

# envisionTEC

## Technical Guide

### RE Series Material Best Practices

#### Xtreme 8K DLP

RE series are elastomeric materials with a tough, rubber-like performance, allowing for the 3D printing of models previously made from technical foams, rubbers, or polyurethanes. These high-performance materials are perfect for shoe mid-soles and heel cups, seals, door boots, bellows, foam-like lattice structures and impact parts. This technical guide details the best practices for preparing models, post-processing, and material handling for the RE Series on the Xtreme 8K DLP 3D printer.

**Applicable Materials:** E-RE90, E-RE70

### Primary Supplies

- 99% isopropyl alcohol (IPA)
- Air compressor
- Nitrile gloves
- Paper towels
- Paint scraper
- Storage containers for material - sealable and opaque
- Despatch LFC Class A Benchtop Oven  
[bit.ly/DespatchLFC](http://bit.ly/DespatchLFC)
- Ramco MKD24 Series Immersion Wash/Dry System  
[bit.ly/RamcoWasher](http://bit.ly/RamcoWasher)
- UVCA 2000 curing unit  
Order from EnvisionTEC  
SAP part # ACC-03-1001  
Or: UVCA 3000 curing unit  
Order from EnvisionTEC  
SAP Part # ACC-90-2014

**Fig. 1** MODEL PRINTED IN E-RE90



### Getting Started

#### Designing models for RE series

Models printed in RE series materials must have a **minimum wall thickness of 1.5 mm**.

**Read this technical guide in full** before starting a print in E-RE90 or E-RE70 material.

### Software

#### Orienting models in RP software

- Spacing:** place models a minimum of **2 mm apart**
- Level at build platform for models with supports:** place models **5 mm from the build platform and enable base support**
- Resolution:** only print at **100 µm** and **150 µm Z resolution**

RE series materials have a very high viscosity and require more space between models for the material to flow during a print.

### Material Preparation

#### Storing the material between prints

RE series materials should be stored at a standard room temperature of 70° F (21° C) to 75° F (24° C). These materials work best in a space with a minimum ambient temperature of 73° F (23° C).

**The RE series materials do not separate easily** and do not require a bottle roller for storage. See the *Safety Data Sheet* for material safety information, [EnvisionTEC.com/Safety-Data-Sheets](http://EnvisionTEC.com/Safety-Data-Sheets).

#### Filling the material vat

The material vat should not be overfilled to prevent overflow when the build platform moves down at the start of a print job. See the *Xtreme 8K DLP User Manual* for more information.

To add more material to the printer, carefully pour material into the material vat between print jobs. Adding material during a print will cause a small shift line in the model.

### Post-Processing

#### 1 After a print job is complete

RE series materials have a very high viscosity and uncured material can be difficult to remove from the surface of printed models.

**When the printer completes a print job, leave the printed models on the build platform for a minimum of 20 minutes.** This will allow the majority of the excess uncured material to drip naturally off of the printed models and into the material vat.

#### 2 Cleaning the printed models

Models printed in RE series materials should be cleaned in the Ramco MKD24 Series Immersion Wash/Dry System.

Do not expose E-RE90 or E-RE70 materials to alcohol for longer than the recommended cleaning times. Excess exposure to alcohol will dry out the model.

#### 3 Drying the printed models

All models printed in RE series materials must be dried in the Despatch LFC Class A Benchtop Oven before post curing.

Preheat the convection oven to 140° F (60° C). **Place the models in the convection oven for one hour to dry.**

#### 4 Post curing models

Cure the models using one of the following methods -

**EnvisionTEC's UVCA 2000:** for 40 min

See the *UVCA 2000 technical guide for instructions*

**EnvisionTEC's UVCA 3000:** for 2 x 15 min. Let models cool completely before handling them or starting the next cycle. Flip models between cycles for an even cure.

See the *UVCA 3000 technical guide for instructions*

Place models into the curing unit with as much space between models as possible. Models should never touch one another while post curing. *Curing options vary. EnvisionTEC only supports EnvisionTEC curing ovens. It is not the responsibility of EnvisionTEC to support third party curing ovens.*

#### 5 Finishing the models

The supported surfaces of models can be carefully sanded using a fine Dremel bit followed by sandpaper, beginning with 150 grit.

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