800-722-5029
www.nks.com

301 Stainless Steel

DESCRIPTION

Type 301 Stainless Steel is an austenitic chromium-nickel stainless steel that provides high strength and good ductility when cold worked. The chromium and nickel contents are lowered to increase the cold work-hardening rate. This generates higher tensile strengths when cold rolled with a lower loss of ductility than with Types 302 and 304. The grade is essentially non-magnetic when annealed. When cold worked, it becomes slightly more magnetic than other standard austenitic stainless steels. NKS is your stainless steel distributor for 301 Stainless Steel.

PRODUCT FORMS

Sheet, Strip

SPECIFICATIONS

ASTM A240, A666 Typical

APPLICATIONS

Typical uses include springs, structural parts, trailer bodies, diaphragms, utensils, architectural and automotive trim, hose clamps, wheel covers, roofing products, kitchen utensils

PROCESSING

Type 301 is non-hardenable by heat treatment. Annealing: Heat to 1900 – 2050°F (1038 – 1121°C), then water quench. Stress Relief Annealing: Heat to 500 – 900°F (260 – 482°C), then air cool.

FORMING

Type 301 can be formed and drawn. Due to its high work-hardening rate, intermediate annealing may be necessary for severe drawing and forming operations.

WELDING

301 has similar weldability to the most common 18-8 stainless alloys. The major difference is the high C content of this alloy, which causes the weld heat affected-zones to be susceptible to accelerated corrosion in certain environments. When filler is needed, AWS E/ER 308 is most often specified.

CORROSION

Type 301 exhibits corrosion resistance comparable to Types 302 and 304 in the mild service conditions. Resistance to atmospheric corrosion, food, juices and road de-icing salt is excellent. The best corrosion resistance is obtained in the annealed condition.

800-722-5029
www.nks.com

301 Stainless Steel

CHEMICAL COMPOSITION

Element	Type
Carbon	0.15 max.
Manganese	2.00 max.
Sulfur	0.030 max.
Phosphorus	0.045 max.
Silicon	0.75 max.
Chromium	16.00-18.00
Nickel	6.00-8.00
Nitrogen	0.10 max.

MECHANICAL PROPERTIES

Type	**Yield Strength 0.2% off-set** (KSI)	**Tensile Strength** (KSI)	**% Elongation** (2” Gauge Length)
301 Ann (typical)	40	110 min.	60
301 1/4 Hard	75 min.	125 min.	25 min.
301 1/2 Hard	110 min.	150 min.	18 min.
301 3/4 Hard	135 min.	175 min.	12 min
301 Full Hard	145 min.	185 min.	8 min

800-722-5029
www.nks.com

301 Stainless Steel

PHYSICAL PROPERTIES

Density (lb./in^2) @ RT		0.285
Modulus of Elasticity in Tension (psi x 10^6)		28.0
Specific Heat (BTU/o F/lb.)	32 to 212 oF	0.12
Thermal Conductivity (BTU/hr/ft^2/ft)	212oF	9.4
	932oF	12.4
Mean Coefficient of Thermal Expansion (in. x 10^-6 per o F)	32 to 212 oF	9.4
	32 to 600oF	9.9
	32 to 1,200oF	10.2
	at 70oF	10.4
Electrical Resistivity (micro ohms - cm)		27.4
Melting Point Range (oF)		2500 - 2590
Oxidation Resistance - Continuous Service (oF)		1600
Oxidation Resistance - Intermittent Service (oF)		1450