

Double Horn in F and Bb / F-Horn : Tuning in Just Intonation

valves 1, 2, 3* (custom-built) are tuned to rational proportions (2/15, 1/15, 4/15) of the respective open horn's length producing, in various combinations, two Utonal Series of fundamental pitches with wavelengths in the proportions 15 : 16 : 17 : 18 : 19 : 20 : 21 : 22 with the two horns tuned a just perfect fourth (3:4) apart

* Alternately, the normal 3rd valve may be used, tuned to the proportion 3/15, so that the valve combination 1+2 and 3 are synonymous. In this case, the undertone tuning "22" will not be available, and the fingerings indicated for undertones 19 - 22 apply instead to 18 - 21

notated AT SOUNDING PITCH using the Extended Helmholtz-Ellis JI Pitch Notation accidentals designed by Marc Sabat and Wolfgang von Schweinitz, 2004

The musical score displays eight staves, numbered 15 through 22, representing different valve combinations. Each staff is divided into two sections by vertical dashed lines. The first section (measures 1-10) shows the notes in the bass clef, and the second section (measures 11-20) shows the notes in the treble clef. Numerical values above the notes indicate the pitch adjustment in cents, and accidentals are placed below the notes. The values range from -49.4 to +70.0 cents. The accidentals are designed by Marc Sabat and Wolfgang von Schweinitz, 2004.

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The musical score displays eight staves, numbered 15 to 22, representing different valve combinations. Each staff is divided into two systems by a vertical dashed line. The notes are accompanied by numerical pitch deviations (cents) and accidentals. The deviations are as follows:

- Staff 15: +11.7, +11.7, +13.7, +11.7, +13.7, -2.0, +11.7, +15.6, +63.0, +13.7, -2.0
- Staff 16: +2.0, +2.0, +3.9, +51.3, +2.0, -13.7, -31.2, -13.7
- Staff 17: -5.0, -5.0, -3.0, -5.0, -18.6, -3.0, -36.1, -5.0, -1.0, -18.6, +46.4, -3.0, -64.4
- Staff 18: -3.9, -3.9, -2.0, -3.9, -17.6, -2.0, -35.1, -3.9, -17.6, +47.4, -2.0, -63.4, -35.1
- Staff 19: +2.5, +2.5, +4.4, +2.5, +4.4, -11.2, +4.4, +2.5, +6.4, +53.8, +4.4, -57.0, -28.7, -9.2
- Staff 20: +13.7, +13.7, +15.6, +13.7, +15.6, -17.5, +13.7, +17.6, +65.0, +15.6, -45.8, -17.5, +2.0, +13.7
- Staff 21: +29.2, +29.2, +31.2, +29.2, +15.5, +31.2, +29.2, +33.1, +15.5, +80.5, +31.2, -30.3, -2.0, +17.5, +29.2
- Staff 22: -51.3, -51.3, -49.4, -51.3, -65.0, -49.4, -82.5, -51.3, -47.4, -65.0, -49.4, -110.8, -82.5, -63.0, -51.3, -46.3