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Solid metals. Fine solutions.

Copper-aluminium casting alloy **AB 9** alloy 1410

AB 9 is a construction material with medium strength and low permeability.
In addition to good corrosion resistance to seawater, this binary alloy is also resistant to sulphuric acid and acetic acid.

ZOLLERN brand	AB 9
Standard designation	CuAl9-C
Material no:	CC330G
Standard sheet	DIN EN 1982

// **Composition** (weight by per cent in %)

Cu	Al	Fe	Ni	Mn
88.0 – 92.0	8.0 – 10.5	max. 1.2	max. 1.0	max. 0.5

Pb	Si	Sn	Zn
max. 0.3	max. 0.2	max. 0.3	max. 0.5

// **Strength properties** at room temperature

	(minimum values)			
[1] Not standardised [2] EN 1982	R_m N/mm²	$R_{p0.2}$ N/mm²	A_5 %	HB
[1] Sand casting	340	120	15	80
[2] Centrifugal casting	450	160	15	100

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

Density at 20 °C	7.5 kg/dm³
Melting temperature/range	1030 – 1040 °C
Specific heat capacity at 20°C	0.473 J/g x °C
Thermal conductivity	1.13 W/cm °C
Electrical conductivity at 20°C	7 – 9 MS/m 12 – 16 % IACS
Electrical resistance at 20°C	0.11 – 0.14 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	92 KN/mm²
Permeability	< 1.01

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

Bending fatigue strength R_{bw} at 30 x 10^6 load cycles	235 N/mm²
Notched impact energy (ISO - V/KV)	30 joules

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Areas of application
Due to its high corrosion resistance, **AB 9** is used for parts in the

- chemical and food industries. These include screw conveyors, dosing plates, containers, mixing and kneading arms, filter plates, reversal bottoms for heat exchangers as well as pickling hooks and pickling racks.

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. 450 – 550 °C
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 manual electrode welding is possible. Suitable filler material CuAl8 = CF309G or S-CuAl8Ni2
Galvanisability	possible, good cleaning and pretreatment necessary

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