

Frisbee layup instructions

The LPM Project

Material requirements

Choice of patterned fabric for frisbee top

White/Black fabric for core (black for dark top, white for light top)

LDPE Plastic bags

Tools/Equipment

Frisbee tool (2 parts, M10 countersunk bolts, Steel clamp plate, silicone insert)

Induction heater plate and steel heater plate

Temperature monitor and K-Probe

4 x M8 Bolts

6mm Allen key

13mm spanner

Scissors

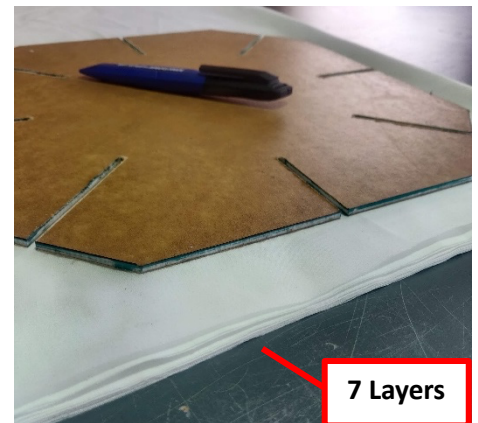
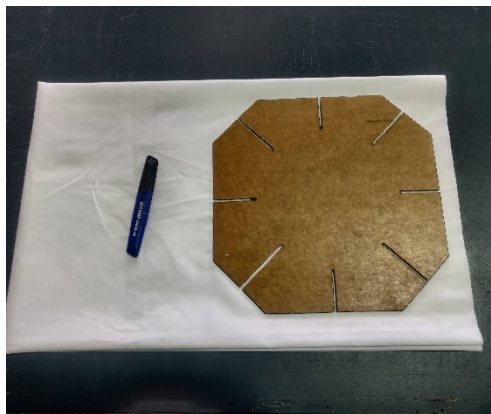
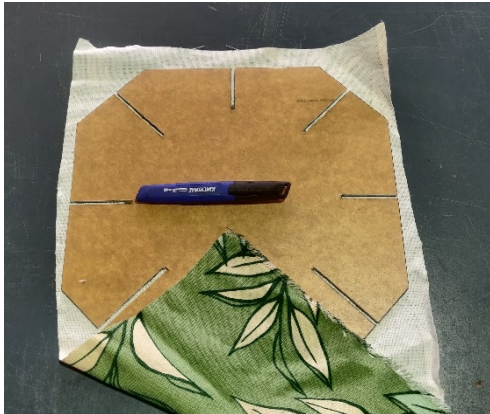
Sharp knife

Pen/marker

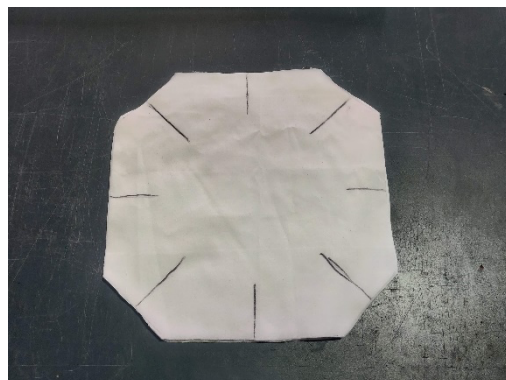
Template

Big Flathead Screwdriver

Step 1 - Mark out cut lines on the patterned and white fabric using the template with a pen/marker. Use faint lines on the patterned fabric to minimise bleed through of ink to the final product. You will need 7 layers of white/black fabric.



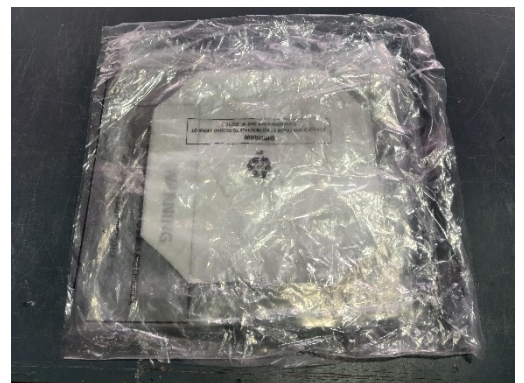
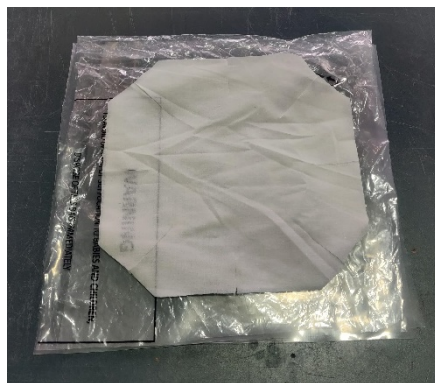
Step 2 - Cut along the cut lines until you have something that looks like what is below.



Step 3 – Lay 1-2 sheets of clear LDPE (depending on thickness), that is bigger than the template, as the first layer of the layup. This will be the top surface of the frisbee so make sure that it is clean and free of any contamination. Then lay your patterned fabric, **pattern DOWN**, on top of the plastic as shown below.

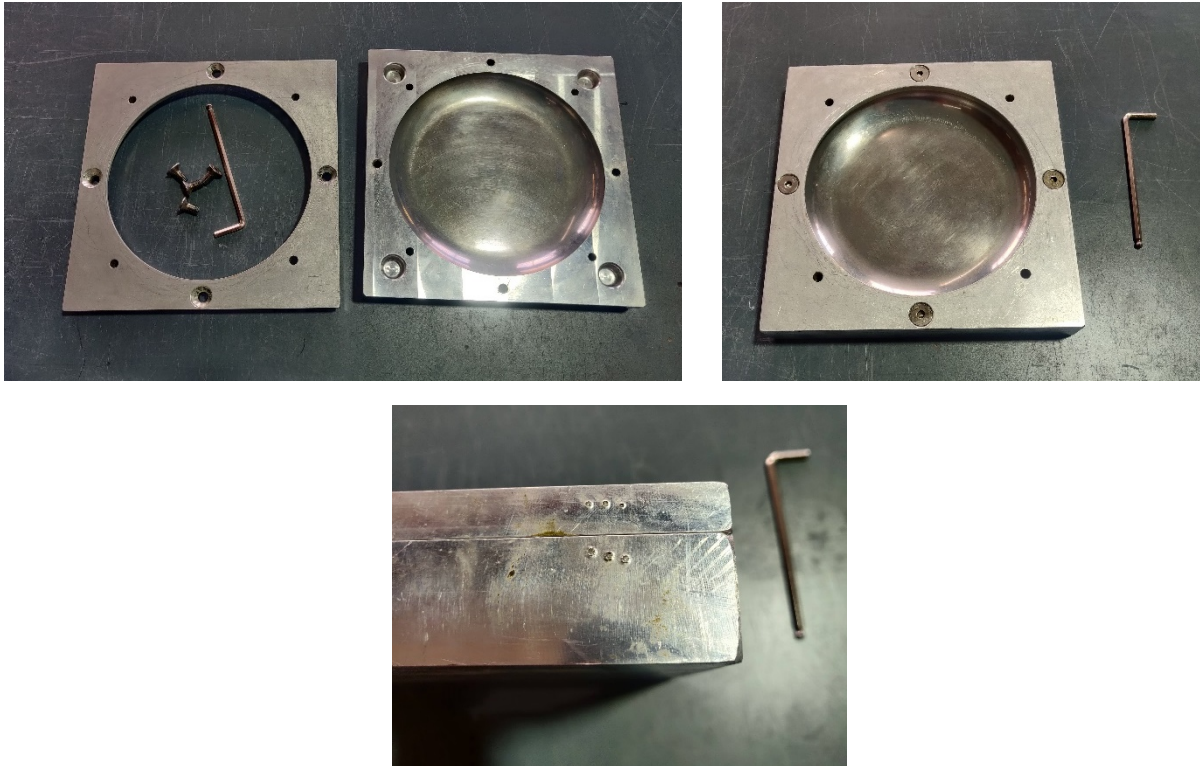


Step 4 – Repeat the process with the rest of the white/black fabric and LDPE, you don't need to worry about plastic with warning labels. Lay another layer of 1-2 LDPE plastic bags on top of the patterned fabric then a layer of white fabric. Repeat until you have 7 layers of white fabric laid. **Make sure that the final layer is LDPE plastic bags, not fabric!!!**

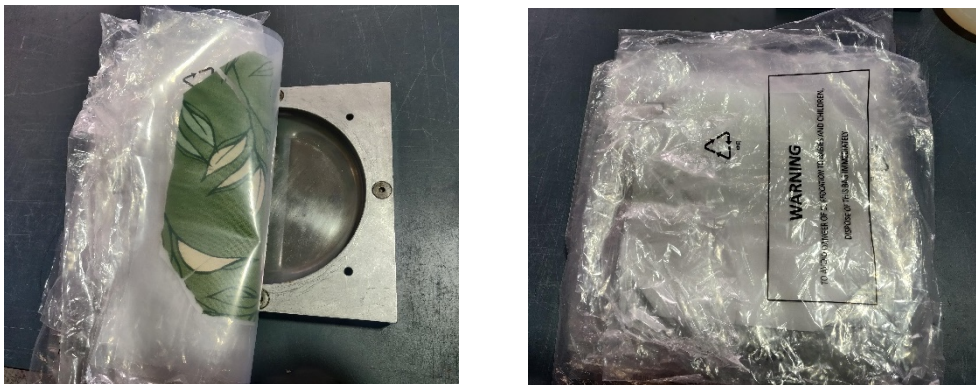


7 Layer topped with LDPE

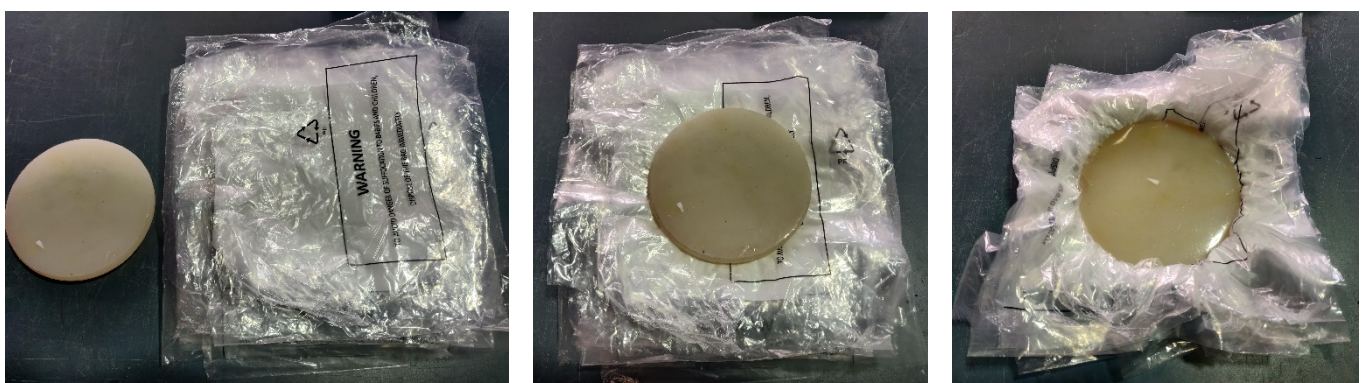
Step 5 – Get out the Aluminium frisbee tool and put it together using the M10 countersunk bolts with the Allen key. Make sure to align the 2 parts of the tool using the alignment marks as shown below.



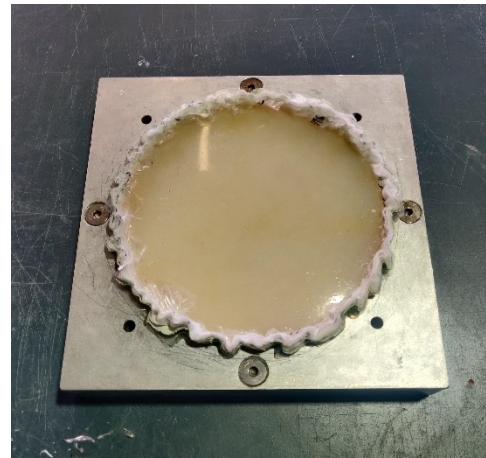
Step 6 – Lay the fabric layup on top of the tool making sure that the patterned side is down and that all the fabric layers are aligned in the same orientation.



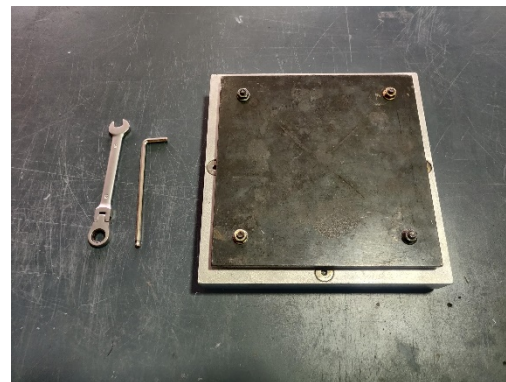
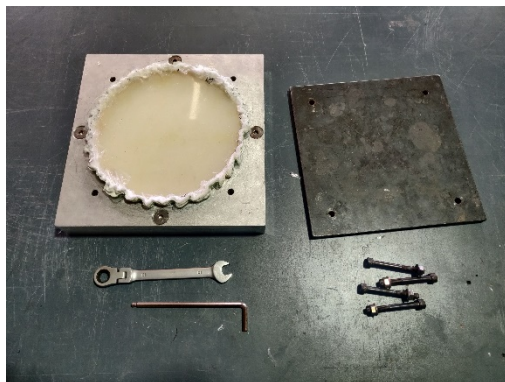
Step 7 – Use the silicone insert to force the fabric into the tool. This will take some force but start with one side and then work the rim in.



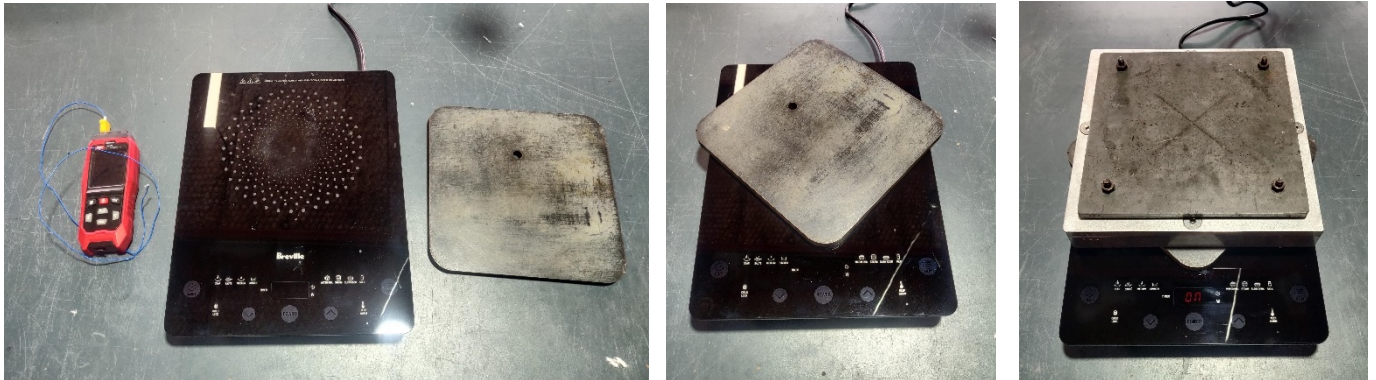
Step 8 - Once you have the silicone in the tool make sure that you can see the patterned fabric poking out of the tool **on all sides** as shown below. This will ensure that you have aligned the fabric correctly. Then trim off the excess fabric with scissors or a knife, you want to get as much off as you can to expose the 4 holes in the tool, it should look like the picture below (Right).



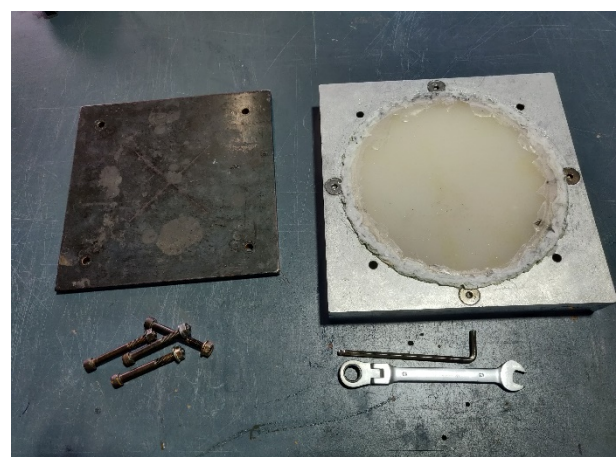
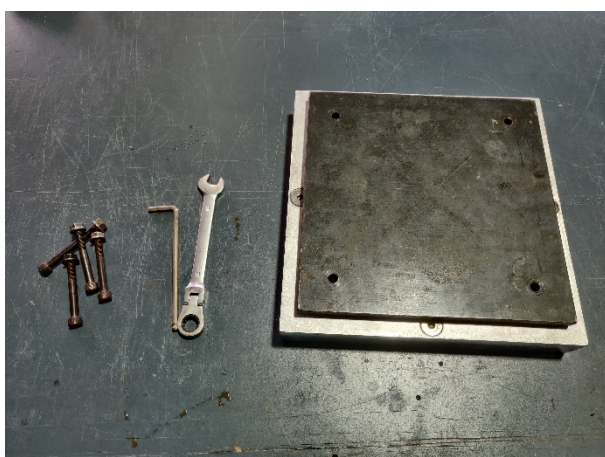
Step 9 – Bolt the steel plate on to the top off the silicone using the M8 bolts and matching nuts to create pressure in the tool. You want to make sure that the steel plate is aligned using the alignment marks as shown below. Make sure that you tighten the bolts evenly, a good way to do this is to count the exposed threads . **Don't** over tighten the bolts because you will damage the silicone, it should be tight but don't force it.



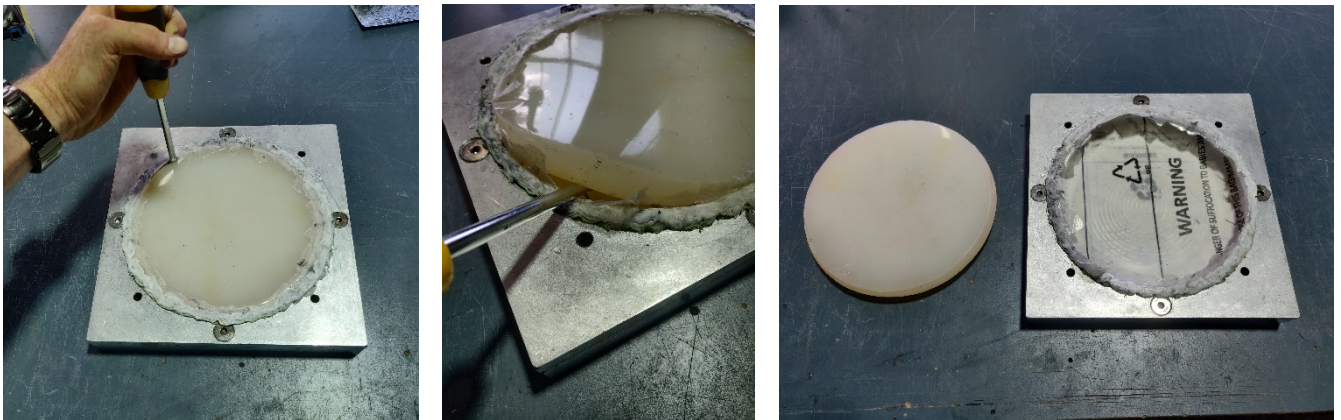
Step 10 – Plug the induction unit in and put the steel heating plate on top of the unit and then the **loaded frisbee tool on top of steel heating plate**. Using a thermal probe to help monitor the tools temperature is very useful, there is a small hole in the side of the tool that you can insert a K probe into. You want the tool at about 145°C for about 45-60mins. If you don't have a temperature monitor around 1000 watts on the induction heater will suffice.



Step 11 – Take the tool out of the oven and let cool either in the air or run it under a tap. (Make sure to dry the steel well to avoid rust. Once the tool is **cold** to the touch, remove the bolts and steel plate.



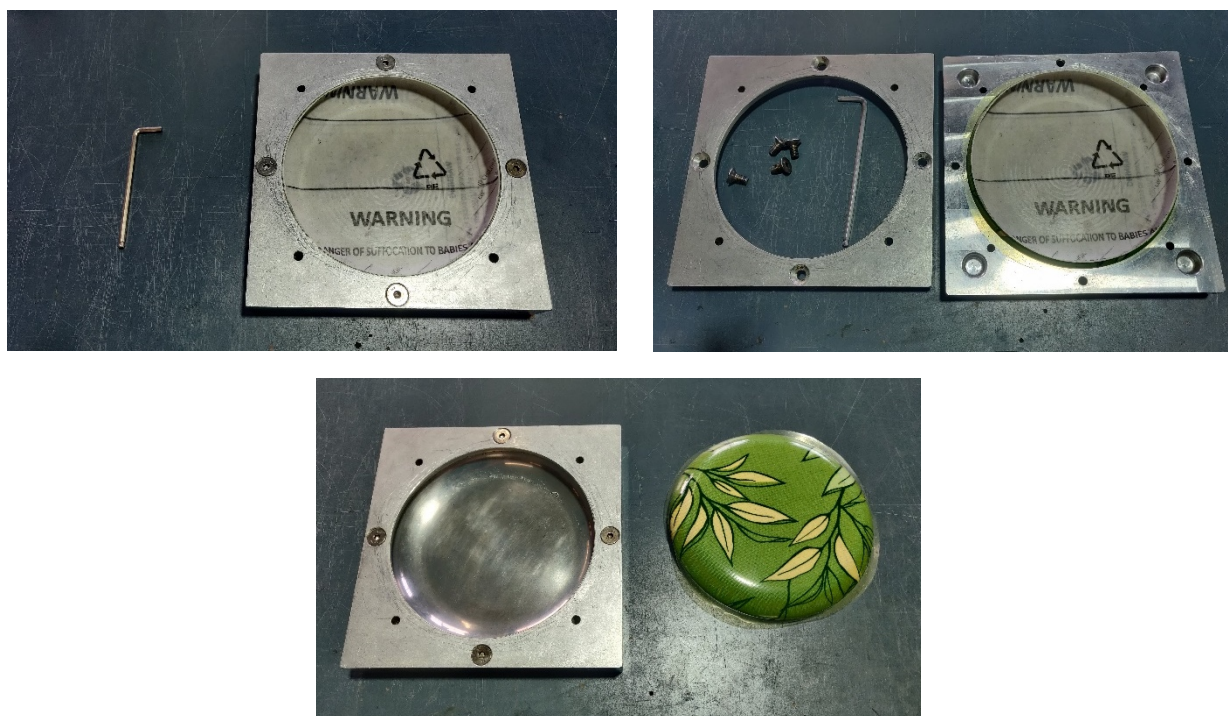
Step 12 – Carefully remove the silicone insert using a big flat head screwdriver. Slip it down in between the frisbee and the silicone and lever it out. It might be easier with 2 screwdrivers.



Step 13 – Trim the exposed part of the frisbee with a sharp knife, use the tool surface as a guide as to not cut the actual part.



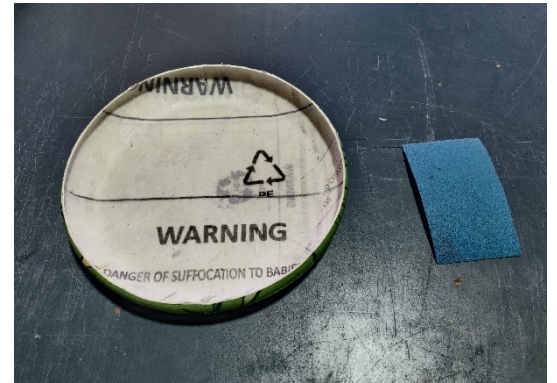
Step 14 - Then unscrew the countersunk bolts and separate the tool to retrieve the part.



Step 15 – Trim the excess plastic off around the tool part line using a sharp knife.



Step 16 – Use a sharp knife to score and then trim the excess rim on the bottom of the frisbee. Using a round surface, such as a PVC pipe works well as a surface to apply pressure. See picture below. Sand the rim if necessary with 120 grit sandpaper.



Final Part – If you followed these instructions you should have a frisbee that looks something like this. Have fun!!!

