TIANZE- WELL ELECTRIC CO.,LTD

.HV/MV/LV Power Electric insulation tube / Fuses tube manufacturer

.Supplier for 22 countrys. as ABB COOPER HUBBLE LITTLEFUSE EATON etcs.

.SGS ,ROSH .ISO9001

.OEM for you.

.Hight quality ,Fast shiping. Competitiveness

.Worker:more 150 peoples

.Main Machines:20 Sets . Oven 8 Sets, Grinding machine12 Sets etcs.

. Production capacity More 5million pcs, Output value USD10million Per year.

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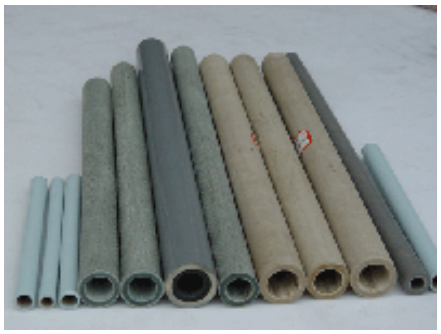
VULCANIZED FIBER TUBE



Vulcanized fiber tube is manufactured by winding zinc chloride treated paper on making mandrel to the predetermined wall thickness. Its are then going through puring, drying, rolling, grinding, and sanding processes to get desired inside and outside diameters .It has good physical properties, mechanical properties, dielectric strength, arc resistance, and arc-quenching characteristics.

Because of its excellent machinability,vulcanized fiber tube can be sanded, knurled, spirally cut, threaded, lathed, and easily fabricated to various products.

Application :vulcanized fiber tubes are fuse cartridges, high voltage cutout fuse liners, fuse link ,lightning, arresters, grommets, insulators, and bushings.

. Color: Gray, Black, Red

Can produce various Size or Color according per customer's requirements as 5 mm to 65mm, ength:8mm to 1000mm ,

ONLY TEST VALUE 12.7mm ID x 19.05mm OD

Vulcanized Fiber Tube	ASTM TestMethod	Rated Value
Density	D 619	1.42g/cm3
Tensile Strength	.	850Kg/CM
Compressive Strength (axial)	D 695	35000psi
Dielectric Strength	.	30KV
Impact Strength	D-256	3.0 Ft lbs/in
Arc Resistance	D 495	More than 95sec
Water Absorption (%, 24 hrs)	D 570	50%
Ash Content	.	1.2%
Zinc Chloride Content	.	0.04% Min 0.07% Max
Thermal Expansion	D 696	1.6

vulcanized fiber tube

fishpaper tube

motor shaft

fiber spacers

ID5mm to ID80mm

Thickness :0.5mm up

Processinging all of types

Stamp your logo

VULCANZIED FIBER COMPLEX EPOXY FIBERGLASS TUBE

Vulcanized fiber Complex epoxy fiberglass tube from import epoxy resin, fiberglass silk, vulcanized fiber tubes . the fuse tube is fabricated by winding a filament-wound glass-epoxy outer tube over an inner tube of vulcanized fiber that provides the arc-quenching properties.T Fiberglass filaments are wound in two directions across each other and at angle of 50-55 degree to the longitudinal axis of the tube with good tensile and burst strength. Surface: UV resistant insulation Painting.

Application :The product is widely used in the fusion tubing of high pressure fallen fusion box design and expulsion fuse tube cutout for interrupting high voltage AC circuits during power surge. cut-out fuses,arc -extinguishing fuses,circuit breaker..

With good machinability, the product can be sawed, cut, bored, and roped silk. All this machinability does not cause flaws like crackle, bedded structure, desquamation . no-spark generating, char layer forming to prevent liner from excessive ablation, and the optimum amount of arc-quenching gas generating.

Color of inner tubing contains red and gray.

Size or Out Color according per customer's requirements For 15KV,27KV,38KV

Item	Unit	Claim
Density	g/cm³	>1.6
Water Absorption	%	<0.5
Cut strength	Pa(kg5/cm²)	>78.4x10³
Curved strength		>1569x10³
Pressure strength		>883xx10³
Compressive Strength, Axial		
(Pressure five minute with normal voltage) Thickness of the wall 2.0 2.5 3.0 4.0 5.0 6.0 7.0 8.0	KV	 14 16 18 20 24 28 30 34
Surface resistance coefficient (500V)	Ω	>1.0x10¹²
Volume resistance coefficient (500V)	Ω x cm³	>1.0x10¹²
At the frequency No. 50 medium dawdle corner tangent	%	<0.05

Diameter:：The least inner diameter is 6mm.The maximal outer diameter is 48mm .Allowable tolerance： Inner diameter：＋/- 0.127 mm Exterior diameter：＋/- 0.08 mm

G5/G9 Melamine Tube

G5/G9 Melamine FUSES TUBE .This grade is composed of a continuous glass woven cloth base impregnated with a melamine resin binder. Melamines are the hardest of all laminates, exhibiting good dimensional stability and arc resistance. It is also caustic resistant. We can custom machine G9 tube to your specification, along with other customized solutions , . Request your quote for custom parts today!

G-9 is a laminate sheet comprised of flame retardant melamine resin and woven fiberglass glass substrate. The two melamine sheet materials are very similar except that the G-9 material has higher resiliency to harsh and adverse environments than the G5. In most cases, the G-9 can be substituted for the G-5.

Application :The G9 material has high strength and excellent arc resistance and electrical insulating properties which allows it to be used as mechanical support in electrical equipment, switchgear, and slot wedges where Class "B" insulation is required 。

Size :ID4mm to ID 80mm ,length:200mm to 1000mm. Color : white

- **G5/G9 TUBE TEST REPORT A :**

NO	NAME	UNIT	VALUE	TEST
1	Density	g/cm3	≥1.8	1.89
2	Water Absorption	%	≤0.4	0.37
3	Compressive Strength	Mpa	≥70	98
4	Flexural Strength	Mpa	≥150	160
5	Cut Strength	Mpa	≥12	16
6	Dielectric Strength, volt/mil Perpendicular to Laminations	KV/mm	≥6	8
7	Volume resistance rate(180℃)	MΩ.m	≥1.0*105	1.0*1011

- **G5/G9 TUBE TEST REPORT B:**

NO	NAME		UNIT	VALUE	TEST
1	Density		g/cm3	≥1.7	1.89
2	Flexural Strength		Mpa	≥117.6	125.3
3	Compressive Strength		Mpa	≥68.6	70.5
4	CutStrength		Mpa	≥9.8	9.92
		generally	MΩ.m	≥1.0*105	1.1*105
5	Volume resistance rate	water		≥1.0*103	1.0*103
		180℃		≥1.0*103	1.0*103
6	Temperature Resistance		℃	≥350	425

Synthetic liner material Arc Quenching Fuse Tube

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Synthetic liner material fuse tube is new generation of products developed by our company to replace the winding composite tube. Compared with the vulcanized fiber tube fusion tube, there is a qualitative leap in the manufacturing process and product performance. Polymer fusion tube is formed through the curing of a variety of polymer raw materials (partly imported) by a chemical reaction. The hazardous substances such as small molecules of gas, waste water, etc. may not be generated in the process. With the stable performance, it applies to the moist and dry areas and the areas with large temperature difference between day and night.

Size:ID10mm to ID30mm ,Length :1000mm ,inner:yellow ,out :paint your needs . For 15KV,27KV,38KV

Synthetic liner material fuse tube index :

S1	Density	g/cm3	≥1.60	1.7
2	24h water absorption	%	≤0.2	0.03
3	Power frequency withstand voltage test after six-month outdoor operation	kV	-	≥60KV
4	Explosive strength	KN	≥22	30
5	Tensile strength	KN	≥11	22
6	Type experiment: (200A 16KA mode 1, mode 2) polymer fusion tube can break more than 5 times, with very little consumption			

Its supply for ABB ,COOPER, HUBBLE, Eaton of china etcs.

Comparing on Bone fiber and synthetic liner material for fuse links

Bone fiber is susceptible to water absorption which can cause swelling and delamination of the liner. This may prevent fuse holder drop out as the swollen liner may bind the fuse link not allowing it to free itself from the fuse holder.

fuse cutouts use synthetic liner material .Compared with the bone fiber vulcanized fiber tube fusible tube, there is a qualitative leap in the manufacturing process and product performance. synthetic liner Polymer fusion fusible tube is formed through the curing of a variety of synthetic liner polymer raw materials (partly imported) by a chemical reaction. The hazardous substances such as small molecules of gas, waste water, etc. may not be generated in the process. With the stable performance, it applies to the moist and dry areas and the areas with large temperature difference between day and night.

Epoxy FiberGlass Winding Tube / G10 Bushing

High-voltage current-limiting fuse tube
low-voltage current-limiting fuse tube
Arrester special
Power operating lever
Wind sleeve /bushing (40.5A/80A)

Epoxy FiberGlass Winding Tube is made of glass fibers and epoxy resin have besides very good mechanical properties and fair temperature resistance also excellent electric insulation properties.it is a glass fabric base rolled tube bonded with a epoxy resin. This grade has heat resistant properties .It possesses excellent electrical properties, and low water absorption when exposed to high humidity conditions.

Advantages:- Light weight,- Non-Conducting,- Corrosion resistant,- Wear resitant,- Can be customizd,- Can be OEM,- Deliver fast

Application: The Tubing of epoxy resin fiberglass forms in the process which non-alkali fiberglass dipped epoxy resin liquor twists along tubing axis with 50-60 degree, It can be used as insulation construction parts in electric apparatus, under moist condition and in transformer oil; can also be used in space navigation industry as parts of radar, rocker, aircraft; in navigation as sound-permeable material of sonar; in petroleum chemical industry as corrosion-and solvent-resisting material.

The product can be sawed, cut, bored, and roped silk.

Class	Parameters
Temperature resistance	Level B: 130℃; level F: 155℃, level H：180℃(temperature resistance customizable),
Raw materials	Epoxy resin + alkali-free glass fiber
Product color	Light green, other colors customizable
Glass fiber content	70～75%
Inside diameter range	6～150mm
Length range	5～2200mm
thickness	≥0.8mm
Surface smoothness	Processed according to customer demand
Mechanical strength	HIGH
Quality certification	ROHS

Note: The above test data derived from the real sample testing data, and our company can customize the products according to customer demand.

Epoxy FiberGlass Winding Tube Performance Test Data						
No	Item		Unit	Requirement	Testing Result	Detection Method
1	Density		g/cm3	≥1.70	1.98	GB/T 5132-2009
2	Water absorption		%	≤0.2	0.03	GB/T 23100-2008
3	Axial compressive strength		Mpa	≥150	161	
4	Interlaminar shear strength		Mpa	-	35.6	
5	Power frequency dielectric loss factor		-	$\leqslant 5x10^{-2}$	$5.3x10^{-3}$	
6	Parallel course withstand voltage (90℃ ± 2℃oil, 40KV, 1 min)		-	-	pass	GB/T 5132-2009
7	Vertical course withstand voltage (90℃ ± 2℃oil, 20KV, 1 min)		-	-	pass	
8	Insulation	Normal	Ω.m	-	$3.4x10^{14}$	
9	resistance	24h after immersion		-	$7.0x10^{13}$	
10	Partial	Starting voltage	kV	-	55.1	GB/T 7354-2003
11	discharge	Extinction voltage	kV	-	51.8	
12	Lightning impulse breakdown voltage (axial, in normal oil)		kV	-	327	GB/T 1408.3-2007

Epoxy fabric tube

Epoxy fabric tube is formed by high temperature curing of the non-alkali glass fabric impregnated with epoxy resin. With the high mechanical properties, heat resistance and dielectric properties, it is suitable for the electrical equipment as the insulation parts, and may be used in wet conditions and transformer oil..

Class	Parameters
Temperature resistance	Level B: 130℃; level F: 155℃, level H：180℃(temperature resistance customizable)
Raw materials	Epoxy resin + alkali-free glass fiber
Product color	Light green, other colors customizable
Glass fiber content	65～75%
Inside diameter range	6～150mm
Length range	5～1800
Wall thickness	≥0.8mm
Surface smoothness	Processed according to customer demand
Mechanical strength	High
Quality certification	ROHS

Performance Test Data

NO	Items	Unit	Requirement	Testing Result	Detection Method
1	Density	g/cm3	≥1.70	1.90	GB/T 5132-2009
2	Water absorption	%	≤0.2	0.03	GB/T 23100-2008
3	Axial compressive strength	Mpa	≥150	161	

High Strength/Temp Filament Wound Tube

High strength/Temp filament wound tube .Filament wound is a versatile process for producing composite sections in a hollow or tubular form, by winding resin impregnated fibres onto a rotating mandrel. The physical properties of the tube can be controlled by altering the types of resin and reinforcement and by varying the angle at which the fibres are wound onto the mandrel. This process can be carried out under computer control and, if required, the final component can be made with a combination of different wind angles.

Fibre Reinforcement

Glass, when drawn into fine fibres of 10-15 micron diameter, has a very high tensile strength - up to 4000 MPa, or about ten times that of steel. However, to make a usable material, the glass fibres have to be bonded together with synthetic resins. Other fibres such as carbon, aramid (e.g. Kevlar), polyester, cotton and asbestos can be used, where their special properties are sought.

Resins

Thermosetting resins are used in the manufacture of Filament Wound tubes. Epoxy resin is used for the majority of TUFNOL Filament Wound Tubes but polyester, vinyl-ester and acrylic (Modar) resins are also used, with glass or other fibres. Special resins can be formulated for particular high temperature, electrical performance or chemical resistance

Size : 8mm to 800mm

Max length:12m

Thickness :0.5mm-more

) Excellent mechanical strength,

2) High mechanical load

3) Endure high Voltage ,10-1000KV

4) Light weight

5) Adjust the winding angle to satisfied with your any mechanical strength demand

6) Thickness is from 1mm to more 7) Work temperature:B (125C)/ F(155C)/ H(180C)/ 220-250 C

High strength/Temp filament wound tube

Item		Uint	Value
Density		g/ cubic centimeters	more than 1.9
Compression Strength		Mpa	more than110
Shearing Strength		Mpa	more than 25
Bending Strength		Mpa	more than210
Bending Strength(Circumference)		Mpa	more than 400
Air tightness	Gas pipe	Mpa	2.94 No leak
	Oil pipe		58.8
Surface breakdown voltage after wettingin normal air for 1 min with gap between electrodes of 30mm		KV	more than15
Parallel to laminate breakdown voltage (in transformer oil of 90±2 ℃)		KV	more than 25
Perpendicular to laminate breakdown voltage (in transformer oil of 90±2 ℃,5min wallthickness 4mm)		KV	more than 22
Dielectric loss factor 50 Hz			less than0.01
Leakage current (between gap of 500mm at 40 kv dc500mm40KV		MA	less than 1
Content of fiberglass		%	70
Water absorbtion rate		%	less than 0.02

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