ROVNER PRODUCTS
RECTANGULAR BORE
CLARINET BARREL

How It Works

The Rectangular Bore

A clarinet is a device that forms a cylindrical cavity in which a column of air is made to vibrate. The length of the cavity is variable as a function of which holes or pads are closed, thereby enabling a wide range of notes to be produced. The fundamental mode of vibration is along the length of the cavity. The secondary mode is transverse to it. Whenever a played note has a harmonic relationship to the transverse vibrations (oscillations), the tone will be clearer and stronger. Notes which are not harmonically related to the transverse oscillations will be duller and more difficult to control. This is especially the case with the throat tones (G, Ab, Bb).

Unlike a circular cavity, which has two vibrational modes (longitudinal and across the bore), a rectangular cavity has *three* vibrational modes that occur across each geometric axis. If the dimensions of a rectangular cavity are set to maintain the same acoustic impedance as a cylindrical cavity, the harmonic complexity is increased and, depending upon the proportion of the rectangular lateral axes, the harmonic spectrum can be more evenly distributed.

The lateral dimensions in the barrel's rectangular bore are proportioned at a 3:5 ratio. This generates the broadest, most even harmonic spectrum of transverse oscillations. By maintaining the cross-sectional area at the same area of a corresponding circular bore barrel, the acoustic impedance remains the same, and therefore the energy transmission through the barrel is unchanged. Because the lateral dimensions of the rectangle are different than those of the circular bore, the possibility that the transverse vibrations in the rectangle will have a harmonic relationship to less incisive notes is greater. This is borne out particularly in the increase in clarity and intonation of the throat tones and other notes, as well.

In summary, the Rovner Rectangular Bore Clarinet Barrel accomplishes the following:

- Increased clarity of the throat tones
- Increased tonal dimension
- More even scales
- Improved articulation
- More dynamic and incisive response
- Improved altissimo response

In addition, a greater range of performance is achievable by rotating the barrel on the horn to a position that yields the best tone and response preferences. The rectangle can be positioned vertically or horizontally, although for some players a position 45 degrees from the axis of the register key will provide the best performance.

How To Use It

Notice the alignment marks on the barrel. Experiment with positioning the barrel so that the rectangular bore is either horizontally or vertically aligned, as indicated by the marks. Experiment, too, with adjusting the barrel with the rectangular bore angled first at right and then at left 45-degree angles (between the alignment marks). Dial in the positioning of the rectangular bore to achieve optimum response when you play.

U.S. Patent Applied For

ROVNER™ PRODUCTS
P.O. Box 4116 • Timonium • MD • 21094 • USA
410-252-7750
info@rovnerproducts.com
www.rovnerproducts.com