

AL-6XN® alloy

UNS N08367

Applicable Specifications

Wire & Bar | ASTM B691, ASTM A580

Description: AL-6XN® alloy is a corrosion resistant iron-base super-austenitic stainless steel specifically designed for seawater resistance. The alloy surpasses the performance of conventional duplex stainless steels and can be a lower-cost alternative than other nickel-base alloys. AL-6XN® also has resistance to a wide range of other corrosive environments, including protection from chloride induced stress corrosion cracking and pitting/crevice corrosion in oxidizing solutions.

Applications include: Mixing tanks, Heat exchangers, Extraction/distillation columns, Pipes, Pumps, Food processing equipment, Caustic chloride systems, Springs

Industries supplied include: Chemical Processing, Oil & Gas, Nuclear Power Generation, Food Processing

Nominal Composition

| | C | Mn | P | S | Si | Ni | Cr | Mo | N | Cu | Fe |
|-----|-------|------|-------|-------|------|------|-------|------|------|------|-----|
| min | - | - | - | - | - | 23.5 | 20.00 | 6.00 | 0.18 | - | Bal |
| max | 0.030 | 2.00 | 0.040 | 0.030 | 1.00 | 25.5 | 22.00 | 7.00 | 0.25 | 0.75 | - |

Physical Properties

| | At 70°F | At 20°C |
|---------------------------|-----------------------------------|-------------------------|
| Density | 0.291 lb/in ³ | 8.06 g/cm ³ |
| Modulus of Elasticity (E) | 28.3 x 10 ³ ksi | 195 GPa |
| Modulus of Rigidity (G) | 10.8 x 10 ³ ksi | 74 GPa |
| Coefficient of Expansion | 7.9 µin/in-°F (70-212°F) | 14.2 µm/m-°C (20-100°C) |
| Electrical Resistivity | 35 µohm-in | 89.0 µohm-cm |
| Thermal Conductivity | 7.5 Btu-in/ft ² -hr-°F | 14.1 W/m-°C |

Typical Mechanical Properties

| Condition | Heat Treatment | Tensile Strength | Suggested Operating Conditions |
|-----------|--|------------------------|-----------------------------------|
| Annealed | 2030-2192°F (1110-1200°C) | 100-130 ksi (MPa) | -320°F to 800°F (-196°C to 427°C) |
| Spring | Stress Relieve 800-900F (427-482°C) | 190 ksi min (1034 MPa) | Up to 800°F (427°C) |

AL-6XN® is a registered trademark of ATI Properties, Inc.

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