

CRA G-3 (UNS N06985)

CRA G-3 is a cold worked nickel-based alloy meeting the severe challenges of wells containing high chlorides, H₂S and temperature. For sour service applications, it is classified in MR0175/ISO15156 as a type 4d alloy, with no restrictions to partial pressure of H₂S below 300F and resistant to 300 psi H₂S at 425°F.

NOMINAL COMPOSITION

Chromium 22%

Nickel 50%

Molybdenum 7%

Iron Balance

SPECIFIED MECHANICAL PROPERTIES - API 5CRA / ISO 13680 Group 4 Category 22-50-7

Grade	Yield Strength min. (ksi)	Tensile Strength min. (ksi)	Elongation min. (%)	NACE MR0175/ISO 15156 Environmental Limits
110	110	115	11	Table A.14 Type 4d
125	125	130	10	Table A.14 Type 4d
140	140	145	9	N/A

TYPICAL MECHANICAL PROPERTIES

Grade	Yield Strength (ksi)	Tensile Strength (ksi)	Charpy V-Notch Toughness (ft-lbs at 14F)
110	130	138	80
125	138	149	67

TYPICAL PHYSICAL PROPERTIES

		70°F	200°F	400°F
Density	lbs/in ³	0.29		
Thermal Expansion	X10 ⁻⁶ /deg F	8.1	8.1	8.1
Elastic Modulus	psi x 10 ⁶	28.9		
Poisson Ratio		0.3		
Thermal Conductivity	Btu/ft h °F	5.8	6.8	8.0
Specific Heat	Btu/lb °F	0.11	0.11	0.11