

Beauty-Cast investment

Properties*

Water/Powder Ratio	Working Time	Set Time	Set Expansion	Thermal Expansion at 1202°F (650°C)	Hygroscopic Expansion	Compressive Strength
30/100	3 minutes	14.5 minutes	0.40%	1.20%	1.50%	700 psi (5 MPa)

*These results are based on the testing methods, frequency and procedures of Ransom & Randolph or its approved suppliers. The levels referenced herein are only for general guidance and do not constitute a firm specification.

Step 1: Preparation

Pattern Preparation

1. Attach sprue to the wax pattern using pliable sticky wax.
2. Mount patterns on crucible former base.

Ring Preparation

3. Line casting ring with liner positioned 6–12 mm short on each end.
4. Tack down in place with pliable sticky wax.
5. Soak lined ring in water for a minimum of one minute, then shake well (5 times).
6. Place ring onto former base.

Step 2: Mixing/Investing

Mixing

1. Prepare the deionized water at the suggested ratio for expansion desired using the chart below.*

Powder	50 g	75 g	100 g
Water	15 mL	22.5 mL	30 mL

*More expansion is realized with a lower water/powder ratio. Less expansion is realized with a higher water/powder ratio.

2. Add measured water to the mixing vessel first, then add weighed powder.
3. Hand spatulate for approximately 15 seconds to wet-out the powder.
4. Mechanical mix under vacuum at slow speed (350–450 rpm) for 30–60 seconds.

Investing

5. Pour the mixed investment into the ring no more than ¼ inch (6 mm) over the top of the ring using the normal techniques to avoid trapping air (i.e., vibration, rolling, brushing, etc.).

Step 3a: Thermal Technique

Bench Set

1. Allow the ring to set for for a minimum of 30–40 minutes in a vibration free area.

Burnout

2. Remove the base and flask (if applicable) before trimming the glaze off the top of the mold.
3. Place the mold in a room temperature oven.
4. Ramp the oven temperature at a rate of 15°F (8°C) per minute up to 1200°F (650°C).
5. Allow the oven to hold at the target temperature for at least 10–15 minutes prior to casting, adding 10 minutes per additional ring.

Step 3b: Hygroscopic Technique

Bench Set

1. While the investment is still fluid, immerse the invested ring under water at 100°F (37.8°C) for 30–40 minutes.

Burnout

2. Remove the base and flask (if applicable) before trimming the glaze off the top of the mold.
3. Place the mold in a room temperature oven.
4. Ramp the oven temperature at a rate of 15°F (8°C) per minute up to 1200°F (650°C).
5. Allow the oven to hold at the target temperature for at least 10–15 minutes prior to casting, adding 10 minutes per additional ring.

Step 4: Casting

1. Follow the alloy manufacturer's recommended metal temperatures.

2. To avoid cracking or finning, melt the alloy with a gas/air torch and use the centrifugal force casting method with only 1–2 turns.
3. Allow casting to cool according to the alloy manufacturer's instructions.

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Step 5: Divesting

1. Carefully break apart the mold using tools, such as a hammer, while using the proper personal protective equipment to avoid inhaling dust particles.
2. Remove any residual investment by cleaning the casting with blasting media before polishing.

Tips

- Always use a metal ring when investing gypsum investments.
- To avoid cross-contamination, use separate mixing bowls for phosphate and gypsum investments.
- Higher RPM mixers may require decreased mix time (90 seconds).
- 12 hours after investing, re-wet the mold prior to burnout by soaking in water for 1–3 minutes.
- Supporting the mold above the oven floor is helpful for clean burnouts.
- Running the oven with open vents aids in combusting all the pattern materials.

Storage

Keep container tightly closed when not in use. Store investment in a dry area at room temperature. Shelf life is 2 years from the date of manufacture found in the first six digits of the lot number on the label in MMDDYY format.

Safety

Danger. Contains crystalline silica. Causes damage to lungs through prolonged or repeated exposure by inhalation. Avoid skin or eye contact. Avoid breathing dust. Wear protective equipment when handling. Wash hands thoroughly after handling. See SDS for more information.

North America: May cause cancer by inhalation.

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