TUBES

COPPER

EAST&WEST

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About East & West

East & West is a relationship-network firmly based on honesty, knowledge, respect and mutual interests which is in search of making new opportunities through a networking system and sophisticated database worldwide. Paying precise attention to trading, productions and investments, in order to develop our relations and expand our tools, has an extremely enormous value for us. In a world so occupied it is only natural to have new opportunities added to our network daily and its advantage would be for all of EW. Our main task is promoting small to medium enterprises, therefore we are seeking to enhance our network capability with the help of our knowledge and experience in the industry along with science and human resources. Here, the concentration is not solely based on supply and demand, we focus on long term cooperation, participation and support.Material, energy, oil, gas, petrochemical, mine, construction and industrial projects are in the core of our today activities territory.

EW monitors the market and then detects all the essential information to analyze what's to come. processing with such accuracy has gathered this precious network. We will help you increase revenue by marketing, investing and other forms of partnership with the help provided by our offices based in Shanghai, China and Hamburg, Germany "East & West" . We have wisely chosen our offices in the biggest seaport and financial best effort and quiken the process as much as possible.

our loyal costumers are a safe passage you small to medium enterprises to make profit off of.

EW is proud to present its prreparedness and readiness to be the leverage you need.

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COPPER TUBES

Copper tubes have excellent resistance to corrosion. Also, these types of tubes, in addition to high thermal conductivity and high electrical conductivity, also have the proper weldability. The use of copper tubes is divided into two main groups, which are electric current transfer and heat transfer.These tubes are used for the heat transfer between two fluids in health, household and industrial systems, and their use in water heaters and air conditioning systems (household and industrial), such as gas coolers and packages.In addition to using in air conditioning and cooling industries due to their electrical conductivity and high formability, copper tubes are also usable in electrical applications and cable lug manufacturing.Hence, the choice of an appropriate copper tube can not only facilitate the flow of electricity, but also save energy. Copper tubes are also used in medical gasification of hospitals and laboratories.

According to market needs, three types of TPC, DLP and DHP alloys are produced, which their uses are as follows
- TPC Copper Tube: This group of tubes has excellent electrical conductivity and have electric applications. The production of all types of cables is done in these types of tubes.
- DLP & DHP Copper Tube: These types of tubes, in addition to the high thermal conductivity, have good weldability. It is therefore used in the production of heat exchangers.

The chemical analysis and standard match of copper tubes and mechanical property are as follows:

COPPER TUBES ALLOYS AND STANDARD IN GENERAL

Alloy	Naming	Standard					Composition (wt%)	
		ISO	USA	GERMANY	JIS	UK	Cu (min)	P
			ASTM	DIN	JAPAN	BS	-	
TPC	Tough Pitch Copper	Cu-ETP	C 11000	E Cu 58	C 1100	C 101	99.9	0.004 (max)
DLP	Deoxidized Low Phosphorous	Cu-DLP	C 12000	SW-Cu	C 1201	-	99.9	0.004-0.015
DHP	Deoxidized High Phosphorous	Cu-DHP	C 12200	SF-Cu	C 1220	C106	99.9	0.015-0.040

MECHANICAL PROPERTY REQUIREMENTS OF DRAWN-TEMPER AND ANNEALED-TEMPER TUBE

Standard	Copper Alloy No.	Alloy	Temper	Tensile Strength (Mpa)	Elongation (%)	Grain Size (mm)
ASTM B88	C11000	TPC	O60	200 min	-	Min 0.040
			O50	200 min	-	Min 0.025
	C12200	DHP	H58	250 min	-	-
JISH3300	C1100	TPC	O (soft)	205 min	40 min	-
			H (half hard)	245-325	-	-
			H (hard)	265 min	-	-
	C1220	DHP	O	205 min	40 min	0.025-0.060
			OL(light)	205 min	40 min	Min 0.040
			H	245-325	-	-
			H	255 min	-	-
	C1201	DLP	O	205 min	40 min	0.025-0.060
			OL(light)	205 min	40 min	Min 0.040
			H	245-325	-	-
			H	255 min	-	-
ASTMB75	C11000	TPC	O60	205 min	-	Min 0.040
			O50	205 min	-	Min 0.040
	C12200	DHP	H58	250 min	-	-
			H80	310 min	-	-
EN1057	-	DHP	R220 (annealed)	220 min	40 min	-
			R250 (half hard)	250 min	Min 30 or 20	-
			R290 (hard)	290 min	Min 290	-

Copper tubes are manufactured according to various standards such as standard America, Europe and according to their application and use, they are produced in different shapes such as Straight tube, pancake coil, Level Wound Coil (LWC) and capillary.

COPPER TUBING MANUFACTURING METHODS

- Cast & Draw
- Casting & Rolling
- Extrusion

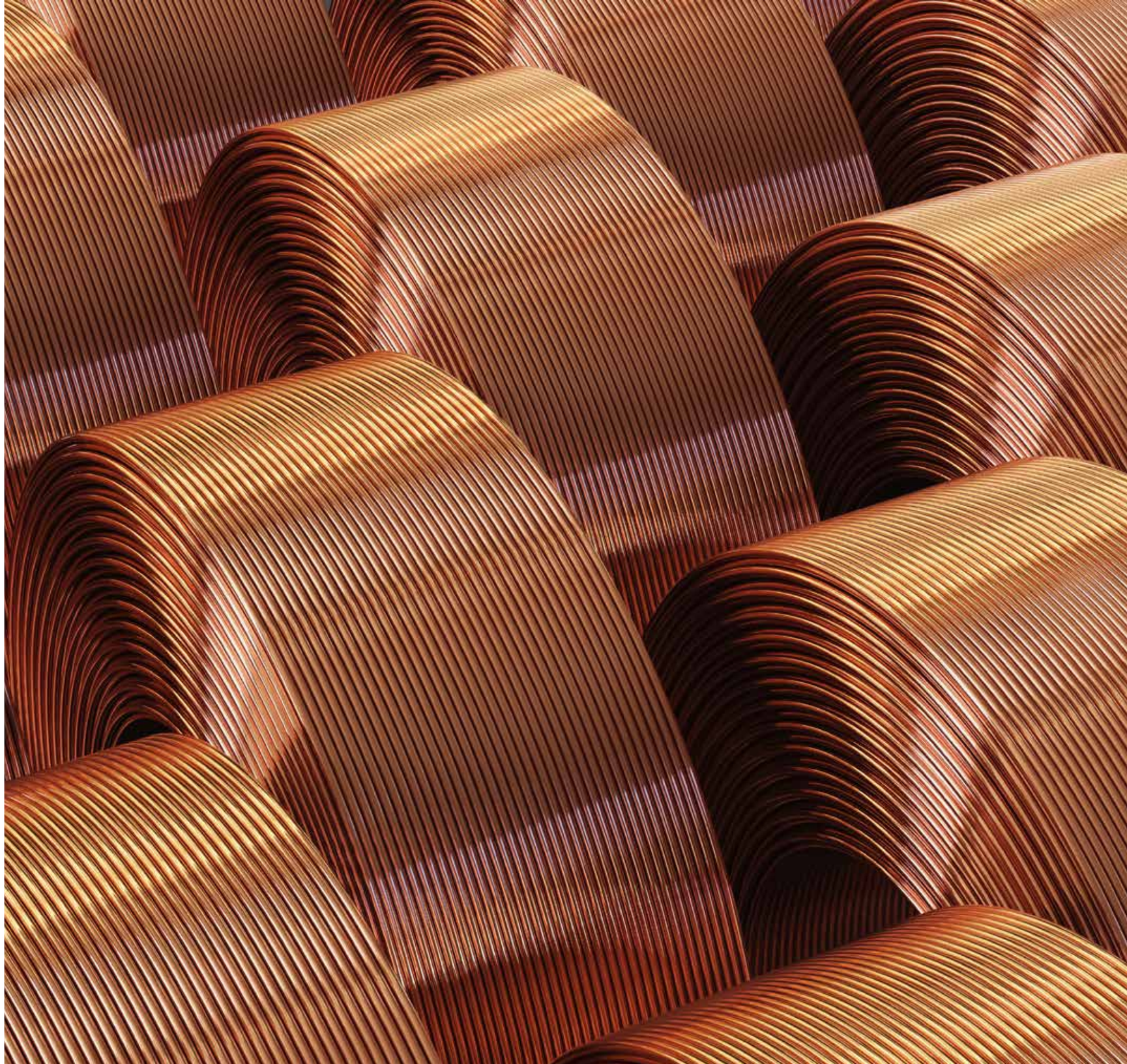
In ASTM B88 standard, copper tubes are divided in M, L, K, DWV and Medical Gas and ACR types. The letters M, L, K and DWV represent the thickness of the copper tube wall. The outer diameter of all types of copper tubes is equal to each other for a specified diameter. Copper tubes of the letters M, L, K and DWVtube can be one of the two types of Hard Drawn and Soft Annealed Temper.

LEVEL WOUND COIL (LWC)

Level Wound Coil (LWC) seamless copper tubes are used in mass production lines for heating and cooling systems and heat exchangers. Packing coil copper tubes is the continuous length of the pipe that are wrapped in compressed dense layers. During heat treatment, the inside and outside of the tube are completely cleaned with nitrogen gas and finally the two ends of the tube are closed to avoid any contamination and surface oxidation.

THIS TYPE OF PRODUCT HAS THE FOLLOWING PACKAGING

- With or without cardboard reels
- With or without Woodenreels
- On wooden pallets and wrapped with plastic
- Jumbo Coil
- Eye to the sky coil
- Customization



THE PRODUCTION RANGE OF LEVEL WOUND COIL (LWC)

w.t / O.D	mm	0.30	0.35	0.4	0.45	0.5	0.55	0.60	0.63	0.65	0.70	0.75	0.80	0.85	0.90	1.00	1.15	1.20	1.42	1.50
mm	in	0.012	0.014	0.016	0.018	0.020	0.022	0.024	0.025	0.026	0.028	0.030	0.031	0.033	0.035	0.039	0.047	0.045	0.055	0.060
3.00																				
4.00																				
4.8	3/16																			
5.00																				
6.00																				
6.35	1/4																			
7.93	5/16																			
8.00																				
9.52	3/8																			
10.00																				
12.00																				
12.70	1/2																			
15.00																				
15.87	5/8																			
16.00																				
18.00																				
19.05	3/4																			
22.22	7/8																			

These tubes can be supplied according to customer requirements and also according to the standards of ASTM, DIN, JIS and European ... with relevant tolerances.

STRAIGHT COPPER TUBES

These types of tubes are used in industries such as air conditioning, refrigeration, electrical and hygienic industries. Copper tubes in the form of branch are produced in different thicknesses and the standard length of the copper tube is 6 meters and It can be changed according to customer request. Branch copper tubes are supplied with hard, semi hard and soft annealing.

Seamless copper tube is designed according to: DIN1785, DIN 1754, BS2871, BS EN 1057 and JIS H-33UU and ASTM B88.

PACKING

- Bundles where the tubes can be closed with plastic end caps or end plugs
- On Wooden pallet

In wooden cases can be: lined with paper; with anti-corrosive paper or with plastic

- Customization

THE PRODUCTION RANGE OF COPPER TUBE AS STRAIGHT LENGTH TUBE

O.D \ w.t	mm	0.30	0.35	0.4	0.45	0.5	0.55	0.60	0.63	0.65	0.70	0.75	0.8	0.9	1.0	1.15	1.24	1.42	1.5	1.6	1.65	1.78	1.83	2.03	2.10	2.41
mm	in	0.012	0.014	0.016	0.018	0.020	0.022	0.024	0.025	0.026	0.028	0.030	0.031	0.035	0.039	0.045	0.049	0.055	0.060	0.063	0.065	0.070	0.072	0.080	0.083	0.095
4.00				■	■	■	■	■	■	■																
6.00			■	■	■	■	■	■	■	■	■	■	■	■	■											
6.35	1/4		■	■	■	■	■	■	■	■	■	■	■	■	■											
7.00		■	■	■	■	■	■	■	■	■	■	■	■	■	■											
7.93	5/16	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■									
8.00		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
9.52	3/8	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
10.00		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
11.00			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
12.00			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
12.70	1/2		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
14.50					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
15.87	5/8					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
16.05						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
17.50							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
18.00							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
19.05	3/4						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
20.00							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
22.22	7/8						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
24.50							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
25.00							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
28.58	1 1/8												■	■	■	■	■	■	■	■	■	■	■	■	■	■
35.00	1 3/8												■	■	■	■	■	■	■	■	■	■	■	■	■	■
41.27	1 5/8														■	■	■	■	■	■	■	■	■	■	■	■
53.98	2 1/8														■	■	■	■	■	■	■	■	■	■	■	■
66.67	2 5/8																		■	■	■	■	■	■	■	■
79.73	3 1/8																		■	■	■	■	■	■	■	■
104.77	4 1/8																									■

■ These tubes can be supplied according to customer requirements and also according to the standards of ASTM, DIN, JIS, European and ... with relevant tolerances.

COPPER TUBES FOR ELECTRICAL APPLICATION

Copper tube is used for electrical purpose mainly due to its High Conductivity. Electrolytic Tough Pitch Copper (ETP), alloy1100, has excellent ductility and high electrical and thermal conductivity, higher than for any other copper metal except oxygen free grades such as C10200. These tubes produced according to the EN 13600 or ASTM B75 standards and usually supplied in straight length with different tempers.

TOLERANCE ON OUTSIDE DIAMETER OF ROUND TUBES

Nominal outside Dianeter (mm)		**Tolerances**	
Greater than	Until included	Application to the average diameter (mm)	Applicable to any diameter including deviation from circular form[a, b, c] for straight lengths (mm)
3	10	0.05	0.08
10	20	0.06	0.10
20	30	0.08	0.15
30	50	0.10	0.20
50	80	0.15	0.30
80	120	0.20	0.40
120	150	0.30	0.60
150	300	0.60	1.20
300	450	1.0	2.0

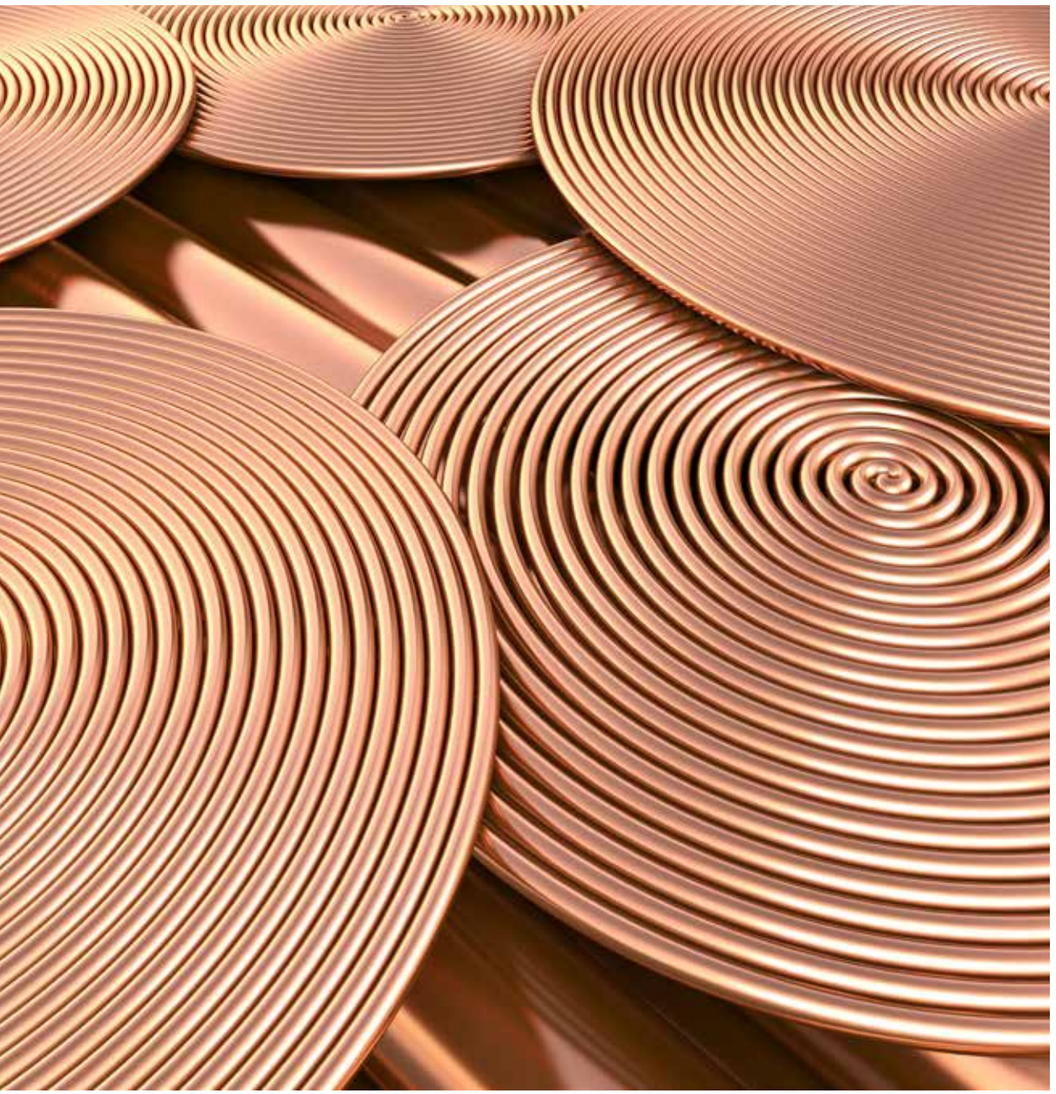
a- The tolerances of this column are not applicable to tubes with a ratio of outer diameter and the wall thickness (OD/t) > 30, or annealing metallurgical state tubes (H035/R200); see table 2
b- When the diameter is measured at a distance from the ends of the tube exceeding 100 mm or the equivalent to a nominal outer diameter (whichever is smaller), tolerance can be increased by factor of 3, unless otherwise agreed.
c- Including the value 5.

WALL THICKNESS TOLERANCES

Nominal outside diameter or largest dimension across nominal[a] (mm)		**Tolerances on the wall thickness**[b, c] **in % for wall thicknesses**				
Greater than	Until included	From 0.5 to 1 inclusive	Greater than 1 to 3 inclusive	Greater than 3 to 6inclusive	Greater than 6 to 10 inclusive	Greater than
3[d]	15	12	10	10	-	-
15	25	12	10	10	9	-
25	50	13	11	10	9	8
50	100	-	12	11	10	9
100	150	-	13	12	11	10

a- in case of a rectangular tube, the largest dimension across flats determines the thickness tolerance applies all wall thickness.
b- The wall thickness tolerance is defined as the maximum deviation of the wall thickness at any point, expressed in percentage of nominal wall thickness.
c- If it takes all the positive and negative tolerances, the given values must be multiplied by two
d- Including the value 5.

These tubes can be supplied according to customer's requested dimensions.



PANCAKE COPPER COIL (PCC)

Soft copper tubes in the form of coil are used in the ventilation and refrigeration industries. When repairs are required, most plumbers use these types of copper tubes. This product has good bendability, which facilitates its use in plumbing systems, gas transmission lines, systems and cooling pipes. these tubes are produced according to ASTM B280, ASTM B68 and EN 12735 standards.

PACKING

- Caps on two ends
- Packaging in shrink and cardboard box
- Customization

THE PRODUCTION RANGE OF COPPER TUBE AS PANCAKE COIL (PCC)

w.t / O.D	mm	0.30	0.35	0.4	0.45	0.5	0.55	0.60	0.63	0.65	0.70	0.75	0.8	0.85	0.9	1.0	1.24	1.5
mm	in	0.012	0.014	0.016	0.018	0.020	0.022	0.024	0.025	0.026	0.028	0.030	0.031	0.033	0.035	0.039	0.045	0.060
6.00			■	■	■	■	■	■	■	■								
6.35	1/4		■	■	■	■	■	■	■	■								
7.93	5/16	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
8.00		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
9.52	3/8	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
12.70	1/2			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
15.87	5/8			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
16.00						■	■	■	■	■	■	■	■	■	■	■	■	■
19.05	3/4					■	■	■	■	■	■	■	■	■	■	■	■	■
22.22	7/8										■	■	■	■	■	■	■	■
25.00											■	■	■	■	■	■	■	■

■ These tubes can be supplied according to customer's requested dimensions.

CAPILLARY TUBE

The tube is called capillary tube due to its very small diameter. Its location is between the output of the filter (dryer) and the input of evaporator, and its diameter and length are very important in the quality of created cold.
Refrigerant controllers have two tasks regardless of their type of work:

1- Allow liquid refrigerant flow from liquid tube to evaporator with the same degree of liquid evaporation in the operator

2- Creating a pressure difference between the sides of the high pressure and the low pressure of the system, so that the refrigerant can be distilled at high pressure in the condenser under conditions that evaporate at low pressure of the evaporator. From several controllers, the capillary tube is used in low-capacity refrigeration systems and automatic and thermostatic expansion valves in large-capacity refrigeration systems.

- Standard tubes according to ASTM-B360
- The purity of copper tubes is 99.9% or more.
- In order to prevent the internal diameter fluctuation, the tubes are under the pressure and flow test in an equipped laboratory
- The internal surface of the tubes is completely rinsed and free of any contamination and moisture

PACKING

- Bundles to be covered by polyethylene
- Plastic bag wrapped outside the pipe
- wooden box
- Customization

SIZE OF THE CAPILLARY TUBE (ASTM-B360)

OD in (mm)	**ID in** (mm)	**Mean.Wall Thickness in** (mm)	**Weight lb/ft** (kg/m)
0.072 (1.83)	0.026 (0.66)	0.023 (0.59)	0.0137 (0.0204)
0.072 (1.83)	0.028 (0.71)	0.022 (0.56)	0.01340 (0.0199)
0.081 (2.06)	0.031 (0.79)	0.025 (0.64)	0.01705 (0.0254)
0.081 (2.06)	0.033 (0.838)	0.024 (0.606)	0.0166 (0.0248)
0.087 (2.21)	0.036 (0.91)	0.025 (0.648)	0.0191 (0.0284)
0.087 (2.21)	0.039 (0.991)	0.024 (0.606)	0.0184 (0.0239)
0.093 (2.36)	0.042 (1.07)	0.024 (0.60)	0.0209 (0.0312)
0.097 (2.47)	0.046 (1.17)	0.025 (0.65)	0.0222 (0.0331)
0.099 (2.51)	0.049 (1.24)	0.025 (0.64)	0.0225 (0.033)
0.106 (2.69)	0.054 (1.37)	0.026 (0.66)	0.0253 (0.0377)
0.112 (2.84)	0.059 (1.50)	0.026 (0.67)	0.0276 (0.0411)
0.125 (3.18)	0.064 (1.63)	0.030 (0.77)	0.0351 (0.0522)
0.125 (3.18)	0.070 (1.78)	0.027 (0.7)	0.0326 (0.0486)
0.125 (3.18)	0.75 (1.91)	0.025 (0.63)	0.0305 (0.0454)
0.145 (3.68)	0.080 (2.03)	0.032 (0.82)	0.0445 (0.0663)
0.145 (3.68)	0.085 (2.16)	0.03 (0.76)	0.0420 (0.0625)
0.145 (3.68)	0.090 (2.29)	0.027 (0.69)	0.0393 (0.0586)
0.160 (4.06)	0.100 (2.54)	0.030 (0.76)	0.0475 (0.0707)
0.160 (4.06)	0.110 (2.79)	0.025 (0.63)	0.0411 (0.0611)
0.188 (4.78)	0.120 (3.03)	0.034 (0.86)	0.0637 (0.0949)
0.188 (4.78)	0.130 (3.30)	0.029 (0.73)	0.0561 (0.0836)
0.200 (5.08)	0.145 (3.68)	0.0275 (0.69)	0.0577 (0.0860)
0.220 (5.59)	0.160 (4.06)	0.030 (0.76)	0.6943 (0.103)
0.240 (6.10)	0.175 (4.45)	0.032 (0.82)	0.0810 (0.121)

COPPER TUBE TYPES, STANDARDS, TEMPERS, LENGTHS

Tube Type	Color Code	Standard	Commercially Available lengths		
			Nominal or standard sizes	Drawn	Annealed
Type K	Green	ASTM B 88	Straight length:		
			1/4 inch to 1/8	20 ft	20 ft
			10 in	18 ft	18 ft
			12 in	12 ft	12 ft
			Coils:		
			1/4 in to 1 in	-	60 ft
				-	100 ft
			1 in to 1 in	-	60 ft
			2 in	-	40 ft
				-	45 ft
Type L	Blue	ASTM B 88	Straight length:		
			1/4 in to 10 in	20 ft	18 ft
			12 in	18 ft	18 ft
			Coils:		
			1/4 in to 1 in	-	60 ft
				-	100 ft
			1 in to 1 in	-	60 ft
			2 in	-	40 ft
				-	45 ft
Type M	Red	ASTM B 88	Straight length:		
			1/4 in 12 in	20 ft	N/A
DWV	Yellow	ASTM B 306	Straight length:		
			1 1/4 in to 8 in	20 ft	N/A
ACR	Blue	ASTM B 280	Straight length:		
			3/8 in to 4 1/8 in	20 ft	4
			Coils:		
			1/8 in to 1 5/8 in		50 ft
OXY,MED OXY,MED OXY/ ACR ACR/MED	(K) Green (L) Blue	ASTM B 19	Straight length:		
			1/4 in to 8 in	20 ft	N/A

CALCULATED RATED INTERNAL WORKING PRESSURES FOR COPPER TUBE: TYPE K

Nominal or standard size, in inches	Annealed							Drawn						
	S=6,000 psi 100F	S=5,100 psi 150F	S=4,900 psi 200F	S=4,800 psi 250F	S=4,700 psi 300F	S=4,000 psi 350F	S=3,000 psi 400F	S=10,300 psi 100F	S=10,300 psi 150F	S=10,300 psi 200F	S=10,300 psi 250F	S=10,000 psi 300F	S=9,700 psi 350F	S=9,400 psi 400F
1/4	1074	913	877	860	842	716	537	1850	1850	1850	1850	1796	1742	1688
3/8	1130	960	923	904	885	753	565	1946	1946	1946	1946	1889	1833	1776
½	891	758	728	713	698	594	446	1534	1534	1534	1534	1490	1445	1400
5/8	736	626	601	589	577	491	368	1266	1266	1266	1266	1229	1193	1156
3/4	852	724	696	682	668	568	426	1466	1466	1466	1466	1424	1381	1338
1	655	557	535	524	513	437	327	1126	1126	1126	1126	1093	1061	1028
1	532	452	434	425	416	354	266	914	914	914	914	888	861	834
1	494	420	404	396	387	330	247	850	850	850	850	825	801	776
2	435	370	355	348	341	290	217	747	747	747	747	726	704	682
2	398	338	325	319	312	265	199	684	684	684	684	664	644	624
3	385	328	315	308	302	257	193	662	662	662	662	643	624	604
3	366	311	299	293	286	244	183	628	628	628	628	610	592	573
4	360	306	294	288	282	240	180	618	618	618	618	600	582	564
5	345	293	281	276	270	230	172	592	592	592	592	575	557	540
6	346	295	283	277	271	231	173	595	595	595	595	578	560	543
8	369	314	301	295	289	246	184	634	634	634	634	615	597	578
10	369	314	301	295	289	246	184	634	634	634	634	615	597	578
12	370	314	302	296	290	247	185	635	635	635	635	617	598	580

CALCULATED RATED INTERNAL WORKING PRESSURES FOR COPPER TUBE: TYPE L

Nominal or standard size, in inches	Annealed							Drawn						
	S=6,000 psi 100F	S=5,100 psi 150F	S=4,900 psi 200F	S=4,800 psi 250F	S=4,700 psi 300F	S=4,000 psi 350F	S=3,000 psi 400F	S=10,300 psi 100F	S=10,300 psi 150F	S=10,300 psi 200F	S=10,300 psi 250F	S=10,000 psi 300F	S=9,700 psi 350F	S=9,400 psi 400F
1/4	912	775	745	729	714	608	456	1569	1569	1569	1569	1524	1478	1432
3/8	779	662	636	623	610	519	389	1341	1341	1341	1341	1302	1263	1224
½	722	613	589	577	565	481	361	1242	1242	1242	1242	1206	1169	1133
5/8	631	537	516	505	495	421	316	1086	1086	1086	1086	1055	1023	991
3/4	582	495	475	466	456	388	291	1002	1002	1002	1002	972	943	914
1	494	420	404	395	387	330	247	850	850	850	850	825	801	776
1	439	373	358	351	344	293	219	755	755	755	755	733	711	689
1	408	347	334	327	320	272	204	702	702	702	702	682	661	641
2	364	309	297	291	285	242	182	625	625	625	625	607	589	570
2	336	285	274	269	263	224	168	577	577	577	577	560	544	527
3	317	270	259	254	248	211	159	545	545	545	545	529	513	497
3	304	258	248	243	238	202	152	522	522	522	522	506	491	476
4	293	249	240	235	230	196	147	504	504	504	504	489	474	460
5	269	229	220	215	211	179	135	462	462	462	462	449	435	422
6	251	213	205	201	196	167	125	431	431	431	431	418	406	393
8	270	230	221	216	212	180	135	464	464	464	464	451	437	424
10	271	231	222	217	212	181	136	466	466	466	466	452	439	425
12	253	215	207	203	199	169	127	435	435	435	435	423	410	397

CALCULATED RATED INTERNAL WORKING PRESSURES FOR COPPER TUBE: TYPE M

Nominal or standard size, in inches	Annealed							Drawn						
	S=6,000 psi 100F	S=5,100 psi 150F	S=4,900 psi 200F	S=4,800 psi 250F	S=4,700 psi 300F	S=4,000 psi 350F	S=3,000 psi 400F	S=10,300 psi 100F	S=10,300 psi 150F	S=10,300 psi 200F	S=10,300 psi 250F	S=10,000 psi 300F	S=9,700 psi 350F	S=9,400 psi 400F
1/4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3/8	570	485	485	456	447	380	285	982	982	982	982	953	925	896
½	494	420	420	395	387	329	247	850	850	850	850	825	800	776
5/8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3/4	407	346	346	326	319	271	204	701	701	701	701	680	660	639
1	337	286	286	270	264	225	169	580	580	580	580	563	546	529
1	338	287	287	271	265	225	169	582	582	582	582	565	548	531
1	331	282	282	265	259	221	166	569	569	569	569	553	536	520
2	299	254	254	239	234	199	149	514	514	514	514	499	484	469
2	274	233	233	219	215	183	137	471	471	471	471	457	444	430
3	253	215	215	203	199	169	127	435	435	435	435	423	410	397
3	252	214	214	202	197	168	126	433	433	433	433	421	408	395
4	251	213	213	201	197	167	126	431	431	431	431	419	406	394
5	233	198	198	186	182	155	116	400	400	400	400	388	377	365
6	218	186	186	175	171	146	109	375	375	375	375	364	353	342
8	229	195	195	183	180	153	115	394	394	394	394	382	371	359
10	230	195	195	184	180	153	115	394	394	394	394	383	371	360
12	230	195	195	184	180	153	115	395	395	395	395	383	372	360

CALCULATED RATED INTERNAL WORKING PRESSURE FOR COPPER TUBE: ACR (AIR CONDITIONING AND REFRIGERATION FIELD SERVICE)

Nominal or standard size, in inches	Annealed Coil							Drawn						
	S=6,000 psi 100F	S=5,100 psi 150F	S=4,900 psi 200F	S=4,800 psi 250F	S=4,700 psi 300F	S=4,000 psi 350F	S=3,000 psi 400F	S=10,300 psi 100F	S=10,300 psi 150F	S=10,300 psi 200F	S=10,300 psi 250F	S=10,000 psi 300F	S=9,700 psi 350F	S=9,400 psi 400F
1/8	3074	2613	2510	2459	2408	2049	1537	-	-	-	-	-	-	-
3/16	1935	1645	1581	1548	1516	1290	968	-	-	-	-	-	-	-
1/4	1406	1195	1148	1125	1102	938	703	-	-	-	-	-	-	-
5/16	1197	1017	977	957	937	798	598	-	-	-	-	-	-	-
3/8	984	836	803	787	770	656	492	-	-	-	-	-	-	-
1/2	727	618	594	581	569	485	363	-	-	-	-	-	-	-
5/8	618	525	504	494	484	412	309	-	-	-	-	-	-	-
3/4	511	435	417	409	400	341	256	-	-	-	-	-	-	-
7/8	582	495	475	466	456	388	291	-	-	-	-	-	-	-
1 1/8	494	420	404	395	387	330	247	-	-	-	-	-	-	-
1 3/8	439	373	358	351	344	293	219	-	-	-	-	-	-	-
1 5/8	408	347	334	327	320	272	204	-	-	-	-	-	-	-
Straight Lengths														
3/8	914	777	747	731	716	609	457	1569	1569	1569	1569	1524	1478	1432
½	781	664	638	625	612	521	391	1341	1341	1341	1341	1302	1263	1224
5/8	723	615	591	579	567	482	362	1242	1242	1242	1242	1206	1169	1133
3/4	633	538	517	506	496	422	316	1086	1086	1086	1086	1055	1023	991
7/8	583	496	477	467	457	389	292	1002	1002	1002	1002	972	943	914
1 1/8	495	421	404	396	388	330	248	850	850	850	850	825	801	776
1 3/8	440	374	359	352	344	293	220	755	755	755	755	733	711	689
1 5/8	409	348	334	327	320	273	205	702	702	702	702	682	661	641
2 1/8	364	309	297	291	285	243	182	625	625	625	625	607	589	570
2 5/8	336	286	275	269	263	224	168	577	577	577	577	560	544	527
3 1/8	317	270	259	254	249	212	159	545	545	545	545	529	513	497
3 5/8	304	258	248	243	238	203	152	522	522	522	522	506	491	476
4 1/8	293	249	240	235	230	196	147	504	504	504	504	489	474	460

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