ZOLLERN

Solid metals. Fine solutions.

Copper-aluminium casting alloy **C95500** alloy 1820

C95500 is very similar to CC334G = CuAl11Fe6Ni6 in that it has high corrosion resistance to water containing CI, hot and cold seawater, neutral and acidic aqueous media, as well as to non-oxidising acids and sulphide/bleaching lye.
The material has relatively high strength values, high erosion and cavitation resistance as well as good abrasion resistance and good fatigue behaviour. It is stronger than C95800, which has slightly higher toughness.
With good lubrication and low sliding speeds, high loads are permissible in plain bearings. Load peaks of up to approx. 25 KN/cm² are permissible for pivoting movements or dynamic loading.

ZOLLERN brand	EBG C95500
ASTM designation	C95500
ASTM – Standard	B 148
	ASTM B148

// National designations

D	≈ CuAl11Fe6Ni6-C
D	≈ CC334G ≈ 2.0978

≈ (substantial coherence)

// **Composition** (mass fraction in %)

Cu	Al	Fe (< Ni)	Ni (> Fe)	Mn
min. 78	10.0 – 11.5	3.0 – 5.0	3.0 – 5.5	max. 3.5

Ni > Fe, Al <= 8.2 + Ni/2

// **Strength properties** at room temperature

	(minimum values)			
1] ASTM B148 [2] ASTM B148 TQ50*	R_m N/mm²	$R_{p0.2}$ N/mm²	A_5 %	HB
[1] Sand casting	620	275	6	~ 190**
[2] Sand casting TQ50	760	415	5	~ 200

TQ50* – hardened and tempered, recommended temperatures 870 – 925°C 2h water and 495 – 540°C 2h air cooling
** approx 150 HB is more realistic

// Physical properties

Density at 20°C	7.6 kg/dm³
Specific heat capacity at 20°C	0.43 J/g x °C
Thermal conductivity at 20°C	0.34 W/cm °C
Electrical conductivity at 20°C	2 – 5 MS/m approx. 6 % IACS
Young's modulus	125 KN/mm²
Permeability	< 1.9

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

Bending fatigue strength R_{bw} at 10^8 load cycles	205 N/mm²
Notched impact energy (ISO - V/KV)	12 joules

ZOLLERN

Solid metals. Fine solutions.

Copper-aluminium casting alloy **C95500** alloy 1820

C95500 is very similar to CC334G =CuAl11Fe6Ni6 in that it has high corrosion resistance to water containing CI, hot and cold seawater, neutral and acidic aqueous media, as well as to non-oxidising acids and sulphide/bleaching lye.
The material has relatively high strength values, high erosion and cavitation resistance as well as good abrasion resistance and good fatigue behaviour. It is stronger than C95800, which has slightly higher toughness.
With good lubrication and low sliding speeds, high loads are permissible in plain bearings. Load peaks of up to approx. 25 KN/cm² are permissible for pivoting movements or dynamic loading.

Areas of application

- Worm and screw wheels for high loads and low sliding speeds
- Articulated jaws and pressure nuts in mechanical engineering
- Plain bearings, swivel bearings, crank and toggle bearings
  toggle bearings, worms, worm wheels with high impact load
- Valve bodies, valve flaps, Valve guides, valve seats

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	675 +-10°C min. 6h air cooling (improves corrosion resistance, annealing on customer request)
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 also electrode manual welding are possible. Suitable filler material CuAl8 = CF309G, 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