

Copper-aluminium casting alloy **AMB 8** alloy 1970

AMB 8 is a Cu-Al alloy with increased manganese and reduced iron content. This gives the material high toughness and low permeability in the annealed state. It is corrosion resistant to seawater.

AMB 8 complies with the material performance sheet WL 2.0957 and has been approved by the Shipbuilding and Ocean Engineering Standards Body for the shipbuilding sector in accordance with VG 81245.

ZOLLERN brand	AMB 8
EN designation	None
EN material no:	None

// national designations

WL	G-CuAl8Mn8
WL	2.0957

// Composition (mass fraction in %) WL 2.0957

Cu	Al	Fe	Ni	Mn
75 – 79	8 – 9	2 – 4	1.5 – 3.5	8 – 10
Zn	Sn	Si	Pb	
max. 1.0	max. 0.2	max. 0.1	max. 0.03	

// Strength properties at room temperature

(minimum values)				
	R _m N/mm ²	R _{p0.2} N/mm ²	A ₅ %	HB
Sand casting WL 2.0957:2017	620	260	20 24*	140
Germanischer Lloyd – Cu4	630	275	18	-

* with heat treatment 420 – 580°C 1.0 – 1.5h rapid cooling

// Physical properties (reference values)

Density at 20 °C	7.45 kg/dm ³
Melting temperature/range	1000 – 1060 °C
Thermal conductivity at 20°C	0.50 W/cm °C
Electrical conductivity at 20°C	2 – 4 MS/m 3.4 – 6.9 % IACS
Electrical resistance at 20°C	0.25 - 0.50 Ω mm ² /m
Coefficient of linear expansion from 20°C to 200°C	18 x 10 ⁻⁶ °C ⁻¹
Shrinkage	1.5 – 2 %
Young's modulus	120 KN/mm ²
Permeability With heat treatment	< 2.2 < 1.2

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

Bending fatigue strength R _{bw} at 1 x 10 ⁸ load cycles	150 N/mm ² air 110 N/mm ² seawater
Notched impact energy (ISO - V/KV)	min. 20 joules

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Areas of application

- Highly stressed components with good toughness
- Crane components
- Ship propellers
- Propeller components such as hubs, blades and accessories

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 650 – 680°C, 1 h holding time

Soft soldering not recommendable

Brazing poor, fluoride and chloride containing and chloride-containing fluxes are necessary (type F – SH 1), silver solders are advantageous, e.g. L-Ag44 or L-Ag55Sn

Welding good, both TIG, MIG and also electrode manual welding are possible. Suitable filler material S-CuAl8Ni6 to DIN 1733 material no. 2.0923 or bars with the same analytical values

Galvanisability possible, good cleaning and pretreatment necessary

