White Paper

Preparation and manufacture of stone in place castings using PIC100 /EC500

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This white paper will set out the procedures needed to successfully manufacture “Stone in Place” castings using a PIC100/EC500 resin mixture and an EnvisionTEC Perfactory 3D printer.

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### Stone in place casting

Stage one, parts must be prepared in the 3D CAD with "pre-cuts" on the stone settings in order to grip the stone sufficiently during the casting process.

Convert to stl file format as normal using .1mm resolution adding supports and casting sprues ideally 4mm in diameter.

Prepare job file and send to either Perfactory® Mini, Aureus or Micro. These machines tend to give the best accuracy and surface finish.

Mix 75% PIC100 and 25% EC500 resin and use PIC100 buildstyle.

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**Perfactory® Micro**

**Perfactory® Mini**

**Perfactory® Aureus**
After growing the model and removing from the printer, clean the jobs thoroughly insuring there are no wet areas.

Using a soft brush and alcohol will quickly clean the jobs. Be sure to remove all uncured resin as that will negatively effect the casting process.

Gently blow air on the jobs to fully dry the alcohol.

After cleaning, place the jobs in the curing unit. Use 6500 cycles 4 times. Be sure to flip the jobs after each curing cycle to insure complete curing of the parts.
Evenly space the jobs in the curing unit to insure all sides receive the light.

Press fit diamonds into pre-cuts.

Make wax investment tree in normal way.
Avoid sharp angles, space evenly, and use 4mm diameter sprue.
Mixing instructions for SRS Stone cast powder (A)

1. Weigh powder 1kg (2.2lb)
2. Measure water 380 - 400cc

Normal Casting: 100/38
1kg powder to 380cc water
1lb powder to 172cc water

Fine Filigree: 100/40
1kg powder to 400cc water
1lb powder to 180cc water

3a. Put water in bowl
3b. Put water in bowl

4a. Add powder to water
4b. Add powder to water

5a. Mix for 3.5 - 4mins
5b. Mix for 5 - 6mins

6a. Vacuum bowl for 1.5 - 2mins
6b. Pour flasks
Mixing instructions for SRS Stone cast powder (B)

1. Pour flasks
2. Vacuum flasks for 1.5 - 2 mins
3. Leave to stand for 2 hours
4. Load into furnace
Further information for the use of SRS investment powders can be found on following website: [www.goldstarpowders.com](http://www.goldstarpowders.com)

For more information on Sarto’s way of “stone in place” casting, please contact Mr. Rohil Mehta via [rohil@sartoelectro.com](mailto:rohil@sartoelectro.com)

For further information on using EnvisionTEC’s equipment and resins please contact [info@envisiontec.com](mailto:info@envisiontec.com)