

# ProCure™ 350 UV Chamber



## User Guide

Original Instructions

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## **Introduction**

Thank you for purchasing a ProCure 350 UV Chamber. We pride ourselves in our ability to offer customers three dimensional modeling solutions. The 3D Systems team is confident your system will provide many years of service.

## **Copyright and Trademarks**

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## **FCC NOTICE**

This equipment has been tested and found to comply with the limits for a class "A" digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their expense. Changes or modifications not expressly approved by 3D Systems could void your authority to operate this equipment.

## **LIMITATIONS OF WARRANTY AND LIABILITY**

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## Safety Symbols and Definitions



**UV RADIATION HAZARD:** Invisible UV radiation is accessible in the vicinity of this sign or behind the panel. Radiation can cause eye injury or blindness, burn injury and/or fire. Access panels are for service only and should be opened only by certified service personnel.



**ELECTRICAL SHOCK HAZARD:** High voltage electricity is accessible in the vicinity of this sign or behind the access panel. High voltage can cause severe burns or death, as well as fires. Access panels are for service only and should be opened only by certified service personnel or trained maintenance personnel.



**HARMFUL IRRITANT WARNING:** Indicates that skin or eye irritation could result while exposed to a chemical composition.



**CAUTION:** Indicates the possibility of loss of data or damage to equipment.

**WARNING:** Indicates the possibility of injury or death to personnel.



**WEAR GLOVES:** when handling materials or touching surfaces that may contain the materials.



**ULTRAVIOLET RADIATION INSIDE:** Exposure may cause eye damage. Do not operate without covers. Wear UV eye protection.

## Safety Guidelines

- Read and follow all instructions.
- Follow all safety rules in this section and heed all cautions and warnings in this guide.
- Do not attempt to open the chamber door while a part job is running.
- Do not use any material without first reviewing its Material Safety Data Sheet (MSDS).
- Dress power and communication cables at the back of the ProCure UV Chamber to prevent tripping.
- Do not attempt to access, service, or adjust the internal machine components.
- Do not use this equipment in a manner that is not specified by the manufacturer

## Resin Safety

- Do not use any resins without reviewing the Material Safety Data Sheets (MSDS).
- Wearing contact lenses when working with resins is not recommended.
- Always wear chemical-resistant gloves whenever handling partially cured parts. Recommended gloves are 100% Nitrile. Do NOT wear latex gloves.
- Always work in a well ventilated area when using resins. Avoid breathing vapors.
- Avoid getting resin on your skin. If you get resin on your skin, first rinse all of the resin off the area with **cold water only**. After thoroughly rinsing your skin, wash the area with soap and COLD water. DO NOT USE HOT WATER OR SOLVENTS to clean your skin as it will result in absorption through the skin.

## UV Safety

During operation, these lamps emit UV light in the 300 nm to 480 nm range. These lamps conform to Federal Regulation regarding medical devices (FDA) 40 CFR 801.403 and are intended for medical / industrial use only. These lamps may only be used in machinery equipped with a timer.

In normal operation, the UV light is completely confined and the user is not exposed to potentially harmful UV light. The lamps are immediately switched off when the access door is opened

Ultraviolet fluorescent lamps are not classified in a specific hazard class; however, the energy they emit is still potentially dangerous. Because the output spectrum of the fluorescent lamps ranges from approximately 300 nm to 480 nm, these lamps should only be operated inside the ProCure oven with the interlocks functioning.

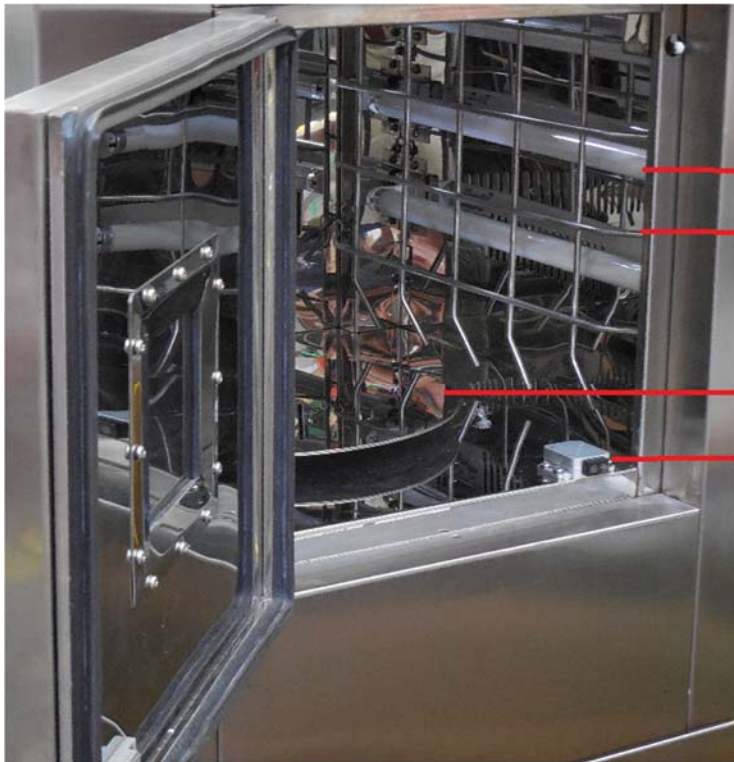
## ProCure™ 350 Overview

The ProCure 350 UV Chamber provides the final step for post-processing SLA parts. Initial post-processing of an SLA part includes the following:

- Drain excess resin
- Clean with TPM and/or isopropyl alcohol (IPA)
- Remove supports
- Dry with compressed air

After initial post processing is complete and all excess resin has been removed, the SLA part can then be placed into the ProCure 350. Within the 350, the SLA part is exposed to ultraviolet (UV) light for a specified period of time for final “curing”. The interior of the 350 is equipped with an array of UV lamps, reflective surfaces and a turntable which revolves at one revolution per minute. This ensures uniform exposure of all part surfaces to UV light and complete curing of the entire part.





UV Lamp (x9)

Protective Cage

Turntable

Door Latch



Displays the elapsed time

Displays the amount of time selected.

Key 1 - Set tenths of minute (0 - 9).

Key 2 - Set minutes (0 - 9)

Key 3 - Set minutes (0 - 9)

Reset Button

## ProCure 350 Specifications

Model Size (maximum)	35 x 35 x 35 mm (13.8 x 13.8 x 13.8 in.)
Front Loading Door	40 x 36.8 cm (15.75 x 14.5 in.)
Viewing Window	10.9 x 10.9 cm (4.31 x 4.31 in.)
Turntable Speed	1 RPM
Turntable Platen Diameter	35.8 cm (14.1 in.)
UV Source	<p>Type TLK 30W / 10 actinic fluorescent bulb.  Wavelength 300 nm to 460 nm  Quantity 1</p> <p>Type TLK 30W / 03 super actinic fluorescent bulbs  Wavelength 380 nm to 480 nm  Quantity Eight</p>
Warranty	<p>One year from installation date (USA only); includes parts and labor; excludes bulbs.</p> <p>Extended warranty options offered.</p>
Power Requirements	<p>110 – 120 VAC, 50/60 Hz, 10.0 A</p> <p>200 - 240 VAC, 50/60 Hz, 6.3 A</p>
System Size (door closed) Height x Width x Depth (H x W x D)	148.6 x 77.5 x 67.3 cm (58.5 x 30.5 x 26.5 in.)
System Size (door open) Height x Width x Depth (H x W x D)	148.6 x 77.5 x 109 cm (58.5 x 30.5 x 43.0 in.)
Net Weight	130 kg (287 lbs.)



## Operation

The table below provides the recommended curing times for each material. As a general rule, most materials require two cycles of the same amount of time. Typically the part is turned over between each cycle to make certain all surfaces are exposed to the UV light.



**WARNING: YOU MUST WEAR NITRILE GLOVES WHEN HANDLING UNCURED PARTS.**

1. Place the SLA part directly onto the turntable.
2. Close the access door.
3. Enter the amount of time needed for the particular material being cured, (45 minutes for this example).
4. Press the Reset (RST) switch
5. Press the Start button.
6. The upper display will count down the time until it reaches zero.
7. After the time expires, turn the part over (180 degrees).
8. Enter the same amount of time that was entered in step 3.
9. Press the Start button.
10. After the time expires, remove the part from the ProCure 350.
11. The curing process is complete.



As a general rule, most materials will require two cycles of exposure. Parts are turned over in the oven between cycles. The recommended time per cycle is 45 minutes.

## Lamp Replacement

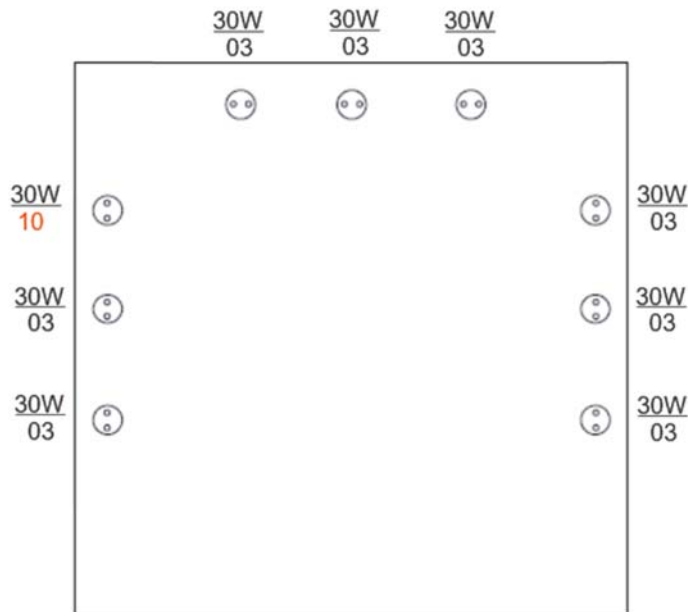


**WARNING: WARNING: WEAR A DUST MASK, NITRILE GLOVES AND SAFETY GLASSES WHEN CHANGING LAMPS. A BROKEN LAMP MAY RESULT IN EXPOSURE TO PHOSPHOR POWDER DUST AND TO ELEMENTAL MERCURY VAPOR. THE PHOSPHOR CONTAINS THALLIUM, WHICH CAN BE ABSORBED THROUGH THE SKIN OR INHALED.**

Tubular 30W / 03 Fluorescent lamp (P/N 23363-126-00).

Tubular 30W / 10 Fluorescent lamp (P/N 23363-139-00).

The figure below shows the position for each type of lamp. Make certain when replacing lamps to refer to this figure for location and type of lamp.



Front View of Oven

To remove and replace a lamp:

1. Disconnect the 350 power cord from the AC power source.
2. Remove the turntable.
3. Use a #2 Phillips screwdriver to remove the attaching hardware securing the cage and remove the cage.
4. Remove lamps by twisting the lamp counterclockwise  $\frac{1}{2}$  turn.
5. Make certain the replacement lamp is the same type as the lamp that was removed.
6. Install the replacement lamp and secure in place by twisting the lamp  $\frac{1}{2}$  turn clockwise.
7. Replace the protective cage.
8. Connect the 350 power cord to the AC power source.

## Broken Fluorescent Lamps

In the event that a fluorescent lamp is broken, you must perform the following procedure in order to safely clean the area.



**WARNING: WEAR A DUST MASK, NITRILE GLOVES AND SAFETY GLASSES WHEN PERFORMING THIS PROCEDURE. A BROKEN LAMP MAY RESULT IN EXPOSURE TO PHOSPHOR POWDER DUST AND TO ELEMENTAL MERCURY VAPOR. THE PHOSPHOR CONTAINS THALLIUM, WHICH CAN BE ABSORBED THROUGH THE SKIN OR INHALED.**

1. Instruct all personnel to leave the area.
2. Open exterior doors and windows to ventilate the room.
3. Leave the room for 15 minutes.
4. Before re-entering the room to begin cleaning, you must be wearing disposable gloves, dust mask and safety glasses.
5. Clean up broken glass using pieces of stiff paper or cardboard, (such as an index card). Do not use a broom or a vacuum.
6. Start on the outer edge of the area to be cleaned and work your way across systematically. This will prevent you from collecting broken glass and phosphor powder on your shoes.
7. Use wide strips of tape (packing tape or duct tape) to pick up the remaining small pieces of glass and phosphor powder.
8. Wipe the entire area clean with damp paper towels.
9. Wipe your shoes and in particular, the bottom of your shoes with a damp paper towel.
10. Place all debris, cleaning materials including gloves and dust mask into a disposable bag and seal the bag.
11. Place the disposable bag into a hazardous waste container.
12. If your clothes were contaminated as a result of the initial breakage or because of the cleaning process, dispose of your clothing as hazardous waste. Do not leave the facility with contaminated clothing.
13. Dispose of all collected materials in accordance with all local, state and federal regulations.
14. Wash all exposed skin thoroughly.

For additional information, please see the following:

<https://www.epa.gov/cfl/cleaning-broken-cfl#instructions>

<https://www.osha.gov/Publications/OSHA3536.pdf>

## **Technical Support and Replacement Parts**

If you have questions about your ProCure system, please contact 3D Systems Technical Support Hotline:

- U.S. and Canada      1-800-889-2964
- Asia-Pacific          +852 2923 5077
- Europe                +49 (0) 6151 357-357.

Please have the following information available before you call:

- Description of the problem
- The serial number of the ProCure system

## *EC Declaration of Conformity*



We, 3D SYSTEMS, INC. herewith declare that the following described machine in our delivered version complies with the basic safety and health requirements of the EC Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006, based on its design and type, as brought into circulation by us. In case of alteration of the machine, not agreed upon by us, the declaration will lose its validity.

Nous, 3D SYSTEMES, INC. ci-joint déclarer que le suivre a décrit la machine dans notre version livrée se conforme à la sûreté fondamentaux et aux conditions de santé des Directive de CET 2006/42/EC du Parlement européen et du Conseil 17 Mai 2006, a basé au dessous sa conception et son type, comme amené dans la circulation par nous. En cas du changement de la machine, pas consenti sur par nous, la déclaration perdra sa validité.

Noi, 3D Systems inc., dichiariamo in allegato che la macchina descritta di seguito nella nostra versione consegnata e' conforme ai dettami di sicurezza della direttiva EC 2006/42/EC del Parlamento Europeo e del Consiglio del 17 maggio 2006 come da disegno e tipo di macchina, come da noi messa in circolazione. In caso di alterazione della macchina senza il nostro accordo la presente dichiarazione perde di validita'.

Description of the machine:  
La description de la machine:  
Descrizione della macchina:

**POST-CURING APPARATUS**

Machine type:  
Usiner le type:  
Tipo di macchina:

**Procure™ 350 / 750 UV Curing Oven**

Applicable EC Directives:  
Les Directives applicables de CE:  
Direttive CE applicabili:

**Low Voltage Directive (2006/95/EC)**

Applicable Harmonized EC Standards:  
Les Normes de CET Harmonisé applicables:  
Standard armonizzati CE applicabili:

**EN61326-1; EN61010-1**



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