

	A	B	C	D	E	F	G	H	I	J	K	L
1	<b>I. Bocal</b>		Original bocal; Doke1, 3 bocals							Tauber1	Tauber2	Tauber3
2	dia reed end		inside diameter of reed end of bocal									
3	bocal string length (0, 1)		length of bocal inserted into receiver									
4	metal bocal length top (0, 1)		meas. along top of bocal									
5	metal bocal length bot (0, 1)		meas. along bottom of bocal									
6	dia wj end		inside diameter of bocal									
7												
8	bocal logic	2	if bocal logic = 0 => bocal is choke; if bocal logic = 1 => choke in wing joint calc; if bocal logic = 2 => no bocal							2	2	2
9												
10			Doke1 receiver looks to be a bone ring on top									
11												
12												
13	<b>II. Wing Joint Lengths</b>		bocal receiver; Doke1 there is a receiver									
14	choke bore dia.	7.6	Doke1 vrfd small; logic 1; bore diameter of choke; logic 0; either diameter bocal bottom or beginning of bore at bottom or receiver							8.1	8.9	9.2
15	receiver length (1, 0) (formally choke length)	28	Doke1, vrfd short; logic 1; length of choke from top of wing joint; logic 0; length of receiver (same as string length)							40	22	20.9
16	wing joint length	523	Doke1, vrfd; total wing joint length, including tenon and socket							514	517	536
17	tenon length	45.3								45.1	45.1	45.2
18												
19	wj f2	225	dist top of wing to where tone hole enters bore (not at the center of the tone hole)							212	221	234
20	wj e	284								279	279	289
21	wj d	326								326	321	330
22												
23	Bore dia. Bottom of wing joint	15.3	Need to Average, usually oval; Doke1 no							14	16.3	15.3
24	Bore dia. top of boot joint small side	15.6								15.9	16.1	16.3
25	Bore dia. top of boot joint large side	24.6								24.2	24.2	24.1
26												
27	<b>III. Boot Lengths</b>		Doke1; Two whole design									
28	bj logic	1	logic=> if bj logic = 0 => plug removed; if bj logic = 1 => plug cannot be removed							1	1	1
29	bj c	90	Doke1 vrfd long; dist from top of boot to where topmost tone hole enter bore (not at center of tone hole)							85	83	81
30	bj b	140								147	139	139
31	bj a	186								193	182	180
32												
33	bjstotal (Needed for both boot logics)	434	total length of boot, include socket, along the small bore side,							429	434	437
34	bjltotal (Needed for both boot logics)	434	total length of boot, include socket, along large bore side							429	434	437
35	plug small (Need for logic 0 only)	0	plug thickness, large bore side							0	0	0
36	plug large (Need for logic 0 only)	0	plug thickness, small bore side							0	0	0
37												
38	boots (Needed for both boot logics)	398	Doke1 vrfd long; hook length along s bore => bjs-septum length = boot - septum <= calc the septum							388	390	393
39	bootl (Needed for both boot logics)	398	hook length along l bore => bjl-septum length = boot - septum <= calc the septum							388	390	393
40												
41	boots bottom (Needed for both boot logics)	21	use hook, dist of bore (dist on stick plus 7mm, diff between hook and bot of stick); 14+7=21							23	21	21
42	bootl bottom (Needed for both boot logics)	21	use hook, dist of bore (same as boots bot except tenon depth will be different)							23	21	21
43												
44	extreme bore (Needed for logic 1 only)	42.1	Doke1 vrfd; Outside dia of plug (measured) = small bore dia + large bore dia + the septum width							43.7	41.3	41.8
45												
46	septum length exp (Need for logic 0 only)		dist. from very bottom of boot to septum (point between the large and small bore)									
47	septum length calc - do not input value	36	dist. From very bottom of boot to spetum (bjl - bootl)							41	44	44
48	septum length - do not input value	36	if bj logic = 0 => septum = septum exp; if bj logic = 1 => septum = septum							41	44	44
49												
50	sbore dia sep* (Needed for both boot logics)	19.1	septum small bore dia (assume = lbore dia sep)							18.7	19	19.2
51	lbore dia sep* (Needed for both boot logics)	19.2	septum large bore dia (assume = sbore dia sep) (measure if cork can be removed; for Logic 0)							19	19.6	19.5
52	sep width exp (Need for logic 0 only)	0	septum width; direct measurement if remove plug							0	0	0
53	sep width calc - do not input value	3.8	septum width; calc. => extreme bore - sbore - lbore							6	2.7	3.1
54	sep width - do not input value	3.8	if bj logic = 0 => sep width = sep width exp; if bj logic = 1 => sep width = sep							6	2.7	3.1
55												
56	bj g	345	dist from top of boot (socket) to where G hole enters bore (not at cent of tone hole)							348	344	345
57	bj f1	129	dist from top of boot (socket) to where F1 hole enters bore (not at cent of tone hole)							122	129	129
58												
59												
60												
61												
62												
63	<b>IV. Tone Hole Diameters</b>											
64	f2	5.6	Doke1, filler in tone hole							5	6.9	6.7
65	e	6.3								6.2	6.7	6.4
66	d	5.8								4.4	5.9	6
67												
68	c	6.8								7.8	8.5	8.4
69	b	6.8								7.5	7.5	7.5
70	a	5.8								6.5	6.9	6.5
71	g	9.6								10.5	10.1	11.1
72	f1	10.1								10.7	10	10.3
73												
74	e1	16.8	Doke1 vrfd large oblong, 14.6 x 19.0; e1 tone hole dia, on long joint (need to average NS and EW dias, NS usually greater)							15.4	14.9	15.6
75	d1	10.7	d1 tone hole dia, on long joint (need to average NS and EW dias, NS usually greater)							9.5	10.5	10.5
76	c1	12.1	Doke1, round tone hole; c1 tone hole dia, on long joint (need to average NS and EW dias, NS usually greater)							15	14.8	15
77												
78												
79												
80												
81												
82	<b>V. Tone Hole Depths</b>											
83	f2	32.8								36.2	30.9	30.8
84	e	32.1								31.5	29.2	31.3
85	d	34.8								32	31.5	30.3
86												
87	c	21.1								25	24.7	22.7
88	b	23.3								24	24.7	25.2
89	a	22.8								27	25.2	24
90	g	17.3	meas along bot tone hole wall (north wall, toward reed, tone hole usually at angle)							20	16.5	17.7
91	f1	21	meas along east side tone hole wall (north wall, toward reed, tone hole usually at angle)							20.6	19.7	19.8
92												
93	e1	8.1	e1 tone hole depth; meas east/west with deapth gauge (at center, or shortest dist)							9.8	11.1	10
94	d1	8.7	d1 tone hole depth; meas east/west with deapth gauge (at center, or shortest dist)							9.2	12.2	9.9
95	c1	8	c1 tone hole depth; meas east/west with deapth gauge (at center, or shortest dist)							9.5	10.6	10.6
96												
97												
98												
99												
100												
101	<b>VI. Long Joint</b>		Doke1 a table along long joint									
102	lg length	590	total length of long joint							594	581	587
103	lg tenon bot	44.9	length bottom tenon on long joint (tenon going into boot joint)							48	42.4	42.4
104	lb bot bore	23.5	long joint bottom tenon bore diameter (tenon going into boot joint) Average out of round							23.4	24.5	24.1
105	lb top bore	31.6	long joint top tenon bore diameter (tenon going into bell)							30.3	32.8	31.8
106	lg tenon top	36.8	Doke1 vrfd long; length top tenon on long joint (tenon going into bell)							32.5	33.8	34.4
107	e1 distance	56	dist long joint tenon to e1 (from bot of tenon to where tone hole enters bore)							55	53	54
108	d1 distance	266	dist long joint tenon to d1 (from bot of tenon to where tone hole enters bore)							278	266	265
109	c1 distance	478	dist long joint tenon to c1 (from bot of tenon to where tone hole enters bore)							498	479	481
110												
111												
112												
113												
114												
115	<b>VII. Bore diameters at Tone Holes</b>											
116	f2	11.1								11	11.6	11.6
117	e	12.1								12.1	12.3	12.4
118	d	12.7								12.3	13.1	13.2
119												
120	c	16								16	16.2	16.1
121	b	16.7								16.7	16.5	16.7
122	a	17.1								17.2	17.2	17.1
123	g	19.7								19.8	20.2	20.2
124	f1	23.1								22.6	23	23

	A	B	C	D	E	F	G	H	I	J	K	L
125												
126	e1	24.1	Doke1 vrfd; e1 tone hole bore diameter on long joint							24.8	25	25
127	d1	27	d1 tone hole bore diameter on long joint							27.5	27.5	27.3
128	c1	30.3	Doke1 vrfd; c1 tone hole bore diameter on long joint							30.3	32	31.3
129												
130												
131												
132												
133												
134	VIII. Bell											
135	bell logic	1	If bell logic = 0 => normal conical bore; if bell logic = 1 => inverted conical bore; if bell logic = 2 => bell expansion							0		1
136	bell length (0, 1, 2)	297	total length of bell [lines 141 + 144 = line 136]							332		309
137	bell bot bore (0, 1, 2)	31.6	dia bore at the bottom of bell [end with socket]							33		32.6
138	bell top bore 0, (1, 0, 2)	27.1	dia bore at the top of bell [where low Bb exits] Doke1, 27.1mm at bottom of caliper jaws; 39mm at very top of bell							38		28.1
139	bell center bore (only for logic 2)		dia bore at max center of expansion									
140	bell wall (only for logic 2)		bell wall thickness, just for David									
141	bell bot bore expansion (only for logic 2)		dist of bottom to maximum expansion [including bell socket length, if bell logic=0 => 100]									
142	Outside diameter of wood at expansion		Just for David									
143	bell tenon (0, 1, 0, 2)	36.8	bell socket length							40.3		35.5
144	bell expansion length (only for logic 2)		distance of maximum expansion to top of bell [where Bb exits]									
145	bell lg	52	Usually about 10mm more than line 138							50		52
146												
147												
148	IX. PITCH											
149	pitch	430	input the historical pitch of the bassoon, must input value, best guess							430	430	430
150	freq_init	380	Initial frequency range variable							380	380	380
151	Delta frequency	2	frequency increment parameter							2	2	2
152	Number of frequencies	60	number of frequencies to scan for min chi sq							60	60	60
153	frequency adjust	1.05	frequency adjustment parameter							1.05	1.05	1.05
154	X. Title											
155	title		Bassoon Calculation: DokeK1-O-Kiefer-Wa1-WOB-DNM									
156												
157			Notes on long joint bore: Doke1 Normal									
158			Notes on boot joint bore: Doke1 Normal to good									
159	XI. Bore Diameter Locations		Notes on wing joint bore: Doke1 very good									
160		21	Number of diameters							18	21	21
161	Bell Bore	7.6	Initial bore diameter [do not include in line 160 counting]							8.1	8.9	9.2
162	31.6mm diameter at socket	370	dist1; measured from the bottom of the wing joint- 10mm				1			350	408	420
163	31mm rod 85mm from socket	315	dist2; measured from the bottom of the wing joint- 11mm				1			292	348	363
164	30mm rod 135mm from socket	248	dist3; measured from the bottom of the wing joint- 12mm				1			245	370	380
165	29mm rod 200mm from socket	187	dist4; measured from the bottom of the wing joint- 13mm				1			115	200	218
166	28mm rod 250mm from socket	120	dist5; measured from the bottom of the wing joint- 14mm				1			0	130	105
167	27.1mm diameter at bell end	0	dist6; measured from the bottom of the wing joint- 15mm	Bottom wing jt	15.3		1			0	68	0
168		85	dist7; measured from the top of the bootjoint - small bore side- 16mm	top boot small	15.6		2			70	0	80
169		175	dist8; measured from the top of the bootjoint - small bore side- 17mm	top boot large	24.6		2			190	153	165
170		272	dist9; measured from the top of the bootjoint - small bore side- 18mm				2			290	225	242
171		375	dist10; measured from the top of the bootjoint - large bore side- 19mm	bore dia sep	19.1		2			0	0	360
172		335	dist11; measured from the top of the bootjoint - large bore side- 20mm	bore dia sep	19.2		3			340	376	270
173		278	dist12; measured from the top of the bootjoint - large bore side- 21mm	Hook Length	398		3			245	295	295
174		215	dist13; measured from the top of the bootjoint - large bore side- 22mm				3			190	230	233
175		135	dist14; measured from the top of the bootjoint - large bore side- 23mm				3			110	135	135
176		550	dist15; measured from the top of the long joint- 24mm	lj_bot bore	23.5		4			565	65	555
177		450	Doke1 vrfd gap; dist16; measured from the top of the long joint- 25mm				4			515	498	528
178		382	dist17; measured from the top of the long joint- 26mm				4			440	430	430
179		315	dist18; measured from the top of the long joint- 27mm				4			365	350	360
180		260	dist19; measured from the top of the long joint- 28mm				4			285	285	285
181		205	dist20; measured from the top of the long joint- 29mm				4			225	240	240
182		135	Doke1 OOR; dist21; measured from the top of the long joint- 30mm				4			140	193	185
183		75	dist22; measured from the top of the long joint- 31mm				4			0	135	138
184		0	dist23; measured from the top of the long joint- 32mm	lj_top bore	31.6		4			0	110	0