



Grade	Code	UNS	Austenitic Stainless Steel
AISI 310S	1.4845	S31008	

Properties

AISI 310S is an austenitic stainless steel grade capable of maintaining mechanical stability and oxidation resistance at elevated temperatures. Its good performance under thermal cycling, ability to retain structural integrity at high temperatures, and good weldability make it suitable for more demanding thermal conditions than standard austenitic stainless steels.

Chemical Composition (AISI 310S)

C %	Si %	Mn %	P %	S %	Cr %	Ni %	Fe %
≤ 0,08	≤ 1,50	≤ 2,00	≤ 0,045	≤ 0,03	24,00 – 26,00	19,00 – 22,00	Balance

Mechanical Properties (Solution annealed)

Form	Rp0.2 [MPa]	Rm [MPa]	Elongation [%]	Hardness [HB]	Density [g/cm ³]
Bar	≥ 210	500–700	≥ 35	≤ 192	7,8
Plate	≥ 210	500–700	≥ 35	≤ 192	7,8
Sheet	≥ 210	500–700	≥ 33	≤ 192	7,8
Pipe	≥ 220	530–750	≥ 35	—	7,8

Application Areas

Sector	Products
Furnace & Heat Treatment	Radiant tubes, muffle tubes, furnace internal supports/carriers
Petrochemical & Refining	Furnace tubes, pipe hangers, burner components
Power & Boiler Systems	Superheater tubes, boiler tube hangers, air heaters
Steel & Metal Processing	Annealing boxes, heat-treatment baskets, thermocouple sleeves
Cement & Heavy Industry	Burner components, high-temperature ducts, furnace structural components
Chemical & Process Industry	Recuperators, heat-exchanger components, high-temperature process equipment



Description

AISI 310S is a reliable stainless steel grade for components required to operate for extended periods at high temperatures. Its good resistance to rapid heating and cooling conditions, suitability for welded fabrication, and ability to retain its shape at elevated temperatures are among its main advantages. In operating conditions where temperature changes continuously, it can provide a longer service life than standard stainless steels.

Norm

AISI 310S, EN 1.4845, X8CrNi25-21, UNS S31008

Standards

Product Form	ASTM Specification	Description
Bar	ASTM A276 / A276M	General-purpose hot- or cold-worked stainless steel bars and shapes
Bar	ASTM A479 / A479M	Stainless steel bars for boiler and pressure vessel applications
Plate	ASTM A240 / A240M	Stainless steel plate for pressure vessels and general use
Sheet	ASTM A240 / A240M	Stainless steel sheet and strip products
Pipe	ASTM A312 / A312M – TP310S	Seamless, welded, and heavily cold-worked austenitic stainless steel pipes

Alternative Grades

- AISI 309S / EN 1.4833** – Offers slightly lower temperature capability than AISI 310S but is one of the closest alternatives where high-temperature oxidation resistance is required.
- AISI 314 / EN 1.4841** - Provides strong oxidation resistance at high temperatures and is a close alternative to AISI 310S, particularly for hot-service applications such as furnace equipment.
- AISI 316Ti / EN 1.4571** – Does not match the high-temperature capability of AISI 310S but can be considered for lower-temperature hot-service and welded applications.