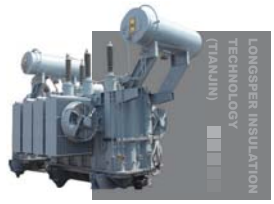
LONGSPER INSULATION TECHNOLOGY (TIANJIN) CO., LTD



Transformer Press Paperboard

Product accord IEC60641-3-1:1992 standard

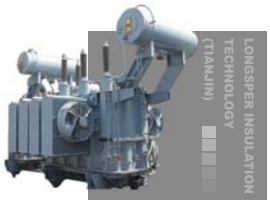
Technical Data

Property		Unit	Min/max range	Standard value		
				≤1.6mm	>1.6mm ~ 3.0mm	>3.0mm ~ 6.0mm
Thickness Deviation		%	Max	± 7.5	± 5.0	
Apparent density		g/cm^3	Range	1.00 ~ 1.20	1.10 ~ 1.25	1.15 ~ 1.30
Tensile strength	MD	Mpa	Min	100	105	110
	CMD			75	80	85
Shrinkage	MD	%	Max	0.5		
	CMD			0.7		
	Thickness			5.0		
Moisture content		%	Max	6.0		
Ash content		%	Max	1.0		
Conductivity of Aqueous extract		mS/m	Range	5.0	6.0	8.0
Electrical strength in oil		kV/mm	Min	40	35	30
Standard Size		1000x2000mm		1000x1000mm	2400x1200mm	1400x2500mm

High Density Transformer Press Paperboard

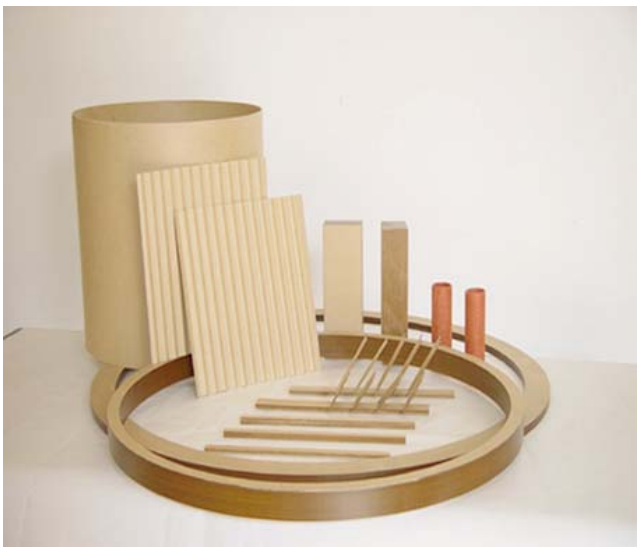
Type	B3.1		
Apparent Density	1.0 ~ 1.30 g/cm3		
Thickness	1.0 ~ 8.0mm		
Moisture content	6%		
Characteristic	Free of stains, very flat, high mechanical and electrical strength, low shrinkage		
Standard size	2200X4400mm	4200X2100mm	3100X2100mm

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn



Transformer insulation components

Insulation Components for construction part



Product name: End Rings, Clamping Rings, Stress ring blanks clamping rings, Narrow clamping rings and end rings, Strips, Spacers, Various molded parts, laminated products, and Corrugated boards

Raw material: Transformer board

Characteristic : Highest mechanical and electrical strength
Product Size: The products can be produced according to the drawing provided by customer.

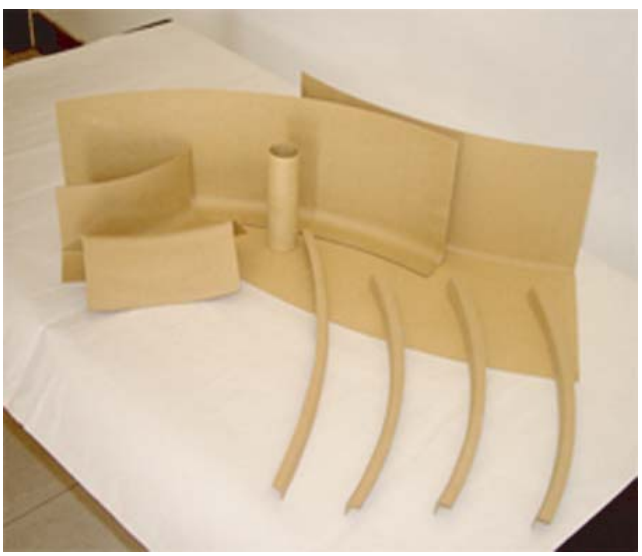
Technical Standard: JB/T8318-1996

Packing: The inner packing is sealed by plastic film with outer carton.
Storage: Product shall be placed on wood frame in case of distortion;When the product is not in use , do not open the plastic film. Please seal the plastic film after using in case of moisture.

Transformer insulation components

Hand-Molded Special Shape Components

Product name: Bushings, Tubes, Fan-angle, Square Tubes, U-Channels, Waves, U-shape rings, Segments of Angle Rings, Edge-Insulating Angle Rings, Segments of Angle Caps, Edge-Insulating Angle Caps

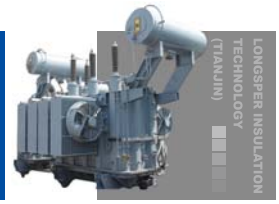


Raw material: Unbleached sulphate pulp

Characteristic: Highest mechanical and electrical strength
Product Size: Can be produced according to the drawings provided by customer.
Technical Standard:JB/T8318-1996
Packing: The inner packing is sealed by plastic film with outer carton.

Storage: Product shall be placed on wood frame in case of distortion. When the product is not in use, do not open the plastic film. Please seal the plastic film after using in case of moisture.

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn



Diamond Dotted Paper

Made of Kraft paper coated with heat curable epoxy resin, the epoxy adhesive is applied to both sides of the paper in a diamond pattern consisting of 9.5mm x 9.5mm diamonds with 15.9mm center spacing.

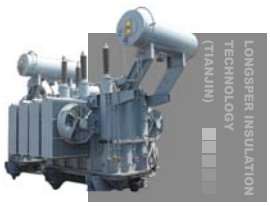
The Diamond Dotted Paper, alias such as: epoxy adhesive diamond Paper, Diamond Dotted Presspaper, Double sided Diamond Pattern Paper, DDPP, DPRCP, D.D.P, DPP, Diamond Dotted Insulating Paper, Varnished Paper, etc.

It is to be used in oil-immersed transformers for the insulation between the coils. The dotted epoxy reson will be melt under high temperature.

It is a kind of material with inertia, dry and no conglutination at normal temperature (below 30°C), The Diamond Dotted Paper will make the electric conductor forever felt up as a hard unit under the high temperature by its internal latency substance. When the temperature is rising up to 90°C , The Diamond Dotted Paper begins one-off thaw and then one-off solidification. When to keep the temperature at 90°C for 90 minutes, the epoxy resin would paste on neighboring cable and paper safely. The felt intensity is as high as to 70psl at 100°C (The value at least equals to 0.275Mpa, American standard).

Packing:
In pallet

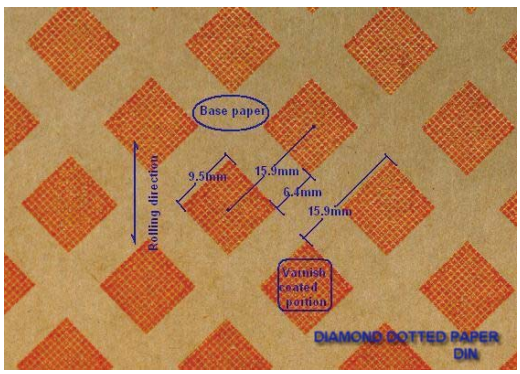
Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn



Typical Values of Diamond Pattern Paper

Caliper (inch)	0.003	0.005	0.007	0.010	0.015	0.020
(millimeter)	0.076	0.127	0.178	0.254	0.381	0.508
	0.08	0.13	0.18	0.25	0.38	0.50
Thickness tolerance: ± mm (± 10%)	0.005	0.013	0.018	0.025	0.038	0.05
Width tolerance:	± 5mm, all thicknesses					
Apparent density: g/cm^3	0.9 to 1.1, all thicknesses					
Moisture content ,%	6.0 to 10.0%, all thicknesses					
PH water extract:	6.0 to 8.0, all thicknesses					
Ash content,%	1% maximum					
Elongation MD %	4					
CMD	9					
No-pollution oil of transformer	Non-pollution					
Coating thickness per side mm	0.006 to 0.012					
Tensile strength, N/mm^2						
Machine direction:	90	90	80	90	92	95
Cross machine direction:	30	25	35	35	35	35
Mullen burst strength: Min (Psi)	40	65	90	150	200	300
Dielectric breakdown: (volts/layer ,dry test)	750	1100	1700	2100	3000	3300
Dielectric breakdown (kilovolts/layer, oil test)	5.5	8.5	10.5	14.0	20.0	23.5
Bond strength: Psi	Minimum 40 psi shear strength, tested at 100 degrees					
Kpa	450kpa					

All date shown represents Nominal, or Typical Values only and should not be considered as minimum or maximum values unless specifically stated.



Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

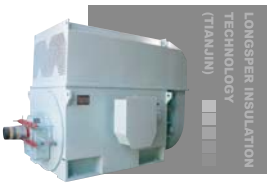
Thin Electrical Insulating Paperboard

Type:	P.4.1
Standard:	IEC641-3-2
Apparent density:	1.0-1.2g/cm^3
Thickness:	0.1-0.5mm
Moisture content:	8%
Raw material:	Unbleached sulphate pulp
Application:	Insulating material used in engines, electrical Appliances, instruments etc.
Characteristic:	Smooth, tough, mechanical and electric intensity.
Color:	Original color, cyan, red, yellow etc.

Thickness	Standard Size
0.1-0.5mm	In Sheet 1150mmX800mm 1000X1000mm 1000X2000mm
	In roll width: 1150mm、1000mm

Special sizes and thickness are available upon request.

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn



Insulating cable paper

1. Product information

The insulating cable paper is manufactured from 100% high-quality sulfate insulating wood pulp. No. sizing or fillers are used. This paper is highly refind and cleaned to ensure uniform thickness and formation. pinholes, undispersed fiber bundles and tiny defects, if any, are minimized to meet the safety requirements in the manufacturing and applications of transformers and cables . It is a low-voltage grade insulating paper well suited for making electromagnetic below wires / power cables of transformers below 35kv and other electrical insulating equipments below 35kv.

This paper has stable electrical and chemical properties, and high physical strength to meet the extract requirement of our valued customers. Our insulating papers are available in nominal thickness from 40um to 250um, and in continuous rolls up to the width of 470mm, 625mm, 960mm, and 1000mm (the roll diameter from 680mm-730mm), or other customized diameter and width per the purchase contracts.

2.Technical specifications information

The technical specifications conform to the following values.

No	Item		Unit	Value				
				DLZ-40	DLZ(D)	DLZ(D)	DLZ	
1	Thickness	Standard	um	40	≥50-≤75		>75-≤130	>130-≤250
		Tolerance		±7%	±6%		±6%	±5%
2	Density		g/cm^3	0.75-0.85	>0.75-≤0.85	>0.85-≤0.95	0.85-0.95	
3	Tensile Index ≥	MD	N.m/g	83.0	83.0	85.0	85.0	
		CD		36.0	36.0	38.0	36.0	
4	Stretch at break ≥	MD	%	1.8	2.0		2.0	2.2
		CD		4.0	4.0		6.0	69.5
5	Tearing index(CD) ≥		mN.m^2/g	6.5	6.5	7.5	7.9	9.8
6	Electrical strength(AC) ≥		Kv/mm	8.5	8.0		7.3	7.0
7	Dissipation factor of cable paper(tan δ 100℃) ≤		%	0.6				
8	Conductivty of water extract ≤		mS/m	10.0				
9	PH of water extract			6.5-8.0				
10	Air permeability ≤		um/(Pa.s)	-	0.85		0.5	
11	Ash content ≤		%	0.5	0.8			
12	Moisture content		%	5.0-8.0				

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

6520 Polyester Film/Fish Paper Composite Flexible Material

Characteristic and usage

6520 shows good electric property and high mechanical strength. It is used as class E insulating materials such as slot, liner and turn insulation in electrical machines and electrical appliances.

Package and Storage

Combined flexible material is supplied in reels. Inner diameter of a core is 76mm. Combined flexible material should be stored under 40℃ in clean and dry warehouse, far away from fire ,beat and avoid sunshine. The storage life is 12 months from the date of dispatch.

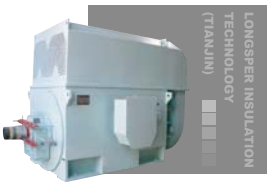
Main technical requirements

6520-25

No.	Properties			unit	Value								
1	Nominal thickness			mm	0.15	0.17	0.20	0.22	0.25	0.27	0.30	0.35	0.45
2	Thickness tolerance			mm	± 0.020	± 0.020	± 0.030	± 0.030	± 0.030	± 0.030	± 0.030	± 0.035	± 0.045
3	Nominal grammage and tolerance			g/m^2	190 ± 28	215 ± 32	250 ± 38	275 ± 40	310 ± 46	330 ± 50	370 ± 55	490 ± 73	550 ± 82
4	Film nominal thickness			μm	25								
5	Tensile strength	Lengthwise	no bending	N/10 mm	⩾100	⩾110	⩾120	⩾135	⩾150	⩾175	⩾200	⩾240	⩾360
			after bending		⩾70	⩾75	⩾80	⩾85	⩾95	⩾100	⩾110	⩾180	⩾275
		crosswise	no bending		⩾70	⩾75	⩾80	⩾85	⩾95	⩾100	⩾105	⩾120	⩾180
			after bending		⩾50	⩾50	⩾50	⩾55	⩾60	⩾70	⩾80	⩾115	⩾175
6	Breakdown voltage	no bending		KV	⩾6.0								
		after bending			⩾5.0								
7	Bond strength at room temp.			-	No delamination								
8	Bond strength at heat temp.130 ± 2℃ 10min			-	No delamination no blister, no adhesive flow								
	Standard			-	Q/DJ3-202-1994								

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

LONGSPER INSULATION TECHNOLOGY (TIANJIN) CO., LTD



6520-40

No.	Properties			unit	Value								
1	Nominal thickness			mm	0.15	0.17	0.20	0.22	0.25	0.27	0.30	0.35	0.45
2	Thickness tolerance			mm	± 0.020	± 0.020	± 0.030	± 0.030	± 0.030	± 0.030	± 0.030	± 0.035	± 0.045
3	Nominal grammage and tolerance			g/m^2	190 ± 28	215 ± 32	250 ± 38	275 ± 40	310 ± 46	330 ± 50	370 ± 55	490 ± 73	550 ± 110
4	Film nominal thickness			μm	40								
5	Tensile strength	Lengthwise	no bending	N/10 mm	⩾100	⩾110	⩾120	⩾135	⩾150	⩾175	⩾200	⩾240	⩾360
			after bending		⩾70	⩾75	⩾80	⩾85	⩾95	⩾100	⩾110	⩾180	⩾275
		crosswise	no bending		⩾70	⩾75	⩾80	⩾85	⩾95	⩾100	⩾105	⩾120	⩾180
			after bending		⩾50	⩾50	⩾50	⩾55	⩾60	⩾70	⩾80	⩾115	⩾175
6	Breakdown voltage	no bending		KV	⩾7.0								
		after bending			⩾6.0								
7	Bond strength at room temp.			-	No delamination								
8	Bond strength at heat temp.130 ± 2℃ 10min			-	No delamination, no blister, no adhesive flow								
	Standard			-	Q/DJ3-206-1994								

6520-50

No.	Properties			unit	Value								
1	Nominal thickness			mm	0.15	0.17	0.20	0.22	0.25	0.27	0.30	0.35	0.45
2	Thickness tolerance			mm	± 0.020	± 0.020	± 0.030	± 0.030	± 0.030	± 0.030	± 0.030	± 0.035	± 0.045
3	Nominal grammage and tolerance			g/m^2	190 ± 28	215 ± 32	250 ± 38	275 ± 40	310 ± 46	330 ± 50	370 ± 55	490 ± 73	550 ± 82
4	Film nominal thickness			μm	50								
5	Tensile strength	Lengthwise	no bending	N/10 mm	⩾100	⩾110	⩾120	⩾135	⩾150	⩾175	⩾200	⩾240	⩾360
			after bending		⩾70	⩾75	⩾80	⩾85	⩾95	⩾100	⩾110	⩾180	⩾275
		crosswise	no bending		⩾80	⩾85	⩾90	⩾90	⩾95	⩾100	⩾105	⩾120	⩾180
			after bending		⩾50	⩾50	⩾50	⩾55	⩾60	⩾70	⩾80	⩾115	⩾175
6	Breakdown voltage	no bending		KV	⩾8.0								
		after bending			⩾6.0								
7	Bond strength at room temp.			-	No delamination								
8	Bond streanth at heat temp.130 ± 2℃ 10min			-	No delamination, no blister, no adhesive flow								
	Standard			-	JB4059-91								

Note: special requirements are upon mutual agreement.

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

Chinese Nomex Paper



It exhibits numerous excellent properties such as high strength, low deformation, heat resistance,flame resistance, resistance to chemicals, good dielectric property and etc. It can be widely used in dry-type transformers, special transformers, microwave oven transformers, HID ballasts and other transformers as turn to turn insulation, interlayer insulation and insulation end. It also can be used in metallurgy, lifting, hauling, mining, explosion-proof, marine, wind power and other special motors and generators as slot insulation, liner insulation and turn insulation, It has temperature insulation rating of 220℃ and can provide higher level of electrical equipment security.

1 Thermal stability

It offers outstanding thermal stability and can keep a long term running in environment of 220℃

Tensile strength retention after thermal tolerance

Time,hr	310℃	300℃	290℃	280℃	270℃	260℃	250℃	240℃	230℃
552	3%	39%	64%	67%	83%	90%			
1008		9%	36%	62%	71%	79%	91%		
2016			7%	31%	66%	49%	66%	75%	
3528				2%	5%	24%	47%	71%	91%

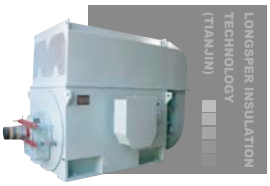
2 Electrical insulation

It's highly electrical insulated. Its dielectric strength can be over 10kv/mm being untreated with insulating varnish or resin. Because of its excellent thermal stability. It still remains good electrical properties during continuous operations at high temperature. As the dielectric constant is very low, it distributes the electric field evenly. And its low dissipation factor can make running dissipation less, so it is of environmental friendly insulating material.

Dielectric performance: thickness 0.08mm at normal temperature.

No.	Item	Unit	Test value	Standard
1	Dielectric strength	MV/m	12	ASTM D149
2	Volume resistivity	Ω.m	2.4×1014	ASTM D150
3	Dissipation factor	%	0.7	ASTM D257
4	Dielectric constant		1.7	ASTM D257

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn



3 Good mechanical properties

It is sheet material made of aramid fiber of high tenacity. It has high density, smooth surface, good toughness, high tensile strength and tear strength.

4 Chemical stability

Its molecules are of big linear molecules composed of aryl residues connected by aramid bridge, In its crystal, hydrogen bonds array in two planes into three-dimensional structure. Strong hydrogen bonds ensures its stable structure and excellent properties of resistance to some chemicals such as most of the inorganic acid, most of other chemical reagent and organic solvent.

Type	Features	Applications
LSP816	Type LSP816 is a calendered insulation paper which offers high inherent dielectric strength, mech anical toughness, flexibility and resilience. Type LSP816 is widely used in a majority of electrical equipment applications. Available in 8 thicknesses (0.05 to 0.76mm)	Type LSP816 is used inalmost every know electrical sheet insulation application.
LSP811	Type LSP811 is the uncalendered insulation paper. It is available in five thicknesses (0.13 to 0.58mm), with a density of 0.3 and correspondingly lower electrical and mechanical properties. Type LSP811 offers increased impregnability and saturability when compared to Type LSP811, making it suitable for use in cast resin applications as turn and layer insulation.	It is used in applications such as motor phase insulation and transformer coil end filler, where high bulk and conformability are of prime importance.
LSP864	Type LSP864 is a calendered insulation paper. It is available in four thicknesses(0.04 to 0.13 mm) Type LSP864 has lower electrical and mechanical properties, more glue adhesion surface and easier composition with film when compared to Type LSP864.	It can be composited with PET film and PI film to make soft composite material AMA and AHA to be used in electric insulating applications.

Production form is trimed roll with inside diameter 76mm paper core. Package is consist of PE film inside to keep moisture out and corrugated cartons outside to prevent physical damages.

Normal package size :

Type	Width(mm)	Net Weight(KG)
LSP816	924 965	43-50 45-52
LSP864	924 980	43-50/70-80 46-53/75-85
LSP811	965	20-28

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

6630 Polyester Film/Polyester Fibre Non-Woven Fabric Flexible Laminate (DMD)

Polyester film/polyester fibre non-woven fabric flexible laminate (DMD) is a three-layer flexible laminate in which polyester fibre non-woven fabric(D) is bonded to the both sides of Polyester film(M). This product has excellent electrical insulating, heat resistance, mechanical strength and impregnated property. It is suitable for slot insulation, interphase insulation and liner insulation in Y-series electric motors and electric apparatus. Heat resistance is class B.

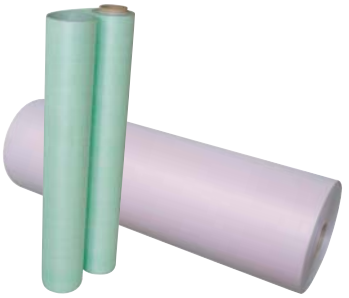
Dimensions Nominal width: 1000mm Nominal weight: 50kg±5kg

No.	Properties			Unit	Value								
1	Nominal thickness			mm	0.15	0.18	0.20	0.23	0.25	0.30	0.35	0.40	0.45
2	Thickness tolerance			mm	± 0.020	± 0.025	± 0.030	± 0.030	± 0.030	± 0.030	± 0.035	± 0.040	± 0.045
3	Nominal grammage and tolerance			g/m^2	140 ± 20	190 ± 28	220 ± 33	260 ± 39	300 ± 45	350 ± 52	425 ± 63	500 ± 75	560 ± 84
4	Film nominal thickness			μm	50	75	100	125	150	190	250	300	350
5	Tensile strength	MD	No bending	N/10mm Width	⩾80	⩾120	⩾140	⩾180	⩾190	⩾270	⩾320	⩾340	⩾370
			After bending		⩾80	⩾105	⩾120	⩾150	⩾170	⩾200	⩾300	⩾320	⩾350
		TD	No bending		⩾80	⩾105	⩾120	⩾150	⩾170	⩾200	⩾300	⩾320	⩾350
			After bending		⩾70	⩾90	⩾100	⩾120	⩾130	⩾150	⩾200	⩾220	⩾250
6	Elongation	MD	No bending	%	⩾15					-		-	
			After bending		⩾10					⩾5		⩾3	
		TD	No bending		⩾20					-		-	
			After bending		⩾10					⩾5		⩾2	
7	Breakdown voltage			kV	⩾6	⩾7	⩾9	⩾10	⩾12	⩾15	⩾18	⩾20	⩾22
8	Temperature index			℃	130								

Adhesion: there shall be no delamination or bubbling at the cut place with white spot left by bending being allowed.

LONGSPER INSULATION TECHNOLOGY (TIANJIN) CO., LTD

6641 Polyester Film/Polyester Fibre Non-woven Flexible Laminate(F-DMD)



Polyester film/polyester fibre non-woven flexible laminate (Class F DMD) is made from high melting point polyester film and hot-rolling polyester non-woven fabric. The polyester film and polyester non-woven fabric are bonded by F-class adhesive. It has excellent heat-resistance, electrical, mechanical and impregnated properties. It is suitable for slot insulation, interphase insulation and liner insulation in Class F electric motor and electric apparatus.

Dimensions Nominal width: 1000mm Nominal weight: 50kg±5kg

No.	Properties			Unit	Value							
1	Nominal thickness			mm	0.15	0.18	0.20	0.23	0.25	0.30	0.35	0.40
2	Thickness tolerance			mm	± 0.020	± 0.025	± 0.030	± 0.030	± 0.030	± 0.035	± 0.040	± 0.040
3	Nominal Grammage and tolerance			g/m2	150 ± 22	190 ± 28	210 ± 32	240 ± 36	260 ± 39	310 ± 46	390 ± 58	440 ± 66
4	Tensile strength	MD	No bending	N/10mm	⩾80	⩾100	⩾120	⩾130	⩾150	⩾170	⩾200	⩾300
			After bending		⩾80	⩾90	⩾105	⩾115	⩾130	⩾150	⩾180	⩾220
		TD	No bending		⩾80	⩾90	⩾105	⩾115	⩾130	⩾150	⩾180	⩾220
			After bending		⩾70	⩾80	⩾95	⩾100	⩾120	⩾130	⩾160	⩾200
5	Elongation		MD	%	⩾10					⩾5		
			TD		⩾15					⩾5		
6	Breakdown voltage (No bending)		At room temperature	kV	⩾7.0	⩾8.0	⩾9.0	⩾10.0	⩾11.0	⩾13.0	⩾15.0	⩾18.0
			155℃ ± 2℃		⩾6.0	⩾7.0	⩾8.0	⩾9.0	⩾10.0	⩾12.0	⩾14.0	⩾17.0
7	Stiffness		MD	N	⩾10	⩾15	⩾20					
			TD		⩾15	⩾20	⩾30					
8	Temperature index			-	155							

Adhesion: there shall be no delamination or bubbling at the cut place with white spot left by bending being allowed.

Package, Marks, Storage and Shipment

Type composite foil should be placed vertically in a clean, dry and well ventilated warehouse far away from heat source, heating radiators and direct sunlight.
The storage period is 6 months counted from the date of delivery.

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

6650-Polyimide Film/ Nomex Paper Flexible Composite Material (NHN)

6650 Polyester film/Nomex paper flexible composite material (NHN) is made of two layers of Du Pont Nomex paper with one layer of polyester film.

Characters

It is Class H (180℃) insulating material. This product has good dielectric property, high heat resistance and mechanical strength

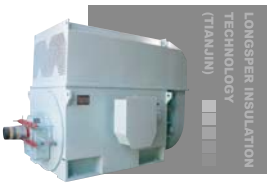
Application

It is suitable for H-class electrical motors as slot liner and turn-to-turn insulation.

Properties			Unit	Value						
Nominal thickness			mm	0.15	0.17	0.20	0.23	0.25	0.30	0.33
Thickness tolerance			mm	±0.02	±0.02	±0.03	±0.03	±0.04	±0.04	±0.05
Grammage			g/m^2	155±25	175±25	195±30	230±35	260±40	300±45	330±50
Film thickness			mm	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Tensile strength	MD	No bending	N/cm	⩾120	⩾140	⩾160	⩾180	⩾200	⩾250	⩾270
		After bending		⩾70	⩾90	⩾90	⩾130	⩾150	⩾170	⩾180
	TD	No bending		⩾80	⩾90	⩾100	⩾110	⩾120	⩾150	⩾170
		After benging		⩾50	⩾70	⩾80	⩾80	⩾100	⩾110	⩾130
Elongation		No bending	%	⩾10						
		After benging		⩾8						
Breakdown voltage		No bending	KV	⩾8		⩾9		⩾10		
		After benging		⩾7		⩾8		⩾9		
Bond strength at room temp.				No delamination						
Bond strength at 200+2℃,10 min.				No delamination, no blister, no adhesive flow						

Special specification can be supplied according to customer's request.

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn



6640-Polyester Film/Nomex Paper Flexible Composite Material(NMN)

Temperature classification: Class F(155 ℃)

Our production of NMN composed of two layers of Du Pont's NOMEX® Brand paper and one inner layer of polyester film. This material combines the advantages of superior thermal properties and tearing resistance of NOMEX® as well as the excellent electrical and mechanical properties of polyester film. It is suitable for insulation of slot, phase, turn-to-turn and liner of F class motorbond generators. NMN combined flexible material can be supplied in roll / reel / sheet.
Inner diameter of a core is 3 inches. The weight of each roll of NMN is about 60~70KG depending on length required by the customer. The width can be supplied from 4mm to 914mm.

Properties		Unit	Value							
Dimensions	NMN	MIL	222	232	242	252	272	2102	333	353
	NOMEX®	mm	0.050	0.050	0.050	0.050	0.050	0.050	0.075	0.075
	Polyester film	mm	0.050	0.0750	0.100	0.125	0.190	0.250	0.075	0.125
	NOMEX®	mm	0.050	0.050	0.050	0.050	0.050	0.050	0.075	0.075
Nominal Thickness		mm	0.17	0.19	0.22	0.24	030	0.37	0.25	0.30
Thickness Tolerance		± %	15	15	15	15	15	15	15	15
Nominal Grammage		g/m	170	200	230	270	360	450	255	325
Unfolded Tensile Strength	MD	N/10mm	⩾160	⩾170	⩾190	⩾220	⩾270	⩾330	⩾190	⩾270
	XD	N/10mm	⩾90	⩾105	⩾120	⩾150	⩾200	⩾300	⩾180	⩾200
Unfold ed Tensile Strength	MD	N/10mm	⩾90	⩾105	⩾120	⩾150	⩾200	⩾300	⩾180	⩾200
	XD	N/10mm	⩾90	⩾105	⩾120	⩾150	⩾200	⩾300	⩾140	⩾160
Elongation	MD	%	⩾15	⩾15	⩾15	⩾20	⩾20	⩾20	⩾15	⩾25
	XD	%	⩾20	⩾20	⩾20	⩾20	⩾25	⩾25	⩾20	⩾25
Unfolded Tensile Strength		Kv	⩾8	⩾11	⩾12	⩾14	⩾19	⩾23	⩾12	⩾15
Folded Tensile Strength		Kv	⩾7	⩾9	⩾10	⩾12	⩾15	⩾18	⩾10	⩾13
Bond strength at 25 ℃			No delamination							
Bond strength at 180±2℃ 10min			No delamination No blister ,No adhesive flow							

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

6632-polyester Film/polyester Fibre Non-woven Fabric Flexible Composite Material (DM)

Characters

It is Class B (130℃) insulating material.
This product has high mechanical strength, excellent electrical property, and good bonding strength.

Properties			Unit	Value								
Nominal thickness			mm	0.12	0.15	0.18	0.20	0.23	0.25	0.30	0.35	0.40
Thickness tolerance			mm	± 0.020	± 0.020	± 0.020	± 0.030	± 0.030	± 0.035	± 0.040	± 0.045	± 0.050
Grammage			g/m^2	140 ± 20	150 ± 23	190 ± 29	210 ± 32	240 ± 36	255 ± 38	310 ± 46	365 ± 55	450 ± 68
Tensile strength	MD	No bending	N/10mm	⩾80	⩾90	⩾100	⩾130	⩾160	⩾180	⩾200	⩾240	⩾280
		After bending		⩾70	⩾85	⩾90	⩾120	⩾140	⩾160	⩾180	⩾220	⩾260
	TD	No bending		⩾70	⩾85	⩾90	⩾120	⩾140	⩾160	⩾180	⩾220	⩾260
		After bending		⩾60	⩾70	⩾80	⩾110	⩾130	⩾150	⩾170	⩾210	⩾240
Elongation	MD		%	⩾8			⩾10					
	TD			⩾10			⩾15					
Breakdown voltage (no bending)			KV	⩾6.0	⩾7.0	⩾8.0	⩾9.0	⩾10.0	⩾12.0	⩾14.0	⩾16.0	⩾18.0
Bonding property at room temp.				No delamination								

Special specification can be supplied according to customer's request.

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

Diamond pattern resin coated polyester film

Diamond pattern resin coated polyester film(DPRCPF) is a kind of good insulating materials which spread a special kind of diamond shaped insulating epoxy resin on the polyester films in electrical class. It is widely used in the gas or oil insulating system.

The diamond pattern - resin coating melts at baking temperatures and adhere polyester film and conductors, forming into a rigid bond.

Prolonged heating of the coil during the normal baking cycle cures(or cross-links) the resin, thus ensuring permanent resistance to internal heat and forces for the lifetime of transformer. Coils made with DPRCPF are able to withstand axial short circuit forces far better than coils made with uncoated polyester films.

Because the shape of resin coat assumes point not covering all surface, the passages without coat are best useful to degas and intrude oil or SF6 insulating materials. It reduces the broken degree of electrical - halo and partial discharge to the lowest. DPRCPF has already been widely used in electrical equipments such as current transformers, transformers and etc. as layers insulating materials.

Performance Specification

No.	Item			Value		
				DPRCF--05	DPRCF--07	DPRCF--10
1	The thickness of base material mm			0.05 ±0.005	0.07 ±0.010	0.10 ±0.010
2	Tensile strength (MD , CMD) Mpa≥			150	150	150
3	One side coating thickness μm			15≤ δ ≤20		
4	Substance	One side	g/m²	76 ± 2	102 ± 2	144 ± 2
		Two side		82 ± 3	108 ± 3	150 ± 3
5	Hot shrinkage %≤			1-3	1–3	1–3
6	Breakdown voltage(50HZ) V≥			6000	6500	7000
7	Adhesive Strength	One side	-	Tearing the film paper tube, the adhesive stength should be more than film tensile strength		
		Two side	kpa≥350	350		

Width and inner core dia can be supplied according to the customer's request.

Transformer coil cooling duct

1. The duct assembly is made up of strips of transformer board glued to Diamond pattern resin coated paper (DDP). The structure is better for fixing with coil and avoiding weakness of distortion of corrugated board. It is widely used by transformer manufacture for oil immersed distribution transformer windings.
2. Stored under clean, room temperature condition the material have a shelf lifetime of twelve months.

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

EPD279 Epoxy Pre-impregnated DMD

Standard No.: Q/DJ$_3$-210-2006

EPD279 is made from DMD and special heat resistant resin. It has the characteristics of long storage life, low curing temperature and short curing time. After being cured, it has excellent electrical properties, good adhesive and heat resistance. The heat resistance is Class F. EPD279 is used for layer insulation or liner insulation of low-voltage copper/ aluminum foil winding in dry-type transformers as well as slot insulation and liner insulation in Class B and F electric motors and electric appliances. It passed the thermal ageing routine test fulfilled by Quality Supervision and Testing Center of China machinery industry for Electromechanical Materials. It also passed SGS test for toxic and hazardous substance detection.

1 Technical requirements

1.1 Appearance

Its surface should be flat, free of uneven resin and impurities affecting performances. While being de-coiled, its surface shall not conglutinate each other. Free of such defects such as creases, bubbles and wrinkles.

1.2 Dimension: Nominal width:1000 mm. Nominal weight: 50±5kg /Roll. The splices shall not be more than 3 in a roll.

1.3 Performance requirements:

The standard values for EPD279 are shown in Table 1 and relevant typical values shown in Table 2.

2 Test method

2.1 The test for dissolvable resin content, volatile content and shear strength under tension shall be as per the relevant stipulations in Chapter 5 of Standard Q/DJ$_3$-210-2006.

2.2 The other items shall be as per the stipulations in ***Part Ⅱ: Test Method, Electrical Insulating Flexible Laminates,* GB/T 5591.2-2002 (MOD with IEC60626-2: 1995).**

3 Packing, transporting and storage

3.1 EPD279 should be wrapped with plastic film then put in clean & dry carton

3.2 The storage life is 6 months at temperature of below 25℃ after leaving factory. If the storage duration is over 6 months, the product can still be used when being tested to be qualified. The product should be put and/or stored upright and keep away from fire, heat and direct sunshine.

3.3 The other requirements shall accord with the stipulations in ***Part I: Definition & General Requirement, Electrical Insulating Flexible Laminates,* GB/T 5591.1-2002 (MOD with IEC60626-1: 1995).**

Table 1 Standard value for EPD279

No.	Properties	Unit	Standard values				
1	Nominal thickness	mm	0.16	0.18	0.20	0.23	0.25
2	Thickness tolerance	mm	±0.030		±0.035		
3	Grammage (for reference)	g/m^2	185	195	210	240	270
4	Tensile strength (MD)	N/10mm	≥70		≥80		≥100
5	Dissolvable resin content	g/m^2	60±15				
6	Volatile content	%	≤1.5				
7	Dielectric strength	MV/m	≥40				
8	Shear strength under tension	MPa	≥3.0				

4 Application and remarks

Recommended curing conditions

Table 2

Temperature（℃）	130	140	150
Curing time （h）	5	4	3

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

EPN283 Epoxy Pre-impregnated NMN

Standard No.: Q/DSJ-375-2010

Epoxy Pre-impregnated NMN (Pre-impregnated NMN) is made from NMN flexible laminate and special heat resistant resin. It has the characteristics of long storage life and short curing time. After being cured, it has excellent electrical properties, good adhesive and heat resistance. EPN283 is used for layer insulation or liner insulation of low-voltage copper/aluminum foil winding in Class H dry-type transformers as well as slot insulation and liner insulation in Class F and H electric motors and electric appliances.

1 Technical requirements

1.1 Appearance

Its surface should be flat, free of uneven resin and impurities affecting performances. While being de-coiled, its surface shall not conglutinate each other. Free of such defects such as creases, bubbles and wrinkles.

1.2 Dimension

Pre-impregnated NMN is supplied in rolls. The general length of every roll is no less than 50m. The weight of every roll is no more than 60 kg. The parts of the roll is no more than 3，the length of the shortest part is no less than 5m.

The width recommended of every roll is 900mm，the width should be uniform in every roll. Pre-impregnated NMN conforming to this standard, tapes with other width specifications can be supplied according to the requirements of our customers. The acceptable tolerance of tape is ±1.0mm.

1.3 Performance requirements

The standard values for EPN283 are shown in Table 1.

Table 1

No.	Properties	Unit	Standard Values						
1	Nominal thickness	mm	0.18	0.20	0.25	0.30	0.35	0.40	0.50
2	Thickness Tolerance	mm	±0.03		±0.035			±0.045	
3	Grammage	g/m^2	200	210	280	350	400	485	625
4	Tensile Strength(MD) Not buckling	N/10mm	≥140	≥160	≥210	≥260	≥300	≥360	≥400
5	Shear strength under tension(160℃, after 2 hours)	MPa	≥5.0						
6	Dissolvable resin content	g/m^2	40±10						
7	Volatile Content	%	≤3						
8	Breakdown Voltage(160℃, after 2 hours)	kV	≥10	≥11	≥15	≥18	≥20	≥22	≥26

Note: The Grammage is only for reference, not considered as the requirement of technical conditions.
All specifications stated above are made according to the standard of 0.05mmT464.

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

Fiberglass Sleeving Coated With Acrylic Resin
(JB/T 8151.3-1999 eqv IEC 60684-3-403 TO 405)

Fiberglass sleeving coated with acrylic resin is manufactured with non-alkali fiberglass braided sleeving and coated with a layer of acrylic resin and then thermosetting to form F grade insulating sleeving. It possesses reliable heat resistance, good qualities of dielectric, fair softness and elasticity, flame resistance. It can be used for wiring insulation and as mechanic protection for motors, electrical instruments and wireless sets.

Appearance:

Smooth surface, clear and neat ends.

Length:

Usually as 1000 $^{+20}_{-10}$mm, Continuous length may be negotiated.

Inside Diameter And Wall Thickness: mm

Nominal Size	Tolerance	Wall Thickness
0.5-0.8	± 0.10	0.20-0.30
1.0-1.5	± 0.15	0.20-0.35
2.0-2.5	± 0.20	0.25-0.45
3.0-6.0	± 0.25	0.30-0.60
7.0-10.0	± 0.50	0.40-0.75
12.0-18.0	± 0.50	0.60-1.00
20.0-30.0	± 0.50	0.70-1.40

Breakdown voltage: KV

Test condition	Type		
Axes 25mm, electrode type	2740-1	2740-2	2740-3
Center value	⩾7.0	⩾4.0	⩾2.5
Lowest individual value	⩾5.0	⩾2.5	⩾1.5

Non-alkali Fiberglass Tape
(JC/T 174-2005 eqv IEC 1067-3-1)

Non-alkali fiberglass tape is weaved of non-alkali fiberglass. with its features of heat resistance and insulation, it can be used as the binding of coils for electrical machineries and appliances.

Appearance:

White, smoothness, no breakage.

Properties:

Nominal Thickness (mm)	Density(strand/cm)		Thickness(mm)	Breaking strength(N/20mm)
	Warp	Weft		
0.10	21.0 ± 1.0	12.0 ± 1.0	0.100 ± 0.010	⩾700
0.13	21.0 ± 1.0	12.0 ± 1.0	0.130 ± 0.013	⩾800
0.15	23.0 ± 1.0	10.0 ± 1.0	0.150 ± 0.015	⩾800
0.18	23.0 ± 1.0	10.0 ± 1.0	0.180 ± 0.018	⩾1400
0.20	23.0 ± 1.0	12.0 ± 1.0	0.200 ± 0.020	⩾1400
0.25	23.0 ± 1.0	10.0 ± 1.0	0.250 ± 0.025	⩾1600
0.30	23.0 ± 1.0	8.0 ± 1.0	0.300 ± 0.030	⩾1900
0.32	21.0 ± 1.0	10.0 ± 1.0	0.320 ± 0.032	⩾2000

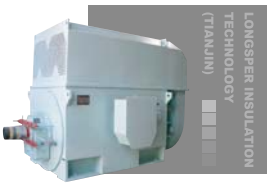
Width mm

Width	Tolerance
10-25	± 1
30-200	± 2

Length: M

Nominal length	Tolerance
30	± 0.15
50	± 0.30
100	± 0.70
200	± 1.50
500	± 4.00

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn



Fiberglass Sleeving Coated With Polyvinyl Chloride Resin
(JB/T 8151.2-1999 eqv IEC 60684-3-406 TO 408)

Fiberglass sleeving coated with polyvinyl chloride resin is the non-alkali fiberglass braided sleeving coated with polyvinyl chloride resin. It is produced with the process of thermo plasticization.
The polyvinyl chloride fiberglass sleeving possesses good qualities of dielectric, chemical resistance, excellent softness and elasticity. It can be used for wiring insulation and as mechanic protection for motors, electrical appliances, electrical instruments, wireless sets and domestic electrical appliances.

Appearance:
Smooth surface, clear and neat ends.
Length:
Usually as 1000^{+20}_{-10}mm, Continuous length may be negotiated.

Inside Diameter And Wall Thickness: mm

Nominal Size	Tolerance	Wall Thickness
0.5-0.8	± 0.10	0.25-0.40
1.0-1.5	± 0.15	0.20-0.50
2.0-2.5	± 0.20	0.35-0.60
3.0-6.0	± 0.25	0.35-0.70
7.0-10.0	± 0.50	0.55-0.90
12.0-18.0	± 0.50	0.70-1.20
20.0-30.0	± 0.50	0.90-1.30

Breakdown voltage: KV

Test condition Axes 25mm,electrode type	Type		
	2715-1	2715-2	2715-3
Center value	⩾7.0	⩾4.0	⩾2.5
Lowest individual value	⩾5.0	⩾2.5	⩾1.5

Fiberglass Sleeving For Carbon Brush
(IEC 60684-3-403 TO 405)

Fiberglass sleeving for carbon brush is a non-alkali fiberglass braided sleeving coated with adhesive. It possesses excellent flexibility and smooth cut. It can be used as a cover for the pigtail of a carbon brush.

Appearance:
The sleeving is not sticky. There are no wrinkles and blots on the surface but small pellets may appear due to glass thread sleeving. The color is black or dark, and no clearly signs of discoloration.
Length:
Usually as 1000^{+20}_{-10} mm, Continuous length may be negotiated.
Inside Diameter And Wall Thickness:

Nominal Size	Tolerance	Wall Thickness
0.5-0.8	± 0.10	0.20-0.30
1.0-1.5	± 0.15	0.20-0.35
2.0-2.5	± 0.20	0.25-0.45
3.0-6.0	± 0.25	0.30-0.60
7.0-10.0	± 0.50	0.40-0.75
12.0-18.0	± 0.50	0.60-1.00
20.0-30.0	± 0.50	0.70-1.40

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

Polyurethane Sleeving F Class (155℃)

Polyurethane sleeving series is a glass fiber sleeving coated with a polyurethane resin. After a heat treatment the resin changes its mechanical and thermal characteristics.
Main characteristics are: good wall resistance, excellent electrical properties and good elasticities. It is widely used in electrical insulation for connections in the electrical motors.

Size:

Inside Diameter	Tolerance on Diameter	Wall thickness
0.5 to 3.0	+0.2-0	0.45 ± 0.15
3.5 to 9.0	+0.3-0	0.55 ± 0.15
10 to 12	+0.5-0	0.65 ± 0.15
14 to 16	+1.0-0	0.80 ± 0.20
18 to 30		

Main properties:

Properties	Results
Heat resistance	No cracking, bending after heat treatment after several hours at 200℃.
Chemicals	Good resistance to benzene and oils.
Breakdown voltage	3000 Volt.

The values given above are believed to be accurate and given as a matter of information only. As usage conditions are beyond our control we suggest the customer to confirm values and product compatibility prior to its use. We don't guarantee or accept any responsibility for any particular usage.

HEAT-TREATMENT FIBERGLASS SLEEVING (JB/T 7091-1993 eqv IEC 60684-3-300)

Heat-treatment sleeving is the non-alkali fiberglass braided sleeving with wax refined out and weaves set Then impregnated with silicone. It possesses the characteristic of high tensile strength and Heat-resistance. It can be used as an excellent insulating material for the wiring of electrical machineries and appliances and domestic electrical appliances.

Appearance:
The sleeving is round and smooth with a white surface.
Length:
Usually as 1000^{+20}_{-10}mm, Continuous length may be negotiated.
Properties

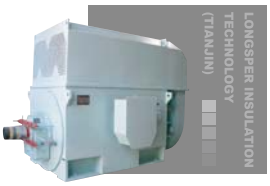
Properties	Unit	Requirements
Hot Weightlessness	%	≤0.50
Tensile strength	Mpa	≥90
Cutting feature	-	When the sleeving is cut, the crosscut will not get loose, but remain smooth.
Heat resistance	-	The sleeving will not harden and give off any smoke at the temperature of 500 ± 10℃ in a stone.

Inside Diameter And Wall Thickness: mm

Nominal Size	Tolerance	Wall Thickness
1.0;1.5;2.0;2.5;3.0;3.5;4.0	+0.30 −0.20	≥0.25
5.0;6.0;7.0;8.0;9.0;10.0	+0.50 −0.30	≥0.30
12.0;14.0;16.0;18.0;20.0	+0.80 −0.50	≥0.45

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

LONGSPER INSULATION TECHNOLOGY (TIANJIN) CO., LTD



Self-extinguishable Fiberglass Sleeving Coated Silicon Resin

(JB/T 7093-1993 eqv IEC 60684-3-400 TO 402)

Self-extinguishable fiberglass sleeving treated at a high temperature, which is the sleeving braided with non-alkali fiberglass and coated with a special kind of silicone resin. Self-extinguishable fiberglass sleeving possesses good qualities of dielectric, excellent softness and elasticity.

It is widely used as wiring insulator for H grade electrical machineries、TV sets and electric apparatus. It's also for the protection of collected strands of wire.

Appearance:

White, clear and neat ends.

Length:

Usually as 1000 $^{+20}_{-10}$ mm, Continuous length may be negotiated.

Inside Diameter And Wall Thickness: mm

Nominal Size	Tolerance	Wall Thickness
1.0-3.5	+0.30 -0.10	0.20-0.50
4.0-10.0	+0.50 -0.30	0.30-0.75
12.0-20.0	+0.50 -0.50	0.50-0.90
22.0-30.0	+0.50 -0.50	0.60-1.00

Breakdown voltage:

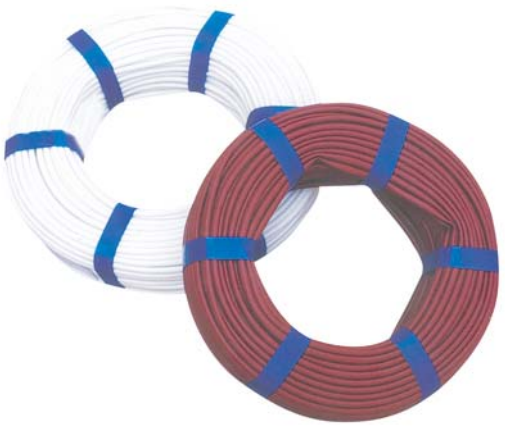
Properties	unit	Guide line		
		2753-1	2753-2	2753-3
Breakdown voltage	Kv	≥4.0	≥2.5	≥1.5
Heat resistance	-	After the sleeving has been treated under a temperature of 250℃ in a cabinet for 24 hours, the coating of the sleeving should not appear detached and discolored.		
Self-extinguishment	-	≤15		

Fiberglass Sleeving Coated With Silicone Rubber

(JB/T 8151.1-1999 eqv IEC 60684-3-400 TO 402

Fiberglass sleeving coated with silicone rubber produced in the process of thermal treatment and vulcanization. It is the non-alkali fiberglass braided sleeving coated with silicone rubber.

This sleeving possesses good qualities of dielectric、high temperature resistance and cold resistance, can be used as wiring insulator for class H electrical machineries、special bulbs、electrical soldering irons、electrical irons、electrical rice cookers as well as other household appliances and their protection devices.



Appearance:

Smooth surface, clear and neat ends.

Length:

Usually as 1000 $^{+20}_{-10}$ mm, Continuous length may be negotiated.

Inside Diameter And Wall Thickness: mm

Nominal Size	Tolerance	Wall Thickness
0.5-0.8	± 0.10	0.20-0.40
1.0-3.0	± 0.20	0.25-0.50
3.5-8.0	± 0.25	0.35-1.00
9.0-12.0	± 0.50	0.45-1.20
14.0-30.0	± 1.00	0.60-1.40

Breakdown voltage: KV

Test condition Axes	Type		
25mm, electrode type	2760-1	2760-2	2760-3
Center value	≥7.0	≥4.0	≥2.5
Lowest individual value	≥5.0	≥2.5	≥1.5

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

6020, 6021 Polyester Film for Electrical Insulation

6020/6021 polyester film is biaxially oriented polyethylene terephthalate (PET) film. 6020 is transparent, 6021 is milky white

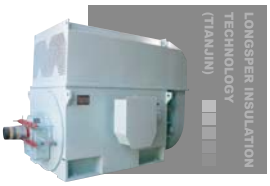
Thermal class: E (120℃) Gauge(um): 36-250

Characteristics: flat, low shrinkage, excellent insulation properties, UL approved

Usage: Electronic and electrical insulation, such as slot insulation, interphase insulation and liner insulation in electric motors, wrapping insulation for coils and cables, as well as producing insulating flexible composite materials.

Properties		Unit\NO.	1#	2#	3#	4#	5#	6#	7#	8#	Test method
Thickness		μm	36	50	75	100	125	150	188	250	GB12802.2
Tensile strength	MD	Mpa	200	200	182	185	175	170	172	180	GB12802.2
	TD	Mpa	210	198	198	190	186	206	185	200	GB12802.2
Elongation at break	MD	%	115	125	115	120	150	130	150	148	GB12802.2
	TD	%	105	130	110	102	110	100	110	109	GB12802.2
Shrinkage (150 ℃30min)	MD	%	1.3	1.4	1.3	1.3	1.4	1.4	1.5	1.8	GB12802.2
	TD	%	0.8	0.8	0.9	0.8	1.0	1.0	1.0	1.5	GB12802.2
Breakdown voltage		V/μm	220	188	165	145	126	123	104	92	GB12802.2
Volume resistivity		Ω . m	1.0×10^{14}	1.0×10^{14}	1.0×10^{14}	1.0×10^{14}	1.0×10^{14}	1.0×10^{14}	1.0×10^{14}	1.0×10^{14}	GB12802.2
Relative dielectric constant(48Hz-62Hz)			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	GB12802.2
Dielectric loss tangent(48Hz-62Hz)			2.8×10^{-3}	2.8×10^{-3}	2.8×10^{-3}	2.8×10^{-3}	2.8×10^{-3}	2.8×10^{-3}	2.8×10^{-3}	2.8×10^{-3}	GB12802.2
Haze		%	10.0	14.0	20.0	25.0	28.0	30.0	35.0	40.0	GB2410
Light Transmittance		%	66	60	52	39	35	31	29	26	GB2410
Gloss (45°)		%	98	90	84	80	76	76	74	70	GB8807
Density		g/cm^3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	GB12802.2
Flame retardancy			VTM-2	VTM-2	VTM-2	VTM-2	VTM-2	VTM-2	VTM-2	VTM-2	ANSI/UL94

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn



6023 Flame-retardant PET film

Thermal class: E Gauge(um): 36-250

Characteristics: Milky white, excellent flame retardancy, good electrical and mechanical properties

Usage: Flame retardant motor insulation and high grade decorating

Properties		Unit\NO.	1 #	2 #	3 #	4 #	5 #	Test method
Thickness		**μm**	**36**	**100**	**188**	**235**	**250**	**GB12802.2**
Tensile strength	MD	Mpa	135	175	155	159	142	GB12802.2
	TD	Mpa	142	202	175	163	181	GB12802.2
Elongation at break	MD	%	112	104	130	160	140	GB12802.2
	TD	%	90	112	105	129	97	GB12802.2
Shrinkage(150℃, 30min)	MD	%	1.5	1.5	1.6	1.5	1.5	GB12802.2
	TD	%	0.8	0.8	0.8	0.7	1.0	GB12802.2
Breakdown voltage		V/μm	168	141	105	95	90	GB12802.2
Haze		%	13.3	11.2	19.0	28.0	35.0	GB2410
Oxygen index/ Flame retardancy			34	32.2	33	32.8	32	GB/T2406

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

Polyimide Film 6051

Standard No.:JB/T2726-1996

Application scope :The polyimide film is produced by adopting "Doctor-Blading Process". It processes heat-resistance, radiation resistance and excellent dielectric performance. Applies to motor grade H electrical insulation as well as the electric engineering insulating materials for other usage.

Technical specifications.

1.Appearance: Film surface is smooth, bright and clean. It has no defects, such as folding, tearing, particulate air bubbles, pinholes and any external impurities. Its edges shall be tidy and have no breakage. And the film is provided in rolls.

2.Dimension

1)Thickness and acceptable tolerance : Recommended thicknesses in Table One . The products with other thicknesses can be supplied according to the customer's requirements.

Table One **Unit:um**

Thickness, um	25	4	50	75	100
Tolerance, um	+4	+6	+7	+8	+10
	-3	-5	-6	-6	-7

2)Width:no less than 250mm, the acceptable tolerance is ±1.6mm. Other tapes with different widths can be supplied according to the customer's requirement.

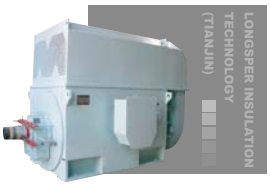
3)Length: According to the customer's requirements.

3.General properties:(Shown in Table Two)

Table Two

No.	Index Description		Unit	Index Value				
				25μm	40μm	50μm	75μm	100μm
1	Density		kg/m^3	$1.420\times10^3\pm0.02$				
2	Tensile Strength	MD	MPa	≥135				
		T D		≥115				
3	Elongation at break	MD	%	≥35				
		T D						
4	Shrinkage, MD and TD 150℃		%	≤1.0				
	400℃			≤3.0				
5	Dielectric Strength	Average	MV/m	≥150			≥130	≥110
		Individual		≥100			≥80	≥70
6	Surface resistivity At 200℃		Ω	$\geq1.0\times10^{15}$				
7	Volume resistivity At 200℃		Ω.m	$\geq1.0\times10^{13}$				
8	Relative dielectric constant 48~62Hz		——	3.5 ± 0.4				
9	Dielectric loss factor 48~62Hz		——	$\leq4.0\times10^{-3}$				
10	Long-term thermal resistance index		——	≥180				

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn



TJ6251 Polyimide Film Adhesive Tape F46

Standard No.:Q/01-2007

Application scope: This product is made from Polyimide film with single surface or double surfaces covered with glue F46 adhesive and cut after drying, The tape applies to be grade H insulation material of electrical wire winding, which is molded by melting at 350-380℃ for half a minute.

Technical specification:

1.Appearance: The tape is clean and smooth, free of air bubbles or impurity, etc

2.Dimension

1)Length: The general lenght of each roll of the tape is no less than 300m, the parts of the roll is no more than 4. The length of the shortest part is no less than 10m.

2)Width and acceptable tolerance of tape is 10mm±0.5mm, 15mm±0.5mm, 20mm±1mm and 25±1mm . Tapes with other width specifications can be supplied according to the requirements of customer.

3)Thickness: Standard thickness and acceptable tolerance. Tapes with different thickness can be supplied according to the requirements of customer, The acceptable tolerance is±0.006mm

3.General properties

No.	Index Description		Unit	Index value
1	Tensile strength		Mpa	≥78
2	Elongation at break		%	≥30
3	Adhesive Shength	Tape to tape	N/25mm	≥4.0
		Tape to copper		
4	Dielectric strength		MV/m	≥90
5	※ Surface resistivity		Ω	$\geq 1.0\times10^{12}$
6	※ Voloume resistivity		Ω.m	$\geq 1.0\times10^{13}$
7	※ Dielectric constant, 50Hz			2-3
8	※ Tangent of dielectric loss angle 50Hz			≤0.01

TJ241 Polyimide film Thermosetting and Pressure-Sensitive Adhesive Tape

Standard No.:Q/02-2007

Application scope: This product is made from Polyimide film painted with F grade thermosetting and pressure-sensitive adhesive on single surface. This tape will be thermosetting at temperature of 170-180℃ for 3-4 hours. It can be used for H grade insulation of motors, electrical equipments and cables.

Technical Specification

1.Appearance: the surface of the tape is smooth,without air bubbles and moving adhesive; adhesive layer shall not shift; the edges of the tape is tidy and without damage.

2.Dimension:

1)Length: total length of a roll of the tape is 40-60m, the parts of a roll should be no more than 3 , the length of the shortest part should be no less than 10m

2)Width: 10-50mm,acceptable tolerance is ±1mm, when the width is more than 50mm, the acceptable tolerance is ±1.5mm; we can supply tapes with other widths according to the requirement of customer.

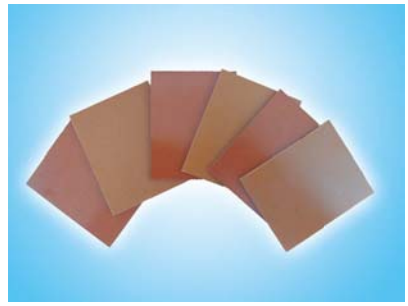
3)Thickness and acceptable tolerance: we can supply tapes with different thicknesses according to the requirements of customers, their acceptable tolerance is±0.01mm

3.General properties

No.	Description	Unit	Index value
1	Tensile strength	Mpa	≥70
2	Elongation	%	≥30
3	Adhesive force on base material before and after solidification	N/25mm	≥1.5
4	Adhesive force on copper material before and after solidification	N/25mm	≥1.5
5	※ Electric strength	MV/m	≥70

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

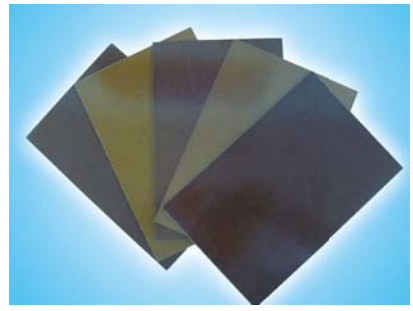
Phenolic Paper Laminate Sheet



Type:3020 3021 series, PFCP series, F820 series, F821

Characteristics & Applications: Thermal grade E, widely range of applications, for examples: suitable for using as insulation structural parts of machinery and electric equipments,such as electric generators, motors , switch board,etc.

Phenolic Cotton Cloth Laminates Sheet



Type:3025 series, 3026, 3027, 3028, PFCC series, F850(C) F851(CE), F852(L), F853(LE)

Characteristics & Applications: Thermal grade E , widely range of applications in mechanical and electrical field, for example: suitable for using as insulation structural parts of machinery and electric equipments, such as electric generators, motors , switch board,etc.

Epoxy Glass Cloth Laminates Sheet

Type:3240series,F880(G-10),F881(FR-4),F882(G-11),F883(FR-5),F884

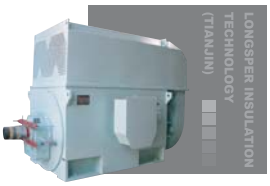
Characteristics & Applications: With high mechanical strength,electrical properties and good moisture resistance properties, widely range of applications ,for example: suitable for using as insulation structural parts in electric equipments,such as electric generators,motors,etc.

Nominal dimension of electrical insulation laminate sheet:
1020mm*2040mm ;1020mm*1220mm; 1220mm*2460mm
Thickness: 0.5mm-50mm

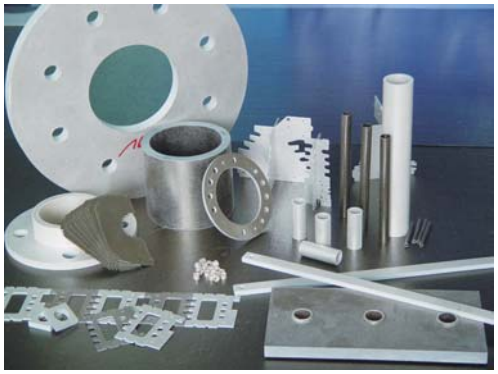
Molded Rod(Tube)

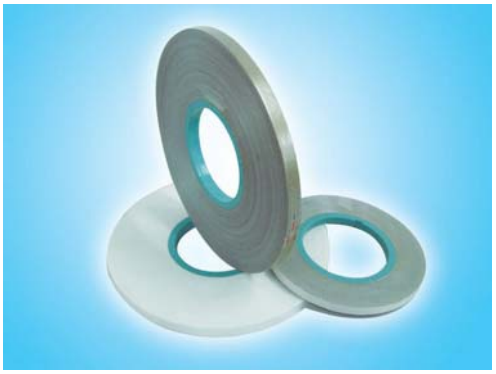
Type:
3721,3721-1,3722,3723,3724,3725,3840,3841,3841F,
(3520,3526,3640)
Characteristics & Applications: General mechanical and electrical applications

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn



Mica Product





Item	Unit	Phlogopite mica tape with glass cloth single side				
		0.08mm	0.11mm	0.12mm	0.13mm	0.15mm
Width	mm	4.5 --- 880				
Length	m	500 、 1000 、 2000				
Thickness	mm	0.08 ± 0.015	0.11 ± 0.015	0.12 ± 0.015	0.13 ± 0.015	0.15 ± 0.015
Breakdown Voltage	KV	> 1.2	> 1.5	> 1.6	> 1.7	> 2.0
Tensile Strength	N/ 15cm	≥ 130	≥ 180	≥ 200	≥ 200	≥ 200
Binder Content	%	13 ± 3	13 ± 3	13 ± 3	13 ± 3	13 ± 3
Mica Content	%	>60	>65	>65	>70	>75
Fire Grades	℃	950 ℃ -- 1000 ℃ ,IEC331				

Item	Unit	Phlogopite mica tape with PP/PE film single side	
		0.10 mm	0.135 mm
Appearance		No alien material, No split, Scar &hole, No broken& folded, No patched place	
Width	mm	6------880	
Length	m	500 、 1000	
Thickness	mm	0.10±0.015	0.135±0.015
Breakdown Voltage	KV	＞ 5.0	＞ 5.0
Tensile Strength	N/ 15mm	≥130	≥130
Binder Content	%	8±3	8±3
Mica Content	%	＞ 65	＞ 75
Fire Grades	℃	950 ℃ --- 1000 ℃ , IEC331	

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

Muscovite rigid plate

USE: The long-run working temperature of muscovite flexible plate is 550℃, mica plates is mostly used with industry electric cooker, copycat, baker, family oven, electric cooker, electric boiler, toaster, hair dryer, warm air blower, electron iron, micro-wave oven, bread oven, electric iron, electric sanitize cabinet, thermos, main frequency furnace, stove, arc furnace, heater, water heater and so on .

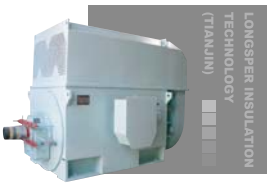
Type	Muscovite Plate HP5
Mica paper	Muscovite
Binder	Silicon resin
Mica content	≥90%
Binder content	≤10%
Thickness(mm)	0.2 ～ 1.0
Density(g/cm^3)	1.6-2.2
Work temperature （ ℃ ）	550 ℃
Standard size(mm)	1000×600 1000×1200
Standard reference	GB5019 — 85, IEC371

Muscovite flexible plate

USE: The long-run working temperature of muscovite flexible plate is 550℃, Flexible plates is provided with very good plasticity, it can adjust the plasticity degree at random according to the demand of product. the flexible mica plates can be rolled into cylinder shapes of 10mm in diameter. Mica plates are widely used in electrical appliances such as toaster, hair dryer, micro-wave oven and warm air blower, etc.,

Type	Muscovite Flexible Plate HP5(R)
Mica paper	Muscovite
Binder	Silicon resin
Mica content	≥90%
Binder content	≤10%
Thickness(mm)	0.2 ～ 1.0
Density(g/cm^3)	1.6-2.2
Work temperature （ ℃ ）	550 ℃
Standard size(mm)	1000×600 1000×1200
Standard reference	GB5019 — 85, IEC371

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn



Phlogopite plate

USE: Phlogopite mica plates is 850℃ which is a new style electric heating material, is fitting to valve electrode, insulation brace and insulation gasket, etc. mica plates is mostly used with industry electric cooker, copycat, baker, family oven, electric cooker, electric boiler, toaster, hair dryer, warm air blower, electron iron, micro-wave oven, bread oven, electric iron, electric sanitize cabinet, thermos, main frequency furnace, stove, arc furnace, heater, water heater and so on .

Type	Phlogopite Plate HP5(J)
Mica paper	Phlogopite
Binder	Silicon resin
Mica content	≥90%
Binder content	≤10%
Thickness(mm)	0.2 ～ 1.0
Density(g/cm^3)	1.6-2.2
Work temperature （ ℃ ）	850 ℃
Standard size(mm)	1000×600 1000×1200
Standard reference	GB5019 — 85, IEC371

Phlogopite flexible plate

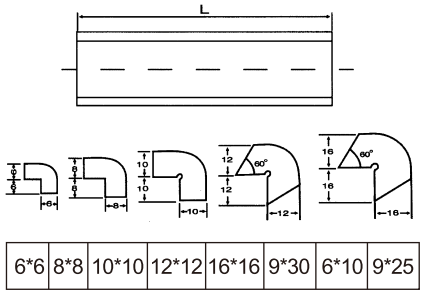
USE: Phlogopite mica plates is 850℃; Flexible plates is provided with very good plasticity, it can adjust the plasticity degree at random according to the demand of product. the flexible mica plates can be rolled into cylinder shapes of 10mm in diameter. Mica plates are widely used in electrical appliances such as toaster, hair dryer, micro-wave oven and warm air blower, etc., and other electrical heaters which require high-temp electro-insulation.

Type	Phlogopite Flexible Plate HP5(JR)
Mica paper	Phlogopite
Binder	Silicon resin
Mica content	≥90%
Binder content	≤10%
Thickness(mm)	0.2 ～ 1.0
Density(g/cm^3)	1.6-2.2
Work temperature （ ℃ ）	850 ℃
Standard size(mm)	1000×600 1000×1200
Standard reference	GB5019 — 85, IEC371

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

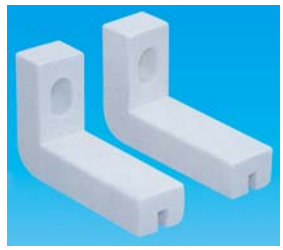
LONGSPER INSULATION TECHNOLOGY (TIANJIN) CO., LTD

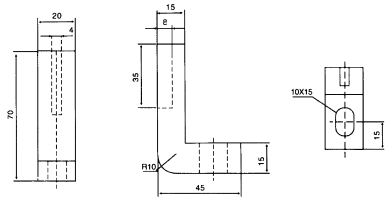
Transformer Component



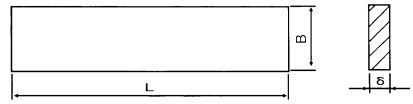
6*6	8*8	10*10	12*12	16*16	9*30	6*10	9*25

"L" Section Strip





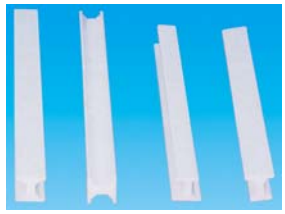
Moulded Compounds For Immobility

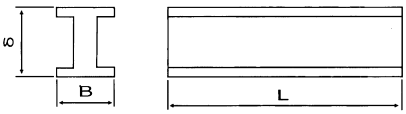


δ	5	6	7	8	6	6	10	20	10	12	18
B	12	13	15	18	19	25	20	20	40	25	25

δ	16	16	16	20	3	2	30	10	3	40
B	30	50	80	30	25	20	30	30	150	40

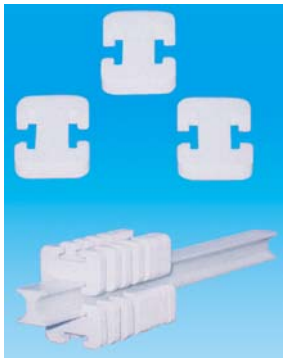
Rectangle Strip

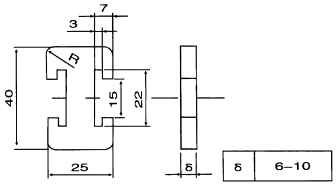




B	12	15		19	25
δ	18	19	24	20	15

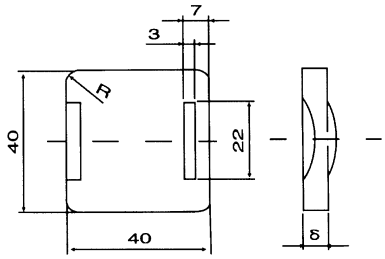
Pultruded Dog Bone





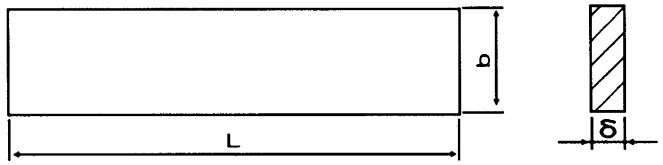
δ	6-10

Moulded Products Match With Dog Bone



δ	6-10

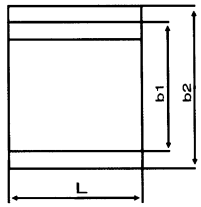
Moulded Insulation Products



δ	1.2			
b	5.4	6.8	8.8	11

Thin Rectangle Profiles

EPR Rod



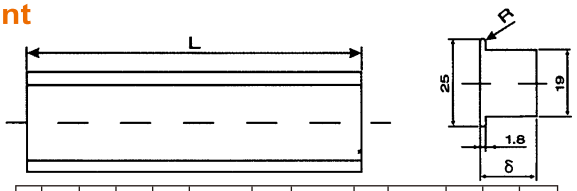
b1	72	82	92
b2	94	104	122
L	114	114	134

Moulded Products For Framework

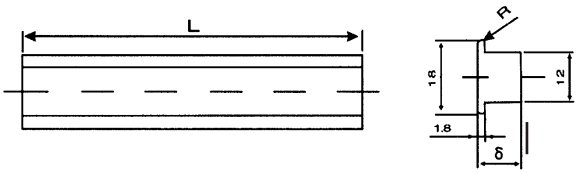
Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

LONGSPER INSULATION TECHNOLOGY (TIANJIN) CO., LTD

Transformer Component



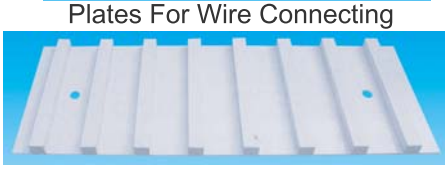
δ	9	10	11	12	13.5	14	14.5	15	15.5	18	20	30
δ	32											



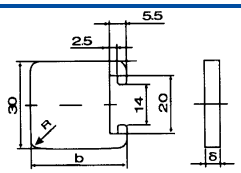
δ	7	10	12	14	15	16	20	25	28	30	33	46	49

"T" Strip

Plates For Wire Connecting



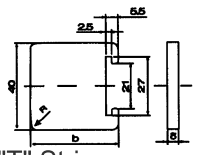
Moulded Insulation Compounds



30mm

B	25	27	29	31	32	34	36	38	40	41	42	43	45	47
δ	3-10													

B	48	50	52	54	55	57	59	61	61.5	63	65	67	69	70	88
δ	3-10														



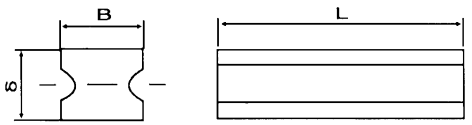
40mm

B	25	27	30	33	35	38	40	41	42	43	45	47	48	50	52
δ	3-10														

B	55	57	59	60	61	63	65	67	69	75	85	95	100	106	123	141
δ	3-10															

Moulded Products Match With "T" Strip

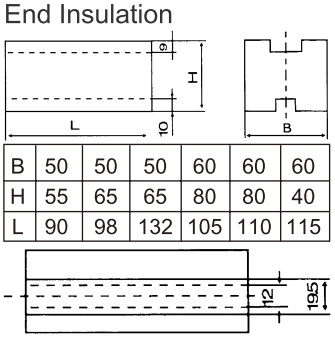
"I" Section Strip



δ	5	6	8	8	8	10	10	12	13	14	15	10	16	17	18	16	19	20	18
B	5	6	6	8	10	8	10	10	10	10	10	15	10	10	14	12	10	10	16

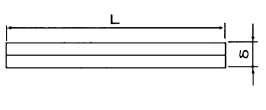
δ	7	15	16	14	20	21	22	24	8	5	16	16.5	18	20	16
B	10	15	16	12	14	19	14	14	15	10	19	20	20	18	14

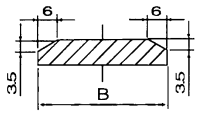
Moulded Compounds For End Insulation



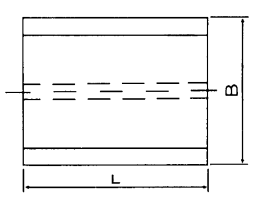
B	50	50	50	60	60	60
H	55	65	65	80	80	40
L	90	98	132	105	110	115

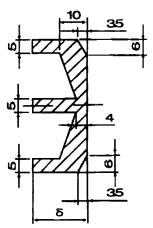
"E" Section Strip





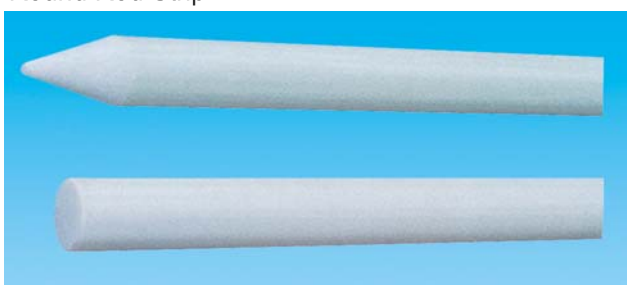
δ	3	7	6	8	10	12
B	50	50	40	40	40	40

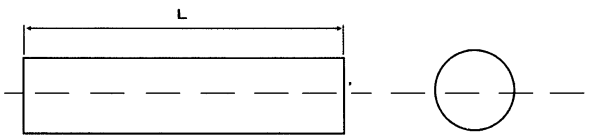




δ	13	15	19
B	50	40	50

Round Rod Strip





ϕ	6	8	10	12	16	18	20

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

Enameled Copper Clad Aluminum (ECCA)

Detailed Product Description

Descriptions:

1) Polyester ECCA wire, Class 130℃

2) Modified Polyester ECCA wire, Class 155℃

3) Polyesterimide ECCA wire, Class 180℃

4) Polyester (imide) coated with polyamide-imide ECCA wire, Class 220℃

Dia Rang: 0.10-2.60mm

Features:

1) DC resistance of ECCA wire is about 1.428 times of the resistance of Enamelled round copper wire. The weight of ECCA wire is 0.583 times of Enamelled copper wire for same Dia. and resistance

2) Good performance in directly weld, the surface of ECCA wire is covered by copper, so the ECCA wire is in good performance of directly weld as Enamelled copper wire

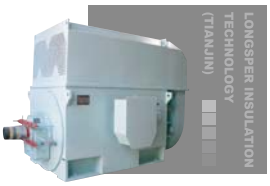
3) Light weight. The density of ECCA wire is bout 0.4 times of Enamelled copper wire, the length of ECCA wire is 2.449 times of Enamelled copper wire while at the same Dia. and the same weight. It is better for you to reduce production cost, if using ECCA wire.

Production Equipment

Test Equipment

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

LONGSPER INSULATION TECHNOLOGY (TIANJIN) CO., LTD



Copper Covered Aluminum Wire

By applying our patented clad-welding technique, the wire is made by fusing a core aluminum wire with external copper cladding. The two different kinds of metals are metallurgically bonded and the copper-cladding thickness remains constantly, so they become a single and indissociable wire.

Characteristics of cca Wire

Nominal Diameter (mm)	Cross section (mm^2)	Copper thickness (mm)		Mass per unit length (kg/km)			DC resistance per unit lenght (/km)20℃			Tensile Strength (Mpa)		Elongation (%)	
		CCA-10%	CCA-15%	CCA-10%	CCA-15%	Copper	CCA-10%	CCA-15%	Copper	A (max)	H (min)	A (min)	H (min)
5.08	20.26	0.089	0.127	67.26	73.54	180.11	1.35	1.32	0.85	138	152	15	1.5
3.86	11.70	0.068	0.097	38.84	36.93	104.47	2.35	2.29	1.47	138	166	15	1.5
3.00	7.065	0.053	0.075	23.45	23.15	62.88	3.88	3.79	2.44	138	179	15	1.0
2.77	6.023	0.046	0.069	19.88	17.81	53.61	4.55	4.44	2.86	138	186	15	1.0
2.20	3.799	0.0385	0.055	12.61	13.54	33.81	7.22	7.04	4.54	138	200	15	1.0
2.15	3.629	0.0377	0.058	12.05	11.98	32.30	7.56	7.37	4.75	138	200	15	1.0
2.05	3.299	0.036	0.051	10.95	11.40	29.36	8.31	8.11	5.23	138	205	15	1.0
1.81	2.572	0.032	0.045	8.539	8.24	22.89	10.67	10.4	6.70	138	205	15	1.0
1.63	2.086	0.02889	0.041	6.926	6.41	18.57	13.15	12.8	8.27	138	205	15	1.0
0.63	0.316	0.011	0.016	1.049	1.15	2.81	88.04	85.0	55.3	138	205	15	1.0
0.50	0.196	0.009	0.013	0.651	0.71	1.74	139.77	136	87.9	138	205	10	1.0

Characteristics Comparision

property \ conductor	CCA wire	Copper wire	Aluminum
Wire copper volume (%)	15	100	0
Specific gravity (g/cm)	3.63	8.89	2.70
Length comparision with copper	2:5:1	1:1	3.29:1
Conductivity (%IACS)	70	100	62
DC resistivity (Ω.mm/m)	0.02462	0.01724	0.02740
Tensile strength (Mpa)	95-135	215-265	68-107
Elongation (%)	⩾10	⩾20	⩾8
Windability	○	◎	○
Weight	○	△	◎
Soldering	◎	◎	△
DC Resistance	○	◎	○

◎ very good ○good △ bad

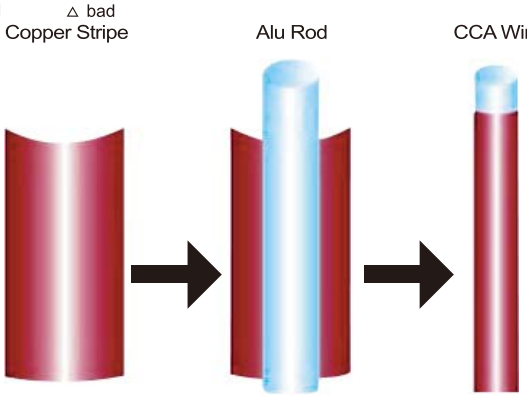
Technical data:

1) Standard carried out:
   SJ/T 11223-2000, ASTM B 566-93
2) Copper/aluminum by volume (%):
   10/90; 15/85
3) Tensile strength: annealed; hard
4) Nominal diameter: 0.30 ~ 10.00mm

Package

Application

Inner conductor of CATV coaxial cable
Inner conductor of 50Ω RF coaxial cable
Inner conductor of leaky coaxial cable
Conductor of computer cable, LAN cable
and others data cables Inner conductor of micro coaxial cable
stranded wire
Conductor of Control cable
Building distribution wire
Busbar
Fusings
Radio frequency shiedling



Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

Enameled Rectangular Wire

Production introduction

Enameled rectangular wire is a type of winding wire made by oxygen-free copper strip or electric round aluminum strip drew or rolled by certain dimension module and then enameled for many times. It is mainly used in transformers, electrical motors, generators and other electric devices.

Products range

PVF enameled rectangular copper/aluminum wire, Class 120/155℃
Polyester enameled rectangular copper/aluminum wire, Class 130℃
Modified polyester enameled rectangular copper/aluminum wire Class 155℃
Polyester-imide enameled rectangular copper/aluminum wire Class 180℃
Polyester-imide/polyamide-imide enameled rectangular copper/aluminum wire Class 200℃

Producing range

A side: 1.00-4.00mm B side: 2.00-14.00mm
Section: 3-50mm^2

Test Standard: IEC60851-1-6

Other items

1. Glass fiber covered copper/aluminum round/rectangle wire
2. Film covered copper/aluminum round/rectangle wire
3. Polyimide film covered copper/aluminum round/rectangle wire
4. Nomex paper covered copper/aluminum round/rectangle wire
5. Glass fiber/polyester film covered copper/aluminum round/rectangle wire
6. Paper covered copper/aluminum round/rectangle wire
7. 500kv insulating paper covered copper/aluminum round/rectangle wire

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

Aluminum wire rod

Aluminum wire rod is produced with the technology of the ingot remelting with specifications geared to ASTM B233 or DIN 1712. Our product are none of deleterious material and comply with the RoHS directive. A wide range of products is offered in 9.5mm, 12.5mm and 15mm Dia. And various diameters and granule are available according to clients' requirements.

Item	Unit	Type			
		No.1	No.2	No.3	No.4
Dimension	mm	9.52			
Tolerance of diameter	± mm	0.51			
Tensile strength	Mpa	59-97	83-117	103-138	117-152
Min. Elongation	%	10			
Min. Conductivity	%IACS	61.8	61.5	61.4	61.3
Max. Resistivity	$\Omega.mm^2/m$	0.027899	0.028035	0.028080	0.028126

Item	Unit	Chemical Requirements
Silicon. Max.	%	0.10%
Iron Max.		0.40%
Copper Max.		0.05%
Manganese Max.		0.01%
Chromium Max.		0.01%
Zinc Max.		0.05%
Boron Max.		0.05%
Gallium		0.03%
Vanadium Plus Titanium Max.		0.02%
Other elements, each Max.		0.03%
Other elements, total, Max.		0.10%
Aluminum Min.		99.70%

Application

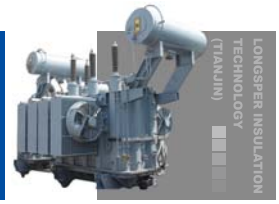
1.Enameled Aluminum Wire

2.Copper Clad Aluminum Wire

3.Electrical Wire & Cable

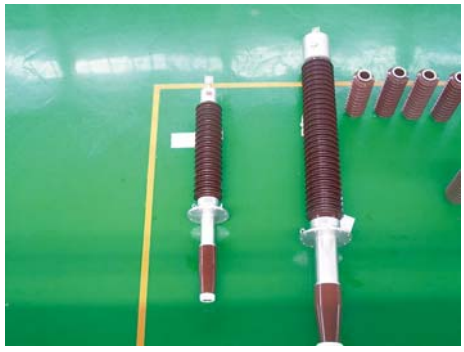
4.Aluminum Clamp

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn

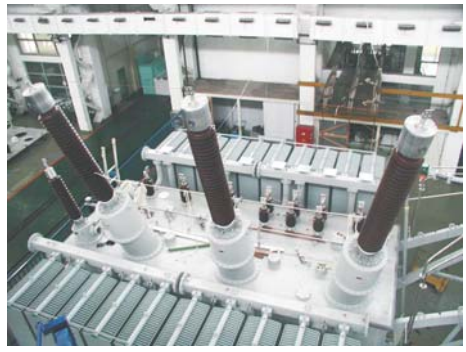


Oil Impreganated Paper Conderser Bushing

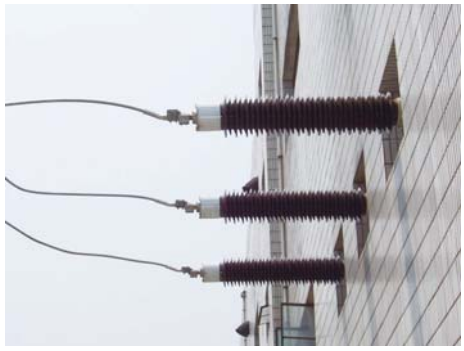
We are the supplier for ABB, Siemens, Areva and Toshiba. Bushing capacity 40.5-252kv



Bushing of 145kv & 245kv for India Areva



Bushings of different Voltage for ABB



Wall Bushing in Operation

Low voltage Flange type Bushing

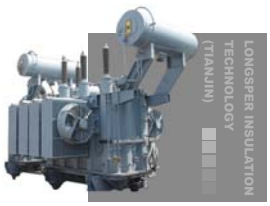
Vacuum Drying Clave for Condenser core

Vacuum Drying System for condenser core

Limited Cantilever withstand strength test

High Voltage Test Equiment

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn



Bushing Type Current Transformer

Workshop of CT

550KV CT outdoor

110KV CT indoor

CT for Toshiba (In GIS outdoor) Dia. 1500mm

Epoxy casting CT of 110,220,1100KV

CT for Hangzhou Siemens

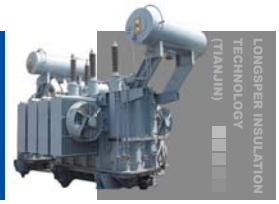
Transformer CT

CTs for Xiamen ABB

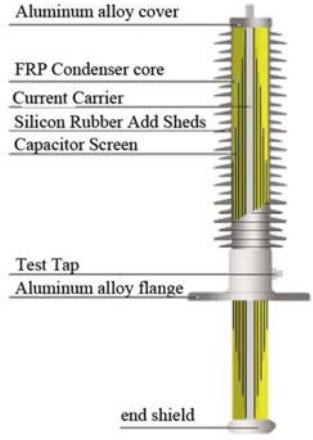
CT in GIS

CT with Turrets

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn



Fiberglass Reinforced Epoxy resin condensor core Dry Type Bushing (FRP Bushing)



Through many years safe operation, our FRP bushing are highly ratified by both users and authoritative experts due to stable performance, high reliability and maintenance-free as well as other advantages. It is devoted to the oil-free, miniaturized and maintenance-free development for the power supply system.

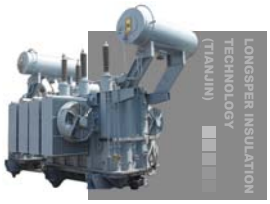
Structure Characteristics:

The major insulation of FRP bushing is capacitance core, which is a pure solid capacitance core solidified under high temperature from insulating layers and capacitive screens that are twisted alternately and arranged one upon another. The insulating layers are made by CNC winding machine according to geodesic line, and capacitive screens are made from semiconductor conformal material. Connecting flange is made of high-intensity aluminum alloy; add sheds increasing creepage distance is molded by once injection of silicone rubber on the surface of capacitance core and forms and organic whole with it; high-intensity porcelain add sheds can also be installed additionally with vacuum casting of epoxy resin between porcelain housing and capacitance core.

Advantage:

A. Oil free, gas free, no filling, maintenance free
B. Large insulation margin for the design and semiconductor capacitance screen, which raise discharge inception voltage to the Max. extent, without partial discharge inception voltage to the maximum extent, with no partial discharge in operation.
C. Heat resisting and fire-retardant insulating material ,with no decomposition, stable electric property, and no danger of combustion or explosion.
D. Compact structure, small volume, lightweight, convenient transportation, installation at any angle.
E. Reinforced winding of fiberglass and optimized mechanical laydown design, high bend strength, excellent mechanical property, suitable for earthquake-affected areas.
F. Short processing cycle, customized according to customer requirements.
G. Slastic composite shell has good antifouling property, self-cleaning without sweeping and applicable in heavily polluted areas.
H. Long service life, low long-term running cost.

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn



Product Range

Wall bushing 12kv-252kv
Transformer bushing 24kv-550kv
GIS outlet bushing 72.5kv-252kv
Oil/SF6 bushing 72.5kv-252kv
Oil/Oil bushing 72.5-252kv
Heavy Current Bushing 5000A-31500A

No Partical Discharge Transformer Bushing

Transformer Bushing

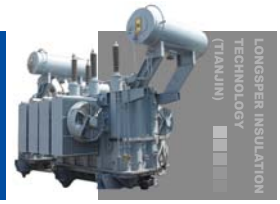
126kv Dry type Porcelain Wall Bushing

126kv Dry type Porcelain Transformer Bushing

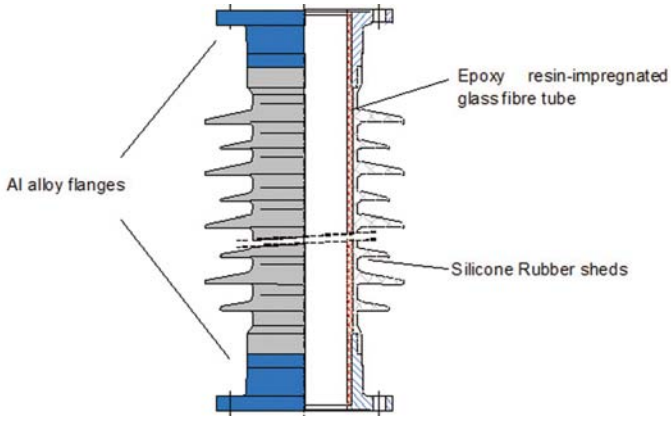
Testing Transformer Bushing

Testing Wall Bushing

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn



Composite Hollow Insulator



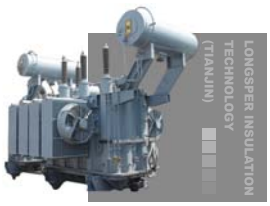
Product Overview

Composite Hollow Insulator is composed of main parts including epoxy fiberglass reinforced twine pipe, silicon-rubber add sheds increasing creepage distance and connecting flange. Epoxy fiberglass reinforced twine pipe, which is the insulating inner part of composite hollow insulator, is processed by special winding machine using epoxy resin presoaked uninterrupted non-alkali fiberglass according to mechanical laydown design and has excellent mechanical strength and dielectric property. As the external insulation of composite hollow insulator, silicon rubber add sheds increasing creepage distance takes on necessary electric functions, such as protecting and providing creepage distance. Connecting flange, which is made of aluminum through compression casting, adopts unique adhesive technology to transfer mechanical load and provide sealing for supporting and connecting structures. Composite Hollow Insulator is suitable for power system between 40.5 kv-550 kv. For example, high voltage electric products like SF_6 transformer, SF_6 line breaker bushing, arrester, high voltage bushing, subsection capacitor, cable terminal, etc.

Main Characteristics

A. Lightweight: reducing breakage danger in transportation and installation, relieving labor intensity.
B. Antifouling property: Even under heavy pollution, it still has supreme electric property, and no additive surface coating is needed.
C. Excellent anti-aging property: In the process influenced by weather and electric, it keeps stable dewatering property. Due to mobility of dewatering property of silicone rubber, no sweeping is needed upon the insulator.
D. Supreme Anti-UV Ability.
E. Explosion proof property: Even under condition of interior over-pressure, people and equipment are quite safe.

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn



Property Index of Fiberglass Reinforced Twine Pipe:

Physical characteristics

No.	Index name	Unit	Index
1	Fiber content	w-%	70-75
2	Density	g/ cm^3	2.00
3	Water absorption	%	0.02
4	Axial thermal expansion coefficient	1/K	9.2E-06
5	Heat diffusivity	w/mK	0.3-0.4
6	Glass Transition Temperature	℃	110-120

Mechanical property

No.	Index name	Unit	Index
1	Tensile elastic ratio, axial	MPa	27000
2	Tensile strength, axial	MPa	230
3	Tensile strength, circumferential	MPa	145
4	Compressive strength, axial	MPa	180
5	Buckling strength, axial	MPa	210
6	Shearing strength	MPa	155

Electric property

No.	Index name	Unit	Index
1	Pulse dielectric strength, axial	Kv/mm	10-12
2	Dielectric strength, axial 50 Hz, 12.7mm ring section	Kv/mm	3-6
3	Dielectric strength, radial 50 Hz, 3mm	Kv/mm	10-12
4	Relative dielectric strength		4.5-5.5

Main property indexes of silicone rubber

Electric property

No.	Index name	Unit	Index
1	Volume resistivity	Ω.m	≮1X10^{12}
2	Breakdown strength	Kv/mm	≮20
3	Loss tangent tgδ	%	≯3
4	Relative dielectric coefficient		≮3.5

Mechanical property

No.	Index name	Unit	Index
1	Tearing resistance strength	KN/ m	≮10
2	Mechanical breaking strength	MPa	≮3
3	Tensile failure extensibility	%	≮100
4	Hardness	Shore	50

Add.: Rm.801, BLK C, Building 2, Xin Li Ju, Xin Wen Hua Garden, Fu'an St., He Ping District, Tianjin, China. 300021
Tel: 0086 22 27314832 / 27307427 Fax: 0086 22 27314830 Mobile:0086 13602059760
E-mail:zlltpyg@hotmail.com Website: www.insulatingmaterial.cn