



Ferritic Stainless Steel NAS 501	
ASTM Designation	EN Designation
430	1.4016
S43000	X6Cr17

DESCRIPTION

NAS 501 is the base alloy in the ferritic group. It exhibits good resistance in corrosive environments or atmospheric exposures, as well as sulphurous gases. It is ductile in annealed condition and can be formed by rolling, folding or drawing operations. It is not excessively hardened during cold working.

CHEMICAL COMPOSITION

C	Si	Mn	P	S	Cr	Ni
≤ 0.120	≤ 1.00	≤ 1.00	≤ 0.040	≤ 0.030	16.00-18.00	≤ 0.75

APPLICATIONS

- Home electrical appliances
- Cutlery
- Household
- Indoor decoration

MECHANICAL PROPERTIES AFTER COLD ROLLING AND FINAL ANNEALING

UTS	65 ksi min
0.2% YS	30 ksi min
Elongation	22% min
Hardness	max 89 HRB

PHYSICAL PROPERTIES

At 68 °F, it has a density of 0.276 lb/in³ and a specific heat of 0.11 Btu/lb/°F

Modulus of Elasticity (x10 ⁶ psi)	29.0
Coefficient of Thermal Expansion, 68-212°F, /°F	5.7 x 10 ⁻⁶
Thermal conductivity (Btu/hr•ft•°F)Ⓔ	13.8
Electrical resistivity (Micro ohm-in)	23.6

WELDING

The recommended consumable electrodes are:

Shielded electrodes	Wires and rods	Hollow electrodes
E 17 or 19 9 L	G 17 or 19 9 L (GMAW) W 17 or 19 9 L (GTAW)	T 17 or T 19 9 L
309L	P 17 or 19 9 L (PAW) S 17 or 19 9 L (SAW)	309L
316L	309L 316L	316L

CORROSION RESISTANCE

NAS 501 exhibits good corrosion resistance in a large variety of environments. For instance, this stainless steel has a corrosion rate lower than 0.004 in/year in the following media:

- 10% hydrogen peroxide at 70°F.
- 40% nitric acid at boiling temperature.
- 10% acetic acid at boiling temperature.
- 50% citric acid at 70°F.
- 10% boric acid at 70°F.
- 20% sodium hydroxide at 120°F.
- 10% benzoic acid at 70°F.

STRESS CORROSION CRACKING

NAS 501 exhibits good stress corrosion cracking resistance, as most ferritic stainless steels.

ATMOSPHERIC CORROSION

NAS 501 has a good resistance to atmospheric corrosion in indoor applications. When it is used in more aggressive environments, a frequent cleaning is necessary to prevent superficial stains.

HIGH-TEMPERATURE OXIDATION RESISTANCE

NAS 501 shows good oxidation resistance up to 1600°F for discontinuous thermal cycles and up to 1450 - 1500°F for continuous treatment. The oxide scale formed is strongly adhered to the surface, and it is difficult to remove by sudden temperature changes.

SURFACE CLEANING

Wash the surface with neutral soap and water applied with a cloth or a brush without scratching the surface. Then, always rinse the stainless steel with water to remove completely the cleaning agent. Finally, it is recommended to dry the surface to preserve a good superficial condition. In severe environments, a frequent cleaning is strongly recommended.

SPECIFICATIONS

It can be delivered according to ASTM A-240 and EN 10088-2 standard requirements.