

MATERIAL DATASHEET
ALLOY 452



Designation	
Diehl Metall	452
DIN EN symbol	CuZn37Mn3Al2PbSi
DIN EN	CW713R
UNS	-

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 ³	8.1
Coefficient of linear thermal expansion: 20 – 200 °C		• 10 ⁻⁶ /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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