



Stainless 17-4 PH

Description: Stainless Steel 17-4 PH is a pre-alloyed stainless steel in fine powder form. The 17-4 PH stainless steel may be hardened by a precipitation-hardening heat treatment. Excellent mechanical properties at a high strength level may be obtained by such treatment. This material machines well and has excellent welding characteristics. The combination of excellent mechanical and processing properties makes this grade adaptable to a wide variety of applications.

Applications:

- Used where high strength and good corrosion resistance are required
- Applications requiring high fatigue strength, good resistance to galling, seizing, and stress corrosion
- Suitable for intricate parts requiring machining and welding

Carbon (C) = max 0.07%	Phosphorus (P) = max 0.040%
Silicon (Si) = max 1.00%	Chromium (Cr) = 15.00 – 17.50%
Sulfur (S) = max 0.030%	Molybdenum (Mo) = max 0.50%
Nickel (Ni) = 3.00 - 5.00%	Tantalum (Ta) plus Niobium (Nb) = 0.15 – 0.45%
Copper (Cu) = 3.00 - 5.00%	Iron (Fe) = Balance
Manganese (Mn) = max 1.00%	

Stress Relief (SR): Stress relieve at 1900°F for 1 or 2 hours

Solution Heat Treatment (SHT): Solution heat treat at 1900°F for 1 or 2 hours

Aging Heat Treatment: Based on time and temperature

17-4 SR and SHT	MLS	AMS5604/5643	Typical Wrought
YS (ksi)	112.5	160 max	110 – 145
UTS (ksi)	154.4	185 max	150 – 160
Elongation (%)	12.2	3 min	5 – 8
Hardness (HRC)	28.2	39 max	33

17-4 H900	MLS	AMS5604/5643	Typical Wrought
YS (ksi)	182.9	170 min	180 – 200
UTS (ksi)	206.3	190 min	195 – 210
Elongation (%)	11.9	5 – 10 min	7 – 15
Hardness (HRC)	42.7	40 – 47	43 – 45

17-4 H1025	MLS	AMS5604/5643	Typical Wrought
YS (ksi)	163.5	145 min	152 – 170
UTS (ksi)	170.9	155 min	168 – 185
Elongation (%)	12.4	5 – 12 min	8 – 16
Hardness (HRC)	36.5	35 – 42	38

The data above is general information that may vary from machine to machine and supplier to supplier.

3D Material Technologies

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