Monel 400 is a nickel-copper alloy (about 67% Ni – 23% Cu) that is resistant to sea water and steam at high temperatures as well as to salt and caustic solutions. Alloy 400 is a solid solution alloy that can only be hardened by cold working. This nickel alloy exhibits characteristics like good corrosion resistance, good weldability and high strength. A low corrosion rate in rapidly flowing brackish or seawater combined with excellent resistance to stress-corrosion cracking in most freshwaters, and its resistance to a variety of corrosive conditions led to its wide use in marine applications and other non-oxidizing chloride solutions. This nickel alloy is particularly resistant to hydrochloric and hydrofluoric acids when they are de-aerated. As would be expected from its high copper content, alloy 400 is rapidly attacked by nitric acid and ammonia systems.

Monel 400 is a nickel-copper alloy (about 67% Ni – 23% Cu) that is resistant to sea water and steam at high temperatures as well as to salt and caustic solutions. Stronger than pure nickel, Monel is resistant to corrosion by many agents, including rapidly flowing seawater. The alloy can be fabricated readily by hot- and cold-working, machining, and welding.

Monel is a solid-solution binary alloy. As nickel and copper are mutually soluble in all proportions, it is a single-phase alloy. It is resistant to corrosion and acids, and some alloys can withstand a fire in pure oxygen. It is commonly used in applications with highly corrosive conditions.

Monel 400 has great mechanical properties at subzero temperatures, can be used in temperatures up to 1000° F, and its melting point is 2370-2460° F. However, alloy 400 is low in strength in the annealed condition so, a variety of tempers may be used to increase the strength.