

**stratasys**  
**F123 Series 3D**  
**Printer for**  
**Professional**  
**Prototyping**



# Stratasys F123 Series 3D Printer for Professional Prototyping User Guide

[Home](#) » [stratasys](#) » Stratasys F123 Series 3D Printer for Professional Prototyping User Guide 

## Contents

- [1 Stratasys F123 Series 3D Printer for Professional Prototyping](#)
- [2 Specifications](#)
- [3 FAQ](#)
- [4 Revision Log](#)
- [5 Safety](#)
- [6 Introduction](#)
- [7 Site Requirements](#)
- [8 Preparing for Installation](#)
- [9 Site Preparation Checklist](#)
- [10 Documents / Resources](#)
  - [10.1 References](#)

**stratasys**

**Stratasys F123 Series 3D Printer for Professional Prototyping**



## Specifications

- Product Name: F123 Series Shared Office 3D Printing System
- Part Number: 401692-0001\_REV\_J
- Manufacturer: Stratasys Ltd.
- Trademarks: F123 Series, F170, F190 CR, F270, F370, F370 CR, GrabCAD, GrabCAD Print, GrabCAD Streamline Pro, GrabCAD Streamline Pro Shield, Insight, FDM

## FAQ

### Q: How often should I perform maintenance on the F123 Series printer?

A: Regular maintenance tasks such as cleaning the print head and platform should be performed according to the maintenance schedule outlined in the user manual. Additionally, monitor the printer for any signs of wear or issues that may require immediate attention.

## Copyright

Copyright © 2017 – 2024 Stratasys Ltd. All rights reserved.

This documentation contains proprietary information of Stratasys Ltd. This information is supplied solely to assist authorized users of this Stratasys 3D printing system. No part of this document may be used for other purposes, and it may not be disclosed to other parties. The specifications on which this document is based are subject to change without notice. No part of this book may be reproduced in any form or by any means, nor stored in a database or retrieval system, without prior permission in writing from Stratasys Ltd.

If this document is distributed as a PDF file, you may print it for internal use.

Part No. 401692-0001\_REV\_J

## Liability

Stratasys shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material. Stratasys makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. It is the responsibility of the system owner/material buyer to determine that Stratasys material is safe, lawful, and technically suitable for the intended application as well as identify the proper disposal (or recycling) method consistent with local environmental regulations. Except as provided in Stratasys' standard conditions of sale, Stratasys shall not be responsible for any loss resulting from any use of its products described herein.

## Trademarks

Stratasys, F123 Series, F170, F190 CR, F270, F370, F370 CR, GrabCAD, GrabCAD Print, GrabCAD Streamline Pro, GrabCAD Streamline Pro Shield, Insight, FDM, and all printer materials are trademarks of Stratasys Ltd. and/or its subsidiaries or affiliates and may be registered in certain jurisdictions. All other product names and trademarks are the property of their respective owners.

## Revision Log

Translations of this guide are updated periodically. If you are consuming a translated version, please check the English version for the latest revision and list of updates.

The following table lists the changes in each revision of this document.

| Revision | Date          | Description of Changes  |
|----------|---------------|---|
| A        | January 2017  | First release of this document.   |
| B        | February 2017 | Updated USB ports and material storage spec.  |
| C        | December 2017 | Added heat output, updated material storage °C temperature and deleted checklist item |
| D        | November 2018 | Added TPU 92A (Elastomer) information   |
| E        | November 2019 | Added Diran and ESD7 information  |
| F        | March 2020    | Added 240V note   |
| G        | March 2021    | Added ABS-CF10 information  |
| H        | May 2022      | Added F190 CR and F370 CR   |
| J        | June 2024     | Added GrabCAD Streamline Pro Shield and Workstation Requirements section              |

## Safety

The following basic safety tips are given to ensure safe installation, operation, and maintenance of Stratasys equipment and are not to be considered as comprehensive on matters of safety. Although the F123 Series printers are designed to be safe and reliable, access to areas of the printer are potentially dangerous.

### Safe Environment

- Connect equipment to a grounded facility power source. Do not defeat or bypass the ground lead.
- Know the location of equipment branch circuit interrupters or circuit breakers and how to turn them on and off in case of emergency.
- Know the location of fire extinguishers and how to use them. Use only ABC type extinguishers on electrical fires.
- Know local procedures for first aid and emergency assistance at the customer facility.
- Use adequate lighting at the equipment.
- Maintain the recommended range of temperature and humidity in equipment area.
- Do not use this product in an environment containing volatile or flammable compounds.

## Introduction

## How to Use This Guide

This guide provides information for selecting an appropriate location for the F123 Series printer. This guide also provides instructions for unpacking and preliminary set-up. Information of particular importance is presented in one of three formats:

- A Warning: indicates a procedure that may cause injury to an operator if the procedure is not followed.
- A Warning: will precede the paragraph of instruction to which it relates.
- A Caution: indicates a procedure that may cause damage to equipment if the procedure is not followed.
- A Caution: will precede the paragraph of instruction to which it relates.
- A NOTE is used to highlight a specific point or to provide an operational tip. While useful, a NOTE does not indicate a procedure that can cause injury or damage if it is not followed.
- A NOTE will follow the paragraph of instruction to which it relates.

## About the F123 Series Printers

The Stratasys F123 Series 3D printers incorporate the latest in innovative technology to provide you with precise prototypes from a CAD design. Stratasys' Fused Deposition Modeling (FDM) technology provides prototype parts, including internal features, which can be used to field-test form, fit, and function. Direct Digital Manufacturing (DDM) allows for the creation of customized end-use parts straight from 3D CAD data. The F123 Series printers feature a servo/belt driven XY gantry with multiple modeling material capability.

## System Components

- The F123 Series Printer
- Material Package(s)
- Welcome Kit (containing documentation on how to download your user guide and common tools for maintaining the printer)
- GrabCAD Print Software Package
- A Computer Workstation (not sold by Stratasys)

## F170 Highlights

- Maximum build area of 10 x 10 x 10 inch (254 x 254 x 254 mm)
- Material Bays: 1 model, 1 support
- Touchscreen Graphical User Interface
- Wi-Fi capabilities
- Three USB ports (2 in front, 1 in back)
- Camera for remote monitoring

## F190 CR Highlights

- Maximum build area of 12 x 10 x 12 inch (308 x 254 x 308 mm)
- Material Bays: 1 model, 1 support
- Touchscreen Graphical User Interface
- Wi-Fi capabilities

- Three USB ports (2 in front, 1 in back)
- Camera for remote monitoring

## **F270 Highlights**

- Maximum build area of 12 x 10 x 12 inch (308 x 254 x 308 mm)
- Material Bays: 2 model, 2 support
- Touchscreen Graphical User Interface
- Auto changeover capabilities
- Wi-Fi capabilities
- Three USB ports (2 in front, 1 in back)
- Camera for remote monitoring

## **F370/F370 CR Highlights**

- Maximum build area of 14 x 10 x 14 inch (356 x 254 x 356 mm)
- Material Bays: 2 model, 2 support
- Insight Software Package
- Touchscreen Graphical User Interface
- Auto changeover capabilities
- Wi-Fi capabilities
- Three USB ports (2 in front, 1 in back)
- Camera for remote monitoring

## **Site Requirements**

Decide where to install the printer based on the following:

1. Space Requirements
2. Environmental Requirements
3. Electrical Requirements
4. LAN Requirements

The F123 Series printers are capable of generating vibrations depending mainly on part build geometry and material characteristics. This consideration will need to be taken into account if locating the printer near vibration sensitive equipment.

## **Physical Specifications and Space Requirements**

### **Dimensions and Weights**

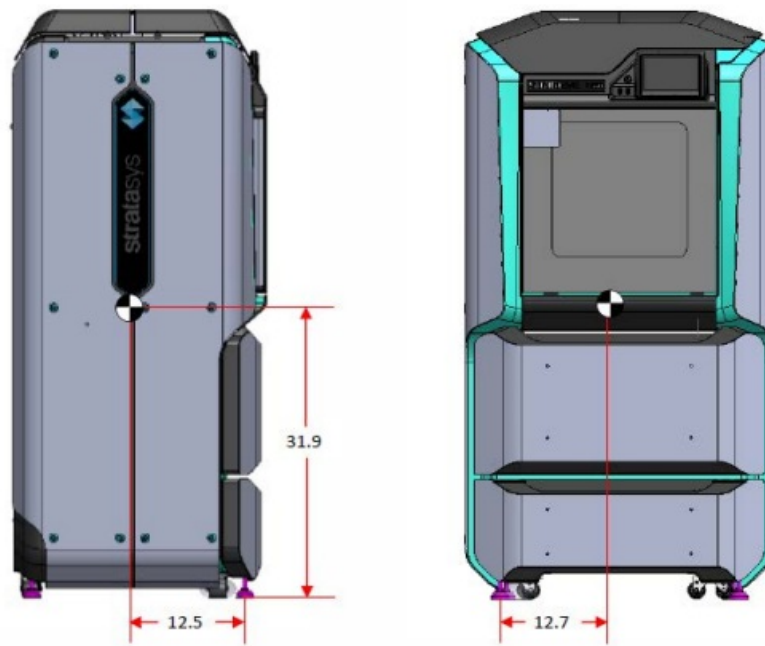
Make sure that the installation site floor space can accommodate the printer's weight and dimensions, plus required clearances.

| Status                    | Dimensions/Weights   |
|---------------------------|--|
| Crated                    | Width: 48 inches (122 cm)<br>Depth: 40 inches (102 cm)<br>Height: 76 inches (193 cm) |
| Uncrated                  | Width: 34 inches (86 cm)<br>Depth: 28 inches (71 cm)<br>Height: 64 inches (163 cm)   |
| Shipping Weight (crated)  | 706 pounds (320 kg)  |
| Printer Weight (uncrated) | 500 pounds (227 kg)  |

[Site Preparation Guide](#)

[Site Requirements](#)

Figure 1: F123 Center of Mass



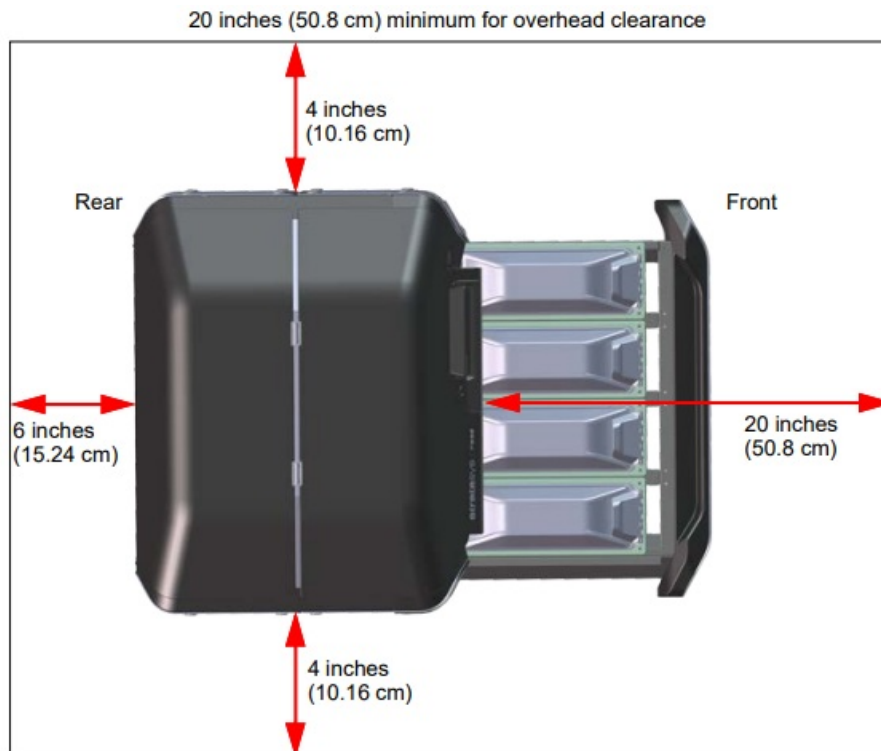
All dimensions are in inches and are taken from the center of the front left leveling foot.

### Minimum Operational Clearances

Sufficient rear and side clearances allow for proper air circulation, while sufficient front clearance allows enough room for the oven door and drawers to be opened.

|                    |  |
|--------------------|--|
| Side Clearance     | Minimum 4 inches (10.16 cm) on each side |
| Rear Clearance     | Minimum 6 inches (15.24 cm)              |
| Front Clearance    | Minimum 20 inches (50.8 cm)              |
| Overhead Clearance | Minimum 20 inches (50.8 cm)              |

Figure 2: Minimum Clearances  
20 inches (50.8 cm) minimum for overhead clearance



## Environmental Requirements

- The F123 Series printer is for indoor use only.
- Air quality conditions with excessive solid particulates (conductive or non-conductive) may result in system damage.
- Air quality conditions in which airborne oils are allowed to accumulate on or within the printer can damage the plastic components.
- System operating temperature shall be in the range of 59°F to 86°F (15°C to 30°C), with relative humidity range of 30% to 70% non-condensing.
- System storage temperature shall be in the range of 32°F to 95°F (0°C to 35°C), with relative humidity range of 20% to 90% non-condensing.
- Altitude shall not exceed 6561.68 feet (2000 m).
- Material storage shall be in the range of 55°F to 86°F (13°C to 30°C), with relative humidity less than 70%.
- Noise emission (acoustic): <32dBA when idle, <46dBA when building

## Heat Output

Heat dissipation occurs mostly through the top of the printer. Heat output is material dependent due to the various temperatures maintained in the build chamber.

| Material Type   | Heat Output (while building) | Heat Output (while idle) |
|-----------------|------------------------------|--------------------------|
| ABS             | ~2300 BTU/hr                 | ~1800 BTU/hr             |
| ABS ESD7        | ~2300 BTU/hr                 | ~1800 BTU/hr             |
| ABS-CF10        | ~2600 BTU/hr                 | ~2200 BTU/hr             |
| PC-ABS          | ~2600 BTU/hr                 | ~2100 BTU/hr             |
| PLA             | ~550 BTU/hr                  | ~35 BTU/hr               |
| ASA             | ~2300 BTU/hr                 | ~1800 BTU/hr             |
| TPU 92A         | ~2300 BTU/hr                 | ~1800 BTU/hr             |
| DiranTM 410MF07 | ~2950 BTU/hr                 | ~2900 BTU/hr             |
| Nylon-CF10      | ~2600 BTU/hr                 | ~2200 BTU/hr             |

## Power Consumption

Power consumption is material dependent due to the various temperatures maintained in the build chamber.

| Material Type | Power Consumption (while building) | Power Consumption (while idle) | Power Consumption (while sleeping) |
|---------------|------------------------------------|--------------------------------|------------------------------------|
| ABS           | 650 W                              | 510 W                          | 10 W                               |
| ABS ESD7      | 650 W                              | 510 W                          | 10 W                               |
| ABS-CF10      | 750 W                              | 650 W                          | 10 W                               |
| PC-ABS        | 750 W                              | 610 W                          | 10 W                               |
| PLA           | 150 W                              | 10 W                           | 10 W                               |
| ASA           | 650 W                              | 510 W                          | 10 W                               |
| TPU 92A       | 650 W                              | 510 W                          | 10 W                               |
| Diran 410MF07 | 850 W                              | 825 W                          | 10 W                               |
| Nylon-CF10    | 750 W                              | 650 W                          | 10 W                               |

## AC Power Requirements

### Printer:

- 50/60 Hz.
- Voltage: 100-132, 200-240 VAC.
- Maximum input voltage variation:  $\pm 10\%$  of nominal
- Current: 15/7A.
- The grounded electrical outlet must connect to either a Euro or a US power cord plug (provided in the Welcome Kit) and must be located within 6 feet (1.83m) of the printer.

### Caution:



A power cable is provided for connecting the printer to the AC electric source. Do not use it with other equipment.

- **GrabCAD Streamline Pro Shield:** A second grounded electrical outlet is required near the printer if a GrabCAD Streamline Pro Shield security device will be installed. This device includes a power adapter that is compatible with an EU or US plug. If this is not the local standard, it is the customer's responsibility to supply a compatible 5-volt / 2-Amp USB-C power adapter.
- Operation of the printer outside this range is not recommended; degradation of performance and shortened component life expectancy will be experienced. Facilities who are unsure of their power quality should contact their service provider.

**Caution:**

Do not use an extension cord or power strip; doing so can result in intermittent power issues. Connect the power cord directly into the receptacle or UPS.

## **LAN Requirements**

If utilizing a LAN connection for communication and file transfer functions, the LAN connection is a 100 base T, Ethernet protocol, RJ45 connector. One 15 foot (4.57 m) CAT6, 10/100 base T cable is supplied with the printer, located in the Welcome Kit. The printer will function in either DHCP or Static IP configurations. A LAN connection is not required however, as the printer is also capable of file transfer via a Wi-Fi connection or a USB flash drive plugged into either of the printer's USB ports. See the F123 Series User Guide for detailed information and instructions on transferring files to the printer.

## **Workstation Requirements**

### **GrabCAD Print**

To use GrabCAD Print software, it is necessary to install GrabCAD Print onto a computer workstation that interfaces with the printer. The workstation must have access to the Internet and to the local network to which the printer is connected, and it must be prepared before printer installation.

For GrabCAD Print workstation requirements, visit: <http://help.grabcad.com/article/195-system-requirements-for-grabcad-print>.

### **GrabCAD Streamline Pro**

For GrabCAD Analyze, an auxiliary computer is required and it must be prepared before printer installation.

For computer specifications, visit: <http://help.grabcad.com/article/262-system-requirements-for-streamline-pro>

### **Insight**

To use Insight software, it is necessary to install Insight onto a computer workstation that interfaces with the printer. The workstation must have access to the Internet and to the local network to which the printer is connected, and it must be prepared before printer installation.

For Insight workstation requirements, visit the Stratasys website.

## **Preparing for Installation**

### **Inspect Crate for Damage**

Before opening the shipping crate, inspect the crate for signs of exterior damage. Report evidence of excessive

damage to Stratasys and the shipping company.

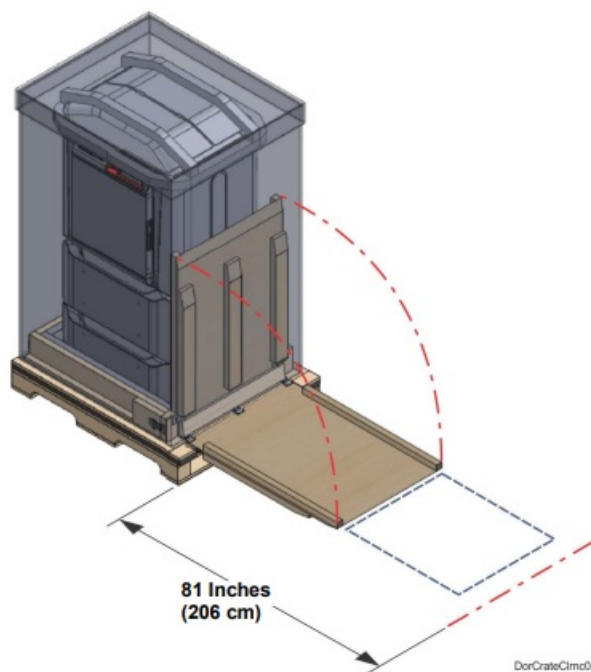
## Required Tools and Equipment

- Basic hand tools (powered screwdriver or drill with Phillips bit).
- Utility knife.
- A pallet jack or forklift may be required to move the system.

## Unpacking the Printer

If you intend to remove the printer from its shipping base via the ramp, make sure that there is at least 81 inches (206 cm) of clearance for the ramp and the printer before you begin the process of unpacking the printer (Figure 3). The printer's shipping base indicates the location of the ramp.

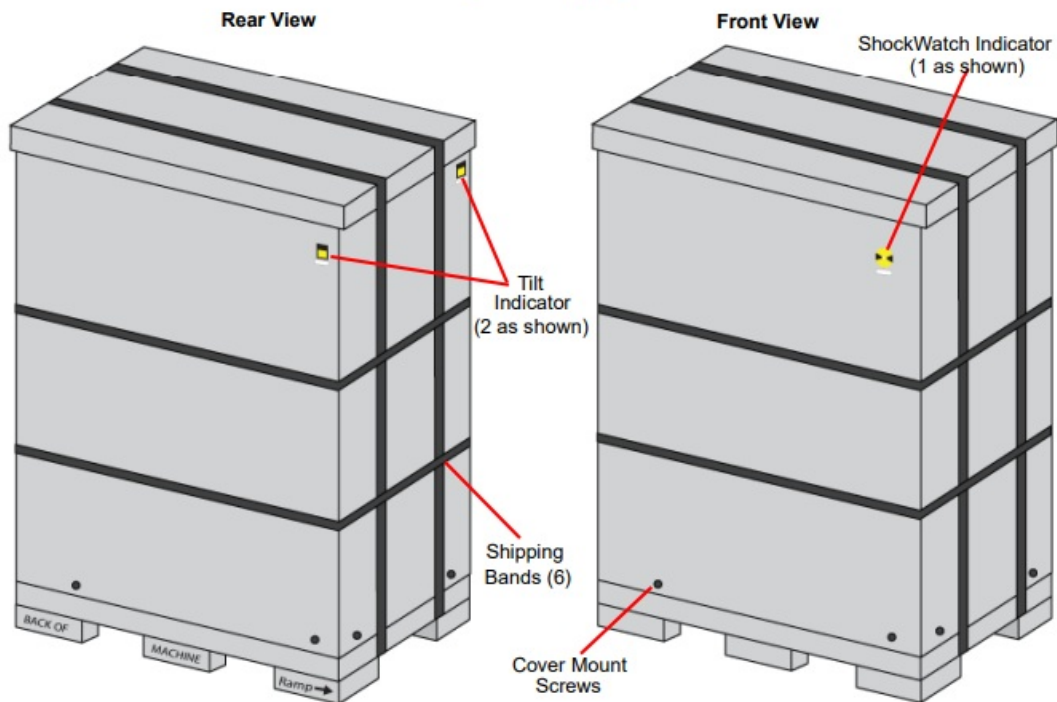
Figure 3: Ramp Clearance



## Remove Shipping Materials

1. Inspect the Tilt Indicators (2) and ShockWatch indicator affixed to the exterior of the cardboard box. If possible, take a picture of these indicators to share with your installation representative. If damage is detected upon installation, this photo will assist your installation representative in determining the cause of damage (Figure 4).
2. Using a Phillips screwdriver, remove the cover mount screws from the base of the crate (Figure 4).

Figure 4: Shipping Crate Detail

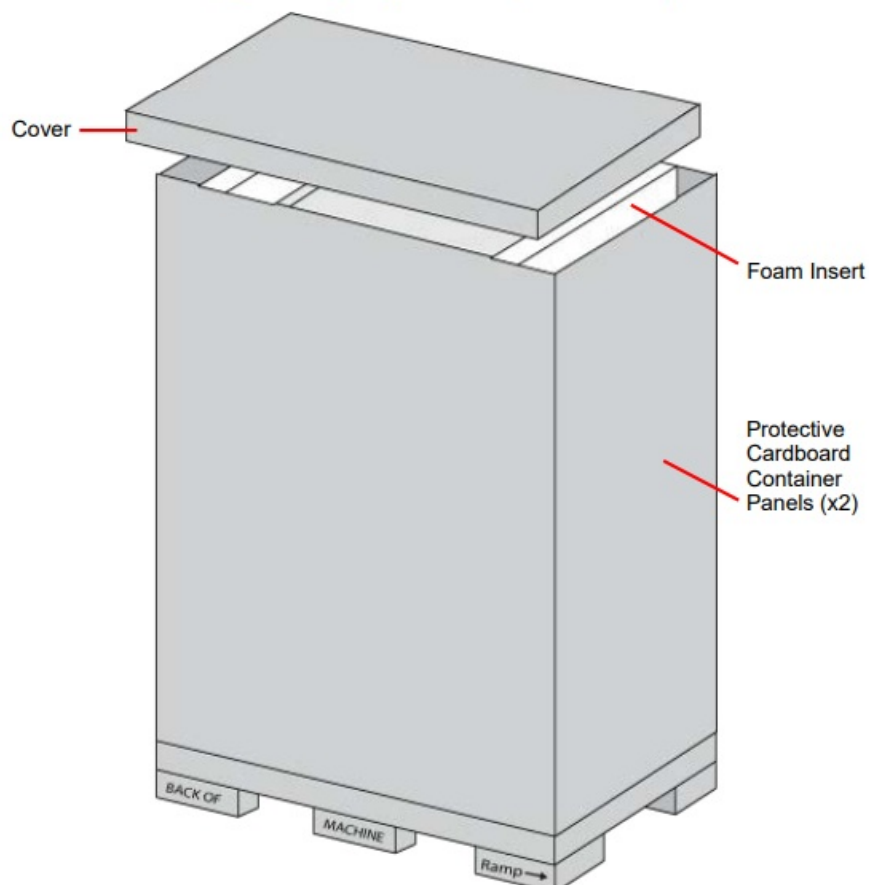


**Warning: Personal Injury Hazard**

Shipping bands are very tight; when cutting shipping bands they may pop open with force. Wear safety glasses when removing the shipping bands.

3. Carefully cut the shipping bands (Figure 4).
4. Remove the cardboard cover from the top of the crate (Figure 5).
5. Remove the 2 protective cardboard container panels encasing the printer (Figure 5).
6. Remove the foam restraining insert from the top of the printer (Figure 5).

Figure 5: Unpacking the Printer (cover removed)



7. Remove the printer from the shipping base, this can be done using a fork lift (see “Remove Printer from Shipping Base – Fork Lift Instructions” (page 14)) or manually via the use of a ramp (see “Remove Printer from Shipping Base – Ramp Instructions” (page 15)).

### Remove Printer from Shipping Base – Fork Lift Instructions

1. Unlatch the two link locks securing the ramp in a vertical position (Figure 7). Remove the foam insert from the top edge of the ramp and set the ramp aside.
2. Unlatch the link locks indicated in Figure 8 and remove the panels secured by these link locks.
3. Remove all tape and carefully unwrap the printer by pulling the plastic bag downward.

**Caution:**

Use care when cutting the plastic bag to avoid scratching the printer’s surfaces.

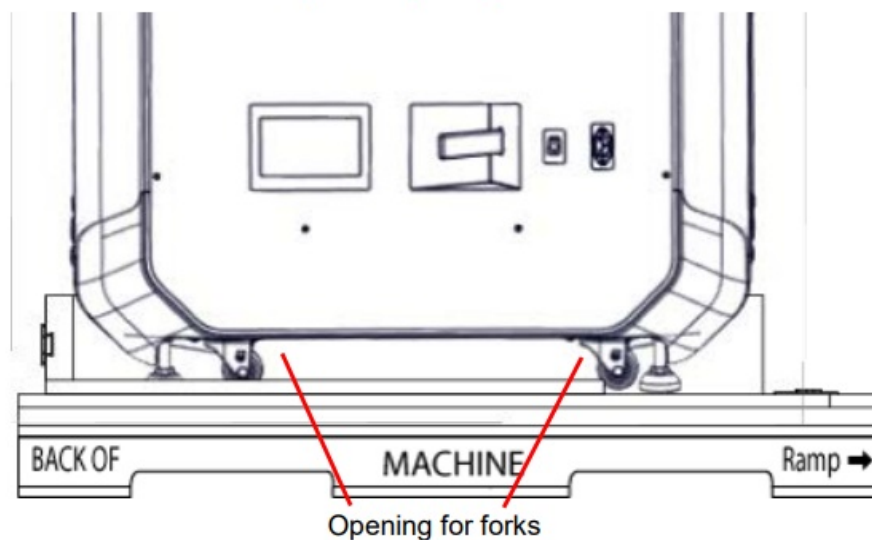
4. Using a utility knife, cut away and remove the plastic bag’s material ensuring that the bag is not blocking the fork lift openings or the printer’s wheels.

**Caution:**

Access the fork lift openings from the back of the printer (Figure 6).

5. Using a forklift, carefully raise the printer vertically and remove the shipping base.

Figure 6: Opening for Forks



6. Gently lower the printer, until it rests on its wheels.
7. Inspect the printer’s exterior for dents and scratches. Immediately report any damage to Stratasys and the shipping company.
8. Roll the printer into its approximate operating location.  
Position the printer to allow at least three feet of clearance on all sides until the installation process is complete, see “Physical Specifications and Space Requirements” (page 4). Refer to Chapter 2 of the F123 Series User Guide for final setup instructions.
9. Open the oven door, cut the cable tie securing the startup materials, and remove the startup materials from the oven chamber.
10. Open the top cover. Cut the zip ties securing the head and X bridge to the front left corner of the gantry.  
Confirm that the toggle plate moves smoothly throughout the gantry.
11. Open the chamber door and remove the orange tape securing the tip wipe assemblies to the purge chute.
12. Remove the protective film covering the Stratasys logo on the side panels.

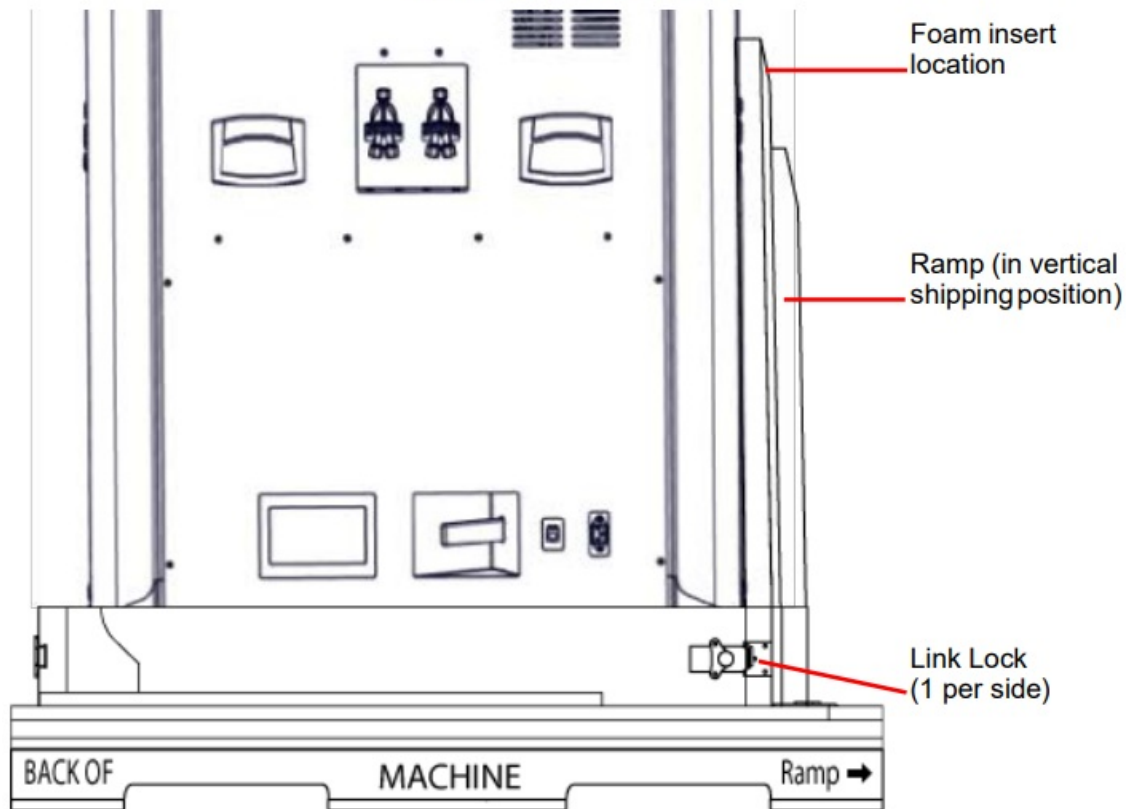
## Remove Printer from Shipping Base – Ramp Instructions

### Warning: Lifting Hazard

Before removing the printer via the ramp, ensure that you have enough manpower to remove the printer from the shipping base, as the printer is heavy (see “Dimensions and Weights” (page 4)). A minimum of 2 capable adults should be used to remove the printer from the shipping base.

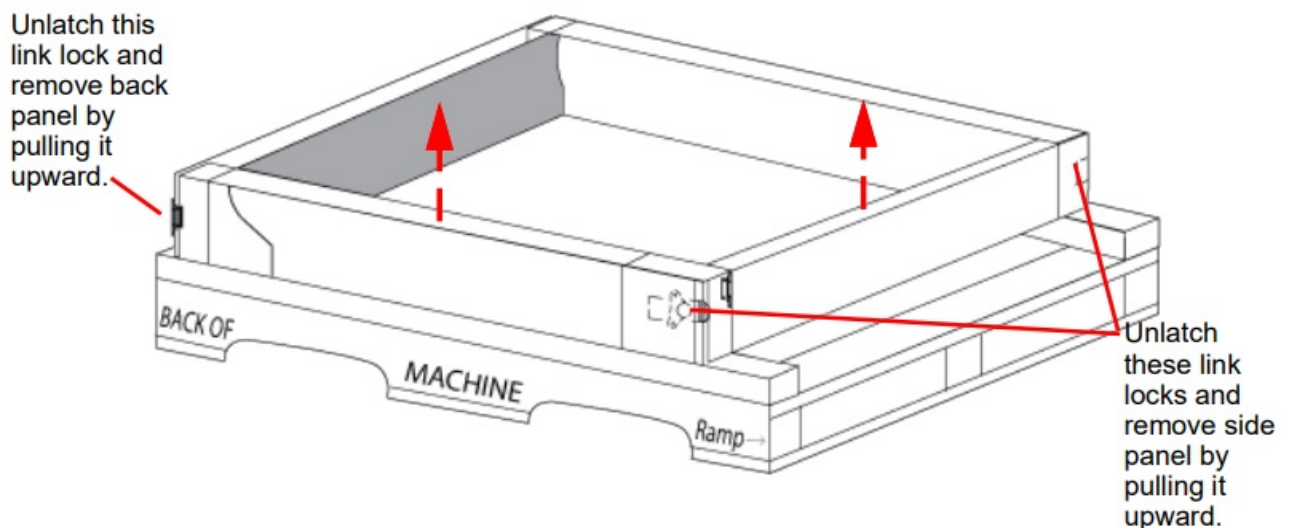
1. Unlatch the two link locks securing the ramp in a vertical position (Figure 7). Remove the foam insert from the top edge of the ramp and set the ramp aside.

Figure 7: Ramp Hardware



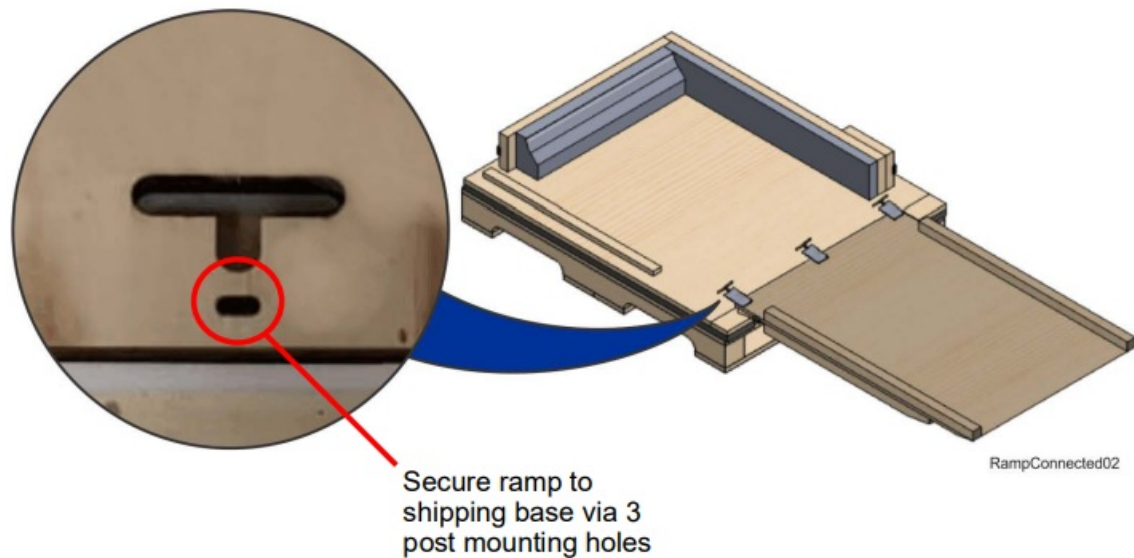
2. Unlatch the link locks indicated in Figure 8 and remove the panels secured by these link locks.

Figure 8: Remove Shipping Base Panels



3. Secure the ramp to the shipping base using the 3 mounting holes on the edge of the shipping base.

Figure 9: Ramp Connected



**Caution:**

Use care when cutting the plastic bag to avoid scratching the printer's surfaces.

4. Remove all tape and carefully unwrap the printer by pulling the plastic bag downward.
5. Using a utility knife cut, away and remove the plastic bag's material. Ensure that the bag is not blocking the exit side of the ramp or the printer's wheels so that the printer can roll freely down the ramp.
6. Make sure that all four stabilizing pads are in the highest possible position.
7. Carefully roll the printer from the shipping base using the ramp.

When removing the printer it is recommended that one person guide each side of the printer.

8. Inspect the printer's exterior for dents and scratches. Immediately report any damage to Stratasys and the shipping company.
9. Roll the printer into its approximate operating location.

Position the printer to allow at least three feet of clearance on all sides until the installation process is complete, see "Physical Specifications and Space Requirements" (page 4). Refer to Chapter 2 of the F123 Series User Guide for final setup instructions.

10. Open the oven door, cut the cable tie securing the startup materials, and remove the startup materials from the oven chamber.
11. Open the top cover. Cut the zip ties securing the head and X bridge to the front left corner of the gantry.  
Confirm that the toggle plate moves smoothly throughout the gantry.
12. Open the chamber door and remove the orange tape securing the tip wipe assemblies to the purge chute.

**Site Preparation Checklist**

**Electrical Installation Requirements**

- A dedicated outlet of 100-132, 200-240 VAC~15-7A 50/60 Hz has been installed.
- The grounded electrical outlet is within 2 meters (80 inches) of the printer.
- The grounded electrical outlet is able to accept either a Euro or US power cord plug.
- If utilizing a LAN connection, the LAN connection is within 4 meters (14 feet) of the printer.

**Environmental Requirements**



- The site's environmental temperature is between 59°F to 86°F (13°C to 30°C).
- The site's environmental humidity is between 30% to 70%, non-condensing.
- The site's altitude does not exceed 6561.68 feet (2000 m).


## Required Installation Tasks

- GrabCAD Print software has been downloaded and installed on the user's workstation PC.
- The Welcome Kit and startup materials have been removed from the oven chamber and storage drawer.
- Verify that the orange clip/tie wrap securing the X belt in place has been removed.
- Verify that the orange tie wrap securing the X motor in place has been removed.

[www.stratasys.com](http://www.stratasys.com)  
[c-support@stratasys.com](mailto:c-support@stratasys.com)

THE 3D PRINTING SOLUTIONS COMPANY

## Documents / Resources

|  |   |
|--|---|
|  | <p><a href="#">Stratasys F123 Series 3D Printer for Professional Prototyping</a> [pdf] User Guide<br/> F170, F190 CR, F270, F370, F370 CR, F123 Series 3D Printer for Professional Prototyping, F123 Series, 3D Printer for Professional Prototyping, for Professional Prototyping, Professional Prototyping, Prototyping</p> |
|--|---|

## References

-  [System requirements for GrabCAD Print - GrabCAD Help Center](#)
-  [System Requirements for GrabCAD Streamline Pro - GrabCAD Help Center](#)
-  [Stratasys - Industrial 3D Printing Manufacturers](#)
-  [System Requirements for GrabCAD Streamline Pro - GrabCAD Help Center](#)
- [User Manual](#)

[Manuals+](#), [Privacy Policy](#)

This website is an independent publication and is neither affiliated with nor endorsed by any of the trademark owners. The "Bluetooth®" word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. The "Wi-Fi®" word mark and logos are registered trademarks owned by the Wi-Fi Alliance. Any use of these marks on this website does not imply any affiliation with or endorsement.