

Austenitic Stainless Steels

This type of stainless steel is dominant in the market. The group includes the very common AISI 304 and AISI 316 steels, but also the higher alloyed AISI 310S and ASTM N08904.

Austenitic steels are characterised by their high content of austenite-formers, especially nickel. They are also alloyed with chromium, molybdenum and sometimes with copper, titanium, niobium and nitrogen. Alloying with nitrogen raises the yield strength of the steels.

Austenitic stainless steels have a very wide range of applications, e.g. in the chemical industry and the food processing industry.

The molybdenum-free steels also have very good high-temperature properties and are therefore used in furnaces and heat exchangers. Their good impact strength at low temperatures is often exploited in apparatus such as vessels for cryogenic liquids.

Austenitic steels cannot be hardened by heat treatment. They are normally supplied in the quench-annealed state, which means that they are soft and highly formable.

Cold working increases their hardness and strength. Certain steel grades are therefore supplied in the cold stretched or hard rolled condition.