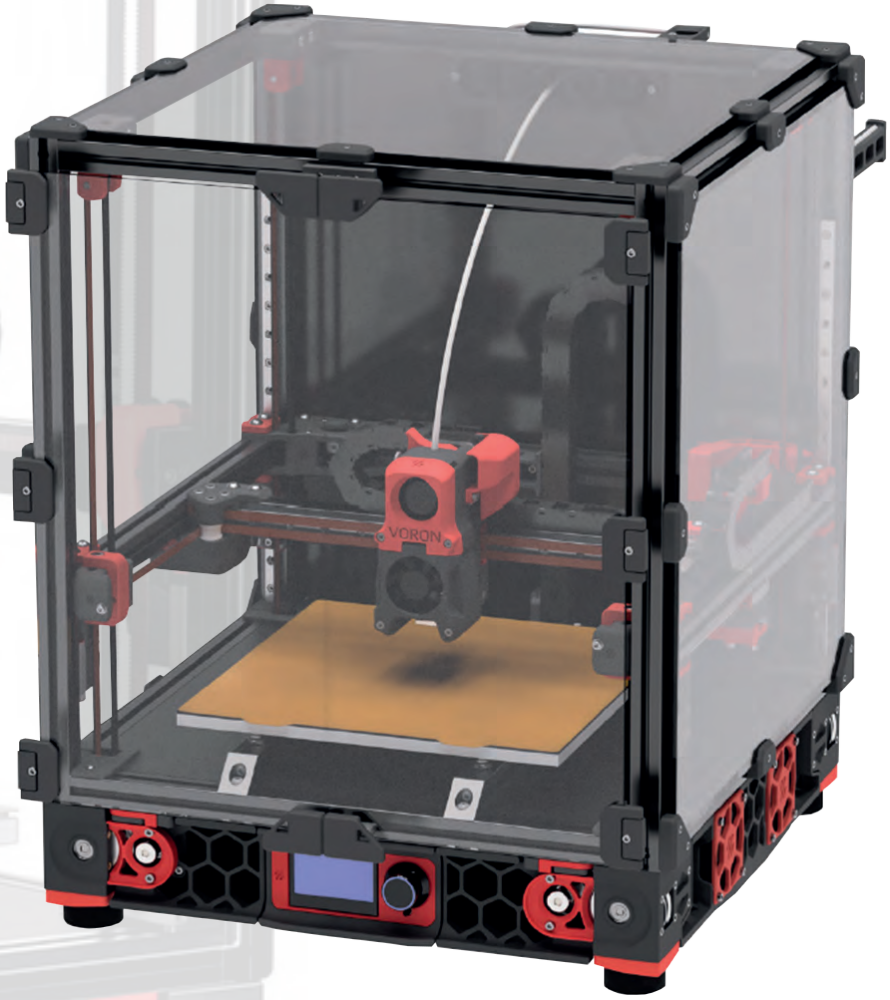
VORON 2.4

KIT 1

- FRAME
- LINEAR RAIL



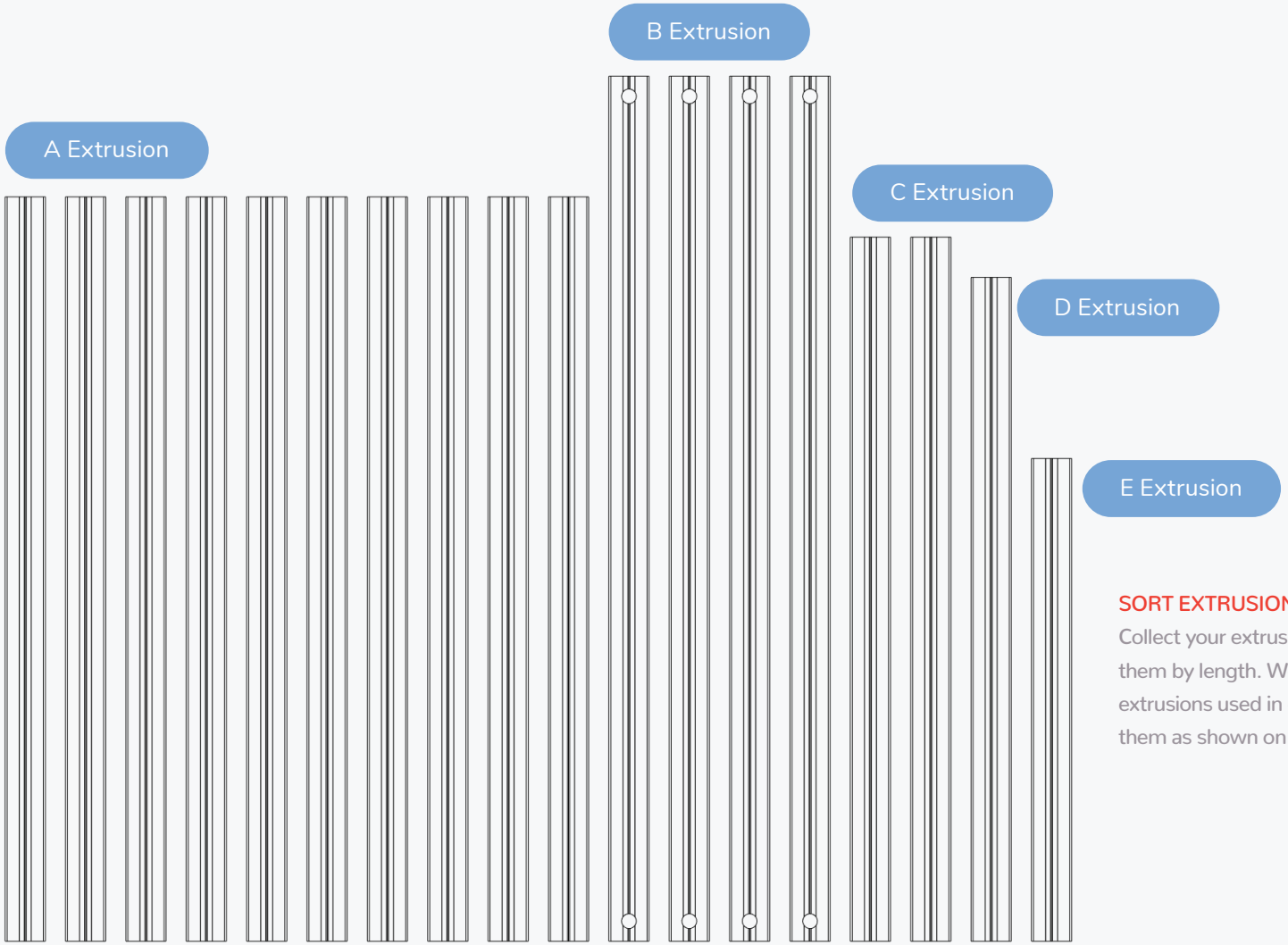
Before you begin on your journey, a word of caution.

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 VORON 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.

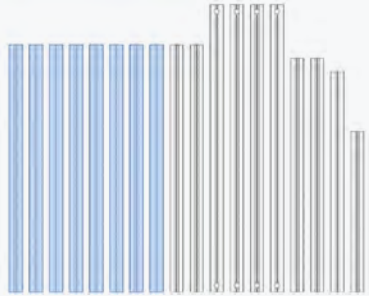
Most of all, good luck!

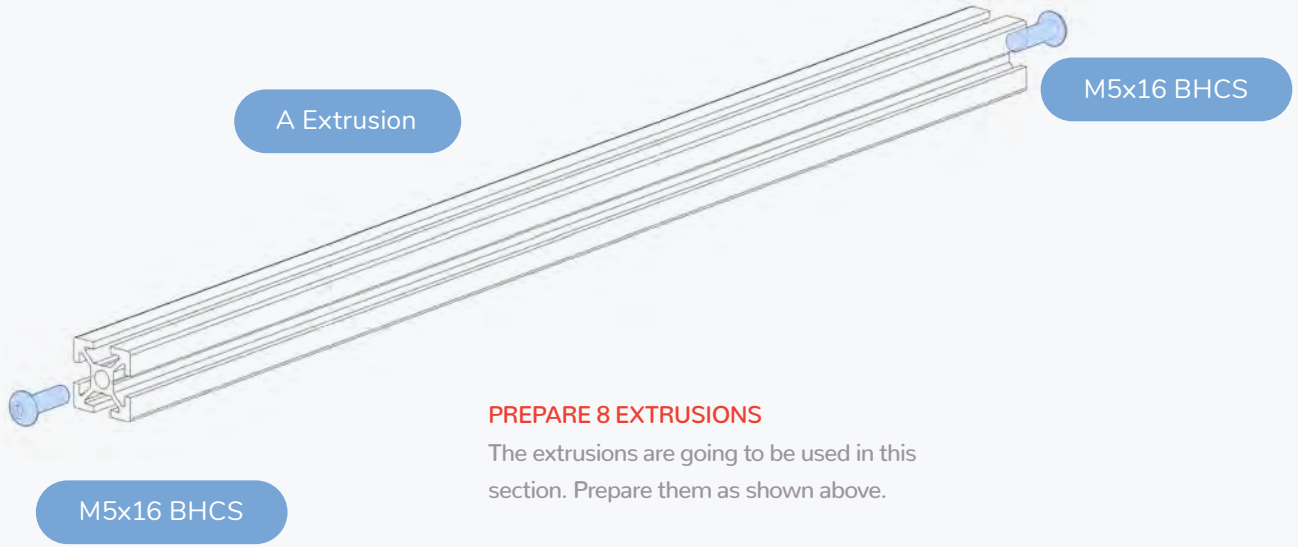
THE VORON TEAM



SORT EXTRUSIONS

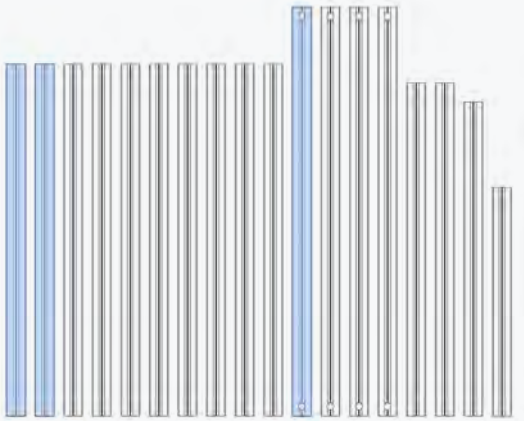
Collect your extrusions and sort them by length. We will highlight the extrusions used in each step and label them as shown on this page.





PREPARE 8 EXTRUSIONS

The extrusions are going to be used in this section. Prepare them as shown above.

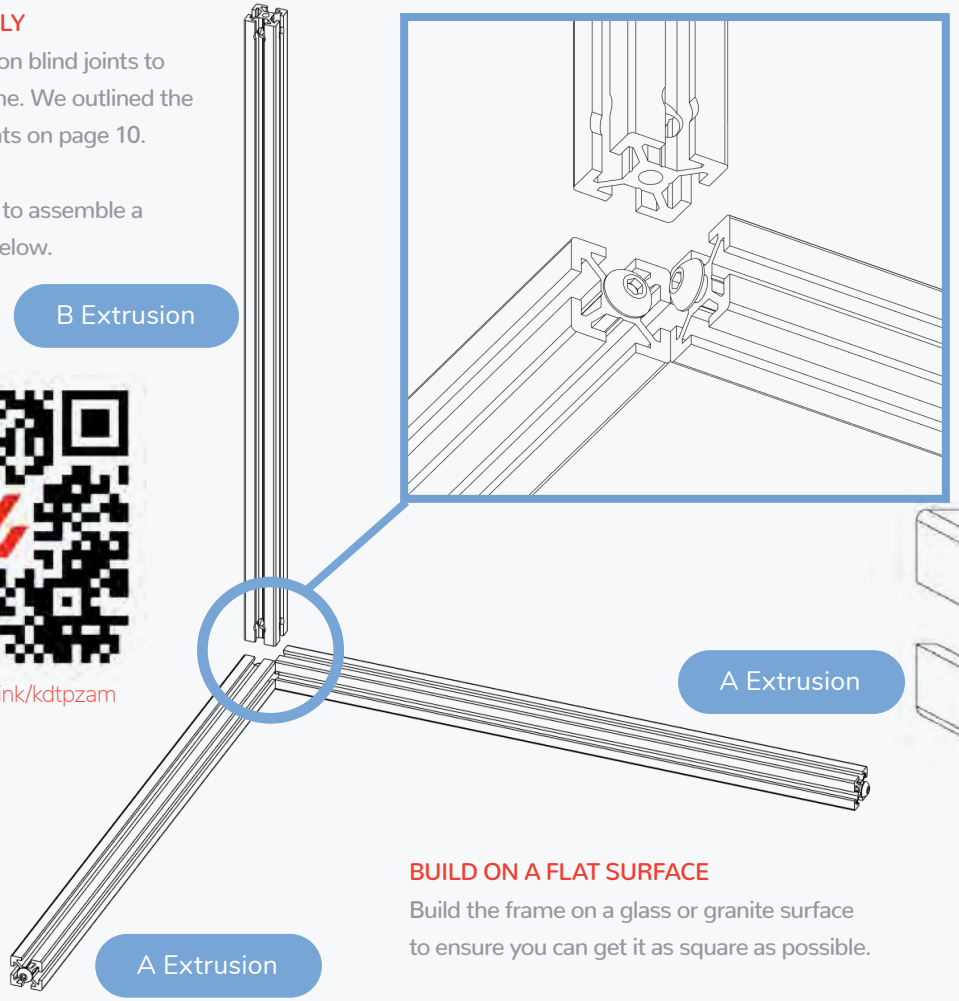


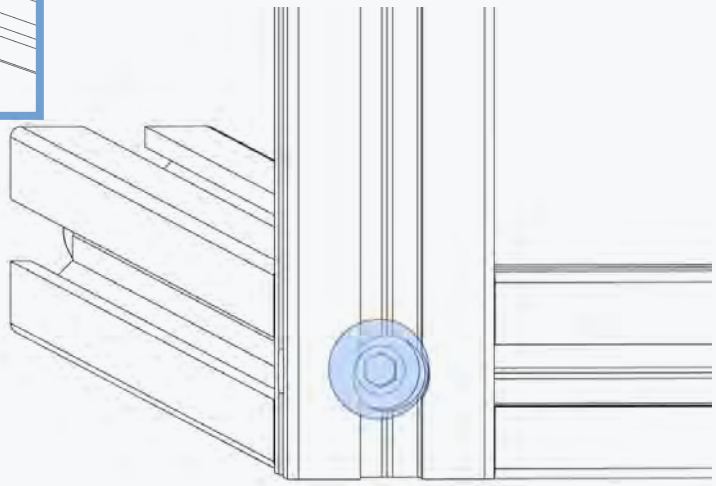
FRAME ASSEMBLY

This design relies on blind joints to assemble the frame. We outlined the basics of blind joints on page 10.

More tips on how to assemble a frame are linked below.

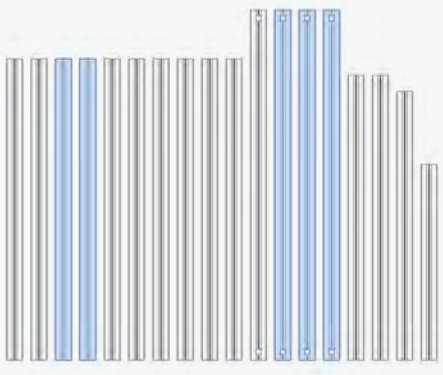
https://voron.link/kdtpzam

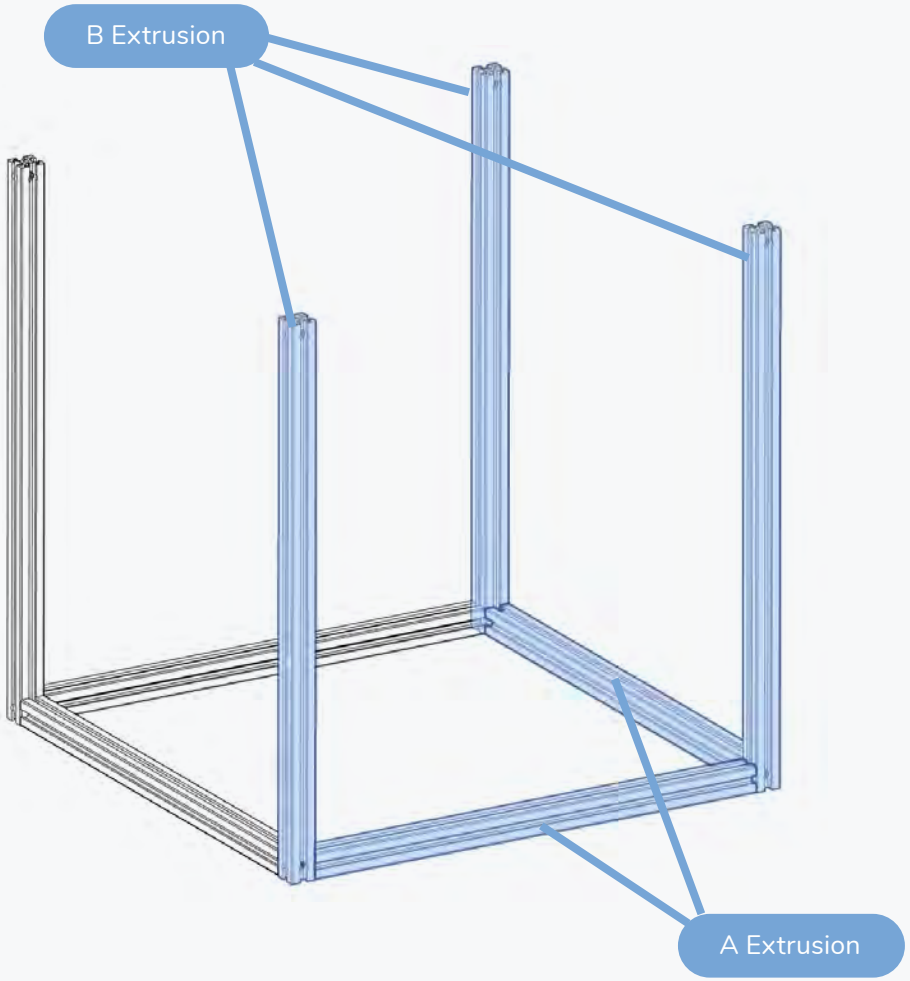




BUILD ON A FLAT SURFACE

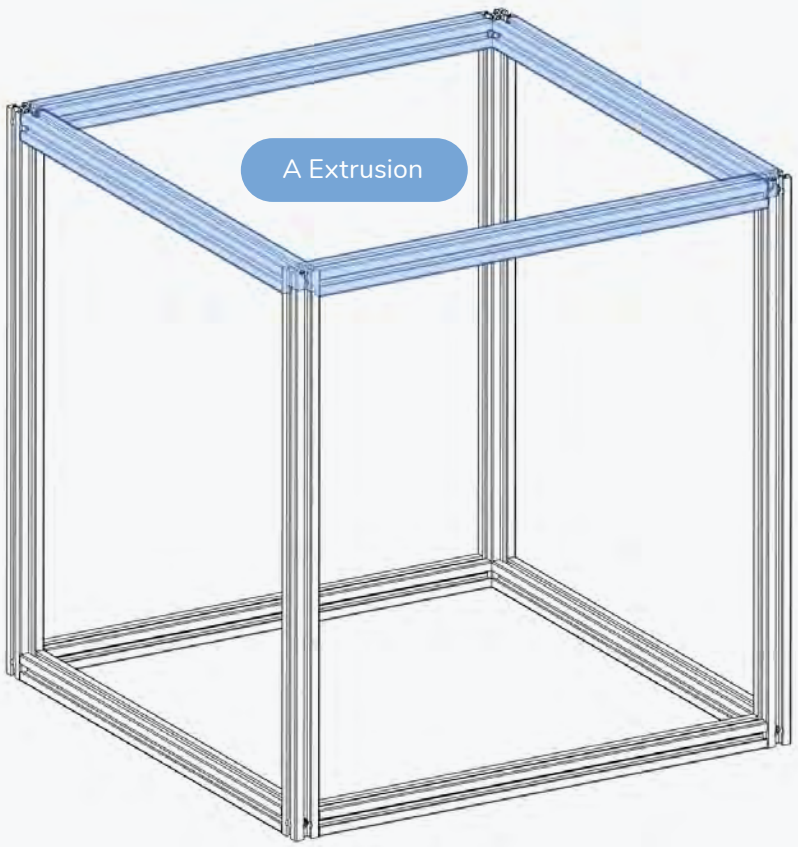
Build the frame on a glass or granite surface to ensure you can get it as square as possible.

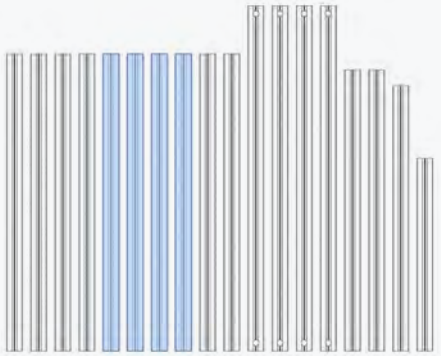


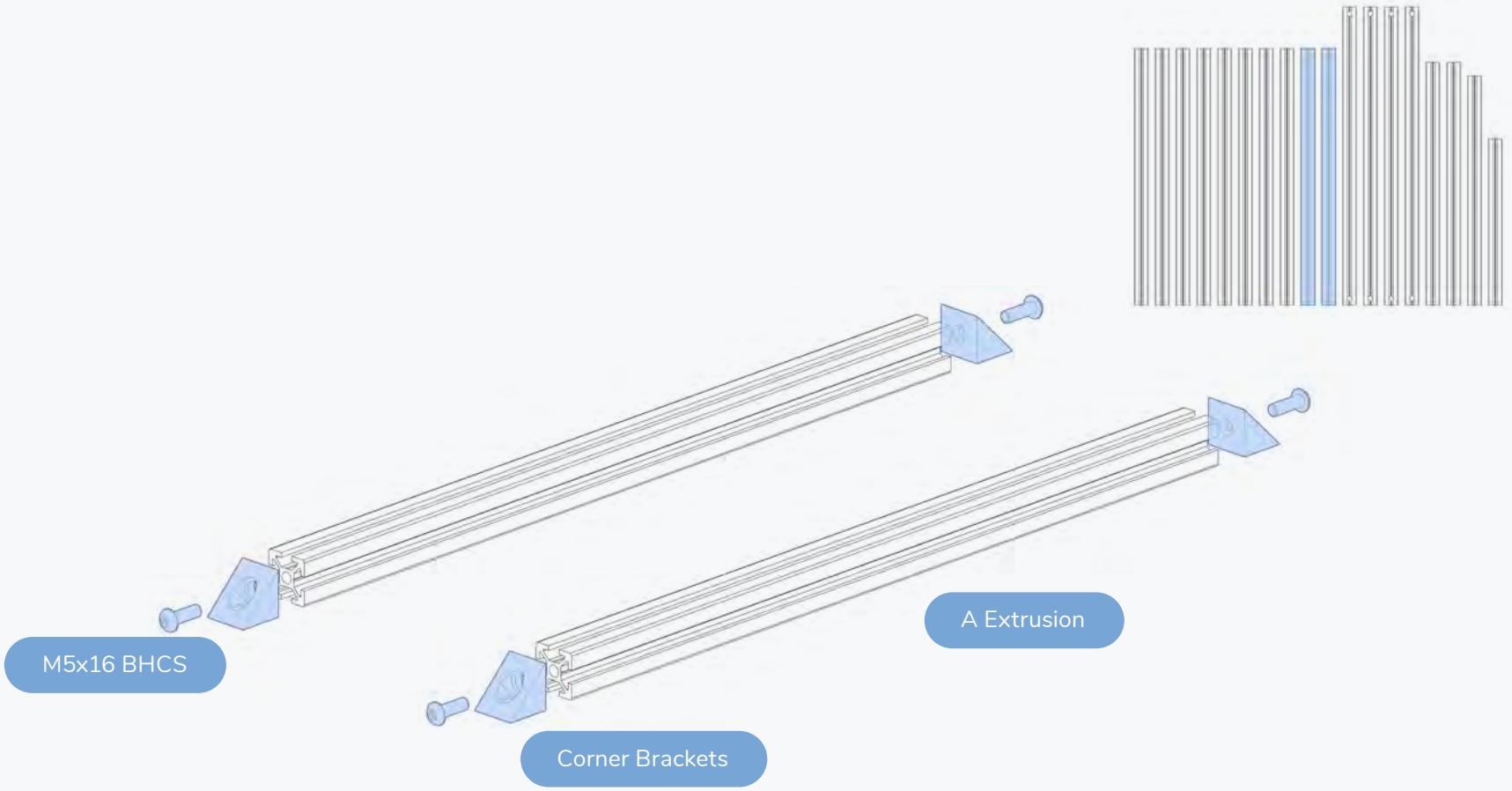


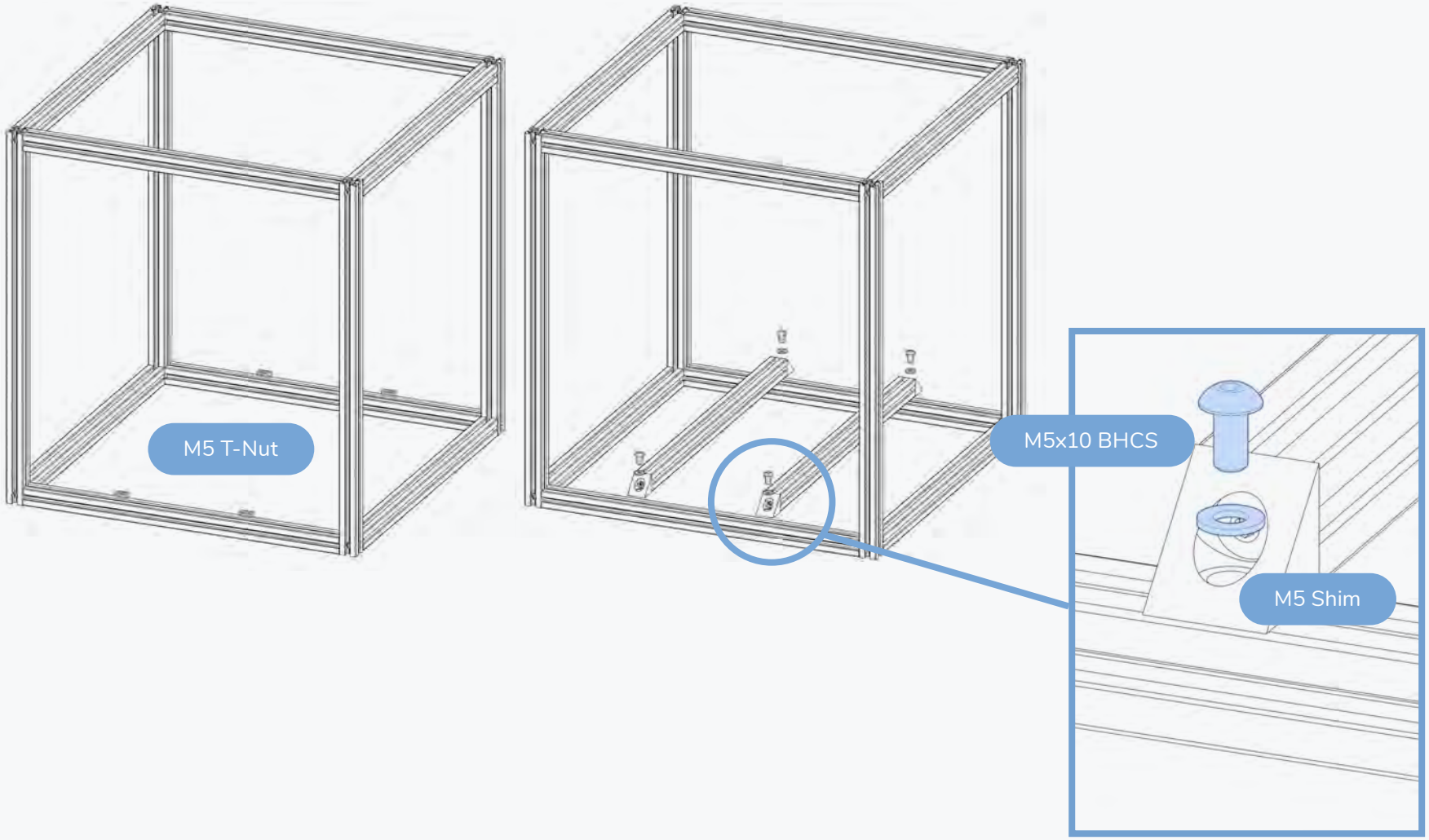
Note:

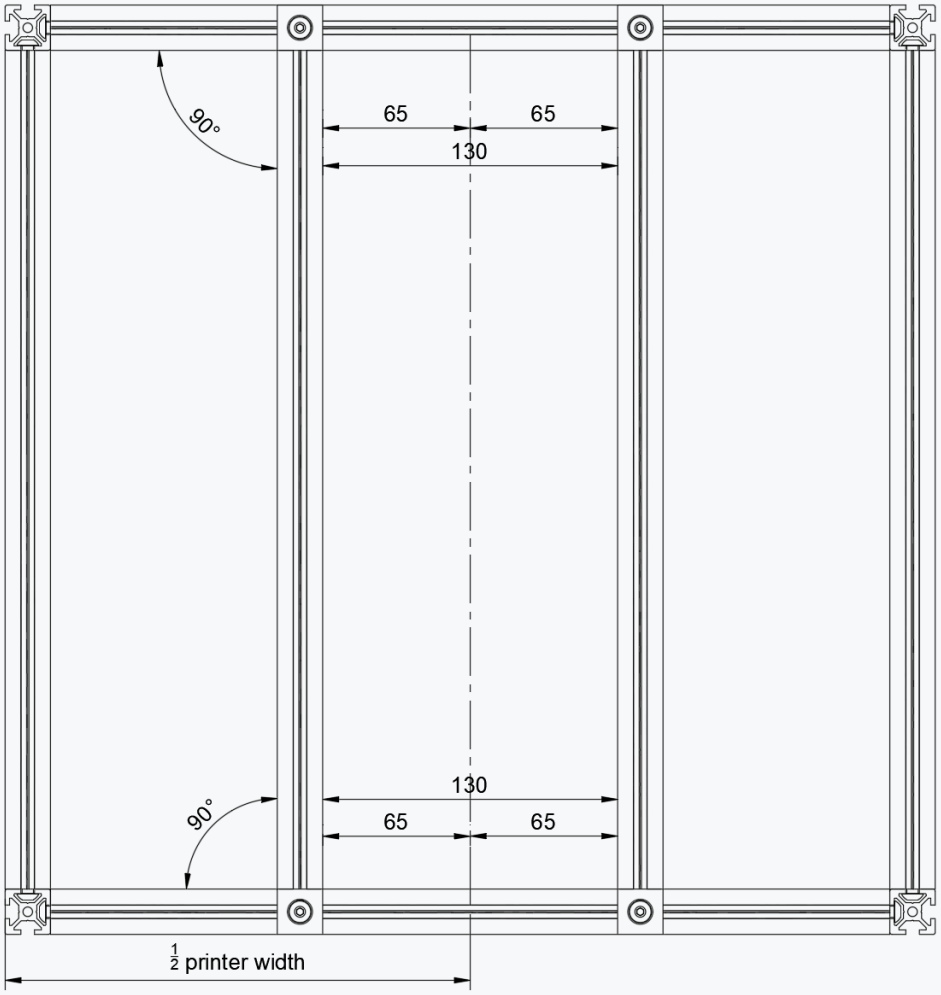
It wold be good to use a set square and a reference plane to check the perpendicularity between the profiles before fully tightening the screws.


A Extrusion




M5x16 BHCS
A Extrusion
Corner Brackets


M5 T-Nut
M5x10 BHCS
M5 Shim



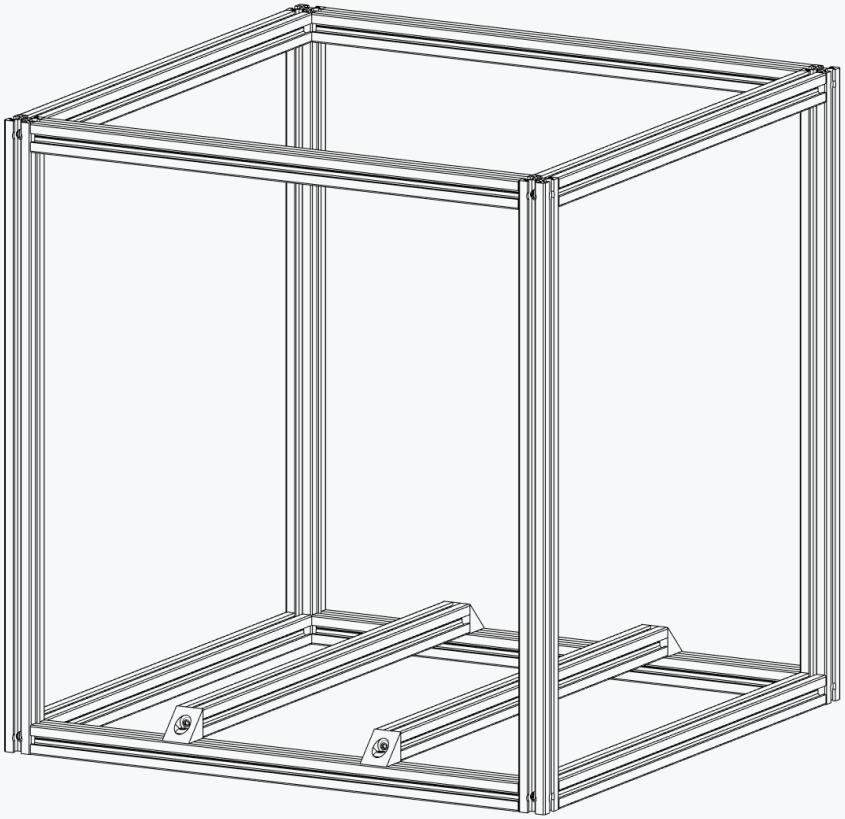
POSITION BED EXTRUSIONS

Find the centreline of the printer and position the bed extrusions as shown in the diagram to the left. The distance between the extrusions is 130mm centred on the centreline of the printer.

1/2 printer width for standard sizes:
250 spec 205mm
300 spec 230mm
350 spec 255mm

ALL UNITS ARE METRIC

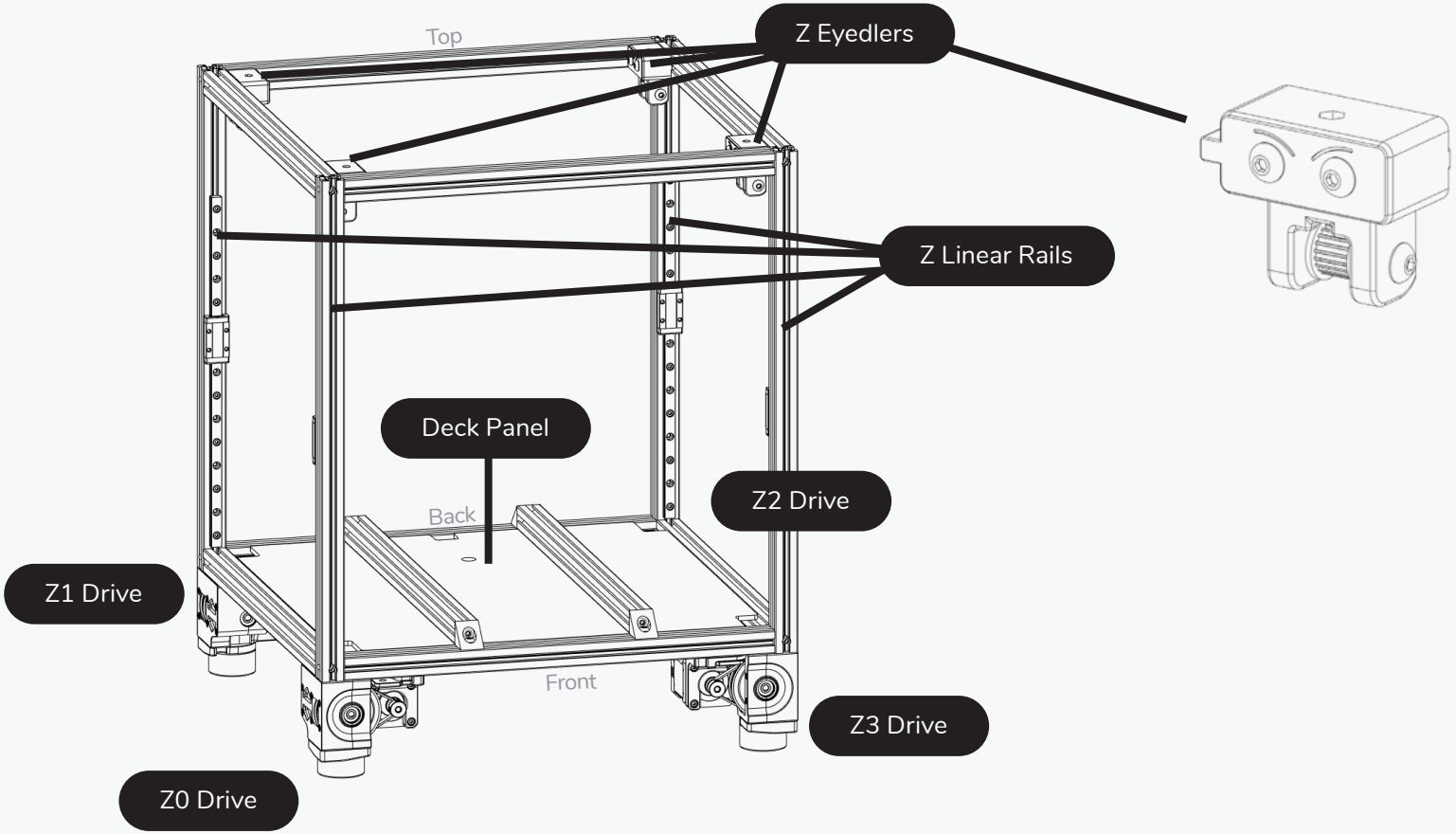
If a unit is not specified assume it's metric.
All distances are called out in millimeters.



CHECK FOR SQUARENESS

Verify the angle of all corners and the overall squareness by measuring the diagonals. Refer to the second half of the linked video for additional information.

https://voron.link/kdtpzam

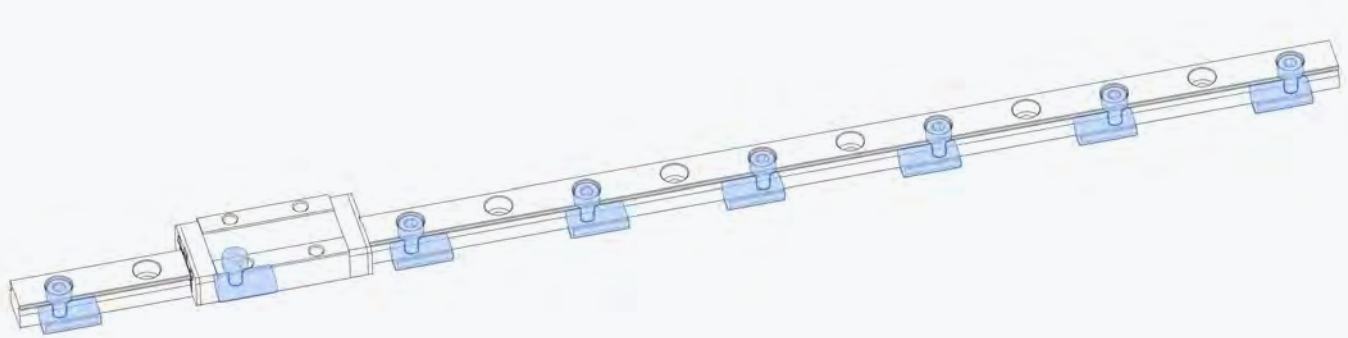


OVERVIEW

Individual chapters start with an overview of the components that will be built/added to the printer in the chapter.

HANDLE WITH CARE

The carriage can slide off the rail if not handled properly. Dropping the carriage likely irreparably damages it.
Any marks, dents or nicks might cause the linear rail to misbehave in operation.



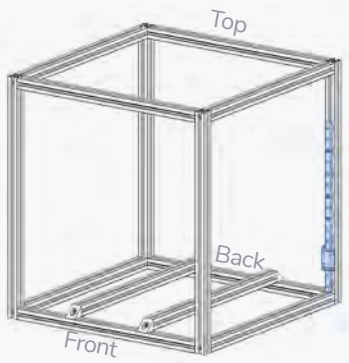
LINEAR RAILS - PREPARATION AND MOUNTING

Most linear rails arrive with shipping oil. To ensure a smooth gliding motion and long service life, this oil needs to be removed and its rail carriage greased. See the Voron sourcing guide for a recommended list of lubricants. We attached a link to a video guide to get you started.

We opted to skip every other mounting hole in the linear rail when designing the mounting pattern for this printer. This cuts down on mounting hardware and still meets the requirements for our use case.

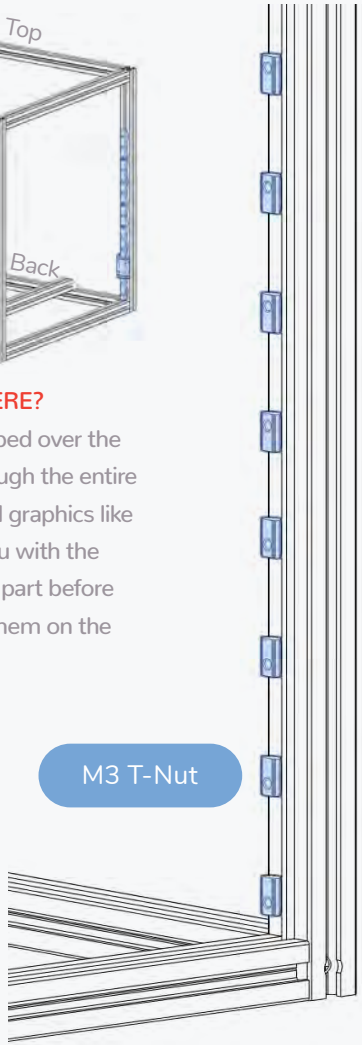
When tightening the bolts tighten them from the center outward to ensure that the rail sits flush on the extrusion.

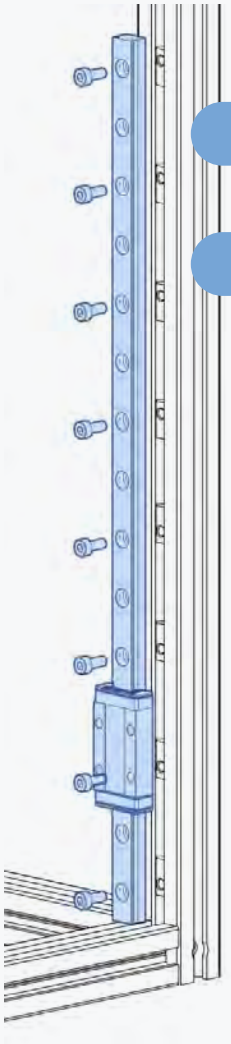
https://voron.link/agu0nes



WHY IS THAT HERE?

As you likely skipped over the advice to flip through the entire manual we added graphics like these to assist you with the orientation of the part before you actually put them on the printer.

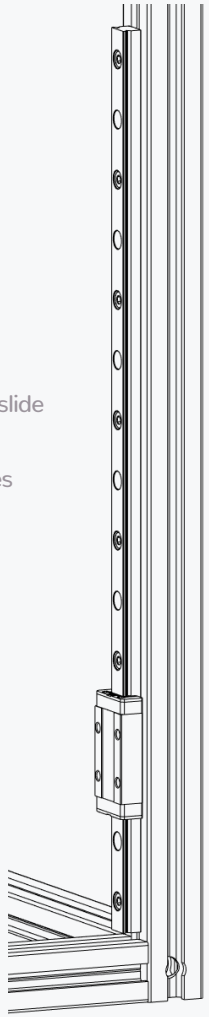


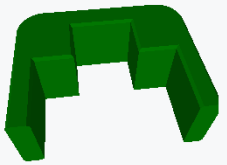


MIND THE CARRIAGE

The carriages are designed to slide along the rail easily.
This unfortunately also includes sliding off the rails.

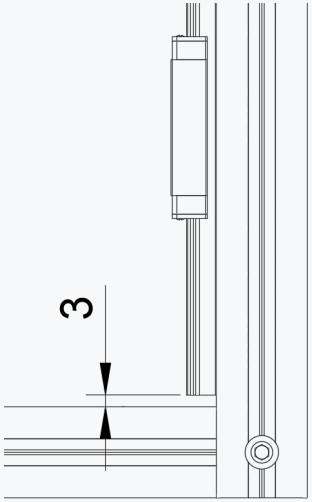
Dropping the carriage likely irreparably damages it.





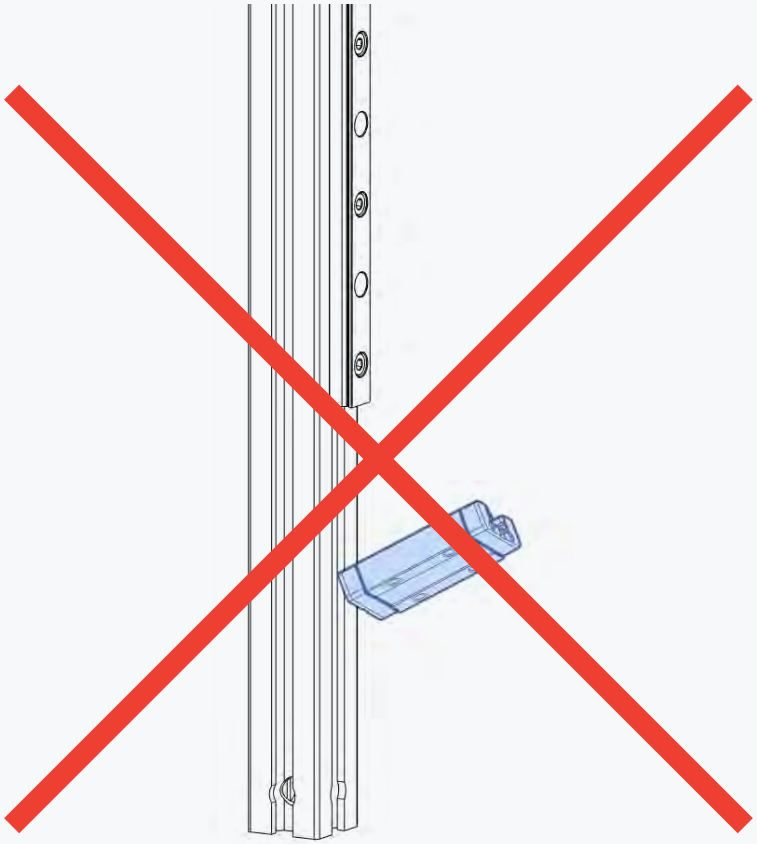
CENTRED RAIL INSTALLATION GUIDE

Use the MGN9 guides to position the rail in the center of the extrusion prior to fastening the screws.



BOTTOM GAP

Leave a gap between the printer frame and the rail. ~3mm is fine.



For illustration purposes only. Do not attempt to replicate.

RAIL SAFETY

As we will turn the printer upside down during further assembly make sure to fix each carriage in position with a piece of sticky tape.

If your rails were delivered with plastic stoppers you can also temporarily reinstall them to prevent mishapps.

INSTALL REMAINING Z RAILS

Add the remaining Z rails following the same instructions.
Make sure the rails face each other as shown on the picture.