

Fidget Pentagon Print & Play Guide

A desk fidget that changes shape with every move of the stem.

Print in Place

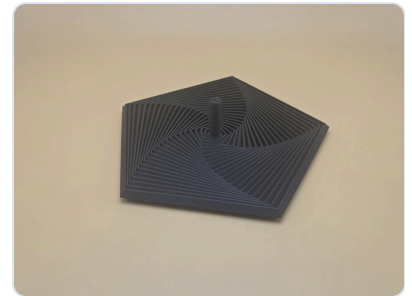
No Supports

22 Rings

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A fidget toy that keeps your hands busy at your desk. It sits flat as a five-sided plate, and every way you move the stem gives it a different look.

It is **one print with no assembly**. Twenty-two nested rings and the stem come off the plate already captured inside each other, so there is nothing to glue, snap or fit together. It prints in a single color.



Twist it flat and the rings sweep into a pinwheel.

Ways to play

- **Twist the stem** with it flat on the desk. The rings sweep around into a pinwheel, each one turning until its corners meet the ring outside it.
- **Push and pull** the stem from side to side for a whole different set of visuals.
- **Lift it up** by the stem and the rings step down into a pyramid.
- **Raise and lower it** on the desk. It makes a satisfying sound as the rings come back down.
- The stem is **textured**, so it has a tactile feel under your fingers.

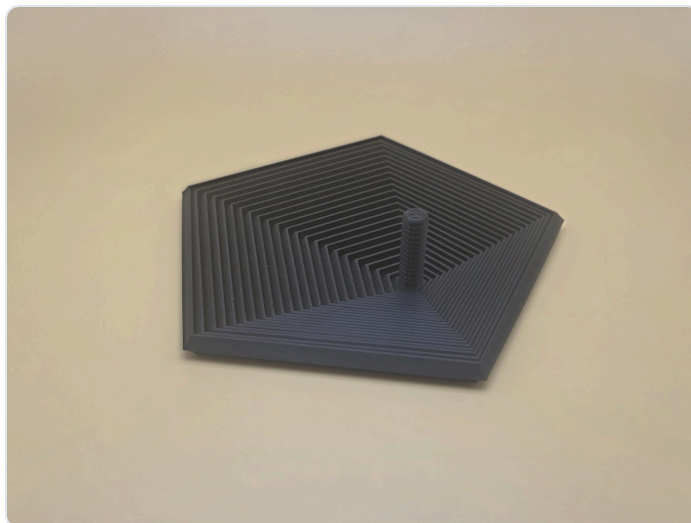
In the download

File	What it is
<code>fidget-pentagon-assembly.3mf</code>	Start here. The whole pentagon on one plate, with the tested profile already set up. 2 h 41 m.
<code>fidget-pentagon-assembly.STL</code>	The same part as a plain mesh, for any slicer. It is already lying flat in print orientation.

1 • Check your bed

The part	
Footprint	169.6 × 161.3 mm
Height	39.0 mm with the stem; the rings are 9 mm
Rings	22, five-sided
Print time	2 h 41 m
Filament	80.84 g in one color

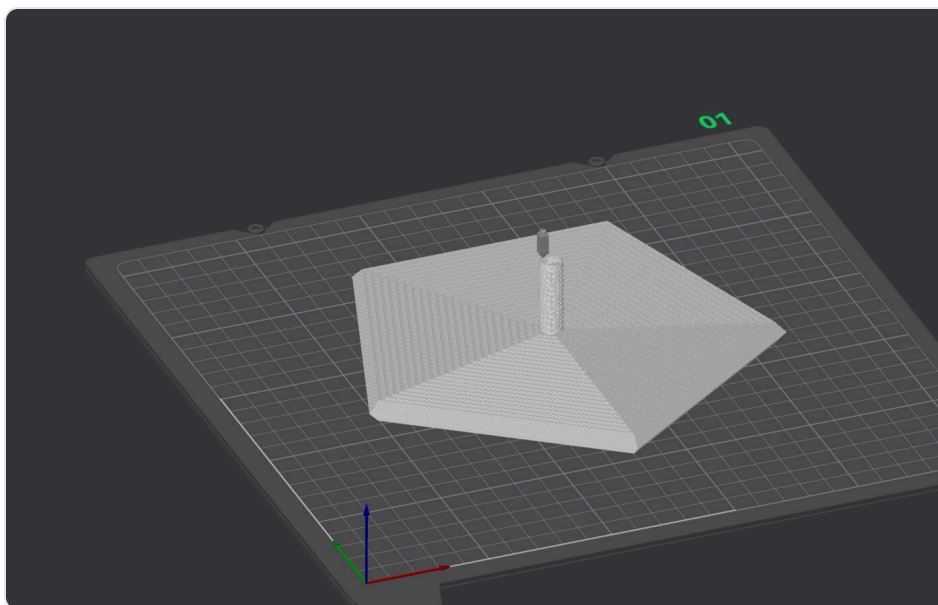
It needs a 180 mm bed.



It prints flat, just as it rests.

2 • Slice it

- 1 Open `fidget-pentagon-assembly.3mf` in Creality Print, or any slicer that imports 3MF project files. When it asks whether to load the project's print settings, **say yes**.
- 2 The pentagon is already flat on the plate. Slice and print.
- 3 **Using the STL instead?** Import it, match the settings in section 3 and print. It is already in print orientation.
- 4 **Any color works.** It is a single-color print, so there are no filament changes and no prime tower.



As sliced: one part, flat on the plate.

3 • The profile baked into the 3MF

Using your own profile instead? Match these. The profile in the 3MF is for a Creality Hi 2 with a 0.4 mm nozzle.

Quality		Material & plate	
Layer height	0.20 mm	Filament	PLA, one color
First layer	0.20 mm	Nozzle temp	220 °C
Nozzle	0.4 mm	Bed temp	60 °C
Walls	2 loops	Plate	Epoxy resin
Top / bottom	5 / 5 layers	Supports	Off
Infill	10 % grid	Brim	None

The preset says 0.12 mm. The layer height is 0.20 mm.

The process preset inside the 3MF is *named* "0.12mm Standard", but the layer height set in it is **0.20 mm**, and that is what the times and weights in this guide are for.

The gap is not the same all the way out

This one is graded on purpose: about **1.2 mm** between the rings nearest the stem, opening to about **1.6 mm** at the rim. The outer rings carry the least travel, so a gap that suits the middle would stop them dead. Keep the **2 walls** and the layer height as set: thicker walls eat into the tight end first.

4 • Off the plate

- 1 Let the plate cool, then lift the whole pentagon off in one piece. There is no support and no brim to remove.
- 2 Pick it up by the stem. Every ring should drop and hang below the one inside it.
- 3 If a ring stays flat, the first layer has joined it to its neighbor. Hold the pentagon flat and work that ring gently side to side until it breaks free.

Where precision meets the printer

Thanks for printing this one. If it ends up in your hand every time you sit down at the desk, 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

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Printed it in your own colors? Post a make with a photo — I would love to see what it looks like in a color of your own.

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