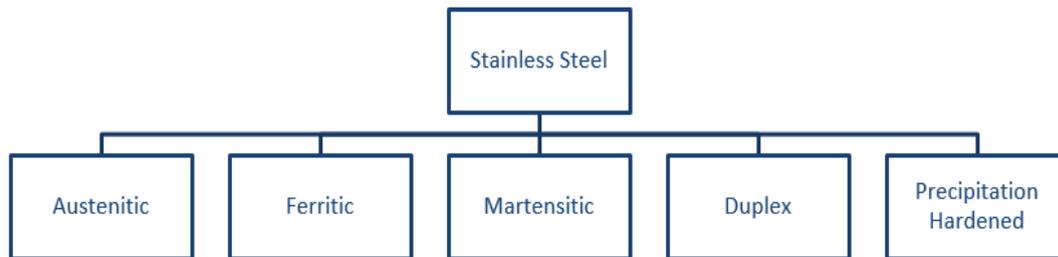


## 2.9 STAINLESS STEEL

**Stainless steel**, any one of a family of alloy steels usually containing 10 to 30 percent chromium. In conjunction with low carbon content, chromium imparts remarkable resistance to corrosion and heat.

### Classification of stainless steel



#### 1.AUSTENITIC.

This type of steel is very tough and ductile in the as-welded condition; therefore, it is ideal for welding and requires no annealing under normal atmospheric conditions. The most well-known types of steel in this series are the 302 and 304. They are commonly called 18-8 because they are composed of 18% chromium and 8% nickel.

Low-Carbon Steel..... 0.05% to 0.30% carbon are the most widely used and are normally non magnetic.

Medium-Carbon Steel..... 0.30% to 0.45% carbon

High-Carbon Steel .....0.45% to 0.75% carbon their crystalline structure.

## 2. Martensitic Steel

Chromium usually accounts for 11.5-18% of the composition of martensitic steel, along with 1.2% carbon and nickel. robust. While the lower nickel content makes it less corrosion resistant in comparison with other types of stainless steel, the high percentage of carbon results in the steel having a molecular structure that is particularly manganese, nickel, and molybdenum are among the other alloying elements in martensitic steel.

## 3. Ferritic Stainless Steel

Ferritic steel is a grade of stainless steel alloy that contains over 12% chromium. It differs from other forms of stainless steel in two critical regards: its molecular grain structure and its chemical composition.

Ferritic stainless steel is actually defined as a straight chromium non-hardenable class of stainless alloys that have chromium contents ranging from 10.5% to 30% and a carbon content of less than 0.20%.

## Applications

Most often, stainless steel is used for applications requiring the unique properties of steel along with resistance to corrosion. You'll find this alloy milled into coils, sheets, plates, bars, wire, and tubing. It is most often made into:

### Culinary uses

- Kitchen sinks
- Cutlery
- Cookware

### Surgical tools and medical equipment

- Hemostats
- Surgical implants
- Temporary crowns (dentistry)

## Architecture

- Bridges
- Monuments and sculptures
- Airport roofs

## Automotive and aerospace applications

- Auto bodies
- Rail cars
- Aircraft

