

# Best Practices

## Lost wax casting using EC500

This paper aims to give a step by step guide on how to use EnvisionTEC Perfactory® machines to make master patterns for lost wax or investment casting.



Questions or comments:  
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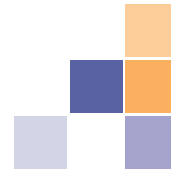
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First the parts need to be prepared in 3D CAD and converted in to a .stl file format. It is helpful if a large 6 mm diameter cone support can be added to the bottom of the shank not only to assist with part building but it is beneficial as this acts as a sprue to allow the metal to flow more easily during the casting process.

The type of perfactory machines commonly used for jewelry pattern production are Perfactory® Mini Series, Aureus or Perfactory® Micro these tend to give the best accuracy and surface finish.

### Perfactory® Mini Series



### Aureus



### Perfactory® Micro



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## Supplies needed

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99% pure alcohol



2 Tupperware containers with lids  
2 soft makeup brushes

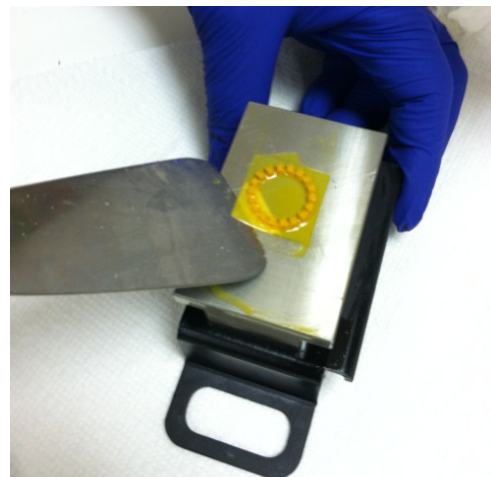


2" spatula



## EC500 Instructions

Using the 2" bladed spatula provided, gently remove the job from the platform



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## EC500 Instructions

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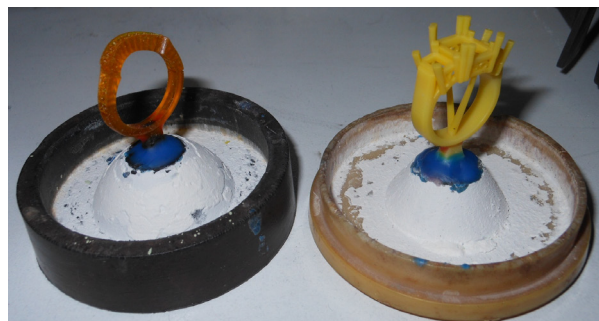
Place jobs in first alcohol solution for 1 minute. Gently shake the container to help clean the parts. Using a soft brush lightly clean the parts. Repeat cleaning in second solution. Using a gentle air stream blow dry the parts completely dry. Do not use an ultrasonic to clean parts.



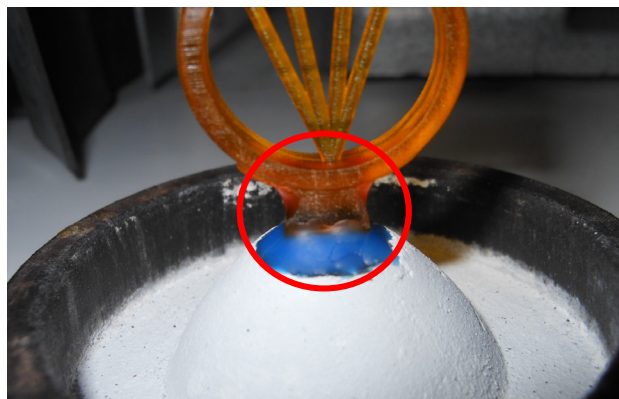
Using the OtoFlash, cure parts on each side using 6500 cycles per side. Rotating the parts cure each side twice for a total of 4 curing sessions.



After curing in OtoFlash, sprue jobs conventionally. There is no need to use debubbler.



Using a hand piece or jewelers saw, taper the sprue lead as shown to decrease turbulence that may cause investment inclusion during casting.



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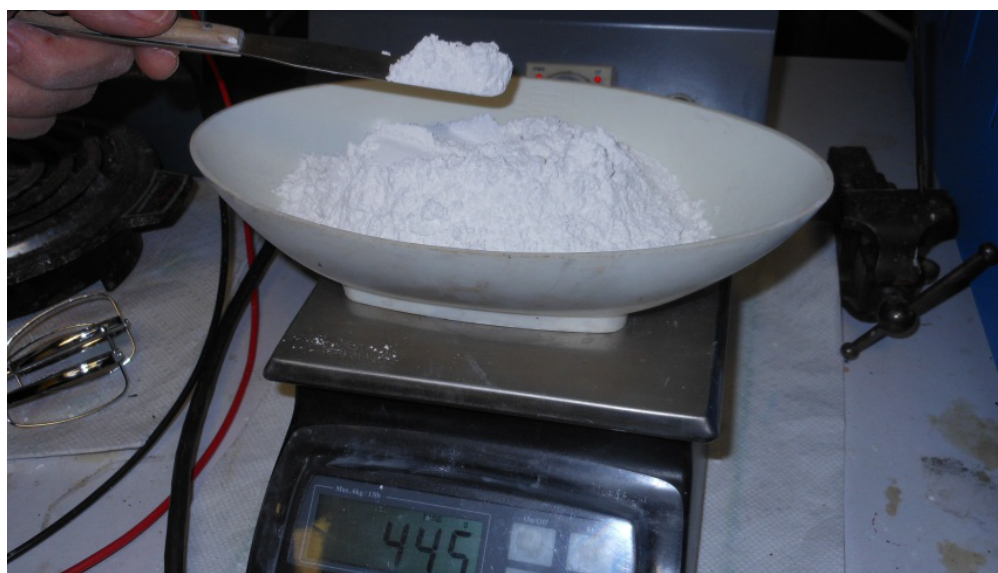
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Invest jobs using Ultravest , UltravestMax or Plasticast. Use a 39/100 water to powder ratio. Always use distilled water. Always be sure to properly measure materials. Our best results were with Plasticast.



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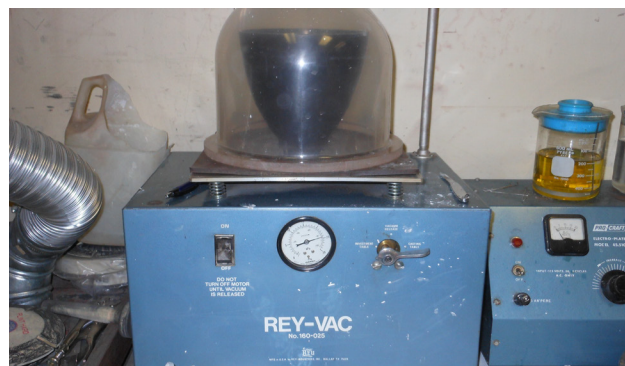
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Mix for a total of 4 minutes.



After mixing, place investment bowl in vacuum for 1 minute.



Pour a thin stream of investment to reduce air bubbles. Once the flask is filled place them in vacuum for 45 seconds.



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Allow filled flasks to bench set at room temperature for 3 hours.



Place flasks in pre-heated 200 °F oven and hold for 3 hours. Ramp up to 1200 °F. @ 800 °F per hour. Hold for 40 minutes. Ramp up to 1350 @ 800 °F per hour and hold for 1 hour. Ramp down @ 500 °F per hour to casting temperature.



Cast per alloy recommendations.



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## EC500 Instructions

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After casting bench cool for 5 minutes on small rings or as long as it takes for the red color to leave the button on larger rings and then quench.



Cast silver part after steam cleaning still connected to button.



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