

## Information On Metal Casting Crucibles

A pot in which metal is held, while melting in a furnace is called as a "Crucible." It is made of silicon carbide and clay graphite.

Shapes of crucibles: A bilge shaped crucible has the shape of a barrel. The part of the crucible in the middle region is called as a bilge. This is the widest part of the crucible and has the maximum diameter. The top of the crucible has lesser diameter than the bilge. The base of the crucible has lesser diameter than the top. As per a thumb rule, the # of a bilge crucible is the number of pounds of aluminum that it would hold. For bronze and brass, thrice the # can be held. For instance, a #5 bilge crucible can hold almost 5 pounds of aluminum and 15 pounds of brass. This thumb rule is applicable for bilge shape only.

An "A" shaped crucible has a narrow bottom and a wider top. There are straight sides that are bent outwards. The diameter continuously increases from the base to the top. As it is simpler to manufacture this shape than the bilge one, the A shaped crucible has a lesser cost. When compared with the equivalent bilge style, the capacity of the A shaped crucible is lesser.

Both the above mentioned shapes can be manufactured in Clay graphite and silicon carbide.

Properties of crucibles: A crucible must be able to bear the extremely high temperatures of the molten metal. For this, the melting point of the material used to create the crucible must be more than the melting point of the metal that is placed in the crucible. Also, the crucible material must have excellent strength even in the white hot state.

For melting metals like aluminum and zinc, a steel crucible made at home can be used. The reason is that the melting point of aluminum and steel is lesser than steel. In this case, the interior surface of the steel crucible undergoes flaking or scaling. Due to this scale, the molten metal is polluted. The thickness of the crucible walls decreases fast. Hence, a coating of marcote-7 is applied to the inner surface of the steel crucible. The use of steel crucibles is okay if the contamination due to the scales is not regarded serious.

Materials used: To construct a crucible, the usual refractory materials (i.e. carbon bonded silicon carbide and clay graphite) can survive the extremely high temperatures of work of a foundry. In addition, silicon carbide is a very durable material.

Some of the clay graphite crucibles can be used up to 2750 degrees Fahrenheit. Some A shaped crucibles are used up to 2000 degrees Fahrenheit. These crucibles can be used to handle gold, silver, bronze, brass, aluminum and zinc alloys.

The A shaped crucibles have a rough surface finish and there are dents along the rims. However, this roughness does not interfere with the performance by any means.

While handling crucibles, correctly fitting tongs must be used. In correct tongs can lead to damage or total failure of the crucible. In between the base of the furnace and the crucible there must be a disk of cardboard or a coating of Plumbago.

### About the Author

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