



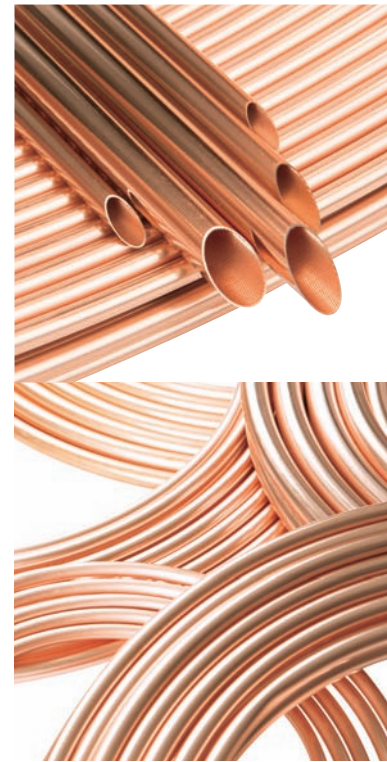
NUNGWON METAL IND. CO., LTD.  
366, Geurugogae-Ro, Eunhyeon-Myeon, Yangju-si, Gyeonggi-do,  
South Korea Zip Code : 11431



**THE WORLD CLASS **COPPER TUBE**  
MANUFACTURER IN KOREA**



**THE WORLD CLASS COPPER TUBE  
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# MAKING LIFE BETTER WITH COPPER

Established in 1986, NWM was designed to supply tube for its sister company Jungwoo fittings, and to sell tube products throughout the Asian market. By increasing production each year since opening, NWM has been able to meet increasing demands. In 2006 NWM acquired a second tube mill facility, giving a combined capacity in excess of 70,000 metric tons, and the ability to produce a range of products from Level wound coil to pancake coil, utility coil, and straight lengths. NWM operates both cast and roll and extrusion processes, and a range of copper tube product from 4.76mm to 307.98mm (3/16" ~ 12"). NWM currently supply customers for tube in over 30 countries worldwide.



## HEADQUARTER / SEOUL OFFICE

431, Cheonggyecheon-ro, Dongdaemun-gu, Seoul, South Korea  
Zip Code : 02586

## FACTORY

366, Geurugogae-ro, Eunhyeon-myeon, Yangju-si, Gyeonggi-do, South Korea  
Zip Code : 11431

## NWM OVERSEAS SALES DEPT.

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TEL : +82-2-3290-9084 FAX : +82-2-2231-9055

[www.nwmmetal.com](http://www.nwmmetal.com)



# COPPER TUBE

Thank you for your interest in NWM and our products. Since our establishment in 1986, our primary commitment has been, and remains, to manufacture the highest quality COPPER products. With over 30 years of experience and focus in the copper industry we are very proud to be at the forefront of manufacturing excellence. In addition to becoming the Korean Copper market leader, we also actively export to over 30 Countries worldwide. Global Certification for our products together with the development of our facilities and capability, have enabled us to develop our business in North America, South America, Europe, Middle East, Asia, Oceania and Africa. With our highly experienced engineering team, NWM manufactures both its own machinery and tooling on site. Equipped with state of the art manufacturing facilities NWM is able to produce many standard or non-standard copper products to meet customers' various flow control application requirements (water, gas, sanitation, air-conditioning, heating and bespoke plant fittings).

The combination of 30 years' of market leading experience, excellence in manufacturing and assured Global quality certification guarantees consistency and reliability for our business partners both domestic and worldwide.

We look forward to continued partnership with our customers and to welcoming new partners to NWM, supported by our continued commitment to quality and service.

Founder & Chairman  
Kwangwon Lee

# HISTORY

## 1980

- 1986. 03. Established "DONGKWANG METAL CO."  
(produced Seamless Copper Water Tubes)
- 1989. 01. Corporate name changed to "SHIN HAN METAL IND.CO."

## 1990

- 1993. 11. Plant moved to Yangju city, Kyeonggi-Do, Korea.
- 1994. 07. Appointed as regional industrial complex
- 1995. 10. Seoul Office established : NUNGDO BLDG., SHINSEOLDONG,  
DONGDAEMOON-GU, SEOUL, KOREA
- 1996. 03. Renamed to "NUNGWON METAL Ind.Co.,Ltd."  
- conversion to Corporation

## 2000

- 2000. 01. Awarded "Exporting USD 10 Million Sales"
- 2000. 12. Increased Capital (from USD 10 Million to  
10.5 Million)
- 2004. 11. Awarded "Exporting USD 30 Million Sales" by  
Ministry of Commerce Industry and Energy
- 2005. 10. Awarded Gold Medal for "Korea Best Practice  
Skill Contest"
- 2006. 06. Awarded prize for "Honorable industrial safety  
supervisor"

## 2010

- 2010. 11. Awarded "Exporting USD 100 Million Sales"  
by Ministry of Commerce Industry and Energy
- 2011. 10. Awarded for its distinct relations between labor and corporation  
by Industrial Bank of Korea
- 2011. 11. Awarded "Exporting USD 200 Million Sales" by Ministry of  
Commerce Industry and Energy
- 2014. 04. Forbes CEO Award.

- 2006. 07. Completed Automatic Equipment at 2nd plant
- 2006. 09. Awarded Gold Prize for "2006 Quality Management  
Contest in Korea"
- 2006. 11. Awarded "Prime Minister's Prize" & "Exporting  
USD 70 Million Sales" by Ministry of Commerce  
Industry and Energy
- 2007. 01. Awarded "Global Standard Management Award"  
for Product Quality Management



**COPPER  
TUBE**

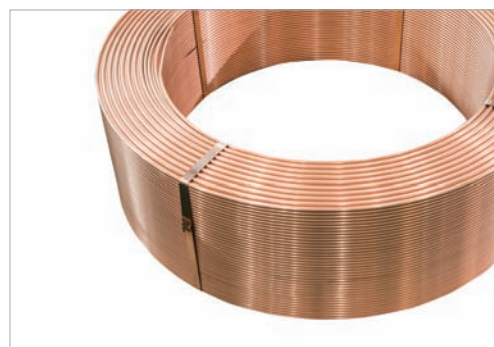
## CONTENTS

Message From Chairman	06
History	08
Product List	12
Mechanical Properties	14
Size Range	15
Standard Product	
■ ASTM	
- ASTM B88	16
- ASTM B280	18
- ASTM B819	20
- ASTM B306	21
- ASTM B837	22
■ BS EN	
- BS EN 12735	23
- BS EN 1057	24
- BS EN 13348	25
■ AS/NZS1571	26
■ AS1432	27
■ JIS H3300	28
Customized Product	
■ LWC	29
■ Inner Grooved Tube	30
■ PolyLag	31
■ Hexagonal/Octagonal	32
Manufacturing Process for Copper Tube	33
Certificates	34

# PRODUCT LIST

## Level Wound Coil

- Temper : O, OL, H
- Size : 4.76mm ~ 28.58mm (3/16" OD ~ 1-1/8" OD)
- Incising available
- Packing : Bobbin (Reel) / No-Bobbin (Eye-to-sky)
- Coil weight : 110Kg ~ 300Kg  
240 lb ~ 660 lb



## Soft Coils = pancake coil

- Temper : O
- Size : 6.35mm~28.58mm (1/4" OD~1-1/8" OD)
- Length : Standard 15m / 30m / 50ft / 60ft / 100ft
- Incising & Ink Marking available
- Packing : NWM Carton box  
Plastic wrap + label  
Outer Cap / Inner Cap
- UL 700 psi Certified Refrigeration Coil

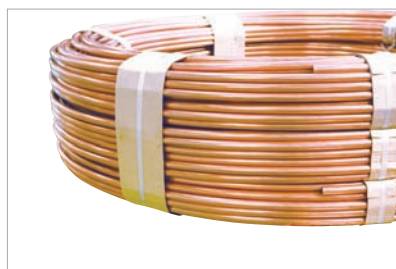


## Inner Grooved Tube

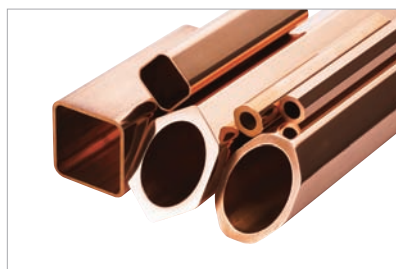
- Temper : OL
- Size : 5mm ~ 12.7mm (5mm ~ 1/2" OD)
- Packing : Center-feed / Bobbin (Reel)
- Coil weight : 110kg ~ 220kg  
240lb ~ 485lb



## Bunch Coil



## Hex/Octagonal Tube



## Billet



## Straight Tube

- Temper : O, OL, H, 1/2H
- Size : 6mm ~ 307.98mm (6mm ~ 12-1/8" OD)
- Incising available
- Packing : Bundle / Wooden Box
- Length : Various



## ACR/Medical Straight Tube

- Temper : H
- Size : 8mm ~ 200mm (3/8" OD ~ 8-1/8" OD)
- Length : Standard 3m / 6m / 10ft / 20ft
- Incising & Ink Marking available
- Packing : Bundle, Wooden box, Inner cap



## Polylagged Tube / Plastic Coated Tube

- Temper : H, 1/2H
- Size : 9.52mm ~ 108mm
- Length : Standard 3m / 6m / 10ft / 20ft
- Coil : Standard 15m / 20m / 30m
- Ink Marking available
- Packing : Bundle, Wooden Box
- LDPE White Sleeve or PVC Green / Yellow / Purple Sleeve



## Packaging



LWC - Bobbin



PCC - Carton Box



S/Length - Bundle



S/Length - Wooden Box

# MECHANICAL PROPERTIES

## MECHANICAL PROPERTIES

Standard	UNS No.	Copper Alloy	Temper		Tensile Strength	Elongation %	Hardness	Grain Size (mm)
KS, JIS	C1220 C1201	DHP DLP	O	Soft Annealed	over 205	over 40	below 60 (HR15T)	0.025-0.060
			OL	Light Annealed			below 65 (HR15T)	below 0.040
			1/2H	Half Hard	245-325	30-60 (HR30T)		
			H	Drawn	over 315 over 275 over 255	over 55 (HR30T) (apply to below 25mm only)		
ASTM B88 ASTM B280	C12200	DHP	O60	Soft Annealed	over 205		below 50 (HRF)	over 0.040
			O50	Light Annealed	over 205		below 55 (HRF)	over 0.025
			H58	Drawn	over 246		over 30 (HR30T)	
AS1432 AS/NZS1571	C12200	C1220T	Ann	Annealed			below 70 (HV)	
			BQ	Bendable Quality			80-100 (HV)	
			HD	Drawn			over 100 (HV)	
EN1057 EN12735-1	C12200 CW024A	DHP	R220	Annealed	over 220	over 40	40-70(HV 5)	
			R250	Half Hard	over 250	over 20	75-100(HV 5)	
			R290	Hard	over 290	over 3	over 100(HV 5)	

## TYPES OF COPPERTUBE IS GROUPED

By Chemical	DHP	High Phosphorus Deoxidized (P:0.015%~0.040%)
	DLP	Low Phosphorus Deoxidized (P:0.004%~0.015%)
By Temper	O	Annealed as "soft" tube
	OL	Annealed as "light" tube
	1/2H	Half Hard is referred to as "R250, 1/2H, Bendable"
	H	Drawn temper tube is often referred to as "hard" tube
By Use	Water Tube	Domestic water service and distribution
	ACR Tube	Air-conditioning and refrigeration field service
	Condenser Tube	Heat exchange & fin tube
	DWV Tube	Drain, waste and sewage service
	GAS Tube	Natural gas & liquified petroleum gas feul distribution service
By Shape	Straight Length	Normal length of S/T is 6m (~200mm OD), 4m (200~250mm OD), 3m (250~308mm OD)
	- PanCakeCoil	15, 18, 30M / COIL
	- Bunch Coil	150~440KG/ROLL
	- LevelWoundCoil	110~300KG/ROLL
	Inner Grooved Tube	110~220KG/ROLL

# SIZE RANGE

NWM produces full range of copper tube associated with Japanese, European, American, Australian and Korean Standard

OD	Available Wall Thickness			Phosphorus Alloy											
	S/T, LWC Max	S/T, LWC Min	IGT	DLP(C12000) : Low Phosphorus Alloy						DHP(C12200) : High Phosphorus Alloy					
				Packing Method											
	Bundle or Wooden Box				Bobbin or No Bobbin + Pallet				Carton + Pallet						
	Products														
			Straight Tube			LWC			IGT			PCC			
			H	1/2H	O	H	OL	O	H	OL	O	H	OL	O	
4.00	1.00	0.27		X	X	X	△	△	△	X	X	X	X	X	X
4.76	1.00	0.27		X	X	X	△	△	△	X	X	X	X	X	X
5.00	1.00	0.27	0.20	X	X	X	●	●	●	●	●	X	●	●	●
6.35	1.20	0.27	0.20	●	●	●	●	●	●	●	●	X	●	●	●
7.00	1.40	0.27	0.22	●	●	●	●	●	●	●	●	X	●	●	●
7.94	1.50	0.27	0.25	●	●	●	●	●	●	●	●	X	●	●	●
9.52	1.65	0.27	0.28	●	●	●	●	●	●	●	●	X	●	●	●
12.70	2.00	0.37		●	●	●	●	●	●	X	X	X	X	●	●
15.88	2.00	0.40		●	●	●	●	●	●	X	X	X	X	●	●
19.05	2.00	0.50		●	●	●	●	●	●	X	X	X	X	●	●
22.22	3.11	0.55		●	●	●	●	●	●	X	X	X	X	●	●
25.40	3.50	0.60		●	●	●	●	●	●	X	X	X	X	●	●
28.58	6.11	0.60		●	●	●	●	●	●	X	X	X	X	●	●
31.75	8.00	0.70		●	●	●	X	X	X	X	X	X	X	X	X
34.92	8.00	0.70		●	●	●	X	X	X	X	X	X	X	X	X
38.10	8.00	0.80		●	●	●	X	X	X	X	X	X	X	X	X
41.28	8.00	0.80		●	●	●	X	X	X	X	X	X	X	X	X
50.80	8.00	0.80		●	●	●	X	X	X	X	X	X	X	X	X
53.98	8.00	0.90		●	●	●	X	X	X	X	X	X	X	X	X
60.00	8.00	0.91		●	●	●	X	X	X	X	X	X	X	X	X
63.50	8.00	0.91		●	●	●	X	X	X	X	X	X	X	X	X
66.68	8.00	1.09		●	●	●	X	X	X	X	X	X	X	X	X
76.20	10.00	1.22		●	●	●	X	X	X	X	X	X	X	X	X
79.38	10.00	1.09		●	●	●	X	X	X	X	X	X	X	X	X
83.54	10.00	2.01		●	●	●	X	X	X	X	X	X	X	X	X
88.90	10.00	1.40		●	●	●	X	X	X	X	X	X	X	X	X
101.60	10.00	1.22		●	●	●	X	X	X	X	X	X	X	X	X
104.78	10.00	1.47		●	●	●	X	X	X	X	X	X	X	X	X
108.00	10.00	1.50		●	●	●									
127.00	10.00	1.42		●	X	●	X	X	X	X	X	X	X	X	X
130.18	10.00	1.83		●	X	●	X	X	X	X	X	X	X	X	X
133.00	10.00	1.50		●	X	●	X	X	X	X	X	X	X	X	X
152.40	10.00	1.63		●	X	●	X	X	X	X	X	X	X	X	X
155.58	10.00	1.83		●	X	●	X	X	X	X	X	X	X	X	X
159.00	10.00	2.00		●	X	●	X	X	X	X	X	X	X	X	X
180.00	10.00	2.00		●	X	●	X	X	X	X	X	X	X	X	X
203.20	10.00	2.03		●	X	●	X	X	X	X	X	X	X	X	X
206.38	10.00	2.77		●	X	●	X	X	X	X	X	X	X	X	X
207.01	10.00	1.91		●	X	●	X	X	X	X	X	X	X	X	X
257.18	10.00	4.00		●	X	●	X	X	X	X	X	X	X	X	X
307.98	10.29	4		●	X	●	X	X	X	X	X	X	X	X	X
310	10.29	4		●	X	●	X	X	X	X	X	X	X	X	X

# ASTM B88

## Seamless Copper Water Tube



# ASTM B88

## Seamless Copper Water Tube



### I . SIZE TABLE

Type	OD			Wall Thickness		WEIGHT		Temper Quality	Product Type	Safe Working Pressure at service temperature	
	Inch		mm	Inch	mm	kg/m	lb/ft			65°C	149°F
	Nom	Act								kPa	psi
K	1/4	3/8	9.53	0.035	0.889	0.216	0.145	O60, H58	LWC, PCC, S/T	7,100	1,030
	3/8	1/2	12.70	0.049	1.245	0.400	0.269	O60, H58	LWC, PCC, S/T	7,500	1,080
	1/2	5/8	15.88	0.049	1.245	0.512	0.344	O60, H58	LWC, PCC, S/T	5,900	850
	5/8	3/4	19.05	0.049	1.245	0.622	0.418	O60, H58	LWC, PCC, S/T	4,800	700
	3/4	7/8	22.23	0.065	1.651	0.954	0.641	O60, H58	LWC, PCC, S/T	5,500	800
	1	1 1/8	28.58	0.065	1.651	1.248	0.839	O60, H58	LWC, PCC, S/T	4,200	620
	1 1/4	1 3/8	34.93	0.065	1.651	1.543	1.037	H58	S/T	3,400	500
	1 1/2	1 5/8	41.28	0.072	1.829	2.026	1.361	H58	S/T	3,200	470
	2	2 1/8	53.98	0.083	2.108	3.070	2.063	H58	S/T	2,800	410
	2 1/2	2 5/8	66.68	0.095	2.413	4.355	2.926	H58	S/T	2,600	380
	3	3 1/8	79.38	0.109	2.769	5.957	4.003	H58	S/T	2,500	360
	3 1/2	3 5/8	92.08	0.120	3.048	7.620	5.120	H58	S/T	2,400	340
	4	4 1/8	104.78	0.134	3.404	9.690	6.511	H58	S/T	2,300	340
	5	5 1/8	130.18	0.160	4.064	14.392	9.671	H58	S/T	2,200	328
	6	6 1/8	155.58	0.192	4.877	20.638	13.868	H58	S/T	2,200	320
	8	8 1/8	206.38	0.271	6.883	38.558	25.909	H58	S/T	2,400	350
10	10 1/8	257.18	0.338	8.585	59.928	40.269	H58	S/T	2,400	350	
12	12 1/8	307.98	0.405	10.289	85.991	57.783	H58	S/T	2,400	350	
L	1/4	3/8	9.53	0.030	0.762	0.188	0.126	O60, H58	LWC, PCC, S/T	6,000	870
	3/8	1/2	12.70	0.035	0.889	0.295	0.198	O60, H58	LWC, PCC, S/T	5,200	750
	1/2	5/8	15.88	0.040	1.016	0.424	0.285	O60, H58	LWC, PCC, S/T	4,700	690
	5/8	3/4	19.05	0.042	1.067	0.539	0.362	O60, H58	LWC, PCC, S/T	4,100	600
	3/4	7/8	22.23	0.045	1.143	0.677	0.455	O60, H58	LWC, PCC, S/T	3,700	540
	1	1 1/8	28.58	0.050	1.270	0.974	0.654	O60, H58	LWC, PCC, S/T	3,200	470
	1 1/4	1 3/8	34.93	0.055	1.397	1.315	0.884	H58	S/T	2,900	420
	1 1/2	1 5/8	41.28	0.060	1.524	1.701	1.143	H58	S/T	2,600	380
	2	2 1/8	53.98	0.070	1.778	2.606	1.751	H58	S/T	2,300	340
	2 1/2	2 5/8	66.68	0.080	2.032	3.689	2.479	H58	S/T	2,200	320
	3	3 1/8	79.38	0.090	2.286	4.949	3.325	H58	S/T	2,000	300
	3 1/2	3 5/8	92.08	0.100	2.540	6.386	4.291	H58	S/T	1,900	280
	4	4 1/8	104.78	0.110	2.794	8.001	5.377	H58	S/T	1,900	270
	5	5 1/8	130.18	0.125	3.175	11.323	7.609	H58	S/T	1,700	250
	6	6 1/8	155.58	0.140	3.556	15.180	10.200	H58	S/T	1,600	230
	8	8 1/8	206.38	0.200	5.080	28.715	19.295	H58	S/T	1,700	250
10	10 1/8	257.18	0.250	6.350	44.725	30.053	H58	S/T	1,700	250	
12	12 1/8	307.98	0.280	7.112	60.085	40.374	H58	S/T	1,600	240	

※ Pressure ratings for K, L, M DWV and refrigeration tube are calculated for annealed tube and for use when jointing is made using a heat source. Hard drawn tube has higher pressure ratings which will only be maintained when non-heat source jointing methods are used. This information is key when systems are designed.

### I . SIZE TABLE

Type	OD			Wall Thickness		WEIGHT		Temper Quality	Product Type	Safe Working Pressure at service temperature	
	Inch		mm	Inch	mm	kg/m	lb/ft			65°C	149°F
	Nom	Act								kPa	psi
M	3/8	1/2	12.70	0.025	0.635	0.215	0.145	O60, H58	LWC, PCC, S/T	3,600	530
	1/2	5/8	15.88	0.028	0.711	0.303	0.204	O60, H58	LWC, PCC, S/T	3,200	470
	3/4	7/8	22.23	0.032	0.813	0.489	0.329	O60, H58	LWC, PCC, S/T	2,600	380
	1	1 1/8	28.58	0.035	0.889	0.691	0.464	O60, H58	LWC, PCC, S/T	2,200	320
	1 1/4	1 3/8	34.93	0.042	1.067	1.015	0.682	H58	S/T	2,200	320
	1 1/2	1 5/8	41.28	0.049	1.245	1.400	0.940	H58	S/T	2,100	310
	2	2 1/8	53.98	0.058	1.473	2.172	1.459	H58	S/T	1,900	280
	2 1/2	2 5/8	66.68	0.065	1.651	3.015	2.026	H58	S/T	1,700	250
	3	3 1/8	79.38	0.072	1.829	3.983	2.676	H58	S/T	1,600	240
	3 1/2	3 5/8	92.08	0.083	2.108	5.326	3.579	H58	S/T	1,600	230
	4	4 1/8	104.78	0.095	2.413	6.936	4.661	H58	S/T	1,600	240
	5	5 1/8	130.18	0.109	2.769	9.907	6.657	H58	S/T	1,500	220
	6	6 1/8	155.58	0.122	3.099	13.269	8.916	H58	S/T	1,400	200
	8	8 1/8	206.38	0.170	4.318	24.500	16.463	H58	S/T	1,500	210
	10	10 1/8	257.18	0.212	5.385	38.074	25.584	H58	S/T	1,500	210
	12	12 1/8	307.98	0.254	6.452	54.628	36.708	H58	S/T	1,500	210

### II . MARKING AND INCISING

OD SIZE	WTTYPE	Standard Marking		Note
		Ink Marking (Durable)	Incising (Permanent)	
Full range	Type K	TradeMark, Type K, Origin	TradeMark, Type K	Green Ink
	Type L	TradeMark, Type L, Origin	TradeMark, Type L	Blue Ink
	Type M	TradeMark, Type M, Origin	TradeMark, Type M	Red Ink

※ Warnock hersey logo or NSF61 logo and other information can be marked by mutual agreement, the standard and the license agreement

### III . FINISHING

CLEANLINESS	END-CAP
Unrequired by the Standard	End-capped by a buyer's option



# ASTM B280

Seamless Copper Tube for  
Air Conditioning and Refrigeration Field Service



## I. SIZE TABLE OF B280 STRAIGHT TUBE

※ Yellow Block : UL 700Psi Certified Size

Type	OD		Wall Thickness		WEIGHT		Temper Quality	Safe Working Pressure at service temperature		
	Inch	mm	Inch	mm	kg/m	lb/ft		65°C	149°F	
								kPa	psi	
L	3/8	9.53	0.030	0.762	0.188	0.126	H58	6,000	870	
	1/2	12.70	0.035	0.889	0.295	0.198	H58	5,200	750	
	5/8	15.88	0.040	1.016	0.424	0.285	H58	4,700	690	
	3/4	19.05	0.042	1.067	0.539	0.362	H58	4,100	600	
	7/8	22.23	0.045	1.143	0.677	0.455	H58	3,700	540	
	1 1/8	28.58	0.050	1.270	0.974	0.654	H58	3,200	470	
	1 3/8	34.93	0.055	1.397	1.315	0.884	H58	2,900	420	
	1 5/8	41.28	0.060	1.524	1.701	1.143	H58	2,600	380	
	2 1/8	53.98	0.070	1.778	2.606	1.751	H58	2,300	340	
	2 5/8	66.68	0.080	2.032	3.689	2.479	H58	2,200	320	
	3 1/8	79.38	0.090	2.286	4.949	3.325	H58	2,000	300	
	3 5/8	92.08	0.100	2.540	6.386	4.291	H58	1,900	280	
	4 1/8	104.78	0.110	2.794	8.001	5.377	H58	1,900	270	
	5 1/8	130.18	0.125	3.175	11.323	7.609	H58	1,700	250	
	6 1/8	155.58	0.140	3.556	15.180	10.200	H58	1,600	230	
	8 1/8	206.38	0.200	5.080	28.715	19.295	H58	1,700	250	
	K	3/8	9.53	0.035	0.889	0.216	0.145	H58	7,100	1,030
		1/2	12.70	0.049	1.245	0.400	0.269	H58	7,500	1,080
5/8		15.88	0.049	1.245	0.512	0.344	H58	5,900	850	
3/4		19.05	0.049	1.245	0.622	0.418	H58	4,800	700	
7/8		22.23	0.065	1.651	0.954	0.641	H58	5,500	800	
1 1/8		28.58	0.065	1.651	1.248	0.839	H58	4,200	620	
1 3/8		34.93	0.065	1.651	1.543	1.037	H58	3,400	500	
1 5/8		41.28	0.072	1.829	2.026	1.361	H58	3,200	470	
2 1/8		53.98	0.083	2.108	3.070	2.063	H58	2,800	410	
2 5/8		66.68	0.095	2.413	4.355	2.926	H58	2,600	380	
3 1/8		79.38	0.109	2.769	5.957	4.003	H58	2,500	360	
3 5/8		92.08	0.120	3.048	7.620	5.120	H58	2,400	340	
4 1/8		104.78	0.134	3.404	9.690	6.511	H58	2,300	340	
5 1/8		130.18	0.160	4.064	14.392	9.671	H58	2,200	320	
6 1/8	155.58	0.192	4.877	20.638	13.868	H58	2,200	320		
8 1/8	206.38	0.271	6.883	38.558	25.909	H58	2,400	350		

※ Pressure ratings for K, L, M DWV and refrigeration tube are calculated for annealed tube and for use when jointing is made using a heat source. Hard drawn tube has higher pressure ratings which will only be maintained when non-heat source jointing methods are used. This information is key when systems are designed.



## II. SIZE TABLE OF PANCAKE COIL

※ Yellow Block : UL 700Psi Certified Size

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 B280 ACR/Type L Standard	1/4	6.35	0.030	0.762	0.120	0.080	O60	9,300	1,350
	5/16	7.94	0.032	0.813	0.163	0.109	O60	7,800	1,140
	3/8	9.53	0.032	0.813	0.199	0.134	O60	6,400	930
	1/2	12.70	0.032	0.813	0.271	0.182	O60	4,700	690
	5/8	15.88	0.035	0.889	0.374	0.251	O60	4,100	600
	3/4	19.05	0.035	0.889	0.453	0.305	O60	3,400	490
	7/8	22.23	0.045	1.143	0.677	0.455	O60	3,700	540
Soft Coil B280 Type K Heavy Coil	1 1/8	28.58	0.050	1.270	0.974	0.654	O60	3,200	470
	3/8	9.53	0.035	0.889	0.216	0.145	O60	7,100	1,030
	1/2	12.70	0.049	1.245	0.400	0.269	O60	7,500	1,080
	5/8	15.88	0.049	1.245	0.512	0.344	O60	5,900	850
	3/4	19.05	0.049	1.245	0.622	0.418	O60	4,800	700
Soft Coil B743 Economy	7/8	22.23	0.065	1.651	0.954	0.641	O60	5,500	800
	1 1/8	28.58	0.065	1.651	1.248	0.839	O60	4,200	620
	1/4	6.35	0.024	0.610	0.098	0.066	O60	7,300	1,060
	5/16	7.94	0.024	0.610	0.126	0.084	O60	5,700	830
	3/8	9.53	0.024	0.610	0.153	0.103	O60	4,700	690
	1/2	12.70	0.028	0.711	0.239	0.161	O60	4,100	600
	5/8	15.88	0.028	0.711	0.303	0.204	O60	3,200	470
3/4	19.05	0.032	0.813	0.416	0.280	O60	3,100	450	
7/8	22.23	0.037	0.940	0.562	0.378	O60	3,000	440	

## III. MARKING AND INCISING

ITEM	PRODUCT TYPE	Standard Marking		Note
		Ink Marking (Durable)	Incising (Permanent)	
B280 STANDARD	S/TUBE	ACR, Trademark, OD, Origin	Trademark, ACR	Blue Ink
B280 TYPE K HEAVY	S/TUBE	ACR TYPE K, Trademark, OD, Origin	Trademark, ACR TYPE K	Green Ink
B280 STANDARD	COIL	Not required by standard	Trademark, ACR	Black Ink
B280 TYPE K HEAVY	COIL	Not required by standard	Trademark, ACR TYPE K	Black Ink
B743 ECONOMY	COIL	Not required by standard	N/A	Black Ink

## IV. FINISHING

CLEANLINESS	END-CAP
0.038g / m <sup>2</sup>	Required by the Standard



# ASTM B819

Seamless Copper Tube for Medical Gas Systems

## I . SIZE TABLE

※ Yellow Block : UL 700Psi Certified Size 

OD			OD Wall Thickness(Inch/mm)				Temper Quality	Product Type
Nominal	Actual		K-Type		L-Type			
	Inch	mm	inch	mm	inch	mm		
1/4	3/8	9.53	0.035	0.889	0.030	0.762	H58	S/T
3/8	1/2	12.70	0.049	1.245	0.035	0.889	H58	S/T
1/2	5/8	15.88	0.049	1.245	0.040	1.016	H58	S/T
5/8	3/4	19.05	0.049	1.245	0.042	1.067	H58	S/T
3/4	7/8	22.23	0.065	1.651	0.045	1.143	H58	S/T
1	1 1/8	28.58	0.065	1.651	0.050	1.270	H58	S/T
1 1/4	1 3/8	34.93	0.065	1.651	0.055	1.397	H58	S/T
1 1/2	1 5/8	41.28	0.072	1.829	0.060	1.524	H58	S/T
2	2 1/8	53.98	0.083	2.108	0.070	1.778	H58	S/T
2 1/2	2 5/8	66.68	0.095	2.413	0.080	2.032	H58	S/T
3	3 1/8	79.38	0.109	2.769	0.090	2.286	H58	S/T
3 1/2	3 5/8	92.08	0.120	3.048	0.100	2.540	H58	S/T
4	4 1/8	104.78	0.134	3.404	0.110	2.794	H58	S/T
5	5 1/8	130.18	0.160	4.064	0.125	3.175	H58	S/T
6	6 1/8	155.58	0.192	4.877	0.140	3.556	H58	S/T
8	8 1/8	206.38	0.271	6.883	0.200	5.080	H58	S/T

## II . MARKING AND INCISING

OD SIZE	TEMPER	Standard Marking		Note
		Ink Marking (Durable)	Incising (Permanent)	
Full range	H58	Trademark, Origin, MED	Trademark, Type K	Green Ink
		Trademark, Origin, MED	Trademark, Type L	Blue Ink

## III . FINISHING

CLEANLINESS	END-CAP
0.038g/m2	Required by the standard



# ASTM B306

Copper Drainage Tube(DWV)



## I . SIZE TABLE

OD			Wall Thickness(Inch/mm)		Temper Quality	Product Type
Nom	Inch		mm	inch		
	Act	mm				
1 1/4	1 3/8	34.93	0.040	1.02	H58	S/T
1 1/2	1 5/8	41.28	0.042	1.07	H58	S/T
2	2 1/8	53.98	0.042	1.07	H58	S/T
3	3 1/8	79.38	0.045	1.14	H58	S/T
4	4 1/8	104.78	0.058	1.47	H58	S/T
5	5 1/8	130.18	0.072	1.83	H58	S/T
6	6 1/8	155.58	0.083	2.11	H58	S/T
8	8 1/8	206.38	0.109	2.77	H58	S/T

## II . MARKING AND INCISING

OD SIZE	Standard Marking		Note
	Ink Marking (Durable)	Incising (Permanent)	
Full range	DWV, Trademark, Origin	DWV, Trademark	Yellow Ink

## III . FINISHING

CLEANLINESS	END-CAP
0.038g/m2	Required by the standard



# ASTM B837

Seamless Copper Tube for Natural Gas & Liquefied Petroleum (LP) Gas Fuel Distribution Systems



## I . TYPE GAS

OD		OD Wall Thickness(Inch/mm)			Product Type	
Inch	mm	Inch	mm	Tolerance		
Act				inch		
3/8	0.375	9.52	0.030	0.762	0.0030	PCC/ST
1/2	0.500	12.70	0.035	0.889	0.0040	PCC/ST
5/8	0.625	15.88	0.040	1.016	0.0040	PCC/ST
3/4	0.750	19.05	0.042	1.067	0.0040	PCC/ST
7/8	0.875	22.23	0.045	1.143	0.0040	PCC/ST
1 1/8	1.125	28.58	0.050	1.270	0.0050	ST

## II . MARKING AND INCISING

OD SIZE	Standard Marking		Note
	Ink Marking (Durable)	Incising (Permanent)	
Full range	GAS, Trademark, Origin	GAS, Trademark	Yellow Ink

## III . FINISHING

CLEANLINESS	END-CAP
Unrequired by the standard	Unrequired by the standard



# BS EN 12735

Seamless, round copper tubes for air-conditioning and refrigeration

## I . SIZE TABLE

Metric	OD		Nominal Wall Thickness (mm)					Temper Quality	Product Type	Maximum Working Pressure [kPa] at 65 °C	
	IMPERIAL Inch	mm	COIL R220		S/T R290					COIL - R220	S/T - R290
			Standard	Option1	Standard	Option1	Option2				
6.00	3/16	4.76	0.80					R220,R290	LWC	13,700	-
		6.00	0.80	1.00	0.80			R220,R290	LWC	10,500	23,100
8.00	1/4	6.35	0.80	1.00				R220,R290	LWC, PCC, S/T	9,800	-
	5/16	7.94	0.80	1.00				R220,R290	LWC, PCC, S/T	7,700	-
10.00		8.00	0.80	1.00	0.80			R220,R290	LWC, PCC, S/T	7,600	16,800
	3/8	9.52	0.80	1.00				R220,R290	LWC, PCC, S/T	6,300	-
12.00		10.00	0.80	1.00	0.80	1.00		R220,R290	LWC, PCC, S/T	6,000	13,200
	1/2	12.00	1.00		1.00			R220, R250, R290	LWC, PCC, S/T	6,300	13,800
15.00		12.70	0.80	1.00	1.00			R220, R250, R290	LWC, PCC, S/T	4,600	13,000
	5/8	15.00	1.00		1.00			R220, R250, R290	LWC, PCC, S/T	4,900	10,900
18.00		15.88	1.00		1.00			R220, R250, R290	LWC, PCC, S/T	4,600	10,200
	3/4	18.00	1.00		1.00			R220, R250, R290	LWC, PCC, S/T	4,100	9,000
22.00		19.05	1.00		1.25			R220, R250, R290	LWC, PCC, S/T	3,800	10,700
	7/8	22.00	1.00		1.00			R220, R250, R290	LWC, PCC, S/T	3,300	7,300
28.00	1	22.23	1.00		1.25			R220, R250, R290	LWC, PCC, S/T	3,200	9,100
		25.40			1.00			R220, R250, R290	LWC, PCC, S/T		6,200
35.00	1 1/8	28.00			1.50			R220, R250, R290	LWC, PCC, S/T		8,600
	1 3/8	28.58			1.00	1.25		R220, R250, R290	LWC, PCC, S/T		5,500
42.00		34.92			1.25			R290	S/T		5,700
	1 5/8	35.00			1.50			R290	S/T		6,800
54.00		41.28			1.25			R290	S/T		4,800
	2 1/8	42.00			1.50			R290	S/T		5,600
64.00		53.97			1.25	1.65		R290	S/T		3,600
	2 5/8	54.00			2.00			R290	S/T		5,900
76.10		64.00			2.00			R290	S/T		4,900
	3 1/8	66.68			1.25	1.65	2.00	R290	S/T		2,900
84.00		76.10			2.00			R290	S/T		4,100
	3 1/2	79.38			1.65	2.50		R290	S/T		3,200
95.00		88.90			2.00			R290	S/T		3,500
	3 5/8	92.07			1.65	2.50		R290	S/T		2,800
108.00		104.78			1.65	2.50		R290	S/T		2,400
	4 1/8	108.00			2.50			R290	S/T		3,600

## II . MARKING AND INCISING

OD SIZE	WTTYPE	Standard Marking		Note
		Ink Marking (Durable)	Incising (Permanent)	
Full range	R220, R290	EN12735-1, Trademark, OD XWT, QQYYYY		Black Ink
	R250	EN12735-1, Trademark, OD XWT H-I, QQYYYY		Black Ink

## III . FINISHING

CLEANLINESS	END-CAP
10~54mm : 0.20mg/dm2	Required by the standard
64~267mm : 1.00mg/dm2	Required by the standard

# BS EN 1057

Seamless, round copper tubes  
for water and gas in sanitary and heating application



## I . SIZE TABLE

OD	Nominal Wall Thickness(mm)					Temper Quality	Product Type	Maximum Working Pressure [Bar] at 65°C	
	Type X	Type Y	EU recommended					Type X	Type Y
6	0.6	0.8	1			R220, R290	LWC, PCC, S/T	133	188
8	0.6	0.8	1			R220, R290	LWC, PCC, S/T	97	136
10	0.6	0.7	0.8	1		R220, R290	LWC, PCC, S/T	77	106
12	0.6	0.7	0.8	1		R220, R250, R290	LWC, PCC, S/T	63	87
14	0.8	1				R220, R250, R290	LWC, PCC, S/T		
15	0.7	0.8	1			R220, R250, R290	LWC, PCC, S/T	58	87
16	1					R220, R250, R290	LWC, PCC, S/T		
18	0.8	1				R220, R250, R290	LWC, PCC, S/T	56	72
22	0.9	1	1.1	1.2	1.5	R220, R250, R290	LWC, PCC, S/T	51	69
28	0.9	1	1.2	1.5		R220, R250, R290	LWC, PCC, S/T	40	55
35	1	1.2	1.5			R290	S/T	42	54
40	1					R290	S/T		
42	1	1.2	1.5			R290	S/T	35	45
54	1	1.2	1.5	2		R290	S/T	27	47
64	2					R290	S/T		
66.7	1.2	2				R290	S/T	20	37
76.1	1.5	2				R290	S/T	24	33
88.9	2					R290	S/T		
108	1.5	2.5				R290	S/T	17	29
133	1.5	2	2.5	3		R290	S/T	14	
159	1.5	2	2.5	3		R290	S/T	15	
219				3		R290	S/T		
267				3		R290	S/T		

※ Pressure: Based on material in 1/2H conditions (BS 2871;1971)

## II . MARKING AND INCISING

OD SIZE	WTTYPE	Standard Marking		Note
		Ink Marking (Durable)	Incising (Permanent)	
6~8 mm	R220, R290	OD XWT		Black Ink
10~54 mm	R220, R290	OD XWT	EN1057, Trademark, QQ-YYYY	Black Ink
	R250	OD XWT I-I	EN1057, Trademark, QQ-YYYY	Black Ink
64~267 mm	R290	OD XWT		Black Ink

## III . FINISHING

CLEANLINESS	END-CAP
10~54mm : 0.20mg/dm <sup>2</sup>	Unrequired by the standard
64~267mm : 1.00mg/dm <sup>2</sup>	End-capped by a buyer's option



# BS EN 13348

Seamless, round copper tubes  
for medical gases or vacuum



## I . SIZE TABLE

OD (Metric)	Wall Thickness(mm)				Temper Quality	Product Type
	Recommended		Other EU Dimension			
6	1				R220, R290	LWC, PCC, S/T
8	0.8	1			R220, R290	LWC, PCC, S/T
10	0.8	1			R220, R290	LWC, PCC, S/T
12	0.8	1			R220, R250, R290	LWC, PCC, S/T
14		1			R220, R250, R290	LWC, PCC, S/T
15	0.7	1	1.2		R220, R250, R290	LWC, PCC, S/T
16	1				R220, R250, R290	LWC, PCC, S/T
18	1.02	1.2			R220, R250, R290	LWC, PCC, S/T
22	0.9	1	1.2	1.5	R220, R250, R290	LWC, PCC, S/T
28	0.9	1	1.2	1.5	R220, R250, R290	LWC, PCC, S/T
35	1	1.2	1.5	2	R290	S/T
42	1	1.2	1.2	2	R290	S/T
54	1	1.2	1.2	2	R290	S/T
64				2	R290	S/T
66.7	1.2	2			R290	S/T
70	2				R290	S/T
76.1	1.5	2			R290	S/T
80	2				R290	S/T
88.9	2				R290	S/T
104	2				R290	S/T
108	1.5	2.5			R290	S/T
133	3				R290	S/T

## II . MARKING AND INCISING

OD SIZE	WTTYPE	Standard Marking		Note
		Ink Marking (Durable)	Incising (Permanent)	
6~8 mm	R220, R290	OD XWT		Black Ink
10~54 mm	R220, R290	OD XWT	EN13348, OD XWT, Trademark, QQ-YYYY	Black Ink
	R250	OD XWT I-I	EN13348, OD XWT, Trademark, I-I, QQ-YYYY	Black Ink
64~267 mm	R290	OD XWT		Black Ink

## III . FINISHING

CLEANLINESS	END-CAP
10~54mm : 0.20mg/dm <sup>2</sup>	Required by the standard
64~267mm : 1.00mg/dm <sup>2</sup>	Required by the standard



# AS/NZS1571



Seamless tubes  
for airconditioning and refrigeration

## I . SIZE TABLE

OD ACT mm	Nominal Wall Thickness(mm)					Temper Quality	Product Type	Safe Working Pressure [kPa] at temperature 65°C	
	Low-pressure	High-pressure (R410A)						Low-pressure	High-pressure
4.76	0.71					HD, Anneal	LWC	11,412	
6.35	0.71	0.81	0.91			HD, Anneal	LWC,PCC,S/T	8,235	9,545
7.94	0.71	0.81	0.91			HD, Anneal	LWC,PCC,S/T	6,442	8,465
9.52	0.71	0.81	0.91			HD, Anneal	LWC,PCC,S/T	5,296	6,103
12.7	0.71	0.81	0.91			HD,BQ,Anneal	LWC,PCC,S/T	3,899	4,482
15.88	0.91	1.02	1.22			HD,BQ,Anneal	LWC,PCC,S/T	4,002	4,516
19.05	0.91	1.02	1.07	1.14	1.22	HD,BQ,Anneal	LWC,PCC,S/T	3,306	4,190
22.22	0.91	1.14	1.22	1.40	1.63	HD,BQ,Anneal	LWC,PCC,S/T	2,817	5,203
25.4	0.91	1.22	1.63			BQ,Anneal	S/T	2,452	4,511
28.58	0.91	1.22	1.27	1.63	1.83	BQ,Anneal	S/T	1,926	4,501
31.75	0.91	1.22	2.03			BQ,Anneal	S/T	1,949	4,494
34.92	0.91	1.22	1.63	2.03		BQ,Anneal	S/T	1,768	4,063
38.1	0.91	1.22	2.29			BQ,Anneal	S/T	2,184	4,443
41.28	0.91	1.22	1.52	1.83	2.41	BQ,Anneal	S/T	1,490	4,082
50.8	1.22	1.63				BQ,Anneal	S/T	2,189	
53.98	1.22	2.11	2.64			BQ,Anneal	S/T	1,134	
66.68	1.22	1.63	2.03			BQ,Anneal	S/T	1,232	
76.2	1.63					BQ,Anneal	S/T	1,445	
79.38	2.29					BQ,Anneal	S/T	1,386	
101.6	1.63					BQ,Anneal	S/T	1,080	
104.78	2.79					BQ,Anneal	S/T	1,805	

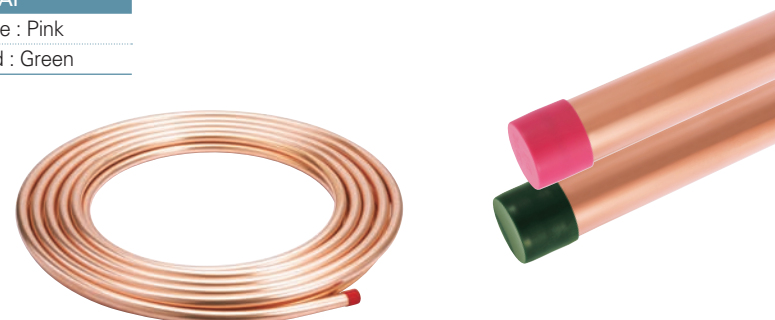
※ Blue Block : Denotes R410A rated tube

## II . MARKING AND INCISING

OD SIZE	TEMPER	Standard Marking		Note
		Ink Marking (Durable)	Incising (Permanent)	
Full Range	H	AS/NZS1571 H OD XWT, Trademark		Black Ink
	BQ	AS/NZS1571 BQ OD XWT, Trademark		Black Ink
	O	AS/NZS1571 O OD XWT, Trademark		Black Ink

## III . FINISHING

CLEANLINESS	END-CAP
0.20mg/dm <sup>2</sup>	R410A grade : Pink
0.20mg/dm <sup>2</sup>	Other graded : Green



# AS1432



Copper tubes for plumbing,  
gasfitting and drainage applications

## I . SIZE TABLE

OD		Nominal Wall Thickness (mm)				Temper Quality	Product Type	Safe Working Pressure [kPa] at temperature 65°C	
DN	ACT mm	Type A	Type B	Type C	Type D			Type A	Type B
6	6.35	0.91	0.71			HD, Anneal	LWC, PCC, S/T	11,320	8,560
8	7.94	0.91	0.71			HD, Anneal	LWC, PCC, S/T	8,810	6,700
10	9.52	1.02	0.91	0.71		HD, Anneal	LWC, PCC, S/T	8,350	7,200
15	12.7	1.02	0.91	0.71		HD, BQ, Anneal	LWC, PCC, S/T	6,100	5,290
18	15.88	1.22	1.02	0.91		HD, BQ, Anneal	LWC, PCC, S/T	5,750	4,810
20	19.05	1.42	1.02	0.91		HD, BQ, Anneal	LWC, PCC, S/T	5,560	3,970
25	25.4	1.63	1.22	0.91		HD, BQ, Anneal	LWC, PCC, S/T	4,750	3,500
32	31.75	1.63	1.22		0.91	HD	S/T	3,750	2,780
40	38.1	1.63	1.22		0.91	HD	S/T	3,100	2,300
50	50.8	1.63	1.22		0.91	HD	S/T	2,310	1,710
65	63.5	1.63	1.22		0.91	HD	S/T	1,840	1,370
80	76.2	2.03	1.63		1.22	HD	S/T	1,900	1,520
90	88.9	2.03	1.63		1.22	HD	S/T	1,630	1,300
100	101.6	2.03	1.63		1.22	HD	S/T	1,500	1,200
125	127	2.03	1.63		1.42	HD	S/T	1,200	960
150	152.4	2.64	2.03		1.63	HD	S/T	1,300	1,000
200	203.2	2.64	2.03			HD	S/T	910	720

## II . MARKING AND INCISING

OD SIZE	TEMPER	Standard Marking		Note
		Ink Marking (Durable)	Incising (Permanent)	
Full Range	H	Trademark, Type, DN size, AS1432, Origin	Trademark, Type, DN size, AS1432	Type A-Green, Type B-Blue Type C-Red, Type D-Black Black Ink
	BQ	Trademark, Type, DN size, AS1432, BQ, Origin	Trademark, Type, DN size, AS1432, BQ	
	ANNEAL		Trademark, Type, DN size, AS1432	

## III . FINISHING

CLEANLINESS	END-CAP
Unrequired by the standard	Unrequired by the standard
*DN15,15,20 BQ- 0.2mg/dm <sup>2</sup>	Unrequired by the standard



# JIS H3300

Copper and copper alloy seamless pipes and tubes



## I. SIZE TABLE

OD ACT mm	WALLTHICKNESS																	Temper Quality	Product Type	
	Type K	Type L	Type M	Acceptable WT range																
	0.25	0.30	0.35	0.40	0.50	0.60	0.70	0.80	1.00	1.20	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00		
4																			O, OL	LWC
5																			O, OL	LWC
6																			H, 1/2H, O, OL	LWC, PCC, S/T
6.35																			H, 1/2H, O, OL	LWC, PCC, S/T
8																			H, 1/2H, O, OL	LWC, PCC, S/T
9.52								0.76	0.89										H, 1/2H, O, OL	LWC, PCC, S/T
10																			H, 1/2H, O, OL	LWC, PCC, S/T
12																			H, 1/2H, O, OL	LWC, PCC, S/T
12.7					0.64				0.89	1.24									H, 1/2H, O, OL	LWC, PCC, S/T
14																			H, 1/2H, O, OL	LWC, PCC, S/T
15																			H, 1/2H, O, OL	LWC, PCC, S/T
15.88						0.71			1.02	1.24									H, 1/2H, O, OL	LWC, PCC, S/T
16																			H, 1/2H, O, OL	LWC, PCC, S/T
18																			H, 1/2H, O, OL	LWC, PCC, S/T
19.05									1.07	1.24									H, 1/2H, O, OL	LWC, PCC, S/T
20																			H, 1/2H, O, OL	LWC, PCC, S/T
22																			H, 1/2H, O, OL	LWC, PCC, S/T
22.22								0.81		1.14	1.65								H, 1/2H, O, OL	LWC, PCC, S/T
25																			H, 1/2H, O, OL	LWC, PCC, S/T
25.4																			H, 1/2H, O, OL	LWC, PCC, S/T
28.58								0.89		1.27	1.65								H, 1/2H, O, OL	LWC, PCC, S/T
31.8																			H	S/T
32																			H	S/T
34.92									1.07	1.40	1.65								H	S/T
38.1																			H	S/T
41.28										1.24	1.52	1.83							H	S/T
45																			H	S/T
50																			H	S/T
53.98											1.47	1.78	2.11						H	S/T
66.68											1.65	2.03							H	S/T
79.38											1.83	2.29							H	S/T
104.78												2.41	2.79						H	S/T
130.18												2.77	3.18						H	S/T
155.58													3.10	3.56					H	S/T
200																			H	S/T
250																			H	S/T

※ Green Block shows the range of manufacture on JIS Standard book

# LWC

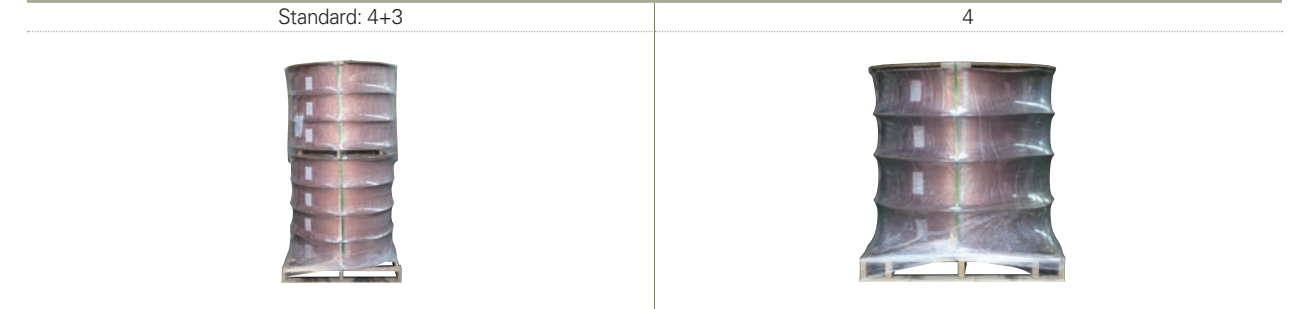
Plain Level Wound Coil  
Specification of NWM

## I. SIZE TABLE

OD mm	W/Thickness (mm)		OD Inch	W/Thickness (Inch)		DHP(C12200) : High Phosphorus DLP(C12000) : Low Phosphorus		
	Max	Min		Max	Min	LWC		
						H	OL	O
4.00	1.00	0.30		0.039	0.012	○	○	○
4.76	1.00	0.30	0.1875	0.039	0.012	○	○	○
5.00	1.00	0.30		0.039	0.012	○	○	○
6.35	1.20	0.30	0.2500	0.047	0.012	○	○	○
7.00	1.40	0.30		0.055	0.012	○	○	○
7.94	1.50	0.30	0.3125	0.059	0.012	○	○	○
9.53	1.65	0.27	0.3750	0.065	0.011	○	○	○
12.70	2.00	0.37	0.5000	0.079	0.015	○	○	○
15.88	2.00	0.40	0.6250	0.079	0.016	○	○	○
19.05	2.00	0.50	0.7500	0.079	0.020	○	○	○
22.23	3.11	0.55	0.8750	0.122	0.022	○	○	○
25.40	3.50	0.60	1.0000	0.138	0.024	○	○	○
28.58	6.11	0.60	1.1250	0.241	0.024	○	○	○

## II. PACKAGE

Bulk Packing: Skids(Pallet): 1100mm x 1100mm = 43.3" x 43.3"  
Coil ID: 605mm = 23.82"  
Coils per Skid(Pallet)



Wooden Reel Packing: Skids(Pallet): 1100mm x 1100mm = 43.3" x 43.3"  
Wooden Reel Dia.: 1100mm = 43.4"  
Hub Hole Dia.: 130mm = 5.12"  
Coils per Skid(Pallet)

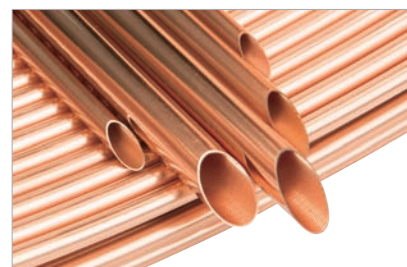
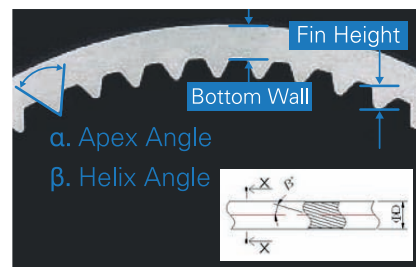
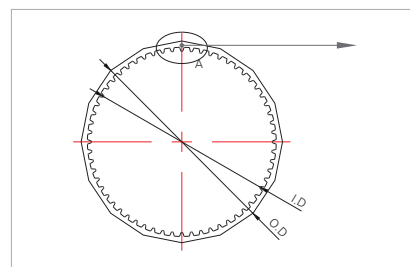


# INNER GROOVED TUBE

IGT Specification of NWM

## I . SIZE TABLE

No	Dimension mODxTW+HF-β°	Outer Diameter		Inner Diameter ID	Bottom Wall Thickness			Fin Height HF	Total Wall Thickness TWT	Mean Thickness Tmean	Apex Angle (α)	Helix Angle (β)	Number of Fin N	Unit Weight (g/m)	Remarks	
		mm	inch		TW	mm	inch									
																mm
1	5.00x0.25 (5.00x0.20+0.15-18)°	5 (+0.05-0)	5.000	4.30	0.20 (±0.02)	0.200	0.008	0.15 (±0.01)	0.35	0.25	40±3	18±2	40	33±2		
2	7.00x0.25 (7.00x0.22+0.10-17)°	7.00 (±0.05)	7.000	6.43	0.22 (±0.02)	0.220	0.009	0.10 (±0.02)	0.32	0.245	40±5	15±2	65	46.5 ~47.5		
3	7.00x0.25 (7.00x0.23+0.12-17)°	7.00 (±0.05)	7.000	6.30	0.23 (±0.02)	0.230	0.009	0.12 (±0.02)	0.35	0.25	20±5	17±2	65	46.5 ~48.0		
4	7.00x0.28 (7.00x0.25+0.10-18)°	7.00 (±0.05)	7.000	6.30	0.25 (±0.03)	0.250	0.010	0.10 (±0.02)	0.35	0.28	40±5	18±2	65	51±2		
5	7.00x0.32 (7.00x0.27+0.15-18)°	7.00 (±0.05)	7.000	6.16	0.27 (±0.02)	0.270	0.011	0.15 (±0.02)	0.42	0.32	53±10	18±2	60	60±2		
6	7.00x0.28 (7.00x0.24+0.12-27)°	7.00 (±0.05)	7.000	6.28	0.24 (±0.03)	0.240	0.009	0.12 (±0.03)	0.36	0.28	28±7	27±3	55	50.5 ±3		
7	7.94x0.37 (7.94x0.30+0.21-18)°	7.94 (±0.05)	7.940	0.3125	5/16	6.92	0.30 (±0.03)	0.300	0.012	0.21 (±0.02)	0.51	0.37	40±5	18±2	50	76.037 ±2
8	7.94x0.30 (7.94x0.25+0.18-18)°	7.94 (±0.05)	7.940	0.3125	5/16	7.08	0.25 (±0.03)	0.250	0.010	0.18 (±0.02)	0.43	0.30	40±10	18±2	50	67±2
9	7.94x0.30 (7.94x0.26+0.17-18)°	7.94 (±0.05)	7.940	0.3125	5/16	7.08	0.26 (±0.025)	0.260	0.010	0.17 (±0.025)	0.43	0.30	40±5	18±2	50	67±2
10	7.94x0.33 (7.94x0.26+0.21-30)°	7.94 (±0.05)	7.940	0.3125	5/16	7.00	0.26 (±0.03)	0.260	0.010	0.21 (±0.02)	0.47	0.33	15±5	30±2	75	70.5 ±1.5
11	9.52x0.30 (9.52x0.28+0.14-21)°	9.52 (±0.05)	9.520	0.375	3/8	8.68	0.28 (±0.02)	0.280	0.011	0.14 (±0.02)	0.42	0.30	18±5	21±2	72	77.5 ±1.5
12	9.52x0.34 (9.52x0.28+0.15-25)°	9.52 (±0.05)	9.520	0.375	3/8	8.68	0.28 (±0.03)	0.280	0.011	0.15 (±0.02)	0.43	0.34	53±10	25±2	65	91±2
13	9.52x0.34 (9.52x0.28+0.15-25)°	9.52 (±0.05)	9.520	0.375	3/8	8.68	0.28 (±0.03)	0.280	0.011	0.15 (±0.02)	0.43	0.34	30±10	15±2	70	82±2
14	9.52x0.34 (9.52x0.28+0.15-18)°	9.52 (±0.05)	9.520	0.375	3/8	8.68	0.28 (±0.03)	0.280	0.011	0.15 (±0.02)	0.43	0.34	53±10	18±2	60	83±2
15	9.52x0.34 (9.52x0.28+0.20-18)°	9.52 (±0.05)	9.520	0.375	3/8	8.56	0.28 (±0.02)	0.280	0.011	0.20 (±0.02)	0.48	0.34	40±5	18±2	60	88±2
16	9.52x0.34 (9.52x0.28+0.20-18)°	9.52 (±0.05)	9.520	0.375	3/8	8.56	0.28 (±0.03)	0.280	0.011	0.20 (±0.02)	0.48	0.34	40±10	18±2	60	88±2
17	9.52x0.36 (9.52x0.30+0.20-18)°	9.52 (±0.05)	9.520	0.375	3/8	8.52	0.30 (±0.03)	0.300	0.012	0.20 (±0.03)	0.50	0.36	53±10	18±2	60	93±2
18	9.525x0.407 (9.52x0.36+0.20-18)°	9.52 (±0.05)	9.520	0.375	3/8	8.40	0.36 (±0.02)	0.360	0.014	0.200 (±0.02)	0.56	0.407	53±5	18±2	60	109±2
19	9.52x0.36 (9.52x0.297+0.203-18)°	9.52 (±0.05)	9.520	0.375	3/8	8.52	0.297 (±0.02)	0.297	0.012	0.203 (±0.02)	0.50	0.36	53±5	18±2	60	92.256 ±2
20	9.525x0.367 (9.52x0.30+0.201-18)°	9.525 (+0.05-0)	9.525	0.375	3/8	8.52	0.30 (±0.02)	0.300	0.012	0.201 (±0.02)	0.50	0.36	40±5	18±2	60	91.51±2
21	9.525x0.407 (9.525x0.34+0.201-18)°	9.525 (+0.05-0)	9.525	0.375	3/8	8.44	0.34 (±0.02)	0.340	0.013	0.201 (±0.02)	0.54	0.407	53±5	18±2	60	101.928 ±2
22	9.525x0.40 (9.525x0.40+0.10-24)°	9.525 (+0.05-0)	9.525	0.375	3/8	8.52	0.40 (±0.02)	0.400	0.016	0.10 (±0.02)	0.50	0.400	53±5	18±2	60	102±2
23	12.7x0.403 (12.70x0.36+0.20-18)°	12.70 (±0.05)	12.700	0.500	1/2	11.56	0.32 (±0.02)	0.320	0.013	0.249 (±0.02)	0.57	0.40	43±10	17±2	75	139±3
24	12.70x0.41 (12.70x0.36+0.20-18)°	12.70 (±0.05)	12.700	0.500	1/2	11.58	0.36 (±0.02)	0.360	0.014	0.20 (±0.02)	0.56	0.41	53±10	18±2	65	143±3
25	12.70x0.48 (12.70x0.42+0.26-18)°	12.7 (±0.05)	12.700	0.500	1/2	11.34	0.42 (±0.02)	0.420	0.017	0.26 (±0.02)	0.68	0.48	40±5	18±2	65	170±3



# POLYLAG

Plastic Coated Copper tubes for plumbing, gas and drainage applications

## I . SIZE TABLE

OD mm	Wall Thickness mm		OD Inch	Wall Thickness Inch		LDPE (Low-Density PE), White Sleeve			PVC		
						White Sleeve			Green, Yellow, Purple Sleeve		
	Polylag, Polylag Premium			Polylag, Polylag Premium							
	Max	Min		S/T HD	S/T HH	PCC	S/T HD	S/T HH	PCC		
9.52	1.65	0.27	3/8	0.065	0.011	●	X	●	●	X	●
12.70	2.00	0.37	1/2	0.079	0.015	●	●	●	●	●	●
15.00	2.00	0.40		0.079	0.016	●	●	●	●	●	●
15.88	2.00	0.40	5/8	0.079	0.016	●	●	●	●	●	●
18.00	2.00	0.50		0.079	0.020	●	●	●	●	●	●
19.05	2.00	0.50	3/4	0.079	0.020	●	●	●	●	●	●
22.00	3.11	0.55		0.122	0.022	●	●	●	●	●	●
22.22	3.11	0.55	7/8	0.122	0.022	●	●	●	●	●	●
25.40	3.50	0.60	1	0.138	0.024	●	●	●	●	●	●
28.00	6.11	0.60		0.241	0.024	●	●	●	●	●	●
28.58	6.11	0.60	1 1/8	0.241	0.024	●	●	X	●	●	X
31.75	8.00	0.70	1 1/4	0.315	0.028	●	●	X	●	●	X
34.92	8.00	0.70	1 3/8	0.315	0.028	●	●	X	●	●	X
35.00	8.00	0.70		0.315	0.028	●	●	X	●	●	X
38.10	8.00	0.80	1 1/2	0.315	0.031	●	●	X	●	●	X
40.00	8.00	0.80		0.315	0.031	●	●	X	●	●	X
41.28	8.00	0.80	1 5/8	0.315	0.031	●	●	X	●	●	X
54.00	8.00	0.90		0.315	0.035	●	●	X	●	●	X



INNER GROOVED TUBE

POLYLAG

# HEXAGONAL / OCTAGONAL

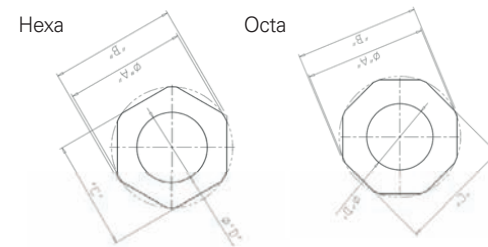
Hexa/Octagonal Straight Tube Specification of NWM. Hexagonal & Octagonal shape specialized copper tube used to produce copper fitting adapter

## I. SIZE TABLE

ITEM	Distance of Two Apex Drawing : A		Distance of Two Opposite Side Drawing : C		Inner Diameter Drawing : D		Alloy	Temper
	MIN	MAX	MIN	MAX	MIN	MAX		
	Hexa	11.95	74	11	68	5.2		
Octa	22.84	122	38.5	115	13.97	103.17	High Phosphorus	H

※ Custom size can be quoted as required

## II. DRAWING

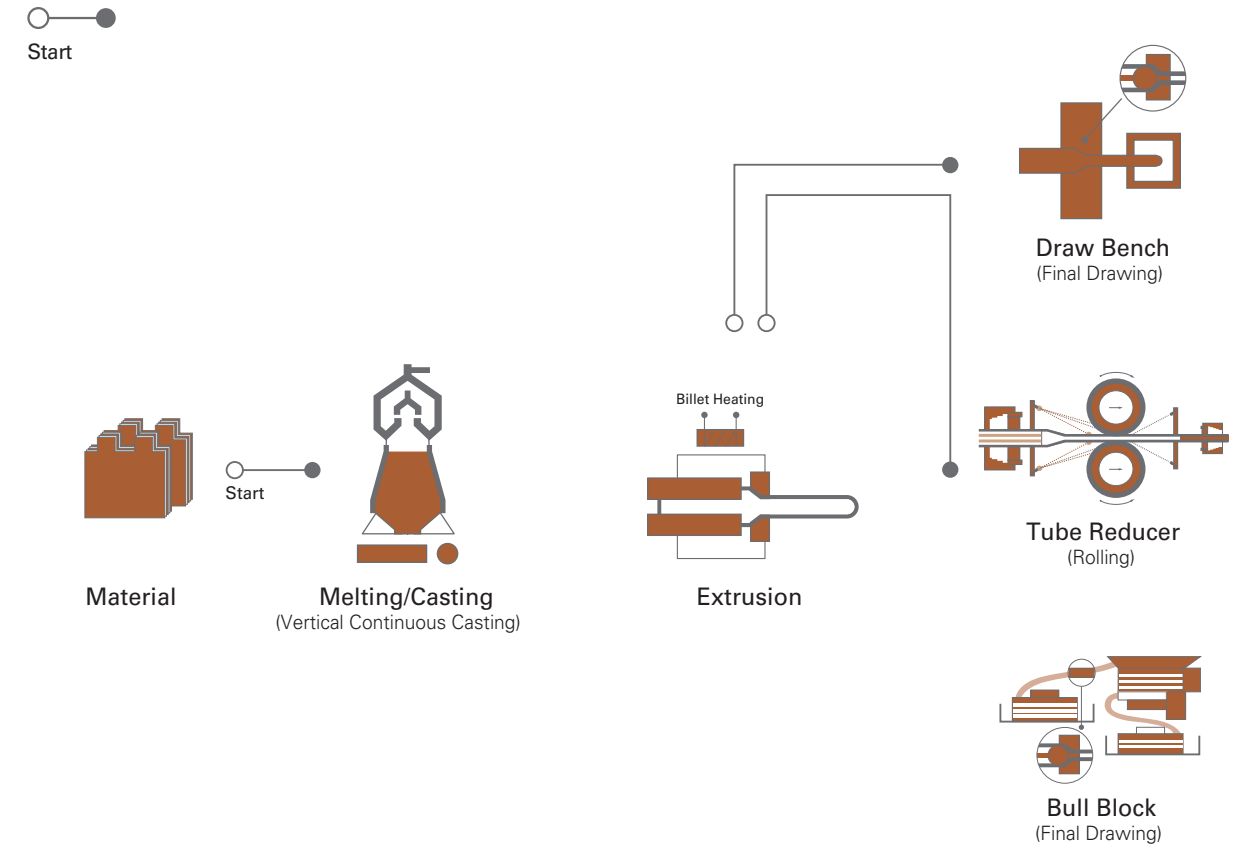


※ Package Bundle Packing



# MANUFACTURING PROCESS FOR COPPER TUBE

## EXTRUSION LINE (PLANT 1)



## CAST & ROLL LINE (PLANT 2)

