

13-8 PH Stainless Steel

13-8 PH STAINLESS STEEL DATASHEET

13-8PH stainless steel (also known as 13-8Mo or by the trade name "XM-13"), is an age-hardening martensitic stainless steel with approximately 13% Chromium. 13-8PH stainless steel is typically processed with a two-step refining method. The first melt is VIM (Vacuum Induction Melted), and this is followed by either VAR (Vacuum Arc Remelting) or ESR (Electroslag Remelt). This refining process, like 15-5 ensures 13-8PH stainless steel is capable of sustaining good transverse properties. 13-8PH stainless steel can be heat treated to achieve high strengths and hardness while maintaining good corrosion resistance.

Common industry/applications for 13-8PH stainless steel include: aerospace, food processing, chemical processing, oil and gas, pumps and valves, and fasteners.

Product forms include round bar, plate & strip, and forgings.



Standards

- UNS S13800

Physical Properties

- Density: 0.280LB/in³ (7.76g/cm³)
- Melting Point: 2560–2625°F (1404–1440°C)
- Modulus of Elasticity: 28.3x10⁶psi (195 GPa)

Characteristics

- Good corrosion resistance in all conditions.
- Increased strength and toughness.
- Improved traverse strengths.

Chemical Composition

	C	Mn	S	P	Si	Cr	Ni	Al	Mo
MIN	-	-	-	-	-	12.25	7.50	0.90	2.00
MAX	0.05	0.20	0.01	0.008	0.10	13.25	8.50	1.35	2.50

* Nitrogen (N) = 0.01 Max when intentionally added.

Mechanical Properties

Condition	Tensile (min) KSI (Mpa)	Yield (min) KSI (Mpa)	Elongation (min) %	Reduction of Area (min) % **	Hardness * HRC (BHN)	Charpy Impact (Min) Ft-Lbs **
Annealed	-	-	-	-	38 (363) Max.	-
H900	220 (1515)	205 (1415)	10	40/35	45 (430) Min.	-
H1000	205 (1415)	190 (1310)	10	50/40	43 (400) Min.	-
H1050	185 (1280)	175 (1210)	11	50/45	41 (380) Min.	-
H1075	175 (1210)	165 (1140)	12	50/45	40 (372) Min.	-
H1100	150 (1035)	135 (930)	14	50/50	34 (313) Min.	-
H1150	135 (930)	90 (620)	14	50/50	30 (283) Min.	-
H1150M	125 (860)	85 (585)	16	55/55	26 (259) Min.	55/35 (75/47)

* Charpy values not required as standard.

** Values for material up to 12,000 inch diameter inclusive: Longitudinal/Transverse.

The "H" conditions denote the Aging temperature (excluding H1150M which has a 2-step aging process).

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