3D-BIOPLOTTER

envisionTEC

Training Plan Requirements:

Step 1. Create an FOM account at fom-nercf.unl.edu and request access to the 3D Bioplotter by EnvsionTEC

Step 2. Read SOP documentation in full.

Step 3. Schedule a 90 minute training session with the equipment manager // email bioplotter@unl.edu //

Step 4. After at least 72 hours post-training, perform 60 minute demonstration session. Equipment manager will inspect build and equipment logs.

Step 5. Receive day-time Equipment Access for use with low-temperature head.

Step 6. When/If needed, seek additional training from equipment manager for use of high-temperature head, UV head, and platform-temperature controllers.

Equipment Manager:

Kimberly Stanke

bioplotter@unl.edu

kstanke2@unl.edu

810-955-7625 (Call or Text)

Location of Equipment:

Othmer Hall, Room 122

Required Safety Measures:

Closed-toe shoes

Long Pants

No loose strings, ties, or hair

Safety glasses

UV safety-rated glasses (when using UV head)

No food or beverages, including gum

Security Measures:

Othmer 122 door is to remain locked from the outside at all time.

There is N-Card scan access available to trained users.

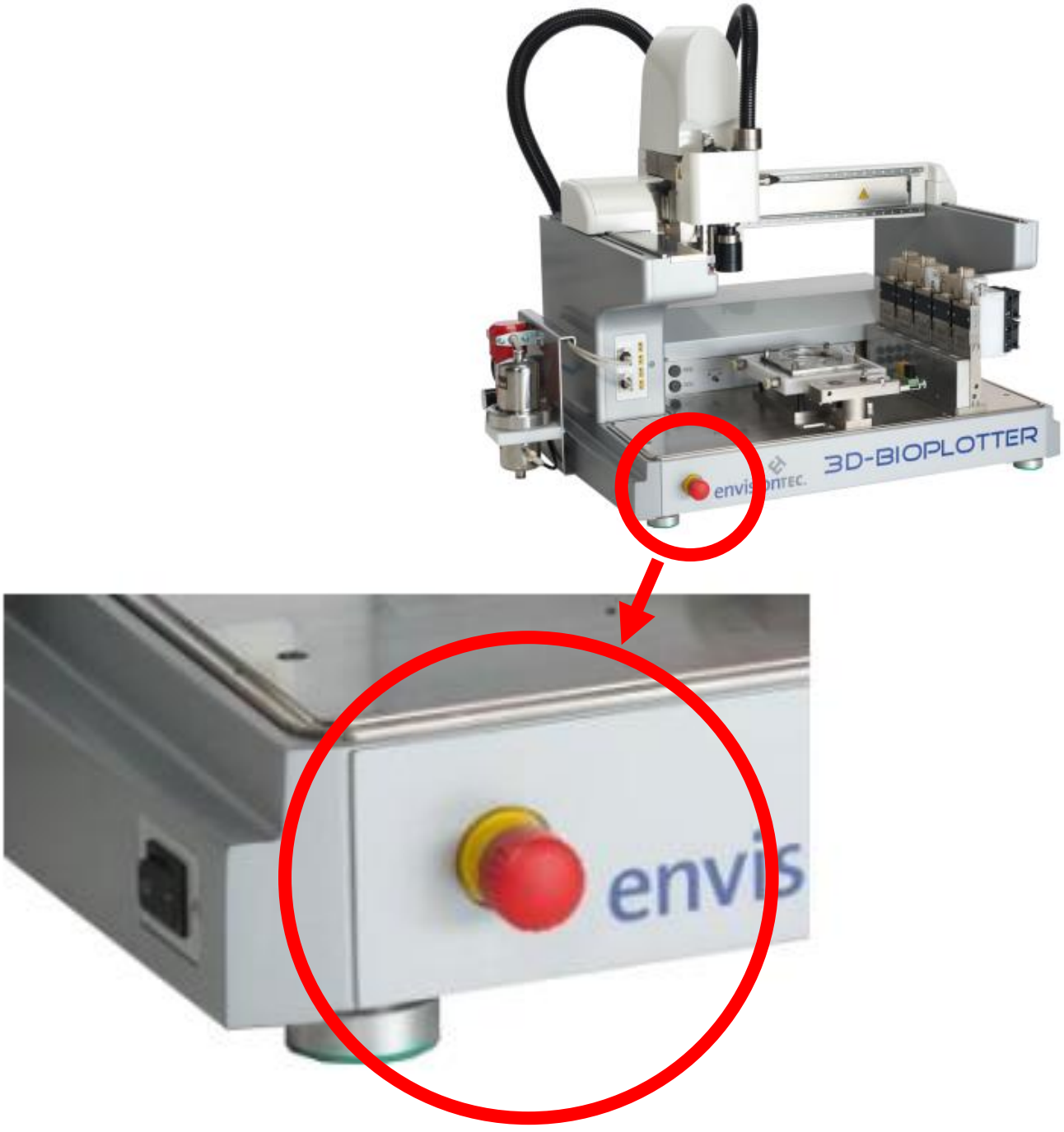
Potential Hazards:

- High Pressure: 6-10 bar pressure during operation. Always wear safety glasses
- High Temperature: Operating temperature up to 250°C. Do not manually handle the heads until cool.
- Magnetic Fields: People with pacemakers, hearing aids or metal implants should not come closer than 0.5 m of the 3D Bioplotter.
- Rapid Movements: Keep all loose objects and body part free of machine.
- Sensitive Electric Components: Handle with care.
- Hazardous substances: Observe relevant MSDS for all materials being used
- UV Radiation: UV wavelength of 365 nm ± 10 nm.

3D Blotter by EnvsionTEC – SOP

Lesson 1: Emergency Stop Button.

If at any time you need to stop the machine, the emergency stop button is located on the left side of the machine near the power switch. To activate, firmly press (“Smack”) the large red button. This immediately stops the machine.

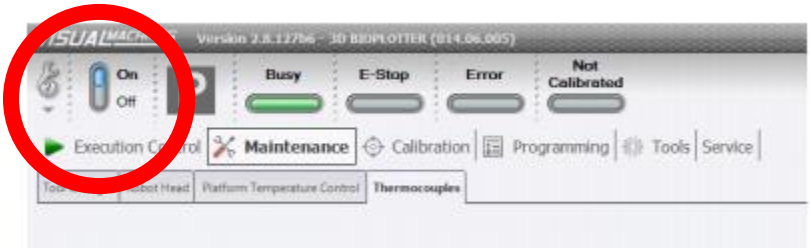


Lesson 2: Turning Everything On.

Step 1. Turn on air compressor to the “auto” setting. Wait 30 seconds to allow pressure to build.

Step 2. Turn on 3D Bioplotter and allow the machine to initialize. Takes about 2 minutes.

Step 3. Initialize the 3D Bioplotter Software “Visual Machines”. Once open, initialize the connection between the machine and the software by clicking the pill button **once**.



Step 4. Initialize 3D design software “Perfactory”

Lesson 3: Become Familiar With the Components

Observe the requirements of the low temperature head:

The LTV-Dispense-Head is designed to take 30cc PE cartridges with Luer-Lock needles. The mount for the cartridges is prepared for liquid-cooling/-heating within a temperature range of 0°C – 70°C.

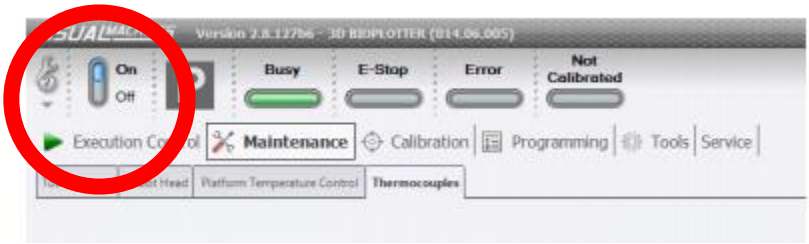
To attach the syringe barrel to the blue adapter, push the cartridge onto the cylindrical plug and turn it 90° counterclockwise. The syringe should fit easily on the adapter and, while applying pressure, no hissing between both should be hearable.

Image: Low temperature head.

Lesson 4: Turning Everything Off.

Step 1. Close 3D Design software “Perfactory”

Step 2. Sever the connection of the machine and computer in “Visual Machines” by clicking the blue pill button **once.**



Step 3. Turn off the 3D Bioplotter Machine.

Step 4. Turn off the air compressor.

Step 5. Ensure the table area is clear and make sure the door is locked.