

NI-CU 400 / NI-CU 405

Ni-Cu 400 and 405 are nickel-copper alloys that are resistant to sea water and steam at high temperatures as well as to salt and caustic solutions.

Ni-Cu 400 and 405 are **solid solution-strengthened alloys that can achieve higher strength through cold working**. In addition to corrosion resistance and strength, both alloys possess good weldability and machinability. Ni-Cu 405 has improved machinability over Ni-Cu 400 due to the intentional addition of sulfur.

Similar alloy: Ni-Cu K500



KEY FEATURES OF NI-CU 400 AND 405

- **Corrosion resistance:** Ni-Cu 400 and 405 are highly resistant to sea water, steam at high temperatures, salt, and caustic solutions. This makes them ideal choices for applications in harsh environments, such as marine engineering or chemical processing.
- **Strength and durability:** Despite being a solid solution-strengthened alloy, Ni-Cu 400 exhibits high strength and can only be hardened by cold working. This makes it a robust and durable choice for various applications.
- **In service temperature range:** Both alloys maintain their strength up to 900°F (480°C) and can be utilized in subzero temperature service conditions.
- **Good weldability:** Ni-Cu 400 and 405 have good weldability, which means they can be easily incorporated into different structures and designs, providing flexibility in fabrication and end use.
- **Variety of applications:** From marine applications to chemical and hydrocarbon processing equipment, valves, pumps, shafts, fittings, fasteners, and heat exchangers, Ni-Cu 400 and 405 have a wide range of critical applications.
- **Improved machinability:** Ni-Cu 405, a variant of Ni-Cu 400, includes sulfur to improve its machinability. Easier machinability decreases manufacturing time and cost.
- **Trade-off for machinability:** While the addition of sulfur in Ni-Cu 405 does slightly decrease its corrosion resistance, the improved machinability could be a beneficial trade-off for certain applications where extreme corrosion resistance is not required.

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