Raychem RPG

ENGINEERING GROWTH . PIONEERING EXCELLENCE

KAMFET

PERSONAL PROTECTION SOLUTION

PERSONAL PROTECTION EQUIPMENT

TE connectivity RPG

(A TE-Connectivity - RPG Enterprises JV)

OUR COMPANY

Raychem RPG (P) Ltd., incorporated in 1989, is a 50:50 joint Venture between TE Connectivity, U.S.A. (formerly Tyco Electronics) and RPG Enterprises, India.

TE Connectivity is a US$14 Billion global provider for solutions in Network, Transportation, Consumers and Industrial for over 50 years.

RPG Enterprises, an establishment of over 30 years, is one of India's fastest growing business groups with turnover of US$ 4 Billions. The group has more than fifteen companies managing diverse business interests in the areas of Automotive Tyres, Infrastructure, IT and Specialty including Pharmaceuticals, Power Ancillaries & Plantations.

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COLLECTIVE PROTECTION EQUIPMENT (CPE)

ELECTRICAL INSULATING MAT

How Do Electrical Insulation Mats Work?

Electrical Insulation mats are made of rubber. Rubber, due to its properties of resistivity, is used in many applications throughout industry to insulate and protect; it is an obvious choice for electrical safety matting and is tested vigorously to ensure the level of protection is met.

Rubber is a natural dielectric material and will therefore inhibit the flow of electric charge as a result of its molecular structure preventing the free flow of electrons. The dielectric and electrically resistant properties of rubber make it an ideal insulator. This when combined with the flexibility and cushioning nature of the material, makes it a perfect choice for electrical safety matting.

Maintaining the insulating properties of the Rubber is intrinsically linked to the construction of the compound. Any additives (dyes, fillers, preservatives and curatives) can all affect the electrical resistance, hence the need for strict quality control standards to be applied throughout manufacture to maintain the insulation performance.

KAMFET– Electrical Insulation Mats

KAMFET Electrical Insulation Mats are high voltage rubber mats, they confirm to IEC 61111 / AS/NZS 2978 and are manufactured using high quality elastomer rubber in order to provide complete protection against electric shock due to earth faults.

KAMFET Electrical Insulation Mats are suitable for use in outdoor and indoor applications and are generally placed in front of electrical panels, switch gears & high voltage equipments in order to create a safe working environment for the operators/users.

The KAMFET Electrical Insulation mat insulates the worker from the ground to avoid him being crossed by electrical current in case of direct contact or pace voltage. The choice of the class must be determined according to the maximal nominal voltage of the network.

The Marking colour is made according to the colour coding of the Standard. Matting confirms the following specifications required by Standard

- **Puncture resistance test**
- **Dielectric test**
- **Ageing test**
- **Flame retardance test**
- **Acid resistance test**
- **Oil resistance test**

Mat Specifications

- Material: Rubber
- Temp Range:-40°C to +65 °C
- Colour available in black and dark grey

Mat Features

- Can withstand upto 50 kV
- Electrical mat is hard wearing, non-slip and can be easily cleaned or washed with a mild detergent
- Anti-fatigue nature, comforting feet while standing for prolonged period
- Matting is packed in 10meters rolls to avoid joints, however cut lengths are also supplied
- Conformity with IEC 61111 / AS/NZS 2978 requirements
- Every 300mm is marked with class & working voltage details
- Electrically tested for each meter

CLASSIFICATION

The following division is based on threshold level of electric current resistance.

Classification	Max Working Voltage	Proof Test Voltage	Withstand Voltage
Class 0	1,000 AC	5,000 AC	10,000 AC
Class 1	7,500 AC	10,000 AC	20,000 AC
Class 2	17,000 AC	20,000 AC	30,000 AC
Class 3	26,500 AC	30,000 AC	40,000 AC
Class 4	36,000 AC	40,000 AC	50,000 AC

IEC 61111 MATS

The CENELEC (European Committee for Electrotechnical Standardization) has been harmonising European safety products for a number of years, and the IEC (International Electrotechnical Commission) drew up an electrical safety matting standard IEC 61111 in 1992, which was revised in 2009.

The IEC 61111 standard categorises product by working voltage, and allocates a class of protection against these. Each meter of matting is colour-coded to highlight what level of protection it offers.

* **Working voltage**, Maximum allowed voltage at which user is recommended to use the mat

** **Proof test voltage**, Specified voltage that is applied to a device or test piece for the time defined under specified conditions to assure that the electrical strength of the insulation is above a specified value

** **Withstand test voltage**, Voltage that a test piece is required to withstand without disruptive discharge or other electric failure when voltage is applied under specified conditions

HOW TO ORDER

Variant	Code
Brand Name	KAMFET

Class	Code
Class 0	0
Class 1	1
Class 2	2
Class 3	3
Class 4	4

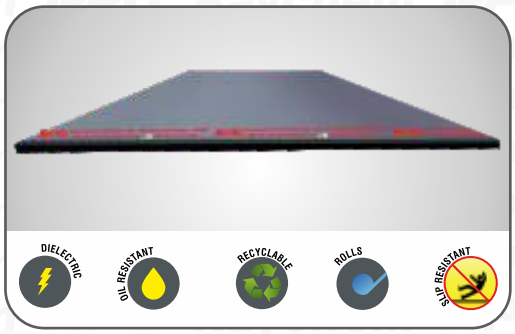
Finish	Code
Fabric	F
Corugated	C

Standard	Code
IEC 61111 Standard	I

Colour	Code
Dark Grey	G
Black	B

Width	Length	Code
0.6m	1m	0.6x1
1m	5m	1x5
1.2m	10m	1.2x10

CLASS 0



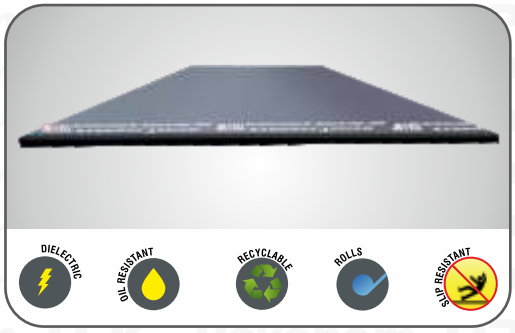
Working Voltage : 1,000 V AC
Proof Voltage : 5,000 V AC
Withstand Voltage : 10,000 V AC

FINISH : Fabric Print

PRODUCT CODE	SIZE
ES0FI **X** - 0.6 X 1	0.6M X 1M
ES0FI **X** - 0.6 X 5	0.6M X 5M
ES0FI **X** - 0.6 X 10	0.6M X 10M
ES0FI **X** - 1 X 1	1M X 1M
ES0FI **X** - 1 X 5	1M X 5M
ES0FI **X** - 1 X 10	1M X 10M
ES0FI **X** - 1.2 X 1	1.2M X 1M
ES0FI **X** - 1.2 X 5	1.2M X 5M
ES0FI **X** - 1.2 X 10	1.2M X 10M

X indicates the colour of the Mat, Kindly replace **X** with **G** for dark grey colour and **B** for black colour while ordering.

CLASS 1



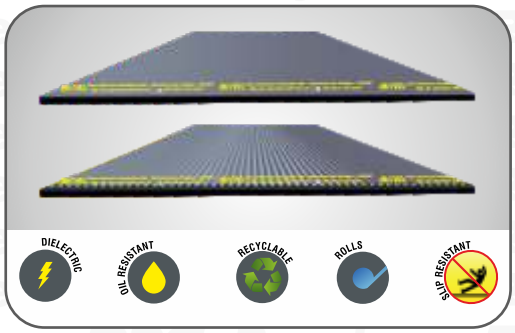
Working Voltage : 7,500 V AC
Proof Voltage : 10,000 V AC
Withstand Voltage : 20,000 V AC

FINISH : Fabric Print

PRODUCT CODE	SIZE
ES1FI **X** - 0.6 X 1	0.6M X 1M
ES1FI **X** - 0.6 X 5	0.6M X 5M
ES1FI **X** - 0.6 X 10	0.6M X 10M
ES1FI **X** - 1 X 1	1M X 1M
ES1FI **X** - 1 X 5	1M X 5M
ES1FI **X** - 1 X 10	1M X 10M
ES1FI **X** - 1.2 X 1	1.2M X 1M
ES1FI **X** - 1.2 X 5	1.2M X 5M
ES1FI **X** - 1.2 X 10	1.2M X 10M

X indicates the colour of the Mat, Kindly replace **X** with **G** for dark grey colour and **B** for black colour while ordering.

CLASS 2



Working Voltage : 17,000 V AC
Proof Voltage : 20,000 V AC
Withstand Voltage : 30,000 V AC

FINISH : Corrugated

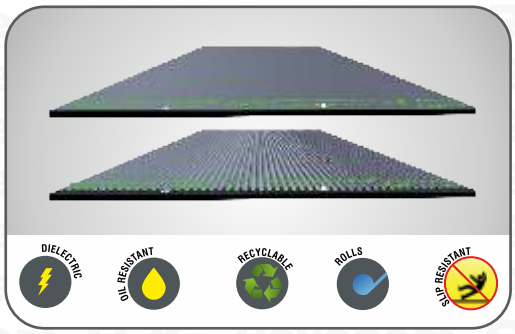
PRODUCT CODE	SIZE
ES2CI **X** - 0.6 X 1	0.6M X 1M
ES2CI **X** - 0.6 X 5	0.6M X 5M
ES2CI **X** - 0.6 X 10	0.6M X 10M
ES2CI **X** - 1 X 1	1M X 1M
ES2CI **X** - 1 X 5	1M X 5M
ES2CI **X** - 1 X 10	1M X 10M
ES2CI **X** - 1.2 X 1	1.2M X 1M
ES2CI **X** - 1.2 X 5	1.2M X 5M
ES2CI **X** - 1.2 X 10	1.2M X 10M

FINISH : Fabric Print

PRODUCT CODE	SIZE
ES2FI **X** - 0.6 X 1	0.6M X 1M
ES2FI **X** - 0.6 X 5	0.6M X 5M
ES2FI **X** - 0.6 X 10	0.6M X 10M
ES2FI **X** - 1 X 1	1M X 1M
ES2FI **X** - 1 X 5	1M X 5M
ES2FI **X** -1 X 10	1M X 10M
ES2FI **X** -1.2 X 1	1.2M X 1M
ES2FI **X** -1.2 X 5	1.2M X 5M
ES2FI **X** -1.2 X 10	1.2M X 10M

X indicates the colour of the Mat, Kindly replace **X** with **G** for dark grey colour and **B** for black colour while ordering.

CLASS 3



Working Voltage : 26,500 V AC
Proof Voltage : 30,000 V AC
Withstand Voltage : 40,000 V AC

FINISH : Corrugated

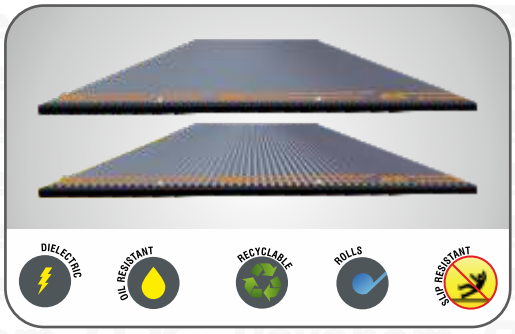
PRODUCT CODE	SIZE
ES3CI **X** - 0.6 X 1	0.6M X 1M
ES3CI **X** - 0.6 X 5	0.6M X 5M
ES3CI **X** - 0.6 X 10	0.6M X 10M
ES3CI **X** - 1 X 1	1M X 1M
ES3CI **X** - 1 X 5	1M X 5M
ES3CI **X** - 1 X 10	1M X 10M
ES3CI **X** - 1.2 X 1	1.2M X 1M
ES3CI **X** - 1.2 X 5	1.2M X 5M
ES3CI **X** - 1.2 X 10	1.2M X 10M

FINISH : Fabric Print

PRODUCT CODE	SIZE
ES3FI **X** - 0.6 X 1	0.6M X 1M
ES3FI **X** - 0.6 X 5	0.6M X 5M
ES3FI **X** - 0.6 X 10	0.6M X 10M
ES3FI **X** - 1 X 1	1M X 1M
ES3FI **X** - 1 X 5	1M X 5M
ES3FI **X** - 1 X 10	1M X 10M
ES3FI **X** - 1.2 X 1	1.2M X 1M
ES3FI **X** - 1.2 X 5	1.2M X 5M
ES3FI **X** - 1.2 X 10	1.2M X 10M

X indicates the colour of the Mat, Kindly replace **X** with **G** for dark grey colour and **B** for black colour while ordering.

CLASS 4



Working Voltage : 36,000 V AC
Proof Voltage : 40,000 V AC
Withstand Voltage : 50,000 V AC

FINISH : Corrugated

PRODUCT CODE	SIZE
ES4CI **X** - 0.6 X 1	0.6M X 1M
ES4CI **X** - 0.6 X 5	0.6M X 5M
ES4CI **X** - 0.6 X 10	0.6M X 10M
ES4CI **X** - 1 X 1	1M X 1M
ES4CI **X** - 1 X 5	1M X 5M
ES4CI **X** - 1 X 10	1M X 10M
ES4CI **X** - 1.2 X 1	1.2M X 1M
ES4CI **X** -1.2 X 5	1.2M X 5M
ES4CI **X** -1.2 X 10	1.2M X 10M

FINISH : Fabric Print

PRODUCT CODE	SIZE
ES4FI **X** - 0.6 X 1	0.6M X 1M
ES4FI **X** - 0.6 X 5	0.6M X 5M
ES4FI **X** - 0.6 X 10	0.6M X 10M
ES4FI **X** - 1 X 1	1M X 1M
ES4FI **X** - 1 X 5	1M X 5M
ES4FI **X** - 1 X 10	1M X 10M
ES4FI **X** - 1.2 X 1	1.2M X 1M
ES4FI **X** - 1.2 X 5	1.2M X 5M
ES4FI **X** - 1.2 X 10	1.2M X 10M

X indicates the colour of the Mat, Kindly replace **X** with **G** for dark grey colour and **B** for black colour while ordering.

AS/NZS 2978 MATS

KAMFET AS/NZS electrical insulation mat confirm to the Australia/New Zealand standard - AS/NZS 2978:1995 - and are switchboard matting or non-conductive mats which help prevent electric shock to the personnel from high voltage electrical equipment, such as fuse boxes, transformers, switch boards, switch gears and control panels.

The AS/NZS mats are made of rubber compound which provides high level of electrical insulation of high quality elastomer rubber.

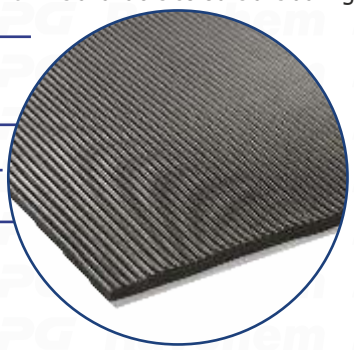
The standard AS/NZS 2978 classifies the mats according to their applications as the following:

- **Class A :** General Purpose Mats having a minimum thickness of 6 mm
- **Class B :** A lightweight insulating mat for indoor usage on surfaces without protuberances or projections having a minimum thickness of 3 mm

Both of these classes of mats are intended to protect personnel where circumstances involve the possibility of contact with conductors or electrical equipment whose voltage does not exceed 650 V a.c. r.m.s. between conductors and earth.

The surface pattern of the mats is corrugated on one side and fabric impression on another side which makes it hard wearing and slip resistant. The available colours are dark grey & black

Class	Minimum Thickness (in mm)	Maximum Working Voltage	Proof Voltage
Class A	6.5	650 V	15 KV
Class B	3	650 V	15 KV



PRODUCT CODE	
CLASS A	**CLASS B**
ESARAN **X**-1X1	ESBFAN **X**-1X1
ESARAN **X**-1X10	ESBFAN **X**-1X10
ESARAN **X**-1.2X1	ESBFAN **X**-1.2X1
ESARAN **X**-1.2X10	ESBFAN **X**-1.2X10

X indicates the colour of mat. Kindly replace **X** with **G** for Dark Grey and **B** for Black colour while ordering

ACCESSORIES : CARRYING BAGS FOR MAT

PRODUCT CODE	DESCRIPTION
ESCB1-0.6X1 C BAGS(B5)	Carrying Bag for 600 mm wide mat
ESCB2-1X1 C BAG(B5)	Carrying Bag for 1000 mm wide mat

- Mat Carrying Bag are portable fabric carrying bags designed to carry insulating mats onsite or outdoor jobs.
- The bag is provided with hand straps as well as a shoulder strap for the convenience of the user.
- A transparent pocket is provided for the user to insert name of the user/ instruction leaflet as needed.

ELECTRICAL INSULATING BLANKET

IEC 61112 Blanket

Electrical insulating blanket is used for the protection of personnel from accidental contact with live or earthed electrical conductors, apparatus or circuits and avoidance of short circuits on electrical installations. It is made of elastomer giving it dielectric properties. KAMFET Electrical insulating blankets conform to IEC 61112. The IEC blanket is orange in colour.

CLASS 00

Working voltage : 500 V AC
Proof voltage : 2,500 V AC
Withstand voltage : 5,000 V AC
Thickness : <1.5 mm
Category : AH & C

PRODUCT CODE	SIZE
ESARIO-0.6X1	0.6X1
ESARIO-0.6X10	0.6X10
ESARIO-1X1	1X1
ESARIO-1X10	1X10
ESARIO-1.2X1	1.2X1
ESARIO-1.2X10	1.2X1

CLASS 0

Working voltage : 1,000 V AC
Proof voltage : 2,500 V AC
Withstand voltage : 5,000 V AC
Thickness : <2.2 mm
Category : AH & C

PRODUCT CODE	SIZE
ESBRIO-0.6X1	0.6X1
ESBRIO-0.6X10	0.6X10
ESBRIO-1X1	1X1
ESBRIO-1X10	1X10
ESBRIO-1.2X1	1.2X1
ESBRIO-1.2X10	1.2X10

PERSONAL
PROTECTION EQUIPMENT
(PPE)

ELECTRICAL INSULATING GLOVES

KAMFET range of Rubber Electrical Insulating Gloves protect the people working on live voltages or working in the proximity of electrical installations from electrical shocks. Our gloves can be used for a wide range of voltages from 500 V to 36000 V and are compliant with EN60903:2003, IEC60903:2014 and CE category III. Its ergonomic design provides comfort to the wearer for longer time wearing and its thickness ensures the dexterity. For mechanical protection from cut and abrasion, the rubber gloves must be used along with leather over glove. For composite gloves leather protectors won't be required. Our gloves come with two different cuff patterns rolled edge (O) and Straight edge (S)

RUBBER GLOVES

Product Code	Class	Palm Size X	Category	Length (cm) Y	Packaging Colour	Cuff Pattern Z
KL-AIXYZ	00	8-9-10-11-12	AZC	28/36	Beige	O/S
KL-BIXYZ	0	8-9-10-11-12	AZC	28/36	Red	O/S
KL-CIXYZ	1	8-9-10-11-12	RC	36/41	White	O/S
KL-DIXYZ	2	8-9-10-11-12	RC	36/41	Yellow	O/S
KL-EIXYZ	3	8-9-10-11-12	RC	36/41	Green	O/S
KL-FXYZ	4	8-9-10-11-12	RC	41	Orange	O/S

COMPOSITE GLOVES

Product Code	Class	Palm Size X	Category	Length (cm) Y	Packaging Colour	Cuff Pattern Z
KM-AIXYZ	00	8-9-10-11-12	RC	36	Beige	O/S
KM-BIXYZ	0	8-9-10-11-12	RC	36	Red	O/S
KM-CIXYZ	1	8-9-10-11-12	RC	36	White	O/S
KM-DIXYZ	2	8-9-10-11-12	RC	36	Yellow	O/S

While ordering kindly replace "X" with palm size, "Y" with length (cm), "Z" with 'R' for rolled edge cuff pattern and 'S' for straight cuff pattern.

*Obtaining the category authorises an additional of 0.6mm Signification of category letters :
A : Acid, Z : Ozone, H : Oil, C : Very low temperature, R : A +Z+H

GLOVE ACCESSORIES

Overgloves (Leather Protectors)

- KAMFET overgloves are made from cow hide leather and split leather at cuff or comes in goat leather & split leather
- The gloves confirm to CE, EN 388-2122 / EN 388 3133, EN 420
- These gloves are used as an additional protection for Rubber electrical gloves
- They protect the Rubber electrical gloves from cut, tear & Puncture
- The gloves come with a velcro adjustment strap which ensures proper fitting of the overgloves

Product Code	To be used with	Size	Length (mm)	Colour
ESOLV	Class 00 & 0	9, 10, 11	310	White
ESOMV	Class 1 & 2	9, 10, 11	310	Beige
ESOHV	Class 3 & 4	9, 10, 11	310	Beige

Inner gloves

- KAMFET inner gloves are made of cotton
- These gloves are worn under the electrical gloves, to provide comfort to the wearer by absorb the perspiration
- The gloves confirm to CE EN 388 (Minimum Risk Only)
- Mitten type gloves are also available (Finger less)

Product Code	Size
ESU	Universal
ESU - M	Mitten type (finger less) Universal

Gloves Carrying Bag

- The gloves carryingbag are made up of washable polyester fabric
- The bag comes with a belt loop for tucking it in the waist belt and also a hook for hanging it to the loops

Product Code	Dimension (mm)	To be used with
ESGB	420 x 170	Class 00 & 0

CLASSIFICATION

Classification	Max Working Voltage	Proof Test Voltage	Withstand Voltage
Class 00	500 AC	2,500 AC	5,000 AC
Class 0	1,000 AC	5,000 AC	10,000 AC
Class 1	7,500 AC	10,000 AC	20,000 AC
Class 2	17,000 AC	20,000 AC	30,000 AC
Class 3	26,500 AC	30,000 AC	40,000 AC
Class 4	36,000 AC	40,000 AC	50,000 AC

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A STUDY BY THE ECONOMIC TIMES | GREAT PLACE TO WORK

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