

SOONV® nickel-copper alloy 401 (UNS N04401) is used primarily in specialized electrical and electronic applications.

The composition of SOONV alloy 401 is shown in Table 1. Some typical constants and properties are given in Table 2. Alloy 401 is readily autogenously welded, in the thin sections in which it is most often used, by the gas-tungsten-arc process. Resistance welding is a very satisfactory method for joining the material. It also exhibits good brazing characteristics.

Alloy 401 is normally furnished as wire; other forms may be obtained on request. Inquire for complete information.

Table 1- Limiting Chemical Composition, %, of Soonv Alloy 401

Nickel.....	40.0-45.0
Carbon.....	0.10 max.
Manganese.....	2.25 max.
Iron.....	0.75 max.
Cobalt.....	0.25 max.
Sulfur.....	0.015 max.
Silicon.....	0.25 max.
Copper.....	Balance*

*Reference to the 'balance' of a composition does not guarantee this is exclusively of the element mentioned but that it predominates and others are present only in minimal quantities.

Table 2 - Typical Constants and Properties^a of Soonv Alloy 401

Density, lb/in. ³	0.321
g/cm ³	8.91
Thermal Expansion, in./in./°F x 10 ⁻⁶	
-320°-70°F (-196°-21°C).....	7.0
70°-200°F (21-93°C).....	7.6
70°-500°F (21-260°C).....	8.5
70°-1000°F (21-539°C).....	9.2
70°-1500°F (21-816°C).....	9.8
70°-2000°F (21-1093°C).....	10.6
Thermal Conductivity, Btu•in/hr/ft ² /°F at 70°F.....	133
W/m•°C.....	21.0
Electrical Resistivity, ohm•circ mil/ft, at 70°F.....	294
μΩ•m.....	0.498
Temperature Coefficient of Resistance, ppm/°C.....	±20
Curie Temperature, °F.....	<-320
°C.....	<-196
Tensile Strength, ksi.....	64
MPa.....	441
Yield Strength (0.2% Offset), ksi.....	19.5
MPa.....	134
Elongation, %.....	51
Hardness, Rb.....	43

^a Tensile properties determined for hot-rolled annealed rod.

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