



Mechanical Iris / Aperture

Printable mechanical aperture with interlocking leaves and pin-fastened assembly

Project Overview

A compact 3D printed mechanical iris that opens and closes like a camera aperture. The mechanism is built from separate body pieces, leaves, and pins, making it a hands-on display project that demonstrates coordinated motion in a clean, tactile way.

What it is: a manually assembled aperture mechanism for demonstration, display, or kinetic desk projects.

What it does: the overlapping leaves move together to form an opening that expands and contracts with the mechanism.

Build method: separate printed parts, a three-piece body, and heat-flattened pins that capture each leaf in place.



CATEGORY

Mechanical Parts

PRINT

0.2 mm layer height

PARTS

**18 leaves
18 pins**

SCALE

Not scalable

ASSEMBLY

**Glue +
heat-flattened pins**

FORMATS

**STL / 3MF /
STEP / OBJ**

Mechanical Motion

Classic iris-style opening and closing action for classroom demos, maker displays, and kinetic builds.

Print Plan

Separate body components plus repeated leaves and pins keep the build method clear and easy to follow.

File Set

Print-ready models and editable formats support standard slicing, customization, and remix workflows.

Print Setup

- Print with **0.2 mm** layer resolution.
- Print **18 leaves** and **18 pins** for the full aperture set.
- The body is split into **three main pieces** for assembly.
- This model is intended as a fixed-size mechanism and is **not scalable**.
- Use the included 3MF or STL files according to your preferred slicing workflow.

Build Notes

- Glue body pieces **4** and **6** together first.
- After placing each leaf onto part **2**, press and flatten the pin end with a **70-80 C** flat metal tool.
- Use gentle heat only - enough to mushroom the pin end and hold the leaf securely while preserving movement.

Parts Checklist

<input type="checkbox"/>	Leaves	18
<input type="checkbox"/>	Pins	18
<input type="checkbox"/>	Body sections	3
<input type="checkbox"/>	Primary STL parts	6 body STL files
<input type="checkbox"/>	Extra formats	3MF, STEP, OBJ

Assembly Workflow

1

Prepare the frame

Print the required pieces, then glue body parts 4 and 6 together to create the first fixed section of the housing.

2

Install leaves and pins

Place the leaves into the body arrangement and secure each pin by flattening the end with controlled heat so the mechanism remains captive but movable.

3

Add the final body section

Position the remaining body section once the leaf stack is aligned and the moving parts are seated correctly.

4

Check aperture travel

Actuate the assembled mechanism and confirm that the leaves open and close smoothly without binding.

Quick Summary

A printable iris mechanism built from repeated leaves and pins, designed for manual assembly and smooth visible motion.

Included Files

The package includes print-ready model files plus editable formats for custom preparation or adaptation.

Type	Filename
STL	mechanical_iris_1_v1.stl
STL	mechanical_iris_2_v1.stl
STL	mechanical_iris_3_v1.stl
STL	mechanical_iris_4_v1.stl
STL	mechanical_iris_5_v1.stl
STL	mechanical_iris_6_v1.stl
3MF	mechanical_iris.3mf
3MF	mechanical-iris-v1.3mf
STEP	mechanical-iris-step-v1.step
OBJ	mechanical-irisobj.obj
ZIP	poor-assembly-video.zip

Recommended Use

Ideal for maker showcases, motion studies, classroom demonstrations, prop mechanisms, and display builds where the moving leaf action is the main attraction.

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