D3D Pro 3D Printer Assembly Instructions

Table of Contents

1. Assemble Hot End Assembly

1.1. Tools

Name	Description	Notes
1mm Allen Wrench	1mm Allen Wrench	
2mm Allen Wrench	2mm Allen Wrench	
24v Power Supply	24V Industrial Power Supply Module	
7mm Socket Wrench	7mm Socket Wrench	
Slip Joint Pliers	Slip Joint Pliers	Optional alternative tool for socket wrench
Metal Jaw Vise	Metal Jaw Vise	The jaws of the vise must be metal for heat resistance.
Needle Nose Pliers	Needle Nose Pliers	

1.2. Materials

Quantity	ID	Name	Description	Notes
2 parts	m3-10mm-screw	M3 x 10mm Cap Screw	M3 x 10mm Cap Screw v1.0.0	
1 part	m3-4mm-grub-screw	M3 x 4mm Grub Screw	M3 x 4mm Grub Screw v1.0.0	
1 part	volcano-heater-block	Volcano Style Heater Block	Volcano Style Heater Block v1.0.0	
1 part	heater-cartridge	Heater Cartridge	24V 70W 6mm Diameter Ceramic Heater Cartridge v1.0.0	
1 part	thermistor	Thermistor Cartridge	NTC 100K ohm B3950 Thermistor Cartridge v1.0.0	
1 part	nozzle	Volcano Nozzle	1.75mm Volcano Style Filament Extrusion Nozzle (0.4mm) v1.0.0	
1 part	heat-break	Heat Break	1.75mm Heat Break v1.0.0	

1.3. Precautions

- **Heater Cartridge:** The Heater Cartridge gets very hot when powered! Use caution when handling.

1.4. Procedure

1.4.1. Assemble the Volcano Style Heater Block

Required Tools

- 1mm Allen Wrench
- 2mm Allen Wrench
- 24v Power Supply
- 7mm Socket Wrench
- Needle Nose Pliers

Required Parts

- M3 x 4mm Grub Screw
- M3 x 10mm Cap Screw

- Volcano Style Heater Block
- Heater Cartridge
- Thermistor Cartridge

Instructions

1. Unpack required parts from bag.
2. Using the **2mm Allen Wrench**, lightly screw the **M3 x 10mm Cap Screw** parts into the two threaded holes on the side of the **Volcano Style Heater Block**.
3. Using the **1mm Allen Wrench**, lightly screw the **M3 x 4mm Grub Screw** into the single threaded hole on the side of the **Volcano Style Heater Block**. Be sure to leave enough room for the **Thermistor Cartridge** to be inserted later.
4. Insert the **Heater Cartridge** into the **Volcano Style Heater Block** with the wires coming out of the end with an indent.
5. Insert the **Thermistor Cartridge** with the wires coming out of the same side as the previous step.
6. Screw down the **M3 x 4mm Grub Screw** part lightly using a **1mm Allen Wrench** to fasten the **Thermistor Cartridge**, but very lightly as the part can go right through the **Thermistor Cartridge**.
7. Screw down the **M3 x 10mm Cap Screw** parts using a **2mm Allen Wrench**, so that the **Volcano Style Heater Block** is secured. Do this evenly by screwing down one **M3 x 10mm Cap Screw** then the other and alternating four times.
8. Screw the **Volcano Nozzle** into the end of the **Volcano Style Heater Block** that does not have wires, until there is 1/2 of a thread exposed.
9. Screw the short end of the **Heat Break** into the other side of the **Volcano Style Heater Block** until it bottoms out against the **Volcano Nozzle**.
10. Gently secure the **Volcano Style Heater Block** in the **Metal Jaw Vise**, leaving enough clearance to tighten down the **Volcano Nozzle**.
11. Attach the **Heater Cartridge** wires onto the output of the **24v Power Supply** and power on the **24v Power Supply**.
12. Wait two minutes for the **Volcano Style Heater Block** to get hot.
13. Using **Needle Nose Pliers**, hold the **Heat Break** in place while tightening down the **Volcano Nozzle** using the **7mm Socket Wrench**. Make sure that the **Volcano Nozzle** bottoms out against the **Heat Break**, not against the **Volcano Style Heater Block** - the goal is to close the filament flow gap between the **Volcano Nozzle** and **Heat Break**.
14. Once tightened, disconnect the **Heater Cartridge** from the **24v Power Supply**.
15. Wait at least five minutes for the **Volcano Style Heater Block** to cool down to a temperature that is safe to touch.

2. Assemble OSE Universal Gearless Extruder

2.1. Materials

Quantity	ID	Name	Description	Notes
1 part	spring-tensioner	Spring Tensioner Arm	Universal Gearless Extruder Spring Tensioner Arm v1.0.0	3D printed part
1 part	heatsink	OSE Custom Heatsink	Universal Gearless Extruder Heatsink Block v1.0.0	
1 part	608-bearing	608 ZZ Bearing	608 ZZ Bearing v1.0.0	
1 part	extruder-gear	Filament Drive Gear	Mk7 Extruder Drive Gear v1.0.0	
1 part	hot-end-assembly	Volcano Heater Block Assembly	Hot End Assembly v1.0.0	
1 part	extruder-spring	Extruder Spring	10mm Outer Diameter 35mm Long 1.2mm Thick Compression Spring v1.0.0	
1 part	stepper-motor	Nema 17 Stepper Motor	Nema 17 0.5Nm Stepper Motor v1.0.0	
1 part	blower-fan	Blower Fan	24V 5015 Blower Fan v1.0.0	
1 part	40mm-heatsink	40mm Heatsink	Mk7/Mk8 40mm Heatsink v1.0.0	
1 part	40mm-fan	40mm Fan	24v 40mm x 40mm x 10mm Fan v1.0.0	
2 part	m3-30mm-screw	M3 x 30mm Screw	M3 x 30mm Socket Head Cap Screw v1.0.0	
7 part	m3-20mm-screw	M3 x 20mm Screw	M3 x 20mm Socket Head Cap Screw v1.0.0	

Quantity	ID	Name	Description	Notes
1 part	m3-8mm-screw	M3 x 8mm Screw	M3 x 8mm Socket Head Cap Screw v1.0.0	
1 part	active-cooling-height-sensor-plotter	Active Cooling Height Sensor Plotter Part	Universal Gearless Extruder Active Cooling Height Sensor Plotter Part v1.0.0	
1 part	motor-mount	Motor Mount Part	Universal Gearless Extruder Motor Mount Part v1.0.0	

2.2. Procedure

2.2.1. Assemble the Extruder!

Required Parts

- 608 ZZ Bearing
- OSE Custom Heatsink
- Spring Tensioner Arm

Instructions

1. Hello World! 608 ZZ Bearing

3. Assemble D3D Pro 3D Printer

3.1. Materials

Quantity	ID	Name	Description	Notes
1 module	universal-gearless-extruder	OSE Universal Gearless Extruder	OSE Universal Gearless Extruder v1.0.0	

3.2. Procedure

3.2.1. Throw OSE Universal Gearless Extruder out the window

Required Parts

- OSE Universal Gearless Extruder

Instructions

1. Hello World!