Table 9

Temperature vs Extruded quality in terms of thickness and length

|  |  |  |
| --- | --- | --- |
| Temp | Extruded Length | Cross Section Diameter |
| 190 | 76 | .98 |
| 200 | 90 | .80 |
| 210 | 96 | .75 |
| 220 | 99 | .67 |
| 230 | 108 | .64 |
| 240 | 116 | .62 |
| 250 | 124 | .61 |
| 260 | 158 | .60 |
|  |  |  |

Specs

Unknown 1.75mm Red PLA with V6 0.6mm orifice

**Notes/Observations:**

* Spring Tension: (~58.70 mm for 3mm) (~58.90 mm for 1.75mm)
* Extruded length increases for higher temperatures and another important observation is that the area with the severe blobbing remains fairly constant in length throughout the different trials(Look for an explanation for this). Overall blobbing occurs at the end of each trial suggesting that even 260 degrees isn’t high enough so hot end needs a higher temperature to so even if the filament is there for a shorter time it will heat up to 190.
* The initial diameter for the extruded filament for the trials decreases as the temperature increases, and it gets closer and closer to the actual orifice diameter size, this occurs because at the lower temperatures it hasn’t melted completely due to the fast speeds at which at it is travelling through the orifice so its diameter is closer to the diameter of the pulled filament which was 1.75mm, however at higher temperatures it melts properly thus it reaches the orifice diameter.

**Specifications:**

* 1.75mm
* Unknown red PLA filament
* 1.75mm V6 nozzle with 0.6mm orifice

**Failure Mode:** Stepper motor cannot exceed ~870 mm/min

* 1: Best extrusion
* 2: extrusion (minor)
* 3: (major)
* X: Complete failure, does not extrude at all (fail)

Data Photo

