

15-5 PH STAINLESS STEEL

UNS S15500



AK Steel 15-5 PH[®] is a martensitic precipitation-hardening stainless steel that provides high strength, good corrosion resistance, good mechanical properties at temperatures up to 600°F (316°C) and good toughness in both the longitudinal and transverse directions in both base metal and welds. Short-time, low-temperature heat treatments minimize distortion and scaling.

AK Steel 15-5 PH is the ferrite-free version of AK Steel 17-4 PH Stainless Steel. Both alloys are widely used in the aerospace, chemical, petrochemical, food processing, paper and general metalworking industries.

COMPOSITION

	%
Carbon	0.07 max.
Manganese	1.00 max.
Phosphorus	0.040 max.
Sulfur	0.030 max.
Silicon	1.00 max.
Chromium	14.00 - 15.50
Nickel	3.50 - 5.50
Copper	2.50 - 4.50
Columbium plus Tantalum	0.15 - 0.45

AVAILABLE FORMS

AK Steel produces 15-5 PH Stainless Steel sheet and strip in thicknesses from 0.015" to 0.125" (0.38 to 3.18 mm). Material is supplied in Condition A, ready for fabrication and subsequent hardening by the user. For sizes and conditions other than these, inquire.

STANDARD HEAT TREATMENTS

AK Steel 15-5 PH Stainless Steel is supplied from the mill in Condition A, ready for fabrication and subsequent heat treatment by the user. Eight standard heat treatments have been developed to provide a wide range of properties to meet specific applications:

H 900	H 1075	H 1150+1150
H 925	H 1100	H 1150-M
H 1025	H 1150	

PHYSICAL PROPERTIES

	Condition A	Condition H 900	Condition H 1075	Condition H 1150
Density, lbs/in ³ (g/cm ³)	0.28 (7.78)	0.282 (7.80)	0.283 (7.81)	0.284 (7.82)
Thermal Conductivity BTU/hr/ft ² /in/°F (W/m•K)				
300°F (149°C)		124 (17.9)		
500°F (260°C)		135 (19.5)		
900°F (482°C)		157 (22.6)		
Mean Coefficient of Thermal Expansion in/in/°F (µm/m•K)				
-100 - 70°F (-73 - 21°C)	—	5.8 x 10 ⁻⁶ (10.4)	—	6.1 x 10 ⁻⁶ (11.0)
70 - 200°F (21 - 93°C)	6.0 x 10 ⁻⁶ (10.8)	6.0 x 10 ⁻⁶ (10.8)	6.3 x 10 ⁻⁶ (11.3)	6.6 x 10 ⁻⁶ (11.9)
70 - 600°F (21 - 316°C)	6.2 x 10 ⁻⁶ (11.2)	6.3 x 10 ⁻⁶ (11.3)	6.6 x 10 ⁻⁶ (11.9)	7.1 x 10 ⁻⁶ (12.8)
70 - 800°F (21 - 427°C)	6.3 x 10 ⁻⁶ (11.3)	6.5 x 10 ⁻⁶ (11.7)	6.8 x 10 ⁻⁶ (12.2)	7.2 x 10 ⁻⁶ (13.0)

