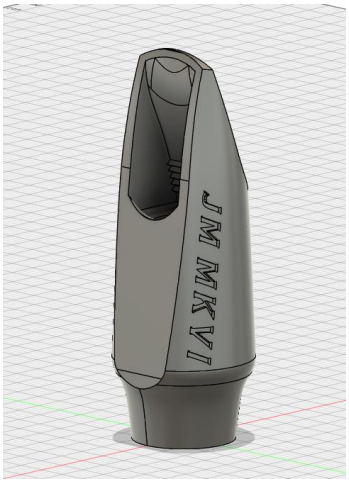
3D Printed Saxophone Mouthpiece Project Overview

This ongoing project initially started as an experiment to see if 3D printers could produce quality saxophone mouthpieces. After initial success in printing an existing mouthpiece design, I started the process of designing and printing my own saxophone mouthpiece. After studying my own collection of commercial mouthpieces as well as conducting online research, I soon found that woodwind mouthpieces are complex designs. They require precision in their design and creation in order to even create an air-tight seal with a reed. This project led to a better understanding of the design process, improved CAD skills, a better understanding of acoustics and the physics of airflow, and also experience with 3D printing as a manufacturing method.



Update 1:

I have designed and printed a mouthpiece which produces an airtight seal with a reed and am currently working on altering the design to play with a darker sound (with less high harmonics) and with better intonation (matching the volume requirements needed to ensure all notes play in turn on the horn). I am also working on altering the design to change the way air flows through the mouthpiece, with the aim of decreasing resistance when blowing into it.

Update 2:

After 20 revisions, I have improved the design and the manufacturing process to a point where I can produce a mouthpiece which plays in tune. To my ears, it is competetive with my commercial mouthpieces in terms of tonal qualities. I have been using the most recent design on proffessional gigs. Other saxophone players are very interested in having a similar mouthpiece made for them.

Update 3:

I have manged to get the contact details of a commercial mouthpiece manufacturer who is willing to talk to me about the topic. I hope to learn about the techniques involved in gravity casting mouthpieces out of metal. My next goal is to produce my current mouthpiece design using copper. The high denisty of this material should help create a darker, fuller sound.