



Tensile Flex® - High Performance Copper Alloy

IWG High Performance Conductors' Tensile Flex® copper base alloy has been recognized for more than 30 years as the premium high-performance conductor alloy. Its tremendous success in the aerospace, geophysical, medical and other high performance applications is due to its unique combination of high tensile strength, excellent flex-life and high conductivity.

Tensile-Flex® was originally developed for applications requiring high tensile strength and resistance to annealing at elevated temperatures. Tensile Flex® maintains its tensile strength at temperatures exceeding 700 °F. The high-strength, conductivity, and thermal stability of Tensile Flex exceeds the properties of comparable copper alloys, enabling it to easily meet requirements of industry specifications SAE AS22759, MIL-W-29606, NEMA WC67, and ASTM B624.

MATERIAL PROPERTIES		
Composition	99% Cu; Balance Cr, Cd	
Unified Number	C18135	
Density	0.323 lbs/in ³ @68F (8.941 gm/cm ³ @20C)	
Thermal Conductivity	200 BTU-ft/(h-ft ² -F) [(346 watt/meter-K)]	
PHYSICAL PROPERTIES		
	<i>Soft Temper</i>	<i>Hard Temper</i>
Elongation, min	8%	1%
Tensile, min	60,000 PSI (414 MPa)	100,000 PSI (690 MPa)
ELECTRICAL PROPERTIES		
	<i>Soft Temper</i>	<i>Hard Temper</i>
Resistivity, max	11.52 cmil-Ω/ft (1.92 mΩ-cm)	12.20 cmil-Ω/ft (2.03 μΩ-cm)
Conductivity	90 % IACS	85% IACS
Temp. Coeff. of Resist.	0.00342 / °C	0.00342 / °C
AVAILABILITY		
Coatings ¹	Silver - Per ASTM B298, Nickel - per ASTM B355	
Constructions ^{2, 3, 4}	Solid: 24 - 52 AWG Stranded: 16 - 42 AWG (7 Wire, 19 Wire Unilay and Conc.) Flat: 30 - 38 (Equivalent round AWG size)	

1 – Strand sizes less than 44 AWG will not meet 40 micro-inches per ASTM B298

2 - Solid construction may not meet stated properties.

3 – Some sizes do not apply to nickel plated Tensile-Flex®

4 – Alternative constructions available for quote upon request

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