

Copper-zinc casting alloy **ZB 37** alloy 2050

ZB 37 is a construction material with high static strength and hardness. The material is resistant to atmospheric corrosion as well as to slightly aggressive water and gases. The sliding properties are moderate. For sliding loads, the BZG cast materials or the forged materials BZ 1 and BZ 2 are preferable.

ZOLLERN brand	ZB 37
EN designation	CuZn34Mn3Al2Fe1-C
EN material no:	CC764S

EN 1982, ASTM B584

// national designations

DIN	G-CuZn34Al2
DIN	2.0596
USA	C86550
F	≈ U – Z19A6

≈ (substantial coherence)

// Composition (mass fraction in %) EN 1982

Cu*	Al*	Fe*	Ni*	Mn*
55.0 – 66.0	1.0 – 3.0	0.5 – 2.5	max. 3.0	1.0 – 4.0
Pb	Si	Sn	Zn	P
max. 0.3	max. 0.1	max. 0.3	Rest	max. 0.03

* ASTM B584 Cu => 57 % Al 0.5 – 2,5% Fe 0.7 – 2,0 Ni max 1 % Mn 0.1 – 3.0

// Strength properties at room temperature

(minimum values)

[1] EN 1982 (ASTM, no data)	R _m N/mm ²	R _{p0.2} N/mm ²	A ₅ %	HB
[1] Sand casting	600	250	15	140
[1] Mask mould casting	600	250	15	140
[1] Centrifugal casting	620	260	14	150

// Physical properties (reference values)

Density at 20 °C	8.1 kg/dm ³
Melting temperature/range	880 – 900 °C
Specific heat capacity at 20 °C	0.419 J/g x °C
Thermal conductivity	0.55 W/cm °C
Electrical conductivity at 20°C	4 – 8 MS/m 7 – 14 % IACS
Electrical resistance at 20°C	0.125 – 0.25 Ω mm ² /m
Coefficient of linear expansion in the range from 20°C to 200°C	19 x 10 ⁻⁶ °C ⁻¹
Shrinkage	1.5 – 2.3 %
Young's modulus	91 KN/mm ²
Permeability	< 1.3

// Dynamic strength values at room temperature (reference values)

Rotational bending fatigue strength R _{bw} at 10 ⁶ load cycles	170 N/mm ²
Notched impact energy (ISO - V/KV)	35 joules

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Areas of application

ZB 37 is used for parts that are mainly subjected to high static loads or parts that move little under load. For example

- for pressure nuts and adjusting nuts for low sliding speeds
- Sliding blocks in rolling mill drives
- Base and stuffing boxes
- Valve and control parts
- Valve seats and cones

Machinability

All machining operations are easily possible. The machinability index is approx. 40 (CuZn39Pb3 = 100). Mechanical polishing is easily possible, electrochemical polishing less so.

Relaxation annealing approx. 350 – 480°C

Soft soldering not very suitable

Brazing not very suitable

Welding Inert gas-shielded arc welding is possible. However, smoke is generated due to the evaporation of zinc (smoke extraction). Filler metal e.g. CuZn40Sn1MnNiSi = CF731R or S-CuAl8Ni2, which reduces fume generation.

Galvanisability average

