



Creating a drop out project

Drop out projects are great fun and encourage you to learn more about the flexibility of glass and how it can be manipulated when slumped from a height.

There are many variables to consider when dropping glass through a drop out ring. The size of the drop ring and the desired height of the finished vase will determine the size and thickness of glass to be dropped.



Ensure the glass is thick enough

With every two inches of height in a vase, a good rule of thumb would be to add one standard thickness layer of glass to be dropped. If the glass is too thin it can be stretched to the point of tearing.



Fuse your piece in advance for the most control

The glass can be fused together in advance for the most control or the fusing and dropping can be done in one firing. For taller uniform vases, it is desirable to fuse the glass together in a separate firing and then drop the glass through the drop ring in a second firing process. The firing schedule will vary depending on the thickness of the glass, the height of the drop ring and the desired flatness on the bottom of the vase. You will have to hold the glass at the dropping temperature for a longer period of time for thicker glass dropping long distances.



We stock [square](#) and [circular](#) drop out rings in various sizes, made by Creative Paradise Inc.

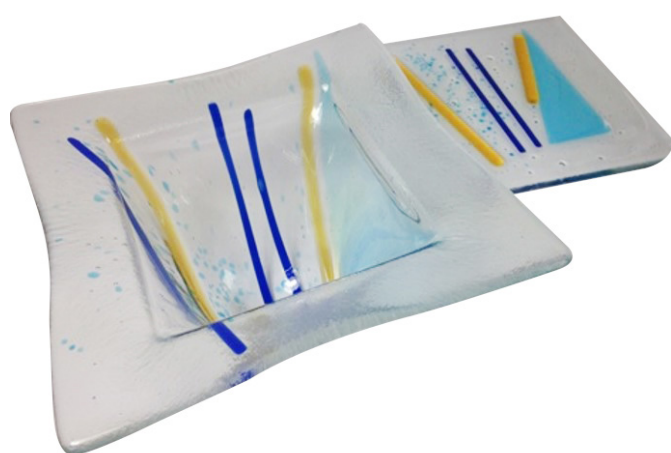
The process

Preparing the glass



For the best results, the glass needs to be pre-fused

In order for the glass to drop, it is taken to high temperatures which would allow it to fuse – but by doing it in one firing, control is lost on how the design will move. If you are producing a piece that incorporates a frit or stringer design that is quite uniform, pre-fusing it eliminates the risk of the design moving while it is dropped.



This image shows a dropped piece, and a pre-fired 'blank' of the same design. This piece was pre-fired before dropping, which meant the coloured stringers and frit were already in place.

If it had been fused and dropped in one firing, there would have been less control – the piece would have started to drop before it was fully fused meaning unfixed objects may have moved.

Full fuse firing schedule

Segment	Rate Celsius/hr	Temp	Hold time (hr:min)
1. Initial heat	222°C/hr	to 677°C	0:45
2. Rapid heat process soak	AFAP* or 9999°C/hr	to 796°C**	0:12
3. Rapid cool anneal soak	AFAP* or 9999°C/hr	to 510°C	1:30
4. Anneal cool	100°C/hr	to 371°C	0:10
5. Cool to room temp	AFAP* OR 9999°C/hr	to 40°C	0:00
6. END	-	-	-

*AFAP = as fast as possible, some controllers will not allow a rate of 9999°C /hr

** Will vary depending on desired result and kiln

This data is a guide only, firing programmes may need to be adjusted according to size and thickness of glass and the kiln's performance. Ensure that data is entered into the controller accurately, otherwise glass may not fuse correctly.

The process

Dropping the glass



Make sure you prime your drop out ring

Prime as you would a regular mould and put a layer of 1mm fibre paper around the rim where the glass will sit. This helps the glass to grip the sides, allowing the centre area to drop without changing the shape of the rim. You will then need to suspend the drop out ring on kiln props.



System 96 Opal Art and Spirit glasses work particularly well

The patterns in the project will warp as they drop creating a really interesting effect. This will also help you to learn how the glass falls – which parts are stretching and how far they have moved.



The depth of your drop will be determined by the height of your kiln

Also your preference for how you want the final piece to look. The glass needs to be a few inches clear of the elements (assuming they are in the roof of your kiln). For a deeper drop you will need a 'thicker' blank so that the glass isn't pulled too thin.

The drop firing schedule

Segment	Rate Celsius/hr	Temp	Hold time (hr:min)
1. Initial heat	240°C/hr	to 648°C	0:30
2. Rapid heat process soak (peeking every 5 minutes)	123°C/hr	to 720°C	2:00
3. Rapid cool anneal soak	AFAP* or 9999°C/hr	to 516°C	1:30
4. Anneal cool	38°C/hr	to 410°C	0:10
5. Cool to room temp	40°C/hr	to 260°C	0:10
6. END	-	-	-

*AFAP = as fast as possible, some controllers will not allow a rate of 9999°C /hr

** Will vary depending on desired result and kiln

This data is a guide only, firing programmes may need to be adjusted according to size and thickness of glass and the kiln's performance. Ensure that data is entered into the controller accurately, otherwise glass may not fuse correctly.

Segment two is the forming stage and you will need to peek inside the kiln, opening just a fraction, to judge the extent of the drop and decide when you are happy with the shape. When the piece reaches this point you crash cool (open the kiln fully for a few moments) to stop the glass from dropping further then skip to segment three of the program.