

Type 17-4 PH stainless steel is the most widely used of all of the precipitation-hardening stainless steels. Its valuable combination of properties gives designers opportunities to add reliability to their products while simplifying fabrication and often reducing costs. Type 17-4 PH is a martensitic precipitation-hardening stainless steel that provides an outstanding combination of high strength, good corrosion resistance, and good mechanical properties at temperatures up to 600°F (316°C). Its unique combination of properties make this alloy an effective solution to many design and production problems.

Nominal Composition %

Cr	Chromium - 15.00 / 17.50 max
Mn	Manganese - 1.00 max
Si	Silicon - 1.00 max
Ni	Nickel - 3.00 / 5.00 max
P	Phosphorous - .04 max
S	Sulfur - .03 max
C	Carbon - .07 max
Cu	Copper - 3.00 / 5.00 max
Cb Ta	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

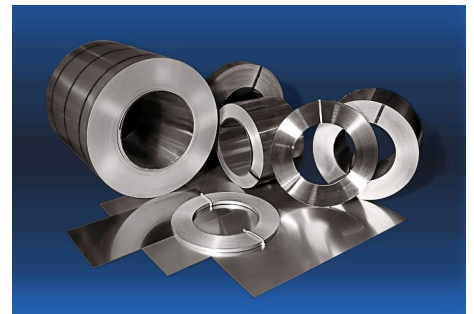
- UNS: S17400
- AMS: 5604
- ASTM A693
- ASTM F 899
- ASME SA 693
- W. Nr./EN: 1.4542

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



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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

Resistance to Corrosion: Type 17-4 PH stainless steel has excellent resistance. It withstands corrosive attack better than any of the standard hardenable stainless steels and is comparable to type 304 in most media. This has been tested in a wide variety of corrosive conditions in the petrochemical, petroleum, paper, dairy, and food processing industries, and in applications such as boat shafting.

Physical Properties

Properties	Value
Density	0.2820 lb/in ³
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 ² /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