

SS 316L, Type 316L, WNR 1.4404, UNS S31603, AISI 316L, ASTM 316L, Grade 316L, AFNOR Z 2 CND 17-12, ALLOY 316L

Introduction :

Stainless Steel 316L Grade is the low carbon version of Stainless Steel 316 and it is immune from sensitization. So it is extensively utilized in heavy gauge welded components. There is commonly no reasonable price distinction between stainless steel 316 and 316L. Even down to cryogenic temperatures the austenitic structure gives these grades excellent toughness. 316L stainless steel gives stress to rupture, higher creep and tensile strength at elevated temperatures. 316L grade is excellent in a range of atmospheric environments and many corrosive media – generally more resistant than Grade 304. 316L stainless steel material is can be used in the above temperature rang due to more resistant to carbide precipitation. In grade 316 for heavy welded sections requires post weld annealing for maximum corrosion resistance where else in grade 316L it is not required. 316L stainless steel needs to work harden if machined too quickly. For this reason, low speeds and constant feed rates are suggested. Due to lower carbon content 316L stainless steel is also easier to machine compared to 316 stainless steel. By using the most common hot working techniques 316L stainless steel can be hot worked. The hot working temperatures should be between 1150-1260 °C and should not be less than 930 °C.

Chemical Composition

	SS 316L	WNR 1.4404	UNS S31603	AISI 316L	ASTM 316L	GRADE 316L	AFNOR Z 2 CND 17-12	ALLOY 316L
Carbon	0.030 max	0.030 max	0.030 max	0.030 max	0.030 max	0.030 max	0.030 max	0.030 max
Manganese	2.00 max	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	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	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	0.75 max
Chromium	16.0-18.0	16.0-18.0	16.0-18.0	16.0-18.0	16.0-18.0	16.0-18.0	16.0-18.0	16.0-18.0
Nickel	10.0-14.0	10.0-14.0	10.0-14.0	10.0-14.0	10.0-14.0	10.0-14.0	10.0-14.0	10.0-14.0
Nitrogen*	0.10 max	0.10 max	0.10 max	0.10 max	0.10 max	0.10 max	0.10 max	0.10 max
Molybdenum	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0

Mechanical Properties

	SS 316L	WNR 1.4404	UNS S31603	AISI 316L	ASTM 316L	GRADE 316L	AFNOR Z 2 CND 17-12	ALLOY 316L
Tensile Strength(Mpa) min	485	485	485	485	485	485	485	485
0.2% Yield Strength(Mpa)min	170	170	170	170	170	170	170	170
Elongation (% in 50mm)min	40	40	40	40	40	40	40	40
Reduction in Area, %	-	-	-	-	-	-	-	-
Hardness, Rockwell B	95 max	95 max	95 max	95 max	95 max	95 max	95 max	95 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 316L, Type 316L, WNR 1.4404, UNS S31603, AISI 316L Plates
- SS 316L, Type 316L, WNR 1.4404, UNS S31603, AISI 316L Pipes
- SS 316L, Type 316L, WNR 1.4404, UNS S31603, AISI 316L Round Bar
- SS 316L, Type 316L, WNR 1.4404, UNS S31603, AISI 316L Tube
- SS 316L, Type 316L, WNR 1.4404, UNS S31603, AISI 316L Flanges
- SS 316L, Type 316L, WNR 1.4404, UNS S31603, AISI 316L Wire
- SS 316L, Type 316L, WNR 1.4404, UNS S31603, AISI 316L Fittings

Applications

- Petrochemical Industry
- Gas Industry
- Chemical Industry
- Pressure Vessels
- Industrial Boilers
- Heat Exchangers

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Tubes, Stainless Steel Pipe Tube & Carbon Steel Pipe Tube



Benefits

- Increased carbon content heat resistant qualities
- Greater tensile yield strength
- Greater short and long term creep strength



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