Plain chromium (Cr)

Martensitic

Ferritic

Super

Conventional

Duplex

Lean

Duplex

Super

Utility

Ferritic

Stainless steels

Plain chromium stainless steels, but with low carbon levels. Generally considered to have poor weldability.

Mixed ferrite - austenitic crystal structure (duplex)

Higher levels of Cr and lower levels of Ni as compared to the austenitic grades. Contain nitrogen. Weldable and with the exception of the utility grades, weldable. Excellent corrosion resistance and associated secondary properties. Suitable for a wide range of applications.

Add carbon

Add more nickel

Austenitic

Mn N Cr Ni

Austenitic

Heat resistant

Austenitic

Heat resistant

Austenitic

Heat resistant

Austenitic

Heat resistant

Add nickel

Add nickel

Add nickel

Plain austenitic stainless steels. Most common stainless steel grades. With accords for 70% of all stainless steel usage.

Cr: 12 to 18%

High Carbon: 0.2 to 1.2%

Mn N Cr Ni

Austenitic

Heat resistant

Austenitic

Heat resistant

Austenitic

Heat resistant

Plain chromium (Cr) + Nickel (Ni) addition

Iron (Fe) + Chromium (Cr)

Plain chromium stainless steels, but with low carbon levels. Therefore cannot be strengthened by heat treatment.

Generally considered to have poor weldability by heat treatment. Weldable. High strength and good corrosion resistance.

Figure 1. Stainless steel grades

Plain chromium stainless steels. Most common grades which accounts for 70% of all stainless steel usage.

Excellent corrosion resistance and associated secondary properties. Suitable for a wide range of applications.

High strength and good corrosion resistance. Contain nitrogen. Weldable. Generally considered to have poor weldability by heat treatment.

Most common grades which accounts for 70% of all stainless steel usage.

Weldable

Excellent corrosion resistance and associated secondary properties. Suitable for a wide range of applications.

Plain chromium stainless steels. Most common grades which accounts for 70% of all stainless steel usage.

Excellent corrosion resistance and associated secondary properties. Suitable for a wide range of applications.

Generally considered to have poor weldability by heat treatment. Weldable. High strength and good corrosion resistance. Contain nitrogen. Weldable. Generally considered to have poor weldability by heat treatment.

Most common grades which accounts for 70% of all stainless steel usage.

Excellent corrosion resistance and associated secondary properties. Suitable for a wide range of applications.

Generally considered to have poor weldability by heat treatment. Weldable. High strength and good corrosion resistance. Contain nitrogen. Weldable. Generally considered to have poor weldability by heat treatment.

Most common grades which accounts for 70% of all stainless steel usage.

Excellent corrosion resistance and associated secondary properties. Suitable for a wide range of applications.

Generally considered to have poor weldability by heat treatment. Weldable. High strength and good corrosion resistance. Contain nitrogen. Weldable. Generally considered to have poor weldability by heat treatment.

Most common grades which accounts for 70% of all stainless steel usage.