DIEHL
Brass Solutions

MATERIAL DATASHEET

ALLOY 430

Designation	
Diehl Brass Solutions	430 Pbf
DIN EN symbol	CuZn21Si3P
DIN EN	CW724R(-DW)
UNS	C69300

Composition (mass as %, reference values)	
Cu	76.0
Si	3.0
P	0.05
Zn	remainder

Application

- Lead-free machining alloy with very good hot formability. High-strength engineering material.
- The dezincification resistance of the material is impaired during processing operations above a temperature of 580 °C. The dezincification resistance is restored by heat treatment at 550 – 580 °C over a period of 2-3 hours. For further information, please contact the manufacturer.

Products and relevant standards

Rods (general purposes)	EN 12163
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/cm³	8.3
Coefficient of linear thermal expansion: 20 – 200 °C	• 10^{-6}/K	19.6
Thermal conductivity		
RT	W/(m · K)	28.0
200 °C	W/(m · K)	44.4
Specific thermal capacity		
RT	J/(g · K)	0.35
200 °C	J/(g · K)	0.41
Electrical conductivity	m/(Ω · mm²)	5.3
Specific electrical resistance	(Ω · mm²)/m	0.19
Young's modulus	GPa	106.0
Shear modulus	GPa	39.0
Poisson´s ratio		0.32

Mechanical properties

- The mechanical properties are specified in the relevant product standards (see products).
- The properties depend on the product, the condition and the dimensions.

Additional mechanical properties

(reference values: standard production for information, drawn and annealed condition)

Bending fatigue strength	MPa	320
High-temperature strength (350 °C)	MPa	350
Notched bar impact work acc. to EN 10045		
U notch	J	14.0
V notch	J	18.0

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Processing properties

Forming	
Machinability (CuZn39Pb3 = 100%)	very good
Hot formability	very good
Cold formability	moderate
Surface treatment	
Polishing	good
Electroplating	good
Joining	
Inert gas welding / resistance welding	good
Soft solderability	very good
Hard solderability	very good
Heat treatment	
Hot forming	700 – 750 °C
Soft annealing	550 – 700 °C
Stress relief annealing	200 – 300 °C

Corrosion resistance

- Generally good resistance to neutral, alkaline and organic aqueous solutions.
- Dezincification-resistant according to relevant standards.

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