

17-7 PH Stainless Steel

UNS S17700
W. Nr 1.4568

Applicable Specifications

Strip and Foil | AMS 5528, AMS 5529, ASTM A693, ASTM F899, MIL-S-35043

Description: 17-7 PH is a precipitation-hardening stainless steel that provides high strength and hardness, excellent fatigue properties, good corrosion resistance, good formability, and minimum distortion upon heat treatment. It is easily formed in the annealed condition, then hardened to high strength levels by simple heat treatments to Conditions RH 950 and TH 1050. The exceptionally high strength of Condition CH 900 offers many advantages where limited ductility and workability are permissible. Corrosion resistance in Conditions TH 1050 and RH 950 is generally superior to that of standard hardenable chromium stainless steels such as Types 410, 420 and 431. Corrosion resistance in Condition CH 900 approaches that of Type 304 in most environments.

Applications include: Springs, Rings, Washers, Heat Exchangers, Tubing

Industries supplied include: Chemical Processing, Aerospace, Automotive

Nominal Composition

	C	Mn	P	S	Si	Cr	Ni	Al	Fe
min	-	-	-	-	-	16.0	6.5	0.75	Bal
max	0.09	1.00	0.040	0.030	1.00	18.0	7.8	1.50	-

Physical Properties

	Annealed (Properties At 70°F/20°C)	Annealed (Properties At 70°F/20°C)
Density	0.282 lb/in ³ (7.81 g/cm ³)	0.277 lb/in ³ (7.67 g/cm ³)
Modulus of Elasticity (E)	-	29.5 x 10 ³ ksi (200 GPa)
Modulus of Rigidity (G)	-	10.5 x 10 ³ ksi (72 GPa)
Coefficient of Expansion	9.5 µin/in-°F at 70-600°F (17.1 µm/m-°C at 21-316°C)	6.4 µin/in-°F at 70-600°F (11.5 µm/m-°C at 21-316°C)
Electrical Resistivity	80.0 µohm-cm	83.8 µohm-cm
Thermal Conductivity	-	114 Btu-in/ft ² -hr-°F at 300°F (16.4 W/m-°C at 149°C)

Typical Mechanical Properties

Condition	Heat Treatment	Tensile Strength	Suggested Operating Conditions
Annealed	1900-2050°F (1038-1121°C)	150 ksi max (1034 MPa)	Up to 900°F (482°C)
Spring Temper	(Stress relieve as needed)	200 ksi min (1380 MPa)	Up to 650°F (343°C)
Spring + Aged (CH 900)	900°F (482°C) for 60 mins	240 ksi min (1650 MPa)	Up to 650°F (343°C)

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