

Salt and Pepper Shakers

Golden Ratio

Parfix 3408 Finish

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This article describes how I make salt and pepper shakers for table use, nothing fancy just beautiful and durable.

But first, the golden ratio and how to get it, I use the calculator function on my iPhone. Hold the iPhone on its side with the calculator function open and you get the scientific calculator. Push these buttons in the order given:

$5, \sqrt{x}, +, 1, =, \div, 2, =$

The number displayed should be 1.618033988749895. Or you could just remember 1.62 and use that for the golden ratio!

Ok, so we have our number and how to get it. Now what to do with it? We will start out with a 2" x 2" x 6" turning blank, these are common sizes to purchase or you can cut your own or you can use a dry tree branch that is over 2" in diameter, but it has to be dry and crack free. The 6-inch size gives enough to make a 140 mm (5-1/2") tall shaker with enough for a tenon. Using 140 mm divide by the golden ratio and you get 87 mm (3-7/16"). This will be the distance from the bottom to where the shaker will be at its narrowest diameter. Now because the widest spots are 120 mm (4-23/32") apart we must divide that by the golden ratio twice to get 46 mm (1-13/16") that will be the widest diameter.



Divide 46 mm by the golden ratio and you get 28 mm (1-3/32"). I made a marking gage with these points marked with a "v" cut so that I could easily mark these landmarks with a pencil.



Mount your blank between centers and make a tenon on one end for your 50 mm chuck jaws. I use a marking device of my own design to mark the tenon diameter on the end of the turning blank. It is a piece of sheet metal that has been cut to make a point to scribe the diameter on the end of the turning blank. I

hold it against the live center to align and touch the turning blank to make a line. This diameter will be used later to mount my drilling guide to drill the holes in the top of the salt/pepper shaker.

Place the blank in the 50 mm jaws of the chuck and face off the end so that the center is just a little lower (1 mm) than the outside edge. I have made a special Forstner bit that is the same size as the diameter of the PVC insert, described below, to drill a hole about 0.8" deep (deep as the insert is long.) Then drill a 7/8" hole 132 mm deep. When drilling is complete make 3 or 4 "V" grooves on the inside of the larger hole and use a bit of sandpaper to remove the fuzzies.

I use a 1/2" threaded PVC connector (Lasco 1/2-in PVC Sch 40 Coupling, Lowes item number 24084.) I mount this coupling on a 1/2" pipe nipple held in the back of the 50 mm jaws of the chuck to turn the bumps off. Mark the



center and make 4 "V" grooves on each end. Part on the centerline to make 2 threaded inserts.

Use a 1/2" PVC electric box hole cover (Sigma Electric Closure Plug Kit, Lowes item # 1026859) it threads into the PVC connector and makes a good seal.

Mix up some 5-minute clear epoxy, 2-dime size drops is about enough. Put enough into the hole in the bottom of the blank to fill the "V" grooves then spread the rest on the PVC insert and then put the insert into the hole. The insert should go all the way in and you should be sure to have the factory end facing out. You can thread a 1/2" pipe nipple into the insert so that you have a handle and it also makes it difficult to get it in backwards or get epoxy into the PVC threads.

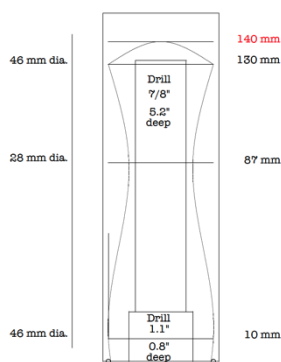


If you are going to make more than 1 set of these shakers you should make a drilling guide. Here is the way I made mine. I used a piece of hardwood that already had a tenon cut on one end, face off the other end if it needs it and mark the tenon diameter with the jig then hollow a recess out to the marked diameter, about 1/8" deep. Check to see if the

blank fits, I usually cut the shoulder of this at a slight angle so it fits if the tenon diameter is a little off. Next reverse it in the chuck; you will have to bottom out the wood. Face it off and select a fender washer that is about 1-1/8" in diameter and make a recess that just fits this washer. Rough up one side of the washer with sandpaper and epoxy into the recess. When the epoxy sets use a point tool to mark a circle 18 mm in diameter on the washer, then set dividers to 9 mm and with the dividers mark off 6 locations for holes. Remove the drilling jig from the lathe and use a drill press to drill 7/64" holes at the 6 marked locations.

Place your drill guide on the tenon of the shaker and drill 6, 7/64" holes through to the previously drilled 7/8" hole. This can be done with a hand drill but a drill press works best.

Once the epoxy is set thread a 1/2" pipe nipple into the insert and hold the pipe nipple with the inside of the 50 mm jaws. Leave a little room between the jaws and the bottom of the shaker if you need to clean up any epoxy on the bottom or using the live center put some pressure on the chuck jaws with the bottom of the shaker and tighten the chuck jaws.



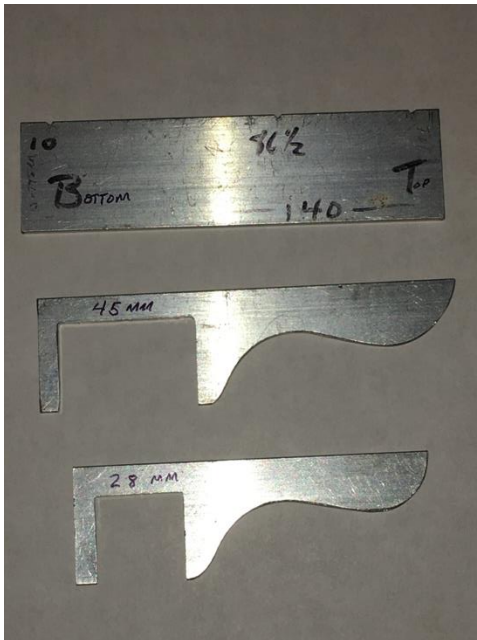
Mark the blank at 10 mm, 87 mm, 130 mm and 140 mm. Use the parting tool to turn the 10 mm and 130 mm mark to 45 mm. Then turn the 87 mm mark to 28 mm. Turn the 140 mm mark on the tailstock side of the mark down to about 1/2 to 5/8" to mark the total height of the shaker. Use the spindle-roughing gouge to connect the diameters. Use the spindle gouge to start to turn the top. Leave the center till after you sand the



body.

Loosen the chuck and slide the pipe nipple out about 1/4" then tighten the chuck, check the live center is tight then sand the outside of the shaker through 400 grit. Finish turning the top and sand through 400 grit.

I use Parfix 3408 to finish everything. Put on a rubber or plastic glove and with the lathe turning slowly, or turn by hand if you don't have variable speed, apply the Parfix 3408 with a paper towel. Flow on a wet coat and allow about 45 seconds to soak in then remove all of the Parfix 3408 that remains with a clean paper towel. It is best to wait till tomorrow to finish finishing the shaker but I never do. Mist with a little of the accelerator and sand thoroughly with 600 grit paper. Use a self-powered or figure 8 strokes if sanding by hand. Make sure the surface is completely smooth. Then using the White Diamond buffer of the Beal buffing set use Vonax polishing compound and buff the surface of the shaker to the final finish.



I have made aluminum guides for the diameters and a guide to mark locations from 1/8 x 2" aluminum stock from Lowes. Aluminum rough cut with the band saw then finished with a file and sanding drum. The shape of the diameter guides is important. I hold the guide with my fingers on the straight back and thumb on the top curve and approach the parting tool cut from the backside while I am cutting the groove. This way if a piece of shaving gets caught between the guide and the side of the groove and the guide catches it will rotate out of the groove and not hurt my thumb

