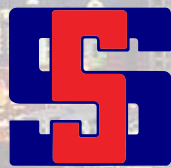




SEAMLESS COPPER TUBES



N.B.C. COPPER TUBE



บริษัท สิ้นสยามอินเตอร์คูลลิ่ง จำกัด
SINSIAM INTER COOLING



ABOUT US

ด้วยความมุ่งมั่นของคุณพัฒนา และ คุณรุ่งนภา อัศวนิเวศน์ ที่จะต่อยอดกิจการในกลุ่มเครือ **"บริษัท สีสยามกรุ๊ป"** ซึ่งดำเนินธุรกิจนำเข้า และเป็นตัวแทนจำหน่ายอุปกรณ์สำหรับงานระบบทำความเย็น มานานกว่า 40 ปี



จึงก่อตั้งบริษัท สีสยามอินเตอร์คูลลิ่ง จำกัด เริ่มดำเนินธุรกิจตั้งแต่ปี 2542 เน้นการนำเข้าท่อทองแดง และ อุปกรณ์ทองแดงเป็นสินค้าหลัก ตอบสนองความต้องการของกลุ่มลูกค้างานระบบปรับอากาศที่มีการขยายตัวเพิ่มมากขึ้น ทั้งในกลุ่มโรงงานและผู้รับเหมางานระบบปรับอากาศโครงการต่างๆ

จากความตั้งใจของผู้ก่อตั้ง คำนึงถึงความสำคัญของคุณภาพสินค้าและการบริการเป็นหลักทางบริษัทฯ จึงร่วมมือกับบริษัทผู้ค้าประเทศเกาหลี ญี่ปุ่นและสหรัฐอเมริกา เพื่อนำเข้าและเป็นตัวแทนจำหน่ายผลิตภัณฑ์ท่อทองแดงชนิดเส้นและม้วน (HARD DRAWN and SOFT DRAWN) ข้อต่อและข้อต่อทองแดง (COPPER FITTINGS) ที่ได้มาตรฐานรับรองจากองค์กรที่ควบคุมมาตรฐานระดับสากล เพื่อสร้างความเชื่อมั่น และประทับใจในคุณภาพสินค้าและการบริการจากอดีตจนถึงปัจจุบัน



SEAMLESS
COPPER TUBES

N.B.C. Copper Tube



N.B.C. COPPER TUBE


ASTM B88

Standard Specification for Seamless Copper Water Tube

- ✔ For use in hot and cold water Distribution Systems
- ✔ Underground water services
- ✔ Drainage and Vent Systems
- ✔ Air Conditioning and Refrigeration Systems

Copper water tube is a seamless, almost pure copper material manufactured to the requirements of ASTM 888 standard specification for Seamless copper Water Tube, of three basic wall thickness dimensions designated as Type K, L, and Type M is the thickest and M is the thinnest with type L being of intermediate thickness. All three types of tube are manufactured from copper alloy C12200 having a chemical composition of a minimum of 99.9 % Copper (Cu) and Silver (Ag) combined and a maximum allowable range of Phosphorous (P) of 0.015 % - 0.040 %

Seamless copper water tube is manufactured in size 1/4" through 8" nominal. Type K and L are manufactured in drawn temper (hard) 1/4" through 8" while type M is only manufactured in drawn (hard) 1/4" through 4"



	Tube Type	Standard	Application	Commercially Available Lengths		
				Nominal or Standard Sizes	Drawn	Annealed
	TYPE K	ASTM B 88	Domestic water Service and Distribution, Fire Protection, Solar, Fuel/Fue Oil, HVAC, Natural Gas	STRAIGHT LENGTHS : 1/4 -inch to 8 -inch	6m.	N/A
	TYPE L	ASTM B 88	Domestic water Service and Distribution, Fire Protection, Solar, Fuel/Fue Oil, HVAC, Natural Gas, Liquified Petroleum(LP) Gas, HVAC	STRAIGHT LENGTHS : 1/4 -inch to 8 -inch	6m.	N/A
	TYPE M	ASTM B 88	Domestic water Service and Distribution, Fire Protection, Solar, Fuel/Fue Oil, HVAC	STRAIGHT LENGTHS : 1/4 -inch to 4 -inch	6m.	N/A

Dimensions and Physical Characteristics of Copper Tube: TYPE K

Nominal or Standard Size, Inches			Outside Diameter	Inside Diameter	Wall Thickness		Safe Working Pressure In	Working Pressure Hard Drawn	Weight
Nom Size	O. D. Size	inch.	mm.	mm.	inch.	mm.	p. s. i. t°	(kg/cm ²)	(kg/m)
1/4"	3/8"	0.375	9.525	7.745	0.035	0.89	1595	111	0.216
3/8"	1/2"	0.500	12.700	10.220	0.049	1.24	1745	123	0.399
1/2"	5/8"	0.625	15.875	13.395	0.049	1.24	1375	95.3	0.509
5/8"	3/4"	0.750	19.050	16.570	0.049	1.24	1135	78.7	0.620
3/4"	7/8"	0.875	22.225	18.925	0.065	1.65	1315	90.8	0.953

Dimensions and Physical Characteristics of Copper Tube: TYPE K

Nominal or Standard Size, Inches			Outside Diameter	Inside Diameter	Wall Thickness		Safe Working Pressure In	Working Pressure Hard Drawn	Weight
Nom size	O. D. Size	inch.	mm.	mm.	inch.	mm.	p. s. i. t°	(kg/cm ²)	(kg/m)
1"	1 1/8"	1.125	28.575	25.275	0.065	1.65	1010	69.7	1.247
1 1/4"	1 3/8"	1.375	34.925	31.625	0.065	1.65	820	56.6	1.541
1 1/2"	1 5/8"	1.625	41.275	37.615	0.072	1.83	765	53.7	2.026
2"	2 1/8"	2.125	53.975	49.755	0.083	2.11	665	46.1	3.072
2 1/2"	2 5/8"	2.625	66.675	61.855	0.095	2.41	520	43.2	4.347
3"	3 1/8"	3.125	79.375	73.835	0.109	2.77	605	42.4	5.956
4"	4 1/8"	4.125	104.775	97.975	0.134	3.40	555	38.7	9.675
5"	5 1/8"	5.125	130.175	122.055	0.160	4.06	540	37.2	14.373
6"	6 1/8"	6.125	155.575	145.815	0.192	4.88	540	38.1	20.642
8"	8 1/8"	8.125	206.375	192.615	0.271	6.88	580	41.2	38.527

Dimensions and Physical Characteristics of Copper Tube: TYPE L

Nominal or Standard Size, Inches			Outside Diameter	Inside Diameter	Wall Thickness		Safe Working Pressure In	Working Pressure Hard Drawn	Weight
Nom size	O. D. Size	inch.	mm.	mm.	inch.	mm.	p. s. i. t°	(kg/cm ²)	(kg/m)
1/4"	3/8"	0.375	9.525	8.005	0.030	0.76	1350	95.4	0.187
3/8"	1/2"	0.500	12.700	10.0920	0.035	0.89	1195	81.7	0.295
1/2"	5/8"	0.625	15.875	13.835	0.040	1.02	1105	74.5	0.425
5/8"	3/4"	0.750	19.050	16.910	0.042	1.07	965	65.3	0.540
3/4"	7/8"	0.875	22.225	19.945	0.045	1.14	875	60.1	0.675
1"	1 1/8"	1.125	28.575	26.035	0.050	1.27	770	52.6	0.973
1 1/4"	1 3/8"	1.375	34.925	32.125	0.055	1.40	680	47.9	1.317
1 1/2"	1 5/8"	1.625	41.275	38.235	0.060	1.52	630	43.3	1.696
2"	2 1/8"	2.125	53.975	50.415	0.070	1.78	555	38.5	2.608
2 1/2"	2 5/8"	2.625	66.675	62.615	0.080	2.03	520	35.5	3.684
3"	3 1/8"	3.125	79.375	74.795	0.090	2.29	490	34.1	4.955
4"	4 1/8"	4.125	104.775	99.195	0.110	2.79	450	31.5	7.987
5"	5 1/8"	5.125	130.175	123.815	0.125	3.18	410	28.8	11.336
6"	6 1/8"	6.125	155.575	148.455	0.140	3.56	385	27.3	15.191
8"	8 1/8"	8.125	206.375	196.215	0.200	5.08	420	29.7	28.704

Dimensions and Physical Characteristics of Copper Tube: TYPE M

Nominal or Standard Size, Inches			Outside Diameter	Inside Diameter	Wall Thickness		Safe Working Pressure In	Working Pressure Hard Drawn	Weight
Nom Size	O. D. Size	inch.	mm.	mm.	inch.	mm.	p. s. i. t°	(kg/cm ²)	(kg/m)
1/4"	3/8"	0.375	9.525	8.605	0.018	0.46	840	57.2	0.117
3/8"	1/2"	0.500	12.700	11.660	0.021	0.52	840	57.2	0.178
1/2"	5/8"	0.625	15.875	14.735	0.023	0.57	760	51.5	0.245
5/8"	3/4"	0.750	19.050	17.810	0.025	0.62	690	45.5	0.321
3/4"	7/8"	0.875	22.225	20.925	0.026	0.65	610	39.6	0.394
1"	1 1/8"	1.125	28.575	27.075	0.030	0.75	515	34.4	0.586
1 1/4"	1 3/8"	1.375	34.925	33.125	0.036	0.90	515	35.0	0.860
1 1/2"	1 5/8"	1.625	41.275	38.795	0.049	1.24	510	35.1	1.393
2"	2 1/8"	2.125	53.975	51.035	0.058	1.47	450	30.7	2.167
2 1/2"	2 5/8"	2.625	66.675	63.375	0.065	1.65	410	28.4	3.012
3"	3 1/8"	3.125	79.375	75.715	0.072	1.83	385	26.8	3.983
4"	4 1/8"	4.125	104.775	99.955	0.095	2.41	380	26.6	6.925

N.B.C. Copper Tube




N.B.C. COPPER TUBE

ASTM B819

Seamless Copper Tube for Medical Gas Systems

This specification establishes the requirements for two wall thickness schedules of specially cleaned, straight lengths of seamless copper tube, identified as type K and L, suitable for medical gas systems. Our type K and L (cleaned and capped) is also specially cleaned for use in medical gas systems and meet the same allowable residue limit of 0.038g/m² of interior tube surface area.

Physical Properties of Copper Tube		
	Composition	Alloy C 12200 Copper = 99.90% min Phosphorus = 0.015 ~ 0.040%
	Melting Point	981°C (1083°F)
	Density	558 lb/ft ³ (8.94 x 10 ³ kg/m ³)
	Thermal Expansion	0.00118 in/10°F.ft (0.177mm/10°C .m)
	Modulus of Elasticity	2.46 10 ⁶ Psi (17,000Mpa)

Dimensions and Physical Characteristics of Copper Tube: TYPE K

Nominal or Standard Size, Inches			Outside Diameter	Inside Diameter	Wall Thickness		Safe Working Pressure In	Working Pressure Hard Drawn	Weight
Nom Size	O. D. Size	inch.	mm.	mm.	inch.	mm.	p. s. i. t°	(kg/cm ²)	(kg/m)
1/4"	3/8"	0.375	9.525	7.745	0.035	0.89	1595	111	0.216
3/8"	1/2"	0.500	12.700	10.220	0.049	1.24	1745	123	0.399
1/2"	5/8"	0.625	15.875	13.395	0.049	1.24	1375	95.3	0.509
5/8"	3/4"	0.750	19.050	16.570	0.049	1.24	1135	78.7	0.620
3/4"	7/8"	0.875	22.225	18.925	0.065	1.65	1315	90.8	0.953
1"	1 1/8"	1.125	28.575	25.275	0.065	1.65	1010	69.7	1.247
1 1/4"	1 3/8"	1.375	34.925	31.625	0.065	1.65	820	56.6	1.541
1 1/2"	1 5/8"	1.625	41.275	37.615	0.072	1.83	765	53.7	2.026
2"	2 1/8"	2.125	53.975	49.755	0.083	2.11	665	46.1	3.072
2 1/2"	2 5/8"	2.625	66.675	61.855	0.095	2.41	520	43.2	4.347
3"	3 1/8"	3.125	79.375	73.835	0.109	2.77	605	42.4	5.956
4"	4 1/8"	4.125	104.775	97.975	0.134	3.40	555	38.7	9.675

Dimensions and Physical Characteristics of Copper Tube: TYPE L

Nominal or Standard Size, Inches			Outside Diameter	Inside Diameter	Wall Thickness		Safe Working Pressure In	Working Pressure Hard Drawn	Weight
Nom Size	O. D. Size	inch.	mm.	mm.	inch.	mm.	p. s. i. t°	(kg/cm ²)	(kg/m)
1/4"	3/8"	0.375	9.525	8.005	0.030	0.76	1350	95.4	0.187
3/8"	1/2"	0.500	12.700	10.0920	0.035	0.89	1195	81.7	0.295
1/2"	5/8"	0.625	15.875	13.835	0.040	1.02	1105	74.5	0.425
5/8"	3/4"	0.750	19.050	16.910	0.042	1.07	965	65.3	0.540
3/4"	7/8"	0.875	22.225	19.945	0.045	1.14	875	60.1	0.675
1"	1 1/8"	1.125	28.575	26.035	0.050	1.27	770	52.6	0.973
1 1/4"	1 3/8"	1.375	34.925	32.125	0.055	1.40	680	47.9	1.317
1 1/2"	1 5/8"	1.625	41.275	38.235	0.060	1.52	630	43.3	1.696
2"	2 1/8"	2.125	53.975	50.415	0.070	1.78	555	38.5	2.608
2 1/2"	2 5/8"	2.625	66.675	62.615	0.080	2.03	520	35.5	3.684
3"	3 1/8"	3.125	79.375	74.795	0.090	2.29	490	34.1	4.955
4"	4 1/8"	4.125	104.775	99.195	0.110	2.79	450	31.5	7.987

N.B.C. Pancake Coil




N.B.C. COPPER TUBE

ASTM B280

Seamless Copper Tube For Air-Conditioning and Refrigeration

This specification covers the requirements for seamless UNS C10200, C12000, or C12200 copper alloy tubes used for connection, repairs, or alternations of field air conditioning or refrigeration units. Each tube should be cold drawn to the finished size and wall thickness. Coiled lengths with soft annealed tempers should be bright annealed after coiling then dehydrated and either capped, plugged and cleaned to reduce refrigerant contamination.

Specification Of Pancake		
	Copper Alloy No.	C12200 CuDHP
	Chemical Requirement	Cu+Ag min 99.9% P 0.015 - 0.040%
	Temper	Soft annealed (060,R220)

Pancake Coil	Characteristic	
<ul style="list-style-type: none"> ✓ Air conditioning ✓ Refrigeration ✓ Natural gas ✓ Liquefied petroleum gas 	<ul style="list-style-type: none"> ✓ Compressed Air ✓ Heat Exchanger 	<ul style="list-style-type: none"> ✓ Non-Corrosive ✓ High Thermal Conductivity ✓ Durability ✓ Easy to Join and Install ✓ Expansive applications

Dimensions and physical Characteristics of Pancake Coil No.22

Actual Size	Outside Diameter mm.	Wall Thickness		Length
		inch.	mm.	
1/4"	6.35	0.028	0.70	15 m.
5/16"	7.94	0.028	0.70	15 m.
3/8"	9.52	0.028	0.70	15 m.
1/2"	12.70	0.028	0.70	15 m.
5/8"	15.88	0.028	0.70	15 m.
3/4"	19.05	0.028	0.70	15 m.

Dimensions and physical Characteristics of Pancake Coil No.21

Actual Size	Outside Diameter mm.	Wall Thickness		Length
		inch.	mm.	
1/4"	6.35	0.031	0.80	15 m.
5/16"	7.94	0.031	0.80	15 m.
3/8"	9.52	0.031	0.80	15 m.
1/2"	12.70	0.031	0.80	15 m.
5/8"	15.88	0.031	0.80	15 m.
3/4"	19.05	0.031	0.80	15 m.

ASTM B280

Copper Tube For Air-Conditioning and Refrigeration

Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service

Cleanness



The process of air-blowing with high pressure in order to make sure that no chip left inside the coil



Standard Certification

Made in Korea



Intertek



Copper Benefits

Versatility

Copper is easy to work and has excellent thermal conductivity, corrosion resistance and durability. It is available in two basic types of tube—plumbing tube and air conditioning/refrigeration (ACR) tube, and in both drawn (hard) and annealed (soft) tempers. Fittings to suit every design application are readily obtained.

Variety of Applications

Underground water and gas services
Water distribution systems
Chilled water mains
Drainage and vent systems
Heating systems (including solar)
Fuel-oil systems
Oxygen systems
Non-flammable medical-gas systems

Wide Range of Sizes

Large diameter or small, there is a copper tube to fit every specification. Forced-circulation hot water heating systems use small and economical tube sizes with soldered joints and require less space for installation. Large-diameter tube, joined by soldering or brazing, is cost-effective for water distribution and for fire-protection risers in multistory buildings.



Problem-Free Performance

It is good engineering practice to use one material for all components throughout a mechanical system. And its popularity in heating systems is a further indication of copper's superiority to alternative materials.

Long Lasting and Maintenance Free

Copper has stood the test of time to earn customer satisfaction and wide code acceptance. Copper is safe, too. It will not burn or support combustion. So it will not carry fire through floors, walls and ceilings, and it will not decompose into toxic gases.

Corrosion Resistance

Copper's excellent corrosion resistance is an important reason for its choice in so many applications. For water distribution and fire sprinkler systems, copper tube's internal corrosion resistance results in superior flow capacity. When calculating flow capacities, other plumbing materials require additional allowances for corrosion, scaling, out-of-roundness. Copper tube bores remain smooth, and internal diameters stay constant.

High Thermal Conductivity

Copper conducts heat up to eight times better than other metals. Comparing copper, aluminum and steel, copper is by far the best conductor of heat. In solar energy systems, copper's superior thermal conductivity means that thinner copper sheet can collect the same heat as a much thicker-gauge sheet of aluminum or steel.

Easy to Join and Install

Copper adds to system integrity while lowering installation costs. Copper's workability can cut installation time and reduce labor cost. Tubes and fitting are easily joined by soldering or brazing. And copper is so ductile that it can be formed to fit most design configurations.

Copper Tube Applications



Air Conditioning & Refrigeration

Copper tube is widely used in air conditioning and refrigeration systems due to its high thermal conductivity. Its long lasting and maintenance free characteristics make copper the leading choice for plumbing, heating, cooling and other mechanical systems.

Direct Exchange Geothermal Heating/Cooling

Taking advantage of the temperature differential allows heat to be moved between the ground and the home rather than expensively generating heat or using conventional air conditioners to heat or cool the home.

Domestic Water Service and Distribution

The combination of easy handling, forming and joining permits savings in installation time, material and overall costs. Long-term performance and reliability mean fewer callbacks, and that makes copper the ideal cost-effective tubing material.

Drain, Waste and Vent

The design and installation of drainage systems range from simple to complex, depending on the type of building, the local code and the occupancy requirements.

Fire Sprinklers

Copper tube will not burn or support combustion or decompose to toxic gases. Therefore, it will not carry fire through floors, walls and ceilings. Volatile organic compounds are not required for installation.

Fuel Gas (Natural Gas and L.P.) Distribution

Copper tubing offers the builder, contractor and building owner many advantages when used in fuel gas distribution systems, and is accepted for use in all of the major model.

Heating

Copper tube is popular for heating systems in both new and remodeled buildings. Contractors have learned through experience that, all factors considered, copper tube remains superior to any substitute material.

Medical Gas

Safety standards for oxygen and other positive-pressure medical gases require the use of Type K or L copper tube. Special cleanliness requirements are called for. Copper tube for medical gas lines is furnished by the manufacturers suitably cleaned and capped or plugged. Care must be taken to prevent contamination of the system when the caps or plugs are removed and tube is installed.





N.B.C. COPPER TUBE



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