

envisionTEC

Technical Guide

Envision One: Site Preparation

The instructions below show how to put together the physical space and computer requirements for the Envision One cDLM and its accessories. This document must be fulfilled before the printer is un-crated. Please keep on hand for reference.

Fig. 1 ENVISION ONE CDLM WITH O2 CONCENTRATOR



Air Quality Considerations

Use the Envision One in a calm atmosphere. High levels of impurities in the air may find their way into printed models. Maintain a space with little or limited:

Humidity: Must be below 45%

Dust: *Do not place the printer near polishing stations.* Protect the printer's internal components from dust

Smoke
Steam

Distance the printer from climate control systems. Direct airflow onto or within the printer's footprint are not allowed. This includes:

Air conditioning (window, wall, or otherwise). The air conditioner must be at least 10' (3 meters) from the printer.

Fans (ceiling, tabletop, or similar)

Heaters (space heaters or otherwise)

Heat near or created by the printer must be allowed and able to dissipate. Humidity will be especially detrimental to casting workflows.

The Envision One printer requires an oxygen concentrator in order to print. **The room the oxygen concentrator is installed in must have no less than 1 cubic foot per minute for ventilation.**

Footprint

Printer: 70 lbs. **Dimensions:** 15.4 x 16.93 x 30.5 inches (39.12 x 43 x 77.5 cm)

Oxygen Concentrator: 12 lbs. **Dimensions:** 12.2 x 6.5 x 12.2 inches (31 x 16.5 x 31 cm)

The Envision One must be installed on a surface that can comfortably hold over 75 pounds (34 kg). Confirm that the destination meets this requirement before un-crating the printer. Make sure the Envision One is placed on a sturdy surface. Avoid locations with:

- Heavy foot traffic
- Nearby construction
- Vibrations
- Uneven tables
- Soft-topped tables

The oxygen concentrator weighs 12 pounds (5.44 kg) and is made to sit on the floor near the printer. The concentrator connects to the printer via a 6 foot long tube and as such, the concentrator must be within 5 feet (152.4 cm) of the printer to allow room for slack.

Avoid Sunlight and Water Sources

Do not expose the printer to any direct sunlight or UV radiation. Keep the Envision One away from windows whenever possible. Windows invite direct sun exposure and temperature fluctuation.

Keep the printer away from water sources, such as sinks, tubs, wash stations, etc.

Refer to the DLP Local Light Sources Technical Guide for information on protecting your printing workspace from potentially damaging effects caused by local lighting. Contact EnvisionTEC support, or an authorized distributor, to obtain the technical guide.

Temperature

Ensure that the room temperature remains within the following range:

- Minimum temperature of 73° F (23° C)
- Maximum temperature of 85° F (28° C)

Follow the temperature instructions for each material that is being used. These instructions can be found -

- On the label of the material bottle
- Extended instructions are located in the best practices guide for that material

The ideal working temperature is 73° F or 23° C.

Electrical Requirements

All electrical requirements must be met to ensure the most stable setup. Use a battery backup whenever possible.

Ensure there is a sufficient clean electrical socket that fluctuates no more than +/-3% from its baseline.

Do not plug any additional equipment into the power circuit.

The Envision One requires 110 volts with no less than 5 amps.

The oxygen concentrator adopts 220V / 110V AC power supply.

Plug the printer and oxygen concentrator into separate surge protectors or separate battery backups. If your electrical line is prone to spikes and dips, you will need to use a UPS battery backup system for the printer and the concentrator with a switch changing time of less than 1 millisecond.

The Envision One does not require a dedicated server. It can be connected wirelessly, hard-wired into the network, or directly connected to a computer.

The warranty does not cover damage caused by brown outs, black

outs, or electrical surges. EnvisionTEC offers a battery backup for purchase that meets these requirements.

Creating a Workspace

Printing Zone

The Envision One requires a minimum amount of space for operation, maintenance, and heat dissipation.

- A Minimum of **18 inches behind** the printer
- A Minimum of **24 inches on the left and right side** of the printer
- A minimum of **48 inches above the table-top**

This minimum distance allows:

- Full operation of the printer
- Access to the power, Ethernet, and USB ports
- Space for heat dissipation
- Space for maintenance

The oxygen concentrator requires floor space near the printer for operation and heat dissipation. Air intakes are located on the upper back and bottom of the concentrator and require constant airflow.

- Situate the concentrator so that there is at least **12 inches (30 cm) of space between the concentrator and any walls, curtains, or other obstructions.**

Post Processing Zone

The post processing zone is located in a separate space from the printing zone and has three main areas -

- Cleaning area** for the PWA 2000 (parts washer), 99% IPA, cleaning tools (brushes, paper towels), and air system
- Post curing area** for the curing unit. EnvisionTEC recommends the Otoflash curing unit for medical materials, and the PCA 4000 for all other materials
- Finishing area** for support removal, sanding, and polishing as needed

If the PWA 2000 was not purchased, two or more plastic containers with lids can be used for the 99% IPA instead.

Situate the PWA 2000 in a well ventilated place away from sources of heat with at least **8 inches (20 cm) of space between the parts washer and any walls, curtains, or other obstructions.** Refer to the [PWA 2000 User Guide](#) for more detailed information.

Situate the curing unit in a ventilated area away from sources of heat and away from flammable materials and liquids. Keep the curing unit at least 8 inches / 20 cm from the wall. Refer to the [PCA 4000 User Guide](#) and the [Otoflash](#) section in the Support Center for more detailed information.

System Requirements

Every Envision One printer includes a USB drive with complimentary computer software that processes models digitally for 3D printing. The software is called Envision One RP. This software is required for printing.

The software works with Windows operating systems exclusively.

Envision One RP

- Operating System:** Windows 7 64-bit or Windows 10 64-bit
- RAM:** ≥ 8 GB RAM
- Hard Drive:** 400 MB of free space
- CPU:** Multi-Core Processor e.g. Core i5, ≥ 3 GHz, ≥ 6 MB Cache
- Graphics:** Dedicated 3D graphics card with ≥ 1 GB memory and OpenGL 4.3 support
- Network:** Gigabit Ethernet

Crate Storage

The Envision One will arrive in a wooden crate. The owner of the printer is responsible for keeping the shipping packaging for warranty purposes. Do not throw away shipping packaging. It is important to mark out a space for crate and box storage before the printer arrives. The crate is needed for -

- Relocation of the printer
- To ship the printer back to factory for upgrades or service needs

Once the Printer is Removed from the Packaging

The crate weighs 63 pounds and may require a dolly to move. The crate should be stored fully assembled. When it is time to move the packaging into storage, reinsert the padding into the crate. Add the padding from accompanying boxes - see below. Break down any additional boxes that arrived with the crate, fold them, and insert them into the crate. Re-seal the crate using the original brackets that the crate shipped with.

- Place the crate in storage with a "*Please do not discard, this crate accompanies 3D printer*" sign attached to the sides.

Oxygen Concentrator Packaging

The oxygen concentrator for the Envision One printer ships in a separate box. To store, remove the padding and place into the crate along side of the printer padding. Cut the tape, flatten the cardboard, and set near the crate for safe keeping.

Accessories

A third box may arrive containing the curing unit and parts washer if purchased. Repeat the steps used to store the oxygen concentrator packaging.

Shipping Specs

General weight and dimensions of the delivery are listed below. These are estimations and will vary with each shipment. Plan to move the crate and / or printer with two individuals to decrease the chance of personal injury.

Box 1:

- Printer Crate:** 63 lbs. Dimensions: 22 x 22 x 44 inches (55.88 x 55.88 x 111.76 cm)
- Printer:** 70 lbs. Dimensions: 15.4 x 16.93 x 30.5 inches (39.12 x 43 x 77.5 cm)
- Starter Kit:** 1.5 lbs. Dimensions: 10.75 x 7.25 x 6.5 inches (25.4 x 17.78 x 15.24 cm)
- Material Tray(s)**

Box 2:

- Oxygen Concentrator:** 12 lbs. Dimensions: 12.2 x 6.5 x 12.2 inches (31 x 16.5 x 31 cm)

Box 3 (Optional):

- PCA 2000 (curing apparatus):** 23 lbs. Dimensions: 14.33 x 15.9 x 12.55 inches (36.4 x 40.4 x 31.9)
- PWA 2000 (parts washer):** 14 lbs. Dimensions: 12.6 x 13 x 9.69 inches (32 x 33 x 24.6 cm)

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