

Jack-o-Lantern Tea Light Print & Use Guide

A 76 mm pumpkin that lights all the way through — because a printed diffuser sits under the lid.

[Body + Lid + Diffuser](#)[One or Two Color](#)[Pre-Configured 3MF](#)

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This one took three pumpkins and two diffusers. The first was far too big and printed for fifteen hours with walls so thick the light barely showed. The second was the right size but too thin, and its teeth snapped off with the supports. The third is this one — and the diffuser is what turned a bright spot behind the eyes into a pumpkin that glows all over.

In the download

File	What it is
<code>makerx-jack-o-lantern.3mf</code>	Start here. Two plates, each holding the body and the lid — plate 1 in two colors, plate 2 in one. Tested profile and supports already set up.
<code>...-2color.3mf</code> · <code>...-1color.3mf</code>	The same two plates as single-plate projects, for slicers — phone apps especially — that will not open a multi-plate file.
<code>...-body.3mf</code>	Just the body, on its own plate.
<code>...-lid-1color.3mf</code> · <code>...-lid-2color.3mf</code>	Just the lid, either way. Handy for reprinting one after a failed stem.
<code>...-diffuser.3mf</code>	Its own project with its own settings — vase mode, one wall, 0.2 mm layers. Do not merge it onto another plate.
<code>...-body.stl</code> · <code>...-lid.stl</code> · <code>...-diffuser.stl</code>	The raw meshes, for your own slicer and your own profile.

1 • What you need besides filament

One **LED tea light** — the flickering kind, not a real candle. It is not included, and it is the only thing you have to supply.

Sizes that matter	
Assembled lantern	76 × 76 × 63 mm
Body / lid	48 mm tall · lid 53 mm across
Diffuser	40 mm across, 41.8 mm tall
Your tea light	must drop inside the diffuser — check it against that 40 mm before you print

No candles. Ever.

This is PLA. A real flame will soften it long before it looks like it is in trouble. The whole design is built around a battery LED, and the flickering ones look better through the diffuser than a steady light does anyway.

2 • Pick your plate

The two plates print the identical lantern. The only difference is the stem, and it is an expensive difference.

	Plate 1 — two color	Plate 2 — one color
Print time	9 h 24 m	4 h 18 m
Filament used	155.51 g	43.55 g
Of which is the model	42.59 g	42.43 g
Filament changes	156	0
Cost	\$2.33	\$0.65

The brown stem costs 101 g of purge

Both plates put about 42.5 g of plastic into the pumpkin. Plate 1 spends another 101.47 g flushing the nozzle between 156 color changes. If your printer wastes filament on a swap the way mine does, print plate 2 and paint the stem — or just leave it orange.

3 • Slice it

- 1 Open `makerx-jack-o-lantern.3mf` in Creality Print, or any slicer that imports 3MF project files.
- 2 When it asks whether to load the project's print settings, **say yes** — that is the whole point of the 3MF, and it brings the support setup with it.
- 3 Slice **plate 1** or **plate 2**, not both. Each already contains a complete lantern.
- 4 Slice `...-diffuser.3mf` separately — vase mode does not share a plate.

4 • The profile baked into the 3MF

Using your own profile? Match these — sliced and print-tested on a Creality Hi 2, 0.4 mm nozzle.

Quality — body and lid	
Layer height	0.1 mm
Nozzle	0.4 mm
Walls	4 loops
Top / bottom	5 / 4 layers
Infill	9 % gyroid

Supports & adhesion	
Supports	Tree, auto — required
Top Z distance	0.24 mm
Interface top layers	3
Threshold	30 °
Brim	Auto, 5 mm

Material & plate	
Filament	PLA
Nozzle temp	215 °C (230 first layer)
Bed temp	60 °C
Plate	Epoxy resin

The diffuser is different	
Mode	Vase / spiral
Layer height	0.2 mm
Walls / infill	1 loop · 0 %
Supports	Off
Nozzle temp	220 °C
Cost of it	23 m · 3.21 g

★ Those two support numbers are the whole trick

A 0.24 mm top Z distance and a 3-layer interface are the only non-default values here, and they exist because prototype 2 lost its teeth coming out of the supports. Raising the gap and thickening the interface lets the mouth lift away cleanly.

5 • Before you hit print

- ☐ Supports confirmed **on**. The mouth will not bridge without them.
- ☐ Diffuser queued as its own vase-mode print.
- ☐ A translucent or light filament loaded — see page 4.

6 • Off the plate

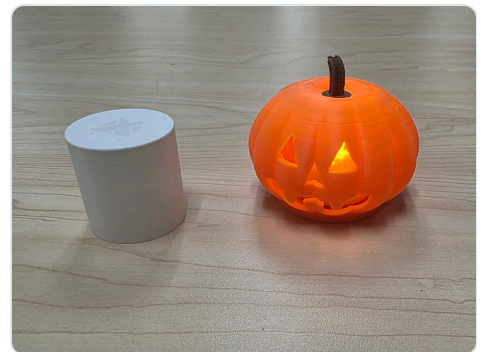
- 1 Let the plate cool, then flex it and lift the body and lid away. Peel the brim off from one corner.
- 2 **Take the mouth supports out last, and slowly.** The teeth are the thinnest thing on the part. Work a fingernail or a pick under the interface layer and lift it away as one sheet rather than picking at it tooth by tooth.
- 3 Twist the remaining tree supports off the eyes and nose. They should release with very little force — that is what the 0.24 mm gap buys you.
- 4 Drop the lid into the top of the body. It seats into a recess and picks the pumpkin's curve back up, so it should sit flush with the stem standing proud.



Three printed parts and one battery tea light. The white cylinder is the diffuser.

7 • Light it

- 1 Switch the tea light on first — the slide switch is on its underside, next to the battery door.
- 2 Stand it on the desk, then lower the diffuser over the top of it so the cylinder surrounds the flame.
- 3 Lower the body over both, and drop the lid on. That is the whole assembly; nothing clips, screws or glues.
- 4 To change the battery, lift the lid and the diffuser back out. You never have to turn the lantern upside down.



The diffuser, and what it does. Without it the glow collects at the flame tip and the body stays dark.

★ Filament choice changes the result more than anything else

A translucent or light orange PLA lets the whole body carry the glow. A dark or heavily pigmented filament will hold the light to the cut faces and you will get a face floating in a black pumpkin — which is a fine look, just a different one. Four walls is already the thinnest this part can safely go, so brightness comes from the filament, not from thinning the shell.

8 • Making it yours

- **A different tea light.** The diffuser bore is sized around a common LED tea light. If yours will not drop in, say so in a comment on the model and I will size a version that fits it.
- **Print a row of them.** The body is only 76 mm across, so most beds will take several at once. Duplicate the object on plate 2 rather than plate 1 — the purge cost of the two-color plate multiplies with every copy.
- **Paint the stem.** A brown paint pen on the plate 2 stem gets you the two-color look for five fewer hours and 112 g less filament.

Where precision meets the printer

Thanks for printing this one. My daughters are the reason it exists — they love fall, and Halloween most of all — so if it ends up glowing on your table in October, it has done 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 job it was built for, it goes back to the drawing board — which is how this one reached its third pumpkin.

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

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IF THIS ONE EARNED ITS SPOT

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There is more Halloween coming. If you liked this one, the **Bubbling Brew Cauldron Lamp** is the same idea one size up — a lift-off lid, a puck light and a printed disc of bubbles that glows from underneath.

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