



Ruby[®] COPPER

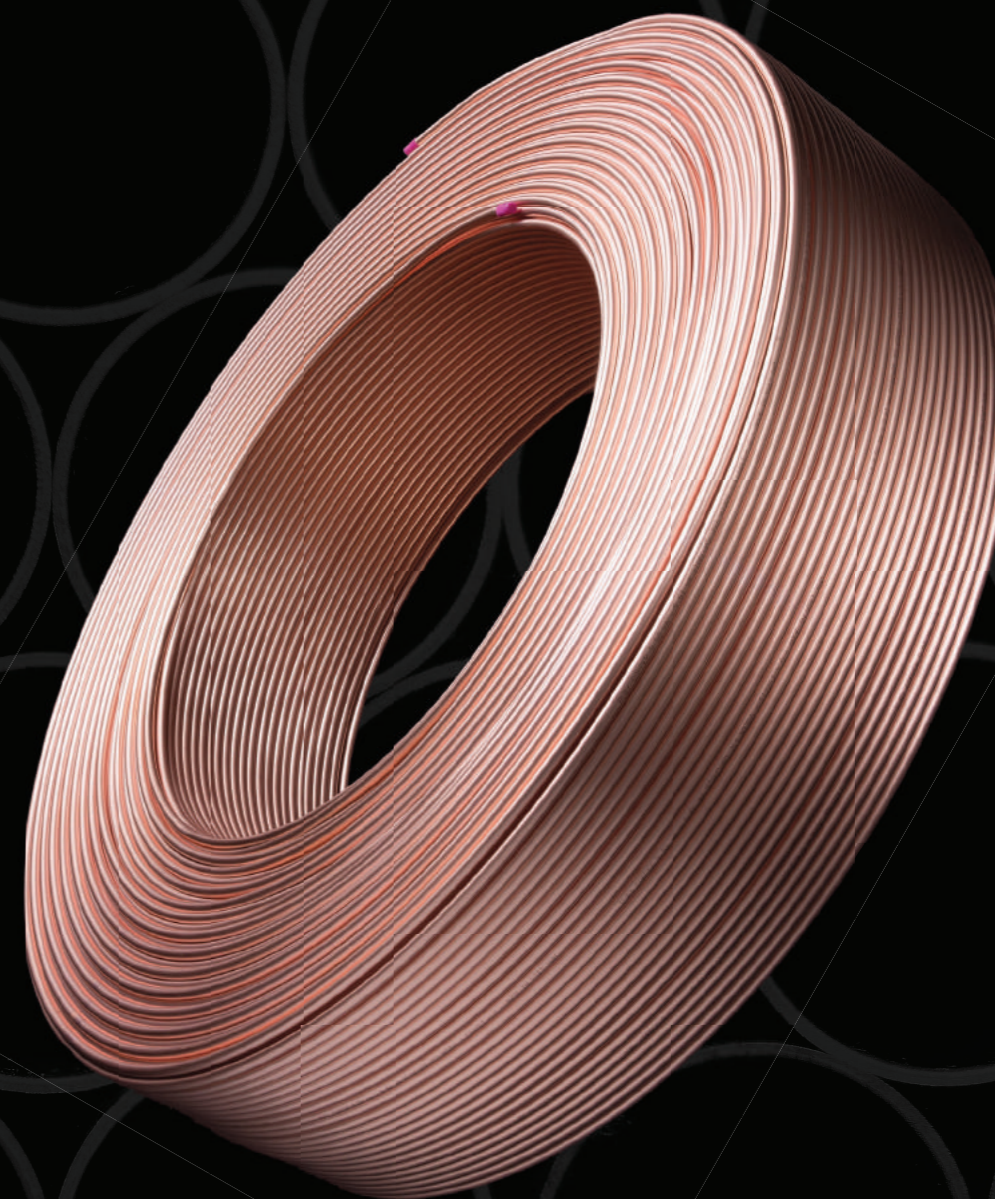
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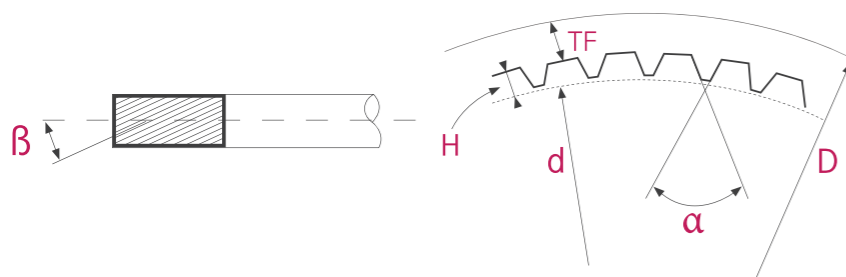
Ruby Copper is a Vietnamese manufacturer that specializes in the production, processing and distributing of copper products with dynamic commercial presence in Vietnam and global markets. Since 2006 we have been offering added-value solutions that meet client demands in Heat Exchange industry.

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.

Ruby 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, Ruby 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, Ruby 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.

Ruby 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.



D : Outer Diameter
TF : Thickness of the Bottom Wall
H : Groove Depth
α : Groove Angle
β : Helix Angle
d : Inner Diameter at Groove Tip

Applications: Used in Air Conditioning and Cooling systems in Refrigeration industry.

Features: High-precision size. High Thermal performance provides higher efficiency in Refrigeration systems. Light weight with few residues inside.

International standards: EN13571-1, EN13571-2 (Europe).

Improving efficiency and saving raw material

Ruby Copper Inner Grooved Tubes feature inner grooves that enhance the heat transferred by the refrigerant and as a result increase the energy efficiency of the Air-Conditioning system.

Advanced production technology enables the manufacture of IGT designs for a wide range of sizes from 7 mm of outer diameter to 12.70 mm.

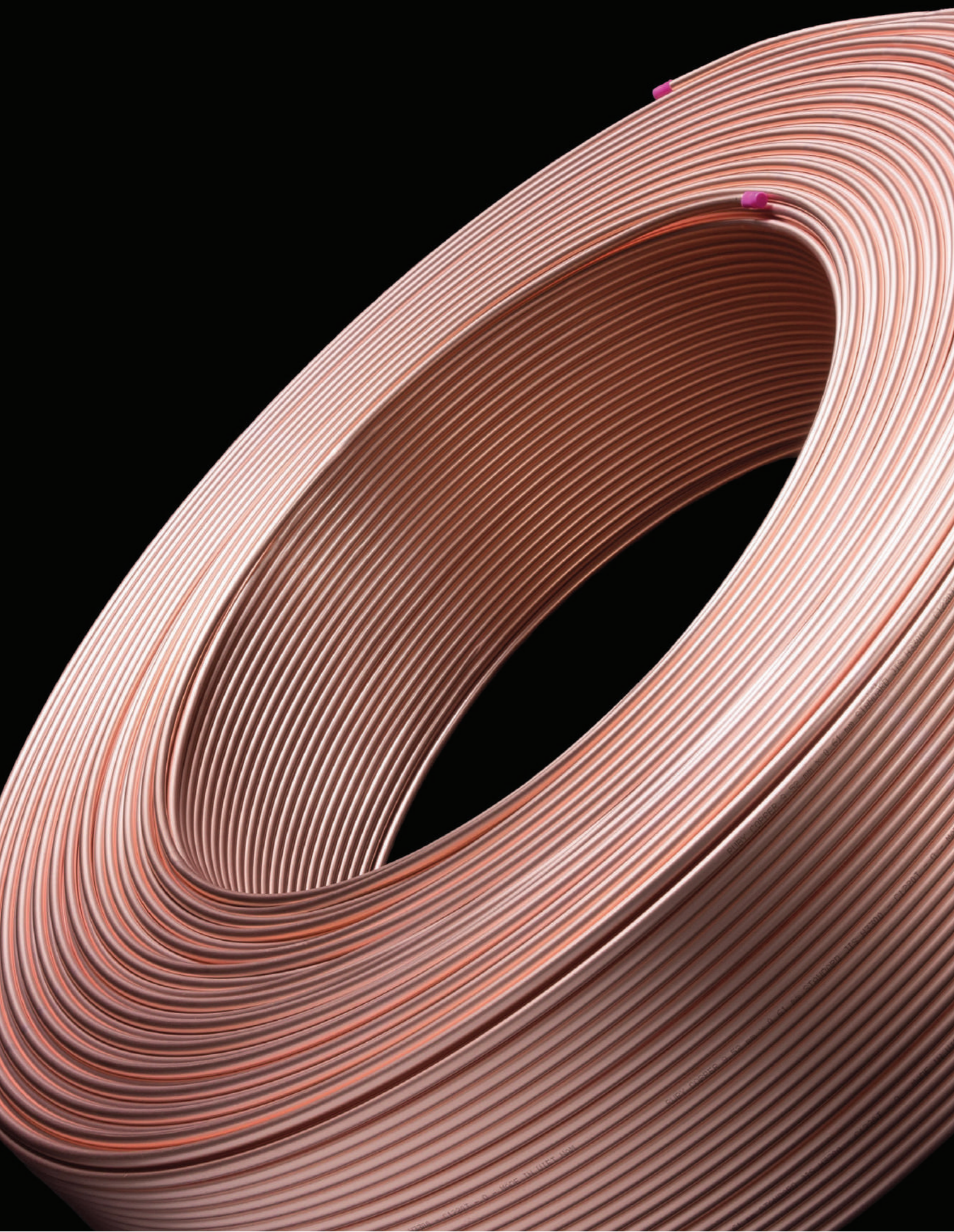
Ruby Copper focus on providing a complete solution to our clients with the purpose of optimizing the heat-exchanger design for:

- Compact heat-exchanger size
- Significantly improving efficiency
- Saving costs by reducing raw material
- Reduction of refrigerant usage
- Higher capacity.

Material: Copper phosphorus deoxidised LME-registered with

- Copper content (Cu) minimum of 99.95%.
- Phosphorus concentration (P): 0.0015%.

Specification	Unit Weight (g/m)	O.D (D)	I.D	Bottom Wall Thickness (TF)	Groove Depth (H)	Total Wall Thickness (TF + H)	Groove Angle α	Helix Angle β	Number of Tooth
Ø7.0-0.22+0.10-16°	47	7	6.36	0.22	0.10	0.32	35	16	65
Ø7.0-0.23+0.12-17°	47.5	7	6.30	0.23	0.12	0.35	40	17	65
Ø7.00-0.25+0.10-15°	52	7.00	6.30	0.25	0.10	0.35	40	15	65
Ø7.00-0.25+0.18-18°	57	7.00	6.14	0.25	0.18	0.43	40	18	50
Ø7.00-0.25+0.22-16°	58	7.00	6.06	0.25	0.22	0.47	22	16	54
Ø7.00-0.27+0.15-18°	60	7.00	6.16	0.27	0.15	0.42	53	18	60
Ø7.94-0.24+0.13-18°	60.5	7.94	7.2	0.24	0.13	0.37	33	18	70
Ø7.94-0.25+0.18-18°	65	7.94	7.08	0.25	0.18	0.48	40	18	50
Ø7.94-0.25+0.20-18°	66	7.94	7.04	0.25	0.20	0.45	40	18	50
Ø7.94-0.26+0.17-18°	66	7.94	7.08	0.26	0.17	0.43	40	18	50
Ø7.94-0.28+0.20-18°	72	7.94	6.98	0.28	0.20	0.48	40	18	50
Ø7.94-0.30+0.20-18°	76	7.94	6.94	0.30	0.20	0.50	40	18	50
Ø9.52-0.27+0.16-18°	82	9.52	8.66	0.27	0.16	0.43	30	18	70
Ø9.52-0.28+0.12-15°	80	9.52	8.72	0.28	0.12	0.40	53	15	65
Ø9.52-0.28+0.15-18°	83	9.52	8.66	0.28	0.15	0.43	53	18	60
Ø9.52-0.28+0.15-25°	88	9.52	8.66	0.28	0.15	0.43	90	25	65
Ø9.52-0.28+0.20-18°	85	9.52	8.56	0.28	0.20	0.48	25	18	55
Ø9.52-0.28+0.20-18°	88	9.52	8.56	0.28	0.20	0.48	40	18	60
Ø9.52-0.30+0.20-18°	90	9.52	8.52	0.30	0.20	0.50	30	18	60
Ø9.52-0.30+0.20-18°	94	9.52	8.52	0.30	0.20	0.50	53	18	60
Ø9.52-0.34+0.15-25°	104	9.52	8.54	0.34	0.15	0.49	90	25	65
Ø9.52-0.40+0.25-18°	123	9.52	8.22	0.40	0.25	0.65	40	18	60
Ø12.00-0.36+0.25-18°	140	12.00	10.78	0.36	0.25	0.61	40	18	70
Ø12.70-0.35+0.25-18°	155	12.70	11.50	0.35	0.25	0.60	53	18	70
Ø12.70-0.40+0.25-18°	170	12.70	11.40	0.40	0.25	0.65	53	18	70
Ø12.70-0.50+0.25-18°	201	12.70	11.20	0.50	0.25	0.75	53	18	75
Ø12.75-0.36+0.21/0.25-20°	150	12.75	11.53	0.36	0.25	0.61	48	20	70



High-class copper tubes made by advanced production equipments.

High purity copper makes Ruby Copper tubes for Air Conditioning, Heat Exchangers and Refrigeration applications.

- High Thermal Conductivity
- Stable mechanical properties covering an extensive temperature range
- Suitable with the usage of natural refrigerants: R410A, R32, R134, R407.
- High purity of internal surface.
- Smooth internal surface enhancing flow rate.
- Great weldability and cold formability.

Material:

Copper phosphorus deoxidised with

- Copper content (Cu) minimum of 99.95%.
- Phosphorus concentration (P): 0.0015% - 0.004%.

International standards:

JIS H 3300 (Japan).
 ASTM B280 / B68 (USA).
 AZ/NZS 1571 (Australia).

Feature:

Clean surface, bright finish, even structure, high-precision size and good shaping. Easy for welding.

Outer Diameter		Wall Thickness (mm)											
mm	inch	0.27	0.31	0.35	0.41	0.51	0.56	0.61	0.71	0.81	0.91	1.00	1.20
4.00					●	●	●	●	●	●			
4.76	3/16"				●	●	●	●	●	●			
6.00					●	●	●	●	●	●			
6.35	1/4"	●	●	●	●	●	●	●	●	●	●	●	●
7.00		●	●	●	●	●	●	●	●	●	●	●	●
7.94	5/16"	●	●	●	●	●	●	●	●	●	●	●	●
9.52	3/8"	●	●	●	●	●	●	●	●	●	●	●	●
10.00					●	●	●	●	●	●	●	●	●
12.00					●	●	●	●	●	●	●	●	●
12.70	1/2"		●	●	●	●	●	●	●	●	●	●	●
15.00						●	●	●	●	●	●	●	●
15.88	5/8"					●	●	●	●	●	●	●	●
19.05	3/4"									●	●	●	●
22.22	7/8"										●	●	●



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

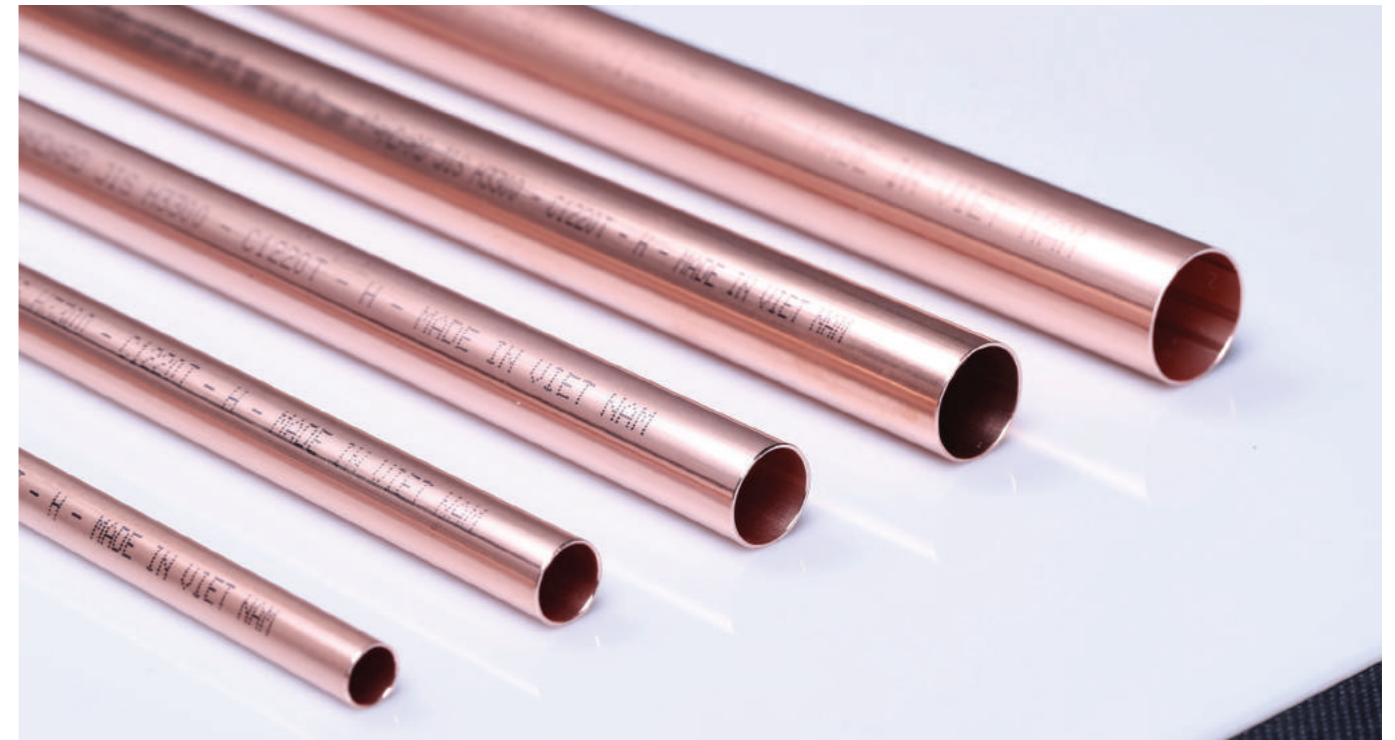
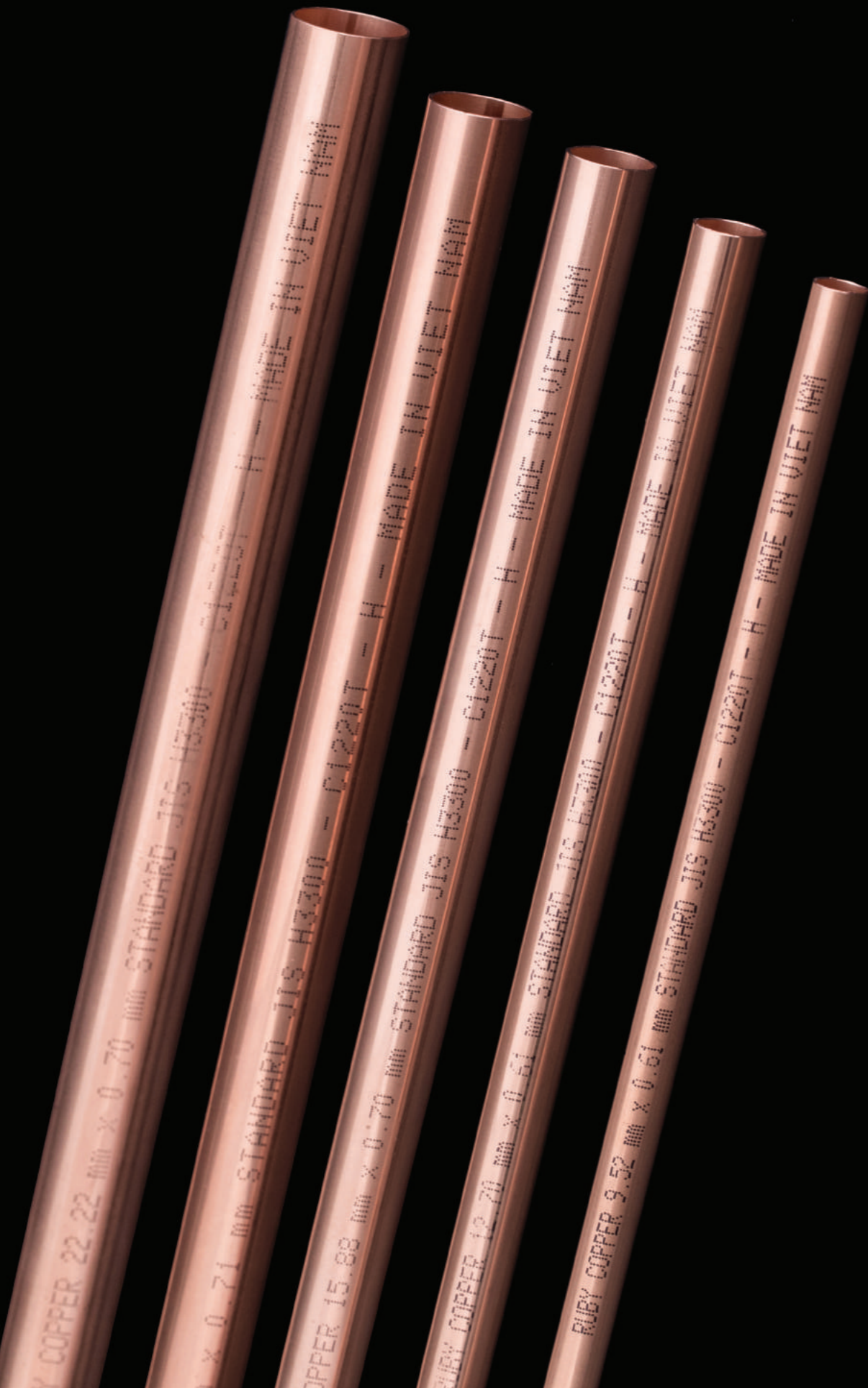
Features: Bright surface finish with high-precision size. Easy for installation. Suitable for used with R410A, R32 refrigerants with high working pressure.

International standards: ASTM B280 (USA) and ASTM B743(USA) and JIS H3300 (Japan).

Outer Diameter		Wall Thickness (mm) – inch													
		0.016"	0.018"	0.020"	0.022"	0.024"	0.026"	0.028"	0.030"	0.032"	0.036"	0.039"	0.043"	0.047"	
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.



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.



UV RESISTANCE

Saves energy and Protect the environment through Advanced technology.

The insulating material used in the manufacturing of Ruby Flex is extruded cross-linked polyethylene (PE-X) suitably expanded to form a foam with closed microcells. The thin-polyethylene layer is adhered to the foamy substrate and provides improved operational features for the insulation.

With closed microcells structure and protective outer polyethylene layer, Ruby Flex PE-X forms an essential barrier to aggressive environments, Ruby Flex ensures the copper tube's performance for the applications of heating, cooling and air-conditioning installations.

Ruby Flex PE-X products are produced in compliance to the requirements of standards that apply in the European Union countries and Japan, as regards insulation properties and chemical characteristics.

The great features offered by Ruby Copper tubes, including copper durability and resistance, combined with high performance insulation, result in significant energy savings. The products are ideal for industrial application due to high performance, competitive price and low installation cost.

The Ruby Flex PE-X products are available in coils with length up to 50 meters with insulation thickness of 6,9,13 and 20mm, suiting a variety of insulation needs.

Advantages in Refrigeration and Air Conditioning.

- Energy savings.
- Resistance to aggressive environments and extreme atmospheric conditions.
- High resistance to mechanical stress.
- Simplified installation process.
- Reduction of installation time and wastage of resources.
- Safe network operation.
- Ease of forming.
- Working temperature from -80 °C to 110 °C.



UV RESISTANCE

Specification	Unit	Inner layer	Outer layer	Standard
Apparent density	g/cm ³	0.033	0.035	JIS K 7222
Tensile Strength	N/cm ²	18.2	18.3	JIS K 6767
Water Absorption	g/100cm ²	0.31	0.30	JIS A 9511
Thermal Conductivity	W/(m.k)	0.035	0.036	JIS A 1412
Thickness shrinkage: - At 120 +/- 5 °C - At 70 +/- 5 °C	%	3.8 3.4	3.5 3.2	JIS A 9511
Moisture permeability coefficient	ng/(m ² .s.Pa)	15	14	JIS 7225
Working temperature	°C	from -80 °C to 110 °C.		



Advanced technological products of high added value with significantly superior in performance.

The insulating material used in the manufacturing of Ruby Flex is high-class NBR/PVC material suitably expanded to form a foam with closed cell structure and low thermal conductivity. The thin layer is adhered to the foamy substrate and provides improved operational features for the insulation.

The uniform closed-cell structure of the insulation material, combined with smooth surface layer, maintains thermal conductivity K-value stable at a significantly low level. Ruby Flex ensures the copper tube's high performance for the applications of heating, cooling and air-conditioning installations.

The great features offered by Ruby Copper tubes, including copper durability and resistance, combined with high performance insulation, result in significant energy savings. The products are ideal for industrial application due to high performance, competitive price and low installation cost.

Ruby Flex is an environmental-friendly product with significantly low VOC index and dust-free. With the chloride origin, Ruby Flex prevents the growth of mold and bacteria, providing fresh air after years of operation.

The Ruby Flex products are available in coils with length up to 50 meters with insulation thickness of 6,9,13 and 20mm, suiting a variety of insulation needs.

Features:

- Significant energy savings.
- Excellent fire resistance with BS476 part 6&7 and En13501 Class C-s2-d0 international fire standard.
- Environmental-friendly with low VOC index and dust-free.
- High resistance to mechanical stress.
- Reduction of installation time and wastage of resources, which greatly contributes to cost reduction.
- Safe network operation.
- Sound absorption that reduces noise generated by equipment.

International standards:

BS476 part 6&7 (U.K.).
En13501 Class C-s2-d0 (Europe).



RUBY FLEX CLASS O SHEET

Thickness (mm)	Length (m)	Area/Roll (m2)		
		1.0m Width	1.22m Width	1.40m Width
6	15	SC06100 (15)	SC06122 (18.3)	SC06140 (21)
10	10	SC10100 (10)	SC10122 (12.2)	SC10140 (14)
13	8	SC13100 (8)	SC13122 (9.76)	SC13140(11.2)
16	7	SC16100 (7)	SC16122 (8.54)	SC16140 (9.8)
19	6	SC19100 (6)	SC19122 (7.32)	SC19140 (8.4)
25	4	SC25100 (4)	SC25122 (4.88)	SC25140 (5.6)
32	3	SC32100 (3)	SC32122 (3.66)	SC32140 (4.2)
38	3	SC38100 (3)	SC38122 (3.66)	SC38140 (4.2)
50	2.5	SC50100 (2.5)	SC50122 (3.05)	SC50140 (3.5)

Key properties	Value/Assessment	Test method/Standard	
General			
Material	Elastomeric insulation, NBR/PVC based	ASTM D 1667	
Basic colour	Black	For other color, please contact technical department	
Cell structure	Completely closed cell	-	
Density (kg/m ³)	45 to 65		
Service temperature			
Min service temperature	-50 °C	Under -50 °C, please require to technical department	
Max service temperature	+105 °C	Above +105 °C, please require to technical department	
Thermal conductivity			
K- value (W/m.K)	0°C	ASTM C 177	
	20°C		
	40°C	ASTM C 518	
	0.033	0.035	0.037
Water vapour behavior			
Water Vapour Permeability	≤2.5 x 10 ⁻¹¹ g/(m.s.Pa)	EN 12086-13	
Water vapour resistance factor	μ ≥ 10,000		
Water absorption	≤ 2.8% (by weight)	ASTM D1056	
	≤0.04% (by volume)		ASTM C209
Fire behavior			
Fire performance	Ruby Flex Class O	BS 476 Part 6 and 7	
	Ruby Flex Class C-s1,d0	EN13501-1	
Low oxygen index (LOI)	Very high	ASTM D2863 ISO 4589	
Health			
	Fibre and formaldehyde free Low VOCs	UL 2818	
Environment			
Ozone resistance	Very good	ASTM D 1149 ASTM D 1171 ASTM C 1338	
UV resistance	Very good		
Mold resistance	No growth Zero ODP and GWP		
Other technical data			
Sound reduction (AF)	33 dB (19 mm)	ASTM C 534	
Flexibility	Excellent		
Heat stability (% shrinkage) @ 220°F (104°C) x 7 days	≤10%		

Providing all requirements in a variety of diameters, thicknesses and lengths.

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

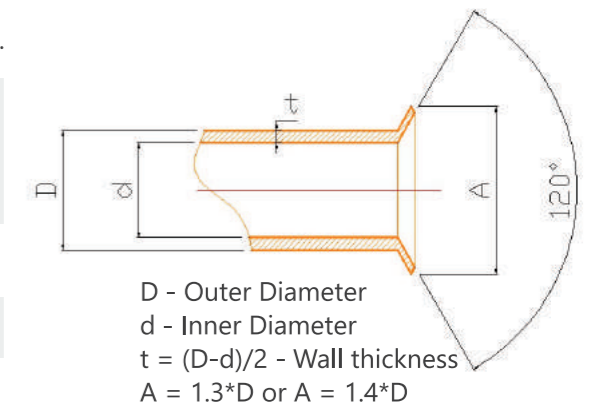
unit: mm.

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



QUALITY-CHECKING PROCESS

Ruby 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, Ruby 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

Type	OD		Wall Thickness (Inch/mm)		WEIGHT		Temper Quality	Safe Working Pressure at service temperature	
	Inch	mm	Inch	mm	kg/m	lb/ft		65 C	149 F
								kPa	psi
Soft Coil B 280 ACR standart	1/4	6.35	0.030	0.762	0.120	0.080	060	9,340	1,350
	5/16	7.94	0.032	0.813	0.163	0.109	060	7,850	1,130
	3/8	9.53	0.032	0.813	0.199	0.134	060	6,440	930
	1/2	12.70	0.032	0.813	0.271	0.182	060	4,750	680
	5/8	15.88	0.035	0.889	0.374	0.251	060	4,120	590
	3/4	19.05	0.035	0.889	0.453	0.305	060	3,410	490
Soft Coil B280 Type K Heavy Coil	7/8	22.23	0.045	1.143	0.677	0.455	060	3,770	540
	1 1/8	28.58	0.050	1.270	0.974	0.654	060	3,240	470
	3/8	9.53	0.035	0.889	0.216	0.145	060	7,090	1,020
	1/2	12.70	0.049	1.245	0.400	0.269	060	7,480	1,080
	5/8	15.88	0.049	1.245	0.512	0.344	060	5,880	850
	3/4	19.05	0.049	1.245	0.622	0.418	060	4,850	700
Soft Coil B743 Economy	7/8	22.23	0.065	1.651	0.954	0.641	060	5,550	800
	1 1/8	28.58	0.065	1.651	1.248	0.839	060	4,260	610
	1/4	6.35	0.024	0.610	0.098	0.066	060	7,320	1,060
	5/16	7.94	0.024	0.610	0.126	0.084	060	5,760	830
	3/8	9.53	0.024	0.610	0.153	0.103	060	4,750	680
	1/2	12.70	0.028	0.711	0.239	0.161	060	4,120	590
Soft Coil B743 Economy	5/8	15.88	0.028	0.711	0.303	0.204	060	3,260	470
	3/4	19.05	0.032	0.813	0.416	0.280	060	3,110	450
	7/8	22.23	0.037	0.940	0.562	0.378	060	3,080	440

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	/	
ASTM B743-12	C12200	99.9	0.015 - 0.04	H58	min 250	/	min 72 HV1	/
				O50	min 205	min 40	max 69 HV1	max 0.04
				O60	min 205	min 40	max 60HV1	min 0.04

Flaring ratio
Outside Diameter, inch (mm)
0.750 (19.1) and under
Over 0.750 (19.1)

Expansion of outside Diameter, %
40
30

HONOR PARTNERS



HONOR CUSTOMERS

