



# STAINLESS STEEL 17-4PH

## FEATURES

- A precipitation-hardening martensitic stainless steel
- Excellent mechanical properties up to approximately 600 °F (316 °C)
- Good welding & machinability
- Good corrosion resistance

## APPLICATIONS

- Medical & Dental
- Defense & Firearms
- Aerospace
- Automotive
- Oil & Gas
- Chemical & food processing industries

## POWDER PROPERTIES

Chemical Composition (wt%)	Minimum	Maximum
Element		
Carbon (C)	-	.07
Manganese (Mn)	-	1
Phosphorus (P)	-	.04
Sulfur (S)	-	.03
Silicon (Si)	-	1
Chromium (Cr)	15	17.5
Nickel (Ni)	3	5
Copper (Cu)	3	5
Niobium & Tantalum (Nb+Ta)	.15	.45
Iron (Fe)	Balance	Balance

Other Elements: Total may not exceed 1.0% combined. Same chemical composition as the built parts. In Accordance with MPIF Standard 35 (2016 Edition), and ASTM UNS S17400 (12th Edition).

## TYPICAL MATERIAL PROPERTIES

	As-sintered	Heat-treated*	Standard
Ultimate Tensile Strength	1000 MPa (145 ksi)	1317 MPa (191 ksi)	ASTM E8/E8M
Yield Strength (0.2% offset)	750 MPa (109 ksi)	1172 MPa (170 ksi)	
Elongation to Failure	7%	10%	
Elastic Modulus	185 GPa (26.8 msi)	-	ASTM E18
Hardness	34 HRC	42 HRC	
Notched Charpy Impact Energy	19 J (14 ft-lbs)	-	ASTM E26
Relative Density	>99%		ASTM B962
Density	7.68 g/cm <sup>3</sup> (0.278 lbs/in <sup>3</sup> )		
Surface Roughness (Ra)	3.0 µm (120 µin)		ASTM B946
Corrosion	Pass		ASTM F1089
Tolerances	± 0.001 in/in**		

\* Heat treatment condition: H900. Additional heat treatment options available upon request.

\*\* ± 0.004 in/in as sintered, ± 0.001 in/in possible with secondary machining operations.

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