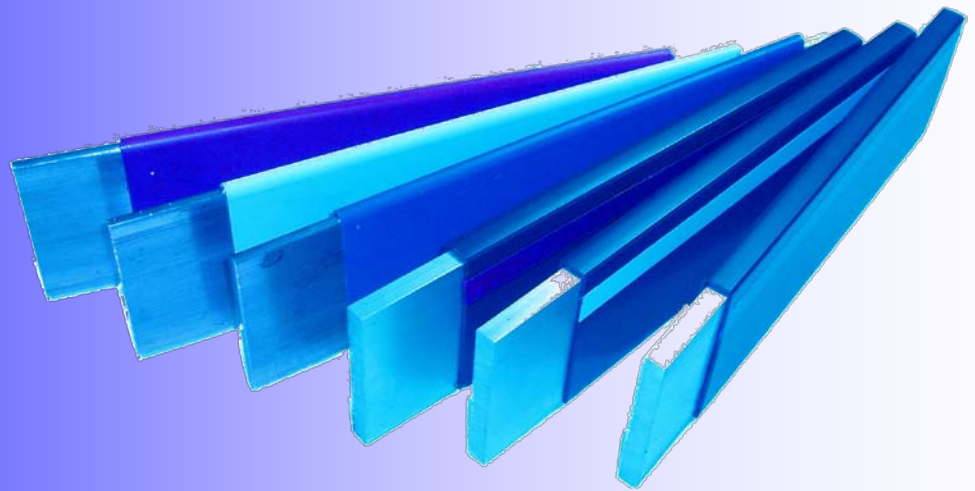


Busbar Insulation



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Descriptive

Use

KENTAN BUSBAR SLEEVING provides a strong, durable and economical means of insulating busbars in electrical switchboards. Used with the JOINT COVERS (refer to Publication JC 2010) a completely insulated busbar system is possible.

Description

The sleeving is extruded from rigid high impact, bendable grade, flame retarded PVC. Wall thickness is 1.3 – 1.5mm. An extrusion is made for each size of busbar. The extrusions that are square edged can be used for full radius and square edged busbars.

Unlike heat shrink sleeving, this rigid sleeving will not tear during installation or become brittle due to time and heat.

Methods of Supply

The extrusion is supplied in lengths of 3 metres.

Standard colour is Black. However, phase colours may also be stocked in some sizes.

Phase coloured extrusion is available to order, subject to quantity.

Black sleeving may be phase identified by a 12 mm strip of self adhesive vinyl, supplied in rolls of 46 metres.

Technical

Compliance to Standards

This sleeving complies with the following clauses of AS/NZS 3439.1 : 2002
7.4.2.1 Protection by insulation of live parts

- Live parts shall be completely covered with insulation which can only be removed by destruction or by use of a tool.
- Solid extruded PVC tubing, min. 1.0 mm thick.

Used with the BUSBAR JOINT COVERS, the insulation system can be classified as a busbar enclosure, (separation of busbars from functional units) as per clause 7.7.2.2

Insulation

Clause 8.2.2.2 of AS/NZS 3439.1:2002. Testing of enclosures made of insulating material.

Test Voltage $3500V \times 1.5 = 5250V$ AC

Rated Insulation Voltage 1500V

The sleeving has also been tested to 10kV, proving its suitability for use on 3.3kV systems.

Flammability / Fire Hazard

The sleeving has been tested to AS/NZS 60695.2.11:2001 and complies to glow-wire flammability rating of 960°C

Effect on Rating of Busbars

Short-Circuit Current

The sleeving has been used on bars tested on busbars up to 80kA for 1 second without deterioration.

Continuous (Thermal) Current

The use of this sleeving improves the thermal rating of the busbars. Tests to clause 8.2.1 of AS/NZS3439.1:2002 showed that:

1 - 100 x 6.35 cu bars/phase with sleeving ran 4.6°C (average) cooler than bare bars (1200A)

2 - 50 x 6.35 cu bars/phase with sleeving ran 2.1°C (average) cooler than bare bars (1140A)

Material Details

Extrusion

Product name	PVC Compound	
Chemical name	Polyvinyl chloride mixture	
Flammability UL94 VO	(self extinguishing)	
Vicat Softening Point (c)	ASTM D1525	120°C/h
Hardness (Shore D)	ASTM D2240	82
Specific Gravity (g/cc)	ASTM D792	1.48
Impact Strength (J/mm)	Instrumental Input method	11
U/V Stabilised		

Coloured Tape

Product name	Vinyl tape, self adhesive
Temp-rating	120°C
Flammability	Flame retarded

Installation

Straight Sleeving

The KENTAN BUSBAR SLEEVING is faster to install than heat shrink sleeving because it is simply cut to length and slipped over the bars. There is no need to apply heat, or to trim the ends. The extrusion can be cut by hacksaw, bandsaw, dropsaw or sharp knife. Cutting by means of a high speed saw is not recommended.

Bending Sleeving

This (bendable) grade of rigid sleeving is fitted over the bar prior bending, and is bent at the same time as the busbar.

A hand operated bar-bender where one side of the bar is clamped is not suitable as it does not allow the sleeving to move.



The bending stretches the sleeving on the outside of the bend and produces a "bubble" on each side of the inside of the bend. There is no puncturing in this process.



Installation

Sleeving for Busplugs

Where insulated vertical (dropper) bars are used to supply motor control or feeder circuits by busplugs, provision can be made at every likely connection interval.

Extrusions can be supplied with notches at the intervals specified by the customer.

Standard notches are -

38H x 20D	63-400A
72H x 20D	800-1200A

Other sizes can be made as required.



Busplug Blanks

Busbar blanks are used to cover the notched areas where they are not being used for connection. These are made from injection moulded nylon. A small ridge on the inside of the moulding rests on the cut-out of the sleeving to resist dislodgement.



Installation

End Stops

These seal the ends of the extrusions to complete the insulation. End stops are cut from sponge rubber and are held in place by being compressed by the extrusion. They may be glued if desired. An overhang of at least 10mm on the sleeving is recommended.



Rear of switchboard showing busbars insulated by rigid sleeving and busbar joint covers.
(Picture by kind permission, SRS COMCELL SWITCHBOARDS)

KENTAN ENGINEERING

A.B.N. 21 009 217 654

Unit 3, 8 Carole Road
MADDINGTON Western Australia 6109

P.O. Box 284
MADDINGTON Western Australia 6989

International Telephone: 61 8 9493 5255

National Telephone: (08) 9493 5255

Facsimile: (08) 9493 5242

Email: sales@kentan.com.au

Internet: www.kentan.com.au



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