

TECHNICAL DATA SHEET

GLIDCOP® DISPERSION STRENGTHENED COPPER GLIDCOP® AL-25 (C15725)

APPLICATIONS

The AL-25 grade is primarily designed for applications requiring high electrical and thermal conductivities along with good elevated temperature strength. GlidCop® AL-25 has excellent cold working characteristics, and can be drawn into fine wire or rolled into thin sheets.

GlidCop® AL-25 can be used for seam welding wheels, MIG welding tips, resistance welding electrodes and back-up bars, electrical motor and generator components, electrical relay systems components, vacuum tube components, microwave tube components, X-ray tube components, hybrid circuit packages, high performance leadframes, medical device components, heat exchangers, power cables, and high power magnet windings.

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-25 is a low alumina content grade of dispersion strengthened copper. It consists of a pure copper matrix containing finely dispersed sub-microscopic particles of Al₂O₃ which act as a barrier to dislocation movement. The dispersed Al₂O₃ 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 with conventional copper alloys.

GlidCop® AL-15 is designated in UNS as C15725. This grade is available as rod and bar stock, strip and strip reroll, wire redraw, plates 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-25	
Aluminum: 0.25% by wt. as Al ₂ O ₃ Copper: Balance	
*Note: Low Oxygen GlidCop® contains nominally 250 ppm boron	

PHYSICAL PROPERTIES

Melting Point	1083°	1981°
Density	8.86 g/cm ³ at 20°C	0.320 lbs./in ³ at 68°F
Electrical Conductivity	0.504 micro mho-cm at 20°C	87% IACS at 68°F
Thermal Conductivity	344 W/m/°K at 20°C	199 Btu/ft ² /ft/hr/°F at 68°F
Electrical Resistivity	1.98 micro ohm-cm at 20°C	11.91 Ohm 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 ⁶ psi

MECHANICAL PROPERTIES

TYPICAL ROOM TEMPERATURE PROPERTIES OF GLIDCOP® AL-25

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. #	434	63	345	50	21	72
	2.3	.090	CW*78%	586	85	544	79	8	83
	.15	.006	CW 98%	675	98	613	89	6	-
	.15	.006	Temper 70	517	75	483	70	10	-
	.15	.006	Temper 80	586	85	551	80	8	-
Plate	Up to 130	5.0	As Cons.	413	60	296	43	19	68
	25	1.0	CW 60%	496	72	441	64	9	-
	16	.625	CW 75%	524	76	467	68	9	-
Rod	38	1.5	As Cons.	-	64	-	52	24	73
	6.4	.25	As Drawn	551	80	531	77	14	76
Rounds	Up to 760	30	As Cons.	413	60	296	43	19	68
# As Consolidated			*Cold Work: % reduction in area						

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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