

Corner Clamp

E **PirateSands2**

VIEW IN BROWSER

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Summary

Strong, fully printable corner clamps that print without supports. Able to clamp up to 1.75 in / 45 mm material.

5.25 hrs	2 pcs	0.20 mm	0.40 mm	PLA	55 g	Creality Ender 3 S1 Pro

Hobby & Makers > Tools

Tags: clamp fullyprintable nosupport cornerbracket cornerclamp nosupports

Motivation

I wanted a clamp that didn't need me to purchase a separate threaded bar, was strong enough to use for woodworking projects and significantly cheaper than metal clamps. I prefer this single screw design for being quick to adjust, and I just use packers if working with two different thicknesses of material.

Printing

Use the Small variant for materials up to 1 inch / 26mm and the Large for sizes up to 1.75 inch / 45mm.

Print with the base and screw block flat on the base, with the screw vertical. Doing it this way no supports are needed, and the threads will print fine. Most of the strength comes from the perimeters so I would use at least 3, and 20% infill is perfectly sufficient.

Mine are printed in PLA, which works fine but they do suffer from creep deformation if clamped for a while. I therefore recommend using PETG or ASA, or even better Nylon if you have access to it.

Usage

Before first use I recommend winding the thread all the way in and out once to clean up the threads. They should be tight but not binding, you may want to use an exclusive slicing tolerance if you have an issue here, but mine didn't require it. Adding a dab of silicone grease will make the whole assembly a bit smoother.

Being plastic there is a limit to the clamp's strength, with the primary failure mechanism being flexing of the baseplate. Consequently just stop tightening when you see the baseplate begin to flex visibly, and this way you won't snap the screw.

Updates

24/02/2024: Version 2 adds a captive screw block, better threads and a larger size variant.

10/03/2024: Version 2.1 strengthens the screw housing and provides optional new screws with looser tolerances.

Any issues or features you would like, just leave a comment :)

Model files

Small (1 inch) 4 files



small-corner-clamp-base.stl



small-corner-clamp-screw-block.stl



small-corner-clamp-screw.stl



small-corner-clamp-screw-loose.stl



Large (1.75 inch) 4 files



large-corner-clamp-base.stl



large-corner-clamp-screw-block.stl



large-corner-clamp-screw.stl



large-corner-clamp-screw-loose.stl

Legacy 3 files



clamp-base.stl

The main assembly base



clamp-screw-block.stl

The movable clamping face



clamp-screw.stl

The adjustable screw

Print files



small-corner-clamp-assembly.gcode

PLA 0.40 mm 0.20 mm 5.25 hrs 55 g



large-corner-clamp-assembly.gcode

PLA 0.40 mm 0.20 mm 10.00 hrs 119 g

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