

9TH NOV

Back in the workshop, but late so only got 3 of the 4 Front Frame E sections made and found that a 2mm solid carbide burr can be crushed to breaking point by the power of a stepper motor. Good job it broke really, otherwise it may well have punched a hole in the Walnut blank :) As it happens I had two spares so I was soon up and running again. You can see the relative size of the two cutters in Fig-113.

I'm still trying to understand what I can get away with as far as feeds & speeds are concerned and for this operation (cutting the outline) I'd increased the depth of cut by 50% to 1.5 mm – to some extent this was prompted, not by wanting to increase work throughput, but to get a clean face with the burr and avoid the 'ribbed' face created when using a 1mm DoC. It is removed with a ½mm DoC but that doubles the time taken. The next operation needed the 6mm TCT cutter and the G-Code for that was created with a 1mm DoC and it suddenly occurred to me that if the 2mm burr could handle 1.5mm DoC then the vastly more robust 6mm tool ought to handle 2 or even 3mm DoC. It's a pity that I didn't realize this earlier.

On further consideration - *can you tell I'm 'thinking on my feet'?* - the DoC that can be taken is not just dependent upon the strength/robustness of the cutter but also the ability of the workpiece and clamping mechanism to withstand the forces.....



10TH NOV

The second side of the E section is now complete - though I haven't loose assembled them - so I'll move on to the Wall Plates. No 'Joints' or curves involved but they do have to have pockets and recesses for the Brass 'Key-hole' plates, and just for the appearance they need to be chamfered all round - which could very easily be done on the Router Table but the challenge of doing it via CNC is interesting.



I said that there were no 'curves' on this part and that is true of my original design but when I got the first blank on the Denford I realized that it would be very easy to round the corners off and also have a pleasing chamfer following that curve as in Fig-114. To do that by hand or even on the Router Table would have been much more difficult to get right.

Yesterday I remarked about increasing the DoC with larger cutters and the Wall Plate was cut mostly with 4 and 6mm Ø tools with a 2mm DoC - easily handled - the chamfer was also cut at 1000mm/m feed. That compares to the 400mm/m I've generally been using.

11TH NOV

It was my intention to do some lathe work today but realized that I had to skim the other side of the Wall Plates first and then got to thinking that the chamfering had been easy, so I looked at the Wall Pad which is just a 20mm Ø x 4mm thick 'button' of Walnut which will act as a wall protector for the vertical adjustment screw which also has a chamfer. At that size and needing to be 'face grain' rather than end grain it is an awkward piece to hold in the lathe but all four could easily be made from a Walnut scrap/offcut - and I have plenty of that!

I did finish the 8 Frame Clamps on the lathe while the Wall Plates were surfaced and then set about the G-Code for the Wall Pads and the Wall Spacers - these hold the Steel Buttons which fit into the Brass Key-hole Plates and would similarly be awkward to mount on the lathe - and it is much more material efficient to make by CNC.

Whilst the outline of the Wall Pads were being cut I started on the Brass Cups which fit in the two fixing holes in the Wall Plate (Fig-114) I only got 6 made so the other two will be done tomorrow, along with the Spacers.

