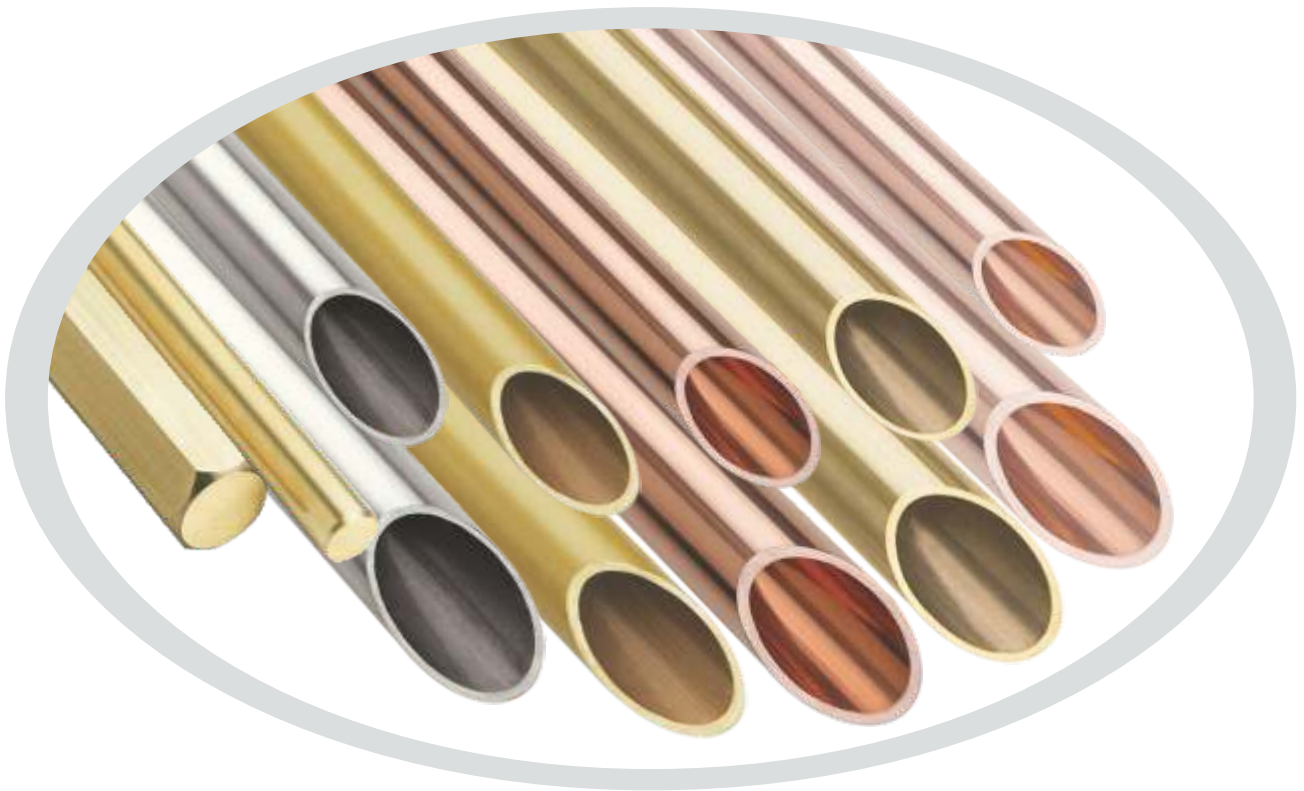




# Metal Alloys Corporation

## Quality, Technology & Vision at its Best

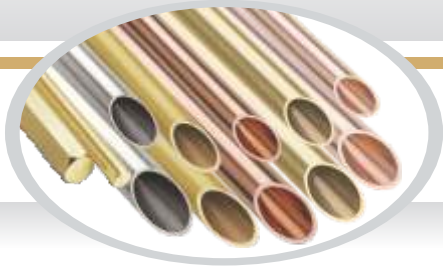
World Class Sourcing Solution for Copper & Copper Alloys Products



[www.metalalloyscorp.com](http://www.metalalloyscorp.com)

An ISO 9001 Certified Company





# Copper & Copper Alloys



## **We are...**

Metal Alloys Corporation - One of the leading manufacturer of Copper and Copper Alloys Cast, Extruded and Drawn products, viz. Billets/Ingots, Mother Shells, Tubes/Pipes, Hollow/Solid Rods, Sections, Profiles etc.

## **QUALITY:**

METALCO is an ISO 9001 Certified unit having sophisticated quality control & quality assurance systems along with an ultra modern chemical & physical testing laboratory having Computerized Spectroscopic Analyzer for precise alloying, Multi - Range Microscope for micro structure examination, Eddy Current Testing, Hydraulic Pressure Testing etc.

## **TECHNOLOGY:**

METALCO - with a production capacity of 6000 MT per annum sprawls across an area of 150,000 sq. ft. with a unique design of the constructed area of 60,000 sq. ft. which maximizes productivity & enables us to transfer benefits of the large scale operations to the customers. In order to consistently manufacture international quality products, the company has employed a dedicated team of highly qualified and experienced Engineers and Management Professionals.

## **VISION:**

The vision of the management & the technical expertise of entrepreneurs led to the design, construction and installation of state of art manufacturing facility for casting, extrusion, pilgering, cold drawing, finishing, inspection and testing, under one roof.

# Seamless Tubes & Solids



**METALCO**



**ENGINEERS INDIA LIMITED**  
(A Govt. of India Undertaking)



## Our Pride

**SIEMENS**

**GEA**

*Godrej*



**ThyssenKrupp**

**एनटीपीसी  
NTPC**

**TATA  
TATA POWER**



**बी एच ई एल  
BHEL**

**Lloyd's  
Register**

**Reliance  
Industries Limited**

**KNPC**

**इंडियन ऑयल  
IndianOil**

**हिगुलर हेल्थियर  
HP**

**Bhavat  
Petroleum**

**قطر للبترول  
Qatar Petroleum**

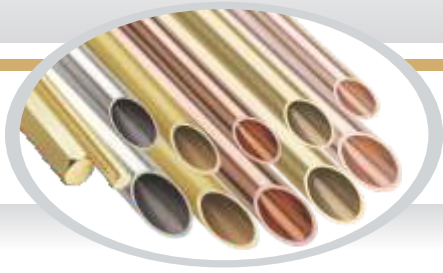
**تكرير  
TAKREER  
شركة أبوظبي لتكرير النفط**

**ادما  
ADMA**

**أدنوك  
ADNOC  
شركة أبوظبي الوطنية للنفط**

**سابك  
sabc**





# Copper & Copper Alloys

## Products & Products Details...

**METALCO** Specializes in manufacturing following Copper & Copper Alloys Seamless Tubes for Heat Exchangers & Condensers.



### ● ADMIRALTY BRASS

Admiralty Brass is generally used with fresh, clean waters free from suspended abrasive solids and originating from rivers lakes and canals. It may also be used with brackish or even saline water. The inhibitive action of arsenic protects Admiralty Brass from dezincification and the fully annealed alloy can also withstand stress-corrosion cracking. In waters containing less than 2000 ppm dissolved solids its use is allowed at flow rates of up to 3 m/s (10 ft/s); in sea waters a maximum speed of 1 m/s (3,0 ft/ s) is recommended. The presence of tin improves resistance to general corrosion in slightly polluted (sulfurized) water.

### ● ALUMINUM BRASS

Aluminum Brass is generally used with brackish or sea water. Through its arsenic inhibition, it is virtually immune from dezincification and when fully annealed, also practically free from stress-corrosion cracking. Aluminum Brass is resistant to pitting and even more so to impingement attack: in fresh water, a velocity of up to 3,5 m/s (11,5 f/s) is admitted; it should be reduced to about 2,5 m/s (8,5 f/s) when operating in sea water.



### ● 90/10 COPPER NICKEL

90/10 Copper Nickel is widely used in sea water. It has very good corrosion resistance to clean or moderately polluted marine or estuary water, even containing dissolved incondensable gases. This alloy is virtually immune from stress-corrosion cracking. In clean sea water, velocities of up to 2,2-2,5 m/s (7,5-8,5 ft/s) are accepted while 4 m/s (13 ft/s) is the upper limit for clean fresh or slightly saline solutions. To avoid the risk of deposit attack, it is generally recommended to never operate at water velocities below about 0,8-1 m/s (2,5-3,5 ft/s). 90/10 Copper Nickel can also be used, with appropriately reduced flow velocity, in contact with water containing some sulphides or suspended solids. It is also often selected for its good mechanical properties, both at room and relatively elevated temperatures.

### ● 70/30 COPPER NICKEL

70/30 Copper Nickel is mainly preferred when the severity of service condition (Cooling water, steam, condensate, temperature, etc.) is such as to virtually rule out all other copper metals. Due to its hardness and to the type of oxide whereby its surfaced is self-protected, 70/30 Copper Nickel has excellent resistance to impingement and erosion-corrosion by suspended solids in sea water flowing at up to 3 - 3,5 m/s (10 -11,5 ft/s). Like all Copper-nickels, 70/30 Copper Nickel is virtually immune from stress-corrosion cracking. It can be very sensitive to deposit attack and is therefore not recommended for stagnant or slow moving (under 1 - 1,2 m/s or 3,5-4 ft/s) water.





TM

# Seamless Tubes & Solids

**METALCO**

**METALCO** Specializes in manufacturing following Copper & Copper Alloys Tubes for Sugar, Air - Conditioning, Refrigeration, U Tube Bundle, Finned Tubes



## ● 70/30 SUGAR BRASS TUBE

SUGAR BRASS TUBES is the commonly known name of 70/30 Brass Tubes. A Copper Zinc Alloy Containing Small Quantity of Arsenic. This is added as an inhibitor against Dezincification. The Alloys Exhibits a good combination of strength and ductility and is commonly selected whenever excellent cold working properties and relatively low cost are desirable. Application areas of this product are Sugar Industry, Plumbing, Furniture, Hand Pumps, Ammunitions, General Engineering.

## ● COPPER PAN CAKE COILS

Copper Pan Cake Coils are commonly known as ARC Coils (Air Conditioning and Refrigeration Coils) are highly acknowledged for long lasting excellent performance, High resistance to wear and tear assures low maintenance cost. Rugged construction makes them perfect to be used in various industries. Other applications are Cooling Towers, Gas Lines, Plumbing, Etc.

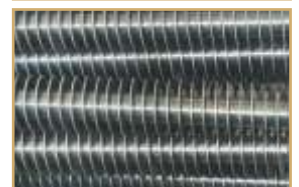


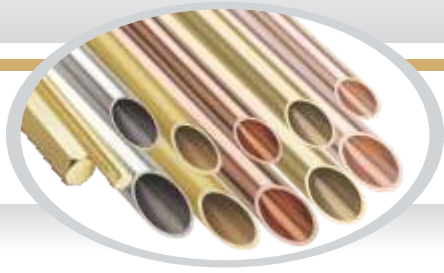
## ● U-BEND TUBES

METALCO manufactures U-Bend tubes conforming to the international Standards and as per the customer requirements. These tubes have been added to our product range so to offer added value to our esteemed customers. Roundness, Straightness, Uniformity of the wall thickness and inner and outer surface of the tube are the unique features so as to make them suitable for intended Applications. U-bend tubes are mainly used to enhance the design of heat exchangers where there are space constraints and heat transfer are required to be done on faster basis. Special care is being taken in packing this product to avoid any variation in U-bend radius during transit. The U-bend tube quality is guaranteed by means of hydrostatic and pneumatic tests, eddy current tests and non-destructive tests (hardness, dimensional, dye penetration inspection).

## ● FINNED TUBES

METALCO offers different finned tubes: tension wound finned tubes, embedded finned tubes, extruded finned and low finned tubes. Tension wound finned tubes are formed by winding a strip made of aluminum or copper around the tube under tension. The strip winding technology provides different types of fins: L-fin, LL fin, KL fin. Embedded fins (G fins) are made by winding aluminum or copper strip into a helical groove machined on the outer surface of the tube. Extruded finned tubes are bimetallic tubes whose outer aluminum surface is finned by cold plastic deformation. Low finned tube is a finned tube obtained through plastic cold deformation. The method consists in realizing from a smooth tube, fins with a particular geometric form without removing material; this plastic deformation causes an increment of heat exchange efficiency and allows to reduce the heat exchanger size. The finned tubes quality is assured by hydrostatic and pneumatic tests.





# Copper & Copper Alloys

## Capabilities...

**Production range : TUBES / RODS / HEX / SQUARE / FLAT / PROFILE / HOLLOW**

Tubes	6.35 mm to 110 mm
Round Rods	6 mm to 250 mm
Hex	5 mm to 60 mm
Square	4 mm to 60 mm
Flat	5 mm Min Thickness and Max Width 120 mm
Profile	As per Customer Drawing
Hollow Rods	Min Bore size 20 MM and Max OD 130 mm

<b>Cupro Nickel</b> Ingots / Billets/ Mother tubes/ Pilger Tubes/ Finished Tubes/ Finned Tubes/ U-Bend Tubes/ Rods	70/30 copper Nickel	ASTM B 111 C 71500/ ASME SB 111 C 71500/ BS 2871 part 3 CN 107/ EN 12451 CuNi 30 Fe 1 Mn/ NFA 51 102 CuNi 30 Fe 1 Mn/ JIS H 3300 C 7150/
	90/10 Copper Nickel	ASTM B 111 C 70600/ ASME SB 111 C 70600/ BS 2871 Part 3 CN 102/ EN 12451 CuNi10 Fe 1Mn/ NFA51 102 CuNi10 Fe1Mn/ JIS H 3300 C 7060
	95/5 Copper Nickel	ASTM B 111 C 70400/ ASME SB 111 C 70400/ BS 2870 CN 101/ ISO 1635 CuNi5Fe1MN/ JIS C 2532 GCN10
<b>Brass for condensers/            heat exchangers</b> Ingots / Billets/ Mother tubes/ Pilger Tubes/ Finished Tubes/ Finned Tubes/ U-Bend Tubes/ Rods	Admiralty Brass	ASTM B 111 C 44300/ ASME SB 111 C 44300/ BS 2871 Part 3 CZ - 111/ EN 12451 CuZn28 Sn1As/ NFA 51 102 CuZn29Sn1/ JIS H 3300 C 4430
	Aluminum Brass	ASTM B 111 C 68700/ ASME SB 111 C 68700/ BS 2871 PART 3 CZ - 110/ EN 12451 CuZn20 AL2As/ NFA 51 102 CuZn22 Al2/ JIS H - 3300 C 6870/
	Aluminum Bronze	ASTM B 111 C60800/ ASME SB 111 C 60800/ EN 12451 CuAl5As/ CW200G
<b>Lead Free Brasses</b> Ingots / Billets/ Mother tubes/ Pilger Tubes/ Finished Tubes/ Rods (Solid and Hollows) - Hex/ Rectangles/ Square/ Profile	70/30 Brass	ASTM B 135 C 26000/ BS 2871 Part 3 CZ - 126/ EN 12451 CuZn30As/ NFA 51 102 CuZn30/ JIS H 3300 C 2600/ AS 1572 26130
	63/37 Brass	ASTM B135 C 27000/ JIS H33000 C 2700/ ISO 1637 CuZn37
	Red Brass	ASTM B135 C 23000/ BS 2870 CZ 102/ JIS H3300 C 2300
	Naval Brass	IS291 Grade I or II/ BS 2874 CZ 112/ JIS 3250 C4622/ ASTM C48200
<b>Copper</b> Ingots / Billets/ Mother tubes/ Pilger Tubes/ Finished Tubes/ Finned Tubes/ U-Bend Tubes/ Rods/ Pancake Coils	DHP Copper	ASTM B 68 C 12200/ ASTM B 75 DLP C12000/ BS 2871 Part 2 C 101/ BS 2871 Part 3 C 106/ EN 12451 DHP/ JIS H3300 C 1220/
	DLP Copper	ASTM B 68 C 12200/ ASTM B 75 DLP C12000/ BS 2871 Part 2 C 101/ BS 2871 Part 3 C 106/ EN 12451 DHP/ JIS H3300 C 1220/
	EC / ETP Copper	ASTM B 68 C 12200/ ASTM B 75 DLP C12000/ BS 2871 Part 2 C 101/ BS 2871 Part 3 C 106/ EN 12451 DHP/ JIS H3300 C 1220/
<b>Leaded Brasses</b> Wire Rods (Solid and Hollows) - Hex / Rectangles/ Square/ Profile	Free Cutting Brass	ASTM B 455 / B 16 C 38500 / C 36000/ BS 2874 CZ - 121Pb3 or CZ124/ IS319 Grade I/ II/ III/ JIS3250 H C3604 or C3602
	Forging Brass	ASTM B 124 C37700/ BS 2874 CZ 122/ IS 3488 Forging Brass
	High Tensile Brass	IS 320 HT1 or HT2/ BS 2874 CZ114 or CZ115/ JIS 3250H C6782 or C6783
	Rivetting Brass Nickel Silver	IS 4170 CuZn40/ BS 2874 CZ109/ JIS 3250 H C2800/ ASTM B171 C 36500/ IS 4413 CuZn37/ BS 2872 Cz108 IS 10757 Nickel Silver/ BS 2874 NS101/ ASTM C79830
<b>Bronze</b> Rods (Solid and Hollows) - Hex/ Rectangles/ Square/ Profile	Tin Bronze	ASTM B30 C92600
	Aluminum Bronze	ASTM B 111 C60800/ ASME SB 111 C 60800/ EN 12451 CuAl5As/ CW200G
	Alu. Silicon Bronze	ASTM B 150 C 64200 / SAE J 463 C 64200
	Lead Comm.Bronze Phosphros Bronze	ASTM B 140 C31400 ASTM B103 C 51000 / SAE J 463 C 51000 / BS 2874 PB 102
<b>U Bend Tubes</b>	Brass,Copper-Nickel & Copper	U-Bend tubes confirming to the international Standards and as per the customer requirements
<b>Finned Tubes</b>	Brass,Copper-Nickel & Copper	Tension wound finned tubes, embedded finned tubes, extruded finned and low finned tubes. Tension wound finned tubes are formed by winding a strip made of aluminum or copper around the tube under tension. The strip winding technology provides different types of fins: L-fin, LL fin, KL fin.



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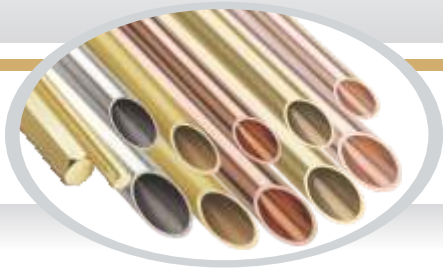
# Seamless Tubes & Solids

**METALCO**

## Quality Assurance Plan...

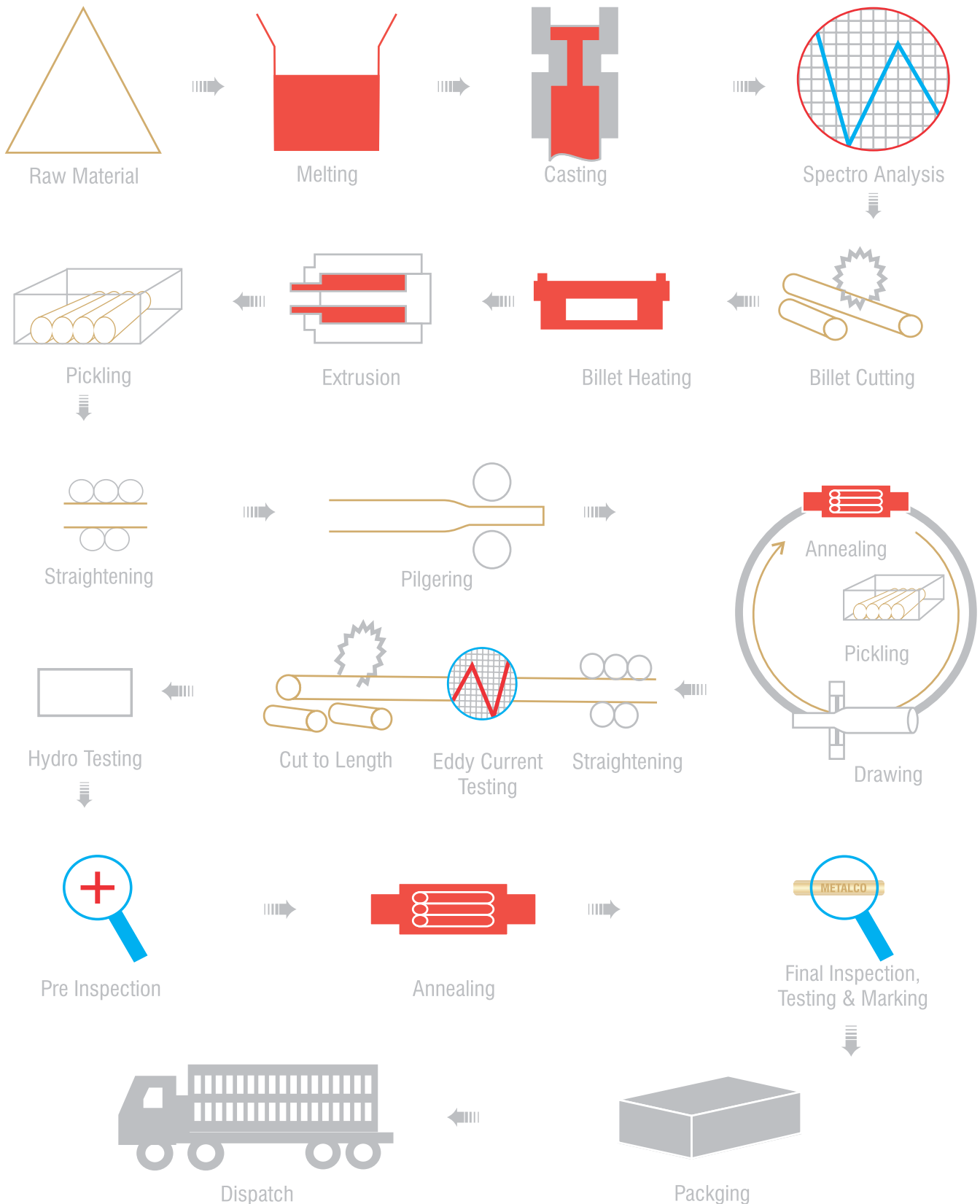
Sr. No.	Process	Characteristics to be checked	Measuring Instruments	Quantum to be checked
1	Raw Material Inspection	Purity	Spectro Analyzer	Random Sampling
2	Melting & Casting	Charge Quantity	Weighing Scale	Random Sampling
		Temperature	Thermo Couple	100%
		Chemical Composition	Spectro Analyzer	100%
3	Billet Cutting	Appearance	Visual	100%
4	Extrusion	Temperature	Pyrometer	Random Sampling
		Dimensions	Micro Meter	Random Sampling
5	Shell Inspection	Dimensions	Micro Meter	Random Sampling
		Appearance	Visual	100%
6	Pilgering	Dimensions	Micro Meter	Random Sampling
		Appearance	Visual	100%
7	Drawing	Dimensions	Micro Meter	Random Sampling
		Surface	Visual	100%
8	Straightening	Dimensions	Micro Meter	Random Sampling
		Straightness	Visual & Measurement	Random Sampling
9	Eddy Current Test (E-243)	Surface & Internal Defects	Eddy Current Testing Machine	100%
10	Finish Cutting	Length	Measuring Tape	100%
11	Hydrostatic	Leakage Defect	Pressure Gauge	100%
12	Pre - Inspection	Deburring	Deburring Tools	100%
		Dimension & Length	Micrometer	100%
			Messuring Tape	100%
Surface	Visual	100%		
13	Annealing	Temperature	Thermo Couple	Lot Wise
		Speed	Speed Controller	Lot Wise
14	Dimensional Check	Outer Diameter, Wall Thickness, Length, Straightness	Micrometer & Measuring Tape	100%
15	Visual Inspection	Surface	Visual	100%
16	Chemical Analysis Of Final Product	Chemical Composition	Spectro Analyzer	Random Sampling
17	Mechanical Properties Test	Microscopic Examination	Micro Scope	Random Sampling
		Expansion Test	UTM	Random Sampling
		Flattening Test	UTM	Random Sampling
		Tensile Strength Test	UTM	Random Sampling
		Yield Strength Test	UTM	Random Sampling
		Mercurous Nitrate Test	Chemical Lab	Random Sampling
18	Packing	Marking & Packing	As per customer requirement	100%

Perfection is impossible, but continual pursuit of perfection is dedication that few will pursue. Our future depends on the dedication of individuals to lead the way for the quality we wish to achieve.



# Copper & Copper Alloys

## Process flow chart...







TM

# Seamless Tubes & Solids

**METALCO**

## Our Plant

Coreless Type Induction Melting Furnace



Horizontal Oil Hydraulic Extrusion Press



PLC Controlled Draw Benches



Cold Pilger Mill



Eddy Current Testing Machine



Hydraulic Pressure Testing Machine

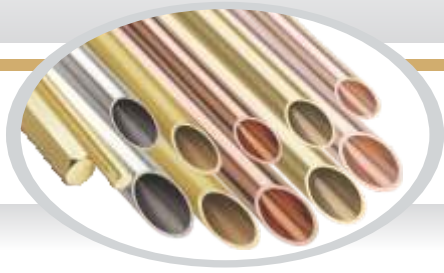


Superior Quality Packing



Roller Hearth Bright Annealing Furnace





# Copper & Copper Alloys

## Our Quality Control...

Optical Emission Spectrometer



Chemical Laboratory



Universal Testing Machine



Hardness Testing Machine



### PROCESS EQUIPMENTS

- Coreless Type Induction Melting Furnace
- Channel Type Induction Melting Furnace
- Gas Fired Billet Heater
- 1250/160 M.T. Horizontal Oil Hydraulic Extrusion Press
- Mannesmann Make Cold Pilger Mill
- Roller Hearth Bright Annealing Furnaces
- PLC Controlled Draw Benches
- Straightening Machine

### QUALITY CONTROL EQUIPMENTS

- Optical Emission Spectrometer.
- Universal Testing Machine
- Rockwell Cum Brinell Hardness Tester
- Brinell Cum Vickers Hardness Tester Machine
- Conductivity Meter
- Metallurgical Microscope
- Eddy Current Testing Machine
- Hydraulic Pressure Testing Machine
- Chemical Laboratory

### UTILITY

- Diesel Generating Sets
- High Pressure Air Compressors
- Stretch Wrapping Machine
- PLC based RO plant for industrial water supply
- Cooling Towers
- EOT Cranes.





# Seamless Tubes & Solids

**METALCO**

## Product Application...



### MAIN PRODUCT APPLICATION AREA

- Ship Building
- Automobiles
- Electronics
- Defence
- L.P.G. Valves & Compts
- Machinery Parts & Compts
- Thermal Power Plants
- Watch Industry
- Sugar Plant Tubes
- Tele Communications
- Surgical Equipments
- Ball Pens
- Electricals
- Railways
- Wood Screws
- Refrigeration Plant
- Heat Exchangers
- Building Hardware



**METALCO**



## Metal Alloys Corporation

Manufacturer & Exporter of Copper and Copper Alloys Products

### Regd. Office & Plant

6 & 7, Lakhabaval, R O. Khodiyar Colony, Jamnagar-361 006. Gujarat (INDIA)  
Tel.: +91-288-2889251 /52, Fax: +91-288-2889223, Cell: +91-9924443396

Email: [info@metalalloyscorp.com](mailto:info@metalalloyscorp.com) • web: [www.metalalloyscorp.com](http://www.metalalloyscorp.com)

### Corporate Office

A/2, North View Apartment, Sub Plot-IV, St. Xavier's College Road, Navrangpura,  
AHMEDABAD - 380 009. Gujarat (INDIA)

Tel. +91-79-26300054/0197 • Fax : +91-79-26302231 • M.: 98250 95960



Nearest Domestic Air Port : Jamnagar - 3 kms.  
Nearest International Air Port : Ahmedabad 325 kms.



Nearest Port : Kandla - 222 kms., Mundra - 300 kms.