



EZPRINT

Instruction Manual for Additive Manufacturing (light curing) Crown Bridge Resin

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Part 1 Product Introduction

EZPRINT Additive Manufacturing (light curing) Crown Bridge Resin is an innovative product in the field of dental restoration, meticulously formulated with rigid monomers, high-efficiency cross-linking agents, and micro-nano ceramic components. Its ceramic component adopts organically modified irregular micro-nano inorganic fillers with a total content of up to 53wt%, establishing the core advantages of the material: the inorganic fillers form a strong framework, and the organic components contribute to a stable structure. This not only endows the product with high-precision molding characteristics, lower shrinkage and deformation rates, but also brings excellent biocompatibility and outstanding aesthetic effects, providing a reliable and aesthetic solution for dental restoration.

1.1 Scope of Application

It is suitable for manufacturing crown and bridge restorations through additive manufacturing (3D printing) technology, including single crowns, inlays, onlays, veneers, implant-supported monolithic crowns, and the upper teeth of removable dentures.

1.2 Operating Conditions

Used in conjunction with 3D printers with a light source wavelength of 385nm or 405nm.

1.3 Operating Environment

Ambient temperature: 20–30 °C;

Relative humidity: ≤50%;

Lighting environment: Lighting with UV filtration (e.g., yellow light)

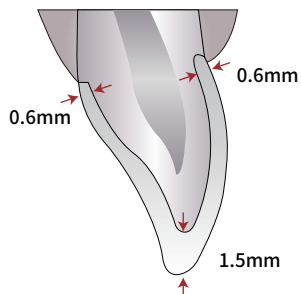
1.4 Precautions

- ① Shake the material well before use for at least 5 minutes.
- ② It is recommended to wipe and disinfect the processed restorations with 75% medical alcohol.
- ③ Ensure good ventilation during the printing process and use personal protective equipment (masks, protective gloves, and goggles).
- ④ During printing, ensure that the light shield (i.e., the chamber door) is closed for UV protection.
- ⑤ Before post-curing, avoid direct contact with liquid materials and components, as this may cause eye and skin irritation (with possible sensitization).
- ⑥ The container must always be kept sealed. Close the lid immediately after each use to prevent the material from deteriorating due to environmental influences.
- ⑦ The validity period of this product after opening is 60 days.

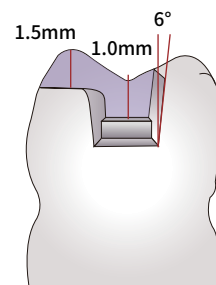
Part 2 Manufacturing Process

2.1 dental preparation standards

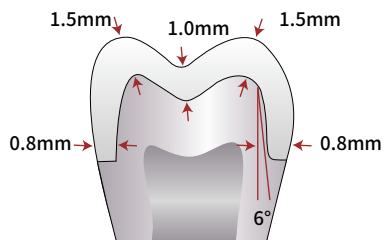
To ensure the optimal therapeutic outcome of the subsequent restoration in the oral cavity, please perform tooth preparation in accordance with the illustrations.



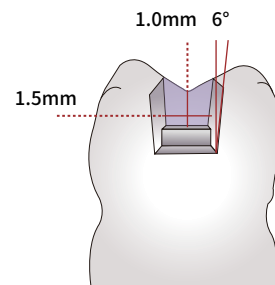
Anterior single crown
incisal edge thickness $\geq 1.5\text{mm}$
axial wall thickness $\geq 0.6\text{mm}$



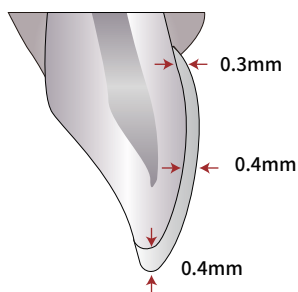
Onlay
occlusogingival depth $\geq 1.0\text{mm}$
cuspal height $\geq 1.5\text{mm}$



Posterior single crown
fossa and occlusal surface
thickness $\geq 1.0\text{mm}$
cuspal thickness $\geq 1.5\text{mm}$
axial wall thickness $\geq 0.8\text{mm}$



Inlay
occlusogingival depth $\geq 1.0\text{mm}$
buccolingual diameter $\geq 1.5\text{mm}$



Veneer
average labial surface thickness $\geq 0.4\text{mm}$
thickness of the incisal third $\geq 0.4\text{mm}$
thickness of the middle third $\geq 0.4\text{mm}$
thickness of the cervical third $\geq 0.3\text{mm}$

2.2 Design

2.2.1 Scanning

Use the Aidite high-precision intraoral scanner for scanning to obtain the corresponding intraoral data model, and transmit the scanning data to the CAD design software for restoration design.



2.2.2 CAD Design

(1) Design Parameter Requirements

Summary of Design Parameters for Proper Restoration Fit							
Parameter value	Types of restorations						
	Crown		Bridge		Inlay	Veneer	
	Anterior teeth	Posterior teeth	Anterior teeth	Posterior teeth	/	Anterior teeth	Posterior teeth
Minimum thickness	0.6mm	0.8mm	0.8mm	1mm	0.6mm	0.4mm	0.5mm
Increase the occlusal surface thickness	0.2mm	0.26mm	0.26mm	0.2mm	0.26mm	0	0
Proximal contact	-0.01mm						
Marginal horizontal width	0.2mm				0.05mm	0	0
Marginal inclined width	0.3mm				/	0	0
Marginal inclination angle	60°				/	0	0
Marginal vertical height	0						
Marginal line inferior shift	0						
Bonding space	0.02mm	2-unit bridge:0.02mm 3-unit bridge:0.03mm 4-unit bridge and 5-unit bridge:0.05mm Bridges with more than 5 units:0.08mm			0.02mm	0.02mm	0.02mm
Axial/radial	0.02mm/0.02mm						
Protect the area adjacent to the marginal line	0.1mm						
The marginal line width	1mm						
Minimum adjacent area of the bridge	/	/	Anterior continuous bridge: 12mm²	Posterior continuous bridge: 14mm²	/	/	/
			The Proximal contact area of the intermediate edentulous site in the fixed bridge ≥14mm²				

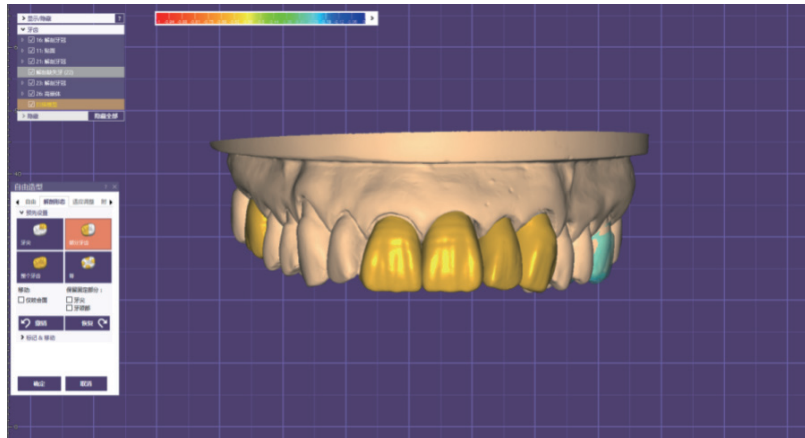
(2) Precautions

① Do not design interdental spaces on the lingual side to ensure sufficient contact area.

② In cases where the incisal edge of the abutment is excessively sharp:

Fill a small amount of wax on the tip of the abutment before proceeding with scanning and design;

Increasing the bur compensation value can effectively alleviate the seating issues caused by excessively sharp incisal edges of anterior teeth and veneer abutments.



2.3 Layout

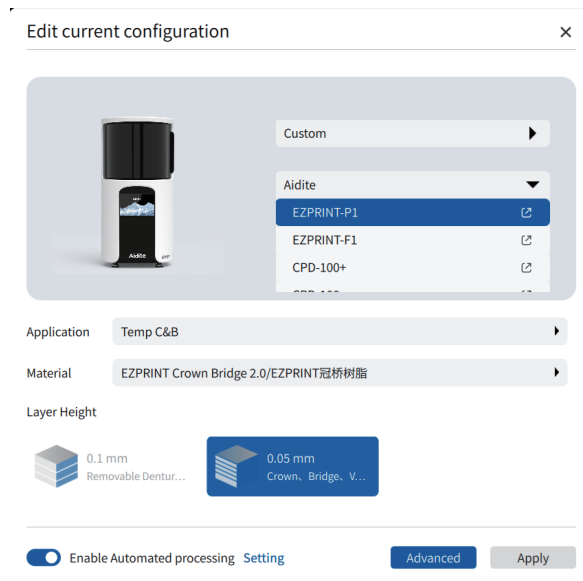
Software: Aidite Dental

Equipment: PI printer

2.3.1 Select printing parameters

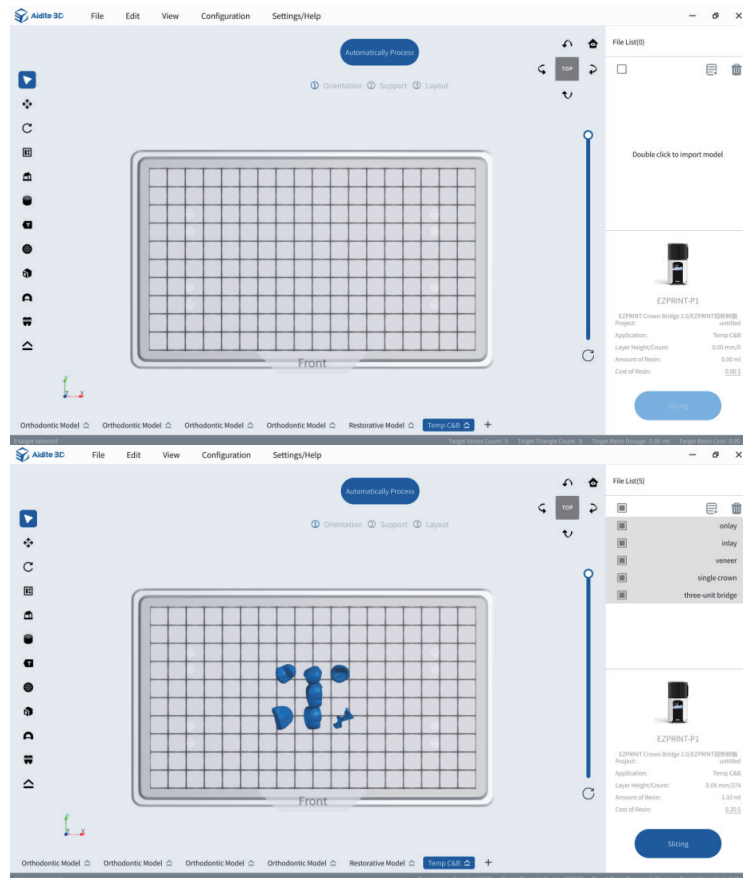
① Click "Configuration - Modify current configuration" to bring up the model selection and material selection page. Select the "EZPRINT-PI" printer.

② When the restoration type is "crown, bridge, inlay, veneer", select "EZPRINT Crown Bridge 2.0/EZPRINT 冠桥树脂" in the material selection section, and choose the corresponding parameters for "Crown、 Bridge、 Veneer、 Inlay/单冠、 连桥、 贴面、 嵌体" in the "Layer Height", then click "Apply".



2.3.2 Import the file

Click the "File" tab in the upper left corner of the slicing interface, select the "Import Model" function to enter the model selection interface, select the STL file to be printed, click the "Open" tab, and complete the import of the restoration STL file.



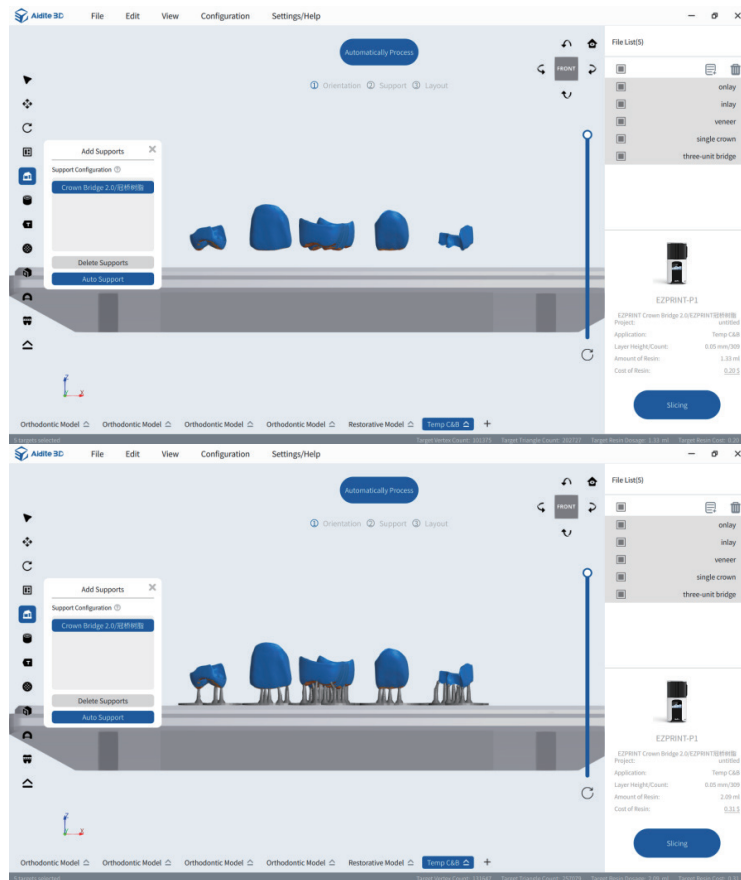
2.3.3 Model Placement

Placement of crown, bridge, veneer, and inlay restorations: Select the "Rotation" operation in the left function card of the slicing software, and rotate the restoration with the left mouse button so that the occlusal surface/incisal edge of the restoration faces the printing platform, and the model forms an angle of 0~10° with the platform.



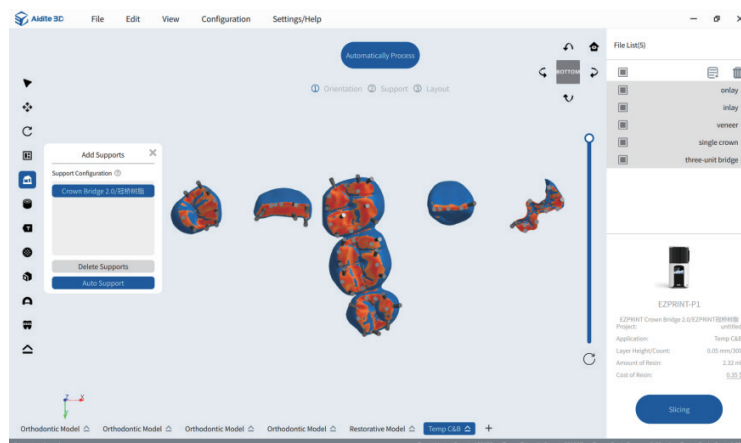
2.3.4 Add Supports

- ① After selecting all restorations, in the function column on the left side of the slicing software, select the "Add Supports" function card and choose the corresponding support configuration;
- ② Click the "Auto Support" tab to complete the automatic addition of supports.



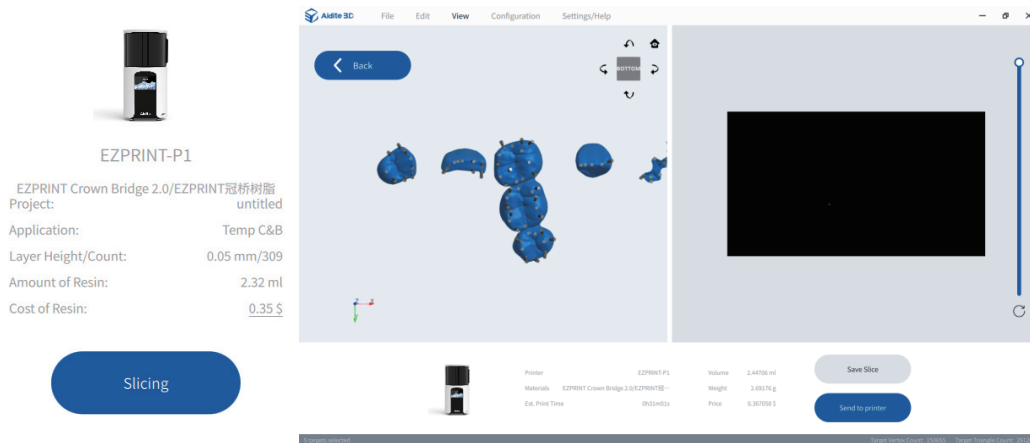
2.3.5 Supplement supports

Flip to the "BOTTOM" side: place 3-4 supports on the incisal edge of anterior teeth, 5-6 supports on premolars, 8-11 supports on molars, and 5-6 supports on inlays;



2.3.6 Slicing

Click the "Slice" tab in the lower right corner of the slicing software, click "Send to Printer" in the lower right corner for remote printing, or click the "Save Slice" option to save it to the root directory of the USB drive.



2.4 Printing

2.4.1 Confirm the operating environment

The ambient temperature should be as required in the resin instruction manual; there is no direct sunlight; there are no vibrating devices near the printer.

2.4.2 Confirm the resin liquid

- ① Check the liquid level of the resin in the material tank. If there is resin in the tank, use a silicone rubber scraper to stir the resin until it is uniform.
- ② If the resin liquid level in the tank does not reach the scale line, manually shake the bottled resin for 5 minutes, and add it to the tank after the resin is uniform.

2.4.3 Temperature Setting

Click "Settings - Temperature Settings", turn on the "On" switch for chamber temperature control, set the temperature to "25 °C" with an allowable error of ± 2 °C.

2.4.4 Printing

Send the sliced file to the printer (remotely or via USB), select the file to be printed on the printer screen, and click Start Printing.

2.4.5 Remove Parts and Supports

- ① After the printing job is completed, remove the build platform from the 3D printer. Use a silicone rubber scraper to gently scrape off the uncured resin remaining on the printed model and the platform. Use a spatula to carefully remove the model from the build platform. The specific operation is to slide the spatula under the bottom of the printed part closest to the build plate and operate along the perimeter of the base until the printed part is removed.

② Remove the support structure by hand or with tools. Note that do not remove the reinforcement rib structure on the complete denture or immediate bridge, which will be removed in the step after post-curing.

2.5 Cleaning

Cleaning tools: Toothbrush, long-haired brush, beaker, air gun

Materials: Anhydrous ethanol ($\geq 95\%$), water

2.5.1 Preparation

Mix anhydrous ethanol and water in a ratio of 1:1 to prepare the cleaning solution, and pour the cleaning solution into the cleaning machine and a small beaker;

2.5.2 Cleaning

① Clean with the cleaning machine for 30 seconds, then take it out and observe the surface of the sample; if there is residual resin on the occlusal surface or in the cavity, use a toothbrush dipped in the cleaning solution to clean the interdental spaces and anatomical grooves of the restoration, and use a long-haired brush dipped in the cleaning solution to scrub the internal cavity area of the crown and bridge restoration for 10-20 seconds.

② Repeat scrubbing with a toothbrush or small brush dipped in the cleaning solution as needed. Then use a high-pressure air gun to blow off excess uncured resin and cleaning solution until the restoration is completely clean, showing a non-powdery matte effect.



Note: If the printed restoration comes into excessive contact with ethanol during cleaning, white powder may appear on the surface.

2.6 Post-Curing

2.6.1 place the model

The Additive Manufacturing (light curing) Crown Bridge Resin is compatible with the CL-200 post-curing light box. Place the cleaned restoration on the light box tray and close the light box door.

Notes: ① Before placing the restoration into the light box, ensure that the temperature inside the light box is $\leq 36^{\circ}\text{C}$;

② When placing, ensure that the occlusal surface of the restoration faces upward.

③ When placing a single tooth, do not place it close to the edge of the light box tray to avoid the risk of falling;

2.6.2 Post-Curing

Select the post-curing curve "13 C&B" for curing. Use "←" or "→" to select the curing curve as shown in the figure below, and click "✓" to start curing;



2.6.3 take out the model

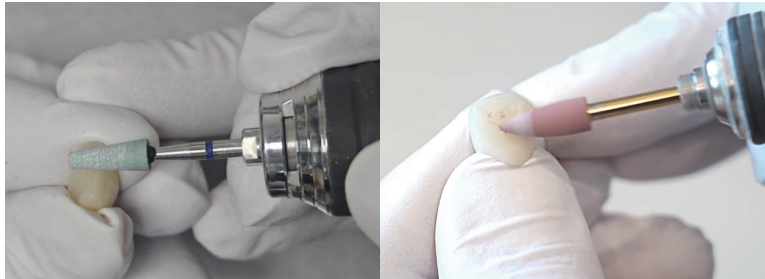
After curing is completed, wait until the temperature inside the light box drops below 60°C , then press the button on the right side of the light box to open the door and obtain the cured restoration.



2.7 Polishing

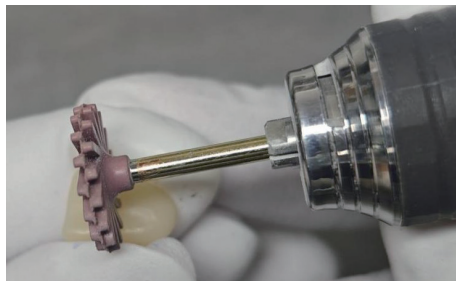
2.7.1 trim the morphology

Use the grinding stone bur ACTR006 and GB0101M to smoothly remove the supports on the tooth, and at the same time use the grinding stone bur to trim the tooth shape and edges;



2.7.2 pre-polishing

Use the pre-polishing bur GB0101M or GB0102M to polish the polished surface of the tooth once to remove bur marks, with a recommended rotation speed of 10,000–20,000 rpm;



2.7.3 fine grinding

Use the fine grinding and polishing wheel PB0301H to polish the polished surface of the tooth again to make the surface roughness smooth, with a recommended rotation speed of 10,000 rpm;



2.7.4 polishing

Use a polishing cloth wheel and polishing wax to polish the entire polished surface of the tooth to make the surface smooth and shiny, with a recommended rotation speed of 5,000–10,000 rpm;



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