TRUST

Custom Abutment Design Software

User manual V.1.0.02

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1. Introduction

TRUST is a custom abutment design software that uses 3D scan data to design customized for patient oral conditions.

TRUST is intended as an aid to the restoration of chewing function in partially mandibles and maxillae. Abutment Design is intended for use by a dental practitioner or dental laboratory staff for designing the patient specific component of One-piece straight type TRU DS and angled type ASC. The resulting abutment design is intended to be used by the manufacturer of an dental implant abutment to create the final device.

TRUST allows for easy and fast custom abutment designs with the following features:

1.1. Provide an optimized design process for custom abutment design

1.2. Automatic crown placement with peripheral teeth taken into account through oral scan data analysis

1.3. Create a one-click prosthesis with automatically placed crowns and abutment presets

<Caution>

1. Users of the software need expertise in dental clinical care.
2. Before using the Software, you must receive sufficient training and instructions on how the Software works. Please familiar with the basic work of the program and use it.
3. The PC environment in which you use the Software is met by the recommendations in this user guide.

2. Installation

2.1. PC System requirements

To use TRUST, the following specifications must be met:

category	Minimum	Recommended
Operating system	Windows 10 (64bit)	Windows 10 (64bit)
Memory size	16GB	16GB or more
Graphics card	Graphics cards supporting DirectX 11	High-performance graphics cards with DirectX 11 and up GPU-only memory of 1GB or more
CPU	Intel i3 Dual Core	Intel i5 Quad Core or above
Hard disk	2GB of free space	More than 2 GB of free space

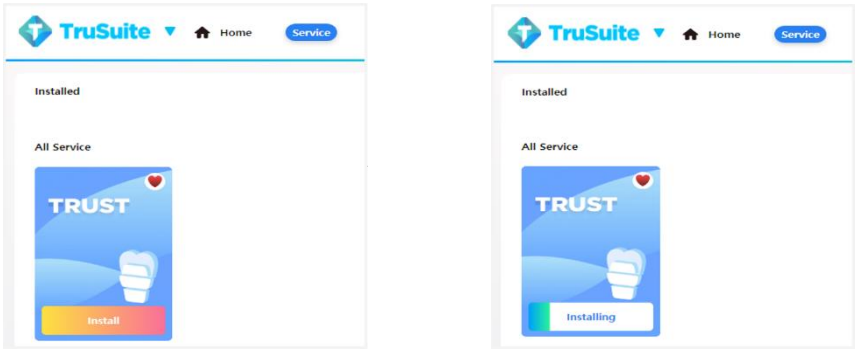
Guidance	**PC system specification verification can be → control panel system/device manager.**

2.2. TRUST Installation

After logging in to Tru Suite, the installation process is as follows.

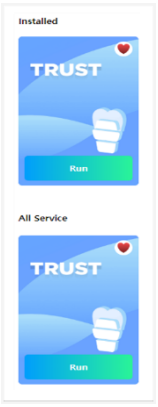
(1) Click Service on the top menu of Tru Suite.

(2) Among all services provided by Tru Suite, click the [Install] button on the TRUST service card to install.



[Installation screen]

(3) When the installation is complete, click the [Run] button to run TRUST.



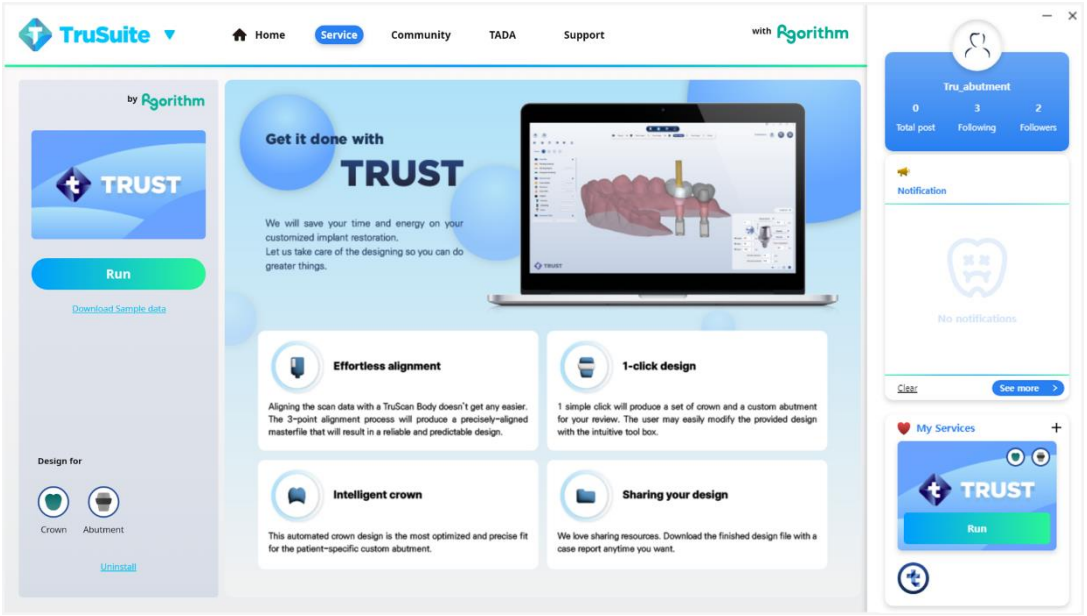
[Installation Complete Screen]

2.3. TRUST Elimination

When deleting the TRUST program, please proceed after terminating the TRUST program.

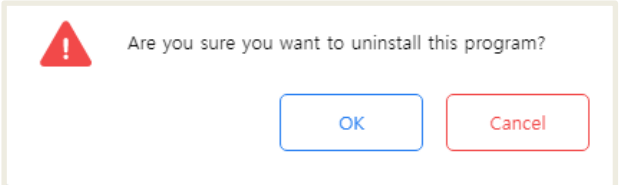
(1) Click the TRSUT service card.

(2) After entering the TRSUT service detail screen, click Uninstall at the bottom left.



[Service detail screen]

(3) The message window "Are you sure you want to uninstall this program?" is generated, and if you want to delete the TRUST service, press the [OK] / [Cancel] button to maintain the TRUST service.



[Choose whether to delete]

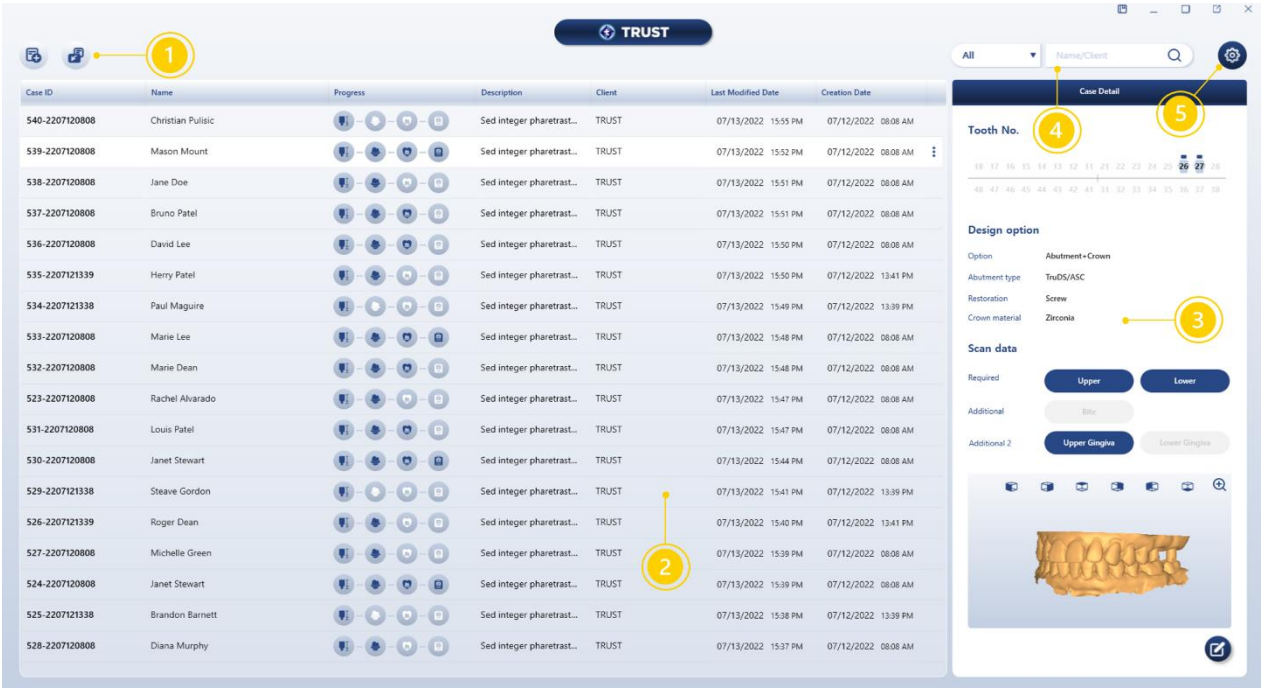
(4) When the [OK] button is pressed, the file is completely deleted.

3. Common

3.1. Screen layout

3.1.1. Case management

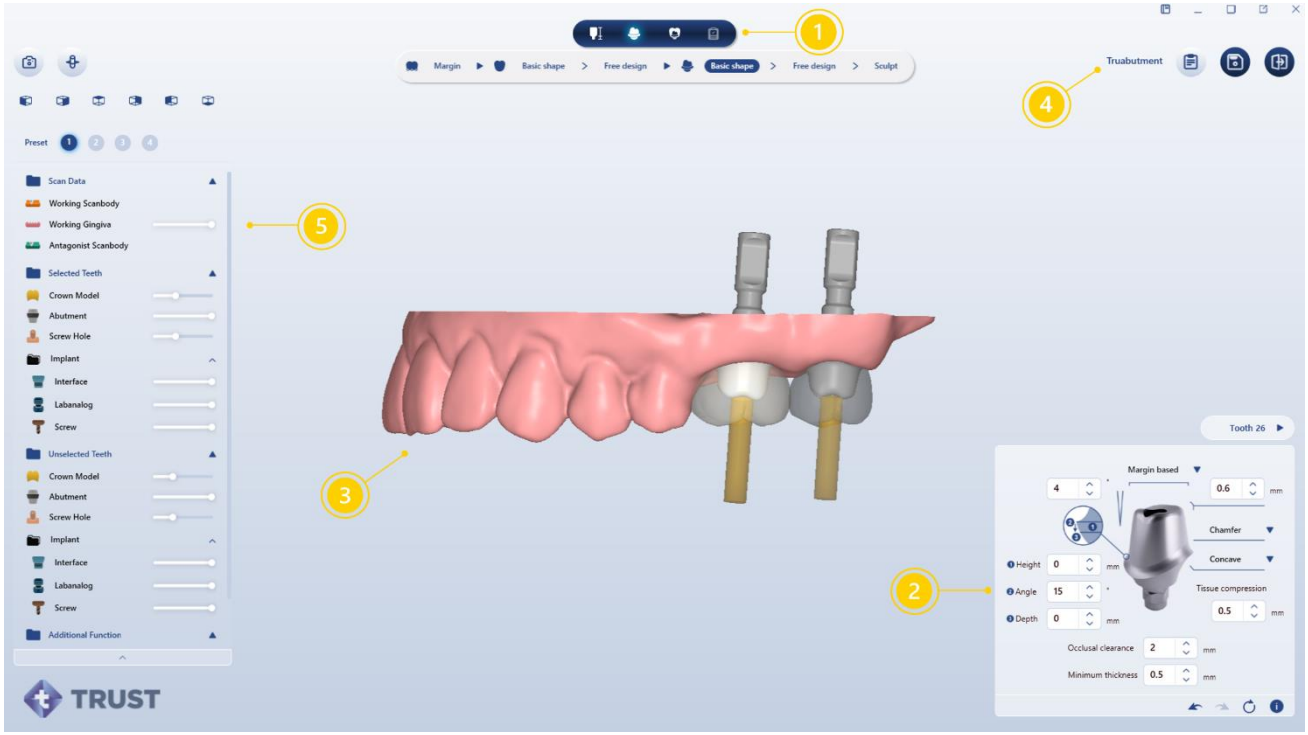
Provide design case management and Configuration.



No.	Name	Explanation
1	Case creation	Create a case and get a case
2	Case list	Show and run generated cases
3	Case details	Check selected case details
4	Case search	Search for generated cases
5	Configuration	Create a Configuration screen

3.1.2. Design

Provide work steps and design work tools for your design.



No.	Name	Explanation
1	Design steps	Create and get a case
2	Design task tool	Design tooth selection and work tools
3	Operation data	Display data and operation conducted
4	Design management	Provide case information and save/leave designs
5	Visible options/add-ons	Provide on-screen data visibility settings and add-ons

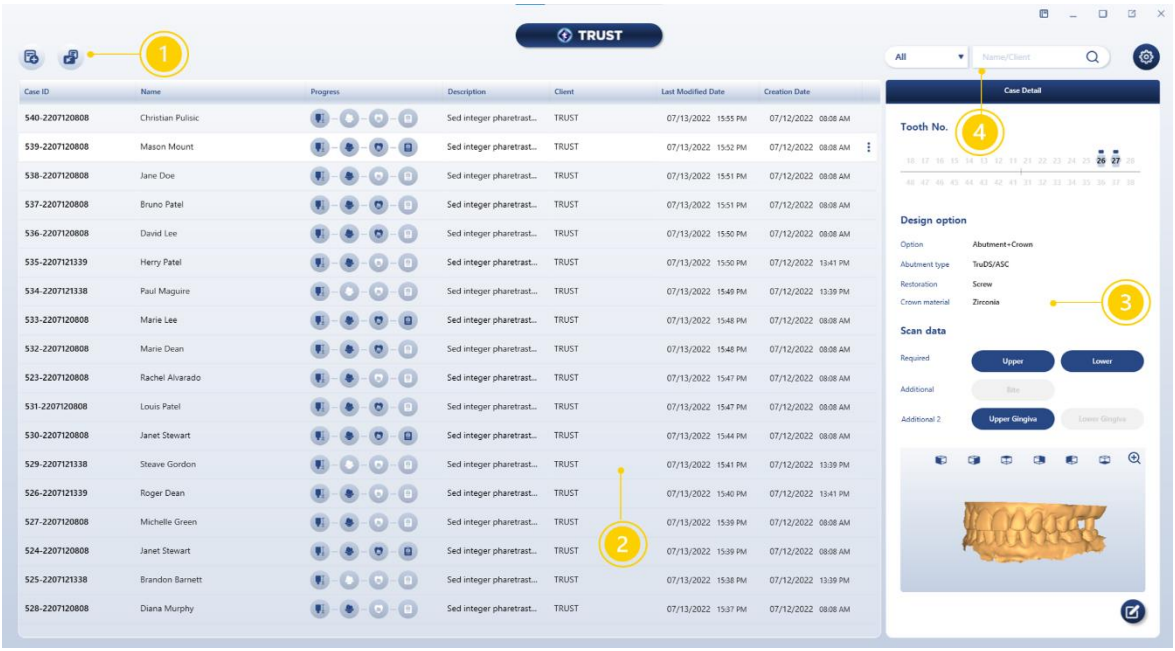
3.2. Common operation

3.2.1. Program controls

Icon	Explanation
	Run the program manual
	Minimize
	Maximize (except task bar)
	Restore (except task bar)
	Maximize (including task bar)
	Restore (including task bar)
	Close

4. Case Management

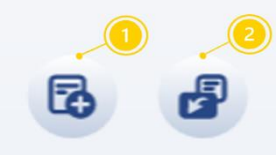
Provide design case creation and management.



No.	Name	Explanation
1	Case creation	Create a case and import a case
2	Case list	Show and run generated cases
3	Case details	Display selected case details

4	Case search	Search for generated cases

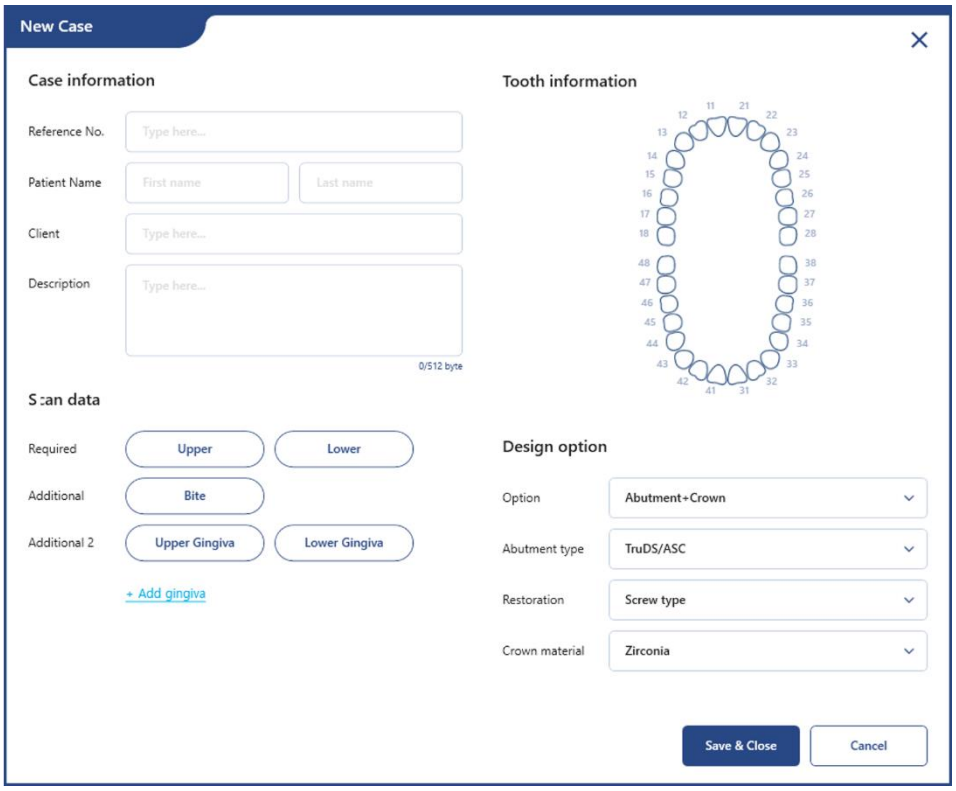
4.1 Case creation



No.	Explanation
1	New case generation
2	Import an exported case to the program

4.1.1. Create a new case

- Click the Create New Case button will create a new creation screen.



[New Case]

1) About cases

Enter patient information and case information.

- **Reference No**.: Enter the reference No. to be included in the case ID. You can enter up to 12 digits.

- **Patient Name:** Enter the patient's first/last Name.
- **Client:** Enter the order information that commissioned the order.
- **Description:** Enter the information you need incidentally.

2) Scan data

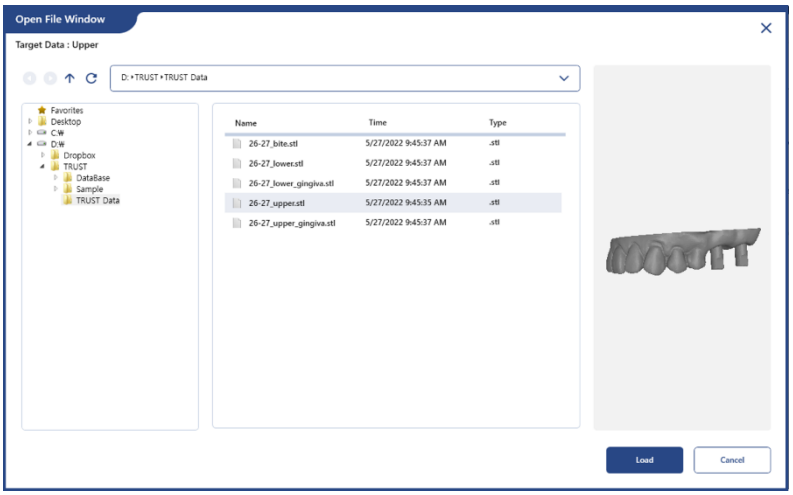
Register the scan data for use in the design.

- **Required:** Register the upper/lower part scan data. Scan data at the abutment design site must register the scan data containing the scan body.
- **Additional:** Register the gingiva scan data or the occlusal scan data when necessary. If you have a large No. of gingiva scan data, click the Add gingiva button + Add gingiva to register additionally. You can register up to 48 gingiva data.

Register your data

(1) Click the Scan data type button

to register and display the file dialog.



[File Dialog]

(2) Go to the path where the desired scan data is located.

(3) Double-click on the file you want to register or select and

click on it and the data will be used.

④ Preview the data with the preview function on the right side of the screen before registration. You can rotate, move, zoom in/out data using the mouse.

Attention	**Please check if the data matches the patient information and formula entered in the case information, when registering data.**

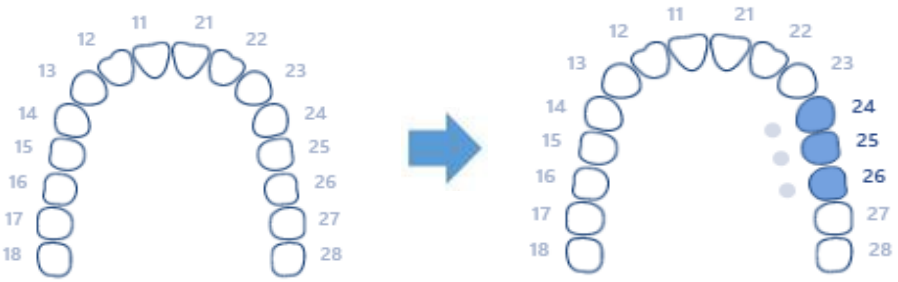
Attention	**Check the upper/mandibular kind of data in advance through data preview.**

3) Teeth information

Set the teeth and crown bridge/pontic information to design.

Choosing teeth

- **Select:** When you click the shape of the tooth button to design in the tooth selector, the tooth is selected.
- **Off**: Re-click the selected tooth to deselect.

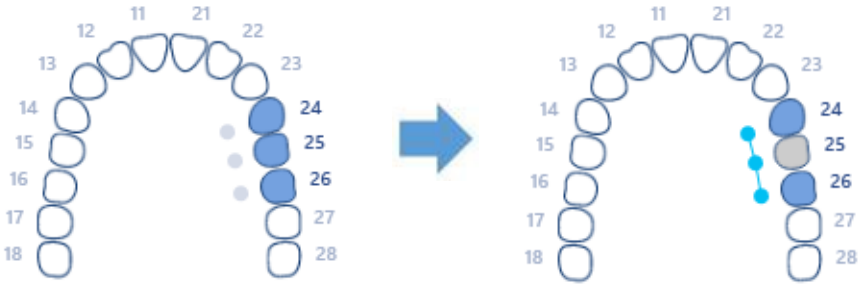


[Tooth selector - before (left) / after (right)]

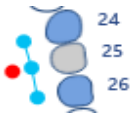
To set Bridge

You can set bridge/pontic for continuously selected teeth.

- **Setting:** When you click the gray button on both ends of the tooth to connect the bridge among the continuously selected teeth, both ends and middle teeth are set to bridge, and the gray button changes to blue.



[before (left) / back (right) of bridge setting]

- **Off**: The bridge is turned off when the red button 

is clicked on the mouse over the tooth set to the bridge.

To set pontic on/off

By default, if there are more than three-tooth connected by a bridge, the middle teeth except the ones at both ends are automatically set the pontic. Teeth set to pontic are grayed out.

- **Set:** When you click on a pontic tooth that is turned off, the pontic is set and the teeth are grayed out.
- **Off:** When you click on a set pontic tooth, the pontic is released and the tooth is shown in green.

[Pontic on (left) / Pontic off (right)]

4) Design options

- **Optional:** Abutment+Crown/ Abutment/ Crown (Ti-base) 항목 중 선택이 가능 합니다. The design steps are depending on what you selected for this option. (All crown-related steps are omitted when selecting an abutment item)
- **Tooth restoration type:** Set the restoration type of crown. You can choose from screw type/ cement type.
- **Crown material:** Set the crown material.

Guidance	**The selection of dental restoration type /crown materials does not affect the design and is only used as a reference in design.**

Guidance	**When Crown (Ti-base) is selected in Option, only Screw type is provided for tooth restoration type.**

5) Save/Cancel case

Save or cancel the entered case information.

- **Save &Design**: After the case creation and close creation screen, go to the design screen.
- **Save &Close**: After the case creation and close creation screen, return to the case management screen.
- **Cancel:** Cancel case creation and close creation screen, return to case management screen.

Attention	**Reference No./upper/lower scan data/tooth information must be entered to create the case**

4.1.2. Import a case

- In the TRUST program, click the Import case button to register the exported case with the Program.

Guidance	**Only .tru, the trust design project file-only extension, can be registered for the file extension.**

4.2 Case list

Display and run the generated cases in the list.

Column Name	Explanation
Date	Case creation date
Order ID	Case unique identification No.
Name	Case patient name
Client	Case order customer name
Progress	Design progress

Run a design

- Double-click specific case item to run the design.
- When you click the active step icon

in the Progress column, you can go directly to that step. The activated steps are displayed in dark blue.

Managing cases

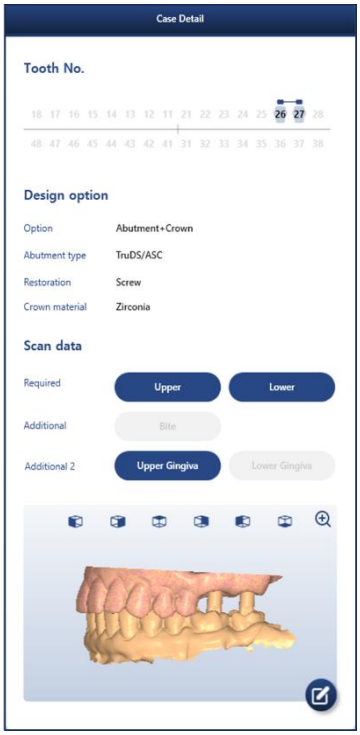
Right-click on the created case item displays the managing menu.

Modify description	Modification of the case description
Edit	Edit the selected case information
Copy case	Copy the selected case to create as a new case
Delete case	Delete the selected case
Export case	Save the selected case to local drive

Guidance	**You can change the order of columns (such as Case ID) items by clicking and dragging the mouse.**

4.3 Case details

Provide a preview of case details when selecting a specific case from the case list.

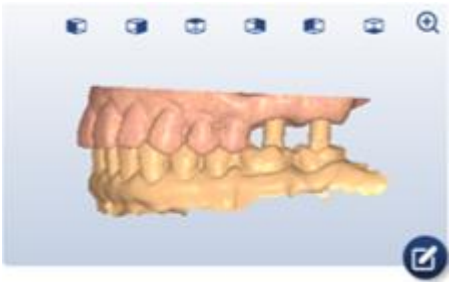


[case details]

Check scan data

You can check the scan data registered in the case details.

- The scan data is displayed in the lower data display area when you click the scan data type button.



[Preview Scan Data]

- The data display area provides the Orientation alignment too , the Maximize data preview button , and you can rotate, move, zoom in/out data using the mouse.

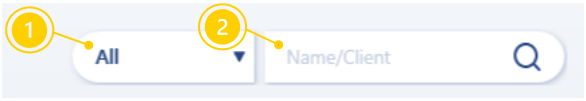
To modify case information

- Clicking the Modify case button at the bottom of the case detail displays the Case Creation screen, allowing you to modify existing information and enter additional new information.

Attention	**When you modify a case, the design history may be initialized.**

4.4 Case search

You can use the search filters for specific cases in the full list of cases.



No.	Explanation
1	Search cases by date
2	Search cases by patient or customer name

4.4.1. Filter

-

Selectable filter conditions are displayed when the button is clicked.

All	Show the entire item in the generated case
Creation Date	Show case items created in the specified date range

- For date searches, you can choose from today/ last 7 days/ last 30 days/ last 3 months/ custom ranges. When you select a custom range, you can set the search period in the calendar.

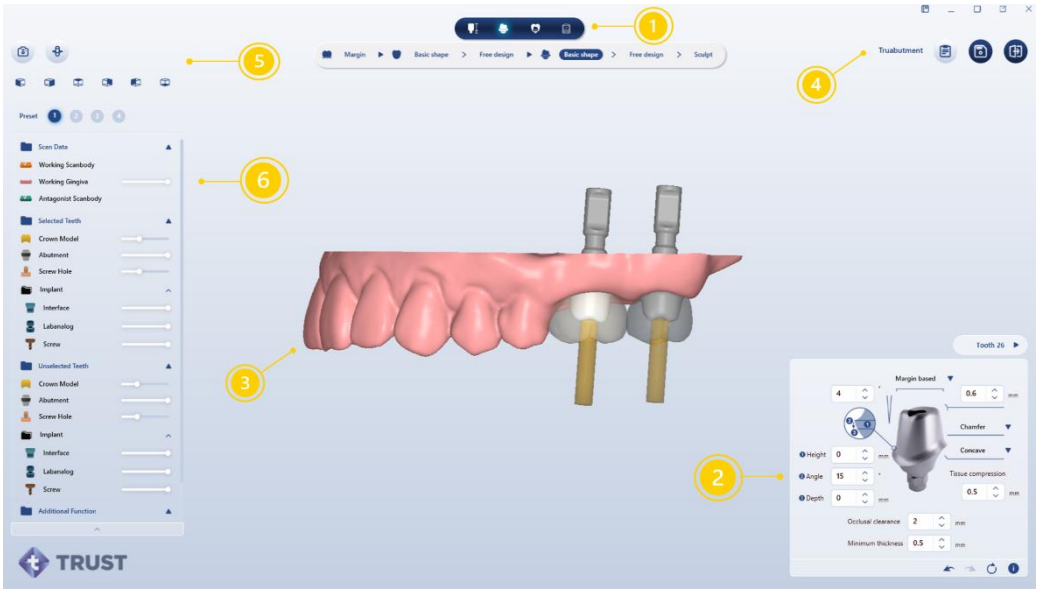
[Custom range]

4.4.2. Search

- Enter the patient's name or customer name in the search box and enter key or click the Magnifying Glass button to search for and display only cases that contain that name.

5. Custom Abutment Design

Crown and abutment design features.



No.	Name	Explanation
1	Design steps	Show and move design steps
2	Tooth selection and task tools	Select working teeth and task tools
3	Displaying data	Display data for design
4	Case management	Patient information/Case details/Save/Exit
5	Add-ons	Additional features such as capture
6	Visible options	Provides visibility options for each phase of work

5.1 Common

5.1.1. Mouse operation and shortcuts

1) Data mouse operation

Movement	Mouse input
Pan	Wheel button + drag
Zoom	Wheel scrolling
Rotation	Right-click +drag

Single selection	Left click
Multi selection	Ctrl +Left click or drag

2) Shortcuts

Visible options		
Object	**Working Scanbody**	S
	Antagonist Scanbody	A
	Working Gingiva	D
	Antagonist Gingiva	F
	Selected Teeth Crown Model	T
	Selected Teeth Crown Library	Y
	Screw Hole	H
	Collision distance map	G
	Abutment Min.Thickness	J
	Abutment Thickness map	U
	Unselected Teeth	E
	Antagonist Teeth	R
Opacity	**Opacity control (Opacity 100% - 40% - 0% cycle) When the opacity is medium treated as a large recursive value**	Shift+Obect hotkey
Preset	**Preset1**	1
	Preset2	2
	Preset3	3
	Preset4	4
Crown Free design		
Design	**Wax**	Z
	Wax-up	V
	Wax-dow	B
	Smoothing	N
	Morph	X
	Adapt	C
	Radius up/down	Shift+Mouse wheel up / down
	Level up/down	Ctrl+ Mouse wheel up / down
Abutment Free Design		
Design	**Upper Tool**	Z

	Margin Tool	X
	Lower Tool	C
Abutment Free Design		
Design	**Cut**	Z
	Hole	X
	Wax	C
	Wax-up	V
	Wax-down	B
	Smoothing	N
	Radius up/dow	Shift+Mouse wheel up/down
	Level up/down	Ctrl+Mouse wheel up/down

Guidance	**The F5 key makes it easy to see the shortcuts provided on the design surface.**

5.1.2. Move a design step

Display the steps that can be made based on the design options set when the case was created. Some steps are separated from the main and detailed design steps based on the nature of the steps. The moveable steps are displayed in light white icon, while the steps that cannot be moved to black are displayed in gray.

If the design option is Abutment + Crown, the steps to work shown are as follows:

- You move to the design steps directly when you click them activated.

Guidance	**All design steps must meet the completion criteria of the previous step before they can be moved to the next step.**

Guidance	**If the design option is abutment, all steps related to the crown are excluded.**

5.1.3. Select working teeth

Task tool provides a working tooth selection tool at the top.

[Work tool top teeth selection tool]

- Click the left/right arrow to change the working tooth for the Tooth selection tool.
- If a working tooth changes in the data area, it is displayed in sync with that information.
- If multiple working teeth are selected in the data area, all selected tooth No. are displayed.
- When you click on a tooth No., you're seeing all the entire design teeth and the work teeth change with that tooth when you click on a specific tooth.

[Full list of design teeth]

5.1.4. Redo/Undo/Reset

You can initialize, redo and undo the stations within the task at that stage by using the buttons provided at the bottom of the task tool area.

Attention	**Please note that all actions will be deleted when you click the Reset button.**

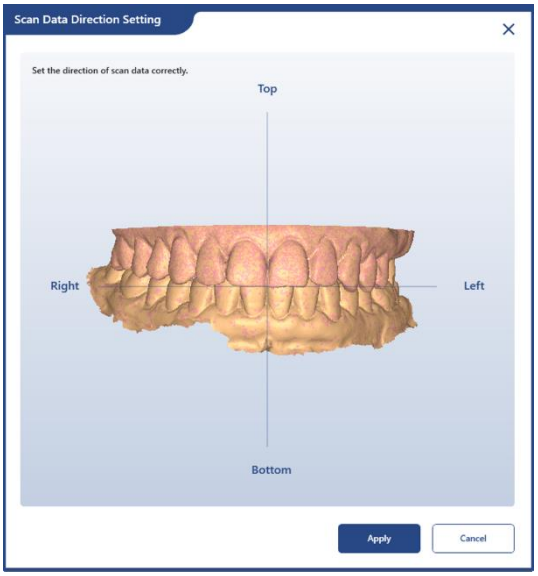
5.1.5. Orientation of 3D data

Use the Orientation tool provided on the left side of the design screen to change the direction in which the data appears on the screen.

The criteria for the direction being switched are based on the unique orientation set in the scan data by default, and you can change the unique orientation in the scan body alignment step if necessary.

To Change the Unique Orientation of Scan Data

(1) Click the Set Direction button below the Direction tool to create a direction setting screen.



[Orientation]

(2) Rotate the direction by right-clicking + dragging the scan data according to the reference direction (up/down/right/left) displayed on the screen and the occlusal guide.

(3) When clicking the apply button , the scan data direction set on the screen changes to scan data and flow direction.

Attention	**When you set your own orientation, all existing design history is initialized.**

Guidance	**The unique orientation function is not provided in any other step than sorting the scan body.**

Attention	**If you do not align your own direction, the abutment may produce abnormally.**

5.1.6. Set cross sections

On the design step, you can set the cross-section view that you want. It also supports an add-on for cross-sectional checking in the cross-sectional image area.

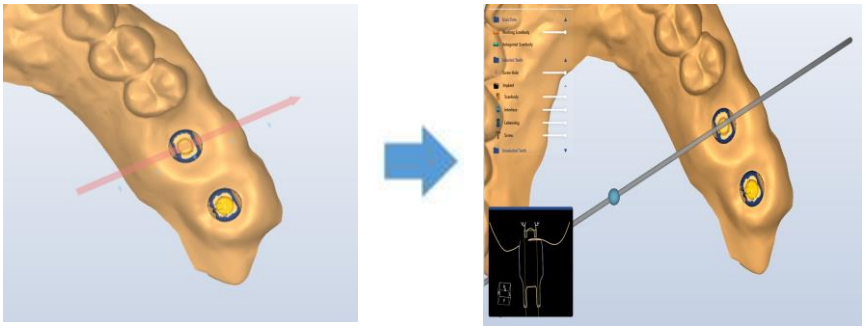
To set up a cross section

(1) Rotate in the direction in which you want to cut the data in the data display area.

(2) Click the cross-section button provided on the left side of the design screen.

(3) In the data display area, click the start and end points of the section you want to view.

(4) At the same time as the endpoint click, a cross-section image area is added to the lower left corner of the screen.



[Add Cross-Section Image Area]

Attention	**Data operation (movement/rotation/zoom) is not possible after clicking the cross-section button.**

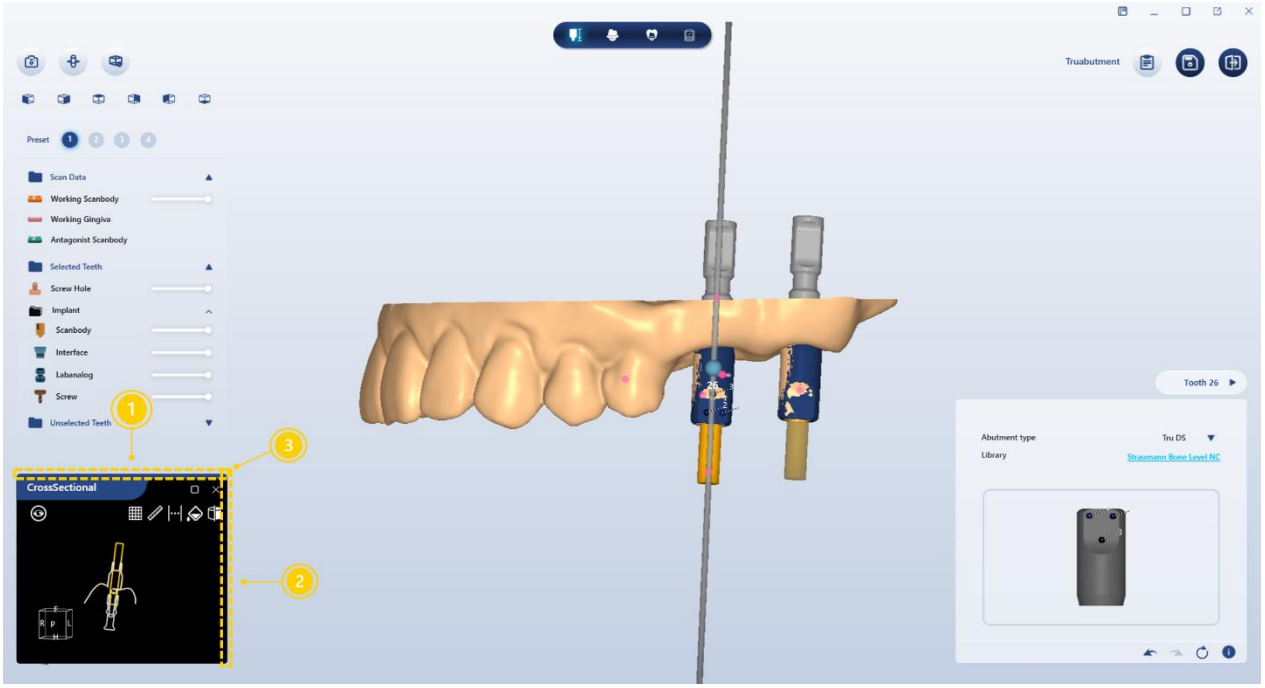
Guidance	**Use the right mouse click to cancel the action after clicking the cross-section button.**

Cross-sectional adjustment

You can adjust the size of the cross-section area to suit your needs.

Height/Width adjustment

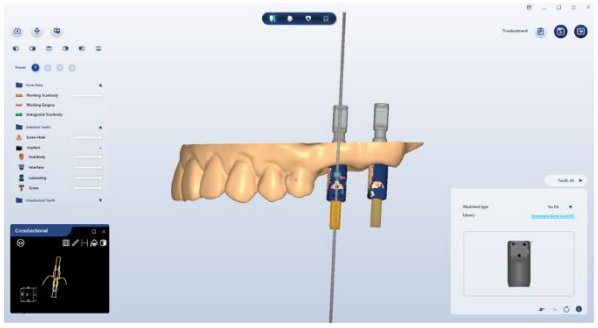
You can adjust the height and width of the cross-section area by clicking and dragging the boundary line of the cross-section area.



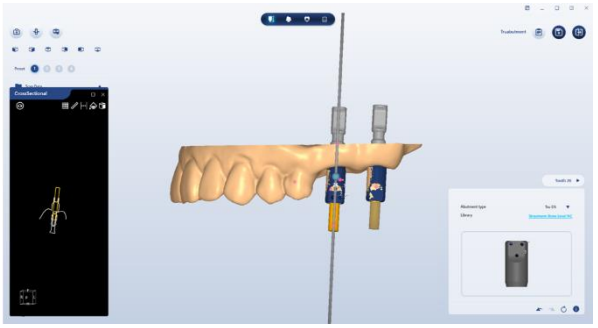
No.	Name	Explanation
1	Horizontal border	Adjust the height of the cross-section area
2	Vertical border	Adjust the width of the cross-section area
3	Right edge border	Simultaneous adjustment of the height and width of the cross-section area

Horizontal border

- When clicking + dragging the mouse, the height of the top and bottom cross section area is adjusted.



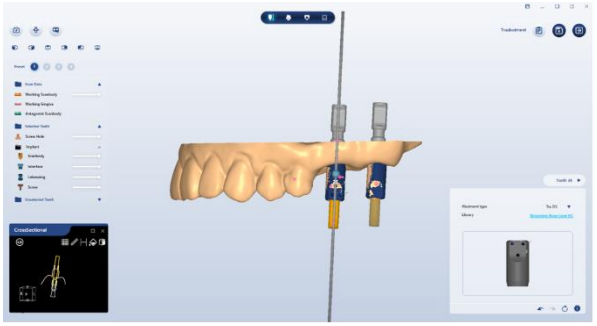
[Before]



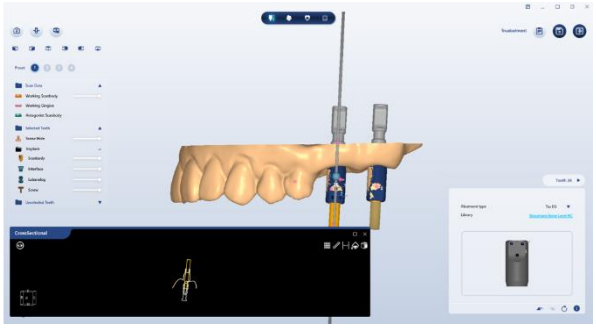
[After]

Vertical border

- When clicking + dragging the mouse, the width of the left and right cross section area is adjusted.



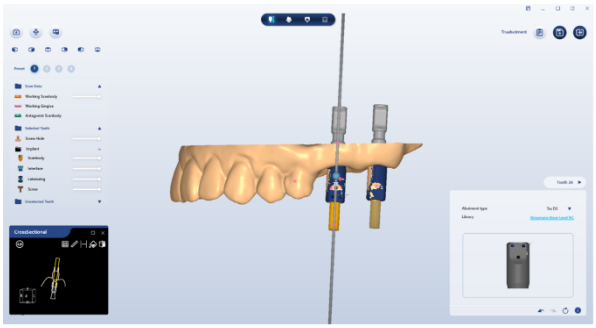
[Before]



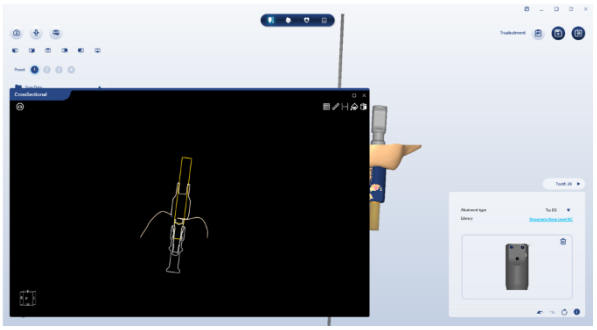
[After]

Top right corner

- When clicking + dragging the mouse, the height and width of the top, bottom, left and right cross section areas are adjusted simultaneously.



[Before]



[After]

Use add-on tools

Provides add-on tools at the top of the cross-section image area.

- **Hide cross-section tool:** You can show or remove cross-sectional tools that appear in the data display area when clicked.
- **Show Grid:** When clicked , the image displays a 5 mm gap grid.
- **Measure length:** Click the mouse click +drag the length you want to measure.
- **Angle measurement:** Click and click 4 points with the mouse on the image to measure the angle between the two lines
- **Change background color**: The color menu is displayed when you click. The color you can choose from is black/gray.
- **Use as clip surface:** When clicked , the 3D data is cut off and displayed based on the section displayed at the current cross section.

Check the direction of the image

Check the direction the cross-sectional image is looking at the screen with the direction indicator

provided in the lower left corner of the cross-sectional image area.

5.1.7. Screen capture

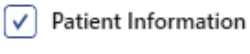
The capture button provided on the left side of the design screen allows the user to capture the desired screen. When you click the button, we offer the following menu.

List	Display a list of capture images
Region	Capture a custom area
All	Full screen capture of the program

Guidance	**Use the right mouse click to cancel after clicking the Region button.**

Check out the capture images

When you capture button, you will see a capture list screen and see the capture image from that screen. You can enter notes in and save or delete capture images if necessary.

The patient information displayed in the capture image can be selected for display on/off through the item 

.

- **Save:** You can save the image captured by clicking the Save button

in the capture image thumbnail list or save all image by clicking the Save All button.

- **Delete**: When mouse over on the capture image thumbnail, you can delete the images by clicking the X button displayed in the upper right corner or to delete all images by clicking the delete all button.

- **Note**: In the capture image preview area, click the note button that appears in the lower left corner when the mouse over, and then clicks the desired area to note**.** When the **"Double Click!"** phrase is displayed, double-click the phrase and enter a note when the text input window is activated.

Guidance	**Captured images are available in the resulting design report.**

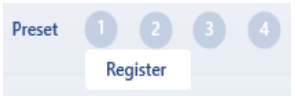
5.1.8. Visible options

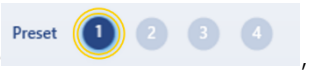
You can set hidden/transparency and user presets for items that appear in the data area.

No.	Name	Explanation
1	User presets	Manage currently applied visibility options as presets
2	Visible items	Display and condition visible items that can be set step-by-step

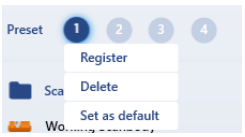
1) User presets

The currently applied visibility option can be saved and used as a custom preset.

- Right-click on the button where the preset is not registered displays 

the Preset registration menu and clicking, it will save the visibility options currently set on the screen.
- Buttons with presets registered are activated in blue 

, and presets are applied to the image area when clicked.
- When you right-click a button where a preset is registered,

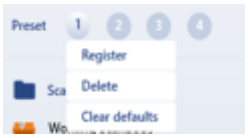


the preset registration/delete/default setting menu is displayed, allowing you to re-register, delete, and set default values.

(However, if the working value scan data is inactive or the opacity is less than 0.1, it cannot be set as default.)

- If you set the default value, the set contents are displayed on the design screen when you first enter.

- To delete a preset to which default values have been applied, right-click on the button where the preset is registered, and the Re-register, Delete, and Clear defults menus are displayed,



so Clear defaults is possible.

Guidance	**The initial state displayed when entering the design screen for the first time is registered in preset 1.**

Guidance	**The visible option presets are managed separately for each design step.**

2) Visualization Options

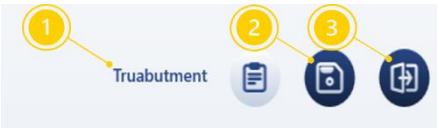
Visualization options provided throughout all steps are listed in the below table.

Icon	Name	Icon	Name
	Working Scanbody		Lab analog
	Working Gingiva		Screw
	Antagonist Scanbody		Border
	Antagonist Gingiva		Cement gap
	Bite		Work bridge
	Crown model		Antagonist bridge
	Crown library		Collision distance map
	Abutment		Crown Thickness map
	Screw hole		Abutment Min. Thickness
	Scanbody		Abutment Thickness map
	Interface		Mouse grid

- Drag the slider that appears to the right of the icon to adjust the opacity of each item.
- You can click the icon to hide/display the item.
- • You can hide/show all visualization items belonging to the group by clicking the parent folder icon.
- You can collapse/expand sub-items by clicking the up/down arrows displayed on the right side of the parent folder.

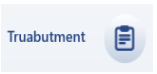
5.1.9. Case information/Save/Move to case list

The case information/ save case / exit case function is available on the right side of the design screen.

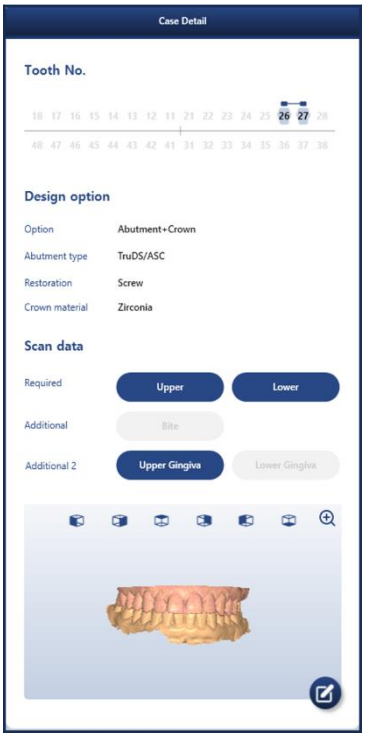


No.	Name	Explanation
1	Case information	Detailed patient information and cases
2	Save case	Save a design task
3	Exit the case	Move to the case management screen

Check case details

- The case detail screen is displayed when you click the Case Information button 

.

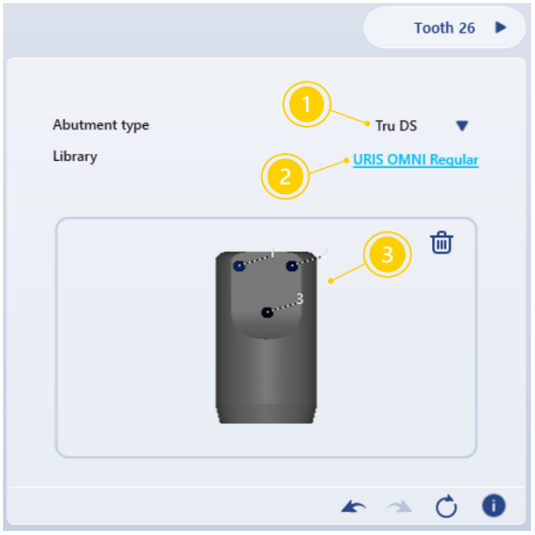


[Case details]

5.2 Align scan body

The scan body scanned on the scan data and the scan body model are positioned equally. The scanning body of both data should be used in the same model and affect the placement of the abutment and crown during design.

5.2.1. Task tools



No.	Explanation
1	Abutment type select and display
2	Select and display a scan body library
3	Display scan body models and enter alignment points

5.2.2. To align scan body

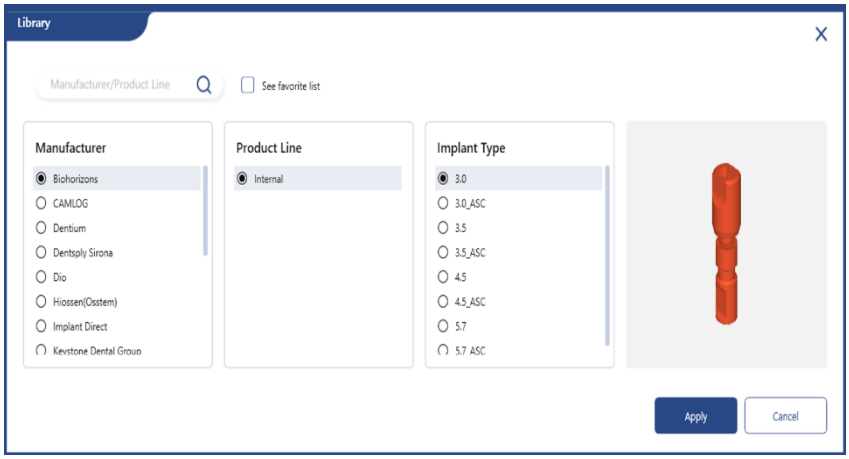
1) To 3points align

(1) When click Tru DS on task tool,

Abutment type pop-up is displayed and you can choose from Tru DS / ASC selected when creating a case.

(2) After completing the item selection,

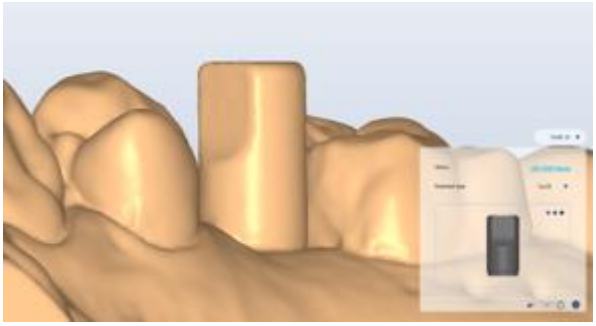
click the library button to create the library screen.



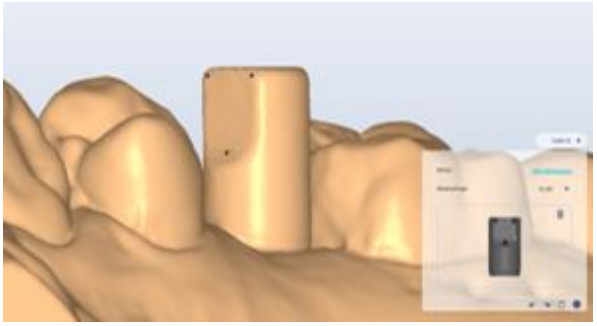
[Library]

(3) Select the scan body model scanned in the scan data on the library screen.

After completing the item selection, click the Apply button at the bottom to display the selected model in the operation tool.

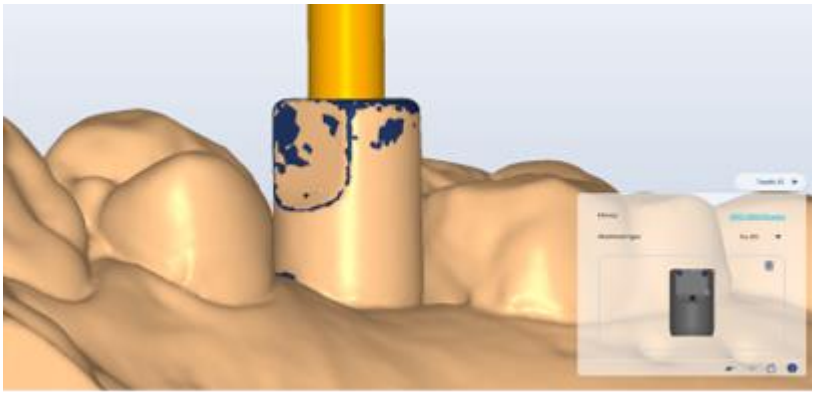


[Enter model three points]



[Enter three points of scan data]

(4) When you click on all three pairs of points, the scan body model is placed in the scan data based on the location of the points.



[Align result]

(5) Click on each three points in the scan data and scan body model displayed in the task tool. (Same points in the No. must be assigned to the same location in both data.)

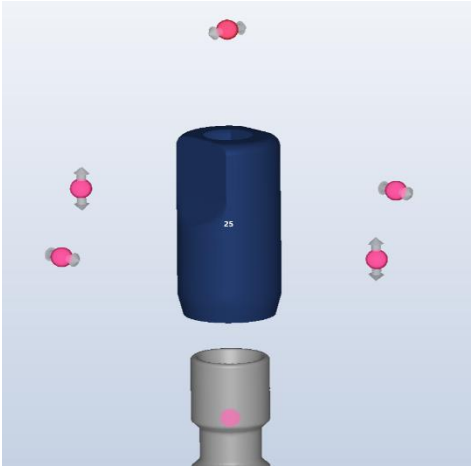
Attention	**The screw hole angle adjustment function is provided only by ASC Abutment type.**

2) To edit a point

- **Move**: Mouse click + drag the entered point.
- **Delete**: Right click the entered point.
- **Delete All:** Click the Delete all button in the upper right corner of the task tool scan body display area to delete all points entered in the image.

3) To edit the position manually

- You can manually edit the scan body position by clicking + dragging the rotate 3D object tool that appears when mouse-over on an aligned scan body model.



[Rotate Object tool (pink)]

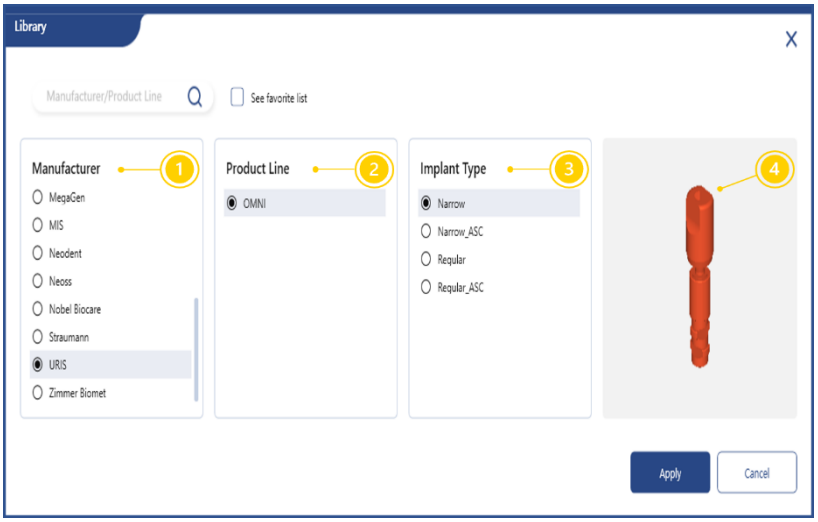
Guidance	**When you move on to the next step, the scan body and nested areas is deleted from scan data.**

Attention	**After registration is complete, check whether the scan body model and the scan data have the same shape.**

Attention	**After registration is complete, use the cross-section view function to check whether the scan body model and scan data registration status is correctly performed.**

5.2.3. Scan body library

You can manage the scan body library.



No.	Explanation
1	Manufacturer
2	Product line
3	Implant Type
4	Model Preview

1) Search for a manufacturer

- Enter the manufacturer's Name in the search box

at the top of the manufacturer list to search.

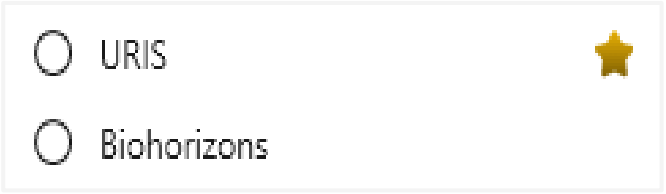
2) Model preview

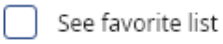
- When selecting a product line, the model is displayed in the preview window on the right.
- Mouse operation in the preview area allows you to rotate, move, zoom in/out the model.

3) Turn favorites on or off

- You can register as a favorite by clicking on the gray star that appears right of the name when mouse-over to the manufacturer and product line.

- Favorited items have a yellow star right of the Name.



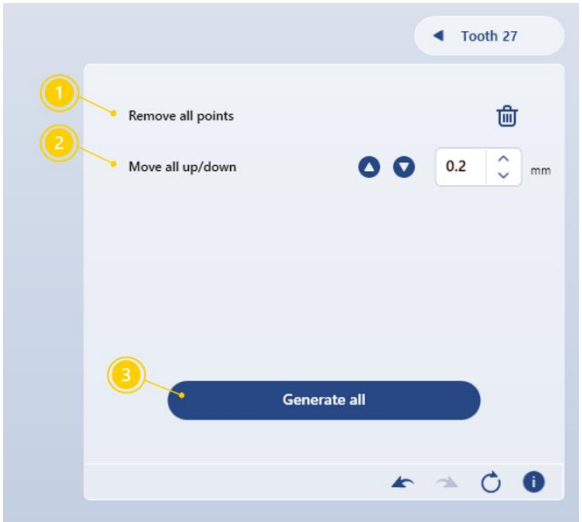
- Re-clicking the yellow star will turn off your favorite settings.
- Click the View Favorites List menu next to the search box to  view only the items that have been set as favorites.

Guidance	**When you have completed the scan body alignment of all tasks, the next task step is activated.**

5.3 Design_Margin

Create crowns and abutments after setting the area where the abutment margin will be located in the scan data.

5.3.1. Task tools



No.	Explanation
1	Delete a completed draw margin
2	Move the entire drawing completed margin
3	Crown/Abutment generation

5.3.2. Draw margins

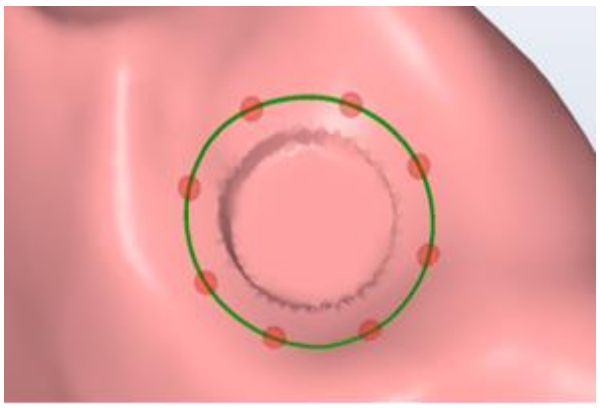
1) Draw margins

(1) In the Tooth selection tool

, select the tooth No. to draw the margin.

(2) Set the margin line by mouse clicking on the scan data surface.

(3) When clicking on the starting point (yellow dot), the margin line of the tooth is completed.



[Drawn margin line]

2) To Edit/Delete margins

- **Move Point:** Mouse-click +drag the control point on the margin line.
- **Add Point:** Mouse click over margin line with no control point.
- **Delete Points:** Right-click the control point on the margin line.
- **Move selected margin up/down:**

In the Task tool, click the Move button in the direction you want to move after setting the movement interval (up: margin outward direction/bottom: margin inner direction).
- **Delete Selected Margins:** Click the Delete Margin line button for the task tool.

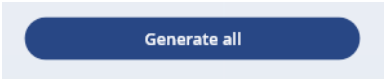
Attention	**With all crown/abutment models created, all models are deleted.**

Guidance	**If you have registered the gingiva data, you can enter a margin in it.**

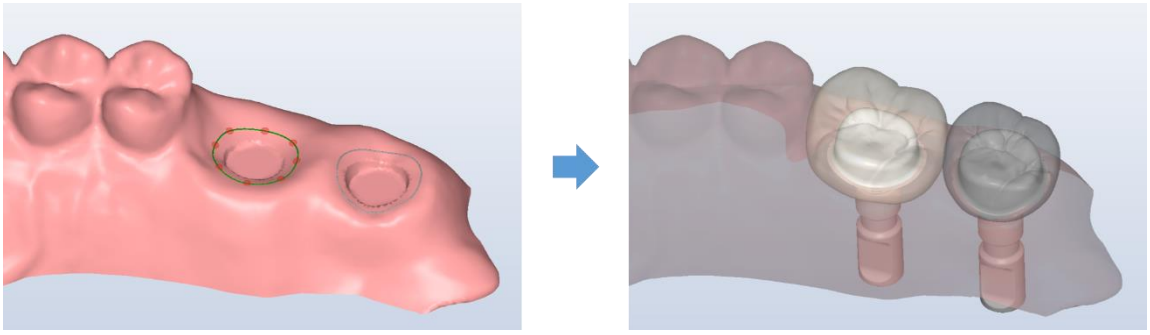
Attention	**The scan body central axis must be contained within the area of the drawn margin for normal crown position.**

Attention	**When entering margin, the margin line must include the scanbody area.**

5.3.3. To create a crown/abutment

- After completing the margin drawing of the entire working tooth, clicks the generate all button 

then the crown and abutment are created automatically.



[Before (left) / After creation (right)]

Guidance	**Crowns refer to margin/scan boy/proximal/occlusal and Abutments refer to margin, default shape settings when they automatically generate.** **In the case of screw type, the abutment is created in the direction of the implant center axis, and in the case of cement type, the placed crown.**

Guidance	When creating an abutment, the scan data is affected by its own orientation. If the abutment direction is not normal, check the scan data's original orientation.

Guidance	Crowns are not created if the case option is 'Abutment'.

Guidance	If the No. of working teeth is large, it may take some time to create.

Guidance	Once the crown/abutment is created in its entirely, the next step of operation is activated and if there is no problem with the generated crown/abutment, you can immediately proceed to the crown verification step.

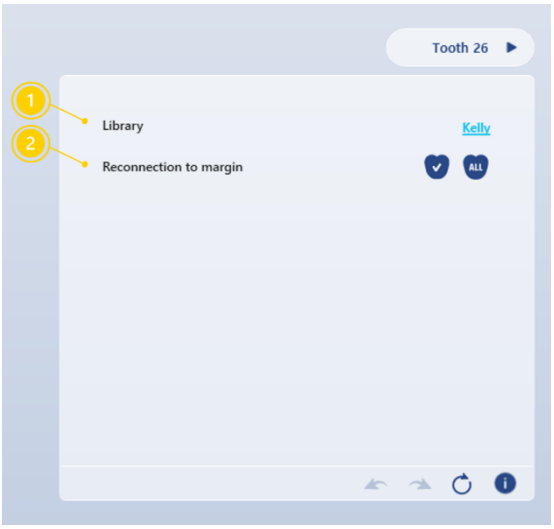
Attention	An abutment is created by correcting the minimum distance so that the margin height drawn by the user does not collide with the interface.

5.4 Design_Crown

If you need to edit the generated crown, you can enter and edit the appearance. The crown design step provides the following detailed steps:

Basic shape	Re-position crown size and position
Free design	Trim the crown appearance

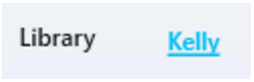
5.4.1. Basic shape_Task tool



No.	Explanation
1	Select and display crown libraries
2	Margin-Crown reconnection

5.4.2. To Place a Basic Shape_Crown Library

1) Change crown library

- Click the arrow on the Crown library menu 

and select the library you want.

Attention	**When you change the Crown library, all existing actions are initialized and the library model for all teeth is changed.**

2) Crown single selection

- Select the working tooth from the tooth selection tool or mouse click directly on the crown library model above the scan data.

3) Crown multiple selection

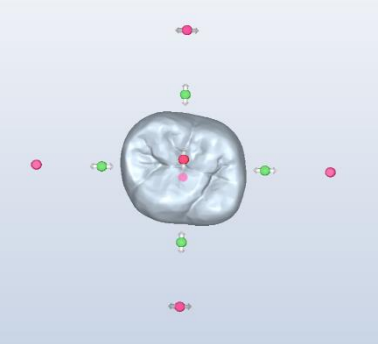
- Hold down the keyboard Ctrl key and mouse-click to select multiple teeth or click + drag to set up multiple selection areas.

4) To move the crown

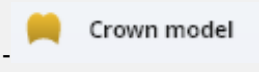
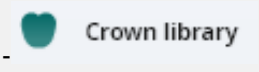
- Mouse-click + drag the crown library model above the scan data.

5) Rotate/resize the crown

- The Crown object adjustment tool is displayed when the selected crown model is mouse-over.



	Resizing the crown
	Rotation of the crown

Guidance	**The crown design step provides two types of crown models.** -  **: Crown model created in connection with margin** -  **: Crown library model not associated with margin** **In the Basic shape step, you edit the crown using the Crown Library model.**

5.4.3. Basic shape_Connecting crowns and borders

Crown library position and size changes will disconnect the crown border, so you will need to reconnect the crown with the border in order to reflect the changes.

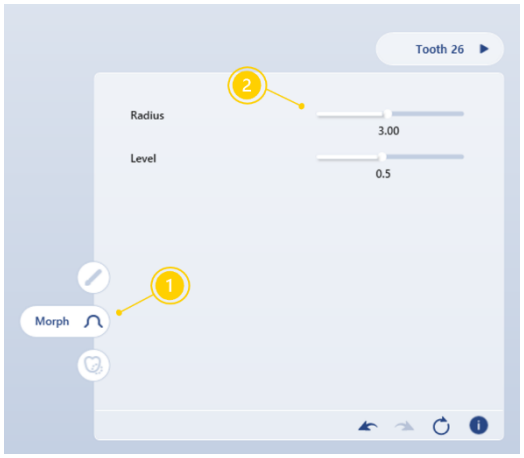
- **Currently connecting only teeth:** Click the Connect button for the task tool.
- **Connect All Teeth:** Click the Connect all button of the task tool.

5.4.4. Free Design_Task tool

1) Wax task tools

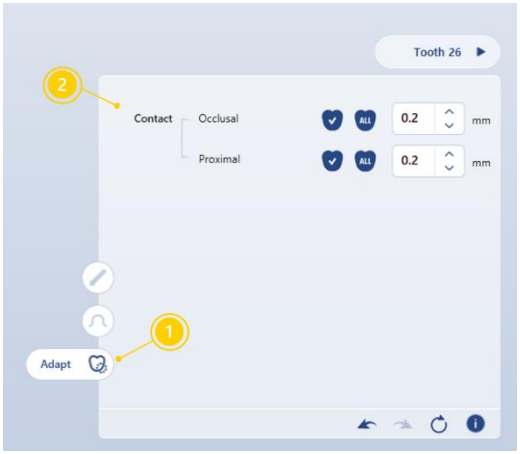
No.	Explanation
1	Choose a free design type
2	Choose wax type/radius/level

2) Mopping task tool



No.	Explanation
1	Choose a free design type
2	Select a mopping radius/ level

3) Adaptive task Tool



No.	Explanation
1	Choose a free design type
2	Apply occlusal/proximal distance

5.4.5. Free Design_Trimming Crowns

1) Using wax knife tools

Edit the shape by adding or removing wax to the crown generation model or smoothing it out.

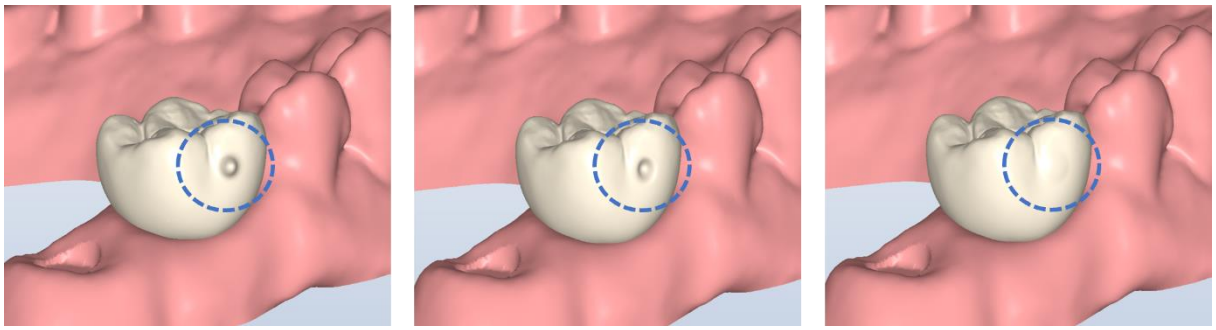
(1) Under task tools, click wax knife tool

.

(2) Add /delete /smoothing of the desired function after selecting the lower slider to adjust the editing area radius and level.

Radius	Adjust the radius of the editing area
Level	Adjust edit strength

(3) Click and drag the crown in the data display area with the mouse to edit the crown.



[Add wax (left)/ Delete (in)/ Smooth (right)]

2) Using the mopping tool

Drag a specific part of the crown generation model to edit the surrounding shape.

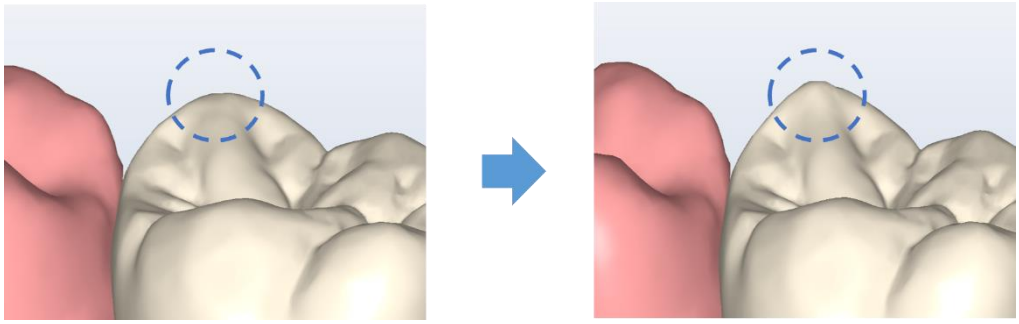
(1) Under task tools, click the Mopping Tool

.

(2) Drag the slider on the right to adjust the radius and level of the editing area.

Radius	Adjust the radius of the editing area
Level	Adjust edit strength

(3) Click and drag the crown in the data display area with the mouse to edit the crown.



[before (left) / after **(right)]**

3) Using the adapt tool

Adjust the contact area to account for the distance from the crown Proximal structure.

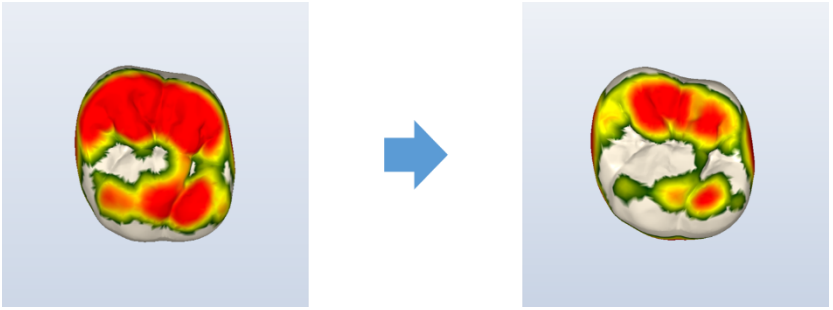
- Under task tools, click adapt tools

.
- **Occlusal contact distance:** Set the distance from the occlusal.

- **Proximal contact distance:** Set the distance from the Proximal.

- **Apply:** Apply only the current tooth by clicking the button after setting the distance or click the button

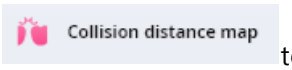
to apply it to all teeth.



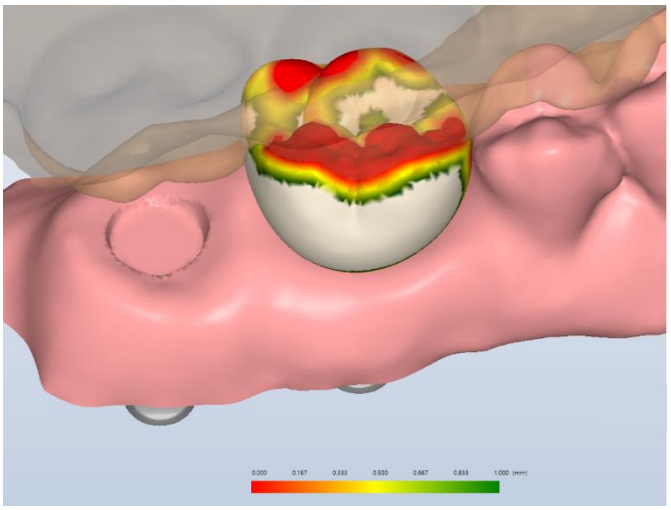
[Adjust occlusal contact surface]

Attention	**If the Proximal contact surface is also in contact with the scan data, the Proximal contact area may not be adjusted.**

5.4.6. Free Design_Check collision distance map

- Enable the crown design step distance map visibility option 

to color-check the distance map from surrounding teeth. The color bar information at the bottom allows you to see the distance of collisions by color.



[Collision Distance Map]

5.5 Design_Abutment

If you need to edit the generated abutment, you can enter and edit the appearance. The abutment design step provides the following detailed steps:

Basic shape	Set the abutment shape with preset settings values
Free design	Set the abutment shape with the free adjustment tool
Sculpt	Refine the abutment's appearance

Attention	**Some abutment design parameters can only be adjusted within the limits set in the library. The set limit range may differ from library to library, and when the limit range is reached, a notification message is displayed at the bottom of the screen.** The diameter of margin has reached the minimum limit! **[Example of notification message]**

5.5.1. Basic shape_Task tool

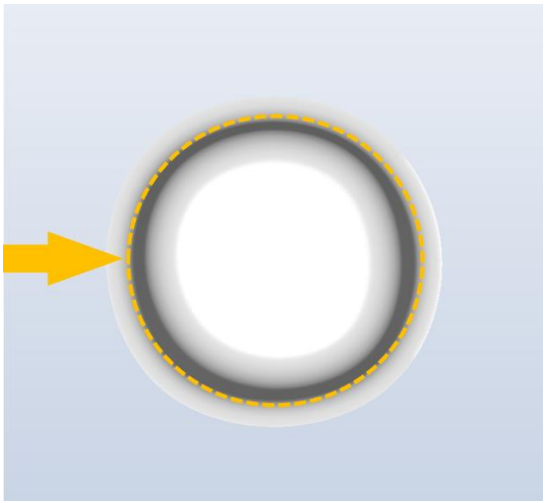
No.	Explanation
1	Upper form
2	Top fillet radius
3	Shoulder
4	Lower form
5	Tissue compression
6	Occlusal clearance/Minimum Thickness
7	Margin setting
8	Upper side angle

5.5.2. Designing with basic shape_presets

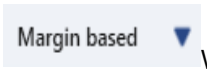
You can design an abutment by changing the preset value of the task tool. When you change the figure, they are reflected in the data display area in real time.

1) Upper shape

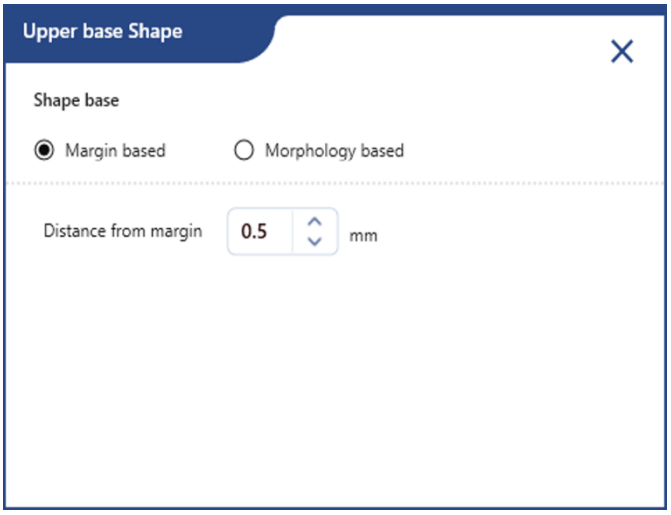
Set the shoulder shape when looking at the abutment from top to bottom.



[Upper shape]

- 

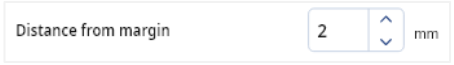
When you click on an item, you're seeing the Upper shape type pop-up, which you can choose from: margin-based/Morphology based.



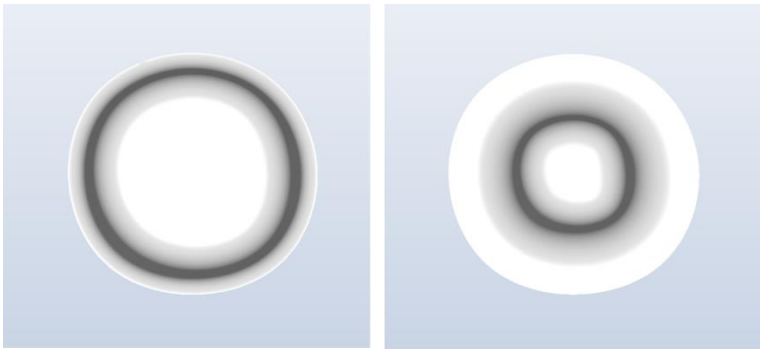
[Upper shape type pop-up]

Margin-based

The shoulder of the abutment moves in the center direction by the distance from the margin, and the top is created with reference to the default preset values.

- Set the distance from the margin 

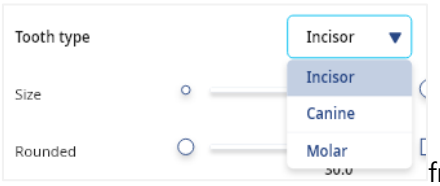
on the upper shape_margin-based pop-up screen.



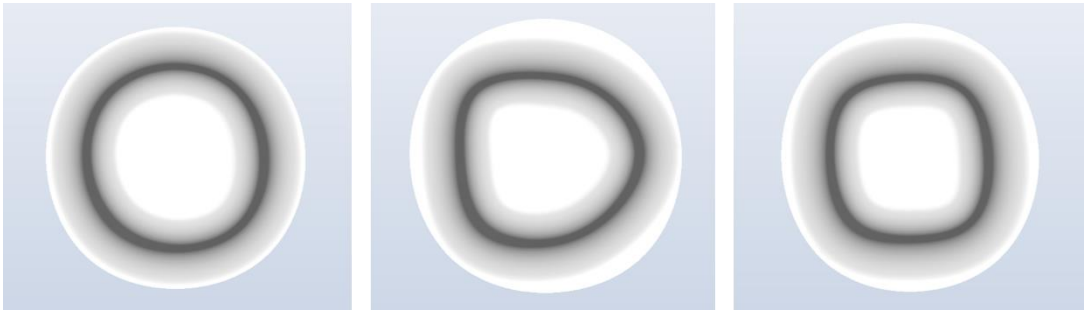
[Margin-based_Distance from margin 1.0mm (left) / 2.0mm (right)]

Tooth shape-based

Depending on the morphological shape of the tooth (Incisor/canine/molar), the upper abutment and shoulder are formed.

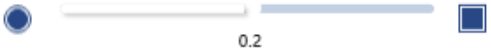
- Select a tooth type 

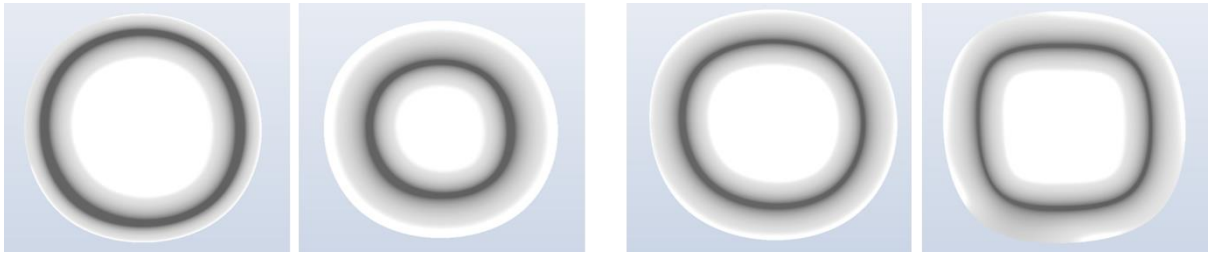
from the upper shape_tooth shape-based pop-up screen.



[tooth shape-based_ Incisor teeth (left) / canine (middle) / molar (right)]

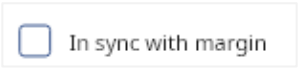
- **Resize:** Drag the resize slider.

- **Rounded:** Drag the control slider. 

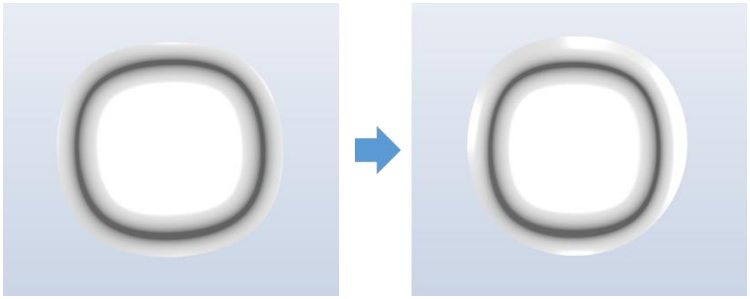


[Size adjustment is largely → smaller (left) / Rounded adjustment is round → sharpened (right)]

Guidance	**Rounded value can be adjusted from** **Incisor : 0.0~0.3 / Canine & Molar : 0.0~0.5.**

- **Synchronization with margin:** When 

checked, the shape of the margin changes to the same as the upper shape.



[synchronization with margin before (left) / after (right)]

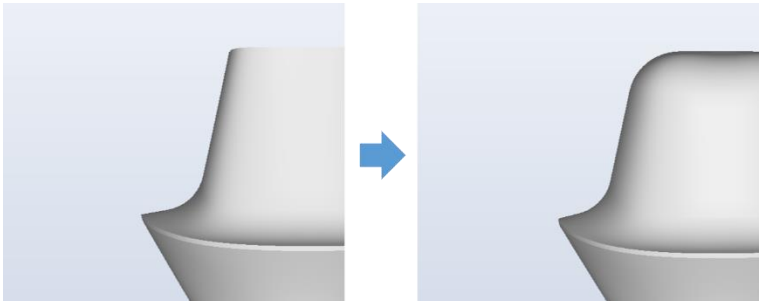
- Set the distance from the margin

on the upper shape_tooth shape-based pop-up screen.

Guidance	**Crown-based items are not displayed if the case option is 'Abutment'.**

2) Top fillet radius

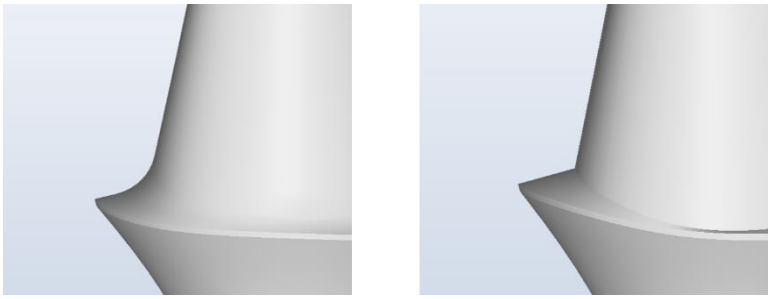
Set the fillet radius at the top of the abutment.



[Right angle 0mm (left) / 1mm (right)]

3) Shoulder

Set the shape of the shoulder of the abutment. Chamfer and shoulder are available.



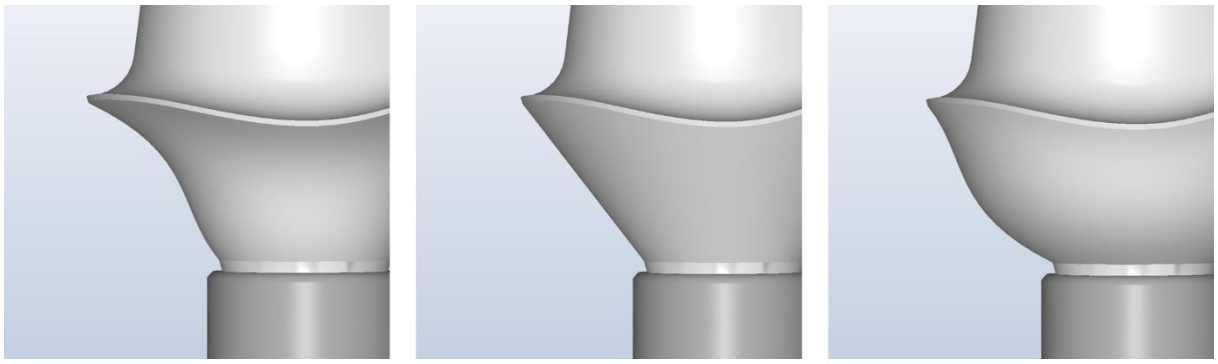
[Chamfer (left) / Shoulder (right)]

Guidance	**Chamfer and shoulder's fillet radius is 0.9 mm and 0.6 mm, which can be changed in Configuration.**

Attention	**If the shoulder radius value is less than 0.75mm, which is the minimum radius value of the machining tool, the abutment may not be machined normally. If it is set to 0.75mm or less, a guide message is displayed at the bottom of the screen.** If the shoulder radius is set to 0.75mm or less, processing may be difficult. **[Example of notification message]**

4) Lower shape

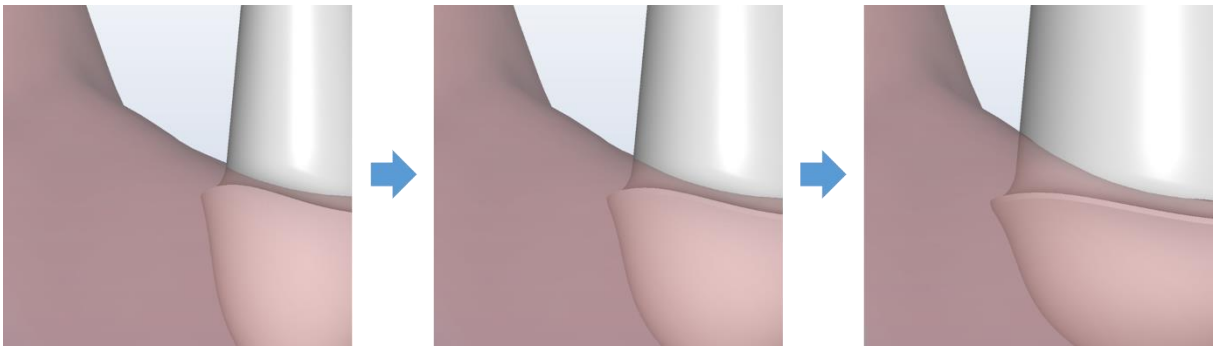
Set the shape of the underside of the abutment. You can choose from Concave/Straight/Convex.



[Concave (left) / Straight / Convex (right)]

5) Tissue compression

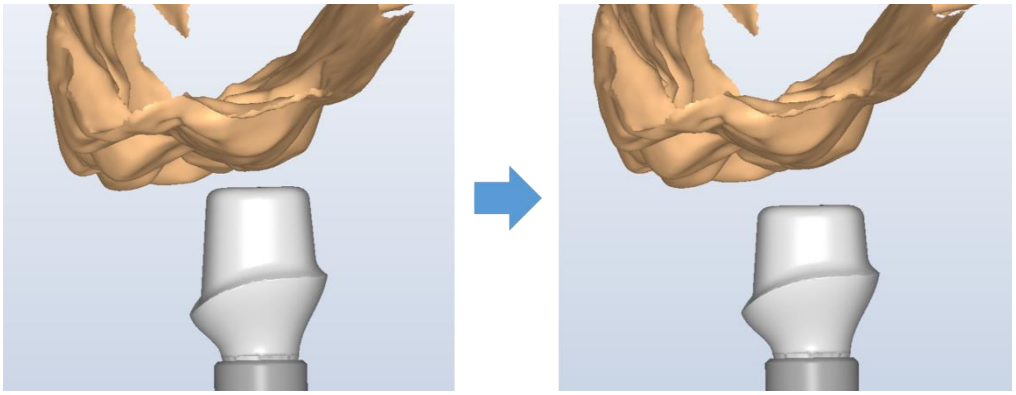
Adjust the entire radius of the abutment margin to set the margin and lower part pressure.



[Pressure -0.5 mm (left) / 0 mm (middle) / 1 mm (right)]

6) Occlusal distance/Minimum thickness

- **Occlusal distance**: Set the distance between the top of the abutment and the antagonist scan. The larger interval, the shorter the upper length of the abutment.

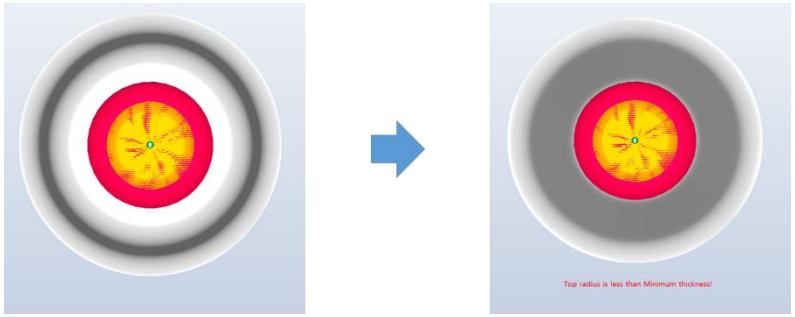


[1 mm (left) / 2 mm (right)]

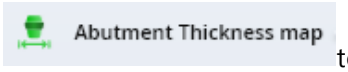
Guidance	**The occlusal distance can only be adjusted to 1 mm down the crown if there is a crown, and only to the point of contact for antagonist scan data if the abutment only case.**

- **Minimum thickness**: Set the minimum thickness of the abutment. The minimum thickness is relative to the screw hole, and the caution phrase displays in the data display area when the minimum thickness is violated. You can enable the minimum thickness visibility option

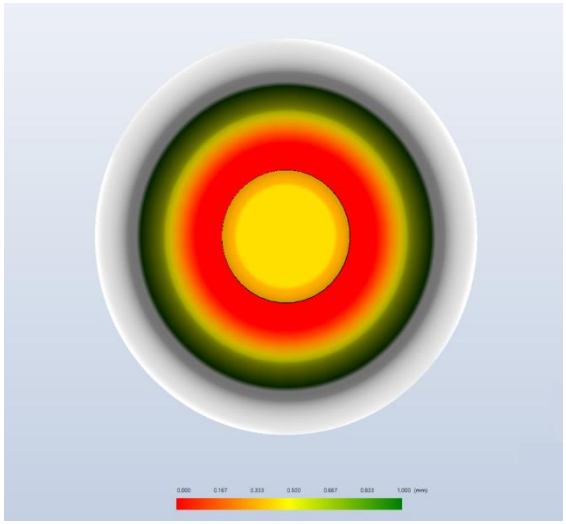
to make the minimum thickness visible.



[Before (left) / after (right)of minimum thickness area collision]

- **Minimum Thickness Distance Map**: Abutment design step enable the Minimum Thickness distance map visibility option 

to see the distance from the minimum thickness in color.



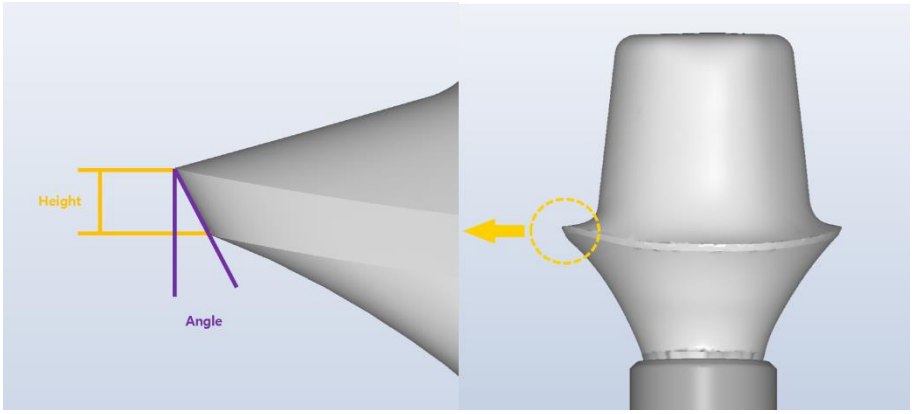
[Minimum Thickness Distance Map]

Guidance	**The minimum thickness is displayed as fixed as the value set in the library (item is inactive), and individual editing by design users is not possible.**

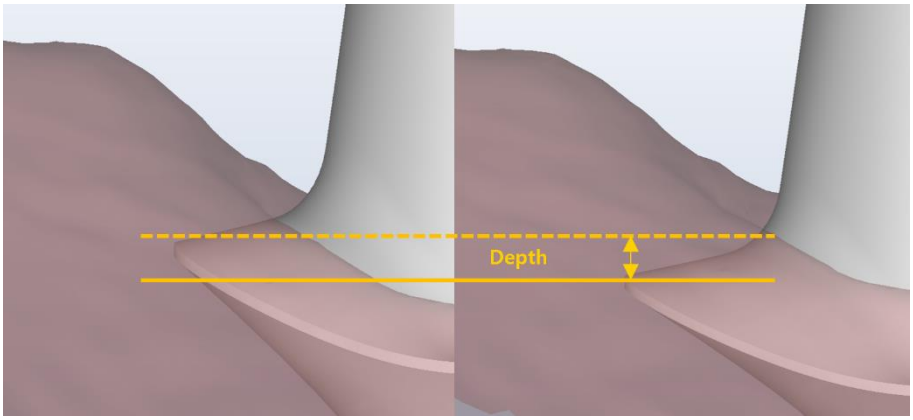
7) Margin setting

Set the height/angle/depth for the abutment margin shape.

- **Height:** Set the thickness of the margin.
- **Angle:** Set the angle of the margin thickness.
- **Depth:** Adjust the position of the margin up and down.



[Margin Height/Angle]

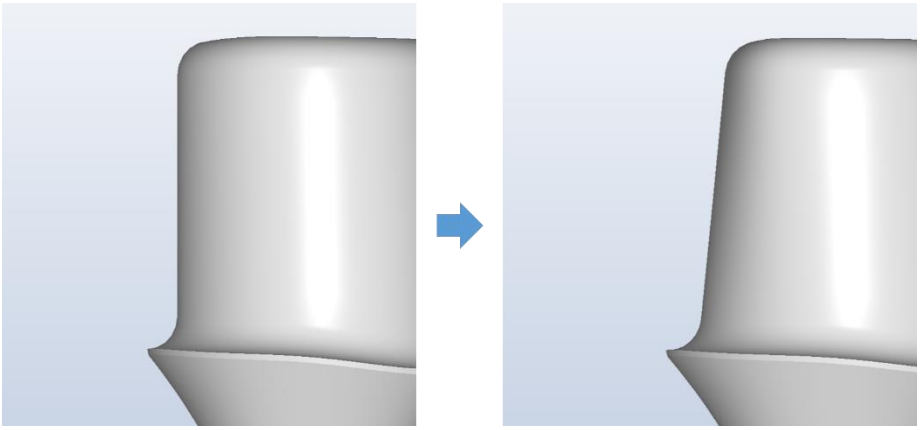


[Margin Depth]

Attention	**When adjusting the margin height downward, it cannot go below the interface height. Displays a crash warning message if the margin is about to go below the interface height.**

8) Upper side angle

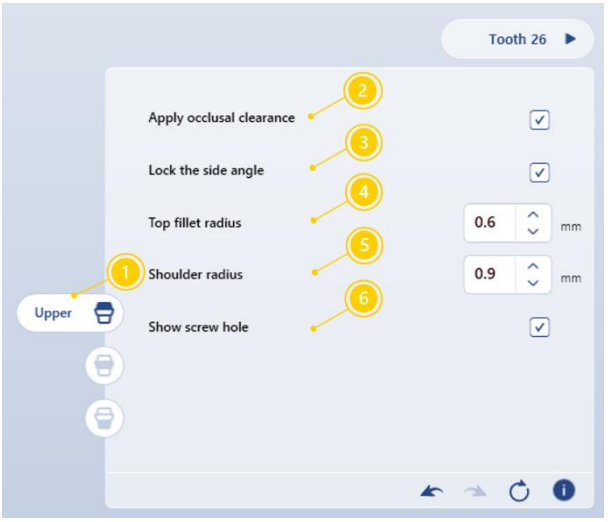
Set the upper side angle of the abutment.



[Side angle 0° (left) / 5° (right)]

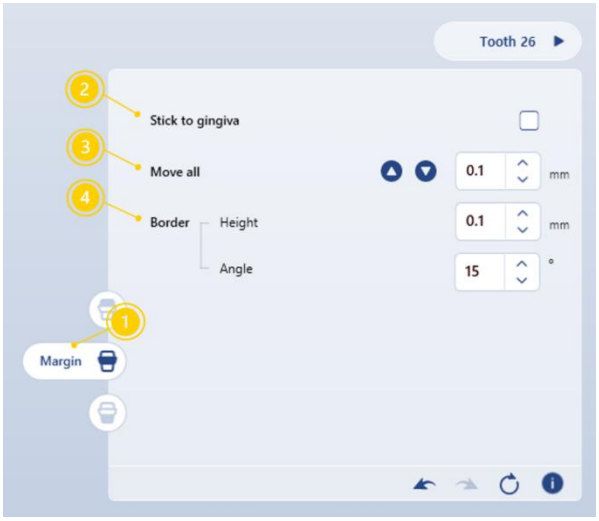
5.5.3. Free Design_Task tool

1) Upper design task tool



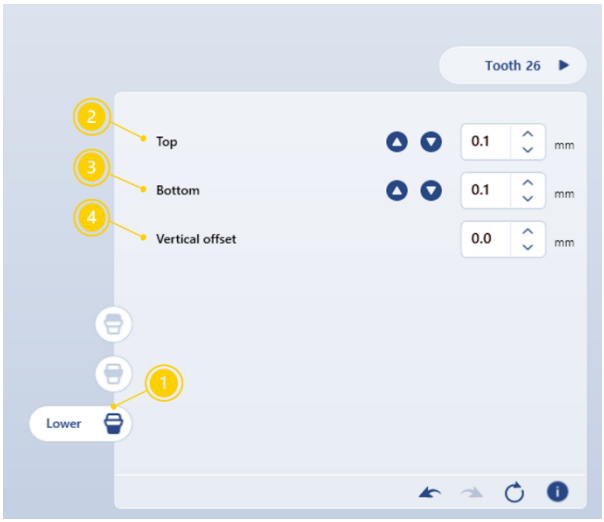
No.	Explanation
1	Select a design part
2	Keep the occlusal distance
3	Fixed upper side angle
4	Set the top fillet radius
5	Set the shoulder radius
6	Set the display of screw hole outline

2) Margin design task tool



No.	Explanation
1	Select a design part
2	Attach margins to scan data
3	Margin overall up/down movement
4	Set height/angle for margin shape

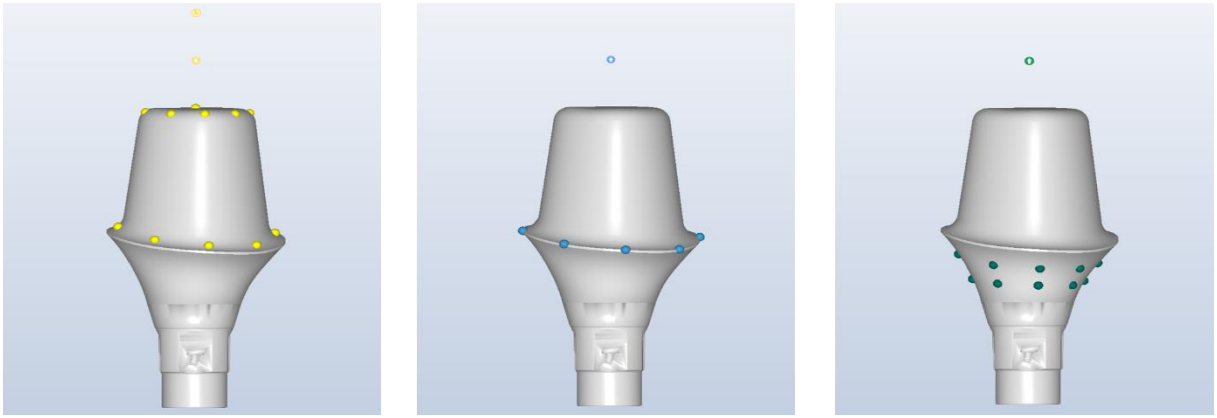
3) Lower design task tool



No.	Explanation
1	Select a design part
2	Full adjustment of the top point
3	Full adjustment of the lower point
4	Interface connection offset

5.5.4. Free Design_Designing with free control tools

The control tool is also displayed in the abutment model of the data display area, depending on the design area selected by the task tool.



[upper tool (left) / margin tool (middle) / lower tool (right)]

- **Move Point:** Mouse click + drag the control point.
- **Add Point:** Click the mouse where there are no control points. (Red points are temporarily displayed when mouse overing at additional locations)
- **Delete Points:** Click the delete button that appears when you right-click on the control point.

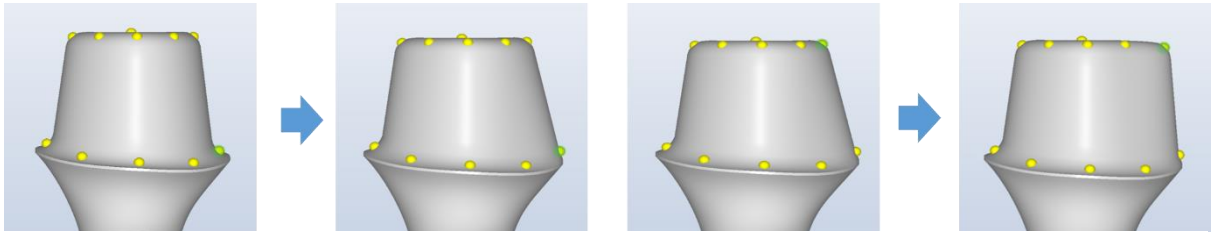
Guidance	**When adjusting control points, adjust the entire control point at once when using a combination of mouse and keyboard Ctrl keys.**

Guidance	**Keyboard shortcuts Z, X, and C allow you to quickly change edits.**

1) Design the upper shape

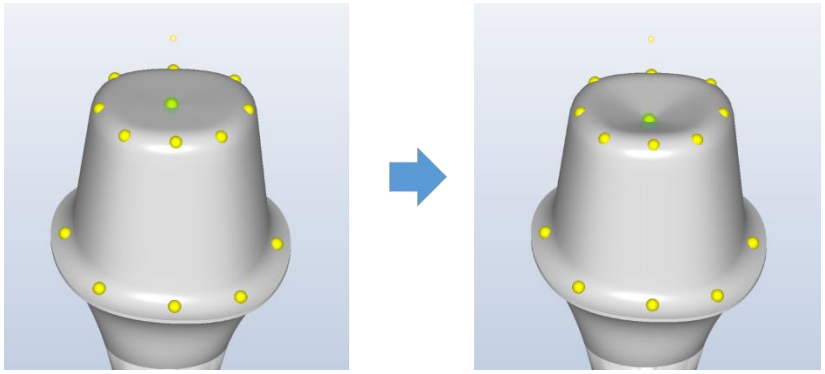
Move the upper control point

- Click and drag the yellow point to freely design the shape of the top.

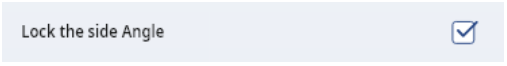


[Shoulder point move / top point move]

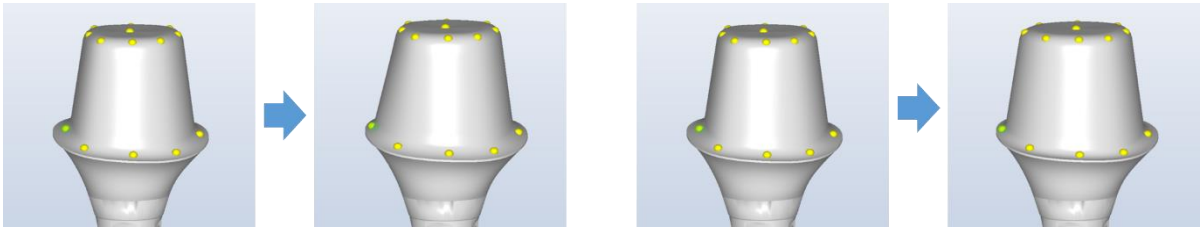
- Controls the bend when you click + drag a point on the center of top surface.



[Top surface bend adjustment]

- When you check the Lock the side angle menu 

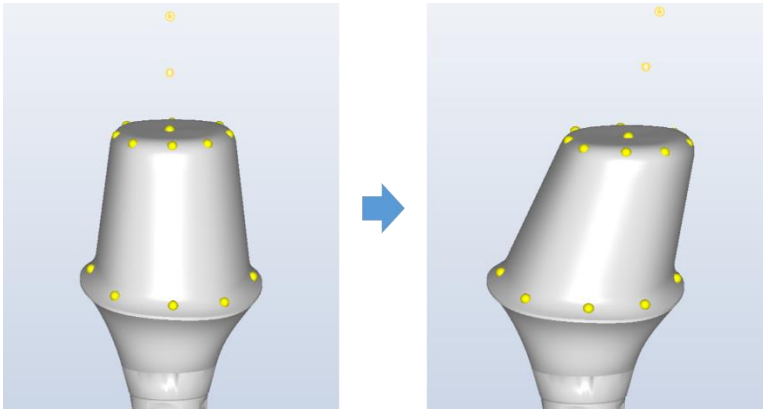
of the task tool, the point moves with the upper side angle retained.



[Deselect side angle freeze / check on]

To rotate the upper angle

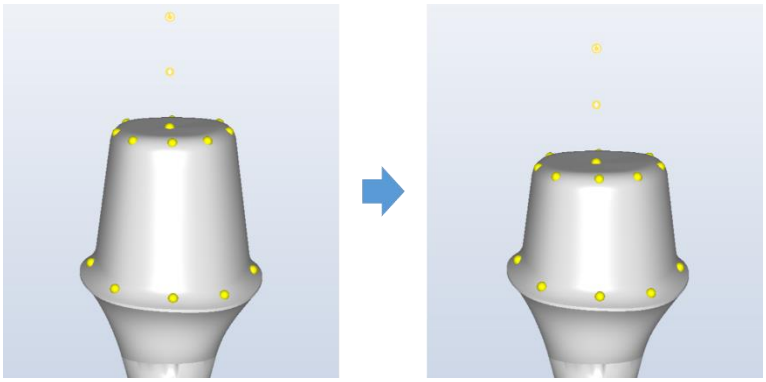
- Click + drag the Angle Rotation tool .



[Rotate Upper]

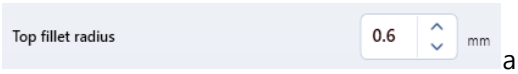
To adjust height

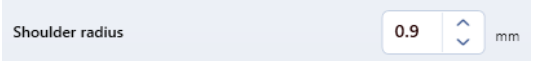
- Click + drag the Height tool .



[Height adjustment]

To set the top fillet / shoulder radius

- Top fillet radius setting menu 

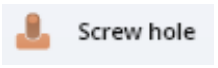
and shoulder radius setting menu 

in task tool adjust the figure to set the radius

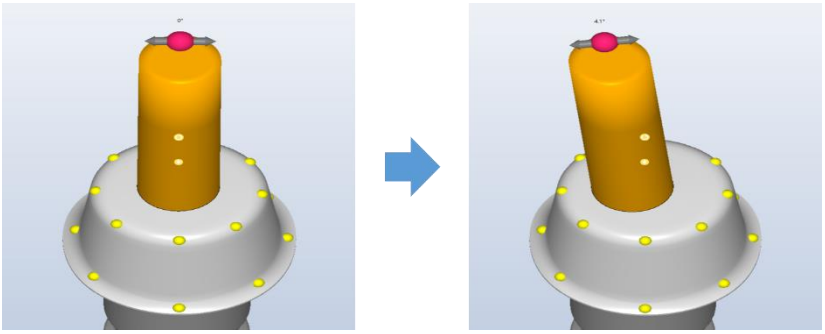
Attention	**Displays a crash notification message if the upper design violates the lower design.**

Attention	**If the shoulder radius value is less than 0.75mm, which is the minimum radius value of the machining tool, the abutment may not be machined normally.** **If it is set to 0.75mm or less, a guide message is displayed at the bottom of the screen.** If the shoulder radius is set to 0.75mm or less, processing may be difficult. **[Example of notification message]**

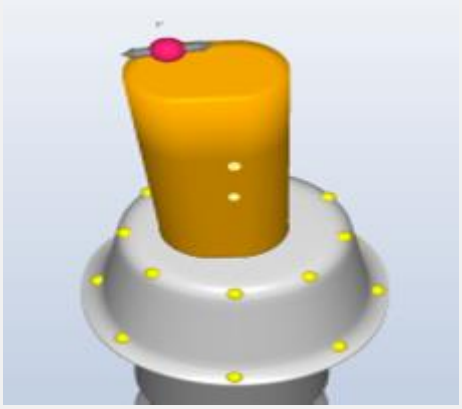
To rotate the screw hole angle

- Under Visible options, turn on the screw hole item 

by clicking and click + drag the screw hole rotation control tool that appears after activating the screw hole item. The angle value adjusted as you drag is displayed.



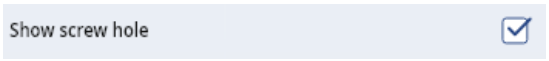
[Rotate screw hole angle]

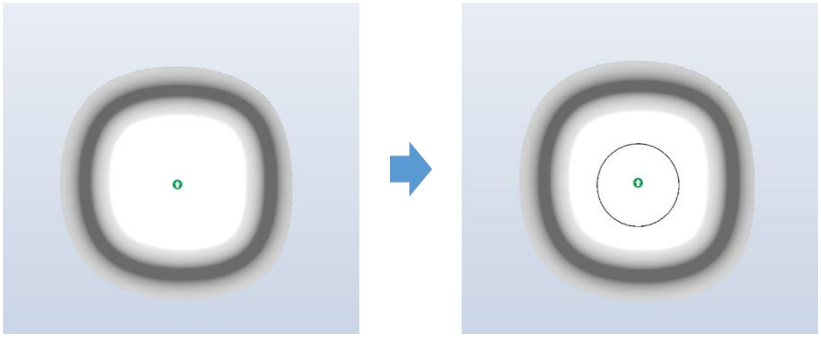
Attention	**If the screw hole rotation angle is rotated more than 5°, the screw hole is fan-shaped.**  **[Rotation angle 7°]**

Attention	**The screw hole angle adjustment function is provided only by ASC Abutment type.**

To set the screw hole display

- The screw hole outline is displayed on the abutment when checked by the task tool.

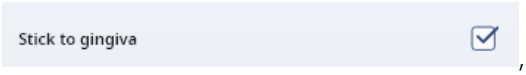




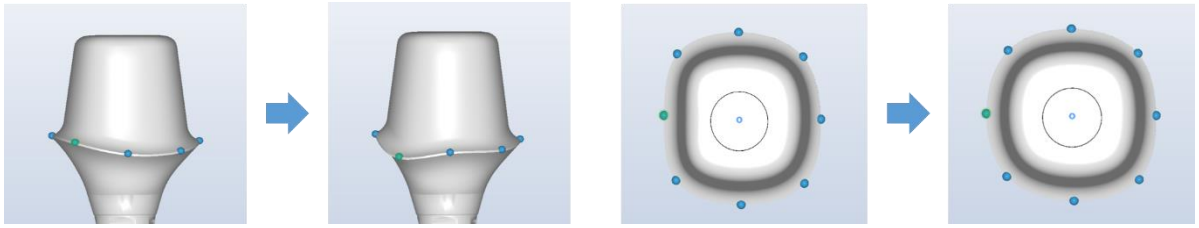
[Show Screw Holes]

2) Design the margin

Move the margin control point

- Click + drag the blue point to freely design the shape of the margin.
- When checking the task tool 

, the point moves to the scan data surface attached.

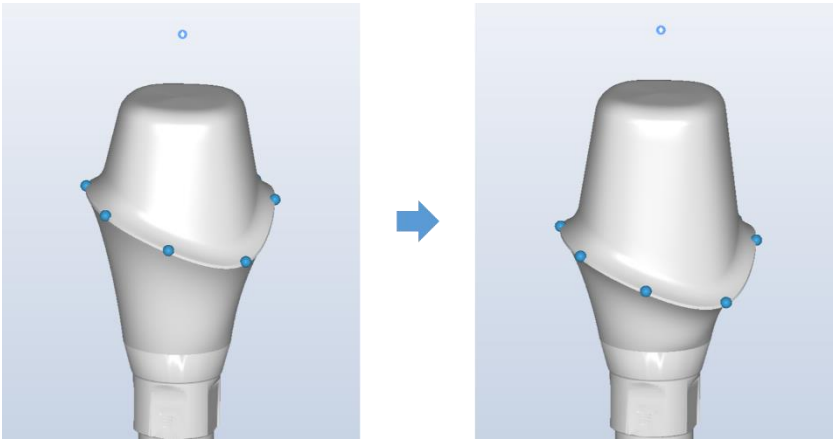


[Margin point adjustment]

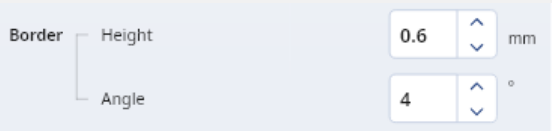
To Adjust height

- Click + drag the Height tool
.
- You can adjust the height at

a constant interval using the Move all menu in the task tool. When you click the left arrow after setting the adjustment interval, the margin height is adjusted according to the direction of the arrow.



[Adjust margin height]

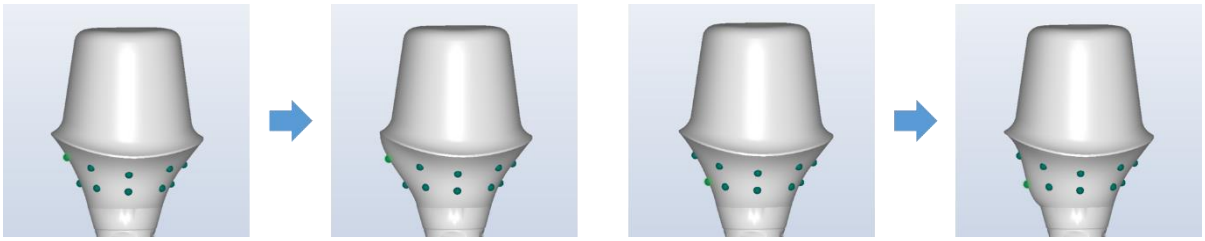
Guidance	 The border setting feature of the Margin Task tool is same as 5.5.2_Default Design with shape_presets_7) Margin settings.

Attention	When adjusting the margin height downward, it cannot go below the interface height. Displays a crash warning message if the margin is about to go below the interface height.

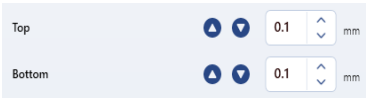
3) Design the lower shape

Move the lower control point

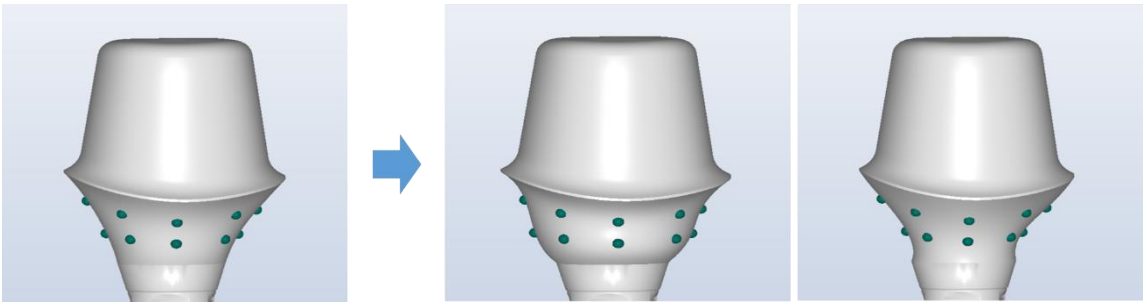
- Click and drag green points to freely design the volume at the bottom.



[Lower point adjustment]

- When you use the top/bottom points control menu 

in the task tool, the points move at regular intervals.

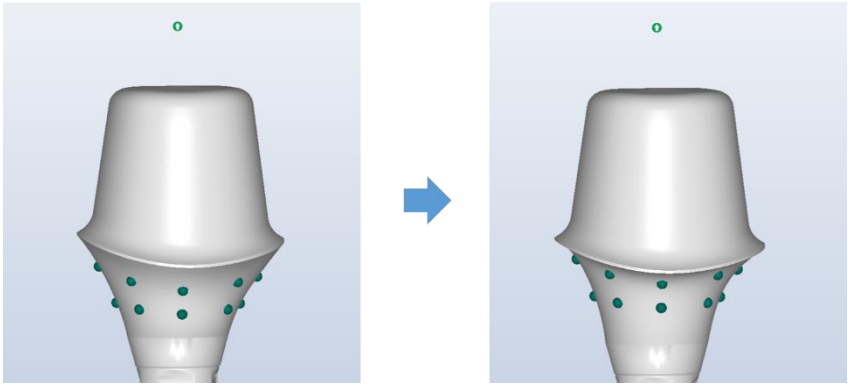


[Full adjustment of the lower point 0.3mm inner movement_top (middle) / bottom (right)]

Attention	**Up and down volume control is possible only within the maximum/minimum limited range, and a guide message is displayed at the bottom of the screen when the limited range is reached.** You have reached the highest point where you can increase the top volume. **[Example of notification message]**

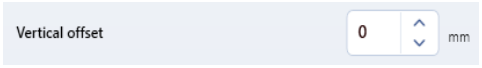
To adjust volume height

- Click + drag the Volume height tool .

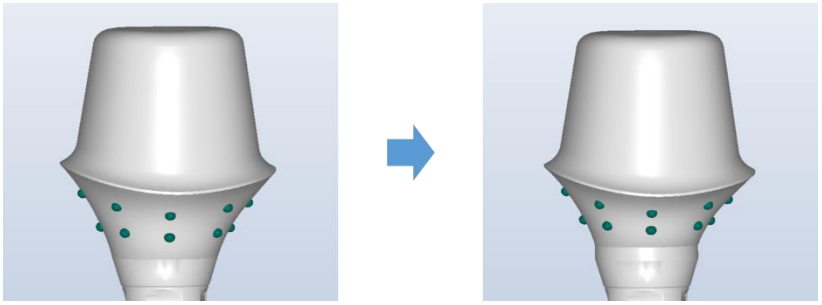


[Adjust Volume Height]

To adjust vertical offset

- Adjust the No. in the vertical offset menu 

of the task tool to set the offset for the part where the element and interface are connected.



[Vertical offset 0 mm (left) / 0.5 mm (right)]

Guidance	**If you hold down the keyboard Ctrl key and move the point, the point moves through.**

5.5.5. Sculpt_Task tool

1) Cutting tools

No.	Explanation
1	Select a sculpt task type
2	Add and smooth cut planes

2) Creating hole tools

No.	Explanation
1	Select a sculpt task type
2	To Add and Apply a Hole Bar

3) Wax tools

No.	Explanation
1	Select a sculpt task type
2	Choose wax type/radius/level

5.5.6. Sculpting

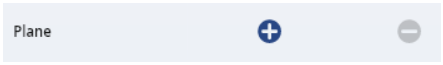
Refine finally the abutments designed with basic shapes and free designs.

1) Cut

You can cut the upper part of the abutment unnecessary.

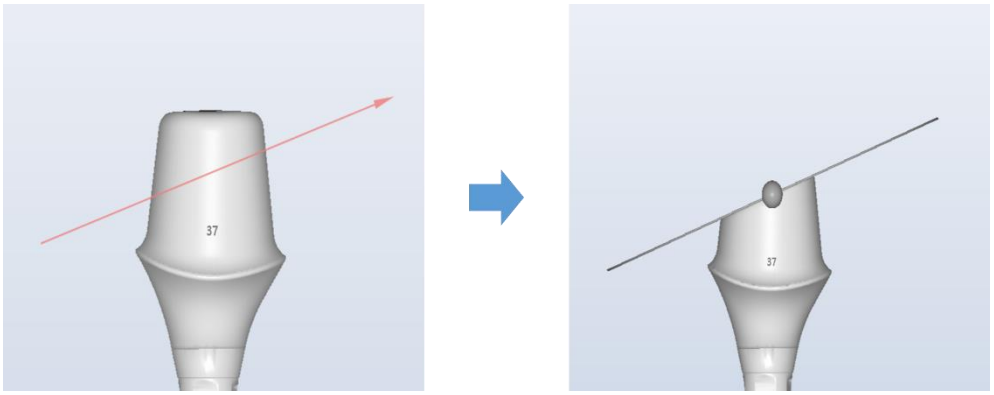
(1) Click the button

on the task tool.

(2) Click the Add cut plane button 

to activate cut face input mode.

(3) If you click on the start and end points of the section you want to cut into the abutment of the data display area, the cutting plane is displayed at the site and the top of the abutment is cut off.

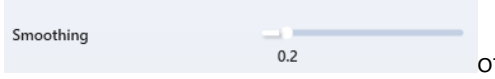


[Cut_Cut Plane]

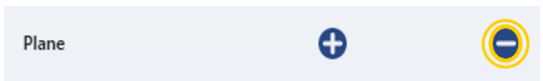
(4) You can move the position by clicking +dragging the gray ball on the cutting plane.

(5) You can rotate the angle by clicking +dragging the red ball that appears when the mouse over the cut plane outline.

(6) You can smooth the section of the abutment clause by dragging the smoothing slider



of the task tool.



(7) If you want to cancel the cut face, click the Delete cut plane button.

Guidance	**Use the right mouse click to cancel the operation after clicking the Add cut plane button.**

Guidance	**The cut plane can be worked on multiple times, but the cut plane is visible only where it was last entered.**

Attention	**Even if the cropping area contains the sub design, the sub region is protected and not cropped.**

2) To create a hole

You can create holes to ensure the retention of the abutment and crown.

(1) Click the button

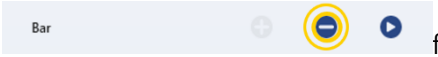
on the task tool.

(2) Select the desired shape from the hole shape menu.

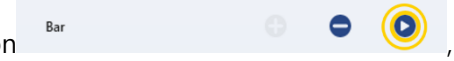
(3) Click the Add temporary hole bar button

and the abutment will display the hole shape when the mouse over.

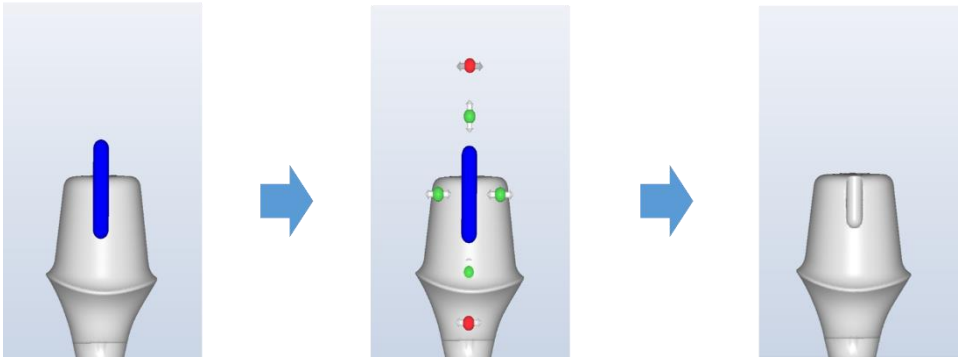
(4) When clicking where you want, a temporary hole bar is attached to the abutment and the adjustment tool displayed can adjust the size/angle.

(5) Click and drag temporary hole bar to move them and click the delete temporary hole button 

for the task tool where you want to delete temporary hole bar.

(6) When clicking the apply temporary hole bar button 

, the hole shape is applied to the final placed position.



[Create a hole]

3) Using wax knife tools

Edit the shape by adding or removing wax to the abutment or smoothing it out.

Guidance	**The use of wax knife tools is the same as using the 5.4.8_Free Design of Crown Design_Crown Trimming_1) Wax knife tool.**

Guidance	**The sculpting step also provides the minimum thickness distance map visibility option, just like the basic shape design step.**

Attention	**When entering the interface setting stage, if the designed crown and abutment collide, problems may occur in the formation of the inner surface. If a problem occurs, you cannot enter the next step.**

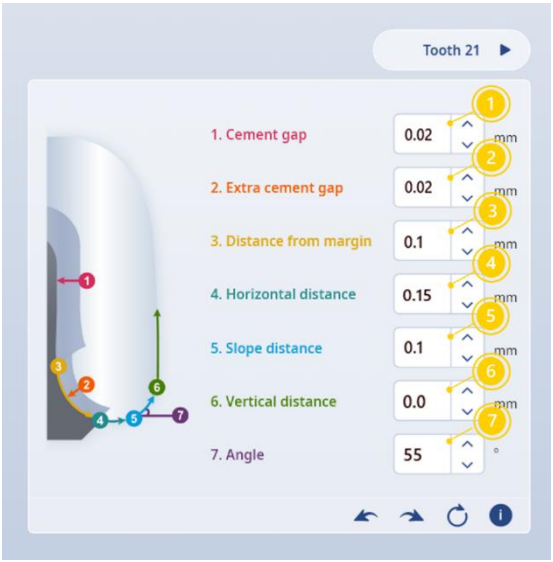
Attention	**If an undercut occurs between the designed crown and abutment when entering the interface setting stage, problems may occur in the connection of the crown and abutment. If a problem occurs, you cannot enter the next step.**

5.6 Crown verification

Optimize crowns for designed abutments. If the top and margins of the abutment are different from the initial generation form, the crown reflects the changes made at that stage. The crown verification step provides the following detailed steps:

Interface	Set up crown borders and cement spaces
Free design	Trim the crown appearance
Bridge settings	Edit crown connections (*only shown in bridge cases)
Confirmation	Set the use and offset of crown screw holes

5.6.1. Interface_Task tool

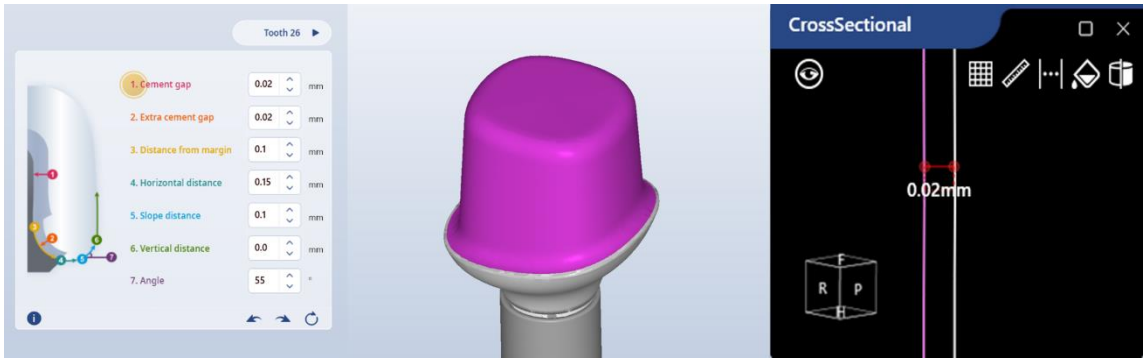


No.	Explanation
1	Cement gap
2	Extra cement gap
3	Distance from margin
4	Border_horizontal distance
5	Border_diagonal distance
6	Border_Vertical Distance
7	Border_diagonal angle

5.6.2. To Edit Interface_Cement gap/ Extra cement gap

- In the task tool, change the No. you want to edit to each item with the right arrow

, or type the enter key after direct folding input, and it will be reflected directly in the data display area.



[Cement gap]

5.6.3. To edit interface_borders

- In the task tool

, change the number you want to edit to each item with the right arrow or type the enter key after direct folding input, and it will be reflected directly in the data display area.

5.6.4. Free design

Edit the shape by refining the appearance of the crown generation model. The function of that step provides the same functionality as the free design step of the crown design but provides additional minimum thickness adjustment in the adapt tool.

- **Minimum Thickness:** Set the minimum thickness of the crown.

- **Apply:** Click the button after setting the distance to apply only the current tooth or click the button

to increase the crown area, which is thinner than the minimum thickness, to the minimum thickness when applied to all teeth.

Guidance	**Crown Confirm's free design is the same as the 5.4.6_free design of crown design.**

5.6.5. Bridge Settings_Task tool

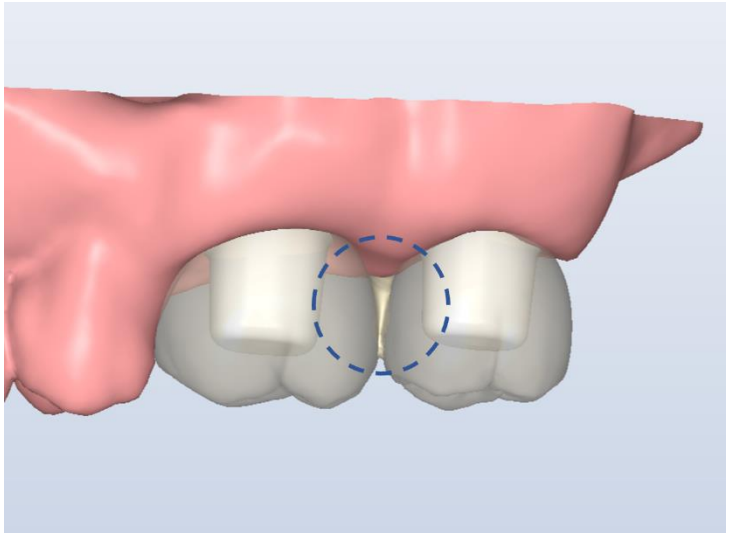
No.	Explanation
1	Set the area of the connection part

5.6.6. Set bridges_To edit connection Area

Edit the connections between the crowns connected by the bridge.

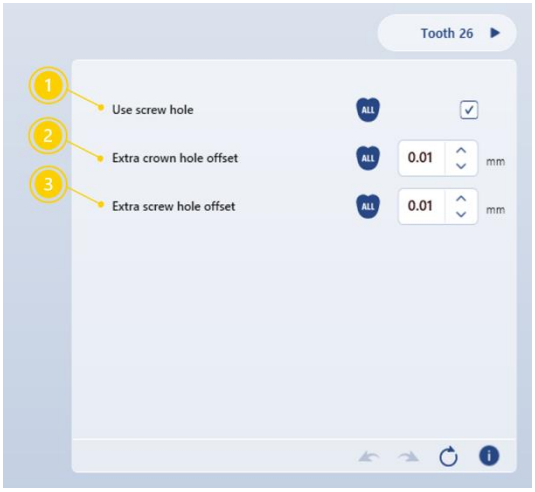
- Mouse click + drag the bridge connection area that appears in the data display area to adjust its position.
- Drag the Area Adjustment slider

of the Task tool to adjust the area of the connections.



[Bridge connection]

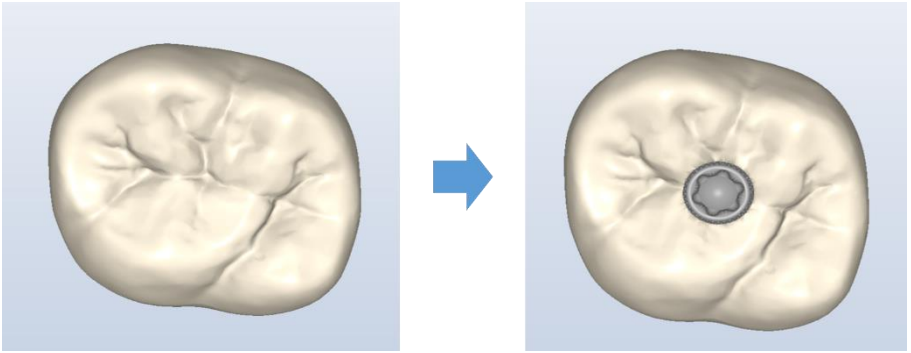
5.6.7. Confirm_Task tool



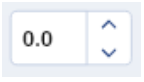
No.	Explanation
1	Enabling crown screw holes
2	Set offsets for crown holes
3	Set additional screw hole offsets

5.6.8. Confirm_To Edit a Screw Hole Offset

- **Use screw holes:** Screw holes are created on the crown when checking the check box.



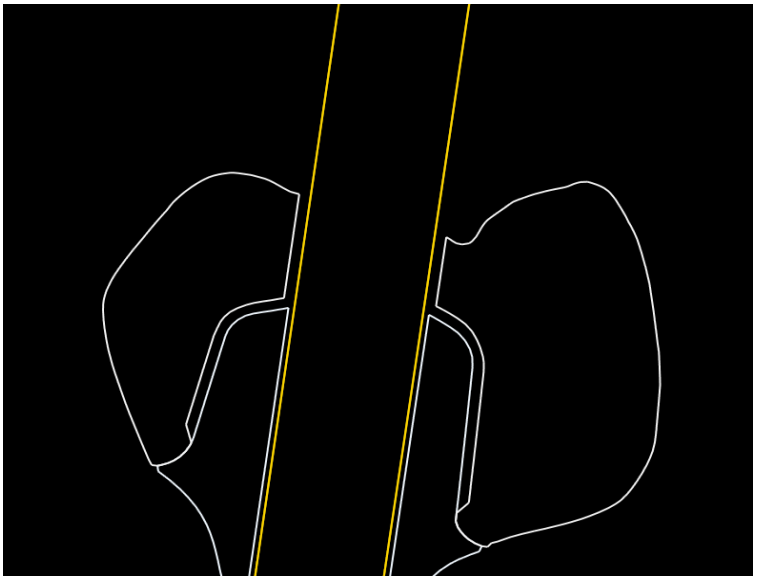
[Before (left) / after screw hole use (right)]

- **Crown hole additional offset:** The crown reflects the additional screw hole offset when entering the value. 

- **Screw hole additional offset:** Additional screw hole offsets are reflected in the crown and abutment when numerical inputs are entered.

- **Apply all:** Apply to all teeth by clicking the button

.

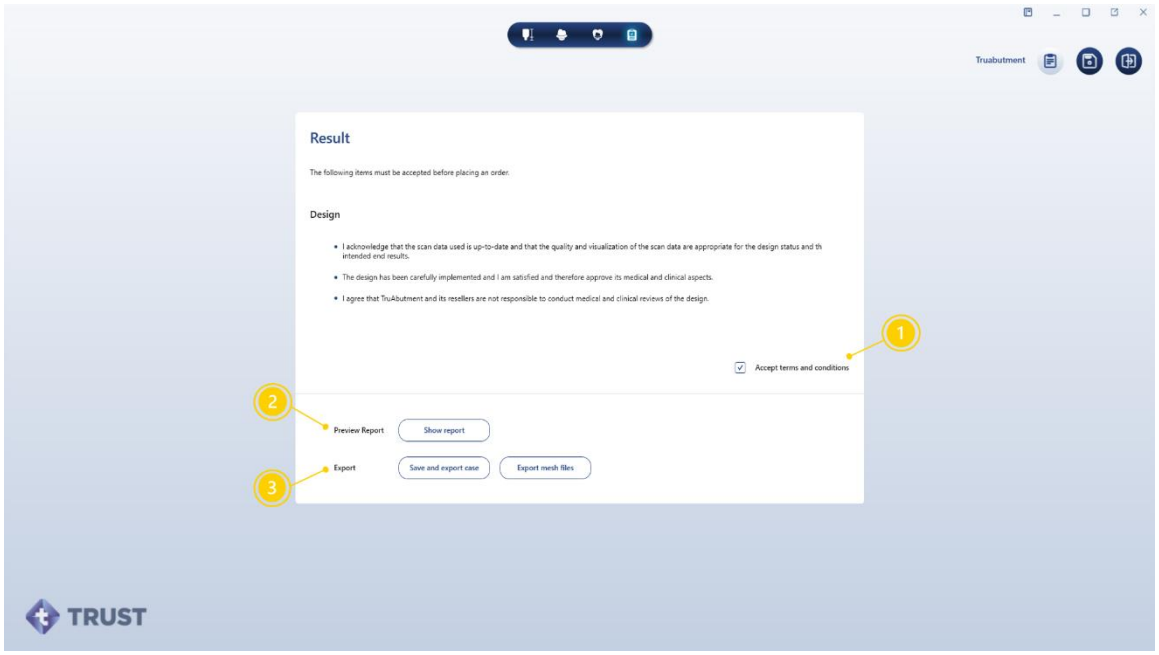


[Screw hole additional offset: 0.1mm&Crown hole additional offset: 0.1mm]

Attention	Since machining errors may occur depending on the machining environment, check the exact machining environment and apply an appropriate offset value.

5.7 Result

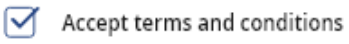
You can view reports that summarize the contents of your design, and you can save reports and design files (STL) to output.



No.	Name	Explanation
1	Approvement	Final approval for the design
2	Preview report	View reports
3	Export	Export a design file (STL) to local drive

5.7.1. Approve

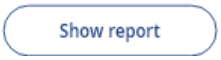
Final approval of the design is required for report generation and mesh output.

- Click in the lower right corner of the approval 

to complete the approval.

5.7.2. View/Export reports

Provides a summary of the content of the design and the results of the design.

- A report screen is generated when the button 

is clicked.
- You can review the content by scrolling the screen.
- The scan data and design model display areas support image mouse operation (movement/rotation/zoom).
- Click the button

in the upper right corner of the screen to save the current report to a pdf page in your local folder.

Guidance	**You can set Configuration to enable a list of capture images within a report.**

5.7.3. Case Export

- Save the current design case files and reports to a local folder when the save and export case button

is clicked.
- When you click

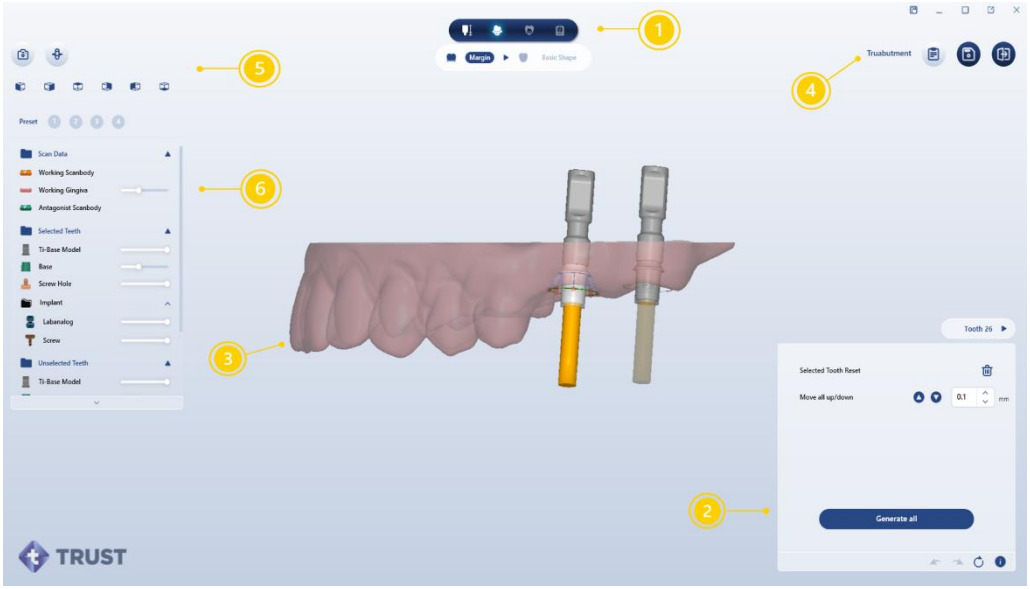
the button, a selectable detailed menu

(zip file format / stl file format) is displayed.

- When you click Files to zip, a separate compressed file is saved with the current design file (crown / abutment) as the path set in the environment settings.
- When you click Files to stl, the STL file is saved with the current design file (crown / abutment) as the path set in the environment settings.

6. Crown (Ti-base) Design

Provides Crown for Ti-base design features.



No.	Name	Explanation
1	Design steps	Show and move design steps
2	Tooth selection and task tools	Select working teeth and task tools
3	Displaying data	Display data for design
4	Case management	Patient information/Case details/Save/Exit
5	Add-ons	Additional features such as capture
6	Visible options	Provides visibility options for each phase of work

6.1 Common

6.1.1. Mouse operation and shortcuts

1) Data mouse operation

Guidance	**Mouse operation in the data area is the same as in Custom Abutment Design. For details, please refer to Custom Abutment Design 1) Data mouse operation.**

2) Shortcuts

Guidance	**The F5 key makes it easy to see the shortcuts provided on the design surface.**

Guidance	**The shortcuts in the data area are the same as in Custom Abutment Design. For details, please refer to Custom Abutment Design 2) Shortcuts.**

6.1.2. Move a design step

When creating a case, the possible work steps are displayed according to the selection of Crown (Ti-base) & Ti-base among the design options.
For some steps, the main work steps and detailed work steps are displayed according to the step characteristics, and the display of movable and non-movable steps is the same as in the Custom Abutment design.

If the design option is Crown (Ti-base), the shown working steps are:

- You move to the design steps directly when you click them activated.

6.1.3. Select working teeth

Guidance	The working tooth selection function is the same as that of Custom Abutment Design. For details, please refer to Custom Abutment Design 5.1.3 Select working teeth.

6.1.4. Redo/Undo/Reset

Guidance	Redo/Undo/Reset function is same as Custom Abutment Design. For details, please refer to Custom Abutment Design 5.1.4 Redo/Undo/Reset .

6.1.5. Orientation of 3D data

Guidance	Data redirection function is the same as Custom Abutment Design. For details, please refer to Custom Abutment Design 5.1.5 Orientationof 3D data.

Attention	If the unique direction is not aligned, the location of the Ti-base model may be abnormally created.

6.1.6. Set cross sections

Guidance	The cross section setting function is the same as that of Custom Abutment Design. For details, please refer to Custom Abutment Design 5.1.6 Set cross sections.

6.1.7. Screen capture

Guidance	The screen capture function is the same as that of Custom Abutment Design. For details, please refer to Custom Abutment Design 5.1.7 Screen capture.

6.1.8. Visible options

Guidance	**For what appears in the data area, the hidden/transparency and user presets settings are the same as for Custom Abutment Design.** **For details, please refer to Custom Abutment Design 5.1.8) Visible options.**

1) User presets

Guidance	**User presets function is the same as Custom Abutment Design.** **For details, please refer to Custom Abutment Design 1) User presets.**

2) Visualization Options

Additional visualization items provided in Ti-base design stage are as follows.

Icon	Name	Icon	Name
	Ti-base model		Base

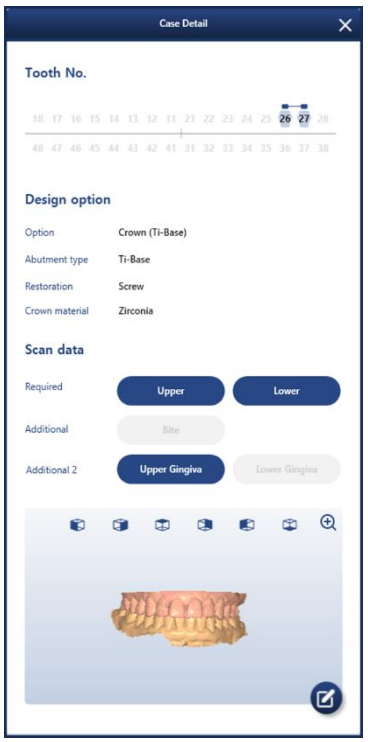
Guidance	**Visualization items not shown in the table above are the same as Custom Abutment Design.** **For details, please refer to Custom Abutment Design 2) Visualization Options.**

Guidance	**The function of the add-on tool is the same as that of Custom Abutment Design.** **For details, please refer to Custom Abutment Design 2) Visualization Options.**

6.1.9. Case information/Save/Move to case list

Guidance	The case information/save case/close case functions are the same as those of Custom Abutment Design. For details, please refer to Custom Abutment Design 5.1.9) Case information/Save/Move to case.

Check case details

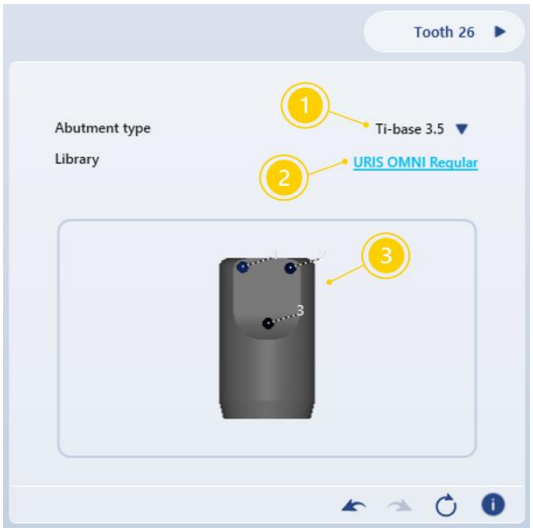


[Case details]

6.2 Align scan body

Align the two positions of the scanned body and scan body model to the scan data identically. The same model must be used for the scan body of both data, and it affects the placement of the crown and Ti-base model during design.

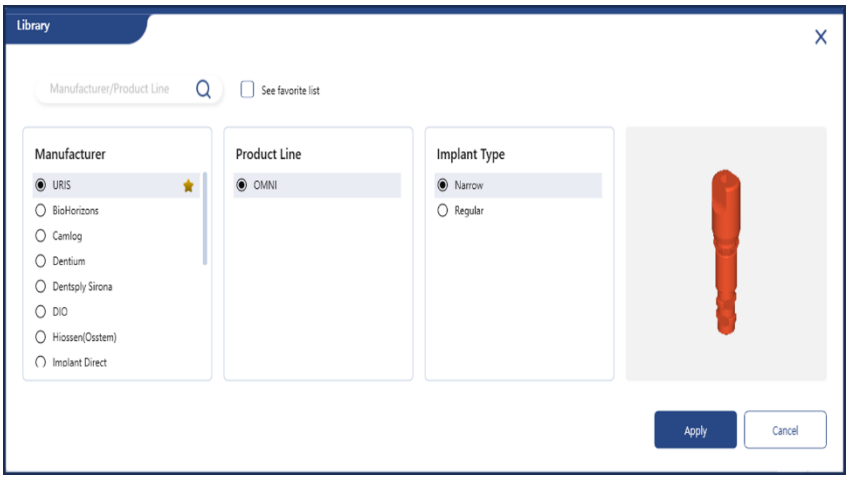
6.2.1 Task tools



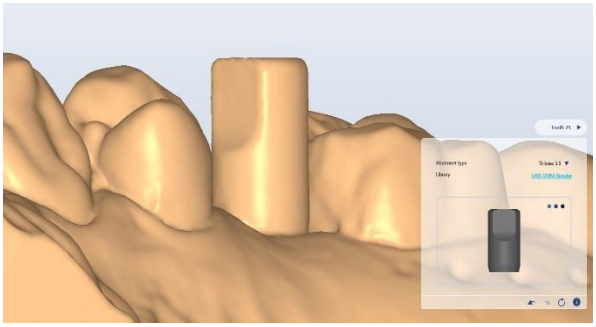
No.	Explanation
1	Ti-base Abutment type select and display
2	Select and display a scan body library
3	Display scan body models and enter alignment points

6.2.2. To align scan body

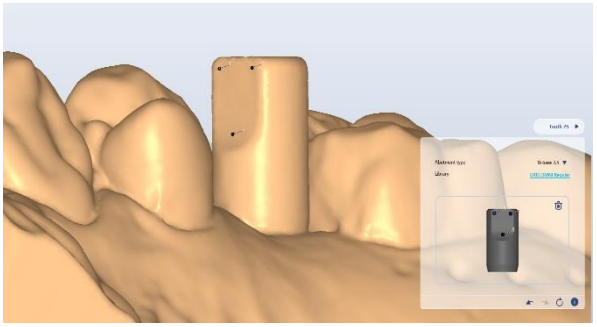
1) To 3points align



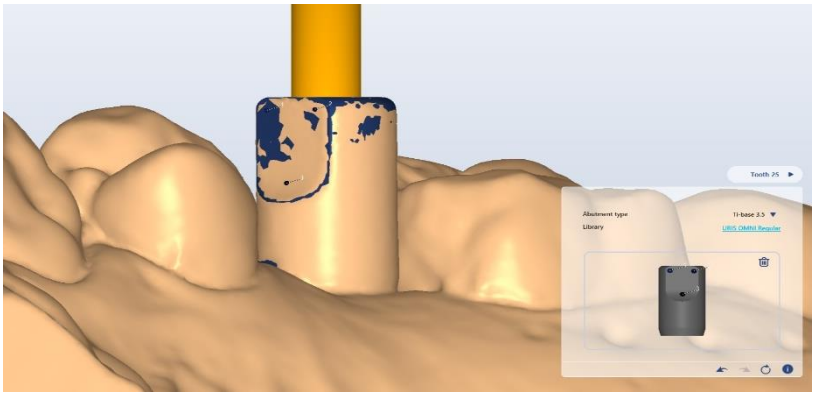
[Library]



[Enter model three points]



[Enter three points of scan data]



[Align result]

Guidance	The 3-point alignment function is the same as that of Custom Abutment Design. For details, please refer to Custom Abutment Design 1) To 3points align.

Guidance	Ti-base 3.5 is the initial value of the abutment type displayed in the task tool when entering the scan body alignment step.

Guidance	A library model suitable for the selected abutment type is displayed on the library screen. When changing the abutment type, the library suitable for the changed type must also be re-selected.

2) To edit a point

Guidance	**The point editing function is the same as the Custom Abutment option. For details, please refer to Custom Abutment Design 2) To edit a point.**

3) To edit the position manually

Guidance	**The screen capture function is the same as the Custom Abutment option. For details, please refer to Custom Abutment Design 3) To edit the position manually.**

6.2.3. Scan body library

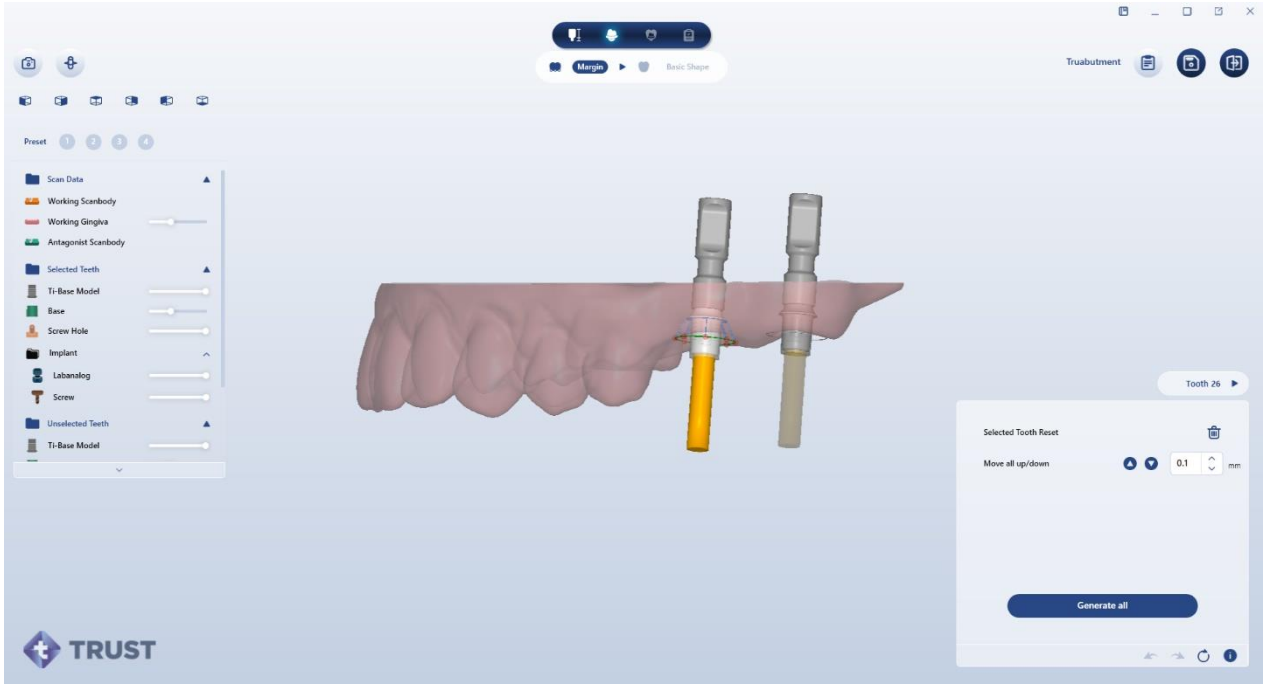
You can manage the scan body library.

Guidance	**The functions in the library screen are the same as in Custom Abutment Design. For details, please refer to Custom Abutment Design 5.2.3 Scan body library.**

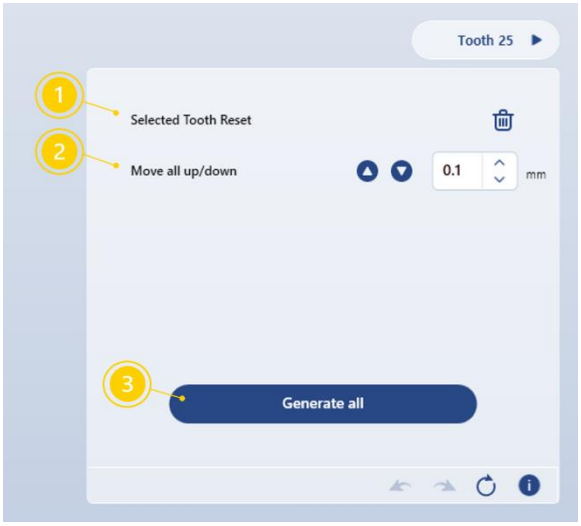
Guidance	**A library model suitable for the selected abutment type is provided.**

6.3 Design_Margin

After setting the position of the margin, create the crown.



6.3.1. Task tools



No.	Explanation
1	Reset the margin and emergence profile line of the selected tooth
2	Move the entire margin and emergence profile line
3	Crown generation

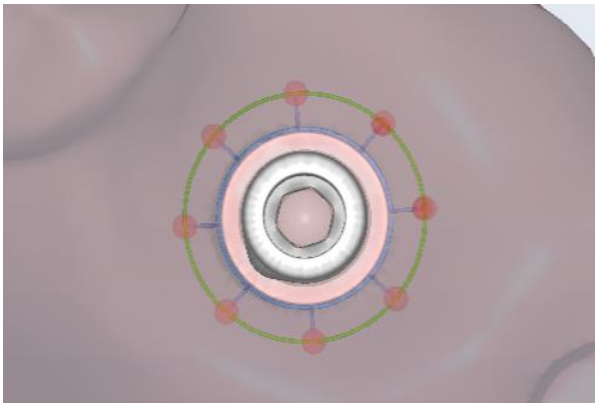
6.3.2. Margin setting

1) Margin setting

(1) In the tooth selection tool

, select the tooth number to set the margin for.

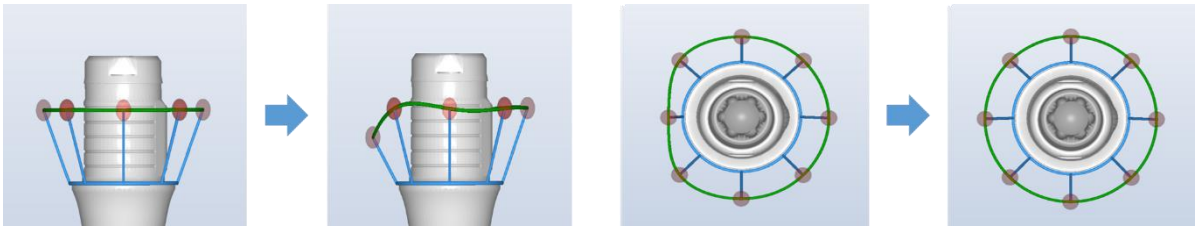
(2) Click+drag the red point provided in the data area to set the shape of the margin.



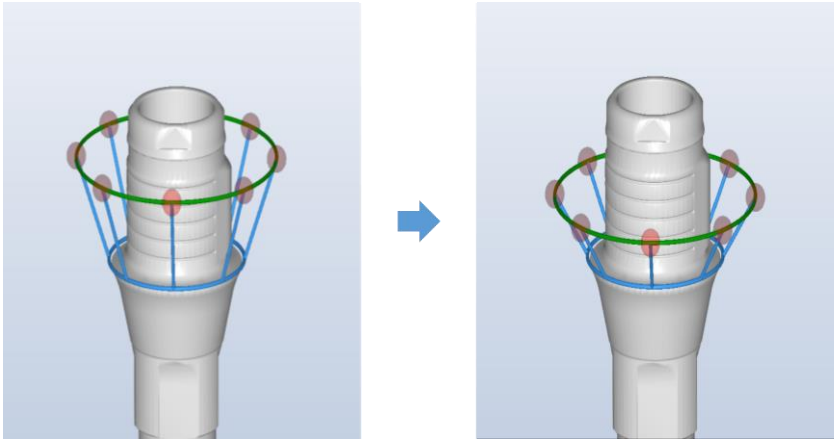
[Margin line]

2) To Edit/Delete margins

- **Move Point:** Mouse-click +drag the control point on the margin line.



[Margin point adjustment]



[Adjust margin height]

- **Add Point:** Mouse click over margin line with no control point.
- **Delete Points:** Right-click the control point on the margin line.
- **Margin reset:** If you click the Selected Tooth Reset button on the task tool, only the currently set margin of the selected tooth is reset to the original provided margin.
- **Move selected margin up/down:**

In the Task tool, click the Move button in the direction you want to move after setting the movement interval (up: margin outward direction/bottom: margin inner direction).

Guidance	**The emergence profile line connecting the control point and the base is added together when the point is added, and deleted together when the point is deleted.**

Attention	**The default number of control points provided for margin lines is 8 in total, and points cannot be deleted below 8.**

Attention	**The central axis of the scan body must be included within the margin line.**

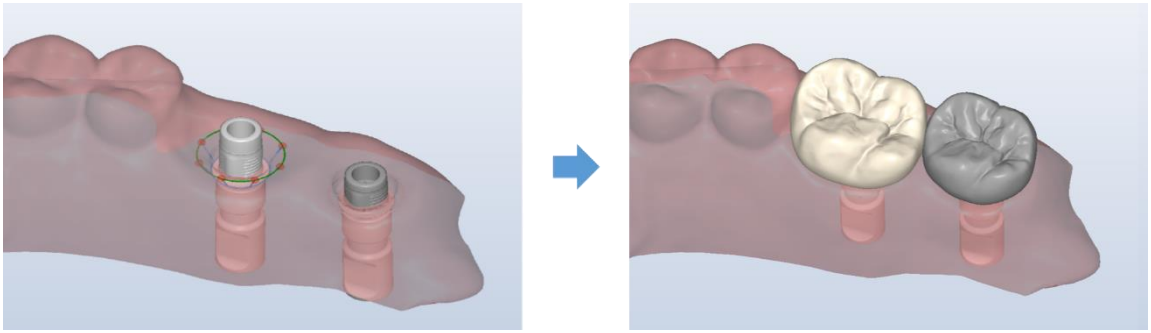
Attention	**If the margin line is located inside or below the base model edge, the crown model is not created normally.**

Attention	**The margin line height cannot be adjusted when the margin point reaches 2mm (maximum distance) from the top of the base model or 0,1mm (minimum distance) from the edge of the base model.**

6.3.3 Creating a crown

- After completing the margin setting of the entire work tooth, when clicking the Create All button

, the crown is connected to the base and created as a whole.



[Before (left) / After creation (right)]

Guidance	**The crown is automatically created as the central axis of the implant by referring to the margin/scan body/adjacent tooth/(occlusion) antagonist/ Ti-base model basic shape setting value.**

Guidance	**When creating a crown, it is affected by the original direction of the scan data. If the crown creation direction is not normal, check the unique direction of the scan data.**

Guidance	**When the entire crown is created, the next work step is activated. If there is no problem with the created crown, you can move directly to the basic form of the crown.**

Attention	**If the No. of working teeth is large, it may take some time to create.**

6.4 Design_Crown

If you need to edit the generated crown, you can enter to edit the location and size.
The crown design phase provides only one detailed step.

Basic shape	Re-position crown size and position

6.4.1 Basic shape_Task tool

Guidance	**The functions provided by the basic shape of the crown are the same as those of the Custom Abutment Design.** **For details, please refer to Custom Abutment Design 5.4 Design_Crown.**

6.5 Crown verification

The crown connected to the base is finally designed. The crown verification step provides the following detailed steps:

Free design	Trim the crown appearance
Bridge settings	Edit crown connections (*only shown in bridge cases)
Confirmation	Set the use and offset of crown screw holes

6.5.1. Free design

Edit the shape by reshaping the crown creation model.

Guidance	**The functions provided in the Crown Confirm's free design stage are the same as those of Custom Abutment Design.** **For details, please refer to Custom Abutment Design 5.4.4 Free Design and 5.6.4 Free Design. However, Adapt menu is not provided.**

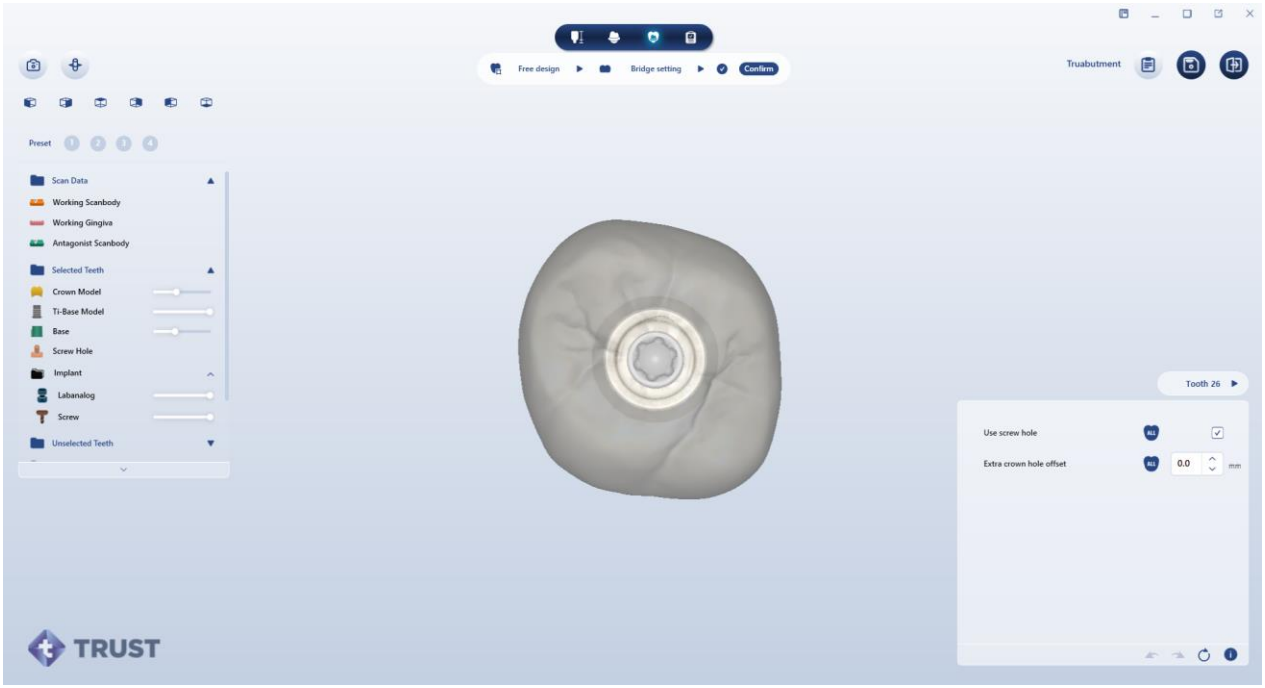
6.5.2. Bridge Settings

Edit connections between crowns connected by bridges.

Guidance	**The functions provided in the Crown Confirm's Bridge setting step are the same as those of Custom Abutment Design.** **For details, please refer to Custom Abutment Design 5.6.5 Bridge Settings_Task tool and 5.6.6 Set bridges_To edit conncetion Area.**

6.5.3. Confirm_To Edit a Screw Hole Offset

Adds additional screw hole offset to the crown.



Guidance	**For details of the Confirm's step, please refer to Custom Abutment Design [5.6.8 Confirm_To Edit a Screw Hole Offset](#).**

Attention	**Since machining errors may occur depending on the machining environment, check the exact machining environment and apply an appropriate offset value.**

6.6. Result

You can view reports that summarize the contents of your design, and you can save reports and design files (STL) to output.

Guidance	**If you click Export mesh > File to zip, only the current crown design file is saved as a separate compressed file in the path set in the environment settings.**

Guidance	**If you click Export mesh > File to stl, only the current crown design file is saved as an STL file in the path set in the environment settings.**

Attention	**Approve, View/Export reports, and Case Export functions are the same as those of Custom Abutment Design.** **For details, please refer to Custom Abutment Design 5.7 Result.**

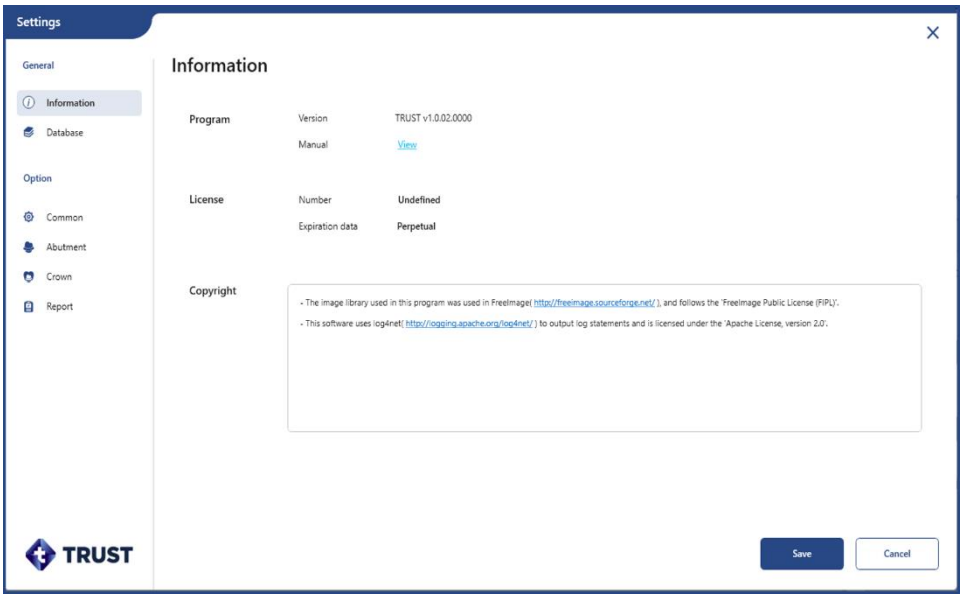
7. Configuration

You can set up the default environment for using TRUST and the different items required for your design.

- The configuration screen is displayed when you click the gear button in the upper right corner of the case list screen.

7.1. General

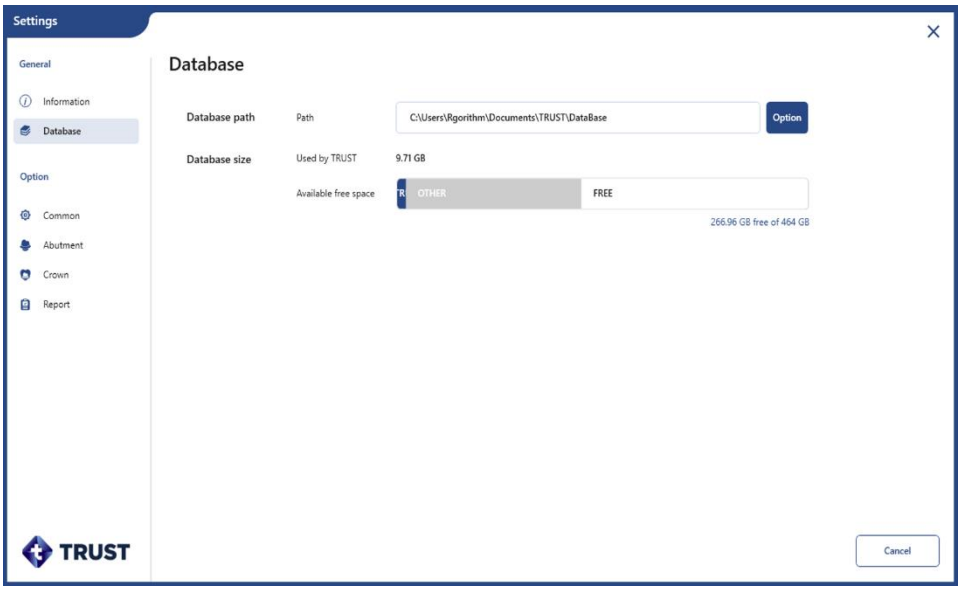
7.1.1 Program Information



You can check the product version / check manual / license information / third-party program license information, etc.

7.1.2. Database

You can view and change the path to the database where the design is stored.



Path	Currently set database path
Capacity used	Trust design data usage capacity currently in use
Free space	Overall usage and free space for the currently set database path

To change a database path

- You can change the database path by Option using the menu displayed when you click the button on the right side of the path item.

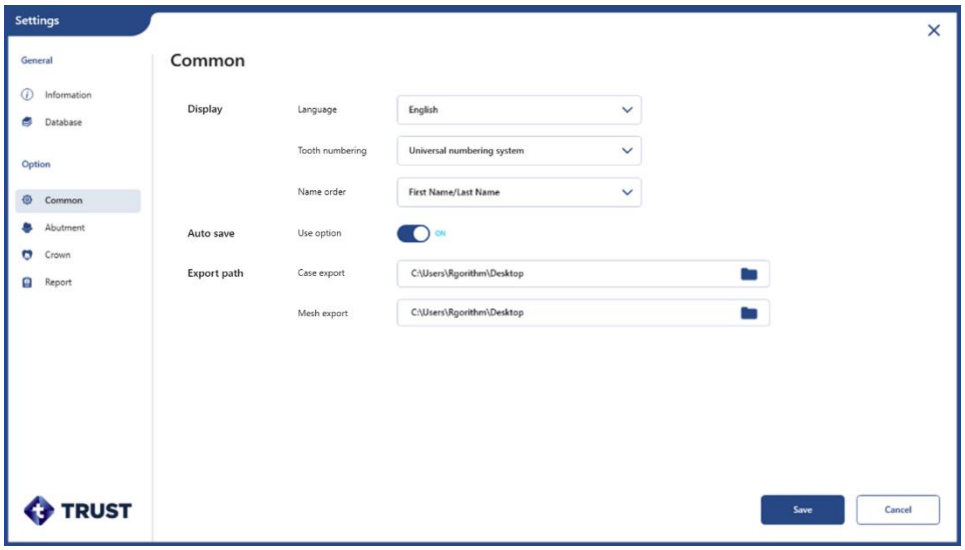
Import	Imports databases from other paths to the current path. (*All existing current path data will be deleted.)
Export	Copy the database you are currently using to a different path.
Move	Move the database you are currently using to a different path.
Link	Use a database that is in a different path.

Attention	**The storage space for the path you change must be greater than the amount of database you are currently using.**

7.2. Options

7.2.1. Common

You can set the default options required to use the program, such as language and auto save.



Language

- Language selection is currently only available in English, and the screen is immediately applied in that language.

Tooth No. system

- FDI Notation, Universal Numeric Notation are available.

Name order

- You can choose between last Name/first Name and first/last Name order.

Automatic save option

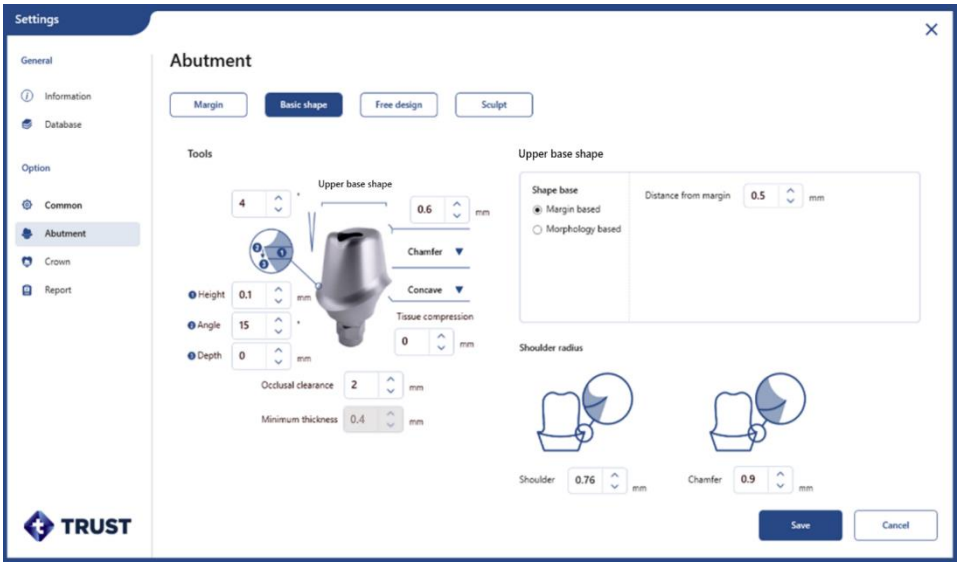
- When you select the Auto save button on, save the design as you move the task step automatically.

Default Export path

- You can change the default export path for design cases and design file.
- If you want to make changes, enter a new default export path in the Path display.

7.2.2. Abutment

You can set several item values that you use during the abutment design step.



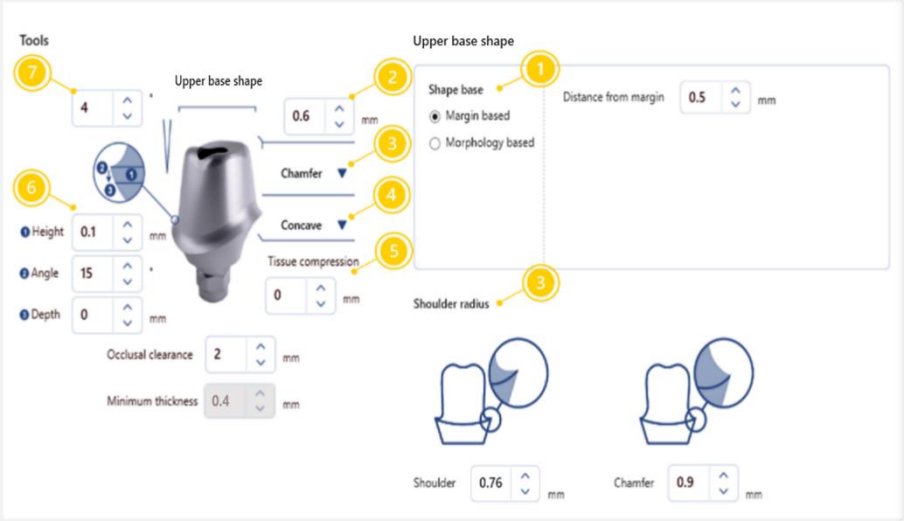
1) Margin

Set the move default value for the top and lower overall movements of the drawn margin.

- Changeable values range from 0.1 to 2.0 (mm).

2) Basic shape

Set the default value for the abutment preset.



(1) Upper Basic shape

Set default values for the default shape at the top of the abutment.

- Margin/Tooth Morphology is available.

Margin	Create an abutment top shape based on the drawn margin shape
Tooth morphology	Create an abutment upper shape based on tooth shape

(2) Top fillet radius

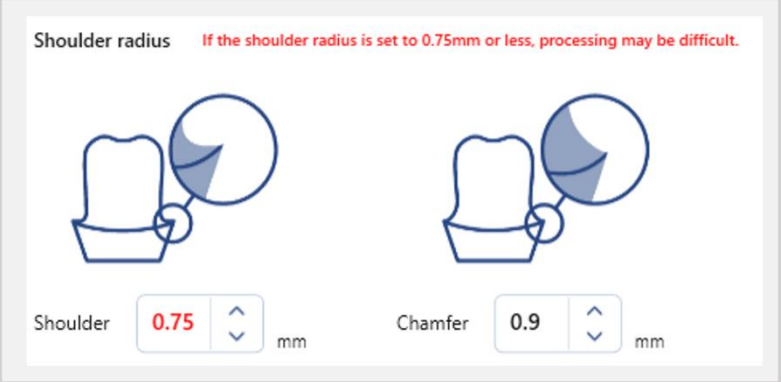
Set the default value for the top fillet radius.

- Changeable values range from 0.0 to 2.0 (mm).

(3) Shoulder

Set the default value for the shoulder type and base radius.

- You can choose from Shoulder/Chamfer.
- You can set the radius of The Shoulder/Chamfer on the right. The lower the No., the higher the right-angled form, the more likely it is to have a rounded shape.

Attention	**If the shoulder radius value is set to 0.75mm or less, which is the minimum radius value of the machining tool, the abutment may not be machined normally, and it is displayed as shown in the image below.**  **[Example of notification message]**

(4) Lower basic shape

Set default values for the default shape of the lower part of abutment.

- Concave/Straight/Convex is available.

(5) Tissue compression

Set the default value for the margin's gingiva pressure value.

- Changeable values range from -0.5 to 5.0 (mm).

(6) Margin

Set default values for the height/angle/depth of the margin.

- Height: Changeable values range from 0.0 to 2.0 (mm).
- Angle: The range of changeable values is -89 to 89 (°).
- Depth: Changeable values range from -5.0 to 5.0 (mm).

(7) Upper side angle

Set the default value for the angle on the upper side of the abutment.

- Changeable values range from -5 to 45 (°).

(8) Occlusal clearance/Minimum thickness

Set the default value for occlusal clearance at the top of the abutment and minimum thickness.

- Changeable values range from 0 to 5 (mm).

Guidance	**The minimum thickness is displayed as fixed as the value set in the library (item is inactive), and individual editing by design users is not possible.**

3) Free design

Set the default value for the editing tool to use when editing the abutment.

Mouse grid

Set the default spacing for the mouse grid provided by the Visible option.

- Changeable values range from 0.1 to 5.0 (mm).

Upper design options

Set the default values for whether the upper side angle is synchronized and whether the screw hole is displayed.

Margin design options

Set the default values for margin-to-gingiva connection options and margin movement.

Lower design options

Set the default for the lower volume control value and the vertical offset of the lower part.

4) Sculpt

Set the default value for the Element Fragment tool.

Trim cut surface

Set the default for the radius to apply to cutting surfaces when using the cutting tool for abutments. The higher the No., the rounder it is.

- Changeable values range from 0.0 to 2.0 (mm).

Hole shape

Set the default shape of the hole to be used as a hole when creating holes in the abutment.

- You can choose between rounded pillars at both ends/ right-angle columns at both ends, or round pillars at one end

Wax

When editing the abutment surface, set the default value for the radius and level of the wax knife.

- Radius-changeable values range from 0.25 to 3.0 (mm).
- Level-changeable values range from 1.0 to 55.0 (μm).

7.2.3. Crown

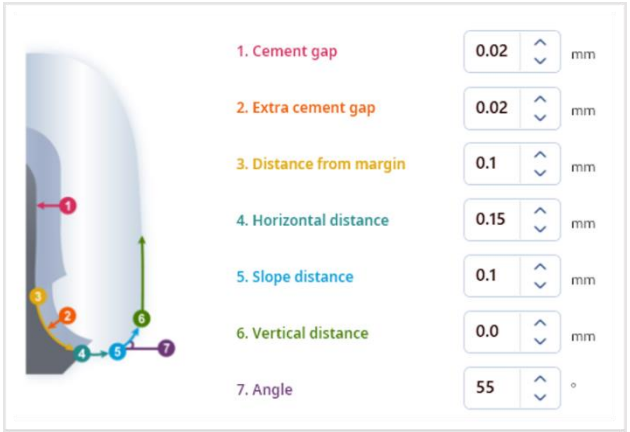
You can set the values for several items that you use during the Crown design.

- You can select between Crown/Crown (Ti-base).

Crown	Set default value for Crown Design option of Custom Abutment.
Crown (Ti-base)	Sets default value for Crown (Ti-base) Design option.

1) Interface

Set the default values for the cement space and border values for the crown.



[Cement space and border]

(1) Cement gap

Set the default value for the cement space generated during the Interface Setting step.

- Changeable values range from 0 to 0.20 (mm).

(2) Extra cement gap

Sets a default value for additional cement thicknesses created in the upper part of the interface.

- Changeable values range from 0 to 0.20 (mm).

(3) Distance from margin

Set the default value for the area in which cement space will not be created based on margins.

- Changeable values range from 0 to 2.0 (mm).

(4) Horizontal distance

Set the default value for the crown horizontal distance around the margin line.

- Changeable values range from 0 to 1.0 (mm).

(5)/(7) Border slope distance/ angle

Set the default values for the crown slope distance and angle around the margin line.

- Slope distance changeable values range from 0 to 1.0 (mm).
- Angle-changeable values range from 0 to 90 (°).

(6) Vertical distance

Set the default value for the crown vertical distance around the margin line.

- Changeable values range from 0 to 1.0 (mm).

Guidance	**Interface item value is provided only for Abutment + Crown among design options.**

2) Basic shape

Set the default crown library for crown design.

- Click the button

to select a library.
- Kelly library is available.

3) Free design

Set the default value for the editing tool to use when editing crowns.

Wax

When designing a crown, set the default value for the radius and level of the wax knife.

- Radius-changeable values range from 0.25 to 3.0 (mm).
- Level-changeable values range from 1.0 to 55.0 (μm).

Morphing

Set the default value for the radius when designing crowns.

- The range of radius changeable values is 0.5 to 5.7 (mm).
- The range of strength changeable values is 0.1 to 1.0 (mm).

Minimum thickness

Set the minimum thickness default value for the crown.

- Changeable values range from 0 to 5.0 (mm).

Contacts

Set the default value for the crown contact area.

- Occlusal face changeable value ranges from 0 to 1.0 mm.
- Proximal face changeable values range from -0.2 to 1.0 (mm).

4) Bridge

When designing crown bridge connections, set the default values for the connection area.

- Changeable values range from 4.0 to 20.0 (mm).

5) Final confirmation

Set the default values that you want to use during the final design confirmation step.

Using screw holes

Select the default value for whether to apply a screw hole to the crown.

Additional crown hole offset

When applying screw holes to the crown, set additional screw hole offsets as needed.

- Changeable values range from -0.1 to 1.0 (mm).

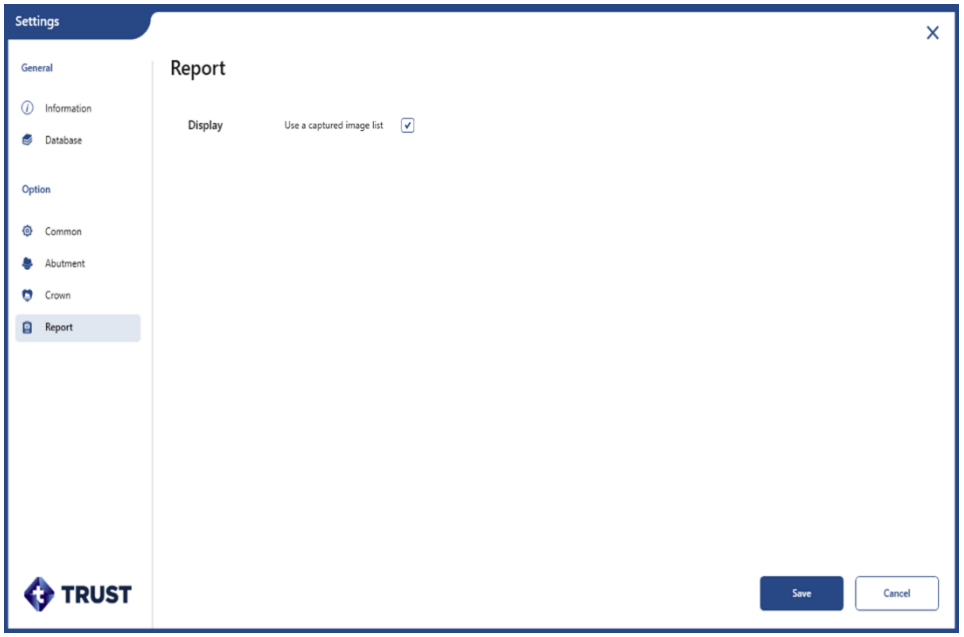
Offset additional screw hole

Set additional screw hole offsets as needed for the abutment and crown (when screw holes are applied).

- Changeable values range from -0.1 to 1.0 (mm).

7.2.4. Report

Set whether to use the capture image list in the report.



Guidance	**All most changes are saved at the time of pressing the Save button in the lower right corner of the Configuration screen.**

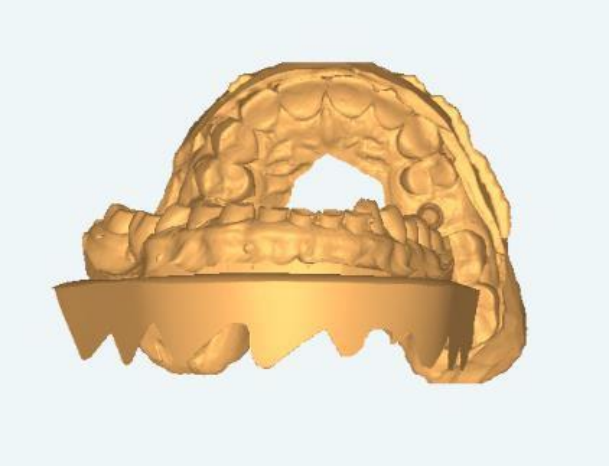
Guidance	**For a detailed description of each item, see its design steps.**

8. Appendix

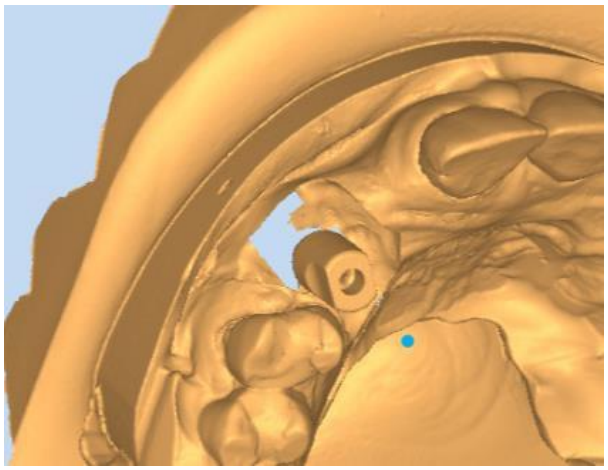
8.1. Unavailable scan data

The following scan data is not available for design:

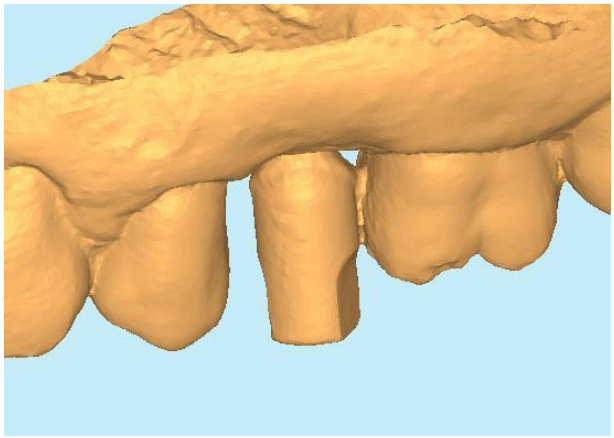
1) The bite alignment is not aligned.



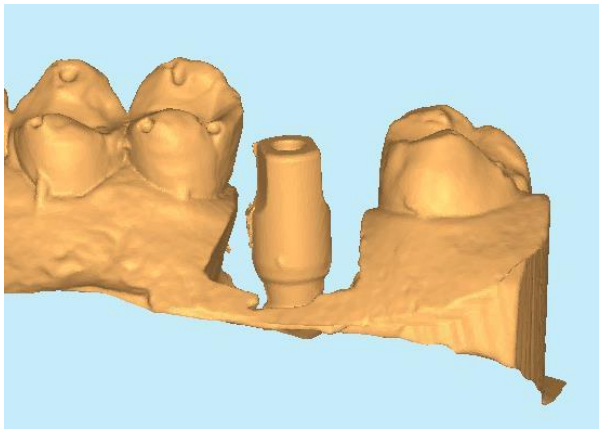
2) The scan data at the location where the margin will be drawn is empty.



3) ScanBody scan area is attached to Proximal teeth



4) The scan body and the gingiva have been scanned separately, but there is no gingiva scan data.



8.2. Cybersecurity

Before installing **TRUST,** you must follow the instructions below for cyber security. The instructions help to protect the program against cyber security threats such as viruses and malware.

- Prior to installing and using TRUST, scan your computer system with anti-virus and anti-spyware program from a trusted source.
- Install, set up and enable adequate anti-virus software.
- Maintain up-to-date anti-virus software.
- Make sure that your OS has the latest security updates applied.
- Turn on your computer's firewall.
- Windows 7, 8 or higher has a built-in firewall which is turned on by default.
- Online patch and updates are available and online update menu is provided on General setting.
- Release notes will be sent via email when updates are released.
- When an update is available, the program notifies "A new version is released. Please update" when signed in.
- If you have any cyber security-related concern and problem, please contact our customer support on the phone or via e-mail.

8.3. Revision History

Version	Date	Description	Writer
V.1.0.00(Rev.0)	2021.11	Initial	B.R Kang
V.1.0.00(Rev.1)	2022.07	Create 'build 0063 changes' in the description	S.J Lee
V.1.0.01(Rev.2)	2023.03	Create 'build 0126 changes' in the description	S.J Lee
V.1.0.02(Rev.3)	2023.06	Create 'build 0000 changes' in the description	S.J Lee

8.4. About Rgorithm Korea

Rgorithm is a software company founded on clear goals and missions to ignite breakthrough to all dental professionals and patients. Rgorithm is a one of subsidiary company created through TruAbutment. TruAbutment has a line-up of implant products as well as a brand that produces and supplies customized abutments. Rgorithm will work its way as the piece that will complement both companies' solutions and products on an AI-based platform.

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