in accordance with the porcelain manufacturer's instructions.

Q: *How do I remove the oxide layer?*

A: Caution is required when removing the oxide layer to avoid damage to the implant connection area. Blast with low pressure and be careful in the implant seat/conical part of the abutment. During the beta tests, laboratories used aluminum oxide 50 µm, 1 bar. Finish with glass beads 50 µm, max 2 bars.

Q: *Why is it so important to protect the implant connection surface when polishing the abutment between the implant interface and the porcelain?*

A: The implant interface can be damaged during polishing if it is not protected by an implant replica or similar. The interface connection will be compromised and as a result, the abutment may fracture.

Q: *What is the default cut-back for Atlantis Crown Abutment in titanium?*

A: Same as for Atlantis Crown abutments in zirconia. In Atlantis WebOrder, the values can be easily changed within a range for each area, or by using the Atlantis 3D Editor.

Q: *Is it possible to order approximal contact points in titanium or zirconia?*

A: It is possible to order a 0.5 mm cutback in Atlantis WebOrder. If less is requested (contact points), this has to be specified under "Additional Case Instructions." When approximal contacts have been requested, the designer will try to create contacts, as much as possible, but there are limitations and not every case will be producible: e.g. too large and/or too angled for production. The exact shape of the neighboring teeth will not be possible to replicate if contact points are requested.

Q: *Is it possible to use composite on Atlantis Crown Abutment in titanium?*

A: Yes, it is recommended to follow manufacturer's protocol, and if needed, adjust "porcelain" cut-back in Atlantis 3D Editor before approve the design to production.

Q: *Can I order Atlantis Crown Abutment for Ankylos?*

A: Atlantis Crown Abutment for Ankylos is not available due to the integrated screw that will be affected then fusing porcelain.

Atlantis® Conus Abutment
– For attachment-retained restorations

Q: *What are the unique benefits of Atlantis Conus Abutments in comparison to alternative options for attachment-retained restorations?*

A: Atlantis Conus Abutments are available for all major implant systems and are produced using the advanced Virtual Atlantis Design (VAD) software which ensures parallelism for optimal attaching and removal of the prosthesis. In addition, no stock abutments are needed, eliminating the cost and time needed for inventory management.

Q: *What is the difference between a "resilient" vs. "non-resilient" attachment?*

A: An attachment-retained, tissue-supported prosthesis has mobility within the retaining mechanism of the attachment, making it resilient.
Example: Locator or other attachments with housing and a nylon or plastic insert.

A non-resilient attachment is implant-supported and has a fixed position when activated or fully engaged.
Example: Atlantis Conus Abutment – overdenture.

Q: *Will the parallelism of the abutments be affected when using the Atlantis 3D Editor?*

A: No. The Atlantis Conus Abutment will remain parallel.

Q: *What is a taper angle?*

A: A taper angle is the convergence angle of the vertical abutment core walls. This will determine the friction fit of the restoration; the smaller the angle, the higher the friction.

Q: *What is the range of taper angle for an Atlantis Conus Abutment – custom and what is the default?*

A: The taper angle for Atlantis Conus Abutment – custom (always stated as half the taper angle) is available in increments of a range of 0.5° to 3°, with the default being 1°.

Q: *Why are Atlantis Conus Abutments not available in zirconia?*

A: The friction characteristics of zirconia on the caps are not consistent over time, as the zirconia tends to wear on the cap material.

Q: *Why is Atlantis Conus Abutment – overdenture not available in gold-shaded titanium?*

A: The cervical part of the Atlantis Conus Abutment – overdenture where the gold-shaded titanium layer would be, will be covered and not visible, once the prosthesis is placed.

Atlantis® Core File

Q: *What are the advantages of using Atlantis Core File?*

A: Incorporating Atlantis Core File into your workflow allows you to utilize your time to design the restoration, instead of scanning the model and Atlantis Abutment. In addition, you can eliminate time spent on scanning and re-scanning, and cleaning the model and components after the scanning process.

Q: *Can I order the Atlantis Core File for abutments in all materials?*

A: Yes. Atlantis Core File can be ordered for titanium, gold-shaded titanium and zirconia.

Q: *How close is the Atlantis Core File to the actual abutment part?*

A: The Atlantis Core file is an accurate representation of the outer surface of the abutment.

Q: *Is the Atlantis Core File a scan of the Atlantis Abutment?*

A: No. The core file is a digital file that is created by simulating the machining process of an Atlantis Abutment.

Q: *Will I receive a notification if the Atlantis Core File cannot be created?*

A: Yes. If there is a problem during the creation of the core file, you will be notified via e-mail. A note will be posted in your Atlantis WebOrder account as well.

Q: *Can I change the abutment design after I receive the Atlantis Core File?*

A: No. Changes cannot be made after the Atlantis WebOrder is in the "shipped" status.

Q: *How long is the Atlantis Core File available for download in Atlantis WebOrder?*

A: The core file is available in Atlantis WebOrder for 30 days.

Q: *Can I call Dentsply Sirona Customer Service after 30 days to request the Atlantis Core File ordered previously?*

A: No. After 30 days following the time of order, the core file will not be available.

Q: *Can I order an Atlantis Core File in a Later Order?*

A: Yes. The core file may be ordered with a Later Order of an Atlantis Abutment but not without an abutment.

Q: *Is Atlantis Core File available for lab-based scanned cases only?*

A: It can be ordered for both lab-based scanned and orders shipped in with Atlantis CaseSafe.

Q: *Can I import the Atlantis Core File into design software other than Dental Wings, Lava and 3Shape?*

A: No. Dental Wings, Lava and 3Shape are the only systems compatible for core file.

Q: *Will I need to learn a different coping design workflow in Dental Wings/Lava/3Shape when using the Atlantis Core File (e.g. new design parameters)?*

A: No. You can continue using the coping design workflow you normally use

Q: *What kind of milling system can I use to machine copings using the Atlantis Core File?*

A: You can use any milling center that accepts open format (STL).

Q: *Is the Atlantis Core File an STL file?*

A: Yes. However, it is included in a specific file format (xorder/3oxz) packaged in a compressed format.

Q: *What is an XOrder?*

A: The Dental Wings and Lava system uses XOrder format (with a file extension .xorder) to import a scan case from a third-party surface acquiring device. XOrder can also be used to import a design/production case from external STL files.

Q: *What is a 3oxz?*

A: The 3Shape system uses 3oxz format (with a file extension .3oxz) to import a scan case from a third-party surface acquiring device. 3oxz can also be used to import a design/production case from external STL files.

Q: *Who should I call if I have a problem or question when ordering or importing an Atlantis Core File?*

A: Please contact the local Dentsply Sirona Customer Service.

Atlantis® Insertion Guide

Q: *How do I order the Atlantis Insertion Guide?*

A: In Atlantis WebOrder, under the section where you indicate the implant locations on the "Overview tab." Please note, if you are selecting an implant or product on the "Items tab" that is not compatible with a guide, you will receive a warning notification.

Q: *Are the guides sterile or non-sterile when sent from Dentsply Sirona?*

A: The guides are non-sterile when sent from Dentsply Sirona (see Atlantis abutments IFU for recommended disinfection procedure).

Q: *Is it possible to order a guide also for lab-based scanned orders?*

A: Yes. But please keep in mind that in order to create the guide, as much neighboring dentition possible is needed. As a result, please do not trim away neighboring dentition when you want to order an Atlantis Insertion Guide.

Q: *Why is it even more important to send sharp and accurate models (scans or physical) to Dentsply Sirona when ordering guides?*

A: If the master model does not fully replicate the dentition in the patient's mouth, the guide might fit the model but not in the patient's mouth. The following can be reasons for this:

– Chipped master model
– Voids in master model pour
– Distorted impression

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.

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