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Solid metals. Fine solutions.

Copper-aluminium casting alloy **AMS 4880** alloy 1516

In accordance with the Aerospace Material Specification, parts made of this high-strength cast alloy are hardened and tempered in annealing furnaces to AMS 2750 = TQ50.
Hardening: 871 – 927 °C for at least 2 hours, quenching in water.
Tempering: 593 – 649 °C for at least 2 hours, cooling in air.
Non-destructive tests such as X-ray, penetration test must be agreed separately.
Parts made of the similar casting material AMS 4881 have a higher strength, with lower toughness.

ZOLLERN brand	AMS 4880
AMS designation	81.5Cu-10.3Al-5.0Ni-2.8Fe
ASTM designation	C95510

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

Cu	Al	Ni	Fe	Mn
min. 78	9.7 – 10.9	4.5 – 5.5	2.0 – 3.5	max. 1.5

Zn	Sn
max. 0.3	max. 0.2

// **Strength properties** at room temperature tensile specimen from a centrifugally cast bush

	(minimum values)			
[1] AMS 4880, centrifugal casting	R_m N/mm²	$R_{p0.2}$ N/mm²	A_5 %	HB*
[1] up to 25 mm (1 inch)	724	431	9	192 – 248
[1] over 25 mm (1 inch)	655	345	8	192 – 248

* no setpoints, hardness may be out of range

Information

Higher strength values with simultaneously higher toughness are achieved with the forging material CW307G = CuAl10Ni5Fe4 after hardening and tempering.

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Areas of application

- Centrifugally cast bearing bushes, mainly in aviation

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.

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