

Wieland-Z43

CuZn33Pb1AlSiAs | Dezincification resistant special brass

Material designation

EN	CW725R
UNS	not standardized

Chemical composition*

Cu	64.4 %
Pb	0.5 %
Al	0.15 %
Si	0.1 %
As	0.06 %
Zn	balance

*Reference values in % by weight

Physical properties*

Electrical conductivity	MS/m	12.8
	%IACS	22.1
Thermal conductivity	W/(m·K)	101
Thermal expansion coefficient (0–300 °C)	10 ⁻⁶ /K	20
Density	g/cm ³	8.42

*Reference values at room temperature

Corrosion resistance

Brass is generally quite resistant against organic substances as well as neutral or alkaline compounds. After exposure to temperatures > 600 °C a thermal treatment at 500–550 °C/ 2–3 h is necessary to ensure dezincification resistance.

Stress corrosion cracking should be taken into account, especially in an ammoniacal atmosphere and whilst under mechanical stress.

Product standards

Rod	EN 12164
	EN 12165
Section	EN 12167
Hollow rod	EN 12168

Material properties and typical applications

Wieland-Z43 is a dezincification resistant alloy suited for the application in drinking water in Europe. The mechanical properties and the machinability are comparable to CuZn36Pb2As. Wieland-Z43 can be used for turned or hot-stamped parts. It is dezincification resistant with a maximum depth of 100 µm (test according to ISO 6509).

After hot stamping a thermal treatment must be performed to ensure dezincification resistance.

The material is accepted for products in contact with drinking water as per 4 MS positive list.

Types of delivery

The BU Extruded Products supplies bars, wire, sections and tubes. Please get in touch with your contact person regarding the available delivery forms, dimensions and tempers.

Fabrication properties

Forming

Machinability (CuZn39Pb3 = 100 %)	75 %
Capacity for being cold worked	fair
Capacity for being hot worked	good*

Surface treatment

Polishing	
mechanical	good
electrolytic	poor
Electroplating	good

Joining

Resistance welding (butt weld)	good*
Inert gas shielded arc welding	poor*
Gas welding	poor*
Hard soldering	fair*
Soft soldering	good

* see section „Corrosion resistance“

Heat treatment

Melting range	850–950 °C
Hot working	650–750 °C
Soft annealing	450–550 °C 1–3 h
Thermal stress relieving	200–300 °C 1–3 h

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Mechanical properties according to EN

Round rods/polygonal rods												acc. to EN 12164	
Temper	Diameter		Width across flats		Tensile strength R_m	Yield strength $R_{p0.2}$		Elongation %			Hardness		
	mm		mm		MPa	MPa		A100	A11.3	A	HB		
	from	to	from	to	min.	min.	max.	min.	min.	min.	min.	max.	
M	all		all		as manufactured – without specified mechanical properties								
R290	6	80	5	60	290	–	200	–	25	30	–	–	
H070	6	80	5	60	–	–	–	–	–	–	70	110	
R320	6	60	5	50	320	200	–	–	15	20	–	–	
H090	6	60	5	50	–	–	–	–	–	–	90	135	
R400	4	15	4	13	400	250	–	–	5	8	–	–	
H105	4	15	4	13	–	–	–	–	–	–	105	–	

Rectangular rods												acc. to EN 12167	
Temper	Thickness			Tensile strength R_m	Yield strength $R_{p0.2}$		Elongation %			Hardness			
	mm			MPa	MPa		A100	A11.3	A	HB			
	from	to	to	min.	min.	max.	min.	min.	min.	min.	max.		
M	all			as manufactured – without specified mechanical properties									
R290	3		20	290	–	200	20	25	30	–	–		
H070	3		20	–	–	–	–	–	–	70	110		
R320	3		20	320	200	–	10	15	20	–	–		
H090	3		20	–	–	–	–	–	–	90	135		
R400	3		10	400	250	–	2	5	8	–	–		
H105	3		10	–	–	–	–	–	–	105	–		