



3D Printed Accessories for Headphones

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<https://learn.adafruit.com/3d-printed-accessories-for-headphones>

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Overview



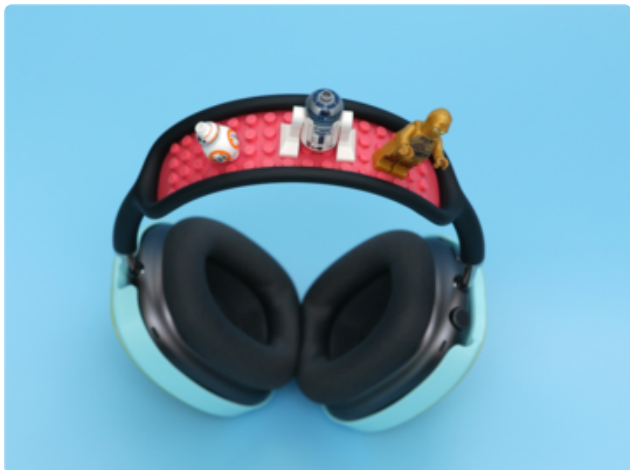
3D print custom accessories for AirPods Max headphones!

These ear covers and headbands are LEGO compatible so you can personalize your headphones!



Use LEGO DOTS tiles to make mosaic works of art and adorn them on your ears with 3D printed covers!

Each cover features a plate with 8x8 LEGO compatible work area for adhering bricks and tiles.



Use Ninjabflex Cheetah filament to make flexible headbands that easily snap fit onto AirPods Max headphones!

These headbands feature a 4x16 LEGO compatible base for making wearable artwork!

Easily snap on Mini Figs to showcase your affinity to your favorite characters.



3D Printing



Flexible Headband Covers

Choose your headphone design and 3D print them using Ninjaflex Cheetah filament.

Cat ears headband

Unicorn horn headband

Mouse ears headband

Horns headband

LEGO compatible headband



Download STLs.zip

<https://adafru.it/-cv>

Download CAD Source

<https://adafru.it/-cw>



NinjaFlex Slice Settings

Use the following settings for printing Ninjaflex Cheetah filament.

230C nozzle temperature

50C heated bed

0.4mm line width extrusion

2 shell count

5 top and bottom layers

40-45mm printing speed

0% infill

Retraction: 1mm (Direct Drive)

Retraction: off (Bowden Drive)

Retraction Speed: 30mm/s

Combing Mode: Off



Design Set

Additional designs include a 2x16 LEGO compatible flexible base.

Headband featuring a Blinka typeface for fans of CircuitPython and Blinka.

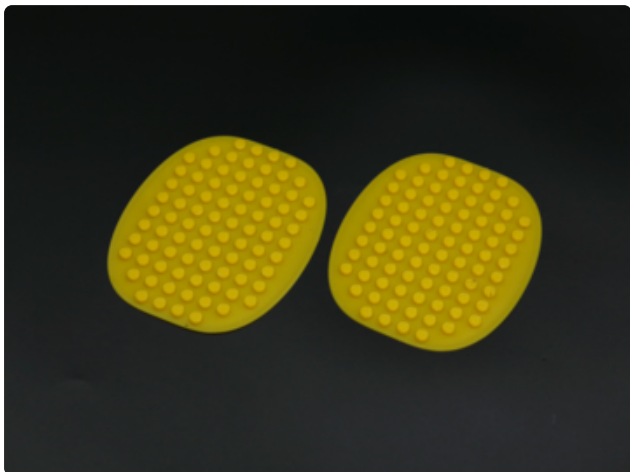


Snap Fit Ear Covers

Ear covers designed for snap fitting onto AirPods Max headphones.

Left and right ear covers are designed for PLA filament.

Featuring a 8x8 LEGO compatible base plate for ear covers.



Designing

Have a different pair of headphones but still want to 3D print accessories for them? Use these basic guidelines to help you design your own!



Measure with Flex Tape

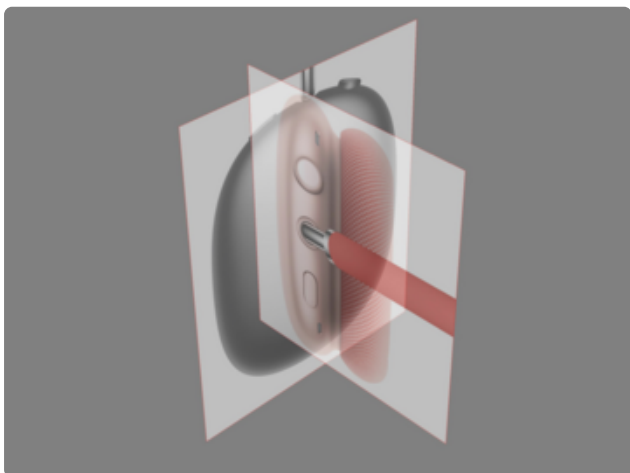
Use a flexible measuring tape to measure the length of the headband.



Measure with Calipers

Use calipers to measure the length, width and depth of the features on the headphones.

Save your measures to a document to reference in your CAD software.

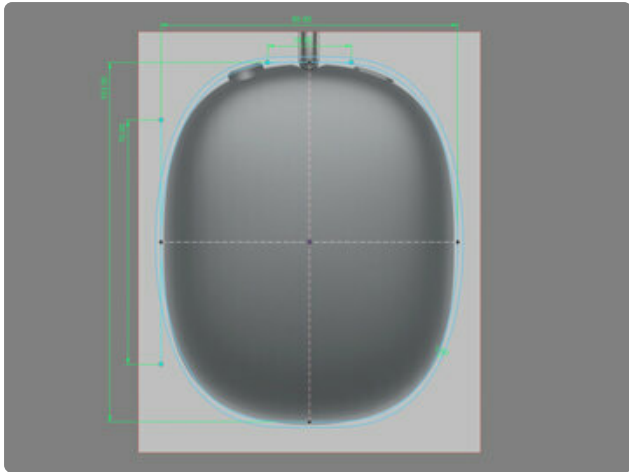


Import Canvas

Reference images can be used to trace the shape of the headphones.

In Fusion 360, use the **Canvas** feature to import images such as JPG and PNG into your project.

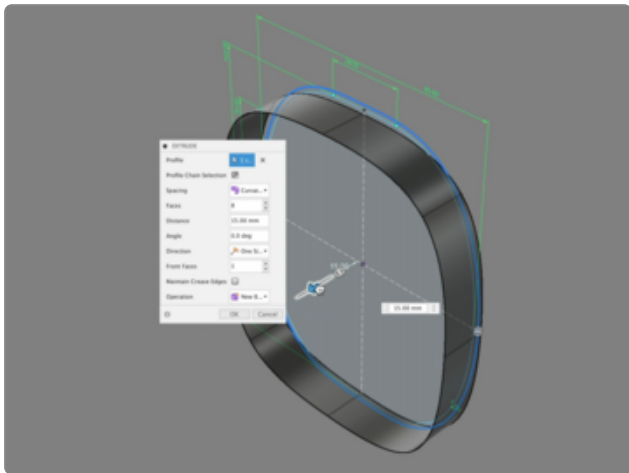
Use the calibrate canvas editing option to apply dimensions and adjust the placement of the image onto your workspace.



Draw Sketch Profiles

Create a sketch and use the spline or line tool to create profiles by tracing the shape of the headphones.

Apply sketch dimensions to create the desired length and width.

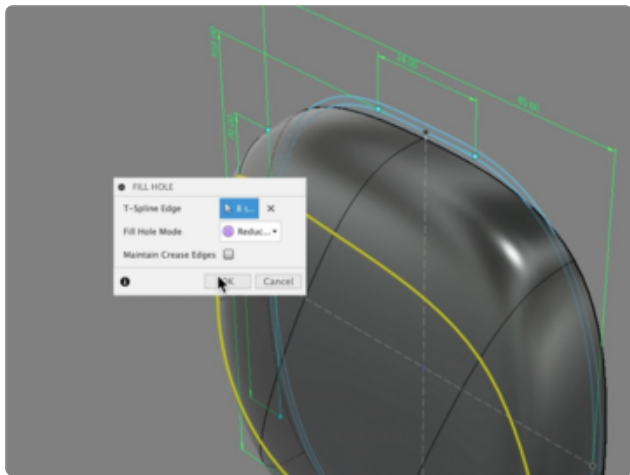


Extrude Forms

In Fusion 360, create a form by select the create form feature.

In the forms workspace, use the extrude feature and select the sketch profile.

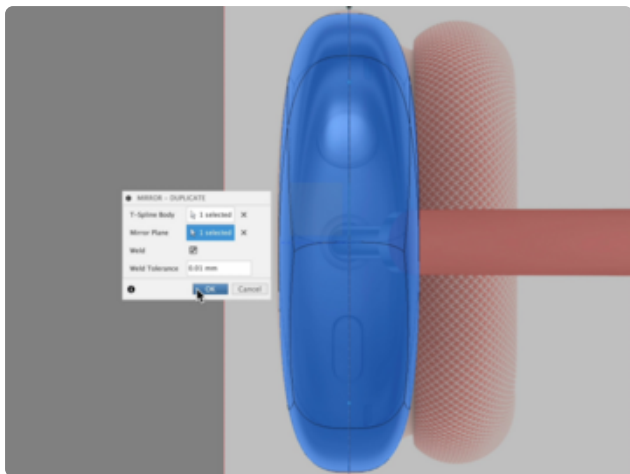
Enter a desired dimension in the distance field and click OK to accept.



Fill Hole, Mirror and Duplicate

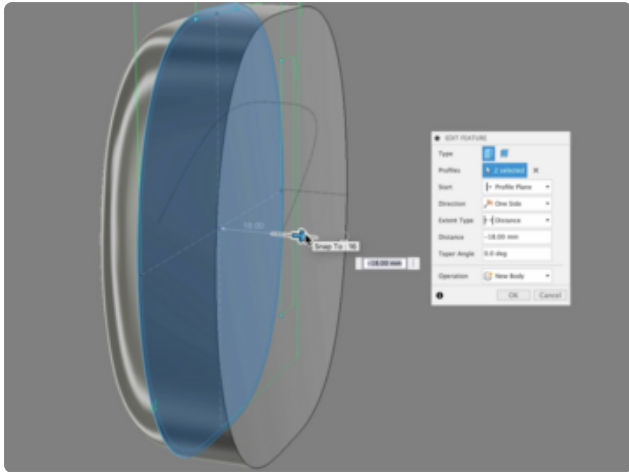
Double click the outer edge of the form and right-click to invoke the contextual menu.

Select Fill Hole, test the different mode types for a desirable look and click OK.



In the forms workspace under modify, use the Mirror Duplicate feature.

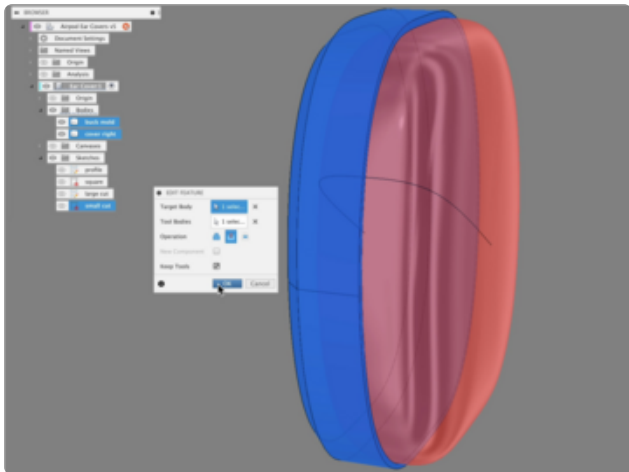
Select the form and use a corresponding plane to mirror the form. Confirm weld option is enabled and click OK.



Extrude and Combine

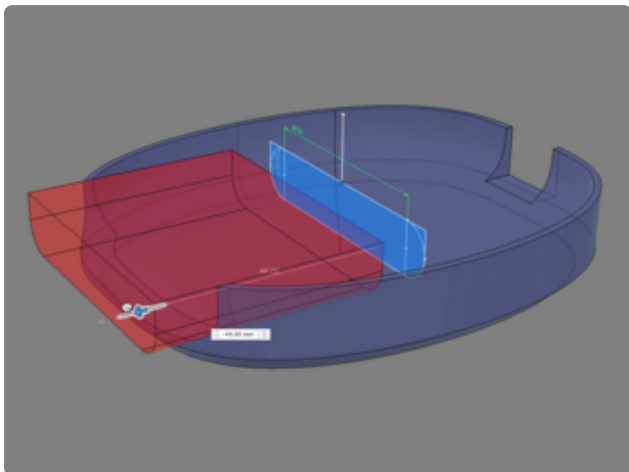
The new solid form can be used to "subtract" from a solid body.

Create an offset outline of your shape to create a new solid body.



Extrude the offset profile and use a desired distance for the wall thickness.

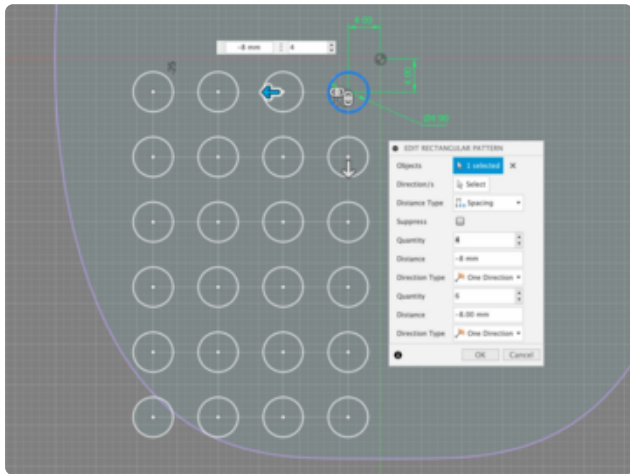
Use the combine feature to subtract the form from the solid body.



Cuts and Openings

Create new sketch profiles for making cuts and openings for various features in the headphones.

Here a large opening accommodates for the headband hinge, and control buttons.

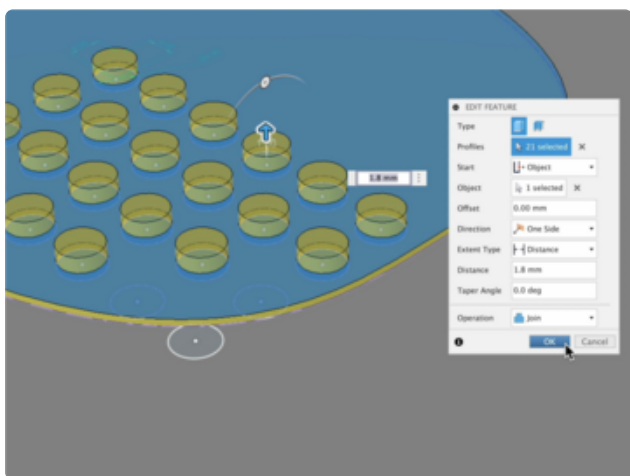


LEGO compatible Plate

Create a new sketch and use the circle tool. Use sketch dimensions to enter a diameter and position the circle.

Use rectangular pattern and select the circle. Use the following parameters to create features that are lego compatible. Click Finish Sketch when ready.

Circle Diameter: 4.9mm - 5mm
Spacing: 8mm



Extrude Circles

Use the extrude feature and select the desired profiles to create the circles.

Enter 1.8mm - 2mm in the Distance field.

If needed, use the mirror feature to duplicate the extrusion using a corresponding plane.