

17-4 PH (Precipitation Hardening) is a popular martensitic stainless steel alloy known for its excellent combination of high strength, good corrosion resistance (similar to Grade 304), and toughness, achieved through a single low-temperature heat treatment. It's versatile for applications needing high strength up to 600°F (316°C), used in aerospace, medical, oil & gas, and food processing, and is easily machinable and weldable in its annealed state (Condition A).

### Nominal Composition %

<b>Cr</b>	Chromium - 15.00 / 17.50 max
<b>Mn</b>	Manganese - 1.00 max
<b>Si</b>	Silicon - 1.00 max
<b>Ni</b>	Nickel - 3.00 / 5.00 max
<b>P</b>	Phosphorous - .04 max
<b>S</b>	Sulfur - .03 max
<b>C</b>	Carbon - .07 max
<b>Cu</b>	Copper - 3.00 / 5.00 max
<b>Cb Ta</b>	Columbium + Tantalum - .15 - .45 max

Percent by weight, maximum unless a range is listed.

### Other Industry Standards

- PWA-LCS
- S1000 / S-SPEC-1
- GE Aviation S-SPEC-35 AeDMS S-400
- RR SABRe Edition 2

### Standard Inventory Specifications

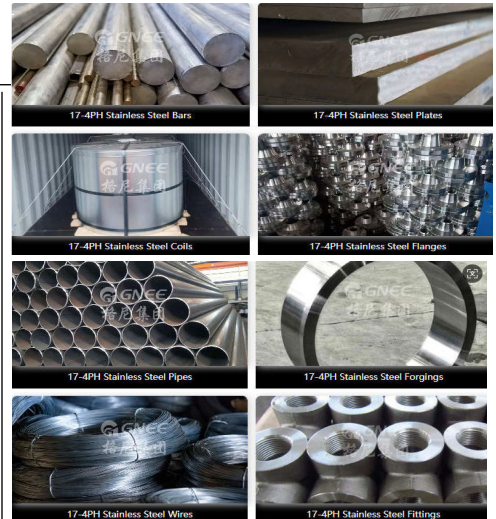
- UNS: S17400
- AMS: 5604
- ASTM A693
- ASTM F 899
- ASME SA 693
- W. Nr./EN: 1.4542

### Forms & Thicknesses Stocked

- Sheet & Coil - 0.032" - 0.1425"
- Plate - 0.1875" - 2.500"
- Bar - 0.250" - 5.000"

### Applications

- Aerospace applications
- Chemical refining, oil and petroleum processing equipment
- Food processing equipment
- General metalworking
- Fasteners
- Base plates
- Nuclear components
- Food grade stainless steel for processing equipment
- General metalworking applications that call for precipitation-hardening stainless steel



**Or click here to view our product page and request a quote on 17-4ph**

<https://www.chinastainless-steel.com>

### Features

- Excellent resistance to corrosion
- Provide toughness in both base metals and welds.
- Well suited to applications that require ease of fabrication and then the addition of strength / hardness for improved reliability

### 17-4ph vs 316 stainless steel:

17-4 PH offers high strength and hardness via heat treatment, ideal for structural parts, while 316 provides superior corrosion resistance (especially in chlorides/marine settings) due to molybdenum, making it better for chemical/food processing; 17-4 is martensitic, 316 is austenitic, meaning 316 is non-magnetic and easier to weld/form, but 17-4 can achieve much higher yield strength (over 1000 MPa vs. 316's ~200-300 MPa). Choose 17-4 for strength, 316 for corrosive environments.

## Physical Properties

Properties	Value
Density	0.2820 lb/in <sup>3</sup>
Melting Range	2560-2625°F (1404-1440°C)
Electrical Resistivity	Microhm-cm: 98

## Linear Coefficient of Thermal Expansion

Temperature Range		Coefficients	
°C	°F	µm/m·°C	in/in/°F·106
21-93	70-200	10.8	6
21-204	70-400	10.8	6
21-316	70-600	11.2	6.2
21-427	70-800	11.2	6.3

## Thermal Conductivity

Temperature Range			
°C	°F	W/m·K	Btu/(hr/ft <sup>2</sup> /in/°F)
149	300	17.9	124
260	500	19.5	135
460	860	22.5	156
482	900	22.6	157

## Specific Heat

Temperature Range			
°C	°F	J/gg·K	Btu/lb/°F
0-100	32-212	460	0.11

## Mechanical Properties

Type 17-4PH stainless steel has excellent mechanical properties. For applications requiring high strength and hardness as well as corrosion resistance, Type 17-4PH stainless is an outstanding choice, and it is more cost effective than many high nickel non-ferrous alloys.

### Typical Mechanical Properties of Sheets and Strip - Cold Flattened (Annealed)

UTS (Tensile) Ksi(Mpa)	02% Yield Strength Ksi(Mpa)	Elongation % in 2" (51mm)	Hardness Rockwell C
160 (1103)	145 (1000)	5	35