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Ghoshouni Industrial Co.



Material Datasheet
CuZn40
(CW509L)

CuZn40

High copper and lead free alloy

Alloy called “Muntz Metal”, it combines low machinability due to chip removal with excellent hot deformation performance. The absence of lead (<0.05%) complies with the indications of the 4MS group for materials in contact with water intended for human consumption, the American market and those sectors where strict control over the content of impurities is necessary. CuZn40 alloy generally has corrosion resistance but warm, acidic waters should also be taken consideration. Stress corrosion cracking may occur in an ammoniacal atmosphere.

MATERIAL DESIGNATION

International	EN	UNS	DIN
CuZn40	CW509L	C27450	2.0360

Applications

Instollation electric-electronic, fasteners, gas, decoration

REFERENCE CHEMICAL COMPOSITION IN %

material	Cu	Pb	Fe	Ni	Sn	Al	Zn	Other
min	59	0	0	0	0	0	Rem.	0
max	61.5	0.05	0.2	0.2	0.2	0.05	Rem.	0.2

HEAT TREATMENT

Melting Range	880-910°C
Hot Working	625-800°C
Soft Annealing	450-550°C ,Duration: 1 – 3 h
Thermal Stress Relieving	200-300°C, Duration: 1 – 3 h

STRESS RELIEVING	ANNEALING
Enables the redistribution of tensions induced by mechanical processing of cold plastic deformation, reducing the risk of stress corrosion cracking. The treatment consists of heating the items to 200°C - 250°C for 2 hours and cooling within the furnace.	Re-crystallizes the alloy, reducing its hardness and increasing its ductility. The temperature of the treatment varies from 450°C to 550°C for an amount of time relative to the required results. The high temperature can induce changes in the surface appearance and in the tolerance of the finished part

FABRICATION PROPERTIES

FORMING	
Forgeability Rating	Excellent
Machinability	50%
Cold Workability	Fair
Hot Workability	Excellent

Microstructure
Two phase, Alpha and Beta

Physical properties			
Thermal Expansion Coefficient [10 ⁻⁶ /K]	Electrical Conductivity[% IACS]	Thermal Conductivity[W/(m.K)]	Density [g/cm ³]
20.8	28	117	8.41

Mechanical properties			
Tensile strength(Mpa)	Yield strength(Mpa)	Elastic modulus(Gpa)	Elongation in 2 inch
370	145	105	45

Weldability		
Soldering&Brazing	Resistance butt-welding&Resistance spot-welding	gas shield arc welding
excellent	good	fair