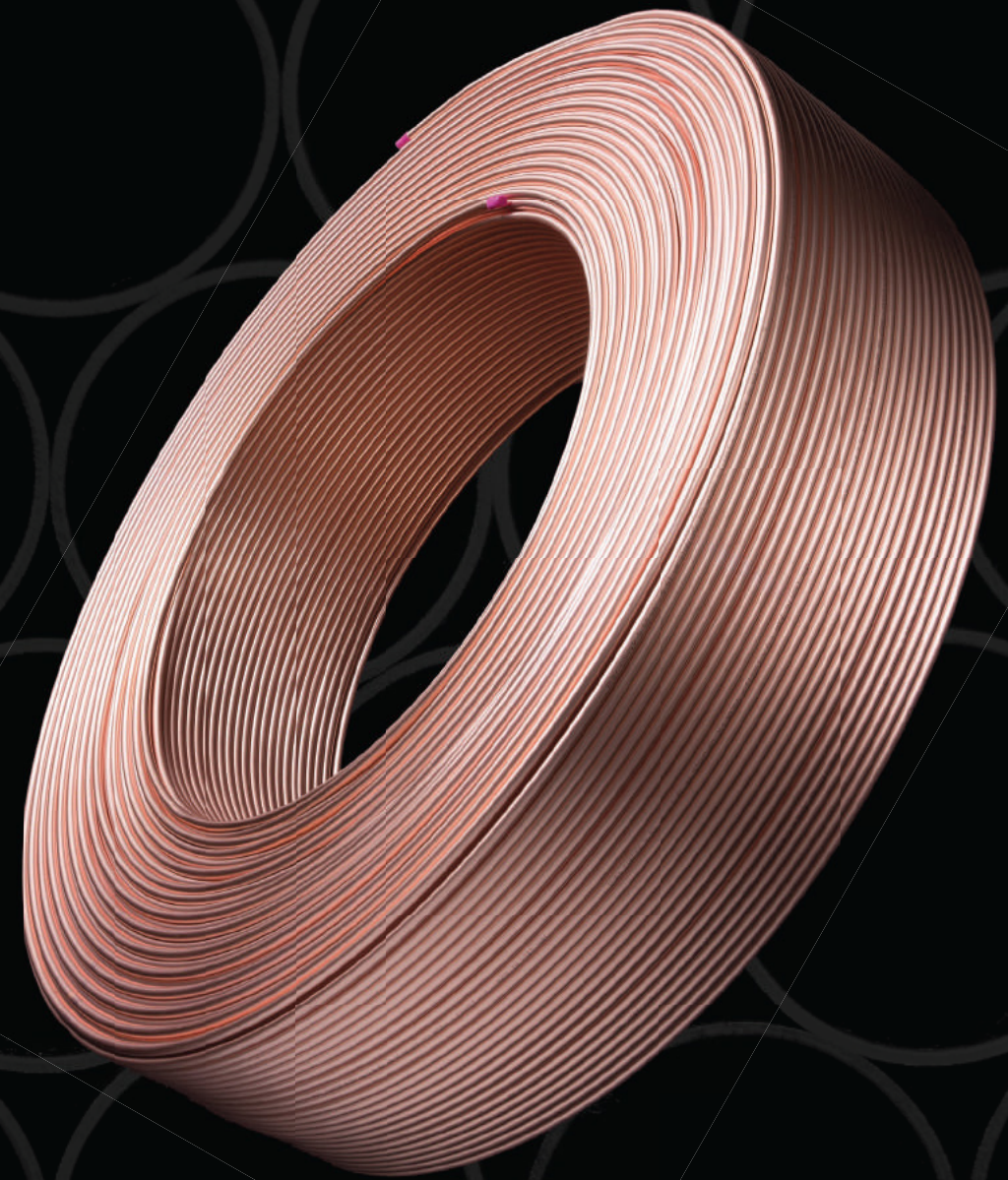


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CLI Copper is a Vietnamese manufacturer that specializes in the production, processing and distributing of copper products with dynamic commercial presence in Vietnam and global markets. Since 2006 we have been offering added-value solutions that meet client demands in Heat Exchange industry.

Our copper segment includes two production plants in Vietnam and distribute a wide range of products, including copper for Air-Conditioning and Refrigeration system. The insulation segment includes one production plant in Vietnam that provides high-class insulation solutions.

We encourage our people with integrity to practice mutual respect, trust and make excellent achievements. Our people cooperate with open hearts and sincerity to make progress together.

CLI Copper's high-class production is achieved through strict quality controls applied continuously throughout every stage of the production process. With a consistent quality focus, CLI Copper implements a variety of global quality certification system, including JIS H3300 and ISO 9001:2015, leveraging high technologies with skillful experts. After 15 years of applying strategic investments in research and development, CLI Copper is recognized by international clients in 20 countries as a reliable manufacturer with a strong commitment of manufacturing high-class copper products. All facilities apply advanced technologies to provide innovative products that are energy efficiency and environmental friendly.

CLI Copper complies with various environment regulations based on advanced environmental technology. Our team has continuously implemented environmental training to intensify the environmental consciousness. We are restricting the volume of waste generated and taking the initiative in recycling resources to protect the environment.



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Applications: Used in civil and industrial piping system in Air-Conditioners.

Features: Bright surface finish with high-precision size. Easy for installation. Suitable for used with R410A, R32 refrigerants with high working pressure.

International standards: ASTM B280 (USA) and JIS H3300 (Japan).

Outer Diameter		Wall Thickness (mm)													
mm	inch	0.41	0.46	0.51	0.56	0.61	0.66	0.71	0.76	0.81	0.91	1.00	1.10	1.20	
4.76	3/16"	●	●	●	●	●	●	●	●	●					
6.35	1/4"	●	●	●	●	●	●	●	●	●	●	●			
7.94	5/16"			●	●	●	●	●	●	●	●	●			
9.52	3/8"			●	●	●	●	●	●	●	●	●			
12.70	1/2"			●	●	●	●	●	●	●	●	●	●	●	
15.88	5/8"				●	●	●	●	●	●	●	●	●	●	
19.05	3/4"					●	●	●	●	●	●	●	●	●	
22.22	7/8"									●	●	●	●	●	

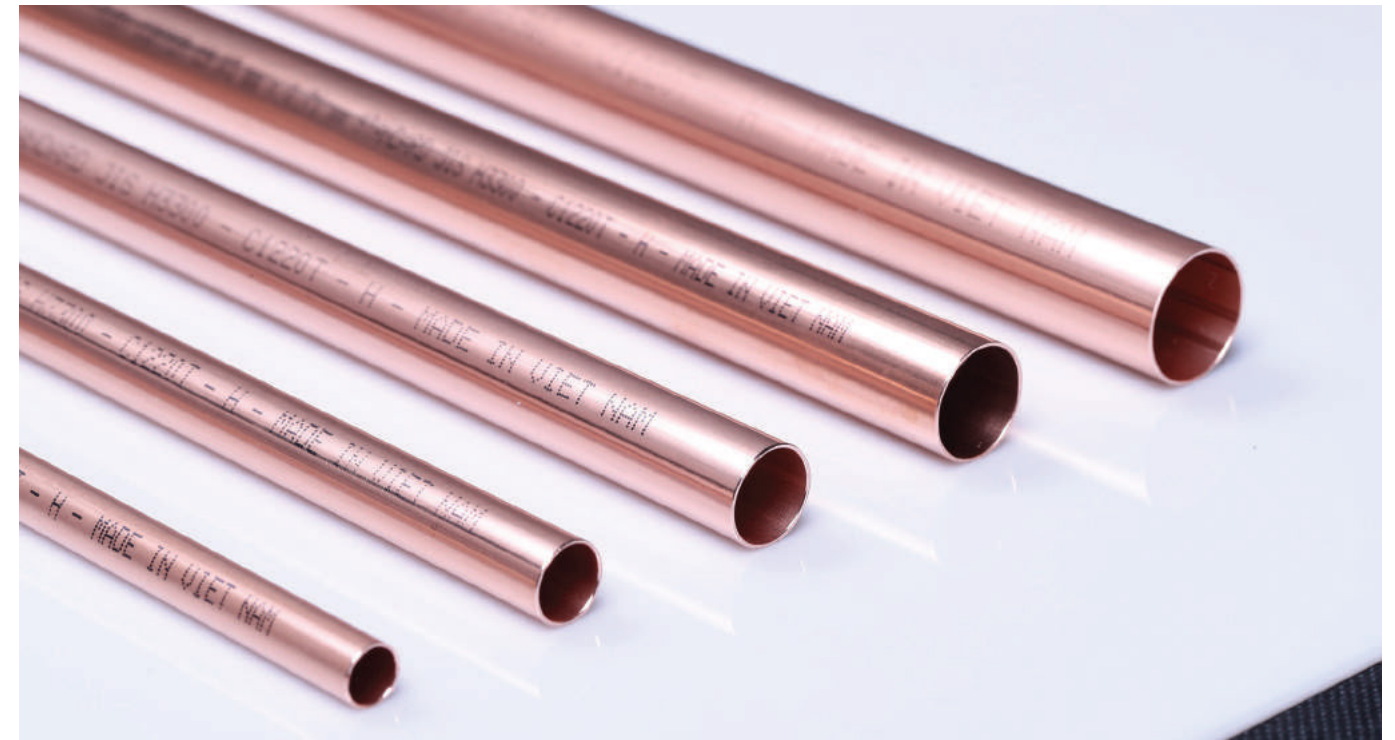
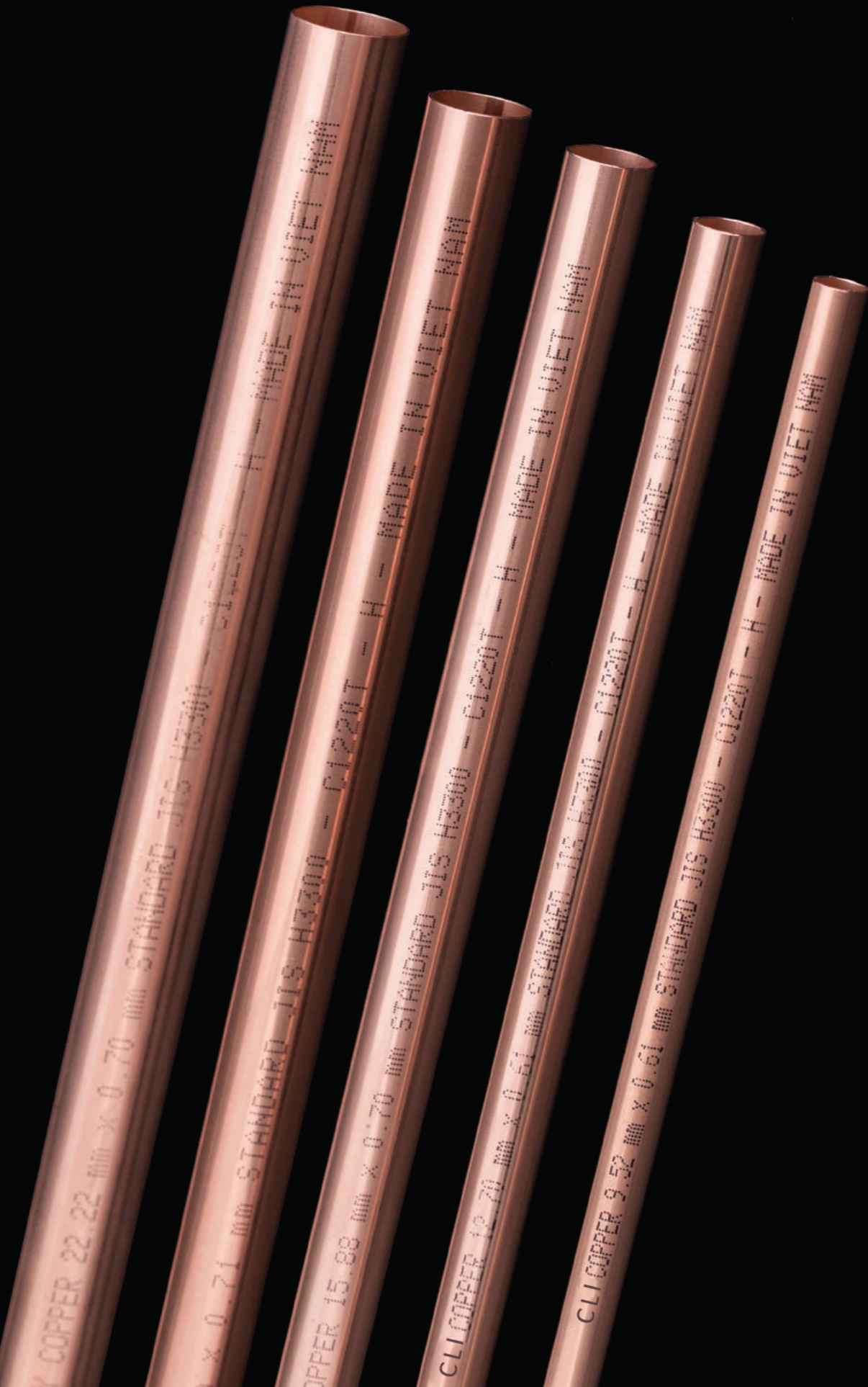
Outer Diameter		Wall Thickness (mm)													
mm	inch	0.41	0.46	0.51	0.56	0.61	0.66	0.71	0.76	0.81	0.91	1.00	1.10	1.20	
25.40	1"										●	●	●		
28.58	1 1/8"											●	●	●	

Pancake Coil with Wall Thickness above 1.2 mm is workable due to customer's request.



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Applications: Used in piping system connection in Air-conditioners and Heat Exchangers.

Features: Bright surface finish with high-precision size. Easy for Welding and Installation.

International standards: JIS H3300 (Japan), ASTM B280 (USA), AS/NZS 1571 (Australia).

Outer Diameter		(H O) Hard/ Soft Annealed	Wall Thickness (mm)																
mm	inch		0.41	0.51	0.56	0.61	0.71	0.81	0.91	1.00	1.10	1.14	1.2	1.27	1.4	1.43	1.5	1.8	2.0
4.76	3/16"	H O	●	●	●	●	●	●											
6.35	1/4"	H O	●	●	●	●	●	●	●										
7.94	5/16"	H O		●	●	●	●	●	●										
9.52	3/8"	H O		●	●	●	●	●	●	●									
12.70	1/2"	H O		●	●	●	●	●	●	●									
15.88	5/8"	H O		●	●	●	●	●	●	●	●	●	●						
19.05	3/4"	H O				●	●	●	●	●	●	●	●	●					
22.22	7/8"	H O					●	●	●	●	●	●	●	●					

Outer Diameter		(H O) Hard/ Soft Annealed	Wall Thickness (mm)																
mm	inch		0.41	0.51	0.56	0.61	0.71	0.81	0.91	1.00	1.10	1.14	1.2	1.27	1.4	1.43	1.5	1.8	2.0
25.40	1"	H O					●	●	●	●	●	●	●						
28.58	1 1/8"	H O					●	●	●	●	●	●	●	●	●				
31.75	1 1/4"	H O					●	●	●	●	●	●	●	●	●	●	●		
34.93	1 3/8"	H O					●	●	●	●	●	●	●	●	●	●	●		
38.10	1 1/2"	H O						●	●	●	●	●	●	●	●	●	●	●	
41.28	1 5/8"	H O						●	●	●	●	●	●	●	●	●	●	●	●

Straight Tubes with Wall Thickness from 2.0 mm to 3.5 mm is workable due to customer's request.



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DIAMETER / WALL THICKNESS TOLERANCE COMPLY TO ASTM B280

Soft annealed copper coil

Outer Diameter		Diameter Tolerance	Wall thickness	Wall thickness Tolerance
mm	inch	+/- mm	mm	+/- mm
6.35	1/4"	0.051	0.76	0.08
7.94	5/16"	0.051	0.81	0.08
9.52	3/8"	0.051	0.81	0.08
12.70	1/2"	0.051	0.81	0.08
15.88	5/8"	0.051	0.89	0.11
19.05	3/4"	0.064	0.89	0.11
19.05	3/4"	0.064	1.07	0.11

Straight tube

Outer Diameter		Diameter Tolerance	Wall thickness	Wall thickness Tolerance
mm	inch	+/- mm	mm	+/- mm
9.52	3/8"	0.025	0.76	0.08
12.70	1/2"	0.025	0.89	0.09
15.88	5/8"	0.025	1.02	0.10
19.05	3/4"	0.025	1.07	0.11
22.22	7/8"	0.025	1.14	0.11
28.58	1 1/8"	0.038	1.27	0.13
34.93	1 3/8"	0.038	1.40	0.14
41.28	1 5/8"	0.051	1.52	0.15

DIAMETER / WALL THICKNESS TOLERANCE COMPLY TO JIS H3300

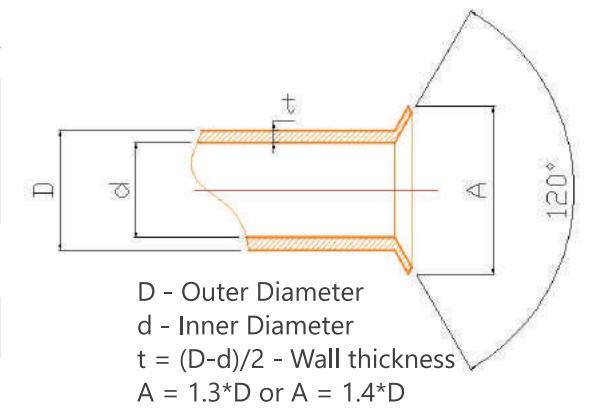
unit: mm.

Diameter	Diameter Tolerance	Wall thickness				
		From 0.25 to 0.4	Over 0.4 to 0.6	Over 0.6 to 0.8	Over 0.8 to 1.4	Over 1.4 to 2
From 4 to 15	0.08	0.06	0.07	0.10	0.13	0.15
Over 15 to 25	0.09	0.07	0.08	0.10	0.13	0.18
Over 25 to 50	0.12		0.09	0.11	0.15	0.18

Hardness

unit: mm.

Type	Hardness
O/OL	40 - 70
1/2H	70 - 100
H	> 100



Flaring ratio

unit: mm.

Alloy	Outer diameter & wall thickness	
	Diameter below 20mm with wall thickness over 0.5mm	Diameter from 20mm to 100mm OR thickness below 0.5mm
C1220	1.4	1.3

unit: bar.

Outer Diameter x Wall Thickness (mm)		Soft Annealed / Temperature				Hard / Temperature From 40°C ~ 120°C
		40°C	70°C	100°C	120°C	
6.35	0.51	71	60	58	57	122
6.35	0.56	79	67	64	63	135
6.35	0.61	86	73	70	69	148
6.35	0.71	102	86	83	81	174
6.35	0.76	110	93	89	88	188
6.35	0.81	118	100	96	94	202
9.52	0.51	46	39	38	37	79
9.52	0.56	51	43	42	41	88
9.52	0.61	56	47	46	45	96
9.52	0.66	61	52	50	49	104
9.52	0.71	66	56	54	52	113
9.52	0.76	71	60	58	56	121
9.52	0.81	76	64	62	60	130
9.52	1.00	95	85	77	76	163
12.7	0.51	34	29	28	27	59
12.7	0.56	38	32	31	30	65
12.7	0.61	41	35	34	33	71
12.7	0.66	45	38	37	36	77
12.7	0.71	48	41	40	39	83
12.7	0.76	52	44	42	42	89
12.7	0.81	56	47	45	44	95
12.7	1.00	70	59	57	56	119
15.88	0.51	27	23	22	22	47
15.88	0.56	30	26	25	24	52
15.88	0.61	33	28	27	26	56
15.88	0.66	36	30	29	28	61
15.88	0.71	38	33	31	31	66

* Pressure Unit:

1 bar ~ 14.5 Psi

1 bar = 0.1 Mpa

* Pressure basis: based on the physical properties of copper material according to the standards of copper tubes such as JIS H3300 (Japan), ASTM (USA), AS (Australia) and EN (Europe).

WORKING PRESSURE

unit: bar.

Outer Diameter x Wall Thickness (mm)		Soft Annealed / Temperature				Hard / Temperature From 40°C ~ 120°C
		40°C	70°C	100°C	120°C	
15.88	0.76	41	35	34	33	71
15.88	0.81	44	37	36	35	76
15.88	0.91	50	42	41	40	85
15.88	1.00	55	47	45	44	94
19.05	0.61	27	23	22	22	47
19.05	0.66	29	25	24	24	51
19.05	0.71	32	27	26	25	55
19.05	0.76	34	29	28	27	59
19.05	0.81	36	31	30	29	63
19.05	0.91	41	35	34	33	71
19.05	1.00	45	39	37	36	78
19.05	1.10	50	43	41	40	86
19.05	1.20	55	47	45	44	94
19.05	1.50	70	59	57	56	119
22.22	0.71	27	23	22	22	47
22.22	0.81	31	26	25	25	53
22.22	0.91	35	30	29	28	60
22.22	1.00	39	33	32	31	66
22.22	1.10	43	36	35	34	73
22.22	1.20	47	40	38	37	80
22.22	1.50	59	50	48	47	101
25.4	0.71	24	20	19	19	41
25.4	0.81	27	23	22	22	46
25.4	0.91	31	26	25	24	52
25.4	1.00	34	29	27	27	58
25.4	1.10	37	32	30	30	64
25.4	1.20	41	35	33	32	70
25.4	1.50	51	44	42	41	88
28.58	0.71	21	18	17	17	36
28.58	0.81	24	20	20	19	41



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QUALITY-CHECKING PROCESS

CLI Copper's high-class production is achieved through strict quality controls applied continuously throughout every stage of the production process.

With a consistent quality focus, CLI Copper implements a variety of global quality certification system, including JIS H3300 and ISO 9001:2015, leveraging high technologies with skillful experts.

Detection Project	Testing Equipments
Copper hardness testing	Vicker hardness tester HV5
Tensile strength and elongation properties testing	Pulling Vector
Grain size testing	Metallographic Microscope
Copper Tube chemical composition testing	Spectrometer SPECTROMAX
Inner-tube impurities testing	Inner-tube cleanlines machinery
Copper tube defects & oxygen content testing	Eddy current tester
Crack-tube testing	Bending flaring tube
Durability testing when the tube is put into	Pressure tester
Oil content analyzer	OCMA-300 HORIBA



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MECHANICAL PROPERTIES

Chemical Composition				Mechanical Properties				
Standard	Alloy No	% (Cu+Ag)	P%	Temper	Tensile Strength	Elongation (%)	Hardness	Average Grain size
ASTM B280	C12200	99.9	0.015 - 0.04	H58	min 250	/	/	/
				O60	min 205	min 40	/	min 0.04
ASTM B68	C12200	99.9	0.015 - 0.04	O50	min 210	min 40	/	0.015 - 0.04
				O60	min 210	min 40	/	min 0.04
ASTM B88	C12200	99.9	0.015 - 0.04	O60	min 205	/	max 50 HRF	min 0.04
				O50	min 205	/	max 55 HRF	min 0.025
				H58	min 250	/	min 30 HR30T	/
ASTM B75	C12200	99.9	0.015 - 0.04	H55	250-325	/	30-60 HRF	/
				H58	min 250	/	min 30 HRF	/
				H80	min 310	/	min 55 HRF	/
				O60	min 205	/	max 60 HRF	min 0.04
				O50	min 205	/	max 65 HRF	max 0.04
ASTM B360	C12200	99.9	0.015 - 0.04	H80	min 310	/	/	/
JIS H3300	C1220	99.9	0.015 - 0.04	H	min 315	/	min 55HR30T	/
				1/2H	245 - 325	/	30 - 60 HR30T	max 0.04
				OL	min 205	min 40	max 55 HRF	max 0.04
				O	min 205	min 40	max 50 HRF	0.025 - 0.06
EN 1057	Cu-DHP/ CW024A	99.9	0.015 - 0.04	R220 (O)	min 220	min 40	40 - 70 HV5	/
				R250 (1/2H)	min 250	min 30	70 - 100 HV5	/
				R290 (H)	min 290	min 3	min 100 HV5	/
AS 1432	99.9	0.015 - 0.04	Hard drawn	/	/	min 100 HV	/	
			Bendable	/	/	80 - 100 HV	/	
			Annealed	/	/	max 70 HV	/	
AS NZS 1571	99.9	0.015 - 0.04	H	/	/	min 100 HV	/	
			1/2 H	/	/	75 - 100 HV	/	
			O	/	/	max 75 HV	max 0.065	
EN 12735	Cu-DHP/ CW024A	99.9	0.015 - 0.04	R250a	min 250	min 30	75 - 100 HV	/
				R290a	min 290	min 3	min 100	/
				Y080a	min 220	min 400	/	0.015 - 0.04
				Y040	min 220	min 40	/	0.015 - 0.04
				Y035b	min 210	min 40	/	0.03 - 0.06

HONOR PARTNERS



HONOR CUSTOMERS



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