Illustrated technical guide

UNI-P Crown™

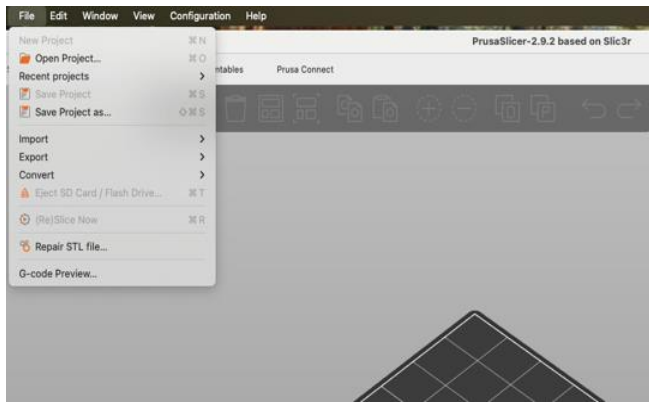
Light-curing 3d printable resin-based material for the correction or reconstruction of functionally compromised natural dentition (e.g., missing teeth or deficient teeth) by manufacturing of customized 3d-printed dental prostheses.

BJM LAB

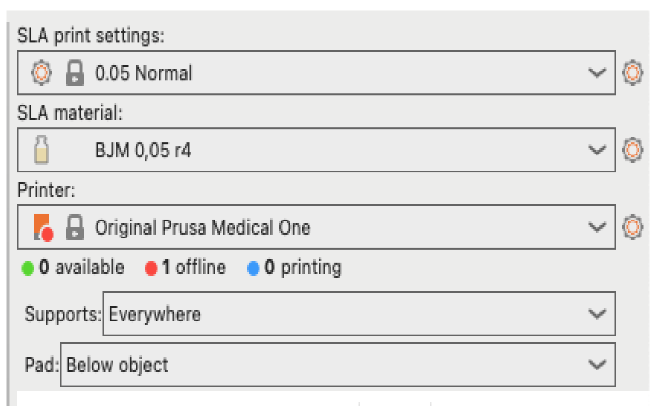
PRUSA Printer (Medical One), Post-processing (Medical CW One) and Software

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.



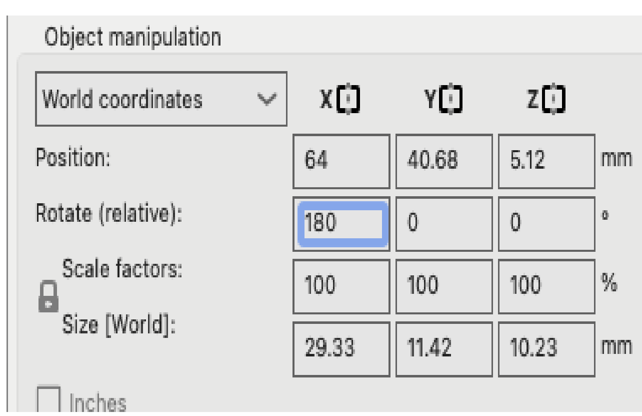
Open PRUSA PrusaSlicer (v. 2.9.2 or higher)
Add parts using one the following methods:
• Select "File" → "Import" then "Import STL/…."
• Select the "Add…" icon from the toolbar
• Drag and drop .stl files from any folder location into the PrusaSlicer program.



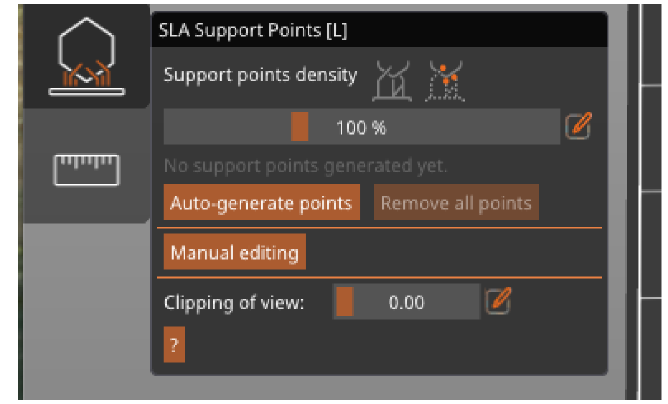
Select the printer and material setting "SLA printer settings" and the "SLA material". Next select the "Printer".

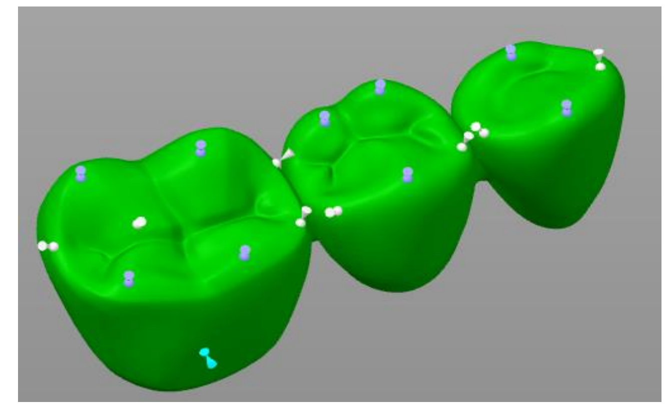
SLA printer settings	0.05 Normal
SLA material	BJM 0,05
Printer	Original Prua Medical One

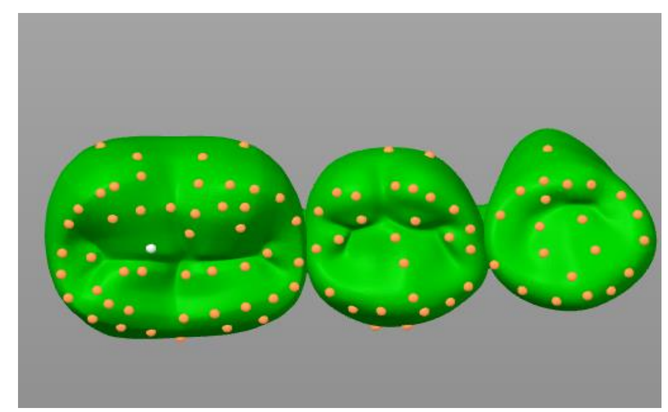
"Supports" and "Pad" options are pre-set in the material profile to "Everywhere" and "Below object" Do not modify.



If necessary, the part(s) can be moved and rotated on the platform.







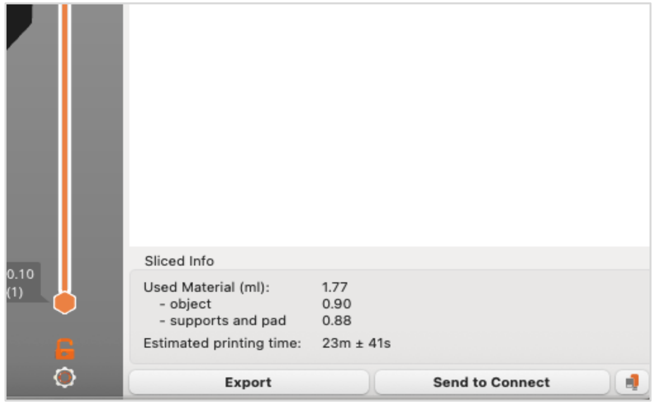
Select "SLA Support Points" from left-side the toolbar. The Generate
Support pop-up box will open, select Auto-generate or Manual editing.

Pinhead front diameter	0.5 mm
Head penetration	3 mm
Pinhead width	1 mm
Pillar diameter	35°
Small pillar diameter percent	60 %
Max bridges on pillar	Zig-Zag
Pillar connection mode	2.0 mm
Support base diameter	3 mm
Support base height	1 mm
Support base safety distance	1 mm
Object elevations	5 mm
Critical angle	45°
Max bridge length	10 mm
Max pillar linking distance	10 mm

Select "Manual editing" to remove any supports from the face of the teeth.
Replace the removed supports using the left-click on the part to add supports to the crown surface near the removal area.

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

After supports generation, select "Slice now"



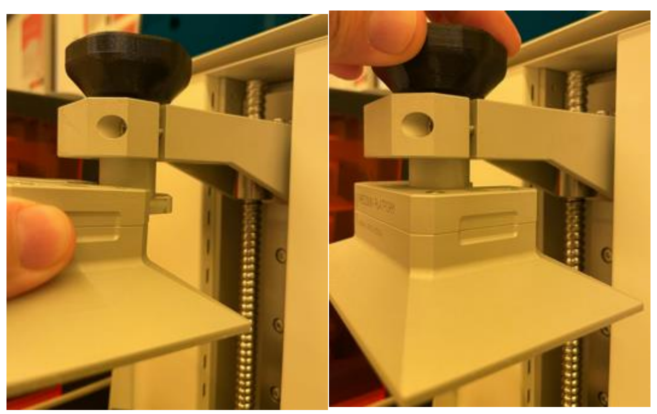
Select "Export" to save the build on a local drive. Select "Send to Connect" to upload the build directly to the printer. Else, insert a USB DOK and export the build.

An **Estimated build time and used material** will appear.

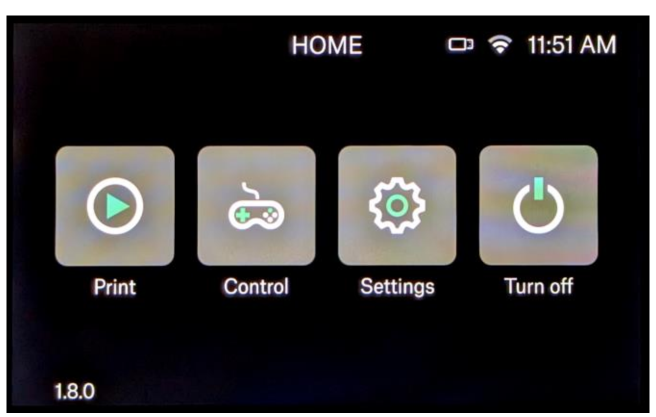
"Used Material" reflects resin usage for the part)s(only. UNI-P Crown material require a minimum vat fill of 15 mm in resin depth.

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.

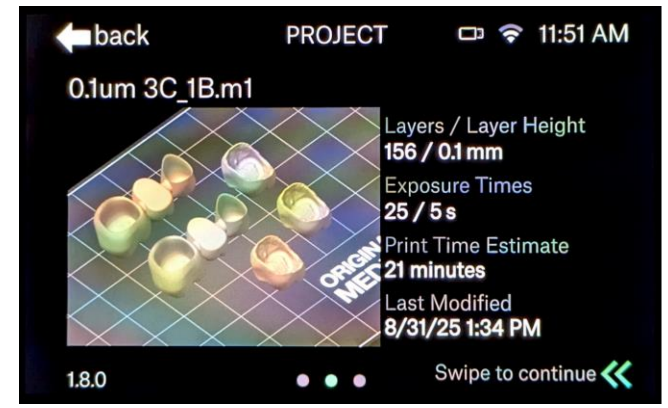


Attach the print platform and turn the locking mechanism to secure the platform.

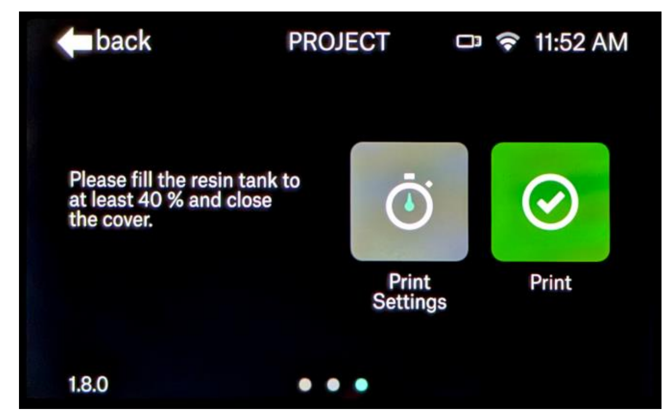


Follow the printer screen instructions: Select "Print" from the "HOME" screen.

Select "Local" or ""USB" and then select the print job from the display list.

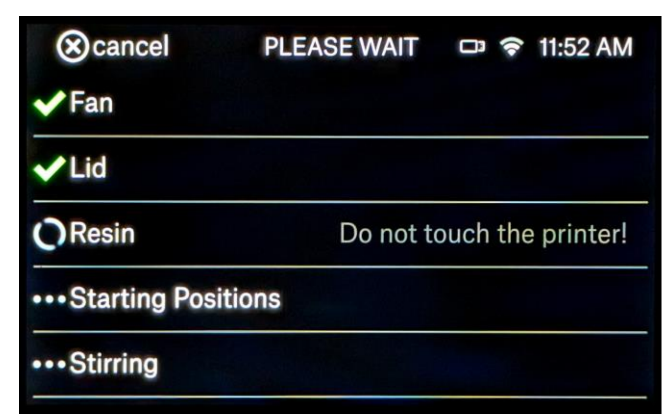


The printer display will identify the print job and estimate the print completion time.
Confirm the vat fill level is adequate for the print job and select "Continue." (Fill the vat with a minimum of 15mm in resin depth).



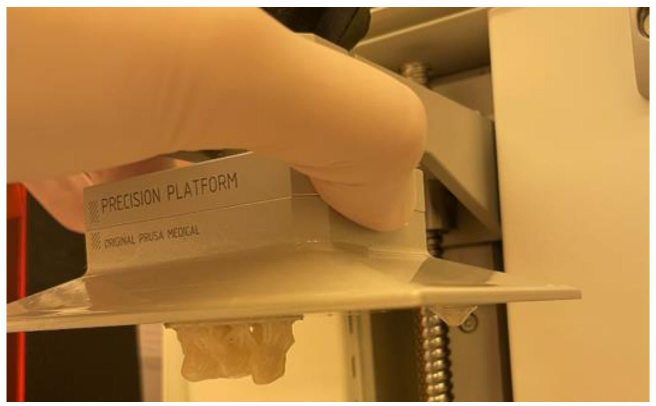
Confirm the platform/build area is clear.

Select "Print".



Wait for the printer to complete the self check-up – **Do not select "cancel"**

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



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

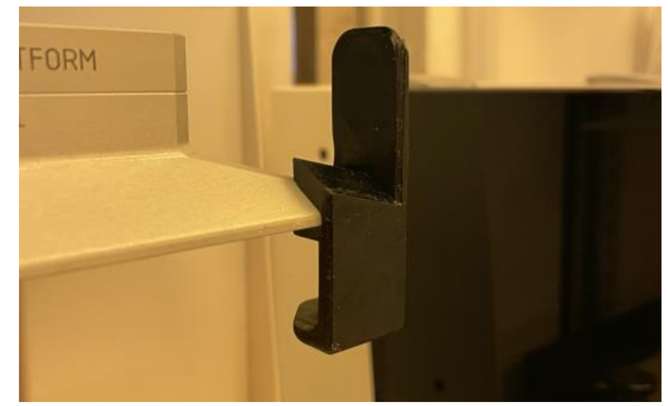
The Resin Tank Cleaning removes any partially-cured resin, parts or misprints from the vat.

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

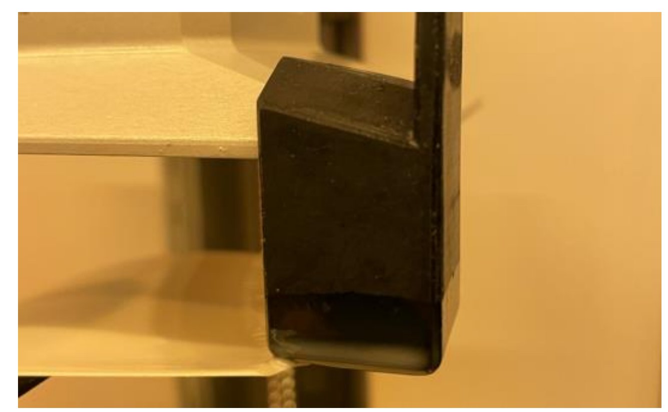
From the "FINISHED" Menu, select "Resin Tank Cleaning" and follow the on-screen guidance.

Use the Prusa cleaning tool.

Set the "Exposure" time based on what is the Initial exposure time that can be found for UNI-P Crown in the in PrusaSlicer.



The tank cleaning wizard will instruct you to install the Cleaning adaptor on the tank (at the front right corner).

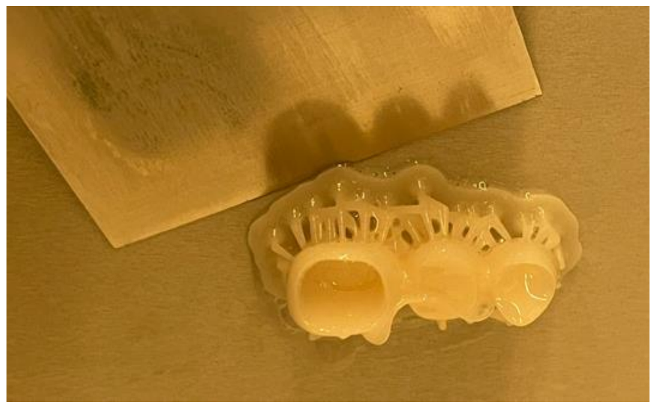


Remove the flashed/cured sheet. Dispose of the sheet in a hazardous materials container. The vat is now ready for the Filter Process.

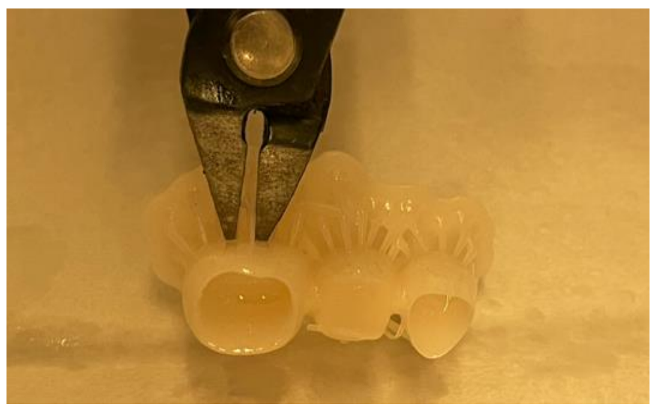
Place a disposable paper filter in a lab stand with a metal ring. Pour the resin into the filter over the original container. Use a spatula a to ensure complete resin removal from the vat.

PRECAUTION :

- Use proper ventilation.
- Wear protective gloves, eye protection
- Carefully follow the clean-time recommendations – prolonged Isopropyl Alcohol (IPA) exposure may change appliance physical properties.



Detach the parts by putty knife, using moderate pressure.



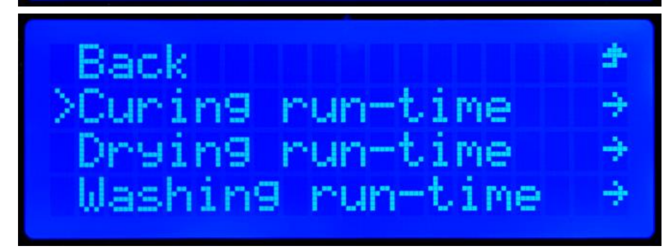
Remove the support structures using hand pressure or a cutting tool.

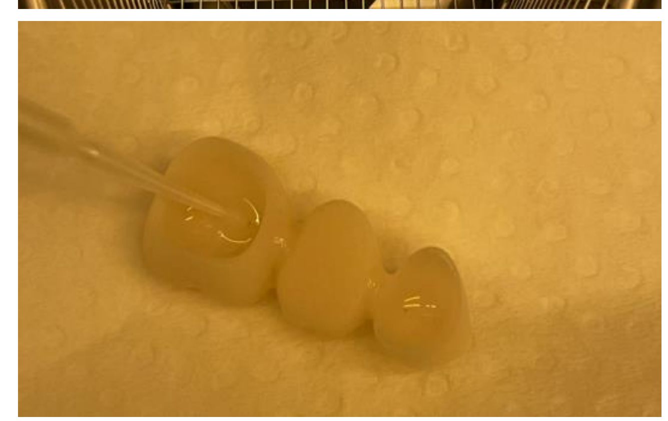
IMPORTANT:

To achieve the desired material properties and biocompatibility, cleaning and post-curing of the completely printed objects is necessary.

For final polymerization place the printed jobs in a washing and curing unit.

Note – The final properties and the final color depend on the cleaning and 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.





Set the following "Settings" for the Medical CW One unit:

Run mode	Drying/curing	
Rotation settings	Curing speed	1/10
	Washing speed	10/10
	Wash cycles	1/10
Temperatures	Warm-up	[on]
	Drying/Warm-up	45°C
	Temp. units	[°C]

Set the following "Run-time" for the Medical CW One unit:

Run-time	Curing run-time	5 min
	Drying run-time	10 min
	Washing run-time	3 min

IMPORTANT: Use new IPA for both cycles

Cycle 1:
Place the part(s) in the Medical CW One stainless steal tank. Add ≥99% IPA to fully submerge the part(s).and select "Washing".

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

IMPORTANT: Ensure removal of all residual resin.

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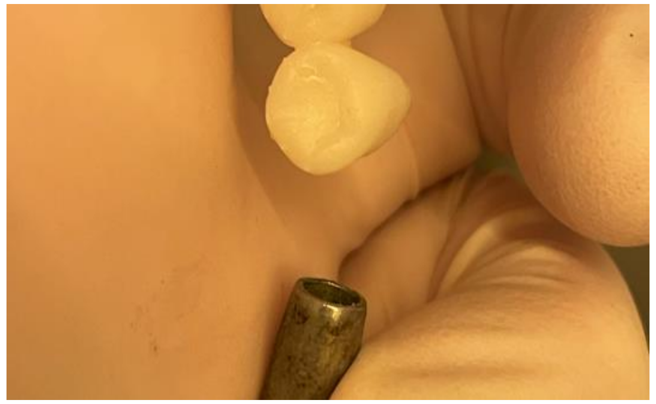

Use air syringe to thoroughly dry part(s) before the Drying and Curing processes.

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).

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 (Al_2O_3, 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.