

## LS METAL VINA LLC



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COPPER TUBE & PIPE



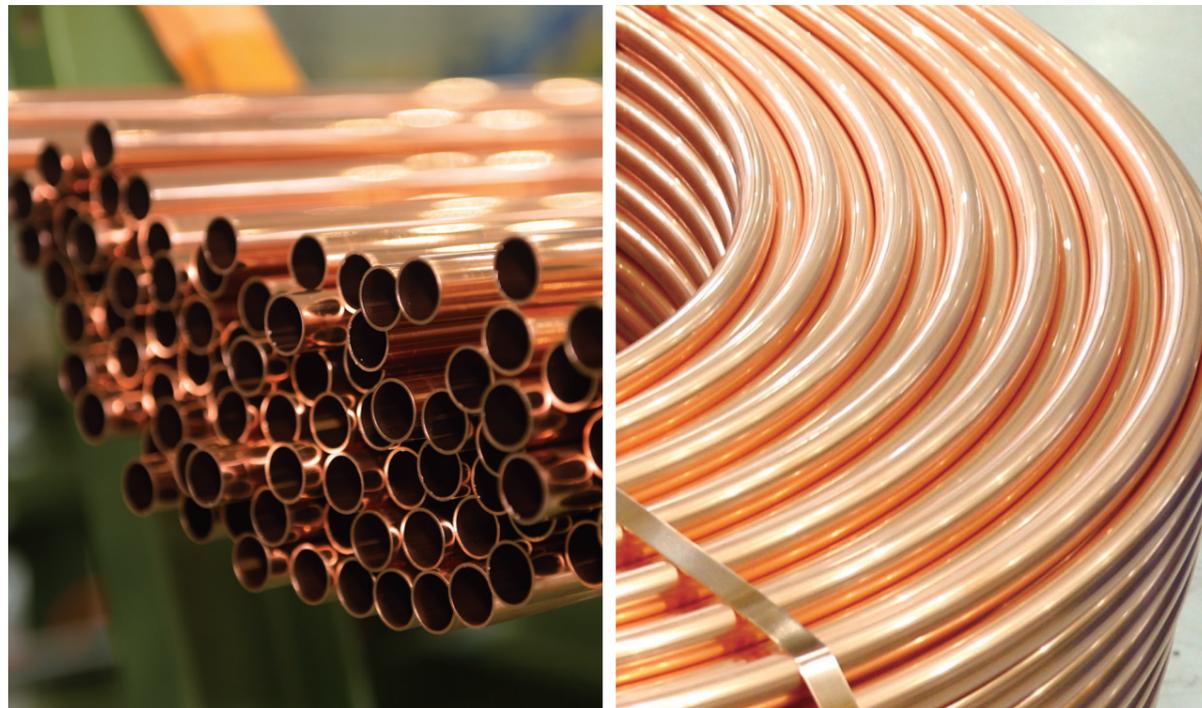
*A Company that Makes better PIPES than ever before*

**LS** Metal VINA





LS Metal VINA provide customers with not only the highest quality copper tube but also exceptional customer services based on LS Metal`s 30 years of experience and technology. The challenge of LS Metal VINA is to begin again with new innovations. This new and proud company pursues integral products and service.



### Advantage of LS Metal VINA Copper Tube

Excellent workability and corrosion resistance, suitable for air conditioning and refrigeration applications

- High thermal conductivity
- Stable mechanical properties
- High purity of clean surface
- Excellent weldability

### Material

Copper phosphorus deoxidized  
(Copper min.99.90%, P 0.015~0.04%)

### Standard

JIS H3300, EN 12735-1 & 2  
ASTM B280 / B68 / B743

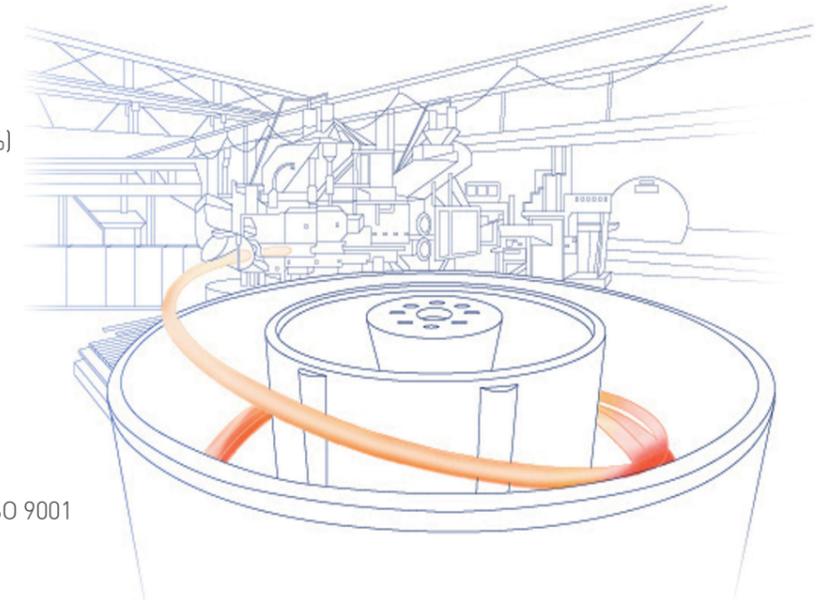
### Certification

JIS H3300, KS D 5301, ISO 14001, ISO 9001

### Mechanical properties

Standard	Alloy	Temper	Tensile Strength (Mpa)	Elongation (%)	Grain Size (mm)
JIS H3300	C1220 C1020	O	≥ 205	≥ 40	0.025-0.06
		OL	≥ 205	≥ 40	≤ 0.04
		½ H	245-325	-	-
		H	≥ 315	-	-
EN 12735-1	C106	R220	≥ 220	≥ 40	-
		R250	≥ 250	≥ 30	-
		R290	≥ 250	≥ 30	-
ASTM	C12200	Hard Drawn (H80)	≥ 310	-	-
		Drawn (H58)	≥ 250	-	-
		Light Drawn (H58)	250~325	-	-
		Light Annealed (O50)	≥ 205	≥ 40	≤ 0.040

• Other specification & sizes are available upon request



## LEVEL WOUND COIL

Level wound coil is an industrial copper tube with long length for the continuous work of automated production line. This contributes to the reduction of working time and improvement in productivity. To address the usage of the customer, it's packed in a form of 160~350Kg of coil for sales. This contributes to the improvement of the customer's productivity and ability to select bobbin size which responds to the various demands of the customers.

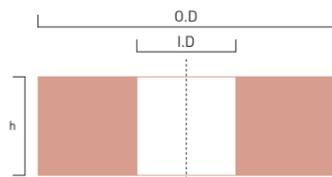
### Available sizes

(mm)

O.D		Wall Thickness									
Inch	mm	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2
3/16	4.76										
1/4	6.35										
5/16	7.94										
3/8	9.52										
1/2	12.7										
5/8	15.88										
3/4	19.05										
7/8	22.22										
1	25.4										
1 1/8	28.58										

• Other specification & sizes are available upon request

### Packing standard



LWC (Bobbinless)			
Coil weight (Kg)	O.D	I.D	h
150~300	Max.1,100	610	250~300



LWC (Bobbin)		
Coil weight (Kg)	O.D	T
150~300	1,100	11.5

\* B.H(Bobbin hole) : 130mm



• Pallet : 1150 X 1150

## INNER GROOVED TUBE

Inner grooved tube is processed continuously for a spiral inner grooved to increase heat transfer superficial of a smooth copper tube. That's adopted in air-conditioning equipment contributing energy reduction and miniaturization of products. LS Metal VINA leads the market by maintaining constant quality of the existing inner grooved tube and of course, possesses original technology of IHF (Inner High Fin) tube.

### Available sizes

(mm)

O.D	Bottom Wall Thickness	Groove Depth	Apex Angle (α)	Helix Angle (β)	Number of Grooves	Unit Weight (g/m)
5.00	0.19-0.23	0.12-0.16	35-45	16-20	40	32~36
7.00	0.21-0.27	0.10-0.15	20~56	15~18	60~65	46.5~60
9.52	0.28~0.30	0.14~0.20	18~53	15~21	60-72	78.5~92
12.7	0.33~0.39	0.17~0.23	45~58	16~20	65	139~143

• Other specification & sizes are available upon request

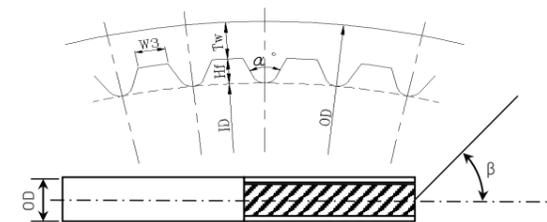
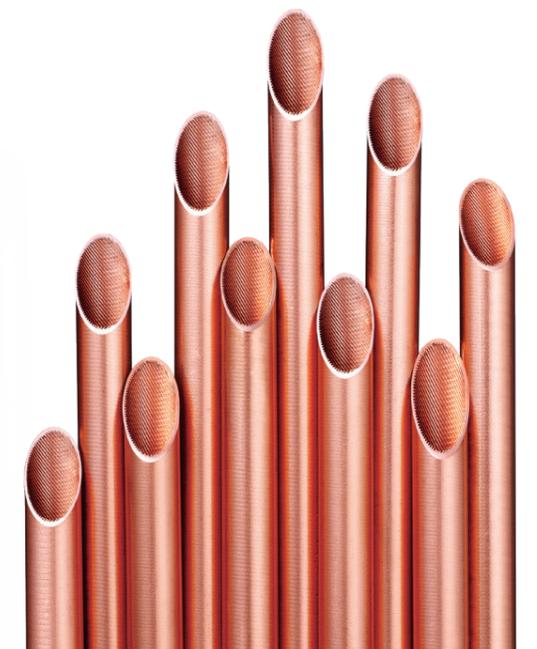


Figure at Cross - Section I

- OD : Outer Diameter
- Tw : Bottom Wall Thickness
- Hf : Groove Depth
- α : Apex Angle
- β : Helix Angle
- ID : Inside Diameter

### Packing standard



## HARD/SOFT STRAIGHT TUBE

Hard / soft straight tube has outstanding corrosion resistance and is used for heating and cooling, water supply, hot water, natural gas, firefighting pipe and heat exchanger. It helps to save a lot of needed energy in heating by outstanding thermal conductivity.

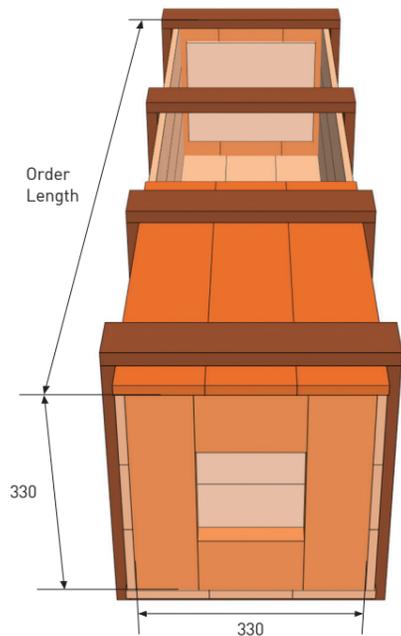
### Available sizes

(mm)

O.D		Wall Thickness									
Inch	mm	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2
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• Other specification & sizes are available upon request

### Packing standard



## PANCAKE COIL

Pancake coil is an industrial copper tube for general use in places where 30M or shorter is needed. Its weight is light and easy to carry. It is widely used in materials for air-conditioning installation, and recently its use has been expanded to the shipbuilding field. According to requests by customers, it is supplied by the piece with plastic wrap or bundle.

### Available sizes

(mm)

O.D		Wall Thickness									
Inch	mm	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2
1/4	6.35										
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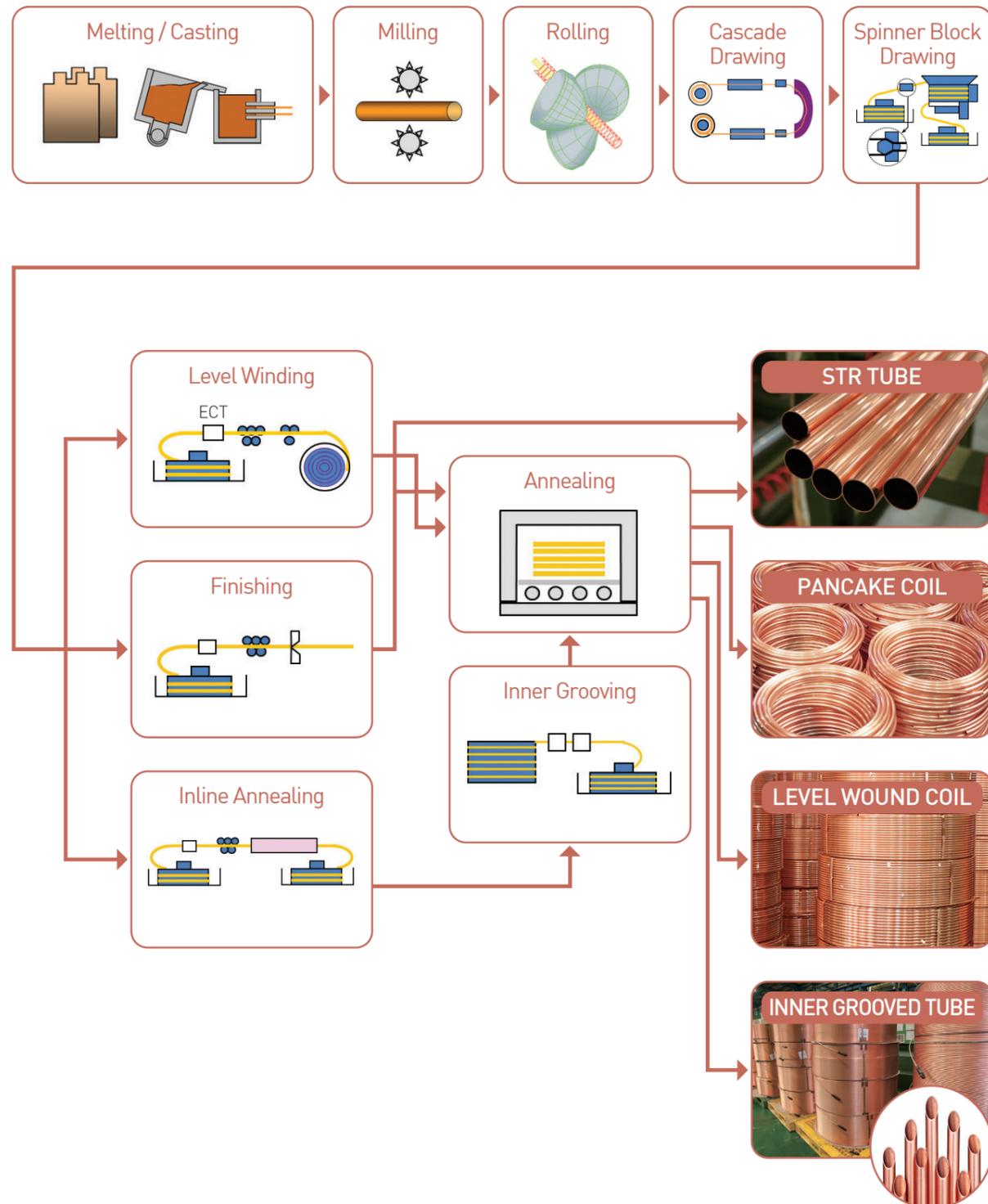
• Other specification & sizes are available upon request



## OXYGEN FREE COPPER

Oxygen free copper is an upgraded material that eliminates the disadvantages such as hydrogen embrittlement of tough pitch copper and decline in electrical conductivity of phosphorus deoxidized copper. It is a core material in the electric industry and used for cooler of computers, magnetrons of microwave ovens, commutators for high speed electric motors, coaxial cables for mobile communication, pressure connection terminal and more. OFC products of LS Metal VINA have the characteristic of excellent malleability and ductility with Cu 99.99% or more, oxygen content 10ppm or lower, electrical conductivity 101% IACS or more. It also does not cause hydrogen embrittlement and has high electrical and thermal conductivity and outstanding formality.

## Manufacturing Process



**LS Metal VINA Proudly Offers the Best Quality, Delivery, and Service!**

*LS Metal VINA`s zero tolerance for error in process control provides our customers with prompt and exceptional service.*

