



Low-Cost MPCNC (Lowrider v2) MDF Sled & PVC Dust Enclosure



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Summary

My Fully Open-Source Low-Cost MPCNC (Lowrider v2) MDF Sled & PVC Dust Enclosure for under \$75.



14.22 hrs



3 pcs



0.16 mm



0.40 mm



PLA



118 g



Crealty
Ender-3

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Tags: [table](#) [enclosure](#) [cnc](#) [dust](#) [cheap](#) [mpcnc](#) [mouting](#) [mpcncaddon](#) [pvcpipe](#) [sled](#) [dovetail](#) [mpcncmod](#) [lowrider](#) [lowridercnc](#) [v1engineering](#) [lowrider2](#) [allted](#) [lowcost](#)

Intro

Hi!

Thanks for viewing my design! I am a high school student passionate about giving back to the community, if you like what I am doing, feel free

to drop a like or a comment!
Vedansh

Sled

I built my MPCNC Lowrider with the intent of making it easily storable. I didn't want to have to undo the Y belts whenever I stored it, so I decided to make the CNC on a sled, which I can remove from a table and store against a wall. (Dimensions of CNC for attached sled below)

I have attached a .step file of the entire assembly and one of just the sled. This Sled is parametric, meaning that you can scale it.

It has 4 major components:

- 2 of Y-axis Ledge (2x4 that prevents the table from shifting on the X-axis)
- 1 of X-axis Ledge (a 2x4 that prevents the table from shifting on the Y-axis, but only in 1 direction)
- 1 of "Table Surface" (where the lowrider rides)

1 of Spoilboard (where the work is mounted, along with the threaded inserts The sled is not made of any 3D printed parts. I used 2x4's and 3/4 in MDF. The cost for this (inc. wood glue and 1.5 in screws) was ~\$60-75.

This sled was made for a Lowrider CNC with the following dimensions:

X - 25 in (33 in table)

Y - 45 in (60 in table)

Z - 9 in (11.25 in leadscrew); This dimension isn't affected.

Make sure your drill bit is retracted when you start the CNC, depending on the thickness of your spoilboard, it may make contact. The Hole drilling jig can be used for drilling the holes, evenly spaced.

Dust Enclosure

In order to prevent the CNC from creating a metric ton of fine dust all across the garage, I needed to create an enclosure that would prevent as much dust from leaving as possible. I initially wanted use Polycard, however, that would cost upwards for \$400. Using a few 3D printed parts, 3/4 in PVC pipes, 3.5 mil plastic sheeting and PVC Elbows, I was able to create an easily detachable enclosure, that limits the dust to within it.

I used a double dovetail design on 4 ends of the table to hold up the PVC Pipe Box.

To install this, I used #8-1.25in woodscrews. I first installed the PVC Pipe base on the ends of the Y axis ledge (see CAD/Images) and cut outs have been made specifically for the screws.

On the end of one of the 2x4's, the edge I would attach the PVC Pipe Base was indented. I created the PVC Pipe Space. I have attached the F3D file, change the visible extrude to the length you need to offset. This made the bases perpendicular to each other.

After the bases were attached, I simply slid in the hooks, either from the left or the right, based on the orientation of the base. The PVC Pipe Cage rests on this.

The plastic sheeting can then be duct taped to the top rectangle and holes can be cut out where the PVC Pipe Hooks are (I reinforced these holes with duct tape). Installation is a little tricky because I made the holes the right size, meaning that I had to hold the assembled enclosure up, slide the PVC Pipe Hooks in, and then repeat on the other side. The plus side, is that the PVC pipe enclosure is really secure.

I have shared this design on the [V1 Engineering Forums](#).

Print Settings

Printer Brand:

Creality

Printer:

Ender 3

Rafts:

No

Supports:

No

Resolution:

0.16 (w/ Variable Layer Height)

Infill:

30

Filament: PolyMaker PLA Teal

Notes:

Forgiving on the tolerances, may have to push the pieces together.

Category: DIY

Model files



Plate Print Files (Ender 3 Pro)

3 files



pvc-pipe-base.3mf



pvc-pipe-hooks.3mf



pvc-pipe-spacer.3mf



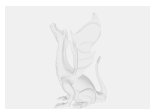
Assembly STEP Files

2 files



mpcnc-sled.step

☐ Fusion 360 File on Thingiverse



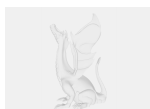
mpcnc-sled-enclosure-assembly.step

☐ Fusion 360 File on Thingiverse

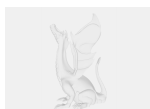


Source STEP Files

4 files



pvc-pipe-base.step



pvc-pipe-hooks.step



pvc-pipe-spacer.step



hole-drilling-jig.step



Fusion 360 Source Files

4 files



pvc-pipe-base.f3d



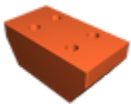
pvc-pipe-hooks.f3d



pvc-pipe-spacer.f3d



hole-drilling-jig.f3d



pvc-pipe-base-v17.stl



pvc-pipe-hooks-v8.stl



pvc-pipe-spacer-v5.stl

Print files



pvc-pipe-spacer_016mm_pla_ender3_1h9m.gcode

🌀 PLA 📏 0.40 mm 📐 0.16 mm ⌚ 1.15 hrs ⚖️ 9 g 🖨️ Creality Ender-3



pvc-pipe-base_016mm_pla_ender3_7h51m.gcode

🌀 PLA 📏 0.40 mm 📐 0.16 mm ⌚ 7.85 hrs ⚖️ 57 g 🖨️ Creality Ender-3



pvc-pipe-hooks_016mm_pla_ender3_5h13m.gcode

🌀 PLA 📏 0.40 mm 📐 0.16 mm ⌚ 5.22 hrs ⚖️ 51 g 🖨️ Creality Ender-3

[Find source .stl files on Thingiverse.com](#)

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