



# HP Jet Fusion 5000 3D Build Unit

## Product Documentation

### Introductory Information

#### **SUMMARY**

Introductory information for the HP Jet Fusion 5000 3D Build Unit.

## Legal information

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### **Legal notices**

The information contained herein is subject to change without notice.

The only warranties for HP Products and services are set forth in the express warranty statement accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

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# 1 HP Jet Fusion 5000 3D Build Unit

This introductory document includes legal notices and safety instructions, describes the use of the front panel, introduces Web Services, and lists error messages that you may encounter.

## What is it?

The HP Jet Fusion 3D Build Unit is a device to transport the material ready to be used from the 3rd party devices or, if purchased as an accessory, from the 3D Processing Station to the HP Jet Fusion Printer; and, once the job is finished, back again for manual unpacking or unpacking in the Processing Station, allowing a continuous printing process that maximizes productivity.

This document is a supplement to the main HP Jet Fusion 3D Printer Documentation. It includes legal notices, safety precautions, power specifications, and warranty statement.

For more information, see your HP Jet Fusion 3D Printer documentation.

## Where is the user guide?

User documentation and resources for your printer.

You can download the user guide for your printer from:

- <http://www.hp.com/go/jetfusion3D5000/manuals/>

Further information is available from:

- <http://www.hp.com/go/jetfusion3D5000/support/>

For more information, see your HP Jet Fusion 3D Printer documentation.

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## Safety precautions

Before using the build unit, read the following safety precautions and operating instructions to make sure you use it safely.

You are expected to have the appropriate technical training and experience necessary to be aware of hazards to which you may be exposed in performing a task, and to take appropriate measures to minimize the risks to yourself and to others.

Perform the recommended maintenance and cleaning tasks to ensure the correct and safe operation of your build unit.

Operations must be supervised at all times.

The build unit should be located in a restricted-access area, authorized personnel only.

## General safety guidelines

Turn off all equipment, using the branch circuit breakers located in the building's Power Distribution Unit (PDU).

Call your service representative in any of the following cases:

- The power cord is damaged.
- The top heating and fusing lamp enclosures are damaged, the glass is missing or broken, or the sealing is defective.
- The equipment has been damaged by an impact.
- Liquid has entered the equipment.
- There is smoke or an unusual smell coming from the equipment.
- The built-in Residual Current Circuit Breaker (Ground Fault Circuit Interrupter) has been repeatedly tripped.
- Fuses have blown.
- The equipment is not operating normally.
- There is any mechanical or enclosure damage.

Turn off the equipment using the branch circuit breakers in either of the following cases:

- During a thunderstorm
- During a power failure

Take special care with zones marked with warning labels.

Use HP-certified and HP-branded material and agents only. Do not use unauthorized third-party material or agents.

In case of unexpected malfunction, anomaly, ESD (ElectroStatic Discharges), or electromagnetic interference, press the emergency stop button and disconnect the equipment. If the problem persists, contact your support representative.

The print-production area in which the equipment is installed should be free from liquid spillage and environmental condensation.

The printer, build unit, and processing station or manual powder management 3rd party devices should always be kept in the same environmental conditions.

Ensure that there is no condensation inside the equipment before turning it on.

## Final parts/builds


The customer assumes all risk relating to or arising from the 3D printed parts.

The customer is solely responsible for the evaluation of and determination of the suitability and compliance with applicable regulations of the products and/or 3D printed parts for any use, especially for uses (including but not limited to medical/dental, food contact, automotive, heavy industry, and consumer products) that are regulated by US, EU, and other applicable governments.

## Explosion hazard

Avoid the risk of explosion by taking the precautions described here.

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 **WARNING!** Dust clouds can form explosive mixtures with air. Take precautionary measures against static charges, and keep away from sources of ignition.

**NOTICE:** The equipment is not intended for hazardous locations or ATEX classified zones: ordinary locations only.

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To avoid the risk of explosion, take the following precautions:


- Smoking, candles, welding, and open flames should be forbidden close to the equipment or material storage area.
- Inside and outside the equipment should be cleaned regularly with an explosion-proof vacuum cleaner to avoid dust accumulation. Do not sweep the dust or try to remove it with a compressed-air gun.
- An explosion-proof vacuum cleaner is required for cleaning (because of combustible dust). Take measures to mitigate material spillage and avoid potential ignition sources such as ESD (ElectroStatic Discharges), flames, and sparks. Do not smoke nearby.
- The equipment and accessories must be properly grounded at mains outlets only; do not manipulate internal bonding. If static discharges or electrical sparks are noticed, stop operation, disconnect the equipment, and contact your support representative.
- Check the air filters and the sealing of the heating lamps regularly. Do not remove filters or lamp glasses.
- Use HP-certified and HP-branded material and agents only. Do not use unauthorized third-party material or third-party agents.
- HP recommends the use of HP accessories for unpacking 3D parts and refilling the build chamber. If other methods are used, read the following notes:
  - Dust clouds generated during handling and/or storage can form explosive mixtures with air. Dust explosion characteristics vary with the particle size, particle shape, moisture content, contaminants, and other variables.

- Check that all equipment is properly grounded and installed to satisfy electrical classification requirements. As with any dry material, pouring this material or allowing it to fall freely or be conveyed through chutes or pipes can accumulate and generate electrostatic sparks, potentially causing ignition of the material itself, or of any flammable materials which may come into contact with the material or its container.
- Material storage, handling, and disposal as per local laws. Follow your Environmental Health and Safety processes and procedures. For further information, see the Safety Data Sheets (SDS), which you can find at <http://www.hp.com/go/msds>.
- Do not place the equipment in a hazardous location area, keep separated from other equipment that could create a combustible dust cloud during its operation.
- Auxiliary post-processing equipment, as sand blasting, must be suitable for combustible dust.
- Stop operation immediately if sparks or material spillages are seen, and call your HP service representative before continuing.
- All personnel, when handling combustible dust, should be free of static electricity by means of using conductive or dissipative footwear and clothing and conducting floor.

## Electrical shock hazard

Following standard Residual Current Circuit Breaker (RCCB) recommendations, it is recommended that the RCCBs are tested on a yearly basis. The procedure is as follows:

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 **WARNING!** The internal circuits inside the e-cabinet, top heating, fusing lamps, build unit, and processing station operate at hazardous voltages capable of causing death or serious personal injury.


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Turn off the equipment before servicing, using the branch circuit breakers located in the building's Power Distribution Unit (PDU) before servicing. The equipment should be connected to earth at mains outlets only.

To avoid the risk of electric shock:

- Do not attempt to dismantle the internal circuit enclosures, top heating, fusing lamps, build unit, processing station, or e-cabinet except during hardware maintenance tasks. In that case, follow the instructions strictly.
- Do not remove or open any other closed system covers or plugs.
- Do not insert objects through slots in the equipment.
- Test the functionality of the Residual Current Circuit Breaker (RCCB) every year (refer to the procedure below).

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 **NOTE:** A blown fuse may indicate malfunctioning electrical circuits within the system. Call your service representative, and do not attempt to replace the fuse yourself.

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1. Turn off the equipment from the front panel, not using the main switch.
2. Once the computer is off, test that the RCCB works correctly by pressing the test button.
  - If the RCCB does not trip when the test button is pressed, this indicates that it has failed. The RCCB must be replaced for safety reasons; call your service representative to remove and replace the RCCB.
  - If the RCCB trips, this indicates it is working correctly; reset the RCCB to its normal on state.

## Heat hazard

The top heating, fusing, and build chamber subsystems of the printer operate at high temperatures and can cause burns if touched. To avoid personal injury, take the following precautions:

- Take special care when accessing the printing area. Let the printer cool down before you open the covers.
- Take special care with zones marked with warning labels.
- Do not place objects inside the equipment while operating.
- Do not cover enclosures while operating.
- Remember to let the equipment cool down before performing some maintenance operations.
- Wait for at least the minimum cooling time before extracting the build unit from the printer after printing, or unpacking parts from the build unit.

## Fire hazard


The top heating, fusing, and build chamber subsystems of the printer operate at high temperatures. Call your service representative if the built-in Residual Current Circuit Breaker (Ground Fault Circuit Interrupter) is repeatedly tripped.


To avoid the risk of fire, take the following precautions.

- Use the power supply voltage specified on the nameplate.
- Connect the power cord to a dedicated line, protected by a branch circuit breaker according to the information detailed in the site preparation guide.
- Do not insert objects through slots in the equipment.
- Take care not to spill liquid on the equipment. After cleaning, make sure all components are dry before using the equipment again.
- Do not use aerosol products that contain flammable gases inside or around the equipment. Do not operate the equipment in an explosive atmosphere.
- Do not block or cover the openings of the equipment.
- Do not attempt to modify the top heating, fusing, build chamber, e-cabinet, or enclosures.
- Proper maintenance and genuine HP consumables are required to ensure that the equipment operates safely as designed. The use of non-HP consumables may present a risk of fire.
- Take special care with zones marked with warning labels.
- Do not place objects covering top cover, enclosures, or air ventilation.
- Do not leave tools or other materials inside equipment after maintenance or servicing.

Suitable materials for fire-fighting include carbon dioxide, water spray, dry chemicals, or foam.

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 **CAUTION:** Do not use a jet of water, as it could scatter and spread the fire.

 **WARNING!** Depending on the material used, some unhealthy substances can be released into the air in case of incidental fire. Wear self-contained pressure-demand breathing apparatus and full



protective gear. Your EHS specialist should consult the Safety Data Sheet (SDS) about each material, available at <http://www.hp.com/go/msds>, and advice on the appropriate measures for your location.

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## Mechanical hazard

The equipment has moving parts that could cause injury.

To avoid personal injury, take the following precautions when working close to the equipment.

- Keep your clothing and all parts of your body away from moving parts.
- Avoid wearing necklaces, bracelets, and other hanging objects.
- If your hair is long, try to secure it so that it will not fall into the equipment.
- Take care that sleeves or gloves do not get caught in moving parts.
- Avoid standing close to the fans, which could cause injury and could also affect print quality (by obstructing the air flow).
- Do not operate the equipment with covers bypassed.

## Light radiation hazard

Infrared (IR) radiation is emitted from the top heating and fusing lamps. The enclosures limit radiation in compliance with the requirements of the exempt group of IEC 62471:2006, *Photobiological safety of lamps and lamp systems*. Do not modify the top cover enclosure, nor the glasses or windows.

## Chemical hazard

See the Safety Data Sheets available at to identify the chemical ingredients of your consumables (material and agents). Sufficient ventilation needs to be provided to ensure that potential airborne exposure to these substances is adequately controlled. Consult your usual air conditioning or EHS specialist for advice on the appropriate measures for your location.

<http://www.hp.com/go/msds>

## Ventilation

Fresh air ventilation is needed to maintain comfort levels. For a more prescriptive approach to adequate ventilation, you could refer to the ANSI/ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) 62.1-2007 *Ventilation for Acceptable Indoor Air Quality*.

Adequate ventilation needs to be provided to ensure that potential airborne exposure to materials and agents is adequately controlled according to their Safety Data Sheets.

Ventilation should meet local environmental, health, and safety (EHS) guidelines and regulations.



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**NOTE:** The ventilation units should not blow air directly onto the equipment.

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## Air conditioning

Air conditioning in the work area should take into account that the equipment produces heat. Typically, the printer's power dissipation is about 13 kW (44.3 kBTU/h). About 70 % of this power is removed throughout the exhaust connection.

Air conditioning should meet local environmental, health, and safety (EHS) guidelines and regulations.



**NOTE:** The air conditioning units should not blow air directly onto the equipment.

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## Sound pressure level

The emitted sound pressure level could exceed 70 dB(A) in certain print modes and user positions. The maximum emitted sound pressure level is below 80 dB(A) during printing (measurements according to ISO 11201). Hearing protection may be required as per local laws; consult your EHS specialist.

## Build unit transport hazard

Special care must be taken to avoid personal injury when moving the build unit.

- Always wear personal protective equipment including boots and gloves.
- Keep the safety lid on top of the build unit at all times, except when it is inside the printer or processing station.
- Steer the build unit using the handle only.
- Move the build unit over smooth, flat surfaces without steps.
- Move with care and avoid shocks during transport, which could spill the material.
- Lock the front casters when not moving the build unit. Remember to unlock them before moving it.

If moving the build unit between different rooms, bear in mind that it should be kept in constant environmental conditions.

## 3D part unpacking

Wear heat-resistant gloves when unpacking 3D printed parts.

## Personal protective equipment

Heat-resistant gloves, masks, goggles, conductive or dissipative footwear, conductive or dissipative clothing and hearing protection are recommended for certain maintenance tasks and material handling.

## Use of tools

Use of tools for your printer.

- **Users:** Daily operations including printer settings, printing, unpacking and refilling, replacement of agent reservoirs, and daily checks. No tool is required.
- **Maintenance personnel:** Hardware maintenance tasks and replacement of Customer Self-Replaceable (CSR) parts may require a screwdriver.



**NOTE:** During installation, the designated personnel receive training for the safe operation and maintenance of the equipment, which should not be used without this training.

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## Warning labels

Warning labels for your printer.





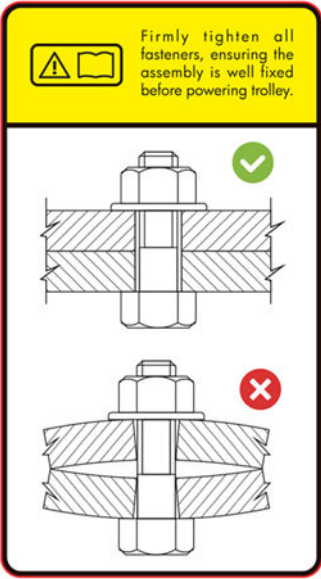
**Table 1-1** Warning labels

Label	Explanation
<p>For service personnel only</p>	<p><b>Electric shock hazard</b></p> <p>Heating modules operate at hazardous voltage. Disconnect power source before servicing.</p> <p><b>CAUTION:</b> Double pole. Neutral fusing. Refer servicing to qualified service personnel.</p> <p>In case of operation of the fuse, parts of the equipment that remain energized may represent a hazard during servicing. Before servicing, turn off the equipment using the Branch Circuit Breakers located in the building's Power Distribution Unit (PDU).</p> <p><b>WARNING!</b> High leakage current. Current leakage may exceed 3.5 mA. Earth connection essential before connecting supply. Equipment to be connected to earthed mains only.</p> <p>See installation instructions before connecting to the supply. Ensure that the input voltage is within the equipment's rated voltage range.</p> <p><b>Before starting</b></p> <p>Read and follow the operating and safety instructions before starting the equipment.</p>
	<p>Risk of burns. Let the equipment cool down before accessing internal parts.</p>
	<p>You are recommended to wear gloves when handling material cartridges, agents, printheads, the printhead cleaning roll, when performing maintenance cleaning tasks, and when unpacking parts in the processing station or unpacking following manual processes.</p> <p>You are recommended to wear heat-resistant gloves when unpacking parts in the processing station or unpacking following manual processes. The temperature can be higher than 80°C (176°F).</p>
	<p>You are recommended to wear a safety mask when replacing filters.</p>
	<p>You are recommended to wear safety goggles when replacing filters.</p>

**Table 1-1** Warning labels (continued)

Label	Explanation
	Do not step over the support platform of the material cartridges.
	Do not climb onto the external tank, which could cause the processing station to fall over.
	Crush hazard. Keep your hands clear of the edge of the top cover. Open and close the top cover using the handle (highlighted in blue) only.
	<b>WARNING!</b> Dust clouds can form explosive mixtures with air. Take precautionary measures against static charges, and keep away from sources of ignition.  No smoking, matches, or open flames close to equipment or material storage area.
	An explosion-proof vacuum cleaner is required for cleaning because of combustible dust.  Take measures to mitigate material spillage and avoid potential ignition sources such as ESD (ElectroStatic Discharges), flames, and sparks. Do not smoke nearby.  Disposal as per local laws.
 For maintenance and service personnel only	Electric shock hazard. Disconnect power before servicing. Heating modules and electrical cabinets operate at hazardous voltage.
 For maintenance and service personnel only	Hazardous moving parts. Keep away from moving fan blades.

**Table 1-1** Warning labels (continued)

Label	Explanation
 <p>For maintenance and service personnel only</p>	<p>Risk of trapped fingers. Do not touch gears while moving; your hands may be trapped between the gearwheels.</p>
 <p>For service personnel only</p>	<p>Hazardous moving part. Keep away from the moving print carriage and cable/hose carriers. When printing, the print carriage travels back and forth.</p>
	<p>Identifies the Protective Earth (PE) terminal for qualified electricians, and bonding terminals for maintenance/service personnel only. An earth connection is essential before connecting to the supply.</p>
	<p>Do not disconnect the hoses during the purging process.</p>
	<p>Firmly tighten all fasteners, ensuring the assembly is well fixed before you switch on the build unit.</p>

## Power specifications

Power specifications for your printer.

**Table 1-2 Specifications**

Description	Specifications
Power	3 kW
Frequency	50 / 60 Hz
Input voltage	200-240 V $\pm$ 10%
Maximum current	16 A

## Warranty statement

HP warrants to you, the end-user customer, that HP large-format printing accessories are free from defects in materials and workmanship. If HP receives notice of such defects during the warranty period (up to 90 days from date of purchase\*), HP will, at its option, either replace products that prove to be defective with the same or comparable products at HP's option, or HP may elect to refund your purchase price. This warranty will be voided by misuse, improper physical environment, accident, or improper maintenance. If you need warranty support during the warranty support period, you can locate the HP support location nearest you here: .

<http://www.hp.com/support>

To the extent allowed by local law, the above warranty is exclusive; no other warranty or condition, whether written or oral, is expressed or implied, and HP specifically disclaims any implied warranties or conditions of merchantability, satisfactory quality, and fitness for a particular purpose. To the extent allowed by local law, in no event will HP or its suppliers be liable for direct, special, incidental, consequential (including lost profit or data), or other damage, whether based on contract, tort, or otherwise. The warranty terms contained in this statement, except to the extent lawfully permitted, do not exclude, restrict, or modify and are in addition to the mandatory statutory rights applicable to the sale of this product to you.

\* Proof of purchase required. Customers should retain a copy of the Purchase Order (PO). When submitting a claim, attach a copy of the PO including the name of the company from which the accessory was purchased, the purchase date, and the PO number.