

Cauldron Lamp Print & Assembly Guide

Three printed parts, no hardware, and a brew that glows from the inside.

Three Parts

Two Profiles

Light Sold Separately

Built by MakerX Designs · Virginia Beach, VA · makerxdesigns.com · © 2026

Most printable cauldrons are a solid decoration or a tea-light holder. This one comes apart: the lid lifts off, a color-changing puck light drops into the pot, and a printed disc covered in domed bubbles rests in the mouth to diffuse it. Every bubble lights up from below.

1 · Get the light first

Read this before you start a 21-hour print

The pot is built around a round **RGB LED puck light**, and the download does not contain one. It is an inexpensive off-the-shelf part, but you want it in hand before you commit the filament.

The light it is sized for	
Diameter	59.5 mm (2.34 in)
Height	8.3 mm (0.33 in)
Housing	Aluminum alloy, round
Power	USB, 1.5 m lead, inline switch
Control	24-key remote (CR2 cell)
Colors	16, plus 4 gradient modes

These sell in **three-packs with a remote each for around \$20**, usually listed as under-cabinet or printer-enclosure lighting. One pack lights three cauldrons.

Any puck up to 59.5 mm across and 8.3 mm tall drops straight in. There is room to spare, so smaller is fine. Much taller and it will lift the insert off its seat instead of sitting under it.

The light changes color, not the print

The insert is a plain white diffuser. Whatever you set on the remote, the brew follows. A battery tea light will fit, but it lights one spot and the bubbles stay flat — the puck's wide, even face is what makes the effect work.

In the download

File	What it is
makerx-cauldron-body-and-lid.3mf	Start here. Two plates - the pot on plate 1, the lid on plate 2 - oriented, with tree supports and the tested profile already set up.
makerx-cauldron-bubble-insert.3mf	A separate project on purpose. The insert uses a different, much finer profile — see below.
Three matching .STL files	Raw meshes for your own slicer - body, lid and insert. The body and lid need supports; the insert does not.

2 · Slice it — two projects, two profiles

This is the one thing to get right. The pot and lid are big, supported prints. The insert is a thin disc whose whole job is to look smooth when it is lit. They are **not** the same print, and both profiles are already saved in their 3MF files.

- 1 Open `makerx-cauldron-body-and-lid.3mf`. When it asks whether to load the project's print settings, **say yes** — that is what brings the support setup with it.
- 2 Slice **plate 1** (the pot) and **plate 2** (the lid). They are separate plates, not one build.
- 3 Open `makerx-cauldron-bubble-insert.3mf` separately and slice that. Say yes to its settings too — they are deliberately different.

Body & lid profile		Bubble insert profile	
Layer height	0.12 mm	Layer height	0.08 mm
Walls	3 loops	Walls	2 loops
Top / bottom	5 / 5 layers	Top / bottom	5 / 3 layers
Infill	15 % gyroid	Infill	8 % lightning
Supports	Tree, auto, 30 °	Top surface	Concentric
Brim	5 mm	Supports	None

★ Why the insert gets 0.08 mm and a concentric top

The bubbles are shallow domes. On a coarser layer height the slicer walks up them in visible steps and every dome ends up wearing contour rings — which the light then shines straight through and exaggerates. The fine layer plus a concentric top surface follows the curve instead. It costs about an hour and it is the difference between smooth bubbles and terraced ones.

3 • Material and color

Material & plate	
Filament	PLA as sliced
Nozzle temp	220 °C
Bed temp	60 °C
Nozzle	0.4 mm
Plate	Epoxy resin

Color matters here

Print the **pot and lid in black** — the stippled surface reads as rough cast iron with no painting at all. Print the **insert in white**, or a light translucent PLA. A dark or saturated insert will not diffuse and the effect is lost.

4 • What it costs you

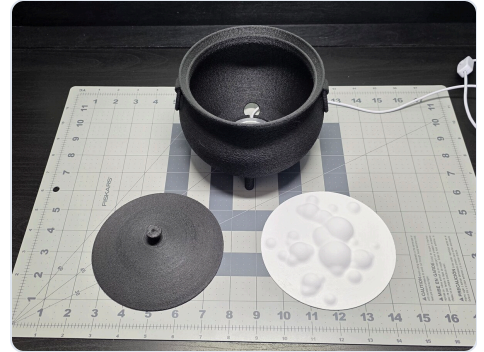
Part	Size	Filament	Time
Body - plate 1	166 × 159 × 111 mm	219.08 g	12 h 45 m
Lid - plate 2	134 × 134 × 33 mm	68.37 g	6 h 27 m
Bubble insert	134 × 134 × 13 mm	27.59 g	2 h 19 m
All three		315 g	21 h 31 m

Before you hit print

- ☐ Puck light in hand, measured against 59.5 mm.
- ☐ Tree supports confirmed **on** for the pot and lid.
- ☐ Supports confirmed **off** for the insert.
- ☐ Around 350 g of filament available across the two colors.

5 • Off the plate

- 1 Let each plate cool completely before you lift anything. The pot has a wide flat base and it pops off on its own once it is cold.
- 2 Peel the brim away from a corner, then twist the tree supports off the pot by hand. They anchor under the three feet and around the two ears.
- 3 Check the **rim** of the pot. That is the ledge the insert sits on, so anything left proud there is what will hold the insert crooked. A fingernail or a deburring blade is enough.
- 4 The insert prints with no supports and needs nothing done to it. Do not sand the bubble face — the printed finish is what diffuses evenly, and sanding it makes it cloudy in patches.



All three parts, nothing else needed. The light sits inside the pot and its lead runs out under the rim.

★ The rim is the only fussy surface

Everything else on this model is forgiving. Get the pot's inner ledge clean and flat and the insert drops in level on the first try.

6 • Put it together

- 1 **Switch the light on first.** Set the color you want before it goes in the pot — the remote works through the print, but it is easier to aim at the puck directly.
- 2 **Set the puck face-up in the bottom of the pot.** It sits loose. Nothing needs gluing.
- 3 **Run the lead out under the rim** and down the outside. There is clearance between the pot's base and the ledge for the cable to pass.
- 4 **Drop the insert in, bubble side up.** It rests on the inner ledge. If it sits proud on one side, go back and check the rim.
- 5 **Lid on or off.** On, you have a closed cast-iron pot for a shelf. Off, the brew glows.



Assembled and lit. The lid is optional once the light is in — leave it off to show the brew, or on for a closed pot.

7 • Making it yours

- **Scale it.** Scale all three parts by the same factor. The puck is a fixed 59.5 mm, so below about 90 % it no longer fits inside.
- **Brew colors.** The remote's fade and smooth modes give a slow shifting boil, which suits it better than a fixed color.
- **Translucent insert.** A pale translucent PLA glows warmer and softer than bright white. Both look good; white is punchier.

Where precision meets the printer

Thanks for printing this one. If it earned a spot on your mantel, that is exactly what it was designed to do.

For years my design world existed entirely behind a screen. As a mechanical engineer I spent countless hours building complex CAD models, but there was always a missing link — the ability to hold an idea in my hands. That changed in January 2026, when I went headfirst into 3D printing. The moment that first layer stuck to the bed, the gap between concept and reality vanished.

Coming from a background where precision is everything, tolerances aren't suggestions to me — they are a religion. I didn't want to print trinkets; I wanted to apply industrial engineering discipline to desktop manufacturing. Every wall count, every layer height and every infill percentage in this guide is a deliberate decision backed by testing. If a part can't handle the environment it was built for, it goes back to the drawing board.

Three principles behind every print

01**Functional Engineering**

High-utility, real-world solutions rather than purely decorative models. If it doesn't solve a practical problem, it doesn't leave the workstation.

02**Rigorous Tolerances**

Designed in professional CAD with mechanical intent — press-fits that click and assemblies that work straight off the build plate. No sanding, no filing, no guesswork.

03**Bridging the Gap**

Industrial structural integrity at maker speed. Proving a desktop printer can produce parts worthy of real engineering applications is what drives every release.

The workshop

Mechanical engineering degree · SolidWorks precision modeling · two Creality Hi printers · Virginia Beach, Virginia · every design free to download.

A note on sharing

I'm thrilled when people use and share these designs. I just ask that you respect the license shown on the model listing and give the required credit, so I can keep contributing to the collective workshop.

IF THIS ONE EARNED ITS SPOT

A **Like** or a **Favorite** on the model page takes a second and genuinely helps. A **Boost** helps more than either — it is what puts a design in front of makers who would never otherwise come across it. And if you **Follow** me, new models and updates land in your feed as they are released. However you choose to support it, thank you — it is what keeps everything here free to download.

Printed it in a different size, or found a puck light that works better? Leave a comment on the model page — that feedback is where the next revision starts.

Happy haunting. — MakerX Designs · makerxdesigns.com · © 2026