6% Molybdenum Superaustenitic Stainless Steel with Outstanding Resistance to Chloride Pitting, Crevice Corrosion and Stress-Corrosion Cracking

SSC-6MO (UNS N08367) is a superaustenitic 6% molybdenum alloy that exhibits far greater resistance to chloride pitting, crevice corrosion and stress-corrosion cracking than the standard 300 series and standard duplex stainless steels. It also serves as a cost-effective substitute for more expensive nickel-base alloys in applications where excellent corrosion resistance, strength, formability and weldability are essential. Designated as (UNS N08367), SSC-6MO competes directly with Alloy AL6XN®.

The high nickel (24%) and molybdenum (6.5%) contents contribute to the alloys chloride stress-corrosion cracking resistance, while the molybdenum content also provides resistance to chloride pitting. The high levels of chromium (21%), molybdenum and nitrogen (0.22%) all serve to produce exceptional corrosion resistance.

Due to its high nitrogen content, SSC-6MO has higher tensile strength than the common austenitic stainless steels. The ASME design-stress allowances for SSC-6MO are up to 75% higher than 316L and more than two times those of the copper-nickel alloys.

The toughness and ductility of SSC-6MO provide for ease of fabrication. SSC-6MO welds and forms much more readily than any super duplex or high alloy ferritic stainless steel with comparable corrosion resistance.

One of the advantages of nitrogen-enriched stainless steels such as SSC-6MO and duplex alloys is their higher strength levels in comparison to conventional austenitic stainless steels. Higher strength levels, coupled with the corrosion resistance of SSC-6MO, allows for construction of units with thinner cross-sections. SSC-6MO is rated for stresses over 66% higher than 316L at 200 F. It also maintains its strength at high temperatures. SSC-6MO is readily fabricated using standard practices for austenitic stainless steels.

- Air Pollution Control
  - Coal-fired power plant FGD systems
- Chemical Processing Equipment
- Food and Beverage Process Equipment
- Mining
  - Coal mining wastewater brine treatment
  - Gold mining pollution control units
- Offshore Oil and Gas Production
  - Seawater filtration, heat exchangers, piping systems
- Petroleum Refining
- Pharmaceuticals and Biotechnology
  - Process equipment and piping systems
- Power Generation
  - Condensers, pumps, feed-water heaters, piping systems
- Pulp and Paper
  - Chlorine dioxide bleaching plants
- Seawater Treatment
  - Desalination systems

A 240, B 688 SA 240, SB 688

24.3	20.6	6.3	0.21

0.01	0.4	0.3	0.02	0.25	0.001	Balance*

*Alloy predominates remaining composition. Other elements may be present only in minimal quantities.

0.290 lb/in^3
8.02 g/cm^3

0.11 BTU/lb-°F
500 Joules/kg°K

1.003 Oersted (u at 200H)

535 Ohm circ mil/ft
0.89 u cm

6.8 Btu-ft/hr-ft^2-°F (68-212°F)
11.8 W/m-k (20 – 100°C)

2470 – 2560°F
1354 – 1404°C

8.49 10-6/°F (68 – 212°F)
15.3 10-6/°C (20 – 100°C)

28.3 psi x 10.6 (75°F)
195 MPa (24°C)

®AL6XN is a registered trademark of Allegheny-Ludlum Corporation

Alloy SSC-6MO 06/2014
rev 02/2023 PDF link

SANDMEYER STEEL COMPANY
ONE ANDME E LANE PHILADELPHIA, PA 19116-3598
800-523-3663 +1-215-464-7100 FA +1-215-677-1430

SSC-6MO is excellent in acetic, formic and phosphoric acids, as well as, sodium bisulfate. It is satisfactory in oxalic acid, sodium hydroxide and sullfamic acids but unsatisfactory in 10% sulfuric acid solutions. The overall general corrosion resistance of SSC-6MO in boiling test solutions is superior to 316L and 317L, and comparable to 904L and 276.

The resistance of SSC-6MO to dilute (less than 15%) sulfuric acid at all temperatures up to the boiling point and to concentrated (greater than 85%) solutions at low temperatures is good for an austenitic stainless steel. In pure sulfuric acid, SSC-6MO performs significantly better than 316L and