



CRA 13CRS (UNS S41426)

CRA 13CRS 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 Table A19 provides a recommended limit of 1.5 psi partial pressure H₂S. API 5CRA/ISO13680 classifies it as Group 1, Category 13-5-2 alloy acceptable for sour service, in the 95 ksi yield strength condition.

NOMINAL COMPOSITION

Chromium 13% Nickel 5% Molybdenum 2% Iron Balance

API 5CRA / ISO 13680 Group 1 Category 13-5-2

Grade	Yield Strength min. (ksi)	Yield Strength max. (ksi)	Tensile Strength min. (ksi)	NACE MR0175/ISO 15156 Compliant
80	80	95	90	YES
95	95	105	105	YES
110	110	140	115	NO*

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	400°F
Density	lbs/cu ³ .	0.28		
Thermal Expansion	X10 ⁻⁶ /deg F	5.9	5.9	6.0
Elastic Modulus	psi x 10 ⁶	29.3	28.7	28.2
Poisson Ratio		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