HP Jet Fusion 3D Printing Solution

Site Preparation Guide

© Copyright 2017 HP Development Company, L.P.

Edition 3

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.

Trademarks

Intel® and Intel Core™ are trademarks of Intel Corporation in the U.S. and other countries.

Microsoft® and Windows® are U.S. registered trademarks of Microsoft Corporation.

Table of contents

1 Overview 1

System configuration 1

Documentation 1

Site preparation overview 1

Customer responsibility 2

2 Site preparation requirements for the printer 5

Physical space requirements 5

Load bearing 6

Floor surface 6

Designing the optimal print-production area 7

Environmental specifications 7

Ventilation 8

Air conditioning 8

Printer electrical configuration 9

3 Site preparation requirements for the processing station 12

Physical space requirements 12

Load bearing 13

Floor surface 14

Designing the optimal print-production area 14

Environmental specifications 15

Ventilation 16

Air conditioning 16

Processing station electrical configuration 16

Compressed air 19

4 Site preparation checklist 20

1 Overview

System configuration

Your printer is supplied almost fully assembled and ready for the simple installation procedures performed by your support engineer. It comes complete with printheads and a printhead cleaning roll.

Documentation

The following documents can be downloaded from http://www.hp.com/go/jetfusion3D3200/manuals/, http://www.hp.com/go/jetfusion3D4200/manuals/, or http://www.hp.com/go/jetfusion3Dprocessingstation/manuals/:

- Site preparation guide (this document)
- Introduction information
- User guide
- Legal information
- Limited warranty

Site preparation overview

This guide should assist in the following planning considerations:

- Modifications to the installation area
- Site accessibility
- Emergency exits
- Planning the production area
- Mechanical, electrical and environmental specifications
- Computer and network connectivity
- Contracting a specialist mover with a forklift and/or suitable moving equipment
- Contracting an electrician
- Environmental health and safety

All information in this guide is provided on the assumption that installation planners and personnel are familiar with:

- Architectural and planning requirements
- Applicable laws, regulations, and standards

NOTE: It is important to read the information provided in this guide thoroughly and ensure complete compliance with all installation and operation prerequisites, safety procedures, warnings, cautions, and local regulations.

Customer responsibility

Planning the site and printer environment

You are responsible for all preparations of the physical site, and you must complete the following tasks:

- Prepare the site for unloading.
- Make sure the route from the unloading site to the installation site meets specifications. See Unloading route on page 5.
- Make sure you have the necessary equipment to handle the printer, as well as a specialist mover who is familiar with your site and the information provided in this guide. Meet the requirements for second floor installations (if necessary). See Moving equipment on page 6.
- Configure the building's electrical system used to power the printer to meet the printer's requirements and the Electrical Code requirements of the local jurisdiction of the country where the equipment is installed. A qualified electrician is required to power up the printer on the day of installation. See Printer electrical configuration on page 9 and Processing station electrical configuration on page 16.
- Provide an adequate air supply for the processing station's pneumatic circuit. See Compressed air on page 19.
- Ensure that the room in which the system is installed meets local environmental, health, and safety (EHS) guidelines and regulations. See Environmental specifications on page 7 and Ventilation on page 8.
- Supply all necessary emergency equipment.
- Make sure the equipment is located in a restricted-access area, for authorized personnel only.
- The equipment is not intended for hazardous locations or ATEX-classified zones: ordinary locations only.
- Keep the equipment separated from other equipment that could create a combustible dust cloud or metallic dust during operation, and keep it away from effective ignition sources (open flames, sparks, heat, and so on). Do not place the equipment close to CNC, milling, cutting machines, or polishers, which may cause a significant risk of metallic dust in the air, electrical sparks that may cause ignition, or oil and dust in suspension in the air.
- Material storage, handling, and disposal should be performed as per local laws. See the Safety Data Sheets at http://www.hp.com/go/msds for adequate handling and storage. Follow your Environmental Health and Safety processes and procedures.

Fire-fighting equipment

You must provide two fire extinguishers for the site. Make sure the extinguishers are placed where they are easily accessible in case of fire.

- A fire extinguisher certified for electrical fires must be in the print-production area.
- A fire extinguisher must be placed in the materials storage area, due to the large amount of combustible dust (material).

Emergency exits and first-aid stations should also be considered.

Software installation

HP software available for your system can be found here:

- http://www.hp.com/go/jetfusion3D3200/software/
- http://www.hp.com/go/jetfusion3D4200/software/
- http://www.hp.com/go/jetfusion3Dprocessingstation/software/

Requirements

- You must ensure that a computer is available on which to install the software.
- For full functionality, ensure that the computer is connected to the Internet.
- You must ensure that a network specialist is present on the agreed date of printer installation.

If you have bought non-HP software for your printer:

- You must install the software on a suitable computer and ensure that it is fully functional by the agreed date of printer installation.
- This guide does not provide information about your software.

Minimum requirements for computer and software

- Intel Core i3 2.4 GHz with four virtual cores/threads
- 4 GB of RAM
- 3.5 GB of free hard disk space, plus 100 MB for each additional printer added
- Ethernet, IPv4, 100 Mb/s
- Microsoft Windows 7, 8, or 10 (64-bit)
- Internet connection, ADSL or better

Networking

You are responsible for all networking requirements, and you must complete the following tasks:

- Have an adequate network ready for the day of installation. See Minimum requirements for computer and software on page 3.
- Provide a shielded CAT-6 LAN cable to connect the processing station to your LAN.

To use your printer and to receive remote support, the computer in which the HP 3D SmartStream Command Center is installed must be connected to the Internet.

TIP: If a Web browser on the same computer that will run the Command Center software can access the https://hp.com website, the Internet connection is working.

Required supplies and equipment

You are responsible for providing the following, which should be ready on the day of installation:

- One fusing agent cartridge
- One detailing agent cartridge
- Ten material cartridges

- Sheets of A3 or tabloid paper
- An explosion-protected vacuum cleaner with the following minimum specification:
  - Air flow: 250 m³/h
  - Depression: 19.6 kPa
  - Power: 1800 W
- A ladder
- Personal protective equipment for users and service engineers, according to your environmental, safety, and regulatory guidelines

Return the site preparation checklist

The checklist must be completed and returned to your reseller or service representative a minimum of two weeks before the day of installation.

NOTE: Any delays during installation that are caused by an unprepared site will be charged to the customer. Take care that your site is properly prepared to ensure a smooth and easy installation.

Recycle the supplies

HP provides many free and convenient ways to recycle your used HP cartridges and other supplies; see http://www.hp.com/recycle/.

You can also consult the disposal instructions included in the user documentation.

For further details, see the Safety Data Sheets (SDS), which you can find at http://www.hp.com/go/msds/.

Waste disposal

Dispose of all waste according to local regulations.

2 Site preparation requirements for the printer

Physical space requirements

Unloading route

The route between the unloading area of the printer and the installation site, including any corridors and doorways through which the printer must be transported, is important to proper site preparation and must be planned before the arrival of the printer. This pathway must be clear when the printer arrives.

Printer physical specifications with packaging

Width with packaging	2300 mm (90.55 in)
Depth with packaging	1325 mm (52.17 in)
Height with packaging	2068 mm (81.42 in)
Weight with packaging	945 kg (2083 lb)

For the specifications without packaging, see Load bearing on page 6 and Designing the optimal print-production area on page 7.

Doorway specifications

Minimum doorway width	2320 mm (91.34 in) with packaging
	1202 mm (47.32 in) without packaging
Minimum doorway height	2088 mm (82.20 in) with packaging
	1435 mm (56.50 in) without packaging
Minimum corridor width with right-angled bend	1520 mm (59.84 in) without packaging

The printer can be moved on the pallet up or down a ramp of no more than 10° inclination.

Unpacking and moving the printer

You are strongly recommended to unpack the printer where it will be used, or as close to that location as possible.

IMPORTANT: The printheads should never be moved inside the printer, they should always be moved in their original packaging and installed at the final location.

The space required for assembly is 5.5 × 3 m (217 × 118 in).

Moving equipment

If you need to move the printer after unpacking, take into account the following considerations:

- Ground-floor installation: The printer can be moved on wheels up or down a ramp of no more than 10° inclination.
- Above-ground installation: Use an elevator if the printer can fit inside it while remaining horizontal (without tilting the printer), and if it can support the weight. Otherwise, you may need a crane; contact your reseller for more information.

⚠ CAUTION: The printer is heavy and can easily fall over. Moving it over a ramp or tilted floor increases the risk. Move it smoothly, maintain safety precautions for people in the vicinity, and secure it against overbalancing. Always move it parallel to its length.

CAUTION: If you need to move the printer on its wheels to its final position, move it down from the pallet but do not remove all the transport protections and locks.

CAUTION: Unloading and moving the printer and all system components is the customer's responsibility and not HP's. Failure to provide the required moving and lifting equipment could result in personal injury or printer damage during installation.

Load bearing

The load-bearing characteristics of the floor in the print-production area must be sufficient to withstand the weight of your printer. To calculate the load-bearing characteristics of the print-production floor, consult a structural engineer.

Printer weight	750 kg (1653 lb)
Build unit weight (full)	150 kg (331 lb)

NOTE: Take into account that the build unit will be inserted inside the printer while printing. Therefore, you must consider the sum of both weights inside the same footprint when the build unit is inserted.

Floor surface

The floor surface should have the following characteristics:

- Flat and horizontal
- Solid, smooth, and level

  HP recommends Ff > 20 and Fl > 20, measured according to ASTM E1155M, to ensure that the floor is sufficiently flat and level. Otherwise the printer could malfunction.
- No holes or indentations
- Static-free surface
- Easy to clean
- Durable
- Free from floor vibration: for example, floor vibration is likely near a railway station, press machine room, construction site, or heavy industry. If such vibration cannot be avoided, suitable floor preconditioning to mitigate vibration may be needed for optimal printer performance.

NOTE: The floor surface over which the build unit will move between the printer and the processing station should have the same characteristics: it should be horizontal, free of steps, holes, and indentations, smooth to avoid transport vibrations, and far from any obstacle that might cause accidental shocks. It is vital to avoid damage to the contents of the build unit, both when it is full of fresh material and also after printing. Move the build unit slowly and with care.

Designing the optimal print-production area

You will need enough space to perform the following tasks:

- Print
- Insert the build unit
- Service the printer and replace its components

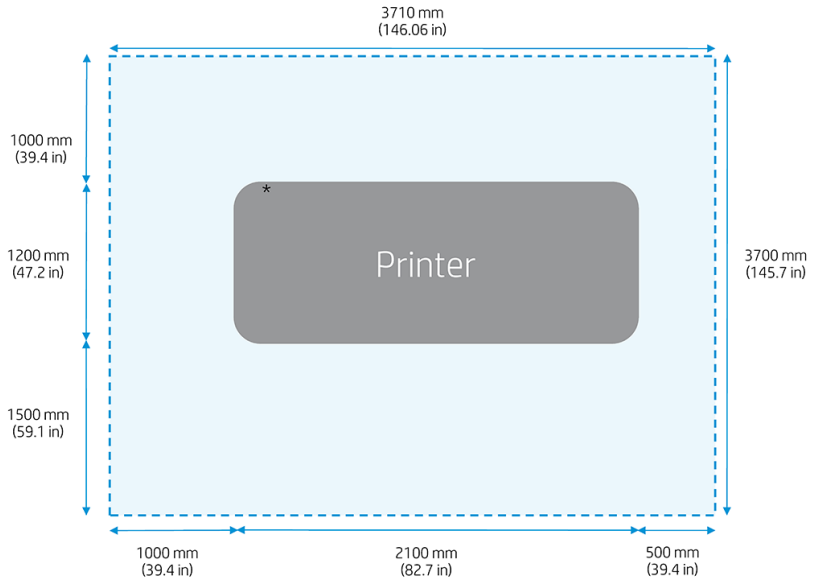
The height of the room is recommended to be at least 2500 mm (98 in) to accommodate the printer and the processing station.

NOTE: Most of the hot air produced by the printer comes out of the top left, so that is where you should place an extractor hood if you wish to use one, to avoid heating the whole room.

Printer physical specifications

- Width: 2210 mm (87 in)
- Depth: 1200 mm (47 in) without front panel

When operating, the printer requires the following amount of space:



* Location of the network and electrical connections

The height of the room should be at least 2500 mm (99 in).

The build unit measures 652 × 760 × 1050 mm.

Environmental specifications

Temperature during installation	20–30°C
Operating temperature	20–30°C

Recommended operating temperature for best performance	20–30°C
Storage and reshipping temperature	–25 to +55°C
Operating humidity	30–70% without condensation
Storage humidity	< 90% without condensation

Notes

- The printer, build unit, and processing station should be kept indoors.
- If the printer or cartridges are moved from a cold location to a warm and humid location, water from the air could condense on the printer parts and cartridges, and could cause leaks and printer errors. In this case, HP recommends that you wait at least 4 hours before turning on the printer or installing the cartridges, to allow the water to evaporate. Check for condensation before turning on the printer.
- The build unit must remain in the same environmental conditions while moving to and from the printer. If it is exposed to different conditions at any time, the quality of its contents will be affected.
- The printer, build unit, processing station, and stored material should always be kept in the same environmental conditions; HP recommends keeping them in the same room.
- The room should be free from liquids and condensation.

Ventilation

Fresh air ventilation is needed to maintain comfort levels. For a more prescriptive approach to adequate ventilation, you could refer to the latest edition of the ANSI/ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) document *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. Consult the Safety Data Sheets available at http://www.hp.com/go/msds to identify chemical ingredients of your consumables (material and agents).

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

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

NOTE: Consider providing a minimum of 6 ACH (air changes per hour) of fresh air ventilation and a minimum room volume of 35 m^3.

(The recommendation of 6 ACH is based on a 35 m^3 room with only one HP printer. If there is more equipment in the room, the ventilation rate should be recalculated accordingly.)

Air conditioning

As with all equipment installations, to maintain ambient comfort levels, air conditioning in the work area should take into account that the equipment produces heat. Typically, the printer's power dissipation is 9 kW to 11 kW (30.7 kBTU/h to 37.5 kBTU/h), and the processing station's power dissipation is 2.6 kW (8.8 kBTU/h).

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.

Printer electrical configuration

NOTE: An electrician is required for the setup and configuration of the building electrical system used to power the printer, and also for printer installation. Make sure that your electrician is appropriately certified according to local regulations and supplied with all the information regarding the electrical configuration.

The printer requires the following electrical components to be supplied and installed by the customer, according to the Electrical Code requirements of the local jurisdiction of the country of installation.

- Power Distribution Unit (PDU) with three-phase branch circuit breaker

NOTE: Remember that you are required to follow the local laws, regulations, and standards that apply to the electrical installation of your printer.

NOTE: The printer is not supplied with any power cable.

Power distribution unit (PDU)

The PDU must be rated to meet the power requirements of the printer, and should be in accordance with the Electrical Code requirements of the local jurisdiction of the country where the equipment is installed.

Circuit breaker (required)

The printer requires a circuit breaker, which must meet the requirements of the printer and should be in accordance with the Electrical Code requirements of the local jurisdiction of the country where the equipment is installed.

The printer has built-in Residual-Current Circuit Breakers (RCCB), also known as Ground Fault Circuit Interrupters (GFCI), with 30 mA sensitivity. If local laws require an external RCCB or GFCI for earth fault protection, install a device with sensitivity of 100 mA or higher, with appropriate rated current for the supply configuration, and ensure that other protective devices for earth fault protection upstream from the one supplying the printer are always greater than the one selected for the printer.

WARNING! Ensure that mains fault current is adequate for proper operation of the supplementary circuit breakers incorporated in the equipment (6 kA rated interrupting capacity).

WARNING! Ensure that the printer's built-in Residual-Current Circuit Breakers (RCCB) or Ground Fault Circuit Interrupters (GFCI) operate in the case of a current leakage fault to the product chassis, even when an isolation device (such as an isolating transformer) is used to supply power to the printer.

Power specifications

NOTE: The printer supports two different electrical configurations. Select the right configuration based on the three-phase line-to-line voltage supplied by the PDU. Refer to the appropriate table of specifications according to the selected configuration.

Configuration 1: 380–415 V line-to-line three-phase configuration

Printer specifications

Number of power lines	3 lines + N + PE
Input voltage (line to line)	380–415 V~ (±10%)
Input voltage (line to neutral)	220–240 V~ (±10%)
Input frequency	50/60 Hz
Power consumption (typical)	9–11 kW
Maximum load current (per phase)	30 A

Branch circuit breaker specifications

	4 poles, 32/40 A

Power cable specifications

Configuration	3 lines + N + PE
Minimum cross-sectional area	6 mm² or 10 AWG
Terminals	Ferrule terminals, except the PE terminal, which uses the M8 ring type
External diameter range	18.0–25.0 mm

Configuration 2: 200–240 V line-to-line three-phase configuration

Printer specifications

Number of power wires)	3 lines + PE
Input voltage (line to line)	200–240V (±10%)
Input frequency	50/60 Hz
Power consumption (typical)	9–11 kW
Maximum load current (per phase)	48 A

Branch circuit breaker specifications

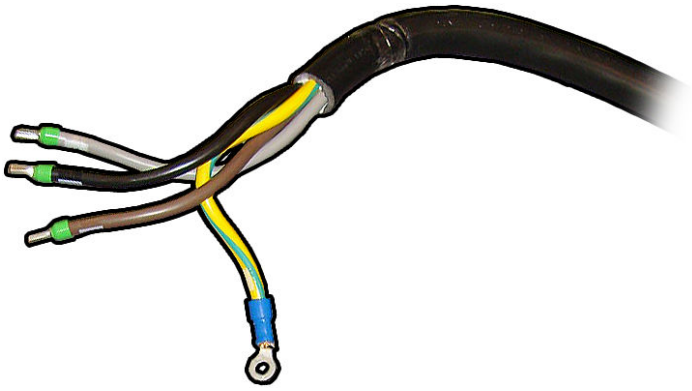
	3 poles, 50/60 A

Power cable specifications

Configuration	3 lines + PE
Minimum cross-sectional area	10 mm² or 6 AWG
Terminals	Ferrule terminals, except the PE terminal, which uses the M8 ring type
External diameter range	18.0–25.0 mm

Power cables

No power cable is provided with the printer. The cables that you use must meet the minimum specifications for the chosen configuration explained for each configuration, and must follow local laws. The example below is for configuration 2.



PE connections for mains power should be made through an M8 stub.

Powerline disturbances

Reliable operation of your printer depends on the availability of relatively noise-free AC power.

TIP: The MX45 power supply is recommended.

- In order to ensure optimum performance and reliability, your printer should be protected from variations in line voltage, which are common to production printing environments. Lighting, line faults, or the power switching commonly found in machinery in factory environments can generate line transients that far exceed the peak value of the applied voltage. If not reduced, these micro-second pulses can disrupt system operation.
- If the power line supplying the installation site is a public low-voltage line shared with other users, the power line impedance Zmax must be less than 88 mΩ, to comply with European standard EN/IEC 61000-3-12. If other users on the same power line report any flickering of incandescent light bulbs, contact your electricity supplier to verify that the power network has an impedance lower than that specified above.
- You are recommended to include overvoltage (OVP) and transient protection on the power supply to the printer.
- All electrical noise-generating equipment, such as fans, fluorescent lighting, and air-conditioning systems, should be kept separate from the power source used for your printer.

If you have power quality issues when taking power from the grid, an external power supply can be used in order to meet the requirements of your configuration.

Grounding

The printer must be connected to a good-quality, dedicated ground line in order to avoid electrical risk. Note your obligation to comply with the National Electrotechnical Code (NEC) in the country of installation.

The following grounding tasks must be fulfilled to meet the site preparation requirements:

- Grounding wires should be insulated and at least equal in size to the phase conductors.
- Ground impedance must be less than 0.5 Ω.
- The installation of a single point and dedicated ground.
- Power stabilizer equipment that is supplied by three uninterrupted phase wires and one uninterrupted copper ground wire from the main building service panel. These should run in the same conduit and should be at least equal in size to the phase wires.

3 Site preparation requirements for the processing station

Physical space requirements

Unloading route

The route between the unloading area of the processing station and the installation site, including any corridors and doorways through which the station must be transported, is important to proper site preparation and must be planned before the arrival of the station. This pathway must be clear when the station arrives.

Processing station physical specifications with packaging

Width with packaging	2384 mm (93.86 in)
Depth with packaging	1176 mm (46.30 in)
Height with packaging	2181 mm (85.87 in)
Weight with packaging	550 kg (1213 lb)

For the specifications without packaging, see Load bearing on page 13 and Designing the optimal print-production area on page 14.

Doorway specifications

Minimum doorway width	1196 mm (47.09 in) with packaging
	940 mm (37.01 in) before assembling the material cartridge support
	800 mm (31.50 in) without packaging and after disassembling some parts
Minimum doorway height	2201 mm (86.65 in) with packaging
	2000 mm (78.74 in) as removed from the packaging before starting installation
	2420 mm (95.28 in) without packaging and mixer upwards
Minimum corridor width with right-angled bend	1750 mm (68.90 in) with packaging
Length	2388 mm (94.02 in) with packaging
	1926 mm (75.83 in) without packaging

The processing station can be moved on the pallet up or down a ramp of no more than 10° inclination.

Unpacking and moving the processing station

You are strongly recommended to unpack the processing station where it will be used, or as close to that location as possible.

The space required for assembly is 5.5 × 3 m (217 × 118 in).

Moving equipment

If you are using the external tank, you will need a trolley to move it.

If you need to move the processing station after unpacking, take into account the following considerations:

- Ground-floor installation: The processing station can be moved on wheels up or down a ramp of no more than 10° inclination.

  NOTE: Remove the material-cartridge platform before moving the processing station up or down a ramp.

- Above-ground installation: Use an elevator if the processing station can fit inside it while remaining horizontal (without tilting the processing station), and if it can support the processing station's weight. Otherwise, you may need a crane; contact your reseller for more information.

CAUTION: The processing station is heavy and can easily fall over. Moving it over a ramp or tilted floor increases the risk. Move it smoothly, maintain safety precautions for people in the vicinity, and secure it against overbalancing. Always move it parallel to its length.

CAUTION: If you need to move the processing station on its wheels to its final position, move it down from the pallet but do not remove all the transport protections and locks.

CAUTION: Unloading and moving the processing station and all system components is the customer's responsibility and not HP's. Failure to provide the required moving and lifting equipment could result in personal injury or damage to the station during installation.

Load bearing

The load-bearing characteristics of the floor in the print-production area must be sufficient to withstand the weight of your processing station. To calculate the load-bearing characteristics of the print-production floor, consult a structural engineer.

Processing station weight	470 kg (1036 lb)
Processing station weight (loaded)	830 kg (1830 lb), including a full external tank, weighing 200 kg (441 lb)
Build unit weight (full)	150 kg (331 lb)
HP 3D High Reusability PA12 30L12 Material Cartridge	300 kg (661 lb)

NOTE: Take into account that the build unit will be inserted inside the processing station while unpacking and loading material. Therefore, you must consider the sum of both weights inside the same footprint when the build unit is inserted.

NOTE: If you follow the recommendation to keep the printer, the processing station, and the build unit in the same room, then the load-bearing characteristics of the floor must be sufficient withstand the weight of all three devices when loaded.

Floor surface

The floor surface should have the following characteristics:

- Flat and horizontal
- Solid, smooth, and level

  HP recommends Ff > 20 and Fl > 20, measured according to ASTM E1155M, to ensure that the floor is sufficiently flat and level. Otherwise the processing station could malfunction.
- No holes or indentations
- Static-free surface
- Easy to clean
- Durable
- Free from floor vibration: for example, floor vibration is likely near a railway station, press machine room, construction site, or heavy industry. If such vibration cannot be avoided, suitable floor preconditioning to mitigate vibration may be needed for optimal performance.

NOTE: The floor surface over which the build unit will move between the printer and the processing station should have the same characteristics: it should be horizontal, free of steps, holes, and indentations, smooth to avoid transport vibrations, and far from any obstacle that might cause accidental shocks. It is vital to avoid damage to the contents of the build unit, both when it is full of fresh material and also after printing. Move the build unit slowly and with care.

Designing the optimal print-production area

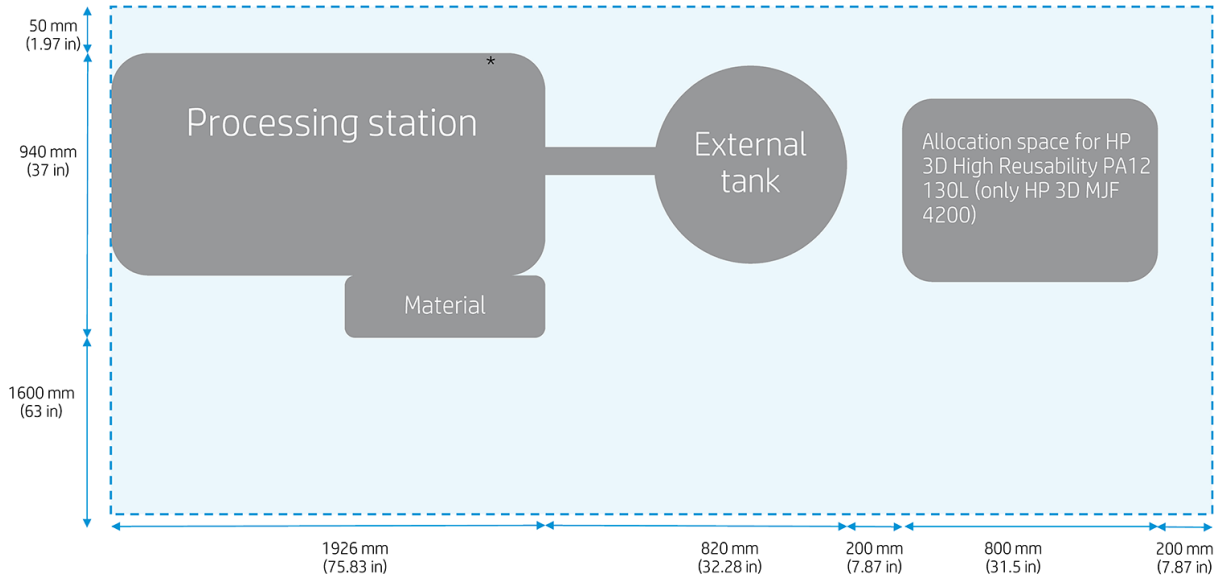
Your processing station requires enough space to perform the following tasks:

- Insert the build unit
- Load material
- Unpack
- Service the processing station and replace its components

The height of the processing station is 2000 mm (79 in) when removed from the packaging, and 2420 mm (95 in) when fully installed. The height of the room should be at least 2500 mm (99 in).

When operating, the processing station requires the following amount of space:

Print-production area with external storage tank



* Location of the compressed air and electrical connections

NOTE: The external storage tank is optional.

NOTE: You may need more space for equipment to manipulate tanks and supplies.

Environmental specifications

Temperature during installation	20–30°C
Operating temperature	20–30°C
Recommended operating temperature for best performance	20–30°C
Storage and reshipping temperature	–25 to +55°C
Operating humidity	30–70% without condensation
Storage humidity	< 90% without condensation

Notes

- The printer, build unit, and processing station should be kept indoors.
- If the processing station or cartridges are moved from a cold location to a warm and humid location, water from the air could condense on the processing station parts and cartridges, and could cause leaks and errors. In this case, HP recommends that you wait at least 4 hours before turning on the processing station or installing the cartridges, to allow the water to evaporate. Check for condensation before turning on the system.
- The material must acclimatize to the environmental conditions of the room for at least two days.
- The build unit must remain in the same environmental conditions while moving to and from the printer and the processing station. If it is exposed to different conditions at any time, the quality of its contents will be affected.
- The printer, build unit, processing station, and stored material should always be kept in the same environmental conditions; HP recommends keeping them in the same room.
- The room should be free from liquids and condensation.

Ventilation

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

Adequate ventilation needs to be provided to ensure that potential airborne exposure to materials is adequately controlled according to their Safety Data Sheets. Consult the Safety Data Sheets available at http://www.hp.com/go/msds to identify chemical ingredients of your materials.

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

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

Air conditioning

As with all equipment installations, to maintain ambient comfort levels, air conditioning in the work area should take into account that the equipment produces heat. Typically, the printer's power dissipation is 9 kW to 11 kW (30.7 kBTU/h to 37.5 kBTU/h), and the processing station's power dissipation is 2.6 kW (8.8 kBTU/h).

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

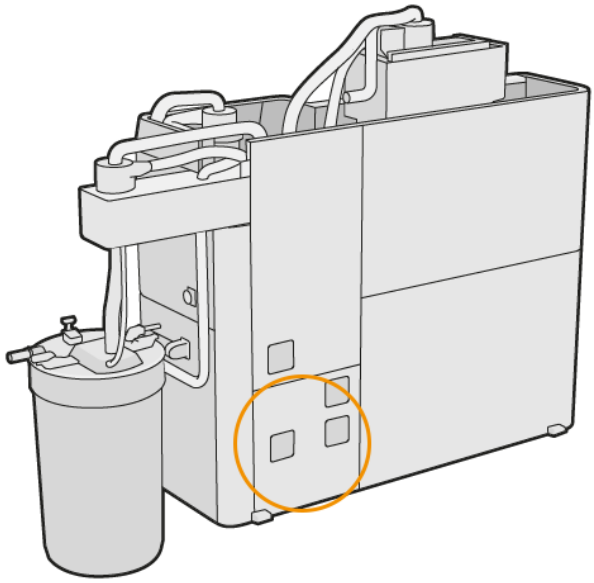
NOTE: The air conditioning units should not blow air directly onto the equipment.

Processing station electrical configuration

NOTE: An electrician is required for the setup and configuration of the building electrical system used to power the processing station, and also for the installation of the processing station. Make sure that your electrician is appropriately certified according to local regulations and supplied with all the information regarding the electrical configuration.

The processing station requires the following electrical components to be supplied and installed by the customer, according to the Electrical Code requirements of the local jurisdiction of the country of installation.

Power Distribution Unit (PDU) including single-phase branch circuit breaker



The circle indicates the location of the compressed air and electrical connections.

NOTE: Remember that you are required to follow the local laws, regulations, and standards that apply to the electrical installation of your processing station.

NOTE: The processing station is not supplied with any power cable.

Power distribution unit (PDU)

The PDU must be rated to meet the power requirements of the processing station, and should be in accordance with the Electrical Code requirements of the local jurisdiction of the country where the equipment is installed.

Circuit breakers (required)

The circuit breakers must meet the requirements of the processing station and should be in accordance with the Electrical Code requirements of the local jurisdiction of the country where the equipment is installed.

The processing station requires one or two branch circuit breakers, depending on the installation.

The processing station has built-in Residual-Current Circuit Breakers (RCCB), also known as Ground Fault Circuit Interrupters (GFCI), with 30 mA sensitivity. If local laws require an external RCCB or GFCI for earth fault protection, install a device with sensitivity of 100 mA or higher, with appropriate rated current for the supply configuration, and ensure that other protective devices for earth fault protection upstream from the one supplying the processing station are always greater than the one selected for the processing station.

⚠ WARNING! Ensure that mains fault current is adequate for proper operation of the supplementary circuit breakers incorporated in the equipment (5 kA rated interrupting capacity).

⚠ WARNING! Ensure that the processing station's built-in Residual-Current Circuit Breakers (RCCB) or Ground Fault Circuit Interrupters (GFCI) operate in the case of a current leakage fault to the product chassis, even when an isolation device (such as an isolating transformer) is used to supply power to the processing station.

Power specifications

Configuration 1: 220–240 V line-to-neutral one-phase configuration

Printer specifications

Number of power lines	1 line + N + PE
Input voltage (line to neutral)	220–240V (±10%)
Input frequency	50 Hz
Power consumption (typical)	2.6 kW
Maximum load current (per phase)	14 A

Branch circuit breaker specifications

	2 poles, 20 A, type J

Power cable specifications

Configuration	2 lines + PE
Cross-sectional area	4 mm² or 12 AWG
Terminals	Ferrule terminals, except the PE terminal, which uses the M6 ring type
External diameter range	5.0–11.0 mm

NOTE: The main disconnect and branch protection should be provided by the installer.

Configuration 2: 200–240 V line-to-line one-phase configuration

Printer specifications

Number of power lines	2 lines + PE
Input voltage (line to line)	200–240 V~ (±10%)
Input frequency	50/60 Hz
Power consumption (typical)	2.6 kW
Maximum load current (per phase)	19 A

Branch circuit breaker specifications

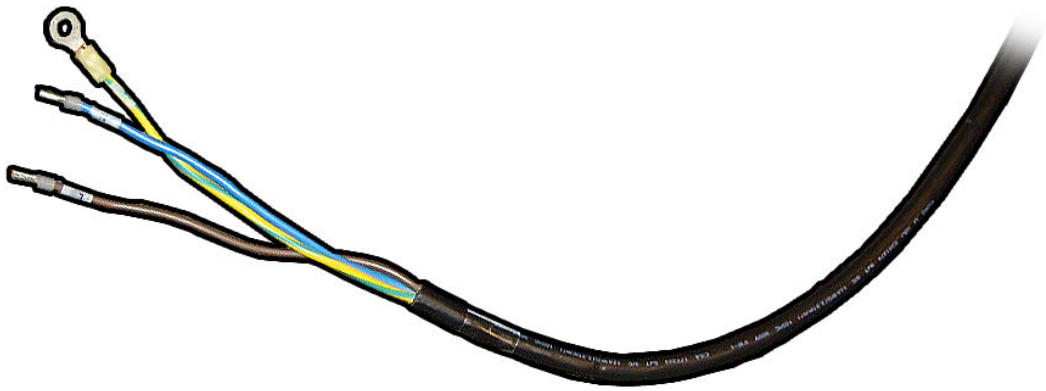
	2 poles, 25 A, type J

Power cable specifications

Configuration	2 lines + PE
Cross-sectional area	4 mm² or 12 AWG
Terminals	Ferrule terminals, except the PE terminal, which uses the M6 ring type
External diameter range	5.0–11.0 mm

Power cables

No power cable is provided with the processing station. The cables that you use must meet the minimum specifications for the chosen configuration explained for each configuration.



PE connections for mains power should be made through an M6 stub.

Powerline disturbances

Reliable operation of your processing station depends on the availability of relatively noise-free AC power.

- In order to ensure optimum performance and reliability, your processing station should be protected from variations in line voltage, which are common to production printing environments. Lighting, line faults, or the power switching commonly found in machinery in factory environments can generate line transients that far exceed the peak value of the applied voltage. If not reduced, these micro-second pulses can disrupt system operation.
- The processing station is professional equipment with a total rated power greater than 1 kW, therefore it conforms with the EN 61000-3-2 standard.

- You are recommended to include overvoltage (OVP) and transient protection on the power supply to the processing station.
- All electrical noise-generating equipment, such as fans, fluorescent lighting, and air-conditioning systems, should be kept separate from the power source used for your processing station.

Grounding

The processing station must be connected to a good-quality, dedicated ground line in order to avoid electrical risk. Note your obligation to comply with the National Electrotechnical Code (NEC) in the country of installation.

The following grounding tasks must be fulfilled to meet the site preparation requirements:

- Grounding wires should be insulated and at least equal in size to the phase conductors.
- Ground impedance must be less than 0.5 Ω.
- The installation of a single point and dedicated ground.
- Power stabilizer equipment that is supplied by three uninterrupted phase wires and one uninterrupted copper ground wire from the main building service panel. These should run in the same conduit and should be at least equal in size to the phase wires.

Compressed air

An air compressor or pressurized air line is required, and must be provided by the customer. It should provide an air pressure of at least 6 bar, which should be stable: within ±0.2 bar.

TIP: HP recommends that you use an air compressor with a pressure gauge that measures in bars.

A tube of 6 mm diameter should be connected from the air supply to the processing station.

The minimum air quality should be ISO8573-1:2010 Class 4.4.3.

4 Site preparation checklist

Complete the following address information, contact information, and checklist. If a checklist item cannot be completed or is unnecessary, add a short explanation under 'Comments'. Once you have completed the checklist, sign it and send it to your reseller or HP sales representative a minimum of two weeks before the delivery date.

NOTE: Some checklist items are marked '(Required)', which means that you cannot proceed with installation until you have checked the 'Yes' box.

When you sign this document, you are confirming that the site has been prepared according to the specifications provided in the site preparation guide, that all checklist items have been completed, and that the site is prepared and ready for delivery and installation.

Address information	
Company name	Postal code
Street address	Telephone
City	Fax
Country	Email

Contact persons	Name	Telephone	Email
Company engineer or technician			
System administrator			
Operators to be trained in the use and maintenance of the system			

General access & equipment unloading	Yes	No	Comments
Is there an easily accessible unloading area, with sufficient space to unload and maneuver the equipment?	☐	☐	
Has the route to the installation area been checked to meet all requirements (height, width, and clearance of ceilings, doorways, ramps, and corridors) and is the conveyance route clear?	☐	☐	
Have specialist movers been contracted to unload and move the equipment on the date required?	☐	☐	
Are the specialist movers aware of the specifications provided in this document?	☐	☐	

General access & equipment unloading	Yes	No	Comments
Is there a pallet jack available to help position the crate?	☐	☐	
Will you install the printer/processing station on a second level or higher? If so, is there a suitable crane contracted for installation? Are the appropriate crane attachments available?	☐	☐	
Will the operator be available for the full amount of time required for the installation training (2 days)?	☐	☐	

Room layout and flooring	Yes	No	Comments
Is there sufficient space around the equipment?	☐	☐	
Has all room construction and painting been completed?	☐	☐	
Does the floor load-bearing capacity meet the specifications in the site preparation guide?	☐	☐	
Does the floor surface meet the specifications in the site preparation guide? If special reinforcements are necessary, are they completed?	☐	☐	

Safety requirements	Yes	No	Comments
Is there an emergency exit in the print production area, with easy access and free from any obstruction?	☐	☐	
Have the two fire extinguishers been fitted in the print production and storage areas? Is the print production fire extinguisher rated for electrical fire?	☐	☐	
Does the area meet the Restricted Access Location requirements in the zone surrounding the system?	☐		(Required)
Do the users who operate the system have appropriate technical training and experience necessary to be aware of the hazards to which they may be exposed in performing a task and to take appropriate measures to minimize the risks?	☐		(Required)
Does the room meet the minimal ventilation (ACHs) standard required by local regulations and/or HP suggestion?	☐		(Required)
Will printer operations be supervised at all times as recommended by HP in the user guide?	☐	☐	
If printer operations will not be supervised at all times, do you, as the Customer, acknowledge that you have read and understood HP's safety recommendations in the user guide?	☐		(Required)
Is the equipment installed in a non-hazardous location or non-ATEX-classified zone?	☐		(Required)
Do you have an explosion-protected vacuum cleaner compatible with the material that you intend to use?	☐		(Required)
Is the equipment away from other equipment that could create a combustible dust cloud or metallic dust during operation?	☐		(Required)
Is the equipment away from ignition sources (open flames, sparks, heat, and so on) such as CNC, milling, cutting machines, and polishers?	☐		(Required)
Is your postprocessing equipment (such as sand blasting), if any, suitable for combustible dust?	☐		(Required)

Electrical installation	Yes	No	Comments
Has the site been prepared to supply power to the printer? Configuration 1 branch circuit breaker: 4 poles, 32/40 A Configuration 2 branch circuit breaker: 3 poles, 50/60 A	☐		(Required)
Has the site been prepared to supply power to the processing station? Configuration 1 branch circuit breaker: 2 poles, 25 A, type J Configuration 2 branch circuit breaker: 2 poles, 20 A, type J	☐		(Required)
Is the chosen power system within its nominal range?	☐		(Required)
Is the grounding conductor properly installed, as shown in the site preparation guide?	☐		(Required)
Have you booked the services of a certified electrician for the day of installation?	☐		(Required)
Is the electrician aware of all requirements and specifications highlighted in this document?	☐		(Required)
Is the Power Distribution Unit (PDU) correctly installed?	☐		(Required)
Are Residual-Current Circuit Breakers (RCCB), also known as Ground Fault Circuit Interrupters (GFCI), required by local laws? if so, have they a sensitivity of 100 mA or higher?	☐	☐	

Electrical configuration	Yes	No	Comments
No power cords are supplied with the printer/processing station; does the electrician understand that power cord(s) must be provided according to equipment specifications and local laws?	☐		(Required)
If local regulations specify that you must use electrical plugs to connect the printer/processing station to the power supply, does the electrician have the required plugs ready for installation?	☐		(Required)

Networking requirements	Yes	No	Comments
Have network connections been supplied?	☐		(Required)
Do you have a LAN cable long enough to connect the printer to the network?	☐		(Required)
Do you have a computer in which we can install the HP SmartStream Command Center?	☐		(Required)
Is the computer in which you will install the software connected to the Internet?	☐		(Required)
Do you have non-HP software that is compatible with the printer already installed in a computer; or, alternatively, do you have a computer in which we can install the HP SmartStream Build Manager?	☐		(Required)
Will a network specialist be available during the printer installation?	☐		(Required)

Equipment preparation	Yes	No	Comments
Is the air compressor or pressurized air line ready for the day installation?	☐		(Required)
Have the correct supplies been ordered for delivery on or before the date of the system's installation?	☐		(Required)

Environmental requirements	Yes	No	Comments
Have the temperature and humidity requirements been satisfactorily met in the print production area, and is there adequate air conditioning?	☐		(Required)
Have the temperature and humidity requirements been satisfactorily met in the storage area?	☐	☐	
Is the print production area free from dirt and dust?	☐	☐	
Does the print production area have sufficient lighting?	☐	☐	
Have you met or exceeded all the requirements specified in the site preparation guide?	☐		(Required)

Date of site preparation completion
Site preparation guide edition number or copyright date
Customer signature