



DMLS MATERIAL SPECIFICATIONS

Stainless Steel 17-4 PH

Highlights

- Pre-alloyed, precipitation hardenable stainless steel
- Good welding and machining characteristics
- Good mechanical properties

Applications

- Parts requiring post-production processing
- Oil and gas industry
- Parts requiring ductility and high strength
- Parts requiring high corrosion resistance

Heat Treatment Options

- Annealed: 1900°F for 2 hours in a vacuum
- H900: Hardens part at 900°F in argon for 1 hour
- H1150: Anneals part at 1150°F in argon for 4 hours
- Heat Treatment I: HIP + AMS 5604

Mechanical Properties

	AMS 5604/5643 (Min Req.)	Typical Wrought	DMLS (As Built)	DMLS (HT1)	DMLS (HIP)	DMLS (Annealed)
0.02% Yield	-	-	106 ksi	180 ksi	119 ksi	103 ksi
Ultimate Tensile	-	-	151 ksi	211 ksi	166 ksi	175 ksi
Elongation	-	-	17%	11%	12%	12%
Hardness	=	=	~ 30 HRC	-	=	-

Stainless Steel 17-4 PH Composition

Element	Typical Composition
Carbon (C)	0.07 max
Manganese (Mn)	1.00 max
Phosphorus (P)	0.040 max
Sulfur (S)	0.030 max
Silicon (Si)	1.00 max
Chromium (Cr)	15.00 - 17.50
Nickel (Ni)	3.00 - 5.00
Copper (Cu)	3.00 - 5.00
Niobium Plus Tantalum (Nb, Ta)	0.15 - 0.45

*Chemical analysis for specific lots available upon request.
 The material properties provided herein are for reference purposes only. Actual values may vary significantly as they are dramatically affected by part geometry and process parameters. Material specifications are subject to change without notice.