ZOLLERN

Solid metals. Fine solutions.

Copper-aluminium casting alloy **AMBG** alloy 1920

AMBG is a non-standardised sliding material, developed from the standardised wrought material AMB 1 = CuAl10Fe3Mn2, material no. CW306G. AMBG is corrosion resistant to seawater. It is also suitable for bearings at increased operating temperatures and in combination with MoS_2 lubricants.

// **Composition** (mass fraction in %), not standardised

Cu	Al	Fe	Ni	Mn
81.5 – 85.0	9.4 – 10.1	3.0 – 4.0	0.4 – 0.8	2.5 – 3.5
Pb	**Si**	**Sn**	**Zn**	**Other**
-	max. 0.04	-	max. 0.3	max. 0.3

// **Strength properties** at room temperature

	(minimum values)			
Not standardised	R_m N/mm²	$R_{p0.2}$ N/mm²	A_5 %	HB
Sand casting	490	220	8	130
Centrifugal casting	590	250	12	130

// **Strength properties** at elevated temperatures (reference values)

Temperature	°C	20	150	200	250	300
Tensile strength	R_m N/mm²	700	670	655	635	550
0.2% limit	$R_{p0.2}$ N/mm²	235	235	250	270	260
Elongation	A_5 %	28	29	32	42	43

// **Physical properties** (reference values)

Density at 20°C	7.6 kg/dm³
Melting temperature/range	1040 – 1060 °C
Specific heat capacity at 20°C	0.452 J/g x °C
Thermal conductivity	0.34 W/cm °C
Electrical conductivity at 20°C	3 – 4 MS/m 5 – 7 % IACS
Electrical resistance at 20°C	0.25 - 0.33 Ω mm²/m
Coefficient of linear expansion from 20°C to 200°C	17 x 10^{-6} °C^{-1}
Shrinkage	1.5 – 2 %
Young's modulus	118 KN/mm²
Permeability	< 1.4

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

Bending fatigue strength R_{bw} at 10^8 load cycles	- N/mm²
Notched impact energy (ISO - V/KV)	50 joules

ZOLLERN

Solid metals. Fine solutions.

Copper-aluminium casting alloy **AMBG** alloy 1920

AMBG is a non-standardised sliding material, developed from the standardised wrought material AMB 1 = CuAl10Fe3Mn2, material no. CW306G. AMBG is corrosion resistant to seawater. It is also suitable for bearings at increased operating temperatures and in combination with MoS_2 lubricants.

Areas of application

AMBG is used for its good sliding properties for

- Worm wheels
- Sliding parts
- Bearing bushes
- Roller bearing cages and bearing bushes for shock loads, e.g. in the roller tables of continuous casting plants and foundry machines

Machinability

Carbide tools are needed for turning and milling and sharp drill bits are needed for drilling and thread cutting. This results in machinability that is better than that of austenitic steel.
Shorter rolling and flowing chips are formed.

Relaxation annealing	approx. 550 – 580°C
Soft soldering	not recommendable
Brazing	poor, fluxes containing fluoride and chloride(type F – SH 1) silver solders are advantageous
Welding	good, both TIG, MIG and manual electrode welding are possible. Suitable filler metal e.g. CuAl9Ni4Fe2Mn2 = CF310G or S-CuAl8Ni2
Galvanisability	possible, good cleaning and pretreatment necessary

ZOLLERN GmbH & Co. KG

Hitzkofer Straße 1
72517 Sigmaringendorf-
Laucherthal
Germany
T +49 7571 70-984
F +49 7571 70-82984
zgm@zollern.com
www.zollern.com