

Tips for Investing Flasks when Casting

by Daniel Grandi

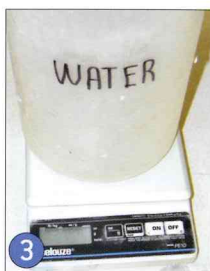
Casters knows that when they're investing flasks, improper techniques can lead to finning, flashing, water marks, and a host of other problems. In this Tech Sheet, Daniel Grandi of Racecar Jewelry Co. in Cranston, Rhode Island, shares some of the investing tips he's learned in more than 30 years of contract casting for companies of all sizes.

The Right Weigh #1:

A Scale for Measuring Investment

Many companies use spring-operated scales (1) to weigh their investment in pounds or kilos. However, these scales can often be inaccurate when measuring weights of 20 lbs. or more.

In our shop, we use a large digital scale (2) similar to the ones used by meat departments in grocery stores. These scales are very accurate and can easily accommodate the required weights necessary for most home and commercial casters. Place a simple plastic bucket on the scale and "tare" or zero the scale (to account for the added weight), then weigh your investment according to the investment manufacturer's guidelines.



The Right Weigh #2:

Measuring Water for Investment

When it comes to measuring water for investment, most investment manufacturers tell you to measure your water in cubic centimeters (cc's) or milliliters. Most casters will buy a graduated cylinder for this purpose—not realizing that they can weigh the water. In the metric system, 1 cc = 1 gram, so if

you need 182 cc's of water, you will also need 182 grams.

We use an inexpensive digital postal scale (3) to weigh our water, which will measure up to 10 lbs. (over 4,500 grams) and is perfect for small shops. Weigh the water in a large plastic container (again, account for the added weight). This way, you can use a sponge to easily add or reduce water as needed, without removing the container from the scale.

Measuring Up:

Investment/Water Ratios

Most investment suppliers usually have a flask chart that will inform you of the amount of water and investment needed for each flask size, as well as the ratios for different investment strengths. How strong you want your investment will depend on what you're casting. If you are casting thin, filigree designs, a good starting point would be a 40:100 ratio (40 parts of water to 100 parts of investment). If you are using the metric system, this would mean 40 grams (or milliliters) of water and 100 grams of investment.

If you are casting heavier components, such as trophy handles and items that are similarly thick, try starting with a 38:100 ratio. This will make your investment less susceptible to cracking and investment failure.

A Good Draw:

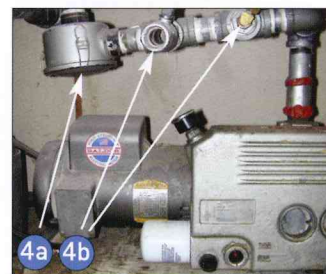
The Importance of Vacuum Pumps

Successful investment mixing depends on many things, not the least of which are fully functional vacuum pumps. Many of the large vacuum pump manufacturers recommend that you run the pumps for about a half hour before and after investing. The reason for this is so the pump will become hot enough to achieve operating temperature and to evaporate any water that may have been collected in the oil of the pump during the investing process.

To ensure your vacuum pump works to its full potential, you need a suitable filter. Unfortunately, many small investing machines do not come with filters. In such a case, you might want to use a car oil filter with a remote mount, which can be bought from any automotive store.

The remote mount is important, because where you place the filter can make a difference. In my shop, we mount the filter so that it hangs in a downward position (4a); this way, when you remove it, the dirt and plaster dust that builds up won't go into the vacuum hose or fall into the lines of the pump. We have also installed the filter on the suction side of the pump, before the valves and gauges (4b); this will keep the gauges, valves, and oil much cleaner and extend the pump's life.

Successful investment mixing also depends on accurate measurements, which brings us back to the initial tips on this sheet. By having accurate scales to measure your investment and water (not to mention having well-maintained equipment), you should be able to achieve excellent results.



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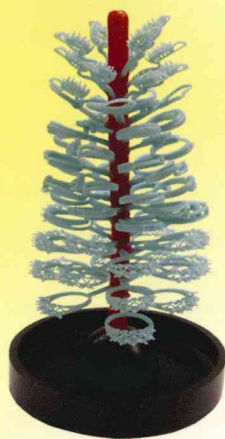
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3535 Briarfield Blvd.
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