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**Copper Nickel Pipe Fittings & Flanges
for Shipbuilding & offshore Industry**

www.sunflexmetal.net



About us

Sunflex metalloy private limited is one of the leading manufacturer of copper nickel materials used in onshore & offshore oil industries, shipbuilding, ship repair and allied industries.

Sunflex metal industries is proud of its qualified technical team to assist it's valued customers and project partners in selection and providing technical assistance, whenever required.

Through our brand new facilities and fully integrated production process, from raw material through smelting, casting extrusion, drawing, forging, forming, stamping and machining, we manufacture and stock the complete range of pipes, fittings, flanges covering all various international standards or dedicated specifications applicable to copper nickel products.

We provide seamless and or welded pipes and BW fittings, hot stamped, forged and machined fittings and flanges from 1/4" till 48" in order to cover the complete package required for whatever naval project.

Nowadays SUNFLEX METALLOY PRIVATE LIMITED is a referenced and preferred supplier with worldwide major navy or commercial shipyards, ship-owners, naval architects and engineering companies.

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Vision

At SUNFLEX METALLOY PRIVATE LIMITED, our vision is to become a globally trusted leader in delivering reliable, high-performance copper-nickel pipe fittings and flanges, specifically engineered to meet the demanding requirements of the shipbuilding and offshore industries.

We aim to enhance marine infrastructure with corrosion-resistant, durable, and precisely manufactured solutions that ensure long-term performance, safety, and sustainability, even in the harshest marine environments.

Driven by continuous innovation, a commitment to quality excellence, and environmentally responsible practices, we envision a future where shipbuilding and offshore projects thrive on precision-engineered components, contributing to a stronger, safer, and more sustainable tomorrow.

Our vision is to grow through dedication, discipline and determination. We want to be remembered for what we have given to clients and society.





Plant & Machinery



Quality & Testing Facilities

We adhere to strict Quality Control Measures. Vigorous tests are conducted on all incoming raw material, intermediate and finished products to ensure best quality products as per Quality Assurance Plan. A team of trained supervisors and quality control inspectors ensures that the quality is maintained at all the stages of production.

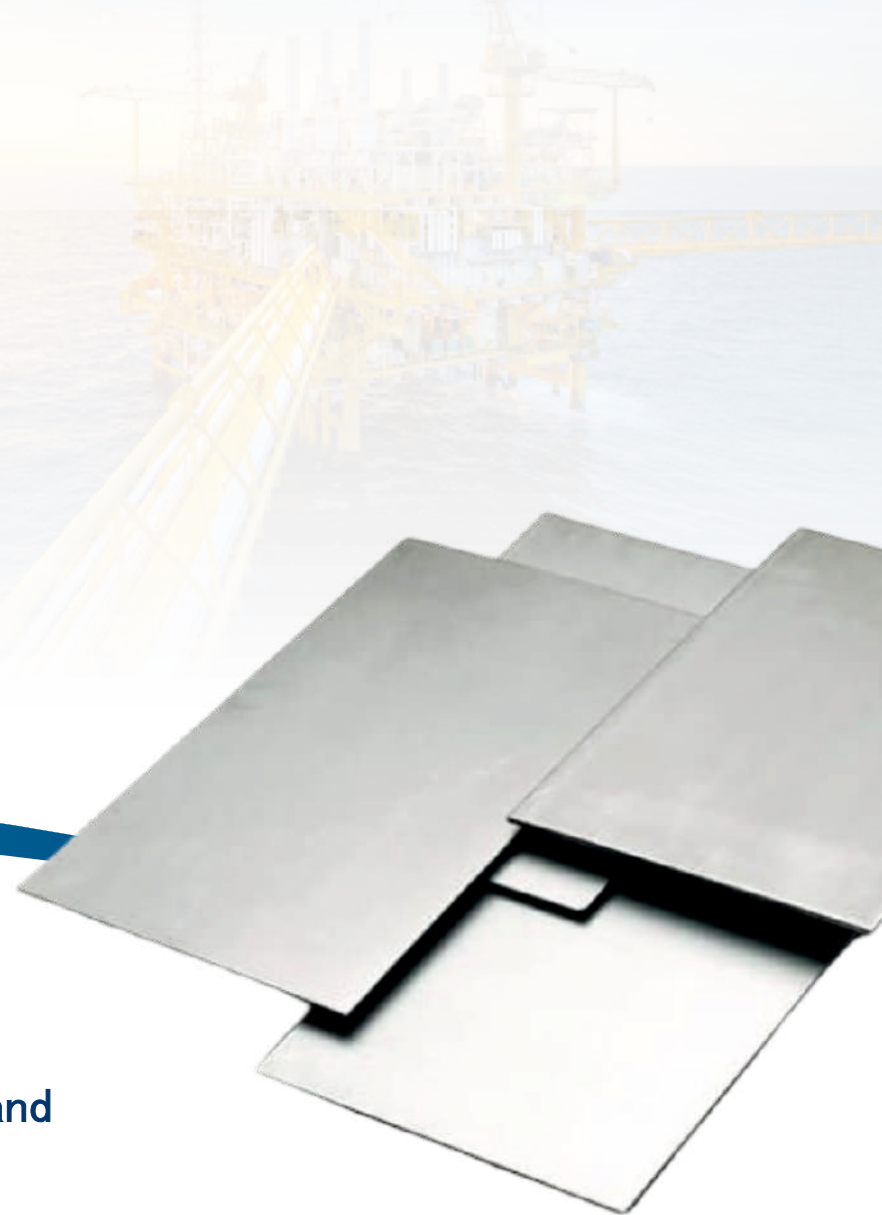
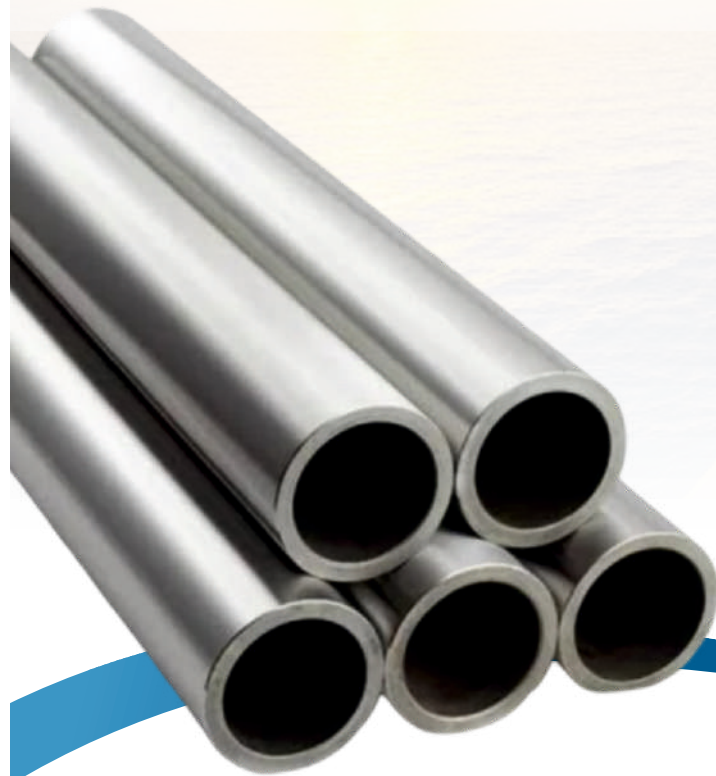
We aim to deliver high quality products that conform to different international standards and customer specifications. The process is carefully documented to ascertain consistent and high quality batches of each product lot.

At Multimetals, we use the best available testing facilities for conducting Physical, Electrical, Mechanical & other kinds of tests that are required for assuring superior quality products.



COPPER-NICKEL PIPE FITTINGS AND FLANGES FOR SHIPBUILDING AND OFFSHORE INDUSTRY

Pipes



Sheets / Plates

The Introduction of Cuni 90/10 and Cuni 70/30 Alloy :

The Attractive corrosion and biofouling – Resistance of copper–nickel alloys in seawater and related environments have Led to their substantial use in marine service for many years. The two main, wrought copper–nickel Alloys chosen for seawater service contain 10% or 30% Nickel, respectively. Development work began in the 1930s in response to A requirement by the british navy for in improved condenser material. Since the 1950s, the 90–10 Alloy has become accepted for condenser service as well as for seawater pipe work in merchant and naval service. In naval vessels, the 90–10 copper–nickel is preferred for surface ships; Whereas, the 70–30 alloy is used for sub– marines because its greater strength makes it more acceptable for the higher pressures encountered. These alloys are also used for power station condensers and offshore seawater pipe work on oil/ gas platforms:

Large quantities are selected for the desalination industry and they are additionally used for cladding and sheath–ing of marine structures and hulls.

Butt Weld Fitting

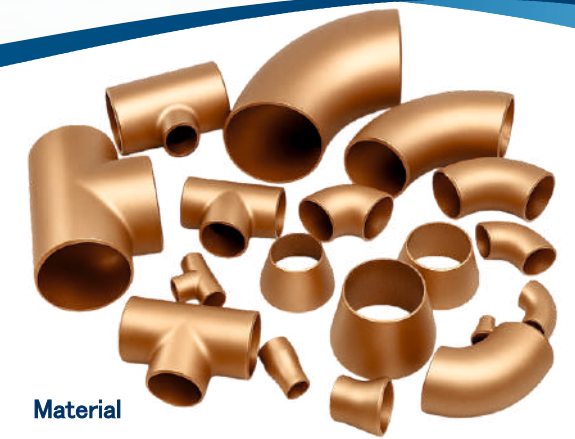
Seamless Butt Welding Fittings

Seamless butt weld fittings are produced from Seamless tube and pipe by either hot or cold extrusion, forming, forging, machining, or by a combination of two or more of these operation.

Seamless butt weld fittings are available in standard size, as published in this catalogue, and in nonstandard sizes. Standard size fittings are genellaly available ex stock.

Seam Welded Butt Welding Fittings

Seam–Welded butt weld fittings are produced from hot or cold rolled, annealed and pickled sheet or plate, formed into half shells or segments and longitudinally seam–Welded. Seam–Welded Butt–Welding Fittings are available in standard sizes, as published in this catalogue, and in non–standard sizes.



Material

90/10 Copper Nickel Alloy

- DIN 86013 2.1972, DIN 17664 / 2.0872
- BS2871, 2872, 2875 Cn102
- EEMUA 144
- ASTM B466, B467, C70600, MIL–T–16420K C70600
- JIS H3300 C7060T

70/30 Copper Nickel Alloy

- DIN 17664 2.0882
- Bs2871, 2872, 2875 CN107
- ASTM B466, B467, C71500, MIL–T–16420K C71500
- JIS H3300 C7150T

Dimension

- DIN 86011, 86087, 86088, 86089, 86090
- BS1640
- ANSI B16.9, B16.28
- JMS 7354

Forge Fitting

Copper Nickel Forged Fittings

Stockist of copper nickel forged elbow, ASME 16.11, MSS SP–19, 83, 95. 91 forged pipe fittings, Cupro nickel forged pipe fittings. Cu–Ni 90–10 forged fittings, global supplier of copper nickel 70–30 socket weld fittings, Cu–Ni 90/10 threaded fittings dealer in ndia.

Manufacturer of ASTM B461 Copper nickel bushing, werkstofi No. 2.0812 Copper nickel high pressure forged fittings, copper nickel T0130 cross, copper nickel equal tee, Cu–Ni full couplings, BS 3199 union, Cu–Ni UNS C70600 forged 90 deg screwed threaded elbow in mumbai, india.



Standard Specification For Copper Nickel ASTM B466 Forged Pipe Fittings

Specifications : ASTM B122, B171, B466, B467.

Standard : ASME 16.11, MSS SP–79, 83, 95, 97, BS 3799.

Size : 1/8" NB to 4" NB(Socketweld & Screwed Threaded)

Class : 2000 LBS, 3000 LBS, 6000 LBS, 9000 LBS.

Type : Socketweld Fittings, Screwed–Threaded Fittings.

Grades : Copper Nickel 90/10 (C70600) Cupro Nickel – 70130 (C71500), UNS C71640.

COPPER-NICKEL PIPE FITTINGS AND FLANGES FOR SHIPBUILDING AND OFFSHORE INDUSTRY

Flange

Composite Flange

Composite weld-neck and composite slip-on flanges are made up from components, an inner Flange (Welding collar) in Cu-Ni 90/10 or Cu-Ni 70/30 and an outer flange in Carbon Steel.

Composite blind flanges are made up from a carbon steel blind flange with a welded-on and machined disc in Cu-Ni 90/10 or Cu-Ni 70/30.

Solid Flanges

Solid flanges in Cu-Ni 90/10 or Cu-Ni 70/30 are produced from bar or plate by hot forging and machining.

Product Range

Composite and solid flanges are available in standard sizes machining those of the relevant pipes and butt welding fittings. Non-standard size flanges are produced to certain minimum quantity limitations available on application.



Material

- BS 2872 CN102, Cn107.
- ASTM B151 C70600, C71500.
- JIS C7060, C7150.
- DIN CuNi10Fe1Mn, CuNi30Mn1Fe.

Dimension

- BS4501
- ASTM B16.5
- DIN 86037
- JIS B2240

Round Bars

Cupro Nickel 90 / 10 Round Bar

Specifications: ASTM B151, ASME SB151.

Dimensions: EN, DIN, JIS, ASTM, BS, ASME, AISI.

Range: 5 mm to 500 mm thick in 100 mm to 6000 mm.

Round Bars: 6 mm to 120 mm.

Square Bars: 10 mm to 200 mm.

Finish: Black, Bright Polished, Rough Turned, No. 4 Finish, Matt Finish, BA Finish.

Length: 100 mm to 3660 mm Long.

Form: Round, Square, Hex (A/F), Rectangle, Billet, Ingot, Forging Etc.



Plates / Sheets

Cupro Nickel 90 / 10 Sheets & Plates

Grades: UNS No C 70600 (CU – Ni – 90/10), C 71500 (CU-NI– 70/30)

Specifications: ASTM / ASME SB171, Sb157

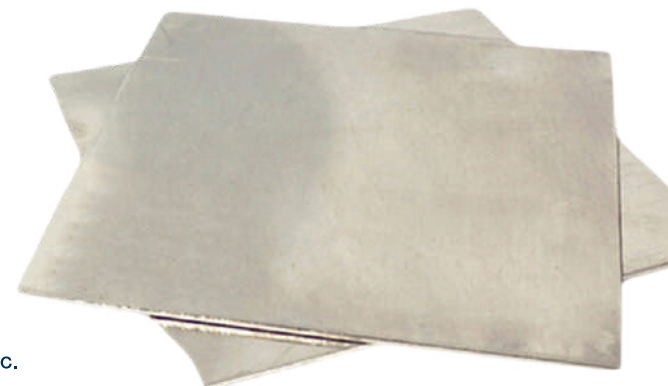
Width: 1000mm / 1219mm / 1250mm / 1500mm

2000mm – Length 2000 mm / 2440 mm

2500 mm / 3000 mm to 6000 mm.

Thickness: 0.1mm to 100 mm Thk.

Form: Coils, Foils, Rolls, Plain Sheet, Strip, Flats, Blank (Circle), Ring (Flange) etc.



Special Products

1. Machined Components

Product Application Areas:

- Driving Band Blanks for Defense Application
- Marine Industry
- Synchronizer Rings for Automobile
- Bushes

Alloys: CuNi5, Naval Brass, Copper, Manganese Bronze, Gilding Metal (C22000), Copper Alloy (C12200)

Related Standards: ASTM B135, ASTM B75, MIL-B-18907, MIL-B-20292



2. 'U' Bend Tubes as per ASTM B 395

Product Application Areas:

- Condensers, Evaporators, Radiators and Heat Exchangers

Alloys: Copper, Copper Nickel 95/5, 90/10, 70/30, Admiralty Brass, Aluminium Brass

3. Level Wound Coils

Product Application Areas:

- Chillers, Air Conditioning, Refrigeration & Automobile Brake Lines

Alloys: Copper, Copper Nickel 95/5, 90/10, 80/20, 70/30

Related Standards: ASTM B 111, BS EN 12449, DIN 74234

Size Range: OD: 4.76 mm to 22.00 mm WT: 0.30 mm to 1.50 mm



4. Finned Tubes as per ASTM B 359

Product Application Areas:

Heat Exchangers, Condensers & Chillers.

- Low Finned tubes
- Enhanced Surface Finned Tubes

We Manufacture the above two kinds of Finned Tubes with 19 & 26 fins per inch

Alloys: Copper, Copper Nickel 95/5, 90/10, 70/30, Admiralty Brass, Aluminium Brass



5. Pancake Coils

Product Application Areas:

- Chillers & Brake Lines for Automobiles

Alloys: Copper, Copper Nickel 95/5, 90/10, 80/20

Related Specification: ASTM, BS EN 12449

Size Range: OD: 4.76 mm to 22.00 mm WT: 0.40 mm to 1.50 mm

Length: 5 meter to 15 meter



6. PVC Coated Copper Tubes

Product Application Areas:

- LPG Gas Kits
- Oil & Gas Industries
- Instrumentation Industries
- Plumbing & Drainage

Copper Tubes meet International Standrads like ASTM B 68/75 with PVC coating as per ASTM D 1047 Tube basic dimensions are 6 & 8 mm OD with standard lengths of 14 & 16 feet



7. Capillary Tubes

Product Application Areas:

- Air Conditioning, Refrigeration, Instrumentation

Related Standards: ASTM B 360 as per C 10800 or C 12200



European Standards

Dimension :

SEAMLESS and SEAM Pipe according to DIN 1755 T3, DIN 86018, DIN 86019 BS 2871.PT2 & EEMUA 144.

SEAMLESS and SEAM Pipe According to Metric Size, Navy(mm, inch) NDS Size.

Outside Diaeeter of Pipe ØD			10 bar	14 bar	16 bar	20 bar
			Minimum Wall Thickness	Minimum Wall Thickness	Minimum Wall Thickness	Minimum Wall Thickness
Nominal		Actual mm	Actual mm	Actual mm	Actual mm	Actual mm
Inch	ND					
SEAMLESS						
1/8	–	10	1.0	1.0	1.0	1.0
1/4	–	12	1.0	1.0	1.0	1.0
3/8	10	16	1.0	1.0	2.0	2.0
1/2	15	20	1.0	1.0	2.0	2.0
3/4	20	25	1.5	1.5	2.0	2.0
1	25	30	1.5	1.5	2.5	2.5
1 1/4	32	38	1.5	1.5	2.5	2.5
1 1/2	40	44.5	1.5	1.5	2.5	2.5
2	50	57	1.5	1.5	2.5	2.5
2 1/2	65	76.1	2.0	2.0	2.5	2.5
3	80	88.9	2.0	2.5	2.5	2.5
4	100	108	2.5	2.5	3.0	3.0
5	125	133	2.5	3.0	3.0	3.0
6	150	159	2.5	3.0	3.0	3.5
7	175	193.7	2.5	3.5	3.5	3.5
8	200	219.1	3.0	3.5	3.5	4.5
10	250	267	3.0	4.0	4.0	5.5
12	300	323.9	4.0	5.0	9.0	7.0
14	350	368	4.0	9.5	9.5	8.0
16	400	419.1	4.0	6.0	6.0	9.0
SEAMLESS or SEAM WELDED						
18	450	457.2	4.0	6.0	8.0	9.5
20	500	508	4.5	6.5	8.5	11.0
SEAM WELDED						
24	600	610	5.0	8.0	10.5	13.0
28	700	711	6.0	9.0	12.5	15.0
32	800	813	6.0	10.0	13.5	17.0
36	900	914	8.0	11.0	15.5	19.0

Standard

The Applicable Standard Specifications for Cu–Ni 90/10 Pipes & Cu–Ni 70/30 Pipes

Kind	Country	GERMANY	UNITED KINGDOM	U.S.AMERICA	FRANCE	JAPAN
SEAMLESS		DIN 86019 DIN 1755 DIN 85004(Navy)	BS 2871 PT2 EEMUA 144 NES 779 PT3(Navy)	ASTM B466 MIL–T–16420K Type I GRADE 1	GAM MM11(Navy) S.T.F.22.54./C.004(Navy)	H3300
SEAM WELDED		DIN 86018	BS 2875	ASTM B467 ASTM B608 MIL–T–16420K Type II GRADE 1 or GRADE 2	GAM MM11(Navy) S.T.F.22.54./C.005(Navy)	H3320

Characteristics of Copper Nickel Alloy



- Good Resistance to stress corrosion & cavaition erosion.
- Excellent resistance to seawater
- Good thermal stability (up to approx. 300° C)
- Good cold – workability
- Good Welding and solder properties

Chemical Compasition & Comparision Table for Cu – Ni Alloys

Comparison Table of Standard Specifications for Cu–Ni 90 / 10 Pipe

	DIN 17664 2.0872	DIN 86019 2.1972	BS 2871 CN 102	EEMUA 144–1987 UNS C 7060x	MIL–T–16420K ASTM B 466 C 70600	JIS H 3300 C 7060T Cu+Ni+Fe
Cu%	rem.	rem	rem	rem	rem	rem
Ni%	90. – 11.0	9.0 – 11.0	10.0 – 11.0	10.0 – 11.0	9.0 – 11.0	9.0 – 11.0
Fe%	1.0 – 2.0	1.5 – 1.8	1.0 – 2.0	1.5 – 2.0	1.0 – 1.8	1.0–1.8
Mn%	0.5 – 1.0	0.5 – 1.0	0.5 – 1.0	0.5 – 1.0	max. 1.00	0.2 –1.0
C%	max. 0.05	max. 0.05	max. 0.05	max. 0.05	max. 0.05	–
Pb%	max. 0.03	max. 0.01	max. 0.01	max. 0.01	max. 0.02	max. 0.05
S%	max. 0.02	max. 0.05	max. 0.05	max. 0.02	max. 0.02	–
P%	max. 0.02	max. 0.02	–	max. 0.02	max. 0.02	–
Zn%	max 0.50	max. 0.05	–	max. 0.20	max. 0.50	max. 0.50
Other imp	max. 0.30	max. 0.20	max. 0.30	max. 0.30	–	Cu+Ni+Fe+Mn min 99.5%

Comparison Table of Standard Specifications for Cu–Ni 70 / 30 Pipe

	DIN 17664 2.0882	BS 2871 CN 107	MIL–T–16420K ASTM B 466 C 71500	JIS H 3300
Cu%	rem.	rem.	rem	rem
Ni%	30.0 – 32.0	30.0 – 32.0	29.0 – 33.0	29.0 – 33.0
Fe%	0.4 – 1.0	0.4 – 1.0	0.4 – 1.0	0.4 – 1.0
Mn%	0.5 – 1.5	0.5 – 1.5	max. – 1.00	0.2 – 1.0
C%	max. 0.05	max. 0.06	max. 0.05	–
Pb%	max. 0.03	max. 0.01	max. 0.02	max. 0.05
S%	max. 0.02	max. 0.08	max. 0.02	–
P%	max. 0.02	–	max. 0.02	–
Zn%	max. 0.50	–	max. 0.50	max. 0.50
Other imp	max. 0.30	–	–	Cu+Ni+Fe+Mn : 99.5%