4-key fagottino, MÜLLER, Germany, ca. 1770

BASIC - OUTSIDE			
Joint lengths	**Min. mm**	**Max. mm**	**Comments**
Standing length to bell	647		
Standing length to wing joint	467		
Wing joint length	266		
Wing joint - tenon length	23.6		
Butt joint length	221	222	
Long joint length	306.5		
Long joint - south tenon length	25.8		
Long joint - north tenon length	26.3		
Bell length	169		
Vent hole distance from north	x		
Vent hole approx diameter	x		
Tone hole distance, axis			
Wing - tone hole 1 distance from north	120		
Wing - tone hole 2 distance from north	147		
Wing - tone hole 3 distance from north	176		
Butt - tone hole 4 distance from north	53.5		
Butt - tone hole 5 distance from north	80		
Butt - tone hole 6 distance from north	108		
Butt - tone hole F distance from north	192.5		
Butt - tone hole E distance from north	77		
Butt - tone hole Ab distance from north	178		
Butt - tone hole F# distance from north	x		
Long joint - tone hole D distance from north	269		
Long joint - tone hole Eb distance from north	x		
Long joint - tone hole C distance from north	168		

***4-key fagottino,* MÜLLER, Germany, ca. 1770**			
Long joint - tone hole Bb distance from north	47		
Wing - major axis at tone hole 1	33.7		
Wing - major axis at tone hole 2	34.6		
Wing - major axis at tone hole 3	34.2		
Butt - major axis (side to side) at tone hole 4	53.2		
Butt - minor axis (front to back) at tone hole 4	34		
Butt - major axis (side to side) at tone hole 5	52		
Butt - minor axis (front to back) at tone hole 5	32.4		
Butt - major axis (side to side) at tone hole 6	50.4		
Butt - minor axis (front to back) at tone hole 6	31.4		
Butt - major axis (side to side) at tone hole F	47.1		
Butt - minor axis (front to back) at tone hole F	30.4		
Butt - major axis (side to side) at tone hole E	52.3		
Butt - minor axis (front to back) at tone hole E	32.5		
Butt - major axis (side to side) of the bottom butt ellipse	44	47	Without/with ferrule
Butt - minor axis (front to back) of the bottom butt ellipse	28.4	30.9	Without/with ferrule
Butt - major axis (side to side) of the top butt ellipse	54		
Butt - minor axis (front to back) of the top butt ellipse	35.8		
Butt - cork major axis (side to side)	14.4	14.5	Big bore/small bore
Butt - cork minor axis (front to back)	14.6	14.6	Big bore/ small bore
Long joint - minor axis (front to back) at tone hole D	27.6		
Long joint major - axis (side to side) at tone hole D	28.7		
Long joint - minor axis (front to back) at tone hole Eb	x		
Long joint - major axis (side to side) at tone hole Eb	x		
Long joint - minor axis (front to back) at tone hole C	30.1		
Long joint - major axis (side to side) at tone hole C	30.8		

***4-key fagottino,* MÜLLER, Germany, ca. 1770**			
Long joint - minor axis (front to back) at tone hole Bb	27.7		
Long joint - major axis (side to side) at tone hole Bb	28.6		
Tone hole angle, Ø, length			
Wing - tone hole 1 angle	7° North		Small angle
Wing - tone hole 2 angle	16.5° South		
Wing - tone hole 3 angle	43.5˚ South		Big angle
Wing - tone hole 1 approx. Ø	3.4		Tone holes 1, 2, 3 are similar
Wing - tone hole 2 approx. Ø	3.7		
Wing - tone hole 3 approx. Ø	3.6		
Wing - tone hole 1 approx. length	9.2		
Wing - tone hole 2 approx. length	8.7		
Wing - tone hole 3 approx. length	17		
Butt - tone hole 4 angle	26.5˚ North		
Butt - tone hole 5 angle	2.5˚ North		Is usually south
Butt - tone hole 6 angle	31.5˚ South		
Butt - tone hole E angle	3.5˚ South		
Butt - tone hole 4 approx. Ø	5.3		
Butt - tone hole 5 approx. Ø	4.2		
Butt - tone hole 6 approx. Ø	4.2		
Butt - tone hole E approx. Ø	6		
Butt - tone hole 4 approx. length	14.7		
Butt - tone hole 5 approx. length	12		
Butt - tone hole 6 approx. length	13.6		
Butt - tone hole E approx. length	12.2		
Long joint - tone hole C angle	0		
Long joint - tone hole C Ø	7.4	7.8	
Long joint - tone hole C approx. length	6.5		
BASIC - INSIDE			

***4-key fagottino,* MÜLLER, Germany, ca. 1770**			
Inner bore length			
Bore length	1124.9		
Wing bore length	266.8		
Butt - small bore length	215		
Butt - big bore length	216		
Butt - small bore socket length	24.5		
Butt - big bore socket length	25.7		
Butt - small bore beginning of septum	195		Septum very wide
Butt - big bore beginning of septum	196.5		
Long joint length	308.5		
Bell length	170.5		
Inner bore beginning Ø (not socket!)	**Min.**	**Max.**	
Wing bore Ø north	11	11.3	
Wing bore Ø south	10	10.6	
Bocal well length	34		Bocal well, original bocal tenon are very long
Butt - small bore Ø north	12.4		
Butt - big bore Ø north	17		
Long joint Ø north	19.8	20.4	
Long joint Ø south	16.1	16.5	
Bell bore Ø north	19.7	20.4	Almost cylindrical bell
Bell bore Ø south	20.1		
Bell socket length	26.7		
Bocal Ø at the beginning	3.2	3.5	
Bocal thickness at the beginning	0.3	0.4	
Bocal Ø at the tenon	7	7.7	
Bocal thickness at the tenon	0.2	0.4	
Bocal length (along top)	182.5		

4-key fagottino, MÜLLER, Germany, ca. 1770

COMPLETE - OUTSIDE	Min.	Max.	
Bocal well thickness with ferrule	4.9	5.2	Without ferrule: 4 to 4.3 mm
Bocal well ferrule thickness	0.6	0.7	
Wing - tenon thickness	2.7	3.1	
Wing - tenon northern extern. Ø	18.1	18.3	
Wing - tenon southern extern. Ø	15.9	16.5	
Wing - tone hole A distance from north	x		
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	x		
Wing - tone hole C angle	x		
Wing - tone hole C extern. Ø	x		
Wing - tone hole C approx. length	x		
Butt - big socket thickness with ferrule	4.2		
Butt - small socket thickness with ferrule	4.3		
Butt - top ferrule thickness	0.8	1	
Minimum wall thickness between butt sockets	3		
Butt - wood space between corks - bottom	6		
Butt - big bore cork Ø - bottom	14.1	14.7	See extras
Butt - small bore cork Ø - bottom	14.2	14.6	See extras
Butt - wood wall between cork/front - small bore	5.2		
Butt - wood wall between cork/front - big bore	5.9		
Butt - wood wall between cork/back - small bore	5.1		
Butt - wood wall between cork/back - big bore	5.1		
Wood wall between cork/side - small bore	4		
Wood wall between cork/side - big bore	4.6		
Butt - bottom ferrule thickness	0.8	1	Plate: 0.5–0.6 mm

***4-key fagottino,* MÜLLER, Germany, ca. 1770**			
Long joint - south tenon thickness	2.3	2.5	
Long joint - south tenon northern extern. Ø	21.8	22	
Long joint - south tenon southern extern. Ø	21.3	21.5	
Long joint - north tenon thickness	2.5	3	
Long joint - north tenon northern extern. Ø	25.5	25.9	
Long joint - north tenon southern extern. Ø	26	26.5	
Bell socket thickness with brass	2.6	2.9	Without ferrule: 1.4–2 mm
Brass thickness of the bell ferrule	0.6	0.8	
Bell ferrule height	10		
Tone hole angle, Ø, length			
Butt - tone hole Ab angle	0		
Butt - tone hole F angle	9˚North		
Butt - tone hole F♯ angle	x		
Butt - tone hole Ab approx. Ø	4.2		
Butt - tone hole F approx. Ø	5.7		
Butt - tone hole F♯ approx. Ø	x		
Butt - tone hole Ab approx. length	8		
Butt - tone hole F approx. length	12.8		
Butt - tone hole F# approx. length	x		
Long joint - tone hole D angle	0		
Long joint - tone hole E ♭ angle	x		
Long joint - tone hole B ♭ angle	0	0	
Long joint - tone hole D approx. Ø	7.5	7.7	
Long joint - tone hole E ♭ approx. Ø	x		
Long joint - tone hole B ♭ approx.Ø	8.4	8.7	
Long joint - tone hole D approx. length	4.9		
Long joint - tone hole E ♭ approx. length	x		
Long joint - tone hole B ♭ approx. length	4.7		

***4-key fagottino,* MÜLLER, Germany, ca. 1770**			
COMPLETE - INSIDE			
Wing - tone hole 1 distance from south	148		
Wing - tone hole 2 distance from south	115.5		
Wing - tone hole 3 distance from south	80		
Wing - tone hole A distance from south	x		
Wing - tone hole C distance from south	x		
Butt - tone hole 4 distance from north	45		From south: 176 mm
Butt - tone hole 5 distance from north	79.5		From south: 143.5 mm
Butt - tone hole 6 distance from north	116		From south: 106 mm
Butt - tone hole Ab distance from north	178		From south: 44.5 mm
Butt - tone hole F distance from north	191		From south: 33 mm
Butt - tone hole F♯ distance from north	x		
Butt - tone hole E distance from north	78		From south: 144.5 mm
Long joint - tone hole D distance from north	270		From south: 37 mm
Long joint- tone hole E ♭ distance from north	x		
Long joint - tone hole C distance from north	170		From south: 139 mm
Long joint - hole B ♭ distance from north	48		From south: 260 mm
Bell - vent hole distance from north	x		
EXTRAS			
Wooden corks. Small bore = 9.3 mm / big bore = 8.7 mm. Diameters, conical piece: Small bore = south 14.2/14.6 mm and north: 13.7 mm. Big bore = south 14.1/14.7 mm // north 13.8/14.3 mm.			