Illustrated technical guide

UNI-P Crown™

Light-curing 3d printable resin-based material for the correction or reconstruction of functionally compromised natural dentition (e.g., missing teeth or deficient teeth) by manufacturing of customized 3d-printed dental prostheses.

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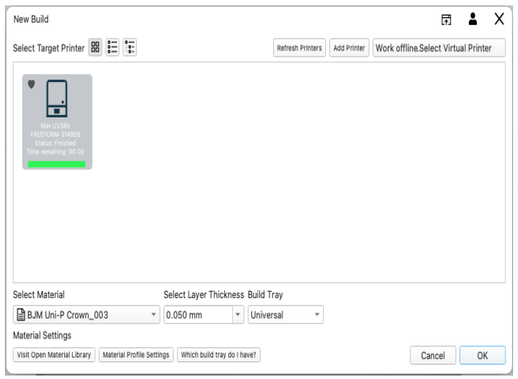
Asiga® Printer (Max UV & Pro 4K) and Software

ATTENTION:

- Instructions and parameters are applicable to B.J.M. UNI-P Crown only.
- Refer to the printer manufacturer's Instructions for Use/User Guide for complete printer information.

Open Asiga® Composer (v. 2.1 or higher)

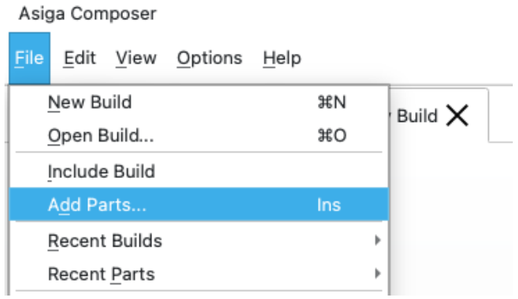
- To start a new build, select "NEW."
- To open a previous build, select "OPEN" or "RECENT."



Select the printer from "Target Printer" list. Next, select the applicable "Material", "Slice Thickness" and "Build Tray" (Universal/Crown Kit/PrindPod).

Material Selection	BJM Temp_003
Slice Thickness	0.05 mm

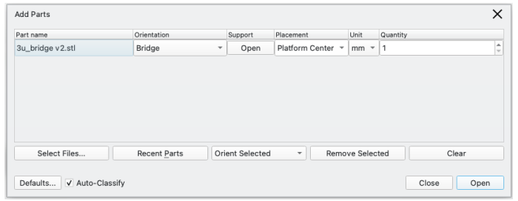
Select "OK"



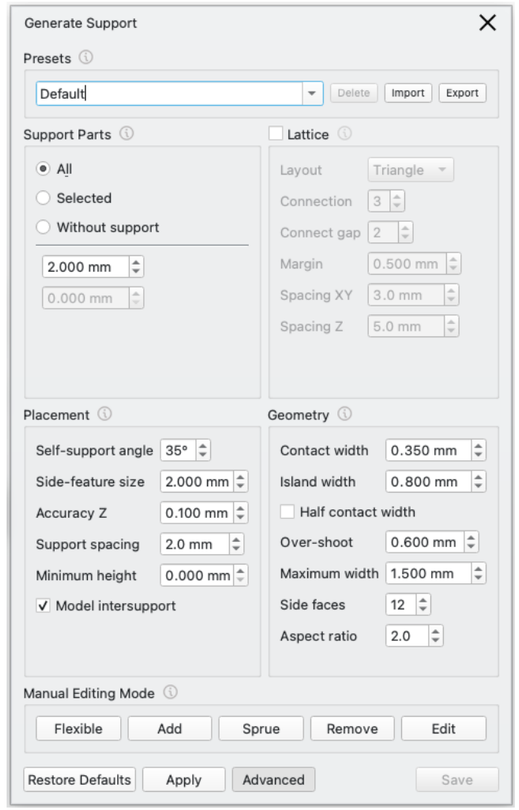
Add parts using one the following methods:

- Select "File" then "Add Parts..."
- Select the "Add Parts" icon from the toolbar.
- Drag and drop .stl files from any folder location into the composer program.

Note: Multiple files can be added at one time.



Once the "Add Parts" pop-up window opens, select "Select Files" or "Recent Parts" and browse for the desirable crown/bridge segment .stl file location.
Select the file(s), make sure the "Auto-Classification" is turned on for automatic orientation of the prothesis.
Select the "Placement" to avoid parts to appear outsider the printing platform envelope.
Then click "Open".



Select "Generate Support" from the toolbar. The Generate Support pop-up box will open and auto generate parameters:

Placement		**Geometry**	
Height leveling	2.000 mm	Contact width	0.350 mm
Placement		Island width	0.800 mm
Self-support angle	35°	Over-shoot	0.600 mm
Side-feature size	2.000 mm	Maximum width	1.500 mm
Accuracy Z	2.0 mm	Side faces	12
Support spacing	2.0 mm	Aspect ratio	2.0
Minimum height	0 mm		

Select "All" to add supports to all parts or select "Selected" to add supports to an individual part.
NOTE: When selecting "All", the new supports will replace the existing supports.
Select "Apply."

Do not close the Generate Support menu.

Select "Remove" to remove any supports from the face of the teeth.
Replace the removed supports using the "Add" function to
add supports to the crown surface near the removal area.

An adequate number of supports is critical to ensure a successful print.

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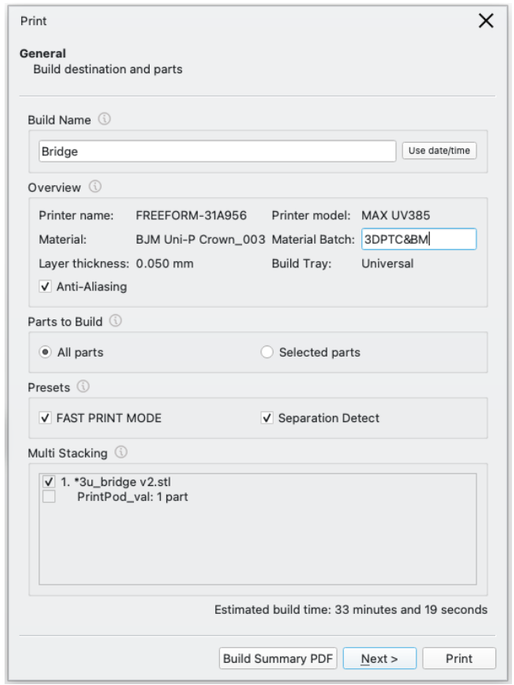


Select "Print" from the toolbar to open the "Print" wizard.
On the "General" page:

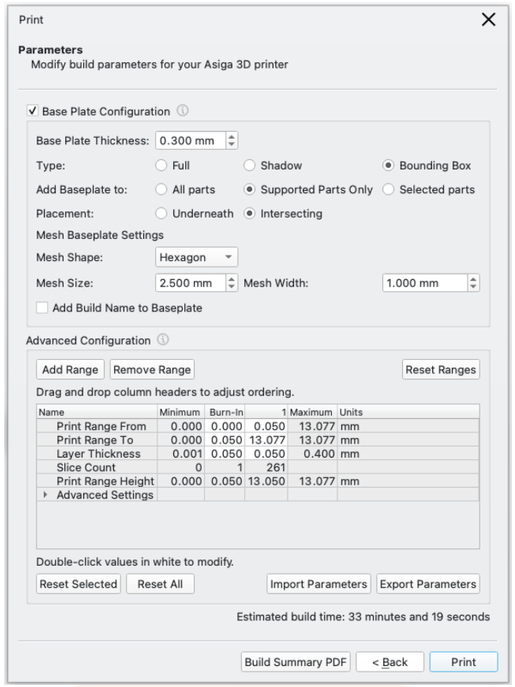
- Name the build
- Enter Material Batch (or material lot number)
- Select Parts to Build - normally "All parts" are selected

Confirm the selection of the following::

- Anti-Aliasing
- FAST PRINT MODE
- Separation Detect

An **Estimated build time** will appear.

Select "Continue".



On the Print wizard "Parameters" page, confirm the selectin of the following:

Base Plate Thickness	0.300 mm
Type:	Bounding Box
Add Baseplate to:	Intersecting
Mesh Shape:	Hexagon
Mesh Size:	2.500 mm
Mesh Width:	1.000 mm

On the Print wizard, the parameters will auto generate - **Do not modify the Parameters.**

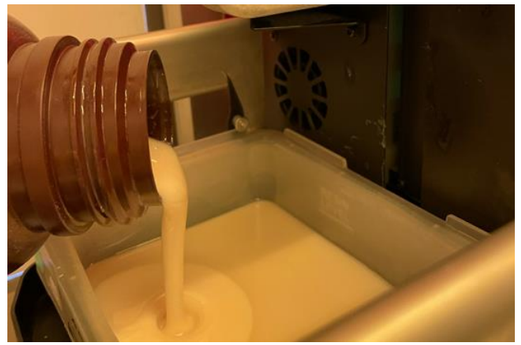
Select "Build Summary PDF" and save the summary as a pdf file.

Select "Print".

Parts Overview

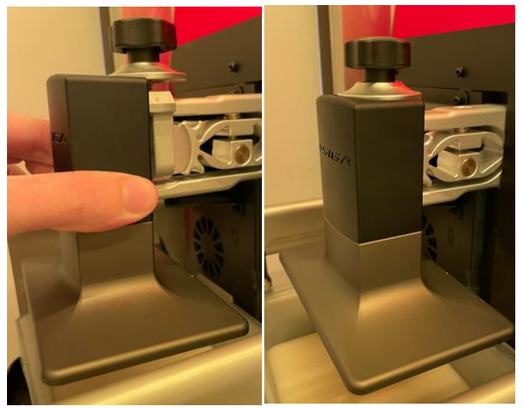
Number of Parts:	2
Number of Models:	1
Number of Supports:	1
Number of Slices:	261
Extents X:	29.63
Extents Y:	13.24
Extents Z:	13.07
Total Volume:	1.17 mL

Scroll down in the pdf "Summary" to find the "Total Volume" resin in "Part Overview" for the print job - this "Total Volume" reflects resin usage for the part(s) only. UNI-P Crown material require a minimum vat fill of 15 mm in resin depth.



Select the appropriate shade of UNI-P Crown and fill the vat with a minimum of 15mm in resin depth.

PRECAUTION: Wear protective gloves, eye protection, and protective clothing.



Attach the print platform and turn the locking mechanism to secure the platform.

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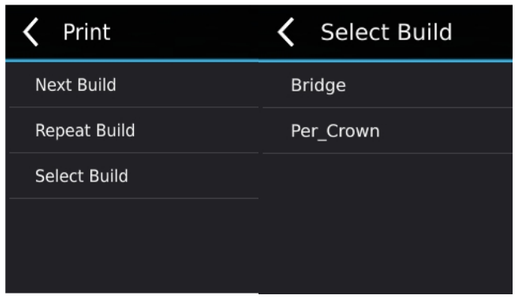
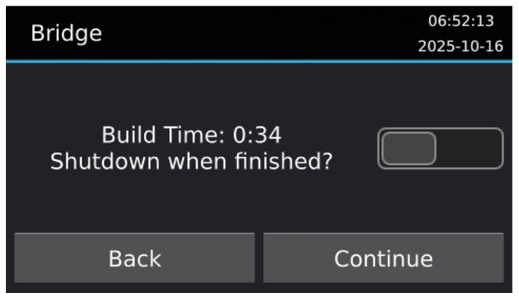
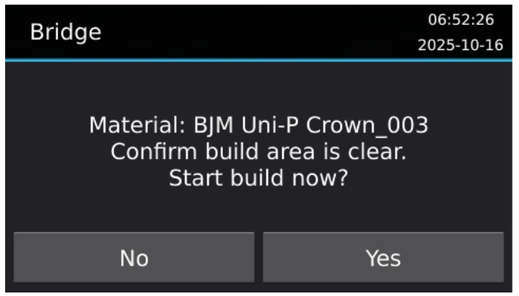
Follow the printer screen instructions: Select "Print" from the "Main Menu"



Select "Select Build" and then select the print job from the display list.



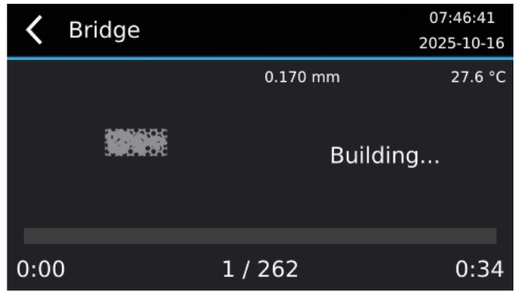
The printer display will identify the print job and estimate the print completion time.
Confirm the vat fill level is adequate for the print job and select "Continue." (Fill the vat with a minimum of 15mm in resin depth).



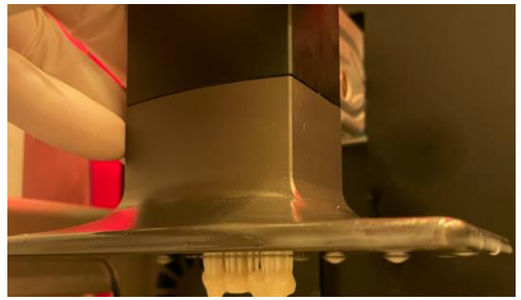
Confirm the platform/build area is clear.

Select "Yes".

Wait for the printer to warm up – **Do not select "Skip".**



The printer will start "Building", the finish time will display on the screen



Once the print job is complete, the platform will automatically raise from the vat.

Untie the print platform, remove from the printer and proceed to the next steps.

ATTENTION:

- Follow the printer manufacturer's Instructions for Use.
- Do not leave resin in the cassette/vat for an extended period; minimize the exposure to ambient light with resin in the cassette/vat and pour resin back into the bottle immediately after the print job is complete.
- Do not mix resin shades.
- Wear protective gloves, eye protection ana protective clothing.

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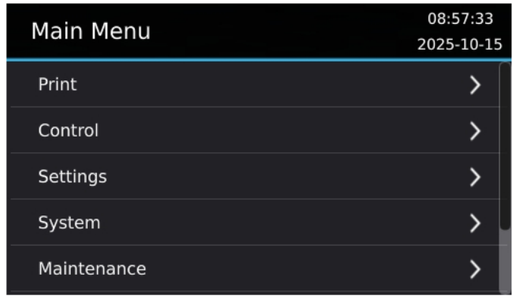
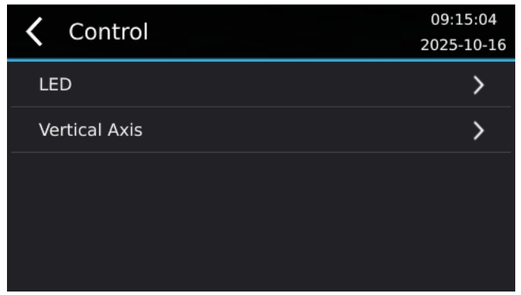


The Flash Process removes any partially-cured resin, parts or misprints from the vat.

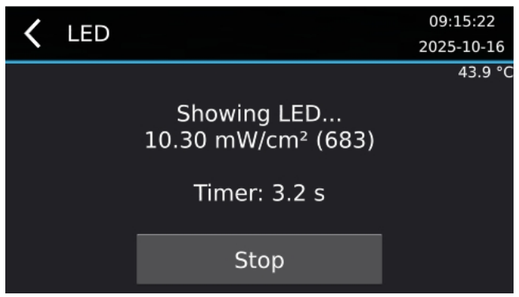
Refer to the applicable Asiga printer model Instructions for Use for additional information.

From the Main Menu, select "Control."



Select "LED".

Ensure the UV protective lid is closed, and UV protective eyewear is worn and select "Start".



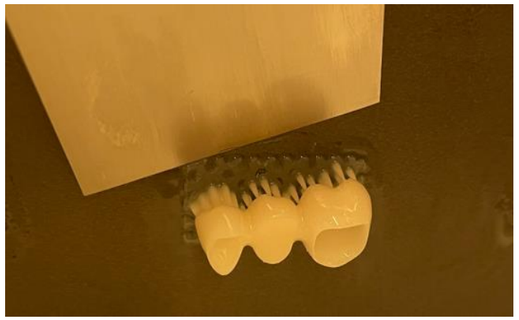
The LED light will turn on, allow 15 seconds before selecting "Stop".

Remove the flashed/cured sheet. Dispose of the sheet in a hazardous materials container. The vat is now ready for the Filter Process.

Place a disposable paper filter in a lab stand with a metal ring. Pour the resin into the filter over the original container. Use a spatula a to ensure complete resin removal from the vat.

PRECAUTION:

- Use proper ventilation.
- Wear protective gloves, eye protection



Detach the parts by putty knife, using moderate pressure.

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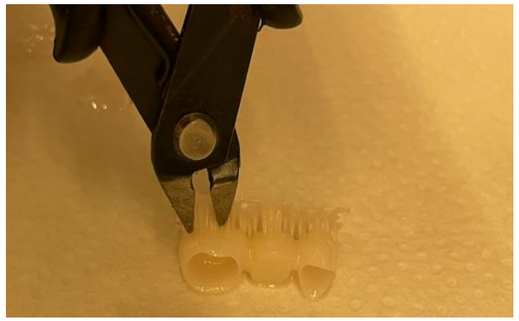
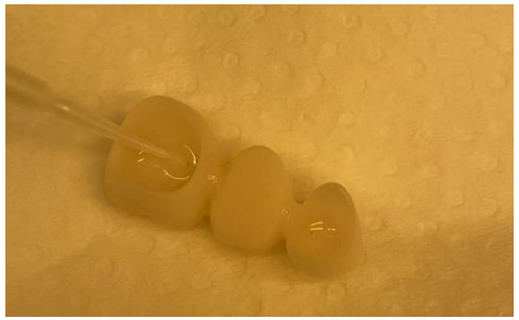


Remove the support structures using hand pressure or a cutting tool.

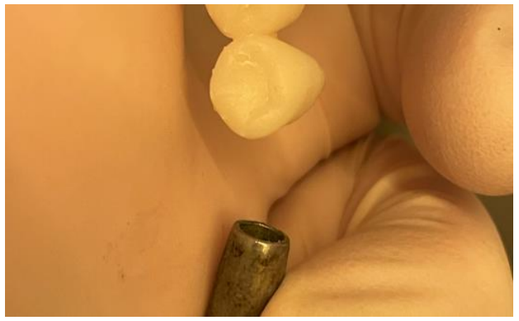
IMPORTANT: Use new IPA for both cycles.

Cycle 1:
Place the part(s) in an ultrasonic bath. Add ≥99% IPA to fully submerge the part(s). Run the ultrasonic bath of 3 minutes.

Cycle 2:
Use a brush soaked in ≥99% IPA to remove residual resin



IMPORTANT: Ensure removal of all residual resin.



Use air syringe to thoroughly dry part(s) before the Drying and Curing processes.

IMPORTANT:
To achieve the desired material properties and biocompatibility, post-curing of the completely dried and cleaned printed objects is necessary.

For final polymerization place the printed jobs in a UV-light box**.**

Note - The final properties and the final color depend on the post-curing process. Post-curing is a UV-light treatment to ensure that UNI-P Crown materials obtain full polymer conversion, the residual monomer is reduced to a minimum and the highest mechanical properties are achieved.

Before post curing it is recommended to wait for 30 minutes in a 37oC heated chamber.

Place the dry part(s) into the UV-Flash device "Otoflash G171" by NK-Optik.

Run the UV-Flash device 2 time for 2000 flashes with-out nitrogen.

Turn around after 2000 flashes. Let the part(s) to "cool down" after the 2 cycles.

PRECAUTION: Wear protective gloves, eye protection, and protective clothing.

Remove the printing supports leftovers and open interproximal areas using a cutting-disk.

Blast the surface of the printed job with blast polishing material carefully (50 µm at maximum blasting pressure of 1.5 bar).

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prepare the restoration starting with a diamond football bur (coarse) to smooth supports connection points.

Continue working the restoration with diamond flame bur (super fine).

Polish to a high gloss and shine using diamond composite spiral rubber polisher (medium and fine).

Finish the restoration with a diamond polishing paste using a leather buff for application.

In the case of definitive single crowns, the inside of the crowns should be roughened with a sandblast (Al2O3, 110µm).

Fix it definitively with a temporary resin cement material such as Cem-Implant and Q-Temp or any other resin cement available on the market.

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