

## CRA C276-160

### COMPOSITION (UNS N10276)

Chromium 14.5 to 16.5 %	Iron 4.0 to 7.0 %	Molybdenum 15.0 to 17.0 %
Tungsten 3.0 to 4.5 %	Nickel balance	

### CORROSION RESISTANCE

Alloy C276 (UNS N10276) is a cold worked nickel-based alloy meeting the severe challenges of high pressure, high temperature sour wells. It is classified in NACE MR0175/ISO15156 Part 3, Table A.14 as a type 4e alloy, with no restrictions to partial pressure of H<sub>2</sub>S below 400F and resistant to 1000 psi H<sub>2</sub>S at 450°F.

### Minimum Mechanical Properties

Yield Strength min. (ksi)	Yield Strength max. (ksi)	Tensile Strength min. (ksi)	Elongation min. (%)	CVN Toughness (ft-lbs) min. @ 14°F
160	180	165	9	20

### TYPICAL MECHANICAL PROPERTIES

7.0 in. OD x 1.0 in. wall CRA C276-160

Temperature	Yield Strength	Tensile Strength	Elongation	Red. of Area
Room Temp	165 ksi	180.5 ksi	21%	74%
250 F	159.3 ksi	166 ksi	21%	67%
350 F	152.8 ksi	160.5 ksi	20%	70%

### TYPICAL PHYSICAL PROPERTIES

		70°F	200°F	400°F
Density	lbs/in <sup>3</sup>	0.32		
Thermal Expansion	X10 <sup>-6</sup> /deg F	6.0	6.2	6.7
Elastic Modulus	psi x 10 <sup>6</sup>	29.8	29.0	28.3
Poisson Ratio		0.3		
Thermal Conductivity	Btu/ft h °F	5.9	6.4	7.5
Specific Heat	Btu/lb °F	0.10	0.10	0.10