

CNC Milling – Creating Statuettes and Figurines From Wooden Dowels

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Small statuettes and figurines require less time to mill when using wood dowels instead of wood blocks. Best models are as cylinder-like solids without any open gaps, such as tikis, totems, chess pieces, etc. STL files that don't require supports work best.

1. Open the SRP Player application.
2. Open your STL file: *File > Open > .stl file*
3. Change orientation of model such that the body is along the red axis.
4. Note the size of the model:
 - X = length of object
 - The larger of the Y or Z value is the minimum diameter of the dowel required.
5. Select dowel with a diameter that is at least 4mm greater than the model. Or, if desired, it is safe to build a larger figure by increasing the Y or Z value to 4mm less than the dowel's diameter.
6. Click on the *Type of Milling* bar.
 1. Select *Better surface finish*.
 2. Select *Model with many curved surfaces*.
 3. Select *Cylindrical workpiece*.
 4. Check *Add support to model*.
 5. Click *Edit support*.
 1. Change support size to 3mm by 3mm.
 2. Drag supports to the bottom and top of model.
 3. Click *Apply*.
 4. Click *Close*.
7. Click on the *Tool Path* bar.
 1. Set material to *Wood (hard)*.
 2. Set X value to length of wooden dowel. NOTE: the length must be greater than the number shown. For safety, increase the length by 6mm and cut dowel to this length.
 3. Set the D value to the diameter of the dowel.
 4. Click *Create Tool Path* button.
8. Click on the *Preview Results* bar.
 1. Note the estimated cutting time is displayed.
 2. Click *Preview Cutting* to verify that the result is as expected.
 3. Once processed, clicking the *Show Model / Preview Cutting* button toggles between the views. NOTE: that holes and gaps may not be cut through as expected. This is a limitation of the machine and may require manual milling with a Dremel drill.
9. Save your project: *File > Save As > filename.spj*
10. Click on the *Perform Cutting* bar.
 - Verify that the tools are in the current tool stocks (locations) as shown in the tool list.
 - Verify that the tool length (in mm) is greater than the length (L) shown in the tool list
 - If neither condition is met, click the cancel button and ask the staff for help.

11. Open the MDX-50 cover. Place the dowel in the material clamp and tighten using the thumb screws.
 - Verify the dowel is against the holder's stops.
 - Verify the right thumb screw is facing up.
 - Lock in place using the black lever.
 - Verify the length is as expected using the scale (see black arrow).
11. Close the MDX-50 cover. Press the ENTER button on the MDX-50 control panel.
12. On the MDX-50 display, press the MENU button once or twice to display the Tool Menu.
13. Press ENTER to select and load tool #1.
14. Press the MENU button to display the Coordinate System. Verify that the system is set to USER. If not, press the COORD. SYSTEM button multiple times until User is displayed.
15. Using the X, Y, Z buttons and rotary controller, carefully position the tool above the right end of the dowel.
16. Press the X button, then press the ORIGIN button.
17. Back at the computer, click the *Start Cutting* button. Then click *Next, Next, Next*.
18. The machine should start. Watch carefully that the cuts stands near the center of the dowel. If not, press the PAUSE button on the MDX-50 control panel and ask for help.
19. Press the red EMERGENCY STOP button if the tool hits the material clamp.
20. NOTE: The software will display a window showing the cutting is finished. Clicking the *Finish* button will close the window and allow use of the computer. But you can NOT start another project.

When the milling is finished, wait until the green lamps are lit. Remove the piece from the clamps. Carefully saw the piece from the supports. Sand as required.

Use the dust brushes to brush the sawdust into the bottom pan. DO NOT use a blower or a vacuum.