HAYNES® 556® alloy

Principal Features

High Strength and Resistance to High-Temperature Corrosion

HAYNES® 556® alloy (UNS R30556) is an iron-nickel-chromium-cobalt alloy that combines effective resistance to sulfidizing, carburizing and chlorine-bearing environments at high temperatures with good oxidation resistance, fabricability, and excellent high-temperature strength. It has also been found to resist corrosion by molten chloride salts and other salts, and is resistant to corrosion from molten zinc.

Ease of Fabrication

HAYNES® 556® alloy has excellent forming and welding characteristics. It may be forged or otherwise hot-worked, providing that it is held at 2150°F (1175°C) for a time sufficient to bring the entire piece to temperature. As a consequence of its good ductility, 556 alloy is also readily formed by cold working. All hot- or cold-worked parts should be annealed and rapidly cooled in order to restore the best balance of properties.

The alloy can be welded by a variety of techniques, including gas tungsten arc (GTAW), gas metal arc (GMAW), shielded metal arc (coated electrode), and resistance welding.

Heat Treatment

HAYNES® 556® alloy is furnished in the solution heat treated condition, unless otherwise specified. The alloy is normally solution heat treated at 2150°F (1175°C) and rapidly cooled or water-quenched for optimum properties. Heat treatments at temperatures lower than the solution heat-treating temperature may cause precipitation of secondary phases.

Applications

HAYNES® 556® alloy combines properties which make it highly useful for service at elevated-temperature in moderately to severely corrosive environments. Applications can include tubing and structural members in municipal and industrial waste incinerators, rotary calciners and kilns for minerals processing, and non-rotating components in industrial gas turbines burning low-grade fuels.

In the chemical process industry, 556® alloy is used for applications in rotary calciners, carbon regenerators, and in processes involving high-sulfur petroleum feedstocks.

In the metallurgical process industry, 556® alloy is widely used for hot-dip galvanizing fixtures, spinners and baskets, and for high speed furnace fans. 556® alloy is also employed in air preheaters of diesel engines, the inner covers of coil annealing furnaces, and in various high-temperature applications in the aerospace industry.