Emil Müller GmbH
Metallwerk – Hespert
Tubes in Copper
and Copper-Alloys

# EMH-Brass Tubes in CuZn37Pb0,5

**CuZn37Pb0,5** is a high-copper machinig brass with has excellent cold working properties and can still ba machined. It is ideal for producing components which are primarily coined, riveted, crimped or flanged and , to a small extent, machined.

## Chemical Composition *

| | |
|---|---|
| Cu | 63 % |
| Pb | 0.3 % |
| Zn | balance |

* Standard values in % by weight

## Material Description

| | |
|---|---|
| EN | CuZn37Pb0,5, CW604N |
| UNS | C33500 |
| DIN* | CuZn37Pb0,5, 2.0332 |
| BS* | not standardized |
| NF* | not standardized |

* former national standards

## Physical Properties *

| | |
|---|---|
| **Electrical conductivity** | |
| MS/m | 14.7 |
| % IACS | 25 |
| **Thermal conductivity** | |
| W/(m*K) | 113 |
| **Thermal expansion coefficient** | |
| (0 – 300 °C) $10^{-6}$/K | 20.4 |
| **Density** | |
| g/cm³ | 8.44 |
| **Modulus of elasticity** | |
| GPa | 110 |

* Standard values at room temparature
1 GPa = 1 kN/mm²
1 MS/m =1 m/Ω • mm

## Processing Properties

### Forming

| | |
|---|---|
| Machinability (CuZn39Pb3 = 100%) | 60 % |
| Cold forming | good |
| Hot forming | good |

### Joining

| | |
|---|---|
| Resistance welding | fair |
| Inert gas shielded arc welding | poor |
| Hard soldering | fair |
| Soft soldering | excellent |

### Surface Treatment

| | |
|---|---|
| **Polishing** | |
| mechanical | excellent |
| electrolytical | fair |
| **Electroplating** | excellent |

## Heat Treatment

| | |
|---|---|
| Melting point | 885 – 910 °C |
| Hot forming | 720 – 820 °C |
| Soft annealing | 450 – 650 °C, 1-3 h |
| Thermal stress-relieving | 200 – 300 °C, 1-3 h |

## Corrosion Resistance *

Machining brass is generelly quite resistant against organic substances as well as neutral or alkaline compounds.

* Stress corrosion cracking and dezincification in warm, acidic waters should be taken into account, especially in an ammonical atmosphere and whilst under mechanical stress.

## Mechanical Properties (attainable values, depending on the dimension and form)

| Standard values | | from (soft) | to (hard) |
|---|---|---|---|
| $R_m$ | [MPa] | 350 | 500 |
| $R_{p\,0,2}$ | [MPa] | 130 | 460 |
| $A_5$ | [%] | 50 | 10 |
| HB | | 80 | 140 |

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