

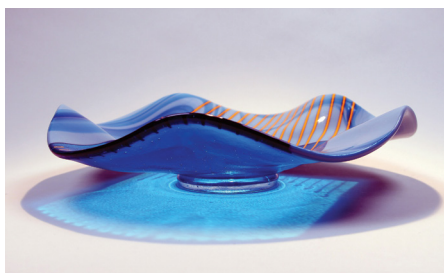
# B210 Flutter Mold Bundle

*With a Cookie-Style Cast Foot or a Slump-Drop Foot*

Use this Mold Bundle to Create an 11 5/8" (29.5 cm) Footed Bowl



S210 Flutter Mold & C105 Foot Mold



All Strung-out Bowl created on the Mold

## Flutter Mold Process Overview

Use the Flutter Mold to create a Cookie-Style footed bowl in a three-step process.

1. The first step is to cast a glass foot disc using the C105 foot casting mold and 4.6 oz (130 g) of scrap-glass shards.
2. Then design and fuse a 12" (30.5 cm) diameter flat design disk. This could be a single glass layer disk with fused design elements on it or it could be a two layer, full-fused design disk, or simply cut a 12" (30.5 cm) circle from a compelling piece of fusible art glass and let the design in the glass and the foot on the bottom be the star.
3. The final step is to slump the design disk into the Flutter Mold to shape the bowl and attach the cast glass foot to the underside in a single firing.

**Note:** This mold can shape a beautiful bowl without adding the cast glass foot. Simply create the design disk, place it on the S210 mold and follow the slump firing schedule included with the mold. The center of the design disk will slump into the foot cavity in the mold to form a slump-drop foot

## Register Your Flutter Mold and Get a FREE eProject

Go to the [www.artglasslove.com](http://www.artglasslove.com) website then click on the Support menu and choose Register Your Mold. Fill in the short information form and we'll send you an email with a link to download the All Strung-out Bowl eProject for the Flutter Mold (see image above). An eProject includes a PDF eBook with detailed step-by-step instructions, the full-size pattern drawing (that you can print on your desktop printer) and a link to the online Webcast video where you can watch the project fabrication from beginning to end. Registration is easy and the reward is worth it - so what you waiting for?



## MUST READ SECTION! - Separation of Glass and Mold

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The first step, as always, is to prepare the mold with the appropriate release separator. The Flutter Mold is manufactured using a proprietary mix of dense ceramic clay that creates an exceptionally smooth surface. This clay is so dense that powder-type separators (a.k.a. kiln-wash or mold primer) will often bead up and refuse to stick to the mold. That is why we only recommend using ZYP™ Lubricoat Boron Nitride separator for all our molds. Boron Nitride is very smooth and silky leaving the bottom surface of your bowl with the smoothest possible surface. This ZYP™ Lubricoat comes in a convenient spray can and works fabulously for both casting and shaping molds. New ceramic molds require 3 light coats of ZYP™ with a 20 minute drying time between coats. For subsequent firings simply remove the loose powder from the surface with

a soft bench brush then apply one light restoration spray-coat.

**IMPORTANT NOTE:** The reason we only recommend ZYP™ Lubricoat is because it has a high concentration of boron nitride as compared to other brands of boron nitrite spray. ZYP™ Lubricoat has proven to protect ceramic molds during both slumping and hi-temperature casting. You run the very real risk of damaging or ruining your mold if you try to save a few dollars by using any other brand.

We recommend against using a kiln-wash or primer separator for any glass shaping or casting mold. To read some mold misadventure stories and a few possible recovery strategies, please see the FAQ section on our website... [www.artglasslove.com](http://www.artglasslove.com)



*Spray ZYP™ Mold Release on the C105 mold*



*Coat the C210 mold with ZYP™ Boron Nitride*

## Kiln Temperature Variations

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Experienced fusers know that pyrometers and digital controllers are calibrated differently for every kiln. The temperatures shown in the schedules in this booklet (and also in our book Joy of Fusing) were carefully researched to be the average temperature for fire-brick kilns manufactured for glass fusing. The reality is the temperature in your kiln is likely to be 5°F to 20°F higher or lower than our schedules. If you are firing in a Rigid-fiber kiln your temperatures are likely to be 35°F to 50°F higher to achieve the same result as a Fire-brick kiln. That is why it is extremely important for you to know your kiln and the best way to do that is to create a Fusing Level Sample Set. The process and schedules to create one of these 6 tile sample sets is in our book Joy of Fusing. Or you can purchase the eProject for the Fusing Level Sample Set on our website: [www.artglasslove.com](http://www.artglasslove.com)

If you would like your bowl to have that distinctive blown-glass look, you will want to create a cast foot disk in the C105 casting mold and add that to the bottom of your bowl. However, the Flutter Mold will enable you to shape a beautiful bowl without adding a cast foot disk. Instead your design disk will slump into the foot cavity in the mold to form a drop-slump foot. Just skip this next step and move to the slumping step.

For this project we will create foot disk in the C105 casting mold. Prepare the C105 mold using ZYP™ Lubricoat Boron Nitride spray (please read the Separation section). Then use mosaic nippers to break the glass into shards from 1/4" to 3/4" (6mm to 20mm). An all clear glass foot is classic but a mixture of clear with a complimentary



*Measuring 130 grams using a digital scale*

color from your design can be very impressive. Or use all clear shards then add some frit to create a color layer. You can use any frit size from powder to course depending on the look you are going for. Remember the COE of the frit must match the COE of the glass shards.

Place the prepared C105 mold on a digital kitchen scale and zero the tare weight, then carefully place 130 grams of glass shards into the mold. Now put the C105 mold filled with glass in your kiln and set the kiln controller to fire the Casting Schedule, shown here. Be sure to read the Kiln Temperature Variations section on previous page.



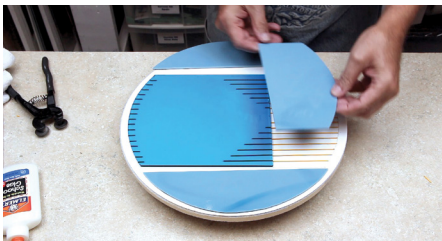
*Two C105 foot molds after a cast firing*

### Scrap Casting Schedule

Segment	#	Degree/Hour	Target Temp	Minutes
Primary Heat	1	300°F - 165°C	1200°F - 650°C	30
Intention Heat	2	600°F - 325°C	1465°F - 795°C	45
Drop to Anneal	3	Full/AFAP	950°F - 510°C	75
Slow Cool	4	200°F - 110°C	200°F - 95°C	0
Power Off	5	Kiln Off	Room Temp	~

## Download the Free Video & eProject to Create this Design Disk

This 12" (30.5 cm) diameter design disk was created using the design-side down firing method to ensure the stringers stayed straight. Download the All Strung-Out Bowl eProject and Video by registering your Flutter mold at: [www.artglasslove.com](http://www.artglasslove.com) then choose the All Strung-Out Bowl from the eProject download catalog.



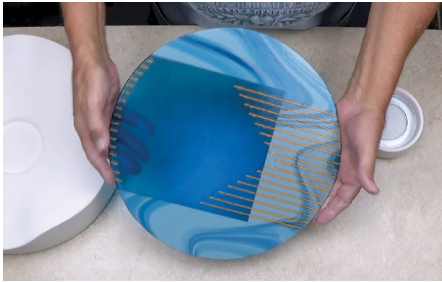
*Create a 12" (30.5 cm) diameter design disk*



*All Strung-Out design disk ready for flat fusing*

## Slump Fire to Shape the Flutter Bowl and Attach the Cast Foot

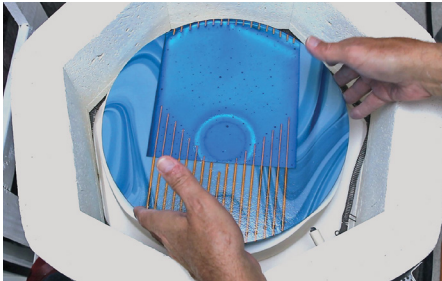
If this is the first time to use your new Flutter mold please read the Separation of Glass and Mold section in this booklet. New ceramic molds require 3 light coats of ZYP™ Lubricant with a 20 minute drying time between coats. If you have previously fired your mold, you should dry brush the inside of the mold to remove the loose boron nitride



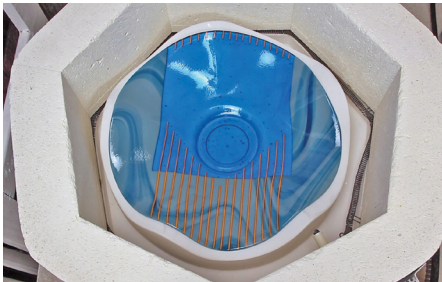
The All Strung-Out design disk ready for slumping



Place the pre-cast foot disk into the reservoir



Center the pre-fused disk on the upper flange



The slumped bowl still in the kiln after firing

powder (be sure to wear a dust mask when cleaning or applying mold release). Then coat the entire inside surface of the mold with one light restoration spray-coat of ZYP™ Lubricant.

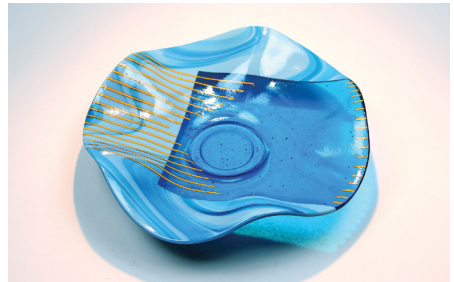
Now carefully place the pre-cast glass foot disk into the foot reservoir then place and center the pre-fused flat design disk on the upper flange of the Flutter Mold.

Finally, set your kiln controller to follow the forming schedule shown here. It is very important to follow the recommended initial ramp speed of 75°F (40°C) per hour and the secondary ramp speed of 200°F (108°C) per hour. This slow-heat speed is essential to harmonize and maintain a balanced temperature between the fused glass disk and the ceramic mold.

Caution: If you do not follow this slow ramp speed you run a very high risk of thermal shock to your design disk.

### Flutter Mold Forming Schedule

Segment	#	Degree/Hour	Target Temp	Minutes
Primary Heat	1	75°F - 40°C	500°F - 260°C	20
Secondary Heat	2	200°F - 108°C	1000°F - 538°C	10
Intention Heat	3	600°F - 328°C	1260°F - 682°C	10
Drop to Anneal	4	Full/AFAP	950°F - 510°C	180
Slow Cool	5	200°F - 110°C	200°F - 95°C	0
Power Off	5	Kiln Off	Room Temp	~



Completed All Strung-out Bowl with Cast Foot