Satsuma 250

by Ella Fox

Assembly Manual

Version 2024-05-23

Introduction

Before you begin, 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 apply common sense when operating your Satsuma, and do not hesitate to ask for assistance with assembly or usage of your machine.

Before starting your build, continue to read the manual in full.

About

The Satsuma 250 follows in the line of printers by Squirrelbrain. It takes design queues from the Satsuma 180.

The goal of this project is to re-imagine a Prusa MK3/MK4 as a CoreXY machine, whilst using much of the same components found in the original printers.

While many of the mechanical parts can be sourced directly from Prusa, the whole the bill of materials can also be sourced from elsewhere with relative ease.

I hope you enjoy your build as much as I did putting this together <3
- *Ella Fox*

Credits

Special thanks to these awesome people, communities, and companies for making Satsuma 250 possible <3

VORON DESIGN

SnakeOil

PRUSA RESEARCH by JOSEF PRUSA

Printed Part Guidelines

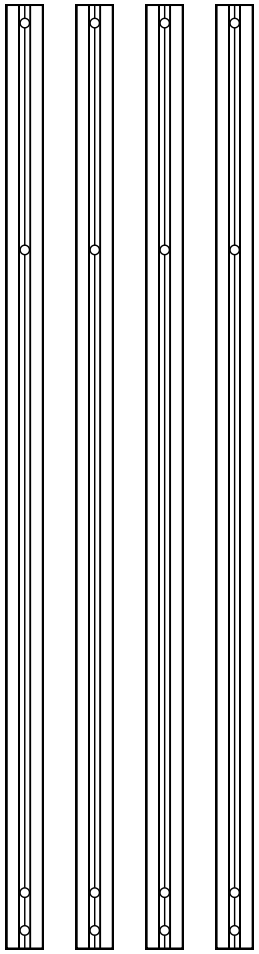
Depending on your goals for the printer, the material you choose to print the parts from will vary. Please use the table to configure your slicer settings accordingly.

Material	**Minimum (Open Frame):** PETG **Recommended (Enclosed):** ABS, ASA **Premium (Enclosed, High Temperature):** Annealed PC-CF
Nozzle	0.4mm or 0.5mm
Layer Height	0.2mm
Perimeter/Wall Count	4
Solid Top/Bottom Layers	5
Infill Percentage	**Minimum:** 30% **Recommended:** 40%
Infill Pattern	Grid
Extrusion Width	**0.4mm nozzle:** 0.4mm forced width **0.5mm nozzle:** 0.5mm forced width

Frame

Frame Preparation

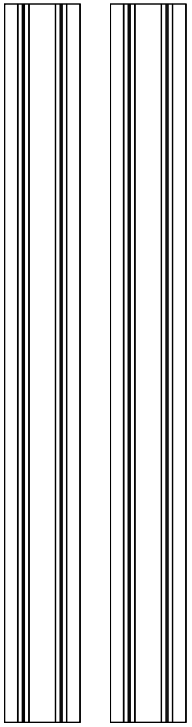
A Extrusion
20x20x500mm



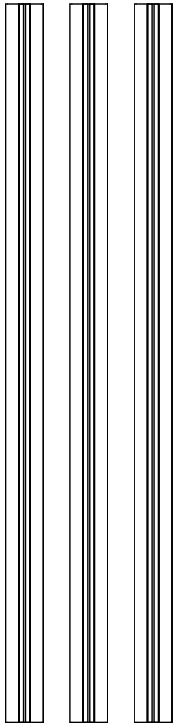
Sort Extrusions

Start by collecting all of your frame pieces, sorting them by the lengths. You can optionally use painter's tape and a marker pen to label each piece by the letter assigned.

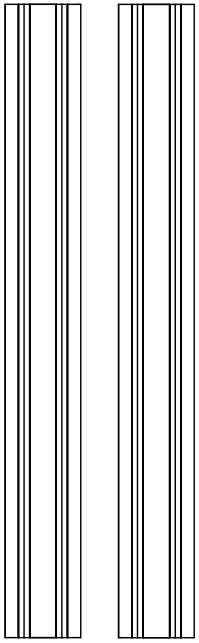
B Extrusion
20x40x380mm



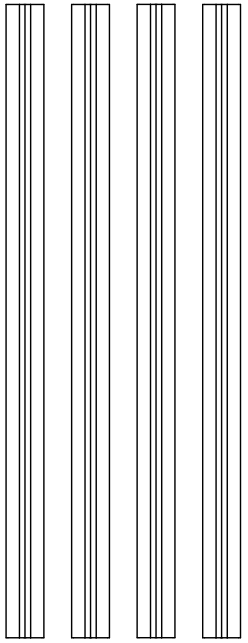
C Extrusion
20x20x380mm



D Extrusion
20x40x335mm



E Extrusion
20x20x335mm

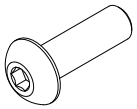


Fasteners

Find the M5x16 button head screws, and have medium strength thread locker on standby.

You will be using a 3mm hex wrench for the next step.

M5x16 BHCS
30 pieces



Thread
Locker

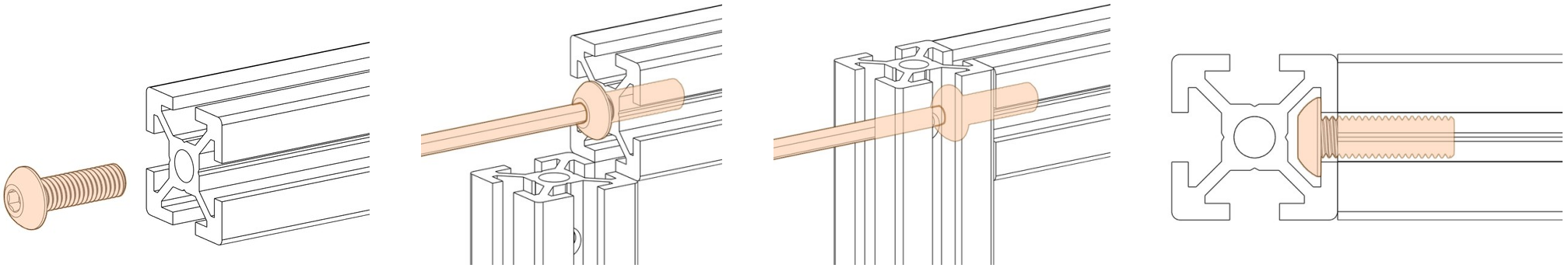
Blind Joints

The Basics

Blind joints are a cost-effective means of joining two or more pieces of extrusion, whilst providing good rigidity.

The head of the screw is slid into the channel of another piece of extrusion, then securely fastened with a hex wrench through the access hole. Thread locker is also used to ensure that once in place, the screw will not come loose.

If this is your first time using blind joints, Nero of the Voron Design team has great videos demonstrating the process should you require further instructions. You can find them at the QR codes and links on the left.



Blind Joint Preparation

Preparing Ends

Apply a small amount of thread locker to the threads of the M5x16mm screws, and insert into both ends of the extrusion. Do not thread all the way, but leave approximately a 3mm gap.

Repeat this process for all extrusion pieces marked by the letters B, C, D, and E.