ALLOY 17-4PH

Stainless steel 17-4 PH® Special metal 17-4 PH is a martensitic precipitation-hardening stainless steel that provides an outstanding combination of high strength, good corrosion resistance, good mechanical properties at temperatures up to 600°F (316°C), good toughness, and shorttime, low-temperature heat treatments that minimize warpage and scaling. Strength and toughness desired can be manipulated by temperate range in the heat treatment process. Because this alloy is hard, forming normally should be limited to mild operations. However, formability can be greatly improved by heat treating before cold working or by use of hot-forming methods.

17-4 PH Stainless Steel withstands corrosive attack better than any of the standard hardenable stainless steels and is comparable to Type 304 in most media.

This versatile material is widely used in the pump shafts, oil path, mechanical seals, aerospace, chemical, petrochemical, food processing, paper and general industries.

CHEMICAL PROPERTIES(Limiting Chemical Compositiona% ,)

Ni	C	Mn	Fe	S	Si	Cr	P	Cu	Nb +Ta
3.0 - 5.0	0.070 MAX	1.0 max	69.91 - 78.85	0.030 max	1.0 max	15 - 17.5	0.040 max	3.0 - 5.0	0.15 - 0.45

PHYSICAL PRPERTIES

`Density		Electrical Resistivity	CTE, linear	
g/cm³	lb/in³	ohm-cm	@Temperature 21.0 - 93.0 °C	@Temperature 69.8 - 199 °F
7.80	0.282	0.0000770	10.8 µm/m-°C	6.00 µin/in-°F

Specific Heat Capacity		Thermal Conductivity	
0.460J/g-°C	0.110 BTU/lb-°F	Temperature @ 149 °C	Temperature @ 300 °F
		W/m-K 17.9	BTU-in/hr-ft²- 124 °F

MECHANICAL PROPERTIES

Hardness, Rockwell C		Tensile Strength, Ultimate		Tensile Strength, Yield		Elongation at Break	
Metric	English	Metric	English	Metric	English	Metric	English
45	45	1448MPa	210000psi	1379MPa	200000 psi	% 7.0	% 7.0

Mechanical properties diagram