

# Brass Tube and Rod Use for Dolls and their Bases

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Dolls can be made to appear to be standing on their own in complex positions including on one foot with the use of brass tube and rod. This way the figure can be safely on display without an unsightly doll stand.

There are two grades of tools and supplies necessary to accomplish the task. You may find you have the best choices in your home workshop or that of a friend already. Check out [www.micromark.com](http://www.micromark.com); better yet ask for a catalog, they are invaluable.

## Best Choices

Drill Press (regular size, small Dremel size will often be too small)

Power miter/cut off saw [www.micromark.com](http://www.micromark.com) # 15218

1/8" and 3/32" drill bits

1/8<sup>th</sup> inch brass tube [www.micromark.com](http://www.micromark.com) # 60198

3/32<sup>nd</sup> brass rod [www.micromark.com](http://www.micromark.com) #60227

Sharpie marking pen

Ruler 6" transparent with 1/8" grid is ideal

Base of wood or other material

## Acceptable Tool Choices

Hand held Drill

Hand powered tubing cutter [www.micromark.com](http://www.micromark.com) #20132

Hack saw and bench vise to cut brass rod

Bases should be 1/4<sup>th</sup> inch thick for small dolls 10" or less. Three by four inches is a good base size for small dolls. Test smaller sizes to be sure the doll is safe and not going to tip over due to its weight.

A base thickness of 3/8<sup>th</sup> to 1/2" is better and necessary for larger dolls. Anything which can be drilled will work!

Planning for this type of base starts with sculpting the parts for your doll and it's helpful to explore the pose you'd like for your doll by taking it yourself and observing how the joints in your leg, ankle and foot change and applying this to your sculpture.

Before you begin focus on the idea that drilled holes should be PERPENDICULAR to the flat surface of the base and the bottom of the foot. Even if you want to try having your figure stand on a sloped surface like a rock with the foot at an angle it will still be easier if you drill into the base and the foot perpendicular to a now imaginary flat plane between the two. I usually put tube and rod into only one foot and do this work before painting and finishing avoiding having to touch up later.

## Installing Brass Tube in the Doll Part

Once your doll parts are completed you may install the tube in the leg of the doll before or after it is painted but make sure that the part of the foot which will make contact with the base is sanded FLAT and at the proper angle for the desired pose.

Create a drilling “jig” for the foot by drilling a perpendicular hole (with a drill press if possible) through a small scrap of wood  $\frac{1}{2}$  or  $\frac{3}{4}$  inch thick large enough for the foot. Imagine a hole drilled into the heel and being able to swing the foot all around the hole while it still stays on the wood. Use the  $\frac{1}{8}$  inch drill bit for this hole. The drilling jig is a tool to help you get started drilling straight as it can be very hard to tell when using a hand held drill and you will be pushing the doll part/drilling jig upwards onto the bit in the drill press.

Next mark the point on the bottom of the dolls foot where you will drill for the insertion of the brass tube. Press the foot into position on a flat surface and use a transparent ruler with the end on the surface so you can see where the hole will go into the leg making sure it goes through the foot/ ankle and into the leg right in the center. Look at the doll part from two directions side and back and when you are sure mark the point to drill with the sharpie pen.

Have a piece of masking, duct, or sports tape cut and ready to tape the foot in place once the hole in the drilling jig is positioned over the marked spot.

Now use either the drill press or the hand held drill with the  $\frac{1}{8}$ <sup>th</sup> inch bit to drill into the dolls foot and leg. The larger the doll the deeper the hole needed for balance. I drill about  $\frac{3}{4}$ <sup>th</sup> inch deep for 10” or less dolls and up to  $1\frac{1}{2}$  inches deep for larger dolls. Use one hand to hold the foot to the drilling jig firmly and push against the drill bit, the other hand to control the tool.

Insert a full piece of the brass tubing into the doll part until it’s all the way in. Mark the point where the tube exits the foot with the sharpie marker and remove the tube.

Use either the power miter saw or the hand tubing cutter to cut the tube. Use sand paper or a small file to de burr the cut brass so the edges are smooth inside and out.

Slide the piece of tube into the doll part; it should be flush with the bottom of the foot. If not it’s easier to cut a new piece with an adjusted length than try to remove a tiny bit from the length. If you plan to add shoe soles you can calculate the thickness and leave the tube long so it will be flush with the shoe sole. The tube can be glued in later once you are certain everything is just right.

## The Rod in the Base

Insert a piece of the brass rod into the tube in the dolls foot/leg and mark with the sharpie marker where the rod exits the tube. Remove the rod.

Now measure the thickness of the base material you will use, and add another mark to the rod for the thickness of the base. This assumes you will drill all the way through the base. If you are using a larger block of wood, stone etc and do not want to go all the way through then just add at least  $\frac{1}{2}$ " to the length of the piece of rod you need to cut.

Cut the rod with either the powered miter cut-off saw or with the tube clamped in a bench vise and with a hack saw. Sand to de bur the ends so they fit smoothly into the tube.

Now mark the point on the base where you want the doll to stand. You can press the foot with tube installed against wood and the tube will make a faint indentation which you can see and mark with the sharpie. If this is not possible just carefully choose the spot you want.

This is where the drill press is a real plus because the hole you drill in the base will be perfectly perpendicular. If you are using a hand held drill you can use the drilling jig again to help you get started perpendicular to the base. Use a  $\frac{3}{32}$  drill bit to drill the hole for the rod.

Drive the brass rod you precut into the base until it is flush with the base bottom or completely inserted into holes which don't go all the way through the base. The brass rod will drive into the base like a nail so start it straight!

Test the doll foot on the brass tube in the base. The part should meet the base flatly and not swing around with a gap between the foot and the base. If this happens you can try to sand off the end of the rod with course sand paper or pull it out and cut a new shorter piece.

If the hole you drilled was slightly out of the alignment you needed and the doll is standing crookedly you can tap the rod lightly with a hammer to bend it in the direction needed to straighten the doll into the correct position.

It's really best to practice this on some scraps and parts you don't care about to get a feel for it before tackling a doll you have put lots of work into and want to finish!