

ICS 29.060.20

CCS K 13



**NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**GB/T 31840.3-2025**

Replacing GB/T 31840.3-2015

**Aluminium alloy power cables with extruded insulation for rated  
voltages from 1 kV up to 35 kV - Part 3: Cables for rated voltage  
35 kV**

额定电压1kV ( $U_m=1.2\text{kV}$ ) 到35kV ( $U_m=40.5\text{kV}$ ) 铝合金芯挤包绝缘电力电缆  
第3部分：额定电压35kV ( $U_m=40\text{kV}$ ) 电缆

**Issued on: October 5, 2025**

**Implemented on: February 1, 2026**

**Issued by: State Administration for Market Regulation;  
Standardization Administration of the PRC**

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## Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting. This document is GB/T 31840 "Aluminum Alloy Core Extruded Insulation with Rated Voltage of 1kV ( $U_m=1.2\text{kV}$ ) to 35kV ( $U_m=40.5\text{kV}$ )". Part 3 of GB/T 31840, "Power Cables," has been published, including the following parts.

1. Cables with rated voltages of 1kV ( $U_m=1.2\text{kV}$ ) and 3kV ( $U_m=3.6\text{kV}$ );

2. Cables with rated voltages from 6kV ( $U_m=7.2\text{kV}$ ) to 30kV ( $U_m=36\text{kV}$ );

3. Cables with a rated voltage of 35kV ( $U_m=40.5\text{kV}$ ). This document replaces GB/T 31840.3-2015 "Aluminum Alloys with Rated Voltages from 1kV ( $U_m=1.2\text{kV}$ ) to 35kV ( $U_m=40.5\text{kV}$ )". "Core-Extruded Insulated Power Cables Part

3. Cables with Rated Voltage of 35kV ( $U_m=40.5\text{kV}$ )" is consistent with GB/T 31840.3-2015. Compared to previous versions, aside from structural adjustments and editorial changes, the main technical changes are as follows:

---Thermoplastic polypropylene insulation material has been added (see 4.2);

---Added halogen-free flame-retardant sheath material ST8 (see 4.3);

---Product naming has been added (see Chapter 5);

---The requirement for conductor structure type has been removed (see

5.2 in the.2015 edition);

---The technical requirements for the overlap ratio of metal shielding tape have been revised (see 10.2.2.2,.2015 version of 10.2.2);

---The technical requirements for the thickness of non-metallic sheaths have been revised (see 11.3,

13.3 in the.2015 edition);

## 1 Scope

GB/T 31840.3-2025 is the Chinese national standard covering the 35 kV aluminium alloy cable - the conductor alloy and its creep behaviour at a termination, the insulation thickness and the screening, the electrical type tests, and the bending and connection requirements that differ from copper. At 24,500 words. Part 3 of the series. It replaces GB/T 31840.3-2015, under the China Electricity Council. In force from 1 February 2026. Issued on 5 October 2025, it has been in force since 1 February 2026, replacing GB/T 31840.3-2015.

This document specifies the voltage markings and materials for 35kV ( $U_m=40.5kV$ ) aluminium alloy core extruded insulated power cables. Product naming, conductor, insulation, shielding, cable core, inner lining and filler, metal layer, outer sheath, inspection rules, markings, labels and accompanying documents, packaging The requirements for loading, transportation, and storage are described, along with the corresponding test methods. This document applies to aluminum alloy core extruded insulated power cables with a rated voltage of 35kV ( $U_m=40.5kV$ ) for fixed installation. This document does not apply to cables under special installation and operating conditions, such as overhead cables, mining industry cables, and nuclear power plants (within containment and surrounding areas). (Near) and underwater or ship cables.

## 2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 2951.11-2008 General Test Methods for Insulation and Sheath Materials of Cables and Optical Fibers - Part

## 11 General Test Methods Methods

--- Thickness and Dimensional Measurement

--- Mechanical Property Testing

GB/T 2951.12-2008 General Test Methods for Insulation and Sheath Materials of Cables and Optical Fibers - Part

## 12 General Test Methods Method

---Thermal Aging Test

GB/T 2951.13-2008 General Test Methods for Insulation and Sheath Materials of Cables and Optical Fibers - Part

13.General Test Methods Methods for determining density. water absorption test, shrinkage test.

GB/T 2951.14-2008 General Test Methods for Insulation and Sheath Materials of Cables and Optical Fibers - Part

## 14 General Test Methods Method

---Low Temperature Test

GB/T 2951.21-2008 General Test Methods for Insulation and Sheath Materials of Cables and Optical Fibers - Part

21.Elastomer Compounds Test methods. ozone resistance test, heat stretching test, mineral oil immersion test.

GB/T 2951.31-2008 General Test Methods for Insulation and Sheath Materials of Cables and Optical Fibers - Part

31.Polyvinyl Chloride Blends Specialized test methods

---High temperature pressure test

---Crack resistance test

GB/T 2951.32-2008 General Test Methods for Insulation and Sheath Materials of Cables and Optical Fibers - Part

32.Polyvinyl Chloride Blends Specialized test methods

--- weight loss test

--- thermal stability test

GB/T 2951.41-2008 General Test Methods for Insulation and Sheath Materials of Cables and Optical Fibers - Part

41.Polyethylene and Polypropylene Special test methods for mixtures. environmental stress cracking test, melt index measurement method, direct combustion method for measuring

carbon black and... (or) Thermogravimetric analysis (TGA) to measure carbon black content; microscopic assessment of carbon black dispersion in polyethylene.

GB/T 3048.4 Electrical Performance Test Methods for Wires and Cables - Part 4: DC Resistance Test of Conductors

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