
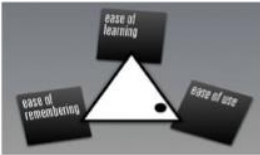
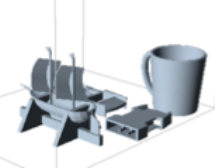
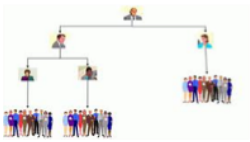



# blueprinter®

empowering people to create



# Value proposition

	<b>Price Point</b>	The technology enables BluePrinter to produce 3D printers at a fraction of the price of similar printers. Lowest Cost of Ownership in the market
	<b>Ease of Use</b>	The printer has been designed so no or little training is required. No special software is needed – just a web browser.
	<b>Any shape and Multiple Parts</b>	BluePrinter can print multiple complex parts at the same time. No limitations to the shape of the part
	<b>Decentralize Office Printer</b>	BluePrinter decentralizes 3D printing by moving the printer from the central lab to the office/department
	<b>Unused powder 100% recyclable</b>	BluePrinter can re-use all unused powder without mixing it with new "virgin" powder

# Machine overview

## How does it work?



# The patented Technology SHS™

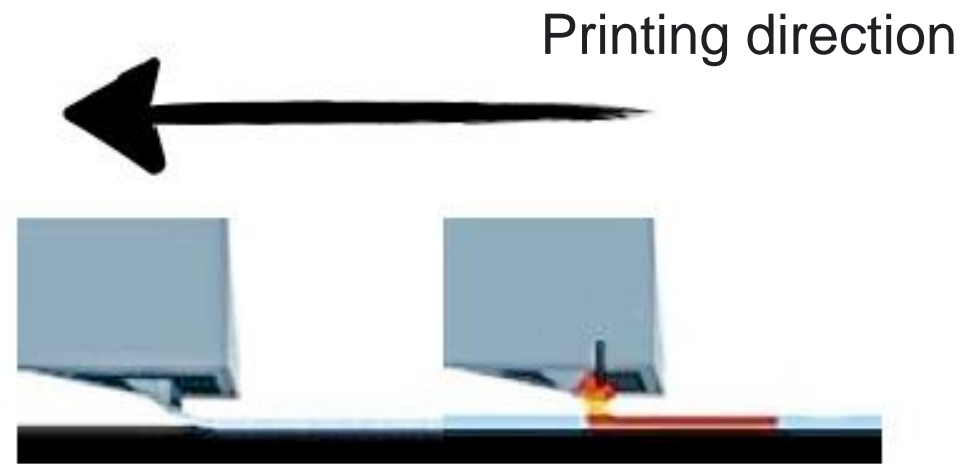
The Thermal Print Head used for printing is an "off the shelf" very robust product used in cashiers found in all supermarkets



SHS™ Selective Heat Sintering

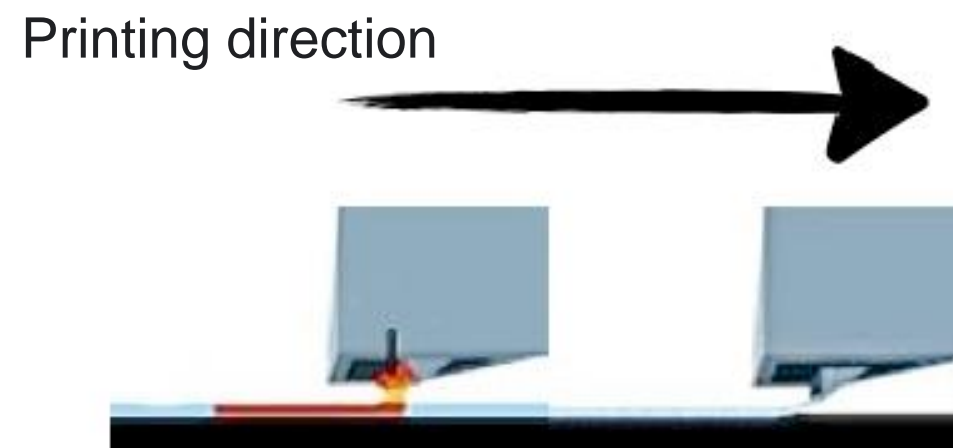
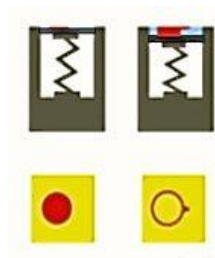
# The printing process

1.  
0.1 mm thin layer of  
powder is being laid  
out in-front of the print head



2.  
The Thermal Print Head moves over  
the powder  
and melt the shape in  
the powder

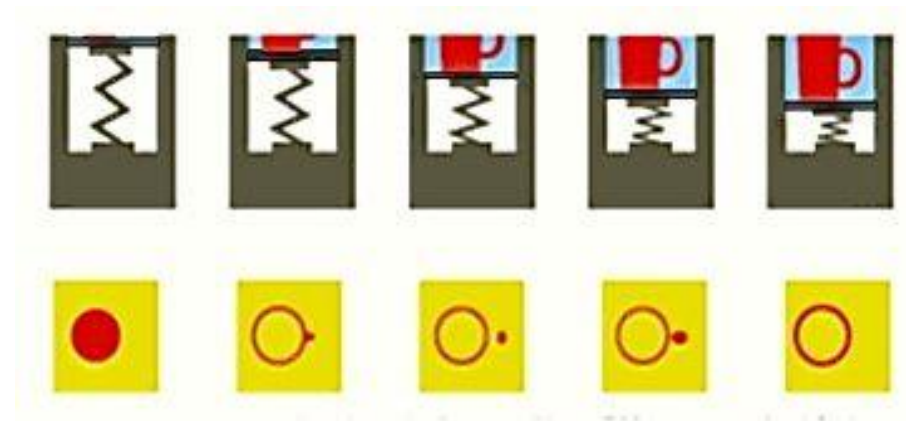
3.  
When the shape  
in the first layer  
has been melted,  
the piston moves  
down 0.1 mm



4.  
The process starts again with  
laying out a new 0.1 mm layer  
of powder and the print head  
melts the next layer

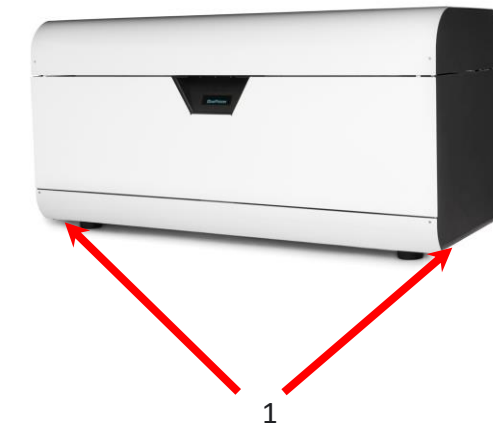
# Process Complete

5. When the last layer has been melted, the non-melted power is being removed using the cleaning station, and the printed object is finished.



# Transport, position and set up printer

- **Position the printer**
- The printer weighs approximately 125 kg. The printer is delivered on a pallet. Do not lift the printer manually. Use a fork lift or other lifting aids. Keep the printer horizontal during lifting. Use the **handles (1)** on each side of the printer to adjust the placement of the printer.
- If you move the printer after the first installation, empty the powder containers before transporting the printer.
- **Setup the printer**
- Connect the printer to a grounded electrical outlet with the supplied power cable.



1. Ethernet connector
2. Power switch
3. Power cord connector

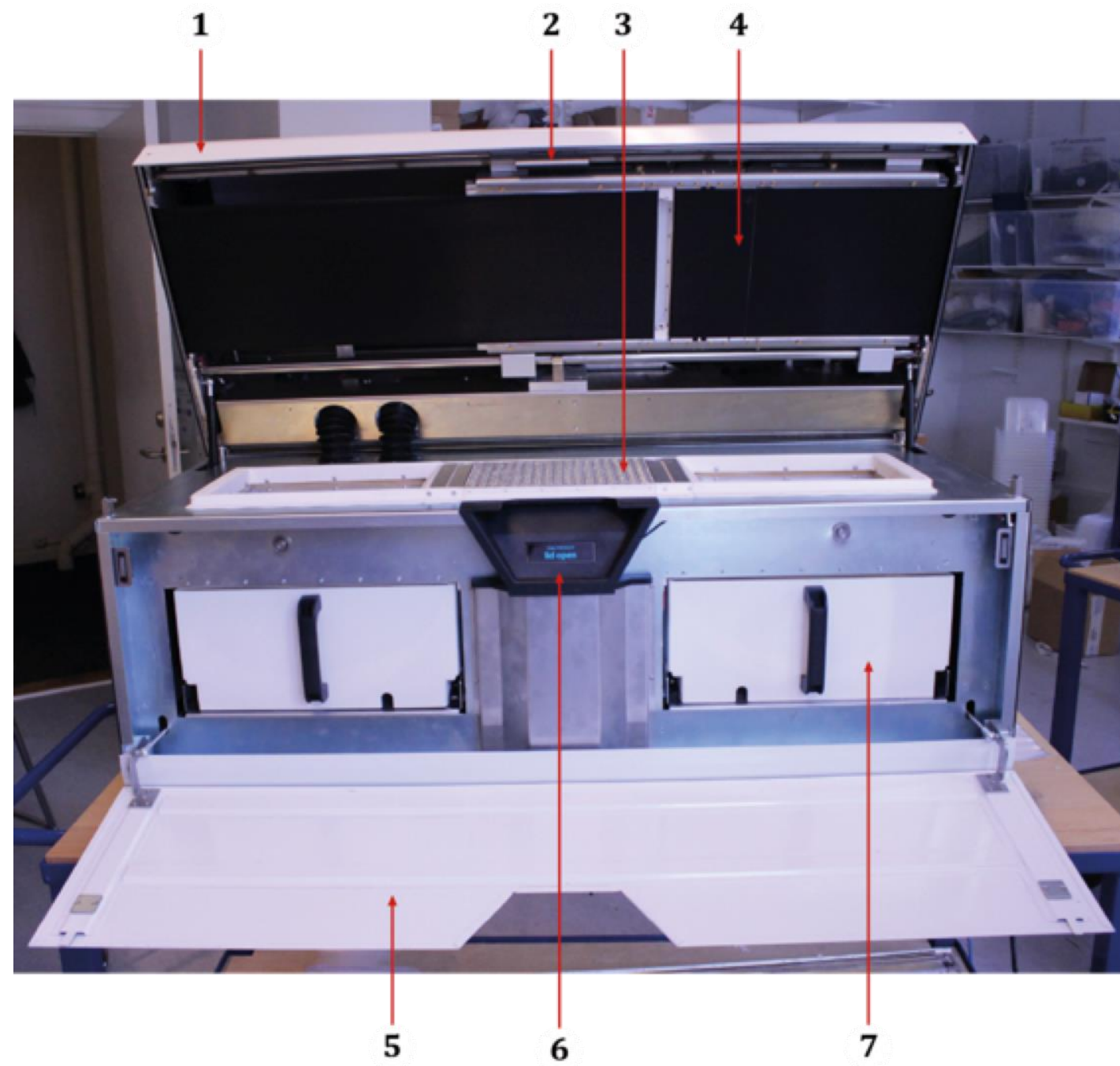




# Machine overview



1. Top lid
2. Handle
3. Build chamber
4. Protective sheet
5. Front lid
6. Printer display
7. Powder container



Need better picture



# User Interface

## 1. Tabs

- Switch between the Layout tab and the Printer tab

## 2. Top menu

- Contains layout and viewing options

## 3. Model list box

- Add, delete and duplicate 3D models

## 4. Control box

- Change the size, rotation or position of a 3D model

## 5. Switch to Manual Nesting

- Switch between manual and automatic nesting mode

## 6. Settings

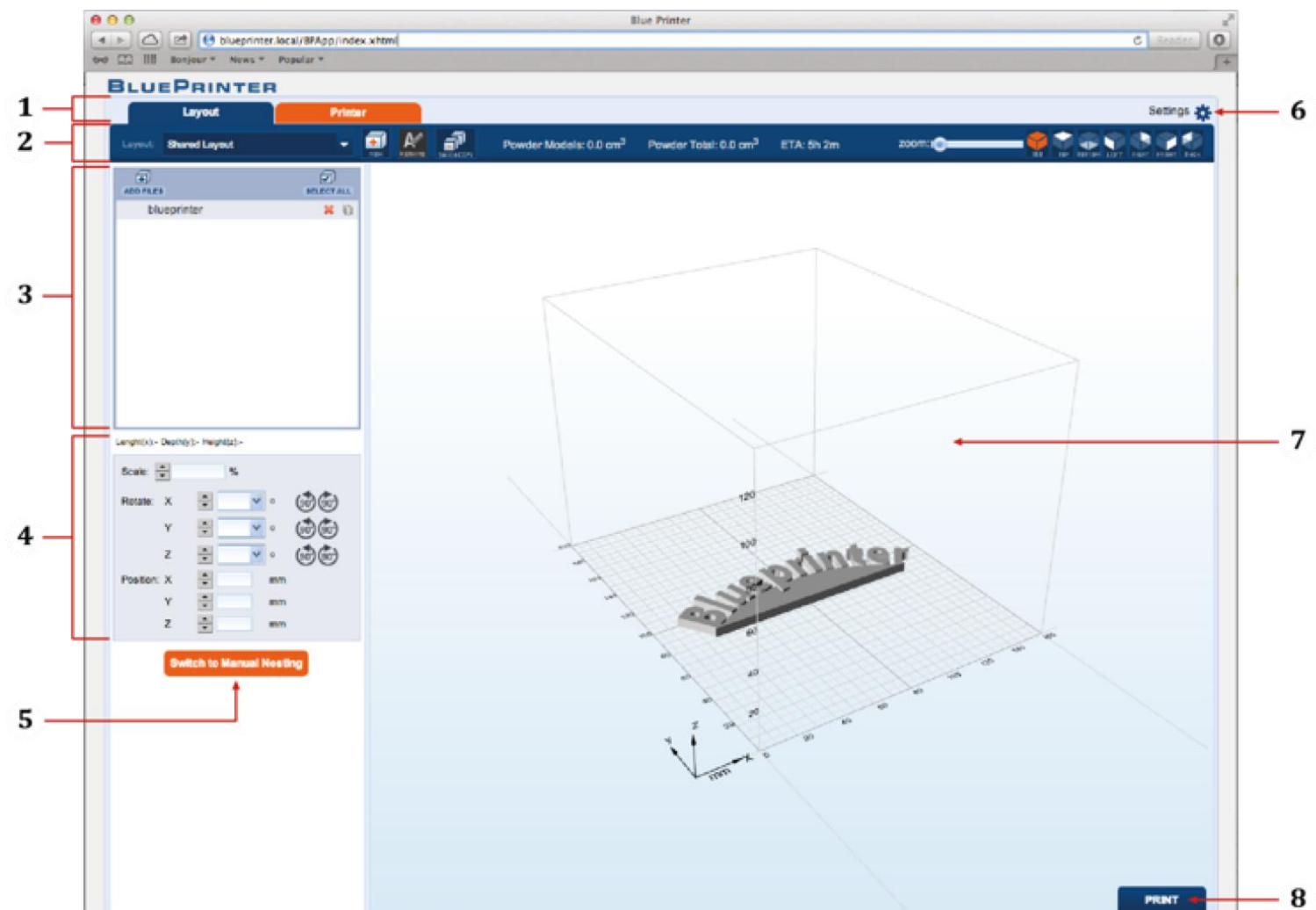
- Change printer settings

## 7. Build chamber view

- Shows how the models are placed in the build chamber

## 8. Print button

- Start a print job

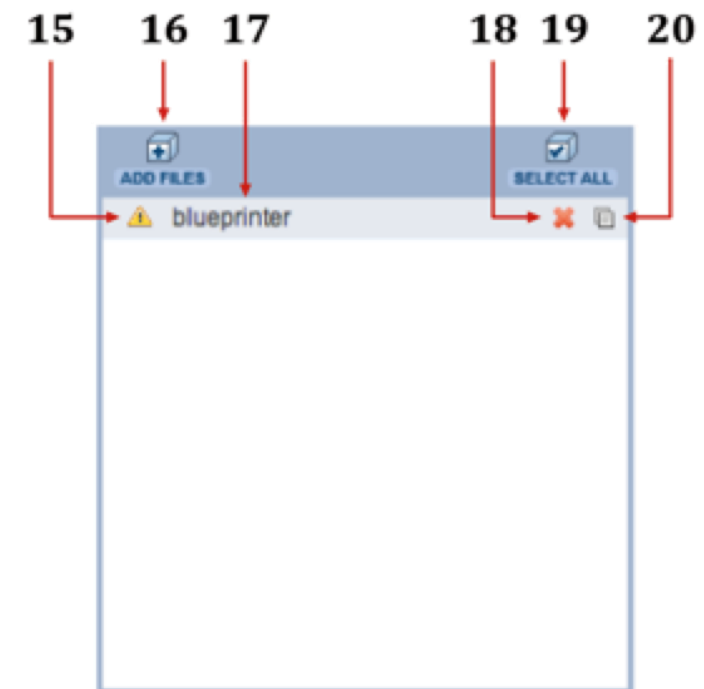


# Top menu



- 9.Current layout
  - Shows the name of the current layout
- 10.New layout
  - Open a new layout
- 11.Rename layout
  - Rename the current layout
- 12.Save a copy
  - Save a copy of the current layout
- 13.Zoom
  - Zoom in the build chamber view
- 14.Build chamber orientation
  - Change the orientation of the build chamber view

- 15.Size warning
  - Indicates that the 3D model does not fit in the build chamber
- 16.Add files
  - Add one or more 3D models
- 17.File name
  - The file name of the 3D model
- 18.Delete
  - Delete a 3D model
- 19.Select all
  - Select all 3D models in the list
- 20.Duplicate
  - Duplicate a 3D model

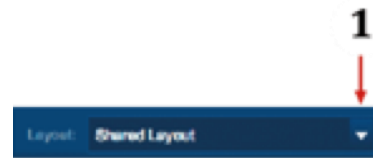


# Manage Layouts

A layout is the arrangement of 3D models in the build chamber. When you open the software, the Layout tab shows the Shared Layout. All users that are accessing the printer software at the same time can add and modify 3D models in the Shared Layout.

- To save a copy of the current layout, click Save a copy.
- To open a new layout, click New Layout. The new layout is not shared.

To open a previously saved layout, click the Layout list (1) in the Top menu and select a layout.



All layouts are automatically saved on the printer.

## Manage layouts

- Click the layout list in the Top menu and select Manage Layouts.
- A window with information about all saved layouts on the printer opens.
- To delete a layout, select it and click Delete.

# Using the user interface software Layout Tab

## **Add a 3D model to the build chamber**

The printer supports the STL file format. Use good quality STL-files. When you open a file, the software repairs minor errors and holes. If there are major errors in the file, it will not be repaired and the printed part will be of bad quality.

- a. Click Add files and select one or more files to open.
- b. The Upload file window opens, and the proportions of the model are shown. Select a unit of measurement for the model and click OK.
- c. The 3D model is shown in the build chamber view.

## **Prepare the 3D model(s) for printing**

### **Automatic vs. manual nesting**

When you add a 3D model to the layout, it is placed in the build chamber in the position that will enable the fastest print. When you add several 3D models they are automatically placed at some distance from each other. If you want more control over the placement of the 3D models, click Switch to Manual Nesting. In the manual nesting mode, you can change the position of the 3D models in the build chamber

Note! In the manual nesting mode, the 3D models can be placed inside of each other, causing the printed parts to merge.

### **Duplicate a 3D model**

To print several copies of a single 3D model, click Duplicate next to the file name in the Model list box.

### **Delete a 3D model**

Click Delete next to the file name in the Model list box.

### **Change the size of a 3D model**

- a. Select one or several of the 3D models in the Model list box.
- b. Enter a percentage in the Scale control in the Control box.

### **Rotate a 3D model**

- a. Select one or several of the 3D models in the Model list box.
- b. In the Position controls in the Control box, enter how many degrees you want to rotate the model on the X, Y, or Z axis. To rotate the 3D model 90 degrees, click the 90° icon.

Note! How the 3D model is oriented affects the surface finish of the printed part. Vertical and horizontal surfaces have a smoother finish than surfaces that are printed at an angle.

### **Move a 3D model in the build chamber**

- e. Select one or several of the 3D models in the Model list box.
- f. In the Position controls in the Control box, enter how many millimeters you want to move the 3D model on the X, Y, or Z axis.

### **Start a print job**

- a. Click the Print button.
- b. To view the printer status, click the Printer tab.

# Printer Tab

- Queued prints
- 2. Shows information about the prints in the queue
- Progress bar
- 3. Shows the time elapsed and the time left until the print is finished
- Stop button
- 4. Stop the print
- Change print order
- 5. Move the print up or down in the queue
- Delete
- 6. Delete the print job from the queue
- Reprint
- 7. Reprint a print job that has failed or been stopped

If the print job cannot start, the job is placed in the print queue. The reason for the delay is stated.

A print job can be queued if

- the printer is busy with another job
- there is not enough powder in the printer
- the printer lids are open
- there is a printed part in the build chamber

The screenshot shows the BluePrinter interface with a print job in progress. The job is titled "Printing layout (Default) (8 Feb 2015)" and has a progress bar showing 51% completion. Below the progress bar is a "STOP" button. At the bottom of the interface is a table of print jobs in the queue. The table has columns for "Name", "Material", "Size", "ETA", "Print volume", "Build volume", and "Printed volume". The table contains three rows of jobs. Red arrows point to various UI elements: 2 points to the job queue table, 3 points to the progress bar, 4 points to the stop button, 5 points to the up/down arrows, 6 points to the delete button, and 7 points to the reprint button.

Name	Material	Size	ETA	Print volume	Build volume	Printed volume
Layout 1 (8 Feb 2015)	0.125g/1.00g	10.00cm <sup>3</sup>	10.00h	10.00cm <sup>3</sup>	10.00cm <sup>3</sup>	10.00cm <sup>3</sup>
Layout 1 (8 Feb 2015)	0.125g/1.00g	10.00cm <sup>3</sup>	10.00h	10.00cm <sup>3</sup>	10.00cm <sup>3</sup>	10.00cm <sup>3</sup>
Layout 1 (8 Feb 2015)	0.125g/1.00g	10.00cm <sup>3</sup>	10.00h	10.00cm <sup>3</sup>	10.00cm <sup>3</sup>	10.00cm <sup>3</sup>

# Cleaning Station





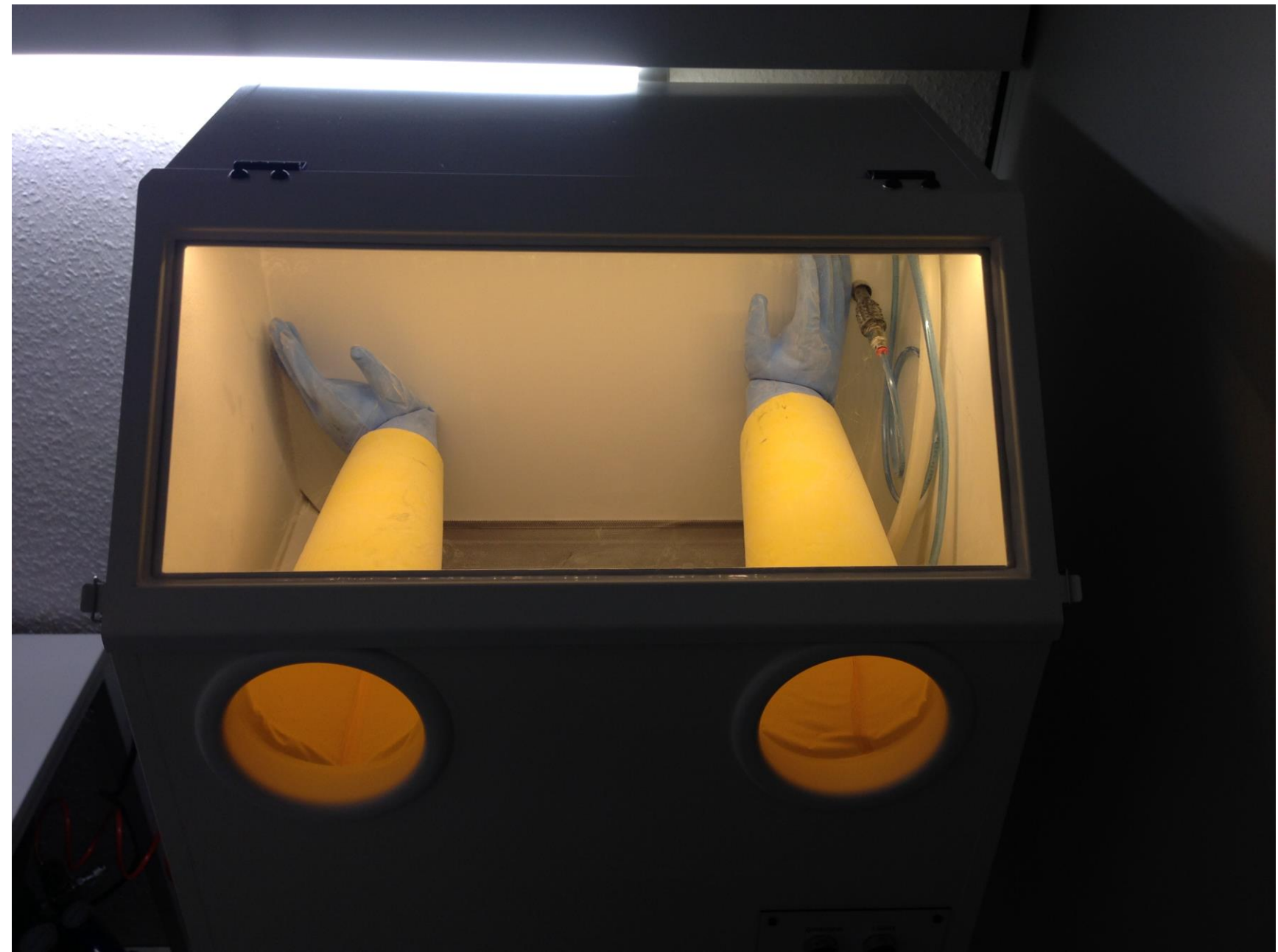
# Cleaning station installation

## Setup the cleaning station

The cleaning station weighs approximately 30 kg, and must be lifted by two persons.

Connect the compressor to the **compressor connector (1)** at the rear side of the cleaning station.

Connect the supplied power cable to the power cord connector) at the rear side of the cleaning station, and to an electrical outlet. **Turn on contact (2)**



# Printing the first part

## Fill the printer with powder

To avoid powder dust, we recommend that you fill the printer's powder containers inside the cleaning station. When you clean the finished parts in the cleaning station, excess powder is collected and can be reused. When you fill the printer with new powder, first put the powder in the cleaning station, and then fill the printer's powder containers.

## Fill the cleaning station with new powder

- a) Place the unopened powder can in the cleaning station and close the lid with the snap locks.
- b) Place your hands in the gloves and open the powder can inside the cleaning station.
- c) Empty the powder can into the cleaning station.
- d) Follow the instructions in [Fill the printer with reused powder](#) on page 16 to fill the powder containers in the printer.

## Fill the printer with reused powder

- a) Open the front lid of the printer and remove the left powder container.
- b) Place the powder container in the slot in the cleaning station.
- c) Fasten the powder container with the handle.
- d) Drag the slider towards you to dispense powder.

**Note!** A full powder container weighs approximately 6 kg. When lifting the container, use one hand on the handle and one hand under the container as support.

- e) Place the powder towards the rounded side of the powder container.
- f) Put the powder container back in the printer.
- g) Repeat step a) to e) with the right powder container.
- h) Close the front lid.

**Note!** Fill both powder containers with the same amount of powder. Make sure to put back the left powder container in the left container slot with the **notch (1)** to the right. Put the right container in the right slot with the **notch (2)** to the left.



# Setting the printer going

## Prepare the printer

- Make sure that the printer is clean.
- Make sure that there is enough powder in the printer.
- Close the front lid and the top lid carefully.
- When the printer display shows **ready**, the printer is ready to start a new print job.

## Start the software

Open the web browser and type the printer's name or IP address in the address bar.

**Note!** The name and IP address of the printer can be found on the printer display. The default name is “blueprinter.local”.

**Create a layout in the software connected to the machine and press print**

# Printing finished

## The printer display

During a print job, the printer display shows **printing** and the estimated time left. When the printer display shows **printing done** or **please empty chamber**, the print is finished. When the printer display shows **ready**, the printer is ready to start a new print job.

## Remove the finished part from the printer

During the print process, the build chamber is filled with powder. The part is supported by the excess powder during the build. After the build is completed, you need to remove the part and the excess powder from the build chamber. The excess powder can be reused.

- Pull the printer handle towards you and open the top lid.
- Place the remover box on top of the build chamber.
- When the remover box is placed correctly, the build chamber platform is raised.
- When the build chamber is fully raised, push the sliding tray into place at the bottom of the remover box.
- Remove the remover box from the printer.