Drop Ring Glass Slumping

Provided by AMACO (American Art and Clay Company)

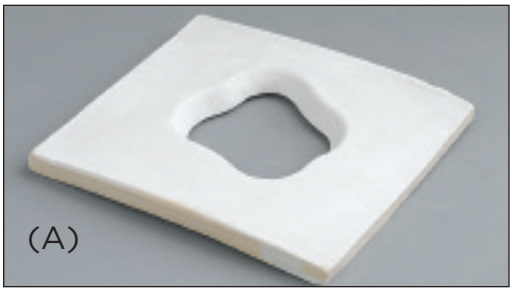
The drop ring technique of glass fusing involves leaving the center part of the glass piece unsupported so that the glass may slump down into space based only on its own weight and gravity. Drop ring firing is a visual technique that requires the operator to peek inside the kiln between 1350°F and 1400°F in order to watch how far the piece is sagging. Welders' protective glasses should be worn while the operator quickly looks then closes the kiln back up. Leaving the door open too long will cause the kiln to drop a lot of temperature.

Grade Levels 9-12+

Process

Make a Drop Ring:

The drop ring hole may be round or irregularly shaped and should be slightly larger than the sheet of glass that is being dropped. The ring may be made out of any fired moist clay, however, more porous clay bodies such as Amaco® No. 27 White Sculpture Raku clay or Amaco® No. 38 White Stoneware clay withstand thermal shock well and are recommended. The drop ring may be used multiple times before deteriorating or cracking. When creating a drop ring, a smooth beveled hole is cut into the clay for the glass to drop down through, see (A) for an example. Size the hole so that at least 1/3 of the glass sheet is still supported by the ring on all sides. Apply a thin coat of Kiln Shelf Wash and fire Amaco® No. 27 or Amaco® No. 38 clay drop rings between cones 05-5.



A drop ring can be created from fired moist clay. Make a smooth, beveled edge for the glass to slip down through.

Materials

Amaco® COE 90 Glass Sheets, assorted colors (34100-), need two per project

Glass for embellishment, recommend:

Amaco® COE 90 Glass Noodles, assorted colors (34101-)

Amaco® COE 90 Glass Frit, assorted colors (34959-)

Studio Pro™ Glass Cutter (61434-1000)

Studio Pro™ Running Pliers (61708-1001)

Blick® Multi-Purpose Glue (23872-1065)

Heat-safe Welder's Glasses

Heat-Resistant Gloves (32905-1000)

Kiln-fire clay for making drop ring, recommend:

Amaco® No. 38 White Stoneware (30503-1038) or Amaco® No. 27 White Sculpture Raku Clay (30509-1027)

Amaco® Kiln Wash (32922-0001)

Amaco® Excel Glass Kiln with Glass Select Fire, (30180-)

Amaco® Kiln Shelf Supports (30129-)

Amaco® Kiln Shelf Wash, 21" x 10-1/2" x 5/8" (30130-1011)

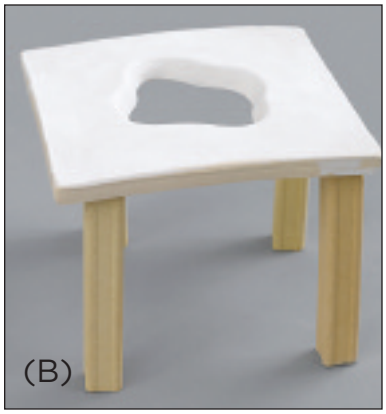
Amaco® Refractory Block, 4" x 3" x 1" (30610-1043)

Stand to support finished artwork

NOTES: Remember that the clay ring will of shrink when fired about 10%. Care must be taken to not make the curves too drastic, as the glass will not be able to release from tight curves.

Firing Process:

1. Decorate two glass sheets with Noodles, Stringers and Frits, using a small amount of glue to keep in place. If glass is transparent, layering the decorations between glass sheets works well. In kiln, fuse-fire flat on shelf coated with kiln wash. Allow to cool.
2. Support the drop ring up on ceramic supports in the kiln, see (B). The height of the supports is dependent on how far you want the piece to drop.


(B)

3. Place fused glass onto drop ring that is coated with dry kiln shelf wash. Note: The glass should be centered over the hole. If it is not, the piece may fall through the hole as the glass stretches when dropping.
4. Program kiln to fire according to firing curve (below) and visually monitor sagging by looking in the kiln using protective welders' glasses and heat-resistant gloves.
5. When the piece has dropped to the level desired, prop open the kiln door with an insulating firebrick about 4". Wear heat-resistant gloves and welder's glasses when approaching kiln. This will stop the piece from dropping further (freezing the piece). Select the "SKIP SEGMENT" button and the program will skip to the annealing segment of the program and will allow the kiln to cool. Watch the temperature and allow it to fall on the electronic display to about 1050°F. Then close the door and the kiln will reheat. Watch the temperature climb and start to level off. It will rise up 100°F to 150°F, then the kiln will then start to cool.

Glass may be allowed to drop just a few inches, without hitting the bottom of the kiln, or dropped all the way until it sits on the kiln shelf below.

NOTES: When the piece drops, the neck of the glass piece will thin. It is important that the glass have sufficient thickness or holes may appear. For a 4" hole in a 7" round piece of glass, the total thickness of the glass piece should be 3/8" if you are trying to drop the piece 8". Trial and error is required.

Completion:

Finished pieces may be self supporting, have flat bottoms, be laid on their side, or have a custom holder designed for display.

National Standards

Content Standard #1 — Understanding and applying media, techniques, and processes

9-12 Students conceive and create works of visual art that demonstrate an understanding of how the communication of their ideas relates to the media, techniques, and processes they use

Drop Ring Visual Firing Technique Firing Ramp

(For 6" X 6" sheets, up to 1/2" thick)

Step	1	2	3		Step	5	6
Rate	400	600	100	Skip Segment	Rate	9999	150
Temp	1000°	1350°	1400°		Temp	950°	750°
Hold	30min	0	30min		Hold	30min.	0
Time	2hr, 48min	36min	1hr, 30min	4hr, 54min	Time	1hr, 30min	1hr, 18min

NOTE: All total times assume a 1 hour time period for the rapid cool portion of the cycle. Actual times may vary.

NOTE: All firing and cooling times are approximate. Actual times may vary.