UL 854

STANDARD FOR SAFETY

Service-Entrance Cables

UL Standard for Safety for Service-Entrance Cables, UL 854

Twelfth Edition, Dated January 10, 2020

Summary of Topics

This new edition of ANSI/UL 854 dated January 10, 2020 includes the following changes in requirements:

– Clarification of Requirements, Revised 20.1, Table 14.2 and Table 18.1

– Sunlight Resistance Requirements, Reorganized Section 30 and Editorial Changes to Cross-References, Revised 1.6, 17.1.1 and 40.8

– Deletion of Marker Threads, Revised 37.3.2 and 47.1;

– Editorial Correction to Cross-References in 14.1

– Other Miscellaneous Editorial Corrections

The revised requirements are substantially in accordance with Proposal(s) on this subject dated April 19, 2019 and September 6, 2019.

No Text on This Page

UL 854

Standard for Service-Entrance Cables

First Edition – April, 1937
Second Edition – October, 1966
Third Edition – March, 1969
Fourth Edition – July, 1971
Fifth Edition – June, 1975
Sixth Edition – June, 1979
Seventh Edition – February, 1987
Eighth Edition – May, 1991
Ninth Edition – May, 1996
Tenth Edition – December, 1999
Eleventh Edition – October, 2004

Twelfth Edition

January 10, 2020

This ANSI/UL Standard for Safety consists of the Twelfth Edition.

The most recent designation of ANSI/UL 854 as an American National Standard (ANSI) occurred on January 10, 2020. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

The Department of Defense (DoD) has adopted UL 854 on April 23, 1984. The publication of revised pages or a new edition of this Standard will not invalidate the DoD adoption.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at https://csds.ul.com.

No Text on This Page

CONTENTS

INTRODUCTION

CONSTRUCTION

CONDUCTORS

INSULATION AND INDIVIDUAL JACKET

ASSEMBLY OF JACKETED MULTIPLE-CONDUCTOR TYPE USE AND USE-2 CABLES AND OF TYPE SE CABLE

ASSEMBLY OF COVERLESS MULTIPLE-CONDUCTOR TYPE USE AND USE-2 CABLES

ASSEMBLY OF SUBMERSIBLE PUMP CABLES

PERFORMANCE

IDENTIFICATION

REPETITION OF PRINTING

POLARITY

MARKING

CABLE TYPE

No Text on This Page

INTRODUCTION

1 Scope

1.1 These requirements cover Type USE and USE-2 (below-ground) and Type SE (above-ground) power cables for installation in accordance with Article 338 and other applicable parts of the National Electrical Code (NEC). These cables are for the service-entrance and other (NEC) uses described in 1.4 – 1.8. In a multiple-conductor cable that is other than submersible-pump cable and does not have a grounding conductor it is appropriate to have one circuit conductor without insulation. It is also appropriate for a submersible pump cable to have a grounding conductor and for Type USE and USE-2 cables to have an insulated grounding conductor. Each insulated conductor in these cables is rated for 600 V. Type USE cable has thermoset insulation, except for the HDPE portion of HDPE-over-XL insulation where used for single-conductor Type USE cable. Type SE cable has thermoset or thermoplastic insulation.

1.2 These cables have insulation of solid, extruded dielectric material(s) that are for use in wet locations at 75°C (167°F) and lower temperatures. Cables that are marked with a conductor type that includes the letters "HH" have insulation that is for use in dry locations at temperatures as high as 90°C (194°F) as well as in wet locations at 75°C (167°F) and lower temperatures. Cables that are marked with a conductor type that includes "-2" have insulation that is for use in wet or dry locations at temperatures as high as 90°C (194°F).

1.3 Cables containing any conductor that is of a metal other than copper are marked to identify the metal as aluminum or copper-clad aluminum. Aluminum single-rated (see 1.4) Type USE or USE-2 cables containing other than solid 12, 10 or 8 AWG conductor(s) are of an EC-1350 grade aluminum alloy or a registered AA-8000 series electrical-conductor-grade aluminum alloy. In all other cables, the aluminum conductor(s) are of a registered AA-8000 electrical-conductor-grade alloy only.

1.4 "Single-rated" Type USE cable is single-conductor, jacketed or coverless multiple-conductor, and submersible-pump cable without any indication of the conductor type letters on type cable, on the individual conductor(s), or on the tag, reel or carton. "USE" is the only type designation associated with the cable. See 40.4.

1.5 Type SE cables that are not marked with conductor type letters or are marked with conductor type letters alone ("XHHW", "RHW", or "RHH OR RHW" not followed by "cdrs" or the like) have insulated conductors that do not comply with the Thermoset-Insulated Wires and Cables, UL 44, horizontal flame test. Type SE cables that are marked for use in cable trays comply with a 70,000 Btu/h (20.5 kW) vertical-tray flame test as described in Sections 4 – 11 of the Standard for Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables, UL 1685 or the FT4/IEEE 1202 flame test as described in Sections 12 – 19 of UL 1685. Smoke measurements are not applicable. See 31.1.

1.6 The outer surface of each single- and multiple-conductor cable that is marked for sunlight-resistance use and the outer surface of each Type SE cable that is marked for sunlight-resistance use in cable trays complies with a 720 h sunlight-resistance test. Each insulated conductor under an overall covering on such multiple-conductor cable complies with a 300 h sunlight-resistance test. All other cables are not marked "sunlight resistant" however they comply with a 300 h or equivalent (see 30.3.2) sunlight-resistance test (each insulated conductor complies and, except in the case of submersible pump cable, any overall covering also complies).

1.7 Type USE and USE-2 cables are single-conductor in sizes through 2000 kcmil or are flat or round multiple-conductor in sizes through 4/0 AWG copper, 300 kcmil aluminum or copper-clad aluminum jacketed and through 2000 kcmil coverless. Type USE and USE-2 cables are not required to comply with a cable flame test. Jacketed multiple-conductor Type USE and USE-2 cables have 1 – 5 insulated conductors of the same size with or without an uninsulated grounded conductor that, in some cases, is smaller than the insulated conductors. It is appropriate to include one insulated equipment-grounding conductor that is, in some cases, smaller than the circuit conductors in a cable with no uninsulated