

HP2-13CR

HP2-13Cr is a quenched and tempered martensitic stainless steel, used for downhole tubulars components, packers and other subsurface equipment in sweet (CO₂) environments and mild sour (H₂S) environments. NACE MR0175/ISO15156 does not provide guidelines for the use of this alloy in sour service. API 5CRA/ISO13680 classifies it as PSL-1, Group 1, Category 13-5-2 alloy.

NOMINAL COMPOSITION

Chromium 13.0% Nickel 5.0% Molybdenum 2.2% Iron Balance

SPECIFIED MECHANICAL PROPERTIES - API 5CRA / ISO 13680 PSL-1 Group 1 Category 13-5-2

Grade	Yield Strength min. (ksi)	Yield Strength max. (ksi)	Tensile Strength min. (ksi)	Maximum Hardness (HRC)
95	95	110	105	28
110	110	140	115	32

TYPICAL MECHANICAL PROPERTIES

Grade	Yield Strength (ksi)	Tensile Strength (ksi)	Charpy V-Notch Toughness (ft-lbs at 14F)
95	102	118	130
110	115	124	140

TYPICAL PHYSICAL PROPERTIES

		70°F	200°F	350°F
Density	lbs/cu ³ .	0.28	0.28	0.28
Thermal Expansion	X10 ⁻⁶ /deg F		5.9	5.9
Elastic Modulus	psi x 10 ⁶	29.3	28.7	28.2
Poisson Ratio		0.3	0.3	0.3
Thermal Conductivity	Btu/ft h °F	9.1	9.7	10.7
Specific Heat	Btu/lb °F	0.10	0.11	0.12
Yield Strength De-Rating	%	100	91	87