

	A	B	C	D	E	F	G	H	I	J	K
1	I. Bocal		Original bocal, DennerJC-Körber1 Yes					DennerJC1	DennerJC2	DennerJC3	Körber1
2	dia reed end	4	inside diameter of reed end of bocal					Brus MIM	Berlin	Berlin	
3	bocal string length (0, 1)	45	length of bocal inserted into receiver								45
4	metal bocal length top (0, 1)	370	meas. along top of bocal 370 + 354=724/2=362mm								370
5	metal bocal length bot (0, 1)	354	meas. along bottom of bocal								354
6	dia wj end	9.1	inside diameter of bocal								9.1
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	2
9											
10											
11											
12											
13	II. Wing Joint Lengths		DennerJC-Körber1 has a bocal reliever								
14	choke bore dia.	9	logic 1; bore diameter of choke; logic 0; either diameter bocal bottom or beginning of bore at bottom or receiver					10.1	10.1	9.3	9
15	receiver length (1, 0) (formally choke length)	45	logic 1; length of choke from top of wing joint; logic 0; length of receiver (same as string length)					53	76	70	45
16	wing joint length	494	total wing joint length, including tenon and socket					515	482	518	494
17	tenon length	49	tenon length;					37.8	46.7	53.4	49
18											
19	wj f2	207	dist top of wing to where tone hole enters bore (not at the center of the tone hole)					217	193	200	207
20	wj e	257						275	251	262	257
21	wj d	300						314	295	308	300
22											
23	Bore dia. Bottom of wing joint	15.6	Need to Average, usually oval; DennerJC-Körber1 slightly OOR					14.4	16.2	15.4	15.6
24	Bore dia. top of boot joint small side	16.5	DennerJC-Körber1 vrfd, difference between wing and boot					16.2	16.8	16.6	16.5
25	Bore dia. top of boot joint large side	25.9	DennerJC-Körber1 vrfd					28.9	27.6	26.2	25.9
26											
27	III. Boot Lengths		DennerJC-Körber1, could remove plug								
28	bj logic	1	logic=> if bj logic = 0 => plug removed; if bj logic = 1 => plug cannot be removed					1	1	1	1
29	bj c	87	dist from top of boot to where topmost tone hole enter bore (not at center of tone hole)					92	88	85	87
30	bj b	138						150	148	148	138
31	bj a	181						195	189	190	181
32			DennerJC-Körber1 measured with boot cap removed								
33	bjstotal [Needed for both boot logics]	407	DennerJC-Körber1, vrfd short boot; total length of boot, include socket, along the small bore side,					448	421	445	407
34	bjbttotal [Needed for both boot logics]	407	total length of boot, include socket, along large bore side					448	421	445	407
35	plug small [Need for logic 0 only]	0	plug thickness, large bore side					0	0	0	0
36	plug large [Need for logic 0 only]	0	plug thickness, small bore side					0	0	0	0
37											
38	boots [Needed for both boot logics]	374	DennerJC-Körber1 vrfd short; hook length along s bore => bjs-septum length = boot - septum <= calc the septum					414	386	405	374
39	bootl [Needed for both boot logics]	374	hook length along l bore => bil-septum length = boot - septum <= calc the septum					414	386	405	374
40											
41	boots bottom [Needed for both boot logics]	18	use hook, dist of bore (dist on stick plus 7mm, diff between hook and bot of stick)					21	23	18	18
42	bootl bottom [Needed for both boot logics]	18	use hook, dist of bore (same as boots bot except tenon depth will be different); 11 + 7=18					21	23	18	18
43											
44	extreme bore [Needed for logic 1 only]	49	Outside dia of plug [measured] = small bore dia + the septum width					48.5	47	52	49
45											
46	septum length exp [Need for logic 0 only]	33	dist. from very bottom of boot to septum (point between the large and small bore)					0	0	0	33
47	septum length calc - do not input value	33	dist. From very bottom of boot to septum (bjl - bootl)					34	35	40	33
48	septum length - do not input value	33	if bj logic = 0 => septum = septum exp; if bj logic = 1 => septum = septum calc					34	35	40	33
49											
50	sbore dia sep* [Needed for both boot logics]	19.7	septum small bore dia (assume = lbore dia sep)					19.9	21.7	21.7	19.7
51	lbore dia sep* [Needed for both boot logics]	21.8	DennerJC-Körber1 vrfd difference between bore; septum large bore dia (assume = sbore dia sep) [measure if cork can be removed]					20.7	20.8	21.1	21.8
52	sep width exp [Need for logic 0 only]	8	septum width; direct measurement if remove plug; DennerJC-Körber1 is not shaped into a point, flat					0	0	0	8
53	sep width calc - do not input value	7.5	septum width; calc. => extreme bore - sbore - lbore					7.9	4.5	9.2	7.5
54	sep width - do not input value	7.5	if bj logic = 0 => sep width = sep width exp; if bj logic = 1 => sep width = sep w					7.9	4.5	9.2	7.5
55											
56	bj g	317	dist from top of boot (socket) to where G hole enters bore (not at cent of tone hole)					327	320	323	317
57	bj f1	115	DennerJC-Körber1 vrfd; dist from top of boot (socket) to where F1 hole enters bore (not at cent of tone hole)					134	123	125	115
58											
59											
60											
61											
62											
63	IV. Tone Hole Diameters										
64	f2	5.7	DennerJC-Körber1, finger holes not in straight line on épaule					6.3	5.2	6.1	5.7
65	e	5.9						6.2	5.8	5.9	5.9
66	d	5.7						5.5	5.5	5.7	5.7
67											
68	c	6.9						7.3	7.5	7.3	6.9
69	b	7.3						6.6	7.3	6.8	7.3
70	a	7.2						5.8	6.2	5.8	7.2
71	g	9.3						10.5	10.4	10.8	9.3
72	f1	9.1						10.3	9.7	9.7	9.1
73											
74	e1	11.8	e1 tone hole dia, on long joint (need to average NS and EW dias, NS usually greater)					8.5	12.2	12.5	11.8
75	d1	11.9	d1 tone hole dia, on long joint (need to average NS and EW dias, NS usually greater)					9.2	10.1	12	11.9
76	c1	12.3	c1 tone hole dia, on long joint (need to average)					12.5	12.5	13.6	12.3
77			DennerJC-Körber1; could not remove low Bb key, but measured accurately								
78											
79											
80											
81											
82	V. Tone Hole Depths										
83	f2	18						22.9	26.3	31.5	18
84	e	12.2	DennerJC-Körber1, wing tone hole lengths short					24.5	25.2	30	12.2
85	d	14.9						24.4	25.5	34.5	14.9
86											
87	c	24.1						19	27.5	25.5	24.1
88	b	21						20.5	26.5	24	21
89	a	21.6						23.2	25	23.5	21.6
90	g	16.5	meas along bot tone hole wall (north wall, toward reed, tone hole usually at angle)					16.5	16.5	16.5	16.5
91	f1	15.9	meas along east side tone hole wall (north wall, toward reed, tone hole usually at angle)					17.3	14	18	15.9
92											
93	e1	5.3	e1 tone hole depth; meas east/west with depth gauge (at center, or shortest dist)					5	3.3	3.8	5.3
94	d1	7	d1 tone hole depth; meas east/west with depth gauge (at center, or shortest dist)					4	5.2	5.9	7
95	c1	7.6	c1 tone hole depth; meas east/west with depth gauge (at center, or shortest dist)					4	3.9	4.2	7.6
96			DennerJC-Körber1; could not remove low Bb key, but measured accurately								
97											
98											
99											
100											
101	VI. Long Joint		DennerJC-Körber1 not a table along long joint								
102	lg length	568	total length of long joint					582	562	589	568
103	lg tenon bot	44.5	length bottom tenon on long joint (tenon going into boot joint)					34.8	49.1	44.4	44.5
104	lj bot bore	26.4	DennerJC-Körber1 OOR 25.1 x 25.7; long joint bottom tenon bore diameter (tenon going into boot joint)					26.4	25.4	25.2	26.4
105	lj top bore	32.4	long joint top tenon bore diameter (tenon going into bell)					35.2	33.8	32	32.4
106	lg tenon top	29.8	DennerJC-Körber1 vrfd short; length top tenon on long joint (tenon going into bell)					28.8	33.9	26.4	29.8
107	e1 distance	51	dist long joint tenon to e1 (from bot of tenon to where tone hole enters bore)					43	65	54	51
108	d1 distance	260	dist long joint tenon to d1 (from bot of tenon to where tone hole enters bore)					261	262	270	260
109	c1 distance	507	dist long joint tenon to c1 (from bot of tenon to where tone hole enters bore)					523	498	531	507
110			DennerJC-Körber1; could not remove low Bb key, but measured accurately								
111											
112											
113											
114											
115	VII. Bore diameters at Tone Holes										
116	f2	11						12.2	11.8	11.3	11
117	e	11.8						13.1	12.9	12.4	11.8
118	d	12.4						13.4	13.5	13.2	12.4
119											
120	c	15.7						16.6	17.6	17.6	15.7
121	b	16.5						17	18.6	18.3	16.5
122	a	17						17.4	19.5	19.1	17
123	g	21.5						22.3	22.3	22	21.5
124	f1	24.1						26.5	26.1	25.3	24.1
125											
126	e1	25.8	DennerJC-Körber1 OOR 270 x 320; e1 tone hole bore diameter on long joint					27	26.4	27	25.8
127	d1	28.6	d1 tone hole bore diameter on long joint					33.2	30.2	30.3	28.6

	A	B	C	D	E	F	G	H	I	J	K
128	c1	31.7	DennerJC-C-Körber1 OOR: c1 tone hole bore diameter on long joint					34.7	33.2	33.5	31.7
129											
130											
131											
132											
133											
134	VIII. Bell		DennerJC-Körber1 no tone hole in the bell								
135	bell logic	2	If bell logic = 0 => normal conical bore; if bell logic = 1 => inverted conical bore					2	2	2	2
136	bell length (0, 1, 2)	296	total length of bell [lines 141 + 144 = line 136]					298	294	296	296
137	bell bot bore (0, 1, 2)	31.7	DennerJC-Körber1 OOR 31.4 x 32; dia bore at the bottom of bell [end with socket]					36	36.9	34.3	31.7
138	bell top bore 0, (1, 0, 2)	28.6	dia bore at the top of bell [where low Bb exits]					28.9	28	26.8	28.6
139	bell center bore (only for logic 2)	41.8	dia bore at max center of expansion; 6.1 x 2=12.4/54.2-12.4=41.8mm					37.8	42.5	33.5	41.8
140	bell wall (only for logic 2)	6.1	bell wall thickness, just for David					8	7.5	12.5	6.1
141	bell bot bore expansion (only for logic 2)	270	dist of bottom to maxium of expansion [including bell socket length, if bell logic=0 =>100]					275	275	280	270
142	Outside diameter of wood at expansion	54.2	Just for David					56.3	58.2	56.5	54.2
143	bell tenon (0, 1, 0, 2)	29.8	bell socket length					29.4	34.4	28.5	29.8
144	bell expansion length (only for logic 2)		distance of maxium expansion to top of bell [where Bb exits]						20	10	
145	belllg	35.3	Usually about 10mm more than line 138					36	40	41.5	35.3
146											
147											
148	IX. PITCH		DennerJC-Körber1: Play tested by three bassoonists, plays a 440Hz with a "normal" Baroque bocal								
149	pitch	440	input the historical pitch of the bassoon, must input value, best guess					415	440	415	440
150	fret init	380	Initial frequency range variable					380	380	380	380
151	Delta frequency	2	frequency increment parameter					2	2	2	2
152	Number of frequencies	60	number of frequencies to scan for min chi sq					60	60	60	60
153	Frequency adjust	1.05	frequency adjustment parameter					1.05	1.05	1.05	1.05
154	X. Title										
155	title		Bassoon Calculation: DennerJC-C-Körber1-UWM-Wg1-WOB-DNM								
156											
157			Notes on long joint bore: DennerJC-Körber1 OOR in areas								
158			Notes on boot joint bore: DennerJC-Körber1 large side OOR in areas								
159	XI. Bore Diameter Locations		Notes on wing joint bore: DennerJC-Körber1 normal, qqod								
160		20	Number of diameters					19	21	19	20
161	Bell Bore: Bell OOR	9	Initial bore diameter [do not include in line 160 counting] from line 14					10.1	10.1	9.3	9
162	31.7mm dia. at socket	383	dist1; measured from the bottom of the wing joint- 10mm					1	0	0	392
163	31mm rod 80mm from socket	295	dist2; measured from the bottom of the wing joint- 11mm					1	360	314	342
164	30mm rod 165mm from socket	225	dist3; measured from the bottom of the wing joint- 12mm					1	305	274	285
165	29.1mm rod 231mm from skt, bot. of expen	158	dist4; measured from the bottom of the wing joint- 13mm					1	242	221	222
166	At this point is the beginning	73	dist5; measured from the bottom of the wing joint- 14mm					1	0	145	125
167	of the bell chamber, chamber ends	25	dist6; measured from the bottom of the wing joint- 15mm					1	0	65	65
168	almost at top of bell	100	DennerJC-Körber1 vrfd, smaller than at socket; dist7; measured from the bottom of	Bottom wing jt	15.6			2	65	0	100
169	41.8mm at maximum center of bell chamber	187	dist8; measured from the bottom of the wing joint- 17mm	top boot small	16.5			2	145	60	70
170	Bell chamber ends c.3mm from bell top	260	dist9; measured from the top of the bootjoint - small bore side- 18mm	top boot large	25.9			2	235	120	110
171	28.6mm dia.at bell end	328	DennerJC-Körber1 OOR 315 x 340; dist10; measured from the top of the bootjoint	sbore dia sep	19.7			2	305	165	170
172		0	dist11; measured from the top of the bootjoint - small bore side- 20mm	lbore dia sep	21.8			2	0	220	272
173		0	DennerJC-Körber1 vrfd gap; dist12; measured from the top of the bootjoint - large	Hook Length	374			3	395	370	355
174		295	DennerJC-C-Körber1 OOR 270 x 320; dist13; measured from the top of the bootjoint - large bore side- 22mm					3	355	345	0
175		225	DennerJC-C-Körber1 OOR 200 x 250; dist14; measured from the top of the bootjoint - large bore side- 23mm					3	315	285	285
176		140	DennerJC-C-Körber1 OOR 100 x 180; dist15; measured from the top of the bootj	li bot bore	26.4			3	265	226	215
177		75	dist16; measured from the top of the bootjoint - large bore side - 25mm					3	215	188	152
178		480	dist17; measured from the top of the bootjoint - large bore side- 26mm					4	165	515	540
179		420	dist18; measured from the top of the long joint- 27mm					4	536	460	0
180		365	DennerJC-C-Körber1 OOR 350 x 380; dist19; measured from the top of the long joint- 28mm					4	515	401	462
181		290	dist20; measured from the top of the long joint- 29mm					4	498	350	408
182		225	DennerJC-C-Körber1 OOR 200 x 250; dist21; measured from the top of the long joint- 30mm					4	470	290	330
183		140	DennerJC-C-Körber1 OOR 110 x 170; dist22; measured from the top of the long joint- 31mm					4	430	225	265
184		0	dist23; measured from the top of the long joint- 32mm	li top bore	32.4			4	380	160	0