



GLIDCOP® Dispersion Strengthened Copper

GLIDCOP AL-60 applications

GLIDCOP AL-60 (C15760) is primarily designed for applications requiring the highest elevated temperature strength coupled with relatively high electrical and thermal conductivities. It exhibits a high degree of resistance to softening after exposure to elevated temperatures. GLIDCOP AL-60 has sufficient cold working characteristics for heading, extrusion and some drawing and rolling operations.

Recommended for:

- Resistance welding electrodes
- Solder gun tips and MIG contact tips
- Welding electrodes made from GLIDCOP exhibit improved life
- Good non-sticking performance on coated steels

For applications requiring brazed joints and/or extended high temperature exposure in hydrogen-containing atmospheres or vacuum, Low Oxygen* (LOX) GLIDCOP is available and recommended.

Description

GLIDCOP AL-60 is a high alumina content grade of dispersion strengthened copper. It consists of a pure copper matrix containing finely dispersed sub-microscopic particles of Al_2O_3 which act as a barrier to dislocation movement. The dispersed Al_2O_3 is thermally stable so that it acts to retard recrystallization of the copper. Consequently, significant softening does not occur as the result of high temperature exposure. Along with superior strength retention, thermal and electrical conductivities are higher than conventional copper alloys.

GLIDCOP AL-60 is designated in UNS as C15760. This grade is available as rod and bar stock, strip and strip reroll, and large rounds. Most forms are available with or without an oxygen free copper cladding. Unless specified as "declad", GLIDCOP is supplied with cladding

Composition GLIDCOP AL-60

Aluminum: 0.60% by wt. as Al_2O_3
Copper: Balance

*Note: Low Oxygen GLIDCOP contains nominally 250 ppm boron.

Physical properties

Melting Point	1083°C	1981°F
Density	8.81 g/cm ³ at 20°C	0.318 lbs./in ³ at 68°F
Electrical Conductivity (σ)	0.452 $\mu\Omega$ -cm at 20°C	78% IACS at 68°F
Thermal Conductivity (K)	322 W/m/K at 20°C	186 Btu/ft ² /ft/hr/°F at 68°F
Electrical Resistivity (ρ)	2.21 $\mu\Omega$ -cm at 20°C	13.29 Ω circular-mil/ft. at 68°F
Coefficient of Thermal Expansion	16.6 $\mu\text{m}/\text{m}/^\circ\text{C}$ (20-150°C)	9.2 $\mu\text{in}/\text{in}/^\circ\text{F}$ (68-300°F)
Modulus of Elasticity (Tension) (λ)	130 Gpa	19 x 10 ⁶ psi

Mechanical properties

Typical room temperature properties of GLIDCOP® AL-60

Shapes	Thickness or Dia.		Temper or Condition	Tensile Strength		Yield Strength		Elongation %	Hardness HRB
	mm	in		MPa	ksi	MPa	ksi		
Flat products	10	0.400	As Cons. *	517	75	413	60	13	81
	2.5	0.100	CW **75%	627	91	572	83	8	85
	0.15	0.006	CW 98%	737	107	655	95	6	-
Rod	14	0.54	As Cons.	551	80	517	75	22	80
	13	0.5	CW 14%	572	83	544	79	16	83
	7	0.275	CW 74%	620	90	599	87	14	86
	64	2.5	As Cons.	496	72	475	69	4	80
Rounds	Up to 760	30	As Cons.	469	68	331	48	4	76

* As Consolidated ** Cold Work: % reduction in area

Samples and services

For further information or sample quantities for test, contact our Customer Service Department.

Material Safety Data

See MSDS before using this product.

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