Duplex Stainless Steel Supplier

1. Duplex stainless steel was developed as a product which could improve upon some of the technical weaknesses of the standard austenitic and ferritic stainless steels that are available in the market. Both have low strength, ferritic steels have poor low temperature toughness, and austenitic steels have a very low resistance to stress corrosion cracking. Duplex stainless has a microstructure which is split roughly 50:50 between austenite and ferrite and balancing of these phases provides the following benefits:

Higher strength which is around twice that of Type 304 austenitic stainless steel. This leads to reduced plate thicknesses being used in fabrications reducing the weight which is of particular significance in items such as pressure vessels, storage tanks, and structural applications such as bridges.

Good weldability in thick plates.

Good low temperature toughness.

Resistance to stress corrosion cracking of importance in many applications including hot water tanks, process plant, brewing tanks, and desalination plant.

2. It is worth noting that Duplex stainless steels are still being developed and improved by steel makers.

Another key feature of Duplex stainless is its enhanced corrosion resistance. There is no single measure of corrosion resistance but the Pitting Resistance Equivalent Number (PREN) is widely used as a means of comparing the relative corrosion resistance of different steel grades.

The PREN is obtained by applying a mathematical formula to the chemical composition of a steel so that PREN = %Cr + (3.3 x %Mo) + (16 x %N). Using this formula 31803 Duplex stainless has a PREN of 35 which when compared with the PREN of Type 304 and Type 316 (18 and 24 respectively) demonstrates its superior corrosion resistance.

In short, due to its higher strength, longer component life cycle, and lower alloy composition, Duplex stainless can be a very cost effective solution to an engineering problem.

If you have any other requirement for steel plate, please feel free to contact us.