

The following picture (Figure 3) shows the section of a mouthpiece (horn). The following names are valid for all sorts of mouthpieces and are partly traditional old Viennese expressions (origin 18<sup>th</sup> century), which I want to adhere to.

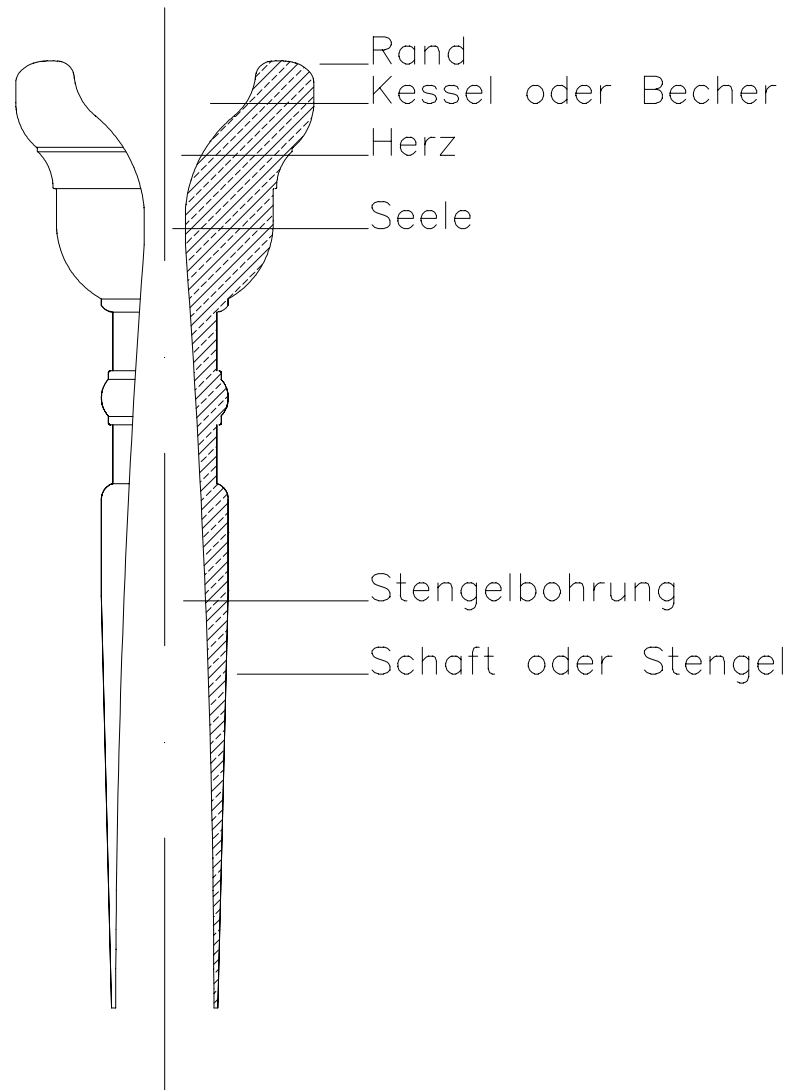


Figure 3: cut through a trumpet mouthpiece

*Rand* (Rim)

*Kessel oder Becher* (Cup)

*Herz* (Heart)

*Seele* (Soul)

*Stengelbohrung* (Back bore)

*Schaft oder Stengel* (shank)

## The rims

The function of the rim contour of mouthpieces is to support the vibration of the lips as much as possible. Consequently it shall neither be too wide (blocking) nor too narrow (cutting). A good rim should enable the musician to play over a long period of time. Extreme forms of shapes should not be taken into consideration (very steep curvature of the rim down to the outside or inside), too wide, too narrow).

**G:** Traditional old Viennese rim contour without extremes.  
Typical inner edge, flatter curvature of the rim down to the outside.  
Provides for better endurance.



**L:** Rim shape for Prof. Levora, soloist of the Vienna Philharmonic Orchestra in the 1960ies. Smaller inner edge than rim G, rounder and steeper curvature of the rim to the outside, offers excellent embouchure.



**H:** This rim shape was created in imitation of the widely used mouthpiece 1½ C, rim for high flexibility during the performance.



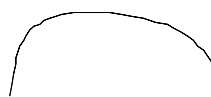
**V:** Is equivalent to rim shape 1¼ C. With this model we provide the possibility to switch over from a mass-produced mouthpiece to our module system without greater problems.



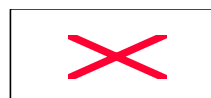
**K:** The inner edge is equivalent to rim G, it is extended to 28mm to the outside. For a better endurance without a significant loss of the flexibility that rims with a normal width have.  
Recommended for shallow cups.



**W:** The inner edge is equivalent to rim G. Outer diameter: 29.0mm.  
Designed to minimise signs of fatigue during long-duration performances.  
Recommended for shallow cups.



**1:** Rim contour of Hans P. Schuh (Philharmonic Orchestra)  
Developed out of a G1 which has been modified by my father according to Mr. Schuh's requirements. High inner edge.



**1C:** Copy of the Bach rim 1C. In the area where the curvature of the rim meets the curvature of the cup, the edge of the rim contour was modified in order to make the rim fit the cup series G (on request of Martin Lechner).



This small selection of models is only a small part of the number of rims that are available and they represent a cross-section of the whole range of mouthpieces. In the following table you will find the complete assortment, which is permanently extended.

Annotation: In terms of size the various pictures of the rims are individual and not proportional to each other.

## Rims for module-system mouthpieces for trumpets

(part 1)

rim contour	outside Ø	nominal width	cup diameter	description
R	27,700	15,973	16,000	rim of Prof. Rudolf (†1995) (Vienna Symphonic Orch.)
7D	27,950	15,974	16,000	Corresponds to Bach 7DW Mt. Vernon
7E	27,700	15,974	16,000	Inner edge 7D flat and wide outside
2DE	27,956	16,088	15,640	Rim Tilz 2DE
BB	27,890	16,096	16,000	Rim of a typical piccolo mouthpiece, wide
K16	27,600	16,322	16,000	Rim contour K for module cup 16,0mm
EL	27,446	16,328	16,000	Rim Engelbert LOIDL. RSO Wien
4X	28,199	16,448	16,000	Rim Denis Wick 4X
7CE	27,620	16,471	16,000	Rim Tilz 7CE
V16	26,915	16,477	16,000	Rim form V fits module cup 16,0mm
B	29,000	16,551	16,400	Wide rim, round shape, comfortable
A	27,769	16,606	16,400	Round shape, according to old contour gauge A
E4	27,626	16,633	16,400	Rim Yamaha 15E4
112	27,200	16,645	16,400	Rim corresponds to Bach 1½ C
T6	27,414	16,646	16,400	Rim Schantl T6
GS	27,543	16,664	16,400	Similar to rim G, according to old contour gauge S2
G11	27,424	16,668	16,400	An old version of rim contour G
V2	27,115	16,677	16,400	Contour according to Bach 1¼ C, modified
S	27,500	16,690	16,400	According to rim contour gauge S
1	27,496	16,693	16,400	Rim contour H.P.Schuh (Philharmonic)
2	27,496	16,693	16,400	Randform H.P. Schuh (Phil.) mildere Innenkante
3	27,220	16,694	16,400	Rand Bach Nr.3
ST	27,408	16,706	16,400	Rand K. Steining (Symph.)
ST4	28,008	16,706	16,400	Rand K. Steining (Symph.), breit
G	27,500	16,718	16,400	Rim of series G of complete mouthpieces

Nominal width: measured at depth of 1.5mm to the inside of the rim.

Diameter of the cup: cup width where the curvature of the rim meets the curvature of the cup – 2.5mm to the inside of the rim.

## Rims for module-system mouthpieces for trumpets

(part 2)

rim contour	outside Ø	nominal width	cup diameter	description
G2B	27,450	16,720	16,400	modified contour of rim G
HD	27,762	16,722	16,400	Rim H.Demmer (tone artist)
K	28,000	16,722	16,400	Inner edge according to rim G, on the outside steeper and wider
W	29,000	16,722	16,400	Wide rim for better endurance
GL	27,522	16,742	16,400	Similar to rim G, steeper and wider
GW	27,500	16,752	16,400	Original form of rim G
L	27,376	16,754	16,400	Contour according to Prof. Levora (Philharmonic)
3C	27,300	16,824	16,400	Bach 3C Mt. Vernon (Tamas Velenczei)
H	27,432	16,829	16,400	Contour according to Bach 1½, modified
VC1	27,315	16,867	16,400	Variation of V, sharper inner edge R1,452
VC2	27,315	16,875	16,400	Variation of V, sharper inner edge R1,389
V	27,315	16,877	16,400	Contour according to Bach 1¼, modified R1,629
17	27,457	16,910	16,400	Rim Schilke 17
7C	27,003	16,954	16,400	Rim Bach 7C
114	27,498	16,994	16,500	Rim corresponds to Bach 1¼ C
GW5	27,769	17,020	16,500	Rim contour GW, larger inside width
1C	27,330	17,163	16,400	Bach 1C, modified

Nominal width: measured at depth of 1.5mm to the inside of the rim.

Diameter of the cup: cup width where the curvature of the rim meets the curvature of the cup – 2.5mm to the inside of the rim.

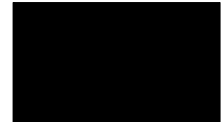
To me it is personally very important to provide the musician with a perfectly fitting rim. Who else if not the musician could tell us best what the ideal rim shape is? Therefore we are permanently extending our range of rims.

All rims that are described on the previous page fit exactly the cups of series G. Some of the rims are special models and there might be found a more or less bigger edge where the curvature of the rim meets the curvature of the cup (depending on the diameter of the rim), which however has no negative effects, neither on sound creation nor embouchure.

The shape of the cup is significantly important in order to receive the desired tone-colour or to give the player the desired expression. It is still true that a large cup produces a beautiful round tone rather than a shallow cup. However, it should be the musician alone who at last decides which type of cup lives up to his/her expectations.

### The module cups

G1: Goes back to an old Viennese mouthpiece used by the Vienna Philharmonic Orchestra.  
Progenitor of all mouthpieces of series G.  
Great tone volume and sonorous sound.



G2: Shallower than G1, excellent tone quality and ability to create the right intonation.  
Popular especially as a mouthpiece for orchestra.



G3: Equally suitable for talented students as for professional musicians.  
Recommended for both brass music and entertainment music.



G4: Musicians who have devoted themselves to a more modern style of music will enjoy this model. Smaller bore (3.60mm), very shallow, however, with a wide *Herz*, in order to avoid shrill tones. Also suitable for piccolo.



G5: Shallow cup for Jazz and Big band, a high-quality piccolo mouthpiece when combined with the corresponding shank.



G6: Extremely shallow and flat cup for the extremely high tones.



This small selection represents only a small part of the cups that are available and forms the basis of the whole range of cups. (drawings not to scale)

### Cups for module system trumpet mouthpieces

cup	bore	depth	cup diameter	description
G1W	3,800	TT	16,400	Large orchestra model for German trumpet
GE48	3,800	TT	16,400	Shape of the cup according to Yamaha 15E4
G1	3,800	T	16,400	Equal to the traditional G1 type
G1S	3,800	T	16,400	A little shallower than G1, according to H.P Schuh (Philharmonic Orchestra)
G2B	3,800	NT	16,400	Equal to the traditional G2 type
G2	3,800	NT	16,400	Classic orchestra cup
G2S	3,800	NT	16,400	Shallower and more V-shaped than G2
G2A	3,800	M	16,400	Not as deep as G2
G3S	3,800	M	16,400	Modified version of the G3 cup
G3	3,800	M	16,400	Cup for modern music and traditional Austrian music
G3A	3,800	MS	16,400	Variation of G3
G3C	3,800	M	16,400	According to Bach 3C Mt. Vernon (Tamas Velenczei)
G7D	3,700	MS	16,400	Shape of the cup according to Bach 7DW
G4	3,600	S	16,400	Shallow cup with wide Herz
G5	3,650	S	16,400	Suitable for Jazz, modern style music and piccolo
G6	3,600	SS	16,400	Piccolo cup and Jazz
GA4	3,700	SS	16,400	Piccolo cup and Jazz

S shallow cup      M medium depth      NT normal depth      T deep cup  
 SS very shallow      MS medium shallow      TT very deep cup

The names of the cups have partly been taken over or have been derived from already existing complete mouthpieces. The permanent enlargement of our range of products and their further development lead often to confusing names, which are mainly caused by overlapping or variation of several different shapes of cups.

The bore has to be 3.8mm or smaller in order to guarantee that all different forms of shank will fit. Special bores can of course be individually produced on request at any time.

Cup width: diameter of the cup at a point where the curvature of the cup meets the curvature of the rim – 2.5mm to the inside of the rim.

Most commonly used rims fit my module system. The cups for rims with extreme diameters can be individually modified and cups of special model series fit, as well.

We have decided to leave the topic of the sound character of a cup. Only system as a whole – musician, mouthpiece, instrument, musical style – can be judged subjectively. One should be aware of the fact that both rim and back bore have great influence on the sound!

The musician is the only one who decides which cup (or mouthpiece) will be the best one for his/her kind of music.

## Piccolo mouthpieces

Playing the high register on the piccolo trumpet demands great effort from the musician. Consequently this special trumpet should have a corresponding mouth piece.

The higher the frequencies the lips have to produce, the more power is needed by the mimic muscular apparatus. Wide cups produce fuller tones because of more lip vibration, high tones, however, cannot be easily produced, which leads to lower endurance. The reduced cup width means a less tiresome performance to the musician, which enables him/her to save power and to hit the higher tones more precisely. The result will be a more brilliant tone.

We should however, distinguish between two different groups of musicians, those who use their instruments only occasionally and for a short period of time, and those who have devoted themselves to the old masters of music.

For the professional trumpeter there is only one possible way to master this task brilliantly: to choose a real piccolo mouthpiece with its corresponding narrow cup diameter.

For musicians playing in orchestras, who play mainly C- or B-trumpets, it will be best to stick to the cup (rim) diameter and rim contour of his/her choice, and use a piccolo cup with the screw-rim of his/her choice. Thus the musician will then be in the position to meet most of the demands without having to get used to a new mouthpiece.

Musicians who see no problems at all in changing the rim could think about the possibility of solely using a piccolo rim (rim with a narrow inner diameter). This means that there would be an edge, because the curvature of the rim does not fit perfectly to the curvature of the cup (intentionally a smaller rim is used for a bigger cup), which however, could have some positive effects, as well: more volume of tone, caused by a greater cup volume, narrow rim, which supports the production of higher frequencies.

## Rims

rim contour	outside Ø	nominal width	cup diameter	description
R	27,700	15,973	16,000	Rim of Prof. R. Rudolf (†1995) (Wr. Symphoniker)
7D	27,950	15,974	16,000	Corresponds to Bach 7D Mt. Vernon
BB	27,890	16,096	16,000	Rim of an old piccolo mouthpiece, wide
K16	27,600	16,322	16,000	Rim contour K for module cup 16.0mm
N5	28,270	16,388	16,000	Rim of Bo Nilson

## Cups

cup	bore	depth	cup diameter	description
G6	3,60	SS	16,400	Piccolo cup and Jazz
G5	3,65	S	16,400	Suitable for Jazz, modern style music and piccolo
GA4	3,70	S	16,400	Piccolo cup and Jazz
GB	3,60	M	16,400	Old Viennese cup
G4	3,60	MD	16,400	Shallow cup with wide Herz

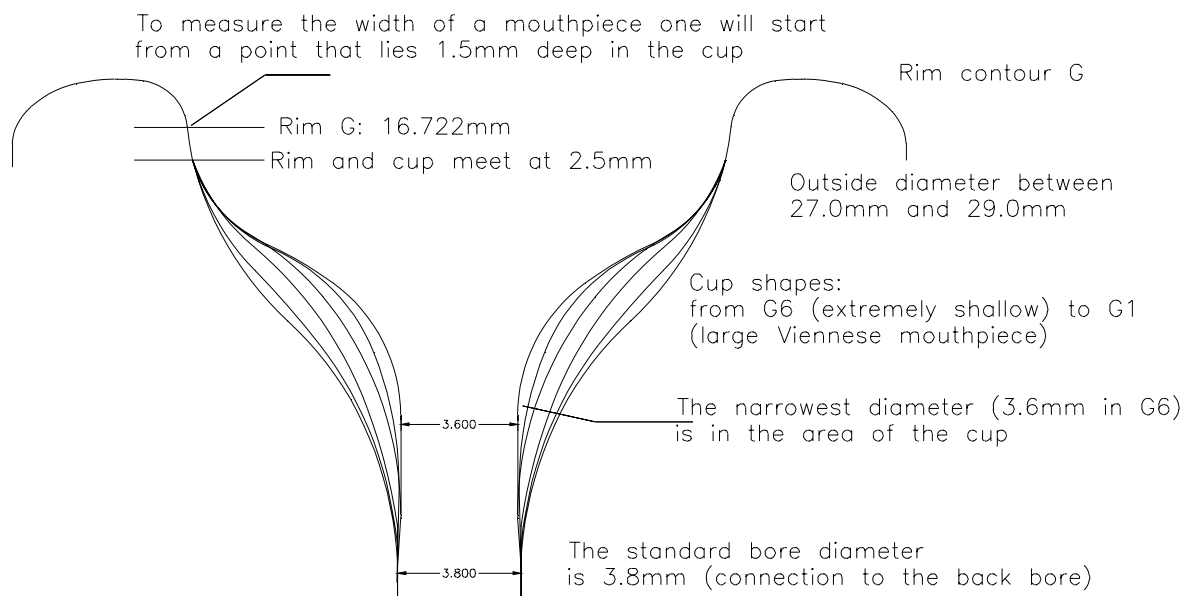
Every model that shows the letter G in its name is a member of the series G, to which all standard rims (with a width of 16.4mm at a depth of 2.5mm to the inside of the rim)

The following picture shows a comparison of the shapes of different module cups.

The cup depth has an influence on both sound and ease of play. Cups, which are too deep will produce a beautiful tone, however, when the musician has to strain himself/herself too much, because of the depth, not only the endurance but also the quality of music will suffer enormously. The ease of play will give the musician more freedom in his/her performance.

It is important to find your favourite sound by using the corresponding back bore.

One should always be aware of the fact that estimating a mouthpiece by just looking at the inside of the cup or through the bore will lead to misjudgements in most cases. If one does not take the back bore into account, the measuring of a mouthpiece by visual judgement will not work. Referring to comfort, the inner width of a mouthpiece is of major importance. My recommendation would be to get further information on this topic from an expert and to try different widths.



The length of the cylindrical bore (Seele) is responsible for the ease of play of the mouthpiece in the high register (tone stability) (standard length in our assortment of the Seele = cylindrical part: ca. 2mm)

Figure 4: shapes of some typical module cups

## The shank

The back bore of the mouthpiece influences its ease of play to a percentage equalling its percentage of length. Most musicians are not aware of the importance of this part of the mouthpiece. Mouthpieces are usually classified according to cup depth and rim width, and the only information one will get by looking through the bore is the degree of pollution.

The shape of the back bore can hardly be determined with traditional methods as this bore is too long and narrow to be measured exactly. People began to realise the importance of this part of the mouthpiece with the introduction of the screw-rim mouthpiece. The mouthpiece works like a jet, its shape determines speed and intensity of the air compression inside the instrument, as well as the resulting standing wave. So the musician can easily choose his/her ideal tone system. The relevant aspects for the musician's choice of the right shank should be ease of play and desired tone colour. Sometimes it will be impossible to find all aspects embodied in one and the same mouthpiece. Our module system will satisfy the musician's demands to a large extent.

In the following the number of the shank is inversely proportional to the volume of the shank. This means that number one is a bulgy shank with a wide bore, whereas number eight is narrow and slim.

Wide shanks produce a full big tone, the high register is often hard to play. Narrow shanks produce bright and sharp tones.

In the list you will find shanks that have letters in their names. These shanks are newly developed models and were invented in order to add some characteristics that the ones with numbers only do not have.

### Shank assortment: (ranking according to volume)

- W1: Copy of an old Viennese shank. Trombone-like sonorous sound.
- 1: Bore of the G1 mouthpiece.
- 2: Beautiful mellow tone, standard bore G2.
- G: Original version of shank Nr. 2; similar to G2 in terms of sound quality and intonation.
- W2: Shape of shank W1, however with reduced volume.
- L: Guaranteed precise ease of play, beautiful centred tone.
- P: All-round orchestra shank, brilliant sound pattern.
- 3: Precise ease of play, bright tone, standard bore G3.
- 4: Especially suitable for young players, a bit too wide for piccolo.
- 5: Big tone for piccolo, long *Seele* for the right note in the high register.
- 6: For musicians who need deep cups but who do not have enough pulmonary volume.
- S: Easy to play, without significant loss of tone quality.
- B: For Jazz and entertainment music, easy to play.
- J: Narrow dimensions, bright sharp tone, supports to reach notes in the high register.
- N: For trumpets with piston system, good results in combination with piccolo trumpet.
- 7: For Jazz and entertainment music. Bright, sharp tone.
- 17: Copy of a legendary shank of Bach Corp. Mt. Vermont.
- 8: Extremely narrow back bore for individualists.

On request we provide your favourite model of our mouthpiece assortment with the back bore of your choice. New models are in planning, technical modification subject to change without notice.

The following picture shows different shapes of back bores.

This picture is meant to give you only a rough idea of how these bores look like, as not only the shape of the drill but also the depth of the bore (the remaining length of the *Seele*) has a great influence on the shank in terms of sound quality and intonation. Sometimes certain instruments of some producers need different bore depths (lengths of the *Seele*) to improve intonation. Instruments with piston valves need narrower shanks, as the air flow in these valves is less complicated and more efficient. The consequence of using large shanks (W1, 1 or 2) would be that this system would not have enough resistance which could lead to hit the tone inaccurately. Instruments with rotary valves should only be equipped with shanks that have a narrow bore when the musician wants to create certain effects. This valve system (which provides for more resistance) needs a wide back bore, which produces the timbre that makes the Wiener Klangstil so popular.

Whenever you are consulting a producer of mouthpieces or an instrument-maker to widen the diameter of your mouthpiece, you should always bear in mind that as a consequence, the *Seele* will become longer. Improper handling can cause severe damage to a mouthpiece that is of great value for you.

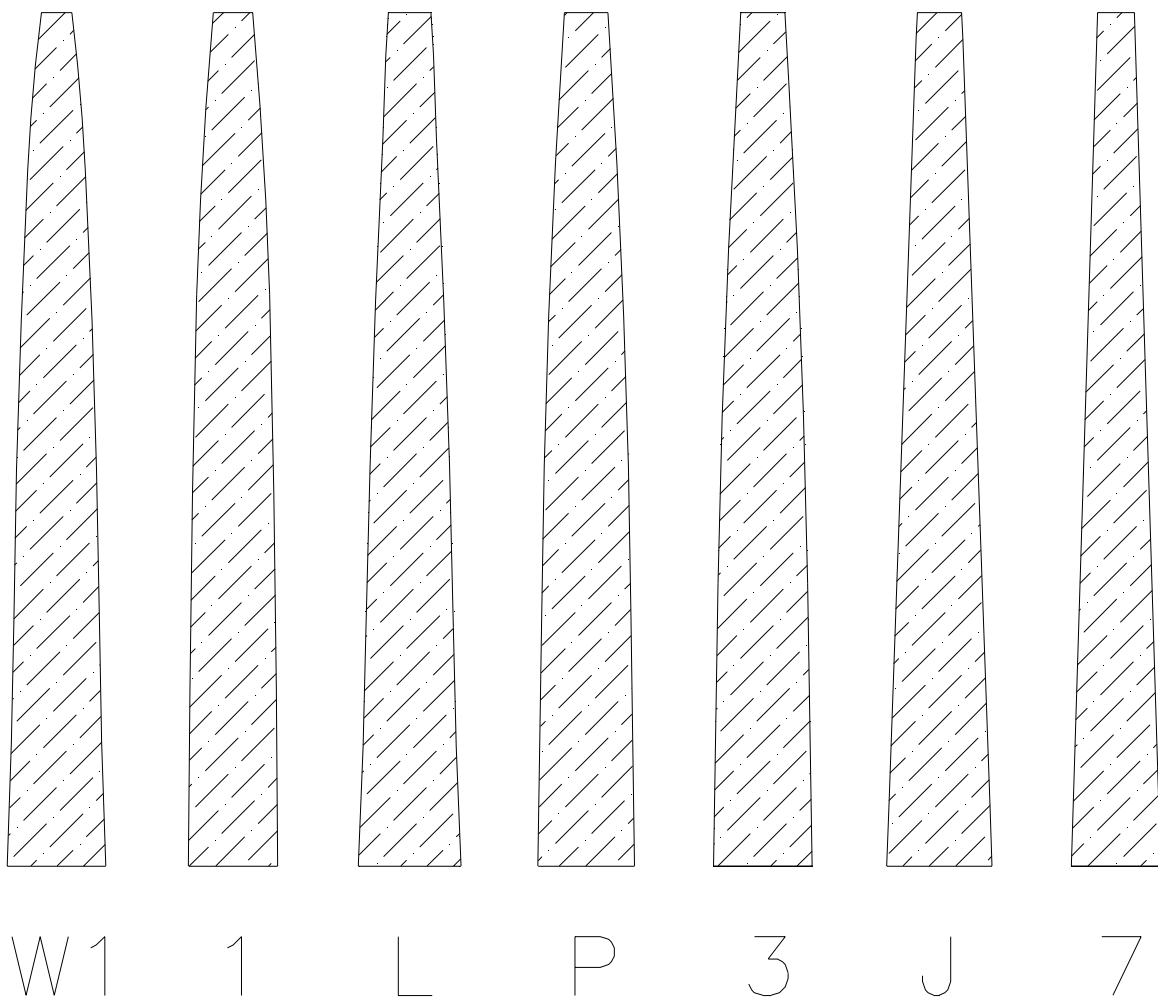


Figure 5: backbores

Not to scale

## Preview of models – complete mouthpieces

model	rim contour	outside Ø	cup width	depth	bore Ø	shank	shank size
1CG2	1C	27.33	17.20	MT	3.80	2	wide
Y11C	Y	27.70	17.00	T	3.80	S	medium
7C4	7C	27.00	16.95	S	3.60	N	narrow
VG2S	V	27.31	16.88	MT	3.80	W1	very wide
LG1	L	27.50	16.84	T	3.80	S	medium
LG2	L	27.50	16.84	MT	3.80	S	medium
LG3	L	27.50	16.84	NT	3.80	S	medium
G1	G	27.50	16.72	T	3.80	1	wide
G2	G	27.50	16.72	MT	3.80	2	wide
G3	G	27.50	16.72	NT	3.80	S	medium
G4	G	27.50	16.72	S	3.60	J	medium
G2S	G	27.50	16.71	MT	3.80	S	medium
ST	ST	27.40	16.70	MT	4.00	1	wide
1SHP	1	27.50	16.69	MT	3.80	W1	very wide
Y12C	Y	27.36	16.66	MT	3.75	S	medium
Y12L	Y	27.36	16.66	T	3.90	S	medium
E44	E4	27.63	16.63	T	4.00	W1	very wide
7G4	7G	26.85	16.61	S	3.60	S	medium
Y5C	Y	27.27	16.57	M	3.68	S	medium
Y21C	Y	27.20	16.50	M	3.75	S	medium
G3A	G	27.21	16.43	M	3.70	S	medium
Y31C	Y	27.00	16.30	M	3.70	S	narrow
7DW	7D	27.95	16.00	S	3.70	7	narrow

S shallow cup  
 M medium depth  
 NT normal depth  
 T deep cup  
 TT very deep cup

All cup widths were measured at a depth of 1.50mm to the inside of the rim. We found it important to provide you with measurements that show accuracy in the range of a hundredth-millimetre and we have rounded the figures in the range of one thousandth-millimetre.

All models can of course be produced with the back bore of your choice, on request in two or in three pieces.