Scotch® Super 33+™

Vinyl Electrical Tape

1. Product Description

Scotch® Super 33+™ Vinyl Electrical Tape is a premium grade, 0,18 mm thick, all-weather vinyl-insulating tape. It is designed to perform continuously in ambient temperatures up to 105 °C. The tape is conformable for cold weather application down to -18 °C. It has high resistance to abrasion, moisture, alkalis, acids, corrosion and varying weather conditions (including ultraviolet exposure).

The combination of elastic backing and aggressive adhesive provides moisture-tight electrical and mechanical protection with minimum bulk. Scotch® Super 33+™ Vinyl Electrical Tape is UL Listed, CSA approved and has a VDE Marks License for IEC 60454-3-1-7/F-PVC P/90.

- Polyvinyl chloride (PVC) backing
- Pressure-sensitive rubber-based adhesive
- Compatible with solid dielectric cable insulations
- Compatible with rubber and synthetic splicing compounds, as well as epoxy and polyurethane resins
- Inhibits corrosion of electrical conductors
- For indoor or outdoor applications

2. Applications

- Primary electrical insulation for all wire and cable splices rated up to 600 volts and up to 105 °C
- Primary electrical insulation for 600 Volt bus applications and protective jacketing for low and high voltage bus
- Protective jacketing for high voltage cable splices and repairs
- Harnessing of wires and cables

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Reference: AABBCC04038_02

Issue date 21.01.2020
Supersedes 2003

3. Typical Properties

Physical Properties	Typical Value
Temperature Rating - UL 510	80 °C
Temperature Rating Continuous Operating Temperature (IEC60454-3-1) max. Temperature (CSA C22.2)	 -18 °C up to 90 °C 105 °C
Colour	Black
Thickness	0,18 mm
Adhesion to Steel (ASTM D1000) 22 °C -18 °C	 3,0 N/10 mm 6,5 N/10 mm
Adhesion to Backing (ASTM D1000) 22 °C -18 °C	 3,0 N/10 mm 6,5 N/10 mm
Breaking Strength (ASTM D1000) 22 °C	 26,3 N/10 mm
Ultimate Elongation (ASTM D1000) 22 °C -18 °C	 250 %. 100 %
Flammability (Maximum) UL 510 ASTM D-1000	 1 sec. 4 sec.
Accelerated Aging (ASTM D1000)	80 %
Flagging (ASTM D1000)	<2,5 mm
Telescoping 24 Hours at 50 °C	 <2,5 mm
Electrical Properties	Typical Value
Voltage Rating - UL 510	600V
Dielectric Breakdown (ASTM D1000) Standard Condition V/mm High Humidity	 8 kV 90 % of std.
Insulation Resistance (ASTM D1000) (High Humidity Method)	 >1x10^6 Megohms

Properties measured at room temperature 23 °C unless otherwise stated.

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4. User Information

4.1 Specifications

Scotch® Super 33+™ Vinyl Electrical Tape is based on polyvinyl chloride (PVC) and/or its copolymers and has a rubber-based, pressure-sensitive adhesive. The tape is 0,18 mm thick, UL Listed and marked per UL Standard 510 as “Flame Retardant, Cold and Sunlight Resistant.” The tape is applicable at temperatures ranging from -18 °C through 38 °C without loss of physical properties. It’s classified for use in both indoor and outdoor environments and is compatible with synthetic cable insulations, jackets and splicing compounds. The tape will remain stable and will not telescope more than 2,54 mm when maintained at temperatures below 50 °C.

4.2 Engineering/Architectural Specification

Primary electrical insulation (branch wiring in wet or dry locations): All splices for 600 Volt wire rated 105 °C and below shall be insulated with a minimum of two half-lapped layers of Scotch® Super 33+™ Vinyl Electrical Tape. All connectors having irregular surfaces are padded with 3M™ Scotchfil™ Electrical Insulation Putty or Scotch® Linerless Rubber Splicing Tape 130 °C prior to insulating with Scotch® Super 33+™ Vinyl Electrical Tape. Mechanical protection (outer jacketing): All rubber and thermoplastic insulating high voltage power cable tape splices and repairs shall be overwrapped with at least two half-lapped layers of Scotch® Super 33+™ Vinyl Electrical Tape.

4.3 Installation Techniques

Scotch® Super 33+™ Vinyl Electrical Tape should be applied in half-lapped layers with sufficient tension to produce a uniform wind (for most applications this tension will reduce the tape’s width to approximately 60 % of its original width). On pigtail splices, the tape must be wrapped beyond the end of the wires and then folded back, leaving a protective cushion to resist cut-through. Wrap tape up-hill, taping from a smaller diameter surface to a larger diameter surface. Apply the tape with no tension on the last wrap to prevent flagging.

4.4 Agency Approvals & Self Certifications

- UL Listed; UL 510 Standard “Insulating Tape” (product category OANZ), File E129200
- CSA Certification; Standard C22.2 No.197-M1983 “PVC Insulating Tape,” File LR 48769
- VDE Marks License no. 130462 for Type 7: IEC 60454-3-1-7/F-PVC P90
- Meets A-A-55809
- For RoHS information, please visit www.3M.com/RoHS

4.5 Shelf Life & Storage

This product has a 5-year shelf life from date of manufacture when stored in a humidity controlled area (10 °C to 27 °C and <75 % relative humidity).

4.6 Availability

Please contact your local distributor.

5. Additional Information

To request additional product information, see address below.

Important Notice

All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluates the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method or application.

Values presented have been determined by standard test methods and are average values not meant to be used for specification purposes.

All questions of warranty and liability relating to 3M products are governed by the terms of the respective sale subject, where applicable, to the prevailing law.

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