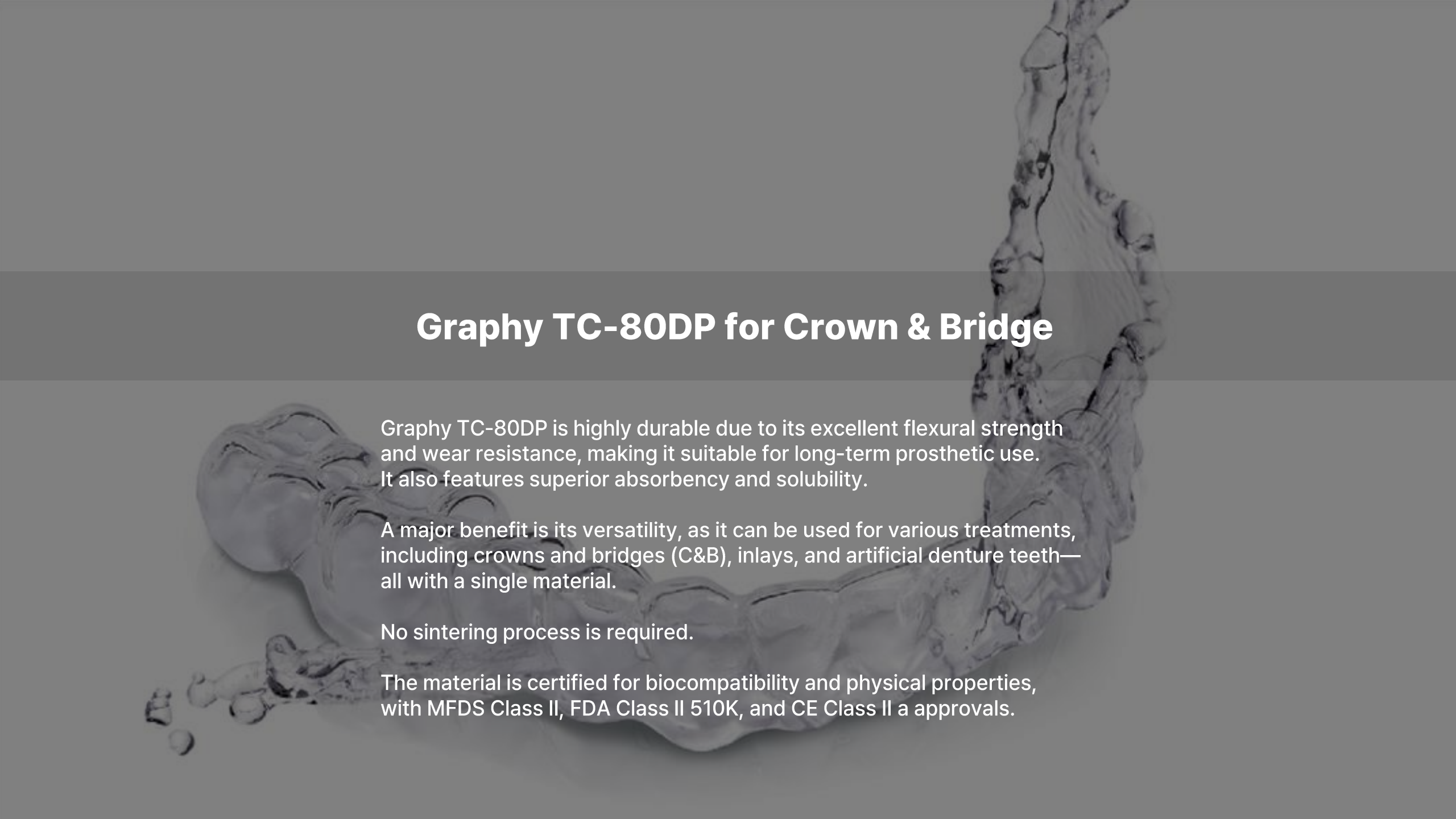


2024.11.13.
With TC-80DP & Tera Harz Cure
**Manual for
CROWN & BRIDGE**





Graphy TC-80DP for Crown & Bridge

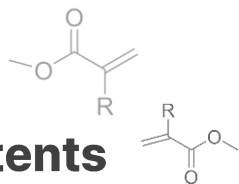
Graphy TC-80DP is highly durable due to its excellent flexural strength and wear resistance, making it suitable for long-term prosthetic use. It also features superior absorbency and solubility.

A major benefit is its versatility, as it can be used for various treatments, including crowns and bridges (C&B), inlays, and artificial denture teeth—all with a single material.

No sintering process is required.

The material is certified for biocompatibility and physical properties, with MFDS Class II, FDA Class II 510K, and CE Class II a approvals.

Contents



01 Printing

02 Cleaning

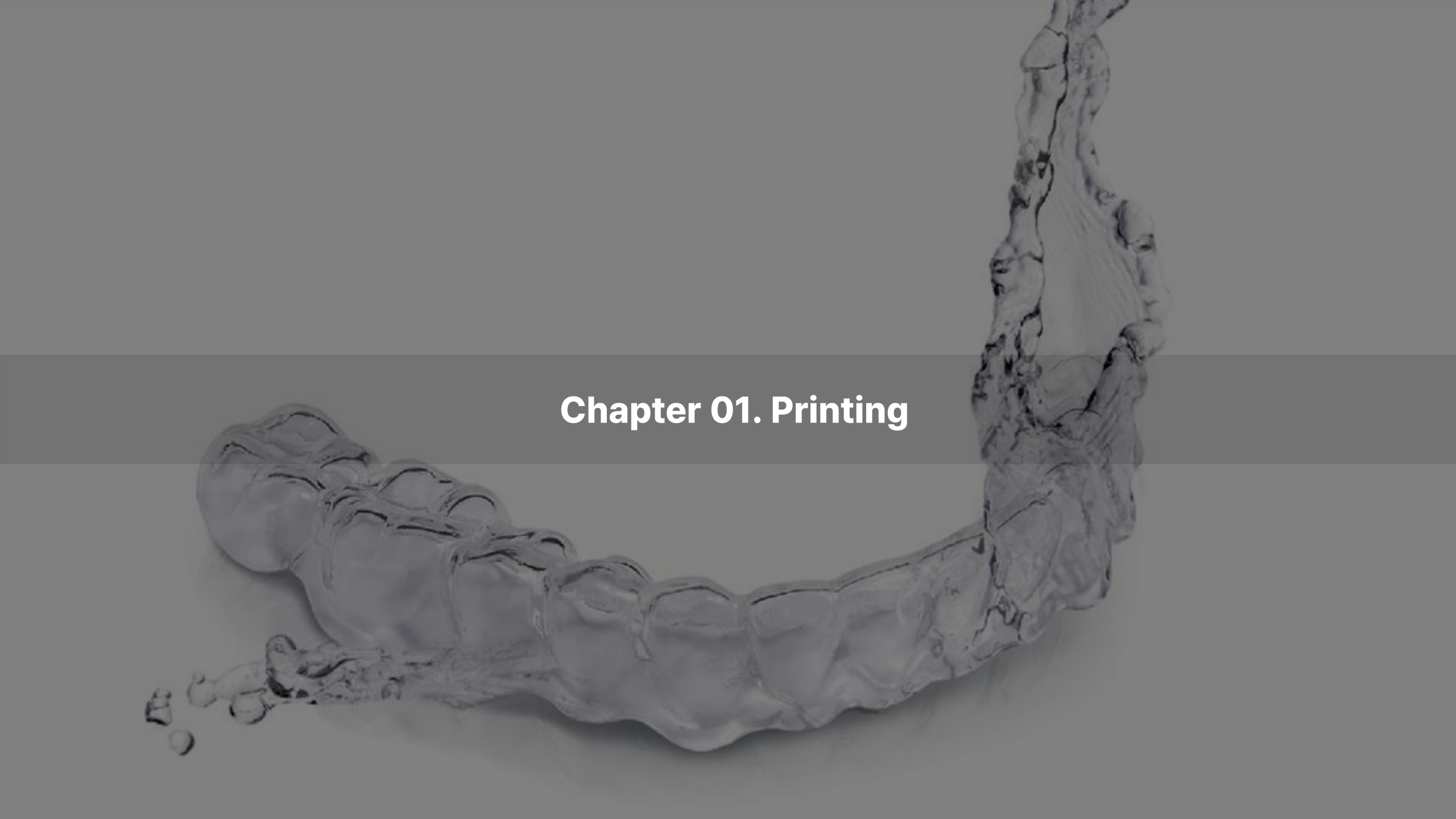
03 Post-Curing

04 Polishing

05 Glazing

06 Parameter Settings

07 Overview of BR-23



Chapter 01. Printing

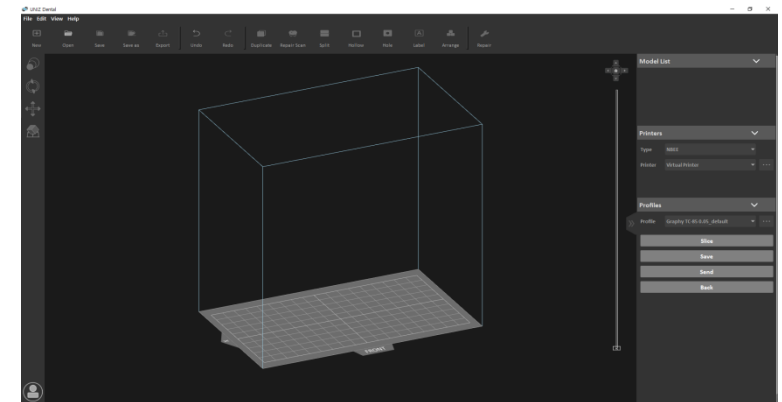
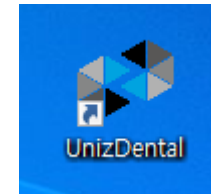
Printing

Application of the UNIZ Dental Program

When creating supports, use a variety of support designs to facilitate easy removal and enhance print stability. Utilize the UNIZ Dental Slice program to generate supports and then export the STL file for printing with the Nbee.

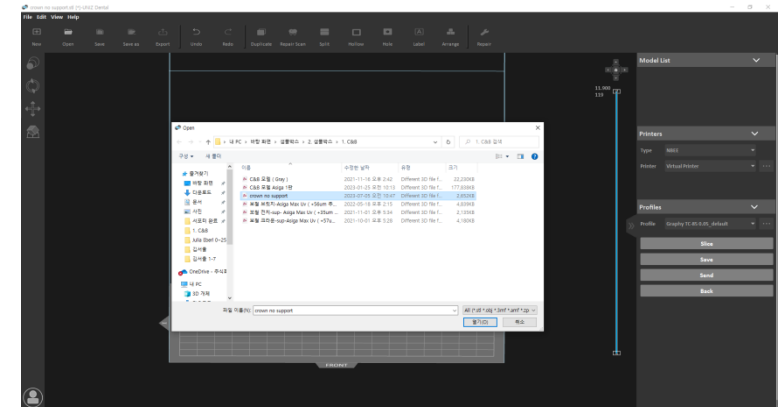
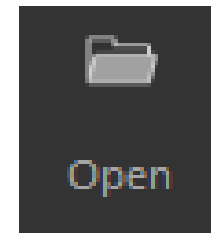
1) Program Launch

- Click the UnizDental Software icon on the desktop.



2) File Import

- Click the 'Open' icon to load the prosthetic STL file.

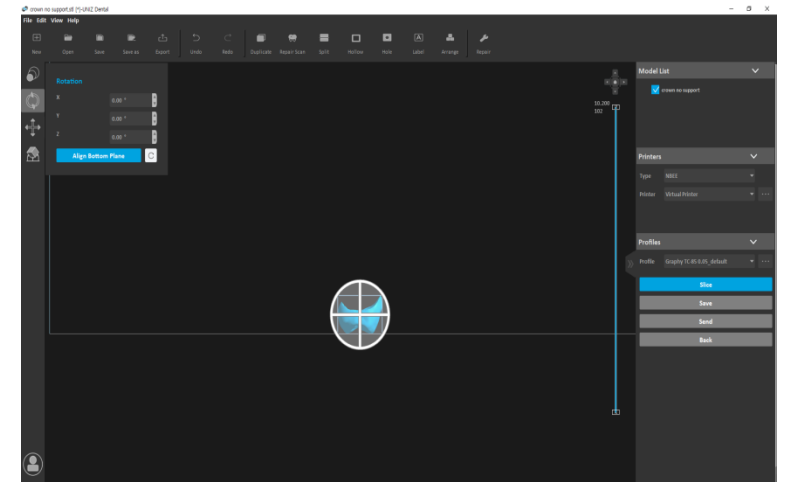
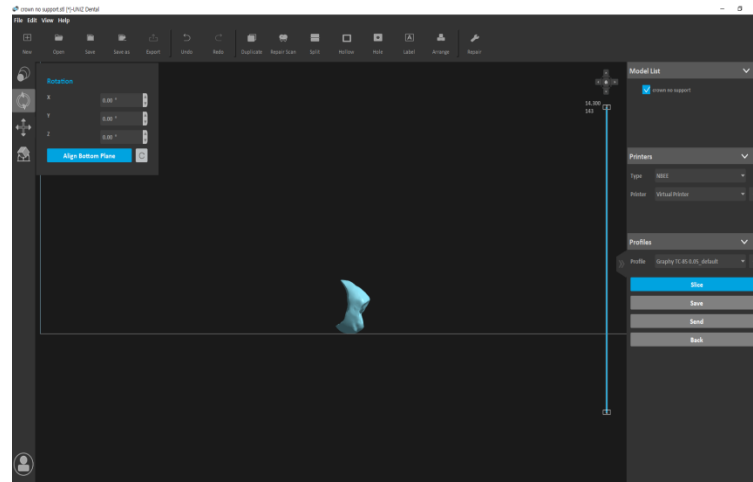
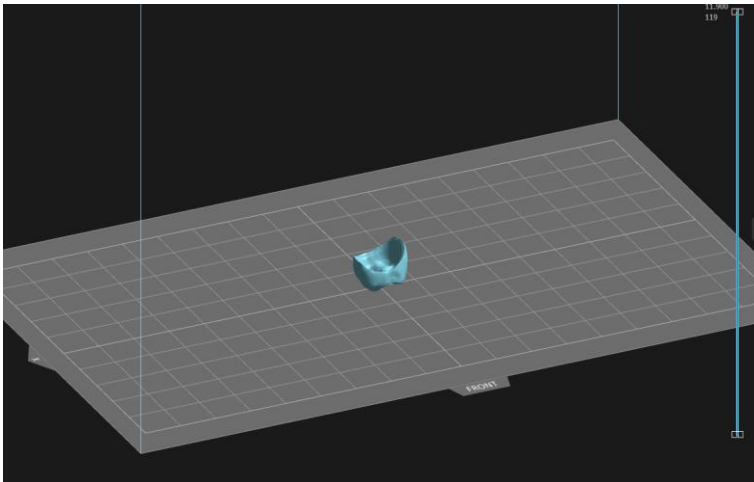


Printing

Application of the UNIZ Dental Program

3) Rotate the Prosthetic STL

- Click the icon  to rotate the loaded prosthetic STL file so that the occlusal surface is facing downward.
- The reason for rotating as shown below is to ensure proper alignment and accurate occlusion.

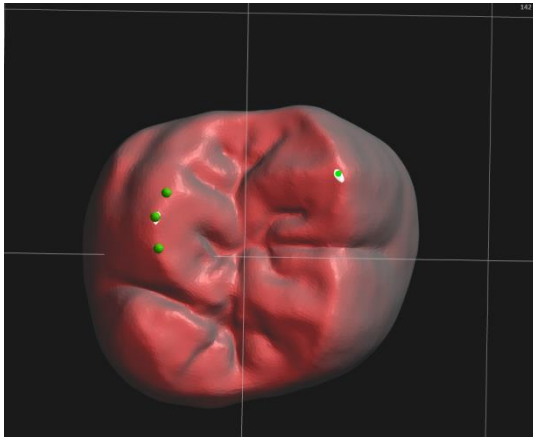


Printing

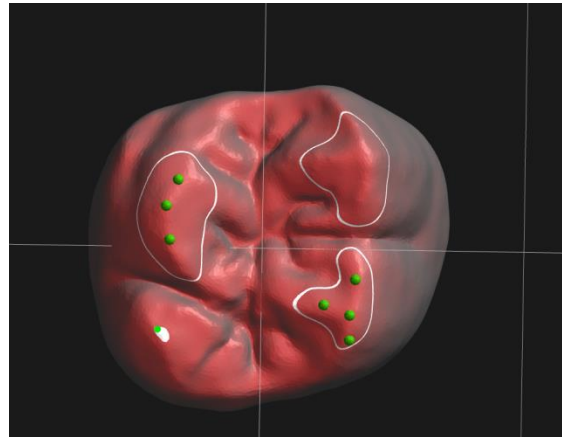
Support Creation – Islands

- In the generated layer, as shown in images 1) and 2), there may be isolated sections (marked with a red circle) that appear like islands.
- These are called "**islands**," and without supports, they can adhere to the vat, leading to print failure.
- To prevent this, create supports as shown in image 3).

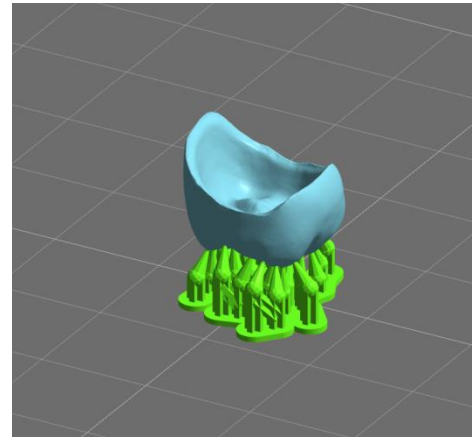
1)



2)



3)

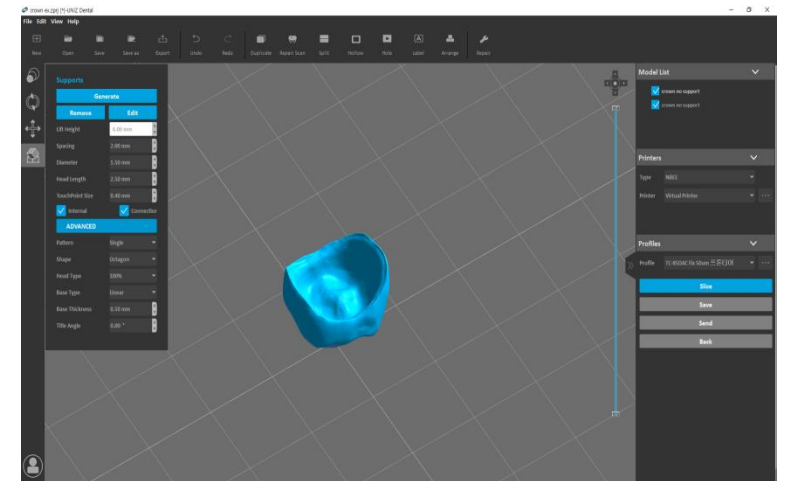
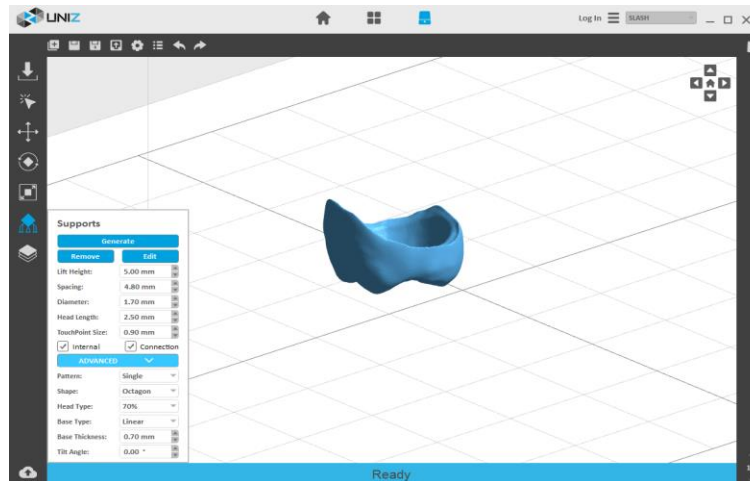
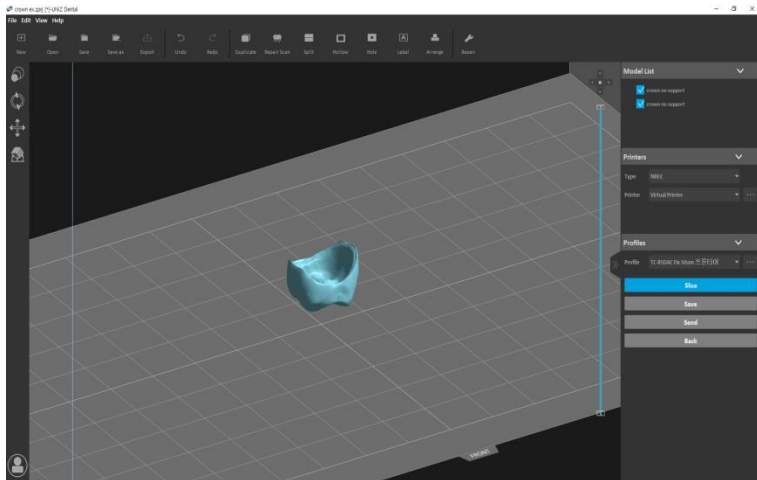


Printing

Application of the UNIZ Dental Program

4) Setting Support Values

- Click the icon  to generate the supports.



Printing

Application of the UNIZ Dental Program

4) Setting Support Values

- Update the default settings to the appropriate values shown alongside.

The screenshot shows the 'Supports' settings panel in the Graphy software. It features a 'Generate' button at the top, followed by 'Remove' and 'Edit' buttons. Below these are input fields for 'Lift Height' (4.00 mm), 'Spacing' (2.00 mm), 'Diameter' (1.50 mm), 'Head Length' (2.50 mm), and 'TouchPoint Size' (0.40 mm). There are also checkboxes for 'Internal' and 'Connector', both of which are checked. A blue 'ADVANCED' button with a dropdown arrow is located below the checkboxes. Under the 'ADVANCED' section, there are dropdown menus for 'Pattern' (Single), 'Shape' (Octagon), 'Head Type' (100%), and 'Base Type' (Linear). At the bottom, there are input fields for 'Base Thickness' (0.50 mm) and 'Title Angle' (0.00 °).

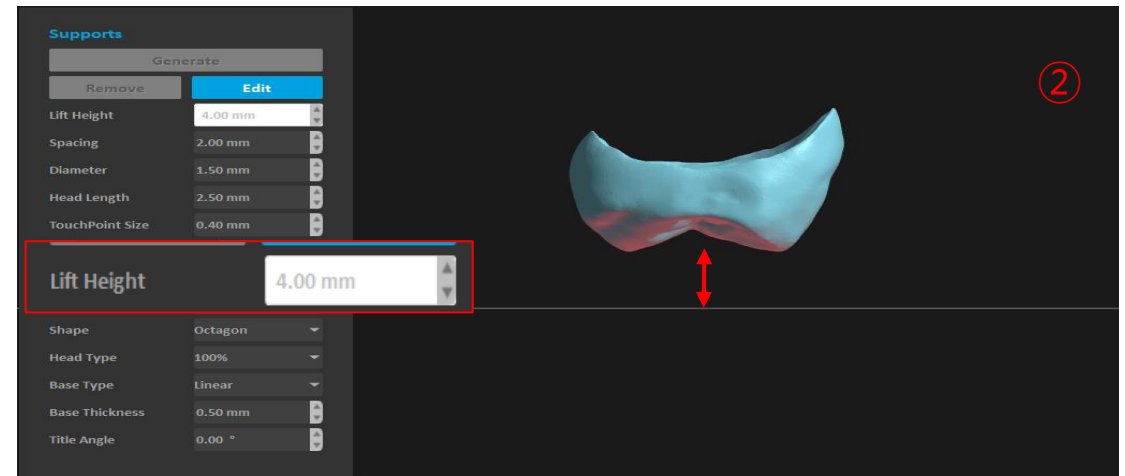
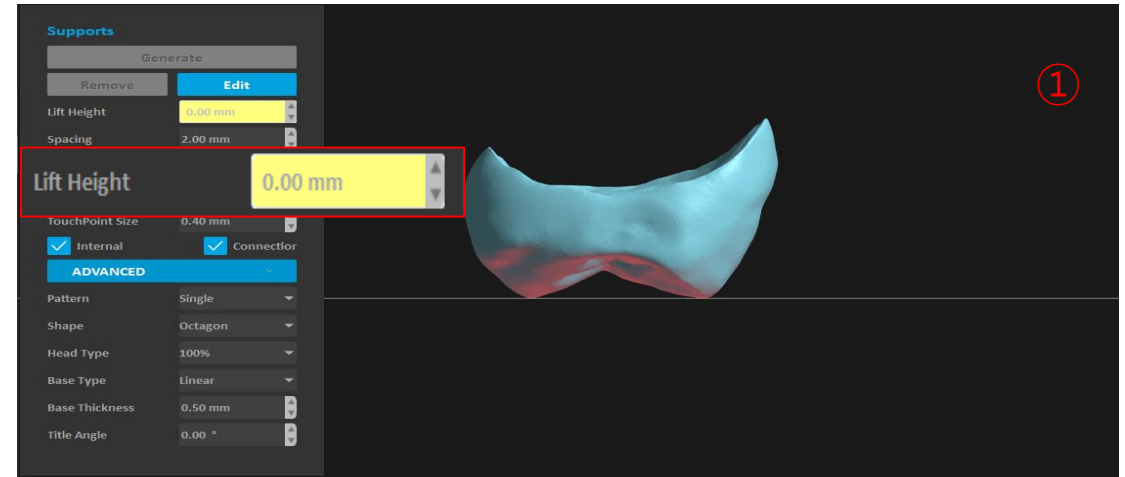
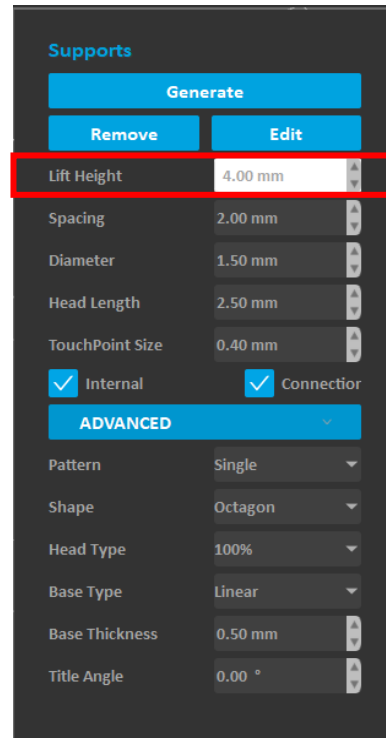
Supports	
Generate	
Remove	Edit
Lift Height	4.00 mm
Spacing	2.00 mm
Diameter	1.50 mm
Head Length	2.50 mm
TouchPoint Size	0.40 mm
☒ Internal	☒ Connector
ADVANCED ▾	
Pattern	Single ▾
Shape	Octagon ▾
Head Type	100% ▾
Base Type	Linear ▾
Base Thickness	0.50 mm
Title Angle	0.00 °

Printing

How to Set and Use Prosthetic Support Values

a. Lift Height:

- The distance between the print and the plate
- Recommended Setting: 4mm

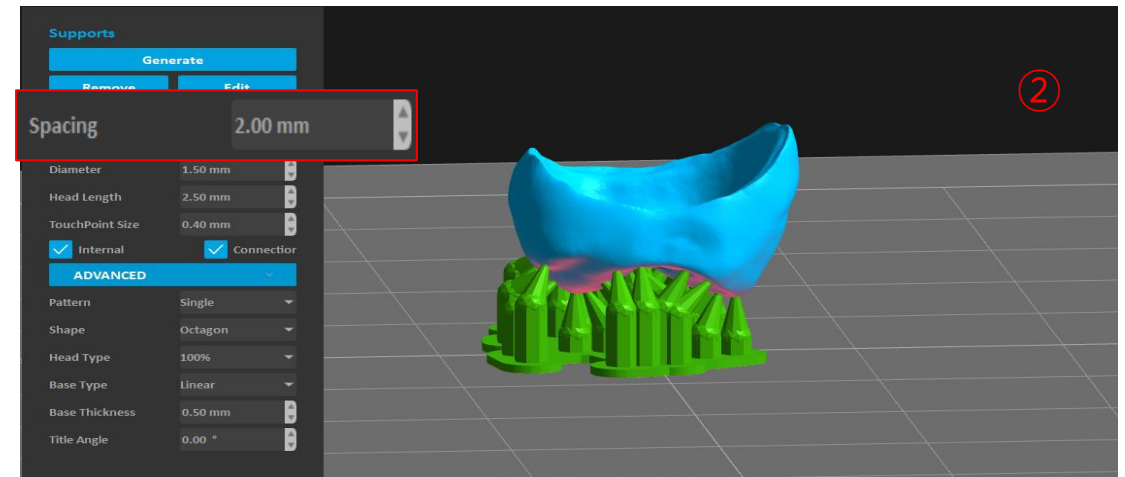
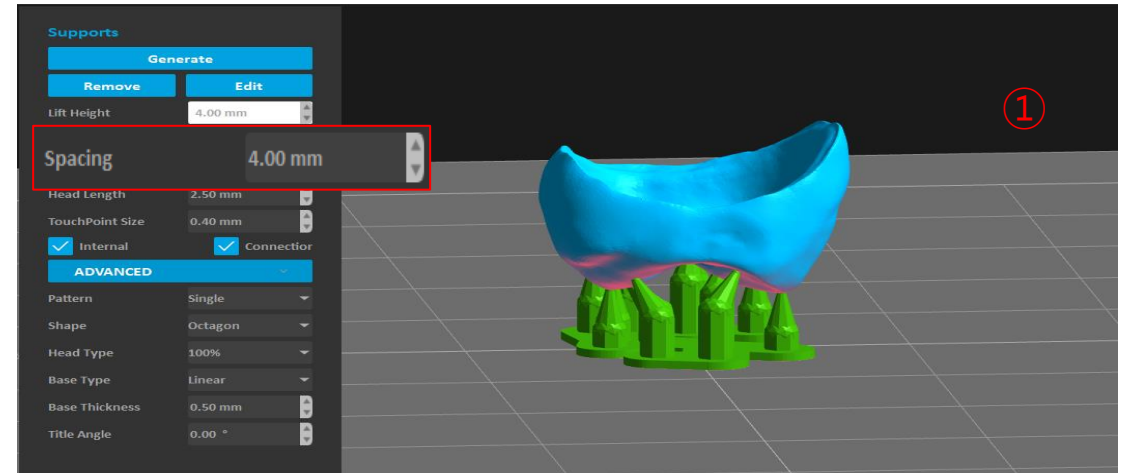
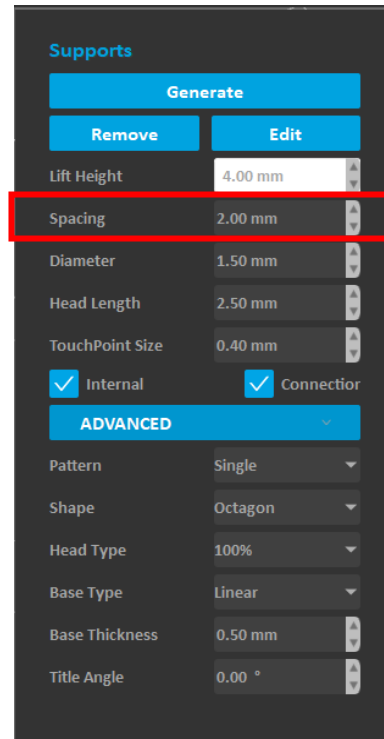


Printing

How to Set and Use Prosthetic Support Values

b. Spacing

- The distance between supports
- Recommended Setting: 2mm

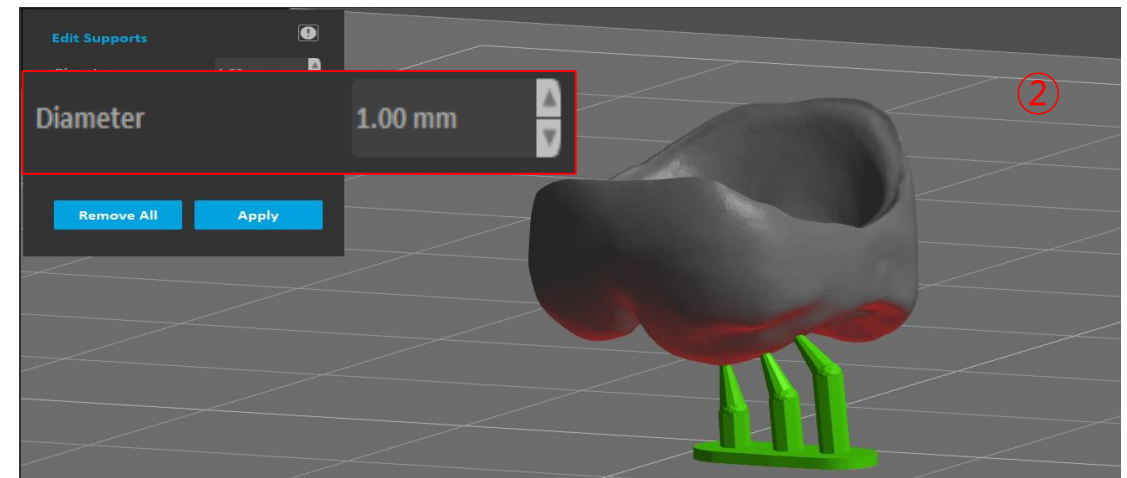
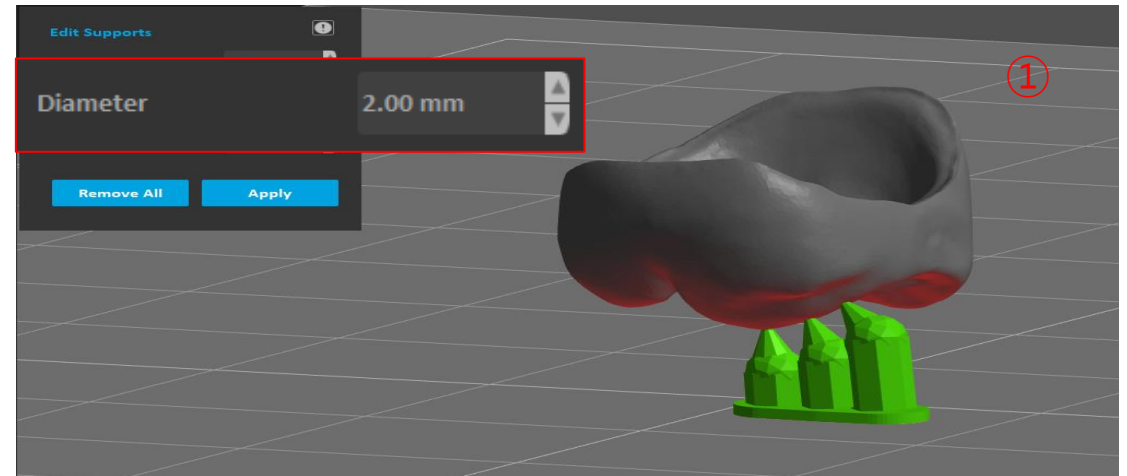
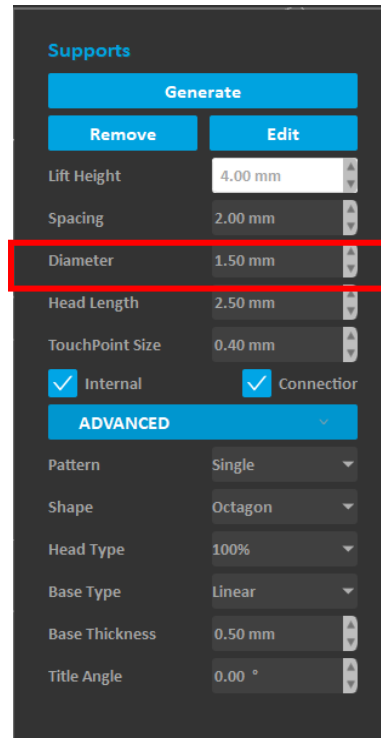


Printing

How to Set and Use Prosthetic Support Values

c. Diameter

- The thickness of each support
- Recommended Setting: 1.50mm

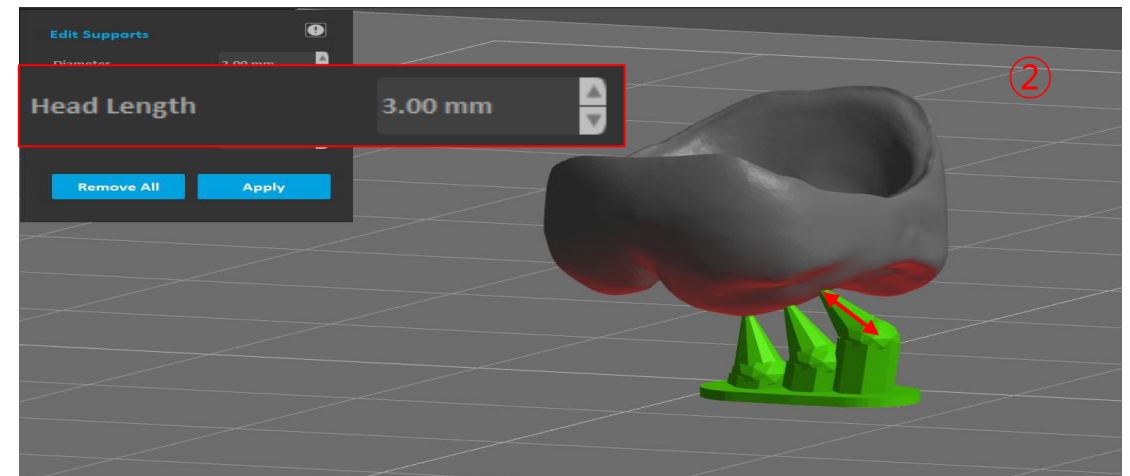
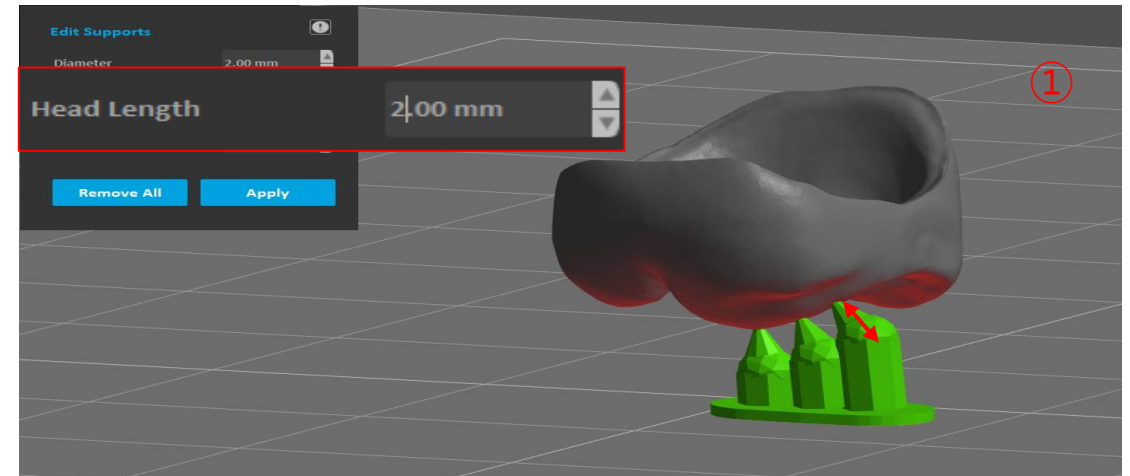
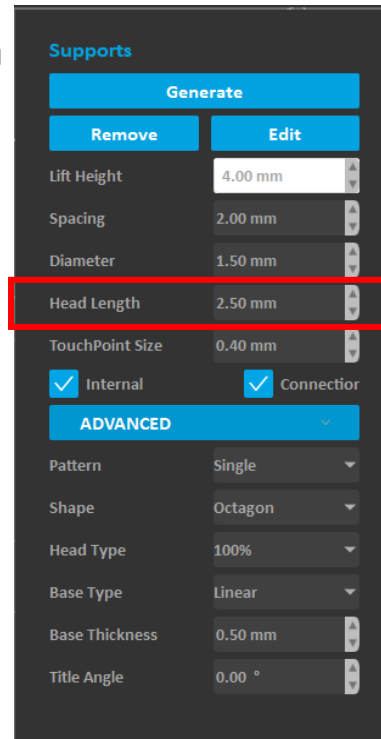


Printing

How to Set and Use Prosthetic Support Values

d. Head Length

- The length of the head section of each support
- Recommended Setting: 2.50mm

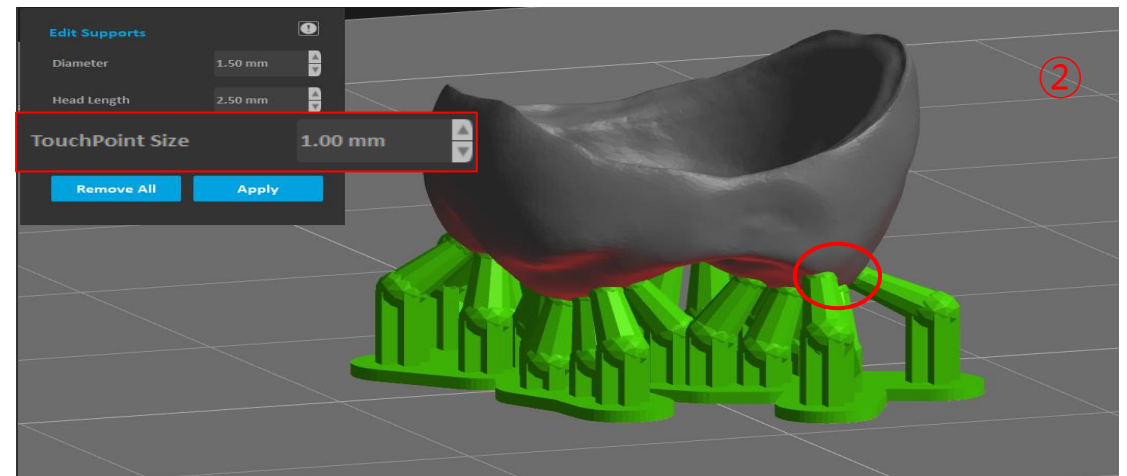
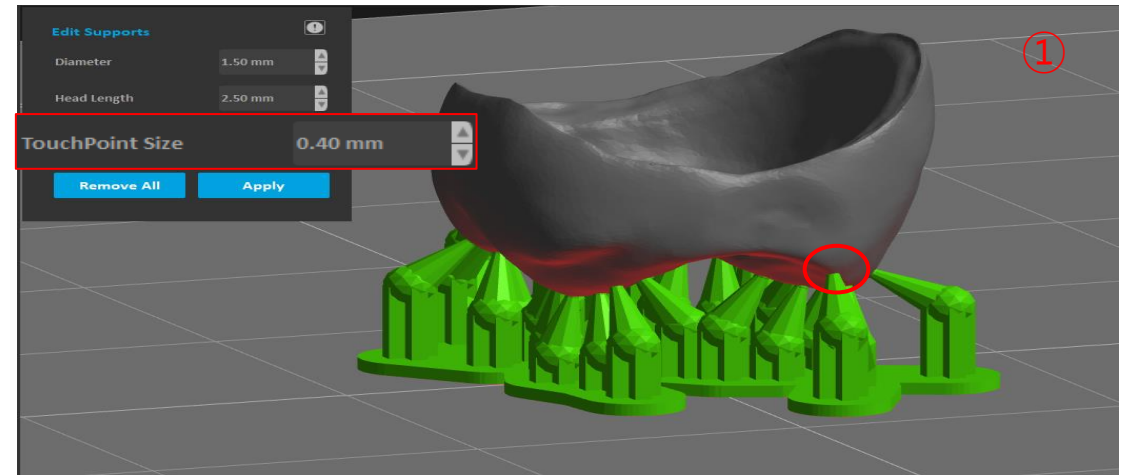
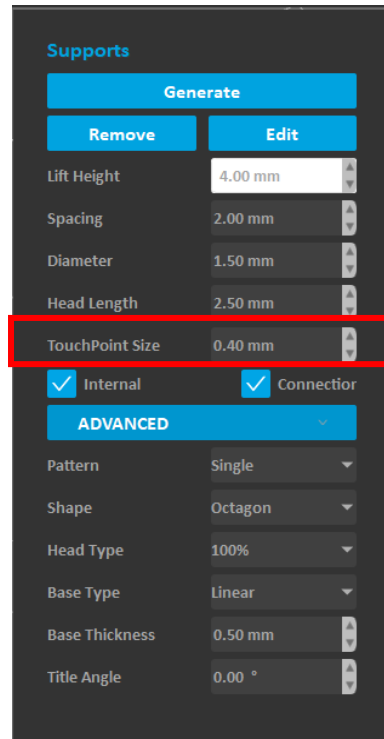


Printing

How to Set and Use Prosthetic Support Values

e. TouchPoint Size

- The size of the contact area where the print and support meet
- Recommended Setting: 0.4mm

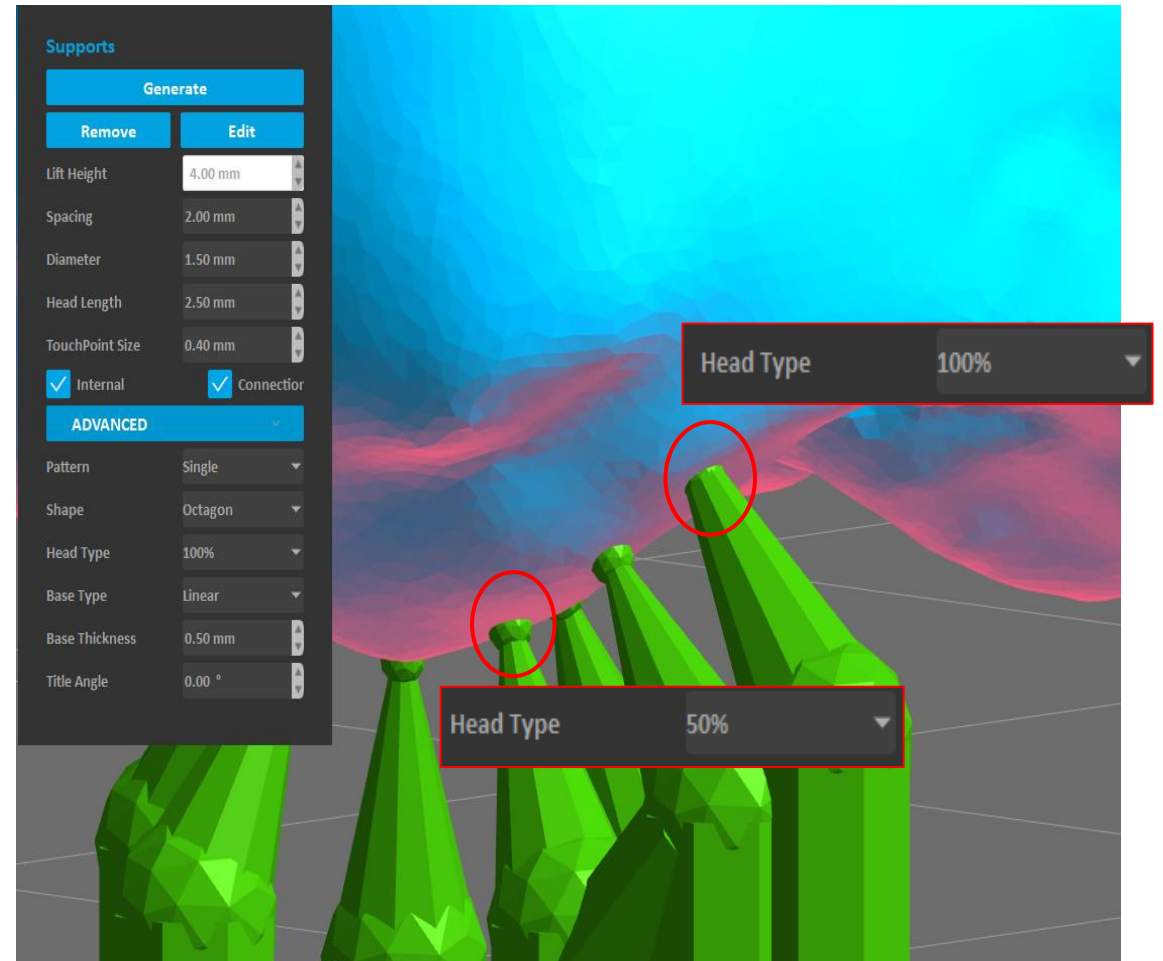
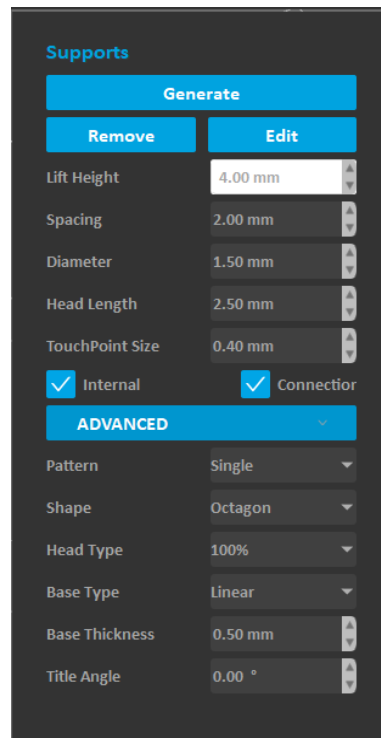


Printing

How to Set and Use Prosthetic Support Values

f. Head Type

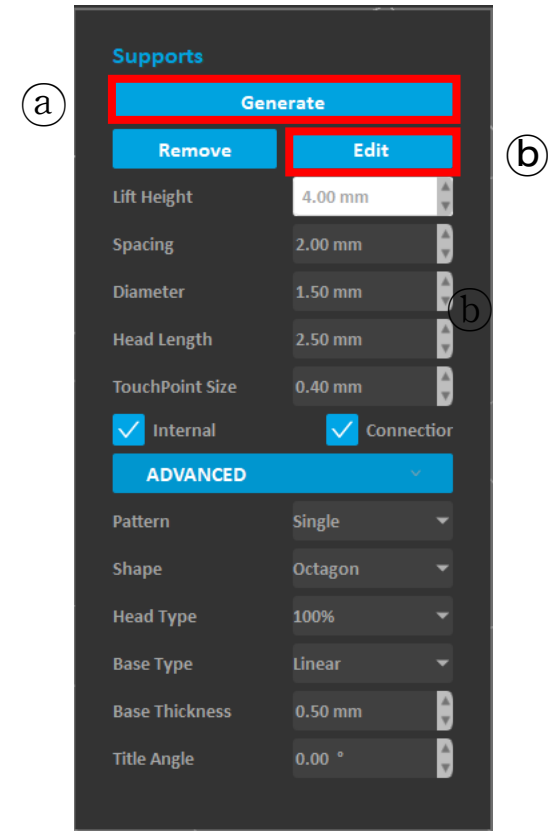
- The thickness of the individual point supports
- Recommended Setting: 100%



Printing

How to Set and Use Prosthetic Support Values

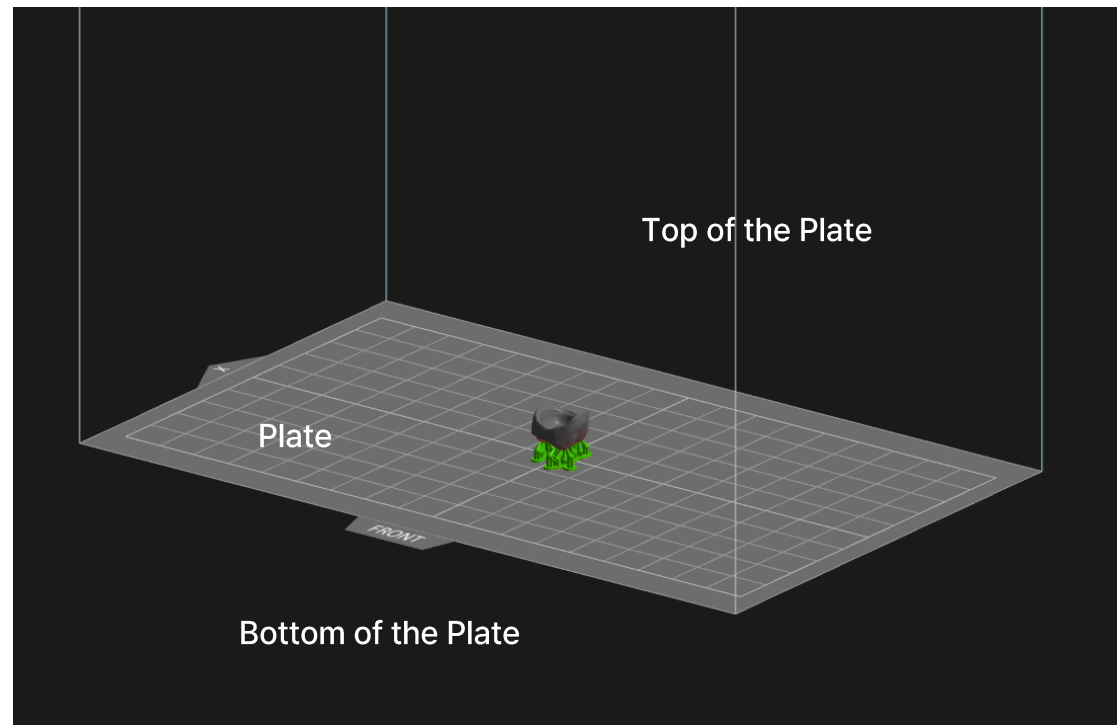
- As instructed alongside, first select option A and verify that the supports are automatically attached.
- Then, click Edit to make any additional adjustments or modifications.



Printing

How to Set and Use Prosthetic Support Values

- The print should be positioned on the top side of the plate.
- Begin the support work described on the next page from the underside of the plate.



Printing

How to Set and Use Prosthetic Support Values

- Use the mouse wheel and left-click to rotate Image 1 to match the orientation of Image 2.

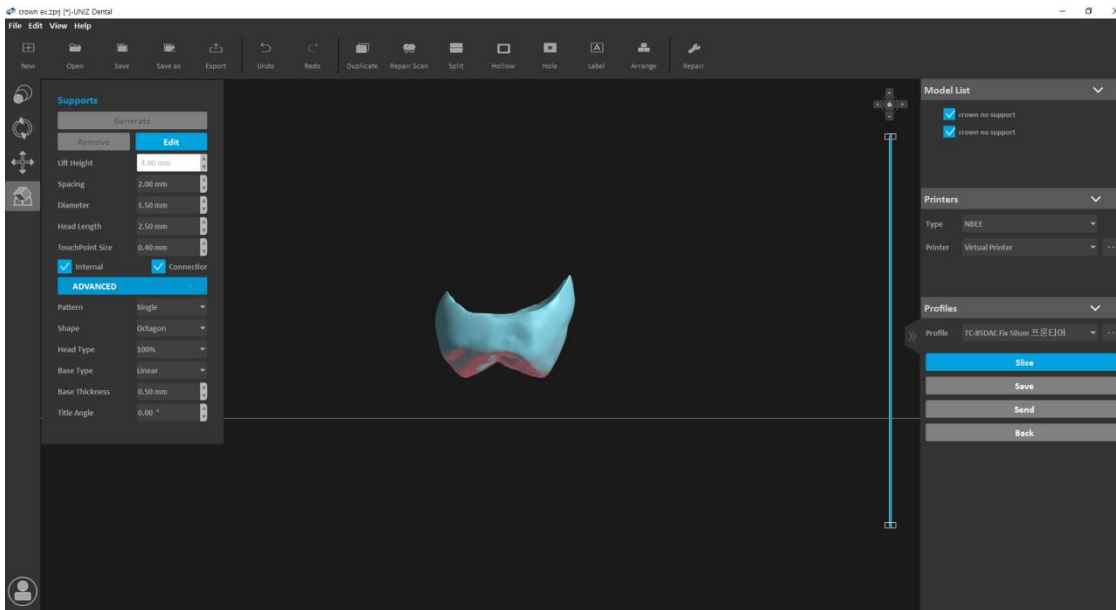


Image 1

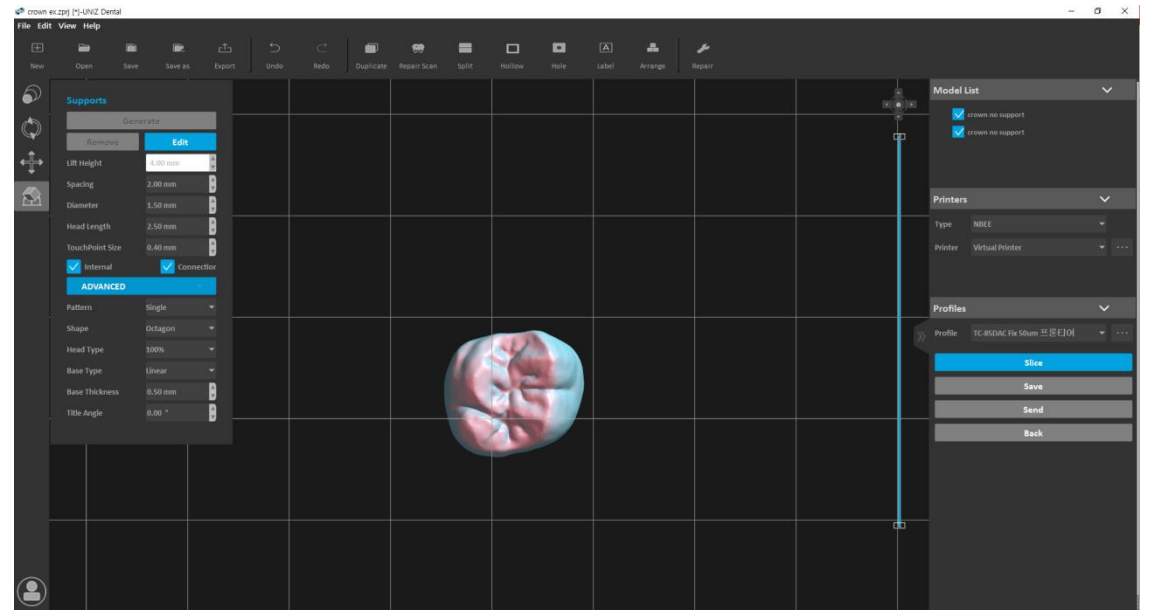


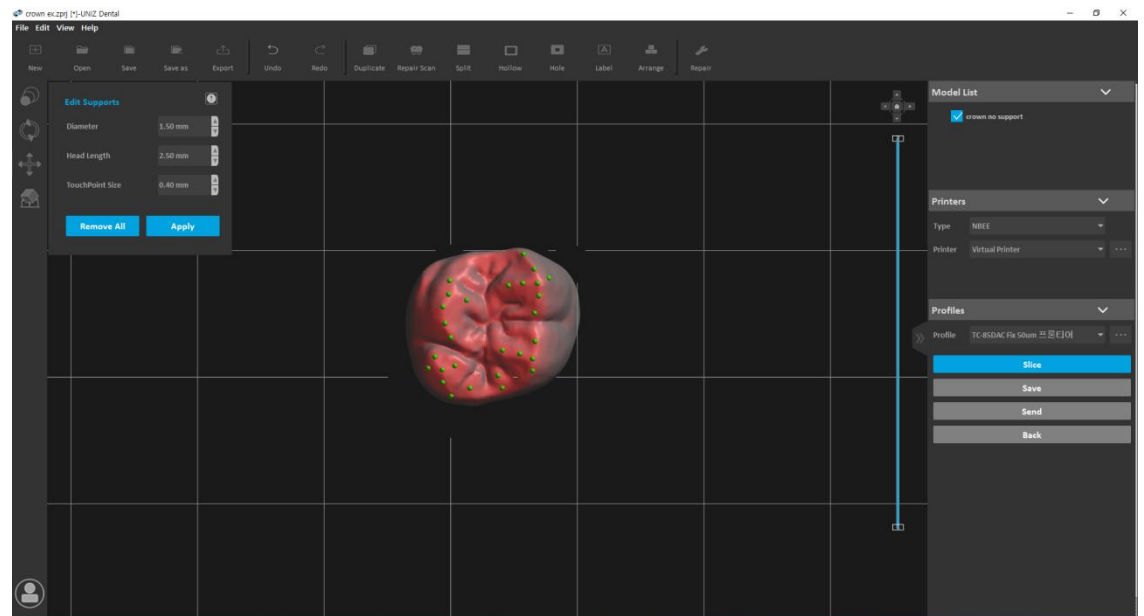
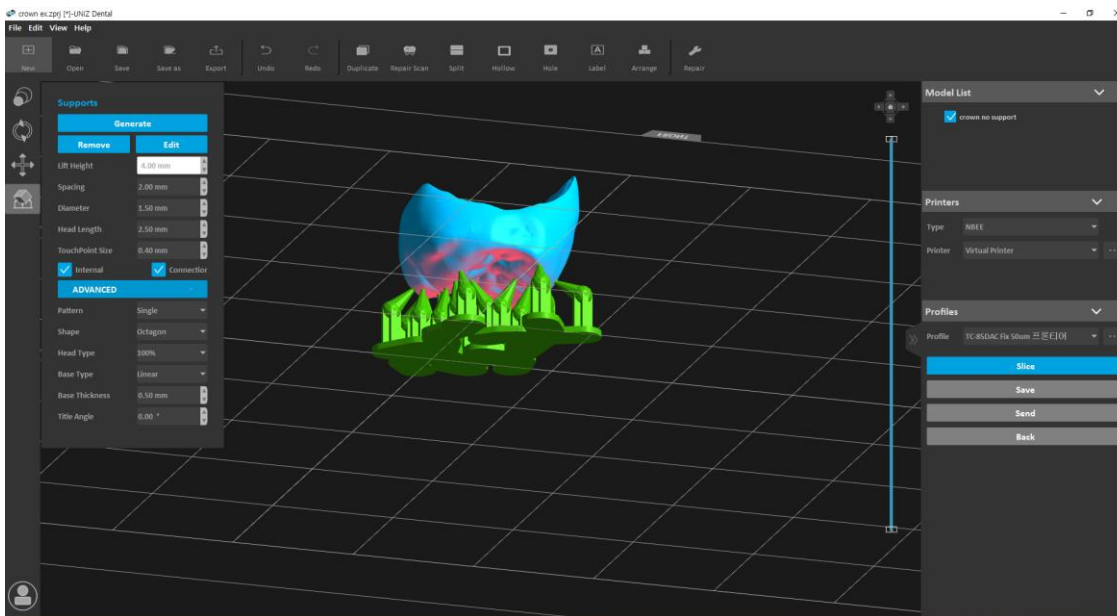
Image 2

Printing

Application of the UNIZ Dental Program

5) Creating Supports

- When automatically generating supporters, gaps may appear. You can use the edit function to fill in any missing areas. Position the supporters so there's enough space between them for 2 to touchpoints.

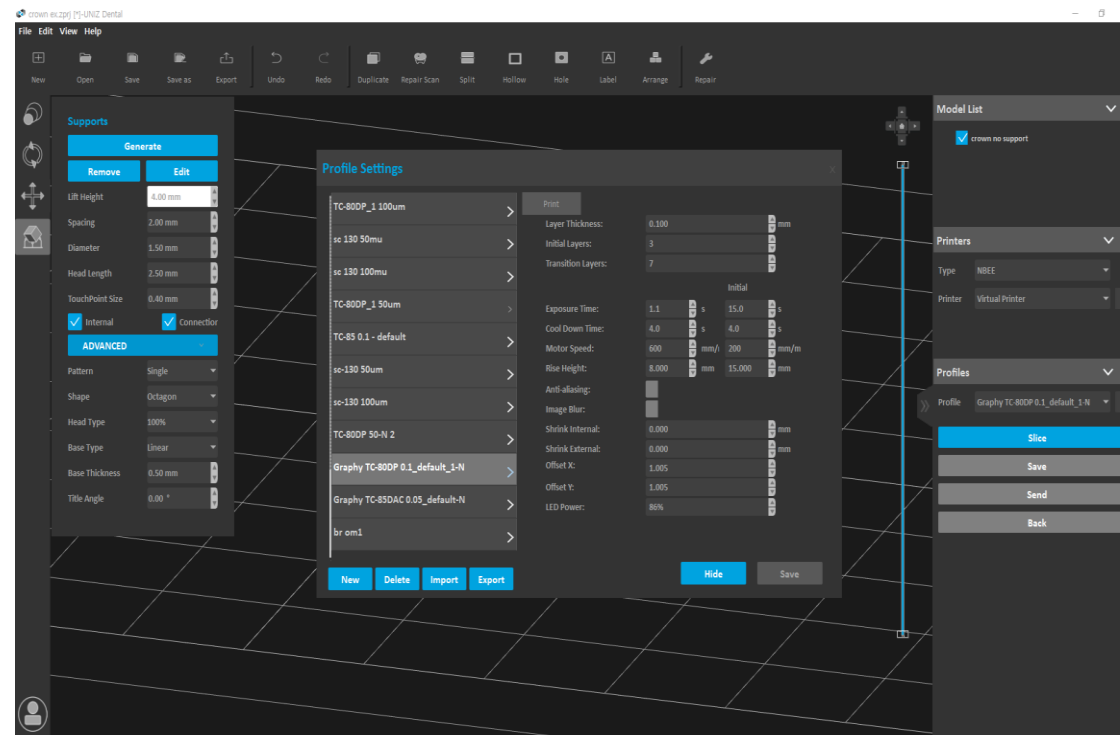


Printing

How to Use the Slice Program for Prosthetic Printing

1) Slicing

- After attaching supports to the prosthetic, set the parameters for TC-80DP A2 and click the slicing button.

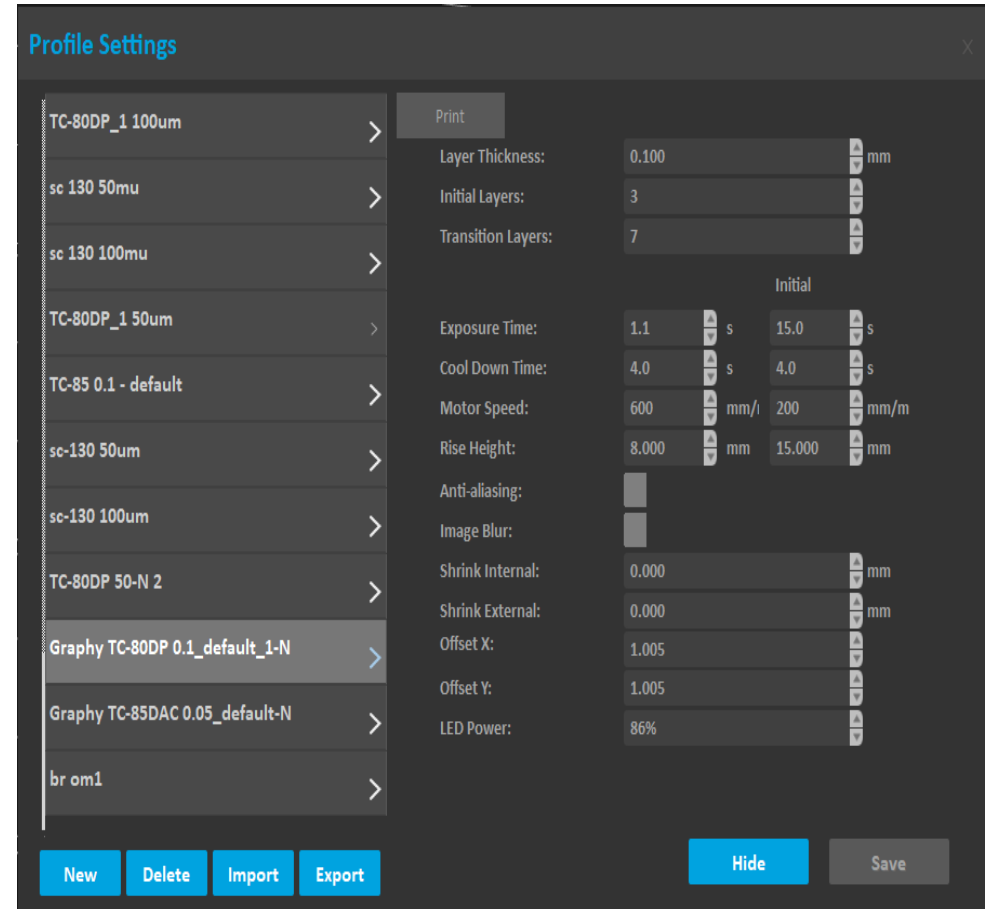


Printing

How to Use the Slice Program for Prosthetic Printing

2) Parameter Settings

- When printing a large number of prosthetics, set the Motor Speed Initial (base) to 200 and the standard speed to 600.

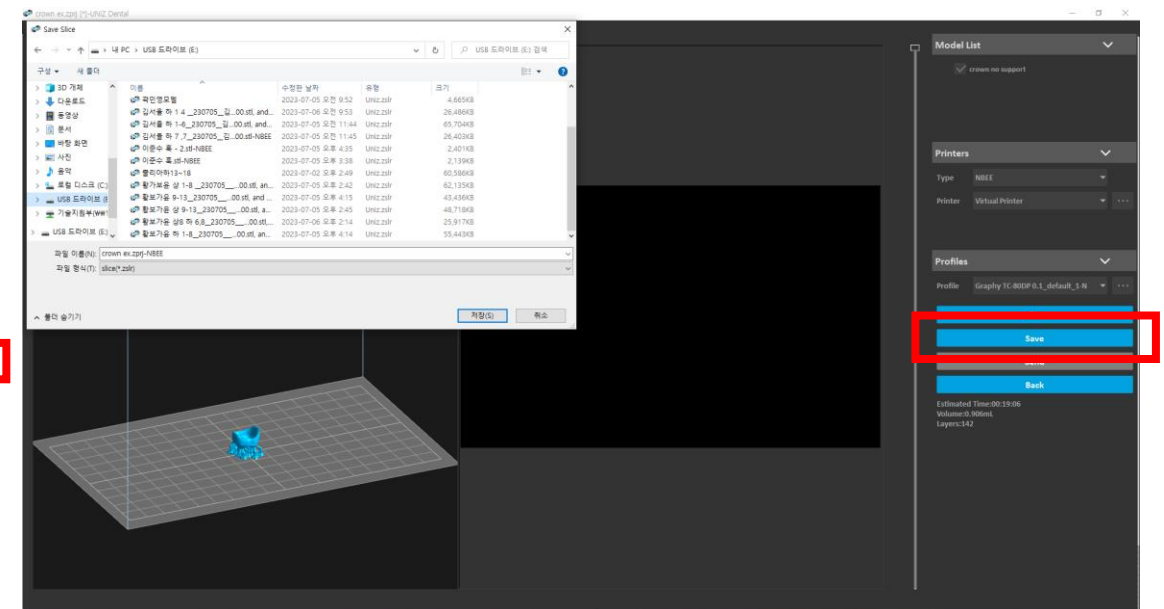
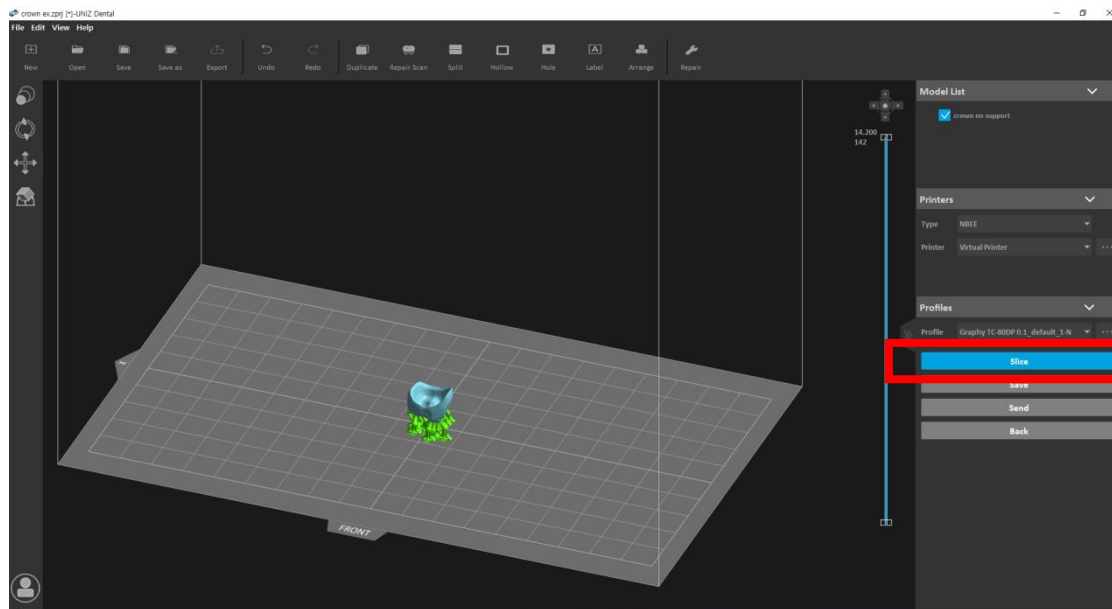


Printing

How to Use the Slice Program for Prosthetic Printing

3) Slicing

- Click the Slice button highlighted in the red box in the image below to start the slicing process.
- Click the Save button in the red box to save to the USB.

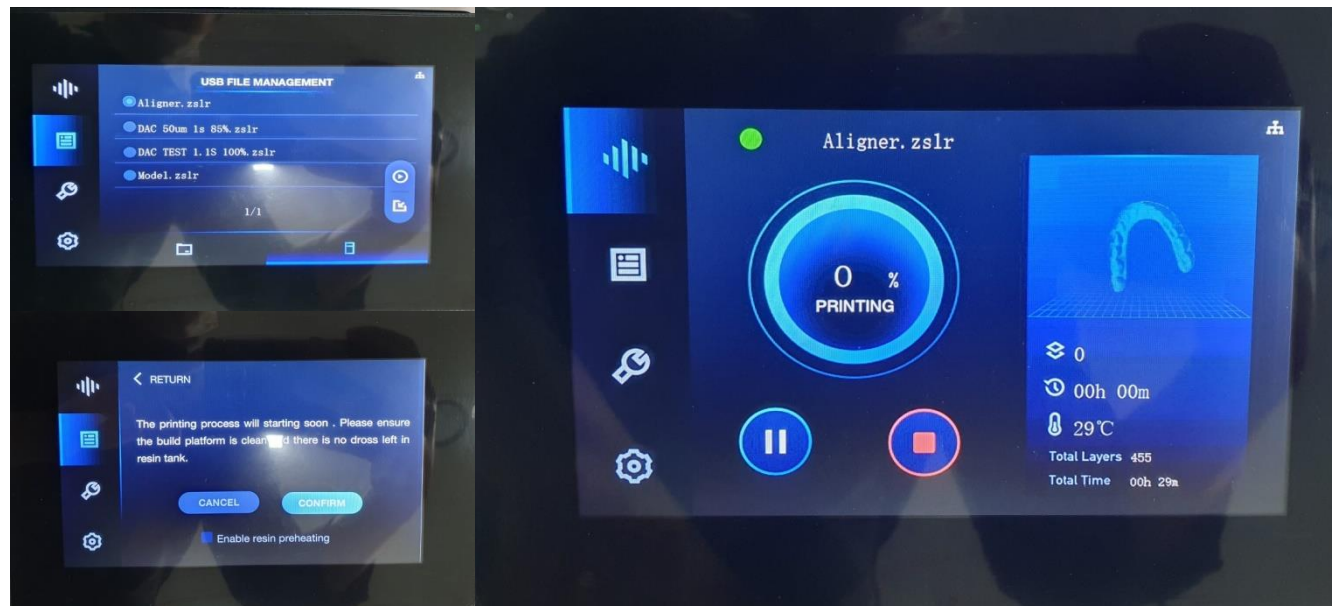


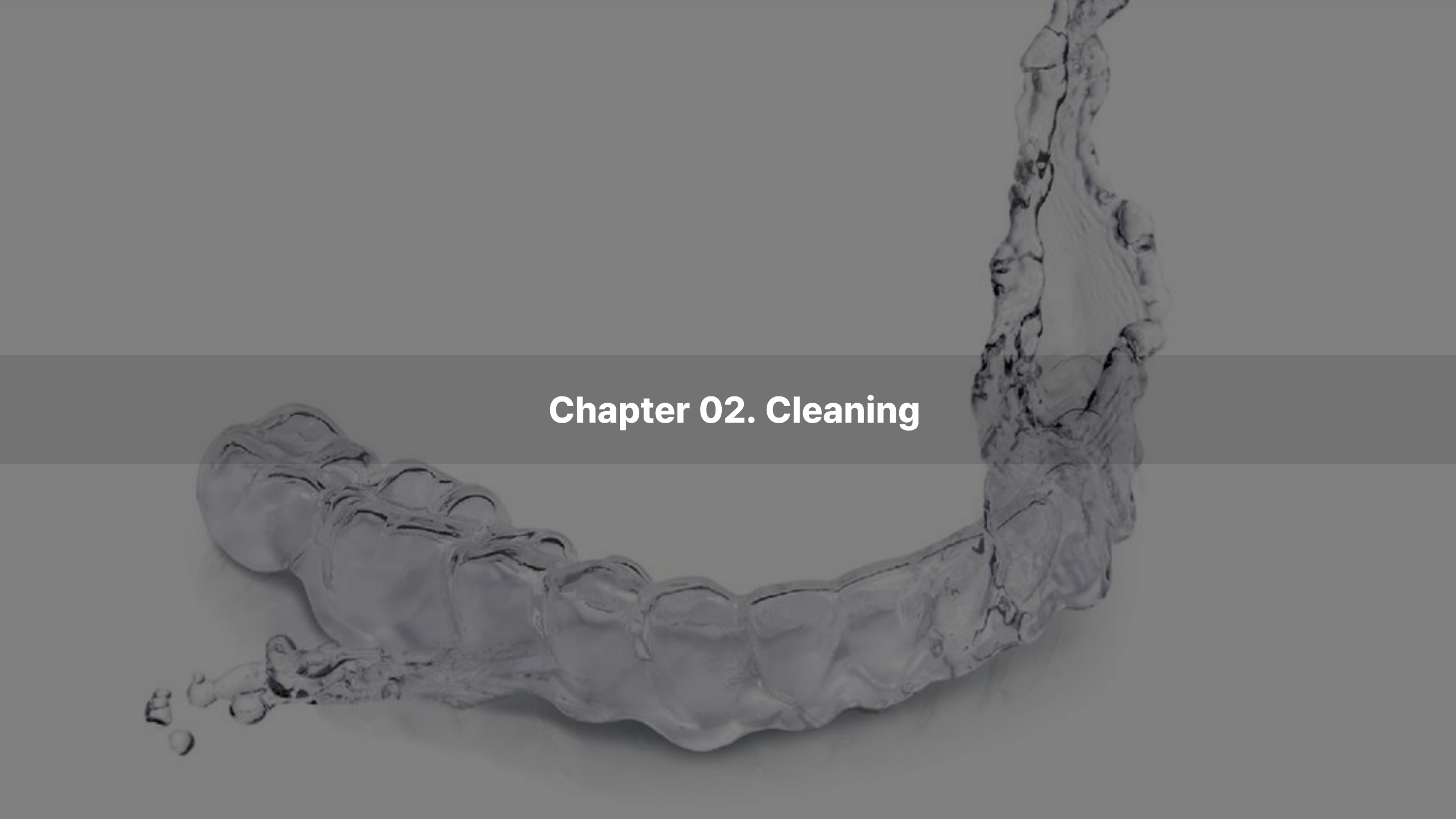
Printing

How to Use the Slice Program for Prosthetic Printing

4) Printing

- Select the file saved on the USB, as shown in the red box below, then press the start print button.
- Review the caution checklist and confirm to begin printing.



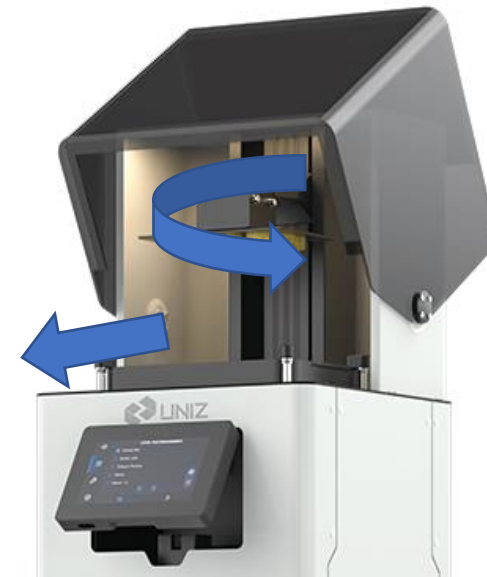


Chapter 02. Cleaning

Cleaning

Removing the Print from the Plate

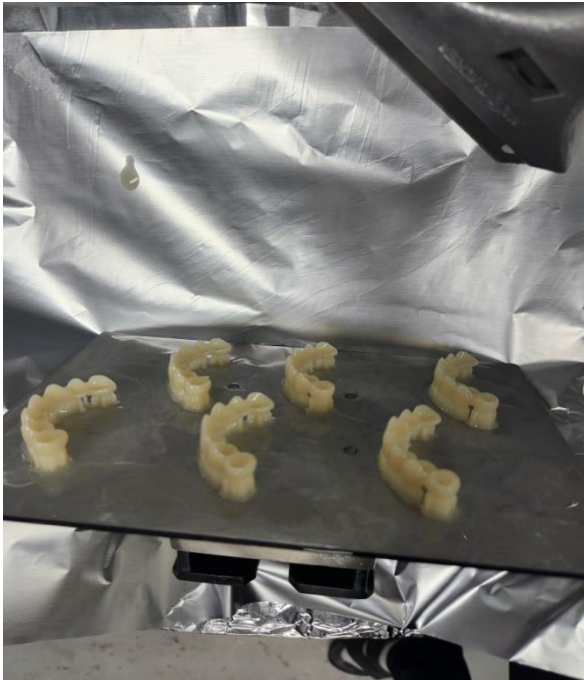
- 1) Once the print is finished, turn the screws counterclockwise to loosen them and remove the build plate from the 3D printer.



Cleaning

Removing the Print from the Plate

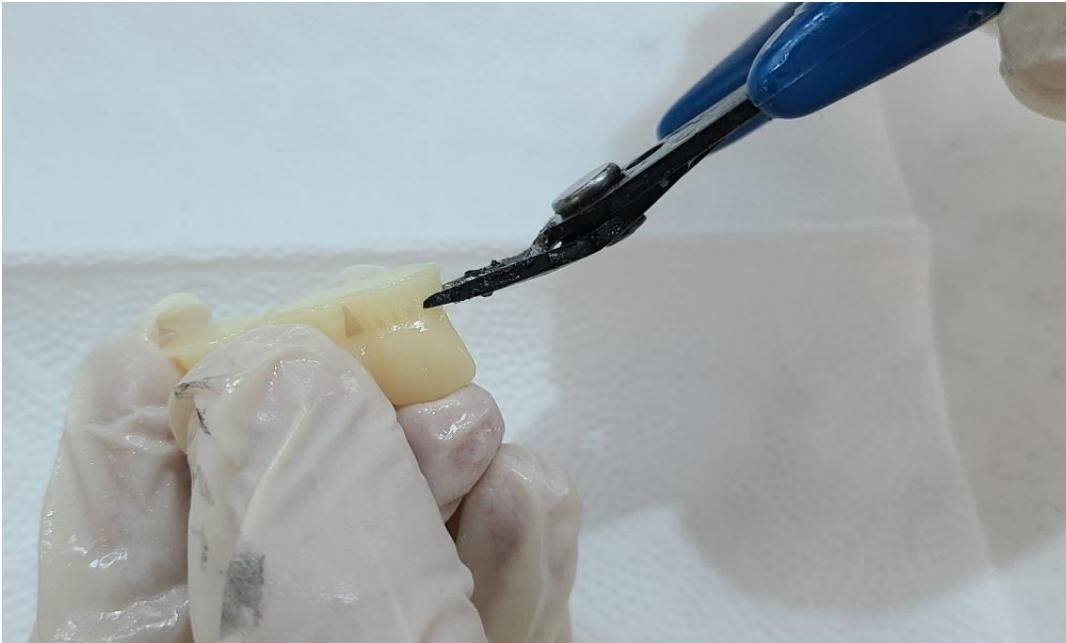
- 2) Use the provided spatula to gently remove the print from the plate.
- 3) Avoid using excessive force or rushing, as this can cause the print to deform or become damaged.



Cleaning

Cleaning Procedures

- 1) Rinse the printed prosthetic with IPA or alcohol.
 - Use an ultrasonic cleaner for IPA cleaning, limiting the process to under 1 minute.
- 2) Use an ultrasonic cleaner or similar device for cleaning, then remove the supports.



Cleaning

Cleaning Procedures

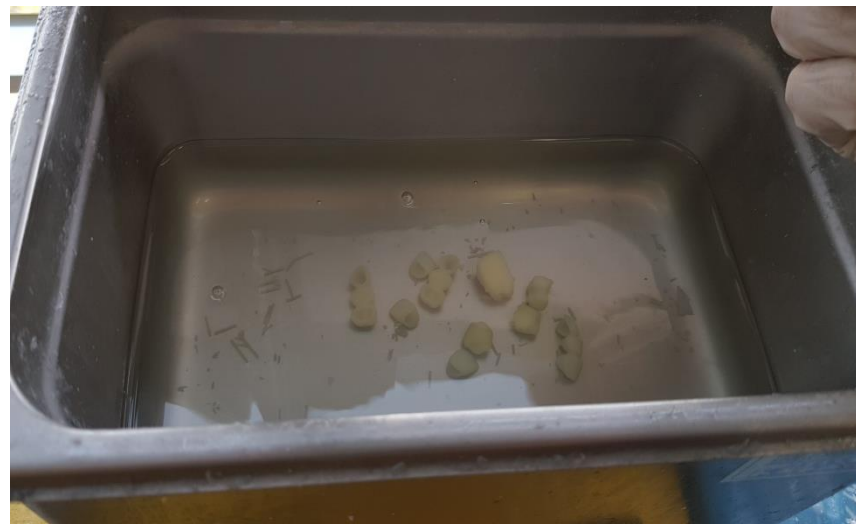
- 3) After removing the supports, rinse the piece with alcohol to remove any remaining debris.
- 4) Use an airbrush or similar tool to dry off any leftover alcohol.



Cleaning

Cleaning Procedures

- 5) Use nippers to remove the supports from the printed prosthetic.
- 6) To remove any residual resin, **submerge the piece in 99% IPA (alcohol) and run it in an ultrasonic cleaner for less than 1 minute.**
- 7) For even better results, gently scrub the surface with a cotton swab or brush during cleaning.

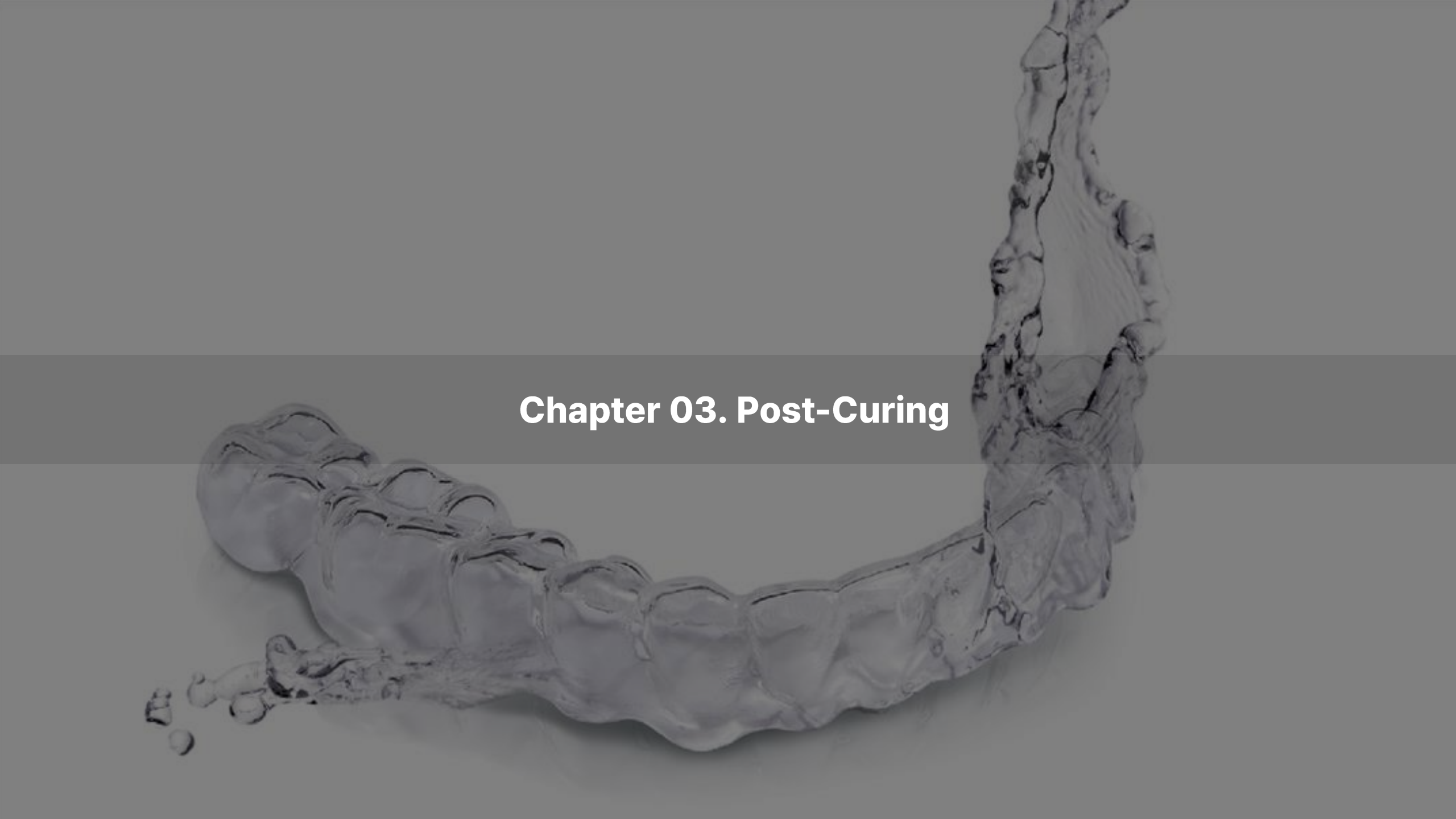


Cleaning

Cleaning Procedures

- 8) Use a cotton swab to clean out any leftover resin from the grooves or inner surfaces.
- 9) Then, use a low-pressure air gun to blow away any remaining resin and alcohol.
 - If any resin or alcohol is not completely removed before curing, white spots may appear.





Chapter 03. Post-Curing

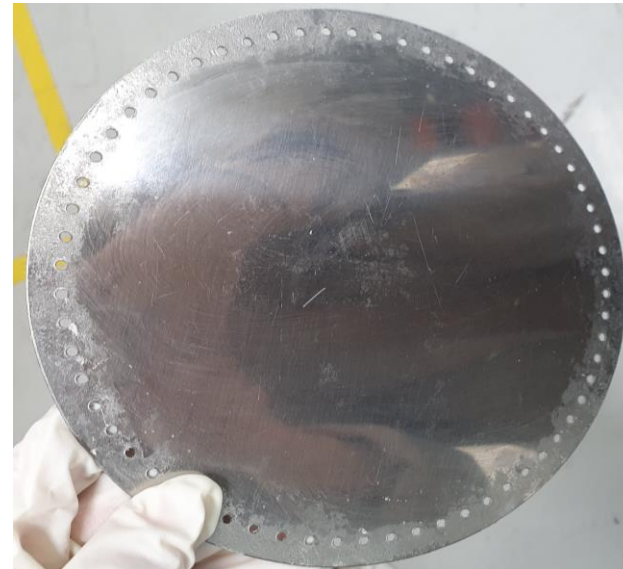
Tip: 3-Second Flash Curing

Keeping the Plate Clean on THC2N

- Always keep the plate of the Tera Harz Cure nitrogen post-curing machine clean using IPA and Hera to prevent surface scratches. This helps improve the efficiency of the curing process.



X



O

Post-Curing

Post-Curing Process

- 1) We highly recommend using the Tera Harz Cure from Graphy for post-curing.
- To accurately reproduce the properties of the Tera Harz TC-80DP from Graphy, a high-intensity curing light is essential.
 - Tera Harz Cure is currently the market's top option for curing lights, providing the highest intensity available.



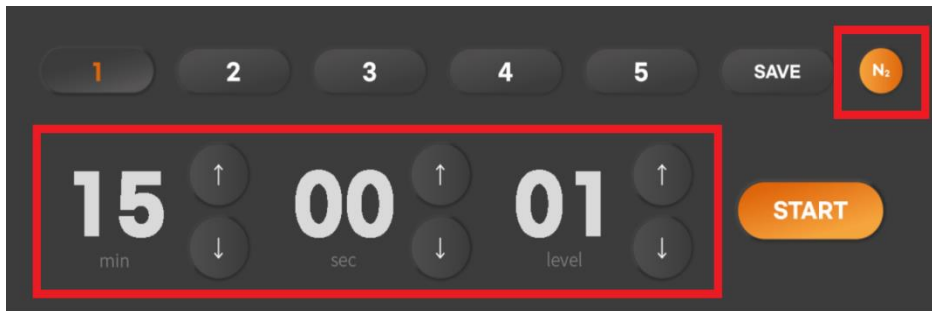
Unit Specifacation

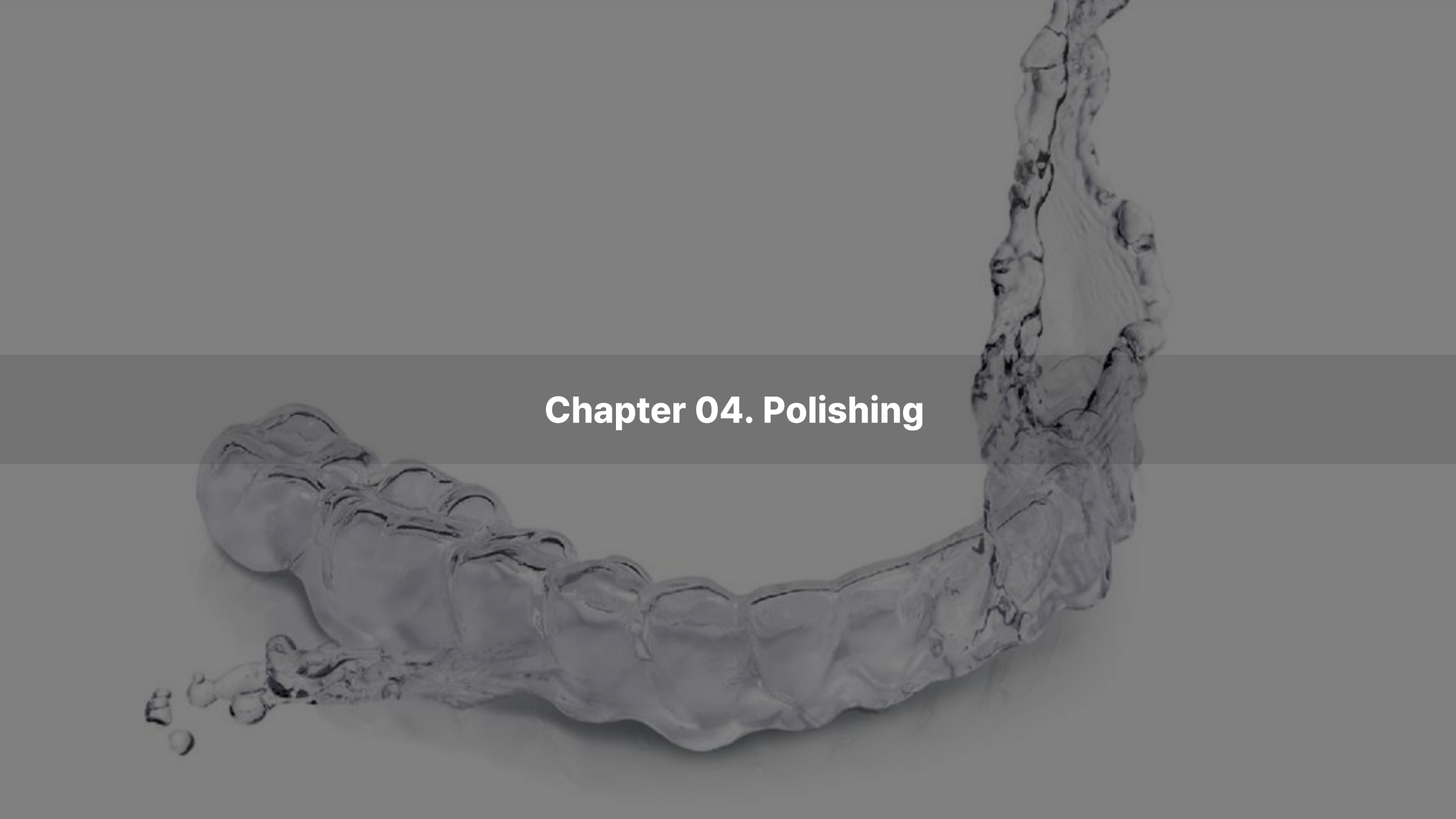
Properties	Description
Light Source	UV LED
Curing Time	1-60 min / 5-55sec
Input Voltage	100-240VAC, 50/60Hz
Output Voltage	24V, 12.5A
Display	7.9" TFT Touch LCD
LED Wavelength	405nm
LED Power Output	200W
UV Energy Density	280,000mJ/cm ²
Irradiance of UV	1,000mW/cm ²
Operating Temp	5-35°C
Curing Chamber	Φ180 x 65mm
Outer Dimension	275x310x310mm
Weight(Net)	8.5kg

Post-Curing

Post-Curing Process

- 2) After removing the supports, position the prosthetic print inside the curing machine on the reflective plate as shown below.
- 3) Activate nitrogen curing at Level 1 for 15 minutes.
 - Cure in the THC curing machine at Level 1 with nitrogen for 15 minutes.





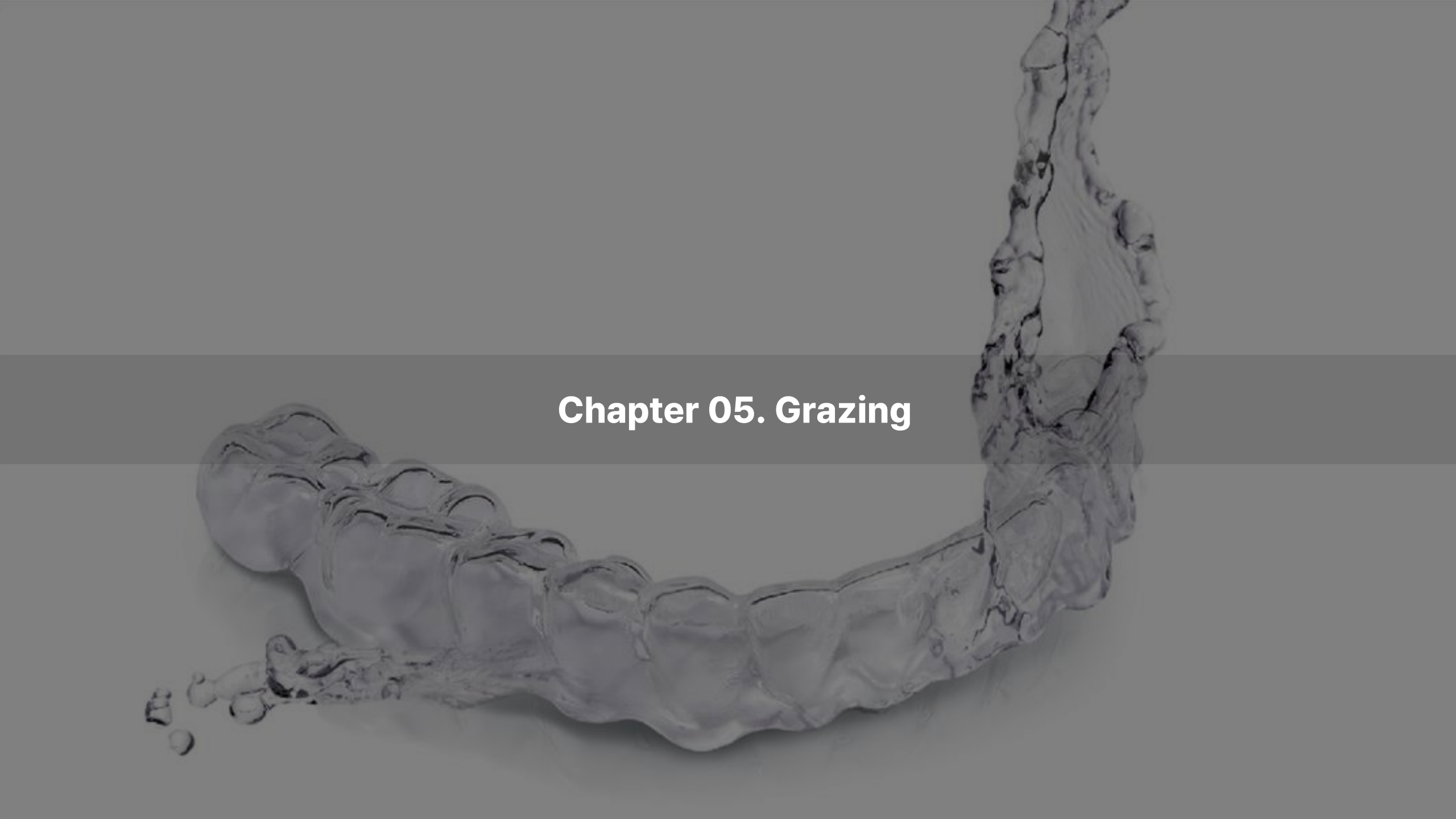
Chapter 04. Polishing

Polishing

Polishing Process

- 1) After the cured prosthetic has cooled, check its fit on the model.
- 2) Use a diamond bur to remove any support marks and refine the shape of the printed prosthetic.
- 3) Finally, polish the entire piece with a denture pad for a smooth finish.



A grayscale artistic photograph of a water splash, with a horizontal gray band across the center containing the chapter title. The water splash is dynamic, with a main horizontal plume and a vertical column rising from the right side. The texture of the water is captured with fine detail, showing ripples and droplets. The background is a uniform light gray.

Chapter 05. Grazing

Grazing

Grazing Process

- 1) Clean the prosthetic with an ultrasonic cleaner for 15 to 20 seconds, then rinse thoroughly with water to remove any residue.
- 2) After drying, apply the glazing solution.
- 3) Cure in THC at Level 1 for 15 seconds with nitrogen.



◀ Glazing Solution for Crown & Bridge, Inlay
- GC OPTIGLAZE

Grazing

Summary of Workflow

- 1) After curing the printed prosthetic, remove any support marks and make slight shape adjustments.
- 2) Refine the occlusal relationship and surfaces using a diamond bur, then smooth the surface with a denture pad before cleaning.
- 3) Clean the prosthetic in an ultrasonic cleaner for 15 to 20 seconds.
- 4) Once cleaned, thoroughly dry the piece, then apply a resin-specific glaze (GC Glazing) and cure it in the THC at Level 1 for 15 seconds with nitrogen.

Grazing

Glazing Products by Purpose

Crown&Bridge, Inlay : Glaze

- Uses: Crown & Bridge, Inlay, BR23 Prosthetics
- Manufacturer: GC OPTIGLAZE
- Instructions: Cure in the THC at Level 1 for 15 seconds with nitrogen.



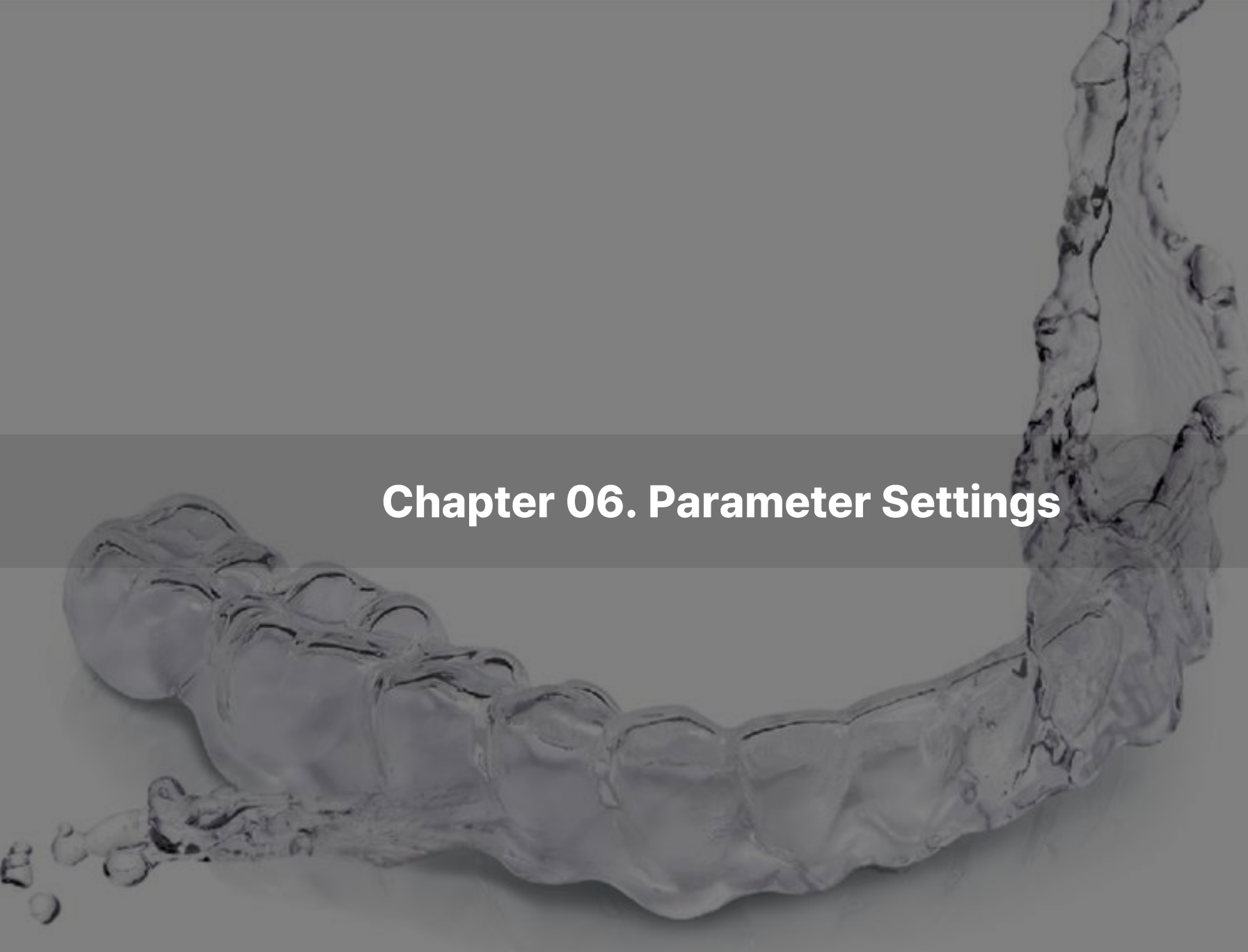
Grazing

Glazing Products by Purpose

Full Denture, Flexible Denture, Laminate : Glaze

- Uses: Full Denture, Flexible Denture, Laminate
- Manufacturer: Dreve Plaquit
- Instructions: Cure in the THC at Level 1 for 1 minute with nitrogen.

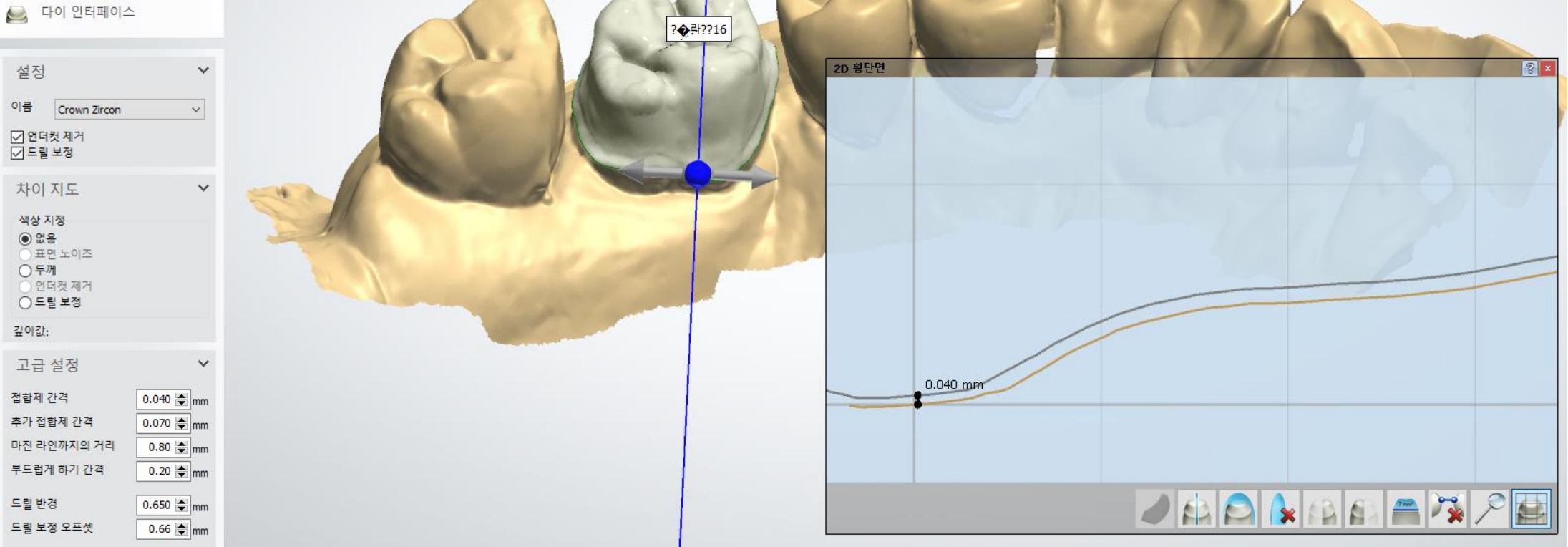




Chapter 06. Parameter Settings

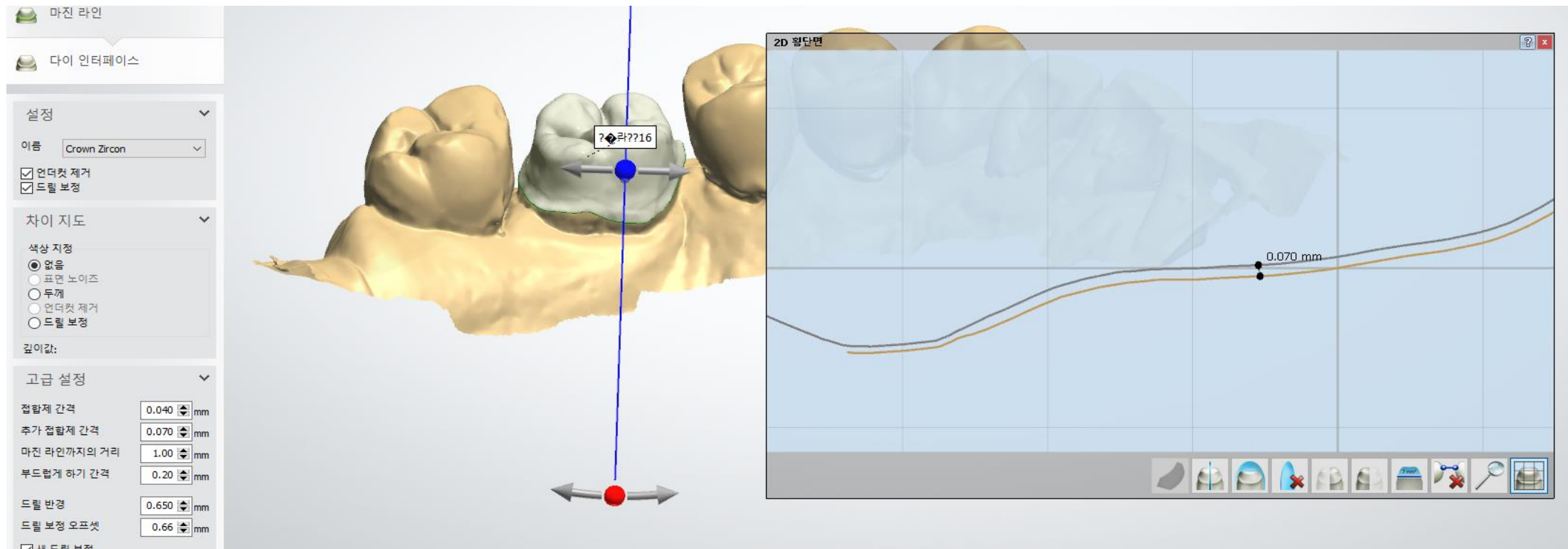
Parameter Settings

Adhesive Spacing



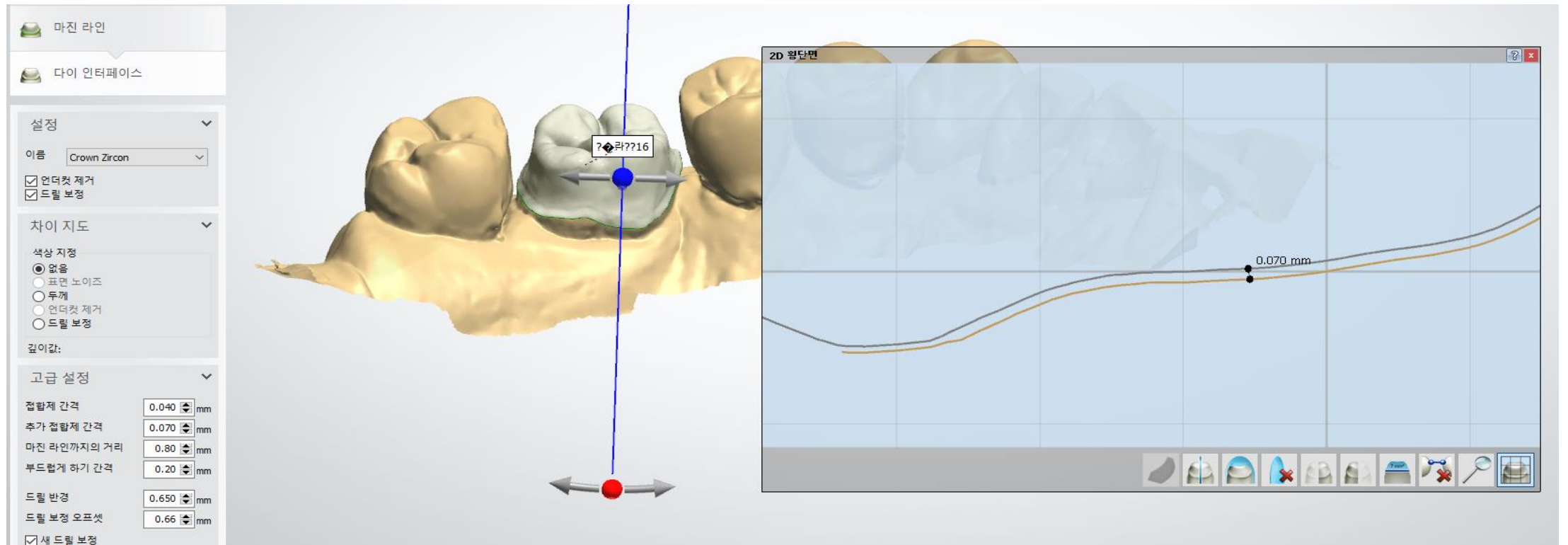
Parameter Settings

Additional Adhesive Spacing



Parameter Settings

Parameter Values for Asiga Graphy Material



Parameter Settings

Parameter Values for Asiga Graphy Material

Crown

고급 설정 ▼

접합제 간격	0.040 mm
추가 접합제 간격	0.070 mm
마진 라인까지의 거리	0.80 mm
부드럽게 하기 간격	0.20 mm
드릴 반경	0.650 mm
드릴 보정 오프셋	0.66 mm
☒ 새 드릴 보정	
☐ 표면 노이즈 부드럽게	

Inlay

고급 설정 ▼

접합제 간격	0.050 mm
추가 접합제 간격	0.060 mm
마진 라인까지의 거리	1.00 mm
부드럽게 하기 간격	0.20 mm
드릴 반경	0.650 mm
드릴 보정 오프셋	0.66 mm
☒ 새 드릴 보정	
☐ 표면 노이즈 부드럽게	

Laminate

고급 설정 ▼

접합제 간격	0.010 mm
추가 접합제 간격	0.040 mm
마진 라인까지의 거리	1.00 mm
부드럽게 하기 간격	0.20 mm
드릴 반경	0.650 mm
드릴 보정 오프셋	0.66 mm
☒ 새 드릴 보정	
☐ 표면 노이즈 부드럽게	

Parameter Settings

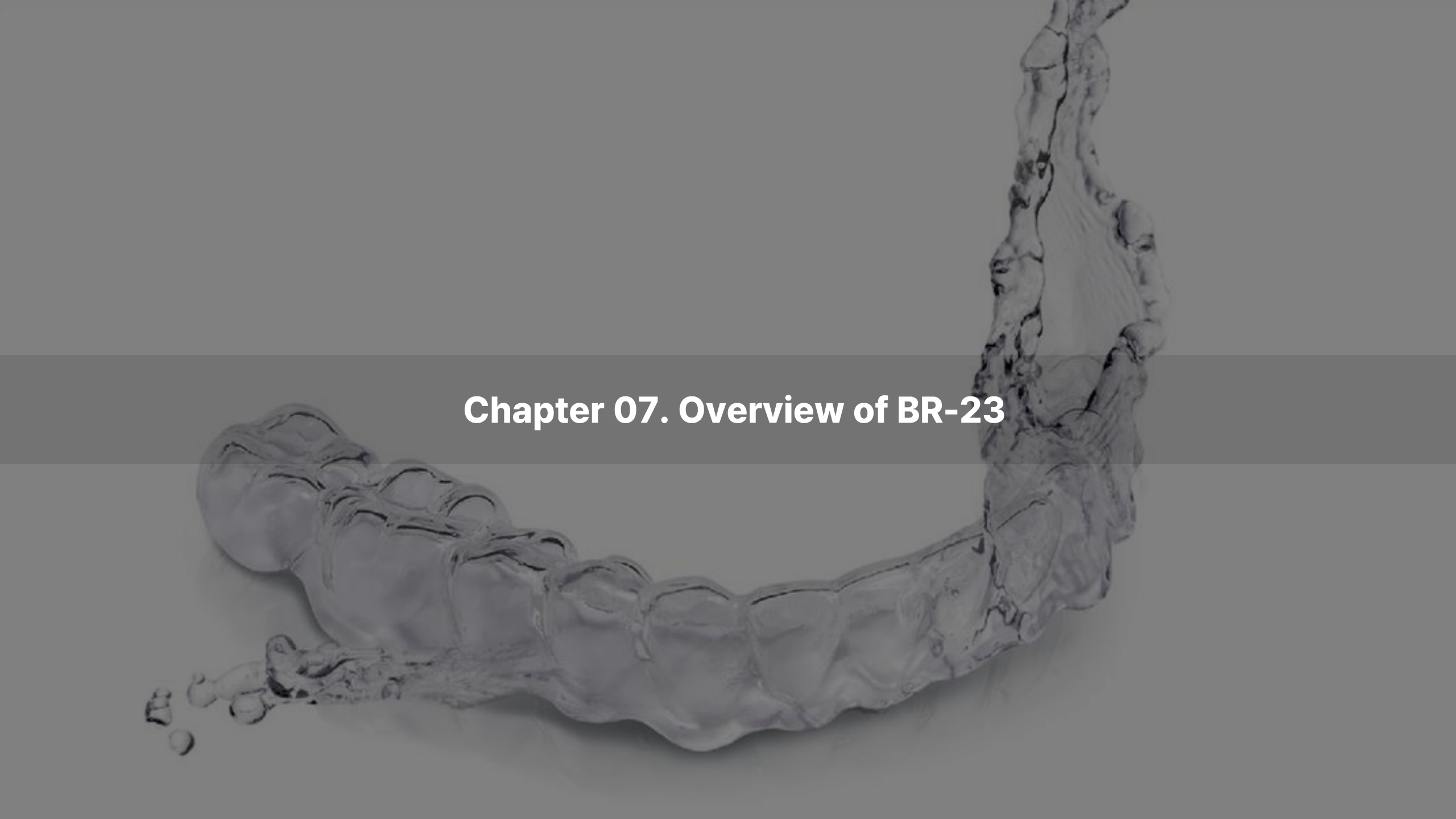
Ohters

Supplies Needed
Diamond bur, Denture pad



Additional Supplies: Try



The background of the slide is a grayscale artistic photograph of a liquid splash, likely water or oil, captured in a dynamic, flowing motion. The splash forms a long, horizontal, undulating shape that tapers towards the right, with smaller droplets and ripples visible along its length. A solid, semi-transparent gray horizontal band is superimposed across the middle of the image, serving as a backdrop for the chapter title.

Chapter 07. Overview of BR-23

Overview of BR-23 Prosthetics

BR-23 Bridge Prosthetics for Permanent C&B

- BR-23 Bridge material is optimized for implant prosthetics and natural tooth restorations for bridges of 6 units or more, specifically designed for long bridges and permanent crowns.
- It has obtained MFDS Class II and CE Class IIa, confirming its safety and physical properties.
- This material is suitable for both temporary and permanent applications across all indications, including full mouth bridges with its high flexural strength and wear resistance, it offers excellent durability.
- Additionally, its superior water sorption and solubility make it ideal for long-term prosthetic use.

Overview of BR-23 Prosthetics

BR-23 Bridge Prosthetics for Permanent C&B

Product Features

- Non-toxic and biocompatible
- High bending and tensile strength
- Applicable to a variety of indications including long bridges, C&B, inlays, onlays, and veneer, etc.



Clinical Cases

Please update with higher-quality reference images if possible; additional clinical photos are required.

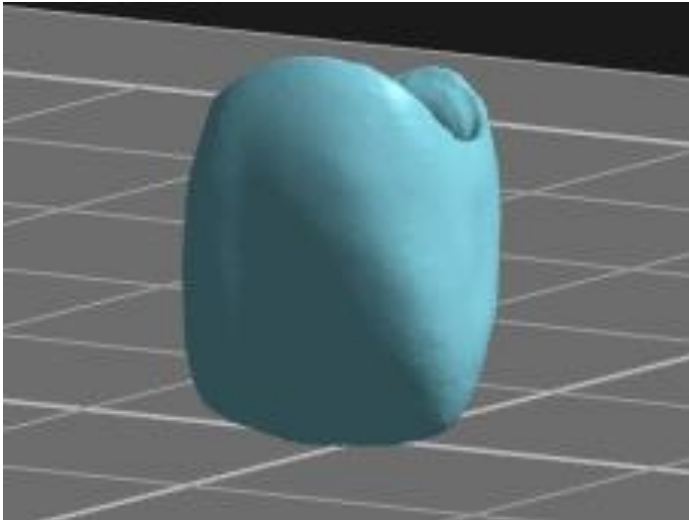


Resin Usage

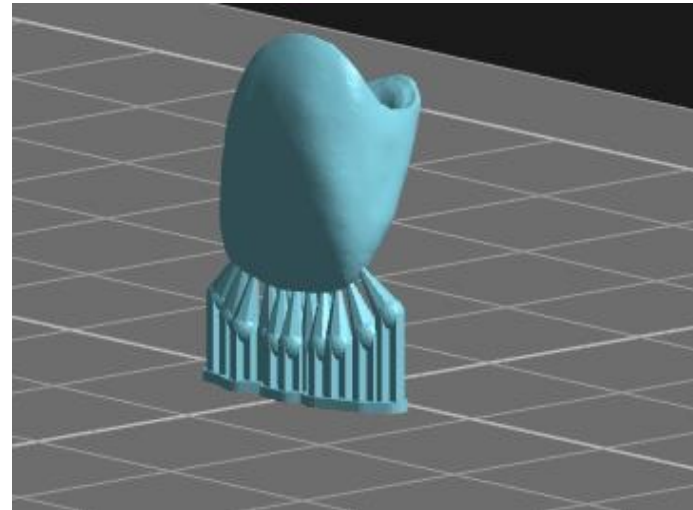
Usage of TC-80DP per Anterior Single Crown

Support quantity and dimensions may vary based on the denture base shape and gum coverage area.

Without Support: Approximately 0.3ml



With Support: Approximately 0.4ml

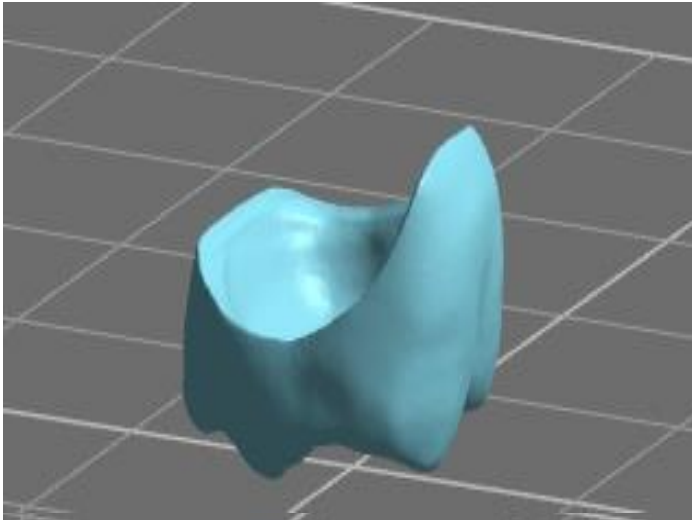


Resin Usage

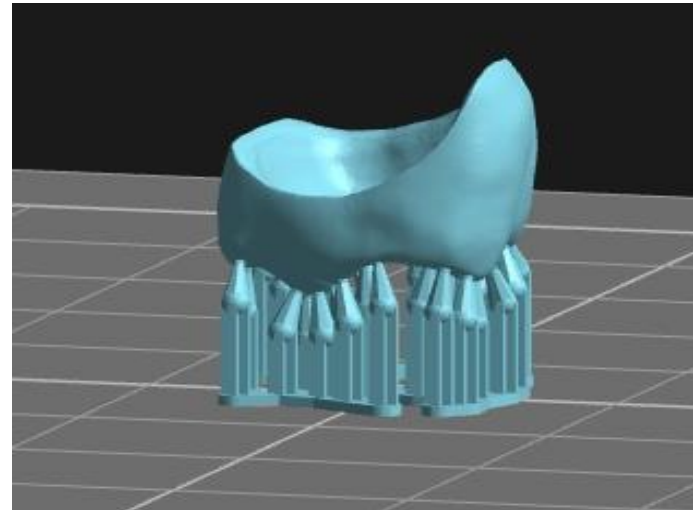
Usage of TC-80DP per Posterior Single Crown

Support quantity and dimensions may vary based on the denture base shape and gum coverage area.

Without Support: Approximately 0.4ml



With Support: Approximately 0.6ml



Resin Usage

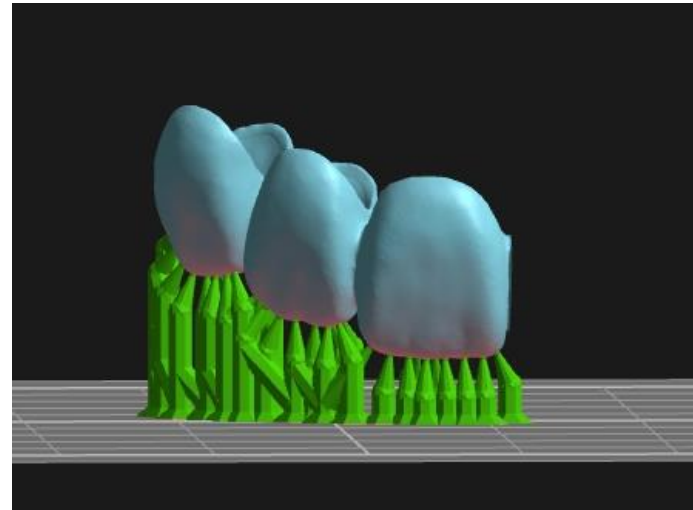
Usage of TC-80DP per Anterior 3-Unit Bridge

Support quantity and dimensions may vary based on the denture base shape and gum coverage area.

Without Support: Approximately 0.8ml



With Support: Approximately 1.3ml



Resin Usage

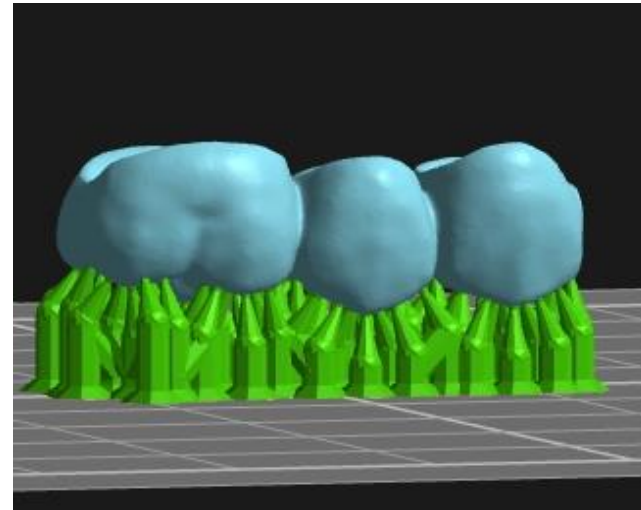
Usage of TC-80DP per Posterior 3-Unit Bridge

Support quantity and dimensions may vary based on the denture base shape and gum coverage area.

Without Support: Approximately 0.9ml



With Support: Approximately 1.8ml



Clinical Cases

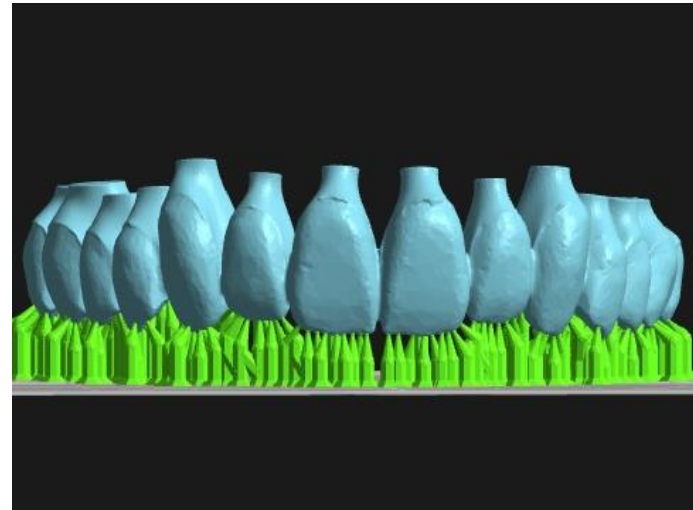
Usage of TC-80DP per Full Denture Artificial Teeth (Maxillary)

This amount may vary based on support size, denture shape, and gum coverage.

Without Support: Approximately 7.2ml



With Support: Approximately 11.9ml



Resin Usage

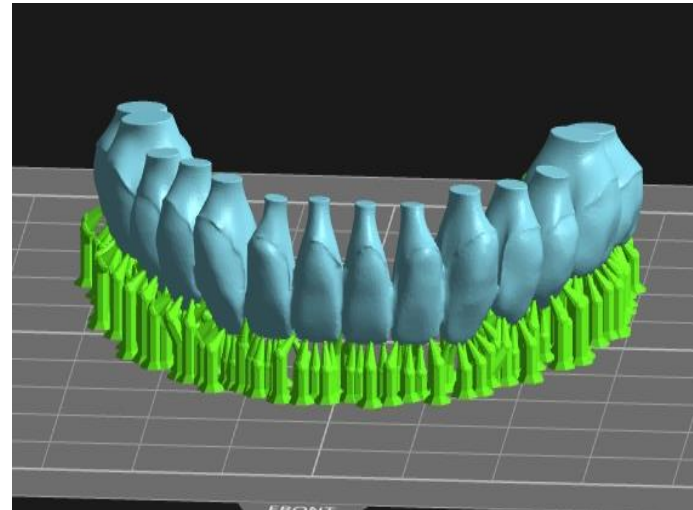
Usage of TC-80DP per Full Denture Artificial Teeth (Mandibular)

Support quantity and dimensions may vary based on the denture base shape and gum coverage area.

Without Support: Approximately 5.8ml



With Support: Approximately 9.3ml



Graphy

Thank you

