Door Buffer V2

Door Buffer V2 BUILD GUIDE

Giving you 20mm back, and a more rigid dock
(Now with Micron and Clacky support)

VERSION 2024-09-28

Before you begin on your journey, a word of caution.

In the comfort of your own home you are about to assemble a robot. This machine can maim, burn, and electrocute you if you are not careful. Please do not become the first STEALTHCHANGER fatality. There is no special Reddit flair for that.

Please, read the entire manual before you start assembly. As you begin wrenching, please check our Discord channels for any tips and questions that may halt your progress.

Most of all, good luck!

THE STEALTHCHANGER TEAM

PART PRINTING GUIDELINES

The Voron Team has provided the following print guidelines for you to follow in order to have the best chance at success with your parts. The StealthChanger Team recommends to follow the same standards. There are often questions about substituting materials or changing printing standards, but we recommend you follow these:

3D PRINTING PROCESS
Fused Deposition Modeling (FDM)

MATERIAL
ABS

LAYER HEIGHT
Recommended: 0.2mm

EXTRUSION WIDTH
Recommended: Forced 0.4mm

INFILL TYPE
Grid, Gyroid, Honeycomb, Triangle or Cubic

INFILL PERCENTAGE
Recommended: 15% or higher

NOTE: These parts do not experience any load an can be less dense compared to other Voron parts

WALL COUNT
Recommended: 4

SOLID TOP/BOTTOM LAYERS
Recommended: 5

FILE NAMING

By this time you should have already downloaded our STL files from the StealthChanger GitHub. You might have noticed that we have used the Voron naming convention for the files. This is how to use them.

PRIMARY COLOUR

Example part_x4.stl

These files will have nothing at the start of the filename.

ACCENT COLOUR

Example [a]_part.stl

We have added "[a]" to the front of any STL file that is intended to be printed with accent colour.

QUANTITY REQUIRED

Example [a]_part_x4.stl

If any file ends with "_x#", that is telling you the quantity of that part required to build the machine.

HOW TO GET HELP

If you need assistance with your build, we are here to help. Head on over to our Discord group and post your questions. This is our primary medium to help STEALTHCHANGER Users and we have a great community that can help you out if you get stuck.

DISCORD https://discord.gg/Mx9JKbt7

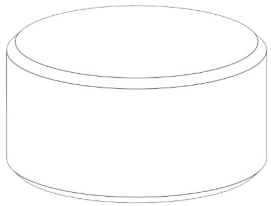
REPORTING ISSUES

Should you find an issue in the documentation or have a suggestion for an improvement please consider opening an issue on GitHub (https://github.com/Stealthchanger/DoorBuffer/issues). When raising an issue please include the relevant page numbers and a short description; annotated screenshots are also very welcome. We periodically update the manual based on the feedback we get.

THIS IS JUST A REFERENCE

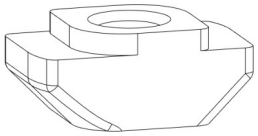
This manual is designed to be a simple reference manual and we always recommend downloading the cad-files to look around for yourself.

GitHub https://github.com/Stealthchanger/DoorBuffer



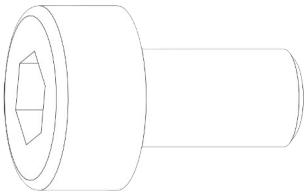
MAGNET

Metric round button neodymium magnet used on the Voron. N52 is highly recommended.



T-NUT Hammerhead

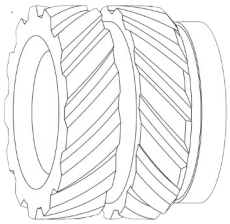
A type of nut that slides into the extrusion rail as a method of affix other parts to it.



SOCKET HEAD CAP SCREW (SHCS)

Metric fastener with a cylindrical head and hex drive. The most common fastener used on the Voron.

ISO 4762



HEAT SET INSERT

Heat inserts with a soldering tip so that they melt the plastic when installed. As the plastic cools, it solidifies around the knurls and ridges on the insert for excellent resistance to both torque and pull-out.

NEW FEATURES

GITHUB.COM/STEALTHCHANGER/DOORBUFFER

Stock panels

- Gone are the decorative clips in favour of a simpler design
- Adjustable dockheights (130mm to 170mm) to accommodate stubby docks.

Klacky door

The build now adds klackydoors! This is only a simple plastic 2020 padding, but can be configured with the parametric file if needed.

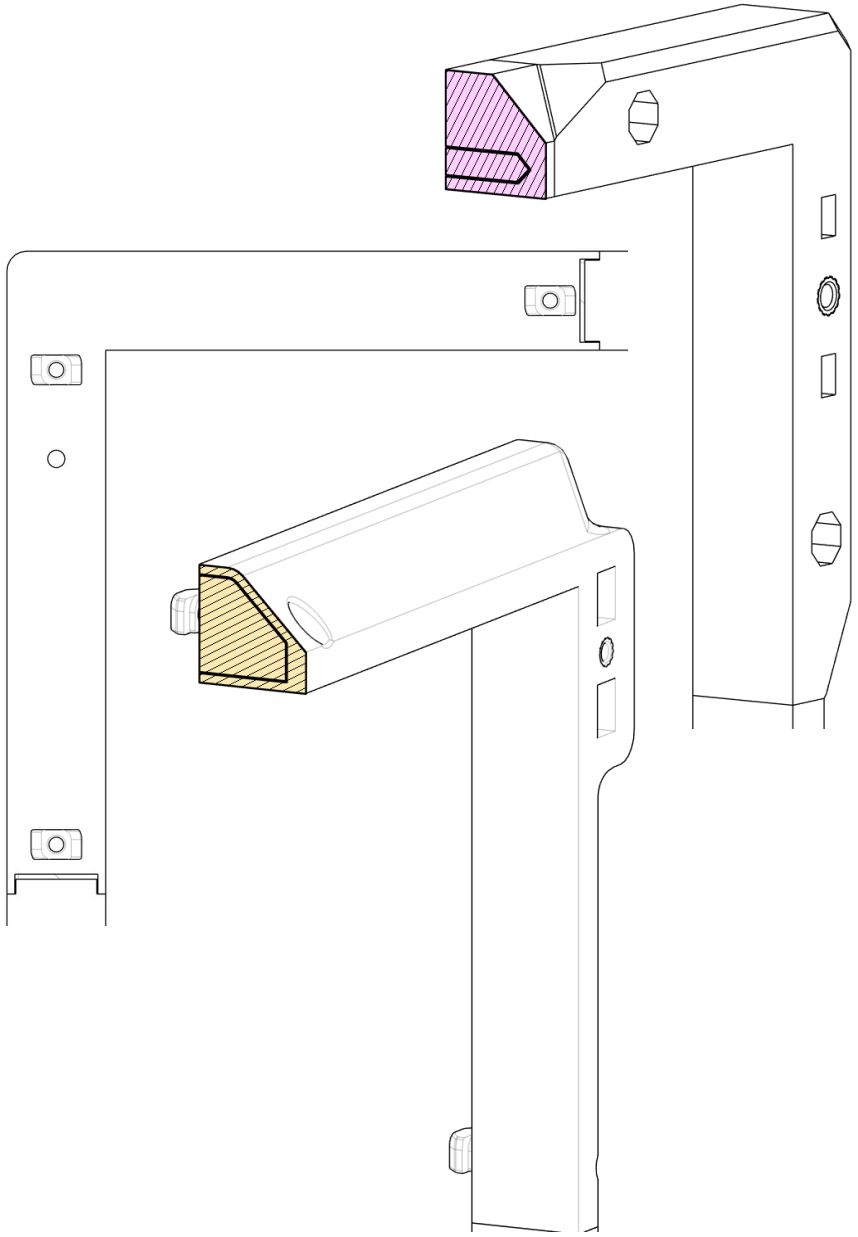
Micron door!

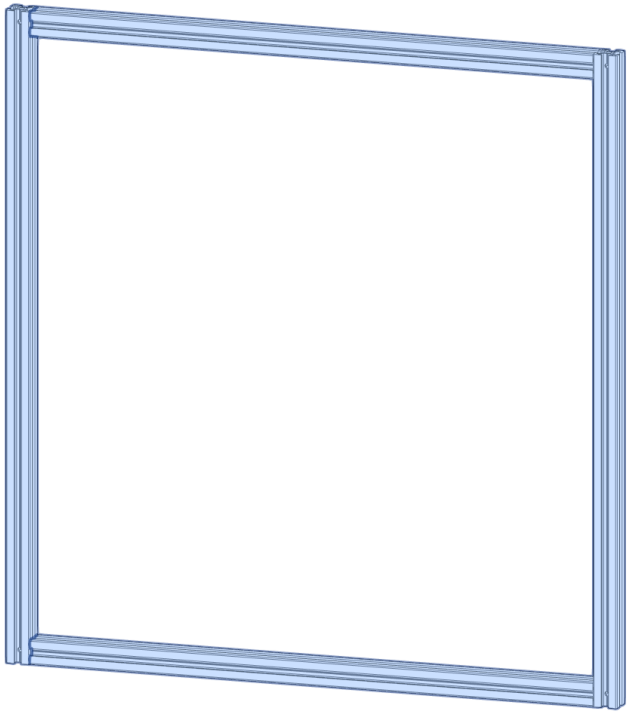
The micron buffer is designed specifically for short docks.

NOTE: The door is taken from the rev 1 version found on their **Github**

Common new features

All variations come with overlapping design to help patch those pesky gaps!





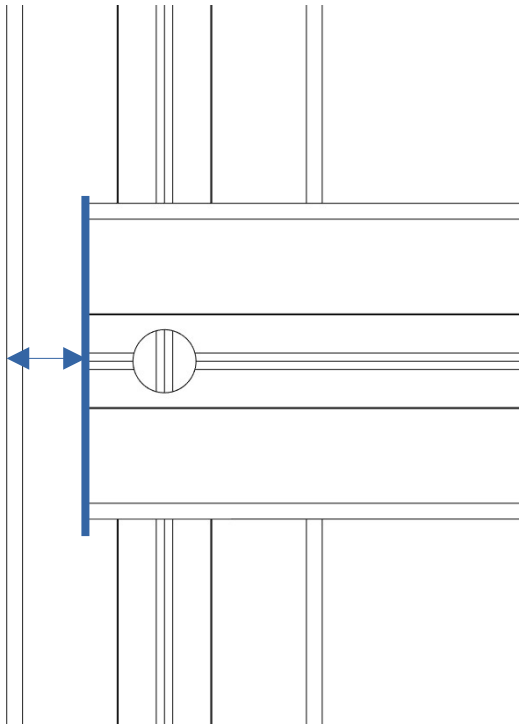
BASE FRAME

This build is meant to attach onto a normal 2020 V2.4 frame, though if you have a customized one there will be instructions on how to edit this entire design in Fusion360 at the end.

NOTE: before you begin printing, measure to see if your frame is actually up to Voron specs. A few mm off will create gaps in your parts. If its out of spec. Look at the end of this manual and enter your real measurements into the parametric CAD file!

NOTE: Make sure your printer is properly calibrated for dimensions and material shrinkage! As some of these parts can get long a small deviation will give noticeable results!

2.4 = 5mm
Micron = 4mm



TOOLBAR HOLE PLACEMENT

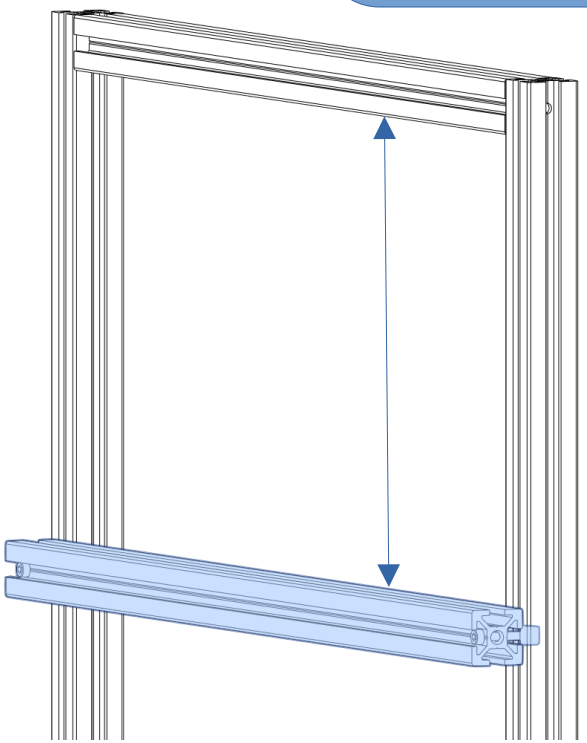
The bottom bar that the modular docks mount to is 10mm shorter than your frame measured furthest left to right. A standard 350 frame is 510mm across the front and so the toolbar needs to be 500mm

NOTE: You will need to drill a hole big enough for a 3mm screw to pass through 4mm minimum is recommended for better adjustment.

NOTE:
Micron bar is 302mm. 8Mm shorter than the total width of the micron.

FRAME

130mm-170mm



M3x20mm SHCS
T-NUT

SCREWS

Take your M3x20mm through the holes you made and mount it using T-NUT's

TOOLBAR TO FRAME

The new V2 buffer supports any dock height from 130mm to 170mm so make sure you bolt on the extrusion at correct height.

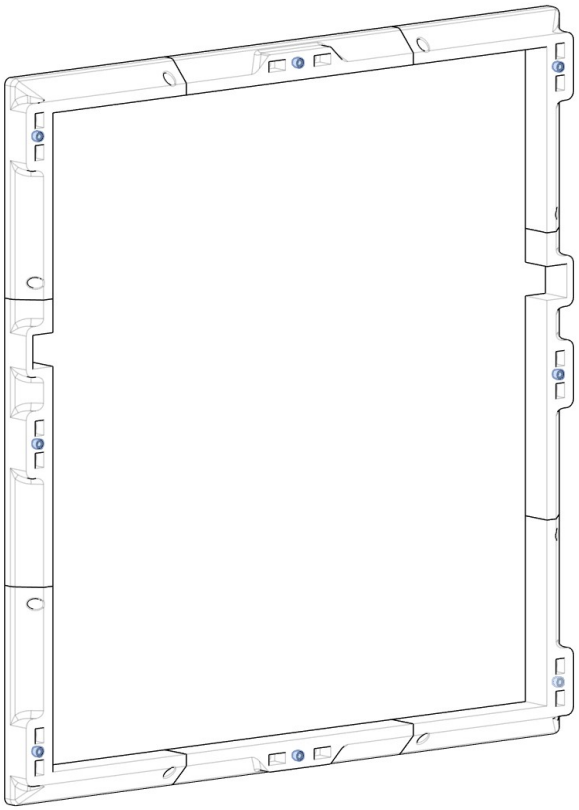
NOTE:
- For a standard dock height, use 170mm
- For stubby docks, use 130mm

EXTRA NOTE:
Micron only supports 130mm docks!

ATTENTION MICRON BUILDERS!

For preloading nuts you have to add 4xM3 nuts to BOTH top and bottom horizontal extrusions, the vertical ones have free access and can be added later without worry.

Also for attaching the extrusion M3x12mm or 16mm may be needed depending on your extrusion profile. Check clearances and potentially add a washer for correct spacing



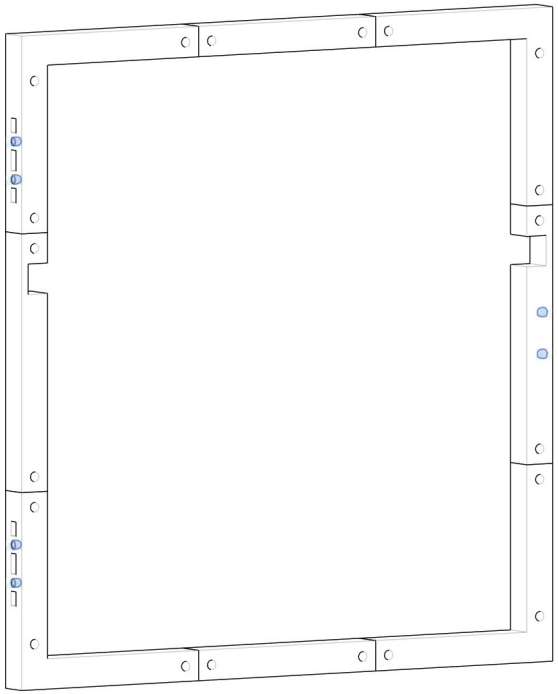
Heat Insert

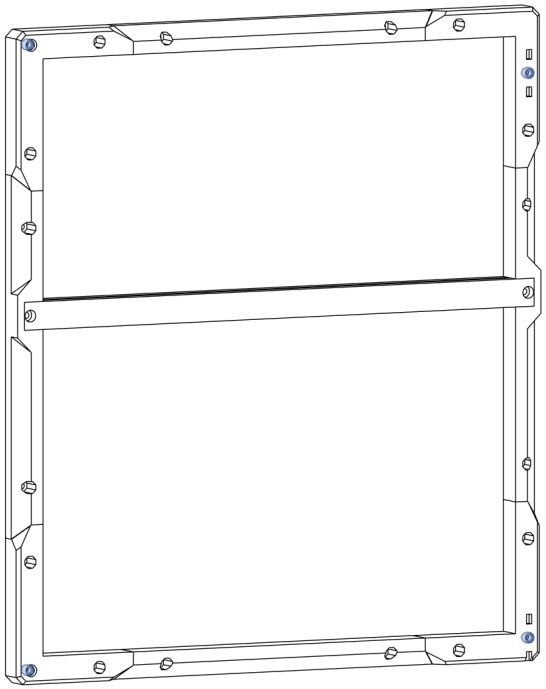
HEAT INSERT

For version two the number of heat inserts depend on type

NOTE:

- Stock doors need 8 as shown to the left
- Klacky doors need 6 as shown in the middle
- Micron door need 4 as shown to the right





HEAT INSERT MICRON

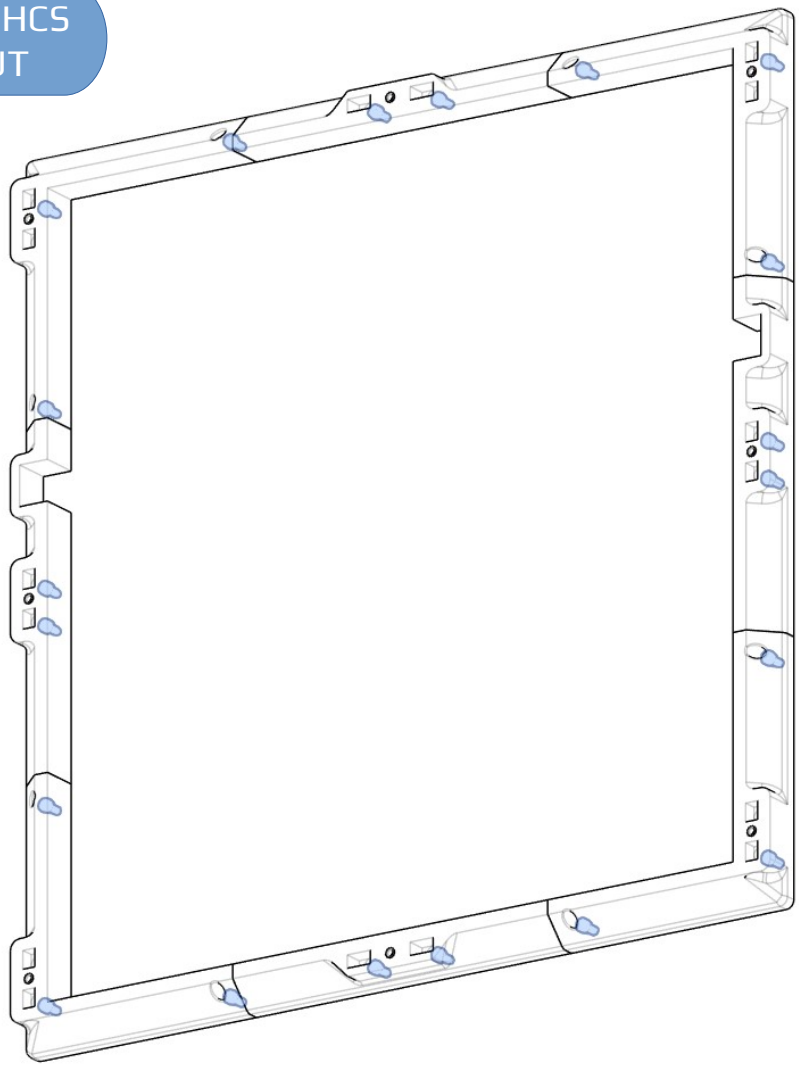
NOTE:

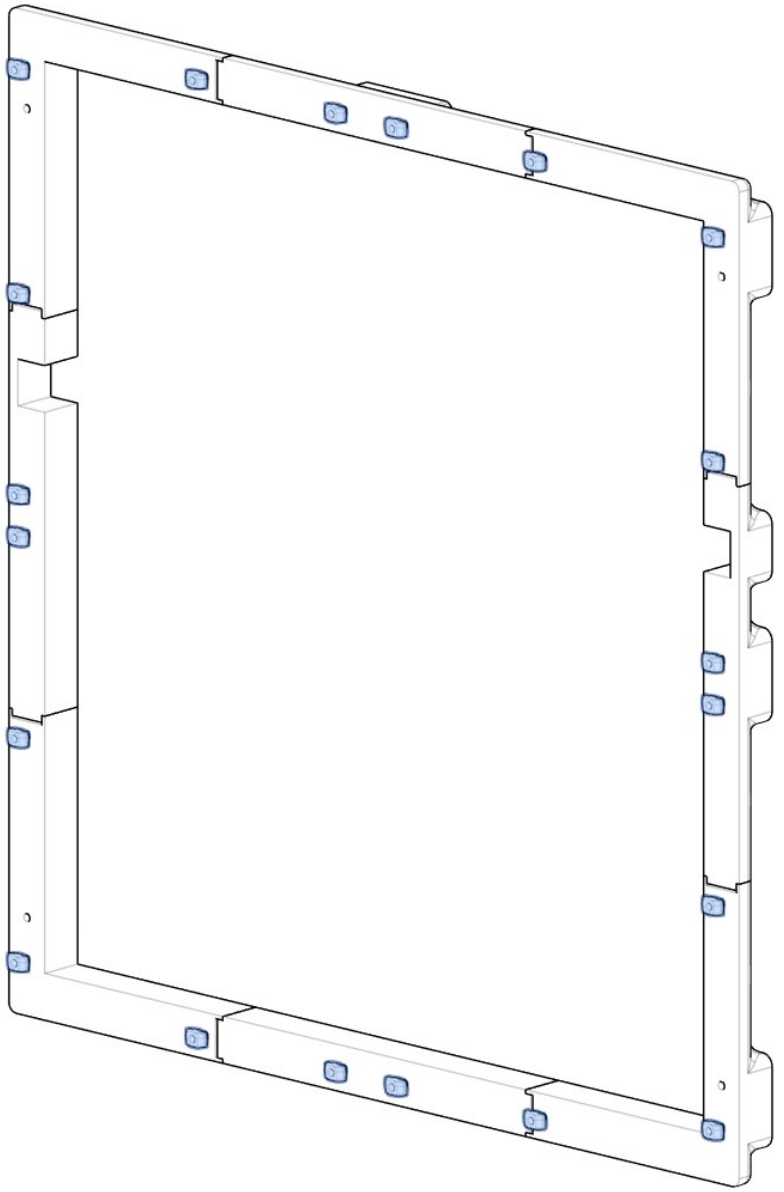
The inserts on the left side should be pushed further into the part so that a FHCS M3x6mm screw can sit flush.

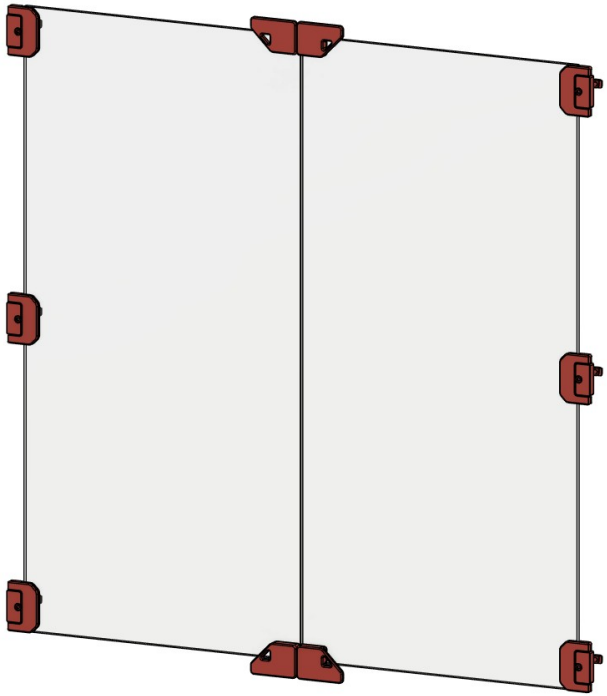
ATTACH TO FRAME

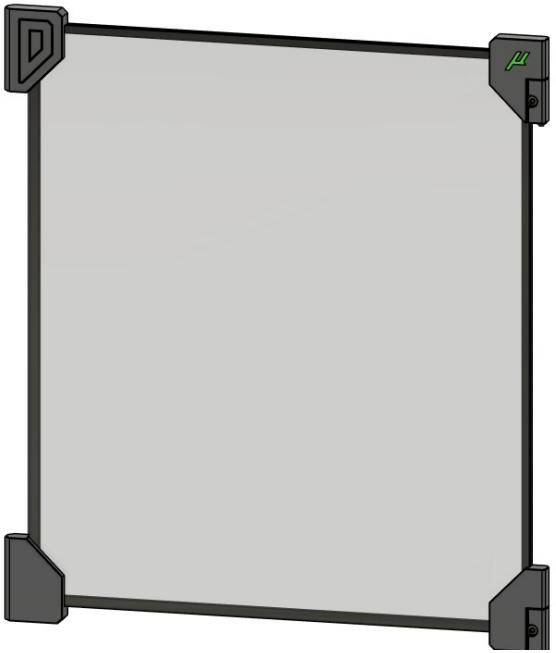
Attach your pieces to the frame using M3x8mm bolts and T-NUTS (M3 nuts for micron)

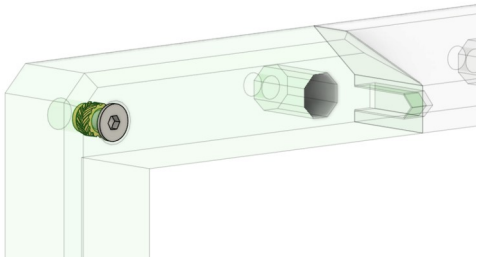
M3x8 SHCS
T-NUT









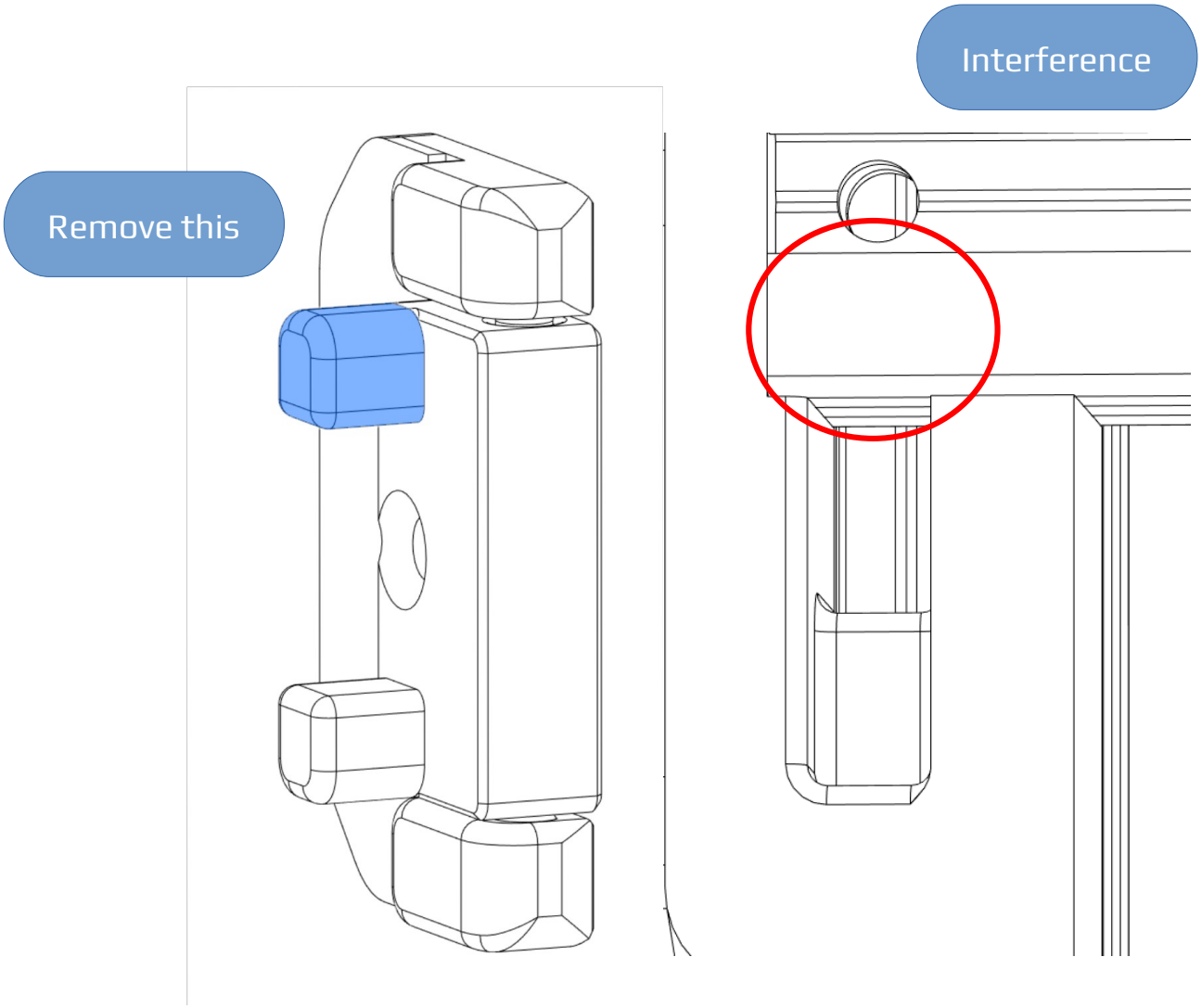


REMEMBER MICRON SCREWS

Micron buffer uses two FHCS M3x6mm screws for the door magnets to latch on to

IMPORTANT NOTE FOR STOCK DOORS

Some combinations of size and dockheight can result in the middle door hinge clipping into dock extrusion. To remedy this, snip off the highlighted area.

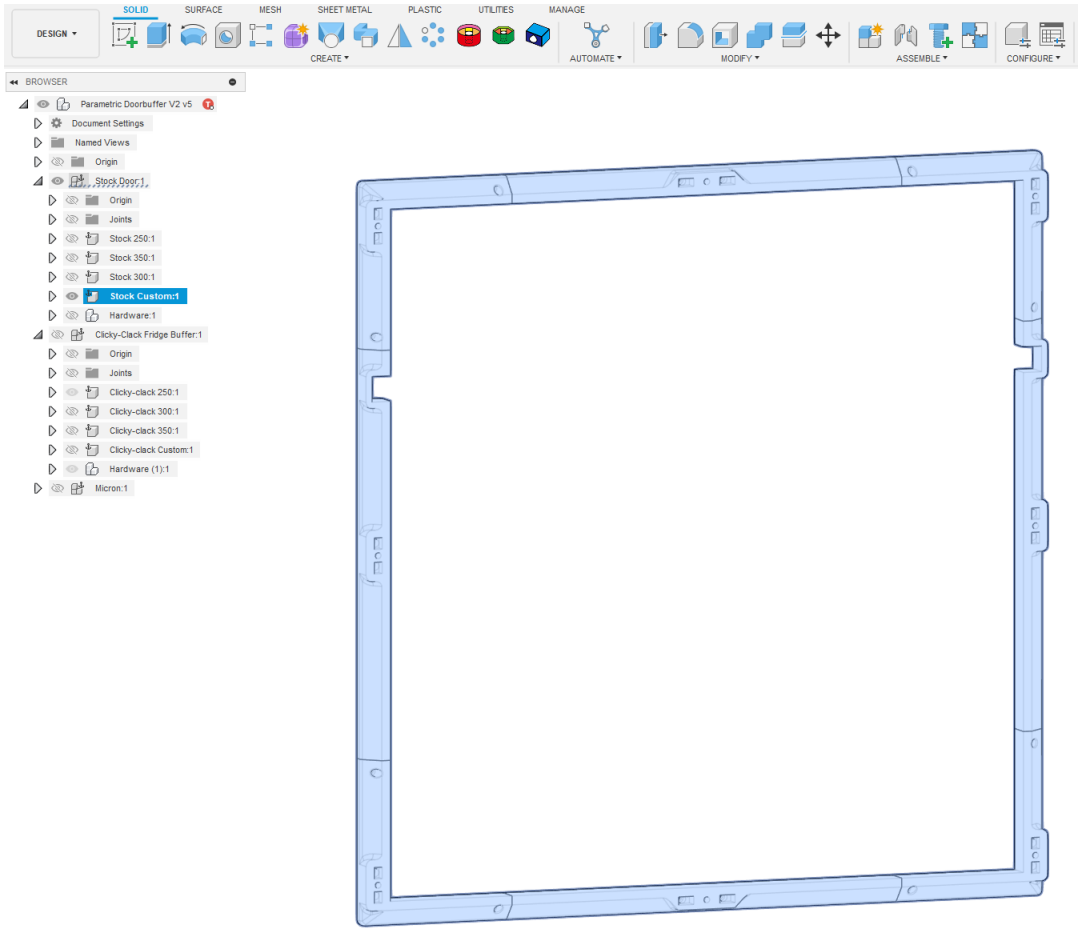


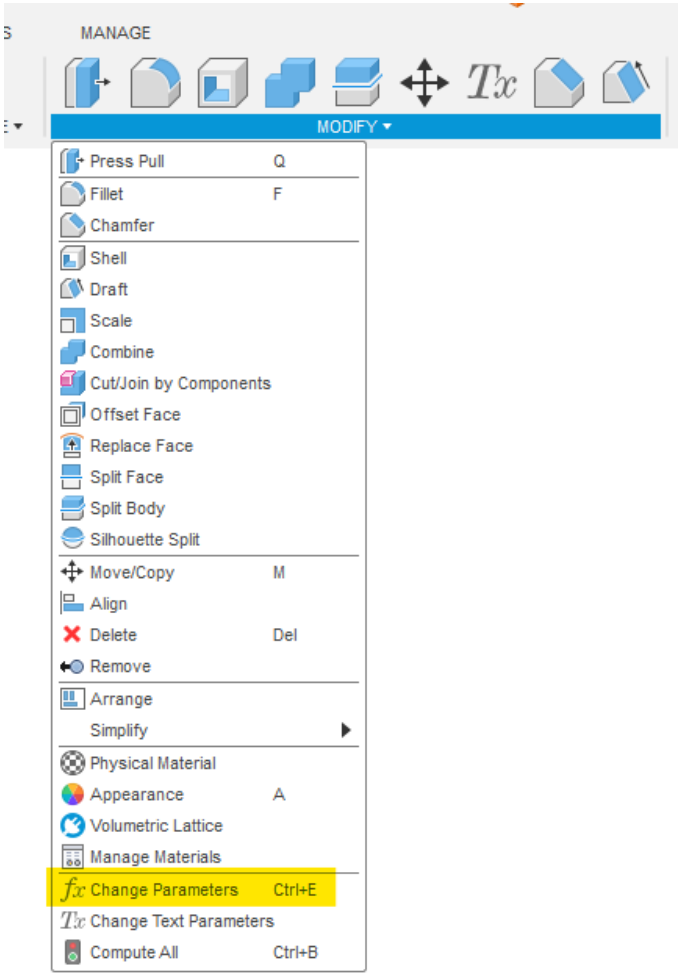
OPEN F3D FILE

Use Fusion360 and open the .f3d file from github.

OPEN PARAMETERS

Fusion's parameter window can be found under the modify drop-down menu at the top. Or you can it as a shortcut for faster use later



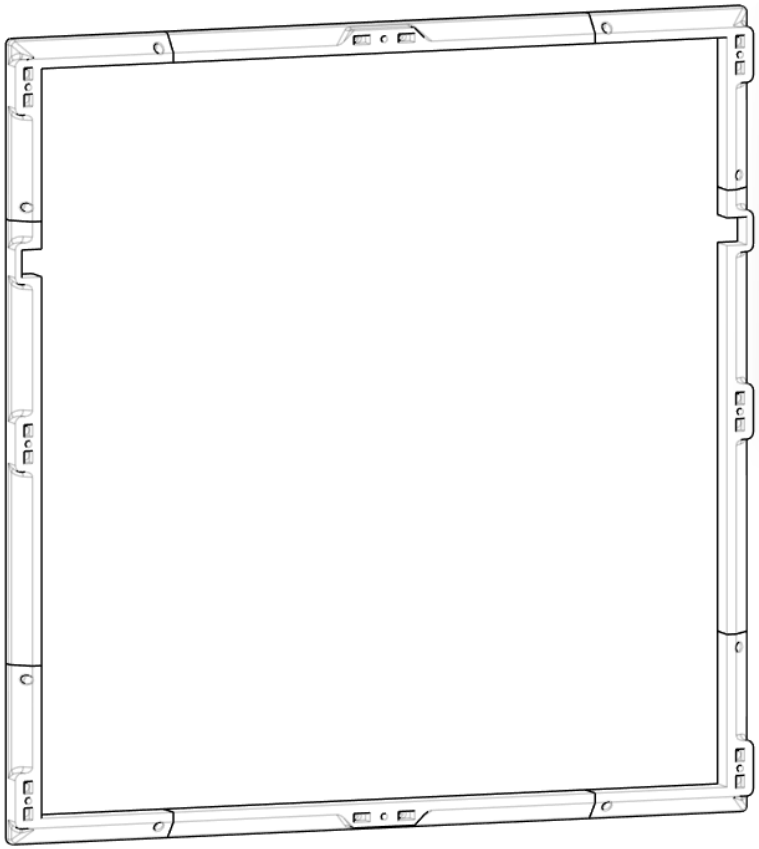


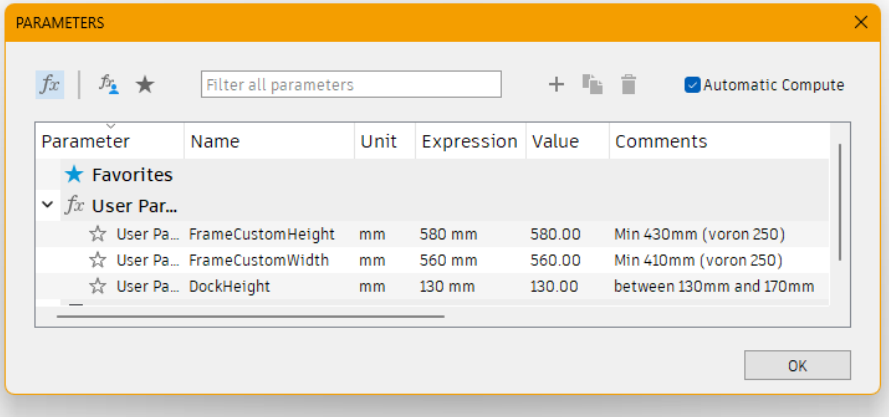
PARAMETERS

Edit the numbers inside the red box (under the expression column)

NOTE: Numbers are capped to not go below a 250 size.

Default parameters	Frame_Z	Frame_X
250mm Bed	430mm	410mm
300mm Bed	480mm	460mm
350mm Bed	530mm	510mm

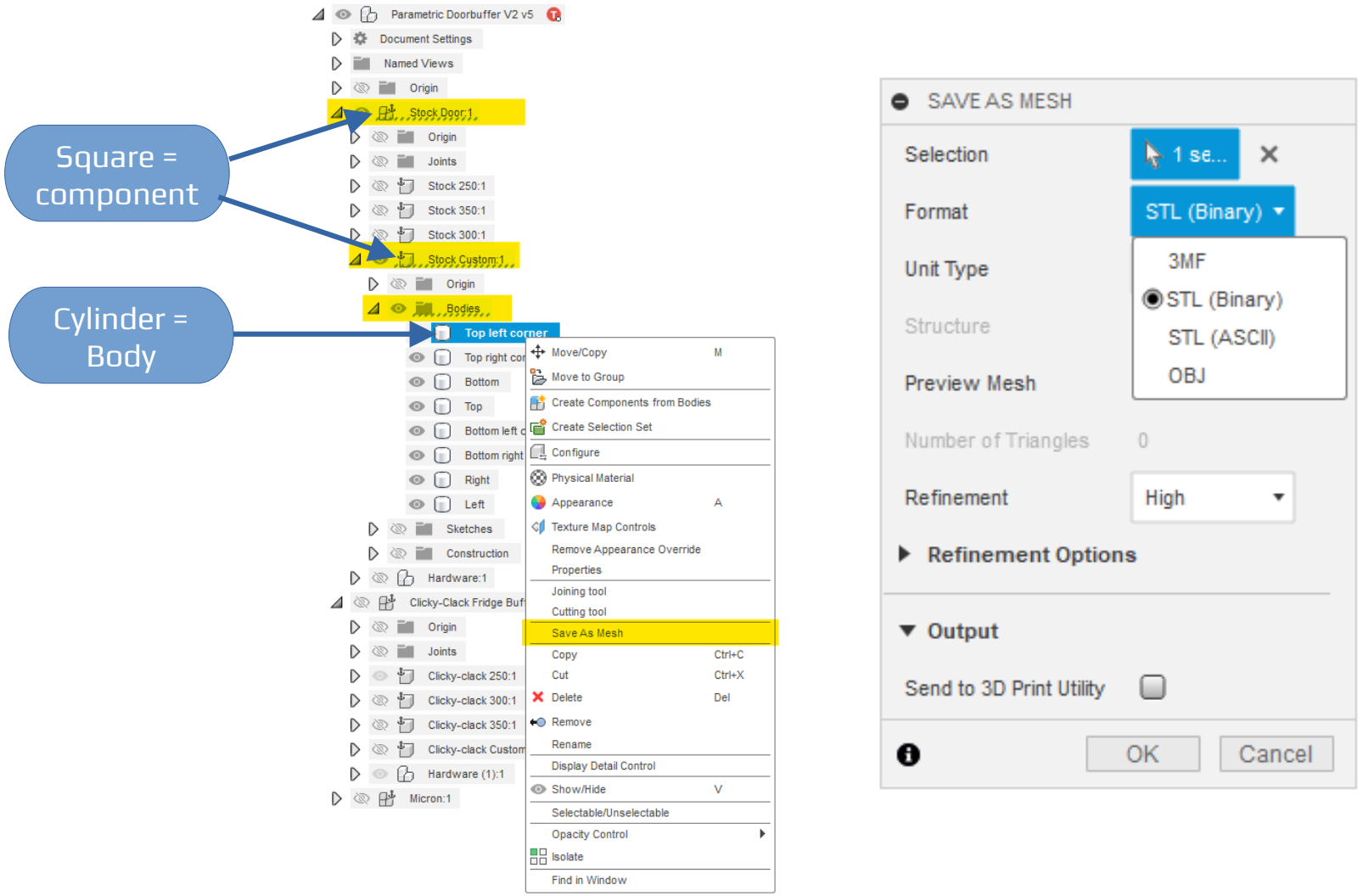




SAVE AS MESH

After editing your parameters you can quickly export any part by right-clicking and selecting "Save as mesh".

NOTE: If you right-click a entire component, you will save screw inserts and anything nested inside it into one big STL-file. You can save it as .3MF and keep nested parts as a multi body file. To avoid this only save bodies and not entire component!



ASSEMBLY COMPLETED!

NOTE: In case you forgot to install your modular docks, you can simply loosen the top middle piece and slide in the docks.

GitHub https://github.com/Stealthchanger/DoorBuffer

Enjoy your new front door

STEALTHCHANGER

GITHUB

github.com/StealthChanger

DISCORD

discord.gg/Mx9JKbt7