

# 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 <sup>-6</sup> /K	20
Density	g/cm <sup>3</sup>	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 optimal 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 the 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	good
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

## Trademarks



Further information is provided in our brochure on drinking water.

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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 <sub>m</sub>	Yield strength R <sub>p0.2</sub>		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 <sub>m</sub>	Yield strength R <sub>p0.2</sub>		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	–		