

## Cutting Circles & Circular Borders or Rims

with our sincerest thanks to Patty Gray

In this tutorial, **Patty Gray** well known warm glass artist and instructor teaches her simple circle-cutting technique. Following that, she demonstrates how to cut a perfect circular or oval border or rim for a plate, platter or other glass design. Properly executed, these cuts will require neither grinding nor grozing, and are surprisingly easy to accomplish.

Patty prefers cutting on a surface of carpet or padding. She cleans the glass first, which extends cutter life. In this demo, Patty is using a Silberschnitt circle cutter. Other models, like those from Inland or Glastar will do nicely.

Working from a more-or-less square sheet, Patty locates the circle-cutter at circle-center and makes sure she has at least 1/2-inch (1.25cm) clearance on all sides. Then, she practices the rotation of the cutter-arm to ensure that its path is free of obstructions.



Once the circle-cutter is properly positioned, she marks the center for future reference. (Knowing the center position can come in handy later).



Patty oils the cutter-head before scoring. She uses an oil-soaked cloth placed in a jar lid.



She rotates the cutter-arm, scoring the glass 360 degrees in a smooth motion with even pressure. Then, she removes the circle-cutter from the glass



Next, Patty carefully turns the sheet over so that the scored side is down.



Then she applies pressure directly to the back side of the score. In transparent glasses, you can see the score propagate, or "run" along its path. In opal, or denser glasses, you can see a "dimpling" occur as the score runs its course.



Remember to press gently. Smaller circles require more pressure, because the glass doesn't flex as easily. Seek to "run" the score completely around your circle or oval. Go over the score line a few times, all the way around, until you are satisfied the "run" is complete.



Then, being careful to "contain" the circle in your fingertips (it might fall out!) gently turn the sheet over again, so that the original score is face up.



Next, make "relief" scores in the four corners of your square sheet. Rotate the sheet flat on the table, without lifting it, to position it for making the relief scores. The sheet weakens with each score, and could break apart at any time.



Each score is made *away* from the circle toward the edge of sheet.



Then, run each relief score using a method or tool with which you are comfortable.



Sometimes two relief scores in each corner help release the tension better.



As the relief scores are run, the sheet edges should fall easily away from the circle.



Circle edges will be clean and smooth.



**Circular or oval rims** (borders) are a masterful addition to kiln fired glass. The black rim on the combed platter (below) is a perfect example. Next, Patty demonstrates how to create these "donuts" with a single seam and no grinding or grozing.



First, set your circle-cutter to  $\frac{1}{32}$ " (1mm) larger than the size of the center that the rim must fit around. Example: if the interior of your platter has a diameter of 17-inches, set your cutter diameter to  $17 \frac{1}{32}$ ". This tad extra allows the border to fit comfortably around your center at layup.



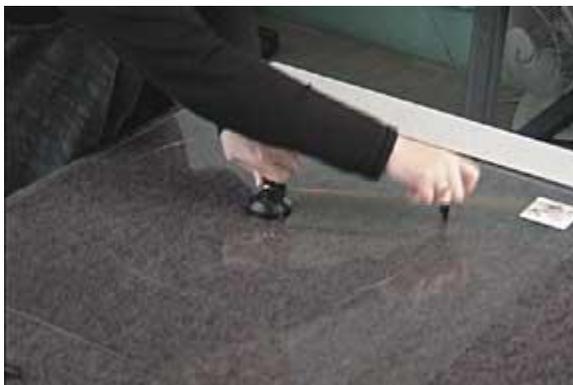
You'll score the inside of the rim first, so position your circle-cutter center, taking care to ensure that there is space enough to accommodate both the width of your border and 1/2" (12mm) clearance from the edges of the sheet. Example: if you are cutting a border 1 1/2-inches (4 cm) wide, you'll need at least 2-inches (5 cm) of clearance to the sheet edge, on all sides, for the first score.



Mark the position of your circle center.



Practice your rotation to be sure the cutter-arm can move unobstructed, oil the cutter head, then make your first score.



**DO NOT MOVE THE CIRCLE CENTER.** If you do so accidentally, use your center-markings to reposition it perfectly.

Now adjust the circle dimension to reflect the width of the border. Example: project center = 17 inches, so the first (inside) border score was made at  $17 \frac{1}{32}$  inches. You plan a border of 1.5-inches wide, so re-set your cutter to score  $18 \frac{17}{32}$  inches ( $17 \frac{1}{32} + 1.5$ ) for the outside of the border.



Practice your rotation, oil the cutter head, and then make your outside score.



You've now made two concentric scores. **Carefully** turn the sheet over so that the scored surface is down.



Now begin running the scores by applying gentle pressure to the back side of glass, (as explained in the circle-cutting demonstration).



It doesn't matter which score is run first.



Apply pressure all the way around both scores a few times, until you are satisfied that both scores are fully propagated. If the glass is not transparent, make sure you are pressing exactly on the backside of the score, and watch for slight dimpling or other indicators that the score is running.



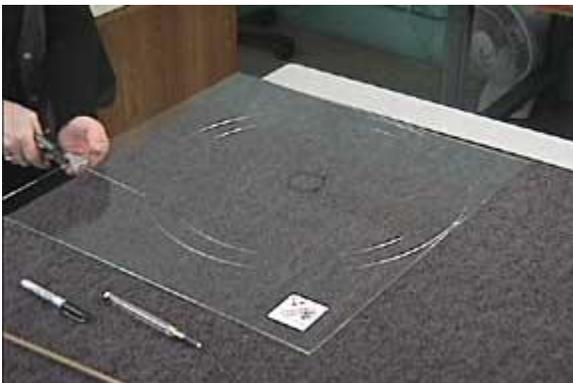
**Now you have an unstable glass sheet!** The glass can fall apart, so use your hands to keep it together as you *very carefully* turn it over once again. Now the scored side is up.



Make relief scores, drawing your glass cutter outward from the outermost circle score to the edge of the sheet. After making one, **rotate the sheet without lifting it**, to prevent it from collapsing under its own weight.



Run the relief scores one at a time; again, rotating the sheet *flat on the table*. **Do not lift the sheet.**



The edges will fall easily away, leaving a glass circle with the inside border score still intact.



Now make a single, straight relief score outward from the interior border score to the edge of the circle, *through* the border.



This relief score releases tension in the border "donut" and allows it to be separated cleanly from the inside.



Run the score with running pliers.



Now the rim should separate easily from the remaining glass.



If you measured right, the rim will fit perfectly around your interior design at project layup. The single seam will heal during the firing process and be undetectable in the finished piece.

The inside circle from which the border was cut becomes a "blank" for your next project.



Patty Gray is a highly accomplished glass artist who, thankfully, is always willing to share her knowledge and techniques. In the summer of 2007, Pip had the pleasure of spending an entire week in-studio with Patty at the Arrowmont School of Arts and Crafts in scenic Gatlinburg, TN, learning a number of her advanced fusing techniques.

Thank you for your generosity Patty!

