

Generic, Ready Made Items

One of the avenues we begun exploring and are looking to continue down is alternate methods to process plastic. This could be including the machines we built or other 'outside the box' methods. A good example of this was the utilisation of a sandwich press, which will be explained in the 'Sheets' section.

An abundance of ready made products proved to give better results than constructing our own moulds. After receiving our order back from laser cutting, we realised that we hadn't ordered any moulds to be processed using the compressor. To counter this, alternative methods of forming products had to be used. A collection of two-part moulds were purchased off the shelf from Australian department store K-Mart. Glass and ceramic bowls were used and plastic was placed between two glass bowls in the oven, heated and compressed. Care was taken in cooling as rapid cooling could crack the glass. Additionally, there were no guiding tabs so wall thickness had to be controlled manually during compression.

Explore your local hardware or department store and brainstorm what everyday products could be useful as plastic making machines!

Sheets

As mentioned above, a simple sandwich press was used as a shortcut to turn shredded pellets into plastic sheets. This method only worked consistently with polypropylene due to its low melting temperature. Feel free to experiment with other plastics to find which plastics your press can process.

NOTE:

- DO NOT USE sandwich press for food after using it to melt plastic. We recommend labelling the machine just in case someone stumbles in, hungry for a cheese toasted sandwich!
- Buy a sandwich press that has a non-stick surface so the plastic will de-mould easily
- Use plastic tools on the press as metal tools will scratch the surface!

Laser Cutting

Sheets generated from the press can be fed into a laser cutter. Sheets are a very versatile raw material as extremely accurate products and designs can be produced.

NOTE:

- A tutorial [here](#) will show you how to create .dxf files that are used by the laser cutter
- Check with your operator if the laser cutter has the correct extraction to process plastic that may be slightly contaminated. This is a result of human cleaning in comparison to chemical washing of recycling plastic.

CNC & Lathe

Solid cylinders, squares and slabs were produced using the compressor. These shapes can be modified using either a CNC or Lathe to post process. Some testing was undertaken to develop products using these methods. CNC produced chess pieces, fins for a hobby rocket and gym equipment buffer plates. The lathe created high tolerances beams and surfaces,

NOTE:

- Turning was found to work best using HDPE

Artistic Pieces

Get creative! Think outside the box! Some members of our team have utilised the machines and other methods to create unique products. These include:

- Art Work (Eg. Mona Lisa via laser cutting colours and assembling like a mosaic)
- Gravestone (This is a statement piece as gravestones are usually made out of a material that lasts centuries, namely, plastic)
- Skateboard Deck
- Guitar Body
- Outdoor Seating