

SS 347, Type 347, WNR 1.4550, UNS S34700, AISI 347, ASTM 347, Grade 347, AFNOR Z 6 CNNb 18-10

Introduction :

Stainless steel 347 provides good corrosion resistance and a bit better resistance in strong oxidizing conditions than 321. It is a columbium stabilized austenitic stainless steel. After exposure to temperatures in the chromium carbide precipitation range of 800 – 1500°F it provides excellent resistance to intergranular corrosion. 347 stainless steel has good oxidation resistance and creep strength to 1500°F (816°C). 347 alloy can easily welded and processed by standard method. It can be hardened solely by cold working not by heat treatment. Stainless steel 347 material is primarily used for high-temperature gaskets, exhaust manifolds, expansion joints, heat exchangers, super heaters & boilers and chemical piping components, etc.

Chemical Composition

	SS 347	WNR 1.4550	UNS S34700	AISI 347	ASTM 347	GRADE 347	AFNOR Z 6 CNNb 18-10
Carbon	0.08 max	0.08 max	0.08 max	0.08 max	0.08 max	0.08 max	0.08 max
Manganese	2.00 max	2.00 max	2.00 max	2.00 max	2.00 max	2.00 max	2.00 max
Phosphorus	0.045 max	0.045 max	0.045 max	0.045 max	0.045 max	0.045 max	0.045 max
Sulfur	0.030 max	0.030 max	0.030 max	0.030 max	0.030 max	0.030 max	0.030 max
Silicon	0.75 max	0.75 max	0.75 max	0.75 max	0.75 max	0.75 max	0.75 max
Chromium	17.0-19.0	17.0-19.0	17.0-19.0	17.0-19.0	17.0-19.0	17.0-19.0	17.0-19.0
Nickel	9.0-13.0	9.0-13.0	9.0-13.0	9.0-13.0	9.0-13.0	9.0-13.0	9.0-13.0
Columbium + Tantalum	10 x (C+N) min. - 1.00 max	10 x (C+N) min. - 1.00 max	10 x (C+N) min. - 1.00 max	10 x (C+N) min. - 1.00 max	10 x (C+N) min. - 1.00 max	10 x (C+N) min. - 1.00 max	10 x (C+N) min. - 1.00 max

Mechanical Properties

	SS 347	WNR 1.4550	UNS S34700	AISI 347	ASTM 347	GRADE 347	AFNOR Z 6 CNNb 18-10
Ultimate Tensile Strength, psi (Mpa)	75,000 (515)	75,000 (515)	75,000 (515)	75,000 (515)	75,000 (515)	75,000 (515)	75,000 (515)
0.2% Offset Yield Strength, psi (Mpa)	30,000 (205)	30,000 (205)	30,000 (205)	30,000 (205)	30,000 (205)	30,000 (205)	30,000 (205)
Elongation in 2 inches, %	40	40	40	40	40	40	40
Reduction in Area, %	-	-	-	-	-	-	-
Hardness, Rockwell B	92 max	92 max	92 max	92 max	92 max	92 max	92 max

Standard Available in forms :

- ASTM A182/ ASME SA182 Stainless Steel Pipe Fittings
- ASTM A213 / ASME SA213 Seamless Stainless Steel Pipes
- ASTM A240/ ASME SA240 Stainless Steels Sheets / Plates
- ASTM A249/ ASME SA249 Stainless Steel Welded Tubes
- ASTM A269/ ASME SA269 Stainless Steel Tubes
- ASTM A270/ ASME SA270 Stainless Steel Sanitary Tubes
- ASTM A312/ ASME SA312 Stainless Steel Pipes
- ASTM A403/ ASME SA403 Stainless Steel Pipe Fittings
- ASTM A554/ ASME SA554 Stainless Steel Welded Tubes
- ASTM A731/ ASME SA731 Stainless Steel Pipes
- ASTM A789/ ASME SA789 Stainless Steel Tubes
- ASTM A790/ ASME SA790 Stainless Steel Pipes
- ASTM A791/ ASME SA791 Stainless Steel Tubes

Products Available in forms :

- SS 347, Type 347, WNR 1.4550, UNS S34700, AISI 347 Plates
- SS 347, Type 347, WNR 1.4550, UNS S34700, AISI 347 Pipes
- SS 347, Type 347, WNR 1.4550, UNS S34700, AISI 347 Round Bar
- SS 347, Type 347, WNR 1.4550, UNS S34700, AISI 347 Tube
- SS 347, Type 347, WNR 1.4550, UNS S34700, AISI 347 Flanges
- SS 347, Type 347, WNR 1.4550, UNS S34700, AISI 347 Wire
- SS 347, Type 347, WNR 1.4550, UNS S34700, AISI 347 Fittings

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Applications

- Chemical Processing
- Food Processing – equipment and storage
- Petroleum Refining – fluid catalytic cracking units, polythionic acid service
- Pharmaceutical Production
- Waste Heat Recovery – recuperators

Corrosion Resistance

- Alloy 347 stainless steel plate exhibits good general corrosion resistance that is comparable to 304.
- It was developed for use in the chromium carbide precipitation range of 800 – 1500°F (427 – 816°C) where un-stabilized alloys such as 304 are subject to intergranular attack.
- In this temperature range, the overall corrosion resistance of Alloy 347 stainless steel plate is superior to Alloy 321 stainless steel plate.
- Alloy 347 also performs somewhat better than Alloy 321 in strongly oxidizing environments up to 1500°F (816°C).
- The alloy can be used in nitric solutions, most diluted organic acids at moderate temperatures and in pure phosphoric acid at lower temperatures and up to 10% diluted solutions at elevated temperatures.
- Alloy 347 stainless steel plate resists polythionic acid stress corrosion cracking in hydrocarbon service.
- It can also be utilized in chloride or fluoride free caustic solutions at moderate temperatures.
- Alloy 347 stainless steel plate does not perform well in chloride solutions, even in small concentrations, or in sulfuric acid.

Fabrication Data

- Alloy 347 stainless steel plate can be easily welded and processed by standard shop fabrication practices.

Cold Forming

- The alloy is quite ductile and forms easily.



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