



# ROYAL DIAMOND

## ELECTRICAL INSULATION

### **Varnishes**

Varnishes for impregnation and finish

### **Resins**

Resins for impregnation, encapsulation and filling

### **Laminates**

Flexible laminates, customized solutions

### **Complements**

Complements for electrical insulation



Product Catalogue



# ROYAL DIAMOND

## ELECTRICAL INSULATION

### Our competitive advantages

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1 **We see electrical insulation as an Integrated System.**

Accordingly we offer Varnishes, Resins, Flexible Laminates and complementary products to meet all your electrical insulation needs. As a manufacturer, Royal Diamond provides every possible format of electrical insulation as well as complementary products such as tapes, plaques, sleeving and cables.

2 **Specializing in Customized Solutions.**

We see being able to customize a product to provide the exact solution to your electrical needs as a challenge. We develop 100% tailor-made electrical insulation.

3 **International: Global Reach.**

Shipping and delivery are of paramount importance and consequently we have established a network of distributors with national and international reach so as to be able to offer excellence in this service. Our Area Sales Managers are the clearest symbol of our international focus.



**Varnishes**

Varnishes for impregnation and finish.



**Resins**

Resins for impregnation, encapsulation and filling.



**Laminates**

Flexible laminates, customized solutions.



**Complements**

Complements for electrical insulation.



**ROYAL DIAMOND**  
ELECTRICAL INSULATION

customized solutions for your  
electrical insulation needs

## Impregnation and finish varnishes

### Royalac 30

THERMAL CLASS B

Air drying varnish for general repairs. Normal motors, static material, varnished magnetic plate. Fast air drying. Good cohesion.

### Royalac 125

THERMAL CLASS F

Air drying varnish for general repairs, motors, stators. Provides the same level of hardness and cohesion as an oven dried varnish.

### Royalac 129

THERMAL CLASS F

Air drying varnish for impregnation of motors, transformers and general repairs. Ultra-fast drying. Very good cohesion. High resistance to chemicals and transformer oil.

### Royalac 158

THERMAL CLASS F

Impregnation varnish, oven dried, recommended for stators and small transformers. Easy oven drying. Provides clean results and good finish.

### Royalac 521

THERMAL CLASS F

Oven dried impregnation varnish recommended for stators, transformers and resistors. Provides good cohesion and highly compact coils. High adherence and elasticity.

### Royalac 525 MA (UL)

THERMAL CLASS H

Oven dried impregnation varnish for the impregnation of stators, transformers and reactances. High levels of hardness, elasticity, resistance to humidity and to transformer oil. Resistant to Freon and Pyralene. Standardised UL.

### Royalac AQ (UL)

THERMAL CLASS H

Oven dried impregnation varnish for motors and transformers. High level of resistance to Freon 22 and Pyralene, and strong binding power. Standardised UL.

### Royalac 210 SR

THERMAL CLASS H

Impregnation varnish with a silicon base for applications which require high thermal resistance. Easily oven dried and resistant to unfavourable conditions, aggressive fumes, humidity, etc.

## Electroenamels

### Antiflash G-144

THERMAL CLASS F

Protection and finish for all types of materials, motors, transformers, etc. Electroenamel anti-arc for the protection of coils against humidity and dust.

### Antiflash 505

THERMAL CLASS F

Protection and finish for all types of materials, motors, transformers, etc. Bi-component epoxy electroenamel. High level of resistance to chemicals.

### Antiflash 214 SR

THERMAL CLASS H

Protection and finish for all types of materials, motors, transformers, etc. Electroenamel anti-arc for the protection of coils against humidity and dust. High level of thermal resistance.



## Impregnation and finish varnishes

Product	Thermal class	Thermal resistance (°C)	Drying method	Colour	Viscosity 20 °C (sec.)	Density (g/cm <sup>3</sup> )	Fixed material (%)	Insulation 10 μ (V)	Solvent
Royalac 30	B	130	Air	Yellow	18	0.92	30	1,200	F
Royalac 125	F	155	Air	No colour	50	0.98	45	1,300	F, F-5
Royalac 129	F	155	Air	Yellow, red and no colour	18	0.9	37	1,300	F
Royalac 158	F	155	Oven	Yellow	13	0.97	30	1,300	F-5
Royalac 521	F	155	Oven	Yellow	75	0.97	43	1,300	F-5
Royalac 525 MA (UL)	H	180	Oven	Yellow	110	0.97	43	1,400	F-5
Royalac AQ (UL)	H	180	Oven	No colour	40	0.92	50	1,200	F
Royalac 210 SR	H	180	Air/Oven	No colour	35	1.03	50	930	F-5

## Electroenamels

Product	Thermal class	Thermal resistance (°C)	Drying method	Colour	Viscosity 20 °C (sec.)	Density (g/cm <sup>3</sup> )	Fixed material (%)	Insulation 10 μ (V)	Solvent
Antiflash G-144	F	155	Air	Red	35	1.02	50	1,100	F-5
Antiflash 505	F	155	Air	Red	45	1.20	61	1,300	F-5
Antiflash 214 SR	H	180	Air/Oven	Red	45	1.04	50	930	F-5

# Resins for potting and filling

Polyurethane:

## Diapol 507

THERMAL CLASS B

Resin used for potting/filling. Multiple electrical and electronic applications for insulators, electric brakes, ignition coils, transformers, batteries, etc. Bi-component polyurethane resin which polymerizes at air. Good thermal resistance and high level of hardness.

## Diapol 508

THERMAL CLASS B

Resin used for potting/filling. Multiple electrical and electronic applications for insulators, electric brakes, ignition coils, transformers, batteries, etc. Bi-component polyurethane resin which polymerizes at air. Semi-rigid.

## Diapol 508/2

THERMAL CLASS B

Resin used for potting/filling. Multiple electrical and electronic applications for insulators, electric brakes, ignition coils, transformers, batteries, etc. Bi-component polyurethane resin which polymerizes at air. Semi-flexible.

Polyurethane:

## Diapol 509

THERMAL CLASS B

Resin used for potting/filling. Multiple electrical and electronic applications for insulators, electric brakes, ignition coils, transformers, batteries, etc. Bi-component polyurethane resin which polymerizes at air. Flexible.

## Diapol 509 FG (UL) Self-extinguishing

THERMAL CLASS B

Resin used for potting/filling. Multiple electrical and electronic applications for insulators, electric brakes, ignition coils, transformers, batteries, etc. Bi-component polyurethane resin which polymerizes at air. Flexible. Self-extinguishing. Standardised UL E180898.

## Diapol 510

THERMAL CLASS B

Resin used for potting/filling. Multiple electrical and electronic applications for insulators, electric brakes, ignition coils, transformers, batteries, etc. Bi-component polyurethane resin which polymerizes at air. Very flexible.

Epoxy:

## Royapox 5050 CD

THERMAL CLASS B/F

Resin used for potting/filling. Multiple electrical and electronic applications for insulators, electric brakes, ignition coils, transformers, batteries, etc. Bi-component polyurethane resin which polymerizes at air. Good resistance to humidity.

## Royapox 959 (UL)

THERMAL CLASS B

Resin used for potting/filling. Multiple electrical and electronic applications for insulators, electric brakes, ignition coils, transformers, batteries, etc. Bi-component polyurethane resin which polymerizes at air. Good resistance to humidity. Self-extinguishing. Standardised UL E180898.



## Resins for potting and filling

Product	Resin type	Thermal class	Thermal resistance (°C)	Drying method	Colour	Viscosity 25°C (mPa.s)	Density (g/cm³)	Insulation (KV/mm)
Diapol 507	Polyurethane	B	130	Air	Green	12,000	1.6	30
Diapol 508	Polyurethane	B	130	Air	Red/Black	6,000	1.55	20
Diapol 508/2	Polyurethane	B	130	Air	Red/Black	5,000	1.44	20
Diapol 509	Polyurethane	B	130	Air	Grey/White	12,000	1.55	15
Diapol 509 FG (UL) Self-extinguishing	Polyurethane	B	130	Air	Black	11,000	1.55	20
Diapol 510	Polyurethane	B	130	Air	Black	10,000	1.53	10
Royapox 5050 CD	Epoxy	B/F	130/155	Air	White, red, blue, grey and black	9,000	1.65	15
Royapox 959	Epoxy	B	130	Air	blue	11,000	1.56	15

# Impregnation resins

Epoxy:

## Royapox 511 (UL)

THERMAL CLASS F

The resin Royapox 511 has been designed specifically for the impregnation of stators and rotors by any method. Bi-component epoxy resin which polymerizes at air or in an oven. Good resistance to humidity and Freon 22.

## Royapox 512

THERMAL CLASS F

The resin Royapox 512 has been developed specifically for impregnation by trickle system of rotors operating at very high speeds, as well as under high mechanical force. Bi-component epoxy resin which polymerizes in an oven and gives high cohesion between strands.

## Royapox 502 F (UL)

THERMAL CLASS F

The resin Royapox 502 H has been developed specifically for the impregnation of coils where class F thermal resistance is required. Tri-component epoxy resin, polymerization in an oven, high thermal resistance. Its combination with a mineral load content provides ideal properties for the encapsulation of dry transformers. Standardised UL.

Epoxy:

## Royapox 502 H

THERMAL CLASS H

The resin Royapox 502 H has been developed specifically for the impregnation of coils where class H thermal resistance is required. Tri-component epoxy resin, polymerization in an oven, high thermal resistance.

Polyesterimide:

## Diapol 788/200

THERMAL CLASS N

Diapol 788/200 is a mono-component polyesterimide resin for the impregnation of static and dynamic material which requires high levels of thermal, dielectric and mechanical resistance.

Epoxy Solventless:

## Royapox 915 (UL)

THERMAL CLASS H

The solvent-free resin Royapox 915 has been specifically developed for the impregnation of coils where class H thermal resistance is required for its use in motors and magnetic cores. Mono-component epoxy resin for impregnation by immersion, in a vacuum or by VPI (vacuum pressure impregnation). Polymerization in an oven, high thermal resistance. This resin forms a solid, hard, adherent mass which gives the coils high cohesion and good thermal conductivity. Standardised UL

Polyester Solventless:

## Diapol 790 SL (UL)

THERMAL CLASS H

An unsaturated mono-component polyester resin, used for the impregnation of static and dynamic material where high thermal resistance is required. Standardised UL



## Impregnation resins

Product	Resin type	Thermal class	Thermal resistance (°C)	Drying method	Colour	Viscosity 25°C (mPa.s)	Density (g/cm³)	Insulation (KV/mm)
Royapox 511	Epoxy	F	155	Air	Ochre	4,000	1.15	20
Royapox 512	Epoxy	F	155	Oven	Ochre	4,000	1.15	20
Royapox 502 F (UL)	Epoxy	F	155	Oven	Ochre	4,000	1.15	26
Royapox 502 H	Epoxy	H	180	Oven	Ochre	4,000	1.15	18
Diapol 788/200	Polyesterimide	N	200	Oven	Brown	200	1.02	130
Royapox 915	Epoxy Solventless	H	180	Oven	No colour	1,500	1.15	20
Diapol 790 SL	Polyester Solventless	H	180	Oven	No colour	400	1.12	40



# Flexible laminates

## POLYESTER FILM

THERMAL CLASS B

Mainly used for the insulation of motors, alternators and transformers in slots and/or interfaces as well as the protection of condensers. Polyethylene terephthalate providing excellent physical and dielectric properties.

## TERCOTT K

THERMAL CLASS B

Flexible laminate composed of pressed Kraft paper and polyester film, used for interface insulation in transformers and reactances. Good mechanical rigidity and flexibility. Also available in Triple layer format.

## TERCOTT CF

THERMAL CLASS B

Flexible laminate composed of green presspan paper and polyester film used for insulation in motor slots. Can be used with automatic inserting machines. Functions as a barrier in soldering work. Very good mechanical rigidity.

## THERNOPHASE

THERMAL CLASS B/F

Specifically designed for interface insulation. Composed of polyester film, covered on both sides with a special non-woven polyester fabric which prevents slippage during the winding process while favouring penetration and absorption of varnishes or resins during the impregnation process.

## THERNOMID VF 10.04

(Impregnated DM)

THERMAL CLASS F

Duplex flexible laminate composed of polyester film backed with a non-woven polyester fabric. Used in the making and insulating of all types of motor coils and transformers and for slot and/or interfaces which are subjected to high mechanical, thermal and dielectric conditions. Favours the penetration and absorption of varnishes and resins during the impregnation process. Slides easily during insertion.

## TERCOTT MTS (DMD)

THERMAL CLASS B/F

Flexible laminate composed of polyester film, covered on both sides with a non-woven polyester fabric. Used for slot and interface insulation. Increases the penetration and absorption of varnishes and resins during the impregnation process.

## TRIPLEX F 20.08 (Impregnated DMD)

THERMAL CLASS F

Flexible laminate composed of polyester film, covered on both sides with a non-woven polyester fabric and impregnated with a highly thermal-resistant resin. Used in the making and insulating of all types of motor coils, transformers and reactances and for slot and/or interfaces, which are subjected to high mechanical, thermal and dielectric demands. Favours the penetration and absorption of varnishes and resins during the impregnation process.

## ROYAPREG (B-Stage DMD)

THERMAL CLASS F

Flexible laminate composed of polyester film, covered on both sides with a non-woven polyester fabric and impregnated with a highly thermal-resistant resin. Supplied in form 'B' and used particularly in the insulation of interfaces, transformers and reactances.

## TUFQUIN TFT (UL)

THERMAL CLASS H

Flexible laminate composed of polyester film, covered on both sides with inorganic fibres which gives high thermal conductivity. Used in the making and insulating of all types of motor coils, transformers and reactances and for slot and/or interfaces, which are subjected to high mechanical, thermal and dielectric demands. Slides easily during insertion. Standardised UL E65007.

## TUFQUIN TPiT

THERMAL CLASS N

Flexible laminate composed of polyimide film covered on both sides by inorganic fibres which gives high thermal conductivity. Used in the making and insulation of machines which must withstand high temperatures: traction motors and electro-magnets. Slides easily during insertion.

## THERNOMID KRG

THERMAL CLASS S

Flexible laminate composed of polyimide film covered on one or both sides by fibreglass. Used in the making and insulation of machines which must withstand high temperatures: traction motors and electro-magnets. High thermal resistance.

## ROYAGRID

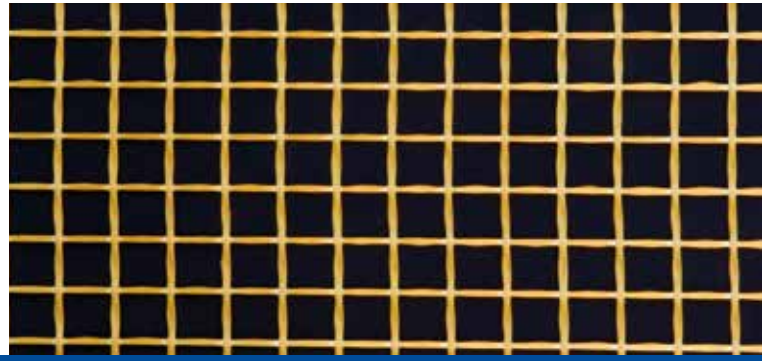
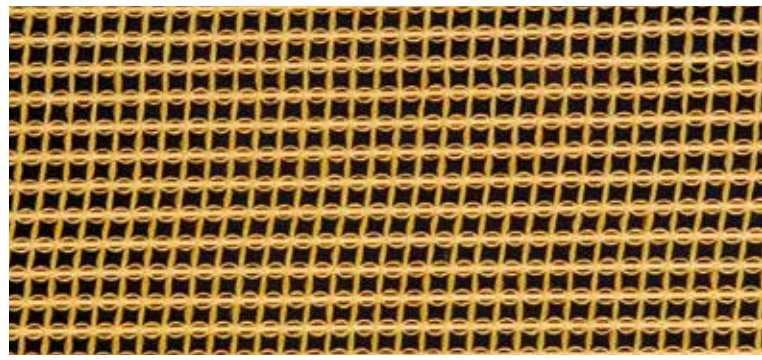
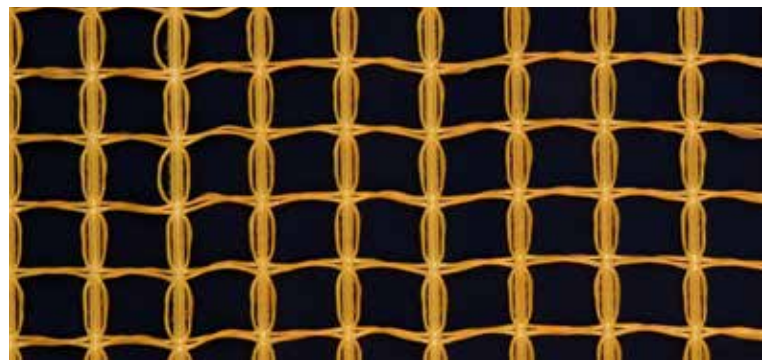
THERMAL CLASS H

Fibreglass grid 100% saturated with polymerized epoxy resin. Used as reinforcement in dry transformers.



## Flexible laminates

Product	Thermal class	Thermal resistance (°C)	Thickness	Insulation Volts (min.)
TERCOTT K	B	130	0.03	4,800
			0.05	6,000
			0.07	7,000
			0.12	6,000
			0.15	7,000
			0.25 S	8,000
TERCOTT CF	B	130	0.15	6,500
			0.20	6,700
			0.25	7,800
			0.30	8,900
			0.40	9,900
THERNOPHASE	B/F	130/155	0.30	6,500
			0.40	14,000
THERNOMID VF 10.04	F	155	0.15	9,000
			0.20	10,000
			0.25	15,000
			0.30	18,000
TERCOTT MTS	B/F	130/155	0.08	5,000
			0.15	6,000
			0.20	9,000
			0.25	10,000
			0.30	15,000
			0.35	18,000
TRIPLEX F 20.08	F	155	0.15	6,000
			0.20	9,000
			0.25	10,000
			0.30	15,000
			0.35	18,000
ROYAPREG	F	155	0.15	6,000
			0.20	9,000
			0.25	10,000
			0.30	15,000
			0.35	18,000
			0.45	22,000
TUFQUIN TFT	H	180	0.15	8,000
			0.20	12,000
			0.23	14,000
			0.30	18,000
			0.35	20,000
TUFQUIN TPIT	N	200	0.12	6,000
			0.18	6,500
			0.23	6,500
			0.28	7,000
			0.33	11,000
THERNOMID KRG	S	240	0.12 (1-3)	6,500
			0.12 (3-1)	12,500
			0.15	7,500
			0.22	7,500
			0.24 Triplex	11,000
ROYAGRID	H	180	10 x 8	
			30 x 20	
			15 x 15	
			25 x 15	



# Accessories

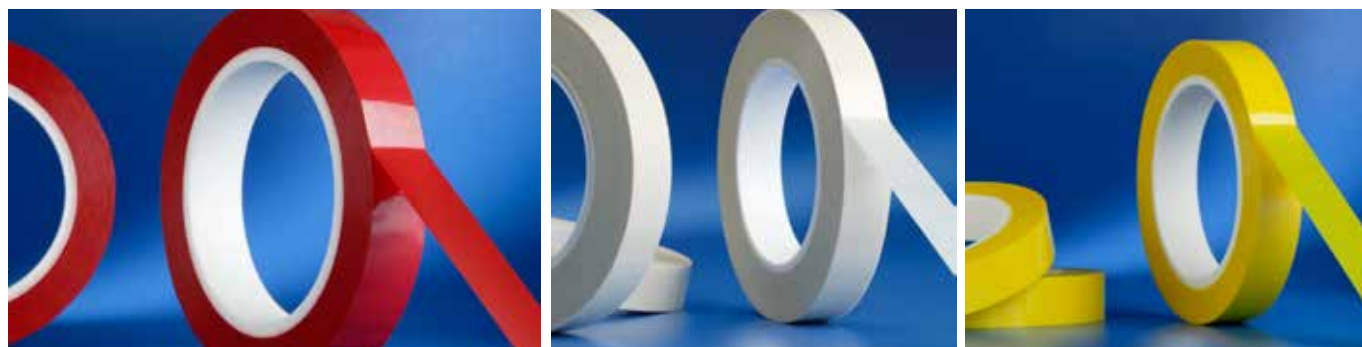
## Flexible insulating tubes

Product	Thermal class	Thermal resistance (°C)	Composition	Colour	Diameter mm	Insulation Volts
ROYAFLEX "F"	F	155	<ul style="list-style-type: none"> <li>Glass plait</li> <li>Polyurethane</li> </ul>	Beige	0,5 - 1 - 1,5 - 2 - 2,5 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 12 - 14 - 16	3,000
ROYAFLEX "H"	H	200	<ul style="list-style-type: none"> <li>Glass plait</li> <li>Silicone</li> </ul>	Red	0,5 - 1 - 1,5 - 2 - 2,5 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 12 - 14 - 16	5,000



## Adhesive tapes

Product	Thermal class	Thermal resistance (°C)	Backing composition	Adhesive	Thickness mm
TECROLL 10 B	F	130	Yellow polyester film	Acrylic	0.06
TECROLL 11 B	B	130	Yellow polyester film	Acrylic	0.06
TERDUR 32	B	130	Polyester film fabric without strengthened weave	Acrylic	0.13
TECROLL 4 B	B	130	Polyester film fabric without strengthened weave	Rubber	0.14
TECROLL 77 AH	F	155	Glass fabric	Acrylic	0.17
TECROLL 76 SH	H	180	Glass fabric	Silicone	0.18
TECROLL 71 SL	H	180	Kapton film	Silicone	0.06



## Royasil electrical cables

Product	Insulator type	Section (mm <sup>2</sup> )	Roll size (m.l.)	Outside diameter (mm)
CS	Silicone	0.25 - 16	100	1.90 - 8.40
CSP	Silicone - covered polyester plait	0.25 - 400	100	1.80 - 35.4
TPT Freon resistant	Polyester film - uncovered polyester plait	0.75 - 50	25 - 200 according to section	2.1 - 13.8





## Closing wedges (electric motor slots)




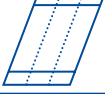
We can supply beech and polyester film closure wedges as well as our flexible laminates.

Composition	Thermal class	Reference	Descripción	Supply
BEECH WOOD	E (120)	R-0, R-1, R-2, R-3, R-4, R-11, R-12	Made from dehydrated beech wood.	Pack of 100 wedges x 1 mt.
POLYESTER FILM	B (130)	R-8, R-10, R-12, R-14, R-15, R-18, R-21, R-24	Made from 250 micron polyester film	Pack of 143 wedges x 0.7 mt.
TRIPLEX 20,08	F (155)	R-8, R-10, R-12, R-14, R-15, R-18, R-21, R-24, R-26, R-32	Made from Triplex 20.08 with 350 micron thickness.	Pack of 143 wedges x 0.7 mt.
EPOXY-FIBERGLASS	F (155)	R-3, R-4, R-6, R-8, R-10	Made from stratified plaques, made up of glass fabric and epoxy resin.	Pack of 25 wedges x 1 mt.
POLYESTER-FIBERGLASS	F-H (155-180)	SEMICIRCULAR: 4x2, 5x2, 5x2.5, 7x2.5, 6x3, 8x3, 8x4 TRAPEZOIDAL: 5x2, 6, 1x2, 7x3, 9x3, 12x3	Made from fibreglass and polyester resin through extrusion process.	Pack of 200 mt wedges x 1 mt.
TUFQUIN TFT	H (180)	R-10, R-12, R-14, R-15, R-18, R-21, R-24, R-26, R-32	Made from 350 micron TUFQUIN TFT.	Pack of 143 wedges x 0.7 mt.



## Pre-formed slot insulators

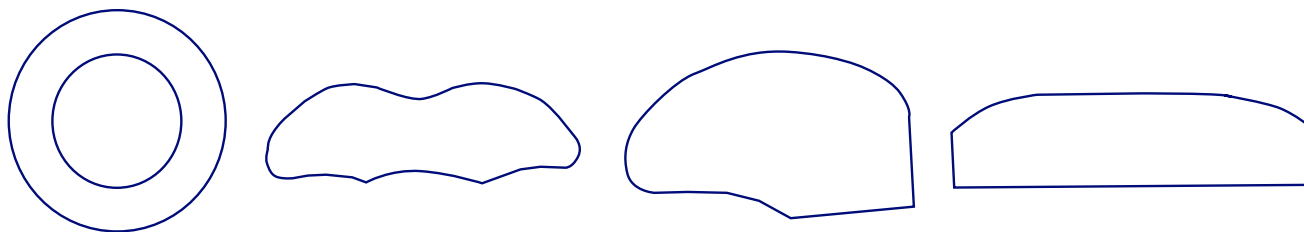
We supply any of our flexible laminates in the form of boxes for motor slots in different shapes and sizes.

Product	Profile	Characteristics
Type RD-510		Flat-slot insulator, rectangular, ideal for applications where previous shaping is not necessary. Once positioned in the slot it adapts to its shape.
Type RD-610		Slot insulator with lipped edges, flat and rectangular. Special resistance and mechanical protection of the slot exit. Avoids insulation movement.
Type RD-520		Scored slot insulator, for angled slots. Folds easily ensure a good fit to the sides and end of the slot.
Type RD-620		Scored slot insulator, for angled slots. Folds easily to ensure a good fit to the sides and end of the slot.



## Moulded pieces

We can produce moulded pieces to order with any type of our laminates.



## Textile tapes

Composition	Type	Thermal resistance (°C)	Thickness (mm)	Width (mm)	Roll length (mm)
COTTON	T Even cotton	105	0,2	10-15-20-25-30	50
	Serge cotton		0,3		
POLYESTER	Even polyester	150	0,15	10-15-20-25-30	50
	Serge polyester		0,2		
GLASS	108	500	0,08	15-20-25-30	50
	113		0,13		
	118		0,18		
GLASS polyester resin impregnated	DIAPOL VP Strapping tape	155	0,3	10-20-30	200



## Spray products

Product	Thermal class	Thermal resistance (°C)	Application
ROYASPRAY	B	130	Colorless varnish, rapid air drying. Circuit Protection
ANTIFLASH SPRAY	F	155	Anti-arc. General protection. Easy application.
ROYACOLOR	B	130	Electric motors housing paint.
SILICONE SPRAY			Anti-corrosive, lubricant, electric Insulation, highly anti-adhesive (allows easy extraction from mould).
DISOLIMP F			Grease removing solvent for cleaning electric motors and electric panels.





# ROYAL DIAMOND

## ELECTRICAL INSULATION

### Why choose ROYAL DIAMOND?

Our experience and quality, together with adequate stock levels, means that we can supply our products rapidly and efficiently anywhere in the world. We are dedicated to the manufacturing of products for the electromechanical and electronic industries. We are a company noted for our commitment to meet your electrical insulation needs and can offer you an extensive range of products: Resins, Varnishes, Flexible Laminates, Complementary Products, giving maximum coverage in electrical insulation.

#### Product range

- ✓ Varnishes
- ✓ Polyurethane and Epoxy Resins
- ✓ Flexible Laminates
- ✓ Complementary products

#### Customization

- ✓ Tailor-made technical solutions
- ✓ Customized products
- ✓ Designed in cooperation with the client
- ✓ Objective: your satisfaction

#### Quality

Our Quality Control system has been audited regularly since July 1997 and complies with all the requirements necessary for ISO 9001:2008.

Bureau Veritas certifies that our Quality Control system has been audited and conforms to the regulations required for ISO 9001:2008.

#### Experience

- ✓ More than 50 years in the sector
- ✓ Dedicated to electrical insulation since the founding of the company
- ✓ Extensive range of clients

#### Service

- ✓ High technical quality
- ✓ Competitive prices
- ✓ International reach

#### Personal attention



Royal Diamond offers delivery of material 12 months a year as well as technical and commercial support to meet your needs wherever and whenever they arise. Please get in touch either using our e-mail address or by phone: +34 937 918 006 or through the page giving details of our distributors, and contact the one nearest to you.



ISO 9001

BUREAU VERITAS  
Certification





**ROYAL DIAMOND**  
ELECTRICAL INSULATION

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