L.KLEIN SA
PREMIUM STEEL & METALS
SINCE 1946

BRASS 58V

CuZn42 / Brass unleaded

Features and Particularities Copper-zinc alloy with duplex structure (α+β). The microstructural properties are modified by additions of tin and nickel to improve machinability.

Purpose of use All types of turned parts on automatic lathes. Variant of 58M specially designed to meet the general requirements of the watch industry for lead concentration (REACH 0.05%). Many other applications.

Standards

Material no.	CuZn42 / 58V
EN	CW510L
ISO	CuZn42
UNS / ASTM	-
NF	-
SNV	-
UNI	-
JIS	-

Chem. composition (%)

Cu	Zn	Ni	Sn	Al	Fe	Pb	Cd	Others
57 – 59	Rest	0.2 - 0.3	0.2-0.3	max 0.05	max 0.05	max 0.05	max 0.005	0.1

Dimensions & Tolerances

Bars Ø: 1 - 40 mm (ISO h6)
other tolerances on request

Versions & delivery condition

Standard delivery condition: Bars 3 m (+30/0 mm)
Standard delivery condition: thermisch entspannt
Bar ends: pointed, beveled
Straightness: 0.5 mm/m

Availability Standard dimensions in stock: see sales program

Mechanical properties Standard delivery condition: thermally relaxed

Strength Rm: depending on diameter

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Cutting conditions

Machinability index:	70 (CuZn39Pb3 =100)
Machinability:	good

The brass 58V can be machined even better in the R 580 condition (Rm=580MPa) than R 400 (Rm=400MPa).

Cutting conditions: Vc ≈ 40 - 90 m/min.

The optimum cutting conditions are directly dependent on the machine tool, the cutting tools, chip dimensions (depth of cut and feed), cutting speed, cooling lubricants, tolerances, surface roughness and the experience of the machinist.

Microstructure

Copper-zinc alloy with duplex structure (α+β). The microstructural properties are modified by additions of tin and nickel to improve machinability.

- In its microstructure, the lead content is very low, which means it meets the requirements of the watch industry. (≤ 0.05% Pb).

Forming

Warm: 630-730°C, can easily be formed
Cold: limited

- The degree of cold forming before annealing is limited to max. 20%.

Welding

Autogenous welding:	limited
Gas-shielded welding:	limited
Electr. resistance welding, Butt welding:	limited
Resistance welding, Mesh or spot welding:	limited

Soldering

Hard soldering:	good
Soft soldering:	very well suited

Annealing

Annealing, temperature limits:	420 – 630 °C
Thermal relaxation:	250 – 350 °C

- Thermal stress relief may, under certain circumstances, reduce the strength of the treated products.

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Physical properties

Property	Unit	Temperature (°C) 20	200	300	400
Density	kg/dm³	8.4			
Modulus of elasticity	kN/mm²	106			
Electrical resistance	Ω mm² m⁻¹	-	-		
Thermal coefficient of the electrical resistance	K⁻¹	-			
Specific electrical Conductivity	%IACS	25			
Thermal expansion	mm⁻¹ K⁻¹ 10⁻⁶	20–100°C -	20–200°C -	20–300°C -	20–800°C -
Thermal conductivity	W /m K	136			
Specific heat	J/kg K	380	-		
Magnetism	-				
Magnetic susceptibility	-				
Melting interval	860-890°C				

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