Coldur-A®

Related specifications: C65500 / CS101 / CW116C

COLUMBIA METALS
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Coldur-A® is a high copper alloy that is renowned for its combination of strength, corrosion resistance and formability and for its attractive colour. Small additions of silicon and manganese to the copper enhance the overall corrosion resistance and mechanical properties of the alloy without any detrimental effect on the workability of the material. Coldur-A® is also known as a high silicon bronze and has built its reputation on being one of the easiest copper based materials to work with. It offers excellent forming characteristics combined with an attractive reddish old gold colouration that makes Coldur-A® highly desirable for many architectural and decorative applications. Its strength and corrosion resistance ensure it is also suitable for many other applications from architectural metalwork and marine hardware to electrical components and chemical engineering.

Columbia Metals hold stocks of the Coldur-A® in the half hard condition which offers high mechanical strength and toughness. With tensile strength levels being comparable to those of many high tin bronzes and stainless steels, Coldur-A® is used for many mechanical applications such as fasteners, fixings and shafts. It is also non-sparking, has a low magnetic permeability and a offers a very good wear and galling resistance, which makes it suitable for bushes, bearings, washers, bolts and spark-resistant tooling.

The corrosion resistance of Coldur-A® is also very impressive and is superior to that of brass with an excellent resistance to many corrosive environments. It offers a superb resistance to most types of fresh water, slow moving or stagnant sea water, saline spray and fog, making it a classic choice for marine hardware and boat building. It also has a resistance to many potentially corrosive acids, alkalis, salts and organic chemicals including sulphuric acid, diluted hydrochloric acid, organic acids, chlorides and sulphates, enabling its use in the chemical, food and brewing industries. It is also free from the issues of dezincification and strongly resists stress corrosion cracking. However, it is not suitable for use with some sulphides, nitric acid, acid chromates, or oxidizing salts such as ferric chloride.

- EXCELLENT HOT AND COLD FORMABILITY
- HIGH STRENGTH PROPERTIES
- ATTRACTIVE COLOURATION
- VERY GOOD CORROSION RESISTANCE
- LOW MAGNETIC PERMEABILITY
- READILY WELDABLE
- NON-SPARKING
- HIGH WEAR RESISTANCE
- HIGH ANTI-GALLING PROPERTIES

Coldur-A® is probably most renowned for being the best copper alloy for forming and offers an excellent hot and cold workability combined with a good machinability rating. A firm favourite with blacksmiths worldwide, Coldur-A® is recognised for its hot working properties as the material flows readily in all hot forming and pressing operations. It can also be readily cold formed, with up to 75% cold work that can be achieved in between anneals. Coldur-A® can work-harden rapidly through some forms of cold work and should not be subjected to the more severe deformation operations such as cold heading unless it is stress relief annealed to avoid the possibility of stress corrosion cracking.

In addition to the properties above Coldur-A® is one of the easiest copper alloys to join and is readily soldered and brazed. It is appropriate for all types of resistance welding, gas shielded arc welding and spot welding and for oxyacetylene methods. The unique combination of outstanding fabrication properties, high mechanical performance, attractive golden bronze colour and its high corrosion resistance make it a firm favourite with designers, sculptors, metalsmiths and fabricators alike.

PLEASE CONTACT US FOR AN IMMEDIATE QUOTATION OR TECHNICAL ADVICE

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Coldur-A®

Technical Data

Nominal Composition (%)

Cu	Si	Mn	Zn	Fe
Rem	2.8-3.8	0.5-1.3	1.5 max	0.8 max

Mechanical Properties (specification minima)

	≤2" dia
Ultimate Tensile Strength (N/mm^2)	485
0.2% Proof Strength (N/mm^2)	260
Elongation (%)	20
Hardness (HRB)	75-95

Typical Physical Properties

Density (g/cm^3)	8.53
Modulus of Elasticity (N/mm)	105,000
Thermal conductivity (20°C; W/m°K)	36

Fabrication Properties

Melting Range (°C)	970 - 1025
Annealing Temperature (°C)	480 - 700
Stress Relieving Temperature (°C)	320 - 380
Hot Working Temperature (°C)	710 - 870

Round Bar Weight and Stock Sizes

Diameter	Weight		Diameter	Weight		Diameter	Weight	
ins	kg/ft	kg/m	ins	kg/ft	kg/m	ins	kg/ft	kg/m
0.250	0.08	0.26	0.625	0.52	1.76	1.125	1.71	5.62
0.313	0.12	0.38	0.688	0.63	2.13	1.250	2.08	6.82
0.375	0.18	0.60	0.750	0.75	2.50	1.500	2.99	9.81
0.500	0.33	1.07	0.875	1.02	3.39	1.750	4.03	13.22
0.563	0.42	1.41	1.000	1.34	4.44	2.000	5.32	17.45

Sheet	Square
21g - 1/4" thick in a comprehensive range	1/2" square available from stock

NB Weight data for guidance only