



Pan lid rack for the inside of a kitchen cupboard door (Howdens 500 base door)



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Summary

Printed rails for a cupboard door, with sliding hooks and cradles for glass pan lids. Make yours at lids.marcuslab.uk.

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My glass pan lids lived in a heap on the floor of the pan cupboard and made a racket every time the door shut. Now they hang on the back of the door, six of them, and the door shuts in silence.

How it works

- **Four rails** run across the inside of the door, screwed into the frame only (the stiles). Nothing goes into the thin centre panel, so nothing comes out the front.

- **Clips slide along the rails** on a dovetail. Each lid gets a **hook** over its top rim (with a roof, so it can't jump out) and a **cradle** under its bottom rim (with a lip at the front).
- **Hanging a lid:** top rim up under the hook, lift, swing the bottom in over the cradle lip, let it drop. Taking it out is the same in reverse. No springs or magnets.
- **Slot spacers** fill the rail between the clips, so nothing slides when the door swings. The end ones are grooved to clear the screw heads and slide in last.
- **End caps** cover the cut ends of the rails and stop the end spacers creeping out.
- Each rail is two halves, because the 455 mm rail doesn't fit a 256 bed. The halves are joined by **flush fishplates** on brass heat-set inserts. I tried glue first; it was weak.
- **Fitting jigs** set the rail spacing off the door edges, so the rails go on level and parallel without measuring.

Will it fit my door?

It's designed for a **Howdens 500 mm base unit door**, a framed shaker style. Measured:

- Door: 495 × 715
- Frame (stiles and rails): 70 wide, 15 thick
- Cupboard opening behind it: 464 × 684
- Hinges (Titus): on the left stile, about 50 to 120 mm in from the top and bottom

Check these before you print:

- The hinge positions.
- How much room there is behind the door. My cupboard has a shelf with only 55 mm clear; the layout keeps every lid's middle away from it. If your shelf sits at a different height, the layout may not suit.
- Which side the hinges are on. Mine are on the left, seen from inside.

The files here are cut for that door and my six lids. **For any other door, use the generator:** lids.marcuslab.uk (see below).

Your door and your lids: the generator

The clip stems and spacer lengths here are made for my lids: 150, 173, 190, 192, 195 and 215 mm across, all with a 12.6 mm deep rim. For your own, go to lids.marcuslab.uk:

1. Enter your door (size, stiles, rails, frame thickness, hinge side), your hinge plates, the cupboard opening, any shelf close behind the door, your printer bed, and each lid's diameter and rim depth.
2. It arranges the lids around the hinges and the shelf, chooses the rails, splits them to fit your bed, places the screws and sizes the jigs. You get a live plan and a 3D view.
3. **Generate STLs**, then **Download kit**: one zip with every part, plus a fitting sheet (print and buy lists, the order to thread the clips and spacers on, and how to use the jigs).

It runs OpenSCAD in your browser, so nothing is uploaded. Right-hinged doors are handled: the parts are the same, and the plan and sheet are drawn the right way round. Given my numbers, it reproduces this kit exactly.

Print one hook and one cradle first and try them on a real lid before printing the lot. If a rim sits proud of its hook, give that lid some extra hook room and regenerate.

What you need

- **Rail, left half** × 4: bar_left.stl (PETG)
- **Rail, right half** × 4: bar_right.stl (PETG)
- **Fishplates** × 8: fishplates.stl, one plate (PETG)
- **Hooks and cradles** × 12: bar-L?-hook.stl, bar-L?-cradle.stl (PETG, each engraved with its lid, rail and position)
- **Slot spacers** × 16: spacers.stl, one plate (PETG)
- **End caps** × 8: endcaps.stl, one plate (PETG)
- **Fitting jigs** × 12: jigs-plate.stl, one plate (PLA is fine; they're only used once)
- **M3 × 3 × 4.2 brass heat-set inserts** × 16 (4 per rail)
- **M3 × 8 button-head screws** × 16 (2 per fishplate)
- **4 × 20 countersunk wood screws** × 16 (4 per rail, into the stiles. I used Spax)

Print settings

- **Material:** PETG for everything that stays on the door. Lids go in warm from the dishwasher, and PLA softens at around 55 °C.
- **Clips:** print standing on one end, so the dovetail and lips have no overhangs. No supports.

- **Spacers:** print flat on the floor side, with the slot opening facing up.
- **End caps:** print standing on the end face.
- **Brim:** use one on the jigs (the ones with lips lift without it) and on the tall hooks.
- **Supports:** none needed.

Fitting

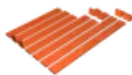
1. **Join each rail.** Melt the heat-set inserts into the back of each half with a soldering iron. Butt the two halves together and screw a fishplate along the top edge and another along the bottom.
2. **Thread on the clips and middle spacers** in order from the hinge end. Each clip and spacer is engraved with where it goes.
3. **Take the door off** (Titus hinges unclip) and lay it inside face up.
4. **Set the rails with the jigs.** The lipped jigs hook over the top, bottom and side edges; the rest sit between the rails.
5. **Drill and screw.** Pilot holes 2.5 mm, **10 mm deep only:** the frame is 15 mm thick. Put a tape flag on the bit.
6. **Fit the ends.** Slide in the grooved end spacers from the rail ends, then push an end cap on each end.
7. **Hang the lids.** Shut the door slowly the first time and check the handles clear anything behind it.

Model files

spacers.stl



jigs-plate.stl



bar_left.stl



test.stl





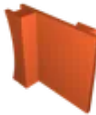
bar-l2-cradle.stl



bar_right.stl



endcaps.stl



bar-l5-cradle.stl



bar-l1-cradle.stl



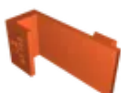
bar-l7-cradle.stl



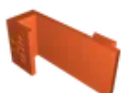
bar-l6-cradle.stl



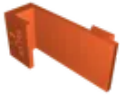
bar-l3-cradle.stl



bar-l2-hook.stl



bar-l1-hook.stl



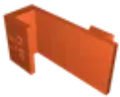
bar-l7-hook.stl



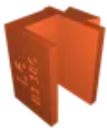
bar-l3-hook.stl



fishplates.stl



bar-l5-hook.stl



bar-l6-hook.stl



jigs.scad



lid-clips.scad



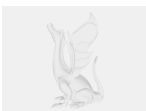
endcaps.scad



spacers.scad



layout.scad



door_layout.py

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