

Resistance Alloy 294

294 Ohm, CuNi44Mn (Constantan 45)

Identification					
VMI No.	294 Ohm				
UNS No.	C72150, N04401				
Relevant Specifications	ASTM B267				
Similar to	Constantan 45, Alloy 401, 300 Ohm				
Forms	Strip	Wire	Bar	Sheet	
	*	*		*	
Description	Alloy 294 is a copper-nickel alloy noted for its constant electrical resistivity over large temperature ranges. This relatively constant resistivity makes Alloy 294 great for electric and electronic applications like resistors. Also, Alloy 294's good brazing characteristics make it well suited for bimetal contact applications.				
Chemical Composition (%)					
Nickel	40-45				
Copper	Remainder				
Manganese	2.25 Max				
Iron	0.75 Max				
Cobalt	0.25 Max				
Silicon	0.25 Max				
Carbon	0.1 Max				
Sulfur	0.015 Max				
Mechanical Properties <small>(all values are for annealed temper; not intended for specification)</small>					
Tensile	65-75	ksi			
	450-520	MPa			
Yield	17-26	ksi			
	115-180	MPa			
Elongation	34-42	% in 2"			
	34-42	% in 50mm			
Hardness	55-65	HRB			
	110-115	Hv			
Physical Properties					
Density	0.3219	lb/in ³			
	8.91	g/cm ³			
Resistivity (Nominal)	300 ± 20	Ohm•circ mil/ft			
	1804 ± 120	microOhm•cm			
Coefficient of Thermal Expansion from 68°F (20°C) to	200°F	500°F	1000°F	1500°F	2000°F
	93°C	260°C	538°C	816°C	1093°C
	(micro-in/in-°F)	7	7.6	8.5	9.2
(micro-m/m-K)	12.6	13.7	15.3	16.6	19.1

