

BUILDING AND OPERATING

MATERIAL SPECIFICATIONS

Bensen Models B-8 and B-8M

Materials specified for Bensen Gyros in large part are of commercial quality and therefore are inexpensive. Other materials are, and must be, of aircraft quality. A few materials are manufactured especially to Bensen specifications where neither available commercial, nor aircraft materials would do the job.

Under no circumstances should there be a substitution of specified grade materials with cheaper lower grades. Stay away also from cheaper imitations of Bensen products, such as rotors, rotor heads etc. Such penny-wise, pound-foolish substitutions are like playing "Russian roulette". You might get away with some of these cheapies for a while, but sooner or later one of them will let go, and you will be your own executioner.

WARNING! Substituted materials or design changes, even though apparently stronger than original, may be stiffer, heavier, or different enough aeroelastically to cause unpredictable stress concentrations, or resonant vibrations of unsafe magnitude. All such material substitutions, or changes of design, therefore, are entirely at the builder's own risk and invalidate all design claims for this aircraft.

You have our positive assurance that the prices you pay for the materials supplied in Bensen kits are absolutely the lowest in the world considering their tailored and in-factory inspected high-grade quality, which Bensen feels you must have for the maximum in reliability.

Where Bensen tolerances and inspection cannot be secured, and you prefer to buy from other sources, aircraft quality of specified materials must be ordered with manufacturer's notarized certification of compliance delivered with materials. Anything less might subject you to unforeseen hazards.

BENSEN GYRO MATERIALS

<u>Code#</u>	<u>Type</u>	<u>Specification</u>
SP	Aluminum Extrusions	6061-T6, 1/2 ASI tolerance to Bensen specs, certified by manufacturer, Bensen inspected.
1	Aluminum Angles	6061-T6 ASI tolerance, Bensen inspected.
2	Aluminum Angles	6063-T5 ASI tolerance, Bensen inspected.
3	Aluminum Sheet	5052-H3 ASI tolerance, Bensen inspected.
3A	Aluminum Sheet	3003-H14 ASI tolerance, Bensen inspected.
4	Aluminum Bar or Sheet	2024-T351 ASI tolerance, certified by manufacturer.
5	Aluminum Tube	6061-T6 ASI tolerance, certified by manufacturer.
6	Steel Sheet	C-1018 HRS pickled and oiled, to Bensen specification.
7	Steel Sheet	4130 Aircraft quality, certified by manufacturer.

MATERIALS

(cont'd)

<u>Code #</u>	<u>Type</u>	<u>Specification</u>
8	Steel tube	4130 Aircraft quality, certified by manufacturer.
9	Steel tube	C-1018 mechanical seamless.
10	Steel angle	1018-HRS Bensen inspected.
11	Steel rounds & bars	C-1213 A. I. S. I. Bensen inspected.
11A	Steel rounds	Fatigue-proof *Steel.
12	Steel spars	C-1018 HRS pickled and oiled, Bensen inspected, moment paired.
13	Laminated wood	Marine grade AA fir.
14	Laminated wood	Mahogany certified by manufacturer to Bensen specifications--special order.
15	Wood strip	Sugar pine selected, special run Bensen specifications, moment paired.
16	Phenol Fiber	Grade XXX tube, special order.

ROTOR HEAD SYSTEM Dwg. 8-102-100 (Kit 82P)

<u>Part #</u>	<u>Size</u>	<u>Code</u>	<u>Part #</u>	<u>Size</u>	<u>Code</u>
1	1/2" x 2"	4	14, 15	.065 x 3/8"	8
2	3/4" x 3"	4	4, 6	11 ga.	6
5	1" x 2 1/2"	4	16	16 ga.	6
11	1" x 1 1/2"	4	17	16 ga. x 1 1/2"	9
3	1 1/4" dia.	11A	12, 13	.125	3
7, 8, 9	7/8"	11			

ROTOR BLADE Dwg. 8-103-100 (Kit 81P)

<u>Part #</u>	<u>Size</u>	<u>Code</u>	<u>Part #</u>	<u>Size</u>	<u>Code</u>
1	.120 - .129	12	005, 006	3.5 - 3.8 mm	14
2	.120 - .129	12	004	3/4" x 1 1/4"	15
3, 7, 8, 9		13	011	16 ga.	6
10	.022	3A			

AIRFRAME Dwg. 8-104-100 (Kit 8-41)

<u>Part #</u>	<u>Size</u>	<u>Code</u>	<u>Part #</u>	<u>Size</u>	<u>Code</u>
1, 2, 3	1/8" x 2" x 2"	SP	12A, 13A, 27C	.065	3
4, 5A, 21E, 27F, 28B	.125	3	14A, 26C, 24D	.065	3
21H, 21G, 27N, M	.125	3	16	1/8" x 3/4" x 3/4"	10
5B	.250	4	18A	.065 x 1"	8
6, 7	1/8" x 1" x 1"	10	19C	.065 x 3/4"	5

*Reg. trade mark, J. T. Ryerson & Son, Inc.

AIRFRAME
Dwg. 8-104-100 (Kit 8-41)
cont'd

<u>Part #</u>	<u>Size</u>	<u>Code</u>	<u>Part #</u>	<u>Size</u>	<u>Code</u>
8, 9, 21B	.065 x 1"	5	21G, H	.125 x 3/4"	3
26A, B	.065 x 1"	5	21J	.032 x 1/4"	8
10B, 18B	1/2"	4	25A	.065 x 3/8"	8
11	1/8" x 3/4" x 3/4"	1	27C, H, J, K, L	.040	3
12, 13, 14	1/8" x 3/4" x 3/4"	2	27A, 27B, 28A	1/4"	13
15, 17	1/8" x 3/4" x 3/4"	2	19D	1/2"	13
19B, E, 21A	1/8" x 3/4" x 3/4"	2	18C	1" x 1 3/4" x 3/4"	16
21C, D, F, 24C	1/8" x 3/4" x 3/4"	2			

JOYSTICK CONTROL
Dwg. 8-105-100 (Kit 8-51)

<u>Part #</u>	<u>Size</u>	<u>Code</u>	<u>Part #</u>	<u>Size</u>	<u>Code</u>
1A, 1B, 2A, 6A	.065 x 1"	8	4A	.065 x 3/4"	5
1C, 1E, 1G	.049	7	4B	5/8" rd.	4
1D, 2D, 1H	.093	7	5A	.125	3
1F, 6B	.049 x 3/4"	8	5B, 5C	16 ga.	6
2B	.062 x 3/8"	8	5D, 5E	.065 x 3/8"	5
2C	.032 x 1/4	8	6C, 6D, 6E	.065	7
3	1/8" x 1" x 1"	10	7	1/8" x 3/4" x 3/4"	2

ENGINE INSTALLATION
Dwg. 8-109-100 & (Kit 8-81)

<u>Part #</u>	<u>Size</u>	<u>Code</u>	<u>Part #</u>	<u>Size</u>	<u>Code</u>
1A, 1B, 3A, 3B	.065 x 1"	8	21, 22, 23, 24	.125"	3
1C, 1D, 1E, 3C, 3D	.090"	7	25B, 27, 28	.125"	3
2A, 2B, 6, 7A	1/8" x 1" x 1"	10	8B, D, C, F	.062"	3
3F	.065 x 3/8"	8	9B, D, C, F	.062"	3
4, 5	1/8" x 3/4" x 3/4"	1	9G	1/8" x 1" x 1"	2
7B	1/8" x 3/4" x 3/4"	2	10A, B	1/8"	6
8A, 9A, 11, 12	.125"	3	20	1/2" x 1 1/2"	4
13, 14, 18, 19	.125"	3	27A, 29A, 29C	.090" x 3/8"	5

HYDROCOPTER
Dwg. 8-106-100 83HC & 83PH

<u>Part #</u>	<u>Size</u>	<u>Code</u>
106-1A, 1B	1/8" x 2" x 2"	SP
106-2	1/8" x 1-1/2" x 2"	1
106-3	1/8" x 3/4" x 3/4"	2
106-4	.125"	3

BENSEN AIRCRAFT CORPORATION
P. O. Box 31047
Raleigh, N.C. 27612, U. S. A.

DASH NO.	AN3		AN4	
	GRIP $\pm 1/64$	LENGTH $+1/32$ $-1/64$	GRIP $\pm 1/64$	LENGTH $+1/32$ $-1/64$
3	1/16	15/32	1/16	15/32
4	1/8	17/32	1/16	17/32
5	1/4	21/32	3/16	21/32
6	3/8	25/32	5/16	25/32
7	1/2	29/32	7/16	29/32
10	5/8	1- 1/32	9/16	1- 1/32
11	3/4	1- 5/32	11/16	1- 5/32
12	7/8	1- 9/32	13/16	1- 9/32
13	1	1-13/32	15/16	1-13/32
14	1-1/8	1-17/32	1- 1/16	1-17/32
15	1-1/4	1-21/32	1- 3/16	1-21/32
16	1-3/8	1-25/32	1- 5/16	1-25/32
17	1-1/2	1-29/32	1- 7/16	1-29/32
20	1-5/8	2- 1/32	1- 9/16	2- 1/32
21	1-3/4	2- 5/32	1-11/16	2- 5/32
22	1-7/8	2- 9/32	1-13/16	2- 9/32
23	2	2-13/32	1-15/16	2-13/32
24	2-1/8	2-17/32	2- 1/16	2-17/32
25	2-1/4	2-21/32	2- 3/16	2-21/32
26	2-3/8	2-25/32	2- 5/16	2-25/32
27	2-1/2	2-29/32	2- 7/16	2-29/32
30	2-5/8	3- 1/32	2- 9/16	3- 1/32
31	2-3/4	3- 5/32	2-11/16	3- 5/32
32	2-7/8	3- 9/32	2-13/16	3- 9/32
33	3	3-13/32	2-15/16	3-13/32
34	3-1/8	3-17/32	3- 1/16	3-17/32
35	3-1/4	3-21/32	3- 3/16	3-21/32
36	3-3/8	3-25/32	3- 5/16	3-25/32
37	3-1/2	3-29/32	3- 7/16	3-29/32
40	3-5/8	4- 1/32	3- 9/16	4- 1/32
41	3-3/4	4- 5/32	3-11/16	4- 5/32
42	3-7/8	4- 9/32	3-13/16	4- 9/32
43	4	4-13/32	3-15/16	4-13/32
44	4-1/8	4-17/32	4- 1/16	4-17/32