

Heavy Steel Flat Car

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VIEW IN BROWSER

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Summary

An HO scale 40 foot flat car for heavy steel slabs

Hobby & Makers > Other Ideas

Tags: railroad train ho

My upcoming switching layout is going to be modeling a full-process steel mill, so I needed some heavier than normal flat cars for moving rough steel slabs from the oxygen furnace to the rolling mill buildings. In the very last photo with the two types of flat cars next to each other you can see the difference in size between these “slab cars” and the more typical flat car with the steel sheet load ready to be shipped out.

I've included a 3mf file for the car and coupler covers all together, as a well as a separate 3mf file for the slab load. I've also included the stl files for all parts in case you want to modify anything.

If you're sticking with the car as designed, I HIGHLY suggest you use the 3mf files because they account for the inserted weights and magnets described below, as well as some height based adjustments to the infill. If

you plan to use the stl's, at a minimum please bring the 3mf files into your slicer so you can see the adjustments that I made and why, as follows:

1. In the project file, the car body has a negative void slab that is used for inserting the metal bar weight to give the car it's NMRA recommended overall weight.
2. The car body project file includes a programmed pause in the print cycle to allow you to insert the weight.
3. Also, the supports under the coupler boxes are all figured out for you.
4. The project file for the slab load includes a 100% infill modifier at the cross-blocks that house the magnet pockets

Stuff of Note:

1. The weight is an 89mm long chunk of 1/8"x1" metal bar stock that you can get at any of the big box home improvement stores. The void is 89mm so I like to measure/cut the weights to exactly 89mm and that way when you grind and dress up the ends you take off just enough that it'll drop right into the cavity and not have void space at either end. With this weight, all-in without the slab load on top the car weighs in at a really lovely 3.2 ounces.
2. The steel bar is obviously not a great substrate for the following print layers, so I always slather the top face with glue stick before I drop it in place, which seems to do the trick.
3. The magnets in the steel load are 10mmx4mmx2mm available from Amazon (magnets are super glued in place). This system makes it super easy to add/remove the loads as your railroad timetable requires. The number of layers of plastic between the magnets and the steel weight below are just right to hold it nicely in place but make removing the load easy without derailing the car.
4. The only supports required on the car body are at the coupler boxes. All of the rivets, steps and other small details print fine without supports.
5. The Load needs supports all around the outside edge to catch the various overhangs of the steel slabs (included in the project file). The loading crew at the oxygen furnace did a pretty haphazard job of stacking the slabs!
6. 0.25 nozzle to pickup the fine details. I printed these pre-upgrade to the MK3.5 so not exactly sure if the new version of layers will have an impact, but the design was 0.15.

Model files

3mf Project Files 2 files



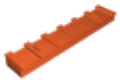
40-foot-flat-car-heavy-steel-with-slicer-void-weigh... .3mf



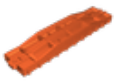
slab-load.3mf



special-coupler-covers-heavy-steel-flat.stl



slab-load.stl



40-foot-flat-car-heavy-steel-no-weight-pocket-v3.stl

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