



Workshop handout

Introduction to 3D printing with SLA technology

HELLO!

In this one and a half-hours workshop you will learn how to use a SLA 3D printer. This technology allows you to produce high-definition and high-quality 3D printed models with different types of photo-reactive resin material. By the end of the session, you will have gone through the whole production process of a SLA printed piece: from preparing your data, to printing and post producing an object, and you will be able to work independently with SLA 3D printers.

This handout compiles the most relevant information about SLA printing. We encourage you to always come back to this material in case you have any questions regarding the use of the technology and the machinery.

YOUR LEARNING OUTCOME

During this workshop you will learn how to:

- Design geometries suitable for prototyping with a SLA Printing
- Understand the difference between SLA and FDM Printers
- Prepare your 3D file using Formlabs Preform slicing software
- Use the Formlabs Form 2 and Form 3 3D printers



3D Print SLA at MotionLab.Berlin – Form 2

Machine Specifications:

Technology	Stereolithography (SLA)
XY Resolution	25 microns
Laser Spot Size	140 microns 0.0055 inches
Laser Power	One 250 mW laser
Build Volume (W x D x H)	14.5 × 14.5 × 18.5 cm 5.7 × 5.7 × 6.9 in
Layer Thickness	25, 50, 100 microns 0.001, 0.002, 0.004 inches

System Requirements for Preform
Windows 7 (64-bit) and up
Mac OS X 10.12 and up
OpenGL 2.1
4 GB RAM (8 GB recommended)



Filetypes
.STL and .OBJ file input
.FORM file output

3D Print SLA at MotionLab.Berlin – Form 3

Machine Specifications:

Technology	Low Force Stereolithography (LFS) [™]
XY Resolution	25 microns
Laser Spot Size	85 microns
Laser Power	One 250 mW laser
Build Volume (W x D x H)	14.5 × 14.5 × 18.5 cm 5.7 × 5.7 × 7.3 in
Layer Thickness	25 – 300 microns .001 – .012 in



Safety measures and work routine

- Work clean: plan your routine in advance
- Wear gloves and work clothes when dealing with the resin or resin affected surfaces
- Prepare space on the table and paper towels before handling the resin
- Check the mirror and glass below the tray for cleanliness before starting a print
- Make sure the build platform does not drip onto the glass when removing the tray

Flammable! Form Wash uses Isopropyl alcohol (IPA)!

Organizing the Print Job

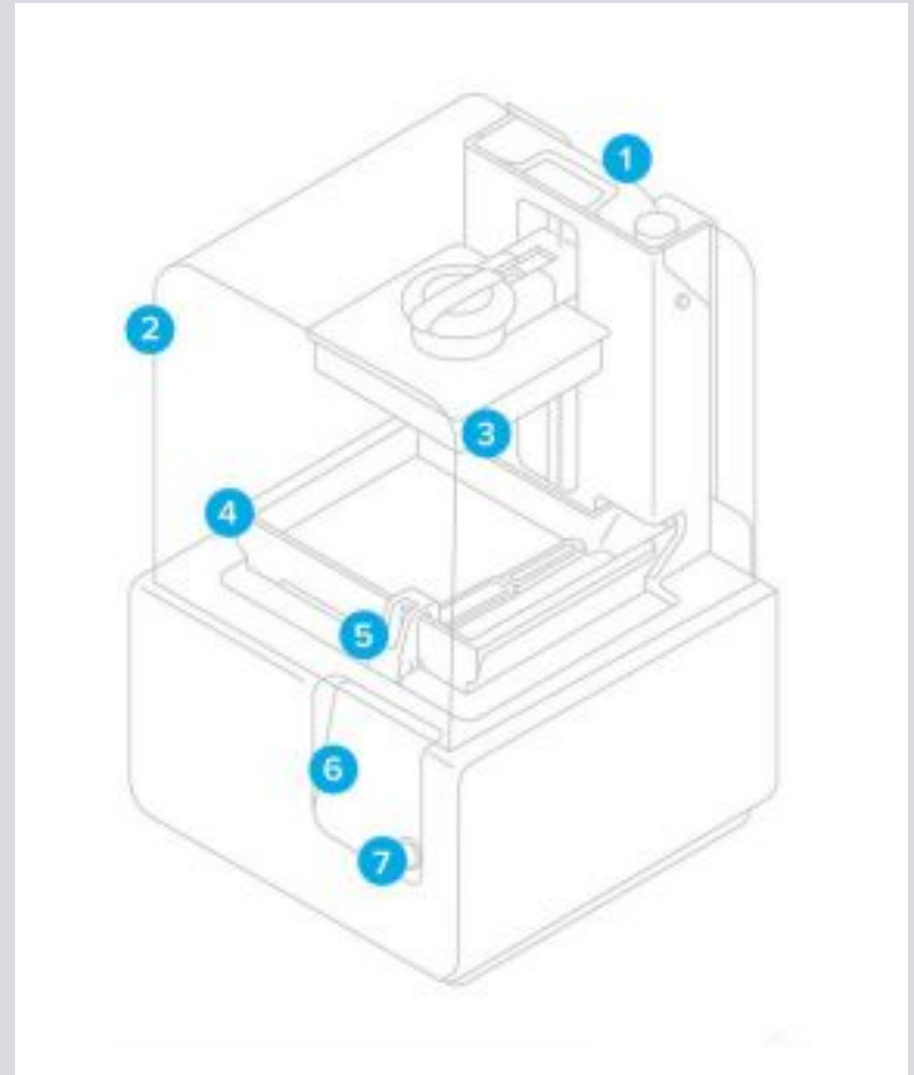
Booking: You must be a member of MotionLab.Berlin.

- Book the printer on our membership platform
- Resin and tank can be bought at Formlabs (we have a discount code for Formlabs)
- Buy material from MotionLab.Berlin: Please ask at the frontdesk. The amount used will be charged.

We only offer standard grey resin “Grey V4” with the Form 3 tank → 0,18€/ml. Please send a Slack message to Paul Marx if you used resin from us

Handling of both printers

- If machine is power plugged, press button (7) to turn on.
 - Check cartridge (1) on the back of the cover (2), open cartridge lid.
 - Open cover and take off the safety cover of the resin tank (4).
 - Use wiper (5) once before moving on to the UI screen.
- Note: Form 3 does not have a wiper.
- Printer components: Cartridge, 2. Cover, 3. Build platform, 4. Resin tank, 5. Wiper, 6. Touchscreen, 7. Button.
 - External tools: Pliers, Spatula.



Navigating through UI screen (6)

- Check connection to the network of MotionLab.Berlin in order to get your file on the printer.
- Alternatively, use the USB cable of the machine to transfer the GCode from your computer.
- From the main printer menu, select your file and start it. The machine will warm up the build platform (3) before starting the print.

3 step washing cycle

Labels on station:

“1st Washing Station” for rough wash with TPM

“2nd Washing Station” for auto wash with IPA

“3rd Washing Station” in 2nd FormWash (IPA)



ALMOST THERE!

NOW, PARTICIPATE FROM
THE LIVE WORKSHOP AND START
WORKING ON YOUR PROJECTS!

**DID YOU LIKE THE CONTENT OF THIS WORKSHOP
AND YOU ARE STILL NOT A MEMBER?**

Join our ecosystem and make your ideas come to life!

Reach out to our colleague [Matthew](#)

Or sign up for our [newsletter](#) to learn about the upcoming
workshops and events.

Note:

This is a living document, which
may experience changes as our
labs evolve.

If any of the links don't work,
please report it to

info@motionlab.berlin

