Brass Wire

Chemical Composition

CHEMICAL COMPOSITION EN 12166

Designation of the material		Composition in % (mass fraction)									
		Min. Cu	Max. Cu	Max. Fe	Max. Ni	Min. Pb	Max. Pb	Max. Sn	Min. Zn	Max. Al	Other elements (please see note)
Symbolic	Numerical										excluded
CuZn37	CW508L	62.0	64.0	0.1	0.3	-	0.1	0.1	Remainder	0.05	0.1
CuZn38Pb2	CW608N	60.0	61.0	0.2	0.3	1.6	2.5	0.2	Remainder	0.05	0.2
CuZn39Pb2	CW612N	59.0	60.0	0.3	0.3	1.6	2.5	0.3	Remainder	0.05	0.2

Including up to a maximum of 0.015% silver.

NOTE - The total of other elements (other than copper) is defined as the sum of Ag, As, Bi, Cd, Co, Cr, Fe, Mn, Ni, O, P, Pb, S, Sb, Se, Si, Sn, Te and Zn, subject to the exclusion of any individual elements specified.

Equivalents

			Approximate international equivalents		
Classification of symbols	Numerical classification	European Standard (EN)	US (AISI)	Japan (JIS)	China (GB)
CuZn37	CW508L	EN 12166			
CuZn39Pb2	CW612N	EN 12167			

Mechanical properties

MECHANICAL PROPERTIES EN 12166:1998

Designations				Nominal thickness			Tensile strength Rm		Conventional yield strength at 0.2% $Rp_{0.2}$
				mm			N/mm²		
Material		State	Metallurgical condition	from	above	to	min.	max.	N/mm²
Classification of symbols	Numerical classification								
CuZn37	CW508L	1/8 Hard	R420	0.5	-	1.5	420	510	(280)
			R380	-	1.5	4.0	380	460	(260)
			H105	1.5	-	4.0	-	-	-
			R370	-	4.0	20.0	370	470	(250)
			H095	-	4.0	20.0	-	-	-
		1/4 Hard	R510	0.5	-	1.5	510	610	(420)
			R470	-	1.5	4.0	470	570	(390)
			H130	1.5	-	4.0	-	-	-
			R450	-	4.0	8.0	450	560	(350)
			H125	-	4.0	8.0	-	-	-
		1/2 Hard	R510	0.5	-	1.5	610	750	(610)
			R550	-	1.5	4.0	560	700	(570)
			H160	1.5	-	4.0	-	-	-
			R550	-	4.0	8.0	550	680	(550)
			H155	-	4.0	8.0	-	-	-
		Hard Spring	R800	0.1	-	0.5	800	-	(640)
			R750	-	0.5	1.5	750	-	(760)
			R700	-	1.5	4.0	700	-	(710)
			H190	1.5	-	4.0	-	-	-
			M						
			R400	0.5	-	1.5	400	-	(200)
			R400	-	1.5	4.0	400	-	(250)

Designations				Nominal thickness			Tensile strength Rm		Conventional yield strength at 0.2% $Rp_{0.2}$
				mm			N/mm²		
Material		State	Metallurgical condition	from	above	to	min.	max.	N/mm²
Classification of symbols	Numerical classification								
CuZn38Pb2 / CuZn39Pb2	CW608N / CW612N	1/4 Hard	H110	1.5	-	4.0	-	-	-
			R390	-	4.0	6.0	390	-	(188)
			R380	-	8.0	20.0	380	-	(180)
			H100	-	4.0	20.0	-	-	-
		1/2 Hard	R450	0.5	-	1.5	450	-	(300)
			R440	-	1.5	4.0	440	-	(300)
			H130	1.5	-	4.0	-	-	-
			R430	-	4.0	6.0	430	-	(300)
			R420	-	8.0	20.0	420	-	(300)
			H120	-	4.0	20.0	-	-	-
		Hard	R500	0.5	-	1.5	500	-	(433)
			R500	-	1.5	4.0	500	-	(433)
			H150	1.5	-	4.0	-	-	-
			R490	-	4.0	6.0	490	-	(406)
			R480	-	8.0	14.0	480	-	(406)
			H140	-	4.0	14.0	-	-	-
		Hard Spring	R570	1.5	-	4.0	570	-	(520)
			H165	1.5	-	4.0	-	-	-

Finishes

- Can be supplied with a tinned or nickel plated surface finish, or other finishes on request.

Tolerances

DIAMETER TOLERANCES OF ROUND WIRE EN12166

Nominal diameter value		Tolerances				
From	To	Class A	Class B	Class C	Class D	Class E
-	0.25	± 0.005	-	-	-0.025;0	-0.006;0
0.25	0.5	± 0.005	-	-	-0.03;0	-0.010;0
0.5	1.0	± 0.012	-	-	-0.03;0	-0.014;0
1.0	2.0	± 0.02	-0.10;0	-0.05;0	0.0	-0.025;0
2.0	4.0	± 0.03	-0.10;0	-0.05;0	0.0	-0.025;0
4.0	8.0	± 0.04	-0.12;0	-0.05;0	-0.05;0	-0.030;0
8.0	10.0	± 0.06	-0.15;0	-0.09;0	-0.06;0	-0.035;0
10.0	18.0	± 0.08	-0.18;0	-0.11;0	-0.07;0	-0.040;0

STANDARD LENGTH TOLERANCES

NOMINAL LENGTH	TOLERANCE
L < = 1000 mm.	+/- 1 mm.
1000 < L < = 4000	- 0mm. / +3 mm.