

MATERIAL DATASHEET

ALLOY 001



Designation	
Diehl Brass Solutions	001
DIN EN symbol	CuZn41Mg
DIN EN	t.b.d.
UNS	C49400

Composition (mass as %, reference values)	
Cu	58.0
Mg	0.4
Zn	remainder
Pb	≤ 0,10

Application

- Lead-free standard material for automated machining. Suitable for all types of turned parts.
- The alloy has good hot forming properties.

Products and relevant standards	
Rods (free machining purposes)	EN 12164
Rods (forging stock)	EN 12165
Hollow rods (free machining purposes)	EN 12168
Profiles (general purposes)	EN 12167

Physical properties		
Density	g/cm ³	8.2
Coefficient of linear thermal expansion: 20 – 200 °C	• 10 ⁻⁶ /K	20.34

Processing properties	
Machinability (CuZn39Pb3 = 100%)	very good
Hot formability	very good (650 – 760 °C)
Cold formability	less suitable

Mechanical properties and hardness
<ul style="list-style-type: none"> • Strength properties and hardness values depend on product, condition and dimension.

Heat treatment	
Soft annealing	450 – 550 °C
Stress relief annealing	250 – 330 °C

Corrosion resistance
Generally good resistance to neutral, alkaline and organic aqueous solutions.

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Risk Disclosure

The tests took place under the test conditions mentioned here. In these tests, selected properties of the alloy can be investigated. The test results are based on the test setup shown, which has specific laboratory conditions. Deviating conditions in the field may have significant effects. Aspects which play a decisive role include, in particular, but not exhaustively, the design of the components, the further processing of the alloy, the processing of the finished parts made with the alloy, transport and storage, the manner and location of use, the installation and the installation situation.

When it comes to properties, the corrosion resistance of the material is a key factor. The DIN standard DIN EN ISO 8044 (formerly DIN 50900) defines corrosion as a reaction of a metallic material with its environment that causes a measurable change in the material and can impair the function of a metal component or an entire system. From a technical point of view, corrosion is a reaction of a material with its environment that causes a measurable change in the material. Corrosion can impair the function of a component or system. Corrosion, as a complex system of interactions, depends on a large number of factors which, in their multiformity, cannot be fully reproduced under test conditions. The type of corrosion known as dezincification, which occurs with zinc-containing copper alloys that are in contact with drinking water, is familiar to the broad expert public. The purchaser of the alloy is responsible for determining and testing the design, further processing, application areas of products made from the alloy, and any other relevant factors. This is also applicable when determining the dezincification depth that is considered reasonable for the selected area of application. Diehl cannot accept any liability for this, but solely for the information contained in the enclosed product data sheet.