

Copper-tin-zinc casting alloy **Rg 10** alloy 3010

Rg 10 is a corrosion and seawater-resistant construction material. It has similar sliding properties and strength values as GBz 12 Pb = CuSn11Pb2-C. The toughness of Rg 10 is higher due to the lower tin content. Some of the tin was replaced by zinc.

ZOLLERN brand	Rg 10
EN designation	not standardised
EN material no:	not standardised

DIN 1705

// national designations

DIN	G-CuSn10Zn
DIN	2.1086

// Composition (mass fraction in %) DIN 1705

Cu	Ni	P	Sn	Pb*	Zn
86 – 89	max. 2.0	max. 0.05	9.0 – 11.0	max 1.5	1.0 – 3.0

Fe	S	Sb
max. 0.25	max. 0.10	max. 0.30

* Pb approx. 1 %

// Strength properties at room temperature

(minimum values)

[1] DIN 1705	R_m N/mm ²	$R_{p0.2}$ N/mm ²	A_5 %	HB
[1] Sand casting	260	130	15	75

// Physical properties (reference values)

Density at 20°C	8.7 kg/dm ³
Melting temperature/range	830 – 1030°C
Shrinkage	approx. 1.5 %
Coefficient of linear expansion in the range from 20°C to 200°C	$18.5 \times 10^{-6} \text{ } ^\circ\text{C}^{-1}$
Electrical conductivity at 20°C	6 – 9 MS/m 10 – 16 % IACS
Electrical resistance at 20°C	0.11 – 0.17 $\Omega \text{ mm}^2/\text{m}$
Young's modulus	90 KN/mm ²
Permeability	< 1.01
Thermal conductivity	0.71 W/cm °C

// Dynamic strength values

at room temperature (reference values)

Bending fatigue strength R_{bw} at 10 ⁸ load cycles	75 N/mm ²
Notched impact energy (ISO - V/KV)	17 joules

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Areas of application

Rg 10 is used for

- Bearing shells and bushes
- Manifolds, flanges, covers, housings, parts for pumps

Machinability

Rg 10 is easy to machine. Short chips are formed.

Machinability index approx. 80 (CuZn39Pb3 = 100)

Relaxation annealing 400 – 600 °C

Soft soldering good

Brazing good

Welding Rg 10 can only be welded to a limited extent. The material tends to form hot cracks. Larger parts must be preheated and cooled in the oven. Suitable filler material e.g. CuSn8 = CF453K.

Galvanisability good, but denser casting is necessary

