

What is Stainless Steel?

Stainless steels are alloys of chromium and iron. When the metallic element, chromium, as added to iron in excess of 10%, it imparts throughout the entire body of the metal remarkable resistance to corrosion and heat. Other elements are added to the iron-chromium combination to obtain special characteristics. Useful additions include nickel, molybdenum, columbium, titanium, sulfur and selenium, all of which result in modifications for special service or fabrication.

There are different grades of stainless steel.

Type 304 stainless steel is characterized by a low carbon and high chromium and nickel content. This results in high strength with excellent stability and corrosion resistance. It is easily formable and weldable and is suitable where the finish product must resist corrosion.

Type 316 stainless steel is as above with the addition of molybdenum. Molybdenum gives this grade of stainless steel a generally greater resistance to corrosion. This extra corrosion resistance is particularly suitable for applications involving severe corrosion conditions. It is more resistant to marine atmospheres.

L-grade stainless steels in type 304 and 316 are specialized alloys that have an extra low carbon content which helps eliminate the hazard of carbide precipitation during welding. This increases the corrosion resistance of these grades at the weld seam. Use of this alloy is reserved for special corrosion problems where extensive welding is to be done.

Standard Finishes

Weld finish: *Wire brushed* finish is not flush and will contain irregularities on the remaining weld. The process results in the least amount of weld material removed when evaluated against all of the abrasive finishing methods. *Ground and polished* finish has welds ground and ribbon polished to blend with the sheet finish, #3 polish or better.

Sheet finish: *2b* finish is as received from the mill hard and dull, rolled finish. *# 3 polish* weld that will be ground flush and discoloration will be removed. This surface is near sanitary finish. Pits and defects are minimized. *# 4 polish* weld is ground flush with all pits and defects removed. This finish is normally used for food, dairy and sanitary applications. *# 7 polish* is a very fine finish buffed with a rouge to attain reflectivity. This finish is used in highly corrosive or sterile environments.

Electropolish: Produced with an electrochemical process for providing product surface integrity beyond available conventional mechanical finishes. Electropolishing obtains improved corrosion resistance by reducing the exposed surface area, removal of metallic and non-metallic surface inclusions, obtaining a smooth releasable surface for improved cleanability. The resulting surface is effectively passivated with the resulting chrome oxide film reformed to a maximum obtainable thickness.