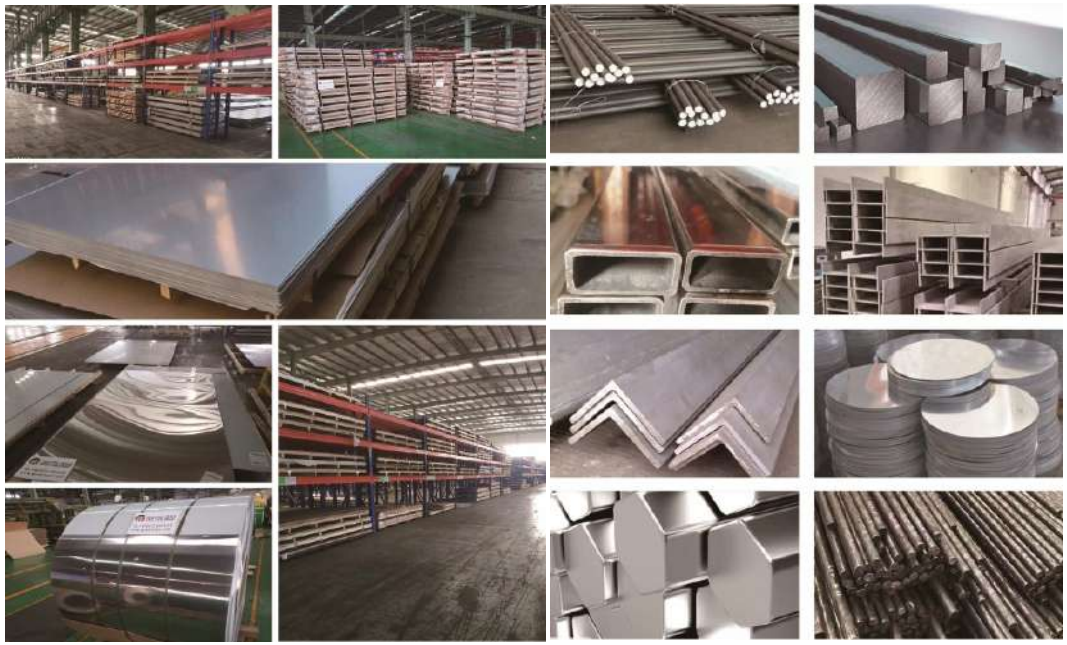
Professional Stainless Steel Supplier-GNEE

309/309S STAINLESS STEEL

- Pipes & Tubes
- Sheets & Plates
- Bars & Rods, Forgings
- Fittings & Flanges
- Nuts & Bolts
- Valves



AISI 309 (UNS S30900, 1.4828), AISI 309S (UNS S30908, 1.4833)

What is 309/309S Stainless Steel?

- Alloy 309 (UNS S30900) is an austenitic stainless steel developed for use in high temperature corrosion resistance applications. The alloy resists oxidation up to 1900°F (1038°C) under non-cyclic conditions. Frequent thermal cycling reduces oxidation resistance to approximately 1850°F (1010°C). A chromium-nickel stainless grade, Alloy 309/309S is suitable for a number of high temperature applications. 23% chromium, approx. 5% more than 304 stainless steel gives Alloy 309/309S an edge over 304 stainless steel when it comes to general corrosion resistance at elevated temperatures.
- AISI 309S stainless steel is an austenitic stainless steel formulated for primary forming into wrought products. Cited properties are appropriate for the annealed condition. 309S is the AISI designation for this material. S30908 is the UNS number. It contains less nickel in its composition than Type 310, moderately low tensile strength and lower amount of carbon in its composition among the wrought austenitic stainless steels thus utilization in areas where high temperature gases may pose a problem. Type 309S is additionally characterized by its resistance to oxidation and creep, along with its ability to withstand high temperatures. Moist environments have no effect on it, due to the higher levels of nickel and chromium in its makeup. Because of this, it is often utilized in marine environments in place of Stainless Steel 304, as it displays a higher resistance. Despite its excellent weldability, Type 309S does have a tendency to work harden.
- AISI 309H (S30909) Stainless Steel. AISI 309H stainless steel is an austenitic stainless steel formulated for primary forming into wrought products. Cited properties are appropriate for the annealed condition. 309H is the AISI designation for this material. S30909 is the UNS number. It has a moderately low tensile strength.

Product Forms and Standards of 309/309S Stainless Steel

Type	Sizes	Schedules	ASTM Standards
Bar	1/2″ thru 6″		A276, A479
Butt Weld Fittings	1/2″ thru 12″	Sch 10, 40, 80, 160 & XXH	A403
Forgings			A182
Pipe Welded & Seamless	1/4″ thru 16″	Sch 10, 40, 80, 160 & XXH	A312
Tube, Welded			A249
Tube, Seamless			A213

Plate			A240
Flange & Pressure Fittings	1/2" to 60"	Sch 10, 40, 80, 160 & XXH	A182

Equivalent grade of AISI SS 309

Standard	Werkstoff Nr.	UNS
309	1.4828	S30900

What is the difference between 309 and 309S stainless steel?

• 309S (UNS S30908) is a low carbon version of this alloy. It is easily fabricated. 309H (UNS S30909) is a high carbon modification designed to enhance creep resistance. In most cases, the grain size and carbon content of the plate can meet the requirements of both 309S and 309H. Alloy 309 can be easily welded and processed by standard shop fabrication practices.

Properties and Processing Characteristics of Stainless Steel 309/309S

• SS 309 is a high alloy austenitic stainless steel with excellent oxidation resistance, high temperature strength, and creep resistance. CS309 has a lower nickel content, which improves resistance to sulfur attack at high temperatures.
• SS 309 has excellent corrosion and heat resistance, and good strength at room and elevated temperatures. The alloy is nonmagnetic when annealed and becomes slightly magnetic when cold worked.

Chemical Composition & Mechanical Properties of SS 309/309S

Chemical Composition

ELEMENT	SS 309S	SS 309H
NI	12.0 – 15.0	12.0 – 15.0
C	0.08 max	0.04 – 0.10
MN	2.0 max	2.0 max
P	0.045 max	0.045 max
S	0.030 max	0.030 max
SI	1.0 max	1.0 max
CR	22.0 – 24.0	22.0 – 24.0
MO	0.75 max	

Physical Properties

DENSITY	7.89 g/cm 3 / 0.285 lb/in 3
MELTING POINT	1480 – 1530(°C) / 2500 – 2590 (°F)
ANNEALED	1000 – 1150 (°C) / 1832 – 2101 (°F)
QUENCH	Rapid Air/Water

Mechanical Properties

	309		309S	
	Typical	Minimum	Typical	Minimum
Tensile Strength MPa	560	515	540	515
Proof Stress(0.2% Offset) MPa	285	205	280	205
Elongation (Percent in 50mm)	54	40	54	40
Hardness (Brinell)	164	-	159	-
Endurance (fatigue) limit, MPa	260	-	260	-

Stainless Steel 309/309S Product Specification

Product	Stainless Steel 309/309S/309H
Equivalents	AISI 309 (UNS S30900, 1.4828), AISI 309S (UNS S30908, 1.4833), AISI 309H (UNS S30909)
Items	Pipe, Tubes, Tubing, Fittings, Flanges, Valves, Fasteners
Size	6mm to 610mm, 1/2" NB to 48" NB
Pipe Type	Seamless, Welded, ERW, Fabricated, Custom Size Pipes
Specifications	ASTM, ASME, DIN, GOST, JIS
Certification	EN 10204 3.1
Fittings Type	Butt Weld, Screwed & Socket Weld, Flanges, Instrumentation
Other Fittings	Elbows, Tees, Reducers, Caps, Stub Ends, Flanges (ANSI, Table E, D and H), Nuts, Bolts, Screws, Threaded Bars