INCONEL ALLOY 600:

A nickel-chromium alloy with good oxidation resistance at high temperatures and resistance to chloride-ion stress-corrosion cracking, corrosion by high-purity water and caustic corrosion.

Used for furnace components, chemical and food processing, nuclear engineering and sparking electrodes. The alloy is used extensively in the chemical industry for its strength and corrosion resistance.

Applications include heaters, stills, bubble towers and condensers for processing of fatty acids,evaporator tubes, tube sheets and flaking trays for the manufacture of sodium sulfide, and equipment for handling abietic acid in the manufacture of paper pulp.

The alloy's strength and oxidation resistance at high temperatures make it useful for many applications in the heat-treating industry.

It is used for retorts, muffles, roller heaters and other furnace components and for heat-treating baskets and trays.

In the aeronautical field, INCONEL alloy 600 is used for a variety of engine and airframe components which must withstand high temperatures.

Examples are lockwire, exhaust liners and turbine seals.

INCONEL alloy 600 is used in the electronic field for such parts as cathode-ray tube spiders, thyratron grids, tube support members and springs.

nuclear applications,The alloy is a standard material of construction for nuclear reactors.

It has excellent resistance to corrosion by high-purity water, and no indication of chloride-ion stresscorrosion cracking in reactor water systems has been detected.

CHEMICAL PROPETIES(Limiting Chemical Composition%)

Ni +co	C	Mn	Fe	S	Si	Cu	Cr
72.0 min.	0.15 max.	1.00 max	.6.00-10.00	0.015 max	0.50 max	0.50 max.	14.0-17.0

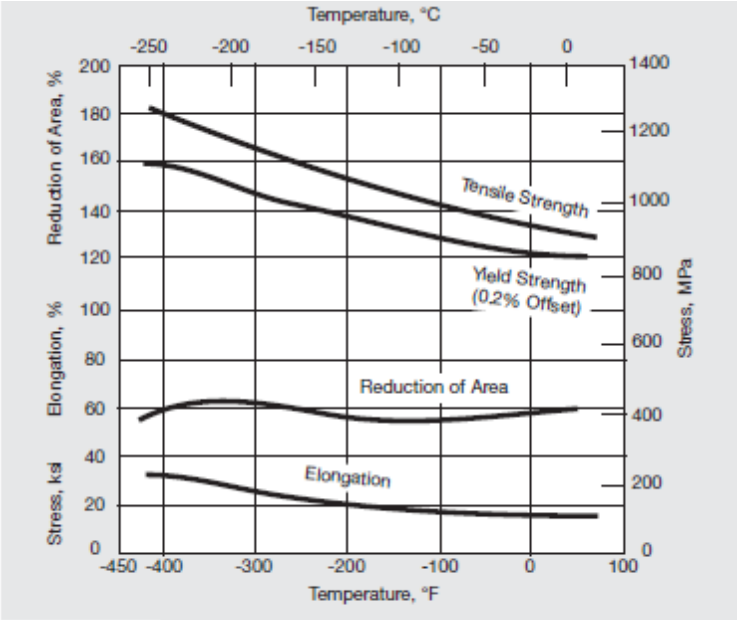
PHYSICAL PROPETIES

Density		Melting Range		Specific Heat		Electrical Resistivity		Curie Temperature		Permeability at 200 oersted(15.9 kA/m)
g/cm³	lb/in³	°F	°C	Btu/lb-°F	J/kg-°C	ohm-circ mil/ft	μΩ-m	°F	°C	
8.47	0.306	2470-2575	1354-1413	0.106	444	620	1.03	-192	-124	1.010

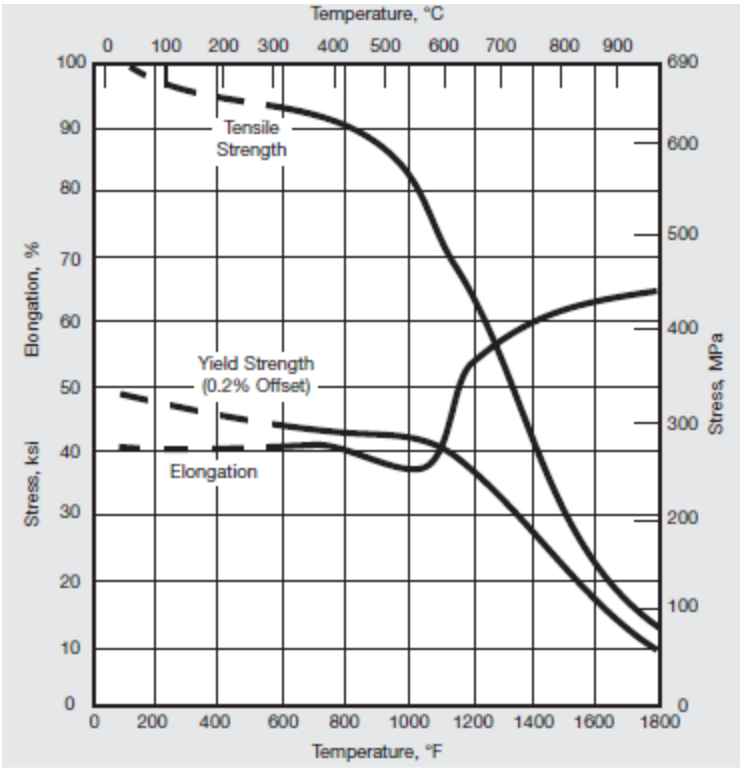
MECHANICAL PROPETIES

Form and Condition	Tensile Strength		Yield Strength (0.2% Offset)		Elongation, %	Hardness, Rockwell
	ksi	MPa	ksi	MPa		
Rod and Bar						
Cold-Drawn						
Annealed	80-100	550-690	25-50	170-345	55-35	65-85B
As-Drawn	105-150	725-1035	80-125	550-860	30-10	90B-30C
Hot-Finished						
Annealed	80-100	550-690	30-50	205-345	55-35	65-85B
Hot-Finished	85-120	585-830	35-90	240-620	50-30	75-95B
Plate						
Hot-Rolled						
Annealed	80-105	550-725	30-50	205-345	55-35	65-85B
As-Rolled	85-110	580-760	35-65	240-450	50-30	80-95B
Sheet						
Cold-Rolled						
Annealed	80-100	550-690	30-45	205-310	55-35	88B max.
Hard	120-150	830-1035	90-125	620-860	15-2	24C min.
Strip						
Cold-Rolled						
Annealed	80-100	550-690	30-45	205-310	55-35	84B max.
Spring Temper	145-170	1000-1170	120-160	830-1100	10-2	30C min.
Tube and Pipe						
Hot-Finished						
Hot-Finished	75-100	520-690	25-50	170-345	55-35	-
Annealed	75-100	520-690	25-50	170-345	55-35	-
Cold-Drawn						
Annealed	80-100	550-690	25-50	170-345	55-35	88B max.
Wire[b]						
Cold-Drawn						
Annealed	80-120	550-830	35-75	240-520	45-20	-
No. 1 Temper	105-135	725-930	70-105	480-725	35-15	-
Spring Temper	170-220	1170-1520	150-210	1035-1450	5-2	-

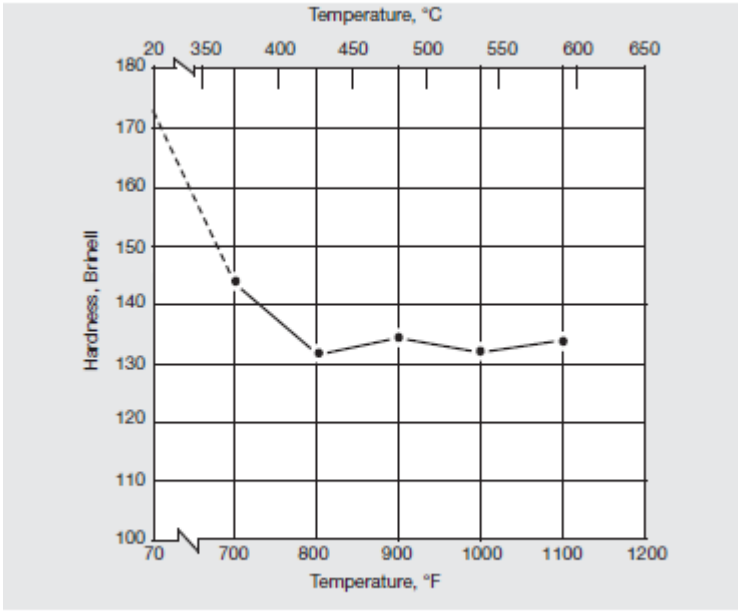
MECHANICAL PROPETIES DIAGRAM



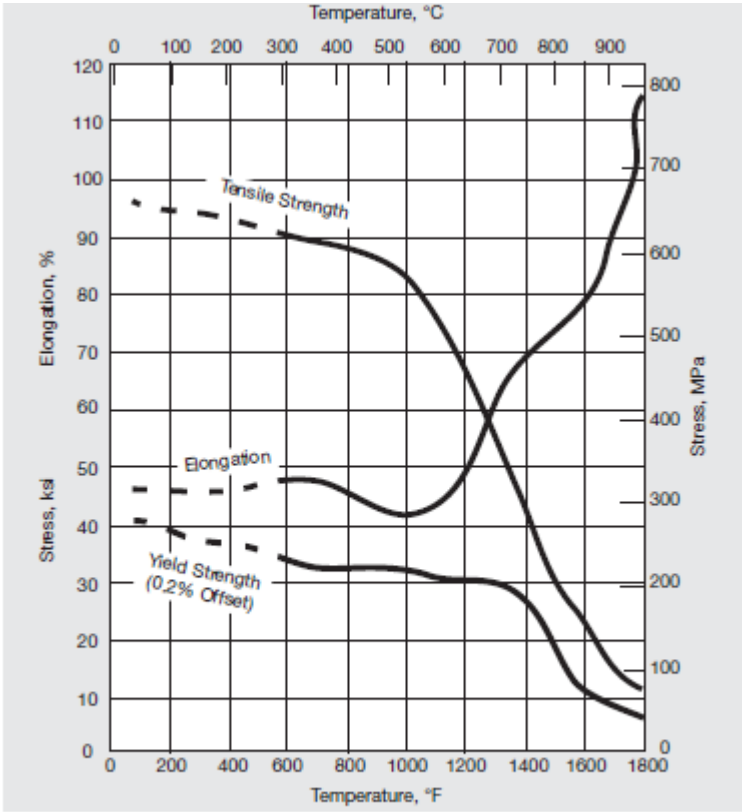
-temperature tensile properties of cold-drawn rod.



High-temperature tensile properties of annealed, 1600°F (870°C)/1 hr, hot-rolled plate.



Hot hardness of hot-rolled material.



High-temperature tensile properties of annealed, 1600°F (870°C)/1 hr, hot-rolled rod.