

BRASS ALLOY CW510L

CW510L is a free cutting and forging brass in the form of rod. The alloy is lead free.

Composition

CW510L	Cu	Zn	Pb	Sn	Fe
Limits	57.0–59.0%	Rest	<0,1%	<0.3%	<0.3%

Al	Ni	Others
≤0.05%	<0.3%	<0.2%

Standardization

The alloy is, according to international standards, equivalent in composition to

CW510L	CuZn42
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- SS-EN 12163, rod for general purposes
- SS-EN 12164, rod for free machining purposes
- SS-EN 12165, wrought and unwrought forging stock
- SS-EN 12166, wire for general purposes
- SS-EN 12167, profiles and bars for general purposes
- SS-EN 12168, hollow rod for free machining purposes

Structure type

The structure is α -phase and β -phase.

Application example

Rod:

Low lead brass details eg, for electrical applications and fittings. The alloy is very well suited for machining as well as hot-stamping.

Residual stress level

Rod must show no evidence of cracking after testing according to SS-ISO 6957 Copper alloys – “Ammonia test for determining resistance to stress corrosion”. Moderate stress according to the standard must be applied.

Dezincification resistance

The alloy is not dezincification resistant.

Heat treatment

Stress-relief annealing. Temperature 330-350°C. Time 1-2 hours (max). Stress-relief annealing should be carried out after all cold working which gives high residual tensile stresses in the material. It may also be justified after machining. This eliminates the risk of stress corrosion cracking caused by internal stresses.

Workability

Hot workability is very good.

Cold workability is good.

Mechanical properties

Listed below are some empirical values of the mechanical properties, according to the material condition "M" in the EN standard. These values are to be considered as guideline values for the delivered material.

Property	Value	Unit
Rm, Tensile strength	~450	MPa
Rp02, Yield strength	~330	MPa
A5, Fracture elongation	~40	%
Brinell hardness	~115	HB

Corrosion resistance

Copper is a relatively noble metal. Copper and its alloys therefore show little tendency to react with the environment. As a result, the copper materials generally have good corrosion resistance. However, corrosion may occur under adverse and unfavorable conditions. The type of corrosion which may occur depends on both the environment and the composition of the alloy.

Machinability

The alloy is possible to machine in automats almost as easy as the traditional machining brasses, e.g. CW614N.

The chips are able to mix without any problems with alloys containing lead, as CW617N, CW614N and CW602N.

Machinability

Properties for welding, soldering and surface treatment is more or less equal to CW617N.