



CASCADIA METALS

STAINLESS STEEL

Cascadia Metals inventories Grade 304 Stainless Steel for use in a number of applications. Stainless Steel is a steel alloy with a minimum of 10.5% chromium content by mass. Stainless Steel contains sufficient chromium to form a passive film of chromium oxide, which prevents further surface corrosion by blocking oxygen diffusion to the steel surface and corrosion from spreading into the metal's internal structure. The chromium passivation layer occurs only if the proportion of chromium is high enough and oxygen is present.

The protective layer on Stainless Steel is too thin to be visible but allows the metal surface to remain lustrous and smooth. This layer is impervious to water and air, protecting the metal beneath and also quickly reforms when the surface is scratched.

The 300 series of Stainless Steels have an austenitic crystalline structure and account for over 70% of total Stainless Steel production. They contain a maximum of 0.15% carbon, a minimum of 16% chromium and sufficient nickel and/or manganese to retain the crystalline structure at all temperatures from the cryogenic region to the melting point of the alloy. Grade 304 is the most widely used of the 300 series. Also known as 18/8 for its composition of 18% chromium and 8% nickel, Grade 304 may be referred to as A2 Stainless or "food grade" Stainless due to its frequent use in food-related equipment and environments.

Product Benefits

Stainless Steel offers a number of benefits as compared to other high-alloy metals. These include...

Stain Resistance – in general, Stainless Steel is highly resistant to attack from various acidic substances. The amount of resistance depends on the kind and concentration of the acidic substance as well as the type of Stainless Steel used.

Corrosion Resistance – Stainless Steel is highly resistant to corrosion due to the passivation layer of chromium, which keeps the underlying steel from oxidizing.

Aesthetics – due to its luster and smooth finish, Stainless Steel is considered very aesthetically pleasing, making it the perfect material for visible, high-use applications where ease of maintenance and enduring appearance are desired.



Heat Resistance – Stainless Steel works wonderfully in applications where heat resistance is required.

Durability – Stainless Steel is highly durable. It doesn't chip, bend or crack easily and scratches can typically be buffed out with a soft-bristled brush or metal polish. These attributes make it ideal for end-use applications where performance and longevity of the material is a requirement.

ASTM Specifications

ASTM Designation A240 outlines the general requirements for Stainless Steel. Included in this specification are steel chemistry requirements, typical mechanical properties of various metallurgical grades.



Surface Finishes

2B Finish - this Stainless Steel finish is a mill finish, which is smooth (not the brushed finish commonly seen on kitchen appliances) and light gray in color. The 304 Stainless Steel 2B finish may or may not have a protective film on one side to prevent scratching.

#4 Finish - this Stainless Steel finish is the brushed finish commonly seen on kitchen appliances and backsplashes. The 304 Stainless Steel #4 finish has a PVC film on one side to help protect against scratching during fabrication and installation.

End-Use Applications

304 Stainless Steel end-uses include food processing equipment, plumbing materials and a vast array of kitchen equipment such as sinks, counters, back splashes, appliances and more. 304 is also well suited for all types of dairy equipment including milking machines, containers, homogenizers, sterilizers, and storage and hauling tanks. This 18-8 alloy is equally serviceable in the brewing & distilling industry where it is used in pipelines, fermentation vats, storage and other processing equipment.



Contact your Cascadia Metals Sales Representative today to learn how Stainless Steel can satisfy your material needs.