

AISI 310S

Grade: 1.4845, X8CrNi25-21, 310S (low carbon), S31008

Can also be supplied in standard 310 and 310H designations. 310H is a high carbon modification developed for enhanced creep resistance.

Type: Austenitic and heat resistant stainless steel delivered in the solution annealed condition.

| Nominal Composition – 310S | |
|----------------------------|---------------|
| Element | Weight % |
| Carbon | 0.10 |
| Silicon | 1.5 max |
| Manganese | 2.0 max |
| Phosphorus | 0.045 max |
| Sulphur | 0.015 max |
| Molybdenum | 2.0 – 3.0 max |
| Chromium | 24.0-26.0 max |
| Nickel | 19.0-22.0 max |
| Nitrogen | 0.11 max |

Notes

Similar to AISI 314 / 1.4841, but with higher ductility. Good creep rupture strength which is controlled by the carbon content. Very good resistance to high-temperature corrosion.

The grade can be easily welded. It is used for high temperature applications, up to 1100°C, in oxidating atmospheres. The grade can also be used with a slightly oxidating atmosphere in conjunction with other demanding conditions, such as nitriding, cementation and sulphur containing industries. In these demanding environments it is used with a temperature reduction. Sulphur contents higher than 2g/m³ decrease the maximum temperature to 950°C.

310S can be used at cryogenic temperatures. The grade has excellent toughness and low magnetic permeability. It has good machining characteristics and is readily fabricated.

Mechanical Properties Condition

| Property | Values |
|---------------------------|---------------------------|
| Ultimate Tensile Strength | 500-700 N/mm ² |
| 0.2 % Yield Strength | 210 N/mm ² |
| Elongation | 35 % min |
| Hardness | 192 HBW max |

Notes:

Applications:

Furnace and apparatus engineering. The grade is used in the thermal treatment industry for parts of furnaces such as refractories support, doors, piping, recuperators, burner parts, conveyer belts, furnace linings and fans. It is also used in the food industry in environments containing heated citric and acetic acid.

Used for construction parts which should be resistant to scaling up to 1050°C approx.

Food processing.