

This technical specification aims to define the chemical/mechanical properties and standards of soft temper copper foils strips for transformer winding.

## Copper Foils Strips Technical Specifications

### 1. Copper Foils Strips Chemical Composition

China Grade	Spec.	Range	%Cu+Ag	%Sn	%Zn	%Pb	%O	%Others
T2	GB/T	Min.	99.90					Balance
		Max.		0.002	0.005	0.005	0.04	Balance

### Transformer Winding Copper Foils Strips Grade Comparison

INDUSTRY	USA	ITALY	CHINA	EURONORM		JAPANESE
STANDARD	ASTM B5, B152	UNI 5649	GB/T	EN 1652	DIN 1976	JIS
C1100	C11000	Cu-ETP	T2	CW004A	E-Cu 58	C1100

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## 2. Copper Foils Strips Processing Properties

GB/T	ASTM	DIN	ITALY	Tensile Strength Rm (N/mm <sup>2</sup> )	Temper (Annealed)	Vickers Hardness-Soft (HV)	Elongation (%)
T2	ETP/C11000	E-Cu 58	CU-ETP	195-220	O	45-65	≥35

## 3. Copper Foils Strips Physical Properties

GB/T	ASTM	DIN	ITALY	Electrical Conductivity/ %IACS	Electrical Resistivity/Ω mm <sup>2</sup> /m
T2				≥98.0 %	≤0.017593



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**4. Copper Foils Strips Shipping Mark**

- Below information must be mentioned on each copper foils strips marking (shipping mark)

Supplier:		Customer:	
Copper Grade:		Edge:	
Surface Finish:		Package No.:	
Materials Heat No.:		Net Weight:	
Size:		Gross Weight:	
Coil Quantity:		Date:	

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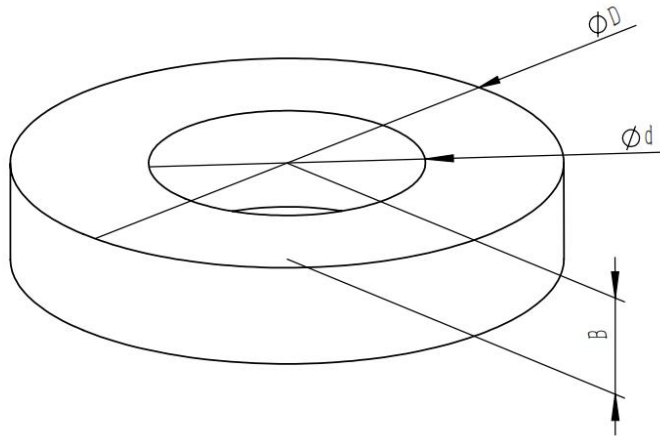
**5. Copper Foils Strips Standard Packaging**

- 1) Cardboard/inner core inner diameter: 150mm/200mm/300mm/400mm/500mm.
- 2) Each coil net weights to be within 500 kg. Max gross weight of each wooden pallet 1200 Kg.
- 3) Overall diameter of each coil should not exceed 1100mm.
- 4) All coils to have no splices or joints.
- 5) Material to be consistent throughout each coil, especially width, thickness and formability.
- 6) Wooden pallet with coils packed eye to sky with 40mm spacers between coils and an identification label with information relating to material.
- 7) To be supplied on pallets with a minimum leg height of 100mm.
- 8) Coils must be stored and transported in a dry environment to minimise condensation.

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COIL B (Width)	OD		ID
	ØD MAX	ØD MIN	Ød
000-800mm	1100mm	600mm or as customer request	150mm/200mm/300mm/400mm/500mm

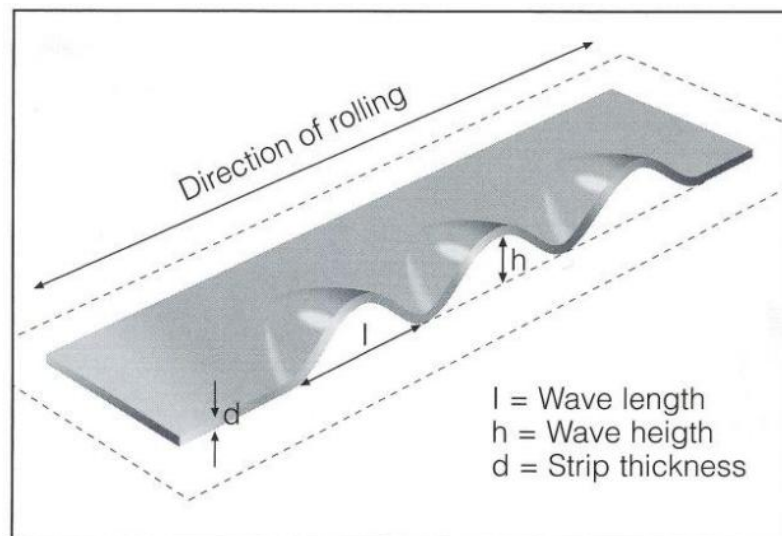


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### 6. Copper Foils Strips Flatness Tolerance

Copper foils strips flatness and edge waviness tolerances must be as customer's requested.

Thickness	Our Standard		EN	
	h/l	h/l in %	h/l	h/l in %
≤1mm	≤0.015	≤1.5	≤0.03	≤3.0
>1mm	≤0.015	≤1.5	≤0.02	≤2.0

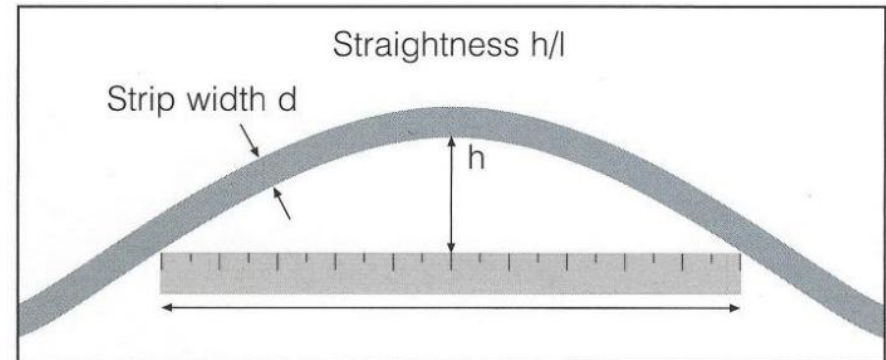


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**7. Copper Foils Strips Straightness Tolerance**

Copper foils strips straightness tolerance tolerances must be as customer's requested.

Width/mm		Standard Straightness tolerance in mm			
≥	<	Normal		HZW Standard	
		Measured length		Measured length	
		1000mm	2000mm	1000mm	2000mm
3	10	≤ 5	≤ 20	≤ 2.5	≤ 10
10	25	≤ 4	≤ 16	≤ 1.5	≤ 6
25	40	≤ 3	≤ 12	≤ 1.25	≤ 5
40	125	≤ 2	≤ 8	≤ 1.0	≤ 4
125	400	≤ 1.5	≤ 6	≤ 0.75	≤ 3



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#### 8. Copper Foils Strips Thickness Tolerance

Thickness Tolerance(mm)				
Thickness(mm)	Width(mm)			
	≤200	>200~400	>400~600	>600~1000
0.10-0.20	±0.010	±0.010	±0.010	-
>0.20~0.30	±0.010	0.015	0.015	-
>0.30~0.50	±0.015	0.020	0.020	0.040
>0.50~0.70	±0.025	0.030	0.035	0.050
>0.70~1.10	±0.035	0.040	0.045	0.060
>1.10~1.50	±0.045	0.045	0.055	0.070
>1.50~2.50	±0.050	0.055	0.070	0.090



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**9. Copper Foils Strips Width Tolerance**

Width Tolerance(mm)					
Thickness(mm)	Tolerance(mm)				
	≤100	>100~300	>300~500	>500~1250	>1200~1500
≤0.20	±0.20	±0.30	±0.50	±0.80	-
>0.20~0.60	±0.30	±0.40	±0.60	±1.50	±2.50
>0.60~1.00	±0.30	±0.50	±1.00	±1.50	±2.50
>1.00~2.00	±0.40	±0.70	±1.20	±2.00	±2.50
>2.00~3.00	±1.00	±1.00	±1.50	±2.00	±2.50