

15-5 PH STAINLESS STEEL – AMS 5659

It has high strength, high hardness, and excellent corrosion resistance.

15-5 PH stainless steel is a martensitic precipitation-hardening stainless steel with approximately 15% Chromium and 5% Nickel. Strength can be further increased by a single low temperature heat treatment. Compared to 17-4 PH, it offers better transverse toughness and ductility; better mechanical properties in larger cross-sections, and better forgeability. It is readily weldable. It can be machined in any of the several Thermal Conditions available to this grade.

Service Steel Aerospace is one of the largest distributors / suppliers of 15-5 PH Stainless Steel available in several forms including stainless steel round bar, flat bar, and square bar as well as stainless steel plate, sheet, block, and billet. See below for product size ranges stocked.

Chemical 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

Mechanical Properties:						
Condition	Tensile	Yield 0.2% offset	Elongation (%in 2")	Reduction of Area	Brinell Hardness	Rockwell Hardness
Ann					363 Bhn	C33
H900	190,000 psi	170,000 psi	6%	15%	388 Bhn	C40
H1025	155,000 psi	145,000 psi	8%	27%	331 Bhn	C35
H1075	145,000 psi	125,000 psi	9%	28%	311 Bhn	C32
H1150	135,000 psi	105,000 psi	11%	30%	277 Bhn	C28
H1150-M	115,000 psi	75,000 psi	14%	35%	255 Bhn	C25

15-5 PH stainless steel is typically used in the following applications:

Aerospace structural components
Valves
Gears and Shafts
Oil and Gas components
Nuclear reactor components

Common Trade Names:

PH15-5
XM-12
UNS S15500
15Cr-5Ni
DIN X4CrNiCuNb164
X5CrNiCu15-5
DIN 1.4540
DIN 1.4545
SAE 15-5

Common Specifications:

AMS 5659 (Bar & Forgings)
AMS 5862 (Plate)
ASTM A564 (Grade XM-12)
ASTM A705 (Grade XM-12)
ASME SA564
Boeing BMS 7-240
Boeing BMS 7-351
SPP Canada Aircraft SPPCA-EN-SOW-0036 (Capability)
Liebherr LAT 1-9037
AMS-STD-2154 (Ultrasonic Inspection)

AMS Specifications have two types:

Type 1: VAR (Vacuum Arc Remelt) or CEVM (Consumable Electrode Vacuum Melt)
Type 2: ESR (Electroslag Remelt)

Heat Treatment:

H900
H925
H1025
H1075
H1100
H1150
Double H1150
H1150M (Modified)

