

# Dragon Powered Clip Tray notes

## Materials

The trays were originally designed to be made from 4mm MDF. The MDF I buy is actually 4.1mm thick according to my micrometer. Always use laser quality MDF.

I have also made these trays in 4mm oak veneered MDF which is actually 3.9mm thick. The trays cut from this material work fine, there is a little play between the components which isn't enough to be a problem to me.

Other materials which are likely to work but which I have not tried:

- Plywood. The 4mm birch ply I have bought varies from as thin as 3.6mm up to 3.8mm thick. The thinner ply will result in fairly loose fitting parts. Always use laser quality ply.
- Acrylic. Good quality 4mm acrylic such as Perspex is likely to work well. Avoid the counterfeit Perspex sold on eBay which is brittle and is likely to break.

## Cutting

For the cleanest underside, I recommend suspending the sheet clear of the laser cutter's table. I use a jig for cutting which is described here <http://dragonpowered.co.uk/laser-cutting-4mm-ply/> and here <http://dragonpowered.co.uk/laser-cutting-jig/>

If you don't want to go to the trouble of making a cutting jig, I recommend cutting on a honeycomb table to reduce smoke stains. If sheet materials are cut on a flat steel table, a lot of smoke staining is likely. Parts cut from ply and veneered MDF can be sanded to remove smoke stains. MDF does not take kindly to being sanded.

If, like me, you use a jig to suspend the sheet above the table, the order of cutting is important. The holes must be cut before the outside edges in case the parts drop before the laser attempts to cut the holes. The cutter files have different coloured lines for the parts that must be cut first. Be sure to order them correctly in your laser cutting software. Some laser cutter software claims to be intelligent enough to know which parts must be cut first. In practice, mine is easily confused and so I order the cuts manually.

## Finishing

I use MDF for making functional trays and leave it unfinished. I did try polishing MDF with a drying oil and found this just made it look like shiny MDF. Painting the parts before assembly is unlikely to work as it will make the pieces thicker.

For veneered MDF, I sand off smoke stains and polish the parts before assembly using Osmo Polyx drying oil. I recommend this oil highly. It enhances the grain of wood veneer and dries to a tough satin finish. Other drying oils like Danish oil will work well, too.

## Assembly

The tray has been designed to make it very difficult to assemble in the wrong order. The tray is not intended to be repeatedly disassembled and reassembled – the clips that hold the tray together will probably degrade after being assembled two or three times.

Usually, the faces that were down while the parts were being cut will be the best looking. Assemble the tray so these faces are on the outside for the best looking tray.

## License

The license for the cutter files are for one person to make as many trays as you like and sell them if you wish. The license is **not** commercial production by a business with of than one person. Please enquire if you wish to manufacture larger quantities of the trays.

Please do **not** share or sell the cutter files. I am a one man business, making a small living from my laser cutter. If you give away my files, you are potentially depriving me of my income.

This document and the cutter files are Copyright © 2016, Mike Wilson, all right reserved.