

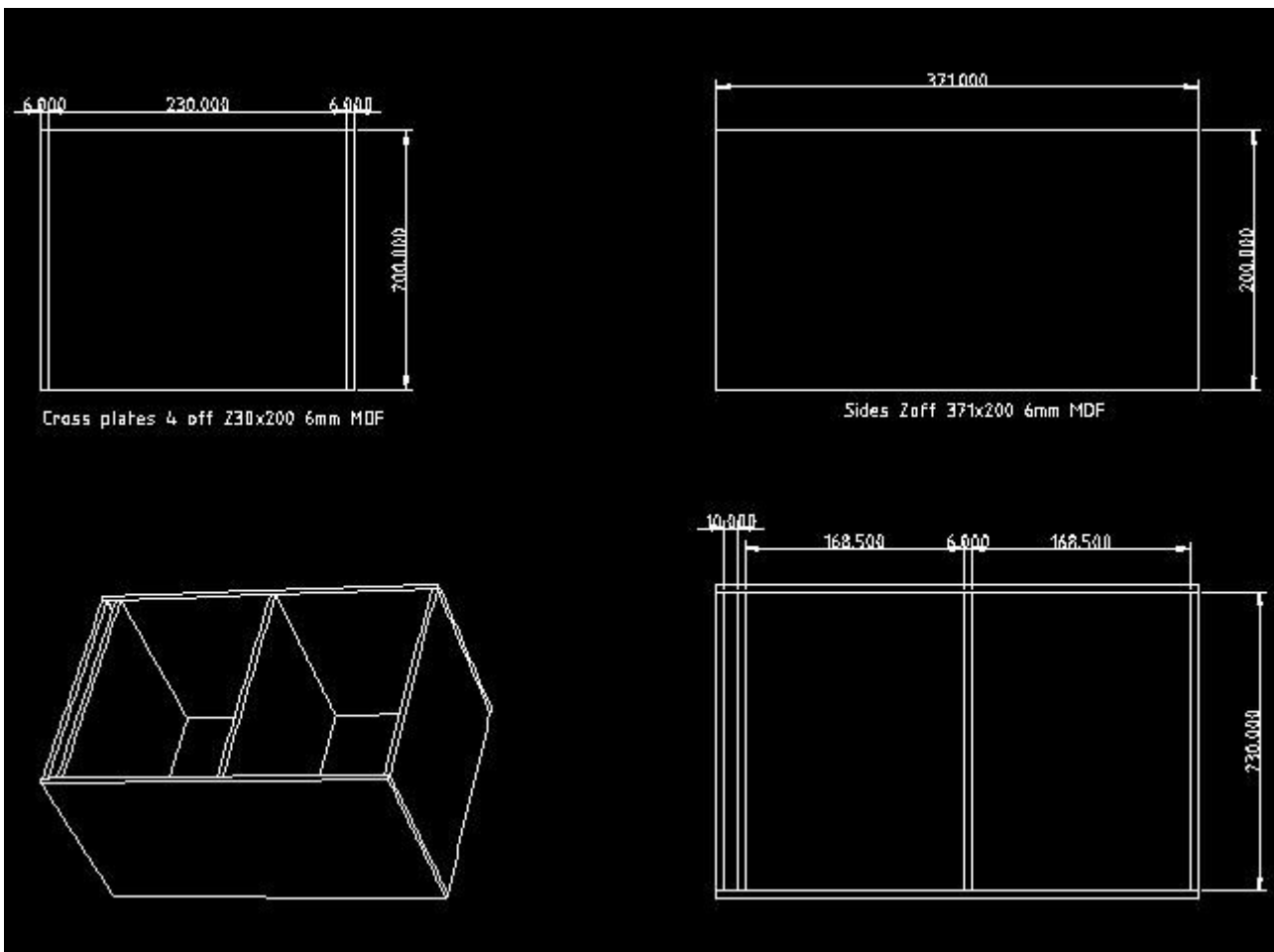
Powder Bins

The design is for A5, with 10mm all round to aid part removal, with a part height of approx 180mm, this gives a machine that can produce a reasonable sized part without being too large.

The powder bins are made from 6mm MDF, although 9mm could be used provided the dimensions are modified to suit, other sheet materials are available, some with melamine coatings, the choice is yours, but bear in mind that if the heated option is used the material needs to be able to stand having a IR lamp in close proximity, if you only intend to use cold methods, then this is not a factor.

I shall describe the way I did things, this is not the only way or even the best way, you can adopt your own methods and not be tied to rigorously following this guide.

I bought my MDF from a diy supplier who had a wall saw, and had them cut it to the dimensions below, (they did not charge for cutting), this ensured that the cuts were square, which is important in finishing up with the bins parallel and square,



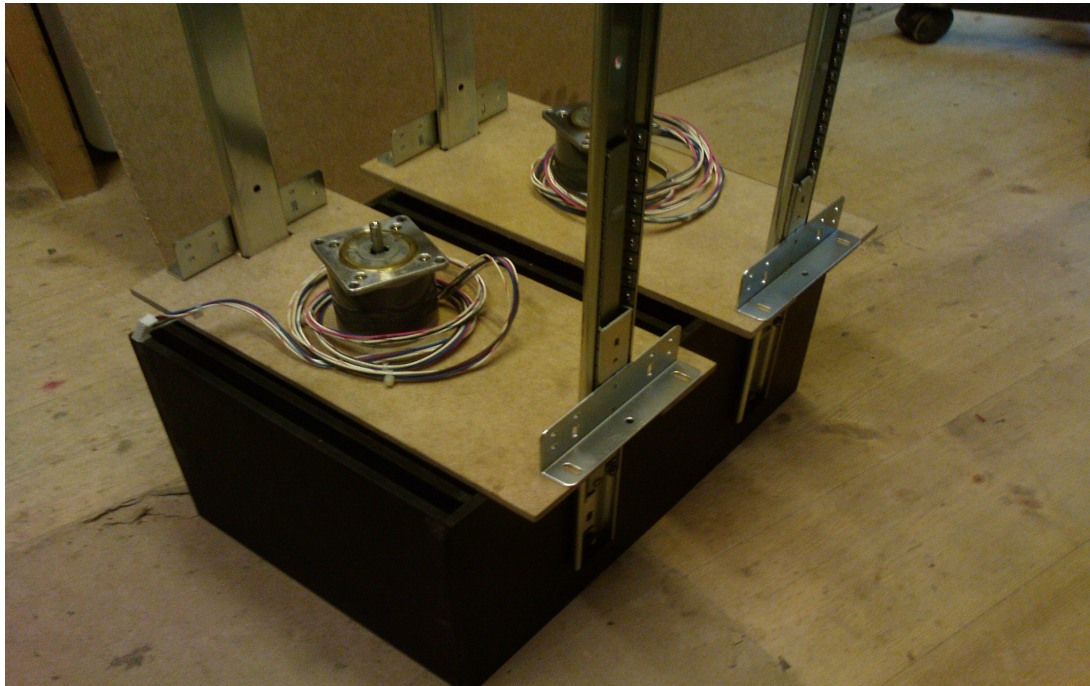
Mark out the centre lines of the cross plates on the side plates and drill small holes for panel pins, 3 or 4 should do, use a drill smaller than the panel pin so they are tapped in and not loose, use small panel pins to avoid swelling the cross plates, apply glue to the edges of the cross plates and assemble, making sure all is square and true, tap in the panel pins and recheck for square, clamp if needed, and leave to set for 24 hours.



I coated mine with wood-stove paint, to seal the MDF and resist heat

Slides

Select the top face of the bins and mark 50mm from the top edge, then mark the centre lines of both bins, this is where the slides will be fastened, with the rollers on the slides at the bottom, clamp the slide so that the fixing hole is central to the centreline and against the 50mm line, drill through both holes with a 5mm drill, keep a constant check with a square, countersink the inner face and screw in place, use half nuts or file down normal ones, otherwise they will foul on the slide, do this for all four.



Piston top plate

I fitted the piston plate using medium wet and dry, they were a little tight so with a full sheet of wet and dry flat on the bench removed small amounts from the edges until a nice fit was achieved on both piston plates, I marked the position and orientation on the plates, mark out the spacer screw holes (30mmx30mm typ) and countersink so that the screw are flush, I used chipboard screws.

Cut the 20mm dowels to 197mm long, making sure that the ends are as square as possible and that all four are the same length for each piston, drill in the centre of the dowel a pilot hole for the wood screw, and screw them to the top plate.

Piston bottom plate

make the cut-outs, I used a sharp wood chisel about 1mm from the line and rocked along the blade whilst pressing hard, do this from both sides, and the cut-out popped out, clean up the edges.

Brace bar

I used 35mm wood as brace bars, cut to be a nice slide fit between slides, not too tight or loose and screwed them into position through the slide cross piece.



Fitting the pistons

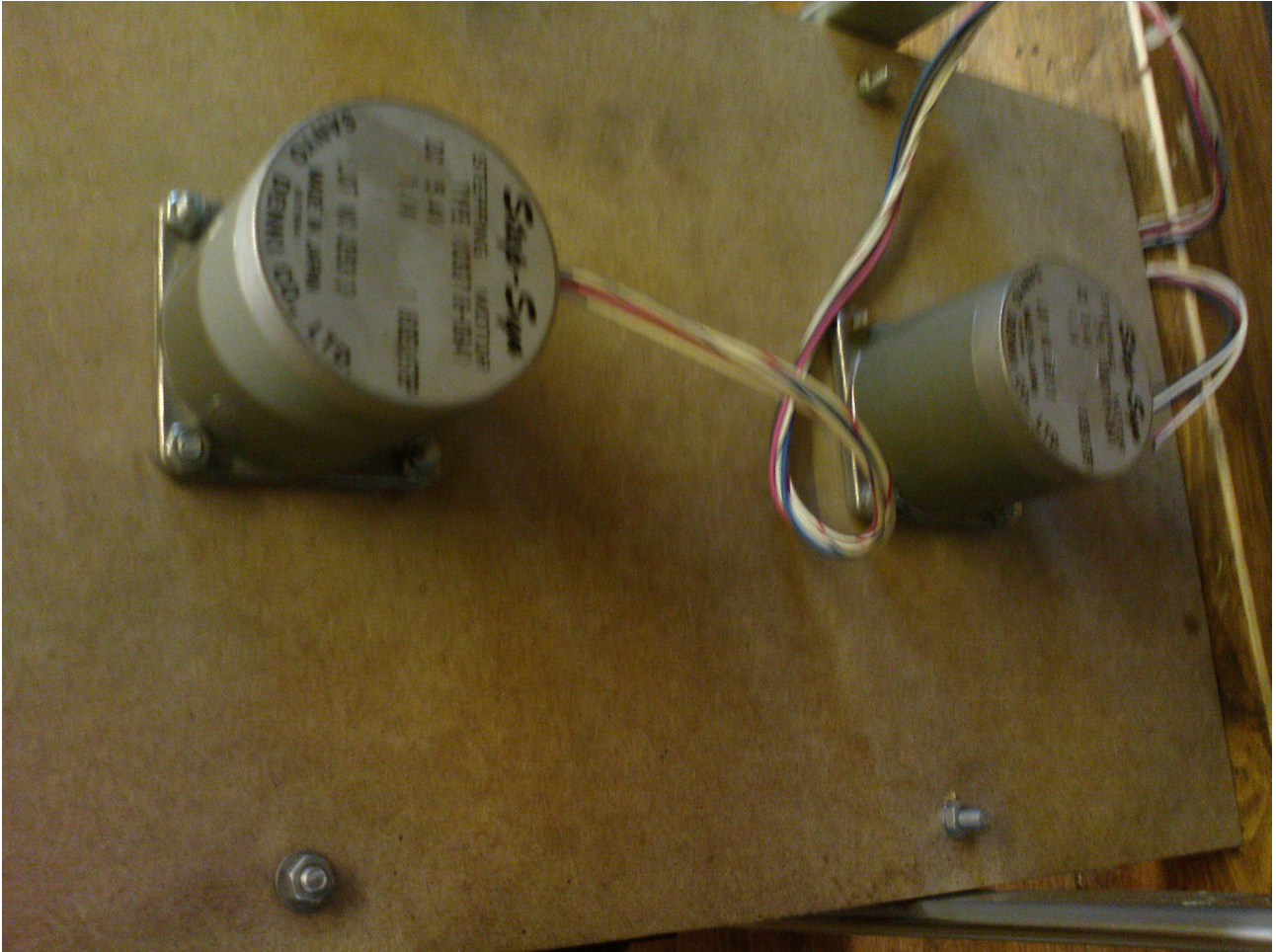
with the bins upside down on a flat bench, slide in the piston top plates so they are on the surface of the bench, put the piston bottom plate in position and lower the slides down, mark on the bottom plate around the dowels to get the positions, remove the bottom plate and drill and countersink for the wood screws, position and screw the bottom plate to the dowels, lightly clamp the bottom plate to the slide then lift and lower the slides to make sure all is well, when satisfied fix the bottom plate to the brace bars, you will need a stubby screwdriver as space is tight.

Leadscrew

The leadscrew is 8mm studding, select a straight piece from the rack, and cut to 230mm long, the coupling is xxxx and the nut is

Motor plate

sizes, I used 50x50 aluminium angle for motor plate supports, screwed to the slides, wood blocks would also do the job, I used a long winded method to find the piston centre line, with the piston near the top, I used a thick ruler (from a combination set) and put it against the inside faces of the bin and the bottom of the rule touching the motor plate, and marked all four sides, this give reference edges to find the centre where the motor must go, I used a hole saw to match the boss diameter of the motor I am using,



Bottom view of motors.