13-key tenoroon, Frédéric-Guillaume ADLER (2), Paris, ca. 1840			
BASIC - OUTSIDE	**mm**	**mm**	**Comments**
Joint lengths			
Standing length to bell	947		
Standing length to wing joint	630		
Wing joint length	356		
Wing joint - tenon length	43.3		
Butt joint length	316		
Long joint length	428		
Long joint - south tenon length	48.4		
Long joint - north tenon length	33.5		
Bell length	280		
Vent hole distance from north	x		
Vent hole approx diameter	x		
Tone hole distance, axis			
Wing - tone hole 1 distance from north	158		
Wing - tone hole 2 distance from north	190		
Wing - tone hole 3 distance from north	218		
Butt - tone hole 4 distance from north	66		
Butt - tone hole 5 distance from north	93		
Butt - tone hole 6 distance from north	122		
Butt - tone hole F distance from north	245		
Butt - tone hole E distance from north	97		
Butt - tone hole Ab distance from north	262		
Butt - tone hole F# distance from north	245		
Long joint - tone hole D distance from north	370		

13-key tenoroon, **Frédéric-Guillaume ADLER (2), Paris, ca. 1840**			
Long joint - tone hole Eb distance from north	325		
Long joint - tone hole C distance from north	235		
Long joint - tone hole Bb distance from north	75		
Wing - major axis at tone hole 1	38.1		
Wing - major axis at tone hole 2	40.5		
Wing - major axis at tone hole 3	40.7		
Butt - major axis (side to side) at tone hole 4	56		
Butt - minor axis (front to back) at tone hole 4	45.8		
Butt - major axis (side to side) at tone hole 5	55.6		
Butt - minor axis (front to back) at tone hole 5	46.1		
Butt - major axis (side to side) at tone hole 6	54.6		
Butt - minor axis (front to back) at tone hole 6	46		
Butt - major axis (side to side) at tone hole F	50.9		
Butt - minor axis (front to back) at tone hole F	41		
Butt - major axis (side to side) at tone hole E	55.7		
Butt - minor axis (front to back) at tone hole E	46.2		
Butt - major axis (side to side) of the bottom butt ellipse	47		
Butt - minor axis (front to back) of the bottom butt ellipse	37.6		
Butt - major axis (side to side) of the top butt ellipse	55.7		
Butt - minor axis (front to back) of the top butt ellipse	43.8		
Butt - cork major axis (side to side)	35.1		One cork only
Butt - cork minor axis (front to back)	20.5		
Long joint - minor axis (front to back) at tone hole D	32.7		Platform 3.7
Long joint - major axis (side to side) at tone hole D	30.3		

13-key tenoroon, **Frédéric-Guillaume ADLER (2), Paris, ca. 1840**			
Long joint - minor axis (front to back) at tone hole Eb	30		
Long joint - major axis (side to side) at tone hole Eb	31.5		
Long joint - minor axis (front to back) at tone hole C	35.7		
Long joint - major axis (side to side) at tone hole C	33.8		
Long joint - minor axis (front to back) at tone hole Bb	36.6		Platform 2.1
Long joint - major axis (side to side) at tone hole Bb	37.3		
Tone hole angle, Ø, length			
Wing - tone hole 1 angle	44° North		
Wing - tone hole 2 angle	31° South		
Wing - tone hole 3 angle	43° South		
Wing - tone hole 1 approx. Ø	3.4		
Wing - tone hole 2 approx. Ø	4.1		
Wing - tone hole 3 approx. Ø	4.1		
Wing - tone hole 1 approx. length	37.6		
Wing - tone hole 2 approx. length	30.7		
Wing - tone hole 3 approx. length	33		
Butt - tone hole 4 angle	29.5° North		
Butt - tone hole 5 angle	24° South		
Butt - tone hole 6 angle	43° South		
Butt - tone hole E angle	38° South		
Butt - tone hole 4 approx. Ø	5.5		
Butt - tone hole 5 approx. Ø	5.3		
Butt - tone hole 6 approx. Ø	4		
Butt - tone hole E approx. Ø	6.2		

13-key tenoroon, **Frédéric-Guillaume ADLER (2), Paris, ca. 1840**			
Butt - tone hole 4 approx. length	24.7		
Butt - tone hole 5 approx. length	24.8		
Butt - tone hole 6 approx. length	29.5		
Butt - tone hole E approx. length	17.7		
Long joint - tone hole C angle	X		
Long joint - tone hole C Ø	7.4		
Long joint - tone hole C approx. length	x		
BASIC - INSIDE			
Inner bore length	**Min.**	**Max.**	
Bore length	1535.9		
Wing bore length	356		
Butt - small bore length	296		
Butt - big bore length	295		
Butt - small bore socket length	43.2		
Butt - big bore socket length	49.2	49.5	
Butt - small bore beginning of septum	280		
Butt - big bore beginning of septum	281		
Long joint bore length	430		
Bell bore length	281		
Inner bore beginning Ø (not socket!)	**Min.**	**Max.**	
Wing bore Ø north	9.8		
Wing bore Ø south	12.4	12.6	
Bocal well length	22.4	22.5	
Butt - small bore Ø north	12.7		
Butt - big bore Ø north	19.6	19.8	

13-key tenoroon, **Frédéric-Guillaume ADLER (2), Paris, ca. 1840**			
Long joint Ø north	24.8	25.2	
Long joint Ø south	19	19.4	
Bell bore Ø north	26.1	26.7	
Bell bore Ø south	26		
Bell socket length	33.2	33.5	
Bocal Ø at the beginning	4.1		Inside 3.6 mm
Bocal thickness at the beginning	0.4		
Bocal Ø at the tenon	8.3	8.6	Inside 6.8 mm
Bocal thickness at the tenon	0.8	0.9	
Bocal length (along top)	271		
COMPLETE - OUTSIDE	**Min.**	**Max.**	
Bocal well thickness with ferrule	4.6	5.1	
Bocal well ferrule thickness	0.6	0.7	
Wing - tenon thickness	3.6	3.8	
Wing - tenon northern extern. Ø	20.8		
Wing - tenon southern extern. Ø	19.8		
Wing - tone hole A distance from north	69.2		
Wing - tone hole A angle	x		
Wing - tone hole A approx. Ø	2.3		
Wing - tone hole A approx. length	x		
Wing - tone hole C distance from north	39.3		Upper hole
Wing - tone hole C angle	x		
Wing - tone hole C approx. Ø	3.1		
Wing - tone hole C approx. length	2.3		
Butt - big socket thickness with ferrule	2.5		1.7 without ferrule

13-key tenoroon, **Frédéric-Guillaume ADLER (2), Paris, ca. 1840**			
Butt - small socket thickness with ferrule	2.8		1.8 without ferrule
Butt - top ferrule thickness	0.6	0.8	
Minimum wall thickness between butt sockets	1.6		
Butt - wood space between corks - bottom	x		Only 1 cork
Butt - big bore cork Ø - bottom	19.1		
Butt - small bore cork Ø - bottom	19.1		
Butt - wood wall between cork/front - small bore	7.4	8.9	Without & with ferrule
Butt - wood wall between cork/front - big bore	7.6	8.9	Without & with ferrule
Butt - wood wall between cork/back - small bore	7.5	7.9	
Butt - wood wall between cork/back - big bore	6.2	7.1	
Wood wall between cork/side - small bore	5.7	6.5	
Wood wall between cork/side - big bore	4.4	5.3	
Butt - bottom ferrule thickness	0.7	0.9	
Long joint - south tenon thickness	3.5		
Long joint - south tenon northern extern. Ø	27		
Long joint - south tenon southern extern. Ø	26.2		
Long joint - north tenon thickness	2.9	3.2	
Long joint - north tenon northern extern. Ø	31.2		
Long joint - north tenon southern extern. Ø	31.1	31.6	
Bell socket thickness with brass	2.8		Without ferrule 2.1
Brass thickness of the bell ferrule	0.8		
Bell ferrule height	31.5		
Tone hole angle, Ø, length			
Butt - tone hole Ab angle	x		
Butt - tone hole F angle	x		
Butt - tone hole F♯ angle	x		

13-key tenoroon, **Frédéric-Guillaume ADLER (2), Paris, ca. 1840**			
Butt - tone hole Ab approx. Ø	7.2		
Butt - tone hole F approx. Ø	7.3		
Butt - tone hole F♯ approx. Ø	5.3		
Butt - tone hole Ab approx. length	x		
Butt - tone hole F approx. length	x		
Butt - tone hole F# approx. length	x		
Long joint - tone hole D angle	x		
Long joint - tone hole E ♭ angle	x		
Long joint - tone hole B ♭ angle	x		
Long joint - tone hole D approx. Ø	9.3		
Long joint - tone hole E ♭ approx. Ø	5.9		
Long joint - tone hole B ♭ approx.Ø	10.6		
Long joint - tone hole D approx. length	x		
Long joint - tone hole E ♭ approx. length	x		
Long joint - tone hole B ♭ approx. length	x		
COMPLETE - INSIDE			
Wing - tone hole 1 distance from south	224		
Wing - tone hole 2 distance from south	148		
Wing - tone hole 3 distance from south	115		
Wing - tone hole A distance from south	x		
Wing - tone hole C distance from south	x		
Butt - tone hole 4 distance from north	55		
Butt - tone hole 5 distance from north	105		
Butt - tone hole 6 distance from north	141		
Butt - tone hole Ab distance from north	x		
Butt - tone hole F distance from north	x		

***13-key tenoroon,* Frédéric-Guillaume ADLER (2), Paris, ca. 1840**			
Butt - tone hole F♯ distance from north	x		
Butt - tone hole E distance from north	110		
Long joint - tone hole D distance from north	367		
Long joint- tone hole E ♭ distance from north	324		
Long joint - tone hole C distance from north	230		
Long joint - hole B ♭ distance from north	68		
Bell - vent hole distance from north	x		
Extras			
Low C# Ø	7.2		
B♭ front RH	5.6		
C# wing joint front	2.7		