FLipMouse - Mouthpiece

Fabrication Note v1.1, AsTeRICS Foundation

Scope

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.

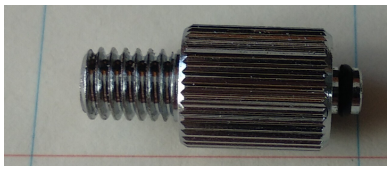
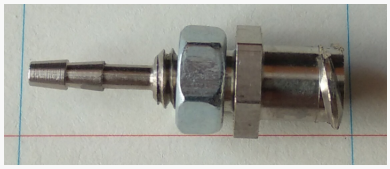
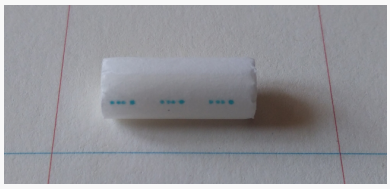
Basic components of the mouthpiece are:

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

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

Preparation

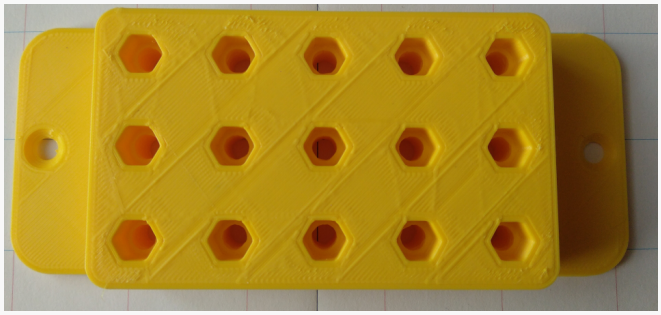
Material

Nr.	Description	Source	Image
1	Male Luer Lock to M6 adapter (metal or plastic)	https://www.droh.de/produkt/2836-luer-lock-adapter-mit-m6-gewinde-mannlich	
2	Female Luer Lock to pipe adapter. **Note:** this part is either already in the holder OR it can be taken from the FLipMouse construction kit.	https://www.droh.de/produkt/1752-luer-lock-adapter-mit-m6-gewinde-fur-schlauche-mit-3-mm-id-und-zur-geratemontage-weiblich	
3	Acryllic pipe (Ø10/6mm)	https://acrylhaus.com/Acrylglasrohr-rund-XT-transparent-R-10-6mm-Aussen-Innen-1000mm	
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	
6	Holder - Cap	3D printed, "tools" subfolder.	

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

Procedure

Cut the acryllic 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 acryllic 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.
5. Place the cap *{6}* on top of the mouthpieces for a guaranteed straight angle

`Wait for 12h`

Finalize:

1. Us the sand paper *{5}* to make a 45° / 1mm chamfer on the outside of the mouthpiece; remove any burr inside the acryllic 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 acryllic 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

Tools

<TBA, use a strain gauge setup>

Procedure

<TBA, use a strain gauge setup>

Documentation

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)