

caribou3d

06_Pressure Advance

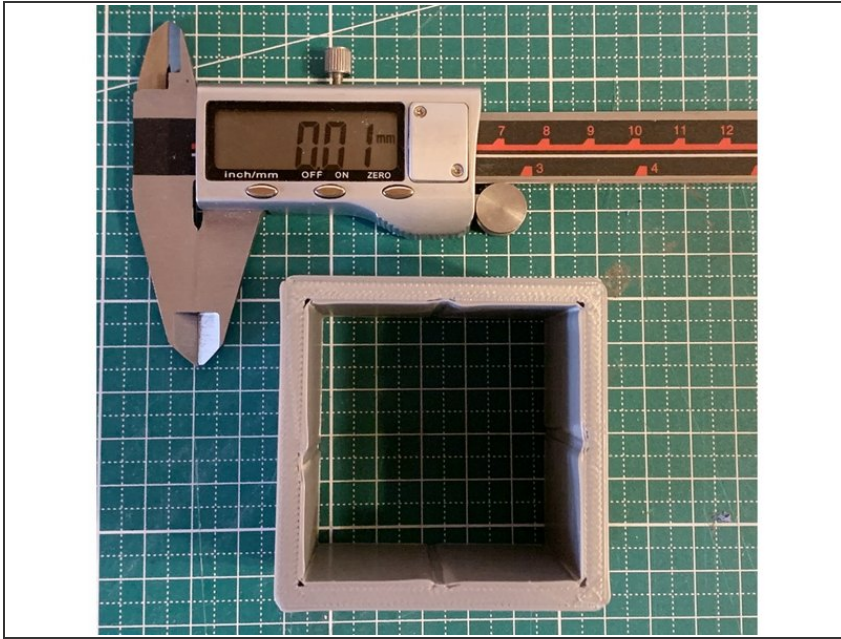
Written By: Abd Ghaffar Othman

Pressure Advance

INTRODUCTION

Klipper has a so-called. „ Pressure Advance “ function. With good settings, blobs and oozing can be reduced. This is particularly evident on the edges of the print objects. The value must be determined separately for each filament.

Step 1 — Whats is needed?



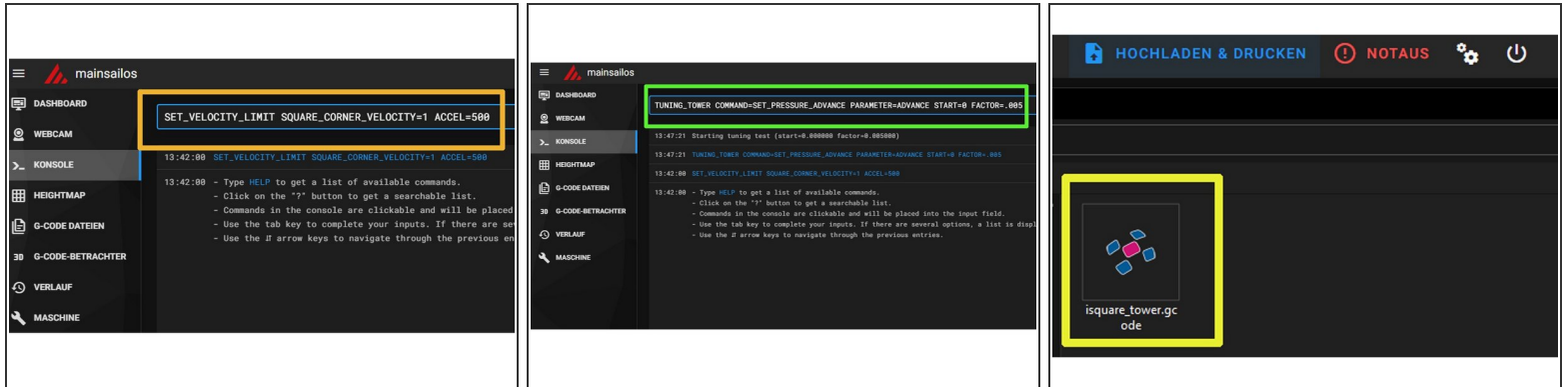
- we need a self-printed test cube, download the stl file from [here](#)
- a digital caliper

Step 2 — Slicer setting

Speed for print moves		
● Perimeters:	 100	mm/s
● Small perimeters:	 100	mm/s or %
● External perimeters:	 100	mm/s or %
● Infill:	 100	mm/s
● Solid infill:	 100	mm/s or %
● Top solid infill:	 100	mm/s or %
● Support material:	 100	mm/s
● Support material interface:	 100%	mm/s or %
● Bridges:	 100	mm/s
● Gap fill:	 100	mm/s
Speed for non-print moves		
● Travel:	 100	mm/s
Modifiers		
● First layer speed:	 20	mm/s or %

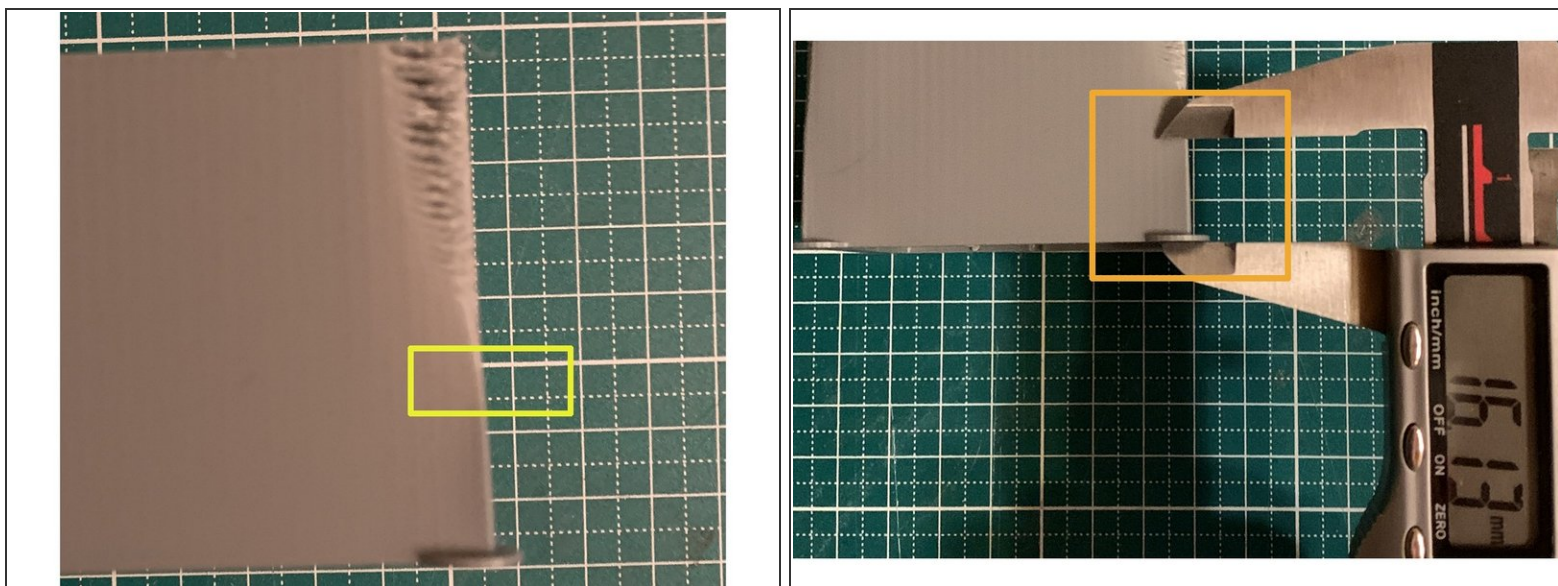
- no infill
- Layer height 75% of the diameter of the nozzle. With a 0.4 nozzle, 0.3mm
- We set the speed everywhere to 100mm / s, except for the setting for the first layer
- the "dynamic acceleration control" (expert mode with Prusaslicer but also e.g. available with Cura) is deactivated

Step 3 — Preparation for printing in Mainsail



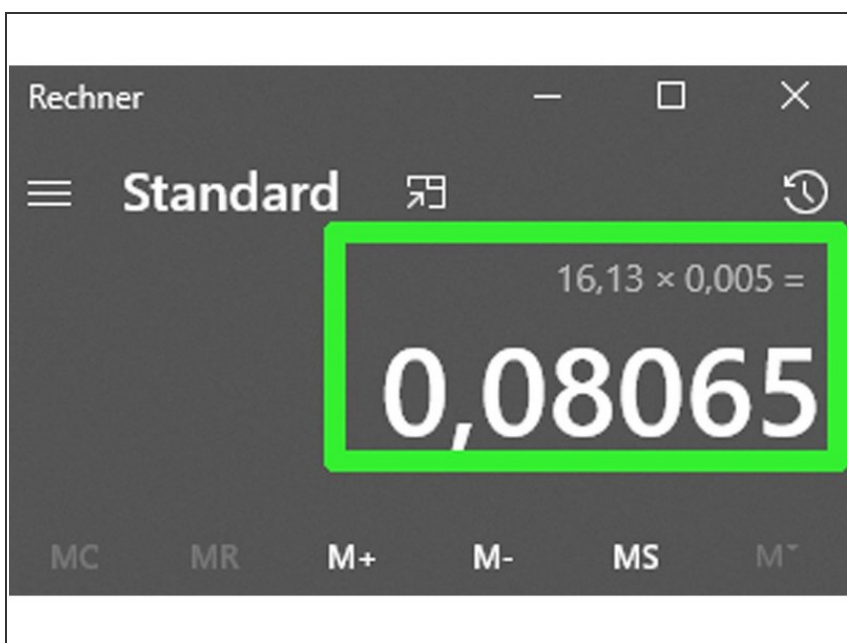
- First we send the following command in the console: **SET_VELOCITY_LIMIT SQUARE_CORNER_VELOCITY = 1 ACCEL = 500**
- Then we send this line: **TUNING_TOWER COMMAND = SET_PRESSURE_ADVANCE PARAMETER = ADVANCE START = 0 FACTOR = .005**
- ❗ If you are using a Bowden setup, enter this command: **TUNING_TOWER COMMAND = SET_PRESSURE_ADVANCE PARAMETER = ADVANCE START = 0 FACTOR = .020**
- We can now upload our GCode. Layer for Layer becomes the value for **Pressure Advance** now increased during printing.

Step 4 — Evaluation



- We look at the edges of our test cube. At the lower end they are too round, perforations are already shown above. We are looking for the area where the edge was printed as "sharp" as possible.
- We use the caliper to measure the distance from the 1st layer to this area and note the value.

Step 5 — PA value calculation



- We multiply the measured value (here 16.13mm) by the factor used (here 0.005). So our PA value for this filament would be 0.08. The values are usually between 0.050 and 1,000.
- ① In a Bowden setup, the factor is multiplied by 0.02.

Step 6 — Entry in the configuration

```
205 [extruder]
206 step_pin: PC3
207 dir_pin: PL6
208 enable_pin: !PA4
209 microsteps: 32
210 rotation_distance: 8.0
211 nozzle_diameter: 0.400
212 filament_diameter: 1.750
213 pressure_advance: 0.1
214 max_extrude_cross_section: 50.0
215 max_extrude_only_distance: 500.0
216 max_extrude_only_velocity: 120.0
217 max_extrude_only_accel: 1250.0
218 heater_pin: PEE
```

- We open under "machine" printer.cfg enter the value there under [extruder] in line 213 and save.