

# STAINLESS STEEL

# ALLOY 209



## Alloy 209 (UNS S20910) - XM-19 - 22-13-5 - WNR 1.3964

Alloy 209 (UNS S20910/1.3964) is a fully austenitic nitrogen strengthened stainless steel, having twice the yield strength and superior corrosion resistance at room temperature when compared to 316/316L or 317/317L stainless steels.

This grade does not become magnetic when cooled to sub-zero temperatures or to a cold working process and has high resistance to sulphide stress corrosion cracking in both annealed and cold worked/ cold worked & aged form up to 30 HRc hardness.

### AVAILABLE TUBE PRODUCT FORMS

STRAIGHT

SEAMLESS

### TYPICAL MANUFACTURING SPECIFICATIONS

ASTM A269,

ASTM A213,

ASTM A312

XM-19

Also, individual customer specifications.

### TYPICAL APPLICATIONS

PROCESSING & CHLORATE MANUFACTURING

MARINE APPLICATIONS

LIGHT WATER REACTORS

### INDUSTRIES PREDOMINANTLY USING THIS GRADE

CHEMICAL PROCESSES

ENERGY GENERATION



## Technical Data

### MECHANICAL PROPERTIES (Room Temperature)

Property	Annealed Temper	Cold Worked & Aged Temper
0.2% Yield (Rp = 0.2)	55 ksi (380 MPa) minimum	160 ksi (1100 MPa) minimum
Tensile Rm	100 ksi (690 MPa) minimum	165 ksi (1140 MPa) minimum
Elongation (2"gl)	35% minimum	10% minimum
Hardness	265 HV maximum	290 HV minimum

### PHYSICAL PROPERTIES (Room Temperature)

Specific Heat (0-100°C)	134	J/kg/°K
Thermal Conductivity @ 100°C	15.6	W/m/°K
Thermal Expansion	16.2	µm/µm/°C
Modulus Elasticity	199	GPa
Electrical Resistivity	82	Ohm-cm
Density	7.88	g/cm <sup>3</sup>

### CHEMICAL COMPOSITION

(% by weight)

Element	Min	Max
C	-	0.06
Mn	4.0	6.0
P	-	0.045
S	-	0.030
Si	-	1.00
Cr	20.5	23.5
Ni	11.5	13.5
Mo	1.50	3.00
Nb	0.10	0.30
V	0.10	0.30
N	0.20	0.40
Fe	Balance	