17-7 PH Stainless Steel, CH900, plate, sheet, and strip

Subcategory: Ferrous Metal; Metal; Precipitation Hardening Stainless; Stainless Steel; T S10000 Series Stainless Steel

Key Words: UNS S17700, double treatment alloy, CH900, plate, sheet, and strip, 17-7PH, 17-7 PH, 17/7PH, 17/7 PH, Precipitation Hardening

Component	Wt. %
Al	0.75 - 1.5
C	Max 0.09
Cr	16 - 18
Mn	Max 1
Ni	6.5 - 7.75
P	Max 0.04
S	Max 0.04
Si	Max 1

Material Notes:

Processing: CH900 - heated to austenitic range, 1040°C (1900°F), and water quenched. Severely cold worked (60-70%). The cold working induces a martensite transformation in the austenite. Tempered at 480°C (900°)

Applications: high strength high temperature applications, chemical processing equipment, heat exchangers, power boilers, superheater tubes

Corrosion Resistance: 17-7 PH is suitable for use in fresh water, industrial and marine atmospheres, and mild chemical and oxidizing environments. 17-7 PH should not be used in salt water or reducing environments.

Physical Properties	Metric	English	Comments
Density	7.8 g/cc	0.282 lb/in³	
Mechanical Properties			
Hardness, Rockwell C	46	46	
Tensile Strength, Ultimate	1650 MPa	239000 psi	

Tensile Strength, Yield	1590 MPa	231000 psi	
Elongation at Break	1 %	1 %	
Modulus of Elasticity	204 GPa	29600 ksi	

Electrical Properties

Electrical Resistivity	8.3e-005 ohm-cm	8.3e-005 ohm-cm	

Thermal Properties

CTE, linear 20°C	11 µm/m-°C	6.11 µin/in-°F	from 0-100°C (32-212°F)
CTE, linear 250°C	11.6 µm/m-°C	6.44 µin/in-°F	from 0-315°C (32-600°F)
Specific Heat Capacity	0.46 J/g-°C	0.11 BTU/lb-°F	from 0-100°C (32-212°F)
Thermal Conductivity	16.4 W/m-K	114 BTU-in/hr-ft²-°F	at 100°C(212°F); 21.8 W/m-K at 500°C (930°F)
Melting Point	1400 - 1450 °C	2550 - 2640 °F	
Solidus	1400 °C	2550 °F	
Liquidus	1450 °C	2640 °F	

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistant format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error.