



# HSM Wire International, Inc

Ph: 330-244-8501 Fax: 330-244-8561

www.hsmwire.com



## Alloy 310 & 310S Stainless Steel

**Description:** Alloy 310/310S is a austenitic stainless steel. Its high chromium and nickel content provides corrosion resistance, superior resistance to oxidation, and the retention of a larger fraction of room temperature strength than the common austenitic Alloy 304.

**Applications:** This alloy is considered for a variety of applications with equipment and utensils for processing and handling of food, beverages and dairy products. Heat exchangers, piping, tanks and other process equipment in contact with fresh water use these alloys.

Nominal Composition:	C	Mn	P	S	Si	Cr	Ni
	0.25	2.00	0.045	0.030	1.75	24 - 26	19 - 22
	Fe						
	Balance						

### Minimum Mechanical Properties

Temp. (°F / °C)	Yield Strength ksi (MPa)	Tensile Strength ksi (MPa)	Elongation (%)
77 / 25	45.6 ( 314 )	90.5 ( 624 )	42.6
200 / 93	41.4 ( 286 )	83.4 ( 575 )	41.3
400 / 204	36.9 ( 254 )	77.3 ( 533 )	35.8
600 / 316	34.6 ( 239 )	75.2 ( 519 )	35.0
800 / 427	30.3 ( 209 )	73.6 ( 508 )	33.5
1000 / 538	29.4 ( 203 )	70.2 ( 484 )	37.0
1200 / 649	25.8 ( 178 )	57.0 ( 393 )	32.0
1400 / 760	21.4 ( 147 )	37.7 ( 260 )	54.0
1600 / 871	16.1 ( 111 )	22.5 ( 155 )	56.5
1800 / 982	8.2 ( 56 )	11.8 ( 81 )	93.3
2000 / 1093	4.0 ( 27 )	6.5 ( 44 )	121.0

### Typical Physical Properties at Room Temperature

Density	8.03 g/cu cm.	0.29 lb/cu in.
Modulus of elasticity in tension (Annealed)	29 x 10 <sup>6</sup> psi	200 GPa
Modulus of elasticity in Shear	11.2 x 10 <sup>6</sup> psi	77 Gpa

### Coefficient of Linear Thermal Expansion

Temp. Range		(µin/in)·°F	(µm/m)·°K
°F	°C		
68 - 212	20 - 100	8.8	15.9
68 - 932	20 - 500	9.5	17.1
68 - 1832	20 - 1000	10.5	18.9

\*To be used as a guideline only.

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Thermal Conductivity				
Temp. Range		W/m·K		Btu/hr·ft·°F
68 - 212°F / 20 - 100°C		13.8		8.0
68 - 932°F / 20 - 500°C		18.7		10.8
Specific Heat				
Temp. Range		J/kg·K		Btu/lb <sub>m</sub> ·°F
32 - 212°F / 0 - 100°C		502		0.12
Electrical Resistivity				
Temperature			μΩ·in	μΩ·cm
20°C		68°F	30.7	78.0
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