



ELECTRICAL Insulation MAT



INTRODUCTION

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.

SAFE – Electrical Insulation Mats

SAFE Electrical Insulation Mats are high voltage rubber mats, they conform to IEC 61111 and are manufactured using high quality elastomer rubber in order to provide complete protection against electric shock due to earth faults.

SAFE 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 SAFE 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 IEC 61111, Matting confirms the following specifications required by IEC 61111:

- **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 +70°c
- Colour available in black and dark grey

Mat Features

- Can withstand 10 KV to 50 KV
- Suitable for both AC & DC installation
- Electrical mat is hard wearing, non-slip and can be easily clean or washed with a mild detergent
- Anti-fatigue nature, comfort feet while standing for prolonged period
- Matting is packed in 10 meters rolls to avoid joints, however cut lengths are also supplied
- Conformity with IEC 61111-2009 requirements
- Every 600 mm is marked with class & working voltage
- Electrically tested for each meter

Which product should I choose?

There is now only one industry standard for electrical safety matting in European Union. This harmonisation means only the IEC EN 61111:2009 live working- electrical insulating matting is correct under CENELEC regulation.

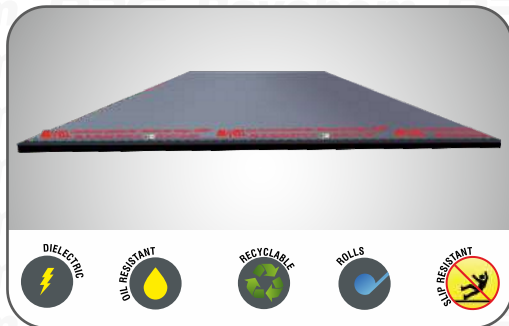


IEC 61111 MATS

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.

CLASS 0



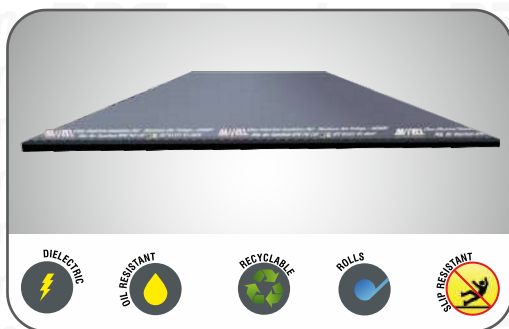
Working Voltage : 1,000 V AC
Proof Voltage : 5,000 V AC
Withstand Voltage : 10,000 V AC

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



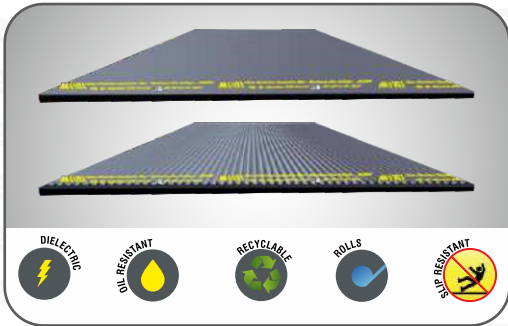
Working Voltage : 7,500 V AC
Proof Voltage : 10,000 V AC
Withstand Voltage : 20,000 V AC

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

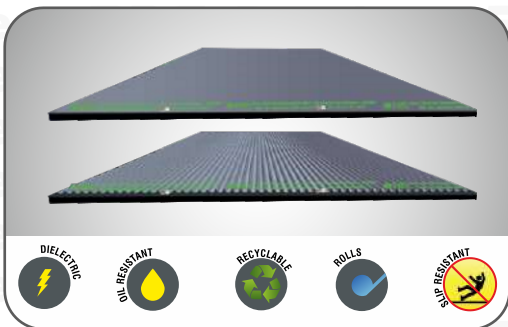
PRODUCT CODE	SIZE
ES2RI X - 0.6 X 1	0.6M X 1M
ES2RI X - 0.6 X 5	0.6M X 5M
ES2RI X - 0.6 X 10	0.6M X 10M
ES2RI X - 1 X 1	1M X 1M
ES2RI X - 1 X 5	1M X 5M
ES2RI X - 1 X 10	1M X 10M
ES2RI X - 1.2 X 1	1.2M X 1M
ES2RI X - 1.2 X 5	1.2M X 5M
ES2RI X - 1.2 X 10	1.2M X 10M

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

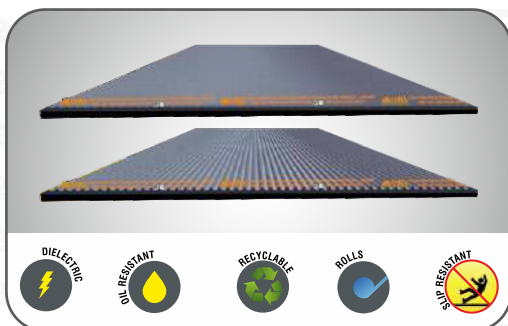
PRODUCT CODE	SIZE
ES3RI X - 0.6 X 1	0.6M X 1M
ES3RI X - 0.6 X 5	0.6M X 5M
ES3RI X - 0.6 X 10	0.6M X 10M
ES3RI X - 1 X 1	1M X 1M
ES3RI X - 1 X 5	1M X 5M
ES3RI X - 1 X 10	1M X 10M
ES3RI X - 1.2 X 1	1.2M X 1M
ES3RI X - 1.2 X 5	1.2M X 5M
ES3RI X - 1.2 X 10	1.2M X 10M

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
ES4RI X - 0.6 X 1	0.6M X 1M
ES4RI X - 0.6 X 5	0.6M X 5M
ES4RI X - 0.6 X 10	0.6M X 10M
ES4RI X - 1 X 1	1M X 1M
ES4RI X - 1 X 5	1M X 5M
ES4RI X - 1 X 10	1M X 10M
ES4RI X - 1.2 X 1	1.2M X 1M
ES4RI X - 1.2 X 5	1.2M X 5M
ES4RI 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.

ASTM D178 MATS

ASTM Electrical Insulation mats, also known as switchboard matting or non-conductive mats are designed to help prevent electric shock to the personnel from high voltage electrical equipment, such as fuse boxes, control panels, switch gears etc.

Our mats conform to ASTM D178 standard and are made of high quality elastomer rubber for Type I and Type II mats. Type II mats are also available in Vinyl.

Type II mats are:-

- Ozone Resistant
- Flame resistant
- Oil resistant

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.

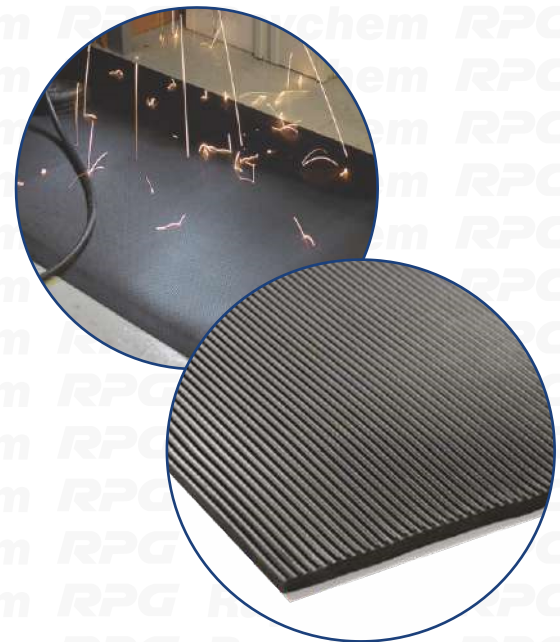
These mats are suitable for outdoor and indoor applications and are generally placed in front of electrical panels, switch gears & high voltage equipment to create a safe working environment for the operators/users. The choice of the class must be determined according to the maximal nominal voltage of the network.

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

TECHNICAL PROPERTIES

Characteristics	Performance
Colour	Black / Dark Grey
Density (gm/cm ³)	1.50
Tensile Strength (Kgs/cm)	5.7
Elongation at Break (%)	300
Hardness (Shore A)	75
Working Temperature (C)	-25 to +65

PRODUCT CODE			
TYPE I Rubber	TYPE II Rubber	TYPE II Vinyl	Size
Class 0			
ES0RAT1R X -2'X3'	ES0RAT2R X -2'X3'	ES0RAT2V X -2'X3'	2'X3'
ES0RAT1R X -3'X3'	ES0RAT2R X -3'X3'	ES0RAT2V X -3'X3'	3'X3'
ES0RAT1R X -4'X3'	ES0RAT2R X -4'X3'	ES0RAT2V X -4'X3'	4'X3'
ES0RAT1R X -3'X75'	ES0RAT2R X -3'X75'	ES0RAT2V X -3'X75'	3'X75'
Class 1			
ES1RAT1R X -2'X3'	ES1RAT2R X -2'X3'	ES1RAT2V X -2'X3'	2'X3'
ES1RAT1R X -3'X3'	ES1RAT2R X -3'X3'	ES1RAT2V X -3'X3'	3'X3'
ES1RAT1R X -4'X3'	ES1RAT2R X -4'X3'	ES1RAT2V X -4'X3'	4'X3'
ES1RAT1R X -3'X75'	ES1RAT2R X -3'X75'	ES1RAT2V X -3'X75'	3'X75'
Class 2			
ES2RAT1R X -2'X3'	ES2RAT2R X -2'X3'	ES2RAT2V X -2'X3'	2'X3'
ES2RAT1R X -3'X3'	ES2RAT2R X -3'X3'	ES2RAT2V X -3'X3'	3'X3'
ES2RAT1R X -4'X3'	ES2RAT2R X -4'X3'	ES2RAT2V X -4'X3'	4'X3'
ES2RAT1R X -3'X75'	ES2RAT2R X -3'X75'	ES2RAT2V X -3'X75'	3'X75'
Class 3			
ES3RAT1R X -w 2'X3'	ES3RAT2R X -2'X3'	ES3RAT2V X -2'X3'	2'X3'
ES3RAT1R X -3'X3'	ES3RAT2R X -3'X3'	ES3RAT2V X -3'X3'	3'X3'
ES3RAT1R X -4'X3'	ES3RAT2R X -4'X3'	ES3RAT2V X -4'X3'	4'X3'
ES3RAT1R X -3'X75'	ES3RAT2R X -3'X75'	ES3RAT2V X -3'X75'	3'X75'
Class 4			
ES4RAT1R X -2'X3'	ES4RAT2R X -2'X3'	ES4RAT2V X -2'X3'	2'X3'
ES4RAT1R X -3'X3'	ES4RAT2R X -3'X3'	ES4RAT2V X -3'X3'	3'X3'
ES4RAT1R X -4'X3'	ES4RAT2R X -4'X3'	ES4RAT2V X -4'X3'	4'X3'
ES4RAT1R X -3'X75'	ES4RAT2R X -3'X75'	ES4RAT2V X -3'X75'	3'X75'



X indicates the colour of the mat kindly replace **X** with **G** for darkgrey 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.

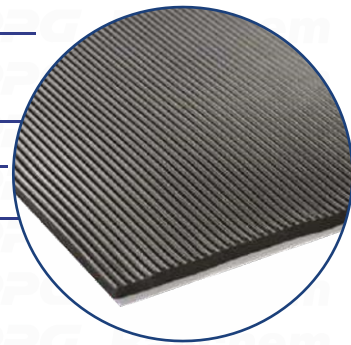
The standard AS/NZS 2978 classifies the mats according to their applications as the following:

- **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
ESCB1-700X110	Carrying Bag for 600 mm wide mat
ESCB2-1100X110	Carrying Bag for 1000 mm wide mat



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