GLIDCOP® Dispersion Strengthened Copper

GLIDCOP AL-25 applications

GLIDCOP AL-25 (C15725) 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.

Recommended 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
- 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 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 with conventional copper alloys.

GLIDCOP AL-25 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_2O_3
Copper:	Balance

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

Physical properties

Melting Point	1083°C	1981°F
Density	8.86 g/cm^3 at 20°C	0.320 lbs./in^3 at 68°F
Electrical Conductivity (σ)	0.504 μ Ω-cm at 20°C	87% IACS at 68°F
Thermal Conductivity (K)	344 W/m/K at 20°C	199 Btu/ft^2/ft/hr/°F at 68°F
Electrical Resistivity (ρ)	1.98 μ Ω-cm at 20°C	11.91 Ω 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) (λ)	130 Gpa	19 x 10^6 psi

Mechanical properties

Typical room temperature properties of GLIDCOP® AL-25

Shapes	Thickness or Dia.		Temper	Tensile Strength		Yield Strength		Elongation	Hardness
	mm	in	or Condition	MPa	ksi	MPa	ksi	%	HRB
Flat products	10	0.400	As Cons.*	434	63	345	50	21	72
	2.3	0.090	CW **78%	586	85	544	79	8	83
	0.15	0.006	CW 98%	675	98	613	89	6	-
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	0.625	CW 75%	524	76	467	68	9	-
Rod	38	1.5	As Cons.	-	64	-	52	24	73
	6.4	0.25	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

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.

PRODUCTION ENGINEERING
1344 Woodman Drive
Dayton, Ohio 45432

888-654-WELD (9353)
sales@productionengineering.com

www.resistanceweldsupplies.com