Site Preparation Guidelines

English

Lotem 800 Family

707-00142B-EN

www.creo.com

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RE37,376	5,325,217	5,532,728	5,742,743	5,996,499	6,158,345	6,353,216
4,558,302	5,339,176	5,561,691	5,764,374	5,998,067	6,159,659	6,366,339
4,743,091	5,343,059	5,568,595	5,764,381	6,003,442	6,164,637	6,371,026
4,992,864	5,355,446	5,576,754	5,771,794	6,014,471	6,180,325	6,377,739
5,049,901	5,359,451	5,579,115	5,785,309	6,016,752	6,181,362	6,387,597
5,079,721	5,359,458	5,592,309	5,813,346	6,031,932	6,181,439	6,396,422
5,103,407	5,367,360	5,594,556	5,818,498	6,043,865	6,186,068	6,396,618
5,111,308	5,384,648	5,600,448	5,854,883	6,060,208	6,189,452	6,407,849
5,113,249	5,384,899	5,608,822	5,861,904	6,063,528	6,191,882	6,414,755
5,122,871	5,412,491	5,615,282	5,861,992	6,063,546	6,204,874	6,422,801
5,124,547	5,412,737	5,625,766	5,875,288	6,072,518	6,208,369	6,435,091
5,132,723	5,420,702	5,636,330	5,894,342	6,090,529	6,214,276	6,441,914
5,150,225	5,420,722	5,649,220	5,900,981	6,096,461	6,217,965	6,450,092
5,153,769	5,459,505	5,650,076	5,934,196	6,098,544	6,260,482	6,456,396
5,155,782	5,473,733	5,652,804	5,942,137	6,107,011	6,266,080	6,476,931
5,157,516	5,481,379	5,680,129	5,946,426	6,112,663	6,266,134	6,477,955
5,208,818	5,488,906	5,691,823	5,947,028	6,115,056	6,267,054	6,509,903
5,208,888	5,497,252	5,691,828	5,958,647	6,121,996	6,268,948	6,541,181
5,247,174	5,508,828	5,696,393	5,966,504	6,130,702	6,283,589	6,545,772
5,249,067	5,509,561	5,699,174	5,969,872	6,134,393	6,295,076	6,564,018
5,283,140	5,517,359	5,699,740	5,973,801	6,136,509	6,299,572	
5,291,273	5,519,852	5,708,736	5,986,819	6,137,580	6,318,266	
5,323,248	5,526,143	5,713,287	5,995,475	6,147,789	6,352,816	

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Dear Customer:

Please take a few moments to read through this document.
This document provides guidelines for preparing your site for the **Lotem 800** platesetter installation.

To achieve maximum reliability from your platesetter, please work together with your Creo service engineer to ensure that you have all the required details. Proper preparation of your site will help to prevent unnecessary problems and delays when installing the **Lotem 800**.

Note: **This site preparation guide applies to the Lotem 800, Lotem 800 (F-Speed), and MCU for Lotem 800 and Lotem 800 with GTO. Throughout this document, the Lotem 800 is mentioned and applies to all platesetters in the Lotem 800 family, unless otherwise specified.**

Note: **This site preparation guide applies to single cassette, dual cassette and multi-cassette configurations. Throughout this document, the Lotem 800 is mentioned and applies to all configurations, unless otherwise specified.**

The following topics are discussed:

- Pre-installation checklist; the checklist summarizes, in a table format, the various topics discussed in this document. Review this checklist to ensure that you have prepared and considered all the necessary requirements.
- Floor space requirements
- Lotem 800 site dimensions
- Weight requirements
- Electrical requirements
- Environmental conditions
- Other conditions
- Network/modem requirements
- Processor specifications
- Plates and proofing media
- Appendix A summarizes the customer configuration requirements.
- Appendix B airborne emission disclosure

A punch configuration order form is also provided in this kit:

- Punch and Plate Configuration Order form

Please be sure to fill in the form and return it to your Creo representative to ensure a quicker and more accurate installation.

Pre-installation Checklist

Before arrival of the **Lotem 800** at your site, you should prepare a final layout of the installation site and make sure that all requirements are met. Use the following table that lists the necessary pre-installation items.

	Requirement Item	Done ?
1.	Adequate space according to the customer configuration – see appendix A	☐
2.	Access to and operation of the Lotem 800 & MCU	☐
3.	Fork lift to lift the packaging and the platesetter & MCU	☐
4.	**Electrical requirements**	☐
5.	Voltage settings	☐
6.	Power cable connectors	☐
7.	Power line disturbances	☐
8.	Grounding	☐
9.	Cable routing provisions, according to the distances between the equipment at your site	☐
10.	**Environmental conditions**	☐
11.	Cleanliness	☐
12.	Static electricity	☐
13.	Humidity	☐
14.	Room ventilation	☐
15.	Air conditioning	☐
16.	Yellow safe light (for Kodak green plate requiring preheating).	☐
17.	Thermometers and humidity meters/recorders - recommended	☐
18.	Air supply	☐
19.	Cables for communication network	☐
20.	Telephone line	☐
21.	Operational processor/chemicals	☐
22.	Plates and proofing media	☐
23.	Storage space for plates	☐
24.	Densitometer or spectrophotometer for proofing media	☐
25.	Provide Creo engineer with requested punch configuration.	☐

Space Requirements

Floor Space

The minimum required floor space depends on the **Lotem 800** configuration at your site. For example:

Does the configuration include an on-line processor or is the platesetter connected to a plate stacker that collects the exposed plates.

Does your configuration include single, dual or multi cassette?

Please ensure to provide enough space to situate and operate your platesetter. See the attached diagrams for detailed dimensions of the **Lotem 800** configuration (at the end of this document).

Note**: It is recommended that the Lotem Controller be located to the right of the platesetter, as shown in the figure.**

The floor must be level, with a maximum incline or waviness of 1.25 cm (0.5 in) across the footprint. It is recommended that the site be prepared for the Lotem 800 with MCU, even if only the **Lotem 800** is initially installed.

The purpose of this section is to describe the site preparation limitations for the **Lotem 800** and to extract the permissible level and incline of the floor.

A) The Lotem cassettes are not vertically adjustable.

B) The opening does not set a limitation on the angle and system location due to increased flexibility of the plate track between it and the machine.

C) Every unreasonable local flaw with the site floor is the users responsibility.

Conclusions:

A) Due to high leg adjustment and consideration of uniformity, it is possible to accept certain limitations. The definition of limitation is therefore 8 mm/m for the entire machine and cassette surface.
That is, the vertical height for the distance between the placements of the machine legs will not exceed 8 mm. This limitation takes into account incline and local setting.

B) A second limitation regards the location of the cassette trolley legs. The horizontal variation in the 4 legs should not exceed 2 mm.

Weight and Dimensions

	Weight	Dimensions
Lotem 800 platesetter	• 1100 kg (2428 lb) • 1250 kg (2755 lb) - with crate	• 2110 x 1370 x 1400 mm (83 x 54 x 55”) • 1250 x 1580 x 1580 mm (49 x 62 x 62”) - crate
Single Cassette Unit (SCU)	• 85 kg (187.4 lb) • 170 kg (374.8 lb) - with 100 8-Up 0.3 mm (12 mil) plates • 181 kg (82 lb) - crate	• 1250 x 1000 x 713 mm (50 x 39 x 28”) • 1400 x 1400 x 700 mm (55 x 55 x 2.7”) - crate
Dual-Loading Cassette (DLC)	• 100 kg (220 lb) • 170 kg (374.8 lb) - with 100 8-Up 0.3 mm (12 mil) plates • 196 kg (89 lb) - crate	• 1250 x 1240 x 713 mm (50 x 49 x 28”) • 1400 x 1400 x 700 mm (55 x 55 x 27.5”) - crate
Multi-Cassette Unit (MCU)	• 1095 kg (2414 lb) • 1520 kg (3351 lb) - with 500 8-Up 0.3 mm (12 mil) plates • 1247 kg (2749 lb) - with crate	• 1600 x 1370 x 1333 mm (63 x 54 x 52.4”) • 2050 x 1650 x 1600 mm (80 x 65 x 63”) - crate
Transformer	100 kg (220 lb)	700 x 480 x 750 mm (27.5 x 19 x 29.5”) - crate

Note: The platesetter packaging should be lifted only **from one side, as clearly marked by the label on the packaging. The Platesetter should be lifted from the shipping pallet** only **at the designated locations, clearly marked on the Platesetter chassis.**

Note: Floor should be able to support a point load of 50 kg/cm².

Lotem 800 with MCU

Prerequisites for Lotem 800 connection to the MCU are as follows:

NUC Comp level P

Lotem Application version:

for Lotem 800 FH: 3.20.01 and up

for Lotem 800 Quantum: 3.50.05 and up

Brisque software

for Lotem 800 FH:and for Lotem 800 Quantum: 4.097_17 and up

MCF Board - Comp level P and up

MCU Control Board – Comp level L and up

Electrical Requirements

General Considerations

The total power consumed by your system is determined by the selected system configuration. Remember to allow sufficient margin for system expansion when calculating the required electrical capacity.

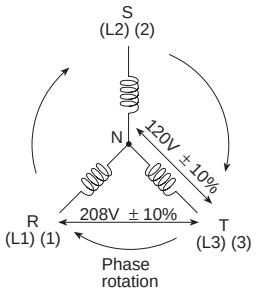
Prior to connecting the electrical power supply, ensure that all voltage settings, fuses and cords are in full accordance with local standards.

Note: **Make sure the electrical requirements are met as it is vital to ensure your platesetter functions properly. Correct power supply will ensure a quicker and more accurate installation. If you have any questions to the instructions provided, please call your Creo representative.**

Power Line

- Line voltage at the customer's site – 208V/120V ±10%, 3 phase (Star) 20A, 7.5 KW. The connector to be supplied by the customer (male & female). The electrician at the customer's site should connect the three-phase R.S.T according to the three-phase sequence of the connector on the platesetter power cable. The customer should have a 5-pin connector – 3 phase R.S.T, Neutral & GND, 30A for 120V line voltage (NEMA L21-30P), and 16A for 220V line voltage.

Note**: For safety reasons, the connector amp must always be higher than the supplied current. Therefore you must use a 30A connector.**



- Voltage variations should not exceed ±10% of the rated nominal voltages, with maximal frequency variations ±2 Hz of the rated frequency.
- Sags and surges should not exceed 20% of nominal voltage, having maximal duration of 10 m Sec.
- The machine is designed for 110Vac mains. In regions with mains nominal voltage of 200-240Vac, a step down transformer is required (supplied with the system).
- Power supply for Workflow workstation + Lotem Controller– 120V ±10% or 220V ±10%
- Frequency – 50/60 ±2%
- For countries with a line power of 220V – a step-down transformer is used, from 346/200,

380/220 or 415/240 to 208/120V (3 phase). The transformer can be purchased from Creo. Transformer – height 550 mm (22 inch), width 320 mm (12.5 inch), length 520 mm (20.5 inch).
The wall connector must have a 3 pole protection fuse, within it a circuit breaker with high transient currents (for LV/LV transformers) for 16A magnetic releases operating between 10-14 In (startup current).

- An additional isolated single-phase 110V outlet is required for service purposes.
- Additional power is required for the **Processor**, **Pre-heat ovens**, **Baking ovens**, and/or **Plate stacker**. Refer to vendor's specifications, and see *Appendix A, Table 2*.
- There is no direct connection from the wall outlet power supply to the MCU.
- The MCU for Lotem 800 is connected directly to the **Lotem 800** platesetter E-Box unit.

Note: **Customers in North America must add a dedicated 3-pole circuit breaker (Neutral is not fused) rated 15 Amp, with minimum 5000 A interruption capacity and CSA or UL approved to standard C22.2 No. 5.1 and UL489.**

Power Line Disturbances

The reliable operation of computer systems depends on the availability of relatively noise-free AC power.

Lighting, line faults, or power switching, commonly found in machinery or equipment in office or factory environments, can generate line transients, which far exceed the peak value of the applied voltage. If not attenuated, these micro-second pulses can disrupt system operation. The use of a power stabilizer is highly recommended in such cases.

Grounding

At 60 Hz sites, 110 VAC and 208 VAC grounds tied by AWG #1 solid copper wire to the main power ground point of the building.

At 50 Hz sites, 220 VAC and 380 VAC grounds, tied by 40 mm solid copper wire (7 mm in diameter) to the main power ground point of the building.

Grounding requirements for the **Lotem 800** – and all equipment communicating with it – should be observed to ensure trouble-free operation.

Grounding requires the following:

- Grounding wires that are insulated and at least equal in size to the phase conductors.
- Ground impedance less than 2 Ohms.
- A single point and dedicated ground.
- Power stabilizer equipment that is supplied by three (3) uninterrupted phase wires, and one uninterrupted copper ground wire, from the main building entry service panel. These should run in the same conduit and be at least equal in size to the phase wires.
- Neutral and ground are bonded together in the main building entry service panel, and a good earth ground at this point of not more than 2 Ohms impedance.
- Each system load (such as Platesetter, Host) is fed through an isolated ground outlet and has a separate ground, as well as neutral and phase line of equal size wire.

Note**: Chained neutrals and grounds are not permissible.**

Cable Protections

Prepare proper cable protection for the cables connecting the Lotem 800 and the Lotem Controller.

The maximum distance between the **Lotem 800** and Lotem Controller is 4.5 meter (13.5 feet).

UDRC (Universal Debris Removal Cabinet) Requirements

Note: For more information, see *Universal Debris Removal Cabinet (UDRC) Site Preparation* document, 725-00089A.

Electrical & Power Requirements

The appliance inlet is the AC mains disconnection point for the UDRC (for servicing and in the event of fire).

Ensure that the branch circuit breakers, power cords, and plug are in full compliance with the local Electrical Standards.

Cables, Hoses, Connectors and Receptacles

Hose and Data Cable

The UDRC is supplied with a 3 m flexible hose and a 3 m data cable.

The UDRC must therefore be positioned within 3 m of the hose and cable attachment point on the rear of the output device.

This attachment point is typically located near the lower left corner as viewed from the rear of the output device.

Power Cables and Receptacles

Table 1: Power requirements for North America and Japan

Cables	**Supplied by Creo**	Required by Customer
UDRC power	IEC320, Type C20 appliance inlet (see Figure 2). Detachable 4.5 m (15 ft) power cord[1] with IEC320 Type C19 connector at the device end and a L6-15P plug at the other end (see Figure 1)	Dedicated 15A, 200-240V branch circuit and L6-15R receptacle.

Table 2: Power requirements for Europe, Australia and SE Asia

Cables Required by Customer	**Supplied by Creo**	Required by Customer
UDRC power	IEC320, Type C20 appliance inlet (see Figure 2). Detachable 4.5 m (15 ft) power cord[2] with IEC320 Type C19 connector at the device end and no plug[3] at the other end (see Figure 2).	Dedicated 16A, 200-240V branch circuit with standard receptacle and mating plug for power cord.

Note: **The above specified input voltages require balanced power inputs (Line1 to Gnd = Line2 to Gnd or Line1 to Gnd = Line1 to N) with tolerances of +6% to –10%. The specification for frequency is 50/60 Hz ± 1.5%.**

Table 3: Power cord plug wiring installation guide

Wire Insulation Color	Branch Circuit/Plug terminal
Brown	Line 1
Blue	Neutral or Line 2
Green/Yellow	Protective earth (ground)

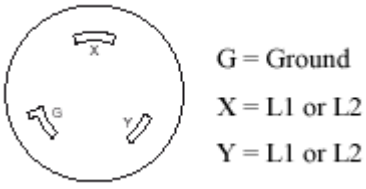


Figure 1: L6-15P plug



Figure 2: IEC320 Type C20 appliance inlet

Environmental Conditions

Air Supply Requirements

Minimum airflow:

	LOTEM 800	**LOTEM 800 (F-Speed)**
Airflow	7 Liter/sec (15 Ft^3/m)	8.5 Liter/sec (18 Ft^3/m)
Airflow for air tank calculations	24 Liter/sec (51 Ft^3/m) for 30 sec every 4 minutes.	24 Liter/sec (51 Ft^3/m) for 30 sec every 2.5 minutes.

Note**: The air tank should be large enough to enable the airflow without going lower than 6 bar.**

Pressure: 6 bar (90 psi) minimum

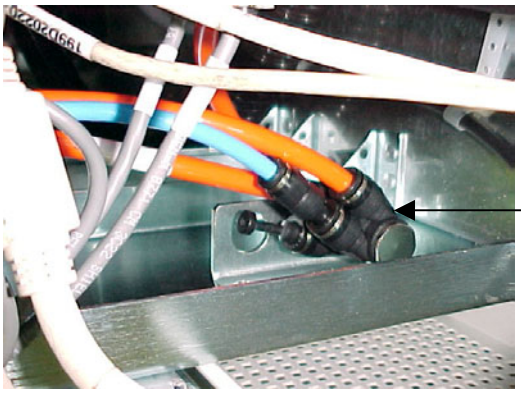
Air Quality – according to ISO 8573-1 –CLASS 4

- **Dew point**: 3°C @ 8 bar (37.4 °F @ 120 psi)
- **Max. Particle Size**: 15 µm (0.006")
- **Max. Concentration of Solid Contamination**: 8 mg/m³ (0.000216 oz/yd³)
- **Max. Oil Content**: 5 mg/m³ (0.000135 oz/yd³)

A standard ½" NPT female outlet connector is required. It should be mounted on the wall up to 5 meters from the machine.

Note**: The temperature of the airline going from the drying device to the machine must be kept above 3° C (34.7°F)!**

Note**: On Lotem machines with** Omron **type interlocks, the MCU connection to the air supply will be from the inside the of the machine in the air splitter system connection unit and not from the pneumatic control unit (see figure).**



Static Electricity

Humidity must be 55% ±5% to reduce the static electricity with the plates (low humidity can cause plate and paper jamming). See *Humidity* below.

Use of floor carpeting is not recommended in the **Lotem 800** area. If carpets are used, only anti-static carpets should be installed at the site. The carpet thickness should be up to 0.5 inch (12 mm).

Humidity

An industrial steam humidifier is required to sufficiently meet the humidity specified for the area in which the platesetter resides (relative humidity of 55% ±5%).

Workroom Ventilation

Ensure that the following specifications are met for each **Lotem 800** that is installed in the workroom.

- The workroom must include at least one door or a window that can be opened to facilitate cross ventilation.
- There must be a fresh-air supply of at least 600 m3/hr per **Lotem 800**.

Note: **The above specifications are for each** LOTEM 800 **platesetter. For example, if two** Lotem 800 **platesetters are installed in the workroom, there must be a fresh-air supply of at least 1200 m3/hr.**

Note**: All plates are sensitive to static electricity that may cause double feeding and jamming if the humidity is out of range.**

Air Conditioning

Sufficient air conditioning should be present to provide heat dissipation for the platesetter, **plus** all additional equipment residing in the system room, and an additional minimum 25% safety margin.

The platesetter requires a constant temperature of 25°C ±5°C (77°F ±9°F).

To calculate the air conditioning requirements for the **Lotem 800** configuration at your site (in BTU/hour), see the tables below.

Basic configuration:

Platesetter	12,000-16,000 BTU/hour
MCU	Negligible
Host	2,500 BTU/hour
Other Misc.	1,500 BTU/hour
Safety margin (25% of above)	6,250 BTU/hour
Total	22,250-26,250 BTU/hour

Additional optional devices
(fill in as required - see *Appendix A, Table 2* for a complete site configuration):

Pre-heat convection oven	BTU/hour
Plate processor	BTU/hour
Post-bake oven	BTU/hour
Bake conveyor	BTU/hour
Rinse/Gum unit	BTU/hour
Plate stacker	BTU/hour
Safety margin	BTU/hour
Total of Basic (previous)	22,250-26,250 BTU/hour
Total	BTU/hour

Note the following guidelines:

It is recommended that the airflow in the system room be maintained above the normal air pressure, in order to prevent dust from entering the room.

The system room should ideally contain both a thermometer and a hygrometer, permanently mounted in a central location.

In addition, it is highly recommended that you have a humidity and temperature recorder.

Cleanliness

Filters in the air conditioning system should be able to block 60% of all 10 micron dust particles.

Processor Specification

The processor specifications may vary and depend on the specific processor used at the customer's site. The processor vendor should provide the relevant information.

Plates

The **Lotem 800** supports thermal plates that are sensitive to IR 830 nm wavelength.

Note**: All plates are sensitive to static electricity that may cause double feeding and jamming if the humidity is out of range.**

Storage room for plates; please consult the plate vendor for the recommended humidity and temperature ranges in which the plates should be stored.

Consult your vendor regarding a plate densitometer that is adequate for thermal media.

Some plates, such as Kodak IDTP, are sensitive to UV light. When such plates are used and the **Lotem 800** is directly connected to the plate stacker, you need to use an appropriate safe light.

Network Requirements

- Two (2) network RJ-45 (twisted pair) sockets:
    - One socket near the **Lotem 800** to connect the Lotem Controller to the network.
    - One socket near the Front End Device.
- For improved system productivity, it is recommended that you prepare a 100BaseT network.
-

Remote Support Requirements

Make sure you have a dedicated telephone line to enable Remote Support.

Remote Support allows us to provide you with better, more efficient and quick service.

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Appendix A - Customer Configuration Requirements

The Customer is fully responsible for contacting the vendors and obtaining all the necessary installation information.

Table 1 - Power Requirements

To prepare your site, please contact your vendor and obtain all the necessary information.

Mark here	Device	Power Requirement		Heat Dissipation (in BTU/hour)	
		ref values	customer config.	ref values	customer config.
✓	Lotem 800	110V, 3 phase 6KW		12,000 - 16,000	
✓	Workflow workstation + Lotem Controller	110V - 220V, one phase		2,500	
	Pre-heat convection oven	See vendor's specifications		See vendor's specifications	
	Plate processor	See vendor's specifications		See vendor's specifications	
	Bake oven	See vendor's specifications		See vendor's specifications	
	Bake conveyor	See vendor's specifications		See vendor's specifications	
	Rinse/Gum unit	See vendor's specifications		See vendor's specifications	
	Plate stacker	See vendor's specifications		See vendor's specifications	
			Total ☛		

Appendix B - Notice

The imaging of some media may result in airborne emissions. This Notice is intended to provide general information relating to these emissions only. For information specific to particular media, please refer to the media manufacturer's MSDS or other documentation.

The by-products of the imaging of printing media may include one or more of: aldehydes (formaldehyde, acetaldehyde); oxides (nitrogen dioxide, nitric oxide, carbon monoxide); volatile organic compounds and olefins (benzene, 1,3-butadiene); other gaseous compounds (hydrogen cyanide, etc.); and particulate matter (dust). This list is not comprehensive, and other compounds may be present in the emissions, depending on particular media.
To help prevent contamination and to improve reliability of imaging, the Creo output device may include a debris removal system containing a filtration unit, either internal or external (e.g., a Universal Debris Removal Cabinet), corresponding to qualified media used at a particular site. Depending on the configuration of the filtration unit, the unit may trap dust only (e.g., UDRC- BP), or it may trap dust and a number of gaseous by-products of the imaging process (e.g., UDRC - LC). It is critical to change the filters in the filtration unit on a regular basis.

Not all emissions can be efficiently captured by filtration. Sufficient outdoor air ventilation must be provided in rooms where Creo output devices and filtration units are located. The requirements to ventilation rate are contained in either Output Device Site Preparations & Requirements Document or another applicable document.

Creo cannot assure occupational safety under all operational conditions because of factors that are outside the control or knowledge of Creo. These factors include, but are not limited to:

- Inadequate air ventilation or poor air mixing in the imaging room, which may cause higher than expected emissions concentrations in all or parts of the room
- Imaging of media that were not qualified or pre-approved by Creo; in particular, media not qualified for use with a debris removal system or a filtration unit specified in the Creo Sales Agreement, Customer Agreement, Order Form, Service Agreement, Output Device Configuration, or similar applicable document
- Changes to the qualified printing media formulation or manufacturing process made by the media manufacturer after qualification, resulting in emissions changes (this may cause different or greater emissions than expected)
- Incorrect or incomplete specification of potential emissions to Creo by the media manufacturer, which may cause different or greater emissions than expected
- Combined action of airborne emissions from multiple compounds, which may – through cumulative or synergistic effects – cause greater than expected effects on human health
- Airborne emissions from other sources combining with the imaging system's emissions to exceed occupational health regulations or having cumulative effects on human health greater than those expected for individual emissions

- Variation in individual sensitivity to airborne emissions that may cause greater effects in susceptible individuals
- Tampering with, misuse, or incorrect maintenance of imaging equipment or emissions safety systems, which may cause additional emissions to occur
- Non-compliance with instructions in user guides, warning labels, site preparation or other Creo documents which may cause excessive emissions levels
- Changes in occupational health regulations or industrial hygiene practices that may result in a system that is considered safe upon original installation, but is found to be unsafe at a later date.

Because of variables such as those listed above, many of which are in the control of the end user or the media manufacturers, Creo cannot warrant that, under all imaging system installations and operating conditions, including the use of a filtration unit, and with all media types, media will not release emissions while being imaged that an operator or other persons may find objectionable or may claim to be injurious. CREO'S ONLY WARRANTY AND LIABILITY, IF ANY, SHALL BE AS PROVIDED UNDER ITS STANDARD TERMS OF SALE OR CUSTOMER AGREEMENT, AS APPLICABLE. Neither this Notice nor the Site Preparations and Requirements Document or other similar document is a promise or guarantee of a particular level of performance, and neither this Notice nor the Site Preparations and Requirements Document or other similar document is a warranty of any kind whatsoever. It is the end user's responsibility to ensure continuing compliance with all Occupational Health & Safety regulations and guidelines in its work environment.

- Variation in individual sensitivity to airborne emissions that may cause greater effects in susceptible individuals
- Tampering with, misuse, or incorrect maintenance of imaging equipment or emissions safety systems, which may cause additional emissions to occur
- Non-compliance with instructions in user guides, warning labels, site preparation or other Creo documents which may cause excessive emissions levels
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