

J301/J301L /J301LN

AUSTENITIC STAINLESS STEEL

General Characteristics:

301 is an austenitic stainless steel with lower Cr & Ni than 304 to improve its work hardening rate at lower cost. Excellent mechanical property & corrosion resistance make it suitable for application like transportation, architectural and electrical equipment etc.

301L is low carbon variety of 301 grade to avoid carbide precipitation during welding. 301LN is another variety with high nitrogen for better strength and corrosion resistance.

Chemical Composition:

| JSL | ASTM | | %C | %Mn | %S | %P | %Si | %Ni | %Cr | %N |
|--------|-------|-----|------|-----|------|-------|-----|-----|-----|------|
| J301 | 301 | Min | - | - | - | - | - | 6 | 16 | - |
| | | Max | 0.15 | 2 | 0.03 | 0.045 | 1 | 8 | 18 | 0.1 |
| J301L | 301L | Min | - | - | - | - | - | 6 | 16 | - |
| | | Max | 0.03 | 2 | 0.03 | 0.045 | 1 | 8 | 18 | 0.2 |
| J301LN | 301LN | Min | - | - | - | - | - | 6 | 16 | 0.07 |
| | | Max | 0.03 | 2 | 0.03 | 0.045 | 1 | 8 | 18 | 0.2 |

Mechanical Properties:

| Grade | Mechanical properties | UTS (MPa) | YS (MPa) | %EL | Hardness(HRB) |
|-------|-----------------------|-----------|----------|------|---------------|
| 301 | ASTM A240 | ≥ 515 | ≥ 205 | ≥ 40 | ≤ 95 |
| 301L | ASTM A240 | ≥ 550 | ≥ 220 | ≥ 45 | ≤ 100 |
| 301LN | ASTM A240 | ≥ 550 | ≥ 240 | ≥ 45 | ≤ 100 |

Mechanical Properties of different tempers:

| Temper roll name | Y.S | | U.T.S | | %EL |
|---------------------|-----|-----|-------|------|------|
| | Min | Max | Min | Max | |
| Low tensile(LT) | 221 | - | 552 | - | ≥ 45 |
| Deadlite panel(DLT) | 345 | 482 | 689 | 862 | ≥ 40 |
| Special tensile(ST) | 414 | 552 | 758 | 931 | 35 |
| Medium tensile(MT) | 482 | 655 | 828 | 999 | 25 |
| High tensile(HT) | 689 | 827 | 931 | 1138 | 20 |

Physical Properties:

| <i>Density (Kg/m³)</i> | <i>Modulus of Elasticity (GPa)</i> | <i>Thermal Conductivity (W/m °C)</i> | <i>Thermal expansion Coefficient(W/m. °C) (20-100°C)</i> | <i>Electrical Resistivity (μΩm)</i> |
|---------------------------------------|--|--|--|---|
| 7910 | 193 | 16.3 | 16.9 | 0.72 |

Products available:

Hot Rolled Plates & Coil, Cold Rolled Coil & Sheets

Applications:

301/301L/301LN-Transportation cars such as railway/metro coaches, subway cars, electrical equipment, endless belts, aircraft structural parts, trailer bodies and architectural parts etc.

301L tempers-Transportation cars such as railway coaches, wagons, fixtures for construction purposes, electrical equipment and endless belts, springs, automotive gaskets

Corrosion Resistance:

Corrosion resistance is almost equivalent to 304 grade in mild corrosion environment.

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J304/J304L /J304H

General Characteristics:

304 is most popular and versatile austenitic stainless steel grade with excellent corrosion resistance, formability, deep drawability and weldability.

304L is lower carbon version of 304 for excellent intergranular corrosion resistance. So, 304L can be extensively used in welded condition and does not require any post weld heat treatment.

304H is high carbon variant of 304 grade with higher strength above 450°C.

304LN is a nitrogen-strengthened variant of 304L. By means of solid solution strengthening, nitrogen provides significantly higher yield and tensile strength than 304L without adversely affecting ductility, corrosion resistance or non-magnetic properties.

Chemical Composition:

| JSL | ASTM | | %C | %Mn | %S | %P | %Si | %Ni | %Cr | %N |
|--------|-------|-----|-------|-----|------|-------|------|-----|-----|------|
| J304 | 304 | Min | - | - | - | - | - | 8 | 18 | - |
| | | Max | 0.07 | 2 | 0.03 | 0.045 | 0.75 | 12 | 20 | 0.10 |
| J304L | 304L | Min | - | - | - | - | - | 8 | 18 | - |
| | | Max | 0.030 | 2 | 0.03 | 0.045 | 0.75 | 12 | 20 | 0.10 |
| J304H | 304H | Min | 0.04 | - | - | - | - | 8 | 18 | - |
| | | Max | 0.10 | 2 | 0.03 | 0.045 | 0.75 | 12 | 20 | 0.10 |
| J304LN | 304LN | Min | - | - | - | - | - | 8 | 18 | 0.10 |
| | | Max | 0.030 | 2 | 0.03 | 0.045 | 0.75 | 12 | 20 | 0.16 |

Mechanical Properties:

| Grade | Mechanical properties | UTS (MPa) | YS (MPa) | %EL | Hardness(HRB) |
|-------|-----------------------|-----------|----------|------|---------------|
| 304 | ASTM A240 | ≥ 515 | ≥ 205 | ≥ 40 | ≤ 92 |
| 304L | ASTM A240 | ≥ 485 | ≥ 170 | ≥ 40 | ≤ 92 |
| 304H | ASTM A240 | ≥ 515 | ≥ 205 | ≥ 40 | ≤ 92 |
| 304LN | ASTMA240 | ≥ 515 | ≥ 205 | ≥ 40 | ≤ 95 |

Physical Properties:

| <i>Density (Kg/m³)</i> | <i>Modulus of Elasticity (GPa)</i> | <i>Thermal Conductivity (W/m °C)</i> | <i>Thermal Expansion coefficient(W/m °C)</i> | <i>Electrical Resistivity (μΩm)</i> |
|---------------------------------------|--|--|--|---|
| 7910 | 195 | 16.3 | 17.3 | 0.72 |

Products available:

Hot Rolled Plates & Coil, Cold Rolled Coil & Sheets

Applications:

304-Transport, chemical, petrochemical and fertilizers industries, dairy, food processing, pharmaceutical industries, hospital equipment, cryogenic vessels, households as utensils & appliances , heat exchangers, machinery in paper, pulp, textile and beverage industries; architectural applications like panels, curtain walls, roofing etc

304H-petroleum refineries, boilers, heat exchangers, condensers, pipelines, cooling towers, steam exhausts, and electric generation plants, also be found in fertilizer and chemical plants

304L-Tanks and containers for a large variety of liquids and solids, Process equipment in the mining, chemical, cryogenic, food, dairy and pharmaceutical industries

304LN- Heat exchanger, Chemical industry, food industry, petroleum industry, fabrication industry, nuclear industry, Railroad cars, pressure vessel, flanges and valves.

Corrosion Resistance:

These grades exhibit excellent resistance to wide range of atmosphere and corrosive media like petroleum, food, pharmaceutical, textile etc.

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J305

AUSTENITIC STAINLESS STEEL

General Characteristics:

305 grade is austenitic stainless steel that can be spun and deep drawn more easily due to an increased Ni content that decreases work hardening.

Chemical Composition:

| JSL | ASTM | | %C | %Mn | %S | %P | %Si | %Ni | %Cr |
|------|------|-----|------|-----|------|-------|-----|-----|-----|
| J305 | 305 | Min | - | - | - | - | - | 10 | 17 |
| | | Max | 0.12 | 2 | 0.03 | 0.045 | 1 | 13 | 19 |

Mechanical Properties:

| Grade | Mechanical properties | UTS (MPa) | YS (MPa) | %EL | Hardness(HRB) |
|-------|-----------------------|-----------|----------|------|---------------|
| J305 | ASTM A240 | ≥ 515 | ≥ 205 | ≥ 40 | ≤ 88 |

Physical Properties:

| Density (Kg/m ³) | Modulus of Elasticity (GPa) | Thermal Conductivity (W/m °C) | Thermal Capacity (W/m °C) | Electrical Resistivity (μΩm) |
|------------------------------|-----------------------------|-------------------------------|---------------------------|------------------------------|
| 7930 | 193 | 16.2 | 17.3 | 0.72 |

Products available:

Hot Rolled Plates & Coil, Cold Rolled Coil & Sheets

Applications:

Any application requiring maximum formability such as spun or deep drawn eyelets, barrels, shells, cold headed rivets or screws will work well

Corrosion Resistance:

Type 305 is suitable in wide variety of atmosphere in the chemical, textile, petroleum, dairy and food industries. This grade also provides good oxidation resistance at air up to 900°C.

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J309S

AUSTENITIC STAINLESS STEEL

General Characteristics:

Type 309S is an austenitic chromium-nickel stainless steel which is typically used for elevated temperature applications. Its high chromium & nickel contents provide superior resistance to oxidation, high corrosion resistance & good strength at both room and elevated temperatures. Type 309S having lower carbon content also minimizes carbide precipitation and thus improves weldability.

Chemical Composition:

| JSL | ASTM | | %C | %Mn | %S | %P | %Si | %Ni | %Cr | %N |
|-------|------|-----|------|-----|------|-------|------|-----|-----|-----|
| J309S | 309S | Min | - | - | - | - | - | 12 | 22 | - |
| | | Max | 0.08 | 2 | 0.03 | 0.045 | 0.75 | 15 | 24 | 0.1 |

Mechanical Properties:

| Grade | Mechanical properties | UTS (MPa) | YS (MPa) | %EL | Hardness(HRB) |
|-------|-----------------------|-----------|----------|------|---------------|
| J310S | ASTM A240 | ≥ 515 | ≥ 205 | ≥ 40 | ≤ 95 |

Physical Properties:

| Density (Kg/m ³) | Modulus of Elasticity (GPa) | Thermal Conductivity (W/m °C) | Thermal expansion coefficient (W/m °C) | Electrical Resistivity (μΩm) |
|------------------------------|-----------------------------|-------------------------------|--|------------------------------|
| 7900 | 200 | 15 | 16 | 0.78 |

Products available:

Hot Rolled Plates & Coil, Cold Rolled Coil & Sheets

Applications:

Furnace parts, conveyor belts & heating elements, carburizing - annealing boxes, heat exchangers, sulfite liquor handling equipment, kiln liners, oven Linings, boiler baffles, refinery and chemical processing equipment, auto-exhaust parts.

Corrosion and oxidation Resistance:

Type 309S provides better corrosion resistance to marine atmosphere than type 304. It exhibits high resistance to sulfite liquors and is useful for handling nitric acid, nitric-sulphuric acid mixtures and acetic, citric and lactic acids. Generally considered Heat Resisting Alloys, Type 309S has a very high destructive scaling temperature of about 1090 °C thus exhibiting good scaling resistance in both continuous & intermittent service.

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J310S

AUSTENITIC STAINLESS STEEL

General Characteristics:

310S is a highly alloyed austenitic stainless steel used for high temperature application. Due to high Cr and Ni content, the steel exhibits excellent oxidation resistance and high strength at high temperature.

Chemical Composition:

| JSL | ASTM | | %C | %Mn | %S | %P | %Si | %Ni | %Cr | %N |
|-------|------|-----|------|-----|------|-------|-----|-----|-----|-----|
| J310S | 310S | Min | - | - | - | - | - | 19 | 24 | - |
| | | Max | 0.08 | 2 | 0.03 | 0.045 | 1.5 | 22 | 26 | 0.1 |

Mechanical Properties:

| Grade | Mechanical properties | UTS (MPa) | YS (MPa) | %EL | Hardness(HRB) |
|-------|-----------------------|-----------|----------|------|---------------|
| J310S | ASTM A240 | ≥ 515 | ≥ 205 | ≥ 40 | ≤ 95 |

Physical Properties:

| Density (Kg/m ³) | Modulus of Elasticity (GPa) | Thermal Conductivity (W/m °C) | Thermal expansion coefficient (W/m °C) | Electrical Resistivity (μΩm) |
|------------------------------|-----------------------------|-------------------------------|--|------------------------------|
| 7990 | 193 | 15 | 15.5 | 0.78 |

Products available:

Hot Rolled Plates & Coil, Cold Rolled Coil & Sheets

Applications:

Used for air heaters, annealing boxes, ovens, carburizing boxes, fire box sheets, furnace linings, furnace stacks and dampers, gas turbine parts, heat exchangers, kiln linings, nozzle diaphragm assemblies for turbo jet engines, oil burner parts, paper mill equipment, oil refinery equipment and recuperater.

Corrosion Resistance:

310S has especially excellent resistance to stress corrosion cracking in chloride environment or in high density hot alkaline environment because of its high nickel content 310S has similar acid corrosion resistance to Type 304, but has excellent corrosion resistance to nitric acid because of high chromium content.

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J316/J316L /J316Ti

AUSTENITIC STAINLESS STEEL

General Characteristics:

J316 is standard Mo added austenitic stainless steel. Addition of Mo increases general corrosion resistance, resistance to pitting and crevice corrosion in chloride environments and high temperature strength.

J316L is low carbon version of 316 for excellent intergranular corrosion resistance during welding.

J316Ti is Ti stabilised 316 for excellent intergranular corrosion resistance at elevated temperature.

Chemical Composition:

| JSL | ASTM | | %C | %Mn | %S | %P | %Si | %Ni | %Cr | %Ti | %Mo | %N |
|--------|-------|-----|------|-----|------|-------|------|-----|-----|---------|-----|-----|
| J316 | 316 | Min | - | - | - | - | - | 10 | 16 | - | 2 | - |
| | | Max | 0.08 | 2 | 0.03 | 0.045 | 0.75 | 14 | 18 | - | 3 | 0.1 |
| J316L | 316L | Min | - | - | - | - | - | 10 | 16 | - | 2 | - |
| | | Max | 0.03 | 2 | 0.03 | 0.045 | 0.75 | 14 | 18 | - | 3 | 0.1 |
| J316Ti | 316Ti | Min | - | - | - | - | - | 10 | 16 | 5*(C+N) | 2 | - |
| | | Max | 0.08 | 2 | 0.03 | 0.045 | 0.75 | 14 | 18 | 0.7 | 3 | 0.1 |

Mechanical Properties:

| Grade | Mechanical properties | UTS (MPa) | YS (MPa) | %EL | Hardness(HRB) |
|-------|-----------------------|-----------|----------|------|---------------|
| 316 | ASTM A240 | ≥ 520 | ≥ 205 | ≥ 40 | ≤95 |
| 316L | ASTM A240 | ≥ 485 | ≥ 170 | ≥ 40 | ≤95 |
| 316Ti | ASTM A240 | 520 | 205 | ≥ 40 | ≤95 |

Physical Properties:

| Density (Kg/m ³) | Modulus of Elasticity (GPa) | Thermal Conductivity (W/m °C) | Thermal Expansion coefficient (W/m °C) | Electrical Resistivity (μΩm) |
|------------------------------|-----------------------------|-------------------------------|--|------------------------------|
| 7980 | 193 | 16.3 | 15.9 | 0.72 |

Products available:

Hot Rolled Plates & Coil, Cold Rolled Coil & Sheets

Applications:

316- architectural trims, marine exteriors, chemical processing equipment, food processing equipment, petroleum refining equipment, pharmaceuticals equipment, photographic equipment, pulp & paper processing equipment and textile finishing equipment

316L- food processing, chemical and petrochemical equipment, brewery equipment, coastal architectural paneling ,laboratory equipments, heat exchangers, mining screens, chemical transportation containers

316Ti- Chemical & Petrochemical Industry

Corrosion Resistance:

These grade exhibits excellent resistance to wide range of atmosphere and corrosive media like petroleum, food, pharmaceutical, textile etc.

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J317L/J317LN

AUSTENITIC STAINLESS STEEL

General Characteristics:

Type 317L is a molybdenum-containing austenitic stainless steel for improved corrosion resistance compare to Type 316L in extremely corrosive environments, such as chlorides or other halides environments. This grade also provides high intergranular corrosion resistance due to low carbon content.

317LN is nitrogen added with 317L for improved strength and pitting corrosion resistance.

Chemical Composition:

| JSL | ASTM | | %C | %Mn | %S | %P | %Si | %Ni | %Cr | %Mo | %N |
|--------|-------|-----|------|-----|------|-------|------|-----|-----|-----|------|
| J317L | 317L | Min | - | - | - | - | - | 11 | 18 | 3 | - |
| | | Max | 0.03 | 2 | 0.03 | 0.045 | 0.75 | 15 | 22 | 4 | 0.1 |
| J317LN | 317LN | Min | - | - | - | - | - | 11 | 18 | 3 | 0.1 |
| | | Max | 0.03 | 2 | 0.03 | 0.045 | 1 | 15 | 22 | 4 | 0.22 |

Mechanical Properties:

| Grade | Mechanical properties | UTS (MPa) | YS (MPa) | %EL | Hardness(HRB) |
|-------|-----------------------|-----------|----------|------|---------------|
| 317L | ASTM A240 | ≥ 515 | ≥ 205 | ≥ 40 | ≤ 95 |
| 317LN | ASTM A240 | ≥ 550 | ≥ 240 | ≥ 40 | ≤ 95 |

Physical Properties:

| Density (Kg/m ³) | Modulus of Elasticity (GPa) | Thermal Conductivity (W/m °C) | Thermal Expansion coefficient(W/m °C) | Electrical Resistivity (μΩm) |
|------------------------------|-----------------------------|-------------------------------|---------------------------------------|------------------------------|
| 8000 | 200 | 14.6 | 16.5 | 0.79 |

Products available:

Hot Rolled Plates & Coil, Cold Rolled Coil & Sheets

Applications:

317L- Chemical, petrochemical process equipment, pulp, paper manufacturing, condensers in fossil and nuclear fueled power generation stations.

317LN-Various tanks, Vessels, Chemical plants, other equipment that require corrosion resistance similar to or higher than that of SUS 317L, and that further require high strength

Corrosion Resistance:

Type 317L has excellent corrosion resistance in a wide range of chemicals, especially in acidic chloride environments such as those encountered in pulp and paper mills.

Type 317LN has excellent corrosion resistance in sulphuric acid, phosphoric acid and organic acid environment than 316L and 317L grade. It has also higher pitting corrosion resistance compare to 316L and 317L grade.

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J321

AUSTENITIC STAINLESS STEEL

General Characteristics:

J321 is Ti added 304 stainless steel grade for excellent intragranular corrosion resistance for high temperature (450-900°C) application.

Chemical Composition:

| JSL | ASTM | | %C | %Mn | %S | %P | %Si | %Ni | %Cr | %Ti | %N |
|------|------|-----|------|-----|------|-------|------|-----|-----|---------|-----|
| J321 | 321 | Min | - | - | - | - | - | 9 | 17 | 5*(C+N) | - |
| | | Max | 0.08 | 2 | 0.03 | 0.045 | 0.75 | 13 | 19 | 0.7 | 0.1 |

Mechanical Properties:

| Grade | Mechanical properties | UTS (MPa) | YS (MPa) | %EL | Hardness(HRB) |
|-------|-----------------------|-----------|----------|------|---------------|
| 321 | ASTM A240 | ≥ 520 | ≥ 205 | ≥ 40 | ≤ 95 |

Physical Properties:

| Density (Kg/m ³) | Modulus of Elasticity (GPa) | Thermal Conductivity (W/m °C) | Thermal expansion coefficient (W/m °C) | Electrical Resistivity (μΩm) |
|------------------------------|-----------------------------|-------------------------------|--|------------------------------|
| 7925 | 193 | 16.1 | 17.1 | 0.72 |

Products available:

Hot Rolled Plates & Coil, Cold Rolled Coil & Sheets

Applications:

Exhaust stacks and manifolds, pressure vessels, large mufflers for engines, expansion bellows, stack liners, thin wall tubes

Corrosion Resistance:

J321 grade exhibits excellent resistance to organic chemicals, many inorganic chemicals, nitric acid and moderately in sulphuric acid. This grade shows improved resistance to intergranular corrosion compared to unstabilized grades (450-900°C).

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J347

AUSTENITIC STAINLESS STEEL

General Characteristics:

Nb added austenitic stainless steel for elimination of carbide precipitation and thus improvement in intragranular corrosion resistance.

Chemical Composition:

| JSL | ASTM | | %C | %Mn | %S | %P | %Si | %Ni | %Cr | %Nb |
|------|------|-----|------|-----|------|-------|------|-----|-----|----------|
| J347 | 347 | Min | - | - | - | - | - | 9 | 17 | 10*(C+N) |
| | | Max | 0.08 | 2 | 0.03 | 0.045 | 0.75 | 13 | 19 | 1 |

Mechanical Properties:

| Grade | Mechanical properties | UTS (MPa) | YS (MPa) | %EL | Hardness(HRB) |
|-------|-----------------------|-----------|----------|------|---------------|
| 347 | ASTM A240 | ≥ 515 | ≥ 205 | ≥ 40 | ≤ 92 |

Physical Properties:

| Density (Kg/m ³) | Modulus of Elasticity (GPa) | Thermal Conductivity (W/m °C) | Thermal expansion coefficient(W/m °C) | Electrical Resistivity (μΩm) |
|------------------------------|-----------------------------|-------------------------------|---------------------------------------|------------------------------|
| 7960 | 193 | 16.3 | 16.6 | 0.72 |

Products available:

Hot Rolled Plates & Coil, Cold Rolled Coil & Sheets

Applications:

High temperature gaskets and expansion joints, rocket engine parts, aircraft collector rings and exhaust manifolds and chemical production equipment

Corrosion Resistance:

347 grade is more resistant to general corrosion in strongly oxidizing environments than Type 321. 347 grade is very high resistance to intragranular corrosion resistance.

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J904L

AUSTENITIC STAINLESS STEEL

General Characteristics:

904L is an Austenitic Stainless Steel with high Nickel (25%) and Molybdenum (4.5%) providing good corrosion resistance to stress corrosion cracking in severe chloride environment. Low carbon content of 904L improves its welding characteristic by good resistance to intergranular corrosion. Annealed 904L provides excellent toughness even at sub-zero temperature. It contains a combination of chromium and molybdenum which provides it an improved level of resistance to pitting and crevice corrosion by chlorides compared to 316L Stainless Steel. The copper addition provides added resistance to reducing media such as hot phosphoric acid and dilute sulfuric acid.

Chemical Composition:

| Designation | %C | %Mn | %S | %P | %Si | %Ni | %Cr | %Mo | %N | %Cu |
|-------------|-----|------|-----|-------|-------|-----|------|------|----|------|
| UNS N08904 | Min | -- | -- | -- | -- | 23 | 19.0 | 4 | -- | 1 |
| | Max | 0.02 | 2.0 | 0.035 | 0.045 | 1.0 | 28 | 23.0 | 5 | 0.10 |

Mechanical Properties:

| Mechanical properties | UTS (MPa) | YS (MPa) | %EL | Hardness |
|------------------------|-----------|----------|--------|------------|
| ASTM A240 – UNS N08904 | 490 min | 220 min | 35 min | 90 HRB max |

Physical Properties:

| Density (Kg/m ³) | Modulus of Elasticity (GPa) | Coefficient of thermal expansion (μm/m/°C) | Thermal Conductivity (W/m °C) | Specific Heat (J/Kg °C) | Electrical Resistivity (μΩ-cm) |
|------------------------------|-----------------------------|--|-------------------------------|-------------------------|--------------------------------|
| 7950 | 195 | 15.6 | 11.5 | 450 | 95.2 |

Products available:

The grade is available in both HRAP and CRAP finishes; and in different forms such as Coils, Plates, Sheets and Strips.

Applications:

- 904L is widely used in chemical industries for components such tanks and other products used in handling sulphuric and phosphoric acid.
- Fertilizer production equipments.
- Bleaching equipments in pulp and paper industry.
- Heat exchangers handling sea water.

Corrosion Resistance:

This alloy provides excellent general corrosion resistance and pitting or crevice corrosion that is usually higher than 316 Stainless Steel. 904L provides very good resistance to sulphuric acid, phosphoric and acetic acid. Resistance to chloride stress corrosion cracking depends on the percentage of nickel, with 25% nickel 904L offers more resistance stress corrosion cracking compared to an 8% nickel alloy like 304 Stainless Steel.

Heat Treatment

904L in annealed state provides excellent impact strength at room temperature and at cryogenic temperatures.

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EN 1.4828

AUSTENITIC STAINLESS STEEL

General Characteristics:

EN 1.4828 is a heat resistant Cr-Ni-Si stainless steel with increased levels of Silicon as compared to type 309S. Its high chromium & nickel contents along with silicon provide superior resistance to oxidation & good strength at both room and elevated temperatures.

Chemical Composition:

| JSL | EN standard | | %C | %Mn | %S | %P | %Si | %Ni | %Cr | %N |
|---------|-------------|-----|-----|-----|-------|-------|-----|-----|-----|-----|
| J1.4828 | 1.4828 | Min | - | - | - | - | 1.5 | 11 | 19 | - |
| | | Max | 0.2 | 2 | 0.015 | 0.045 | 2.5 | 13 | 21 | 0.1 |

Mechanical Properties:

| Grade | Mechanical properties | UTS (MPa) | YS (MPa) | %EL | Hardness(HRB) |
|--------|-----------------------|-----------|----------|------|---------------|
| 1.4828 | ASTM A240 | 550-750 | ≥ 230 | ≥ 28 | ≤ 95 |

Physical Properties:

| Density (Kg/m ³) | Modulus of Elasticity (GPa) | Thermal Conductivity (W/m °C) | Thermal expansion coefficient (W/m °C) | Electrical Resistivity (μΩm) |
|------------------------------|-----------------------------|-------------------------------|--|------------------------------|
| 7900 | 200 | 15 | 16.5 | 0.85 |

Products available:

Hot Rolled Plates & Coil, Cold Rolled Coil & Sheets

Applications:

Furnace parts, Conveyor belts & heating elements, Heat exchanger, Refinery and Chemical processing equipment

Corrosion Resistance:

In Solution Annealed condition, EN 1.4828 provides better corrosion resistance in marine atmosphere than type 304. EN 1.4828 has a high destructive scaling temperature of above 1000 °C thus exhibiting good scaling resistance in both continuous & intermittent service.

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EN 1.4841

AUSTENITIC STAINLESS STEEL

General Characteristics:

Type EN1.4841 is a highly alloyed stainless steel designed for service at elevated temperatures. High Chromium and Nickel contents enable this alloy to resist oxidation in continuous service temperatures of up to 1200 °C. Increased level of silicon in EN1.4841 than type 310S further improves oxidation resistance at higher temperature.

Chemical Composition:

| EN standard | | %C | %Mn | %S | %P | %Si | %Ni | %Cr | %N |
|-------------|-----|-----|-----|-------|-------|-----|-----|-----|------|
| EN 1.4841 | Min | - | - | - | - | 1.5 | 19 | 24 | - |
| | Max | 0.2 | 2 | 0.015 | 0.045 | 2.5 | 22 | 26 | 0.11 |

Mechanical Properties:

| Grade | Mechanical properties | UTS (MPa) | YS (MPa) | %EL | Hardness(HRB) |
|-----------|-----------------------|-----------|----------|------|---------------|
| EN 1.4841 | EN standards | 550-750 | ≥ 230 | ≥ 28 | ≤ 95 |

Physical Properties:

| Density (Kg/m ³) | Modulus of Elasticity (GPa) | Thermal Conductivity (W/m °C) | Thermal expansion coefficient (W/m °C) | Electrical Resistivity (μΩm) |
|------------------------------|-----------------------------|-------------------------------|--|------------------------------|
| 7900 | 200 | 15 | 15.5 | 0.84 |

Products available:

Hot Rolled Plates & Coil, Cold Rolled Coil & Sheets

Applications:

Furnace parts, Conveyor belts & heating elements, Heat exchanger, Refinery and Chemical processing equipment

Corrosion Resistance:

Type EN1.4841 provides good resistance to moist air at elevated temperatures. High chromium & nickel contents result in superior resistance to carburizing atmospheres as compared to type 304. This grade provides resistance to oxidation even at continuous service temperature of 1200 °C.

The technical information in this document describes typical characteristics and performance of the product. JSL and its affiliated companies do not accept responsibility for errors or for information which is found to be ambiguous and for the end use or application of products. Before using products customer should satisfy himself for their suitability. The information presented in this document is subject to change without notice.