



TECHNICAL DATA SHEET

VTECH
MATERIALS LIBRARY

15-5PH Stainless Steel

Investment Casting - Precipitation Hardening Stainless Steel

Document Control

Document No.	TDS-SS-15-5PH-AMS5347	Revision	A
Issue Date	2026-04-07	Owner	Engineering
Specification	AMS 5347	Product Form / UNS	Investment casting / UNS S15500

Engineering use note: Starter-library values are intended for engineering screening and template standardization. Verify against the latest governing specification, drawing, PO, and MTR before production release.

1. General Description

15-5PH is a martensitic precipitation-hardening stainless steel developed for high strength, good toughness, and improved property uniformity compared with 17-4PH. This starter sheet is aligned to cast product use cases and should be verified against the governing issue of AMS 5347, purchase requirements, and the certified material test report.

2. Chemical Composition (wt%)

Property	Value
Chromium (Cr)	14.0-15.5
Nickel (Ni)	3.5-5.5
Copper (Cu)	2.5-4.5
Niobium + Tantalum (Nb+Ta)	0.15-0.45
Carbon (C)	<=0.07
Manganese (Mn)	<=1.00
Silicon (Si)	<=1.00
Phosphorus (P)	<=0.04
Sulfur (S)	<=0.03
Iron (Fe)	Balance



3. Mechanical Properties

Property	Value
Condition	H1000 (typical reference)
Ultimate tensile strength	≥ 1030 MPa
0.2% yield strength	≥ 900 MPa
Elongation	10-15 %
Hardness	30-40 HRC

4. Physical Properties

Property	Value
Density	7.75 g/cm ³
Elastic modulus	196-200 GPa
Thermal conductivity	17-18 W/m.K
Melting range	1400-1440 C

5. Heat Treatment / Processing

Solution treat and precipitation harden. H1000 aging is commonly used where a balance of strength and toughness is needed. Final practice depends on casting section thickness, foundry route, and acceptance requirements.

6. Corrosion / Environmental Performance

Good corrosion resistance for a precipitation-hardening stainless steel, with useful performance in many atmospheric, mildly corrosive process, and aerospace service environments. Not intended to replace high-molybdenum or duplex grades in aggressive chloride duty.

7. Key Characteristics

- High strength
- Good toughness
- Better transverse property uniformity than 17-4PH
- Good dimensional stability after aging
- Good weldability with procedure control

8. Typical Applications

- Aerospace structural castings
- Valve and pump components
- Turbine and engine hardware
- High-strength corrosion-resistant cast parts

9. Standards & Equivalents

AMS 5347
UNS S15500
Related wrought grade references: AMS 5659 / ASTM A564



10. Notes & Limitations

Use this sheet as a controlled internal reference template. Mechanical values shown are typical starter values and are not a substitute for the governing casting specification or lot-specific certification.