



Austenitic Stainless Steel NAS 350	
ASTM Designation	EN Designation
310S	1.4845
S31008	X8CrNi25-21

DESCRIPTION

Refractory austenitic stainless steel NAS 350 has high mechanical resistance, toughness and excellent high-temperature oxidation resistance, as a result of its high chromium and nickel content. The low carbon level reduces carbide precipitation during welding or high temperature applications. It is more resistant to high-temperature oxidation than NAS 205.

CHEMICAL COMPOSITION

C	Si	Mn	P	S	Cr	Ni
≤ 0.080	≤ 1.50	≤ 2.00	≤ 0.045	≤ 0.030	24.00-26.00	19.00 - 22.00

APPLICATIONS

- Electrical resistances
- Furnaces
- High-temperature applications
- Air heaters

MECHANICAL PROPERTIES AFTER COLD ROLLING AND FINAL ANNEALING

UTS	75 ksi min
0.2% YS	30 ksi min
Elongation	40% min
Hardness	max 95 HRB

PHYSICAL PROPERTIES

At 68 °F, it has a density of 0.290 lb/in³ and a specific heat of 0.12 Btu/lb/°F

Modulus of Elasticity (x10 ⁶ psi)	29
Coefficient of Thermal Expansion, 68-212°F, /°F	8.8 x10 ⁻⁶
Thermal conductivity (Btu/hr•ft•°F)☒	8
Electrical resistivity (Micro ohm-in)	30.7

WELDING

The recommended consumable electrodes are:

Shielded electrodes	Wires and rods	Hollow electrodes
E 25 20	G 25 20 (GMAW) W 25 20 (GTAW)	T 25 20
ER 310	P 25 20 (PAW) S 25 20 (SAW)	ER 310
ER Ni Cr 3	ER 310 ER Ni Cr 3	ER Ni Cr 3

**CORROSION
RESISTENCE**

These steels are optimized at high temperature. When used in other media, these steels are equivalent to any other general purpose austenitic stainless steel.

**PITTING
CORROSION**

As any Cr-Ni steel, NAS 350 can be successfully used in chloride media with a concentration not higher than 100 ppm.

**HIGH-
TEMPERATURE
OXIDATION
RESISTANCE**

As a result of their high chromium and nickel content, these steels have high corrosion resistance at high temperatures.

Maximum operating temperatures for NAS 350 in continuous working in different media are:

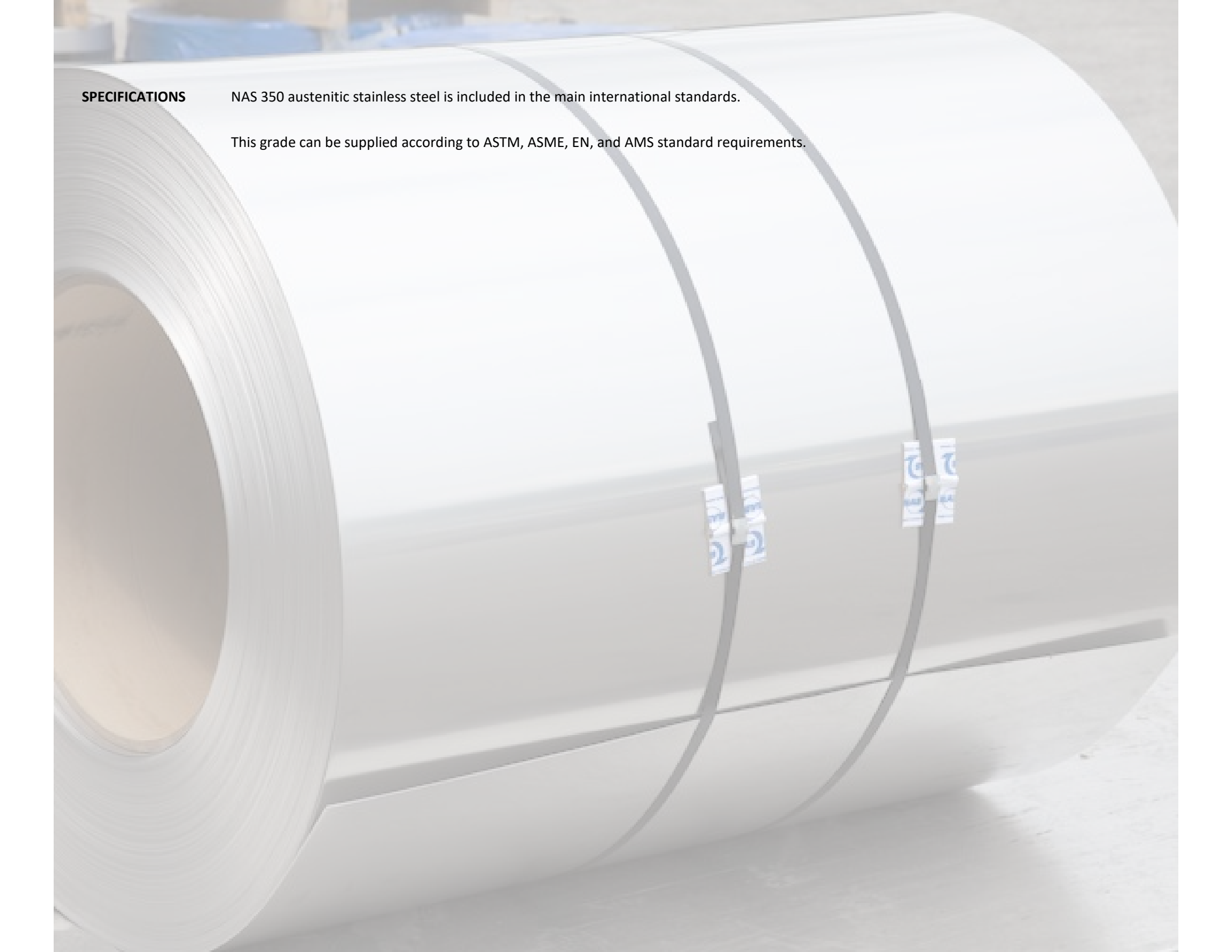
- (a) Oxidizing media 1920°F
- (b) Oxidizing media with sulphur 1830°F
- Carburizing reducing media 1740°F
- Sulphidizing reducing media 1550°F

When the environment is not continuously oxidizing, the thermal death points are smaller than the ones above (a,b) and they depend on the cycling frequency. In any case they should not exceed 1740°F.

It is recommended in case of thermal crash risk and it is better in carburizing media than NAS 205. It can also be used in fused salt baths.

**SURFACE
CLEANING**

Wash the surface with neutral soap and water applied with a cloth or a brush without scratching the stainless steel. 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

NAS 350 austenitic stainless steel is included in the main international standards.

This grade can be supplied according to ASTM, ASME, EN, and AMS standard requirements.