IEEE Guide to Select Terminations for Shielded Alternating-Current Power Cable Rated 5 kV – 46 kV

IEEE Power & Energy Society

Sponsored by the
Insulated Conductors Committee

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Abstract: A step-by-step process for selecting an appropriate termination that is commensurate with a particular shielded power cable design is provided in this guide. Over the years, shielded power cables have been developed that employ many different insulating materials and many different shielding systems, such that, there are numerous issues to consider when selecting a termination for a particular cable design. Over the same period of time, many different termination methods and designs have been developed that serve the same purpose, but employ different application methodologies.

This guide does not attempt to cover every cable and termination design, and is generally restricted to single conductor underground residential distribution (URD) and shielded power cable that have a voltage rating from 5 kV – 46 kV, which includes some industrial cables. By nature, the terminations referred to in this guide are considered to be "live front," in that the terminations comprise a transition from a shielded power cable system to an energized component or bus that is either bare or simply covered.

Keywords: power cable, shielded, termination

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Introduction

This introduction is not part of IEEE Std 1637-2010, IEEE Guide to Select Terminations for Shielded Alternating-Current Power Cable Rated 5 kV – 46 kV.

This guide was developed within the IEEE Insulated Conductors Committee of the Power & Energy Society as an introduction to the process of selecting the appropriate termination for application on a particular cable design and within a particular environment. This guide is a new document that is intended as an introduction to the selection process. Feedback would be appreciated as this guide is gradually revised to serve a broader range of users.

In its current form, this guide is very general in nature and provides only a broad overview. Many factors can influence the selection of a particular termination for any given application, including user personal preferences. This guide is not intended to be exhaustive in covering the considerations necessary in making a termination selection. Consequently, the user should consult the expertise of knowledgeable individuals before making final choices.

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Contents

IEEE Guide to Select Terminations for Shielded Alternating-Current Power Cable Rated 5 kV – 46 kV

1. Overview

1.1 Scope

This guide will discuss the reasons why a termination is necessary on a shielded power cable. Included is a short tutorial on termination theory, a general discussion of design and materials and a selection flow chart.

1.2 Purpose

The purpose of this project is to guide the reader in selecting terminations for shielded-power cable 5 kV – 46 kV.

1.3 General

This guide provides the reader with guidance in selecting terminations for shielded-power cables rated 5 kV – 46 kV.