



15-5 PH – A martensitic precipitation hardened steel – it offers high strength combined with excellent corrosion resistance. It is similar to 17-4ph in properties, it is more chemically balanced to reduce ferrite which enhances its transverse properties. It is used when high transverse strength is required – valve parts, paper mills, aircraft, power generation chemical processing , nuclear and space craft.

904L – 904L is a non-stabilized low carbon high alloy austenitic stainless steel. The addition of copper to this grade gives it greatly improved resistance to strong reducing acids, particularly sulphuric acid. It is also highly resistant to chloride attack - both pitting / crevice corrosion and stress corrosion cracking. This grade is non-magnetic in all conditions and has excellent weldability and formability. The austenitic structure also gives this grade excellent toughness, even down to cryogenic temperatures. 904L does have very substantial contents of the high cost ingredients nickel and molybdenum. Many of the applications in which this grade has previously performed well can now be fulfilled at lower cost by duplex stainless steel 2205 (S31803 or S32205), so it is used less commonly than in the past.

2205 Duplex – 2205 duplex has a microstructure that contains both austenitic and ferritic phases and excellent combination of strength and corrosion resistance. In the annealed condition, it has twice the strength of a typical austenitic stainless. Used in oil and gas, pumps and pump parts, valves and chemical and paper manufacturing.

2507 – Commonly known as Super Duplex 2507®, is very similar to UNS S31803 Duplex. The difference between the two is the contents of chromium and nitrogen are higher in the Super Duplex Grade which in turn creates higher corrosion resistance as well as a longer lifespan. Super Duplex is composed of between 24% to 26% chromium, 6% to 8% nickel, 3% molybdenum, and 1.2% manganese, with the balance being iron. Also found in Super Duplex are trace amounts of carbon, phosphorus, sulfur, silicon, nitrogen, and copper. Benefits include: good weldability and workability, a high level of thermal conductivity and low coefficient of thermal expansion, high resistance to corrosion, fatigue, high resistance to pitting and crevice corrosion, high resistance to stress corrosion cracking (especially chloride stress corrosion cracking), high energy absorption, high strength, and erosion. Essentially, the Duplex alloys are a compromise; possessing some of the ferritic stress corrosion cracking resistance and much of the superior formability of the common austenitic stainless alloys, more cost effectively than the high nickel alloys.

Alloy 20 – Alloy 20 stainless steel is a super-austenitic stainless alloy developed for maximum corrosion resistance to sulfuric acid and other aggressive environments not suitable for typical austenitic grades. Alloy 20 seems to fall in-between both the stainless and nickel categories, as it does contain characteristics of both; however, the unified numbering system (UNS) does ultimately recognize it as a nickel based alloy, hence the UNS N08020 number. Alloy 20 is an austenitic nickel-iron-chromium based alloy with additions of copper and molybdenum. Its nickel content aids in its chloride ion stress and corrosion resistance. The addition of copper and molybdenum provides resistance to hostile environments, pitting and crevice corrosion. Chromium adds to its resistance of oxidizing environments, such as nitric acid, and columbium (or niobium) reduces the effects of carbide precipitation.

Nickel 200 – Nickel 200 alloy is a commercially pure nickel that exhibits good corrosion resistance. It is ferromagnetic and has relatively low electrical resistivity. This combination of properties has allowed its use in a wide variety of applications. Because the alloy displays good corrosion resistance, it has been used in food handling equipment, caustic solution, and general corrosion- magnetic and mechanical properties have enabled it to be used in devices requiring magnetic actuated parts.