

PH 15-7 Mo

STAINLESS STEEL

UNS S15700



AK Steel PH 15-7 Mo® is a semi-austenitic precipitation-hardening stainless steel that provides high strength and hardness, good corrosion resistance and minimum distortion on heat treatment. It is easily formed in the annealed condition and develops an effective balance of properties by simple heat treatments. For applications requiring exceptionally high strength, cold-reduced PH 15-7 Mo Stainless Steel in Condition CH 900 is particularly useful for applications permitting limited ductility and workability. This alloy is particularly beneficial for a wide range of applications that include retaining rings, springs, diaphragms, aircraft bulkheads, welded and brazed honeycomb paneling and other aircraft components requiring high strength at elevated temperatures.

AVAILABLE FORMS

AK Steel produces PH 15-7 Mo Stainless Steel sheet and strip in thicknesses from 0.015" to 0.135" (0.381 to 3.429 mm). Material is supplied in Condition A, ready for fabrication by the user. Sheet and strip material 0.050" (1.27 mm) and thinner are also produced in the hard-rolled Condition C for applications requiring maximum strength.

COMPOSITION

	%
Carbon	0.09 max.
Manganese	1.00 max.
Phosphorus	0.040 max.
Sulfur	0.040 max.
Silicon	1.00 max.
Chromium	14.00 - 16.00
Nickel	6.50 - 7.75
Molybdenum	2.00 - 3.00
Aluminum	0.75 - 1.50

STANDARD HEAT TREATMENTS

AK Steel PH 15-7 Mo Stainless Steel requires three essential steps in heat treating: 1) austenite conditioning, 2) cooling to transform the austenite to martensite and 3) precipitation harden-

ing. The material normally is supplied from the mill in Condition A. After fabrication, an austenite conditioning treatment is followed by a transformation treatment to either Condition T or Condition R 100. Then the material is precipitation hardened to either Condition TH 1050 or Condition RH 950 to develop fully useable properties.

To obtain the highest mechanical properties in this alloy, Condition A material is transformed to martensite at the mill by cold reduction to Condition C. After fabrication by the user, hardening to Condition CH 900 is accomplished with a single low-temperature heat treatment.

MECHANICAL PROPERTIES

Typical Room Temperature Mechanical Properties

Property	A	TH 1050	Condition RH 950	C	CH 900
UTS, ksi (MPa)	130 (896)	210 (1448)	240 (1655)	220 (1517)	265 (1828)
0.2% YS, ksi (MPa)	55 (372)	200 (1379)	225 (1552)	190 (1310)	260 (1793)
Elongation, % in 2" (50.8 mm)	35	7	6	5	2
Hardness, Rockwell	B88	C44	C48	C45	C50

