



Stainless Steel 17-4

DIRECT METAL LASER MELTING MATERIAL SPECIFICATIONS

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 1: HIP + AMS 5604 (SHT+H900)

TYPICAL PHYSICAL PROPERTIES

MECHANICAL PROPERTIES	AMS 5604/5643 (MIN REQ.)	TYPICAL WROUGHT	DMLM (AS BUILT)	DMLM (HT1)	DMLM (HIP)	DMLM (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 PERCENTAGE
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 (Cb, Ta)	0.15 - 0.45

The information presented represents typical values intended for reference and comparison purposes only. It should not be used for design specifications or quality control purposes. End-use material performance can be impacted (+/-) by, but not limited to, part design, end-use conditions, test conditions, color etc. Actual values will vary with build conditions. Product specifications are subject to change without notice. *Chemical analysis for specific lots available upon request.

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