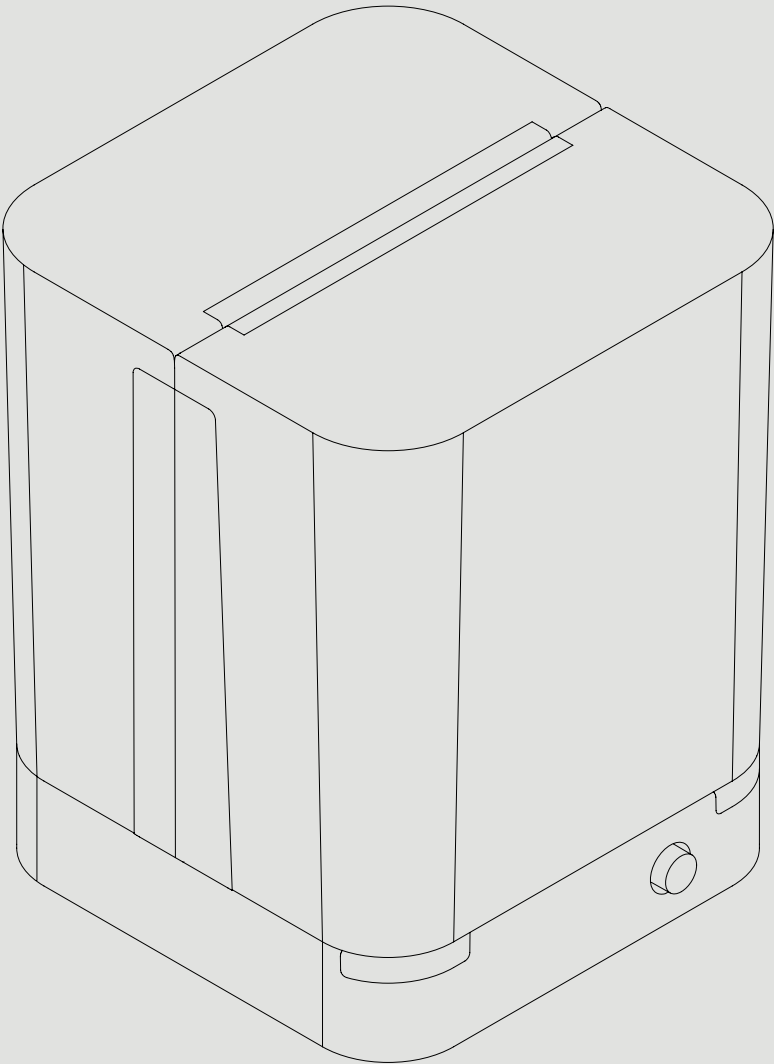


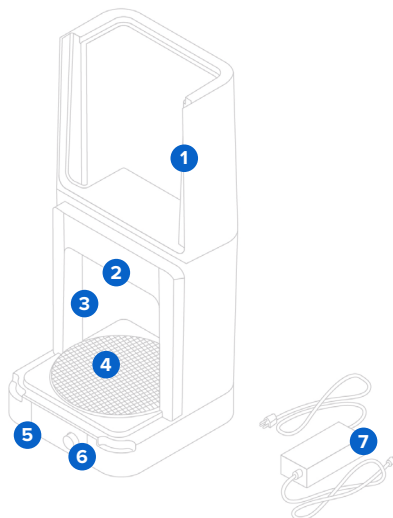
Manual | Form Cure



2.3 Product Elements

- 1 **Cover** Double walls insulate the cure chamber and internal surfaces reflect light.
- 2 **Heater** 100 W heating module can heat the chamber up to 80 °C / 176 °F.
- 3 **LEDs** An array of thirteen (13) 405 nm LEDs help to post-cure parts. Secondary lights illuminate the turntable when the cover is open and during heating.
- 4 **Turntable** Rotating plate ensures balanced post-curing across all exposed surfaces.
- 5 **Display** Shows status, time, temperature, and options for configuring the Form Cure.
- 6 **Knob** Turn or press to adjust time and temperature settings and to start, pause, or stop post-curing.
- 7 **Power Supply** Provides power to the Form Cure. Specifications: 24 V, 6 A.

See **10 Glossary** for full product terminology.



2.4 Form Cure Controls

When connected to power, use the knob to program and operate the Form Cure:

- Rotate the knob counterclockwise or clockwise to move between items in the menu.
- Press the knob to select an option on the display.

The following options are available from the main menu on the Form Cure display:

- **Start:** Initiate post-curing by activating the heater and internal LED lights. The 405 nm lights begin post-curing once the heater reaches the target temperature.
- **Time:** Press the knob to select and adjust the time, indicated in minutes.
- **Temperature:** Press the knob to select and adjust the temperature indicated in degrees Celsius.

Check each material's recommended post-curing temperature before beginning a cycle.

While preheating, the display shows the preheating status, including the current and the target temperature. After beginning a post-cure cycle, the display shows the remaining time and additional menu options. Select **Pause** to turn off the heater and LEDs, while preserving the remaining time in the cure cycle. Opening the cover automatically pauses the cure cycle. Select **End** to cancel the remaining time in the cure cycle while also stopping the heater and LEDs.

5. Using the Form Cure

5.1 Operational Environment

Operate the Form Cure in a well-ventilated room with a temperature of 18–28 °C (64–82 °F). For optimal performance, do not exceed this range.

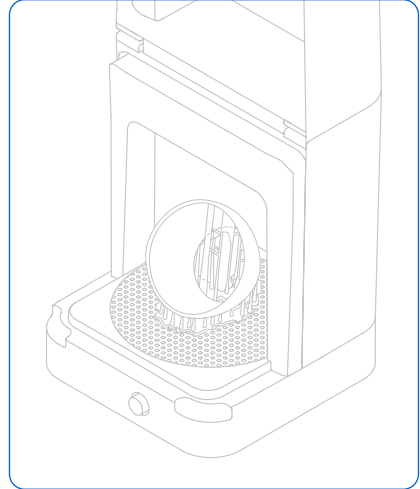
5.2 Post-Curing

5.2.1 Insert Washed and Dried Prints

Fully dry all solvent off of printed parts after washing. Check all surfaces, because curing non-dried parts may trap solvent inside the part, prevent parts from strengthening, and affect quality. Once parts are dry, lift the cover, then distribute parts on the round turntable. Place parts with the most even spacing possible to allow light and heat to reach all areas. Gently close the cover.



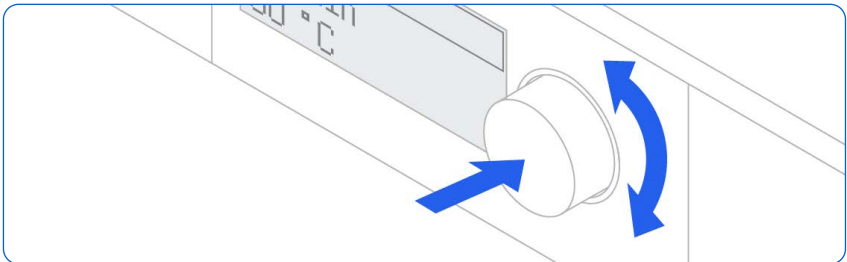
The Form Cure contains a heater to enable post-curing. Take care when inserting and removing parts from the Form Cure, because the metal turntable may be hot.



5.2.2 Set Post-Cure Time and Temperature

Turn the knob to navigate the display menu. Press the knob to select a feature or setting. Select the time and temperature, and then select **Start**. The LEDs will activate and the timer will start once the heater has reached the target temperature. Once a cure cycle has started, use the display or open the cover to pause post-curing.

See support.formlabs.com or **5.4 Time and Temperature Settings** for specific post-cure settings for each resin type.



The printed part must be in the Form Cure while it heats. If the part is not placed in the Form Cure until preheating is complete, it may cause cracking.

5.2.3 **Collect Prints**

When the cure cycle completes, the LEDs and heater will turn off. Lift the cover and remove parts. Use caution; the metal turntable may be hot.

5.2.4 **Part Finishing**

Once parts are post-cured, use the flush cutters that come in your Finish Kit or Form Wash to carefully cut the supports attached to the part(s). Supports can also be removed before post-curing, but parts may warp under exposure to light and heat without structural support.



Wear safety glasses to protect eyes from dislodged fragments of supports.

In addition to removing supports, use sanding, polishing, priming, or painting to improve presentation, or use other equipment to create molds from printed parts.

5.3 **Considerations for Specific Geometries**

Consider the specific geometry of each part when starting the post-cure cycle. Modify the post-cure process for parts that are large or long, have dense support structures, or have thick or thin features.

5.3.1 **Remove Dense Supports**

Some parts require more dense or thicker support structures. These can inadvertently block light from reaching some part surfaces during post-curing. The Form Cure helps ensure even post-curing by rotating the part during the cure cycle and exposing the part to light from all directions, including underneath the turntable. Remove some supports, only as needed, to ensure that light can easily reach all part surfaces. Leave some supports in place whenever possible to prevent features from warping during post-curing.

5.3.2 **Plan for Large or Long Parts**

The Form Cure turntable has a diameter of 19.3 cm (7.6 in), and the maximum part height that can be post-cured in the Form Cure is 18.5 cm (7.3 in). Most parts should be post-cured before removing support structures to preserve their shape and prevent warping. While some parts may fit on the turntable more easily without supports, long or tall prints may require special arrangements to stand on the turntable without support. Consider the part dimensions when designing the support structures or planning the post-cure steps.

5.3.3 **Add Time for Thick Parts**

Large or thick parts may require a longer post-curing time or higher temperatures because the part takes longer to heat. Light alone cannot post-cure beyond the surface of the part, which is one advantage of the Form Cure heating functionality. When post-curing thick geometries, warm the part before post-curing and allow extra time for the Form Cure to preheat to the target temperature before starting the post-cure lights and timer.

5.3.4 **Add Supports for Thin Features**

Warping during post-curing may occur if a part is especially thin, inadequately supported, or unevenly exposed to light. The Form Cure helps prevent warping by rotating the part during the cure cycle and by exposing the part to light from all directions, including underneath the turntable. Use support settings or manual editing to design sufficient supports so that thin features do not warp during post-curing. In the case of a thin, flat, sheet-like object, placing the part directly on the turntable may offer the best support during post-curing.

5.4 Time and Temperature Settings

For the best results, use the recommended time and temperature settings tested specifically for use with the Form Cure.

Each material's print settings are designed and refined to print parts successfully at optimal speeds. Additional post-curing further improves the functional properties of the materials. Post-curing exposes parts to light and heat and strengthens crosslinks in the polymer structure, improving the parts' strength, stiffness, and temperature resistance. Due to the increased number of bonds the material becomes more tightly packed and will shrink slightly. Each material's print settings are designed to account for the expected shrinkage during printing and post-curing. Although using a higher temperature for post-curing results in a faster post-cure, a higher temperature setting may also cause some materials to warp, depending on the part geometry and features. When choosing to modify the recommended post-cure settings, the material must be able to withstand the temperature and maintain a stable material structure. Formlabs resins are designed for printing and post-curing with 405 nm light.

RESIN TYPE	CURE	TIME (MIN)	TEMPERATURE (°C)
STANDARD RESINS			
Clear Resin	Recommended ¹	15	60
	Full Cure	30	60
Black Resin White Resin Grey Resin	Recommended ¹	30	60
	Full Cure	60	60
Color Resin	Recommended ¹	30	60
	Full Cure	60	60
Draft Resin	Better elongation	5	No heat
	Better UTS	5	60
ENGINEERING RESINS			
Tough Resin	Recommended ¹	60	60
	Full Cure	120	60
Durable Resin	Full Cure ²	60	60
Flexible Resin	Recommended ¹	15	60
	Full Cure	60	60
High Temp Resin v1	Recommended ¹	30	60
	Full Cure	60	60
High Temp Resin v2	Recommended ³	120	80
Rigid Resin	Full Cure ⁴	15	80
Grey Pro Resin	Full Cure ⁴	15	80
Elastic Resin	Full Cure	20	60
Ceramic Resin	N/A ⁵	N/A	N/A

RESIN TYPE	CURE	TIME (MIN)	TEMPERATURE (°C)
DENTAL RESINS			
Dental SG Resin	Full Cure ⁶	30	60
Dental LT Clear Resin	Full Cure ⁶	20	80
Model Resin	Recommended ¹	30	60
	Full Cure	60	60
Denture Resins	Full Cure ⁷	30 + 30	80
Surgical Guide Resin	Full Cure ⁶	30	60
Castable Wax Resin	N/A ⁵	N/A	N/A
JEWELRY RESINS			
Castable Resin	Full Cure ⁸	240	60
Castable Wax Resin	N/A ⁵	N/A	N/A

- 1 The recommended post-cure settings achieve close-to-maximum mechanical performance and minimize the post-cure time. The full post-cure settings achieve the maximum mechanical properties and require significantly more time. Use full post-cure settings when using materials for functional applications.
- 2 For parts printed with Durable Resin, the tensile modulus continues to increase steadily throughout the first hour of post-curing. There is only one proposed post-curing setting.
- 3 There are several post-curing options for High Temp v2. To achieve the highest HDT, also post-cure the parts in a non-food oven. Refer also to the technical data sheet to understand how different options affect mechanical properties, and choose the post-cure option that is best suited to the intended application.
- 4 There is no significant gain in properties after 15 minutes. There is only one recommended post-curing time.
- 5 Does not require post-curing. After washing, allow parts to fully dry before firing/casting.
- 6 This cure setting ensures that parts achieve both biocompatibility and optimum mechanical properties.
- 7 Fill a glass container with glycerin. Preheat the glycerin to 80 °C in the Form Cure. Use heat resistant silicone tongs to fully submerge the assembled denture in the glycerin, leaving the container inside the Form Cure. Cure for 30 minutes. After the first 30 minute post-cure, flip the denture to the opposite side. Post-cure again for 30 minutes.



The glycerin and denture at 80 °C are hot. Use heat resistant silicone tongs to insert and remove the denture from the curing chamber.

- 8 Cure for 4 hours to increase the part strength. After curing, follow the Castable Resin: Jewelry Pattern Burnout Process found on support.formlabs.com. Increasing the cure time may improve casting results, particularly for thicker parts, though casting success depends more on the part geometry and casting process. Testing results show no disadvantages for increasing cure time.

These settings will be updated periodically. Always refer to formlabs.com/cure-support for the most updated information about post-curing printed parts with the Form Cure.

5.5 Device Management

5.5.1 Powering Off the Form Cure

Turn off the Form Cure completely when moving or storing the device and to conserve power. To turn off the Form Cure completely, disconnect the power cord from the power source. Ensure either the wall outlet or power supply is easily accessible. The Form Cure display will automatically power off after a period of inactivity.

7. Troubleshooting and Repair

For detailed guidance and visual assistance, search on support.formlabs.com.

7.1 Restarting with a Power Cycle

If the display freezes during or after the firmware update, power cycle the Form Cure unit:

1. Unplug the unit.
2. Wait at least 10 seconds to ensure a complete power cycle.
3. Reconnect the power cable to restart the unit.

7.2 Troubleshooting

In the case of an error or abnormal activity with the Form Cure, reference the following errors, causes, and proposed solutions. Complete the initial troubleshooting steps and carefully document all results. Contact Formlabs or an authorized reseller for additional assistance.

ERROR	CAUSE	SOLUTION
The display does not turn on.	Power failure or a faulty electrical connection	Check that the power supply indicator light is illuminated. Try another outlet. Disconnect and reconnect the power.
The display does not turn off or sleep.	Firmware bug	Disconnect and reconnect the power. Update the firmware. See 6.5.1 Updating the Form Cure Firmware .
The display indicates that the cover is open when the cover is closed.	Interlock magnets are missing or misaligned	Wiggle the cover from side to side. Check that the interlock magnets are installed in the bottom edge of the cover.
The 405 nm LEDs and secondary white LEDs do not turn on.	Power failure or a faulty electrical connection	Check that the power supply indicator light is illuminated. Try another outlet. Disconnect and reconnect the power.
The 405 nm LEDs do not turn on.	The Form Cure has not reached its target temperature Power failure or a faulty electrical connection	Wait for the Form Cure to reach its target temperature. See 5.2.2 Set Post-Cure Time and Temperature . Check that the power supply indicator light is illuminated. Try another outlet. Disconnect and reconnect the power.
The heater does not reach the target temperature.	Abnormal display behavior Environmental conditions Poor airflow around power supply	Disconnect and reconnect the power. Ensure that the operating environment is in the recommended temperature range. See 5.1 Operational Environment . Ensure that there is adequate airflow around the Form Cure power supply and that it is not placed in an enclosed space.
The turntable does not turn.	Turntable is obstructed Turntable is not fully seated Faulty or damaged motor assembly	Ensure that no cured resin or printed parts are blocking the turntable. Reorient large prints as necessary. See 5.3.2 Plan for Large or Long Parts . Reseat the turntable on the circular wheel mount. See 4.3 Installing the Form Cure . Replace the Form Cure motor assembly. See 7.3 Disassembly and Repair .

ERROR	CAUSE	SOLUTION
Parts are undercured or do not have desired mechanical properties.	Expired resin Part was washed but not fully dried before post-curing	Check the expected lifetime of the resin used for the print. Fully dry all solvent off of parts before post-curing.
Post-cured parts have tacky or sticky surfaces.	Part was not washed before post-curing Part was washed but not fully dried before post-curing	Wash liquid resin off of printed parts before post-curing. Fully dry all solvent off of parts before post-curing.

7.3 Disassembly and Repair



NOTICE

All steps that involve opening the Form Cure and/or investigating internal components should be done by skilled persons under the guidance of Formlabs or a certified service provider.

Contact Formlabs or a certified service provider to receive repair instructions and authorization. The following tools, equipment, and materials are needed for reparation tasks:

TASK	REQUIRED SUPPLIES	CAUSE
Replacing the display assembly	2.5 mm hex wrench, replacement part(s)	The Form Cure display or knob has stopped functioning.
Replacing the motor assembly	2.0 mm hex wrench, 2.5 mm hex wrench, replacement part(s)	The turntable has stopped functioning or behaves erratically.
Reseating the ribbon cable	2.5 mm hex wrench	The Form Cure display or knob has stopped functioning.