

The background is a close-up, slightly blurred photograph of a textured surface, possibly fabric or paper, with a mix of grey, blue, and brown tones. A white logo is centered on the image. The logo consists of a white outline of a house-like shape with a curved top. Inside this shape, the words "OPEN" and "PRESS" are written in a bold, white, sans-serif font, stacked vertically. Below the house shape, the word "PROJECT" is written in the same bold, white, sans-serif font.

**OPEN
PRESS
PROJECT**

Open Press Project is the world's first 3D-printed printmaking press ... and won't be the last!

Everyone that has access to a 3D printer can produce their own little press and print their own etchings, dry-points or engravings.

With only 5 € of material costs it is also the world's most inexpensive press! All you need to know about your first intaglio-print is summarized here.

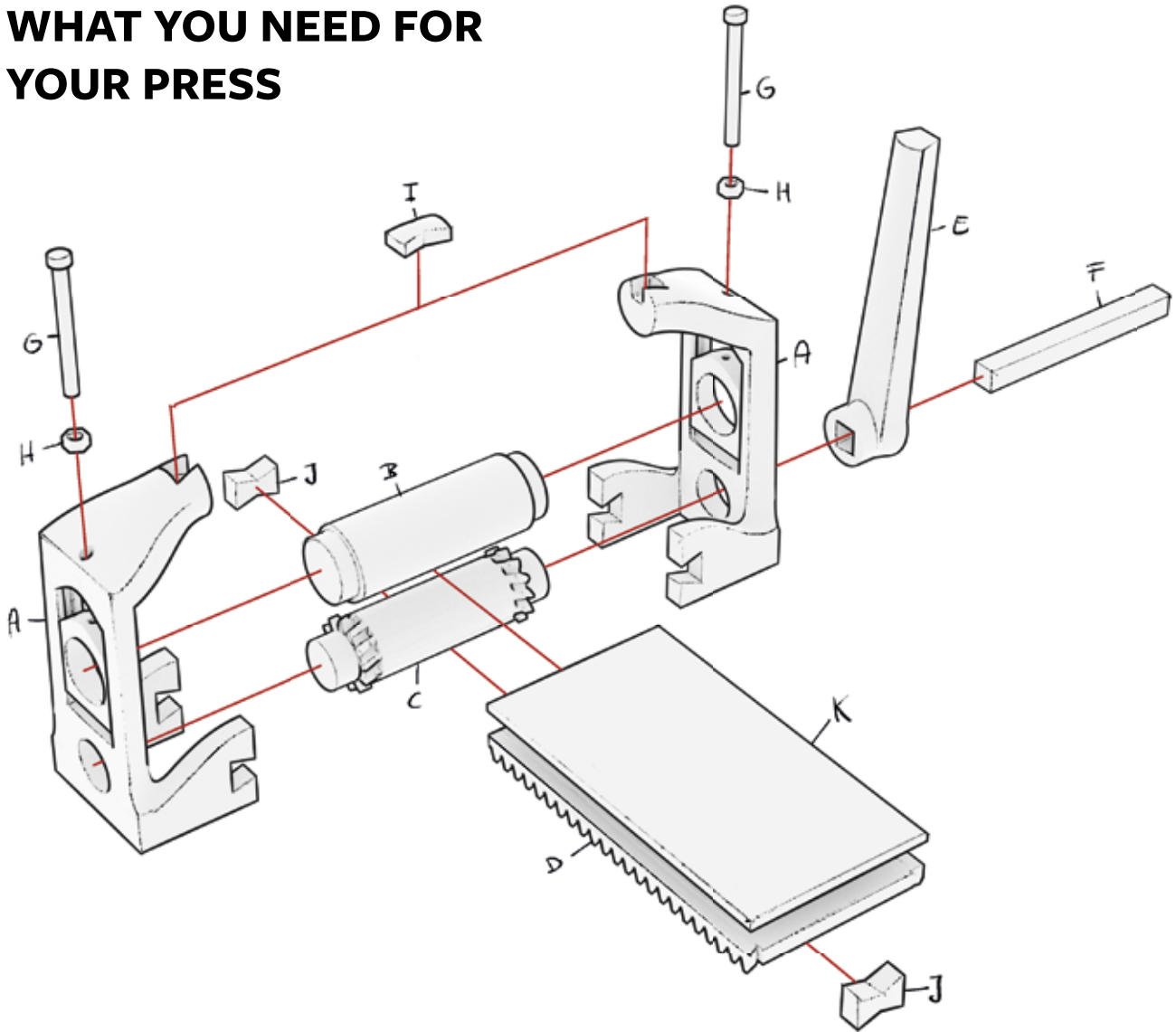
All of the needed 3D-files can be downloaded here:
www.martinschneiderart.com/openpressproject

THE PRINTER

Your 3D printer needs to have a few features, otherwise you won't be able to print your own press.

- printing volume of at least 150 x 150 x 100 mm
- needs to be able to print with PLA
- layer thickness of 0.2 mm

WHAT YOU NEED FOR YOUR PRESS



A) 2 x side part – B) upper roller – C) lower roller – D) press table – E) roller wrench – F) lower roller pin
G) 2 x M5 screw H) 2 x M5 hexagon nut – I) top connector – J) 2x side connector – K) printing cloth/felts

PRINTING THE PARTS

A) 2 x sideparts

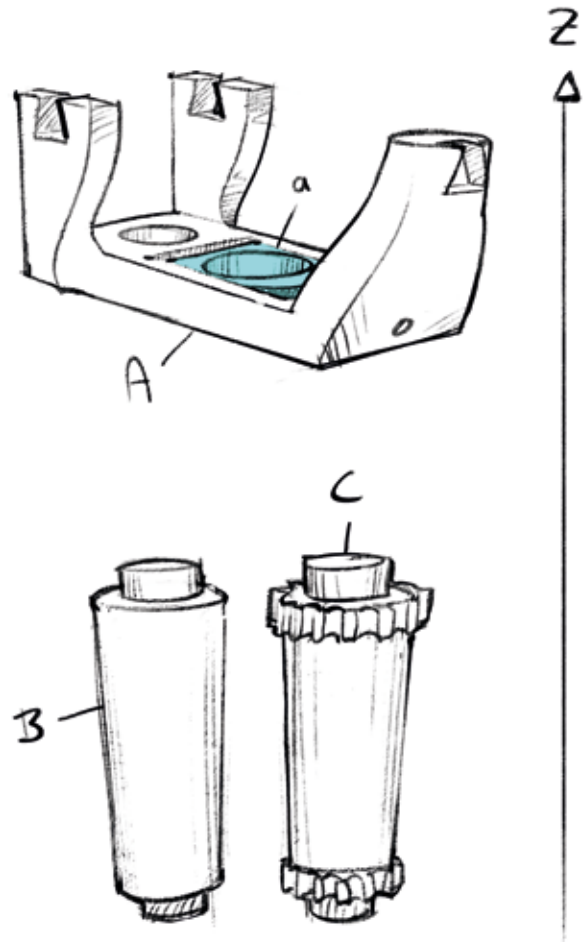
This is the part that needs the most time to print. I recommend printing it with at least 25% infill, 0.2 mm layer thickness, 1 mm wall thickness and flat on the ground to make it more stable against the huge force that is going to be applied to the press table (printing direction Z). After these are finished you need to use a wrench to free the moving parts in which the upper roller is going to be placed later (a). Make sure they can easily move up and down. If your printer is melting these parts together you might need to edit the STL file and change the tolerance of the parts.

B) upper roller

50% infill, 0.2 mm layer thickness, 1 mm wall thickness and standing up! Without support structure. This roller needs to be as round as possible. FDM printers might not be perfect at printing circles, so I suggest you measure the roller after printing and smooth it with some sandpaper if needed. Also make sure the bearings fit with the bearings of the side parts. Use a file or more sandpaper to secure a smooth movement of the roller. Putting a bit of vaseline between roller and side part can help as well.

C) lower roller

50% infill, 0.2 mm layer thickness, 1 mm wall thickness, standing up and with support structure!
Make sure this part is rather smooth as well. The teeth of the gear have to fit with the teeth that are under the press table! Sand them if necessary.



D) press table

at least 50% infill, 0.2 mm layer thickness, 1 mm wall thickness lying upside down, teeth facing upwards.

The side that doesn't have any gear teeth needs to be as smooth as possible for the printmaking to work. The intaglio plate will slip away if it's not level! That's why i printed it upside down. You might need to play around with the options for the first layer of your print to minimize the roughness.



E) roller wrench

25% infill, 0.2 mm layer thickness, 1 mm wall thickness, lying on the flat part.

Used to move the lower roller.



F) roller pin 50% infill, 0.2 mm layer thickness, 1 mm wall thickness, lying flat

This pin is supposed to go into the lower roller, so that you can use the handle to rotate it. The pin can break after a lot of intaglio prints. I recommend to print it lying down, so the different layers of the 3D-print are not twisted against each other.



i) & J) 3 x connecting parts

These parts are needed to connect the two side pieces and secure the rollers in between. You might need to sand them as well, so that they fit the holes.

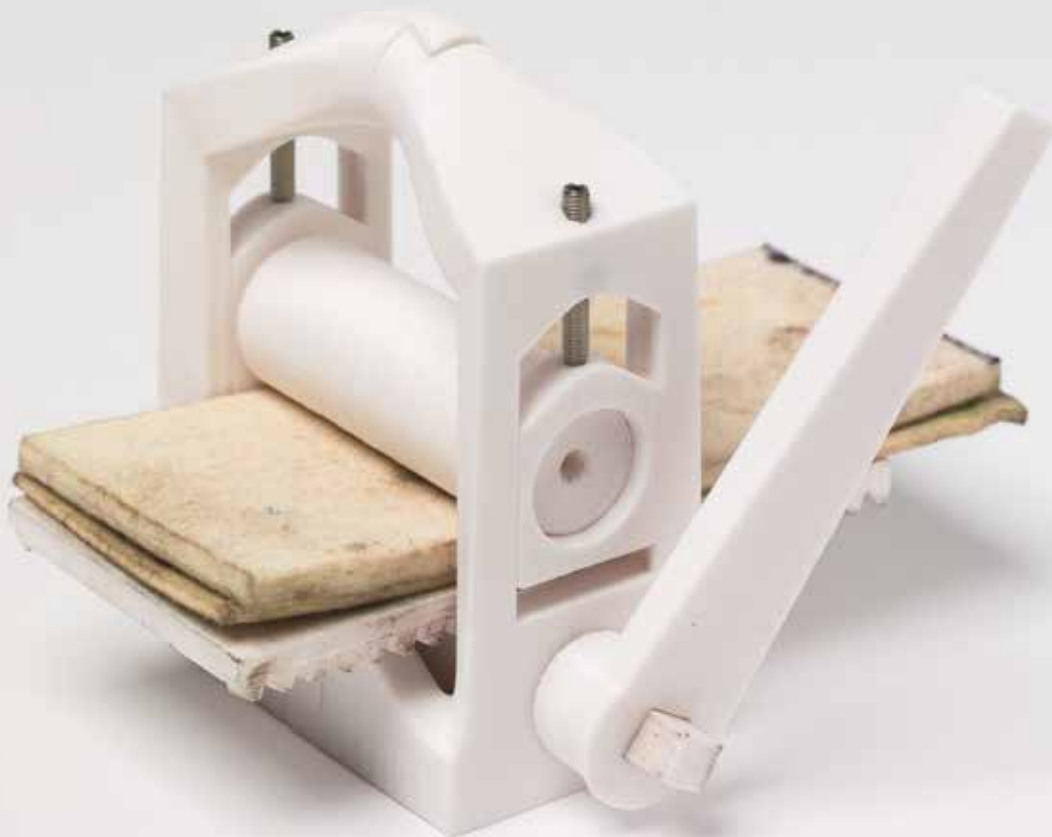


Z
↑

ASSEMBLY

First make sure that the rollers are moving freely and without jamming. After that place the rollers in between the two sides and use the connection parts to stick them together. The lower roller should now be able to move the press bed back and forth. Notice that they only work in one orientation due to the tilted gear teeth.

You now have your finished press! It's time to start printing with it!



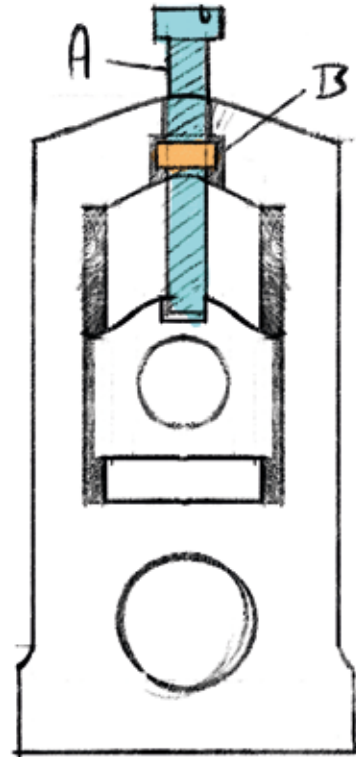
BEFORE YOUR FIRST PROOF

You will need some Materials for the press to work. Most importantly: two M5 screws with two M5 hexagon nuts. The nuts (B) are placed above the upper roller in each side part and will help building up pressure later. Once they fit (you might need the help of your file again) you can now screw in your screws (A) from the top, through the hexagon nut and into the moving part. The prototype is created for set screws with dog points. With these screws you are going to increase or decrease the pressure of your press. In general: The more pressure you have the better the proof will be in the end!

Another thing you need to have is an etching press blanket! Try to get some wool felts of an art supply shop. Synthetic felts might work as well. While you're there you will need to pick up some printmaking paper (special paper that is good at absorbing ink) and intaglio color as well. They usually come in small cans or tubes.

So to summarize you need:

- 2 x M5 screws (about 50 mm long)
- 2 x M5 hexagon nuts
- one or two felts in the size of your printing table
- intaglio color
- printmaking paper that fits your printing table
- beverage carton
- dry-point needle or something else that can make scratches into the beverage carton
- some benzine or cooking oil for cleaning
- cloth for drying
- a few heavy books



PRINTING TIME!

Everything's ready, you can start printing!

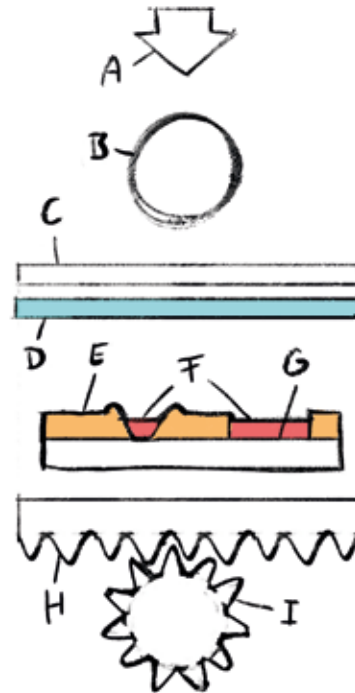
Before you get your hands all colorful, you might want to prepare the paper first. It needs to be wet, but not completely soaked! Use a clean brush to firmly put some tap water on both sides of the first paper. You can then place the next paper on top of the first one and brush the top side. Repeat until you think you have enough paper. It might be useful to put the paper in a plastic bag or wrap it in plastic foil, so it stays wet for a while.

Now that that is done you can use simple beverage carton as your printing plate! Use your dry-point needle to scratch the image you want to print into the inner side of the carton, scissors to cut out parts or a scalpel to remove the first layer of the carton (E). The paper underneath (G) will be soaked in color later and is going to be a colored area.

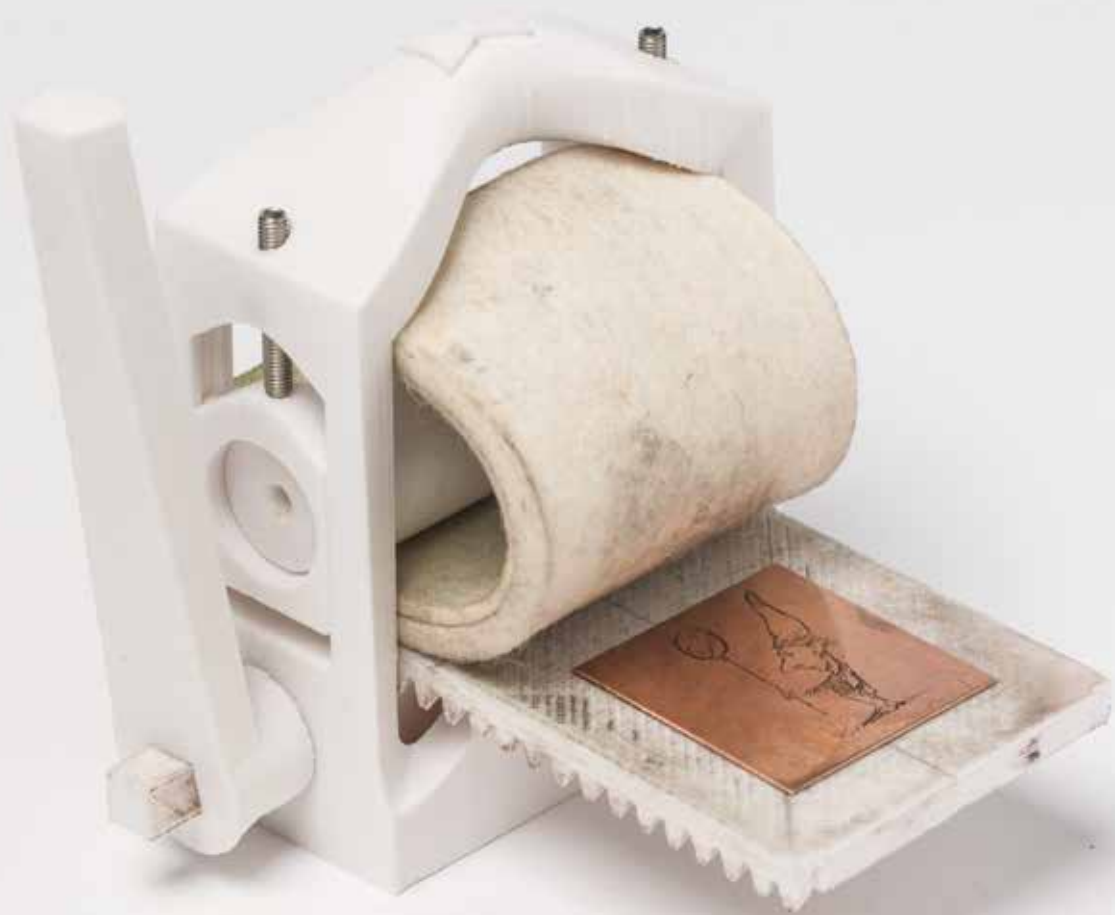
When you're happy with the result you have to cover it with your color. Use your fingers to cover the complete plate, make sure there is enough color in the scratches! After that you need to remove the color from the top, leaving the deeper lines and areas filled with it (F). You can use the heel of your hand or some thin paper for it (phone book pages are perfect for this!).

Now it's time to print! Place the plate on top of your press table (H) facing upwards, put the wet paper on top. Now place the felt (two of them might improve the quality of your print) on top (C) and run it through your press! You might need to adjust the pressure of the press after your first print by turning the screws a bit. There has to be a clear embossing on the back of the print. The more pressure the better!

Once you are finished with your printing session you need to dry the prints! To prevent the paper from being wavy it's best to put them in between layers of absorbent cloth or paper and put some heavy books on top. The drying may take several days. After that you can sign your prints!



A) pressure – B) upper roller – C) blanket/felts
D) wet paper – E) inside of beverage carton (aluminium layer) F) – color – G) outside of carton – H) press table
I) lower roller



THAT'S IT!

Have fun printing! If you have any questions about the whole process of 3D-printing or the printmaking please feel free to contact me via

martinschneiderart@gmail.com

Also please don't hesitate to edit the press itself to meet your needs! All of the files are licensed under the Creative Commons Attribution-NonCommercial 4.0 International License, so you're free to copy, share, and edit the press for non-commercial purposes.

I would love to hear from your experiences with the *Open Press Project!*

Happy printing!
Martin Schneider