NIMEC

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COPPER PIPES

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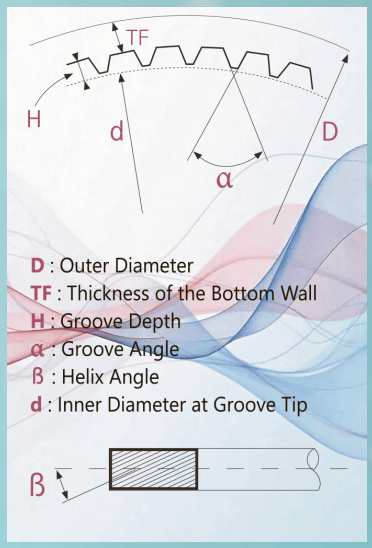
2025

Inner-Grooved Copper Tubes

Inner-Grooved Copper Tubes are precision-engineered tubes featuring longitudinal micro-fins on their internal surface. These internal structures significantly increase the effective heat transfer area and enhance thermal exchange between the tube wall and the circulating refrigerant.



Such tubes are extensively utilised in air conditioning, refrigeration systems, heat pumps, and other energy-efficient applications where high thermal conductivity and compact design are required. The internal grooves increase flow resistance, promoting fluid turbulence and thereby improving the overall heat transfer coefficient. This results in reduced energy consumption and improved system performance.

Manufactured from high-purity copper (minimum 99.95%), the tubes conform to international standards including JIS, ASTM, EN, and AS/NZS. They feature high dimensional accuracy, low weight, and excellent formability for ease of installation. A variety of diameters and custom specifications are available upon request.

Choose Inner-Grooved Copper Tubes to elevate your system's efficiency and reliability. Engineered for performance and trusted by industry leaders worldwide, these tubes deliver measurable energy savings and long-term value. Explore our available sizes below to find the perfect fit for your application.

Specifications for reference

Outer Diameter (D)	Bottom Wall Thickness (TF)	Groove Depth (H)	Groove Angle (α)	Helix Angle (ß)	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

***IGT with different specification & sizes is workable in accordance with the customer's request*

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Pancake Coil

Pancake Coils are compactly wound copper tubes supplied in flat coil form, designed for ease of transport, handling, and manual installation. They are manufactured from high-purity copper (minimum 99.95%) with excellent dimensional accuracy and surface quality.

These coils are widely used in both residential and commercial air conditioning systems, refrigeration units, construction, and plumbing applications. Pancake Coils are easy to bend and install, making them ideal for use with high-pressure refrigerants such as R410A and R32.

The tubes feature a bright, clean surface finish, high ductility, and compliance with international standards including JIS, ASTM, EN, and AS/NZS. Standard coil lengths include 15m, 30m, 45m, and 50m with custom wall thicknesses available upon request.

Specifications for reference

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″									●	●	●	●	●
25.40	1″										●	●	●	●
28.58	1 1/8″											●	●	●

***PC with wall thickness above 1.20 mm is workable in accordance with customer's request*

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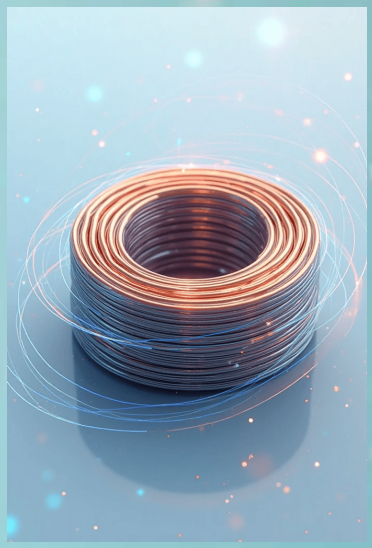
Level Wound Coil

Level Wound Coils (LWC) are high-purity copper tubes (minimum 99.95% Cu), supplied in precisely wound large-volume coils. This format enables uninterrupted feeding in automated manufacturing processes, minimising the need for tube splicing or manual handling.

Material: Copper content (Cu):minimum of 99.95%, Phosphorus concentation (P): 0.015% - 0.04%.

The tubes are manufactured in compliance with international standards including JIS, ASTM, EN, and AS/NZS. Available in soft (annealed) or hard temper, they can be customised in terms of wall thickness and outer diameter according to specific technical requirements.



Specifications for reference

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″										●	●	●

***LWC with different wall thickness is workable in accordance with the customer's request*

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PE Insulated Copper Coil

Crafted with precision, this copper coil features a premium cross-linked polyethylene insulation, meticulously expanded to form a closed-cell microcellular crystal network. A sleek, thin polyethylene outer layer envelops the insulation, delivering enhanced protection and optimised efficiency. This sophisticated combination ensures the copper tube performs exceptionally well even in the most challenging outdoor environments, making it ideal for heating, cooling, and air conditioning applications.

The coil is engineered for robust durability and impressive energy savings, boasting outstanding resistance to mechanical pressure. Its reliable operation spans a broad temperature range from -80°C to 110°C. Composed of high-purity copper with a minimum of 99.95% copper content and phosphorus levels finely balanced between 0.015% and 0.04%, this product combines quality and performance seamlessly.

Specifications for reference

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		

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Ruby Insulation

Engineered to deliver exceptional performance, it offers unparalleled energy efficiency, ensuring significant reductions in operational costs. Its robust construction provides high pressure resistance, safeguarding systems under demanding conditions. The insulation effectively mitigates noise, contributing to a quieter and more comfortable setting. Its durability is complemented by excellent elasticity, maintaining integrity over time. Environmentally conscious, it boasts low levels of Volatile Organic Compounds (VOCs) and high resistance to dust, aligning with sustainable practices. With low thermal conductivity—≤ 0.036 at 0°C and ≤ 0.040 at 40°C—it demonstrates superior insulating properties, particularly at elevated temperatures, making it an ideal choice for high-quality insulating foam applications.

Key Properties	Value/Assessment	Test method/Standard
General		
Material	Elastomeric insulation, NBR/PVC Based	
Basic colour	Black	ASTM D1667
Cell structure	Completely closed cell	For other color, please contract technical department
Density (kg/m³)	40 to 60	
Service temperature		
Min service temperature	-50 °C	Under -50 °C, contact with technical department
Max service temperature	+105 °C	Above +105 °C, contact with technical department
Thermal conductivity		
K- value (W/m.K)	0 °C 20 °C 40 °C 0.033 0.035 0.037	ASTM C 177 ASTM C 518
Water vapour behavior		
Water vapour permeability	≤1.9 x10⁻¹¹ g(m.s.Pa)	ASTM E 96
Water vapour resistance facto	μ ≥ 10.000	DIN EN 13469
water absorption	≤ 2.8% (by weight)	ASTM D 1056
	≤ 0.04% (by volume)	ASTM C 209
Fire behavior		
Fire performance	Class O Class V-0 No flamming droplet when burning	BS 476 Part 6 and 7 ASTM UL 94
Low oxygen index (LOI)	Very Good	ISO 4589
Health		
	Fibre and formaldehyde free Low VOCs	UL 2818
Enviroment		
Ozone resistance	Very good	ASTM D 1149
UV resistance	Very good	ASTM D 1171
Mold resistance	No growth	ASTM C 1338
	Zero ODP and GWP	
Other technical data		
Sound Reduction (AF)	33 dB (19 mm)	
Flexibility	Excellent	
Heat stability (% Shrinkage) @220°F (104°C) x 7 days	≤ 10%	ASTM C 534

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Straight Tube

Straight Copper Tubes are precision-cut copper tube sections with a bright, smooth surface finish and excellent dimensional stability. They are widely used in HVAC systems, refrigeration, heating, construction, and plumbing applications where rigid, pressure-resistant pipework is required.

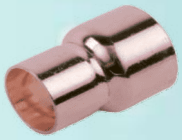
Manufactured from high-purity copper (minimum 99.95%), these tubes comply with international standards including JIS, ASTM, EN, and AS/NZS. Straight tubes offer excellent weldability, high internal pressure resistance, and are available in both soft (annealed) and hard tempers depending on application needs. Standard length range: 2.5 metres to 6 metres, with customised wall thicknesses and diameters available upon request.

Specifications for reference

Outer Diameter		(H|O Hard/Soft Annealed)	Wall Thickness (mm)																
			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
mm	inch	H | O																	
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					●	●	●	●	●	●	●						
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						●	●	●	●	●	●	●	●	●	●	●	●

*** ST with wall thickness from 2.00 mm to 3.50 mm is workable in accordance with customer's request*

Copper Endfeed Fittings



Coupling Reducing CxC

*OD: Outer Diameter

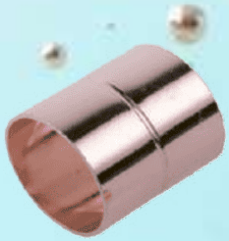
OD1 x OD2 (inch)	OD1 x OD2 (mm)	OD1 x OD2 (inch)	OD1 x OD2 (mm)	OD1 x OD2 (inch)	OD1 x OD2 (mm)
3/8" x 1/4"	9.52 x 6.35	1" x 3/8"	25.40 x 9.52	1 1/2" x 5/8"	38.10 x 15.88
1/2" x 1/4"	12.70 x 6.35	1" x 1/2"	25.40 x 12.70	1 1/2" x 3/4"	38.10 x 19.05
1/2" x 3/8"	12.70 x 9.52	1" x 5/8"	25.40 x 15.88	1 1/2" x 1"	38.10 x 25.40
5/8" x 1/4"	15.88 x 6.35	1" x 3/4"	25.40 x 19.05	1 1/2" x 1 1/4"	38.10 x 31.75
5/8" x 3/8"	15.88 x 9.52	1 1/8" x 5/8"	28.58 x 15.88	1 3/8" x 5/8"	34.93 x 15.88
5/8" x 1/2"	15.88 x 12.70	1 1/8" x 7/8"	28.58 x 22.22	1 3/8" x 7/8"	34.93 x 22.22
3/4" x 1/4"	19.05 x 6.35	1 1/4" x 1/2"	31.75 x 12.70	1 3/8" x 1 1/8"	34.93 x 28.56
3/4" x 3/8"	19.05 x 9.52	1 1/4" x 5/8"	31.75 x 15.88	1 5/8" x 5/8"	41.28 x 15.88
3/4" x 5/8"	19.05 x 15.88	1 1/4" x 3/4"	31.75 x 19.05	1 5/8" x 7/8"	41.28 x 22.22
7/8" x 1/2"	22.22 x 12.70	1 1/4" x 1"	31.75 x 25.40	1 5/8" x 1 1/8"	41.28 x 28.58
7/8" x 5/8"	22.22 x 15.88	1 1/2" x 1/2"	38.10 x 12.70	1 5/8" x 1 3/8"	41.28 x 34.93

Equal Tee CxCxC

OD (inch)	OD (mm)	OD (inch)	OD (mm)	OD (inch)	OD (mm)
1/4"	6.35	3/4"	19.05	1 1/4"	31.75
3/8"	9.52	7/8"	22.22	1 3/8"	34.93
1/2"	12.70	1"	25.40	1 1/2"	38.10
5/8"	15.88	1 1/8"	28.58	1 5/8"	41.28

90° Elbow CxC

*OD: Outer Diameter

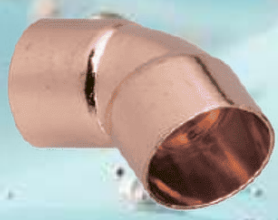


OD (inch)	OD (mm)	OD (inch)	OD (mm)	OD (inch)	OD (mm)
1/4"	6.35	3/4"	19.05	1 1/4"	31.75
3/8"	9.52	7/8"	22.22	1 3/8"	34.93
1/2"	12.70	1"	25.40	1 1/2"	38.10
5/8"	15.88	1 1/8"	28.58	1 5/8"	41.28

Coupling-Rolled Stop CxC

*OD: Outer Diameter

OD (inch)	OD (mm)	OD (inch)	OD (mm)	OD (inch)	OD (mm)
1/4"	6.35	3/4"	19.05	1 1/4"	31.75
3/8"	9.52	7/8"	22.22	1 3/8"	34.93
1/2"	12.70	1"	25.40	1 1/2"	38.10
5/8"	15.88	1 1/8"	28.58	1 5/8"	41.28



45° Elbow CxC

*OD: Outer Diameter

OD (inch)	OD (mm)	OD (inch)	OD (mm)	OD (inch)	OD (mm)
1/4"	6.35	3/4"	19.05	1 1/4"	31.75
3/8"	9.52	7/8"	22.22	1 3/8"	34.93
1/2"	12.70	1"	25.40	1 1/2"	38.10
5/8"	15.88	1 1/8"	28.58	1 5/8"	41.28