Creating Large Glass Flowers with GM187

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The GM187 Ruffled Control Drop Flower mold can be used to create beautiful and varied glass flowers ranging in size from 7” – 10” in diameter, especially when used in conjunction with the additional GM193A and/or GM193B Petal Sets.

This tutorial will detail two different methods for creating large flowers- one showing off the striking properties of reactive glass, and the other using the unique color blending of a frit slurry technique.

Large flowers like these can be difficult to display, so please refer to **Page 6** for instructions on how to securely stem and show off your flowers.

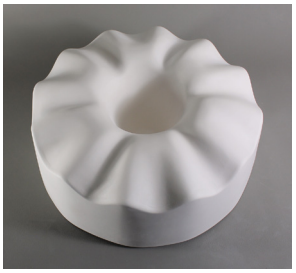
Before You Begin:

- Make sure to prime your mold(s) thoroughly with suitable glass separator and allow plenty of time to dry before adding any glass. We recommend using spray-on ZYP separator.
- If using spray-on separator and/or powder frits, make sure to always wear a mask during use.
- Our firing schedules are suggestions. You know your kiln best- adjust accordingly!
- For tips on getting to know your kiln, check our Important Firing Notes by clicking here.
- Email us at creativeparadiseinc@live.com with any questions!

Using the GM187 with the GM193A/B:

The GM193A/B petal sets are specially designed for use with the GM187. The grooves on their undersides fit perfectly with the ridges on the Drop, though they can still be arranged as desired to create a variety of flower shapes (see Image to right, featuring GM193B Petals). Several of the example flowers shown above use the GM193 attachments, though they are certainly not required to use the GM187.

Make sure to prepare each Petal Mold in the GM193 set as well as the GM187 itself thoroughly with glass separator before using!



GM187 Ruffled Control Drop Flower
10.5” Dia. x 4” T
Slump Depth: 3.5” T

Left - GM193A Two Small/One Large Petal Attachments
Right - GM193B Three Large Petal Attachments

Reactive Ruffled Flower

Materials:
- GM187 Ruffled Control Drop Flower
- GM193B Large Petal Attachments
- COE96 Glass (See Right)
- Suitable Glass Separator (ZYP Recommended)
- Glass Cutting Supplies
- Thin Fire Paper

Suggested Glass:
- Frits:
  - F2 Fine Red Reactive Clear
  - F2 Fine Apple Jade
  - F3 Medium Amazon Green
- Sheet Glass:
  - Red Reactive Clear
  - Ming Green
  - Aqua Blue

Red Reactive Clear glass reacts with copper-bearing glasses such as Ming Green, Aqua Blue, and Apple Jade. Aqua Blue has more copper than Ming Green, meaning it reacts more intensely with the Red Reactive to create a deep burgundy shade while the Ming Green results in more of a transparent mauve.

Image 1

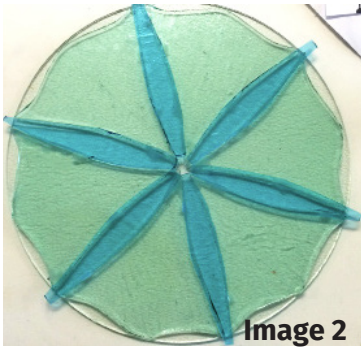


Image 2

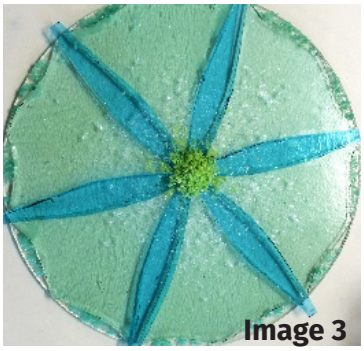


Image 3

Begin by cutting a 10” diameter circle from Red Reactive Clear Sheet Glass. Use **Patterns 1 and 2** on **Page 4** to cut six of the Wide/Pattern 1 Petals from Ming Green and six of the Thin/Pattern 2 Petals from Aqua Blue. Clean all the cut glass well before proceeding to remove any markings or smudges.

Place the cleaned 10” circle onto an 11” piece of Thin Fire Paper. Arrange the petals as shown in **Diagram 1** on **Page 4**, beginning with the wide Ming Green petals (**Image 1**). Add the thin Aqua Blue petals along the gaps between them (**Image 2**). The thin petals will overlap the wide petals slightly on each side, as seen in both **Diagram 1** and **Image 2**.

Fill the center of the flower with F3 Amazon Green frit. Sprinkle a bit of F2 Red Reactive Clear around the Green in the bases of each petal. Place a bit of F2 Apple Jade around the very edge on the Red Reactive Circle still exposed outside the Ming Green petals. Refer to **Image 3** for more detailed frit placement.

Carefully move the project with the Thin Fire Paper onto a level shelf in the kiln and fire using the suggested schedule in **Table 1** below or your own preferred Tack Firing schedule.

Table 1: Tack Fire*

Seg.	Rate	Temp (°F)	Hold
1	275	1215	45
2	50	1275	20
3	350	1420	03
4	9999	950**	60
5	100	500	00

*Before firing, it’s important to know your kiln. For tips on how to do that, please click here to see our Important Firing Notes!

**If using COE90, adjust this temperature to 900°F

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Once your glass has fused and cooled, the reactions will become visible- Aqua Blue petals remain Aqua Blue where they were on top of the Ming Green but turn a deep burgundy where they met with the Red Reactive (**Image 4**).

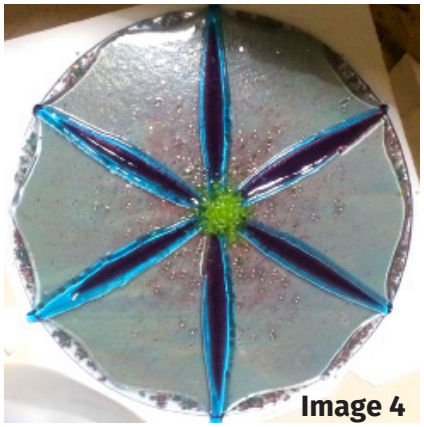
Image 4

Treat the GM187 and each of the GM193B Petals thoroughly with suitable glass separator if you haven't already. Once your molds are primed and dried, place the Petal Molds along the rim of the GM187. Refer to **Page 1** for more information on priming molds and using the GM187 with the GM193B.

After the Petal molds are in place, center your fused flower blank on top of the Petals and the GM187 (**Image 5**), move to a level shelf in the kiln, and fire using the suggested schedule in **Table 2** below or your own preferred Slumping schedule.

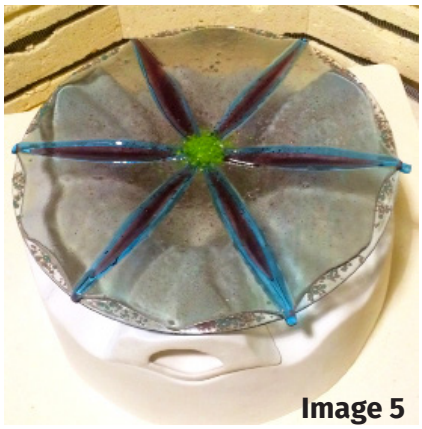
Image 5

To stem your flower after it has slumped, refer to **Page 6** of this tutorial.

Table 2: Slump*

Seg.	Rate	Temp (°F)	Hold
1	175	700	20
2	175	1100	20
3	250	1280	45
4	9999	950**	90

**If using COE90, adjust this temperature to 900°F

*Before firing, it's important to know your kiln. For tips on how to do that, please click here to see our Important Firing Notes!

The GM187 is quite a deep slump, which is why this slumping schedule holds for so long at the top temperature. The glass needs enough time to fall well over 3"!

Annealing is also important for such a large piece. Annealing allows the glass to cool down to its preferred temperature for re-solidifying (around 950°F for COE96 or 900°F for COE90). A proper anneal helps avoid cracking or other breakage. You can't over-anneal, so if you're ever concerned about this, you can always increase the hold on your annealing segments.

Reactive Ruffled Flower-Patterns and Diagram

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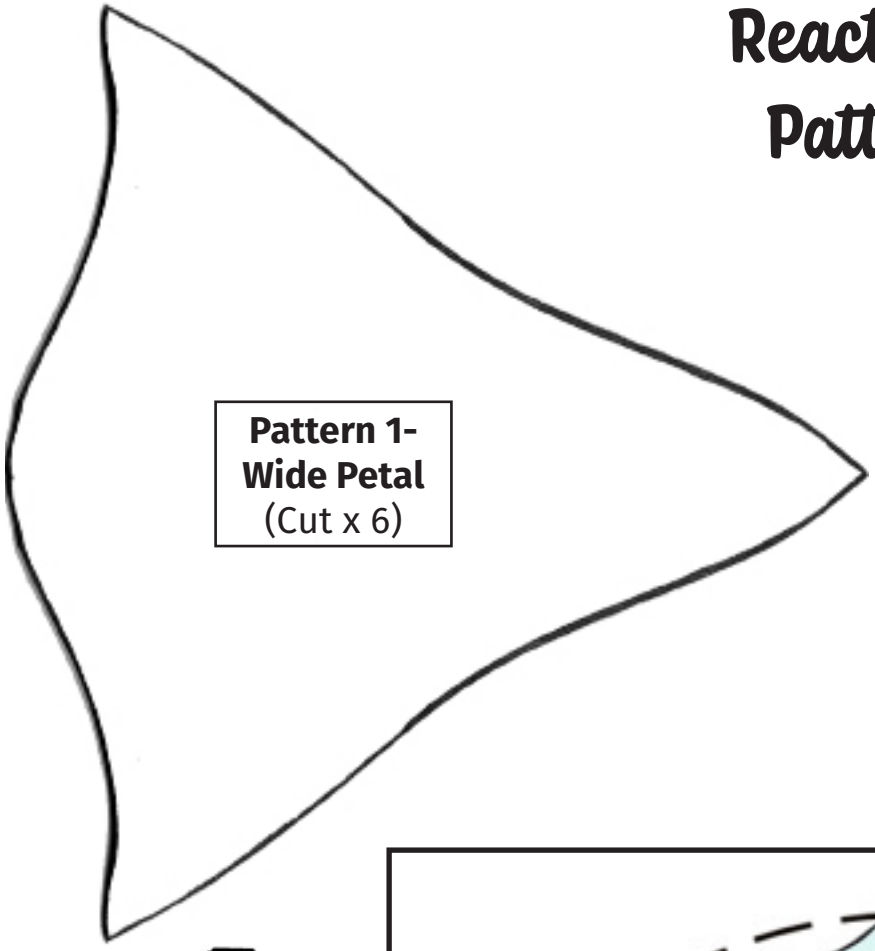


Pattern 1-
Wide Petal
(Cut x 6)

When printing these patterns, make sure to print at **"Actual Size"/100%** to make sure they fit accurately onto the 10" circle.

Pattern 2-
Thin Petal
(Cut x 6)

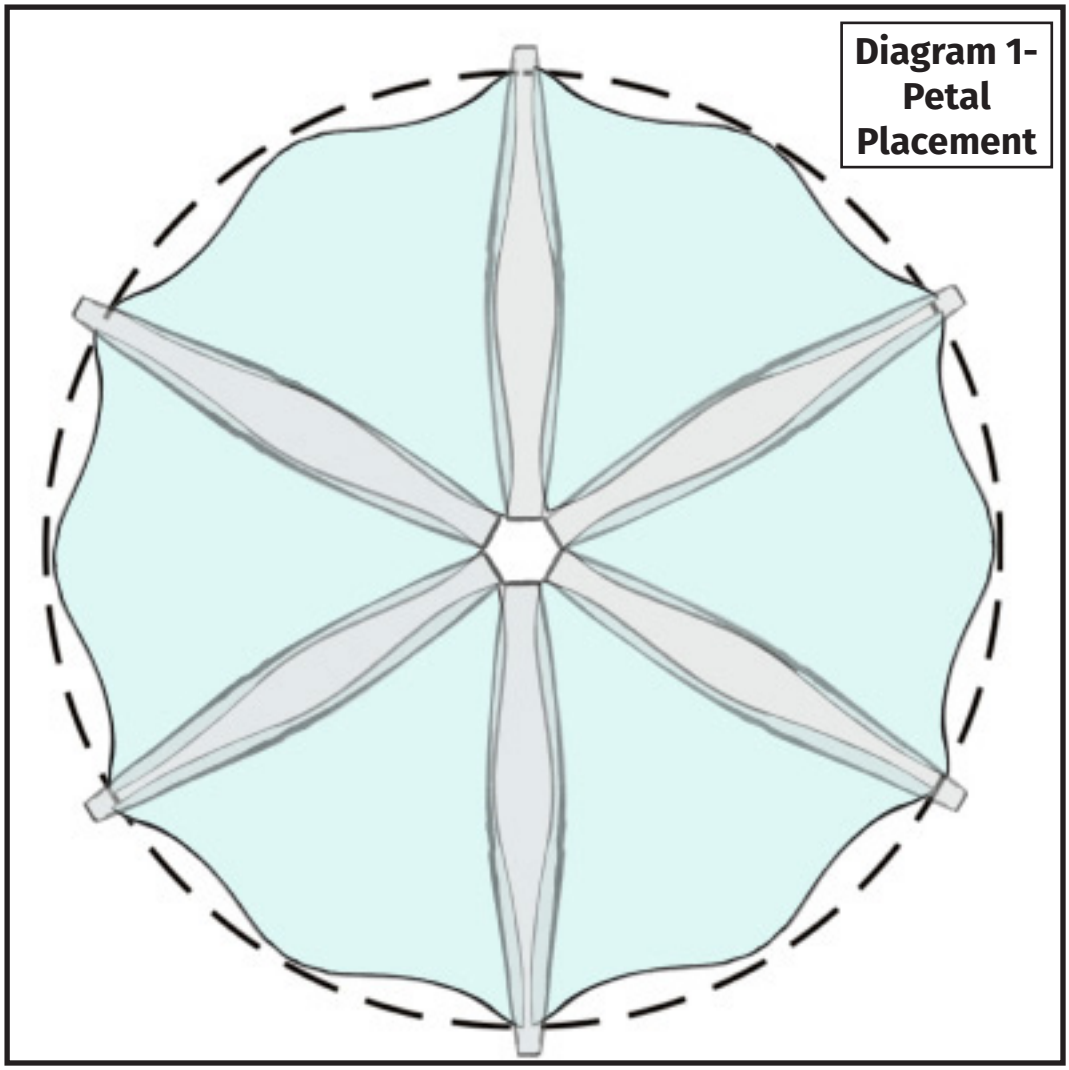


Diagram 1-
Petal
Placement

Frit Slurry Flower

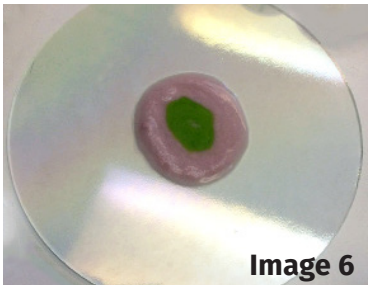


Image 6

Image 7

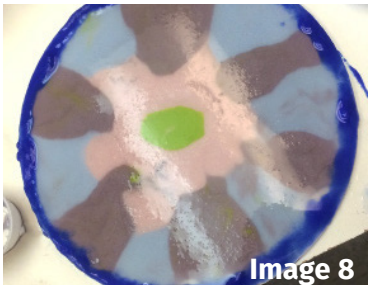


Image 8

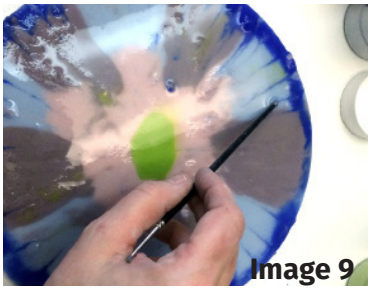


Image 9

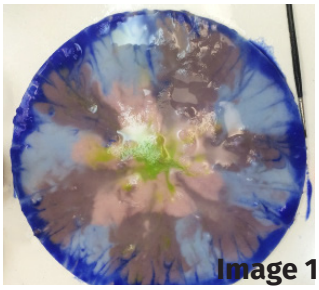


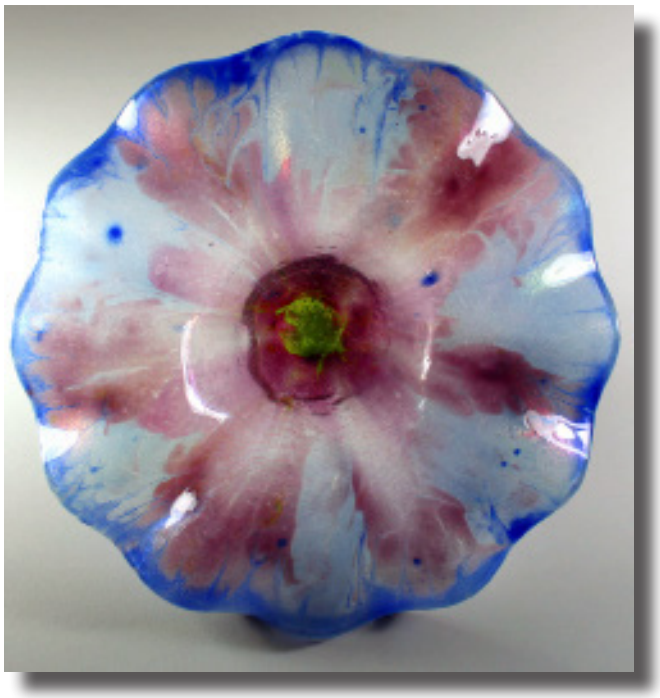
Image 10

Image 11

Materials:

- GM187 Ruffled Control Drop Flower
- COE96 Glass:
  - Clear Iridescent Sheet Glass
  - F1 Powder Frits:
    - Turns Pink
    - Violet
    - Pale Blue
    - Moss Green
    - Powder Cobalt
- Suitable Glass Separator (ZYP Recommended)
- Frit Slurry Supplies*
- Thin Fire Paper

*For a basic tutorial on the Frit Slurry Technique, please click here!



Begin by creating a frit slurry with each of your powder frit colors. To make a frit slurry, place a bit of your desired color of powder frit into a small cup, then add a splash of water. Make sure to use a separate container for each color! The general ratio is 2:1 frit to water. Mix with a spoon until you have a pancake batter-like consistency. For more information and instructions on frit slurries, please refer to our General Frit Slurry Tutorial linked above.

Once your slurries are mixed, cut and clean a 10” diameter circle of Clear Irid. Place the circle irid side down onto a paper towel on a level surface. Place about three tablespoons of the Turns Pink slurry in the center of the glass. Use your fingers or a similar tool to create a gap in the center of the Pink and fill it with a tablespoon of Moss Green slurry (**Image 6**). Alternate tablespoons of Violet and Pale Blue slurries around the Turns Pink (**Image 7**).

Gently shake the glass to level out the slurries, then add a ring of Cobalt slurry around the edge of the glass **(Image 8**). Use a needle tool or end of a brush to gently drag and blend the colors into each other (**Image 9**). If you find your slurries drying out and becoming hard to mix, gently spritz them with a spray bottle of water to loosen them and help them blend (**Image 10**).

Once all your slurries are in place, clean any excess from the edge of the glass with a paper towel and place the glass in a safe, flat area and allow it plenty of time to fully dry. Once dry, carefully transfer the glass to a kiln and center it on a level GM187 that has already been treated well with glass separator (**Image 11**). Fire using the suggested One-and-Done schedule in **Table 3.**

Table 3: One-and-Done*

Seg.	Rate	Temp (°F)	Hold
1	275	1215	45
2	50	1275	20
3	350	1400	03
4	9999	950**	60
5	100	500	00

**If using COE90, adjust this to 900°F

*Before firing, it’s important to know your kiln. For tips on how to do that, please click here to see our Important Firing Notes!

To add a stem, refer to **Page 6**.

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Stemming Glass Flowers

The bouquet shown here features five large flowers made with the GM187 as well as two small flowers made with the GM48 Ripple Drape. The larger flowers use 3/4" copper tubing for stems while the smaller two use 1/4" tubing. Flowers made with the GM187 can be quite large and heavy, so care must be taken to make sure their stems provide adequate support.

Materials:
- Oil-Based Modeling Clay (for Display)
- Plaster (For Display)
- #8-#10 Plastic Anchor (**Image 12**)
- 1" #8 Sheet Metal Screw (**Image 13**)
- 3/8" Copper Tubing (**Image 14**)
- 1/4" Diamond Core Bit (**Image 15**)
- Tube Cutter
- Handheld Drill/Dremel or Drill Press
- Tray of Water
- Sponge
- Rubber Washers (Optional)

Image 12

Image 13

Image 14

Image 15

Arranging and Weighing Down the Display:

To create a sturdy display for large flowers, place a large chunk (about 6 lbs. used on the display above) of oil-based modeling clay into the bottom of a large vessel or vase. Cut copper tubing to the desired lengths for each flower, then push them into the clay and arrange as desired without the flowers attached. Mix some plaster (roughly 6 quarts used here) and pour over the clay with the tubes. Cover the clay with at least 2" of plaster to set the copper tubes and give the pot enough weight to counterbalance the large flowers. You can then cover the plaster with greenery, such as the Spanish Moss used here.

Image 16

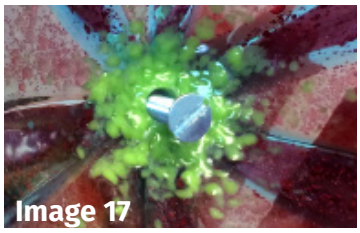
Image 17

Stemming the Flowers:

To place the glass flowers onto their copper tube stems, a hole needs to be drilled into the center of each flower. To drill this hole, take a container large enough for your flower to rest in and fill it 2" deep with water. Place a sponge in the water, then place the flower on the sponge so the bottom of the flower is resting on the sponge. Fill the flower with an additional 2" of water. Put a 1/4" diamond crusted core drill bit in a handheld drill or Dremel with flex shaft or a drill press. Find the center of the flower with the drill bit and carefully drill a hole through the flower, holding the flower steady while drilling.

Image 18

Once the flower has a hole in the center, push a #8-#10 plastic anchor into the end of the 3/4" copper tube not attached to the filled vase (**Image 16**). Place a 1" #8 Sheet Metal Screw through the hole in the center of the flower (**Image 17**) and seat the screw into the plastic anchor in the stem (**Image 18**). If desired, add a suitably sized rubber washer onto the screw before placing it in the stem to cushion the flower. Tighten the screw until the glass is held firmly but not so tight the glass cracks (**Image 19**). The screw head can be concealed by gluing a pebble, fused glass dot, or a dollop of glue covered in Fine or Medium Frit on top of the screw head.

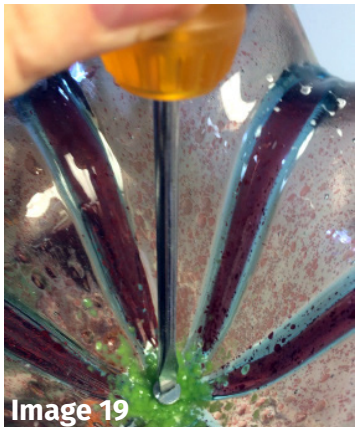
Image 19