

# Derby Makers Laser Cutter

The follow laser cutters are made in China, but imported via Germany, so there won't be any import duty, or sea freight fees and the lead time should be relatively short.

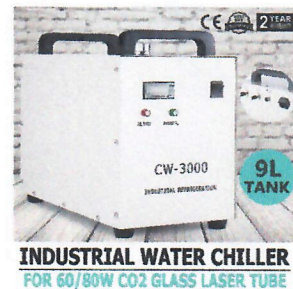
However, none of the following are available to buy, as they are sold out. But they regularly appear on ebay.

They would all include extraction fan, and air assist pump for the nozzle. There is no filtration on the extraction, which would be fine in the short term.

60W 500x700mm (Listed August 17)  
200mm bed lift  
£1594 (+ Water Chiller £164)  
Total = £1758

80W 500x700mm (Listed August 17)  
No bed lift  
£1794 (+ Water Chiller £164)  
Total = £1958

60W 500x700mm (Listed Oct/Nov 17)  
200mm Bed Lift  
Including Chiller  
£1989



While more power is better, an 80W laser cutter cabinet has an extension to accomodate the longer CO2 tube. This is an important consideration, as we are very limited with space .

I would allocate £2000 for the laser cutter and chiller, assuming we can get one imported via Germany. If they are no longer available, they the next option is to import directly from China. This will take more detailed investigation. With the addition of import duty and freight fees, I would expect it to cost £2500 - £3000 and a 6-8 week lead time. If we went down this route, then we would have greater choice of cutters and its specification.

## Extraction

While there is scope to install a permanent external vent for the laser cutter, we would initially place the exhaust pipe under the shutters. We would need to create a folding barrier that would accept the pipe and stop the workshop from losing heat. For the extraction pipe and materials for the barrier, I would allocate £50.

Ideally the extracted air should be filtered, so a filtration system should be added sooner than later. The Silk Mill's cost £3000+ (from memory) and the replacement filters £300+. But is possible to build our own for approx £250. I think we should try and design one that would fit under the laser cutter, to

Example: <http://lasercuttinglab.com/diy-laser-air-filter/>

## Stock Materials

I would recommend that we stock a variety of plywood, mdf and acrylic, to get us started. We will need to establish a method of funding these stock materials. I would allocate £100 - £150

## Rotary Devices Upgrade

These come in chuck and roller formats and are usually sold separately and cost £150 - £200. I personally have both. I am happy to lend mine when required and if they are used regularly, then we should purchase Derby Makers own.

## Open Source Controller Upgrade

These cheaper machines come with "Auto Laser", that I have no experience and expect they require Windows. I would recommend that once the filter has been built, we should look to install a parallel controller. If we connect through relays, we can then choose which controller we want to use, to ensure there is minimal downtime until we have the open source controller working reliably. It may be that each controller has limitation, so we can choose the most appropriate one for the project. The smoothieboard is the controller I plan to upgrade mine with, however this will need further research to ensure it is the right controller for us. I would allocate £250 for all the components.

Ref: <http://smoothieware.org/>

## Summary

In total, assuming we can get an import from via Germany, we need to initially invest approximately £2400, with a further £400 for upgrades. If we need to import directly from China, I would anticipate an additional £800 spend, although this will need to be clarified and confirmed.

Assuming we agree to pull the trigger on this, I would be able to dedicate my time and head space to proceed with the purchase after Christmas.