A list of limitations

1. What materials can you print with?

We have only printed with polypropylene, however it should be possible to print with other materials such as PLA or ABS. Printing with PETG pellets might be difficult since all the 3D printed parts are made out of PETG. The customer should try materials with a lower melting temperature lower than PETG’s before experimenting with PETG pellets.

1. What print speed can you use?

Here is ai list of adjusted settings that we were able to adjust in the Ender 3 panel.

* Speed: 100 → 65
* Acceleration: 500 → 375
* Jerk VX and VY: 8 → 6
* Fan Speed: 5%

The print speed is significantly slower than a stock Ender 3. A stepper motor with agearbox could result in faster sprint speeds.

1. What flow rate can you use?

The flow was also adjusted in the panel from 100 → 50. This setting changes how fast the extruder spins when extruding. It was necessary to lower the flower, in order to achieve more torque since our stepper motor doesn’t have gearbox. However, the lowered flow doesn’t affect the printing speed by much since the extrusion screw creates an immense amount of pressure

1. What are the capabilities of the printer?

Presenting a benchy shows that the pellet 3D printer is capable of even complex geometries. The accuracy has to be improved but we showed that retraction is possible. The retraction speed must be lowered in the slicer settings however.

1. Duration of a print?

Due to lowered print speeds, the duration of a benchy print was roughly doubled from around 1.5 hours to 3 hours. Hence, expect roughly a doubled print time.