

White Paper

Rubber molding for Jewelry using HTM140

by Martin Forth and Dave Anderson (GRS Ltd.)

This paper aims to give a step by step guide on how to use EnvisionTEC Perfactory® machines to make master patterns for hot rubber mold production.



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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 for the wax pattern.

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

Perfactory® SXGA+ Mini Multi Lens



Aureus



Perfactory® Micro



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The recommended material is HTM140 as this has the highest temperature resistance of up to 140°C.

Once the parts are built on the machine they need cleaning in Isoproponyl for a few minutes, Parts must be fully dry before next stage (a warm oven can speed this up if parts are palced at 30-40°C for 30 mins). Then the parts can be post cured using the EnvisionTEC otoflash for 1500 flashes per side. The entire clean up process should take no more the 15 mins.



The parts are now ready for rubber moulding preparation. The parts must be coat in GRS PROCAD solution.

This is available from GRS (via www.goldstarpowders.com) or their distributors.

The parts are dipped twice in the solution and allowed to dry for 5- 10 seconds.



The solution will form a barrier between the resin parts and the Silicone / rubber without impacting the surface of the resin pattern or mould. Ensure there is no build up of the formula in fine filigree or stone settings.

UNDIPPED



DIPPED



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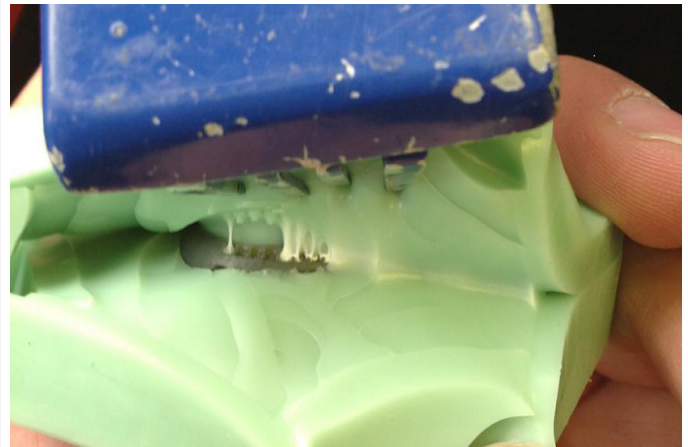


Vulcanise using Silicone 72° at 72°C for 15 mins per 6mm of mould thickness, do not apply full pressure on the mould immediately. Bring the vulcanizer plates together so mould is clamped firmly in the frame then very 15 mins apply a quarter to half a turn of the pressure wheel to fully clamp the mould as the temperature softens the silicone/rubber until it is fully soft.

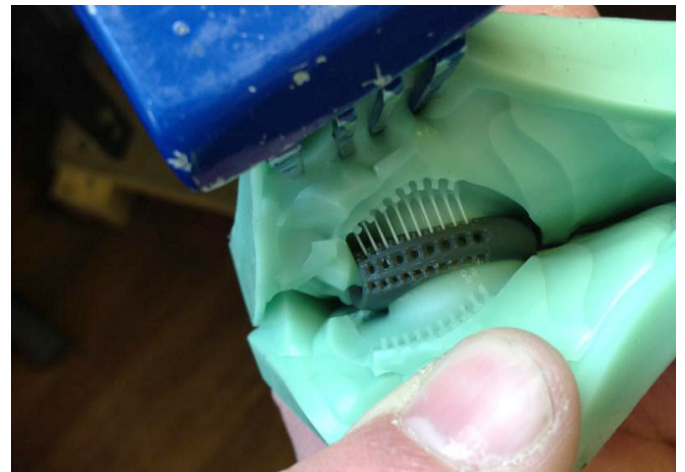


Once vulcanised for the correct time cut using normal techniques.

NOT DIPPED IN GRS PROCAD



DIPPED IN GRS PROCAD



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For further information on using EnvisionTEC's equipment and resins please contact info@envisiontec.com

And for use of GRS PROCAD solution, rubbers and waxes please contact info@GRS-procad.com