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IEEE Guide for Selecting and Testing Jackets for Power, Instrumentation, and Control Cables

IEEE Power and Energy Society

Developed by the
Insulated Conductors Committee

IEEE Std 532™-2021
(Revision of IEEE Std 532-2007)

IEEE

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Approved 9 February 2021

IEEE SA Standards Board

Abstract: Properties of commonly used jackets, as well as selection and testing of jackets, are covered in this guide. It is written for those responsible for optimizing cable designs. The purpose is to present a reasonably complete picture of the role of jackets so that the subject can be approached in an orderly and organized manner. An effort has been made to avoid the highly technical language and theory commonly used by electrical engineers and chemists to discuss the more detailed application of jackets.

Keywords: cables, IEEE 532™, jackets, testing

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Introduction

This introduction is not part of IEEE Std 532-2021, IEEE Guide for Selecting and Testing Jackets for Power, Instrumentation, and Control Cables.

This guide is concerned with jackets as they are defined in The Authoritative Dictionary of IEEE Standards, Seventh Edition ("A thermoplastic or thermosetting plastic covering, sometimes fabric reinforced, applied over the insulation, core, metallic sheath, or armor of a cable"). Users should note that this guide makes reference to standards developed by the Insulated Cable Engineers Association (ICEA), the Association of Edison Illuminating Companies (AEIC), and other organizations.

This guide is written to provide cable users guidance in the selection of jackets for the purpose of optimizing cable design. A secondary purpose is to present a reasonably complete picture of the types and functions of jackets so that the user can approach the subject in an orderly and logical manner.

An effort has been made to avoid the highly technical language and theory commonly used by electrical engineers and chemists to discuss the more detailed application of jackets. As a result, the various topics covered in this guide are not necessarily exhaustive in every respect.

This guide provides recommendations for the properties, characteristics, design, and testing of various types of cable jackets. It is the intent of this guide to help ensure that jacket materials are suitably specified for their intended applications. Also, jackets should provide a level of electrical, thermal, mechanical, and chemical durability to help ensure that cable performance is reliable under normal use and should reduce the danger to the user or surroundings. The users of this guide are cautioned that all data contained herein are presented for information purposes only. Where deemed necessary, additional, as well as more detailed, information should be obtained by consultation with the cable manufacturer and other experts in the field.

Contents

IEEE Guide for Selecting and Testing Jackets for Power, Instrumentation, and Control Cables

1. Overview

This guide provides recommendations for the properties, characteristics, design, and testing of various types of extruded cable jackets. It is the intent of this guide to help ensure that jacket materials are suitably specified for their intended applications. Jackets should also provide a level of electrical, thermal, mechanical, and chemical durability to help ensure that cable performance is reliable under normal use, and to reduce danger to the user or surroundings.

1.1 Scope

This guide covers the selection and testing of jackets for power, instrumentation, and control cables. It is written for those responsible for optimizing cable design and performance. The purpose is to present a reasonably complete picture of the role of jackets so that the subject can be approached in an orderly and organized manner. An effort has been made to avoid the highly technical language and theory commonly used by electrical engineers and chemists to discuss the more detailed application of jackets.

1.2 Purpose

The purpose of this guide is to provide cable users guidance in the selection of jackets to optimize cable design. A secondary purpose is to present a reasonably complete picture of the types and functions of jackets so that the user can approach the subject in an orderly and logical manner.

1.3 Word usage

The word *shall* indicates mandatory requirements strictly to be followed in order to conform to the standard and from which no deviation is permitted (*shall* equals *is required to*).[1,2]

The word *should* indicates that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required (*should* equals *is recommended that*).

[1]The use of the word *must* is deprecated and cannot be used when stating mandatory requirements; *must* is used only to describe unavoidable situations.
[2]The use of *will* is deprecated and cannot be used when stating mandatory requirements; *will* is only used in statements of fact.