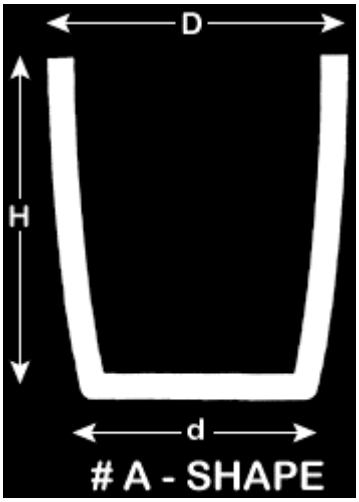
Bilge vs. “A” Shaped

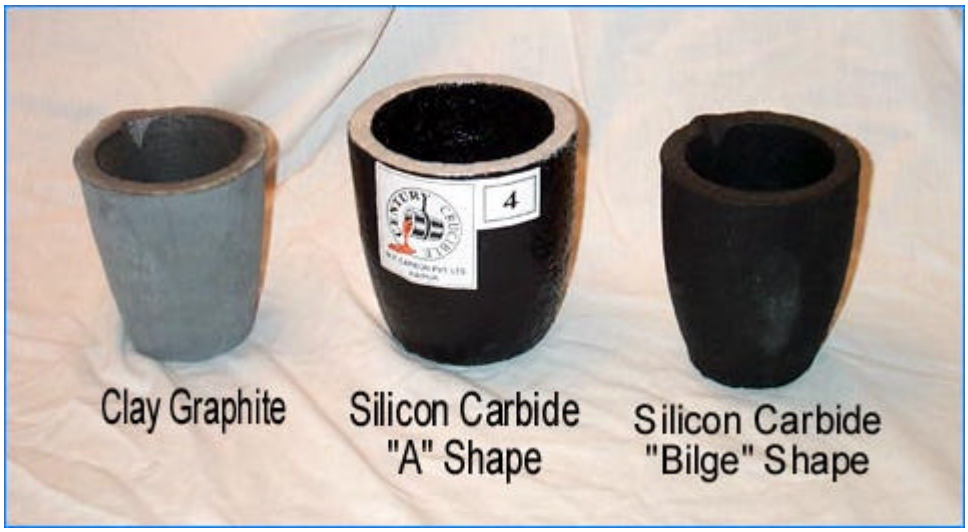
Crucibles

A common question is “What is the difference between the Bilge and the “A” Shape crucibles?”. I believe that the usage of the different crucible shapes is more traditional than functional. In the U.S. the bilge shape has been the more commonly used style. However lately the A shape has been increasing in popularity due to it's lower cost.

There is a school of thought that says the bilge shape has the advantage of having less surface area exposed to the furnace atmosphere because of its shape. As the level of the metal goes up inside the crucible, the surface area goes down. However I think that this isn't really a factor because often the crucible is not full and most people use a cover flux when melting. The cover flux keeps the furnace gasses away from the melt. Also the surface area of the puddle is actually as wide or wider in a bilge style during the melt down process. It's only when the crucible is full that the surface area is less.

Another consideration is the way in which tongs can grip the crucible. Here the A shape may have an advantage due to it's outward sloping sides. This shape is less prone to slip thru the tongs, whereas the bilge shape could slip if the tongs are trying to grip the crucible above it's widest point (the "bilge").
The only significant difference I can see is the price. The A shape are less expensive to make because they can be released from the forming tool easier due to their draft.





Crucible Shapes:

***"Bilge"* Shape:** A bilge shaped crucible is shaped like a barrel. The bottom is smaller than the bilge (widest part of a barrel), the bilge is the maximum diameter, and the top is smaller than the bilge, but typically larger in diameter than the base.

"A" Shaped: The base is the smallest diameter, and the sides taper outward the whole way up to the top. The top has the largest diameter.

Clay-Graphite Crucibles

"Bilge" Shape

Standard Dimensions & Capacities (inches)

Crucible Size	Height	Top Diameter	Bilge Diameter	Bottom Diameter	Pounds of Aluminum	Pounds of Brass	Pounds of Iron
#0000	3 1/16	2 5/8		1 7/8	.46	1.46	1.35
#1	3 13/16	3 5/16		2 3/8	1	3.2	3
#2	4 1/2	3 7/8		2 7/8	2	6.4	5.9
#3	5 3/16	4 3/8		3 1/16	3	9.6	9
#4	5 1/2	4 3/4		3 5/16	4	12.7	11.7
#6	6 3/4	5 9/16		3 7/8	6	19.1	17.6
#8	7 3/16	5 7/8		4 1/2	8	25.5	23.4
#10	8 1/16	6 1/4	6 5/8	4 7/8	10	31.9	29.3
#16	9 5/16	7 1/8	7 3/8	5 1/2	16	51.0	46.8
#20	10 5/16	7 13/16	8 1/2	6 1/8	20	63.7	58.6
#30	11 1/2	8 5/8	9 5/16	6 13/16	30	95.6	87.8

Silicon-Carbide Crucibles

"Bilge" Shape

Standard Dimensions & Capacities (inches)

Crucible Size	Height	Top Diameter	Bilge Diameter	Bottom Diameter	Pounds of Aluminum	Pounds of Brass
#4	5 3/4	4 3/4	4 3/4	3 1/8	4	12.7
#6	6 9/16	5 3/8	5 3/8	3 3/4	6	19.1
#8	7 3/16	6 1/16	6 1/16	4 1/16	8	25.5
#10	8 1/8	6	6 9/16	4 5/8	10	31.9
#16	9 1/4	7	7 7/16	5 1/4	16	51.0
#20	10 1/8	7 13/16	8 1/2	6 1/8	20	63.7
#30	11 1/2	8 11/16	9 1/2	6 13/16	30	95.6
#40	12 7/8	9 1/2	10 3/8	7 1/2	40	127.0

Silicon-Carbide Crucibles

"A" Shaped

Standard Dimensions & Capacities (inches)

Crucible Size	Height	Top Diameter	Bottom Diameter	Wall Thickness	Pounds of Aluminum	Pounds of Brass
#4	6 1/4	5 3/4		5/8	4	12
#6	7	5 3/4		5/8	6	18
#8	7 1/4	6 5/8		5/8	8	25.5
#10	7 5/8	7		5/8	10	31.9
#16	8 1/2	7 3/4		3/4	16	51.0
#20	10	8 7/8		3/4	20	63.7
#30	10 7/8	10 1/4		3/4	30	90