HP Indigo 7000 Digital Press

Site preparation guide

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Safety Notice

The HP Indigo press is a Class 1 Laser Product containing high-voltage power supplies and laser radiation sources. There is no danger to persons or equipment when the system is operated in accordance with the directions provided by HP in this and other publications. All high-voltage power supplies and laser sources are located behind protective covers. Do not remove protective covers (warning labels are attached to each protective cover).

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1 Site requirements

This chapter provides the following information about preparing the site for the basic configuration of the HP Indigo 7000 Digital Press without its finishing units:

- Introduction
- Dimensions and weights
- Layout
- Floor
- External chiller
- Press utility connections
- Press environment
- Facilities and equipment
- Safety equipment
- Waste disposal

Introduction

This document is intended as a guide to assist in preparing the site to receive and install the HP Indigo 7000 Digital Press.

HP personnel will be in attendance during the uncrating of the HP Indigo press, assist in moving it to its final site, and positioning it. HP personnel will also perform the final installation.

Dimensions and weights

⚠ WARNING !
The HP Indigo 7000 Digital Press, and its separate units must be lifted or transported only by specially trained and qualified personnel using lifting bars, lifting straps, and other specialized equipment that meet HP's specifications and any additional requirements imposed by government regulations. Improper lifting might cause serious personal injury and/or damage to the machine or other property.

NOTICE A manual fork trolly capable of lifting at least 2.5 tons may need to be available on site for moving the press crates and press units. Check with HP Indigo.

Crate dimensions

The HP Indigo press consists of the crated units whose dimensions and weights are shown in Table 1-1.

Table 1-1. Crated HP Indigo 7000 Digital Press dimensions and weights

Crate No.	Crated parts	Length	Width	Height	Weight (approximate)
1	Engine and misc parts	1,830 mm (72 inches)	1,480 mm (58 inches)	2,340 mm (92 inches)	2,300 kg (5070 lb)
2	Ink cabinet	1,935 mm (76 inches)	735 mm (29 inches)	1,325 mm (52 inches)	384 kg (847 lb)
3	Utility Cabinet	1,260 mm (50 inches)	930 mm (36.6 inches)	2,330 mm (92 inches)	365 kg (805 lb)
4	Stacker and bridge	1,400 mm (55 inches)	1,100 mm (43 inches)	1,600 mm (66 inches)	410 kg (904 lb)
5	Feeder, bridge, and attachment frame	1,400 mm (55 inches)	1,100 mm (43 inches	1,930 mm (76 inches)	700 kg (1543 lb)
3	Writing head	789 mm (31 inches)	650 mm (25.6 inches)	475 mm (19 inches)	55 kg (121 lb)

Table 1-1. Crated HP Indigo 7000 Digital Press dimensions and weights

Crate No.	Crated parts	Length	Width	Height	Weight (approximate)
6	Pallet jack	1000 mm (39 inches)	470 mm (18.5 inches)	670 mm (26 inches)	80 kg (176 lb)
5	Accessories	1,400 mm (55 inches)	1,100 mm (43 inches)	945 mm (37 inches)	230 kg (507 lb)

It may be necessary to coordinate the lifting and moving of units with your local authorities.

Table 1-2. Uncrated minimum dimensions

	Length	Width	Height	Weight
Press engine	1,626 mm (64 inches)	1,247 mm (49 inches)	2,090 mm (82 inches)	1,900 kg (4,189 lb)
Feed unit	1,241 mm (49 inches)	1,019 mm (40 inches)	1,413 mm (56 inches)	550 kg (1,212 lb)
Stacker/Gang Stacker	1,230 mm (48 inches)	698 mm (27 inches)	1,110 mm (44 inches)	250 kg (551 lb)
Ink cabinet	1,626 mm (64 inches)	490 mm (19 inches)	673 mm (27 inches)	310 kg (683 lb)
Utility cabinet	1,084 mm (43 inches)	600 mm (24inches)	1,979 mm (78 inches)	250 kg (551 lb)
Chiller	1,140 mm (45 inches)	950 mm (37 inches)	1,755 mm (69 inches)	370 kg (816 lb)

Minimum hallway and door opening dimensions are based on the uncrated minimum dimensions.

Table 1-3. Minimum hallway and door opening dimensions

Doors and Hallways	Width	1,270 mm	(50 inches)
	Height	2,095 mm	(83 inches)
Elevator (Maximum load >2,000 kg (4,409 lb))	Length	1,631 mm	(65 inches)
	Height	2,095 mm	(83 inches)
	Width	1,252 mm	(49 inches)

Press views

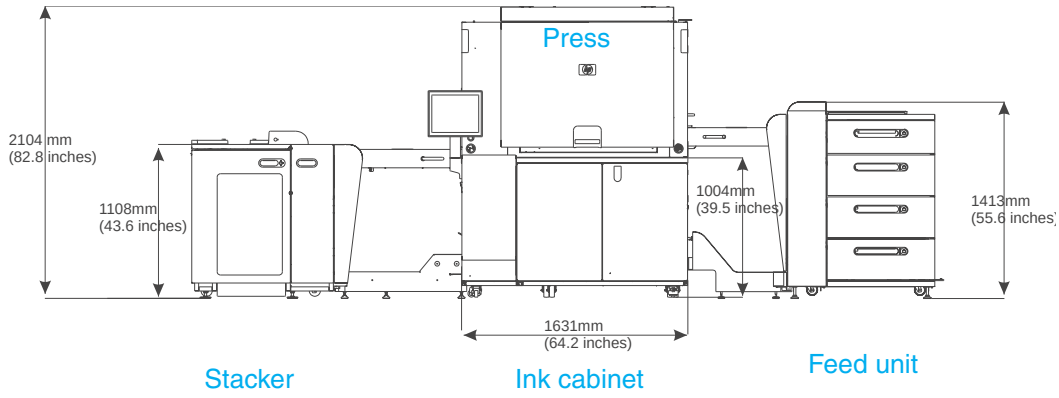


Figure 1-1. HP Indigo 7000 Digital Press front view

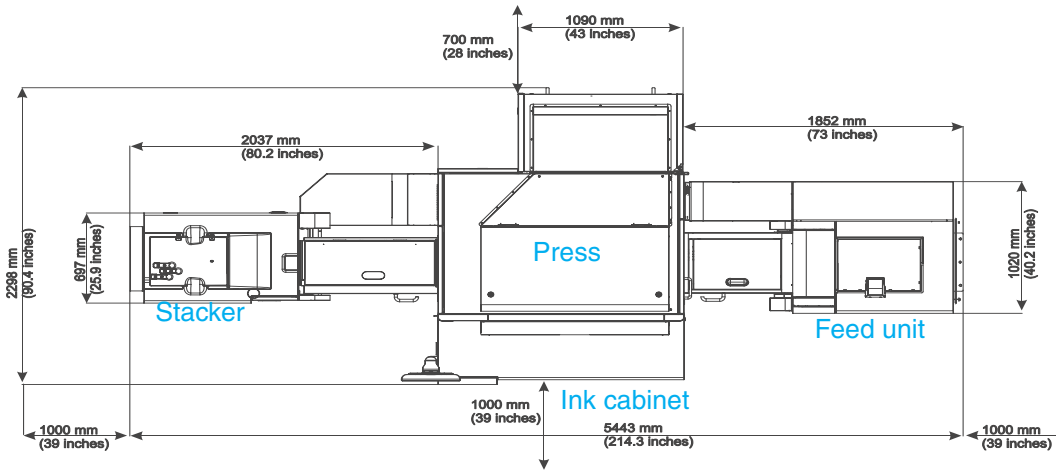


Figure 1-2. HP Indigo 7000 Digital Press top view

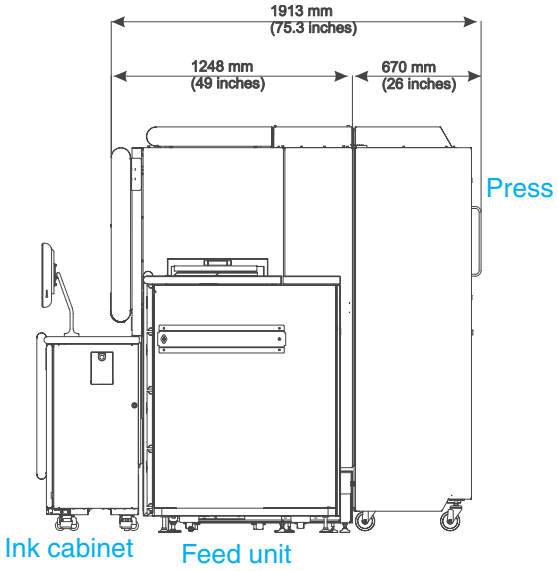


Figure 1-3. HP Indigo 7000 Digital Press side view

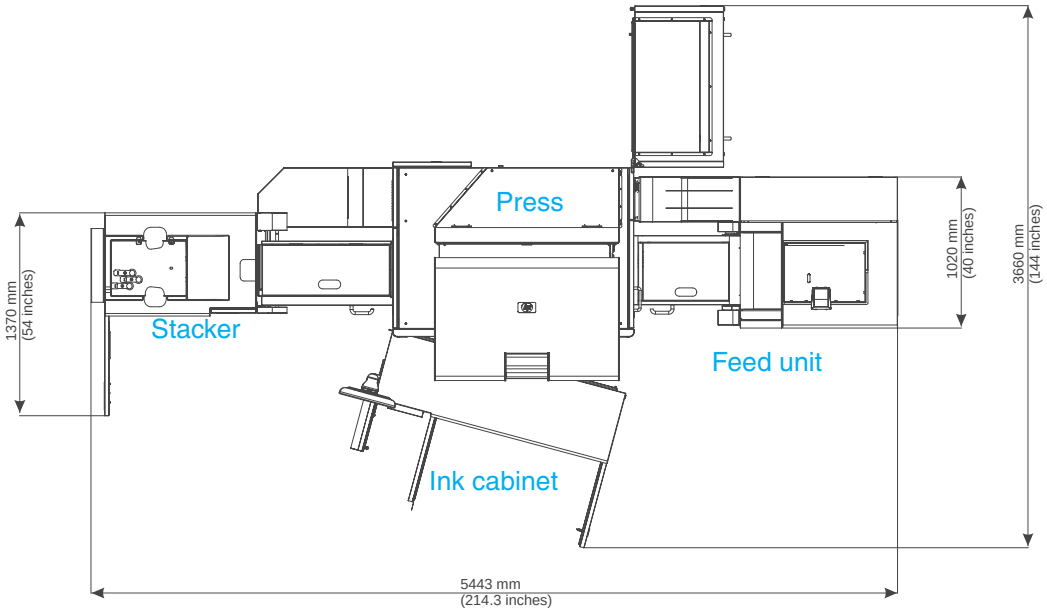


Figure 1-4. HP Indigo 7000 Digital Press top view - doors open

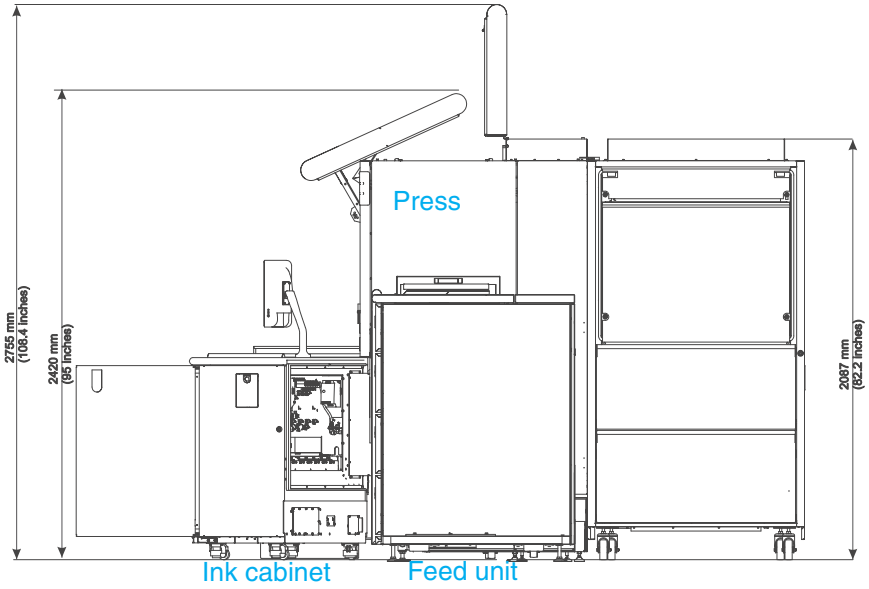


Figure 1-5. HP Indigo 7000 Digital Press side view - doors open

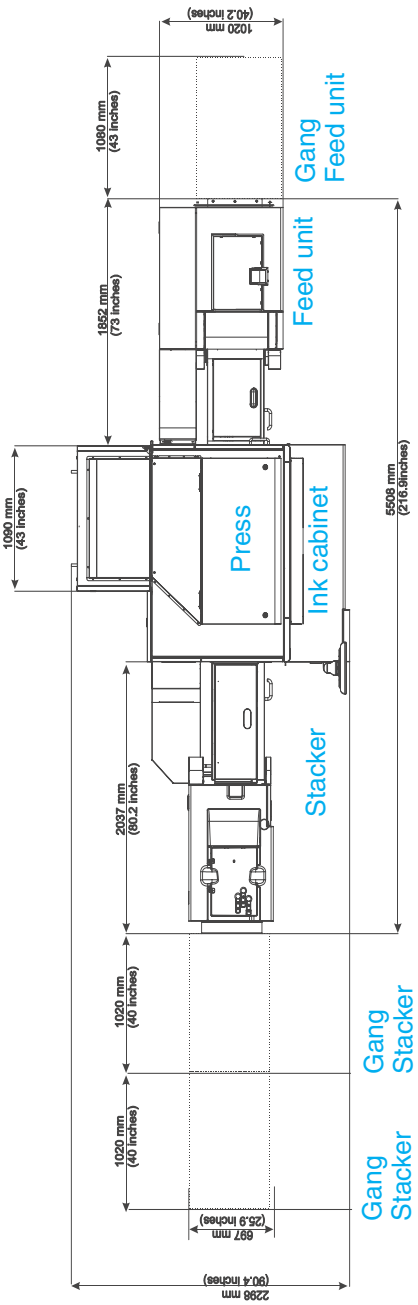


Figure 1-6. HP Indigo 7000 Digital Press with Gang Stackers—top view

Layout

The following space requirements are necessary to ensure proper working conditions:

- A free area of at least 1,000 mm (39 inches) is recommended on the sides and front of the press. A free area of at least 700 mm (28 inches) is required in the rear of the press to access service doors.
- The area bordering the main switch and circuit breaker on the press must be clear of obstacles.
- If more than one press is located at a site, minimum spacing between the presses should be 1,500 mm (60 inches) (see Figure 1-7).
- The minimum height for installation and maintenance is 2,755 mm (108.5 inches), this includes a 50 cm (19 inches) space for maintenance.

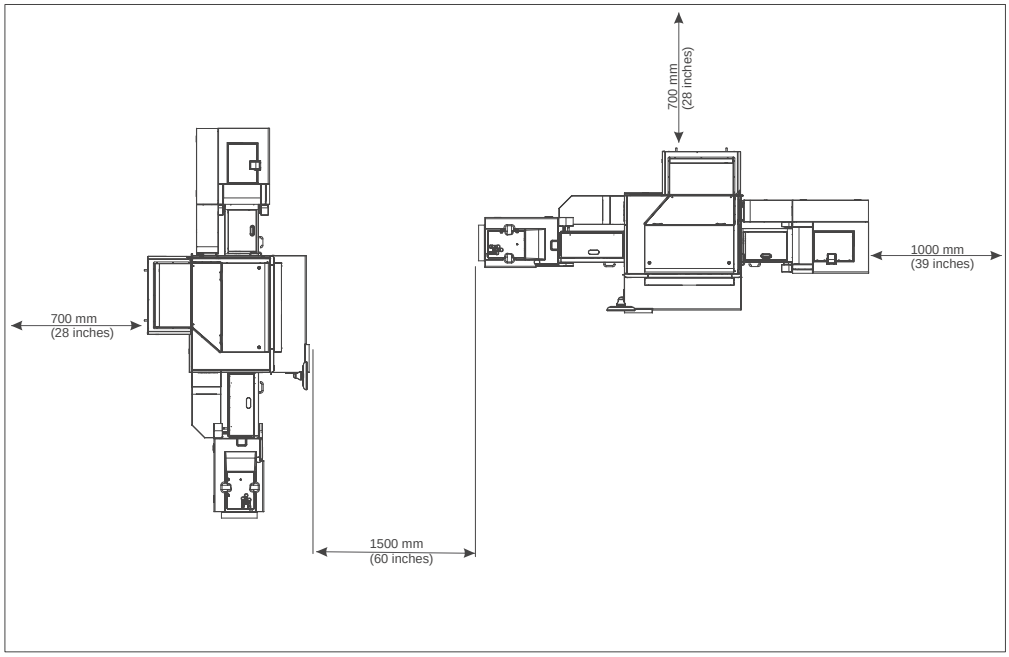


Figure 1-7. HP Indigo 7000 Digital Press - layout for access

Floor

The floor must accomodate the following characteristics:

- The maximum load on a main unit pad is 7.5 kg/cm^2 (106.7 lb/inch^2).
- The total weight of the HP Indigo press 7000, including one feed unit, one stacker, the ink cabinet, 40 kg paper, and imaging oil is 3,425 kg (7,551 lb).

See Table 1-4 for the maximum load values for the floor pads of the different press units.

See Figure 1-8 for the load distribution on the floor pads.

A structural engineer must check the structural integrity of the building that supports the press and approve the site layout.

Use the following guidelines for the floor:

- smooth floor level better than 1%.
- free of heavy vibration during operation (V_{rms} < 0.2 G, V_{pk}<0.6 G).
- covered by an anti-static material, resistant to imaging oil, which can be readily cleaned in case of a spill (recommended).

Table 1-4. Maximum load per floor pad

Press unit	Maximum pressure on floor	Maximum load per pad
Engine	940 kg/m^2 (13,370 lb/inch^2)	950 kg (2,094 lb)
Feeder	413 kg/m^2 (5,874 lb/inch^2)	260 kg (573 lb)
Stacker	318 kg/m^2 (4,523 lb/inch^2)	137 kg (302 lb)
Ink cabinet - 4 stations Ink cabinet - 7 stations	406 kg/m^2 (5,775 lb/inch^2)	162 kg (357 lb) 187 kg (412 lb)

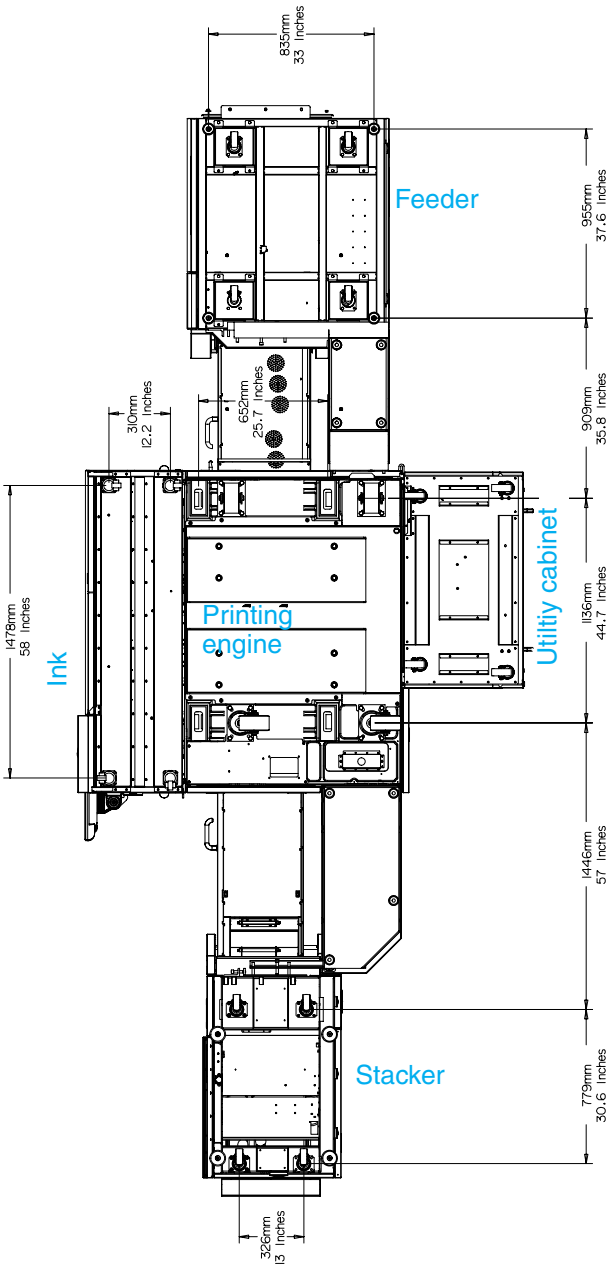


Figure 1-8. Load distribution - view from below

External chiller

Chiller dimensions

HP supplies and installs the external chiller. When preparing the site, contact your local HP representative to coordinate preparations for installing the external chiller.

Table 1-5. Chiller dimensions and weights

USA and Europe	Ultrafilter ultracool UC0240	Length	1,100 mm	(43 inches)
		Width	930 mm	(37 inches)
		Height	1,890 mm	(74 inches)
		Weight - operational, including water	570 kg	(1,257 lb)
		Weight - non-operational net, without water	370 kg	(816 lb)

Chiller location

Locate the chiller outdoors under a cover to protect it from rain and direct sunlight. There should be at least 1.0 m (39 inches) of free space above and around the chiller to allow for servicing and ventilation.

The maximum allowable length and height of the cooling water hose between the main unit and the chiller depends on the chiller installed and its manufacturer. Adapt the water circulation pump specifically to the site. Please refer to the chiller manufacturer for details.

NOTICE Any special piping or other infrastructure changes required for installing the chiller in a separate room, or on a different floor, at a distance from the HP Indigo press, are the responsibility of the customer.

External chiller connections

- Maximum distance between the chiller and the press is 40 meters (131 feet).
- Maximum height difference between the chiller and the press is 10 meters (32 feet).
- HP provides 2 x 20 meters (2 x 65 feet) (total 40 meters, 131 feet) 1-inch water pipe for water circulation between the chiller and the press.
- If the distance between the press and the chiller exceeds 20 meters, the customer should use rigid pipes (brass, copper, plastic, or stainless steel).
- When using rigid pipes:
  - The customer should prepare a conduit for the chiller communication cable (8 mm diameter) along the path of the water pipes.
  - The customer should have fittings for 1-inch internal diameter flexible tubes and taps on side for the installation.
  - The rigid pipes should be rated to withstand water pressure of 10 bar.

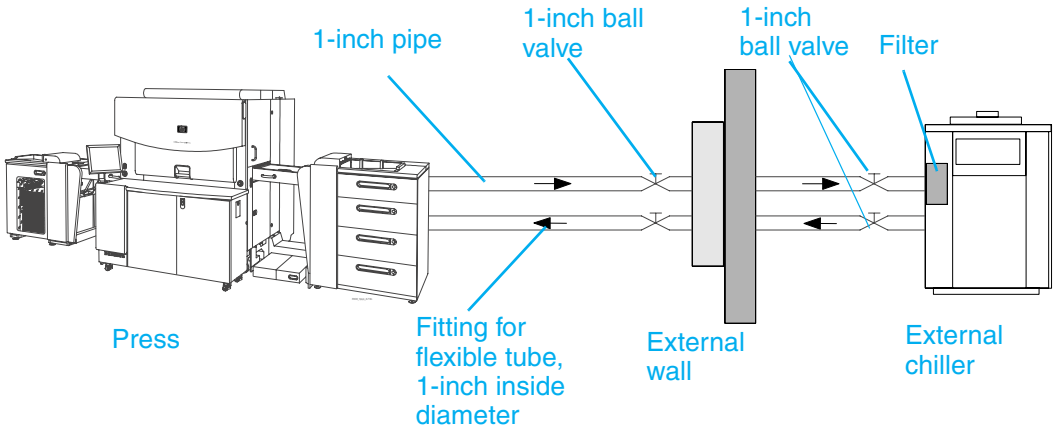


Figure 1-9. Chiller floorplan and connections

Water and drain connections

Table 1-6. Water connections

Description	Quantity	Area
Water (input) 1-inch pipe at 10 bar pressure	1	Chiller, 15 to 18 cm (6 to 8 inches) above floor
Water drain (output)	1	Chiller

Press utility connections

The press connections points are illustrated in Figure 1-10. Detail are provided in the followings sections.

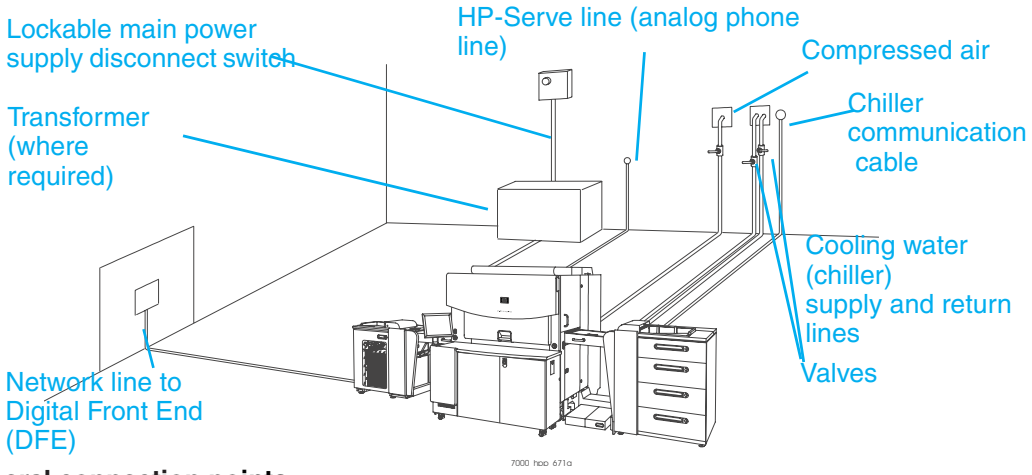


Figure 1-10. Peripheral connection points

Figure 1-11 shows the press connections and layout diagram. This template is used in 1:1 scale by HP to determine the final location and connection locations for the HP Indigo Digital Press.

NOTICE Refer to the digital font end (DFE) site preparation guide for details about connections and placement of the DFE.

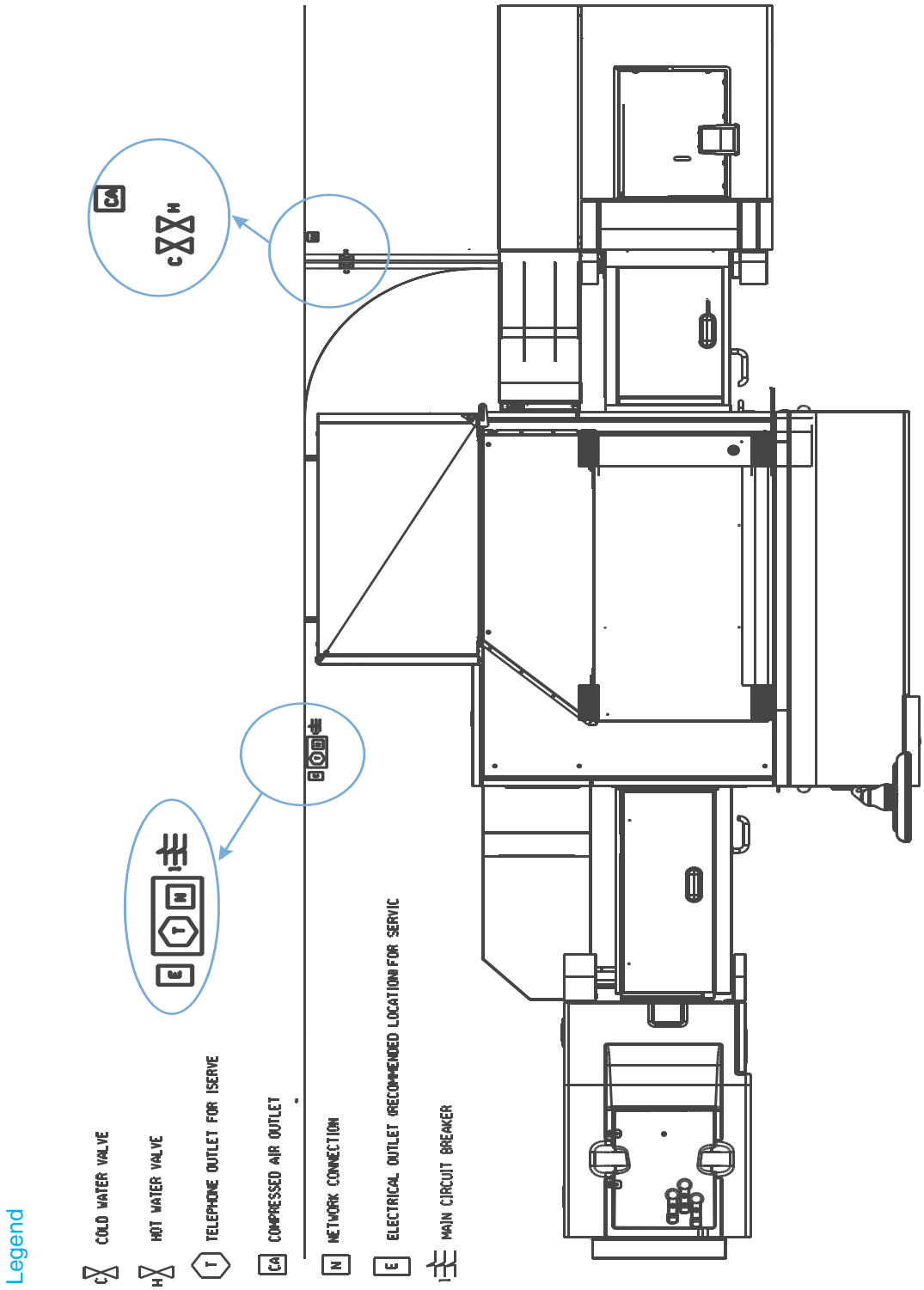
Compressed air

The HP Indigo press requires compressed air to operate. Purchase and installation of an air compressor suitable for use with the press is the customer's responsibility.

Compressed air requirements are:

- Dry air to prevent corrosion.
- 6 bar, 1 cfm or 30 liters per minute.
- System piping - 3/4 inch diameter.
- 8 mm connector for compressed air hose to the press.
- HP supplies 8 meters (26 feet) of 8 mm pressure hose for connection from the wall to the press.

Figure 1-11. Press connections and layout diagram



Electrical connections

⚠ WARNING !
A qualified, licensed local electrician must install all electrical equipment and connect it in compliance with local regulations.

NOTICE The HP Indigo 7000 Digital Press is designed to meet international standards, including European Harmonized standard EN 60950. However, additional local regulations or requirements may apply.

The following are supplied by HP:

- Transformer (where required)
- UPS
- Chiller control cable: 41 m (134 ft)

NOTICE The HP Indigo 7000 Digital Press must have a stable power supply. If the power supply at the site is not stable to within ±6 percent, a voltage stabilizer must be used.

The press will be hard wired to the main electrical power supply. A conduit must protect the cables.

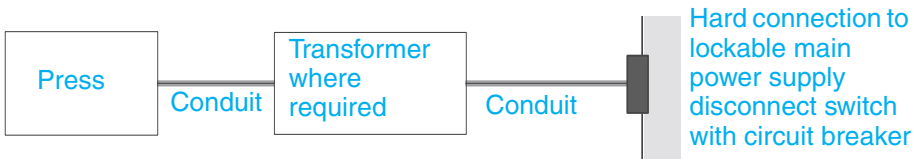


Figure 1-8. Connecting the press to the main power supply

NOTICE The press requires electrical isolation and lockout during service and maintenance procedures. Mount an isolator box and key on the wall near the press. This key should be conveniently located for the machine operator.

NOTICE The neutral line in this product is permanently connected to the supply. It is not switched.

NOTICE The HP Indigo press works with a DFE unit. Refer to the DFE site preparation guide to determine electrical requirements for your DFE unit.

Table 1-5. Press electrical power requirements

Input voltage (direct connection to the press)		3-phase Star (Y), 400 VAC, ± 6%, 3 x 50 Amp **Note**: Sites with this input voltage do not require a transformer.
Line input frequency		50/60 Hz ± 1%
Power consumption during print		14 KW (average)
Input voltage using transformer	USA	3-phase Delta (Δ) connection, 208 VAC, 240 VAC, 480 VAC, ±6%
	Japan	3-phase Delta (Δ) connection, 200 VAC, ± 6%
	UK	3-phase Star (Y) connection, 415 VAC, ± 6%
Circuit breakers (at sites that do not require transformers)		3-phase circuit breaker, tripping characteristic type C, 50 Amp 5000 AIC to comply with local regulations.
Circuit breakers before transformer (at sites with transformer)	USA	3-phase circuit breaker, 5000 AIC to comply with all national, state, and local codes. • For 208 VAC, 240 VAC input – 3-phase 100 Amp breaker. • For 480 VAC input – 3-phase 50 Amp breaker.
	Japan	3-phase 100 Amp circuit breaker, 5000 AIC to comply with local regulations.
	UK	3-phase circuit breaker, tripping characteristic type C, 50 Amp, 5000 AIC to comply with local regulations.
Circuit breakers after transformer (where required in addition to circuit breaker before transformer)	USA	3-phase 40 Amp disconnect, tripping characteristic type G or equivalent to comply with all national, state, and local codes.
Neutral to ground		0 volts - not to exceed 3 volts
Distance of transformer from press (where transformer is required)	Maximum distance	20 meters, (65 feet)

NOTICE The chiller main power cable must be hard-wired and protected by a conduit.

Table 1-7. Chiller unit electrical power requirements

Input voltage Ultrafilter UC-240	USA	3-phase 460 VAC ±10% Connection type - Delta Δ Frequency - 60 Hz Power - 8.5 KW Nominal current consumption - 17 Amps Maximal current consumption - 21 Amps Fuse size - 32 Amps
	Europe	3-phase 400 VAC ±10% Connection type - Delta Δ Frequency - 50 Hz Power - 8.7 KW Nominal current consumption - 21 Amps Maximal current consumption - 27 Amps Fuse size - 32 Amps

NOTICE Chiller specifications are subject to change by chiller vendor. Please check with your local HP Indigo representative.

Communications

The following are required for communication:

- Convenient access to a telephone.
- A Fast Ethernet connection using RJ-45 cabling. The press will be connected to the Digital Front End (DFE via a switch using an Ethernet cable provided by the customer. The distance between the press and the DFE should not exceed 100 meters (328 feet).
- Access to the internet to obtain automatic software updates and connectivity to HP IndigoServe.

NOTICE To customize the network for your specific needs, consult with an HP network specialist.

Press environment

Lighting conditions

Due to the PIP's sensitivity to light, the HP Indigo press must operate under indirect lighting. Cover lighting fixtures with deflecting baffles. Avoid direct sunlight.

With all the covers (doors) closed, use any form of lighting arrangement that is sufficient to allow an operator or maintenance specialist to work on the press. It is recommended that lighting units for each HP Indigo press be independent, and that they be turned off or dimmed for servicing.

With the covers (doors) open, the maximum indirect illumination recommended within the PIP environment is 150 Lux (150 lumens/m^2, 13.95 lumens/ft^2) for less than one-half hour, or 500 to 600 Lux (500 to 600 lumens/m^2, 46.5 to 55.8 lumens/ft^2) above the covers (outside of the PIP environment).

Environment

Table 1-8. Air conditioning data - main unit (chiller not included)

Required ambient temperature	20 to 25° C (68 to 77° F)
Required ambient relative humidity	50 to 70 percent non-condensing
Required fresh air flow	+150 cfm
Heat emission to room	4 kW

Table 1-9. Chiller cooling specifications (where a central unit is used)

Cooling capacity	27 kW (92,210 BTU/hr) at 6° C (44° F) typical water outlet temperature in a 25° C (77° F) ambient temperature environment
Water circulation	65 L/min (17 gallons/min) typical
Working temperature range	-15 to + 50° C (5 to + 122° F)

Noise level

The maximum noise level generated by the press, with the service doors closed is 80 dBA.[1]

The maximum noise level of chiller in free field conditions at 5 meters (16 feet) is 55 dBA.

1. U.S. Health and safety regulations (29 CFR 1910.95) require that the employer administer a continuing effective hearing conservation program whenever employee noise exposure equals or exceeds an 8-hour time weighted average value of 85 dBA. When employees are subjected to noise levels exceeding 90 dBA over an 8-hour period, personal protective equipment shall be provided and used to reduce the sound level.

   In Europe, regulations require employers to take action whenever worker daily exposure to noise reaches 85 dBA (e.g. UK Noise at work regulations, 1989).

Facilities and equipment

Storage area

Make sure you have storage space for the following items:

- Consumables, for example imaging transfer blankets, photo-imaging plates (PIP), HP ElectroInk
- Substrates in the vicinity of the work area

Work area equipment

The following equipment is required:

- single-phase electrical wall outlet for service instruments
- work table for servicing components (recommended type is the industrial, drawer-equipped, metal wheel-table).
- work table for examination of printed output
- two large wastebaskets lined with plastic bags
- tissue paper rolls, industrial type and size
- parts cleaning station for cleaning machine parts
- 1.5 m (5 ft.) foldable ladder for accessing the top of the press

Optical densitometer - X-Rite 508G

The X-Rite 508G densitometer or an equivalent model is recommended.

The X-Rite 508G should be equipped with G-response, a 3-mm aperture, and no polarization filter. The recommended density values in the *HP Indigo 7000 Digital Press User Guide* are based on readings generated by the X-Rite 508G densitometer. The Model 508 can be purchased from:

X-Rite, Incorporated
3100 44th St. SW
Grandville, Michigan, USA 49418
http://www.xrite.com

NOTICE To use another model, please contact an HP Indigo customer engineer for details.

Parts cleaning station

A cleaning station used to clean machine parts with imaging oil. The cleaning station has a 600 mm by 400 mm (24 inches by 16 inches) wash basin with a circulating pump, a brush attached to a flexible hose, and drainage. The cleaning area must be well-ventilated, isolated, and placed away from potential sources of water contamination.

NOTICE If you are in the California South Coast Air Quality Management District, verify use of the device with regards to Solvent Cleaning Operations District Rule 1171.

Safety equipment

Safety and Warning signs

Post safety signs on walls in the printing area to warn of fire hazard, for example:

```
WARNING!: NO SMOKING, NO SPARKS, NO OPEN FLAME
```

Post warning signs that clearly emphasize the dangers involved in operating and maintaining the press.

The following warnings are recommended:

- This machine is to be operated by properly trained and qualified operators only.
- Do not wear ties, other loose clothing, or loose jewelry when operating and maintaining the unit.
- Flammable vapors from heated imaging oil may be present!
- No smoking, open flame, or sources of ignition allowed!
- Make sure that the room is properly ventilated at all times. See "Environment"above.
- Danger of pinching and crushing from moving machine parts!
- Keep hands away from moving machine parts.
- Clear access to main circuit breaker must be maintained at all times.
- Do not operate the press with doors open.
- Ink and imaging oil are irritating to eyes and skin. Use rubber gloves.
- ITM drum and blanket are hot. Use insulated gloves.

NOTICE For more safety data, see the Material Safety Data Sheets (MSDS).

Material safety data sheets (MSDS)

MSDS are supplied for consumables, including the different HP ElectroInks, imaging oil and imaging agent, adhesion promoters, and adhesion promoter test fluids. Keep the MSDS readily available in the work area. Read and consult them for your personal protection. Keep the MSDS in a protective plastic cover.

MSDS are also available online at:
http://www.hp.com/hpinfo/globalcitizenship/environment/productdata/iimsdseng.html

Fire and first aid equipment

HP ElectroInk and imaging oil used in the HP Indigo 7000 Digital Press are materials based on petroleum hydrocarbons. You must take the following precautions:

- Do not locate spark-producing equipment within 7.6 m (25 ft) of the HP Indigo 7000 Digital Press.
- Place portable fire extinguishers in visible locations where imaging oil and HP ElectroInk will be used or stored. Approved fire extinguisher types are water fog, dry chemical, or carbon dioxide.

CAUTION
If you use a dry chemical extinguisher, the HP Indigo 7000 Digital Press may require significantly more time to become completely functional after a fire.

Eyewash station

The HP Indigo 7000 Digital Press uses inks and imaging oil that may be irritating to skin and eyes. Provide the following items as a precaution:

WARNING !
In extreme cases, eye contact with the ink or imaging oil may cause blindness.

- Have safety glasses available for performing maintenance operations.
- Install eyewash stations within 7.6 m (25 ft) of areas where the HP ElectroInk and imaging oil are handled, dispensed, or stored.
- Provide eyewash liquid at the eyewash stations to comply with ANSI Standard Z358.1-1990 (available from most safety supply companies).
- Supply rubber gloves for handling HP ElectroInk and imaging oil (nitrile disposable gloves are recommended).

Waste disposal

Dispose of the consumables and cleaning materials that you use in accordance with applicable regulations. Consult with your local authorities to determine the correct manner in which to dispose wastes, including the following wastes:

- Discarded blankets
- PIPs
- Filter cartridges
- Cooler drain liquid
- Used imaging oil filters
- Used imaging oil collected during line flushing from cooler draining and from ancillary cleaning operations
- HP ElectroInk
- Cotton swabs or rags with imaging oil
- Empty ink cans
- Empty imaging oil containers

NOTICE HP ElectroInk cans are not pressurized.

A Appendix For site planning

Use the attached checklist to verify all steps in the site-preparation process.

Use the attached grid pages for site planning.

Site preparation checklist

	Item		Item
	Press transport and positioning		**Floor**
❑	Lifting and transport equipment	❑	Floor withstands maximum loads and press weight
❑	Hallway and door opening dimensions sufficient for transporting press components	❑	Floor level better than 1°
❑	Elevator dimensions and weight limits sufficient for transporting press components	❑	Floor meets vibration-free requirements
❑	Preparations for external chiller installation	❑	Floor cover material
❑	Work-space dimensions		**Location and Accessories**
❑	Work-space height	❑	Storage area
	Connections	❑	Work table for servicing
❑	Clear access to main electrical switch and circuit breaker	❑	Work table for examining printed outputs
❑	Telephone and Fast Ethernet connections	❑	Waste receptacles
❑	Electricity supply meets press requirements	❑	Tissue paper rolls
❑	Electricity supply meets chiller requirements	❑	Optical densitometer
❑	Transformer location	❑	Parts cleaning station
❑	Main electrical connection location		
❑	Single-phase electrical outlet for service equipment		
❑	Compressed air supply		

	Item		Item
	Environment and safety		**Chiller**
❑	Lighting conditions	❑	Chiller location and free space
❑	Ambient temperature	❑	Cooling water hose maximum length
❑	Ambient relative humidity	❑	Special piping and/or infrastructure for chiller
❑	Required fresh air flow	❑	Water input and water drain for chiller
❑	Safety glasses and rubber gloves		
❑	Waste disposal		
❑	Warning signs		
❑	Fire and first aid equipment		
❑	Eyewash station		

B Appendix Service and support

To obtain service, please contact the customer care center (CCC) within your country/region:

Europe

Germany:	+49 (0) 6995307080
France:	+33 (0) 149932498
UK:	+44 (0) 2072950038
Italy:	+39 0 238591081
Belgium:	+32 (0) 26264803
Netherlands	+31 (0) 43 3565900
Luxembourg:	+352 (0) 2730 2067
Ireland:	+353 (0) 1 605 8409
Distribution Channels (DC):	+31 (0) 20 6545543
North America:	1-800-204-6344
Israel:	+972 8 938 1818

North America

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165 Dascomb Road
Andover, MA 01810-5897
USA

International

Hewlett-Packard Company
Indigo Division
Limburglaan 5
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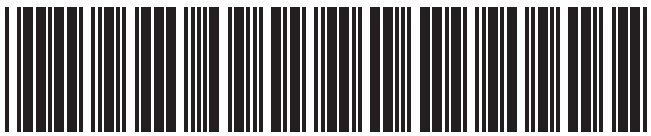

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