

UNS S31000

AUSTENITIC STAINLESS STEEL

UNS S31000 is a high chromium-nickel austenitic stainless steel, known for its excellent oxidation resistance and high temperature strength. It offers superior resistance to carburization and is widely used in high temperature and corrosive environments.



1. CHEMICAL COMPOSITION (TYPICAL)

Element	C	Mn	Si	P	S	Cr	Ni	N
UNS S31000 (Wt. %)	≤ 0.25	≤ 2.00	≤ 1.50	≤ 0.045	≤ 0.030	24.0 – 26.0	19.0 – 22.0	≤ 0.25

2. MECHANICAL PROPERTIES (TYPICAL)

Property	Metric Units	Imperial Units
Tensile Strength, Rm	≥ 520 MPa	≥ 75 ksi
Yield Strength (0.2% Offset), Rp0.2	≥ 205 MPa	≥ 30 ksi
Elongation, A	≥ 40 %	≥ 40 %
Hardness (HB)	≤ 217 HB	≤ 217 HB

3. PHYSICAL PROPERTIES (TYPICAL)

Property	Value
Density	7.98 g/cm ³
Melting Range	1400 – 1455 °C
Specific Heat (20 °C)	0.50 kJ/kg·K
Thermal Conductivity (100 °C)	14.2 W/m·K
Mean Coefficient of Thermal Expansion (20–100 °C)	16.0 × 10 ⁻⁶ /°C
Electrical Resistivity (20 °C)	0.77 μΩ·m

APPLICABLE STANDARDS (FOR REFERENCE)

ASTM A276 / A276M | ASTM A182 | ASTM A193 | ASTM A194

KEY FEATURES

-  Excellent oxidation resistance up to 1100 °C
-  High temperature strength
-  Good resistance to carburization and sulfidation
-  Suitable for severe and corrosive environments
-  Commonly used in furnace components, heat treatment equipment, petrochemical, power and process industries