

MATERIAL DATASHEET  
**ALLOY 452**



Designation	
Diehl Brass Solutions	452
DIN EN symbol	CuZn37Mn3Al2PbSi
DIN EN	CW713R
UNS	C67410

Composition (mass as %, reference values)			
Cu	58.5	Mn	2.0
Pb	0.4	Al	1.6
Fe	0.5	Si	0.8
Sn	0.3	Zn	remainder

**Application**

- Engineering material of high strength, good toughness and with good wear properties.
- Suitable for use in automotive parts, such as synchronizer rings, shift forks and sliding blocks.

**Products and relevant standards**

Rods (free machining purposes)	EN 12164
Hollow rods (free machining purposes)	EN 12168
Seamless, round tubes (general purposes)	EN 12449

**Physical properties**

Density	g/cm <sup>3</sup>	8.1
Coefficient of linear thermal expansion: 20 – 200 °C		• 10 <sup>-6</sup> /K
		20.4

**Processing properties**

Machinability (CuZn39Pb3 =100%)	moderate (Index 40)
Hot formability	very good (600 – 700 °C)
Cold formability	very limited

**Mechanical properties and hardness**

- The strength properties and hardness values are specified in the relevant product standards.
- The properties depend on the product, the condition and the dimensions.

**Heat treatment**

Soft annealing	550 – 650 °C
Stress relief annealing	350 – 450 °C

**Corrosion resistance**

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

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