

AMS 5659 | 15-5PH STAINLESS STEEL

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.

Specific Gravity											
7.8 g/cm3											
Typical Applications						Related Specifications					
Shafts						AMS 5659					
Gears						UNS S15500					
Aircraft Structural parts						W.Nr 1.4545					
Fittings											
Fasteners											
Valve parts											
Chemical Composition (Wt %)											
	C	Si	Mn	P	S	Cr	Mo	Ni	Cb	Cu	Fe

Min	–	–	–	–	–	14.00	–	3.50	5 x %	2.50	Bal
Max	0.07	1.00	1.00	0.030	0.015	15.50	0.50	5.50	0.45	4.50	–

Typical Mechanical Properties

	0.2% Proof Stress	Tensile Strength	Elongation		Reduction of area		Hardness	
	MPA	MPA	%		%		HB	
	Min	Min	Min		Min		Min	Max
			L	T	L	T		
H900	1172	1310	10	6	35	20	388	
H925	1069	1172	10	7	38	25	375	
H1025	1000	1069	12	8	45	32	331	
H1075	862	1000	13	9	45	33	311	
H1100	793	965	14	10	45	34	302	
H1150	724	931	16	11	50	35	277	

* This data has been supplied in good faith and is indicative only. It has been provided for general information purposes only and is not to be relied upon in place of the full specification. Mechanical properties can vary considerably with different supply conditions such as heat treatment or temper and product dimensions.

No liability will be accepted by Dynamic Metals Ltd in respect of any action taken by any third party in reliance of any of the data provided.

The information provided in this datasheet has been taken from multiple recognised sources. No guarantee is given that the information is from the latest issue of these sources and no guarantee is given that the information in the datasheet is accurate or up to date.

Material supplied by Dynamic Metals Ltd may vary significantly from this data but will conform to the relevant and applicable standards. All transactions are subject to Dynamic Metals Ltd latest Terms and Conditions of Sale.

As the products detailed may be used for a wide variety of purposes and as Dynamic Metals Ltd has no control over their use; Dynamic Metals Ltd specifically excludes all conditions or warranties expressed or implied by statute or otherwise as to dimensions, properties and/or fitness for any particular purpose, whether expressed or implied.

Advice given by Dynamic Metals Ltd to any third party is given for that party's assistance only and without liability on the part of Dynamic Metals Ltd.

All transactions are subject to Dynamic Metals Ltd latest Terms and Conditions of Sale. The extent of the Company's liabilities to any customer is clearly set out in those Conditions; a copy of which is available by request or by downloading from our website.

General Enquiries

T: +44 (0) 1525 217 556 [\(tel:+4401525217556\)](tel:+4401525217556)

E: sales@dynamicmetalsltd.com [\(mailto:sales@dynamicmetalsltd.com\)](mailto:sales@dynamicmetalsltd.com)



UK Address:

Head Office

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

T: +44 (0)1525 217 556 [_\(tel:+441525217556\)](tel:+441525217556)

Conversion Centre

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

T: +44 (0)1143 030 320 [_\(tel:+4401143030320\)](tel:+4401143030320)

Registered Office (only)

The Granary
Crowhill Farm Ravensden Road
Wilden
Bedfordshire
MK44 2QS

T: +44 (0)1525 217 556 [_\(tel:+441525217556\)](tel:+441525217556)