

RECOMMENDED CASTING INSTRUCTIONS

IN DC400, DC500, DC550 CASTING RESINS

✓ **Premise:** Control that the models are clean and dry.

PREPARING THE WAX TREE

✓ **Prepare wax supports** of proper dimensions (indicative diameter: 4 mm).

✓ Take each model and remove from it the useless supports, maintaining the ones at the bottom and the central ones



• **Do not remove the supports inside the rings.**

✓ Connect the resin models to the wax supports by making sure the base of the support and all the junctions are well surrounded by wax and creating a whole thing.

✓ **Then, connect the resin models to the wax casting tree.**



The choice of the GYPSUM POWDER is relevant

In our long experience we made (and we are still making) tests on different gypsums that may perfectly match with our resins. At present we recommend the use of the following gypsum:

- **Plasticast** produced by **Ransom & Randolph**, since it is ideally suited for investment and burnout of commonly used plastic or wax/plastic pattern materials.
- **Omega +** produced by **Goldstar**: the flask has to be inserted when the oven is already at 600°C
- **Satincast 20** produced by **Kerr**

The high expansion of these pattern materials requires an equally highly expanding, extra high strength investment.

✓ Use only fresh investment: make sure you carefully close the sack removing all the air inside (squeeze it and then close it). Moisture or humidity may disturb the quality of the powder and alterate the final result.

✓ Keep the sack of the gypsum in a dry room.

PREPARING THE FLASK



• **Use a water/powder ratio of 36% (36% water on 100% gypsum).**

✓ Use a cylinder with holes/ a perforated cylinder so to improve the drying of the investment.

✓ Wrap the cylinder with paper tape, so to “close” all the holes (by this, the liquid investment will not pour out later).

✓ Position the casting tree inside the cylinder and place it into the mixer machine.

✓ **Mix water and gypsum for 3-4 minutes under vacuum.**

✓ Pour the investment in the cylinder and immediately proceed with **vacuum suction for degasification for less than 1 minute.**



• **Pouring + Degasification last maximum 5 minutes in total.**



• **Glossy Off: the investment must lose its shiny brilliance in around 90 seconds, not less than that.**

<90 seconds: the investment is too hard

>90 seconds: the investment is too liquid

In accordance with this, adjustments in the casting process need to be done.

• Leave the flask on a flat and stable surface (no vibrations) for at least 1' 30" (one hour and a half).

THE IMPORTANCE OF THE OVEN IN THE BURNOUT CYCLE



- Use a ventilated oven/furnace. Oxygen helps the burnout preventing the creation of ashes and gases.



- Start the cycle 5 hours after the mixing (the investment reaches its maximum hardness in the cylinder) in order to obtain the best results.



- Turn the cylinder upside down at least 1' 30" – 2' hours before the casting and leave it with the opening upwards inside the oven. This helps the complete discharge of the burning gases and/or of eventual ashes.

ADVISED BURNOUT CYCLE (8 hours)

The burnout cycle can be remarkably different according to the kind of oven used.

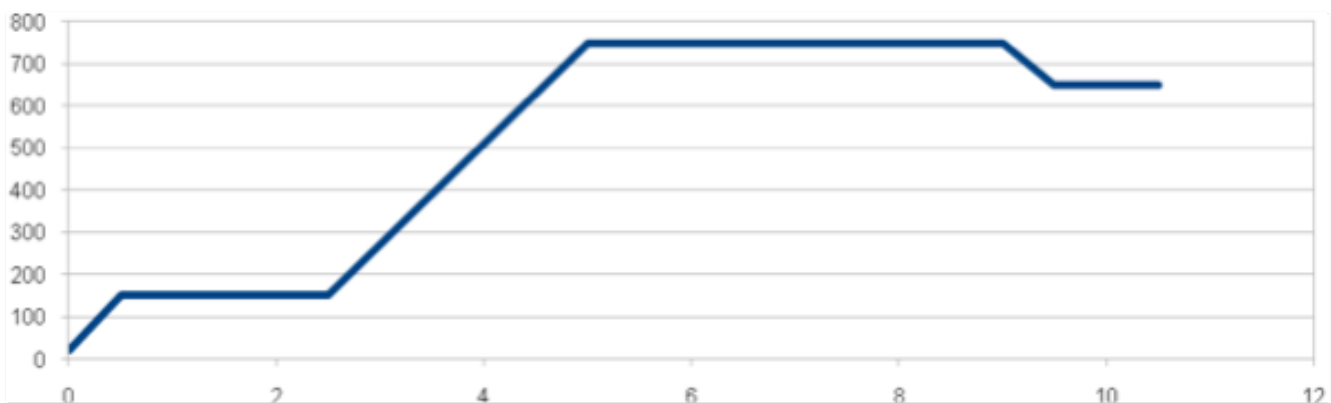


- A gradual and moderate rise of the Temperature is recommended.



- The temperature of the cylinder may be affected by many factors: size and number of models per casting tree, kind of metal used for the casting, temperature and casting equipment/machinery.

Temperature	Time	Accrual of rise
150°	2 h	4 degrees/min
750°	5 h	4 degrees/min
650°	1 h	4 degrees/min



- The temperature of 650° C is an indicative value. The cycle may be adjusted there where the oven cannot reach high temperatures because of a lower power

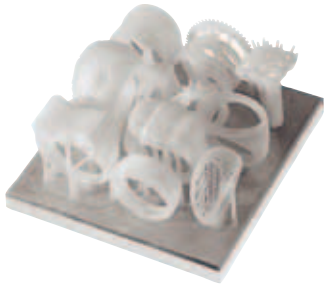
POST-PRODUCTION TREATMENT OF THE MODELS

IN DC400, DC500, DC550 CASTING RESINS

Premise:

All operations here described are to be carried out without exposing models to direct light (especially sun light and especially before the cleaning operations).

FROM THE PLATFORMS



TO THE FINAL MASTERPIECE



- ✓ Remove the models from the building platform by using a spatula (smooth or dented, depending on the kind of platform you have, flat or grooved) or a scraper.

CLEANING THE MODELS

- ✓ Clean the models **one by one**.



- **Do not clean the models when already fixed to the wax tree. This will prevent an accurate cleaning and will only move the residual resin in interstitial parts of the models without eliminating it.**

- ✓ **You can clean it:**

a) by spraying the model with alcohol (>90%) and then drying them with compressed air

b) if possible, by plunging the model in a cup with alcohol (>90%) then placing the cup in a ultrasonic washing machine **for no longer than 2 minutes**. Be careful water and alcohol do not mix. Then dry the model with compressed air. If necessary, repeat the operation but do not exceed the time the model remains in the alcohol.



- Do not leave models in alcohol for more than 2-3 minutes.
- Do not clean the models with water, the resin is hygroscopic (it absorbs water/moisture) and this may disturb the burnout cycle.
- Remember to repeat the cleaning operations **JUST** before the casting, especially if the models have rested for more than 4 hours or after their transport. Resin may release some grease.

HARDENING THE MODELS

- ✓ When the model is perfectly clean and dry, put it into the UV curing unit for 20-30 minutes (depending on the size of the model).



The UV curing unit has the aim to complete the polymerization of the resin started by the BlueEdge® Lasers. All eventual residuals of resins in the models in this step, will be hardened, thus creating a visible defect during the casting.



Clean and dry the already cured models every time just before the casting process.

