ANSI/ICEA S-105-692-2020
Standard for 600 Volt Single Layer Thermoset Insulated Utility Underground Distribution Cables

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Contents

APPENDICES

LIST OF TABLES

Foreword

This standard publication, *Standard for 600 Volt Single Layer Thermoset Insulated Utility Underground Distribution Cables*, was developed by the Insulated Cable Engineers Association, Inc. (ICEA)

ICEA standards and guides are adopted in the public interest and are designed to eliminate misunderstanding between the manufacturer and the user and to assist the user in selecting and obtaining the proper product for his particular need. Existence of an ICEA standard or guide does not in any respect preclude the manufacture or use of products not conforming to the standard or guide. The user of this standard is cautioned to observe any health or safety regulations and rules relative to the manufacture and use of the cable made in conformity with this standard.

Request for interpretation of this standard must be submitted in writing to:

Insulated Cable Engineers Association, Inc.
www.icea.net

An official written interpretation will be provided. Suggestions for improvements gained in the use of this standard will be welcomed by the Association.

The members of the ICEA working group contributing to the revision of this publication consisted of the following:

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Section 1
GENERAL

1.1 SCOPE

This standard applies to the materials, constructions, and testing of single conductor cables and assemblies of completed single conductor thermoset insulated cables, with an insulated or bare copper or an insulated aluminum neutral, used for the distribution of electrical energy at phase-to-phase voltages not exceeding 600 volts, or phase-to-ground voltage not exceeding 480 volts, 60 Hz, and at conductor temperatures not exceeding 90 °C for use in direct burial and underground ducts.

1.2 CONSTRUCTIONS

Single conductor cables and assemblies of single conductor cables shall use conductors not smaller than 8 AWG and not larger than 1,000 kcmil. The conductors of a duplex assembly shall be of the same size. When allowed, the neutral in an assembly of three cables for use in single-phase 3-wire circuits, or the neutral in an assembly of four cables, may be reduced but shall not be less than 50% of the cross-sectional area of one phase conductor. The neutral shall be insulated if the conductor is aluminum and may be bare or insulated if the conductor is copper.

1.3 DESIGN OPTIONS

The user of this standard should recognize that it covers many options. The user should select the necessary options required for a complete description of the desired cable.

1.3.1 Conductors

See Section 2.
Metal – aluminum 1350, AA-8000 series aluminum alloy, copper.
Size – 8 AWG to 1000 kcmil

1.3.2 Insulation

See Section 3.
90 °C Rated

1.3.3 Neutral

See Section 2.
Insulated aluminum, bare copper, insulated copper

1.3.4 Assembly

See Section 4.
Twisted or parallel - Two or more insulated conductors without an overall covering.

1.4 OPERATING CONDITIONS

The design and construction of the cable shall be such that the cable will operate satisfactorily under maximum conductor temperatures as shown in Table 1-1.