

STAINLESS STEEL 17-4 PH ALLOY

TECHNICAL DATA SHEET

SPECIALTY METAL ATOMIZED POWDERS

THE WORKHORSE OF PRECIPITATION HARDENING STAINLESS STEELS

Developed by Armco, Inc. (now AK Steel), 17-4 PH, a wrought compressed stainless steel powder, combines high strength and high hardness with excellent corrosion resistance, fracture toughness and heat treatment properties.

When machined, 17-4 PH produces long, gummy chips. While soft and ductile in an annealed condition, it is capable of high hardness properties with a single precipitation or aging treatment.

17-4 PH is ideal for manufacturing aircraft fittings, braces, chemical processing components, coupling, fasteners, gas turbines, gears, hydraulic actuators, jet engines, nuclear reactor parts, pump shafts, rocket and missile components, valve stems and wear rings.

The physical properties of 17-4 PH stainless steel make it weldable by common fusion and resistance techniques. Among members of the precipitation hardening class of stainless steels, 17-4 PH has the best weldability.

17-4 PH PHYSICAL PROPERTIES

	CONDITION A (MAGNETIC)	CONDITION H 900 (MAGNETIC)	CONDITION H 1075 (MAGNETIC)	CONDITION H 1150 (MAGNETIC)
Density lbs/in ³ (g/cm ³)	0.28 (7.78)	0.282 (7.80)	0.283 (7.81)	0.284 (7.82)
Electrical Resistivity microhm-cm	98	77	-	-
Specific Heat BTU/lb/°F (32-212°F) kJ/kg•K (0-100°C)	0.11 (0.46)	0.11 (0.46)	-	-
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 (m/m•K)				
-100 - 70°F (-73 - 21°C)	-	6.8 x 10 ⁴ (10.4)	-	6.1 x 10 ⁴ (11.0)
70 - 200°F (21 - 93°C)	6.0 x 10 ⁴ (10.8)	6.0 x 10 ⁴ (10.8)	-6.3 x 10 ⁴ (11.3)	6.6 x 10 ⁴ (11.9)
70 - 600°F (21 - 316°C)	6.2 x 10 ⁴ (11.2)	6.3 x 10 ⁴ (11.3)	6.6 x 10 ⁴ (11.9)	7.1 x 10 ⁴ (12.8)
70 - 800°F (21 - 427°C)	6.3 x 10 ⁴ (11.3)	6.5 x 10 ⁴ (11.7)	6.8 x 10 ⁴ (12.2)	7.2 x 10 ⁴ (13.0)



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