

# Mouthpiece School 101

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The mouthpiece may be the most crucial equipment choice a student can make other than his/her trumpet playing. It is also the easiest thing to change in one's playing to achieve a darker or brighter color, or adapt to different situations such as lead playing or orchestral playing.

Once a player's air causes the tensed lips to vibrate, the vibrations then enter the mouthpiece. It is this sound which enters and is further amplified by the trumpet itself. What this means is that the mouthpiece is the primary resonating factor in trumpet playing. The trumpet is just an amplification of the mouthpiece itself.

While a mouthpiece can complement what a player is trying to do, it's not going to allow them to do something they can't. If a student has technical issues, a new mouthpiece isn't going to fix them. Ideally, the perfect mouthpiece should ease their high range, blow free and easy in the middle and low range, play in tune, have good endurance and be physically comfortable.

A student with a well-developed embouchure will be able to play on a larger mouthpiece, giving them a larger, warmer sound. It is typical for students to get a new mouthpiece sometime after their second year of playing, and again as they advance into pre-professional playing.

Trumpet players often don't just don't have one mouthpiece; we have two, three, even four. Some players have managed to collect hundreds over their career. We are each in search of the holy grail of mouthpieces – one which offers both physical comfort, ease of playing, and the sound we want to make.

Although a new mouthpiece is a small investment in terms of price, it is high in terms of adjusting to the embouchure change over the next month. It is important that the student take the time to make a good decision, so they don't waste a month of study adjusting to a mouthpiece that ultimately does not work out.

## **Selecting a mouthpiece**

Before they try their new mouthpiece, the student should do a complete warm-up on their standard equipment. This will get them in shape and give them a basis for comparison. The room where they try the mouthpieces should have good acoustics (have them clap their hands once and listen to the reverberation), or a room where they are already familiar with their sound.

The student should be looking for a mouthpiece that is comfortable, but without compromising on sound. If possible, the teacher or another trumpet player should be with the student as they try out mouthpieces, since the sound will be somewhat different in front of the bell. Also, someone in the room should mix up the student's mouthpiece choices so they don't know which one they are playing. This eliminates any preconceptions the student may have, and allows them

to objectively report on the comfort and sound of each mouthpiece. Make sure they rest frequently so their chops are as fresh as possible, to avoid biasing the result.

### **The adjustment period**

After picking their new mouthpiece; the student should be patient. They will probably notice a temporary drop in their endurance and range. Reassure them that this is completely normal, since they are using their embouchure muscles slightly differently with the new mouthpiece. The initial excitement (“Where has this mouthpiece been my whole life?”) is often followed by frustration as the new muscles become fatigued over the first week or two. They will get their chops back once the muscles have rebuilt their endurance.

After getting the new mouthpiece, have the student take a day or two off from playing, to give their muscles time to fully rest. After this rest period, have them ease into the new mouthpiece with a slow, easy warm-up (long tones) that requires very little pressure and movement.

Following the warm-up, have the student ease into their practice routine, paying special attention to their embouchure. Their daily practice should be no more than 45-60 minutes for the first two weeks of the mouthpiece change. You want them to exercise the new embouchure muscles without depleting them. If they keep running the muscles to exhaustion each day, the muscles will be too tired to actually build endurance.

After two weeks, the embouchure muscles should be acclimated to the new mouthpiece, and the muscles should have built up enough strength and endurance for the student’s regular practice routine.

Have the student put away their old equipment so they won’t reach for it in a time of need! If their new mouthpiece is not performing as they would like it to after one month, they can return to the previous mouthpiece or begin their search again with a better idea of what they are looking for.

### **Mouthpieces for beginners**

The 7C or 5C mouthpiece is the most common for beginners. Students with larger lips will be more comfortable on a mouthpiece with a wider inner rim (the open center of the mouthpiece), such as the Bach 5B. This larger inner rim will allow the student’s lips room to vibrate; a narrower inner rim will pinch into the fleshy part of their lips, causing issues in tone, flexibility, and endurance.

While students with slightly thinner lips can play a standard 7C mouthpiece, players with extremely thin lips should choose a mouthpiece with a narrower inner rim, such as Bach 10 ½ C. A standard mouthpiece would require additional mouthpiece pressure for these students, and as a beginner their embouchure strength is insufficient.

Some students may have a *teardrop lip*, in which the front part of the lip comes down further than the rest of the top lip. Since this lip formation can lead to an unreliable response, fluttering in the

sound, a downward air stream, and aperture control issues, the teardrop lip is generally not well-suited to the trumpet.

If a student with a tear-drop lip has their heart set on playing trumpet and understands the difficulties associated with their lip shape, private lessons can help them develop strategies to minimize its impact on their playing. The Schilke 13C4 can be a good mouthpiece choice for students with a teardrop lip. It is comparable to a Bach 3C, but it has more rim surface area and is slightly more flat, helping to stabilize the teardrop portion of the lip. Its more funnel-shaped cup also allows the lips room to vibrate.

The parts of any mouthpiece are the rim, cup, throat, shank, and backbore. Each of these components has a different effect on the comfort and sound of the mouthpiece.

### **Mouthpiece Rim**

The rim of any brass mouthpiece is measure in terms of its diameter, width, contour and edge (bite). The rim choice has the most influence on the player's comfort and endurance. A sharper inner edge will produce a cleaner attack, while a rounded inner rim will create a smoother, more rounded attack.

If the edge is too sharp it can reduce endurance by pushing into the flesh of the lips. However, a sharper edge will also help with control by allowing only the proper amount of flesh to vibrate.

In general, the more of the outside rim a player has in contact with the flesh, the less free the lips are to resonate. If the rim is too narrow, it can push into the flesh of the lips and cause a lack of endurance as well as possible bruising. A medium-wide rim is generally best, and is found on the most standard mouthpieces.

### **Mouthpiece Cup**

The cup of the mouthpiece is much like a bowl, and influences the sound and responsiveness. A deeper cup will produce a deeper sound, easier playing in the low register, and a slower response time because of the additional volume of air. A shallower the cup will produce a brighter sound, easier playing in the high range, and a rapid response time. Shallow cups are best used for high playing or small trumpet (piccolo/Eb/D) performing.

The shape of the cup also plays a role in sound. The bowl shape of a standard mouthpiece produces a brighter timbre than the cone shape found on the flugelhorn mouthpiece. Professionals may special-order a conical cup for a standard mouthpiece shank to achieve a dark, warm, mellow sound on the trumpet.

### **Mouthpiece Throat**

The throat can best be described as the hole in the center of the cup. The bigger the throat, the more air can pass through. The core of the sound will be warmer, richer, and have a clear, pure focus.

The stock throat size is a 27, referring to the size of the drill bit used to create it. High school students would typically play a 27 or 26 (slightly larger) throat size. Professionals more commonly use a 24 or 23, which allows them to move more air through the mouthpiece.

Using a larger throat requires a well-established embouchure and good endurance. Otherwise, a throat that is too large can result in playing flat.

### **Mouthpiece Shank**

The shank is the part of the mouthpiece that is inserted into the mouthpiece receiver of the trumpet leadpipe. The student should clean the mouthpiece with a brush after each use, to keep deposits from building up inside the shank.

The mouthpiece must create a tight seal in the mouthpiece receiver for proper performance. Mouthpiece receivers vary only slightly in size if at all from company to company, so “plug and play” works most of the time, but not always. If a student inserts their mouthpiece into the trumpet and hears a metallic hitting sound, it probably means their mouthpiece shank is too slender, and has extended past the mouthpiece receiver to hit the leadpipe itself.

If the mouthpiece does not seal well, the resulting air leak will make the trumpet nearly unplayable, and if it is playable it will be quite flat.

### **Mouthpiece Backbore**

The backbore is the interior circumference of the shank, and is a major factor in the overall tone color when the mouthpiece meets the trumpet. A bigger backbore will produce a darker sound; a narrower backbore will produce a brighter sound.

If the backbore is too large, the player will suffer from deflated endurance and flat intonation. If the backbore is too narrow, there will be perceptibly less room for the player to alter the airflow in order to make minor adjustments in the pitch and sound.

### **Mouthpieces for different trumpets**

Although trumpets come in various pitches (beyond the most familiar Bb and C), all trumpets use a standard trumpet mouthpiece. Cornets, however, use a mouthpiece with a shank that is narrower as well as shorter. The *traditional* cornet mouthpiece is funnel-shaped, like a flugelhorn mouthpiece (producing a warmer sound); the *modern* cornet mouthpiece is cup-shaped, like the trumpet mouthpiece.

Although similar to a cornet mouthpiece, the cup of a flugelhorn mouthpiece is much more funnel cupped, and the shank is tapered for the larger flugelhorn receiver.

Most piccolo trumpet performers use a mouthpiece with a shallow cup and a narrower rim (both inner and outer). The receiver of the piccolo trumpet may be designed for either a trumpet or cornet shank. The cornet fitting responds somewhat faster because of its narrower backbore and shorter shank, so is preferred by most professionals.

## **From gold to plastic**

Mouthpieces start from raw brass, and are then plated to the request of the manufacturer or customer. Because of the risk of brass poisoning, it is illegal for a manufacturer to sell a mouthpiece to a customer without the plating.

*Silver plating* is standard for any mouthpiece, and tends to grip the lips better than gold. A player who likes a firm set for their mouthpiece will be most comfortable with silver plating. *Gold plating* warms up faster than silver, and is also a little heavier than silver, adding some weight to the mouthpiece. Gold plating allows the lips to move a little more freely, which wet set players may tend to prefer.

*Plastic mouthpieces* are most often used outside for cold-temperature performing, or for casual buzzing in the car. They are inexpensive and quite durable, but lack the sound quality of the standard metal mouthpiece.

*Plastic or lucite rims* are useful for players who have an allergy to silver or gold plating, as well as for playing outside in cold temperatures. These rims are custom-ordered because they are made per order and request from the manufacturer as a part of screwrim mouthpieces. Generally, screw rim mouthpieces cost slightly more than a standard mouthpiece and typically takes a month or two to receive, so a plastic mouthpiece is a more economical choice for the occasional outdoor performance situation.

## **Specialty mouthpieces**

*Screwrim mouthpieces* were developed for players to use the same rim but change to different backbores and throats used for different trumpets or playing situations. A large cup and backbore may be more appropriate for symphonic playing; the same player can use the same rim with more shallow cup and tighter backbore for jazz or lead work. Players should put a drop of valve oil on the threads every other week or so to keep the rim from locking to the cup.

A *mega-tone mouthpiece* is much like a standard mouthpiece however, but with a substantial amount of weight added to the body of the mouthpiece. The added mass allows the louder volume to be produced with less distortion, while adding warmth and darkness to the sound in all registers. A mega-tone mouthpiece is standardized with a larger throat.

The *fluffy mouthpiece* is a hybrid mouthpiece, combining the cup of a flugelhorn mouthpiece with the rim and shank of a trumpet mouthpiece. The end result is a warm, velvety sound which is perfect for quiet passages or lyrical solos.

*Bent mouthpieces* are useful for players who have a very severe over- or underbite that is not correctable by simply pushing or pulling the bottom jaw forward or backwards. These players play with an acutely downward or upward slant to their trumpet. The manufacturer can bend the mouthpiece by 8-12 degrees to correct the trumpet's position without adversely affecting the pitch.

The *asymmetrical mouthpiece* was developed by John Lynch, and uses a special cup design to allow for easier high-range playing with less mouthpiece pressure. It should not be used for everyday playing. For more information on this mouthpiece visit [www.asymmetric-mouthpiece.com](http://www.asymmetric-mouthpiece.com).

## **Mouthpiece Repair Tools**

Although major trumpet repairs should be referred to the shop, a band director can make life easier for themselves and their students by having a few simple tools on hand.

For the occasional situation when a student gets their mouthpiece stuck in the receiver, a *mouthpiece puller* is essential and makes quick work of the situation. Do not ever use a wrench; both the mouthpiece and the leadpipe itself can be damaged, escalating a free repair into an expensive soldering job.

A *mouthpiece trueing tool* is a must to have around in case of a dropped mouthpiece. If the shank is bent, the trueing tool can be inserted into the shank and twisted, returning the dented shank to its cylindrical shape.

## How to read mouthpiece numbering

The Bach numbering system is considered the standard for mouthpiece comparisons, and is used as a reference to compare other brands. In the Bach system, the number refers to the rim circumference; the bigger the number the smaller the rim. Bach mouthpieces range in size from 1 to 20.

The letter in the Bach system refers to the cup size. The higher the letter, the smaller the cup; so A is the largest cup size. The "C" cup (or medium cup) is the most common in symphony and band playing. "D", "E" and "F" cups are referred to as shallow cups, and are typically used for lead playing in jazz band.

<b>Mouthpiece Comparison Chart</b>				
<b>Bach</b>	<b>Monette</b>	<b>Schilke</b>	<b>Denis Wick</b>	<b>Yamaha</b>
<b>Numbering</b>	<b>Numbering</b>	<b>Numbering</b>	<b>Numbering</b>	<b>Numbering</b>
1C	B1-5	20, M1	1	TR17C4
1 ¼ C	B2	M1.5, 15	2	TR17B4
1 ½ C	B3	16C4, M2	2W	TR16C4
2C		14	3	TR15C4
3C	B6	M3, 13C4	4	TR14B4
5B		14D	4	TR14D4
5C		13B	4C	TR14C4
6C		12	4C	TR13B4
7C	B-7F	11	4B	TR11C4
10 1/2C	B8	9C4	5	TR8 C4

## Trumpet Mouthpiece Manufacturers

Bach	<a href="http://www.bachbrass.com">www.bachbrass.com</a>
Denis Wick	<a href="http://www.deniswick.com">www.deniswick.com</a>
Yamaha	<a href="http://www.yamaha.com">www.yamaha.com</a>
Monette	<a href="http://www.monette.net">www.monette.net</a>
Warburton	<a href="http://www.warburton-usa.com">www.warburton-usa.com</a>
Curry	<a href="http://www.currympc.com">www.currympc.com</a>
Greg Black	<a href="http://www.gregblackmouthpieces.com">www.gregblackmouthpieces.com</a>
Schilke	<a href="http://www.schilkemusic.com">www.schilkemusic.com</a>
Marcinkiewicz	<a href="http://www.marcinkiewicz.com">www.marcinkiewicz.com</a>
Stork	<a href="http://www.storkcustom.com">www.storkcustom.com</a>
Jet-Tone	<a href="http://www.jet-tone.com">www.jet-tone.com</a>
Kelly	<a href="http://www.kellymouthpieces.com">www.kellymouthpieces.com</a>
Reeves	<a href="http://www.bobreeves.com">www.bobreeves.com</a>