

# BRONZE

- **TECHNICAL AND  
PHYSICAL PROPERTIES**
- **DIMENSIONAL TABLES  
AND WEIGHTS**

**BRONZE: TECHNICAL AND PHYSICAL SPECIFICATIONS - (page 01 rev. 07/01/'19)**

DESIGNATION UNI EN 1982		COMMERCIAL NAMES - SIMILAR NAMES - OLD STANDARDS
Cu Sn10	CC480K	B10; BZ10; W10; CDA:C90700; DIN 1705; EX UNI 1701 E 7013/1
Cu Sn11 Pb2	CC482K	W12Zn; DIN 1705; NFA53; 707; CuSn12
Cu Sn12	CC483K	B14 UNI1701; RG12; BZ12; W12; CDA:C90700; DIN1705; Ex UNI7013/2
Cu Sn12 Ni2	CC484K	W12Ni; DIN 1705
Cu Sn5 Zn5 Pb5	CC491K	85555; Comune; RG5; BZ5; WS; CDA:83600; DIN 1705; Ex UNI 7013/8
Cu Sn7 Zn4 Pb7	CC493K	RG7; BZ7; W7; CDA:C93200; DIN 1705; Ex UNI 1701 e 7013/7
Cu Sn10 Pb10	CC495K	BPb12; WPb10; CDA:C93700; DIN 1716; Ex UNI 1701 e 7013/3
Cu Sn7 Pb15	CC496K	BPb15; WPb15; CDA:C93800; DIN 1716; Ex UNI 1701 e 7013/4
Cu Sn5 Pb20	CC497K	BSPb20; Ex UNI 1701 e 701 3/5
Cu Al10 Fe5 Ni5	CC333G	Aluminium Bronze; Xantal; BRAL; WAINi; CDA:C95500; DIN 11714; ExUNI 5275
Cu Zn25 Al5 Mn4 Fe3	CC762S	SAE430; W255; CDA:C95500; DIN 1709
Cu Zn34 Al2 Mn3 Fe1	CC764S	SAE430; W342; DIN 1709




Designation UNI EN 1652 E 12163		COMMERCIAL NAMES - SIMILAR NAMES - OLD STANDARDS
Cu Sn6	CW452K	Generally used for the production of sheets
Cu Sn8	CW453K	Caro Bronze; Phosphor Bronze; B8, UNI 2527
Cu Sn8 P	CW459K	Caro Bronze; Phosphor Bronze

AVERAGE ANALYSIS										MECHANICAL PROPERTIES			
MATERIAL	Cu%	Al%	Sn%	Zn%	Pb%	Fe%	Mn %	Ni%	P%	Rm N/m <sup>2</sup>	Rp <sub>0,2</sub> N/mm <sup>2</sup>	A%	HB
<b>Cu Sn10</b>	remainder	0,01	9,0÷ 11,0	0,50	1,00	0,20	0,10	2,00	0,20	280	170	10	80
<b>Cu Sn11 Pb2</b>	remainder	0,01	10,5÷ 12,5	2,00	0,7÷ 2,5	0,20	0,20	2,00	0,40	280	150	5	90
<b>Cu Sn12</b>	remainder	0,01	11,0÷ 13,0	0,50	0,70	0,20	0,20	2,00	0,60	300	150	6	90
<b>Cu Sn12 Ni2</b>	remainder	0,01	11,0÷ 13,0	0,40	0,30	0,20	0,20	1,5÷ 2,5	0,05 ÷0,4	300	180	10	85
<b>Cu Sn5 Zn5 Pb5</b>	remainder	0,01	4,0÷ 6,0	4,0÷ 6,0	4,0÷ 6,0	0,30	-	2,00	0,10	250	110	13	65
<b>Cu Sn7 Zn4 Pb7</b>	remainder	0,01	6,0÷ 8,0	2,0÷ 5,0	5,0÷ 8,0	0,20	-	2,00	0,10	260	120	12	70
<b>Cu Sn10 Pb10</b>	remainder	0,01	9,0÷ 11,0	2,00	8,0÷ 11,0	0,25	0,20	2,00	0,10	220	110	8	70
<b>Cu Sn7 Pb15</b>	remainder	0,01	6,0÷ 8,0	2,00	13,0÷ 17,0	0,25	0,20	2,00	0,10	200	90	8	65
<b>Cu Sn5 Pb20</b>	remainder	0,01	4,0÷ 6,0	2,00	18,0÷ 23,0	0,25	0,20	0,5÷ 2,5	0,10	180	90	7	50
<b>Cu Al10 Ni5 Fe5</b>	remainder	8,5÷ 10,5	0,10	0,50	0,03	4,0÷ 5,5	3,00	4,0÷ 6,0	-	650	280	13	150
<b>Cu Zn25 Al5 Mn4 Fe3</b>	60÷67	3,0÷ 7,0	0,20	remainder	0,20	1,5÷ 4,0	2,5÷ 5,0	3,00	0,03	750	480	5	190
<b>Cu Zn34 Al2 Mn3 Fe1</b>	55÷66	1,0÷ 3,0	0,30	remainder	0,30	0,5÷ 2,5	1,0÷ 4,0	3,00	0,03	620	260	14	150
<b>Cu Sn6*</b>	remainder	-	5,5÷ 7,0	0,20	0,02	0,10	-	0,20	0,01 ÷0,4	420÷ 700	220÷ 270	30	80÷ 215
<b>Cu Sn8*</b>	remainder	-	7,5÷ 8,5	0,20	0,02	0,10	-	0,20	0,01 ÷0,4	390÷ 750	280÷ 680	15÷ 45	85÷ 210
<b>Cu Sn8 P*</b>	remainder	-	7,5÷ 8,5	0,30	0,05	0,10	-	0,30	0,2÷ 0,4	390÷ 750	280÷ 680	15÷ 45	85÷ 210

\* These alloys have different mechanical properties depending on the physical condition.

**BRONZE: DIMENSIONAL TABLES AND WEIGHTS - (page 02)**

**STANDARD ALLOYS: Cu Sn5 Zn5 Pb - Cu Sn12 - Cu Al10 Fe5 Ni5**

ROUND BAR 		RECTANGULAR BAR 		SQUARE BAR 	
Nominal Diameter (mm)	Weight Kg./meter	Nominal Dimension (mm)	Weight Kg./meter	Nominal Dimension (mm)	Weight Kg./meter
15	1,57	25x15	4,03	20x20	4,25
18	2,26	30x10	2,58	25x25	6,41
20	2,79	30x15	4,78	30x30	9,01
22	3,38	30x20	6,19	35x35	12,04
25	4,36	40x10	4,43	40x40	15,52
30	6,29	40x15	6,28	45x45	19,43
32	7,15	40x20	8,13	50x50	23,79
35	8,56	40x30	11,82	55x55	28,59
40	11,18	50x10	5,49	60x60	33,83
45	14,15	50x15	7,78	65x65	39,50
50	17,47	50x20	10,06	70x70	45,61
55	21,14	50x30	14,64	80x80	59,17
60	25,16	55x45	23,57	90x90	74,48
65	29,53	60x10	6,55	100x100	91,55
70	34,25	60x15	9,28	110x110	110,38
75	39,31	60x20	12,00	120x120	130,97
80	44,73	60x30	17,46		
85	50,50	60x40	22,91		
90	56,61	65x20	12,97		
95	63,08	65x30	18,86		
100	69,90	70x10	7,60		
105	77,06	70x15	10,77		
110	84,58	70x20	13,94		
115	92,43	70x30	20,27		
120	100,65	70x40	26,61		
125	109,70	80x10	8,66		
130	118,13	80x15	12,26		
135	127,25	80x20	15,87		
140	137,00	80x30	23,09		
145	147,80	80x40	30,30		
150	157,27	80x50	37,52		
160	178,94	80x60	44,73		
170	202,01	90x20	17,81		
180	226,47	100x15	15,25		
190	252,34	100x20	19,74		
200	279,60	100x30	28,72		
210	308,26	100x50	46,68		
220	338,31	100x70	64,62		
230	369,77	110x20	21,68		
240	402,62	110x30	31,54		
250	436,87	120x20	23,62		
260	472,52	120x40	45,09		
270	509,57	140x20	27,49		
280	548,01	150x30	42,80		
290	587,86	160x20	31,36		
300	629,1				

**Complementary Information**

The weights are theoretical and calculated on the nominal size. Normally the real size is increased of 1÷2 mm.

The weight Kg./mt. of the alloy Cu Al10 Ni5 Fe5 is about 10÷12% lower than the values shown in this table.

The standard length of the bars is in multiples of 500 mm. The standard length of the entire bars is 3'000÷3'300mm.

Other dimensions, heat treatments (physical condition) and special alloys can be made upon customer request.

We invite you to contact us to examine the feasibility.

**BRONZE: DIMENSIONAL TABLES AND WEIGHTS - (page 03)**

**HOLLOW BARS IN THE ALLOYS: Cu Sn5 Zn5 Pb - Cu Sn12 - Cu Al10 Fe5 Ni5**



outØ x insØ (mm)	Kg/mt.	outØ x insØ (mm)	Kg/mt.	outØ x insØ (mm)	Kg/mt.	outØ x insØ (mm)	Kg/mt.
30 x 15	4,71	80 x 20	42,00	105 x 55	55,92	160 x 90	122,32
35 x 15	6,99	80 x 25	40,40	105 x 60	51,90	160 x 100	109,04
35 x 20	5,76	80 x 30	38,44	105 x 65	47,53	160 x 110	94,36
40 x 15	9,61	80 x 35	36,17	105 x 70	42,81	160 x 120	78,29
40 x 20	8,38	80 x 40	33,55	105 x 80	32,32	160 x 130	72,20
40 x 25	6,81	80 x 45	30,58	105 x 85	26,65	160 x 140	53,90
45 x 15	12,58	80 x 50	27,26	110 x 40	73,39	170 x 60	176,84
45 x 20	11,35	80 x 55	23,59	110 x 50	67,10	170 x 70	167,76
45 x 25	9,78	80 x 60	19,57	110 x 60	59,41	170 x 80	157,27
45 x 30	7,86	85 x 30	44,21	110 x 70	50,32	170 x 100	132,11
50 x 15	15,90	85 x 35	41,94	110 x 80	39,84	170 x 110	117,43
50 x 20	14,67	85 x 40	39,31	115 x 70	49,50	170 x 120	101,35
50 x 25	13,10	85 x 45	36,34	115 x 80	37,00	170 x 130	83,88
50 x 30	11,18	85 x 50	33,02	115 x 95	31,85	170 x 140	65,15
50 x 35	8,91	85 x 55	29,35	120 x 50	75,00	180 x 70	192,22
55 x 20	18,34	85 x 60	25,33	120 x 60	67,10	180 x 80	181,74
55 x 25	16,77	85 x 65	20,97	120 x 70	56,50	180 x 90	169,85
55 x 30	14,85	90 x 30	50,32	120 x 80	47,50	180 x 100	156,57
55 x 35	12,58	90 x 35	48,05	120 x 90	37,45	180 x 110	141,89
55 x 40	9,96	90 x 40	45,43	120 x 100	27,70	180 x 120	125,82
60 x 20	22,36	90 x 45	42,46	130 x 70	71,30	180 x 130	108,34
60 x 25	20,79	90 x 50	39,14	130 x 80	62,40	180 x 140	89,47
60 x 30	18,87	90 x 55	35,47	130 x 100	40,90	180 x 150	70,20
60 x 35	16,60	90 x 60	31,45	140 x 50	119,53	200 x 100	209,70
60 x 40	13,98	90 x 65	27,08	140 x 60	111,84	220 x 110	195,02
60 x 45	11,00	90 x 70	22,36	140 x 70	102,75	200 x 120	178,94
65 x 20	26,73	90 x 75	17,15	140 x 80	92,26	200 x 130	161,47
65 x 25	25,16	95 x 30	56,79	140 x 90	80,38	200 x 140	142,59
65 x 30	23,24	95 x 35	54,52	140 x 95	73,92	200 x 150	122,32
65 x 35	20,97	95 x 40	51,90	140 x 100	67,10	200 x 160	100,65
65 x 40	18,34	95 x 45	48,93	140 x 110	52,42	220 x 130	237,10
65 x 45	15,37	95 x 50	45,61	140 x 120	37,20	220 x 140	219,00
65 x 50	12,06	95 x 55	41,94	145 x 80	104,84	220 x 150	199,50
70 x 20	31,45	95 x 60	37,92	145 x 90	92,55	220 x 160	178,60
70 x 25	29,88	95 x 65	33,55	145 x 100	76,48	220 x 170	156,30
70 x 30	27,96	95 x 70	28,83	145 x 110	63,69	220 x 180	132,70
70 x 35	25,68	95 x 75	23,76	150 x 50	139,80	220 x 190	107,70
70 x 40	23,06	100 x 30	63,60	150 x 60	132,11	230 x 140	250,60
70 x 45	20,09	100 x 40	58,71	150 x 65	127,74	230 x 150	231,10
70 x 50	16,77	100 x 45	55,74	150 x 70	123,02	230 x 160	210,20
70 x 55	13,10	100 x 50	52,42	150 x 80	112,54	230 x 170	188,00
75 x 20	36,60	100 x 55	48,75	150 x 90	100,65	230 x 180	164,40
75 x 25	34,95	100 x 60	44,73	150 x 100	87,37	230 x 190	139,30
75 x 30	33,02	100 x 65	40,36	150 x 110	73,69	230 x 200	112,90
75 x 35	30,75	100 x 70	35,64	150 x 120	56,62	240 x 180	197,40
75 x 40	28,13	100 x 75	30,58	150 x 130	50,30	240 x 190	172,40
75 x 45	24,16	100 x 80	25,16	160 x 50	161,47	240 x 200	146,00
75 x 50	21,84	105 x 40	65,88	160 x 60	153,78	250 x 180	231,80
75 x 55	18,17	105 x 45	62,91	160 x 70	144,69	250 x 190	206,80
75 x 60	16,00	105 x 50	59,59	160 x 80	134,20		

The weights are theoretical and calculated on the nominal size. Normally the real size is increased of 1+2 mm.

The weight Kg./mt. of the alloy Cu Al10 Ni5 Fe5 is about 10+12% lower than the values shown in this table.

The standard length of the bars is in multiples of 500 mm. The standard length of the entire bars is 3'000÷3'300mm.

It is possible to produce centrifugal castings even in small quantities, with Out.Ø max.1800mm and Ins.Ø specified from the customer.

**BRONZE: DIMENSIONAL TABLES AND WEIGHTS - (page 04)**

**Cu Sn8 - Cu Sn8 P CW453K - CW459K UNI EN 12163**

ROUND Bars		RECTANGULAR Bars		HEXAGONAL Bars		SQUARE Bars	
Diameter	Weight	Dimensions	Weight	Dimensions	Weight	Dimensions	Weight
in mm.	Kg./mt	in mm.	Kg./mt	in mm.	Kg./mt	in mm.	Kg./mt
3	0,10	3x20	0,5	17	2,2	8	0,6
4	0,10	3x30	0,8	19	2,7	10	0,9
5	0,10	5x20	0,9	22	3,7	12	1,3
6	0,20	5x25	1,1	24	4,4	15	2
7	0,30	5x30	1,3	27	5,6	20	3,6
8	0,40	5x40	1,8	30	6,9	25	5,6
9	0,50	5x50	2,2	32	7,8	30	8
10	0,60	6x20	1,1	36	9,9	40	14,2
11	0,80	6x30	1,6	46	16,3		
12	1,00	6x40	2,1	<b>Plates in Cu Sn6 - CW452K - UNI EN 1652</b>			
13	1,10	6x50	2,7	<b>Thickness</b>	<b>Sizes</b>	<b>Weight Kg.</b>	
14	1,30	6x60	3,2	0,1	300 x 2'000	0,5	
15	1,50	6x80	4,3	0,2	300 x 2'000	1,1	
16	1,70	8x20	1,4	0,3	300 x 2'000	1,6	
17	2,00	8x30	2,1	0,4	300 x 2'000	2,1	
18	2,20	8x40	2,8	0,5	300 x 2'000	2,6	
19	2,50	8x50	3,6	0,6	300 x 2'000	3,2	
20	2,70	10x20	1,8	0,8	300 x 2'000	4,2	
23	3,60	10x30	2,7	1	300 x 2'000	5,3	
25	4,30	10x40	3,6	1,2	300 x 2'000	6,3	
26	4,70	10x50	4,5	1,5	300 x 2'000	7,9	
30	6,20	10x60	5,3	2	300 x 2'000	10,6	
32	7,10	10x80	7,1		600 x 2'000	21,2	
35	8,50	12x40	4,3	2,5	300 x 2'000	13,2	
36	9,00	12x60	6,4		600 x 2'000	26,4	
40	11,10	15x30	4	3	300 x 2'000	15,8	
45	14,10	15x40	5,3		600 x 2'000	31,6	
50	17,40	15x50	6,7	4	300 x 2'000	21,1	
55	21,10	20x30	5,3		600 x 2'000	42,2	
60	25,10	20x40	7,1	5	300 x 2'000	26,4	
65	29,50	20x50	8,9		600 x 2'000	52,8	
70	34,20	20x80	14,2	6	300 x 2'000	31,7	
75	39,30	25x50	11,1		600 x 2'000	63,4	
80	44,70	30x50	13,4	8	300 x 2'000	42,2	
85	50,50	30x60	16		600 x 2'000	84,4	
90	56,60	35x50	15,6	10	300 x 2'000	52,8	
100	72,70				600 x 2'000	105,6	
110	87,60			12	300 x 2'000	63,4	
120	100,20				600 x 2'000	126,8	
125	108,00			15	300 x 2'000	79,2	
The length of the bars varies from 2 mt. to 4 mt. approx. depending on the section. Other dimensions, heat treatments (physical condition) and special alloys can be made upon customer request.					600 x 2'000	158,4	
				20	300 x 2'000	105,6	
					600 x 2'000	211,2	
				25	300 x 2'000	132	
					600 x 2'000	264	