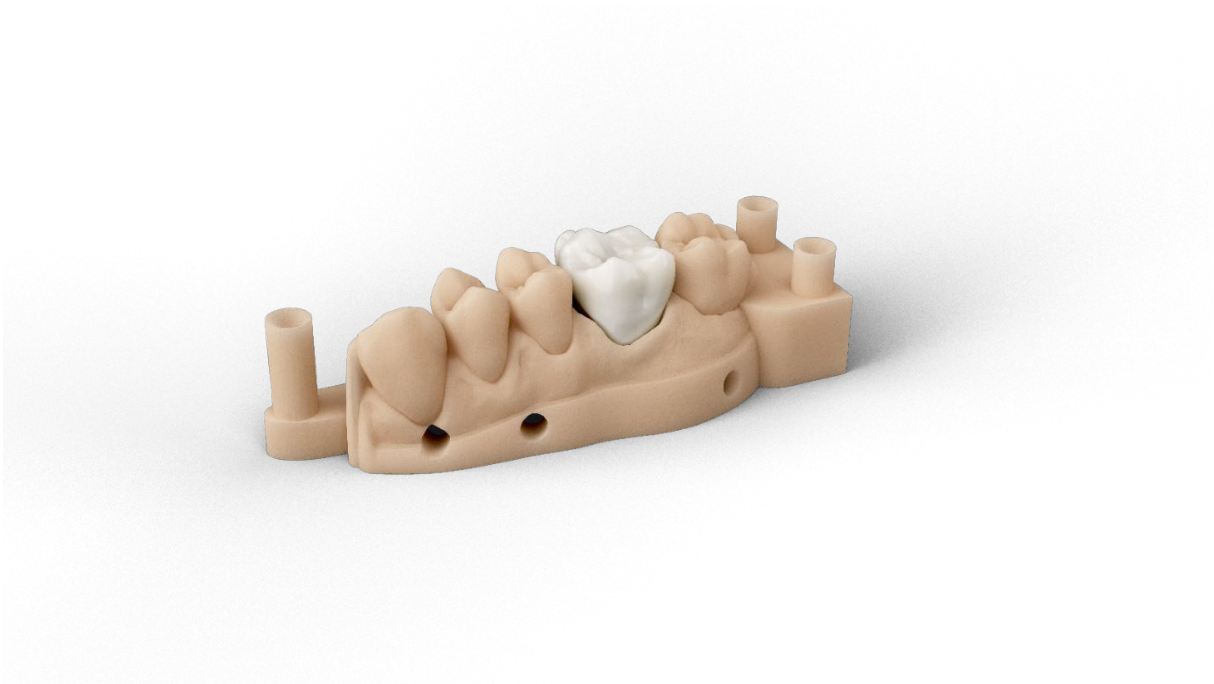


Model X Material Best Practice



Desktop Health™

Manufacturer:
EnvisionTEC US LLC
A Desktop Metal Company
15162 S. Commerce Dr. Dearborn,
Michigan 48120
USA

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Model X material was developed for use in the dental industry for model with removable die system. The manufacturer does not accept any liability for damages caused by any other use of the material. Furthermore, before using the material, the user must independently check for its suitability and applicability for the intended use, especially if not specified in this document. Einstein is a registered trademark of Desktop Metal, Inc. Envision One is a registered trademark of EnvisionTEC GmbH. Desktop Health is a registered trademark of Desktop Metal, Inc.

About Model X

Identification

Model X with its 50-micron build layer allows for exceptionally detailed crowns, bridges with removable dies, implant cases and diagnostic and orthodontic models.

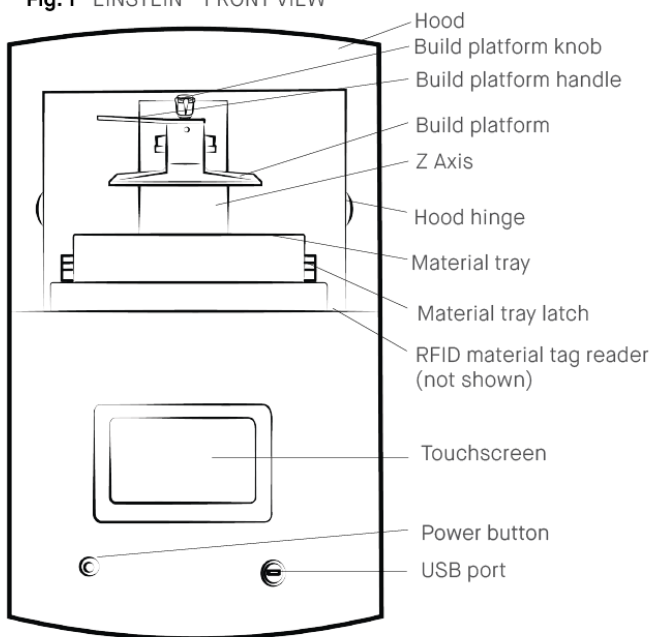
This technical guide details the best practices for preparing models, post-processing, and finishing.

Applicable Printers

This material is tested and approved for the following printers:

- Einstein™
- Envision One cDLM
- D4K Pro

Fig.1 EINSTEIN™ FRONT VIEW



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Getting Started

Primary Supplies

The following supplies are required to print Model X material:

- 99% isopropyl alcohol (IPA).
- Air compressor.
- Cone-shaped paint filter, *Starter Kit item*.
- Curing unit: Otoflash, *SAP Part # ACC-00-0007*, or PCA 4000 *SAP Part # ACC-06-1000*
- Disposable aluminum loaf pan.
- Dual Motion Bottle Roller, *SAP Part # ACC-26-1000 (110V) and ACC-26-1000 (220V)*.
- Nitrile gloves.
- Paint scraper, *Starter Kit item*.
- Paper towels.
- Plastic funnel.
- Rubber spatula, *Starter Kit item*.
- Spray bottle with 99% IPA.
- Snips, precision blade, or similar tool.
- Storage container for material, sealable and opaque.
- Washing unit: PWA 2000, *SAP # ACC-22-2000*.

Capture Patient Data

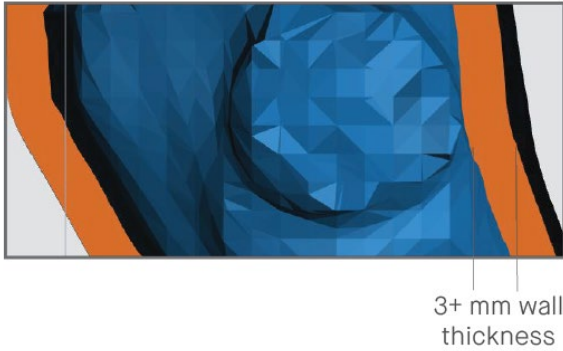
A digital impression can be accomplished with a handheld intraoral scanner and CBCT scan, or with a traditional impression and a desktop box scanner.

Envision One RP Software is compatible with the universal .STL file format and is thus compatible with almost all dental CAD and model design software as well as digital design services. Models may be designed in-house or outsourced to a design partner.

Design Models for Model X

Hollow dental models printed in Model X must have a minimum wall thickness of 3 mm, *Fig. 2*.

Fig. 2 HOLLOW MODEL WALL THICKNESS



It is recommended to add channels or drainage holes to hollow models. This allows uncured material to drain from the hollow feature during the printing process.

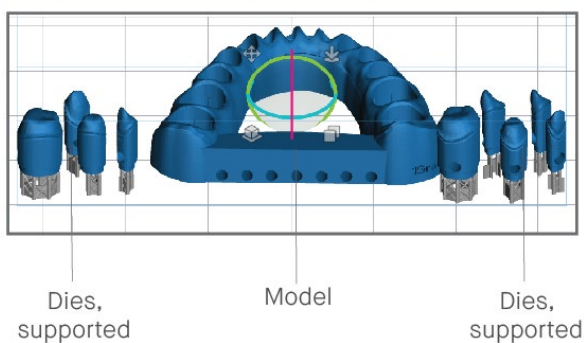
Software

Orient Models Envision One RP Software

Orient models in Envision One RP Software with the flat base side down, parallel with the build platform.

- **Spacing:** place models a minimum of 1.5 mm apart.
- **Level at build platform:** place unsupported models 0 mm from the build platform. Place supported models 4 mm from the build platform.
- **Resolution:** 50 µm Z resolution.

Fig. 3 MODELS IN ENVISION ONE RP SOFTWARE



Support Models Envision One RP Software

Some approved applications require supports. Always use the Model X.ini support file for supports –

- **Minimum support base:** 1.0 mm
- **Minimum contact tip:** 0.45 mm
- **Minimum support beam height:** 4.0 mm

Print Preparation

Mix Material

Model X material must be mixed in the material bottle prior to use:

1. Place the sealed material bottle on the Dual Motion Bottle Roller for a minimum of 60 minutes.
2. Wait for bubbles to subside before filling the material tray.
3. Mix material in the material tray gently with the rubber spatula from the Starter Kit before each print. The material should be a uniform color.

Ensure there are no small cured particles in the material. If found, then the material must be filtered using the plastic funnel, cone-shaped paint filter, and a spare material bottle. See the [Knowledge Base](#) for *filtering instructions*.

Fill Material Tray

Do not overfill the material tray. Overfilling can cause the material to overflow when the build platform moves down at the start of the print job.

To add more material to the printer, carefully pour material into the material tray between prints. Adding material while the print is paused, or during a print, will cause a small shift line in the model. See the [Knowledge Base](#) for *instructions adding material*.

Print with Model X Material

To start the print, follow instructions in the printer's User Manual.

To remove the models from the build platform after the print is complete, follow instructions in the printer's User Manual. See the [Knowledge Base](#) for *the latest User Manual*.

Post-Processing

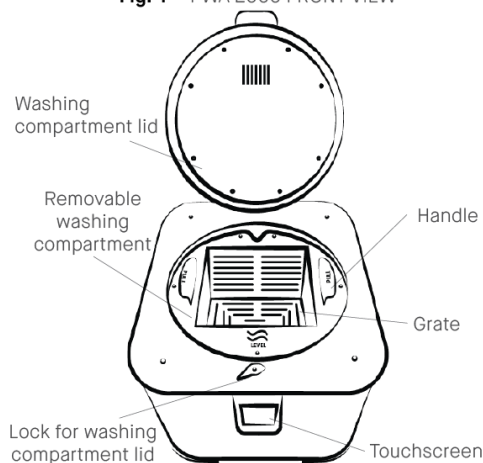
Clean Printed Models

The PWA 2000 is the recommended parts washer, *Fig. 4*. Always wear gloves when handling uncured material and alcohol.



Important: Do not expose Model X to alcohol for longer than 5 minutes. Excess exposure to alcohol may cause discoloration and warping.

Fig. 4 PWA 2000 FRONT VIEW



Clean models the PWA 2000:

1. Open the washing compartment lid.
2. Lift the handle to raise the interior grate to the highest position.
4. Place the model on the grate and gently lower the handle to submerge the model in 99% IPA.
5. Close the washing compartment lid and lock in place.
6. Plug in the power cable to turn on the PWA-2000.
7. Using the touchscreen, select the **High** washing program. Set the timer to 00:03:00, or 3 minutes. Press **Start**.
→ *The PWA 2000 will immediately begin the set washing cycle.*
8. Remove the model as soon as the program is complete.
9. Spray the models with the spray bottle filled with 99% IPA.
10. Use compressed air to remove all IPA from the surface of the model as soon as possible.

Dry Models

Models must be completely dry before post curing –

1. Place the models on a clean paper towel lined surface.
2. Air dry in ambient room temperature / humidity for 10 min.

Post Cure Printed Models

Cure the models using the following method:

Otoflash: 2 cycles for 500 flashes, flip models between cycles.

See the [Knowledge Base](#) for instructions setting an Otoflash curing cycle.

PCA 4000: 1 Minute - 20° C - 100% Power.

See the [Knowledge Base](#) for instructions setting a PCA 4000 curing cycle.

Fig. 5 OTOFLASH FRONT VIEW

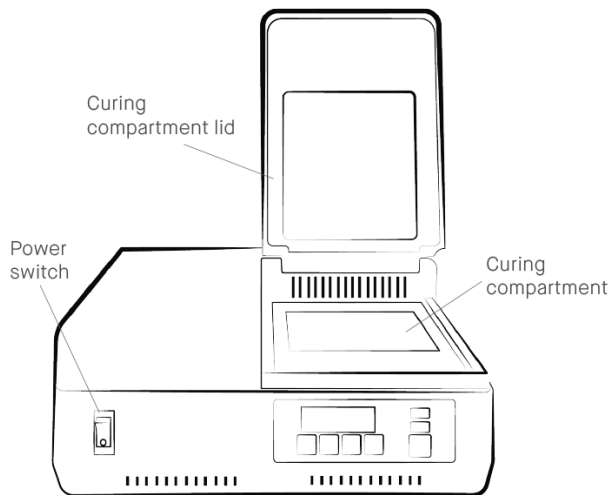
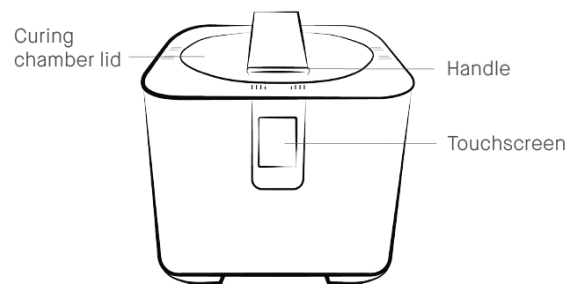


Fig. 6 PCA 4000 FRONT VIEW



Place models into the curing unit with as much space between models as possible. Models should never touch one another while curing. Let models cool completely before handling them or starting the next cycle. Flip models between cycles for an even cure.



Important: Desktop Health does not support third-party curing units.