

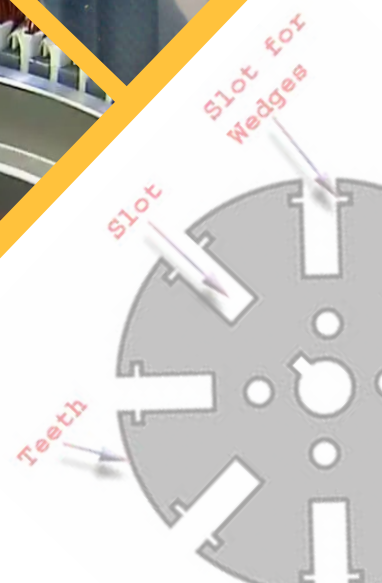
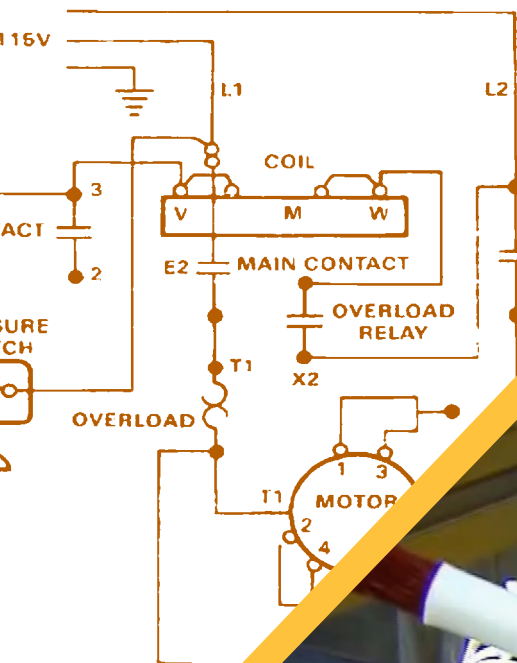


HARNAWA

INC

SINCE 1972

ELECTRICAL INSULATION MATERIAL
OF CLASSES 'A', 'B', 'F', 'H' & 'C'



www.harnawainc.com
An ISO 9001:2015 Certificated Company

We feel immense pleasure to introduce ourselves as a reputed manufactures and representative dealers of Insulating Materials of Class 'A', 'B', 'F', 'H' & 'C'.

We are into this business since last more than 40 years and are an ISO 9001:2015 Certificated company. Our products are well received by all Electrical & Electronic Industries such as Electrical Motor Industries, Transformers Industries Turbo Generators Mfg., Control Panels Mfg., Carbon Brushes mfg, Switch Gears Industries, Fixtures Mfg., Traction motors Mfg. & other Heavy & Medium Electricals Industries.

Our manufacturing products are CE & RoHS certified, approved and consumed by Government, Semi Government & Public Ltd. Companies and Industrial Institutes & many other leading industries.

WHY US?

Harnawa is India's #1 source for electrical insulation materials of industrial-grade products. For over 45 years Harnawa has built a tradition of serving businesses with effortless ways to get the products and services they need. We do this by providing and maintaining a huge selection of electrical insulation products.

Our world-class supply chain means we can get those products across the country with next-day delivery options and express international shipments with our tie up with top courier services.

If digital is your thing www.harnawa.in offers powerful online approach that makes ordering and getting in touch fast, easy and ready to go with help of our [live chatting](#) whenever and wherever you are. [For all the things you do to get the job done, we got your back.](#)

INDUSTRY LEADING END-TO-END ELECTRICAL INSULATION PRODUCTS

We are focused on emerging customer needs and innovation in industry. Our customers are the reason we're in business, they use our products to build a better world. Focusing on the end customer has always been and will always be our highest priority to ensure they are more successful working with us.

Now, we're intensifying that focus around a rapidly evolving set of customer needs, working to provide different products for different application needs. We aim to increase customer value and loyalty over the life of our relationship.

STRONG SERVICE OFFERINGS

Count on the reliability of our experienced team and supply chain, with same-day dispatch and next-day delivery options at various domestic locations and express services for international shipments.

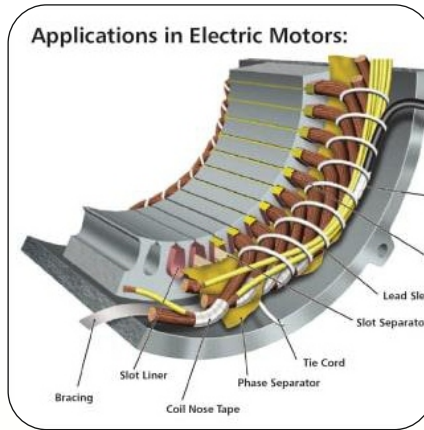
EFFORTLESS ORDERING

Order by phone / mail / text or at a branch from our contact details provided or Harnawa's personalized web experience and live chat. Get free technical product support from industry experts and 24/7 customer service.

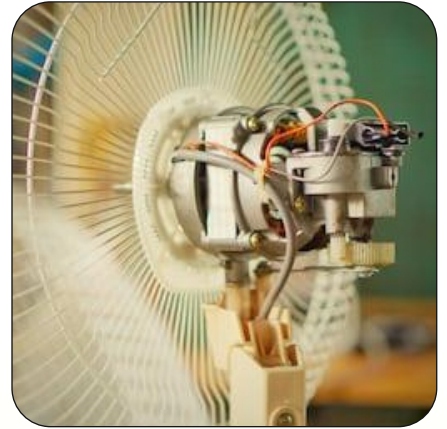
INDUSTRIES WE SERVE



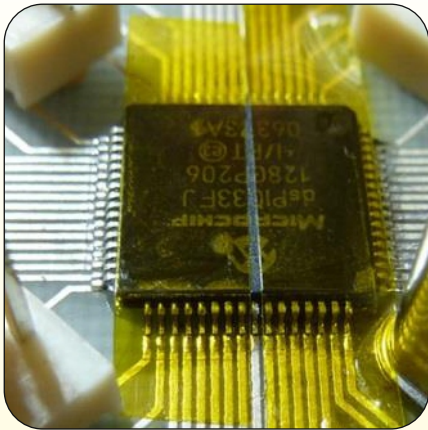
**POWER DISTRIBUTION
TRANSFORMER**



ELECTRIC MOTOR INDUSTRIES



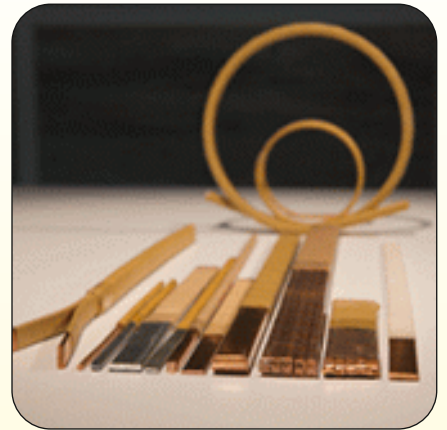
DOMESTICS APPLIANCES



INDUSTRIAL ELECTRONICS



SWITCHGEAR & CONTROLLER



CABLE & CONDUCTORS



INSTRUMENT & INSTRUMENTATION



**CONTROL & AUTOMATION
DEVICES**



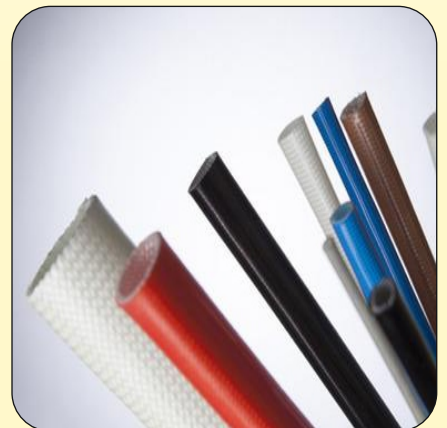
**ELECTRIC VEHICLE MOTOR
INDUSTRY**



**STEEL / CHEMICAL METAL
INDUSTRIES**



BATTERIES



ELECTRICAL INSULATION

Fiberglass & Other Insulated Cables



Fiberglass Cables



DMD Cables



Silicon Cables



Teflon Cables



Cables Harness

Fiberglass & Insulation Sleeves (1.5kv, 2.5kv, 4 Kv, 7kv)



Silicon FG Sleeves



PU FG Sleeves



Fire Sleeves / Pyro Sleeves



Varnished FG Sleeves

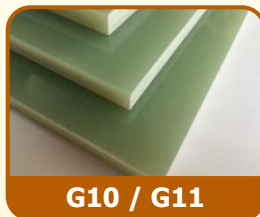


Heat Shrink Tube

Glass Epoxy Sheets, Wedges & Components



FR4



G10 / G11



3240



Glass Epoxy Wedges

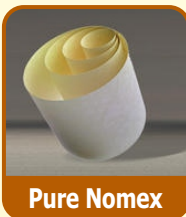


Glass Epoxy Components

Electrical Insulation Papers & Laminated Sheets



Laminated Nomex



Pure Nomex



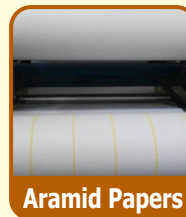
Polyester Films



Laminated Fleece (DMD)



Kraft Paper / Press Paper



Aramid Papers



Slot Insulation Papers

Electrical Insulation Tapes & Cloth



Fiberglass Tapes



Polyester Woven Tapes



Polymide Tape



Nomex Tapes



Fiberglass Cloth

Widing Wires & Other Insulation Material



Enamelled Aluminium wire



Press Board



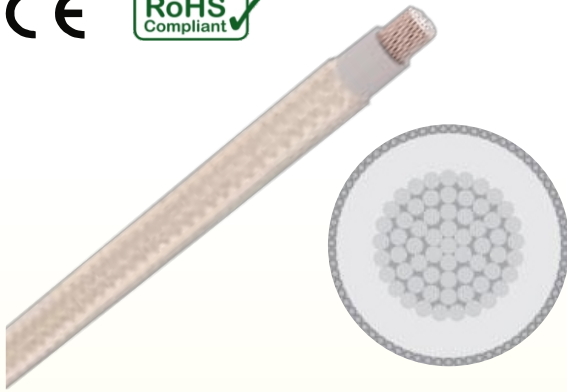
FRP Sheets



Dr. Beck Varnishes



Slitting Services



Fiberglass Cables

We are one of the leading company for providing an extensive range of Fiberglass cables. These cables are known for their good moisture resistance, chemical resistance and fair abrasion resistance. Our wide range of fibreglass cables finds application in, industrial ovens, agriculture pumps, electric motors, heater, lightning, automobiles and many electronic appliances. We produce these cables with respect to industry standards and as per clients requirement.

Products Details:

Brand	FPC Cables
Insulation Class	'F' & 'H'
Brand	FPC Cables
Color	As per requirement
Material	Fiberglass Braided Copper Wire
Length	100 Meters
Conductor Type	Bare copper / Tinned copper / SS
Packaging Type	Blue reel / Spool
Surface Treatment	Braided
Temperature Range (Degree Celsius)	155-180
Voltage (Volt)	600/1100
Power	6 kv
Diameter	0.50 sqmm - 240sqmm

Conductors

- Bunched Tinned Copper As per "IS-8 130- 1976 Class-5" (TPC)
- Bunched bare copper (BC)
- Bunched Nickle plated copper (NPC)
- Bunched Silver Plated Copper (SPC)
- Bunched Stainless steel & Bare copper (SSBC): Heater special
- Bunched Stainless steel & Tinned copper (SSTC): Heater Special
- Layers of DMD Wrapped & braided with Fiberglass Yarn or Polyester yarn
- Layers of DMDT Wrapped & braided with Fiberglass Yarn or Polyester yarn

Inner Sheath:

- Mylar (Polyester Tape) Wrapped
- Teflon (PTFE) Tape Wrapped
- Silicone extruded conductor
- Kapton Tape Wrapped

DMD Cables

Equipped with sophisticated and imported high-speed lines, HT produces a wide variety of DMD cables for refrigeration applications. Entire production process passes through stringent quality checks at incoming and in process stage for quality output. Our production process involves no manual operation and is controlled with online high voltage inspection systems. **100% high voltage inspection ensures zero defects throughout the life cycle.**

Wire is meticulously tested on various quality parameters to ensure it passes all the prescribed tests under UL requirements. We have 3 UL Styles, 5048, 5124, 5523 for our range of DMD/DMMD/DMMDD cables.

Applications

They are used in cooling systems in places requiring refrigerants and chemical conformity and for the inner connections of compressor engines.

Structure

1. Conductor : High flexibility electrolytic conductor.
2. Insulation I : Dacron polyester yarn
3. Insulation II : Mylar foil
4. Insulation II : Dacron polyester yarn

Technical Specifications

1. Conductor : EN 60228 class 6
65x0,127 mm
2. Operating Temperature Max. : 600 V
3. Test Voltage : 2000 V
4. Storage Temperature Max. : +40 °C
5. Electrical Tests : EN 50395



Silicon Cables

Technical Data*

Special silicone rubber single cores with high temperature resistance & performance

Op. temperature -60° to 180°C

Max. temperature +250°C short time

Nominal voltage U₀/U 300/500V

Test voltage 2000V

Insulation resistance 10 x10³ / cm

Min. bending radius 15x cable dia

Conductor tinned / nickel / silver plated
bunched / stranded copper conductors

Colors all standard colors

Tolerance on OD + 0,10 mm < 2.5mm²
+ 0,20 mm > 2.5mm²

Applications

FPC Cables silicone rubber cables are special cores for use in low & very high temperature areas mainly in steel industries, aviation, shipping as well as cement, glass and ceramic factories.

Silicone being totally non-toxic, flexible & odourless it can be used by the food & beverage, pharmaceutical, medical, surgical & electrical industries.

These cables are most suited for power station as they are also halogen free.

Resistant to

High temperature

Flame (no flame propagation in fire)

Radiation upto 20Mrad

Corona ozone

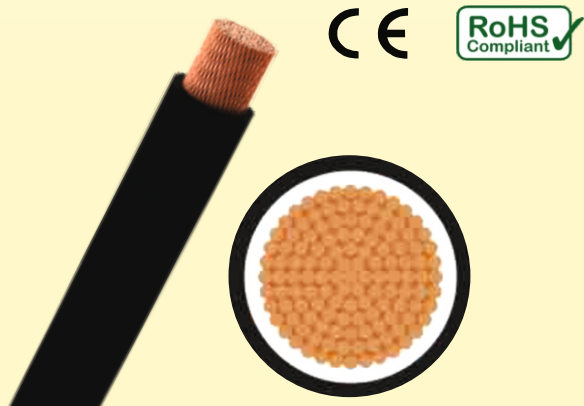
Vegetable & animal fats

Alcohol, Lyes & salt dissolution

Diluted acids & oxidation substances

Lake water, oxygen & UV

*Single core cables upto ambient temp. of 150°C,
installed in open air with a space of min.
1x diameter to wall.*



Teflon Cables (PTFE)

We manufacture variety of PTFE insulated hook-up wires in small-to-large gauge, solid as well as stranded prominently used for making internal connections inside electrical or electronic devices. Our Standard wires satisfy the International Standard MIL-W-16878 & BS3G210 and Indian Standard JSS 51034.

PTFE wires has outstanding mechanical, thermal & electrical properties which makes it most suitable even at temperature ranging as high as 260°C and as low as minus 65°C

Conductors	SPC/NPC/BC
Insulation	PTFE Tape Wrapped Sintered (TWS)
Voltage Rating	250V/600V1000V/ As per customer Requirements.
Temp. Range	ve 65°C to +ve 260°C

HV Test

Type	Spark Test (For One Second)	Dielectric Test (For One Minute)
ET (250V)	2.5 KVAC	1.5 KVAC
E (600V)	3.5 KVAC	2.0 KVAC
EE (1000V)	5.0 KVAC	3.0 KVAC

Advantages of PTFE as insulation Material on Wires and cables

- Non propellant to flame.
- Inertness to almost all chemicals.
- Excellent thermal stability suitable for use from -65°C to +260°C.
- Best dielectric properties in any flexible insulation.
- Unaffected by lubricants. hydraulic fluids and aircraft fuels.
- Immune to ageing. fungus and water absorption.
- Withstands over heating due to temporary current over loads.
- Smaller size, more flexible, lighter weight and much higher reliability.

Key Applications of Our Wires & Cables

Our manufactured wires, cables and sleeves are being used in various industrial applications and industries including:



Silicon Coated Fiberglass Sleeves

Silicone coated fiberglass sleeving is braided with non-alkali fiberglass yarn and then coated with silicone rubber. It possesses good qualities of dielectric, heat resistance, excellent elasticity and flexibility etc..

These sleeveings are widely used as wiring insulation for H grade electrical motors, machinery, domestic appliances, and electric apparatus, and also as a protection of collected strands of wire and cable.

Features :

- **Thermal Class: H**
- Breakdown Voltage: 1.5 Kv To 10.0 Kv,
- Operating Temperature: -60 -180 , Short Time Peaks At 250
- Flammability: < 60 Seconds
- Standard Color: Light Yellow, Others On Request

Packaging Details :

- For Roll Packaging:
 - diameter 0.5 mm to 4 mm : 200 m
 - diameter 5 mm to 20 mm : 100 m
 - diameter 22 mm to 24 mm: 50 m
 - diameter 26 mm to 30 mm : 25 m
 - diameter 32 mm to 50 mm : 20 m
 - Note : other length can be negotiated
- Inner Packing : Plastic Bag
- Outer Packing: Cartons (Dimension:33*33*57 cm Or 40*40*60 cm)

Standard

- GB/T 7113.5-2011
- IEC 60684-3-400 : 2002

Specifications

Dia Tolerance mm			Wall Thickness mm	
Inner dia mm	CB/T 7113.5-400			
	bialateral (±)	unilateral (+)	Min	Max
0.5	0.10	0.20	0.25	0.50
1/15	0.20	0.40	0.25	0.70
2/2.5/3	0.20	0.40	0.35	0.80
4/5/6	0.25	0.50	0.50	0.8
8	0.25	0.50	0.50	1.00
10	0.50	1.00	0.65	1.00
12	0.50	1.00	0.65	1.20
16/20	1.00	2.00	0.65	1.20
25	1.00	2.00	0.65	1.40

PU Coated Fiberglass Sleeves

Polyurethane coated fiberglass sleeving is braided with non- alkali fiberglass yarn and then coated with polyurethane resin, It possesses good qualities of dielectric, reliable heat resistance,hydrolysis resistance, excellent softness and elasticity.

These sleeveings are used as wiring insulation and mechanical protection for F grade electrical motors, electrical machine and domestic appliances etc.

Features

- **Thermal Class : F**
- Breakdown voltage : 2.5 KV to 4.0 KV
- Operating temperature: 30? -155?
- Short time peaks : 185?
- Standard color : white, amber yellow, others on request

Packaging Details :

- For Roll Packaging:
 - diameter 0.5 mm to 4 mm: 200 m
 - diameter 5 mm to 20 mm: 100 m
 - diameter 22 mm to 24 mm : 50 m
 - diameter 26 mm to 30 mm : 25 m
 - diameter 32 mm to 50 mm: 20 m
 - Note: other length can be negotiated
- Inner packing : plastic bag
- Outer packing: cartons
(Dimension:33*33*57 cm or 40*40*60 cm)

Standard

- GB/T 7113.6-2011
- IEC 60684-3-409:1999

Specifications

Inner dia mm	Dia Tolerance mm		Wall Thickness mm	
	bialateral (±)	unilateral (+)	Nomial	Tolerance (±)
0.5	0.15	0.30	0.50	0.15
1/1.5/2/2.5	0.20	0.20	0.40	0.15
3/4/5/6/7	0.25	0.25	0.50	0.15
8/9/10/12	0.30	0.30	0.60	0.20
14/16/18/20	0.50	0.50	1.00	0.30
25	0.60	1.20	1.00	0.50
30	0.60	1.20	1.50	0.50





Fire Sleeves | Pyro Sleeves

Fire protection fiberglass sleeving is braided with non- alkali fiberglass yarn and coated with silicone resin. It possesses good qualities of dielectric, excellent flexibility, great heat insulation and fire resistance etc.

These sleeveings are specially used in thermal place to cover electrical wire or fluid pipeline as a protection material,such as metallurgy and shipbuilding

Features :

- Impede heat radiation of flame
- Protect operator from burning by hot pipe.
- Impedo heat lost and favor to saving energy.
- Self- extinguishing
- Moisture- proof, water- proof, resistance to oil and Standard brick red and blue, others on request

Packaging Details :

- For Roll Packaging:
 - diameter 6 mm to 70 mm: 20 m
 - diameter 75 mm to 120 mm: 15 m
- Note: other length can be negotiated.
- Inner packing: plastic
- Outer packing; cartons

Standard

- GB/T 7113.5-2011
- EC 60684-3 -400·2002

Specifications

Inner diameter (mm)	Tolerance	Wall thickness (mm)	Wall thickness (mm)	work temperature	Transient temperature	Breakdown voltage
6,8,10,15	1	≥2.0				
18,20	1.2	≥2.3	≥1.0			
25,30	1.5	≥2.5				
35,40,45	2	≥3.3				
50,55	2.5	≥4.0	≥1.2	≥260°C	1300°C	10~15kV
60,65,70,75	3.5	≥4.3				
80,90,100	4	≥4.5	≥1.5			

Fire Sleeves | Pyro Sleeves

Velcro Type

Carbon fiber high temperature insulated fireproof sleeving with velcro, cars installed at current workplace to make sure the correct closed and the integrity of the instruction. The bonding is made of fireproof heat insulated velcro, and adjust a suitable size to make closer. It is widely used in metallurgy Chemical electric power, forging. automobile, petroleum military industry, shipbuilding industry etc coated cable, housing, lubricating oils

- Resistant to molten splash and flame thermal radiation
 - Avoid people suffer from high temperature pipe burning
 - Stop the loss of heat, saving energy and reducing consumption
 - Moisture Proof waterproof and pollution prevention
 - When installation, no need to remove hose and cable, labor saved and work fast
 - Save installation cost
- Continuous working temperature: 560 C
The highest instant exposure temperature: 1650 C
Heat resistance: excellent
Wear-resisting performance excellent
Flexibility good
Water resistance oil resistance: good





Glass Fiber Epoxy Laminate

Grade FR-4

LENGTH AND WIDTH TOLERANCE	: ± 25 MM
AVAILABLE THICKNESS	: 0.15 MM ~ 100MM
THICKNESS VARIATION	: Upto 5 MM \pm 0.10 MM, Above 5 MM \pm 0.50 MM
SIZE	: 610 MM x 1020 MM, 1020 MM x 1020 MM, 1030 MM x 1230 MM
COLOURS	: Lemon Yellow, Golden Yellow, Natural, Green
INSULATION CLASS	: 'F'

DIFFERENCE BETWEEN FR4 & G10 :-

G10/FR4 has extremely high mechanical strength, good dielectric loss properties, and good electric strength properties, both wet and dry. The main difference between NEMA Grades G10 and FR4 is that FR4 is fire retardant grade of G10. Therefore, FR4 can be safely substituted where G10 is called out, while G10 can never be substituted where FR4 is called for.

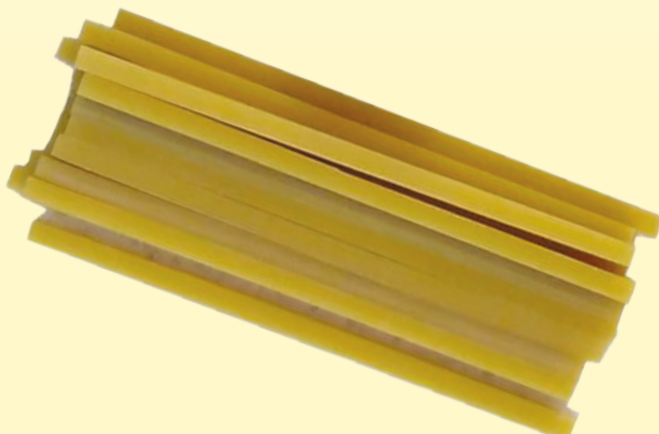
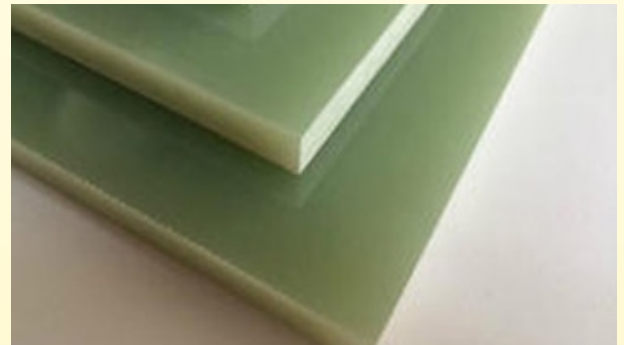
High TG Glass Fiber Epoxy Laminate

Grade G11

PRODUCT	: HIGH TG GLASS FIBER EPOXY LAMINATE
LENGTH AND WIDTH TOLERANCE	: ± 25 MM
AVAILABLE THICKNESS	: 0.15MM ~100MM
THICKNESS VARIATION	: Upto 5MM \pm 0.10MM, Above 5MM \pm 0.50 MM
SIZE	: 610MM X 1020MM, 1020MM X 1020MM, 1030MM X 1230MM
COLORS	: Deep Yellow, Deep Green
INSULATION CLASS	: 'H'

DIFFERENCE BETWEEN FR5 & G11 :-

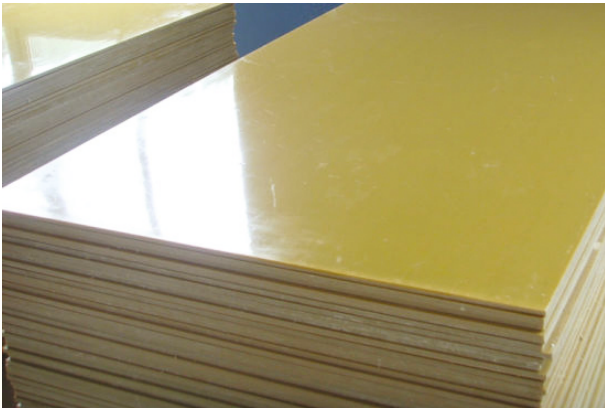
NEMA grades G11/FR5 Glass-Cloth Reinforced Epoxy-natural color is typically yellow green to amber. This grade is similar to G10/FR4 with the addition of a higher operating temperatures and some improved mechanical strength at elevated temperatures. The main difference between NEMA Grades G11 and FR5 is a fire retardant grade of G11. Therefore, FR5 can be safely substituted when G11 is called for while G11 can never be substituted where FR5 is called for.



Glass Epoxy Wedges

Slot Wedges are made out of above Glass Epoxy sheets as per application requirements. It is used as an electrical insulating and construction element in electrical Machines, Motors and devices. The breakdown voltage at the level of 15kV / mm allows them to be used in high voltage technology.

Made as per customers requirements and drawings with 100% accuracy.



3240 Epoxy Fiber Glass sheet

Material Introduction

This laminated product is formed through heat pressing after electric industry alkali glass cloth dips into the epoxy phenolic resin. It has high mechanic and dielectric performance, and applicable as insulation structural components for electromechanical/electrical equipment, as well as used under damp environmental conditions and transformer oil.

Technical requirement for surface The surface of laminated board should be flat and smooth, no bubble, no wrinkle, no delamination or crackle, and properly free from other defects such as scrape, impress, dirty spot and uneven color, but a little color patches is allowed.

3240 Epoxy Fiber Glass sheet

Thickness (mm)	Width/Length(mm)
0.5—180 mm	1020mm x 2020mm
1020mm x 2020mm	

Name: 3240 Epoxy Fiber Glass Sheet

Colors include: yellow

Types: Sheets

Application :

Chemical Machinery Parts, General Machinery Parts Gears, Generators, Pads, Bases, Baffles, Generator, Transformer, Fixture Inverter, Motor and Electric Insulation Component. Distribution Box, Fixture Board, The Mould Plate, High and Low Voltage Distribution Box, Packing Machine Insulation Parts. Mold Making, PCB, ICT Fixture, Molding Machine, Drilling Machine, Mesa Grinding Pads Etc.

Glass Epoxy Components

We Supply Fiberglass Epoxy Pultruded Profile for electrical Insulation in electrical Industries. FRP Tubes, Rod, Threaded rod, Dog bone, Corner Angle, Flats fiberglass tubes structural tubes, Fiberglass square bore tubes, CORNER PIECE, FRP Threaded Rod , FRP Nut & Bolt FRP Tube FRP Rod FRP Epoxy Pultruded Profiles like Dogbane, Hat, Corners, Flats, Tubes and threaded rod USE IN Transformers.FRP Tubes, Threaded Rods, Studs & Nuts are being used for better electrical insulations purpose Uses: Transformer spacer sticks, standoff insulators, structural supports, tension members,We offer FRP Epoxy Pultruded Profiles as below in "F" & "H" Class Insulation. All below profiles are Epoxy Resin based. FRP Corner Angle,Advantage of FRP Epoxy Pultruded Profiles: Corrosive resistant Non Conductive (electrically Insulating) Transparent to electromagnetic waves High – mechanical strength



FRP Sheets

Size	: 1x1 mts
Standard Thicknesses	: 1.5, 2.5, 4, 6, 9, 12 and 15 mm
material of construction	: Custom Thicknesses on large Requirement
Standard Color	: Standard Color : off white

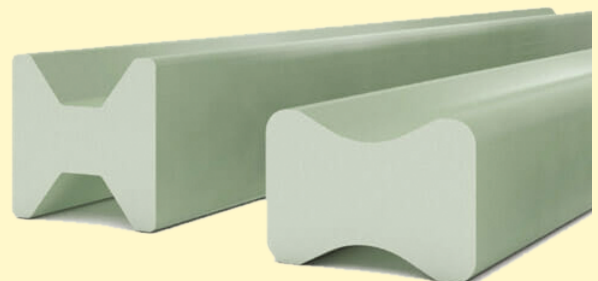
Features:

FRP sheet stock is the perfect solution for those seeking a premium quality sublimation substrate in a cut to size option. Designed using fiber reinforced plastic and a superior quality white gloss sublimation transfer surface, you can expect long lasting durability and exceptional color vibrancy for your creation! The cut to size appeal might even leave you with some left over to start your next masterpiece. Best suited for those looking for specific size substrates to work with.

Finish : Gloss whiteCan be cut to size

Features:

- Excellent dielectric properties such as volume resistivity, surface resistivity, arc resistance and comparative tracking index
- Can withstand continuous temperatures up to 140°C
- Anti-corrosive and resistant to most acids, alkalis and chemicals
- Lightweight, strong, stiff, and clean
- Non-hygroscopic and retains its dielectric properties even in high humidity
- Weatherproof
- Self-coloured
- Maintenance-free



Laminated 'F' Class Insulation Paper 155°C



Product Details:

Thermal Class	: 'F'
Material	: 'F' Class Paper
Thickness	: 0.13/0.16/0.20/0.24/0.30/0.38/0.44
Width	: 910 MM
Type	: Insulation Paper
Operating Temperature	: 155°C 'F' Class

APA in this composite, good mechanical and electrical properties of the polyester film are ideally supplemented by excellent chemical and thermal properties of the aramid paper. The high specific insulation resistance and dielectric strength.

Applications

Used in motors & generators As slot insulation / Closure, phase insulation/overhang, interphase insulation. In Dry Type Transformers As layer insulation for coils. For choke coils, conductor & shaped components

Advantages

- High chemical and solvent resistance.
- Protects the influence of hydrolysis.
- Suitable for automatic insertion.
- Superior Varnish absorption & Flexibility for Uncalendered Composites Higher Thermal Endurancesulation made from polyester film and Aramid.

Pure Nomex®



Product Details:

Thermal Class	: 'H'
Material	: Paper
Thickness	: 0.25-2 mm

DuPont™ Nomex® 410, the original form of Nomex® brand paper, is widely used in a majority of electrical equipment applications. That's because the properties of Nomex® 410 make it an ideal choice for virtually every known electrical sheet insulation application.

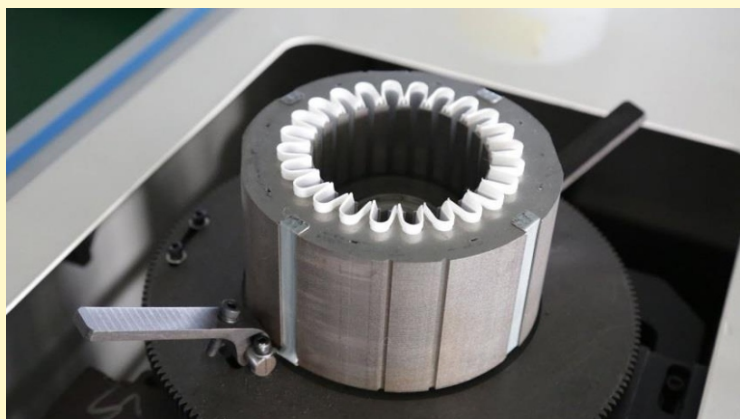
The excellent properties of Nomex® 410, which include high inherent dielectric strength, mechanical toughness, thermal stability, flexibility and resilience, is a standard by which all other insulating materials are compared.

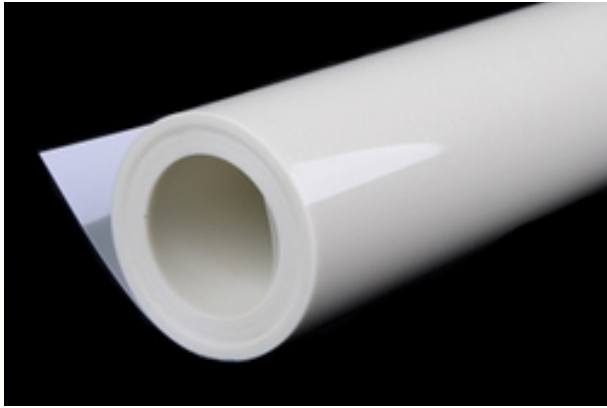
Nomex® 410 is available in 11 thicknesses, ranging from 0.05 mm to 0.76 mm

(2 mil to 30 mil), with specific gravities ranging from 0.72 g/cm² to 1.1 g/cm². As is true for all electrical insulating materials, thickness and density have an effect on the typical electrical, mechanical and thermal properties of Nomex® 410. Therefore, tables shown here of the typical properties of Nomex® 410 provide values for each available thickness and corresponding density.

Advantages

- Mechanical toughness and (in the grade) flexibility
- Inherent Di-Electric Strength
- Unaffected by most solvents, acids
- Compatible with varnishes, adhesives & transformer fluids





Polyester Films

Properties:

Polyester film is made of polyethylene terephthalate (PET). It has excellent mechanical property and dielectric strength.

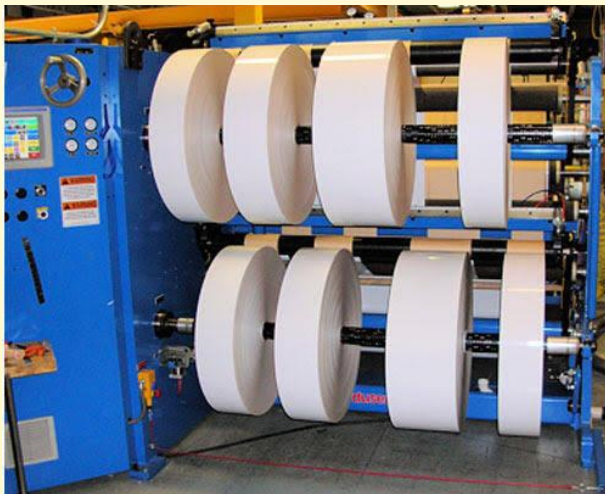
The polyester film is made by special manufacturing process can reach B class (130°) and UL flame retardant grade.

Applications:

Polyester film can be used as slots, gaskets, wedges and phase insulation for low voltage motors, electrical tools and electrical equipments, cable insulation wrapping, battery, computer and electrical industry phase insulation, glass fibre reinforced plastics stripping, printing film, label manufacturing industry and so on. White color is easy to use can clearly see the application state.

Availability:

Rolls	: Standard 1000mm
Sheets	: 1000mm*1000mm at any size
Tapes	: From 5mm to 990mm
Roll diameter	: About 300mm width
Core size	: Standard 76mm or 152mm



Laminated Fleece (DMD)

DMD SHEET / UNSATURATED FLEECE (FPF) PRODUCT COMPOSITION

FLEECE B (F) laminates are composites of polyester fleece on either side of Polyester film glued together with excellent quality thermosetting adhesive. Polyester film's high electrical & mechanical strength are complemented by good impregnating properties of the polyester fleece.

Advantages

- Excellent electrical and mechanical properties .
 - Excellent impregnating capacity.
 - Suitable for automatic insertion.
 - Protection against the influence of hydrolysis & chemical actions.
 - Saves on copper and steel for rated power.
- High Flexibility

Applications

Used in Motors & Generators: As slot insulation / Closure, phase insulation / overhang, interphase insulation. In Dry Type transformers: As layer insulation for coils. For choke coils, conductor & shaped components.



Kraft Paper / Press Paper

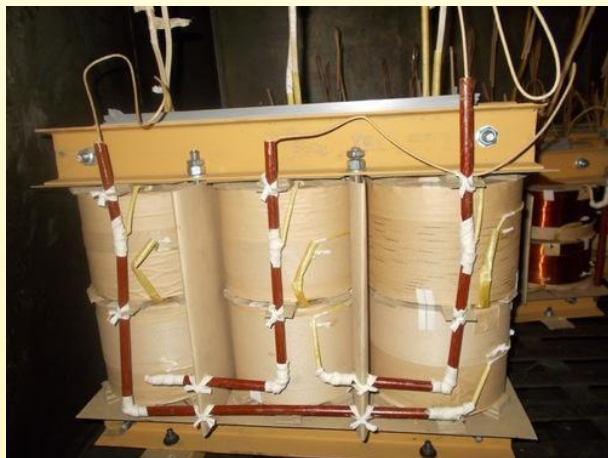
Introduction:

Kraft paper is one of the prime insulating materials for covering conductors in transformers. Our kraft paper with high purity and mechanical and dielectric strength is perfect for double paper covering (DPC) applications and as layer insulation in transformer designs.

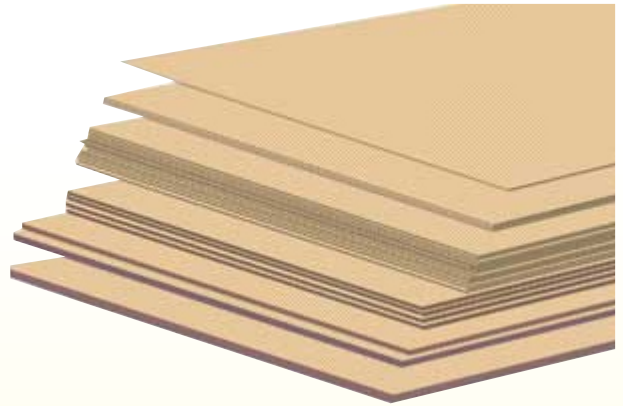
- More than 45 years of experience in insulation
- Complete range of insulation products for liquid-filled transformers; comprehensive range for dry-type
- Material excellence
- Global footprint

Product scope:

- Thickness: 0.05 mm (2 mil) to 0.50 mm (20 mil)
- Roll width: 1,500 mm
- Transformers
- Motors
- Capacitors
- Compliant with IEC standards



Press Board



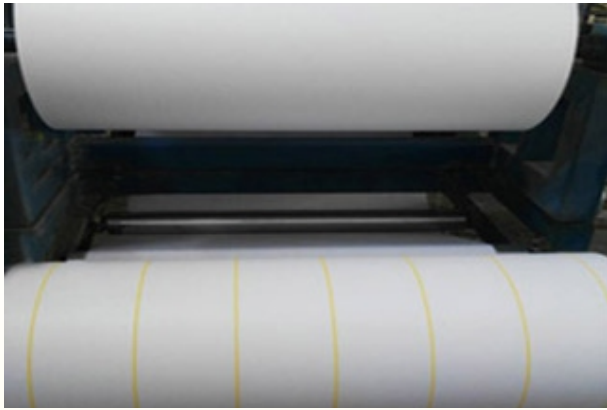
Material : Paper Board
Type : Solid
Thickness : 8 mm to 50 mm

Our clients can avail a premium assortment of Laminated Pre-compressed Boards. The range is lauded for its mechanical strength and dimensional stability. These Boards are ideally suited for pressure and static rings, strips and clamping plates of power distribution transformers.

Features:

- Exceptional Electrical Strength
- Uniform Thickness
- Incompressible
- Dimensionally Accurate

No	Items	Unit	Standard Value		
			<_1.6 mm	>1.6 mm-3.0 mm	>3.0 mm-6.0 mm
1	Thickness tolerance	%	+/-7.5	+/-5.0	+/-5.0
2	Density of the surface	g/cm ³	1.0-1-2	1.1-1.25	1.15-1.30
4	Elongation strength	Mpa	>_100	>_105	>_110
		Mpa	>_75	>_80	>_85
5	Shrinkable rate	%	<_0.5		
		%	<_0.7		
		%	<_5.0		
6	Moisture content	%	<_6.0		
7	Ash content	%	<_1.0		
8	Conduction of aqueous extract	mS/m	<_5.0	<_6.0	<_8.0
9	PH of aqueous extract	6.0-9.0			
10	Electrical strength in oil	Kv/mm	>_40	>_35	>_30



Aramid Papers (APA / AMA)

AMA composite material is a three-ply flexible laminate consisting of pet film coated on both sides with Aramid fiber paper, AMA also can replace NMN, shows high thermal resistance, excellent mechanical properties, and electrical properties, it is designed for automatic insertion machine.

AMA is mainly used as a slot liner, slot closure, phase-to-phase and turn-to-turn insulation in low or medium voltage electrical motors of class F (155) or class H (180) insulation system, in addition, it's also used as interlayer insulation in transformers and other electrical machines and appliances.

Thickness :

0.15mm 0.20mm 0.23mm 0.25mm 0.30mm 0.35mm

Width :

914 or 1000mm, sheets strips (width 5mm)

Specifications

- **Thermal Class : 'F'**
 - Thickness: 0.15-0.50 mm
 - Width: 900 mm
 - Features: For H class motor and generator insulation between the groove, can also be used between layers of dry-type transformers, the interval insulation.
 - Color: Nomex paper with a yellow line or orange line
-
- Advantages of APA
 - Class F Laminates (155°C)
 - High chemical and solvent resistance
 - Suitable for automatic insertion
 - Laminates have good dielectric strength
 - Protects from influence of hydrolysis
 - High temperature resistance
 - Good mechanical properties

Application:

It is widely used as the slot insulation & insulation between phases for Y-series motors.

Slot Insulation Papers

We are manufacturing high grade 'B' class slot insulation paper from premium quality imported paper and polyester.

Description:

Polyester film/Kraft paper flexible composite material is two-layer flexible laminate in which polyester film is bonded with Kraft paper. It is Class B (130°C) insulating material.

Advantages:

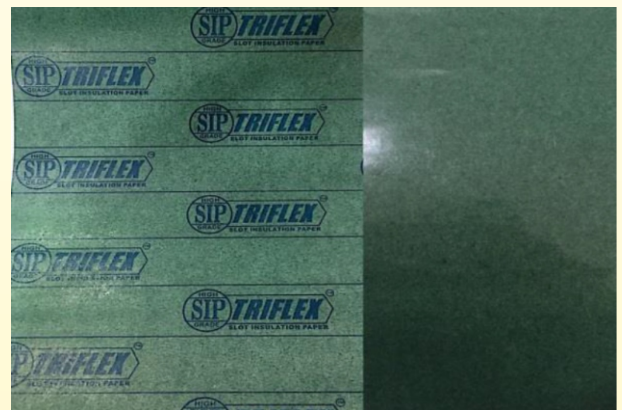
This product has excellent dielectric property & High Mechanical Property.

Application:

It is suitable for Slot insulation, interphase insulation & liner insulation in electric motor and electric apparatus.

Data Form: -

Item		Unit	Value	
Thickness	Nominal	mm	0.20	0.25
	Tolerance		±0.03	±0.04
Tensile Force (min)	Length	N/cm	120	150
	Cross		90	95
Breakdown (min)	at room temp	Kv	8.0	
	after bending		6.0	



Thickness and tolerance : 0.20mm, 0.25mm, 0.30mm (+/- 0.02 / 0.03mm)

Package : 50 kgs / pack

Thermal Class : E (120 degree)
Color : Green, Blue or Brown
Standard : IEC60626-3-100
Certificate : ISO9001, ROHS, REACH

Fiberglass Tapes

Fiberglass tape, made of fiberglass yarn, has the characteristics of high temperature resistance, good insulation performance and strong corrosion resistance. It can be used for filling and binding insulation materials of transformers, motors, electrical appliances and cables. Its main component is aluminium borosilicate (E glass), and the content of alkali metal oxides such as potassium oxide and sodium oxide is less than 0.8%. Alkali-free glass fiber ribbon mainly includes ordinary type, reinforced type, reinforced bulging yarn type and so on. The difference between ordinary type and reinforced type is mainly due to the different sizing agents used in drawing fiberglass precursors, which determines the important differences in the use of products. Strengthened expanded yarn is made of glass fibers which are extruded and then knitted into ribbons.

Product Characteristics

- Excellent heat resistance, the maximum temperature is 600
- Light weight, heat resistance, small heat capacity & low thermal Soft and good thermal insulation.
- Fiberglass tape does not absorb water, corrode, mildew, moth, scatter easily, and has certain tensile.
- Excellent ageing resistance.
- Good sound absorption, higher than the average requirement of NRC.
- It can be tailored, sewed and constructed easily according to the requirements.
- Glass fiber has good electrical insulation
- Glass fibers are inorganic fibers and never burn.
- Glass fibers have high tensile strength and length stability

Purpose

- Used for various heat sources (coal, electricity, oil, gas) high temperature equipment, central air-conditioning pipeline insulation; electric heating bracket, heating element
- Used for all kinds of insulation and fire- proof materials, high-temperature boilers, ovens, warm air heating equipment.
- Sealing, sound absorption, filtering and insulation materials for special places;
- Insulation for various heat transfer and storage devices;
- Sound insulation, heat insulation and heat insulation for vehicles, ships, aircraft, etc..Insulation of the inner core of mufflers for automobiles and motorcycles and mufflation of engines.
- Inter layer thermal insulation of color steel plate and wood structure buildings.
- Thermal and chemical pipeline insulation, thermal insulation effect is better than general insulation material
- Heat insulation of wall panels of household appliances such as air conditioners, refrigerators, microwave ovens
- Other occasions requiring heat preservation, insulation, fire prevention, sound absorption and insulation



Polyester Woven Tapes

Polyester Fiber Binding Tape is woven with polyester filaments. The tape has the advantages of heat resistance and heat shrink, becoming ideal insulating binding materials for manufacturing and repairing of electrical machinery, transformer and so on.

Characteristics and uses

The utility model has the advantages of simple construction, replacing the white yarn belt, tightly binding coils, high shrinkage rate without re-dipping paint, high thermal tensile strength, no relaxation and shedding and no pollution to transformer oil. It is used for binding (binding) of transformers, transformers, motors and other mechanical and electrical products in the manufacturing process, coil exterior, outgoing, transposition and other parts, as well as lead fencing in the body.





Polyimide Tape

Material: Polyimide Tape High Temperature (KAPTON)

Product Description

Features

- High electrical strength
- Peeled off without leaving an adhesive residue
- Up to 500° /260° temperature resistance
- Class H insulation
- Width: custom slit

Application

- Surface assembly, for the protection of golden finger in wave soldering and re-flow soldering.
- For the adhesion and class H insulation of electronic switch, motor, transformer, relay, wires, coil, capacitor and lithium battery etc.

Construction

Single Side
Double Side

Physical Properties

Note: The above technical information and data should be considered representative or typical only and should not be used for specification purposes.

Shelf Life

Product shelf life is 2 years from date of manufacture when stored at room temperature conditions (72°F [22°C] and 50% RH) in the products original packaging.

Available Sizes

Width: 2~500 mm (Can be Customized).

Length: 33m (Can be customized).

Custom Sizes: If you need customized sizes or die cut parts please feel free to contact WS sales representative.



Nomex Tapes

NOMEX TAPES

A heat resistant insulating tape made from DuPont Nomex® Paper coated with an acrylic adhesive. Optimal for insulating and fixing heat resistant parts. Also has superior puncture durability.

Cotton Insulation Tapes



Product Details:

Usage/ Application	: Electric Motor, Transformers Coil & Appliances
Size	: 0.2 - 0.4 mm (Thickness)
Brand	: FPC
Color	: White
Material	: Pure Cotton Fiber Tap 100% cotton Tap

Cotton Insulation Tapes : is made from pure cotton fibre and can be used for electric motor, coil of transformers and other appliances. cotton tape can be used as binding materials because of good ethnical strength and insulating quality.

Fiberglass Cloth

Fiberglass cloth is an engineering material, which has the excellent merit such as anti-burns, anti-corrosion, stable-size, heat-isolation, minimum elongated shrinkage, high intensity, this new material product has already covered many domains such as electric appliances, electronic, transportation, chemical engineering, architectural engineering, heat insulation, sound absorption, fire prevention and environmental protection, etc.

Product Properties:

- High intensity and quick wet out
- Perfect design able character
- Anti-corrosion and electric insulation

With firm commitment to quality, we are offering premium quality **Fiber Glass Varnish Cloth**. These cloths are manufactured by skilled professionals using supreme grade fibrous glass material, procured from the trusted vendors of the market. The **Fiber Glass Varnish Cloth** is widely used for furnace filters and insulation, as these are very strong and durable. We are able to offer the cloth in many sizes and thickness for the various requirements of our customers.



Slitting Services

We have a variety of slitting machines, from 7mm-1600mm (with capabilities of slitting up to 2200mm).

We are specialist converters and can slit as per customers specifications with absolute accuracy on material like Polyester Films, Electrical Insulation papers, paperboard, other materials (6-1000 micron) and other films (6-1000 micron).

A fully comprehensive and precise slitting service is provided to convert customers own materials or the conversion of our own materials to specification.

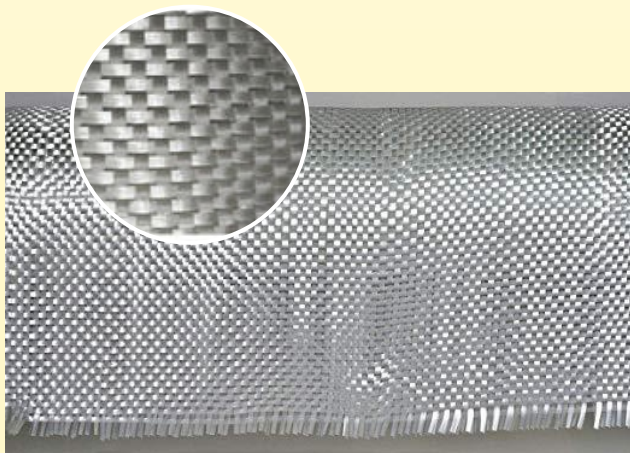
We are capable of producing coils from 6mm up to 1600mm in width. Rolls are supplied on 76mm or 152mm cores. All finished rolls are polythene wrapped with plastic end inserts and labeled as required.

We offer Slitting Services for :

- Polyester films
- Nomex / Aramid electrical insulation paper
H class / Fire retardant
- FPF/DMD insulation paper
- Electrical slot insulations papers
- Silicone coated films
- Polyimide films
- F class insulation papers
- Kraft papers



Varnished FG Cloth



Unvarnished Cloth





Enamelled Aluminium Wire

Description

The demand of aluminium magnet wires in many industrial applications has sky rocketed due to unprecedented increase in copper rates. To cater this demand, we proudly declare the addition of super enamelled aluminium magnet wires in the product armory. These are manufactured as per Indian as well International standards and as per the specifications given by the customers. The product is available in different sizes, types and grades of coverings to cater to specific needs for special fields of applications. The latest technology is adopted for manufacturing to offer high quality products.

Application

Aluminium is an excellent electrical conductor after copper. The super enamelled aluminium wire can be used to replace the copper enamelled wires with proper design modifications. Mainly it is used in electronic circuits, television degaussing coils and so on for many more applications including washing machine motors, fans and AC compressors. The conductor properties of these wires differ from that of enamelled copper wires. Our products have a smooth surface and a very good elongation.

Size Range, Types and Specifications

Wire Dia Sizes from 4.0 to 0.25 mm (8 to 33 SWG), Grade – 1, 2, and 3 Modified Polyesters, Class 130, 155. As per IS 13730 part 9 / IEC 60317 part 9 Hermetic Grade, Class 180. As per IS 13730 part 15 / IEC 60317 part 15 Dual Coated, Class 200. As per IS 13730 part 25 / IEC 60317 part 25 and NEMA MW 35A.



Dr. Beck Varnishes

We are dealers of Elantas Beck (India) Limited.

Below is the list of items we can supply and we do maintain sizable stocks for most items depending upon their demand and shelf life to fulfil our customer's requirements.

ISONEL 31 - J	ELMO 65 E/R	THINNER 221
ISONEL 51 -J	ELMO B 95	THINNER 31 J
ELMO LUFT 1A - FD	ELMO B 92	THINNER 51 J
BECKTOL RED	ELMOTHERM F 50	THINNER 218
BECKTOL GREY	ELMOTHERM F 57	THINNER 205
B-6-665	ELMOTHERM H 71 A	THINNER 234
EPOXY GEL COAT RED	ELMOGLAS V 155	HARDENER 7055
ISOPOXY 800	ELMOGLAS V 172	
VARNISH F 93 A / B	ELMOGLAS H 69A	
DOBECKOT 605	HARDENER 758	
DOBECKOT 520 F	HARDENER 762	
DOBECKOT 505 C	HARDENER EH 411	
DOBECKOT 5022	HARDENER 7035	
DOBECKOT 504	HARDENER EH 408	
DOBEFIL 60	HARDENER 760	

Available in different packing types
(Pet bottles, tin, drums & barrels)

These products are used for impregnation, potting, encapsulation, and insulation of electric devices. We cater to the unique needs of many Indian companies from electrical industry. Used in the Insulation system of electrical machines for impregnation and finishing applications, the impregnating resins and varnishes offer advantages like increased mechanical bonding to the winding wire, improved dielectric properties & thermal conductivity. These also play key components for the production of modern motor, generator and transformer. Use of impregnating resins provide protection from various environmental factors, while impregnating varnish provides temperature stability and resistance to different chemical and climatic stresses. In order to provide extra protection for electrical components from environmental influences, many companies use finishing varnishes. These are resistant to climatic stress and support good temperature stability.





**One stop solution for
Electrical Insulation Material**

Class 'B', 'F', 'H' & 'C'



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