

Objet30 Prime 3D Printer & WaterJet

Training Manual

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Introduction:

Objet30 Prime is the world's most versatile 3D printer with a plethora of material choices required for 3D printing products with wide range of characteristic materials. The Polyjet 3D printing technology involved in it offers you the capabilities to build strong, smooth, fine (micron-level tolerances), and aesthetically pleasing products. The support material facilitates in ensuring accuracy by forming a removable bottom layer and supportive overhangs around the printed product. The support can be removed after the printing product either manually or in the waterjet machine.



Material Choices:

Objet30 Prime can be used to build products using a diverse set of materials. The following table correlates the desired features to the type of material to be used:

Feature	Material
Rigid Opaque (available colors)	Vero Family (white, gray, blue, black)
Transparent	RGD720 and VeroClear
High Temperature	RGD525

Simulated Polypropylene	RGD450 (Rigur) & RGD430 (Durus)
Rubber	TangoGray or TangoBlack
Biocompatible	MED610

Contact Dr. Logsdon or Design Studio TA's about the availability of these materials

Technical Details:

Maximum Build Size (XYZ)	294 x 192 x 148.6 mm
Resolution	X-axis: 600 dpi; Y-axis: 600 dpi; Z-axis: 1600 dpi
Accuracy	0.1 mm (0.0039 in); varies depending on part geometry, size, orientation, material, and post-processing method
Build Modes* <i>High Speed mode should be good enough for most projects</i>	Draft (36 micron); High Speed (28 micron); High Quality (16 micron)
Minimum Layer Thickness	28 microns (0.0011 in) for Tango materials; 16 microns (0.0006 in) for all other materials

Requesting a Print Job:

1. Get permission from Dr. Logsdon
2. Email DSTAs at jhu.bme.objet@gmail.com with:
STL files (including units of measurement)

Type of material

Number of copies to be printed

Matte/glossy finish (only one side of the part can be glossy)

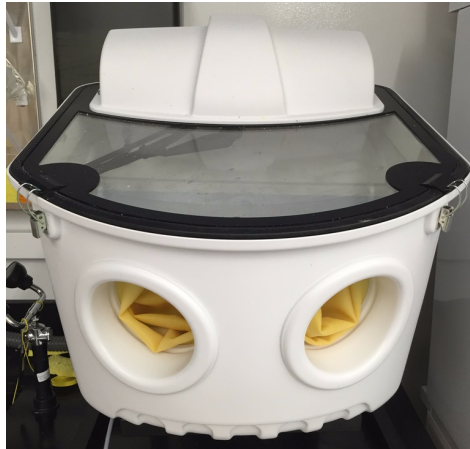
3. Will try to respond to email within 24 hours and print parts within 1 week*

**Times may vary depending on what material you choose and what material is currently loaded on the printer.*

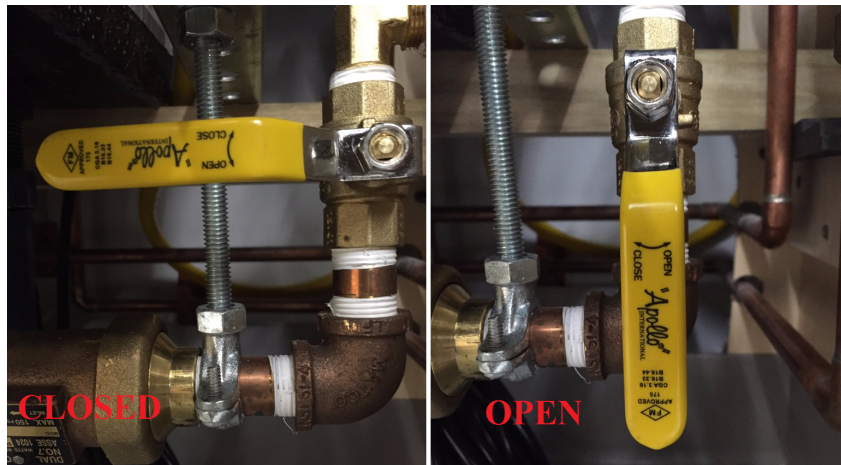
4. Once parts are printed, you will receive an email confirming where you can pick up your part

Cleaning Your Part(s):

You are responsible for cleaning your part(s). You must be trained in order to use the waterjet machine. Before cleaning your part with the waterjet, remove as much support material as you can with a tool (i.e. spatula, pick, etc).



1. Open the top latches of the cabinet and insert your part. Close the cabinet lid and close the latches.
2. Turn on the cabinet using the switch on the left rear of the cabinet. The light should turn on.
3. Turn the water valve under the sink to the “open” position.





4. Use the gloves in the cabinet to hold your part while you wash off any support material with the water jet. Use the foot pedal to control the flow of pressurized water.
 - a. There are two different types of tools located in the cleaning cabinet. The blue line creates a water jet that is more focused and has higher pressure. The black line creates a broader spray at lower pressure. Use the black valve knob, located on the rear face of the cabinet, to switch between these tool options.
 - b. Make sure to **hold onto the proper water line before pressing the foot pedal** (or else the water line goes flying).
 - c. Be cautious as small parts may break if using too high of a pressure.
5. When you're done, turn off the cabinet using the switch on the left rear of the cabinet.
6. Open the top latches of the cabinet and remove your part.
7. Take out tray at the bottom of the cabinet, and throw away scrap supporting material. **Do NOT put it down the drain.**
8. Place tray back in the cabinet. **Keep the cabinet lid open** to let dry.
9. Turn the water valve under the sink to the "closed" position.
10. If you want a cleaner finish, you can soak your part in sodium hydroxide after cleaning with the waterjet to remove residual supporting material.