

# FLipMouse - Mouthpiece

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Fabrication Note v1.0, AsTeRICS Foundation



## Scope

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The FLipMouse needs a stick in front to be actuated via finger or lip movements. From 2022 on, the AsTeRICS Foundation produces the mouthpieces in-house.

Basic components of the mouthpiece are:

1. Acrylic pipe, variable length
2. Male Luer Lock adapter to M6
3. Filter

The acrylic pipe (Ø10/6mm) is glued to the Luer Lock adapter with epoxy resin.

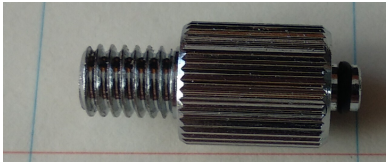
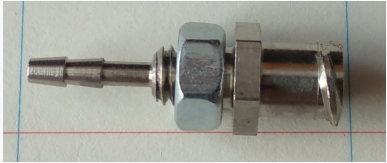

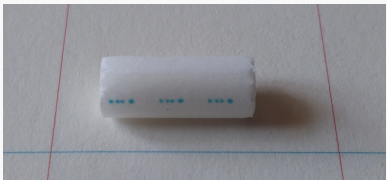



## Preparation

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### Material


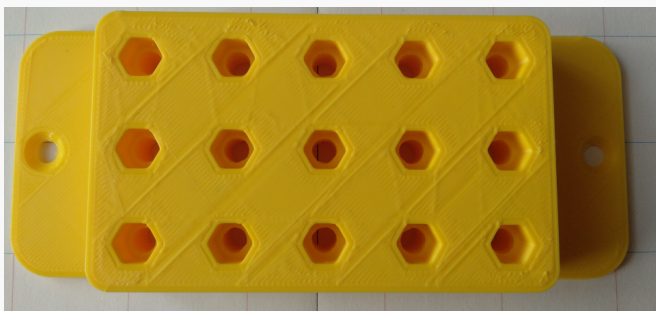
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Nr.	Description	Source	Image
1	Male Luer Lock to M6 adapter	<a href="https://www.droh.de/produkt/2836-luer-loc-k-adapter-mit-m6-gewinde-mannlich">https://www.droh.de/produkt/2836-luer-loc-k-adapter-mit-m6-gewinde-mannlich</a>	
2	Female Luer Lock to pipe adapter. <b>Note:</b> this part is either already in the holder OR it can be taken from the FLipMouse construction kit.	<a href="https://www.droh.de/produkt/1752-luer-loc-k-adapter-mit-m6-gewinde-fur-schlauche-mit-3-mm-id-und-zur-geratemontage-weiblich">https://www.droh.de/produkt/1752-luer-loc-k-adapter-mit-m6-gewinde-fur-schlauche-mit-3-mm-id-und-zur-geratemontage-weiblich</a>	
3	Acrylic pipe (Ø10/6mm)	<a href="https://acrylhaus.com/Acrylglasrohr-rund-XT-transparent-R-10-6mm-Aussen-Innen-1000mm">https://acrylhaus.com/Acrylglasrohr-rund-XT-transparent-R-10-6mm-Aussen-Innen-1000mm</a>	
4	Cigarette filters, 6mm diameter	Local tobacco store	
5	Epoxy resin, UHU 300 or equivalent	DIY-store	

**Note:** Material will be referenced in square brackets: []

## Tools

Nr.	Description	Source	Image
1	Mixing pan & toothpick	Included in the epoxy kit or DIY- store	
2	Miter saw	DIY-store	

Nr.	Description	Source	Image
3	Heat gun	DIY-store	
4	Mouthpiece holder	3D printed, "tools" subfolder.	
5	Sand paper, 240grit	DIY-store	

**Note: Tools will be referenced in curly brackets: {}**

# Procedure

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## Cut the acrylic pipe:

1. Adjust the mitre saw {2} to the necessary length: 50, 100, 120 or 150mm
2. Cut as many pipes [3] as you want to produce
3. Use the heat gun {3} at **500°C** and heat up both ends for ~**5s** (removing the burr)

## Prepare holder and epoxy resin:

1. Place as many female luer lock adapters [2] in the holder {4} as you want to produce. Take care that both hex nuts are in the holder.
2. Attach a male luer lock adapter [1] on each female adapter by pushing and turning 180°.
3. Mix epoxy resin 50:50 in the mixing pan (TBA: give here a weight for a full holder)

## Glueing:

1. Use the toothpick to apply epoxy resin on the male luer lock's [1] M6 thread. **Note:** do NOT apply too much and start applying directly on the thread.
2. Push the acrylic pipe [3] on the luer lock adapter [1]. **Note:** make sure you have clean hands.
3. Repeat for all luer lock adapters
4. Use paper or a tissue to remove any surplus epoxy.

Wait for 12h

## Finalize:

1. Use the sand paper {5} to make a 45° / 1mm chamfer on the outside of the mouthpiece; remove any burr inside the acrylic pipe (either with sand paper, a big drill with ~10mm or a countersunk head)
2. Use the heat gun {3} at ~500°C and heat up the top for ~5 to have rounded edges
3. Put a filter [4] into the acrylic pipe
4. TBA: how to mark the mouthpieces with a chargenumber?
5. Unscrew the luer locks, the female luer lock can be put into the construction kit.

# Testing

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## Tools

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<TBA, use a strain gauge setup>

## Procedure

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<TBA, use a strain gauge setup>

## Documentation

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For each produced batch, fill out one document **template\_mouthpiece\_production.ots** and save it as: `mouthpiece_production_<date>.ods` (e.g.: `mouthpiece_production_20221118.ods`)