Glowforge Performance Filter™

User Manual

Version 1.6

(Compatible with Glowforge® Basic, Plus, and Pro 3D laser printers)

Introduction

You already know about the incredible things you can do with a Glowforge laser. With a Glowforge Performance Filter (formerly called "Glowforge Air Filter"), you can do those things *anywhere*.

Do not use your Glowforge Performance Filter with a Glowforge Aura™ Craft Laser™ printer.

But before we go any further, you'll need to read the information in this manual.

Our job is to make sure that every part of your Glowforge experience is delightful. Unfortunately, right now you'll need to read a few pages that are not delightful: the Glowforge Performance Filter safety information. They're a little dry, and a bit scary. The safety section was written by our safety team, in the most direct language possible, to make absolutely certain you can operate your Glowforge Performance Filter safely.

After the safety talk, we'll get back to the fun part: unboxing, simple setup… and step by step instructions for how to use your Glowforge Performance Filter during laser time!

PS: If you see anything that is unclear or seems incorrect, please visit us at support.glowforge.com for more information and support.

Safety

Now, it's time to be serious. Improperly operating the Glowforge Performance Filter unit can cause fire and health hazards. These can result in serious injury or even death.

Before you start

- Read this manual before using your Glowforge Performance Filter, and ensure everyone else who uses it reads this too.

- Always follow all instructions in this manual, in the Glowforge Basic, Plus, and Pro Manual and in the Glowforge App.

- Children require the supervision and assistance of an adult at all times.

- This product may be subject to regulations and standards, particularly when installed in an educational institution or place of work. Ensure that you comply with all applicable rules.

Electrical Safety

To reduce the risk of electric shock or fire:

- Do not try to service, repair, or modify the Glowforge Performance Filter in a manner not described in this manual.

- Do not open any sealed portion of the Glowforge Performance Filter or try to access the wiring. Damage caused by opening the case is not covered by the warranty.

- If the Glowforge Performance Filter or its power cord is damaged, unplug the power cord and contact glowforge.com/help immediately.

- In the event of any emergency or malfunction, unplug the power cord on the back of the unit.

- Use only a properly grounded 120 VAC outlet that meets local building codes.

- The Glowforge Performance Filter may draw up to 3 amps. Ensure that the circuit can support at least a 350 watt load. Note: a standard 15A household outlet can support both a Glowforge Basic, Plus, or Pro printer and a Glowforge Performance Filter if nothing else is drawing power from the circuit.

General Safety

- **If you detect a strong, sharp smell that also causes eyes, nose, or throat irritation, or if there is visible smoke escaping your Glowforge Basic, Plus, or Pro printer while the lid is closed, your Glowforge Performance Filter is not operating properly. Follow all instructions in this manual. If the irritation and/or smoke emissions do not abate, discontinue using your Glowforge Performance Filter and contact support.**

- Do not disconnect the hose, open the case, touch anything inside, or perform any maintenance or operations while the Glowforge Performance Filter is plugged in.

- The Glowforge Performance Filter has sparking parts inside. Do not use in areas where gasoline, paint, flammable liquids, or gasses are used or stored.

- Do not use the Glowforge Performance Filter without a Filter Cartridge.

- Do not plug in the Glowforge Performance Filter while the lid is open or the latches are not fully engaged. Doing so could cause electric shocks or physical harm from moving parts.

- Do not use the Glowforge Performance Filter when the Filter Cartridge is clogged. This will shorten the life of the machine and any resulting damage caused is not covered by your warranty.

- Do not open or modify a Filter Cartridge for any reason.

- Use only with Filter Cartridges manufactured by Glowforge for use with this Glowforge Performance Filter.

- Edges of the Glowforge Performance Filter and Filter Cartridge may be sharp. Use caution when handling.

Operating Environment

To prolong the life of your Glowforge Performance Filter and to reduce the risk of fire or mechanical failure:

- Do not use if the ambient temperature is below 40 degrees Fahrenheit (5 Celsius) or over 120 degrees Fahrenheit (48 Celsius).

- Do not use if the ambient air is below 40% humidity or above 80% humidity. Air above 80% humidity can clog the filter which may cause damage.

- Do not use the Glowforge Performance Filter outdoors.

- Do not use the Glowforge Performance Filter in an environment where it may come into contact with liquids, moisture, grease, or excessive dust or small particles.

Materials

- Use your Glowforge Performance Filter only when printing on material that is laser compatible. Only the manufacturer or supplier of material can confirm that it is laser compatible. Glowforge recommends the use of Proofgrade® materials with the Glowforge Performance Filter.

- Non-laser compatible materials may contain harmful or toxic chemicals that are not treated by the Glowforge Performance Filter and could cause injury or death.

- Non-laser compatible materials may cause damage to your Glowforge Performance Filter.

- Some laser-compatible materials, such as MDF or Proofgrade Draftboard®, may cause the Filter Cartridge to need replacement more frequently.

- Damage resulting from the use of non-laser compatible materials is not covered by the Glowforge Performance Filter warranty.

Glowforge Performance Filter Regulatory Information

This product conforms to applicable CE requirements and RoHs. It is suitable for use with Glowforge Basic, Plus, and Pro 3D laser printers.

Specifications

The Glowforge Performance Filter has the following specifications:

Glowforge Performance Filter	
Air Inlet Interface	100mm diameter Flange
Input Voltage	AC110V
Maximum Power	350W (3A)
Filtering Efficiency	0.3μm 99.97%
Noise	<70dB
Systemic Flow	350m³/h
Dimensions of Main Unit	L410×W265×H430mm
Weight	22.0kg

The Glowforge Performance Filter is manufactured by:

Glowforge, Inc.
1938 Occidental Avenue South, Suite C
Seattle, WA 98134

For more information or support visit support.glowforge.com

Labeling

This label appears on the back of every Glowforge Performance Filter, with an appropriate serial number, in the spot indicated by the arrow in the diagram below.

Rear view of unit   Manufacturer's label

Getting Started

Now that you've read all about Safety, you're ready to get lasering!

Unboxing will take just a few minutes – we can't wait for you to get started either. Of course, if you encounter any challenges along the way, you can find information and support by visiting support.glowforge.com.

Let's get started, shall we?

Check for damage

If your packaging or any part of your Glowforge Performance Filter shipment is visibly damaged on arrival,
we want to make it right as soon as possible! Send photos of the damage to glowforge.com/help
and wait until you hear back from us. If the Glowforge Performance Filter itself is visibly damaged, do not plug it in or attempt to operate it; contact us immediately.

Unbox your Glowforge Performance Filter

1 **Locate your Glowforge Performance Filter.**

Your Glowforge Performance Filter must be on a flat surface, like the floor. It needs to be positioned so that the 8-foot (2.4384 m) exhaust hose can connect to the back of your Glowforge Basic, Plus, or Pro printer while making no more than three 90-degree bends.

Your Glowforge Performance Filter blows air out, so ensure that there are no obstructions within two inches (5.08 cm) of the vents on either side.

Vents are on two opposite sides

2 **Unseal your Glowforge Performance Filter box.**

Carefully cut tape sealing the top of your Glowforge Performance Filter box and open it. Remove the power cord and the top piece of foam.

3 **Remove the Glowforge Performance Filter.**

The Glowforge Performance Filter is heavy, so have a friend help. Grasp the two handles on top of the Glowforge Performance Filter through the clear plastic bag and lift the filter out of the box. Place it on the floor.

4 **Remove the bag.**

Lift the clear plastic bag over the top of the filter to remove it.

5   **Save the packaging material including the box, foam, and bags.**

    If you need to move your Glowforge Performance Filter, for example to ship it back for warranty service, you'll need all the original packing materials. The Glowforge Performance Filter cannot be shipped safely without the original packaging materials.

Glowforge Performance Filter front view, showing dial

Glowforge Performance Filter back view, showing power switch, plug connection, and label
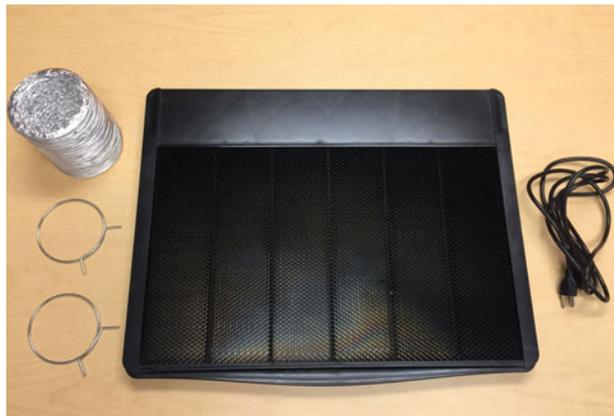

Glowforge Performance Filter top view with lid removed, showing Filter Cartridge. Filter Cartridge is pre-installed.

Connect Glowforge Performance Filter to your Glowforge

1   **Connect Glowforge Performance Filter to Glowforge Basic, Plus, or Pro printer with exhaust hose.**

Take the exhaust hose and two ring clamps that came with your Glowforge Basic, Plus, or Pro printer. If you would like a new one, you can purchase a new one in the [Glowforge shop](#).

Your Glowforge Basic, Plus, or Pro printer came with an accessory
pack that includes the exhaust hose and two
ring clamps (shown on the left side)

If you are using the exhaust hose to vent to the outside, you may reuse the hose, and you may skip this step since the hose is already connected to your Glowforge.

Squeeze the two ends of the ring clamp together to make it larger, then slide the end over the hose.

While squeezing the ring clamp again, slide the hose and the clamp over the exhaust connection on the back of your Glowforge printer. The clamp pressure will hold it in place.
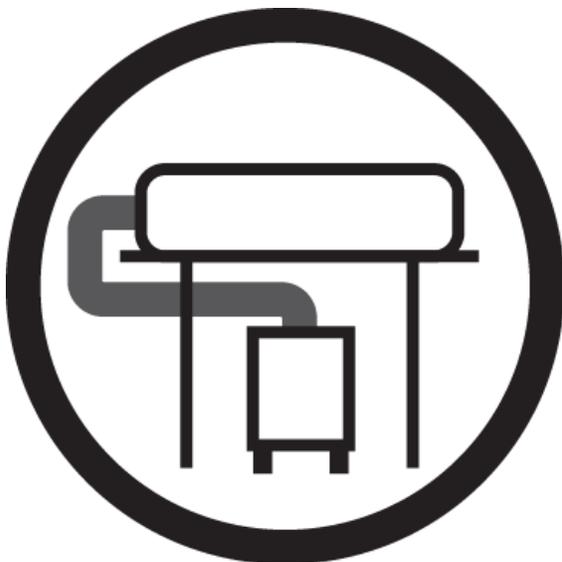
Let go. Check that the clamp is holding the exhaust hose tightly to the exhaust connection. Make sure the hose does not come off with a gentle tug.

② Connect Hose to Glowforge Performance Filter

Put the other clamp around the other end of the hose. Repeat the procedure above to attach the exhaust hose to the top of the Glowforge Performance Filter with the ring clamp.

Keep the hose as straight as you can, with no more than three turns of 90 degrees or less. Make sure the hose isn't twisted, pinched, kinked, punctured, or flattened. If there is extra hose, do not let it sag; wrap it tightly with duct tape to keep the hose length as short as possible.

3 Connect to electrical power

Verify that the power switch is "Off" (the 0 side depressed, as shown).
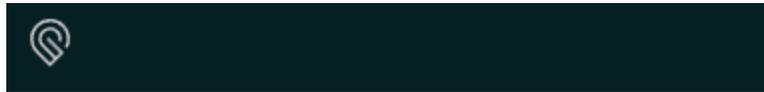
Verify the filter is installed and the lid is firmly closed.

Plug the power cord into the back of the Glowforge Performance Filter, then plug the power cord into the electrical socket. A standard grounded household socket works well.
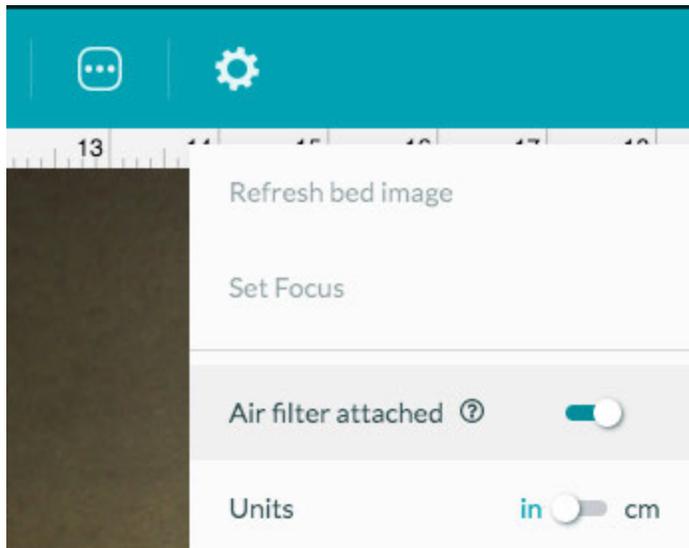
4 **Enable the Glowforge Performance Filter in the Glowforge UI**

1) Go to app.glowforge.com and log in, if necessary
2) Click the "Trace" button

3) Click the gear icon, and then click the switch next to "Air filter attached". When you are done, the circle should be on the right, and the switch should turn teal.

The fans will now run at the correct speed to match the Glowforge Performance Filter's internal fans.

5 **Turn your Glowforge Performance Filter knob to the right setting.**

The knob on the Glowforge Performance Filter controls the power to the fan. When it is too high or too low, your Glowforge Performance Filter will not work properly.
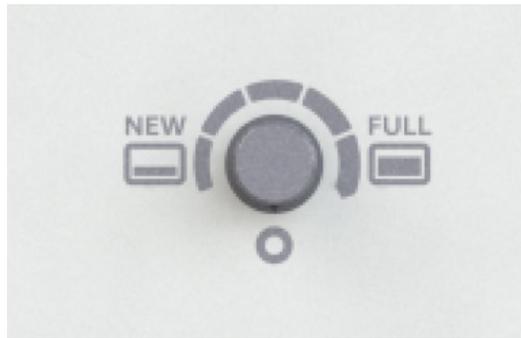
When you first use your Glowforge Performance Filter, turn it to "New". The fan will use its lowest power setting, which is the best setting for a new filter. Do not use a higher setting, as more power will move air too quickly, and smoke and fumes may not be completely removed.

After you have used the filter for a while, the filter cartridge will start to fill. More power will be required to move the air through the Glowforge Performance Filter, and the "New" setting

will no longer reduce smoke and fumes. If you find there are smoke and fumes on the lowest setting, use the middle setting, halfway between "New" and "Full".

Finally, when the filter cartridge is almost full, it will again stop reducing smoke and fumes, and more power will be required.. Turn the knob to "Full".

The bottom setting is off; the knob turns clockwise.

To begin, set your Glowforge Performance Filter knob to "New".

Your Glowforge Performance Filter is now ready for use, with the fan off.

Print something amazing

Perform the following steps for each print.

1 **Choose your materials.**

Your Glowforge Performance Filter has been tested with a wide variety of Proofgrade materials, and designed to work with all laser-compatible materials. However, some materials, like Proofgrade Draftboard or MDF, will cause your filter cartridge to fill up and require replacement much more quickly than others.

2 **Turn on your Glowforge Performance Filter.**

Use the switch next to the power cord to turn your Glowforge Performance Filter on before each print.

3 **Run your print.**

Ensure that you use laser-compatible materials, like Proofgrade hardwood, plywood, and acrylic. Different materials will fill the filter cartridge at different rates. MDF and Proofgrade Draftboard are not recommended, as they will cause the filter cartridge to fill quickly.

4 **When your print is done, leave your Glowforge Performance Filter running.**

Running air through your Glowforge Performance Filter will prolong the life of the cartridge. For best results, leave it running one minute for each minute that you print. For example, when you finish two 30-minute prints, leave it running for an hour after they finish.

5 **Turn off your Glowforge Performance Filter.**

When you're done, use the switch next to the power cable to turn off the Glowforge Performance Filter.

Materials will have an odor when they're removed. If you prefer, you can reduce this odor by leaving the materials in your Glowforge longer while the Glowforge Performance Filter is running.

Cleaning, Service & Moving

Unplug your Glowforge Performance Filter off before cleaning, moving, changing the filter cartridge, or doing any other cleaning or maintenance.

Change Filter Cartridge

When the air starts to move more slowly because the cartridge is full, a beeping sound will notify you. You may be able to turn the knob clockwise to increase the fan speed and extend the cartridge life a little more. The beeping sound may not always occur when the cartridge needs to be changed; for example, if the carbon is used up but the airflow is still high.

When you detect smells during printing even when the Glowforge Performance Filter dial is set to "Full", it's time to change the filter cartridge. Here's how.

1 **Turn off and unplug your Glowforge Performance Filter**

The power switch is located on the back, next to the cord. Turn it off first, then unplug it from the wall.

2 **Open Glowforge Performance Filter**

There are four latches holding the top of the Glowforge Performance Filter in place. Lift the bottom of all four latches to release them. You do not need to remove the exhaust hose to change the filter cartridge.

3 **Remove and dispose of old filter cartridge**

Grab and lift the metal lip to remove the filter cartridge from the Glowforge Performance Filter. Dispose of the used filter cartridge in the garbage.

Lift the filter cartridge out

4 **Replace with a new filter cartridge**

You can purchase new filter cartridges from shop.glowforge.com. Unwrap the filter cartridge and inspect it for possible damage. Lower the new filter cartridge in the same way you removed the old one.

5 **Latch the lid closed and recheck the exhaust hose.**

Inspect each latch to ensure it is fully closed. Grab the lid handles and pull upward on the lid to ensure it does not come off. Finally, check the exhaust hose to ensure it has not become disconnected from either the lid or the back of your Glowforge.

That's it - you're ready to print!

Cleaning

Turn off and unplug your Glowforge Performance Filter off before cleaning. Ensure that the Glowforge Performance Filter is closed before cleaning; interior areas should not be cleaned. You can clean all exterior surfaces with a rag dampened with isopropyl alcohol. Do not spray liquids on the Glowforge Performance filter as they may get inside.

Moving

For protection, the Glowforge Performance Filter must be packed in its original packaging when moved to a new location. Whether it's for a big move, taking your Glowforge printer and Glowforge Performance Filter to an event, or for warranty service, you'll need to package your Glowforge Performance Filter properly with the original box and packing materials. The Glowforge Performance Filter cannot be shipped safely without the original packaging materials.

To repack your Glowforge Performance Filter, power the unit off and disconnect the power cord. Disconnect the exhaust hose and hose clamp from the lid. Re-pack in the original packaging.

Troubleshooting

Reducing Odors

The Glowforge Performance Filter is designed to allow you to safely and comfortably operate your Glowforge printer indoors. It will dramatically reduce odors, smoke, and fumes to safe levels. You should smell little to no odor coming from the exhaust vents of the Glowforge Performance Filter itself.

Note, however, that even when used properly, odors may still occur from the following:

- Opening the lid after a print. Tiny amounts of smoke and fumes remain trapped in the crumb tray, and will escape when the lid is opened and the material is removed. This can be reduced by leaving the material in the Glowforge for a minute or two before removal.

- The materials themselves. After printing, the materials may have an odor for as long as a day or two. This can be minimized by using Proofgrade material, removing and disposing of the protective coating (which has the bulk of the odor), and by setting the materials aside for a day.

- The Glowforge itself. After being used for many hours, tiny particles of dust and resin will accumulate on the Glowforge itself. To minimize the odor, keep the lid closed when not in use, clean according to the Glowforge printer user manual, and leave the Glowforge connected to the Glowforge Performance Filter when not in use.

Eliminating smoke and fumes

If you detect a strong, sharp smell that also causes eyes, nose, or throat irritation, or if there is visible smoke escaping your Glowforge printer while the lid is closed, your Glowforge Performance Filter is not operating properly. Discontinue using your Glowforge Performance Filter and follow these instructions.

1) Ensure your Glowforge Performance Filter is turned on before every print, and left running until the print is complete.

2) Check if the exhaust hose is securely connected to the Glowforge printer and the Glowforge Performance Filter.

3) Check if the Glowforge Performance Filter is enabled in the Glowforge UI. You will only need to do this once. After it is enabled, all users will have it enabled from that point forward.

4) Make sure that, when you turn on your Glowforge Performance Filter, you turn it on to the right setting. If the fan is moving too slow or too fast, the filter will not work properly.

5) Check if the hose is connected properly, with no more than three 90 degree turns.

6) Check if the materials you are using are laser-compatible. The Glowforge Performance Filter has been tested with Proofgrade materials; other materials might have smoke and fumes that are not fully removed by the Glowforge Performance Filter.

7) Change the filter cartridge. If you have been printing for a while, it may be time to replace your filter cartridge.

8) Inspect all four latches to be sure they are tightly closed.

9) Check the hose to make sure it is not kinked, squished, or twisted.

10) Remove the hose and inspect the inside to ensure it is not obstructed.

11) Review the "Reducing Odors" section above for other sources of smell.

If all of these do not help, you are using a new filter and the "New" setting, and you are experiencing eye, nose, and throat irritation when using Proofgrade materials with your Glowforge Performance Filter, stop using your Glowforge Performance Filter and contact Glowforge support.

Glowforge Performance Filter doesn't turn on

If the power switch is on, the machine is not running, and the power indicator doesn't light up, the fuse may need to be replaced.
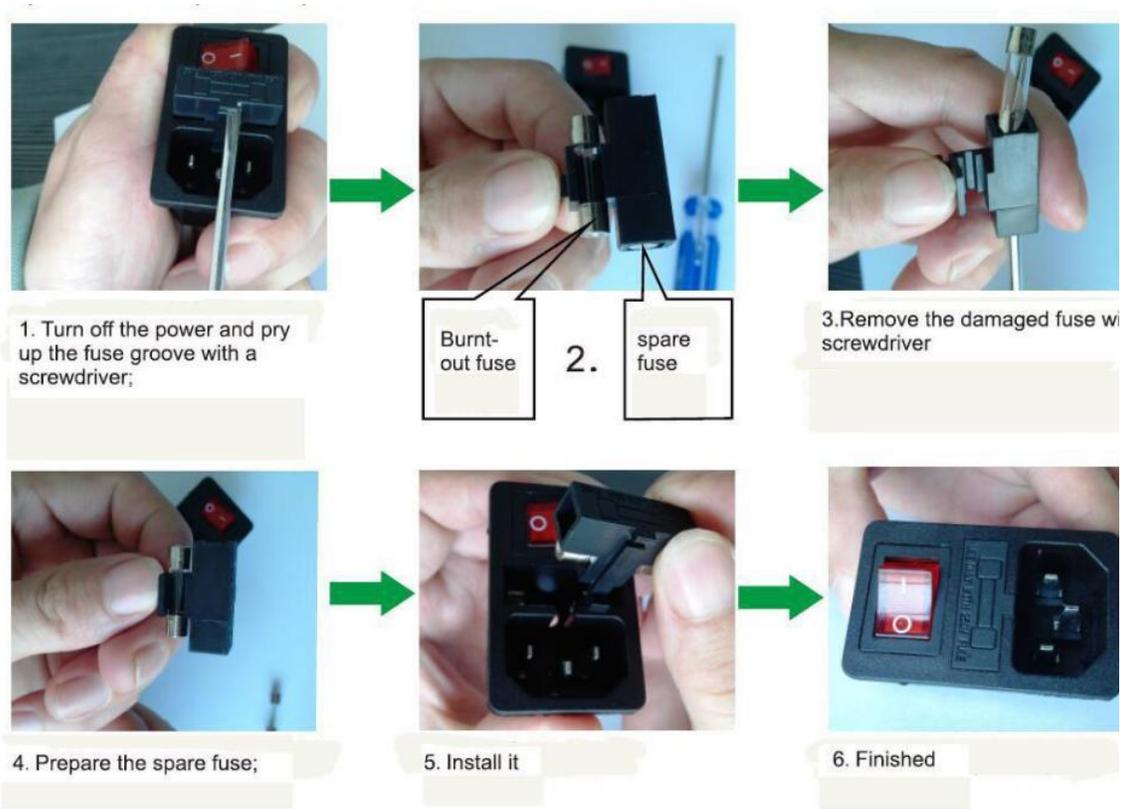
1 **Turn off and unplug your Glowforge Performance Filter**

2 **Remove and replace the fuse next to power switch**

We have included a free spare fuse with your Glowforge Performance Filter.

1. Turn off the power and pry up the fuse groove with a screwdriver;

Burnt-out fuse   2.   spare fuse

3.Remove the damaged fuse wi screwdriver

4. Prepare the spare fuse;

5. Install it

6. Finished

Service

Other than the procedures shown above, the Glowforge Performance Filter may not be serviced or repaired by the user. Should service or repair be required, it must be returned to the factory; contact glowforge.com/help for instructions.

Finding Community & Support

Having trouble? Want to do something new? We'll do our best to help you succeed!

Support Online

Go to our Help & Learning Center at support.glowforge.com to find guidance any time of day or night. The Learn area includes tutorials to get you started with your Glowforge Aura and Personal Filter, and our Solve area has troubleshooters and technical how-tos in case something doesn't go according to plan. You can also connect with our support team live in chat or send us a message if you can't find exactly what you need.
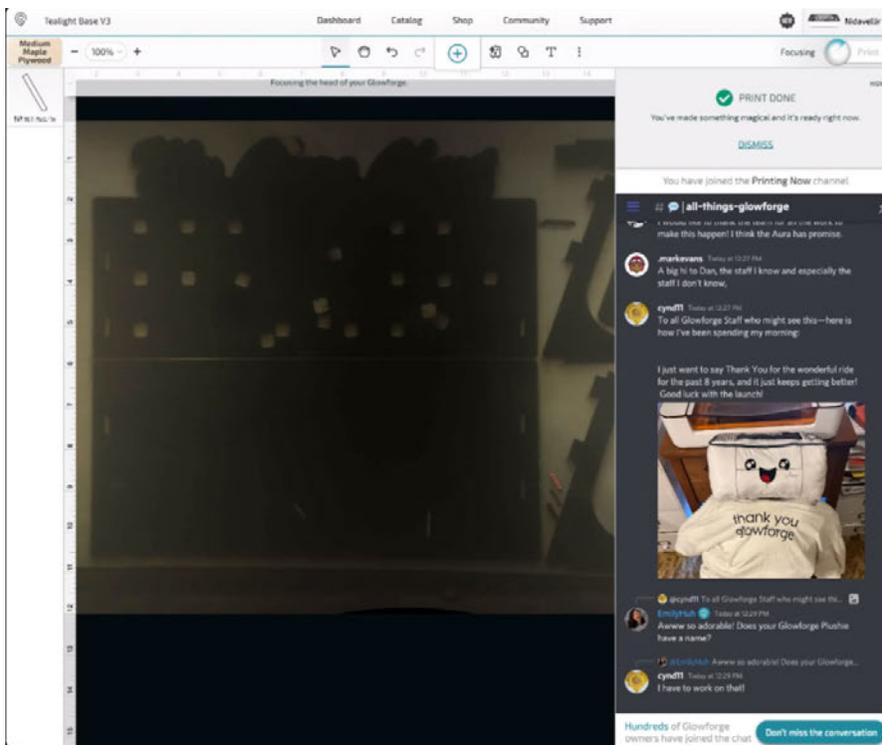
Community Chat

Glowforge Community Chat is our newest community feature that lets Glowforge Owners connect with each other in real-time lively discussion.

Community Chat is powered by Discord and only Glowforge Owners can participate. You can see the Community Chat each time you run a print. And from there, you can choose to join the rest of the community on Discord to interact.

If you do choose to join, you will have access to many more discussion topics to ask questions, get help, or share your stories, experiences and creations!

Community Forum

Most Glowforge owners have registered at the Glowforge Community Forum, where hundreds of Glowforge owners post each day. You'll find some incredibly talented (and helpful) folks who can provide assistance, suggestions, and ideas.

The [Made on a Glowforge](#) section is a great place to go for inspiration. You can also get help with many common questions from helpful community members in the [Community Support](#) section.

Support by Phone and Email

We are here for you! Our support team is available by phone at+1 (855) 338-2122 or contact us through our Help & Learning Center at support.glowforge.com with your questions, challenges, feedback, and even your stories of perfect prints. Our goal is to reply within hours on weekdays, and always within three days.

We provide the best support when we fully understand what you're facing.

Please send:

- A description of the steps you took, what happened and what you expected
- The date and time of the issue
- The name of your file, if there was a file involved
- The name of your Internet browser and Operating System
- A screenshot or photo of what happened