

# CNC File Submission Guideline

## Submission Guidelines

### Sheet size

Our machine can accept sheet material up to 2500mm x 1300mm. Our birch plywood is 2440mm x 1220mm and is available in thicknesses of 4, 6, 9, 12, 16, 18, 24 and 30mm. Stock availability is usually the next day but we will advise of potential delays.

### CAD work

If you do not have the resource to prepare CAD files we can provide this service for you. You could submit scanned sketches with dimensions for instance; we would draw the shapes for you and return as PDF for your approval.

### CAD file preparation

To avoid us having to pre-process your CAD files (and to make it cheaper for you) please ensure you follow the below guidelines. We can accept most standard CAD file formats in .dwg .dxf and .3dm. The model must be in millimetres, 1:1 scale.

All shapes for cutting must be drawn within a rectangle that matches the size of the sheet material. This is usually 2400mm x 1200mm or 2440mm x 1220mm depending on its source. Our router bed can take sheets of a maximum 2500mm x 1300mm if you have sourced material of that size.

The sheet should be in landscape orientation with the bottom left corner at the x-y origin (0,0,0 coordinates). A 20mm border must be allowed from all edges and between all separate shapes within the board.

**Profiling:** Shapes are either cut offset to the inside or the outside of lines, you will need to specify which. This is best done by naming the CAD layer:

profiling inside  
profiling outside

**Pocketing:** For pocketing operations it is assumed that the pocket is always the inside of the shape, you will in addition need to specify the depth of the pocket through the layer name:

pocketing 4mm deep  
pocketing 6mm deep  
etc...

**Facing:** This operation is the opposite of pocketing as it will remove the stock material outside the shape; for instance, if you wanted a name or a logo to be raised of the surface. As with pocketing you need to specify the depth of the cut within the layer name:

facing 5mm deep  
facing 6mm deep  
etc...

**Hole pocketing:** Holes can be drawn either by a circle or a vector point; you will need to specify the diameter of the hole. The smallest diameter we can drill is 4mm, holes 10mm diameter or larger can be considered as 'profile cutting inside' as there is no difference to the operation. Group holes of the same size on the appropriate named layer:

holes 4mm dia  
holes 5mm dia  
etc...

**Chamfering:** We can chamfer edges at a 45 degree angle with our V cutter. The tip of the V cutter will follow the drawn line, this can be followed by a profile cut on either the outside or inside to result in a chamfered edge. You will need to specify the depth you require the chamfer to be made in the layer name:

chamfer 5mm  
chamfer 10mm  
etc...

### **Engraving:**

We can engrave text or other patterns onto the surface of the material with our 45 degrees V cutter tool. We can engrave along single line paths or within shapes at your requested depth. A cutting depth of 1mm along a line would have an engraved width of 1.41mm on the surface. You should state the depth of the required engraving as the layer name:

engrave 1mm  
engrave 2mm  
etc...

### **3D milling:**

Three dimensional CAD shapes can be milled through 2 or 3 step processes. The first step is called horizontal roughing where with a large diameter bit we cut away the majority of the stock very quickly leaving tolerance, the next step is parallel finishing where we cut to the shape at various degrees of overlap of the router bit, finally a third step of horizontal finishing with a smaller router bit may be applied to achieve a finer finish.

The maximum material height for our machine is 120mm and maximum cut depth from the top surface is 85mm. An understanding of the quality of finish will be required before we can set the toolpath. Smooth finishes are best achieved (and more economically achieved) post-milling by sanding.

### **Important criteria:**

Please note internal corners will have a radius; the minimum radius on internal corners is 2.38mm as this is half the diameter of our smallest router bit. If you intend to slot together the pieces you should allow tolerance, this

is dependent upon the thickness and uniformity of the material, for our birch plywood a tolerance of 0.1mm is sufficient in most cases.

We do not offer any finishing services to your cut pieces.

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