Microswiss FlowTech Hotend

VOLUMETRIC FLOW RATE ANALYSIS

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NOTE

Volumetric flow rate performance depends on factors such as extruder model, nozzle size, nozzle temperature, filament type, and other variables. The results provided are based on the specific hardware, filament, and slicer settings outlined below to offer a general comparison between the standard Plated Brass FlowTech nozzles and the CHT High-Flow FlowTech nozzles.

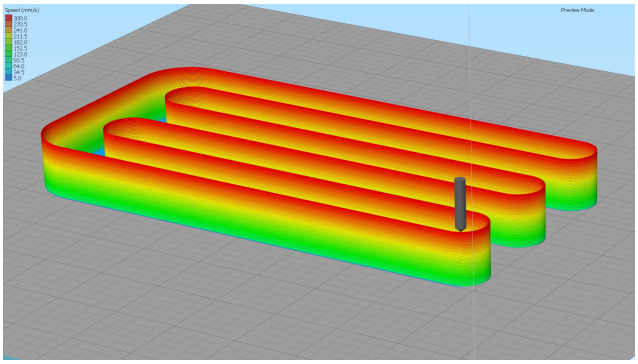
TEST SETUP

Hardware:
3D Printer Model: Sovol SV08
Hotend Model: FlowTech
Nozzle #1: M3001-04 Plated Brass
Nozzle #2: M2905-04 CHT High Flow
Nozzle Size: 0.4mm
Filament Diameter: 1.75mm
Filament Type: Protopasta Opaque Red HT-PLA (HTP31710-RED)
Test Date: 10/07/2024

Measurement Method:
Printed the same gcode with each nozzle, then measured the height at which the highest print speed was reached without any visible breaks or gaps in the extrusion.

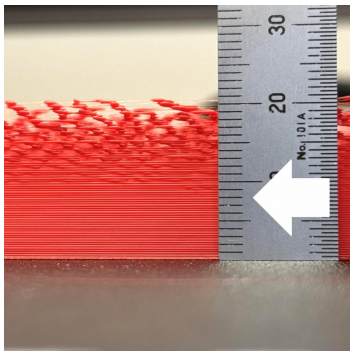
Slicer Configuration:
Software: Simplified3D
Nozzle Temperature: 220°C
Layer Height: 0.3mm
Extrusion Width: 0.5mm
Number Of Walls: 1 (Vase-mode)
Print Speed: 100-300mm/s

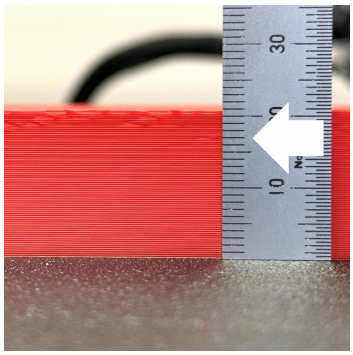
Print speed starts at 100mm/s and increases by 10mm/s for every 1mm of Z height, up to a maximum speed of 300mm/s.


SpeedTestStructure.stl sliced in Simplified3D

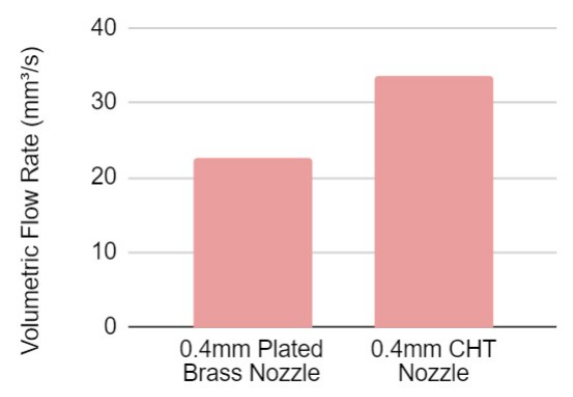
Printed Object:
Test conducted using the *SpeedTestStructure.stl* file.
Model available here.

Measured Results:
Height reached before there were any visible defects in the extrusion.
FlowTech Plated Brass nozzle: 8mm *(Print Speed: 170mm/s)*
FlowTech CHT High Flow nozzle: 17mm *(Print Speed: 260mm/s)*


Printed using a Plated Brass Nozzle


Printed using a CHT High Flow Nozzle

VOLUMETRIC FLOW RATE RESULTS



FlowTech Plated Brass nozzle: 22.2 mm³/s
FlowTech CHT High Flow nozzle: 34.0 mm³/s *(~53% Increase)*