

13-key tenoroon, SCHUBERT, Paris, ca. 1860

BASIC - OUTSIDE	mm	mm	Comments
Joint lengths			
Standing length to bell	948.5		
Standing length to wing joint	631		
Wing joint length	356		
Wing joint - tenon length	43.5		
Butt joint length	319.5		
Long joint length	428.5		
Long joint - south tenon length	48.8		
Long joint - north tenon length	32.7		
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	160		
Wing - tone hole 2 distance from north	191		
Wing - tone hole 3 distance from north	220		
Butt - tone hole 4 distance from north	65.5		
Butt - tone hole 5 distance from north	93.4		
Butt - tone hole 6 distance from north	121.7		
Butt - tone hole F distance from north	244		
Butt - tone hole E distance from north	97.6		
Butt - tone hole Ab distance from north	263		
Butt - tone hole F# distance from north	182		
Long joint - tone hole D distance from north	367		

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Long joint - tone hole Eb distance from north	326		
Long joint - tone hole C distance from north	232		
Long joint - tone hole Bb distance from north	72.5		
Wing - major axis at tone hole 1	41.4		
Wing - major axis at tone hole 2	41		
Wing - major axis at tone hole 3	39.9		
Butt - major axis (side to side) at tone hole 4	56.8		
Butt - minor axis (front to back) at tone hole 4	46.3		
Butt - major axis (side to side) at tone hole 5	56.5		
Butt - minor axis (front to back) at tone hole 5	46.2		
Butt - major axis (side to side) at tone hole 6	55.8		
Butt - minor axis (front to back) at tone hole 6	46.1		
Butt - major axis (side to side) at tone hole F	51.7		
Butt - minor axis (front to back) at tone hole F	41		
Butt - major axis (side to side) at tone hole E	56.8		
Butt - minor axis (front to back) at tone hole E	46.5		
Butt - major axis (side to side) of the bottom butt ellipse	48		
Butt - minor axis (front to back) of the bottom butt ellipse	36.5		
Butt - major axis (side to side) of the top butt ellipse	56		
Butt - minor axis (front to back) of the top butt ellipse	43.5		
Butt - cork major axis (side to side)	35.4		
Butt - cork minor axis (front to back)	20.6		
Long joint - minor axis (front to back) at tone hole D	32		Platform 3.4 mm
Long joint - major axis (side to side) at tone hole D	31.1		

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Long joint - minor axis (front to back) at tone hole Eb	34.2		
Long joint - major axis (side to side) at tone hole Eb	32.5		
Long joint - minor axis (front to back) at tone hole C	36.2		
Long joint - major axis (side to side) at tone hole C	34		
Long joint - minor axis (front to back) at tone hole Bb	37.2		
Long joint - major axis (side to side) at tone hole Bb	36.9		
Tone hole angle, Ø, length			
Wing - tone hole 1 angle	45° North		
Wing - tone hole 2 angle	37° South		
Wing - tone hole 3 angle	51° South		
Wing - tone hole 1 approx. Ø	3.3		
Wing - tone hole 2 approx. Ø	3.9		
Wing - tone hole 3 approx. Ø	4		
Wing - tone hole 1 approx. length	33		
Wing - tone hole 2 approx. length	31.6		
Wing - tone hole 3 approx. length	34.6		
Butt - tone hole 4 angle	28.5° North		
Butt - tone hole 5 angle	22.5° South		
Butt - tone hole 6 angle	43.5° South		
Butt - tone hole E angle	33.5° South		
Butt - tone hole 4 approx. Ø	5.3		
Butt - tone hole 5 approx. Ø	5.1		
Butt - tone hole 6 approx. Ø	4.1		
Butt - tone hole E approx. Ø	6.5		

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Butt - tone hole 4 approx. length	24		
Butt - tone hole 5 approx. length	21.9		
Butt - tone hole 6 approx. length	27.3		
Butt - tone hole E approx. length	17.3		
Long joint - tone hole C angle	0		
Long joint - tone hole C Ø	x		Not possible
Long joint - tone hole C approx. length	x		Not possible
BASIC - INSIDE			
Inner bore length			
Bore length	1572.9		
Wing bore length	356		
Butt - small bore length	299		
Butt - big bore length	299		
Butt - small bore socket length	43.6	46	
Butt - big bore socket length	49.2	49.4	
Butt - small bore beginning of septum	281		
Butt - big bore beginning of septum	281		
Long joint bore length	429		
Bell bore length	281.5		
Inner bore beginning Ø (not socket!)	Min.	Max.	
Wing bore Ø north	8.2		Bocal well Ø north 9.9 mm
Wing bore Ø south	12.2	12.8	
Bocal well length	23		
Butt - small bore Ø north	13.4	14.2	

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Butt - big bore Ø north	19.8		
Long joint Ø north	24.7	25	
Long joint Ø south	19		
Bell bore Ø north	25	26.2	Almost cylindrical
Bell bore Ø south	26.7	27	
Bell socket length	32.2	32.8	
Bocal Ø at the beginning	x		
Bocal thickness at the beginning	x		
Bocal Ø at the tenon	x		
Bocal thickness at the tenon	x		
Bocal length (along top)	x		
COMPLETE - OUTSIDE	Min.	Max.	
Bocal well thickness with ferrule	4.8	5	
Bocal well ferrule thickness	0.6		
Wing - tenon thickness	3.6		
Wing - tenon northern extern. Ø	20.8		
wing - tenon southern extern. Ø	x		
Wing - tone hole A distance from north	69.5		
Wing - tone hole A angle	x		
Wing - tone hole A approx. Ø	x		
Wing - tone hole A approx. length	x		
Wing - tone hole C distance from north	40.5		
Wing - tone hole C angle	x		
Wing - tone hole C extern. Ø	x		
Wing - tone hole C approx. length	x		

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Butt - big socket thickness with ferrule	2.8		Without 1.6 mm
Butt - small socket thickness with ferrule	3.1		Without 2.1 mm
Butt - top ferrule thickness	0.7		
Minimum wall thickness between butt sockets	1.7		
Butt - wood space between corks - bottom	x		One cork
Butt - big bore cork Ø - bottom	20.8		
Butt - small bore cork Ø - bottom	18.4		
Butt - wood wall between cork/front - small bore	17.4		Without ferrule
Butt - wood wall between cork/front - big bore	6		Without ferrule
Butt - wood wall between cork/back - small bore	6.2		Without ferrule
Butt - wood wall between cork/back - big bore	6		Without ferrule
Wood wall between cork/side - small bore	5.9		Without ferrule
Wood wall between cork/side - big bore	4.7		Without ferrule
Butt - bottom ferrule thickness	0.5		
Long joint - south tenon thickness	3.5		
Long joint - south tenon northern extern. Ø	27.2		
Long joint - south tenon southern extern. Ø	26		
Long joint - north tenon thickness	3		
Long joint - north tenon northern extern. Ø	30.9		
Long joint - north tenon southern extern. Ø	31.8		
Bell socket thickness with brass	2.9		Without 1.9 mm
Brass thickness of the bell ferrule	0.6		
Bell ferrule height	31		
Tone hole angle, Ø, length			
Butt - tone hole Ab angle	x		
Butt - tone hole F angle	x		

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Butt - tone hole F# angle	x		
Butt - tone hole Ab approx. Ø	7.7		
Butt - tone hole F approx. Ø	7.8		
Butt - tone hole F# approx. Ø	5.7		
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 \flat angle	x		
Long joint - tone hole B \flat angle	x		
Long joint - tone hole D approx. Ø	9.2		
Long joint - tone hole E \flat approx. Ø	x		
Long joint - tone hole B \flat approx.Ø	10.4		
Long joint - tone hole D approx. length	x		
Long joint - tone hole E \flat approx. length	x		
Long joint - tone hole B \flat approx. length	x		
COMPLETE - INSIDE			
Wing - tone hole 1 distance from south	221		
Wing - tone hole 2 distance from south	147		
Wing - tone hole 3 distance from south	110		
Wing - tone hole A distance from south	x		
Wing - tone hole C distance from south	x		
Butt - tone hole 4 distance from north	53		
Butt - tone hole 5 distance from north	100		
Butt - tone hole 6 distance from north	137		
Butt - tone hole Ab distance from north	x		

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Butt - tone hole F distance from north	x		
Butt - tone hole F# distance from north	187		
Butt - tone hole E distance from north	16		
Long joint - tone hole D distance from north	365		Approximate
Long joint- tone hole E \flat distance from north	325		Approximate
Long joint - tone hole C distance from north	235		Approximate
Long joint - hole B \flat distance from north	72		Approximate
Bell - vent hole distance from north	x		
EXTRAS			
Butt - tone hole B \flat (front) distance from north	183		
Long joint - tone hole C# low distance from north	129.5		
Wing - tone hole C# distance from north	252		