



Timpani Sizes and Ranges

by John J. Papastefan

For many years, a pair of timpani with standard diameter sizes of 28 and 25 inches or 29 and 26 inches was the norm. Today, a set of at least four timpani has become essential to perform the music written for advanced high school level students and beyond. Timpanists need a minimum of four drums, measuring 32, 29, 26, and 23 inches, to meet the range requirements of the music they perform with good tone quality.

A pair of timpani will produce all of the notes found within the octave F2 to F3. By adding a drum 20 inches in diameter to the four sizes listed above it is possible to extend the upper register of the group of timpani to C4. Adding more timpani to the basic pair gives a player flexibility in choosing the instrument for the required pitches; it also reduces the number of tuning changes needed during the course of a composition.

Why is such flexibility important? Because so many orchestral works call for timpani parts with extended ranges. *La Création du Monde* by Darius Milhaud requires D4 and F#4;

The Rite of Spring by Stravinsky calls for B3, and several other composers, including Copland, Kabalevsky, and Kodaly, require A3 in their works.

Many compositions in the solo literature also require five or more timpani. For example *Sensemaya* by Silvestre Revueltas requires timpani tuned to G(b) 2, B2, F3, G3, and A(b) 3. The Sonata for Piano and Percussion by Peggy Glanville Hicks calls for timpani tuned to G2, A2, B2, E3, and B3. Several timpani concertos, including those by Werner Tharichen, Sam Raphling, and Robert Parris, also require five drums. If enough composers and arrangers write for four or more timpani, this number will eventually become the norm rather than the exception.

As early as 1930 Percival Kirby recommended the use of five timpani measuring 30, 28, 26, 24, and 22 inches, "for those who desire to produce really artistic results" (*The Kettle-Drums*). Resonance, depth, and

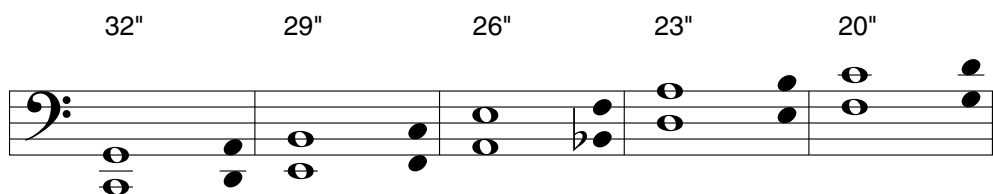
tone color can be enhanced by using five timpani of 32, 29, 26, 23, and 20 inches; in addition, the 12 inch span between the largest and smallest sizes offers a greater degree of flexibility and better tone quality than an 8-inch span suggested by Kirby. According to Gordon Peters, principal percussionist of the Chicago Symphony Orchestra, the best timpani sizes for professional use are 32, 29, 26, 23, and 21 inches, and include pedals, rather than one of the other pitch changing mechanisms (*The Drummer: Man*). The 21-inch size is indeed a rarity in the United States; substituting the 20-inch size for the 21-inch timpani is more consistent with 3-inch gradations and further, sounds less stuffy in the pitches located above C4. Some timpanists, however, prefer the 21-inch, believing it has a fuller sound.

The 28- and 25-inch pair of timpani was developed much earlier than the other sizes now in use. This pair can be used interchangeably with the 29- and 26-inch pair, which was introduced around 1960. However, the 29- and 26-inch diameters produce better tone quality throughout the entire range of each drum, and particularly at the extreme ends of the range.

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The size of a timpani refers to the bowl diameter, which is measured in inches. The range of a drum varies with the make and model and can be quite wide, but the best quality sound is generally obtained within a perfect fifth. Ranges for the five sizes recommended here are as follows:



The black notes indicate the range in which the best tone quality can usually be achieved. The timpani can be tuned to the ranges shown by the white notes, but achieving good tone quality is less certain. Tone quality within these ranges will vary among different makes and models of timpani.

Directors, players, and arrangers should not assume that each note within these traditional ranges sounds equally good. Every timpani (like every piano or other instrument) is slightly different. To determine which notes sound best, begin by experimenting with each drum, then plan a tuning strategy accordingly. The range of each drum may be extended slightly in

either direction, especially when playing on top-quality plastic mylar heads, but the resulting pitches will not have the same quality as the notes within the standard ranges.

Once a player has developed the ability to identify and sing intervals, he should be capable

of tuning the timpani. With your heel, press the pedal of each drum all the way down to the position of lowest pitch. At the same time gently press on the center of the head with the heel of the hand. This seems to iron out the head and yield more accurate tuning. Be sure that this bottom, or home base, note is the appropriate lowest pitch for the particular drum being tuned. Using a pitch pipe, tuning fork, or other reliable pitch source, fine-tune the drum to the correct note, using the tuning lugs. Only then will the pitch be true and the tone resonant.

Once the drum is tuned to the base pitch, the pedal is used to change the pitch as needed. Gently strike the drum and,

slowly and as silently as possible, increase the tension on the head by pushing down on the pedal until the desired pitch is reached. Always approach the pitch from below, as this seems to settle the head most effectively and result in more accurate intonation. If you move past the desired pitch be sure to "heel down" the pedal as described above, time permitting.

The quality of tone at the extreme high or low range of any timpani is usually rather poor. Optimal sound and beauty of tone are obtained around mid-range and slightly above. For maximum resonance, pitches in the high register of any size drum are best played on the next smaller size in the set. For example, the note D3 can be played on a 28- or 29-inch drum with fine plastic heads and modern pedal mechanisms, but it will not have the resonance of the D3 played on a 25- or 26-inch drum.

The bottom note on a timpani is comparable to an open string of an orchestral string instrument and should be avoided, if possible, unless specifically designated. Notes at or near the bottom of the range tend to be less distinct in pitch and rhythm. Pitches at the top of the range sound constricted, "pinched," and lack projection. Plastic

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heads can enable the player to obtain one or two extra notes at either end of the range, although the tone quality at these extremes leaves much to be desired in the way of clarity and resonance.

On some occasions, composers call for artificial tuning a timpani to a pitch lower or higher than its normal tuning note. For example, tuning the 23-inch drum to C3 rather than to the usual D3. This technique is analogous to scordatura, the abnormal tuning of a string instrument in order to obtain unusual chords, facilitate difficult passages, or change tone color. Avoid using this tuning alteration consistently; such a change affects the balanced action mechanism in some timpani, causing pitches to go sharp by themselves. This practice can also be confusing to the timpanist who relies on the basic (bottom) tuning note to serve as his home base. This is particularly true of the inexperienced timpanist who may be used to pushing the pedal to the floor to get a certain pitch, a factor to be remembered when scoring for student or other amateur ensembles.

Drums manufactured at both ends of the timpani range have increased the available scope

and quality of pitches. For example, a 32-inch timpani not only produces a fuller, more resonant F2 and E(b) 2, but a clear and true sounding D2 and even C2. The timpani method books by Saul Goodman and Friese and Lepak advise using a 32-inch drum, or a specially made larger size, to ensure good tone quality and intonation for notes in the vicinity of C2.

For high notes, a 21-inch or the more available 20-inch timpani, sometimes referred to as a piccolo timpani, will reach B3 and C4 with relative ease. Although the sound of these notes may be tight and not overly resonant, the pitch will be true and clear. Special sizes, such as 15- and 14-inch timpani, which can reach D4 and F#4, respectively, with a clear vibrant sound, are available. However, these unusual sizes are difficult to find outside professional orchestras. Timpani smaller than the 23-inch and larger than the 32-inch sizes are occasionally used in conservatory and professional orchestras; but it is best for a composer to avoid writing for these sizes unless he is commissioned by a particular ensemble that owns the less common ones.

Selecting the number and sizes of drums for a timpani section can be confusing. With

some experimentation and examination of the type of pieces the group will be playing, timpani can be chosen and tuned to obtain the best sound in all ranges required.

FURTHER READING

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