



Machine Tool Rack System for 2040 V-Slot Extruded Rail



Netpackrat

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Summary

A series of tool holders for machine tapers, chuck keys, etc. designed for mounting to 2040 V-Slot rail, EU spec.

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Tags: [chuck](#) [2040](#) [mill](#) [axa](#) [lathe](#) [collet](#) [mt2](#) [r8](#)
[grizzly](#) [mt3](#) [bxa](#) [bridgeport](#)

I had some 2040 rail left over from my Bear Upgrade printer build, and I needed a better means of storing some of my machine tool accessories than piling them in drawers. Drawing a healthy amount of inspiration from the design of the printed parts for the Bear Upgrade, I came up with these individual tool holders which can be attached to the 2040 rail sections to create tool racks of whatever configuration might be desired.

The selection of tool holders mostly reflect my own equipment, which consists of a 12x36 import lathe equipped with an Aloris BXA tool post, and an MT3 tailstock; also a 1965 Bridgeport milling machine. There's a holder for MT2 tapers, which I don't use, but I do have one arbor that size because a boring head I bought came mounted on it. I would consider drawing other sizes if somebody was willing to send me the parts for test fitting (e.g. an AXA tool holder or MT1 taper, etc). Yeah, I can get the dimensions online easily enough but most of these parts have gone

through multiple revisions to get them to where I am happy with them, and I am not going to post a model that I have not tested.

Use of these should be fairly self explanatory; they attach to the rail using M5x8 screws and T nuts which can be either the slide in or drop in variety. To use the end caps, the holes in the ends of the rails will need to be tapped for M5 threads. I printed these out of PETG at 4 perimeters, 5 top and bottom layers, 20% infill, and .2mm layer height using a .4mm nozzle. Basically the same settings as are specified for the Bear Upgrade printed parts. I would not recommend reducing any of these settings, however all use of these parts is at your own risk in any case. Oriented correctly on the build surface, none of them will require supports.

[Edited to clarify; these models are designed to be printed using .2mm layer height, .45mm extrusion width, and a .4mm nozzle. If you vary from this, some of the features may not print correctly.]

There are 3 different holders for the lathe chuck keys; my lathe came with several chuck keys, only one of which I actually use, and this fits in the large key holder. The small key holder fits the key for my Bison 5C collet chuck, and the "XL" holder will fit every lathe chuck key I have, some better than others. Whether any of them will fit your keys, I have no idea.

The BXA holders are for the tool holders used with my quick change tool post. They are intended to mount above the back splash of the lathe on a section of rail. I have a similar all metal rack installed in this position right now that I am not totally happy with but I haven't yet replaced it with the 2040 rack, so no pictures of that [Edit: added pics of BXA rack on lathe 03OCT22]. Likewise on the R8 rack... I have all of the tool holders printed but I haven't built the rack yet. The hammer holder is for the combination hammer/wrench used with my mill's drawbar and will go on the same rack as my R8 tools.

Another recommendation is to buy a roll of V-Slot cover to fill any upward oriented gaps between the tool holders, to prevent chips from getting into the slots. It's cheap on Amazon and will help in keeping things clean.

Finally, thanks to Gregoire Saunier (<https://github.com/gregsaun>) for creating the Bear Upgrade and the BearExxa for Prusa printers, and for publishing his "maker cheat sheet" which includes several of the techniques incorporated into the design of these models.

[EDIT 09JAN23: I now recommend the roll-in T-nuts with ball bearing for use with these parts, such as are used in the construction of the Voron series of printers.]

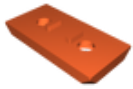
[EDIT 14NOV23: It has come to my attention, that the Arachne perimeter generator used as default in recent versions of Prusaslicer takes

“shortcuts” when going around square corners. This will negate some of the features these models include to ensure they fit correctly on the v-slot extrusions. Therefore, these models should be printed with the perimeter generator set to “classic” rather than Arachne.]

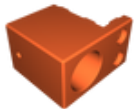
Model files



bx_a_rail_11.stl



2040_end_cap_11.stl



mt3_rail_115.stl



hammer_rail_10.stl



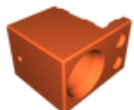
key_xl_rail_101.stl



key_large_rail_103.stl



mt2_rail_11.stl



r8_rail_11.stl



key_small_rail_11.stl

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