

MATERIAL DATASHEET

ALLOY 430 Pbf (CUPHIN)



Designation		Composition (mass as %, reference values)	
Diehl Metall	430 Pbf (CUPHIN)	Cu	76.0
DIN EN symbol	CuZn21Si3P	Si	3.0
DIN EN	CW724R	P	0.05
UNS	C69300	Zn	remainder

Application

- Particularly suitable for use in drinking water applications due to good corrosion resistance. Lead-free machining alloy with very good hot formability. High-strength engineering material.
- If processing operations are carried out at temperatures above 580 °C, the dezincification resistance is impaired. It must therefore be restored by means of suitable heat treatment. 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/cm ³	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 · mm ²)	5.3
Specific electrical resistance	(Ω · mm ²)/m	0.19
Young's modulus	GPa	106.0
Shear modulus	GPa	39.0
Poisson's ratio		0.32

**Mechanical properties,
minimum values according to
dimensions**

- 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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