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CuNi - Cupronickel / Copper Nickel

CuNi is often referred as "Cupronickel"; these alloys are made by combining certain percentage of Copper and Nickel along with other elements. Even though the percentage of Copper is higher, inclusion of Nickel makes this alloy appear bright silvery white in colour and adds to the strength as well. The history of this alloy dates back to 300 B.C in China and the documents refer it as "white copper" and predominantly used in making coins worldwide.

The most common available versions of this alloy are with a concentration of 90% Cu & 10% Ni or 70% Cu & 30% Ni, this is the most reliable versions for use in sea water environments. The inclusion of Nickel in the alloying process enhances the strength, durability and its resistance to corrosion as well. CuNi is having a major use in Ship building, Desalination plants, Nuclear & Fossil power plants, heat exchangers, condenser tube sheets and baffles, sea water piping etc. High resistance in saline sea water, fabricablity and low macrofouling makes it popular for heat exchanger in desalination industry as well. This alloy is of very suitable in cryogenic applications as well owing to its mechanical properties with no embrittlement at negative temperatures.

Unlike other alloy grades on top of ASTM and ASME specifications Ferro FPF is supplying cupronickel alloys according to EEMUA specifications as well. EEMUA 234 is the latest version covering seamless & welded tubes, BW Fittings, SW Fittings, and Flanges etc.

The outstanding characteristics of CuNi alloys to perform in brackish water & sea water, sulfuric and mild organic acids, alkali chlorides, ammonia and ammonium compounds. Physical properties of Copper Nickel alloys vary based on its composition, meanwhile the acknowledged characters are

- Anti-Biofouling
- Anti-Microbial
- Performance in Cryogenic & Low temperature services
- High Electrical & Thermal Conductivity
- Ease of Fabrication
- Environment friendly & 100% Recyclable

Chemical and Mechanical properties of copper nickel alloy grades

Grade	UNS	Fe %	Pb %	Mn %	Ni %	Zn %	Cu %	Yield	Tensile
CuNi 90/10	C70600	1.00 -1.80	0.05	1.00	9.00-11.00	1.00	Bal	105	275
CuNi 70/30	C71500	0.40-1.00	0.05	1.00	29.00-33.00	1.00	Bal	125	360

Available size ranges in Titanium and Titanium alloys to ASTM/ASME specifications

Category	Construction	Size Range (DN)	SCH/Ratings	Standard
Pipe	Seamless	015 - 150	10S – 80S	ASTM B466
	Welded	NA		
BW Fittings	Seamless	015 - 150	10S – 80S	ASTM B466
	Welded	NA		
SW Fittings	Forged	015 – 050	CL 3000 – 6000	ASTM B
Flanges	Forged	015 - 100	CL 150 – 300	ASTM B151

Stock Certifications, Testings and Reports

All stock available materials from Ferro FPF are coming with full traceability and necessary testing reports along with Material Test Certificates to EN 10204 3.1. Most of our process piping materials from stock is coming with dual certification. This is achieved according to the international standards by controlling the chemical composition and mechanical properties in the permissible ratio meeting different grades and standards. This is an optimal way of providing our customers with a comprehensive range of material grades in the most efficient way suiting the project requirements.

Any client and project requirements over and above the normal standards are achieved with possible additional testings, modifications and inspections using in-house and approved third party facilities. All project confirmed modifications are performed according to relevant international standards and backed with conformity reports.

Ferro Pipe and Fittings is having a demonstrated experience in managing project package supplies of Pipes, Fittings, Flanges and Valves for various national and international projects directly with end users and through international EPC's. Contact us to discuss on our capacities and custom solutions we can offer to your project piping requirements.