

### Stainless 17-7 PH

Type 17-7 PH Precipitation-Hardening Stainless Steel in sheet and strip forms provide valuable property combinations particularly well suited for aerospace applications. This special alloy also provides benefits for other applications requiring high strength and good corrosion resistance, as well as excellent properties for flat springs up to 600°F (316°C). 17-7PH provides high strength and hardness, excellent fatigue properties, good corrosion resistance and minimum distortion on heat treatment.

**Specifications** 

AMS: 5528, 5529, 5568, 5644, 5678 ASTM: A313, A564, A579, A693, A705

**UNS**: S17700

#### Chemical Composition, %

	Cr	Mn	Si	Ni	Р	S	С	Al
MIN	16.00	-	1	6.50	-	1	1	0.75
MAX	18.00	1.00	1.00	7.75	0.04	0.03	0.09	1.50

**Resistance to Corrosion:** Corrosion resistance of Type 17-7PH stainless steel in all heat-treated conditions, like other types of stainless steels – will develop superficial rust in some environments. However, after exposure of one or two years, the amount of rust present is little more than that present at six months. It may be subject to cracking when exposed under stress in environments containing hydrogen sulfide

#### **Features**

- Provides valuable property combinations particularly well suited for aerospace applications
- Provides benefits for other applications requiring high strength and good corrosion resistance
- High strength and hardness
- Excellent fatigue properties

#### **Applications**

- Aerospace applications
- Chemical processing equipment
- Oil and petroleum refining equipment
- Food processing equipment
- General metalworking



## Stainless 17-7 PH

**Physical Properties** 

Melting Range: 2560-2625°F (1404-1440°C)

Density: 0.2820 lb/in<sup>3</sup>

Linear Coefficient of Thermal Expansion

Temperature Rang	ge	Coefficients		
°C	°F	μm/m⋅°C	in/in/°F-106	
21-93	70-200	15.3	8.5	
21-204	70-400	16.2	9.0	
21-316	70-600	17.1	9.5	
21-427	70-800	17.3	9.6	

**Thermal Conductivity** 

Temperature Range					
°C	°F	W/m·K	Btu/(hr/ft²/in/°F)		
149	300	16.87	117		
260	500	18.46	128		
449	840	21.05	146		
482	900	21.05	146		

Magnetic Permeability (Annealed Condition)

Oersteds	AT/m	μ
25	1989	1.4 - 3.4
50	3878	1.4 - 3.6
100	7956	1.4 - 3.5
200	15.912	1.4 - 3.2
max	max	1.4 - 3.6

Electrical Resistivity (Annealed Condition)

Microhm-cm	
80	



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#### **Mechanical Properties**

Typical Mechanical Properties Room Temperature (Annealed)

UTS (Tensile) Ksi(Mpa)	.02% Yield Strength Ksi(Mpa)	Elongation % in 2" (51mm)	Hardness Rockwell C	
130,000	40,000	35	B85	
(896)	(276)	33		