INSTRUCTION MANUAL – J TECH CHUCK ROTARY TOOL

J Tech Photonics

Chuck Rotary

Version: 1

Feb 18th, 2026

CONTENTS

GENERAL

OVERVIEW

The J Tech Photonics Rotary accessory extends the laser applications to be able to engrave on cylindrical objects like tumblers, cups, glasses, and wine glasses. It can open a whole new avenue in your hobby or business by custom engraving cups and tumblers.

SAFETY

- Operate rotary accessory with caution when lasering materials.
- Glasses and cups can be reflective. Use proper safety precautions and wear protective glasses.

GETTING STARTED

UNPACKING

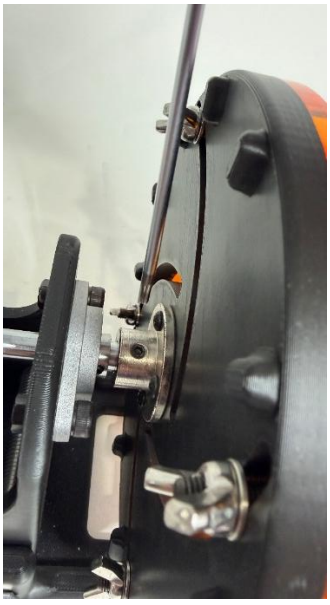
Inspect the shipping container for damage. Verify the contents of the package:

- Rotary
- Tailstock holders (2)
- Mini Level
- Motor Cable

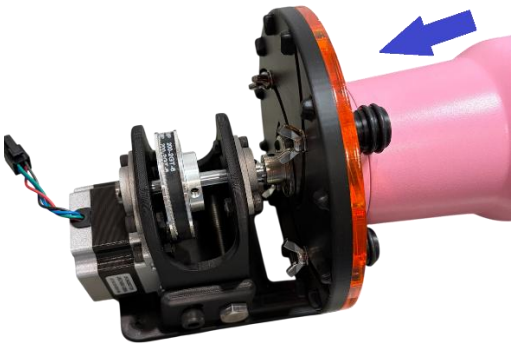
ASSEMBLY AND USE

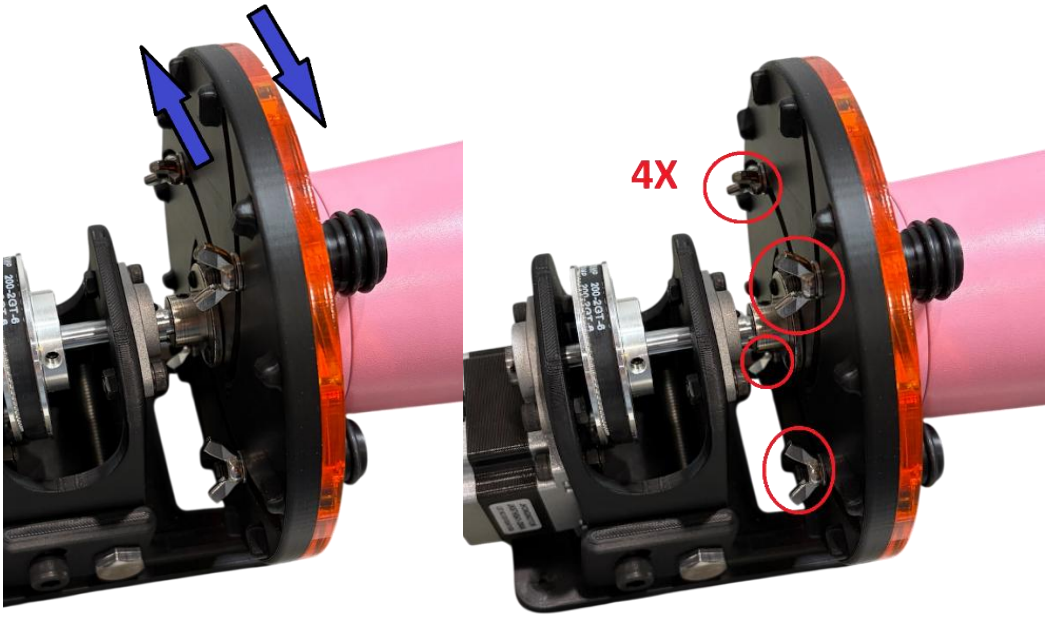
Place the Chuck on the motor mount assembly until the shaft is flush with the front of the orange acrylic.

Tighten Two set screws on the Flange connector with a 2mm allen wrench



- Loosen the 4 Wing nuts on the back of the Rotary
- Rotate the black and orange pieces in opposite directions until the 4 grippers are open enough to fit the object
- Place the object in the middle of the rotary
- Rotate the orange and black pieces until the grippers are in contact with the object
- Tighten the 4 wing nuts

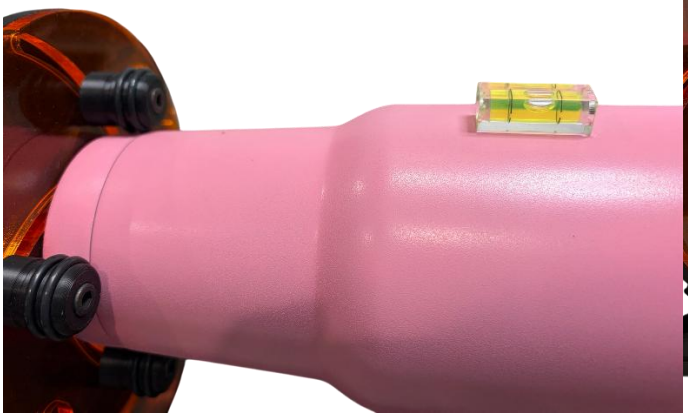




- Tilt the Rotary until the Object is level
- Place the tailstock support under the object

- Raise the tailstock support until it touches the object

18 degrees of tilt for Tapered Cups and Objects



EXAMPLE CUPS YOU CAN USE

There are a lot of cups and containers you can engrave on

Tapered Cups

Yeti Style Tumbler

Mugs

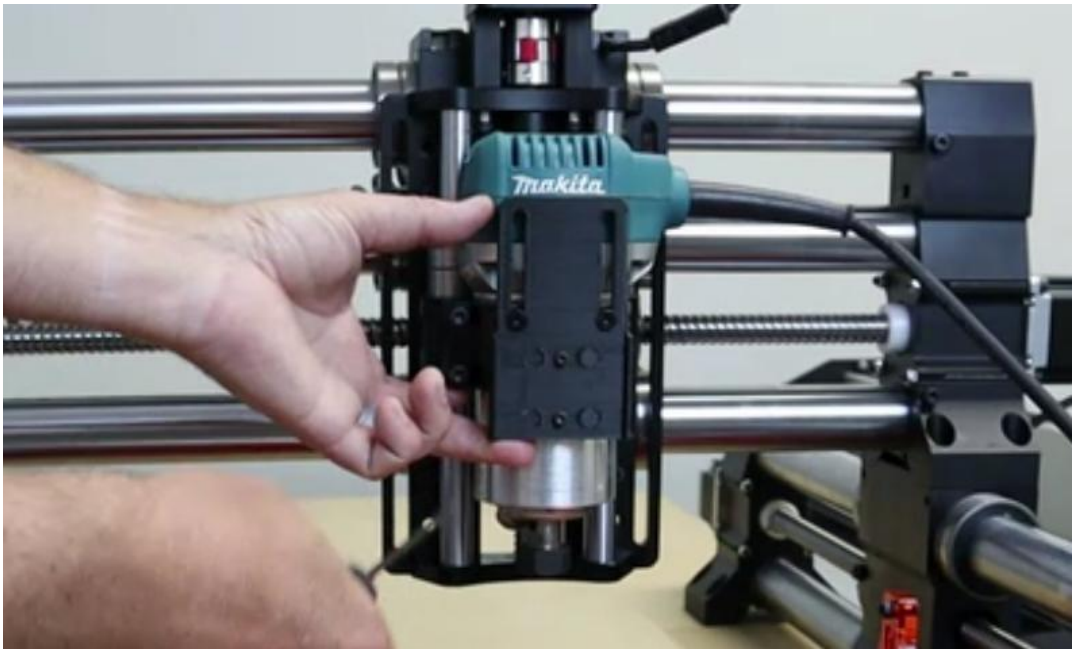
MACHINE INSTALLATION

ONEFINITY

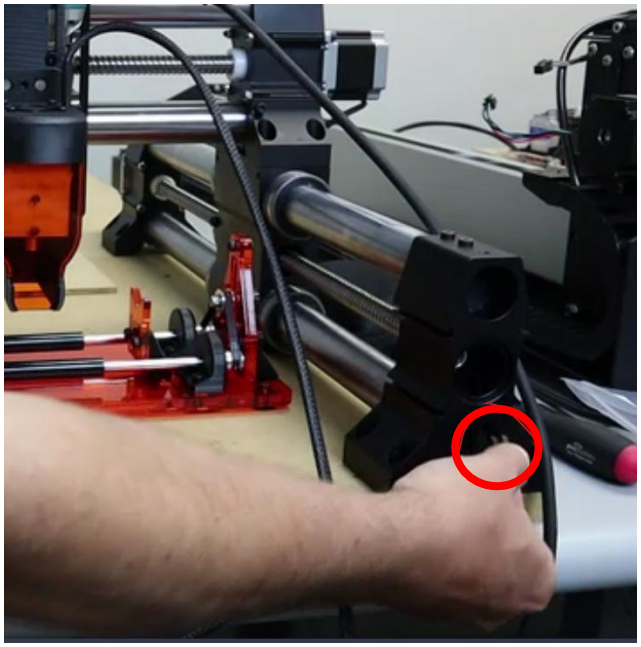
ONEFINITY
One Machine Infinite Possibilities

The Onefinity machine is great for a rotary tool. It has a tall enough Z axis to accommodate the rotary and large cups. Here is how to hook it up.

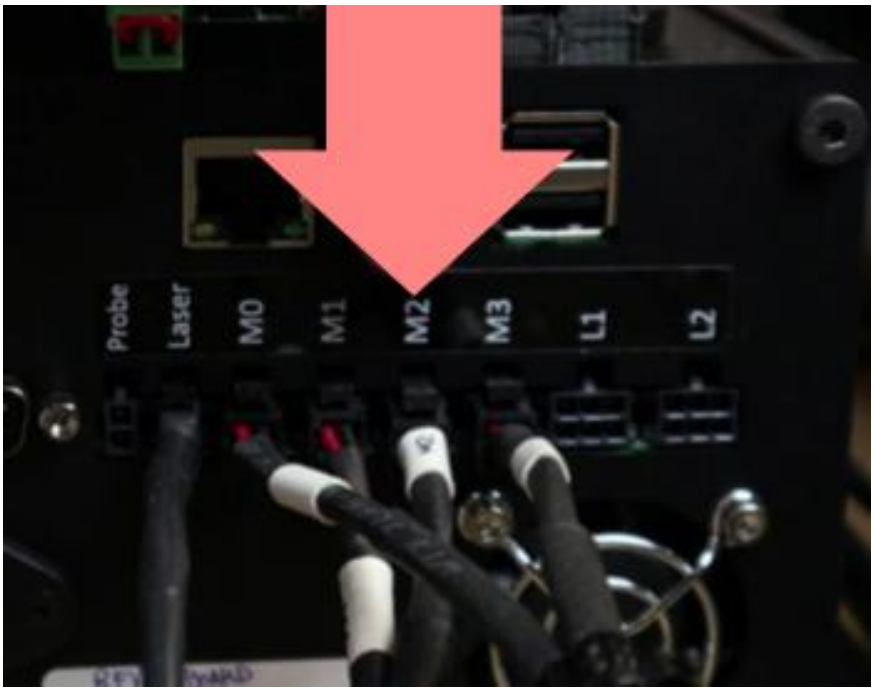
Remove the two bottom screws on the mount and move the two-piece mount up as high as it can go. If you don't have the two-piece mount, it is available in the magnetic mounting kits section at the J Tech Photonics website.



Unplug the right side Y axis cable from the machine.



Unplug the Y motor cable in position “M2” and put the rotary cable in it’s place.

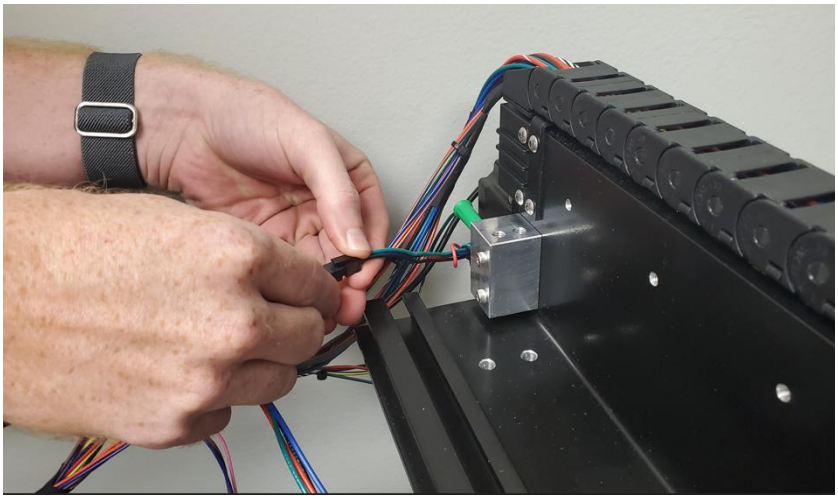


Plug the motor end of the rotary cable into the rotary.

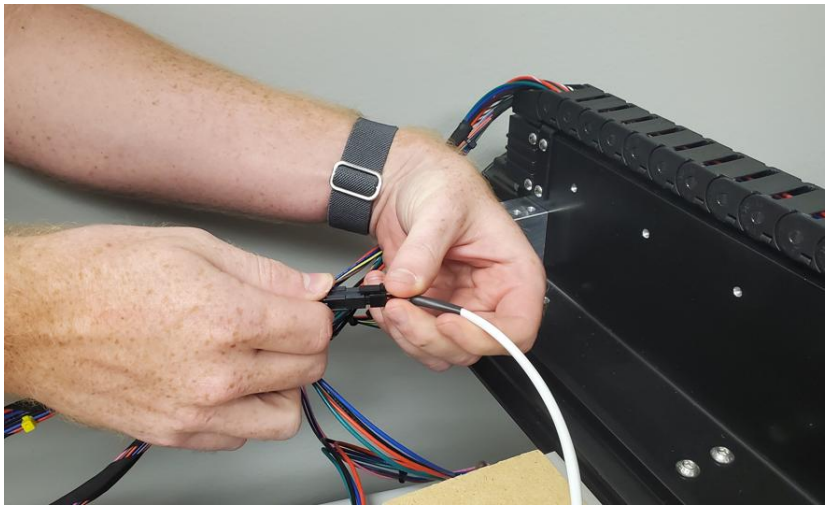
SHAPEOKO 5 PRO MACHINES

The Shapeoko 5 machine is great for a rotary because the mount can be moved up in the dovetail by twisting on the screw holding it in and then you can move it so your cup can fit under the laser. It is great for engraving larger cups.

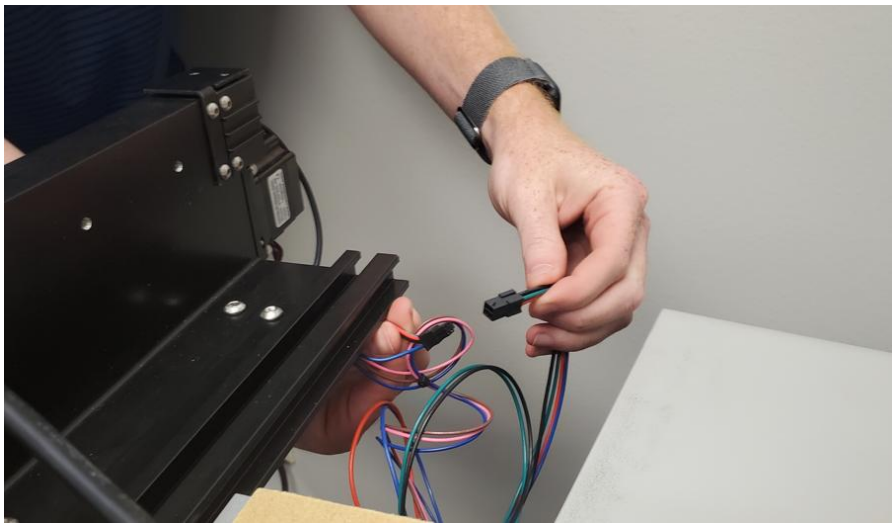
To install the rotary, remove the right side Y Axis motor connection cable.



Replace the connection with the rotary cable supplied in the rotary accessory kit from J Tech.



Make sure to remove the motor connection on the left side of the machine for the other Y motor.



Then connect the other end of the rotary cable to the rotary motor.

You can then adjust the height of the laser mount to place the laser correctly for your cup size.

SHAPEOKO 4 AND SHAPEOKO PRO MACHINES

The Shapoko4 and PRO machines can have the rotary in a couple of configurations. If you have the front mount, you can place the rotary in front of the machine off the table to get more z clearance for larger cups. If you don't have the front mount or don't have a big enough table, then you can use the provided side mount for the laser that will raise the laser up to able to fit larger cups.

If you don’t have the front mount, you can install the side mount for the laser. There are two screws to mount it on the router holder on the left side.

Depending on where you have your router placed, you may need to lift it up to make room for the rotary.

Connect the rotary cable to the rotary motor.

Unplug the Y Right cable and plug in the rotary to it. You can look at the motor on the right side and trace the wires to the Y right connector.

Find the “Y L” connector (Y Left) and unplug it.

SHAPEOKO3

The Shapeoko3 machine is great for the rotary, but the z axis will need a bit more room to do larger cups. The kit includes a new mount that will be placed in the normal holder.

Remove the old mount and replace it with the new smaller mount. Note the placement of the holes. They will be placed so they are on the top of the mount.

Connect the motor cable for the rotary into the rotary motor.

Unplug the Y1 motor cable on the back of the machine and plug in the rotary cable into it.

In the center back of the machine, you can see the Y2 connector. Unplug this cable when you use the rotary.

X CARVE MACHINE

The newest version of the x carve already includes the risers and the dual linear rail z stage with added height, so you won't need to do anything with the machine to get it working. If your machine is an older machine without risers, then you will need to get the upgrade kit from Inventables for the new z axis and risers before you can use the rotary tool.

If you have the newest version, then you can adjust your front mount on the router holder up if you need more room. You can also move the mount to the higher screws if you need even more room. The z axis has a lot of height, so you might not need to adjust anything.

Plug in the rotary connector to the rotary motor.

Remove the Y2 connector from the back of the X Controller

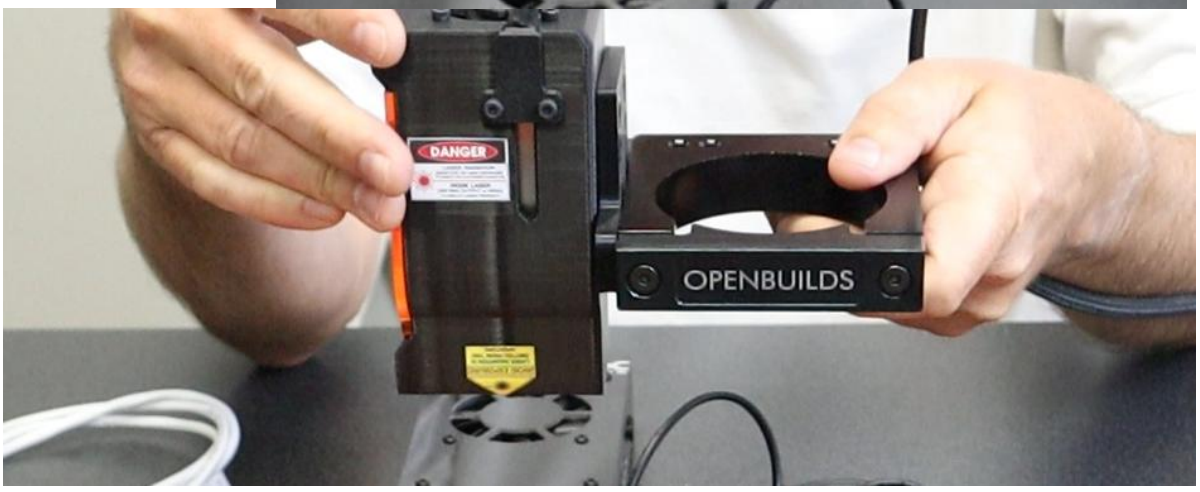
Remove the Y1 connector and replace it with the rotary connector.

OPENBUILDS MACHINES

There are many configurations for openbuilds machines, but this will cover most of them that use the BlackBox controller.

If you have the extended Z axis, then you might have enough travel in your z axis to accommodate larger cups under your laser using the standard mount. If you don't, then we have included another mount that will raise the laser up to allow for more room. You might need to also move the router out of the way as well when using this mount.

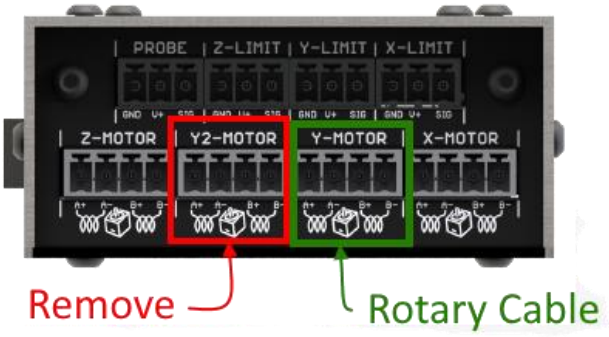
The mount is upside down from the original J Tech mount, so put the mount on the router holder like the picture.



This will allow a lot of room under the laser for engraving large objects.

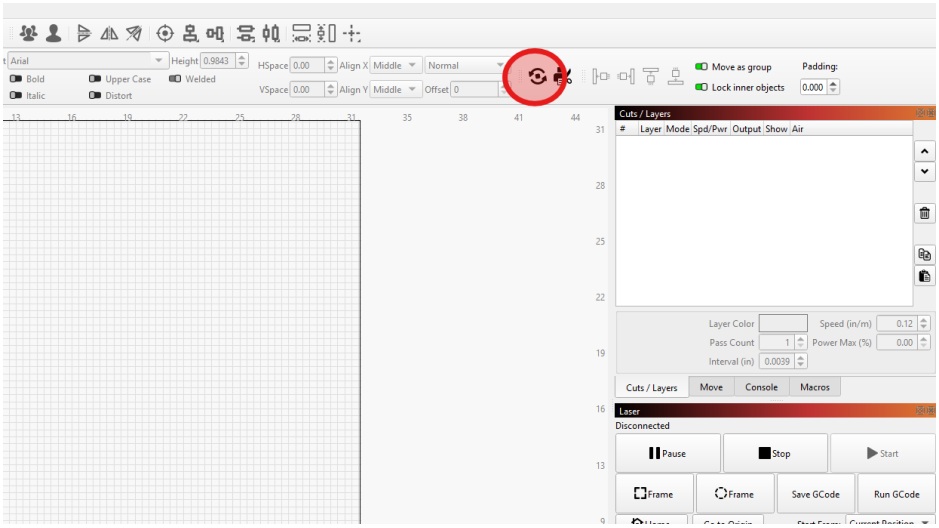
To attach the cable, first start with attaching the cable to the rotary.

Attach the other side by removing the Y axis connector and replacing it with the rotary connector.

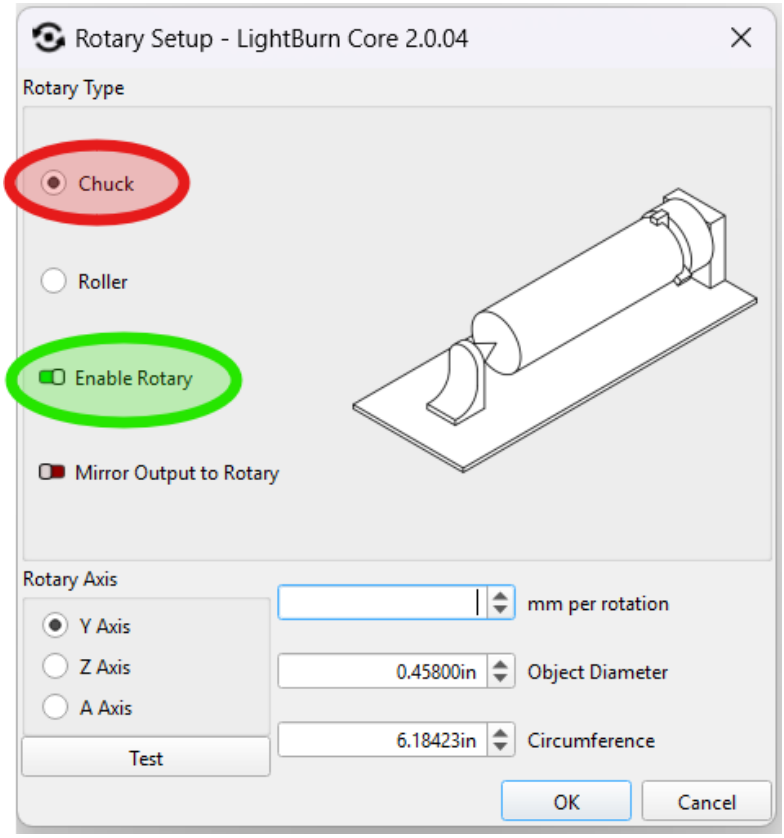


LIGHTBURN SETUP

Select the  icon from the top row of buttons or navigate to rotary setup through the menus (Tools – Rotary setup)



- Select Chuck
- Enable Rotary



Use the Following Chart for your machine.

Machine Type	Axis	mm per rotation	Mirror output
Shapeoko 3	Y	160	Yes
Shapeoko 4	Y	160	Yes
Shapeoko 5	Y	80	Yes
X Carve	Y	160	Yes
Openbuilds	Y	80	Yes
Onefinity (buildbotix)	Y	40	

CALCULATING MM PER ROTATION

Find the steps per mm setting for your machine. If it is a GRBL machine like Shapeoko, X Carve, or Openbuilds, open the console tab and type $$. This will open a list of settings. Locate setting $101 if you are using the Y axis. Take that number and multiply by 4.

Example $101=40

40*4 = 160

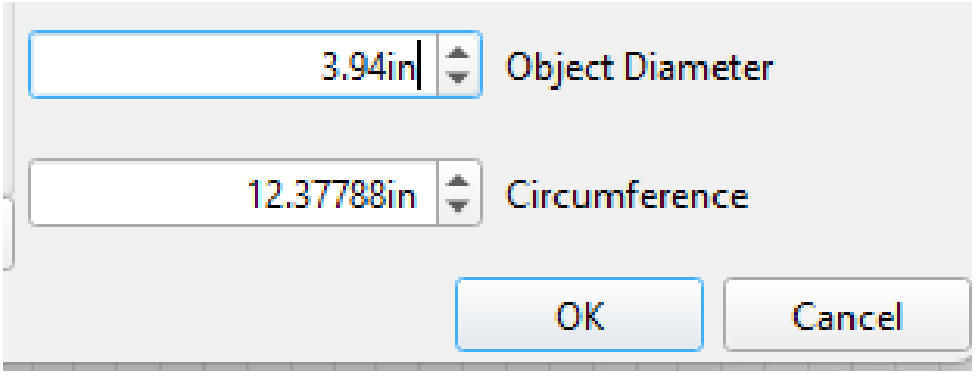
mm per rotation 160

OBJECT DIAMETER

Measure the diameter of the Cup on the part you want to laser on. For best results use digital calipers.

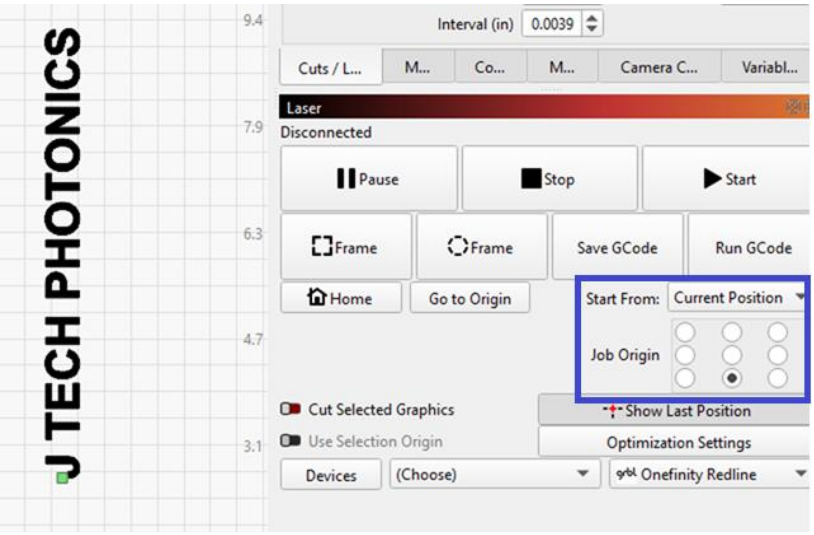
** Note this may not be the part that is mounted to the rotary **

When you enter the Object diameter, the circumference will automatically be filled.



PROJECT SETUP

- Rotate your work 90 degrees so that the text is wrapped around the object.
- Set to current position (user origin if using a Onefinity).
- Set the Job Origin to the bottom center position.



- The height of the design is how far it wraps around the object.
- Do not exceed the circumference of the object.

SPEED AND POWER

**Note these are recommended starting points. You may have better results with other speed and power settings. **

Lines per inch: No less than 250

Speed: Max speed recommendation is 100in/min (slower will have better results)

Power for Painted Tumblers: (Decrease power if you decrease speed)

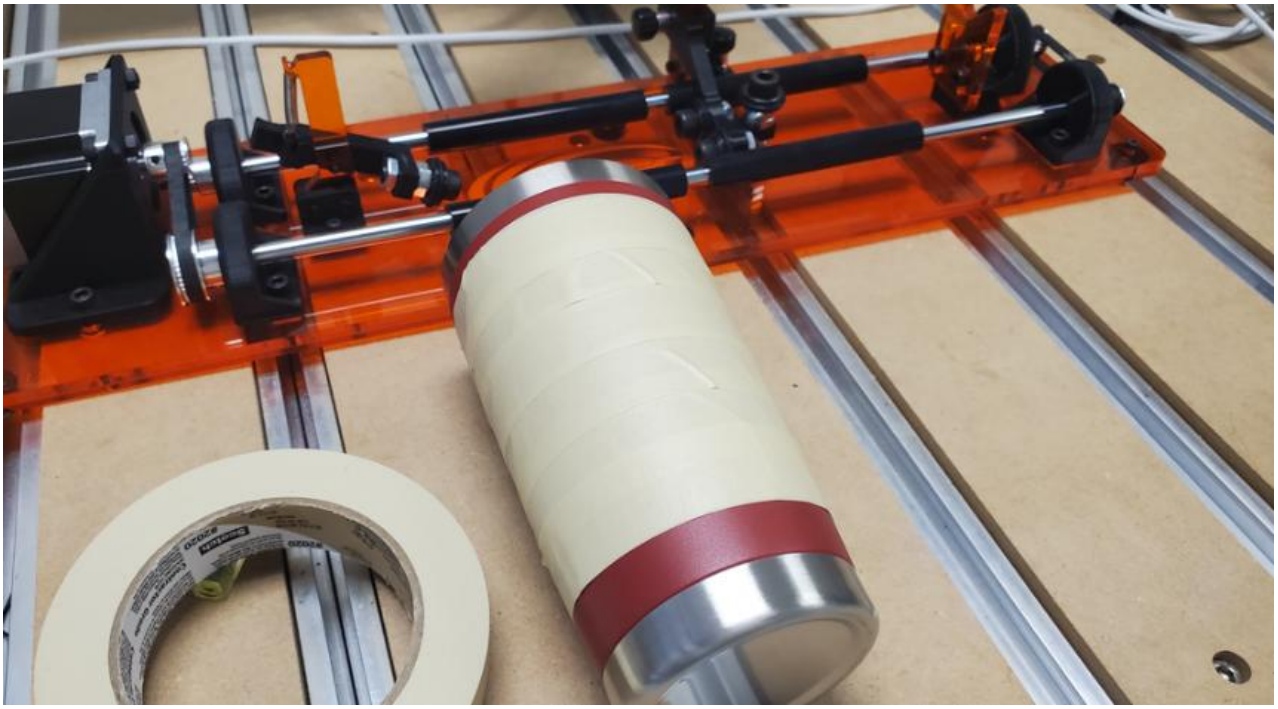
7W+	**100%**	**14W+**	**60%**
34W	**25%**	**64W**	**15%**

Power for Stainless-Steel: (May need to slow down the speed)

34W	**100%**
64W	**60%**

OTHER TIPS FOR ENGRAVING CUPS

1. Get a practice cup first and try your settings on it. Re-use the cup as your test cup for trying new settings.
2. You can also use couple of layers of painter's tape on the cup and engrave in low power as not to go through the tape.



3. Speed: Recommended Max speed of 100 inch/min when doing rasters.
   Higher speed can shift the cup and cause bad engraving. Lower speed will get better results.

4. For better results, use the “FILL” method in Lightburn. It will raster in X axis and only move the Y for each line, which is super small. It won’t throw the cut out of balance.
5. Power: For removing paint, it doesn’t take as much power as you would think. Do not use too much power on paint removal because the higher power lasers will also then mark the stainless-steel underneath in places. The 34W and 64W can engrave stainless steel directly at 100% power.
6. If your settings are wrong, it will be obvious on the test cup. This example on the right needs to be rotated 180 degrees in Y and the MM per rotation is wrong. You can see it is squished, so the MM per rotation needs to be increased. Once you get your machine calibrated, make sure you save your numbers. Lightburn sometimes resets them when you update. Always, check your settings against your “known good” settings or you will get mistakes like this one on a perfectly good cup.