

# CuZn36

CuZn36 | C27000

CuZn36 is a solid-solution strengthened copper alloy containing 36% zinc (brass).

The alloy exhibits good cold working properties and is economically attractive due to its high zinc content. CuZn36 can be soldered and welded.

Application areas include deep-drawn parts, metalware, electronics industry, connectors, machinery components, signs and decoration, as well as musical instruments.

## Comparable Standarts

| EN     | UNS    |
|--------|--------|
| CW507L | C27000 |

## Chemical Composition %

| Cu        | Zn  | Ni      | Sn      | Fe       | Pb       | Al       |
|-----------|-----|---------|---------|----------|----------|----------|
| 63.5-65.5 | rem | 0.3 max | 0.1 max | 0.05 max | 0.05 max | 0.02 max |

## Physical Properties

|                         |       |                       |
|-------------------------|-------|-----------------------|
| Melting Point           | 920   | [°C]                  |
| Density                 | 8.4   | (g/cm <sup>3</sup> )  |
| Cp @ 20°C               | 0.377 | [kJ/kgK]              |
| Thermal Conductivity    | 116   | (W/mK)                |
| Electrical Conductivity | ≥28   | %IACS                 |
| Modules of Elasticity   | 110   | [GPa]                 |
| α @ 20°C                | 20.3  | [10 <sup>-6</sup> /K] |

Note: The specified conductivity applies to the soft condition only.

Cp specific heat

α thermal expansion coefficient

## Fabrication Properties

|                        |                 |
|------------------------|-----------------|
| Cold Formability       | excellent       |
| Hot Formability        | tavsiye edilmez |
| Soldering ability      | excellent       |
| Oxyacetylene welding   | good            |
| Gas shield arc welding | fair            |
| Resistance welding     | good            |
| Machining              | fair            |
| Brazing                | excellent       |

## Electrical Conductivity

Electrical conductivity depends on chemical composition, level of cold deformation, and grain size. High levels of deformation and small grain size reduce conductivity.

## Typical Uses

Metalware, electrical and mechanical component parts, connectors, electric brackets, clips and contacts, radiator cores and tanks, lamps, bowls, trays, rings, fasteners, bead chain, hinges, stencils, springs, hose couplings, decorative materials, and musical instruments.

## Corrosion Resistance

Brass is resistant to natural, industrial, and salt environments, potable water, and alkaline and neutral saline solutions. Brass exhibits low corrosion resistance to acids, ammonia, halogens, cyanide, and hydrogen sulfide solutions and atmospheres, as well as seawater (especially under high flow rates). Under certain conditions (e.g., high Cl content and low carbon hardness), dezincification can be an issue for alloys containing  $\alpha$ -phase. The alloy also shows some susceptibility to stress corrosion cracking when exposed to specific environments (e.g., ammonia, amine, or sal ammoniac). If stress corrosion cracking might be an issue, the alloy should be stress-relieved.

## Mechanical Properties

|      | Tensile Strength [MPa] | Yield Strength [MPa] | Elongation A50 [%] | Hardness HV [-] | Bend ratio 90° [r] |    | Bend ratio 180° [r] |    |
|------|------------------------|----------------------|--------------------|-----------------|--------------------|----|---------------------|----|
|      |                        |                      |                    |                 | GW                 | BW | GW                  | BW |
| R300 | 300-370                | ≤ 180                | ≥ 38               | 55-95           | 0                  | 0  | 0                   | 0  |
| R350 | 350-440                | ≥ 170                | ≥ 19               | 95-125          | 0                  | 0  | 0                   | 0  |
| R410 | 410-490                | ≥ 300                | ≥ 8                | 120-155         | 0                  | 0  | 0                   | 0  |
| R480 | 480-560                | ≥ 430                | ≥ 3                | 150-180         | 0.5                | 1  | 1                   | 2  |
| R550 | ≥ 550                  | ≥ 500                | -                  | ≥ 170           | 1                  | 2  | 5                   | 6  |

Other tempers are available upon request.

$r = x * t$  (thickness  $t \leq 0.5\text{mm}$ )

GW bend axis transverse to rolling direction. BW bend axis parallel to rolling direction.

## Dimensional Specifications

| Thickness (mm) | Width (mm) |
|----------------|------------|
| 0.04-0.20      | 10-380     |
| 0.21-1.00      | 5-380      |
| 1.01-4.00      | 15-400     |
| 4.01-8.00      | 25-400     |