

Mouthpieces

Below, I outline the mouthpieces I use. Mouthpieces, even more than instruments, are very personal. Every individual player is different and every mouthpiece affects the playing of each individual in a very specific way. I find many players get really caught up in finding “the right mouthpiece.” With that in mind, I try to think about it as little as possible. A good player will make do with almost any mouthpiece, and so I suppose it is a matter of making it as easy as possible to get the result we want. As with selection of instruments, I believe that the player is the most important component – and not the mouthpiece. Following my suggested mouthpieces is a very basic primer on mouthpiece characteristics and engineering.



Classical Mouthpieces

For all my classical playing, I exclusively use Vincent Bach mouthpieces. I may be old fashioned, but I just like the feel and the sound. See the list below for specifics.



- **Vincent Bach 1** – This is my standard classical mouthpiece. I use it when I play all my larger horns. It provides a big, dark sound, but a player needs to be pretty well-conditioned to handle it.
- **Vincent Bach 7C** – I use this mouthpiece for piccolo trumpet playing. It is, of course, the standard beginner mouthpiece. After trying some other mouthpieces – including the 7DW (which is very shallow and has a very sharp bite on the inner rim of the cup) – I picked up an old 7C I had from junior high and found I liked it. I stuck with it, and have never really tried anything else with my picc.
- **Vincent Bach 1C Flugel** – Here is another by-default mouthpiece. I got this mouthpiece when I bought my flugelhorn. It worked fine, so I stayed with it. Why mess with it if it works?

Commercial/Jazz Mouthpiece

I found my commercial mouthpiece in much the same way as I found my piccolo trumpet and flugelhorn mouthpieces. A trusted saxophone-player friend told me I sounded a little too “legit” while playing a couple of big band gigs, so I sought out a commercial trumpet-player friend for suggestions. His recommendation was the **Marcinkeiwicz *3/5C**. I really liked it. Not only did it make my sound “pop” while playing lead in the big band, but it gave me *a lot more endurance*. I attribute my (relative) success with the mouthpiece, largely, to the fact that it isn’t too shallow. Most lead trumpet mouthpieces are just so shallow (Schilke 14A4A, for example) that they arrest the vibration of the embouchure when swelling occurs. If you are prone to swollen lips when playing relatively high-intensity music, the worst thing you can do is to play on an extremely shallow mouthpiece: it may work for a while, but it will bite you once any sort of swelling occurs.

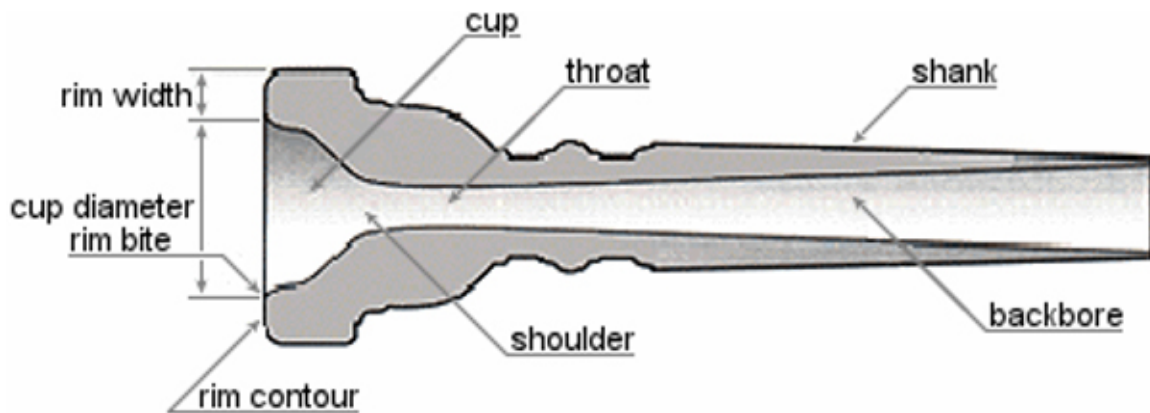


General Mouthpiece Information

Each individual trumpet player should seek out the mouthpiece which best suits his or her physical demands and the demands of the musical material to be performed. Every mouthpiece has specific characteristics which emphasize different facial muscles and every mouthpiece settles in a different position on the player's teeth and gums. It is therefore very difficult to pinpoint "the perfect mouthpiece" for any player. Mostly, finding the right mouthpiece is a matter of trial and error. It can take a player literally years to find the mouthpiece with which he or she is most comfortable. However, during the selection process, some basic knowledge will provide the background for making the best choice for the individual.

First, it is useful to define the terminology. Below is a diagram of the most pertinent characteristics of the mouthpiece. The cup most directly affects the feel of the mouthpiece on the embouchure, while the throat and backbore affect the feel in terms of the volume and speed of the air stream.

Trumpet Mouthpiece Cut-Away



An aggregate of factors determine the sound and feel of any mouthpiece. Variation of each of the below characteristics gives every mouthpiece a unique signature. Generally, altering any trait will produce improvement to one area and detriment to another. It is useful, then, to understand these parameters while deciding what the right mouthpiece is for a specific player and a particular purpose.

The Rim

Rim Diameter

As a general rule, a large mouthpiece will produce a darker tone and is optimized for playing lower and louder, with the sacrifice of some endurance. A smaller mouthpiece may improve endurance and increase high range, but the tone will be brighter and the volume will be limited. With Vincent Bach mouthpieces (the standard for many players), the number represents this parameter. A lower number indicates a larger diameter and vice versa (a 10½ would be small, while a 1½ would be rather large).

Rim Contour

The contour of the rim has a lot to do with playing comfort, as it is the point that most directly contacts the embouchure. This variable also vastly affects clarity of attack (as amplified below – see "Rim Bite"). Most players prefer a more rounded outer rim with a flat rim surface and a slightly sharper rim bite.

This offers good stability, medium comfort and optimal contact at the rim bite, which provides better defined attacks.

Players should take notice of pitting, scratching or other damage on this surface, as it can affect the playability and especially comfort of the mouthpiece.

Rim Width

Rim thickness determines the amount of contact area for the embouchure. A thicker rim provides increased comfort for easier upper register and extended endurance; however it limits flexibility of tone. Conversely, a narrower rim offers greater flexibility and control at the cost of longevity. Beginners – and, for that matter, most players – do best with a rim of medium width. A player should try a variety of widths to determine which works best. Vincent Bach mouthpieces are offered in wide-rim versions (notated by the addition of a “W;” i.e. 7DW).

Rim Bite

This parameter largely influences the clarity of attack and flexibility of pitch. A sharp bite produces accurate, stable pitch; but if the bite is too sharp, movement between notes can become labored and harsh. Additionally, the sharp bite may reduce endurance – and even cause pain. A more rounded “soft bite” will be more comfortable to play and will blur the attack clarity. The sharper bite may also assist the player who has difficulty keeping the mouthpiece in a consistent position, by providing a more stable contact point.

The Cup

Cup Depth

The depth of the cup influences greatly the sound of the player. A shallow cup produces brighter tone with greater control in the upper register; volume may become limited with a shallower cup. A deep cup darkens the tone, deepens the sound in the low register and gives the player greater power; but it generally makes upper register playing more difficult. Vincent Bach, the standard, offers a variety of cups, ranging from A to E – the original idea being that A-cup mouthpieces should be played with instruments pitched in “A,” C cups with “C” instruments, etc. Nowadays, anything goes: any cup shape may be used with any instrument. Additionally, there are the “straight” cups, which have a much greater volume – generally for use by very strong players. There is also one other diversion from these norms in the V. Bach 1X, which is similar to the straight 1, but has a smaller cup and a wider rim.

Cup Shape

“Cup silhouette” encompasses both cup depth and shape. Shallow cups produce a brighter tone color and may be more easily controlled in the upper register of the instrument, while giving up some power (sound volume). Deep cups offer a darker tone, easy and full low notes, and plenty of power; but the player gives up some ease and control in the upper register.

Cup shapes range from “U” to “V” shapes. On the whole, the more “U”-shaped a cup is, the brighter the sound and the easier to play in the high register. The more “V”-shaped it is, the darker the tone and the easier to play in the low register.



It is rare to see today, but some players employ a “double-cup” design – utilizing a combination of the “U” and the “V” cups. The idea behind this is that a player can control which part of the cup (“U” or “V”) by pivoting the mouthpiece and changing the initial direction of the air stream. The great Harry James was known for using the Parduba Double Cup mouthpiece (see the cutaway diagram and picture image at left).

Shoulder

The shoulder is the curved point at which the cup meets the throat. Logically, most “U”-shaped cups have a sharp shoulder resulting in some resistance and a clear, bright sound. “V”-shaped cups have a smoother, rounder shoulder, producing lower resistance and a darker tone.

The Throat and Backbore

Throat Diameter

The throat is the narrowest part of the mouthpiece bore, and as such, it becomes the point where the air pressure is most concentrated. Therefore, it has a strong influence on playing resistance. The longer and narrower the throat is, the greater the resistance – contributing to good response, brilliant tone and a stronger high register. A shorter, wider throat feels better in the lower register and can produce a greater volume – but it requires a larger volume of air from the player and can be fatiguing.

Backbore

The "backbore" is the inner section of the mouthpiece bore which follows the throat. The backbore has a complex flare which can significantly affect high-register pitch. The diameter of the backbore also influences timbre and resistance. Like most other diameter-related parameters, a narrow backbore results in increased resistance, brighter tone, and easier playing in the high register. A larger backbore decreases resistance for darker tone and easier playing in the lower range.

Shank

The outer diameter of the shank is important in that it determines how exactly the mouthpiece matches up with your instrument. This should match your instrument perfectly without being at all loose. The shank's outer diameter determines how deeply the mouthpiece seats in the receiver, and this affects pitch in general, the accuracy of individual notes, and the way the instrument feels when played.

Material, Weight and Finish

Perhaps less obvious than the shape parameters described in the preceding sections, the material weight, and finish also determine a mouthpiece's sound and playability. Whether all of these minute details actually make a big difference is really a personal matter.

Material

Brass is by far the most common material used in mouthpiece production today. The metal provides fast and flexible response. Brass is almost always the best choice for a player. Silver mouthpieces are a very unique alternative to brass. Their tone is darker and thicker, and they tend to project better. Inexperienced players might want to avoid the higher-density metals as they are much more difficult to control, but a strong player can take great advantage of a heavy mouthpiece. The heaviness of the metal is quantified using specific gravity as a measure; specific gravity is the ratio of the density of any material to that of water at the same temperature. Generally speaking, the higher the specific gravity of the metal, the more dark and dense the tone will be.

Weight

In recent years, it has become a relatively common practice to add weight to mouthpieces. The thinking is that more weight equals a more dense and dark sound. Often, the mouthpiece has the weight built in (one continuous piece of metal). Also, the weight may be added via rings attached to the shank. See the figure on the right: from left to right: standard Vincent Bach mouthpiece, Vincent Bach *Megatone* mouthpiece and a mouthpiece “tone intensifier” ring.



Finish

Silver plate is an ideal finish for brass mouthpieces – and, without a doubt, the most common all around the world. When it is sufficiently thick, silver plating is exceptionally durable and offers a very good grip for the embouchure. It is also the least expensive option.



Gold plating offers a smooth, luxurious feel, and many players feel it helps with lip flexibility. Additionally, gold plating may be substituted for players with allergies to silver. Some players claim that gold plated mouthpieces may even minimize the effects of cold sores. In some cases, the gold plate extends to the inside bore of the mouthpiece, which is believed to further smooth the flow of air (though this is a very minute detail).

It is possible to leave the mouthpiece un-plated making for a much higher level of grip; however exposure to bare metal can be problematic because of allergy concerns. The exception to this is with mouthpieces made, not from brass, but from silver. These mouthpieces may be buffed to a fine finish, offering superior grip for the player.

Generally speaking, gold-plate finishes provide the smoothest feel with unrestricted lip movement, while unplated silver gives the best grip. Silver plate – again, the most common option – falls somewhere between gold-plate and unplated silver.

Other Considerations

It is obvious by now that mouthpieces are a very, very highly-customizable item. Below are a few more areas where a mouthpiece can be individually modified. The sort of modifications here are really only intended for advanced players who are looking for a very specific outcome.

Screw-Rim Mouthpieces

Some players like to have extreme flexibility with their mouthpieces. Screw-rim mouthpieces allow the player to change just one aspect of their mouthpiece while keeping all other aspects the same. Mouthpieces may be purchased already cut as screw-rims, modified at a music store, or in some cases sent away for modification. Also, a local machinist can very easily make all sorts of adjustments to a mouthpiece. If you enjoy tinkering with your mouthpieces, it's a really good idea to make friends with someone who is able to do this sort of work.

In addition to changeable rims, it is also possible to separate the cup from the portion of the mouthpiece. This is rarer than the changeable rim, and it allows for very specific customization of rim, cup/throat and backbore.

Addition of Metal

In order to increase the weight of the sound, some players will add sleeves to their mouthpieces, sometimes called “tone intensifiers.” The idea is that more mass on the mouthpiece will help the player project more. The negative aspect of this is that the sound will dull. Depending on the kind of tone color you possess, this may be a good or a bad thing.

Removal of Metal

In more rare cases, a player may choose to remove mass from his or her mouthpiece. The idea is to give the sound more brightness and to increase flexibility even more. When there is less metal to vibrate, the upper harmonics resonate more, and this has the additional effect of allowing the player greater control. This can be done by a machinist, and the amount to be removed may be determined by trial and error (hopefully more trial than error). It should be obvious that great care be taken in this process, as too much metal removed could altogether ruin the mouthpiece.

Backbore and Throat Modifications

Both the throat and the backbore may be machined to a larger size. This can even be done, with the proper equipment, by the musician him or herself. Usually, the mouthpiece is sent out or taken to a local machinist.

Throat sizes – at least for Vincent Bach mouthpieces – were standardized many years ago. The so-called #27 (0.144 inches) was chosen as the standard not because it was the average size, but because it was rather small. The idea is that one cannot add metal to the throat, so it was manufactured with a fairly small bore so each individual player could choose a throat size that worked for him or herself. The larger the throat, the more air must be moved while achieving the various airspeeds required to vibrate the air at a certain frequency. Or, more simply put, the bigger the throat, the harder you have to blow. Customizing a Vincent Bach mouthpiece to a #24 size is one of the most common choices.

Backbores are often opened up as well, for purposes of increasing the fullness of the sound. The so-called “Schmidt Backbore” (so named for the German company whose mouthpieces possessed this attribute) is a commonly requested size.

Asymmetric Mouthpieces

Sometimes either the outer and/or the inner rim of a mouthpiece are purposely designed out of round and/or with the cup located off-center from the outer rim (one of these is pictured at right). The purpose is to more evenly distribute the pressure needed to achieve much higher notes while keeping a large enough cup to allow for a more desirable sound. Some people swear by this concept, but it is regarded by many (including this writer) as a “weird science” of brass playing. Knowing little about this, I will leave it at that. One should draw his or her own conclusions.



Conclusion

In closing, I just have some editorial remarks.

First and foremost, remember that for every positive trait gained with a change of equipment (mouthpiece, instrument or otherwise), there will be a negative effect. Maybe you want a darker sound, but to get it, you might give up some confidence in the upper register. Or, you might want to play like Maynard Ferguson, but to achieve that, the mouthpiece you’ll have to use will force you to give up any hope of playing like Phil Smith! Choices, choices...

Based on my experience, there tends to be what you might term a “honeymoon period” with any piece of equipment. When you start with a new mouthpiece, it often seems to feel *just right*, and you might even convince yourself that you sound *so much better* than with your old equipment. Many times (frankly, more often than not), this is an illusion. After all, the grass is greener on the other side of the hill, right? It is so important to be as objective as possible, especially while first working with a new mouthpiece. I find it is useful to record myself with both pieces of equipment. Listen and compare, and spend some time comparing the feel of both. If you don’t have a decent recorder, have a trusted musician friend listen to you and let them be the objective party.

Finally, remember the all-important rule: that the player, him or herself, is the most critical piece of equipment. No instrument, mouthpiece, valve caps, lead-pipes, spit valves, music stand or dog leash is going to make much difference at all if the musician doesn’t play well. So, before spending fifty bucks on a mouthpiece made out of volcanic glass and sprinkled with fairy dust, grab your Arban’s Book, make your way to that practice room and get to work!