

## CRA 28 Chrome (UNS N08028)

28 Chrome is typically supplied as a cold worked solid solution nickel-based alloy, capable of meeting the severe challenges of high temperature, high pressure, sour wells. The alloy is classified in MR0175/ISO15156 as a type 4c alloy, with no restrictions to partial pressure of H<sub>2</sub>S below 270F and resistant to 100 psi H<sub>2</sub>S at 425°F.

### NOMINAL COMPOSITION

Chromium 27%

Nickel 31%

Molybdenum 3.5%

Iron Balance

### SPECIFIED MECHANICAL PROPERTIES - API 5CRA / ISO 13680 Group 3 Category 27-31-4

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 4c
125	125	130	10	Table A.14 Type 4c
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	122	130	110
125	132	142	83

### TYPICAL PHYSICAL PROPERTIES

		70°F	200°F	400°F
Density	lbs/in <sup>3</sup>	0.29		
Thermal Expansion	X10 <sup>-6</sup> /deg F	8	8	8.5
Elastic Modulus	psi x 10 <sup>6</sup>	28.3	27.6	26.3
Poisson Ratio		0.3		
Thermal Conductivity	Btu/ft h °F	5.5	7	8.5
Specific Heat	Btu/lb °F	0.11	0.12	0.12