



800-722-5029
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201 Stainless Steel

DESCRIPTION

Type 201 Stainless Steel is an austenitic chromium-nickel-manganese stainless steel which was developed to conserve nickel. Type 201 is a lower cost alternative to conventional Cr-Ni stainless steels such as 301 and 304. Nickel is replaced by additions of manganese and nitrogen. It is non-hardenable by thermal treatment, but may be cold worked to high tensile strengths. Type 201 is essentially nonmagnetic in the annealed condition and becomes magnetic when cold worked. Type 201 can be substituted for Type 301 in many applications.

PRODUCT FORMS

Sheet, Strip

SPECIFICATIONS

ASTM A240, A666

APPLICATIONS

Typical applications for Types 201 are cookware, hose clamps, piston rings, transit car structural member, transit car roofing/siding, thermal window spacers, air bag containers, and truck trailer posts and door frames.

PROCESSING

The annealing temperature for Type 201 is between 1850-2000°F. Rapid cooling through the carbide precipitation range (1500 – 800 o F) is necessary to keep the carbides in solution and prevent sensitization. Type 201 is not hardenable by thermal treatment; it is only hardenable by cold working.

FORMING

Type 201 has similar bending, forming and drawing characteristics to Type 301 stainless steel

WELDING

Type 201 can be welded by all conventional methods applied to 18 percent chromium, 8 percent nickel steels. Filler metal of the conventional chromium-nickel analyses can be used. Like other austenitic stainless steels where carbon is not controlled below 0.03%, Type 201 is susceptible to intergranular corrosion in the weld heat affected zone.

CORROSION

Type 201 is resistant to a wide variety of mild to moderately corrosive environments. It has corrosion resistance approaching that of Types 301 and has been successfully substituted for 304 in many mild environments.



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CHEMICAL COMPOSITION

Element	Type 201
Carbon	0.15 max.
Manganese	5.5 - 7.5
Sulfur	0.030 max.
Phosphorus	0.060 max.
Silicon	1.0 max.
Chromium	16.0 - 18.0
Nickel	3.5 - 5.5
Nitrogen	0.25 max.

MECHANICAL PROPERTIES

Type	Yield Strength 0.2% offset (KSI)	Tensile Strength (KSI)	% Elongation (2" Gauge Length)
201 Ann	38 min.	75 min.	40.0 min.
201 1/4 Hard	75 min.	125 min.	25.0 min,
201 1/2 Hard	110 min.	150 min.	18.0 min.
201 3/4 Hard	135 min.	175 min.	12.0 min.
201 Full Hard	145 min.	185 min.	9.0 min.



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PHYSICAL PROPERTIES

Density (lb./in ³) @ RT		0.283
Modulus of Elasticity in Tension (psi x 10 ⁶)		28.6
Specific Heat (BTU/o F/lb.)	32 to 212 oF	0.12
Thermal Conductivity (BTU/hr/ft ² /ft)	212 oF	9.4
Mean Coefficient of Thermal Expansion (in. x 10 ⁻⁶ per o F)	32 to 212 oF	8.7
	32 to 600 oF	9.7
	32 to 1,000 oF	10.2
Electrical Resistivity (micro ohms - cm)	at 70 oF	69
Melting Point Range (oF)		2550/2650
Oxidation Resistance - Continuous Service (oF)		1550
Oxidation Resistance - Intermittent Service (oF)		1500