

BendARC™

Simple & Fast Workflow Guide



Simple & Fast BendArc Workflow



Upload



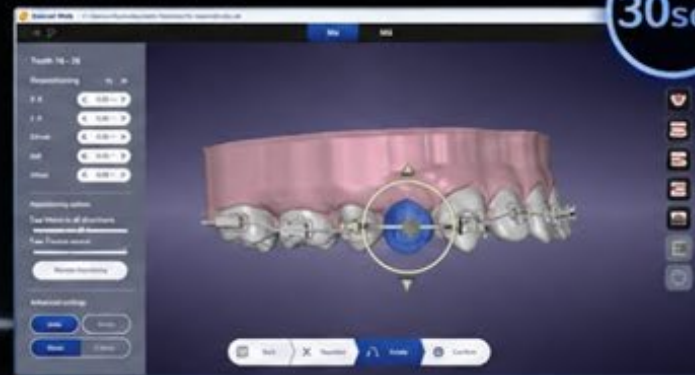
Reorientation



Slot Definition



A.I segment



Set up



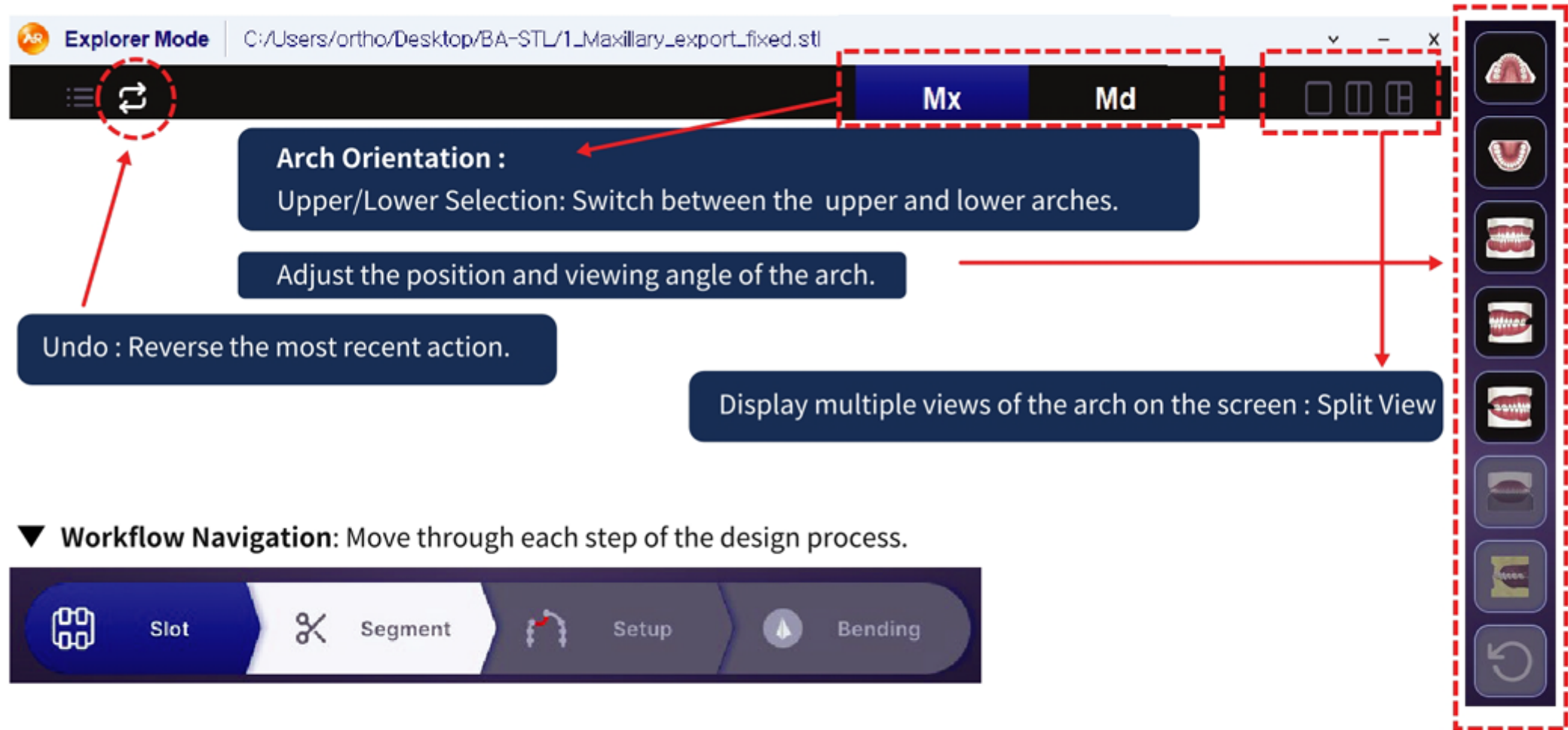
Bend



BendARC is a robotic system that bends orthodontic arch wires used during the finishing stage of treatment.

- **BendARC** is the wire - bending robot.
- **ARC** is the arch wire design software.

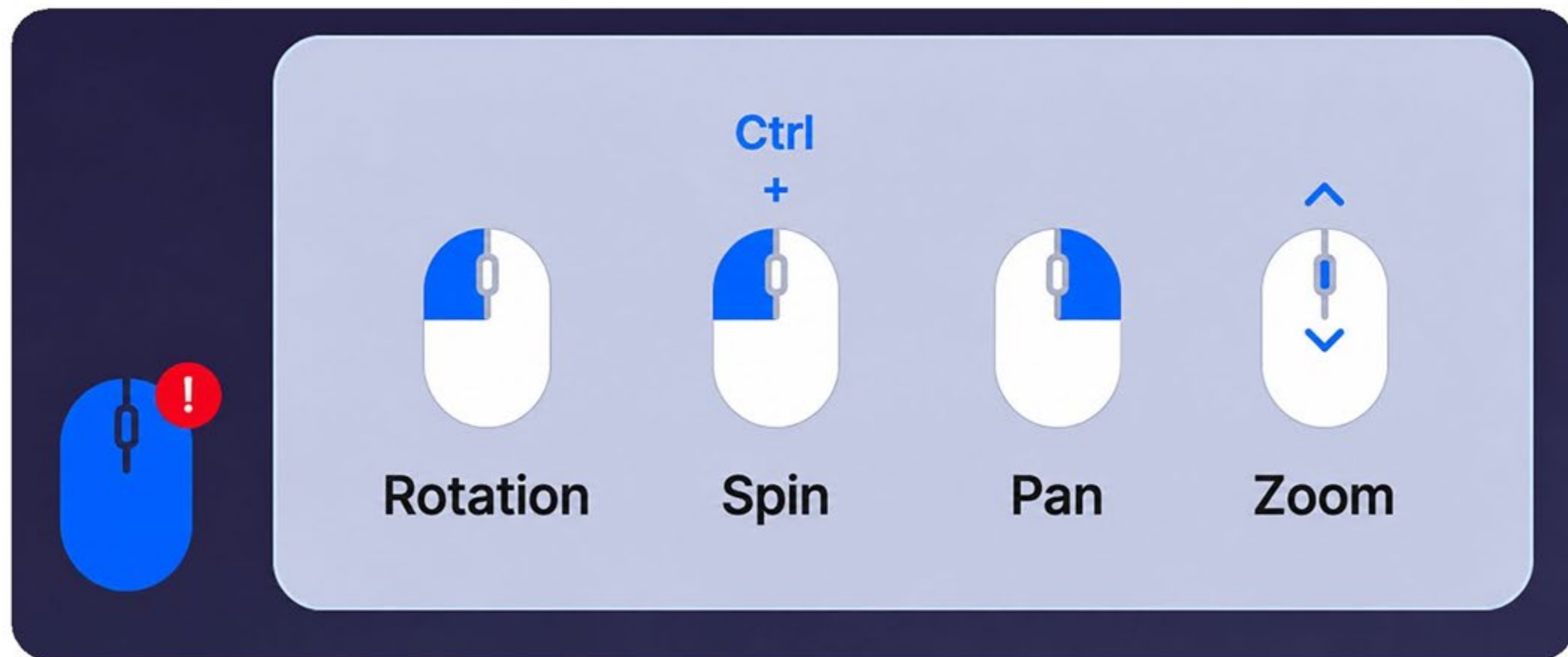
Screen Functions

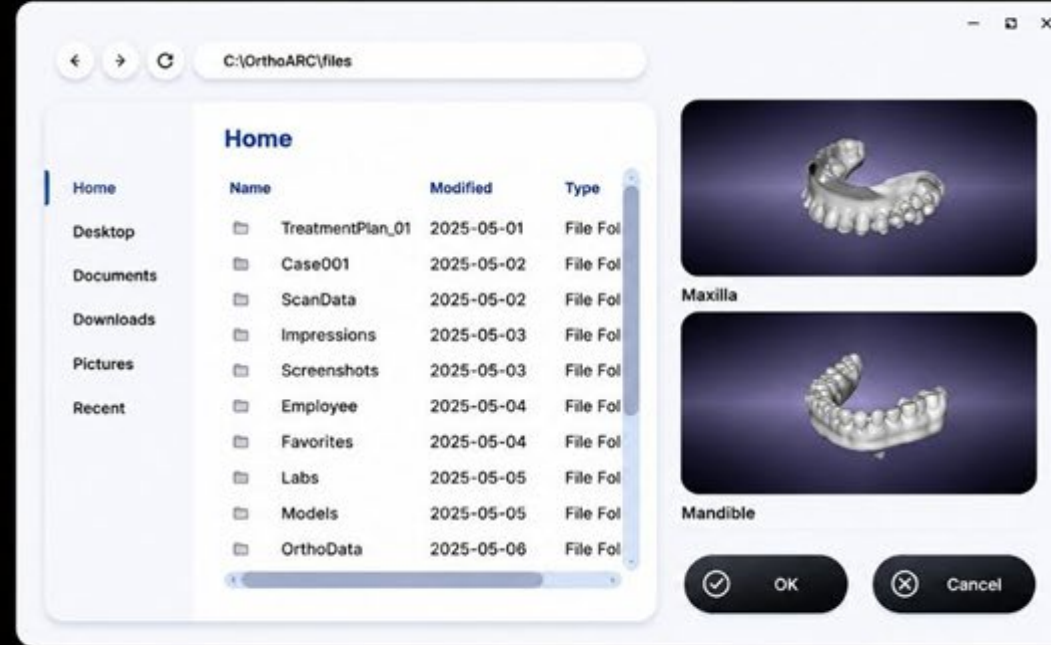


The screenshot shows the software interface with several key components highlighted by red dashed boxes and arrows pointing to descriptive text boxes:

- Undo:** A red dashed box around the undo icon (a circular arrow) in the top left toolbar, with an arrow pointing to the text: "Undo : Reverse the most recent action."
- Arch Orientation:** A red dashed box around the "Mx" and "Md" buttons in the top toolbar, with an arrow pointing to the text: "Arch Orientation : Upper/Lower Selection: Switch between the upper and lower arches."
- Adjust Position and Viewing Angle:** A red dashed box around the view manipulation icons (a square, a circle with a dot, and a magnifying glass) in the top toolbar, with an arrow pointing to the text: "Adjust the position and viewing angle of the arch."
- Split View:** A red dashed box around the view icons in the top toolbar, with an arrow pointing to the text: "Display multiple views of the arch on the screen : Split View"
- Workflow Navigation:** A horizontal bar at the bottom with four steps: "Slot" (highlighted in blue), "Segment", "Setup", and "Bending".
- Vertical Toolbar:** A vertical toolbar on the right side of the screen, enclosed in a red dashed box, containing icons for various dental arch views and a circular arrow icon at the bottom.

Mouse controls

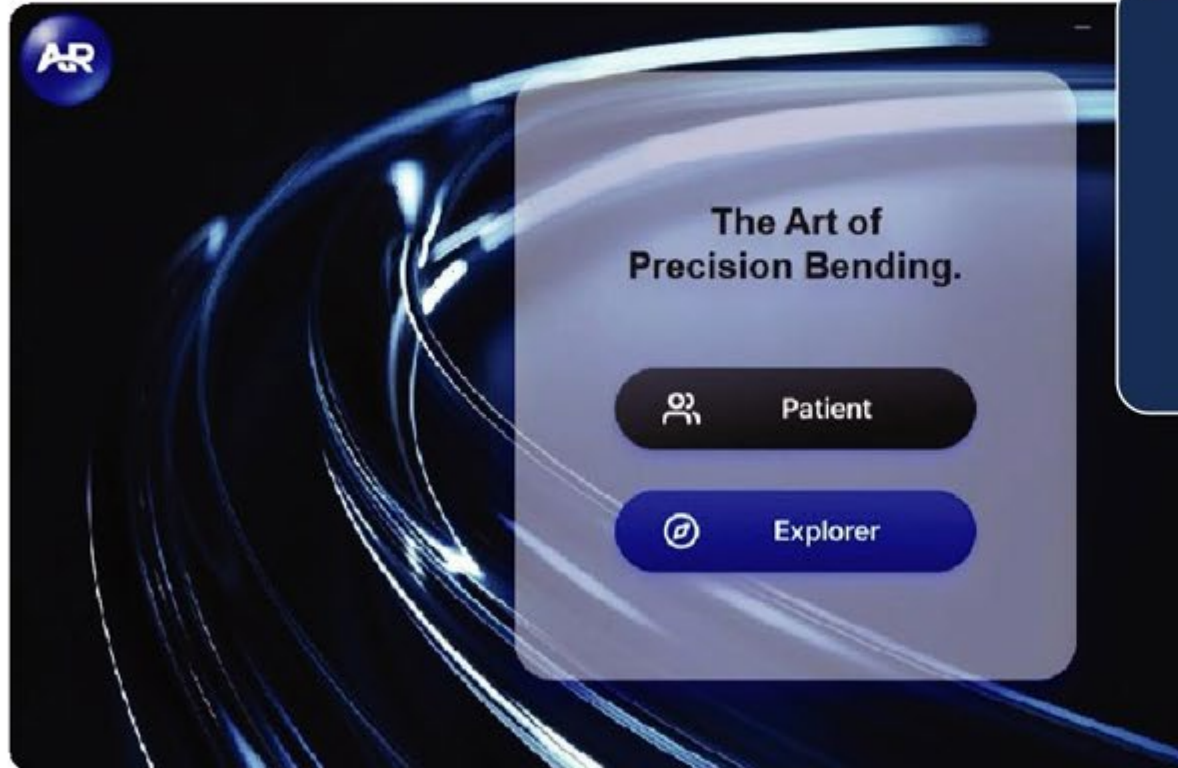




Upload



CLICK HERE



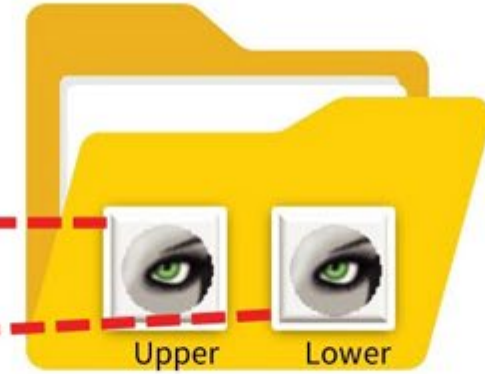
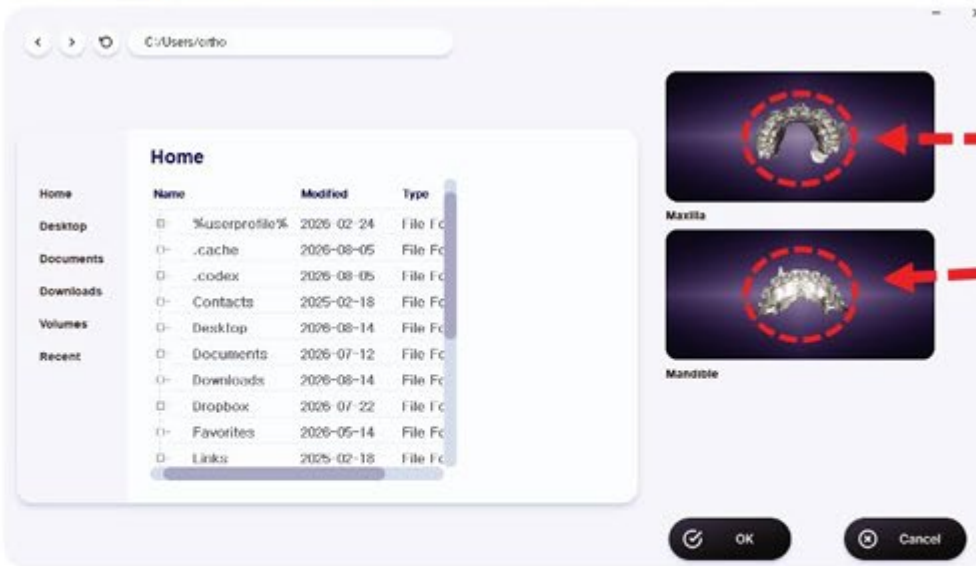
ARC Design Software combines AI and advanced algorithms to provide an intuitive workflow for designing finishing arch wires. In most cases, a finishing archwire can be designed in less than 10 minutes.



Explorer

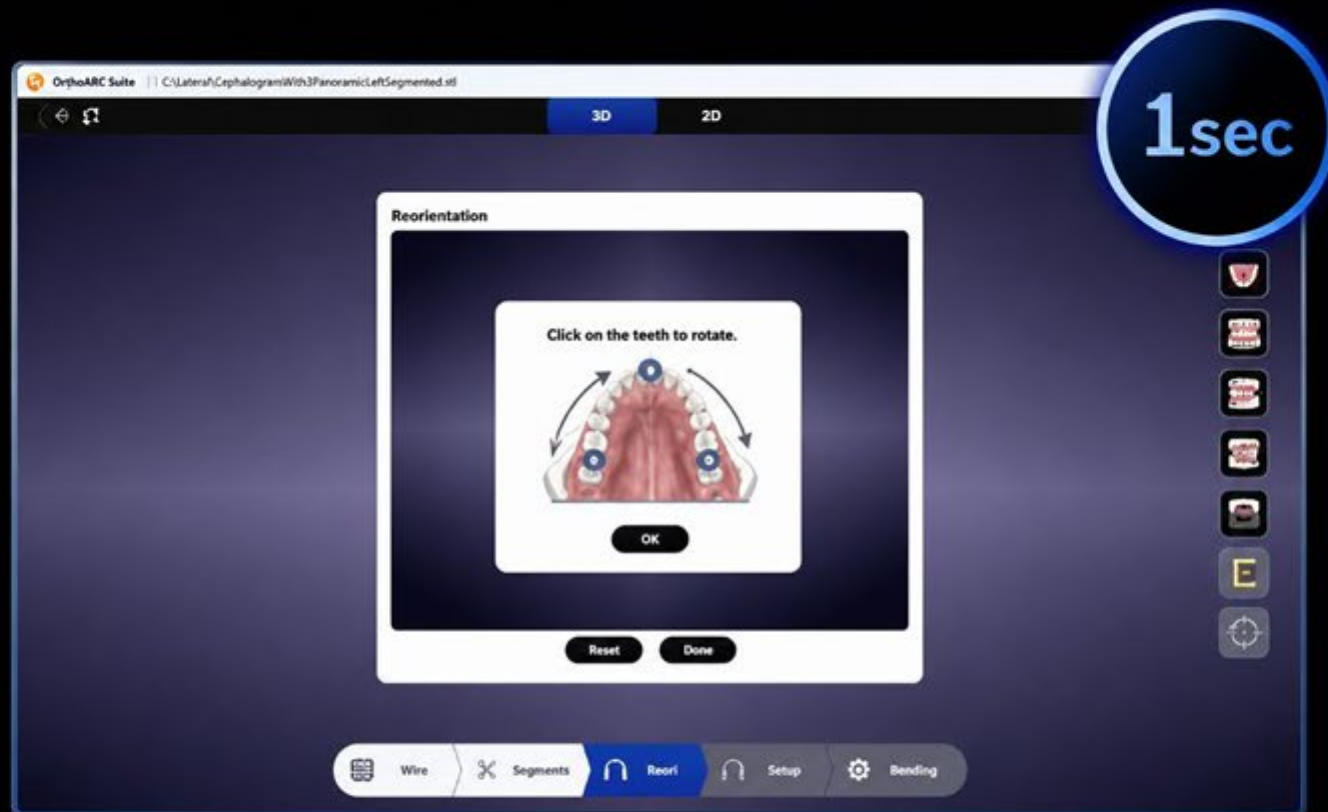
① Upload

Locate the STL files you want to use. Drag and drop the appropriate STL file into the Upper Arch or Lower Arch field. After both files have been uploaded, click OK.



 This is an AVI video file. Click the image to play the video.





Reorientation

② Reorientation

Reorientation sets the arch in the correct position and orientation. For the upper arch, select the following three reference points in clockwise order:

1. First molar in Quadrant 1
2. Anterior midline
3. First molar in Quadrant 2

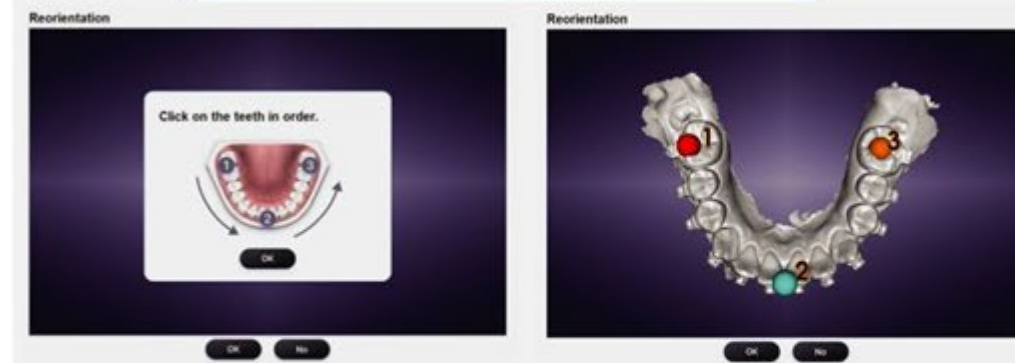
After selecting all three points, **click OK.**



Upper : Clockwise

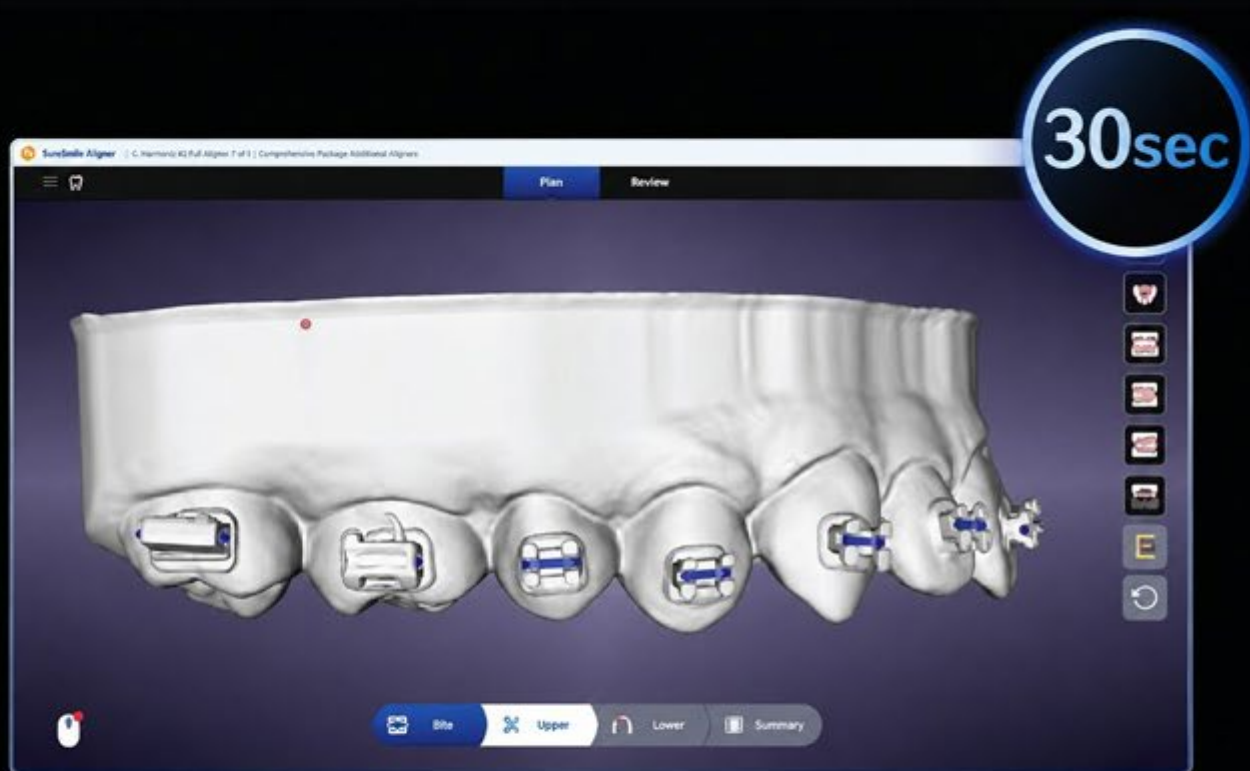


Lower : CounterClockwise



 This is an AVI video file. Click the image to play the video.

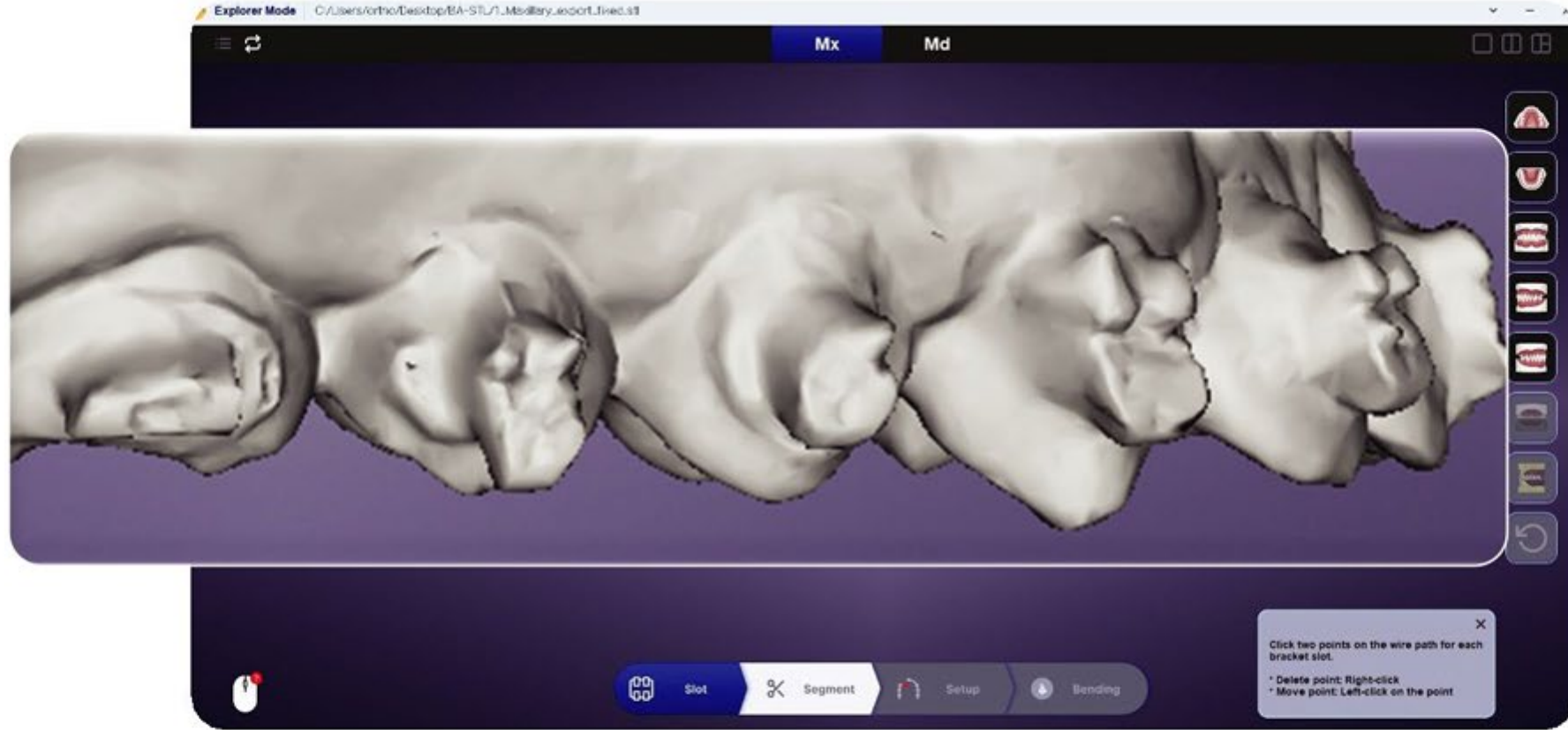




Slot Definition

Slot Definition

Slot Definition identifies the slots of the brackets and tubes bonded to the teeth.

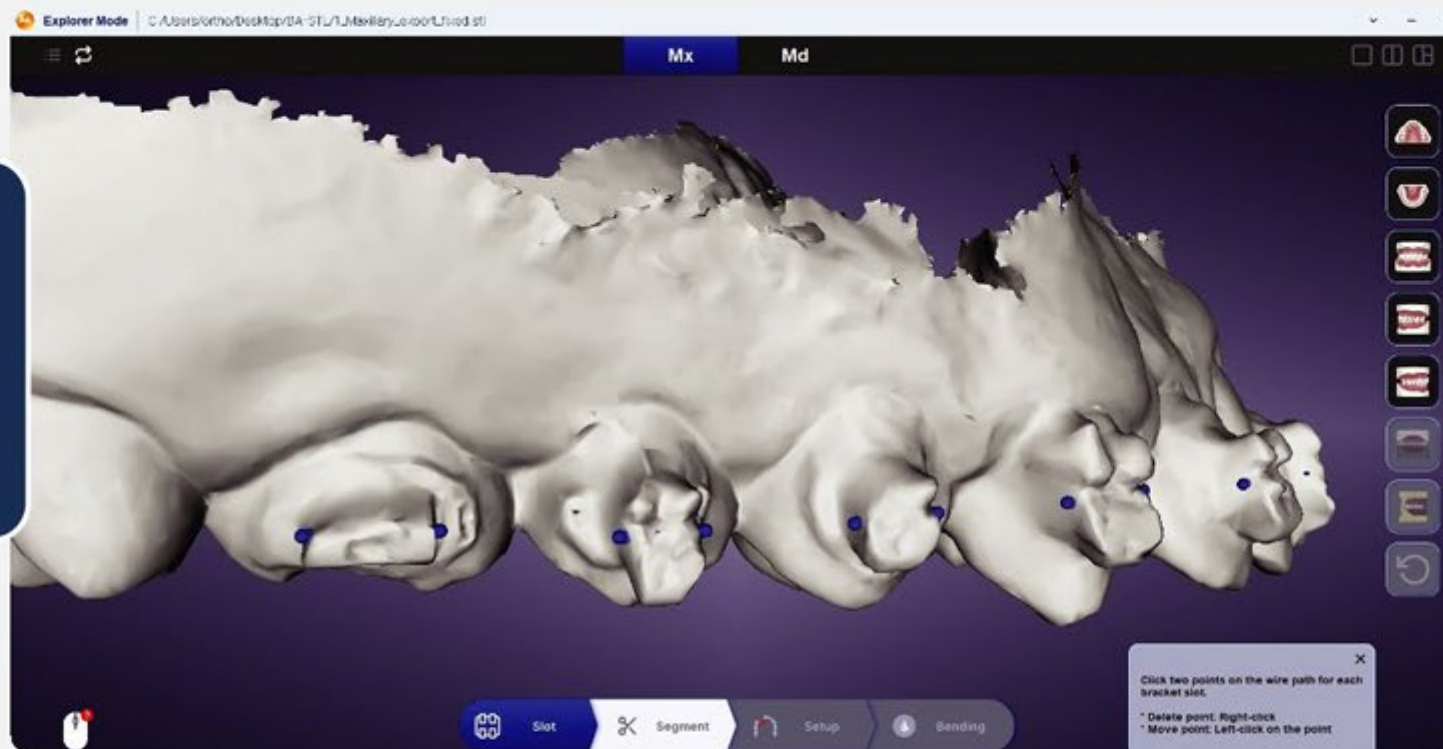


Intraoral scans often do not clearly capture the inside of bracket slots. Therefore, the user must manually define the position and orientation of each bracket or tube slot



For each bracket or tube,
select two points :

1. The mesial end of the slot
2. The distal end of the slot



For best results, place each point near the center of the mesial or distal slot edge and at the base of the slot closest to the tooth surface.

The points do not need to be perfectly precise. Minor variations are generally within a clinically acceptable range, and the ARC algorithm automatically compensates for small positioning errors.



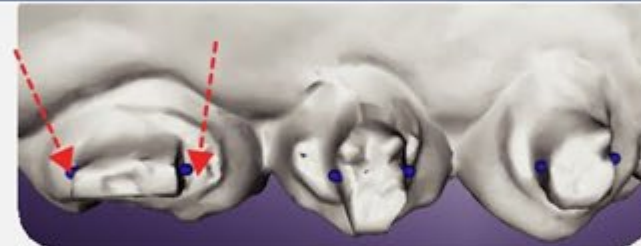
For each bracket or tube, select two points :

1. The mesial end of the slot
2. The distal end of the slot

The order in which you select the mesial and distal points does not matter.

By default, the software guides you to begin with the most posterior tooth in Quadrant 1 and continue toward Quadrant 2.

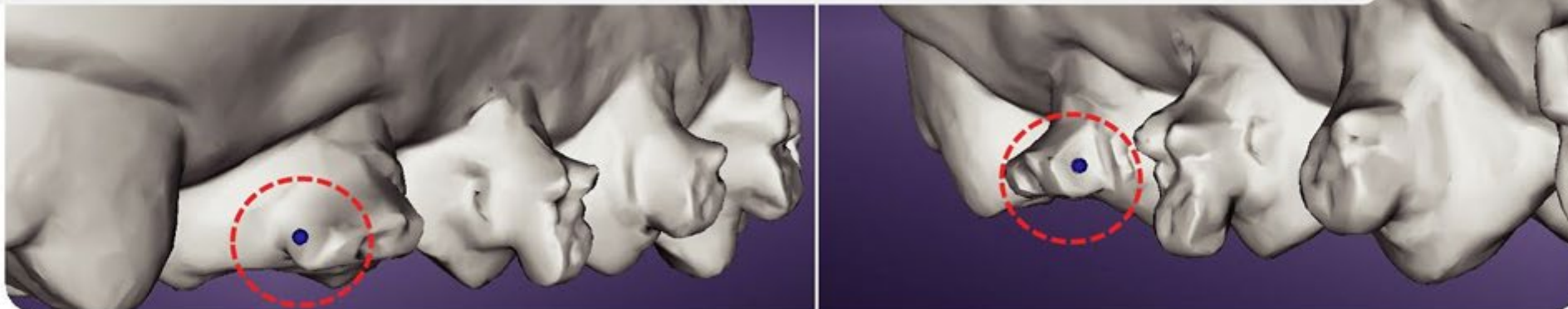
Distal → Mesial → Distal

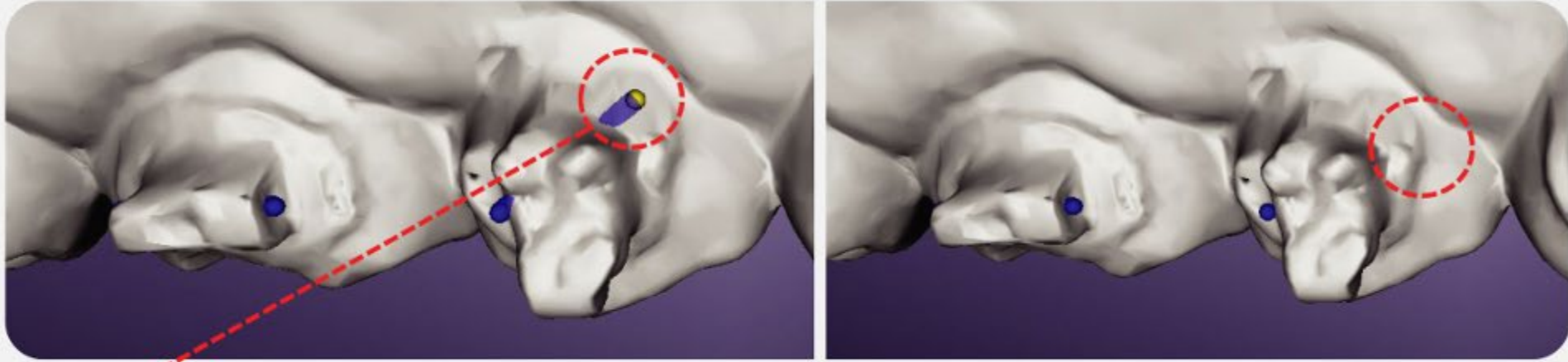


Navigating During Slot Definition

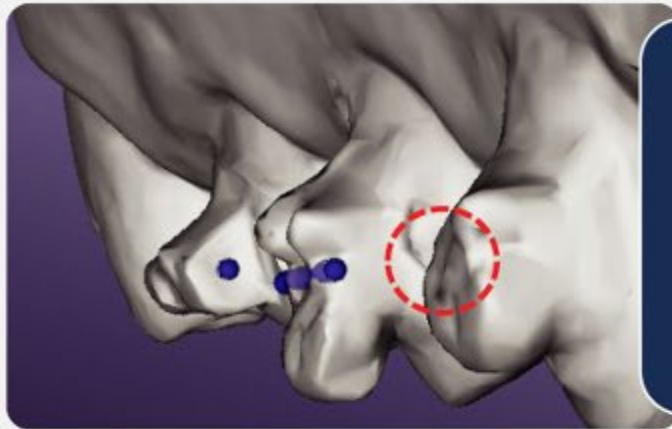
During Slot Definition, the arch can be rotated from side to side only.

- Rotate the arch : Hold down the left mouse button and move the mouse left or right.
- Zoom in or out : Scroll the mouse wheel.





Rotate and zoom the arch as needed to make it easier to select the two slot points accurately.
If a point is placed incorrectly, right-click the point to delete it, and then select the correct location again.



◀ The slot points do not need to be selected with absolute precision.

The ARC The ARC algorithm is designed to detect the bracket slot and compensate for minor point-placement errors.

 This is an AVI video file. Click the image to play the video.

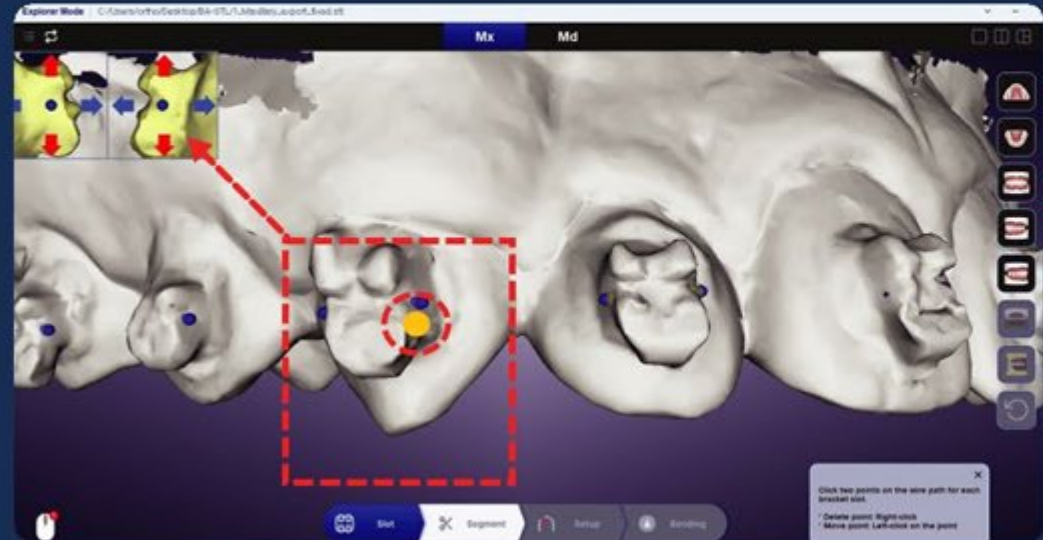
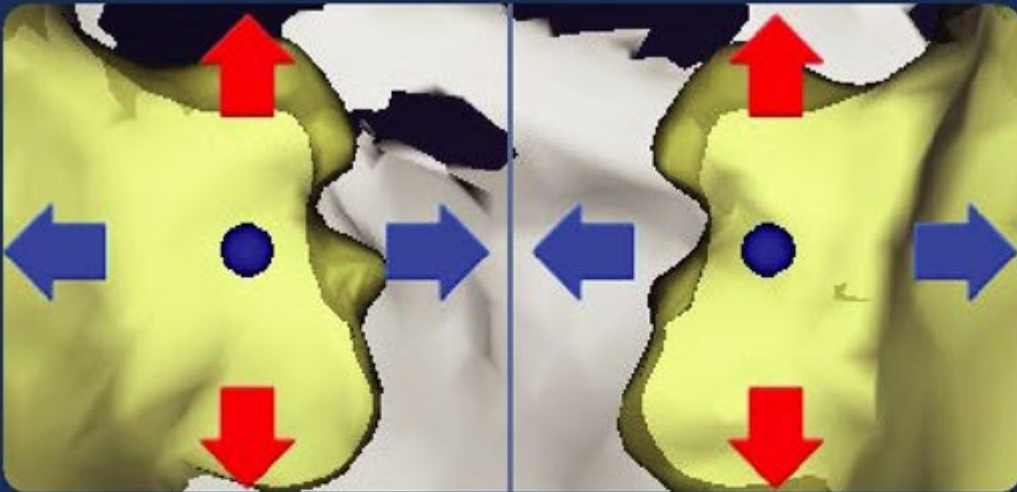
[제목 없음]



Adjusting Slot Points



To adjust the position of a selected slot point, click the blue point you want to modify the selected point will turn yellow, and a point-adjustment panel will appear in the upper-left corner of the screen.

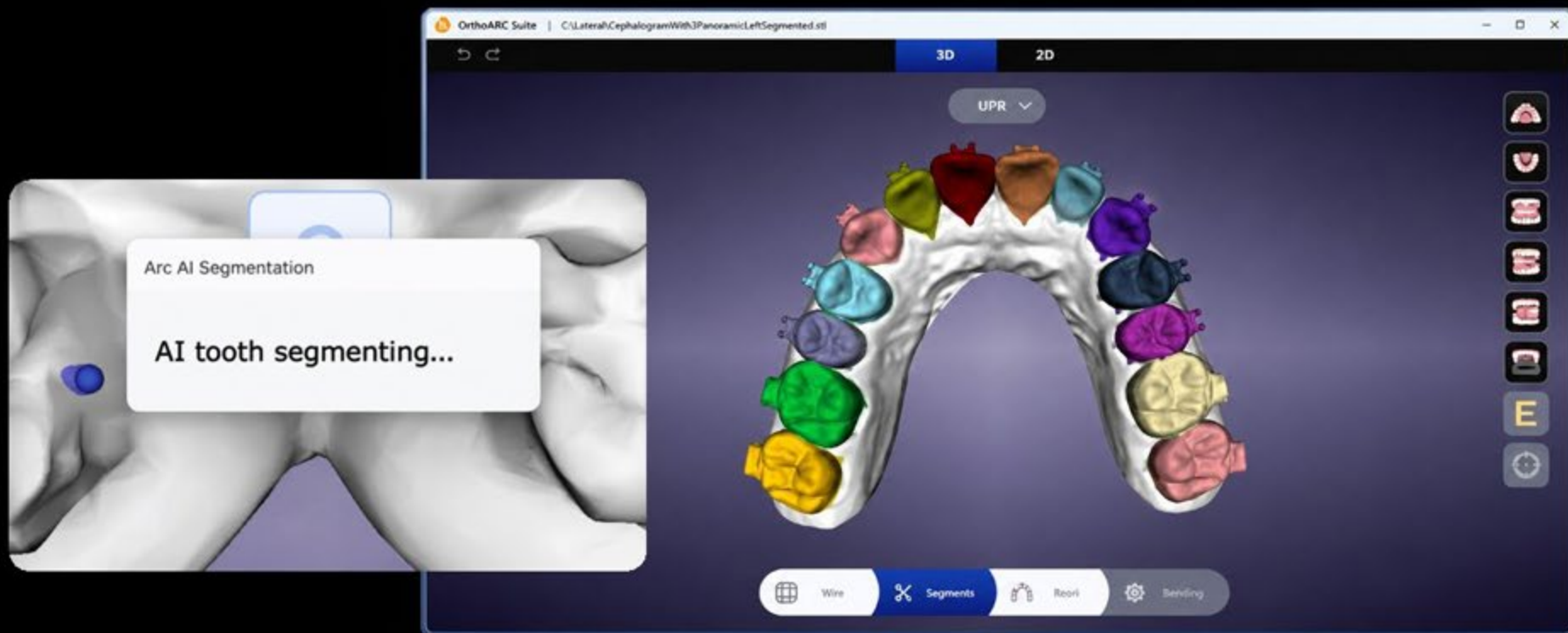


Click the appropriate arrow in the panel to move the point in the desired direction.

When adjusting the points :

- Make sure the mesiodistal angulation of the slot is properly aligned.
- Adjust the slot depth so that the points are positioned at the base of the slot, closest to the tooth surface.

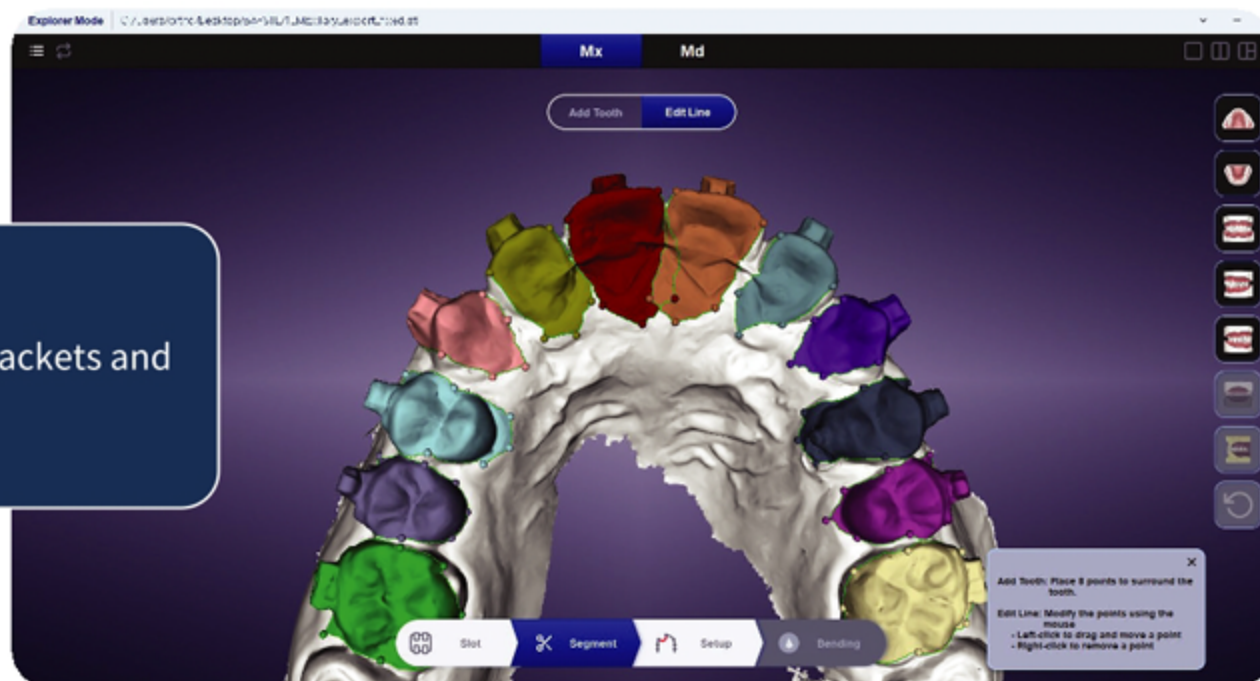
 This is an AVI video file. Click the image to play the video.



A.I segment

IV AI Segmentation

AI Segmentation automatically separates the individual teeth while the brackets and tubes remain bonded to the teeth



An internet connection is required while ARC Design Software is running.

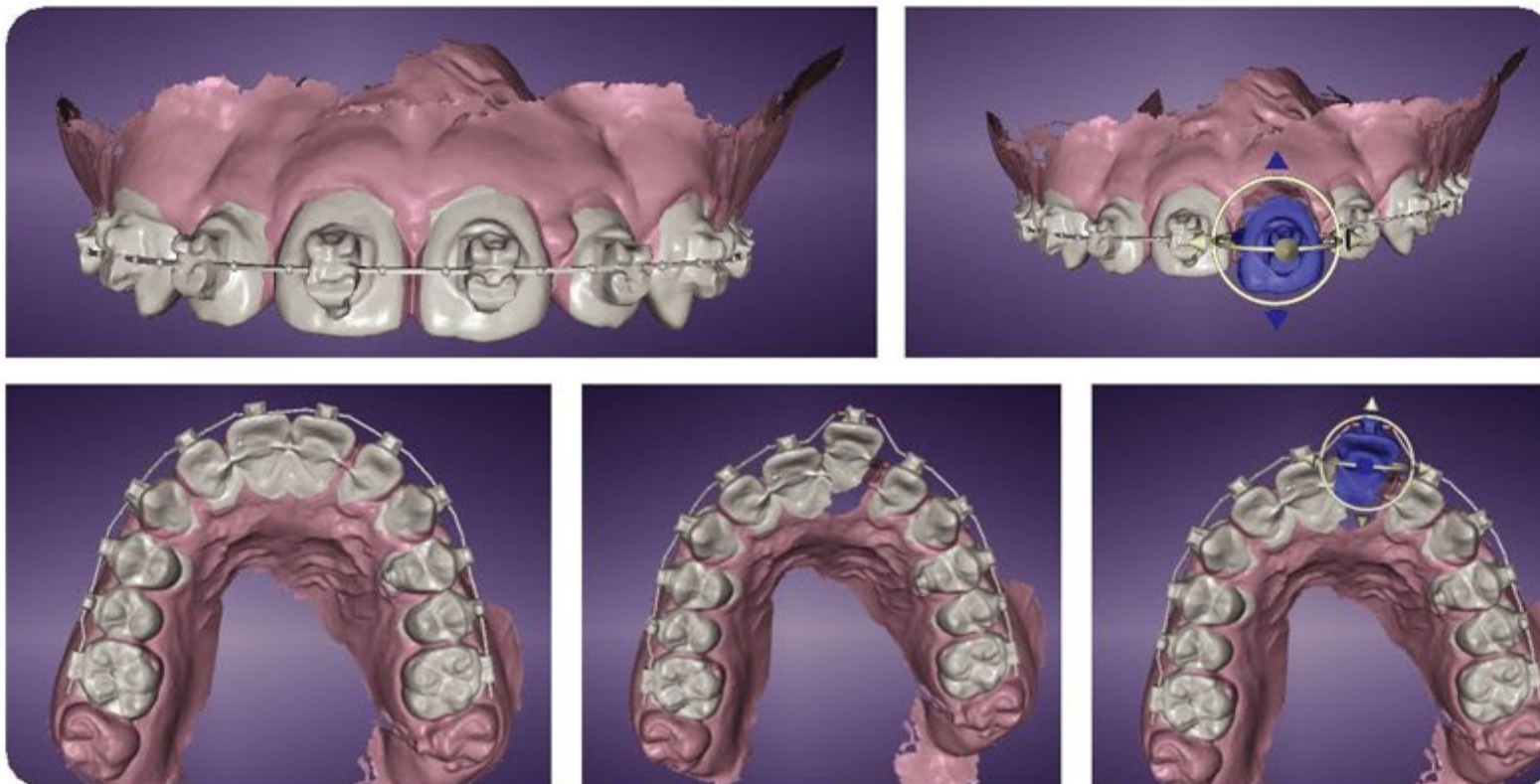
Processing time may vary depending on the computer's performance and internet connection.

In most cases, automatic tooth segmentation is completed within approximately 10 seconds.

The segmentation boundaries may not follow the cervical margins perfectly. However, this does not affect the tooth movements required to design a clinically effective finishing archwire.

 This is an AVI video file. Click the image to play the video.





After AI segmentation, if each tooth has been successfully separated, you do not need to refine the segmentation points to follow the exact tooth margins.

Minor differences along the tooth margins will not affect tooth movement or wire design because this workflow is intended for finishing archwire design, not for creating an aligner setup.

If necessary, adjust the segmentation boundary by dragging the control points :

1. Click and hold the point you want to adjust.
2. Drag the point to the desired position.
3. Release the mouse button to place the point.



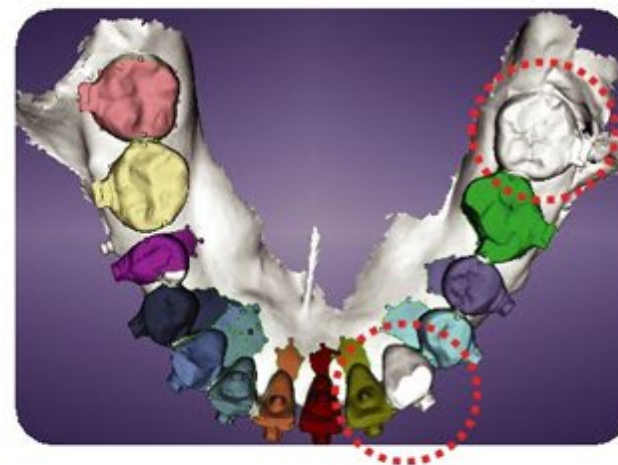
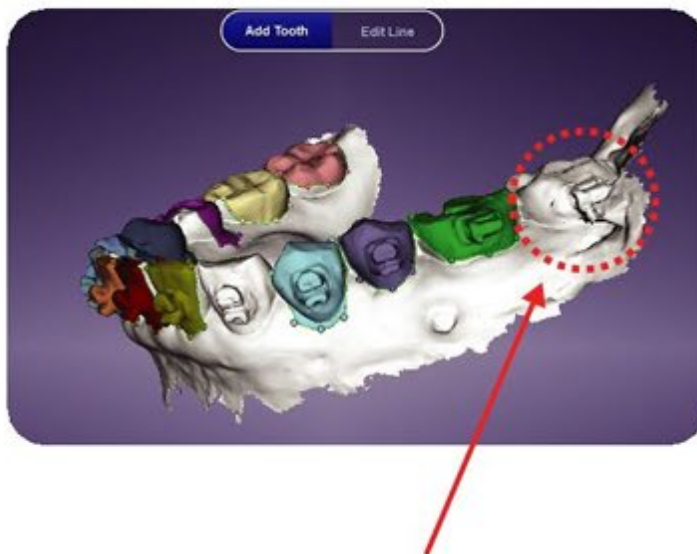


Accurate tooth segmentation needs to be performed only once for each patient.

Once the teeth have been individually segmented, the segmentation data is retained and can be used throughout the patient's treatment.

Add Tooth**Edit Line**

Use the Add Tooth function in the following two situations when automatic tooth segmentation is unsuccessful :



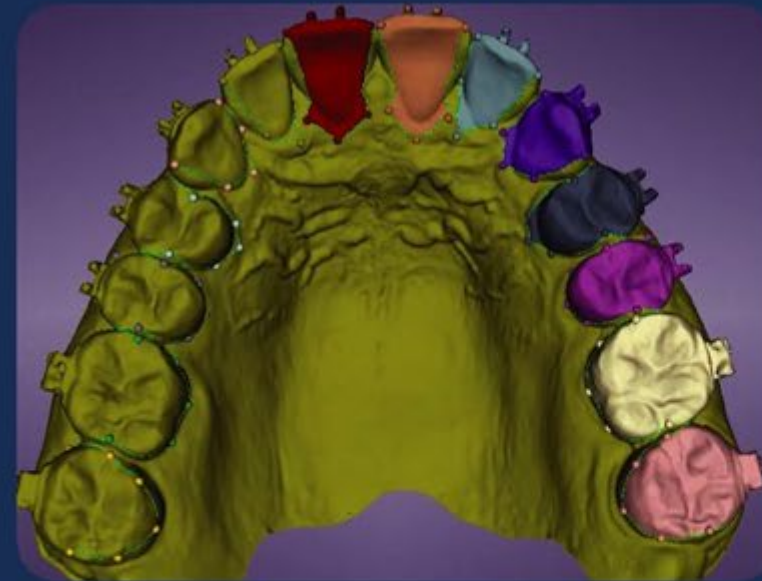
Add Tooth: Place 8 points to surround the tooth.

Edit Line: Modify the points using the mouse

- Left-click to drag and move a point
- Right-click to remove a point

Add Tooth**Edit Line**

Use the Add Tooth function in the following two situations when automatic tooth segmentation is unsuccessful:



Add Tooth**Edit Line**

If the AI is unable to segment one or more teeth during automatic tooth segmentation, a warning message will appear identifying the teeth that could not be segmented.

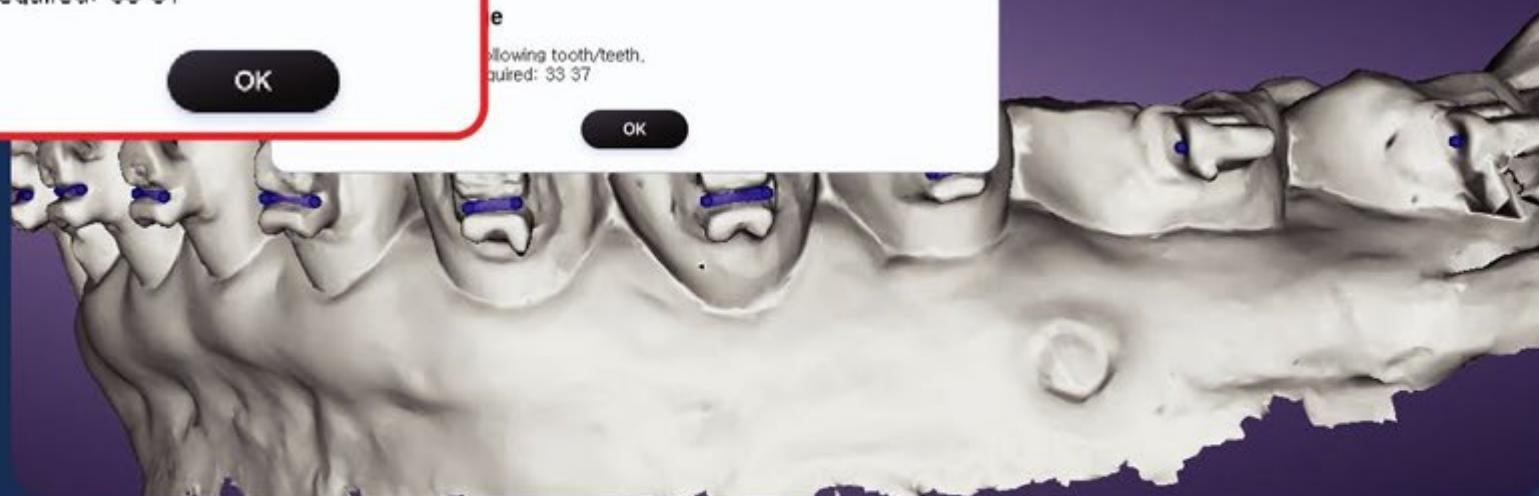
Warning Message

Failed to segment the following tooth/teeth,
Manual separation is required: 33 37

OK

e
Following tooth/teeth,
quired: 33 37

OK



Warning Message

Failed to segment the teeth. Try narrowing the region and moving the point upon success.

OK

[제목 없음]

First, create a small area within the tooth rather than outlining the entire tooth.

Add Tooth Edit Line

1. Manual Segmentation When Automatic Segmentation Fails

If a tooth cannot be segmented automatically, manually place eight points on the affected tooth.

Do not initially place the eight points along the cervical margin. Instead, use the points to create a small circular boundary within the tooth surface. Then, drag each point outward to adjust the boundary to the tooth and complete the segmentation. Refer to the instructional video for details.

IV 2. When the Entire Arch Is Covered by a Single Color

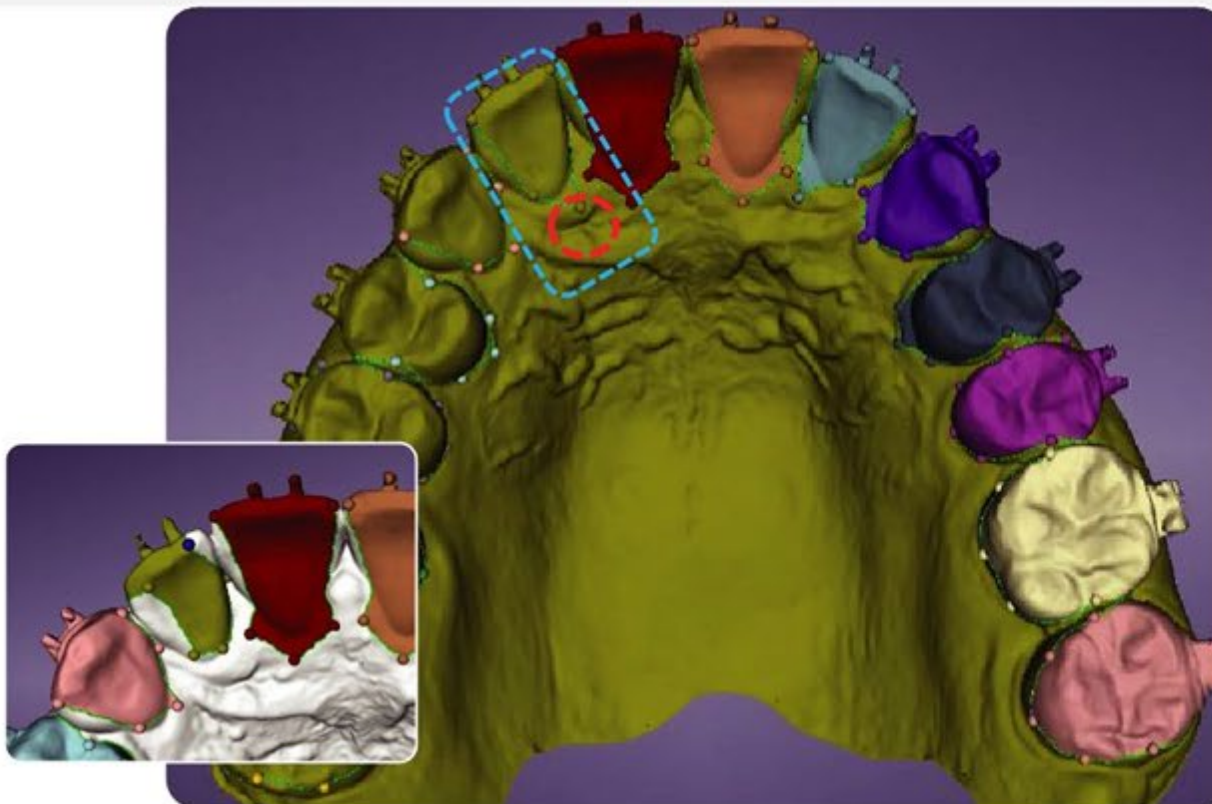
If the entire arch is covered by a single color, locate the control points associated with the tooth assigned that same color.

■ Try one of the following methods:

1. Move the control points slightly inward from the tooth margin. In some cases, this will correct the segmentation.

[제목 없음]

2. If the issue is not resolved, click Add Tooth and place eight points on the tooth associated with the same color.





Tooth segmentation may not work properly when the scan data is significantly distorted or lacks sufficient detail.

 This is an AVI video file. Click the image to play the video.



Patient

 Add

 Edit

 Delete

 File Add

 File Delete

Patient List

No.	Name	Birthday	Last modified date
02			08-14-2026

Patient Info

First Name

Last Name

Birthday

Mobile

Email

Comment

History



Patient

BendARC allows you to create multiple archwire designs throughout the finishing stage, rather than designing only one wire.

The Patient feature stores and manages each patient's treatment history.



Patient

-  Add
-  Edit
-  Delete

-  File Add
-  File Delete

File Area 14 2026

Search...

Patient List

No.	Name	Birthday	Last modified date
00			06-14-2026

Patient Info

First Name	Etc	Last Name	JRGJ	Birthday	05 DEC
Mobile	14252197935	Email	ortho@yoatcorp.com		

Comment

1. Class 2 division 1
2. OU 2 burs
3. 05 JUN 2025 treatment start
4. 06 JUL 2026 - 017 X 005 finishing arch wire

#11 - Intrusion 0.5 mm
#15 - 12° tip control

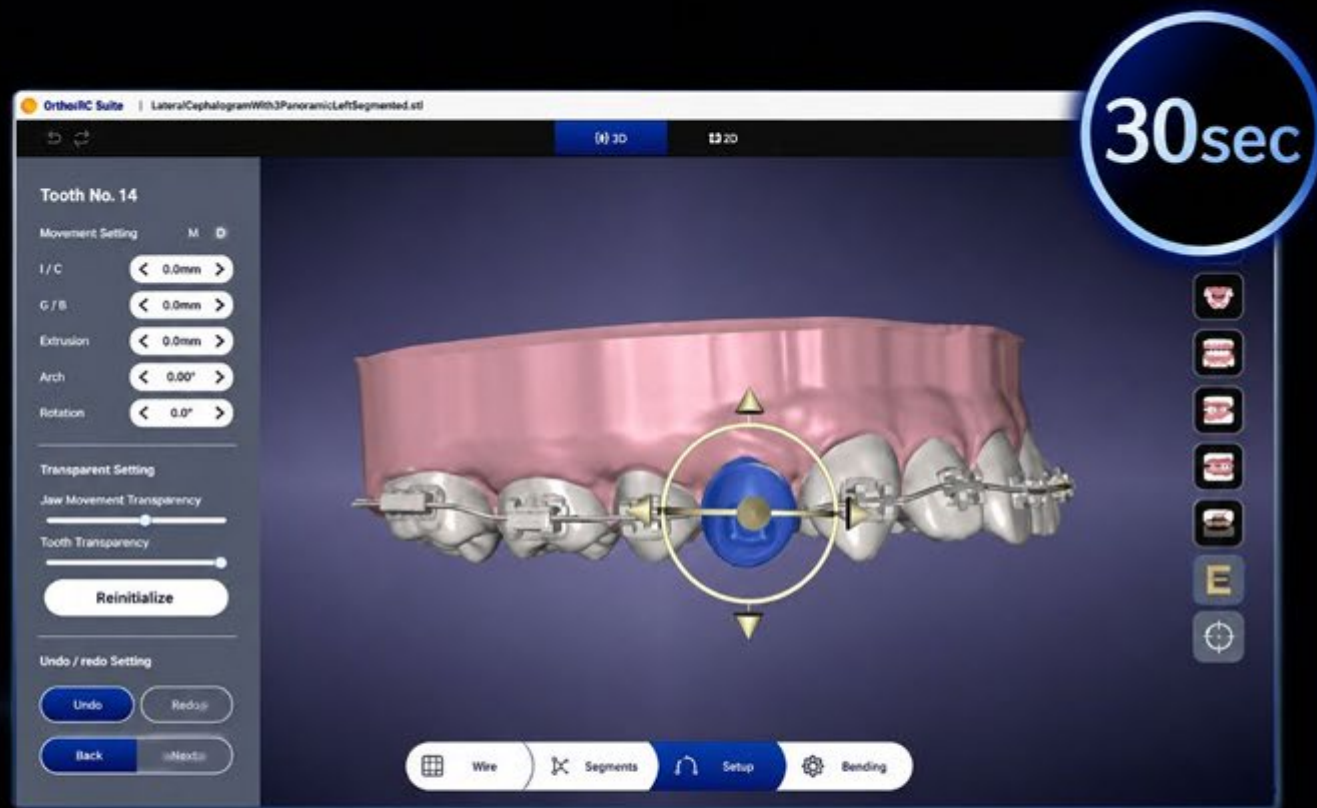
History



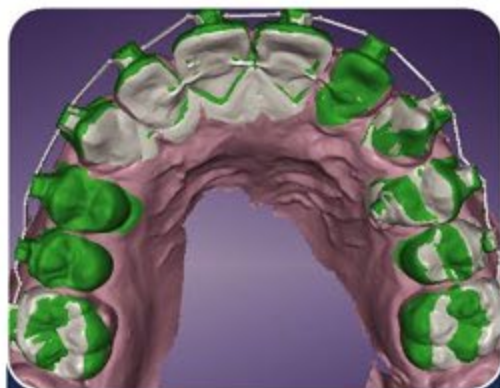
Patient

Click Add to add new data for the same patient.

Once the data is added, a new entry will appear with its creation date and data details.



Set up



Superimposition of
Moved Teeth

Tooth No.

Movement Setting  

M / D < 0.0 mm >

Ext / Int < 0.0 mm >

A - P < 0.0 mm >

Rotate < 0.0 ° >

Axis < 0.0 ° >

Transparency Setting

Superimposition Transparency



Modify mode Setting

Tooth **Wire**

Straight Archform

Active Passive

Limit Modify

Movement < 10.0 mm >

Angle < 30.0 ° >

OK No



Hide Teeth Button



Hide Wire Button

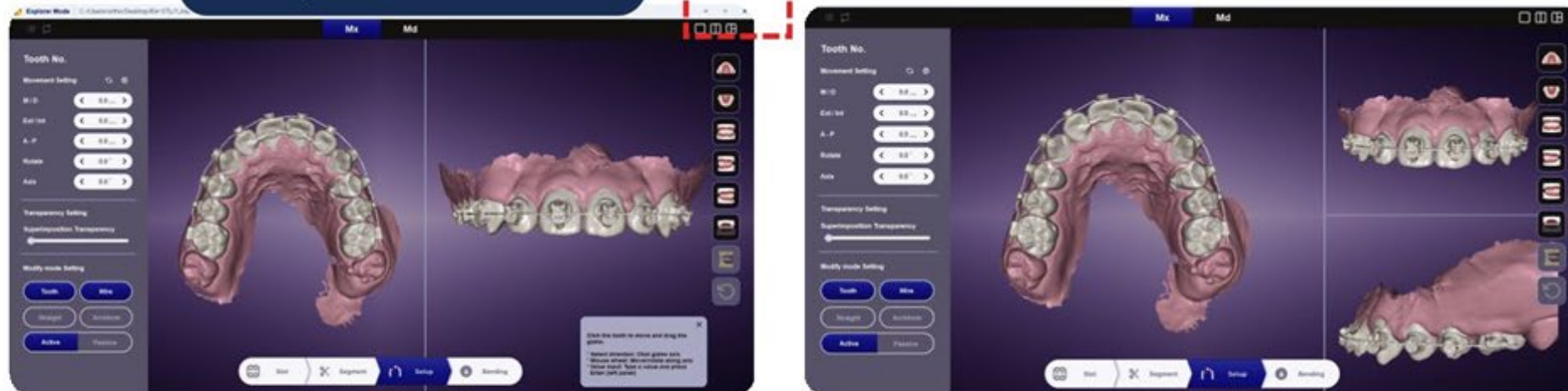
 This is an AVI video file. Click the image to play the video.



Occlusion view



Splint - screen view



Red Adjustment Points

A red point indicates one of the following conditions:

- The required bend angle cannot be produced by BendARC.
- The available bending distance within the inter bracket space is too short.

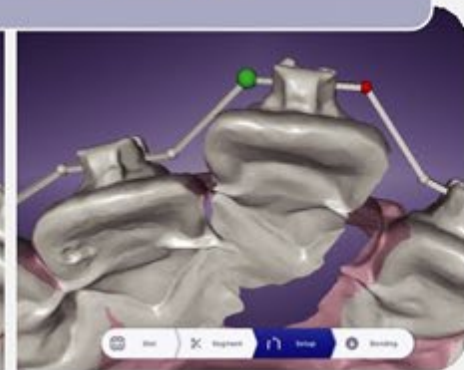
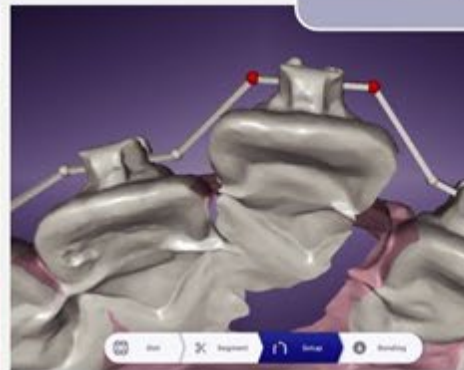
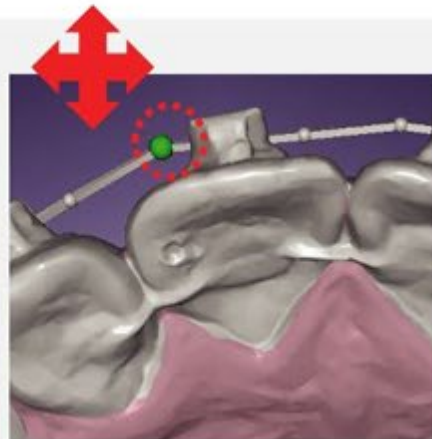
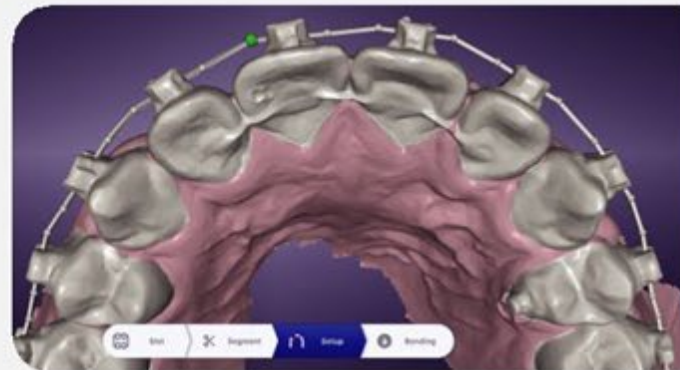
To correct the wire design, click the red point and use the arrow keys on the keyboard to reposition it. Continue adjusting the point until it turns green.

Adjustment points can be moved left, right, forward, or backward. Their vertical position cannot be adjusted.



Wire Design Adjustment Points

Wire adjustment points are located on the mesial and distal sides of each bracket.



There is a problem with **angle**.



 This is an AVI video file. Click the image to play the video.



Creates bends only for the teeth that have been moved.

1. Active Mode

This mode follows the traditional orthodontic treatment concept. Similar to adjusting a standard archwire by modifying the arch form and applying bends only to the teeth that require movement (In & Out, Intrusion, Extrusion, Angulation), Active Mode bends only the teeth that have been moved in the Setup stage.

Creates bends in every inter bracket segment.

3. Archform Mode

This mode calculates the average arch form of the patient's dentition and creates an individualized archwire customized for that patient.

Modify mode Setting

Tooth

Wire

Straight

Archform

Active

Passive

Calculates the average position and spacing of the bracket slots in the occlusal view, generates the archform, and creates the corresponding bends.

2. Passive Mode

In Passive Mode, the wire is bent so that it passively inserts into the slots of all teeth, not only the teeth being adjusted. Because every segment of the archwire is bent, the robot requires more processing time. The average bending time is approximately 25 minutes.

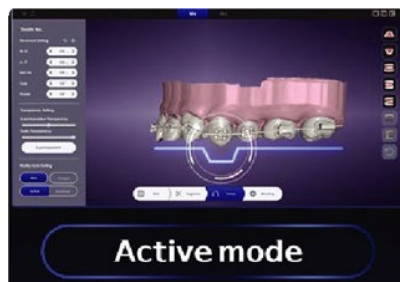


This is an AVI video file. Click the image to play the video.





This is an AVI video file. Click the image to play the video.





This is an AVI video file. Click the image to play the video.



Straight Button

Tooth No.

Movement Setting  

M / D

< 0.0 mm >

Ext / Int

< 0.0 mm >

A - P

< 0.0 mm >

Rotate

< 0.0 ° >

Axis

< 0.0 ° >

Transparency Setting

Superimposition Transparency



Modify mode Setting

Tooth

Wire

Straight

Archform

Active

Passive



Straight Function

When both the first and second molars have buccal tubes, the wire segment between them must not contain an offset bend. This allows the wire to be inserted smoothly through both tubes.

Click Straight, and then click the adjustment point on the wire segment between the two teeth.

The wire segment will be redesigned as a straight line without an offset. The Straight function can be applied to any inter bracket segment

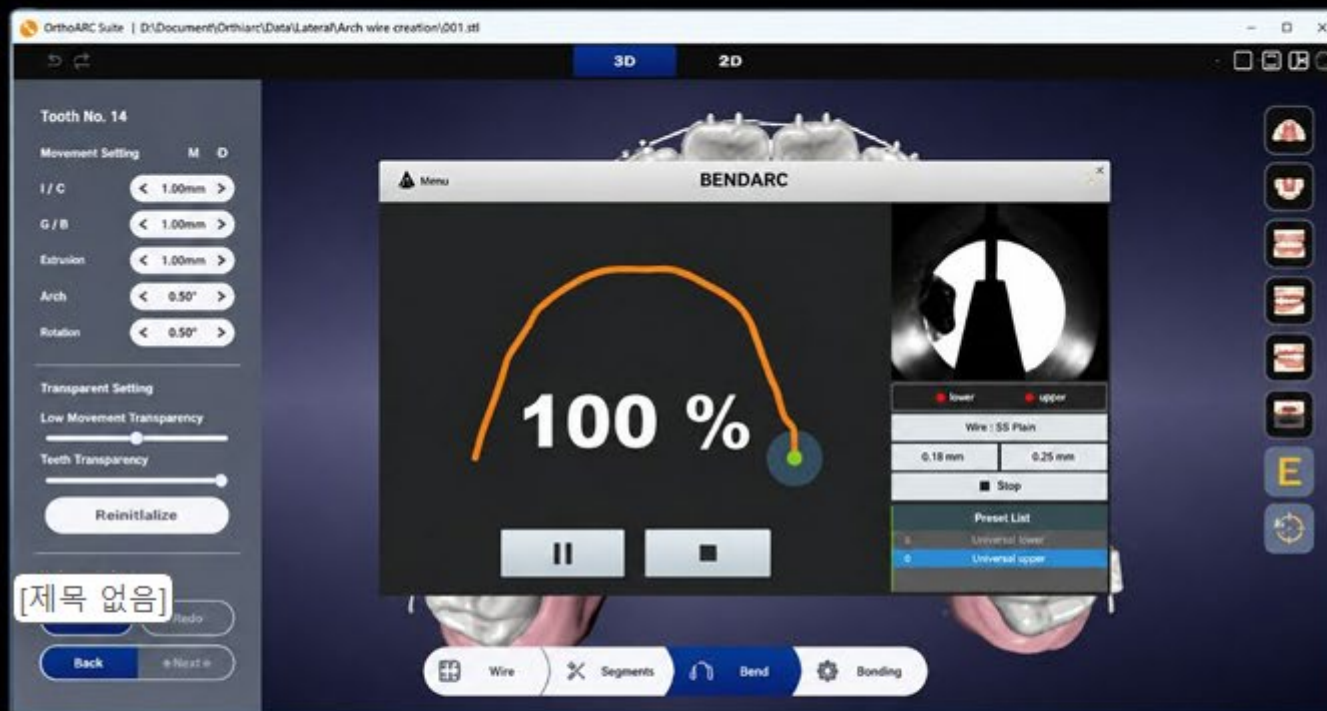
Straight

 This is an AVI video file. Click the image to play the video.

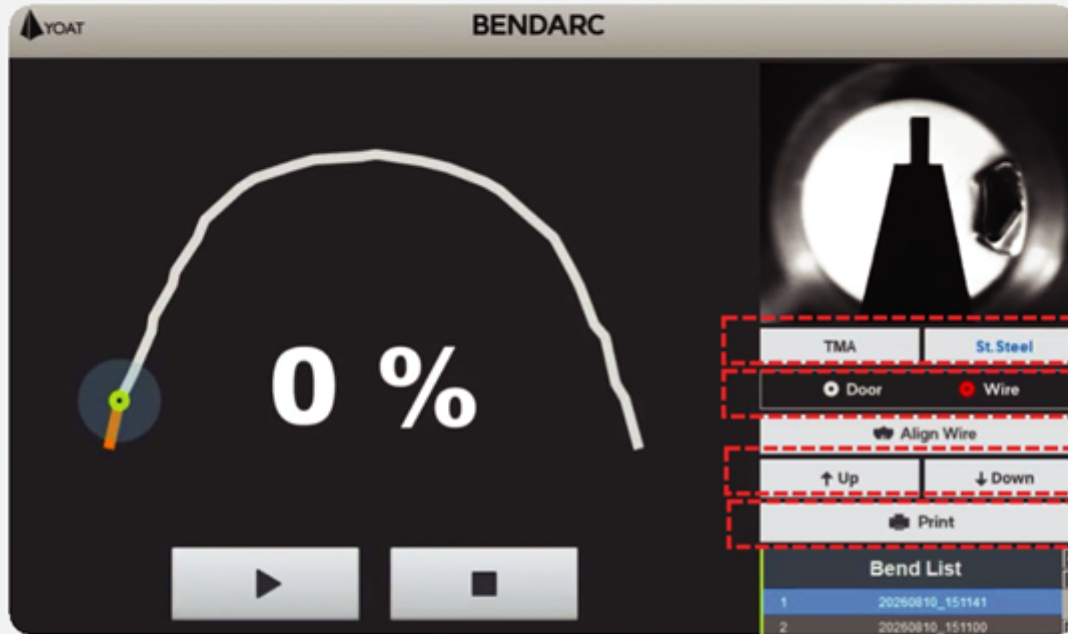
Set up

 This is an AVI video file. Click the image to play the video.





Bend



Wire Selection

Select the correct wire material before bending:

- TMA
- SS (Stainless Steel)

Door Safety

Bending can begin only when the door is fully closed.
The system will not operate while the door is open.

If the door is opened during the bending process, the system will stop automatically. Cut and remove the partially bent wire, and then restart the bending process from the beginning with a new wire.

Wire Controls

UP : Moves the wire upward.

DOWN : Moves the wire downward.

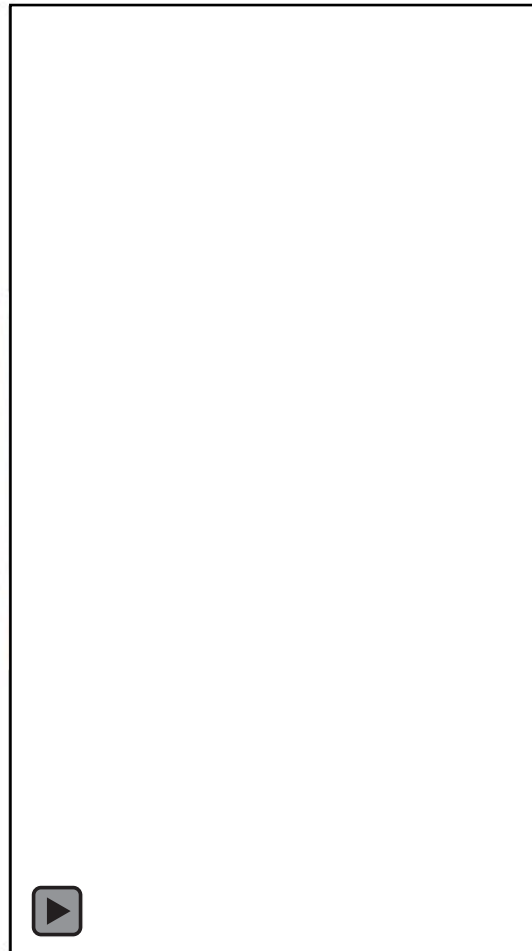
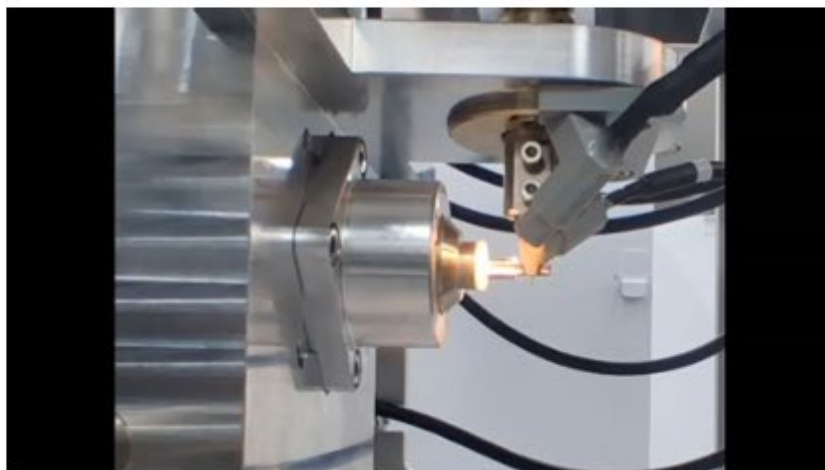
Print

The Print function allows you to save the designed archform as a PDF or print it at a 1:1 scale.

Place the bent wire over the printed archform to verify its 2D width and height against the designed archform.

Bend

▶ This is an AVI video file. Click the image to play the video.



 This is an AVI video file. Click the image to play the video.

**THANK
YOU**