

**RECTANGULAR  
PROCESS DIVISION**

**◆ DIMENSION**

Division	Width ( mm )																							
	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	6.0	7.0	8.0	9.0	10	12	14	16	18	20	22	24	26	
0.5																								
0.6																								
0.7																								
0.8																								
0.9																								
1.0																								
1.2																								
1.4																								
1.6																								
1.8																								
2.0																								
2.2																								
2.4																								
2.7																								
3.0																								
3.5																								
4.0																								
4.5																								
5.0																								
6.0																								
7.0																								
8.0																								
9.0																								

Remark : indicates a range of size to manufacture. If you require a wire within the size range, please send us your inquiry.

## ◆ INSPECTION & TEST

### TYPE & SYMBOL

(according to the Japanese Standard JIS C 3104)

Classification	Symbol	Remark
Class 1 rectangular copper wires	H	Hard
Class 2 rectangular copper wires	HA	Medium-hard
Class 3 rectangular copper wires	A	Annealed
Class 4 rectangular copper wires	SA	Annealed to be Edgewise

### TENSILE STRENGTH & ELONGATION

(according to the Japanese Standard JIS C 3104)

Thickness ( mm )	Tensile strength ( kgf/mm <sup>2</sup> )				Elongation ( % )		
	Class 1 (Width)		Class 2	Class 3 and Class 4	Class 1	Class 2	Class 3 and Class 4
	Under 40mm	40mm and over					
0.5 to 2.0 excl.	38.0 min.	28.0 min.	28.0 to 38.0	28.0 max.	0.4 min	1.5 min	30.0 min
2.0 to 4.0 excl.	34.0 min.	28.0 min.	26.0 to 34.0	26.0 max.	0.7 min	2.0 min	34.0 min
4.0 to 6.0 excl.	31.0 min.	28.0 min.	25.0 to 31.0	25.0 max.	1.2 min	3.0 min	36.0 min
6.0 to 10.0 excl.	28.0 min.	28.0 min.	25.0 to 31.0	25.0 max.	1.2 min	3.0 min	36.0 min

## CONDUCTIVITY

(according to the Japanese Standard JIS C 3104)

Thickness ( mm )	Conductivity ( % )		
	Class 1	Class 2	Class 3 and Class 4
0.5 to 2.0 excl.	96.0 min.	97.0 min.	100.0 min.
2.0 to 10.0 excl.	97.0 min.	98.0 min.	100.0 min.

Remark : Provided that the conductivity of standard annealed is 100% in 20 °C, it shows in percentage.

### ∣ TOLERANCE OF THICKNESS AND WIDTH (JIS C 3104)

Thickness or Width ( mm )	Tolerance ( mm )
0.5 to 1.2 excl.	± 0.035
1.2 to 2.6 excl.	± 0.05
2.6 to 5.0 excl.	± 0.07
5.0 to 10.0 excl.	± 0.10
10.0 to 20.0 excl.	± 0.15
20.0 to 32.0 excl.	± 0.25

### ∣ RADIUS FOR CORNERS (JIS C 3104)

Thickness ( mm )	Corner radius (approx. mm)
0.8 excl.	1/2 of the thickness
0.8 to 1.2 excl.	0.4
1.2 to 2.6 excl.	0.6
2.6 to 4.0 excl.	0.8
4.0 to 6.0 excl.	1.2
6.0 to 10.0 excl.	1.6

**BUS-BAR  
PROCESS DIVISION**

**◆ DIMENSION**

	Width ( mm )																											
	10	12	15	16	18	20	25	30	32	35	38	40	45	50	60	65	70	75	80	100	125	150	175	200	250	300		
Thick- ness ( mm )	2.0	●	●		●		●																					
	2.4																											
	2.6																											
	3.0		●	●		●	●	●	●			●	●		●													
	3.2						●	●				●		●														
	4.0		●		●	●	●	●	●		●		●	●	●													
	4.5							●							●													
	5.0						●	●	●	●		●	●	●	●					●								
	6.0		●			●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●		●			
	6.5											●		●	●													
	8.0						●	●		●		●		●	●	●	●	●	●	●	●	●	●		●			
	10.0							●				●		●	●	●				●		●	●	●	●	●	●	●
	12.0													●						●		●		●	●	●		
	15.0													●						●		●		●	●	●		●
	20.0													●						●		●		●	●	●		●

Remark : Available      ● Standard

## ◆ INSPECTION & TEST

### CHEMICAL PROPERTIES, VARIETY & SYMBOL

Name of Object	Ref. STD.			Alloy NO.	Symbol	Chemical Properties (%)
	KS	JIS	ASTM			Cu
Tough-Pitch Copper Bus Bar	D5530	H3140	B187	C1100	C1100BB	99.90 ↑
Silver Bearing Tough-Pitch Copper Bus Bar	-	-	B187	C11400	-	-

**Remark : Ask us for the chemical elements of tough pitch copper bus bar.**

### ELECTRICAL CONDUCTIVITY

Alloy NO.	Annea- led	Symbol	Conductivity(%) (at 20°C)
C 1100	O	C1100BB-O	100 ↑
	1/4 H	C1100BB-1/4H	98 ↑
	1/2 H	C1100BB-1/2H	98 ↑
	H	C1100BB-H	97 ↑

### CHAMFERING RADIUS

Thickness	Radius of Edge (approx. mm)
2 to 5 incl.	0.8
Over 5 to 8 incl.	1.2
Over 8 to 30 incl.	1.6

### MECHANICAL PROPERTIES

Alloy NO.	Ann- eal- ed	Symbol	Tensile Test			Bending Test		
			Thickness ( mm )	Tensile S. ( N/mm <sup>2</sup> )	Elo'n ( % )	Thickness ( mm )	Bending Degree	Radius of Inside
C 1100	O	C1100BB-O	2 to 30 incl.	195 ↑	35 ↑	2 to 15 incl.	180 °	Thickness 0.5 X
	¼H	C1100BB-¼H	2 to 30 incl.	215~275	25 ↑	2 to 15 incl.	180 °	Thickness 1.0 X
	½H	C1100BB-½H	2 to 20 incl.	245~315	15 ↑	2 to 15 incl.	90 °	Thickness 1.5 X
	H	C1100BB-H	2 to 10 incl.	275 ↑	-	-	-	-

## TOLERANCE OF THICKNESS & WIDTH

Thickness \ Width	Tolerance of Thickness		Tolerance of Width	
	200 and under	Over 200 to 300 incl.	100 and under	Over 100 to 300 incl.
2.0 to 3.2 incl.	± 0.07	-	± 0.8	-
Over 3.2 to 5.0 incl.	± 0.09	-	± 0.8	± 0.8 %
Over 5.0 to 8.0 incl.	± 0.10	± 0.11		
Over 8.0 to 12.0 incl.	± 0.13	± 0.16		
Over 12.0 to 20.0 incl.	± 0.17	± 0.20		
Over 20.0 to 30.0 incl.	± 1.0%	± 1.1%		

## CHEMICAL PROPERTIES, VARIETY & SYMBOL OF COPPER ROUND BAR

Name	Ref. STD.			Alloy NO.	Chemical Properties(%)
	KS	JIS	ASTM		Cu
Extrusion Rod	D5101	H3250	B187	C1100	99.90 ↑
Drawing Rod					

## MECHANICAL PROPERTIES & ELECTRICAL CONDUCTIVITY OF COPPER ROUND BAR

Alloy NO.	Ann-eal-ed	Symbol	Conducti-vity (at 20°C)	Tensile Test		
				Diameter (mm)	Tensile S. (N/mm <sup>2</sup> )	Elongation (%)
C 1100	F	C1100BE-F	100 ↑	6 and over	195 ↑	25 ↑
	O	C1100BD-O	100 ↑	6 to 75 incl.	195 ↑	30 ↑
				6 to 25 incl.	245 ↑	15 ↑
	1/2H	C1100BD-1/2H	98 ↑	Over 25 to 50 incl.	225 ↑	20 ↑
				Over 50 to 75 incl.	215 ↑	25 ↑
	H	C1100BD-H	97 ↑	6 to 25 incl.	275 ↑	-
				Over 25 to 50 incl.	245 ↑	-

## MAGNET WIRE PROCESS DIVISION

### ◆ Type of Magnet Wires

Name	Polyester Enameled copper wire	Polyesterimide Enameled copper wire	Polyamideimide Enameled copper wire	Polyesterimide-Poly amideimide Enameled copper wire	Self-Lubricating Polyesterimide- Polyamideimide Enameled copper wire
Symbol	PEW	EIW	AIW	EI/AIW	SL-EI/AIW
Thermal Classifi- cation	F(155℃),H(180℃)	H(180℃)	C(220℃)	C(200℃)	C(200℃)
Manufac- turing Range	0.65 ~ 3.5Ø	0.65 ~ 3.5Ø	0.65 ~ 3.5Ø	0.65 ~ 3.5Ø	0.65 ~ 2.3Ø
Feature	-Good heat resistance, solvent resistance -Dielectric constant & good electric property -Likely to be hydrolysis due to poor heat shock resistance and poor waterproof	-Very good heat resistance, heat shock resistance and solvent resistance -Good for high-speed winding due to its -Crazing in solvent with stress	-Very good at heat resistance and overloading resistance. -Good solvent resistance -Comparatively poor flexibility	-Good thermal and overloading property -Good heat shock resistance -Good chemical property -Strong at R-22 refrigerant	-Good chemical property -High-speed winding -Able to substitute R-124a as a refrigerant
Use	-Miniature generator -General motor -Household motor -Transformer -Portable generator -Magnet coil	-Dry transformer generator -Heat resistance generator -Electric tool motor -High speed motor and generator -HVT for microwave oven	-Heat resistance motor -Freezing machine motor -Electric tool motor -Heat resistance and Dry type transformer -Heatproof appliance	-Heat resistance motor -Dry transformer -Electric tool motor -Automotive pars -HVT for microwave oven -Freezing machine motor	-Cold motors for substitute refrigerants
Standard	KS C 3107 JIS C 3202 NEMA MW2-C BS 3160	KS C 3107 JIS C 3202 NEMA MW2-C BS 3160	JCS 334	NEMA MW-35C NEMA MW-75C	TEC SPEC.

## ◆ Property of Magnet Wires

Properties		Type of Wires				
		PEW	EIW	EI/AIW	AIW	
Mechanical Properties	Adherence-flexibility	◎	◎	◎	◎	
	Scrape resistance	◎	○	◎	◎	
Electrical Properties	Insulation resistance	◎	◎	◎	◎	
	Insulation resistance after moistening	◎	○	◎	◎	
Thermal Properties	Thermoplastic flow	◎	◎	◎	◎	
	Heat-shock resistance	○	◎	◎	◎	
Chemical Properties	Sulfuric acid(S.G 1.2)	◎	◎	◎	◎	
	Xylene	◎	◎	◎	◎	
	Transformer oil	◎	◎	◎	◎	
	Refrigerant resistance	Freon R-12	◎	◎	◎	◎
		Freon R-22	◎	◎	◎	◎
		Freon R-134a	×	○	◎	◎
Other	Soldering	○	×	×	×	

※ ◎ : Excellent      ○ : Good      × : Bad