DWOS Virtual Waxing feature

Monolithic bridge on implant

5Series, 3Series, 3Series+, 7Series
An Implant CAD license is required

The Prettau-style monolithic bridge on implants is designed in DWOS with the Virtual Waxing feature. Built on a scanned model with analogs, an automatic proposition is computed for a teeth setup with a virtual gingiva. Both are fully editable. This type of bridge can also be created with the prosthesis type *Custom Abutment with Waxing* by scanning a hand-made waxing an a model with analogs.

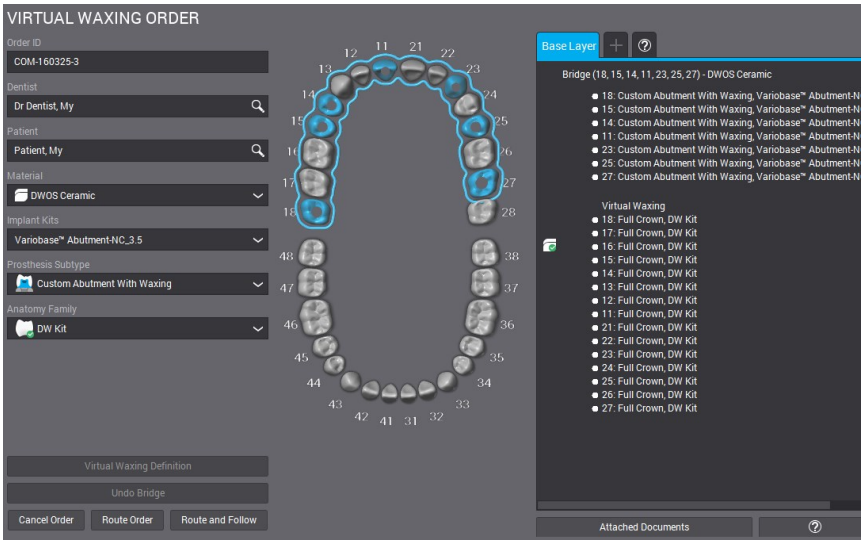
Here are the steps to use the **Virtual Waxing** workflow:

This procedure requires:

- A stone model with analogs.
- The scan devices to be mounted on these analogs (one **scan device**[1] for each model/type of implant is sufficient).
- The virtual implant kit in your Implant kit library. The kit must include the scan device. This can be verified in the Implant Kit Editor.

[1]Also refered to as Scan jig, Scan body, Scan abutment, they are the part that must be mounted on the implants when performing a scan.

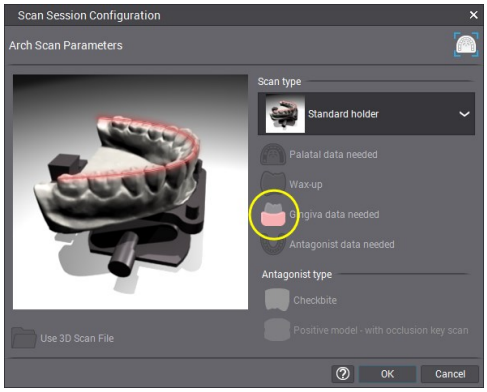
Order Creation



1. Create a new *Virtual Waxing Order*
2. Select the material of the monolithic bridge substructure
3. Select the implant kit of the first implant
4. Prosthesis subtype: **Custom abutment with waxing**[1]
5. On the illustration, click on the tooth number of the first implant
   - If all the patient's implants are the same model/type, click on all tooth numbers where an implant was placed.
   - If there are different implants on the patient, change the Implant kit definition before clicking on another tooth number.
6. Reselect all abutments (they will appear circled by a blue line) and click the *Virtual Waxing Definition* button.
7. The Virtual Waxing editor pops up. In this window you can:
   - Change the anatomy kit for each tooth individually.
   - Define if the virtual waxing should be computed as a full contour, reduced, 3/4 or telescopic.
   - Change the span of the bridge by adding or removing teeth from the blue lasso. Click to add, right-click to remove.
8. The *Adapt Anatomy* check box is better left unselected, but it could be used to force the waxing to adapt to the margin of a preparation or abutment.
9. Once you validate with OK. the entire bridge is enclosed in a lasso and you can see the bridge definition in the right pane.
10. Route the order.

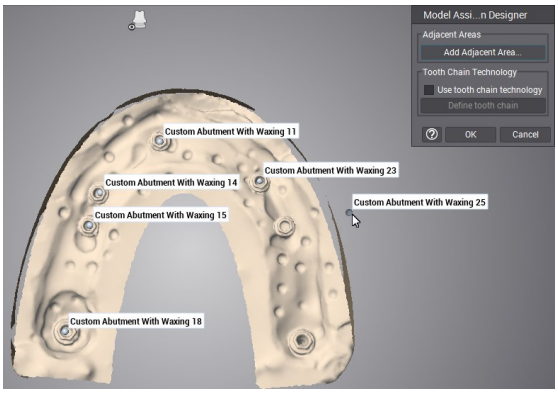
Scan

Scan model



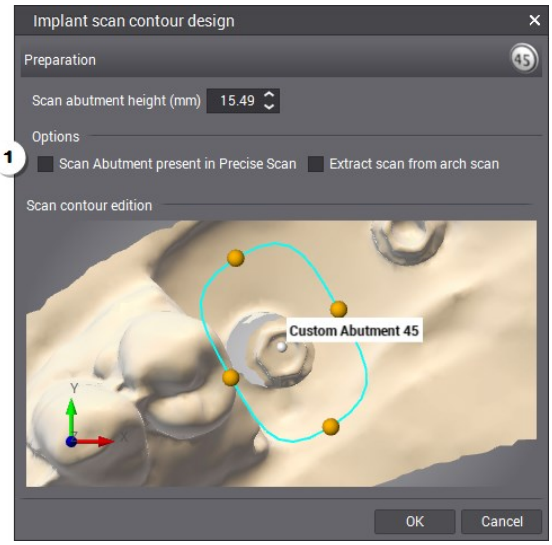
1. Select *Gingiva data needed*.
2. Place the arch alone on the ***standard holder*** (no scan device, no gingiva)
3. Place the holder in the scanner, close the door and click OK.
4. Define the area on the preview and validate ✓ to launch the scan.

Assign locations



On the model scan, click on the implant that corresponds to the number that is attached to the cursor. You can leave the Tooth Chain box unchecked.

Implant precise scan

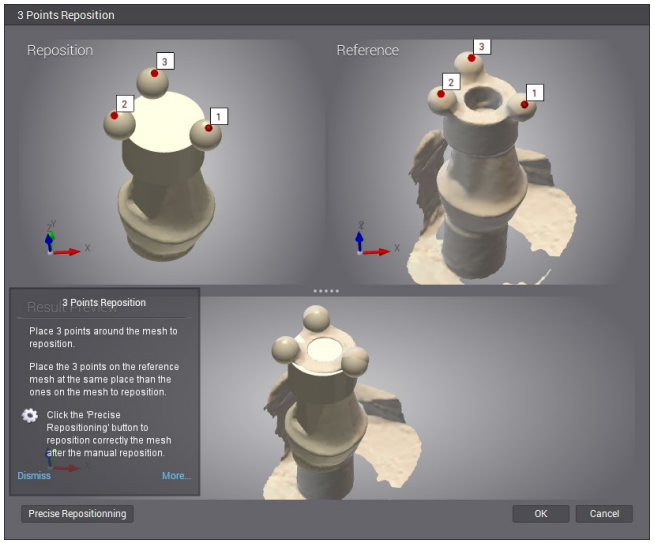


1. On the model scan, right-click on an implant and select *Scan implant*.
2. *Scan abutment present in Precise Scan*: must be unselected. ❶
3. Install the scan jug on that implant and click OK.

Implant repositioning

As soon as an implant scan is done, the 3- point repositioning window pops up.

1. Place 3 points on the STL of the scan jig that appears on the left.
2. Place the 3 points on the same position of the scan result.
3. Click *Precise Repositioning* button.

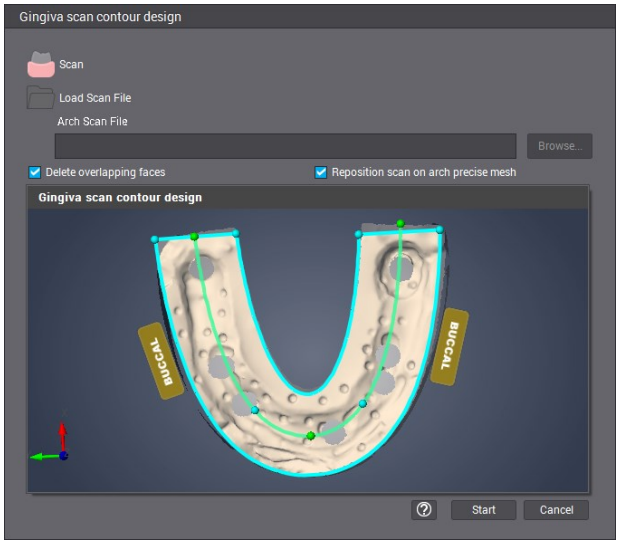


Initiate the second implant scan with right-click > **Scan implant**. Repeat *Precise scan* and *Repositioning* for each implant.

Gingiva scan

When the implant scans are completed, the ***Gingiva scan contour design*** window pops up.

1. Remove all scan jigs from the model and put the gingiva in place.
2. Define the area to scan and click ***Start***.

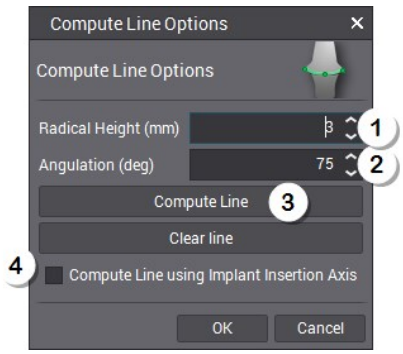


Edit margins

The margin editing in an implant case opens the *Compute Line Options* dialogue.

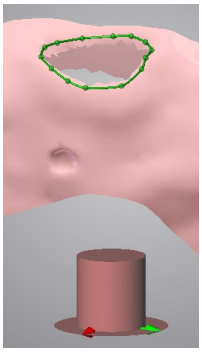
This line is actually the emergence profile.

The choice is yours to draw it on the gingiva or to compute an automatic line.



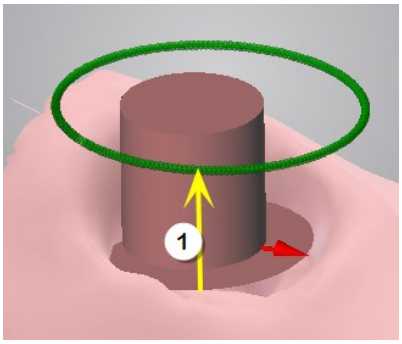
Manual

1. Click on the gingiva to place dots.
   Move the dots by clicking and dragging them.Click and release a dot to delete it.Click on the line to add a dot.
2. Press "C" on the keyboard to close the contour.
3. Click OK to exit.

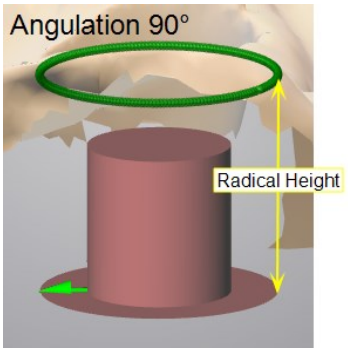


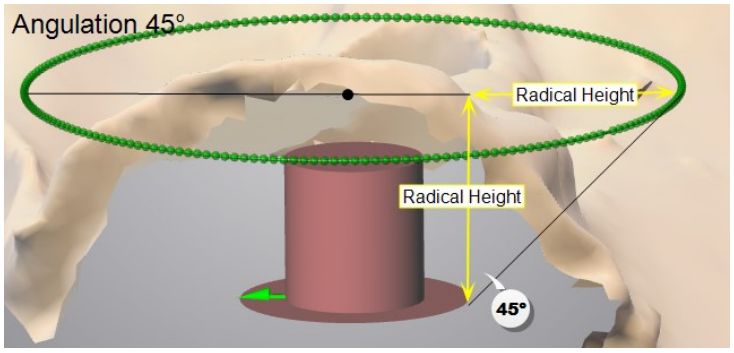
Automatic

1. Set a **Radical Height** (1), which is the distance from the implant's interface.
2. Set an angulation value (2)[1].
3. If you need the circle to be laterally aligned with the implant's axis select the check box (3). Otherwise, the insertion axis of the abutment is used.
4. Click the *Compute line* button (4).



[1]The value set in the angulation field (1) is used by the software to execute a calculation that also takes into account the height that you set. The result of that calculation is the distance in millimetres added to the interface radius. Values from 0 to 90 are accepted. With this calculation, if you enter a value of 90°, the result will be a circle of the same size as the interface. If you enter 0°, the radius will be increased of the same value as the radical height, creating a 45° angle from the interface edge.





Axis and design parameters

There is no need to set an insertion axis over the abutments because they will be merged into the virtual waxing. Just click OK to exit this window.

Exit

When all steps of the scan session are completed, click the *Exit* button.

CAD

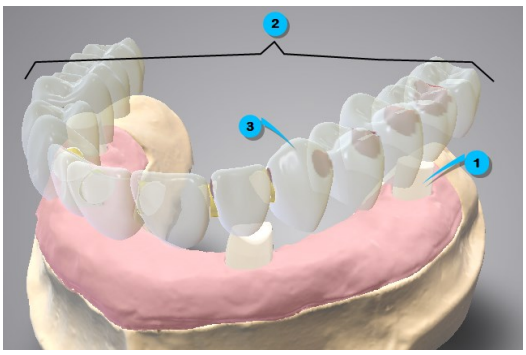
The Prettau-style monolithic bridge on implants is designed in DWOS with the Virtual Waxing feature.

The Virtual Waxing feature computes a full contour bridge including soft tissues. It can be seated on preparations or on implants. This bypasses the need to fabricate a hand-crafted wax-up and scan it.

The teeth set-up and virtual gingiva are fully editable. Then, you can decide whether you want to generate the full contour so that only the coloring will be hand-applied; or a down-sized overlay, if you want to build the final anatomies with ceramic. Your output files can be sent to titanium, Zirconia, or other milling processes.

A virtual waxing is computed with these customizable elements:

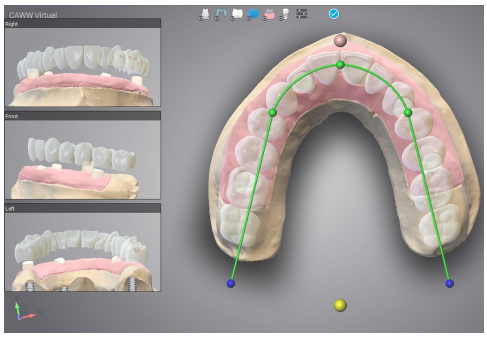
- The abutments 1
- The virtual waxing (bridge) 2
- Virtual prostheses (individual teeth) 3

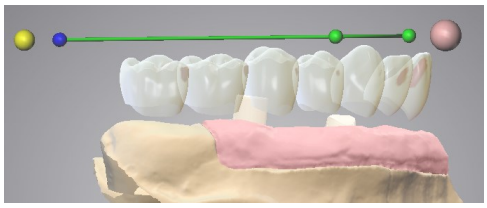


Edit Virtual Waxing

Occlusal Table

1. By displacing the color handles, you can adjust the orientation of the occlusal table and the global shape of the arch.
2. Select the viewport check box to display multiple views simultaneously.

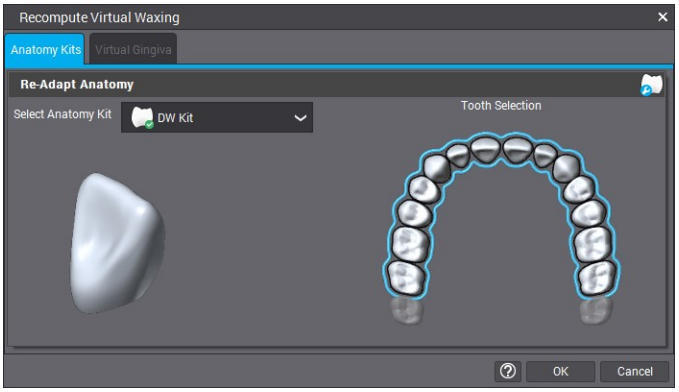




Recompute

Reverts to an automatic proposition. You can simultaneously:

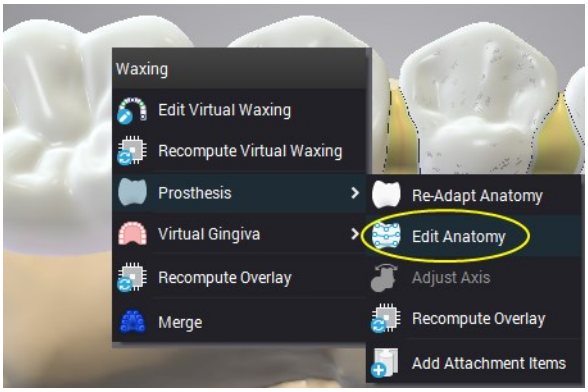
- Change the anatomy reference kit
- Change the span of the bridge by adding or removing teeth from the blue lasso



Virtual Prosthesis

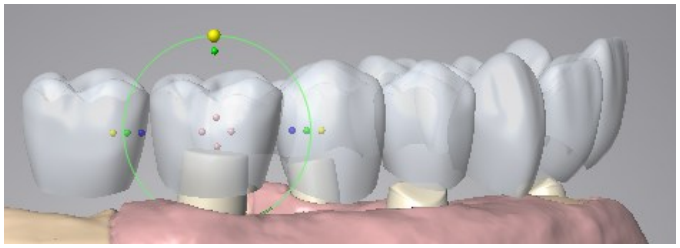
You can edit the virtual prosthesis with the options under ***Prosthesis*** in the right-click menu. This is the layer that enables recomputing each and every tooth independently, and also using the shaping tools on them.

Edit Anatomy



This is one of the best features of the virtual waxing.

The multi-editing mode, enables to click on another tooth to start editing it with the Transforms tool.



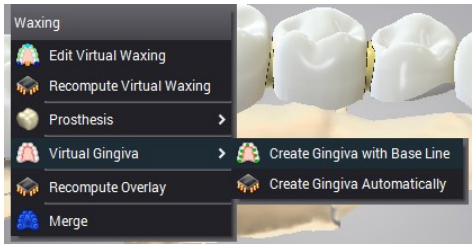
Tip: On larger bridges, it could happen that you are experiencing some delays during the design operations. To release the software from unnecessary calculation, delete the gingiva (right-click > Delete) while editing the teeth, then compute and edit it at the end.

Virtual Gingiva

The virtual gingiva is automatically computed for a virtual waxing on an implant case. It can be moved, transformed and sculpted, similarly to the prostheses. It can be deleted during the teeth editing and recomputed at the end.

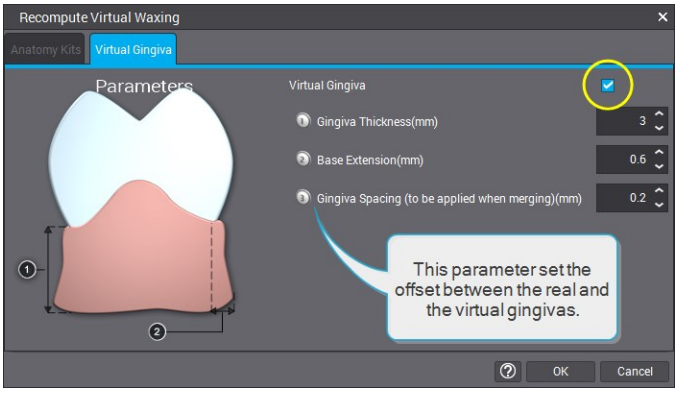
Create a virtual gingiva:

1. Right-click on a virtual waxing
2. Select *Virtual gingiva*
3. Chose between using an automatic proposition or drawing your own base line.



Create Gingiva automatically

Recomputes the virtual gingiva to the initial proposition, based on these parameters.

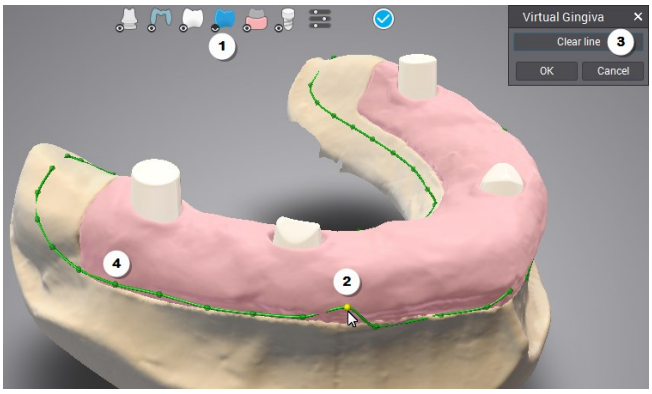


Parameter window for computing or recomputing a virtual gingiva

Edit Base Line

The base line is drawn on the model scan (or gingiva scan). It is the contour of the virtual gingiva. On the automatic proposition, you can select this option to draw your own.

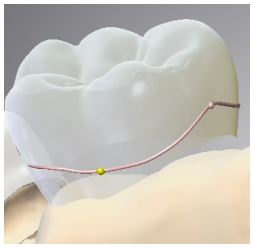
1. Turn off the visibility of the waxing (1)
2. Modify the existing line by moving the dots (2) or
3. Clear the actual line (3) and draw on the model the desired contour for the virtual gingiva (4)



Here are other editing options on a virtual gingiva:

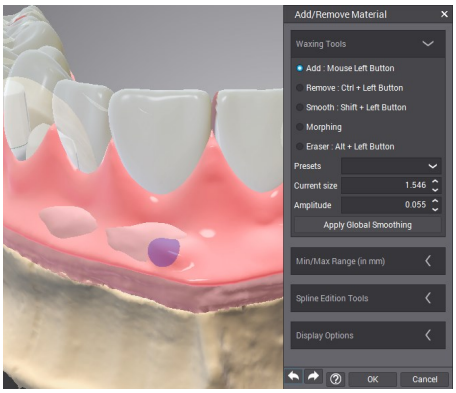
Edit Gingiva Line

1. Click on a tooth to activate the 4 green handles.
2. Position them around to determine the gingiva line.
3. Click on the next tooth to edit its gingiva line



Tip: Hold down the space bar on the keyboard to isolate the tooth you are editing; it is easier to grab the dot of the interdental papilla.

Add/Remove Material



Delete

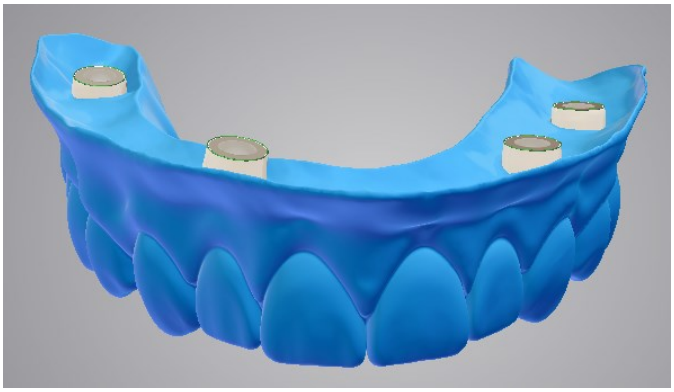
If you delete a virtual gingiva, a connector is automatically computed between non-touching teeth.

Merge

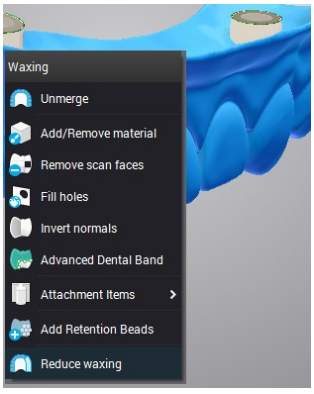
Merging the virtual waxing turns it into a blue color. The abutment, prosthesis and bridge layers are merged, and the new part is handled by the software in the same manner as a scanned waxing.

More editing options apply:

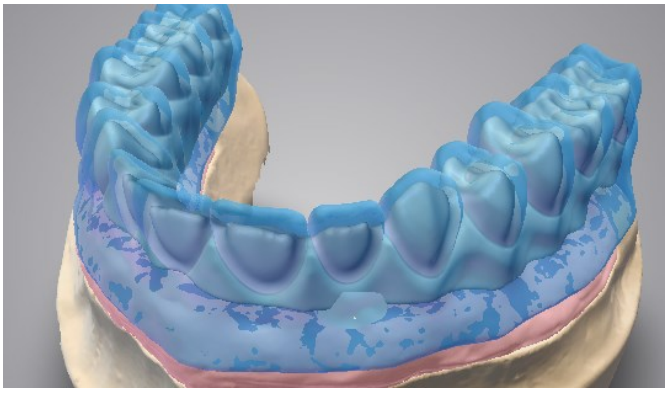
- Reduce globally
- Add retention beads or a dental band on the reduction
- Add/Remove Material
- Unmerge to return to prostheses edition



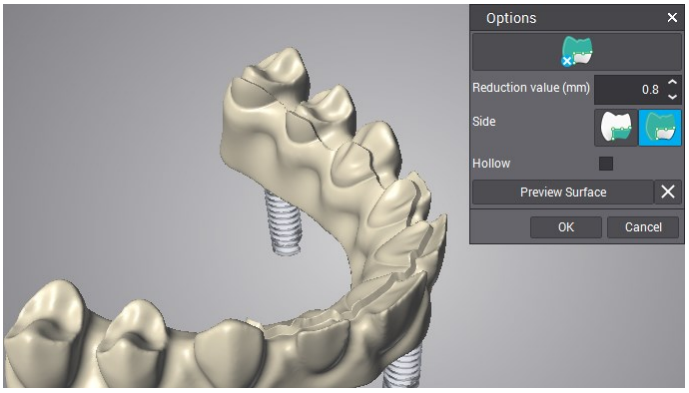
Merged virtual waxing with abutments



Editing options of a merged virtual waxing



Merged virtual waxing on which was applied a reduction parameter

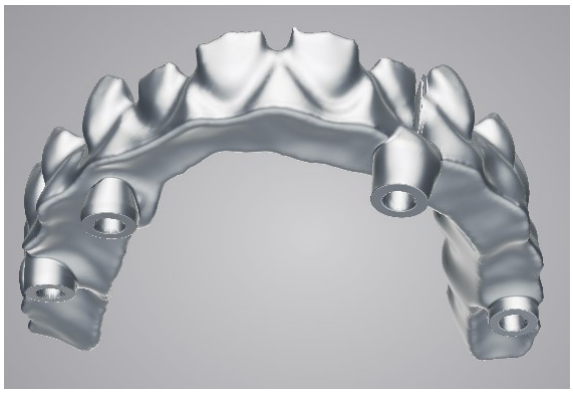


Applying an advanced dental band on a reduced waxing

Exit

A final merge is calculated upon exit, where the manufacturing parameters are applied in regard to the chosen material of the bridge.

Full virtual waxing on abutments ready to be milled as a try out model



Full virtual waxing on abutments ready to be milled as a restoration structure

Unmerge

1. Click 1 to revert to editable waxing.
2. Click 2 to route the order to production.