



SYSTEM USER'S GUIDE

Thank-you for purchasing the InVision™ 3-D printer system for Accura® VisiJet® materials. Before you use your new 3-D printer system, please read this guide carefully to enjoy optimum performance and longer service life.

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System Requirements To prepare and print part files, connect your PC and InVision printer to an Ethernet network using TCP/IP. The InVision 3-D printer system requires a PC running Microsoft® Windows® 98, Me, NT4 (SP 3+), 2000, or XP. See your [InVision 3-D Printer Facility Requirements Guide](#) for complete InVision 3-D printer system electrical, mechanical, environmental, and network requirements.



PRINTER QUICK TOUR

The InVision 3-D printer system and the InVision HR 3-D printer system are two printers from the Multi-Jet-Modeling (MJM) line of printers. The illustrations used throughout this guide refer to the InVision 3-D printer system unless otherwise noted.

- [Front Features](#)
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- [Operator Panel](#)
- [Build Chamber](#)
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- [Waste Material Drawer](#)





Front Features

Operator panel
and display

Build chamber

Material
feed slots

Waste material
drawer





Rear Panel Features



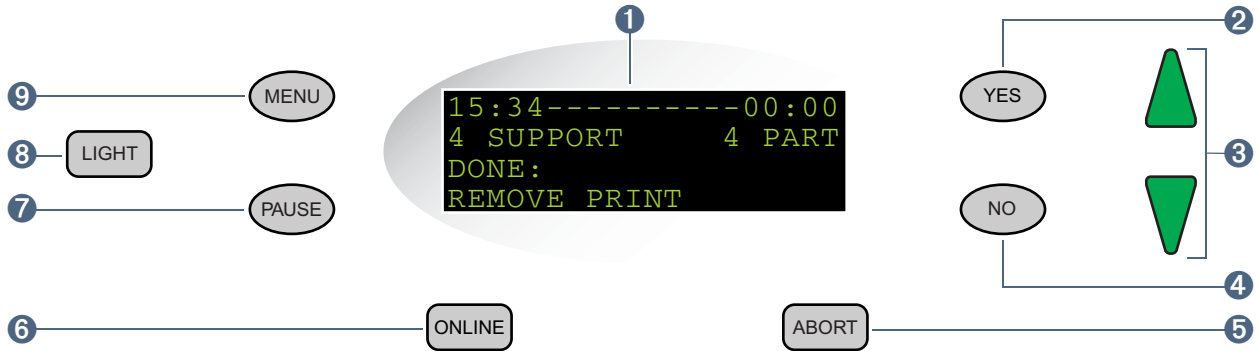
For CE compliance, 200–240 VAC operation requires external transformer kit p/n **23418-901-00** provided separately in the InVision printer country kit.

- Power switch
- Network port and cable
- Power cord





Operator Panel



1 Display

Shows:

- 1st line ("build line") – job time elapsed and remaining
- 2nd line ("material line") – number of cartridges in material feed slots
- 3rd line ("status line") – job status and name
- 4th line ("message line") – job prompts and error messages
- Menu options (press **MENU** button)

2 YES button

- Selects highlighted menu option
- Reply "yes" to "CONFIRM Y/N?"

3 Up and down arrow buttons

Scroll menu option highlight

4 NO button

- Exits up one menu level
- Reply "no" to "CONFIRM Y/N?"

5 ABORT button

Aborts the current print job

6 ONLINE button

Switches the 3-D printer online or offline

7 PAUSE button

Pauses the current print job

8 LIGHT button

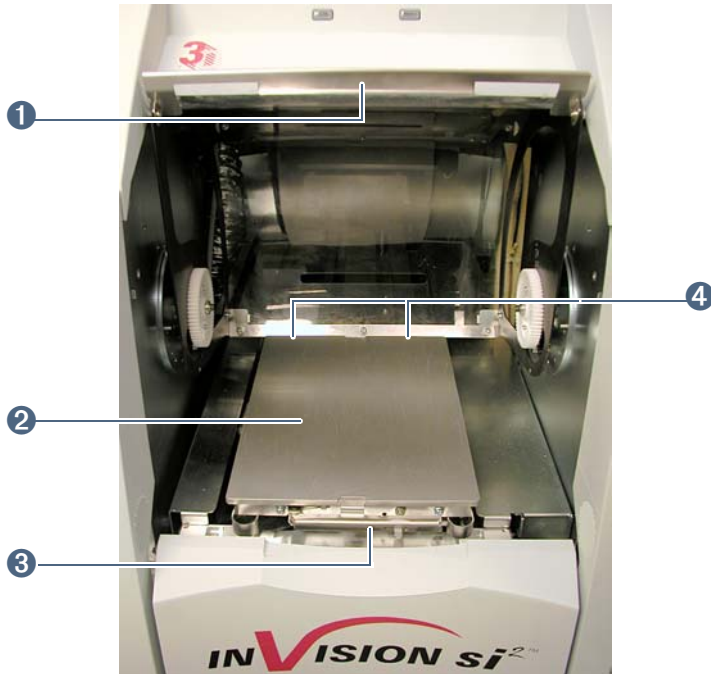
Switches the chamber light on and off

9 MENU button

Displays list of options



Build Chamber



1 Chamber door

- Open to insert and remove platform
- Close before starting or resuming print job; chamber door locks when job is running
- Prevents harmful UV radiation from escaping chamber

2 Platform

- Install clean platform at start of job
- Remove platform with printed parts at end of job

3 Platform release lever

Pull lever to unlock and remove platform

4 Platform latches (below platform)

Push platform all the way in to engage latches; listen for "click"



Material Feed Slots



1 Feed slot doors

- Open feed slot door to load material cartridges
- Close feed slot doors before starting or resuming print job
- Look in slot windows to check the number of cartridges in each feed slot
- See ["Add Material" on page 57](#).

2 White cartridge – support material

- Load **support** material cartridges in **left** feed slot only. ⚠ Loading white cartridges in the right feed slot will abort the build.
- Use only Accura® VisiJet® support material

3 Black cartridge – model material

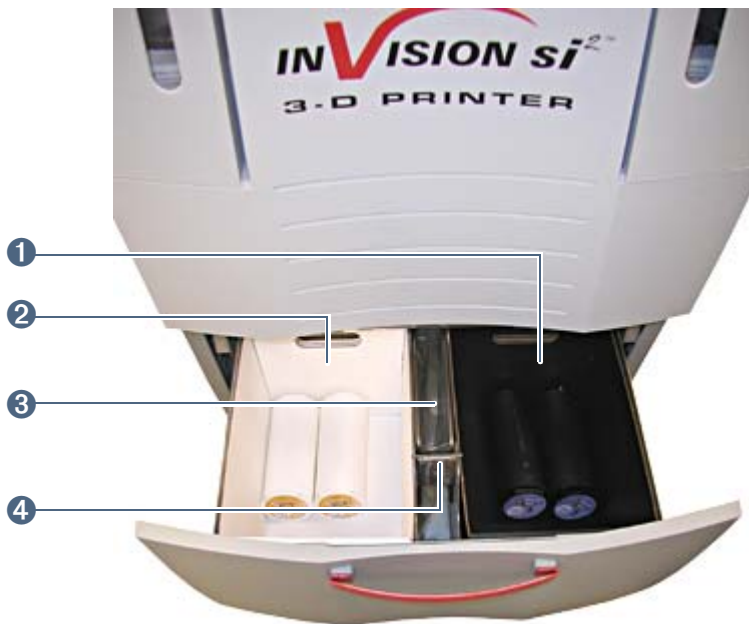
- Load **model** material cartridges in **right** feed slot only. ⚠ Loading black cartridges in the left feed slot will abort the build.
- Use only Accura® VisiJet® model material

4 Material cartridge label with embedded ID tag

3-D printer automatically verifies correct cartridge loading through electronic ID tag in label



Waste Material Drawer



Wear gloves and goggles when emptying the waste drawer. See [“VisiJet Material Handling Safety” on page 18](#) and [“VisiJet Material Disposal Safety” on page 22](#).

- 1 Black bin liner – empty model material cartridges**
 - Cardboard liner is reusable and disposable
 - See [“Empty Waste Drawer” on page 59](#)
- 2 White bin liner – empty support material cartridges**
 - Cardboard liner is reusable and disposable
 - See [“Empty Waste Drawer” on page 59](#)

- 3 Waste material bag**
 - Sealable, disposable bag
 - Contains waste support and model material from layer smoothing (“planarizing”)
 - See [“Empty Waste Drawer” on page 59](#)
- 4 Waste bag bracket**
 - Lifts out to remove and replace waste bag
 - Orient with tab to the rear



ABOUT THIS GUIDE

This guide provides the instructions you need to create finished parts made of Accura® VisiJet® materials using the InVision and the InVision HR 3-D printers.

- [What's Inside?](#)
- [Check your Model Name](#)
- [Hazard Messages](#)
- [Instruction Formats](#)
- [Other Useful Documents](#)





What's Inside?

This *User's Guide* includes the following topics:

- **Safety** – read this section **before** you handle VisiJet material or run the InVision printer. It tells you how to handle VisiJet material properly and how to avoid damage and injury when running the InVision printer.
 - ❏ For more detailed material safety information, see the [VisiJet Material Handling Guide](#) (p/n 23080-M01-XX). To verify that your facility was properly prepared for the InVision printer, see the [InVision Facility Requirements Guide](#) (p/n 23400-M05-XX). Both guides were included in your InVision printer accessory kit. They are also available in the **\Docs** folder on your InVision software CD-ROM. (See ["Other Useful Documents" on page 13.](#))
- **Setup** - shows you how to prepare 3-D models for printing using the InVision 3-D printer software—and how to send jobs to the InVision printer from your computer.
 - ❏ Also see your InVision software online Help for software instructions.
- **Printer Operations** – describes how to load and run the InVision printer; start and stop print jobs; monitor and control running print jobs; unload printed parts; and dispose of waste material.
- **Finishing Parts** – shows you how to detach parts from the build platform, remove support material from parts, and clean parts to a smooth finish. Part coating recommendations are also included.
- **Maintenance** – lists InVision printer maintenance procedures that must be done to ensure high part yield and low printer down time. You can perform some maintenance procedures. Semi-annual preventive maintenance requires a certified 3D Systems Customer Support Representative.
- **Troubleshooting** – If you run into difficulty with your InVision printer system, look for solutions in this section first. It describes some common problems that can occur and suggests corrective actions. It also defines error messages you might see on the printer display and tells you what to do if you see one.



Check your Model Name

The InVision 3-D printer system and the InVision HR 3-D printer system are two printers from the Multi-Jet-Modeling (MJM) line of printers. Check your model name by looking at the front panel of the printer or by locating the model name on the serial number plate on the rear panel. Any differences in operation between the two MJM models is clearly indicated in the text; for example, "InVision 3-D printer system only," or "InVision HR 3-D printer system only." The illustrations used throughout this guide refer to the InVision 3-D printer system unless otherwise noted.



Hazard Messages

You will find four different types of safety hazard messages in this guide:



Damage hazard. Machine damage, part damage, and/or data loss can result if you ignore this type of hazard message.



Electric shock hazard. Injury or death from electric shock can result if you ignore this type of hazard message.



UV radiation hazard. Eye injury or blindness can result if you ignore this type of hazard message.



Irritant hazard. Bodily irritation or allergic reaction can result if you ignore this type of hazard message.



See the [Safety](#) section for descriptions of safety labels on your InVision printer.



Instruction Formats

Instructions in this guide use special text formats to highlight menu commands, keys on the keyboard, operator panel buttons, and text on the operator panel display.

Menus

Menu names and menu options are capitalized in boldface text. Instructions for selecting menu options look like this: "Select **Menu** > **Option**." This means "select (click or highlight) the **Menu**, then select **Option** on that menu."

Keys

Keyboard key names are capitalized; for example, "Press the Enter key."

Buttons

Command buttons on the InVision printer's operator panel are in boldface upper case text; for example, "Press the **ONLINE** button." The command buttons are: **MENU**, **LIGHT**, **PAUSE**, **ONLINE**, **YES**, **NO**, and **ABORT**. The ▲ or ▼ icons indicate the up or down arrow buttons on the operator panel.

Display Text

Text on the InVision printer's display appears in uppercase green in this guide; for example, "When the display shows **PAUSE JOB? Y/N**, press **YES**."



Other Useful Documents

The documents listed below will help you get the most out of your system. You can find them in the **\Documentation** folder of your InVision 3-D Printer Software CD (except for the InVision Client online Help, which you access through the InVision Client software).

- **InVision Client online Help** – Run the InVision Client software, then select **Help > Help Topics** in the 3-D Printers window or the 3-D Print Preview window to launch the InVision Client online Help. The online Help provides detailed instructions on how to use the InVision Client software to setup, run, and manage print jobs.
- **InVision 3-D Printer Operator's Guide** - In addition to this online copy, a small, spiral-bound Operator's Guide booklet is also included in your InVision 3-D printer accessory kit. Use the velcro tape in your kit to mount this booklet on or near your InVision printer for quick reference to basic part printing procedures. To order extra copies of this booklet, request 3D Systems document part number **23400-M01-XX**.
- **VisiJet Material Handling Guide** – This multi-language document has everything you need to know to safely handle and dispose of VisiJet material. It also includes relevant regulatory guidelines for material disposal worldwide.
- **InVision 3-D Printer Facility Requirements Guide** – You received this guide before your InVision printer was installed. A pdf copy is installed on your system for reference.
- **Accura VisiJet Material Safety Data Sheets (MSDS's)** – These are online copies of the printed VisiJet model material MSDS and VisiJet support material MSDS that ship with VisiJet materials. Make sure everyone in your facility who handles VisiJet materials reads these MSDS's and follows the safety guidelines in them. To order extra copies of these MSDS's, request the 3D Systems document part number located on the bottom left-hand corner of the MSDS.



SAFETY

Before using the InVision 3-D printer system, your company should 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 Material Safety Data Sheets (MSDSs). The MSDSs are provided with all materials supplied by 3D Systems.

This section covers the following InVision 3-D printer system safety topics:

- [General Safety Guidelines](#)
- [Electrical Safety](#)
- [UV Safety](#)
- [InVision Printer Safety Labels](#)
- [VisiJet Material Handling Safety](#)
- [VisiJet Material Disposal Safety](#)





General Safety Guidelines

The InVision printer was designed with safety in mind, however, improper use and malfunctions could cause injury. To prevent unsafe operation, the InVision printer automatically shuts down immediately if it detects an unsafe condition.

Follow these general safety guidelines when operating the InVision printer:

- Read and follow all printer instructions.
- Follow all safety rules in this section and heed all cautions and warnings in this guide.
- Do not attempt to open the chamber door while a print job is running.
- Do not use any material without first reviewing its Material Safety Data Sheet (MSDS).
- Dress power and communication cables at the back of the printer to prevent tripping.
- Do not attempt to access, service, or adjust the internal printer components.
- Do not attempt to perform any maintenance procedures unless you have been specifically trained to do so:
 - *Operators* are trained to operate the system and perform all the necessary tasks to print a part.
 - *Certified service personnel* are those who have completed the 3D Systems service training package and are certified to perform service tasks. Certification may occur at various levels, and servicers should only perform tasks they are authorized and certified to complete.
- Do not ignore warning signs posted during printer service operations.
- If you see an error message on the printer's display refer to [Troubleshooting](#) at the end of this guide before resuming operation. (Error messages can result from unsafe practices such as removing an exterior panel when the printer is powered up, or, trying to open the chamber door or waste drawer while a job is running.)
- To prevent potential skin-irritation and sensitization due to contact with waste material, follow all guidelines in [VisiJet Material Handling Safety](#) and [VisiJet Material Disposal Safety](#) later in this section.
- To prevent pinch and crush injuries to the hand, use caution when replacing the platform inside the build chamber. (The platform carriage will not move when the chamber door is open.)



Electrical Safety

To prevent electrical shock, the printer will not operate unless all external panels are installed.



Hazardous voltage exists inside the InVision printer. Injury or death from electrical shock can result if you remove the printer's external panels. Panels should only be removed for service by trained and certified 3D Systems Customer Support personnel.



Verify your facility's electrical service rating **before** you connect power to the InVision printer. For CE compliance, 200–240 VAC operation requires 3D Systems' external transformer kit, p/n **23418-901-00**, provided separately in the printer country kit.

The InVision printer requires a grounded, 1-phase electrical power source with a service rating of 100-127 VAC, 50/60 Hz, 15 A (max.). If your facility meets these electrical requirements, you can plug the printer power cord (p/n 23417-802-00) into the socket on the rear panel of your printer, (see ["Rear Panel Features" on page 3](#) to locate the printer power cord socket), then connect the other end into a grounded 100-127 VAC facility power outlet.

If you need to connect the InVision printer to a 200-240 VAC facility power outlet, first connect the printer power cord p/n 23417-802-00 to the external transformer in your InVision printer country kit—then connect the transformer to the 200-240 VAC outlet.

UV Safety

To prevent eye injury, the ultraviolet (UV) light inside the chamber will not turn on when the chamber door is open. When closed, the chamber door keeps UV radiation from escaping.



Hazardous UV radiation exists inside the InVision printer build chamber during a print job. Eye injury or blindness can result if you open the chamber door while a print job is running. If a print job is running, abort the print job before you attempt to open the chamber door. (The chamber door remains locked if you only pause the print job.)



InVision Printer Safety Labels

The following safety labels are posted on the InVision printer:

SAFETY LABEL



WHAT IT MEANS

UV Radiation Hazard

Invisible UV radiation is accessible in the vicinity of this sign or behind the panel. Radiation can cause eye injury. Access panels are for service only and should be opened only by certified service 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. Access panels are for service only and should be opened only by certified service personnel or trained maintenance personnel.

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 severe burns. Access panels are for service only and should be opened only by certified service personnel or trained maintenance personnel.



VisiJet Material Handling Safety

Emergency (MSDS)

[ChemtrecUSA](#) (800) 424-9300; Europe +1-703-527-3887

Packaging Inspection

VisiJet material is packaged in cartridges, which are packaged within polybags, then within shipping cartons. Upon receipt of the material shipments, inspect the cardboard carton for signs of physical damage and evidence of leakage by inspecting the carton exterior. If leakage is observed, do not open the carton, and contact 3D Systems' Customer Support Hotline. Assuming no leakage is observed, store materials in their cartons until the material is loaded into the printer.

Storage

Shelf life of VisiJet model material is one year from date of manufacture. For VisiJet support material, shelf life is two years. Each cartridge is marked with its expiration date. Use the oldest inventory first. VisiJet material should be kept indoors in a cool, dry area with adequate ventilation, and at temperatures between 16 °C (60 °F) and 27 °C (80 °F). DO NOT EXCEED A MAXIMUM STORAGE TEMPERATURE OF 35 °C (95 °F). Keep away from direct sunlight, heat, flames and other direct light or UV energy sources. For optimal results, keep stored cartons closed and sealed, and do not open polybags until the cartridge is ready for loading into the printer.

Check the Material Name

The InVision 3-D printer system requires S100 support material and M100 model material.

DO NOT USE M100 MODEL MATERIAL IN THE INVISION HR 3-D PRINTER SYSTEM.

Only HR-specific material (S100 support material and HR-M100 model material) will work in the InVision HR printer.

❗ S100 support material cartridges, M100 model material cartridges, and the InVision 3-D printer system are the models used for illustrative purposes throughout this guide. Any references to specific material will be clearly indicated in the text; for example, "Use M100 model material in the InVision 3-D printer system only."



Cartridge Loading

When loading material in the InVision printer, always check the following:

Material expiration The material expiration date is printed on the material cartridge and carton labels. Do not load cartridges into the printer if they are about to expire. When the printer detects an expired cartridge, it aborts the build and ejects the cartridge if the current date is...

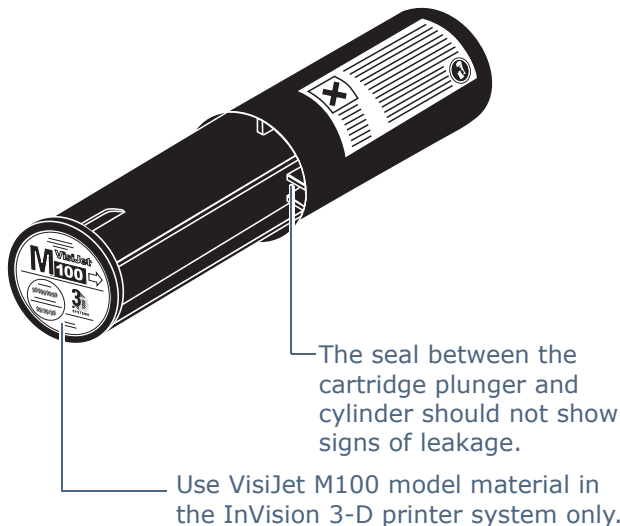
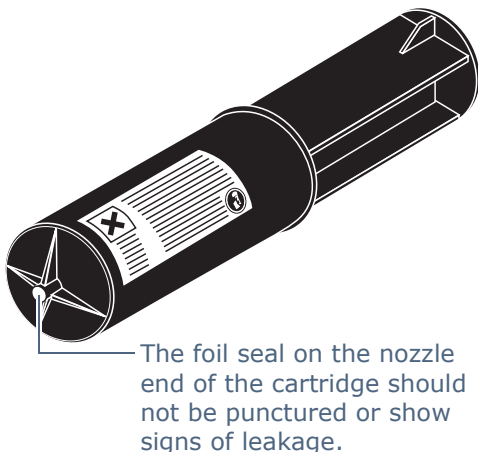
- past the expiration date (for VisiJet support material)
- more than one year past the expiration date (for VisiJet model material)

Feed slots VisiJet support material (**white**) cartridges must be loaded in the **left** side feed slot. VisiJet model material (**black**) cartridges must be loaded in the **right** side feed slot.

Leakage or damage Before you remove a cartridge from its protective polybag—and before you load it in the printer—inspect the cartridge for signs of leakage or physical damage. Do not load a leaking or damaged cartridge. Dispose of it according to regulations that apply in your area.



Do not open a polybag containing a leaking model material cartridge.





Model Building

If uncured material is ever observed on the model or platform at the end of a build, this is an abnormal (and very unlikely) condition, and is an indication that the printer requires servicing by 3D Systems.

Assume that any liquid or paste-like material is uncured model material. Do not directly touch uncured model material without protective gloves. Discontinue use of the printer, pending service by a 3D Systems Customer Support Representative.

- ① Uncured model material is the liquid or paste-like material contained within the cartridge. Once the material is printed, the printer cures the material rendering it safe to handle.

Flammability and Combustibility

Do not expose VisiJet materials to heat (at or above 110 °C / 230 °F), flames, sparks, or any source of ignition. (Though the U.S. Department of Transportation does not consider VisiJet materials a “flammability hazard,” they do classify them “combustible” based on their flash points.) For more information on VisiJet material flash points and combustibility, see the [VisiJet Material Handling Guide](#) in your InVision printer accessory kit.

Health Hazards

Any chemical may exert harmful effects if it enters or contacts the body in sufficient quantities. Uncured VisiJet model material is a sensitizer and irritant.

Skin Sensitization

Uncured VisiJet model material is a sensitizer, and can cause allergic reactions if it comes into contact with the skin without appropriate chemically resistant protective gloves. Nitrile or neoprene gloves are recommended. Do NOT use latex gloves. To avoid sensitization, do not allow uncured material to contact skin. Consult the MSDS for specific information about the sensitization potential.

Sensitization dermatitis is the result of an allergic reaction to a given substance. In almost all cases, direct skin contact is necessary to cause sensitization. It is possible for individuals to become sensitized to a substance even after a trouble-free period of exposure. Many factors affect a person's susceptibility including: existing skin conditions, personal habits, and individual sensitivity. Sometimes even slight exposure can trigger a severe outbreak of dermatitis. Since sensitization is permanent, a sensitized individual should avoid further contact with the sensitizing agent.



Inhalation

Under normal operation, inhalation is not an expected route of entry.

Ingestion

Uncured VisiJet material is toxic if ingested. Therefore, uncured material must not be present where food and drink are stored, prepared or consumed and should not be ingested. As a precaution, after handling VisiJet materials, users should wash their hands with soap and water before consuming or preparing food.

Handling Finished Parts

Finished (cured) VisiJet parts can be handled or disposed of in the same manner as standard household plastic products. VisiJet parts are not recyclable. VisiJet materials are not intended for, and cannot be used for medical implant, nor for food or drink handling applications.

Exposure control The InVision printer has a variety of built-in engineering controls that are designed to prevent operator exposure. Do not try to change or disable these controls.

Personal Protective Equipment

Skin protection Exposure to uncured VisiJet model material may occur; such as when removing and disposing of the bin liner containing spent model cartridges, and the waste bag. To prevent contact, wear chemically resistant protective gloves - nitrile or neoprene gloves are recommended.

Eye protection In the event of a leak or spill of uncured VisiJet model material, wear safety glasses with side shields to provide eye protection.

Respiratory protection Because of the InVision printer's built in engineering controls, respiratory protection is not necessary during normal operation.

A NIOSH-approved (or equivalent) dust mask is recommended when dry sanding cured VisiJet material parts.

Training

Employees should be trained in the hazards and management of VisiJet materials. Such training should be provided to new employees before they begin working with the printer, or disposing of material waste.



VisiJet Material Disposal Safety

User Management

Users of the InVision printer should be informed about the potential hazards of VisiJet model material prior to working with an InVision printer, or performing other duties which may result in exposure to uncured VisiJet model material, such as removal and disposal of bin liners and empty cartridges, or waste bags.

Spills

Spills of material are **HIGHLY UNLIKELY**, and should **NOT** occur in the normal operation of the printer. If a leak does occur, it is an indication of a serious printer malfunction.

The first priority is to protect users from inadvertently touching the material. Spills of VisiJet support material can be cleaned without use of protective gear, and disposed of as ordinary office trash. Handling uncured VisiJet model material requires use of gloves and other protective equipment to ensure that no direct contact with uncured model material is possible. If you don't know which material it is, assume it to be uncured model material, and handle accordingly - with the recommended protective gloves and other safety gear.

Eliminate the potential for others to contact the spill. Promptly remove the spilled material, and dispose of the waste material and cleanup materials per local applicable regulatory requirements. Discontinue use of the printer, and contact 3D Systems for a service visit to determine and repair the source of leakage.

Small spills of uncured liquid VisiJet model material can be cleaned up using disposable towels, non-reusable rags, or absorbing materials such as sawdust, clay, diatomaceous earth, or activated charcoal. If the spilled material is hot (liquid), wait until it cools and gels before wiping it up. After wiping up the spill, wipe the surface with denatured or isopropyl alcohol and wash it thoroughly with soap and water.

Cleaning a spill on carpeting can be particularly difficult. Consider avoiding placement of the printer over carpeting, or consider use of a barrier to avoid the possibility of carpet damage if a spill were to occur.

Advise any service provider involved (e.g. a carpet cleaning service or disposal service), of the nature of the spilled material, and provide MSDS and other material information prior to their contact with the material. Advise them of the disposal requirements for model material and clean-up products if model material (uncured) is the spilled material. Use of heat above 65 °C may prove helpful in removing spilled model material from carpet.



Tools which may be contaminated with VisiJet model material should be cleaned prior to reuse. Recommended solvents such as DNA or IPA are normally required to clean equipment and tools. A final wash with soap and water will remove any last traces of excess VisiJet model material or solvent. Solvent suppliers should be contacted for information on the proper handling of solvents if used in a clean-up.

Hygiene

Appropriate hygienic practices should be followed, including washing with soap and water before meals, breaks, smoking, applying cosmetics, using toilet facilities and after work.

Housekeeping

Good housekeeping should be practiced in the work area. Employees should be alerted to the need to clean and rinse off any contacted surface promptly in order to prevent further contamination. Ensure a convenient washroom location is provided with access to soap, water and disposable paper towels.



Waste Removal

Three "waste" items must be removed from the InVision printer - a white cardboard liner holding empty support cartridges, a black cardboard "bin liner" holding empty model material cartridges, and a waste bag containing a combination of support and uncured model material. Wear protective gloves before removing any waste product from the printer. Be careful to not spill, drop or expose others to these materials - particularly the model material cartridges or the waste bag. Dispose of all waste material appropriately per local and other regulatory requirements.



Waste drawer open showing empty cartridges and full waste bag.



Removing support material waste bin liner for disposal.



Removing model material waste bin liner for disposal.



Removing full waste bag from drawer.



Loading new, empty waste bag in drawer.



Seal full waste bag before disposal.



Regulatory Information

VisiJet support material has no known regulatory requirements.

The disposal of cured, partially cured, or uncured VisiJet model materials should comply with all applicable local, state, and federal environmental and safety regulations. In the U.S., **uncured** VisiJet material is subject to special EPA disposal regulations and record-keeping requirements. "Uncured VisiJet material" includes any model material cartridge (empty or full), and the waste bag—about half of which is uncured model material. (For complete disposal regulation details, see the Appendix in your [VisiJet Material Handling Guide](#).)

U.S. disposal record keeping regulations – In the U.S., you must keep the following disposal records for five years after the date of disposal:

- 1** The quantity of model material received (new or "virgin").
- 2** The name and address of the shipping location (the "responsible party" - generally your waste disposal service provider)
- 3** The quantity of model material shipped (disposed)

For further information, see your [VisiJet Material Handling Guide](#). For assistance, contact 3D Systems Customer Support.



Disposal Procedures

The disposal of **fully cured** models produced by the InVision printer is not subject to the regulations of any known agency worldwide.


VisiJet support material and cartridges may be disposed of in ordinary office trash.

Uncured VisiJet model material waste is classified as regulated, and in some areas hazardous, thereby requiring special packaging, transportation and disposal. The disposal of partially cured or uncured VisiJet model material must comply with all applicable local, state, and federal environmental and other safety regulations. Applicable VisiJet model “waste” includes cartridges (empty or full) and the waste bag.

Any materials used to clean up uncured VisiJet model material should be disposed of in the same manner as the uncured model material itself.

To find out which disposal requirements apply to your facility, contact a local waste disposal service provider. (Your local environmental regulatory agency should have a list of qualified providers in your area.) You will need to give the disposal service provider a copy of your VisiJet model material MSDS, and possibly other forms included in the Appendix of your [VisiJet Material Handling Guide](#), such as the Waste Profile Worksheet and the SNUR (Significant New Use Regulation – U.S. only). You will be provided with a report, indicating the disposal requirements that apply to you, as well as a quotation for regularly scheduled pickups.

If you need assistance locating a waste disposal service provider, or completing a waste disposal form, contact your local 3D Systems Customer Support Hotline.

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



SETUP

Use the InVision Print Client software to set up part (STL) files and send these files to the InVision 3-D printer as a print jobs. This section covers each step in the setup process. See your InVision Print Client online Help for more information on part file setup and printing.

- [Create STL File\(s\) to Print](#)
- [Install and Run the InVision Client Software](#)
- [Power On Printer](#)
- [Connect PC to Printer\(s\) via Network](#)
- [Submit Print Jobs](#)
- [Preview Print Jobs](#)
- [Manage Print Jobs](#)





Create STL File(s) to Print

The InVision printer prints 3-D models from files in the industry-standard **.STL (STereoLithography)** format. Most popular 3-D modeling CAD software packages can save files in STL format.

❏ Sample STL files are in the **\InVisionClient\Samples** folder.

Install and Run the InVision Client Software

❏ Before you install the software, make sure your network and PC meet the [System Requirements](#) on the first page of this guide.

Load the InVision Client software from the CD that came in the InVision printer accessories kit. (The accessories kit was shipped separately.) An autorun file on the CD will automatically load when the CD is inserted into a CD-ROM drive on your computer. If the installation program does not start when you load the CD, run **Setup.exe** from the root directory of the CD-ROM drive.

After you successfully install the InVision Client program, run it by choosing **Start > InVisionClient**. The 3-D Printers window appears. Do the following:

- Power up the printer as described in the next section, [Power On Printer](#).
- Establish a network connection between your InVision printer and PC. (See ["Connect PC to Printer\(s\) via Network" on page 30.](#))

What do you do with the InVision Client software?

Basic InVision Client program functions are summarized below. For complete details on all InVision Client program functions, see your InVision Client online Help.

Submit Jobs After you connect your PC to an InVision printer, you can submit jobs to the printer's job queue. Each print job consists of one or several STL files arranged to fit in the printer's rectangular build volume.

Preview Jobs You can preview a print job before you submit it. The InVision Client's Preview window gives you several ways to manipulate STL files ("parts") in your print job before you submit the job; for example, you can scale and duplicate parts, rearrange parts manually or automatically, and verify the integrity of part STL files.

Manage Jobs Click on the printer's icon (in the 3-D Printers window) to open a separate window for that printer and submit a job to the queue. Before you submit the job, you can optionally preview it (as described above) and edit job properties. After you submit the job, you can view the queue and save and reorder jobs (if you sent several to the same printer).



Power On Printer

Before you can submit a job to an InVision printer, connect power to it and switch it on as described below. Then, use the InVision Client software to establish a network connection between your PC and the printer as described in the next section, [Connect PC to Printer\(s\) via Network](#).

Before your connect power to the InVision printer:



Read and follow all safety guidelines in [“Electrical Safety” on page 16](#). Ignoring these guidelines could result in death, bodily injury, or printer damage due to electrical shock or fire.



Verify your facility's electrical service rating. The InVision printer requires **1-phase, 100-127 VAC, 50/60 Hz, 15 A (max.)** electrical power. 200-240 VAC operation requires 3D Systems' external transformer kit, p/n 23418-901-00 provided separately in the printer country kit.



Verify that the printer's rear panel power switch is **OFF**. (See figure below.) Connecting power with the switch on can damage the printer and cause bodily injury or death due to sudden, unexpected mechanical motion.



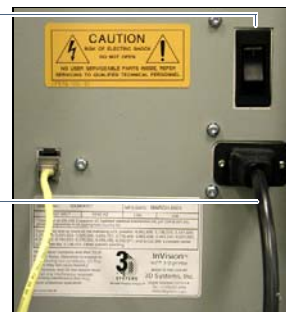
To ensure a stable power supply to the InVision printer, do not connect devices with electric motors (such as power tools) to the same circuit as the printer.

Connect power to the printer and switch it on as follows:

- 1 Plug the InVision printer power cord (p/n 23417-802-00) into the printer's rear panel socket as shown.
- 2 Connect power as follows:
 - **100-127 VAC operation:** Plug the printer power cord into a grounded 100-127 VAC power outlet.
 - **200-240 VAC operation:** Connect the printer power cord to the external transformer in kit p/n 23418-801-00, then plug the transformer power cord into a grounded 200-240 VAC power outlet.
- 3 Switch the printer power on.

Power switch

Power cord
23417-802-00



InVision printer rear panel



Connect PC to Printer(s) via Network

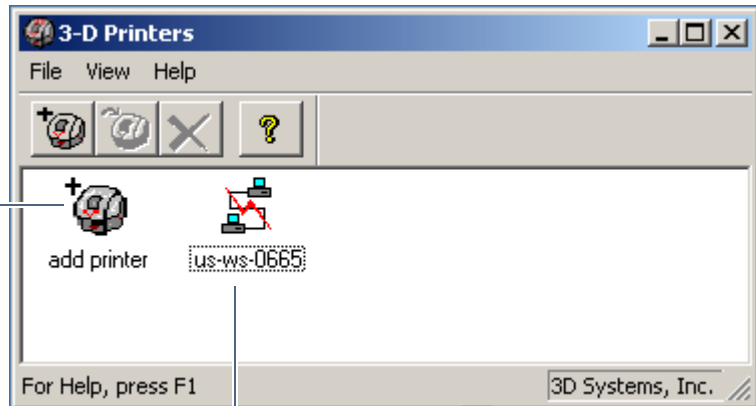
When you run the InVision Client software, the first window you see is the 3-D Printers window shown below. You can only submit print jobs to printers that have icons in this window. To create an icon for a printer, click the **Add printer** icon (or choose **File > Add 3-D printer**). Next, follow the instructions in ["How to Add a Printer" on page 31](#) to configure a new printer network connection. When you finish, the new printer icon will appear in the window.

After you add a printer, click on it's icon in the 3-D printer window (or choose **File > Open 3-D printer**) to submit print jobs to it (after optionally previewing them), or, to manage print jobs in its queue.

- ❗ If a printer's icon has a red lightning bolt, your PC is not communicating with it. You cannot submit jobs to this printer until communication is restored.

Click **Add printer** icon to create a new printer network connection

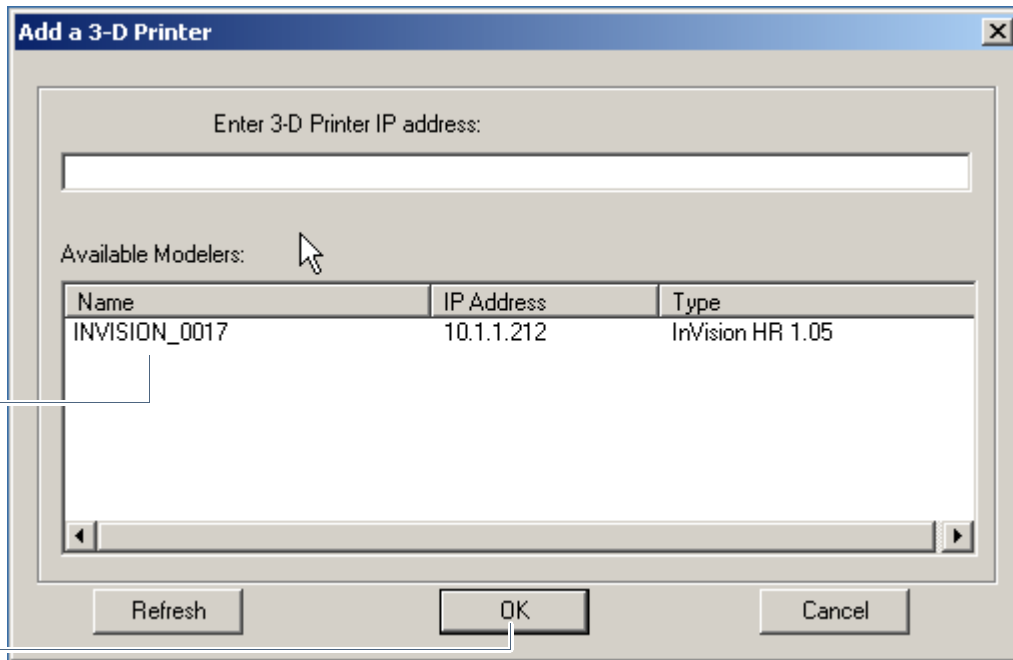
Click printer icon to open a 3-D printer





How to Add a Printer


When you click on the Add printer icon in the 3-D printers window (or choose **File > Add 3-D printer**), the Add Printer window appears, prompting you to choose the printer's IP address from the list of available printers:



Click the network address for the 3-D printer you want to add

Then click OK

Click to choose the IP address for the printer you want to add, then click OK. The InVision Client prompts you for a printer name. After you enter a name, an icon for the printer appears in the 3-D Printers window. Once a icon for a printer exists, you can click it to do any of the following: add files to a print job, preview a print job, submit a print job, manage a print job in progress. These functions are described in the sections the follow.

 For more information on this adding and opening printers, see “Network Settings for 3-D Printers” and “Displaying Printer Windows” in your InVision Client online Help.



Submit Print Jobs

After you connect your PC to an InVision printer on the network (see [“How to Add a Printer” on page 31](#)), click the printer's icon in the 3-D printers window. The printer's Info window opens.

In the printer's Info window, click the Submit button to open the Submit dialog as shown below.

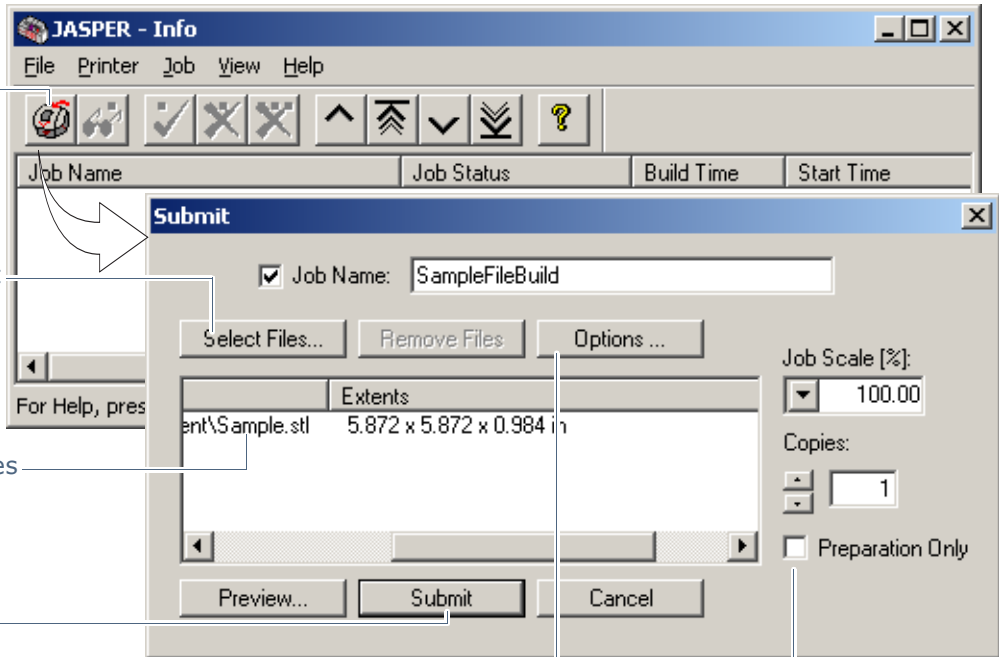
Click to submit a job

Submit dialog appears

Click to select STL files from a dialog box

List of STL files appears here

Click Submit button when ready



Displays the Default Job Options dialog box.

Select this to make the print job wait for confirmation before printing



Before you click the **Submit** button at the bottom of the Submit dialog box, do the following:

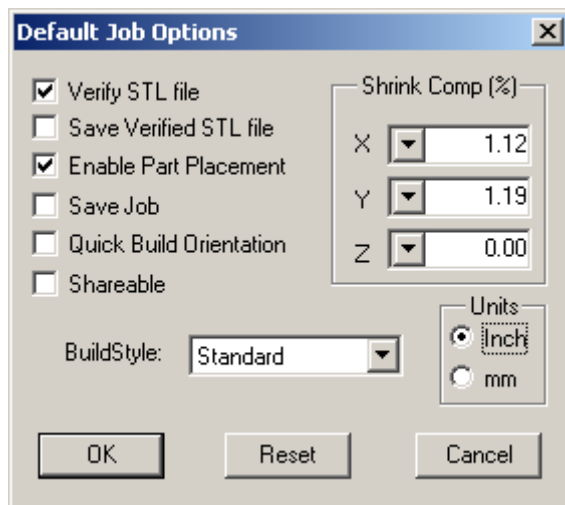
1 Add parts (STL files) to the print job.

- Click the **Select Files...** button in the Submit dialog to add one or more parts (STL files) to the print job.
- Browse for STL files in the Select CAD files window. As you select files, their STL file names appear in the print job parts list in Submit dialog as shown above.
- Sample STL files are in the `\InVisionClient\Samples` folder.

2 (Optional) Change the default print job options.

- Click the **Options...** button in the Submit dialog. The Default Job Options dialog appears.
 - Change or reset values in this dialog, such as **Build Style**, **Shrink Comp (%)**, and **Units**. (See "Default Job Options Dialog Box" in your InVision Client online Help for job options definitions.)
- InVision parts shrink in X and Y. The degree of shrinkage depends on part geometry. To improve part accuracy, apply the X, Y, and Z Shrink Comp (%) values below initially, then measure your parts and refine these values.

DIM.	SHRINK COMP % (INIT.)
X	1.12
Y	1.19
Z	0.00



Default Job Options dialog

3 (Optional) Preview the print job.

- Add at least one part to the print job.
- Click the **Preview...** button in the Submit dialog.
- Manipulate parts interactively in the Preview window's virtual InVision printer 3-D build work-



space. See [“Preview Print Jobs” on page 35](#) and “Previewing Print Jobs” in your InVision Client online Help.

To submit a print job to the printer's queue, do one of the following:

- Click the **Submit** button in the Submit dialog box if you **did not preview** the job, or,
- Click the **Submit** toolbar button in the Preview window if you **did preview** the job.

(Optional) **resize (“scale”) parts before you Submit a job** To resize all the parts in your job by the same scale factor, enter a **Job Scale %** in the Submit dialog box before you click **Submit**. If you only want to resize some of the parts in your job, use **Edit > Scale** in Preview. (See the topic “Previewing Print Jobs > Scaling Parts” in your InVision Client online Help for instructions.)

❗ Applying a **Job Scale %** (or scale percentage(s) using **Edit > Scale** in Preview) is different than applying **Shrink Comp %** values in the [Default Job Options dialog](#). Applying scale percentages changes “nominal” part dimensions in the STL file(s). Applying Shrink Comp percentages **does not** change nominal part dimensions in the STL file(s). Rather, Shrink Comp adjusts for expected shrinkage during the build so the actual final part dimensions more closely match the nominal dimensions.

The print job you submit will be built when the printer is ready unless:

- The printer is offline, in which case you'll need to press the **ONLINE** button on the printer's operator panel.
- The printer does not have a clean build platform installed, in which case you must install one, then press **ONLINE**.
- You checked the **Preparation Only** option in the Submit dialog box. This causes the printer to wait until you confirm the print job before printing it—which enables you to change the job in the Preview window again before confirming it.

❗ See “Checking Printer Status” and “Confirming Print Jobs” in your InVision Client online Help for more information.

Tips on submitting print jobs

- ✓ You can select more than one STL file at a time. In the Select CAD Files dialog box, hold down the Ctrl key and click on several STL files.
- ✓ You can add parts in the Preview window. After you have added at least one STL file, use the Preview window to view your print job in three dimensions, and to add more STL files if you wish.

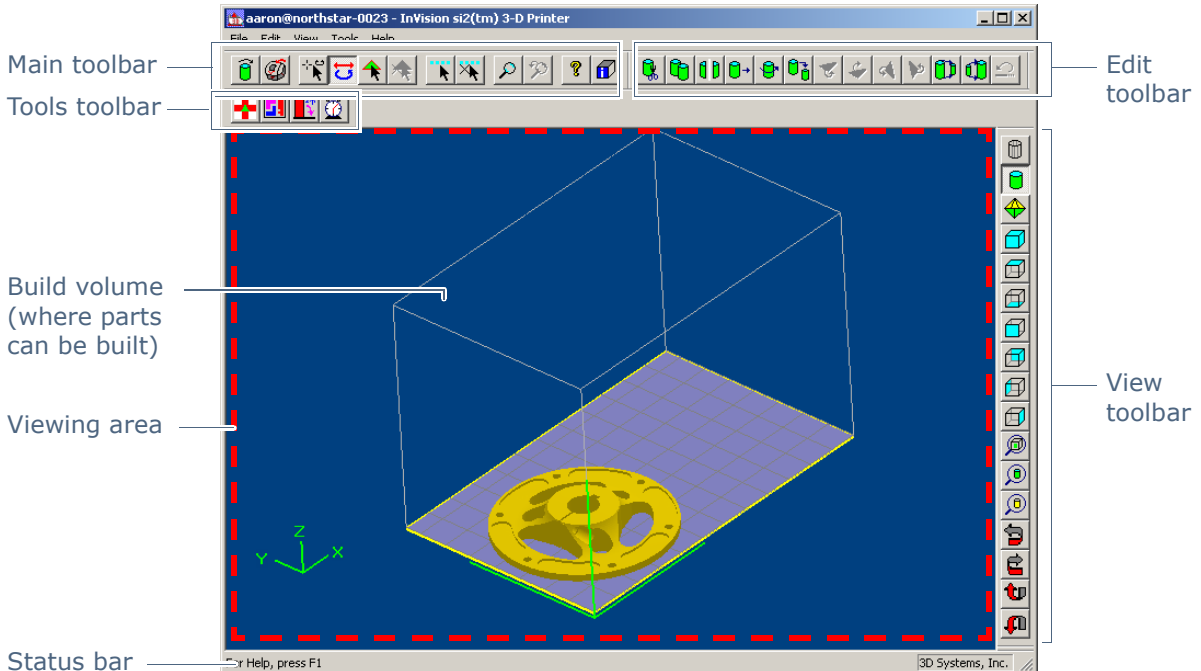


Preview Print Jobs

You can preview a print job before you submit it by doing one of the following. (See "Previewing Print Jobs" in your InVision Client online Help for detailed Preview instructions.)

- Clicking the **Preview...** button in the InVision Client's Submit dialog box. You must add at least one part to the print job in the Submit dialog box before the **Preview...** button is available. (See ["Submit Print Jobs" on page 32.](#))
- Highlight a Job Name in the printer's Info window, then click the **Preview** toolbar button or choose **Job > Preview**.

When the InVision Client Preview window opens as shown below, you can add and remove part STL files, change and rearrange parts, and submit the modified job directly to the printer's job queue—or—save the modified job (as described in ["Save a Print Job" on page 38](#)) if the job is already submitted and in the queue.





Manage Print Jobs

The InVision Client software gives you many ways to monitor and control print jobs you submit. This section summarizes some of the more important print job management tools and tells you how and when to apply them. For full details, see "Managing Print Jobs" in your InVision Client online Help.

Confirm Print Job

The InVision Client will not send your print job to the InVision printer until you confirm it if you do one of the following:

- ✓ Select the **Preparation Only** checkbox in the Submit dialog, or,
- ✓ Resubmit a saved print job

To confirm a job:

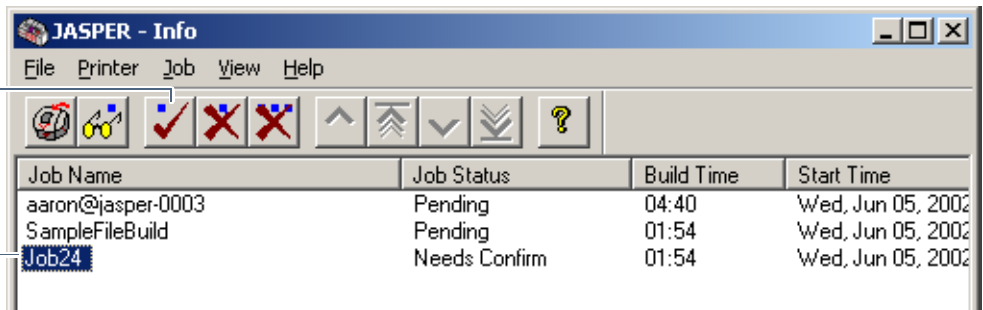
- 1 Click a printer's icon in the 3-D printers window to open the printer's Info window.
- 2 Select a print job with a **Job Status** of **Needs Confirm** or **Saved**.
- 3 Click the **Confirm** button or choose **Job > Confirm**.
- 4 Click Yes to send the job to the printer as soon as it's available.

A print job that had **Needs Confirm** status immediately changes to **Pending** when confirmed.

- ❗ Confirming a saved job generates a new **Pending** print job whose name lacks the "_s" suffix. However, the saved job remains in the queue.

Confirm button
in printer's Info
window

Job needing
confirmation





Delete Print Job(s)

Follow the instructions below to delete one or more print jobs from the print queue after you submit them.

To delete print job(s):

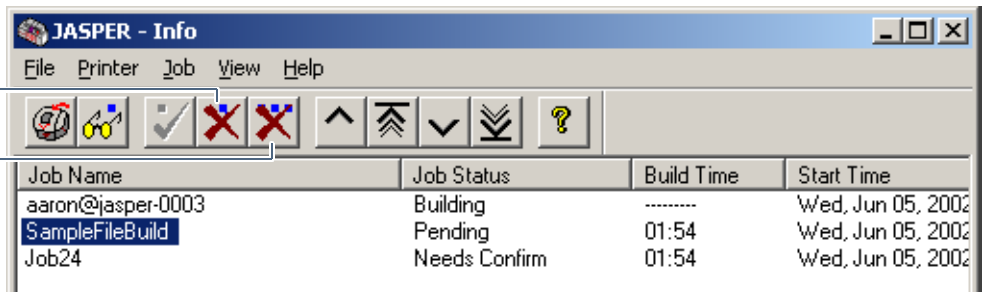
- 1 Click a printer's icon in the 3-D printers window to open the printer's Info window.
- 2 Select the print job(s) you want to delete. (Ctrl-click to select several jobs.)
- 3 Click the **Delete** or **Delete All** button or choose **Job > Delete** or **> Delete All**.
- 4 To delete all jobs, click the **Delete All** button or choose **Job > Delete All**.

If you use **Delete All**, and there are any saved jobs, the InVision Client will ask you whether you want to delete saved jobs as well as other ones.

- ❗ If you delete a job that is currently building; this aborts the printing operation. However, the job status will continue to show as "Building" at the PC until deletion is confirmed at the printer.

Delete Job

Delete All





Save a Print Job

You can prepare and save a print job on your PC. Later, you can submit the print job, skipping the preparation steps. A saved print job is specific to a single PC and can only be printed or deleted from that PC.

To save a print job:

- 1 Click a printer's icon in the 3-D printers window to open the printer's Info window.
- 2 Select the Job name of the print job you want to save.
- 3 **Before you submit the job:**
 - a Choose **Job > Default Options**.
 - b In the Default Job Options dialog, select **Save Job**, then click **OK**.
 - ❗ After you submit a job to the print queue, you cannot save it unless **Save Job** was selected.


When a print job with the **Save Job** option enabled reaches **Pending** status, another job (with the suffix "_s") is added to the queue.

- ❗ See "Saving and Reusing Print Jobs" and "Confirming Print Jobs" in your InVision Client online Help for more information.



PRINTER OPERATIONS

After you submit and confirm a print job, the InVision Client software sends your print job to the InVision printer to be built. This section describes procedures you must perform at the InVision printer to successfully build a print job, such as loading material cartridges, replacing the platform, and disposing of waste material. It also covers useful optional procedures you can perform using the printer's operator panel.

 The [InVision 3-D Printer Operator's Guide](#) booklet in your accessory kit summarizes the printer operating instructions in this section for convenient reference.

- [Power On Printer](#)
- [Operator Panel Button Functions](#)
- [Operator Panel Display Messages](#)
- [Start Print Job](#)
- [Remove Platform](#)
- [Install Platform](#)
- [Pause Print Job](#)
- [Abort Print Job](#)
- [Menu Options](#)
- [Add Material](#)
- [Empty Waste Drawer](#)
- [Shut Down Printer](#)



Power On Printer

Before you connect power to the InVision printer:



Read and follow all safety guidelines in “[Electrical Safety](#)” on [page 16](#). Ignoring these guidelines could result in death, bodily injury, or printer damage due to electrical shock or fire.



Verify that the printer’s rear panel power switch is **OFF**. (See figure below.) Connecting power with the switch on can damage the printer and cause bodily injury or death due to sudden, unexpected mechanical motion.

Connect power to the printer and switch it on as follows:

- 1** Plug the InVision printer power cord (p/n 23417-802-00) into the printer’s rear panel socket as shown.
- 2** Connect power as follows:
 - **100-127 VAC operation:** Plug the printer power cord into a grounded 100-127 VAC power outlet.
 - **200-240 VAC operation:** Connect the printer power cord to the external transformer in kit p/n 23418-801-00, then plug the transformer power cord into a grounded 200-240 VAC power outlet.
- 3** Switch the printer power on.
- 4** Wait 4 hours for the printer to warm up before pressing **ONLINE** to start a job.
 - ① You can submit jobs to the printer while it is warming up.

Power switch

Power cord
23417-802-00



InVision printer rear panel



Operator Panel Button Functions

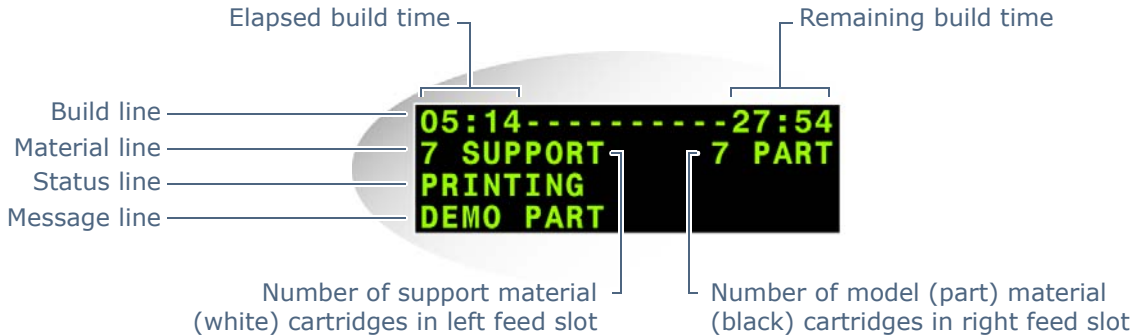
Use the buttons on the InVision printer's operator panel to start and stop print jobs and to view information about the print job, the printer, and the material.

BUTTON	FUNCTION
YES	<ul style="list-style-type: none">• Reply "yes" to CONFIRM Y/N?• Select highlighted menu option
▲ or ▼	Scroll menu option highlight. (Press MENU to view options.)
NO	<ul style="list-style-type: none">• Reply "no" to CONFIRM Y/N?• Exit up one menu level
ABORT	Aborts the current print job immediately if you press YES to confirm
ONLINE	Switches the 3-D printer online or offline
PAUSE	<p>Pauses the current print job (a.) if you press YES to confirm, and (b.) after it completes its current task. For example, if the printer is in the process of cleaning heads when you press PAUSE, it completes the head cleaning process before stopping.</p> <p>i The chamber door remains locked while a job is paused. You must abort the job or allow it to finish before you can open the chamber door.</p>
LIGHT	Switches the chamber light on and off
MENU	Displays options for starting and stopping jobs and viewing printer and job information




Operator Panel Display Messages

The 4-line LCD on the [Operator Panel](#) displays print job status, menu options, and command prompts. Each of the four lines shows different types of messages.



Use the messages to help you manage print jobs before, during, and after printing. The causes of—and actions to take in response to—various operator panel messages are described in the following sections:

- [Build Messages](#)
- [Material Messages](#)
- [Status and Message Lines](#)

 Operator panel messages also help with troubleshooting. See [“Error Messages” on page 77](#).



Build Messages

MESSAGE	CAUSE	ACTION
XX:XX.....XX:XX 7 SUPPORT.....7 PART PRINTING	<p>The printer is currently printing.</p> <p>The display shows the elapsed and remaining build time on the top line and the number of cartridges in the each feed slot on the second line.</p> <p>① Add material when the number of cartridges in a slot is 3 or less. (See "Add Material" on page 57.)</p>	None
NOT PRINTING	The printer is ready to print.	Press ONLINE to print or MENU to list menu options.
INVISION™ [X.X] MONTH DD YYYY TIME XX:XX:XX	<p>When the printer is initially powered-up the current printer control software version is briefly displayed.</p> <p>① This is the InVision printer's control code version; not the InVision Client software version.</p>	None



Material Messages

MESSAGE	CAUSE	ACTION
#X PART	The current number of black model ("part") material cartridges in the right feed slot.	None
#X SUPPORT	The current number of white support material cartridges in the left feed slot.	None
ADD PART	The number of model material cartridges in the right feed slot is 3 or less.	Add model material cartridges. The feed slot is full when five cartridges are visible in the window (maximum number of cartridges per slot is 8). (See "Add Material" on page 57.)
ADD SUPPORT	The number of support material cartridges in the left feed slot is 3 or less.	Add support material cartridges. The feed slot is full when five cartridges are visible in the window (maximum number of cartridges per slot is 8). (See "Add Material" on page 57.)



Status and Message Lines

The messages in this section appear either in the Status line or in the Message line. Read both lines together to determine the exact state of the printer at any given point.

- The Status line generally indicates the current state of the printer
- The Message line shows the action you need to take (if any) to complete a function and move to the next step.

Status and Message Lines

MESSAGE	CAUSE	ACTION
ABORT	ABORT button pressed. (See "Abort Print Job" on page 53.)	Press YES to abort or NO to cancel the command
ABORT ACKNOWLEDGED	You confirmed an abort command. The printer is aborting the current job.	None. (See "Abort Print Job" on page 53.)
BUILD PAUSED	PAUSE button pressed during the build. The build platform moves forward and the chamber door and waste drawer remain locked. When you press the PAUSE button during a build, the printer completes its current task before stopping. (See PAUSE under "Operator Panel Button Functions" on page 41.)	Press PAUSE to continue. (See "Pause Print Job" on page 52.)
CLEANING PRINthead	The printer is cleaning the print jets.	None. (This occurs automatically before every build.)
CLOSE DOORS	The chamber door is open.	Close the chamber door.

**Status and Message Lines (continued)**


MESSAGE	CAUSE	ACTION
CONFIRM PLATFORM CLEAR OR CANCEL	The printer is prompting you to verify that the platform is clean and clear of obstructions. (See "Install Platform" on page 51.)	Verify that the platform is clean and clear, then press YES to continue or press ABORT to cancel.
PRESS PAUSE TO CONTINUE	The printer is paused.	Press PAUSE to continue or ABORT to cancel.
CYCLE POWER TO CONTINUE	A severe error occurred. The printer cannot recover from it and must be switched off.	Cycle power to the printer. If the error message occurs again, contact your Customer Support Hotline .
DONE REMOVE PRINT	The printer completed printing the current job.	Remove the platform. (See "Remove Platform" on page 51.)
HOMING PRINTHEAD	The printer is initializing the Z-axis prior to printing.	None
HOMING X - Y	The printer is initializing the X-axis and Y-axis prior to printing.	None
INSTALL PLATFORM	The printer cannot detect a platform.	Install a clean platform. (See "Install Platform" on page 51.)
NOT PRINTING	The printer is ready to print.	Press ONLINE to print or MENU to list menu options.



Status and Message Lines (continued)

MESSAGE	CAUSE	ACTION
OK TO POWER OFF	The printer completed its internal shutdown procedure and is ready to be shut down. (See "Shut Down Printer" on page 60.)	Switch power OFF (power switch on printer rear panel). ❗ Before you switch power off, verify that you will not need to build parts again soon. It can take several hours for the printer to warm up after you switch power back on.
ONLINE/MENU?	The printer is ready to print.	Press ONLINE to print, MENU to list menu selections.
PAUSE ACKNOWLEDGE	The PAUSE button was pressed. The printer is acknowledging and complying with the command.	None. If you press PAUSE during a print job, the current layer or process is completed before the pause takes effect. (See PAUSE under "Operator Panel Button Functions" on page 41.)
PLEASE WAIT	The printer is cooling to shutdown temperature.	Wait for the printer to complete its shutdown procedures. (See "Shut Down Printer" on page 60.)
PRE-JOB CHECKS	Briefly displayed during printer build preparation.	None
PRINTING	The printer is currently printing.	Allow the print job to continue or press PAUSE or ABORT to stop printing.

**Status and Message Lines (continued)**

MESSAGE	CAUSE	ACTION
RAISING PRINthead	The printer is raising the printhead so you can remove the platform.	None
REMOVE PRINT	The printer completed a print job and unlocked the chamber door so you can remove the platform.	Remove the platform and replace it with a clean platform. (See "Remove Platform" and "Install Platform" on page 51.)
SHUTDOWN IN PROGRESS	You selected the SHUTDOWN menu option, then pressed YES twice. The printer is cooling down so power can be switched off. (See "Shut Down Printer" on page 60.)	None. DO NOT switch off the printer while shutdown is in progress.
SHUTDOWN COMPLETE	Printer cooldown is complete; printer is ready for power off.	Wait for OK TO POWER OFF message, then switch power off at the printer's rear panel.  Before you switch power off, verify that you will not need to build parts again soon. It can take several hours for the printer to warm up after you switch power back on. (See "Shut Down Printer" on page 60.)

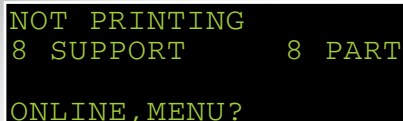
**Status and Message Lines (continued)**

MESSAGE	CAUSE	ACTION
STANDBY	The printer is in energy-saver mode. All internal subsystems are partially cooled and the printer is inactive.	None. The printer will warm to operating temperature when you press any button or submit a print job.
WAITING FOR JOB	The printer is online, but there is no print job in it's queue. The printer is ready to print as soon as it receives a job.	Submit a print job to the printer. (See "Submit Print Jobs" on page 32.)
WARMING STAGE [4,3,2,1]	The material heaters and printhead jet heaters gradually warm up to either standby or build temperature.	None. The numbers on the LCD panel count down as the printer warms up. At WARMING STAGE 1 , all heaters and material are at build temperature.



Start Print Job

- 1 Remove platform if it is not clean. (See ["Remove Platform" on page 51.](#))
- 2 Install a clean platform. (See ["Install Platform" on page 51.](#))
- 3 Submit a print job to the printer's queue using the InVision Client program. (See ["Submit Print Jobs" on page 32.](#))
- 4 Close the chamber door, then press **ONLINE**. When the display shows **PLATFORM EMPTY? Y/N**, press **YES**.
- 5 If the display shows **PLEASE EMPTY WASTE OR NEXT PRINT WILL EXCEED WASTE CAPACITY**, open the waste drawer and dispose of waste material. (See ["Empty Waste Drawer" on page 59](#) for instructions.)
- 6 Close the waste drawer. The job starts automatically.
 - ❗ If the display shows **WAITING FOR JOB** at this point, there was no job in the printer's queue. Go back to Step 3 and submit a print job to the queue. Once it's in the queue, the job starts automatically.



```
NOT PRINTING
8 SUPPORT      8 PART
ONLINE, MENU?
```



ONLINE

Press **ONLINE** after installing a clean platform when you are ready to start a print job



Remove Platform

- 1 When the operator panel display shows **DONE: <JOB_NAME>**
REMOVE PRINT
lift open the chamber door and unlatch the platform as shown.
- 2 Lift the platform out, then install a clean platform (see [Install Platform](#) below) or close the chamber door.



Unlatch platform and lift it out

Install Platform

- 1 Open the chamber door and slide the clean platform in as shown until you hear the rear latches click.
- 2 Close the chamber door, then press **ONLINE** when you are ready to start a print job.




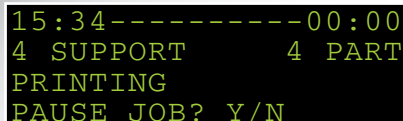
Install platform; verify latch



Pause Print Job

- 1 Press **PAUSE**.
- 2 When the display shows **PAUSE JOB? Y/N**, press **YES** to pause printing or **NO** to keep printing.

 The printer keeps printing after you press **PAUSE** while it displays **PAUSE JOB? Y/N**.



```
15:34-----00:00
4 SUPPORT      4 PART
PRINTING
PAUSE JOB? Y/N
```

Press **PAUSE** to pause a print job, then **YES** to confirm

- 3 If you press **YES** in response to **PAUSE JOB? Y/N**, the printer completes the current layer or its current task (such as cleaning the printheads). It then moves the platform forward while the chamber door and waste drawer remain locked.
 - Press **PAUSE** again to resume the paused print job.
 - If you do not press **PAUSE** again, the paused job resumes automatically after 5 minutes.
- 4 If you press **NO** in response to **PAUSE JOB? Y/N**, the print job does not pause and the confirmation prompt disappears.



Abort Print Job

- 1 Press **ABORT**.
- 2 When the display shows **ABORT JOB? – Y/N**, press **YES** to abort the print job or **NO** to continue.

ⓘ The printer keeps printing after you press **ABORT** while it displays **ABORT JOB? – Y/N**.



You cannot resume a print job after you press **YES** to abort it.

- 3 If you press **YES** in response to **ABORT JOB? – Y/N**, the printer does the following:

- a Stops printing immediately and displays **WAITING FOR DSP DONE**. (Unlike **PAUSE**, **ABORT** does not finish the current layer or current task.)
- b Displays **FINISHING PRINT** while it cures any uncured material on the platform.
- c Displays **RAISING PRINthead** as it raises the printhead.
- d Moves the platform forward and unlocks the chamber door.
- e Displays:
ABORT: <JOB_NAME>
REMOVE PRINT
You can now remove the platform. (See ["Remove Platform" on page 51](#).)

- 4 If you press **NO** in response to **ABORT JOB? – Y/N**, the job does not abort and the confirmation prompt disappears.

```
15:34-----00:00
4 SUPPORT      4 PART
PRINTING
ABORT JOB? Y/N
```

Press **ABORT** to abort a print job, then **YES** to confirm

ABORT



Menu Options

Press **MENU** at any time to display the following list of options:

- [Shutdown Printer](#)
- [Network Setup](#)
- [System Statistics](#)
- [Filter Fan Speed](#)
- [Software Version](#)
- [Test Print](#)
- [Repeat Print Job](#)
- [Print Demo](#)

Use the ▲ or ▼ buttons move the cursor to the menu **OPTION** you want, then press **YES** to select it.

Shutdown Printer

This menu option completely shuts down the system. You must press **YES** twice to shutdown the printer.

- ① Before you shut the printer down, verify that you will not need to build parts again soon. It can take several hours for the printer to warm up after you switch power back on. (See ["Shut Down Printer" on page 60.](#))

Network Setup

The **NETWORK SETUP** submenu allows you to view and change the InVision printer's network settings. It includes the following options:

- **IP ADDRESS**
- **SUBNET MASK**
- **DEFAULT GATEWAY**
- **COMPUTER NAME**

Follow the steps below to view or change the **IP ADDRESS**, **SUBNET MASK**, and **DEFAULT GATEWAY**. (You can view **COMPUTER NAME** but you cannot change it.)



- 1 Press the ▲ or ▼ buttons to move the cursor through the list.
- 2 When the cursor is pointing to the option of your choice press **YES** to access the information for that option. For example, to view or change the **IP ADDRESS**, make sure the arrow is pointing at the **IP ADDRESS** option and select **YES**.
- 3 If the option you have accessed contains alterable information – such as **IP ADDRESS** – use the **ONLINE** button to move left or the **ABORT** button to move right across the fields to the number you wish to change.
- 4 Use the ▲ or ▼ buttons to increase or decrease the number respectively.
- 5 When all numbers are changed, select **YES** to accept the new address or **NO** to leave the field without making changes.

System Statistics

To view system statistics, do the following:

- 1 Press **MENU**, then scroll to highlight **SYSTEM STATISTICS**.
- 2 Press **YES**. The display shows **MACHINE HOURS**, **LAMP HOURS**, and **MATERIAL USAGE**.
- 3 Select **MACHINE HOURS**; the display shows **TOTAL HOURS**, the lifetime total number of hours the printer has been powered on, and **BUILD HOURS**, the lifetime total number of hours the printer has been building.

① Your 3D Systems Customer Support Representative can reset **TOTAL HOURS** and **BUILD HOURS** at your request. They are not reset when you upgrade the printer's control code.
- 4 Press **NO** to exit.

Filter Fan Speed

To view and change the filter fan speed, do the following:

- 1 Press **MENU**, then scroll to highlight **FILTER FAN SPEED**.
- 2 Press **YES**. The display shows **LOW SPEED**, **MEDIUM SPEED**, and **HIGH SPEED**.
- 3 Choose **LOW SPEED** to minimize fan noise. Choose **HIGH SPEED** to minimize material odor. Choose **MEDIUM SPEED** to reduce (but not minimize) both noise and odor.
- 4 Press **NO** to exit.



Software Version

To view the InVision printer's software ("control code") version number, do the following:

- ❶ The printer's control code software (which runs the printer) and the InVision Client software (which runs on your PC) are different. Their version numbers are separate, too.
- 1 Press **MENU**.
- 2 Select **SOFTWARE VERSION**; the display shows the version number of the printer's control code.
- 3 Press **NO** to exit.

Test Print

This option prints a test part for diagnostic purposes.

- 1 Press **MENU**, then scroll to highlight **TEST PRINT**.
- 2 Press **YES**. The message **PLATFORM CLEAR DOOR CLOSED? Y/N** scrolls across the display.
- 3 Press **YES** if the platform is clear and the door is closed, otherwise press **NO**.

Repeat Print Job

- 1 Press **MENU**, then scroll to highlight **REPEAT PRINT**.
- 2 Press **YES**; the system displays **PLATFORM CLEAR? Y/N**.
- 3 When platform is clear, press **YES**. The printer repeats the previous print job.

Print Demo

This option prints a standard demo model. The demo model file is pre-loaded on the InVision 3-D printer.

- 1 Press **MENU**, then scroll to highlight **PRINT DEMO**.
- 2 Press **YES**; the system displays **PLATFORM CLEAR? Y/N**.
- 3 When platform is clear, press **YES**. The printer starts the demo print job.



Add Material

When to add material

- Add material to a feed slot when it has **3 cartridges or less** in it. When a feed slot has 3 cartridges or less, the operator panel displays **ADD SUPPORT** and/or **ADD PART** as shown.
- Add a maximum of 8 cartridges per slot. 5 cartridges are visible in the window when a slot is full.

Keep the material feed slots as full as possible so the printer has plenty of material when unattended. It is especially important to add material when there are 3 cartridges or less.



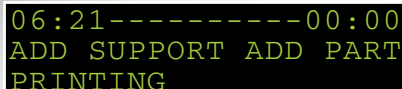
The printer aborts the job if it runs out of material or if a cartridge you added did not have time to melt before the printer needed it. You cannot resume a print job after it aborts. (The abort process is described in ["Abort Print Job" on page 53.](#))

If the printer runs out of material

You can repeat the aborted print job or start a new print job if the printer runs out of material. First, add material as described in [Add Material](#) below, then,

- To repeat the aborted print job, see ["Repeat Print Job" on page 56.](#)
- To start a new print job, see ["Start Print Job" on page 50.](#)

If the printer runs out of material, aborts, then sits idle for 2 hours, it enters power-saving Standby mode. If it sits idle for 72 hours, it enters Conserve mode. (See ["Standby mode and Conserve mode" on page 60.](#))



```
06:21-----00:00
ADD SUPPORT ADD PART
PRINTING
```

Add cartridges to the right feed slot when the display shows **ADD PART**.

Add cartridges to the left feed slot when the display shows **ADD SUPPORT**.



How to add material



Open door



Insert cartridge flat side up, then lower into slot

- 1** Open the left or right material feed slot door.
 - i** You can open the feed slot doors and add material while a print job is running. You do not have to stop printing to add material.
- 2** Insert white support material cartridges in the left feed slot. Insert black model material cartridges in right feed slot. (Orient each cartridge flat side up as shown.)
- 3** Lower each cartridge into the slot. Add eight cartridges maximum to each slot.
- 4** Close both feed slot doors.



Empty Waste Drawer



Before you open the waste drawer, don personal protection equipment as described in ["Personal Protective Equipment" on page 21](#). Follow all material handling and disposal guidelines in that section when you empty the waste drawer. Always follow MSDS guidelines and local regulations regarding handling and disposal of regulated materials. Keep disposal records if local law requires.

① See ["Waste Removal" on page 24](#) for detailed instructions regarding waste material disposal and waste bag and bin liner replacement.

- 1 Before starting print job,** open the waste drawer and empty the cartridge bins. (The bin liners are disposable.)
- 2** Remove, close, and properly dispose of the waste bag (if it is full).
- 3** Replace the waste bag and install new bin liners. (See bag and bin liner replacement instructions in ["Waste Removal" on page 24](#).)
- 4** Close the waste drawer
- 5** Press **ONLINE** to resume.



Open
drawer



Replace bag

Remove empty
cartridges and
replace bin liners
if necessary



Shut Down Printer



Switching the printer's power off or disconnecting power to the printer without going through the shutdown process can severely damage the printer. **Always** perform the shutdown procedure before switching the printer's power off unless you must disconnect power immediately for safety reasons.

Before you shut down... The printer can take several hours to warm up after it has been shut down and switched off. Before you shut down and switch power off, verify that you will not need to build parts again soon. It can take several hours for the printer to warm up after you switch power back on.

Standby mode and Conserve mode After the printer has been idle 2 hours or 72 hours, it enters Standby mode or Conserve mode, respectively. In these energy-saving states, the printer's heaters are partially cooled and many of its other components are disabled. The heaters are cooler in Conserve mode than they are in Standby mode. It takes much less time for the printer to warm up from Standby mode than it does from a full shutdown/power off. Warming up from Conserve mode also takes less time than warming up from shutdown (but more time than warmup from Standby).

- ❗ If you want to increase or decrease the wait time before the printer enters Standby mode or Conserve mode, contact 3D Systems Customer Support.

To shut down the printer, do the following

- 1 Verify that printer is not printing.
 - 2 Abort the current print job (see ["Abort Print Job" on page 53.](#))
 - 3 Press **MENU**, then scroll to highlight **SHUTDOWN**.
 - 4 Press **YES** twice.
 - 5 When the display shows **OK TO POWER OFF XXX**, press the power switch on the rear panel.
- ❗ To halt shutdown, press **ONLINE** before you press the power switch.



FINISHING PARTS

This section provides a brief overview on the most common finishing methods used to remove support material from VisiJet parts. Your company may have purchased the InVision Finisher 1 with your InVision 3-D printer. If so, you can find specific instructions for that equipment in the InVision Finisher User Guide. A copy of the User's Guide is included on the CD-ROM that came with your printer.

- [Part Finishing Tools](#)
- [Part Finishing Safety](#)
- [Part Breakout](#)
- [Choosing a Finishing Method](#)
- [Surface Finishing and Coating](#)
- [Recommendations](#)





Part Finishing Tools

3D Systems recommends the tools and equipment listed below to finish parts. See the [VisiJet Material Handling Guide](#) or [contact 3D Systems Customer Support](#) for complete finishing tool and equipment sourcing recommendations.

Part Finishing Tools:

TOOL	PURPOSE
Safety goggles	protect eyes from splashing support material
Rubber gloves	handling parts in the oven before support material is removed
Long-sleeve lab coat	protect body from splashing support material
Tongs	manipulate parts inside the oven
Freezer	facilitates the part break-off process (breaking parts of the platform)
Ladle or scoop	removing excess melted support material from the pan
Hot air dryer	surface finishing set-up
Paper towels	absorb melted support material
Small hand tools	cleaning part corners and grooves; e.g., dental picks and wood sticks



Part Finishing Safety

Removing support material involves heating parts in an oven and/or dipping them in a container of hot liquid support material at approximately 70 °C (158 °F). Work carefully to avoid burning yourself. Also wear personal protective gear as instructed in ["VisiJet Material Handling Safety" on page 18.](#)

3D Systems also recommends that you:

- Use tongs when handling parts in the oven and hot liquid container
- Keep the hot liquid level high enough to fully submerge parts, but low enough to prevent overflow.

Part Breakout

To "break out" (remove) parts from the build platform, do one of the following:

- Place the warm platform of parts in a freezer for a few minutes. As the parts and platform cool, they contract at different rates and separate.
- Alternatively, the parts can be mechanically separated from the build platform by force.



Choosing a Finishing Method

InVision parts are supported on the platform during the printing process by jetting a wax material underneath and surrounding the part. The most common method of support removal involves melting the bulk of the support material away from the part, then wiping the residual wax from the part using paper wipes.

Some users prefer a heated dry finishing technique for the entire process, while some dip the parts in a heated bath of melted wax to remove the bulk material, followed by a dry final wipe. Either method will meet the cosmetic requirements of most modeling applications.

The bulk support material removal method you use depends on the typical surface-to-volume ratio of the lot of parts you're finishing. For parts with large surface-to-volume ratios use ["Dry Finishing" on page 65](#). For parts with small surface-to-volume ratios, use ["Dip Finishing" on page 66](#).



Dry Finishing

Use this method if most of the parts you're finishing have large surface-to-volume ratios. Simply place them on the oven shelf and let the melted bulk support material drip into the container below. The time required depends on geometry of your parts.

- 1 Place parts into a small industrial convection oven at 70 °C to 75 °C (158 °F to 167 °F) to melt the VisiJet support material off the part.

Typically, the oven contains a shelf. Place a container underneath the shelf to capture the melting support material.

Sometimes, users place the parts on cloth pads or paper wipes to absorb the support material as it melts from the parts.

- 2 Check the parts frequently, then remove them from the Finisher as soon as all the support material has melted from the part.

- ✓ **Optionally:** Wrap the parts in paper wipes and heat them in the Finisher again for a few minutes to wick residual support material from the part.



Dry finishing parts on an oven shelf

WHY CHOOSE DRY FINISHING?

- Dry finishing is easier because you do not have to maintain a tray full of liquid wax.
- It consumes less energy than dip finishing. The user can turn off the oven between heating cycles with a minimal increase in cycle time, whereas it takes hours to melt a tray full of wax required for dip finishing—and you must leave the oven ON to keep the wax liquid.



Dip Finishing

Use this method to shorten bulk removal time if most of the parts you're finishing have small surface-to-volume ratios. First, submerge ("dip") the parts in the container of hot liquid support material, then place them on the oven shelf to heat and let the melted bulk support material drip into the container below. The time required depends on geometry of your parts.

- 1 Melt approximately 4 kg (8 lb) of dip-finishing wax in a container in the convection oven.
- 2 Use tongs and submerge the VisiJet parts in the tray of hot liquid wax until the support material is removed.
- 3 Remove the parts from the bath.
- 4 Wrap the parts in paper wipes and run a short dry finishing cycle to remove residual support material.



Dipping parts in a liquid bath

Check the parts frequently to avoid over-heating. Distortion and the appearance of white blotches in the part indicate over-heating.

- ✓ **Optionally:** Some users purchase small roaster ovens to hold the liquid bath, then employ a hot air gun to complete the dry portion of the process. Care must be taken to avoid overheating the part when using this method

WHY CHOOSE DIP FINISHING?

- Dipping parts in a tray of heated wax material removes support material faster than dry finishing, especially for large parts. For example, a 147 cm (9 in) block of VisiJet support material melts in 45 minutes in a hot liquid wax bath at 70 °C (158 °F). It takes the same block 120 minutes to melt completely at 70 °C (158 °F) when dry heated in a convection oven.
- Dip finishing is less sensitive to cycle time than dry finishing. If you air heat a part too long, wax can leach out from below the part surface after all the support material drips off. Leaching causes white blotches on the part surface and can cause excess shrinkage. This does not happen with dip finishing because the pressure and temperature equilibrium between the melt bath and the part prevents wax from leaching out of the part.



Surface Finishing and Coating

Use the techniques in this section to finish and coat VisiJet parts. You can sand, paint, dye and join parts as desired.

Sanding

Sand the model to remove imperfections or layer lines from the surface. Wet sanding tends to keep the part cool and prevent melted material from “gumming up” the sand paper. It also minimizes dust. If you dry sand the part, wear a NIOSH-approved (or equivalent) dust mask.

Painting

Before painting a part, wipe the surface with isopropyl alcohol and apply a lacquer-based paint primer. After priming, brush on any oil- or water-based paint that is compatible with the primer. Excellent painting results have also been achieved with air brushes and water-based acrylic paint.

Dyeing

You can dye VisiJet parts with candle-craft dyes. These dyes are available at most retail craft stores in liquid or tablet form. Add the dye to a 70 °C (158 °F) bath of VisiJet support material. Submerge the part in the dyed liquid until the desired color strength is achieved. Immersion time depends on the dye concentration. (A little dye goes a long way.)

Joining

Use “super glue” (cyanoacrylate) to join VisiJet parts. Wipe the mating surfaces thoroughly before gluing for a stronger bond. If the joined part will be subjected to strong shear forces, pin the mating surfaces to increase the shear strength of the bond.



Recommendations

The InVision Finisher 1 support removal system from 3D Systems is a perfect choice for finishing VisiJet parts. It is a forced air convection oven with all the accessories needed for either dry or dip part finishing.

However, you can source your own oven, using the follow guidelines:

- Forced air or natural convection (household toaster ovens have open heating elements and minimal air flow. They are not suitable for VisiJet part finishing.)
- 66 L (2.3 ft³) capacity.
- Temperature uniformity within chamber of ± 3 °C (± 5 °F) and control stability of ± 0.5 °C (1 °F) at 70 °C to 75 °C (158 °F to 167 °F).

For dip finishing, users typically purchase 7.0 L to 19.0 L (8.0 qt to 20.0 qt) small roaster ovens to maintain the wax bath. These roaster ovens resemble crock-pots but have finer heater controls. Start the bath with ordinary candle crafting wax, which can be found at hobby supply stores. Use a wax with a melt point of between 52 °C and 63 °C (125 °F and 145 °F).



MAINTENANCE

Perform routine cleaning tasks and schedule preventive maintenance on your InVision 3-D Printer following the recommendations in this section.

- [Cleaning the 3-D Printer](#)
- [Scheduling Preventive Maintenance](#)





Cleaning the 3-D Printer

Clean the 3-D printer's outer surfaces and inside the waste drawer periodically as described below.

-  Do not remove any outer panels when cleaning the InVision printer. Panels must only be removed by a qualified 3D Systems Customer Support Representative.

Cleaning 3-D Printer Surfaces

Clean InVision outer surfaces as needed following the guidelines below:

- Remove dust from outer surfaces of the 3-D printer by wiping with a clean dry, lint-free cloth.



Dust and clean outside surfaces only. Do not dust inside the build chamber or feed slots.

- Remove dirt and grease from 3-D printer outer surfaces by spraying all-purpose cleaner on a clean cloth and gently wiping.



Use only non-abrasive, alcohol-free cleaners to clean surfaces. Do not use all-purpose cleaners containing petroleum-based polishing agents such as liquid wax. Spray the cleaner on the cloth, not on the surface.

Do not use **any** cleaning solvents on the build chamber window as this can damage its protective UV coating.

- Remove dirt, grease, and build material residue from operator panel buttons, display window, and feed slot door windows by spraying an ammonia-based cleaner (e.g., Windex®) on a clean, lint-free cloth then gently wiping the buttons and windows.



Remove the build platform before cleaning the operator control panel buttons. This will prevent the machine from initiating any actions when buttons are pressed.



Cleaning the Waste Drawer

- ① Review the VisiJet material handling and disposal safety guidelines in the [Safety](#) section of this guide before you clean the waste drawer.

Clean the support material (white cartridge) bin in the InVision printer's waste drawer following the guidelines below.



Do not attempt to clean the build material (black cartridge) bin in the waste drawer. This bin must only be cleaned by a certified [3D Systems Customer Support Representative](#).

- 1 Verify that the printer is OFFLINE.
- 2 Put on protective gloves. (See ["VisiJet Material Handling Safety" on page 18.](#))
- 3 Open the waste drawer and remove the white support material bin liner and waste bag. Dispose of them if necessary. (See ["VisiJet Material Disposal Safety" on page 22.](#))



Be sure to reinstall the waste bag bracket in the correct orientation; with the horizontal metal tab at the rear.

- 4 Gently scrape off any support material adhered to the interior metal surface of the waste support material bin. Use a flexible plastic scraper to avoid damaging the paint.
- 5 Vacuum inside the waste support material bin to remove scrapings.
- 6 Wipe the inside surfaces of the waste support material bin using a clean cloth and all-purpose spray cleaner.



Scheduling Preventive Maintenance

Your InVision printer must have preventive maintenance (PM) performed by qualified [3D Systems Customer Support](#) Representative. [Contact 3D Systems](#) after either:

- one year of total build time, or,
- consuming 208 lb (94 kg) of VisiJet material (build and support material combined).

The printer automatically tracks total build time and the combined weight of material consumed to date. When it reaches either the time or weight limit above, its LCD will prompt you to [contact 3D Systems Customer Support](#) to schedule a PM visit. When prompted, schedule PM as soon as possible in keeping with the terms of your InVision printer warranty. (See ["Contacting 3D Systems" on page 83.](#))



TROUBLESHOOTING

This section contains information that you may find helpful if you run into difficulty with your InVision 3-D printer system. It includes the following:

- [Contacting Customer Support](#)
- [Shutting down the Printer](#)
- [Power Outages](#)
- [Error Messages](#)





Contacting Customer Support

There may be times when you receive an unrecoverable error message and you will be required to call your [Customer Support Hotline](#). Before you call Customer Support with a problem or a question, make sure you have the following information:

- The serial number of the printer (located on the rear panel).
- A brief description of the problem, including the exact error message displayed on the LCD panel.
- When the problem occurred; for example, when you were submitting a job, during the beginning or the end of the build, after power off recovery, etc.

Customer Support Hotline

Please contact your Customer Support Hotline at:

- In North America, call 1-800-793-3669
- In Asia and the Pacific Rim, call +852 2923 5077
- In Europe, call +49 (0) 6151 357-357
- In the United Kingdom, call +44 1442 282665
- In France, call (+33) 1 69 35 17 x10



Power Outages

If you are present when a power outage occurs, or you discover that the main power is off, complete the following steps:

- 1 Switch the power OFF at the printer's rear panel so it does not automatically start when the power is restored. This prevents printer damage from power flickers and surges.
- 2 When power is restored and stable, switch the printer power ON at the rear panel.

The printer will advance through the warming stages until it reaches the required build temperatures. If the printer was not building a model when the power outage occurred, the top line on the LCD panel will display "Not Printing" and the bottom line will display "Online/Menu?". The printer is now ready to accept another print job.

If the printer was building a model when the power outage occurred, the LCD panel will display "Power Off Recovery" after power is restored and the printer has reached build temperature. This safety feature prevents you from accessing the incomplete build until all build conditions are satisfied. Once this occurs, the job will end, the build platform will move to the front, and you can remove the platform and repeat the print job if desired.

- ❗ If the printer is in Power Off Recovery, you will not be able to open the build chamber door or the waste drawer until the printer completes recovery.

If a power outage occurs and is restored before anyone can take action, the printer will recover as follows:

- The printer will advance through the warming stages until it reaches the required build temperatures. If the printer was not building a model when the power outage occurred, the top line on the LCD panel will display "Not Printing" and the bottom line will display "Online/Menu?".
- If the printer was building a model when the power outage occurred, the printer will enter the Power Off Recovery stage. This safety feature prevents you from accessing the incomplete build until all build conditions are satisfied. Once this occurs, the job will end and the build platform (with the incomplete build) will move to the front. The LCD panel will display "Done Remove Print". You can then remove the platform and repeat the print job if desired.



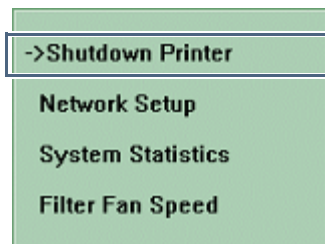
Shutting down the Printer

If you do not plan on operating your printer on a regular basis and want to shut down the printer for an extended period of time, initiate the InVision printer Diagnostic Utility to initiate shutdown procedures.

- ❗ It takes a substantial amount of time for the printer to warm up after a full shutdown/power off. Before shutting down, consider whether Standby mode or Conserve mode will meet your needs. See [“Standby mode and Conserve mode” on page 60](#) for a description of these two energy saving modes.

- 1 Press the MENU button on the LCD panel until the LCD screen changes. The LCD screen will show the following diagnostic options:

- Shutdown Printer
- Network Setup
- System Statistics
- Filter Fan Speed
- Software Version
- Test Print
- Repeat Print
- Print Demo



— Cursor and
menu option

- 2 Select the Shutdown Printer option and press Yes twice.
- 3 The LCD panel will display the message “Shutdown in Progress”. The printer will enter the process of sequential cooling so it can be powered down.
- ❗ **DO NOT** power down the printer while shutdown is in progress.
- 4 When the display shows “Shutdown Complete, OK to Power Off”, press the power switch on the rear panel off.



Error Messages

Error messages describe the current state of the printer and the corrective action required. Some error messages displayed on the LCD panel require you to cycle power to continue. Cycling power is considered a hard shutdown and requires you to press the power switch on the rear panel to turn the printer OFF, then press the power switch again to turn the printer ON. The printer will advance through the warming stages until the printer reaches the required build temperatures.

Error messages are broken into the following categories:

- [Material Feed and Waste System Errors](#)
- [Material Quality Guarantee Errors](#)
- [Material Waste Errors](#)
- [Communication Errors](#)
- [Head Maintenance Station Errors](#)
- [Vacuum Regulator Errors](#)
- [Motion System Errors](#)
- [UV Subsystem Errors](#)

❏ See ["Operator Panel Display Messages" on page 42](#) for printer status message descriptions.

Material Feed and Waste System Errors

MESSAGE	CAUSE	ACTION
RT_ERROR: AIRPURGE 1 (OR 2) NOT RESPONDING	Fault detected in control circuitry.	Cycle power to the printer. If error message occurs again, contact your <u>Customer Support Hotline</u> .
RT_ERROR: AIRPURGE 1 (OR 2) POSITION ERROR	Fault detected in control circuitry.	
RT_ERROR: AIRPURGE 1 (OR 2) TIMEOUT ERROR	Fault detected in control circuitry.	

**Material Feed and Waste System Errors (continued)**

MESSAGE	CAUSE	ACTION
MATERIAL 1 (OR 2) INDEX DUMP ERROR	Feedback did not indicate whether the indexer reached the specified position.	Contact your Customer Support Hotline .
MATERIAL 1 (OR 2) INDEX LOAD ERROR	Feedback did not indicate whether the indexer reached the specified position.	
MATERIAL 1 (OR 2) INDEX FEED ERROR	Feedback did not indicate whether the indexer reached the specified position.	
MATERIAL 1 (OR 2) INDEX TIMEOUT ERROR	Communication failed to report that the indexing operation was completed	
RT_ERROR: INDEX DRUM 1 (OR 2) TEMP OUT OF RANGE	Possible faulty heaters.	Cycle power to the printer. If error message occurs again, contact your Customer Support Hotline .
RT_ERROR: MATERIAL FEED 1 (OR 2) CAN'T FILL HEAD	A just loaded cartridge did not engage correctly during the material feed cycle or the printhead sensors did not detect the required material level.	
MATERIAL 1 (OR 2) PUMP RETRACT ERROR	The retracting plunger was not detected.	Contact your Customer Support Hotline .
MATERIAL 1 (OR 2) PUMP ENGAGE ERROR	A new cartridge has been indexed but did not satisfy the sensors.	



Material Quality Guarantee Errors

MESSAGE	CAUSE	ACTION
SUPPORT (OR BUILD) MATERIAL CARTRIDGE NOT DETECTED	Printer is out of material cartridges, a cartridge misfed, or the material identification system is faulty.	<p>The build will abort if it needs to use the questionable cartridge to finish the build.</p> <ul style="list-style-type: none">• Add the specified material cartridge, install a clean build platform and repeat the print job.• If error message occurs again, contact your Customer Support Hotline.
SUPPORT (OR BUILD) MATERIAL CARTRIDGE NOT MELTED	A cold cartridge was added to the material feed slot and it did not have enough time to melt before the printer requested material.	<p>The build will abort if it needs to use the questionable cartridge to finish the build.</p> <ul style="list-style-type: none">• Install a clean build platform and repeat the print job after the printer has reached build temperature.• If error message occurs again, contact your Customer Support Hotline.



Material Quality Guarantee Errors (continued)

MESSAGE	CAUSE	ACTION
SUPPORT (OR BUILD) MATERIAL CARTRIDGE EXPIRED	The material identification system detected expired material.	Follow the discard instructions posted to the LCD panel.
SUPPORT (OR BUILD) MATERIAL CARTRIDGE INCORRECT TYPE	A material cartridge was inserted into the wrong feed slot.	<p>The build will abort if it needs to use the questionable cartridge to finish the build.</p> <ul style="list-style-type: none">• Follow the discard instructions posted to the LCD panel.• If error message occurs again and you have inserted the correct material cartridge into the correct feed slot, contact your Customer Support Hotline.

Material Waste Errors

MESSAGE	CAUSE	ACTION
RT_ERROR: DRAINTANK NOT RESPONDING	Fault detected in control circuitry.	<p>Cycle power to the printer.</p> <p>If error message occurs again, contact your Customer Support Hotline.</p>
RT_ERROR: DRAINTANK POSITION ERROR	Fault detected in control circuitry.	
RT_ERROR: DRAINTANK TIMEOUT ERROR	Fault detected in control circuitry.	
RT_ERROR: CAN'T EMPTY DRAINTANK	Sensor or valve malfunctioned.	



Communication Errors

MESSAGE	CAUSE	ACTION
RT_ERROR: NO MACHINE ID	No network connection.	Ensure you have a valid network connection. Cycle power to the printer. If error message occurs again, contact your Customer Support Hotline .
EVM6X_HPI_OPEN()	A communication error occurred.	Cycle power to the printer. If this does not restore communication, contact your Customer Support Hotline .
EVM6X_INIT_EMIF()	A communication error occurred.	

Head Maintenance Station Errors

MESSAGE	CAUSE	ACTION
HMS ERROR RECOVERY	An error occurred during printhead maintenance (cleaning the printhead before beginning a build).	Cycle power to the printer. If error message occurs again, contact your Customer Support Hotline .



UV Subsystem Errors

MESSAGE	CAUSE	ACTION
RT_ERROR: UV LAMP POWER TOO LOW	UV sensor detected a possible fault.	Cycle power to the printer. If error message occurs again, contact your Customer Support Hotline .



To prevent skin exposure to uncured model material, do not handle parts in a build without wearing gloves if an UV lamp problem occurred during the build.

Vacuum Regulator Errors

MESSAGE	CAUSE	ACTION
RT_ERROR: PRINTHEAD VACUUM LOW	Indicates a fault within the vacuum system.	Cycle power to the printer. If error message occurs again, contact your Customer Support Hotline .
RT_ERROR: PRINTHEAD VACUUM HIGH	Indicates a fault within the vacuum system.	

Motion System Errors

MESSAGE	CAUSE	ACTION
X-FOLLOWING ERROR	An attempt to open the build chamber door was made, or position sensor errors occurred.	Ensure the build chamber door is secured, then cycle power to the printer. If error message occurs again, contact your Customer Support Hotline .
NEGATIVE FIRING DELAY	Variations in scanning axis velocity.	Cycle power to the printer. If error message occurs again, contact your Customer Support Hotline .
PAUSE TIMEOUT ERROR	Position sensor contamination.	



CONTACTING 3D SYSTEMS

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About 3D Systems

Founded in 1986, 3D Systems provides solid imaging products and solutions that help reduce the time and cost of designing products and facilitate direct and indirect manufacturing. Its systems utilize patented technologies that create physical objects from digital input.

3D Systems also offers the ThermoJet® solid object printer, SLA® systems (stereolithography) and SLS® systems (selective laser sintering), as well as related material, software and application solutions.



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