316/316L/316LN Stainless Steel Grade Comparison

No. 1092

Stainless steel covers a variety of corrosion resistant steels that contain a minimum of 11% Chromium. Changing the Chromium content and adding other elements will change the mechanical and physical properties of the steel. Two important properties of stainless steel is corrosive resistance and weldability.

Corrosive resistance:

Generally, 316 is more resistant than 304 in a range of atmospheric environments and many corrosive media due to the increased chromium and molybdenum content.

Welding Characteristics:

Excellent weldability by all standard fusion methods, both with and without filler metals.

Heavy welded sections in Grade 316 require post-weld annealing for maximum corrosion resistance, this is not required for Grade 316L/316LN.

316 Stainless Steel:

Stainless steel 316 contains an addition of molybdenum that gives it an improved corrosion resistance, particularly higher resistance to pitting and crevice corrosion in chloride environments, for example, water-treatment plants.

Chemical Formula (% by weight):

Grade		C	Mn	Si	P	S	Cr	Mo	Ni	N
316	Min	-	-	-	-	-	16.0	2.00	10.0	-
	Max	0.08	2.0	1.0	0.045	0.03	18.0	3.00	14.0	0.10

316L Stainless Steel:

The low carbon version on Stainless steel 316, is resistant to carbide precipitation. Making it suited to use in heavier and thicker welded components.

Chemical Formula (% by weight):

Grade		C	Mn	Si	P	S	Cr	Mo	Ni	N
316L	Min	-	-	-	-	-	16.0	2.00	10.0	-
	Max	0.035	2.0	1.0	0.045	0.03	18.0	3.00	15.0	0.10

316LN Stainless Steel:

Stainless steel 316LN is a type of steel that is a low carbon and nitrogen-enhanced version of stainless steel 316. The nitrogen content in 316LN provides a solid solution for hardening and raises its minimum specified yield strength. It also possesses good resistance to general corrosion and pitting/crevice corrosion.

Chemical Formula (% by weight):

Grade		C	Mn	Si	P	S	Cr	Mo	Ni	N
316LN	Min	-	-	-	-	-	17.0	2.00	13.0	0.10
	Max	0.03	2.0	0.75	0.25	0.1	19.0	3.00	15.0	0.30

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