

Quedlinburg 2 Alto S.xls, Bore from top

Length	Ø↔	Ø↑↓		Length	Ø↔	Ø↑↓		Length	Ø↔	Ø↑↓		Length	Ø↔	Ø↑↓
49.4	16.50486	16.61545		199.4	15.62014	15.657		349.4	14.07186	13.77695				
54.4	16.54173	16.61545		204.4	15.43582	15.73073		354.4	14.035	13.74009				
59.4	16.468	16.72605		209.4	15.62014	15.73073		359.4	13.96127	13.66636				
64.4	16.50486	16.61545		214.4	15.58327	15.73073		364.4	13.85068	13.59264				
69.4	16.54173	16.43114		219.4	15.62014	15.69386		369.4	13.81382	13.51891				
74.4	16.61545	16.50486		224.4	15.62014	15.80445		374.4	13.74009	13.44518				
79.4	16.43114	16.468		229.4	15.62014	15.76759		379.4	13.74009	13.44518				
84.4	16.50486	16.54173		234.4	15.36209	15.58327		384.4	13.6295	13.33459				
89.4	16.57859	16.39427		239.4	14.99345	15.10405		389.4	13.55577	13.18714				
94.4	16.68918	16.65232		244.4	14.95659	14.95659								
99.4	16.65232	16.72605		249.4	14.91973	14.88286								
104.4	16.61545	16.61545		254.4	14.91973	14.95659								
109.4	16.50486	16.50486		259.4	14.88286	14.91973								
114.4	16.65232	16.54173		264.4	14.80914	14.846								
119.4	16.61545	16.50486		269.4	14.77227	14.77227								
124.4	16.50486	16.24682		274.4	14.69855	14.66168								
129.4	16.24682	16.0625		279.4	14.58795	14.51423								
134.4	15.69386	15.50955		284.4	14.51423	14.66168								
139.4	15.58327	15.43582		289.4	14.51423	14.40364								
144.4	15.62014	15.62014		294.4	14.51423	14.36677								
149.4	15.69386	15.73073		299.4	14.51423	14.32991								
154.4	15.54641	15.80445		304.4	14.4405	14.25618								
159.4	15.73073	15.87818		309.4	14.36677	14.21932								
164.4	15.69386	15.80445		314.4	14.29305	14.18245								
169.4	15.84132	15.73073		319.4	14.25618	14.14559								
174.4	15.69386	15.84132		324.4	14.21932	14.10873								
179.4	15.54641	15.76759		329.4	14.18245	13.99814								
184.4	15.62014	15.73073		334.4	14.07186	14.29305								
189.4	15.58327	15.657		339.4	14.07186	13.85068								
194.4	15.657	15.69386		344.4	14.07186	13.81382								

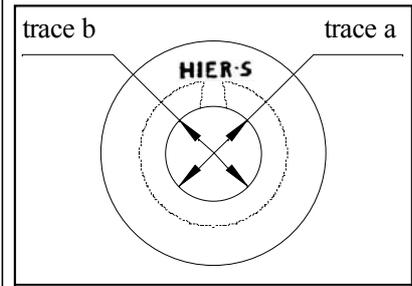
Quedlinburg 2 Alto S.xls[Tab]

	I =	A			Temp.		
	Tuner set to	a'=440	Equal tempered		Humidity	!	
Note	Cents deflection from 0	Pressure mm H₂O	Fingering, where different	Note	Cents deflection from 0	Pressure mm H₂O	Fingering, where different
I	+25	13		VIII	-25	25	
II	-20	15		IX	-20	27	
III	-40	17		X	-50	30	
IV	+15	18		XI			
V	-15	20		XII	-40	35	
VI	-15	22		XIII	-45	35	
VII	-40	23		XIV	just about works		
				XV	"		

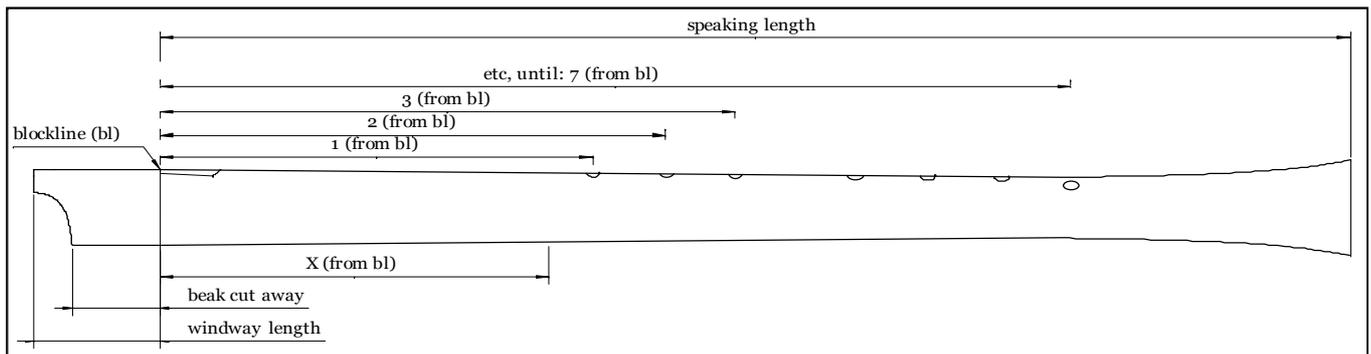
Like alto 1, I is about a 1/4 tone sharp
 XIII is a bit better in tune (sharper) than on alto 1 as "open" (without 567) works too with 4/567

KEY AND NOTES TO MEASUREMENT SHEETS

All attempts at measuring are necessarily subjective and the current survey was undertaken with some finite objectives: To undertake an inclusive study of ALL the recorders, using a skeleton format of the most important measurements and minimal intervention. The bores were measured from the bottom, using a strain gauge based digital internal caliper. This has the advantage that bores can be measured with the blocks in situ, thus preventing damage to this sensitive part. Normally, two traces were made, at approximately 90° from each other, avoiding the fingerholes where possible. Calculations were then made to give internal diameters from the top of the instruments, and allow bore traces to be plotted.



FIELD	TYPICAL VALUE	EXPLANATION
Location:		Town, collection or both, where the instrument is currently located
Inv. N°:		Inventory number of the instrument
Measured:		Name of measurer
Date:		Date of measurements, where known
Pitch @ a=440hz:		Pitch in terms of lowest note, all holes covered, relative to modern pitch (a=440hz). + or - indicates a quarter tone step, relative to modern pitch
Material:		Material from which the instrument is made
mark:		Mark or stamp visible on the instrument, branded or embossed by maker or owner



<p>FINGERHOLES length (from bl) (from top)</p>	<p>Tone, or fingerholes of the instrument (See drawing above) Sum of length from blockline and windway length</p>
<p>diameter east/w north/s</p>	<p>Fingerhole minimum diameter in an east to west direction Fingerhole minimum diameter in a north to south direction</p>
<p>direction ↑ ⇌ ↓ ⇌</p>	<p>Indicates if a fingerhole is bored obliquely, or undercut with an unusual bias, and in which direction</p>
<p>Step:</p>	<p>Difference between lower surface of edge (labium) and upper surface of windway ceiling. Typically, this measurement is a visual estimate, given that the blocks would not normally be removed</p>
<p>Edge thickness:</p>	<p>Thickness of edge (labium). Measured by impression made in fine gum and compared using feeler gauges</p>
<p>Windway exit chamfers: up</p>	<p>small, c. 0.6 flat Chamfer on upper surface of windway exit (on ceiling) An estimate of its angle</p>
<p>down</p>	<p>2.0 45° Chamfer on lower surface of windway exit (on block) An estimate of its angle</p>

(These measurements have either been obtained by the same method as the edge thickness, or are a visual estimate)

W/W entrance: width
height

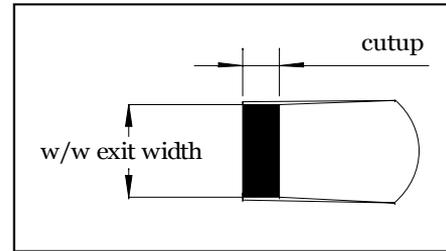
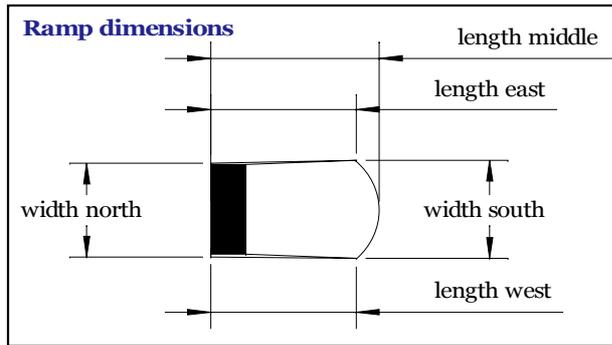
Width of windway entrance,
Height of windway entrance, distance between windway ceiling and block surface

External diameters
(east - west)

Diameter of the instrument's exterior
Measured at 90 degrees to the longitudinal plane of the fingerholes

distance from top

Distance from the north end of the instrument, at which measurement was taken. Note: On basses with fontanelles, the approximate measurements of beads and fontanelle supports were also included.



Cap		Measurements relative to cap
Overall length	99	Total length of the cap
internal Ø	57.6	Approximate internal diameter of cap recess
depth	73	Maximum depth of cap recess
largest external Ø	74.7	Maximum diameter of caps external turning
hole Ø	11.8	Diameter of crook hole, where appropriate
blow hole		Width and height of blowing hole, where appropriate
ring width	21.6	Width of brass strengthening ring
Ø	64	Diameter of brass strengthening ring
Fontanelle		Measurements relative to fontanelle
Overall length	151	Total length of fontanelle
internal Ø south	69.5	Approximate internal diameter of lower end
internal Ø north	64.3	Approximate internal diameter of upper end
largest external Ø	81.2	Maximum exterior diameter, typically scored with a line though the middle of the roses
north ring width	22.5	Width of upper brass strengthening ring
Ø	71.7	Diameter of upper brass strengthening ring
south ring width	22.9	Width of lower brass strengthening ring
Ø	78.5	Diameter of lower brass strengthening ring
rose Ø	28	Diameter of the largest ring of hole arrangement. Typically holes are arranged in three rings, with an extra hole in the centre.
holes	3	Diameter of the rose holes

For the exterior of the instruments, measurements were taken at strategic points, relative to the functionality of the instruments. Some decorative details, particularly with regard to the bass instruments, were also recorded to allow a faithful reproduction to be made.

Concerning the voicing of the instruments, only the most basic details such as those concerning the window and ramp, windway width could be recorded with any surety. Many of the blocks are badly damaged, missing or replacements and it was felt that little would be gained by miniscule examination of these areas. From instruments with an undamaged labium or chamfers, estimates were made to give instrument makers an idea of the sort of degree of voicing these recorders might have originally had.

The recorders were mouth blown and measurements taken with a Korg tuner calibrated in equal temperament at $a=440\text{hz}$, Readings were taken as cents deflection from this two pitch standard. The pressure measurements were read in millimetres of water column, using an Appleby and Ireland pressure gauge with the range 0 to 100 mm/H₂O.

Each instrument was blown to find the centre of the sound and the pressure and pitch recorded. Where fingerings other than the st The following fingerings were tested.

Note	Fingering
I	1234567
II	0123456-
III	012345--
IV	01234-5-
V	0123----
VI	012-----
VII	01-----
VIII	0-2-----
IX	-----
X	0/12345--
XI	Not recorded
XII	0/123----
XIII	0/12-----
XIV	Various
XV	Various

It was not deemed necessary to take readings for note XI due to different half holing of hole 6. All recorders were tried for Jambe de Fer and Ganassi fingerings and where this was successful, the fingerings were recorded.