

## INCONEL

### Nickel-Chromium Alloys and INCO Nickel-Chromium Alloys

The INCONEL and INCO alloys, although based on the nickel-chromium system, span a wide range of specific compositions and properties. The general characteristics of the alloys have exceptionally broad usefulness. The combination of nickel and chromium in the alloys provides resistance to both reducing and oxidizing corrosive solutions. The nickel and chromium also work together in resisting oxidation, carburization and other forms of high-temperature deterioration. The alloys do not become brittle at cryogenic temperatures, have good tensile and fatigue strengths at moderate temperatures, and display excellent creep-rupture properties at high temperatures.

In most of the INCONEL and INCO alloys, the valuable basic characteristics of the nickel-chromium system are augmented by the addition of other elements. Some of the alloys are strengthened by aluminum, titanium and niobium (columbium). Others contain cobalt, copper, molybdenum or tungsten to enhance specific strength or corrosion-resistance attributes. The alloys also contain iron in amounts ranging from about 1 percent to over 20 percent. In most cases, however, elements other than iron have dominant effects on properties.

The broadly varying characteristics of the nickel chromium alloys are reflected in the many different uses of the materials. Applications range from the rough service of heat-treating baskets to the sophisticated demands of turbine engines, space craft and nuclear power plants.

**NICKEL  
ALLOYS**

INCONEL	UNS
600	N06600
601	N06601
617	N06617
625	N06625
718	N07718
X750	N07750

INCO	UNS
C-276	N10276
HX	N06002