

Trio Labs Material Specifications

17-4 PH Stainless Steel

17-4 PH is a precipitation-hardening martensitic stainless steel, desirable for a combination of strength, hardness, and corrosion and wear resistance. It is usable in a wide range of applications up to 316 °C and has excellent properties in as-sintered or hardened states.

Capabilities

Voxel Size	5 µm
Layer Thickness	5 µm
Minimum Geometry Size	15-35 µm
Minimum Sidewall Thickness	25-40 µm
As-Sintered Surface Roughness (Ra)	0.8 µm (32 µinch)

Composition Properties

Iron	Fe	balance
Chromium	Cr	15.5 - 17.5%
Nickel	Ni	3.0-5.0%
Copper	Cu	3.0-5.0%
Manganese	Mn	< 1.0%
Silicon	Si	< 1.0%
Niobium	Nb	0.15 - 0.45%
Carbon	C	< 0.07%
Phosphorus	P	< 0.04%
Sulfur	S	< 0.03%

Weight fractions per ASTM A564

Material Properties

Property	Standard	Trio Labs 17-4PH as sintered	Trio Labs 17-4PH H900	Comparative Reference Values		
				MIM As-Sintered ¹	MIM H900 ¹	Wrought H900 ²
Tensile Strength	Micro tensile testing based on ASTM E8, adjusted for sample size	1158 MPa	1371 MPa	900 MPa	1190 MPa	1310 MPa
0.2% Yield Strength		952 MPa	1166 MPa	730 MPa	1090 MPa	1170 MPa
Elongation at Break		13.2 %	15.4 %	6 %	6 %	10 %
Hardness	ASTM E18	35 HRC	41 HRC	27 HRC	35 HRC	40 HRC
Relative Density	ASTM B311	97 %	97 %	96 %	96 %	100 %
Corrosion testing	ASTM F1089	Pass	Pass	Pass	Pass	Pass

¹ MPIF 35 typical values

² ASTM A564

These representative data were tested, measured, or calculated using standard methods. Each buyer is responsible for determining that the material is safe, lawful, and technically suitable for the intended application. Trio Labs makes no warranties of any kind, express or implied, including, but not limited to, the warranties of merchantability, fitness for a particular use, or warranty against patent infringement; and assumes no liability in connection with the use of this information. Product specifications are subject to change without notice. Rev. 03/2026