



NESSteel Inc.

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304L Stainless Steel

304L Stainless steel is an extra low-carbon variation of Type 304, that eliminates carbide precipitation due to welding. 304L steel can be used in the "as-welded" condition, even in severe corrosive conditions. It often eliminates the necessity of annealing weldments except for applications specifying stress relief. It has slightly lower mechanical properties than type 304.

Chemical Composition

Component	Wt. %
C	Max 0.03
Cr	18 - 20
Mn	Max 2
Ni	8 - 12
P	Max 0.045
S	Max 0.03
Si	Max 1

304L stainless steel has better corrosion resistance than type 302. High ductility, excellent drawing, forming and spinning properties. Essentially non-magnetic, becomes slightly magnetic when cold worked. Low carbon content means less carbide precipitation in the heat-affected zone during welding and a lower susceptibility to intergranular corrosion. Applications include beer barrels, bellows, chemical equipment, coal hopper linings, cooling coils, cryogenic vessels, dairy equipment, evaporators, feedwater tubing, flexible metal hose, food processing equipment, hypodermic needles, nuclear vessels, oil well filter screens, refrigeration equipment, paper industry, pressure vessels, sanitary fittings, valves, shipping drums,

spinning, still tubes, textile dyeing equipment, tubing.

Physical Properties

Density Metric 8 g/cc English 0.289 lb/in³

Mechanical Properties

	Metric	English	Comments
Hardness, Knoop	158	158	Convert from Rockwell B Hardness
Hardness, Rockwell B	82	82	
Hardness, Rockwell C	15	15	10% cold-worked
Hardness, Vickers	159	159	Convert from Rockwell B Hardness
Tensile Strength, Ultimate	564MPa	81800 psi	0% Cold-Worked
Tensile Strength, Yield	210 MPa	30500 psi	0% Cold-worked
Elongation at Break	58%	58%	In 50mm (2 in.)
Modulus of Elasticity	193-200 GPa	28000-29000 ksi	
Charpy Impact	216 J	159 ft-lb	