



Best Practices

Cleaning, Spruing, Investing, Pressing and Casting for Crown and Bridge

Questions or comments:
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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®4 DDP, PixCera or Perfactory® Micro these tend to give the best accuracy and surface finish.

Perfactory®4 DDP



PixCera



Perfactory® Micro



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Parts Cleaning



The practices below are recommended for crown and bridge applications
 These practices apply to Press-E-Cast (WIC300) and EC500 materials

Supplies needed		Page 2
99% pure alcohol		
2 Tupperware containers with lids 2 soft makeup brushes		
2" spatula		

Parts Cleaning Instructions	
Remove job from printer	

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Gently remove jobs from platform using spatula



Place jobs in alcohol solution for 1 minute
Gently shake the container to help clean the parts
Using a soft brush lightly clean the copings as shown below



Using a gentle air stream, dry the jobs completely



Place jobs in clean alcohol container
Gently shake the container to help clean the parts
Using a soft brush lightly clean the copings as shown below



Any shiny areas are uncured resin. Be sure to remove all uncured resin as that will negatively effect the casting process.



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Using a gentle air stream, dry the jobs completely



Place jobs in Otoflash and set unit for 50 cycles (about 10 seconds)



Close the lid and press the start button

CAUTION: do not use the Otoflash unit with the lid open



Spruing

Supplies needed

- Casting investment
(Zubler 144 recommended although others may work as well)
- Investment rings with bases
- Sprue wax
- Runner bars



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Spruing Instructions (continued)

Verify fit of job on model



Pressing

Pressing Instructions

Sprue conventionally using 8 gauge sprues

- » Allow 5 mm between each job
- » Allow 10 mm between the jobs and the ring walls
- » Use 200 gram rings for multiple units
- » Use 100 gram rings for single units



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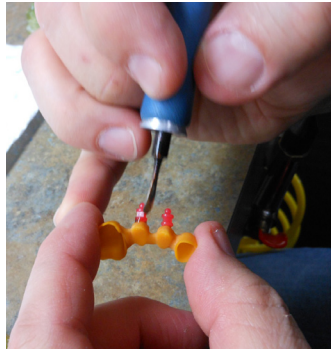
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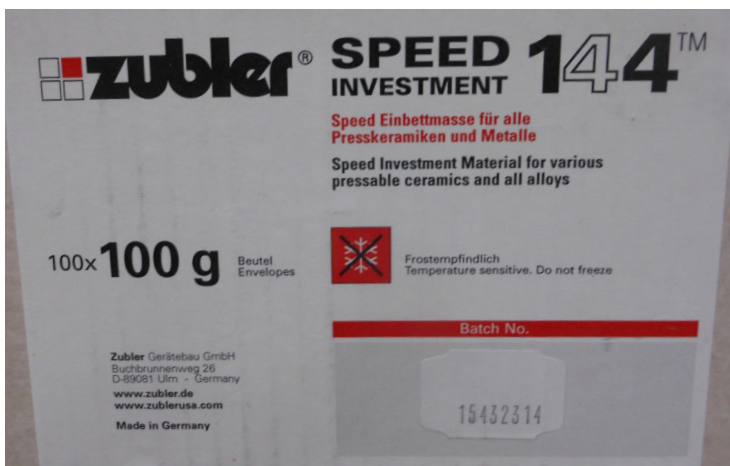
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Casting



Casting Instructions		Page 6
<p>Sprue conventionally for the desired alloy</p> <ul style="list-style-type: none"> » Allow 5 mm between each job » Allow 10 mm between the jobs and the ring walls » Use 200 gram rings for multiple units » Use 100 gram rings for single units and smaller jobs 		
<p>Be sure to always use wax sprues and runner bars</p>		

Investing

Supplies needed	
<p>Casting investment <i>(Zubler 144 is recommended although others may work as well)</i></p>	
Scissors	
Spatula	
Investment mixer	
CC graduate or liquid pipette	
Non alcohol surfactant	

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Shake the investment bag so that all material is away from the top of the bag

Using a scissors, cut the top of the bag.

Caution: do not try to tear the bag to open

Mix investment per manufacturers instructions



Mix investment per manufacturers instructions



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Prior to mixing investment, spray a non alcohol surfactant and remove with a gentle air stream

After mixing investment, pre-invest the jobs internally to be sure there are no bubbles



Pour investment from one foot away to insure there are no air bubbles in the investment



Hold the ring on the vibrator at an angle to reduce trapped air



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Set your timer for the appropriate ring size per investment manufacturers instructions



For either casting or pressing
 Place rings in pre-heated 1200 F. oven for 40 minutes minimum
 When placing more than 4 rings at 1200 add 20 minutes or more
 Transfer rings to pre-heated 1600 F. oven for 1 hour for 1 to 4 rings
 Add 10 minutes for each additional ring over 4



Additional Tips

For casting purposes, material density is 1.05 grams, Carnauba is .97 grams and typical casting wax is 1 grams, therefore we are slightly heavier than casting wax but not by much.

For pressing we suggest you weigh the crowns with sprues attached for a single ring. If the weight is .9 grams or below then you can use a single 3 grams ingot of Emax. This should give you a button weight of at least .8 grams.

There is a problem with using 2 ingots as there can be a seam between the 2 ingots that is noticeable after pressing and too much material can cause fins in the product or even cracks in the ring.

If your weight is over .9 grams, then we suggest you go to a 6 grams ingot rather than using 2 ingots (due to a possible seam). When pressing 6 grams your button weight should be between 3.5-4 grams.

In pressing managing the amount of material used is critical for success no matter what wax is used.

Please keep in mind that humidity changes will cause unwanted fins in investment (too high) or tight fits (too low). We suggest you monitor the humidity levels in your investing area and watch for seasonal changes.

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