

# TECHNICAL DATA SHEET

## GLIDCOP® DISPERSION STRENGTHENED COPPER GLIDCOP® AL-60 (C15760)

### APPLICATIONS

The AL-60 grade 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.

GlidCop® AL-60 is recommended for resistance welding electrodes, solder gun tips and MIG contact tips. Welding electrodes made from GlidCop® exhibit improved life and 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<sub>2</sub>O<sub>3</sub> which act as a barrier to dislocation movement. The dispersed Al<sub>2</sub>O<sub>3</sub> 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 <sub>2</sub> O <sub>3</sub> Copper: Balance
*Note: Low Oxygen GlidCop® contains nominally 250 ppm boron

### PHYSICAL PROPERTIES

Melting Point	1083°	1981°
Density	8.81 g/cm <sup>3</sup> at 20°C	0.318 lbs./in <sup>3</sup> at 68°F
Electrical Conductivity	0.452 micro mho-cm at 20°C	78% IACS at 68°F
Thermal Conductivity	322 W/m/°K at 20°C	186 Btu/ft <sup>2</sup> /ft/hr/°F at 68°F
Electrical Resistivity	2.21micro ohm-cm at 20°C	13.29Ohm circular-mil/ft. at 68°F
Coefficient of Thermal Expansion	16.6 μm/m/°C (20-150°C)	9.2 μin/in/°F (68-300°F)
Modulus of Elasticity (Tension)	130 GPa	19 x 10 <sup>6</sup> 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	.400	As Cons. #	517	75	413	60	13	81
	2.5	.100	CW*75%	627	91	572	83	8	85
	.15	.006	CW 98%	737	107	655	95	6	-
	.15	.006	Temper 90	689	100	621	90	9	-
Rod	14	.54	As Cons.	551	80	517	75	22	80
	13	.5	CW 14%	572	83	544	79	16	83
	7	.275	CW 74%	620	90	599	87	14	86
	7	2.75	HT <sup>+</sup> 650°C	579	84	544	79	18	80
	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				+ Heat treatment for 1 hour			

## MATERIAL SAFETY DATA

See MSDS before using this product.

## SAMPLES AND SERVICES

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

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