

6 Simple Steps to Becoming a Lost Wax Casting Pro



Lost wax casting blends old and new in truly remarkable fashion. Our industry is constantly changing, adapting ancient techniques to modern technology. So, we've asked our experts to walk us through lost wax casting:

STEP 1 – PATTERN

Wax patterns are made by one of the following ways: carving, build-up, hand forming, or mold reproduction.

STEP 2 – SPRUING OR SETTING UP



Spruing is the leading cause of shrinkage porosity, or the pits you see during polishing. Fix this by ensuring the following:

- The sprue should be thicker than the heaviest part of the pattern.
- It should also be attached to the heaviest part of the pattern as well.
- The sprue should be no longer than is absolutely necessary.

These are much more effective than looking for that optimum (magical) cast temp.

STEP 3 – INVESTING

Investing is more chemistry than craft. Measure your powder and water and follow your supplier's instructions for mixing, curing, and burnout. Keep this in mind: your casting surface is only as good as your wax and investing procedures.

- Weigh investment material and measure water according to manufacturer's recommendation.
- Fill flask containing wax pattern and either vacuum or vibrate to remove air from the slurry.
- Allow invested mold to air-dry for two hours or more before starting the burnout.



STEP 4 – BURNOUT

- Place invested flask in furnace preheated to 300°F. Hold at this temperature for one hour or until the wax has drained.
- Raise temperature at the rate of 300°/400°F per hour until temperature of 1350°F is reached.
- Hold temperature at 1350°F for two hours or more.
- Drop temperature to the desired temperature for casting.



Check the burnout oven to be sure there is adequate air supply and exhaust.

STEP 5 – CASTING

If possible, use an alloy that is formulated for investment casting. This will give you cleaner, brighter castings and recycle longer. Always add fresh metal to keep it rejuvenated. Unfortunately, you can't roll or fabricate a deoxidized material.

- Mold temperature at the time of casting is determined by the size of the casting. For example, delicate rings are usually cast into molds of approximately 1000°F while molds for heavy rings are usually cast at about 700°F.
- When vacuum-assist casting, the sprue should be about 25% larger than that used when casting with a centrifugal casting machine.
- The weight of gold is 14 times that of wax.
- The weight of silver and bronze is nine times that of wax.



STEP 6 – CLEAN UP

Often, we discount the importance of proper quenching techniques. Quenching at the right time with the correct method for that alloy will ensure good mechanical properties at the bench. Get advice from your metal supplier. All precious metal alloys, especially nickel-white gold, respond well to quenching.

- Flasks containing gold or silver castings can be quenched in water four or five minutes after casting.
- Fire scale and discoloration can be removed with an acid pickle solution.



Here are some of our top recommendations for lost wax casting equipment:



For Vacuum Casting: [22-1305](#)



For Spin Casting: [22-3600](#)

And for investment:



For Gold/Silver:
[22-4746](#)



For Resin: [22-4748](#)



For platinum: [22-4745](#)

Have any lost wax casting questions? Ask away in our comments section below and we'll get our Tools Tech experts to help you out!