



Trim Router Circle Jig

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updated 11. 1. 2023 | published 11. 1. 2023

Summary

Simple circle jig for a trim router

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I designed a simple circle cutting jig to be used with a trim router for cutting small circles and holes. This design is meant to be used with a 7/16" (11.1 mm) OD guide bushing and 1/4 inch spiral cutting bit. The cutting capacity is circles from ~3" to ~13" in diameter. Using the guide busing instead of fixing the router directly to the base prevents the cord from getting twisted around as the the router can pivot in the hole. Use a centering tool to ensure the base place hole is centered with the collet.

Printing Instructions

- Set Layer Height as desired, I used 0.3 mm
- Use 4 perimeters
- Use 25% infill
- Material of choice

Print files in the orientation as downloaded. Use a support enforcer in the recessed hole on the slider for a cleaner print. Tolerances of the parts are

very tight to minimize any slop, scale and adjust at risk of the parts not filling together well. Using a well tuned printer, you should not have any issues. All parts can be printed at the same time.

Required Hardware

- M4 nut
- M4x16 screw with low profile head
- Metal washer (large enough to span the slot in the body)
- 2.5 mm metal pin (I used a nail and cut it to size)

Assembly

- Look through the pictures to help understand how the parts fit together
- Glue the M4 nut into the knob and allow to dry
- Thread the M4x16 screw into the hole in the slider, this is a tight fit to prevent it from coming out unintentionally. The screw should enter through the recessed opening (bottom) of the slider
- Insert the metal pin into the smaller hole on the slider with the body of the pin protruding down from the bottom. I hammered the nail in from the top then cut it flush. Do your best to ensure the pin is square to the body of the jig. The length of the pin is up to you but I recommend the pin extends at least 3/8" below the bottom of the slider
- Place the slider into the slot of the body with the threads of the screw protruding above the body of the jig
- Place the washer over the screw and thread on the knob, tightening to lock the slider in position. The top of the slider should be recessed below the top of the jig to allow the washer to adequately clamp onto the body of the jig

Using the Jig

To use the jig, drill a hole (or make a hole with a nail of the same diameter as the nail used for the pin) in center of desired circle the same size as the pin, careful not to drill through the material if you want a blemish free circle on one side. Set the slider to the radius of the circle and secure it using the lock knob. Make sure the slider is secured well otherwise it will slip and the cut will not be as desired. Place the guide pin into the hole. Install the guide bushing onto the base plate of the router and install a 1/4" straight cutting bit into the router with the bit retracted into the router. Place the guide bushing into the hole on the jig, power on the router, and slowly lower the bit into the work piece, and lock the depth. Be careful not to be too aggressive with the depth of cut. Guide the router on the jig to cut the circle, lowering the bit as needed for each pass. Make sure the

router comes to a complete stop before trying to remove the jig from the work piece or router from the jig.

The guide markings on the bottom of the jig are in 1/2" increments and account for the 1/8" offset needed for a 1/4" bit. The offset is needed to account for the bit radius, ensuring the circle is cut at the desired diameter. To cut a hole, you need to subtract 1/8" (when using a 1/4" bit) from the radius and set the slider accordingly. For best results use a tape measure to set the slider.

The slider can be rotated 180 degrees to aid in setting desired measurements.

Use at your own risk.

Model files

router-circle-jig-overview.stl



circle-jig-body.stl



circle-jig-slider.stl



m4-knob.stl



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