

How To Make A Basic Lampwork Bead

Julie Schmidt Bowen

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Materials:

Hot Head torch with propane or MAPP gas

Glass rods (COE 104)

3/32" mandrels

Mandrel rest or holder (like an old pasta jar)

Bead Release

Fiber Blanket

Set-up

The Hot Head torch is a specially designed torch that draws more oxygen into the flame than standard torches that you would purchase at a hardware store. You can either connect it directly to a small propane or MAPP gas container, or use a hose to attach the head to a larger propane tank (like you would use with your grill). Use hose clamps (like you would find in the plumbing section of the hardware store or in an automotive store) to attach the torch head to an L-bracket, then use a C-clamp to attach the L-bracket to a desk or table.



A few notes regarding the image:

a) The hot head torch should be pointed away from you and nothing should be in the path of the flame.

Some instructors may tell you to bend the L-clamp so that the flame is more horizontal to the desk. This is because they use their oxy-propane torches the same way and suggest that you should get used to having the flame in that direction. I do not do that; in the case that you have a workbench against a wall (as many people do), having the flame up makes it harder to burn the house down. Also, the more expensive oxy-propane torches have multiple adjustment knobs, allowing you to put your flame wherever you want.

b) It may not be clear in the image, but the L-bracket sits on the desk like an L, mostly so that it holds the hose clamp despite gravity's efforts to pull it elsewhere. Some instructors advise otherwise - I don't know why and I don't think it is wise.

c) As pictured, it is best if the hose clamp goes around the propane tank to counteract that pesky force of gravity. 2000° flames should stay where you want them.

Safety

Lampworking should be done in a well-ventilated area. You should have a working fire extinguisher nearby. You should use didymium glasses to protect your eyes from the strain of looking at the bright-yellow soda flare from melting glass rods, as well as hot bits of rogue flying glass. Have a comfortable work area, including your chair, clothing (which should not be excessively loose), and arm rests (if

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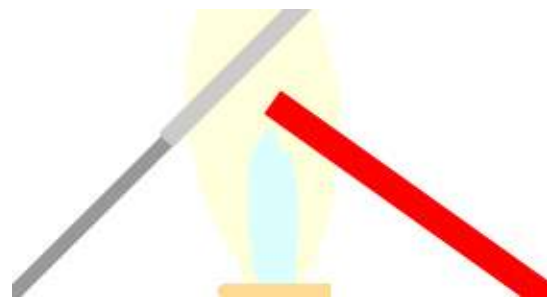
desired). The top of your workspace should be tiled, or have a metal surface. Make sure there is nothing flammable nearby; no matter how careful the beadmaker, small, hot pieces of glass inevitable fly from the tip of a rod and land on your desk, pants, shirt, eye, or floor. Most of all, if you have any questions, consult a book or lampworking expert (the Wet Canvas Glass Art online community is an EXCELLENT resource, as is the online community at Lampwork etc., and the International Society of Glass Beadmakers).

Light the torch

A flint striker, available near the welding and soldering supplies in hardware stores, are preferable since they don't cause a fire hazard on their own. Matches are second best. Do NOT use a butane lighter because, if it gets too hot, it can explode, which is not face-friendly. Turn on the gas. You should hear it hissing. Place the striker or flame from lit match about 2-3 inches from the top of the torch. With a flint striker, make sure the cup of the striker is pointed AWAY from you - flames can shoot back once the torch lights.

Holding the mandrel and glass rod

You should hold the mandrel in your off-hand (left, if you are right-handed) and the glass rod in your strong hand. Hold the glass like a pencil. Grip the mandrel loosely in your fist, like an ice cream cone (on its side); you will need to be able to turn it with your thumb and fingers. You should hold each at a 45° angle to the edge of the table so they are perpendicular with each other, both horizontal to the table. The tip of the glass rod will be in the flame (the tip of the blue cone is the hottest part) and the mandrel will be just behind or to the side of the flame (you want your glass to melt just before you put it on the mandrel, but you want anything you put on the mandrel to firm up.)



Add glass to the mandrel

You will want to touch the melted end of the glass rod to a slightly heated mandrel (coated with bead release) and begin turning the mandrel AWAY from you slowly. The mandrel will take the glass with it. If you work too hard putting the glass on the mandrel you end up with a fat, messy bead. The glass will gradually wind off on its own. Use the flame to separate the last string of glass between the rod and mandrel. Put the glass rod on your tile- or metal- covered work surface (preferably on a grooved, metal rod rest). You can switch mandrel hands at this point if you wish. Getting a round bead with the hole perfectly in the center is the hardest part of beadmaking - the exact thing you need to begin with!

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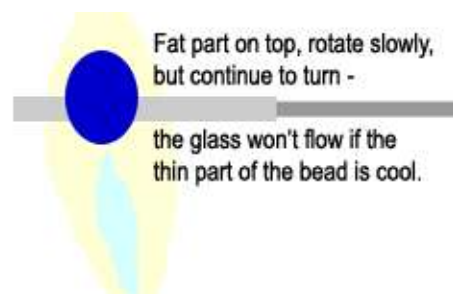
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There are three tips:

- Keep the mandrel horizontal.
- Keep turning the mandrel in a somewhat-slow, even manner.
- If the glass gets uneven, with more on one side than the other, keep turning the mandrel so it all stays molten, but turn more slowly when the fat part is on top, letting gravity pull it down, little by little, pass by pass. Resist trying to even it all out at once, or using a glass rake to pull it - you can make it worse.



Cooling a finished bead slowly

The COE of glass, its coefficient of expansion, tells us how much it expands or contracts (x10-8 inches) per degree Fahrenheit. What may not be immediately clear is that the outside of a bead can be cooler than the inside, so if the outside begins to contract before the inside, the bead can crack. Thus, you first need to cool the bead in the flame by moving the bead higher and higher in the flame, perhaps even passing the bead in and out of the flame (for small beads you can theoretically flame-anneal them this way). As soon as the bead stops glowing you should place it between two pieces of fiber blanket to finish cooling. Some people use vermiculite, but small particles can be inhaled or spilled, and it isn't as efficient at regulating heat loss as a fiber blanket. If you have a kiln, you can also place beads from the flame into the hot (950°) kiln, or put cool beads into a cool kiln so that the beads can be annealed (molecular structure aligned to eliminate stress in the bead that could lead to fractures).

Get More Information!

There are other things you will need to learn, such as getting dimples around the mandrel so the bead holes are not sharp, adding decorations with stringers or frit, reactions certain colors (or metals) have with other glass, annealing, and a million other things. This web review is just meant to get your brain thinking about lampworking. There are several excellent books available with a more in-depth introduction and lots of pictures, including Cindy Jenkins "Making Glass Beads", and Corinna Tettinger's "Passing the Flame". I also highly recommend taking a class with a reputable local bead artist, like me, or travel to take a class from a more nationally-known instructor.

Resources:

<http://www.isgb.org>

<http://torchbugs.com>

<http://lampworketc.com/forums>

<http://www.beadmaking.org/>

<http://www.glassbeadmakers.net/forum/index.php>

http://www.wetcanvas.com/forums/channels.php?s=&channel_id=40