

## User Guide

# FabPro 1000<sup>®</sup>

## User Guide

Rev. D, P/N 45-D32

### Original Instructions



**NOTE:** Use this page to print the User Guide as a whole. Scroll down to the bottom of the page and click the



[Printer-friendly version](#)

button. On the page in the new tab, press ctrl+P (cmd+P on Mac) to print the document.



**NOTE:** Please refer back to [support.3dsystems.com/fabpro/](https://support.3dsystems.com/fabpro/) for the most up-to-date User Guide

# Introduction

Thank you for purchasing the **FabPro™ 1000** 3D printer.

The FabPro 1000 is a flexible and efficient, projector-based 3D-printing system that produces high-fidelity parts from a broad range of materials. The printer uses a projector-based radiation source for an inverted printing system that enables very high print speeds and new material chemistries that provide production-grade properties. Applications include communication of 3D shape, assembly prototyping, physical testing, and more.

These parts are generated in the rapid prototyping (RP) environment under the control of the printer operators. The system must be run by technicians who are trained in proper usage of the printer and materials. All design and process considerations are compatible with a RP environment. The three-dimensional solid parts that are printed consist of an ultraviolet (UV) curable material. The operator pours print material, also called "resin," into the print tray. Using a proprietary radiation projector that 3D Systems has developed, a UV-radiation pattern is cast onto the underside of the print tray and through to the bottom of the material. This UV radiation causes a phase change in the material that converts it into a solid polymer, making it adhere to the print platform. After a layer has cured, a motor tilts the print tray to peel the bottom of the printed part off the print-tray film. Then the elevator moves the print platform up by one layer length. Then the UV pattern for the next layer is projected. This process repeats, layer by layer, until the build file is complete. The print platform, along with the part, is removed from the printer and the part is cleaned and post-cured to provide a finished part.

This manual provides users with an understanding of features, system requirements, and operating procedures needed to create finished parts using the FabPro 1000.

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## End User License Agreement (EULA)

You can view or download the EULA for the FabPro printer's embedded software here: [FabPro 1000 EULA.docx](#)

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### United States

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy. If it is not installed and used in accordance with these instructions, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

### Canada

CAN ICES-3 (A)/NMB-3 (A)

### European Union



**CAUTION:** This is a Class A product. In a domestic environment, this product can cause radio interference in which case the user could be required to take adequate measures.

### Korea

#### 사용자 안내문

이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.



**NOTE:** Changes or modifications to this equipment not specifically approved by 3D Systems may void the user's authority to operate this equipment.

## Important Safety Information



**CAUTION: IMPORTANT SAFETY INSTRUCTIONS – READ AND FOLLOW THESE INSTRUCTIONS BEFORE OPERATING PRINTER.**

## Introduction

You must read all manufacturer documentation before operating the printer. Also, anyone assisting you must have also read the documentation. After reading all the manuals, always follow the safety guidelines and procedures in this section when operating the printer.

## Customer Safety Program

Before using the printer, customers must have a safety program in place. The safety program should do the following:

- Label and point out hazardous equipment, materials, and procedures.
- Explain what to do in an emergency situation.
- Provide information about the hazards of equipment and materials in the form of Safety Data Sheets (SDS). The SDSs are provided with all print materials supplied by 3D Systems.

The information in this chapter supplements the customer's existing safety program. It points out safety considerations that specifically concern the printer.

## Levels of User



**WARNING: DO NOT ATTEMPT TO PERFORM ANY PROCEDURES DESCRIBED IN THIS MANUAL UNLESS YOU HAVE READ THROUGH THE ENTIRE MANUAL FIRST.**

There are two levels of users of the printer, based on the amount and type of training the user has received. The two levels of users (operators and depot repair personnel), are described below.

### Operator

Those who have purchased the printer and have read all printer manuals. The operator may print a 3D part and perform simple printer service tasks, as outlined in this guide. Operators 18 and under must be supervised.

### Certified Service Personnel

Certified service personnel are those who have completed the 3D Systems service training package, and are certified to perform service tasks on the NextDent 5100 Printer. Certification may occur at various levels, and certified service personnel should only perform tasks they are authorized and certified to complete.

## Safety Design Features in the Printer

The following design features are provided to reduce potentially hazardous operating conditions:



**WARNING: IF ANY OF THE FOLLOWING SAFETY FEATURES FAILS, YOUR ACTIONS MAY BE ALL THAT WILL PREVENT POTENTIALLY HAZARDOUS OPERATING CONDITIONS.**

- The design of the UV-delivery system is intended to prevent UV radiation from being aimed outside the area of the build chamber.



- Limited access to service areas and electronics prevents accidental exposure to electrical-shock hazards or pinch points.
- The printer casing prevents operator exposure to UV emission while observing operation.
- The printer does NOT have any systems in place to auto-detect printer issues and automatically shut down under emergency circumstances. It also does not have an emergency stop button. The operator must monitor the printer's activities and manually shut it off in the case of an emergency. This can be done by unplugging the machine.

## Safety Symbols and Definitions

The following are safety symbols that are common to 3D Systems guides. Some or all of these symbols may appear in this guide and/or in other FabPro 1000 documentation.



**CAUTION:** Indicates the possibility of loss of data or damage to equipment.



**WARNING: INDICATES THE POSSIBILITY OF INJURY TO PERSONNEL.**



**ELECTRICAL SHOCK HAZARD: HIGH VOLTAGE ELECTRICITY IS ACCESSIBLE IN THE VICINITY OF THIS SIGN OR BEHIND THE ACCESS PANEL. HIGH VOLTAGE CAN CAUSE SEVERE BURNS OR DEATH, AS WELL AS FIRES. ACCESS PANELS ARE FOR SERVICE ONLY AND SHOULD BE OPENED ONLY BY CERTIFIED SERVICE PERSONNEL OR TRAINED MAINTENANCE PERSONNEL.**



**UV RADIATION HAZARD: INVISIBLE UV RADIATION IS ACCESSIBLE IN THE VICINITY OF THIS SIGN OR BEHIND THE PANEL. RADIATION CAN CAUSE EYE INJURY OR BLINDNESS, BURN INJURY AND/OR FIRE. ACCESS PANELS ARE FOR SERVICE ONLY AND SHOULD BE OPENED ONLY BY CERTIFIED SERVICE PERSONNEL.**



**HARMFUL IRRITANT WARNING: INDICATES THAT SKIN OR EYE IRRITATION COULD RESULT WHILE EXPOSED TO A CHEMICAL COMPOSITION**



**EYE PROTECTION: INDICATES THE NEED FOR EYE PROTECTION.**



**WEAR GLOVES: WEAR THE APPROPRIATE GLOVES WHEN REQUIRED. FOR EXAMPLE, WHEN TOUCHING SURFACES THAT MAY CONTAIN OR HAVE BEEN EXPOSED TO MATERIALS, WEAR NITRILE GLOVES. HEAT GLOVES ARE NECESSARY WHEN TOUCHING SURFACES THAT MAY BE HOT TO ENSURE BURNS DON'T OCCUR.**



**PINCH POINT: INDICATES A PINCH POINT HAZARD THAT COULD CAUSE PERSONAL INJURY.**



**HOT SURFACE HAZARD: A HOT SURFACE IS ACCESSIBLE IN THE VICINITY OF THIS SIGN OR BEHIND THE ACCESS PANEL. AVOID CONTACT. HOT SURFACES CAN CAUSE BURN INJURY OR FIRE. ALLOW SURFACE TO COOL BEFORE TOUCHING. ACCESS PANELS ARE FOR SERVICE ONLY AND SHOULD BE OPENED ONLY BY CERTIFIED SERVICE PERSONNEL OR TRAINED MAINTENANCE PERSONNEL.**



**NOTE:** A note signifies important information but not information of a critical content.

## Warnings

If you see an error message or warning message on the printer display, clear the error or warning before resuming operation.

## Environmental Safety

The following are environmental issues concerning the printer:

- Controlling waste heat is not required for normal operation of the printer.

- When you dispose of print materials, refer to the SDS for that material and follow any applicable local, state, and federal regulations.
- All waste products (spilled print material, cleaning solvents, etc.) must be disposed of in accordance with all applicable local, state, and federal regulations.
- Do not clean anything with uncured material on it in a sink or tub that drains into normal wastewater.

## Safety Sensors



**WARNING: THERE ARE NO SAFETY INTERLOCKS OR SENSORS ON THE PRINTER TO PREVENT THE USER FROM PERFORMING POTENTIALLY HAZARDOUS ACTIONS. THE OPERATOR IS RESPONSIBLE FOR ENSURING THAT ALL PROCEDURES IN THIS MANUAL ARE FOLLOWED CLOSELY, WITH ALL SAFETY PRECAUTIONS IN THIS MANUAL BEING OBSERVED.**

## UV Radiation Hazard

The printer's projector emits UV radiation at 405nm during machine boot-up and during a build. Radiation of 405 nm is in the violet spectrum and is not considered hazardous. However, power fluctuations may cause the projection system to emit radiation under 400 nm, placing it in the ultraviolet (UV) spectrum. Under normal operating conditions, the UV radiation is completely confined. Printer covers and doors should remain closed and locked during printing to prevent exposure to UV radiation.



**RADIATION HAZARD: OPERATING THE EQUIPMENT OUTSIDE THE SCOPE OF THIS GUIDE, OR PERFORMING PROCEDURES OTHER THAN THOSE SPECIFIED WITHIN THIS GUIDE, MAY RESULT IN EXPOSURE TO HAZARDOUS, INVISIBLE UV RADIATION.**



**RADIATION HAZARD: NEVER STARE DIRECTLY INTO THE PROJECTOR, NOR INTO ANY REFLECTION OF THE PROJECTED RADIATION, WHETHER DIFFUSED OR FROM A MIRROR-LIKE SURFACE.**



**WARNING: OPEN-PROJECTOR OPERATION SHOULD OCCUR ONLY DURING SERVICE PROCEDURES PERFORMED BY 3D SYSTEMS CERTIFIED SERVICE PERSONNEL.**



**IF PRINTER DOOR IS OPEN DURING OPERATION, WEAR PROTECTIVE EYE WEAR THAT BLOCKS UV LIGHT.**

## Material Handling and Safety



**NOTE:** For complete safety information and instructions for use, please read the SDS and Instructions for Use for all materials you are using. These documents are either packaged in the box with the bottle or can be downloaded from the manufacturer's website.



**HARMFUL IRRITANT WARNING: ALWAYS WEAR CHEMICAL-RESISTANT GLOVES (SUCH AS NITRILE GLOVES), GOGGLES, AND PROTECTIVE CLOTHING WHEN HANDLING PRINT MATERIAL. AVOID SKIN CONTACT. AVOID BREATHING IN PRINT-MATERIAL FUMES.**

- Always practice standard chemical-lab hygiene and follow the Personal Protective Equipment (PPE) requirements outlined in this manual.
- Always wear chemical-resistant gloves, such as nitrile, when working near print materials or with partially cured parts. It is recommended to wear safety glasses and protective clothing. Protective clothing includes, but is not limited to: closed-toed shoes, full-length pants, and splash-resistant lab coats or equivalents. 3D Systems recommends using 100% nitrile gloves; however, other chemical-resistant gloves will suffice. Do NOT use latex gloves, as they do not provide complete chemical protection.
- Wearing contact lenses when working with print materials is not recommended.

- Avoid breathing in vapors from print material. To avoid breathing in vapors: when opening the build chamber, allow a few seconds to pass before putting your face near the opening. No special facility and/or ventilation modifications (such as putting an extractor duct on the printer) should be required to operate the printer in a lab or office environment. However, as the printer does emit fumes during printing, it should be in a well-ventilated room.
- Always wash skin thoroughly with a nonabrasive soap and COLD water after working with print materials. DO NOT USE HOT WATER OR SOLVENTS to wash hands, as these will stimulate your pores and result in absorption through the skin. Print materials may be sensitizing and some individuals may be more sensitive than others. This can result in skin irritation or allergic reactions. Users who are sensitive to the materials or become sensitized should discontinue use or ensure that appropriate personal protective equipment and industrial hygienic are employed to eliminate any issues.
- If a small amount of material gets on your clothing, remove the article of clothing as soon as possible. Have contaminated clothing dry cleaned. If a particularly large amount of material gets on your clothes, it is best to discard them according to all local, state, and federal regulations. Keep contaminated clothing away from food and drinks. Wash hands thoroughly after handling contaminated clothes, even if you wore protective clothing/gloves to handle them.
- Use extreme care when handling Ethanol (EtOH) or Isopropyl Alcohol (IPA) used to remove excess print material from uncured parts. These solvents are both very flammable.
- Keep all print materials and solvents away from heat, sparks, static discharge, and flame. Print-material containers may rupture when exposed to extreme heat. You may choose to store your FabPro/NextDent materials in a fire-resistant storage cabinet; but this is not necessary. Please refer to the SDS for a particular material to view its flash point.
- High temperatures may cause a spontaneous polymerizing reaction, generating heat and pressure. Closed containers may rupture or explode during a runaway polymerization.
- Fire fighters should use a self-contained breathing apparatus and full protective clothing in the event of a material fire.
- Do not leave uncured, liquid materials in an area where persons who are not knowledgeable about their handling or use may have access to them.
- Keep material away from food and drinks.



**WARNING: USE NATIONAL FIRE PROTECTION ASSOCIATION CLASS B EXTINGUISHERS SUCH AS CARBON DIOXIDE, DRY CHEMICAL, OR FOAM. A SPRAY OF WATER MIGHT ALSO BE EFFECTIVE. DO NOT USE A DIRECT JET OF WATER OR SMOTHERING TO EXTINGUISH BURNING MATERIAL OR SOLVENTS.**

## Available Print Materials

Please see the sections [FabPro Print Materials](#) and [NextDent Print Materials](#) for a list of available materials. Pay close attention to the following handling and disposal requirements:

### Material bottle

Uncured material waste is classified as regulated, and in some areas hazardous, thereby requiring special packaging, transportation and disposal. Refer to your local environmental regulatory agency.

Applicable material “waste” includes bottles (empty or full). Any cleaning supplies used to clean up uncured material should be disposed of in the same manner as the uncured material. To identify which disposal requirement applies, contact the local waste disposal service provider. (The local environmental regulatory agency should have a list of qualified providers in your area.) Give the disposal service provider a copy of the material's SDS to help them determine your disposal needs.

3D Systems assumes no liability or responsibility for proper disposal of the uncured material. Proper disposal of the uncured material is the sole responsibility of the user.

### Material Bottle Disposal



**WEAR PROTECTIVE GLOVES WHEN HANDLING PRINT MATERIAL AND ANY OBJECT PRINT MATERIAL MAY HAVE COME IN CONTACT WITH. BE CAREFUL NOT TO SPILL, DROP OR EXPOSE OTHER MATERIALS TO THE MATERIAL WASTE.**



**NOTE:** Partially used bottles should be sealed and returned to your storage cabinet for future use.

Printer operators should be informed about the potential hazards of print material prior to performing operations which may result in exposure to uncured material. This includes the removal and disposal of empty bottles and dealing with unlikely spills that may occur during operation.

If a problem with the printer occurs due to a material spill, discontinue printer use until the problem is diagnosed and fixed.

Leaks indicate a serious malfunction. The first priority is to protect users from inadvertently touching the material. Handling uncured material requires the use of nitrile gloves and other protective equipment to ensure there is no direct skin contact. If uncured material spills occur, promptly remove the spilled material with paper towels and wipe up the spill. After wiping the spill, wipe printer surfaces using a nonabrasive cloth and clean with a solvent as recommended in the [Cleaning Chart](#). The printer has a catch tray at the bottom of the build area to protect the projector from material spills. If there is spilled material in the catch tray, carefully remove the tray and clean it with recommended solvent. Dispose of waste material, including any paper towels used to clean up a spill, according to local environmental regulations.

Tools that may be contaminated with print material should be cleaned prior to reuse. Recommended solvents are normally required to clean tools. A final wash with soap and water will remove any excess print material.

### Print Material Characteristics

The photopolymers used in the print materials may be hazardous if handled improperly. Repeated skin contact with print materials may cause sensitization. Consult the manufacturer's Safety Data Sheet (SDS) for information on specific print materials. For further information on this and related topics, consult the [3D Systems Materials website](#).



**WARNING: NEVER MIX DIFFERENT PRINT MATERIALS. DOING SO MAY RENDER BOTH MATERIALS INEFFECTIVE.**

### FabPro/NextDent Material Storage

Print materials should be stored in the opaque, non-reactive containers in which they were provided, according to the guidelines given in the SDS, and according to all applicable regulations (local, state, and federal). Protect print material from sunlight, ambient light, and moisture. Close the material bottle after each use. Be sure your material-storage area is dry, dark, and between 18°C-28°C (64.4°F-82.4°F). It is preferable to store the material in a fireproof cabinet. Improperly stored materials may increase in viscosity, and may eventually result in a gelled, polymerized product in the storage container. Materials should be stored in conformance with applicable laws and regulations. The expiration date of the product is mentioned on the product label. Expired material may not perform as expected, and in some cases loses its certification as a medical device for its printed parts. 3D Systems is not responsible for losses incurred as the result of improper storage of print material.

### Print Material Disposal

Do not dump print material down any drains. Dispose of print material according to the guidelines given in the SDS and according to all applicable regulations (local, state, and federal). For more information on print-material disposal, please see the section [Considerations for Material](#) in the **Chapter: Facility Requirements**.

## Print-Material Spill Containment

There may be certain situations that require containment of a small print-material spill. To clean the spill: wear proper PPE; wipe up with paper towels; clean the spill as soon as possible with the [recommended solvent](#); minimize UV light in the area during clean up; dispose of all waste material according to all local, state, and federal regulations.



**WARNING: UNTRAINED PERSONNEL SHOULD BE EVACUATED FROM THE AREA.**



**WARNING: PRINT MATERIAL FUMES ARE FLAMMABLE. CARE SHOULD BE TAKEN DURING PRINT MATERIAL CONTAINMENT AND CLEANUP OPERATIONS.**

A supply of dikes and control booms should be stocked so they are available to contain the affected area in the event of a major print-material spill. The spilled print material should then be absorbed on inert, absorbent material and placed into drums for transfer to an approved waste-disposal site. After absorbing all spilled material, clean the spill location with paper towels and recommended solvent. After cleaning up the spill, individuals should wash thoroughly with soap and COLD water. Any clothing touched by material should be dry cleaned before reuse. If material has gotten onto your skin or clothes, avoid exposure to sunlight or other UV-light sources until skin and clothing have been cleaned of print material. Repeated or prolonged skin contact may cause sensitization. Vapor may be harmful.

Eliminate sources of ignition. Prevent entry into drains. Absorb spilled material onto sand, earth or any other suitable adsorbent material. DO NOT absorb onto sawdust or other combustible materials. Material spills or uncontrolled discharges into wastewater systems must be reported to the appropriate regulatory body. Do not discard material into drains/surface waters/groundwater. Maximize ventilation after accidental release.

### Shelf Life

The length of time during which materials are certified for use varies by material. The expiration dates are marked on the material bottle labels. In general, materials are usable for several months after their expiration dates, provided that the materials have been properly stored, handled and not exposed to excess heat. For NextDent® materials, this is **never** the case. You must dispose of expired NextDent material according to all local, state, and federal regulations. Using non-expired NextDent materials is required in order to achieve medical certification for your NextDent prints. For non-Dental materials, use of very old material, or material past its expiration date, is possible; but it may shorten your in-service material life (see below). Use of expired materials may also result in suboptimal printing results. 3D Systems does not assume responsibility for failed builds due to use of expired material.

### In-Service Life

In-service life of the print material is defined as the useful life of the material after having been poured into the print tray. The in-service life of print material greatly varies depending on material type, usage and environmental conditions. If the material is exposed to temperatures outside of the normal operating limits, is exposed to UV light, is exposed to particulates or vapors in the air such as dust or fumes, or if contaminants are introduced such as partially cured platforms being placed back into the print tray, this will shorten the material's in-service life. The types of patterns and builds performed also affect the in-service life of the material. The material retains its usefulness until a buildup of viscosity or a change in reactivity prevents further processing in the printer. All materials require some level of stirring or spinning to retain their properties. You must NOT mix material from an old material bottle with material from a new material bottle. These materials will be from different batches; and mixing them could render both ineffective. Follow the Instructions for Use of the specific material you are using for complete instructions on getting the most use out of it.

### Contamination

Care should be taken when cleaning windows, panels, and other parts of the printer. Cleaning products that contain ammonia should not be used because they can contaminate the material. Instead, use a small amount of recommended solvent on a paper towel to clean up spills. Accidental contamination of materials may change the material's performance characteristics to such an extent that acceptable parts can no longer be reliably created.

### Polymerization

Polymerization may occur upon heating the material bottle. Signs of polymerization of stored material include container bulging, leaking, the emission of heat, or an unusual odor from the container. If you notice any of these traits, do not use the material and dispose of it according to all local, state, and federal regulations.



**WARNING: SEALED CONTAINER MAY RUPTURE IF EXPLOSIVELY HOT. PLEASE SEE THE MATERIAL'S SDS FOR INFORMATION ON ITS FLASH POINT.**

## Individual Material Safety

Every material has a different chemical makeup and may have safety instructions that vary from the general guidelines listed in this guide. It is important to read the SDS and Instructions for Use of each material prior to usage to ensure that you know that material's specific safety instructions.

## Electrical Safety

The voltage inside the printer is not considered hazardous; however, preventing any type of electrical shock is still a safety precaution the user should take. To prevent electrical shock, do not remove any panels or other parts of the printer casing. The printer was designed to minimize operator exposure to electrical hazards during normal operations. All exposed electrical circuits are contained within limited-access panels. This is to separate the operator from service and maintenance areas. 100-220 VAC power is present in multiple locations throughout the unit. Whenever performing maintenance procedures, power machine down and unplug AC power in procedures where power is not required.

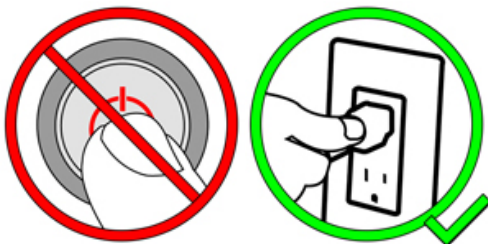


**ELECTRICAL SHOCK WARNING: ELECTRICAL SHOCK CAN RESULT IF YOU REMOVE EXTERNAL PANELS. PANELS SHOULD ONLY BE REMOVED BY CERTIFIED SERVICE PERSONNEL.**

## Emergency Shutdown



**NOTE:** The printer does NOT have an Emergency Stop button. The only way to stop printer operation during an emergency is by unplugging the machine. If you do unplug the machine to perform an emergency stop, you must leave the machine unplugged for five minutes before plugging it back in. Failure to do this may result in the printer losing its IP address. If this happens, unplugging the machine for five minutes should let the printer regain its IP address. If not, please contact your authorized print-material provider.



## First Aid and Protective Equipment

The following paragraphs provide general first-aid procedures and recommendations for protective equipment to minimize the risks from print material exposure. If professional medical attention is necessary, take the Safety Data Sheet (SDS) for the exact print material involved to the attending physician.

### Skin Contact

Print material may cause sensitization by skin contact. It is irritating to the skin; repeated and/or prolonged contact may cause dermatitis. Wear 100% nitrile gloves and lab coats to avoid skin contact. Should print material come in contact with skin, wash thoroughly with soap and **COLD** water and immediately remove contaminated clothing and shoes. If skin is irritated, get medical attention. Dry-clean contaminated clothing. Discard contaminated shoes and leather products.

### Eye Contact

High vapor concentration may cause irritation. Safety goggles should be worn to prevent accidental splashes of print material into the eyes. If print material comes in contact with the eye, flush immediately with large amounts of **COLD** water for 15 minutes. Avoid sunlight, fluorescent light, and other ultraviolet light, and obtain immediate medical attention. Eye-wash facilities and a first-aid kit should be readily available and close to the print material.

### Contact Lenses

If print material splashes into the eye when contact lenses are worn, flush the eye with water immediately. Verify that flushing has removed the contact lens from the eye. Protect eyes from light and obtain immediate medical attention. Discard contact lenses that come into contact with liquid print material.

### Fume Inhalation

Inhaling fumes from print material may be irritating to the respiratory system. High atmospheric concentrations may lead to irritation of the respiratory tract, dizziness, headache and anesthetic effects. If a person should inhale printer fumes, bring the exposed person to fresh air. Perform CPR if required. If breathing is difficult, give oxygen and obtain immediate medical attention for the person.

## Safety Notice



**CAUTION: Use of controls or adjustments, or performance of procedures other than those contained in any official manual for this machine, may result in hazardous radiation exposure.**



**NOTE: Closed-projector products are not considered to be hazardous.**

This machine incorporates an optical system which, by itself, may be hazardous. However, this machine incorporates a protective housing and UV-protective viewing window in the machine design such that there is no exposure or human access to the UV radiation generated by the projector during normal operation.

All service to the projector process machine, the embedded optical system, and other components requiring removal of printer panels shall only be performed by 3D Systems Corporation service personnel, their authorized agents, or personnel who have been service trained by 3D Systems Corporation.

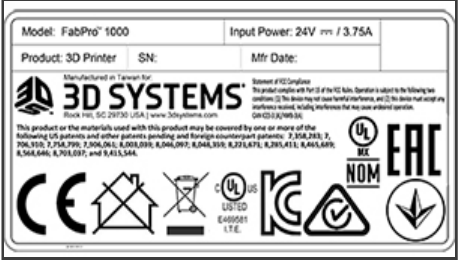


UNDER NO CIRCUMSTANCE shall attempts be made by the user to operate the projector with access panels removed that allow access to UV radiation. Labels are provided on the products that indicate hazards.

The projector should not be operated if any of the UV-protective windows is damaged or removed. Contact your authorized print-material provider for replacement information.

## Product Labels



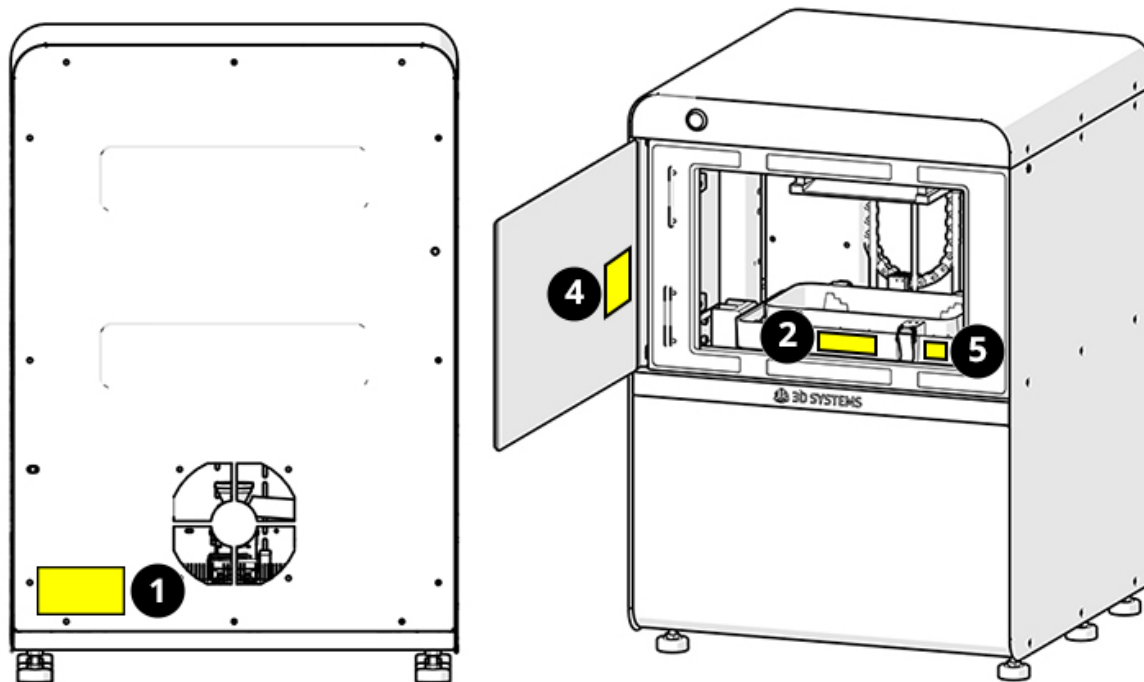
The numbers in **Item** column below correspond to the numbers in the images that follow.

Item	Description	Qty	Label
1	System Label, printer - Contains system information and certification symbols	1	
2	<p>UV-Warning Sticker/Moving Parts Sticker</p> <p>UV Light - Do not look directly in the light. May be harmful to the eyes</p> <p>Moving Parts - Hazardous moving parts. Keep body parts out of the motion path.</p>	1	
3	Power Brick Label - contains information and certifications relating the to power supply	1	
4	Service Contact Label	1	

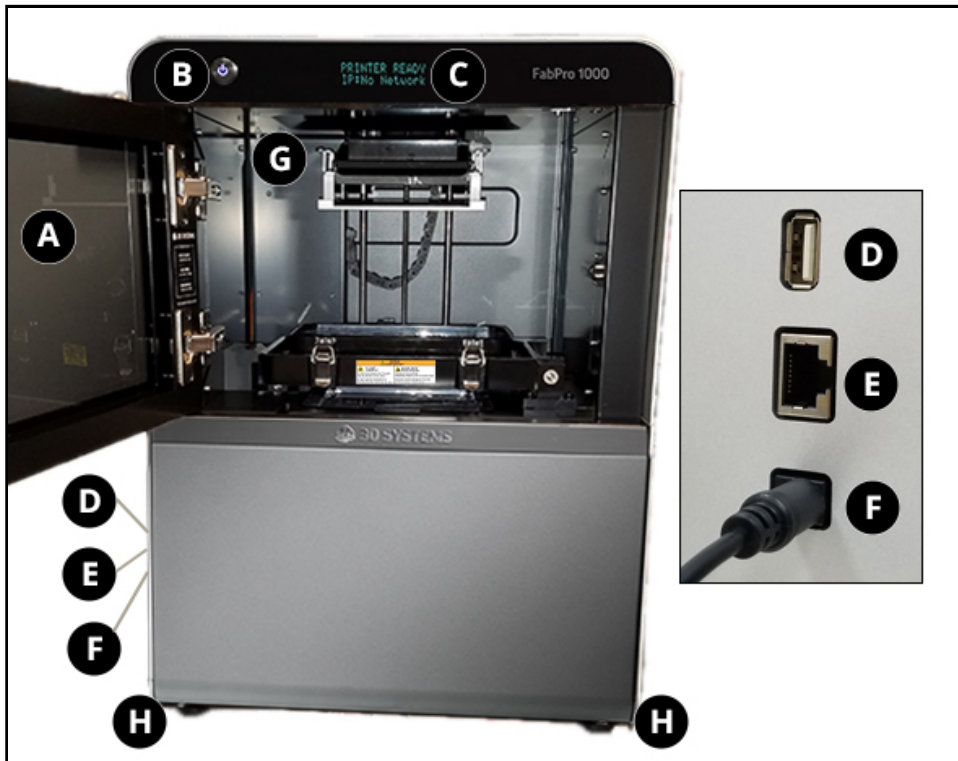


Item	Description	Qty	Label
5	Remove print tray and glass base before moving printer.	1	<div style="border: 1px solid black; padding: 10px; text-align: center;"> <div style="background-color: #f4a460; height: 20px; margin-bottom: 5px;"></div> <p><b>Remove print tray and glass base before moving printer</b></p> </div>

### Printer Label Placement



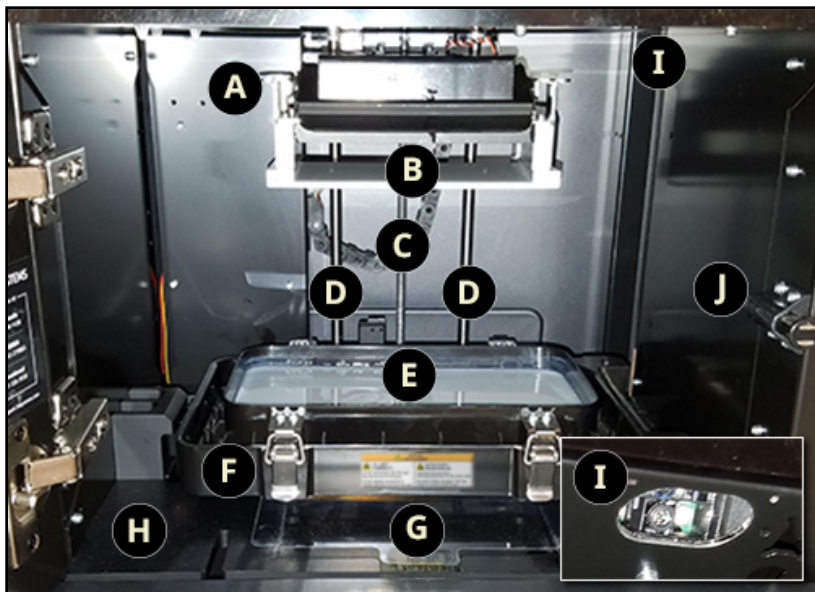
## Overview



- (A) Printer Door** - This door must be closed during printing. It has UV-resistant glass to protect the observer from the UV radiation emitted by the projector. It also prevents outside light from getting in the build chamber during printing.
- (B) Power/Navigation Button** - Turns machine on/off and serves as the control for printer functions. For its use in printer-functions, please see the section [Power Button](#). The power button also displays different colored lights to indicate the printer's status.
- (C) Front Display** - A dot-matrix display that serves as the UI on the printer
- (D) USB Port** - this allows the user to send build files via a USB drive
- (E) Network Port** - connects the printer to internet or LAN
- (F) Power Jack** - plug the AC adapter into this inlet
- (G) Build Chamber** - Compartment where 3D part is printed
- (H) Front Leveling Feet** - Can be used in leveling the printer

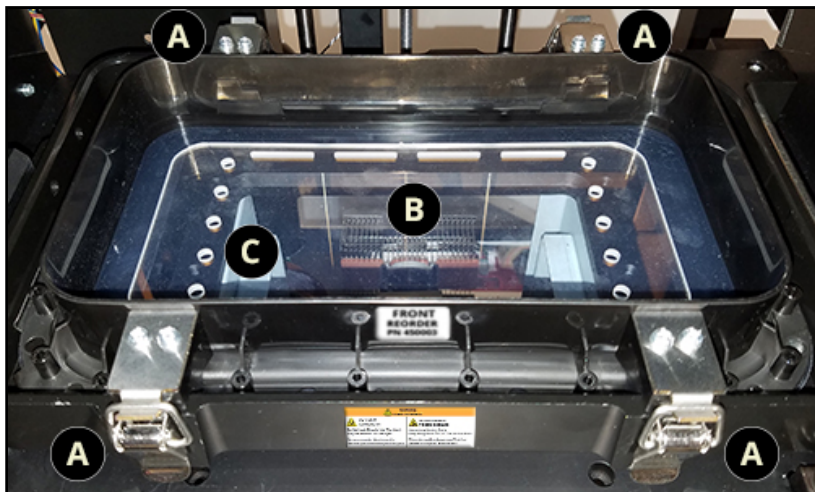
The printer is only one component of the complete system. Many accessories and other components make up a printer facility. This section describes these accessories and components.

## Build Chamber



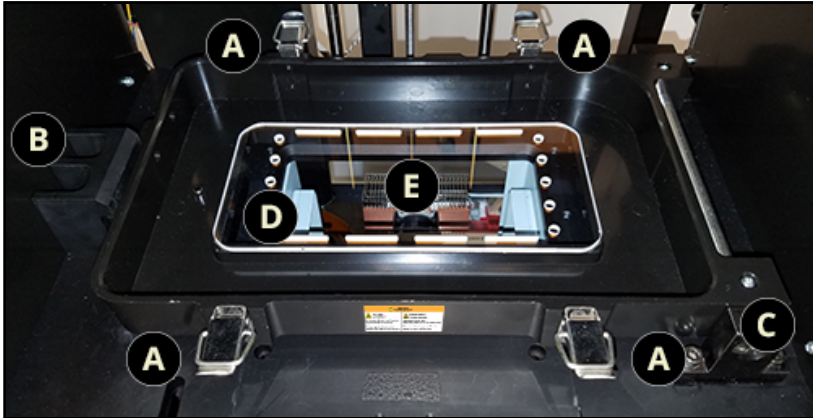
- A** **Elevator Arm** - Moves the print platform up and down the elevator during printing
- B** **Print Platform** - The platform on which the printed part attaches during printing
- C** **Elevator Lead Screw** - Moves the elevator arm up and down when it turns
- D** **Elevator Rails** - Guide the elevator arm on a straight path
- E** **Print Tray** - Holds the material during the print process
- F** **Tilt Tray** - After a layer has printed, this tilts the print tray down to peel the bottom layer of the printed part off the print-tray film.
- G** **Catch Tray** - Protects the bottom of the print engine from material spills
- H** **Chassis** - Platform on which the build chamber sits
- I** **QR-Code Scanner** - Scans QR codes on print-material bottles
- J** **Magnetic Door Catch** - Spring-loaded magnet that keeps the printer door closed during printing.

## Print Tray



- A Toggle Case Locks** - These four locks keep the print tray in place during part building, and also tension the print-tray film over the glass print base. The female ends of these locks are on the print tray. The males ends are on the tilt tray.
- B Print-Tray Film** - Translucent film through which UV radiation is projected onto the bottom of the material during part building
- C Glass Print Base** - Tensions the print-tray film on the film's underside

## Tilt Tray



- A Toggle Case Locks** - These four locks keep the print tray in place during part building, and also tension the print-tray film over the glass print base. The male ends are on the tilt tray. The female ends of these locks are on the print tray.
- B Top of Tilt-Tray Elevator** - The tilt tray uses an elevator with a lead screw to control its motion. This block is the upper part of the elevator.
- C Tilt-Tray Pivot Point** - The point about which the tilt tray tilts
- D Glass Print Base** - Translucent plate that tensions the print-tray film from the film's underside. The tilt tray has a raised holder to set the glass print base on.
- E View Box** - Hole in the tilt tray that allows UV radiation through

## Part Cleaning

After parts have finished building in the machine, it is necessary to clean them of any uncured material. The finishing kit contains two plastic tubs (with lids) that are big enough to fit the largest-possible build on the printer. Please see the section [Clean Printed Parts - Introduction](#) for more information.

For more-automated cleaning, you may choose to purchase an ultra-sonic cleaner. You will need an ultrasonic cleaner big enough to accommodate the parts you plan on printing. Placing a container with solvent in this cleaner sends ultra-sonic sound waves through the solvent to agitate it. One solvent bath may be sufficient to clean the printed part; but it is better to clean a part twice. As with any solvent, it will become saturated and rendered ineffective over time. You will need to dispose of the solvent according to local, state, and federal regulations and fill the container(s) with fresh solvent. For more information on cleaning build parts with an ultrasonic cleaner, please see the section [Cleaning Parts With Ultrasonic Cleaner](#).



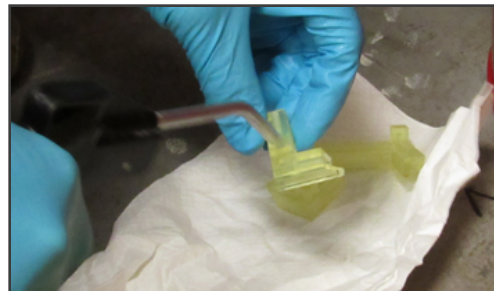
Plastic tubs with lids, ultrasonic cleaner. The image of the ultrasonic cleaner is for sample purposes only and is not a recommendation or endorsement of any brand of ultrasonic cleaner.

## Part Drying

After cleaning the part(s), it necessary to dry them of any solvent used in the cleaning step. This may be done in several ways, but a few recommended methods follow:

For all parts, be sure there is an absorbent cloth/paper towels or container underneath the part to catch the solvent being dried off.

1. **Shop air** - if you have shop air in your facility, this would be the most-ideal way to air-dry the parts.



2. **Air Compressor** - If you do not have shop air, an air compressor would be the next-best solution. However, be aware that air compressors are fairly loud.



*Air Compressor. This is for sample purposes only, and is not a recommendation or endorsement of any brand of air compressor.*

3. **Air Drying** - Simply leave the part sitting on a paper towel for 60 minutes.

## LC-3DPrint Box

This is the post-curing oven that is recommended for use with the printer. Please see the complete User Guide that comes packaged with the NextDent® LC-3DPrint Box for full usage instructions.

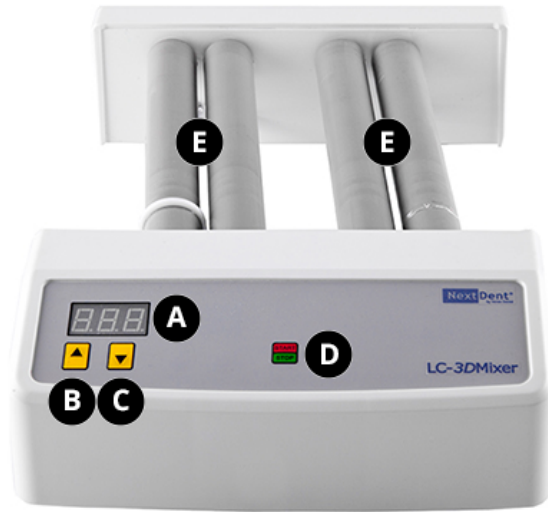




- (A) Power Button** - Switches machine on/off
- (B) Front Panel** - Graphical User Interface for oven. This shows information about the lamps, the time left for curing, and error messages.
- (C) Oven Lid** - Insert a printed part through this top opening. The lid has a safety interlock that stops the oven when the lid is open.
- (D) Lamp Status Indicators** - These indicators will turn red when the UV lamp pair needs to be changed. See the oven's Instructions for Use for more information.
- (E) Timer** - Shows time remaining in curing cycle
- (F) Increasing Button** - Increases operation time
- (G) Decreasing Button** - Decreases operation time
- (H) Program Button** - Toggles between preset operation times of 10, 20, and 30 minutes
- (I) Start/Stop Button** - Starts and stops oven operation
- (J) UV Lamp** - The oven comes with six 18W, 71-color lamps and six 18W, 78-color lamps. See the oven's Instructions for Use for information on correct orientation of lamps.
- (K) Glass Plate** - Holds the printed part during curing

## LC-3DMixer

Before pouring the material in the print tray, it is necessary to mix it before each use to obtain the best-possible chemical mixture in the bottle. The recommended method of stirring the material is with the NextDent® LC-3DMixer. With this mixer, you can roll two bottles at once for a specified period of time. For information on material stirring times, please refer to the [Material Stirring and Curing Chart](#).



LC-3DMixer front



LC-3DMixer back

- A** **Mixing Timer** - Shows the duration of material mixing
- B** **Time Increase** - Increases the duration of mixing
- C** **Time Decrease** - Decreases the duration of mixing
- D** **Start/Stop Button** - Starts and stops bottle mixing
- E** **Bottle Rollers** - Rest the material bottles in between each of the pairs of rollers (please see the image below)
- F** **Power Button** - Turns the mixer on and off
- G** **Power Inlet** - Plug the female end of the power cord into this inlet
- H** **Device Label** - Provides important information about the LC-3DMixer



LC-3DMixer bottle placement

# Specifications and Requirements

## Printer

Total Printer Footprint (xyz)	43 x 43 x 61.2 cm (16.9 x 16.9 x 24.1 in)
Printer Weight	37.5kg (82.7 lbs)
Net Build Volume (xyz)	125 x 70 x 120 mm (4.92 x 2.76 x 4.72 in)*
Native Resolution (xy)	65 micron (390.8 effective DPI)
Layer Thickness	30-50 microns (material-specific)
Projector Wavelength	405 nm
Material Packaging	Opaque, non-reactive containers
Post-Processing	Separate part cleaner and UV oven
Software	Windows 7 (SP1),8.1,10 (64-bit only) Google Chrome 3D Sprint
File Input to 3D Sprint	STL, CTL, OBJ, PLY, ZPR, ZBD, AMF, WRL, 3DS, FBX, IGES, IGS, STEP, STP, X_T
File Export to Printer	.pxl
Electrical Requirements	Printer: 24VDC, 3.75A, 90W  With Adapter: 100-220 VAC, 50/60Hz, 2A
Network Ready	Built-in Ethernet
Estimated projector life	10,000 hours

\*Maximum part size is dependent on geometry, among other factors.

## FabPro Print Materials




FabPro Print-Material Bottles

NextDent Print Material Bottles



The table below lists the FabPro print materials that are currently supported on the FabPro 1000 printer, as well as the properties of cured parts printed with these materials. Please note that not all properties in the table below apply to every material. As such, different materials will have blank spaces for some of the property fields below.


 **NOTE: All materials come in 1kg bottles.**

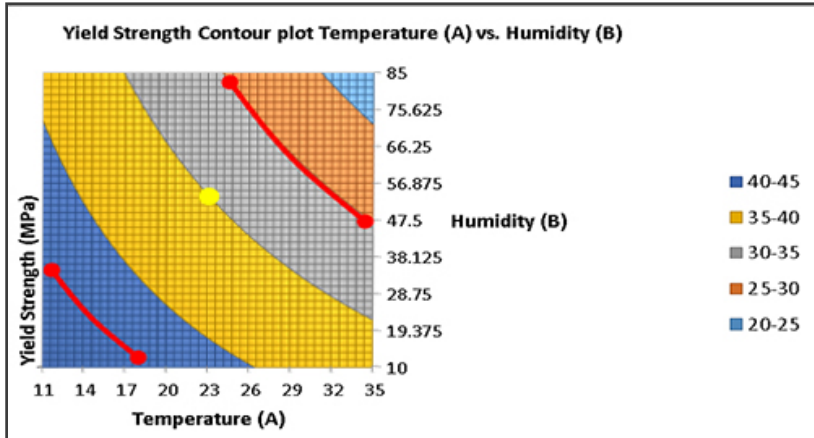
<b>Material Property</b>	<b>FabPro™ Proto GRY</b>	<b>FabPro™ JewelCast GRN</b>	<b>FabPro™ Tough BLK</b>	<b>FabPro™ Elastic BLK</b>	<b>FabPro™ Flexible BLK</b>  Please see <a href="#">Special Considerations for Flexible BLK</a>
Description	Fast, general purpose	Master patterns for gypsum investment casting	Tough production plastic	Design elastomer	Polypropylene- like, flexible
Color	Gray	Green	Black	Black	Black
Layer Thickness	50 microns	30 microns	50 microns	100 microns	125 microns
Vertical Build Speed	21 mm/hr	5.3 mm/hr	14 mm/hr	14 mm/hr	10 mm/hr
Flexural Strength	100 MPa (14,500 psi)	14 MPa (2030 psi)	64 MPa (9,700 psi)		41 MPa (5950 psi)
Flexural Modulus	2,840 MPa (410 ksi)	577 MPa (84 ksi)	2,020 MPa (290 ksi)		1120 MPa (162 ksi)
Tensile Modulus	2,800 MPa (410 ksi)	355 MPa (51.5 ksi)	1,860 MPa (270 ksi)	3.7 MPa (540 psi)	1330 MPa (193 ksi)
Tensile Strength	67 MPa (9,700 psi)	14 MPa (2,000 psi)	44 MPa (6382 psi)	3.9 MPa (570 psi)	41 MPa (5950 psi)
Shore Hardness	83 D	68 D	79 D	65 A	76 D
Elongation at Break	7%	10%	44%	81%	93%

<b>Material Property</b>	<b>FabPro™ Proto GRY</b>	<b>FabPro™ JewelCast GRN</b>	<b>FabPro™ Tough BLK</b>	<b>FabPro™ Elastic BLK</b>	<b>FabPro™ Flexible BLK</b>  Please see <a href="#">Special Considerations for Flexible BLK</a>
Izod Notched Impact Strength	23 J/m (0.4 ft- lb/in)		36 J/m (0.7 ft- lb/in)		43 J/m (0.8 ft- lb/in)
Izod Un-notched Impact Strength	123 J/m (2.3 ft- lb/in)		568 J/m (11 ft- lb/in)		Did not break
Water Absorption 24 hours	0.25%		0.3%	1.30%	1.6%
Tg	82°C (180°F)	-1°C (31°F)	57°C (134°F)	-24°C (-11°F)	19°C (67°F)
Heat Deflection Temperature at 0.46 MPa (66 psi)	79°C (175°F)		48°C (119°F)		51°C (124°F)
Heat Deflection Temperature at 1.82 MPa (264 psi)	66°C (151°F)		42°C (107°F)		42°C (108°F)
CTE > Tg	107 ppm/ °C (59 ppm/°F)	185 ppm/°C (102 ppm/°F)	130 ppm/ °C (72 ppm/°F)	226 ppm/ °C (126 ppm/°F)	143 ppm/°C (80 ppm/°F)
CTE < Tg	111 ppm/ °C (62 ppm/°F)	169 ppm/°C (94 ppm/°F)	161 ppm/ °C (89 ppm/°F)		109 ppm/°C (61 ppm/°F)

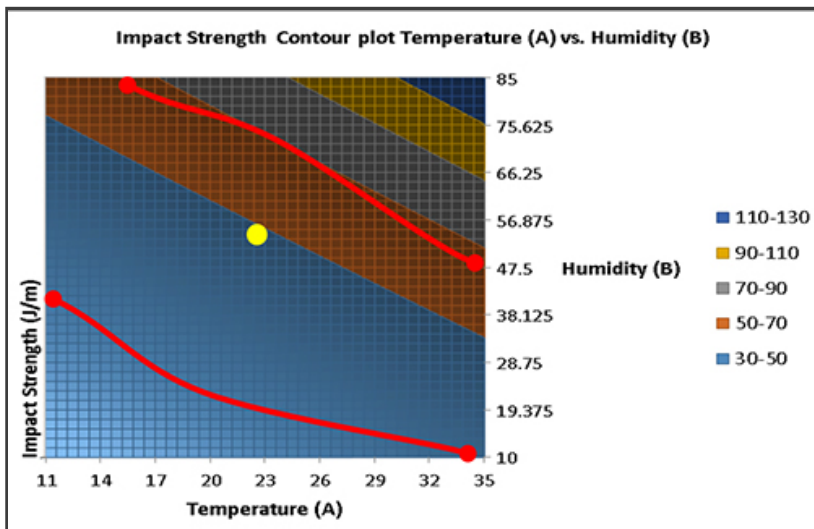
## Special Considerations for Flexible BLK

FabPro Flexible BLK printed-part mechanical properties will change when exposed to low and high temperature and/or humidity. Parts will become either softer or tougher as temperatures increase/decrease beyond typical office environments. Similarly, impact strength will drop as temperature and humidity are decreased outside of typical office environments. In use cases where stable printed-part mechanical properties are important, Flexible BLK is recommended for indoor use, at temperatures between 10-30°C (50-86°F), and 10-65% relative humidity. The best conditions are around 20°C (68°F) and 40-50% RH (non-condensing). The printed-part mechanical properties most-susceptible to change are: notch impact strength, tensile modulus and yield strength. Please refer to the charts below for detailed information on printed-part mechanical properties as a function of temperature and relative humidity.

 **NOTE:** The printed-part mechanical properties will return to standard when parts dry completely (back into the 10-65% RH range) and are at standard room temperature. In the case of the effects of exposure to high humidity, return to standard properties could take a day or two.



Temperature - °C, Humidity - %RH



Temperature - °C, Humidity - %RH

## NextDent Print Materials



FabPro Print-Material Bottles



NextDent Print Material Bottles

The table below lists the NextDent print materials that are currently supported on the FabPro 1000 printer, as well as the properties of cured parts printed with these materials. Please note that not all properties in the table below apply to every material.



**NOTE:** All materials come in 1kg bottles.

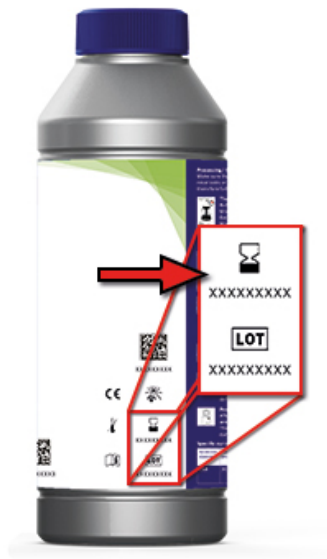
<b>Material Property</b>	<b>NextDent® SG</b>	<b>NextDent® Model</b>	<b>NextDent® Model 2.0</b>	<b>NextDent® Ortho Rigid</b>
Description	Biocompatible Class I material, developed for the printing of Surgical Guides for implant surgery use	High-precision dental model prints	High degree of accuracy, making this material suitable for detailed master prosthodontic and orthodontic models where high precision is needed	Biocompatible Class IIa material developed for digital manufacturing of splints
Color	Translucent Orange	Beige	Various	Transparent Blue
Layer Thickness	50 microns, 100 microns	50 microns	50 microns	100 microns
Vertical Build Speed	11 mm/hr	11 mm/hr	9 mm/hr (White), 11 mm/hr (Peach)	20 mm/hr
Flexural Strength	>80 MPa (11,603 psi)	> 40 MPa (5,801 psi)		78 MPa (11,313 psi)
Flexural Modulus	>2000MPa (290 ksi)	> 1000 MPa (145 ksi)	≥ 1500 MPa (218 ksi)	2075 MPa (301 ksi)
Brookfield Viscosity at 23°C	1.1-1.6 Pa·s	1.0 – 1.5 Pa·s		
Maximum Stress Intensity Factor				1.1 MPa m <sup>1/2</sup>
Total Fracture Work				262 J/m <sup>2</sup>
Shore Hardness			84D	

# Material Expiration Date

The following images show you where you can find the expiration date on your material bottle.

## NextDent Material

## FabPro Material



## Facility Requirements

This section provides you with information on how to properly prepare your facility for the printer. It also introduces you to the printer machine and other system components – including lists of other support equipment and supplies that you will find helpful in setting up your facility.

Additional chapters include guidelines for the following:


- **Site Selection** - gives information on how much space the printer requires and the necessary services and equipment needed for a highly efficient, ideal location for your printer and its components.
- **System Delivery** - provides information about preparing for the delivery of your printer.
- **System Installation** - explains the process of, and requirements for, installing the printer in your facility.
- **Considerations for Material** - gives you guidelines for proper storage, handling, and safety for FabPro/NextDent materials.
- **Third-Party Equipment and Supplies** - provides a summary of the optional equipment and supplies that 3D Systems recommends for efficient and complete part building, part processing, and finishing.


## 3D Sprint Software


Included with the system is **3D Sprint™** part preparation software. 3D Sprint™ is installed on a separate, customer-supplied computer. The following computer specifications are the minimum requirements for the 3D Sprint computer:

	Minimum	Recommended
<b>Operating System</b>	Windows® 7 (SP1)/8.1/10 (64-bit)	
<b>CPU</b>	Intel® or AMD® processor with a minimum of 2.0GHz	Multiple core processor. Hyper-threading and clock speeds above 3GHz can be beneficial but should be paired with a good balance of cores.
<b>RAM</b>	4GB	8GB or more
<b>Hard Drive</b>	7GB of available hard-disk space. Additional space may be required for cache. Temporary file cache requires about 3GB free disk space for every 100 million points.	Solid-State Drive
<b>Display/GPU</b>	OpenGL 2.1 and GLSL 1.20 enabled graphics card Screen resolution 1280x960 Graphics card: Intel HD or Iris (HD 4000 or newer), or Nvidia GeForce GTX 285, Quadro 1000 or newer, or AMD Radeon HD 6450 or newer	OpenGL 3.2 and GLSL 1.50 enabled graphics card. Nvidia or AMD GPU with 1GB of RAM or more Screen resolution 1280x1024 or higher

	<b>Minimum</b>	<b>Recommended</b>
<b>Other</b>	Three-button mouse with scroll Keyboard Internet Explorer 9 or newer Microsoft .NET Framework 4.6.1 (installed with application)	Google Chrome or Internet Explorer 11

 **NOTE:** You may have to update your graphics card driver. See the 3D Sprint installation guide for more information.

 **NOTE:** For supported 3D files, see the included help in the application.

 **NOTE:** Starting the application through a remote connection does not utilize OpenGL hardware acceleration.

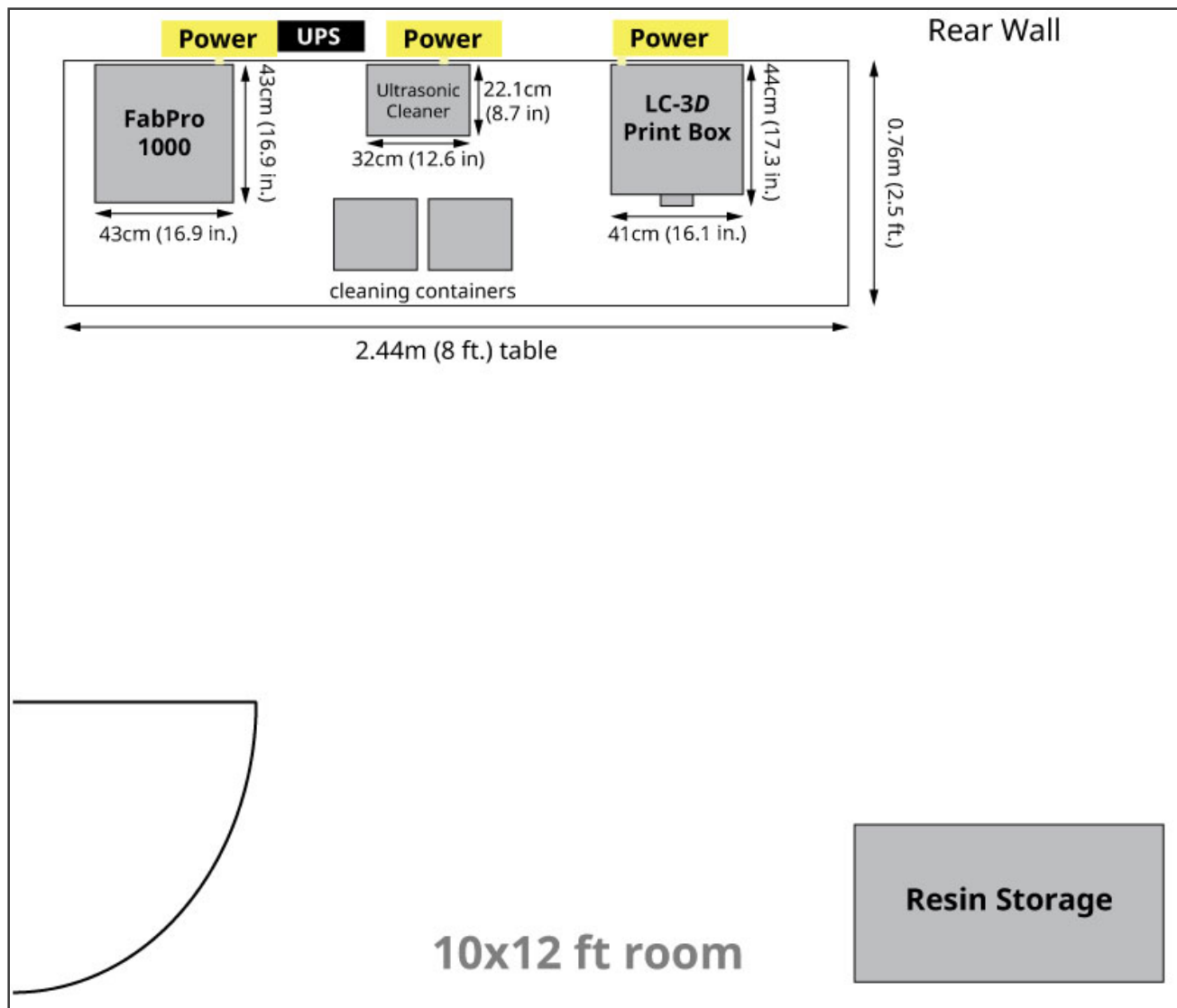
## Site Selection - FabPro 1000

This section provides the requirements and recommendations to determine the most appropriate location for a highly functional, efficient printer workspace, with room for other equipment and supplies. To help you choose a location, the [Initial Site Survey Checklist](#) provides the attributes that you need to select the best location for your installation. After narrowing the list of possible locations, consider each requirement carefully before making a decision about your final placement site.

# Part 1

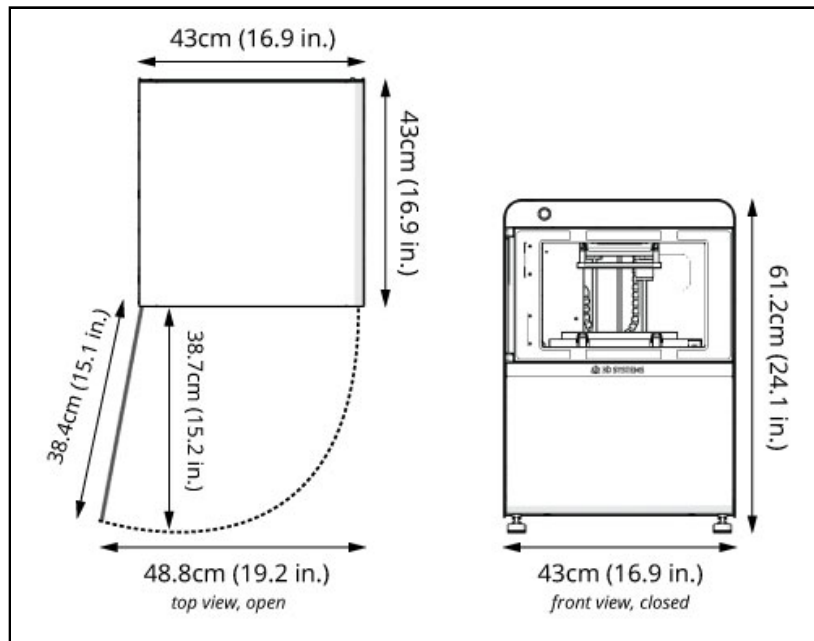
## Space Requirements

User preferences, building codes, and equipment configuration will help you to define the total platform area that your printer will need. The FabPro system should be located in an environmentally controlled room. Locate the secondary post-processing equipment and supplies in the same room or in an adjoining room, if possible. The figure below shows an ideal site configuration that minimizes the required movement of parts after part building. It assumes you will have an ultrasonic cleaner and the LC-3DPrint Box. The section [Weights and Measures](#) shows the minimum dimensions of the printer. Your site layout will vary.



Optimal Site Layout (top view). Measurements for ultrasonic cleaner are for sample purposes only.





printer dimensions

## Floor Area and Surface

You will need to place the printer on a table or countertop that is at a comfortable level for working with the printer. The printer has been designed to work with normal table and countertop heights. Floors and counter spaces in the FabPro work area should be non-porous and suitable for cleaning with solvents. The feet of the system must be on a non-resilient surface such as bare concrete or a sturdy, level table, counter, or desktop. The printer should not be on or above carpeted floors, as material spills on carpet are very hard to clean up. If you will have the printer on a floor, remove any non-porous flooring where the feet of the FabPro system will be placed. The system should not straddle any floor/table/desk seams. The maximum permissible floor/table/desk incline is 2.5 cm/12 m (1 in/40 ft).

## Floor Vibration and Shock

To ensure part quality and accuracy, choose a ground floor location with a thick concrete pad, which will minimize vibration. FabPro equipment is slightly self-damping, and should not be affected by normal or incidental environmental vibration; however, the area should be isolated, either via location or some other physical or mechanical means, from any significant internal or external vibration sources such as heavy machinery, airplanes, or trains, which could cause unacceptable shock or vibration levels.

It is recommended that the amount of vibration/shock from the floor not exceed the SPIE 1991 VC standards of VC-A. This corresponds to a max floor velocity of 50 m/sec over a 4-80Hz bandwidth. Users are responsible for verifying the level of vibration in their facility.

## Floor/Desktop-Bearing Capacity

The printer is 37.5kg (82.7 lbs). Additional equipment, such as a UV oven or ultra-sonic cleaner, will each have their own loads for your setup to bear. Refer to the section [Weights and Measures](#) to determine the total weight of the equipment to be housed in your room to ensure that you do not exceed the maximum load-bearing capacity that your printer-staging area can support.

## Electrical Requirements

Electrical voltage requirements for the printer:

- Printer: 24VDC, 3.75A, 90W
- With Adapter: 100-220 VAC, 50/60Hz, 2A

Power for the printer must be on a surge-protected circuit. UPS (Uninterruptible Power Supply) usage, while not required, is recommended in areas where power fluctuations are frequent, as surges and spikes can cause damage to electronic components, and loss of power can result in failed builds or potential damage to the FabPro system. For specific information on a suitable UPS, contact a UPS manufacturer and provide the voltage rating, current draw, and desired backup time. The manufacturer can recommend an appropriate model.

## Connection to AC Power

- In the United States, a standard 10-amp wall outlet is required. The system connects to a 110VAC power outlet through a standard 110VAC power cord.
- In Europe, a standard 10-amp wall outlet is required. The system connects to a 220VAC power outlet through a standard 220VAC power cord. Country destination kits are available with the proper wall-power connections.

## Part 2

### Heat Dissipation

The printer is not expected give off significant heat under normal operating conditions.

### Temperature

The temperature in the room or location where the FabPro system resides should remain stable to allow for optimal system operation and optimal part quality.

FabPro™ and NextDent® materials should be kept between 18°C-28°C (64.4°F-82.4°F)\*. Since there is material in the print tray, this guideline applies also to the temperature of the room the printer is in. Be sure to follow the temperature specifications set forth in your material's Instructions for Use/SDS.

\*For Figure 4 FLEX BLK 10 print material, printing temperatures outside the range of 10-30°C (50-86°F) can cause printed-part properties to change.

### Humidity

The optimal humidity in the printer build chamber and lab will depend to a certain degree on the FabPro/NextDent material selection. Regardless, the humidity should always be non-condensing and should not vary outside the range of 30 to 70% RH\*. Review your FabPro/NextDent material information (SDS, product datasheet, and product labeling) for specific information on recommended humidity levels.

\*For Figure 4 FLEX BLK 10 print material, humidity outside the range of 10-65% RH can cause printed-part properties to change.

### Altitude

The FabPro system is capable of operating correctly up to an altitude of 3000m (9843 ft.) above mean sea level.

### Overall Sound-Pressure Level (OASPL)

The sound of the FabPro system will not exceed 85 db.

## Part 3

### Air Cleanness

The room housing the FabPro system does not require special ventilation beyond air conditioning. Reasonable care should be taken to minimize dust and smoke which could contaminate the FabPro/NextDent material and cause deterioration of optical surfaces. Avoid temperature fluctuation. Since dust, smoke and temperature fluctuations can affect the performance of the machine and the quality of the parts, an area with filtered air flow is recommended. Avoid proximity to machine shop areas, or where milling, grinding, or sanding is performed.

### Lighting

Standard fluorescent lamps with clear plastic diffusers are recommended to minimize ultraviolet exposure, which could negatively affect the FabPro/NextDent material. Sunlight, quartz-halogen lamps, and high-intensity incandescent lamps are not suitable; and UV-intensive lighting or ultraviolet exposure through windows should be avoided. UV filters are available for windows and exposed fluorescent lamps. Any exposure of the material to any of the light sources described in this section is likely to cure the material, thereby wasting it and forcing a difficult cleanup.

### Door or Other Method of Preventing Access to Room

The site should be able to be isolated from other employees or personnel during emergency situations, such as a major material spill. The system is safe and does not present hazards to properly trained personnel operating the system in accordance with our specifications. However, the system should be installed in an area that can be cleared of untrained personnel during cleanup of a spill or response to other emergency situations.

### Network Access

The printer controller computer includes an Ethernet port, which can be connected to a 10/100/1000 MBit/s Ethernet network to offer network access to the FabPro system. An RJ45 cable is packaged in with the printer. Remote operation of the printer is not available.

### Telephone Service

Dedicated telephone lines are not required for normal operation of an FabPro system. However, you may wish to install a dedicated telephone line in the FabPro system installation area to facilitate discussions with 3D Systems Customer Service personnel while the machine is in operation, should the need arise.

## Site Selection - Post-Processing Equipment

Locating the post-processing equipment is similar in many respects to locating the printer. The equipment includes, but is not limited to: two stainless steel containers (included) and UV-curing oven. The following abbreviated site specifications are for the recommended post-processing equipment:

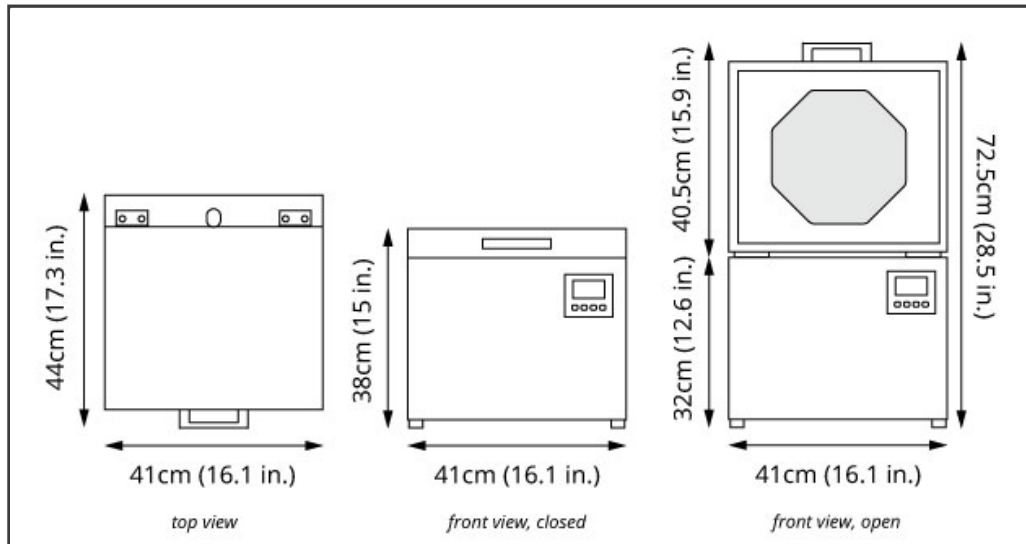
### Space and Location Selection

You may choose to locate the part-washing, drying, and curing stations in the same room as the printer or in a room adjoining the printer.

With either option, please consider the following:

1. The further the distance the build part is being moved from the printer to the post-processing area, the longer the opportunity for the build part to get damaged by dropping, bumping into objects, and other environmental factors.
2. The further the distance the build part is being moved, also longer is the opportunity for uncured material to drip onto the floor. If floors are porous, such as carpeting or some tiles, they can absorb the spilled material and would need to be professionally cleaned or replaced.

Refer to the section [Space Requirements](#) for a suggested post-processing area layout. Refer to the section [Weights and Measures](#) for weights and measurements of the **LC-3DPrint Box**. Consider the following additional specifications when selecting the location for your post-processing equipment.



*Dimensions for the LC-3DPrint Box, the recommended UV oven for post-curing parts for the printer.*

## Staging-Area Surfaces

Flooring, tabletops, or desktops under the post-processing equipment should be non-porous and suitable for cleaning with solvents. Carpeted floors are not recommended, as any spilled material can soak in and is difficult to completely clean up.

## Electrical Requirements

### LC-3DPrint Box

Power configuration: 110V/230V – 50/60Hz – 2.6A/1.3A

Electrical power for the LC 3D-Print Box must be on a surge-protected circuit. A UPS, while not required, is recommended in areas with frequent power fluctuations, as surges and spikes can damage electronic components and power loss can damage the unit.

### Ultrasonic Cleaner (Optional)

Power configuration: An example of the power configuration for a consumer-grade ultrasonic cleaner is 120W at 40Hz. There are ultrasonic cleaners of many sizes, from around 2.5L (0.66 gal.) to upwards of 757L (200 gal.) Determine which size ultrasonic cleaner is best for your needs.

You must also get an ultrasonic cleaner that is rated to use flammable solvents like IPA or Ethanol. Failure to do so could present a fire hazard.

Electrical power for an ultrasonic cleaner must be on a surge-protected circuit, particularly for a bigger (not desktop) cleaner. A UPS, while not required, is recommended in areas with frequent power fluctuations, as surges and spikes can damage electronic components and power loss can damage the unit.

## Connection to AC Power

The LC-3DPrint Box is designed to plug into a standard power outlet in different countries. Smaller ultrasonic cleaners will also plug into standard wall outlets; bigger ones, however, may require a custom power outlet.

## Ventilation (Ductwork)

The post-processing equipment may be vented outside if required by your facility; however, ventilation is not required by 3D Systems. Contact your Facilities Manager for your requirements.



**CAUTION: Never disconnect a ducting system that is connected to an external extraction system.**

## System Delivery

After placing your order, the printer will be shipped to you. Ensure that the area you intend to place your printer system is ready to move the system into, and that you have two or more people available to help lift the printer, before scheduling the delivery. The following information will guide you through this preparation phase.

## Preparation for Receiving

Moving and positioning the boxed printer on its pallet requires the use of a pallet jack, as the unboxed printer on a pallet weighs 54.9kg (121 lbs). If moving the package by hand, first remove the boxed printer from the pallet. You will then need to team-lift it.



**NOTE: While some printers from 3D Systems require a certified field technician for installation, the installation of the FabPro 1000 is performed by the customer.**

## Transporting the printer

Once you have unpacked the printer, a team-lift-and-transport system works best for moving it.



# Shipment Arrival

## Shipment Contents

The printer will arrive in a single box on a pallet. Before opening the shipping box, you should visually inspect the packaging for any damage it might have incurred during shipping. Please see the section [Setting Up Your Printer](#) for photos and descriptions of what comes in the printer box.



**NOTE:** If the packaging is damaged, notify your authorized print-material provider immediately. **DO NOT** proceed with the unpacking until you have discussed the damage with your authorized print-material provider.

## Optional Accessories Not Included With Shipment

- Glass containers for part cleaning, according to your preferences. Stainless-steel containers are included.
- Air compressor
- NextDent® LC-3DPrint Box or other equally effective UV oven
- NextDent® LC-3DMixer or other equally effective material stirrer
- Ultrasonic cleaner

Once your shipment arrives, inspect it to make sure that everything that should have shipped is there. If anything is missing, stop unboxing the printer and contact your authorized print-material provider. After successful inspection, officially receive the items into your inventory.

## Inspect Exterior of Printer

After you have unpacked the printer, visually inspect the interior and exterior of it for any damage that might have incurred during shipping. Notify your authorized print-material provider immediately if anything is evident at this point. **DO NOT** proceed with the installation until you have discussed the damage with your authorized print-material provider.

## Weights and Measures

The following charts list both boxed and unboxed dimensions/weights for the printer and LC-3DPrint Box. Verify your order and compare to the listed items below. Box or pallet dimensions and weights may vary.

	Boxed Specifications			
Product	Width	Depth	Height	Weight
Printer - Brand-New w/ Pallet	62cm (24.5 in)	62cm (24.5 in)	101cm (39.75 in)	54.9 kg (121 lbs)
LC-3DPrint Box	54.5cm (21.5 in)	57.5cm (22.6 in)	59.5cm (23.4 in)	28.9 kg (63.8 lbs)

	Unboxed Specifications			
Product	Width	Depth	Height	Weight
Printer	43cm (16.9 in)	43cm (16.9 in)	61.2cm (24.1in)	37.5 kg (82.7 lbs)

	Unboxed Specifications			
LC-3DPrint Box	41cm (16.1 in)	44cm (17.3 in)	38cm (15 in)	22 kg (48.5 lbs)

## Third-Party Supplies and Equipment

3D Systems™ provides this partial list of equipment and supplies/accessories that are useful for handling, processing or finishing FabPro parts. You should keep a list of preferred vendors for any 3D-print-related products you may order. Equipment and supplies are not limited to this list, as you may find other products and methods that more suit your needs.



**NOTE:** Customers are responsible for consulting local health, safety, and environmental regulations to determine additional site requirements. No information that is contained in this document constitutes legal advice regarding such requirements. 3D Systems™ has no responsibility to determine whether or not the customer is in compliance with applicable laws, nor do we guarantee the accuracy or quality of the supplier product.

**Uninterruptible Power Supply (UPS)** - While a UPS is not required for use with the printer, you may wish to use one for battery backup of your printer in the case of a power surge or outage.

**UV Filter Screens** - While these are not required, you may need to install filters over windows and lights so as not to cure any exposed print material before printing.

**Disposable Lint-Free Paper Towels** - You will use lint-free paper towels for assisting in cleaning printed parts, printer components, and material spills.



**CAUTION:** It is necessary to use lint-free paper towels, as lint from other types of paper towels can stick on the printed part or printer component. Lint on the printed part can cause improper final part curing in the UV oven. Lint on printer components can contaminate the material on the print platform and in the print tray, causing the printed part to lose accuracy or causing a build to crash.

**Cellulose Wadding** - This absorbent material is useful for covering your FabPro workbench, as well as for absorbing solvents during air drying of printed parts.

**Chemically Resistant Gloves** - 3D Systems recommends the use of 100% nitrile gloves whenever handling uncured material, partially cured printed parts, and solvents.

**Eye-Wash Station** - This may be designed specifically for eye-washing or may be an adapter that fits onto an existing faucet.

**Fire Extinguisher** - NFPA Class B such as CO<sub>2</sub>, dry-chemical, or foam

**Hazardous-Materials Waste Can** - While it is optional to get a fire-proof waste can, you must have a waste can approved to contain FabPro/NextDent materials, according to all local, state, and federal regulations.

**Storage Cabinet** - This is for storing material bottles and other FabPro-related equipment. You may choose to get a fire-proof cabinet; but it is not required to be fire-proof.

**Lab Coats** - Optional measure to protect your clothes/skin from uncured print material and solvents.

**Neoprene-Coated Gloves** - If you choose to use TPM as your cleaning solvent, these gloves are recommended for handling the chemical.

**Cleaning Solvent** - Cleaning solvents are used in cleaning printed parts, printer components, and areas where material has spilled. Please refer the [Cleaning Chart](#) to determine which solvent(s) to order.

**Safety Glasses (405 nm radiation blocking) with side shielding** - The printer operator should not be exposed to hazardous radiation from the printer or curing oven. However, in the case of an emergency where radiation emits from these devices, it is recommended to wear eye protection.

**NextDent® LC-3DPrint Box** - Please see the section [LC-3DPrint Box](#) for more information.

**NextDent® LC-3DMixer** - Please see the section [LC-3DMixer](#) for more information.

**Ultrasonic Cleaner** - Used to clean excess liquid material off the printed part before final UV curing. Order this from your local supply house.

## System Installation

Installation of your system encompasses three separate steps:

1. Purchase and arrival of third-party equipment or supplies you may have ordered.
2. Delivery of your FabPro system shipment.
3. Unboxing and installation of your FabPro system components.

### System Unboxing

Please see the section [Unpacking the printer](#).

### Preparing for System Installation

In preparing your facility for FabPro system placement, you must consider three main factors:

- Make sure that you have the necessary doorway and passageway clearance to move either the boxed or unboxed components to their final destinations.
- Make sure that you have another person to help team-lift the system up to its staging area, boxed or unboxed.
- Be sure that the desk/countertop/table the printer is staged on can handle the weight load of the printer and other ordered components. Please see the section [Weights and Measures](#) for more information.

### Minimum Passageway and Door Openings


Most standard doorways and hallways provide adequate access for moving the system. Each doorway and hallway must be wide enough to move and turn a box measuring 62 x 62 x 101 cm (24.5 x 24.5 x 39.75 in), while also allowing room for the people carrying it. Determine the pathway from where you will receive the boxed components to where your FabPro system will be installed. Walk this path, and measure any critical doorways or passageways to ensure that the equipment can be moved through the area. If a passageway or doorway is too small for the boxed FabPro system, it may be necessary to remove the FabPro system from its box before moving the unit. Since the printer is only 61.2 cm (24.1 in) high, the height limitations of most any door will not be an issue.

## Considerations for Material

You are responsible for ensuring that the facility where your FabPro system and print materials are housed is properly configured for safe operation of the printer system and of the materials used in that system. Personnel who operate the equipment or use the materials must comply with all relevant safety codes and applicable



regulatory requirements and laws, particularly those that relate to usage of hazardous chemicals, UV radiation, and disposal of regulated material. The printer complies with CE requirements.

 **NOTE:** You are responsible for determining whether additional supplies and equipment are necessary according to local, state, federal or other regulatory laws that govern your location.

## FabPro/NextDent material Usage


Print materials in the liquid state require use of surgical-type 100% nitrile gloves and other equipment to protect the user from direct contact with uncured print material. In general, material is fully cured only after adequate exposure in the LC-3DPrint Box or other similar UV oven. Only after being fully cured do the parts no longer require protective gloves to handle. The LC-3DPrint Box has been designed especially for NextDent® materials. As such, you must use the LC-3DPrint Box in order to achieve medical certification of your parts printed with NextDent material.

## Material Disposal

FabPro and NextDent print materials are regulated and, as such, are subject to disposal requirements by your local, federal, or other regulatory agencies. Follow applicable disposal guidelines. Contact a local waste management company for recommendations on disposal requirements that affect your facility.

If your area requires regulated waste disposal, consult with and retain a waste-management company to periodically pick up regulated waste. Your local waste management company may recommend that you set up a dedicated waste container to dispose of liquid material and of any materials (such as paper towels or gloves) that may have come into contact with the uncured liquid material.

After final part curing in the LC-3DPrint Box, fully cured printed parts may be disposed of in regular trash receptacles.

 **NOTE:** Inspect printed parts after curing in the LC-3DPrint Box to ensure they are fully solidified. Part-surface tackiness and visible areas of liquid material indicate the part is not fully cured.

## Storage and Usage Guidelines

Always wear appropriate safety equipment, such as 100% nitrile gloves when handling uncured liquid material. Protect your body from any direct contact with uncured liquid FabPro/NextDent material.

- Always read the Safety Data Sheet (SDS) prior to use of any print material.
- Always use the oldest print material first. All materials have a shelf life that is listed on its bottle. Using the oldest material first helps you to use all your purchased materials within that period of time. The expiration date of a material will be printed on its bottle.
- During storage, shield the print material from sunlight or other sources of UV radiation, such as fluorescent or mercury vapor lights. Exposing the material to UV radiation increases product viscosity and chance for polymerization, and may make the print material unsuitable for part building. Storing material above the maximum recommended temperature can also make the material unsuitable for part building.
- Store containers of FabPro or NextDent materials indoors between 18°C-28°C (64.4°F-82.4°F). Storing material at conditions below 18°C or above 28°C could render the material unusable for part building.

Please see the section [Material Handling and Safety](#) for more information.

## Individual Material Guidelines

Each material has a different chemical makeup that gives it the desired properties as a solid 3D part. As such, each material has its own set of instructions regarding safety, usage in the printer, post-processing, and usage of parts printed with it. Please read the SDS and Instructions for Use that came with each of your material bottles to ensure that you understand each material's unique needs.

## Checklists

Please download the printable checklists by clicking on the link below:

[FabPro-1000-Initial-Site-Survey-Checklist.pdf](#)

[FabPro-1000-Pre-Installation-Preparation-Checklist.pdf](#)

# Setting Up Your Printer

The following items and accessories are contained in the printer package.

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## Printer



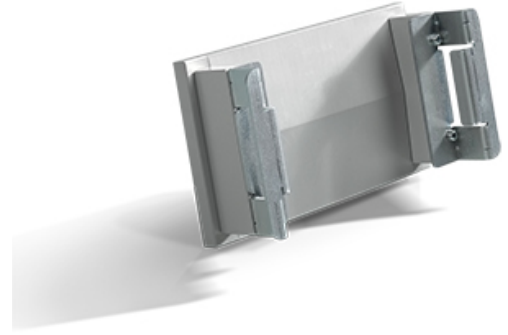
**Print Tray** - This contains the print material during part building. It has a transparent membrane at the bottom of it that allows UV radiation to shine through and cure the print material.



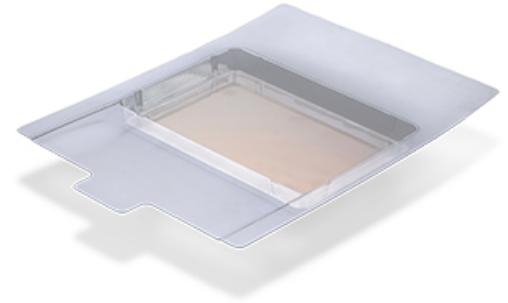
**Storage Tray for Print Tray** - Used to cover a print tray that contains material, so as to protect it from UV light exposure



**Print Platform** - The 3D-printed part adheres to the print platform during building



**Catch Tray** - Prevents material spills from entering the lower build chamber



**Glass Print Base** - This transparent plate sits under the print tray to keep tension across the membrane at the bottom of the print tray.



**Ethernet Cable**







**Power Supply**



## FabPro™ Proto GRY Material (1kg)



## Contents of Finishing Kit

Item	Qty	Image
<b>Rinse Tanks and Lids</b> - These containers are used for cleaning build parts of uncured material.	2 each	
<b>Putty Knife</b> - Used to remove build parts from the print platform	1	
<b>Scrapers</b> - Used to scrape any residual cured material off the print-tray film	3	
<b>Tweezers</b> - Used to remove supporting architecture off of printed parts	1	

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**Flush Cutters** - Used to cut supports off the printed part

1



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**Rinse Bottle - 500mL** - used to store the recommended solvents used in part cleaning. Also used to squirt solvent onto a printed part or printer component.



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**Nitrile Gloves - Large** - used to protect hands from uncured liquid print material and cleaning solvents.

30  
pairs

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**Paper Towels** - used to help clean printed parts and printer components. Also used to prevent and clean material spills.

100



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**Resin Mixer** - used to mix the liquid print material while in the print tray

1



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**Part-Cleaning Brush** - to brush dust-like debris off the printed part

1



## Necessary Accessories

**LC-3D-Print Box**, or other UV-curing oven. If you are using NextDent® material, you must use this specific oven to achieve medial certification for your printed parts.

 **NOTE:** The LC-3DPrint Box is also the recommended UV-Curing oven for all FabPro™ print materials. All materials have been tested to work best with this oven.



**Material Bottles** - The printer uses various general purpose and dental materials, which come in 1kg bottles. Please see the sections [FabPro Print Material](#) and [NextDent Print Materials](#) for a complete list of currently supported print materials.



## Optional Accessories

**LC-3DMixer** - If your material requires machine mixing, this is the recommended bottle mixer and is supplied by 3D Systems. Please see the section [Stir the Material](#) for more information.



**Ultrasonic Cleaner** - You may choose to clean partially cured printed parts, as well as print trays and print platforms, with an ultrasonic cleaner. 3D Systems does not supply ultrasonic cleaners. Please purchase this from your local supplier



*This image is for example purposes only and is not a recommendation or endorsement of any brand of ultrasonic cleaner.*

**Low Workbench** - To sit your printer on top of and store frequently used tools. Work benches are not supplied by 3D Systems. Please purchase this from your local supplier.



*This image is for example purposes only and is not a recommendation or endorsement of any brand of workbench.*

## Unpacking the Printer



**NOTE:** These instructions are only for unpacking the printer you are obtaining for the first time. For instructions on unpacking a printer obtained via advanced exchange, please see the section [Unpacking Exchanged Printer](#).

Your printer will ship in a cardboard box with foam packaging, atop a wooden pallet.



**CAUTION:** Ensure that you **SAVE** the pallet, all cardboard, all foam and all other packing material in case you need to repack your printer. Shipping the printer without original packing materials may cause damage to the printer.



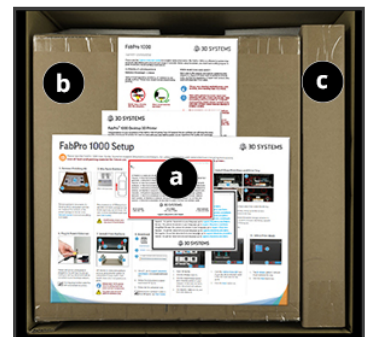
**NOTE:** Please see the section [Repackaging the printer](#) for repacking instructions.



1. Remove plastic, packing belts, and packing tape using a razor. Open top of package (1)

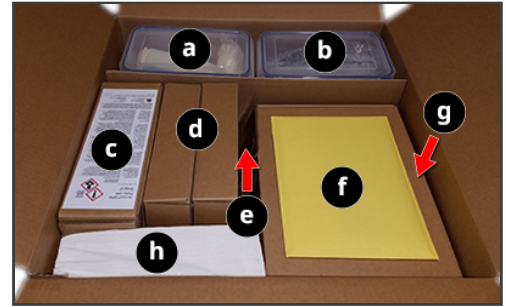


2. Observe the contents in the top of the box:
  - a. Documents in the box
  - b. Finishing kit
  - c. Power cord (country specific)
3. Remove the documents and the power supply and set them aside.



4. Remove the finishing kit and open it up. Inspect the contents against the items listed below. Ensure that all items are accounted for in their expected quantities.

- a. Rinse Tank 1 - contains diagonal cutting pliers, nitrile gloves, and resin mixer
- b. Rinse Tank 2 - contains power brick and rinse bottle
- c. Bottle of FabPro™ Proto GRY material with Safety Data Sheet (SDS)
- d. Print Platforms (x2)
- e. Platform Scraper
- f. Glass Print Base
- g. Print Tray Storage - contains Print Tray
- h. Paper Towels



5. Open four box clips along bottom of box. You do not have to remove them.



6. Remove box from around printer, leaving just the base cardboard and foam packaging.



7. Inspect the printer for any damages. If you observe any damages, cease unpacking and contact your authorized print-material provider immediately. If the printer does not have any damage, proceed to Step 8.



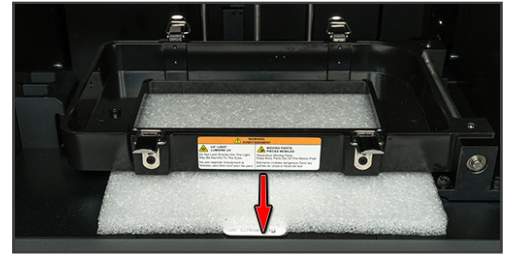
8. Team-lift printer off pallet and move it to its staging area.



9. Remove plastic packaging and Silica gel packing insert (circled).

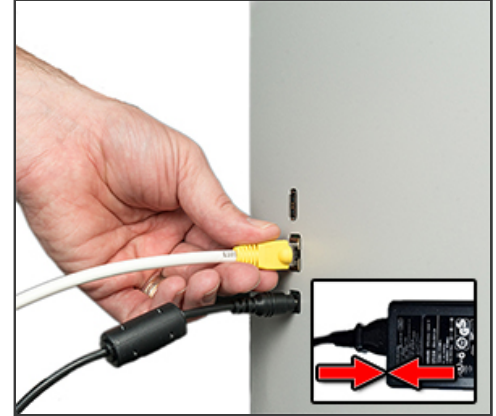


10. Open printer door. Remove foam from underneath the tilt tray.



11. Connect power cord and adapter together and connect to printer. Plug adapter into wall outlet.

12. If you wish to send jobs to the printer over a network, connect the Ethernet cable to the printer. WiFi connection to the printer is not available.



**CAUTION:** Printer weighs 37.5kg (82.7 lbs). Please be careful, and use proper lifting techniques, as well as the help of another person, to avoid injury.



**CAUTION:** Do not install the printer near direct sunlight or other strong UV source. If the print material is exposed to direct sunlight, the material will begin to cure. Standard fluorescent lamps with clear plastic diffusers are recommended to minimize ultraviolet exposure. Sunlight, quartz-halogen lamps, and high-intensity incandescent lamps are not suitable. UV filters are available for windows and exposed fluorescent lamps.



**CAUTION:** Install the printer on a sturdy, level surface. Do not install it in a place where it will straddle table/counter/desk seams. If at all possible, install in a ground-floor room with a concrete base. Do not install over or near carpeted areas or other porous surfaces such as hardwood. These precautions exist to maintain the integrity of your 3D-printed builds and for safety in the event of a material spill.

## Install Print Platform

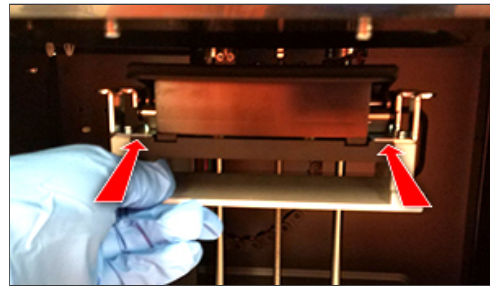


**ALWAYS WEAR NITRILE GLOVES WHEN HANDLING THE PRINT PLATFORM, AS IT COULD HAVE UNCURED MATERIAL ON IT THAT COULD IRRITATE THE SKIN.**



**NOTE:** Before performing this procedure, ensure that elevator is at its upper limit, or offload, position.

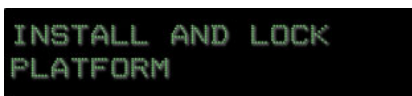
1. Install the print platform in the machine, using the guides on either end of the elevator platform to guide the print platform into place.



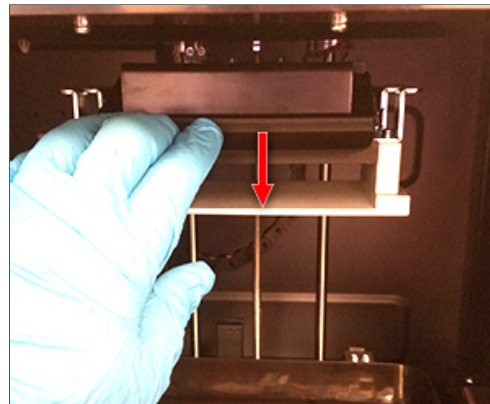
2. Push down the handle to lock the print platform in place.



**NOTE:** The printer checks if the print platform is present and if the handle is locked down. The printer will not print unless both conditions are met. If either condition is not met, you will receive the error message below before the print process begins.



**CAUTION:** Do NOT lift up the locking handle during printing. Doing so will abort the print job.

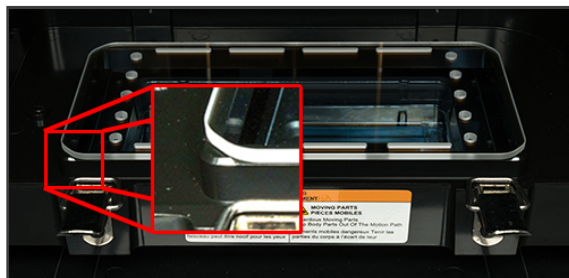


## Install Print Tray

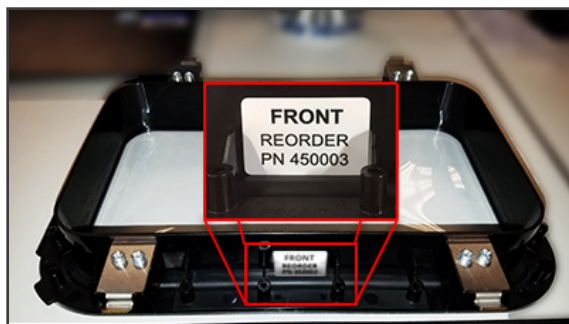
1. Ensure the glass print base is clean and install it in the printer, being sure to line up the flat corners of the print base with the flat parts of the corner brackets in the tilt tray.



**WEAR 100% NITRILE GLOVES WHENEVER HANDLING PRINTER COMPONENTS. THIS IS TO BOTH PREVENT MATERIAL FROM GETTING ON YOUR HANDS AND PREVENT TRANSFER OF DIRT AND OIL FROM YOUR HANDS TO THE PLATE. FINGERPRINTS AND DEBRIS ON THE PLATE CAN INTERFERE WITH THE LIGHT PROJECTED BY THE PRINT ENGINE AND RESULT IN FAILED BUILDS.**



2. When inserting the print tray into the tilt tray, ensure that the **FRONT** label is facing forward.





- 3. Install the print tray inside the tilt tray, locking all four toggle-case latches.



## Print Tray Life Span

The film in the bottom of the print tray will wear out over time, even if it is not specifically damaged. When this happens, the film cannot be replaced by itself; the whole tray must be replaced. In 3D Systems testing, the expected life of the print tray has been determined to be whichever of these events comes first:

40 print jobs

**or**

3 kgs of material have been printed in the tray.

**or**

The tray has been continuously in the printer, locked down with tension on the membrane, for four months.

## Tips to Give the Print Tray the Longest Possible Life

1. If you are printing a lot of the same (or similar) parts, do NOT place them in the same area of the print platform in 3D Sprint multiple times in a row. Place the part in a different spot each time you print it.
2. Do not nick the print tray film when using the Resin Mixer.
3. If you will not be using the print tray for some time, remove it from the machine and store it in the included print-tray storage container.

## Booting Up the Printer

Power the printer on by plugging it in. You will hear the sound of the tilt tray moving to its home position. This is normal.

1. The first time you turn the printer on, it will not be activated. The printer display will briefly flash the firmware version it is running and will then show a screen asking you to activate the printer.




2. Each successive time you turn the printer on, it will briefly display the firmware version and then it will show the screen at the right.




After the printer powers on for the first time, you may use the Power Button to switch it on and off. Please see the section [Power the Printer On/Off](#) for more information.

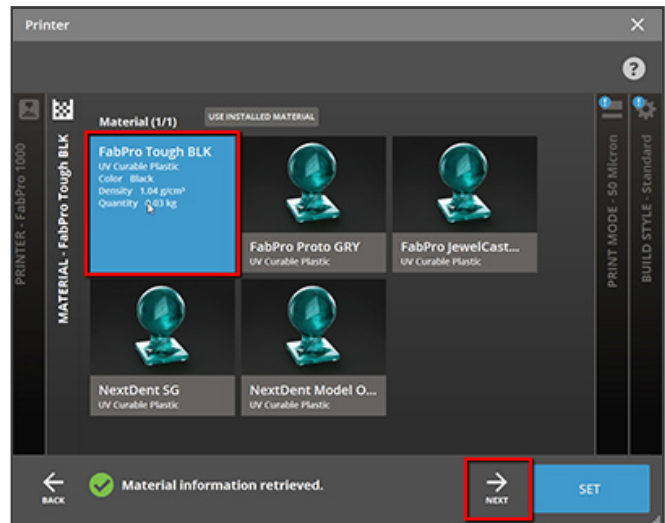
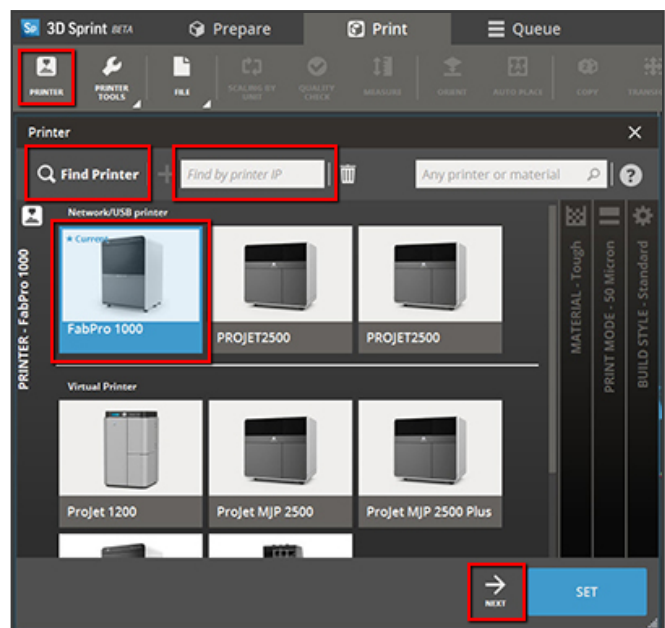
# Installing 3D Sprint Software

 **NOTE:** 3D Sprint software is always subject to updates. An announcement, along with release notes, will accompany a new software-version release.

To download 3D Sprint and obtain a license, please visit the [Software Downloads](#) page. Before installing 3D Sprint, you may have to update some settings on your computer and graphics card. Please read the **3D Sprint Installation Guide** for procedures on this and for full installation instructions. What follows are instructions that assume your computer has been made ready for 3D Sprint.

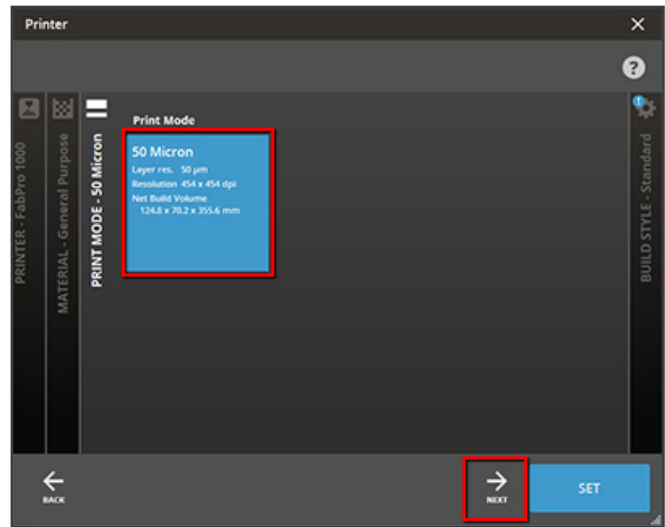
## Set Up Network and Settings

1. Open **3D Sprint** if not already open.
2. If the **Printer** dialog box is not already open, click the  icon in the upper-left-hand corner.
3. In the **Printer** dialog box, click the **Find Printer** button. 3D Sprint may not find your printer on the network. If this happens, put your printer's IP address (showing on the printer display) in the **Find by printer IP** field and press **Enter**.
4. Click the **FabPro 1000** icon. Click **Next**.
5. Click the icon of the **print material** you will use in your build. Click **Next**.

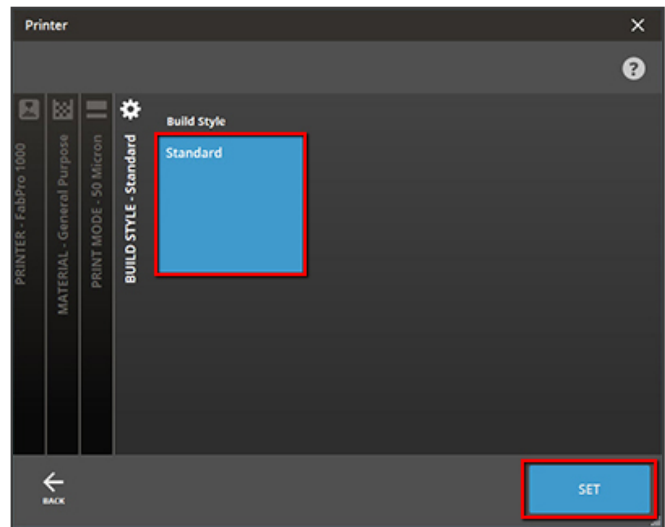




6. Click the icon of the **print mode** you will use in your build. Click **Next**.



7. Click the icon of **build style** you will use in your build. Click **Set**.



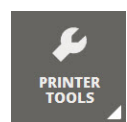
## Update Printer Firmware

Whenever you open 3D Sprint, as long as the FabPro 1000 is set as your default printer, the system will always check to see if your printer has the most up-to-date firmware. If not, it will show you a popup prompt to update the firmware. Click the button to update. If you choose to update the firmware at a later date, please close the popup and follow the instructions below when you are ready to update.



**NOTE:** Both your 3D Sprint computer and the printer must be on the same network to update the printer's firmware.

1. Click the **Printer Tools** button.
2. Click the **Check for Updates** button. This will either give you a popup to update the printer's firmware or a popup that will tell you that the printer's firmware is up to date.



## 3D Sprint Tutorial Videos

This section provides instructional videos for common functions you will perform in 3D Sprint for the FabPro 1000.

Videos not available offline.

## Accuracy Wizard

To help ensure exact scaling of your printed parts, you may use the Accuracy Wizard in 3D Sprint.

 **NOTE:** You will need calipers or a micrometer for this procedure to measure printed parts.

1. You must have geometry loaded to begin the process.  
Either load an STL file or click **Generate Geometry**. This will place a cube in the build area by default. Click **Set**.



2. Click the **Build Style** button.




3. In the Build Style window, click the **Scale & Offset Wizard** button.

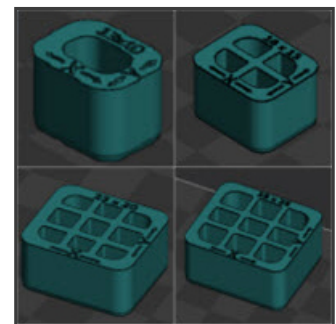
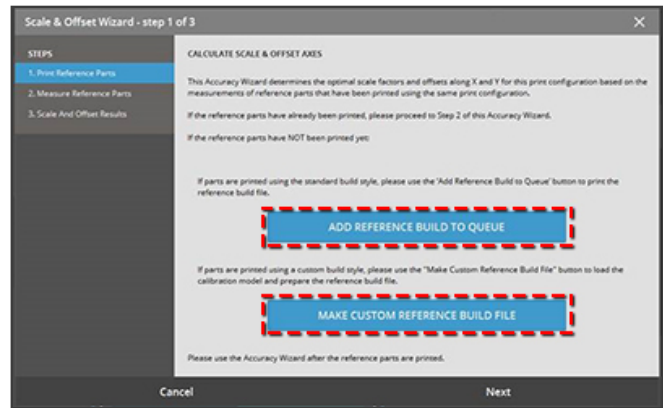


4. In the Wizard, you will see the following buttons, depending on whether 3D Sprint is connected to the printer:

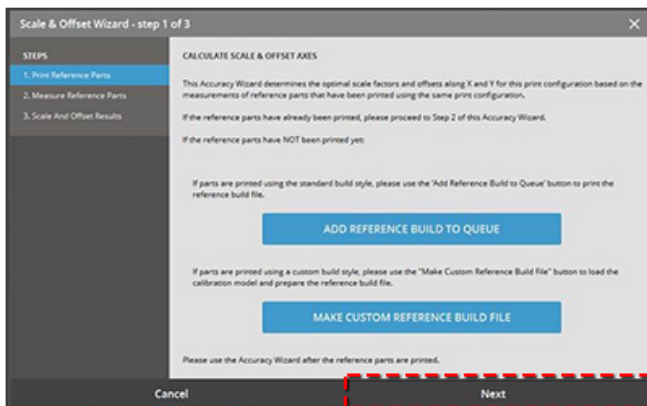
- a. If you are using the Standard Build Style, click **Add Reference Build to Queue**. Doing this will automatically create a .pxl file with four standard parts and submit it to the print queue. These parts will be printed using the Standard Build Style and other background factors.
- b. If you are using a custom Build Style, click **Make Custom Reference Build File**. Then do the following:
  - i. Open the Smart Supports dialog window and click **Create Supports**.
  - ii. In the Build Style window, manually set the following fields to **0**: X Offset and Y Offset.
  - iii. In the Build Style window, manually set the following fields to **100%**: Scaling Factor X and Scaling Factor Y.
  - iv. Print the part.
- c. If 3D Sprint is not connected to the printer over your network, the top button will instead read **Save Reference Build File**. This will output a .pxl file that you can save to your computer or USB device, to load on the printer later.

5. Run the printing process, as outlined in the section [Begin Your Print Job](#). This will print four parts that look like the models at the right. They should be roughly (clockwise from top-left) 13x10mm, 18x15mm, 23x20mm, 28x25mm. The dimensions and x/y axes will be printed on the part. Post-process the parts as in the section [Post Processing](#).

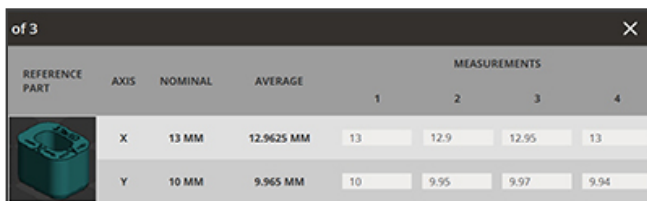
 **NOTE: Some printer configurations will print five models. Be sure to include this model's measurements in future Steps in the wizard.**



6. Open 3D Sprint again and click the **Scale & Offset Wizard** button to open it. This time, instead of adding a reference build file to the queue, you will click the **Next** button.



7. Measure the parts printed in Step 6 with calipers or a micrometer in the X and Y directions. You will measure the parts four times each in X and Y and input your measurements in the fields in the wizard that correspond to the part you are measuring. You will notice that every time you enter a value, the number in the "Average" column updates to show you the average of your measurements.

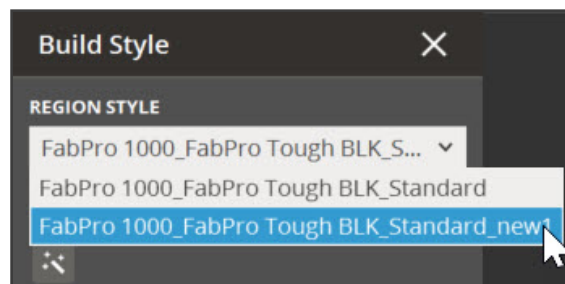


8. Repeat this process for each of the models and click **Next** when you are finished.

9. You will then see the results screen, which will show you how much the printer will now offset builds with this build style. It also shows you the scaling corrections as a percent. Click the **Apply** button to add this scaling to your current build style.

AXIS	OFFSET	SCALE
X	-0.0029 mm	100.2305
Y	0.0256 mm	99.9251

10. You will now be able to select this style from the **Build Style** menu going forward, allowing you to build with these scale factors at any time.



11. Remember that the Build Style is tied to the print material you are using. If you use a different print material on another print job, you will need to run this wizard again for that material. The software will automatically create/name the new build style; but you can click the **Rename** button to rename it.

12. When you select this build style in the future, you can verify that it is the style with scale factors applied by looking at the **Scaling Factor** fields in the **Build Style** window.

Scaling Factor X	100.2305	%
Scaling Factor Y	99.9251	%

13. Click **File > Save** to save your work.

## Material Updates

From time to time, 3D Systems will launch new FabPro Print Materials. The material will launch alongside a 3D Sprint database update, which will allow for selection of that material in 3D Sprint. The update will also add a new Build Style for the material, custom-made by 3D Systems for optimum printing results. Upon launching the new material, 3D Systems will post a [Customer Information Bulletin \(CIB\) here](#), which will contain instructions for downloading and installing the update.

## 3D Sprint Additional Documentation

Please click the  icon, or press **F1**, in 3D Sprint for information on:

- Preparing a build file to send to the printer
- Updating firmware
- User Interface explanations

The [Quick-Start Guide](#) will also walk you through preparing a build file in 3D Sprint with FabPro™ Proto GRY material.

The first time you send a build file to the printer, you will be prompted with a screen in 3D Sprint to register the printer. Fill out your information and click **OK**.

## Printing Process

This section describes the printing process, from powering on the machine through to starting a print job.

## Power Button

The power button on the printer not only powers the printer on, but also:

1. Uses LEDs of different colors to indicate different system conditions
2. Allows the operator to perform printer functions through combinations of pressing and holding down the button.

**Pressing** the button will allow you to scroll through different options. **Holding down** the button for **three seconds** will allow you to select/confirm different options. You will see examples of these controls throughout the rest of this guide.



**CAUTION: Holding down the power button for eight seconds at any time will cause the printer to shut down. Ensure that during normal printer operations, you are only holding down the power button for three seconds to advance screens.**

## Power Button LED Indicators

Blue



All printer functions

Red



Error - the printer's LCD screen will alert you to the type of error

## Begin Your Print Job



**HARMFUL IRRITANT WARNING: WEAR PROTECTIVE CLOTHING, DISPOSABLE NITRILE GLOVES, AND GOGGLES WHILE FOLLOWING THESE STEPS.**



**NOTE:** Ensure that the elevator is at its upper-limit position before beginning this procedure.





**CAUTION:** If a leak/spill occurs inside the printer, do not run the machine. The projector's UV radiation will harden material on the glass print base and any other surface it touches, making it very hard to remove. A long cleaning swab and Isopropyl Alcohol (IPA) will help clean up any spilled, uncured material.



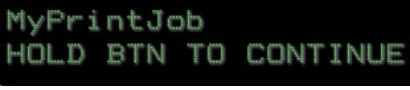




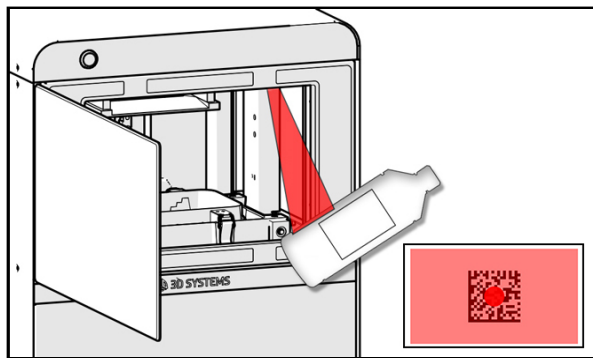
**NOTE:** The printer will only hold one build file at a time in its memory. If you try to load another build file from 3D Sprint, it will overwrite the most-recent build file written to the machine. Once the printer begins printing, you will not be able to submit any print jobs via 3D Sprint or via USB.

## Print via 3D Sprint

For instructions on preparing a build file in 3D Sprint, please open the [3D Sprint Help Menu](#) by clicking the  icon in 3D Sprint. Once you have sent the print job to the printer:



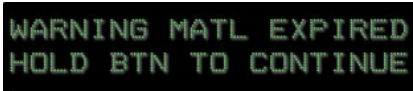



 **NOTE:** If this is the first time you have used the printer, you will see a message on the printer screen asking you to activate your printer. In **3D Sprint**, fill out your information and click **Submit**.

	Printer Message	Translation
1. Once you have sent the job to the printer, you will see the message at the right on the printer. <b>Press</b> the power button to continue.		Printer ready [IP Address]
2. You will see the screen at the right. <b>Hold down</b> the power button and the printer will look to see if a build file was sent to it.		Print job Hold button to continue
3. The printer will display the name of the file you sent from 3D Sprint. If the filename is longer than 20 characters, it will scroll across the screen to show you the complete name.		My-print-job.pxl Hold button to continue
4. <b>Hold down</b> the power button to confirm you want to print the file.		
5. The printer will verify the build file and then you will see the screen at the right. Retrieve the material bottle you wish to use for this print job.		Please scan material cartridge
6. Hold the bottle's QR code under the QR-code scanner. Wait until you see the message at the right before pulling the bottle away from the scanner. Please see the gray box below for other messages you might receive when scanning a material bottle.		Add material. Hold button to continue





You must go through the QR code-scanning process before each print, even if you are using the same bottle as your last build. The printer will **not** begin a print job unless a QR code has been scanned. This is so that the system can detect certain conditions:

	Printer Message	Translation
a. If the system detects that the material bottle is empty, it will ask you to scan another bottle. You will see the message at the right.		Cartridge empty Please scan another
b. If the system detects that the material bottle you scanned does not match the material in the print-job data, it will ask you to scan another bottle. You will see the message at the right.		Incompatible material Verify material type
c. If the system detects that the material bottle you scanned is past its expiration date, you will see the message at the right appear for three seconds. You will, however, still be able to print with the expired material. If you decide NOT to print with expired material, you may abort the print process by <b>pressing</b> the power button. <b>Hold down</b> the power button to confirm print cancelation.		Warning material expired Hold button to continue
<p> <b>CAUTION: If you use expired material of any kind, the integrity of the build might be compromised. 3D Systems is not responsible for failed builds or damage to equipment resulting from expired print-material use.</b></p> <p> <b>CAUTION: If you are disposing of the expired print material, do so according to all local, state, and federal regulations. Be sure to also dispose of expired print material that remains in the print tray and catch tray in the same manner.</b></p>		
d. If the system detects an invalid QR code, you will see the message at the right. This could mean the QR code is damaged or did not scan properly.		Invalid barcode Please try again

7. Before pouring the material into the print tray, be sure you do the following:

- a. Shake the bottle vigorously in an up-and-down motion for 2-5 minutes (1) **OR** mix the material on the NextDent® LC-3DMixer (2). Which mixing method to use for a material, as well as how long it must be mixed, can be found in the material's Instructions for Use. If the best-possible uniformity in the part is desired, using the LC-3D Mixer is recommended.



**CAUTION: Failure to sufficiently mix materials before each build may result in color deviation and/or print failure.**

- b. If you are using a different material than your previous build used, be sure that you follow the material changeover instructions in the section [Change Material Type](#).



**CAUTION: Failure to properly switch materials will result in reduced reactivity of the new material, even when only very small amounts of different material(s) are mixed in. This will result in build failure and wasted material.**

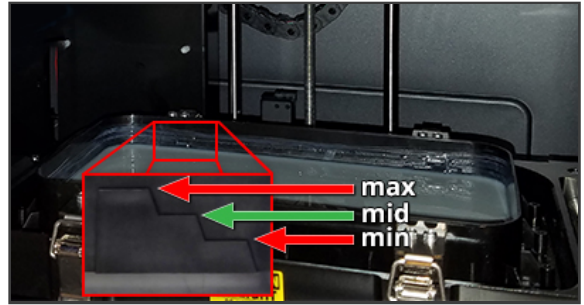


- c. If you are using the same material as in your previous build, be sure that the print platform and print tray are completely clean of debris (such as dust), partially cured material residue, and any other materials that are not the same as the material you are about to print with.



**CAUTION: Failure to clean the print tray and print platform of debris may affect the material's reactivity and the printed part's ability to adhere to the print platform.**

8. Pour material into the print tray. Use the steps etched in the side of the print tray as a guide, with the bottom step being the minimum fill amount and the top step being the maximum fill amount. It is best to make sure the material is filled to the middle limit before starting a build. Starting a build with only the minimum fill risks the printer running out of material during the build. Filling to the max level, or beyond, risks spilling material during a build and/or when removing the print tray. 3D Sprint will also provide an estimated material usage and recommended fill level in the tray.



**NOTE:** You may have enough material in the print tray from a previous pour. In this case, it is okay not to pour more material in the tray. Simply follow the instructions as if you did pour.

9. Close printer door. **Hold down** the power button to begin your print job.

10. Your print job will now begin. You will see a countdown timer on the printer screen. Printing times will vary depending on the scope of the build. The time format for the printing timer is HR:MM.

#### Printer Message

PRINTING  
4H:10M REMAINING

#### Translation

Printing  
4H:10M remaining

11. When the print job is complete, you will see the screen at the right. Please proceed to the section [Post Processing](#).

PRINT COMPLETE  
CLEAR PLATFORM

Print complete  
Clear platform

## Print via USB Drive

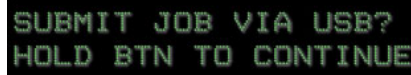
If the printer is **not** on a network, you will need to send print jobs via a USB device. This section assumes you have prepared the build file in **3D Sprint** and transferred the file to the USB device.

**NOTE:** The printer will only hold one build file at a time in its memory. If you try to load another build file from the USB device, it will overwrite the most-recent build file written to the machine. Once the printer begins printing, you will not be able to submit any print jobs via 3D Sprint or via USB.

#### Printer Message

#### Translation

1. Insert USB drive into the USB port on the left side of the printer. You will see the message at the right. You may cancel the job submission at this point by **pressing** the power button once. **Hold down** the power button to confirm job cancelation.



SUBMIT JOB VIA USB?  
HOLD BTN TO CONTINUE

Submit job via USB?  
Hold button to continue

2. **Hold down** the power button to detect print jobs on the USB device.



CANCEL USB SUBMIT?  
HOLD BTN TO EXIT

Cancel USB submit?  
Hold button to exit

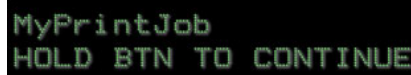
3. If the printer does NOT detect build files, you will see the screen at the right. Please try loading your build files onto the USB again. You may cancel the job submission at this point by **pressing** the power button once. **Hold down** the power button to confirm job cancelation. If the printer does detect build files, skip to **Step 4**.



NO JOBS DETECTED  
HOLD BTN TO EXIT

No jobs detected  
Hold button to exit

4. If the printer detects build files, you will see a message like the one at the right on the printer screen, with your build file's name on the first line. If the filename is longer than 20 characters, it will scroll across the screen to show you the complete name. At this point:



MyPrintJob  
HOLD BTN TO CONTINUE

myprintjob.pxl  
Hold button to continue

- a. **Hold down** the power button to load this build file on the printer's memory.
- b. **Press** the power button to skip over this build file and look for the next file on the USB device. Repeat this process until you have found the print job you wish to submit. **Hold down** the power button to submit the print job.

- c. If you go through the whole list of print jobs on the USB device without selecting one, you will see the message at the right on the printer screen. Holding down the power button at this point will bring you back to the printer's **Idle** screen.



END OF JOBS LIST  
HOLD BTN TO EXIT

End of jobs list  
Hold button to exit



**NOTE: The maximum storage the printer has for build files is 1GB.**

5. If you submitted a build file in Step 4a, this will begin the printing process. You will see the screen at the right.



Job ready  
Hold button to start

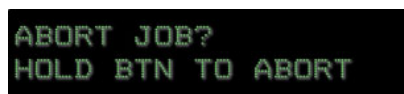
6. Continue with Step 4 from the previous section [Print via 3D Sprint](#).

## Abort the Print Job

You may manually abort the print job at any time during the build.

1. **Press** the power button once. You will see the message at the right on the printer screen.

### Printer Message



### Translation

Abort job?  
Hold button to abort

2. **Hold down** the power button to confirm print job cancelation.



User stopped print  
Aborting



**HARMFUL IRRITANT WARNING: AFTER ABORTING THE PRINT JOB, YOU MUST DISPOSE OF THE PARTIALLY PRINTED PART AS YOU WOULD ANY UNCURED MATERIAL AND ACCORDING TO ALL LOCAL, STATE, AND FEDERAL REGULATIONS. ALWAYS HANDLE THE PARTIALLY CURED PART AND THE PRINT PLATFORM WITH 100% NITRILE GLOVES. CLEAN THE PRINT PLATFORM AS YOU WOULD AFTER ANY PRINT JOB.**

## Print Tray Material Cross-Usage

You may clean the print tray with recommended solvent between builds, enabling you to use different materials in the same print tray (not at the same time). However, since residual elements of print material cannot be reliably fully removed from the print tray, there are only certain materials that may be swapped out per individual print tray. The chart below shows which materials can share the same print tray. **Mark your print trays with letters, numbers, or other notations to help you remember which tray is which.**

Tray 1	Tray 2	Tray 3	Tray 4	Tray 5	Tray 6	Tray 7
NextDent® Surgical Guide	NextDent® Model 2.0	FabPro™ Proto GRY	FabPro™ JewelCast GRN	FabPro™ Tough BLK	FabPro™ Elastic BLK	FabPro™ Flexible BLK
NextDent® Model						
NextDent® Ortho Rigid						

## Stir the Material

Before printing with all materials, you must mix the material bottle on the [NextDent® LC-3DMixer](#). Before printing again with those materials, you must stir the material in the print tray using the [Resin Mixer](#), as seen in the next section. The chart below describes each compatible material's requirements for: bottle mixing time, stirring time in

the print tray, and post-curing time. The curing time is included so the chart may be a quick reference guide for stirring and curing materials. Please read your material's label to be sure whether or not the material requires mixing and stirring.

If material has spilled or dripped down the print-material bottle, clean the bottle with Isopropyl Alcohol (IPA) and paper towels. IPA will clean the material off without ruining the bottle label.



**CAUTION:** Your material bottle's QR code must be able to be scanned by the printer. Using another solvent besides IPA to clean the bottle risks damaging the QR code. If this happens, call your authorized print-material provider for further guidance.



**WEAR 100% NITRILE GLOVES WHENEVER HANDLING LIQUID FABPRO/NEXTDENT MATERIAL AND/OR IPA.**

## Material Stirring and Curing Chart





**CAUTION:** Failure to sufficiently mix materials according to this chart may result in color deviation and/or print failure.

Name	Bottle Mixing Time Required (LC-3DMixer)		Stirring Time Required (in print tray)		Curing Time in LC-3DPrint Box
	Before 1st use	Before 2nd use	In tray less than 3 hrs	In tray more than 3 hrs	
NextDent® Surgical Guide	5 min.	5 min.	no stirring required	no stirring required	10 min.
NextDent® Model	2.5 hrs.	1 hr.	30 secs.	60 secs.	10 min.
NextDent® Model 2.0	2.5 hrs.	1 hrs.	30 secs.	60 secs.	10 min.
NextDent® Ortho Rigid	5 min.	5 min.	10 secs.	30 secs.	10 min.
FabPro™ Proto GRY	1 hr.	10 min.	30 secs.	30 secs.	60 min.
FabPro™ JewelCast GRN	1 hr.	10 min.	30 secs.	30 secs.	30 min.
FabPro™ Tough BLK	n/a	n/a	30 secs.	30 secs.	150 min.
FabPro™ Elastic BLK	1 hr.	10 min.	30 secs.	30 secs.	45 min.
FabPro™ Flexible BLK	1 hr.	10 min.	30 secs.	30 secs.	60 min.



**NOTE:** If your print-material bottle has been sitting unused for more than one month, treat it like a new bottle and mix it according to the "brand new bottle" column above.

-  **NOTE:** Instead of using the bottle mixer, you may opt to mix the material bottle by hand, shaking it vigorously in an up-and-down motion. Shake it for five minutes for a new material or for one you are treating as new (see above note). Shake the bottle for two minutes for a recently used bottle. Please see the section [Begin Your Print Job](#) for more information. You **MAY NOT** hand-mix NextDent Model 2.0 material. This technique will not sufficiently mix the material.
-  **NOTE:** Ensure that you place the build in your UV curing oven in the same orientation it was printed in, as if the bottom of the oven is the print platform.

## Resin Mixer

Material that is left in the print tray between builds needs to be stirred periodically with the Resin Mixer. Refer to the [Material Stirring and Curing Chart](#) and/or your material's Instructions for Use for information on stirring print materials.

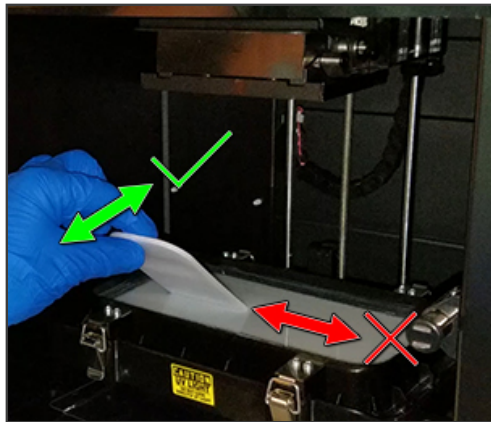


**CAUTION:** Failure to sufficiently mix materials before each build may result in color deviation and/or print failure.



**CAUTION:** Ensure that the mixer is clean before each use. To clean the mixer, wipe it with a nonabrasive cloth and the recommended solvent.

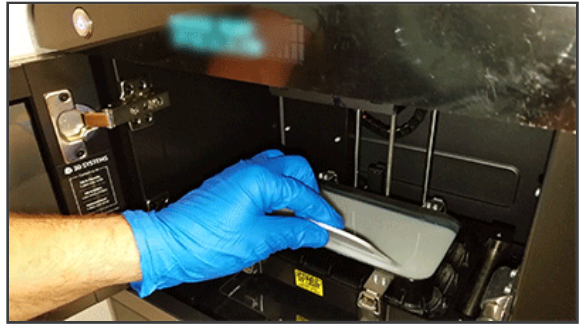
1. Run the mixer through the material, with the sharp end (1) facing down. Grip the mixer on the indented gripper (2). Do this for five minutes. Please see the images below for the proper stirring technique.



*Do not move the Resin Mixer's blade across the print-tray film like a knife. Rather, move it up and down similar to using an ice scraper.*



2. Holding the mixer slanted, run it back and forth through the material, careful not to put too much pressure on the print-tray film. Do this for the time prescribed in the Material Stirring and Curing Chart.



**CAUTION:** Putting too much pressure on the print-tray film can dent or puncture the film, rendering the tray unusable. The film cannot be replaced by itself; if the film is damaged, the whole print tray must be replaced.



**CAUTION:** Puncturing the print tray will force a full tray's worth of print material into the catch tray. Use extra caution when handling a full catch tray.



**CAUTION:** If the print tray gets punctured, discard it in the same way you would other materials that have been in contact with liquid material.



**CAUTION:** Take care not to slosh material out of the print tray while stirring. If this happens, you will have to clean the parts of the printer that the material got on.

3. After stirring, allow the mixer to drip material back into the print tray and then wipe excess material off the mixer with a nonabrasive cloth.

4. Repeat this process before every print job.



**CAUTION:** Be sure to clean the mixer with IPA between uses. Failure to do so risks mixing unstirred material or different material in with material currently in the print tray.

# Post Processing

## Introduction

Once your 3D build has completed, the part on the print platform is considered **green** until it has been through post-processing. A green part must be handled with 100% nitrile gloves at all times. This section describes how to post-process the part, rendering it safe to handle without nitrile gloves. You will need lint-free paper towels to catch material that may drip from the part, recommended solvent, and two cleaning tubs (included).

## Remove Print Platform



**ALWAYS WEAR 100% NITRILE GLOVES DURING THE POST-PROCESSING HANDLING OF THE BUILD PARTS.**

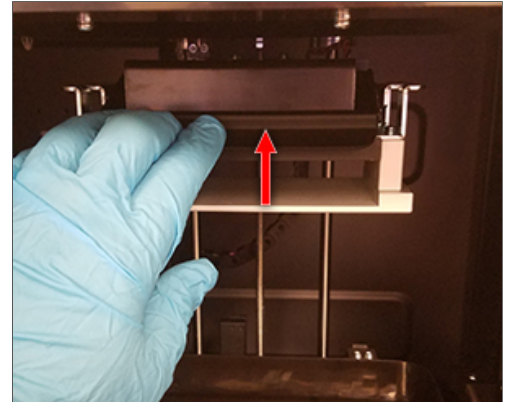


**CAUTION:** Always follow the precautions noted on the SDS sheets for any material or solvent being used.

1. Place a paper towel under the part. Lift up the locking handle to allow the print platform to be removed.



**NOTE:** Material may drip from the part. The towel is used to collect dripping material so that printer components are not exposed to material.



2. Remove print platform from printer **with printed part attached**. Support the paper towel underneath with your hand so that it does not dip into the material in the print tray.



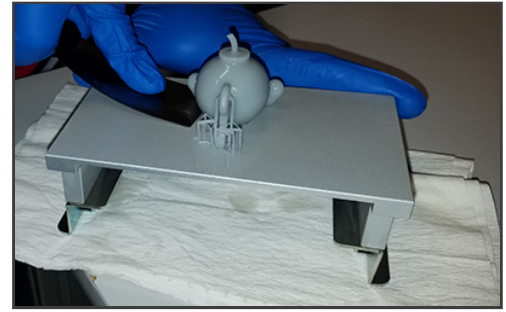
**CAUTION:** Do not remove the printed part from the print platform while platform is still in the machine. Doing so risks getting partially cured print material in the print tray, which will damage future builds if not cleaned out.



3. Continue holding the paper towel under the print platform when transporting it to the first stage of post-processing.

## Remove Printed Parts From Platform

1. Using included platform scraper or similar tool, carefully scrape the part off the print platform.



2. Using your hands, pliers, or dental/jewelry tools, remove the base and other supporting architecture from the part.


## Clean Printed Parts - Introduction

The following equipment is needed to clean parts produced on the printer:

1. Plastic containers with lids, which are included with the printer. If it is your preference to use other containers, be sure they are large enough to accommodate the parts you will print.
2. Digital timer
3. Solvent, as prescribed in the [Cleaning Chart](#)
4. Optionally, you could have an ultrasonic cleaner, which agitates the cleaning solvent using ultrasonic sound waves.

If this is the best solution for you, your ultrasonic cleaner should have:

- a. Digital Timer
- b. Volume big enough to accommodate the parts you will print, along with:
- c. Stainless-steel or glass rinse tanks big enough to accommodate the parts you will print. Plastic containers (like the ones included with the printer) will not have a good enough transfer of energy to be effective in an ultrasonic cleaner.

 **NOTE:** Some materials require the use of an ultrasonic cleaner for part cleaning to achieve certification as a medical device for its printed parts. Please read your material's Instructions for Use to determine if you must use ultrasonic methods.



**ALWAYS WEAR 100% NITRILE GLOVES WHEN CLEANING PRINTED PARTS.**


## Cleaning Chart


Please use the chart below for the recommended cleaning method of your printed parts. The solvent choice is specific to the material used to build the part.


**Recommended solvents for material spills** - For any of the solvents listed below as being used in the 1st part bath, you may also use that solvent to clean material spills.

Material Type	Ultrasonic Cleaning	Manual Cleaning	Max Number of Builds That Can Be Cleaned Before Solvent is Saturated

<b>Material Type</b>	<b>Ultrasonic Cleaning</b>	<b>Manual Cleaning</b>	<b>Max Number of Builds That Can Be Cleaned Before Solvent is Saturated</b>
NextDent® Model NextDent® Surgical Guide NextDent® Model 2.0 NextDent® Ortho Rigid	<b>1st bath</b> - 3 min <b>dirty</b> Isopropyl Alcohol (IPA) or Ethanol <b>2nd bath</b> - 2 min in <b>clean</b> IPA or Ethanol	manual cleaning not recommended	10-12
FabPro™ Proto GRY	<b>1st bath</b> - 2 min <b>dirty</b> IPA <b>2nd bath</b> - 2 min in <b>clean</b> IPA Fresh IPA rinse	<b>1st bath</b> - 2 min <b>dirty</b> Isopropyl Alcohol (IPA) <b>2nd bath</b> - 1 min in <b>clean</b> IPA	10-12
FabPro™ JewelCast GRN	<b>1st bath</b> - 1 min <b>dirty</b> in IPA <b>2nd bath</b> - <b>clean</b> IPA dip 30 seconds Fresh IPA dip 30 seconds	<b>1st bath</b> - 2 min <b>dirty</b> Isopropyl Alcohol (IPA) <b>2nd bath</b> - 1 min in <b>clean</b> IPA	5
FabPro™ Tough BLK	<b>1st bath</b> - 4 min <b>dirty</b> IPA <b>2nd bath</b> - 3 min in <b>clean</b> IPA Fresh IPA rinse	<b>1st bath</b> - 3 min <b>dirty</b> Isopropyl Alcohol (IPA) <b>2nd bath</b> - 2 min in <b>clean</b> IPA	6-8
FabPro™ Elastic BLK	<b>1st bath</b> - 4 min <b>dirty</b> IPA <b>2nd bath</b> - 4 min in <b>clean</b> IPA Fresh IPA rinse	<b>1st bath</b> - 4 min <b>dirty</b> IPA <b>2nd bath</b> - 4 min in <b>clean</b> IPA Fresh IPA rinse	6-8
FabPro™ Flexible BLK	<b>1st bath</b> - 2.5 min <b>dirty</b> IPA <b>2nd bath</b> - 2.5 min in <b>clean</b> IPA Fresh IPA rinse	<b>1st bath</b> - <2.5 min <b>dirty</b> IPA <b>2nd bath</b> - <2.5 min in <b>clean</b> IPA Fresh IPA rinse	5

 **NOTE:** The recommendation for max number of builds in the chart above is assuming builds of a medium width and height volume. If you have very dense builds with tall parts, the solvent baths may become saturated with a fewer number of builds. Always pay attention to build-surface tackiness and shininess, as this is an indication that uncured liquid material is still on the build.

 **NOTE:** For the first bath, it is okay to use solvent that has already been used to clean other parts. You may do this until the solvent becomes saturated. Then you must discard the dirty solvent according to all local, state, and federal regulations.

 **NOTE:** For FabPro branded materials: for the first bath, 3D Systems' EZ Rinse C solvent is also suitably effective.



**TIP:** The clean IPA that becomes saturated according to the number of builds in the chart above should then be used for the first ("dirty") IPA bath until the max number of builds has been reached again.



**WARNING: ETHANOL AND IPA ARE FLAMMABLE AS BOTH LIQUID AND VAPOR. IPA FLASH POINT IS 11.7°C (53.1°F). ETHANOL FLASH POINT IS 16.6°C (61.9 °F). KEEP AWAY FROM HEAT, SPARK AND OPEN FLAMES. USE WITH ADEQUATE VENTILATION. STORE AT 20-30°C (68-86°F).**

## Clean Parts Manually



**NOTE:** Some materials require that you use an ultrasonic cleaner, rather than manual cleaning methods, to clean printed parts. Please read your material's Instructions for Use to determine if manual cleaning is sufficient.

The following instructions are recommendations for hand-cleaning parts made with FabPro™ materials. **For instructions for NextDent® materials, please see your material's Instructions for Use.**

1. Mark plastic containers as "Container 1" and "Container 2."
2. Place printed part into Container 1.
3. Add Isopropyl Alcohol (IPA) to Container 1 until it completely submerges the printed part(s). Fasten the lid onto the container.



**NOTE:** You may use "dirty" solvent for this first part bath. Solvent is considered "dirty" when it has reached the maximum number of prints specified for your material in the [Cleaning Chart](#). You may use "dirty" solvent for an additional number of prints equal to the "maximum number" specified in cleaning chart. For example, you may use "dirty" IPA or EZ rinse C to clean 10-12 parts, for a total of 20-24 parts cleaned. Once you have reached this maximum again, you must discard the solvent/material mixture according to all local, state, and federal regulations.

4. Lightly shake the container back and forth, just enough to agitate the liquid. Follow the instructions in the [Cleaning Chart](#) for how much time is required for this first bath.
5. Remove part(s) from Container 1 and allow excess IPA to drip from the part(s) for 30 seconds. You may wish to use shop air or an air compressor to dry the part in between cleanings, as this is an effective method for getting one solvent off the part before dipping it into another. You may also need to use the included **Part-Cleaning Brush**, dipped in solvent, to clean part surfaces and fine features.
6. Place printed part(s) into Container 2.
7. Follow steps 3-5, but this time using **clean** IPA. Follow the instructions in the [Cleaning Chart](#) for how much time is required for this second bath.




**NOTE:** You must use "clean" IPA for the second part bath. Solvent is considered "clean" if it has been used to clean less than the maximum number of prints specified for your material in the [Cleaning Chart](#). Rinsing with dirty solvent in this step risks not completely cleaning the part of uncured liquid material.




**TIP:** Once you have used the "clean" IPA to wash the maximum-allowed parts, you may then use it for the first, "dirty" part bath (see Step 3).

8. Inspect the part(s) closely to make sure no liquid material remains. Pay particular attention to shiny areas, as they may indicate the presence of liquid material. If you are unsure if liquid material remains, it is best to repeat Step 7. You may also need to use the included **Part-Cleaning Brush**, dipped in solvent, to clean part surfaces and fine features.

 **NOTE:** Be sure that you replace the lids on Containers 1 and 2 when they are not in use.

 **NOTE:** IPA must be disposed of according to all state, local, and federal regulations.

## Clean Parts With Ultrasonic Cleaner

 **NOTE:** Read all documentation that came with your ultrasonic cleaner for operating and safety instructions.



**ALWAYS WEAR 100% NITRILE GLOVES WHENEVER HANDLING ANY UNCURED PRINTED PART, AS WELL AS WHEN HANDLING ANY SOLVENT USED TO CLEAN SUCH PARTS.**



**CAUTION:** Ensure that your ultrasonic cleaner is properly rated to use flammable solvents. Failure to do so could present a fire hazard.

The following instructions are recommendations for using an ultrasonic cleaner to clean parts made with FabPro™ materials. For instructions for NextDent® materials, please see your material's Instructions for Use.

1. Label your glass or steel containers as "1st Bath" and "2nd Bath."
2. Wearing nitrile gloves, place the printed part(s) inside 1st Bath container. Pour recommended solvent (see [Cleaning Chart](#)) into the container until you completely submerge the printed part. Dirty solvent may be used for this first bath.



**NOTE:** You may use "dirty" solvent for this first part bath. Solvent is considered "dirty" when it has reached the maximum number of prints specified for your material in the [Cleaning Chart](#). You may use "dirty" solvent for an additional number of prints equal to the "maximum number" specified in cleaning chart. For example, for FabPro Proto GRY material, you may use "dirty" IPA or EZ rinse C to clean 10-12 parts, for a total of 20-24 parts cleaned. Once you have reached this maximum again, you must discard the solvent/material mixture according to all local, state, and federal regulations.

- Place 1st Bath container inside the ultrasonic cleaner.



- Follow the instructions in your ultrasonic cleaner's User Guide to power it on and begin cleaning. Follow the instructions in the [Cleaning Chart](#) for how much time is required for this first bath.
- After the cleaning cycle has finished, remove the printed part from the ultrasonic cleaner using nitrile gloves. You may wish to use shop air or an air compressor to dry the part in between cleanings, as this is an effective method for getting one solvent off the part before cleaning it with another.
- For 2nd Bath container, follow the instructions above from Steps 2-5, but this using "clean" solvent. Follow the instructions in the [Cleaning Chart](#) for how much time is required for this second bath.

**NOTE:** You must use "clean" IPA for the second part bath. Solvent is considered "clean" if it has been used to clean less than the maximum number of prints specified for your material in the [Cleaning Chart](#). Rinsing with dirty solvent in this step risks not completely cleaning the part of uncured liquid material.



**TIP:** Once you have used the "clean" IPA to wash the maximum-allowed parts, you may then use it for the first, "dirty" part bath (see Step 2).

- Inspect the part(s) closely to make sure no liquid material remains. Pay particular attention to shiny areas, as they may indicate the presence of liquid material. If you are unsure if liquid material remains, it is best to repeat Step 6.



**NOTE:** Be sure that you place lids on Containers 1 and 2 when they are not in use.


 **NOTE:** Solvents must be disposed of according to all state, local, and federal regulations.

## Dry the Build Parts

For information on the different methods for drying build parts, please see the section [Air-Drying Parts](#). For any drying method, please use the following guidelines:

1. If using compressed air, dry the part until there is no discernable liquid on it. Then let it sit out for **30 minutes** on a paper towel before proceeding to UV curing.
2. If air drying only, let the part sit out for **60 minutes** on a paper towel before proceeding to UV curing.
3. Always dry printed parts over a tub, lab paper towel, or absorbent cloth. Do NOT dry the part over a sink or tub that drains to normal wastewater.
4. Discard any disposable towels used in the drying process according to all local, state and federal regulations. These towels have been in contact with uncured material and solvents, and must be treated as such.
5. On a regular basis, have a professional cleaning service wash any absorbent cloths used in the drying process.
6. If you dry the part over a tub, periodically empty/clean it, discarding its contents according to all local, state, and federal regulations. The tub has been in contact with uncured material and solvents and must be treated as such.
7. If using an air compressor in the same room (as opposed to shop air), wear ear protection when it is in use.
8. Always wear 100% nitrile gloves and safety glasses when handling green printed parts. When drying with a high-pressure method, uncured material or solvent may splash.
9. If you come into contact with uncured material during part drying or at any time, wash the affected area with soap and COLD water. Any clothes contaminated with uncured material or solvent must be dry cleaned promptly.

## UV-Cure the Part

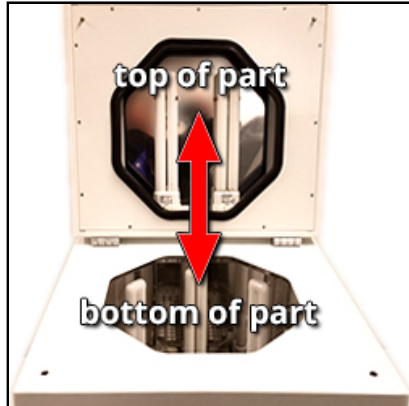
 **NOTE:** For NextDent® materials, it is necessary to use the LC-3DPrint Box as your UV oven in order to meet medical certifications. Ideal, tested curing times for materials are outlined in the section [Material Stirring and Curing Times](#).



1. After the part is completely dry, insert the part into your UV oven in the same orientation it was printed in, as if the bottom of the curing oven is the print platform. Please see the image below for reference.



**CAUTION: Use nitrile gloves whenever touching or operating the LC-3DPrint Box. Normal usage of the oven will most likely get uncured material on the box handle, buttons, and screen; so it is always best to take this precaution.**



2. Follow instructions in your UV oven instruction manual to begin the post-curing process. If you have the LC-3DPrint Box, the instruction manual can be found both in the packaging or by downloading the link here: [NextDent LC-3DPrint Box Instructions for Use](#).
  3. Please see the [Material Stirring and Curing Chart](#) for a quick reference of curing times for different materials. Do not open the curing chamber door until the curing process has been completed. The LC-3DPrint Box has a sensor that will turn the machine off during curing if the lid is open. Please see the Instructions for Use of the material you are using for full post-curing instructions.
  4. Once the printed part has been fully cured, remove the part from the UV oven, using nitrile gloves when opening and closing the oven.
  5. Inspect the part for surface tackiness and/or areas of discernable liquid material. If either condition exists, clean the part with recommended solvent once more and put it back in the UV oven until there is no more uncured material on it. **The printed part is now safe to touch without nitrile gloves.**
- CAUTION: Be careful not to over-cure the part. Over-curing can cause discoloration and part warping.**
6. You may now wish to further refine the part's shape with fine-grit sandpaper or dental tools, removing any remnants of supporting architecture that remain on the part.

## Clean Print Platform and Print Tray



**CAUTION: Do not clean the print platform or print tray in a sink or tub that drains into wastewater. These components must be cleaned in a self-contained tub and the solvent/material mix must be discarded according to all local, state, and federal regulations.**

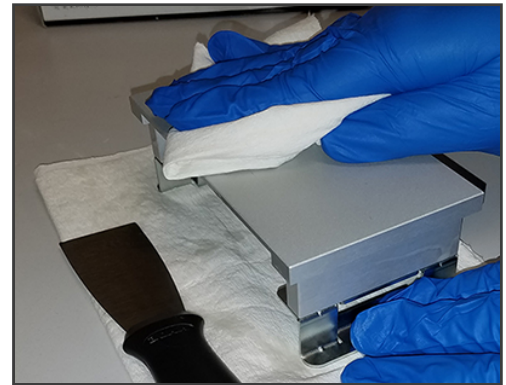


**WEAR GLOVES: ALWAYS WEAR 100% NITRILE GLOVES WHENEVER HANDLING A PRINTER COMPONENT THAT HAS BEEN IN CONTACT WITH LIQUID MATERIAL, EVEN IF YOU HAVE CLEANED THE COMPONENT. IF THE COMPONENT MUST BE HANDLED WITHOUT GLOVES, YOU MUST FIRST PLACE IT IN A UV-CURING OVEN FOR THE TIME SPECIFIED FOR THE MATERIAL IT HAS BEEN IN CONTACT WITH.**

## Clean Print Platform

You must clean the print platform after each use.

1. Use a putty knife or something similar to scrape away the excess cured print material on the print platform.
2. If a greasy residue still exists, pour recommended solvent onto a nonabrasive cloth and gently clean the print platform until the residue is removed.
3. Place the print platform into an ultrasonic bath, if available, with **recommended solvent**. Or you may manually clean the platform in the rinse tanks included with your printer.
4. Completely dry the platform of any solvent, using any of the same **techniques used to dry a printed part**.



## Pigmentation on the Print Platform

If you use any print materials with pigmentation in them, you may observe that they slowly stain the print platform after repeated use. This is okay and has not been shown in testing to adversely affect the build quality of future parts, even when using different materials. If you wish to remove as much of the pigmentation as possible, the best way to do this is to soak the platform in IPA overnight. This might not remove all pigmentation.

## Remove and Clean Print Tray

You must remove the print tray periodically to clean it and inspect it for damage.

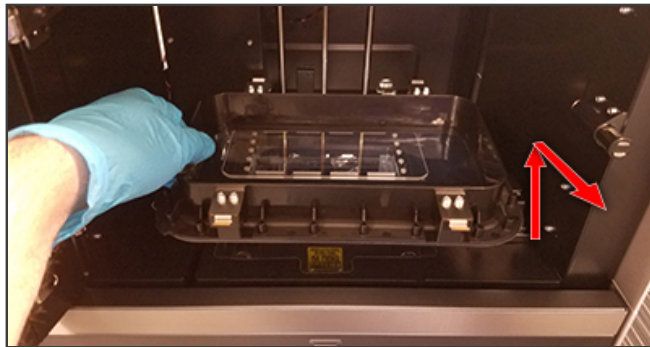


**NOTE:** The elevator must be at its upper limit and the print platform must not be in the printer during this procedure. This will ensure that: 1. The elevator arm are out of the way; and, 2. No material drips from the print platform onto the glass print base.

1. Wearing nitrile gloves, release all four toggle case locks that connect the print tray to the chassis.



2. Lift the print tray up and out of the printer, careful not to spill any material that is inside.



## Clean Print Tray

If you are not building again for a long period of time, it is best to empty the print tray and clean it to prolong the life of the tray.

1. Pour material out of print tray and into storage bottle via a funnel. Seal the bottle and store it in a cool, dark place.

Clean the funnel with the [recommended solvent](#) for your material.



**CAUTION: Be sure that you are pouring the material back into a bottle of the same material. Mixing materials causes both materials to become ineffective.**

2. Pour recommended solvent into the print tray and let it soak for a while.
3. Discard solvent/material mix according to local, state, and federal regulations.
4. Use a microfiber cloth or lint-free paper towel to softly wipe the bottom of the print tray.



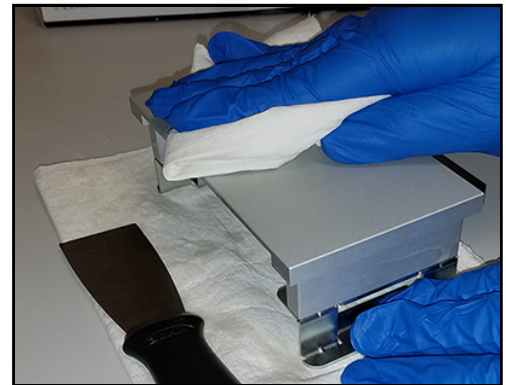
**CAUTION: Do not put pressure on the print-tray film when cleaning. Doing so could damage the film and render it unusable.**

## Change Material Type

The FabPro 1000 can print with many different FabPro™ and NextDent® materials. Please see the sections [FabPro Print Materials](#) and [NextDent Print Materials](#) for a full list of supported materials. This section describes the steps that are necessary to cease using one material type in the printer, and to begin using another material type.

Materials can leave residual material in the print tray, even when cleaned well. For this reason, some materials cannot be used in the same tray that held another material type. The section [Print Tray Material Cross-Usage](#) details which materials are compatible with each other and can be used in the same tray. If the material you are switching to is not compatible with your original material, you must use a new print tray for the new material. The following procedure will walk you through switching materials in both scenarios.

1. Remove the print platform and print tray, cleaning them both, as per the section [Clean Print Platform and Print Tray](#). For changing materials, it is best to submerge these components in Isopropyl Alcohol (IPA) during the cleaning process. Putting them through an ultrasonic cleaner is even better. This ensures that material gets drawn out of all the crevices of the components.



2. After removing the print tray, label it **on the outside** with an identifying number, letter, or word(s) to let you know which material was in it before. For the sake of this example, we are using the [Print Tray Material Cross-Usage](#) chart as a guide.

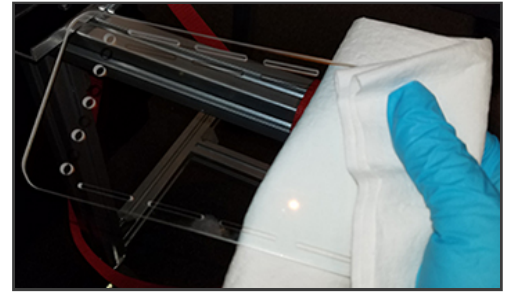


3. Remove, clean, and reinstall the glass print base, as per the section

#### Clean Glass Print Base.



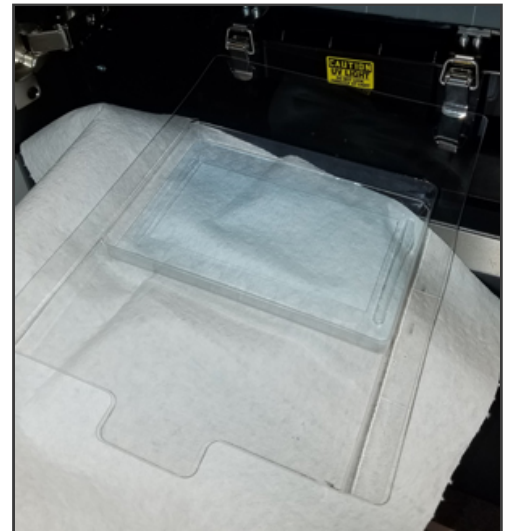
**CAUTION:** Ensure the glass print base is properly seated when you reinstall it. Failure to do so risks damaging the print-tray film. If that happens, the entire print tray will have to be replaced.



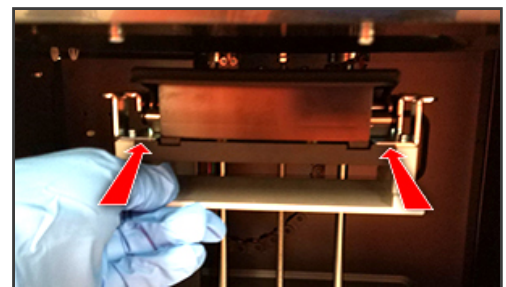
*Ensure all four corners of the glass print base are seated securely within the raised plastic guides.*

4. Remove, clean, and reinstall the catch tray, as in the section

#### Remove/Replace Catch Tray.



5. Reinstall the print platform.



6. As discussed in the introduction to this section, you will now either install a new print tray or reinstall the cleaned old one, as per the section [Install Print Tray](#).

7. If this is a new print tray, label this tray with the same naming convention used in Step 2.



**You are now ready to perform the print process with a new material.**

# Service and Support

Should any questions or issues arise, please contact 3D Systems as listed below.

## Customer Support Hotline

For issues not involving printer damage or replacement, please contact the Customer Support Hotline at one of the following numbers:

- US and Canada: 888-598-1438
- UK and EMEA: +44 1442 279883
- International: +1 803-326-3930

## General

Printer service procedures must only be performed by 3D Systems or an authorized printer reseller, unless this guide explicitly states otherwise. If your 3D printer system needs service, contact your authorized print-material provider.

For safety data sheets of FabPro™ materials, go to <http://www.3dsystems.com/support/materials/msds>.

For safety data sheets of NextDent® materials, go to <https://nextdent.com/products/> and click on a material. Scroll down until you see a link for the SDS, similar to this:

The material is available in 1.000g containers.

Download the [Instruction for Use](#), [Safety Data Sheet](#) and the [Declaration of Conformity](#).

Certified according to the [Medical Device Directive 93/42/EEC](#)



# Preventative Maintenance

## Preventative Maintenance

To keep the printer in proper working order, it is necessary to perform certain procedures for preventative maintenance, procedures which you can perform and do not need to be performed by a certified 3D Systems field engineer. The following section describes the most up-to-date preventative maintenance procedures. Any service procedures outside the scope of this document would need to be performed by your authorized print-material provider.



**CAUTION: Always shut down the printer before performing any preventative maintenance.**



**NOTE:** 3D Systems reserves the right to periodically update this document with new procedures, as needed. Please refer back to the printer Preventative Maintenance and Troubleshooting Guide on <http://support.3dsystems.com> for the most-up-to-date preventative maintenance procedures.

## Preventative Maintenance Chart

Please download the chart by clicking on the link below. The chart will help ensure that you have performed all preventative maintenance procedures.

[FabPro-1000-pm-checklist.pdf](#)

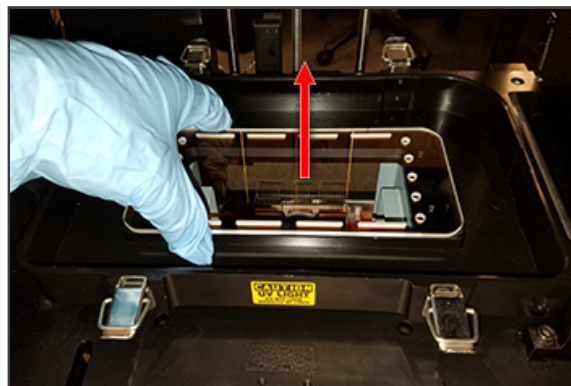
## Clean Glass Print Base



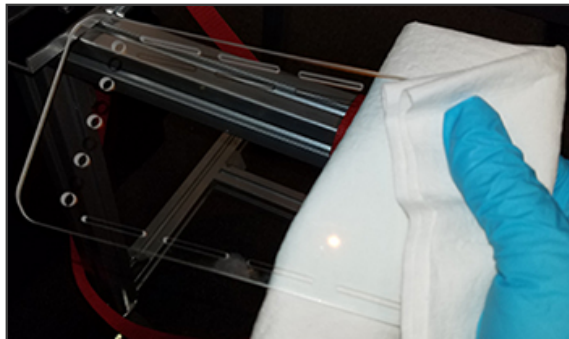
**ALWAYS WEAR NITRILE GLOVES WHEN HANDLING ANYTHING THAT COULD HAVE UNCURED MATERIAL ON IT.**

The glass print base at the bottom of the build chamber could get material on it from spills or accidental contact with contaminated gloves. If this material is not cleaned off before building again, not only can it interfere with your build, but it can also cause the glass to break due to the heat generated by the printing process. If the glass print base breaks, you will need to replace it before performing any future builds. To prevent such events:

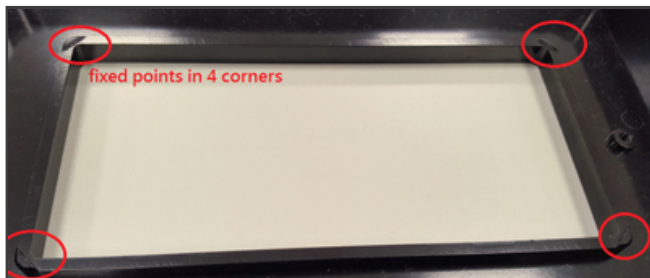
1. Take the glass print base out of the printer and clean it with recommended solvent and a nonabrasive cloth periodically, **even if it seems that no material is on it.** Clear materials or tiny drops might not be noticed unless the glass is taken out and cleaned.



2. After cleaning, be sure that the base is completely dry before inserting it back into the machine, so as not to contaminate the printer with cleaning solvent. Dry it with shop air or microfiber cloth.



3. When reinstalling the plate in the machine, be sure that the base is secure and inline with the flat guides on all four corners.



*Glass lines up with flat guides on all four corners*

## Remove/Replace Catch Tray

### Remove the Catch Tray

You will have to empty the catch tray whenever there is a material spill into it.



**NOTE:** Be sure that you remove the print tray and glass print base prior to performing this procedure.

1. Have a washing tub and recommended solvent on-hand. The tub should be big enough to submerge the whole catch tray if need be.



**CAUTION:** Do not empty or wash the catch tray in a sink or other tub that drains into wastewater. The uncured print material inside must be disposed of according to all local, state, and federal regulations.



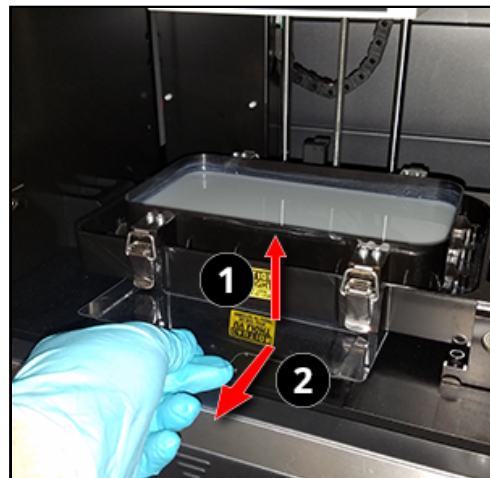
- Wearing nitrile gloves, grab the back of the catch tray with one hand, and the front with the other. Lift the tray up (1) and then pull it slightly toward the front of the printer, until it rests on the chassis (2).



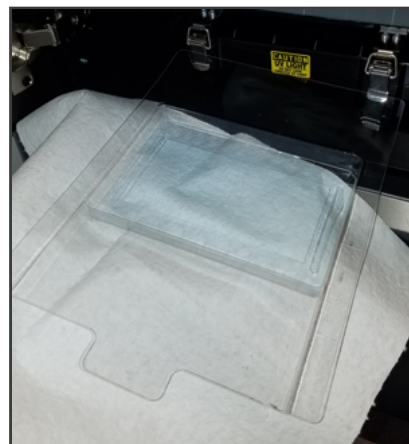
**ALWAYS WEAR 100% NITRILE GLOVES WHEN HANDLING THE CATCH TRAY, EVEN IF IT APPEARS THERE IS NO MATERIAL ON THE OUTSIDE OF IT.**



**CAUTION:** Always hold the catch tray upright to avoid spilling the material inside.



- Slowly pull the tray out. Holding the tray with one hand, hold a lint-free paper towel underneath with the other to catch any potential spilled material.



- Dispose of the print material in the tray according to all local, state, and federal regulations.



**CAUTION:** Do **NOT** reuse the material in catch tray. Doing so risks contaminating the material in the print tray, which will lead to failed builds.

- Wearing nitrile gloves, hold the catch tray in the tub you prepared and wash it with recommended solvent and a nonabrasive cloth, such as microfiber. Dispose of solvent/material mix according to all local, state, and federal regulations.
- Thoroughly dry the catch tray with shop air or other method.

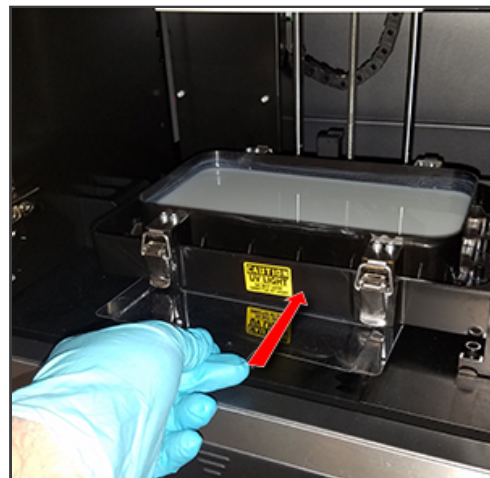
## Replace the Catch Tray

Use the following instructions to reinsert the catch tray into the printer or to install a new catch tray.



**WEAR 100% NITRILE GLOVES WHENEVER PUTTING HANDS INSIDE THE PRINT CHAMBER.**

1. Place the catch tray on the middle of the chassis so that the concave part faces the back of the printer.



2. Slide the tray toward the back of the printer until the concave part drops into the opening and the flat part of the tray is flush with the chassis.



## Cleaning the Printer

The internal parts of the build chamber can be wiped clean with recommended solvent and a soft, nonabrasive cloth (such as a microfiber). Clean the print tray, print platform, catch tray and any other components that could have uncured, liquid material or other debris on them. Please see the section [Clean Print Platform and Print Tray](#) for more-specific instructions on cleaning those components.



**CAUTION:** Printer components may have uncured clear material or bits of partially cured print material stuck to them that might not be visible to the naked eye. It is best to clean printer parts on a periodic basis to be sure there is no buildup.



**CAUTION:** For any parts that can come out of the printer, you must remove them before cleaning. Cleaning any components while still inside the printer risks contaminating the printer with solvents and/or uncured material.



**CAUTION:** When cleaning components that can't come out of the printer, such as the elevator assembly, be sure to pour the cleaning solvent onto the cloth and then wipe the part. Pouring solvent directly onto a part inside the printer, such as the elevator, will result in spilling the solvent in unwanted areas and contaminating the machine. Likewise, do not oversaturate the cloth with cleaning solvent, so as to avoid solvent dripping from the cloth.


## Part Replacement

### Part Replacement

There are some parts in the printer that are replaceable by the customer in the field. Go to [fabpro.3dsystems.com](http://fabpro.3dsystems.com) for information on ordering replacement parts. These parts include:

- Print Tray
- Print Platform
- Catch Tray
- Glass Print Base
- DC Adapter/power cord

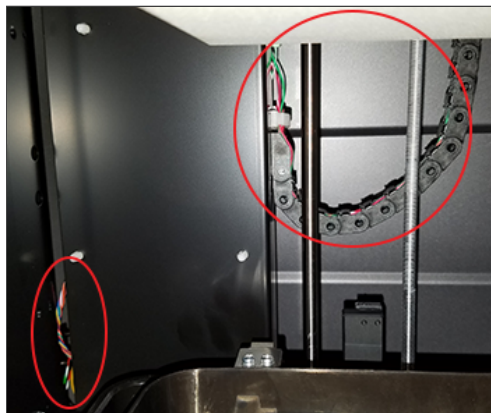
Please see the full list of user-replaceable parts in the [Welcome Letter](#) that came with your printer.

 **NOTE:** This list is subject to change at the discretion of 3D Systems. Please see [fabpro.3dsystems.com](http://fabpro.3dsystems.com) for the most-up-to-date list of customer-replaceable components for the printer.

## Inspect All Cables and Connections

1. Ensure that the power cable and the power adapter are in good shape. If the cable is damaged and/or any wiring is exposed, cease use of the printer and order a new cable or adapter.
2. Ensure the Ethernet cable is in good shape and that it still connects tightly on the network port of both the printer and your computer. If this cable is damaged and/or wiring is exposed, cease use of printer and order a new cable.

3. Inspect any visible wires inside the printer. If any of the wiring is damaged, contact your authorized print-material provider. The printer will have to be sent back to 3D Systems for repair.



*Visible wiring in back of build chamber*



*Visible wiring in bottom of build chamber, taken through view box.*

4. Inspect the areas around all wired connections for dust collection and other debris. Keeping these areas clean will prevent static hazards and damage to the printer.

## Run Printer Diagnostics

Run all printer diagnostics, as described in the section [Printer Diagnostics](#). Running the Test-Print Diagnostic is optional during regular preventative maintenance.

# Troubleshooting



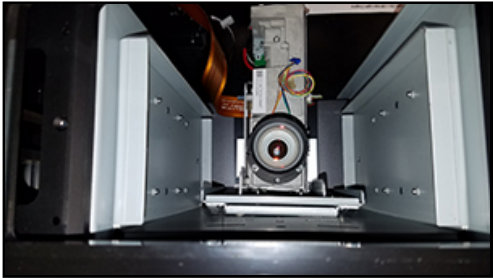
There are unique situations you may encounter when operating the printer. This section has compiled a partial list of these situations and methods of troubleshooting them.





**NOTE:** Unless troubleshooting steps require the printer to operate, shut down the printer and unplug it before performing troubleshooting steps.

## Print Failures


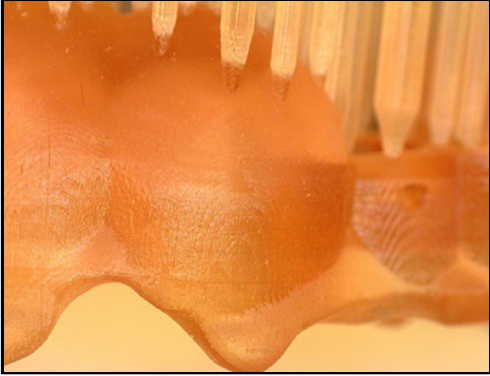
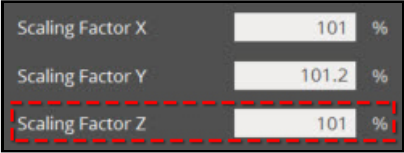
#	Issue Description	Customer Troubleshooting Steps
1	Supporting architecture not generating properly during part building	<p>This can be caused by:</p> <ol style="list-style-type: none"> <li>1. Not enough material in the print tray. To prevent this, be sure to fill material back up to the minimum level specified in this guide before building.</li> <li>2. Cold material. Be sure the room where you store material and the room you print at is kept within the temperature limits expressed in this manual.</li> </ol> <p>If you have taken both of these steps and still have issues printing supports, please contact your authorized print-material provider.</p>

#	Issue Description	Customer Troubleshooting Steps
2	<p>Delamination between layers - this is separation of printed layers, which do not cure together properly</p> 	<p>This can be caused by:</p> <ol style="list-style-type: none"> <li>1. Not enough material in the print tray. To prevent this, be sure to fill material back up to the minimum level specified in this guide before building.</li> <li>2. Spilled print material gets in between the projector's radiation path and the print surface. In this case, remove the print tray and glass print base, and clean both components. Inspect the lower print chamber to see if material has spilled inside. If so, the printer must be returned to 3D Systems for cleaning. <ul style="list-style-type: none"> <li> <b>CAUTION: Do not attempt to clean anything in the lower print chamber. Doing so risks further damage to the printer. Only certified service personnel may clean the components of the lower print chamber.</b></li> </ul>  </li> <li>3. Dust on projector lens - remove the print tray and glass print base. Use a nonabrasive, lint-free paper towel or microfiber cloth to wipe the projector lens.</li> <li>4. The part orientation on the print platform can contribute to delamination. Parts with large, flat surfaces should be placed at an angle when setting up the build file in 3D Sprint. This reduces the surface area of the part being cured on a given layer, decreasing likelihood of delamination.</li> <li>5. Print-tray film scratched, dented, hazy/dirty- particularly in the failed area of the build. If scratched or dented, it is best to replace the tray. If hazy/dirty, clean the tray as in the section <a href="#">Clean Print Platform and Print Tray</a>.</li> <li>6. Glass print base might be dirty or damaged. Clean plate as in the section <a href="#">Clean Glass Print Base</a>. If damaged the plate needs to be replaced.</li> </ol>


#	Issue Description	Customer Troubleshooting Steps
3	Shifting - layers on the printed part have shifted in the X or Y direction	<p>This can be caused by:</p> <p><b>Hardware</b></p> <p>Run elevator diagnostics. Observe the elevator motion throughout the whole process. If it moves in an irregular motion, contact your authorized print-material provider. The printer will need to be sent in for repairs.</p> <p><b>Part Orientation</b></p> <p>Large, flat parts can cause a shift when built parallel to the print platform. Orienting the parts at a 5° or 10° angle will typically be enough to eliminate the shift. Thicker parts may need a larger angle.</p>

#	Issue Description	Customer Troubleshooting Steps
4	Voids in printed part - holes or empty spaces where there shouldn't be	<p>This can be caused by:</p> <ol style="list-style-type: none"> <li>1. Not enough material in the print tray. To prevent this, be sure to fill material back up to the minimum level specified in this guide before building.</li> <li>2. Spilled print material gets in between the projector's radiation path and the print surface. In this case, remove the print tray and glass print base, and clean both components. Inspect the printer to see if material has spilled inside the lower print chamber. If so, the printer must be returned to 3D Systems for cleaning. <ul style="list-style-type: none"> <li> <b>CAUTION: Do not attempt to clean anything in the lower printer chamber. Doing so risks further damage to the printer. Only certified service personnel may clean the components of the lower print chamber.</b></li> </ul> </li> <li>3. Dust on projector lens - remove the print tray and glass print base. Use a nonabrasive, lint-free paper towel or microfiber cloth to wipe the projector lens.</li> <li>4. Cured material was left on the film from a previous build - Use <a href="#">Resin Mixer</a> to feel along the print-tray film. Any place that causes the mixer to stop or jump indicates cured material. If this is the case: <ol style="list-style-type: none"> <li>a. You must empty the print tray of all liquid material. You may do this in one of two ways: <ol style="list-style-type: none"> <li>i. Discard the material according to all local, state, and federal regulations.</li> <li>ii. Pour the material into another compatible print tray, as seen in the section <a href="#">Print-Tray Material Cross Usage</a>.</li> </ol> </li> <li>b. Pour recommended solvent into the print tray.</li> <li>c. Allow the partially cured part to soak in the solvent long enough for it to swell in size.</li> <li>d. Use the Resin Mixer to <b>gently</b> scrape the part off the film. <ul style="list-style-type: none"> <li> <b>CAUTION: Putting too much pressure on the print-tray film can puncture the film. The film cannot be replaced by itself; if the film is damaged, the whole print tray must be replaced.</b></li> </ul> </li> </ol> </li> </ol>

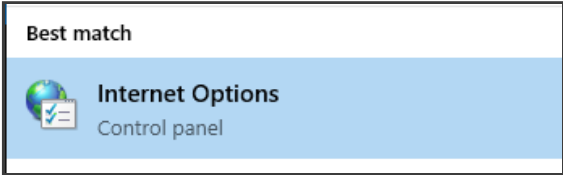
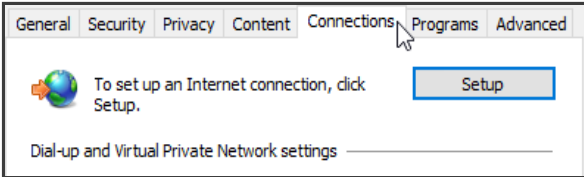
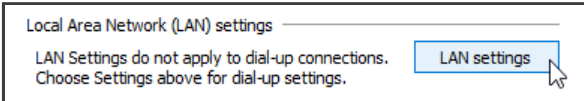
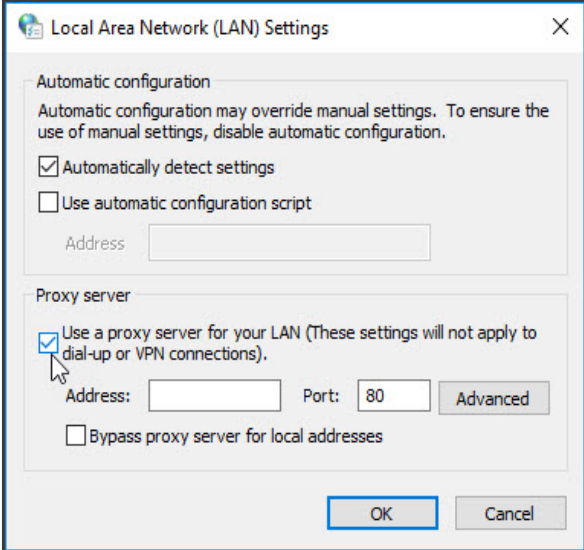


#	Issue Description	Customer Troubleshooting Steps
5	Poor surface quality on side walls - specs dotting part surface 	This is a sign of debris in the print tray. Ensure that the print tray is clean of debris in between builds. The side walls should look like the image below: 
6	Part not accurate in the X/Y direction	Run the Accuracy Wizard in 3D Sprint, as seen in the section <a href="#">Accuracy Wizard</a> .
7	Part not accurate in the Z direction	In 3D Sprint, change the <b>Scaling Factor Z</b> field under <b>Build Styles</b> . For assistance in testing the Z scale of your parts, contact 3D Systems Customer Service. 

## Hardware Issues

#	Issue Description	Customer Troubleshooting Steps
1	Glass print base broken	The plate will need to be replaced. Call your authorized print-material provider for replacement information. Please see the section <a href="#">Clean Glass Print Base</a> for instructions on preventing this from happening. 
2	Print Tray Damaged on Single Spot Over Time	Print tray will need to be replaced if damaged. To avoid this damage in the future, do not print the same object on the same location of the build platform repeatedly. If you must build the same object repeatedly, move the object to a different area of the print platform in 3DSprint each time.

## Network Issues

#	Issue Description	Customer Troubleshooting Steps
1	Computer unable to connect to printer because you access the internet via proxy.	<p>Check computer's proxy settings. You must <u>not</u> be using a proxy server to access your network. Follow these steps to disable a proxy server in Windows 10:</p> <ol style="list-style-type: none"> <li>1. Navigate to the <b>Internet Options</b> screen by typing "internet options" in the search bar and selecting the dialog.  </li> <li>2. Click the <b>Connections</b> tab.  </li> <li>3. Click the <b>LAN Settings</b> button.  </li> <li>4. Uncheck the <b>Use a proxy server for your LAN...</b> checkbox.  </li> </ol>
2	Computer unable to connect to printer because of network firewalls	Contact your network administrator. The printer's IP address must be added as an exception on your firewall.

## Printer Diagnostics

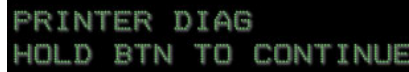
**Printer Diagnostics** allows the user to test certain functions of the printer to either confirm their operation or diagnose certain issues. Running these diagnostics can help both you and 3D Systems in determining the cause of potential issues with the printer. The following sections describe the different functions of Printer Diagnostics. You

can enter this mode whenever the printer is powered on and in idle mode (not printing).

## Open Printer Diagnostics

**Press** the power button **twice** to enter the "Printer Diag" screen.

### Printer Message



PRINTER DIAG  
HOLD BTN TO CONTINUE

### Translation

Printer Diagnostics  
Hold button to  
continue

In this dialog, you can access the following diagnostics and sub-diagnostics:

1. Motor Diagnostics
  - a. Elevator Diagnostics
  - b. Tilt Motor Diagnostics
2. Barcode Scan Diagnostics
3. Projector Diagnostics

## Motor Diagnostics

This diagnostic exists to test both the elevator motor and tilt-tray motor. You will need to test the elevator motor if, for example, the print platform does not move to its proper offload position after printing. You will need to test the tilt motor if, for example, printed parts are not peeling off the print-tray film properly.



**CAUTION:** You must remove the print tray and print platform before beginning this process. Failure to do so risks damaging the printer.



**CAUTION:** Do NOT put your hands, or any other object, inside the printer during motor diagnostics.



**NOTE:** It is best to have the printer door open during diagnostics in order to watch the elevator motor and tilt motor go through their motions.

## Elevator Diagnostics

1. On the **Printer Diag** screen, **hold down** the power button to get to the **Motor Diag** screen.
2. On the **Motor Diag** screen, **hold down** the power button once more to get to the **Elevator Diag** screen.
3. On the **Elevator Diag** screen, hold down the power button to enter the diagnostic.

### Printer Message



PRINTER DIAG  
HOLD BTN TO CONTINUE

### Translation

Printer Diagnostics  
Hold button to  
continue



MOTOR DIAG  
HOLD BTN TO CONTINUE

Motor Diagnostics  
Hold button to  
continue



ELEVATOR DIAG  
HOLD BTN TO CONTINUE

Elevator Diagnostic  
Hold button to  
continue

4. The elevator will move to its **Home** position and then hit its upper and lower limits. During this process, you will see the screen at the right.



MOVING ELEVATOR  
HOLD TO ABORT

Moving Elevator  
Hold to abort

5. Once you see the following screen, the **Elevator Diagnostic** has completed successfully.



DIAG COMPLETE

Diagnostic complete

## Tilt Motor Diagnostics

1. On the **Printer Diag** screen, **hold down** the power button to get to the **Motor Diag** screen.

### Printer Message



PRINTER DIAG  
HOLD BTN TO CONTINUE

### Translation

Printer Diagnostic  
Hold button to continue

2. On the **Motor Diag** screen, **hold down** the power button to get to the **Elevator Diag** screen.



MOTOR DIAG  
HOLD BTN TO CONTINUE

Motor Diagnostics  
Hold button to continue

3. On the **Elevator Diag** screen, **press** the power button to get to the **Tilt Motor Diag** screen.



ELEVATOR DIAG  
HOLD BTN TO CONTINUE

Elevator Diagnostic  
Hold button to continue

4. On the **Tilt Motor Diag** screen, hold down the power button to enter the diagnostic.



TILT MOTOR DIAG  
HOLD BTN TO CONTINUE

Tilt Motor Diagnostic  
Hold btn to continue

5. The tilt motor will move to its **Home** position and then hit its upper and lower limits. During this process, you will see the screen at the right.



WARNING  
MOVING TILT MOTOR

Warning  
Moving tilt motor

6. Once you see the following screen, the **Tilt Motor Diagnostic** has completed successfully.



DIAG COMPLETE

Diagnostic complete

## Exit Motor Diagnostics

You may exit motor diagnostics by:

1. **Pressing** the power button any time before starting one of the diagnostics.

### Printer Message



EXIT MENU?  
HOLD BTN TO CONTINUE

### Translation

Exit menu?  
Hold button to exit

a. **Hold down** the power button to exit.

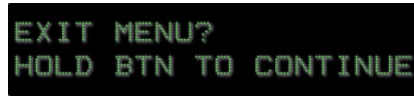
2. Aborting the diagnostic that is currently running by **pressing** the power button. You will see the screen at the right.




DIAG COMPLETE  
ELEVATOR ERROR

Diagnostic complete  
Elevator error

- a. **Press** the power button to see the the screen at the right.
- b. **Hold down** the power button to exit.



Exit menu?  
Hold button to exit

 **NOTE:** Please see the section [Diagnostics Messages](#) for a full list and description of messages you may see during this process.

## Test Scanner

This diagnostic exists to test the barcode scanner on the printer. You will need to test barcode scan if, for example, a barcode on a material bottle will not scan properly. In a case such as this, testing the scanner can either confirm or eliminate the scanner as the cause of the issue.

- 1. On the [Printer Diag](#) screen, **hold down** the power button to get to the **Motor Diag** screen.

**Printer Message**



**Translation**  
Printer  
Diagnostics  
Hold button to continue

- 2. On the [Motor Diag](#) screen, **press** the power button to get to the **Test Scan** screen.



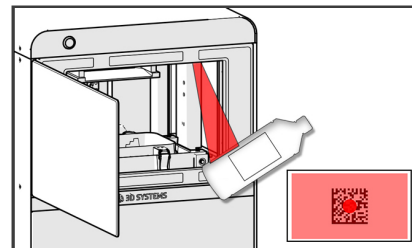
**Translation**  
Test  
Scanner  
Hold button to continue

- 3. On the [Test Scan](#) screen, **hold down** the power button to enter the diagnostic. You will see the screen at the right, which indicates that the scanner is ready to read a barcode.



**Translation**  
Scan test  
Barcode

- 4. Print out this page and scan the following QR code:



- 5. After the scan completes, you will see one of two messages on the printer screen:

- a. If you see the "Scan Test Failed" message, **press** the power button to exit the diagnostic. This message could mean one of three things:



SCAN TEST  
FAILED

Scan test  
failed

- i. The barcode you printed out from this page is corrupted. Please print the page out again and run the scan diagnostic once more.
- ii. The scanner has some sort of interference. Please check the clear scanner cover to ensure it is clean of debris and fingerprints, and run the scan again.
- iii. If you performed steps **i** and **ii**, and the test scan still does not complete, the scanner is damaged in some way. Call your authorized print-material provider.

- b. If you see the "Scan Test Complete" message, the barcode scan was successful. **Press or hold down** the power button to exit the diagnostic.



SCAN TEST  
COMPLETE


Scan test  
complete

## Exit Test Scanner Diagnostic

You may exit Test Scanner diagnostics by:

1. **Pressing** the power button any time before the diagnostic begins.
  - a. **Hold down** the power button to exit.

### Printer Message



EXIT MENU?  
HOLD BTN TO CONTINUE

### Translation

Exit menu?  
Hold  
button to  
exit

2. Aborting the diagnostic that is currently running by **pressing** the power button. You will see the screen at the right.



SCAN TEST  
FAILED

Scan test  
failed

- a. **Press** the power button to see the the screen at the right.
- b. **Hold down** the power button to exit.



EXIT MENU?  
HOLD BTN TO CONTINUE

Exit menu?  
Hold  
button to  
exit

## Test Projector

This diagnostic exists to test the functionality the printer's projector. You will need to test the projector if, for example, printed parts have inconsistent curing on their surfaces.



**WARNING: THE PRINTER WILL PROMPT YOU TO KEEP THE PRINTER DOOR CLOSED DURING THIS DIAGNOSTIC. TO PREVENT YOURSELF FROM LOOKING AT THE LIGHT EMITTING FROM THE PRINTER, KEEPING THE PRINTER DOOR SHUT IS NECESSARY WHENEVER THE PROJECTOR IS ACTIVE.**

### Printer Message

### Translation

1. On the **Printer Diag** screen, **hold down** the power button to get to the **Motor Diag** screen.




Printer Diagnostics  
Hold button to continue

2. On the **Motor Diag** screen, **press** the power button to get to the **Test Scan** screen.



Motor Diagnostics  
Hold button to continue

3. On the **Test Scan** screen, **press** the power button to get to the **Test Projector** screen.



Test Scanner  
Hold button to continue

4. On the **Test Projector** screen, **hold down** the power button to begin the diagnostic.



Test Projector  
Hold button to continue

5. You will see the screen at the right during the test. The test will measure the projector's power output.



Testing projector

6. Depending on the outcome of the test, you will see one of the following screens:

a. If you see the "Projector Test Failed" screen, it means that the projector is damaged in some way. Call your authorized print-material provider for assistance.



Projector test failed

b. If you see the "Projector Test Complete" screen, the projector is functioning normally.



Projector test successful

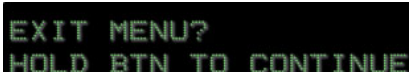
## Exit Test Projector Diagnostics

You may exit Test Projector Diagnostics by:

1. **Pressing** the power button any time before the diagnostic begins.

a. **Hold down** the power button to exit.

### Printer Message



### Translation

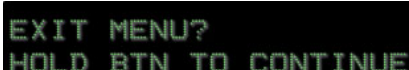
Exit menu?  
Hold button to exit

2. Aborting the diagnostic that is currently running by **pressing** the power button. You will see the screen at the right.



Projector test failed

a. **Press** the power button to see the screen at the right.



Exit menu?  
Hold button to exit

b. **Hold down** the power button to exit.



# Repackaging the FabPro 1000

You will have to repack your printer if:

1. You are moving the printer to another facility. If you suspect that you will ever move the printer to another facility, you must **retain all packing materials** the printer came in, in order to repack the printer and move it properly. Another facility, in this case, would be a separate building that is not within walking distance of the printer's current building.
2. You are sending the printer back to 3D Systems for repairs. If this is the case, 3D Systems will send a replacement printer to you. When you receive the replacement printer, **retain that replacement printer's packaging** for reuse in packing up the damaged printer.



**CAUTION: It is vital to follow these repackaging instructions whenever moving the printer to another location for any reason, or whenever sending the printer back to 3D Systems. Moving the printer without its protective packaging, or only following some of these instructions, risks damaging the printer and its components/accessories. 3D Systems is not responsible for printers that are damaged due to improper packaging.**

## Moving the Printer Within Your Building or In the Same Room

You may need to move the printer within your own building. If this is the case, you do not have to repack it. However, you must follow these guidelines:

1. Follow the steps in the following section regarding the cleanliness of printer components.
2. Use a pallet jack or a cart to roll the printer around your building if possible, rather than team-carrying it.
3. **Whenever moving the printer any distance, even if only across a table, never move it with resin inside.**
4. Keep in mind all the considerations from the [Facility Requirements](#) section of this manual when selecting a new space for your printer.

## Ensure Cleanliness of Printer Components

Whether you are packing up the printer for movement to a new facility or for advanced exchange, you must clean all printer components before putting the printer in transit.



**ALWAYS WEAR 100% NITRILE GLOVES WHENEVER CLEANING ANY PRINTER COMPONENTS.**


1. Remove the print platform, as seen in the section [Remove Print Platform](#). Clean the print platform with recommended solvent and a nonabrasive cloth.
  - a. If you received an advanced-exchanged printer, install the print platform inside it, as seen in the section [Install Print Platform](#).
  - b. If you are moving your working printer to another facility, do not reinstall the print platform in the machine until you have unpacked the printer and staged it in your new facility.




**CAUTION: Transporting the printer with the print platform installed risks damaging the print platform, elevator, and possibly other printer components.**



2. Remove and clean the print tray, as seen in the section [Remove and Clean Print Tray](#).
  - a. If you received an advanced-exchange printer, install the tray inside it, as per the section [Install Print Tray](#).
  - b. If you are moving your working printer to another facility, do not reinstall the print tray yet. You will need to remove and clean some other components first. Skip to Step 4.
3. Remove and clean the glass print base and catch tray, as in the sections [Clean Glass Print Base](#) and [Remove/Replace Catch Tray](#), respectively.
  - a. If you received an advanced exchange printer, install the glass print base and catch tray in that printer. Skip to Step 5.
  - b. If you are moving your working printer to another facility, reinstall the glass print base and catch tray.
4. If you are moving your working printer to another facility, reinstall the print tray at this time.

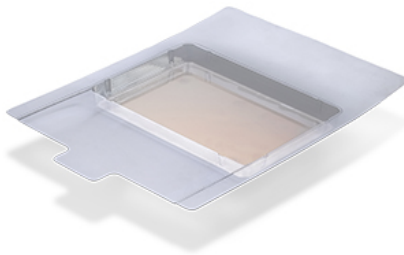
 **NOTE:** Ensure all components are dry after cleaning, before reinserting them into your new or existing printer.

 **NOTE:** Clear material and trace amounts of other materials may not be visible upon inspection. It is best to simply wipe everything down that could have material on it.

 **NOTE:** Please use the pictures below for comparison with your equipment to judge if it is clean.



*Clean glass print base*



*Clean catch tray*



*Clean Print Platform*



*Clean Print Tray*

5. On the damaged printer, or on the printer you are transporting, pour recommended solvent onto a nonabrasive cloth and wipe down all interior printer surfaces, even if it seems there is no material on them. Use the following as a checklist for cleaning the inside of the printer:

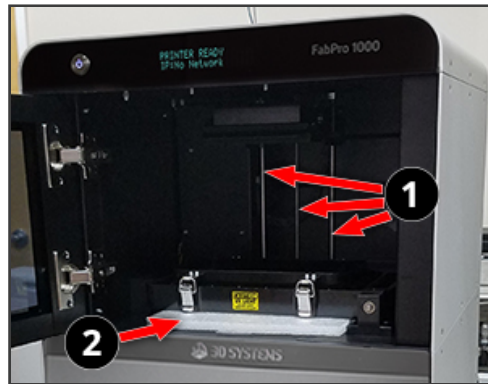
- ① Door
- ② Left Wall
- ③ Back Wall
- ④ Ceiling
- ⑤ Right Wall
- ⑥ Tilt Tray
- ⑦ Chassis



6. On the damaged printer, or on the printer you are transporting, examine the elevator (1). Pour recommended solvent onto a nonabrasive cloth and clean the elevator



**CAUTION: Pour solvent onto the nonabrasive cloth first, and then wipe down components. For components that cannot come out of the printer, pouring cleaning solvent directly onto them risks dripping solvent onto unwanted surfaces.**



7. If you are transporting your working printer, place packing foam in between catch tray and print tray, as shown (2). Close printer door.




**NOTE: It is not necessary to place the packing foam (2) inside a damaged printer you are sending back. This is only necessary when transporting the printer with a print tray installed.**

## Disconnect All Cables

1. Disconnect Ethernet cable.
2. Unplug power cord from wall outlet and unplug power adapter from AC inlet on printer.
3. Connect the power cord/adapter to the new printer you received.

## Repackaging Printer for Movement to Another Facility


The following instructions describe how to repackage your printer with its original packaging for movement to another facility. For instructions on repackaging the printer for advanced exchange, please see the section [Repackaging Damaged Printer for Advanced Exchange](#).

 **NOTE:** Use the images in this section to guide you in setting the orientation of the foam and cardboard when repackaging.

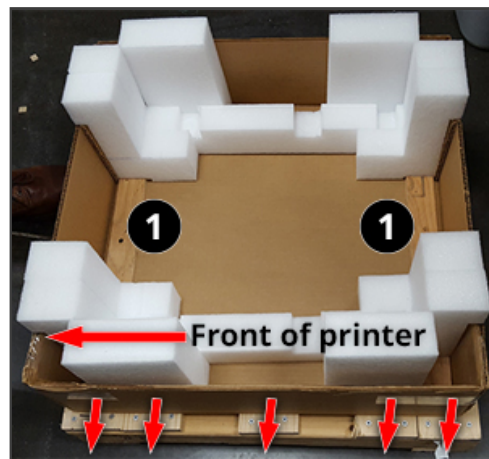
1. Tape Silica-gel packet to side of printer and put original plastic cover over printer. With the help of another person, carefully team-lift and place the printer into the foam supports at the bottom of its original shipping box. Be sure that you are re-packing the printer on the same pallet that your replacement printer shipped on.



- a. Be sure that the packing base is still nailed to the pallet via the wood planks (1).
- b. Be sure that the packing foam is oriented as in the image at the right. There are two indents on the bottom of each piece of packing foam that fit over the wood planks.

 **NOTE:** If the packing base was detached from the pallet, please note the orientation of the wood planks on the pallet when reattaching it. They should be in-line with the wood planks in the packing base.

- c. The front of the printer should be facing the side of the packaging shown in the image at the right.



- Place the outer box (1) over the printer and base packaging.

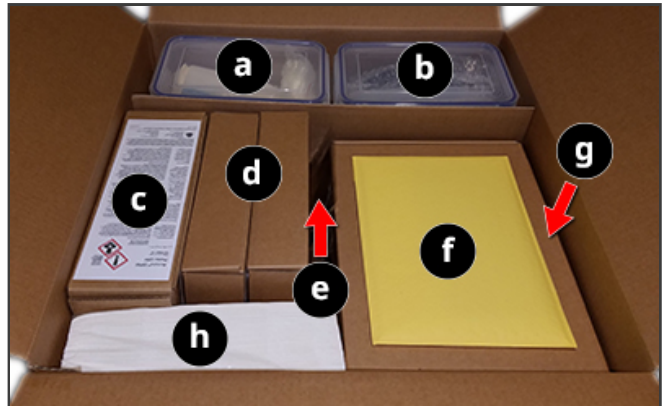


- Place packing foam (2) over the printer in the orientation shown at right. One piece should go on the front of the printer and the other piece should go on the back of the printer.



**CAUTION: Altering the orientation of the box and packing foam from what is seen in this guide could result in irreversible damage to the printer.**

- Repack the finishing kit in the optimized orientation seen at the right. Please see the section [Unpacking the Printer](#) for information on which part each letter is referring to. Seal the finishing kit.



- Place packed finishing kit (a), along with with power cord box (c) and packed-in documents (b), in the orientation shown.



- Place the power cord inside the power-cord box (item "c," above).

8. Seal the outer box with packing tape, packing belts, and plastic if desired. Loop the packing belts through the planks on the pallet.



## Your New Printer Location

When determining the best place for your printer in your new location, please remember to follow the guidelines outlined in the [Facility Requirements](#) section of this guide.

## Unpacking Advanced Exchanged Printer

If you are sending your printer back for advanced exchange, you will receive another printer in similar packaging to what you received the original machine in. Please follow the instructions in the section [Unpacking the Printer](#) to unbox your new printer.



**CAUTION:** You must retain all packaging from the replacement printer for reuse in repackaging your damaged printer. Your damaged printer cannot be sent back in packaging other than that which is provided with the replacement printer. Using other packaging risks further damage to the printer.

## Inspect Exterior of Printer

After you have unpacked the printer, visually inspect the interior and exterior of it for any damage that might have incurred during shipping. Notify your authorized print-material provider immediately if anything is evident at this point. DO NOT proceed with the installation until you have discussed the damage with your authorized print-material provider.

## Verify Printer Operation

Run a test print to verify that your replacement printer is functioning normally. Do so as seen in the [Quick-Start Guide](#).

## Repackaging Damaged Printer for Advanced Exchange

After you have received your advanced-exchange printer, have set it up, and have verified its operation, you will pack up your damaged printer and send it back to your authorized print-material provider.

## Items to Repack

If you are sending your printer to your authorized print-material provider for advanced exchange, please contact that provider to determine exactly what you need to package in with the printer for repair purposes. In general, you will only need to send back the printer itself. You will NOT send back any of the components which are routinely removed from the printer, including: print tray, print platform, glass print base, catch tray, power adapter/power cord, and Ethernet cable.



**NOTE: Do not send any of the above-mentioned items back with your damaged printer unless specifically instructed to so do by your authorized print-material provider. Your replacement printer will be shipped without these items, as you are expected to retain these printer components. It is best to make a checklist to account for all retained items before packing the damaged printer in its box.**






## Printer Message Glossary

This glossary summarizes all the messages you may see on the display of the printer, during the print process and printer diagnostics.




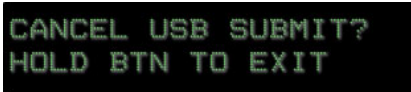

### Printer-Activation Messages

These are messages related to activating your printer with 3D Sprint. For more information, please see the section [Print via 3D Sprint](#).

Printer Message	Translation	
	Please activate [IP address]	This message means that the printer is not connected to <b>3D Sprint</b> . Clear this message by activating 3D Sprint.
	Activating printer	This message appears when you activate your printer through 3D Sprint. The message will disappear when activation is complete.
	Activation required to start build	This message occurs when you attempt to send a build file to the printer before activating the printer.

### USB File-Submit Messages

These are messages you may get related to the USB file-submit process. For more information, please see the section [Print via USB Drive](#).

Printer Message	Translation	
	Submit job via USB? Hold button to continue	This message occurs after you insert a USB device into the USB drive on the printer. <b>Hold down</b> the power button to detect print jobs. <b>Press</b> the power button to cancel.
	MyPrintJob.pxl Hold button to continue	This message occurs when the printer detects one or more print jobs on the USB device. <b>Hold down</b> the power button to submit a job to the printer. <b>Press</b> the power button to skip over a print job on the USB device's list of print-job files. You may only submit one print job to the printer at a time.
	Job ready Hold button to start	This message occurs after you have confirmed your build file in the previous step.
	Cancel USB submit? Hold button to exit	This message occurs when you <b>press</b> the power button before print job detection. <b>Hold down</b> the power button to confirm cancelation.
	No jobs detected Hold button to exit	This message occurs when the printer does not detect any build files on the USB device. <b>Hold down</b> the power button to exit the USB-file-submit process.





END OF JOBS LIST  
HOLD BTN TO EXIT

End of jobs list  
Hold button to exit

This message occurs when you skip over the last valid build file in the list of print jobs on the USB device.

## QR Code Scanning Messages

These are messages you may get related to the QR code scanning process. For more information, please see the section [Begin Your Print Job](#).

### Printer Message



INCOMPATIBLE BARCODE  
VERIFY MATERIAL TYPE

### Translation

Incompatible  
barcode  
Verify material type

This means that the QR code was scanned correctly, but was not recognized as a code that is usable on the printer.



SCAN FAILED  
PLEASE TRY AGAIN

Scan failed  
Please try again

This could mean one of a few things:

1. The QR code was simply not read correctly. Try scanning the code once more.
2. The QR code has become corrupted in some way. Ink marks, scratches, tears, etc. are examples of ways the code could be corrupted. Call your authorized print-material provider for replacement QR code information.
3. The QR code scanner has become corrupted in some way. Clean the scanner of dust and debris and try scanning your code again.
4. The QR code scanner is in need of repair. If this is the case, please contact your authorized print-material provider to begin the process of obtaining a replacement printer via advanced exchange. Please see the section [Test Scanner](#) for information on troubleshooting this issue.

## Print-Material Messages

These are the different messages that you may get when the material-bottle barcode is scanned successfully. For more information, please see the section [Begin Your Print Job](#).

### Printer Message

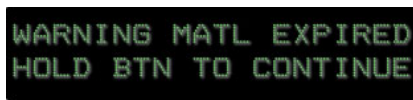


ADD MATL. HOLD BTN  
TO CONTINUE

### Translation

Add material. Hold  
button  
to continue

This message occurs when the scanned material bottle is cleared for printing. If you do not see this message after scanning a material bottle, please refer to the section [QR Code Scanning Messages](#) for explanations of the different barcode messages.



Warning material expired  
Hold button to continue

This message means that the scanned material is past the manufacturer's expiration date. In this case, it is recommended to discard the material bottle, and the remaining expired print material in the print tray, according to all local, state, and federal regulations. However, you may choose to continue printing with the expired material at your own risk.

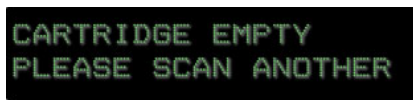


**CAUTION: 3D Systems is not responsible for poor print quality or for failed builds when expired print material of any kind is used.**



Incompatible material  
Verify material type

This error will occur when the scanned print-material type does not match the material sent to the printer in the build file.



Cartridge empty  
Please scan another

This error will occur when the system detects that you have exceeded the number of pours contained in a material bottle. Please scan a new material bottle.

## Print-Process Messages

These are messages you may see after sending a print job to the printer via 3D Sprint or USB. For more information, please see the section [Begin Your Print Job](#).

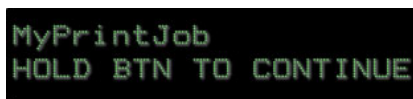
### Printer Message

### Translation



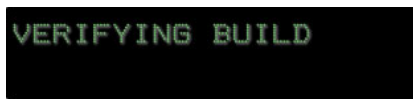
Print job  
Hold btn to continue

This message occurs after you **press** the power button once while in idle mode.



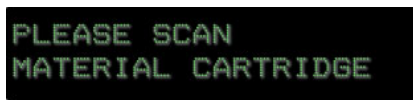
MyPrintJob.pxl  
Hold button to continue

This message occurs when you **hold down** the power button on the screen described above. For seeing this screen during USB file submit, please see the section [USB File Submit Messages](#).



Verifying build

This message occurs after you **hold down** the power button on the previous screen.



Please scan material cartridge

This message occurs after confirming the "my-print-job.pxl" message above. Scan the barcode on the material bottle you are using for the print job.



Abort job?  
Hold button to abort

This message occurs if you **press** the power button at any time during the print process. **Hold down** the power button to confirm cancelation of print job.



USER STOPPED PRINT  
ABORTING

User stopped print  
Aborting

This message occurs if you **hold down** the power button to confirm cancelation of a print job, as in the message above. If you abort the print job, you must:

1. Remove the print platform from the machine.
2. Remove the printed part from the print platform, as in the section [Remove Printed Parts From Platform](#). However, there is no need to clean, dry, or UV-cure a canceled or crashed build part. Dispose of the canceled build part according to all local, state, and federal regulations. Clean the print platform with recommended solvent.



**ALWAYS WEAR 100% NITRILE GLOVES WHEN HANDLING A CANCELED OR CRASHED BUILD PART.**



PRINT ABORTED

Print aborted

This message occurs after a print has been aborted, but before the operator pushes the power button to clear the message.



PRINTER ERROR  
ABORTING

Printer error  
Aborting

This message occurs when the printer stops a build because of a build error.



PRINTER ABORTING  
RESETTING ELEVATOR

Printer aborting  
Resetting elevator

This message occurs when the printer stops a build because of an elevator error when homing the elevator.



INSTALL AND LOCK  
PLATFORM

Install and Lock  
Platform/Hold btn to  
continue

Occurs when the printer does not detect a print platform securely locked in the machine. When you see this message:

1. Install a print platform and lock it down by pushing down the handle.
2. **Hold down** the power button to continue the printing process, **or**:
3. **Press** the power button once to see the **Abort** screen, as seen on the line below:



HOLD BTN  
TO ABORT

Hold btn  
to abort

When you see this screen, you may:

1. Hold down the power button to abort the print job, **or**:
2. Press the power button once to get back to the "Install and Lock Platform" screen seen on the line above.



PRINTING  
4H:10M REMAINING

Printing  
4H:10M remain

You will see a screen like this during printing, showing you how much time is remaining for the print job. The time format for the timer is HR:MM.



PRINT COMPLETE  
CLEAR PLATFORM

Print complete  
Clear platform

Print has finished. Proceed to the steps in the section [Post Processing](#).



BUILD FILE ERROR

Build file error

Occurs when the print job is aborted due to a build file error.

## Diagnostics Messages

These are messages that may occur during operation of printer diagnostics. For more information, please see the section [Printer Diagnostics](#).

### Printer Message

### Translation



PRINTER DIAG  
HOLD BTN TO CONTINUE

Printer Diagnostics  
Hold button to  
continue

This message occurs when you **press** the power button **twice** while in idle mode. **Hold down** the power button to continue.



MOTOR DIAG  
HOLD BTN TO CONTINUE

Motor Diagnostics  
Hold button to  
continue

This message occurs when you **hold down** the power button on the **Printer Diag** screen.



TEST SCAN  
HOLD BTN TO CONTINUE

Test scan  
Hold button to  
continue

This message occurs when you **press** the power button on the **Motor Diag** screen.



TEST PROJECTOR  
HOLD BTN TO CONTINUE

Test projector  
Hold button to  
continue

This message occurs when you **press** the power button on the **Test Scan** screen.



EXIT MENU?  
HOLD BTN TO CONTINUE

Exit menu?  
Hold button to exit

This message occurs when you take steps to exit **Printer Diagnostics**. Please see the individual sections in this manual under [Printer Diagnostics](#) for information on how to exit each diagnostic.

## Motor Diagnostics

These are messages that may occur during operation of **Motor Diagnostics**. For more information, please see the section [Motor Diagnostics](#) and its subsections.

### Printer Message

### Translation



ELEVATOR DIAG  
HOLD BTN TO CONTINUE

Elevator Diagnostic  
Hold button to  
continue

This message occurs during **Motor Diag** when you **hold down** the power button upon first entering the diagnostic.



TILT MOTOR DIAG  
HOLD BTN TO CONTINUE

Tilt Motor Diagnostic  
Hold button to  
continue





This message occurs when you **press** the power button while on the **Elevator Diag** screen.



MOVING ELEVATOR  
HOLD TO ABORT


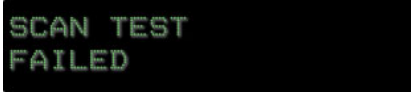

Moving elevator  
Hold to abort

This message occurs when the printer's elevator is moving during Elevator Diagnostics.

	Warning Moving tilt motor	This message occurs when the printer's tilt motor is moving during Tilt Motor Diagnostics.
	Diagnostic complete Elevator error	This message occurs when the elevator does not hit its upper and lower limits during testing. <b>Press</b> the power button to clear the error.
	Diag complete successfully	This message occurs when the <b>Elevator Diagnostic</b> completes successfully.
	Diagnostic complete	This message occurs when the <b>Tilt Motor Diagnostic</b> completes, whether successfully or not.


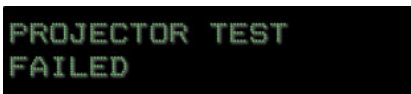

## Test Scan

These are messages that may occur during operation of Test-Scan Diagnostics. For more information, please see the section [Test Scanner](#).

Printer Message	Translation	
	Scan test barcode Hold button to continue	This message occurs after you hold down the power button on the <b>Test Scan</b> screen.
	Scan test failed	This message occurs if the scanner is unable to read the test barcode. <b>Press</b> the power button to clear the error.
	Scan test complete	This message occurs if the scanner successfully reads the test barcode.

## Test Projector

These are messages that may occur during operation of Test Projector diagnostics. For more information, please see the section [Test Projector](#).

Printer Message	Translation	
	Testing projector	This message occurs after <b>holding down</b> the power button on the <b>Test Projector</b> screen.
	Projector test failed	This message occurs when the printer does not register an acceptable power output from the projector. <b>Press</b> the power button to clear this error.
	Projector test successful	This message occurs when the printer registers an acceptable power output from the projector.

# Power the Printer On/Off

## Power the Printer On

Be sure the printer is plugged in and **press** the power button once.

## Power the Printer Off

### Printer Message



### Translation

Power down printer? Hold button to continue pressing the power button once. You will see the message at the right on the printer screen. Hold down the power button to confirm power off. When you wish to turn the printer on again, **press** the power button.



Shutting down

You will see this message when the printer is shutting down.

## Idle Mode

### Printer Message



### Translation

3dsystems  
Initializing

You will see this screen when you first power the printer on.



Printer ready  
[IP Address]

When the printer is in Idle Mode, you will see this message on the printer screen.



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