

# AMS 5659 | 15-5ph Stainless Steel

## Typical Applications

Shafts

Gears

Aircraft Structural parts

Fittings

Fasteners

Valve parts



*15-5 PH is a precipitation-hardening stainless steel alloy that offers excellent corrosion resistance, high strength, and good toughness. This alloy conforms to AMS 5659 and AMS 5862 and is commonly used in aerospace and power generation applications where the combination of high strength and corrosion resistance is essential. (see table below)*

Specifically, in aerospace, 15-5 PH (UNS S15500) is frequently used in engine parts, structural components, and landing gear. In power generation, it is used in components such as gas turbine engine parts, valves, and shafts.

One of the benefits of 15-5 PH is that it is relatively easy to work with and can be readily machined, welded, and formed. However, to optimize the mechanical properties of this alloy, heat treatment may be necessary.

The heat treatment process for 15-5 PH typically involves two steps: solution annealing and precipitation hardening. Solution annealing is performed at a temperature range of 1010-1150°C for 1-4 hours to dissolve the alloy's precipitates and homogenize the microstructure. Precipitation hardening is then performed at a lower temperature of around 480°C for 4-16 hours to promote the precipitation of the strengthening phase. This process results in significant improvements in the alloy's strength, hardness, and toughness, making it suitable for use in demanding applications where high mechanical performance is required.

It can be produced either through consumable electrode melting (ESR) or Vacuum Arc Remelting (VAR). 15 5PH stainless steel offers very good transverse properties and is corrosion resistant.

## Related Products

**15 5Ph Stainless Steel**

**17 4Ph**

**17 7Ph**

**431 - 1-4057 STAINLESS STEEL**

**A286 Bar**

**A286 Sheet**

**Aermet 100**

**Ph 13 8Mo**

**S145 Stainless Steel**

## **Technical specification**

### *Related Specifications*

**AMS 5659**

**UNS S15500**

**W.Nr 1.4545**

**AMS 5862**

### *Specific Gravity*

**7.8 g/cm<sup>3</sup>**

### *Chemical Composition (WT %)*

	Min	Max
<b>C</b>	-	0.07
<b>Si</b>	-	1.00
<b>Mn</b>	-	1.00
<b>P</b>	-	0.030
<b>S</b>	-	0.015
<b>Cr</b>	14.00	15.50
<b>Mo</b>	-	0.50
<b>Ni</b>	3.50	550



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## General Enquiries

+44(0) 1525 217 556

[Email us here](#)

## Head Office

40 Eden Way  
Chartwell Business Park  
Leighton Buzzard  
Bedfordshire  
LU7 4FY

T: +44 (0)1525 217 556

## Conversion Centre

Suite 2 Meadowhall Riverside  
Meadowhall Road  
Sheffield  
South Yorkshire  
S9 1BW

T: +44 (0)1143 030 320

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