

# BB Flat Tuba 16 Harmonics and Fingerings

## Notes:

1. Top number next to each staff indicates harmonic.
2. Bottom number next to staff indicates the degree (in cents) to which the given harmonic differs from equal temperament.
3. Numbers below notes indicate a possible fingering for each note.
4. Valve combinations will normally be sharp. Generally, use as few valves as possible.
5. Four-valve tubas will run out of valves before reaching the twelfth chromatic note of a given harmonic. This is indicated by "1234+" and should be understood as all four valves depressed and a slide (probably fourth) pulled as much as possible.
6. Only the eleven most commonly used valve combinations have been included. Other possible valve combinations are: 3, 13, 123, 14, and 34.
7. The higher the note, the more valve combinations will be available. For example, F4 has 5 possible valve combinations shown and several more have not been included due to being above the sixteenth harmonic.

16  
0.0

0 2 1 12 23 4 24 124 234 134 1234 1234+

15  
-12

0 2 1 12 23 4 24 124 234 134 1234 1234+

14  
-31

0 2 1 12 23 4 24 124 234 134 1234 1234+

13  
+41

0 2 1 12 23 4 24 124 234 134 1234 1234+

12  
+2

0 2 1 12 23 4 24 124 234 134 1234 1234+

11  
-49

0 2 1 12 23 4 24 124 234 134 1234 1234+

10  
-14

0 2 1 12 23 4 24 124 234 134 1234 1234+

9  
+4

0 2 1 12 23 4 24 124 234 134 1234 1234+

8  
0.0

0 2 1 12 23 4 24 124 234 134 1234 1234+

7  
-31

0 2 1 12 23 4 24 124 234 134 1234 1234+

6  
+2

0 2 1 12 23 4 24 124 234 134 1234 1234+

5  
+14

0 2 1 12 23 4 24 124 234 134 1234 1234+

4  
0.0

0 2 1 12 23 4 24 124 234 134 1234 1234+

3  
+2

0 2 1 12 23 4 24 124 234 134 1234 1234+

2  
0.0

0 2 1 12 23 4 24 124 234 134 1234 1234+

1  
0.0

0 2 1 12 23 4 24 124 234 134 1234 1234+

*8<sup>vb</sup>*-----

Detailed description: The image shows two musical staves, labeled '2' and '1', each with a bass clef and a key signature of one flat. The first staff (labeled '2') has a '0.0' time signature. Below the staff are 12 measures of music, each containing a chord with a horizontal line above it. The chords are: 0, 2, 1, 12, 23, 4, 24, 124, 234, 134, 1234, and 1234+. The second staff (labeled '1') has a '0.0' time signature and contains the same sequence of chords and fingerings as the first staff. Below the second staff is a dashed line with the label '8<sup>vb</sup>' at the beginning.